

MIDALLOY ER80S-B3L (formerly ER90S-B3L) WELDING WIRE

CLASSIFICATION

- AWS 5.28:2005 Class ER80S-B3L / ASME SFA 5.28 Class ER80S-B3L
- UNS #K20500 K30560

DESCRIPTION

- MIDALLOY ER80S-B3L welding wire is a bare wire, used for GMAW and GTAW welding.

APPLICATION

- MIDALLOY ER80S-B3L wire is a low carbon content (0.05%C max.) variation of ER90S-B3 wire. Midalloy ER80S-B3L welding wire is designed for the welding of 2¼ Cr/1 Mo steel that require lower as welded hardness.
- MIDALLOY ER80S-B3L welding wire is used to weld base materials of similar chemistry in boilers, piping and pressure vessels for temperature service up to 600°F.
- Used in the chemical industry and in the ammonia synthesis process. It will also find applications in the petrochemical industries and is suitable for facing on castings and for casting repairs.
- MIDALLOY ER80S-B3L exhibits greater resistance to cracking and is more suitable for welds left in the as welded condition.
- MIDALLOY ER80S-B3L weld wire creep rupture values are not as high as ER90S-B3 wire.
- Controlled preheating from 275°F to 325°F and interpass temperatures of 750°F during welding, followed by slow cooling to room temperature is beneficial to keep ductility.

TYPICAL CHEMISTRY

C	Mn	Si	Cr	Mo	P	S	Cu
.04	.60	.50	2.50	1.00	.010	.010	.015

TYPICAL MECHANICAL PROPERTIES

AS WELDED*

PWHT 1275°F**

TENSILE STRENGTH	87,000 PSI	82,500 PSI MIN
YIELD STRENGTH	76,850 PSI	68,500 PSI MIN
ELONGATION	22%	19%
HARDNESS	23 Rc	85Rb to 20 Rc

*As welded with a preheat of 300°F and interpass of 750°F

**Mechanical properties listed reflect utilization of a post-weld heat treatment between 1250°F and 1300°F for one hour

RECOMMENDED WELDING PARAMETERS

PROCESS	DIA. OF WIRE	AMPERAGE	VOLTAGE	GAS/FLUX
GTAW (TIG)	1/16"	50-120	7-13	Ar
	3/32"	120-200	10-16	Ar
	1/8"	150-220	12-18	Ar
GMAW (MIG) SHORT ARC	.035"	90-160	14-20	CO ₂
	.045"	120-200	16-20	CO ₂ or 75 Ar / 25 CO ₂
	1/16"	-	-	CO ₂ or 75 Ar / 25 CO ₂
GMAW (MIG) SPRAY TRANSFER	.035"	180-230	25-28	98 Ar / 2 O ₂
	.045"	250-350	25-30	75 Ar / 25 CO ₂
	1/16"	280-400	26-36	75 Ar / 25 CO ₂

STANDARD PACKAGE

- TIG 50 lb. carton
- MIG 33 lb. spool

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