



ITT

**Holland**<sup>®</sup>  
APPLIED TECHNOLOGIES  
Indianapolis • Chicago • San Juan  
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800-800-8464

**Pure-Flo**<sup>®</sup>

# Authentic ITT Service Parts



*Engineered for life*

[www.ittpureflo.com](http://www.ittpureflo.com)

Providing our customers with a quality product has always been an integral part of how ITT does business. Building on this commitment your Authorized Distributor of ITT Pure-Flo valves is proud to offer genuine ITT service parts.

Keeping your process valves in good operating condition is critical in the regulated world of drug manufacturing. Don't risk your high value product because of a poorly maintained valve. A small investment in preventative maintenance will pay many returns in uptime and trouble free operation.

All ITT service parts meet our strict quality standards. Authentic ITT service parts are identical to those used in our valve production, giving you peace of mind that the part you receive will be equal to the part you are replacing.

### **Authentic ITT Replacement Parts**

ITT service parts are designed and engineered to maintain the quality of ITT Pure-Flo valves. ITT and its distributor network make performance, inventory and service commitments to you. We understand how downtime for your equipment costs you money in lost productivity and disrupted schedules.

### **Authentic ITT Diaphragms**

Replace the diaphragm in your ITT hygienic diaphragm valve with imitation diaphragms and you might risk more than you thought. Only one diaphragm is specifically designed and manufactured to deliver the performance you demand from your ITT valve. With an ITT diaphragm valve you get compliance with FDA, USP, and ASME BPE requirements, a design that creates a tight repeatable seal, and materials that protect your process and are completely traceable. And just as importantly, you have a valve that provides essential pressure containment protecting your plant and your people.

### **Critical Spares**

While Pure-Flo products are designed for high reliability, nothing lasts forever. A local stock of critical spares on-site to minimize the risk of



equipment downtime should be maintained. Spare manual and actuated bonnets can prevent hours or days of lost production. Pure-Flo distributors are trained to provide assistance in developing a balanced spares inventory that meets your inventory model.

### **Autoclave Rebuild Kits**

Autoclave applications in the Biopharm industry are common. Frequent autoclave cycles should be considered severe service for any valve. ITT uses the highest quality engineered plastics to assure long service life. However, eventually all plastic components will see signs of thermal aging. Regular assessment and replacement of components will assure consistent performance over time. ITT has assembled convenient kits to make rebuilding your 963 and 970 manual bonnets easy.

### **Gall Resistant Fasteners**

Frequent assembly and disassembly will wear standard fasteners over time, which greatly affects the torque values applied to the valve. Thread friction accounts for approximately 45% of the torque values in a fastened joint. So the condition of your valve fasteners is extremely critical for providing leak free operation. To extend the life of valve fasteners that see frequent thermal cycling ITT has introduced gall resistant fasteners. These fasteners have been specially heat treated to reduce thread friction and increase gall resistance, greatly increasing the service life of the valve fasteners. Gall resistant fasteners will save the maintenance department countless hours. Gall resistant fasteners are a good choice around bioreactors and autoclave applications.

## Diaphragms

### Diaphragm Selection

Diaphragm Type		Compliance				Temperature	
Grade	Material	FDA	USDA	3A	USP	°F	°C
B	Black Butyl Rubber	x	x			-20-250	-29-121
17	EPDM <sup>1</sup>	x			x	-4-194 <sup>2</sup>	-20-90 <sup>2</sup>
17HP	EPDM <sup>1</sup>	x			x	-4-194 <sup>2</sup>	-20-90 <sup>2</sup>
P	Buna N	x	x	x <sup>3</sup>		10-180	-12-82
TM17	PTFE	x		x <sup>4</sup>	x	-4-329	-20-165
W1	White Butyl Rubber	x	x			0-225	-18-107

<sup>1</sup> For high temperature and/or high cycle applications, contact ITT.

