

# Clean Service Certificate of Conformance

(Satisfies DIN EN 10204 3.1)

**Tescom**  
 12616 Industrial Boulevard  
 Elk River, MN 55330-2491  
 T (763) 441 6330  
 F (763) 241 3224  
 www.tescom.com

Tescom certifies the following articles furnished conform to Tescom's specifications and drawings, pressure rating criteria per ANSI/ASME B31.3 along with the technical requirements of the purchase order.  
 Tescom certifies that we do not use any animal bi-products in the manufacturing of these parts.  
 Articles are cleaned in accordance to the recommendations of ASTM G-93 and CGA-4.1 (Ref. Tescom's Specification ES 60295) which assures removal of visible particles and combustible residues. Care must be taken during installation to prevent either particle or combustible film contamination.

All internal stainless steel flow stream parts assembled in Tescom regulators and valves are electro-polished per Tescom specification ES5075.

Note: Specifications of materials in regulators for Oxygen Service is the USER's RESPONSIBILITY.  
 Electronic components and gauges are not cleaned to the above specification.

Tescom certifies the surface finish of the product is in conformance to 30 Ra\_\_ as specified on Tescom's specifications and drawings and that no polishing compounds were used in the manufacturing process.  
 Documentary evidence in the form of inspection records, process records, and material certifications are on file and available for review at Tescom.

Tescom Order Number: 516874

Customer PO: 50003362/97620DS

<u>Regulator Model Number(s)</u>	<u>Qty</u>	<u>Serial Number(s)</u>	<u>PVC Tag #</u> (if applicable)
PH16HC1GNADCCY	1	01417036	

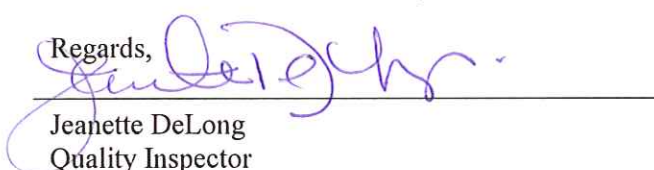
<u>Parts in Flow Stream</u>			
<u>Part</u>	<u>Part Number</u>	<u>Material</u>	<u>Reference</u>
BODY	#F63772-W16L0	316L SST	HEAT# B3V3
FITTING	#F66104-16	316L SST	HEAT # 525684
DIAPHRAGM	63102-03	GYLON	FDA / USP COMPLIANT
DIAPHRAGM PLATE	63666-6	316L SST	ASME SA479/ASTM A479
CONNECTOR	62886-N	NITRONIC 60	ASME A479/ASTM A479
ORIFICE	61761-6	316 SST	ASME A479/ASTM A479
SEAL	67728-3	TEFLON	FDA / USP COMPLIANT
SEAT	#F66752-05	E.P.	FDA / USP COMPLIANT
VALVE CAP	62568-6	316 SST	ASME SA479/ ASTM A479
VALVE INSERT	62569-6	316 SST	ASME SA479/ ASTM A479
VALVE	62567-6	316 SST	ASME SA479/ ASTM A479
O-RING	#F66251-050127	E.P.	FDA / USP COMPLIANT
SPRING	64745-A	ELGILOY	AMS 5833
O-RING	#F66251-059167	E.P.	FDA / USP COMPLIANT
BACK CAP	62884-6-A	316 SST	ASME SA479/ ASTM A479

In addition Tescom certifies the following checked box:

F.D.A

- Tescom certifies that the elastomer compounds from which we manufacture our parts comply with the F.D.A. requirements of 21 CFR 177. USP Class VI compliant and peroxide cured.
- If seats are made from Peek Optima or PTFE these are listed by the manufacturer being USP Class VI compliant.

Regards,

  
 Jeanette DeLong  
 Quality Inspector

8/10/2012

Date

TESCOM CORPORATION  
 INDUSTRIAL CONTROLS DIVISION  
 ELK RIVER, MINNESOTA

PRESSURE REDUCING  
 REGULATOR  
 DXXXXXXXXXXXX-XX  
 DXXXXXXXXXXXX-XX  
 PXXXXXXXXXXXX

TEST SHEET  
 NUMBER  
 TS6087

SHOP ORDER NO.  
 146494

TESTER:  
 10071 89-12

OUTLET PRESSURE

TEST SPECIFICATIONS

INLET PRESSURE: 300 PSIG.

OUTLET PRESSURE: SEE TABLE.

PROOF PRESSURE-INLET: 150% OF RATED INLET PRESSURE FOR 10 SECONDS.

PROOF PRESSURE-OUTLET: 150% OF RATED OUTLET PRESSURE FOR 10 SECONDS.

LEAKAGE-INTERNAL: BUBBLE TIGHT FOR 60 SECONDS MINIMUM AT RATED INLET PRESSURE.

LEAKAGE-EXTERNAL: BUBBLE TIGHT FOR 60 SECONDS MINIMUM AT RATED OUTLET PRESSURE.

CREEP PRESSURE: SEE TABLE.

LOW DIFFERENTIAL CREEP: TEST NOT TO EXCEED .5 PSI. ✓

FUNCTIONAL TEST: CREEP AND DROOP NOT TO EXCEED TABLE. ✓

DASH NO.	OUTLET PRESSURE	MAXIMUM CREEP	MAXIMUM DROOP
0	20 PSIG	.5 PSIG	3 PSIG
1	50 PSIG	.5 PSIG	5 PSIG
2	100 PSIG	1 PSIG	10 PSIG
3	150 PSIG	1.5 PSIG	10 PSIG
5	250 PSIG	2 PSIG	15 PSIG
D	300 PSIG	3 PSIG	10 PSIG

MODEL NUMBER  
 PH16HC16NA00CY

SERIAL NO. OR DATE CODE

01417036  
 Creep 1.3  
 Creep .0

Low Creep .0

REV.	DATE	ECO NO.	APPR.
J	01/28/09	1003-09	TWL

REVISION

CERTIFICATION

THE ABOVE PRODUCT HAS BEEN TESTED IN ACCORDANCE WITH TESCOM SPECIFICATIONS

TESCOM CERTIFIES THAT THESE ARTICLES CONFORM TO THE SPECIFICATIONS LISTED HEREIN.

