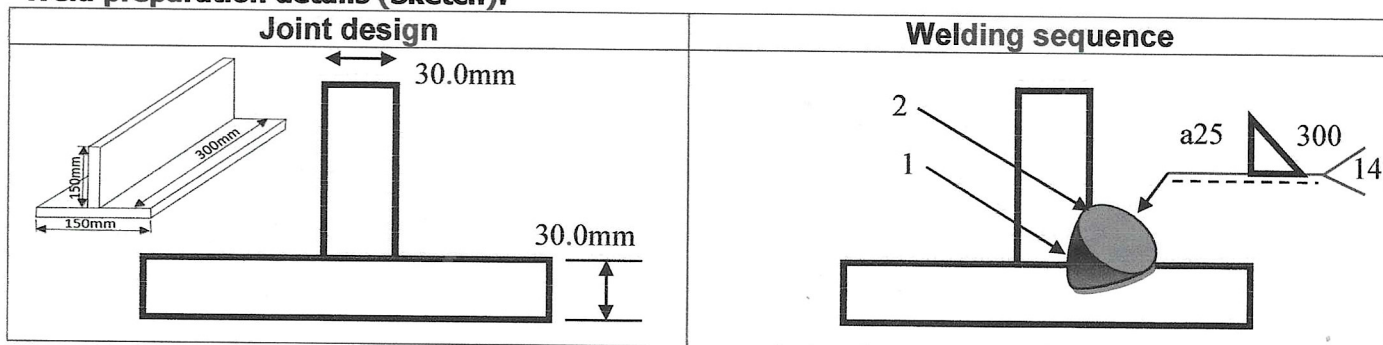


WELDING PROCEDURE SPECIFICATION (WPS) (As per EN / ISO 15609-1 2019)

Welding procedure specification: GNU ISO 15609-1 111 P FW t 30.0 PA ml 2025 01

WPQR No: GNU ISO 15614-1 111 P FW t 30.0 PA ml 2025 01	Method of preparation & Cleaning: GRINDING AND BRUSHING
Manufacturer: GNU Steel Casting Private Limited	Parent Metal Designation: ISO/TR 15608 – GR Unassigned (Mn 12%, C 1.1%, Si 0.8%, Cr 0.7%, Fe Casting)
Mode of Metal Transfer: Globular Transfer	Material Thickness (mm): t1 & t2 25.0 (Range t1 & t2 ≥ 5.0)
Joint Type & Weld Type: T Joint – Fillet Weld	Outside diameter (mm): NA
Throat Thickness: 25.0mm	Degree of mechanization: NA
Deposited Weld metal: NA	Welding position: PB

Weld preparation details (Sketch):



WELDING DETAILS

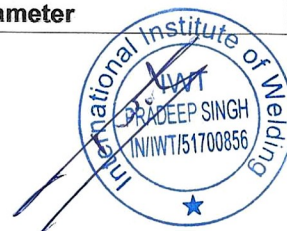
LAYER	Run	Welding Process	Size of filler metal Ø in mm	Current (amps) A	Voltage (volts) V	Type of current/ Polarity	Wire Feed speed	Run out Length / Travel speed (mm/Min)	Heat input. (KJ/mm)
1	1	111	4.0	150-170	22-25	DCEP	-	130	1.22-1.57
2	2	111	4.0	150-170	22-25	DCEP	-	128	1.24-1.59

1	Filler material designation and make: SFA/AWS A5.1:E7018 (Duromangan), Esab			
2	Any Special Backing or Drying:	NA	Other Information Eg.	
3	Gas / flux:		10	(Weaving, max width of run)
	Shielding:	NA	11	Oscillation Amplitude,
	Backing:	NA	12	Frequency dwell time
4	Gas Flow Rate:		13	Pulse Welding details
	Shielding:	NA	14	Distance contact tube / work piece (mm)
	Backing:	NA	15	Plasma welding details:
5	Tungsten Electrode / size	NA	16	Torch Angle (Degree)
6	Details of Back gouging / backing	NA	17	Pre-heat maintenance temperature:
7	Pre-Heat temperature	Ambient Temp.	18	Post weld heat treatment or aging:
8	Inter-pass Temperature	≤ 150°C	19	Heating & cooling time:
9	Post Heating	NA	20	Nozzle Diameter

