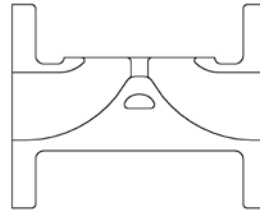


# Weir Valve Selections

## Unlined Metal

- Excellent Cvs
- Complete Selection of End Connections
- ASTM Materials Include:
  - Cast Iron ASTM A-126 Class B
  - Ductile Iron ASTM A-395 Grade 60-40-18
  - Cast Steel ASTM A-216 Grade WCB
  - 316 Stainless Steel ASTM A-351 Grade CF8M
  - 316L Stainless Steel ASTM A-351 Grade CF3M



- Bronze ASTM B62 Alloy 836
- Alloy 20 ASTM A-351 Grade CN7M
- Hastelloy C ASTM A-494 Grade CW-6M
- Monel ASTM A-494 Grade M-35-1
- And More

Sec 2: Products



### SCREWED METAL<sup>2</sup>

1/2"-3"	Cast Iron	2401
1/2"-3"	Bronze	2402
1/2"-2"	Stainless Steel (316)	2403
1/2"-2"	Cast Steel	2405
1/2"-2"	CN7M	2407
1/2"-2"	Monel	2408
1/2"-2"	Hastelloy	2410
1"-3"	Ductile Iron	2412



### FLAT-FACED FLANGED METAL<sup>1,2</sup>

1/2"-12"	Cast Iron	2431
1/2"-6"	Bronze	2432
1/2"-12"	Ductile Iron	2441

### RAISED FACE FLANGED METAL<sup>1,2</sup>

1/2"-8"	Stainless Steel	2433R
1/2"-8"	Cast Steel	2435R
1/2"-8"	CN7M	2437R
1/2"-8"	Monel	2438R
1/2"-8"	Hastelloy	2440R



### SOCKET WELD METAL<sup>2</sup>

1/2"-3"	Stainless Steel (316L)	2470
1/2"-3"	Cast Steel	2472
1/2"-3"	CN7M	2474

### SOCKET (SOLDER)

1/2"-2"	Bronze	2456
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### BUTTWELD METAL<sup>2</sup>

1/2"-6"	Stainless Steel (316L)	
	Schedule 5	2464
	Schedule 10	2465
	Schedule 40	2466

Maximum temperature for all of the above configurations is 350° F (177° C).

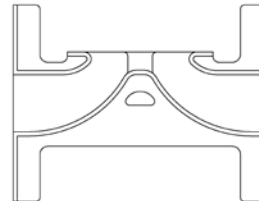
Notes:

1. 3/4" flanged valve is supplied with 1" bonnet and diaphragm.
2. 1 1/4" valves are supplied with 1 1/2" bonnet and diaphragm.
3. Temperature may decrease dependent upon media, pressure and valve size.

# Weir Valve Selections

## Rubber Lined Bodies

- 1/8" Minimum Lining Thickness Ductile Iron or Cast Iron
- Available Full Flat Faced Flange Lining
- Ductile Iron or Cast Iron Available



## Broad Choice of Lining Materials



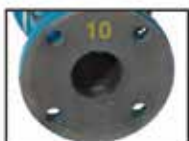
### Neoprene

A synthetic base elastomer with some physical properties similar to natural rubber. Superior to natural rubber in resistance to heat, ozone, sunlight and oil. Typical applications include phosphoric acids; magnesium oxide and sodium hydroxide. Maximum temperature 200° F (93° C)<sup>3</sup>



### Soft Rubber

Good resistance to most inorganic chemicals with the exception of strong oxidizing agents. Exhibits outstanding abrasion resistance. Typical applications include gypsum, flyash, titanium dioxide slurries and sewage. Maximum temperature 180° F (82° C)<sup>3</sup>



### Hard Rubber

Better chemical and heat resistance than soft rubber. Wide application in organic and inorganic acids and chlorine gas. Typical applications include potable water; oxidizing agents; plating solutions; salts; sludge and ferric chloride. Maximum temperature 200° F (93° C)<sup>3</sup>



### Chlorobutyl

Good heat resistance. Unaffected by cold weather or rapid temperature changes. Typical applications include hydrofluoric acid, various zinc solutions and fertilizer solutions. Maximum temperature 200° F (93° C)<sup>3</sup>



## FLANGED RUBBER LINED<sup>1,2</sup>

### CAST IRON

1/2"-12"	Neoprene	#7	2501
1/2"-12"	Soft Rubber	#5	2516
1/2"-12"	Hard Rubber	#10	2521
1/2"-12"	Chlorobutyl	#16	2522

### DUCTILE IRON

1/2"-8"	Neoprene	#7	2550
1/2"-8"	Soft Rubber	#5	2551
1/2"-8"	Hard Rubber	#10	2552

### CAST STEEL

1/2"-8"	Neoprene	#7	2561
1/2"-8"	Hard Rubber	#10	2563

Notes:

1. 3/4" flanged valve is supplied with 1" bonnet and diaphragm.
2. 1 1/4" valves are supplied with 1 1/2" bonnet and diaphragm.
3. Temperature may decrease dependent upon media, pressure and valve size.

