

**SANDVIK**

Sandvik Materials Technology

Product Area Tube

P.O. Box 1220, Scranton, PA, PA US 185011220, Ph: 570-585-7500

**MATERIAL CERTIFICATE**www.smt.sandvik.com  
www.smt.sandvik.com/nafta

Cert#: 201532972

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**SS-TZ-S-35-20**

Plant Location: 982 Griffin Pond Road, Clarks Summit, PA 18411

Sold To: 8442

SWAGELOK MANUFACTURING COMPANY

INDEPENDENCE OH

Customer Order No: X99336

Sandvik Order No: 303941/1

Ship To:

EDMONTON VALVE &amp; FITTING INC

EDMONTON AB

Certification Date: 20151029

Work Order/Lot: 180542

SWAGELOK SMS-00333 Rev. D, ASTM A632-04

Cold Finished BRIGHT ANNEALED Seamless Tube  
Type TP316/TP316L (UNS S31600/S31603)

Size: .125" OD X .055" ID

Heat: 538081

## ANALYSIS %

	C	Si	Mn	P	S	Cr	Ni
Heat	.018	.40	1.49	.030	.011	17.34	13.11
Prod	.018	.39	1.47	.029	.008	17.27	13.05
	Fe	Mo	Cu	Pb			
Heat		2.55	.34				
Prod		2.52	.33				

## Mechanical Tests:

Yield Strength				Tensile Strength		Elongation in %			Reduction Of Area
0.2%		1.0%				E2"	E10"	E4d	E5d
psi	MPa	psi	MPa	psi	MPa				%
38430	265.0		N/A	77880	537.1	39	N/A	N/A	N/A
35580	245.4			77880	537.1	40			

Hardness Test Results: 73HRBW, 73HRBW, 73HRBW, 70HRBW, 70HRBW, 73HRBW

Flare Test per ASTM A450/A1016 and ASME SA450/SA1016,

No. samples: 2 Result: Acceptable

Flattening Test per ASTM A450/A1016 and ASME SA450/SA1016:  
Acceptable

Tensile Test sample width (1=Full-Size 2=1/2" Strip): 1

Country Of Origin: Germany

100% Positive Material Identification performed

All material subjected to a final solution annealing heat treatment with material at a temperature of 1900 deg. F minimum followed by rapid quenching to below 800 deg. F in less than three (3) minutes.

The material has not come in contact with Mercury or Mercury containing compounds.

No welding has been performed on this material.

Material has been eddy current tested in accordance with ASTM A450, ASTM A1016 and is acceptable.

Material is capable of passing the ASTM A262 Practice "E".

Inspection certificate produced in accordance with

EN 10204 3.1 (formerly EN 10204 3.1.B).

No unauthorized alterations. The contents of this Inspection

Certificate may not be modified or revised in any way

without the prior written approval of Sandvik Materials

Technology. Unauthorized alterations to the Inspection

# MATERIAL CERTIFICATE

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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 EN 10204:2004, Section 6. Contravention of this notice will be prosecuted to the fullest extent of the applicable law(s).

Material has been manufactured/supplied in accordance with Sandvik Materials Technology Quality Manual-Standard Products Revision 16 dated Jan. 12, 2015. Quality system has been approved to ISO 9001:2008 (Cert# GBG0000502,30AU16) No unauthorized alterations. The content of this inspection certificate may not be modified or revised in any way without the prior written approval of 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.

Contravention of this notice will be prosecuted to the fullest extent of the applicable laws/

This is to certify that the contents of this certificate are correct and accurate as contained in Sandvik's records, and that all above test results and operations performed are in compliance with the requirements of the purchase order and the specification(s) listed above.

Electronically Generated Certificate-Valid without signature  
John Scherer, Quality Mgr-Tube  
10 (SWINST=1/8-316 R0) (10) CF (MD0249)