<sup>2</sup> Temperature range is as follows:

-4-194°F (-20-90°C) for liquid applications

-22-285°F (-30-140°C) for continuous steam

-22-302°F (-30-150°C) for intermittent steam

<sup>3</sup> Class III applications

<sup>4</sup> Class I applications



Pure-Flo® FDA Compliant Diaphragms shown clockwise from top: Buna N Grade P, White Butyl Grade W1, Black Butyl Grade B, Grade 17HP EPDM, Grade 17 EPDM, Grade TM17 PTFE

### Replacement Diaphragms (FDA Compliant)

Size (in)	B	P	17	17HP	TM17 PTFE	W1
	Black Butyl	Buna N	EPDM	EPDM High Performance	With Grade 17 EPDM Backing Cushion	White Butyl
Bio-Tek	44418	N.A.	41502	44729	42175	N.A.
0.5	240	35	41281	44730	42176	43160
0.75	4768	4771	41282	44731	42177	43161
1	5974	5972	41283	44732	42178	43162
1.5	672	670	41284	44733	42179	43164
2	893	891	41285	44734	42180	43165
2.5*	1109	1107	42130	44735	42181	43166
3	5976	1260	41286	44736	42182	43167
4	1451	1449	41287	44737	42183	43168
6	1639	1637	43270	45197	42184	43169

### Parts Needed to Change to PTFE Diaphragm from Elastomer

Size (in)	Tube Nut	Compressor Pin	Bronze Compressor for 963, 913, ADV & APA <sup>1</sup>	Compressor for 903 <sup>1</sup>	Bronze Compressor for 970
0.5	27543	13861	36271	27521	39798
0.75	27544	29588	36273	27523	39799
1	27545	2487	36275	27526	39800
1.5	27547	2491	36277	27530	39801
2	27548	2491	36279	27534	39802
2.5	27549	2494	27538	27537	N.A.
3	27550	2494	27540	27539	N.A.
4	27550	2496	28630	28629	N.A.

<sup>1</sup> Uses a compressor pin

### Parts Needed to Change to EPDM Diaphragm from PTFE

Size (in)	Compressor Pin	Bronze Compressor for 963, 913, ADV & APA <sup>1</sup>	Compressor for 903 <sup>1</sup>	Bronze Compressor for 970
0.5	13861	36261	27903	39793
0.75	29588	36263	6166	39794
1	2487	36265	484	39795
1.5	2491	36267	823	39796
2	2491	36269	1057	39797
2.5	2494	13203	1220	N.A.

<sup>1</sup> Uses a compressor pin

## Spare Topworks

### Advantage Actuators 1/2 - 2"

Configuration String	PTFE Diaphragm				Elastomer Diaphragm			
	31 Bonnet		36 Bonnet <sup>1</sup>		31 Bonnet		36 Bonnet <sup>1</sup>	
	90# Spring	60# Spring	90# Spring	60# Spring	90# Spring	60# Spring	90# Spring	60# Spring
.5-N-PN-31-A206-M7	42717							
.5-N-PN-31-A208-M7		42715						
.5-N-PN-36-A206-M7			42720					
.5-N-EN-31-A205-M7						42716		
.5-N-EN-31-A206-M7					42718			
.5-N-EN-36-A205-M7								42719
.75-N-PN-31-A209-M7	42723							
.75-N-PN-36-A208-M7				42721				
.75-N-PN-36-A209-M7			42724					
.75-N-EN-36-A208-M7								42722
1-N-PN-31-A208-M7		42725						
1-N-PN-31-A209-M7	42728							
1-N-PN-36-A208-M7				42726				
1-N-PN-36-A209-M7			42730					
1-N-EN-36-A208-M7								42727
1-N-EN-31-A209-M7					42729			
1.5-N-PN-31-A217-M7	42731							
1.5-N-PN-36-A216-M7				42732				
1.5-N-PN-36-A217-M7			42733					
2-N-PN-31-A217-M7	42735							
2-N-PN-36-A216-M7				42734				
2-N-PN-36-A217-M7			42736					



31 Bonnet Advantage



36 Bonnet Advantage

1 Imperial fasteners only. Consult factory for metric bonnets.

## Spare Topworks

### Advantage Actuators 3 - 4"

Configuration String	PTFE Diaphragm		Elastomer Diaphragm	
	34 Bonnet			
	90# Spring	60# Spring	90# Spring	60# Spring
3-N-PN-34-C7-A233-M7		42737		
3-N-PN-34-C7-A234-M7	42740			
3-N-EN-34-C7-A233-M7				42739
3-N-EN-34-C7-A234-M7			42741	
4-N-PN-34-C7-A233-M7	42738			



