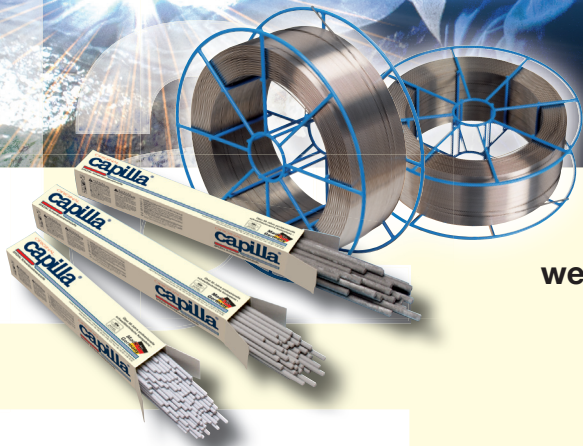


# capilla®

## Catalogue



**SPECIAL**  
welding consumables



65 years of expertise in professional welding technology

**capilla special welding consumables**

“Made in Germany”

**capilla**® Schweissmaterialien GmbH  
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Publication of this overall catalogue supersedes any previous versions.

Data regarding the properties or use of our products is provided for the user's own information. Information regarding mechanical properties always applies to the pure weld metal, in accordance with valid standards. The properties of the weld metal are affected by factors such as the base material, the welding position, the welding parameters and heat control in weld joints and deposition welding. Therefore, the actual determined properties of the weld metal may differ from the values listed.

The tensile strength and other strength properties in wear-resistant alloyed welding consumables are only approximate, meaning they cannot be used for calculations / simulations.

Any guarantee of suitability for a particular purpose always requires an express written agreement.

We reserve the right to make technical changes and engage in ongoing product development.

**Issue: 01.2025**

## capilla

### – welding the future

For well over 60 years **capilla**, from the Ostwestfalen-Lippe region, has been a leading pioneer in welding, joining, corrosion protection, and wear protection technology. After rapidly developing from a producer and supplier of electrodes and welding consumables - primarily for the areas of tool and mould construction as well as stone working, pit and surface mining – to production of high alloy welding consumables, as well as obtaining a wide range of approvals and qualifications, today the name **capilla** stands for system supplier competence in welding technology.

Customers and partners from retail, industry, and trade worldwide trust the **capilla** brand, the no. 1 for challenging tasks and applications.

Rapid reaction times by the **capilla** team and technical problem solving guarantee you high process and planning reliability in all of your welding technology applications. Quick processing and delivery in moderate minimum purchase quantities also ensure outstanding flexibility for your own inventory.

Many products produced by **capilla** are specially adjusted to meet customers' needs in the **capilab**, or developed on short notice and fine-tuned to an upcoming task. **capilla** develops, designs, and produces welding consumables such as stick electrodes, wires, rods, solders, and powders, as well as wear protection plates, assemblies, replacement and wear parts that meet the highest demands for wear and corrosion protection, as well as temperature resistance.

**capilla** delivers products to the machinery, mould and tool construction, forging steel, iron, glass, refractory, brick, concrete, cement and metallurgical industries worldwide, is also a competent partner to agriculture, road, railway and track superstructure, as well as pit and surface mining.

In addition, **capilla** has been focusing successfully on manufacturing and optimising functional and wear protection layers on components for many years. **capilla** offers this **capiFit**- and **capiTool**-service either on site or in house for partners from machinery, mould and tool construction, the die and forging industry, and for conveyor, shredder, mixing, separation and extrusion technology.

The **capilla** brand has consistently developed its good reputation over the last few decades through well-trained and motivated employees, reliability, flexibility, tenacity, and healthy and constant growth, as well as continuous process optimisation. Our employees and our passion for technology, paired with continuous, strategic investments in research and development of the latest technologies, have been the key to the success of the **capilla** brand-alongside our expertise, network, and broad product portfolio.

**capilla** welding consumables and products are available as stick electrodes, solid wires, flux-cored wires, rods, and powders. This catalogue contains a selection and overview of these welding consumables, with available diameters and delivery formats. Powders used for flame spraying, spray and fuse, HVOF, PTA, PPA and laser welding are available in a separate powder materials catalogue.

The **capilla** R&D team would also be happy to develop customised, new, multi-modular welding consumables for your specific requirements and tasks. Dealing with complex welding challenges and developing products and solution concepts tailored to your needs are all part of our everyday work.

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# Certificate

Management system as per  
**DIN EN ISO 9001:2015**



The Certification Body TÜV NORD CERT GmbH hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

**Capilla Schweissmaterialien GmbH**  
**Westring 48-50**  
**33818 Leopoldshöhe**  
**Germany**



operates a management system in accordance with the requirements of DIN EN ISO 9001:2015 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope

**Development, manufacture and sale of welding consumables**

Certificate Registration No. 04 100 960464  
Audit Report No. 3536 0716

Valid from 2024-02-20  
Valid until 2027-02-19  
Initial certification 1996



Visit our database to verify the validity of this certificate.

Essen, 2024-01-24

Certification Body at TÜV NORD CERT GmbH

TÜV NORD CERT GmbH  
Am TÜV 1, 45307 Essen  
www.tuev-nord-cert.com



Deutsche  
Akkreditierungsstelle  
D-ZM-12007-01-00

TÜV®

TÜVNORDGROUP

# 1 Welding consumables for welding of unalloyed to medium alloyed steels

## 1.1 Coated stick electrodes for welding of unalloyed to medium alloyed steels.

capilla	EN ISO	AWS A	Page
30 S	2560-A: E 42 0 RC 11	5.1: E 6013	9
30 W	2560-A: E 38 2 RB 12	5.1: E 6013	10
30-170	2560-A: E 42 0 RR 53	5.1: E 7024 - 1	11
49	2560-A: E 42 0 RR 12	5.1: E 6013	12
49 KBS	2560-A: E 38 2 B 12 H10	5.1: E 7016 H8	13
KB Mo	3580-A: E Mo B 22	5.5: E 7018 - A1	14
CrMo 1 Ti	3580-A: E Cr Mo 1 R 42	5.5: E 8018 - B2	15
CrMo B	3580-A: E Cr Mo 1 B 42	5.5: E 8018 - B2	16
CrMo 2 B	3580-A: E Cr Mo 2 B 42	5.5: E 9018 - B3	17
CrMoV 3	3580-B: 3C1MV		18
Crmo 5 B	3580-A: E CrMo 5 B 4 2 H5	5.5: E 8015 - B6	19

## 1.2 Wire electrodes for welding of unalloyed to medium alloyed steels

### 1.2.1 Solid wires for MIG/MAG welding of unalloyed to medium alloyed steels

capilla	EN ISO	AWS A	Page
30 MAG	14341-A: G 42 4 C1 / M21 3 Si 1	5.18: ER 70 S - 6	20
49 MAG	14341-A: G 46 4 C1 / M21 4 Si 1	5.18: ER 70 S - 6	21
SG Mo MAG	21952-A: G MoSi	5.28: ER 80 S - G	22
SG CrMo 1 MAG	21952-A: G CrMo 1 Si	5.28: ER 80 S - G	23
SG CrMo 2 MAG	21952-A: G CrMo 2 Si	5.28: ER 90 S - G	24
SG CrMo 5 MAG	21952-A: G CrMo 5 Si	5.28: ER 80 S - B6	25
SG NiMo MAG	16834-A: G 62 6 M21 Mn3Ni1Mo	5.28: ER 90 S - G	26
SG NiMoCr MAG	16834-A: G 69 4 M Mn3Ni1CrMo	5.28: ER 110 S - 1	27
690 F MAG	16834-A: G 69 4 M21 Mn3Ni1CrMo	5.28: ER 110 S - G	28

### 1.2.2 Welding rods for TIG welding of unalloyed to medium alloyed steels

capilla	EN ISO	AWS	Page
30 WIG	636-A: W 42 5 / W 3 Si 1	5.18: ER 70 S - 6	29
49 WIG	636-A: W 50 5 4Si1	5.18: ER 70 S - 6	30
SG Mo WIG	21952-A: W MoSi	5.28: ER 80 S - G	31
SG CrMo 1 WIG	21952-A: W CrMo 1 Si	5.28: ER 80 S - G	32
SG CrMo 2 WIG	21952-A: W CrMo 2 Si	5.28: ER 90 S - G	33
SG CrMo 5 WIG	21952-A: W CrMo 5 Si	5.28: ER 80 S - B6	34
SG NiMo WIG	16834-A: W 62 6 M/C Mn3Ni1Mo	5.28: ~ER 100 S - G	35
SG NiMoCr WIG	16834-A: W 69 4 M-Mn3Ni1CrMo	5.28: ER 110 S - 1	36
690 F WIG	16834-A: W 69 4 M-Mn3Ni1CrMo	5.28: ER 110 S - 1	37

### 1.2.3 Flux-cored wires for MIG/MAG welding of unalloyed to medium alloyed steels

capilla	EN ISO	AWS A	Page
30 K RLD	17632-A: T 38 Z W N 3	5.20: ~E 70 T - 4	38
G 460 MM	17632-A: T 46 6 M-M21 1 H5	5.18: E 70 C - 6M H4	39
G 460 PM	17632-A: T 46 6 P M21 1 H5	5.20: E 71 T - 9M - J H4	40
G 460 BM	17632-A: T 46 4 B M21 3 H5	5.20: E 71 T - 5M - J H8	41
G 690 BM	18276-A: T 69 6 Mn2NiCrMo B M21 3 H5	5.29: E 110 T5 - K4M J H4	42



**Standard designations:**

EN ISO 2560-A: E 42 0 RC 11  
 EN 499: E 42 0 RC 11  
 AWS A 5.1: E 6013

Approval: TÜV, DB

# capilla® 30 S

**Product description:**

Medium thick rutile-cellulose coated stick electrode for assembly and repair welds in all positions. For universal use; particularly well-suited for downhill welding.

Good gap bridging capability and ignitability.

Outstanding choice for welding sheet metal with scale, rust or priming.

The slag comes loose automatically if appropriate currents are selected.

**Applications:****Suitable for base materials such as:**

S 185 J0C - S 355 J0C,  
 P 235 GH, P 265 GH, P 295 GH,  
 P 210 N - P 360 N,  
 S 255 NH - S 355 NH,  
 P 255 NH - P 355 NH,  
 GS 38 - GS 52.

**Suitable for the following joint welds:**

General structural steels, pressure vessel steels, reinforced steels, boiler plates, pipe and tube steels, shipbuilding steels, fine-grained steels and cast steel.

**Indicative analysis [%]:**

C	Si	Mn	Fe
0,09	0,35	0,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	540 [MPa]	Elongation (L=5d):	22 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	440 [MPa]	Notch impact energy (ISO-V):	80 [J]

**Redrying:**

not applicable

**Current type:**

=(-) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	250	50 - 60
2,5	250/350	60 - 90
3,2	350	90 - 140
4,0	350/450	150 - 190
5,0	450	190 - 240

**Available alternatives:**

capilla 30 MAG

capilla 30 WIG

capilla 30 K RLD

**Standard designations:**

EN ISO 2560-A: E 38 2 RB 12  
 EN 499: E 38 2 RB 12  
 AWS A 5.1: E 6013

**capilla® 30 W****Product description:**

Rutile-basic coated stick electrode that is ideal for welding pipe roots in pipeline, tank and boiler construction.

Outstanding sculptural and climbing properties, even in positional welding.

The low Si-content of the weld metal makes it the perfect solution for subsequent galvanising or enamelling.

**Applications:****Suitable for base materials such as:**

S 185 J0C - S 355 J0C,  
 P 235 GH, P 265 GH, P 295 GH,  
 P 210 N - P 360 N,  
 S 255 NH - S 355 NH,  
 P 255 NH - P 355 NH,  
 GS 38 - GS 52.

**Suitable for the following joint welds:**

General structural steels, steel construction, boiler plates, pipe steels, shipbuilding steels, fine-grained steels and cast steel.

**Indicative analysis [%]:**

C	Si	Mn	Fe
0,08	0,30	0,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	520 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Notch impact energy (ISO-V):	80 [J]

**Redrying:**

not applicable

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	50 - 60
2,5	350	60 - 85
3,2	350	90 - 130
4,0	350/450	140 - 180
5,0	450	180 - 240

**Available alternatives:**

capilla 30 MAG

capilla 30 WIG

capilla 30 K RLD

**Standard designations:**

EN ISO 2560-A: E 42 0 RR 53  
 EN 499: E 42 0 RR 53  
 AWS A 5.1: E 7024 - 1

**capilla® 30-170**

Recovery: 165%

**Product description:**

Thick rutile coated high performance electrode.

Short welding times and large extruded lengths guarantee economical welding of fillet welds.

Stands out, for instance, due to its good ignitability and re-ignitability, finely scaled seam appearance and slag that falls off on its own.

In general, the electrode is welded in contact, allowing for the formation of an optimal concave fillet weld.

**Applications:****Suitable for base materials such as:**

S 185 J0C - S 355 J0C,  
 P 235 GH, P 265 GH, P 295 GH,  
 P 210 N - P 360 N,  
 S 255 NH - S 355 NH,  
 P 255 NH - P 355 NH,  
 GS 38 - GS 52.

**Suitable for the following joint welds:**

General structural steels, steel construction, boiler plates, pipe steels, shipbuilding steels, fine-grained steels and cast steel.

**Indicative analysis [%]:**

C	Si	Mn	Fe
0,08	0,40	0,65	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	520 [MPa]	Elongation (L=5d):	22 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	420 [MPa]	Notch impact energy (ISO-V):	80 [J]

**Redrying:**

not applicable

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
3,2	450	120 - 160
4,0	450	160 - 240
5,0	450	250 - 350

**Available alternatives:**

capilla 30 MAG

capilla 30 WIG

capilla 30 K RLD

**Standard designations:**

EN ISO 2560-A: E 42 0 RR 12  
 EN 499: E 42 0 RR 12  
 AWS A 5.1: E 6013

Approval: TÜV, DB

**capilla® 49**

**Product description:**

Thick rutile coated universal electrode for joint welds in almost any position.

The weld metal is finely scaled.

Slag falls off on its own.

Very low spatter.

Good ignitability and re-ignitability.

**Applications:**

**Suitable for base materials such as:**

S 235 JRG2 - S 355 J2,  
 P 235 GH, P 265 GH, P 295 GH,  
 P 355 N and P 355 M.

ASTM A36 and ASTM A53.

A106, A135, A283, A366, A285, A500,  
 A570, A607, A668, A907, A935, A936.

X42 - X56.

**Indicative analysis [%]:**

C	Si	Mn	Fe
0,08	0,40	0,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	510 [MPa]	Elongation (L=5d):	22 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	420 [MPa]	Notch impact energy (ISO-V):	60 [J]

**Redrying:**

not applicable

**Current type:**

=(-) / ~

**Positions: \*****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0*	250/300	50 - 75
2,5	350	70 - 105
3,2	350/450	100 - 140
4,0	350/450	140 - 180
5,0	450	180 - 260
6,0	450	280 - 370

\* Downhill welding (PG) possible

**Available alternatives:**

**capilla** 49 MAG  
**capilla** 49 WIG

**capilla** G 460 PM  
**capilla** G 460 BM

**capilla** G 460 MM  
**capilla** G 460 RM

**Standard designations:**

EN ISO 2560-A: E 38 2 B 12 H10  
 EN 499: E 42 4 B 12 H10  
 AWS A 5.1: E 7016 H8

**capilla® 49 KBS**

Approval: TÜV, DB

**Product description:**

Specialised electrode (double coated electrode) with very good welding properties and particularly well-suited for crack-free welds.

For operating temperatures from -40°C to 450°C.

Can be welded on DC and AC current.

Good slag release, low spatter.

**Applications:**

**Suitable for base materials such as:**

S 185 J0C - S 355 J0C,  
 P 235 GH, P 265 GH, P 295 GH,  
 P 235 TR2 - P 355 T2,  
 P 235 G1 TH, P 255 G1 TH,  
 L 210 - L 360 NB,  
 S 255 N - S 355 N.

GE 200, GE 240, GE 260.

**Indicative analysis [%]:**

C	Si	Mn	Fe
0,06	0,65	1,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Notch impact energy (ISO-V):	80 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]	Notch impact energy (ISO-V):	70 [J] (-20°C)
Elongation (L=5d):	25 [%]	Notch impact energy (ISO-V):	55 [J] (-30°C)

**Redrying:**

300°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	350	40 - 60
2,5	350	60 - 90
3,2	350/450	70 - 140
4,0	350/450	130 - 180
5,0	450	180 - 250

**Available alternatives:**

**capilla** 49 MAG  
**capilla** 49 WIG

**capilla** G 460 PM  
**capilla** G 460 BM

**capilla** G 460 MM  
**capilla** G 460 RM

**Standard designations:**

EN ISO 3580-A: E Mo B 22  
 EN 1599: E Mo B 22  
 AWS A 5.5: E 7018 - A1  
 Material no.: 1.5424

**capilla® KB Mo**

**Product description:**

Basic coated stick electrode for welding high carbon, heat-resistant boiler and pipe steels, among other materials.

Weld metal made of steel containing molybdenum.

For operating temperatures from -50°C to 550°C.

**Applications:**

**Suitable for joint welds and deposition welding on base materials such as:**

1.0481 (17 Mn 4),  
 1.0619 (GS-C 25),  
 1.5415 (16 Mo 3),  
 1.5419 (GS-22 Mo 4).

**Suitable for the joint welds in:**

Tank, boiler, steel, vehicle, ship and machine construction, and as a buffer layer.

**Indicative analysis [%]:**

C	Si	Mn	Mo	Fe
0,10	0,30	1,20	0,45	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	560 [MPa]	Elongation (L=5d):	22 [%]
Yield strength $R_{eH}/R_{p0,2}$ :	480 [MPa]	Notch impact energy (ISO-V):	100 [J]

**Redrying:**

300°C / 2h

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 90
3,2	350	115 - 135
4,0	450	150 - 175
5,0	450	190 - 240
6,0	450	200 - 270

**Available alternatives:**

capilla SG Mo MAG

capilla SG Mo WIG

**Standard designations:**

EN ISO 3580-A: E Cr Mo 1 R 42  
 EN 1599: E Cr Mo 1 R 42  
 AWS A 5.5: E 8018 - B2  
 Material no.: 1.7339

**capilla® CrMo 1 Ti**

**Product description:**

Rutile coated stick electrode for joint welds on boiler and pipe steels and similar CrMo-alloyed, compressed hydrogen-resistant steels.

For operating temperatures from -50°C to 550°C.

**Applications:**

**Suitable for joint welds of base materials such as:**

1.7218 (25 CrMo 4),  
 1.7221 (GS-25 CrMo 4),  
 1.7225 (42 CrMo 4),  
 1.7335 (13 CrMo 4 4),  
 1.7337 (16 CrMo 4 4),  
 1.7350 (22 CrMo 4 4),  
 1.7354 (GS-22 CrMo 5 4),  
 1.7357 (GS-17 CrMo 5 5).

**Suitable for deposition welding and joint welds on:**

Similar alloys of case-hardened and heat-treated steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,06	0,30	0,90	1,00	0,50	Balance

**Properties:** (stress relief annealing; indicative values at room temperature)

Tensile strength $R_m$ :	580 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0,2}$ :	490 [MPa]	Notch impact energy (ISO-V):	80 [J]

**Redrying:**

300°C / 2h

**Current type:**

=(-) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 90
3,2	350	115 - 135
4,0	350/450	150 - 175
5,0	450	190 - 240
6,0	450	200 - 270

**Available alternatives:**

capilla CrMo B

capilla SG CrMo 1 MAG

capilla SG CrMo 1 WIG

**Standard designations:**

EN ISO 3580-A: E Cr Mo 1 B 42  
 EN 1599: E Cr Mo 1 B 42  
 AWS A 5.5: E 8018 - B2  
 Material no.: 1.7339

**capilla® CrMo B**

**Product description:**

Basic coated CrMo-alloy stick electrode for welded joints on boiler and pipe steels, as well as similar CrMo-alloy, compressed hydrogen-resistant steels.

For operating temperatures up to 580°C.

**Suitable for deposition welding and joint welds on:**

Similar alloys of case-hardened and heat-treated steels.

**Applications:****Suitable for joint welds of base materials such as:**

1.7218 (25 CrMo 4),  
 1.7221 (GS-25 CrMo 4),  
 1.7225 (42 CrMo 4),  
 1.7335 (13 CrMo 4 4, 13 CrMo 4-5),  
 1.7337 (16 CrMo 4 4),  
 1.7350 (22 CrMo 4 4),  
 1.7354 (GS-22 CrMo 5 4),  
 1.7357 (GS-17 CrMo 5 5).

**Typical applications:**

Welds in the power plant field, high performance boilers, superheaters, equipment and fitting construction and in the chemicals industry.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,06	0,25	0,85	1,20	0,50	Balance

**Properties:** (Heat treatment: 690°C / 8h; indicative value at room temperature)

Tensile strength $R_m$ :	580 [MPa]	Elongation (L=5d):	22 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	490 [MPa]	Notch impact energy (ISO-V):	100 [J]

**Redrying:**

300°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 90
3,2	350	115 - 135
4,0	350	150 - 175
5,0	450	190 - 240
6,0	450	200 - 270

**Available alternatives:**

capilla CrMo 1 Ti

capilla SG CrMo 1 MAG

capilla SG CrMo 1 WIG

**Standard designations:**

EN ISO 3580-A: E Cr Mo 2 B 42  
 EN 1599: E Cr Mo 2 B 42  
 AWS A 5.5: E 9018 - B3  
 Material no.: 1.7384

**capilla® CrMo 2 B**

**Product description:**

Basic coated stick electrode for joint welds on boiler and pipe steels and similar CrMo-alloyed, compressed hydrogen-resistant steels.

Crack-resistant, ductile, strong weld metal. Stands out, among other properties, for its high creep strength.

Suitable for operating temperatures up to 600°C.

**Applications:**

**Suitable for joint welds of base materials such as:**

Boilerplates:  
 1.7380 (10 CrMo 9-10),  
 1.7383 (11 CrMo 9-10).

Cast steel:  
 1.7379 (G 17 CrMo 9-10).

**Suitable for deposition welding and joint welds on:**

same or similar alloyed case-hardened and heat-treated steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,07	0,25	0,70	2,20	0,90	Balance

**Properties:** (stress relief annealing; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	440 [MPa]	Notch impact energy (ISO-V):	100 [J]

**Redrying:**

300°C / 2h

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 90
3,2	350	115 - 135
4,0	350	150 - 175
5,0	450	190 - 240
6,0	450	200 - 270

**Available alternatives:**

capilla SG CrMo 2 MAG capilla SG CrMo 2 WIG

**Standard designations:**

EN ISO 3580-B: 3C1MV

**capilla® CrMoV 3****Product description:**

Basic coated CrMoV-alloyed stick electrode for welding steels of the same or similar types.

**Applications:****Suitable for joint welds of:**

heat and compressed hydrogen-resistant steels in boiler, tank and pipe construction.

**Suitable for welding:**

CrMoV-alloyed steels in the crude oil industry.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	V	Fe
0,09	0,30	0,60	3,00	1,00	0,25	Balance

**Properties:** (heat treatment: 705°C / 10h; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Elongation (L=5d):	18 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	570 [MPa]	Notch impact energy (ISO-V):	120 [J]

**Redrying:**

300°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 90
3,2	350	115 - 135
4,0	350	150 - 175
5,0	450	190 - 240

**Standard designations:**

EN ISO 3580-A: E CrMo 5 B 4 2 H5  
 AWS A 5.5: E 8015 - B6

**capilla<sup>®</sup> CrMo 5 B**

**Product description:**

Basic coated CrMo-alloyed stick electrode for welding steels of the same or similar types.

**Applications:**

**Suitable for base materials such as:**

1.7362 (12 CrMo 19-5).

**Suitable for joint welds of:**

heat and compressed hydrogen-resistant steels in boiler, tank and pipe construction.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,06	0,30	0,90	5,00	0,50	Balance

**Properties:** (stress relief annealing; indicative values at room temperature)

Tensile strength $R_m$ :	620 [MPa]	Elongation (L=5d):	22 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	490 [MPa]	Notch impact energy (ISO-V):	70 [J]

**Redrying:**

300°C / 2h

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 90
3,2	350	115 - 135
4,0	350	150 - 175
5,0	450	180 - 240

**Available alternatives:**

**capilla** CrMo 5 MAG

**capilla** CrMo 5 WIG

**Standard designations:**

EN ISO 14341-A: G 42 4 C1 / M21 3 Si 1  
 EN 440: G 42 4 / G 3 Si  
 AWS A 5.18: ER 70 S - 6  
 Material no.: 1.5125

Approval: TÜV, DB

# capilla® 30 MAG

**Product description:**

Solid wire for MIG/MAG welding of unalloyed and low alloy steels in steel, machinery, ship, equipment, and tank building.

Even material transition in short and spray arc welding; low-spatter.

**Applications:****Suitable for base materials such as:**

S 185 J0C - S 355 J0C,  
 P 235 GH, P 265 GH, P 295 GH,  
 P 120 N - P 360 N,  
 P 255 NH - P 355 NH,  
 GS 38 - GS 52.  
 ISO/TR 15608:  
 Groups: 1.1, 1.2.

**Suitable for the following joint welds:**

General structural steels, boiler plates, pipe and tube steels, shipbuilding steels, fine-grained steels and cast steel.

**Typical components:**

Tanks, containers, pipes, boilers, automotive, chemical and industrial sectors, etc.

**Indicative analysis [%]:**

C	Si	Mn	Fe
0,08	0,85	1,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	> 24 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]	Notch impact energy (ISO-V):	> 80 [J] (-40°C)

**Shielding gas (EN ISO 14175):** C1, M20, M21, M33 **Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,6
0,8
0,9
1,0
1,1
1,2
1,4
1,6

**Available alternatives:**

capilla 30 S

capilla 30 WIG

**Standard designations:**

EN ISO 14341-A: G 46 4 C1 / M21 4 Si 1  
 EN 440: G 46 2 / G 4 Si  
 AWS A 5.18: ER 70 S - 6  
 Material no.: 1.5130  
 Approval: TÜV, DB

**capilla® 49 MAG****Product description:**

Solid wire for MIG/MAG welding, for universal use, particularly well-suited for crack-free welds.

Low spatter material transition in short and spray arc.

High current carrying capacity and arc stability.

For operating temperatures from -40°C to 450°C.

**Applications:**

**Suitable for base materials such as:**

S 185 J0C - S 355 J0C,  
 P 235 GH, P 265 GH, P 295 GH,  
 P 120 N - P 360 N,  
 P 255 NH - P 355 NH,  
 GS 38 - GS 52.

ISO/TR 15608:  
 Groups: 1.1, 1.2.

**Indicative analysis [%]:**

C	Si	Mn	Fe
0,08	1,05	1,70	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	590 [MPa]	Elongation (L=5d):	26 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	500 [MPa]	Notch impact energy (ISO-V):	80 [J] (-40°C)

**Shielding gas (EN ISO 14175):** C1, M21

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,6
0,8
1,0
1,2
1,6

**Available alternatives:**

**capilla** 49 KBS  
**capilla** G 460 MM

**capilla** 49 WIG  
**capilla** G 460 PM

**capilla** G 460 BM

**Standard designations:**

EN ISO 21952-A: G MoSi  
 EN ISO 14341-A: G 42 4 C 1 2 Mo  
 AWS A 5.28: ER 80 S - G  
 Material no.: 1.5424

**capilla® SG Mo MAG**

**Product description:**

Solid wire made of low alloy Mo-steel for MIG/MAG welding of heat-resistant boiler and pipe steels.

For operating temperatures up to 500°C.

Can be welded in short and spray arc welding.

**Applications:**

**Suitable for base materials such as:**

P235 G1 TH - P255 G1 TH,  
 P235 GH - P310 GH,  
 16Mo3, L320,  
 L360 NB - L415 NB.

**Indicative analysis [%]:**

C	Si	Mn	Mo	Fe
0,10	0,60	1,15	0,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	500 - 600 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	420 [MPa]	Notch impact energy (ISO-V):	47 [J] (-40°C)

**Shielding gas (EN ISO 14175):** M21, C1

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla KB Mo

capilla SG Mo WIG

**Standard designations:**

EN ISO 21952-A: G CrMo 1 Si  
 EN 12070: G CrMo 1 Si  
 AWS A 5.28: ER 80 S - G  
 Material no.: 1.7339

**capilla® SG CrMo 1 MAG**

**Product description:**

Solid wire made of low alloy CrMo-steel for MIG/MAG welding on steels resistant to heat and compressed hydrogen.

For operating temperatures up to 570°C.

Pre-heating temperature from 200°C to 350°C.

Max. intermediate layer temperature of 350°C.

**Applications:****Suitable for base materials such as:**

1.7335 (13 CrMo 4 4),  
 1.7357 (GS-17 CrMo 5 5),  
 1.7337 (16 CrMo 4 4),  
 1.7218 (25 CrMo 4, GS-25 CrMo 4),  
 1.7350 (22 CrMo 4 4),  
 1.7354 (GS-22 CrMo 5 4),  
 1.7225 (42 CrMo 4).

**Suitable for deposition welding and joint welds on:**

similar alloys of case-hardened and heat-treated steels, boiler construction and pipe steels, as well as similar CrMo-alloyed steels.

**Indicative analysis [%]:**

C	Si	Mr	Cr	Mo	Fe
0,09	0,60	1,05	1,10	0,50	Balance

**Properties:** (heat treatment: 600°C/1/2h; indicative values at room temperature)

Tensile strength $R_m$ :	510 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	355 [MPa]	Notch impact energy (ISO-V):	47 [J]

**Shielding gas (EN ISO 14175):** M11 - M33, C1

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla CrMo 1 Ti

capilla CrMo B

capilla SG CrMo 1 WIG

**Standard designations:**

EN ISO 21952-A: G CrMo 2 Si  
 EN 12070: G CrMo 2 Si  
 AWS A 5.28: ER 90 S - G  
 Material no.: 1.7384

**capilla® SG CrMo 2 MAG**

**Product description:**

Solid wire made of low alloy CrMo-steel for MIG/MAG welding on steels resistant to heat.

For operating temperatures up to 600°C.

Pre-heating temperature from 200°C to 350°C.

Max. intermediate layer temperature of 350°C.

**Applications:**

**Suitable for joint welds of base materials such as:**

1.7259 (26 CrMo 7),  
 1.7273 (24 CrMo 10),  
 1.7276 (10 CrMo 11),  
 1.7281 (16 CrMo 9 3),  
 1.7380 (10 CrMo 9 10),  
 1.7380 (GS-12 CrMo 9 10),  
 1.8075 (10 CrSiMo V7).

**Suitable for deposition welding and joint welds on:**

Similar alloys of case-hardened and heat-treated steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,09	0,55	0,90	2,55	1,00	Balance

**Properties:** (heat treatment: 700°C/1/2h; indicative values at room temperature)

Tensile strength $R_m$ :	640 [MPa]	Elongation (L=5d):	22 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	460 [MPa]	Notch impact energy (ISO-V):	140 [J]

**Shielding gas (EN ISO 14175):** M11, M23, M32, M21 **Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2

**Available alternatives:**

capilla CrMo 2 B

capilla SG CrMo 2 WIG

**Standard designations:**

EN ISO 21952-A: G CrMo 5 Si  
 EN 12070: G CrMo 5 Si  
 AWS A 5.28: ER 80 S - B6  
 Material no.: 1.7373

**capilla® SG CrMo 5 MAG**

**Product description:**

Solid wire made of CrMo-steel for MIG/MAG welding on steels resistant to heat and hydrogen.

For operating temperatures up to 600°C.

**Applications:**

**Suitable for base materials such as:**

1.7362 (2 Cr Mo 19 5),  
 1.7363 (GX 12 CrMo 5).

**Suitable for deposition welding and joint welds on:**

similar alloys of case-hardened and heat-treated steels, boiler construction and pipe steels, as well as similar CrMo-alloyed steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,08	0,35	0,55	6,00	0,65	Balance

**Properties:** (stress relief annealing; indicative values at room temperature)

Tensile strength $R_m$ :	620 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	520 [MPa]	Notch impact energy (ISO-V):	47 [J]

**Shielding gas (EN ISO 14175):** M22

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla CrMo 5 B

capilla SG CrMo 5 WIG

**Standard designations:**

EN ISO 16834-A: G 62 6 M21 Mn3Ni1Mo  
 AWS A 5.28: ER 90 S - G

**capilla® SG NiMo MAG**

**Product description:**

Solid wire made of low alloy steel for MIG/MAG welding of heat-treated and thermally-mechanically treated fine grain steels, as well as high-strength, heat-resistant structural steels.

Weld metal has outstanding toughness at low temperatures, regardless of the inert gas used (CO<sub>2</sub> and mixed gas).

For operating temperatures from -30°C to 350°C.

**Applications:**

**Suitable for base materials such as:**

S550QL - S620QL,  
 S420N - S500N,  
 P420NH - P500NH,  
 S420NL - S500NI.

15 NiCuMoNb 5, 20 MnMoNi 55.

**Indicative analysis [%]:**

C	Si	Mn	Ni	Mo	Fe
0,10	0,65	1,55	1,10	0,40	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength R <sub>m</sub> :	700 [MPa]	Elongation (L=5d):	18 [%]
Yield strength R <sub>eH</sub> /R <sub>p0.2</sub> :	620 [MPa]	Notch impact energy (ISO-V):	47 [J] (-60°C)

**Shielding gas (EN ISO 14175):** M20, M21, C1

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla SG NiMo WIG

**Standard designations:**

EN ISO 16834-A: G 69 4 M Mn3Ni1CrMo  
 AWS A 5.28: ER 110 S - 1

**capilla® SG NiMoCr MAG**

**Product description:**

Solid wire for MIG/MAG deposition welding and welded joints of high-strength tempered fine grain steels.

Even material transition in short and spray arc welding; low-spatter and slag.

For operating temperatures from -40°C to 350°C. Intermediate layer temperature not over 200°C.

**Applications:**

**Suitable for base materials such as:**

S 690 QL 1 (N-A-XTRA 63),  
 S 690 QL 1 (N-A-XTRA 70),  
 S700MC (PAS 70).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,08	0,60	1,70	0,20	1,50	0,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	770 [MPa]	Elongation (L=5d):	17 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	690 [MPa]	Notch impact energy (ISO-V):	47 [J] (-40°C)

**Shielding gas (EN ISO 14175):** M21

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Standard designations:**

EN ISO 16834-A: G 69 4 M21 Mn3Ni1CrMo  
 AWS A 5.28: ER 110 S - G

**capilla® 690 F MAG**

**Product description:**

Solid wire made of low alloy steel for MIG/MAG welding on tempered fine grain steels.

Optimal welding properties under M21.

Can be welded in short and spray arc range.

For operating temperatures from -40°C to 350°C.  
 Intermediate layer temperature not over 200°C.

**Applications:**

**Suitable for base materials such as:**

S 690 QL 1,  
 S 700 MC,  
 S 420 N - S 500 N,  
 P 420 NH - P 500 NH,  
 S 420 NL - S 500 NL.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,09	0,55	1,80	0,40	1,60	0,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	770-940 [MPa]	Elongation (L=5d):	17 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	690 [MPa]	Notch impact energy (ISO-V):	47 [J] (-40°C)

**Shielding gas (EN ISO 14175):** M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Standard designations:**

EN ISO 636-A: W 42 5 / W 3 Si 1  
 AWS A 5.18: ER 70 S - 6  
 Material no.: 1.5125

**capilla® 30 WIG**

**Product description:**

Welding rod for TIG welding of low and unalloyed steels in steel construction, machinery construction, shipbuilding and equipment building.

Even material transition.

Ageing-resistant weld metal.

For operating temperatures from -50°C to 450°C.

**Applications:**

**Suitable for base materials such as:**

S 185 J0C - S 355 J0C,  
 P 235 GH, P 265 GH, P 295 GH,  
 P 210 N - P 360 N,  
 S 255 NH - S 355 NH,  
 P 255 NH - P 355 NH,  
 GS 38 - GS 52.

**Suitable for the following joint welds:**

General structural steels, boiler plates, pipe and tube steels, shipbuilding steels, fine-grained steels and cast steel.

**Indicative analysis [%]:**

C	Si	Mn	Fe
0,10	0,85	1,45	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	540 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	420 [MPa]	Notch impact energy (ISO-V):	47 [J] (-50°C)

**Shielding gas (EN ISO 14175):** I1

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla 30 S

capilla 30 MAG

**Standard designations:**

EN ISO 636-A: W 50 5 4Si1  
 EN 440: W 46 4 / W 4 Si 1  
 AWS A 5.18: ER 70 S - 6  
 Material no.: 1.5130

**capilla® 49 WIG****Product description:**

Welding rod made of low alloy steel for TIG welding on unalloyed and low alloy steels.

Particularly well-suited for crack-free welds.

For operating temperatures from -40°C to 450°C in all layers.

**Applications:**

**Suitable for base materials such as:**

S 185 J0C - S 355 J0C,  
 P 235 GH, P 265 GH, P 295 GH,  
 P 120 N - P 360 N,  
 P 255 NH - P 355 NH,  
 GS 38 - GS 52.

**Indicative analysis [%]:**

C	Si	Mn	Fe
0,11	0,80	1,70	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	620 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	500 [MPa]	Notch impact energy (ISO-V):	100 [J]

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,0	1000
3,2	1000

**Available alternatives:**

**capilla** 49 KBS  
**capilla** G 460 BM

**capilla** 49 MAG  
**capilla** G 460 MM

**capilla** 460 F MAG  
**capilla** G 460 PM

**Standard designations:**

EN ISO 21952-A: W Mo Si  
 EN ISO 636-A: W 46 4 W2Mo  
 AWS A 5.28: ER 80 S - G  
 Material no.: 1.5424

**capilla® SG Mo WIG**

**Product description:**

Welding rod made of low alloy Mo-steel for TIG welding of heat-resistant boiler and pipe steels.

For operating temperatures up to 500°C.

**Applications:**

**Suitable for base materials such as:**

P235 G1 TH - P255 G1 TH,  
 P235 GH - P310 GH,  
 16Mo3, L320,  
 L360 NB - L415 NB.

**Indicative analysis [%]:**

C	Si	Mn	Mo	Fe
0,10	0,60	1,15	0,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	530-680 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	460 [MPa]	Notch impact energy (ISO-V):	47 [J] (-40°C)

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

capilla KB Mo

capilla SG Mo MAG

**Standard designations:**

EN ISO 21952-A: W CrMo 1 Si  
 EN 12070: W CrMo 1 Si  
 AWS A 5.28: ER 80 S - G  
 Material no.: 1.7339

**capilla® SG CrMo 1 WIG**

**Product description:**

Welding rod made of low alloy CrMo-steel for TIG welding on steels resistant to heat and compressed hydrogen.

For operating temperatures up to 570°C.

Pre-heating temperature of 200°C to 350°C.

Max. intermediate layer temperature of 350°C.

**Applications:****Suitable for base materials such as:**

1.7218 (25 CrMo 4, GS-25 CrMo 4),  
 1.7225 (42 CrMo 4).  
 1.7335 (13 CrMo 4 4),  
 1.7337 (16 CrMo 4 4),  
 1.7350 (22 CrMo 4 4),  
 1.7354 (GS-22 CrMo 5 4),  
 1.7357 (GS-17 CrMo 5 5).

**Suitable for deposition welding and joint welds on:**

similar alloys of case-hardened and heat-treated steels, boiler construction and pipe steels, as well as similar CrMo-alloyed steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,10	0,60	1,00	1,10	0,50	Balance

**Properties:** (heat treatment: 600°C/1/2h; indicative values at room temperature)

Tensile strength $R_m$ :	510 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	355 [MPa]	Notch impact energy (ISO-V):	47 [J]

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla CrMo 1 Ti

capilla CrMo B

capilla SG CrMo 1 MAG

**Standard designations:**

EN ISO 21952-A: W CrMo 2 Si  
 EN 12070: W CrMo 2 Si  
 AWS A 5.28: ER 90 S - G  
 Material no.: 1.7384

**capilla® SG CrMo 2 WIG**

**Product description:**

Welding rod made of low alloy CrMo-steel for TIG welding on steels resistant to heat.

For operating temperatures up to 600°C.

Pre-heating temperature from 200°C to 350°C.

Max. intermediate layer temperature of 350°C.

**Applications:**

**Suitable for joint welds of base materials such as:**

1.7259 (26 CrMo 7),  
 1.7273 (24 CrMo 10),  
 1.7276 (10 CrMo 11),  
 1.7281 (16 CrMo 9 3),  
 1.7380 (10 CrMo 9 10),  
 1.7380 (GS-12 CrMo 9 10),  
 1.8075 (10 CrSiMo V7).

**Suitable for deposition welding and joint welds on:**

similar alloys of case-hardened and heat-treated steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,07	0,60	1,00	2,55	1,00	Balance

**Properties:** (heat treatment: 700°C/1/2h; indicative values at room temperature)

Tensile strength $R_m$ :	640 [MPa]	Elongation (L=5d):	22 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	460 [MPa]	Notch impact energy (ISO-V):	140 [J]

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla CrMo 2 B

capilla SG CrMo 2 MAG

**Standard designations:**

EN ISO 21952-A: W CrMo 5 Si  
 EN 12070: W CrMo 5 Si  
 AWS A 5.28: ER 80 S - B6  
 Material no.: 1.7373

**capilla® SG CrMo 5 WIG**

**Product description:**

Welding rod made of CrMo-steel for TIG welding on steels resistant to heat and compressed hydrogen.

For operating temperatures up to 600°C.

**Applications:**

**Suitable for base materials such as:**

1.7362 (2 Cr Mo 19 5),  
 1.7363 (GX 12 CrMo 5).

**Suitable for deposition welding and joint welds on:**

similar alloys of case-hardened and heat-treated steels, boiler construction and pipe steels, as well as similar CrMo-alloyed steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,08	0,35	0,55	6,00	0,55	Balance

**Properties:** (stress relief annealing; indicative values at room temperature)

Tensile strength $R_m$ :	620 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	520 [MPa]	Notch impact energy (ISO-V):	47 [J]

**Shielding gas (EN ISO 14175):** M22

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla CrMo 5 B

capilla CrMo 5 MAG

**Standard designations:**

EN ISO 16834-A: W 62 6 M/C Mn3Ni1Mo  
 AWS A 5.28: ~ER 100 S - G

**capilla® SG NiMo WIG**

**Product description:**

Low alloy welding rod for TIG joint welding of heat-treated fine grain structural steels and NiMo-alloyed steels.

Weld metal has outstanding toughness at low temperatures, regardless of the inert gas used (CO<sub>2</sub> and mixed gas).

**Applications:****Suitable for base materials such as:**

St 52, St 50, St 60, St 70,  
 StE420 - StE690,  
 S550QL - S620QL P550M,  
 15 NiCuMoNb 5, 20 MnMoNi 55.

**Suitable in areas such as:**

Pipe, tank and equipment construction.

**Indicative analysis [%]:**

C	Si	Mn	Ni	Mo	Fe
0,80	0,60	1,80	1,15	0,40	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength R <sub>m</sub> :	890 [MPa]	Elongation (L=5d):	18 [%]
Yield strength R <sub>eH</sub> /R <sub>p0.2</sub> :	620 [MPa]	Notch impact energy (ISO-V):	47 [J] (-60°C)

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000

Available alternatives:

capilla SG NiMo MAG

**Standard designations:**

EN ISO 16834-A: W 69 4 M-Mn3Ni1CrMo  
 AWS A 5.28: ER 110 S - 1

**capilla® SG NiMoCr WIG**

**Product description:**

Welding rod for TIG deposition welding and welded joints of high-strength tempered fine grain steels.

Even material transition.

For operating temperatures from -40°C to 350°C.  
 Intermediate layer temperature not over 200°C.

**Applications:**

**Suitable for base materials such as:**

S 690 QL 1 (N-A-XTRA 63),  
 S 690 QL 1 (N-A-XTRA 70),  
 S700MC (PAS 70).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,09	0,55	1,50	0,30	1,40	0,25	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	770 [MPa]	Elongation (L=5d):	17 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	690 [MPa]	Notch impact energy (ISO-V):	47 [J] (-40°C)

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,6	1000
2,0	1000
2,4	1000

**Standard designations:**

EN ISO 16834-A: W 69 4 M-Mn3Ni1CrMo  
 AWS A 5.28: ER 110 S - 1

**capilla® 690 F WIG**

**Product description:**

Welding rod made of low alloy steel for TIG welding on tempered fine grain steels.

For operating temperatures from -40°C to 350°C.

Intermediate layer temperature not over 200°C.

**Applications:**

**Suitable for base materials such as:**

S 690 QL 1,  
 S 700 MC,  
 S 420 N - S 500 N,  
 P 420 NH - P 500 NH,  
 S 420 NL - S 500 NL.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,09	0,55	1,80	0,40	1,60	0,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	790-940 [MPa]	Elongation (L=5d):	17 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	690 [MPa]	Notch impact energy (ISO-V):	47 [J] (-40°C)

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Standard designations:**

EN ISO 17632-A: T 38 Z W N 3  
 AWS A 5.20: ~E 70 T - 4

**capilla® 30 K RLD**

**Product description:**

Self-shielding flux-cored wire for welding unalloyed structural steels without inert gas.

Stable arc, even in a slight wind.

Suitable for construction site welding of welded seams without particular requirements for toughness.

High deposition rate (up to 20 kg/h).

High protection against cracking in the welded seam.

**Applications:****Suitable for base materials such as:**

S185 - S355,  
 P235GH - P355GH,  
 S275 - S420,  
 L210 - L415,  
 X42, X46, X52.

ISO/TR 15608:  
 Groups: 1.1, 1.2.

**Suitable for areas such as:**

Tank, equipment and steel construction.

**Indicative analysis [%]:**

C	Si	Mn	Al	Fe
0,20	0,20	0,55	1,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	610 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]		

**Shielding gas (EN ISO 14175):** not applicable

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4

**Available alternatives:**

capilla 30 S

capilla 30 MAG

**Standard designations:**

EN ISO 17632-A: T 46 6 M-M21 1 H5  
 AWS A 5.18: E 70 C - 6M H4

**capilla® G 460 MM**

Approval: TÜV, DB

**Product description:**

Seamless metal-cored wire for welding unalloyed structural and fine grain steels.

Weld metal has good mechanical-technological properties due to the lower hydrogen content.

**Applications:**

**Suitable for base materials such as:**

A, B, D, AH 32 - EH 36,  
 S185 - S355, A 106 size B, A 333 size 6,  
 P235GH - P355GH,  
 P235T1/T2 - P46NL2; L210 - L445MB,  
 S235 - S460QL1,  
 X42 - X60.

ISO/TR 15608:  
 Groups: 1.1, 1.2, 1.3, 2.1 and 3.1.

**Suitable for areas such as:**

Tank, equipment and steel construction.

**Indicative analysis [%]:**

C	Si	Mn	Fe
0,05	0,70	1,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	>20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	460 [MPa]	Notch impact energy (ISO-V):	≥47 [J] (-60°C)

**Shielding gas (EN ISO 14175):** M21

**Current type:**

=(+) / =(-)

**Positions:**



**Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Available alternatives:**

capilla 49 KBS  
 capilla G 460 PM

capilla 49 MAG  
 capilla G 460 BM

capilla 49 WIG

**Standard designations:**

EN ISO 17632-A: T 46 6 P M21 1 H5  
 AWS A 5.20: E 71 T - 9M - J H4

**capilla® G 460 PM**

Approval: TÜV, DB

**Product description:**

Seamless flux-cored wire with rapidly solidifying rutile slag for welding unalloyed structural and fine grain steels.

Weld metal has good mechanical-technological properties due to the lower hydrogen content.

Very well suited for positional welding.

**Applications:****Suitable for base materials such as:**

A, B, D, AH 32 - EH 36,  
 S185 - S355, A 106 size B, A 333 size 6,  
 P235GH - P355GH,  
 P235T1/T2 - P460NL2; L210 - L445MB,  
 S235 - S460QOL1,  
 X42 - X60.

ISO/TR 15608:

Groups: 1.1, 1.2, 1.3, 2.1 and 3.1.

**Suitable for areas such as:**

Tank, equipment and steel construction.

**Indicative analysis [%]:**

C	Si	Mn	Ni	Fe
0,05	0,50	1,30	0,40	Balance

**Properties:** (indicative values at room temperature; shielding gas M21)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	>20 [%]
Yield strength $R_{eH}/R_{p0,2}$ :	460 [MPa]	Notch impact energy (ISO-V):	47 [J] (-60°C)

**Shielding gas (EN ISO 14175):** M21, C1

**Current type:**

=(+ or pulsed

**Positions:**



**Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Available alternatives:**

capilla 49 KBS  
 capilla G 460 MM

capilla 49 MAG  
 capilla G 460 BM

capilla 49 WIG

**Standard designations:**

EN ISO 17632-A: T 46 4 B M21 3 H5  
 AWS A 5.20: E 71 T - 5M - J H8

**capilla® G 460 BM**

Approval: TÜV

**Product description:**

Seamless flux-cored wire with basic slag for welding unalloyed structural and fine grain steels.

Weld metal has good mechanical-technological properties due to the lower hydrogen content.

**Applications:****Suitable for base materials such as:**

A, B, D, AH 32 - EH 36,  
 S185 - S355, A 106 Gr.B, A333 Gr.6,  
 P235GH - P355GH,  
 P235T1/T2 - P460NL2; L210 - L445MB,  
 S235 - S460QL1,  
 X42 - X60.

ISO/TR 15608:  
 Groups: 1.1, 1.2, 1.3, 2.1 and 3.1.

**Suitable for areas such as:**

Tank, equipment and steel construction.

**Indicative analysis [%]:**

C	Si	Mn	Fe
0,05	0,60	1,40	Balance

**Properties:** (indicative values at room temperature; shielding gas M21)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	>20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	460 [MPa]	Notch impact energy (ISO-V):	47 [J] (-40°C)

Shielding gas (EN ISO 14175): M21, C1

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
1,2
1,6

Available alternatives:

capilla 49 KBS  
 capilla G 460 PM

capilla 49 MAG  
 capilla G 460 MM

capilla 49 WIG

**Standard designations:**

EN ISO 18276-A: T 69 6 Mn2NiCrMo  
 B M21 3 H5  
 AWS A 5.29: E 110 T5

**capilla® G 690 BM**

**Product description:**

Seamless, copper-plated flux-cored wire with basic slag for welding high-strength structural steels.

Weld metal has good mechanical-technological properties due to the low hydrogen content.

No moisture absorption and good wire feeding characteristics.

High ductility, high resistant to cracking, good toughness at low outdoor temperatures (to -50°C).

**Applications:****Suitable for base materials such as:**

S500QL - S690QL.

ISO/TR 15608:  
 Groups: 1.2, 1.3, 2.2 and 3.1.

**Suitable in areas such as:**

Tank and equipment construction.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,05	0,40	1,40	0,30	2,40	0,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	850 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	760 [MPa]	Notch impact energy (ISO-V):	60 [J] (-51°C)

**Shielding gas (EN ISO 14175):** M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

## 2 Welding consumables for welding of stainless and heat-resistant steels

### 2.1 Coated stick electrodes for welding of stainless and heat-resistant steel

capilla	EN ISO	AWS A	Mat. no.	Page
308 L	3581-A: E 19 9 LR 12	5.4: E 308 L - 16	1.4316	45
308 LR	3581-A: E 19 9 LR 12	5.4: E 308 L - 17	1.4316	46
308 L KB	3581-A: E 19 9 LB 12	5.4: E 308 L - 15	1.4316	47
308 Mo	3581-A: E 20 10 3 R 32	5.4: E 308 Mo - 17		48
347	3581-A: E 19 9 Nb R 32	5.4: E 347 - 16	1.4551	49
347 LR	3581-A: E 19 9 Nb R 12	5.4: E 347 - 17	1.4551	50
316 L	3581-A: E 19 12 3 LR 12	5.4: E 316 L - 16	1.4430	51
316 LF	3581-A: E 19 12 3 LR 12	5.4: E 316 L - 16	1.4430	52
316 LR	3581-A: E 19 12 3 LR	5.4: E 316 L - 17	1.4430	53
316 L KB	3581-A: E 19 12 3 LB 22	5.4: E 316 L - 15	1.4430	54
318	3581-A: E 19 12 3 Nb R 32	5.4: E 318 - 16	1.4576	55
318 LR	3581-A: E 19 12 3 Nb R 32	5.4: E 318 - 17	1.4576	56
317-17	3581-A: EZ 18 16 5 LR 32	5.4: ~E 317 L - 17	1.4440	57
2209	3581-A: E 22 9 3 N LR 32	5.4: E 2209 L - 16	1.4462	58
4460 Cu	3581-A: E 25 9 4 N LR 52	5.4: E 2593 - 16	~1.4501	59
4460 Cu B	3581-A: E 25 9 4 N LB 22	5.4: E 2595	~1.4501	60
4507	3581-A: E 25 9 3 Cu N LR 32	5.4: E 2593	1.4507	61
309 L	3581-A: E 23 12 LR 32	5.4: E 309 L - 16	~1.4332	62
309 LR	3581-A: E 23 12 LR 32	5.4: E 309 L - 17	~1.4332	63
309 L KB	3581-A: E 23 12 LB 32	5.4: ~E 309 L - 15	~1.4332	64
309 Mo	3581-A: E 23 12 2 LR 32	5.4: ~309L Mo - 26	1.4459	65
51 Ti	3581-A: EZ 18 8 Mn R 12	5.4: ~E 307 - 16	1.4370	66
4370 Ti	3581-A: E 18 8 Mn R 12	5.4: ~E 307 - 17	1.4370	67
51 KB	3581-A: E 18 8 Mn B 22	5.4: ~E 307 - 15	1.4370	68
51 KBN	3581-A: E 18 8 Mn B 32	5.4: ~E 307 - 15	1.4370	69
51 Mo	3581-A: E 18 9 MnMo R 12	5.4: ~E 307 - 16	~1.4370	70
52 K	3581-A: E 29 9 R 12	5.4: ~E 312 - 16	1.4337	71
52 K Mo	EN 14700: E Fe 11	5.4: E 312 - 17		72
310	3581-A: E 25 20 R 12	5.4: ~E 310 - 16	~1.4842	73
310 KB	3581-A: E 25 20 B 12	5.4: E 310 - 15	~1.4842	74
4455	3581-A: EZ 18 16 5 N LR 32	5.4: E 316 L Mn	~1.4455	75
4563	3581-A: EZ 27 31 4 Cu LR 32	5.4: ~E 383 - 16	1.4563	76
385	3581-A: E 20 25 5 Cu LR 32	5.4: E 385 L - 26	~1.4519	77

### 2.2 Wire electrodes for welding of stainless and heat-resistant steels

#### 2.2.1 Solid wires for MIG/MAG welding of stainless and heat-resistant steels

capilla	EN ISO	AWS A	Mat. no.	Page
308 L MAG	14343-A: G 19 9 L Si	5.9: ER 308 L Si	1.4316	78
347 MAG	14343-A: G 19 9 Nb Si	5.9: ~ER 347 Si	1.4551	79
316 L MAG	14343-A: G 19 12 3 L Si	5.9: ER 316 L Si	1.4430	80
318 MAG	14343-A: G 19 12 3 Nb Si	5.9: ER 318	1.4576	81
317 L MAG	14343-A: GZ 18 16 5 N L	5.9: ER 317-L	1.4440	82
2209 MAG	14343-A: G 22 9 3 N L	5.9: ~ER 2209	1.4462	83

## 2.2.1 Solid wires for MIG/MAG welding of stainless and heat-resistant steels

capilla	EN ISO	AWS A	Mat. no.	Page
4460 Cu MAG	14343-A: G 25 9 4 N L	5.9: ER 2594	~1.4501	84
309 L MAG	14343-A: G 23 12 L Si	5.9: ~ER 309 L Si	1.4332	85
51 MAG	14343-A: G 18 8 Mn	5.9: ~ER 307 (mod.)	1.4370	86
52 MAG	14343-A: G 29 9	5.9: ~ER 312	1.4337	87
310 MAG	14343-A: G 25 20	5.9: ER 310	1.4842	88
385 MAG	14343-A: G 20 25 5 Cu L	5.9: ~ER 385	1.4519	89

## 2.2.2 Welding rods for TIG welding of stainless and heat-resistant steels

capilla	EN ISO	AWS A	Mat. no.	Page
308 L WIG	14343-A: W 19 9 L Si	5.9: ER 308 L Si	1.4316	90
347 WIG	14343-A: W 19 9 Nb Si	5.9: ~ER 347 Si	1.4551	91
316 L WIG	14343-A: W 19 12 3 L Si	5.9: ER 316 L Si	1.4430	92
318 WIG	14343-A: W 19 12 3 Nb Si	5.9: ER 318	1.4576	93
317 L WIG	14343-A: WZ 18 16 5 N L	5.9: ER 317-L	1.4440	94
2209 WIG	14343-A: W 22 9 3 N L	5.9: ~ER 2209	1.4462	95
4460 Cu WIG	14343-A: W 25 9 4 N L	5.9: ER 2594	~1.4501	96
309 L WIG	14343-A: W 23 12 L Si	5.9: ~ER 309 L Si	1.4332	97
51 WIG	14343-A: W 18 8 Mn	5.9: ~ER 307 (mod.)	1.4370	98
52 WIG	14343-A: W 29 9	5.9: ~ER 312	1.4337	99
310 WIG	14343-A: W 25 20	5.9: ER 310	1.4842	100
385 WIG	14343-A: W 20 25 5 Cu L	5.9: ~ER 385	1.4519	101

## 2.2.3 Flux-cored wires for MIG/MAG welding of stainless and heat-resistant steels

capilla	EN ISO	AWS A	Mat. no.	Page
G 308 L RM	17633-A: T 19 9 L R M21 3 / T 19 9 L R C1 3	5.22: E 308 LT 1 - 4	1.4316	102
G 347 RM	17633-A: T 19 9 Nb R M21 3 / T 19 9 Nb R C1 3	5.22: E 347 T0 - 4	1.4551	103
G 316 L RM	17633-A: T 19 12 3 L R M21 2	5.22: E 316 LT 1 - 4	1.4430	104
G 318 RM	17633-A: T 19 12 3 Nb R M 3 / T 19 12 3 Nb R C 3	5.22: E318T0-4 / E318T0-1	1.4576	105
G 2209 RM	17633-A: T 22 9 3 N L R M21 3 / T 22 9 3 N L R C1 3	5.22: E2209T0 - 4	1.4462	106
G 309 L RM	17633-A: T 23 12 L R M21 3 / T 23 12 L R C1 3	5.22: E 309 L T0 - 4	1.4332	107
G 51 RM	17633-A: T 18 8 Mn R M21 3 / T 18 8 Mn R C1 3	5.22: E307T0-4 / E 307T0-1	1.4370	108
G 52 RM	17633-A: T 29 9 R M21 3 / T 29 9 R C1 3	5.22: E312T0-4 / E312T0-1	1.4337	109

**Standard designations:**

EN ISO 3581-A: E 19 9 LR 12  
 EN 1600: E 19 9 LR 12  
 AWS A 5.4: E 308 L - 16  
 Material no.: 1.4316

Approval: TÜV, DB

**capilla® 308 L**

**Product description:**

Rutile-basic coated stick electrode for welding of stainless austenitic, non-stabilised CrNi-steels with a particularly low carbon content.

For operating temperatures up to 350°C.  
 Heat- and scale-resistant up to 600°C.

**Applications:**

**Suitable for base materials such as:**

1.4300 (X 12 CrNi 18 8),  
 1.4301 (X 5 CrNi 18-10),  
 1.4303 (X 4 CrNi 18-12),  
 1.4306 (X 2 CrNi 19-11),  
 1.4308 (GX 5 CrNi 19-10),  
 1.4311 (X 2 CrNi 18-9),  
 1.4312 (GX 10 CrNi 18-8),  
 1.4371 (X 2 CrMnNi 17-7-5),  
 1.4541 (X 6 CrNiTi 18-10),  
 1.4543 (X 3 CrNiCuTiNb 12-9),  
 1.4550 (X 6 CrNiNb 18-10),  
 1.4552 (GX 5 CrNiNb 19-11).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,04	1,00	0,80	19,50	9,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	520 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	60 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+)/~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
1,6	250	30 - 50
2,0	300	40 - 60
2,5	300	50 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

**capilla** 308 LR  
**capilla** 308 L KB

**capilla** 308 L MAG  
**capilla** 308 L WIG

**capilla** G 308 L RM

**Standard designations:**

EN ISO 3581-A: E 19 9 LR 12  
 EN 1600: E 19 9 LR 12  
 AWS A 5.4: E 308 L - 17  
 Material no.: 1.4316

Approval: TÜV

**capilla® 308 LR**

**Product description:**

Rutile coated stick electrode for welding of stainless austenitic, non-stabilised CrNi-steels with a particularly low carbon content.

Good resistance to intercrystalline corrosion.

For operating temperatures from -78°C to 350°C.

Heat- and scale-resistant up to 700°C.

**Applications:**

**Suitable for base materials such as:**

1.4300 (X 12 CrNi 18 8),  
 1.4301 (X 5 CrNi 18-10),  
 1.4303 (X 4 CrNi 18-12),  
 1.4306 (X 2 CrNi 19-11),  
 1.4308 (GX 5 CrNi 19-10),  
 1.4311 (X 2 CrNiN 18-9),  
 1.4312 (GX 10 CrNi 18-8),  
 1.4371 (X 2 CrMnNiN 17-7-5),  
 1.4541 (X 6 CrNiTi 18-10),  
 1.4543 (X 3 CrNiCuTiNb 12-9),  
 1.4550 (X 6 CrNiNb 18-10),  
 1.4552 (GX 5 CrNiNb 19-11).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,04	0,90	0,80	19,50	9,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	520 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	60 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
1,6	250	30 - 50
2,0	300	40 - 60
2,5	300	50 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 308 L

capilla 308 L KB

capilla 308 L MAG

capilla 308 L WIG

capilla G 308 L RM

**Standard designations:**

EN ISO 3581-A: E 19 9 LB 12  
 EN 1600: E 19 9 LB 12  
 AWS A 5.4: E 308 L - 15  
 Material no.: 1.4316

**capilla® 308 L KB**

**Product description:**

Basic coated stick electrode for welding of stainless austenitic, non-stabilised CrNi-steels with a particularly low carbon content.

Good resistance to intercrystalline corrosion.

For operating temperatures up to 350°C.

Heat- and scale-resistant up to 600°C.

**Applications:**

**Suitable for base materials such as:**

1.4300 (X 12 CrNi 18 8),  
 1.4301 (X 5 CrNi 18-10),  
 1.4303 (X 4 CrNi 18-12),  
 1.4306 (X 2 CrNi 19-11),  
 1.4308 (GX 5 CrNi 19-10),  
 1.4311 (X 2 CrNiN 18-9),  
 1.4312 (GX 10 CrNi 18-8),  
 1.4371 (X 2 CrMnNiN 17-7-5),  
 1.4541 (X 6 CrNiTi 18-10),  
 1.4543 (X 3 CrNiCuTiNb 12-9),  
 1.4550 (X 6 CrNiNb 18-10),  
 1.4552 (GX 5 CrNiNb 19-11).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,04	1,00	1,00	19,50	10,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	510 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	60 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	50 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 308 L  
 capilla 308 LR

capilla 308 L MAG  
 capilla 308 L WIG

capilla G 308 L RM

**Standard designations:**

EN ISO 3581-A: E 20 10 3 R 32  
 AWS A 5.4: E 308 Mo - 17

**capilla® 308 Mo**

**Product description:**

Rutile-basic coated stick electrode for welding joints subject to cracking, such as ferritic, austenitic materials.

The weld metal is resistant to rust and acid.

The welding arc is stable.

The slag comes off automatically.

For operating temperatures from -80°C to 350°C.

Heat- and scale-resistant up to 700°C.

**Applications:****Suitable for strong joints between:**

Unalloyed and low alloy steels with stainless steel and cast steel types.

**Suitable for joint welds of:**

manganese steel.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,08	1,00	1,00	20,00	10,50	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Notch impact energy (ISO-V):	60 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	50 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Standard designations:**

EN ISO 3581-A: E 19 9 Nb R 32  
 EN 1600: E 19 9 Nb R 32  
 AWS A 5.4: E 347 - 16  
 Material no.: 1.4551

Approval: TÜV, DB

**capilla® 347**

**Product description:**

Rutile-basic coated stick electrode for welding Nb- and Ti-stabilised stainless austenitic steels.

Weld metal consists of stabilised austenitic CrNi-steel.

For operating temperatures up to 400°C.

Heat- and scale-resistant up to 800°C.

**Applications:**

**Suitable for base materials such as:**

1.4301 (X 5 CrNi 18 10),  
 1.4303 (X 5 CrNi 18 12),  
 1.4306 (X 2 CrNi 19 11),  
 1.4306 (G-X 2 CrNi 18 9),  
 1.4308 (G-X 6 CrNi 18 9),  
 1.4310 (X 12 CrNi 17 7),  
 1.4312 (G-X 10 CrNi 18 8),  
 1.4319 (X 5 CrNi 18 7),  
 1.4541 (X 6 CrNiTi 18 10),  
 1.4550 (X 6 CrNiNb 18 10),  
 1.4552 (G-X 5 CrNiNb 18 9).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Nb	Fe
0,08	1,00	0,80	19,50	10,00	8x %C	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Notch impact energy (ISO-V):	50 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
1,6	250	20 - 40
2,0	300	40 - 60
2,5	300	50 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 347 LR  
 capilla 347 H

capilla 347 WIG  
 capilla G 347 MR

capilla 347 MAG

**Standard designations:**

EN ISO 3581-A: E 19 9 Nb R 12  
 EN 1600: E 19 9 Nb R 12  
 AWS A 5.4: E 347 - 17  
 Material no.: 1.4551

**capilla® 347 LR****Product description:**

Rutile coated stick electrode for welding Nb- and Ti-stabilised stainless austenitic steels.

