BÖHLER CM 9-IG

Solid rod (GTAW), creep resistant

Classifications

AWS A5.28 / SFA-5.28	EN ISO 21952-A
ER80S-B8	WZ CrMo9 Si

Characteristics and typical fields of application

BÖHLER CM 9-IG is a solid filler rod designed for manual GTAW. The 9Cr-1Mo type weld metal exhibits a fully tempered martensitic microstructure with favorable mechanical properties in the post weld heat treated condition. The range of application covers joint welding of similar creep resisting steel tube, pipe, plate and forgings used in the thermal power and petrochemical industry. BÖHLER CM 9-IG is approved for long-term service up to 1100ºF (600ºC).

Base materials

Similar alloyed creep resistant steels and castings like
1.7386 X11CrMo9-1, 1.7388 X7CrMo9-1
ASTM A 182 Gr. F9; A 213 Gr. T9; A 217 Gr. C12; A 234 Gr. WP9; A 335 Gr. P9; A 336 Gr. F9; A 369 Gr. FB9; A 387 Gr. 9 u. 9CR; A 426 Gr. CP9; A 989 Gr. K90941

Typical analysis

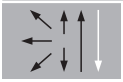
	C	Si	Mn	Cr	Mo
wt.-%	0.07	0.4	0.5	9.0	1.0

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$	Tensile strength R_m	Elongation A (L_0=5d_0)	Impacts ISO-V KV ft-lbs
	ksi	ksi	%	68 °F
T	77 (≥ 68)	97 (≥ 86)	24 (≥ 18)	162 (≥ 25)

T: tempered (1400°F / 2 h)

Operating data



Polarity	DC -
Shielding gas AWS A5.32 (ISO 14175)	I1

Dimension
1/16" × 39"
5/64" × 39"
3/32" × 39"
1/8" × 39"

Preheat and interpass temperature should be controlled between 300 and 600ºF. In order to optimize impact energy a welding technique that ensures small layer thickness and low heat input is recommended. After welding the weld seam must be cooled below 200ºF in order to complete the martensitic transformation prior to PWHT commonly carried out between 1350 and 1400ºF for at least 2 h. Cast components might require lower PWHT holding temperature. The un-tempered martensitic microstructure is very sensitive to cold and stress corrosion cracking. Residual welding and external stresses must be reduced to a minimum. Any exposure to moisture must be avoided in the as welded condition. Keeping the temperature above the dew point or storage in humidity controlled atmosphere is highly recommended between welding and final post weld heat treatment.

Approvals

TÜV (2182), CE