

CERTIFICATE OF QUALITY AND MATERIAL TESTING

 INSPECTION CERTIFICATE N. **AC/ 3866** DATE : **28/11/14**
 according to EN 10204.3.1

 FIRM : **ESP SPECIALTY STEEL PRODUCTS - HOUSTON (TX)**
 ORDER : **P03504** ORDER CONFIRMATION : **202448**

HEAT	N. of PCS	MATERIAL DESCRIPTION	MATERIAL GRADE
56256	2	FORGED ROUND PEELED BARS Ø22" Lbs 9283,673 x 6,932 feet Lbs 9274,855 x 6,902 feet	316/316L SS1 Rev.5 ASTM A276-13a ASTM A479-14 ASTM A484-13a ASME Sec.II Part. A SA479-10 NACE MR 0103-12 NACE MR 0175-03/ISO 15156-09 AMS 5653H AMS QQS 763B Cond.A AMS 5648L AMS-S-7720 316
<div style="border: 1px solid black; padding: 5px;"> This report is a copy of the original Mill certificate and verifies that the product meets the requirements as originally ordered by ESP Specialty Steel Products Date <u>12/11/14</u> Verified <u>[Signature]</u> </div>			

H.T. CONDITION: Solution annealed 1050°C (10h) + water quenched

HEAT ANALYSIS

C	Mn	Si	P	S	Cr	Ni	Mo	Cu	Sn
0,014	1,81	0,27	0,027	0,0248	17,02	10,74	2,20	0,266	0,0056
Ca	Al	V	Ti	W	Ta	As	Co	Nb	Pb
0,0035	0,008	0,038	0,004	0,036	0,0038	0,006	0,061	0,101	0,0026
B	N	Zr	Sb	Fe	PRE	Ferrite (%) ASTM E562	Grain size ASTM E112		
0,0001	0,066						4		


TEST RESULTS ON ACTUAL BAR PROLONGATION

Temp. [°C]	Direction	R _{p0.2} [KSI]	R _m [KSI]	A [%]	Z [%]	KV (10 x 10 mm) [J]	Hardness
RT	L	39	78	55,3	56,1		HBw 146 HRC <0

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 A370-13 (Ø12,5mm-50mm length) + ASTM E10-12 + ASTM E18-14
 Corrosion test according to ASTM A262 Pr.E satisfactory performed
 Chemical analysis and mechanical properties according to ASTM A182-14a - ASME SA182-10 F316/316L - ASTM A193-12b - ASME SA193-10 BBM CL.1
 PMI performed
 Forging ratio ≥ 3:1
 Country of melt and country of manufacture: Italy
 Italfond is in compliance with DFARS regulation 252.225-7017

SURVEYORS

CUSTOMER INSPECTION

 ITALFOND S.p.A.
 Quality Assurance

 STAINLESS STEEL AND SUPERALLOYS
GARANZIA QUALITA'