Weld metal consists of stabilised austenitic CrNi-steel.

For operating temperatures up to 400°C.

Heat- and scale-resistant up to 800°C.

**Applications:**

**Suitable for base materials such as:**

1.4301 (X 5 CrNi 18 10),  
 1.4303 (X 5 CrNi 18 12),  
 1.4306 (X 2 CrNi 19 11),  
 1.4306 (G-X 2 CrNi 18 9),  
 1.4308 (G-X 6 CrNi 18 9),  
 1.4310 (X 12 CrNi 17 7),  
 1.4312 (G-X 10 CrNi 18 8),  
 1.4319 (X 5 CrNi 18 7),  
 1.4541 (X 6 CrNiTi 18 10),  
 1.4550 (X 6 CrNiNb 18 10),  
 1.4552 (G-X 5 CrNiNb 18 9).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Nb	Fe
0,04	1,00	0,80	19,50	10,00	8x %C	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Notch impact energy (ISO-V):	50 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
1,6	250	20 - 40
2,0	300	40 - 60
2,5	300	50 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 347

capilla 347 H

capilla 347 WIG

capilla G 347 MR

capilla 347 MAG

**Standard designations:**

EN ISO 3581-A: E 19 12 3 LR 12  
 EN 1600: E 19 12 3 LR 12  
 AWS A 5.4: E 316 L - 16  
 Material no.: 1.4430

Approval: TÜV, DB

**capilla® 316 L**

**Product description:**

Rutile-basic coated stick electrode for welding stainless, austenitic, non-stabilized CrNiMo-steels with a particularly low carbon content.

For wet corrosion up to 400°C.

For operating temperatures up to 400°C.

**Applications:****Suitable for materials such as:**

1.4401 (X 5 CrNiMo 17 12 2),  
 1.4404 (X 2 CrNiMo 17 13 2),  
 1.4406 (X 2 CrNiMoN 17 12 2),  
 1.4408 (G-X 6 CrNiMo 18 10),  
 1.4420 (X 5 CrNiMo 18 11),  
 1.4435 (X 2 CrNiMo 18 14 3),  
 1.4436 (X 5 CrNiMo 17 13 3),  
 1.4571 (X 6 CrNiMoTi 17 12 2),  
 1.4573 (X 10 CrNiMoTi 18 12),  
 1.4580 (X 6 CrNiMoNb 17 12 2),  
 1.4581 (G-X 5 CrNiMoNb 18 10),  
 1.4583 (X 10 CrNiMoNb 18 12).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,02	1,00	0,80	18,50	11,50	2,60	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	70 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
1,6	250	30 - 50
2,0	300	40 - 60
2,5	300/350	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 316 LR  
 capilla 316 L MAG

capilla 316 LF  
 capilla 316 L WIG

capilla 316 L KB  
 capilla G 316 L RM

**Standard designations:**

EN ISO 3581-A: E 19 12 3 LR 12  
 EN 1600: E 19 12 3 LR 12  
 AWS A 5.4: E 316 L - 16  
 Material no.: 1.4430

**capilla® 316 LF****Product description:**

Rutile-basic coated stick electrode for welding of stainless austenitic CrNiMo-steels with a particularly low carbon content.

For operating temperatures up to 400°C.

Heat- and scale-resistant up to 600°C.

Suitable for welding in position PG (downhill welding).

**Applications:**

**Suitable for base materials such as:**

1.4401 (X 5 CrNiMo 17 12 2),  
 1.4404 (X 2 CrNiMo 17 13 2),  
 1.4406 (X 2 CrNiMoN 17 12 2),  
 1.4408 (G-X 6 CrNiMo 18 10),  
 1.4420 (X 5 CrNiMo 18 11),  
 1.4435 (X 2 CrNiMo 18 14 3),  
 1.4436 (X 5 CrNiMo 17 13 3),  
 1.4571 (X 6 CrNiMoTi 17 12 2),  
 1.4573 (X 10 CrNiMoTi 18 12),  
 1.4580 (X 6 CrNiMoNb 17 12 2),  
 1.4581 (G-X 5 CrNiMoNb 18 10),  
 1.4583 (X 10 CrNiMoNb 18 12).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,04	1,00	2,00	20,00	13,00	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	70 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
1,6	250	30 - 50
2,0	300	40 - 60
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 316 L  
 capilla 316 L MAG

capilla 316 LR  
 capilla 316 L WIG

capilla 316 L KB  
 capilla G 316 L RM

**Standard designations:**

EN ISO 3581-A: E 19 12 3 LR  
 EN 1600: E 19 12 3 LR  
 AWS A 5.4: E 316 L - 17  
 Material no.: 1.4430

Approval: TÜV

**capilla® 316 LR**

**Product description:**

Rutile coated stick electrode for welding of stainless austenitic CrNiMo-steels with a particularly low carbon content.

Developed for high-quality welded seams and easy handling on AC or DC.

The weld metal has a smooth and clean surface and slag that comes off on its own; low-spatter.

For operating temperatures from -196°C to 400°C.  
 Heat- and scale-resistant up to 600°C.

**Applications:**

**Suitable for base materials such as:**

1.4401 (X 5 CrNiMo 17 12 2),  
 1.4404 (X 2 CrNiMo 17 13 2),  
 1.4406 (X 2 CrNiMoN 17 12 2),  
 1.4408 (G-X 6 CrNiMo 18 10),  
 1.4420 (X 5 CrNiMo 18 11),  
 1.4435 (X 2 CrNiMo 18 14 3),  
 1.4436 (X 5 CrNiMo 17 13 3),  
 1.4571 (X 6 CrNiMoTi 17 12 2),  
 1.4573 (X 10 CrNiMoTi 18 12),  
 1.4580 (X 6 CrNiMoNb 17 12 2),  
 1.4581 (G-X 5 CrNiMoNb 18 10),  
 1.4583 (X 10 CrNiMoNb 18 12).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,04	1,00	0,80	19,00	12,50	2,80	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	70 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
1,6	250	30 - 50
2,0	300	40 - 60
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

**capilla** 316 L  
**capilla** 316 LF

**capilla** 316 L MAG  
**capilla** 316 L WIG

**capilla** 316 L KB  
**capilla** G 316 L RM

**Standard designations:**

EN ISO 3581-A: E 19 12 3 LB 22  
 EN 1600: E 19 12 3 LB 12  
 AWS A 5.4: E 316 L - 15  
 Material no.: 1.4430

**capilla® 316 L KB****Product description:**

Basic coated stick electrode for welding of stainless austenitic CrNiMo-steels with a particularly low carbon content.

For operating temperatures from -196°C to 400°C.  
 Heat- and scale-resistant up to 600°C.

**Applications:**

**Suitable for base materials such as:**

1.4401 (X 5 CrNiMo 17 12 2),  
 1.4404 (X 2 CrNiMo 17 13 2),  
 1.4406 (X 2 CrNiMoN 17 12 2),  
 1.4408 (G-X 6 CrNiMo 18 10),  
 1.4420 (X 5 CrNiMo 18 11),  
 1.4435 (X 2 CrNiMo 18 14 3),  
 1.4436 (X 5 CrNiMo 17 13 3),  
 1.4571 (X 6 CrNiMoTi 17 12 2),  
 1.4573 (X 10 CrNiMoTi 18 12),  
 1.4580 (X 6 CrNiMoNb 17 12 2),  
 1.4581 (G-X 5 CrNiMoNb 18 10),  
 1.4583 (X 10 CrNiMoNb 18 12).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,04	1,00	1,30	18,50	11,50	2,80	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	60 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 316 L  
 capilla 316 L MAG

capilla 316 LR  
 capilla 316 L WIG

capilla 316 LF  
 capilla G 316 L RM

**Standard designations:**

EN ISO 3581-A: E 19 12 3 Nb R 32  
 EN 1600: E 19 12 3 Nb R 32  
 AWS A 5.4: E 318 - 16  
 Material no.: 1.4576

Approval: TÜV, DB

**capilla® 318**

**Product description:**

Rutile-basic coated stick electrode for welding of stainless austenitic CrNiMo-steels with a particularly low carbon content.

For operating temperatures up to 400°C.  
 Heat- and scale-resistant up to 700°C.

**Applications:**

**Suitable for base materials such as:**

1.4401 (X 5 CrNiMo 17 12 2),  
 1.4404 (X 2 CrNiMo 17 13 2),  
 1.4408 (G-X 6 CrNiMo 18 10),  
 1.4420 (X 5 CrNiMo 18 11),  
 1.4435 (X 2 CrNiMo 18 14 3),  
 1.4436 (X 5 CrNiMo 17 13 3),  
 1.4571 (X 6 CrNiMoTi 17 12 2),  
 1.4573 (X 10 CrNiMoTi 18 12),  
 1.4580 (X 6 CrNiMoNb 17 12 2),  
 1.4581 (G-X 5 CrNiMoNb 18 10),  
 1.4583 (X 10 CrNiMoNb 18 12).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Nb	Fe
0,08	1,00	0,80	19,00	12,00	2,80	8x %C	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	440 [MPa]	Notch impact energy (ISO-V):	70 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
1,6	250	30 - 50
2,0	300	40 - 60
2,5	300	50 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 318 LR  
 capilla G 318 RM

capilla 318 MAG

capilla 318 WIG

**Standard designations:**

EN ISO 3581-A: E 19 12 3 Nb R 32  
 EN 1600: E 19 12 3 Nb R 32  
 AWS A 5.4: E 318 - 17  
 Material no.: 1.4576

Approval: TÜV

**capilla® 318 LR**

**Product description:**

Rutile coated stick electrode for welding of stainless austenitic CrNiMo-steels with a particularly low carbon content.

For operating temperatures up to 400°C.  
 Heat- and scale-resistant up to 700°C.

**Applications:**

**Suitable for base materials such as:**

1.4401 (X 5 CrNiMo 17 12 2),  
 1.4404 (X 2 CrNiMo 17 13 2),  
 1.4408 (G-X 6 CrNiMo 18 10),  
 1.4420 (X 5 CrNiMo 18 11),  
 1.4435 (X 2 CrNiMo 18 14 3),  
 1.4436 (X 5 CrNiMo 17 13 3),  
 1.4571 (X 6 CrNiMoTi 17 12 2),  
 1.4573 (X 10 CrNiMoTi 18 12),  
 1.4580 (X 6 CrNiMoNb 17 12 2),  
 1.4581 (G-X 5 CrNiMoNb 18 10),  
 1.4583 (X 10 CrNiMoNb 18 12).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Nb	Fe
0,08	1,00	0,80	19,00	12,00	2,80	6x %C	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	440 [MPa]	Notch impact energy (ISO-V):	70 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
1,6	250	30 - 50
2,0	300	40 - 60
2,5	300	50 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 318

capilla 318 MAG

capilla 318 WIG

capilla G 318 RM

**Standard designations:**

EN ISO 3581-A: EZ 18 16 5 LR 32  
 EN 1600: EZ 18 16 5 LR 32  
 AWS A 5.4: ~E 317 L - 17  
 Material no.: 1.4440

**capilla® 317-17****Product description:**

Rutile coated stick electrode for welding of stainless austenitic CrNiMo-steels.

For operating temperatures up to 400°C.

Due to its composition, the weld metal is highly resistant to intercrystalline and pitting corrosion, in particular in chloride media; non-magnetizable. Buffer layers for hardfacing.

Suitable for deposition welding and joint welds of corrosion-resistant, non-magnetizable steels of the same or similar types. Also suitable for joints between these steels with corrosion-resistant Cr-steels and with unalloyed and low alloy steels.

**Applications:**

**Suitable for base materials such as:**

1.3941 (X4CrNi18-13),  
 1.3952 (X2CrNiMoN18-14-3),  
 1.3953 (GX2CrNiMo 18-15),  
 1.3955 (GX12CrNi 18-11),  
 1.3958 (X5CrNi 18-11),  
 1.4406 (X2CrNiMoN 17-12-2),  
 1.4429 (X 2 CrNiMoN 17-13-3),  
 1.4435 (X2CrNiMo18-14-3),  
 1.4438 (X 2 CrNiMoN 18-16-4),  
 1.4439 (X 2 CrNiMoN 17-13-5),  
 1.4446 (GX2CrNiMoN 17-13-4),  
 1.4448 (GX6CrNiMo 17-3),  
 1.4449 (X3CrNiMo 18-12-3).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,04	1,00	1,20	18,00	17,50	4,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0,2}$ :	440 [MPa]	Notch impact energy (ISO-V):	70 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	50 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 317 MAG

capilla 317 WIG

**Standard designations:**

EN ISO 3581-A: E 22 9 3 N LR 32  
 EN 1600: E 22 9 3 N LR 32  
 AWS A 5.4: E 2209 L - 16  
 Material no.: 1.4462

**capilla® 2209**

Recovery: 120%

**Product description:**

Rutile-basic coated stick electrode for joint welds and deposition welding of duplex steels. (CrNiMo-alloy).

The weld metal has a ferritic-austenitic microstructure.

High resistance to wet corrosion in media containing H<sub>2</sub>S and chloride.

For operating temperatures up to 250°C.

**Applications:****Suitable for base materials such as:**

1.4362 (X 2 CrNiN 23-4),  
 1.4462 (X 2 CrNiMoN 22-5-3).

Highly corrosion-resistant steels of the same or similar composition.

**Suitable for mixed connections:**

1.4462 (X 2 CrNiMoN 22-5-3) with  
 1.4583 (X10 CrNiMoNb 18-12).

1.4462 (X 2 CrNiMoN 22-5-3) with  
 P2356H/ P265GH/ S255H/ P2956H/ S355N/ 16Mo3.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	N	Fe
0,04	1,00	0,60	22,50	9,00	3,00	0,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength R <sub>m</sub> :	550 [MPa]	Elongation (L=5d):	20 [%]
Yield strength R <sub>eH</sub> /R <sub>p0.2</sub> :	450 [MPa]	Notch impact energy (ISO-V):	40 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	80 - 120
4,0	350	110 - 170
5,0	450	160 - 210

**Available alternatives:**

capilla 2209 MAG

capilla 2209 WIG

**Standard designations:**

EN ISO 3581-A: E 25 9 4 N LR 52  
 EN 1600: EZ 25 9 3 Cu N LR 32  
 AWS A 5.4: E 2594 - 16  
 Material no.: ~1.4501

**capilla® 4460 Cu**

Recovery: 130%

**Product description:**

Rutile-basic coated stick electrode with austenitic-ferritic structure for deposition welding and welded joints of super duplex steels.

Highly resistant to intercrystalline corrosion (IC), stress and pitting corrosion.

Used anywhere where a combination of good corrosion resistance and high-strength is needed.

For operating temperatures up to 250°C.

**Applications:****Suitable for base materials such as:**

1.4515 (GX 3 CrNiMoCuN 26-6-3),  
 1.4517 (GX 3 CrNiMoCuN 26-6-3-3).

25% chromium superduplex steels  
 (SAF 25/07, Zeron 100).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	W	Cu	N	Fe
0,04	1,00	2,50	27,00	10,50	3,90	1,00	1,50	0,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	730 [MPa]	Elongation (L=5d):	23 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	550 [MPa]	Notch impact energy (ISO-V):	50 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	80 - 120
4,0	350	110 - 170
5,0	350	150 - 200

**Available alternatives:**

capilla 4460 Cu MAG

capilla 4460 Cu WIG

**Standard designations:**

EN ISO 3581-A: E 25 9 4 N LB 22  
 EN 1600: E 25 9 3 N LB 22  
 AWS A 5.4: E 2595  
 Material no.: ~1.4501

**capilla® 4460 Cu B****Product description:**

Basic coated stick electrode with austenitic-ferritic structure for deposition welding and welded joints of super duplex steels.

Highly resistant to intercrystalline corrosion (IC), stress and pitting corrosion.

Used anywhere where a combination of good corrosion resistance and high-strength is needed.

For operating temperatures up to 250°C.

**Applications:**

**Suitable for base materials such as:**

1.4515 (GX 3 CrNiMoCuN 26-6-3),  
 1.4517 (GX 3 CrNiMoCuN 26-6-3-3).

25% chromium superduplex steels  
 (SAF 25/07, Zeron 100).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	W	Cu	N	Fe
0,04	1,00	2,00	27,00	11,00	4,50	1,00	1,50	0,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	730 [MPa]	Elongation (L=5d):	23 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	550 [MPa]	Notch impact energy (ISO-V):	50 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	80 - 120
4,0	350	110 - 170

**Available alternatives:**

capilla 4460 Cu MAG

capilla 4460 Cu WIG

**Standard designations:**

EN ISO 3581-A: E 25 9 3 Cu N LR 32  
 EN 1600: E 25 6 3 Cu LR 32  
 AWS A 5.4: E 2593  
 Material no.: 1.4507

**capilla® 4507****Product description:**

Rutile-basic coated stick electrode for deposition welding and welded joints of super duplex steels with an austenitic-ferritic structure.

Highly resistant to intercrystalline corrosion (IC), stress and pitting corrosion.

Used anywhere where a combination of good corrosion resistance and high-strength is needed.

For operating temperatures up to 250°C.

**Applications:**

**Suitable for base materials such as:**

1.4515 (GX 3 CrNiMoCuN 26-6-3),  
 1.4517 (GX 3 CrNiMoCuN 26-6-3-3).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Cu	N	Fe
0,04	1,00	1,50	27,00	10,50	3,50	3,00	0,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	720 [MPa]	Elongation (L=5d):	15 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	530 [MPa]	Notch impact energy (ISO-V):	50 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150

**Available alternatives:**

capilla G 4507 RM

**Standard designations:**

EN ISO 3581-A: E 23 12 LR 32  
 EN 1600: E 23 12 LR 32  
 AWS A 5.4: E 309 L - 16  
 Material no.: ~1.4332

**capilla® 309 L****Product description:**

Rutile-basic coated stick electrode for joint welds on heat-resistant, same or similar type, but lower alloyed CrNi-steels.

For operating temperatures up to 350°C.

Heat- and scale-resistant up to 700°C.

The pure weld metal is scale-resistant up to 1000°C.

Suitable for deposition welds on unalloyed steels if an 18/8 CrNi-alloy is to be achieved in the first layer.

Suitable for joint welds of high alloy CrNi-steels with unalloyed and low alloy structural and tempered steels.

**Applications:****Suitable for base materials such as:**

1.4541 (X 6 CrNiTi 18-10),  
 1.4550 (X 6 CrNiNb 18-10),  
 1.4583 (X 10 CrNiMoNb 18 12),  
 1.4710 (G X 30CrSi 7),  
 1.4712 (X 10 CrSi 6),  
 1.4724 (X 10 CrAl 13),  
 1.4729 (G X 40 CrSi 13),  
 1.4740 (G X 40 CrSi 17),  
 1.4742 (X 10 CrAlSi 18),  
 1.4825 (G X 25 CrNiSi 18-9),  
 1.4826 (G X 40 CrNiSi 22-10),  
 1.4828 (X 15 CrNiSi 20-12),  
 1.4878 (X 8 CrNiTi 18-10).

**Suitable for cladding and buffer layers.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,04	0,90	2,50	25,00	14,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Notch impact energy (ISO-V):	55 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
1,6	250	30 - 50
2,0	300	40 - 60
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

**capilla** 309 L KB  
**capilla** 309 LR

**capilla** 309 L MAG  
**capilla** 309 L WIG

**capilla** G 309 L RM

**Standard designations:**

EN ISO 3581-A: E 23 12 LR 32  
 EN 1600: E 23 12 LR 32  
 AWS A 5.4: E 309 L - 17  
 Material no.: ~1.4332

**capilla® 309 LR**

**Product description:**

Rutile coated stick electrode for joint welds on the same or similar type, but lower alloyed CrNi-steels.

For operating temperatures up to 350°C.  
 Heat- and scale-resistant up to 700°C.  
 The pure weld metal is scale-resistant up to 1000 °C.

Suitable for deposition welds on unalloyed steels if an 18/8 CrNi-alloy is to be achieved in the first layer.

Suitable for joints of dissimilar steels of high alloy CrNi-steels with unalloyed and low alloy structural and tempered steels.

**Applications:**

**Suitable for joint welds of base materials such as:**

1.4541 (X 6 CrNiTi 18-10),  
 1.4550 (X 6 CrNiNb 18-10),  
 1.4583 (X 10 CrNiMoNb 18 12),  
 1.4710 (G X 30CrSi 7),  
 1.4712 (X 10 CrSi 6),  
 1.4724 (X 10 CrAl 13),  
 1.4729 (G X 40 CrSi 13),  
 1.4740 (G X 40 CrSi 17),  
 1.4742 (X 10 CrAlSi 18),  
 1.4825 (G X 25 CrNiSi 18-9),  
 1.4826 (G X 40 CrNiSi 22-10),  
 1.4828 (X 15 CrNiSi 20-12),  
 1.4878 (X 8 CrNiTi 18-10).

**Also suitable for cladding and buffer layers.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,04	0,90	2,50	25,00	14,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	520 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	55 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 309 L KB  
 capilla 309 L

capilla 309 L MAG  
 capilla 309 L WIG

capilla G 309 L RM

**Standard designations:**

EN ISO 3581-A: E 23 12 L B 32  
 EN 1600: E 23 12 L B 32  
 AWS A 5.4: ~E 309 L - 15  
 Material no.: ~1.4332

**capilla® 309 L KB**

**Product description:**

Basic coated stick electrode for joint welds on heat-resistant, same or similar type but lower alloyed CrNi-steels.

For operating temperatures from -60°C to 400°C.

Heat- and scale-resistant up to 600°C.  
 The pure weld metal is scale-resistant up to 1000 °C.

**Applications:****Suitable for base materials such as:**

1.4541 (X 6 CrNiTi 18-10),  
 1.4550 (X 6 CrNiNb 18-10),  
 1.4583 (X 10 CrNiMoNb 18 12),  
 1.4710 (G X 30CrSi 7),  
 1.4712 (X 10 CrSi 6),  
 1.4724 (X 10 CrAl 13),  
 1.4729 (G X 40 CrSi 13),  
 1.4740 (G X 40 CrSi 17),  
 1.4742 (X 10 CrAlSi 18),  
 1.4825 (G X 25 CrNiSi 18-9),  
 1.4826 (G X 40 CrNiSi 22-10),  
 1.4828 (X 15 CrNiSi 20-12),  
 1.4878 (X 8 CrNiTi 18-10).

**Suitable for joints, cladding and buffer layers.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,04	0,90	0,80	24,50	13,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Notch impact energy (ISO-V):	55 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 309 L  
 capilla 309 LR

capilla 309 L MAG  
 capilla 309 L WIG

capilla G 309 L RM

**Standard designations:**

EN ISO 3581-A: E 23 12 2 LR 32  
 EN 1600: E 23 12 2 LR 32  
 AWS A 5.4: ~309L Mo - 26  
 Material no.: 1.4459

Approval: TÜV, DB

**capilla® 309 Mo**

**Product description:**

Rutile-basic coated stick electrode for joint welds on same or similar type, but lower alloyed CrNi-steels.

For operating temperatures from -60°C to 400°C.  
 Heat- and scale-resistant up to 700°C.  
 The pure weld metal is scale-resistant up to 1000 °C.

Suitable for deposition welds on unalloyed steels if an 18/8 CrNi-alloy is to be achieved in the first layer.

Suitable for joint welds of unalloyed and low alloy, as well as difficult to weld steels with high alloy steels.

**Applications:****Suitable for base materials such as:**

1.4401 (X5CrNiMo17-12-2),  
 1.4404 (X2CrNiMo17-12-2),  
 1.4410 (X2CrNiMoN25-7-4),  
 1.4437 (GX6CrNiMo18-12),  
 1.4541 (X 6 CrNiTi 18-10),  
 1.4550 (X 6 CrNiNb 18-10),  
 1.4583 (X 10 CrNiMoNb 18 12),  
 1.4571 (X6CrNiMoTi17-12-2),  
 1.4580 (X6CrNiMoNb17-12-2),  
 1.4712 (X 10 CrSi 6),  
 1.4724 (X 10 CrAl 13),  
 1.4742 (X 10 CrAlSi 18),  
 1.4825 (G X 25 CrNiSi 18-9),  
 1.4826 (G X 40 CrNiSi 22-10),  
 1.4828 (X 15 CrNiSi 20-12).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,035	0,90	0,70	23,00	13,50	2,60	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	650 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	460 [MPa]	Notch impact energy (ISO-V):	55 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 309 Mo MAG

capilla 309 Mo WIG

**Standard designations:**

EN ISO 3581-A: EZ 18 8 Mn R 12  
 EN 1600: EZ 18 8 Mn R 12  
 AWS A 5.4: ~E 307 - 16  
 Material no.: 1.4370

**capilla® 51 Ti****Product description:**

Rutile-basic coated stick electrode for joint welds on different types of steel (black & white connections) and for weld cladding.

The weld metal consists of austenitic CrNiMn-steel.

For operating temperatures from -80°C to 350°C.  
 Heat- and scale-resistant up to 750°C.

Very good resistance to cavitation.  
 Strain-hardening.

**Applications:**

**Suitable for base materials such as:**

e.g.: 1.3401 (X 120 Mn 12).

Different types of steel, steels with a high carbon content and difficult to weld steel, manganese steel.

**Buffer layers for hardfacing.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,10	0,60	7,00	18,50	8,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Notch impact energy (ISO-V):	70 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	350 [MPa]	Hardness (welded condition):	180 [HB]
Elongation (L=5d):	40 [%]	Hardness (after strain-hardening):	approx. 340 [HB]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	350	150 - 200
6,0	450	180 - 240

**Available alternatives:**

**capilla** 51 KBN  
**capilla** 51 W  
**capilla** 4370 Ti

**capilla** 51 WIG  
**capilla** 51 MAG

**capilla** G 51 MM  
**capalloy** 7166703

**Standard designations:**

EN ISO 3581-A: E 18 8 Mn R 12  
 EN 1600: E 18 8 Mn R 12  
 AWS A 5.4: ~E 307 - 17  
 Material no.: 1.4370

**capilla® 4370 Ti**

**Product description:**

Rutile coated stick electrode for joint welds on different types of steel and for weld cladding.

Weld metal consists of austenitic CrNiMn-steel.

For operating temperatures of -80°C to 350°C.  
 Heat- and scale-resistant up to 750°C.

Very good resistance to cavitation.  
 Strain-hardening.

**Applications:**

**Suitable for base materials such as:**

1.3401 (X 120 Mn 12).

**Suitable for joint welds of:**

Different types of steel (black & white connections), steels with a high carbon content and difficult to weld steel, manganese steel.

**Suitable for buffer layers for hardfacing and hardfacing on rails.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,10	0,60	7,00	18,50	8,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Notch impact energy (ISO-V):	70 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	350 [MPa]	Hardness (welded condition):	180 [HB]
Elongation (L=5d):	40 [%]	Hardness (after strain-hardening):	approx. 340 [HB]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	350	150 - 200
6,0	450	180 - 240

**Available alternatives:**

capilla 51 KBN  
 capilla 51 W  
 capilla 51 Ti

capilla 51 WIG  
 capilla 51 MAG

capilla G 51 MM  
 capalloy 7166703

**Standard designations:**

EN ISO 3581-A: E 18 8 Mn B 22  
 EN 1600: E 18 8 Mn B 32  
 AWS A 5.4: ~E 307 - 15  
 Material no.: 1.4370

**capilla® 51 KB****Product description:**

Basic thin coated stick electrode made of austenitic CrNiMn-steel for joint welds between different types of steel.

For operating temperatures from -110°C to 350°C.  
 Heat- and scale-resistant up to 750°C.

Very good resistance to cavitation.  
 Strain-hardening.

**Applications:**

**Suitable for joint welds of different types of steel (black & white connections), steels with a high carbon content and very difficult to weld steels, manganese steel, such as:**

e.g. 1.3401 (X 120 Mn 12).

**Suitable for weld cladding and buffer layers for hardfacing.**

**Suitable for repair welds on rails.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,10	0,60	7,00	18,50	8,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	500 [MPa]	Notch impact energy (ISO-V):	60 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	350 [MPa]	Hardness (welded condition):	180 [HB]
Elongation (L=5d):	25 [%]	Hardness (after strain-hardening):	approx. 340 [HB]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200
6,0	450	180 - 240

**Available alternatives:**

capilla 51 Ti

capilla 51 WIG

capilla G 51 MM

capilla 51 W

capilla 51 MAG

capalloy 7166703

capilla 4370 Ti

**Standard designations:**

EN ISO 3581-A: E 18 8 Mn B 32  
 EN 1600: E 18 8 Mn B 32  
 AWS A 5.4: ~E 307 - 15  
 Material no.: 1.4370

Approval: TÜV, DB

**capilla® 51 KBN**

**Product description:**

Basic thin coated stick electrode for joint welds between different types of steel (joints of dissimilar steels).

The weld metal is made of austenitic CrNiMn-steel.

For operating temperatures from -110°C to 350°C.  
 Heat- and scale-resistant up to 750°C.

Very good resistance to cavitation.  
 Strain-hardening.

**Applications:**

**Suitable for joint welds of base materials such as:**

e.g.: 1.3401 (X 120 Mn 12).

Different types of steel, steels with a high carbon content and difficult to weld steel, manganese steel.

**Suitable for:**

Weld cladding, buffer layers for hardfacing and repair welds on rails.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,10	0,60	7,00	18,50	8,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Notch impact energy (ISO-V):	70 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	350 [MPa]	Hardness (welded condition):	180 [HB]
Elongation (L=5d):	40 [%]	Hardness (after strain-hardening):	approx. 340 [HB]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200
6,0	450	180 - 240

**Available alternatives:**

capilla 51 Ti

capilla 51 W

capilla 4370 Ti

capilla 51 WIG

capilla 51 MAG

capilla G 51 MM

capalloy 7166703

**Standard designations:**

EN ISO 3581-A: E 18 9 MnMo R 12  
 EN 1600: EZ 18 8 MnMo R 12  
 AWS A 5.4: ~E 307 - 16  
 Material no.: ~1.4370

**capilla® 51 Mo****Product description:**

Rutile-basic coated stick electrode for joint welds on different types of steel.

Weld metal consists of austenitic CrNiMnMo-steel.

For operating temperatures from -110°C to 350°C.  
 Heat- and scale-resistant up to 750°C.

Very good resistance to cavitation.  
 Strain-hardening.

**Applications:**

**Suitable for base materials such as:**

1.3401 (X 120 Mn 12).

**Suitable for joint welds of:**

different types of steel (black & white connections), steels with a high carbon content and very difficult to weld steel, as well as manganese steel.

**Suitable for:**

Weld cladding and buffer layers for hardfacing.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,10	0,60	3,50	18,50	8,00	0,90	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Notch impact energy (ISO-V):	70 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	500 [MPa]	Hardness (welded condition):	180 [HB]
Elongation (L=5d):	35 [%]	Hardness (after strain-hardening):	approx. 340 [HB]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	350/450	150 - 200
6,0	450	180 - 240

**Available alternatives:**

**capilla** 51 KBN  
**capilla** 51 W

**capilla** 51 MAG  
**capilla** 51 WIG

**capilla** G 51 MM  
**capalloy** 7166703

**Standard designations:**

EN ISO 3581-A: E 29 9 R 12  
 EN 1600: E 29 9 R 12  
 EN 14700: E Fe 11  
 AWS A 5.4: ~E 312 - 16  
 Material no.: 1.4337  
 Approval: DB

**capilla® 52 K****Product description:**

Rutile-basic coated stick electrode for joint welds of steels and cast steel types of the same, similar, or different types.

Ideal for buffer layers, cladding, and deposition welds.

The electrode produces a very soft arc. Slag comes loose automatically with spatter-free weld metal. The weld metal has a ferritic austenitic microstructure.

Suitable for operating temperatures as well as wet corrosion up to 350°C.

Heat- and scale-resistant up to approx. 1000°C.

**Applications:****Suitable for base materials such as:**

Corrosion-resistant similar type steel and cast steel types, such as:

1.3401 (X 120Mn 12),  
 1.4006 (X 10Cr 13),  
 1.4762 (X 10 CrAl 24),  
 1.4085 (G-X 70 Cr 29).

Steels that are difficult to weld, such as:

High-strength structural steel, manganese steel, rail steel as well as joints with high alloy steel (black & white connections).

**Suitable for repairs and wear-resistant deposition welds.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,10	1,00	0,80	29,00	9,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	750 [MPa]	Notch impact energy (ISO-V):	40 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	500 [MPa]	Hardness:	approx. 260 [HB]
Elongation (L=5d):	15 [%]		

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
1,6	250	30 - 50
2,0	250/300	40 - 60
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	350	150 - 200

**Available alternatives:**

capilla 52

capilla 52 MAG

capilla 52 WIG

**Standard designations:**

EN 14700: E Fe 11  
 AWS A 5.4: E 312 - 17

# capilla® 52 K Mo

**Product description:**

Rutile-basic coated stick electrode for joint welds on different types of steel. Ideal for buffer layers and deposition welds.

The electrode produces a very soft arc. Slag comes loose automatically with spatter-free weld metal.

The weld metal has a ferritic-austenitic microstructure.

Heat- and scale-resistant up to approx. 1150°C.

**Applications:****Suitable for base materials such as:**

Corrosion-resistant steel and cast steel with a very high Cr-content, such as:

1.4762 (X 10 CrAl 24),  
 1.4085 (G-X 70 Cr 29).

Steels that are difficult to weld, such as:

High-strength structural steel, manganese steel as well as joints with high alloy steel. Very corrosion-resistant deposition welding on structural steels.

**Suitable for repairs and wear-resistant deposition welds.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,10	1,10	0,80	29,00	9,00	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	780 [MPa]	Notch impact energy (ISO-V):	40 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	550 [MPa]	Hardness:	approx. 260 [HB]
Elongation (L=5d):	18 [%]		

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	350	150 - 200

**Available alternatives:**

capilla 52  
 capilla 52 K

capilla 52 MAG

capilla 52 WIG

**Standard designations:**

EN ISO 3581-A: E 25 20 R 12  
 EN 1600: E 25 20 R 12  
 AWS A 5.4: ~E 310 - 16  
 Material no.: ~1.4842

**capilla® 310****Product description:**

Rutile-basic coated stick electrode for joint welds and deposition welding of heat-resistant steels.

Weld metal made of fully austenitic CrNi-steel.

For operating temperatures up to 400°C.

Heat- and scale-resistant up to 1150°C.

The pure weld metal is scale-resistant up to 1150°C.

Not resistant to sulphurous gases.

**Applications:**

**Suitable for base materials such as:**

1.4710 (GX30CrSi7),  
 1.4713 (X10CrAlSi7),  
 1.4745 (GX40CrSi24),  
 1.4762 (X10 CrAl 24),  
 1.4823 (GX40CrNiSi27-4),  
 1.4828 (X15 CrNiSi 20 12),  
 1.4832 (GX25CrNiSi20-14),  
 1.4837 (G- X40 CrNiSi 25 12),  
 1.4840 (G- X15 CrNi 25 20),  
 1.4841 (X15CrNiSi25-21),  
 1.4845 (X12 CrNi 25 21),  
 1.4846 (X40CrNi25-21),  
 1.4848 (G- X40 CrNiSi 25 20),  
 1.4849 (GX40NiCrSiNb38-19).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,10	0,50	2,00	26,00	21,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	350 [MPa]	Notch impact energy (ISO-V):	40 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	55 - 75
3,2	350	70 - 110
4,0	350	90 - 140
5,0	350	140 - 190

**Available alternatives:**

capilla 310 KB

capilla 310 MAG

capilla 310 WIG

**Standard designations:**

EN ISO 3581-A: E 25 20 B 12  
 EN 1600: E 25 20 B 12  
 AWS A 5.4: E 310 - 15  
 Material no.: ~1.4842

**capilla® 310 KB****Product description:**

Basic coated stick electrode for joint welds and deposition welding of heat-resistant steels.

Weld metal made of fully austenitic CrNi-steel.

For operating temperatures up to 400°C.

Heat- and scale-resistant up to 1150°C.

The pure weld metal is scale-resistant up to 1150°C.

Not resistant to sulphurous gases.

**Applications:**

**Suitable for base materials such as:**

1.4710 (GX30CrSi7),  
 1.4713 (X10CrAlSi7),  
 1.4745 (GX40CrSi24),  
 1.4762 (X10 CrAl 24),  
 1.4823 (GX40CrNiSi27-4),  
 1.4828 (X15 CrNiSi 20 12),  
 1.4832 (GX25CrNiSi20-14),  
 1.4837 (G- X40 CrNiSi 25 12),  
 1.4840 (G- X15 CrNi 25 20),  
 1.4841 (X15CrNiSi25-21),  
 1.4845 (X12 CrNi 25 21),  
 1.4846 (X40CrNi25-21),  
 1.4848 (G- X40 CrNiSi 25 20),  
 1.4849 (GX40NiCrSiNb38-19).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,13	0,75	2,50	25,00	20,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	570 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	380 [MPa]	Notch impact energy (ISO-V):	40 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	55 - 75
3,2	350	70 - 110
4,0	350	90 - 140
5,0	350	140 - 190

**Available alternatives:**

capilla 310

capilla 310 MAG

capilla 310 WIG

**Standard designations:**

EN ISO 3581-A: EZ 18 16 5 N LR 32  
 EN 1600: EZ 18 15 5 LR 32  
 AWS A5.4 E316LMn  
 Material no.: ~1.4455

**capilla® 4455**

**Product description:**

Rutile-basic coated stick electrode for deposition welding and welded joints of stainless, austenitic, non-magnetic and cryogenic steels and cast steel types.

**Applications:**

**Suitable for base materials such as:**

Austenitic CrNi(N)- and CrNiMo(Mn,N)-steel/cast steel types of the same or similar type.

Cryogenic, non-stabilised and stabilised CrNi(N)-steels and cast steel types, as well as cryogenic, heat-treatable Ni-steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	N	Fe
0,04	0,50	4,50	20,00	16,50	3,00	0,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Notch impact energy (ISO-V):	45 [J] (-196°C)

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Standard designations:**

EN ISO 3581-A: EZ 27 31 4 Cu LR 32  
 EN 1600: EZ 27 31 4 Cu LR 32  
 AWS A 5.4: ~E 383 - 16  
 Material no.: 1.4563

**capilla® 4563**

**Product description:**

Rutile-basic coated stick electrode for joint welds and deposition welding of fully austenitic, corrosion-resistant steels.

The weld metal is highly resistant to phosphoric and sulphuric acid, even if it contains chloride and/or fluoride.

Highly resistant to intercrystalline corrosion (IC), stress and pitting corrosion in aqueous chloride solutions (sea water) up to 400°C.

The weld metal is non-magnetizable.

**Applications:**

**Suitable for base materials such as:**

1.4500 (G X 7NiCrMoCuNb 25-20),  
 1.4503 (X 3 NiCrCuMoTi 27-23),  
 1.4506 (X 5 NiCrMoCuTi 20-18),  
 1.4563 (X 1 NiCrMoCu 31-27-4),  
 1.4578 (X 3 CrNiCuMo 17-11-3-2),  
 1.4505 (X 4 NiCrMoCuNb 20-18-2),  
 1.4539 (X 1 NiCrMoCu 25-20-5),  
 1.4536 (G X 2NiCrMoCuN 25-20),  
 1.4577 (X 3 CrNiMoTi25-25).

**Suitable for joint welds between these steels with corrosion-resistant Cr-steels and with unalloyed and low alloy steels.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Cu	Fe
0,03	1,00	1,00	27,00	30,00	3,50	1,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Notch impact energy (ISO-V):	50 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	55 - 75
3,2	350	70 - 110
4,0	350	90 - 140

**Standard designations:**

EN ISO 3581-A: E 20 25 5 Cu LR 32  
 AWS A 5.4: E 385 L - 16  
 Material no.: ~1.4519

**capilla® 385**

**Product description:**

Rutile-basic coated stick electrode for deposition welding and welded joints of materials of the same or similar types.

**High resistance to:**

Phosphoric acid, acids and bases, as well as to corrosion and stress corrosion in media containing chloride.

Fully austenitic weld metal without delta-ferrite.

**Applications:****Suitable for base materials such as:**

1.4500 (G-X 7 NiCrMoCuNb 25 20),  
 1.4505 (X 5 NiCrMoCuNb 20 18),  
 1.4506 (X 5 NiCrMoCuTi 20 18),  
 1.4531 (GX2NiCrMoCuN20-18),  
 1.4539 (X 2 NiCrMoCu 25 20 5),  
 1.4573 (GX3CrNiMoCuN24-6-5),  
 1.4585 (G-X 7 NiCrMoCuNb 18 18),  
 1.4586 (X5NiCrMoCuNb22-18).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Cu	Fe
0,03	0,50	1,80	20,00	25,00	4,50	1,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	410 [MPa]	Notch impact energy (ISO-V):	40 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	80 - 110
3,2	350	100 - 150
4,0	350	150 - 200
5,0	450	160 - 210

**Available alternatives:**

capilla 385 MAG

capilla 385 WIG

**Standard designations:**

EN ISO 14343-A: G 19 9 L Si  
 EN 12072: G 19 9 L Si  
 AWS A 5.9: ER 308 L Si  
 Material no.: 1.4316

Approval: TÜV

**capilla® 308 L MAG**

**Product description:**

Solid rod made of CrNi-steel with a particularly low carbon content for MIG/MAG welding of stainless and cryogenic austenitic steels.

For operating temperatures from -196°C to 400°C.

Heat- and scale-resistant up to 600°C.

**Applications:**

**Suitable for base materials such as:**

1.4301 (X 5 CrNi 18 10),  
 1.4303 (X 5 CrNi 18 12),  
 1.4306 (X 2 Cr Ni 19 11),  
 1.4306 (X 7 Cr 14),  
 1.4308 (G-X 6 CrNi 18 9),  
 1.4310 (X 12 CrNi 17 7),  
 1.4311 (X 7 CrAl 13),  
 1.4319 (X 5 CrNi 18 7),  
 1.4541 (X 6 CrNiTi 18 10),  
 1.4550 (X 6 CrNiNb 18 10),  
 1.4552 (G-X 5 CrNiNb 18 9).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,03	0,95	1,80	20,00	10,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	510 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]		

**Shielding gas (EN ISO 14175):** M11, M12

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla 308 L  
 capilla 308 L WIG

capilla 308 LR  
 capilla G 308 L RM

capilla 308 L KB

**Standard designations:**

EN ISO 14343-A: G 19 9 Nb Si  
 AWS A 5.9: ~ER 347 Si  
 Material no.: 1.4551

**capilla® 347 MAG**

Approval: TÜV

**Product description:**

Solid wire for MIG/MAG welding of stainless austenitic steels.

Weld metal consists of stabilised austenitic CrNi-steel.

For operating temperatures up to 400°C.

Cryogenic up to -196°C.

**Applications:**

**Suitable for base materials such as:**

1.4301 (X 5 CrNi 18 10),  
 1.4303 (X 5 CrNi 18 12),  
 1.4306 (X 2 CrNi 19 11),  
 1.4306 (G-X 2 CrNi 18 9),  
 1.4308 (G-X 6 CrNi 18 9),  
 1.4310 (X 12 CrNi 17 7),  
 1.4312 (G-X 10 CrNi 18 8),  
 1.4319 (X 5 CrNi 18 7),  
 1.4541 (X 6 CrNiTi 18 10),  
 1.4550 (X 6 CrNiNb 18 10),  
 1.4552 (G-X 5 CrNiNb 18 9).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Nb	Fe
0,08	0,95	1,80	20,00	10,00	10x %C	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	500 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	270 [MPa]		

**Shielding gas (EN ISO 14175):** M11, M12

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla 347

capilla 347 LR

capilla 347 WIG

**Standard designations:**

EN ISO 14343-A: G 19 12 3 L Si  
 EN 12072: G 19 12 3 L Si  
 AWS A 5.9: ER 316 L Si  
 Material no.: 1.4430

Approval: TÜV

# capilla® 316 L MAG

**Product description:**

Solid rod made of austenitic CrNiMo-steel with a particularly low carbon content for MIG/MAG welding of stainless and cryogenic steels.

For operating temperatures up to 400°C.

Cryogenic up to -196°C.

Suitable for stainless austenitic CrNiMo-steels/cast steel.

**Applications:****Suitable for base materials such as:**

1.4401 (X 5 CrNiMo 17 12 2),  
 1.4404 (X 2 CrNiMo 17 13 2),  
 1.4406 (X 2 CrNiMoN 17 12 2),  
 1.4408 (G-X 6 CrNiMo 18 10),  
 1.4420 (X 5 CrNiMo 18 11),  
 1.4429 (X 2 CrNiMo 17 13 3),  
 1.4435 (X 2 CrNiMo 18 14 3),  
 1.4436 (X 5 CrNiMo 17 13 3),  
 1.4571 (X 6 CrNiMoTi 17 12 2),  
 1.4573 (X 10 CrNiMoTi 18 12),  
 1.4580 (X 6 CrNiMoNb 17 12 2),  
 1.4581 (G-X 5 CrNiMoNb 18 10),  
 1.4583 (X 10 CrNiMoNb 18 12).

**Suitable in areas of the food industry.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,03	0,80	1,90	19,00	12,00	2,70	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	510 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]		

**Shielding gas (EN ISO 14175):** M12, M13

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,6
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla 316 L  
 capilla 316 LR

capilla 316 LF  
 capilla 316 L KB

capilla 316 L WIG  
 capilla G 316 L RM

**Standard designations:**

EN ISO 14343-A: G 19 12 3 Nb Si  
 EN 12072: G 19 12 3 Nb Si  
 AWS A 5.9: ER 318  
 Material no.: 1.4576

Approval: TÜV

**capilla® 318 MAG**

**Product description:**

Solid rod made of stabilised austenitic CrNiMo-steel for MIG/MAG welding of stainless austenitic steels with a particularly low carbon content.

For operating temperatures up to 400°C.

**Applications:**

**Suitable for base materials such as:**

1.4401 (X 5 CrNiMo 17 12 2),  
 1.4404 (X 2 CrNiMo 17 13 2),  
 1.4404 (G-X 2 CrNiMo 18 10),  
 1.4408 (G-X 6 CrNiMo 18 10),  
 1.4420 (X 5 CrNiMo 18 11),  
 1.4435 (X 2 CrNiMo 18 14 3),  
 1.4436 (X 5 CrNiMo 17 13 3),  
 1.4571 (X 6 CrNiMoTi 17 12 2),  
 1.4573 (X 10 CrNiMoTi 18 12),  
 1.4580 (X 6 CrNiMoNb 17 12 2),  
 1.4581 (G-X 5 CrNiMoNb 18 10),  
 1.4583 (X 10 CrNiMoNb 18 12).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Nb	Fe
0,08	0,65	1,90	19,00	12,50	2,70	10x %C	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	350 [MPa]		

**Shielding gas (EN ISO 14175):** M12, M13

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla 318

capilla 318 LR

capilla 318 WIG

**Standard designations:**

EN ISO 14343-A: GZ 18 16 5 N L  
 EN 12072: GZ 18 16 5 N L  
 AWS A 5.9: ER 317 - L  
 Material no.: 1.4440

**capilla® 317 L MAG**

**Product description:**

Solid wire for MIG/MAG welding of stainless austenitic CrNiMo-steels.

For operating temperatures from -196°C to 400°C

Due to its composition, the weld metal is highly resistant to intercrystalline corrosion and pitting corrosion, in particular in chloride media; non magnetizable.

**Buffer layers for hardfacing.****Applications:****Suitable for base materials such as:**

1.4429 (X 2 CrNiMoN17 13 3),  
 1.4436 (X 3 CrNiMoN17 13 3),  
 1.4438 (X 2 CrNiMoN18 16 4),  
 1.4439 (X 2 CrNiMoN17 13 5),  
 1.4583 (X 10 CrNiMoN18 12).

**Suitable for deposition welding and joint welds on:**

Austenitic non-stabilised and stabilised stainless and non-magnetizable CrNiMo-steels and cast steels of the same or similar type.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	N	Fe
0,02	0,40	4,00	19,00	16,00	3,50	0,16	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	650 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	430 [MPa]	Notch impact energy (ISO-V):	32 [J] (-196°C)

**Shielding gas (EN ISO 14175):** M12, M13, M22

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2

**Available alternatives:**

capilla 317-17

capilla 317 L WIG

**Standard designations:**

EN ISO 14343-A: G 22 9 3 NL  
 EN 12072: W 22 9 3 N L  
 AWS A 5.9: ~ER 2209  
 Material no.: 1.4462

Approval: TÜV

**capilla® 2209 MAG**

**Product description:**

Solid wire made of CrNiMo-steel for MIG/MAG deposition welding and joint welds of stainless, ferritic-austenitic duplex steels.

For operating temperatures up to 250°C.

The weld metal has a nitrogenous ferritic-austenitic structure.

High resistance to wet corrosion, pitting corrosion, gap and stress corrosion in media containing H<sub>2</sub>S and chloride.

Suitable for joint welds between unalloyed and low alloy and stainless steel and cast steel.

**Applications:****Suitable for base materials such as:**

1.4347 (G-X 8 CrNi 26 7),  
 1.4417 (X 2 CrNiMoSi 19 5),  
 1.4460 (X 8 CrNiMo 27 5),  
 1.4462 (X 2 CrNiMoN 22 5),  
 1.4582 (X 4 CrNiMoNb 25 7).

**Suitable for mixed connections:**

1.4462 (X 2 CrNiMoN 22-5-3) with  
 1.4583 (X10 CrNiMoNb 18-12).

1.4462 (X 2 CrNiMoN 22-5-3) with  
 P2356H/ P265GH/ S255H/ P2956H/ S355N/ 16Mo3.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	N	Fe
0,03	1,00	2,50	22,50	8,50	3,20	0,15	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength R <sub>m</sub> :	680 [MPa]	Elongation (L=5d):	25 [%]
Yield strength R <sub>eH</sub> /R <sub>p0.2</sub> :	480 [MPa]	Notch impact energy (ISO-V):	50 [J]

Shielding gas (EN ISO 14175): M12

Current type:

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Positions:



Dimensions:

Ø [mm]
0,8
1,0
1,2
1,6

Available alternatives:

capilla 2209

capilla 2209 WIG

**Standard designations:**

EN ISO 14343-A: G 25 9 4 N L  
 EN 12072: G 25 9 4 N L  
 AWS A 5.9: ER 2594  
 Material no.: ~1.4501

**capilla® 4460 Cu MAG**

**Product description:**

Solid wire for MIG/MAG deposition welding and welded joints of austenitic-ferritic stainless super duplex steels.

High tensile strength and ductility.  
 Very resistant to stress and pitting corrosion in environments containing chloride.

Used anywhere where a combination of good corrosion resistance and high-strength is needed.

Operating temperature:  $\leq 220^{\circ}\text{C}$ .

**Applications:**

**Suitable for base materials such as:**

1.4410 (X 2 CrNiMoN 25-7-4),  
 1.4467 (X 2 CrMnNiMoN 26-5-4),  
 1.4468 (G X 2CrNiMoN 25-6-3),  
 1.4501 (X 2 CrNiMoCuWN 25-7-4),  
 1.4507 (X 2 CrNi-MoCuN 25-6-3),  
 1.4515 (G X 2CrNiMoCuN 26-6-3),  
 1.4517 (G X 2CrNiMoCuN 25-6-3-3).

UNS S32750, S32760, J93380, S32520, S32550, S39274, S32950.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	W	Cu	N	Fe
0,02	0,35	0,90	25,00	9,00	3,70	0,60	0,50	0,25	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	830 [MPa]	Elongation (L=5d):	27 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	600 [MPa]	Notch impact energy (ISO-V):	140 [J]

**Shielding gas (EN ISO 14175):** M12

**Current type:**

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**Positions:**



**Dimensions:**

$\varnothing$ [mm]
0,8
1,0
1,2

**Available alternatives:**

capilla 4460 Cu

capilla 4460 Cu B

capilla 4460 Cu WIG

**Standard designations:**

EN ISO 14343-A: G 23 12 L Si  
 EN 12072: G 23 12 L Si  
 AWS A 5.9: ~ER 309 L Si  
 Material no.: 1.4332

Approval: TÜV

**capilla® 309 L MAG**

**Product description:**

Solid rod made of austenitic CrNi-steel with a particularly low carbon content for MIG/MAG welding of stainless steels and steels of different types.

Corrosion-resistant even in the first layer in cladding and buffer layers.

For operating temperatures up to 300°C.  
 The pure weld material is scale-resistant up to 1000 °C.

**Applications:****Suitable for base materials such as:**

1.2780 (X 15 CrNiSi 20 12),  
 1.4541 (X 6 CrNiTi 18-10),  
 1.4550 (X 6 CrNiNb 18-10),  
 1.4583 (X 10 CrNiMoNb 18 12),  
 1.4710 (G-X 30 CrSi 6),  
 1.4712 (X 10 CrSi 6),  
 1.4724 (X 10 CrAl 13),  
 1.4729 (G-X 40 CrSi 13),  
 1.4740 (G-X 40 CrSi 17)  
 1.4742 (X 10 CrAlSi 18),  
 1.4825 (G-X 25 CrNiSi 18 9),  
 1.4828 (X 15 CrNiTi 20-12),  
 1.4826 (G X 40 CrNiSi 22-10).

**Suitable for welding dissimilar steels, cladding and buffer layers.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,03	0,95	1,70	23,50	12,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	510 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	55 [J]

**Shielding gas (EN ISO 14175):** I1, M11, M12

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla 309 L

capilla 309 LR

capilla 309 L WIG

**Standard designations:**

EN ISO 14343-A: G 18 8 Mn  
 EN 12072: G 18 8 Mn  
 EN ISO 14700: S Fe 10  
 AWS A 5.9: ~ ER 307 (mod.)  
 Material no.: 1.4370

Approval: TÜV, DB

# capilla® 51 MAG

**Product description:**

Solid welding wire for MIG/MAG joint welds of different types of steel.

Weld metal consists of austenitic CrNiMn-steel with low carbon content.  
 Strain-hardening.

For operating temperatures up to 300°C.

Cryogenic up to -120°C.  
 Scale-resistant up to 850°C.

**Applications:****Suitable for joint welds of:**

Different types of steel (black & white connections), steels with a high carbon content and difficult to weld steels, manganese steel, such as:

1.3401 (X 120 Mn 12).

Cryogenic nickel steels like:

1.5637 (10 Ni 14),  
 1.5680 (12 Ni 19).

**Buffer layers for hardfacing.****Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,20	1,20	6,50	18,00	8,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	510 [MPa]	Notch impact energy (ISO-V):	70 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	350 [MPa]	Hardness (welded condition):	180 [HB]
Elongation (L=5d):	25 [%]	Hardness (after strain-hardening):	approx. 340 [HB]

**Shielding gas (EN ISO 14175):** M12, M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla 51 Ti  
 capilla 51 WIG

capilla 51 W  
 capilla G 51 RM

capilla 51 KBN  
 capalloy 7166703

**Standard designations:**

EN ISO 14343-A: G 29 9  
 EN 12072: W 29 9  
 AWS A 5.9: ~ER 312  
 Material no.: 1.4337

**capilla® 52 MAG**

**Product description:**

Solid wire made of ferritic-austenitic CrNi-steel for MIG/MAG deposition welding of different types of steels.

Scale-resistant to approx. 1000°C.

Suitable for buffer layers.

The weld metal reduces the residual stress in welds of dissimilar metals, and increases protection against thermal cracking.

**Applications:****Suitable for base materials such as:**

Similar corrosion-resistant steel and cast steel types, such as:

1.4762 (X 10 CrAl 24),  
 1.4085 (G-X 70 Cr 29).

Steels that are difficult to weld, such as:

High-strength structural steel, manganese steel as well as joints with high alloy steel.

**Suitable for repairs and wear-resistant deposition welds.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,12	0,40	1,70	30,00	10,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	740 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	560 [MPa]		

**Shielding gas (EN ISO 14175):** M11

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2

**Available alternatives:**

capilla 52

capilla 52 K

capilla 52 WIG

**Standard designations:**

EN ISO 14343-A: G 25 20  
 EN 12072: G 25 20  
 AWS A 5.9: ER 310  
 Material no.: 1.4842

**capilla® 310 MAG****Product description:**

Solid wire made of fully austenitic CrNi-steel for MIG/MAG deposition welding and welded joints of of heat-resistant steels and cast steels.

The pure weld metal is scale-resistant up to 1150°C.

Not resistant to sulphurous gases.

**Applications:****Suitable for base materials such as:**

Heat- and scale-resistant steels, such as:

1.4710 (G-X30 CrSi 6),  
 1.4713 (X10 CrAl 7),  
 1.4762 (X 10 CrAlSi 25),  
 1.4828 (X15 CrNiSi 20 12),  
 1.4832 (G-X 25 CrNiSi 20 14),  
 1.4835 (X 9 CrNiSiNcE 21-11-2),  
 1.4837 (G-X 40 CrNiSi 25 12),  
 1.4840 (G-X 15 CrNi 25 20),  
 1.4841 (X 15 CrNiSi 25 20),  
 1.4845 (X 12 CrNi 25 21),  
 1.4848 (G- X40 CrNiSi 25 20).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,12	0,50	1,85	26,00	21,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	490 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0,2}$ :	350 [MPa]	Notch impact energy (ISO-V):	80 [J]

**Shielding gas (EN ISO 14175):** M12**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla 310

capilla 310 KB

capilla 310 WIG

**Standard designations:**

EN ISO 14343-A: G 20 25 5 Cu L  
 EN 12072: G 20 25 5 Cu L  
 AWS A 5.9: ~ER 385  
 Material no.: 1.4519

**capilla® 385 MAG**

**Product description:**

Solid wire made of fully austenitic CrNiMo-steel containing copper for MIG/MAG deposition welding and joint welds of high alloy steels with increased corrosion resistance to reducing media.

Pulsed arc welding preferred.

Molybdenum content: high  
 Carbon content: especially low

For operating temperatures up to 350°C.  
 Intermediate layer temperatures up to 150°C.

**Applications:**

**Suitable for base materials such as:**

1.4500 (G-X 7 NiCrMoCuNb 25 20),  
 1.4505 (X 5 NiCrMoCuNb 20 18),  
 1.4506 (X 5 NiCrMoCuTi 20 18),  
 1.4536 (G-X 2NiCrMoCuN 25 20),  
 1.4539 (X 2 NiCrMoCu 25 20 5),  
 1.4585 (G-X 7 NiCrMoCuNb 18 18).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Cu	Fe
0,03	1,00	2,50	20,00	25,50	5,00	1,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	510 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]		

**Shielding gas (EN ISO 14175):** M12

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2

**Available alternatives:**

capilla 385

capilla 385 WIG

**Standard designations:**

EN ISO 14343-A: W 19 9 L Si  
 EN 12072: W 19 9 L Si  
 AWS A 5.9: ER 308 L Si  
 Material no.: 1.4316

Approval: TÜV

**capilla® 308 L WIG**

**Product description:**

Welding rod made of CrNi-steel with a particularly low carbon content for TIG welding of stainless and cryogenic austenitic steels.

For operating temperatures from -196°C to 400°C.

Heat- and scale-resistant up to 600°C.

**Applications:**

**Suitable for base materials such as:**

1.4301 (X 5 CrNi 18 10),  
 1.4303 (X 5 CrNi 18 12),  
 1.4306 (X 2 Cr Ni 19 11),  
 1.4306 (X 7 Cr 14),  
 1.4308 (G-X 6 CrNi 18 9),  
 1.4310 (X 12 CrNi 17 7),  
 1.4311 (X 7 CrAl 13),  
 1.4319 (X 5 CrNi 18 7),  
 1.4541 (X 6 CrNiTi 18 10),  
 1.4550 (X 6 CrNiNb 18 10),  
 1.4552 (G-X 5 CrNiNb 18 9).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,03	0,90	2,00	20,00	10,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	510 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000
4,0	1000
5,0	1000

**Available alternatives:**

capilla 308 L  
 capilla 308 L MAG

capilla 308 LR  
 capilla G 308 L RM

capilla 308 L KB

**Standard designations:**

EN ISO 14343-A: W 19 9 Nb Si  
 AWS A 5.9: ~ER 347 Si  
 Material no.: 1.4551

**capilla® 347 WIG**

Approval: TÜV

**Product description:**

Welding rod for TIG welding of stainless austenitic steels.

Weld metal consists of stabilised austenitic CrNi-steel.

For operating temperatures up to 400°C.

Scale-resistant up to 800°C.

**Applications:****Suitable for base materials such as:**

1.4301 (X 5 CrNi 18 10),  
 1.4303 (X 5 CrNi 18 12),  
 1.4306 (X 2 CrNi 19 11),  
 1.4306 (G-X 2 CrNi 18 9),  
 1.4308 (G-X 6 CrNi 18 9),  
 1.4310 (X 12 CrNi 17 7),  
 1.4312 (G-X 10 CrNi 18 8),  
 1.4319 (X 5 CrNi 18 7),  
 1.4541 (X 6 CrNiTi 18 10),  
 1.4550 (X 6 CrNiNb 18 10),  
 1.4552 (G-X 5 CrNiNb 18 9).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Nb	Fe
0,08	0,95	1,70	19,50	10,00	10x %C	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	270 [MPa]		

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:

**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000
4,0	1000
5,0	1000

Available alternatives:

capilla 347

capilla 347 LR

capilla 347 MAG

**Standard designations:**

EN ISO 14343-A: W 19 12 3 L Si  
 EN 12072: W 19 12 3 L Si  
 AWS A 5.9: ER 316 L Si  
 Material no.: 1.4430

Approval: TÜV

**capilla® 316 L WIG**

**Product description:**

Welding rod made of austenitic CrNiMo-steel with a particularly low carbon content for TIG welding of stainless and cryogenic steels.

For operating temperatures up to 400°C.

Cryogenic up to -196°C.

Suitable for stainless austenitic CrNiMo- steels/cast steel.

Suitable in areas of the food industry.

**Applications:**

**Suitable for base materials such as:**

1.4401 (X 5 CrNiMo 17 12 2),  
 1.4404 (X 2 CrNiMo 17 13 2),  
 1.4406 (X 2 CrNiMoN 17 12 2),  
 1.4408 (G-X 6 CrNiMo 18 10),  
 1.4420 (X 5 CrNiMo 18 11),  
 1.4429 (X 2 CrNiMo 17 13 3),  
 1.4435 (X 2 CrNiMo 18 14 3),  
 1.4436 (X 5 CrNiMo 17 13 3),  
 1.4571 (X 6 CrNiMoTi 17 12 2),  
 1.4573 (X 10 CrNiMoTi 18 12),  
 1.4580 (X 6 CrNiMoNb 17 12 2),  
 1.4581 (G-X 5 CrNiMoNb 18 10),  
 1.4583 (X 10 CrNiMoNb 18 12).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,03	0,95	1,80	19,00	12,50	2,70	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	510 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000
4,0	1000
5,0	1000

**Available alternatives:**

capilla 316 L

capilla 316 LR

capilla 316 LF

capilla 316 L KB

capilla 316 L MAG

capilla G 316 L RM

**Standard designations:**

EN ISO 14343-A: W 19 12 3 Nb Si  
 EN 12072: W 19 12 3 Nb Si  
 AWS A 5.9: ER 318  
 Material no.: 1.4576

Approval: TÜV

**capilla® 318 WIG**

**Product description:**

Welding rod made of stabilised austenitic CrNiMo-steel for TIG welding of stainless austenitic steels with a particularly low carbon content.

For operating temperatures up to 400°C.

**Applications:**

**Suitable for base materials such as:**

1.4401 (X 5 CrNiMo 17 12 2),  
 1.4404 (X 2 CrNiMo 17 13 2),  
 1.4404 (G-X 2 CrNiMo 18 10),  
 1.4408 (G-X 6 CrNiMo 18 10),  
 1.4420 (X 5 CrNiMo 18 11),  
 1.4435 (X 2 CrNiMo 18 14 3),  
 1.4436 (X 5 CrNiMo 17 13 3),  
 1.4571 (X 6 CrNiMoTi 17 12 2),  
 1.4573 (X 10 CrNiMoTi 18 12),  
 1.4580 (X 6 CrNiMoNb 17 12 2),  
 1.4581 (G-X 5 CrNiMoNb 18 10),  
 1.4583 (X 10 CrNiMoNb 18 12).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Nb	Fe
0,03	0,65	1,90	19,00	13,00	2,70	10x %C	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	295 [MPa]		

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000
4,0	1000
5,0	1000

Available alternatives:

capilla 318

capilla 318 LR

capilla 318 MAG

**Standard designations:**

EN ISO 14343-A: WZ 18 16 5 N L  
 EN 12072: WZ 18 16 5 N L  
 AWS A 5.9: ER 317 - L  
 Material no.: 1.4440

**capilla® 317 L WIG**

**Product description:**

Welding rod for TIG welding of stainless austenitic CrNiMo-steels.

For operating temperatures from -296°C to 400°C.

Due to its composition, the weld metal is highly resistant to intercrystalline corrosion (IC), stress corrosion and pitting corrosion, in particular in chloride media; non magnetizable.

Buffer layers for hardfacing.

**Applications:**

**Suitable for base materials such as:**

1.4429 (X 2 CrNiMoN17 13 3),  
 1.4436 (X 3 CrNiMoN17 13 3),  
 1.4438 (X 2 CrNiMoN18 16 4),  
 1.4439 (X 2 CrNiMoN17 13 5),  
 1.4583 (X 10 CrNiMoN18 12).

