

55172

C116275



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 Via Industriale, 1 - 25021 BAGNOLO MELLA (BS) ITALY

CERTIFICATE OF QUALITY AND MATERIAL TESTING

INSPECTION CERTIFICATE N. AC/ 1869 DATE : 20/05/14
 according to EN 10204.3.1 ✓

FIRM :
 ORDER : P03077 ORDER CONFIRMATION : 201939

HEAT #	N. of PCS	MATERIAL DESCRIPTION	MATERIAL GRADE
55172	1	FORGED ROUND TURNED BAR Ø24" o.d. Lbs 16508,228 x 10,453 feet	<u>A316/316L</u> SS1 Rev.5 ASTM A276 ASTM A479 ASTM A484 ASME Sec.II Part. A SA479 NACE MR 0103 <u>NACE MR 0175/ISO 15156:2009</u> AMS 8653H AMS QQS 783B Cond.A AMS 8648L AMS-S-7720-816

H.T. CONDITION: Solution annealed 1050°C (24h) + water quenched

HEAT ANALYSIS

C	Mn	Si	P	S	Cr	Ni	Mo	Cu	Sn
0,022	1,76	0,31	0,025	0,0002	16,85	10,43	2,15	0,280	
Ca	Al	V	Ti	W	Ta	As	Co	Nb	Pb
0,0016	0,007	0,031	0,002	0,047	0,0088		0,070	0,035	
B	N	Zr	Sb	Fe	PRE	Ferre (%) ASTM E562		Grain size ASTM E112	
0,0022	0,070							5	

TEST RESULTS ON ACTUAL BAR PROLONGATION

Temp. [°C]	Direction	R _{pu} [KSI]	R _m [KSI]	A [%]	Z [%]	KV (10 X 10 mm) [J]	Hardness
RT	L	34,6	77,3	53,4	82,1		HBw 156
							HRC 5

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 (Ø12,5mm-50mm length) + ASTM E10 + ASTM E18
 Chemical analysis and mechanical properties according to ASTM A182 - ASME SA182 F31/316L - ASTM A193 - ASME BA193 B8M CL1
 Country of mill and country of manufacture: Italy ✓
 Italfond is in compliance with DFARS regulation 252.225-7017.
 Forging ratio > 3:1
 PMI performed
 Corrosion test according to ASTM A262 Pt.E satisfactory performed

SURVEYORS	CUSTOMER INSPECTION	ITALFOND S.p.A. Quality Assurance
		 GARANZIA QUALITA'

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CERTIFICATE OF QUALITY AND MATERIAL TESTING
MICROGRAPHIC EXAMINATION

INSPECTION CERTIFICATE N. ME/ 1869 DATE : 20/05/14
according to EN 10204.3.1

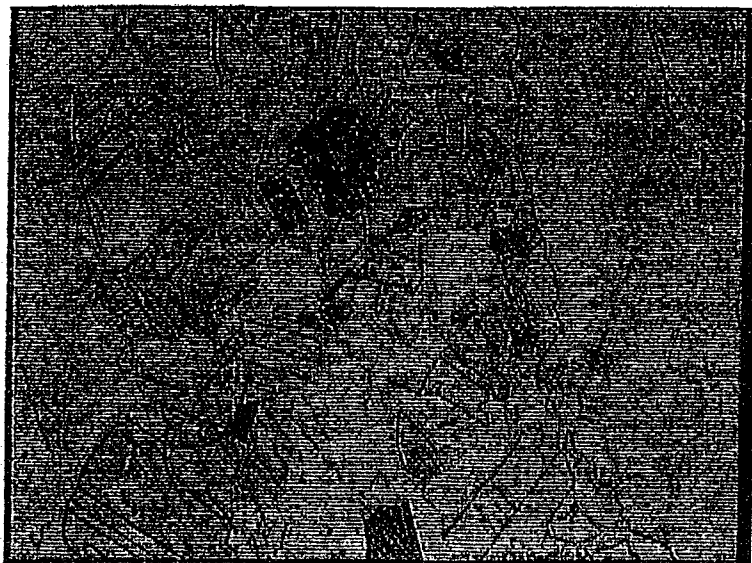
FIRM :
ORDER : P03077 ORDER CONFIRMATION: 201939

HEAT	N. of PCS	MATERIAL DESCRIPTION	MATERIAL GRADE
55172 P.T	1	FORGED ROUND TURNED BAR Ø24" 0.12 Lbs 16508,228 x 10,453 feet	316/316L SS1 Rev.5 ASTM A276 ASTM A479 ASTM A484 ASME Sec.II Part. A SA479 NACE MR 0103 NACE MR 0176/ISO 16156:2009 AMS 5853H AMS QQS 768B Cond.A AMS 5648L AMS-S-7720 316

H.T. CONDITION : Solution annealed 1050°C (24h) + water quenched

MICROGRAPHIC EXAMINATION - SURFACE

Magnification: 100 x
Etching: electrolytic, Oxalic Acid 3V 60s according to ASTM E407



RESULT: Free from intermetallic phases and grain boundary precipitates

SURVEYORS	CUSTOMER INSPECTION	ITALFOND S.p.A. Quality Assurance
		ITALFOND STAINLESS STEEL AND SUPERALLOYS GARANZIA QUALITÀ

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CERTIFICATE OF QUALITY AND MATERIAL TESTING

MACROGRAPHIC EXAMINATION

INSPECTION CERTIFICATE N.

ME2/ 1869

DATE : 20/05/14

according to EN 10204.3.1 ✓

FIRM :

ORDER : P03077

ORDER CONFIRMATION:

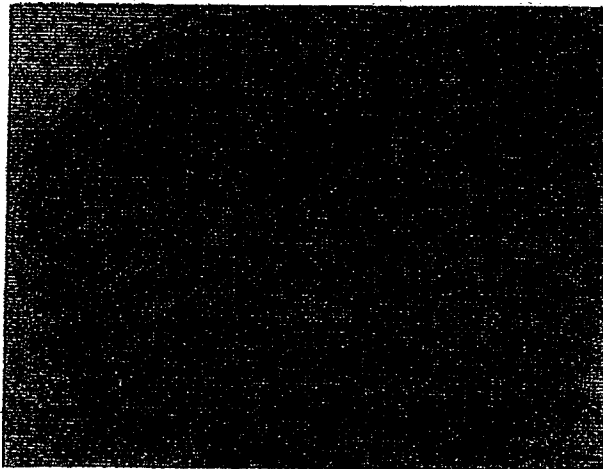
201939

HEAT	N. of PCS	MATERIAL DESCRIPTION	MATERIAL GRADE
55172 HC	1	FORGED ROUND TURNED BAR Ø24" Lbs 16508,228 x 10,453 feet.	316/316L ✓ SS1 Rev.5 ASTM A276 ASTM A479 ASTM A484 ASME Sec.II Part. A SA479 NACE MR 0103 NACE MR D175/ISO 15156:2009 AMS 5653H AMS QQS 763B Cond.A AMS 5648L AMS-S-7720 316

H.T. CONDITION : Solution annealed 1050°C (24h) + water quenched

MACROGRAPHIC EXAMINATION - MID RADIUS

Etching: 50% H₂O + 50% Hcl



SURVEYORS

CUSTOMER INSPECTION

ITALFOND S.p.A.

Quality Assurance



GARANZIA QUALITA'