Lyonnaise de Soudage

EXATON Product Data Sheet

W 'Tungsten inert gas arc welding'

Exaton 19.12.3.L

Prepared by	Qualified by	Approved by	Reg no	Cancelling	Reg date	Page
Per-Ake Bjornstedt	P-O Oskarsson	Per-Ake Bjornstedt	EN009160	EN008906	2020-04-27	1 (2)

REASON FOR ISSUE

Chemical and Mechanical Properties updated.

GENERAL

19.12.3.L is used for welding of austenitic stainless alloys of 18% Cr - 8% Ni and 18% Cr - 10% Ni - 3% Mo-types, stabilized or non-stabilized, e.g. ASTM 316, 316L and 316Ti as well as 304, 304L, 321 and 347, used for service temperatures up to 400°C (750°F). It is also used for Cr steels with max. 19% Cr.It is used for TIG-welding.

Shielding Gas: I1 (EN ISO 14175)

Alloy Type: Austenitic (with appr. 8 % ferrite) 19 % Cr - 12 % Ni - 3 % Mo - Low C

CLASSIFICATIONS Wire Electrode

EN ISO 14343-A	W 19 12 3 L
SFA/AWS A5.9	ER316L
Werkstoffnummer	1.4430

APPROVALS

CE	EN 13479
DNV-GL	VL 316L
VdTÜV	00066

CHEMICAL COMPOSITION

	All Weld Metal (%)			Wire/Strip (%)
	Nom	**Min**	**Max**	**Nom**
C	<0.02		0.03	0.015
Si	0.4	0.30	0.60	0.4
Mn	1.7	1.3	2.3	1.7
P	<0.03		0.03	<0.025
S	<0.02		0.03	0.015
Cr	18	18.0	20.5	18.5
Ni	12	11.0	13.0	12
Mo	2.5	2.0	3.0	2.6
Nb	0.01		0.1	0.02
Cu	0.1		0.5	0.1
N	0.05		0.10	0.04
FN WRC-92	7	5	12	9

MECHANICAL PROPERTIES OF WELD METAL

	All Weld Metal	
	As welded	
Properties	**Min**	**Typ**
Rp0.2 (MPa)	320	500
Rm (MPa)	510	610
A4 (%)	30	39
Charpy V at 20°C (J)		150
Charpy V at -40°C (J)		130
Charpy V at -196°C (J)	50	75
Charpy V at -269°C (J)		>40
Comments: Nominal Hardness: 220 HV10 Lateral expansion: 0.8 mm		

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OTHER DATA

CORROSION: 19.12.3.L has good resistance to general corrosion and due to its low carbon content, good resistance to intercrystalline corrosion. It also has good resistance to pitting corrosion due to the balanced molybdenum content. Example: Pitting corrosion test. Three days in 1% FeCl3 at 20°C (68°F), no corrosion observed.

RECOMMENDED WELDING DATA:

The parameters for TIG welding depend largely upon the base metal thickness and the welding application.

Electrode negative and a shielding gas of argon or helium should be used to prevent oxidation of the weld metal.

WELD METAL CHARACTERISTICS: 19.12.3.L gives a microstructure with an austenitic matrix and a ferrite content of approximately 10FN according to DeLong.