



ITT Engineered Valves, LLC  
 33 Centerville Road  
 Lancaster, PA 17603-2064  
 Phone: (800) 366-1111  
 Fax: (717) 509-2336

# CERTIFICATE OF COMPLIANCE / CONFORMANCE

Date Issued: November 18, 2015

<b>Customer:</b> PERRIGO CT INC	<b>Quantity:</b> 001
<b>Customer Order Number:</b> 1020649	<b>Int. Surface Finish:</b> RA 20 MICROINCH MAX
<b>ITT Order Number:</b> 916748	<b>Ext. Surface Finish:</b> SCOTCH BRITE
<b>ITT Line Number:</b> 039	<b>Electropolish Finish:</b> INTERIOR ELECTROPOLISH ONLY
<b>ITT Part Number:</b> %EV800000962900	

<b>Figure Number (Description):</b>	(A) ZDP-2-419-3-VV-428-.5-SVPF-419-R-W-8-1-4
	(B) 2-N-TME-B217
	(C) .5-N-TME-B206

Customer Tag Information:	Serial Number	(A)	(B)	(C)
	916748-039-001		28005-XV-758	28011-XV-716

Heat Number Information:	Heat / Code (Number)	Description	Material	Size
	565710	Body	316L	--
	N4J1	Elbow	316L	3"
	FK1105-016	Ferrule	316L	2"
	30140	Ferrule	316L	1/2"
	RYL-1687	Weld Rod	316L	--

A copy of the Certified Material Test Report or the Certificate of Compliance is attached for the item(s) listed above.

**Additional Information:**

34856, DIAPHRAGM WR 02.00 MC TFM GR TM  
 Cure Date: 9-15 Lot No: 4000083065 Quantity: 1  
 Expiration Date: 9-2029  
 Grade TM: Grade TM diaphragms (modified PTFE) have a LIMITED SHELF LIFE of 14 years.  
 Grade TM diaphragms (modified PTFE) comply with the FDA Code of Federal Regulations Title 21 Section 177-1550 and have been tested in accordance with and successfully passed the U.S. Pharmacopeia XXXIV Class VI @250°F (121°C) for 60 mins & 158°F (70°C) for 24 hrs, Biological Reactivity test, Section 87 and Section 88.  
 The maximum temperature rating for Grade TM diaphragms (modified PTFE) is 329° F (165°C)  
 Grade TM diaphragms (modified PTFE) are in compliance to:  
 10993-5: "Tests for Cytotoxicity—In Vitro Methods"  
 10993-10: "Tests for Irritation and Sensitization."  
 10993-11: "Tests for Systemic Toxicity."  
 We hereby confirm that for the production of ITT Grade TM diaphragms (modified PTFE) no material of animal origin has been used during the whole production process. Grade TM material is of synthetic (PTFE resin) origin.  
 Grade TM diaphragms (modified PTFE) meets ASME BPE Part SG, Section 3.3 & 3.4

*This certificate is correct at the time of issue and no changes shall be made to it without the authorization of the issuing ITT Manager. If any unauthorized changes are made, the certificate is void.*

# Certificate of Compliance / Conformance - continued

**Customer:** PERRIGO CT INC  
**Customer Order Number:** 1020649  
**ITT Order Number:** 916748  
**ITT Line Number:** 039  
**ITT Part Number:** %EV800000962900

**Quantity:** 001  
**Int. Surface Finish:** RA 20 MICROINCH MAX  
**Ext. Surface Finish:** SCOTCH BRITE  
**Electropolish Finish:** INTERIOR ELECTROPOLISH ONLY