**Suitable for deposition welding and joint welds on:**

Austenitic non-stabilised and stabilised stainless and non-magnetizable CrNiMo-steels and cast steels of the same or similar type.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	N	Fe
0,01	0,40	2,50	19,00	16,00	4,00	0,16	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	650 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	440 [MPa]	Notch impact energy (ISO-V):	75 [J] (-296°C)

**Shielding gas (EN ISO 14175):** I1

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla 317-17

capilla 317 L MAG

**Standard designations:**

EN ISO 14343-A: W 22 9 3 NL  
 EN 12072: W 22 9 3 N L  
 AWS A 5.9: ~ER 2209  
 Material no.: 1.4462

Approval: TÜV

**capilla® 2209 WIG**

**Product description:**

Welding rod made of CrNiMo-steel for TIG deposition welding and joint welds of stainless, ferritic-austenitic duplex steels.

For operating temperatures up to 250°C.

The weld metal has a nitrogenous ferritic-austenitic structure.

High resistance to wet corrosion, pitting corrosion, gap and stress corrosion in media containing H<sub>2</sub>S and chloride.

Suitable for joint welds between unalloyed and low alloy and stainless steel and cast steel.

**Applications:****Suitable for base materials such as:**

1.4347 (G-X 8 CrNi 26 7),  
 1.4417 (X 2 CrNiMoSi 19 5),  
 1.4460 (X 8 CrNiMo 27 5),  
 1.4462 (X 2 CrNiMoN 22 5),  
 1.4582 (X 4 CrNiMoNb 25 7).

**Suitable for mixed connections:**

1.4462 (X 2 CrNiMoN 22-5-3) with  
 1.4583 (X10 CrNiMoNb 18-12).

1.4462 (X 2 CrNiMoN 22-5-3) with  
 P2356H/ P265GH/ S255H/ P2956H/ S355N/ 16Mo3.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	N	Fe
0,03	1,00	2,50	22,00	8,00	3,50	0,15	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength R <sub>m</sub> :	680 [MPa]	Elongation (L=5d):	25 [%]
Yield strength R <sub>eH</sub> /R <sub>p0.2</sub> :	480 [MPa]		

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

capilla 2209

capilla 2209 MAG

**Standard designations:**

EN ISO 14343-A: W 25 9 4 N L  
 EN 12072: W 25 9 4 N L  
 AWS A 5.9: ER 2594  
 Material no.: ~1.4501

**capilla® 4460 Cu WIG**

**Product description:**

High alloy welding rod for TIG depositional welding and welded joints of austenitic-ferritic stainless super duplex steels.

Highly resistant to intercrystalline corrosion (IC), stress and pitting corrosion.

Used anywhere where a combination of good corrosion resistance and high-strength is needed.

Operating temperature:  $\leq 220^{\circ}\text{C}$ .

**Applications:**

**Suitable for base materials such as:**

1.4515 (GX 3 CrNiMoCuN 26.6-3),  
 1.4517 (GX 3 CrNiMoCuN 26.6-3-3).

25% chromium superduplex steels  
 (SAF 25/07, Zeron 100, FLAC 100).

UNS S 32750, UNS S 32760.

Well-suited for the conditions in offshore areas, in particular for welding super martensitic 13% chromium steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	W	Cu	N	Fe
0,02	0,80	1,20	25,00	9,00	3,00	0,60	0,75	0,25	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	750 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	600 [MPa]	Notch impact energy (ISO-V):	50 [J] (-50°C)

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla 4460 Cu

capilla 4460 Cu B

capilla 4460 Cu MAG

**Standard designations:**

EN ISO 14343-A: W 23 12 L Si  
 EN 12072: W 23 12 L Si  
 AWS A 5.9: ~ER 309 L Si  
 Material no.: 1.4332

Approval: TÜV

**capilla® 309 L WIG**

**Product description:**

Welding rod made of austenitic CrNi-steel with a particularly low carbon content for TIG welding of stainless steels and steels of different types.

Corrosion-resistant even in the first layer in cladding and buffer layers.

For operating temperatures up to 300°C.

In case of a longer annealing procedure (over 300°C), nickel-based welding consumables should be used.

The pure weld metal is scale-resistant up to 1000°C.

**Applications:****Suitable for base materials such as:**

1.2780 (X 15 CrNiSi 20 12),  
 1.4541 (X 6 CrNiTi 18-10),  
 1.4550 (X 6 CrNiNb 18-10),  
 1.4583 (X 10 CrNiMoNb 18 12),  
 1.4710 (G-X 30 CrSi 6),  
 1.4712 (X 10 CrSi 6),  
 1.4724 (X 10 CrAl 13),  
 1.4729 (G-X 40 CrSi 13),  
 1.4740 (G-X 40 CrSi 17),  
 1.4742 (X 10 CrAlSi 18),  
 1.4825 (G-X 25 CrNiSi 18 9),  
 1.4828 (X 15 CrNiTi 20-12),  
 1.4826 (G X 40 CrNiSi 22-10).

**Suitable for welding dissimilar steels, cladding and buffer layers.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,03	0,95	1,70	23,50	12,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	510 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	55 [J]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,0	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000
4,0	1000
5,0	1000

Available alternatives:

capilla 309 L

capilla 309 LR

capilla 309 MAG

**Standard designations:**

EN ISO 14343-A: W 18 8 Mn  
 EN 12072: W 18 8 Mn  
 EN ISO 14700: S Fe 10  
 AWS A 5.9: ~ ER 307 (mod.)  
 Material no.: 1.4370  
 Approval: TÜV, DB

**capilla® 51 WIG****Product description:**

Welding rod for TIG joint welds of different types of steel.

Weld metal consists of austenitic CrNiMn-steel with low carbon content.  
 Strain-hardening.

For operating temperatures up to 300°C.  
 In case of a longer annealing procedure or operating temperatures over 300°C, nickel-based welding consumables should be used.

Cryogenic to -120°C.  
 Scale-resistant to 850°C.

**Applications:****Suitable for joint welds of:**

Different types of steel (black & white connections), steels with a high carbon content and difficult to weld steels, manganese steel, such as:

1.3401 (X 120 Mn 12).

Cryogenic nickel steels like:

1.5637 (10 Ni 14),  
 1.5680 (12 Ni 19).

**Buffer layers for hardfacing.****Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,20	1,20	6,50	18,00	9,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	510 [MPa]	Notch impact energy (ISO-V):	70 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	350 [MPa]	Hardness (welded condition):	180 [HB]
Elongation (L=5d):	25 [%]	Hardness (after strain-hardening):	approx. 340 [HB]

**Shielding gas (EN ISO 14175):** I1**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000
4,0	1000
5,0	1000

**Available alternatives:**

capilla 51 Ti  
 capilla 51 MAG

capilla 51 W  
 capilla G 51 MR

capilla 51 KBN  
 capalloy 7166703

**Standard designations:**

EN ISO 14343-A: W 29 9  
 EN 12072: W 29 9  
 AWS A 5.9: ~ER 312  
 Material no.: 1.4337

**capilla® 52 WIG**

**Product description:**

Welding rod made of ferritic-austenitic CrNi-steel for TIG overlay welding of dissimilar steels.

Scale-resistant up to approx. 1000°C.

Suitable for buffer layers.

The increased content of delta ferrite in the weld metal and the associated favourable thermal expansion coefficient reduce residual stresses in black & white connections and increase safety against hot cracking. (15x10<sup>-6</sup>)

**Applications:**

**Suitable for base materials such as:**

**Corrosion-resistant steel of similar type and cast steel, e.g.:**

1.4762 (X 10 CrAl 24),  
 1.4085 (G-X 70 Cr 29).

**Heavy weldable steel, e.g.:**

high-strength structural steel,  
 manganese steel and  
 connections with high alloy steel.

**Suitable for repairs and wear-resistant hardfacing.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,12	0,40	1,60	30,00	10,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength R <sub>m</sub> :	740 [MPa]	Elongation (L=5d):	25 [%]
Yield strength R <sub>eH</sub> /R <sub>p0.2</sub> :	560 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000
4,0	1000
5,0	1000

**Available alternatives:**

capilla 52

capilla 52 K

capilla 52 MAG

**Standard designations:**

EN ISO 14343-A: W 25 20  
 EN 12072: W 25 20  
 AWS A 5.9: ER 310  
 Material no.: 1.4842

**capilla® 310 WIG**

**Product description:**

Welding rod made of fully austenitic CrNi-steel for TIG welding of heat-resistant steels.

Scale-resistant up to 1050°C.

Not resistant to sulphurous gases.

**Applications:**

**Suitable for base materials such as:**

heat- and scale-resistant steels, such as:

1.4832 (G-X 25 CrNiSi 20 14),  
 1.4835 (X 9 CrNiSiNCe 21-11-2),  
 1.4837 (G-X 40 CrNiSi 25 12),  
 1.4840 (G-X 15 CrNi 25 20),  
 1.4841 (X 15 CrNiSi 25 20),  
 1.4845 (X 12 CrNi 25 21),  
 1.4762 (X 10 CrAlSi 25).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,12	0,50	1,80	26,00	21,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	490 [MPa]	Elongation (L=5d):	490 [MPa]
Yield strength $R_{eH}/R_{p0.2}$ :	350 [MPa]	Notch impact energy (ISO-V):	315 [MPa]

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000
4,0	1000
5,0	1000

**Available alternatives:**

capilla 310

capilla 310 KB

capilla 310 MAG

**Standard designations:**

EN ISO 14343-A: W 20 25 5 Cu L  
 EN 12072: W 20 25 5 Cu L  
 AWS A 5.9: ~ER 385  
 Material no.: 1.4519

**capilla® 385 WIG**

**Product description:**

Welding rod made of fully austenitic CrNiMo-steel containing copper for TIG deposition welding and joint welds of high alloy steels with increased corrosion resistance to reducing media.

Pulsed arc welding preferred.

Molybdenum content: high  
 Carbon content: especially low

For operating temperatures up to 350°C.  
 Intermediate layer temperatures up to 150°C.

**Applications:****Suitable for base materials such as:**

1.4500 (G-X 7 NiCrMoCuNb 25 20)  
 1.4505 (X 5 NiCrMoCuNb 20 18)  
 1.4506 (X 5 NiCrMoCuTi 20 18)  
 1.4536 (G-X 2NiCrMoCuN 25 20)  
 1.4539 (X 2 NiCrMoCu 25 20 5)  
 1.4585 (G-X 7 NiCrMoCuNb 18 18).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Cu	Fe
0,03	1,00	2,50	20,00	26,00	5,00	1,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	510 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]		

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

capilla 385

capilla 385 MAG

**Standard designations:**

EN ISO 17633-A: T 19 9 L R M21 3 /  
T 19 9 L R C1 3  
EN 12073: T 19 9 L RM 3 /  
T 19 9 L RC 3  
AWS A 5.22: E 308 L T 1 - 4  
Material no.: 1.4316

**capilla® G 308 L RM****Product description:**

Flux-cored wire made of austenitic CrNi-steel with a particularly low carbon content for MIG/MAG welding of stainless austenitic steels.

For operating temperatures from -196°C to 350°C.

Heat- and scale-resistant up to 600°C.

Highly resistant to intercrystalline corrosion (IC).  
Easily removable slags, low spatter, creates a smooth, finely feathered seam with notch-free transition.

**Applications:**

**Suitable for base materials such as:**

1.4300 (X 12 CrNi 18 8),  
1.4301 (X 5 CrNi 18-10),  
1.4303 (X 4 CrNi 18-12),  
1.4306 (X 2 CrNi 19-11),  
1.4308 (GX 5 CrNi 19-10),  
1.4311 (X 2 CrNiN 18-9),  
1.4312 (GX 10 CrNi 18-8),  
1.4371 (X 2 CrMnNiN 17-7-5),  
1.4541 (X 6 CrNiTi 18-10),  
1.4543 (X 3 CrNiCuTiNb 12-9),  
1.4550 (X 6 CrNiNb 18-10),  
1.4552 (GX 5 CrNiNb 19-11).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,04	1,00	2,00	20,00	10,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	270 [MPa]	Notch impact energy (ISO-V):	47 [J]

**Shielding gas (EN ISO 14175):** M21, C1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,9
1,2

**Available alternatives:**

capilla 308 L KB  
capilla 308 H

capilla 308 LR  
capilla 308 L

capilla 308 L MAG  
capilla 308 L WIG

**Standard designations:**

EN ISO 17633-A: T 19 9 Nb R M21 3 -  
T 19 9 Nb R C1 3  
EN 12073: T 19 9 Nb RM 3 -  
T 19 9 Nb RC 3  
AWS A 5.22: E 347 T0 - 4  
Material no.: 1.4551

**capilla® G 347 RM****Product description:**

Flux-cored wire with rutile slag for MIG/MAG welding of stainless austenitic steels.

Weld metal consists of stabilised austenitic CrNi- steel.

For operating temperatures up to 400°C.

Good appearance of the welded seam, easy to remove slag, very good weld penetration, very high output and X-ray safe.

**Applications:**

**Suitable for base materials such as:**

1.4301 (X 5 CrNi 18 10),  
1.4303 (X 5 CrNi 18 12),  
1.4306 (X 2 CrNi 19 11),  
1.4306 (G-X 2 CrNi 18 9),  
1.4308 (G-X 6 CrNi 18 9),  
1.4310 (X 12 CrNi 17 7),  
1.4312 (G-X 10 CrNi 18 8),  
1.4319 (X 5 CrNi 18 7),  
1.4541 (X 6 CrNiTi 18 10),  
1.4550 (X 6 CrNiNb 18 10),  
1.4552 (G-X 5 CrNiNb 18 9).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Nb	Fe
0,03	0,70	1,40	19,00	10,50	0,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	650 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	470 [MPa]	Notch impact energy (ISO-V):	34 [J] (-196°C)

**Shielding gas (EN ISO 14175):** M20, M21, C1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,9
1,2
1,6

**Available alternatives:**

capilla 347  
capilla 347 LR

capilla 347 MAG

capilla 347 WIG

**Standard designations:**

EN ISO 17633-A: T 19 12 3 L R M21 2  
 EN 12073: T 19 12 3 L RM 3 /  
 T 19 12 3 L RC 3  
 AWS A 5.22: E 316 LT 1 - 4  
 Material no.: 1.4430

**capilla® G 316 L RM****Product description:**

Flux core wire for MIG/MAG joint welds on corrosion-resistant CrNiMo-steels and stainless austenitic steels.

Weld metal consists of austenitic CrNiMo-steel with very low carbon content.

The weld metal is highly resistant to intercrystalline corrosion (IC).

For operating temperatures up to 400°C.

Cryogenic up to -40°C.

Scale-resistant up to 800°C.

(when exposed to air and oxidising gases).

**Applications:**

**Suitable for base materials such as:**

1.4401 (X 5 CrNiMo 17 12 2),  
 1.4404 (X 2 CrNiMo 17 13 2),  
 1.4406 (X 2 CrNiMoN 17 12 2),  
 1.4408 (G-X CrNiMo 18 10),  
 1.4420 (X 5 CrNiMo 18 11),  
 1.4429 (X 2 CrNiMoN 17 13 3),  
 1.4435 (X 2 CrNiMo 18 14 3),  
 1.4436 (X 5 CrNiMo 17 13 3),  
 1.4571 (X 6 CrNiMoTi 17 12 2),  
 1.4573 (X 10 CrNiMoTi 18 12),  
 1.4580 (X 6 CrNiMoNb 17 12 2),  
 1.4581 (G-X 5 CrNiMoNb 18 10),  
 1.4583 (X 10 CrNiMoNb 18 12).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,04	1,00	2,00	18,50	12,00	2,80	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	580 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	295 [MPa]		

**Shielding gas (EN ISO 14175):** M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,9
1,2

**Available alternatives:**

capilla 316 L KB

capilla 316 L

capilla 316 L F

capilla 316 LR

capilla 316 MAG

capilla 316 WIG

capilla G 316 L MM

capilla G 316 L PM

**Standard designations:**

EN ISO 17633-A: T 19 12 3 Nb R M 3 /  
T 19 12 3 Nb R C 3  
EN 12073: T 19 12 3 Nb RM 3 /  
T 19 12 3 Nb RC 3  
AWS A 5.22: E 318  
Material no.: 1.4576

**capilla® G 318 RM****Product description:**

Flux-cored wire with rutile slag for MIG/MAG welding of stainless austenitic CrNiMo-steels.

Outstanding welding properties, good appearance of the welded seam, slag that comes off on its own, very good weld penetration and high output.

Excellent performance in flat position and horizontal-vertical, can also be used in positional welding.

**Applications:**

**Suitable for base materials such as:**

1.4401 (X 5 CrNiMo 17 12 2),  
1.4404 (G-X 2 CrNiMo 18 10),  
1.4406 (X2CrNiMoN17-11-2),  
1.4408 (G-X 6 CrNiMo 18 10),  
1.4420 (X 5 CrNiMo 18 11),  
1.4435 (X 2 CrNiMo 18 14 3),  
1.4436 (X 5 CrNiMo 17 13 3),  
1.4571 (X 6 CrNiMoTi 17 12 2),  
1.4573 (X 10 CrNiMoTi 18 12),  
1.4580 (X 6 CrNiMoNb 17 12 2),  
1.4581 (G-X 5 CrNiMoNb 18 10),  
1.4583 (X 10 CrNiMoNb 18 12).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Nb	Fe
0,03	0,90	1,50	19,50	12,00	2,90	0,45	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	620 [MPa]	Elongation (L=5d):	34 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	480 [MPa]	Notch impact energy (ISO-V):	60 [J]

**Shielding gas (EN ISO 14175):** M20, M21, C1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Available alternatives:**

capilla 318  
capilla 318 LR

capilla 318 MAG

capilla 318 WIG

**Standard designations:**

EN ISO 17633-A: T 22 9 3 N L R M21 3 -  
T 22 9 3 N L R C1 3  
EN 12073: T 22 9 3 N L RM 3 -  
T 22 9 3 N L RC 3  
AWS A 5.22: E2209T0 - 4  
Material no.: 1.4462

**capilla® G 2209 RM****Product description:**

Flux-cored wire with rutile slag for MIG/MAG deposition welding and joint welds of duplex steels.

The weld metal has a ferritic-austenitic microstructure.

High resistance to wet corrosion in media containing H<sub>2</sub>S and chloride.

For operating temperatures up to 300°C.

**Applications:**

**Suitable for base materials such as:**

1.4062 (X2CrNiN22-2),  
1.4162 (X2CrMnNiN21-5-1),  
1.4362 (X 2 CrNiN 23-4),  
1.4462 (X 2 CrNiMoN 22 5).

Highly corrosion-resistant steels of the same or similar composition.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	N	Fe
0,03	1,00	2,00	22,50	8,00	3,50	0,15	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength R <sub>m</sub> :	690 [MPa]	Elongation (L=5d):	25 [%]
Yield strength R <sub>eH</sub> /R <sub>p0.2</sub> :	520 [MPa]	Notch impact energy (ISO-V):	50 [J]

**Shielding gas (EN ISO 14175):** M20, M21, C1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Available alternatives:**

capilla 2209

capilla 2209 MAG

capilla 2209 WIG

**Standard designations:**

EN ISO 17633-A: T 23 12 L R M21 3/  
T 23 12 L R C1 3  
EN 12073: T 23 12 L RM 3/  
T 23 12 L RC 3  
AWS A 5.22: E 309 L T0 - 4  
Material no.: 1.4332

**capilla® G 309 L RM****Product description:**

Flux-cored wire with rutile slag for MIG/MAG welding of highly and unalloyed steels.

The weld metal consists of austenitic CrNi-steel with a particularly low carbon content, and has a fine weld pattern.

For operating temperatures up to max. 300°C.  
Scale-resistant up to 1000°C.

Suitable for deposition welds on unalloyed steels if an 18/8 CrNi-alloy is to be achieved in the first layer.

**Applications:**

**Suitable for base materials such as:**

1.4301 (X 5 CrNi 18 10),  
1.4713 (X 10 CrAl 7),  
1.4724 (X 10 CrAl 13),  
1.4828 (X 15 CrNiSi 20 12),  
1.4878 (X 12 Cr NiTi 18 9).

**Suitable for welding buffer layers and joint welds of:**

high alloy and heat-resistant steels with unalloyed and low alloy steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,04	1,00	2,50	23,50	12,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	580 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	295 [MPa]	Notch impact energy (ISO-V):	49 [J]

**Shielding gas (EN ISO 14175):** M21, C1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,9
1,2

**Available alternatives:**

**capilla** 309 L

**capilla** G 309 L PM

**capilla** 309 L MAG

**capilla** G 309 L BM

**capilla** 309 L WIG

**Standard designations:**

EN ISO 17633-A: T 18 8 Mn R M21 3 /  
T 18 8 Mn R C1 3  
EN 12073: T 18 8 Mn RM 3 /  
T 18 8 Mn RC 3  
AWS A 5.22: E 307 T0-4 - E 307 T0-1  
Material no.: 1.4370

**capilla® G 51 RM****Product description:**

Flux-cored wire with rutile slag for MIG/MAG welding of steels of different types and for weld cladding.

Weld metal consists of austenitic CrNiMn-steel.

Outstanding welding properties, very X-ray safe, slag that falls off on its own, very good weld penetration, high output and a good appearance of the welded seam.

Can be welded in a flat or horizontal-vertical position.

**Applications:****Suitable for base materials such as:**

1.3401 (X 120 Mn 12).

**Suitable for joint welds of:**

Manganese steels with 14%Mn or other steels.

Buffer layer before hardfacing.

**Suitable for repair welds on:**

Components with high requirements for hardness, ductility of the weld metal in combination with strain-hardening and air-hardened or difficult to weld steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,10	1,00	4,75	18,50	9,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	630 [MPa]	Notch impact energy (ISO-V):	50 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	480 [MPa]	Hardness (welded condition):	180 [HB]
Elongation (L=5d):	40 [%]	Hardness (after strain-hardening):	approx. 340 [HB]

**Shielding gas (EN ISO 14175):** M20, M21, C1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

$\varnothing$ [mm]
1,2
1,6

**Available alternatives:**

capilla 51 Ti  
capilla 51 MAG

capilla 51 W  
capilla 51 WIG

capilla 51 KBN  
capalloy 7166703

**Standard designations:**

EN ISO 17633-A: T 29 9 R M21 3 -  
T 29 9 R C1 3  
EN 12073: T 29 9 RM 3 - T 29 9 RC 3  
AWS A 5.22: E 312 T0-4 - E 312 T0 - 1  
Material no.: 1.4337

**capilla® G 52 RM****Product description:**

Flux-cored wire made of stainless steel with rutile slag for MIG/MAG welding.

Weld metal with 29%Cr and 9%Ni.

Outstanding welding properties, very X-ray safe, slag that falls off on its own, very good weld penetration, high output and a good appearance of the welded seam.

Can be welded in a flat or horizontal-vertical position.

**Applications:**

**Suitable for welded joints between steels of similar types or ferritic steels, such as:**

Low or medium alloyed steels (black & white connections), reconstruction and as a buffer layer for plating, repair welds in difficult to weld steels, carbon steels suitable for hardening, materials susceptible to cracking.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,10	0,80	1,30	29,00	8,60	0,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	660 [MPa]	Elongation (L=5d):	15 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]	Notch impact energy (ISO-V):	32 [J]

**Shielding gas (EN ISO 14175):** M20, M21, C1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Available alternatives:**

capilla 52  
capilla 52 MAG

capilla 52 K  
capilla 52 WIG

capilla 52 WIG

## 3 Welding consumables for welding of scale-resistant and high heat-resistant materials

### 3.1 Coated stick electrodes for welding of scale-resistant and high heat-resistant materials

capilla	EN ISO	AWS A	Mat. no.	Page
<b>P 91</b>	3580-A: E CrMo 91 B 42	5.5: E 9018 - B9		<b>112</b>
<b>P 911</b>	3580-A: EZ CrMoWV 9 1 1 B 42	5.5: ~E 9015 - B 91		<b>113</b>
<b>P 92</b>	3580-A: EZ CrMoWV 9 0,5 2 B 42	5.5: ~E 9015 - B 91		<b>114</b>
<b>P 121</b>	3580-A: E CrMoWV 12 B 42		1.4937	<b>115</b>
<b>308 H</b>	3581-A: E 19 9 H R 12	5.4: E 308 H - 16	1.4948	<b>116</b>
<b>316 H</b>	3581-A: EZ 19 12 2 R 12	5.4: E 316 H - 16		<b>117</b>
<b>309</b>	3581-A: E 22 12 R 32	5.4: E 309 - 16	~1.4829	<b>118</b>
<b>310 H</b>	3581-A: E 25 20 H R 12	5.4: E 310 H - 15	~1.4846	<b>119</b>
<b>4009</b>	3581-A: E 13 B 42	5.4: E 410-25	1.4009	<b>120</b>
<b>4018</b>	3581-A: EZ 13 1 B 42	5.4: ~E 410 - 26	1.4018	<b>121</b>
<b>410 NiMo</b>	3581-A: E 13 4 B 42	5.4: E 410 NiMo-15	1.4351	<b>122</b>
<b>4034</b>	3581-A: EZ 13	5.4: E 420-25	1.4034	<b>123</b>
<b>4015</b>	3581-A: E 17 B 42	5.4: E 430 - 25	1.4015	<b>124</b>
<b>4115</b>	3581-A: EZ 17 1 B 42		1.4115	<b>125</b>
<b>4122</b>	3581-A: EZ 17 1 1 B 42		1.4122	<b>126</b>
<b>4405</b>	3581-A: EZ 17 6 1 B 42		~1.4405	<b>127</b>
<b>4820</b>	3581-A: E 25 4 R 32		1.4820	<b>128</b>
<b>4830</b>	3581-A: EZ 25 24 Nb B 32		1.4830	<b>129</b>
<b>4850</b>	3581-A: EZ 21 32 Nb B 32		~1.4850	<b>130</b>
<b>4850 Mn</b>	3581-A: EZ 21 32 MnNb B 32		~1.4850	<b>131</b>
<b>4853</b>	3581-A: EZ 25 35 Nb B 32		~1.4853	<b>132</b>
<b>4863</b>	3581-A: EZ 18 36 Nb B 32	5.4: ~E330 - 15	~1.4863	<b>133</b>
<b>4879</b>	14172: ~E Ni 6702 (NiCr28Fe6W)		~2.4879	<b>134</b>
<b>4778</b>			~2.4778	<b>135</b>
<b>Alloy 182</b>	14172: E Ni 6182 (NiCr15Fe6Mn)	5.11: E NiCrFe - 3	2.4620	<b>136</b>
<b>6000 DL</b>	14172:~E Ni 6082(NiCr20Mn3Nb)	5.11: ~E NiCrFe - 3	~2.4648	<b>137</b>
<b>6000 B</b>	14172:EZ Ni 6082(NiCr20Mn3Nb)	5.11: ~E NiCrFe - 3	~2.4648	<b>138</b>
<b>625 K</b>	14172: E Ni 6625 (NiCr22Mo9Nb)	5.11: E NiCrMo 3	2.4621	<b>139</b>
<b>Alloy C</b>	14172: E Ni 6059 (NiCr23Mo16)	5.11: E NiCrMo - 13	2.4609	<b>140</b>
<b>Alloy CK</b>	14172: E Ni 6059 (NiCr23Mo16)	5.11: E NiCrMo - 13	2.4609	<b>141</b>
<b>Alloy C 276</b>	14172: E Ni 6276(NiCr15Mo15Fe6W4)	5.11: E NiCrMo4	2.4887	<b>142</b>
<b>50/50 Nb</b>	14172: E Ni 6172 (NiCr50Nb)	5.11: E NiCr - 4	2.4813	<b>143</b>

### 3.2 Wire electrodes for welding of scale-resistant and high heat-resistant materials

#### 3.2.1 Solid wires for MIG/MAG welding of scale-resistant and high heat-resistant materials

capilla	EN ISO	AWS A	Mat. no.	Page
<b>P 91 MAG</b>	21952-A: G CrMo 9 1	5.28: ER 90 S - B9	~1.4903	<b>144</b>
<b>308 H MAG</b>	14343-A: G 19 9 H	5.9: ~ER 308 H	~1.4948	<b>145</b>
<b>309 MAG</b>	14343-A: G 22 12 H	5.9: ER 309 Si	1.4829	<b>146</b>
<b>4009 MAG</b>	14343-A: G 13	5.9: ~ER 410	1.4009	<b>147</b>
<b>410 NiMo MAG</b>	14343-A: G 13 4	5.9: ~ER 410 NiMo	1.4351	<b>148</b>
<b>4015 MAG</b>	14343-A: G 17	5.9: ~ER 430	1.4015	<b>149</b>
<b>4115 MAG</b>	14700: S Fe 7 - 200-cpt		1.4115	<b>150</b>

### 3.2.1 Solid wires for MIG/MAG welding of scale-resistant and high heat-resistant materials

Capilla	EN ISO	AWS A	Mat. no.	Page
4122 MAG	14700: S Fe 8 - 250-gpt		1.4122	151
4850 MAG	14343-A: GZ 21 33 Mn Nb		~1.4850	152
4853 MAG	14343-A: GZ 25 35 Zr		~1.4853	153
6000 MAG	18274: S Ni 6082 (NiCr20Mn3Nb)	5.14: ER NiCr - 3	2.4806	154
625 MAG	18274: Ni 6625 (NiCr22Mo9Nb)	5.14: ER NiCrMo - 3	2.4831	155
Alloy C MAG	18274: S Ni 6059 (NiCr23Mo16)	5.14: ER NiCrMo - 13	2.4607	156
Alloy C 276 MAG	18274: S Ni 6276 (NiCr16Mo15Fe6W4)	5.14: ER NiCrMo - 4	2.4819	157

### 3.2.2 Welding rods for TIG welding of scale-resistant and high heat-resistant materials

capilla	EN ISO	AWS A	Mat. no.	Page
P 91 WIG	21952-A: W CrMo 9 1	5.28: ER 90 S - B9	~1.4903	158
308 H WIG	14343-A: W 19 9 H	5.9: ~ER 308 H	~1.4948	159
309 WIG	14343-A: W 22 12 H	5.9: ER 309 Si	1.4829	160
4009 WIG	14343-A: W 13	5.9: ~ER 410	1.4009	161
410 NiMo WIG	14343-A: W 13 4	5.9:~ER 410 NiMo	1.4351	162
4015 WIG	14343-A: W 17	5.9: ~ER 430	1.4015	163
4115 WIG	14700: S Fe 7 - 200-cpt		1.4115	164
4122 WIG	14700: S Fe 8 - 250-gpt		1.4122	165
4850 WIG	14343-A: WZ 21 33 Mn Nb		~1.4850	166
4853 WIG	14343-A: WZ 25 35 Zr		~1.4853	167
6000 WIG	18274: S Ni 6082 (NiCr20Mn3Nb)	5.14: ER NiCr - 3	2.4806	168
625 WIG	18274: Ni 6625 (NiCr22Mo9Nb)	5.14: ER NiCrMo - 3	2.4831	169
Alloy C WIG	18274: S Ni 6059 (NiCr23Mo16)	5.14: ER NiCrMo-13	2.4607	170
Alloy C 276 WIG	18274: S Ni 6276 (NiCr16Mo16Fe6W4)	5.14: ER NiCrMo - 4	2.4886	171

### 3.2.3 Flux-cored wires for MIG/MAG welding of scale-resistant and high heat-resistant materials

capilla	EN ISO	Mat. no.	Page
G 410 NiMo MM	17633-A: T 13 4 M M21 3	~1.4351	172

**Standard designations:**

EN ISO 3580-A: E CrMo 91 B 42  
 EN 1599: E CrMo 91 B 42  
 AWS A 5.5: E 9018 - B9

**capilla® P 91**

Recovery: 130%

**Product description:**

Basic CrMoVNb-alloyed stick electrode for deposition welding and welded joints of high-temperature-resistant, annealed, 9% Cr1Mo-steels of the same type.

Good welding properties, even in positional welding.

**Applications:**

**Suitable for base materials such as:**

1.4903 (X 10 CrMoVNb 9-1),  
 1.7386 (X 11 CrMo 9-1),  
 1.7389 (G X 12CrMo 10-1).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Nb	V	Fe
0,09	0,22	0,65	9,00	0,80	1,10	0,05	0,20	Balance

**Properties:** (heat treatment: 760°C / 2h; indicative values at room temperature)

Tensile strength $R_m$ :	680 [MPa]	Elongation (L=5d):	17 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	550 [MPa]	Notch impact energy (ISO-V):	47 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 120
4,0	350	110 - 170

**Available alternatives:**

capilla P 91 MAG

capilla P 91 WIG

**Standard designations:**

EN ISO 3580-A: EZ CrMoWV 9 1 1 B 42  
 EN 1599: E CrMoWV 9 1 1 B 42  
 AWS A 5.5: ~E 9015 - B 91

**capilla® P 911**

Recovery: 130%

**Product description:**

Basic CrMoNVWNb-alloyed stick electrode for deposition welding and welded joints of high-temperature-resistant, annealed, 9% Cr-steels of the same type.

Good welding properties, even in positional welding.

**Applications:**

**Suitable for base materials such as:**

1.4905 (X 11 CrMoWVNb 9-1-1).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Nb	W	V	Fe
0,11	0,25	0,60	8,80	0,70	1,00	0,05	1,00	0,20	Balance

**Properties:** (heat treatment: 760°C / 2h; indicative values at room temperature)

Tensile strength $R_m$ :	720 [MPa]	Elongation (L=5d):	15 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	550 [MPa]	Notch impact energy (ISO-V):	41 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 120
4,0	350	110 - 170

**Standard designations:**

EN ISO 3580-A: EZ CrMoWV 9 0,5 2 B 42  
 EN 1599: EZ CrMoWV 9 0,5 2 B 42  
 AWS A 5.5: ~E 9015 - B 91

**capilla® P 92**

Recovery: 130%

**Product description:**

Basic CrMoNVWNb-alloyed stick electrode for deposition welding and welded joints of high-temperature-resistant, annealed, 9% Cr-steels of the same type.

Good welding properties even in difficult positions.

**Applications:**

**Suitable for base materials such as:**

NF 616,  
 1.4905 (X 11 CrMoWVNb 9-1-1),  
 1.4906 (X 12 CrMoWVNbN 10-1-1).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Nb	W	V	Fe
0,11	0,25	0,60	8,90	0,70	0,50	0,05	1,60	0,20	Balance

**Properties:** (heat treatment: 760°C / 2h; indicative values at room temperature)

Tensile strength $R_m$ :	720 [MPa]	Elongation (L=5d):	15 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	560 [MPa]	Notch impact energy (ISO-V):	41 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	140 - 190

**Standard designations:**

EN ISO 3580-A: E CrMoWV 12 B 42  
 EN 1599: E CrMoWV 12 B 42  
 Material no.: 1.4937

**capilla® P 121**

Recovery: 130%

**Product description:**

Basic CrMoNiWV-alloyed stick electrode for deposition welding and welded joints of high-temperature-resistant, annealed, 12% Cr-steels of the same type.

Good welding properties (even in positional welding).

High heat resistance up to 550°C.  
 Scale-resistant up to 600°C.

**Applications:**

**Suitable for base materials such as:**

1.4922 (X 20 CrMoV 12-1),  
 1.4935 (X 20 CrMoWV 12-1).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	W	V	Fe
0,18	0,30	0,60	11,00	0,60	1,00	0,50	0,30	Balance

**Properties:** (heat treatment: 760°C / 2h; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Elongation (L=5d):	15 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	590 [MPa]	Notch impact energy (ISO-V):	35 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla P 121 MAG

capilla P 121 WIG

**Standard designations:**

EN ISO 3581-A: E 19 9 H R 12  
 EN 1600: E 19 9 R 12  
 AWS A 5.4: E 308 H - 16  
 Material no.: 1.4948

**capilla® 308 H****Product description:**

Rutile-basic coated stick electrode for joint welds and deposition welding of stainless austenitic, non-stabilised and heat-resistant CrNi-steels.

For operating temperatures up to 700°C.

**Applications:**

**Suitable for base materials such as:**

1.4550 (X 6 CrNiNb 18-10),  
 1.4878 (X 8 CrNiTi 18-10),  
 1.4948 (X 6 CrNi 18-10).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,05	0,60	0,80	19,80	10,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	70 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	50 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 308 H MAG

capilla 308 H WIG

**Standard designations:**

EN ISO 3581-A: EZ 19 12 2 R 12  
 EN 1600: EZ 19 12 2 R 12  
 AWS A 5.4: E 316 H - 16

**capilla® 316 H****Product description:**

Rutile-basic coated stick electrode for welding of stainless austenitic CrNiMo-steels.

Improved scale resistance and high-temperature strength achieved due to increased Si- and C-content compared to the “**capilla 316 L**” stick electrode.

**Applications:**

**Suitable for base materials such as:**

1.4401 (X 5 CrNiMo 17 12 2),  
 1.4404 (X 2 CrNiMo 17 13 2),  
 1.4406 (X 2 CrNiMoN 17 12 2),  
 1.4408 (G-X 6 CrNiMo 18 10),  
 1.4420 (X 5 CrNiMo 18 11),  
 1.4435 (X 2 CrNiMo 18 14 3),  
 1.4436 (X 5 CrNiMo 17 13 3),  
 1.4571 (X 6 CrNiMoTi 17 12 2),  
 1.4573 (X 10 CrNiMoTi 18 12),  
 1.4580 (X 6 CrNiMoNb 17 12 2),  
 1.4581 (G-X 5 CrNiMoNb 18 10),  
 1.4583 (X 10 CrNiMoNb 18 12).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,05	0,80	0,60	18,50	11,50	2,60	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	70 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Standard designations:**

EN ISO 3581-A: E 22 12 R 32  
 EN 1600: E 22 12 R 32  
 AWS A 5.4: E 309 - 16  
 Material no.: ~1.4829

**capilla® 309**

Recovery: 120%

**Product description:**

Rutile-basic coated stick electrode for joint welds of heat-resistant CrNi-steels of the same type or lower alloy CrNi-steels.

Heat-resistant up to 950°C.

The pure weld metal is scale-resistant up to 1000°C.

Suitable for deposition welds on unalloyed steels if an 18/8 CrNi-alloy is to be achieved in the first layer.

Suitable for joints, cladding and buffer layers.

**Applications:****Suitable for base materials such as:**

1.4541 (X 6 CrNiTi 18-10),  
 1.4550 (X 6 CrNiNb 18-10),  
 1.4583 (GX10CrNiMoNb18-12),  
 1.4710 (G X 30CrSi 7),  
 1.4712 (X 10 CrSi 6),  
 1.4724 (X 10 CrAlSi 13),  
 1.4729 (G X 40 CrSi 13),  
 1.4740 (G X 40 CrSi 17),  
 1.4742 (X 10 CrAlSi 18),  
 1.4825 (G X 25 CrNiSi 18-9),  
 1.4826 (G X 40 CrNiSi 22-10),  
 1.4828 (X 15 CrNiSi 20-12),  
 1.4878 (X 8 CrNiTi 18-10).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,10	0,80	0,90	22,50	12,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Notch impact energy (ISO-V):	55 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 309 MAG

capilla 309 WIG

capilla G 309 RM

**Standard designations:**

EN ISO 3581-A: E 25 20 H R 12  
 EN 1600: E 25 20 H R 12  
 AWS A 5.4: E 310 H - 15  
 Material no.: ~1.4846

**capilla® 310 H****Product description:**

Rutile-basic coated stick electrode for welding heat-resistant steels with an elevated carbon content.

Weld metal consists of fully austenitic CrNi-steel.

Scale-resistant up to 1150°C.

Not resistant to sulphurous gases.

**Applications:**

**Suitable for base materials such as:**

1.4826 (GX40CrNiSi22-10),  
 1.4837 (GX40CrNiSi25-12),  
 1.4848 (GX40CrNiSi25-20).

**Suitable for welding heat-resistant steels such as:**

CrNi, Cr, CrSi, CrAl.

**Suitable in areas such as:**  
 furnace and fittings engineering.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,40	1,00	2,50	25,50	21,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Yield strength $R_{p1.0}$ :	450 [MPa]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Elongation (L=5d):	10 [%]

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	80 - 110
3,2	350	100 - 150
4,0	350	150 - 190
5,0	350	160 - 210

**Available alternatives:**

capilla 310

capilla 310 KB

**Standard designations:**

EN ISO 3581-A: E 13 B 42  
 EN 1600: E 13 B 42  
 AWS A 5.4: E 410-25  
 Material no.: 1.4009

**capilla® 4009**

Recovery: 150%

**Product description:**

Basic coated high performance electrode for deposition welding and joint welds of ferritic-martensitic chromium steels, (such as 13% Cr-steels).

For operating temperatures up to 450°C.

The weld metal is corrosion-resistant, like chromium steels of the same type.

Pre-heat the workpiece to 200°C, unless the base material requires higher pre-heating.

**Applications:****Suitable for base materials such as:**

1.4000 (X 6 Cr 13),  
 1.4001 (X 7 Cr 14),  
 1.4002 (X 6 CrAl 13),  
 1.4006 (X 12 Cr 13),  
 1.4021 (X 20 Cr 13),  
 1.4024 (X 15 Cr 13).

**Suitable for weld surfacing of sealing surfaces on:**

Gas, water and steam fittings.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,06	0,30	0,50	12,50	0,10	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	650 [MPa]	Hardness:	180 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]	Hardness (unannealed):	35 [HRC]
Elongation (L=5d):	15 [%]		

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 110
4,0	450	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 4009 MAG

capilla 4009 WIG

**Standard designations:**

EN ISO 3581-A: EZ 13 1 B 42  
 EN 1600: EZ 13 1 B 42  
 AWS A 5.4: ~E 410 - 26  
 Material no.: 1.4018

**capilla® 4018**

Recovery: 150%

**Product description:**

Basic coated high performance electrode for deposition welding and joint welds of heat-treatable 13% Cr-steels.

For operating temperatures up to 450°C.  
 The weld metal is corrosion-resistant, like chromium steels of the same type.

Pre-heating the workpiece to approx. 250°C is recommended.

Stress-relief heat treatment at temperatures up to 680°C is recommended, if the base material allows for this.

**Applications:****Suitable for base materials such as:**

1.4008 (GX 8 Cr 13).

**Suitable for weld surfacing of sealing surfaces on:**

Gas, water and steam fittings.

Often used only as a cover layer on tougher austenitic fill layers (in sulphurous media at increased temperatures).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,06	0,30	0,90	12,50	1,30	Balance

**Properties:** (heat treatment: 640°C / 8h; indicative values at room temperature)

Tensile strength $R_m$ :	650 [MPa]	Hardness:	180 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]	Hardness (unannealed):	35 [HRC]
Elongation (L=5d):	25 [%]		

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 110
4,0	350/450	100 - 150

**Available alternatives:**

capilla 4018 MAG

capilla 4018 WIG

**Standard designations:**

EN ISO 3581-A: E 13 4 B 42  
 EN 1600: E 13 4 B 42  
 AWS A 5.4: E 410 NiMo - 15  
 Material no.: 1.4351

**capilla® 410 NiMo**

Recovery: 150%

**Product description:**

Basic coated high performance electrode for deposition welding and joint welds of ferritic-martensitic chromium steels.

The weld metal is corrosion-resistant corresponding to Cr(Ni)-steels of similar types and highly resistant to wear and cavitation.

When using thick-walled parts, pre-heating to max. 150°C or respectively according to the analysis of the basic material is required. Subsequent heat treatment, tempering, or quenching if necessary.

**Applications:****Suitable for base materials such as:**

1.4000 (X 6 Cr 13),  
 1.4001 (X 7 Cr 14),  
 1.4002 (X 6 CrAl 13),  
 1.4407 ((G-X5CrNiMo13-4),  
 1.4313 (X 3 CrNiMo 13-4),  
 1.4413 (X3CrNiMo13-4),  
 1.4414 (G-X4CrNiMo13-4).

Suitable for deposition welding and joint welds of 13% Cr-steels of the same or similar types and cast steel.

Especially well suited for hydroelectric turbine construction.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,04	0,30	0,50	12,00	4,50	0,50	Balance

**Properties:** (heat treatment: 600°C / 2h air; indicative values at room temperature)

Tensile strength $R_m$ :	750 [MPa]	Hardness:	310 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	500 [MPa]	Hardness (unannealed):	38 [HRC]
Elongation (L=5d):	15 [%]		

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	140 - 190

**Available alternatives:**

**capilla** 410 NiMo MAG  
**capilla** G 410 NiMo MM

**capilla** 410 NiMo WIG  
**capilla** G 135 MM

**capidur** 410 NiMo  
**capilla** G 135 N MM

**Standard designations:**

EN ISO 3581-A: EZ 13  
 EN 14700: E Fe 7  
 AWS A 5.4: E 420-25  
 Material no.: 1.4034

**capilla® 4034**

Recovery: 150%

**Product description:**

Basic coated high performance electrode for deposition welding and joint welds of heat-treatable 13% Cr-steels and cast steel types.

The weld metal is corrosion-resistant like Cr-steels of the same or similar type.

For operating temperatures of 450°C.

Pre-heating for unalloyed and low alloy base materials:

150°C - 350°C (depending on wall thickness).

**Applications:****Suitable for heat- and wear-resistant welding on:**

Rollers mills, gripper jaws, racks, gears, blades, mixing paddles and wear plates.

**Suitable for weld surfacing of sealing surfaces on:**

Gas, water and steam fittings.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,45	0,40	0,90	13,00	0,10	Balance

**Properties:** (heat treatment: 550 - 760°C / 2h; indicative values at room temperature)

Hardness:	240 - 360 [HB 30]	Depending on heat treatment
	51 - 55 [HRC]	Unannealed

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150

**Standard designations:**

EN ISO 3581-A: E 17 B 42  
 EN 1600: E 17 B 42  
 AWS A 5.4: E 430 - 25  
 Material no.: 1.4015

**capilla® 4015**

Recovery: 150%

**Product description:**

Basic coated high performance electrode for deposition welding and joint welds of heat-treatable 17% Cr-steels.

The weld metal is corrosion-resistant like Cr-steels of similar type.

For operating temperatures up to 450°C.  
 Scale-resistant up to 950°C.

Pre-heating the workpiece to approx. 250°C is recommended.

Stress-relief heat treatment at temperatures up to 800°C is recommended, if the base material allows for this.

**Applications:****Suitable for base materials such as:**

1.4057 (X 17 CrNi 16-2),  
 1.4059 (G X 22 CrNi 17),  
 1.4740 (G X 40 CrSi 17),  
 1.4742 (X 10 CrAlSi 18),  
 1.4741 (X 10 CrSi 18).

**Suitable for weld surfacing of sealing surfaces on:**

Gas, water and steam fittings.

Often used only as a cover layer on tougher austenitic fill layers (in sulphurous media at increased temperatures).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,08	0,80	0,30	17,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	540 [MPa]	Hardness:	150 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	340 [MPa]	Hardness (unannealed):	240 [HB 30]
Elongation (L=5d):	20 [%]		

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200
6,0	450	200 - 250

**Available alternatives:**

capilla 4015 MAG

capilla 4015 WIG

**Standard designations:**

EN ISO 3581-A: EZ 17 1 B 42  
 EN 1600: EZ 17 1 B 42  
 Material no.: 1.4115

**capilla® 4115**

Recovery: 150%

**Product description:**

Basic coated high performance electrode for deposition welding of stainless Cr-steels of the same or similar types.

For operating temperatures up to 450°C.

**Pre-heating:**

Welding materials of the same type 300 - 400°C,  
 Welding materials of dissimilar types 150 - 350°C.

**Applications:****Suitable for base materials such as:**

1.4000 (X 6 Cr 13),  
 1.4001 (X 7 Cr 14),  
 1.4002 (X 6 CrAl 13),  
 1.4313 (X3CrNiMo13-4).

**Suitable for deposition welding and joint welds of:**

17% Cr-steels of the same and similar types.

**Suitable for weld surfacing of sealing surfaces on:**

Gas and steam fittings.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,18	0,50	0,30	16,00	0,50	1,10	Balance

**Properties:** (heat treatment: 720°C / 8h; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Hardness:	200 [HB]
Yield strength $R_{eH}/R_{p0.2}$ :	650 [MPa]	Hardness (unannealed):	43 [HRC]
Elongation (L=5d):	15 [%]		

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 110
4,0	450	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 4115 MAG

capilla 4115 WIG

**Standard designations:**

EN ISO 3581-A: EZ 17 1 1 B 42  
 EN 1600: EZ 17 1 1 B 42  
 Material no.: 1.4122

**capilla® 4122**

Recovery: 150%

**Product description:**

Basic coated high performance electrode for deposition welding and joint welds of the same or similar types.

The weld metal has a similar corrosion resistance.

For operating temperatures of 450°C.

**Pre-heating:**

For unalloyed and low alloy base materials:  
 150°C - 350°C (depending on wall thickness).  
 For base materials of the same or similar type:  
 300°C - 400°C.

**Applications:**

**Suitable for deposition welding and joint welds of:**

heat-treatable 17% Cr-steels and cast steel types.

**Suitable for heat- and wear-resistant cladding on:**

Rollers and gripper jaws.

**Suitable for weld surfacing of sealing surfaces on:**

Gas, water and steam fittings made of unalloyed steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,30	0,50	0,10	16,00	0,50	1,10	Balance

**Properties:** (heat treatment: 760°C / 2h; indicative values at room temperature)

Tensile strength $R_m$ :	800 [MPa]	Hardness:	230 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	600 [MPa]	Hardness (unannealed):	48 [HRC]
Elongation (L=5d):	12 [%]		

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150

**Available alternatives:**

capilla 4122 MAG

capilla 4122 WIG

**Standard designations:**

EN ISO 3581-A: EZ 17 6 1 B 42  
 EN 1600: EZ 17 6 1 B 42  
 Material no.: ~1.4405

**capilla® 4405**

Recovery: 150%

**Product description:**

Basic coated high performance electrode for deposition welding and joint welds of (ferritic) martensitic Cr-steels with comparable composition.

The weld metal is corrosion-resistant like similar CrNi(Mo)-steels and cast steel types.

When using thick-walled parts ( $s \geq 10$  mm), pre-heating to a temperature of 150- 200°C and post-weld heat treatment to improve resilience are useful.

**Applications:****Suitable for welding:**

13 - 17% Cr(Ni)-steels and similar types of cast metal.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,03	0,30	0,50	17,00	5,50	1,00	Balance

**Properties:** (heat treatment: 600°C / 8h; indicative values at room temperature)

Tensile strength $R_m$ :	800 [MPa]	Elongation (L=5d):	15 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	570 [MPa]	Notch impact energy (ISO-V):	35 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 110
4,0	450	100 - 150
5,0	450	150 - 200

**Standard designations:**

EN ISO 3581-A: E 25 4 R 32  
 EN 1600: E 25 4 R 32  
 Material no.: 1.4820

**capilla® 4820**

Recovery: 120%

**Product description:**

Rutile-basic coated stick electrode for deposition welding and welded joints of corrosion- and scale-resistant 25% Cr-steels (Mo free) of the same or similar types.

The weld metal is corrosion-resistant like duplex steels of the same or similar type.

Scale-resistant up to 1150°C  
 (in air and oxidising flue gases).

Highly resistant to sulphurous gases at high temperatures.

**Applications:****Suitable for base materials such as:**

1.4340 (G X 40CrNi 27-4),  
 1.4347 (G X 4CrNiN 26-7),  
 1.4821 (X 15 CrNiSi 25-4).

**Heat treatment of the workpiece:**

With exposure to corrosion  $T_V$  approx. 250°C.  
 (In this case, solution annealing is recommended after welding, followed by quenching the component.)

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,08	0,50	1,30	26,00	5,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	500 [MPa]	Hardness:	180 [HB 30]

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	350	150 - 200

**Available alternatives:**

capilla 4820 MAG

capilla 4820 WIG

**Standard designations:**

EN ISO 3581-A: EZ 25 24 Nb B 32  
 EN 1600: EZ 25 24 Nb B 32  
 Material no.: 1.4830

**capilla® 4830**

Recovery: 120%

**Product description:**

Basic coated stick electrode for deposition welding and joint welds of heat-resistant steels and cast steels of the same or similar types.

Scale-resistant up to 1000°C.

**Applications:**

**Suitable for base materials such as:**

1.4855 (G-X 30 CrNiSiNb 24 24),  
 1.4845 (X 12 CrNi 25 21).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Nb	Fe
0,30	1,00	2,20	25,00	24,00	1,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	10 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]		

**Redrying:**

320°C / 2h

**Current type:**

=(+)/~

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150

**Standard designations:**

EN ISO 3581-A: EZ 21 32 Nb B 32  
 EN 1600: EZ 21 32 Nb B 32  
 Material no.: ~1.4850

**capilla® 4850**

Recovery: 130%

**Product description:**

Basic coated high performance electrode for deposition welding and joint welds of heat-resistant steels and cast steels of the same or similar types.

To create weld metals with an austenitic structure.

Scale-resistant up to 1050°C.

**Applications:**

**Suitable for base materials such as:**

1.4858 (NiCr 21 Mo),  
 1.4859 (G X 10 NiCrSiNb 32-20),  
 1.4876 (X 8 NiCrAlTi i32-21).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Nb	Fe
0,15	0,40	1,80	22,00	33,00	1,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	380 [MPa]	Notch impact energy (ISO-V):	50 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	55 - 75
3,2	350	70 - 110
4,0	350	90 - 140

**Available alternatives:**

capilla 4850 MAG

capilla 4850 WIG

**Standard designations:**

EN ISO 3581-A: EZ 21 32 MnNb B 32  
 EN 1600: EZ 21 32 MnNb B 32  
 Material no.: ~1.4850

**capilla® 4850 Mn**

Recovery: 130%

**Product description:**

Basic coated high performance electrode for deposition welding and joint welds of heat-resistant steels and cast steels of the same or similar types.

To create weld metals with an austenitic structure.

Scale-resistant up to 1050°C.

**Applications:**

**Suitable for base materials such as:**

1.4858 (NiCr 21 Mo),  
 1.4859 (G X 10 NiCrSiNb 32-20),  
 1.4876 (X 10 Ni Cr Al Ti 32 20).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Nb	Fe
0,12	0,50	3,60	21,00	32,00	1,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	380 [MPa]	Notch impact energy (ISO-V):	50 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+)/~

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	55 - 75
3,2	350	70 - 110
4,0	350	90 - 140

**Available alternatives:**

capilla 4850 MAG

capilla 4850 WIG

**Standard designations:**

EN ISO 3581-A: EZ 25 35 Nb B 32  
 EN 1600: EZ 25 35 Nb B 32  
 EN 14700: ~E Ni 1  
 Material no.: ~1.4853

**capilla® 4853**

Recovery: 130%

**Product description:**

Basic coated high performance electrode for deposition welding and joint welds of heat-resistant steels and cast steels of the same or similar types.

Scale-resistant up to 1050°C.

**Applications:****Suitable for base materials such as:**

1.4852 (G-X 40 NiCrNb 35-25).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Nb	Fe
0,40	1,00	1,80	25,00	35,00	1,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	8 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]		

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	55 - 75
3,2	350	70 - 110
4,0	350	90 - 140

**Available alternatives:**

capilla 4853 MAG

capilla 4853 WIG

**Standard designations:**

EN ISO 3581-A: EZ 18 36 Nb B 32  
 EN 1600: EZ 18 36 Nb B 32  
 EN 14700: ~E Ni 1  
 AWS A 5.4: ~E330 - 15  
 Material no.: ~1.4863

Recovery: 130%

**capilla® 4863**

**Product description:**

Basic coated high performance electrode for deposition welding and joint welds of heat-resistant steels and cast steels of the same or similar types.

Good resistance to carburizing atmospheres.

Scale-resistant up to 950°C.

**Applications:**

**Suitable for base materials such as:**

1.4849 (G-X 40 NiCr 38-19),  
 1.4864 (X12NiCrSi35-16),  
 1.4865 (GX40NiCrSi38-19).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Nb	Fe
0,22	0,50	1,30	18,50	35,00	2,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	15 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	40 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	55 - 75
3,2	350	70 - 110
4,0	350	90 - 140
5,0	350	120 - 180

**Standard designations:**

EN ISO 14172: ~E Ni 6702 (NiCr28Fe6W)  
 Material no.: ~2.4879

**capilla<sup>®</sup> 4879**

Recovery: 130%

**Product description:**

Basic coated high performance electrode for deposition welding and joint welds of heat-resistant materials of the same or similar types.

Scale-resistant up to 1150°C.

**Applications:**

**Suitable for base materials such as:**

2.4879 (G-NiCr 28 W).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	W	Fe
0,45	1,00	1,30	32,50	48,00	6,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	650 [MPa]	Elongation (L=5d):	5 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]		

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	55 - 75
3,2	350	70 - 110
4,0	350	90 - 140

**Standard designations:**

Special electrode: not standardised  
 Material no.: ~2.4778

**capilla® 4778**

Recovery: 150%

**Product description:**

Basic coated high performance electrode for deposition welding and joint welds of heat-resistant steels with an austenitic structure of the same or similar types.

Scale-resistant up to 1250°C.

**Applications:**

**Suitable for base materials such as:**

2.4778 (G CoCr 28),  
 2.4779 (G CoCr 28Nb).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Co	Fe
0,12	1,00	1,20	33,00	50,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	490 [MPa]	Yield strength $R_{p1,0/1000}$ :	25 [MPa] (900°C)
Yield strength $R_{eH}/R_{p0,2}$ :	390 [MPa]	Elongation (L=5d):	6 [%]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 110
4,0	450	100 - 150

**Standard designations:**

EN ISO 14172: E Ni 6182 (NiCr15Fe6Mn)  
 EN 14700: E Ni 2-200-ckptz  
 AWS A 5.11: E NiCrFe - 3  
 Material no.: 2.4620

**capilla® Alloy 182**

Recovery: 150%

**Product description:**

Basic coated high performance electrode for deposition welding and joint welds not sensitive to embrittlement of nickel alloys and cryogenic nickel steels.

Good thermal shock resistance.

Temperature limits:

Operating temperatures from -196°C to 650°C.

Scale-resistant up to 950°C,  
 fully loaded seams up to 800°C,  
 in sulphurous atmospheres up to 500°C.

**Applications:**

**Suitable for deposition welding and joint welds in:**

Chemical equipment construction with alloys of the same or similar types.

Corrosion-resistant cladding, including on unalloyed and low alloy steels.

No carbon diffusion from the ferritic base material into the fully austenitic weld metal, even at high temperatures.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Nb	Fe	Ni
0,03	0,40	6,00	16,00	2,20	8,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	620 [MPa]	Notch impact energy (ISO-V):	90 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	350 [MPa]	Notch impact energy (ISO-V):	70 [J] (-196°C)
Elongation (L=5d):	35 [%]		

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 120
4,0	350	110 - 160
5,0	450	150 - 190

**Standard designations:**

EN ISO 14172: ~E Ni 6082 (NiCr20Mn3Nb)  
 EN 14700: E Ni 1-200-cpt)  
 AWS A 5.11: ~E NiCrFe - 3  
 Material no.: ~2.4648

**capilla® 6000 DL****Product description:**

Basic coated electrode for deposition welding and joint welds of nickel alloys and cryogenic nickel steels.

## Temperature limits:

Operating temperatures from -196°C to 650°C.  
 Scale-resistant up to 1000°C,  
 in sulphurous atmospheres max. 500°C,  
 fully loaded seams max. 800°C.

No carbon diffusion from the ferritic base material, even at high temperatures. Not sensitive to embrittlement. Good thermal shock resistance.

**Applications:****Suitable for base materials such as:**

1.4429 (X 2 CrNiMoN 17-12-3),  
 1.4539 (X 1 NiCrMoCu 25-20-5),  
 1.4876 (X 8 NiCrAlTi 32-21),  
 1.4922 (X 20 CrMoV 11-1),  
 1.5662 (X 8 Ni 9),  
 2.4816 (NiCr 15 Fe),  
 2.4867 (NiCr 6015),  
 2.4870 (NiCr 10).

**Suitable for joint welds between these materials and unalloyed and low alloy steels. (Material combinations.)**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Nb	Fe	Ni
0,03	0,40	5,00	19,00	2,20	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	620 [MPa]	Notch impact energy (ISO-V):	90 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	380 [MPa]	Notch impact energy (ISO-V):	70 [J] (-196°C)
Elongation (L=5d):	35 [%]		

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	80 - 120
4,0	350	110 - 160
5,0	350	150 - 190

**Available alternatives:**

capilla 6000  
 capilla 6000 B

capilla 6000 MAG

capilla 6000 WIG

**Standard designations:**

EN ISO 14172: EZ Ni 6082 (NiCr20Mn3Nb)  
 EN 14700: EZ Ni 1-200-cpt  
 AWS A 5.11: ~E NiCrFe - 3  
 Material no.: ~2.4648

**capilla® 6000 B**

Recovery: 150%

**Product description:**

Basic coated high performance electrode for deposition welding and joint welds of nickel alloys and cryogenic nickel steels.

## Temperature limits:

Operating temperatures from -196°C to 650°C.

Scale-resistant up to 1000°C,

in sulphurous atmospheres max. 500°C,

fully loaded seams max. 800°C.

No carbon diffusion from the ferritic base material, even at high temperatures. Not sensitive to embrittlement. Good thermal shock resistance.

**Applications:****Suitable for base materials such as:**

1.4429 (X 2 CrNiMoN 17-12-3),  
 1.4539 (X 1 NiCrMoCu 25-20-5),  
 1.4876 (X 8 NiCrAlTi 32-21),  
 1.4922 (X 20 CrMoV 11-1),  
 1.5662 (X 8 Ni 9),  
 2.4816 (NiCr 15 Fe),  
 2.4867 (NiCr 6015),  
 2.4870 (NiCr 10).

**Suitable for joint welds between these materials and unalloyed and low alloy steels. (Material combinations.)**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Nb	Fe	Ni
0,03	0,40	5,00	19,00	2,20	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	620 [MPa]	Notch impact energy (ISO-V):	90 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	380 [MPa]	Notch impact energy (ISO-V):	70 [J] (-196°C)
Elongation (L=5d):	35 [%]		

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	350	40 - 60
2,5	350	60 - 90
3,2	350	80 - 120
4,0	350	110 - 160
5,0	450	150 - 190

**Available alternatives:**

capilla 6000

capilla 6000 DL

capilla 6000 MAG

capilla 6000 WIG

**Standard designations:**

EN ISO 14172: E Ni 6625 (NiCr22Mo9Nb)  
 EN 14700: E Ni 2  
 AWS A 5.11: E NiCrMo 3  
 Material no.: 2.4621

**capilla® 625 K****Product description:**

Stick electrode for deposition welding and joint welds of materials and steels of the same or similar type.

For operating temperatures up to 500°C (in sulphurous media).

Scale-resistant to approx. 1100°C.  
 High-temperature-resistant to 1000°C.  
 Cryogenic up to -196°C.

High corrosion resistance in a wide range of media, including against stress corrosion.

**Applications:**

**Suitable for base materials such as:**

1.4876 (Alloy 800),  
 1.4876 (X 8 NiCrAlTi 32-21),  
 2.4856 (Alloy 625),  
 1.4539 (X 2 NiCrMoCu 25 20 5).

**Suitable for welding on:**

cryogenic Cr-Ni-(N)-steels, cast steel types and cryogenic heat-treatable Ni-steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Nb	Ni
0,03	0,40	0,60	22,00	9,00	3,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	760 [MPa]	Notch impact energy (ISO-V):	75 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]	Notch impact energy (ISO-V):	60 [J] (-196°C)
Elongation (L=5d):	30 [%]		

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	350	150 - 200

**Available alternatives:**

capilla 625

capilla 625 MAG

capilla 625 WIG

**Standard designations:**

EN ISO 14172: E Ni 6059 (NiCr23Mo16)  
 EN 14700: E Ni 2-200-ckptz  
 AWS A 5.11: E NiCrMo - 13  
 Material no.: 2.4609

**capilla® Alloy C**

Recovery: 150%

**Product description:**

Rutile-basic coated high performance electrode for deposition welding.

The weld metal is suitable for strain-hardening and highly corrosion-resistant in reducing, and in particular in oxidising media.

Thanks to the high Cr-content, the alloy is heat- and scale-resistant.

Wear resistant on hot working tools subject to high thermal loads.

**Applications:****Suitable for base materials such as:**

2.4602 (NiCr21Mo14W),  
 2.4605 (NiCr23Mo16Al),  
 2.4610 (NiMo16Cr16Ti),  
 2.4819 (NiMo16Cr15W).

**Suitable for deposition welding and joint welds on:**

Alloys of the same or similar types in chemical equipment building.

Also suitable for corrosion-resistant deposition welding on unalloyed and low alloy steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe	Ni
0,03	0,30	0,50	22,50	15,50	1,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	420 [MPa]	Notch impact energy (ISO-V):	60 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 100
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla Alloy C MAG

capilla Alloy C WIG

**Standard designations:**

EN ISO 14172: E Ni 6059 (NiCr23Mo16)  
 EN 14700: E Ni 2-200-ckptz  
 AWS A 5.11: E NiCrMo-13  
 Material no.: 2.4609

**capilla® Alloy CK**

**Product description:**

Basic coated stick electrode for deposition welding.

The weld metal is suitable for strain-hardening and highly corrosion-resistant in reducing, and in particular in oxidising media.

Thanks to the high Cr-content, the alloy is heat- and scale-resistant.

Wear-resistant on hot working tools subject to high thermal loads.

**Applications:**

**Suitable for base materials such as:**

2.4602 (NiCr21Mo14W),  
 2.4605 (NiCr23Mo16Al),  
 2.4610 (NiMo16Cr16Ti),  
 2.4819 (NiMo16Cr15W).

**Suitable for deposition welding and joint welds on:**

Alloys of the same or similar types in chemical equipment building.

