



INTYG

Nr. A/09-898616 Rev 00
Datum 2009-09-03 Sida 1/2KONTROLLINTYG enligt
EN 10 204 3.1Processkontroll Items AB
Box 2088
444 02 STORA HÖGA
SWEDENINSPEKTIONSSTÄMPEL
QA-TUBE

| Kundreferenser | | Sandvik Referenser | |
|----------------|-------------------------|-------------------------|-----------------|
| 707706 | kundorder 2009-08-24 | Order Nr. 163466 | Subs Nr. 147400 |
| 003-00991 | ITEMS | ABSMT Packnota 31650/54 | Int.Kod 15 |

| Materialbeskrivning | Stål/materialbeteckningar |
|---|---------------------------|
| SÖMLÖSA ROSTFRIA KALLBEARBETADE INSTRUMENTRÖR | Sandvik SS |
| | 3R60 2353 |
| | AISI AFNOR |
| | TP316/TP316L Z2CND17-13 |
| | W.nr DIN |
| | 1.4435 X 2 CRNIMO 18 14 3 |
| | EN no |
| | 1.4436/1.4435 |
| Smältmetod | |
| Elektrisk ugn | |

| Tekniska fordringar/krav |
|---|
| PED/23/EG, EN 10216 TC1 |
| SS 219711, DIN 17458 TC1, NFA 49-117-09/85 |
| ASTM A-213-08 AW, ASME SA-213-ED-07 AD-08 AW, ASTM A-269-08 |
| NACE MR0175/ISO 15156-3:2003, HRB Max 80 |

| LEVERANSOMFATTNING | | | | | | | | | |
|---|------------------------------------|--------|-------------|----------------|-------|--------------|-------|------|--|
| Pos | Produktbeteckning | Charge | AO | Antal | Kg | M | | | |
| 01 | THT-3R60-12.7-2.11 12.70 X 2.11 | 047238 | 99586 | 48 | 160.0 | 288.00 | | | |
| | | | | Summa | 48 | 160.0 288.00 | | | |
| NYCKEL TILL CHARGE | | | | NYCKEL TILL AO | | | | | |
| Charge kod | Charge Nr. | AO kod | AO Nr. | | | | | | |
| 047238 | 522313 | 99586 | 4842363/1-3 | | | | | | |
| PROVNINGSRESULTAT | | | | | | | | | |
| Kemisk sammansättning (vikts%) | | | | | | | | | |
| Charge | C | Si | Mn | P | S | Cr | Ni | Mo | |
| 047238 | 0.017 | 0.40 | 1.62 | 0.032 | 0.012 | 17.27 | 13.07 | 2.55 | |
| | N | | | | | | | | |
| 047238 | 0.044 | | | | | | | | |
| Kemisk sammansättning, produkt (vikts%) | | | | | | | | | |
| Ao | C | Si | Mn | P | S | Cr | Ni | Mo | |
| 99586 | 0.017 | 0.37 | 1.63 | 0.029 | 0.011 | 17.30 | 13.18 | 2.55 | |
| | N | | | | | | | | |
| 99586 | 0.045 | | | | | | | | |
| Kvalitetssäkring - Per Eriksson/ QA-manager Tube & Pipe MTC Service / Certificates | | | | | | | | | |

Dragprovning vid rumstemperatur

| Ao | Sträckgräns | | Brottgräns | Förlängning | |
|-------|-------------|-------|------------|-------------|----|
| | MPa | MPa | MPa | % | % |
| 99586 | Rp0.2 | Rp1.0 | Rm | A | 2" |
| | 248 | 269 | 575 | 52 | 54 |
| | 249 | 273 | 577 | 52 | 52 |

Hårdhetsprovning

| Ao | Min | Max |
|-------|------|------|
| | HRB | HRB |
| 99586 | 71.0 | 72.0 |

Följande kontroller/provningar har utförts med tillfredställande res:

- Plattningsprov
- Vidgningsprov
- PMI-provning.
- Interkristallin korrosionsprovning enligt ASTM A-262 PR.E
- Interkristallin korrosionsprovning enligt EN ISO3651-2, Metod A.
- Täthetsprovning: Induktivprovning enl EN 10246-2, ASME SA-1016.
- Visuell inspektion och dimensionskontroll.

Värmebehandling:

Upplösningsbehandlat och släckt.

Märkning:

SANDVIK 3R60 ASTM/ASME A/SA-213AW A-269 EN 10216-5 TC1 TP 316/TP 316L EN 1.4435 COLD SMLS NDE 12.70 X 2.11 MM 1/2'' X 14 BWG/SWG HT 522313 SZ LOT 4842363 /1-3 DIN 2391 *QA-TUBE*

Godkänd enligt AD 2000-Merkblatt W0 och certifierad enligt tryckkärlsdirektivet, Pressure Equipment Directive(97/23/EG) av TUEV NORD GmbH; anmält organ, reg.no. 0045.

