



# Certificado de Calidad

IT020305 rev.01

## N° NN-20876

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|   | Descripción                              | Código    | Certificado |
|---|--|-----------|-------------|
| 1 | CODO H 1/2" NPT                          | 100S08 K6 | AZ-317      |
|   | Componentes                              | Material  | Certificado |
|   | CODO FORJADO DE BARRA REDONDA<br>DE 38mm | AISI 316L | AZ-317      |

**Protocolo de ensayo :**

| Tipo       |   | Presión de trabajo | Estado | Presión de prueba | Estado | Tiempo      |
|------------|---|--------------------|--------|-------------------|--------|-------------|
| Hidráulico | 1 | 6.000 PSI          | Ok     | 7.000 PSI         | Ok     | 60 segundos |

**Dimensional:**

Se controlaron las roscas con el calibre correspondientes dando como resultado satisfactorio. Se controlaron también la rugosidad superficial y las dimensiones generales dando un resultado satisfactorio.

**Visual/Funcional:**

Se controlaron la porosidad, rebabas, ensamblado, terminación superficial y su función mecánica dando como resultado: satisfactorio

**Observaciones :**

Se certifica que las piezas descritas fueron construidas de acuerdo a lo indicado en nuestros estándares internos, que se cumplen de acuerdo a un sistema de Gestión de Calidad certificado ISO 9001:2015, manteniendo en archivo los certificados correspondientes a cada material.

**Firma: INDUSTRIAS NELSON S.A.**



# INSPECTION CERTIFICATE

**48**

 EXCELLENCE  
 IN THE FIELD OF  
 STAINLESS STEEL  
 LONG PRODUCTS

Certificate Type : EN 10204/3.1

|                     |   |              |   |                    |   |
|---------------------|---|--------------|---|--------------------|---|
| Our Sales Order No. | OA-MN-FR-2122-00255   | Invoice No.  | EXP/BSR/2122/380  | Certificate No.    | TC167738  |
| Customer Order No.  | 5000007799  | Invoice Date | 23/11/2021  | Date               | 23/11/2021  |
| Customer            | FAMIQ S R L<br>Av. San Martin 4723<br>C.A Buenos Aires C1417DSH Argentina | Trade Mark   |  | Inspector's Mark : |  |

|                  |   |                           |           |                 |                 |
|------------------|---|---------------------------|-----------|-----------------|-----------------|
| Material Details | <b>Stainless Steel Round Bar Solution Annealed Centerless Ground &amp; Polished</b> |                           |           |                 |                 |
| Steel Grade      | 316/316L  | Shape                     | Round Bar | Size            | 38.1 mm         |
| Heat No.         | AB 3039   | Tolerance                 | h 9       | Length Of Bars  | 6.00-6.10 mtr   |
| Net Weight       | 0.827 MT  | Number Of Bars            | 15        | Melting Process | EF - AOD - MEMS |
| Bundle Nos       | RO/3/2122/03441   |                           |           |                 |                 |
| Requirements     | ASTM A 276:2017   | NACE MR0175/ISO15156:2009 |           |                 |                 |

### Chemical Analysis %

| Element | C      | Si     | Mn     | P      | S      | Cr      | Ni      | Mo     |
|---------|--------|--------|--------|--------|--------|---------|---------|--------|
| Min     |        |        |        |        |        | 16.0000 | 10.0000 | 2.0000 |
| Max     | 0.0300 | 1.0000 | 2.0000 | 0.0450 | 0.0300 | 18.0000 | 14.0000 | 3.0000 |
| Melt    | 0.0250 | 0.3300 | 1.7200 | 0.0430 | 0.0270 | 16.7700 | 10.1200 | 2.0700 |

### Mechanical Properties

|         | YS/(Rp 0.2%)<br>(N/mm <sup>2</sup> )<br>ASTM A 370:2016 | UTS<br>(N/mm <sup>2</sup> )<br>ASTM A 370:2016 | % Elongation<br>4D<br>ASTM A 370:2016 | % Reduction Area<br>ASTM A 370:2016 | Hardness<br>(BHN)<br>ASTM A 370:2016 | Charpy Impact V Notch (Longitudinal)<br>(Joules) |        |        |        |        |
|---------|---|--|---------------------------------------|-------------------------------------|--------------------------------------|--|--------|--------|--------|--------|
|         | Min.  | 205.00   | 515.00                                | 40.00                               | 50.00                                | Temp .Deg  | Result |        |        |        |
|         | Max.  |  |                                       |                                     |                                      | (C)  | 1      | 2      | 3      | Avg.   |
| Results | 345.21  | 619.07   | 55.36                                 | 73.97                               | 175.00                               | R.Temp   | 246.00 | 268.00 | 252.00 | 255.33 |

### Heat Treatment :

Solution annealing @ 1050 Deg C for 1"/hr &amp; water quench

### Remarks

- \* Country Of Origin Of Goods - India
- \* Free from Radioactivity - verified through Gamma Ray Spectrometer
- \* No Mercury contamination
- \* Micro & Macro Test - Satisfactory
- \* No welding has been performed on the material
- \* Heat Treatment furnace calibrated as per API 6A Appendix-M
- \* Specimen Size for UTS - 12.50 mm / 0.50 inch dia.
- \* Specimen Size for Charpy Impact V Notch test - 55x10x10 mm dia.
- \* Visual & Dimensional Inspection - OK
- \* IGC Test:ASTM A 262:2010 PRACTICE E OK
- \* Ultrasonic Test:ASTM A 388:2016 OK



We confirm that the material is manufactured &amp; supplied in accordance to the Purchase Order

**Ambica Steels Limited**

 QA Head/NDT Inspector  
**AMBICA STEELS LIMITED**

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