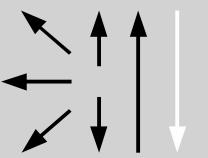


Classifications							
<b>EN ISO 17633-A</b>		<b>EN ISO 17633-B</b>			<b>AWS A5.22</b>		
T 19 12 3 L P M21/C1 1		TS 316L-F M21/C1 1			E316LT1-4/-1		
Characteristics and typical fields of application							
<p>Rutile flux-cored wire of T 19 12 3 L P / E316LT1 type for welding of stainless steels such as EN 1.4435 / AISI 316L. The fast freezing slag offers excellent weldability and slag control in all positions. Easy handling and high deposition rate result in high productivity with excellent welding performance and very low spatter formation. Increased travel speeds as well as self-releasing slag with little demand for cleaning and pickling provide considerable savings in time and money. The wide arc ensures even penetration and side-wall fusion to prevent lack of fusion. Suitable for service temperatures from <math>-120^{\circ}\text{C}</math> to <math>400^{\circ}\text{C}</math>. Resists intergranular corrosion up to <math>400^{\circ}\text{C}</math>. For flat and horizontal welding positions (1G, 1F and 2F) BÖHLER EAS 4 M-FD may be preferred.</p>							
Base materials							
<p>EN 1.4401 X5CrNiMo17-12-2, 1.4404 X2CrNiMo17-12-2, 1.4409 GX2CrNiMo19-11-2, 1.4429 X2CrNiMoN17-12-3, 1.4432 X2CrNiMo17-12-3, 1.4435 X2CrNiMo18-14-3, 1.4436 X3CrNiMo17-12-3, 1.4571 X6CrNiMoTi17-12-2, 1.4580 X6CrNiMoNb17-12-2, 1.4583 X10CrNiMoNb18-12</p> <p>UNS S31600, S31603, S31635, S31640, S31653; AISI 316L, 316Ti, 316Cb</p>							
Typical analysis of the wire and of all-weld metal							Ferrite WRC-92
	C	Si	Mn	Cr	Ni	Mo	FN
wt.-%	0.03	0.7	1.5	19.0	12.0	2.7	3 – 10
Mechanical properties of all-weld metal – typical values (minimum values)							
Condition	Yield strength $R_{p0.2}$	Tensile strength $R_m$	Elongation A ( $L_0=5d_0$ )	Impact work ISO-V KV J			
	MPa	MPa	%	20°C	-120°C		
u	<b>430</b> ( $\geq 320$ )	<b>560</b> ( $\geq 520$ )	<b>34</b> ( $\geq 30$ )	<b>65</b>	<b>40</b> ( $\geq 32$ )		
u untreated, as-welded – shielding gas Ar + 18 % CO <sub>2</sub>							
Operating data							
	Ø (mm)	Wire feed m/min	Arc length mm	Current A	Voltage V		
	0.9	8.0 – 15.0	~ 3	100 – 160	22 – 27		
	1.2	6.0 – 15.0	~ 3	150 – 280	22 – 30		
	1.6	4.5 – 9.5	~ 3	200 – 360	23 – 28		
<p>Welding with standard GMAW power source with DC+ polarity. No pulsing needed. Backhand (drag) technique preferred with a work angle of appr. <math>80^{\circ}</math>. Ar + 15 – 25 % CO<sub>2</sub> as shielding gas offers the best weldability. 100 % CO<sub>2</sub> can be also used, but the voltage should be increased by 2 V. The gas flow should be 15 – 18 l/min. The heat input should not exceed 2.0 kJ/mm, the interpass temperature be limited to max. <math>150^{\circ}\text{C}</math> and the wire stick-out 15 – 20 mm. The scaling temperature is approx. <math>850^{\circ}\text{C}</math> in air. Post-weld heat treatment generally not needed. In special cases, solution annealing can be performed at <math>1050^{\circ}\text{C}</math> followed by water quenching.</p>							
Approvals							
TÜV (09118.), DB (43.014.24), LR (M21), DNV GL, CE							