Series 47 Actuator



Series 33 Actuator

### Autoclaveable 963 with Sanitary Internals

Configuration String	PTFE Diaphragm	Elastomer Diaphragm
.5-N-PN-963-S2-M17-M2	38348	
.5-N-EN-963-S2-M17-M2		38713
.75-N-PN-963-S2-M17-M2	38349	
1-N-PN-963-S2-M17-M2	38350	
1-N-EN-963-S2-M17-M2		38714
1.5-N-PN-963-S2-M17-M2	38351	
1.5-N-EN-963-S2-M17-M2		38712
2-N-PN-963-S2-M17-M2	38352	
3-N-PN-963-S2-M17-M2	38353	
4-N-PN-963-S2-M17-M2	38354	



### Manual Bio-Tek Bonnets

Configuration String	PTFE Diaphragms	Elastomer Diaphragms
.50-N-PN-18 (Replaces 16 Bonnet) <sup>1</sup>	39208	39208
.50-N-PN-18S (Replaces 17 Bonnet) <sup>1</sup>	39209	39209



<sup>1</sup> Imperial fasteners only. Consult factory for metric bonnets.

## Fasteners

The parts on this page include imperial fasteners only. Consult factory for metric bonnets.

### 963 Gall Resistant Fastener Kits

Size (in)	Bolts	Block Studs
0.5	46255	46261
0.75	46256	46262
1	46258	46263
1.5	46259	46264
2	46260	46265

### 970, 31 and AXS Gall Resistant Fastener Kits

Size (in)	Bolts	Block Studs
0.5	46266	46271
0.75	46267	46272
1	46268	46273
1.5	46269	46274
2	46270	46275

### Bio-Tek Gall Resistant Fastener Kits

Size	Bolt	Block Studs
Bio-Tek	46257	TBD

Note: Kits include 4 bolts, 4 nuts and 4 washers.

### Fastener Part Numbers for 963

Size (in)	Hex Cap Screw	Hex Cap Screw - GRF	Allen Head Cap Screw	Stud <sup>1</sup>	Stud - GRF	Stepped Stud <sup>2</sup>	Stepped Stud - GRF	963 Spacers	Nut - GRF	Washers
0.5"	NA	46204	39248	35481	46209	S100404	TBD	31792	45460	26409
0.75"	23270	46196	38930	35481	46209	S100404	TBD	31793	45460	26409
1"	25977	46197	24302	35483	46210	S100405	TBD	31794	45461	26410
1.5"	22005	46207	31784	35485	46211	S100406	TBD	34463	45496	26411
2"	25979	46208	24358	35487	46212	S100407	TBD	31796	45463	26412

### Fastener Part Numbers for Stainless Steel Bonnets (970, 31, AXS, Bio-Tek)

Size (in)	Hex Cap Screw	Hex Cap Screw - GRF	Allen Head Cap Screw	Stud <sup>1</sup>	Stud - GRF	Stepped Stud - GRF	Nut - GRF	Washers
Bio-Tek	NA	46194	22654	TBD	TBD	S100403	45466	23244
0.5"	NA	46195	39248	35480	46200	S100398	45460	26409
0.75"	23270	46196	24276	35480	46200	S100398	45460	26409
1"	25977	46197	24302	35482	46201	S100399	45461	26410
1.5"	17749	46198	24357	35484	46202	S100400	45462	26411
2"	25979	46199	24358	43452	46203	S100401	45463	26412


