Электроды с низким содержанием водорода OPUS

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Heat Resisting Electrode

OPUS MOR

Standards

TS EN ISO 3580-A	: E Mo R 12
EN ISO 3580-A	: E Mo R 12

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Mo
0.07	0.4	0.6	0.5

Mechanical Properties

Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Impact Strength (ISO-V/+20°C)	Elongation ($L_0=5d_0$) (%)	Heat Treatment
min. 355	min. 510	min. 47 J	min. 22	570-620°C / 1h / 300°C (air)

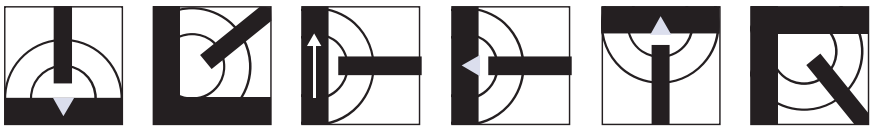
Typical Base Material Grades

- S355J2G3, E295, P255G1TH, L320- L415NB, 16Mo3, L290MB-L415MB,16Mo3, S255N, P295GH, P355GH, P255-P355N, P255NH-P355NH

Features and Applications

- Welding of heat-resistant Mo-alloyed, fine-grained or unalloyed steels used for construction of boilers and pipes
- Weld metal is resistant to working temperatures up to +550°C

Welding Positions



Current Type

D.C. (+)

Operating Data

Product Code	Diameter x Length (mm) / (inch)		Welding Current (A)	Weight g / 100 pcs
3010100708	2.50 x 350	3/32 x 14”	80 - 100	2080
3010100711	3.20 x 350	1/8 x 14”	110-140	3310
3010100714	4.00 x 350	5/32 x 14”	140- 190	4900
3010100717	5.00 x 350	3/16 x 14”	190 - 240	7540

Approvals: CE, SEPRO

Heat Resisting Electrode

OPUS MOB

Standards

TS EN ISO 3580-A	: E Mo B 42 H5
EN ISO 3580-A	: E Mo B 42 H5
AWS A5.5	: E 7018-A1 H4

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Mo
0.07	0.4	0.9	0.5

Mechanical Properties

Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Impact Strength (ISO-V/-50°C)	Elongation ($L_o=5d_o$) (%)	Heat Treatment
min. 460	530 - 670	min. 47 J	min. 22	620°C / 1h / 300°C (air)

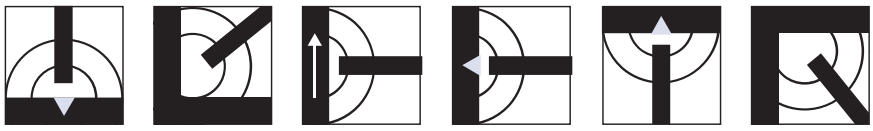
Typical Base Material Grades

- S355J2G3, E295, E335, P255G1TH, 16Mo3, L320-L415NB, L290MB-L415MB,S255N-S460N, P295GH P355GH, 15NiCuMoNb5S, 20MnMoNi4-5, 17MnMoV6-4, S255NH-S460NH, S255NL-S460NL, GE240-GE300, GS22Mo4

Features and Applications

- Basic-coated stick electrode
- Welding of heat-resisting, Mo-alloyed, thin-walled and unalloyed steels used for construction of boilers and pipes
- Weld metal is resistant to working temperatures from -50°C to +550°C
  Re-drying: 300-350°C min. 2h

Welding Positions



Current Type

D.C.(+)

Operating Data

Product Code	Diameter x Length (mm) / (inch)		Welding Current (A)	Weight g / 100 pcs
3010100720	2.50 x 350	3/32 x 14”	80 - 110	2200
3010100723	3.20 x 350	1/8 x 14”	100 - 140	3560
3010100729	4.00 x 450	5/32 x 18”	140 - 190	6590
3010100735	5.00 x 450	3/16 x 18”	190 - 240	10160