- ◆ 48041, BACKING CUSH WR 02.00 FDA B1 GR EPDM B1  
Cure Date: 9-15 Lot No: 57736 Quantity: 1  
Expiration Date: 9-2021  
Grade B1: Grade B1 (EPDM) backing cushions have a LIMITED SHELF LIFE of 6 years.  
Grade B1 (EPDM) backing cushions comply with the FDA Code of Federal Regulations Title 21 Section 177.2600 and have been tested in accordance with and successfully passed the U.S. Pharmacopeia XXXIV Class VI @250°F (121°C) for 60 mins & 158°F (70°C) for 24 hrs, Biological Reactivity test, Section 87 and Section 88.  
The maximum temperature rating for Grade B1 (EPDM) backing cushions is 302° F (150°C).  
Grade B1 (EPDM) backing cushions are in compliance to:  
10993-5: "Tests for Cytotoxicity—In Vitro Methods"  
10993-10: "Tests for Irritation and Sensitization."  
10993-11: "Tests for Systemic Toxicity."  
Grade B1 (EPDM) complies with 21CFR 177.2600 (e) "Rubber articles intended for repeated use in contact with aqueous food." Exception: Grade B1(EPDM) does not comply with 177.2600 (f) "Rubber articles intended for repeated use in contact with fatty food ".  
Grade B1 (EPDM) is processed with a small amount of Stearic Acid F-1000. Stearic Acid is a common fatty acid derived from Bovine Tallow. Stearic Acid F-1000 is confirmed to be manufactured by rigorous processes exceeding 392°F (200°C) for greater than 20 mins. This complies with Section 6.4 Tallow Derivatives of EMEA/410/01 Rev. 3, July 2011.  
Grade B1 (EPDM) meets ASME BPE Part SG, Section 3.3 & 3.4.  
Grade B1 (EPDM) is peroxide cured.
- ◆ 34852, DIAPHRAGM WR 00.50 MC TFM GR TM  
Cure Date: 10-15 Lot No: 4000083065 Quantity: 1  
Expiration Date: 10-2029  
Grade TM: Grade TM diaphragms (modified PTFE) have a LIMITED SHELF LIFE of 14 years.  
Grade TM diaphragms (modified PTFE) comply with the FDA Code of Federal Regulations Title 21 Section 177-1550 and have been tested in accordance with and successfully passed the U.S. Pharmacopeia XXXIV Class VI @250°F (121°C) for 60 mins & 158°F (70°C) for 24 hrs, Biological Reactivity test, Section 87 and Section 88.  
The maximum temperature rating for Grade TM diaphragms (modified PTFE) is 329° F (165°C)  
Grade TM diaphragms (modified PTFE) are in compliance to:  
10993-5: "Tests for Cytotoxicity—In Vitro Methods"  
10993-10: "Tests for Irritation and Sensitization."  
10993-11: "Tests for Systemic Toxicity."  
We hereby confirm that for the production of ITT Grade TM diaphragms (modified PTFE) no material of animal origin has been used during the whole production process. Grade TM material is of synthetic (PTFE resin) origin.  
Grade TM diaphragms (modified PTFE) meets ASME BPE Part SG, Section 3.3 & 3.4
- ◆ 48037, BACKING CUSH WR 00.50 FDA B1 GR EPDM B1  
Cure Date: 8-15 Lot No: 57666 Quantity: 1  
Expiration Date: 8-2021  
Grade B1: Grade B1 (EPDM) backing cushions have a LIMITED SHELF LIFE of 6 years.  
Grade B1 (EPDM) backing cushions comply with the FDA Code of Federal Regulations Title 21 Section 177.2600 and have been tested in accordance with and successfully passed the U.S. Pharmacopeia XXXIV Class VI @250°F (121°C) for 60 mins & 158°F (70°C) for 24 hrs, Biological Reactivity test, Section 87 and Section 88.  
The maximum temperature rating for Grade B1 (EPDM) backing cushions is 302° F (150°C).  
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10993-5: "Tests for Cytotoxicity—In Vitro Methods"  
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Grade B1 (EPDM) is processed with a small amount of Stearic Acid F-1000. Stearic Acid is a common fatty acid derived from Bovine Tallow. Stearic Acid F-1000 is confirmed to be manufactured by rigorous processes exceeding 392°F (200°C) for greater than 20 mins. This complies with Section 6.4 Tallow Derivatives of EMEA/410/01 Rev. 3, July 2011.  
Grade B1 (EPDM) meets ASME BPE Part SG, Section 3.3 & 3.4.  
Grade B1 (EPDM) is peroxide cured.

Comments:

*This certificate is correct at the time of issue and no changes shall be made to it without the authorization of the issuing ITT Manager. If any unauthorized changes are made, the certificate is void.*

CERTIFICATE ID (167155)

## Certificate of Compliance / Conformance - continued

<b>Customer:</b> PERRIGO CT INC	<b>Quantity:</b> 001
<b>Customer Order Number:</b> 1020649	<b>Int. Surface Finish:</b> RA 20 MICROINCH MAX
<b>ITT Order Number:</b> 916748	<b>Ext. Surface Finish:</b> SCOTCH BRITE
<b>ITT Line Number:</b> 039	<b>Electropolish Finish:</b> INTERIOR ELECTROPOLISH ONLY
<b>ITT Part Number:</b> %EV800000962900	

We certify that the components on the above referenced purchase order meet the requirements of the purchase order, applicable drawing(s), and our ISO 9001:2008 manufacturing, testing, and inspection procedures to assure an acceptable quality level applicable to the product. These items are supplied in accordance with QMS Manual Rev 22 dated December 13, 2013.