### Fastener Part Numbers for Series 36 Advantage Actuator

Size (in)	Std Hex
Bio-Tek	23319
0.5	33493
0.75	23270
1	17615
1.5	23405
2	3417

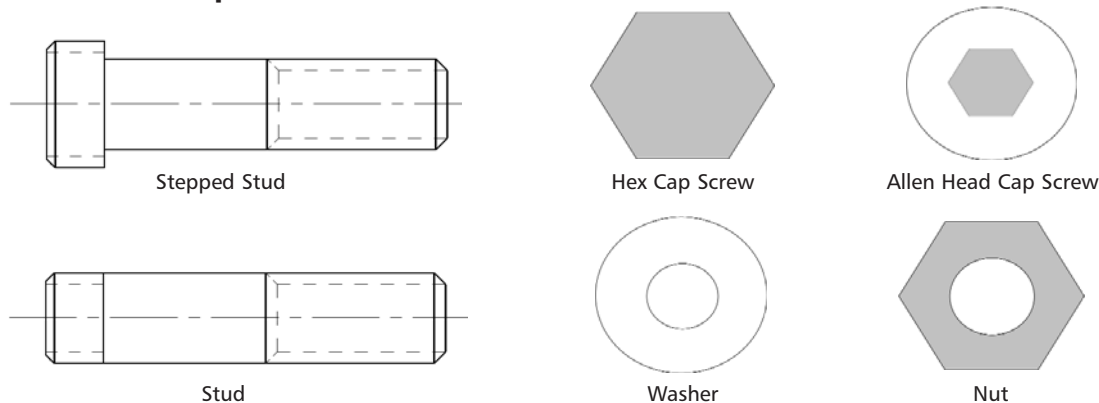
1. 2000 to present, check with factory for proper type.

2. Prior to 2000, check with factory for proper type.

See legend below for fastener descriptions.

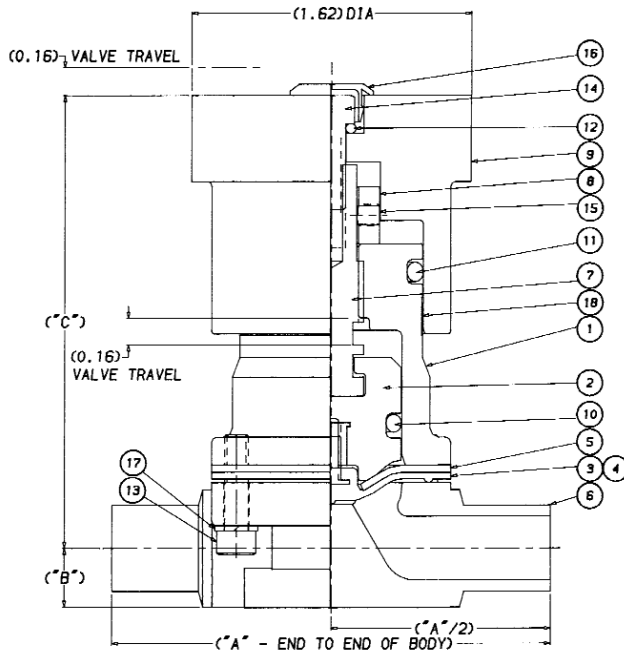
 Gall resistant fasteners

### Fastener Descriptions





**Bio-Tek**



**Bill of Materials**

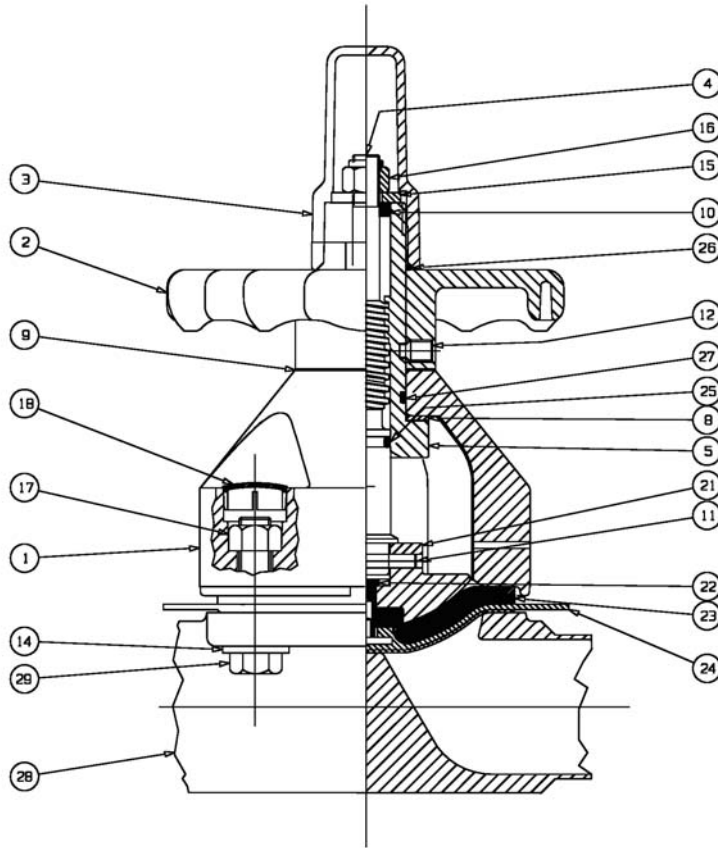
Item	Description	Material	Qty	Part
1	Bonnet	Stn. Stl. ASTM A-351, GR CF8M	1	
2 <sup>1</sup>	Compressor	Stn. Stl. ASTM A-276, Type 316	1	39014
3 <sup>3</sup>	Diaphragm, Plastic	PTFE (Fluorlastic)	1	
4 <sup>3</sup>	Diaphragm, Elastomer	EPDM, compliance with FDA CFR #21	1	
5 <sup>3</sup>	Cushion, Backing	EPDM, compliance with FDA CFR #21	1	
6	Body, Weir, Butt weld, Tube	Stn. Stl., forged, ASTM A-182-F316L, S9	1	
7	Spindle, Adj Travel	Stn. Stl., ASTM A-276, Type 316, cond B	1	44278
8	Nut, Hex, Adj Travel	Stn., Stl., Type 18-8	1	
9	Handwheel, Shroud	PAS 30% glass-filled	1	39011
10 <sup>2,3</sup>	"O" Ring Dash #114	Viton, compliance with FDA CFR #21	1	21002
11 <sup>2,3</sup>	"O" Ring Dash #118	Viton, compliance with FDA CFR #21	1	23130
12 <sup>2,3</sup>	"O" Ring Dash #007	Viton, compliance with FDA CFR #21	1	22640
13	Screw, Cap, Socket Head	Stn. Stl., Type 18-8	4	22654
14	Screw, Cap, Socket Head	Stn. Stl., Type 18-8	1	
15	Screw, Cap, Hex Socket	Stn. Stl., Type 18-8	1	
16	Cap	Flextemp	1	23131
17	Washer, Spring Lock	Stn. Stl., Type 18-8	4	23244
18	Indicator, Decal	Mylar	1	

