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|--------------------------|-------------------|------------------------------|------------------------------------|---------------------|---|--|-------|---------------------|--------|
| REPORT N. Rapporto N. | TC-020442-17-0004 | Issued on Revised on | 17/11/2017 | Customer Cliente | PROVEEDORA DE MATERIALES AN CER SA DE CV, AV ADOLFO LOPEZ MATEOS 150, COL LAGRANGE, SAN NICOLAS DE LOS GARZA, N.L. - 66490, MEXICO | Job n. / Com. n. | 20442 | Page n. / Pagina n. | 1 of 3 |
| Revision Revisione | 0 | According to In accordo a | EN 10204:2004 UNI EN 10204:2005 | Type Tipo | 3.1 | Purchase order and project/Ordine e progetto 8086 | | | |

| DESCRIPTION / DESCRIZIONE | | | | | | |
|---------------------------|--------------|-------------|---------------------------------|-----------------------|----------------|--|
| Test Prova | Item Pos. | Qty Q.tà | Customer code Codice cliente | Material Materiale | Heat Colata | Product Prodotto |
| AAEJ | 16 | 1250 | | A/SA105-14 | 592221 | COUPLING S. 3000 NPT A/SA105N 1.1/4 |
| VUAA | 22 | 32 | | A/SA105-14 | 110971 | HALF COUPLING S. 3000 NPT A/SA105N 2.1/2 |
| ABJV | 57 | 4430 | | A/SA105-14 | 17/73449 | 90 DEG. ELBOW S. 3000 SW A/SA105N 1.1/4 |
| ZFCX | 57 | 280 | | A/SA105-14 | 16/79080 | 90 DEG. ELBOW S. 3000 SW A/SA105N 1.1/4 |
| ABAP | 58 | 1416 | | A/SA105-14 | 16/71238 | 90 DEG. ELBOW S. 3000 SW A/SA105N 1.1/2 |

| Test Prova | HEAT TREATMENT DATA Dettagli di trattamento termico | | | | COUNTRY OF MELT Provenienza | RAW AND FORGING MATERIAL CERTIFICATES Certificati di acciaieria/forgia |
|---------------|---|--|--|--|--------------------------------|---|
| AAEJ | MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. | | | | DE | CERT.11/2017 BENTELER |
| VUAA | MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. | | | | | CERT.311235/1 TUBOS REUNIDOS*589781MEGA |
| ABJV | MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR. | | | | | CERT.1949.METALFAR*CERT.310 MEGA (VACUUM DEGASED STEEL) |
| ZFCX | MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR. | | | | | CERT.FC-005612-16-0149.MEGA/CERT.3230.MEGA*H=0.00018 |
| ABAP | MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. | | | | | CERT.FC-005612-16-0369.MEGA/CERT.3789.MEGA |

| Test Prova | Test loc. Preso a | Orient. Direz. | TENSILE TEST AT ROOM TEMPERATURE / Trazione a temperatura ambiente | | | | | | | CVN (KV) / Prova di resilienza | | | | | Bend [B] Flatt. [F] Piega Schiacc. | Hardness Durezza |
|---------------|----------------------|-------------------|--|------------------------------|--------------------------------|-----------------------------------|---------------------------|------------------------------|----------------------------|--------------------------------|------------------------------------|--------------------------|------------------------------|----------------------------|---|---------------------|
| | | | Specimen / Provino | | Yield strength Snerv. [Mpa] | Tensile strength Rottura [Mpa] | Elongation Allung. [%] | Red. Of Area Contraz. [%] | Dimens. Dimens. [mm] | T Temp. [°C] | Abs. Energy Energia ass. [J] | Shear A Area d [%] | Lat Exp Esp. Lat. [mm] | | | |
| | | | Shape Forma | A Sez. [mm ²] | | | | | | | | | | Gage Length Lungh. [mm] | | |
| AAEJ | T/2 | LONG | Round | 31.000 | 25.000 | 340.200 | 489.100 | 45.800 | 78.700 | 10X10X55 | -10 | 157-169-188 | 75-85-90 | 1.65-1.76-1.93 | HBW 146-147 | |
| VUAA | T/2 | LONG | Round | 58.400 | 35.000 | 296.000 | 512.900 | 40.100 | 68.200 | 10x10x55 | 0 | 123-134-132 | -- | -- | HBW 151-153 | |
| ABJV | T/2 | TRANS | Round | 30.700 | 25.000 | 291.100 | 492.600 | 35.100 | 71.400 | 10x10x55 | -29 | 44-52-34 | 25-30-20 | 0.69-0.73-0.55 | HBW 141-143 | |
| ZFCX | T/2 | LONG | Round | 30.400 | 25.000 | 324.400 | 521.400 | 32.000 | 67.100 | 10X10X55 | -10 | 42-44-42 | 40-40-40 | 0.58-0.62-0.59 | HBW 143-145 | |
| ABAP | T/2 | TRANS | Round | 60.800 | 35.000 | 297.100 | 493.100 | 30.900 | 71.800 | 10X10X55 | -29 | 37-49-33 | 25-30-20 | 0.61-0.71-0.58 | HBW 147-151 | |