**//S// Kadeem Bhaila**

**Kadeem Bhaila**  
**Manager, Quality Assurance (or representative)**

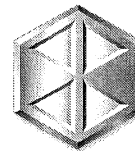
*(This certificate was created electronically and is valid without signature.)*

*This certificate is correct at the time of issue and no changes shall be made to it without the authorization of the issuing ITT Manager. If any unauthorized changes are made, the certificate is void.*

CERTIFICATE ID (167155)

Zertifiziert nach: ISO 9001  
ISO / TS 16949  
EN 9100  
ISO 14001

**DEUTSCHE EDELSTAHLWERKE**  
Providing special steel solutions



D-58452 Witten, D-57012 Siegen, http://www.dew-stahl.com

Datum/Date: 13.06.15

Seite/Page: 1 / 3

Zertifiziert nach:	AD2000 W 0 TRD 100	Werkstofflieferant gemäß Druckgeräterichtlinie 97 / 23 EG
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**Abnahmeprüfzeugnis nach**  
Inspection Certificate acc.to/Certificat de réception selon **DIN EN 10204 3.1/01.05**  
**Zeugnis-Nr./Certificate No./No.de Certificat** 2070608/7686870/bit

**DEUTSCHE EDELSTAHLWERKE**  
Schmolz + Bickenbach Polska  
Sp. z o.o.  
Ul. Katowicka  
PL-41-400 Myslowice

<b>Herstellerzeichen/Supplier's Mark/Marque d'usine</b>	
<b>Prüfstempel/Inspector's stamp/Poinçon de l'expert</b>	

<b>Ihre Auftr.-Nr. vom</b> Your order No. date /No.de votre commande du 1349015076   12.06.15	
<b>Unsere Auftr.-Nr.</b> Our order No./No.de notre Commande 1601680 / 2	<b>Unsere Material-Nr.</b> Our material No./No.de notre matériel 2181821
<b>Unsere Abteilung/Our department/Notre département</b> VR-H	<b>Telefon/Telephone/Téléphone</b> 02302/29-4178

**Produkt/Product/Produit**

STAEBE AUS NICHTROSTENDEM STAHL  
ACIDUR 4401/4404 NIROCUT, TYPE 316/316L  
GEWALZT, ABGESCHRECKT,  
GERICHTET, GESCHAELT  
✓ EN 10088-3, EN 10272, AD 2000 W2/W10,  
ASTM A 182/276/479, ASME SA 182/276/479,  
NACE MR 0175, ISO 15156-3, NACE MR 0103,  
IN ANLEHNUNG AN EN 10222-5

STAINLESS STEEL BARS  
ACIDUR 4401/4404 NIROCUT, TYPE 316/316L  
HOT ROLLED, QUENCHED,  
STRAIGHTENED, PEELED  
EN 10088-3, EN 10272, AD 2000 W2/W10,  
ASTM A 182/276/479, ASME SA 182/276/479,  
NACE MR 0175, ISO 15156-3, NACE MR 0103,  
FOLLOWING EN 10222-5

BARRES EN ACIER INOXYDABLE  
ACIDUR 4401/4404 NIROCUT, TYPE 316/316L  
LAMINE, HYPERTREMPE,  
DRESSE, ECROUTE  
EN 10088-3, EN 10272, AD 2000 W2/W10,  
ASTM A 182/276/479, ASME SA 182/276/479,  
NACE MR 0175, ISO 15156-3, NACE MR 0103,  
EN PRENANT EN CONSIDERATION EN 10222-5

**Fertigungsauftr.-Nr./Production lot-No./Lot de fabrication No. :**  
**Lieferschein-Nr./Delivery note/No. de l'avis de livraison :**  
**Schmelzen-Nr./Heat No./No.de coulée :** 565710 ✓  
**Stückzahl/Piece No./Nombre des pièces :** 1  
**Gewicht/Weight/Masse :** 1568 [kg]  
**Zeichnungs-Nr./Drawing No./No.du dessin :**  
**Format/Shape/Profil :** rund / round / rond  
**Durchm./Breite/Diameter/width/Diamètre/largeur :** 210 [mm] +0.460/-0.000 [mm]  
**Dicke/Thickness/Épaisseur :**  
**Länge/Length/Longueur :** 4000 - 6000 [mm]

