



CertificateNo

1(5)

**Date**

2021-11-18

**Customer Reference**

**Customer Address**

BOX 2088  
PROCESSKONTROLL ITEMS AB  
PROCESSKONTROLL ITEMS AB  
444 02 STORA HÖGA  
SWEDEN

**Customer Article No.**

THT-C-3R60-8-1

**Order Number**

761899/Holmberg

**Sandvik Reference**

**Catalogue Code**

THT-C-3R60-8-1

**Lot**

002014233

**Heat**

559150

**Delivered Quantity**

125.25 Metres

**Customer Order No.**

172160

**Customer Order Line**

1

**Pack Note No.**

194585



Sandvik High Precision Tube

V 1.3 - 20200504

## Inspection certificate Certificate of Conformance

0002014233



acc. to DIN EN 10204-3.1

**Customer:**

AB SANDVIK MATERIALS TECHNOLOGY

Approvals Sandvik High Precision Tube France:					
EN 9100 - ISO 9001 - OHSAS 18001 - ISO 14001 - 2014/68/EU					
Approvals Sandvik High Precision Tube Germany:					
EN 9100 - ISO 9001 - IATF 16949 - OHSAS 18001 - ISO 14001 - DIN EN ISO 50001 - ISO/IEC 17025 - AD 2000 - 2014/68/EU Norsok M-650 (25 Cr Duplex SS - 6Mo Tubes - Austenitic stainless steel, Type 6Mo)					
Your Order information	Heat	MO - No.	CO - No.		
26.05.2020 800693-5 Kathrin Stross	559150	0002014233	0010008360		
Product		Seamless stainless SANDVIK HPT Steel Tubes			
Nominal Dimension & Tolerances				Results dimensional test	
				min.	max.
OD	+ 0.100 mm + 0.004 inch	8.000 mm 0.315 inch	- 0.100 mm - 0.004 inch	7,90	7,93
ID		6.000 mm 0.236 inch			
WT	+ 10.00 %	1.000 mm 0.039 inch	- 10.00 %	0,93	1,00
Single length		100000,0 - 150000,0 mm			
Material Requirements		1.4435/TP316L/3R60 ASTM A213/A213M-19, ASTM A269-15a, DIN EN 10216-5 03/14 TC1 , NACE MR0175/ISO 15156-3:2015			
Finish		CFA, bright annealed			
Marking					
SANDVIK 3R60 WNR 1.4435/TP316L EN 10216-5 TC1 ASTM A213 AW/A269 CF M S TC1 8.0x1.0 mm Heat 559150 Lot 0002014233 Made by Sandvik in Germany *QA-TUBE*					

Quantity	PCS	M / FT	KG / LBS	
	24	3557.594    11671.90	588.900	1298.28

0002014233

Chemical composition

Heat No.		559150																																
		C	Si	Mn	P	S	N	Cr	Cu	Mo	Nb	Ni	Ti	Pre-value																				
Heat		0.019	0.38	1.64	0.035	0.009	0.041	17.25		2.61		13.16		26.48 %																				
Product		0.020	0.40	1.62	0.035	0.009	0.043	17.21		2.6		13.13																						
		Ta	Nb+Ta	W	Co	V	Al	O	Fe	B	Ca	Mg	Pb	Ce	As	Sb	Sn																	
Heat																																		
Product																																		
Inclusion content	A:	th			B:			th			C:			th			D:			th			EB			th			ED					
		h			h			h			h			h			h			h			h			h			h					

Mechanical tests

	0,2% - Yield Strength		1% - Yield Strength		Tensile Strength		Elongation %		Elongation at max. force	Reduct of Area	Hardness
	MPa	KSI	MPa	KSI	MPa	KSI	A%	A2"	Ag %	Z%	HRB max. 90/ HRC max. 22
1	222	32.197	260	37.708	537	77.882	50.2	48,0			66/<20
2	223	32.342	262	37.998	537	77.882	51.0	48,8			65/<20
3	221	32.052	260	37.708	537	77.882	51.0	48,2			64/<20
4	224	32.487	262	37.998	537	77.882	50.2	47,0			63/<20
5	224	32.487	263	38.143	537	77.882	53.6	51,6			64/<20
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**Tensile test at elevated / low temperature**

	temperature °C	0.2% - Yield Strength		1% - Yield Strength		Tensile Strength		Elongation %
		MPa	KSI	MPa	KSI	MPa	KSI	
1								
2								
1								
2								
1								
2								
1								
2								

**Impact test**

	temperature °C	Impact energy KV J	Average J	Lateral expansion mm		Average mm
				min	max	
1						
2						
3						
4						
5						
6						

**Surface roughness**

	Roughness outside OD				Roughness inside ID			
	axial		radial		axial		radial	
	min	max	min	max	min	max	min	max
µm								
Ra								
Rq								
Rz								
Rt								
Rmax								
%								
tpa								
µin								
RMS								
CLA								

**Corrosion tests**

<b>ASTM G48</b>	
<b>Weight loss</b>	<b>Visual test 20X magnification</b>
<b>ASTM G28</b>	
<b>Corrosion rate</b>	

**Grain size**

Requirement	Result

**Surface imperfections**

Test position	Requirement	Result
ID		
OD		

0002014233

## Following tests were performed satisfactory:

	Tests	Requirements
1	yield strength Rp 0,2	Dehngrenze Rp 0,2
2	yield strength Rp 1,0	Dehngrenze Rp 1,0
3	tensile strength Rm	Zugfestigkeit Rm
4	elongation	Dehnung
5	hardness	Härte
6	flaring test	Aufweit
7	flattening test	Ringfalt
8	eddy current test	Wirbelstromprüfung
9	procedure: eddy current test	Arbeitsanweisung: WS-Prüfung
10	inspection certificate	Zeugnis Art
11	Source of raw material	Ursprung
12	Dimension and visual inspection	Maß- und Sichtprüfung
13	Melting process	Erschmelzungsart
14	Production	Produktion
15	Alloy verification	Materialverwechslungsprüfung
16	Heat treatment	Wärmebehandlung
17	Weld repairs	Schweißreparaturen
18	Radioactivity	Radioaktivität
19	Mercury	Quecksilber
20	Contact	Kontakt
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The delivered products comply with the requirements of the order.

2020-11-30

Jonas Gührs

Quality assurance inspector

This certificate is produced electronically and is valid without signature.