Approvals: TÜV, DB, CE, SEPRO

Heat Resisting Electrode

OPUS C

Standards

TS EN ISO 3580-A	: E CrMo1 R 12
EN ISO 3580-A	: E CrMo1 R 12
AWS A5.5	: E 8013-G

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Mo	Cr
0.06	0.4	0.6	0.5	1.1

Mechanical Properties

Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Impact Strength (ISO-V/+20°C)	Elongation ($L_0=5d_0$) (%)	Heat Treatment
min. 460	min. 550	min. 47 J	min. 20	660-700°C / 1h / 300°C (air)

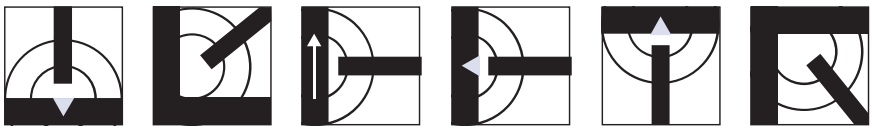
Typical Base Material Grades

- 13CrMo4-5, 15CrMo5, 16CrMoV4, S355NH

Features and Applications

- Welding of steam production plant equipments, steam pipes and similar kinds of heat-resistant joints, all of which are made of Cr-Mo alloy steels
- Electrode coating of rutile character
- Resistance of weld metal to operating temperatures of values up to 570°C

Welding Positions



Current Type

D.C. (-)
A.C.

Operating Data

Product Code	Diameter x Length (mm) / (inch)		Welding Current (A)	Weight g / 100 pcs
3010100738	2.50 x 350	3/32 x 14”	80 - 110	2150
3010100741	3.20 x 350	1/8 x 14”	100 - 140	3420
3010100744	4.00 x 350	5/32 x 14”	140 - 190	4760

Approvals: CE, SEPRO

Heat Resisting Electrode

OPUS CM

Standards

TS EN ISO 3580-A	: E CrMo1 B 42 H5
EN ISO 3580-A	: E CrMo1 B 42 H5
AWS A5.5	: E 8018-B2 H4

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Mo	Cr
0.07	0.5	0.8	0.5	1.1

Mechanical Properties

Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Impact Strength (ISO-V/+20°C)	Elongation ($L_0=5d_0$) (%)	Heat Treatment
min. 460	min. 550	min. 47 J	min. 20	690°C / 1h / 300°C (air)

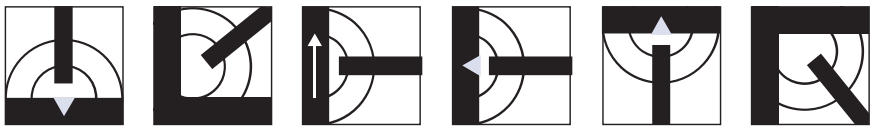
Typical Base Material Grades

- 13CrMo4-5, 15CrMo5, 16CrMoV4, G17CrMo5-5, GS22Mo4, G22CrMo5-4, A193 Gr.B7, A335 Gr.P11

Features and Applications

- Steam boilers and steam pipes made of Cr-Mo-alloyed heat-resistant steels
- Cementation steels, nitrided steels
- Electrode coating of basic character
- Requirement of re-drying for 2 hours at the temperatures between 300°C and 350°C

Welding Positions



Current Type

D.C.(+)

Operating Data

Product Code	Diameter x Length (mm) / (inch)		Welding Current (A)	Weight g / 100 pcs
3010100747	2.50 x 350	3/32 x 14”	80 - 110	2190
3010100750	3.20 x 350	1/8 x 14”	100 - 140	3520
3010100756	4.00 x 450	5/32 x 18”	140 - 190	6790
3010100759	5.00 x 450	3/16 x 18”	190 - 240	10020

Approvals: CE, SEPRO

Heat Resisting Electrode

OPUS CM-15

Standards

TS EN ISO 3580-A	: E CrMo1 B 42 H5
EN ISO 3580-A	: E CrMo1 B 42 H5
AWS A5.5	: E 8015-B2 H4

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Mo	Cr
0.07	0.5	0.8	0.5	1.1

Mechanical Properties

Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Impact Strength (ISO-V/+20°C)	Elongation ($L_0=5d_0$) (%)	Heat Treatment
min. 460	580 - 740	min. 47 J	min. 20	690°C / 1h / 300°C (air)

