

A ThyssenKrupp  
Stainless  
Company

# ThyssenKrupp VDM USA, INC.

14255 Mt. Bismark St., Reno, NV 89508  
Telephone: 775 972 0272, Fax: 775 677 2510



TRACER# 179502

187222

Customer: ROLLED ALLOYS  
125 WEST STERN ROAD  
TEMPERANCE, MI, USA  
48182

### MATERIAL CERTIFICATION

Attn.:

P38531-1N

PAGE 1 OF 1

Customer Order No.	Order Date	Cert Date	Shop Order	Alloy
H19346 #5	08/18/2008	11/25/2008	P38531-1	625 (UNS N06625)

Specification(s): AMS 5666F, ASTM-B-446-03 GRADE 1, ASTM-SB-446-04 GR. 1, S400 10/31/07, S-1000 1/02/08, RR9000: SABRe

Quantity (Pcs./Wt.): 1 BDL / 2193 LBS	Size or Dwg. Number: 2.250" RD. X 12' R/L
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Heat Number: 187222

Melt Method: VIM/ESR

Chemical Analysis: Remelt Ingot

Raw Material Source: Melted at ThyssenKrupp VDM USA/FP

C	Mn	Si	P	S	Cr	Ni	Co	Mo	Nb + Ta
0.035	0.19	0.174	0.006	0.001	22.27	60.90	0.17	8.71	3.40
Ti	Al	Fe	Nb	Ta					
0.24	0.17	3.64	3.40	0.004					

Chemistry source: ThyssenKrupp VDM USA T5985, 306 Columbia Turnpike, Florham Park, NJ 07932-1217

#### Mechanical and Metallurgical Tests:

Condition	Temp. (F)	UTS (ksi)	YS (.2%) (ksi)	%EL.
A	RT	139.0	74.5	46.0

Tensile test specimen was machined and tested by Stork Materials Technology, 15062 Bolsa Chica, Huntington Beach, CA 92649

#### MILL THERMAL TREATMENT (AS SHIPPED CONDITION)

A.) 1700F, 1 hour, water quench

Grain size: ASTM No. 9.0

Micro No.: HH2835U Etchant No. 23

Hardness: 241 HBW

#### ROLLED ALLOYS QUALITY ASSURANCE

Approved: [Signature]  
Date: 12-03-08

Grain size determined in accordance with ASTM-E-112-96 (2004)

Material is free of mercury contamination

Hardness and metallography performed by ThyssenKrupp VDM USA/Reno T5978

Mill certification in accordance with EN 10204:2004 Type 3.1

Conforms to specification requirements.

NAFTA - YES

NAFTA Country of Origin: US

[Signature] DONALD ARTIERI, QA TECH MGR  
25 NOV '08  
Donald Artieri Senior Quality Supervisor

The test results shown above are certified to be true and in accordance with specification requirements and records maintained in our files. The recording of false, fictitious, or fraudulent statements or entries on the certificate may be punished as a felony under federal law. The test report shall not be reproduced except in full, without the written approval of ThyssenKrupp VDM USA, Inc.

## ROLLED ALLOYS

Performance: We certify that the above material meets order and material specifications.

3d. Windsor, CT 06095

Customer: ROLLED ALLOYS-CANADA, INC.

P.O.# DARKO DS  
2-1/4" DIA ROUND BAR 625  
Tracer No. (179502)

Date

Shpr-H56158 03/20/2009  
1 PC X 1'  
Heat No. (187222)