Also suitable for corrosion-resistant deposition welding on unalloyed and low alloy steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe	Ni
0,03	0,30	0,50	22,50	15,50	1,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Elongation (L=5d):	40 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	420 [MPa]	Notch impact energy (ISO-V):	60 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+)/~

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Standard designations:**

EN ISO 14172: E Ni 6276 (NiCr15Mo15Fe6W4)  
 EN 14700: E Ni 2-200-ckptz  
 DIN 8555: E 23-UM-200-CKPTZ  
 AWS A 5.11: E NiCrMo4  
 Material no.: 2.4887

Recovery: 170%

**capilla® Alloy C 276**

**Product description:**

Rutile-basic coated high performance electrode for deposition welding of hot working tools.

Corrosion-resistant at high temperatures in an oxidising and reducing atmosphere.

**Applications:****Suitable for cladding on:**

Dies, hot shearing blades, punches.

All tools used under extremely high temperatures.

**Indicative analysis [%]:**

C	Cr	Mo	W	Fe	V	Ni
0,06	17,00	17,00	5,00	6,00	0,60	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Notch impact energy (ISO-V):	50 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Hardness:	250 [HB]
Elongation (L=5d):	25 [%]	Hardness (strain-hardened):	>400 [HB]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
3,2	350	80 - 110
4,0	450	100 - 150

**Available alternatives:**

capilla 5200 MAG  
 capilla G 5200 MM

capilla 5200 WIG

capilla 5200 S

**Standard designations:**

EN ISO 14172: E Ni 6172 (NiCr50Nb)  
 AWS A 5.11: E NiCr - 4  
 Material no.: 2.4813

**capilla® 50/50 Nb**

Recovery: 200%

**Product description:**

Rutile-basic coated specialised high performance electrode for use in furnace, burner and chimney construction.

In particular anywhere high mechanical loads and/or impacts of hot gas corrosion due to media containing sulphur and vanadium are expected.

Scale-resistant in air up to 1150°C.

Very high pre-heating is required before welding (600°C).

**Applications:**

**Suitable for base materials such as:**

IN 560, IN 657, IN 671.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Nb	Ni
0,05	1,10	0,50	50,00	2,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	900 [MPa]	Elongation (L=5d):	3 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	690 [MPa]		

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150

**Standard designations:**

EN ISO 21952-A: G CrMo 9 1  
 EN 12070: G CrMo 9 1  
 AWS A 5.28: ER 90 S - B9  
 Material no.: ~1.4903

**capilla® P 91 MAG**

**Product description:**

Solid wire for MIG/MAG deposition welding and welded joints of high-temperature-resistant 9% Cr1Mo-steels.

For operating temperatures up to max. 650°C.

Pre-heating temperature up to 200°C.

Intermediate layer temperature max. 300°C.

Stress relief heat treatment at 760°C.

**Applications:**

**Suitable for base materials such as:**

1.4903 (X 10 CrMoVNb 9-1),  
 1.7386 (X 11 CrMo 9-1),  
 1.7389 (G X 12CrMo 10-1).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Nb	V	Fe
0,10	0,25	0,50	8,50	0,60	1,00	0,04	0,18	Balance

**Properties:** (heat treatment: 760°C / 2h; indicative values at room temperature)

Tensile strength $R_m$ :	760 [MPa]	Elongation (L=5d):	18 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	660 [MPa]	Notch impact energy (ISO-V):	90 [J]

**Shielding gas (EN ISO 14175):** M12, M13

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
1,0
1,2

**Available alternatives:**

capilla P 91

capilla P 91 WIG

**Standard designations:**

EN ISO 14343-A: G 19 9 H  
 AWS A 5.9: ~ER 308 H  
 Material no.: ~1.4948

# capilla® 308 H MAG

**Product description:**

Solid wire for MIG/MAG welding of highly thermally resistant steels of the same or similar types.

High heat resistance up to 700°C.  
 Scale-resistant up to 800°C.

**Applications:**

**Suitable for base materials such as:**

Stainless austenitic CrNi-steel and cast steel, such as:

1.4948 (X 6 CrNi 18 11),  
 1.4878 (X 12 CrNiTi 18 9),  
 1.4550 (X 6 CrNiNb 18 10).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,06	0,65	1,90	20,00	10,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	500 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	70 [J]

**Shielding gas (EN ISO 14175):** M11, M23

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2

**Available alternatives:**

capilla 308 H

capilla 308 H WIG

**Standard designations:**

EN ISO 14343-A: G 22 12 H  
 EN 12072: G 22 12 H  
 AWS A 5.9: ER 309 Si  
 Material no.: 1.4829

**capilla® 309 MAG**

**Product description:**

Solid wire made of austenitic CrNi-steel for MIG/MAG welding of heat-resistant steels.

For operating temperatures up to max. 300°C.  
 Scale-resistant up to 800°C.  
 Heat-resistant up to 1050°C.  
 The pure weld material is scale-resistant up to 1000 °C.

Suitable for build-up welds on unalloyed steels if an 18/8 CrNi-alloy is to be achieved in the first layer.

Suitable for welding dissimilar steels, cladding and buffer layers.

**Applications:**

**Suitable for base materials such as:**

1.4541 (X 6 CrNiTi 18-10),  
 1.4550 (X 6 CrNiNb 18-10),  
 1.4583 (X 10 CrNiMoNb 18 12),  
 1.4710 (G X 30 CrSi 7),  
 1.4712 (X 10 CrSi 6),  
 1.4724 (X 10 CrAl 13),  
 1.4729 (G X 40 CrSi 13),  
 1.4740 (G X 40 CrSi 17),  
 1.4742 (X 10 CrAlSi 18),  
 1.4825 (G X 25 CrNiSi 18-9),  
 1.4826 (G X 40 CrNiSi 22-10),  
 1.4828 (X1 5 CrNiSi 20-12,)  
 1.4878 (X 8 CrNiTi 18-10).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,08	0,90	1,90	24,00	13,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	380 [MPa]	Notch impact energy (ISO-V):	65 [J]

**Shielding gas (EN ISO 14175):** M11, M23

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2

**Available alternatives:**

capilla 309

capilla 309 WIG

**Standard designations:**

EN ISO 14343-A: G 13  
 EN 12072: G 13  
 AWS A 5.9: ~ER 410  
 Material no.: 1.4009

**capilla® 4009 MAG**

**Product description:**

Solid wire made of ferritic Cr-steel for MIG/MAG deposition welding and welding joints of stainless Cr-steels, (such as 12- 14% C- steels).

For operating temperatures up to 450°C.

The weld metal is corrosion- and heat-resistant.

Pre-heat the workpiece up to 200°C, unless the base material requires higher pre-heating.

**Applications:****Suitable for base materials such as:**

Ferritic Cr-steel, for instance:

1.4000 (X 6 Cr 13),  
 1.4001 (X 7 Cr 14),  
 1.4002 (X 6 CrAl 13),  
 1.4006 (X 12 Cr 13),  
 1.4008 (GX 8 Cr 13),  
 1.4021 (X 20 Cr 13).

**Suitable for weld surfacing of sealing surfaces on:**

Gas, water and steam fittings made of unalloyed and low alloy steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,07	0,60	0,50	13,50	Balance

**Properties:** (heat treatment: 680°C / 8h; indicative values at room temperature)

Tensile strength $R_m$ :	650 [MPa]	Hardness:	180 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]	Hardness (unannealed):	35 [HRC]
Elongation (L=5d):	15 [%]		

**Shielding gas (EN ISO 14175):** M11, M23, M32, M21 **Current type:**

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**Positions:****Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Available alternatives:**

capilla 4009

capilla 4009 WIG

**Standard designations:**

EN ISO 14343-A: G 13 4  
 EN 12072: G 13 4  
 AWS A 5.9: ~ER 410 NiMo  
 Material no.: 1.4351

**capilla® 410 NiMo MAG**

**Product description:**

Solid wire for MIG/MAG deposition welding and joint welds of ferritic-martensitic 13% Cr-steels of the same or similar type.

The weld metal is corrosion-resistant corresponding to Cr-(Ni)-steels of similar types and highly resistant to wear and cavitation.

Pre-heating temperature at 200°C.

**Applications:**

**Suitable for base materials such as:**

1.4313 (X 3 CrNiMo 13-4),  
 1.4407 (G X 5 CrNiMo 13-4),  
 1.4414 (G X 4 CrNiMo 13-4).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,08	0,70	0,65	11,50	4,50	0,60	Balance

**Properties:** (heat treatment: 600°C / 8h; indicative values at room temperature)

Tensile strength $R_m$ :	750 [MPa]	Elongation (L=5d):	15 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	500 [MPa]	Hardness:	38 - 42 [HRC]

**Shielding gas (EN ISO 14175):** M12, M13

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Available alternatives:**

**capilla** 410 NiMo  
**capilla** G 135 MM

**capilla** 410 NiMo WIG  
**capilla** G 135 N MM

**capidur** G 410 NiMo MM

**Standard designations:**

EN ISO 14343-A: G 17  
 EN 12072: G 17  
 AWS A 5.9: ~ER 430  
 Material no.: 1.4015

**capilla® 4015 MAG**

**Product description:**

Solid wire made of ferritic Cr-steel for MIG/MAG deposition welding and welding joints of stainless Cr-steels (such as 12-14%, 17%).

For operating temperatures up to 450°C.

The weld metal is corrosion- and heat-resistant.

Pre-heat the workpiece to 200°C, unless the basic material requires higher pre-heating.

**Applications:****Suitable for base materials such as:**

Ferritic Cr-steel, for instance:

1.4000 (X 6 Cr 13),  
 1.4001 (X 7 Cr 14),  
 1.4002 (X 6 CrAl 13),  
 1.4006 (X 12 Cr 13),  
 1.4008 (GX 8 Cr 13),  
 1.4021 (X 20 Cr 13).

**Suitable for weld surfacing at sealing surfaces on:**

Gas, water and steam fittings made of unalloyed and low alloy steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,07	0,80	0,70	18,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	540 [MPa]	Hardness:	240 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	340 [MPa]	Hardness (annealed):	150 [HB 30]
Elongation (L=5d):	20 [%]		

**Shielding gas (EN ISO 14175):** M11, M21, M23, M32 **Current type:**

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**Positions:****Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Available alternatives:**

capilla 4015

capilla 4015 WIG

**Standard designations:**

DIN EN 14700: S Fe 7 - 200-cpt  
 Material no.: 1.4115

**capilla® 4115 MAG**

**Product description:**

Solid wire for MIG/MAG joint welds of stainless Cr-steels and cast steels of the same or similar types.

For operating temperatures up to 450°C.

**Applications:**

**Suitable for base materials such as:**

1.4122 ((G)X 35 CrMo 17).

**Suitable for heat- and wear-resistant deposition welding on:**

Rollers and gripper jaws.

**Suitable for weld surfacing at sealing surfaces on:**

Gas, water and steam fittings.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,20	0,60	0,50	17,00	0,50	Balance

**Properties:** (heat treatment: 720°C / 8h; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Hardness:	200 [HB]
Yield strength $R_{eH}/R_{p0.2}$ :	650 [MPa]	Hardness (untreated):	42 - 47 [HRC]
Elongation (L=5d):	15 [%]		

**Shielding gas (EN ISO 14175):** M12, M13

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla 4115

capilla 4115 WIG

**Standard designations:**

DIN EN 14700: S Fe 8 - 250-gpt  
 EN ISO 14343-A: GZ 17 1 1  
 Material no.: 1.4122

**capilla® 4122 MAG**

**Product description:**

Solid wire for MIG/MAG joint welds of heat-treatable 17% Cr-steels and cast steel types.

The weld metal has the same corrosion resistance as Cr-steels of the same or similar types.

For operating temperatures up to 450°C.

Pre-heating:

with unalloyed and low alloy base materials  
 150°C - 350°C (dependent on wall thickness),  
 for base materials of the same or similar type  
 300°C - 400°C.

**Applications:**

**Suitable for heat- and wear-resistant deposition welding on:**

Rollers and gripper jaws.

**Suitable for weld surfacing at sealing surfaces on:**

Gas, water and steam fittings made of unalloyed steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,40	0,40	0,40	17,50	0,50	1,10	Balance

**Properties:** (heat treatment: 760°C / 2h; indicative values at room temperature)

Tensile strength $R_m$ :	800 [MPa]	Hardness:	230 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	600 [MPa]	Hardness (unannealed):	47 - 52 [HRC]
Elongation (L=5d):	12 [%]		

**Shielding gas (EN ISO 14175):** M12, M13

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Available alternatives:**

capilla 4122

capilla 4122 WIG

**Standard designations:**

EN ISO 14343-A: GZ 21 33 Mn Nb  
 EN 12072: GZ 21 32 Mn Nb  
 Material no.: ~1.4850

**capilla® 4850 MAG****Product description:**

Solid wire for MIG/MAG deposition welding and joint welds of heat-resistant steels and cast steels of the same or similar types.

Scale-resistant up to 1050°C.

Good resistance to carburizing atmospheres.

**Applications:**

**Suitable for base materials such as:**

1.4859 (G X 10 NiCrSiNb 32-20),  
 1.4876 (X 10 NiVCrAlTi 32-20),  
 1.4958 (X 5 NiCrAlTi 31-20).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Nb	Fe
0,25	1,50	3,50	21,00	34,00	1,85	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Notch impact energy (ISO-V):	70 [J]

**Shielding gas (EN ISO 14175):** M12, M13

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2

**Available alternatives:**

capilla 4850

capilla 4850 WIG

**Standard designations:**

EN ISO 14343-A: GZ 25 35 Zr  
 EN 12072: GZ 25 35 Nb B 32  
 EN 14700: ~S Ni 1-cpt  
 Material no.: ~1.4853

**capilla® 4853 MAG**

**Product description:**

Solid wire for MIG/MAG deposition welding and joint welds of heat-resistant steels and cast steels of the same or similar types.

For operating temperatures up to 1150°C.  
 Scale-resistant up to 1050°C.

Suitable for joints and cladding of highly heat-resistant CrNi-steels of the same type and cast steels in a low-sulphur environment.

**Applications:**

**Suitable for base materials such as:**

1.4852 (G-X 40 NiCrNb 35-25),  
 1.4857 (G-X 40 NiCrSi 35-25),  
 1.4837 (G-X 40 CrNiSi 25-12),  
 1.4848 (G-X 40 CrNiSi 25-20),  
 1.4849 (G-X 40 NiCr 38-18).

Cast steel: HK40, HK45.

UNS: J93503, J94204, N08705.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Nb	Fe
0,45	1,10	1,70	26,00	35,00	1,40	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	690 [MPa]	Elongation (L=5d):	8 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	460 [MPa]		

**Shielding gas (EN ISO 14175):** M12, M13

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2

**Available alternatives:**

capilla 4853

capilla 4853 WIG

**Standard designations:**

EN ISO 18274: S Ni 6082 (NiCr20Mn3Nb)  
 EN 14700: S Ni 2-200-ckptz  
 AWS A 5.14: ER NiCr - 3  
 Material no.: 2.4806

**capilla® 6000 MAG**

Approval: TÜV

**Product description:**

Welding rod for MIG/MAG deposition welding and joint welds of materials and steels of the same or similar type.

Highly corrosion-resistant in a wide range of media, including against stress corrosion.

Scale-resistant to approx. 1050°C.

High-temperature-resistant up to 1000°C.

Cryogenic up to -196°C.

For operating temperatures up to 700°C  
(in sulphurous media).

**Applications:****Suitable for base materials such as:**

1.4306 (X 2 CrNi 19 11),  
 1.4539 (X 2 NiCrMoCu 25 20 5),  
 2.4816 (NiCr 15 Fe),  
 2.4856 (Alloy 625),  
 2.4876 (Alloy 800) (X 8 NiCrAlTi 32-21),  
 2.4951 (NiCr 20 Ti) (Alloy 75),  
 1.5637 (12 Ni 14) (10 Ni 14),  
 1.5662 (X 8 Ni 9),  
 1.5680 (12 Ni 19 und X 12 Ni5),

**Suitable for welding:**

cryogenic Cr-Ni-(N)-steels, cast steel types and cryogenic heat-treatable Ni-steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Nb	Ti	Fe	Ni
0,05	1,00	3,00	21,00	2,50	0,70	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	620 [MPa]	Notch impact energy (ISO-V):	90 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	380 [MPa]	Notch impact energy (ISO-V):	70 [J] (-196°C)
Elongation (L=5d):	35 [%]		

**Shielding gas (EN ISO 14175):** I1**Current type:**

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**Positions:****Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla 6000

capilla 6000 WIG

capilla 6000 B

capilla 6000 DL

**Standard designations:**

EN ISO 18274: Ni 6625 (NiCr22Mo9Nb)  
 AWS A 5.14: ER NiCrMo - 3  
 Material no.: 2.4831

**capilla® 625 MAG**

Approval: TÜV

**Product description:**

Ni-based alloyed solid wire for MIG/MAG deposition welding and joint welds of high-temperature-, corrosion- and heat- resistant materials of the same or similar types.

High-temperature-resistant up to 1000°C.  
 Cryogenic up to -196°C.

Particularly resistant to chloride-induced gap, pitting and stress corrosion.

For operating temperatures up to 700°C.

**Applications:****Suitable for base materials such as:**

1.4876 (Alloy 800),  
 1.4529 (Alloy 926),  
 2.4851 (Alloy 601),  
 2.4856 (Alloy 625),  
 2.4858 (Alloy 825).

**Suitable for welding on:**

cryogenic Cr-Ni-(N)-steels, cast steel types and cryogenic heat-treatable Ni-steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Nb	Cu	Fe	Ni
0,01	0,50	0,50	22,50	9,00	3,50	0,50	0,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	720 [MPa]	Notch impact energy (ISO-V):	75 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	430 [MPa]	Notch impact energy (ISO-V):	60 [J] (-196°C)
Elongation (L=5d):	50 [%]		

Shielding gas (EN ISO 14175): I1, M12

Current type:

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Positions:



Dimensions:

Ø [mm]
0,8
1,0
1,2
1,6

Available alternatives:

capilla 625

capilla 625 WIG

capilla 625 K

**Standard designations:**

DIN EN ISO 18274: S Ni 6059 (NiCr23Mo16)  
 EN 14700: S Ni 2  
 AWS A 5.14: ER NiCrMo - 13  
 Material no.: 2.4607

**capilla® Alloy C MAG**

**Product description:**

CrMo-alloyed Ni-based solid wire for MAG deposition welding and welded joints.

Particularly low carbon content.

Exceptional resistance in hot media, acids and media containing chlorides.

Particularly well suited to prevent chloride-induced gap, pitting and stress corrosion.

For operating temperatures up to 700°C.

**Applications:****Suitable for joint welds of:**

High performance alloys for wet chemistry.

**Suitable in areas:**

of the chemical industry and environmental technology.

**Indicative analysis [%]:**

C	Cr	Mo	Fe	Ni
0,01	22,50	16,00	0,70	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	720 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]	Notch impact energy (ISO-V):	70 [J]

**Shielding gas (EN ISO 14175):** I1, Mixed gas Ar/He **Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Standard designations:**

EN ISO 18274: S Ni 6276  
(NiMo16Cr15Fe6W4)  
AWS A 5.14: ER NiCrMo - 4  
Material no.: 2.4886

**capilla® Alloy C 276 MAG**

**Product description:**

NiCrMo-alloyed solid wire with tungsten for MIG/MAG deposition welding on hot working tools.

Extremely corrosion-resistant at high temperatures in an oxidising and reducing atmosphere.

Particularly well suited to prevent chloride-induced gap, pitting and stress corrosion.

For operating temperatures up to 700°C.

**Applications:**

**Suitable for base materials such as:**

2.4610 (Alloy C 4),  
2.4819 (Alloy C 276).

**Suitable in many areas, such as:**

in the chemical and petrochemical industries, for components in organic processes containing chloride, and for catalysts.

The material is particularly well-suited in environments with hot, contaminated mineral acids, solutions or organic acids (like formic acid and acetic acid) as well as sea water.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	W	Fe	V	Ni
0,01	0,08	1,00	15,50	16,00	4,00	6,00	0,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Notch impact energy (ISO-V):	120 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	310 [MPa]		

**Shielding gas (EN ISO 14175):** M12, M13

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,2
1,6

**Available alternatives:**

capilla C 276

capilla C 276 WIG

**Standard designations:**

EN ISO 21952-A: W CrMo 9 1  
 EN 12070: W CrMo 9 1  
 AWS A 5.28: ER 90 S-B9  
 Material no.: ~1.4903

**capilla® P 91 WIG**

**Product description:**

Welding rod for TIG deposition welding and welded joints of high-temperature-resistant 9%Cr1Mo- steels.

For operating temperatures up to 650°C.

Pre-heating temperature up to 200°C.

Intermediate layer temperature up to 300°C.

Stress relief heat treatment at 760°C.

**Applications:**

**Suitable for base materials such as:**

1.4903 (X 10 CrMoVNb 9-1),  
 1.7386 (X 11 CrMo 9-1),  
 1.7389 (G X 12CrMo 10-1).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Nb	V	Fe
0,10	0,25	0,50	8,50	0,60	1,00	0,04	0,18	Balance

**Properties:** (heat treatment: 760°C / 2h; indicative values at room temperature)

Tensile strength $R_m$ :	760 [MPa]	Elongation (L=5d):	18 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	660 [MPa]	Notch impact energy (ISO-V):	90 [J]

**Shielding gas (EN ISO 14175):** I1

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla P 91

capilla P 91 MAG

**Standard designations:**

EN ISO 14343-A: W 19 9 H  
 AWS A 5.9: ~ER 308 H  
 Material no.: ~1.4948

**capilla® 308 H WIG**

**Product description:**

Welding rod for TIG welding of highly thermally resistant steels of the same or similar types.

High heat resistance up to 700°C.  
 Scale-resistant up to 800°C.

**Applications:****Suitable for base materials such as:**

Stainless austenitic CrNi-steel and cast steel, such as:

1.4948 (X 6 CrNi 18 11),  
 1.4878 (X 12 CrNiTi 18 9),  
 1.4550 (X 6 CrNiNb 18 10).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,06	0,65	1,90	20,00	10,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	500 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	70 [J]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

capilla 308 H

capilla 308 H MAG

**Standard designations:**

EN ISO 14343-A: W 22 12 H  
 EN 12072: W 22 12 H  
 AWS A 5.9: ER 309 Si  
 Material no.: 1.4829

**capilla® 309 WIG**

**Product description:**

Welding rod made of austenitic CrNi-steel for TIG welding of heat-resistant steels.

For operating temperatures up to 300°C.  
 Scale-resistant up to 800°C.  
 Heat-resistant up to 1050°C.  
 The pure weld metal is scale-resistant up to 1000 °C.

Suitable for build-up welds on unalloyed steels if an 18/8 CrCrNi-alloy is to be achieved in the first layer.

Suitable for welding dissimilar steels, cladding and buffer layers.

**Applications:**

**Suitable for base materials such as:**

1.4541 (X 6 CrNiTi 18-10),  
 1.4550 (X 6 CrNiNb 18-10),  
 1.4583 (X 10 CrNiMoNb 18 12),  
 1.4710 (G X 30 CrSi 7),  
 1.4712 (X 10 CrSi 6),  
 1.4724 (X 10 CrAl 13),  
 1.4729 (G X 40 CrSi 13),  
 1.4740 (G X 40 CrSi 17),  
 1.4742 (X 10 CrAlSi 18),  
 1.4825 (G X 25 CrNiSi 18-9),  
 1.4826 (G X 40 CrNiSi 22-10),  
 1.4828 (X1 5 CrNiSi 20-12.)  
 1.4878 (X 8 CrNiTi 18-10).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,08	0,90	1,90	24,00	13,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	380 [MPa]	Notch impact energy (ISO-V):	65 [J]

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla 309

capilla 309 MAG

**Standard designations:**

EN ISO 14343-A: W 13  
 EN 12072: W 13  
 AWS A 5.9: ~ER 410  
 Material no.: 1.4009

**capilla® 4009 WIG**

**Product description:**

Welding rod made of ferritic Cr-steel for TIG deposition welding and welding joints of stainless Cr-steels, (such as 12-14% Cr-steels).

For operating temperatures up to 450°C.

The weld metal is corrosion- and heat-resistant.

Pre-heat the workpiece to 200°C, unless the base material requires higher pre-heating.

**Applications:****Suitable for base materials such as:**

Ferritic Cr-steel, for instance:

1.4000 (X 6 Cr 13),  
 1.4001 (X 7 Cr 14),  
 1.4002 (X 6 CrAl 13),  
 1.4006 (X 12 Cr 13),  
 1.4008 (GX 8 Cr 13),  
 1.4021 (X 20 Cr 13).

**Suitable for weld surfacing at sealing surfaces on:**

Gas, water and steam fittings made of unalloyed and low alloy steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,07	0,60	0,50	13,50	Balance

**Properties:** (heat treatment: 680°C / 8h; indicative values at room temperature)

Tensile strength $R_m$ :	650 [MPa]	Hardness:	180 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]	Hardness (unannealed):	35 [HRC]
Elongation (L=5d):	15 [%]		

**Shielding gas (EN ISO 14175): I1****Current type:**

=(-)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla 4009

capilla 4009 MAG

**Standard designations:**

EN ISO 14343-A: W 13 4  
 EN 12072: W 13 4  
 AWS A 5.9: ~ER 410 NiMo  
 Material no.: 1.4351

**capilla® 410 NiMo WIG**

**Product description:**

Welding rod for TIG deposition welding and joint welds of ferritic-martensitic 13% Cr-steels of the same or similar type.

The weld metal is corrosion-resistant corresponding to Cr(Ni)-steels of similar types and highly resistant to wear and cavitation.

Pre-heating temperature at 200°C.

**Applications:**

**Suitable for base materials such as:**

1.4313 (X 3 CrNiMo 13-4),  
 1.4407 (G X 5 CrNiMo 13-4),  
 1.4414 (G X 4 CrNiMo 13-4).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,10	1,00	0,70	13,00	4,00	0,70	Balance

**Properties:** (heat treatment: 600°C / 8h; indicative values at room temperature)

Tensile strength $R_m$ :	750 [MPa]	Elongation (L=5d):	15 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	600 [MPa]	Hardness:	38 - 42 [HRC]

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

**capilla** 410 NiMo  
**capilla** G 135 MM

**capilla** 410 NiMo MAG  
**capilla** G 135 N MM

**capidur** G 410 NiMo MM

**Standard designations:**

EN ISO 14343-A: W 17  
 EN 12072: W 17  
 AWS A 5.9: ~ER 430  
 Material no.: 1.4015

**capilla® 4015 WIG**

**Product description:**

Welding rod made of ferritic Cr-steel for TIG welding on stainless 17% Cr-steels.

The weld metal is corrosion-resistant like chromium steels of similar type.

For operating temperatures up to 450°C.  
 Scale-resistant up to 950°C.

Often used only as a cover layer on tougher austenitic fill layers (in sulphurous media at increased temperatures).

**Applications:****Suitable for base materials such as:**

1.4016 (X 6 Cr 17),  
 1.4057 (X 20 CrNi 17-2),  
 1.4059 (G-X CrNi 17),  
 1.4740 (G-X 40 CrSi 17),  
 1.4742 (X 10 CrAl 18).

**Suitable for weld surfacing at sealing surfaces on:**

Gas, water and steam fittings made of unalloyed and low alloy steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,07	0,80	0,70	17,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	540 [MPa]	Hardness:	240 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	340 [MPa]	Hardness (annealed):	150 [HB 30]
Elongation (L=5d):	20 [%]		

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

capilla 4015

capilla 4015 MAG

**Standard designations:**

DIN EN 14700: S Fe 7 - 200-cpt  
 EN 12072: WZ 17 1  
 Material no.: 1.4115

**capilla® 4115 WIG**

**Product description:**

Welding rod for TIG deposition welding and joint welds of stainless Cr-steels and cast steels of the same or similar types.

For operating temperatures up to 450°C.

**Applications:**

**Suitable for base materials such as:**

1.4122 ((G)X 35 CrMo 17).

**Suitable for heat- and wear-resistant deposition welding on:**

Rollers and gripper jaws.

**Suitable for weld surfacing at sealing surfaces on:**

Gas, water and steam fittings.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,21	0,60	0,50	17,00	0,50	1,00	Balance

**Properties:** (heat treatment: 720°C / 8h; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Hardness:	200 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	650 [MPa]	Hardness (unannealed):	42 - 47 [HRC]
Elongation (L=5d):	15 [%]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000

**Available alternatives:**

capilla 4115

capilla 4115 MAG

**Standard designations:**

DIN EN 14700: S Fe 8 - 250-gpt  
 EN ISO 14343-A: WZ 17 1 1  
 Material no.: 1.4122

**capilla® 4122 WIG**

**Product description:**

Welding rod for TIG joint welds of heat-treatable 17% Cr-steels and cast steel types.

The weld metal has the same corrosion resistance as Cr-steels of the same or similar types.

For operating temperatures up to 450°C.

Pre-heating:

with unalloyed and low alloy base materials  
 150°C - 350°C (dependent on wall thickness),  
 for base materials of the same or similar type  
 300°C - 400°C.

**Applications:**

**Suitable for heat- and wear-resistant deposition welding on:**

Rollers and gripper jaws.

**Suitable for weld surfacing at sealing surfaces on:**

Gas, water and steam fittings made of unalloyed steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,40	0,40	0,40	17,50	0,50	1,10	Balance

**Properties:** (heat treatment: 760°C / 2h; indicative values at room temperature)

Tensile strength $R_m$ :	800 [MPa]	Hardness:	230 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	600 [MPa]	Hardness (unannealed):	47 - 52 [HRC]
Elongation (L=5d):	12 [%]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000

**Available alternatives:**

capilla 4122

capilla 4122 MAG

**Standard designations:**

EN ISO 14343-A: WZ 21 33 Mn Nb  
 EN 12072: WZ 21 32 Mn Nb  
 Material no.: ~1.4850

**capilla® 4850 WIG**

**Product description:**

Welding rod for TIG deposition welding and joint welds of heat-resistant steels and cast steels of the same or similar types.

Scale-resistant up to 1050°C.

Good resistance to carburizing atmospheres.

**Applications:**

**Suitable for base materials such as:**

1.4859 (G X 10 NiCrSiNb 32-20),  
 1.4876 (X 10 NiVCrAlTi 32-20),  
 1.4958 (X 5 NiCrAlTi 31-20).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Nb	Fe
0,12	0,20	4,50	21,00	32,00	1,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Notch impact energy (ISO-V):	100 [J]

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla 4850

capilla 4850 MAG

**Standard designations:**

EN ISO 14343-A: WZ 25 35 Zr  
 EN 12072: WZ 25 35 Nb B 32  
 EN 14700: ~S Ni 1-cpt  
 Material no.: ~1.4853

**capilla® 4853 WIG**

**Product description:**

Welding rod for TIG deposition welding and joint welds of heat-resistant steels and cast steels of the same or similar types.

For operating temperatures up to 1150°C.  
 Scale-resistant up to 1050°C.

Suitable for joints and cladding of highly heat-resistant CrNi-steels of the same type and cast steels in a low-sulphur environment.

**Applications:****Suitable for base materials such as:**

1.4852 (G-X 40 NiCrNb 35-25),  
 1.4857 (G-X 40 NiCrSi 35-25),  
 1.4837 (G-X 40 CrNiSi 25-12),  
 1.4848 (G-X 40 CrNiSi 25-20),  
 1.4849 (G-X 40 NiCr 38-18).

Cast steel: HK40, HK45.

UNS: J93503, J94204, N08705.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Nb	Ti	Zr	Fe
0,40	0,90	1,00	26,00	35,00	1,40	0,90	+	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	690 [MPa]	Elongation (L=5d):	8 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	460 [MPa]		

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,4	1000

Available alternatives:

capilla 4853

capilla 4853 MAG

**Standard designations:**

EN ISO 18274: S Ni 6082 (NiCr20Mn3Nb)  
 EN 14700: S Ni 2-200-ckptz  
 AWS A 5.14: ER NiCr - 3  
 Material no.: 2.4806

**capilla® 6000 WIG**

**Product description:**

Welding rod for TIG deposition welding and joint welds of materials and steels of the same or similar type.

Highly corrosion-resistant in a wide range of media, including against stress corrosion.

Scale-resistant to approx. 1050°C.

High-temperature-resistant up to 1000°C.

Cryogenic up to -196°C.

For operating temperatures up to 700°C

(in sulphurous media).

For V and X seams, opening angle min. 70°C.

**Applications:****Suitable for base materials such as:**

1.4306 (X 2 CrNi 19 11),  
 1.4539 (X 2 NiCrMoCu 25 20 5),  
 2.4816 (NiCr 15 Fe),  
 2.4856 (Alloy 625),  
 2.4876 (Alloy 800) (X 8 NiCrAlTi 32-21),  
 2.4951 (NiCr 20 Ti) (Alloy 75),  
 1.5637 (12 Ni 14) (10 Ni 14),  
 1.5662 (X 8 Ni 9),  
 1.5680 (12 Ni 19 und X 12 Ni5),

**Suitable for welding:**

cryogenic CrNi(N)-steels, cast steel types and cryogenic heat-treatable Ni-steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Nb	Ti	Fe	Ni
0,05	1,00	3,00	20,00	2,50	0,70	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	>550 [MPa]	Notch impact energy (ISO-V):	90 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	>295 [MPa]	Notch impact energy (ISO-V):	70 [J] (-196°C)
Elongation (L=5d):	30 [%]		

**Shielding gas (EN ISO 14175): I1****Current type:**

=(-)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000
4,0	1000

**Available alternatives:**

capilla 6000

capilla 6000 MAG

capilla 6000 B

capilla 6000 DL

**Standard designations:**

EN ISO 18274: S Ni 6625 (NiCr22Mo9Nb)  
 AWS A 5.14: ER NiCrMo - 3  
 Material no.: 2.4831

**capilla® 625 WIG**

Approval: TÜV

**Product description:**

Ni-based alloyed welding rod for TIG deposition welding and joint welds of high-temperature-, corrosion- and heat-resistant materials of the same or similar types.

Scale-resistant to approx. 1100°C.  
 High-temperature-resistant up to 1000°C.  
 Cryogenic up to -196°C.

Particularly resistant to chloride-induced gap, pitting and stress corrosion.

For operating temperatures up to 700°C.

**Applications:****Suitable for base materials such as:**

1.4876 (Alloy 800),  
 1.4876 (X 8 NiCrAlTi 32-21),  
 2.4856 (Alloy 625),  
 1.4539 (X 2 NiCrMoCu 25 20 5).

**Suitable for welding on:**

cryogenic Cr-Ni-(N)-steels, cast steel types and cryogenic heat-treatable Ni-steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Nb	Ni
0,03	0,50	1,00	22,50	8,00	3,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Notch impact energy (ISO-V):	75 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Notch impact energy (ISO-V):	60 [J] (-196°C)
Elongation (L=5d):	30 [%]		

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

capilla 625

capilla 625 MAG

capilla 625 K

**Standard designations:**

DIN EN ISO 18274: S Ni 6059 (NiCr23Mo16)  
 EN 14700: S Ni 2  
 AWS A 5.14: ER NiCrMo - 13  
 Material no.: 2.4607

**capilla® Alloy C WIG**

**Product description:**

CrMo-alloyed Ni-based welding rod for TIG deposition welding and welded joints.

Particularly low carbon content.

Exceptional resistance in hot media, acids and media containing chlorides.

Particularly well suited to prevent chloride-induced gap, pitting and stress corrosion.

For operating temperatures up to 700°C.

**Applications:****Suitable for joint welds of:**

High performance alloys for wet chemistry.

**Suitable in areas:**

of the chemical industry and environmental technology.

**Indicative analysis [%]:**

C	Cr	Mo	Fe	Ni
0,01	22,50	16,00	0,70	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	720 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]	Notch impact energy (ISO-V):	70 [J]

**Shielding gas (EN ISO 14175):** I1, R1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Standard designations:**

EN ISO 18274 : S Ni 6276  
(NiCr15Mo16Fe6W4)  
AWS A 5.14: ER NiCrMo - 4  
Material no.: 2.4886

**capilla® Alloy C 276 WIG**

**Product description:**

NiCrMo-alloyed welding rod with tungsten for TIG deposition welding on hot working tools.

Extremely corrosion-resistant at high temperatures in an oxidising and reducing atmosphere.

Particularly well suited to prevent chloride-induced gap, pitting and stress corrosion.

For operating temperatures up to 700°C.

**Applications:**

**Suitable for base materials such as:**

2.4610 (Alloy C 4),  
2.4819 (Alloy C 276).

**Suitable in many areas, such as:**

in the chemical and petrochemical industries, for components in organic processes containing chloride, and for catalysts.

The material is particularly well-suited in environments with hot, contaminated mineral acids, solutions or organic acids (like formic acid and acetic acid) as well as sea water.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	W	Fe	V	Ni
0,01	0,08	1,00	15,50	16,00	4,00	6,00	0,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Notch impact energy (ISO-V):	120 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	310 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla C 276

capilla C 276 MAG

**Standard designations:**

EN ISO 17633-A: T 13 4 M M21 3  
 EN 14700: T Fe 7 - 300-cpt  
 Material no.: ~1.4351

**capilla® G 410 NiMo MM**

**Product description:**

Metal-powder-cored wire for MIG/MAG deposition welding of Cr-steels.

The cladding is an NiMo-alloyed martensitic Cr-alloy, and is resistant to corrosion, oxidation and scaling.

**Applications:**

**Suitable for base materials such as:**

1.4000 (X 6 Cr 13),  
 1.4001 (X 7 Cr 14),  
 1.4002 (X 6 CrAl 13),  
 1.4313 (X 3 CrNiMo 13-4).

**Suitable for hardfacing.**

**Suitable for cladding / plating components that require high wear resistance, such as:**

Pumps, hydraulic units, compressors.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,06	0,60	1,00	13,50	4,00	0,50	Balance

**Properties:** (heat treatment: 600°C / 8h; indicative values at room temperature)

Tensile strength $R_m$ :	800 [MPa]	Hardness:	310 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	600 [MPa]	Hardness (unannealed):	38 [HRC]
Elongation (L=5d):	15 [%]		

**Shielding gas (EN ISO 14175):** M12, M13, M20, M21 **Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4

**Available alternatives:**

**capilla** 410 NiMo  
**capilla** G 135 MM

**capilla** 410 NiMo MAG  
**capilla** G 135 N MM

**capidur** 410 NiMo WIG

## 4 Welding consumables for welding of tool steels

### 4.1 Coated stick electrodes for welding of tool steels

capilla	EN ISO	AWS A	Mat. no.	Page
4914	14700: E Fe 7-350-cpt			176
64 KB	14700: E Fe 1-300-p			177
64 KBS	14700: E Fe 3-350-stgp			178
65	14700: E Fe 3-45-gst			179
65 Ti	14700: E Fe 3-45-gst			180
66	14700: E Fe 3-55-gst			181
6500	14700: E Fe 3-55-st		1.2344	182
25 S	14700: E Fe 3-50-gst			183
732	14700: E Fe 3-55-gst			184
733	14700: E Fe 3-50-gst			185
734	14700: E Fe 3-40-gst			186
5400	14700: E Fe 8-60-gpt			187
53	14700: E Fe 4-60-gpst		1.3346	188
53 Ti	14700: E Fe 4-60-stp		1.3346	189
53 N	14700: E Fe 4-60-gpst		1.3255	190
2709	14700: E Fe 5-40-pst			191
93	EN 14700: not classified			192
6000	14172: EZ Ni 6082 (NiCr20Mn3Nb)	5.11: ~E NiCrFe-3		193
5200	14700: E Ni 2-200-ckptz			194
5200 S	14700: E Ni 2-200-ckptz			195
533	14172: EZ Ni6617 (NiCr22Co12Mo)	5.11: ~ENiCrCoMo-1 (mod)	2.4628	196
625	14172: E Ni 6625 (NiCr22Mo9Nb)	5.11: E NiCrMo 3	2.4621	197
501 K	14700: E Co 3-55-cstz	5.13: ~E CoCr-C		198
501 EHL	14700: E Co3-55-cstz	5.13: ~E CoCr-C		199
506 K	14700: E Co 2-40-ctz	5.13: E CoCr-A		200
506 EHL	14700: E Co2-40-cstz	5.13: E CoCr-A		201
512 K	14700: E Co 2-50-cstz	5.13: E CoCr-B		202
512 EHL	14700: E Co 2-50-tz	5.13: E CoCr-B		203
516 EHL	14700: E Co 1-250-cktz			204
521 K	14700: E Co 1-300-cktz	5.13: E CoCr - E		205
521 EHL	14700: E Co 1-300-cktz	5.13: ~E CoCr-E		206
523 EHL	14700: E Co 1-350-cktz			207
524 EHL	14700: E Co 1-350-cktz			208
526	14700: E Ni 2-250-ckptz			209

### 4.2 Wire electrodes for welding of tool steels

#### 4.2.1 Solid wires for MIG/MAG welding of tool steels

capilla	EN ISO	AWS A	Mat. no.	Page
4914 MAG	14700: E Fe 7-250-cpt	5.9: ~ER 430	1.4015	210
64 MAG	14700: S Fe 1-300-p			211
65 MAG	14700: S Fe 3-45-gst		1.2567	212
6500 MAG	14700: S Fe 3-55-st		1.2344	213

#### 4.2.1 Solid wires for MIG/MAG welding of tool steels

capilla	EN ISO	AWS A	Mat. no.	Page
732 MAG	14700: S Fe 3-55-gst			214
733 MAG	14700: S Fe 3-50-gst		~1.2367	215
734 MAG	14700: S Fe 3-40-gst			216
5400 MAG	14700: S Fe 8-60-gpt			217
53 MAG	14700: S Fe 4-60-gpst		1.3348	218
2709 MAG	14700: S FE 5-40-pst		1.6356	219
5200 MAG	18274: S Ni 6059 (NiCr23Mo16)	5.14: ER NiCrMo-13	2.4607	220
533 MAG	18274: S Ni 6617 (NiCr22Co12Mo)	5.14: ER NiCrCoMo-1	2.4627	221
838 MAG	14700: S Ni 2-250-ckptz			222

#### 4.2.2 Welding rods for TIG welding of tool steels

capilla	EN ISO	AWS A	Mat. no.	Page
4914 WIG	14700: E Fe 7-250-cpt	5.9: ~ER 430	1.4015	223
64 WIG	14700: S Fe 1-300-p			224
65 WIG	14700: S Fe 3-45-gst		1.2567	225
6500 WIG	14700: S Fe 3-55-st		1.2344	226
732 WIG	14700: S Fe 3-55-gst			227
733 WIG	14700: S Fe 3-50-gst		~1.2367	228
734 WIG	14700: S Fe 3-40-gst			229
5400 WIG	14700: S Fe 8-60-gpt			230
53 WIG	14700: S Fe 4-60-gpst		1.3348	231
2709 WIG	14700: S FE 5-40-pst		1.6356	232
5200 WIG	18274: S Ni 6059 (NiCr23Mo16)	5.14: ER NiCrMo-13	2.4607	233
533 WIG	18274: S Ni 6617 (NiCr22Co12Mo)	5.14: ER NiCrCoMo-1	2.4627	234
838 WIG	14700: S Ni 2-250-ckptz			235
501 WIG	14700: R Co 3-55-tz	5.21: ~ER CoCr-C		236
506 WIG	14700: R Co 2-40-ctz	5.21: ER CoCr-A		237
512 WIG	14700: R Co 2-50-cstz	5.21: ER CoCr-B		238
521 WIG	14700: R Co 1-300-cstz	5.21: ER CoCr-E		239

#### 4.2.3 Flux-cored wires for MIG/MAG welding of tool steels

capilla	EN ISO	AWS A	Mat. no.	Page
G 105 MM	14700: T Fe 1-300-p			240
G 135 MM	14700: T Fe 7-350-cpt		1.4351	241
G 64 MM	14700: T Fe 1-300-p			242
G 65 MM	14700: T Fe 3-50-gst		~1.2567	243
G 5400 MM	14700: T Fe 8-60-gpt			244
G 5200 MM	14700: T Ni 2-200-ckptz	5.21: ERC NiCrMo-5	2.4887	245
G 530 MM	14700: T Ni 4-200-ctz			246
G 501 MM	14700: T Co 3	5.21: ERC CoCr-C		247
G 506 MM	14700: T Co 2	5.21: ERC CoCr-A		248
G 512 MM	14700: T Co 2	5.21: ERC CoCr-B		249
G 516 MM	14700: T Co 1-300-cktz			250
G 521 MM	14700: T Co 1	5.21: ERC CoCr-E		251
G 93 MM	14700: T ZFe 3			252
G 563 MM	14700: T Fe 3-60-gst			253
G 569 MM	14700: T Fe 8			254

### 4.2.3 Flux-cored wires for MIG/MAG welding of tool steels

<b>capilla</b>	<b>EN ISO</b>	<b>AWS A</b>	<b>Mat. no.</b>	<b>Page</b>
<b>G 2040 RM</b>	14700: TZ Fe 3-40-st			<b>255</b>
<b>G 2045 RM</b>	14700: TZ Fe 3-45-st			<b>256</b>
<b>G 2048 RM</b>	14700: TZ Fe 3-45-st			<b>257</b>
<b>G 2050 RM</b>	14700: T Fe 3-50-st			<b>258</b>
<b>G 2055 RM</b>	14700: T Fe 3-55-st			<b>259</b>
<b>G 7940 MM</b>	14700: TZ Fe 8			<b>260</b>
<b>G 7945 MM</b>	14700: TZ Fe 8			<b>261</b>
<b>G 7950 MM</b>	14700: T Fe 3			<b>262</b>
<b>G 7955 MM</b>	14700: T Fe 8			<b>263</b>

**Standard designations:**

EN 14700: E Fe 7-350-cpt  
 EN ISO 3581-A: EZ 13 1 R 53  
 DIN 8555: E 6-UM-350 PRT

**capilla® 4914**

Recovery: 150%

**Product description:**

Rutile coated high performance electrode for deposition welding and joint welds of stainless steels.

The weld metal stands out for its extraordinarily high resistance to cracking.

The weld metal is high-strength as well as tough, allowing for perfect, crack-free depositions on rollers, straightening rollers, and gripper jaws.

**Applications:****Suitable for base materials such as:**

1.4057 (X 17 CrNi 16-2),  
 1.4059 (G X 22 CrNi 17),  
 1.4740 (G X 40 CrSi 17),  
 1.4742 (X 10 CrAlSi 18),  
 1.4741 (X 10 CrSi 18).

Suitable for repair welds of:

**Hot working tools.****Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,04	0,25	0,65	11,50	1,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	1150 [MPa]	Elongation (L=5d):	15 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	650 [MPa]	Hardness:	37 [HRC]

**Redrying:**

not applicable

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	350	60 - 90
2,5	350	80 - 120
3,2	350	100 - 160
4,0	450	160 - 220
5,0	450	190 - 260

**Available alternatives:**

capilla 4914 MAG

capilla 4914 WIG

**Standard designations:**

EN 14700: E Fe 1-300-p  
 DIN 8555: E 3-UM-300 GP

**capilla® 64 KB**

Recovery: 130%

**Product description:**

Basic coated high performance electrode for high-strength deposition welds suitable for heat treatment.

The weld metal has a high resistance to cracking and is highly resistant to compressive loads and impacts.

**Applications:****Suitable for base materials such as:**

Structural and tool steels, Q&T steels up to  $R_m = 1000$  MPa, high temperature steels.

**Suitable for repair and maintenance work on:**

Dies, rails, crane rail wheels, conveyor rollers.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,05	0,20	0,70	2,30	0,70	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	1000 [MPa]	Elongation (L=5d):	19 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	650 [MPa]	Hardness:	290 [HB]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	95 - 150
4,0	450	140 - 190
5,0	450	190 - 250
6,0	450	220 - 290

**Available alternatives:**

capilla 64 MAG

capilla 64 WIG

capilla G 64 MM

**Standard designations:**

EN 14700: E Fe 3-350-stgp  
 DIN 8555: E 3-UM-350 GP

**capilla® 64 KBS**

Recovery: 130%

**Product description:**

Basic coated high performance electrode for high-strength deposition welds suitable for heat treatment.

The weld metal has a high resistance to cracking and is highly resistant to compressive loads and impacts.

**Applications:****Suitable for base materials such as:**

Dies, rails, crane rail wheels, conveyor rollers, structural and tool steels, machinery components, armoured steels, etc.

Suitable for repair and production welding on medium alloy steels.

Also suited for difficult to weld steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,067	0,15	0,70	2,40	1,90	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 350 [HB]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	95 - 150
4,0	450	140 - 190
5,0	450	190 - 250
6,0	450	220 - 290

**Available alternatives:**

capilla G 105 MM

**Standard designations:**

EN 14700: E Fe 3-45-gst  
 DIN 8555: E 3-UM-45 T

**capilla® 65**

Recovery: 130%

**Product description:**

Basic coated universal electrode for heat-resistant, tough deposition welds of hot working and unalloyed and low alloy steels of the same or similar type.

Very good thermal shock resistance.

For operating temperatures up to 550°C.

**Applications:****Suitable for repair and production welding on:**

Hot cuttings, dies, mandrels, expanding mandrels, matrices, tools, swaging tools, extrusion punches, pressure dies.

**Indicative analysis [%]:**

C	Si	Mn	Cr	W	V	Fe
0,20	0,40	0,90	2,10	4,20	0,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	41 - 45 [HRC]	Welding condition
	45 - 50 [HRC]	Tempered (550°C / 2h)
	20 - 25 [HRC]	Annealed (approx. 800°C)

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	95 - 150
4,0	350/450	140 - 190
5,0	450	190 - 250
6,0	450	220 - 290

**Available alternatives:**

capilla 65 Ti

capilla 65 WIG

capilla 65 MAG

capilla G 65 MM

**Standard designations:**

EN 14700: E Fe 3-45-gst  
 DIN 8555: E 3-UM-45 T

**capilla® 65 Ti**

Recovery: 130%

**Product description:**

Rutile coated universal electrode for heat-resistant, tough deposition welds of hot working and unalloyed and low alloy steels of the same or similar type.

Very good thermal shock resistance.

For operating temperatures up to 550°C.

**Applications:****Suitable for repair and production welding on:**

Hot cuttings, dies, mandrels, expanding mandrels, matrices, tools, swaging tools, extrusion punches, pressure dies.

**Indicative analysis [%]:**

C	Si	Mn	Cr	W	Fe
0,20	0,40	0,90	2,10	6,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	41 - 45 [HRC]	Welding condition
	45 - 50 [HRC]	Tempered (550°C / 2h)
	20 - 25 [HRC]	Annealed (approx. 800°C)

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	95 - 150
4,0	350	140 - 190
5,0	450	190 - 250
6,0	450	220 - 290

**Available alternatives:**

capilla 65  
 capilla G 65 MM

capilla 65 WIG

capilla 65 MAG

**Standard designations:**

EN 14700: E Fe 3-55-gst  
 DIN 8555: E 3-UM-55 T

**capilla® 66**

Recovery: 140%

**Product description:**

Rutile-basic coated high performance electrode for deposition welding of heat-resistant hot working tools.

**High resistance to:**

Wear, impact and pressure.

**Applications:****Suitable for repair welds on:**

hot working tools like forging components and forging dies.

**Suitable for new production (contour change).****Suitable for plating:**

cold cutting blades and attachments from the recycling industry, blades, hold-down clamps.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	W	V	Fe
0,30	0,30	0,50	6,50	0,50	1,00	8,50	0,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	50 - 55 [HRC]	Welding condition
	53 - 56 [HRC]	Tempered (550°C / 2-8h)

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	80 - 120
3,2	350	100 - 160
4,0	450	160 - 220
5,0	450	190 - 260
6,0	450	220 - 290

**Standard designations:**

EN 14700: E Fe 3-55-st  
 DIN 8555: E 6-UM-55 PST  
 Material no.: 1.2344

**capilla® 6500**

Recovery: 130%

**Product description:**

Basic coated stick electrode for deposition welding of hot working steels of the same type and plating tools made of unalloyed and low alloy steels.

**Pre-heating:**

Steels of the same type 400°C - 500°C  
 (up to max. annealing temperature),  
 low alloy steels 200°C - 300°C.

The areas to be welded must be blank metal and free from heat-cracking.

**Applications:**

**Suitable for base materials such as:**

1.2307 - 1.2377.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	V	Fe
0,25	0,40	0,90	5,80	2,50	1,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	approx. 55 [HRC]	Welding condition
	52 - 55 [HRC]	Tempered (550°C / 2 - 8h)
	42 - 48 [HRC]	Tempered (650°C / 2 - 8h)

**Redrying:**

300 - 320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	80 - 110
3,2	350	90 - 150
4,0	450	160 - 220
5,0	450	190 - 260
6,0	450	220 - 290

**Available alternatives:**

capilla 6500 MAG

capilla 6500 WIG

**Standard designations:**

EN 14700: E Fe 3-50-gst  
 DIN 8555: E 3-UM-50 T

**capilla<sup>®</sup> 25 S**

Recovery: 140%

**Product description:**

Rutile-basic coated high performance electrode for deposition welding of heat-resistant hot working tools.

The weld metal is resistant to wear, impact and pressure.

**Applications:**

Suitable for repair welds on hot working tools like forging components and forging dies.

Suitable for new production (contour change).

Suitable for plating cold cutting blades and attachments from the recycling industry, blades, hold-down clamps.

**Indicative analysis [%]:**

C	Si	Cr	Nb	W	V	Co	Fe
0,25	0,30	2,80	0,20	7,00	0,60	1,80	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	46 - 48 [HRC]	Welding condition
	52 - 55 [HRC]	Tempered (550°C / 2 - 8h)

**Redrying:**

300 - 320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	80 - 120
3,2	350	100 - 160
4,0	450	160 - 220
5,0	450	190 - 260
6,0	450	220 - 290

**Available alternatives:**

capilla G 563 MM

**Standard designations:**

EN 14700: E Fe 3-55-gst  
 DIN 8555: E 3-UM-55 ST

**capilla® 732**

Recovery: 130%

**Product description:**

Basic coated stick electrode for heat-resistant deposition welding against pressure and wear on hot working steels with a high level of hardness.

For operating temperatures up to 550°C.

**Applications:****Suitable for deposition welding on:**

Hot cutting blades, gripper jaws, deburring tools, punching knives, continuous casting rollers, rollers for roughing stands and alignment rollers.

**Suitable for new production of hot working tools.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,35	0,50	1,30	7,00	2,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Härte: 50 - 55 [HRC]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	80 - 120
3,2	350	100 - 160
4,0	450	160 - 220
5,0	450	190 - 260
6,0	450	230 - 290

**Available alternatives:**

capilla 732 MAG

capilla 732 WIG

**Standard designations:**

EN 14700: E Fe 3-50-gst  
 DIN 8555: E 3-UM-50 ST

**capilla<sup>®</sup> 733**

Recovery: 130%

**Product description:**

Basic coated stick electrode for heat-resistant deposition welding against pressure and wear on hot working steels with a high level of hardness.

For operating temperatures up to 550°C.

**Applications:****Suitable for deposition welding on:**

Hot cutting blades, gripper jaws, deburring tools, punching knives, continuous casting rollers, rollers for roughing stands and alignment rollers.

**Suitable for new production of hot working tools.****Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,30	0,50	0,60	5,00	4,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 45 - 50 [HRC]

**Redrying:**

300 - 320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	80 - 120
3,2	350	100 - 160
4,0	450	160 - 220
5,0	450	190 - 260

**Available alternatives:**

capilla 733 MAG

capilla 733 WIG

**Standard designations:**

EN 14700: E Fe 3-40-gst  
 DIN 8555: E 3-UM-40 ST

**capilla® 734**

Recovery: 130%

**Product description:**

Basic coated stick electrode for heat-resistant deposition welding against pressure and wear on hot working steels with a high level of hardness.

For operating temperatures up to 550°C.

**Applications:****Suitable for deposition welding on:**

Swages, pressure die-casting tools, rollers, continuous casting rollers, guides, recipients.

**Suitable for new production of hot working tools.****Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,15	0,50	0,60	6,50	3,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 38 - 42 [HRC]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	95 - 150
4,0	450	140 - 190
5,0	450	190 - 250

**Available alternatives:**

capilla 734 MAG

capilla 734 WIG

**Standard designations:**

EN 14700: E Fe 8-60-gpt  
 DIN 8555: E 6-UM-60

**capilla® 5400**

Recovery: 130%

**Product description:**

Basic coated CrMoV-alloyed stick electrode for very hard deposition welding on structural and machine parts exposed to high abrasion and heavy impact loads.

**Applications:**

**Suitable for repairs and new production of tools and machine components such as:**

Rollers, baffle plates, forging, pressing and drawing tools.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	V	Fe
0,40	0,50	0,40	7,50	0,40	0,80	Balance

**Properties:** (indicative values at room temperature)

Hardness:	57 - 60 [HRC]	Welding condition
	30 - 40 [HRC]	500°C (red hardness)
	56 - 59 [HRC]	hardened at 1050°C

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	95 - 150
4,0	450	140 - 190
5,0	450	190 - 250

**Available alternatives:**

capilla 5400 MAG

capilla 5400 WIG

capilla G 5400 MM

**Standard designations:**

EN 14700: E Fe 4-60-gpst  
 DIN 8555: E 4-UM-60 ST  
 Material no.: 1.3346

**capilla® 53**

Recovery: 140%

**Product description:**

Very thick basic coated high performance electrode for deposition welding on tool and high-speed steel.

The weld metal is resistant to wear, impact and pressure.

For operating temperatures up to 550°C.

**Applications:**

**Suitable for manufacturing and cladding cutting tools such as:**

Log and billet shears, stone cutting-, cutting-, punching-, forging-, pressing- and drawing tools.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	W	V	Fe
0,90	0,80	0,50	4,50	8,00	2,00	1,20	Balance

**Properties:** (indicative values at room temperature)

Hardness:	58 - 62 [HRC]	Welding condition
	63 - 65 [HRC]	Tempered (530°C)
	250 [HB]	Annealed (810°C)
	60 - 63 [HRC]	Hardened at 1220°C

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	95 - 150
4,0	350	140 - 190
5,0	450	190 - 250
6,0	450	220 - 290

**Available alternatives:**

capilla 53 Ti

capilla 53 MAG

capilla 53 WIG

**Standard designations:**

EN 14700: E Fe 4-60-gpst  
 DIN 8555: E 4-UM-60 ST  
 Material no.: 1.3346

**capilla® 53 Ti**

Recovery: 140%

**Product description:**

Very thick rutile coated high performance electrode for deposition welding on tool and high-speed steel.

The weld metal is resistant to wear, impact and pressure.

For operating temperatures up to 550°C.

**Applications:**

**Suitable for manufacturing and cladding cutting tools such as:**

Log and billet shears, stone cutting-, cutting-, punching-, forging-, pressing- and drawing tools.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	W	V	Fe
0,90	0,80	0,50	4,50	7,00	2,00	1,20	Balance

**Properties:** (indicative values at room temperature)

Hardness:	58 - 62 [HRC]	Welding condition
	63 - 65 [HRC]	Tempered (530°C)
	250 [HB]	Annealed (810°C)
	60 - 63 [HRC]	Hardened at 1220°C

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	80 - 120
3,2	350	100 - 160
4,0	350	160 - 220
5,0	450	190 - 260

**Available alternatives:**

capilla 53

capilla 53 MAG

capilla 53 WIG

**Standard designations:**

EN 14700: E Fe 4-60-gpst  
 DIN 8555: E 4-UM-65 ST  
 Material no.: 1.3255

**capilla® 53 N**

Recovery: 140%

**Product description:**

Very thick basic coated high performance electrode for deposition welding.

Stick electrode for cladding and regenerating worn and broken tools made of high-speed steel.

**Applications:**

Suitable for cladding on the cutting edges of components made of unalloyed and low alloy steels.

**Suitable for plating parts exposed to heavy abrasive wear, such as:**

Hot and cold deburring, cutting-, punching-, pressing- and drawing tools.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	W	V	Co	Fe
0,50	0,60	0,10	4,00	0,80	17,50	1,40	4,50	Balance

**Properties:** (indicative values at room temperature)

Hardness:	62 - 65 [HRC]	Welding condition
	64 - 66 [HRC]	Tempered (570°C)
	62 - 65 [HRC]	Annealed at 1290°C/oil
	63 - 66 [HRC]	Heat treated

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	80 - 120
3,2	350	100 - 160
4,0	450	160 - 220
5,0	450	190 - 260

**Standard designations:**

EN 14700: E Fe 5-40-pst  
 DIN 8555: E 4-UM-40 PT

**capilla® 2709**

Recovery: 160%

**Product description:**

Thick basic coated high performance electrode for hard and tough deposition welding in case of abrasion between metal surfaces.

For operating temperatures up to 350°C.

**Applications:****Suitable for deposition welding on:**

Shear blades, dies, cold extrusion tools, punches and complex plastic and pressure die-casting moulds.

Suitable for plating cold cutting blades and attachments from the recycling industry, blades, hold-down clamps.

**Indicative analysis [%]:**

C	Si	Mn	Ni	Mo	Ti	Co	Fe
0,02	0,20	0,60	20,00	4,00	0,30	12,00	Balance

**Properties:** (indicative values at room temperature)

Hardness:	38 - 40 [HRC]	Welding condition
	53 - 54 [HRC]	Tempered (480°C / 3h)

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	80 - 120
3,2	350	100 - 160
4,0	350	160 - 220

**Available alternatives:**

capilla 2709 MAG

capilla 2709 WIG

**Standard designations:**

EN 14700: not classified  
 DIN 8555: Special alloy

**capilla<sup>®</sup> 93**

Recovery: 170%

**Product description:**

Rutile-basic coated stick electrode for deposition welding.

The weld metal is crack-free and has a high hardness even in the first layer.

High resistance to "metal on metal" wear, cavitation, corrosion and fatigue wear.

Resistance to oxidation at high temperatures.

**Applications:****Suitable for deposition welding on:**

Dies, high temperature pumps, matrices, thermoforming tools, guide rollers for continuous casting lines, etc.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Co	Fe
0,15	0,60	0,10	12,50	0,50	2,10	12,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 42 - 48 [HRC]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	80 - 120
3,2	350	100 - 160
4,0	450	160 - 220
5,0	450	190 - 260

**Available alternatives:**

capilla G 93 MM

**Standard designations:**

EN ISO 14172: EZ Ni 6082 (NiCr20Mn3Nb)  
 EN 14700: EZ Ni 1-200-ckptz  
 AWS A 5.11: E NiCrFe-3 (mod.)  
 Material no.: 2.4648

**capilla® 6000**

Recovery: 150%

**Product description:**

Special alloy high performance electrode for deposit welding and welded joints on Ni-alloys.

For operating temperatures of -196°C to 900°C.

Scale-resistant up to 1050°C.

No carbon diffusion from the ferritic base material, even at high temperatures. Not sensitive to embrittlement. Good thermal shock resistance and resistance to heat-cracking.

**Applications:****Suitable for base materials such as:**

1.4429 (X 2 CrNiMoN 17-12-3),  
 1.4539 (X 1 NiCrMoCu 25-20-5),  
 1.4876 (X 10 NiCrAlTi 32-21),  
 1.4922 (X 20 CrMoV 11-1),  
 1.4941 (X 8 CrNTiB 18-10),  
 1.5662 (X 8 Ni 9),  
 2.4817 (NiCr 15 Fe),  
 2.4867 (NiCr 6015),  
 2.4870 (NiCr 10).

**Suitable for joint welds between these materials and unalloyed and low alloy steels.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Nb	Fe	Ni
0,03	0,40	5,00	19,00	2,00	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	680 [MPa]	Elongation (L=5d):	40 [%]
Yield strength $R_{eH}/R_{p0,2}$ :	420 [MPa]	Notch impact energy (ISO-V):	80 [J] (-196°C)

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	350	40 - 60
2,5	350	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 6000 B  
 capilla 6000 DL

capilla 6000 MAG

capilla 6000 WIG

**Standard designations:**

EN 14700: E Ni 2-200-ckptz  
 DIN 8555: E 23-UM-200 CKPTZ

**capilla® 5200**

Recovery: 170%

**Product description:**

Rutile-basic coated high performance electrode for deposition welding on hot working tools.

Corrosion-resistant at high temperatures in an oxidising and reducing atmosphere.

**Applications:**

**Suitable for deposition welding on:**

Dies, hot shearing blades, punches.

And all tools used under extremely high temperatures.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	W	Co	Fe	Ni
0,04	0,30	0,60	16,00	20,00	4,00	4,00	6,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Hardness:	220 [HB]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Hardness (strain-hardened):	>400 [HB]
Elongation (L=5d):	25 [%]		

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	350	40 - 60
2,5	350	60 - 90
3,2	350	80 - 110
4,0	450	100 - 150
5,0	450	150 - 200

**Standard designations:**

EN 14700: E Ni 2-200-ckptz  
 DIN 8555: E 23-UM-200 CKPTZ

**capilla® 5200 S**

Recovery: 170%

**Product description:**

Rutile-basic coated high performance electrode for deposition welding on hot working tools.

Corrosion-resistant at high temperatures in an oxidising and reducing atmosphere.

**Applications:**

**Suitable for deposition welding on:**

Dies, hot shearing blades, punches.

And all tools used under extremely high temperatures.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	W	V	Fe	Ni
0,04	0,20	1,40	15,00	21,00	3,70	0,40	5,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Hardness:	250 [HB]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Hardness (strain-hardened):	>400 [HB]
Elongation (L=5d):	25 [%]		

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	350	40 - 60
2,5	350	60 - 90
3,2	350	80 - 110
4,0	450	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 5200 MAG

capilla 5200 WIG

capilla G 5200 MM

**Standard designations:**

EN ISO 14172: E Ni6117 (NiCr22Co12Mo)  
 EN 14700: EZ Ni 4-300-ckptz  
 AWS A 5.11: E NiCrCoMo-1  
 Material no.: 2.4628

**capilla® 533**

Recovery: 170%

**Product description:**

Basic high performance electrode for deposition welding and welded joints of NiCrCoMo-alloys with one another, and with steel.

Suitable for joints between different types of high temperature alloys which require a temperature and oxidation resistance of up to around 1100°C.

