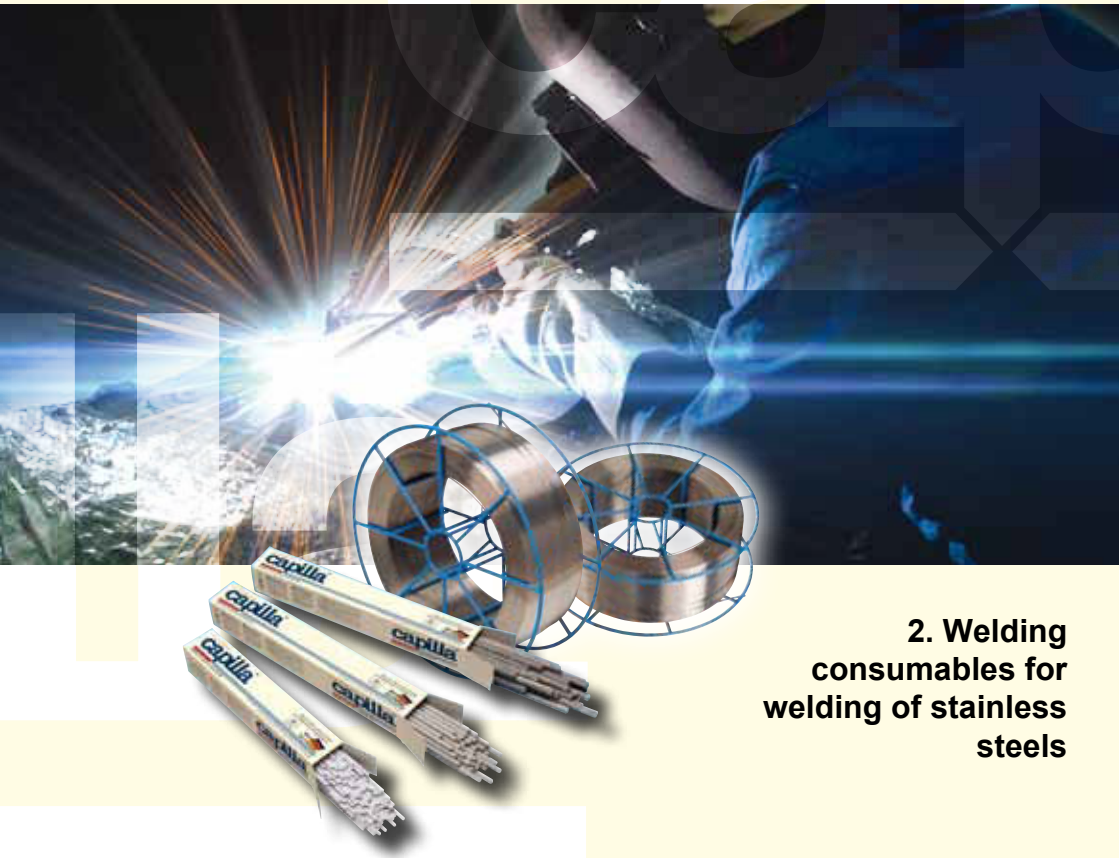
capilla®

Part catalogue



2. Welding consumables for welding of stainless steels

2 Welding consumables for welding of stainless steels

2.1 Coated stick electrodes for welding of stainless steels

capilla®	EN ISO 3581-A:	Mat.-No.:	AWS:	Page
308 L	E 19 9 LR 12	1.4316	E 308 L-16	**25**
308 LR	E 19 9 LR 12	1.4316	E 308 L-17	**26**
308 KB	E 19 9 LB 12	1.4316	E 308 L-15	**27**
347	E 19 9 Nb R 12	1.4551	E 347-16	**28**
347 LR	E 19 9 Nb R 12	1.4551	E 347-17	**29**
316 L	E 19 12 3 LR 12	1.4430	E 316 L-16	**30**
316 LR	E 19 12 3 LR 12	1.4430	E 316 L-17	**31**
316 KB	E 19 12 3 LB 12	1.4430	E 316 L-15	**32**
316 LF	E 16 12 3 LR 12	1.4430	E 316 L-16	**33**
317-17	E 18 16 5 LR 32	1.4440	~E 317 L-17	**34**
318	E 19 12 3 Nb R 12	1.4576	E 318-16	**35**
318 LR	E 19 12 3 Nb R 12	1.4576	E 318-17	**36**
2209	E 22 9 3 LR 32	1.4462	E 2209 L-26	**37**
4460 Cu	EZ 25 9 3 CuWN LR 32	~1.4501	~E 25 5 3 L-26	**38**
4460 Cu B	E 25 9 4 LB 32	~1.4501	~E 25 5 3 L-26	**39**
4507	E 25 9 3 CuN LR 32	1.4507	-	**40**
309 L	E 23 12 LR 32	~1.4332	~E 309 L-26	**41**
309 LR	E 23 12 LR 32	~1.4332	~E 309 L-27	**42**
309 L KB	E 23 12 LB 32	1.4332	E 309 L-15	**43**
309 Mo	E 23 12 2 LR 32	1.4459	E 309 Mo-26	**44**
51 Ti	E 18 8 Mn R 12	1.4370	~E 307-16	**45**
51 KBN	E 18 8 Mn B 32	1.4370	E 307-15	**46**
4370 Ti	E 18 8 Mn R 12	1.4370	~E 307-17	**47**
51 Mo	E 18 8 MnMo R 12	~1.4370	~E 307-16	**48**
52 K	E 29 9 R 12	1.4337	E 312-16	**49**
52 K Mo	EZ 29 9 3 R 32	-	-	**50**
310	E 25 20 R 12	~ 1.4842	E 310-16	**51**
310 KB	E 25 20 B 12	1.4842	E 310-15	**52**
310 Mo	E 25 20 3 R 12	1.4466	E 310 Mo-16	**53**
4455	EZ 20 16 3 Mn 3 LR 32	1.4455	--	**54**
385	E 20 25 5 Cu L R 32	~1.4539	E 385 L-26	**55**

2.2 Wire electrodes for welding of stainless steels

2.2.1 Solid wires for gas shielded arc welding of stainless steels

capilla®	DIN EN ISO 14343-A:	Mat.-No.:	AWS:	Page
308 L MAG	G 19 9 L Si	1.4316	ER 308 L Si	**56**
347 MAG	G 19 9 Nb Si	1.4551	ER 347 Si	**56**
316 L MAG	G 19 12 3 L Si	1.4430	ER 316 L Si	**56**
318 MAG	G 19 12 3 Nb Si	1.4576	ER 318 Si	**56**
2209 MAG	G 22 9 3 L Si	1.4462	ER 2209 L	**56**
4460 Cu MAG	G 25 9 3 N L Si	~1.4501	ER 2594	**56**
309 L MAG	G 23 12 L Si	1.4332	ER 309 L	**56**
51 MAG	G 18 8 Mn	1.4370	ER 307	**56**
52 MAG	G 29 9	1.4337	~ER 312	**56**
317 MAG	G 18 16 5 L	1.4440	ER 317 L	**56**
310 MAG	G 25 20 Si	1.4842	ER 310	**56**
385 MAG	G 20 25 5 Cu	1.4539	ER 385 L	**56**