Note: For 31 bonnet fasteners contact factory.  
 Note: Imperial fasteners only. Consult factory for metric bonnets  
 1 Thermoplastic PAS (polyarylsulfone) in model 16.  
 2 Only applicable to model 17, 18S.  
 3 Recommended spare parts.

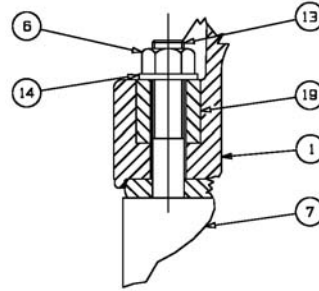
**Bio-Tek Gall Resistant Fastener Kits**

Size	Kit	Stud
Bio-Tek	46257	TBD

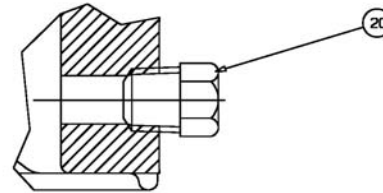
## 963 Bonnet



Bonnet and Bolting Detail for Fabrications with Studs



V-Notch Vent Plug for Sealed Bonnet



### Bill of Materials

Item	Description	Material	Qty
1	Bonnet	Polyarylsulfone	1
2	Handwheel	Polyarylsulfone	1
3	Cap	Acrylic, Clear	1
3	Cap	Polyphenylsulfone	1
4 <sup>1</sup>	Spindle	Stn. Stl. (1/2" - 2")	1
4	Spindle	Carbon Steel (3" & 4")	1
5	Bushing	Brass	1
6 <sup>2</sup>	Nut, Hex	Stn. Stl. SA-194-8	4
7	Body	Stn. Stl. 316L	1
8	Bearing, Thrust	Stn. Stl.	1
9	Washer, Shim	Polyethylene	AR
10	Seal, Wiper	Viton	1
10	Seal, Wiper	Polyolefin Foam	1
11	Pin, Spirol	Stn. Stl. Type 302	1
12	Scr, Set Hex Soc.	Stn., Stl.	1 or 2
13 <sup>2</sup>	Stud	Stn., Stl., SA-193-B8	4
14	Washer, Plain	Stn., Stl., 18-8	4

Note: Imperial fasteners only. Consult factory for metric bonnets.

1. 3" and 4" Sanitary internals optional.
2. ASME Grade fasteners available on Tank Bottom Valve.