Scale-resistant up to 1100°C in oxidising or carburizing atmospheres.

Suitable for plating highly thermally resistant forming dies.

**Applications:****Suitable for base materials such as:**

2.4663 (NiCr23Co12Mo),  
 2.4851 (NiCr23Fe),  
 1.4876 (X10 NiCrAlTi 32 21),  
 1.4859 (GX10 NiCrSiNb 32 20).

**Suitable for areas such as:**

Chemical equipment, flue gas desulphurisation plants, gas turbines, ethylene systems, combustion chambers, furnaces, equipment for annealing furnaces.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Ti	Co	Fe	Al	Ni
<0,08	0,80	0,20	21,00	9,00	0,25	11,00	<1,50	0,70	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]	Notch impact energy (ISO-V):	80 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 533 MAG

capilla 533 WIG

**Standard designations:**

EN ISO 14172: E Ni 6625 (NiCr22Mo9Nb)  
 EN 14700: E Ni 2-200-ckptz  
 DIN 8555: E 23-UM-250 CKPTZ  
 AWS A 5.11: E NiCrMo 3  
 Material no.: 2.4621

Recovery: 170%

**capilla® 625**

**Product description:**

Thick coated high performance electrode for deposition welding and joint welds of high-temperature-, corrosion- and heat-resistant materials of the same or similar types.

For operating temperatures up to 700°C (in sulphurous media).

Scale-resistant to approx. 1100°C.

High-temperature-resistant up to 1000°C.

Cryogenic up to -196°C.

High corrosion resistance in a wide range of media, including against stress corrosion.

**Applications:****Suitable for base materials such as:**

1.4876 (Alloy 800),  
 1.4876 (X 8 NiCrAlTi 32-21),  
 2.4856 (Alloy 625),  
 1.4539 (X 2 NiCrMoCu 25 20 5).

suitable for welds on cryogenic CrNi(N)-steels, cast steel types and cryogenic heat-treatable Ni-steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Nb	Fe	Ni
0,03	0,40	0,60	22,00	9,00	3,30	1,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	760 [MPa]	Notch impact energy (ISO-V):	75 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]	Notch impact energy (ISO-V):	60 [J] (-196°C)
Elongation (L=5d):	30 [%]		

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 625 K

capilla 625 MAG

capilla 625 WIG

**Standard designations:**

EN 14700: E Co 3-55-cstz  
 DIN 8555: E 20-UM-55 CTZ  
 AWS A 5.13: ~E CoCr-C

**capilla® 501 K**

Recovery: 120%

**Product description:**

Stick electrode for weld surfacing of sealing surfaces exposed to high pressures and temperatures.

The weld metal is resistant to corrosion, cavitation and scale, has outstanding sliding properties, and stands out for its particularly good friction coefficient with "metal on metal" wear, as well as its thermal resistance and capability to be polished to a high gloss.

Processing can be carried out only via grinding.

**Applications:**

Suitable for wear-resistant deposition welds on unalloyed, low alloy and high alloy, heat-, rust- and acid-resistant steels and cast steel.

**Indicative analysis [%]:**

C	Cr	W	Co
2,30	32,00	13,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	53 - 57 [HRC]
	43 - 47 [HRC] at 600°C

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 110
3,2	350	100 - 140
4,0	450	140 - 180
5,0	450	180 - 220

**Available alternatives:**

capilla 501 EHL

capilla 501 WIG

capilla G 501 MM

**Standard designations:**

EN 14700: E Co3-55-cstz  
 DIN 8555: E 20-UM-55 CTZ  
 AWS A 5.13: ~E CoCr-C

**capilla® 501 EHL**

Recovery: 170%

**Product description:**

High performance electrode for weld surfacing of sealing surfaces exposed to high pressures and temperatures.

The weld metal is resistant to corrosion, cavitation and scale, has outstanding sliding properties, and stands out for its particularly good friction coefficient with "metal on metal" wear, as well as its thermal resistance and capability to be polished to a high gloss.

Processing can be carried out only via grinding.

**Applications:**

Suitable for wear-resistant deposition welds on unalloyed, low alloy and high alloy, heat-, rust- and acid-resistant steels and cast steel.

**Indicative analysis [%]:**

C	Cr	W	Co
2,30	32,00	13,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	53 - 57 [HRC]
	43 - 47 [HRC] at 600°C

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 110
3,2	350	100 - 140
4,0	450	140 - 180
5,0	450	180 - 220

**Available alternatives:**

capilla 501 K

capilla 501 WIG

capilla G 501 MM

**Standard designations:**

EN 14700: E Co 2-40-ctz  
 DIN 8555: E 20-UM-40 CTZ  
 AWS A 5.13: E CoCr-A

**capilla® 506 K**

Recovery: 130%

**Product description:**

Stick electrode for deposition welding on work surfaces exposed to heavy impact stress and shocks at high temperatures.

High resistance to cavitation and erosion.

Good "metal on metal" sliding properties.

Thermal shock-resistant.

**Structure:**

Cr- and W-carbide in austenitic Co-matrix.

**Applications:****Suitable for deposition welds on:**

Log shears and billet shears, hot extruder nozzles, grinding gears, etc.

**Suitable for weld surfacing on sealing surfaces of:**

Steam, gas, water and acid fittings, valve seats in combustion engines.

**Indicative analysis [%]:**

C	Cr	W	Co
1,10	27,50	4,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 42 [HRC]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 100
3,2	350	90 - 120
4,0	350	120 - 155
5,0	350	150 - 190

**Available alternatives:**

capilla 506 EHL  
 capalloy 7160063

capilla 506 WIG

capilla G 506 MM

**Standard designations:**

EN 14700: E Co2-40-cstz  
 DIN 8555: E 20-UM-40 CTZ  
 AWS A 5.13: E CoCr-A

**capilla® 506 EHL**

Recovery: 170%

**Product description:**

High performance electrode for deposition welding on work surfaces exposed to heavy impact stress and shocks at high temperatures.

High resistance to cavitation and erosion.

Good "metal on metal" sliding properties.

Thermal shock-resistant.

**Structure:**

Cr- and W-carbide in austenitic Co-matrix.

**Applications:****Suitable for deposition welds on:**

Log shears and billet shears, hot extruder nozzles, grinding gears, etc.

**Suitable for weld surfacing on sealing surfaces of:**

Steam, gas, water and acid fittings, valve seats in combustion engines.

**Indicative analysis [%]:**

C	Cr	W	Co
1,10	27,50	4,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 42 [HRC]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 110
3,2	350	100 - 140
4,0	450	140 - 180
5,0	450	180 - 220

**Available alternatives:**

capilla 506 K  
 capalloy 7160063

capilla 506 WIG

capilla G 506 MM

**Standard designations:**

EN 14700: E Co 2-50-cstz  
 DIN 8555: E 20-UM-50 CTZ  
 AWS A 5.13: E CoCr-B

**capilla® 512 K**

Recovery: 130%

**Product description:**

Stick electrode for wear-resistant cladding on unalloyed, low alloy and high alloy, heat-, rust- and acid-resistant steels and cast steel.

Is distinguished by its excellent coefficient of friction when it comes to "metal on metal" wear.

Temperature-resistant up to 800°C;  
 up to 1100°C for short periods of time.

Machining is possible in some conditions.

**Applications:**

Special high temperature alloy for deposition welds that are subject to temperature fluctuations.

**Ideal for shock- and impact-resistant armour-plating of hot work tools such as:**

Forging dies,  
 Hot punches,  
 Hot trimming tools.

**Indicative analysis [%]:**

C	Cr	W	Co
1,60	29,00	8,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	44 - 52 [HRC]
	36 - 42 [HRC] at 600°C

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 100
3,2	350	90 - 120
4,0	350	120 - 155
5,0	350	150 - 190

**Available alternatives:**

capilla 512 EHL  
 capalloy 7160123

capilla 512 WIG

capilla G 512 MM

**Standard designations:**

EN 14700: E Co 2-50-tz  
 DIN 8555: E 20-UM-50 CTZ  
 AWS A 5.13: E CoCr-B

**capilla® 512 EHL**

Recovery: 170%

**Product description:**

High performance electrode for wear-resistant deposition welds on unalloyed, low alloy and high alloy, heat-, rust- and acid-resistant steels and cast steel.

Is distinguished by its excellent coefficient of friction when it comes to "metal on metal" wear.

Temperature-resistant up to 800°C;  
 up to 1100°C for short periods of time.

Machining is possible in some conditions.

**Applications:**

Special high temperature alloy for deposition welds that are subject to temperature fluctuations.

**Ideal for shock- and impact-resistant armour-plating of hot work tools such as:**

Forging dies,  
 Hot punches,  
 Hot trimming tools.

**Indicative analysis [%]:**

C	Cr	W	Co
1,60	29,00	8,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	44 - 52 [HRC]
	36 - 42 [HRC] at 600°C

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 110
3,2	350	100 - 140
4,0	450	140 - 180
5,0	450	180 - 220

**Available alternatives:**

capilla 512 K  
 capalloy 7160123

capilla 512 WIG

capilla G 512 MM

**Standard designations:**

EN 14700: E Co 1-250-cktz  
 DIN 8555: E 20-UM-250 CKTZ

**capilla® 516 EHL**

Recovery: 170%

**Product description:**

High performance electrode for wear-resistant deposition welds on unalloyed, low alloy and high alloy, heat-, rust- and acid-resistant steels, cast steel and hot working materials.

Particularly well-suited for high working temperatures in conjunction with impact or shock loads.

**Applications:**

Suitable for deposition welding on hot working materials subject to temperature changes.

**Indicative analysis [%]:**

C	Cr	Ni	W	Fe	Co
0,03	18,00	11,50	11,00	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	240 [HB]
	>300 [HB] (strain-hardened)

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 110
3,2	350	100 - 140
4,0	450	140 - 180
5,0	450	180 - 220

**Available alternatives:**

capilla G 516 MM

**Standard designations:**

EN 14700: E Co 1-300-cktz  
 DIN 8555: E 20-UM-300 CTZ  
 AWS A 5.13: ~E CoCr - E

**capilla® 521 K**

Recovery: 130%

**Product description:**

Stick electrode for wear-resistant deposition welds on unalloyed, low alloy and high alloy, heat-, rust- and acid-resistant steels and cast steel.

Is distinguished by its excellent coefficient of friction when it comes to "metal on metal" wear.

Temperature-resistant up to 800°C;  
 temporarily up to 1100°C.

**Applications:**

Special high temperature alloy for deposition welds that are subject to temperature fluctuations.

**Ideal for shock- and impact-resistant armour-plating of hot work tools such as:**

Forging dies,  
 Hot punches,  
 Hot trimming tools.

**Indicative analysis [%]:**

C	Cr	Ni	Mo	Co
0,30	31,00	3,50	5,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 27 - 31 [HRC]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 100
3,2	350	90 - 120
4,0	350	120 - 155
5,0	350	150 - 190

**Available alternatives:**

capilla 521 EHL  
 capilla 521 WIG

capilla G 521 MM

capilla 7160213

**Standard designations:**

EN 14700: E Co1-300-cktz  
 DIN 8555: E 20-UM-300 CTZ  
 AWS A 5.13: ~E CoCr-E

**capilla® 521 EHL**

Recovery: 170%

**Product description:**

High performance electrode for wear-resistant deposition welds on unalloyed, low alloy and high alloy, heat-, rust- and acid-resistant steels and cast steel.

Is distinguished by its excellent coefficient of friction when it comes to "metal on metal" wear.

Temperature-resistant up to 800°C;  
temporarily up to 1100°C.

**Applications:**

Special high temperature alloy for deposition welds that are subject to temperature fluctuations.

**Ideal for shock- and impact-resistant armour-plating of hot work tools such as:**

Forging dies,  
Hot punches,  
Hot trimming tools.

**Indicative analysis [%]:**

C	Cr	Ni	Mo	Co
0,30	31,00	3,50	5,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 27 - 31 [HRC]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	350	60 - 80
2,5	350	70 - 100
3,2	350	100 - 140
4,0	450	140 - 180
5,0	450	180 - 220

**Available alternatives:**

capilla 521 K  
capilla 521 WIG

capilla G 521 MM

capalloy 7160213

**Standard designations:**

EN 14700: E Co 1-350-cktz  
 DIN 8555: E 20-UM-350 CTZ

**capilla® 523 EHL**

Recovery: 170%

**Product description:**

High performance electrode for wear-resistant deposition welds on unalloyed, low alloy and high alloy steels and cast steel.

Is distinguished by its excellent coefficient of friction when it comes to "metal on metal" wear.

The weld metal is resistant to temperature and load changes.

Temperature-resistant up to 800°C.

**Applications:**

**Suitable for deposition welding on hot working tools, such as:**

Forging dies,  
 Hot punches,  
 Hot trimming tools.

Suitable for plating valves in the chemical industry and in hot steam areas.

**Indicative analysis [%]:**

C	Cr	Ni	Nb	W	Fe	Co
0,40	25,00	5,50	8,50	2,60	4,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 350 [HB]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 110
3,2	350	100 - 140
4,0	450	140 - 180
5,0	450	180 - 220

**Standard designations:**

EN 14700: E Co 1-350-cktz  
 DIN 8555: E 20-UM-300 CTZ

**capilla® 524 EHL**

Recovery: 170%

**Product description:**

High performance electrode for wear-resistant deposition welds on unalloyed, low alloy and high alloy, heat-, rust- and acid-resistant steels and cast steel.  
 Particularly well-suited for high working temperatures in conjunction with impact or shock loads.

**Applications:**

Suitable for deposition welding on hot working materials subject to temperature changes.

**Indicative analysis [%]:**

C	Cr	Ni	Mo	W	Fe	Co
0,03	26,00	11,00	6,50	2,50	2,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 320 [HB]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 110
3,2	350	100 - 140
4,0	450	140 - 180
5,0	450	180 - 220

**Standard designations:**

EN 14700: E Ni 2-250-ckptz  
 DIN 8555: E 23-UM-250 CKPTZ

**capilla® 526**

Recovery: 170%

**Product description:**

Thick coated Ni-based high performance electrode for maintenance and cladding of high heat-resistant hot working steels exposed to impacts and shocks.

**Applications:****Suitable for plating:**

Hot cutting tools  
 (shears, deburring cuts),  
 hot working tools  
 (piercers, extrusion punches, etc.).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Nb	Fe	Ni
0,03	0,40	0,60	22,00	9,00	3,30	1,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	750 [MPa]	Notch impact energy (ISO-V):	70 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	480 [MPa]	Hardness:	250 [HB]
Elongation (L=5d):	35 [%]		

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 526 MAG

capilla 526 WIG

**Standard designations:**

EN 14700: S Fe 7-cpt  
 EN ISO 14343-A: G 17  
 AWS A 5.9: ~ER 430  
 Material no.: 1.4015

**capilla® 4914 MAG**

**Product description:**

Solid wire made of ferritic Cr-steel for MIG/MAG welding on stainless Cr-steels suitable for heat treatment.

The weld metal stands out for its extraordinarily high resistance to cracking.

The weld metal is high-strength as well as tough, allowing for perfect, crack-free depositions on rollers, straightening rollers, and gripper jaws.

For operating temperatures up to 450°C.  
 Scale-resistant up to 950°C.

**Applications:****Suitable for base materials such as:**

1.4016 (X 6 Cr 17),  
 1.4057 (X 20 CrNi 17-2),  
 1.4059 (G-X CrNi 17),  
 1.4740 (G-X 40 CrSi 17),  
 1.4742 (X 10 CrAl 18).

**Suitable for repair welds on:**

Hot working tools.

**Also for weld surfacing of sealing surfaces on:**

Fittings made of unalloyed or low alloy steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,07	0,80	0,70	17,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	540 [MPa]	Hardness:	240 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	340 [MPa]	Hardness (annealed):	150 [HB 30]
Elongation (L=5d):	20 [%]		

**Shielding gas (EN ISO 14175):** M11, M21, M23, M32 **Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Available alternatives:**

capilla 4914

capilla 4914 WIG

**Standard designations:**

EN 14700: S Fe 1-300-p  
 DIN 8555: MSG 3-GZ-300 GP

**capilla® 64 MAG**

**Product description:**

Solid wire for high-strength, MIG/MAG deposition welding and welded joints suitable for heat treatment.

The weld metal has a high resistance to cracking and is highly resistant to compressive loads and impacts.

**Applications:****Suitable for base materials such as:**

Structural and tool steels,  
 Q&T steels up to  $R_m = 1000$  MPa,  
 high temperature steels.

**Suitable for repair and maintenance work on:**

Dies, rails, crane rail wheels, conveyor rollers.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,10	1,00	1,20	2,50	0,80	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	1000 [MPa]	Elongation (L=5d):	19 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	650 [MPa]	Hardness:	270 [HB]

Shielding gas (EN ISO 14175): M21, C1

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
0,8
1,0
1,2
1,6

Available alternatives:

capilla 64 KB

capilla 64 WIG

**Standard designations:**

EN 14700: S Fe 3-45-gst  
 DIN 8555: MSG 3-GZ-45 T  
 Material no.: 1.2567

# capilla® 65 MAG

**Product description:**

Solid wire for heat-resistant, tough MIG/MAG deposition welds of hot working and unalloyed and low alloy steels of the same or similar type.

Very good thermal shock resistance.

For operating temperatures up to 550°C.

**Applications:****Suitable for repair and production welding on:**

Hot cuttings, dies, mandrels, expanding mandrels, matrices, swaging tools, extrusion punches, pressure dies.

**Indicative analysis [%]:**

C	Si	Mn	Cr	W	V	Fe
0,30	0,25	0,30	2,40	4,20	0,70	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	41 - 45 [HRC]	Welding condition
	45 - 50 [HRC]	Tempered (550°C / 2h)
	20 - 25 [HRC]	Annealed (approx. 800°C)

**Shielding gas (EN ISO 14175):** M20, M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Available alternatives:**

capilla 65  
 capilla G 65 MM

capilla 65 TI

capilla 65 WIG

**Standard designations:**

EN 14700: S Fe 3-55-st  
 DIN 8555: MSG 6-GZ-50 PST  
 Material no.: 1.2344

**capilla® 6500 MAG**

**Product description:**

Solid wire for MIG/MAG deposition welding of hot working steels of the same type and cladding tools made of low alloy steels.

**Pre-heating:**

Steels of the same type 400°C - 500°C  
 (up to max. annealing temperature),  
 low alloy steels 200°C - 300°C.

The areas to be welded must be blank metal and free from heat-cracking.

**Applications:**

**Suitable for base materials such as:**

1.2307 - 1.2377.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	V	Fe
0,50	1,00	0,40	6,20	1,50	1,10	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	approx. 55 [HRC]	Welding condition
	52 - 55 [HRC]	Tempered (550°C / 2 - 8h)
	42 - 48 [HRC]	Tempered (650°C / 2 - 8h)

**Shielding gas (EN ISO 14175):** M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Available alternatives:**

capilla 6500

capilla 6500 WIG

**Standard designations:**

EN 14700: S Fe 3-55-gst  
 DIN 8555: MSG 3-GZ-55 ST

**capilla® 732 MAG**

**Product description:**

Solid wire for heat-resistant MIG/MAG deposition welding against impacts, pressure and abrasion on hot working steels with a moderate to high hardness.

For operating temperatures up to 550°C.

**Applications:****Suitable for cladding on:**

Hot cutting blades, gripper jaws, deburring tools, punching knives, continuous casting rollers, rollers for roughing stands and alignment rollers.

**Suitable for new production of:**

Hot working tools.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Ti	Fe
0,40	0,60	1,20	7,00	2,20	0,40	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 50 - 55 [HRC]

**Shielding gas (EN ISO 14175):** M12, M13, M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Available alternatives:**

capilla 732

capilla 732 WIG

**Standard designations:**

EN 14700: S Fe 3-50-gst  
 DIN 8555: MSG 3-GZ-50 ST  
 Material no.: ~1.2367

**capilla® 733 MAG**

**Product description:**

Solid wire for heat-resistant MIG/MAG deposition welding against pressure and wear on hot working steels exposed to heavy loads with a high hardness in mould and tool construction.

For operating temperatures up to 550°C.

Hardfacing only in short stringer beads of 50-80 mm, then hammer welded seams.

**Applications:****Suitable for cladding on:**

Hot shearing knives, gripper jaws, deburring tools, punching knives, continuous casting rollers, rollers for roughing stands, alignment rollers, die inserts, dies, plastic moulds, profile dies, die holders and piercers.

**Suitable for new production of:**

Hot working tools.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Ti	Fe
0,30	0,50	0,70	5,00	4,00	+	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 45 - 50 [HRC]

**Shielding gas (EN ISO 14175):** M12, M13, M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Available alternatives:**

capilla 733

capilla 733 WIG

**Standard designations:**

EN 14700: S Fe 3-40-gst  
 DIN 8555: MSG 3-GZ-40 PT

**capilla® 734 MAG**

Approval: TÜV

**Product description:**

Solid wire for heat-resistant MIG/MAG deposition welding against impacts, pressure and abrasion on hot working steels with a moderate to high hardness.

For operating temperatures up to 550°C.

**Applications:****Suitable for cladding on:**

Swages, pressure die-casting tools, rollers, continuous casting rollers, guides, recipients.

**Suitable for new production of:**

Hot working tools.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,15	0,60	0,70	6,00	3,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 38 - 42 [HRC]

Shielding gas (EN ISO 14175): M12, M13, M21

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
1,0
1,2
1,6

Available alternatives:

capilla 734

capilla 734 WIG

**Standard designations:**

EN 14700: S Fe 8-60-gpt  
 DIN 8555: MSG 6-GZ 60

**capilla® 5400 MAG**

**Product description:**

CrMo-alloyed solid wire for very hard MIG/MAG deposition welding on structural and machine parts exposed to high abrasion and heavy impact loads.

**Applications:**

**Suitable for repairs and new production of tools and machine components such as:**

Rollers, baffle plates,  
 forging, pressing and drawing tools.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,40	3,10	0,60	9,00	2,00	Balance

**Properties:** (indicative values at room temperature)

Härte:	57 - 60 [HRC]	Welding condition
	30 - 40 [HRC]	500°C (red hardness)
	56 - 59 [HRC]	hardened at 1050°C

**Shielding gas (EN ISO 14175):** M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

[capilla 5400](#)

[capilla 5400 WIG](#)

[capilla G 5400 MM](#)

**Standard designations:**

EN 14700: S Fe 4-60-gpst  
 DIN 8555: MSG 4-GZ-60 ST  
 Material no.: 1.3348

**capilla® 53 MAG**

**Product description:**

Solid wire for MIG/MAG deposition welding on tool and high-speed steels.

The weld metal is resistant to wear, impact and pressure.

For operating temperatures up to 550°C.

**Applications:**

**Suitable for manufacturing and cladding cutting tools such as:**

Log and billet shears, stone cutting, cutting-, punching-, forging-, pressing- and drawing tools.

**Indicative analysis [%]:**

C	Cr	Mo	V	W	Fe
1,00	4,00	8,00	1,70	2,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 57 - 62 [HRC]

**Shielding Gas (EN ISO 14175):** I1, M12, M13

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,0
1,2
1,6
2,4

**Available alternatives:**

capilla 53

capilla 53 Ti

capilla 53 WIG

**Standard designations:**

DIN EN 14700: S Fe 5-40-pst  
 Material no.: 1.6356

**capilla® 2709 MAG**

**Product description:**

Solid wire for MIG/MAG joint welding of materials of the same or similar types, as well as deposition welding on hardenable cladding.

Good resistance to metallic wear.

For operating temperatures up to 350°C.

**Applications:****Suitable for deposition welding on:**

Shear blades, dies, cold extrusion tools, punches and complex plastic and pressure die-casting moulds.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Ti	Co	Fe
0,01	0,40	0,10	0,20	17,50	3,50	1,60	12,00	Balance

**Properties:** (indicative values at room temperature)

Hardness:	38 - 40 [HRC]	Welding condition
	53 - 54 [HRC]	Tempered (480°C / 3h)

Shielding gas (EN ISO 14175): M21

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
1,0
1,2
1,6

Available alternatives:

capilla 2709

capilla 2709 WIG

**Standard designations:**

DIN EN ISO 18274: S Ni 6059 (NiCr23Mo16)  
 EN 14700: S Ni 2-200-ckptz  
 AWS A 5.14: ER NiCrMo - 13  
 Material no.: 2.4607

**capilla® 5200 MAG**

**Product description:**

CrMo-alloyed Ni-based solid wire for MIG/MAG deposition welding.

Corrosion-resistant at high temperatures in an oxidising and reducing atmosphere.

Exceptional resistance in hot media containing acids and chlorides despite the low carbon content.

**Applications:**

**Suitable for deposition welding and joint welds of base materials such as:**

2.4602 (NiCr21Mo14W),  
 2.4605 (NiCr23Mo16Al),  
 2.4610 (NiMo16Cr16Ti).

**Suitable for use in the chemical industry, wet chemistry and environmental engineering.**

**Indicative analysis [%]:**

C	Cr	Mo	Fe	Ni
0,01	21,50	16,00	0,80	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	720 [MPa]	Notch impact energy (ISO-V):	70 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]	Hardness:	250 [HB]
Elongation (L=5d):	35 [%]	Hardness (strain-hardened):	>400 [HB]

**Shielding gas (EN ISO 14175):** I1, ArHe

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla 5200 S

capilla 5200 WIG

capilla G 5200 MM

**Standard designations:**

EN ISO 18274: S Ni 6617 (NiCr22Co12Mo)  
 EN 14700: S Ni 4-200-ckptz  
 AWS A 5.14: ER NiCrCoMo-1  
 Material no.: 2.4627

**capilla® 533 MAG**

**Product description:**

Ni-based solid wire for MIG/MAG deposition welding and welded joints of NiCrCoMo-alloys with one another, and with steel.

Suitable for joints between different types of high temperature alloys which require a temperature and oxidation resistance of up to around 1100°C.

Suitable for plating highly thermally resistant forming dies.

**Applications:****Suitable for base materials such as:**

2.4851 (Alloy 617),  
 1.4958 (Alloy 800),  
 2.4851 (Alloy 601),  
 1.4862 (G X 40 CrNiSi 22-10).

**Suitable for areas such as:**

chemical equipment, flue gas desulphurisation plants, gas turbines, combustion chambers, furnaces, equipment for annealing furnaces.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Ti	Co	Fe	Al	Fe
0,09	0,50	1,10	22,00	9,00	0,60	12,50	3,00	0,90	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Notch impact energy (ISO-V):	60 [J]

**Shielding gas (EN ISO 14175):** 11, ~13 (Ar+ 30% He + 0.5% CO<sub>2</sub>)

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Available alternatives:**

capilla 533 WIG

**Standard designations:**

EN 14700: S Ni 2-250-ckptz

**capilla® 838 MAG****Product description:**

Solid wire for MIG/MAG welding to repair and plate high-temperature-resistant hot working tools subject to impacts and shocks.

**Applications:****Suitable for plating:**

Hot cutting blades, hot deburring blades, hot piercers, hot extrusion punches, etc.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Nb	Ni
0,03	0,50	1,00	22,00	9,00	3,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	250 [HB]
	≥ 400 [HB] (work-hardened)

Shielding gas (EN ISO 14175): I1, M12

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
0,8
1,0
1,2
1,6

Available alternatives:

capilla 838 WIG

**Standard designations:**

EN 14700: S Fe 7-250-cpt  
 EN ISO 14343-A: W 17  
 DIN 8555: WSG 6-GZ-250 PRT  
 AWS A 5.9: ~ER 430  
 Material no.: 1.4015

**capilla® 4914 WIG**

**Product description:**

Welding rod made of ferritic Cr-steel for TIG welding on Cr-steels suitable for heat treatment.

The weld metal stands out for its extraordinarily high resistance to cracking.

The weld metal is high-strength as well as tough, allowing for perfect, crack-free depositions on rollers, straightening rollers, and gripper jaws.

For operating temperatures up to 450°C.  
 Scale-resistant up to 950°C.

**Applications:****Suitable for base materials such as:**

1.4016 (X 6 Cr 17),  
 1.4057 (X 20 CrNi 17-2),  
 1.4059 (G-X CrNi 17),  
 1.4740 (G-X 40 CrSi 17).  
 1.4742 (X 10 CrAl 18).

**Suitable for repair welds on:**

Hot working tools.

**Also for weld surfacing of sealing surfaces on:**

Fittings made of unalloyed or low alloy steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,07	0,80	0,70	17,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	540 [MPa]	Hardness:	240 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	340 [MPa]	Hardness (annealed):	150 [HB 30]
Elongation (L=5d):	20 [%]		

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

capilla 4914

capilla 4914 MAG

**Standard designations:**

EN 14700: S Fe 1-300-p  
 DIN 8555: WSG 3-GZ-300 GP

**capilla® 64 WIG**

**Product description:**

Welding rod for high-strength, TIG deposition welding and welded joints suitable for heat treatment.

The weld metal has a high resistance to cracking and is highly resistant to compressive loads and impacts.

**Applications:**

**Suitable for base materials such as:**

Structural and tool steels, Q&T steels up to  $R_m = 1000$  MPa, high temperature steels.

**Suitable for repair and maintenance work on:**

Dies, rails, crane rail wheels, conveyor rollers.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,10	1,00	1,20	2,50	0,80	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	1000 [MPa]	Elongation (L=5d):	19 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	650 [MPa]	Hardness:	270 [HB]

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla 64 KB

capilla 64 MAG

**Standard designations:**

EN 14700: S Fe 3-45-gst  
 DIN 8555: WSG 3-GZ-45 T9  
 Material no.: 1.2567

**capilla® 65 WIG**

**Product description:**

Welding rod for heat-resistant, tough TIG deposition welds of hot working and unalloyed and low alloy steels of the same or similar type.

Very good thermal shock resistance.

For operating temperatures up to 550°C.

**Applications:**

**Suitable for repair and production welding on:**

Hot cutting, dies, mandrels, expanding mandrels, matrices, swaging tools, extrusion punches, pressure dies.

**Indicative analysis [%]:**

C	Si	Mn	Cr	W	V	Fe
0,30	0,25	0,30	2,40	4,20	0,60	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	41 - 46 [HRC]	Welding condition
	45 - 50 [HRC]	Tempered (550°C / 2h)
	20 - 25 [HRC]	Annealed (approx. 800°C)

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,0	1000

**Available alternatives:**

capilla 65  
 capilla G 65 MM

capilla 65 Ti

capilla 65 MAG

**Standard designations:**

EN 14700: S Fe 3-55-st  
 DIN 8555: WSG 6-GZ-50 T  
 Material no.: 1.2344

**capilla® 6500 WIG**

**Product description:**

Welding rod for TIG deposition welding of hot working steels of the same type and cladding tools made of low alloy steels.

**Pre-heating:**

Steels of the same type 400 - 500°C (up to max. annealing temperature), low alloy steels 200 - 300°C.

The areas to be welded must be blank metal and free from heat-cracking.

**Applications:**

**Suitable for base materials such as:**

1.2307 - 1.2377.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	V	Fe
0,50	1,00	0,35	5,80	1,60	1,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	approx. 55 [HRC]	Welding condition
	52 - 55 [HRC]	Tempered (550°C / 2 - 8h)
	42 - 48 [HRC]	Tempered (650°C / 2 - 8h)

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla 6500

capilla 6500 MAG

**Standard designations:**

EN 14700: S Fe 3-55-gst  
 DIN 8555: WSG 3-GZ-55 ST

**capilla® 732 WIG**

**Product description:**

Welding rod for heat-resistant TIG deposition welding against impacts, pressure and abrasion on hot working steels with a moderate to high hardness.

For operating temperatures up to 550°C.

**Applications:****Suitable for cladding on:**

Hot cutting blades, gripper jaws, deburring tools, punching knives, continuous casting rollers, rollers for roughing stands and alignment rollers.

**Suitable for new production of:**

Hot working tools.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Ti	Fe
0,40	0,60	1,20	7,00	2,20	0,40	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 50 - 55 [HRC]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

capilla 732

capilla 732 MAG

**Standard designations:**

EN 14700: S Fe 3-50-gst  
 DIN 8555: WSG 3-GZ-50 ST  
 Material no.: ~1.2367

**capilla® 733 WIG**

**Product description:**

Welding rod for heat-resistant TIG deposition welding against impacts, pressure and abrasion on hot working steels with a moderate to high hardness.

For operating temperatures up to 550°C.

**Applications:****Suitable for cladding on:**

Hot cutting blades, gripper jaws, deburring tools, punching knives, continuous casting rollers, rollers for roughing stands and alignment rollers.

**Suitable for new production of:**

Hot working tools.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Ti	Fe
0,30	0,50	0,70	5,00	4,00	+	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 45 - 50 [HRC]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

capilla 733

capilla 733 MAG

**Standard designations:**

EN 14700: S Fe 3-40-gst  
 DIN 8555: WSG 3-GZ-40 ST

**capilla® 734 WIG**

**Product description:**

Welding rod for heat-resistant TIG deposition welding against impacts, pressure and abrasion on hot working steels with a moderate to high hardness.

For operating temperatures up to 550°C.

**Applications:****Suitable for cladding on:**

Swages, pressure die-casting tools, rollers, continuous casting rollers, guides, recipients.

**Suitable for new production of:**

Hot working tools.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,12	0,50	0,70	6,50	3,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 38 - 42 [HRC]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

capilla 734

capilla 734 MAG

**Standard designations:**

EN 14700: S Fe 8-60-gpt  
 DIN 8555: WSG 6-GZ-60

**capilla® 5400 WIG**

**Product description:**

CrMo-alloyed welding rod for very hard TIG deposition welding on structural and machine parts exposed to high abrasion and heavy impact loads.

**Applications:**

**Suitable for repairs and new production of tools and machine components such as:**

Rollers, baffle plates, forging, pressing and drawing tools.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,40	3,00	0,60	9,00	2,10	Balance

**Properties:** (indicative values at room temperature)

Hardness:	57 - 60 [HRC]	Welding condition
	30 - 40 [HRC]	500°C (red hardness)
	56 - 59 [HRC]	hardened at 1050°C

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla 5400

capilla 5400 MAG

capilla G 5400 MM

**Standard designations:**

EN 14700: S Fe 4-60-gpst  
 DIN 8555: WSG 4-GZ-60 ST  
 Material no.: 1.3348

**capilla® 53 WIG**

**Product description:**

Welding rod for TIG deposition welding on tool and hot working steels.

The weld metal is resistant to wear, impact and pressure.

For operating temperatures up to 550°C.

**Applications:**

**Suitable for manufacturing and cladding cutting tools such as:**

Log and billet shears, stone cutting, cutting-, punching-, forging-, pressing- and drawing tools.

**Indicative analysis [%]:**

C	Cr	Mo	V	W	Fe
1,10	4,00	8,00	1,70	1,90	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 57 - 62 [HRC]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

capilla 53

capilla 53 Ti

capilla 53 MAG

**Standard designations:**

DIN EN 14700: S FE 5-40-pst  
 Material no.: 1.6356

**capilla® 2709 WIG**

**Product description:**

Welding rod for TIG joint welding of materials of the same or similar types, as well as deposition welding on hardenable cladding.

Good resistance to metallic wear.

For operating temperatures up to 350°C.

**Applications:****Suitable for deposition welding on:**

Shear blades, dies, cold extrusion tools, punches and complex plastic and pressure die-casting moulds.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Ti	Co	Fe
0,01	0,40	0,10	0,20	17,50	3,50	1,60	12,00	Balance

**Properties:** (indicative values at room temperature)

Hardness:	38 - 40 [HRC]	Welding condition
	53 - 54 [HRC]	Tempered (480°C / 3h)

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,0	1000
3,2	1000
4,0	1000

Available alternatives:

capilla 2709

capilla 2709 MAG

**Standard designations:**

DIN EN ISO 18274: S Ni 6059 (NiCr23Mo16)  
 EN 14700: S Ni 2-200-ckptz  
 AWS A 5.14: ER NiCrMo - 13  
 Material no.: 2.4607

**capilla® 5200 WIG**

**Product description:**

CrMo-alloyed Ni-based welding rod for TIG deposition welding.

Corrosion-resistant at high temperatures in an oxidising and reducing atmosphere.

Exceptional resistance in hot media containing acids and chlorides despite the low carbon content.

**Applications:**

**Suitable for deposition welding and joint welds of base materials such as:**

2.4602 (NiCr21Mo14W),  
 2.4605 (NiCr23Mo16Al),  
 2.4610 (NiMo16Cr16Ti).

**Suitable for use in the chemical industry, wet chemistry and environmental engineering.**

**Indicative analysis [%]:**

C	Cr	Mo	Fe	Ni
0,01	21,50	16,00	0,70	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	720 [MPa]	Notch impact energy (ISO-V):	70 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	450 [MPa]	Hardness:	250 [HB]
Elongation (L=5d):	35 [%]	Hardness (strain-hardened):	>400 [HB]

**Shielding gas (EN ISO 14175):** I1, R1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla 5200 S

capilla 5200 MAG

capilla G 5200 MM

**Standard designations:**

EN ISO 18274: S Ni 6617 (NiCr22Co12Mo)  
 EN 14700: S Ni 4-200-ckptz  
 AWS A 5.14: ER NiCrCoMo-1  
 Material no.: 2.4627

**capilla® 533 WIG**

**Product description:**

Ni-based welding rod for TIG deposition welding and welded joints of NiCrCoMo-alloys with one another, and with steel.

Suitable for joints between different types of high temperature alloys which require a temperature and oxidation resistance of up to around 1100°C.

Suitable for plating highly thermally resistant forming dies.

**Applications:****Suitable for base materials such as:**

2.4851 (Alloy 617),  
 1.4958 (Alloy 800),  
 2.4851 (Alloy 601),  
 1.4862 (G X 40 CrNiSi 22-10).

**Suitable for areas such as:**

Chemical equipment, flue gas desulphurisation plants, gas turbines, combustion chambers, furnaces, equipment for annealing furnaces.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Ti	Co	Fe	Al	Ni
0,09	0,50	1,20	23,00	9,00	0,60	12,50	3,00	1,10	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Notch impact energy (ISO-V):	60 [J]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
2,0	1000
2,4	1000

Available alternatives:

capilla 533 MAG

**Standard designations:**

EN 14700: S Ni 2-250-ckptz

**capilla® 838 WIG****Product description:**

Welding rod for TIG welding to repair and plate high-temperature-resistant hot working tools subject to impacts and shocks.

**Applications:****Suitable for plating:**

Hot cutting blades, hot deburring blades, hot piercers, hot extrusion punches, etc.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Nb	Ni
0,03	0,50	1,00	22,00	9,00	3,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	250 [HB]
	≥ 400 [HB] (strain-hardened)

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

capilla 838 MAG

**Standard designations:**

EN 14700: R Co 3-55-tz  
 DIN 8555: WSG 20-GG-55 CTZ  
 AWS A 5.21: ~ER CoCr-C

**capilla® 501 WIG**

**Product description:**

Co-based welding rod for weld surfacing of sealing surfaces exposed to high pressures and temperatures.

The weld metal is resistant to corrosion, cavitation and scale, has outstanding sliding properties, and stands out for its particularly good friction coefficient with "metal on metal" wear, as well as its thermal resistance and capability to be polished to a high gloss.

Processing can be carried out only via grinding.

**Applications:**

**Suitable for wear-resistant deposition welding on:**

unalloyed, low alloy and high alloy, heat-, rust- and acid-resistant steels and cast steel.

**Indicative analysis [%]:**

C	Cr	W	Co
2,30	30,00	13,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	53 - 57 [HRC]
	43 - 47 [HRC] at 600°C

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
2,4	1000
2,7	1000
3,2	1000
4,0	1000
5,0	1000
6,4	1000

**Available alternatives:**

capilla 501 EHL

capilla G 501 MM

**Standard designations:**

EN 14700: R Co 2-40-ctz  
 DIN 8555: WSG 20-GG-40 CTZ  
 AWS A 5.21: ER CoCr-A

**capilla® 506 WIG**

**Product description:**

Co-alloyed welding rod for TIG deposition welding of protective layers on work surfaces exposed to heavy impact stress and shocks at high temperatures.

The weld metal is highly resistant to cavitation and erosion.

Good "metal on metal" sliding properties.  
 Thermal shock resistant.

**Structure:**

Cr- and W-carbide in austenitic Co-matrix.

**Applications:**

**Suitable for weld surfacing of sealing surfaces on:**

Steam, gas, water and acid fittings, valve seats in combustion engines.

**Suitable for deposition welding on:**

Log shears and billet shears, hot extruder nozzles, grinding gears, etc.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	W	Fe	Co
1,20	1,10	<1,00	28,00	1,10	4,00	<1,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 42 [HRC]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	915
2,0	1000
2,4	1000
3,2	1000
4,0	1000
5,0	1000
6,4	1000
<b>Other sizes on request</b>	

Available alternatives:

capilla 506 K  
 capilla 506 EHL

capilla G 506 MM

capalloy 7160063

**Standard designations:**

EN 14700: R Co 2-50-cstz  
 DIN 8555: WSG 20-GG-50 CTZ  
 AWS A 5.21: ER CoCr-B

**capilla® 512 WIG**

**Product description:**

Co-based welding rod for wear-resistant TIG deposition welds on unalloyed, low alloy and high alloy, heat-, rust- and acid-resistant steels and cast steel.

Is distinguished by its excellent coefficient of friction when it comes to "metal on metal" wear.

Temperature-resistant up to 800°C; temporarily up to 1100°C.

**Applications:**

**Suitable for shock- and impact-resistant plating of hot work tools such as:**

Forging dies,  
 Hot punches,  
 Hot trimming tools.

Suitable for high temperature-resistant specialised alloys (that are subject to temperature changes).

Machining is possible in some cases.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	W	Fe	Co
1,40	1,50	<1,00	29,00	3,00	7,30	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	44 - 52 [HRC]
	36 - 42 [HRC] at 600°C

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
2,4	1000
2,7	1000
3,2	1000
4,0	1000
5,0	1000
6,4	1000

**Available alternatives:**

capilla 512 EHL  
 capilla 512 K

capilla G 512 MM

capalloy 7160123

**Standard designations:**

EN 14700: R Co 1-300-cstz  
 DIN 8555: WSG 20-GG-300 CTZ  
 AWS A 5.21: ER CoCr-E

**capilla® 521 WIG**

**Product description:**

Co-based welding rod for wear-resistant TIG deposition welds on unalloyed, low alloy and high alloy, heat-, rust- and acid-resistant steels and cast steel.

Is distinguished by its excellent coefficient of friction when it comes to “metal on metal” wear.

Temperature-resistant up to 800°C; temporarily up to 1100°C.

**Applications:**

Special high temperature alloy for deposition welds that are subject to temperature fluctuations.

**Ideal for shock- and impact-resistant cladding of hot work tools such as:**

Forging dies,  
 Hot punches,  
 Hot trimming tools

**Indicative analysis [%]:**

C	Cr	Mo	Ni	Fe	Co
0,23	27,00	5,80	2,70	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 27 - 31 [HRC]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
2,0	1000
2,4	1000
3,2	1000
4,0	1000
5,0	1000
6,4	1000

Available alternatives:

capilla 521 EHL  
 capilla 521 K

capilla G 521 MM

capalloy 7160213

**Standard designations:**

EN 14700: T Fe 1-300-p  
 DIN 8555: MSG 1-GF-300 P

**capilla® G 105 MM**

**Product description:**

Flux-cored wire for high-strength MIG/MAG deposition welding suitable for heat treatment.

The weld metal has a high resistance to cracking and is highly resistant to compressive loads and impacts.

**Applications:****Suitable for base materials such as:**

Dies, rails, crane rail wheels, conveyor rollers, structural and tool steels, machinery components, armoured steels, etc.

Suitable for repair and production welding on medium alloy steels.

Also suited for difficult to weld steels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,18	0,60	1,10	1,90	2,10	1,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 350 [HB]

Shielding as (EN ISO 14175): M21

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
1,2
1,6
2,0
2,4

Available alternatives:

capilla 64 KBS

**Standard designations:**

EN 14700: T Fe 7-350-cpt  
 EN ISO 17633-A: T 13 4 M M21 2  
 Material no.: 1.4351

**capilla® G 135 MM****Product description:**

Metal powder flux-cored wire for MIG/MAG deposition welding and joint welds of ferritic-martensitic chromium steels.

The weld metal is corrosion-resistant corresponding to Cr(Ni)-steels of similar types and highly resistant to wear and cavitation, particularly in hydroelectric turbine construction.

When using thick-walled parts, pre-heating to a temperature of 200°C and post-weld heat treatment to improve resilience are useful.

**Applications:****Suitable for base materials such as:**

1.4313 (X 3 CrNiMo 13-4),  
 1.4000 (X 6 Cr 13),  
 1.4001 (X 7 Cr 14),  
 1.4002 (X 6 CrAl 13).

Suitable for deposition welding and joint welds of 13% Cr(Ni)-steels similar type 13% Cr-steels.

Suitable for repairs of forming dies subject to temperature changes.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,10	1,00	0,70	13,50	4,00	0,70	Balance

**Properties:** (heat treatment: 600°C / 8h; indicative values at room temperature)

Tensile strength $R_m$ :	800 [MPa]	Hardness:	310 [HB 30]
Yield strength $R_{eH}/R_{p0.2}$ :	600 [MPa]	Hardness (unannealed):	38 [HRC]
Elongation (L=5d):	15 [%]		

**Shielding gas (EN ISO 14175):** M12, M13, M21**Current type:**

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**Positions:****Dimensions:**

Ø [mm]
1,2
1,6

**Available alternatives:**

capilla 410 NiMo

capilla 410 NiMo WIG

capidur 410 NiMo MAG

capilla G 410 NiMo MM

capilla G 135 N MM

**Standard designations:**

EN 14700: T Fe 1-300-p  
 DIN 8555: MSG 1-GF-300 GP

**capilla® G 64 MM**

**Product description:**

Metal powder-cored wire for high-strength MIG/MAG deposition welding and welded joints suitable for heat treatment.

The weld metal has a high resistance to cracking and is highly resistant to compressive loads and impacts.

**Applications:****Suitable for base materials such as:**

Structural and tool steels, Q&T steels up to  $R_m = 1000$  MPa, as well as high-temperature steels.

**Suitable for repair and maintenance work on:**

Dies, rails, crane rail wheels, conveyor rollers.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,10	0,70	1,20	0,60	0,60	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 280 [HB]

Shielding gas (EN ISO 14175): M21

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
1,2
1,6
2,4
2,8

Available alternatives:

capilla 64 KB

capilla 64 MAG

capilla 64 WIG

**Standard designations:**

EN 14700: T Fe 3-50-gst  
 DIN 8555: MF 3-50-ST  
 Material no.: ~1.2567

**capilla® G 65 MM**

**Product description:**

CCrW-alloyed flux-cored wire for deposition welding on hot working steels of the same type and low alloy steels.

Very good thermal shock resistance.

For operating temperatures up to 550°C.  
 Pre-heating temperature from 300°C to 400°C.  
 For tools made of low alloy steel max. 150°C to 300°C.

**Applications:****Suitable for deposition welding on:**

Hot cutting tools, dies, stamps, impact dies and swages, mandrels.

**Indicative analysis [%]:**

C	Si	Mn	Cr	W	V	Fe
0,20	0,90	0,70	2,30	4,50	0,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	41 - 45 [HRC]	Welding condition
	45 - 50 [HRC]	Tempered (550°C / 2h)
	20 - 25 [HRC]	Annealed (approx. 800°C)

Shielding gas (EN ISO 14175): I1

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
1,2
1,6
2,0
2,4
2,6

Available alternatives:

capilla 65  
 capilla 65 Ti

capilla 65 MAG

capilla 65 WIG

**Standard designations:**

EN 14700: T Fe 8-60-gpt  
 DIN 8555: MSG 6-GF-60

**capilla® G 5400 MM**

**Product description:**

CrMo-alloyed seamless flux-cored wire for very hard MIG/MAG deposition welding on structural and machine parts exposed to high abrasion and heavy impact loads.

**Applications:**

**Suitable for repairs and new production of tools and machine components such as:**

Rollers, baffle plates, forging, pressing and drawing tools.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,55	2,40	1,10	9,50	Balance

**Properties:** (indicative values at room temperature)

Hardness:	57 - 62 [HRC]	Welding condition
	30 - 40 [HRC]	500°C (red hardness)
	56 - 59 [HRC]	hardened at 1050°C

**Shielding gas (EN ISO 14175):** M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4

**Available alternatives:**

capilla 5400

capilla 5400 MAG

capilla 5400 WIG

**Standard designations:**

EN 14700: T Ni 2  
 DIN 8555: MSG 23-GF-200 CKPTZ  
 Material no.: 2.4887

**capilla® G 5200 MM**

**Product description:**

NiCrMoW-alloyed Ni-cored wire for MIG/MAG build-up welding of low alloy steels against impact, pressure and abrasion on hot working and press tools. Suitable for joining welds of similar materials.

Corrosion- and heat-resistant at high temperatures in oxidizing and reducing atmospheres.

For operating temperatures up to 1100°C. Excellent thermal shock resistance and no prior heat treatment required.

Resistant to stress corrosion cracking in environments containing hydrogen sulfide.

**Applications:****Suitable for base materials such as:**

1.4876 (Alloy 800),  
 1.4876 (X 8 NiCrAlTi 32-21),  
 2.4856 (Alloy 625),  
 1.4539 (X 2 NiCrMoCu 25 20 5).

**Typical areas of application:**

Dies, open-die forging tools, rollers, hot shear blades, punches, pumps and valves for the chemical and petrochemical industries.

And all tools that are used at extremely high temperatures, even under high pressure.

**Indicative analysis [%]:**

C	Cr	Mo	W	V	Fe	Ni
0,06	17,00	17,00	5,00	0,60	6,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Hardness:	250 [HB]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Hardness (strain-hardened):	>400 [HB]
Elongation (L=5d):	25 [%]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,6
2,4

**Available alternatives:**

capilla 5200 S

capilla 5200 MAG

capilla 5200 WIG

**Standard designations:**

EN 14700: T Ni 4-200-ctz  
 DIN 8555: MSG 23-GF-200 CTZ

# capilla<sup>®</sup> G 530 MM

**Product description:**

Flux-cored wire for MIG/MAG deposition welding on hot working tools.

Corrosion-resistant at high temperatures in an oxidising and reducing atmosphere.

Good thermal shock resistance.

High resistance to impacts and pressure.

**Applications:**

**Suitable for cladding on:**

Dies, hot shearing blades, punches.

All tools used under extremely high temperatures.

**Indicative analysis [%]:**

C	Cr	Mo	Ti	W	Co	Fe	Al	Ni
0,06	12,00	6,00	3,00	0,80	11,50	2,30	2,10	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 200 [HB]

Hardness (strain-hardened): >400 [HB]

**Shielding gas (EN ISO 14175):** I1, M12

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,6
2,4

**Standard designations:**

EN 14700: T Co 3  
 DIN 8555: MSG 20-GF-55 CTZ  
 AWS A 5.21: ERC CoCr-C

**capilla® G 501 MM**

**Product description:**

Flux-cored wire for MIG/MAG weld surfacing at sealing surfaces exposed to high pressures and temperatures.

The weld metal has outstanding sliding properties and a high resistance to cavitation. In addition, the weld metal is resistant to corrosion and scale and stands out for its particularly good friction coefficient with "metal on metal" wear, its thermal resistance and capability to be polished to a high gloss.

Processing can be carried out only via grinding.

**Applications:**

Suitable for wear-resistant deposition welds on unalloyed, low alloy and high alloy, heat-, rust- and acid-resistant steels and cast steel.

**Indicative analysis [%]:**

C	Si	Mn	Cr	W	Fe	Co
2,30	1,00	1,00	28,50	12,00	4,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 53 - 57 [HRC]  
 400 [HB] (at 600°C)

Shielding gas (EN ISO 14175): I1, M13

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
1,2
1,6

Available alternatives:

capilla 501 EHL

capilla 501 WIG

**Standard designations:**

EN 14700: T Co 2  
 DIN 8555: MSG 20-GF-40 CTZ  
 AWS A 5.21: ERC CoCr-A

# capilla® G 506 MM

**Product description:**

Co-based flux-cored wire for MIG/MAG deposition welding of protective layers on work surfaces exposed to heavy impact stress and shocks at high temperatures.

High resistance to cavitation and erosion, good "metal on metal" sliding properties.

Thermal shock-resistant.

**Structure:**

Cr-and W-carbides in austenitic Co-matrix.

**Applications:**

**Suitable for weld surfacing of sealing surfaces of:**

Steam, gas, water and acid fittings, valve seats in combustion engines.

Log shears and billet shears, hot extruder nozzles, grinding gears, etc.

**Indicative analysis [%]:**

C	Si	Mn	Cr	W	W	Co
1,00	1,00	0,90	29,00	4,50	4,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 42 [HRC]

**Shielding gas (EN ISO 14175):** I1, M12, M13

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Available alternatives:**

capilla 506 EHL  
 capilla 506 K

capilla 506 WIG

capalloy 7160063

**Standard designations:**

EN 14700: T Co 2  
 DIN 8555: MSG 20-GF-50 CTZ  
 AWS A 5.21: ERC CoCr-B

# capilla® G 512 MM

**Product description:**

Cobalt-based flux-cored wire for wear-resistant MIG/MAG hardfacing on unalloyed, low alloy and high alloy, heat-, rust- and acid-resistant steels and cast steel.

Is distinguished by its excellent coefficient of friction when it comes to "metal on metal" wear.

Temperature-resistant up to 800°C and up to 1100°C for short periods. To avoid cracking, pre-heat the basic material to 200-300°C.

Machining is possible in some cases.

**Applications:**

Special high-temperature alloy suitable for deposition welds that are subject to temperature fluctuations.

**Ideal for shock- and impact-resistant armour-plating of hot work tools such as:**

Forging dies,  
 Hot punches,  
 Hot trimming tools.

**Indicative analysis [%]:**

C	Cr	Ni	W	Fe	Co
1,50	28,00	3,00	8,00	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	46 - 58 [HRC]
	36 - 42 [HRC] (at 600°C)

Shielding gas (EN ISO 14175): I1, M13

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
1,2
1,6

Available alternatives:

capilla 512 EHL  
 capilla 512 K

capilla 512 WIG

capalloy 7160123

**Standard designations:**

EN 14700: T Co 1-300-cktz  
 DIN 8555: MSG 20-GF-250 CKTZ

**capilla® G 516 MM**

**Product description:**

Flux-cored wire for wear-resistant MIG/MAG deposition welds on unalloyed, low alloy and high alloy, heat-, rust- and acid-resistant steels, cast steel and hot working materials.

**Applications:****Suitable for deposition welds on:**

Hot working materials subject to temperature changes.

Particularly well-suited for high working temperatures in conjunction with impact or shock loads.

**Indicative analysis [%]:**

C	Cr	Ni	W	Fe	Co
0,20	20,00	10,00	14,00	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	240 [HB]
	>300 [HB] (strain-hardened)

**Shielding gas (EN ISO 14175):** I1, M12, M13

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Available alternatives:**

capilla 516 EHL

**Standard designations:**

EN 14700: T Co 1  
 DIN 8555: MSG 20-GF-300 CKTZ  
 AWS A 5.21: ERC CoCr-E

**capilla® G 521 MM****Product description:**

Flux-cored wire for wear-resistant MIG/MAG deposition welds on unalloyed, low alloy and high alloy, heat-, rust- and acid-resistant steels and cast steel.

Is distinguished by its excellent coefficient of friction when it comes to "metal on metal" wear.

Temperature-resistant up to 800°C, as well as temporarily up to 1100°C.

**Applications:**

Special high-temperature alloy for deposition welds that are subject to temperature fluctuations.

**Ideal for shock- and impact-resistant armour-plating of hot work tools such as:**

Forging dies,  
 Hot punches,  
 Hot trimming tools.

**Indicative analysis [%]:**

C	Cr	Ni	Mo	Fe	Co
0,25	28,50	3,00	5,50	4,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 27 - 33 [HRC]

**Shielding gas (EN ISO 14175):** I1, M12, M13

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Available alternatives:**

capilla 521 EHL  
 capilla 521 K

capilla 521 WIG

capalloy 7160213

**Standard designations:**

EN 14700: T ZFe 3  
 DIN 8555: MSG 3-GF-50-CGRT

**capilla® G 93 MM**

**Product description:**

Metal powder-cored wire for MIG/MAG deposition welding.

The weld metal is suitable for plating hot working tools.

High resistance to "metal on metal" wear and corrosive wear.

Resistance to oxidation at high-temperatures.

**Applications:****Suitable for plating on:**

Mandrels and dies for hot working, continuous casting and roller conveyor rollers, etc.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Co	Fe
0,15	0,70	0,40	14,50	0,50	2,50	12,50	Balance

**Properties:** (indicative values at room temperature)

Hardness: 45 - 52 [HRC]

**Shielding gas (EN ISO 14175):** M12, M13, M20, M21 **Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Available alternatives:**

capilla 93

**Standard designations:**

EN 14700: T Fe 3-60-gst  
 DIN 8555: MSG-3-GF-60 T

**capilla® G 563 MM**

**Product description:**

Flux-cored wire for MIG/MAG deposition welding on heat-resistant moulds.

Resistant to wear, impact and pressure.

**Applications:**

Suitable for repair welding on hot working tools, such as dies.

Suitable for plating cold cutting blades.

**Indicative analysis [%]:**

C	Si	Mn	Cr	W	V	Co	Fe
0,50	0,50	0,60	1,50	9,00	0,45	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 60 [HRC]

Shielding gas (EN ISO 14175): M21

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
1,2
1,6

**Standard designations:**

EN 14700: T Fe 8  
 DIN 8555: MSG 3-SP-60-GPZ

# capilla® G 569 MM

**Product description:**

Copper-plated flux-cored wire for heat-resistant MIG/MAG deposition welding against pressure and wear on hot working steels.

Pre-heating temperature between 150°C and 300°C, depending on the base material.

**Applications:****Suitable for hardfacing on:**

Axial rollers, bucket teeth, cutting edges on excavator shovels, snow ploughs, crusher jaws, chutes, pump housings, screw conveyors, sliding plates, drills, ploughshares, etc.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Ni	W	V	Fe
0,35	0,40	0,50	8,50	2,50	2,30	0,30	0,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 55 [HRC]

**Shielding gas (EN ISO 14175):** M12, M13, M20, M21 **Current type:**

=(+)-~

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Standard designations:**

EN 14700: TZ Fe 3-40-st  
 DIN 8555: MSG 3-GF-40 PT

**capilla® G 2040 RM**

**Product description:**

Flux-cored wire with rutile slag for MIG/MAG welding.

Heat-resistant cladding against impacts, pressure and abrasion on hot working steels with a moderate to high hardness.

For operating temperatures up to 550°C.

**Applications:**

**Suitable for deposition welding on:**

Swages, pressure die-casting tools, rollers, continuous casting rollers, guides, recipients.

**Suitable for new production of hot working tools.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Ti	Fe
0,15	0,80	0,70	10,00	1,80	2,70	0,15	Balance

**Properties:** (heat treatment: 520°C / 4h; indicative values at room temperature)

Hardness: 38 - 44 [HRC]

**Shielding gas (EN ISO 14175):** M12, M13, M21

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
1,6
2,0
2,8

**Standard designations:**

EN 14700: TZ Fe 3-45-st  
 DIN 8555: MSG 3-GF-45 PT

**capilla® G 2045 RM**

**Product description:**

Flux-cored wire with rutile slag for MIG/MAG welding.

Heat-resistant cladding against impacts, pressure and abrasion on hot working steels with a moderate to high hardness.

For operating temperatures up to 550°C.

**Applications:**

**Suitable for deposition welding on:**

Swages, pressure die-casting tools, rollers, continuous casting rollers, guides, recipients.

**Suitable for new production of hot working tools.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Ti	Fe
0,18	0,70	0,70	10,50	1,50	2,00	0,15	Balance

**Properties:** (heat treatment: 520°C / 4h; indicative values at room temperature)

Hardness: 40 - 46 [HRC]

**Shielding gas (EN ISO 14175):** M12, M13, M21

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
1,6
2,0
2,8

**Standard designations:**

EN 14700: TZ Fe 3-45-st  
 DIN 8555: MSG 5-GF-45 PT

**capilla® G 2048 RM**

**Product description:**

Flux-cored wire with rutile slag for MIG/MAG welding.

Heat-resistant cladding against impacts, pressure and abrasion on hot working steels with a moderate to high hardness.

For operating temperatures up to 550°C.

**Applications:**

**Suitable for deposition welding on:**

Swages, pressure die-casting tools, rollers, continuous casting rollers, guides, recipients.

**Suitable for new production of hot working tools.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	W	V	Ti	Fe
0,17	0,60	1,00	5,50	2,30	2,00	0,60	0,20	Balance

**Properties:** (heat treatment: 580°C / 4h; indicative values at room temperature)

Hardness: 44 - 46 [HRC]

**Shielding gas (EN ISO 14175):** M12, M13, M21

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0

**Standard designations:**

EN 14700: T Fe 3-50-st  
 DIN 8555: MSG 3-GF-45 PT

**capilla® G 2050 RM**

**Product description:**

Flux-cored wire with rutile slag for MIG/MAG welding.

Heat-resistant cladding against impacts, pressure and abrasion on hot working steels with a moderate to high hardness.

For operating temperatures up to 550°C.

**Applications:**

**Suitable for deposition welding on:**

Swages, pressure die-casting tools, rollers, continuous casting rollers, guides, recipients.

**Suitable for new production of hot working tools.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	W	V	Fe
0,28	1,00	1,00	5,50	2,65	2,00	0,70	Balance

**Properties:** (heat treatment: 580°C / 4h; indicative values at room temperature)

Hardness: 48 - 52 [HRC]

**Shielding gas (EN ISO 14175):** M12, M13, M21

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0

**Standard designations:**

EN 14700: T Fe 3-55-st  
 DIN 8555: MSG 3-GF-55 PT

**capilla® G 2055 RM**

**Product description:**

Flux-cored wire with rutile slag for MIG/MAG welding.

Heat-resistant cladding against impacts, pressure and abrasion on hot working steels with a moderate to high hardness.

For operating temperatures up to 550°C.

**Applications:**

**Suitable for deposition welding on:**

Swages, pressure die-casting tools, rollers, continuous casting rollers, guides, recipients.

**Suitable for new production of hot working tools.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	W	V	Fe
0,35	1,00	1,00	5,50	2,80	2,75	0,90	Balance

**Properties:** (heat treatment: 580°C / 4h; indicative values at room temperature)

Hardness: 52 - 56 [HRC]

**Shielding gas (EN ISO 14175):** M12, M13, M21

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
1,6
2,0
2,8

**Standard designations:**

EN 14700: TZ Fe 8  
 DIN 8555: MSG 6-GF-45 P

**capilla® G 7940 MM**

**Product description:**

Seamless, copper-plated flux-cored wire for MIG/MAG welding.

The melting performance is up to 20% greater than for solid wire.

Suitable for plating components that must be resistant to both metal/metal wear and moderate impact loads and pressure loads at high temperatures.

For operating temperatures up to 550°C.

**Applications:****Suitable for deposition welding on:**

Forging dies, hot cutting shears, die-casting tools, rollers, continuous casting rollers, guides, punching tools, pistons for press tools, recipients.

**Suitable for new production of hot working tools.****Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Ti	Fe
0,15	0,50	0,90	6,00	3,50	0,25	Balance

**Properties:** (heat treatment: 550°C / 4h; indicative values at room temperature)

Hardness: 42 - 47 [HRC]

**Shielding gas (EN ISO 14175):** M12, M13, M20, M21 **Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Standard designations:**

EN 14700: TZ Fe 8  
 DIN 8555: MSG 6-GF-45 P

**capilla<sup>®</sup> G 7945 MM**

**Product description:**

Seamless, copper-plated flux-cored wire for MIG/MAG welding. The weld metal is a hard and tough hot working steel.

The melting performance is up to 20% greater than for solid wire.

Suitable for plating components that must be resistant to both metal/metal wear and moderate impact loads and pressure loads at high temperatures.

For operating temperatures up to 550°C.

**Applications:****Suitable for deposition welding on:**

Forging dies, hot cutting shears, die-casting tools, rollers, continuous casting rollers, guides, punching tools, pistons for press tools, recipients.

**Suitable for new production of hot working tools.****Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Ti	Fe
0,20	0,50	0,90	6,00	3,50	0,25	Balance

**Properties:** (heat treatment: 550°C / 4h; indicative values at room temperature)

Hardness: 44 - 47 [HRC]

**Shielding gas (EN ISO 14175):** M12, M13, M20, M21 **Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Standard designations:**

EN 14700: T Fe 3  
 DIN 8555: MSG 3-Sn-55 ST

**capilla<sup>®</sup> G 7950 MM**

**Product description:**

Seamless, copper-plated flux-cored wire for MIG/MAG welding.

The melting performance is up to 20% greater than for solid wire.

Heat-resistant cladding against impacts, pressure and abrasion on hot working steels with a moderate to high hardness.

For operating temperatures up to 550°C.

**Applications:****Suitable for deposition welding on:**

Forging dies, hot cutting shears, die-casting tools, rollers, continuous casting rollers, guides, punching tools, pistons for press tools, recipients.

**Suitable for new production of hot working tools.****Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Ti	Fe
0,35	0,50	1,20	7,00	2,20	0,30	Balance

**Properties:** (heat treatment: 550°C / 4h; indicative values at room temperature)

Hardness: 53 - 55 [HRC]

**Shielding gas (EN ISO 14175):** M12, M13, M20, M21 **Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Standard designations:**

EN 14700: T Fe 8  
 DIN 8555: MSG 3-Sn-60 GPZ

**capilla® G 7955 MM**

**Product description:**

Copper-plated flux-cored wire for MIG/MAG welding.

Martensitic weld metal with finely distributed hard carbides ensures balanced resistance to abrasion, fretting and impact stress.