2.2.2 Welding rods for tungsten inert gas welding of stainless steels

capilla®	DIN EN ISO 14343-A:	Mat.-No.:	AWS:	Page
308 L WIG	W 19 9 L Si	1.4316	ER 308 L Si	**57**
347 WIG	W 19 9 Nb Si	1.4551	ER 347 Si	**57**
316 L WIG	W 19 12 3 L Si	1.4430	ER 316 L Si	**57**
318 WIG	W 19 12 3 Nb Si	1.4576	ER 318 Si	**57**
2209 WIG	W 22 9 3 L	1.4462	ER 2209 L	**57**
4460 Cu WIG	W 25 9 4 N L	~1.4501	ER 2594	**57**
309 L WIG	W 23 12 L Si	1.4332	ER 309 L	**57**
51 WIG	W 18 8 Mn	1.4370	ER 307	**57**
52 WIG	W 29 9	1.4337	~ER 312	**57**
317 WIG	W 18 16 5 L	1.4440	ER 317 L	**57**
310 WIG	W 25 20 Si	1.4842	ER 310	**57**
385 WIG	W 20 25 5 Cu	~ 1.4539	ER 385 L	**57**

2.2.3 Tubular wires for gas shielded arc welding of stainless steels

capilla®	EN ISO 17633-A	Mat.-No.:	AWS	Page
G 308 L RM	T 19 9 L RM	1.4316	E 308 LT0-4	**58**
G 316 L RM	T 19 12 3 L RM	1.4430	E 316 LT1-4	**58**
G 347 RM	T 19 9 Nb RM	1.4551	E 347 T1-4	**58**
G 309 L RM	T 23 12 L RM	1.4332	E 309 LT1-4	**58**
G 318 RM	T 19 12 3 Nb RM	1.4576	E 318 T1-4	**58**
G 2209 RM	T 22 9 3 N L RM	1.4462	E 22 5 3 LT1-4	**58**
G 4507 RM	TZ 25 9 4 CuN L RM	1.4507	~E 2563 LT1-4	**58**
G 51 RM	T 19 9 Mn RM	1.4370	E 307 T1-4	**58**
G 52 RM	T 29 9 RM	1.4337	E 312 T1-4	**58**
G 310 RM	T 25 20 L RM	1.4842	E 310 T1-4	**58**

Standards:	
EN ISO 3581-A:	E 19 9 LR 12
EN 1600:	E 19 9 LR 12
AWS A 5.4:	E 308 L-16
Mat.-No.:	1.4316
Approvals:	**TÜV, DB**

capilla® 308 L

Product description:

Rutile-basic coated stick electrode for welding of non-stabilized austenitic stainless Cr-Ni steels with extra low carbon content; suitable for service temperatures of up to 350°C; good low temperature properties down to -196°C.

Applications:

Suitable for materials as:
1.4300, 1.4301, 1.4303, 1.4306, 1.4308, 1.4311, 1.4312, 1.4371, 1.4541, 1.4543, 1.4550, 1.4552.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Fe
Min.		**18**	**9**	
Max.	**0,03**	**20**	**11**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	550	[MPa]
Yield strength $R_{p0,2}$:	320	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	35	[%]
Impact strength (ISO-V):	70	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]	Polarity
2,0	300	40 – 60	=(+)~
2,5	300	50 – 90	
3,25	350	80 – 110	
4,0	350	100 – 150	
5,0	450	150 – 200	

also available:
find in table of content

Capilla 308 H
Capilla 308 KB
Capilla 308 LR

Capilla 308 L MAG
Capilla 308 L WIG
Capilla G 308 L RM (tubular wire)

Standards:

EN ISO 3581-A:	E 19 9 LR 12
EN 1600:	E 19 9 LR 12
AWS A 5.4:	E 308 L-17
Mat.-No.:	1.4316
Approvals:	**TÜV**

capilla® 308 LR

Product description:

Rutile coated stick electrode for welding of non-stabilized austenitic stainless Cr-Ni steels with extra low carbon content; suitable for service temperatures of up to 350°C; good low temperature properties down to -78°C.

Applications:

Suitable for materials as:
1.4300, 1.4301, 1.4303, 1.4306, 1.4308, 1.4311, 1.4312, 1.4371, 1.4541, 1.4543, 1.4550, 1.4552.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Fe
Min.		**18**	**9**	
Max.	**0,03**	**20**	**11**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	550	[MPa]
Yield strength $R_{p0,2}$:	320	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	35	[%]
Impact strength (ISO-V):	70	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 – 60
2,5	300	50 – 90
3,25	350	80 – 110
4,0	350	100 – 150
5,0	450	150 – 200

Polarity =(+)~

also available:
find in table of content

Capilla 308 H
Capilla 308 KB
Capilla 308 L

Capilla 308 L MAG
Capilla 308 L WIG
Capilla G 308 L RM (tubular wire)

Standards:	
EN ISO 3581-A:	E 19 9 LB 12
EN 1600:	E 19 9 LB 12
AWS A 5.4:	E 308 L-15
Mat.-No.:	1.4316

capilla® 308 KB

Product description:

Basic coated stick electrode for welding of non-stabilized austenitic stainless Cr-Ni steels with extra low carbon content; suitable for service temperatures of up to 350°C; good low temperature properties down to -196°C.

Applications:

Suitable for materials as:
1.4300, 1.4301, 1.4303, 1.4306, 1.4308, 1.4311, 1.4312, 1.4371, 1.4541, 1.4543, 1.4550, 1.4552.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Fe
Min.		**18**	**9**	
Max.	**0,03**	**20**	**11**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	550	[MPa]
Yield strength $R_{p0,2}$:	320	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	35	[%]
Impact strength (ISO-V):	70	[J]

Positions: all except PG

Redrying: 320°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 – 60
2,5	300	50 – 90
3,25	350	80 – 110
4,0	350	100 – 150
5,0	450	150 – 200

Polarity =(+)

also available:
find in table of content

Capilla 308 H
Capilla 308 HL
Capilla 308 L
Capilla 308 LR

Capilla 308 L MAG
Capilla 308 L WIG
Capilla G 308 L RM (tubular wire)

Standards:

EN ISO 3581-A:	E 19 9 Nb R 12
EN 1600:	E 19 9 Nb R 12
AWS A 5.4:	E 347-16
Mat.-No.:	1.4551
Approvals:	**TÜV, DB**

capilla® 347

Product description:

Rutile-basic coated stick electrode suitable for welding of Nb- and/or Ti-stabilized, austenitic stainless steels. Weld deposit consists of stabilized austenitic CrNi-steel. Service temperatures up to 400°C.

Applications:

Suitable for materials as:
1.4301, 1.4303, 1.4306, 1.4308, 1.4310, 1.4312, 1.4319, 1.4541, 1.4550, 1.4552.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Nb	Fe
Min.		**18**	**9**	**10 x %C**	
Max.	**0,03**	**20**	**11**		**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	600	[MPa]
Yield strength $R_{p0,2}$:	400	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	30	[%]
Impact strength (ISO-V):	65	[J]

Positions: all

Redrying:: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 – 60
2,5	300	50 – 90
3,25	350	80 – 110
4,0	350	100 – 150
5,0	450	150 – 200

Polarity =(+)~

also available:
find in table of content

Capilla 347 LR
Capilla 347 MAG
Capilla 347 WIG

Standards:

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
Mat.-No.:	1.4551

capilla® 347 LR

Product description:

Rutile coated stick electrode suitable for welding of Nb- and/or Ti-stabilized, austenitic stainless steels. Weld deposit consists of stabilized austenitic CrNi-steel. Service temperatures up to 400°C.

