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Quality Management System Approved CERT. N° SGI 6000360

ACEROS INOXIDABLES

**OLARRA**

**OLARRA U.K. LTD.  
FOREST PARK - CLEOBURY MORTIMER  
NR KIDDERMINSTER - DY 149BD - ENGLAND**

Trade Mark - Zeichen des Lieferwerkes  
Anagrama del suministrador 

Works Inspector Stamp - Werkssachverständiger  
Sello del Inspector 

|  |                                 |                        |                       |  |            |   |        |   |   |  |      |  |  |                           |      |         |  |  |  |  |
|--|---------------------------------|------------------------|-----------------------|--|------------|---|--------|---|---|--|------|--|--|---------------------------|------|---------|--|--|--|--|
| Certificate type - APZ Nach<br>Certificado tipo  |                                 | EN 10204/3.1           |                       | Certificate n° - Prüf-Nr<br>Certificado n° |            | 142249  |        | Date - Datum - Fecha                        |   | 14 - 02 - 2013   |      |  |  |                           |      |         |  |  |  |  |
| Our order N°<br>Werks - Nr<br>N° de Referencia   |                                 | 497240                 |                       | Heat<br>Schmelze<br>Colada                 |            | 341651  |        | Your order N°<br>Bestell - Nr<br>Pedido N°  |   | OL 5263  |      |  |  |                           |      |         |  |  |  |  |
| Steel Grade<br>Werkstoff<br>Calidad  |                                 |                        |                       | 316-S-11 AV                                |            |   |        | According to<br>Entsprechend<br>Corresponde |   |  |      | BS 970:PART 3:1991.  |  |                           |      |         |  |  |  |  |
| Shape and Size - Gegenstand<br>Perfil y dimensión  |                                 |                        |                       | Tolerance - Toleranz<br>Tolerancia         |            |   |        | Bundles<br>Bunde<br>Bultos                  |   | 5  |      | Bars<br>Stäbe<br>Barras                                    |  | Weight<br>Gewicht<br>Peso |      | 2516 Kg |  |  |  |  |
| HEXAGON 15,88 mm   |                                 |                        |                       | h 11 /DIN 176                              |            |   |        |   |   |  |      |  |  |                           |      |         |  |  |  |  |
| Requirements - Anforderungen - Exigencias  |                                 |                        |                       |  |            |   |        |   |   |  |      |  |  |                           |      |         |  |  |  |  |
| EN 10.088-3.2005.<br>EN 10.272-2007.<br>ASTM A 182 / A 182M-12b.<br>ASTM A 479 / A 479M-12.<br>ASTM A 276-10.<br>ASME SA 479 / SA 479M-11a.<br>SAE AMS 5653F-02.<br>NACE MR-0175-2003/ISO 15156-3 2009.<br>316S31AV-1.4404-1.4401-TP.316L-TP.316.<br>PED 97/23/EC, Annex I, Parag.4.3/DGR 97/23/EG |                                 |                        |                       |  |            | Anhang I Bsatz 4.3 Certificate/Zertifikat Nr. 348/2008/MUC                        |        |   |   |  |      |  |  |                           |      |         |  |  |  |  |
| Melting process / Erschmelzungsart / Proceso de Fusión   |                                 |                        |                       |  |            | Heat treatment / Wärmebehandlung / Tratamiento térmico                            |        |   |   |  |      |  |  |                           |      |         |  |  |  |  |
| E.A.F. / A.O.D.  |                                 |                        |                       |  |            | 1060C 4H/Std WATER/WASSER/AGUA  |        |   |   |  |      |  |  |                           |      |         |  |  |  |  |
| Solution annealed/Abgeschreckt/Hipertemple-Cold drawn/Gezogen/Estirado-  |                                 |                        |                       |  |            |   |        |   |   |  |      |  |  |                           |      |         |  |  |  |  |
| Test results - Ergebnis der Prüfungen - Resultados de los ensayos  |                                 |                        |                       |  |            |   |        |   |   |  |      |  |  |                           |      |         |  |  |  |  |
| Dimension of Specimen<br>Abmessungen des Probestabes<br>Medida de las probetas   |                                 | Rp0.2%<br>N/mm2<br>MPA | Rp 1%<br>N/mm2<br>MPA | Rm<br>N/mm2<br>MPA                         | A<br>%L 5D | A<br>%L 4D  | Z<br>% | Hardness<br>Härte<br>HBw                    | Impact test / Kernschlag / Resiliencia<br>ISO V Jules |  |      |  |  |                           |      |         |  |  |  |  |
| RD. 10,00 mm.  |                                 | Min.                   | 315                   | 425  | 600        | 15  |        |   |   |  |      |  |  |                           |      |         |  |  |  |  |
|  |                                 | Max.                   |                       |  |            |   |        |   |   |  |      |  |  |                           |      |         |  |  |  |  |
| Temperature °C<br>20   | Spec. N°<br>Probe Nr.<br>Pro N° | 1                      | 580                   | 659  | 696        | 38  | 67     | 207   |   |  |      |  |  |                           |      |         |  |  |  |  |
| Min.   | C                               | Si                     | Mn                    | P  | S          | Cr  | Mo     | Ni  | Cu  | N  | Co   |  |  |                           |      |         |  |  |  |  |
| Max.   | 0,030                           | 1,00                   | 2,00                  | 0,045                                      | 0,030      | 18,50   | 2,50   | 14,00                                       | 0,70  |  |      |  |  |                           |      |         |  |  |  |  |
|  | 0,029                           | 0,41                   | 1,73                  | 0,033                                      | 0,028      | 17,05   | 2,08   | 11,00                                       | 0,37  | 0,0210   | 0,13 |  |  |                           |      |         |  |  |  |  |
| Visual and dimensional inspection<br>Besichtigung und Ausmessung<br>Control visual y dimensional   |                                 |                        | O.K.                  |  |            | Radioactivity inspection<br>Radioaktivitätskontrolle<br>Control de Radioactividad |        |   | O.K.  |  |      | Antimixing test<br>Spektrosk Verwechslungspr<br>Antimezcla |  |                           | O.K. |         |  | Grain Size<br>Korngröße<br>Tamaño de grano |  |  |
| Remarks - Bemerkungen - Observaciones  |                                 |                        |                       |  |            |   |        |   |   |  |      |  |  |                           |      |         |  |  |  |  |
| IC test acc./IK prüfung nach ASTM A 262 E.02. OK<br>Crack control/Rissgeprüft acc. EN 10277-1 class 2. OK  |                                 |                        |                       |  |            |   |        |   |   | EDV / EDP<br>Acc. EN 10.204<br>Alfredo Molina,<br>Certification<br>Mng.<br><br>Works Inspector<br>Der Werkssachverständige<br>Inspector de fábrica |      |  |  |                           |      |         |  |  |  |  |
| F10404   |                                 |                        |                       |  |            |   |        |   |   |  |      |  |  |                           |      |         |  |  |  |  |
| 9/16" X 7/16" JIC M/M RED ADAPTOR 15K 316L   |                                 |                        |                       |  |            |   |        |   |   |  |      |  |  |                           |      |         |  |  |  |  |

**FLOW TECHNOLOGY LTD**  
**TEST CERTIFICATE**  
**VERIFIED TRUE**  
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