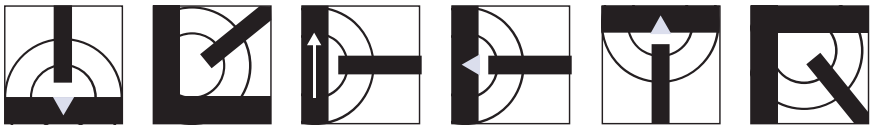
Typical Base Material Grades

- 13CrMo4-5, 15CrMo5, 16CrMoV4, G17CrMo5-5, GS22Mo4, G22CrMo5-4, A193 Gr.B7, A335 Gr.P11,

Features and Applications

- Welding of steam boilers and steam pipes made of Cr-Mo alloyed heat resistant steels, cementation steels, nitrided steels
- Resistance of weld metal to operating temperatures of values up to 570°C.
- Weld metal recovery of approx. 125%
- It can be used in position welding with lower heat input
- Usable with short arc in (-) pole for root pass welding with excellent penetration
- Requirement of re-drying for minimum 2 hours at the temperatures between 300°C and 350°C

Welding Positions



Current Type

D.C. (+)

Operating Data

Product Code	Diameter x Length (mm) / (inch)		Welding Current (A)	Weight g / 100 pcs
3010100762	2.50 x 350	3/32 x 14”	80 - 110	2190
3010100765	3.20 x 350	1/8 x 14”	100 - 140	3740
3010100771	4.00 x 450	5/32 x 18”	140 - 190	6750
3010100774	5.00 x 450	3/16 x 18”	190 - 240	10020

Approvals: CE, SEPRO

Heat Resisting Electrode

OPUS CML

Standards

TS EN ISO 3580-A	: E CrMo1L B 4 2 H5
EN ISO 3580-A	: E CrMo1L B 4 2 H5
AWS A5.5	: E 7018-B2 L H4

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Mo	Cr
<0.05	0.6	0.8	0.5	1.1

Mechanical Properties

Yield Strength (N/mm^2)	**Tensile Strength** (N/mm^2)	**Impact Strength** (ISO-V/+20°C)	**Elongation** ($L_0=5d_0$) (%)
min. 460	min. 550	min. 47 J	min. 20

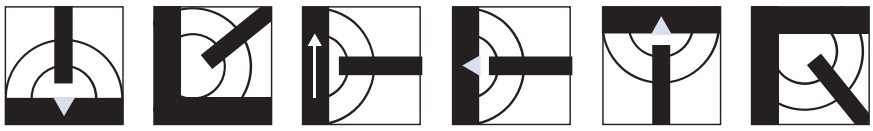
Typical Base Material Grades

- 13CrMo4-5, 15CrMo5, 16CrMoV4, G17CrMo5-5, GS-22Mo4, GS-22 CrMo5-4, A 193 Gr B7, A335 Gr P11, P12

Features and Applications

- Applicability in welding heat-resisting, low-alloyed steels
- Suitability to use against corrosion in sour crude, and against stress corrosion in petrochemical industry
- Requirement of re-drying for min. 2 hours at the temperatures between 300°C and 350°C

Welding Positions



Current Type

D.C.(+)

Operating Data

Product Code	**Diameter x Length** (mm) / (inch)		**Welding Current** (A)	**Weight** g / 100 pcs
3010100777	2.50 x 350	3/32 x 14”	80 - 110	2220
3010100780	3.20 x 350	1/8 x 14”	100 - 140	3520
3010100783	4.00 x 450	5/32 x 18”	140 - 190	6790
3010100786	5.00 x 450	3/16 x 18”	190 - 240	10020

