BÖHLER A 7 PW-FD

Flux-cored wire, high-alloyed, austenitic stainless, special applications

Classifications		
EN ISO 17633-A	**EN ISO 17633-B**	**AWS A5.22**
T 18 8 Mn P M21/C1 2	TS Z307-F M21/C1 1	E307T1-G (mod.)

Characteristics and typical fields of application

Rutile flux-cored wire of T 18 8 Mn P / E307LT1 type for welding and cladding in flat and horizontal position. One of the most universal alloys and for some applications a cost-efficient alternative to E312 or E309L. For tough buffer and intermediate layers for cladding of rails and switches, valve seats and in hydropower plants. Good resistance to embrittlement when operating at service temperatures from –100°C up to 650°C. 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. The weld deposit offers high ductility, elongation and resistance to hot cracking, also after high dilution of problem steels. The weld metal work hardens and offers good resistance to cavitation. The weld metal is resistant to scaling up to 850°C, but at temperatures above 500°C there is not sufficient resistance to sulfurous combustion gases. For flat and horizontal welding positions (1G, 1F and 2F) BÖHLER A 7-FD may be preferred.

Base materials

Dissimilar joints, tough buffer and intermediate layers prior to hardfacing, 14 % Mn steels, 13 – 17 % Cr and heat resistant Cr and austenitic steels up to 850°C, armor plates, high carbon and quenched and tempered steels, surfacing of gears, valves, turbine blades, etc. For joint welding of unalloyed / low alloyed or Cr steels with high-alloyed Cr and CrNi steels. Welding of austenitic high manganese steels and with other steels.

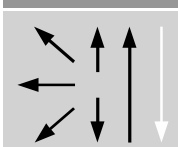
Typical analysis of all-weld metal						Ferrite WRC-92
	C	Si	Mn	Cr	Ni	FN
wt.-%	0.1	0.8	6.8	18.8	9.0	2 – 4

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		Hardness	Stress hardened
	MPa	MPa	%	20°C	–100°C	HB	HV
u	**420** (≥ 350)	**630** (≥ 590)	**39** (≥ 30)	**65**	**35** ≥ 32	~200	up to 400

u untreated, as-welded – shielding gas Ar + 18 % CO_2

Operating data



Ø (mm)	Wire feed m/min	Arc length mm	Current A	Voltage V
1.2	6.0 – 13.0	~ 3	150 – 200	22 – 29

Welding with standard GMAW power source with DC+ polarity. No pulsing needed. Backhand (drag) technique preferred with a work angle of appr. 80°. Ar + 15 – 25 % CO_2 as shielding gas offers the best weldability. 100 % CO_2 can be also used, but the voltage should be increased by 2 V. The gas flow should be 15 – 18 l/min. The wire stick-out should be 15 – 20 mm and the heat input not exceed 2.0 kJ/mm. Re-drying of the wire possible at 150°C for 24 h if necessary. Preheating and interpass temperature as required by the base metal. Ferrite measured with Fischer Feritescope 2 – 7 FN.

Approvals

TÜV (11102.), CE