

MT-316 L

1.4430

MIG/TIG welding wire of austenitic chrome nickel molybdenum – steel, very low carbon content, for welding stainless and cold – tough austenitic steels exposed to working temperatures up to +400°C; cold – tough down to – 196°C.

Standard designation

Material No.	1.4430
AWS/ASME SFA-5.9	~ER 316 L Si
EN ISO 14343-A	G/W 19 12 3 LSi

Main base metals

Stainless austenitic chrome nickel molybdenum – steel/cast steel, e.g.

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

Mechanical properties of all – weld – metal (typical values)

Welding process Gas shield Thermal treatment Test temperature		[°C]	TIG I 1 untreated		MIG M 11 untreated	
			+20°C	-196°C	+20°C	-196°C
0,2%-yield strength	R _{p0,2}	MPa	≥295		≥295	
Tensile strength	R _m	MPa	≥510		≥510	
Elongation	A ₅	[%]	≥25		≥25	
Impact strength	A _v	[J]	LNB	LNB	LNB	LNB

Average chemical composition of all - weld - metal (%)

C	Si	Mn	Cr	Mo	Ni
0,03	0,65-1,2	1,0-2,50	18,0-20,0	2,5-3,0	11,0-14,0

Structure

Austenite with deltaferrite

Gas types applicable TIG

I 1

Gas types applicable MIG

M 11, M 12

Approvals

TÜV, DB, CE

TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,00	1000	10,0
1,20	1000	10,0
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

MIG welding wire

Diameter 0,8mm 1,0mm 1,2mm 1,6mm

Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PF, PE

Current/Polarity TIG

= -

Current/Polarity MIG

= +

MT-316 L

1.4430

Rutile coated electrode for welding austenitic chrome nickel molybdenum – steel, very low carbon content, for welding stainless and cold – tough austenitic steels exposed to working temperatures up to +400°C; cold – tough down to – 60°C.

Standard designation

Material No.	1.4430
AWS/ASME SFA-5.4	E 316 L - 16
EN ISO 3581-A	E 19 12 3 LR 12

Main base metals

Stainless austenitic chrome nickel molybdenum – steel/cast steel, e.g.

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

Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated +20°	untreated -60°C
Test temperature	[°C]			
0,2%-yield strength R _{p0,2}	MPa		≥320	
Tensile strength R _m	MPa		≥510	
Elongation A ₅	[%]		≥25	
Impact strength A _v	[J]		LNB	LNB

Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Mo	Ni
0,04	1,2	2,0	17,0-20,0	2,5-3,0	10,0-13,0

Structure

Austenite with deltaferrite

Redrying

2h at +350°C.

Approvals

TÜV, DB, CE

Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
1,50	250	30 - 40	5,4	463	2,5
2,00	300	40 - 60	11,7	342	4,0
2,50	300	60 - 90	18,5	216	4,0
3,25	350	80 - 110	36,0	139	5,0
4,00	350	100 - 150	55,0	90	5,0
5,00	450	150 - 190	111,0	54	6,0

Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF

Current/Polarity

= +/ ~

MT-316 LV

1.4430

Rutile coated electrode for vertical down welding of stainless austenitic steels. Weld metal of austenitic chrome nickel molybdenum – steel, very low carbon content, suitable for working temperatures up to +400°C, cold – tough down to – 120°C.

Standard designation

Material No.	~1.4430
AWS/ASME SFA-5.4	~ E 316 L - 17
EN ISO 3581-A	E 19 12 3 LR 11

Main base metal

Stainless austenitic chrome nickel molybdenum – steel/cast steel e.g.

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

Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated
Test temperature		[°C]	+20°
0,2%-yield strength	R _{p0,2}	MPa	360
Tensile strength	R _m	MPa	550
Elongation	A ₅	[%]	38
Impact strength	A _v	[J]	75

Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Mo	Ni
0,02	0,9	1,0	18,0	2,7	11,5

Structure

Austenite with deltaferrite

Redrying

2h at +350°C.

Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	300	50 - 70	16,2	247	4,0
3,25	350	80 - 110	32,0	156	5,0

Welding positions acc.to EN ISO 6947

PA, PB, PC, PD, PE, PF, PG

Current/Polarity

= +/ ~

MT-316 HL

~1.4430

Rutile coated high deposition electrode giving 160 % recovery, designed for welding stainless austenitic steels. Weld metal of austenitic chrome nickel molybdenum – steel, very low carbon content, suitable for working temperatures up to +400°C.

Standard designation

Material No.	~1.4430
AWS/ASME SFA-5.4	~ E 316 L - 17
EN ISO 3581-A	E 19 12 3 LR 53

Main base metals

Stainless austenitic chrome nickel molybdenum – steel/cast steel e.g.

1.4404	X 2 CrNiMo 17 13 2	1.4571	X 6 CrNiMoTi 17 12 2
1.4404	G-X 2 CrNiMo 18 10	1.4573	X 10 CrNiMoTi 18 12
1.4406	X 2 CrNiMoN 17 12 2	1.4580	X 6 CrNiMoNb 17 12 2
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1.4408	G-X 6 CrNiMo 18 10	1.4436	X 5 CrNiMo 17 13 3
1.4401	X 5 CrNiMo 17 12 2	1.4420	X 5 CrNiMo 18 11

Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated
Test temperature		[°C]	+20°
0,2%-yield strength	R _{p0,2}	MPa	350
1,0%-yield strength	R _{p1,0}	MPa	370
Tensile strength	R _m	MPa	550
Elongation	A ₅	[%]	35
Impact strength	A _v	[J]	70

Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Mo	Ni
<0,03	0,9	0,9	18,3	2,7	12,0

Structure

Austenite with deltaferrite

Redrying

2h at +350°C.

Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,00	300	50 - 70	16,8	238	4,0
2,50	350	70 - 90	30,7	163	5,0
3,25	350	80 - 110	51,9	96	5,0
4,00	450	135 - 175	101,0	59	6,0

Welding positions acc.to EN ISO 6947

PA, PB

Current/Polarity

= +/ ~