



WALWORTH
Since 1842

Industrial de Válvulas, S.A. de C.V.

Industria Ite 16 S/N Fracc. Industrial el Trébol de
Tepozotlán, 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.): **AR040BA08MANA1BH**

No. Serie (Serial Number): **V14LR2102**

Fecha (Date): **May 30, 2016**

No. De Tag (Tag Number):

Cientes (Customer):

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 | Extremos (Ends): | RAISED FACE (RF TYPE "A") | Operación (Operation): | N/A |
| Tipo de válvula (Type of valve): | SWING CHECK | Cuerpo (Shell): | WCB | Otros (Other requirements): | |
| Diámetro (Nominal diameter): | 4 | Interiores (Trim): | #08 (UT) | | |
| Presión clase (Pressure class): | 150 | Figura No (Figure Nr.): | FIG 5341 | | |

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 | 6068 | 0.190 | 0.740 | 0.031 | 0.028 | 0.330 | 0.026 | 0.029 | 0.007 | 0.030 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| DISCO 1 (DISC 1) | ASTM_A_105N | 1231 | 0.200 | 0.840 | 0.022 | 0.020 | 0.210 | 0.043 | 0.051 | 0.004 | 0.026 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| TORNILLOS | ASTM_A_216_GR_WCB | 6523 | 0.216 | 0.970 | 0.032 | 0.017 | 0.475 | 0.051 | 0.030 | 0.023 | 0.038 | 0.007 | 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) | 6068 | (910-940) °C, NORMALIZADO (RECOCIDO) 650 °C ENFRIAMIENTO CON AIRE (910-940) °C, NORMALIZE (ANNEAL) 650 °C AIR COOL | 40 7400 | 74.6700 | 27 | 39 | 154 | 0 | 0 | 0 | 0 | 0 | 0 |
| DISCO 1 (DISC 1) | 1231 | NORMALIZADO 927 °C-843 °C ENFRIADO EN AIRE 920 °C, NORMALIZE (ANNEAL) 621 °C FURNACE COOL | 47 2700 | 76.8500 | 34 | 45 | 162 | 162 | 0 | 0 | 0 | 0 | |
| TORNILLOS | 6523 | (910-940) °C, NORMALIZADO (RECOCIDO) 650 °C ENFRIAMIENTO CON AIRE (910-940) °C, NORMALIZE (ANNEAL) 650 °C AIR COOL | 45 6700 | 73.3700 | 34 | 57 | 150 | 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 SELLO 1 (HIGH PRESSURE CLOSURE 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).

[Signature]

Quality Assurance Department
Yolanda Ponciano Montoya

FAC-24 Rev. Original.

API 600 METAL FLUG VALVES - FLANGED, THREADED AND WELDING
API 601 PROCESS VALVE QUALIFICATION PROCEDURE
API 603 STEEL GLOBE VALVES - FLANGED AND BUTT WELDING ENDS, BOLTED BONNETS
API 604 TYPE TESTING OF STEEL VALVES EQUIPPED WITH GRAPHITE PACKING FOR FUGITIVE EMISSIONS
ANSI B16.10 FACE TO FACE AND END TO END DIMENSIONS OF VALVES
ANSI B16.11 FORGED FITTINGS, SOCKET WELDING AND THREADED
ANSI/ASME MEQ17.500 15150-1 MATERIALS FOR USE IN H2S-CONTAINING ENVIRONMENTS IN OIL AND GAS PRODUCTION
NACE MR0103 MATERIAL RESISTANT TO SULFIDE STRESS CRACKING IN CORROSIVE PETROLEUM ENVIRONMENT
MS-SP-01 PRESSURE TESTING OF STEEL VALVES