



Purchaser GRANDE PRAIRIE FLUID SYSTEM TECHNOLOGIES INC
Address 118 COMMERCE DRIVE, R3P 0Z6, WINNIPEG, Manitoba, Canada
Customer Order 8004952
DMV Ref. Order 287805-9
Part No. SS-T16-S-083-20

Product
Seamless Stainless Steel Cold Finished Tubes Annealed In Bright Condition Plain Ends Square Cut Deburred

Specification ASME SA 213 17;ASTM A 213 18 B;ASTM A 269 15;SWAGELOK SCS-00062 REV.C;NACE
Grade MR0175/ISO15156
Tolerances TP 316; TP 316L; DMV 316L
Marking A 213 / A 1016 AW; ASTM A 269
MANNESMANN MST-U A/SA-213 A-269 TP316/TP316L 1.000 X .083AW SML CF ET HT(XXXX)
PHU(XXXX) QL(XXXX) USA

Heat	Pieces	Weight		Total Length		O.D	W.Th.	Length
358850	84	1,373.00	LBS	1,680.00	FT	1.000"	0.083"	20.00'-20.01' FL
367860	25	409.00	LBS	500.00	FT	1.000"	0.083"	20.00'-20.01' FL
370270	16	261.00	LBS	320.00	FT	1.000"	0.083"	20.00'-20.01' FL
	125	2,043.00		2,500.00				

Product Analysis ASTM A 213 // ASME SA 213 // ASTM A 269

Chemical Analysis (%)	Heat No.	358850	Melt Process	EAF+VOD		Country of melt	Germany	
	<u>C</u>	<u>Si</u>	<u>Mn</u>	<u>P</u>	<u>S</u>	<u>Cr</u>	<u>Ni</u>	<u>Mo</u>
Min	0.0000	0.0000	0.0000	0.0000	0.0050	16.0000	10.0000	2.0000
Max	0.0350	1.0000	2.0000	0.0450	0.0150	18.0000	14.0000	3.0000
HEAT	0.0170	0.4100	1.4700	0.0240	0.0100	16.7000	11.3000	2.1000
Product	0.0170	0.4100	1.4700	0.0240	0.0100	16.7000	11.3000	2.1000

Chemical Analysis (%)	Heat No.	367860	Melt Process	EAF+VOD		Country of melt	Germany	
	<u>C</u>	<u>Si</u>	<u>Mn</u>	<u>P</u>	<u>S</u>	<u>Cr</u>	<u>Ni</u>	<u>Mo</u>
Min	0.0000	0.0000	0.0000	0.0000	0.0050	16.0000	10.0000	2.0000
Max	0.0350	1.0000	2.0000	0.0450	0.0150	18.0000	14.0000	3.0000
HEAT	0.0200	0.4100	1.4300	0.0240	0.0070	16.8000	11.3000	2.1000
Product	0.0180	0.4100	1.4400	0.0290	0.0080	16.8000	11.4000	2.2000

Chemical Analysis (%)	Heat No.	370270	Melt Process	EAF+VOD		Country of melt	Germany	
	<u>C</u>	<u>Si</u>	<u>Mn</u>	<u>P</u>	<u>S</u>	<u>Cr</u>	<u>Ni</u>	<u>Mo</u>
Min	0.0000	0.0000	0.0000	0.0000	0.0050	16.0000	10.0000	2.0000
Max	0.0350	1.0000	2.0000	0.0450	0.0150	18.0000	14.0000	3.0000
HEAT	0.0170	0.4500	1.5000	0.0250	0.0100	17.3000	11.4000	2.2000
Product	0.0170	0.4500	1.5000	0.0250	0.0100	17.3000	11.4000	2.2000





Mechanical and Metallurgical Properties

TENSILE TEST AT ROOM TEMPERATURE

ASTM A 370

Direction: LONGITUDINAL

Description: FULL SIZE TEST SPECIMEN

QUALITY LOT	SAMPLE		Y.S. 0.2%	U.T.S	Elongation 2" Gage
	MIN	MAX	KSI 30	KSI 75	% 35
QL50020562	59036928		37.0	90.0	61.5
QL50020558	59036934		38.0	87.0	66.6
QL50020564	59036940		41.0	93.0	59.0

HARDNESS TEST (HRB 90 MAX)

ASTM A 370

QUALITY LOT	SAMPLE	Result	Min	Max	Avg
QL50020562	59036929		70.00	76.00	73.00
	59036930		70.00	76.00	73.00
QL50020558	59036935		80.00	81.00	80.50
	59036936		80.00	81.00	80.50
QL50020564	59036941		75.00	82.00	78.50
	59036942		75.00	82.00	78.50

Flaring Test

ASTM A 1016	SAMPLE	Result
QL50020562	59036928	OK
QL50020558	59036934	OK
QL50020564	59036940	OK

Flattening Test

ASTM A 1016	SAMPLE	Result
QL50020562	59036928	OK
QL50020558	59036934	OK
QL50020564	59036940	OK

Corrosion Test

ASTM A 262 Practice E	SAMPLE	Result
QL50020562	59036928	Satisfactory

QL50020558	59036934	Satisfactory
QL50020564	59036940	Satisfactory

Mannesmann Stainless Tubes USA - ISO Cert - ABS 30788



 <p>MANNESMANN STAINLESS TUBES A Member of the Salzgitter Group</p>	<p>Mannesmann Stainless Tubes USA, Inc. 12050 West Little York Houston Texas USA 77041 www.smst-tubes.com INSPECTION CERTIFICATE 3.1 - EN 10204 : 2004</p>	<p>No 287773-9 Rev. 01 Page 3/3</p>
--	---	---

Other tests and declarations

Heat Treatment	1950 ⁰ F	Bright Annealed	Rapid Gas Cooling
Antimixing Check (PMI) on 100% of tubes			OK
Visual and dimensional inspection (VT) on 100% of tubes			OK
Eddy Current tested 100% in accordance with ASTM E-426/ 12-1/2% Notch			OK
Tubes are free from mercury contamination and from radioactive contamination			
No weld repair			
SMST-Tubes declares that the product is in compliance with the order			

Validation by manufacturer's representative
Quality Compliance Specialist Noel Villatoro
Date October 24, 2022

Confirmation with reference to Pressure Equipment Directive 97/23/EC:

The works operates a quality management system that has undergone a specific assessment for the materials for the pressure equipment and is certified by a competent body ABS Certificate 42608

This certificate is issued by a computerized system and is valid without a signature. In case the owner of the original certificate would release a copy of it, he must attest its conformity to the original one, taking upon himself the responsibility for any unlawful or not allowed use. Any alteration and/or falsification will be subjected to the law.

Mannesmann Stainless Tubes USA - ISO Cert - ABS 30788