Applications:

Suitable for materials as:
1.4301, 1.4303, 1.4306, 1.4308, 1.4310, 1.4312, 1.4319, 1.4541, 1.4550, 1.4552.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Nb	Fe
Min.		**18**	**9**	**10 x %C**	
Max.	**0,03**	**20**	**11**		**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	600	[MPa]
Yield strength $R_{p0,2}$:	400	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	30	[%]
Impact strength (ISO-V):	65	[J]

Positions: all

Redrying:: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]	Polarity
2,0	300	40 – 60	=(+)~
2,5	300	50 – 90	
3,25	350	80 – 110	
4,0	350	100 – 150	
5,0	450	150 – 200	

also available:
find in table of content

Capilla 347
Capilla 347 MAG
Capilla 347 WIG

Standards:

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
Mat.-No.:	1.4430
Approvals:	**TÜV, DB**

capilla® 316 L

Product description:

Rutile-basic coated stick electrode for welding of austenitic stainless Cr-Ni-Mo steels with extra low carbon content. Service temperatures up to 400°C.

Applications:

Suitable for materials as:
1.4401, 1.4404, 1.4406, 1.4408, 1.4420, 1.4435, 1.4436, 1.4571, 1.4573, 1.4580, 1.4581, 1.4583.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mo	Fe
Min.		**18**	**11**	**2,5**	
Max.	**0,03**	**20**	**13**	**3**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	550	[MPa]
Yield strength $R_{p0,2}$:	320	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	35	[%]
Impact strength (ISO-V):	70	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]	**Polarity**
2,0	300	40 – 60	=(+)~
2,5	300	60 – 90	
3,25	350	80 – 110	
4,0	350	100 – 150	
5,0	450	150 – 200	

also available:
find in table of content

Capilla 316 H
Capilla 316 KB
Capilla 316 LF
Capilla 316 LR

Capilla 316 L MAG
Capilla 316 L WIG
Capilla G 316 L RM (tubular wire)

Standards:	
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-17
Mat.-No.:	1.4430
Approvals:	**TÜV**

capilla® 316 LR

Product description:

Rutile coated stick electrode for welding of austenitic stainless Cr-Ni-Mo steels with extra low carbon content. Service temperatures up to 400°C.

Applications:

Suitable for materials as:
1.4401, 1.4404, 1.4406, 1.4408, 1.4420, 1.4435, 1.4436, 1.4571, 1.4573, 1.4580, 1.4581, 1.4583.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mo	Fe
Min.		**18**	**11**	**2,5**	
Max.	**0,03**	**20**	**13**	**3**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	550	[MPa]
Yield strength $R_{p0,2}$:	320	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	35	[%]
Impact strength (ISO-V):	70	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 – 60
2,5	300	60 – 90
3,25	350	80 – 110
4,0	350	100 – 150
5,0	450	150 – 200

Polarity =(+)~

also available:
find in table of content

Capilla 316 H
Capilla 316 KB
Capilla 316 L
Capilla 316 LF
Capilla 316 L MAG
Capilla 316 L WIG
Capilla G 316 L RM (tubular wire)

Standards:

EN ISO 3581-A:	E 19 12 3 LB 12
EN 1600:	E 19 12 3 LB 12
AWS A 5.4:	E 316 L-15
Mat.-No.:	1.4430

capilla® 316 KB

Product description:

Basic coated stick electrode for welding of austenitic stainless Cr-Ni-Mo steels with extra low carbon content;

Service temperatures up to 400°C

Applications:

Suitable for materials as:
1.4401, 1.4404, 1.4406, 1.4408, 1.4420, 1.4435, 1.4436, 1.4571, 1.4573, 1.4580, 1.4581, 1.4583.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mo	Fe
Min.		**18**	**11**	**2,5**	
Max.	**0,03**	**20**	**13**	**3**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	550	[MPa]
Yield strength $R_{p0,2}$:	320	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	35	[%]
Impact strength (ISO-V):	70	[J]

Positions: all except PG

Redrying: 320°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]	**Polarity**
2,0	300	40 – 60	=(+)~
2,5	300	60 – 90	
3,25	350	80 – 110	
4,0	350	100 – 150	
5,0	450	150 – 200	

also available:
find in table of content

Capilla 316 H
Capilla 316 L
Capilla 316 LF
Capilla 316 LR

Capilla 316 L MAG
Capilla 316 L WIG
Capilla G 316 L RM (tubular wire)

Standards:

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
Mat.-No.:	1.4430

capilla® 316 LF

Product description:

Rutile-basic coated stick electrode for welding of austenitic stainless Cr-Ni-Mo steels with extra low carbon content;
Service temperatures up to 400°C;

Suitable for welding in vertical down (VD) position

Applications:

Suitable for materials as:
1.4401, 1.4404, 1.4406, 1.4408, 1.4420, 1.4435, 1.4436, 1.4571, 1.4573, 1.4580, 1.4581, 1.4583.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mo	Fe
Min.		**18**	**11**	**2,5**	
Max.	**0,03**	**20**	**13**	**3**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	550	[MPa]
Yield strength $R_{p0,2}$:	320	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	35	[%]
Impact strength (ISO-V):	70	[J]

Positions: all

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 – 60
2,5	300	60 – 90
3,25	350	80 – 110
4,0	350	100 – 150
5,0	450	150 – 200

Polarity =(+)~

also available:
find in table of content

Capilla 316 H
Capilla 316 KB
Capilla 316 L
Capilla 316 LR

Capilla 316 L MAG
Capilla 316 L WIG
Capilla G 316 L RM (tubular wire)

Standards:

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
Mat.-No.:	1.4440

capilla® 317 - 17

Product description:

Rutile coated stick electrode for welding of austenitic stainless Cr-Ni-Mo steelswith extra low carbon content;

Service temperatures up to 400°C;

The weld metal has a good resistance to IC- and pitting corrosion especially if exposed to chloridic media and is non-magnetic.

Applications:

Cladding and fusion welding of similar alloyed steel grades e.g.

1.4439, 1.4438, 1.4429.