**Lieferzustand/Condition as supplied/Etat de livraison :**  
1920 DEGREE F SOLUTION ANNEALED AND QUENCHED, 1050 GRAD C  
LOESUNGSGEGLUEHT UND ABGESCHRECKT

Die Prüfergebnisse zu Ihrer Lieferung finden Sie auf der Rückseite bzw. den nächsten Seiten  
As for test results of your delivery see overleaf. / Vous trouverez les resultats d'essais de votre livraison aux pages suivantes.

**DEUTSCHE EDELSTAHLWERKE GMBH**  
Abnahmetechnik/Inspection department/Département de Réception

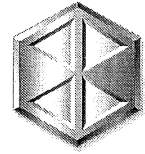
Krause

**Abnahmebeauftragter/Der Werkssachverständige**  
Test House Manager/Works' inspector/Resousable Reception/L'Agent Réceptionnaire de l'usine

ITT ENGINEERED VALVES  
QA REVIEW APPROVED

Zertifiziert nach: ISO 9001  
ISO / TS 16949  
EN 9100  
ISO 14001

**DEUTSCHE EDELSTAHLWERKE**  
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D-58452 Witten, D-57012 Siegen, <http://www.dew-stahl.com>

Datum/Date: 13.06.15

Seite/Page: 2 / 3

Zeugnis-Nr. Certificate No./No.de Certificat	Unsere Auftr.-Nr. Our order No./No.de notre Commande	Ihre Auftr.-Nr. vom Your order No. date /No.de votre commande du	Fertigungsauftr.-Nr. Production lot-No./Lot de fabrication No.
2070608/7686870/bit	1601680 / 2	1349015076	

Schmelzen-Nr. Heat No. No.de coulée	Erschmelzungsart Steelmaking process Procédé d'élaboration	Sekundärmetallurgie Secondary metallurgy Metallurgie secondaire	Gießverfahren Casting process Procédé de coulée
565710	E	VOD	VSG

**Chemische Zusammensetzung / Chemical Composition / Composition chimique**

	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	V	W	Co	Al	
Ist/ Actual/ Actuel	0.022	0.30	1.74	0.026	0.024	16.96	2.06	10.12	0.33	0.05	0.03	0.081	< 0.003	[%]
	N													
Ist/ Actual/ Actuel	0.034													[%]

**Härte / Hardness / Dureté**

Lieferzustand / Condition as supplied / Etat de livraison

Proben-Nr. / Specimen-No. / No.d'éprouvette		
	28556	
Ist/ Actual/ Actuel	146	[HB]

MAX 22 HRC

**Zugversuch / Tensile test / Essai de traction**

Lieferzustand / Condition as supplied / Etat de livraison

Probenabm. / Specimen dimension / Dimension d'éprouvette	Probenrichtung / Specimen direction / Sens de Prélèvement	Prüftemp. / Test temperature / Température d'essai				
Zugprobe; 10 mm rd	quer / transverse / traverse	23 [°C]				
Proben-Nr. / Specimen-No. / No.d'éprouvette	Rp0.2 [MPa (N/mm <sup>2</sup> )]	Rp1.0 [MPa (N/mm <sup>2</sup> )]	Rm [MPa (N/mm <sup>2</sup> )]	A5 [%]	A2'' [%]	Z [%]
28555	245	280	533	52.0	53.9	60

**Schlagbiegeversuch / Impact test / Essai de résilience**

Lieferzustand / Condition as supplied / Etat de livraison

Probenform / Type of specimen / Type d'éprouvette	Probenrichtung / Specimen direction / Sens de Prélèvement	Prüftemp. / Test temperature / Température d'essai	
[CHARPY V]	quer / transverse / traverse	23 [°C]	
Proben-Nr. / Specimen-No. / No.d'éprouvette	1. Prfl. / Spec. / Eprouvette	2. Prfl. / Spec. / Eprouvette	3. Prfl. / Spec. / Eprouvette
28555	116 [J]	117 [J]	119 [J]