SPECIAL INSTRUCTIONS/COMMENTS:

\*DOME LOAD CREEP AND DROOP TEST TO BE RUN AT 300 INLET 250 OUT.

DHDXXXXXXXXXX-51: INLET PRESSURE 300 PSI, REF. PRESSURE 300 PSI MAX, OUTLET PRESSURE REF + BIAS NOT TO EXCEED 300 PSI, TEST OUTLET 150 PSI, DROOP 10 PSI, CREEP 1.5 PSI.

DHXXXXXXXXXXXX-65: INLET PRESSURE 250 PSI.

DHXXXXXXXXXXXX-67: INLET PRESSURE 265 PSI.

DHXXXXXXXXXXXX-68: INLET PRESSURE 200 PSI.

Q.A. CERTIFICATION

BY: *[Signature]* DATE: 8/10/12

TITLE: *[Signature]*



METALLURGICAL TEST REPORT

6870 Highway 42 East  
Ghent, KY 41045-9615  
(502) 347-6000

Certificate: 708080 01

Mail To:  
MARRON/KEYSTONE - CHICAGO  
1000 REMINGTON BLVD. - STE 305  
BOLINGBROOK IL 60440

Ship To:  
MARRON KEYSTONE - CHICAGO  
CUSTOMER PICKUP  
GHEHT KY 41045

Customer: 3550 029  
NAS Order: LN 80239 1  
Your Order: 61-15974

Item Code:

Date: 2/01/2012 Page: 1 of 1  
Steel: 316/316L  
Finish: Hot Finish  
Dia/Thk: 4.0000 in  
Leg Length: 144.00 in  
Corrosion: ASTM A262 Prac E OK

PRODUCT DESCRIPTION:

Round Bar, Hot Rolled, Annealed, Rough Turned  
UNS 31600/31603 EN 10204 3.1, ASTM A484/10  
ASTM A276/10, ASTM A479/10a, ASTM A182/10 CHEM ONLY,  
ASME SA479/10a, ASME SA182/10 CHEM ONLY  
AMS 5648K/AMS 5653G, AMS QQS-763B, QQS 763F  
NACE MR0175 (MID RADIUS ONLY), SOLUTION ANNEAL TEMP 1900F MIN

REMARKS:

COMPLIES W/REQUIREMENTS OF DEPARS EU DIRECTIVE 2002.95.  
EC. ROHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG IN USA  
FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

Heat	Supplier #	CM	C ✓	CO	CR ✓	CU	MN ✓	MO ✓	N	NI ✓	P ✓	S ✓
B3V3	US	.024	.22	16.56	.41	1.42	2.04	.042	10.52	.032	.0220	

CHEMICAL ANALYSIS CM(Country of Met) ES(Spain) US(United States) ZA(South Africa) JP(Japan)

ACTUAL CERTIFICATION

MECHANICAL PROPERTIES

Heat	Supplier #	CM	C ✓	CO	CR ✓	CU	MN ✓	MO ✓	N	NI ✓	P ✓	S ✓
B35986	RI	148.0	38.00	83.00	70.00	59.00						

PART # PH16HTGNADCCY  
DATE 8/10/19 INSP  
S/N 01417036

Q.C. REVIEWED

NAS hereby certifies that the analysis on this certification is correct and the material meets the specifications stated.

Technical Dept. Mgr.

ERIC HESS



# WELD DATA RECORD

Tescum  
12616 Industrial Boulevard  
Elk River, MN 55330-2491

T (763) 441 6330  
F (763) 241 3224  
www.tescum.com

Date: 07/10/2012

Reg. Serial No.(s): 01417036

Customer Order No.: \_\_\_\_\_

Shop Order No.: 145503

Body P/N:	<u>#F63772-W16LD</u>
Heat No.:	<u>B317 B343</u>
Receiver No.:	<u>082795</u>

Fitting P/N:	<u>#F66104-16</u>
Heat No.:	<u>525684</u>
Receiver No.:	<u>501079</u>

Fitting P/N:	_____
Heat No.:	_____
Receiver No.:	_____

Fitting P/N:	_____
Heat No.:	_____
Receiver No.:	_____

Weldment Drawing No.: #FL6810-DCC

Welding Description/Procedure: ASME - BPE

### Shielding Gas:

Argon: 99.998%

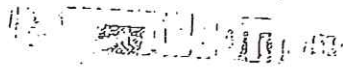
Helium: \_\_\_\_\_

Welded By: Dan Buccolin Date Welded: 7/18/12

Machine/Work Center No. or Welding Supplier: 9945 Auto Weld: Yes  No

Inspected By: [Signature] Date Inspected: 8/6/12

Method of Inspection: sight pipe, visual  
Borescope  Internal  External  Caliper



# Abbott Welding Supply

1000 North 1st Street, P.O. Box 111, Bradford, PA 16760  
716-367-4266, 109-141-6959  
sales@abbottwelding.com  
www.abbottwelding.com

Wall Keller  
Allegheny Bradford Corporation  
P O Box 200  
Route 219  
Bradford, PA 16701

Mr. Keller,  
This is to certify that the following cylinder of Argon supplied by Abbott Welding Supply  
will meet the following purity:

Assay	99.998%
Moisture	less than 2 ppm
Oxygen	less than 5 ppm
THC	less than 0.5 ppm

Cylinder Serial # 0410-461-M4

Date 7/18/12

Sincerely,

Mike Higgins, President  
Abbott Welding Supply

# TOPLINE

P.O. Box 264  
BRADFORD, PA 16701  
Ph: 800-458-6095  
814-362-4453

Order #: 00337205  
Reference: 193229  
Order Date: 7/10/2012

MILL TEST SUMMARY  
Customer: Tescom Corporation  
12616 Industrial Blvd.  
Elk River, MN 55330-2491

Part #: 98U3BOM  
Heat #: 525684  
#663011 WELD 1" FERRULES TO  
2-WAY VALVE 316L 20 RA

Qty: 1

316L

CHEMICAL COMPOSITION (WT%)										MECHANICAL PROPERTIES				
Carbon	Mang	Phospur	Sulfur	Silicon	Chrom	Nickel	Nitrogen	Moly	Copper	Hardness	Yield Strength	Tensile Strength	Elongation(%)	Reduction (%)
.008	1.660	.029	.008	.380	16.860	11.230	.064	2.030	N/A	133 HB	35.82 KSI	81.49 KSI	56	71
RAW MATERIAL SPECIFICATIONS														
ASTM A276														
EN 10204 3.1														
RoHS Directive 2002/95/EC														

We certify that the information contained in this Mill Test Summary was obtained from, and is a faithful representation of, the data furnished to us. The document from which this information was taken is on file in our office.