Furthermore suitable for fusion welding of these steels with corrosion resistant Cr-steels and non-alloyed steels;
Buffer layers

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mo	N	Fe
Min.		**18**	**16**	**4,0**		
Max.	**0,03**	**19**	**17**	**5,0**	**0,1**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	600	[MPa]
Yield strength $R_{p0,2}$:	440	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	30	[%]
Impact strength (ISO-V):	70	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]	Polarity
2,5	300	40 – 60	=(+)~
2,5	300	50 – 90	
3,25	350	80 – 110	
4,0	350/450	100 – 150	
5,0	450	150 – 200	

also available:
find in table of content

Capilla 317 MAG
Capilla 317 WIG

Standards:

EN ISO 3581-A:	E 19 12 3 Nb R 12
EN 1600:	E 19 12 3 Nb R 12
AWS A 5.4:	E 318-16
Mat.-No.:	1.4576
Approvals:	**TÜV, DB**

capilla® 318

Product description:

Rutile-basic coated stick electrode for welding of austenitic stainless Cr-Ni-Mo-steels especially for Nb-and Ti - stabilised types of steel with extra low carbon content;

Service temperatures up to 400°C

Applications:

Suitable for materials such as:
1.4571, 1.4573, 1.4580, 1.4581, 1.4583, 1.4401, 1.4404, 1.4408 1.4420, 1.4435, 1.4436.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mo	Nb	Fe
Min.		**18**	**12**	**2,5**	**10 x %C**	
Max.	**0,03**	**20**	**13**	**3**		**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	600	[MPa]
Yield strength $R_{p0,2}$:	440	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	30	[%]
Impact strength (ISO-V):	70	[J]

Positions: all

Redrying:: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]	Polarity
2,0	300	40 – 60	=(+)~
2,5	300	50 – 90	
3,25	350	80 – 110	
4,0	350	100 – 150	
5,0	450	150 – 200	

also available:
find in table of content

Capilla 318 KB
Capilla 318 LR

Capilla 318 MAG
Capilla 318 WIG
Capilla G 318 RM (tubular wire)

Standards:

EN ISO 3581-A:	E 19 12 3 Nb R 12
EN 1600:	E 19 12 3 Nb R 12
AWS A 5.4:	E 318-17
Mat.-No.:	1.4576
Approvals:	**TÜV**

capilla® 318 LR

Product description:

Rutile coated stick electrode for welding of austenitic stainless Cr-Ni-Mo-steels especially for Nb-and Ti - stabilised types of steel with extra low carbon content;

Service temperatures up to. 400°C

Applications:

Suitable for materials such as:
1.4571, 1.4573, 1.4580, 1.4581, 1.4583, 1.4401, 1.4404, 1.4408, 1.4420, 1.4435, 1.4436.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mo	Nb	Fe
Min.		**18**	**11**	**2,5**	**10 x %C**	
Max.	**0,03**	**20**	**13**	**3**		**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	600	[MPa]
Yield strength $R_{p0,2}$:	440	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	30	[%]
Impact strength (ISO-V):	70	[J]

Positions: all

Redrying:: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]	Polarity
2,0	300	40 – 60	=(+)~
2,5	300	50 – 90	
3,25	350	80 – 110	
4,0	350	100 – 150	
5,0	450	150 – 200	

also available:
find in table of content

Capilla 318 KB
Capilla 318 L
Capilla 318 MAG

Capilla 318 WIG
Capilla G 318 RM (tubular wire)

Standards:

EN ISO 3581-A:	E 22 9 3 N LR 32
EN 1600:	E 22 9 3 N LR23
AWS A 5.4:	E 2209 L - 16
Mat.-No.:	1.4462
Recovery:	**120%**

capilla® 2209

Product description:

Rutile-basic coated stick electrode for overlay and fusion welding of corrosion resistant Cr-Ni-Mo alloyed Duplex-steels;

The weld metal has a ferritic-austenitic structure and is very resistant against wet corrosion in chloridic and H_2S containing media.

Maximum service temperature: 300°C

Applications:

This electrode is suitable for overlay and fusion welding of similar alloyed high corrosion resistant steels

(1.4462, 1.4362)

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mo	N	Fe
Min.		**21**	**9**	**2,8**		
Max.	**0,03**	**23**	**10**	**3,3**	**0,15**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	690	[MPa]
Yield strength $R_{p0,2}$:	480	[MPa]
Yield strength $R_{p1,0}$:	520	[MPa]
Elongation (L=5d):	25	[%]
Impact strength (ISO-V):	50	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]	Polarity
2,5	300	60 – 90	=(+)~
3,25	350	80 – 120	
4,0	350	110 – 170	

also available:
find in table of content

Capilla 2209 MAG
Capilla 2209 WIG

Standards:

EN ISO 3581-A: E 25 9 3 N LR 32
EN 1600: EZ 25 9 3 Cu N LR 23
Mat.-No.: ~1.4501

Recovery: **130%**

capilla® 4460 Cu

Product description:

Rutile-basic coated stick electrode for welding of super duplex steels. Good resistance against inter-crystalline corrosion, stress corrosion cracking and pitting corrosion;

Suitable for applications requiring a combination of very good corrosion resistance and excellent mechanical properties;

Service temperature ≤ 250°C.

Applications:

Overlay and fusion welding of super duplex stainless steel;

Base metals:

GX 3 CrNiMoCuN 26-6-3 (1.4515),
GX 3 CrNiMoCuN 26.6-3-3 (1.4517),
25%-Cr super duplex steels (SAF 25/07; Zeron 100)

Typical weld metal composition:

[wt. - %]

	C	Si	Cr	Ni	Mo	Mn	W	Cu	N	Fe
Min.			**24**	**8**	**2,5**	**1**	**0,5**	**0,5**	**0,15**	
Max.	**0,02**	**0,8**	**26**	**10**	**3,5**	**1,2**	**0,7**	**0,8**	**0,18**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	730	[MPa]
Yield strength $R_{p0,2}$:	550	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	23	[%]
Impact strength (ISO-V):	50	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 – 90
3,25	350	80 – 120
4,0	350	110 – 170
5,0	450	150 – 200

Polarity =(+)~

also available:
find in table of content

Capilla 4460 Cu MAG
Capilla 4460 Cu WIG

Standards:

EN ISO 3581-A	E 25 9 4 N LB 12
EN 1600	E 25 9 3 N LB 12
Mat.-No.:	~1.4501

capilla® 4460 CuB

Product description:

Basic coated stick electrode for welding of super duplex steels. Good resistance against inter-crystalline corrosion, stress corrosion cracking and pitting corrosion;

Suitable for applications requiring a combination of very good corrosion resistance and excellent mechanical properties;

Service temperature ≤ 250°C.

Applications:

Overlay and fusion welding of super duplex stainless steel;

Base metals:

GX 3 CrNiMoCuN 26-6-3 (1.4515),
GX 3 CrNiMoCuN 26.6-3-3 (1.4517),
25%-Cr super duplex steels (SAF 25/07; Zeron 100)

Typical weld metal composition:

[wt. - %]

	C	Si	Cr	Ni	Mo	Mn	W	Cu	N	Fe
Min.			**24**	**8**	**2,5**	**1**	**0,5**	**0,5**	**0,15**	
Max.	**0,02**	**0,8**	**26**	**10**	**3,5**	**1,2**	**0,7**	**0,8**	**0,18**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	730	[MPa]
Yield strength $R_{p0,2}$:	550	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	23	[%]
Impact strength (ISO-V):	50	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 – 90
3,25	350	80 – 120
4,0	350	110 – 170
5,0	450	150 – 200

Polarity =(+)~

also available:
find in table of content

Capilla 4460 Cu MAG
Capilla 4460 Cu WIG

Standards:

EN ISO 3581-A: E 25 9 3 Cu N B 32
EN 1600: E 25 6 3 Cu LB 23
Mat.-No.: 1.4507

capilla® 4507

Product description:

Rutile-basic coated stick electrode for welding of super duplex steels. Good resistance against intercrystalline corrosion, stress corrosion cracking and pitting corrosion;

Suitable for applications requiring a combination of very good corrosion resistance and excellent mechanical properties;

Service temperature ≤ 250°C

Applications:

Overlay and fusion welding of super duplex stainless steels.

