



**BUREAU
VERITAS**

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WELDING PROCEDURE QUALIFICATION RECORD

N° WPQR BVAMF 4.14.0385-02 rev.00



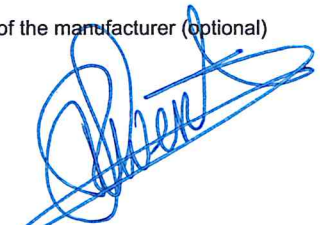
Manufacturer : **Staalmeesters BV**
Place of welding : **Geijsterseweg 12, Wanssum**
Date of welding : **09-04-2014**
pWPS No : **1**
Reference standard : **EN 15614-1 Edition 2005 + A1 / 2008**
Supplemented by :
Test performed in the presence of : **H.Verschuren**

Stamp No HVE

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Certifies that test pieces were prepared, welded and tested satisfactorily in accordance with the requirements of the documents indicated above.

Record issued on : **25-05-2014**

Examining body	Manufacturer
Authorized representative : H.Verschuren Signature : 25-5-2014  Stamp of the examining body 	Represented by : RFG SWERTZ Signature : Stamp of the manufacturer (optional) 

Other identification (as necessary) :

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Welding Procedure Qualification Record (WPQR)

EN 15614-1

Test Piece No : 7		Base material		①	②
Joint type		Grade		S355 J2 + N	S355 J2 + N
<input checked="" type="checkbox"/> Butt <input type="checkbox"/> Tubes <input checked="" type="checkbox"/> Plates <input type="checkbox"/> Tee <input type="checkbox"/> Branch <input checked="" type="checkbox"/> Full penetration <input type="checkbox"/> Fillet		<input checked="" type="checkbox"/> Backing strip Permanent <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Nature Type : <input type="checkbox"/> Back gouging or chipping		Standard or specification	
		Heat no		388188	388188
		Group / Subgroup		1.2	1.2
		Thickness mm		15	15
		Outside diameter mm		plate	plate
Joint Design			Welding sequences		
Indicate grades ① ②			Indicate deposited thickness per process		
pass number		1 (Root)	2 (Filler)	Filler	3 (Cap)
Position		PA	PA	PA	PA
Process		135 A	135 A	135 A	135 A
Transfer mode		Short circuit	Spray	Spray	Spray
Welder's name		Jenő Pusztai	Jenő Pusztai	Jenő Pusztai	Jenő Pusztai
Filler material		Manufacturer Bohler	Bohler	Bohler	Bohler
Trade mark					
Std. designation		SG3H	SG3H	SG3H	SG3H
Diameter (mm)		1.2	1.2	1,2	1,2
Flux		Manufacturer NA	NA	NA	NA
Trade mark		NA	NA	NA	NA
Std. designation		NA	NA	NA	NA
Shielding gas		Type Air Liquide ArcaI5	Air Liquide ArcaI5	Air Liquide ArcaI5	Air Liquide ArcaI5
Face		Std. designation 82-18	82-18	82-18	82-18
Flow rate (l/min)		14-16	14-16	14-16	14-16
Root		Type NA	NA	NA	NA
Std. designation		NA	NA	NA	NA
Flow rate (l/min)		NA	NA	NA	NA
Plasma gas		Type NA	NA	NA	NA
Std. designation		NA	NA	NA	NA
Flow rate (l/min)		NA	NA	NA	NA
Type of current (~ , = , pulse)		DC+	DC+	DC+	DC+
Tungsten electrode (type & Ø)		NA	NA	NA	NA
Electrode polarity		+	+	+	+
Current (A)		160 – 180	220 - 240	220 - 240	195 – 225
Voltage (V)		18 – 20	22 - 24	22 - 24	19 – 21
Welding speed (cm/min)		12 – 14	16 - 20	16 - 20	16 - 20
Heat input {k.U.I.10 ⁻³ / v} (kJ/mm)		1,0 – 1,4	1,2 – 1,7	1,2 – 1,7	0,9 – 1,4
Interpass temperature (°C)		200	200	200	200
Welding equipment					
Preheat : <input checked="" type="checkbox"/> No <input type="checkbox"/> yes Temperature : 10 °C					
Postheat : <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Temperature : °C Holding time :					
PWHT : <input checked="" type="checkbox"/> Non / No <input type="checkbox"/> Oui / Yes Holding temp. : °C					
Heat. rate : °C/h Hold time : Cooling rate : °C/hr Å °C					
Other informations :					

: M = Manual , A = Auto, TM = Fully mechanized , PM = Partly mechanized

1. Non destructive tests

Examination performed	Carried out by	Result	N° de rapport / Report No
Visual Test	MME / Bureau Veritas	Acceptable	14RS00042
Liquid Penetrant	NA	NA	NA
Magnetic Particle	MME	Acceptable	14RS00042
Radiographic Test	NA	NA	NA
Ultrasonic Test	MME	Acceptable	14UT003

2. Tensile tests

Report No : 1503 / 2.....

Mark	Test specimen		Temperature (°C)	Rm (N/mm ²)	Re (N/mm ²)	A (%)	Z (%)	Localisation Fracture location	Results and remarks
	Type and sizes (mm)	Cylindrical WM		Required values (* for cylindrical specimen only)					
	25 x 14,2		RT	567				Base material	Acceptable
	25 x 14,2		RT	566				Base Material	Acceptable

3. Bend tests

Report no : 1503 / 2.....

Mark	Test specimen		(mm) Former diameter	Direction of bending and sizes of section			Results and remarks
	Transverse	Longitudinal		Face	Root	Side	
1	x		D = 4t			180°	Acceptable
2	x		D = 4t			180°	Acceptable
3	x		D = 4t			180°	Acceptable
4	x		D = 4t			180°	Acceptable

4. Impact tests

Report n° : 1503 / 2.....

Specimen	Test temp. (°C)	Specim. (P) (M) (R)	KCV (J/cm ²) Notch location						Results and remarks
			(VWT) Weld metal		Heat Affected Zone (VHT)				
			Individ.	average	Nuance / Grade ①		Nuance / Grade ②		
01WF	-20	M	74	81					Acceptable
01WF			74						
01WF			94						
01HF	-20	M			224	157			Acceptable
01HF					73				
01HF					174				

KCV(J/cm ²) Requirements	Grade①	Grade②	M F
Individual	24	24	24
Average	27	27	27

MF : weld metal

HAZ: heat affected zone

(P)= face, (M) = middle thickness (R) = root



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5. Hardness (HV 10)

Report No : 1503 / 2

Sketch	Surveys	Results	Results and remarks
	Max. allowable value :		
	Basemat	Face 171, 172, 176 Root 182, 180, 174	Acceptable
	HAZ	Face 215, 228, 231, 229, 216 Root 191, 191, 193, 198, 198	Acceptable
	Weld	Face 186, 180, 173 Root 194, 200, 197	Acceptable
	HAZ	Face 209, 215, 211, 226, 216 Root 190, 205, 197, 197, 189	Acceptable
	Basemat	Face 171, 174, 174 Root 170, 174, 178	Acceptable

6. Macroscopic examination

Report No

: 1503 / 2

Mark :	Mark :
Remarks :	Remarks :
Result : Acceptable	Result :

7. Other examinations and tests :

References	