POLAR POCKET WPDS

Pocket-POLAR-01	0	April 17, 2025
WPDS No.	Rev.	Date

Seaspan Vancouver Shipyards Co. Ltd.

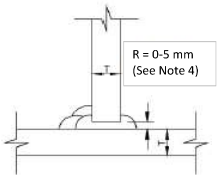
Applicable Standard(s): Lloyds Register - Rules for the Manufacture, Testing and Certification of Materials 2022

	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**

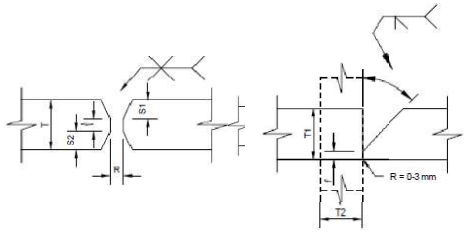
Material Designation	Base material 1	Base material 2	Min. Preheat / Interpass Temp.	As per VSY Preheat and InterpassTemperature Requirements for Welding
	EH 36 and all lower grades excluding A,B, D and E (Note 5)	EH 36 and all lower grades excluding A,B, D and E (Note 5)		
Delivery Condition(s)	All except QT	All except QT		
Thickness or Dia	**3 to 100 mm**	**3 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**		Joint Design	**Fillet, Butt single/double Bevel/Vee TKYX, CJP&PJP**

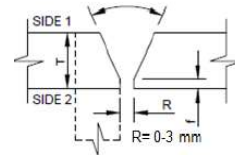
Fillet Leg Size = 4.2 to 140mm

Fillet Root Gap (**R**) = 0 to 5mm



Groove angle = 40-70°





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	N/A		
☐ 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% CO2
☐ 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 (A)	Voltage (V)	WFS (IPM)	Travel Speed (mm/min)	Heat Input[1] kJ/mm
3 ≤ T ≤ 100	Root	All Ex. Vd.	1.2,1.4	FCAW Hand	CV DC+	AWS A5.20: E71T-1C/9C	130 - 250	19 - 25	170 - 300	55 - 140	**See Note 6**
3 ≤ T ≤ 100	Hot/Fill/Cap	All Ex. Vd.	0.9-1.6	FCAW Hand	CV DC+	AWS A5.20: E71T-1C/9C	110-430	16 - 38	170 - 500	100 - 650	**See Note 6**

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

Note 2: 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 3: Travel angle = 5-10° Pull, For vertical up position/progression slight push should be used.

Note 4: Where the root gap R exceeds 3 mm but does not exceed 5 mm, the fillet leg length should be increased by R−2 mm.

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:

	3 ≤ T < 24	**24 < T ≤ 100**
Base Metal THK (mm)		
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

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PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA

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Reference WPS No.: FC-CS-G-01 (Rev. 2)