Approvals: CE, SEPRO

Heat Resisting Electrode

OPUS CMV

Standards

TS EN ISO 3580-A	: E MoV B 42 H5
EN ISO 3580-A	: E MoV B 42 H5
AWS A5.5	: E 9018-G H4

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Mo	Cr	V
0.06	0.3	1.2	1.0	0.45	0.5

Mechanical Properties

Yield Strength (N/mm^2)	**Tensile Strength** (N/mm^2)	**Impact Strength** (ISO-V/+20°C)	**Elongation** ($L_0=5d_0$) (%)	**Heat Treatment**
min. 530	min. 620	min. 47 J	min. 18	710 ±20 °C / 1h / 300°C (air)

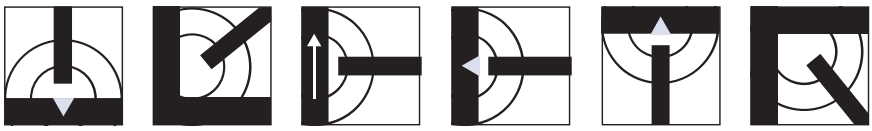
Typical Base Material Grades

- 14MoV6-3, 24CrMoV5-5, 21CrMoV5-7, 21CrMoV5-11, G17CrMoV5-11

Features and Applications

- V-alloyed steels such as 14MoV6-3
- Electrode coating of basic character
- Serviceability at temperatures up to 580°C
- Pre-heating and interpass temperatures: 200°C-300°C
- Requirement of re-drying for min. 2 hours at the temperatures between 300°C and 350°C

Welding Positions



Current Type

D.C.(+)

Operating Data

Product Code	**Diameter x Length** (mm) / (inch)		**Welding Current** (A)	**Weight** g / 100 pcs
3010100789	2.50 x 350	3/12 x 14”	65 - 90	2180
3010100792	3.20 x 350	1/8 x 14”	90 - 130	3180
3010100795	4.00 x 350	5/32 x 14”	140 - 180	5160

Approvals: CE, SEPRO

Heat Resisting Electrode

OPUS 2 CM

Standards

TS EN ISO 3580-A	: E CrMo2 B 42 H5
EN ISO 3580-A	: E CrMo2 B 42 H5
AWS A5.5	: E 9018-B3 H4

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Mo	Cr
0.07	0.4	0.8	1.0	2.2

Mechanical Properties

Yield Strength (N/mm^2)	**Tensile Strength** (N/mm^2)	**Impact Strength** (ISO-V/+20°C)	**Elongation** ($L_o=5d_o$) (%)	**Heat Treatment**
min. 530	min. 620	min. 47 J	min. 18	690-750°C / 1h / 300°C (air)

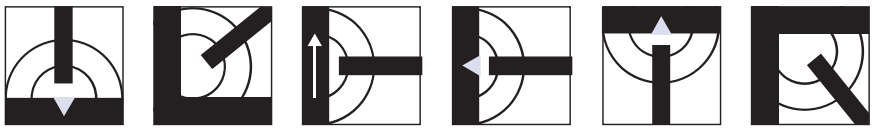
Typical Base Material Grades

- 10CrMo9-10, 10CrSiMoV7, G-18CrMo9-10, A335 Gr. P22

Features and Applications

- Welding of steam boilers, steam pipes made of Cr-Mo-alloyed steels, nitrided steels, not-heat treated cementation steels
- Resistance of weld metal to working temperatures up to 600°C
- Requirement of re-drying for min. 2 hours at the temperatures between 300°C and 350°C

Welding Positions



Current Type

D.C.(+)

Operating Data

Product Code	**Diameter x Length** (mm) / (inch)		**Welding Current** (A)	**Weight** g / 100 pcs
3010100801	2.50 x 350	3/32 x 14”	80 - 110	2280
3010100804	3.20 x 350	1/8 x 14”	100 - 140	3490
3010100810	4.00 x 450	5/32 x 18”	130 - 180	6860
3010100813	5.00 x 450	3/16 x 18”	190 - 240	10010

