



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.): **AR020BA08MANA1XF**

Fecha (Date): **November 13, 2017**

Cientes (Customer):

No. Serie (Serial Number): **V12FR1377**

No. De Tag (Tag Number):

No Pedido del Cliente (Customer PO Nr.):

Partida (Customer Item): **Pedido Interno No (Walworth Sales Nr.):**

Partida (Item):

| | | | | | |
|-----------------------------------|--|-------------------------|-------------------|-----------------------------|-----|
| Linea de producto (Product line): | Cast Steel / Acero Fundido | Extremos (Ends): | RF | Operación (Operation): | N/A |
| Tipo de válvula (Type of valve): | Check Type Swing/Retencion Tipo Columpio | Cuerpo (Body): | WCB | Anexo No. (Annex Nr.): | |
| Diámetro (Nominal diameter): | 2 | Interiores (Trim): | #08 ((API), (UT)) | Otros (Other requirements): | |
| Presión clase (Pressure class): | 150 | Figura No (Figure Nr.): | FIG 5341RF | | |

COMPOSICION QUIMICA EN % (CHEMICAL COMPOSITION %)

| Parte (Component) | Material (Material) | Colada (Heat) | % C | % Mn | % P | % S | % Si | % Ni | % Cr | % Mo | % Cu | % V | % | % | % | % | % | % | % |
|-------------------|---------------------|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| CUERPO (BODY) | ASTM_A_216_GR_WCB | HL289 | 0.225 | 0.715 | 0.013 | 0.012 | 0.422 | 0.011 | 0.014 | 0.014 | 0.013 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| DISCO 1 (DISC 1) | ASTM_A_105N | DZ01 | 0.220 | 0.800 | 0.020 | 0.020 | 0.300 | 0.060 | 0.070 | 0.030 | 0.060 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| TAPA 1 (COVER 1) | ASTM_A_216_GR_WCB | HL808 | 0.225 | 0.713 | 0.011 | 0.012 | 0.425 | 0.012 | 0.011 | 0.011 | 0.011 | 0.001 | 0.000 | 0.000 | 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) | Reduccion de area (Reduction of area) (% min) | Dureza (Hardness) (Bhn) | | Prueba Impacto (Impact Test) (Joules) | | | | |
|-------------------|---------------|--|----------------------------------|-----------------------------------|------------------------------------|---|-------------------------|-----|---------------------------------------|-----|-----|-----|---|
| | | | | | | | 1st | 2nd | 1st | 2nd | 3rd | AVG | |
| CUERPO (BODY) | HL289 | (910-940) °C, NORMALIZADO (RECOCIDO), 650 °C ENFRIAMIENTO CON AIRE (910-940) °C, NORMALIZE (ANNEAL) 650 °C AIR COOL | 37.2650 | 70.6150 | 28 | 38 | 162 | 0 | 0 | 0 | 0 | 0 | 0 |
| DISCO 1 (DISC 1) | DZ01 | NORMALIZADO 927 °C-843 °C ENFRIADO EN AIRE 920 °C, NORMALIZE (ANNEAL) 621 °C FURNACE COOL | 44.0000 | 72.8000 | 27 | 44 | 165 | 165 | 0 | 0 | 0 | 0 | 0 |
| TAPA 1 (COVER 1) | HL808 | (910-940) °C, NORMALIZADO (RECOCIDO), 650 °C ENFRIAMIENTO CON AIRE (910-940) °C, NORMALIZE (ANNEAL) 650 °C AIR COOL | 36.5400 | 70.7600 | 27 | 36 | 162 | 0 | 0 | 0 | 0 | 0 | 0 |

PRUEBAS DE PRESIÓN DE ACUERDO CON API 6D (PRESSURE TEST IN ACCORDANCE WITH API 6D)

| 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) | 450 | 2 min | ACEPTADO (ACCEPTED) | | |
| PRUEBA HIDROSTATICA SELLO1 (HIGH PRESSURE SIDE 1) | 315 | 2 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).

DESIGN AND TEST IN ACCORDANCE WITH:
 API 6D- SPECIFICATION FOR PIPELINE AND PIPING VALVES

Quality Assurance Department
 Yolanda Ponciano Montoya

FAC-24 Rev. Original.