Welding Procedure Qualification Certificate EN ISO 15614-1: 2017

Manufacturer's WPQR no.:	SQ0335401-406	Examining body Reference No:	LRQA Nederland B.V. Notified Body No.: 0343 (RvA accreditation I-081)
Manufacturer:	Imetaal Staalbouw B.V.		
Address:	Handelsweg 2, Gendringen, The Netherlands		
Code / Testing standard:	EN-ISO 15614-1: 2017+ A1:2019 / Directive 2014/68/EU		
Level:	2		
Date of welding:	02 & 30 September 2025		

Range of qualification

Welding process(es):	135 (automatic with cobot)
Type of joint and weld:	FW
Deposited thickness (mm):	N.A.
Parent material group(s) and sub-group(s):	1.2[a]
Parent material thickness (mm):	3.0 - 30.0
Throat thickness (mm):	sl: 3.75 - 7.5 / ml: No restriction
Single layer / multi run:	Single layer / multi run
Outside pipe diameter (mm):	>150.0
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 – M20 – ArC – 8
Designation of backing gas:	Without / With ISO 14175: I, N1, N2 and N3
Type of welding current and polarity:	DC +
Transfer mode:	All (except short circuit)
Heat input (kJ/mm):	sl: 0.45 - 0.75 / ml: 0.56 - 0.95 (see also page 2+3 & clause 8.4.7 "Heat Input")
Welding positions:	PB
Preheat temperature:	> 5 °C (see clause 8.4.8)
Interpass temperature:	Max. 180˚C (see clause 8.4.9)
Post-Heating:	Allowed
Post-weld heat treatment:	Not Allowed

Other information

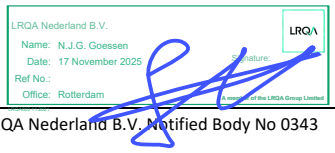
a Test piece material in group 1 qualify the equal or lower specified minimum yield strength steels (independent of the material thickness).

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: 17 November 2025

Surveyor



On behalf of LRQA Nederland B.V. Notified Body No 0343

A subsidiary of LRQA Group Limited

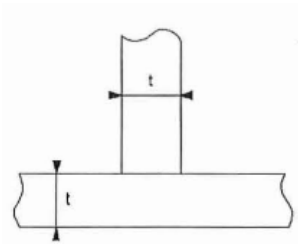
Examining Body LRQA Nederland B.V. Notified Body No.: 0343 (RvA accreditation I-081)

Details of test weld

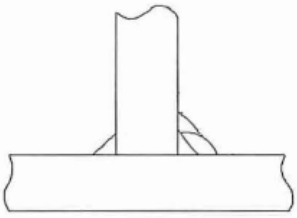
Manufacturer's [p] WPS no.:	25-406-01 rev.0		
Manufacturer's WPQR no.:	SQ0335401-406	Method of preparation & cleaning:	Machining & Grinding / Brushing
Welder's / operator's name:	Essingholt. T.B. & Van der Heijden D.N.T	Parent material specification: (attach material certificates)*	EN 10025-2 S355J2+N (1.2)
Joint type and weld:	FW, T-joint, sl / ml	Material thickness (mm):	15.0
Welding position:	PB	Outside pipe diameter (mm):	--

Weld preparation details (Sketch)

Joint design



Welding sequences



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
sl	135	1.2	285.0	26.2	DC +	--	9.90	0.60	Puls
ml / Root	135	1.2	320.8	30.0	DC +	--	10.2	0.75	Puls
ml / Cap	135	1.2	321.5	30.1	DC +	--	10.41	0.76	Puls

Filler material designation & make:	S, ISO 14341-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:	M20: 92% Argon/ 8% Co2	Oscillation: amplitude, frequency, dwell time	--
Gas / flux – Backing:	--	Pulse welding details:	--
Gas flow rate – shielding:	15 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:	Ambient	Time, temperature and method:	--
Interpass temperature:	130°C	Heating and cooling rates*:	--
Post-heating:	--		
Power source:	Power source LORCH: S5 RoboMIG XT Cobot		
Welding unit:	Robot type: Universal ROBOTS model ER10e		
Other information*:	--		
Manufacturer:	Imetaal Staalbouw B.V.	Surveyor	LRQA Nederland B.V. Name: N.J.G. Goessen Date: 17 November 2025 Ref No.: Office: Rotterdam
Manufacturer's signature:			
Date:	17 November 2025		

Test results

Manufacturer's WPQR no.: SQ0335401-406

Visual examination: Acceptable

Radiography: --

Penetrant / Magnetic particle test: Acceptable: MI823681606 Rev.0
Acceptable: NI251294201 Rev.0

Ultrasonic examination: --

Tensile tests

Type / No	Rp 0.2% N/mm²	Rm N/mm²	A% on	Z%	Fracture location	Temperature:	Remarks
Requirements							

Bend tests

Type / No	Bend Angle	Size mm	Former mm	Result

Macroscopic examination: Macro photo of cross section no.: 67646 – B (sl)

Macroscopic examination: Macro photo of cross section no.: 67295 / 1 (sl+ml)

Impact tests

Type: Size: Requirement:

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

Hardness Tests

Other tests:

Type / Load: Vickers HV10 ISO 6507-1

Values Max. - Parent metal: sl: Cap: 154 - Root: 158 / ml: Cap: 168 - Root: 170

- (C.G.) H.A.Z.: sl : Cap: 349 - Root: 354 / ml: Cap: 330 - Root: 280

- Weld metal: sl: Cap: 274 - Root: 283 / ml: Cap: 247 - Root: 254

Remarks*

For locations and complete results of Hardness measurements see report: Element LAS012-25-09-67295-1 (ml), LAS012-25-10-67646-1 (sl) page 3 of 3

Tests carried out in accordance with the requirements of: EN-ISO 15614-1: 2017+ A1:2019 L2

Laboratory report reference no: Element LAS012-25-09-67295-1 (ml), LAS012-25-10-67646-1 (sl)

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.J.G. Goessen
Date: 17 November 2025
Ref No.:
Office: Rotterdam

LRQA Nederland B.V. Notified Body No.: 0343 (RvA accreditation I-081)

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*= As Required