AWS E91T5-B3M H8

FabCO® XTREME® B3

DESCRIPTION:

XTREME B3 is a gas shielded flux cored wire that deposits weld metal chemistry similar to those found in 2 1/4% Chrome/ 1% Molybdenum steels including ASTM A387 Grade P21 and P22 chrome-moly pipe. Even with a highly basic slag system, FabCO XTREME B3 has the slag removal and spatter of a T1 electrode, but offers excellent Charpy impact values which far exceed those of either a T5 basic or E8018-B3 electrode!

FabCO XTREME B3 is used in high temperature service applications where high tensile strength and creep resistance is required. The excellent all-position characteristics make this an excellent alternative to E9018-B3 electrode. It is recommended for single-and multi-pass welding using 75% Ar/25% CO_2 shielding gas.

APPLICATIONS:

2 1/4% Chromium - 1% Molybdenum steels such as ASTM WC9 grade and P21 and P22 grade pipes. High temperature applications where creep resistance is required such as boiler and pressure vessel piping, fittings, and high temperature valves.

FEATURES:	BENEFITS:
• Excellent Toughness Properties	• Increased weld toughness with a chrome-moly filler metal!
• Low X-factor	• Reduced chance of temper embrittlement
• Low Hydrogen (<6 ml/100g)	• Minimizes crack susceptibility

SHIELDING GAS: 75-80% Ar/20-25% CO_2, 35-50 cfh

TYPE OF CURRENT: DCEN

TYPICAL WELD METAL PROPERTIES*(Chem Pad):

Weld Metal Analysis	75% Ar/25% CO_2
Carbon (C)	0.103
Manganese (Mn)	1.05
Silicon (Si)	0.08
Phosphorus (P)	0.007
Sulphur (S)	0.003
Chromium (Cr)	2.30
Nickel (Ni)	0.02
Molybdenum (Mo)	1.03
Tin (Sn)	0.001
Antimony (Sb)	0.004
Arsenic (As)	0.0016

X-FACTOR:

Typical X-Factor = 8-13
X-Factor = {10xP+5xSb+4xSn+As}/100 in ppm

FabCO XTREME B3 1/16" diameter electrode was welded using 75% Argon/25% CO_2 shielding gas with a flow rate of 40 cfh, 225 amps (200 ipm), 25V, 10 ipm (25 cm/min) travel speed with DCEN polarity. Heat input was about 33.8 kJ/in (1.33 kJ/mm).

TYPICAL MECHANICAL PROPERTIES: PWHT 690°C (1275°F) - 1 HR:

	75% Ar/25% CO_2
Tensile Strength	105,600 psi (728 MPa)
Yield Strength	88,100 psi (607 MPa)
Elongation % in 2"	21.1%

TYPICAL CHARPY V-NOTCH IMPACT VALUES*:

(PWHT 690°C (1275°F) - 1 HR:

	75% Ar/25% CO_2
Avg. at -40°F (-40°C)	110 ft•lbs (149 Joules)

AS WELDED:

	75% Ar/25% CO_2
Avg. at -40°F (-40°C)	37 ft•lbs (50.2 Joules)

*The information contained or otherwise referenced herein is presented only as "typical" without guarantee or warranty, and Hobart Brothers Company expressly disclaims any liability incurred from any reliance thereon. Typical data are those obtained when welded and tested in accordance with AWS A5.29 specification. Other tests and procedures may produce different results. No data is to be construed as a recommendation for any welding condition or technique not controlled by Hobart Brothers Company.

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FabCO® XTREME® B3

TOTAL DIFFUSIBLE HYDROGEN: 5.0 ml/100g weld metal

CONFORMANCES AND APPROVALS: AWS A5.29, E91T5-B3M H8

XTREME B3 Step Cooling Data		
Test Temperature	**CVN before step cooling, J (Ft-lbs)[1]**	**CVN after step cooling J (Ft-lbs)[2]**
22°C (72°F)	217-23**(PWHT 690°C (1275°F) - 1**	80-154 (59-114)
0°C (32°F)	209-252 (155-187)	101-131 (75-97)
-20°C (-4°F)	170-228 (126-169)	122-165 (90-122)
-29°C (-20°F)	161-173 (119-128)	54-103 (40-76)
-40°C (-40°F)	163-234 (121-173)	15-59 (11-44)
-51°C (-60°F)	86-131 (64-97)	28-108 (21-80)

All tests welded in the 1G position according to AWS A5.29 on A387 gr 22 base plate.
Preheat and interpass temperatures were 176°C.
[1]Impact results following 24 hours PWHT at 705°C (1300°F).
[2]Impact results following 24 hours PWHT at 705°C (1300°F) then step cooling. Step cooling 1100°F-1hr, 1000°F-15 hrs., 975°F-24 hrs, 925°F-60 hrs, 875°F-100 hrs, air cool below 600°F.

WELDING DATA:
Information listed below was determined using 75% Ar/25% CO_2 shielding gas with flow range between 35 to 40 cubic feet per hour. Welding was performed in position designated below with DCEN welding current.

Diameter, Stickout, Position	Arc Voltage (volts)	Current DCEN (-) Amps	Wire Feed Speed In/Min	Deposition Rate lbs/hr.
0.045” 1/2” to 3/4” 3/4” to 1” Flat and Horizontal	21 23 25.5 26.5	160 200 240 290	180 240 350 450	3.3 4.4 6.1 8.6
0.045” 1/2” to 3/4” Vertical and Overhead	21 22 23	160 180 200	180 210 240	3.3 3.8 4.4
1/16” 1/2” to 3/4” Flat and Horizontal	24 25 26	260 285 325	200 250 280	4.1 9.6 11.4
1/16” 1/2” to 3/4” Vertical and Overhead	23 23 24	195 200 230	135 150 190	3.5 4.0 4.4

CAUTION:
Consumers should be thoroughly familiar with the safety precautions shown on the warning label posted in each shipment and in the American National Standards Z49.1, “Safety in Welding and Cutting”, published by the American Welding Society, 550 NW LeJeune Road, Miami, Florida 33126; OSHA Safety and Health Standards 29 CFR 1910 is available from the U.S. Department of Labor, Washington, D.C. 20210.

Material Safety Data Sheets on any Hobart Brothers Company product may be obtained from Hobart Customer Service.

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