WELDING PROCEDURE QUALIFICATION RECORD

Builder's Welding Procedure Qualification Reference: W3-FW-PF-12

Builder: FACH-STAL Krzysztof Jeleńkowski

Address: 40/510 Piłsudskiego , 48303 Nysa, Poland.

Further to the welding of the standardized test piece carried out on the Builder's works at Przełęk, on the 06.05.2020 in the presence of Mr. Wojciech Lubojański, Bureau Veritas Surveyor, we certify that that the Builder's welding procedure No. W3-FW-PF-12 has given results in accordance with the requirements of the following document(s):

Rules on Materials and Welding for the Classification of Marine Units

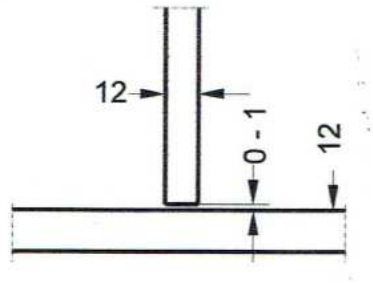
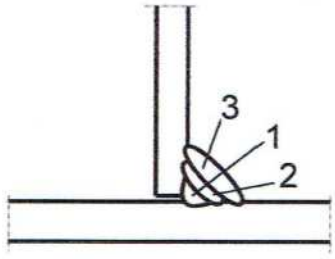
NR216 DT R11 E July 2019

Location:	Date of issue :	Surveyor to Bureau Veritas
Katowice	05.06.2020	Wojciech Lubojański

1. DETAILS OF WELD TEST

WPS number	W3-FW-PF-12
Method of preparation	Flame cutting and beveling, grinding
Other information	-

	Parent metal specification	
	Part 1	Part 2
Grade	EN10025-2 S355J2 N	EN10025-2 S355J2 N
Heat number	1131	1131
Thickness	12 mm	12 mm

Join design	Welding sequences
	

Run number	1	2	3
Welding Process	135	135	135
Welding Position	PF	PF	PF
Autom Welding no. of heads			
weawing			
dwell time			
Filler Metal : wire(W) or	W	W	W
- Filler Metal Classification	4Y40S	4Y40S	4Y40S
- Trade Name	SIDERGAS S7	SIDERGAS S7	SIDERGAS S7
- Diameter mm	1,2	1,2	1,2
- Batch			
Shielding : Flux(F) or gas(G)	G	G	G
- Power Flux . Classification			
. Type & Trade			
- Gas Flux . Type	M21	M21	M21
. Trade Name			
- Backing . Flow Rate			
- Shielding . Flow Rate	15 – 18	15 – 18	15 – 18
- Plasma			
Tungsten electrode : type/size			
Type of Current	DC	DC	DC
Electrode or wire polarity	+	+	+
Current (A)	110-130	120-130	120-140
Voltage (V)	20-21	20-22	21-23
Pulsed Welding			
Travel Speed S (cm/min)	37	37	37
Wire feed Speed (cm/min)			
Heat Imput (J/cm)=(VxAx60)/S			
Preheat Temp. deg C min	20	20	20
Interpass Temp. deg C max	250	250	250
Welding Equipment .Trade			
. Type			
Other			

Post- Heating : NA Temperature °C..... Holding Time .....

Post Weld Heat Treatment NA Temperature °C..... Holding Time

Welder or Welding Operator: Smoliński Ryszard

2. TEST RESULTS

2.1

NON DESTRUCTIVE TESTS	PERFORMED BY	REPORT No./ DATE	RESULT
Visual Examination	Laboratorium Łabędy	P1004/20	Positive
Dye penetrant / Magnetic particle	Laboratorium Łabędy	P1004/1/20	Positive
Radiography	NA		
Ultrasonic Examination	NA		

2. 2 TENSILE TESTS

Performed by: - Report No - Date:

Requirements: -

TYPE / NO,	Re(N / mm^2)	Rm(N / mm^2)	A%	Z%	FRACTURE LOCATION	RESULT

2.3 BEND TEST

Performed by: - Report No - Date:

Requirements:

TYPE / NO	PUNCH DIAMETER	SPECIMEN SECTION	RESULT

2.4 IMPACT TEST

Performed by: - Report No - Date:

Type:

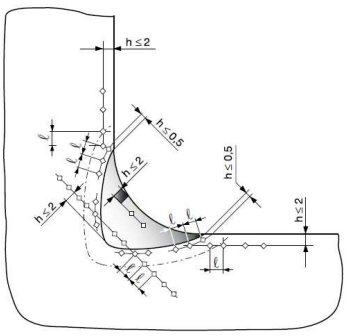
Requirements:

SPECIMEN POSITION/ NOTCH LOCATION	TEMPERATURE degC	INDIVIDUAL VALUES			AVERAGE	RESULT

2.5 HARDNESS TEST

Performed by: Laboratorium Łabędy Report No - Date: P1004/5/20

Requirements: max 350HV

LOCATION OF MEASUREMENTS	HV10	Zone				
		BM	HAZ	WM	HAZ	BM
	Weld face	160 160 161	272 297 339 342 342	228 247 242	342 339 342 333 336	160 162 162
	Weld root	171 176 179	222 264 299 249 254	242 238 233	289 297 258 224 228	171 178 181

2.6 MACROGRAPHIC EXAMINATION

Performed by: Laboratorium Łabędy Report No - Date: P1004/5/20

Requirements: BV NR216

Observations: Result satisfactory. Regular weld profile, through fusion between adjacent layers of weld and base metal and absence of defects such as cracks and lack of fusion

2.7 FRACTURE TEST

Performed by: Laboratorium Łabędy Report No / Date: P1004/5/20

Requirements: BV NR216

Observations: Result satisfactory. Without cracks, porosity and pores, inclusions, lack fusion and incomplete penetration that would exceed class B according to ISO5818

2.8 OTHER EXAMINATIONS OR TESTS -

Annexed Documents Identification	Name and Signature of Bureau Veritas Surveyor	Name and Signature of Builder's Representative
1. P1004/5/20 2. P1004/20 3. P1004/1/20	Wojciech Lubojański	