

## Welding Procedure Qualification Record form (WPQR)

### Welding procedure qualification – Test Certificate

Manufacturer's WPQR No. :	KOLLIAS-MAG-01	Examiner or examining body reference No. :	MIRTEC S.A. MIR / WPQR / 3960-20
Manufacturer :	KOLLIAS LTD		
Address :	3rd km National Road Katerinis - Thessalonikis, 60100, Gr		
Code / Testing Standard :	ELOT EN ISO 15614- 1 (2017)		
Date of Welding :	30.07.2020		

#### Range of qualification

Welding Process(es) :	135: MAG
Type of joint and weld :	BUTT WELDS FULLY AND PARTIAL PENETRATION, FILLET WELDS, BUT WELD WITH BACKING, BUTT WELDS FROM BOTH SIDES
Parent material group(s) and sub group(s) :	GROUP 1 TO GROUP 1 (COVERS THE EQUAL OR LOWER SPECIFIED YIELD STRENGTH STEEL OF THE SAME GROUP)
Parent Material Thickness (mm) :	BW : $3,0 \leq t \leq 16,0$ , FW : $4,0 \leq t \leq 16,0$
Weld Metal Thickness (mm) :	$4,0 \leq t \leq 16,0$
Throat Thickness (mm) :	No restriction
Single run / Multi run :	Multi run
Outside Pipe Diameter (mm) :	>500mm or >150mm PA,PC rotated
Filler Material Designation :	EN ISO14341-A G42 4 M21 3Si1 Filler materials with equivalent mechanical properties, same type of covering core or flux, same nominal composition , same or lower hydrogen content according to the appropriate European standard for the filler material concerned
Filler Material Make :	PITTARC G6
Filler Material Size :	Φ 1,0 mm. It is permitted to change the size providing that the requirements of 8.4.8 are satisfied
Designation of Shielding Gas :	ISO 14175:82% Ar- 18%CO <sub>2</sub> AERIA VORIOU ELLADOS ACTIVE GASES (The qualification given to the shielding gas is restricted to the symbol of the gas according to ISO14175. However, the content of CO <sub>2</sub> shall not exceed 10 % of that used to qualify the procedure test. Shielding gases not covered by ISO14175 are restricted to the nominal composition used in the test).
Designation of Backing Gas :	N/A
Type of Welding Current and Polarity :	DC (+)
Mode of Metal Transfer :	Spray
Heat Input :	± 25% OF THE TEST PIECE
Welding Positions :	ALL POSITIONS EXCEPT PG AND J-L045
Preheat Temperature :	PREHEATING REQUIRED ONLY FOR REMOVAL MOISTURE IF AMBIENT TEMPERATURE IS BELOW +5° C
Interpass Temperature :	≤ 250 °C
Post – Heating :	NO
Post – Weld Heat Treatment and or ageing :	NO
Other Information :	--

Certified that test welds prepared, welded and tested satisfactorily in accordance with the requirements of the code / testing standard indicated above.

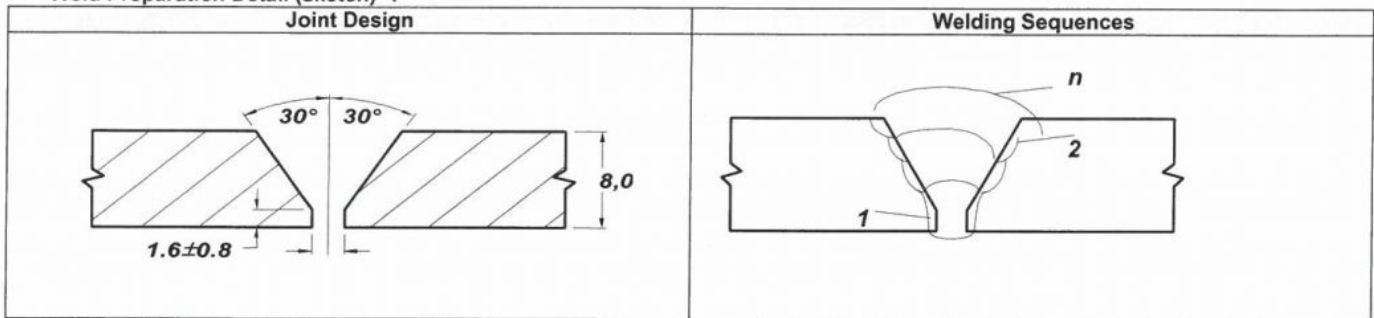
Location	Date of Issue	Examiner or examining body Name, date and signature
KATERINI	30/7/2020	24/11/2020, E. CHABOURIS Mechanical Engineer International Welding Engineer

