



Frisa Forjados SA, de C.V.

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Sta. Catarina, N.L. , México

CERTIFIED COMPANY
ISO 9001: 2015

Material Test Report No.701692

Certificate per: EN 10204:2004 3.1
Client: SAMUEL, SON & CO., LIMITED

Spec: A182/A182M Grade F316 Rev. 18

Pag. 1/2

Qty	Date	P.O. Number	Part No.	Job Order
1	25/04/2019	W67445C		575435
Description Forged Disc 33.900" X 0.000" X 6.750" .MELTING PRACTICE: EAF AOD .SERIAL NUMBER NOTE: 01 .LINE ITEM: 1				

HEAT: 900104 (1/1) PCS
CHEMICAL ANALYSIS

HEAT No.		C %	Mn %	P %	S %	Si %	Ni %	Cr %	Mo %
900104	Ladle	0.01900	1.93000	0.02900	0.00050	0.45000	10.25000	16.64000	2.07000
Supplier		N %							
CGN	Ladle	0.07400							

Hardness (HBW) PCS	
	Hardness
	151
	151

HEAT TREATMENT

Quantity	Heat Treat Lot No.	Heat Treatment	Temp. (°F)	Time at Temp (Hrs)	Cooling Medium	Quench. M. Temp. (°F)
1 PCS	570630	Solution annealed	1922	5.00	Water	
QTC	568891	Solution annealed	1922	3.00	Water	

Heat: 900104

Track ID: 98/023-19

MECHANICAL PROPERTIES

TENSILE TEST

Orientation	Position	Location	Heat Treat Lot No.	Yield Strength (PSI)	Tensile Strength (PSI)	Elong. (%)	A.R. (%)	Temp Tens °F	Post Welding HT		
									Temp °F	Time	Cycle
Long	1/4 T		568891	39300	78100	63	82	77			

Heat: 900104

HARDNESS HBW QTC

Orientation	Position	Location	Heat Treat Lot No.	Point	Hardness	Post Welding HT		
						Temp °F	Time	Cycle
Long	1/4 T		568891		142			
Long	1/4 T		568891		143			

WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY AND MEET THE PURCHASE ORDER / SPECIFICATIONS REQUIREMENTS.

NO WELDING REPAIRS IS ALLOWED AND USED IN FRISA ALL MATERIALS ARE MERCURY FREE

CER F-001-3

Carpen
ANS

Gloria Carolina Lugo Perez

QUALITY ASSURANCE ENGINEER

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OBSERVATIONS

- . FORGING RATIO: 9.5 TO 1
- . QTC SIZE (4 X 4 X 12)
- . TENSILE TEST: 0.500" DIAMETER SPECIMEN AND 2.0" GAUGE LENGTH
- . FURNACE CALIBRATED AND SURVEYED PER API 6A ANNEX M 20th EDITION REQUIREMENTS
- . HARDNESS ON TEST SPECIMEN IS REPRESENTED BY TWO VALUES.
- . FURNACE TEMPERATURE MONITORING AND RECORDING METHOD: AIR THERMOCOUPLE
- . TESTING ACCORDING TO ASTM A370 REV.17
- . NACE MR0175/ISO 15156-1:2015 COMPLIANT(E)
- . HBW 3000 KG LOAD, 10 MM TUNGSTEN CARBIDE BALL AND 20X SCOPE USED, TEST PERFORMED AT ROOM TEMPERATURE, TESTING ACCORDING ASTM E-10
- . NACE MR0175 / ISO 15156-3

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