**Korngröße / Grain size / Grosseur de grain**

Lieferzustand / Condition as supplied / Etat de livraison

Richtreihe gemäß / Chart acc.to / Série type selon	Größe / Size / Grosseur
ASTM E 112	3 - 4

**Interkristalline Korrosion / Intergranular corrosion / Corrosion inter cristalline**

Material beständig nach / material resistant according / materiel resistant suivant: ASTM A 262 Practice E / EURONORM 114 / ISO 3651-2 Verfahren A

**US-Prüfung / Ultrasonic testing / Contrôle par ultrasons**

Die Lieferung wurde 100% US-geprüft nach / Delivery US-checked 100% acc.to / Livraison contrôlé par ultrasons selon: EN 10308 Typ 1a, Tab.3, Kl.3

entspricht auch / also correspond to / correspond aussi a: EN 10228-4 Typ 1a, Tab.4, Kl.3 / ASTM A 388

Die Lieferung wurde auf Identität geprüft (Optische Emissionsspektrometrie) / Identity has been checked (Optical Emission Spectrometry) / Identification (Spectro.) a été effectué  
DIN EN 10277-1, Tabelle 1, Klasse 3

Die Lieferung wurde besichtigt und auf Maß kontrolliert / Visual inspection and control of dimensional accuracy have been performed /  
Contrôle visuel et inspection dimensionnelle ont été effectués

Umformgrad / Reduction Ratio / Ratio de déformation: 4.67 : 1

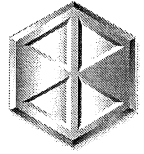
Das Material ist frei von Radioaktivität (<0,1Bq/g bezogen auf Co-60). / The Product is free from radioactivity (<0,1Bq/g concerning Co-60).  
La matière n'est pas radioactive (<0,1Bq/g, référence Co-60).  
El material es libre de radioactividad.

**ITT ENGINEERED VALVES  
QA REVIEW APPROVED**

ds 8/21/15

Zertifiziert nach: ISO 9001  
ISO / TS 16949  
EN 9100  
ISO 14001

**DEUTSCHE EDELSTAHLWERKE**  
Providing special steel solutions



D-58452 Witten, D-57012 Siegen, <http://www.dew-stahl.com>

Datum/Date: 13.06.15

Seite/Page: 3 / 3

<b>Zeugnis-Nr.</b> Certificate No./No.de Certificat	<b>Unsere Auftr.-Nr.</b> Our order No./No.de notre Commande	<b>Ihre Auftr.-Nr. vom</b> Your order No. date /No.de votre commande du	<b>Fertigungsauftr.-Nr.</b> Production lot-No./Lot de fabrication No.
2070608/7686870/bit	1601680 / 2	1349015076	

**Location of production: Germany**

Das Qualitätsmanagement-System wurde durch TUEV NORD (Kenn-Nr.0045) gemäß der Richtlinie 97/23/EG Anhang 1, Abschnitt 4.3 (Druckgeräterichtlinie) überprüft (Zertifikats-Nr.: 07-202-1404 WZ-0857/13).

It is hereby certified that the quality management system has been reviewed by TUEV NORD (identification no.0045) according to the requirements of the Pressure Equipment Directive 97/23/EC Annex 1, 4.3 (guidelines for pressure instruments) (certificate no.: 07-202-1404 WZ-0857/13).

Le système d'assurance de qualité est vérifié par la société TUEV NORD (no. indicatif 0045) selon recommandation 97/23/EG annexe 1, section 4.3 (Directive pour Appareils soumis a Pression) (certificate no.: 07-202-1404 WZ-0857/13).

El Sistema de Calidad fue examinado por el TUEV NORD (no.de identificación 0045) en conformidad con la directiva 97/23/EG anexo 1, sección 4.3 (para equipos de presión) (certificado no.: 07-202-1404 WZ-0857/13).

Erläuterung/ Explanations/ Explications

- Erschmelzungsart** / Steelmaking process / Procédé d'élaboration:  
E = Elektrostahl / Electric-arc-furnace steel / Acier électrique
- Sekundärmetallurgie** / Secondary metallurgy / Metallurgie secondaire:  
VOD = Vakuum-Sauerstoff-Entkohlungs-Verfahren / Vacuum-Oxygen-Decarburization / Vacuum-Oxygène-Décarburation
- Gießverfahren** / Casting process / Procédé de coulée:  
VSG = Vorkblock-Strangguß / Continuous casting bloom / Bloom de coulée continue

Die Lieferung wurde aus einem bevorrateten, geprüften Abnahmelos (Fertigungsauftr.-Nr. 667355) entnommen.  
Material against this delivery has been taken from a stored and tested inspection lot. (Production lot-No. 667355).  
La livraison a été pris d'un lot de réception stocké et éprouvé (Lot de fabrication No. 667355).

