Welding Procedure Qualification Certificate EN ISO 17660-1: 2006

Manufacturer's WPQR no.:	SQ0335401-358	Examining body Reference No:	--
Manufacturer:	Imetaal Staalbouw B.V.		
Address:	Handelsweg 2, Gendringen, The Netherlands		
Code / Testing standard:	EN ISI 17660-1: 2006		
Level:	--		
Date of welding:	27 May 2025		

Range of qualification

Welding process(es):	135 (partly mechanized)
Type of joint and weld:	FW, Transverse end plate joints acc. Fig. 9b and Side lap joint, double-sided welded acc. Fig.6b
Deposited thickness (mm):	N.A.
Parent material group(s) and sub-group(s):	EN 10025-2 Gr. S355J2+N to EN 6008 B500B[a]
Parent material thickness (mm):	**Reinforcing steel bar 25.0 mm to plate ≥ 5.0**
Throat thickness (mm):	See EN 17660-1 at Fig. 6b and 9b
Single layer / multi run:	Multi run
Outside pipe diameter (mm):	N.A.
Filler material designation:	EN ISO 14341-A: G 42 4 M21 3Si1
Filler material make:	Solid
Filler material size:	Satisfy the requirements of 8.4.7
Designation of shielding gas / flux:	ISO 14175 – M21 – ArC – 8
Designation of backing gas:	N.A.
Type of welding current and polarity:	DC +
Transfer mode:	All (except short circuit)
Heat input (kJ/mm):	WPS 01: 0.60 - 1.72 / WPS 02: 0.95 - 2.13
Welding positions:	PA / PB
Preheat temperature:	> 5 °C (see clause 8.4.8)
Interpass temperature:	Max. 250C (see clause 8.4.9)
Post-Heating:	Allowed
Post-weld heat treatment:	Not Allowed

Other information

- (a) The carbon equivalent for the material used in the welding procedure test qualifies materials with an equal or lower carbon equivalent, but not those with higher carbon equivalents.

A welding procedure test carried out on load-bearing welded joints qualifies for non load-bearing welded joints, but not vice-versa.

A welding procedure test is restricted to the manufacturing process of the reinforcing steel used in the welding procedure test (see ISO 16020).

We confirm that the statements in this record are correct and that the test pieces were prepared, welded, tested and have fulfilled the requirements with the above indicated code / testing standard.

Location: Elsloo

Date of Issue: 23 June 2025

Surveyor

LRQA Nederland B.V.
Name: N. Goessen
Date: 23 June 2025
Ref No.:
Office: Elsloo
Signature

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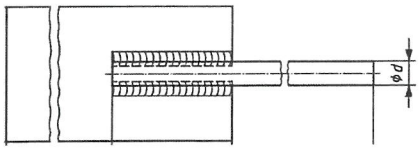
Examining Body --

Details of test weld

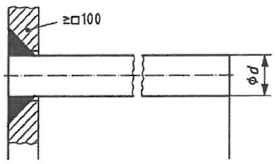
Manufacturer's [p] WPS no.:	25-388-01 & 2		
Manufacturer's WPQR no.:	SQ0335401-388	Method of preparation & cleaning:	Machining & Grinding / Brushing
Welder's / operator's name:	Essingholt T.B / Blumer. D.J.	Parent material specification: (attach material certificates)*	EN 10025-2 Gr. S355J2+N to EN 6008 B5008
Joint type and weld:	FW, Transverse end plate joints acc. Fig. 9b and Side lap joint, double-sided welded acc. Fig.6b	Material thickness (mm):	Bar: 25.0mm to Plate 30.0mm
Welding position:	PA / PB	Outside pipe diameter (mm):	--

Weld preparation details (Sketch)

Side lap joint, double-sided welded acc. Fig.6b (WPS nr. 25-388-01)



Transverse end plate joints acc. Fig. 9b (WPS nr. 25-388-01)



