

**A02/Z03**

INSPECTION CERTIFICATE acc to  
EN 10204 3.1

**A06**

PROCESSKONTROLL ITEMS AB  
BOX 2088  
444 02 STORA HÖGA  
SWEDEN

INSPECTION STAMP

QA-TUBE

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| <b>Customer References</b> <span style="float: right;">A07</span><br>763774                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Alleima References</b> <span style="float: right;">A08</span><br><table style="width: 100%;"> <tr> <td><b>Order No.</b></td> <td><b>Subs No.</b></td> <td><b>Dispatch note</b></td> </tr> <tr> <td>596226</td> <td>173582</td> <td>197169</td> </tr> <tr> <td><b>Suppl. No</b></td> <td><b>C.Code</b></td> <td></td> </tr> <tr> <td>173582</td> <td>15</td> <td></td> </tr> </table> | <b>Order No.</b>          | <b>Subs No.</b> | <b>Dispatch note</b> | 596226       | 173582       | 197169  | <b>Suppl. No</b> | <b>C.Code</b>       |      | 173582 | 15 |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| <b>Order No.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Subs No.</b>                                                                                                                                                                                                                                                                                                                                                                         | <b>Dispatch note</b>      |                 |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 596226                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 173582                                                                                                                                                                                                                                                                                                                                                                                  | 197169                    |                 |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| <b>Suppl. No</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>C.Code</b>                                                                                                                                                                                                                                                                                                                                                                           |                           |                 |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 173582                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 15                                                                                                                                                                                                                                                                                                                                                                                      |                           |                 |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| <b>Material description</b> <span style="float: right;">B01/B04</span><br>SEAMLESS STAINLESS COLD FINISHED<br>HYDRAULIC TUBING<br><br><br><b>Metallurgical process</b> <span style="float: right;">C70</span><br>Electric furnace                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Steel/material Designations</b> <span style="float: right;">B02</span><br><table style="width: 100%;"> <tr> <td><b>Alleima</b></td> <td><b>AISI</b></td> </tr> <tr> <td>3R60</td> <td>TP316/TP316L</td> </tr> <tr> <td><b>EN no</b></td> <td></td> </tr> <tr> <td>1.4435</td> <td></td> </tr> </table>                                                                               | <b>Alleima</b>            | <b>AISI</b>     | 3R60                 | TP316/TP316L | <b>EN no</b> |         | 1.4435           |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| <b>Alleima</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>AISI</b>                                                                                                                                                                                                                                                                                                                                                                             |                           |                 |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 3R60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | TP316/TP316L                                                                                                                                                                                                                                                                                                                                                                            |                           |                 |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| <b>EN no</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                         |                           |                 |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 1.4435                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                         |                           |                 |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| <b>Technical requirements</b> <span style="float: right;">B03</span><br>ASTM A-213-21B AW, ASME SA-213-ED-21 AW, ASTM A-269-22<br>NACE MR0175/ISO 15156-3:-2015, NACE MR0103/ISO 17945-1:-2015<br>PED 2014/68/EU EN 10216-5 TC1<br>HRB MAX 80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                         |                           |                 |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| <table style="width: 100%;"> <tr> <td colspan="5"><b>EXTENT OF DELIVERY</b></td> <td style="text-align: right;">B07-B13</td> </tr> <tr> <td style="text-align: center;">It</td> <td style="text-align: center;">Product designation</td> <td style="text-align: center;">Heat</td> <td style="text-align: center;">Lot</td> <td style="text-align: center;">Kg</td> <td style="text-align: center;">M</td> </tr> <tr> <td style="text-align: center;">03</td> <td>THT-3R60-20-2.5</td> <td style="text-align: center;">044449</td> <td style="text-align: center;">96867</td> <td style="text-align: center;">39.4</td> <td style="text-align: center;">36.00</td> </tr> <tr> <td></td> <td>20.00 X 2.50</td> <td style="text-align: center;">044477</td> <td style="text-align: center;">96868</td> <td style="text-align: center;">118.3</td> <td style="text-align: center;">108.00</td> </tr> <tr> <td></td> <td>14056</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4" style="text-align: right;">Total</td> <td style="text-align: center;">157.7</td> <td style="text-align: center;">144.00</td> </tr> </table><br><table style="width: 100%;"> <tr> <td colspan="2"><b>KEY TO HEAT</b></td> <td colspan="2"><b>KEY TO LOT</b></td> </tr> <tr> <td style="text-align: center;">Heat Code</td> <td style="text-align: center;">Heat No.</td> <td style="text-align: center;">Lot Code</td> <td style="text-align: center;">Lot No.</td> </tr> <tr> <td style="text-align: center;">044449</td> <td style="text-align: center;">566708</td> <td style="text-align: center;">96867</td> <td style="text-align: center;">2088863-11</td> </tr> <tr> <td style="text-align: center;">044477</td> <td style="text-align: center;">567324</td> <td style="text-align: center;">96868</td> <td style="text-align: center;">2088872-11</td> </tr> </table><br><b>TEST RESULTS</b><br><b>Chemical composition (weight%)</b><br><table style="width: 100%;"> <tr> <td style="text-align: center;">Heat</td> <td style="text-align: center;">C</td> <td style="text-align: center;">Si</td> <td style="text-align: center;">Mn</td> <td style="text-align: center;">P</td> <td style="text-align: center;">S</td> <td style="text-align: center;">Cr</td> <td style="text-align: center;">Ni</td> <td style="text-align: center;">Mo</td> </tr> <tr> <td style="text-align: center;">044449</td> <td style="text-align: center;">0.019</td> <td style="text-align: center;">0.39</td> <td style="text-align: center;">1.47</td> <td style="text-align: center;">0.028</td> <td style="text-align: center;">0.009</td> <td style="text-align: center;">17.16</td> <td style="text-align: center;">13.11</td> <td style="text-align: center;">2.62</td> </tr> <tr> <td style="text-align: center;">044477</td> <td style="text-align: center;">0.018</td> <td style="text-align: center;">0.37</td> <td style="text-align: center;">1.58</td> <td style="text-align: center;">0.030</td> <td style="text-align: center;">0.008</td> <td style="text-align: center;">17.42</td> <td style="text-align: center;">13.13</td> <td style="text-align: center;">2.62</td> </tr> <tr> <td></td> <td style="text-align: center;">N</td> <td colspan="7"></td> </tr> <tr> <td style="text-align: center;">044449</td> <td style="text-align: center;">0.035</td> <td colspan="7"></td> </tr> <tr> <td style="text-align: center;">044477</td> <td style="text-align: center;">0.036</td> <td colspan="7"></td> </tr> </table> |                                                                                                                                                                                                                                                                                                                                                                                         | <b>EXTENT OF DELIVERY</b> |                 |                      |              |              | B07-B13 | It               | Product designation | Heat | Lot    | Kg | M | 03 | THT-3R60-20-2.5 | 044449 | 96867 | 39.4 | 36.00 |  | 20.00 X 2.50 | 044477 | 96868 | 118.3 | 108.00 |  | 14056 |  |  |  |  | Total |  |  |  | 157.7 | 144.00 | <b>KEY TO HEAT</b> |  | <b>KEY TO LOT</b> |  | Heat Code | Heat No. | Lot Code | Lot No. | 044449 | 566708 | 96867 | 2088863-11 | 044477 | 567324 | 96868 | 2088872-11 | Heat | C | Si | Mn | P | S | Cr | Ni | Mo | 044449 | 0.019 | 0.39 | 1.47 | 0.028 | 0.009 | 17.16 | 13.11 | 2.62 | 044477 | 0.018 | 0.37 | 1.58 | 0.030 | 0.008 | 17.42 | 13.13 | 2.62 |  | N |  |  |  |  |  |  |  | 044449 | 0.035 |  |  |  |  |  |  |  | 044477 | 0.036 |  |  |  |  |  |  |  |