For operating temperatures up to 550°C.

No moisture absorption, very good welding capability and outstanding wire feeding.

**Applications:**

**Suitable for hardfacing on:**

Axial rollers, bucket teeth, forging dies, pressure die-casting tools, rollers, continuous casting rollers, guides, cutting edges on excavator shovels, chutes, slides, snow ploughs, etc.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	W	V	Fe
0,35	0,40	0,50	8,00	2,10	2,40	0,30	0,30	Balance

**Properties:** (heat treatment: 550°C / 4h; indicative values at room temperature)

Hardness: 55 - 57 [HRC]

**Shielding gas (EN ISO 14175):** M12, M13, M20, M21 **Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

## 5 Welding consumables for welding of corrosion- and wear-resistant layers

### 5.1 Coated stick electrodes for welding of corrosion- and wear-resistant layers

capilla	EN ISO	AWS A	Mat. no.	Page
308 HL	14700: E Fe 11-200-cnz	5.4: E 308-26	1.4316	267
316 HL	14700: E Fe 11-200-cnz	5.4: ~E 316 H-26	1.4430	268
318 HL	14700: E Fe 11-200-cnz	5.4: E 318-26	1.4576	269
309 HL	14700: E Fe 11-200-cnz	5.4: E 309-26	~1.4332	270
51 W	14700: E Fe 10-200/400-ckpz	5.4: ~E 307-26	1.4370	271
52	14700: E Fe 11-250-cz	5.4: ~E 312-26	1.4337	272
56	14700: E Fe 9-200/450-knp	5.13:~E Fe Mn-A	~1.3402	273
56 Fe	14700: E Fe 9-200/450-knp	5.13:~E Fe Mn-A	~1.3402	274
Cr Ma 47	14700: E Fe 9-250/450-cknp			275
250 B	14700: E Fe 1-250-p			276
300 B	14700: E Fe 1-300-p			277
400 B	14700: E Fe 1-400-p			278
500 B	14700: E Fe 1-400-p			279
54 W	14700: E Fe 8-55-gpt		~1.4718	280
54-160	14700: E Fe 8-55-gpt		~1.4718	281
54 Ti	14700: E Fe 8-55-gpt			282
540	14700: E Fe 14-60-cg			283
540 SF	14700: E Fe 14-60-cg			284
540 Nb	14700: E Fe 15-60-cg			285
60 HRC	14700: E Fe 14-60-cg			286
540 N	14700: E Fe 16-65-cgt			287
540 V	14700: E Fe 16-65-cgt			288
635 S	14700: E Fe 15-60-g			289
68 HRC	14700: E Fe 15-70-g			290
550 E	14700: E Fe 20-60-cgtz			291

### 5.2 Wire electrodes for welding of corrosion- and wear-resistant layers

#### 5.2.1 Solid wires for MIG/MAG welding of corrosion- and wear-resistant layers

capilla	EN ISO	Mat. no.	Page
250 MAG	14700: S Fe 1		292
300 MAG	14700: S Fe 1-300-p		293
600 MAG	14700: S Fe 8	1.4718	294
54 MAG	14700: S Fe 8	1.4718	295
650 MAG	14700: S Fe 7	1.4115	296
655 MAG	14700: S Fe 3-60-st	1.2606	297

#### 5.2.2 Welding rods for TIG welding of corrosion- and wear-resistant layers

capilla	EN ISO	Mat. no.	Page
250 WIG	14700: S Fe 1		298
300 WIG	14700: S Fe 1-300-p		299
600 WIG	14700: S Fe 8	1.4718	300
54 WIG	14700: S Fe 8	1.4718	301
650 WIG	14700: S Fe 7	1.4115	302
655 WIG	14700: S Fe 3-60-st	1.2606	303

### 5.2.3 Flux-cored wires for MIG/MAG welding of corrosion- and wear-resistant layers

<b>capilla</b>	<b>EN ISO</b>	<b>Mat. no.</b>	<b>Page</b>
<b>G 450 MM</b>	14700: T Fe 1		304
<b>G 600 MM</b>	14700: T Z Fe 2		305
<b>G 655 MM</b>	14700: T Z Fe 6-60-PT		306
<b>G 54 N MM</b>	14700: T Fe 8 - 60-gpt		307
<b>G 351 MM</b>	14700: T Fe 8-60-gpt		308
<b>G 54 MM</b>	14700: T Fe 8-55-CP	~1.4718	309
<b>G 600 Nb MM</b>	14700: T Fe 8-60-gpt		310
<b>G 600 Si MM</b>	14700: T Fe 8-60-gpt		311
<b>capidur G 56 HIT</b>	14700: not classifiable		312
<b>56 RLD</b>	14700: T Fe 9-250-KNP		313
<b>561 RLD</b>	14700: T Fe 9-250-KNP		314
<b>540 B RLD</b>	14700: T Fe 13-70-G		315
<b>55 RLD</b>	14700: T Fe 15-60-GC		316
<b>capidur G 55 HIT</b>	14700: not classifiable		317
<b>capidur G 58 TIC</b>	14700: not classifiable		318
<b>60 RLD</b>	14700: T Fe 14-60-cg		319
<b>G 60 Mo HRC MM</b>	14700: T Fe 14-60-CG		320
<b>540 RLD</b>	14700: T Fe 14-60-cgt		321
<b>540 Mo RLD</b>	14700: T Fe 15-60-G		322
<b>540 N RLD</b>	14700: T Fe 16-65-GZ		323
<b>540 Nb RLD</b>	14700: T Fe 15-65-G		324
<b>500 G 0,5</b>	14700: T Fe 20 gz		325
<b>500 G 1,0</b>	14700: T Fe 20 gz		326
<b>500 G 1,5</b>	14700: T Fe 20 gz		327
<b>520 G 0,5</b>	14700: T Fe 20 gz		328
<b>520 G 1,0</b>	14700: T Fe 20 gz		329
<b>520 G 1,5</b>	14700: T Fe 20 gz		330
<b>530 G 0,5</b>	14700: T Fe 20 gz		331
<b>530 G 1,0</b>	14700: T Fe 20 gz		332
<b>530 G 1,5</b>	14700: T Fe 20 gz		333
<b>550 G 0,5</b>	14700: T Fe 20 gz		334
<b>550 G 1,0</b>	14700: T Fe 20 gz		335
<b>550 G 1,5</b>	14700: T Fe 20 gz		336
<b>550 G 3,0</b>	14700: T Fe 20 gz		337
<b>68 HRC RLD</b>	14700: T Fe 15-70-gZ		338
<b>capidur G 68 HIT</b>	14700: not classifiable		339
<b>69 HRC RLD</b>	14700: T ZFe 16-70-gz		340
<b>capidur G 70 Fe</b>	14700: not classifiable		341
<b>540 V RLD</b>	14700: T Fe 16-65-GZ		342
<b>700 G 0,5</b>	14700: T Fe 20 gz		343
<b>700 G 1,0</b>	14700: T Fe 20 gz		344
<b>700 G 1,5</b>	14700: T Fe 20 gz		345
<b>900 G 0,5</b>	14700: not classifiable		346
<b>900 G 1,0</b>	14700: not classifiable		347
<b>900 G 1,5</b>	14700: not classifiable		348
<b>900 GS 0,5</b>	14700: not classifiable		349
<b>900 GS 1,0</b>	14700: not classifiable		350
<b>900 GS 1,5</b>	14700: not classifiable		351

### 5.2.3 Flux-cored wires for MIG/MAG welding of corrosion- and wear-resistant layers

<b>capilla</b>	<b>EN ISO</b>	<b>Mat. no.</b>	<b>Page</b>
<b>900 GK 0,5</b>	14700: not classifiable		<b>352</b>
<b>901 G 0,5</b>	14700: not classifiable		<b>353</b>
<b>901 GS 0,5</b>	14700: not classifiable		<b>354</b>
<b>902 G 0,5</b>	14700: not classifiable		<b>355</b>
<b>902 GS 0,5</b>	14700: not classifiable		<b>356</b>
<b>903 G 0,5</b>	14700: not classifiable		<b>357</b>
<b>903 G 1,0</b>	14700: not classifiable		<b>358</b>
<b>903 G 1,5</b>	14700: not classifiable		<b>359</b>
<b>909 G</b>	14700: not classifiable		<b>360</b>
<b>910 G</b>	14700: T Ni 20 cgtz		<b>361</b>
<b>911 G</b>	14700: not classifiable		<b>362</b>
<b>1000 G 0,5</b>	14700: not classifiable		<b>363</b>
<b>1000 G 1,0</b>	14700: not classifiable		<b>364</b>
<b>HR MAG</b>	14700: T Fe 20-65-gt		<b>365</b>

**Standard designations:**

EN 14700: E Fe 11-200-cnz  
 EN ISO 3581-A: E 19 9 LB 52  
 EN 1600: E 19 9 52  
 AWS A 5.4: E 308 - 26  
 Material no.: 1.4316

**capilla® 308 HL**

Recovery: 150%

**Product description:**

Rutile-basic coated high performance electrode for welding of stainless austenitic, non-stabilised CrNi-steels with a particularly low carbon content.

For operating temperatures up to 350°C.

**Applications:**

**Suitable for base materials such as:**

1.4300 (X 12 CrNi 18 8),  
 1.4301 (X 5 CrNi 18-10),  
 1.4303 (X 4 CrNi 18-12),  
 1.4306 (X 2 CrNi 19-11),  
 1.4308 (GX 5 CrNi 19-10),  
 1.4311 (X 2 CrNiN 18-9),  
 1.4312 (GX 10 CrNi 18-8),  
 1.4371 (X 2 CrMnNiN 17-7-5),  
 1.4541 (X 6 CrNiTi 18-10),  
 1.4543 (X 3 CrNiCuTiNb 12-9),  
 1.4550 (X 6 CrNiNb 18-10),  
 1.4552 (GX 5 CrNiNb 19-11).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,04	0,90	0,80	19,50	9,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	35 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	70 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	350	50 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 308 L  
 capilla 308 L MAG

capilla 308 LR  
 capilla 308 L WIG

capilla 308 L KB  
 capilla G 308 L RM

**Standard designations:**

EN 14700: E Fe 11-200-cnz  
 EN 1600: EZ 19 12 2 R 52  
 AWS A 5.4: ~E 316 H-26  
 EN ISO 3581-A: EZ 19 12 2 R 52  
 Material no.: 1.4430

**capilla® 316 HL**

Recovery: 150%

**Product description:**

Rutile-basic coated high performance electrode for deposition welding of stainless austenitic CrNiMo-steels.

Improved scale resistance and high-temperature strength achieved due to increased Cr-content compared to the "capilla 316 L" stick electrode.

**Applications:****Suitable for base materials such as:**

1.4401 (X 5 CrNiMo 17 12 2),  
 1.4404 (X 2 CrNiMo 17 13 2),  
 1.4406 (X 2 CrNiMoN 17 12 2),  
 1.4408 (G-X CrNiMo 18 10),  
 1.4420 (X 5 CrNiMo 18 11),  
 1.4435 (X 2 CrNiMo 18 14 3),  
 1.4436 (X 5 CrNiMo 17 13 3),  
 1.4571 (X 6 CrNiMoTi 17 12 2),  
 1.4573 (X 10 CrNiMoTi 18 12),  
 1.4580 (X 6 CrNiMoNb 17 12 2),  
 1.4581 (G-X 5 CrNiMoNb 18 10),  
 1.4583 (X 10 CrNiMoNb 18 12).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,04	0,60	0,80	18,50	11,50	2,80	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	50 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Standard designations:**

EN 14700: E Fe 11-200-cnz  
 EN ISO 3581-A: E 19 12 3 Nb R 52  
 EN 1600: E 19 12 3 Nb R 52  
 AWS A 5.4: E 318-26  
 Material no.: 1.4576

**capilla® 318 HL**

Recovery: 150%

**Product description:**

Rutile-basic coated high performance electrode for deposition welding of stainless austenitic CrNiMo-steels with a particularly low carbon content.

For operating temperatures up to 400°C.

**Applications:**

**Suitable for base materials such as:**

1.4401 (X 5 CrNiMo 17 12 2),  
 1.4404 (X 2 CrNiMo 17 13 2),  
 1.4408 (G-X 6 CrNiMo 18 10),  
 1.4420 (X 5 CrNiMo 18 11),  
 1.4435 (X 2 CrNiMo 18 14 3),  
 1.4436 (X 5 CrNiMo 17 13 3),  
 1.4571 (X 6 CrNiMoTi 17 12 2),  
 1.4573 (X 10 CrNiMoTi 18 12),  
 1.4580 (X 6 CrNiMoNb 17 12 2),  
 1.4581 (G-X 5 CrNiMoNb 18 10),  
 1.4583 (X 10 CrNiMoNb 18 12).

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Nb	Fe
0,08	1,20	0,80	19,00	12,00	2,80	10x %C	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	440 [MPa]	Notch impact energy (ISO-V):	70 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	50 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 318

capilla 318 LR

capilla 318 MAG

capilla 318 WIG

capilla G 318 RM

**Standard designations:**

EN 14700: E Fe 11-200-cnz  
 EN ISO 3581-A: E 23 12 R 52  
 EN 1600: E 23 12 R 52  
 AWS A 5.4: E 309 - 26  
 Material no.: ~1.4332

**capilla® 309 HL**

Recovery: 160%

**Product description:**

Rutile-basic coated high performance electrode for deposition and joint welds of heat-resistant CrNi-steels of the same type or low alloy CrNi-steels.

For operating temperatures up to max. 300°C.

Heat-resistant up to 1050°C.

The pure weld material is scale-resistant up to 1000 °C.

Suitable for deposition welds on unalloyed steels if an 18/8 CrNi-alloy is to be achieved in the first layer.

Suitable for joint welds of high alloy CrNi-steels with unalloyed and low alloy structural and tempered steels.

**Applications:****Suitable for base materials such as:**

1.4541 (X 6 CrNiTi 18-10),  
 1.4550 (X 6 CrNiNb 18-10),  
 1.4583 (X 10 CrNiMoNb 18 12),  
 1.4710 (G X 30CrSi 7),  
 1.4712 (X 10 CrSi 6),  
 1.4724 (X 10 CrAl 13),  
 1.4729 (G X 40 CrSi 13),  
 1.4740 (G X 40 CrSi 17),  
 1.4742 (X 10 CrAlSi 18),  
 1.4825 (G X 25 CrNiSi 18-9),  
 1.4826 (G X 40 CrNiSi 22-10),  
 1.4828 (X 15 CrNiSi 20-12),  
 1.4878 (X 8 CrNiTi 18-10).

**Suitable for cladding and buffer layers.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,04	1,20	2,50	25,00	14,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	400 [MPa]	Notch impact energy (ISO-V):	55 [J]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	350	40 - 60
2,5	350	60 - 90
3,2	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 309 L  
 capilla 309 L MAG

capilla 309 LR  
 capilla 309 L WIG

capilla G 309 L RM

**Standard designations:**

EN 14700: E Fe 10-200/400-ckpz  
 EN ISO 3581-A: E 18 8 Mn R 52  
 AWS A 5.4: ~E 307-26  
 Material no.: 1.4370

**capilla® 51 W**

Recovery: 160%

**Product description:**

Rutile-basic coated high performance electrode for deposition welding and joint welds on different types of steel.

Weld metal consists of austenitic CrNiMn-steel.

For operating temperatures up to 300°C.

**Applications:**

**Suitable for different types of steel (black & white connections), steels with a high carbon content and difficult to weld steels, manganese steel:**

e.g. 1.3401 (X 120 Mn 12).

Buffer layers for hardfacing.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,10	0,80	6,00	19,00	9,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	600 [MPa]	Notch impact energy (ISO-V):	70 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	350 [MPa]	Hardness (welded condition):	180 [HB]
Elongation (L=5d):	40 [%]	Hardness (after strain-hardening):	approx. 340 [HB]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350/450	80 - 110
4,0	450	100 - 150
5,0	450	150 - 200
6,0	450	190 - 260

**Available alternatives:**

**capilla** 51 KB  
**capilla** 51 Ti

**capilla** 51 MAG  
**capilla** 51 WIG

**capilla** G 51 MM  
**capalloy** 7166703

**Standard designations:**

EN 14700: E Fe 11-250-cz  
 EN ISO 3581-A: EZ 29 9 R 52  
 AWS A 5.4: ~E 312-26  
 Material no.: 1.4337

**capilla® 52**

Recovery: 170%

**Product description:**

Rutile-basic coated high performance electrode for joint welds on different types of steel.

Also ideal for buffer layers and deposition welds.

The electrode produces a very soft arc. Slag comes loose automatically with spatter-free weld metal.

The weld metal has a ferritic-austenitic microstructure.

Scale-resistant up to approx. 1000°C.

**Applications:****Suitable for base materials such as:**

Similar corrosion-resistant steel and cast steel types, such as:

1.4762 (X 10 CrAl 24),  
 1.4085 (G-X 70 Cr 29).

**Steels that are difficult to weld, such as:**

High-strength structural steel, manganese steel as well as joints with high-alloy steel.

Suitable for repairs and wear-resistant deposition welds.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,11	1,00	0,70	25,00	8,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	750 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	500 [MPa]	Notch impact energy (ISO-V):	40 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,0	300/350	40 - 60
2,5	350	60 - 90
3,2	350	80 - 110
4,0	350/450	100 - 150
5,0	450	150 - 200

**Available alternatives:**

capilla 52 K

capilla 52 MAG

capilla 52 WIG

**Standard designations:**

EN 14700: E Fe 9-200/450-knp  
 DIN 8555: E 7-UM-250/450 K  
 AWS A 5.13: ~E Fe Mn-A  
 Material no.: ~1.3402

**capilla® 56**

Recovery: 140%

**Product description:**

Basic coated high performance electrode made of manganese steel for tough and wear-resistant cladding on materials exposed to impacts.

Welding should be completed with the lowest possible application of heat.

**Applications:**

**Suitable for deposition welding on worn workpieces made of manganese steel and parts primarily exposed to impact and shock loads, such as:**

Bucket teeth and blades, cleats, excavator bolts, breaker jaws and cones, core and cross pieces.

**Indicative analysis [%]:**

C	Mn	Ni	Fe
0,70	13,00	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	240 [HB]
	430 [HB] (strain-hardened)

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
3,25	450	100 - 160
4,0	450	160 - 220
5,0	450	190 - 260

**Standard designations:**

EN 14700: E Fe 9-200/450-knp  
 DIN 8555: E 7-UM-250/450 K  
 AWS A 5.13: ~E Fe Mn-A  
 Material no.: ~1.3402

**capilla® 56 Fe**

Recovery: 140%

**Product description:**

Basic coated high performance electrode made of manganese steel for tough and wear-resistant cladding on materials exposed to impacts.

Suitable for deposition welding of worn workpieces, particularly on parts primarily exposed to impact and shock loads.

Welding should be completed with the lowest possible application of heat.

**Applications:****Suitable in areas such as:**

Bucket teeth and blades, cleats, excavator bolts, breaker jaws and cones, core and cross pieces.

**Indicative analysis [%]:**

C	Si	Mn	Fe
0,70	0,04	13,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	200 - 220 [HB]
	430 - 450 [HB] (strain-hardened)

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
3,2	450	100 - 160
4,0	450	160 - 220
5,0	450	190 - 260

**Standard designations:**

EN 14700: E Fe 9-250/450-cknp  
 DIN 8555: E7-UM-250 K

**capilla® CrMa 47**

Recovery: 140%

**Product description:**

Basic coated high performance electrode for welding strain-hardened cladding.

The weld metal consists of Mn-steel containing chromium.

**Applications:**

**Suitable for wear parts on road construction and mining machinery subject primarily to rolling or impact wear, such as:**

Bucket teeth, cone crushers and crusher jaws in the stone industry, core and cross pieces on railway and streetcar rails.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,60	0,80	16,50	13,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	250 [HB]
	450 [HB] (strain-hardened)

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	80 - 120
3,2	350	100 - 160
4,0	450	160 - 220
5,0	450	190 - 260
6,0	450	220 - 290

**Available alternatives:**

capilla 56 RLD

**Standard designations:**

EN 14700: E Fe 1-250-p  
 DIN 8555: E 1-UM-250 P

**capilla® 250 B**

Recovery: 120%

**Product description:**

Basic coated stick electrode for wear-resistant, crack-free and impact-resistant deposition welding.

The weld metal consists of a low alloy CrMn-steel.

**Applications:**

**Suitable for base materials such as:**

Guides, rollers, couplings, impellers, rails, brake drums, wheel rims, bearing surfaces and winches.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,15	1,10	1,20	0,80	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 230 [HB]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
3,2	350	95 - 150
4,0	450	140 - 190
5,0	450	190 - 250

**Available alternatives:**

capilla 250 MAG

capilla 250 WIG

**Standard designations:**

EN 14700: E Fe 1-300-p  
 DIN 8555: E 1-UM-300 P

**capilla® 300 B**

Recovery: 120%

**Product description:**

Basic coated stick electrode for wear-resistant, crack-free and impact-resistant deposition welding.

The weld metal consists of a low alloy CrMn-steel.

**Applications:**

**Suitable in areas such as:**

Guides, rollers, couplings, impellers, rails, brake drums, chutes, wheel rims, bearing surfaces and winches.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,15	0,70	0,90	2,60	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 300 [HB]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350/450	95 - 150
4,0	450	140 - 190
5,0	450	190 - 250

**Available alternatives:**

capilla 300 MAG

capilla 300 WIG

**Standard designations:**

EN 14700: E Fe 1-400-p  
 DIN 8555: E 1-UM-400 P

**capilla® 400 B**

Recovery: 120%

**Product description:**

Basic coated stick electrode for deposition welding on structural and machine parts subject to wear.

Cladding is crack-free and still easy to process using carbide tools.

The electrode is easy to weld using AC, including in positional welding, making the removal of wear parts unnecessary in some cases.

The slag is easy to remove.

**Applications:**

**Suitable for cladding subject to heavy impact loads on:**

Impellers, excavator parts, augurs, rails, tracks, hooks, tractor tracks, etc.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,15	0,70	1,00	3,10	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 375 [HB]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 100
3,2	350/450	100 - 140
4,0	450	140 - 180
5,0	450	180 - 220
6,0	450	220 - 260

**Standard designations:**

EN 14700: E Fe 1-400-p  
 DIN 8555: E 1-UM-400 P

**capilla<sup>®</sup> 500 B**

Recovery: 120%

**Product description:**

Basic coated stick electrode for deposition welding on structural and machine parts subject to wear.

Cladding is crack-free and still easy to process using carbide tools.

The electrode is easy to weld using AC, including in positional welding, making the removal of wear parts unnecessary in some cases.

The slag is easy to remove.  
 The weld metal is hardenable (840°C/oil).

**Applications:****Suitable for deposition welding on:**

Impellers, excavator parts, augurs, rails, tracks, hooks, tractor tracks, etc.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,15	0,70	1,10	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 500 [HB]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
3,2	350	100 - 140
4,0	450	140 - 180
5,0	450	180 - 220

**Standard designations:**

EN 14700: E Fe 8-55-gpt  
 DIN 8555: E 6-UM-60  
 Material no.: ~1.4718

**capilla® 54 W**

Recovery: 120%

**Product description:**

Basic coated CrMoV-alloy stick electrode for very hard overlay welding on construction and machine parts, that are exposed to strong frictional wear and impact loads.

**Applications:****Suitable for overlay welding on:**

mixer arms, running surfaces, rolling mill guides, excavator parts, impact jaws, anvils, roll crushers, pan gears, rollers, hammers, screw conveyors, cams, running wheels, clamping jaws and caterpillar chains.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	V	Fe
0,40	0,50	0,40	7,50	0,40	0,80	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 54 - 60 [HRC]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350/450	95 - 150
4,0	450	140 - 190
5,0	450	190 - 240
6,0	450	200 - 260

**Available alternatives:**

capilla 54 Ti

capilla 54 MAG

capilla 54 WIG

capilla G 54 MM

**Standard designations:**

EN 14700: E Fe 8-55-gpt  
 DIN 8555: E 6-UM-60 PS  
 Material no.: ~1.4718

**capilla® 54-160**

Recovery: 160%

**Product description:**

Basic coated CrMo-alloyed high performance electrode for very hard deposition welding on structural and machine parts exposed to high abrasion and heavy impact loads.

**Applications:****Suitable for deposition welding on:**

Mixer arms, running surfaces, rolling mill guides, excavator parts, baffle plates, anvils, crusher rollers, edge mills, rollers, impact hammers, screw conveyors, cams, impellers, clamping jaws, crawlers.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,40	0,50	0,10	7,50	0,80	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 54 - 60 [HRC]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	80 - 120
3,2	350	100 - 160
4,0	450	160 - 220
5,0	450	190 - 260
6,0	450	220 - 290

**Standard designations:**

EN 14700: E Fe 8-55-gpt  
 DIN 8555: E 6-UM-60

**capilla® 54 Ti**

Recovery: 120%

**Product description:**

Rutile coated stick electrode for tough and wear-resistant deposition welding on machinery components made of structural steel or manganese steel.

The weld metal consists of wear-resistant CrMo-steel.

**Applications:****Suitable for deposition welding on:**

Mixer arms, running surfaces, rolling mill guides, excavator parts, baffle plates, anvils, crusher rollers, edge mills, rollers, impact hammers, screw conveyors, cams, impellers, clamping jaws, crawlers.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,60	1,10	0,60	6,00	3,40	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 54 - 60 [HRC]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350/450	95 - 150
4,0	450	140 - 190
5,0	450	190 - 240
6,0	450	200 - 260

**Available alternatives:**

capilla 54 W  
 capilla G 54 MM

capilla 54 MAG

capilla 54 WIG

**Standard designations:**

EN 14700: E Fe 14-60-cg  
 DIN 8555: E 10-UM-65 GRZ

**capilla® 540**

Recovery: 150%

**Product description:**

Rutile coated high performance electrode for welding highly wear-resistant cladding exposed to abrasion and moderate shock loads.

**Applications:****Suitable for base materials such as:**

Unalloyed and low alloy steels, cast steel and manganese steel.

**Suitable for deposition welding on:**

Moulds, mixing and stirring paddles, bucket teeth, guides, chutes, conveying systems, and similar parts.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
3,00	0,90	1,90	28,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 60 - 63 [HRC]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 100
3,2	350/450	100 - 160
4,0	350/450	160 - 220
5,0	450	190 - 260

**Available alternatives:**

capilla 540 RLD

**Standard designations:**

EN 14700: E Fe 14-60-cg  
 DIN 8555: E 10-UM-65 GRZ

**capilla® 540 SF**

Recovery: 170%

**Product description:**

High performance electrode for highly wear-resistant hardfacing on structural and machinery components; highly resistant to abrasive wear and moderate shock loads.

Thanks to the specialised coating, cladding on corners and edges is easy, as is achieving a thick layer of cladding (no slag).

**Applications:****Suitable for cladding on:**

Rust in sintering plants, bucket teeth and blades, skirting boards, roller heads, worms, mixer paddles, grinding plants, coal ploughs.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
5,00	0,50	0,25	35,50	0,15	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	40 - 50 [HRC] 1. Layer
	60 - 63 [HRC] from 2. Layer

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	110 - 140
4,0	350	140 - 180
5,0	450	200 - 240

**Available alternatives:**

capilla 540 RLD

**Standard designations:**

EN 14700: E Fe 15-60-cg  
 DIN 8555: E 10-UM-65 GRZ

**capilla® 540 Nb**

Recovery: 190%

**Product description:**

Basic coated high performance electrode for deposition welding against heavy abrasion and moderate shock loads.

The structure is austenitic, with a large number of embedded Cr-and Nb-based primary carbides.

For operating temperatures up to 450°C.

Typically applied in 2-3 layers.

Can be welded on AC current.

**Applications:**

**Suitable for cladding on base materials such as:**

Baffle plates, suction dredges, slag breakers, breaker hammers, guide elements, impellers of descaling systems, crushing rollers.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Nb	Fe
5,70	1,20	0,25	23,50	4,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	57 - 60 [HRC] 1. Layer
	59 - 62 [HRC] 2. Layer
	61 - 65 [HRC] 3. Layer

**Redrying:**

320°C / 2h

**Current type:**

=(+)/~

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 100
3,2	350	100 - 160
4,0	450	160 - 220
5,0	450	190 - 250

**Available alternatives:**

capilla 540 Nb RLD

**Standard designations:**

EN 14700: E Fe 14-60-cg  
 DIN 8555: E 10-UM-60 GRZ

**capilla® 60 HRC**

Recovery: 160%

**Product description:**

Rutile coated high performance electrode for welding highly wear-resistant and abrasion-resistant cladding on machine components and equipment made of structural steel, cast steel or manganese steel exposed to very high levels of abrasive wear.

**Applications:****Suitable for cladding on:**

Moulds, mixing and stirring paddles, bucket teeth, guides, chutes, conveying systems and similar parts (that are subject to heavy abrasive wear at low pressure or impacts).

**Suitable for base materials such as:**

Unalloyed and low alloy steels, cast steel and manganese steel.

**Indicative analysis [%]:**

C	Si	Cr	Fe
3,20	1,00	31,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 57 - 61 [HRC]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	80 - 120
3,2	350	100 - 160
4,0	450	160 - 220
5,0	450	190 - 260

**Available alternatives:**

capilla 60 RLD

**Standard designations:**

EN 14700: E Fe 16-65-cgt  
 DIN 8555: E 10-UM-65 TZ

**capilla® 540 N**

Recovery: 190%

**Product description:**

Basic coated high performance electrode for welding parts exposed to extreme abrasion at moderate shock loads.

For operating temperatures up to 600°C.

Due to the high Mo-percentage, wear resistance is retained at the operating temperature.

**Applications:****Suitable for cladding on:**

Rotor plates, spikes, grate bars for ore processing systems, fire grates, screw conveyors, grinding rollers, impact strips, edge mill scrapers, deburring tools, augers, briquetting presses, carbon planes, scrapers, stone cutting tools, rock drilling chisels.

**Indicative analysis [%]:**

C	Si	Cr	Mo	Nb	W	V	Fe
4,50	1,10	23,50	6,00	5,00	2,00	0,80	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 63 - 65 [HRC]  
 40 - 45 [HRC] at 600°C

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 100
3,2	350	100 - 160
4,0	450	160 - 220
5,0	450	190 - 250

**Available alternatives:**

capilla 540 N RLD

**Standard designations:**

EN 14700: E Fe 16-65-cgt  
 DIN 8555: E 10-UM-65 TZ

**capilla® 540 V**

Recovery: 190%

**Product description:**

High performance electrode made of a specialised CCrVFe-hard alloy.

Can be used at high temperatures for welding highly wear-resistant cladding in case of abrasive wear and low impact loads.

**Applications:****Suitable for cladding on:**

Slag breakers, sand aerators, conveyor systems, moulds, separators, bucket teeth, guides, mixing and stirring paddles and similar parts.

**Suitable in areas such as:**

Ore and coal mining, sintering technology, sand and gravel conveying technology.

**Indicative analysis [%]:**

C	Si	Mn	Cr	V	Fe
4,30	1,40	0,60	21,00	10,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 63 - 67 [HRC]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 100
3,2	450	100 - 160
4,0	450	160 - 220
5,0	450	190 - 250

**Available alternatives:**

capilla 540 V RLD

**Standard designations:**

EN 14700: E Fe 15-60-g  
 DIN 8555: E 10-UM-65 Z

**capilla® 635 S**

Recovery: 200%

**Product description:**

Basic coated high performance electrode for highly wear-resistant plating, in case of abrasive wear and low shock loads.

3-layer welding is possible despite the high C- and Cr-content.

**Applications:****Suitable for highly wear-resistant cladding on:**

Components in the ore and coal industry, sand conveyor technology such as skirting boards, screw conveyors, sliding surfaces in sand conveyor technology.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Other	Fe
3,80	1,70	0,30	29,00	0,15	1,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 61 - 64 [HRC]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
3,2	350	100 - 160
4,0	350/450	160 - 220
5,0	450	190 - 250

**Standard designations:**

EN 14700: E Fe 15-70-g  
 DIN 8555: E 10-UM-70 CZ

**capilla® 68 HRC**

Recovery: 180%

**Product description:**

Basic-graphite coated high performance electrode for extremely abrasion-resistant deposition welding and moderate shock loads.

**Applications:****Suitable for cladding on components such as:**

Unalloyed and alloyed steels (that are exposed to extremely high abrasive wear due to ore, gravel, sand, carbon, cement or slag).

**Suitable for plating:**

Components of crushers for burning coals, coke and slag.

**Indicative analysis [%]:**

C	Si	Cr	B	Fe
3,90	1,50	27,00	+	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 65 - 68 [HRC]

**Redrying:**

320°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	80 - 120
3,2	350/450	100 - 160
4,0	450	160 - 220
5,0	450	190 - 260

**Available alternatives:**

capilla 68 HRC RLD

**Standard designations:**

EN 14700: E Fe 20-60-cgtz  
 DIN 8555: E 21-UM-60 CG

**capilla<sup>®</sup> 550 E**

**Product description:**

Immersed deposit electrode against extreme wear on tools working in the soil.

The weld metal consists of tungsten carbide in different sizes, embedded in an Fe-matrix.

**Applications:****Suitable for cladding on:**

Carbon planes, stone cutting machinery, cladding drill bits, deep hole boring tools, screw tools, mixing tools, screw presses, cleats, cutting edges, breaker teeth, bucket teeth, bulldozer blades.

**Indicative analysis [%]:**

<b>550 E 0,5:</b>	70 % [tungsten carbide]	0.25 - 0.70 mm [grain size]
<b>550 E 1,0:</b>	70 % [tungsten carbide]	0.70 - 1.20 mm [grain size]

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	55 - 58 [HRC] mixed hardness
	2000 - 2400 [HV 0.1] carbide

**Redrying:**

none

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
3,5	350	80 - 100
4,0	350	100 - 120
5,0	350	120 - 150
6,0	350	150 - 170

**Available alternatives:**

capilla 550 G

**Standard designations:**

EN 14700: S Fe 1  
 DIN 8555: MSG 1-GZ-250 P

**capilla® 250 MAG**

**Product description:**

Solid wire made of low alloyed CrMn-steel for wear-resistant, crack-free, MIG/MAG deposition welding suitable for clamping and impact loads.

Pre-heating temperature for base materials subject to cracking of approximately 250°C.

**Applications:**

**Suitable for deposition welding on:**

**Machine components made of structural steel or cast steel, such as:**

Guides, rollers, conveyor rollers, couplings, impellers, rails, chutes, brake drums, wheel rims, bearing surfaces and winches.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,30	0,45	1,10	1,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 225 - 275 [HB]

**Shielding gas (EN ISO 14175):** M1 - M3, C1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla 250 B

capilla 250 WIG

**Standard designations:**

EN 14700: S Fe 1-300-p

**capilla<sup>®</sup> 300 MAG****Product description:**

Solid wire for MIG/MAG deposition welding in structural and machine parts subject to wear.

Cladding is crack-free and still easy to process using carbide tools.

**Applications:**

**Suitable for cladding subject to heavy impact loads on:**

Impellers, excavator parts, augurs, rails, tracks, hooks, tractor tracks, etc.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,08	0,65	1,00	2,70	1,10	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 300 [HB]

Shielding gas (EN ISO 14175): M1 - M3, C1

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
0,8
1,0
1,2
1,6

Available alternatives:

capilla 300 B

capilla 300 WIG

**Standard designations:**

EN 14700: S Fe 8  
 DIN 8555: MSG 6-GZ-60  
 Material no.: 1.4718

**capilla® 600 MAG**

**Product description:**

CrMo-alloyed solid wire for very hard MIG/MAG deposition welding on machine parts exposed to high abrasion and heavy impact loads.

**Applications:****Suitable for base materials such as:**

X 45CrSi9-3, X4 5CrSi 9-3, 4 Xr9Si2, X 45CrSi8, HNV1, HNV2, SUH11, 401 S45, SUH 1, STR 1, 40Ch9S2.

**Suitable for repairs and new production of tools and machine components such as:**

Rollers, baffle plates, forging, pressing and drawing tools.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Cu	Fe
0,45	3,00	0,40	9,30	<0,35	Balance

**Properties:** (indicative values at room temperature)

Hardness:	57 - 60 [HRC]	Welding condition
	30 - 40 [HRC]	500°C (red hardness)
	56 - 59 [HRC]	Hardened at 1050°C

**Shielding gas (EN ISO 14175):** M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
0,9
1,0
1,1
1,2
1,4
1,6

**Available alternatives:**

capilla 5400 WIG  
 capilla 600 WIG

capilla 5400 MAG

capilla G 5400 MM

**Standard designations:**

EN 14700: S Fe 8  
 DIN 8555: MSG 6-GZ-60  
 Material no.: 1.4718

# capilla® 54 MAG

**Product description:**

CrSi-alloyed solid wire for tough, wear-resistant MIG/MAG deposition welding on machine parts exposed to high abrasion and heavy impact loads.

Other inert gases can change the hardness values.

Untreated weld metal can be processed only by grinding.

Pre-heat base materials subject to cracking to around 200-300°C.

An intermediate layer (buffer layer) is required for base materials that are very sensitive to cracking.

**Applications:**

**Suitable for repairs and production of new tools and machine components made of structural steel, cast steel or manganese steel, such as:**

Rollers, baffle plates, forging, pressing and drawing tools, treads, crawlers, impeller wheels, edge mills, excavator parts, augers, roll crushers, impact hammers, mill guides, cams, clamping jaws, impact jaws, mixer arms, anvils.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,40	3,00	0,40	9,00	Balance

**Properties:** (indicative values at room temperature)

Hardness:	57 - 60 [HRC]	Welding condition
	30 - 40 [HRC]	500°C (red hardness)
	56 - 59 [HRC]	Hardened at 1050°C

**Shielding gas (EN ISO 14175):** M1-M3, M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla 5400 MAG  
 capilla 600 MAG

capilla 5400 WIG  
 capilla 600 WIG

capilla G 5400 MM

**Standard designations:**

EN 14700: S Fe 7  
 DIN 8555: MSG 6-GZ-450 PRT  
 EN ISO 14343-A: GZ 17 1  
 Material no.: 1.4115

**capilla® 650 MAG**

**Product description:**

Solid wire for MIG/MAG welding of stainless Cr-steels of the same or similar types.

For operating temperatures up to 450°C.

**Pre-heating:**

Welding materials of the same type 300°C - 400°C,  
 Welding materials of dissimilar types 150°C - 350°C.

**Applications:**

**Suitable for base materials such as:**

1.4122 ((G)X 35 CrMo 17).

For deposition welding and joint welds of 17% Cr(Ni)-steels and similar 17% Cr-steels.

Suitable for heat- and wear-resistant cladding on rollers, drums, and gripper jaws.

Suitable for weld surfacing on sealing surfaces on gas, water and steam fittings.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,21	0,60	0,55	17,00	0,50	1,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Elongation (L=5d):	15 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	650 [MPa]	Hardness (unannealed):	42 - 47 [HRC]

**Shielding gas (EN ISO 14175):** M12, M13

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla 650 WIG

**Standard designations:**

EN 14700: S Fe 3-60-st  
 DIN 8555: MSG 3-GZ-60 ST  
 Material no.: 1.2606

**capilla® 655 MAG**

**Product description:**

Solid wire for heat-resistant, tough MIG/MAG deposition welds of hot working and unalloyed and low alloy steels of the same or similar type.

Very good thermal shock resistance.

For operating temperatures up to 550°C.

**Applications:****Suitable for repair and production welding on:**

Hot cutting, dies, mandrels, expanding mandrels, matrices, swaging tools, extrusion punches, pressure dies.

In some cases for plating construction machinery components.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	W	V	Fe
0,35	1,00	0,50	5,30	1,40	1,30	0,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 55 - 60 [HRC] Welding condition

**Shielding gas (EN ISO 14175):** M12, M13, M20, M21 **Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Standard designations:**

EN 14700: S Fe 1  
 DIN 8555: WSG 1-GZ-250 P

**capilla® 250 WIG**

**Product description:**

Welding rod made of low alloyed CrMn-steel for wear-resistant, crack-free, TIG deposition welding suitable for clamping and impact loads.

Pre-heating temperature for base materials subject to cracking of approximately 250°C.

**Applications:****Suitable for deposition welding on:**

Machine components made of structural steel or cast steel, such as:

Guides, rollers, conveyor rollers, couplings, impellers, rails, chutes, brake drums, wheel rims, bearing surfaces and winches.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,30	0,45	1,10	1,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 225 - 275 [HB]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

capilla 250 B

capilla 250 MAG

**Standard designations:**

EN 14700: S Fe 1-300-p

**capilla® 300 WIG****Product description:**

Welding rod for TIG deposition welding on structural and machine parts subject to wear.

Cladding is crack-free and still easy to process using carbide tools.

**Applications:**

**Suitable for cladding subject to heavy impact loads on:**

Impellers, excavator parts, augurs, rails, tracks, hooks, tractor tracks, etc.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,08	0,60	1,00	2,80	1,10	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 300 [HB]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

capilla 300 B

capilla 300 MAG

**Standard designations:**

EN 14700: S Fe 8  
 DIN 8555: WSG 6-GZ-60  
 Material no.: 1.4718

**capilla® 600 WIG**

**Product description:**

CrSi-steel welding rod for very tough, wear-resistant TIG deposition welding on machine parts exposed to high abrasive wear and heavy impact loads.

Untreated weld metal can be processed only by grinding.

Pre-heating temperature for base materials sensitive to cracking of around 200°C to 300°C.

Intermediate layer (buffer layer) recommended for base materials that are highly sensitive to cracking.

**Applications:**

**Suitable for cladding on machine parts made of structural steel, cast steel or manganese steel, such as:**

Impact jaws, mixer arms, anvils, roll crushers, impact hammers, rails, rollers, running surfaces, crawlers, impellers, edge mills, excavator parts, augers, rolling mill guides, cams, clamping jaws.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,50	3,00	0,40	9,20	Balance

**Properties:** (indicative values at room temperature)

Hardness:	57 - 60 [HRC]	Welding condition
	30 - 40 [HRC]	500°C (red hardness)
	56 - 59 [HRC]	Hardened at 1050°C

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

**capilla** 5400 WIG  
**capilla** 600 MAG

**capilla** 5400 MAG

**capilla** G 5400 MM

**Standard designations:**

EN 14700: S Fe 8  
 DIN 8555: MSG 6-GZ-60  
 Material no.: 1.4718

**capilla® 54 WIG**

**Product description:**

CrS-alloyed welding rod for tough, wear-resistant TIG deposition welding on machine parts exposed to high abrasion and heavy impact loads.

Other inert gases can change the hardness values.

Untreated weld metal can be processed only by grinding.

Pre-heat base materials subject to cracking to around 200°C - 300°C.

An intermediate layer (buffer layer) is required for base materials that are very sensitive to cracking.

**Applications:**

**Suitable for repairs and production of new tools and machine components made of structural steel, cast steel or manganese steel, such as:**

Rollers, baffle plates, forging, pressing and drawing tools, treads, crawlers, impeller wheels, edge mills, excavator parts, augers, roll crushers, impact hammers, mill guides, cams, clamping jaws, impact jaws, mixer arms, anvils.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,40	3,00	0,40	9,50	Balance

**Properties:** (indicative values at room temperature)

Hardness:	57 - 60 [HRC]	Welding condition
	30 - 40 [HRC]	500°C (red hardness)
	56 - 59 [HRC]	Hardened at 1050°C

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

**capilla** 5400 MAG  
**capilla** 600 MAG

**capilla** 5400 WIG  
**capilla** 600 WIG

**capilla** G 5400 MM

**Standard designations:**

EN 14700: S Fe 7  
 DIN 8555: WSG 6-GZ-450 PRT  
 EN ISO 14343-A: WZ 17 1  
 Material no.: 1.4115

**capilla® 650 WIG**

**Product description:**

Welding rod for TIG welding of stainless Cr-steels of the same or similar types.

For operating temperatures up to 450°C.

**Pre-heating:**

Welding materials of the same type 300 - 400°C,  
 Welding materials of dissimilar types 150 - 350°C.

**Applications:****Suitable for base materials such as:**

1.4122 ((G)X 35 CrMo 17).

For deposition welding and joint welds of 17% Cr(Ni)-steels and similar 17 % Cr-steels.

Suitable for heat-and wear-resistant cladding on rollers, drums, and gripper jaws.

Suitable for weld surfacing on sealing surfaces on gas, water and steam fittings.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	Fe
0,21	0,60	0,55	17,50	0,50	1,10	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	700 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	650 [MPa]	Hardness (unannealed):	42 - 47 [HRC]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000

Available alternatives:

capilla 650 MAG

**Standard designations:**

EN 14700: S Fe 3-60-st  
 DIN 8555: WSG 3-GZ-60 ST  
 Material no.: 1.2606

**capilla® 655 WIG**

**Product description:**

Welding rod for heat-resistant, tough TIG deposition welds of hot working and unalloyed and low alloy steels of the same or similar type.

Very good thermal shock resistance.

For operating temperatures up to 500°C.

**Applications:**

**Suitable for repair and production welding, as well as new production and maintenance such as:**

Hot cutting, dies, mandrels, expanding mandrels, matrices, swaging tools, extrusion punches, pressure dies.

Continuous casting rollers, hot cutting blades, die casting moulds, dies, etc.

Also suitable for plating construction machinery parts in some cases.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	W	V	Fe
0,35	1,10	0,40	5,50	1,20	1,30	0,25	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 57 - 69 [HRC] Welding condition

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,0	1000
1,2	1000
1,6	1000
2,0	1000
2,4	1000

**Standard designations:**

EN 14700: T Fe 1  
 DIN 8555: MSG 2-GF-45 GP

**capilla<sup>®</sup> G 450 MM**

**Product description:**

Seamless, copper-plated, CrMo-alloyed flux-cored wire for hard MIG/MAG deposition welding on machine parts exposed to high abrasion and moderate impact loads.

The wire is not sensitive to moisture absorption, and has excellent wire feeding characteristics.

**Applications:**

**Suitable for repairs and new production of tools and machine components such as:**

Rollers, baffle plates, forging, pressing and drawing tools.

**Suitable for overhauling earth moving equipment, such as:**

Drive chains, sprockets, excavator buckets, rollers on crawler cranes or crane track rollers, crane wheels, rollers in steel mills, mixer components, coupling components.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,30	0,60	1,40	2,50	0,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 450 [HB] 3. Layer

**Shielding gas (EN ISO 14175):** M12, M13, M20, M21 **Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Standard designations:**

EN 14700: T Z Fe 2  
 DIN 8555: MSG 6-GF-60 GP

**capilla® G 600 MM**

**Product description:**

CrMo-medium alloyed metal powder-cored wire for very hard MIG/MAG deposition welding on machine parts exposed to high abrasion and heavy impact loads.

Stable arc, no slag formation, good re-ignition properties.

A buffer layer is only required with welding-critical base materials.

**Applications:**

**Suitable for repairs and new production of tools and machine components such as:**

Gripper and bucket teeth, rollers, screw conveyors, baffle plates, breaker jaws and cones, forging, pressing and drawing tools.

**Suitable for robotic applications, automated and fully mechanised welding.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
0,50	0,60	1,50	6,00	0,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	57 - 60 [HRC]	Welding condition
	30 - 40 [HRC]	500°C (red hardness)
	56 - 59 [HRC]	Hardened at 1050°C

**Shielding gas (EN ISO 14175):** M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Available alternatives:**

capilla 5400

capilla 5400 MAG

capilla 5400 WIG

**Standard designations:**

EN 14700: TZ Fe 6-60-PT  
 DIN 8555: MF-6-60-PT

**capilla® G 655 MM**

**Product description:**

Slag-free, flux-cored wire for heat-resistant, tough MIG/MAG deposition welds of hot working and unalloyed and low alloy steels of the same or similar type.

Pre-heating temperature of 350°C to 400°C.

Very good thermal shock resistance.

For operating temperatures up to 500°C.

A buffer layer is recommended for sensitive base materials in welding.

**Applications:****Suitable for repair and production welding on:**

Hot cutting, dies, mandrels, expanding mandrels, matrices, swaging tools, extrusion punches, pressure dies.

In some cases for plating construction machinery components.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	W	V	Fe
0,55	0,90	2,80	7,00	1,60	0,90	1,80	Balance

**Properties:** (indicative values at room temperature)

Hardness:	54 - 58 [HRC]	Welding condition
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**Shielding gas (EN ISO 14175):** M12, M13, M20, M21 **Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4

**Standard designations:**

EN 14700: T Fe 8 - 60-gpt  
 DIN 8555: MF 10-GF-55-GPS

**capilla® G 54 N MM**

**Product description:**

Basic flux-cored wire for tough, wear-resistant deposition welding on components exposed to heavy wear.

The precipitated weld metal is resistant to impacts and shocks.

The weld metal consists of finely distributed Ti-carbides in a tough, martensitic matrix.

There are stress cracks in the weld metal, however these can be minimised through suitable pre-heating to over 250°C.

**Applications:**

**Suitable for deposition welding, for instance on:**

Excavator parts, earth movers, shafts, crane track rollers, gripper blades, paddles, augers, gravel pumps, mud, sand and dredging pumps (their line systems and valves), crusher jaws, excavator bucket blades, furnace bells and impact tools in sugar mills.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Ti	V	Fe
2,00	0,70	1,20	7,00	0,80	5,00	0,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 56 - 60 [HRC]

**Shielding gas (EN ISO 14175):** not applicable

Self-shielding endless electrode, no shielding gas required

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4
2,8

**Standard designations:**

EN 14700: T Fe 8-60-gpt  
 DIN 8555: MSG 6-GF-60 GP

# capilla® G 351 MM

**Product description:**

CrSiC-alloyed seamless flux-cored wire for wear-resistant MIG/MAG deposition welding on machine parts exposed to high pressure, abrasion and heavy impact loads.

Even welding compared to solid wire.

Less slag formation and easy removal, even after multi-layer welding.

Materials can be processed only through grinding.

**Applications:**

**Suitable for repairs and new production of tools and machine components such as:**

Rollers, baffle plates, crusher jaws, cutting, forging, pressing and drawing tools.

**Suitable for construction machinery components and waste disposal systems.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,45	2,80	0,40	9,00	Balance

**Properties:** (indicative values at room temperature)

Hardness:	57 - 60 [HRC]	Welding condition
	30 - 40 [HRC]	500°C (red hardness)
	56 - 59 [HRC]	Hardened at 1050°C

**Shielding gas (EN ISO 14175):** M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Available alternatives:**

capilla 5400  
 capilla 54 W

capilla 5400 MAG  
 capilla 600 MAG

capilla 5400 WIG  
 capilla G 600 Si MM

**Standard designations:**

EN 14700: T Fe 8-55-CP  
 DIN 8555: MF-6-55-RP  
 Material no.: ~1.4718

**capilla® G 54 MM**

**Product description:**

CrSi-alloyed flux-cored wire for tough and crack-free MIG/MAG deposition welding on machine parts exposed to high abrasion and heavy impact loads.

Suitable for wear- and impact-resistant hardfacing.

A buffer layer is recommended with base materials sensitive to welding.

**Applications:**

**Suitable for repairs and new production of tools, structural and machine components such as:**

Rollers, baffle plates, bucket teeth and blades, cleats, breaker hammers, shredder systems, forging, pressing and drawing tools.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,55	2,30	0,90	9,70	Balance

**Properties:** (indicative values at room temperature)

Hardness:	57 - 60 [HRC]	Welding condition
	30 - 40 [HRC]	500°C (red hardness)
	56 - 59 [HRC]	Hardened at 1050°C

**Shielding gas (EN ISO 14175):** M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4

**Available alternatives:**

capilla 5400

capilla 5400 MAG

capilla 5400 WIG

**Standard designations:**

EN 14700: T Fe 8-60-gpt  
 DIN 8555: MSG 6-GF-60-GP

**capilla<sup>®</sup> G 600 Nb MM**

**Product description:**

CrNb special alloy **seamless** metal powder-cored wire without slag for deposition welding on machine parts exposed to high abrasion and heavy impact loads.

Processing can be carried out only via grinding.

**Applications:****Suitable for hardfacing on:**

Crusher, recycling, separation, classification, crushing roller systems.  
 Forging, pressing and drawing tools.

**Suitable for components:**

Gripper and bucket teeth, screw conveyors, crusher jaws and cones, baffle plates, different wear parts in crushing mills.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Nb	Fe
1,50	1,00	1,00	6,50	6,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 58 - 62 [HRC]

Shielding gas (EN ISO 14175): M21

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
1,2
1,6

**Standard designations:**

EN 14700: T Fe 8-60-gpt  
 DIN 8555: MSG 6-GF-60

**capilla® G 600 Si MM**

**Product description:**

CrSiC-alloyed seamless flux-cored wire for MIG/MAG deposition welding on machine parts exposed to high abrasion and heavy impact loads.

The weld metal is hard, tough and can be applied without cracking.

A buffer layer is recommended for welding-sensitive base materials.

**Applications:**

**Suitable for repairs and new production of tools, structural and machine components such as:**

Rollers, baffle plates, forging, pressing and drawing tools.

**Suitable for construction machinery components and waste disposal system components.**

**Indicative analysis [%]:**

C	Si	Mn	Cr	Fe
0,50	2,40	0,70	9,00	Balance

**Properties:** (indicative values at room temperature)

Hardness:	57 - 62 [HRC]	Welding condition
	30 - 40 [HRC]	500°C (red hardness)
	54 - 59 [HRC]	Hardened at 1050°C

**Shielding gas (EN ISO 14175):** M12, M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4

**Available alternatives:**

capilla 5400

capilla G 351 MM

capilla 5400 MAG

capilla 600 MAG

capilla 5400 WIG

**Standard designations:**

EN 14700: not classifiable  
Suitability: gptz

**capidur G 56 HIT****Product description:**

An iron-based flux-cored wire for hardfacing; for welding austenitic, impact-resistant, strain-hardening capable hardfacings on replacement and wear parts and components exposed to high impact loads and moderate abrasion in use. The weld metal is non-magnetizable, applied to austenitic base materials and strengthens in use. Up to 50% complex fine special carbides in different shapes and sizes are distributed homogeneously and embedded in the morphology in the structure. The structure has very high impact strength. The matrix, or respectively the structure, can be adjusted and fine-tuned in the process on the bulk material or the medium to be chopped and conveyed. Welding should be completed with the lowest possible application of heat.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, GET's, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Worn components made of manganese steel, magnetic separators, roll crushers, cleats, bucket teeth, tooth tips, bucket tips, crusher jaws, tapered, core and cross pieces, slides, chutes, wear protection plates, etc.

**Indicative analysis [%]:**

<b>G 56 HIT:</b>	40-50 % [special carbides]	5 µm – 25 µm [grain size]
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C	Si	Mn	Cr	Ni	Fe
6,00	2,00	17,00	23,00	1,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	50 - 55 [HRC]
	58 - 62 [HRC] (strain-hardened)

Shielding gas (EN ISO 14175): M12

Current type:

= (+)

Positions:



Dimensions:

Ø [mm]
1,6
2,8

**Standard designations:**

EN 14700: T Fe 9-250-KNP  
 DIN 8555: MF-7-250-KNP

**capilla® 56 RLD**

**Product description:**

Self-shielding flux-cored wire electrode made of manganese steel containing chromium for welding claddings capable of strain-hardening.

Slag falls off of the weld metal, which is austenitic, rust-resistant, strain-hardened, non-magnetic, and very tough.

Suitable for parts exposed to very high levels of impact wear and pressure.

Less embrittlement thanks to the low level of carbide precipitation.

**Applications:**

**Suitable for wear parts on road construction and mining machinery subject primarily to rolling or impact wear, such as:**

Bucket teeth, cone crushers and crusher jaws in the stone industry, core and cross pieces on train and streetcar tracks/switches, races of rotary kilns, rollers, wheels, etc.

Suitable for buffer layers before hardfacing.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Mo	V	Fe
0,45	0,40	15,80	14,70	1,20	0,55	0,25	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	220-250 [HB]
	500 [HB] (strain-hardened)

**Polung:**

=(+)

**Positions:****Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4
2,8
3,2
4,0

**Available alternatives:**

capilla CR MA 47

**Standard designations:**

EN 14700: T Fe 9-250-KNP  
 DIN 8555: MF-7-250-KNP

**capilla® 561 RLD**

**Product description:**

Self-shielded flux-cored wire with slag removal for deposition welding on parts made of austenitic manganese steel primarily exposed to impact and shock wear loads.

The austenitic weld metal with high strain-hardening capability has high toughness and resistance to cracking.

Welding should be completed with the lowest possible application of heat.

**Applications:****Suitable for deposition welding on:**

Bucket teeth and blades, cleats, excavator bolts, breaker jaws and cones, core and cross pieces.

**Suitable for buffer layers.****Indicative analysis [%]:**

C	Si	Mn	Cr	Ni	Fe
0,90	0,40	12,50	4,00	0,55	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	200 - 230 [HB]
	approx. 450 [HB] (strain-hardened)

**Shielding gas (EN ISO 14175):** not applicable

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Standard designations:**

EN 14700: T Fe 13-70-G  
 DIN 8555: MF 10-70-G

**capilla® 540 B RLD**

**Product description:**

Self-shielding open-arc, high B-alloyed flux-cored wire electrode for hardfacing welds against extreme mineral wear and erosion.

Due to the high hardness, however, deposition should be restricted to a maximum of two layers.

**Applications:****Suitable for deposition welding on:**

Excavator blades, mixer paddles, feed screws, concrete pumps, preparation systems in the gravel and sand industry.

**Indicative analysis [%]:**

C	Si	Mn	Ni	B	V	Fe
0,65	1,20	1,70	3,10	4,50	+	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 64 - 68 [HRC] 2. Layer

**Shielding gas (EN ISO 14175):** not applicable

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4
2,8

**Standard designations:**

EN 14700: T Fe 15-60-GC  
 DIN 8555: MF 10-60-GR

**capilla® 55 RLD**

**Product description:**

Self-shielding (open-arc) flux-cored wire electrode for deposit welding on parts exposed to very heavy abrasive mineral wear.

Maximum application in 2-3 layers, not thicker than 8-10mm.

The structure is austenitic with a large number of embedded primary carbides and eutectic  $M_7C_3$ -carbides, and is less well-suited for impact and shock loads.

**Applications:**

**Suitable for machine parts and devices made of structural steel, cast steel or manganese steel (exposed to very heavy abrasive wear), such as:**

Moulds, mixing and stirring paddles, bucket teeth, guides, chutes, conveying systems and similar parts subject to heavy abrasive wear at low pressure or impacts.

**Indicative analysis [%]:**

C	Si	Mn	Cr	B	Fe
5,50	1,00	0,30	28,50	+	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 55 - 62 [HRC]

**Shielding gas (EN ISO 14175):** not applicable

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4
2,8
3,2
4,0

**Standard designations:**

EN 14700: not classifiable  
 Suitability: gptz

**capidur G 55 HIT****Product description:**

An iron-based flux cored wire for hardfacing; for welding austenitic, impact-resistant, strain-hardening capable hardfacings on replacement and wear parts and components exposed to high impact loads and moderate abrasion in use.

Up to 45% complex fine special carbides in different shapes and sizes are distributed homogeneously and embedded in the morphology in the structure.

The structure has very high impact strength and abrasion resistance. The matrix, or respectively the structure, can be adjusted and fine-tuned in the process on the bulk material or the medium to be chopped and conveyed.

Welding should be completed with the lowest possible application of heat.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, GET's, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Worn components made of manganese steel, chains, shovels, excavator buckets, magnetic separators, roll crushers, cleats, bucket teeth, tooth tips, bucket tips, crusher jaws, tapered, core and cross pieces, slides, chutes, wear protection plates, etc.

**Indicative analysis [%]:**

**G 55 HIT :** 40-50 % [special carbides] 5 µm - 15 µm [grain size]

C	Si	Mn	Cr	V	Fe
3,50	0,10	12,50	12,50	17,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 45 - 47 [HRC]  
 55 - 62 [HRC] (strain-hardened)

**Shielding gas (EN ISO 14175):** IAr1, M12

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Standard designations:**

EN 14700: not classifiable  
Suitability: gptz

**capidur G 58 TIC****Product description:**

An iron-based flux-cored wire for hardfacing on replacement parts, wear parts and components exposed in use to extremely abrasive wear and simultaneously extremely high impact loads.

The weld metal is crack-free, low smoke and low spatter. Up to 50% complex fine special carbides in different shapes and sizes are distributed homogeneously and embedded in the morphology in the structure. The structure has a very high hardness as well as extremely high impact strength, resists mineral wear, and is resistant to furrow wear due to the high scratch hardness. The matrix, or respectively the structure, can be adjusted and fine-tuned in the process on the bulk material or the bulk material to be chopped and conveyed.

**Applications:****Suitable for deposition welding on:**

Tools and attachments used in the earth, stone, GET's, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Cleats, cutting edges, cutting heads, blades, scrapers, mandrels, bucket teeth, tooth tips, bucket tips, drill bits, stabilisers, spike breakers, break stars, slides, chutes, wear protection plates, etc.

**Indicative analysis [%]:**

**G 58 TIC :** 40-50 % [specialised carbide] 5 µm - 25 µm [grain size]

C	Si	Mn	Cr	Mo	Ti	Fe
1,50	2,00	2,00	9,00	2,00	4,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness matrix:	55 - 58 [HRC]
	58 - 60 [HRC] 2. Layer
Hardness special carbides:	2600 - 2900 [HV 0,1] carbide

**Shielding gas (EN ISO 14175):** I1Ar, M12

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,6

**Standard designations:**

EN 14700: T Fe 14-60-cg  
 DIN 8555: MF-10-60-GR

**capilla® 60 RLD**

**Product description:**

Self-shielding (open-arc) flux-cored wire for highly wear-resistant and abrasion-resistant deposition welding on machinery components and devices made of structural steel, cast steel or manganese steel exposed to very heavy abrasive and mineral wear at low impact and shock loads.

Maximum application in 2-3 layers, not thicker than 8-10mm.

The weld metal is rust-resistant.

**Applications:****Suitable in areas such as:**

Moulds, mixing and stirring paddles, bucket teeth, guides, chutes, wear plates, conveying systems, screw conveyors, and similar parts.

**Indicative analysis [%]:**

C	Si	Mn	Cr	B	Fe
4,80	1,20	0,60	28,00	+	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 55 - 59 [HRC]

Shielding gas (EN ISO 14175): not applicable

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
1,2
1,6
2,0
2,4
2,8

**Standard designations:**

EN 14700: T Fe 14-60-CG  
 DIN 8555: MF-10-60-CG

**capilla® G 60 Mo HRC MM**

**Product description:**

Flux-cored wire for highly wear-resistant MIG/MAG deposition welding, used with heavy abrasive wear and corrosion, and moderate shock and impact loads.

Cladding is corrosion-resistant.

**Applications:****Suitable in areas such as:**

Moulds and separators, mixing and stirring paddles, excavator teeth, guides, chutes, shredders, kneaders, conveyor systems and screw conveyors, and similar parts.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
3,20	1,30	0,60	27,50	3,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 58 +/-2 [HRC]

**Shielding gas (EN ISO 14175):** M21, M12, C1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4
2,8
3,2
4,0

**Standard designations:**

EN 14700: T Fe 14-60-cgt  
 DIN 8555: MF-10-60-CGT

**capilla® 540 RLD**

**Product description:**

Self-shielding flux-cored wire for highly wear-resistant deposition welding; can also be welded under inert gas.

Can also be used in case of heavy abrasive wear in combination with corrosion.

Do not expose to significant shock or impact loads.

Crack-free deposition welding possible with appropriate heat control.

(slow cooling, if applicable furnace cooling), pre-heating temperature of approx. 450°C.

**Applications:****Suitable for cladding on:**

Moulds, mixing and stirring paddles/arms, bucket teeth, guides, chutes, kneaders, shredders, screw conveyors and separators, and similar parts.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
3,90	1,00	0,20	34,00	+	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 56 - 60 [HRC]

**Shielding gas (EN ISO 14175):** not applicable

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4
2,8
3,2
4,0

**Available alternatives:**

capilla 540

capilla 540 SF

**Standard designations:**

EN 14700: T Fe 15-60-G  
 DIN 8555: MF-10-60-G

# capilla® 540 Mo RLD

**Product description:**

Self-shielding flux-cored wire for deposition welding on parts exposed to very heavy abrasive mineral wear.

Alloying the material with 1.3% molybdenum also gives the cladding a higher thermal resistance (operating temperatures up to 450°C).

Application in 2-3 layers, not thicker than 8-10mm.

The structure is austenitic with a large number of embedded primary carbides and eutectic  $M_7C_3$ -carbides, and is less well-suited for impact and shock loads.

**Applications:**

**Suitable for cladding on base materials such as:**

Baffle plates, suction dredges, slag breakers, breaker hammers, screw conveyors, mixing arms, guide elements, mixing paddles, wear plates, concrete pumps, descaling systems, roll crushers, wear sections.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Fe
4,60	1,50	0,20	28,50	1,25	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 57 - 62 [HRC]

**Shielding gas (EN ISO 14175):** not applicable

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4
2,8
3,2

**Standard designations:**

EN 14700: T Fe 16 - gz  
 DIN 8555: MF-10-65-GZ

**capilla® 540 N RLD**

**Product description:**

Self-shielding high CCrMoNbVW-alloyed flux-cored wire for welding parts exposed to extreme abrasion and moderate shock loads.

The weld metal is deposited with extremely hard carbides, and is therefore suitable for plating against extreme mineral wear.

Wear resistance is maintained at operating temperatures of up to 650°C, thanks to the specialised composition.

Best welding results in 2 layers.

**Applications:****Suitable for deposition welding on:**

Rotor plates, spikes, sintered grates, fire grates, grate bars for ore processing systems, screw conveyors, grinding rollers, impact strips, edge mill scrapers, deburring tools, augers, briquetting presses, carbon planes, scrapers, stone cutting tools, rock drilling chisels.

