



Purchaser GRANDE PRAIRIE FLUID SYSTEM TECHNOLOGIES INC
Address 118 COMMERCE DRIVE, R3P 0Z6, WINNIPEG, Manitoba, Canada
Customer Order 8005275
DMV Ref. Order 288202-15
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	41	670.00	LBS	820.00 FT	1.000"	0.083"	20.00'-20.01' FL
367860	185	3,021.66	LBS	3,700.00 FT	1.000"	0.083"	20.00'-20.01' FL
	226	3,691.66		4,520.00			

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





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
QL50020563	59036946		39.0	88.0	62.8
QL50020504	59036952		40.0	92.0	65.7
QL50020550	59036958		41.0	91.0	61.5
QL50020505	59036964		39.0	90.0	59.9
QL50020564	59036970		41.0	93.0	59.0
QL50020562	59036976		37.0	90.0	61.5
QL50020556	59037012		39.0	91.0	63.9
QL50020557	59037018		40.0	90.0	66.1

HARDNESS TEST (HRB 90 MAX)

ASTM A 370

QUALITY LOT	SAMPLE	Result	Min	Max	Avg
QL50020563	59036947		70.00	85.00	77.50
	59036948		75.00	80.00	77.50
QL50020504	59036953		69.00	72.00	70.50
	59036954		69.00	72.00	70.50
QL50020550	59036959		74.00	79.00	76.50
	59036960		74.00	79.00	76.50
QL50020505	59036965		75.00	78.00	76.50
	59036966		75.00	78.00	76.50
QL50020564	59036971		75.00	82.00	78.50
	59036972		75.00	82.00	78.50
QL50020562	59036977		70.00	76.00	73.00
	59036978		70.00	76.00	73.00
QL50020556	59037013		78.00	80.00	79.00
	59037014		78.00	80.00	79.00
QL50020557	59037019		66.00	73.00	69.50
	59037020		66.00	73.00	69.50

Flaring Test

ASTM A 1016	SAMPLE	Result
QL50020563	59036946	OK

QL50020504	59036952	OK
QL50020550	59036958	OK
QL50020505	59036964	OK
QL50020564	59036970	OK
QL50020562	59036976	OK
QL50020556	59037012	OK
QL50020557	59037018	OK

Flattening Test

ASTM A 1016	SAMPLE	Result
QL50020563	59036946	OK
QL50020504	59036952	OK
QL50020550	59036958	OK
QL50020505	59036964	OK
QL50020564	59036970	OK
QL50020562	59036976	OK
QL50020556	59037012	OK
QL50020557	59037018	OK

Corrosion Test

ASTM A 262 Practice E	SAMPLE	Result
QL50020563	59036946	Satisfactory
QL50020504	59036952	Satisfactory
QL50020550	59036958	Satisfactory
QL50020505	59036964	Satisfactory
QL50020564	59036970	Satisfactory
QL50020562	59036976	Satisfactory
QL50020556	59037012	Satisfactory
QL50020557	59037018	Satisfactory



MANNESMANN
STAINLESS TUBES

A Member of the Salzgitter Group

Mannesmann Stainless Tubes USA, Inc.

12050 West Little York

Houston Texas USA 77041

www.smst-tubes.com

INSPECTION CERTIFICATE 3.1 - EN 10204 : 2004

No

288202-15

Rev. 01

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Other tests and declarations

Heat Treatment	1950⁰ 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.