We certify that we have no knowledge of mercury or radioactive material used in the melting or processing of steel used in fittings sold by our company.

## CERTIFICATION FOR P/N

  
William D. Work  
Quality Control Manager

Date: 7/31/2012  
Time: 10:56 AM

# FL66104-16

Tuesday, July 31, 2012

09/26/2005 From: MARMON/KEYSTONE  
 M/K OR:  
 C.P.O.:  
 C PART:

To:

INIT.:

OR. REF:  
 SLSPRS:

*M.F. Marcano*

**O.C. REVIEWED**  
 DATE 11/3/03  
 INITIAL

M.F. Marcano, Quality Manager

**CERTIFICATION FOR P/N**  
 63266-6

We hereby certify that the chemical analysis and/or test results shown in this report are correct as contained in the records of the company. We herein could constitute a felony punishable under federal statutes. knowingly & willfully falsifying or concealing a material act on this form, or making false, fictitious or fraudulent statements or representations.

1/2/04

Element	Symbol	Value
Carbon	(C)	0.29
Phosphorus	(P)	0.23
Silicon	(Si)	0.33
Nickel	(Ni)	10.570
Copper	(Cu)	0.307
Nitrogen	(N)	0.066
Titanium	(Ti)	0.002
Tin	(Sn)	0.007
Columbium	(Cb)	0.008
Tantalum (Cb+Ta)	(Ta)	0.008
Iron	(Fe)	Balance
Mn	(Mn)	0.008
Balance	(Bal)	0.008
Refining practice	(RFP)	0.008
De-Long ferrite	(DL)	0.008

Test Condition	Value
Hardness as shipped	HRB 144
Hardness as tested	HRB 77
Elongation in 4D	49.6
Elongation in 4D	74.0

**MECHANICAL & OTHER TESTS**  
 Test condition: Hardness as shipped HRB 144, Hardness as tested HRB 77, Elongation in 4D 49.6, Elongation in 4D 74.0.  
 Macro: OK, Intergranular corrosion: OK, Nitro: OK, Grain size: 7.5, Hardness as tested: HRB 77.

**SPECIFICATIONS**  
 MS 5648K, 5653F, ASME SA479 B01, ASTM A276 03, ASTM A484 03A, ASTM A320 01 B8M CLASS 1, NACS MRO175-03 (MID RAD), PRODC QUANTITY, WATER QUENCHED, FREE OF MERCURY CONTAMINATION.  
 NO WELD REPAIR, SOL ANNEAL @ 1900 F MIN 90, ETD STD QQ-S-763F, ASTM A193 O1A B8M CLASS 1D, ASTM E112 96, ASTM A479 03, ASTM A362 02 PRACTICE A/E, SAE-AMS QQ-S-763.

**SHIP TO:** Marmon / Keystone, 105 Goodrich Drive, Tarrant, TX 75217.  
 SHIP TO: Marmon / Keystone, 105 Goodrich Drive, Tarrant, TX 75217.

HEAT E31861-1 ORDER 0449205/001 SON 79050A BOL 0122780 TAG 1540266 10/30/03



**Certificate of Test**

**AvestaPolaris**

CERTIFICATION

TESCOM CORP. P.O. - 196182 S.O. - 631132



North American Stainless  
 6870 Highway 42 East  
 Ghent, Kentucky 41045-9615  
 Telephone: (502) 347-6000  
 FAX: (502) 347-6001

Email: customer.service@northamericanstainless.com

NORTH AMERICAN STAINLESS INSPECTION CERTIFICATE

2004 / 12948	DATE	5/05/2004
PACKING LIST # 2004 / 8987	NUMBER	1
GRADE NAS-264 P.O.#	328709	Item Code: 71633705
AISI (316L/316)		

**CUSTOMER**  
 INTEGRIS METALS, INC.

**TOLERANCE**  
 ASTM-A-484-00

**PRODUCT**  
 Round bar, annealed, pickled, cold drawn.

**REQUIREMENTS**  
 AISI

**LENGTH**  
 SIZE 12.00 Ft  
 .62500 Inches

ORDER NUMBER	MARK/PROD ID	HEAT NUM	WEIGHT	MECHANICAL PROPERTIES	ELONG	HARDNESS	RESIL	A% d
LN04525	25006/BA21644	0264	1772	HEAT NUM 0264	Z <sub>8</sub> RA 65	A 3 TAD 34	HARDNESS HB 187	RESIL J 5
	25007/BA21648	0264	1815	Y <sub>8</sub> % 80				
	25008/BA21675	0264	2418	Rp 0.2 % 75				
	25009/BA21676	0264	2597	Rp 1.0 % 50				

CHEMICAL COMPOSITION %										
HEAT NOX	C	P	S	CL	MA	CO	NI	MO	TI	CU
0264	.0260	.0320	.0291	.3470	1.0250	16.9720	10.6580	2.1290	.0482	.3130
MAXIMUM	.0300	.0450	.0300	1.0000	2.0000	16.0000	10.0000	2.0030	.1000	
MINIMUM						18.0000	14.0000	1.0030		

**OBSERVATIONS**

UNS-S-31600, UNS-S-31603, ASTM A276/06, ASTM A334/97, ASTM A479/01, ASTM A593/01 EXC FOR 6.11 CLASS  
 1 grade 304, ASTM A304/01 CLASS 1 grade 304, ASTM A304/01 EXC FOR 6.11 CLASS 1 grade 304, ASTM A304/01 EXC FOR 6.11 CLASS  
 ASTM A593/01 EXC FOR 6.11 CLASS 1 grade 304, ASTM A593/01 EXC FOR 6.11 CLASS 1 grade 304, ASTM A593/01 EXC FOR 6.11 CLASS  
 FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION. NO WELD REPAIR