Manufacturer Name: GNU Steel Casting Private Limited

Signature :

Date : 03/05/2025



WELDING PROCEDURE QUALIFICATION RECORD (WPQR) (ISO 15614-1:2017) Welding Procedure Qualification-Test certificate

Manufacturer's WPQR No: GNU ISO 15614-1 111 P FW t 30.0 PA ml 2025 01 Rev0

Manufacture: GNU Steel Casting Private Limited

**Address: Mustkil no 125 kila no 22/2, 5 4, 22/3, 0 4, 23, 8 0,
Prithla, Pawal, Haryana 121102**

Code / Testing Standard: ISO 15614-1:2017

Level: 2

Date of welding: 28/04/2025

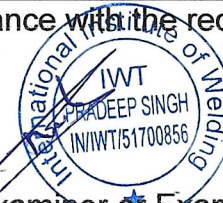
Range of Qualification

**EXAMINER/ EXAMINING BODY
Responsible Welding Coordinator
Pradeep Singh
(Cert. No.: IN/IWT/51700856)**

Welding Variables	Actual	Range Qualification
Welding Processes	111 - SWAW	111 - SWAW
Type of joint and weld	FW	FW
Parent metal group(s) and subgroup	ISO/TR 15608 – GR Unassigned (Mn 12%, C 1.1%, Si 0.8%, Cr 0.7%, Fe Costing)	ISO/TR 15608 – GR Unassigned
Parent metal thickness (mm)	t1= 30.0mm, t2= 30.0mm	t1 ≥ 5.0mm, t2 ≥ 5.0mm,
Weld metal thickness (mm):	Not Applicable	Not Applicable
Single run / Multi run:	Multi Run	Single Run & Multi Run
Filler material designation	SFA/AWS A5.1:E7018 (Duromangan)	SFA/AWS A5.1:E7018 (Duromangan)
Filler material make:	Esab	Any Approved Make
Filler Material size:	Ø4.0mm	Any Dia
Throat thickness (mm)	25 mm	No Restrictions
Outside pipe Ø (mm):	Not Applicable	Not Applicable
Designation of shielding Gas/flux	Not Applicable	Not Applicable
Designation of backing Gas	Not Applicable	Not Applicable
Type of welding current & polarity	DCEP	DCEP
Mode of metal transfer	Not Applicable	Not Applicable
Heat input	1.22 – 1.59 kJ/mm	1.22 – 1.59 kJ/mm
Welding positions	PB	All Positions Except PG & J-L045
Pre-heat temperature:	Ambient Temp.	≥ 10°C
Post heating:	Not Applicable	Not Applicable
Inter pass temperature:	≤ 150°C	≤ 150°C
Post weld –Heat Treatment:	Not Applicable	Not Applicable
Other Information:	Not Applicable	Not Applicable

Certified that test welds prepared, welded and tested satisfactorily in accordance with the requirements of the code/testing standard indicated above.

Date of Issue: 03/05/2025
Location: Palwal, Haryana,


 Examiner of Examining body
 Date & signature

Record of Weld Test:

Location : Palwal, Haryana, India	EXAMINER/ EXAMINING BODY
WPS No: GNU ISO 15609-1 111 P FW t 30.0 PA ml 2025 01	Responsible Welding Coordinator Pradeep Singh (Cert. No.: IN/IWT/51700856)
WPQR No: GNU ISO 15614-1 111 P FW t 30.0 PA ml 2025 01	Method of Preparation & Cleaning: Grinding, Wire Brush (SS)
GNU Steel Casting Private Limited Mustkil no 125 kila no 22/2, 5 4, 22/3, 0 4, 23, 8 0, Prithla, Pawal, Haryana 121102	Parent Metal Spec.: ISO/TR 15608 – GR Unassigned (Mn 12%, C 1.1%, Si 0.8%, Cr 0.7%, Fe Costing)
Welder Name: Mr. Pawan Kumar (34)	Material thickness(mm): t1 & t2 =30.0mm (Range t1 & t2 ≥ 5.0)
Mode of metal Transfer: NA	Outside Pipe Diameter(mm): NA
Joint type and weld: T Joint – Fillet Weld	Welding position: PB