Approvals: CE, SEPRO

Heat Resisting Electrode

OPUS 2 CM-15

Standards

TS EN ISO 3580-A	: E CrMo2 B 42 H5
EN ISO 3580-A	: E CrMo2 B 42 H5
AWS A5.5	: E 9015-B3 H4

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Mo	Cr
0.07	0.5	0.8	1.0	2.2

Mechanical Properties

Yield Strength (N/mm^2)	**Tensile Strength** (N/mm^2)	**Impact Strength** (ISO-V/+20°C)	**Elongation** ($L_0=5d_0$) (%)	**Heat Treatment**
min. 530	min. 620	min. 47 J	min. 18	690-750°C / 1h / 300°C (air)

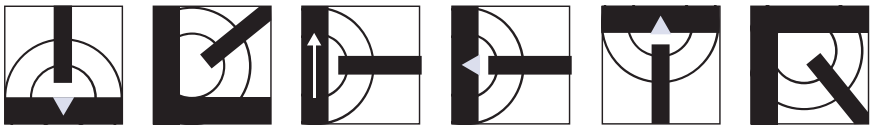
Typical Base Material Grades

- 10CrMo9-10, 10CrMo5MoV7, G18CrMo9-6, A 335 Gr. P 22

Features and Applications

- Welding of steam boilers, steam pipes made of Cr-Mo-alloyed steels, nitrided steels, not-heat treated cementation steels
- Resistance of weld metal to working temperatures up to 600°C
- Requirement of Re-drying for min 2 hours at the temperatures between 300°C and 350°C

Welding Positions



Current Type

D.C.(+)

Operating Data

Product Code	**Diameter x Length** (mm) / (inch)		**Welding Current** (A)	**Weight** g / 100 pcs
3010100816	2.50 x 350	3/32 x 14”	80 - 110	2280
3010100819	3.20 x 350	1/8 x 14”	100 - 140	3810
3010100822	4.00 x 450	5/32 x 18”	130 - 180	6920

Approvals: CE, SEPRO

Heat Resisting Electrode

OPUS 2 CML

Standards

TS EN ISO 3580-A	: E CrMo2L B 42 H5
EN ISO 3580-A	: E CrMo2L B 42 H5
AWS A5.5	: E 8018-B3 L H4

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Mo	Cr
0.04	0.6	0.6	1.1	2.2

Mechanical Properties

Yield Strength (N/mm^2)	**Tensile Strength** (N/mm^2)	**Impact Strength** (ISO-V/+20°C)	**Elongation** ($L_o=5d_o$) (%)	**Heat Treatment**
min. 530	min. 620	min. 47 J	min. 18	690-750 °C / 1h / 300°C (air)

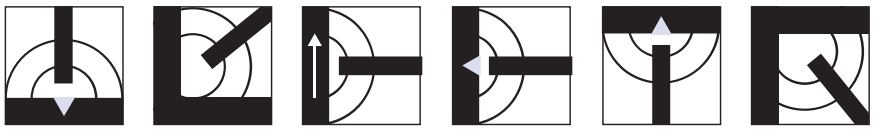
Typical Base Material Grades

- 2% Cr - 1% Mo Steels, A335 Gr. P22

Features and Applications

- Applicability in welding of heat-resisting steels containing 2% Cr - 1% Mn and similar alloys
- Electrode with basic-type coating
- Formation of more ductile and less hard weld metal due to low carbon content
- Serviceability at temperatures of values up to 600 °C
- Recommended pre-heating and post-heat treatment during welding processes
- Requirement of re-drying for min. 2 hours at the temperatures between 300°C and 350°C

Welding Positions



Current Type

D.C.(+)

Operating Data

Product Code	**Diameter x Length** (mm) / (inch)		**Welding Current** (A)	**Weight** g / 100 pcs
3010100825	2.50 x 350	3/32 x 14”	80 - 110	2100
3010100828	3.20 x 350	1/8 x 14”	100 - 140	3480
3010100831	4.00 x 450	5/32 x 18 “	130 - 180	6680