**CERTIFICATION FOR**  
 QUALITY CONTROL REPRESENTATIVE

Eric Higgs  
 Quality Control Representative

42569-6

**STEELMAKING PROCESS**  
 EAF+AOD+CC

**QUALITY INSPECTOR**

**SURFACE AND DIMENSION CONTROL**  
 WITHOUT OBJECTIONS

**INTERGRANULAR CORROSION**  
 ASTM-A-262-01 PRACTICE "E"  
 SATISFACTORY



58160 IHPHY FRANCE  
 Téléphone: 03 88 21 30 00 Téléc: 33 800 420 F  
 Télécopie: 03 88 21 31 00 Site: 410 436 158

Client : MAC / USI  
 Adresse :  
 W/Command :  
 Your order :  
 Ihre Bestell. Nr. :  
 MAC 9709/ELGILOY/E15931  
 Spécification :  
 ES 612001 HE  
 Date : 02.26.99

Maxifrance  
 Our reference : 130478/01  
 Unsere Auftrag Nr. :  
 Contrôle dpt.: FACTORY Q.C RELEASE

Product : ELGILOY WIRE ROD  
 Product : ELGILOY WIRE ROD  
 Diam/6,50/MM  
 ELGILOY (.256")  
 Condition of delivery :  
 N° de fabric :  
 40008999909  
 Date 5-1-02  
 CHECK

CP	Min	Max	S	P	N	CT	MO	Co	A1
CP	0.64	1.85	.45	.001	.005	15.33	19.63	7.16	39.37
CP	0.013	.014	<	.0090					

CARACTERISTIQUES MECANQUES ET AUTRES ESSAIS / TESTS RESULTS

LIMITE ELASTIQUE : 66882 PSI  
 YIELD STRENGTH 0.2%  
 RESISTANCE : 131434 PSI  
 TENSILE STRENGTH  
 ALLONGEMENT : 51 %  
 ELONGATION IN 2" :  
 DURETE - HRB : 92 HRB  
 GROSSEUR DE GRAIN : 9  
 GRAIN SIZE - ASTM

CERTIFICATION FOR P/N  
 Le 4/5-A  
 APPROVED NO. E15931  
 BY TRG  
 ELGILOY REPRESENTATIVE  
 229624

QUALITY CONTROL  
 MERLIN CHR.  
 Signature :  
 06.17.99  
 XY082W213

ELGILOY  
SPECIALTY METALS  
1565 FLEETWOOD DRIVE  
ELGIN, IL 60123  
CERTIFICATE OF ANALYSIS

CUSTOMER: DRACO SPRING MFG CO  
PO BOX 266086  
HOUSTON, TX 77207

DESC.: ELGILOY, AMS 5833B TYPE 3  
.045 +/- .00055 SPRING TEMPER  
ESMC COATING X CL IX STOCK

TAG: 234402

**CHECK**  
DATE 5-1-05

ORDER(S) 21340  
SALES ORDER 74249-1  
QUANTITY 5.00

HEAT NO XY082WM213

CHEMICAL PROPERTIES

ALUMINUM (Al)	0.0040	BERYLLIUM (Be)	< 001
BORON (B)		CALCIUM (Ca)	
CARBON (C)		CHROMIUM (Cr)	
COBALT (Co)	0.0640	COLUMBIUM (Cb)	19.6300
COLUMBIUM (Cb)	39.3700	COPPER (Cu)	
HYDROGEN (H)		IRON (Fe)	
TANTALUM (Ta)		MAGNESIUM (Mg)	
MANGANESE (Mn)	1.8500	MOLYBDENUM (Mo)	
NICKEL (Ni)	15.3300	NITROGEN (N)	7.1600
OXYGEN (O)	0.4500	PHOSPHORUS (P)	0.0140
SILICON (Si)		SULFUR (S)	0.0050
TANTALUM (Ta)		TITANIUM (Ti)	0.0010
TUNGSTEN (W)		VANADIUM (V)	0.0013
ZIRCONIUM (Zr)		NICKEL+COBALT (Ni+Co)	54.7000

AS SHIPPED PROPERTIES:  
DIR TENSILE YIELD 255000  
AS SHIPPED PROPERTIES:  
DIR TENSILE YIELD 183000

4 %ELG (2"/4D) & R/A GRAIN HARDNESS WRAP BEND

AFTER H/T @ ROOM TEMPERATURE; H/T AT 980F +/- 25F 5.25HRS +/- 0.25HRS AIRCOOL  
DIR TENSILE YIELD 307000  
%ELG (2"/4D) & R/A GRAIN HARDNESS WRAP BEND

5 49 55HRC  
AFTER H/T @ ROOM TEMPERATURE; H/T AT F +/- F HRS +/- HRS COOL  
DIR TENSILE YIELD 322000  
%ELG (2"/4D) & R/A GRAIN HARDNESS WRAP BEND

6  
AFTER H/T @ F; YIELD  
H/T AT F +/- F HRS +/- HRS COOL  
DIR TENSILE YIELD 307000  
%ELG (2"/4D) & R/A GRAIN HARDNESS WRAP BEND

DIR STRESS RUPTURE F  
HOURS  
%ELG (2"/4D) PSI

IGT  
CERTIFICATION FOR P/N  
164745-A

LOT CODE: 65461W \* CONVERTED FROM 600HV500

WE HEREBY CERTIFY THE MATERIAL SHIPPED ON THE ABOVE ORDER CONFORMS TO THE STATED CHEMICAL AND PHYSICAL REQUIREMENTS AND PROCESSED FREE OF MERCURY ( UNLESS OTHERWISE STATED )

AUTHORIZED SIGNATURE:

QUALITY MANAGER - T. BARTEL

DATE: 12-08-95



Certificate of Conformity

Greene, Tweed & Co  
2075 Darwiller Road  
Kulpsville PA 19443-0305  
Phone: (215) 266-9821 Fax: (215) 256-0189

Confirmed to  
TESCOM CORP.  
INDUSTRIAL CONTROLS DIVISION  
12616 INDUSTRIAL BLVD  
ELK RIVER, MN 55330  
Account number 1001277  
Certification date 12/16/2005  
Your purchase order 101686  
Our order 432431  
Page 1 of 1  
Certification number 81015851-000020

We hereby certify that the material tested herein has been manufactured in conformity with the current GREENE TWEED specifications and is in accordance with the requirements of the referenced drawings and drawings. Where specified, inspection and testing has been completed to meet requirements to your requirements. Quality control will test units on the order and/or samples as requested.  
We certify that we have tested the material furnished hereunder for our test and found it to conform to the specifications and to be suitable for the intended use of the material and for the intended application. The parts or items on this order were manufactured from materials by processes that have been approved by the Federal Government and are distributed to the military and other government agencies. This certificate is not valid for use in any other country without the express written consent of Greene Tweed & Co.