| Test Prova | C [%] | Si [%] | Mn [%] | S [%] | P [%] | Cr [%] | Ni [%] | Mo [%] | Ti [%] | Cu [%] | V [%] | Al [%] | H [%] | Nb [%] | N [%] | Sn [%] | O [%] | B [%] | Fe [%] | Zr [%] | CE ^A [%] | PREN ^B [%] | X fact. ^C [%] | J fact. ^D [%] |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|--------|--------|---------------------|-----------------------|--------------------------|--------------------------|
| AAEJ | 0.1300 | 0.1900 | 1.1400 | 0.0020 | 0.0080 | 0.1400 | 0.0700 | 0.0300 | | 0.1100 | 0.0310 | | | 0.0140 | | | | | | | | 0.3722 | | |
| VUAA | 0.1800 | 0.2500 | 0.8400 | 0.0029 | 0.0070 | 0.0490 | 0.0720 | 0.0360 | | 0.1480 | 0.0010 | | | 0.0010 | | | | | | | | 0.3518 | | |
| ABJV | 0.1850 | 0.2100 | 0.9100 | 0.0100 | 0.0090 | 0.1500 | 0.0700 | 0.0100 | 0.0220 | 0.2000 | 0.0030 | 0.0290 | 0.0001 | 0.0010 | 0.0100 | 0.0090 | 0.0015 | | | | | 0.3872 | | |
| ZFCX | 0.1800 | 0.2400 | 1.0500 | 0.0070 | 0.0110 | 0.1100 | 0.0600 | 0.0100 | 0.0160 | 0.1900 | 0.0020 | 0.0260 | 0.0001 | 0.0020 | 0.0086 | 0.0100 | 0.0016 | | | | | 0.3960 | | |
| ABAP | 0.1800 | 0.2100 | 1.0000 | 0.0090 | 0.0150 | 0.1300 | 0.0600 | 0.0100 | 0.0150 | 0.1900 | 0.0020 | 0.0210 | 0.0002 | 0.0010 | 0.0099 | 0.0090 | 0.0017 | | | | | 0.3917 | | |

REMARKS / Note

1: MATERIAL ACCORDING TO NACE MR0175/ISO 15156-1-2-3 Ed.2015
 2: MATERIAL ACCORDING TO ASME Sect. II Part A 2017 Edition.
 3: FULLY KILLED STEEL, FINE GRAIN TREATED.

A: CE = C + Mn/6 + (Cr+Mo+V)/5 + (Cu+Ni)/15 | B: PREN = Cr + 3.3Mo + 16N
 C: X factor = (10P + 5Sb+4Sn+As)/100 - elements expressed in ppm
 D: J factor = ((Mn + Si) (P + Sn)) x 10E4

Quality inspector representative

Emmanuel Centemeri

Ispettore controllo qualità

Additional elements: