

# el Certificate of Test

1835 Dueber Ave. S.W.  
Canton, Ohio 44706

# TIMKEN STEEL



ID #0498397-1

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5/10/2019

Body

R 77+023

Mixer

Customer Order: P942115-423 20587 BAY 3 DIVERT Customer Part Number: 120587  
Mill Order: 35905-F (2182160) Heat Number(s): W5949

### Description of Material

OD: 8.500 in (215.900 mm) WALL: 1.000 in (25.400 mm) ID: 6.500 in (165.100 mm)  
Shape: RD  
Prod Type: TUBE  
Sales Type: 1026  
Int Quality: ULTRASONIC  
Condition: HOT ROLL - SCALE FREE

### Specification

- ASTM A 106 / A 106M GRADES B & C Rev. 18 05/01/2018 EXCEPT AS NOTED
- ASTM E 213 Rev. 14e1 06/01/2014 FOR NONDESTRUCTIVE ELECTRIC TESTING
- ASTM A 519 / A 519M Rev. 17 06/01/2017
- ASTM E 309 Rev. 16 06/01/2016 EXCEPT AS NOTED
- EUROPEAN STANDARD EN 10204 12/17/2004 TYPE 3.1 INSPECTION CERTIFICATE

### Chemistry Information

	%C	%Mn	%P	%S	%Si	%Cr	%Ni	%Mo	%Cu	%Al	%V
SPEC Ladle Min:	.22	.60			.10						
SPEC Ladle Max:	.28	.90	.030	.035		.40	.40	.15	.40		.080
W5949 Ladle:	.27	.86	.006	.020	.26	.06	.09	.03	.14	.028	.001

Testing of elements performed at TimkenSteel Chemistry Labs except where noted.

### Metallurgy Information

SPEC: Chemistry CR+NI+MO+CU+V 1.000 Max  
Heat W5949 CR+NI+MO+CU+V: 0.321

SPEC: Flattening

Material is capable of meeting flattening requirements of ASTM A106 and ASME SA106.

SPEC: Hardness ASTM E10 (Info Only)

Heat	Piece#	1	UOM
W5949	6050059	HARDNESS	171 BRINELL
	6050059	LOCATION	MID BRINELL

When shipping document is attached it becomes part of this certification.

We certify the above materials have been inspected and tested in accordance with the methods prescribed in the governing specifications and consistent with our Standard Commercial Terms and Conditions for Sale, Manufacture, and Shipping, which are incorporated into and made part of this certification. The results of such inspections and tests conform with the applicable requirements including the purchase order, specification(s) and exception(s). This certificate or report shall not be reproduced except in full, without the written approval of TimkenSteel Corporation.

Notarized: \_\_\_\_\_  
NOTARY PUBLIC

by *Lisa Bucklew*  
Lisa Bucklew, METALLOGRAPHER

TimkenSteel Corporation

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## Metallurgy Information

SPEC: Tensile ASTM E8 TENSILE 70,000 Min STRENGTH UOM PSI YIELD .2 40,000 Min MIN ELONGATION 22.0  
Min GAUGE LENGTH 2 IN SHAPE ROUND DIRECTION LONGITUDINAL TEMPERATURE ROOM LOCATION MID

Heat	Piece#	Tensile Strength	UOM	.2% Yld Strength	Elong%	Gauge Length	%Red	Specimen	Direction	Temp	Location
W5949	6050058	78,797	PSI	42,200	29.7	2 IN	58.0	.505" RD	LONG.	RT	MID

All Hardness and Tensile testing performed at TimkenSteel Metallurgical Lab except where noted.

Heat W5949 Melt Source: USA  
Manufacturing: USA  
Strand Cast Process  
REDUCTION RATIO - 18.3:1

THE OD/ID SURFACES OF THE MATERIAL WERE UT/ET INSPECTED IN THE LONGITUDINAL DIRECTION TO A NOTCH DEPTH OF 10% OF WALL OR 0.025", WHICHEVER IS GREATER, AND 1.0" IN LENGTH IN ACCORDANCE WITH ASTM E213 AND ASTM E309 - RESULTS SATISFACTORY

Ultrasonic in lieu of hydrostatic testing - Satisfactory.

DFARS 252.225-7008 AND 252.225-7009 COMPLIANT (FORMERLY DFARS 252.225-7014)

TimkenSteel certifies that there is no mercury or radio-active material used in the melting or processing.

NAFTA - YES

No welding of this material has occurred.

MATERIAL WAS ELECTRIC FURNACE MELTED, VACUUM DEGASSED AND LADLE REFINED

Material has not been exposed to radioactivity.

Material melted and produced in the USA

In reference to Section 1502 ("Conflict Minerals") of the Dodd-Frank Wall Street Reform and Consumer Protection Act, no tantalum, tin, tungsten or gold was intentionally added to this material.