

1427

**CERTIFICATE OF QUALITY AND MATERIAL TESTING**

INSPECTION CERTIFICATE N. **AC/ 4059** DATE : 19/12/17  
according to EN 10204.3.1

FIRM :  
ORDER : ORDER CONFIRMATION : 205831

HEAT	N. of PCS	MATERIAL DESCRIPTION	MATERIAL GRADE
61141	1	FORGED ROUND PEELDED BAR Ø24"  Lbs 18887,017 x 11,89304 feet	316/316L UNS S31600 /S31603 SS1 Rev.5 ASTM A276-17 ASTM A479-17 ASTM A484-15 ASME Code Sec.II Part. A SA479-15 AMS 5653H AMS QQS 763D Cond.A AMS 5648M AMS S-7720 316 NACE MR 0103-15 NACE MR 0175/ISO 15156-2015

H.T. CONDITION: Solution annealed 1050°C (11h) + water quenched

**HEAT ANALYSIS**

C	Mn	Si	P	S	Cr	Ni	Mo	Cu	Sn (ppm)
0,011	1,77	0,41	0,026	0,0004	16,54	10,53	2,23	0,308	<100
Ca	Al	V	Ti	W	Ta	As (ppm)	Co	Nb	Pb (ppm)
0,0026	0,012	0,039	0,005	0,039	0,0039	<20	0,057	0,047	<1
B	N	Zr	Sb	Fe	PRE	Ferrite (%) ASTM E562	Grain size ASTM E112		
0,0022	0,074						5		

**TEST RESULTS ON ACTUAL BAR PROLONGATION**

Temp. [°C]	Direction	Rp0,2 [KSi]	Rm [KSi]	A [%]	Z [%]	KV (10 X 10 mm) [J]	Hardness
RT	L	41	81	63,2	77,5		HBw 137 HRc 1

Steelmaking process E.A.F. + A.O.D. refining

No welding performed on material

Material free from Mercury contamination

Material inspected with a gamma spectrometer and with no radioactive contamination beyond the limits provided for by the EU-Radiation Protection 122- part 1, when relevant

Mechanical tests performed according to ASTM A370-17 (Ø12,5mm-50mm length) + ASTM E10-17 + ASTM E18-17

Corrosion test according to ASTM A262 Pr.E satisfactory performed


Chemical analysis and mechanical properties according to ASTM A182-17-ASME SA182-15 (F316-F316L) - ASTM A193-16 - ASME SA193-15 (Grade B8M Class 1)

Country of melt and country of manufacture: Italy

Italfond is in compliance with DEARS regulation 252.225-7017

Forging ratio 3,5:1

PMI performed

SURVEYORS	CUSTOMER INSPECTION	ITALFOND S.p.A. Quality Assurance
		 <b>GARANZIA QUALITA'</b>

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**CERTIFICATE OF QUALITY AND MATERIAL TESTING**  
**MICROGRAPHIC EXAMINATION**

INSPECTION CERTIFICATE N. **ME/ 4059** DATE : **19/12/17**  
 according to EN 10204.3.1

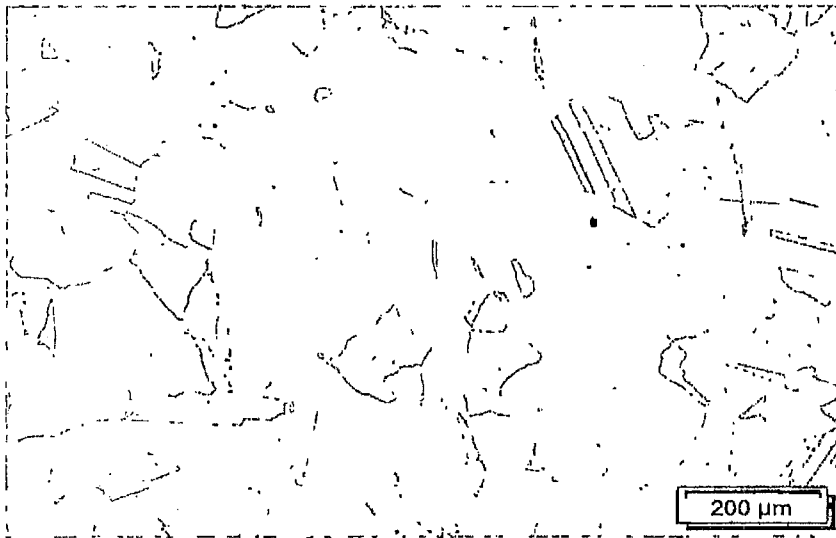
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**MICROGRAPHIC EXAMINATION - MID RADIUS**

Magnification: 100 x  
 Etching: electrolytic, Oxalic Acid 3v 90s according to ASTM E407



**RESULT: Omogeneous structure free from detrimental phases and precipitates**

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**CERTIFICATE OF QUALITY AND MATERIAL TESTING**  
**MACROGRAPHIC EXAMINATION**

INSPECTION CERTIFICATE N. **ME2/ 4059** DATE : **19/12/17**  
 according to EN 10204.3.1

FIRM :

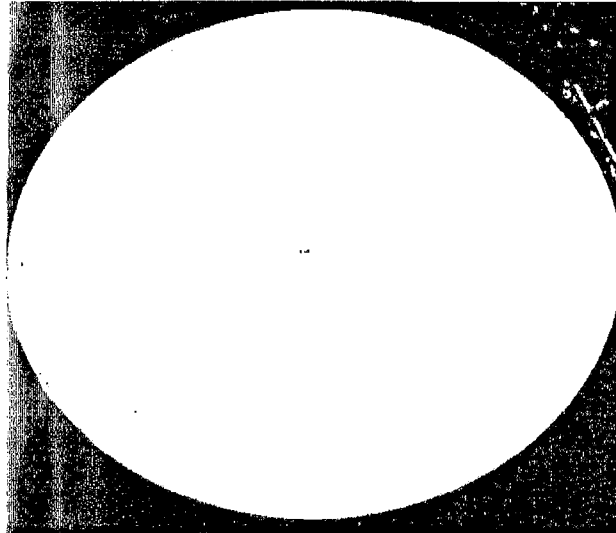
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H.T. CONDITION : Solution annealed 1050°C (11h) + water quenched

**MACROGRAPHIC EXAMINATION**

Etching: 50% H<sub>2</sub>O + 50% Hcl



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