Your part#/Rev F16187  
Our part#/Rev SM08-06-072-816 / Rev. B  
Description SLAB 6 X 6  
FDA compliant  
USP Class VI compliant

Batches shipped	Quantity	Manufacturer	Cure date	Expire date
1000996993	9 00 EA	12/07/2005	4Q2005	11/30/2032

TYPICAL CERTIFICATION  
FOR # F66752-05

*Douglas Kovis*

Douglas Kovis, Quality Manager  
Aerospace, Defense & Industrial Groups

09/26/2005 From: MARMON/KEYSTONE  
 M/K OR:  
 C.P.O :  
 C PART:

To:  
 62567-6  
 CERTIFICATION FOR P/N

OR. REF:  
 SLSPRS:

*M.F. Marcantio*

**Q.C. REVIEWED**  
 DATE 11/3/03  
 INITIAL *[Signature]*

AvestaPolarit, Inc  
 Der Products  
 2043 Centerville Pkwy  
 Richburg SC 29729

M.F. Marcantio, Quality Manager

We hereby certify that the chemical analysis and/or test results shown in this report are correct as contained in the records of the company. We hereby certify that the chemical analysis and/or test results shown in this report are correct as contained in the records of the company. We hereby certify that the chemical analysis and/or test results shown in this report are correct as contained in the records of the company.

1-1001-1

**CHEMICAL COMPOSITION**

Carbon	(C)	0.29
Phosphorus	(P)	0.02
Silicon	(Si)	0.33
Nickel	(Ni)	10.570
Copper	(Cu)	0.307
Nitrogen	(N)	0.06
Titanium	(Ti)	0.002
Iron	(Fe)	0.008
Balance		
Vanadium	(V)	0.070
Aluminum	(Al)	0.005
Columbium	(Cb)	0.008
Moly	(Mo)	2.130
Cobalt	(Co)	0.269
Chromium	(Cr)	17.250
Sulphur	(S)	0.027
Manganese	(Mn)	1.620

**MECHANICAL & OTHER TESTS**

Test Condition	HB 144
Hardness as shipped	HRB 77
Hardness as tested	HRB 144
Grain size	HRB 77
Intergranular corrosion	OK
Macro	OK
Elongation & in 4D	49.6
Reduction of area %	74.0
Tensile strength, KSI (Mpa)	91.7 (632)
0.2% Yield strength, KSI (Mpa)	43.9 (303)

**SPECIFICATIONS**

AMS B648K, 5633F  
 ASME SA479 B01  
 ASTM A276 03A  
 ASTM A484 03A  
 ASTM A320 01 B8M CLASS 1  
 NACE MR0175-03 (MID RAD)  
 PRODUCT QUALITY  
 WATER QUENCHED  
 FREE OF MERCURY CONTAMINATION

SAS-AMS 00-S-763  
 ASTM A262 02 PRACTICE A/S  
 ASTM A479 03  
 ASTM A179 03  
 ASTM E112 96  
 ASTM A193 01A B8M CLASS 1D  
 FED STD 00-S-763F  
 SOL ANNEALED @ 1900 F MIN 90  
 NO WELD REPAIR

Ship Condition A  
 GRADE 316L/316  
 316L CPA RND BAR 1 STD  
 Country of origin as defined by NAFTA  
 Country of origin: BRI  
 Country of Mfg: USA  
 2150 Total Bundles  
 2 SON Weight

10-39502  
 10/30/03  
 YOUR ORDER & DATE  
 CUST# MARK01  
 CUST TAG#SR/1/6163

Tarrant  
 AT 35217  
 SHIP TO:  
 Marmon / Keystone  
 105 Goodrich Drive  
 Tarrant

HEAT B31861-1 ORDER 0449205/001 SON 79050A BOL 0122780 TAG 15450266 10/30/03



**Certificate of Test**  
 CERTIFICATION  
 \*\*\*\*\*

**AvestaPolarit**  
 STEELNESS

Date Printed: 11/02/06  
Date Shipped: 11/02/06

Plastics International

7600 Anagram Drive  
Eden Prairie, MN 55344  
PH: (952) 934-2303  
FAX: (952) 934-2314

Material Certification

Customer: TESCO CORP.  
Purchase order #: 110641

City: Elk River  
PI Order #: S70214

State, Zip: MN, 55330

Plastics International is pleased to certify the following items:

Pieces	Product Description	Size Description
1 00	1 000 in Dia TEFLON VIRGIN(Dupont 9B resin)	1 000 DIA X 12 000 LGTH

Specifications

The Virgin PTFE (TEFLON) is manufactured in accordance with ASTM D 1710-91A,  
Type 1, Grade 1, Class A, UL94 V-0  
Compliant with FDA 21 CFR 177.1550 & USP Class 6  
No testing conducted on product and not for implant

Lot # 9B-0602850006

CERTIFICATION FOR P/N

67728-3

Thank You

Craig Cool

Plastics International certifies that the material shipped matches the product ordered by the Customer  
Certifications concerning batch and lot numbers or conformance to specific material standards or properties  
Are made solely by the manufacturer, and must be requested at time of order. These certifications may  
Require additional charges

09/26/2005 From: MARMON/KEYSTONE  
 M/K OR:  
 C.P.O.:  
 C PART:

To:  
 OR. REF: 62568-6  
 SLSPRS:  
**CERTIFICATION FOR P/N**

AvestaPolarit, Inc  
 301 Centway Pkwy  
 Hickory, NC 28129

**O.C. REVIEWED**  
 DATE 11/3/03  
 INITIAL [Signature]

M.P. Marcantio, Quality Manager

We hereby certify that the chemical analysis and/or test results shown in this report are correct as contained in the records of the company. We hereby certify that the chemical analysis and/or test results shown in this report are correct as contained in the records of the company. We hereby certify that the chemical analysis and/or test results shown in this report are correct as contained in the records of the company.

