



Tel. (+39).(030).6829911
 Fax. (39).(030).6820616
 Via Industriale, 1 - 25021 BAGNOLO MELLA (BS) ITALY

CERTIFICATE OF QUALITY AND MATERIAL TESTING

INSPECTION CERTIFICATE N. **AC/ 4364** DATE : **05/12/18**
 according to **EN 10204.3.1**

FIRM :
 ORDER : **PO5378** ORDER CONFIRMATION : **206807**

HEAT	N. of PCS	MATERIAL DESCRIPTION	MATERIAL GRADE
63352	2	FORGED ROUND PEELED BARS Ø17" Lbs 10454,329 x 13,03478 feet Lbs 11422,159 x 14,31759 feet This is not a copy of the original certificate of material testing Date: 1/18/19	316/316L UNS S31600 /S31603 SS1 Rev.5.4 ASTM A276-17 ASTM A479-18 ASTM A484-18 ASME Code Sec.II Part. A SA479-17 AMS 5653H AMS QQS 763D Cond.A AMS 5648M AMS S-7720 316 NACE MR 0103-2015 NACE MR 0175/ISO 15156-2015

H.T. CONDITION: Solution annealed 1050°C (8h) + water quenched

HEAT ANALYSIS

C	Mn	Si	P	S	Cr	Ni	Mo	Cu	Sn (ppm)
0,014	1,77	0,44	0,029	0,0214	16,66	10,84	2,20	0,433	79
Ca	Al	V	Ti	W	Ta	As (ppm)	Co	Nb	Pb (ppm)
0,0042	0,009	0,057	0,003	0,050	0,0018	51	0,117	0,042	<20
B	N	Zr	Sb	Fe	PRE	Ferrite (%) ASTM E562	Grain size ASTM E112		
0,0003	0,067						5		

TEST RESULTS ON ACTUAL BAR PROLUNGATION

Temp. [°C]	Direction	Rp0.2 [KSi]	Rm [KSi]	A [%]	Z [%]	KV (10 X 10 mm) [J]	Hardness
RT	L	42	78	59,2	60,1		HBw 162 HRc <22

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 A370-17a (Ø12,5mm-50mm length) + ASTM E10-17 + ASTM E18-18a
 Corrosion test according to ASTM A262 Pr.E satisfactory performed
 Chemical analysis and mechanical properties according to ASTM A182-18a-ASME SA182-17 (F316-F316L) - ASTM A193-17 - ASME SA193-17 (Grade B8M Class 1)
 Country of melt and country of manufacture: Italy
 Italfond is in compliance with DFARS regulation 252.225-7017
 Forging ratio 3,1:1
 PMI performed

SURVEYORS	CUSTOMER INSPECTION	ITALFOND S.p.A. Quality Assurance

C245343 1/3

INS



Tel. (39).(030).6829911
 Fax. (39).(030).6820616
 Via Industriale, 1 - 26021 BAGNOLO MELLA (BS) ITALY

CERTIFICATE OF QUALITY AND MATERIAL TESTING
MICROGRAPHIC EXAMINATION

INSPECTION CERTIFICATE N. ME/ 4364 **DATE :** 05/12/18
 according to EN 10204.3.1

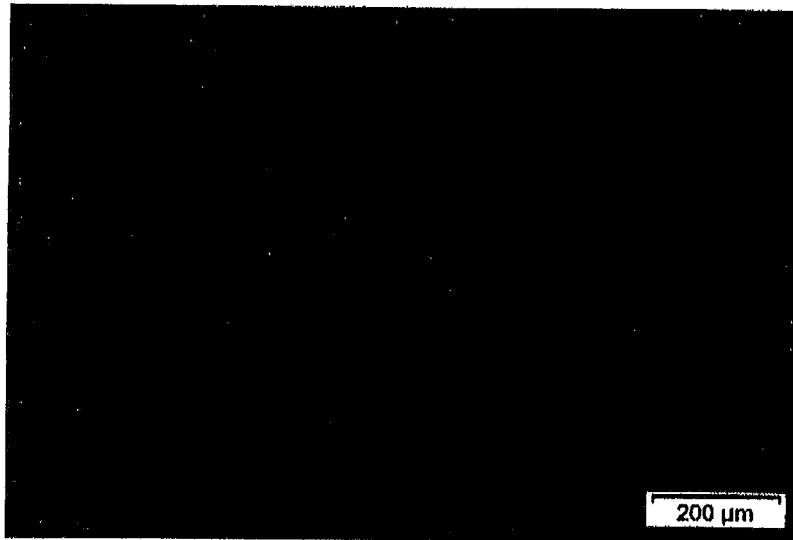
FIRM :
ORDER : PO5378 **ORDER CONFIRMATION:** 206807

