

Steel Certificate of Test

1835 Dueber Ave. S.W.
Canton, Ohio 44706
ID #0377014-1

TIMKEN STEEL 

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9/30/2014

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Customer Order: Customer Part Number: 06.000X1.125P
Mill Order: 48598-E (1941035) Heat Number(s): J4420

Description of Material

OD: 6.000 in (152.400 mm) WALL: 1.125 in (28.575 mm) ID: 3.750 in (95.250 mm)

Shape: RD

Sales Type: 4140

Int Quality: ELECTRIC FURNACE-VACUUM DEGAS

Condition: HOT ROLL - QUENCH - TEMPER - STRESS FREE - SCALE FREE

Specification

- BAKER BMS A137 Rev. N 12/03/2013 EXCEPT AS NOTED

Chemistry Information

	%C	%Mn	%P	%S	%Si	%Cr	%Ni	%Mo	%Cu	%Al
SPEC Ladle Min:	.38	.75			.15	.80		.15		
SPEC Ladle Max:	.43	1.00	.025	.015	.35	1.10	.25	.25		
J4420 Ladle:	.41	.99	.008	.012	.27	1.00	.15	.15	.19	.024

Metallurgy Information

SPEC: Grain Size SIZE 5/FINER
5/finer

SPEC: Hardness UOM ROCKWELL C HARDNESS 30 Min 36 Max LOCATION SURFACE

Heat	Piece#	1	UOM
J4420	2535449	HARDNESS 35	ROCKWELL C
	2535449	LOCATION SURFACE	ROCKWELL C
	2535485	HARDNESS 33	ROCKWELL C
	2535485	LOCATION SURFACE	ROCKWELL C
	2535519	HARDNESS 33	ROCKWELL C
	2535519	LOCATION SURFACE	ROCKWELL C
	2535522	HARDNESS 33	ROCKWELL C
	2535522	LOCATION SURFACE	ROCKWELL C
	2535590	HARDNESS 31	ROCKWELL C
	2535590	LOCATION SURFACE	ROCKWELL C

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 *Susan Bender*

Susan Bender, SUPERVISOR-PROD MET LAB

TimkenSteel Corporation

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Customer Order:

Customer Part Number: 06.000X1.12Sp

Mill Order:

48598-E (1941035)

Heat Number(s):

J4420

Metallurgy Information

SPEC: Impacts DIRECTION LONGITUDINAL ENERGY AVERAGE 30 Min ENERGY INDIVIDUAL 20 Min ENERGY UOM FT-LBS
LOCATION MID TEMPERATURE +32 TEMPERATURE SCALE F
FT-LBS

Heat	Piece#	Temp	1	2	3	Direction	Location
J4420	2535451	+32 F	57	54	54	LONG.	MID
	2535486	+32 F	57	56	56	LONG.	MID
	2535518	+32 F	52	51	51	LONG.	MID
	2535523	+32 F	52	53	53	LONG.	MID
	2535619	+32 F	55	51	52	LONG.	MID

SPEC: Tensile TENSILE 125,000 Min STRENGTH UOM PSI YIELD .2 110,000 Min MIN ELONGATION 13.0 Min GAUGE
LENGTH 4 x Diameter MIN REDUCTION IN AREA 40.0 Min SHAPE ROUND DIRECTION LONGITUDINAL
TEMPERATURE ROOM LOCATION MID

Heat	Piece#	Tensile Strength	.2% Yld UOM	Strength	Elong%	Gauge Length	%Red	Specimen	Direction	Temp	Location
J4420	2535451	153,030	PSI	136,586	16.9	2 IN	57.7	0.5050	RD	LONG.	RT MID
	2535486	153,700	PSI	138,390	16.1	2 IN	56.8	0.5050	RD	LONG.	RT MID
	2535518	158,420	PSI	143,296	16.8	2 IN	57.6	0.5050	RD	LONG.	RT MID
	2535523	156,100	PSI	140,486	16.4	2 IN	57.4	0.5050	RD	LONG.	RT MID
	2535619	157,640	PSI	143,031	16.2	2 IN	57.1	0.5050	RD	LONG.	RT MID

Heat J4420 Melt Source: USA
Manufacturing: USA

REDUCTION RATIO - 45.5:1.

No welding of this material has occurred.

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.