

POLAR POCKET WPDS			Pocket-POLAR-02	0	April 17, 2025
WPDS No.			Rev.	Date	



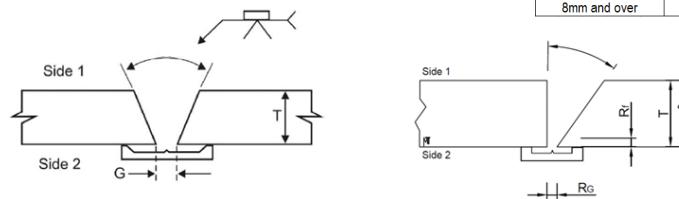
Seaspan Vancouver Shipyards Co. Ltd.

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)		AWS A5.20 E71T-1C/9C-J-H4 LR Grade: 4Y40S		Dual Shield Prime 71 LT H4/C1	ESAB
Material Designation		Base material 1 EH 36 and all lower grades excluding A,B, D and E (Note 5)		Base material 2 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 to 100 mm	
Nominal Pipe Size		500mm and above		500mm and above	
Welding Position		* All positions excluding Vertical down * Ceramic Backing: 1G, 2G and 3G-up ONLY.		Joint Design	

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				
<input type="checkbox"/> Back-gouged to sound metal		multi-layer	<input checked="" type="checkbox"/> BUTT	Backing type	Ceramic/Steel						
<input checked="" type="checkbox"/> Welded onto backing			<input checked="" type="checkbox"/> CORNER	Welding Technique	Stringer/Slight Weave	Interpass Cleaning	Grinding and Wire Wheel				
<input type="checkbox"/> Welded from one side without backing			<input checked="" type="checkbox"/> LAP	Max. Bead Width	18mm	Shielding Gas	100% CO2				
<input type="checkbox"/> Welded both sides w/o back-gouging			<input checked="" type="checkbox"/> TEE	Tungsten Electrode	N/A Ø:		16-25 LPM				
Method of steel preparation	Oxy fuel/Plasma cut Grinding Milling	EDGE				Gas Flow	34-53 CFH				
BM Thickness, T(mm)	Layers / Passes	Position	Electrode Size (mm)	Welding Process	Power Mode	Consumable	Amperage	Voltage	WFS (IPM)	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/Fill/Cap	All Ex. Vd.	0.9 - 1.6	FCAW (Hand)	CV/DC+	E71T-1C/9C	110 - 430	16 - 38	170 - 500	100 - 650	

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 (Gulco, 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/Fill/Cap (kJ/mm)	0.5 - 2.0	0.6 - 2.7

Engineer Stamp

Reference WPS No.

FC-CS-G-01 (Rev. 2)

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Seaspan SHIPYARDS	Seaspan Vancouver Shipyards Co. Ltd.	Applicable Standard(s)	Lloyds Register - Rules for the Manufacture, Testing and Certification of Materials 2022
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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 Interpass Temperature Requirements for Welding
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Delivery Condition(s)	All except QT	All except QT	Min. Preheat / Interpass Temp.	50°C for root and hot pass, fill/cap as per VSY Preheat and Interpass Temperature Requirements for Welding
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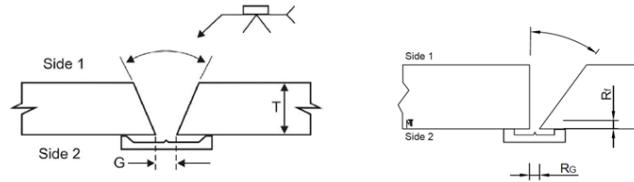
Thickness or Dia	3 to 100 mm	3 to 100 mm	Max. Interpass Temp.	180°C
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Nominal Pipe Size	500mm and above	500mm and above	PWHT	N/A
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Welding Position	* All positions excluding Vertical down * Ceramic Backing: 1G, 2G and 3G-up ONLY.	Joint Design	Butt single Bevel/Vee
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