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellsannahme entspricht.  
We hereby certify that the material described above has been tested and complies with the terms of the order.  
Nous certifions que la livraison été vérifiée et est conforme aux stipulations de l'acceptation de la commande.

**ITT ENGINEERED VALVES**  
**QA REVIEW APPROVED**

DL 8/21/15

# Material Test Report



ABGJV



**MTR Serial ID: ABGJV**

**Part Number: 9634000225**  
**B2S-3-316L-PL B-P 90 DEG ELBOW --**

**Date Issued: 11/1/2014**

**Manufacturing Ref: ASME BPE 2012**

Alfa Laval Inc.  
 9560 58th Place  
 Suite 300  
 Kenosha, WI 53144  
 Tel: +1 800 558 4060  
 Tel: +1 262 605 2600  
 Fax: +1 262 605 2664  
 www.alfalaval.us

Finish Code	ID Finish (m-inch Ra-Max)	OD Finish	ASME BPE SFF CODE
PC	20 Ra Max Mechanical Polish	Unpolished	SFF1
PL	20 Ra Max Mechanical Polish	Polished 32 Ra	SFF1
PD	15 Ra Max Electropolish	Unpolished	SFF4
PM	15 Ra Max Electropolish	Polished 32 Ra	SFF4
PJ	10 Ra Max Electropolish	Unpolished	SFF4
PR	10 Ra Max Electropolish	Polished 32 Ra	SFF4

Heat #	Alt #	Material	Type	C	Mn	P	S	Si	Cr	Ni	Mo
N4J1 ✓		tube	316L	0.014	1.41	0.032	0.011	0.23	16.57	10.03	2.04
				✓	✓	✓	✓	✓	✓		✓

Heat #	Alt #	Raw Material Size(s)	Hardness	Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Raw Material Specification
N4J1		3.000 x 0.065 in tube 316L	87.00 (RB)	53.44	97.95	45.00	ASTM A-270/ASME SA-249
			✓	✓	✓	✓	✓

We certify that the chemical analysis and/or physical tests were determined by standard methods and are correct as contained in the records of the company and are a true copy of the data furnished to us.

As far as we can determine, this material is free from mercury and low melting alloy contamination.

Note: "N/A" in any field indicates that the particular datum was not available in the documentation furnished to us.

This Certified Mill Test Report is computer generated and meets EN10204(3.1).

*Dan Brockmann*  
 Dan Brockmann

ITT ENGINEERED VALVES  
 QA REVIEW APPROVED

*TS 5/15/15*



# MATERIAL TEST REPORT

Certificate Date:  
11/3/2011

Steel & O'Brien Manufacturing

**DUAL 316/316L**

**Part Size & Description:**

2" X 1-1/8" OAL - L14AM7 BUTT WELDING FERRULE /  
SULPHUR .005-.017

Order Number: 519048

Part Number: 42266

SOB Part Number: AAM02000 - 316

Sold To: ITT

33 CENTERVILLE ROAD  
LANCASTER, PA 17603

HEAT #	Description	Material Standards
FK1105-016	DUAL 316/316L HOLLOW BAR - 2.548" OD X 1.704" ID X .422" WALL	ASME SA479, ASTM A479, ASTM A511, EN 10204 3.1B, PED97/23/EC

HEAT #	Carbon	Manganese	Phosphorus	Sulfur	Silicon	Chromium	Nickel	Nitrogen	Molybdenum
FK1105-016	0.017%	1.072%	0.033%	0.006%	0.423%	16.45%	10.04%	0.02%	2.011%

**Yield 0.2**

**Tensile**

HEAT #	N/(mm sq)	PSI	N/(mm sq)	PSI	Hardness HB	Elongation %	Reduction %
FK1105-016	250	36259	570	82672	N/A	45%	71%

ITT CORPORATION	
Industrial Process	
QA REVIEW	
APPROVED	<u>  mqr  </u>
DATE	<u>  11-7-11  </u>

Steel & O'Brien certifies that the information is a true representation of the data that has been furnished by our suppliers. We have no knowledge of mercury or radioactive material used in the melting or processing of steel used in products sold by Steel & O'Brien. This certificate was made by use of a computer system and is valid with out signature.

