



WELDING PROCEDURE QUALIFICATION RECORD (WPQR)

N. 18.TQ.IT.022-YESS-WPQR-006

Manufacturer **Yess Yakma ve Enerji Sistemleri Sanayi ve Ticaret LTD.ŞTİ.**
WPQR No. **YES-WPQR-006** Dated **05/06/2018**
Manufacturer's welding procedure (WPS) No. **YESS-WPS-06** Dated **04/06/2018**

RANGE OF APPROVAL

Welding process **141** Type **Manual**
Joint type **BW**
Single/Multiple pass **Multiple , ssgb**
Parent material group(s) **8** **ISO/TR 15608**
Parent material thickness (mm) **Butt Joint = 2,0** Fillet Joint $t_1 = \text{N/A}$ $t_2 = \text{N/A}$
Throat thickness (mm) **N/A**
Weld deposit thickness (mm) **N/A**
Outside diameter (mm) **60,3**
Filler metal type **ISO 14343:2009 , 19 9 Nb (AWS A5.9 , ER347)**
Shielding gas (ISO 14175) **I1** Backing gas **I1**
(ISO 14175)
Type of welding current **DCEN** Heat input Kj/cm **See table on page 2**
Welding position **HL-045**
Preheat min. (°C) **10** Interpass temp. Max. (°C) **Less than 350**
Post weld heat treatment / Ageing **No**
Other information **None**

Welders name **Bülent DÜNDAR** Stamp No. **W01**
Welding test conducted by **Ethem GUNGOR**
Mechanical test conducted by **END** Laboratory test No. **N/A**
At presence of RINA Surveyor **Yes**

We certify that statements in this certificate are correct and that the test welds were prepared, welded and tested in accordance with the requirements of **UNI EN ISO 15614-1: 2017** Standard. Certified that all required activities were carried out above mentioned standards and codes

Issued at: **ISTANBUL - TURKEY**

on **05/06/2018**

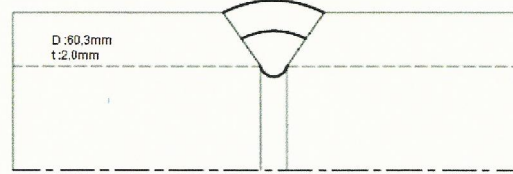
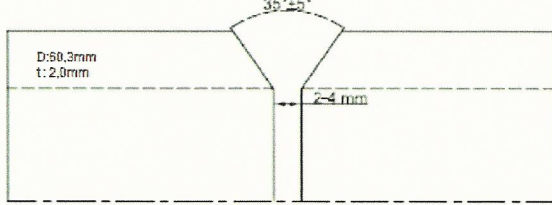


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Certificate No. 18.TQ.IT.022-YESS-WPQR-006

JOINT DETAILS AND WELDING SEQUENCES								
Pass No.	Process	Filler metal diam. (mm)	Filler metal classification	Amps	Volt	Travel speed (cm/min)	Heat input (kJ/mm)	Other
1	141	Φ 1,60	19 9 Nb	50	7	3,0	0,70	DCEN
2	141	Φ 1,60	19 9 Nb	45	7	2,5	0,76	DCEN



PARENT MATERIAL

Material specification	EN 10217-7		
Type or grade	1.4541 (X6CrNiTi 18-10)		
Group(s)/Subgroup(s) No. (ISO/TR 15608)	8.1		
Thickness (mm)	2,0	Throat thickness (mm)	N/A
Diameter (mm)	60,3		
Branch connection angle	70		
Other	N/A		

WELDING CONSUMABLES

Process	141
Trade name(s)	LINCOLN ER347
Specification	ISO 14343:2009
Classification / designation	19 9 Nb
Size (mm)	1,60
Deposited metal thickness	-
Groove	-
Throat	-
Flux trade name	NA
Consumable insert	NA
Other	-

GAS

	Gas	Mixture	Flow rate (l/min.)
Shielding	Argon	%99,99	9
Trailing	NA	NA	NA
Backing	Argon	%99,99	7

POSITION

Welding position	HL-045
Other	N/A



PREHEAT		POSTWELD HEAT TREATMENT	
Preheat temperature	10	Temperature	NA
Interpass temperature	Less than 350	Time	NA
Other	-	Other	-

ELECTRICAL CHARACTERISTICS			
Current	DCEN		
Ampere (range)	See table on page 2	Volts (Range)	See table on page 2
Mode of metal transfer	Globular		
Tungsten electrode size and type	N/A		
Other	N/A		

TECHNIQUE			
Travel speed (range)	See table	--	
String or weave bead	String & Weave		
Oscillation (*)	--		
Method of groove/edge preparation	Grinding		
Interpass cleaning	Grinding/Brushing		
Method of back gouging	N/A		
Orifice or gas cup size	--		
Stand off distance (*)	--		
Multiple or single pass	Multiple Pass		
Multiple or single electrodes	Single		
Torch angle (*)	--		
Other	(*) for fully mechanized/robotic only		

TRANSVERSE TENSILE TEST						
Spec. (No.)	Width (mm)	Thickness (mm)	A (%)	Total load (N)	R _m (N/mm ²)	Fracture location
1	47,2	2,00	-	30,10	637,80	Broked from Weld
2	47,2	2,00	-	30,43	644,70	Broked from Weld

ALL-WELD METAL TENSILE TEST							
Spec. (No.)	Diameter (mm)	Area (mm)	L ₀ (mm)	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Note
1	60,3	47,2	-	-	375,40	26,00	Broked from Weld
2	60,3	47,2	-	-	377,21	25,98	Broked from Weld

BEND TEST		
Type	No.	Result
FACE TRANSVERSE	1-2	Satisfactory
ROOT TRANSVERSE	1-2	Satisfactory
SIDE TRANSVERSE	-	-



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IMPACT TEST				
Spec No.	Notch location	Notch type	Test Temp. (°C)	Impact values (J)
1	-	-	-	-
2	-	-	-	-

HARDNESS TEST		
Location	Avarage value	Maximum value
Parent metal(s)	-	-
H.A.Z.(s)	-	-
Weld metal	-	-

OTHER TEST

MACROGRAPHIC EXAMINATION **Acceptable**

NON DESTRUCTIVE EXAMINATION

VISUAL EXAMINATION **Acceptable**

RADIOGRAPHIC EXAMINATION **Acceptable**

PENETRANT TEST **Acceptable**

MAGNETIC PARTICLE **Not required**

ULTRASONIC TEST **Not required**

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