



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/ 4085** DATE : 18/11/13
 according to EN 10204.3.1

FIRM : **MAGELLAN CORPORATION - CHICAGO (US)**
 ORDER : 209160 ORDER CONFIRMATION : 201340

HEAT	N. of PCS	MATERIAL DESCRIPTION	MATERIAL GRADE
54437	3	FORGED ROUND PEELED BARS Ø14" 7125,346 lb x 13,064 feet 7619,182 lb x 13,989 feet 6869,610 lb x 12,575 feet	UNS S31603 MIC 1701 12/06/2013 ASTM A276-13 ASTM A314-13a ASTM A473-09 ASTM A479-13a ASTM A484-13a ASME Sec.II Part A SA479-12 AISI 316/316L AMS 5648H AMS 5653J AMS QQS 763B NACE MR0103-2012 NACE MR0175/ISO 15156-2009
5272 + 8 R 815869			

H.T. CONDITION: Solution annealed 1922 °F + water quenched (Condition A)

HEAT ANALYSIS

C	Mn	Si	P	S	Cr	Ni	Mo	Cu	Sn
0,017	1,81	0,39	0,027	0,0241	17,07	10,45	2,12	0,328	
Ca	Al	V	Ti	W	Ta	As	Co	Nb	Pb
	0,005	0,039	0,002	0,051			0,078	0,025	
B	N	Zr	Sb	Fe	PRE	Ferrite (%)	Grain size ASTM E112-12		
	0,072						5		

TEST RESULTS ON ACTUAL BAR PROLONGATION

Temp. [°C]	Direction	Rp0.2 [ksi]	Rm [ksi]	A [%]	Z [%]	KV (10 x 10 mm) [Ft-lbs]	HB
RT	L	41,8	82,8	63,4	62,5	298,2-296,5-292,7	143
RT	T					133,5-131,4-137,2	

Steelmaking process E.A.F. + A.O.D./Ingot cast/Bottom pouring
 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 A370-12a (Ø12,5mm-50mm length) + ASTM E10-12 + ASTM E23-12
 Chemical analysis according to ASME SA193-10 Sec. II Part. A Grade B8M, ASME SA320-10 Class1 B8M, ASTM A193-12b Grade B8M and ASTM A320-11a Class1 B8M
 Chemical composition tested in accordance with ASTM A751-11
 Chemical analysis and mechanical properties according to ASME Sec.II Part A SA182-10 and ASTM A182-13 F316/F316L
 Corrosion test according to ASTM A262 Pr.E satisfactory performed
 Italfond is in compliance with DFARS Regulation 252.225-7014
 Macrostructure: Satisfactory
 Forging ratio 4,1:1
 Country of melt and manufacture : ITALY

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

CERTIFICATE OF QUALITY AND MATERIAL TESTING
ULTRASONIC TEST

INSPECTION CERTIFICATE N. 4085 UT / 4085 DATE : 18/11/13
according to EN 10204.3.1

FIRM : **MAGELLAN CORPORATION - CHICAGO (US)**
 ORDER : 209160 ORDER CONFIRMATION 201340

HEAT	N. of PCS	MATERIAL DESCRIPTION	MATERIAL GRADE
------	-----------	----------------------	----------------

54437	3	FORGED ROUND PEELLED BARS Ø14"	UNS S31603
		7125,346 lb x 13,084 feet	ASTM A276-13
		7619,182 lb x 13,989 feet	ASTM A314-13a
		6869,610 lb x 12,575 feet	ASTM A473-09
			ASTM A479-13a
			ASTM A484-13a
			ASME Sec. II Part A SA479-12
			AISI 316/316L
			AMS 5648H
			AMS 5653J
			AMS QQS 763B
			NACE MR0103-2012
			NACE MR0175/ISO 15156-2009

H.T. CONDITION : Solution annealed 1922 °F + water quenched (Condition A)

ULTRASONIC TEST REPORT

EQUIPMENT	:	KRAUTKRAMER USN 58L
PROBE	:	B2S
COUPLANT	:	Gel
SURFACE CONDITION	:	Peelcd
CALIBRATION METHOD	:	Backwall echo
TESTING PROCEDURE	:	ASTM A388-11
ACCEPTANCE CRITERIA	:	ASME VIII Div.2 Par. 3.3.4
CALIBRATION METHOD	:	Backwall echo-AVG Method
TESTING PROCEDURE	:	SEP1921 Class 3
ACCEPTANCE CRITERIA	:	C/c
RESULT	:	No recordable indications found

SURVEYORS	CUSTOMER INSPECTION	ITALFOND S.p.A.
-----------	---------------------	-----------------

NDE Inspector
 SNT-TC-1A
 LEVEL II
 BRUNO BROCCA

CERTIFICATE OF QUALITY AND MATERIAL TESTING
DEGREE OF IMPURITIES

INSPECTION CERTIFICATE N.

IN/

4085

DATE : 18/11/13

according to EN 10204.3.1

FIRM :

MAGELLAN CORPORATION - CHICAGO (US)

ORDER :

209160

ORDER CONFIRMATION :

201340

HEAT	N. of PCS	MATERIAL DESCRIPTION	MATERIAL GRADE
54437	3	FORGED ROUND PEELED BARS Ø14 ^p 7125,346 lb x 13,064 feet 7619,182 lb x 13,989 feet 6869,610 lb x 12,575 feet	UNS S31603 MIC 1701 12/06/2013 ASTM A276-13 ASTM A314-13a ASTM A473-09 ASTM A479-13a ASTM A484-13a ASME Sec.II Part A SA479-12 AISI 316/316L AMS 5648H AMS 5653J AMS QQS 763B NACE MR0103-2012 NACE MR0175/ISO 15156-2009

H.T. CONDITION :

Solution annealed 1922 °F + water quenched (Condition A)

INCLUSION CONTENT ASSESSEMENT

Reference standard ASTM E45-A-13

MID RADIUS

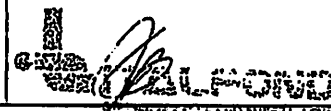
FIELD	A		B		C		D	
	T	H	T	H	T	H	T	H
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	1	0
3	0	0	0	0	0	0	0	1
4	1	1	0	0	0	0	0	0
5	0	0	0	0	0	0	1	1
6	0	0	0	0	0	0	0	0
AVERAGE	0,17	0,17	0,00	0,00	0,00	0,00	0,33	0,33

SURVEYORS

CUSTOMER INSPECTION

ITALFOND S.p.A.

Quality Assurance



GARANZIA QUALITÀ