1-7-2005

**CHEMICAL COMPOSITION**

Carbon	(C)	0.29
Phosphorus	(P)	0.02
Silicon	(Si)	0.33
Nickel	(Ni)	10.570
Copper	(Cu)	0.307
Nitrogen	(N)	0.066
Titanium	(Ti)	0.002
Iron	(Fe)	0.008
Tantalum (Cb+Ta)		0.007
Columbium/	(Nb)	0.007
Tin	(Sn)	0.007
Vanadium	(V)	0.070
Aluminum	(Al)	0.055
Columbium	(Cb)	0.008
Moly	(Mo)	2.130
Cobalt	(Co)	0.269
Chromium	(Cr)	17.250
Sulfur	(S)	0.027
Manganese	(Mn)	1.620

**MECHANICAL & OTHER TESTS**

Test Condition	OK
Hardness as shipped	HRB 144
Hardness as tested	HRB 144
Grain size	HRB 77
Micro	7.5
Intergranular corrosion	OK
Macro	OK
Elongation & in 4D	OK
Reduction of area %	49.6
Hardness as tested	HRB 144
Tensile strength, KSI (MPa)	91.7 (632)
0.2% Yield strength, KSI (MPa)	43.9 (303)

**SPECIFICATIONS**

AMS 5648K, 5653F  
 ASME SA479 E01  
 ASTM A276 03  
 ASTM A484 03A  
 ASTM A220 01 B8M CLASS 1  
 NACE MR0175-03 (MID RAD)  
 PRODC QUALITY  
 WATER QUENCHED  
 FREE OF MERCURY CONTAMINATION

SAE-AMS QQ-S-763  
 ASTM A262 02 PRACTICE A/E  
 ASTM A179 03  
 ASTM A179 03  
 ASTM E112 96  
 ASTM A193 01A B8M CLASS 1D  
 F82 STD QQ-S-763F  
 SOL ANNEALD @ 1900 F MIN NO  
 NO WELD REPAIR

SHIP TO:  
 Marmon / Keystone  
 105 Goodrich Drive  
 Tarrant TX 75217

10-39502 10/30/03  
 YOUR ORDER & DATE  
 CUST# MARKEY01  
 CUST TAG#SBR/1./6163

GRADE 316L/316  
 316L CRA RND BAR 1 STD  
 Ship condition A  
 Country of origin as defined by NAFTA  
 Country of origin: USA  
 Total Bundles 2  
 SON Weight 2150

HEAT B31861-1 ORDER 0449205/001 SON 79050A BOL 0122780 TAG 1540266 10/30/03



**Certificate of Test**

**AvestaPolarit**  
 STAINLESS

\*\*\*\*\*  
 CERTIFICATION  
 \*\*\*\*\*

# TESCOM CORPORATION

## INDUSTRIAL CONTROLS DIVISION

### ELASTOMERIC CERTIFICATION REQUIREMENTS

O-Rings, Custom Molded, Elastomer Parts, Elastomer Diaphragms, etc  
(e.g. Buna-N, Viton, Ethylene Propylene, Neoprene, etc)

Suppliers Name: Applied Power Products Date: 8/19/04

Tescom Part Number: 2-012 03609-90 Revision: \_\_\_\_\_

Material Description: Ethylene Propylene

Cure Date: 5/04 Batch Number: 60806621

Quantity Shipped: 340

Tescom Purchase Order Number: I90440

Compound Number: 03609-70

Durometer (if called out on print): 70

Specification called out on print: \_\_\_\_\_

Material is (please complete):

FDA Compliant: Yes  No   
 USP Class VI: Yes  No

Statement of Conformance - I certify that the parts and/or material conform to the specifications and drawings in the referenced purchase order.

Signature of Person (Not a Salesperson): [Signature]

Legible Name of Person Signing: Larry Wheelwright

Legible Title of Person Signing: Customer Service

CERTIFICATION FOR P/N #F66951-05012-7

# TESCOM

C O R P O R A T I O N

INDUSTRIAL CONTROLS DIVISION

## ELASTOMERIC CERTIFICATION REQUIREMENTS

O-Rings, Custom Molded, Elastomer Parts, Elastomer Diaphragms, etc.  
(e.g. Buna-N, Viton, Ethylene Propylene, Neoprene, etc)

Suppliers Name: Applied Polymer Products Date: 9/14/04

Tescom Part Number: 3-916 E3609-70 Revision: \_\_\_\_\_

Material Description: Ethylene Propylene

Cure Date: 504 Batch Number: 60006727

Quantity Shipped: 500

Tescom Purchase Order Number: I90440

Compound Number: E3609-70

Durometer (if called out on print): 70

Specification called out on print: \_\_\_\_\_

Material is (please complete):

RDA Compliant:  Yes  No  
USP Class VI:  Yes  No

Statement of Conformance -- I certify that the parts and/or material conform to the specifications and drawings in the referenced purchase order.

Signature of Person (Not a Salesperson): [Signature]

Legible Name of Person Signing: LARRY WHEELER

Legible Title of Person Signing: CUSTOMER SERVICE

CERTIFICATION FOR P/N AF66951-059167



Judy A. M...  
Carpenter Technology Corporation

JUDY A. SPRACKLIN  
MET REPT/ANALYST III  
CARPENTER TECHNOLOGY CORPORATION

CERTIFICATION FOR P/N  
62886-N

CARPENTER'S QUALITY MANAGEMENT SYSTEM WAS REGISTERED AS OF NOVEMBER 11, 2003 TO THE REQUIREMENTS OF ISO 9001:2000. APPROVAL CERTIFICATE 101931 BY LHOA, INC. CERTIFICATE OF TEST IS PREPARED IN ACCORDANCE WITH PARAGRAPH 3.1.B OF EN 10204 (DIN 50049). WE HEREBY CERTIFY THAT THE ABOVE TEST DATA ARE IN ACCORDANCE WITH THE PURCHASE ORDER AND SPECIFICATION REQUIREMENTS.