Approvals: CE, SEPRO

Heat Resisting Electrode

OPUS 5 CM

Standards

TS EN ISO 3580-A	: E CrMo5 B 42 H5
EN ISO 3580-A	: E CrMo5 B 42 H5
AWS A5.5 (A5.4)	: E 8018-B6 (E 502-15) H4

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Mo	Cr
0.06	0.4	0.8	0.5	5.2

Mechanical Properties

Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Impact Strength (ISO-V/+20°C)	Elongation ($L_0=5d_0$) (%)	Heat Treatment
min. 460	min. 590	min. 47 J	min. 19	730-755°C / 1h / 300°C (air)

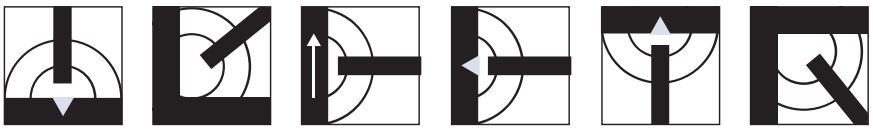
Typical Base Material Grades

- X12CrMo5, GX12CrMo5

Features and Applications

- High-heat-resistant steels
- In petro chemical industry and on pressured-hydrogen tanks
- Serviceability of weld metal at working temperature up to 650°C
- Requirement of re-drying for min. 2 hours at the temperatures between 300°C and 350°C

Welding Positions



Current Type

D.C.(+)

Operating Data

Product Code	Diameter x Length (mm) / (inch)		Welding Current (A)	Weight g / 100 pcs
3010100834	2.50 x 350	3/32 x 14”	65 - 90	2220
3010100837	3.20 x 350	1/8 x 14”	110 - 130	3630
3010100843	4.00 x 450	5/32 x 18”	140 - 180	6670
3010100846	5.00 x 450	3/16 x 18”	190 - 240	10000

Approvals: CE, SEPRO

Heat Resisting Electrode

OPUS 9 CM

Standards

TS EN ISO 3580-A	: E CrMo9 B 4 2 H5
EN ISO 3580-A	: E CrMo9 B 4 2 H5
AWS A5.5	: E 8018-B8 H4
AWS A5.4	: E 505-15

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Mo	Cr
0.07	0.4	0.7	1.0	9.0

Mechanical Properties

Yield Strength (N/mm^2)	**Tensile Strength** (N/mm^2)	**Impact Strength** (ISO-V/+20°C)	**Elongation** ($L_0=5d_0$) (%)	**Heat Treatment**
min. 460	min. 590	min. 34 J	min. 19	740-780°C / 2h / 300°C (air)

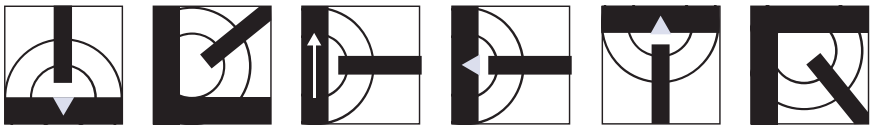
Typical Base Material Grades

- X12CrMo9-1, X7CrMo9-1, GX12CrMo10.

Features and Applications

- Welding of boilers, pressure vessel steels, pipe steels and cast steels
- Electrode coating of basic character
- Electrode content of wt% 9 Chromium wt% 1 Molybdenum
- Serviceability at temperatures of values up to 650°C
- Requirement of re-drying for min. 2 hours at the temperatures between 300°C and 350°C

Welding Positions



Current Type

D.C.(+)

Operating Data

Product Code	**Diameter x Length** (mm) / (inch)		**Welding Current** (A)	**Weight** g / 100 pcs
3010100849	2.50 x 350	3/32 x 14”	60 - 90	2330
3010100852	3.20 x 350	1/8 x 14”	90 - 130	3810
3010100855	4.00 x 450	5/32 x 18”	120 - 160	6680