Base metals:

GX 3 CrNiMoCuN 26-6-3 (1.4515),
GX 3 CrNiMoCuN 26.6-3-3 (1.4517)

Typical weld metal composition:

[wt. - %]

	C	Si	Cr	Ni	Mo	Mn	N	Cu	Fe
Min.			**24,5**	**9**	**3**	**0,8**	**0,15**	**1,5**	
Max.	**0,03**	**1**	**26**	**10**	**4**	**1,2**	**0,2**	**2,5**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	720	[MPa]
Yield strength $R_{p0,2}$:	530	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	15	[%]
Impact strength (ISO-V):	50	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 – 60
2,5	300	60 – 90
3,25	350	80 – 110
4,0	350	100 – 150
5,0	450	150 – 200

Polarity =(+)~

also available:
find in table of content

Capilla G 4507 RM (tubular wire)

Standards:

EN ISO 3581-A:	E 23 12 LR 32
EN 1600:	E 23 12 LR 32
AWS A 5.4:	E 309 L-26
Mat.-No.:	~1.4332
Recovery:	**120%**

capilla® 309 L

Product description:

Rutile-basic coated stick electrode for overlay and fusion weldings of similar or lower alloyed heat-resistant CrNi-steels;

Service temperature ≤ 300°C ;

The weld metal is scaling resistant up to 1050°C;

Suitable for overlay weldings onto non-alloyed steels if an 18/8 Cr-Ni alloy composition has to be achieved in the first layer

Applications:

Claddings, buffer layers and joints, suitable for steels such as:

1.4541, 1.4550, 1.4710, 1.4712, 1.4727, 1.4729, 1.4740, 1.4742, 1.4780, 1.4825, 1.4826, 1.4828, 1.4878

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Fe
Min.		**21**	**11**	
Max.	**0,03**	**23**	**13**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	550	[MPa]
Yield strength $R_{p0,2}$:	400	[MPa]
Yield strength $R_{p1,0}$:	430	[MPa]
Elongation (L=5d):	30	[%]
Impact strength (ISO-V):	55	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 – 60
2,5	300	60 – 90
3,25	350	80 – 110
4,0	350	100 – 150
5,0	450	150 – 200

Polarity =(+)~

also available:
find in table of content

Capilla 309 L KB
Capilla 309 LR
Capilla 309 L MAG

Capilla 309 L WIG
Capilla G 309 L RM (tubular wire)

Standards:

EN ISO 3581-A:	E 23 12 LR 32
EN 1600:	E 23 12 LR 32
AWS A 5.4:	E 309 L-27
Mat.-No.:	~1.4332
Recovery:	**120%**

capilla® 309 LR

Product description:

Rutile coated stick electrode for overlay and fusion weldings of similar or lower alloyed heat-resistant CrNi-steels.
Service temperature of max. 300°C;

the weld metal is scaling resistant up to 1050°C;

Suitable for overlay weldings onto non-alloyed steels if an 18/8 Cr-Ni alloy composition has to be achieved in the first layer

Applications:

Claddings, buffer layers and joints, suitable for steels such as:

1.4541, 1.4550, 1.4710, 1.4712, 1.4727, 1.4729, 1.4740, 1.4742, 1.4780, 1.4825, 1.4826, 1.4828, 1.4878

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Fe
Min.		**21**	**11**	
Max.	**0,03**	**23**	**13**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	550	[MPa]
Yield strength $R_{p0,2}$:	400	[MPa]
Yield strength $R_{p1,0}$:	430	[MPa]
Elongation (L=5d):	30	[%]
Impact strength (ISO-V):	55	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 – 60
2,5	300	60 – 90
3,25	350	80 – 110
4,0	350	100 – 150
5,0	450	150 – 200

Polarity =(+)~

also available:
find in table of content

Capilla 309 L KB
Capilla 309 L
Capilla 309 L MAG

Capilla 309 L WIG
Capilla G 309 L RM (tubular wire)

Standards:

EN ISO 3581-A: E 23 12 L B 32
AWS SFA-5.4: ~E 309L-15
Mat.-No.: ~1.4332

capilla® 309 L KB

Product description:

Basic coated stick electrode for overlay and fusion weldings of similar or lower alloyed heat-resistant CrNi-steels;

Service temperature of max. 300°C;

The weld metal is scaling resistant up to 1050°C.

Suitable for overlay weldings onto non-alloyed steels if an 18/8 Cr-Ni alloy composition has to be achieved in the first layer.

Applications:

Claddings, buffer layers and joints, suitable for steels such as:

1.4541, 1.4550, 1.4710, 1.4712, 1.4727, 1.4729, 1.4740, 1.4742, 1.4780, 1.4825, 1.4826, 1.4828, 1.4878

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Fe
Min.		**21**	**11**	
Max.	**0,03**	**23**	**13**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	550	[MPa]
Yield strength $R_{p0,2}$:	400	[MPa]
Yield strength $R_{p1,0}$:	430	[MPa]
Elongation (L=5d):	30	[%]
Impact strength (ISO-V):	55	[J]

Positions: all except PG

Redrying: 320°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 – 60
2,5	300	60 – 90
3,25	350	80 – 110
4,0	350	100 – 150
5,0	450	150 – 200

Polarity =(+)~

also available:
find in table of content

Capilla 309 L
Capilla 309 LR
Capilla 309 L MAG

Capilla 309 L WIG
Capilla G 309 L RM (tubular wire)

Standards:

EN ISO 3581-A:	E 23 12 2 LR 32
EN 1600:	E 23 12 2 LR 32
AWS A 5.4:	E 309 Mo-26
Mat.-No.:	1.4459
Approvals:	**TÜV, DB**

capilla® 309 Mo

Product description:

Rutile-basic coated stick electrode for fusion welding of similar or lower alloyed CrNiMo-steels;

Especially suitable for overlay weldings onto non-alloyed steels if an 18/8/2 CrNiMo alloy has to be realised in the first layer.

Scaling resistant up to 1050°C.

Applications:

Fusion welding and cladding of material such as:

1.4401, 1.4404, 1.4406, 1.4410, 1.4437, 1.4571, 1.4580;

Also suitable for dissimilar joints of high and low alloyed steels

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mo	Fe
Min.		**23**	**11**	**2,5**	
Max.	**0,03**	**24**	**13**	**3,5**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	650	[MPa]
Yield strength $R_{p0,2}$:	460	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	30	[%]
Impact strength (ISO-V):	55	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 – 60
2,5	300	60 – 90
3,25	350	80 – 110
4,0	350	100 – 150
5,0	450	150 – 200

Polarity =(+)~

also available:
find in table of content

Capilla 309 Mo MAG
Capilla 309 Mo WIG

Standards:

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

capilla® 51 Ti

Product description:

Rutile-basic coated stick electrode for fusion welding of dissimilar steels and for cladding;

The weld metal consists of austenitic Cr-Ni-Mn-steel for service temperatures of up to 300°C.

