



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.): **AG020BA08MA2A1BG**

No. Serie (Serial Number): **V138G1425**

Fecha (Date): **May 25, 2016**

No. De Tag (Tag Number):

Clientes (Customer): **PLESA ANAHUAC Y CIAS, S.A DE C.V.**

No Pedido del Cliente (Customer PO Nr.): **22817**

Partida (Customer Item): **23** Pedido Interno No (Walworth Sales Nr.): **D000060182**

Partida (Item): **23**

|                                   |              |                         |                           |                             |           |
|-----------------------------------|--------------|-------------------------|---------------------------|-----------------------------|-----------|
| Linea de producto (Product line): | CAST STEEL   | Extremos (Ends):        | RAISED FACE (RF TYPE "A") | Operación (Operation):      | HANDWHEEL |
| Tipo de válvula (Type of valve):  | GLOBE OS & Y | Cuerpo (Shell):         | WCB                       | Otros (Other requirements): |           |
| Diámetro (Nominal diameter):      | 2            | Interiores (Trim):      | #08 (UT)                  |                             |           |
| Presión clase (Pressure class):   | 150          | Figura No (Figure Nr.): | FIG 5275                  |                             |           |

**COMPOSICION QUIMICA EN % (CHEMICAL COMPOSITION %)**

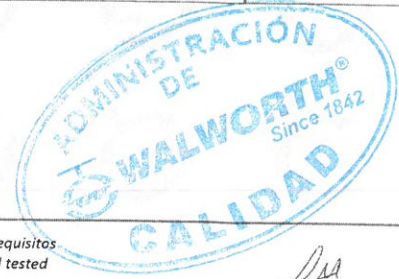
| Parte (Component) | Material (Material) | Colada (Heat) | % C   | % Mn  | % P   | % S   | % Si  | % Ni  | % Cr  | % Mo  | % Cu  | % V   | %     | %     | %     | %     | %     | %     | %     |
|-------------------|---------------------|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| BONETE (BONNET)   | ASTM_A_216_GR_WCB   | K2729         | 0.188 | 0.875 | 0.021 | 0.013 | 0.440 | 0.025 | 0.054 | 0.009 | 0.028 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| CUERPO (BODY)     | ASTM_A_216_GR_WCB   | H7425         | 0.204 | 0.961 | 0.028 | 0.024 | 0.429 | 0.040 | 0.074 | 0.009 | 0.041 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| DISCO 1 (DISC 1)  | ASTM_A_105N         | G996          | 0.189 | 0.725 | 0.026 | 0.019 | 0.282 | 0.032 | 0.049 | 0.016 | 0.058 | 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 |   |
| BONETE (BONNET)   | K2729         | (910-940) °C. NORMALIZADO ( RECOCIDO ) 650 °C ENFRIAMIENTO CON AIRE<br>(910-940) °C. NORMALIZE ( ANNEAL ) 650 °C AIR COOL | 52.9250                          | 84.1000                           | 35                                 | 56  | 158                     | 0   | 0                                     | 0   | 0   | 0   | 0 |
| CUERPO (BODY)     | H7425         | (910-940) °C. NORMALIZADO ( RECOCIDO ) 650 °C ENFRIAMIENTO CON AIRE<br>(910-940) °C. NORMALIZE ( ANNEAL ) 650 °C AIR COOL | 45.2400                          | 90.6250                           | 30                                 | 41  | 154                     | 0   | 0                                     | 0   | 0   | 0   | 0 |
| DISCO 1 (DISC 1)  | G996          | NORMALIZADO 927 °C-843 °C ENFRIADO EN AIRE<br>920 °C. NORMALIZE ( ANNEAL ) 621 °C FURNACE COOL                            | 44.9500                          | 80.7650                           | 33                                 | 61  | 160                     | 160 | 0                                     | 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)                  | 450                      | 1 min                   | ACEPTADO (ACCEPTED) |                               |                    |
| HIDROSTATICA DE CASQUILLO (HYDROSTATIC BACK SEAT)          | 450                      | 1 min                   | ACEPTADO (ACCEPTED) |                               |                    |
| PRUEBA HIDROSTATICA SELLO 1 (HIGH PRESSURE CLOSURE SIDE 1) | 315                      | 1 min                   | ACEPTADO (ACCEPTED) |                               |                    |
| PRUEBA NEUMATICA SELLO 1 (LOW PRESSURE CLOSURE 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 METAL PLUG VALVES - FLANGED, THREADED AND WELDING  
API 591 PROCESS VALVE QUALIFICATION PROCEDURE  
API 623 STEEL GLOBE VALVES - FLANGED AND BUTT WELDING ENDS, BOLTED BONNETS  
API 624 TYPE TESTING OF 90/90 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/NACE MR0175/ISO 15156-1 MATERIALS FOR USE IN H<sub>2</sub>S-CONTAINING ENVIRONMENTS IN OIL AND GAS PRODUCTION  
NACE MR0103 MATERIAL RESISTANT TO SULFIDE STRESS CRACKING IN CORROSIVE PETROLEUM ENVIRONMENT  
MS-591 PRESSURE TESTING OF STEEL VALVES

Quality Assurance Department  
Yolanda Ponciano Montoya

FAC-24 Rev. Original.