Approvals: CE, SEPRO

HeatResistingElectrode

OPUS 9 CM-15

Standards

TS EN ISO 3580-A	: E CrMo9 B 42 H5
EN ISO 3580-A	: E CrMo9 B 42 H5
AWS A5.5	: E 8015-B8 H4

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Mo	Cr
0.07	0.4	0.8	1.0	9.0

Mechanical Properties

Yield Strength (N/mm^2)	**Tensile Strength** (N/mm^2)	**Impact Strength** (ISO-V/+20°C)	**Elongation** ($L_0=5d_0$) (%)	**Heat Treatment**
min. 460	min. 590	min. 34 J	min. 19	740-780 °C / 2h / 300 °C (air)

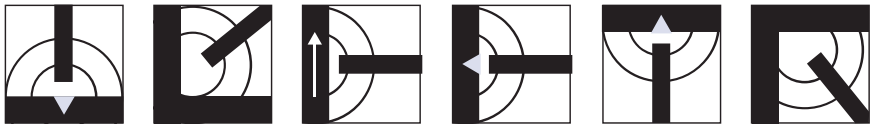
Typical Base Material Grades

- X12CrMo9-1, X7CrMo9-1, A335 Gr. P9

Features and Applications

- Heat resistance and low hydrogen electrode with basic-type coating
- Resistance of weld metal to working temperatures up to 650°C
- Welding of pressurized boiler steels, pipe steel and steel castings
- Requirement of re-drying for min. 2 hours at the temperatures between 300°C and 350°C

Welding Positions



Current Type

D.C.(+)

Operating Data

Product Code	**Diameter x Length** (mm) / (inch)		**Welding Current** (A)	**Weight** g / 100 pcs
3010100858	3.20 x 350	1/8 x 14”	90 - 130	3800
3010100861	4.00 x 350	5/32 x 14”	120 - 160	5200

Approvals: CE, SEPRO

Heat Resisting Electrode

OPUS 9 CMV

Standards

TS EN ISO 3580-A	: E CrMo91 B 42 H5
EN ISO 3580-A	: E CrMo91 B 42 H5
AWS A5.5	: E9018-B91 H4

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Cr	Mo	Ni	V	Nb	N
0.09	0.2	0.5	9.0	1.0	0.6	0.2	0.04	+

Mechanical Properties

Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Impact Strength (ISO-V/+20°C)	Elongation ($L_0=5d_0$) (%)	Heat Treatment
min. 530	min. 620	min. 47 J	17	745-775°C / 2h / 300°C (air)

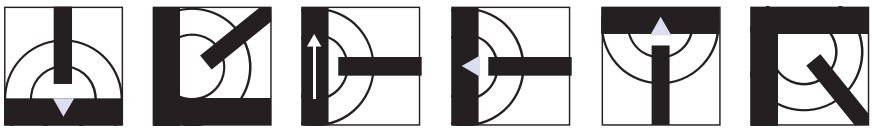
Typical Base Material Grades

- X10CrMoVNb 9-1, A213 Gr. T91, A 335 Gr. P91 (T91), A 139Gr.T91, % 9-12 Cr type martensitic stainless steels.

Features and Applications

- High- alloyed low-hydrogen electrode with basic-type coating
- Resistance to heat and creep, high resistance to creeping and high toughness values under long-term stress
- Weld metal's resistance to high temperatures up to 620°C
- Pre-heating and inter-pass welding temperature: 200°C - 315°C
- Requirement of re-drying for min. 2 hours at the temperatures between 300°C and 350°C

Welding Positions



Current Type

D.C.(+) / D.C.(-) for root pass

Operating Data

Product Code	Diameter x Length (mm) / (inch)		Welding Current (A)	Weight g / 100 pcs
3010100873	2.50 x 350	3/32 x 14"	80 - 110	2220
3010100876	3.20 x 350	1 /8 x 14"	110 -140	3560
3010100879	4.00 x 350	5/32 x 14 "	140 - 190	5250

Approvals: CE, SEPRO

Heat Resisting Electrode

OPUS 9 CMV-15

Standards

TS EN ISO 3580-A	: E CrMo91 B 42 H5
EN ISO 3580-A	: E CrMo91 B 42 H5
AWS A5.5	: E9015-B91 H4

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Cr	Mo	Ni	V	Nb	N
0.09	0.2	0.5	9.0	1.0	1.0	0.2	0.04	+