| <b>EXTENT OF DELIVERY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                         |                           |                 |                      | B07-B13      |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| It                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Product designation                                                                                                                                                                                                                                                                                                                                                                     | Heat                      | Lot             | Kg                   | M            |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 03                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | THT-3R60-20-2.5                                                                                                                                                                                                                                                                                                                                                                         | 044449                    | 96867           | 39.4                 | 36.00        |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 20.00 X 2.50                                                                                                                                                                                                                                                                                                                                                                            | 044477                    | 96868           | 118.3                | 108.00       |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 14056                                                                                                                                                                                                                                                                                                                                                                                   |                           |                 |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| Total                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                         |                           |                 | 157.7                | 144.00       |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| <b>KEY TO HEAT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                         | <b>KEY TO LOT</b>         |                 |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| Heat Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Heat No.                                                                                                                                                                                                                                                                                                                                                                                | Lot Code                  | Lot No.         |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 044449                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 566708                                                                                                                                                                                                                                                                                                                                                                                  | 96867                     | 2088863-11      |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 044477                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 567324                                                                                                                                                                                                                                                                                                                                                                                  | 96868                     | 2088872-11      |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| Heat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | C                                                                                                                                                                                                                                                                                                                                                                                       | Si                        | Mn              | P                    | S            | Cr           | Ni      | Mo               |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 044449                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.019                                                                                                                                                                                                                                                                                                                                                                                   | 0.39                      | 1.47            | 0.028                | 0.009        | 17.16        | 13.11   | 2.62             |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 044477                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.018                                                                                                                                                                                                                                                                                                                                                                                   | 0.37                      | 1.58            | 0.030                | 0.008        | 17.42        | 13.13   | 2.62             |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | N                                                                                                                                                                                                                                                                                                                                                                                       |                           |                 |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 044449                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.035                                                                                                                                                                                                                                                                                                                                                                                   |                           |                 |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 044477                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.036                                                                                                                                                                                                                                                                                                                                                                                   |                           |                 |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| <b>Quality assurance - Sofia Åkesson / Q-Manager</b><br>MTC Service / Certificates                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                         | A05/Z02                   |                 |                      |              |              |         |                  |                     |      |        |    |   |    |                 |        |       |      |       |  |              |        |       |       |        |  |       |  |  |  |  |       |  |  |  |       |        |                    |  |                   |  |           |          |          |         |        |        |       |            |        |        |       |            |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |



