



CERTIFICATE

A03/Z02

No. A/19-846786 Rev 00

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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

| | |
|--------------------------------|--|
| Customer References A07 | Sandvik References A08 |
| Customer order 2019-09-25 | Order No. Subs No. ABSMT Dispatch note |
| 758472 | 542863 675335 04369/54 |
| 003-00991 ITEMS | ABSMT No. C.Code |
| | 300-11691 15 |

| | |
|---|--|
| Material description B01/B04 | Steel/material Designations B02 |
| SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING | Sandvik AISI 3R60 TP316/TP316L |
| | EN no 1.4435 |
| Steel making process Electric furnace | |
| C70 | |

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| Technical requirements B03 |
| ASTM A-213-18B AW, ASME SA-213-ED-17 AW, ASTM A-269-15A |
| NACE MR0175/ISO 15156-3:-2015, NACE MR0103/ISO 17945-1:-2015 |
| PED 2014/68/EU EN 10216-5 TC1 |
| HRB MAX 80 |

| EXTENT OF DELIVERY | | | | | | | B07-B13 | |
|--|-------------------------------|--------|-------|--------|-------|------------|---------|------|
| It | Product designation | Heat | Lot | Pieces | Kg | M | | |
| 01 | THT-3R60-12-2 12.00 X 2.00 | 556111 | 58753 | 8 | 25.0 | 48.00 | | |
| | | | | Total | 8 | 25.0 48.00 | | |
| TEST RESULTS | | | | | | | | |
| Chemical composition (weight%) | | | | | | | | |
| Heat | C | Si | Mn | P | S | Cr | Ni | Mo |
| 556111 | 0.019 | 0.39 | 1.56 | 0.033 | 0.007 | 17.30 | 13.11 | 2.64 |
| | N | | | | | | | |
| 556111 | 0.045 | | | | | | | |
| Chemical composition, product (weight%) | | | | | | | | |
| Heat | C | Si | Mn | P | S | Cr | Ni | Mo |
| 556111 | 0.027 | 0.40 | 1.56 | 0.032 | 0.005 | 17.32 | 13.15 | 2.64 |
| | N | | | | | | | |
| 556111 | 0.047 | | | | | | | |

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| Quality assurance - Sofia Åkesson / Q-Manager | A05/Z02 |
| MTC Service / Certificates | |



**Tensile test at room temperature**

| Lot | Yield strength | | Tensile strength | Elongation | |
|-------|----------------|-------|------------------|------------|----|
| | MPA | MPa | MPa | % | % |
| Lot | Rp0.2 | Rp1.0 | Rm | A | 2" |
| 58753 | 300 | 336 | 595 | 52 | 51 |

Hardness test

| Lot | Min | Max |
|-------|-----|-----|
| | HRB | HRB |
| 58753 | 76 | 78 |

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:

SANDVIK 3R60 ASTM A213/A269 ASME SA213 COLD EN10216-5 TC1 AW EN 1.4435 TP316/3
16L CFA SML NDE 12.00 X 2.00 MM HT 556111 SS LOT 58753 MADE IN SWEDEN *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.

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The certificate is produced with EDP and valid without signature.