Mechanical Properties

Yield Strength (N/mm^2)	**Tensile Strength** (N/mm^2)	**Impact Strength** (ISO-V/+20°C)	**Elongation** ($L_0=5d_0$) (%)	**Heat Treatment**
min. 530	min. 620	min. 47 J	min. 17	745-775°C / 2h / 300°C (air)

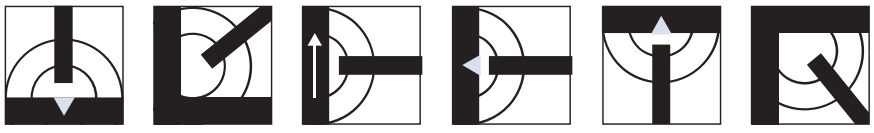
Typical Base Material Grades

- X10CrMoVNb 9-1, A213 Gr. T91, A 335 Gr. P91 (T91), A 139Gr.T91, % 9-12 Cr type martensitic stainless steels.

Features and Applications

- High- alloyed low-hydrogen electrode with basic-type coating
- Resistance to heat and creep, high resistance to creeping and high toughness values under long-term stress
- Weld metal's resistance to high temperatures up to 620°C
- Pre-heating and inter-pass welding temperature: 200°C - 315°C,
- Requirement of re-drying for min. 2 hours at the temperatures between 300°C and 350°C

Welding Positions



Current Type

D.C.(+) / D.C.(-) for root pass

Operating Data

Product Code	**Diameter x Length** (mm) / (inch)		**Welding Current** (A)	**Weight** g / 100 pcs
3010100882	2.50 x 350	3/32 x 14"	80 - 110	2300
3010100885	3.20 x 350	1/8 x 14"	110 -140	3650
3010100888	4.00 x 350	5/32 x 14"	140 - 190	5250

Approvals: CE, SEPRO

Heat Resisting Electrode

OPUS P92

Standards

AWS A5.5	: E 9018-B92 (mod.)

Chemical Composition of Weld Metal % (Typical)

C	Si	Mn	Cr	Mo	Ni	V	W
0.08	0.25	0.65	8.5	0.5	0.75	0.2	1.8

Mechanical Properties

Yield Strength (N/mm^2)	**Tensile Strength** (N/mm^2)	**Impact Strength** (ISO-V/+20°C)	**Elongation** ($L_0=5d_0$) (%)	**Heat Treatment**
min. 550	min. 650	min. 47 J	min. 19	745-775°C / 4h / 300°C (air)

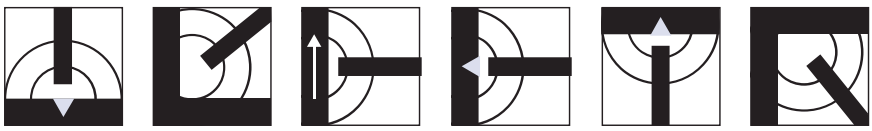
Typical Base Material Grades

- T/P92, 9%Cr, 1.7%W, 0.5%Mo,, creep resisting martensitic steels:
  ASTM: A213 Gr T92, A 335 Gr P92, A387 Gr 92

Features and Applications

- Recommended for welding of heat resistant steels T/P92 which are used for steam tubing, turbine casings and power generating casts
- Provides creep strength and toughness at elevated temperatures with additional alloying elements
- Weld metal is resistant to temperatures up to +650°C
- Bruscato factor of X<15
- Preheat and interpass temperature 200°C-315°C
- Requirement of re-drying for min. 2 hours at the temperatures between 300°C and 350°C

Welding Positions



Current Type

D.C.(+)

Operating Data

Product Code	**Diameter x Length** (mm) / (inch)		**Welding Current** (A)	**Weight** g / 100 pcs
3010102273	3.20 x 350	1/8 x 14”	110 - 140	3800

Approvals: SEPRO, CE

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