Item	Description	Material	Qty
15	Washer	Stn., Stl.	1
16	Locknut, Hex, Lt	Stn., Stl., 18-8	4
17	Nut, Hex	Stn., Stl. 18-8	4
18	Cap, Nut Cover	Silicone	4
19	Spacer	Stainless Steel	4
20	Plug, Vent "V" Notch	Stn. Stl.	1
21	Compressor	Zinc or Cast Iron	1
22	Nut, Tube	Brass, B-16	1
23	Cushion, Backing	EPDM	1
24	Diaphragm, PTFE	PTFE, GR	1
25	"O" Ring	Buna N or Viton	1
26	"O" Ring	Buna N or Viton	1
27	"O" Ring	Buna N or Viton	1
28	Body, Metal	Stn. Stl. 316L	1
29	Scr., Hex HD, Cap	Stn. Stl. 18-8	4
Sanitary Internals			
4	Spindle	Stn. Stl.	1
21	Compressor	Bronze	1

Autoclave Rebuild Kit component (see pg. 9)



## 963 Bonnet

### 963 Autoclave Rebuild Kits

Frequent autoclaving of 963 bonnets will eventually degrade seals and plastic components. Autoclave rebuild kits includes all the soft seals and PPS indicator cap to rebuild a 963 bonnet. Diaphragm not included.



#### Autoclavable Rebuild Kits

Size (in)	Kits
Bio-Tek	46241
0.5	46248
0.75	46252
1	46243
1.5	46244
2	46245
3	46246
4	46247

#### Autoclavable Replacement Parts

Size (in)	Bushing Viton O-Ring	Stem Viton O-Ring	Cap Viton O-Ring	Viton Wiper Seal	PPS Cap	Shim Washer RTFE
0.5	26373	26387	23130	27610	38018	35787
0.75	26375	26389	26381	27611	38019	35788
1	26377	23316	26396	27612	38020	35789
1.5	26381	23230	26398	27614	38021	35791
2	26381	23230	26398	27614	38021	35791
3	Contact factory for 3" and 4" sizes				38022	35792
4	Contact factory for 3" and 4" sizes				38023	35792



See page 8 for kit contents

### Sanitary Internal Replacement Parts

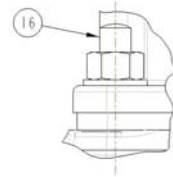
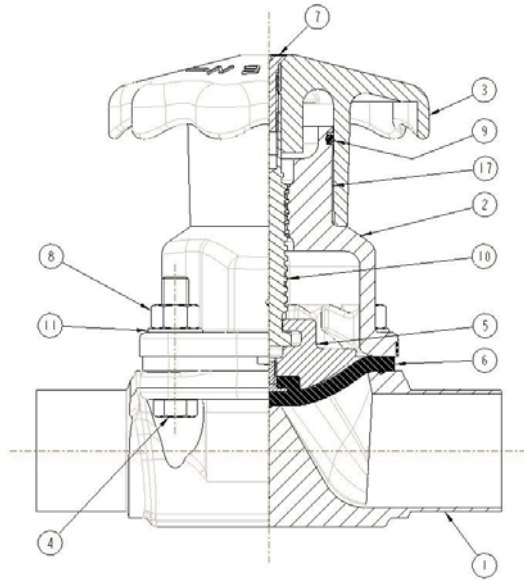
Size (in)	PAS Bonnet Shell (Item 1)	Acrylic Cap (Item 3)	Wiper Seal (Item 10)	PAS Handwheel (Item 2)	Bushing (Item 5)	Set Screw (Item 12)	Thrust Bearing (Item 8)	Torrington Needle Thrust Bearing Thrust Assembly (Item 8)
0.5	26216	26233	26345	26208	26276	2580	2254	N.A.
0.75	26218	26235	26346	26210	26281	2580	2256	N.A.
1	26220	26237	26347	26212	26273	2580	2255	N.A.
1.5	34126	26239	26349	26204	26274	2586	26266	N.A.
2	26224	26239	26349	26204	26275	2586	2258	N.A.
3	26226	26263	26343	27667	26284	2587	N.A.	8489
4	26228	26265	26344	27668	26290	2587	N.A.	8490