Antalet prover är baserat på AO-storlek före ev.delning.

De levererade produkterna uppfyller specifikationer och krav i ordern.

Materialet är tillverkat enligt ett kvalitetssystem, godkänt och certifierat mot ISO 9001.

Intyget är ADB-framställt och giltigt utan underskrift.

PROVNINGSRESULTATEN ÖVERFÖRDA FRÅN CERTIFIKAT NR A090781



INSPECTION CERTIFICATE acc to
 EN 10 204 3.1

Processkontroll Items AB
 Box 2088
 444 02 STORA HÖGA
 SWEDEN

INSPECTION STAMP
 QA-TUBE

| Customer References | | Sandvik References | | |
|---------------------|------------------------------|------------------------|--------------------|---------------------------------|
| 707706 | Customer order 2009-08-24 | Order No. 163466 | Subs No. 147400 | ABSMT Dispatch note 31650/54 |
| 003-00991 | ITEMS | ABSMT No. 300-97816 | C.Code 15 | |

| Material description | Steel/material Designations |
|--|--|
| SEAMLESS STAINLESS COLD FINISHED INSTRUMENTATION TUBING | Sandvik SS 3R60 2353 AISI AFNOR TP316/TP316L Z2CND17-13 W.nr DIN 1.4435 X 2 CRNIMO 18 14 3 EN no 1.4436/1.4435 |
| Steel making process Electric furnace | |

Technical requirements
 PED/23/EC, EN 10216 TC1
 SS 219711, DIN 17458 TC1, NFA 49-117-09/85
 ASTM A-213-08 AW, ASME SA-213-ED-07 AD-08 AW, ASTM A-269-08
 NACE MR0175/ISO 15156-3:2003, HRB Max 80

EXTENT OF DELIVERY

| It | Product designation | Heat | Lot | Pieces | Kg | M |
|----|------------------------------------|--------|-------|--------|-------|--------------|
| 01 | THT-3R60-12.7-2.11 12.70 X 2.11 | 047238 | 99586 | 48 | 160.0 | 288.00 |
| | | | | Total | 48 | 160.0 288.00 |

| KEY TO HEAT | | KEY TO LOT | |
|-------------|----------|------------|-------------|
| Heat Code | Heat No. | Lot Code | Lot No. |
| 047238 | 522313 | 99586 | 4842363/1-3 |

TEST RESULTS

Chemical composition (weight%)

| Heat | C | Si | Mn | P | S | Cr | Ni | Mo |
|--------|-------|------|------|-------|-------|-------|-------|------|
| 047238 | 0.017 | 0.40 | 1.62 | 0.032 | 0.012 | 17.27 | 13.07 | 2.55 |
| | N | | | | | | | |
| 047238 | 0.044 | | | | | | | |

Chemical composition, product (weight%)

| Lot | C | Si | Mn | P | S | Cr | Ni | Mo |
|-------|-------|------|------|-------|-------|-------|-------|------|
| 99586 | 0.017 | 0.37 | 1.63 | 0.029 | 0.011 | 17.30 | 13.18 | 2.55 |
| | N | | | | | | | |
| 99586 | 0.045 | | | | | | | |

Quality assurance - Per Eriksson/ QA-manager Tube & Pipe
MTC Service / Certificates

**Tensile test at room temperature**

| Lot | Yield strength | | Tensile strength | Elongation | |
|-------|----------------|-------|------------------|------------|----|
| | MPa | MPa | MPa | % | % |
| | Rp0.2 | Rp1.0 | Rm | A | 2" |
| 99586 | 248 | 269 | 575 | 52 | 54 |
| | 249 | 273 | 577 | 52 | 52 |

Hardness test

| Lot | Min | Max |
|-------|------|------|
| | HRB | HRB |
| 99586 | 71.0 | 72.0 |

Following controls/tests have been satisfactorily performed:

- Flattening test.
- Flaring test
- PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E
- Intergranular corrosion test acc. to EN ISO3651-2, Method A.
- Leak test: Eddy current test acc to EN 10246-2, ASME SA-1016.
- Visual inspection and dimensional control.

Heat Treatment:

Solution annealed and quenched.

Marking:

SANDVIK 3R60 ASTM/ASME A/SA-213AW A-269 EN 10216-5 TC1 TP 316/TP 316L EN 1.4435 COLD SMLS NDE 12.70 X 2.11 MM 1/2'' X 14 BWG/SWG HT 522313 SZ LOT 4842363 /1-3 DIN 2391 *QA-TUBE*

Approved acc. AD 2000-Merkblatt W0 and certified acc. to Pressure Equipment Directive (97/23/EC) by TUEV NORD GmbH; 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.

The certificate is produced with EDP and valid without signature.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO A090781