GRAIN SIZE PER ASTM: E112	3
REDUCTION OF AREA	65.0
ELONGATION IN 1.00"	117.0
TENSILE STRENGTH (KSI)(MPa)	117.0
YIELD STRENGTH (0.20%)(KSI)(MPa)	77.0
HARDNESS AS SHIPPED, HB	240
SOLUTION ANNEALED TO PROVIDE A MICROSTRUCTURE FREE FROM CONTINUOUS GRAIN BOUNDARY CARBIDE PRECIPITATION (NETWORK)	
C	0.09
MN	7.49
MO	0.56
CU	0.05
CO	0.04
N	0.13
P	0.019
S	0.025
GR	17.74

P/N 62886-N  
PO# I91705

SPECIFICATION: ASTM-A479-03 UNS S21800  
ASTM-A193-03 GR. B8S CLASS 1C & 1D 2001 EDITION  
ASTM-A194-03A GRADE 8S (CHEM. ONLY)  
AMS 5848 REV B (04/97)  
ASTM-A276-03 UNS S21800  
SIZE 0.25000 IN. (6.35 MM) RD. BAR  
PRIMARY HEAT CHEMISTRY (WT%):

PRODUCT DESCRIPTION: UNS S21800 ANNEALED GROUND  
HEAT NUMBER / SCHMEIDENR. / DR. COILER: 542182

42445-1 S# 45550	W44343	5338
CUSTOMER ORDER NO. / BESTELL-NR. / DR. COILNR.	CARPENTER NO. / ANWIS-NR. / DR. REFERENZ INTRINS	DATE / DATUM / DATE
542182		VEINAM/DRICHT/POIDR

**TALLEY METALS**  
A Carpenter Company  
CERT SERIAL# 000433849

01/29/04  
CUSTOMER/BESTELLER/CLIENT  
RYR STEEL COMPANY  
PO BOX 3585  
SANTA FE SPRING, CA 90670

Handville SC 29557 Tel 8633357270 Fax 843 335 6465

DEC 09 2003

1  
PAGE - 1  
TRUE COPY OF THE ORIGINAL MILL TEST  
RESULTS IS ATTACHED TO THIS  
CERTIFICATE OF TESTS

THE RECORDING OF VALUES, FIGURES OR STATISTICS BY MANUFACTURER'S STATEMENTS ON THIS DOCUMENT MAY BE VIEWED AS A FURTHER REQUIREMENT. STATISTICS INCLUDING FEDERAL LAW, TITLE 19, CHAPTER 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

THE VALUES AND OTHER TECHNICAL DATA REPRESENT THE RESULTS OF ANALYSES AND TESTS MADE BY OR UNDER THE SUPERVISION OF THE QUALITY CONTROL DEPARTMENT. ORIGINAL DATA RECORDS CAN BE VIEWED BY REFERENCE TO THE CARPENTER ORDER NUMBER.

THIS DOCUMENT SHALL NOT BE REPRODUCED, EITHER IN FULL, WITHOUT THE WRITTEN CONSENT OF CARPENTER TECHNOLOGY CORPORATION.

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ABNAHMEPRUEFEZEUGNIS  
CERTIFICAT DE CONTROLE

**CERTIFICATE OF TESTS**  
 CERT SERIAL# 000466284  
**CARPENTER**  
 Carpenter Technology Corporation  
 101 West Bero Street Reading, Pa 19601  
 09/28/04

THE RECORDING OF DATA, FIGURES OR STATISTICAL DATA INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 47, WHICH IS PROHIBITED AS A FRAUDULENT STATEMENT OR MISFEASANCE ON THIS DOCUMENT.  
 THE VALUES AND OTHER TECHNICAL DATA REPORTED IN THIS TEST ARE THE RESULT OF ANALYSIS AND TESTS MADE ON SAMPLES COLLECTED FROM THE TOTAL LOT REFERRED TO IN THIS TEST. ORIGINAL DATA RECORDS CAN BE TRACED BY REFERENCE TO THE CARPENTER TEST NUMBER.  
 MATERIAL IS MANUFACTURED FROM HIGHER GRADE ALUMINUM, ALUMINUM AND CARBON SOURCE CONTAMINATION IS NOT DETECTED. THIS DOCUMENT IS NOT REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN CONSENT OF CARPENTER TECHNOLOGY CORPORATION.

1 OF 1  
 SHEET/VERBÄLTER/VARIANTEN/PAGE 1 OF 1

PELLCO MACHINE  
 13045 43RD STREET NE  
 ST. MICHAEL, MN 55376

CARPENTER TECHNOLOGY CORP  
 101 W. BERN STREET  
 READING, PA 19601

8648	CHI765305 L18539	09/28/04	543.000
CUSTOMER ORDER NO / BESTELL-NR // DE CONT NO		DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS

HEAT NUMBER / STAHN-NUMER / NO DE CONT NO: 730534  
 PRODUCT DESCRIPTION: PROJECT 70+ TYPE 316/316L STAINLESS ANNEALED GOLD DRAWN

SPECIFICATION: 00-S-763F (06/27/96) CLASSES 316/316L, COND A, GOLD FINISH  
 AMS 5648 REV K (08/02) TYPE 316  
 AMS 5653 REV F (08/02) TYPE 316L  
 ASTM-A276-04 TYPE 316/316L, CONDITION A, GOLD FINISH  
 ASTM-A479-04 TYPE 316/316L, ANNEALED  
 ASME-SA479 2001 EDITION TYPE 316/316L, ANNEALED  
 AMS-00-S-763A (02/03) CLASSES 316/316L, COND A, GOLD FINISH

SIZE 0.87500 IN. (22.22 MM) HEX BAR  
 PRIMARY HEAT CHEMISTRY (WT%): (TEST METHOD IS SHOWN IN PARENTHESIS)  
 C (COM) 0.019  
 NI (XRF) 11.17  
 MO (XRF) 2.04  
 CU (XRF) 0.81  
 N (FUS) 0.02  
 SI (XRF) 0.64  
 P (XRF) 0.027  
 S (COM) 0.026  
 CR (XRF) 16.67

INTERGRANULAR CORROSION TESTED TO ASTM-A262, PRACTICE A - ACCEPTABLE.  
 ANNEALED MICROSTRUCTURE FREE FROM CONTINUOUS GRAIN BOUNDARY CARBIDE.  
 PRECIPITATION (NETWORK).  
 NO WELD REPAIR.  
 THIS MATERIAL WAS MANUFACTURED IN ACCORDANCE WITH CARPENTER SPECIALTY ALLOYS OPERATIONS QUALITY PROGRAM MANUAL REVISION 24, DATED 10/03.  
 THIS MATERIAL CONFORMS TO THE TECHNICAL REQUIREMENTS OF THE AMS SPECIFICATION REFERENCED ABOVE.