Approved by:  
Ann Giboo  
Certification





# MATERIAL TEST REPORT

Steel & O'Brien Manufacturing

Certificate Date:  
2/18/2014

**DUAL 316/316L**

**Part Size & Description:**

Sold To: ITT

1/2" X 1/2" OAL - 14WMP SHORT WELDING FERRULE

33 CENTERVILLE ROAD

LANCASTER, PA 17603

SOB Part Number: AAQ00500 - 316LS

Order Number: 556331

Part Number: 41132

HEAT #	Material	Material Standards
30140	DUAL 316/316L	ASME SA182, ASME SA193, ASME SA320, ASME SA479, ASTM A182, ASTM A193, ASTM A276, ASTM A320, ASTM A479, ASTM A484

**Chemical Properties**

HEAT #	Carbon	Manganese	Phosphorus	Sulfur	Silicon	Chromium	Nickel	Nitrogen	Molybdenum
30140	0.02%	1.33%	0.039%	0.006%	0.33%	16.66%	10.16%	0.03%	2%

**Physical Test Results**

HEAT #	Yield 0.2		Tensile		Hardness HB	Elongation %	Reduction %
	N/(mm sq)	PSI	N/(mm sq)	PSI			
30140	538	78030	703	101962	208	42%	69%

ITT ENGINEERED VALVES  
 QA REVIEW  
 APPROVED MG 2/20/14

Finish Code	ID Finish (microinch)	OD Finish (microinch)	ASME BPE SF Code
PC	20 Ra Max Mechanical Polish	Unpolished	SF1
PL	20 Ra Max Mechanical Polish	32 Ra	SF1
PD	15 Ra Max Electropolish	Unpolished	SF4
PM	15 Ra Max Electropolish	32 Ra	SF4

ISO  
 CERTIFIED  
 9001:2008

Steel & O'Brien certifies that the information is a true representation of the data that has been furnished by our suppliers. We have no knowledge of mercury or radioactive material used in the melting or processing of steel used in products sold by Steel & O'Brien. This certificate was made by use of a computer system and is valid without signature.

Approved by:  
Tami Sawicki  
Certification Specialist

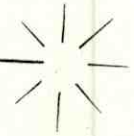
www.steelobrien.com

Phone: (585) 492-5800 7196 Route 98 Arcade, NY 14009



# HQA Wire Products

15060 Desman Rd., La Mirada, California, 90638  
(714) 739-9473 FAX (714) 739-9413



### CUSTOMER

IT002

ITT CORP.  
P2P OPERATIONS  
P.O. BOX 750  
SENECA FALLS, NY 13148  
562-949-2113

Purchase Order: 535013-A

Shipped to: ITT ENGINEERED VALVES, LLC

Date: 11/28/2012

Doc No: 1011576

Cert Type: Mill Actual

Sales Ord: 034543-00

Heat No: RYL-1687

Class: ER316L

Specification: AWS A5.9-12

Size: .023

Quantity: 10

Item: 1Q1AFH

### WE SUBMIT THE FOLLOWING DETERMINATIONS:

Description: 316L .023 X 36"

Element	Type	Actual %	Min. %	Max. %
C	A	.020 ✓		
CR	A	18.840 ✓		
CU	A	.120 ✓		
MN	A	1.730 ✓		
MO	A	2.090 ✓		
NI	A	11.050 ✓		
P	A	.025 ✓		
S	A	.009 ✓		
SI	A	.360 ✓		
N	A	.053		
FE	* B		65.693	65.703
OT	R	<0.010		

ITT ENGINEERED VALVES  
QA REVIEW  
APPROVED MLM  
DATE 11/30/12

TYPE: A = Actual, R = Range, T = Typical, B = Balance

X, Y, Z = Combined Elements Groups

ELEMENT: OE = Other Elements, OT = Total Other Elements

\* Balance Element: calculated from other elements listed

Also meets Spec: AWS A5.9-06 Class: ER316L

CERTIFICATE  
OF  
CONFORMITY

THE TEST RESULTS SHOWN IN THIS REPORT ARE  
CORRECT TO THE BEST OF OUR KNOWLEDGE AND BELIEF.

H.Q. INDUSTRIES

CERTIFIED BY:

[Signature]  
CERTIFICATION INSPECTOR