



Industrial de Válvulas, S.A. de C.V.

Industria Ite 16 S/N Fracc. Industrial el Trébol de Tepetzotlán, Estado de México, México C.P. 54610

CERTIFICATE OF MATERIALS & TEST REPORT (CMTR)
 (CERTIFICADO DE CALIDAD DE MATERIALES Y REPORTE DE PRUEBAS CMTR)
 ACCORDING TO EN 10204 TYPE 3.1

No. código interno (Product Code Nr.): **AG020GA08MA2A1X+**

No. Serie (Serial Number): **V13EG00927**

Fecha (Date): **September 22, 2016**

No. De Tag (Tag Number):

Clientes (Customer):

No Pedido del Cliente (Customer PO Nr.):

Partida (Customer Item):

Pedido Interno No (Walworth Sales Nr.):

Partida (Item):

Línea de producto (Product line):

Operación (Operation): Handwheel

Tipo de válvula (Type of valve):

Cuerpo (Shell):

Diámetro (Nominal diameter):

Intentores (Trim):

Presión clase (Pressure class):

Figura No (Figure Nr.):

RF Series A

WCB

#08 (LT)

FIG 5281

COMPOSICION QUIMICA EN % (CHEMICAL COMPOSITION %)

| Parte (Component) | Material (Material) | Colada (Heat) | % C | % Mn | % P | % S | % Si | % Ni | % Cr | % Mo | % Cu | % V | % | % | % | % | % |
|-------------------|---------------------|---------------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| BONETE (BONNET) | ASTM_A_216_GR_WCB | HC2987 | 0.200 | 0.680 | 0.023 | 0.013 | 0.450 | 0.030 | 0.067 | 0.021 | 0.015 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| CUERPO (BODY) | ASTM_A_218_GR_WCB | HC2986 | 0.210 | 0.840 | 0.031 | 0.016 | 0.450 | 0.037 | 0.100 | 0.018 | 0.026 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| DISCO 1 (DISC 1) | ASTM_A_217_GR_CA15 | D2954 | 0.110 | 0.750 | 0.018 | 0.017 | 0.870 | 0.350 | 12.350 | 0.021 | 0.040 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

PROPIEDADES MECANICAS (MECHANICAL TESTING)

| Parte (Component) | Colada (Heat) | Condición de TT Normalizado & revenido Heat Treatment condition (Normalized & tempered) | Cedencia (Yield strength) (Kpsi) | Tensión (Tensile strength) (Kpsi) | Alar. en 2" (Elong. in 2") (% min) | Reducción de área (Reduction of area) (% min) | | Dureza (Hardness) (Bhn) | | Prueba Impacto (Impact Test) (Joules) | | |
|-------------------|---------------|--|----------------------------------|-----------------------------------|------------------------------------|---|-----|-------------------------|-----|---------------------------------------|-----|---|
| | | | | | | 1st | 2nd | 1st | 2nd | 3rd | AVG | |
| BONETE (BONNET) | HC2987 | (910-940) °C, NORMALIZADO (RECOCIDO) 850 °C ENFRÍAMIENTO CON AIRE (910-940) °C, NORMALIZE (ANNEAL) 850 °C AIR COOL | 47.1250 | 77.5750 | 26 | 45 | 0 | 158 | 0 | 0 | 0 | 0 |
| CUERPO (BODY) | HC2986 | (910-940) °C, NORMALIZADO (RECOCIDO) 850 °C ENFRÍAMIENTO CON AIRE (910-940) °C, NORMALIZE (ANNEAL) 850 °C AIR COOL | 45.6750 | 75.4000 | 28 | 46 | 0 | 153 | 0 | 0 | 0 | 0 |
| DISCO 1 (DISC 1) | D2954 | 865 °C, NORMALIZADO (RECOCIDO) 595 °C ENFRÍAMIENTO CON AIRE 865 °C, NORMALIZE (ANNEAL) 595 °C AIR COOL | 69.3100 | 100.0500 | 27 | 47 | 0 | 276 | 0 | 0 | 0 | 0 |

PRUEBAS DE PRESIÓN DE ACUERDO CON API 598 (PRESSURE TEST IN ACCORDANCE WITH API 598)

| TIPO DE PRUEBA (Type of test) | PRESION (Pressure) (Psi) | TIEMPO (Duration) (min) | RESULTADO (Result) | TIPO DE PRUEBA (Type of test) | RESULTADO (Result) |
|--|--------------------------|-------------------------|---------------------|-------------------------------|--------------------|
| HIDROSTATICA DE CASCO (HYDROSTATIC SHELL) | 1125 | 1 min | ACEPTADO (ACCEPTED) | | |
| HIDROSTATICA DE CASQUILLO (HYDROSTATIC BACK SEAT) | 1125 | 1 min | ACEPTADO (ACCEPTED) | | |
| PRUEBA HIDROSTATICA SELLO 1 (HIGH PRESSURE SIDE 1) | 815 | 1 min | ACEPTADO (ACCEPTED) | | |
| PRUEBA NEUMATICA SELLO 1 (LOW PRESSURE SIDE 1) | 80 | 1 min | ACEPTADO (ACCEPTED) | | |



Certificamos que este producto ha sido diseñado, fabricado y probado de acuerdo con nuestro sistema de administración de calidad y con los requisitos establecidos en una o más de las siguientes normas en su última edición. (We hereby certify this product has been designed, manufactured and tested according to our quality management system and requirements stated in one or more of the following standards on their latest edition).

- API 598 PRESSURE TESTING OF FLANGED, WELDED AND WELDING
- API 603 STEEL GLOBE VALVES-FLANGED AND BUTT-WELDING ENDS, BOLTED BONNETS
- API 604 TYPE TESTING OF RISING STEM VALVES EQUIPPED WITH GRAPHITE PACKING FOR FLUORINE EMISSIONS
- ANSI B16.1 FORGED FITTINGS, SOCKET, WELDING AND TREADED
- ANSI B16.3 WELDED END STEEL VALVES
- ANSI B16.11 FORGED FITTINGS, SOCKET, WELDING AND TREADED
- NACE MR0175-1 MATERIALS FOR USE IN H₂S-CONTAINING ENVIRONMENTS IN OIL AND GAS PRODUCTION
- ISO 5199 MATERIAL RESISTANT TO SULFIDE STRESS CRACKING IN CORROSIVE PETROLEUM ENVIRONMENT
- ISO 5199-1 PRESSURE TESTING OF STEEL VALVES

[Signature]

Quality Assurance Department
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 FAC-24 Rev. Original.