HARDNESS AS SHIPPED, HB - 233 (MIRADIUS)  
 YIELD STRENGTH, (0.20 % KSI (MPA)) 83.5 (576)  
 ELONGATION IN 2.00", % 35.0 (99.5)  
 REDUCTION OF AREA, % 74.0 (99.5)  
 GRAIN SIZE PER ASTM E112: 4  
 PO# I91705 P/N 61761-6

CARPENTER'S QUALITY MANAGEMENT SYSTEM WAS REGISTERED AS OF NOVEMBER 11, 2003 TO THE REQUIREMENTS OF ISO 9001:2000. APPROVAL CERTIFICATE 101921 BY LHOA, INC. (DIN 50049). WE HEREBY CERTIFY THAT THE ABOVE TEST DATA ARE IN ACCORDANCE WITH THE PURCHASE ORDER AND SPECIFICATION REQUIREMENTS.

LAWRENCE R. RIEGEL  
 MET RELEASE/REQUIREMENTS ANALYST  
 CARPENTER TECHNOLOGY CORPORATION

CERTIFICATION FOR P/N  
 61761-6

The certificate is valid only for the material and test results shown on this certificate. It is not valid for any other material or test results. The certificate is not valid for any other material or test results. The certificate is not valid for any other material or test results.

FORM 02-214

# TESCOM

C O R P O R A T I O N

INDUSTRIAL CONTROLS DIVISION

## ELASTOMERIC CERTIFICATION REQUIREMENTS

O-Rings, Custom Molded, Elastomer Parts, Elastomer Diaphragms, etc.  
(e.g. Buna-N, Viton, Ethylene Propylene, Neoprene, etc)

Suppliers Name: Power Dynamics Date: 9/5/06

Tescom Part Number: F16118-031 Revision:

Material Description: Gylon (3522)

Cure Date: 8-2-06 Batch Number: 146339

Quantity Shipped: 15 sheets

Tescom Purchase Order Number: I 08695

Compound Number:

Diameter (if called out on print):

Specification called out on print: Garlock Gylon Sheet

Material is (please complete):

FDA Compliant:  Yes  No

Yes  No

USP Class VI:  Yes  No

Yes  No

Statement of Conformance -- I certify that the parts and/or material conform to the specifications and drawings in the referenced purchase order.

Signature of Person (Not a Salesperson)  
[Signature]

Legible Name of Person Signing  
Rolland Rieken

Legible Title of Person Signing  
Production Manager

TYPICAL CERTIFICATION  
FOR 63102-03

**Slater Steels Corporation**  
 Fort Wayne Specialty Alloys Division  
 2400 Taylor Street West  
 Fort Wayne, Indiana 46802-4600  
 Telephone: (219)334-2892 Fax: (219)334-2905

Product Certification Report  
 Report Number: 1972700

Slater Order ID	0002613 004	Order Date	3/15/00	Commodity Code	15020
Product Shape	1.5000	Dim 1	0.0000	Dim 2	0.0000
Product Surface	Cold Drawn Hex	Product Surface	Cold Drawn Finish	Customer Grade	316/316L
Customer ID	001123 01-88990	Customer Purchase Order	2/26/00	Weight	

Page 1 of 1

**Ship To**  
 CASTLE METALS  
 3400 NORTH WOLF ROAD  
 FRANKLIN PARK, IL

**Sold To**  
 CASTLE METALS  
 3400 NORTH WOLF ROAD  
 FRANKLIN PARK, IL

60131

LFts: 0025 0028  
 CASTLE C M Q. COND A  
 QOS 763 F  
 ASTM 193-98A  
 ASTM 484-98  
 ASTM 479 98 ED 99 Addenda  
 AMS-QOS 763  
 3316-229 Rev 6 DTD 01/14/00  
 UNS S31600 & UNS S31603  
 ASTM 276-98B  
 ASME SA 182 98 ED Chem Only  
 AMS 5648J  
 MLs-7720A AM 1(316)ex Cu .75X  
 ASTM 182-99 Chem Only  
 ASTM 479-99  
 ASME SA 193 98 ED  
 AMS 5653E

CHEMICAL ANALYSIS

C	Mn	P	S	Si	Cr	NI	Mo	Cu	Co	N
.021	1.51	.023	.027	.55	17.43	10.42	2.03	.40	.133	.060

TENSILE PROPERTIES

TS (PSI)	.2%YS (PSI)	%EL(2")	%RA
88300	62600	51.8	75.4

MACRO ASTM E340/E381  
 OK  
 GRAIN SIZE  
 OK  
 OXALIC  
 OK

No mercury or low melting alloy contamination. No weld repair  
 Heated to 1900F min and water quenched (heating time & temp appropriate for optimum quality)  
 Intergranular corrosion test (free from cont carbide network) Per ASTM A 262-86 Pr E  
 We certify that the contents of this report are correct and that all operations performed by our company or subcontractors are in compliance with material specifications and the ASME Boiler & Pressure Code Section III, Section II, Subsection NCA-3800, 1998 edition 99 Addenda  
 Material conforms to listed specifications.  
 Quality system is registered to ISO 9002.

**CERTIFICATION FOR P/N**  
 62884-6-A

The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony under federal statutes including Federal law, Title 18, Chapter 47 Please consult material safety data sheet (MSDS) for hazard information. I hereby certify that the reported figures are correct as contained in the records of the corporation.  
 Manager Laboratory Services  
 Dennis Hackell