Welding Preparation Details (Sketch)

Joint Design	Welding Sequence

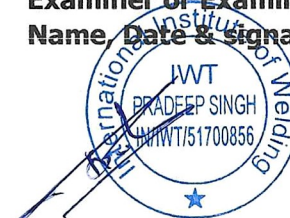
Welding Details:

LAYER	Run	Welding Process	Size of filler metal Ø in mm	Current (amps) A	Voltage (volts) V	Type of current/ Polarity	Wire Feed speed	Run out Length/ Travel speed (mm/Min)	Heat input. (KJ/mm)
1	1	111	4.0	150-170	22-25	DCEP	-	130	1.22-1.57
2	2	111	4.0	150-170	22-25	DCEP	-	128	1.24-1.59

1	Filler material designation and make: SFA/AWS A5.1:E7018 (Duromangan), Esab								
2	Any Special Backing or Drying:	NA				Other Information Eg.			
3	Gas / flux:				10	(Weaving, max width of run)	Weaving Bead		
	Shielding:	NA			11	Oscillation Amplitude,	NA		
	Backing:	NA			12	Frequency dwell time	NA		
4	Gas Flow Rate:				13	Pulse Welding details	NA		
	Shielding:	NA			14	Distance contact tube / work piece (mm)	NA		
	Backing:	NA			15	Plasma welding details:	NA		
5	Tungsten Electrode / size	NA			16	Torch Angle (Degree)	80-90°		
6	Details of Back gouging / backing	NA			17	Pre-heat maintenance temperature:	NA		
7	Pre-Heat temperature	Ambient Temp.			18	Post weld heat treatment or aging:	NA		
8	Inter-pass Temperature	≤ 150°C			19	Heating & cooling time:	NA		
9	Post Heating	NA			20	Nozzle Diameter	NA		

Manufacturer: GNU Steel Casting Private Limited
Date: 03/05/2025

Examiner or Examining Body
Name, Date & signature



Test Results

Manufacturer's WPQR No: GNU ISO 15614-1 111 P FW t 30.0 PA ml 2025 01 Visual Test: Satisfactory, Report No.- PCS/GNU/VT/FW/01 Penetrant Test: Satisfactory, Report No.- PCS/GNU/PT/FW/01	Examiner or examining body: Pradeep Singh Reference No.: IN/IWT/51700856 Radiography: Not Applicable Ultrasonic: Not Applicable Temperature: Room Temperature (28 to 30 Deg)
---	---

Tensile Test (ISO 5178): Not Applicable

Type/No.	Re N/mm2	Rm N/mm2		A % on	Z %	Fracture Location	Remarks
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--

Bend Test (ISO 5173): Not Applicable

Type/No.	Bend Angle	Elongation	Results
--	--	--	--
--	--	--	--
--	--	--	--
--	--	--	--

Macroscopic Examination (ISO 17639): Satisfactory,

Lab. Report No.: TC9196/SQTH/00740F

Impact Test (ISO 9016): Not applicable

Notch Location/Direction	Temp. °C	Values in J			Average	Remarks
		1	2	3		
--	--	--	--	--	--	--
--	--	--	--	--	--	--

Hardness Test (ISO 9015-1-2011) (Type/Load): NA

Lab. Report No.: NA

Location of Measurement (Sketch): -
Result: -

Other Tests: Remarks:

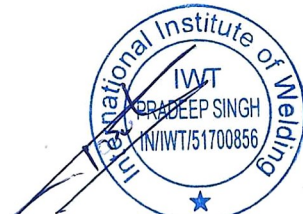
Test carried out in accordance with the requirements of: EN ISO 15614 – 1:2017

Laboratory Report Reference No.: Mentioned in respective test details.

Test Results Were Acceptable / not acceptable.

Test carried out in the presence of: Mr. Pradeep Singh

Date: 03/05/2025



Examiner or examining body.
Name, date and signature.