**Suitable in hot areas.****Indicative analysis [%]:**

C	Si	Mn	Cr	Mo	Nb	W	V	Fe
4,80	1,50	0,15	21,50	6,00	6,50	1,70	1,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	63 - 65 [HRC]
	61 [HRC] at 400°C
	<57 [HRC] at 600°C

**Shielding gas (EN ISO 14175):** not applicable

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4
2,8
3,2
4,0

**Available alternatives:**

capilla 540 N

**Standard designations:**

EN 14700: T Fe 15-65-G  
 DIN 8555: MF 10-60-G

# capilla® 540 Nb RLD

**Product description:**

Self-shielding, high CCrNb alloyed flux-cored wire for deposition welding on parts exposed to very heavy abrasive mineral wear.

The weld metal is austenitic and has a large number of Cr- and Nb-based embedded primary carbides, and is less suitable for exposure to impacts and shocks.

For operating temperatures up to 450°C.

Typically applied in 2-3 layers, not thicker than 8-10mm.

**Applications:**

**Suitable for cladding on base materials such as:**

Impact and wear plates, suction dredges, bucket teeth, spiked and cup rollers, mixing blades, slag breakers, hammers, guide elements, impellers of descaling systems, coke oven carriages, outer wear sections.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Nb	Fe
4,00	1,80	0,50	22,50	6,90	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	57 - 60 [HRC] 1. Layer
	59 - 62 [HRC] 2. Layer
	61 - 65 [HRC] 3. Layer

**Shielding gas (EN ISO 14175):** not applicable

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4
2,8
3,2
4,0

**Available alternatives:**

capilla 540 Nb

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla® 500 G 0,5**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame.

The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>500 G 0,5:</b>	60 % [tungsten carbide]	0.25 - 0.5 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	1900 - 2400 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 500 G 1,0

capilla 500 G 1,5

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla® 500 G 1,0**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame.

The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>500 G 1,0:</b>	60 % [tungsten carbide]	0.75 - 1.2 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	1900 - 2400 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:****Dimensions:**

Ø [mm]	Length [mm]
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 500 G 0,5

capilla 500 G 1,5

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla® 500 G 1,5**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame.

The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>500 G 1,5:</b>	60 % [tungsten carbide]	0.75 - 1.5 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	1900 - 2400 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 500 G 0,5

capilla 500 G 1,0

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla<sup>®</sup> 520 G 0,5**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame.

The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>520 G 0,5:</b>	70 % [tungsten monocarbide]	0.25 - 0.50 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	1750 - 2100 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 520 G 1,0

capilla 520 G 1,5

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla® 520 G 1,0**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame.

The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>520 G 1,0:</b>	70 % [tungsten monocarbide]	0.75 - 1.20 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	1750 - 2100 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 520 G 0,5

capilla 520 G 1,5

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla® 520 G 1,5**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame.

The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>520 G 1,5:</b>	70 % [tungsten monocarbide]	0.75 - 1.50 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	1750 - 2100 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:****Dimensions:**

Ø [mm]	Length [mm]
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 520 G 0,5

capilla 520 G 1,0

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla<sup>®</sup> 530 G 0,5**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use. The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame. The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>530 G 0,5:</b>	65 % [fused tungsten carbide]	0.25 - 0.50 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	1900 - 2400 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 530 G 1,0

capilla 530 G 1,5

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla® 530 G 1,0**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame.

The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>530 G 1,0:</b>	65 % [fused tungsten carbide]	0.75 - 1.20 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	1900 - 2400 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 530 G 0,5

capilla 530 G 1,5

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla® 530 G 1,5**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use. The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame. The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>530 G 1,5:</b>	65 % [fused tungsten carbide]	0.75 - 1.50 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	1900 - 2400 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:****Dimensions:**

Ø [mm]	Length [mm]
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 530 G 0,5

capilla 530 G 1,0

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla<sup>®</sup> 550 G 0,5**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use. The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame. The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Augers, augur segments, screw tools, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers. For use in plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills, bucket teeth, tooth tips, and rotary valves.

**Indicative values:**

<b>550 G 0,5:</b>	70 % [tungsten carbide]	0.25 - 0.70 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	2200 - 2400 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:****Dimensions:**

Ø [mm]	Length [mm]
3,5	350/700
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 550 G 1,0

capilla 550 G 1,5

capilla 550 G 3,0

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla® 550 G 1,0**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use. The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame. The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for cladding on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Augurs, augur segments, screw tools, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers. For use in plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills, bucket teeth, tooth tips, and rotary valves.

**Indicative values:**

<b>550 G 1,0:</b>	70 % [tungsten carbide]	0.7 - 1.2 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	2200 - 2400 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
3,5	350/700
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 550 G 0,5

capilla 550 G 1,5

capilla 550 G 3,0

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla<sup>®</sup> 550 G 1,5**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame.

The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for cladding on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Augers, augur segments, screw tools, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers. For use in plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills, bucket teeth, tooth tips, and rotary valves.

**Indicative values:**

<b>550 G 1,5:</b>	70 % [tungsten carbide]	0.7-1.5 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	2200 - 2400 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:****Dimensions:**

Ø [mm]	Length [mm]
3,5	350/700
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 550 G 0,5

capilla 550 G 1,0

capilla 550 G 3,0

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla® 550 G 3,0**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame.

The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for cladding on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Augurs, augur segments, screw tools, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers. For use in plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills, bucket teeth, tooth tips, and rotary valves.

**Indicative values:**

<b>550 G 3,0:</b>	70 % [tungsten carbide]	2.0 - 3.0 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	2200 - 2400 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
3,5	350/700
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 550 G 0,5

capilla 550 G 1,0

capilla 550 G 1,5

**Standard designations:**

EN 14700: T Fe 15-70-cgz  
 DIN 8555: MF-10-70-GRZ

**capilla® 68 HRC RLD**

**Product description:**

Self-shielding (open-arc) flux-cored wire for extremely abrasive wear at high operating temperatures.  
 The weld metal has a ledeburitic matrix with a large number of embedded chromium carbides and extra hard metal borides; free from slag and flux residue.

For operating temperatures up to 800°C.  
 The best results are achieved in the 2nd layer.

The additive can also be processed well under inert gas (EN ISO 14175: M12, M21).

**Applications:****Suitable for deposition welding on:**

Spike breakers, crusher stars, bucket tips, mixing paddles, fans, scrapers for coke/slag, sintered grades.

**Suitable in different areas of the cement and concrete industry.****Indicative analysis [%]:**

C	Si	Mn	Cr	B	Fe
4,90	0,90	0,25	36,00	1,90	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	66 - 69 [HRC]
	67 [HRC] 2. Layer
	62 - 64 [HRC] (600°C)
	52 - 56 [HRC] (800°C)

**Shielding gas (EN ISO 14175):** optional M12, M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4
2,8

**Standard designations:**

EN 14700: not classifiable  
Suitability: gptz

**capidur G 68 HIT****Product description:**

An iron-based flux-cored wire for tools and components exposed in use to extremely abrasive wear and extremely high impact loads. Up to 40% complex fine special carbides in different sizes are distributed homogeneously and embedded in the morphology in the weld metal with very fine lamellar structure. The weld metal also has a very high hardness as well as high impact strength, resists mineral wear, and is resistant to furrow wear due to the high scratch hardness. The matrix, or respectively the structure, can be adjusted and fine-tuned in the process on the bulk material or medium to be conveyed. Achieves a very high impact strength even in the first layer.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, GET's, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, leaf,- conveying equipment, worm conveyors, cleats, cutting edges, cutting heads, blades, scrapers, ploughshare mixers, mixing components, mixing tools, mixing paddles, mixing blades, mouth pieces, form drills, bucket teeth, rotary valves, fans, spike breakers, break stars, slides, chutes, wear protection plates, wear protection tubes, etc.

**Indicative analysis [%]:**

<b>G 68 HIT :</b>	40 - 50 % [special carbide]	10 µm – 50 µm [grain size]
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C	Si	Mn	Cr	Mo	B	Nb	Ti	Fe
1,00	0,90	1,75	12,00	14,00	5,00	4,00	2,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness matrix:	63 - 65 [HRC]
	65 - 68 [HRC] 2. Layer
Hardness special carbide:	2300 - 2600 [HV 0,1] carbide
Hardness boride:	2400 - 2800 [HV 0,1] carbide

Shielding gas (EN ISO 14175): IAr

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
1,6

**Standard designations:**

EN 14700: T ZFe 16-70-gz  
 DIN 8555: MF 10-GF-70-GT

**capilla® 69 HRC RLD**

**Product description:**

Self-shielding (open-arc) flux-cored wire for plating against extreme abrasion and/or erosion.

The weld metal has a ledeburitic matrix and a large number of embedded chromium carbides and metal borides.

For operating temperatures up to 550°C.

Extremely high abrasion resistance (achieved even in the first layer) with moderate impact load.

The additive can also be processed well under inert gas (EN ISO 14175: M12, M21).

**Applications:****Suitable for base materials such as:**

Unalloyed and alloyed steels (that are exposed to extremely high abrasive wear due to ore, gravel, sand, carbon, cement or slag).

**Suitable for components such as:**

Augers, furnace bells and shields (that are exposed to high temperatures), fans, sinter breaker stars, etc.

**Indicative analysis [%]:**

C	Si	Mn	Cr	Nb	B	Fe
2,50	0,60	2,00	11,50	5,00	2,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 64 - 68 [HRC] 3. Layer

**Shielding gas (EN ISO 14175):** not necessary

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6
2,0
2,4
2,8
3,2

**Standard designations:**

EN 14700: not classifiable  
Suitability: gptz

**capidur G 70 Fe****Product description:**

A **chromium-free**, iron-based flux-cored wire for tools and components exposed to extremely abrasive wear and high impact loads, including at high operating temperatures, in use.

Up to 50% complex fine special carbides in different sizes are distributed homogeneously and embedded in the round morphology in the weld metal with very fine lamellar structure. The weld metal also has a very high hardness as well as high impact strength, resists extreme mineral wear, and is resistant to furrow wear due to the high scratch hardness.

**Applications:****Suitable for deposition welding on:**

Tools and attachments used in the earth, stone, GET's, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, leaf segments, conveying equipment, worm conveyors, cleats, cutting edges, cutting heads, blades, scrapers, ploughshare mixers, mixing components, mixing tools, mixing paddles, mixing blades, mouth pieces, form drills, bucket teeth, rotary valves, fans, spike breakers, break stars, slides, chutes, wear protection plates, wear protection tubes, etc.

**Indicative analysis [%]:**

<b>G 70 Fe:</b>	40 - 50 % [special carbide]	5 µm - 25 µm [grain size]
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C	Si	Mn	Mo	V	B	Fe
1,75	0,80	1,50	15,00	9,00	2,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness matrix:	63 - 65 [HRC]
	65 - 70 [HRC] 2. Layer
Hardness special carbide:	2500 - 2900 [HV 0,1] carbide

Shielding gas (EN ISO 14175): M12

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
1,2
1,6
2,8

**Standard designations:**

EN 14700: T Fe 16-65-GZ  
 DIN 8555: MF 10-65-GZ

**capilla® 540 V RLD**

**Product description:**

Self-shielded flux-cored wire with a specialised CCrV-hard alloy for deposition welding of extremely hard cladding exposed to extreme, abrasive mineral wear.

Can be used at higher working temperatures due to the specialised alloy.

The precipitated weld metal has a high scratch hardness, and should be applied in a maximum of two layers.

**Applications:****Suitable for deposition welding on:**

Slag breakers, sand aerators, moulds, separators, bucket teeth, guides, cement pumps, mixing and stirring paddles and similar parts.

**Suitable in areas such as:**

Ore and coal mining, sintering technology, conveyor systems, sand and gravel conveying technology.

**Indicative analysis [%]:**

C	Si	Mn	Cr	V	Fe
4,80	1,50	0,25	22,00	10,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 63 - 67 [HRC]

**Shielding gas (EN ISO 14175):** not applicable

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,6
2,0
2,4
2,8
3,2

**Available alternatives:**

capilla 540 V

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla® 700 G 0,5**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame.

The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>700 G 0,5:</b>	60 % [fused tungsten carbide]	0.25 - 0.50 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	2600 - 3100 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 700 G 1,0

capilla 700 G 1,5

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla® 700 G 1,0**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame.

The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>700 G 1,0:</b>	60 % [fused tungsten carbide]	0.75 - 1.2 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	2600 - 3100 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 700 G 0,5

capilla 700 G 1,5

**Standard designations:**

DIN EN 14700: T Fe 20 gz  
 DIN 8555: G 21-GF-UM-55 G

**capilla<sup>®</sup> 700 G 1,5**

**Product description:**

Welding rod (tubes) Fe-based binder filled with broken fused tungsten carbide. Rod for autogenous deposition welding on attachments, components and tools exposed to extremely abrasive wear and high impact, sliding and percussive loads in use.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 400°C into the core is required. The tubes should not run off or be worked in the centre of the flame.

The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>700 G 1,5:</b>	60 % [fused tungsten carbide]	0.75 - 1.5 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	68 - 70 [HRC] mixed hardness
	2600 - 3100 [HV 0.1] carbide

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
4,0	350/700
5,0	350/700
6,0	350/700

**Available alternatives:**

capilla 700 G 0,5

capilla 700 G 1,0

**Standard designations:**

DIN EN 14700: not classifiable  
 DIN 8555: not classifiable

# capilla® 900 G 0,5

**Product description:**

Flexible, bendable welding rod. Coating manufactured in composite, different sizes of fused tungsten carbide (FTC). The welding rod has a moderate matrix-and scratch-hardness. The rod is used for hardfacing on components that are exposed to extreme fine mineral wear.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 350°C into the core is required in the area of the plating. In the area of the plating, the temperature of the component surface should be approx. 650°C at the start of hardfacing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>900 G 0,5:</b>	60 - 68 % [fused tungsten carbide]	0,2 - 0,4 mm [grain size]*
	35 - 40 % [Ni-matrix]	-125 + 20 µm [grain size]

\* other grain sizes upon request

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	FTC TC-T <sup>2</sup> C (broken)	2200 - 2500 [HV 0,1] carbide
	Ni-matrix	40 - 44 [HRC]

**Redrying:** not applicable

**Positions:****Dimensions:**

Ø [mm]	Length [mm]
4,0	500
5,0	500
6,0	500
8,0	500

**Available alternatives:**

capilla 900 G 0,25  
 capilla 900 G 2,0

capilla 900 G 1,0

capilla 900 G 1,5

**Standard designations:**

DIN EN 14700: not classified  
 DIN 8555: not classified

# capilla<sup>®</sup> 900 G 1,0

**Product description:**

Flexible, bendable welding rod. Coating manufactured in composite, different sizes of fused tungsten carbide (FTC). The welding rod has a moderate matrix- and scratch-hardness. The rod is used for hardfacing on components that are exposed to extreme fine mineral wear.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 350°C into the core is required in the area of the plating. In the area of the plating, the temperature of the component surface should be approx. 650°C at the start of hardfacing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>900 G 1,0:</b>	60 - 68 % [fused tungsten carbide]	0,4 - 0,7 mm [grain size]*
	35 - 40 % [Ni-matrix]	-125 + 20 µm [grain size]

\* other grain sizes upon request

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	FTC TC-T <sup>2</sup> C (broken)	2200 - 2500 [HV 0,1] carbide
	Ni-matrix	40 - 44 [HRC]

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
4,0	500
5,0	500
6,0	500
8,0	500

**Available alternatives:**

capilla 900 G 0,25  
 capilla 900 G 2,0

capilla 900 G 0,5

capilla 900 G 1,5

**Standard designations:**

DIN EN 14700: not classified  
 DIN 8555: not classified

# capilla<sup>®</sup> 900 G 1,5

**Product description:**

Flexible, bendable welding rod. Coating manufactured in composite, different sizes of fused tungsten carbide (FTC). The welding rod has a moderate matrix- and scratch-hardness. The rod is used for hardfacing on components that are exposed to extreme fine mineral wear.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 350°C into the core is required in the area of the plating. In the area of the plating, the temperature of the component surface should be approx. 650°C at the start of hardfacing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>900 G 1,5:</b>	60 - 68 % [fused tungsten carbide]	0,7 - 1,2 mm [grain size]*
	35 - 40 % [Ni-matrix]	-125 + 20 µm [grain size]

\* other grain sizes upon request

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	FTC TC-T <sup>2</sup> C (broken)	2200 - 2500 [HV 0,1] carbide
	Ni-matrix	40 - 44 [HRC]

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
4,0	500
5,0	500
6,0	500
8,0	500

**Available alternatives:**

capilla 900 G 0,25  
 capilla 900 G 2,0

capilla 900 G 0,5

capilla 900 G 1,0

**Standard designations:**

DIN EN 14700: not classified  
 DIN 8555: not classified

**capilla® 900 GS 0,5**

**Product description:**

Flexible, bendable welding rod on coil. Coating manufactured in composite, different sizes of fused tungsten carbide (FTC). The welding rod has a moderate matrix- and scratch-hardness. The rod is used for hardfacing on components that are exposed to extreme fine mineral wear.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 350°C into the core is required in the area of the plating. In the area of the plating, the temperature of the component surface should be approx. 650 °C at the start of hardfacing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>900 GS 0,5:</b>	60-68 % [fused tungsten carbide]	0,20 - 0,40 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	FTC TC-T <sup>2</sup> C (broken)	2.200 - 2500 [HV 0,1] carbide
	Ni-matrix	40-44 [HRC]

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]
4,0
5,0
6,0
8,0

**Available alternatives:**

capilla 900 GS 0,25  
 capilla 900 GS 2,0

capilla 900 GS 1,0

capilla 900 GS 1,5

**Standard designations:**

DIN EN 14700: not classified  
 DIN 8555: not classified

# capilla® 900 GS 1,0

**Product description:**

Flexible, bendable welding rod on coil. Coating manufactured in composite, different sizes of fused tungsten carbide (FTC). The welding rod has a moderate matrix- and scratch-hardness. The rod is used for hardfacing on components that are exposed to extreme fine mineral wear.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 350°C into the core is required in the area of the plating. In the area of the plating, the temperature of the component surface should be approx. 650 °C at the start of hardfacing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>900 GS 1,0:</b>	64 % [fused tungsten carbide]	0,50 - 1,00 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	FTC TC-T <sup>2</sup> C (broken)	2200 - 2500 [HV 0,1] carbide
	NiCrBSi-matrix	420 - 500 [HV 0,1]

**Redrying:** not applicable

**Positions:****Dimensions:**

Ø [mm]
4,0
5,0
6,0

**Available alternatives:**

capilla 900 GS 0,25  
 capilla 900 GS 2,0

capilla 900 GS 0,5

capilla 900 GS 1,5

**Standard designations:**

DIN EN 14700: not classified  
 DIN 8555: not classified

# capilla® 900 GS 1,5

**Product description:**

Flexible, bendable welding rod on coil. Coating manufactured in composite, different sizes of fused tungsten carbide (FTC). The welding rod has a moderate matrix- and scratch-hardness. The rod is used for hardfacing on components that are exposed to extreme fine mineral wear.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 350°C into the core is required in the area of the plating. In the area of the plating, the temperature of the component surface should be approx. 650 °C at the start of hardfacing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>900 GS 1,5:</b>	64 % [fused tungsten carbide]	0,70 - 1,20 mm [grain size]
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**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	FTC TC-T <sup>2</sup> C (broken)	2200 - 2500 [HV 0,1] carbide
	NiCrBSi-matrix	420 - 500 [HV 0,1]

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]
4,0
5,0
6,0

**Available alternatives:**

capilla 900 GS 0,25  
 capilla 900 GS 2,0

capilla 900 GS 0,5

capilla 900 GS 1,0

**Standard designations:**

DIN EN 14700: not classified  
 DIN 8555: G 21-UM-65 G

**capilla® 900 GK 0,5**

**Product description:**

Flexible, bendable welding rod. Coating manufactured in composite, different sizes of spherical fused tungsten carbide (FTC). The welding rod has a very high matrix- and scratch-hardness. The rod is used for hardfacing on components that are exposed to extreme fine mineral wear. The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 350°C into the core is required in the area of the plating. In the area of the plating, the temperature of the component surface should be approx. 650°C at the start of hardfacing. The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills, bucket teeth, tooth tips, rotary valves.

**Indicative values:**

<b>900 GK 0,5:</b>	65% [fused tungsten carbide]	0,20 - 0,75 mm [grain size]
	35% [fused tungsten carbide]	-125 + 20 µm [grain size]

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	TC type primary (spherical)	2800 - 3100 [HV 0,1]
	Ni-alloy	42 - 45 [HRC]

**Redrying:** not applicable

**Positions:****Dimensions:**

Ø [mm]	Length [mm]
4,0	500
5,0	500
6,0	500
8,0	500

**Standard designations:**

DIN EN 14700: not classified  
 DIN 8555: not classified

# capilla® 901 G 0,5

**Product description:**

Flexible, bendable welding rod. Coating manufactured in composite, different sizes and shapes of spherical fused tungsten carbide (FTC). The welding rod has an average matrix- and scratch-hardness, as well as an extremely high carbide hardness due to the spherical carbide. Suitable for hardfacing on tools exposed to extremely finely abrasive and mineral wear. The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 350°C into the core is required. In the area of the plating, the temperature of the component surface should be approx. 650 °C at the start of hardfacing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>901 G 0,5:</b>	60 - 68 % [fused tungsten carbide]	0,2 - 0,4 mm [grain size]*
	35 - 40 % [Ni-alloy]	-125 + 20 µm [grain size]

\* other grain sizes upon request

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	FTC (spherical)	2800 - 3100 [HV 0,1]
	Ni-alloy	40 - 44 [HRC]

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
4,0	500
5,0	500
6,0	500
8,0	500

**Available alternatives:**

capilla 901 G 0,25  
 capilla 900 G 2,0

capilla 901 G 1,0

capilla 900 G 1,5

**Standard designations:**

DIN EN 14700: not classified  
 DIN 8555: not classified

# capilla® 901 GS 0,5

**Product description:**

Flexible, bendable welding rod on coil. Coating manufactured in composite, different sizes and shapes of spherical fused tungsten carbide (FTC). The welding rod has an average matrix- and scratch-hardness, as well as an extremely high carbide hardness due to the spherical carbide. Suitable for hardfacing on tools exposed to extremely finely abrasive and mineral wear.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 350°C into the core is required. In the area of the plating, the temperature of the component surface should be approx. 650°C at the start of hardfacing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>901 GS 0,5:</b>	60 - 68 % [fused tungsten carbide]	0,2 - 0,4 mm [grain size]*
	35 - 40 % [Ni-alloy]	-125 + 20 µm [grain size]

\* other grain sizes upon request

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	FTC (spherical)	2800 - 3100 [HV 0.1]
	Ni-alloy	40 - 44 [HRC]

**Redrying:** not applicable

**Positions:****Dimensions:**

Ø [mm]
4,0
5,0
6,0
8,0

**Available alternatives:**

capilla 901 GS 0,25  
 capilla 901 GS 2,0

capilla 901 GS 1,0

capilla 901 GS 1,5

**Standard designations:**

DIN EN 14700: not classifiable

**capilla<sup>®</sup> 902 G 0,5****Product description:**

Flexible, bendable welding rod. Coating manufactured in composite, different sizes and shapes of broken tungsten carbide (TC). The welding rod has moderate matrix- and scratch-hardness. Suitable for hardfacing on components exposed to extreme mineral wear in use. The surface of the workpiece should be free from scale, rust, oil and grease. Even pre-heating of 300°C - 350°C into the core is required.

In the area of the plating, the temperature of the component surface should be approx. 650°C at the start of hardfacing.

The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mixing paddles, mixing tools, bucket teeth, tooth tips, rotary valves, etc.

**Indicative values:**

<b>902 G 0,5:</b>	38 - 43 % [tungsten carbide]	0,2 - 0,4 mm [grain size]
	20 - 25 % [tungsten carbide]	-125 + 45 µm [grain size]
	37 - 40 % [Ni-base]	-125 + 20 µm [grain size]

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	TC type primary (broken)	2100 - 2500 [HV 0,1]
	TC type sec. (broken)	2100 - 2500 [HV 0,1]
	Ni-alloy	40 - 44 [HRC]

**Redrying:** not applicable**Positions:****Dimensions:**

Ø [mm]	Length [mm]
4,0	500
5,0	500
6,0	500
8,0	500

**Available alternatives:**

capilla 902 G 0,25  
capilla 902 G 2,0

capilla 902 G 1,0

capilla 902 G 1,5

**Standard designations:**

DIN EN 14700: not classifiable

**capilla® 902 GS 0,5****Product description:**

Flexible, bendable welding rod. Coating manufactured in composite, different sizes and shapes of broken tungsten carbide (TC). The welding rod has moderate matrix- and scratch-hardness. Suitable for hardfacing on components exposed to extreme mineral wear in use. The surface of the workpiece should be free from scale, rust, oil and grease. Even pre-heating of 300°C - 350°C into the core is required.

In the area of the plating, the temperature of the component surface should be approx. 650 °C at the start of hardfacing.

The gas flame should have a slightly acetylene excess flame during facing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mixing paddles, mixing tools, bucket teeth, tooth tips, rotary valves, etc.

**Indicative values:**

<b>902 GS 0,5:</b>	38 - 43 % [tungsten carbide]	0,15 - 0,25 mm [grain size]
	20 - 25 % [tungsten carbide]	-125 + 45 µm [grain size]
	37 - 40 % [Ni-base]	-125 + 20 µm [grain size]

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	TC type primary (broken)	2100 - 2500 [HV 0,1]
	TC type sec. (broken)	2100 - 2500 [HV 0,1]
	Ni-alloy	40 - 44 [HRC]

**Redrying:** not applicable**Positions:****Dimensions:**

Ø [mm]
4,0
5,0
6,0
8,0

**Available alternatives:**

capilla 902 GS 0,25  
capilla 902 GS 2,0

capilla 902 GS 1,0

capilla 902 GS 1,5

**Standard designations:**

DIN EN 14700: not classified  
 DIN 8555: not classified

**capilla® 903 G 0,5**

**Product description:**

Flexible, bendable welding rod. Coating manufactured in composite, different sizes and shapes of broken tungsten carbide (TC). The welding rod has a very high matrix- and scratch-hardness. The rod is used for hardfacing on components that are exposed to extreme fine mineral wear.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 350°C into the core is required in the area of the plating. In the area of the plating, the temperature of the component surface should be approx. 650°C at the start of hardfacing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>903 G 0,5:</b>	65 % [fused tungsten carbide]	0,3 - 0,6 mm [grain size]
	35 % [fused tungsten carbide]	-125 + 20 µm [grain size]

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	TC type primary (broken)	2100 - 2300 [HV 0,1]
	Ni-alloy	55 - 58 [HRC]

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
4,0	500
5,0	500

**Available alternatives:**

capilla 903 G 0,25  
 capilla 903 G 2,0

capilla 903 G 1,0

capilla 903 G 1,5

**Standard designations:**

DIN EN 14700: not classified  
 DIN 8555: not classified

**capilla® 903 G 1,0**

**Product description:**

Flexible, bendable welding rod. Coating manufactured in composite, different sizes and shapes of broken tungsten carbide (TC). The welding rod has a very high matrix- and scratch-hardness. The rod is used for hardfacing on components that are exposed to extreme fine mineral wear.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 350°C into the core is required in the area of the plating. In the area of the plating, the temperature of the component surface should be approx. 650 °C at the start of hardfacing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>903 G 1,0:</b>	65 % [fused tungsten carbide]	0,3 - 0,8 mm [grain size]
	35 % [fused tungsten carbide]	-125 + 20 µm [grain size]

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	TC type primary (broken)	2100 - 2300 [HV 0,1]
	Ni-alloy	55 - 58 [HRC]

**Redrying:** not applicable

**Positions:****Dimensions:**

Ø [mm]	Length [mm]
4,0	500
5,0	500

**Available alternatives:**

capilla 903 G 0,25  
 capilla 903 G 2,0

capilla 903 G 0,5

capilla 903 G 1,5

**Standard designations:**

DIN EN 14700: not classified  
 DIN 8555: not classified

# capilla® 903 G 1,5

**Product description:**

Flexible, bendable welding rod. Coating manufactured in composite, different sizes and shapes of broken tungsten carbide (TC). The welding rod has a very high matrix- and scratch-hardness. The rod is used for hardfacing on components that are exposed to extreme fine mineral wear.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 350°C into the core is required in the area of the plating. In the area of the plating, the temperature of the component surface should be approx. 650 °C at the start of hardfacing.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>903 G 1,5:</b>	65 % [fused tungsten carbide]	0,8 - 1,4 mm [grain size]
	35 % [fused tungsten carbide]	-125 + 20 µm [grain size]

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	TC type primary (broken)	2100 - 2300 [HV 0,1]
	Ni-alloy	55 - 58 [HRC]

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
4,0	500
5,0	500
6,0	500

**Available alternatives:**

capilla 903 G 0,25  
 capilla 903 G 2,0

capilla 903 G 0,5

capilla 903 G 1,0

**Standard designations:**

DIN EN 14700: not classifiable  
 DIN 8555: not classifiable

**capilla<sup>®</sup> 909 G**

**Product description:**

Flux-cored wire electrode for MIG/MAG welding, consisting of a self-flowing NiBSi-base-alloy and spherical fused tungsten carbides in the tubes.

The plating is extremely resistant to corrosive and abrasive wear and is also highly temperature-resistant.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. The applied layer is pore-free and stands out for its smooth, clean surface. Deposit welds have good edge stability and easily sculptable in the process.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:** [%] Tungsten carbides of different grain sizes in a Ni-matrix

C	Si	Cr	B	Ni
<0,50	<3,00	<3,00	<2,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	Ni-alloy	matrix	approx. 48 - 52 [HRC]	
	Tungsten carbide (spherical)	carbides	2100 - 2300 [HV 0,1]	48 [%]
	Tungsten carbide (broken)	carbides	2100 - 2300 [HV 0,1]	52 [%]

**Shielding gas (EN ISO 14175):** M12

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,6
2,4
2,8

**Standard designations:**

DIN EN 14700: T Ni 20 cgtz  
 DIN 8555: MSG 21-GF-55 CGTZ

**capilla® 910 G**

**Product description:**

Flux-cored wire electrode for MIG/MAG welding, consisting of a self-flowing NiBSi-base-alloy and spherical fused tungsten carbides in the tubes.

The plating is extremely resistant to corrosive and abrasive wear and is also highly temperature-resistant.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. The applied layer is pore-free and stands out for its smooth, clean surface. Deposit welds have good edge stability and easily sculptable in the process.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:** [%] Tungsten carbides of different grain sizes in a Ni matrix

C	Si	Cr	B	Ni
<0,50	<3,00	<3,00	<2,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	Ni-alloy	matrix	52 [HRC]	
	Tungsten carbide (spherical)	carbides	1800 - 2100 [HV 0,1]	48 [%]
	Tungsten carbide (broken)	carbides	1800 - 2100 [HV 0,1]	52 [%]

**Shielding gas (EN ISO 14175):** M12

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,6
2,4
2,8

**Standard designations:**

DIN EN 14700: not classified

**capilla® 911 G****Product description:**

Flux-cored wire electrode for MIG/MAG welding, consisting of a self-flowing NiBSi-base-alloy and spherical fused tungsten carbides in the tubes.

The plating is extremely resistant to corrosive and abrasive wear and is also highly temperature-resistant.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. The applied layer is pore-free and stands out for its smooth, clean surface. Deposit welds have good edge stability and easily sculptable in the process.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:** [%] Tungsten carbides of different grain sizes in a Ni-matrix

C	Si	B	Ni	O
0,5	1,2	2,1	Rest	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	Ni-alloy	matrix	50 - 55 [HRC]	~ 40 [%]
	Tungsten carbide (spherical)	carbides	2900 - 3100 [HV 0,1]	~ 10 [%]
	Tungsten carbide (broken)	carbides	2200 - 2400 [HV 0,1]	~ 50 [%]

**Shielding gas (EN ISO 14175):** M12

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,6
2,4
2,8

**Standard designations:**

DIN EN 14700: not classified  
 DIN 8555: not classified

**capilla® 1000 G 0,5**

**Product description:**

Flexible, bendable welding rod, manufactured in composite, different sizes of spherical fused tungsten carbide (FTC). The welding rod has a very high matrix- and scratch-hardness. The rod is used for hardfacing on components that are exposed to extreme fine mineral wear.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 350°C into the core is required in the area of the plating. In the area of the plating, the temperature of the component surface should be approx. 650 °C at the start of hardfacing.

The gas flame should have a slightly acetylene excess flame during facina.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>1000 G 0,5:</b>	65 % [fused tungsten carbide]	0,2 - 0,4 mm [grain size]*
	35 % [Ni-alloy]	-125 + 20 µm [grain size]

\* other grain sizes upon request

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	TC type primary (spherical)	2800 - 3100 [HV 0,1]
	Ni-alloy	40 - 44 [HRC]

**Redrying:** not applicable

**Positions:****Dimensions:**

Ø [mm]	Length [mm]
4,0	500
5,0	500
6,0	500
8,0	500

**Available alternatives:**

capilla 1000 G 0,25  
 capilla 1000 G 2,0

capilla 1000 G 1,0

capilla 1000 G 1,5

**Standard designations:**

DIN EN 14700: not classified  
 DIN 8555: not classified

# capilla® 1000 G 1,0

**Product description:**

Flexible, bendable welding rod, manufactured in composite, different sizes of spherical fused tungsten carbide (FTC). The welding rod has a very high matrix- and scratch-hardness. The rod is used for hardfacing on components that are exposed to extreme fine mineral wear.

The workpiece surface should be free from scale, rust, oil, and grease, as well as free from all loose residues and contaminants. Even basal and pre-heating 300°C - 350°C into the core is required in the area of the plating. In the area of the plating, the temperature of the component surface should be approx. 650°C at the start of hardfacing.

The gas flame should have a slightly acetylene excess flame during facina.

**Applications:****Suitable for deposition welds on:**

Tools and attachments used in the earth, stone, quarrying, surface mining, underground mining, and tunnel construction, foundries, forging, steel, iron, metallurgical, glass, brick and refractory industry.

**Typical components:**

Extrusion presses, separators, decanters, worm segments, screw tools, augurs, cleats, cutting edges, cutting heads, blades, scrapers, mandrels, ploughshare mixers, plating bits, drill bits, deep hole boring tools, round shaft boring tools, coal ploughs, shearer loaders, mould cores, pan mill scrapers, mixing paddles, mixing tools, mouth pieces, form drills and bucket teeth.

**Indicative values:**

<b>1000 G 1,0:</b>	65 % [fused tungsten carbide]	0,4 - 0,7 mm [grain size]*
	35 % [Ni-alloy]	-125 + 20 µm [grain size]

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	TC type primary (spherical)	2800 - 3100 [HV 0,1]
	Ni-alloy	40 - 44 [HRC]

**Redrying:** not applicable

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
4,0	500
5,0	500
6,0	500
8,0	500

**Available alternatives:**

capilla 1000 G 0,25  
 capilla 1000 G 2,0

capilla 1000 G 0,5

capilla 1000 G 1,5

**Standard designations:**

EN 14170: T Fe 20-65-gt  
 DIN 8555: MSG 21-GF-65 GZ

**capilla® HR MAG**

**Product description:**

Iron flux-cored wire with tungsten carbide filling for weld metals against extreme wear on tools used for working in the soil.

The structure is made of complex FeW-carbides and fused tungsten carbides.

**The lowest possible energy level should be used for welding.**

**Applications:****Suitable for cladding on:**

Carbon planes, stone cutting equipment, drill bits, deep hole boring tools, screw tools, screw presses, cleats, cutting edges, breaker teeth, bulldozer blades.

**Indicative analysis [%]:**

C	Si	Mn	Fe	WC
0,05	0,10	0,30	Balance	54,00

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness:	Ni -alloy	matrix	55 [HRC]	
	FTC (spherical)	carbide	2900 - 3200 [HV 0,1]	40 [%]
	FTC (broken)	carbide	2300 [HV 0,1]	60 [%]

Shielding gas (EN ISO 14175): M12

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
1,6
2,4
2,8

## 6 Welding consumables for welding of cast iron, bronzes and aluminium alloys, as well as for specialised applications

### 6.1 Coated stick electrodes for welding of cast iron, bronzes and aluminium alloys, as well as for specialised applications

capilla	EN ISO	AWS A	Mat. no.	Page
50 B				368
50 N				369
50 K				370
50 S				371
Capitherm				372
41	1071: EZ C FeC-GP2 1	5.15: E St		373
43	1071: E C Ni-Cl 1	5.15: E Ni-Cl		374
44	1071: E C NiCu 1	5.15: E NiCu - B		375
45	1071: E C NiFe 1 1	5.15: E NiFe - Cl		376
45 Cu	1071: E C NiFe 1 1	5.15: E NiFe - Cl		377
FeNi 55	1071: E C NiFe-1 6	5.15: E NiFe - Cl		378
45-2	1071: E C NiFe 1 1	5.15: E NiFe - Cl		379
45-2 Minus	1071: E C NiFe 1 1	5.15: E NiFe - Cl		380
47 N	24373: E Z Cu 6338 (CuMn13Al8Fe3Ni2)		2.1368	381
48	24373: ~E Cu 5210 (CuSn8P)		2.1025	382
NiCu30Mn	14172: E Ni 4060 (NiCu30Mn3Ti)	5.11: ER NiCu - 7	2.4366	383
NiTi 3	14172: E Ni 2061 (NiTi3)	5.11: E Ni - 1	2.4156	384
60/5	18273: ~E Al 4043 (AlSi 5)	5.3: E 4043	3.2245	385
60/12	18273: ~E Al 4047 (AlSi 12)	E 4047	3.2585	386
60 Mn	18273: E AlMn 1 Cu (Al3003)	5.3: E 3003	3.0515	387

### 6.2 Wire electrodes for welding of cast iron, bronzes and aluminium alloys as well as for specialised applications

#### 6.2.1 Solid wires for MIG/MAG welding of cast iron, bronzes and aluminium alloys as well as for specialised applications

capilla	EN ISO	AWS A	Mat. no.	Page
45 MIG	1071: S C NiFe-1 M	5.15: ER NiFe-Cl		388
NiTi 4 MIG	18274: S Ni 2061 (NiTi3)	5.14: ER Ni - 1	2.4155	389
NiCu 30 MnTi MIG	18274: S Ni 4060 (NiCu30Mn3Ti)	5.14: ER NiCu 7	2.4377	390
47 MIG	24373: S Cu 6100 (CuAl7)	5.7: ER CuAl - A1	2.0921	391
47 N MIG	24373: S Cu 6338 (CuMn13Al8Fe3Ni2)	5.7: ER CuMnNiAl	2.1367	392
47 Ni MIG	24373: S Cu 6327 (CuAl8Ni2Fe2Mn2)	5.7: ER CuNiAl	2.0922	393
47 Ni 6 MIG	24373: S Cu 6328 (CuAl9Ni5Fe3Mn2)	5.7: ER CuNiAl	2.0923	394
48 MIG	24373: S Cu 5180 (CuSn5P)	5.7: ER CuSn-A	2.1022	395
CuSn MIG	24373: S Cu 1898 (CuSn 1)	5.7: ER Cu	2.1006	396
CuNi 30 Fe MIG	24373: S Cu 7158 (CuNi30Mn1FeTi)	5.7: ER CuNi	2.0837	397
CuSi 3 MIG	24373: S Cu 6560 (CuSi3Mn1)	5.7: ER CuSi - A	2.1461	398
AlSi 5 MIG	18273: S Al 4043 (AlSi 5(A))	5.10: ER 4043 A	3.2245	399
AlSi 12 MIG	18273: S Al 4047 A (AlSi12(A))	5.10: ER 4047 A	3.2585	400

### 6.2.1 Solid wires for MIG/MAG welding cast iron, bronzes and aluminium alloys as well as for specialised applications

capilla	EN ISO	AWS A	Mat. no.	Page
<b>AlMg 3 MIG</b>	18273: S Al 5754 (AlMg3)	5.10: ER 5754	3.3536	<b>401</b>
<b>AlMg 5 MIG</b>	18273: S Al 5356 (AlMg5Cr(A))	5.10: ER 5356	3.3556	<b>402</b>
<b>AlMg 4,5 Mn MIG</b>	18273: S Al 5183 (AlMg 4,5 Mn0,7(A))	5.10: ER 5183 A	3.3548	<b>403</b>
<b>Al 99,5 Ti MIG</b>	18273: S Al 1450 (Al99.5Ti)	5.10: ER 1450	3.0805	<b>404</b>

### 6.2.2 Welding rods for TIG welding of cast iron, bronzes and aluminium alloys as well as for specialised applications

capilla	EN ISO	AWS A	Mat. no.	Page
<b>45 WIG</b>	1071: W C NiFe-1 I	5.14: ER NiFe-CI		<b>405</b>
<b>NiTi 4 WIG</b>	18274: S Ni 2061 (NiTi3)	5.14: ER Ni - 1	2.4155	<b>406</b>
<b>NiCu 30 MnTi WIG</b>	18274: S Ni 4060 (NiCu30Mn3Ti)	5.14: ER NiCu 7	2.4377	<b>407</b>
<b>47 WIG</b>	24373: S Cu 6100 (CuAl7)	5.7: ER CuAl - A1	2.0921	<b>408</b>
<b>47 N WIG</b>	24373: S Cu 6338 (CuMn13Al8Fe3Ni2)	5.7:ER CuMnNiAl	2.1367	<b>409</b>
<b>47 Ni WIG</b>	24373: S Cu 6327 (CuAl8Ni2Fe2Mn2)	5.7: ER CuNiAl	2.0922	<b>410</b>
<b>47 Ni 6 WIG</b>	24373: S Cu 6328 (CuAl9Ni5Fe3Mn2)	5.7: ER CuNiAl	2.0923	<b>411</b>
<b>48 WIG</b>	24373: S Cu 5180 (CuSn5P)	5.7: ER CuSn-A	2.1022	<b>412</b>
<b>CuSn WIG</b>	24373: S Cu 1898 (CuSn 1)	5.7: ER Cu	2.1006	<b>413</b>
<b>CuNi 30 Fe WIG</b>	24373: S Cu 7158 (CuNi30Mn1FeTi)	5.7: ER CuNi	2.0837	<b>414</b>
<b>CuSi 3 WIG</b>	24373: S Cu 6560 (CuSi3Mn1)	5.7: ER CuSi - A	2.1461	<b>415</b>
<b>AlSi 5 WIG</b>	18273: S Al 4043 (AlSi 5(A))	5.10: ER 4043 A	3.2245	<b>416</b>
<b>AlSi 12 WIG</b>	18273: S Al 4047 A (AlSi12(A))	5.10: ER 4047 A	3.2585	<b>417</b>
<b>AlMg 3 WIG</b>	18273: S Al 5754 (AlMg3)	5.10: ER 5754	3.3536	<b>418</b>
<b>AlMg 5 WIG</b>	18273: S Al 5356 (AlMg5Cr(A))	5.10: ER 5356	3.3556	<b>419</b>
<b>AlMg 4,5 Mn WIG</b>	18273: S Al 5183 (AlMg 4,5 Mn0,7(A))	5.10: ER 5183 A	3.3548	<b>420</b>
<b>Al 99,5 Ti WIG</b>	18273: S Al 1450 (Al99,5Ti)	5.10: ER 1450	3.0805	<b>421</b>

### 6.2.3 Flux-cored wires for MIG/MAG welding of cast iron, bronzes and aluminium alloys as well as for specialised applications

capilla	EN ISO	AWS A	Mat. no.	Page
<b>G 45 MM</b>	1071: T C NiFeT3-CI M21			<b>422</b>

**Standard designations:**

Not standardised.

**capilla<sup>®</sup> 50 B****Product description:**

Notching electrode with a specialised coating for processing many different metals.

Specially developed for notching or burning in tool construction.

**Applications:****Suitable for base materials such as:**

Unalloyed and high alloy steels, stainless and heat-resistant steels, grey cast iron and cast steel, light alloys and non-ferrous metals, etc.

The electrode allows for precise work in die making to remove fatigued or cracked layers of hard material.

A dye penetration may be used to ensure that the base material is absolutely crack-free after notching.

**Indicative analysis [%]:**

No weld metal.

**Properties:**

not applicable

**Redrying:**

not applicable

**Current type:**

=(-) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	100 - 150
3,2	450	150 - 200
4,0	450	220 - 300
5,0	450	300 - 400
6,0	450	350 - 450

**Standard designations:**

Not standardised.

**capilla<sup>®</sup> 50 N****Product description:**

Notching electrode with a specialised coating for processing many different metals.

**Applications:****For gouging of:**

Unalloyed, alloyed and high alloyed steels, stainless and heat-resistant steels, grey cast iron and cast steel, light metal and non-ferrous metal, etc.

To remove cast skin or corroded metal layer and oily cast parts.

In many difficult cases, this is the only option for successful welding.

**Indicative analysis [%]:**

No weld metal.

**Properties:**

not applicable

**Redrying:**

not applicable

**Current type:**

=(-) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	100 - 150
3,2	350	150 - 200
4,0	350/450	220 - 300
5,0	450	300 - 400

**Standard designations:**

Not standardised.

**capilla<sup>®</sup> 50 K****Product description:**

Carbon electrode for processing many different metals.

For notching and flame cutting in all positions, where the use of a conventional cutting torch is not possible.

**Applications:****For gouging of:**

Unalloyed, alloyed and high alloyed steels, heat-resistant steels, cast steel, light metal and non-ferrous metal, etc.

To remove cast skin or corroded metal layer and oily cast parts.

In many difficult cases, this is the only option for successful welding.

**Indicative analysis [%]:**

No weld metal.

**Properties:**

not applicable

**Redrying:**

not applicable

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
4,0	305	220 - 300
6,5	305	400 - 600
8,0	305	500 - 700
9,5	305	600 - 800

**Standard designations:**

Not standardised.

**capilla<sup>®</sup> 50 S****Product description:**

Cutting electrode with a specialised coating for processing many different metals.

**Applications:****For gouging and cutting:**

Unalloyed, alloyed and high alloyed steels, stainless and heat-resistant steels, grey cast iron and cast steel, light metal and non-ferrous metal, etc.

**Indicative analysis [%]:**

No weld metal.

**Properties:**

not applicable

**Redrying:**

not applicable

**Current type:**

=(-) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	100 - 150
3,2	350	150 - 200
4,0	350/450	220 - 300
5,0	450	300 - 400

**Standard designations:**

Not standardised.

**capilla® capitherm****Product description:**

**Special electrode** for heat pre- and post-treatment and cleaning of small and medium-sized metal workpieces.

The electrode does not produce melting off weld metal. Thanks to its smart design, the electrode can be used in all positions.

In addition to its universal versatility, the electrode is characterized by an extremely powerful/forceful arc with a flexible and stable arc length of approx. 30-70 mm from the workpiece surface.

**Applications:****Suitable for heat treatment of:**

Three-dimensional assemblies and parts that require partial repair or welding in the workshop or on site.

A particular focus here is on the heat pre- and post-treatment of repair welds such as cracks, spalling, and breakouts, or weld seam preparation in multi-layer welding.

Another application is the cleaning of contaminated or scaled surfaces using arc energy.

**Typical components:**

Thick-walled structures.

**Indicative analysis [%]:**

No weld metal.

**Properties:**

not applicable

**Redrying:**

not applicable

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	70 - 120
3,2	450	100 - 150
4,0	450	130 - 180

**Standard designations:**

EN ISO 1071: EZ C FeC-GP2 1  
 DIN 8573: E FeC-G  
 AWS A 5.15: E St

**capilla® 41****Product description:**

Specially coated specialised electrode for repair and maintenance of cast iron.

The weld metal is a high C-content, Ni-alloyed Fe-base-alloy, and is not corrosion-resistant.

The structure of the weld metal is primarily perlitic with embedded spherical graphite, with suitable heat control and composition of the base material.

The base material must be pre-heated to a high temperature for welding ( $T_V = 600 - 650^\circ\text{C}$ ).

**Applications:**

Particularly well-suited for hot welding of spheroidal grey cast iron (GJS), as well as for welding lamellar grey cast iron (GJL) and malleable cast iron (GTS).

Suitable for difficult to weld cast iron surfaces to which Ni-based electrodes do not connect.

Cold welding can be processed only via grinding.

**Indicative analysis [%]:**

C	Si	Mn	Ni	Ti	Fe
2,50	1,20	1,20	1,70	0,45	Balance

**Properties:**

The mechanical properties are dependent on the composition of the basic material and heating control during welding. Therefore, it is not possible to provide general information on these properties.

**Redrying:**

150 - 180°C / 2h

**Current type:**

=(-) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 80
3,2	350	80 - 120
4,0	450	110 - 140
5,0	450	140 - 180

**Standard designations:**

EN ISO 1071: E C Ni-CI 1  
 DIN 8573: E Ni-BG 22  
 AWS A 5.15: E Ni-CI

**capilla® 43****Product description:**

Basic-graphite coated stick electrode, particularly well suited for cold welding on cast iron.

The soft arc and easy to control weld metal allow for an almost spatter-free seam appearance. Graphite precipitation of the carbon occurs in the weld metal.

The lowest possible heat application should be used when cold welding cast iron. Please contact capilla's technology team if you have questions or need application advice.

**Applications:****Suitable for base materials such as:**

EN 1561: EN-GJL-100 (GG 10) to  
 EN-GJL-350 (GG 35).

EN 1562: EN-GJMB-350 (GTS 35) to  
 EN-GJMB-550 (GTS 55).

EN-GJMW-350 (GTW 35) to  
 EN-GJMW-550 (GTW 55).

**Suitable for cold welding of:**

Grey and malleable cast iron in repair and maintenance.

**Indicative analysis [%]:**

C	Si	Mn	Cu	Fe	Ni
1,50	1,15	1,10	1,50	3,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 160 [HB]

**Redrying:**

150 - 180°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	90 - 120
4,0	350	110 - 150
5,0	450	130 - 180

**Standard designations:**

DIN EN ISO 1071: E C NiCu 1  
 DIN 8573: E NiCu-BG 22  
 AWS A 5.15: E NiCu - B

**capilla® 44****Product description:**

Specially coated, basic-graphite specialised electrode with an NiCu-core wire.

The weld metal is made of an NiCu-solid solution, is easy to sculpt and process, and an almost identical colour to the base material.

The seams are pore-free and have no undercuts.

When welding cast iron, apply as little heat as possible, and choose a low amperage level.

**Applications:**

Suitable for repair and maintenance of grey cast iron, steel and malleable cast iron.

Especially well suited for repairing casting and processing errors in new casting.

**Indicative analysis [%]:**

C	Si	Mn	Cu	Fe	Ni
0,50	0,60	1,80	30,00	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	400 [MPa]	Elongation (L=5d):	15 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	300 [MPa]	Hardness:	165 [HB]

**Redrying:**

120°C +/- 10°C / 1h  
 (as needed)

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 80
3,2	350	70 - 100
4,0	350	95 - 130

**Standard designations:**

EN ISO 1071: E C NiFe 1 1  
 DIN 8573: E NiFe-1-BG 23  
 AWS A 5.15: E NiFe - Cl

**capilla® 45****Product description:**

Specially coated specialised electrode with an NiFe-core wire for the repair and maintenance of cast iron.

The welding properties are outstanding.

The seams are pore-free.

The weld metal is easy to process.

Graphite precipitation of the carbon occurs in the weld metal.

**Applications:****Suitable for base materials such as:**

EN 1561: EN-GJL-100 (GG 10) to EN-GJL-350 (GG 35).  
 EN 1562: EN-GJMB-350 (GTS 35) to EN-GJMB-550 (GTS 55), EN-GJMW-350 (GTW 35) to EN-GJMW-550 (GTW 55).  
 EN1563: EN-GJS-400 (GGG 40) to EN-GJS-700 (GGG 70).

**Suitable for cold welding of:**

Grey and malleable cast iron, spheroidal graphite iron (in repair and maintenance).

**Indicative analysis [%]:**

C	Fe	Ni
1,20	45,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 200 [HB]

**Redrying:**

150 - 180°C / 2h

**Current type:**

=(+) / ~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	90 - 120
4,0	350	110 - 150

**Available alternatives:**

**capilla** 45-2  
**capilla** 45-2 Minus

**capilla** 45 MIG  
**capilla** 45 WIG

**capilla** G 45 MM

**Standard designations:**

DIN EN ISO 1071: E C NiFe 1 1  
 DIN 8573: E NiFe-1BG 23  
 AWS A 5.15: E NiFe - C1

**capilla® 45 Cu**

**Product description:**

Specially coated specialised electrode with a copper-plated NiFe-core wire for the repair and maintenance of cast iron.

The welding properties are outstanding.

The seams are pore-free.

The weld metal is easy to process.

Graphite precipitation of the carbon occurs in the weld metal.

**Applications:****Suitable for base materials such as:**

EN 1561: EN-GJL-100 (GG10) to EN-GJL-350 (GG35).  
 EN 1562: EN-GJMB-350 (GTS 35) to EN-GJMB-550 (GTS 55), EN-GJMW-350 (GTW 35) to EN-GJMW-550 (GTW 55).  
 EN1563: EN-GJS-400 (GGG 40) to EN-GJS-700 (GGG 70).

**Suitable for cold welding of:**

Grey and malleable cast iron, spheroidal graphite iron (in repair and maintenance).

**Indicative analysis [%]:**

C	Fe	Ni
1,20	45,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 200 [HB]

**Redrying:**

150 - 180°C / 2h

**Current type:**

=(+)~

**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	90 - 120
4,0	350	110 - 150

**Available alternatives:**

capilla 45 WIG  
 capilla 45 MIG

capilla 45-2

capilla G 45 MM

**Standard designations:**

EN ISO 1071: E C NiFe-1 6  
 DIN 8573: E NiFe-1-BG 23  
 AWS A 5.15: E NiFe - Cl

**capilla® FeNi 55**

Recovery: 150%

**Product description:**

Specialised sheath-alloyed high performance speciality electrode for cold welding of grey, tempered, and spheroidal graphite iron in repair and maintenance.

The welding properties are outstanding.

The seams are pore-free.

The weld metal is easy to process.

Graphite precipitation of the carbon occurs in the weld metal.

**Applications:****Suitable for base materials such as:**

EN 1561: EN-GJL-100 (GG 10) to EN-GJL-350 (GG 35).  
 EN 1562: EN-GJMB-350 (GTS 35) to EN-GJMB-550 (GTS 55).  
 EN- GJMW-350 (GTW 35) to EN- GJMW-550 (GTW 55).  
 EN1563: EN-GJS-400 (GGG 40) to EN-GJS-700 (GGG 70).

**Indicative analysis [%]:**

C	Fe	Ni
1,70	45,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 200 [HB]

**Redrying:**

150 - 180°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 90
3,2	350	90 - 120
4,0	350	110 - 150

**Available alternatives:**

capilla 45 MIG

capilla 45 WIG

capilla G 45 MM

**Standard designations:**

EN ISO 1071: E C NiFe 1 1  
 DIN 8573: E NiFe-1-BG 23  
 AWS A 5.15: E NiFe - Cl

**capilla® 45-2****Product description:**

Specially coated specialised electrode with a bimetal core wire for repair and maintenance of cast iron, with the option of working with higher amperages as well.

The welding properties are outstanding.

The seams are pore-free.

Graphite precipitation of the carbon occurs in the weld metal.

**Applications:****Suitable for base materials such as:**

EN 1561: EN-GJL-100 (GG10) to EN-GJL-350 (GG35).  
 EN 1562: EN-GJMB-350 (GTS 35) to EN-GJMB-550 (GTS 55), EN-GJMW-350 (GTW 35) to EN-GJMW-550 (GTW 55).  
 EN 1563: EN-GJS-400 (GGG 40) to EN-GJS-700 (GGG 70).

**Suitable for cold welding of:**

Grey and malleable cast iron, spheroidal graphite iron (in repair and maintenance).

**Indicative analysis [%]:**

C	Fe	Ni
1,20	45,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 200 [HB]

**Redrying:**

150 - 180°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	90 - 120
4,0	350	110 - 150

**Available alternatives:**

**capilla 45**  
**capilla 45-2 Minus**

**capilla 45 MIG**  
**capilla 45 WIG**

**capilla G 45 MM**

**Standard designations:**

EN ISO 1071: E C NiFe 1 1  
 DIN 8573: E NiFe-1-BG 23  
 AWS A 5.15: E NiFe - C1

**capilla® 45-2 Minus**

**Product description:**

Specially coated specialised electrode with a bimetal core wire for repair and maintenance of cast iron with the option of working with higher amperages as well.

The welding properties are outstanding.

The seams are pore-free.

Graphite precipitation of the carbon occurs in the weld metal.

**Applications:****Suitable for base materials such as:**

EN 1561: EN-GJL-100 (GG10) to EN-GJL-350 (GG35).  
 EN 1562: EN-GJMB-350 (GTS 35) to EN-GJMB-550 (GTS 55), EN-GJMW-350 (GTW 35) to EN-GJMW-550 (GTW 55).  
 EN 1563: EN-GJS-400 (GGG 40) to EN-GJS-700 (GGG 70).

**Suitable for cold welding of:**

Grey and malleable cast iron, spheroidal graphite iron (in repair and maintenance).

**Indicative analysis [%]:**

C	Fe	Ni
1,20	45,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 200 [HB]

**Redrying:**

150 - 180°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 - 90
3,2	350	90 - 120
4,0	350	110 - 150

**Available alternatives:**

capilla 45  
capilla 45-2

capilla 45 MIG  
capilla 45 WIG

capilla G 45 MM

**Standard designations:**

EN ISO 24373: E Z Cu 6338  
(CuMn13Al8Fe3Ni2)  
EN 14700: E Cu-2-cn  
Material no.: 2.1368

**capilla® 47 N****Product description:**

Coated Co-stick electrode for deposition welding and welded joints of Al-bronzes and other materials.

The weld metal is resistant to seawater and erosion.

**Applications:****Suitable for welding:**

Al-bronzes containing manganese and nickel, resistant to high corrosion levels.

**Suitable for deposition welding on:**

low alloy steels, grey cast iron and cast steel.

Suitable for mixed connections of Cu-alloys with steels.

**Indicative analysis [%]:**

Mn	Ni	Fe	Al	Cu
13,00	2,50	2,50	7,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	640 [MPa]	Elongation (L=5d):	10 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	420 [MPa]	Hardness:	160 [HB]

**Redrying:**

300°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	50 - 80
3,2	350	60 - 100
4,0	350	80 - 130

**Available alternatives:**

capilla 47 N MIG

capilla 47 N WIG

**Standard designations:**

EN ISO 24373: ~E Cu 5210 (CuSn8P)  
 DIN 8555: E 30-UM-100 CNR  
 Material no.: 2.1025

**capilla® 48****Product description:**

Coated tin-bronze stick electrode for deposition welding and joint welds of Cu-alloys with an increased percentage of tin.

**Applications:**

**Suitable for deposition welding and joint welds of:**

Cu-Sn-alloys (bronzes),  
 Cu-Zn-alloys (brass),  
 CuSnZnPb-alloys  
 (speciality brass).

**Suitable for deposition welding on:**

grey cast iron as well as cast steel.

**Indicative analysis [%]:**

Sn	Cu
7,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	280 [MPa]	Hardness:	120 [HB]
Yield strength $R_{eH}/R_{p0.2}$ :	120 [MPa]		

**Redrying:**

200°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	50 - 80
3,2	350	60 - 100
4,0	350	80 - 130
5,0	450	110 - 160

**Available alternatives:**

capilla 48 MIG

capilla 48 WIG

**Standard designations:**

EN ISO 14172: E Ni 4060 (NiCu30Mn3Ti)  
 AWS A 5.11: ER NiCu - 7  
 Material no.: 2.4366

**capilla<sup>®</sup> NiCu 30 Mn**

**Product description:**

Stick electrode for deposition welding and welded joints of NiCu-alloys, as well as joints between materials of different types.

Joints between steel and copper or steel and NiCu-alloys are also possible!

For operating temperatures up to 425°C.

Cryogenic up to -196°C.

**Applications:**

**Suitable for base materials such as:**

2.4360 (Alloy 400),  
 2.4375 (Alloy K 500).

**Suitable for welding:**

in high quality equipment construction, in the chemical and petrochemical industries, in desalination systems, in shipbuilding.

**Indicative analysis [%]:**

C	Si	Mn	Cu	Al	Ti	Fe	Ni
<0,05	0,70	3,00	29,00	0,50	0,60	1,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	>450 [MPa]	Elongation (L=5d):	>30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	>300 [MPa]	Notch impact energy (ISO-V):	>80 [J]

**Redrying:**

200°C / 2-3h

**Current type:**

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**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	60 - 80
3,2	350	80 - 110
4,0	350	90 - 125
5,0	450	135 - 175

**Standard designations:**

EN ISO 14172: E Ni 2061 (NiTi3)  
 DIN 1736: EI NiTi 3  
 AWS A 5.11: E Ni - 1  
 Material no.: 2.4156

**capilla® NiTi 3**

**Product description:**

Stick electrode with specialised base-coating for welding pure nickel and low alloy nickel (Ni-semifinished product/cast-Ni), as well as for joints between materials of different types, with low and medium alloyed steels.

Suitable for cladding and buffer layers against carbon diffusion, as well as for mixed joints between Cu-alloys and steels.

**Applications:**

**Suitable for base materials such as:**

2.4066 (Ni 99,2),  
 2.4068 (LC-Ni 99),  
 2.4061 (LC-Ni 99,6),  
 2.4060 (Ni 99,6),  
 2.4062 (Ni 99,4 Fe),  
 2.4106 (NiMn 1),  
 2.4110 (NiMn 2),  
 2.4122 (NiMn 3 Al),  
 2.4116 (NiMn 5).

Suitable for joint welds of these materials with Cu-alloys, as well as steel and cast steel.

**Indicative analysis [%]:**

C	Si	Mn	Fe	Ti	Al	Ni
<0,02	0,80	0,25	0,10	2,00	0,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	500 [MPa]	Elongation (L=5d):	28 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	160 [J]

**Redrying:**

320°C / 2h

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	50 - 90
3,2	350	80 - 110
4,0	350	100 - 150

**Standard designations:**

EN ISO 18273: ~E Al 4043 (AlSi 5)  
 DIN 1732: EI AlSi 5  
 AWS A 5.3: E 4043  
 Material no.: 3.2245

**capilla® 60/5****Product description:**

Specially coated stick electrode for deposition welding and welded joints.

The strength requirements of the base material must be taken into consideration for hardenable Al- alloys such as AlCuMg1, AlMgSi1 and AlZn4,5Mg1.

**Applications:**

**Suitable for base materials such as:**

AlSi-alloys up to 7%Si, between different types of Al-alloys.

**Indicative analysis [%]:**

Si	Mn	Fe	Ti	Zn	Al
5,00	0,20	<0,40	0,20	<0,10	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	230 [MPa]	Elongation (L=5d):	18 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	150 [MPa]		

**Redrying:**

120°C / 2h  
(always store dry)

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	40 - 70
3,2	350	60 - 90
4,0	350	80 - 120

**Available alternatives:**

**capilla** AISI 5 MIG

**capilla** AISI 5 WIG

**Standard designations:**

EN ISO 18273: ~E Al 4047 (AISI 12)  
 DIN 1732: EI AISi 12  
 AWS: E 4047  
 Material no.: 3.2585

**capilla® 60/12****Product description:**

Specially coated stick electrode, specifically for welding Al-cast alloys.

**Applications:**

Suitable for deposition welding and welded joints of AISI-alloys with up to 12%Si as well as with and without Cu- and/or Mg- additives.

**Indicative analysis [%]:**

Si	Mn	Fe	Al
12,00	<0,50	0,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	250 [MPa]	Elongation (L=5d):	14 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	150 [MPa]		

**Redrying:**

120°C / 2h  
(always store dry)

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	40 - 70
3,2	350	60 - 90
4,0	350	80 - 120

**Available alternatives:**

capilla AISi 12 MIG

capilla AISi 12 WIG

**Standard designations:**

EN ISO 18273: E AlMn 1 Cu (Al3003)  
 DIN 1732: EI AlMn 1  
 AWS A 5.3: E 3003  
 Material no.: 3.0515

**capilla® 60 Mn**

**Product description:**

Al-alloyed stick electrode with Mn, Cu, Si and Mg for joint welds of Al-alloys.

Very good welding properties with good weld penetration and pore-free weld metal.

Extremely good self-removing slag that falls off on its own.

Increased strength and outstanding ductility thanks to its Mn-content.

Outstanding corrosion-resistance.

**Applications:**

**Suitable for welding different types of aluminium, such as:**

seawater resistant aluminium, AlMn, AlMg-alloys with max. 3 % Magnesium, AlMn0,6, AlMn1, AlMg1Mg0,5, AlMn1Mg1, AlMg3.

Suitable for storage tanks, truck and trailer components, chemical tanks, food handling equipment.

Suitable for deposition and repair welds, for instance on broken components and/or other cast parts.

**Indicative analysis [%]:**

Mn	Mg	Al
1,20	0,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	152 [MPa]	Elongation (L=5d):	8 [%]
Yield strength $R_{eH}/R_{p0,2}$ :	145 [MPa]	Hardness:	40 [HB]

**Redrying:**

120°C / 2h  
(always store dry)

**Current type:**

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**Positions:****Dimensions:**

Ø [mm]	Length [mm]	Welding current [A]
2,5	350	50 - 60
3,2	350	70 - 120
4,0	350	110 - 150

**Standard designations:**

EN ISO 1071: S C NiFe-1 M  
 AWS A 5.15: ER NiFe - CI

**capilla® 45 MIG**

**Product description:**

NiFe-welding wire for MIG welding of different types of cast iron with spheroidal graphite.