Size (in)	Stainless Steel Stem (Item 4)	Stainless Steel Thrust Bearing (Item 8)	Travel Stop Washer (Item 15)	Travel Stop Lock Nut (Item 16)	Retaining Ring	Silicone Nut Cover Cap (Item 18)	Shim Washer (Item 9)	Nut Cover Cap (Yellow)
0.5	26299	3518	26314	26321	N.A.	39179	2673	30623
0.75	26301	3514	26315	26322	N.A.	39179	2674	30624
1	26292	5385	26316	26322	N.A.	39180	2675	30625
1.5	26294	26267	26318	26324	N.A.	39181	2677	30626
2	26296	3419	26318	26324	N.A.	39182	2677	30626
3	26309	13228	26319	26325	26370	39183	2678	30628
4	26311	13229	26320	26325	26371	N.A.	2679	30628

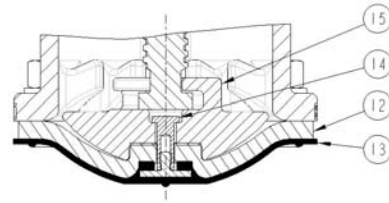
### Buna-N O-Rings

Size (in)	Bushing	Spindle	Cap	Plug Seal
0.5	26372	26386	26394	N.A.
0.75	26374	26388	26380	N.A.
1	26376	26390	26395	N.A.
1.5	26380	26393	26397	N.A.
2	26380	26393	26397	N.A.
3	26382	26063	26399	26403
4	26384	26405	26401	20953

## 970 Bonnet - Bill of Materials




Bonnet & Bolting Detail  
 Tank Bottom Body, Block Body &  
 Fabrications



### Bill of Materials

Item	Description	Material	Qty
1	Body	316 Stainless Steel	1
2	Bonnet	316 Stainless Steel	1
3	Handwheel	PAS	1
4	Screw, Hex Head Cap	Stn., Stl., 18-8	4
5	Compressor for Elastomer	Bronze	1
6	Elastomer Diaphragms	EPDM, Buna N	1
7	Travel Stop Screw	Stn., Stl., 18-8	1
8	Nut, Hex	Stn., Stl., 18-8	4
9	"O" Ring	FKM (FDA)	1
10	Spindle	Stn. Stl.	1
11	Washer, Plain	Stn., Stl., 18-8	4
12	Backing Cushion	EPDM	1
13	Plastic Diaphragms	PTFE, Grade TM	1
14	Tube Nut	Brass	1
15	Compressor for Plastic	Bronze	1
16	Stud	Stn. Stl., 18-8 or SA-193-B8 <sup>1</sup>	AR
17	Label Indicating	Mylar	1

Notes:1. ASME Grade fasteners available on Tank Bottom Valve.  
 Autoclave Rebuild Kit component

### Autoclavable Rebuild Kits

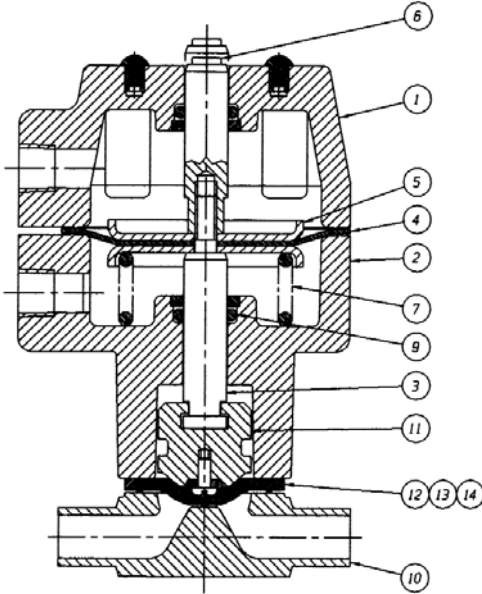
Size (in)	Kits
0.5	46249
0.75	46250
1	46251
1.5	46252
2	46253

See Bill of Materials for components in kits.

