

In One!

186851

ROLLED ALLOYS QUALITY ASSURANCE

Approved: Debra Trainor
Date: 03-05-09

A ThyssenKrupp
Steels
Company

ThyssenKrupp VDM USA, INC.

12220, 12220, 12220, NY 07000
Telephone: 775 872 0272 Fax: 775 677 2010

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

Attn: **TRACER# 176449**

REVISED

MATERIAL CERTIFICATION

+ADDED CHEMISTRY RESULTS 2/27/2009
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P38351-1N

Customer Order No.	Order Date	Cert Date	Shop Order	Alloy
H19243 #7	06/13/2008	09/22/2008	P38351-1	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 / 2134 LBS
Size or Dwg. Number: 3.250" RD. X 12" R/L

Heat Number: 186851
Chemical Analysis: Remelt Ingot

Melt Method: VIN/ESR
Raw Material Source: Melted at ThyssenKrupp VDM USA/FP

C	Mn	Si	P	S	Cr	Ni	Co	Mo	Nb + Ta
0.028	0.19	0.158	0.007	0.001	22.20	60.67	0.15	8.81	3.50
Ti	Al	Fe	Nb	Ta	Cu+	B+	Mg+		
0.31	0.15	3.73	3.49	0.006	0.071	0.002	0.003		

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)	SEL.	FR.A.
A	RT	134.0	73.0	50.0	60.0

Tensile test specimen was machined and tested by
Dickson Testing Company, Inc., T2981 11126 Palmer Avenue South Gate, CA 90280

MILL THERMAL TREATMENT (AS SHIPPED CONDITION)

A.) 1700F, 1 hour, water quench
Grain size: ASTM No. 9.5
Micro No.: HH2261U Etchant No. 23
Hardness: 241 HBW

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

Donald Arteri 2/27/09
Donald Arteri / 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

Certification of Conformance: We certify that the above material meets all requirements of the purchase order and material specifications.

30 Baker Hollow Rd. Windsor, CT 06095

Customer: ROLLED ALLOYS-CANADA, INC.
P.O. # DARKO US
3-1/4" ROUND BAR CG 625
Tracer No. [176449]
Snpr-H56158
2 PC X - 3/4"
Heat No. [186851]

Date: 03/20/2009