

CERTIFICADO DE CALIDAD
INSPECTION CERTIFICATE
 (DIN EN 10204 3.1.B - ISO 10474 3.1.B)

Numero: 1.0762
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 Fecha/Date: SEPTIEMBRE 13

Vendido A: TUBERIA Y VALVULAS DEL NORTE, S.A. DE C.V.
 Sold to: Tuberia y Valvulas del Norte, S.A. de C.V.
 Especificaciones y Grados / Standard or Specification and Steel Grade
 Seamless Fittings according to ASTM/ASME A5A 234 WPB - NACE MR 01.75 ed. 02 -
 Conform to ASME II Ed. 2001

Pedido del cliente No: ASME B 16.9 and ASME B 16.28 edition 2001
 Customers Order No: ASME B 16.9 and ASME B 16.28 edition 2001
 Dimensiones y tolerancias / Dimension and tolerances

Lista de empaque: 6223
 Packing List: Bocas / Ends
 Biselado / Bevelled ends

| DESCRIPCION DE MATERIAL / MATERIAL DESCRIPTION | | | | PRUEBAS MECANICAS / MECHANICAL TEST | | | | PRUEBA DE IMPACTO 0°C / IMPACT TEST 0 | | | | |
|--|--------------------|---------------------|---------------------------|--------------------------------------|---------------------------------------|--------------|----------------------|---------------------------------------|----------|----------|----------|-----|
| ART. / ITEM | COLADA / HEAT CODE | CANTIDAD / QUANTITY | DESCRIPCION / DESCRIPTION | ESF. CEDENCIA / YIELD STRENGTH (MPa) | ESF. RUPTURA / TENSILE STRENGTH (MPa) | ELONG. / %2" | DUREZA / HARDNESS HB | DIMENSIONES / SAMPLE DIM mm | 1 Joules | 2 Joules | 3 Joules | f |
| 1 | TWN5 | 10 | TEE RED. 12 X 8 CED STD | 366 | 488 | 48 | 141 | N/A | N/A | N/A | N/A | N/A |
| 2 | TYE5 | 6 | TEE RED. 12 X 8 CED XS | 341 | 488 | 50 | 146 | N/A | N/A | N/A | N/A | N/A |
| 3 | KW5 | 25 | TEE RED. 4 X 2 CED STD | 320 | 462 | 38 | 156 | N/A | N/A | N/A | N/A | N/A |
| 4 | QH5 | 20 | TEE RED. 4 X 2 CED XS | 313 | 469 | 48 | 156 | N/A | N/A | N/A | N/A | N/A |
| 5 | KV5 | 30 | TEE RED. 4 X 3 CED XS | 313 | 469 | 48 | 156 | N/A | N/A | N/A | N/A | N/A |
| 6 | TLZ5 | 50 | TEE RED. 8 X 4 CED STD | 328 | 485 | 42 | 143 | N/A | N/A | N/A | N/A | N/A |
| 7 | TMP5 | 4 | TEE RED. 8 X 4 CED XS | 283 | 483 | 35 | 143 | N/A | N/A | N/A | N/A | N/A |
| 8 | TYL5 | 20 | TEE RED. 8 X 6 CED STD | 307 | 485 | 44 | 140 | N/A | N/A | N/A | N/A | N/A |
| 9 | TKM5 | 11 | TEE RED. 8 X 6 CED XS | 256 | 473 | 38 | 144 | N/A | N/A | N/A | N/A | N/A |
| 10 | TXN4 | 9 | TEE RED. 8 X 6 CED XS | 322 | 504 | 36 | 145 | N/A | N/A | N/A | N/A | N/A |

| ANALISIS QUIMICO / CHEMICAL ANALYSIS | | | | | | | | | | | | | | |
|--------------------------------------|--------------------|------------------------------|--------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| PROCESO / PROCESS | COLADA / HEAT CODE | COLADA/HEAT M.P./MOTHER PIPE | %C.E. | %C | %Mn | %P | %S | %Si | %Cr | %Cu | %Mo | %Ni | %V | %Nb |
| CF | TWN5 | 11859 | 0.3260 | 1.90 | 0.660 | 0.014 | 0.003 | 0.300 | 0.060 | 0.069 | 0.036 | 0.040 | 0.000 | 0.000 |
| CF | TYE5 | 10374 | 0.3290 | 1.80 | 0.720 | 0.008 | 0.002 | 0.280 | 0.070 | 0.079 | 0.037 | 0.030 | 0.000 | 0.000 |
| CF | KW5 | 45137 | 0.3210 | 1.80 | 0.650 | 0.008 | 0.002 | 0.230 | 0.070 | 0.120 | 0.030 | 0.060 | 0.001 | 0.001 |
| CF | QH5 | 202282 | 0.3000 | 1.70 | 0.640 | 0.011 | 0.001 | 0.250 | 0.060 | 0.100 | 0.010 | 0.040 | 0.001 | 0.001 |
| CF | KV5 | 20282 | 0.3000 | 1.70 | 0.640 | 0.011 | 0.001 | 0.250 | 0.060 | 0.100 | 0.010 | 0.040 | 0.001 | 0.001 |
| CF | TLZ5 | 98081 | 0.3220 | 1.90 | 0.650 | 0.007 | 0.003 | 0.280 | 0.050 | 0.078 | 0.027 | 0.040 | 0.000 | 0.000 |
| CF | TMP5 | 97620 | 0.3400 | 1.80 | 0.840 | 0.008 | 0.003 | 0.300 | 0.050 | 0.050 | 0.020 | 0.040 | 0.000 | 0.000 |
| CF | TYL5 | 12538 | 0.3410 | 1.80 | 0.750 | 0.010 | 0.002 | 0.290 | 0.090 | 0.070 | 0.052 | 0.050 | 0.000 | 0.000 |
| CF | TKM5 | 96453 | 0.3260 | 1.57 | 0.822 | 0.007 | 0.005 | 0.262 | 0.050 | 0.079 | 0.080 | 0.011 | 0.001 | 0.000 |
| CF | TXN4 | 94045 | 0.3050 | 1.75 | 0.659 | 0.003 | 0.002 | 0.316 | 0.040 | 0.099 | 0.013 | 0.040 | 0.002 | 0.000 |

Certificamos que los resultados de los Analisis Quimicos y Pruebas Mecanicas son verdaderas o una copia fiel de los certificados enviados por el Fabricante al proveedor de Materia Prima con N°:
 We certify that result of chemical analysis and mechanical test are true and copy of the test certificate issued by the manufacturer and/or supplier. Raw material certs N°:
 03008936 03005065 42230
 42376 02015472 02015813
 03011810 02008104 02001225

Formado en caliente a 780°C-940°C, enfriado al aire.
 Formed in air at 780°C to 940°C, cooled in still air.
 Formado en frio normalizado a 940°C max.
 Cold formed normalized at 940°C max.
 Tiempo de permanencia 10'.
 Holding time 10'.
 Inspeccion Dimensional: Satisfactoria.
 Visual dimensional check: Satisfactory.
 Inspeccion Dimensional: Satisfactoria.
 Visual dimensional check: Satisfactory.
 HF: FORMADO EN CALIENTE/HOT FORMED CF: FORMADO EN FRIO/COLD FORMED

Gerente de Aseguramiento de Calidad:
 Quality Assurance Manager:
 ING. JOSE MARTINEZ MACIAS