Applications:

Welding of dissimilar joints, fusion welding of high carbon steels and work hardening manganese steels e.g. X 120 Mn 12 (1.3401);

Fusion welding of “hard to weld” steels;

Buffer layers for hardfacing.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mn	Fe
Min.		**17**	**7**	**5**	
Max.	**0,1**	**19**	**9**	**7**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	600	[MPa]
Yield strength $R_{p0,2}$:	350	[MPa]
Yield strength $R_{p1,0}$:	400	[MPa]
Elongation (L=5d):	40	[%]
Impact strength (ISO-V):	70	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]	Polarity
2,5	300	60 – 90	=(+)~
3,25	350	80 – 110	
4,0	350	100 – 150	
5,0	350/450	150 – 200	

also available:
find in table of content

Capilla 51 KBN
Capilla 51 W
Capilla 51 MAG
Capilla 51 WIG
Capilla G 51 MM (tubular wire)
Capicoat 51

Standards:

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
Mat.-No.:	1.4370
Approvals:	**TÜV, DB**

capilla® 51 KBN

Product description:

Basic coated electrode for fusion welding of dissimilar steels and for cladding. The weld metal consists of austenitic Cr-Ni-Mn- steel for service temperatures of up to 300 °C.

Thin coated stick electrode especially suitable for repair welding of rails.

Applications:

Welding of dissimilar joints, fusion welding of high carbon steels and work hardening manganese steels e.g. X 120 Mn 12 (1.3401);

Fusion welding of “hard to weld” steels;

Buffer layers for hardfacing

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mn	Fe
Min.		**17**	**7**	**5**	
Max.	**0,1**	**19**	**9**	**7**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	600	[MPa]
Yield strength $R_{p0,2}$:	350	[MPa]
Yield strength $R_{p1,0}$:	400	[MPa]
Elongation (L=5d):	40	[%]
Impact strength (ISO-V):	70	[J]

Positions: all except PG

Redrying: 320°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 – 90
3,25	350	80 – 110
4,0	350	100 – 150
5,0	350/450	150 – 200

Polarity =(+)~

also available:
find in table of content

Capilla 51 Ti
Capilla 51 W
Capilla 51 MAG

Capilla 51 WIG
Capilla G 51 MM (tubular wire)
Capicoat 51

Standards:

EN ISO 3581-A	E 18 8 Mn R 12
EN 1600	E 18 8 Mn R 12
EN14700:	E Fe 10-200/400-cnz
AWS A 5.4:	~ E 307-17
Mat.-No.:	1.4370

capilla® 4370 Ti

Product description:

Rutile coated stick electrode for fusion welding of dissimilar steels and for cladding.

The weld metal consists of austenitic Cr-Ni-Mn-steel for service temperatures of up to 300°C.

Applications:

Welding of dissimilar joints, fusion welding of high carbon steels and work hardening manganese steels e.g. X 120 Mn 12 (1.3401);

Fusion welding of “hard to weld” steels;

Buffer layers for hardfacing.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mn	Fe
Min.		**17**	**7**	**5**	
Max.	**0,1**	**19**	**9**	**7**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	600	[MPa]
Yield strength $R_{p0,2}$:	350	[MPa]
Yield strength $R_{p1,0}$:	400	[MPa]
Elongation (L=5d):	40	[%]
Impact strength (ISO-V):	70	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]	Polarity
2,5	300	60 – 90	=(+)~
3,25	350	80 – 110	
4,0	350	100 – 150	
5,0	350/450	150 – 200	

also available:
find in table of content

Capilla 51 KBN
Capilla 51 W
Capilla 51 MAG
Capilla 51 WIG
Capilla G 51 MM (tubular wire)
Capicoat 51

Standards:

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

capilla® 51 Mo

Product description:

Rutile-basic coated stick electrode for fusion welding of dissimilar steels and for cladding.

The weld metal consists of austenitic Cr-Ni-Mn-Mo-steel for service temperatures of up to 300°C.

Applications:

Welding of dissimilar joints, fusion welding of high carbon steels and work hardening manganese steels e.g. X 120 Mn 12 (1.3401).

Fusion welding of “hard to weld” steels.

Buffer layers for hardfacing.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mn	Mo	Fe
Min.		**19**	**8**	**4**	**0,5**	
Max.	**0,1**	**20**	**9**	**5**	**0,8**	**Rest**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	700	[MPa]
Yield strength $R_{p0,2}$:	500	[MPa]
Yield strength $R_{p1,0}$:	400	[MPa]
Elongation (L=5d):	35	[%]
Impact strength (ISO-V):	70	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	60 – 90
3,25	350	80 – 110
4,0	350	100 – 150
5,0	350/450	150 – 200

Polarity =(+)~

also available:
find in table of content

Capilla 51 KBN
Capilla 51 W
Capilla 51 MAG

Capilla 51 WIG
Capilla G 51 MM (tubular wire)
Capicoat 51

Standards:

EN ISO 3581-A:	E 29 9 R 12
EN 1600:	E 29 9 R 12
AWS A 5.4:	E 312-16
Mat.-No.:	1.4337
Approvals:	**DB**

capilla® 52 K

Product description:

Rutile-basic coated stick electrode for joint welding of dissimilar steels; very good suitability for buffer layers and overlay weldings.
The electrode produces a very soft arc and self-removing slags; easy to weld without any splatters.
The weld metal has a ferritic-austenitic microstructure (high strength duplex stainless steel).

Applications:

Corrosion resistant like similar alloyed steel and steel cast e.g.

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

Suitable for difficult to weld steels, e.g. constructional steel with high tensile strength, cladding of rail steels, fusion welding of high alloyed manganese steels and joints of this steels with high-alloyed steel, suitable for repair and maintenance.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Fe
Min.		**27,5**	**8**	
Max.	**0,1**	**30**	**10**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	750	[MPa]
Yield strength $R_{p0,2}$:	500	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	20	[%]
Impact strength (ISO-V):	40	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
1,6	250	30 – 50
2,0	250	40 – 60
2,5	300	60 – 90
3,25	350	80 – 110
4,0	350	100 – 150
5,0	350	150 – 200

Polarity =(+)~

also available:
find in table of content

Capilla 52
Capilla 52 MAG
Capilla 52 WIG

Standards:

EN ISO 3581-A: EZ 29 9 3 R 32
EN 1600: EZ 29 9 3 R 32

capilla® 52 K Mo

Product description:

Rutile-basic coated stick electrode for joint welding of dissimilar steels;
very good suitability for buffer layers and overlay weldings;
The electrode produces a very soft arc and self-removing slags, easy to weld without any splatters.
The weld metal has a ferritic-austenitic microstructure (high strength duplex stainless steel).

Very good mechanical properties and corrosion resistance even in comparison to Capilla 52 K.

Applications:

Corrosion resistant like similar alloyed steel and steel cast e.g.

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

Suitable for difficult to weld steels, e.g. constructional steel with high tensile strength, fusion welding of high alloyed manganese steels and joints of this steels with high-alloyed steel, suitable for repair and maintenance;
Very corrosion resistant claddings on mild steel.