The welding properties are outstanding.

The seams are pore-free.

The weld metal is easy to process.

Suitable for cavity welding as well as deposition welding and welded joints between cast iron and mixed joints of steel and cast iron.

**Applications:****Suitable for base materials such as:**

EN 1561: EN-GJL-100 (GG10) to  
 EN-GJL-350 (GG35).  
 EN 1562: EN-GJMB-350 (GTS 35) to  
 EN-GJMB-550 (GTS 55),  
 EN-GJMW-350 (GTW 35) to  
 EN-GJMW-550 (GTW 55).  
 EN1563: EN-GJS-400 (GGG 40) to  
 EN-GJS-700 (GGG 70).

**Suitable for cold welding of:**

Grey and malleable cast iron, spheroidal graphite iron (including in repair and maintenance).

**Indicative analysis [%]:**

C	Si	Mn	Ni	Cu	Fe
0,03	0,10	0,70	55,00	0,40	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 200 [HB]

Shielding gas (EN ISO 14175): M11, M12

Current type:

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Positions:



Dimensions:

Ø [mm]
1,0
1,2

Available alternatives:

capilla 45-2  
 capilla 45

capilla 45 WIG

capilla G 45 MM

**Standard designations:**

EN ISO 18274: S Ni 2061 (NiTi3)  
 DIN 1736: SG NiTi 4  
 AWS A 5.14: ER Ni - 1  
 Material no.: 2.4155

**capilla® NiTi 4 MIG**

**Product description:**

Solid wire for MIG/MAG joint welding of pure nickel, nickel with unalloyed and low alloy steels, and low alloy steels with Cu-alloys (Ni-semi-finished product/cast-Ni).

Suitable for cladding.

Suitable for joints with steel/cast steel, copper, cladding and buffer layers.

Suitable for mixed connections between copper alloys and steels.

**Applications:**

**Suitable for base materials such as:**

2.4066 (Ni 99,2),  
 2.4068 (LC-Ni 99),  
 2.4061 (LC-Ni 99,6),  
 2.4060 (Ni 99,6),  
 2.4062 (Ni 99,4 Fe),  
 2.4106 (NiMn 1),  
 2.4110 (NiMn 2),  
 2.4122 (NiMn 3 Al),  
 2.4116 (NiMn 5).

**Indicative analysis [%]:**

C	Si	Mn	Ti	Fe	Al	Ni
0,05	0,80	0,80	3,00	0,70	0,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	500 [MPa]	Elongation (L=5d):	28 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	160 [J]

**Shielding gas (EN ISO 14175):** I1, M12, M13

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,0
1,2

**Available alternatives:**

capilla NiTi 3

capilla NiTi 4 WIG

**Standard designations:**

EN ISO 18274: S Ni 4060 (NiCu30Mn3Ti)  
 DIN 1736: SG NiCu30MnTi  
 AWS A 5.14: ER NiCu 7  
 Material no.: 2.4377

**capilla® NiCu 30 MnTi MIG**

**Product description:**

Solid wire for MIG/MAG deposition welding and welded joints of NiCu-alloys, joints between dissimilar materials and of steel with copper or steel with NiCu-alloys.

For operating temperatures up to 425°C.

Cryogenic up to -196°C.

**Applications:****Suitable for base materials such as:**

2.4360 (Alloy 400),  
 2.4375 (Alloy K 500).

**Suitable for welding:**

in high quality equipment construction, in the chemical and petrochemical industries, in desalination systems, in shipbuilding.

**Indicative analysis [%]:**

C	Si	Mn	Ti	Cu	Fe	Ni
0,15	1,20	4,00	2,40	30,00	2,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	490 [MPa]	Elongation (L=5d):	36 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	330 [MPa]		

Shielding gas (EN ISO 14175): I1

Current type:

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Positions:



Dimensions:

Ø [mm]
1,0
1,2

Available alternatives:

capilla NiCu 30 Mn

capilla NiCu 30 MnTi WIG

**Standard designations:**

EN ISO 24373: S Cu 6100 (CuAl7)  
 AWS A 5.7: ER CuAl - A1  
 Material no.: 2.0921

**capilla® 47 MIG**

**Product description:**

Solid wire for MIG/MAG deposition welding and welded joints of Al-bronzes.

**Applications:****Suitable for welding:**

CuAl-alloys, copper, Cu-alloys.

**Suitable for deposition welding on:**

Unalloyed and low alloy steels, grey cast iron.

**Indicative analysis [%]:**

Mn	Al	Cu
0,50	7,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	430 [MPa]	Elongation (L=5d):	40 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	200 [MPa]	Hardness:	100 [HB]

Shielding gas (EN ISO 14175): I1

Current type:

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Positions:



Dimensions:

Ø [mm]
0,8
1,0
1,2
1,6

Available alternatives:

capilla 47 WIG

**Standard designations:**

EN ISO 24373: S Cu 6338  
(CuMn13Al8Fe3Ni2)  
DIN 8555: MSG 31-GZ-300 CN  
AWS A 5.7: ER CuMnNiAl  
Material no.: 2.1367

**capilla® 47 N MIG****Product description:**

Solid wire for MIG/MAG welded joints of Al-bronzes, copper and Cu-alloys.

Solid wire for wear- and corrosion-resistant deposition welding on steel, cast steel and grey cast iron, in particular if exposed to erosion.

Intermediate layer temperature up to max. 150°C.

Pulsed arc welding is recommended for the first layer of deposition welding on iron materials.

**Applications:**

**Suitable for welding in the areas of:**

maritime technology, food industry, pump construction (resistant to cavitation).

**Indicative analysis [%]:**

Mn	Ni	Fe	Al	Cu
13,50	2,20	3,00	7,80	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	900 [MPa]	Hardness:	290 [HB]
Elongation (L=5d):	10 [%]		

**Shielding gas (EN ISO 14175):** I1**Current type:**

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**Positions:****Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Available alternatives:**

capilla 47 N WIG

**Standard designations:**

EN ISO 24373: S Cu 6327  
(CuAl8Ni2Fe2Mn2)  
DIN 8555: MSG 31-GZ-150 C  
AWS A 5.7: ER CuNiAl  
Material no.: 2.0922

**capilla® 47 Ni MIG****Product description:**

Solid wire containing nickel for deposition welding and welded joints of Al-bronzes.

The weld metal is resistant to seawater, erosion and cavitation.

Use of pulsed arc welding is recommended.

**Applications:**

Suitable for welding Al-bronzes containing manganese and nickel, resistant to high corrosion levels.

Suitable for deposition welding on low alloy steels and grey cast iron as well as cast steel.

Suitable for mixed connections of Cu-alloys with steels.

**Indicative analysis [%]:**

Mn	Ni	Fe	Al	Cu
1,50	1,90	1,50	7,60	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	460 [MPa]	Notch impact energy (ISO-V):	70 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	260 [MPa]	Hardness:	140 [HB]
Elongation (L=5d):	30 [%]		

**Shielding gas (EN ISO 14175):** I1**Current type:**

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**Positions:****Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Available alternatives:**

capilla 47 Ni WIG

**Standard designations:**

EN ISO 24373: S Cu 6328  
(CuAl9Ni5Fe3Mn2)  
DIN 8555: MSG 31-UM-150 C  
AWS A 5.7: ER CuNiAl  
Material no.: 2.0923

**capilla® 47 Ni 6 MIG****Product description:**

Solid wire containing nickel for deposition welding and welded joints of Al-bronzes.

The weld metal is resistant to seawater, erosion and cavitation.

Pulsed-arc welding is recommended for the first layer of cladding on iron materials.

**Applications:**

Suitable for welding Al-bronzes containing manganese and nickel, resistant to high corrosion levels.

Suitable for deposition welding on low alloy steels and grey cast iron as well as cast steel.

Suitable for mixed connections of Cu-alloys with steels.

**Indicative analysis [%]:**

Mn	Ni	Fe	Al	Cu
2,10	4,80	4,00	8,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	500 [MPa]	Elongation (L=5d):	10 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	380 [MPa]	Hardness:	180 [HB]

**Shielding gas (EN ISO 14175):** I1**Current type:**

=(+)

**Positions:****Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Available alternatives:**

capilla 47 Ni 6 WIG

**Standard designations:**

EN ISO 24373: S Cu 5180 (CuSn5P)  
 DIN 8555: MSG 30-GZ-100 CNR  
 AWS A 5.7: ER CuSn-A  
 Material no.: 2.1022

**capilla® 48 MIG**

**Product description:**

Tin-bronze solid wire for MIG/MAG deposition welding and welded joints with an increased percentage of tin.

Pre-heat to a high temperature when welding materials of the same type (approx. 250°C).

**Applications:****For deposition welding and joint welds of:**

CuSn-alloys (bronzes),  
 CuZn-alloys (brass)  
 and CuSnZnPb-alloys  
 (speciality brass).

Suitable for deposition welding on grey cast iron as well as cast steel.

**Indicative analysis [%]:**

Sn	P	Cu
5,00	0,25	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	300 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	140 [MPa]	Hardness:	80 [HB]

Shielding gas (EN ISO 14175): I1

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
0,8
1,0
1,2

Available alternatives:

capilla 48

capilla 48 WIG

**Standard designations:**

EN ISO 24373: S Cu 1898 (CuSn 1)  
 DIN 1733: SG CuSn  
 AWS A 5.7: ER Cu  
 Material no.: 2.1006

**capilla® CuSn MIG**

**Product description:**

Solid wire for MIG deposition welding and welded joints of pure copper.

**Applications:**

**Suitable for base materials such as:**

2.0040 (OF-Cu),  
 2.0070 (SE-Cu),  
 2.0076 (SW-Cu),  
 2.0090 (SF-Cu).

**Indicative analysis [%]:**

Si	Mn	Sn	Cu
0,30	0,30	0,75	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	220 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	100 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,0
1,2
1,6

**Available alternatives:**

**capilla** CuSn WIG

**Standard designations:**

EN ISO 24373: S Cu 7158  
(CuNi30Mn1FeTi)  
DIN 1736: SG CuNi 30 Fe  
AWS A 5.7: ER CuNi  
Material no.: 2.0837

**capilla® CuNi 30 Fe MIG**

**Product description:**

Cu-based solid wire for MIG deposition welding and welded joints of CuNi-alloys, steel with Cu-alloys, or steel with CuNi-alloys.

For operating temperatures up to 425°C.

Cryogenic up to -196°C.

**Applications:**

**Suitable for base materials such as:**

2.4360 (Alloy 400),  
2.4375 (Alloy K 500).

**Suitable for welding:**

in high quality equipment construction, in the chemical and petrochemical industries, in desalination systems, in shipbuilding.

**Indicative analysis [%]:**

C	Si	Mn	Ti	Fe	Ni	Cu
0,05	0,25	0,90	0,40	0,55	31,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	390 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	240 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,0
1,6

**Standard designations:**

EN ISO 24373: S Cu 6560 (CuSi3Mn1)  
 DIN 1733: SG CuSi 3  
 AWS A 5.7: ER CuSi - A  
 Material no.: 2.1461

**capilla® CuSi 3 MIG**

**Product description:**

Cu-based solid wire for MIG deposition welding and welded joints of copper and copper alloys (CuMn, CuSiMn, CuZn) and unalloyed and low alloy steels and cast iron.

**Applications:**

**Suitable for base materials such as:**

2.0070 (SE-Cu),  
 2.0076 (SW-Cu),  
 2.0090 (SF-Cu),  
 2.0040 (OF-Cu).

**Indicative analysis [%]:**

Si	Mn	Fe	Sn	Zn	Cu
3,00	1,00	0,70	0,10	0,10	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	350 [MPa]	Elongation (L=5d):	40 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	120 [MPa]	Hardness:	80 [HB]

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

**capilla** CuSi 3 WIG

**Standard designations:**

EN ISO 18273: S Al 4043 (AlSi 5(A))  
 AWS A 5.10: ER 4043 A  
 Material no.: 3.2245

**capilla® AlSi 5 MIG**

**Product description:**

Si-alloyed Al-solid wire for MIG/MAG welding of AlSi-alloys.

The strength requirements of the base material must be taken into consideration for hardenable Al-alloys such as AlCuMg1, AlMgSi1 and AlZn4,5Mg1.

Pre-heating to 150°C - 200°C required for wall thicknesses greater than 15mm.

**Applications:**

**Suitable for base materials such as:**

3.1325 (AlCuMg 1),  
 3.2315 (AlMgSi 1),  
 3.4335 (AlZn 4,5 Mg 1).

Suitable for deposition welding and welded joints of AlSi-alloys up to 7%Si and between Al-alloys of different types.

**Indicative analysis [%]:**

Si	Al
5,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	160 [MPa]	Elongation (L=5d):	15 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	100 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla AlSi 5 WIG

**Standard designations:**

EN ISO 18273: S Al 4047 A (AISI12(A))  
 AWS A 5.10: ER 4047 A  
 Material no.: 3.2585

**capilla<sup>®</sup> AISi 12 MIG**

**Product description:**

Si-alloyed Al-solid wire for MIG deposition welding and welded joints of AISiMg and AISi-alloys with an Si content of up to 12%.

Pre-heat larger workpieces and plates (over 15.0mm thickness) to 150°C.

**Applications:**

**Suitable for base materials such as:**

3.2381 (AISI10Mg),  
 3.2581 (G-AISI12).

**Indicative analysis [%]:**

Si	Mn	Al
12,00	0,15	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	200 [MPa]	Elongation (L=5d):	5 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	100 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

**capilla** AISi 12 WIG

**Standard designations:**

EN ISO 18273: S Al 5754 (AlMg3)  
 AWS A 5.10: ER 5754  
 Material no.: 3.3536

**capilla® AlMg 3 MIG**

**Product description:**

Solid wire made of an AlMg-alloy for MIG deposition welding and joint welding.

Pre-heat larger workpieces and plates (over 15mm thickness) up to 150°C.

The weld metal can be anodised.

**Applications:**

**Suitable for base materials such as:**

Aluminium-magnesium alloys;

3.0515 (AlMn),  
 3.3326 (AlMg 1,8),  
 3.3535 (AlMg 3).

**Indicative analysis [%]:**

Si	Mn	Cr	Ti	Mg	Cu	Fe	Zn	Al
0,40	0,50	0,30	0,15	3,00	0,10	0,40	0,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	190 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	80 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla AlMg 3 WIG

**Standard designations:**

EN ISO 18273: S Al 5356 (AlMg5Cr(A))  
 AWS A 5.10: ER 5356  
 Material no.: 3.3556

**capilla® AlMg 5 MIG**

**Product description:**

Solid wire made of an AlMg-alloy for MIG deposition welding and joint welding.

**Applications:**

**Suitable for base materials such as:**

Aluminium-magnesium alloys:

3.3315 (AlMg 1),  
 3.3535 (AlMg 3),  
 3.3555 (AlMg 5),  
 3.2315 (AlMgSi 1).

**Indicative analysis [%]:**

Si	Mn	Cr	Ti	Mg	Cu	Fe	Zn	Al
0,25	0,15	0,15	0,13	4,90	0,10	0,40	0,10	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	235 [MPa]	Elongation (L=5d):	17 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	110 [MPa]	Notch impact energy (ISO-V):	> 16 [J]

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla AlMg 5 WIG

**Standard designations:**

EN ISO 18273: S Al 5183  
(AlMg 4,5 Mn0,7(A))  
DIN 1732: SG AlMg4,5Mn  
AWS A 5.10: ER 5183 A  
Material no.: 3.3548

**capilla® AlMg 4,5 Mn MIG**

**Product description:**

Solid wire made of an AlMg-alloy for MIG deposition welding and joint welding.

Pre-heat larger workpieces up to 150°C.

**Applications:**

**Suitable for base materials such as:  
Aluminium-magnesium alloys;**

3.3535 (AlMg 3),  
3.3547 (AlMg 4,5 Mn),  
3.3555 (AlMg 5).

**Suitable in some conditions for base materials  
such as: hardenable alloys;**

3.1325 (AlCuMg 1),  
3.2315 (AlMgSi 1),  
3.4335 (AlZn 4,5 Mg),  
3.4365 (AlZnMgCu 1,5).

**Indicative analysis [%]:**

Mn	Cr	Mg	Ti	Al
0,80	0,18	4,90	0,15	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	280 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	140 [MPa]		

Shielding gas (EN ISO 14175): I1

Current type:

=(+)

Positions:



Dimensions:

Ø [mm]
0,8
1,0
1,2
1,6

Available alternatives:

capilla AlMg 4,5 Mn WIG

**Standard designations:**

EN ISO 18273: S Al 1450 (Al99,5Ti)  
 DIN 1732: SG Al 99,5 Ti  
 AWS A 5.10: ER 1450  
 Material no.: 3.0805

**capilla® Al 99,5 Ti MIG**

**Product description:**

Solid wire for MIG deposition welding and welded joints of pure aluminium.

**Applications:**

**Suitable for base materials such as:**

3.0255 (Al99,5),  
 3.0205 (Al99,0).

**Indicative analysis [%]:**

Ti	Al
0,14	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	80 [MPa]	Elongation (L=5d):	40 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	30 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
0,8
1,0
1,2
1,6

**Available alternatives:**

capilla Al 99,5 Ti WIG

**Standard designations:**

EN ISO 1071: W C NiFe-1 I  
 AWS A 5.15: ER NiFe - CI

**capilla® 45 WIG**

**Product description:**

NiFe-welding rod for TIG welding of different types of cast iron with spheroidal graphite.

Suitable for deposition welding and cavity welding on cast iron.

**Applications:**

**Suitable for base materials such as:**

EN 1561: EN-GJL-100 (GG10) to  
 EN-GJL-350 (GG35).  
 EN1563: EN-GJS-400 (GGG 40) to  
 EN-GJS-700 (GGG 70).

Suitable for deposition welding and joint welds of cast iron and mixed connections of steel and cast iron, cast iron with spheroidal graphite, cast and steel, and malleable cast iron of different types.

**Indicative analysis [%]:**

C	Si	Mn	Ni	Cu	Fe
0,03	0,10	0,70	55,00	0,40	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Hardness: 200 [HB]

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla 45-2  
 capilla 45

capilla 45 MIG

capilla G 45 MM

**Standard designations:**

EN ISO 18274: S Ni 2061 (NiTi3)  
 DIN 1736: SG NiTi 4  
 AWS A 5.14: ER Ni - 1  
 Material no.: 2.4155

**capilla® NiTi 4 WIG**

**Product description:**

Welding rod for TIG joint welding of pure nickel, nickel with unalloyed and low alloy steels, and low alloy steels with Cu-alloys (Ni-semi-finished product/cast-Ni).

Suitable for joints with steel/cast steel, copper, cladding and buffer layers.

Suitable for mixed connections between copper alloys and steels.

**Applications:****Suitable for base materials such as:**

2.4066 (Ni 99,2),  
 2.4068 (LC-Ni 99),  
 2.4061 (LC-Ni 99,6),  
 2.4060 (Ni 99,6),  
 2.4062 (Ni 99,4 Fe),  
 2.4106 (NiMn 1),  
 2.4110 (NiMn 2),  
 2.4122 (NiMn 3 Al),  
 2.4116 (NiMn 5).

**Indicative analysis [%]:**

C	Si	Mn	Ti	Fe	Al	Ni
0,05	0,80	0,80	3,00	0,70	0,30	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	500 [MPa]	Elongation (L=5d):	28 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	320 [MPa]	Notch impact energy (ISO-V):	160 [J]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

Available alternatives:

capilla NiTi 3

capilla NiTi 4 MAG

**Standard designations:**

EN ISO 18274: S Ni 4060 (NiCu30Mn3Ti)  
 DIN 1736: SG NiCu30MnTi  
 AWS A 5.14: ER NiCu 7  
 Material no.: 2.4377

**capilla® NiCu 30 MnTi WIG**

**Product description:**

Welding rod for TIG deposition welding and welded joints of NiCu-alloys, joints between dissimilar materials and of steel with copper or steel with NiCu-alloys.

For operating temperatures up to 425°C.

Cryogenic up to -196°C.

**Applications:**

**Suitable for base materials such as:**

2.4360 (Alloy 400),  
 2.4375 (Alloy K 500).

**Suitable for welding:**

in high quality equipment construction, in the chemical and petrochemical industries, in desalination systems, in shipbuilding.

**Indicative analysis [%]:**

C	Si	Mn	Ti	Cu	Fe	Ni
0,15	1,20	4,00	2,00	31,10	2,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	490 [MPa]	Elongation (L=5d):	36 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	330 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla NiCu 30 Mn

capilla NiCu 30 MnTi MIG

**Standard designations:**

EN ISO 24373: S Cu 6100 (CuAl7)  
 AWS A 5.7: ER CuAl - A1  
 Material no.: 2.0921

**capilla® 47 WIG**

**Product description:**

Welding rod for TIG deposition welding and welded joints of Al-bronzes.

**Applications:****Suitable for welding:**

CuAl-alloys, copper, Cu-alloys.

**Suitable for deposition welding on:**

unalloyed and low alloy steels, grey cast iron.

**Indicative analysis [%]:**

Mn	Al	Cu
0,50	7,10	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	430 [MPa]	Elongation (L=5d):	40 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	200 [MPa]	Hardness:	100 [HB]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,0	1000

Available alternatives:

capilla 47 MIG

**Standard designations:**

EN ISO 24373: S Cu 6338  
(CuMn13Al8Fe3Ni2)  
DIN 8555: WSG 31-GZ-300 CN  
AWS A 5.7: ER CuMnNiAl  
Material no.: 2.1367

**capilla® 47 N WIG**

**Product description:**

Welding rod for TIG welded joints of Al-bronzes, copper and Cu-alloys.

Welding rod for wear- and corrosion-resistant deposition welding on steel, cast steel and grey cast iron, in particular if exposed to erosion.

Intermediate layer temperature up to max. 150°C.

**Applications:**

**Suitable for welding in the areas of:**

maritime technology, food industry, pump construction (resistant to cavitation).

**Indicative analysis [%]:**

Mn	Ni	Fe	Al	Cu
13,50	2,50	3,00	8,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength R <sub>m</sub> :	900 [MPa]	Hardness:	290 [HB]
Elongation (L=5d):	10 [%]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,0	1000

**Available alternatives:**

capilla 47 N MIG

**Standard designations:**

EN ISO 24373: S Cu 6327  
(CuAl8Ni2Fe2Mn2)  
DIN 8555: WSG 31-GZ-150 C  
AWS A 5.7: ER CuNiAl  
Material no.: 2.0922

**capilla® 47 Ni WIG****Product description:**

Welding rod containing nickel for deposition welding and welded joints of Al-bronzes.

The weld metal is resistant to seawater, erosion and cavitation.

**Applications:**

Suitable for welding Al-bronzes containing manganese and nickel resistant to high corrosion levels.

Suitable for deposition welding on low alloy steels and grey cast iron as well as cast steel.

Suitable for mixed connections of Cu-alloys with steels.

**Indicative analysis [%]:**

Mn	Ni	Fe	Al	Cu
1,50	1,80	1,40	7,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	530 [MPa]	Notch impact energy (ISO-V):	70 [J]
Yield strength $R_{eH}/R_{p0.2}$ :	260 [MPa]	Hardness:	140 [HB]
Elongation (L=5d):	30 [%]		

**Shielding gas (EN ISO 14175):** I1**Current type:**

=(-)

**Positions:****Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000

**Available alternatives:**

capilla 47 Ni MIG

**Standard designations:**

EN ISO 24373: S Cu 6328(CuAl9Ni5Fe3Mn2)  
 DIN 8555: WSG 31-GZ-150 C  
 AWS A 5.7: ER CuNiAl  
 Material no.: 2.0923

**capilla® 47 Ni 6 WIG**

**Product description:**

Welding rod containing nickel for deposition welding and welded joints of Al-bronzes.

The weld metal is resistant to seawater, erosion and cavitation.

**Applications:**

Suitable for welding Al-bronzes containing manganese and nickel resistant to high corrosion levels.

Suitable for deposition welding on low alloy steels and grey cast iron as well as cast steel.

Suitable for mixed connections of Cu-alloys with steels.

**Indicative analysis [%]:**

Mn	Ni	Fe	Al	Cu
1,50	5,00	4,00	9,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	500 [MPa]	Elongation (L=5d):	10 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	380 [MPa]	Hardness:	150 [HB]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
2,0	1000
2,4	1000
3,0	1000

Available alternatives:

capilla 47 Ni 6 MIG

**Standard designations:**

EN ISO 24373: S Cu 5180 (CuSn5P)  
 DIN 8555: WSG 30-GZ-100 CNR  
 AWS A 5.7: ER CuSn-A  
 Material no.: 2.1022

**capilla® 48 WIG**

**Product description:**

Tin-bronze welding rod for TIG deposition welding and welded joints with an increased percentage of tin.

Pre-heat to a high temperature when welding materials of the same type (approx. 250°C).

**Applications:****For deposition welding and joint welds of:**

CuSn-alloys (bronzes),  
 CuZn-alloys (brass)  
 and CuSnZnPb-alloys  
 (speciality brass).

Suitable for deposition welding on grey cast iron as well as cast steel.

**Indicative analysis [%]:**

Sn	P	Cu
6,00	0,20	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	260 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	150 [MPa]	Hardness:	80 [HB]

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,0	1000

Available alternatives:

capilla 48

capilla 48 MIG

**Standard designations:**

EN ISO 24373: S Cu 1898 (CuSn 1)  
 DIN 1733: SG CuSn  
 AWS A 5.7: ER Cu  
 Material no.: 2.1006

**capilla® CuSn WIG**

**Product description:**

Welding rod for TIG deposition welding and welded joints of pure copper.

**Applications:**

**Suitable for base materials such as:**

2.0040 (OF-Cu),  
 2.0070 (SE-Cu),  
 2.0076 (SW-Cu),  
 2.0090 (SF-Cu).

**Indicative analysis [%]:**

Si	Mn	Sn	Cu
0,30	0,30	0,75	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	220 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	100 [MPa]		

Shielding gas (EN ISO 14175): I1

Current type:

=(-)

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,0	1000
4,0	1000

Available alternatives:

**capilla** CuSn MIG

**Standard designations:**

EN ISO 24373: S Cu 7158  
(CuNi30Mn1FeTi)  
DIN 1736: SG CuNi 30 Fe  
AWS A 5.7: ER CuNi  
Material no.: 2.0837

**capilla® CuNi 30 Fe WIG****Product description:**

Cu-based welding rod for TIG deposition welding and welded joints of CuNi-alloys, steel with Cu-alloys, or steel with CuNi-alloys.

For operating temperatures up to 425°C.

Cryogenic up to -196°C.

**Applications:**

**Suitable for base materials such as:**

2.4360 (Alloy 400),  
2.4375 (Alloy K 500).

**Suitable for welding:**

in high quality equipment construction, in the chemical and petrochemical industries, in desalination systems, in shipbuilding.

**Indicative analysis [%]:**

C	Si	Mn	Ti	Fe	Ni	Cu
0,05	0,25	1,00	0,40	0,55	30,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	390 [MPa]	Elongation (L=5d):	30 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	240 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,0	1000
1,6	1000
2,0	1000
2,4	1000
3,0	1000

**Available alternatives:**

**capilla** CuNi 30 Fe MIG

**Standard designations:**

EN ISO 24373: S Cu 6560 (CuSi3Mn1)  
 DIN 1733: SG CuSi 3  
 AWS A 5.7: ER CuSi - A  
 Material no.: 2.1461

**capilla® CuSi 3 WIG**

**Product description:**

Cu-based welding rod for TIG deposition welding and welded joints of copper and copper alloys (CuMn, CuSiMn, CuZn) and unalloyed and low alloy steels and cast iron.

**Applications:**

**Suitable for materials such as:**

2.0070 (SE-Cu),  
 2.0076 (SW-Cu),  
 2.0090 (SF-Cu),  
 2.0040 (OF-Cu).

**Indicative analysis [%]:**

Si	Mn	Fe	Sn	Zn	Cu
3,00	1,00	0,70	0,10	0,10	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	350 [MPa]	Elongation (L=5d):	40 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	120 [MPa]	Hardness:	80 [HB]

**Shielding gas (EN ISO 14175):** I1

**Current type:**

=(-)

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,0	1000
3,2	1000

**Available alternatives:**

**capilla** CuSi 3 MIG

**Standard designations:**

EN ISO 18273: S Al 4043 (AISI5(A))  
 AWS A 5.10: ER 4043 A  
 Material no.: 3.2245

**capilla® AISi 5 WIG**

**Product description:**

Si-alloyed Al-welding rod for TIG welding of AISi-alloys.

The strength requirements of the base material must be taken into consideration for hardenable Al-alloys such as AlCuMg1, AlMgSi1 and AlZn4,5Mg1.

Pre-heating to 150°C - 200°C required for wall thicknesses greater than 15mm.

**Applications:**

**Suitable for base materials such as:**

3.1325 (AlCuMg 1),  
 3.2315 (AlMgSi 1),  
 3.4335 (AlZn 4,5 Mg 1).

Suitable for deposition welding and welded joints of AISi-alloys up to 7%Si and between Al-alloys of different types.

**Indicative analysis [%]:**

Si	Al
5,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	160 [MPa]	Elongation (L=5d):	15 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	100 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:** ~

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000
4,0	1000
5,0	1000

**Available alternatives:**

capilla AISi 5 MIG

**Standard designations:**

EN ISO 18273: S Al 4047A (AISI12(A))  
 AWS A 5.10: ER 4047 A  
 Material no.: 3.2585

**capilla® AISi 12 WIG**

**Product description:**

Si-alloyed Al-welding rod for TIG deposition welding and welded joints of AISiMg- and AISi-alloys with an Si-content of up to 12%.

Pre-heat larger workpieces and plates (over 15.0mm thickness) up to 150°C.

**Applications:**

**Suitable for base materials such as:**

3.2381 (AISI10Mg),  
 3.2581 (G-AISI12).

**Indicative analysis [%]:**

Si	Mn	Al
12,00	0,15	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	200 [MPa]	Elongation (L=5d):	5 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	100 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:** ~

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000
4,0	1000

**Available alternatives:**

**capilla** AISi 12 WIG

**Standard designations:**

EN ISO 18273: S Al 5754 (AlMg3)  
 AWS A 5.10: ER 5754  
 Material no.: 3.3536

**capilla<sup>®</sup> AlMg 3 WIG**

**Product description:**

Welding rod made of an AlMg-alloy for TIG deposition welding and joint welding.

Pre-heat larger workpieces and plates (over 15mm thickness) up to 150°C.

The weld metal can be anodised.

**Applications:**

**Suitable for base materials such as:**

Aluminium-magnesium alloys;

3.0515 (AlMn),  
 3.3326 (AlMg 1,8),  
 3.3535 (AlMg 3).

**Indicative analysis [%]:**

Mn	Cr	Ti	Mg	Al
0,50	0,30	0,15	3,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	200 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	80 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:** ~

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000
4,0	1000
5,0	1000

**Available alternatives:**

capilla AlMg 3 MIG

**Standard designations:**

EN ISO 18273: S Al 5356 (AlMg5Cr(A))  
 AWS A 5.10: ER 5356  
 Material no.: 3.3556

**capilla<sup>®</sup> AlMg 5 WIG**

**Product description:**

Welding rod made of an AlMg-alloy for TIG deposition welding and joint welding.

**Applications:**

**Suitable for base materials such as:**

Aluminium-magnesium alloys;

3.3315 (AlMg 1),  
 3.3535 (AlMg 3),  
 3.3555 (AlMg 5),  
 3.2315 (AlMgSi 1).

**Indicative analysis [%]:**

Mn	Cr	Ti	Mg	Al
0,15	0,14	0,10	5,00	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	250 [MPa]	Elongation (L=5d):	25 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	110 [MPa]		

**Shielding gas (EN ISO 14175):** I1

**Current type:** ~

**Positions:**



**Dimensions:**

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000
4,0	1000
5,0	1000

**Available alternatives:**

**capilla** AlMg 5 MIG

**Standard designations:**

EN ISO 18273: S Al 5183  
(AlMg 4,5 Mn0,7(A))  
DIN 1732: SG AlMg4,5Mn  
AWS A 5.10: ER 5183 A  
Material no.: 3.3548

**capilla® AlMg 4,5 Mn WIG**

**Product description:**

Welding rod made of an AlMg-alloy for TIG deposition welding and joint welding.

Pre-heat larger workpieces up to 150°C.

**Applications:****Suitable for base materials such as:**

Aluminium-magnesium-alloys;

3.3535 (AlMg 3),  
3.3547 (AlMg 4,5 Mn),  
3.3555 (AlMg 5).

**Suitable in some conditions for base materials such as:**

hardenable alloys;

3.1325 (AlCuMg 1),  
3.2315 (AlMgSi 1),  
3.4335 (AlZn 4,5 Mg),  
3.4365 (AlZnMgCu 1,5).

**Indicative analysis [%]:**

Mn	Cr	Mg	Ti	Al
0,80	0,18	4,60	0,15	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	280 [MPa]	Elongation (L=5d):	20 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	140 [MPa]		

Shielding gas (EN ISO 14175): I1

Current type: ~

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000
4,0	1000
5,0	1000

Available alternatives:

capilla AlMg 4,5 Mn MIG

**Standard designations:**

EN ISO 18273: S Al 1450 (Al99,5Ti)  
 DIN 1732: SG Al 99,5 Ti  
 AWS A 5.10: ER 1450  
 Material no.: 3.0805

**capilla® Al 99,5 Ti WIG**

**Product description:**

Welding rod for TIG deposition welding and welded joints of pure aluminium.

**Applications:**

**Suitable for base materials such as:**

3.0255 (Al99,5),  
 3.0205 (Al99,0).

**Indicative analysis [%]:**

Ti	Al
0,16	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	80 [MPa]	Elongation (L=5d):	40 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	30 [MPa]		

Shielding gas (EN ISO 14175): I1

Current type: ~

Positions:



Dimensions:

Ø [mm]	Length [mm]
1,6	1000
2,0	1000
2,4	1000
3,2	1000
4,0	1000

Available alternatives:

**capilla** Al 99,5 Ti MIG

**Standard designations:**

EN ISO 1071: T C NiFeT3-CI M21  
 DIN 8555: MSG 23-GF-200

# capilla® G 45 MM

**Product description:**

Powder-cored wire for MIG/MAG welding.

Specially designed for grey, tempered and spheroidal graphite iron, as well as cast iron containing phosphorous.

Well-suited for welding thick-wall components and components with a high residual stress.

Can be welded without pre-heating; the heat affected zone is very small due to low heat application.

**Applications:**

**Suitable for deposition welding and joint welds of base materials such as:**

EN 1561: EN-GJL-100 (GG10) to  
 EN-GJL-350 (GG35).  
 EN 1562: EN-GJMB-350 (GTS 35) to  
 EN-GJMB-650 (GTS 65).  
 EN 1563: EN-GJS-400 (GGG 40) to  
 EN-GJS-800 (GGG 80).

**Suitable for repair and production welding on valve bodies, machine frames, slide rails, etc.**

**Indicative analysis [%]:**

C	Si	Mn	Ni	Fe
0,80	0,80	4,50	52,50	Balance

**Properties:** (without heat treatment; indicative values at room temperature)

Tensile strength $R_m$ :	550 [MPa]	Elongation (L=5d):	16 [%]
Yield strength $R_{eH}/R_{p0.2}$ :	340 [MPa]	Hardness:	165 [HB]

**Shielding gas (EN ISO 14175):** M20, M21

**Current type:**

=(+)

**Positions:**



**Dimensions:**

Ø [mm]
1,2
1,6

**Available alternatives:**

capilla 45-2  
 capilla 45

capilla 45 WIG

capilla 45 MIG

## 7 Welding consumables for hard brazing

<b>capilla</b>	<b>EN ISO</b>	<b>EN ISO</b>	<b>AWS A</b>	<b>Page</b>
<b>Ag 102 / Ag 102 F</b>	3677: B-Ag56CuZnSn-620/655		5.92: BAg-7	<b>424</b>
<b>Ag 103 / Ag 103 F</b>	3677: B-Ag55ZnCuSn-630/660	17672: AG 155		<b>425</b>
<b>Ag 104 / Ag 104 F</b>	3677: B-Ag45CuZnSn-640/680	17672: Ag 145	BAg-36	<b>426</b>
<b>Ag 105 / Ag 105 F</b>	3677: B-Ag40CuZnSn-650/710			<b>427</b>
<b>Ag 106 / Ag 106 F</b>	3677: B-Cu36ZnAgSn-630/730			<b>428</b>
<b>Ag 107 / Ag 107 F</b>	3677: B-Cu36ZnAgSn-665/755			<b>429</b>
<b>Ag 203 / Ag 203 F</b>	3677: B-Ag44CuZn-675/735			<b>430</b>
<b>Ag 206 / Ag 206 F</b>	3677: B-Cu44ZnAg(Si)-690/810			<b>431</b>
<b>Ag 502 / Ag 502 F</b>	3677: B-Ag49ZnCuMnNi-680/705			<b>432</b>
<b>Al 104 / Al 104 F</b>	3677: B-Al88Si-575/585			<b>433</b>
<b>Cu 303 / Cu 303 F</b>	3677: B-Cu60Zn(Si)(Mn)-870/900			<b>434</b>
<b>Cu 305 / Cu 305 F</b>	3677: B-Cu48ZnNi(Si)-890/920			<b>435</b>
<b>Cu 306 / Cu 306 F</b>	3677: B-Cu59ZnSn(Ni)(Mn)-870/890			<b>436</b>

**Standard designations:**

DIN EN 1044: AG 102  
 DIN EN ISO 3677: B-Ag56CuZnSn-620/655  
 DIN 8513: L-Ag55Sn  
 AWS A 5.92: BAg-7

**capilla® Ag 102**  
**capilla® Ag 102 F**

**Product description:**

Hard solder for joints on unalloyed, low and higher alloyed steels, copper, copper alloys, nickel, nickel alloys, malleable cast iron and carbides.

For operating temperatures up to 200°C.

**Flux:** capilla FH 10.

**capilla AG 102 F:** Flux coated.

**Applications:****Particularly well-suited for:**

Food industry, fitting and equipment construction, precision mechanics, tooling installation.

**Indicative analysis [%]:**

Cu	Sn	Zn	Ag
22,00	5,00	17,00	Balance

**Processing:**

Melting range:	620 - 655°C	Density:	9,5 [g/cm <sup>3</sup> ]
Working temperature:	650°C	Max. usage temperature:	200°C
Tensile strength R <sub>m</sub> :	400 [MPa]	Elongation (L=5d):	25 [%]

**Delivery formats:**

Wires	Ø= 0,4 - 4,0 [mm]
Rods	Ø= 1,0 - 4,0 [mm]
Flux-coated rods	Ø= 1,5 - 4,0 [mm]
Bands	Upon request
Moulded parts	Upon request

**Standard designations:**

EN ISO 17672: AG 155  
 EN ISO 3677: B-Ag55ZnCuSn-630/660  
 EN 1044: AG 103  
 DIN 8513: L-Ag55Sn

**capilla® Ag 103**  
**capilla® Ag 103 F**

**Product description:**

Hard solder for joints between steels, copper, copper alloys, nickel, nickel alloys, carbide and malleable cast iron.

**Flux:** capilla FH 10.

**capilla AG 103 F:** Flux coated.

**Applications:**

Food industry, fitting and equipment construction, precision mechanics, tools.

Suitable for use in seawater.

Particularly well-suited for soldered connections that come into contact with food, such as:

Dairy, drink and food industry.

**Indicative analysis [%]:**

Cu	Sn	Zn	Ag
22,00	2,50	24,00	Balance

**Processing:**

Melting range:	630 - 660°C	Density:	9.4 [g/cm <sup>3</sup> ]
Working temperature:	660°C	Max. usage temperature:	200°C

**Delivery formats:**

Wires	Ø= 0.4 - 4.0 [mm]
Rods	Ø= 1.0 - 4.0 [mm]
Flux-coated rods	Ø= 1.5 - 4.0 [mm]
Bands	Upon request
Moulded parts	Upon request

**Standard designations:**

EN ISO 17672: Ag 145  
 EN ISO 3677: B-Ag45CuZnSn-640/680  
 EN 1044: AG 104  
 DIN 8513: L-Ag45Sn  
 AWS: Bag-36

**capilla® Ag 104**  
**capilla® Ag 104 F**

**Product description:**

Cadmium-free silver braze for joints on unalloyed, low and higher alloyed steels, copper, copper alloys, nickel, nickel alloys, malleable cast iron and carbides.

For operating temperatures up to 200°C.

**Flux:** capilla FH 10.

**capilla AG 104 F:** Flux coated.

**Applications:****Particularly well-suited for:**

Food industry, fitting and equipment construction, precision mechanics, tooling installation.

**Indicative analysis [%]:**

Cu	Sn	Zn	Ag
27,00	2,50	25,50	Balance

**Processing:**

Melting range:	640 - 680°C	Density:	9.2 [g/cm <sup>3</sup> ]
Working temperature:	670°C	Max. usage temperature:	200°C
Tensile strength R <sub>m</sub> :	450 [MPa]	Elongation (L=5d):	10 [%]

**Delivery formats:**

Wires	Ø= 0,4 - 4,0 [mm]
Rods	Ø= 1,0 - 4,0 [mm]
Flux-coated rods	Ø= 1,5 - 4,0 [mm]
Bands	Upon request
Moulded parts	Upon request

**Standard designations:**

EN ISO 3677: B-Ag40CuZnSn-650/710  
 EN 1044: AG 105  
 DIN 8513: L-Ag40Sn

**capilla® Ag 105**  
**capilla® Ag 105 F**

**Product description:**

Hard solder for joints between steels, copper, copper alloys, nickel, nickel alloys and malleable cast iron.

**Flux:** capilla FH 10.

**capilla AG 105 F:** Flux coated.

**Applications:**

Food industry, fitting and equipment construction, precision mechanics, installation, tools.

Particularly well-suited for copper pipe installation according to DVGW worksheet GW2.

**Indicative analysis [%]:**

Cu	Sn	Zn	Ag
31,00	2,50	30,00	Balance

**Processing:**

Melting range:	650 - 710°C	Density:	9.1 [g/cm <sup>3</sup> ]
Working temperature:	690°C	Max. usage temperature:	200°C

**Delivery formats:**

Wires	Ø= 0,4 - 4,0 [mm]
Rods	Ø= 1,0 - 4,0 [mm]
Flux-coated rods	Ø= 1,5 - 4,0 [mm]
Bands	Upon request
Moulded parts	Upon request

**Standard designations:**

EN ISO 3677: B-Cu36ZnAgSn-630/730

EN 1044: AG 106

DIN 8513: L-Ag34Sn

**capilla<sup>®</sup> Ag 106**  
**capilla<sup>®</sup> Ag 106 F**

**Product description:**

Cadmium-free silver braze for joints between steels, copper, copper alloys, nickel, nickel alloys, and malleable cast iron.

**Flux:** capilla FH 10.

**capilla AG 106 F:** Flux coated.

**Applications:**

Food industry, fitting and equipment construction, installation, tools.

Suitable for soldering carbides.

Particularly well-suited for copper pipe installation according to DVGW worksheet GW2.

**Indicative analysis [%]:**

Cu	Sn	Zn	Ag
37,00	3,00	29,50	Balance

**Processing:**

Melting range:	630 - 730°C	Density:	9.0 [g/cm <sup>3</sup> ]
Working temperature:	710°C	Max. usage temperature:	200°C

**Delivery formats:**

Wires	Ø= 0,4 - 4,0 [mm]
Rods	Ø= 1,0 - 4,0 [mm]
Flux-coated rods	Ø= 1,5 - 4,0 [mm]
Bands	Upon request
Moulded parts	Upon request

**Standard designations:**

EN ISO 3677: B-Cu36ZnAgSn-665/755  
 EN 1044: AG 107  
 DIN 8513: L-Ag30Sn

**capilla<sup>®</sup> Ag 107**  
**capilla<sup>®</sup> Ag 107 F**

**Product description:**

Cadmium-free silver braze for joints between steels, copper, copper alloys, nickel, nickel alloys, and malleable cast iron.

**Flux:** capilla FH 10.

**capilla AG 107 F:** Flux coated.

**Applications:**

Food industry, fitting and equipment construction, precision mechanics, installation, tools, other tools.

**Indicative analysis [%]:**

Cu	Sn	Zn	Ag
37,00	2,50	34,00	Balance

**Processing:**

Melting range:	665 - 755°C	Density:	8,8 [g/cm <sup>3</sup> ]
Working temperature:	740°C	Max. usage temperature:	200°C

**Delivery formats:**

Wires	Ø= 0,4 - 4,0 [mm]
Rods	Ø= 1,0 - 4,0 [mm]
Flux-coated rods	Ø= 1,5 - 4,0 [mm]
Bands	Upon request
Moulded parts	Upon request

**Standard designations:**

EN ISO 3677: B-Ag44CuZn-675/735  
 EN 1044: AG 203  
 DIN 8513: L-Ag44

**capilla® Ag 203**  
**capilla® Ag 203 F**

**Product description:**

Cadmium-free silver braze for joints between steels, copper, copper alloys, nickel, nickel alloys, carbide and malleable cast iron.

**Flux:** capilla FH 10.

**capilla AG 203 F:** Flux coated.

**Applications:**

Food industry, fitting and equipment construction, installation, tools, precision mechanics, precision technology, refrigeration technology, aeroplane and shipbuilding.

Particularly well-suited for copper pipe installation according to DVGW worksheet GW2.

**Indicative analysis [%]:**

Cu	Zn	Ag
31,00	28,00	Balance

**Processing:**

Melting range:	675 - 735°C	Density:	9,1 [g/cm <sup>3</sup> ]
Working temperature:	730°C	Max. usage temperature:	200°C

**Delivery formats:**

Wires	Ø= 0,4 - 4,0 [mm]
Rods	Ø= 1,0 - 4,0 [mm]
Flux-coated rods	Ø= 1,5 - 4,0 [mm]
Bands	Upon request
Moulded parts	Upon request

**Standard designations:**

EN ISO 3677: B-Cu44ZnAg(Si)-690/810  
 EN 1044: AG 206  
 DIN 8513: L-Ag20

**capilla<sup>®</sup> Ag 206**  
**capilla<sup>®</sup> Ag 206 F**

**Product description:**

Cadmium-free silver braze for joints between steels, copper, copper alloys, nickel, nickel alloys, carbide and malleable cast iron.

**Flux:** capilla FH 10.

**capilla AG 206 F:** Flux coated.

**Applications:**

Food industry, fitting and equipment construction, installation, tools, precision mechanics, precision technology, refrigeration technology, aeroplane and shipbuilding.

Particularly well-suited for copper pipe installation according to DVGW worksheet GW2.

**Indicative analysis [%]:**

Si	Cu	Zn	Ag
0,25	45,00	38,00	Balance

**Processing:**

Melting range:	690 - 810°C	Max. usage temperature:	200°C
Working temperature:	800°C		

**Delivery formats:**

Wires	Ø= 0,4 - 4,0 [mm]
Rods	Ø= 1,0 - 4,0 [mm]
Flux-coated rods	Ø= 1,5 - 4,0 [mm]
Bands	Upon request
Moulded parts	Upon request

**Standard designations:**

EN ISO 3677: B-Ag49ZnCuMnNi-680/705  
 EN 1044: AG 502  
 DIN 8513: L-Ag49

**capilla<sup>®</sup> Ag 502**  
**capilla<sup>®</sup> Ag 502 F**

**Product description:**

Cadmium-free silver braze for joints of steels, tungsten, molybdenum alloys, tantalum alloys and chromium.

**Flux:** capilla FH 10.

**capilla AG 502 F:** Flux coated.

**Applications:**

Carbide-tipped tools of all kinds.

**Indicative analysis [%]:**

Mn	Ni	Cu	Zn	Ag
8,50	5,00	17,00	25,00	Balance

**Processing:**

Melting range:	680 - 705°C	Density:	8,9 [g/cm <sup>3</sup> ]
Working temperature:	690°C	Max. usage temperature:	200°C

**Delivery formats:**

Wires	Ø= 1,0 - 4,0 [mm]
Rods	Ø= 1,0 - 4,0 [mm]
Flux-coated rods	Ø= 1,5 - 4,0 [mm]
Bands	Upon request
Moulded parts	Upon request

**Standard designations:**

EN ISO 3677: B-Al88Si-575/585  
 EN 1044: AL 104  
 DIN 8513: L-AlSi 12

**capilla® AI 104**  
**capilla® AI 104 F**

**Product description:**

Low melting aluminium solder for joints of aluminium and aluminium alloys.

Melting point over 640°C.

**Flux:** **capilla** FL 10 oder **capilla** FL 20.

**capilla AL 104 F:** Flux coated.

**Applications:**

Aluminium pipelines, heat exchangers.

**Indicative analysis [%]:**

Si	Al
13,00	Balance

**Processing:**

Melting range:	575 - 585°C	Density:	2,65 [g/cm <sup>3</sup> ]
Working temperature:	580°C		

**Delivery formats:**

Wires	Ø= 0,8 - 4,0 [mm]
Rods	Ø= 1,0 - 4,0 [mm]
Flux-coated rods	Ø= 2,0 - 4,0 [mm]
Bands	Upon request
Moulded parts	Upon request

**Standard designations:**

EN ISO 3677: B-Cu60Zn(Si)(Mn)-870/900  
 EN 1044: Cu 303  
 DIN 8513: L-CuZn40

**capilla<sup>®</sup> Cu 303**  
**capilla<sup>®</sup> Cu 303 F**

**Product description:**

Brass brazing alloy for joints between steels, malleable cast iron, nickel and nickel alloys, copper and copper alloys with a solidus temperature of  $\geq 950^{\circ}\text{C}$ .

**Flux:** capilla FH 21.

**capilla CU 303 F:** Flux coated.

**Applications:****Suitable for areas such as:**

Car body construction, steel pipes, bicycle and motorcycle industry.

**Indicative analysis [%]:**

Si	Mn	Cu	Sn	Zn
0,40	0,25	61,50	0,20	Balance

**Processing:**

Melting range:	870 - 900°C	Density:	8,4 [g/cm <sup>3</sup> ]
Working temperature:	900°C		

**Delivery formats:**

Wires	Ø= 0,5 - 8,0 [mm]
Rods	Ø= 1,0 - 8,0 [mm]
Flux-coated rods	Ø= 1,5 - 4,0 [mm]
Bands	Upon request
Moulded parts	Upon request

**Standard designations:**

EN ISO 3677: B-Cu48ZnNi(Si)-890/920  
 EN 1044: Cu 305  
 DIN 8513: L-CuNi10Zn42

**capilla® Cu 305**  
**capilla® Cu 305 F**

**Product description:**

Specialised brass brazing alloy for joints between steels, malleable cast iron, nickel and nickel alloys and cast iron.

Welding nickel silver (including material containing iron).

**Flux:** capilla FH 21.

**capilla CU 305 F:** Flux coated.

**Applications:****Suitable for areas such as:**

Car body construction, steel pipes, bicycle and motorcycle industry.

**Indicative analysis [%]:**

Si	Mn	Ni	Cu	Sn	Zn
0,40	0,20	11,00	50,00	0,20	Balance

**Processing:**

Melting range:	890 - 920°C	Density:	8,7 [g/cm <sup>3</sup> ]
Working temperature:	910°C		

**Delivery formats:**

Wires	Ø= 0,5 - 8,0 [mm]
Rods	Ø= 1,0 - 8,0 [mm]
Flux-coated rods	Ø= 1,5 - 4,0 [mm]
Bands	Upon request
Moulded parts	Upon request

**Standard designations:**

EN ISO 3677: B-Cu59ZnSn(Ni)(Mn)-870/890  
 EN 1044: Cu 306  
 DIN 8513: L-CuZn39Sn

**capilla<sup>®</sup> Cu 306**  
**capilla<sup>®</sup> Cu 306 F**

**Product description:**

Specialised brass brazing alloy for joints between steels, malleable cast iron, nickel and nickel alloys, copper and copper alloys with a solidus temperature of  $\geq 950^{\circ}\text{C}$ .

**Flux:** capilla FH 21.

**capilla CU 306 F:** Flux coated.

**Applications:****Suitable for areas such as:**

Car body construction, steel pipes, bicycle and motorcycle industry.

**Suitable for soldering wide joints and in positional welding.**

**Indicative analysis [%]:**

Si	Mn	Ni	Cu	Sn	Zn
0,50	1,00	1,50	62,00	1,50	Balance

**Processing:**

Melting range:	870 - 890°C	Density:	8,4 [g/cm <sup>3</sup> ]
Working temperature:	900°C		

**Delivery formats:**

Wires	Ø= 0,5 - 8,0 [mm]
Rods	Ø= 1,0 - 8,0 [mm]
Flux-coated rods	Ø= 1,5 - 4,0 [mm]
Bands	Upon request
Moulded parts	Upon request

## 8 Annex

### I. List of **capilla** welding consumables with suitability tests and approvals

<b>capilla</b>	<b>TÜV data sheet</b>	<b>DB approval</b>
30 MAG	09673.07	42.020.02
30 S	10166.03	10.020.03
49	10167.04	10.020.04
49 KBS	20010.00	10.020.07
49 MAG	09674.05	42.020.03
51 KBN	10413.03	30.020.07
51 MAG	19633.00	43.020.08
51 WIG	19632.00	43.020.07
52 K		30.020.06
308 L	07217.04	30.020.01
308 LR	12301.02	
308 L MAG	19625.00	
308 L WIG	19624.00	
309 L MAG	19627.00	
309 L WIG	19626.00	
309 Mo	07218.04	30.020.02
316 L	07221.04	30.020.03
316 LR	12302.02	
316 L MAG	19629.00	
316 L WIG	19628.00	
318	07219.04	30.020.04
318 LR	12303.02	
318 MAG	19631.00	
318 WIG	19630.00	
347	07220.04	30.020.05
347 MAG	11942.01	
347 WIG	11943.01	
625 MAG	11739.02	
625 WIG	11738.02	
734 MAG	10524.02	
2209 MAG	11946.01	
2209 WIG	11947.01	
6000 MAG	10162.06	
CuSi 3 MIG	09154.03	
G 460 BM	19400.00	
G 460 MM	19388.00	42.020.09
G 460 PM	19389.00	42.020.10

## II. Numerical list of *capilla* products

<i>capilla</i>	Page
25 S	183
30 K RLD	38
30 MAG	20
30 S	9
30 W	10
30 WIG	29
30-170	11
41	373
43	374
44	375
45	376
45 Cu	377
45 MIG	388
45 WIG	405
45-2	379
45-2 Minus	380
47 MIG	391
47 N	381
47 N MIG	392
47 N WIG	409
47 Ni 6 MIG	394
47 Ni 6 WIG	411
47 Ni MIG	393
47 Ni WIG	410
47 WIG	408
48	382
48 MIG	395
48 WIG	412
49	12
49 KBS	13
49 MAG	21
49 WIG	30
50 B	368
50 K	370
50 N	369
50 S	371
50/50 Nb	143
51 KB	68
51 KBN	69
51 MAG	86
51 Mo	70
51 Ti	66
51 W	271
51 WIG	98
52	272

<i>capilla</i>	Page
52 K	71
52 K Mo	72
52 MAG	87
52 WIG	99
53	188
53 MAG	218
53 N	190
53 Ti	189
53 WIG	231
54 MAG	295
54 Ti	282
54 W	280
54 WIG	301
54-160	281
55 RLD	316
56	273
56 Fe	274
56 RLD	313
60 HRC	286
60 Mn	387
60 RLD	319
60/5	385
60/12	386
64 KB	177
64 KBS	178
64 MAG	211
64 WIG	224
65	179
65 MAG	212
65 Ti	180
65 WIG	225
66	181
68 HRC	290
68 HRC RLD	338
69 HRC RLD	340
93	192
250 B	276
250 MAG	292
250 WIG	298
300 B	277
300 MAG	293
300 WIG	299
308 H	116
308 H MAG	145
308 H WIG	159

<i>capilla</i>	Page
308 HL	267
308 L	45
308 L KB	47
308 L MAG	78
308 L WIG	90
308 LR	46
308 Mo	48
309	118
309 HL	270
309 L	62
309 L KB	64
309 L MAG	85
309 L WIG	97
309 LR	63
309 MAG	146
309 Mo	65
309 WIG	160
310	73
310 H	119
310 KB	74
310 MAG	88
310 WIG	100
316 H	117
316 HL	268
316 L	51
316 L KB	54
316 L MAG	80
316 L WIG	92
316 LF	52
316 LR	53
317 L MAG	82
317 L WIG	94
317-17	57
318	55
318 HL	269
318 LR	56
318 MAG	81
318 WIG	93
347	49
347 LR	50
347 MAG	79
347 WIG	91
385	77
385 MAG	89
385 WIG	101

## II. Numerical list of **capilla** products

<b>capilla</b>	<b>Page</b>
400 B	278
410 NiMo	122
410 NiMo MAG	148
410 NiMo WIG	162
500 B	279
500 G 0,5	325
500 G 1,0	326
500 G 1,5	327
501 EHL	199
501 K	198
501 WIG	236
506 EHL	201
506 K	200
506 WIG	237
512 EHL	203
512 K	202
512 WIG	238
516 EHL	204
520 G 0,5	328
520 G 1,0	329
520 G 1,5	330
521 EHL	206
521 K	205
521 WIG	239
523 EHL	207
524 EHL	208
526	209
530 G 0,5	331
530 G 1,0	332
530 G 1,5	333
533	196
533 MAG	221
533 WIG	234
540	283
540 B RLD	315
540 Mo RLD	322
540 N	287
540 N RLD	323
540 Nb	285
540 Nb RLD	324
540 RLD	321
540 SF	284
540 V	288
540 V RLD	342
550 E	291

<b>capilla</b>	<b>Page</b>
550 G 0,5	334
550 G 1,0	335
550 G 1,5	336
550 G 3,0	337
561 RLD	314
600 MAG	294
600 WIG	300
625	197
625 K	139
625 MAG	155
625 WIG	169
635 S	289
650 MAG	296
650 WIG	302
655 MAG	297
655 WIG	303
690 F MAG	28
690 F WIG	37
700 G 0,5	343
700 G 1,0	344
700 G 1,5	345
732	184
732 MAG	214
732 WIG	227
733	185
733 MAG	215
733 WIG	228
734	186
734 MAG	216
734 WIG	229
838 MAG	222
838 WIG	235
900 G 0,5	346
900 G 1,0	347
900 G 1,5	348
900 GK 0,5	352
900 GS 0,5	349
900 GS 1,0	350
900 GS 1,5	351
901 G 0,5	353
901 GS 0,5	354
902 G 0,5	355
902 GS 0,5	356
903 G 0,5	357
903 G 1,0	358

<b>capilla</b>	<b>Page</b>
903 G 1,5	359
909 G	360
910 G	361
911 G	362
1000 G 0,5	363
1000 G 1,0	364
2209	58
2209 MAG	83
2209 WIG	95
2709	191
2709 MAG	219
2709 WIG	232
4009	120
4009 MAG	147
4009 WIG	161
4015	124
4015 MAG	149
4015 WIG	163
4018	121
4034	123
4115	125
4115 MAG	150
4115 WIG	164
4122	126
4122 MAG	151
4122 WIG	165
4370 Ti	67
4405	127
4455	75
4460 Cu	59
4460 Cu B	60
4460 Cu MAG	84
4460 Cu WIG	96
4507	61
4563	76
4778	135
4820	128
4830	129
4850	130
4850 MAG	152
4850 Mn	131
4850 WIG	166
4853	132
4853 MAG	153
4853 WIG	167

## II. Numerical list of *capilla* products

<i>capilla</i>	Page
4863	133
4879	134
4914	176
4914 MAG	210
4914 WIG	223
5200	194
5200 MAG	220
5200 S	195
5200 WIG	233
5400	187
5400 MAG	217
5400 WIG	230
6000	193
6000 B	138
6000 DL	137
6000 MAG	154
6000 WIG	168
6500	182
6500 MAG	213
6500 WIG	226
Ag 102 / Ag 102 F	424
Ag 103 / Ag 103 F	425
Ag 104 / Ag 104 F	426
Ag 105 / Ag 105 F	427
Ag 106 / Ag 106 F	428
Ag 107 / Ag 107 F	429
Ag 203 / Ag 203 F	430
Ag 206 / Ag 206 F	431
Ag 502 / Ag 502 F	432
Al 104 / Al 104 F	433
Al 99,5 Ti MIG	404
Al 99,5 Ti WIG	421
Alloy 182	136
Alloy C	140
Alloy C 276	142
Alloy C 276 MAG	157
Alloy C 276 WIG	171
Alloy C MAG	156
Alloy C WIG	170
Alloy CK	141
AlMg 3 MIG	401
AlMg 3 WIG	418
AlMg 4,5 Mn MIG	403
AlMg 4,5 Mn WIG	420
AlMg 5 MIG	402

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AlMg 5 WIG	419
AlSi 12 MIG	400
AlSi 12 WIG	417
AlSi 5 MIG	399
AlSi 5 WIG	416
capidur G 55 HIT	317
capidur G 56 HIT	312
capidur G 58 TIC	318
capidur G 68 HIT	339
capidur G 70 Fe	341
Capitherm	372
CrMa 47	275
CrMo 1 Ti	15
CrMo 2 B	17
CrMo 5 B	19
CrMo B	16
CrMoV 3	18
Cu 303 / Cu 303 F	434
Cu 305 / Cu 305 F	435
Cu 306 / Cu 306 F	436
CuNi 30 Fe MIG	397
CuNi 30 Fe WIG	414
CuSi 3 MIG	398
CuSi 3 WIG	415
CuSn MIG	396
CuSn WIG	413
FeNi 55	378
G 105 MM	240
G 135 MM	241
G 2040 RM	255
G 2045 RM	256
G 2048 RM	257
G 2050 RM	258
G 2055 RM	259
G 2209 RM	106
G 308 L RM	102
G 309 L RM	107
G 316 L RM	104
G 318 RM	105
G 347 RM	103
G 351 MM	308
G 410 NiMo MM	172
G 45 MM	422
G 450 MM	304
G 460 BM	41

<i>capilla</i>	Page
G 460 MM	39
G 460 PM	40
G 501 MM	247
G 506 MM	248
G 51 RM	108
G 512 MM	249
G 516 MM	250
G 52 RM	109
G 5200 MM	245
G 521 MM	251
G 530 MM	246
G 54 MM	309
G 54 N MM	307
G 5400 MM	244
G 563 MM	253
G 569 MM	254
G 60 Mo HRC MM	320
G 600 MM	305
G 600 Nb MM	310
G 600 Si MM	311
G 64 MM	242
G 65 MM	243
G 655 MM	306
G 690 BM	42
G 7940 MM	260
G 7945 MM	261
G 7950 MM	262
G 7955 MM	263
G 93 MM	252
HR MAG	365
KB Mo	14
NiCu 30 Mn	383
NiCu 30 MnTi MIG	390
NiCu 30 MnTi WIG	407
NiTi 3	384
NiTi 4 MIG	389
NiTi 4 WIG	406
P 121	115
P 91	112
P 91 MAG	144
P 91 WIG	158
P 911	113
P 92	114
SG CrMo 1 MAG	23
SG CrMo 1 WIG	32

## II. Numerical list of **capilla** products

<b>capilla</b>	<b>Page</b>
SG CrMo 2 MAG	24
SG CrMo 2 WIG	33
SG CrMo 5 MAG	25
SG CrMo 5 WIG	34
SG Mo MAG	22
SG Mo WIG	31
SG NiMo MAG	26
SG NiMo WIG	35
SG NiMoCr MAG	27
SG NiMoCr WIG	36

### III. Inert gases according to DIN EN ISO 14175

Abbreviated designation	Components in Vol. %						Typical application	Remarks	
	ID	Oxidizing	O <sub>2</sub>	Inert	He	Reducing			Inert
R	1	-	-	Balance	-	> 0 - 15	-	TIG; plasma welding, plasma cutting Root protection	Reducing
	2	-	-	Balance	-	> 15 - 35	-		
I	1	-	-	100	-	-	-	MIG; TIG; Plasma welding; Root protection	Inert
	2	-	-	Balance	> 0 - 95	-	-		
	3	-	-	Balance	-	> 0 - 5	-		
M1	1	>0-5	-	Balance	-	-	-	MAG	Weakly oxidising
	2	>0-5	> 0 - 3	Balance	-	-	-		
	3	>0-5	> 0 - 3	Balance	-	-	-		
	4	>0-5	> 0 - 3	Balance	-	-	-		
M2	0	> 5 - 15	-	Balance	-	-	-	MAG	Oxidizing
	1	15 - 25	>3 - 10	Balance	-	-	-		
	2	0.5 - 5	3 - 10	Balance	-	-	-		
	3	0.5 - 5	3 - 10	Balance	-	-	-		
	5	5 - 15	3 - 10	Balance	-	-	-		
M3	1	25 - 50	>10 - 15	Balance	-	-	-	MAG	Oxidizing
	2	-	-	Balance	-	-	-		
	3	25 - 50	2 - 10	Balance	-	-	-		
	4	5 - 25	10 - 15	Balance	-	-	-		
	5	25 - 50	10 - 15	Balance	-	-	-		
C	1	100	-	-	-	-	-	MAG	Strongly oxidizing
	2	Balance	0.5 - 30	-	-	-	-		
R	1	-	-	Balance	-	0.5 - 15	-	MIG/TIG	
	2	-	-	Balance	-	15 - 50	-		
N	1	-	-	-	-	-	100	Plasma cutting; root protection	Inert
	3	-	-	Balance	-	0.5 - 10	5 - 50		
	4	-	-	Balance	-	0.5 - 5	0.5 - 5		
	5	-	-	-	-	0.5 - 50	Balance		
	5	-	-	-	-	0.5 - 50	Balance		
O	1	-	100	-	-	-	-	Autogenous flame cutting	























# capilla



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