HEAT	N. of PCS	MATERIAL DESCRIPTION	MATERIAL GRADE
63352	2	FORGED ROUND PEELED BARS Ø17" Lbs 10454,329 x 13,03478 feet Lbs 11422,159 x 14,31759 feet	316/316L UNS S31600 /S31603 SS1 Rev.5.4 ASTM A276-17 ASTM A479-18 ASTM A484-18 ASME Code Sec.II Part. A SA479-17 AMS 5653H AMS QQS 763D Cond.A AMS 5648M AMS S-7720 316 NACE MR 0103-2015 NACE MR 0175/ISO 15156-2015

H.T. CONDITION : Solution annealed 1050°C (8h) + water quenched

MICROGRAPHIC EXAMINATION - MID RADIUS

Magnification: 100 x
 Etching: electrolytic, Oxalic Acid 3v.20s. according to ASTM E407



RESULT: Omogeneous structure free from detrimental phases and precipitates

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

C245243 2/3



Tel. (39),(030).6829911
 Fax. (39),(030).6820616
 Via Industriale, 1 - 25021 BAGNOLO MELLA (BS) ITALY

CERTIFICATE OF QUALITY AND MATERIAL TESTING
MACROGRAPHIC EXAMINATION

INSPECTION CERTIFICATE N. **ME2/ 4364** DATE : **05/12/18**
 according to EN 10204.3.1

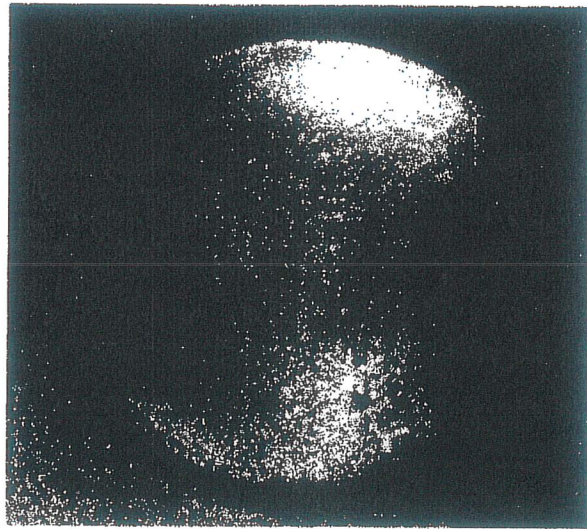
FIRM :
 ORDER : **PO5378** ORDER CONFIRMATION: **206807**

HEAT	N. of PCS	MATERIAL DESCRIPTION	MATERIAL GRADE
63352	2	FORGED ROUND PEELED BARS Ø17" Lbs 10454,329 x 13,03478 feet Lbs 11422,159 x 14,31759 feet	316/316L UNS S31600 /S31603 SS1 Rev.5.4 ASTM A276-17 ASTM A479-18 ASTM A484-18 ASME Code Sec.II Part. A SA479-17 AMS 5653H AMS QQS 763D Cond.A AMS 5648M AMS 9-7720 316 NACE MR 0103-2015 NACE MR 0175/ISO 15156-2015

H.T. CONDITION : Solution annealed 1050°C (8h) + water quenched

MACROGRAPHIC EXAMINATION

Etching: Aquaregia



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

C245243
3/3