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mo	Fe
Min.		**27,5**	**8**	**2,5**	
Max.	**0,1**	**30**	**10**	**3,5**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	780	[MPa]
Yield strength $R_{p0,2}$:	550	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	18	[%]
Impact strength (ISO-V):	40	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
1,6	250	30 – 50
2,0	250	40 – 60
2,5	300	60 – 90
3,25	350	80 – 110
4,0	350	100 – 150
5,0	350	150 – 200

Polarity
=(+)~

Standards:

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

capilla® 310

Product description:

Rutile-basic coated electrode for welding of heat resistant austenitic steels;

The weld metal is fully austenitic and scaling resistant up to 1200°C. Deposited material is not resistant to sulphurous gases.

Applications:

Suitable for materials as:

1.4832, 1.4837, 1.4840, 1.4841, 1.4845, 1.4846, 1.4849, 1.4848, 1.4828, 1.4713, 1.4726, 1.4710, 1.4745, 1.4823

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mn	Fe
Min.		**23**	**19**	**2,5**	
Max.	**0,1**	**26**	**21**	**3**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	570	[MPa]
Yield strength $R_{p0,2}$:	380	[MPa]
Yield strength $R_{p1,0}$:	410	[MPa]
Elongation (L=5d):	20	[%]
Impact strength (ISO-V):	40	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,0	250/300	60 – 90
2,5	300	80 – 110
3,25	350	100 – 150
4,0	350	150 – 190
5,0	350	160 – 210

Polarity =(+)~

also available:
find in table of content

Capilla 310 KB
Capilla 310 MAG
Capilla 310 WIG

Standards:

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

capilla® 310 KB

Product description:

Basic coated electrode for welding of heat resistant austenitic steels.
The weld metal is fully austenitic and scaling resistant up to 1200°C.
Deposited material is not resistant to sulphurous gases.

Applications:

Suitable for materials as:

1.4832, 1.4837, 1.4840, 1.4841, 1.4845, 1.4846, 1.4849, 1.4848, 1.4828, 1.4713, 1.4726, 1.4710, 1.4745, 1.4823

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mn	Fe
Min.		**23**	**19**	**2,5**	
Max.	**0,1**	**26**	**21**	**3**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	570	[MPa]
Yield strength $R_{p0,2}$:	380	[MPa]
Yield strength $R_{p1,0}$:	410	[MPa]
Elongation (L=5d):	20	[%]
Impact strength (ISO-V):	40	[J]

Positions: all except PG

Redrying: 320°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,0	250/300	60 – 90
2,5	300	80 – 110
3,25	350	100 – 150
4,0	350	150 – 190
5,0	350	160 – 210

Polarity =(+)~

also available:
find in table of content

Capilla 310
Capilla 310 MAG
Capilla 310 WIG

Standards:

EN ISO 3581-A:	EZ 25 20 3 R 12
EN 1600:	EZ 25 20 3 R 12
AWS A 5.4:	E 310 Mo -16
Mat.-No.:	~1.4466

capilla® 310 Mo

Product description:

Rutile-basic coated stick electrode for welding of heat resistant austenitic steels.
The weld metal is fully austenitic and scaling resistant up to 1200°C.
Deposited material is not resistant against sulphurous gases.
The resistance to hot cracking is better than the resistance of comparable Mo-free grades.
Multi-layer weldings are not recommended if a very tough weld metal is desired.

Applications:

Suitable for materials as:

1.4832, 1.4837, 1.4840, 1.4841, 1.4845, 1.4846, 1.4849, 1.4848, 1.4828, 1.4713, 1.4726, 1.4710, 1.4745, 1.4823

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mo	Mn	Fe
Min.		**23**	**19**	**2,5**	**2,5**	
Max.	**0,1**	**26**	**21**	**3**	**3**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	570	[MPa]
Yield strength $R_{p0,2}$:	380	[MPa]
Yield strength $R_{p1,0}$:	410	[MPa]
Elongation (L=5d):	35	[%]
Impact strength (ISO-V):	70	[J]

Positions: all

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]	Polarity
2,0	250/300	60 – 90	=(+)~
2,5	300	80 – 110	
3,25	350	100 – 150	
4,0	350	150 – 190	
5,0	350	160 – 210	

Standards:

EN ISO 3581-A: EZ 20 16 3 Mn 3 LR 32
EN 1600: E 18 15 3 LR 23
Mat.-No.: 1.4455

capilla® 4455

Product description:

Rutile-basic coated stick electrode suitable for welding of austenitic stainless steel grades.
The deposit is nonmagnetic and has good properties at low temperatures.

Applications:

Cladding and fusion welding of similar alloyed cryogenic austenitic CrNi(N)- and CrNiMo(Mn,N)-steel grades;
Also used for welding of cryogenic martensitic Ni-steels.

Typical weld metal composition:

[wt. - %]

	C	Si	Cr	Ni	Mo	Mn	N	Fe
Min.			**18**	**14**	**2,6**	**2,5**	**0,1**	
Max.	**0,03**	**0,9**	**20**	**16,5**	**3**	**4**	**0,2**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	640	[MPa]
Yield strength $R_{p0,2}$:	440	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	35	[%]
Impact strength (ISO-V):	45 (-196°C)	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,0	300	40 - 60
2,5	300	60 - 90
3,25	350	80 - 110
4,0	350	100 - 150
5,0	450	150 - 200

Polarity =(+)~

Standards:

EN ISO 3581-A:	E 20 25 5 Cu L R 32
EN 1600:	E 20 25 5 Cu LR 23
AWS A 5.4:	E 385 L-26
Mat.-No.:	~1.4519

capilla® 385

Product description:

Rutil-basic coated stick electrode for fusion and overlay welding of similar alloyed corrosion resistant steels. High resistance against phosphoric acid and stress corrosion cracking in fluids containing chlorides.

Applications:

Suitable for materials like:

1.4500, 1.4505, 1.4506, 1.4531, 1.4539, 1.4573, 1.4585, 1.4586,

Typical weld metal composition:

[wt. - %]

	C	Cr	Ni	Mo	Mn	Cu	Fe
Min.		**19**	**24**	**4**	**1,2**	**1,2**	
Max.	**0,03**	**21**	**26**	**5**	**1,8**	**1,8**	**Bal.**

Mechanical properties:

(without heat treatment; minimum values at ambient temperature)

Tensile strength R_m:	600	[MPa]
Yield strength $R_{p0,2}$:	410	[MPa]
Yield strength $R_{p1,0}$:	-	[MPa]
Elongation (L=5d):	30	[%]
Impact strength (ISO-V):	40	[J]

Positions: all except PG

Redrying: 300°C/2h

Dimension:

Ø [mm]	Length [mm]	Welding current [A]
2,5	300	80 – 110
3,25	350	100 – 150
4,0	350	150 – 200
5,0	450	160 – 210