Welding details

Pass / layer	Process	Size filler Material	Current [A]	Voltage [V]	Type current / polarity	Wire feed m/min	Travel speed mm/sec	Heat input kJ/mm	Metal transfer
WPS 01: Root	135	1.2	256	27.4	DC+	--	6.19	0.90	Spray arc
WPS 01: Filler	135	1.2	260	27.6	DC+	--	6.07	0.94	Spray arc
WPS 01: Cap	135	1.2	248	27.7	DC+	--	3.97	1.38	Spray arc
--	--	--	--	--	--	--	--	--	--
WPS 02: Root	135	1.2	231	29.8	DC+	--	4.33	1.27	Spray arc
WPS 02: Filler	135	1.2	237	29.8	DC+	--	4.23	1.33	Spray arc
WPS 02: Cap	135	1.2	249	29.3	DC+	--	3.42	1.71	Spray arc

Filler material designation & make: S, ENIS014341-A-G 42 4 M21 3Si1, CARBOFIL 1

Any special baking or drying:	See manufacturer data sheet.	Weaving (max. with of run)	--
Gas / flux – shielding:	92% argon / 8% Co2	Oscillation: amplitude, frequency, dwell time	--
Gas / flux – Backing:	--	Pulse welding details:	--
Gas flow rate – shielding:	15-18 L/min	Distance contact tube / workpiece:	--
Gas flow rate – backing:	--	Plasma welding details:	--
Tungsten electrode type / size:	--	Torch angle:	--
Details of back gouging / backing:	--	Post-Weld Heat Treatment and / or Ageing:	--
Preheat temperature:	Amb.	Time, temperature and method:	--
Interpass temperature:	250°C	Heating and cooling rates*:	--
Post-heating:	--		
Power source:	--		
Manufacturer power source:	--		
Other information*:	--		

Manufacturer: Imetaal Staalbouw B.V.

Surveyor

LRQA Nederland B.V.
Name: N. Goessen
Date: 23 June 2025
Ref No.:
Office: Eisloo
Signature:

Manufacturer's signature:

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Date: 23 June 2025

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*= As Required

Test results

Manufacturer's WPQR no.: SQ0335401-388

Visual examination: Acceptable

Radiography: --

Penetrant / Magnetic particle test: Acceptable: MI815560217 Rev.0

Ultrasonic examination: --

Tensile tests

Type / No	Rp 0.2% kN / N/mm²	Rm kN / N/mm²	A% on	Rm/Re Ratio	Fracture location / distance to weld [mm]	Temperature:	Remarks
Requirements		≥ 265 KN					
65725-2A / 1	239 / 486	333 / 679	11.5	1.40	BM / 75	+22°C	
65725-2B / 2	249 / 507	334 / 680	11.0	1.34	BM / 275	+22°C	
65725-2C / 3	234 / 476	332 / 676	10.5	1.42	BM / 80	+22°C	
65725-1A / 1	248 / 505	332 / 677	7.5	1.34	BM / 115	+22°C	
65725-1B / 2	248 / 506	334 / 680	7.5	1.34	BM / 160	+22°C	
65725-1C / 3	237 / 484	334 / 681	7.5	1.41	BM / 150	+22°C	

Bend tests

Type / No	Bend Angle	Size mm	Former mm	Result

Macroscopic examination: --

Microscopic examination: --

Impact tests

Type: Size: Requirement:

Notch location / direction	Temp °C	Values Single (J) 1	2	3	Average (J)	Lateral expansion (mm)

Hardness Tests

Type / Load: --

Max. Values: --

Other tests:

Remarks*

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For locations and complete results of Hardness measurements see report: --

Tests carried out in accordance with the requirements of: EN ISO 17660-1

Laboratory report reference no: Element LAS012-25-06-65725-1, d.d: 17-06-2025

Test results were: Acceptable

Test carried out in the presence of: Reviewed by N. Goessen (LRQA NL BV)

Surveyor

LRQA Nederland B.V.
Name: N. Goessen
Date: 23 June 2025
Ref No.:
Office: Eisloo
Signature:

*= As Required