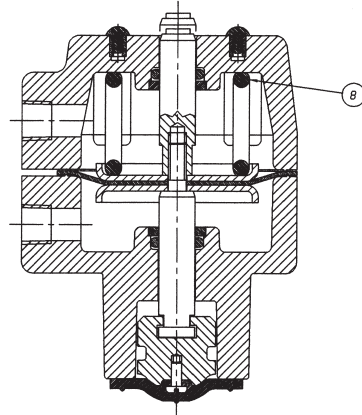
### Parts for 970 Bonnet Assembly

Size (in)	SS Bonnet	SS Spindle	PAS Handwheel	FKM O-Ring	Machine Screw
0.5	43371	39816	44164	29602	39877
0.75	43372	39816	44164	29602	39877
1	43373	39818	44164	29602	39877
1.5	43374	39820	44165	44377	39878
2	43375	39822	44166	44377	39878

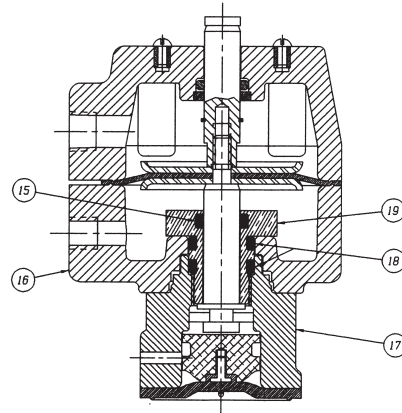
**Advantage Actuator**



**Double Acting,  
 Spring to Open, Air to Close**



**Spring to Close, Air to Open**



**Low Profile**

**Bill of Materials**

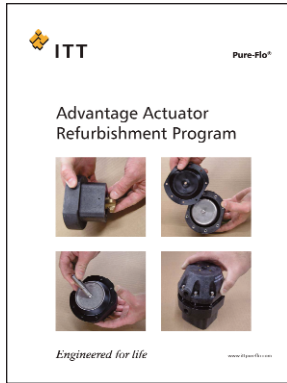
Item	Description	Material	Qty
1	Cover, Upper Actuator	PAS, Cmpl with FDA Cfr #21	1
2	Cover, Lower Actuator	PAS, Cmpl with FDA Cfr #21	1
3	Spindle	Stn. Stl.	1
4	Diaphragm, Actuator	Buna N	1
5	Plate, Actuator	Stn.Stl. or Car Stl Nickel Pl.	2
6	Spindle, Indicating	Stn. Stl.	1
7	Spring	Steel Nickel Pl.	1
8	Spring	Steel Nickel Pl.	1
*9	"O" Ring	Viton, Cmpl with FDA Cfr #21	2
10	Body, Weir 1/4"-2"	Stn. Stl., Forge, or Inv. Cast	1
11	Compressor	Stn. Stl., C.I., Zinc or Bronze	1
*12	Diaphragm, Elastomer	EPDM	1
*13	Diaphragm, Plastic	PTFE Grade TM	1
*14	Cushion, Backing	EPDM	1
*15	"O" Ring	Viton, Cmpl with FDA Cfr #21	2
16	Cover, Lower Actuator	PAS, Cmpl with FDA Cfr #21	1
*18	"O" Ring	Viton, Cmpl with FDA Cfr #21	2
19	Bushing	Brass	1

\*Recommended spare parts

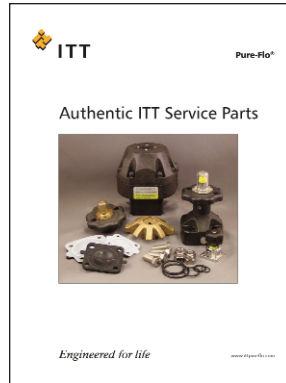
Advantage actuators contain powerful springs. Maintenance should be conducted per ITT service manuals. Contact Customer Service for required parts or for more details on the ITT Actuator Refurbishment and Retrofit Program.



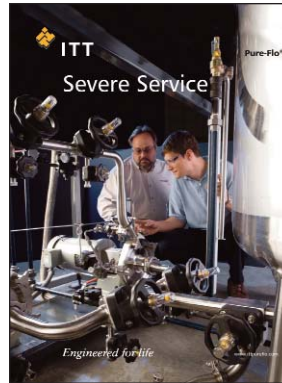
For more information check out the literature below, found at [www.ittpureflo.com](http://www.ittpureflo.com).



**Advantage Actuator Refurbishment Program**  
 PFARP-08



**Authentic ITT Service Parts**  
 PFSP-08



**Severe Service**  
 PFSSVC-08



**Certified Maintenance Training**  
 PFCM-08  
 (under development - contact local ITT representative)

For more information, please contact:

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PFSP-08  
 Use PF-08.01 Price sheet and Addendum  
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