Polarity =(+)~

also available:
find in table of content

Capilla 385 MAG
Capilla 385 WIG

2.2 Wire electrodes for welding of stainless steels

2.2.1 Solid wires for gas shielded arc welding of stainless steels

Designation	Standard	Weld Metal Analysis [Wt.%]									Properties				
capilla®	EN ISO: 14343-A: Mat.-No.:	C	Mn	Si	Cr	Ni	Mo	Nb	Others	Fe	$R_{o0,2}$ [MPa]	R_m [MPa]	L=5d [%]	KV (ISO-V) [J]	SG
308 L MAG	G 19 9 L Si 1.4316	0,02	1,7	0,9	20	10	-	-	-	Bal.	320	550	35	75	M12
347 MAG	G 19 9 Nb Si 1.4551	0,06	1,5	0,8	19,5	9,5	-	12xC	-	Bal.	380	550	30	65	M12
316 L MAG	G 19 12 3 L Si 1.4430	0,02	1,7	0,8	18,8	12,5	2,5	-	-	Bal.	320	550	35	70	M12
318 MAG	G 19 12 3 Nb Si 1.4576	0,05	1,5	0,8	19	12	2,5	12xC	-	Bal.	380	550	30	70	M12
2209 MAG	G 22 9 3 L Si 1.4462	0,02	1,6	0,5	23	9	3,5	-	N=0,14	Bal.	480	680	22	50	M12
4460 Cu MAG	G 25 9 3 N L Si ~1.4501	0,02	0,3	1,5	25,5	9,5	3,7	-	N=0,22; Cu=0,8; W=0,6	Bal.	700	850	25	80	I1
309 L MAG	G 23 12 L Si 1.4332	0,03	2	0,9	24	13	-	-	-	Bal.	400	550	30	55	M13
51 MAG	G 18 8 Mn 1.4370	0,08	7	0,8	19	9	-	-	-	Bal.	320	600	40	100	M12
52 MAG	G 29 9 1.4337	0,15	1,6	0,5	29	9	-	-	-	Bal.	500	750	20	25	M13
317 MAG	G 18 16 5 L 1.4440	0,03	0,3	3,4	18,5	17,5	4,5	-	-	Bal.	320	570	34	65	M12
310 MAG	G 25 20 Si 1.4842	0,13	3,2	1	25	20	-	-	-	Bal.	320	550	25	80	M13
385 MAG	G 20 25 5 Cu 1.4539	0,02	3	1	21	25	5	-	Cu=1,5	Bal.	350	550	35	80	M13

Min. values at AT / no heat treatment; shielding gas (SG) acc. EN ISO 14175
Dimensions: Ø 1,0; 1,2; 1,6 [mm]; Spools: K 300; other dimensions and packing units on demand

2.2.2 Welding rod for tungsten inert gas welding of stainless steels

Designation	Standard	Weld Metal Analysis [Wt.%]									Properties				
capilla®	**EN ISO: 14343-A: Mat.-No.:**	**C**	**Mn**	**Si**	**Cr**	**Ni**	**Mo**	**Nb**	**Others**	**Fe**	**$R_{o0,2}$ [MPa]**	**R_m [MPa]**	**L=5d [%]**	**KV (ISO-V) [J]**	**SG**
308 L WIG	W 19 9 L Si/ 1.4316	0,02	1,7	0,9	20	10	-	-	-	Bal.	320	550	35	75	I1
347 WIG	W 19 9 Nb Si/ 1.4551	0,06	1,5	0,8	19,5	9,5	-	10xC	-	Bal.	380	550	30	65	I1
316 LWIG	W 19 12 3 L Si 1.4430	0,02	1,7	0,8	18,8	12,5	2,5	-	-	Bal.	320	550	35	70	I1
318 WIG	W 19 12 3 Nb Si 1.4576	0,05	1,5	0,8	19	12	2,5	10xC	-	Bal.	380	550	30	70	I1
2209 WIG	W 22 9 3 L 1.4462	0,02	1,6	0,5	23	9	3,5	-	N = 0,14	Bal.	480	680	22	50	I1
4460 Cu WIG	W 25 9 3 N L Si ~1.4501	0,02	0,3	1,5	25,5	9,5	3,7	-	N=0,22; Cu=0,8; W=0,6	Bal.	700	850	25	80	I1
309 L WIG	W 22 12 L Si 1.4332	0,11	1,2	1,2	22	11	-	-	-	Bal.	320	550	30	70	I1
51 WIG	W 18 8 Mn 1.4370	0,08	7	0,8	19	9	-	-	-	Bal.	320	600	40	100	I1
52 WIG	W 29 9 1.4337	0,15	1,6	0,5	29	9	-	-	-	Bal.	500	750	20	25	I1
317 WIG	W 18 16 5 L 1.4440	0,03	0,3	3,4	18,5	17,5	4,5	-	-	Bal.	320	570	34	65	I1
310 WIG	W 25 20 Si 1.4842	0,13	3,2	1	25	20	-	-	-	Bal.	320	550	25	80	I1
385 WIG	W 20 25 5 Cu 1.4539	0,02	3	1	21	25	5	-	Cu =1,5	Bal.	320	580	25	80	I1

Min. values at AT / no heat treatment; shielding gas (SG) acc. EN ISO 14175
Dimensions: Ø 1,0; 1,6; 2,0; 2,4 [mm]; Length: 1000 [mm]; other dimensions on demand

2.2.3 Tubular wires for gas shielded arc welding of stainless steels

Designation	Standard	Weld Metal Analysis [Wt.%]									Properties				
capilla®	EN ISO 17633-A Mat.-No.:	C	Mn	Si	Cr	Ni	Mo	Nb	Others	Fe	$R_{o0,2}$ [MPa]	R_m [MPa]	L=5d [%]	KV (ISO-V) [J]	SG
G 308 L RM	T 19 9 L RM 1.4316	0,02	1,7	0,9	20	10	-	-	-	Bal.	320	550	35	75	M21
G 316 L RM	T 19 12 3 L RM 1.4430	0,02	1,7	0,8	18,8	12,5	2,5	-	-	Bal.	320	550	35	70	M21
G 347 RM	T 19 9 Nb RM 1.4551	0,03	1,4	0,9	19,5	10,5	-	0,5	-	Bal.	470	660	35	60	M21
G 309 L RM	T 23 12 L RM 1.4332	0,03	2	0,9	24	13	-	-	-	Bal.	400	550	30	55	M21
G 318 RM	T 19 12 3 Nb RM 1.4576	0,03	1,5	0,9	19,5	12	2,9	0,45	-	Bal.	430	640	32	55	M21
G 2209 RM	T 22 9 3 N L RM 1.4462	0,03	1,4	0,8	23	9	3,2	-	N = 0,16	Bal.	670	830	28	55	M21
G 4507 RM	TZ 25 9 4 Cu NL RM 1.4507	0,03	0,6	25	9,5	9,3	3,3	-	N=0,25; Cu=0,9	Bal.	550	780	22	50	M21
G 51 RM	T 19 9 Mn RM 1.4370	0,1	6	0,7	19	9	-	-	-	Bal.	490	650	25	50	M21
G 52 RM	T 29 9 RM 1.4337	0,03	1,3	0,8	29	8,6	-	-	-	Bal.	650	860	25	40	M21
G 310 RM	T 25 20 L RM 1.4842	0,15	4	0,6	26	20,5	-	-	-	Bal.	410	560	30	60	M21

Minimum values at AT / no heat treatment; shielding gas (SG) acc. EN ISO 14175
Dimensions: Ø 1,2; 1,6 [mm]; Spools: K 300; other dimensions and packing units on demand.

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