

**Frisa Forjados SA, de C.V.**

Valentín G. Rivero No. 127 Los Treviño C.P.  
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Sta. Catarina, N.L. , México

CERTIFIED COMPANY  
**AS9100D | ISO9001:2015**

Material Test Report No.732073

Certificate per: EN 10204:2004 3.1

Client: SAMUEL, SON &amp; CO., LIMITED

Spec: A182/A182M Grade F316 Rev. 19

Pag. 1/2

Qty	Date	P.O. Number	Part No.	Job Order
1	26/03/2020	1PP012093	046876	609130
<b>Description</b> Forged Disc 37.625" X 0.000" X 6.500" .MELTING PRACTICE: EAF LR VD .SERIAL NUMBER NOTE: 01 .LINE ITEM: 1				

**HEAT: 1195098 (1/1) PCS****CHEMICAL ANALYSIS**

HEAT No.		C %	Mn %	P %	S %	Si %	Ni %	Cr %	Mo %
1195098	Ladle	0.03000	1.55000	0.03450	0.00260	0.39000	10.03000	16.14000	2.01000
<b>Supplier</b>		<b>N %</b>							
FRISA	Ladle	0.06730							

**Hardness (HBW) PCS**

Hardness

149

149

**HEAT TREATMENT**

Quantity	Heat Treat Lot No.	Heat Treatment	Temp. (°F)	Time at Temp (Hrs)	Cooling Medium	Quench. M. Temp. (°F)
1 PCS	599543	Solution annealed	1922	5.00	Water	

Heat: 1195098

Track 285/029-19

ID:

**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		586858	37600	78100	68	76	77			

Heat: 1195098

**HARDNESS HBW QTC**

Orientation	Position	Location	Heat Treat Lot No.	Point	Hardness	Post Welding HT		
						Temp °F	Time	Cycle
Long	1/4 T		586858		153			
Long	1/4 T		586858		154			

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

Ana Karen Reyes Leon

QUALITY ASSURANCE ENGINEER

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**OBSERVATIONS**

- . FORGING RATIO: 9.9 TO 1
- . TEST SPECIMEN REMOVED FROM A SEPARATE TEST BAR: (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 21st 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.19e1
- . 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 15156-2:2015

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