**Chemical composition, product (weight%)**

| Heat   | C     | Si   | Mn   | P     | S     | Cr    | Ni    | Mo   |
|--------|-------|------|------|-------|-------|-------|-------|------|
| 044449 | 0.021 | 0.40 | 1.49 | 0.028 | 0.008 | 17.15 | 13.07 | 2.62 |
| 044477 | 0.020 | 0.37 | 1.58 | 0.030 | 0.006 | 17.44 | 13.19 | 2.60 |
|        | N     |      |      |       |       |       |       |      |
| 044449 | 0.038 |      |      |       |       |       |       |      |
| 044477 | 0.030 |      |      |       |       |       |       |      |

**Tensile test at room temperature**

| Lot   | Yield strength |       | Tensile strength | Elongation |    |
|-------|----------------|-------|------------------|------------|----|
|       | MPa            | MPa   | MPa              | %          | %  |
|       | Rp0.2          | Rp1.0 | Rm               | A          | 2" |
| 96867 | 269            | 300   | 595              | 50         | 54 |
|       | 265            | 296   | 590              | 50         | 53 |
| 96868 | 256            | 285   | 575              | 52         | 54 |
|       | 251            | 280   | 558              | 54         | 58 |

**Hardness test**

| Lot   | Min | Max |
|-------|-----|-----|
|       | HRB | HRB |
| 96867 | 75  | 75  |
| 96868 | 73  | 74  |

**Following controls/tests have been satisfactorily performed:**

- Flattening test.
- Flaring test
- 100% PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E and EN ISO 3651-2A
- Leak test: Eddy current test acc to EN ISO 10893-1, ASME SA-1016.
- Visual inspection and dimensional control.

**Heat Treatment:**

Solution annealed at a temperature of Min 1040° C and quenched.

**Marking:**

3R60 ASTM/ASME A/SA213 A269 COLD EN 10216-5 TC1 AW TP 316/TP 316L EN 1.4435 CF A SML NDE 20.00 X 2.50 MM . HT 566708 SZ LOT 2088863-11 MADE BY ALLEIMA IN CZE CHIA \*QA-TUBE\*

3R60 ASTM/ASME A/SA213 A269 COLD EN 10216-5 TC1 AW TP 316/TP 316L EN 1.4435 CF A SML NDE 20.00 X 2.50 MM . HT 567324 SZ LOT 2088872-11 MADE BY ALLEIMA IN CZE CHIA \*QA-TUBE\*

The raw material is free from radioactive contamination.

Material free from mercury contamination.

No welding or weld repair.

Approved acc. AD 2000-Merkblatt W0 and certified acc. to Pressure Equipment Directive (2014/68/EU, Annex 1 para 4.3) by TUEV NORD; notified body, reg.no. 0045.

The number of tests are based on the size of the manufacturing lot before cutting to finished lengths.



The delivered products comply with the specifications and requirements of the order.

The material is manufactured according to a Quality system, approved and registered to ISO 9001:2015.

No unauthorized alterations. The contents of this Inspection Certificate may not be modified or revised in any way without the prior written approval of Alleima.

Unauthorized alterations to the Inspection Certificate, including introduction of false, fictitious or fraudulent statements or entries, may be punishable by fines, imprisonment, or both. This Inspection Certificate may be copied only in the manner and for the purposes specified in Section 6 of EN 10204:2004. Contravention of this notice will be prosecuted to the fullest extent of applicable law.

The certificate is produced with EDP and valid without signature.

**Alleima, formerly Sandvik Materials Technology. During a brand transition period, both Sandvik and Alleima marking on products may exist.**

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO C-8566/20  
C-8566/20