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## Record of weld test

Location :	KATERINI	Examiner or examining body :	MIRTEC SA
Manufacturer's pWPS No. :	pWPS-1-KOL	Method of Preparation and Cleaning :	GRINDING, BRUSHING
WPQR No. :	3960/20		
Manufacturer :	KOLLIAS LTD	Parent Material Specification :	GROUP 1.1 (S235JR+AR)
Welder's Name :	PAPADOPOULOS KONSTANTINOS (W2)	Material Thickness (mm) :	PLATE 8/8
Welding process	135 MAG WELDING	Outside Pipe Diameter (mm) :	--
Joint Type and Weld :	BUTT WELD PLATE ON PLATE	Welding Position :	PA

### Weld Preparation Detail (sketch)\* :



### Welding Details

Run	Welding Process	Size of Filler Material	Current A	Voltage V	Type of current / Polarity	Wire Feed Speed (m/min)	Travel Speed (cm/min)	Heat input (KJ/mm)	Metal transfer
1	135	1,0mm	190-200	26-28	DC(+)	0.38-0.4	28-30	0.686-0.778	Spray
2	135	1,0mm	190-200	26-28	DC(+)	0.38-0.4	28-30	0.686-0.778	Spray
3-n	135	1,0mm	190-200	26-28	DC(+)	0.38-0.4	28-30	0.686-0.778	Spray

Filler Material Designation :	EN ISO14341-A: G42 4 M21 3Si1 , PITTARC G6	Other information* e.g. :	Grinding, Brushing
Any Special Baking or Drying :	N.A.		
Gas/Flux : shielding :	ISO 14175:82% Ar- 18%CO <sub>2</sub> LINDE CORGON18	Weaving (maximum width or run) :	5mm
backing :	N.A.		
Gas Flow Rate – Shielding :	14lt/min	Oscillation ( amplitude, frequency, dwell time):	N/A
backing :	N.A.		
Tungsten Electrode Type / Size :	N.A.	Pulse welding details :	N/A
Details of Back Gouging / Backing :	N.A.		
Preheat Temperature :	PREHEATING ONLY REQUIRED ONLY FOR REVIVING MOISTURE. IF AMBIENT TEMPERATURE IS BELOW + 5°C PREHEAT SHOULD BE DONE	Distance contact tube / workpiece :	N/A
Interpass Temperature :	≤ 250 ° C	Plasma welding details :	N.A.
Post – Heating :	N.A.	Torch angle :	APPROX. 25° FROM PERPENDICULAR FOREHAND
Post – Weld Heat Treatment and/or ageing (time,temperature, method ,heating and cooling rates :	N.A.		

Manufacturer		
KOLLIAS LTD	24/11/20	
Name	Date	Signature

Examiner or examining body		
E.CHABOURIS/IWE	24/11/20	
Name	Date	Signature

## Test Results

Manufacturer's WPQR No. :	KOLLIAS-MAG-01	Examiner or examining body :	MIRTEC S.A.
		Reference No. :	MIR / WPQR / 3960-20

### Non- destructive testing

Type	Acceptable	Non - acceptable	Report No.
Visual examination	ACCEPTABLE		--
Penetrating testing	ACCEPTABLE		MIRTEC SA 1774/09.09.2020
Radiographic testing	ACCEPTABLE		MIRTEC SA 1773/09.09.2020
Ultrasonic testing	NOT REQUIRED		

### Metallographic examinations

Type	Acceptable	Non - acceptable	Report No.
Macro	ACCEPTABLE		MIRTEC SA 2291F/03.11.2020
Micro	NOT REQUIRED		

### Destructive tests

Tensile tests Required Yes No  
Report No : MIRTEC SA 1532/24.09.2020

Test temperature: 22 ° C

Type / No.	Re N/mm <sup>2</sup>	Rm N/mm <sup>2</sup>	A % on	Z %	Fracture Location	Remarks
Requirements						
19036-1	-	429	-		B.M.	ACCEPTABLE
19036-2	-	437	-		B.M.	ACCEPTABLE

### Bend Tests Required Yes No

Report No : MIRTEC SA 1532/24.09.2020

Type / No.	Bend side	Former diameter d	Result
19036-3 (FACE)	180 °	32	ACCEPTABLE
19036-4 (ROOT)	180 °	32	ACCEPTABLE
19036-5 (FACE)	180 °	32	ACCEPTABLE
19036-6 (ROOT)	180 °	32	ACCEPTABLE

Other Tests\* : HARDNESS TEST : N/A

Remarks : OVERALL RESULTS OF TESTS ARE ACCEPTED

Tests carried out in accordance with the requirements of : ELOT EN ISO 15614.01 (2017)

Test results were acceptable / not acceptable : ACCEPTED  
(delete as appropriate)

Test carried out in the presence of : EXAMINER (MIRTEC S.A.)

\* if required

Examiner or examining body Name, date and signature
24/11/2020 E.CHABOURIS Mechanical Engineer International Welding Engineer