POLAR POCKET WPDS

Pocket-POLAR-04	0	April 17, 2025
WPDS No.	Rev.	Date

Seaspan Vancouver Shipyards Co. Ltd.

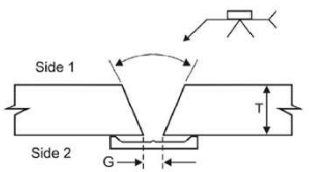
Applicable Standard(s): Lloyds Register - Rules for the Manufacture, Testing and Certification of Materials 2022

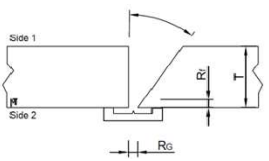
	Process/Mode	Electrode (Wire) Classification	Brand Name(s)	Manufacturer(s)
1	FCAW/Semi-Auto(Hand) FCAW/Auto(Moggy)	**AWS A5.20 E71T-1C/9C-J-H4 | LR Grade: 4Y40S**	**Dual Shield Prime 71 LT H4/C1**	**ESAB**

Material Designation	Base material 1	Base material 2	Min. Preheat / Interpass Temp.	50°C for root and hot pass, fill/cap as per VSY Preheat and InterpassTemperature Requirements for Welding
	EH 36 and all lower grades excluding A,B, D and E (Note 5)	EH 36 and all lower grades excluding A,B, D and E (Note 5)		
Delivery Condition(s)	All except QT	All except QT		
Thickness or Dia	**3 to 100 mm**	**3 mm to 100 mm**	Max. Interpass Temp.	**180°C**
Nominal Pipe Size	**500mm and above**	**500mm and above**	PWHT	**N/A**
Welding Position	*** All positions excluding Vertical down * Ceramic Backing: 1G, 2G and 3G-up ONLY.**		Joint Design	**Butt single Bevel/Vee**

Groove angle = 40-70° Root face for ceramic= 0-1mm
Root gap for ceramic= Target 4-7mm (max 1.5xT or 11mm, whichever smaller, is acceptable)

Plate thickness	Max. root gap
6mm	9mm
7mm	10mm
8mm and over	11mm





TYPICAL JOINT PREPARATION

COMPLETE JOINT PENETRATION	Welding Layer	JOINT TYPE	Back Purge	N/A	Contact Tip to Work Distance	9.5-20 mm
Back-gouged to sound metal	multi-layer	**BUTT**	Backing type	Ceramic/Steel		
Welded onto backing	One/Two side	CORNER	Welding Technique	Stringer/Slight Weave	Interpass Cleaning	Grinding and Wire Wheel
Welded from one side without backing	Gun travel angle	**LAP**	Max. Bead Width	18mm	Shielding Gas	100% CO_2
Welded both sides w/o back-gouging	Pull w/ slight push on Vu	**TEE**	Tungsten Electrode	N/A Ø:	Gas Flow	16-25 LPM
Method of steel preparation	Oxy fuel/Plasma cut | Grinding | Milling	**EDGE**	No. of electrodes	1		34-53 CFH

BM Thickness, T(mm)	Layers / Passes	Position	Electrode Size (mm)	Welding Process	Power Mode	Consumable	Amperage	Voltage	WFS	Travel Speed (mm/min)	Heat Input[1] kJ/mm
3 ≤ T ≤ 100	Root (Ceramic)	1G, 2G, 3G up	1.2,1.4	**FCAW (Hand)**	CV/DC+	E71T-1C/9C	130 - 250	19 - 25	170 - 300	55 - 140	**See Note 8**
3 ≤ T ≤ 100	Hot	All Ex. Vd.	0.9 - 1.6	**FCAW (Hand)**	CV/DC+	E71T-1C/9C	110 - 430	16 - 38	170 - 500	100 - 650	
3 ≤ T ≤ 100	Hot/Fill/Cap	All Ex. Vd.	0.9 - 1.6	**FCAW (Moggy)**	CV/DC+	E71T-1C/9C	110 - 420	16 - 38	190 - 500	110 - 750	

Note 1: Heat Input (kJ/mm) = [V x A x 60] / [Travel Speed (mm/min) x 1000]

Note 2: Amps and volts are to be set by the amp/volt meter

Note 3: Grind joint and adjacent surfaces to bright metal prior to welding to remove all traces of paint, primer, scale, rust, moisture and any other contaminants. Wire brush, grinding to be used for interpass cleaning.

Note 4: Travel angle = 5-10° Pull, For vertical up position/progression slight push should be used.

Note 5: Welding of the normal strength hull structure steel to normal strength hull structure steel (Grade A,B,D and E) using Dual Shield Prime 71LT is subject to special agreement with Lloyds Register.

Note 6: Rectangular groove ceramic tile is recommended (Gullco, KATBAK # 1G93-R) for butt joints. If round ceramic used, weld shall be followed by GTSM

Note 7: For the root pass on the ceramic backing, it is recommended to use 1.2mm (0.045") wire size with max. 180 amps.

Note 8:

Base Metal THK (mm)	3 ≤ T < 24	24 < T ≤ 100
Root Heat Input (kJ/mm)	1.5 - 3.2	1.5 - 3.8
Hot (kJ/mm) Hand	0.5 - 2	0.6 - 2.7
Hot/Fill/Cap (kJ/mm) Moggy	0.5 - 2.1	0.5 - 2.7

Bug-O Weave Settings	Dwell (L&R): 0 - 1.0	Weave Width: 0-18
	Weave Pattern No.: #1 for 2G / #1 & #3 for other	Weave Speed: 0-50
Reference WPS No.	FC-CS-G-01 (Rev. 2)	

Engineer Stamp

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