

CERTIFICATE

No. A/18-777542 Rev 00

1/2

Date 2018-10-17 Page

INSPECTION CERTIFICATE acc to EN 10204 3.1

Processkontroll Items AB Box 2088 444 02 STORA HÖGA SWEDEN

INSPECTION STAMP OA-TUBE

Customer References

Customer

order

2018-10-17

003-00991 ITEMS

757026

Sandvik References

Order No. Subs No. ABSMT Dispatch note

524565 660595 31322/54

ABSMT No. C.Code 300-87724 15

HYDRAULIC TUBING

Material description

SEAMLESS STAINLESS COLD FINISHED

Steel/material Designations

Sandvik

3R60 TP316/TP316L

EN no 1.4435

Steel making process

Electric furnace

Technical requirements

ASTM A-213-17 AW, ASME SA-213-ED-17 AW, ASTM A-269-15A NACE MR0175/ISO 15156-3:2015, NACE MR0103/ISO 17945:2015

PED 2014/68/EU EN 10216-5 TC1

HRB MAX 80

EXTENT OF DELIVERY

It Product designation Heat Pieces Lot Kα 02 THT-3R60-8-1.5 553192 45270 25 36.0 150.00

8.00 X 1.50

25 36.0 Total 150.00

TEST RESULTS

Chemical composition (weight%)

Heat C Si Mn Ρ s \mathtt{Cr} Νi Мо 553192 0.021 0.38 1.72 0.029 0.006 17.28 13.16 2.64

N

553192 0.038

Chemical composition, product (weight%)

Heat С Si Mn S \mathtt{Cr} Νi Mo 553192 0.41 1.70 0.028 0.005 17.30 0.021 13.19 2.61

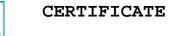
N

553192 0.039

> Quality assurance - Sofia Åkesson / Q-Manager MTC Service / Certificates

Date

2018-10-17 Page





Tensile	test	at	room	temperature

	Yield strength		Tensile strength		Elongation	
	MPA	MPa	MPa		%	%
Lot	Rp0.2	Rp1.0	Rm		A	4D
45270	285	326	576		52	52

Hardness test

	Min	Max	
Lot	HRB	HRB	
45270	69	75	

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 8.00 X 1.50 MM HT 553192 SS LOT 45270 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.

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