

3.125" rd 316/316L ht-150989

37BR 40

CERTIFICATE OF TESTS

CERT SERIAL# 000451407

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE



TALLEY METALS
A Carpenter Company

Talley Metals Technology, Inc.
P.O. Box 2496
Hartsville, SC 29551 Tel. 843.395.7540 Fax. 843.335.6465

- THE RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 47.
- THE VALUES AND OTHER TECHNICAL DATA REPRESENT THE RESULT OF ANALYSES AND TESTS MADE ON SAMPLES COLLECTED FROM THE TOTAL LOT. ORIGINAL DATA RECORDS CAN BE TRACED BY REFERENCE TO THE CALIBRATOR ORDER NUMBER.
- MATERIAL IS MANUFACTURED FREE FROM MERCURY, RADIUM, ALPHA AND GAMMA SOURCE CONTAMINATION.
- THIS DOCUMENT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN CONSENT OF CARPENTER TECHNOLOGY CORPORATION.

06/01/04

CUSTOMER / BESTELLER / CLIENT

SELLER / VERKÄUFER / VENDEUR PAGE - 1

A.M. CASTLE & CO
3400 N WOLF RD
FRANKLIN PARK , IL 60131

HVL

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./SERIES-NR./N° DE SÉRIEUSE INTERNE	DATE/DAUM/DATE	WEIGHT/GEWICHT/POIDS
10-45792-03	W54648	05/21/04	3565

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: 150989

PRODUCT DESCRIPTION: TYPE 316/316L STAINLESS ANNEALED ROUGH TURNED
PART NUMBER: IAC 48970

SPECIFICATION: CASTLE 3316-98 REV 20 (05/20/03)
 CO-S-763E AMD.1 (05/15/90) TYPES 316 AND 316L
 MIL-S-7720A AND 2 (07/26/74) COMP 316 EXCEPT COPPER .75 MAX.
 AMS J6648 REV H (05/95) UNS S31600
 AMS J6653 REV D (05/95) UNS S31603
 ASTM-A182-02 (CAPABLE OF)
 ASTM-A193-04 GRADE B8M
 ASTM-A276-03
 ASTM-A479-03
 ASME-SA182 2001 EDITION-A03 ADDENDA (CAPABLE OF)
 ASME-SA193 2001 EDITION GRADE B8M
 ASME-SA479 2001 EDITION

SIZE 3.125000 IN. (79.37 MM) RD BAR

PRIMARY HEAT CHEMISTRY (WT%):

C	MN	SI	P	S	CR
0.015	1.45	0.53	0.024	0.024	16.52
NI	MO	CU	CO	N	
10.10	2.05	0.34	0.15	0.06	

NO WELD REPAIR.

MATERIAL IS MANUFACTURED FREE FROM MERCURY, RADIUM AND ALPHA SOURCE CONTAMINATION.

SOLUTION ANNEALED AT 1900F MINIMUM, AND WATER QUENCHED.

INTERGRANULAR CORROSION TESTED TO ASTM-A262, PRACTICE E - ACCEPTABLE.

ANNEALED MICROSTRUCTURE FREE FROM CONTINUOUS GRAIN BOUNDARY CARBIDE PRECIPITATION (NETWORK).

THIS MATERIAL IS CAPABLE OF CONFORMING TO THE TECHNICAL REQUIREMENTS OF ASTM A 182.

DISCS MACROETCHED AND APPROVED

HARDNESS AS SHIPPED, HB

174

(MIDRADIUS)

YIELD STRENGTH, (0.20 %) KSI (MPA) 36.1 (249)
 TENSILE STRENGTH, KSI (MPA) 80.5 (555)
 ELONGATION IN 2.00", % 58.0
 REDUCTION OF AREA, % 78.0

CASTLE METALS-CLV
 DATE REC'D... 6-1-04
 REC. DOC. # 42515
 I.A.C. # 48970
 APPR'VD BY... [Signature]

CONTINUED ON NEXT PAGE

This certification is made as the consequence of the tests performed on this item. Carpenter Technology, Inc. does not warrant the specifications of this product. The user should consult the applicable specification for the full details of the test methods and procedures. Carpenter Technology, Inc. is not responsible for the results of tests performed on this product by other laboratories. © 2004 Carpenter Technology Corporation. All rights reserved.

FORM 10-11A

JUN 1 2004 10:20AM

CERTIFICATE OF TESTS

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE

CERT SERIAL# 000451407



TALLEY METALS
A Carpenter Company

Daley Metals Technology, Inc
P.O. Box 2486
Morgantown, SC 29551 Tel 843 335 7540 Fax 843 335 6465

- THE RECURRENCE OF FALSIFICATION OR FRAUDULENT STATEMENTS OR OMISSIONS ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 47.
- THE VALUES AND OTHER TECHNICAL DATA REPRESENT THE RESULTS OF ANALYSIS AND TESTS MADE ON SAMPLES COLLECTED FROM THE TOTAL LOT. ORIGINAL DATA RECORDS CAN BE TRACED BY REFERENCE TO THE PURCHASE ORDER NUMBER.
- MATERIAL IS MANUFACTURED FREE FROM MERCURY, NADIUM, ALPHA AND BETA RADIUM CONTAMINATION.
- THIS DOCUMENT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN CONSENT OF CARPENTER TECHNOLOGY CORPORATION.

06/01/04

CUSTOMER / BESTELLER / CLIENT

SELLER / VERKÄUFER / VENDEUR PAGE - 2

A.M. CASTLE & CO
3400 N WOLF RD
FRANKLIN PARK , IL 60131

HVL

CUSTOMER ORDER NO. / BESTELL-NR. / N° DE COMMANDE	CARPENTER NO. / MEIN-NR. / N° DE REPONSE INTERIE	DATE / DATUM / DATE	WEIGHT / GEWICHT / POIDS
10-45792-03	W54648	05/21/04	3565

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: 150989
GRAIN SIZE PER ASTM E112: 5

WE HEREBY CERTIFY THAT THE ABOVE TEST DATA ARE IN ACCORDANCE WITH THE PURCHASE ORDER AND SPECIFICATION REQUIREMENTS.

STEPHANIE E. MCCULLUM
QUALITY ASSURANCE ENGINEER
CARPENTER TECHNOLOGY CORPORATION

Stephanie E. McCullum

This certificate is made to the company named on the form. Carpenter Technology Corporation and its subsidiaries accept no responsibility for any misrepresentation or omission in other parts. Die vorliegende Bescheinigung ist nur für den in diesem Formular genannten Empfänger (Firma) gültig. Carpenter Technology Corporation und ihre Tochtergesellschaften übernehmen keine Verantwortung für die in anderen Teilen des Formulars enthaltenen Angaben. Cet certificat est établi pour un destinataire. Carpenter Technology Corporation and its subsidiaries accept no responsibility for any misrepresentation or omission in other parts.