# Weir Valve Selections

## Plastic Lined

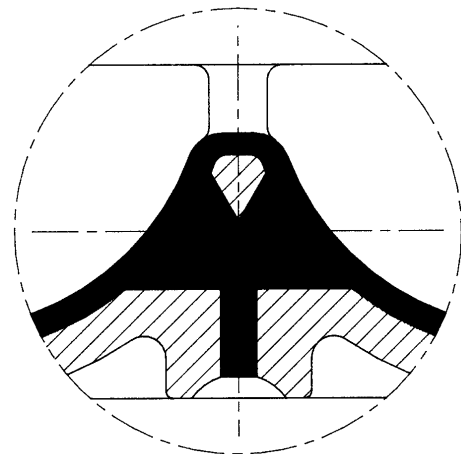
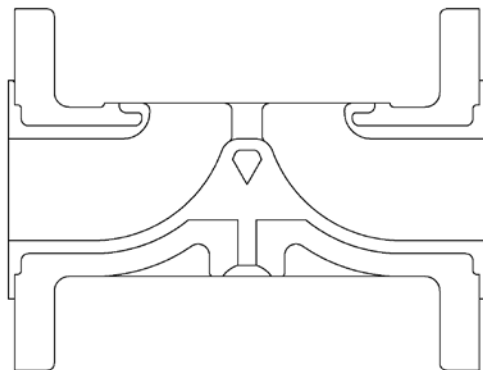
- $\frac{3}{16}$ " Minimum Lining Thickness\*
- Superior Flow Capabilities
- Line-Lok feature
- Wide Selection of Lining Materials

\*Lining thickness of PFA is .14" minimum.

Line-Lok is a unique feature of Dia-Flo® diaphragm valves. The weir area is locked firmly to the body eliminating flexing of lining during valve cycling, which can lead to premature liner failure.



Dia-Flo® weir diaphragm valve with Advantage Actuator and SP2.0 switch pack.



# Weir Valve Selections

## Plastic Lined



### PFA

Excellent chemical resistance to all common solvents, superior high purity resistance, excellent temperature resistance. Maximum temperature 350° F (177° C)<sup>3</sup>



### ETFE

Suitable for strong acids and solvents. Compatible with a very broad range of chemicals under a wide range of conditions. Maximum temperature 300° F (149° C)<sup>3</sup>



### Polypropylene

Especially suitable for organic solvents degreasing agents, excellent resistance to alkalines. Economically priced, poor resistance to chlorinated solvents. Maximum temperature 200°F (93° C)<sup>3</sup>



### PVDF

Very good corrosion and chemical resistance, performs well in many applications at elevated temperatures. Maximum temperature 285° F (140° C)<sup>3</sup>



### PVC

Very good corrosion and weather resistance. Note that temperatures may be restricted. Maximum temperature 140° F (60° C)<sup>3</sup>

## FLANGED PLASTIC LINED<sup>1,2</sup>

### CAST IRON

¾"-8"	ETFE	2529
¾"-8"	PVC	2536
¾"-8"	Polypropylene	2538
¾"-8"	Polypropylene (unpigmented)	2539
¾"-8"	PVDF	2575

### DUCTILE IRON

¾"-8"	PVDF	2555
¾"-8"	Polypropylene	2558
¾"-8"	ETFE	2559
1"-6"	PFA	2556

### CAST STEEL

¾"-8"	ETFE	2545
¾"-8"	Polypropylene	2546
¾"-8"	PVDF	2548

### STAINLESS STEEL

¾"-8"	ETFE	2549
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### Notes:

1. ¾" flanged valve is supplied with 1" bonnet and diaphragm.
2. 1¼" valves are supplied with 1½" bonnet and diaphragm.
3. Temperature may decrease dependent upon media, pressure and valve size.

# Weir Valve Selections

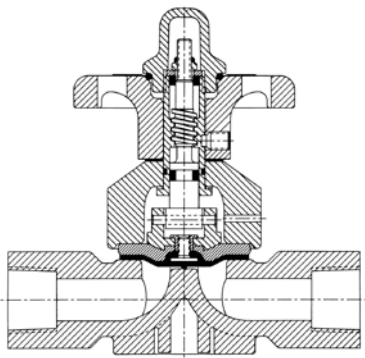
## Solid Plastic

- Lightweight and economical
- Excellent interior / exterior corrosion resistance
- Body materials include:
  - PVC (Polyvinyl chloride)
  - CPVC (Chlorinated polyvinyl chloride)
  - PVDF (Polyvinylidene fluoride)
  - Polypropylene
- End Connections include:

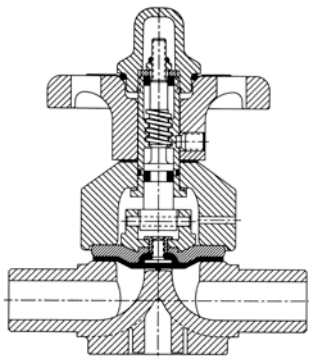


Solid plastic PVDF body with ring flanges and PAS plastic manual bonnet.

Sec 2: Products

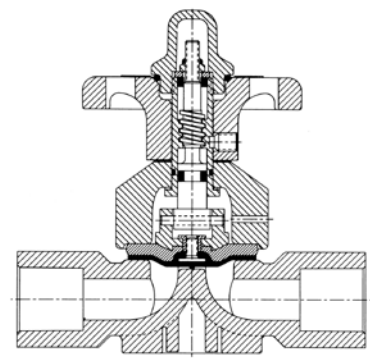


**NPT THREADED**



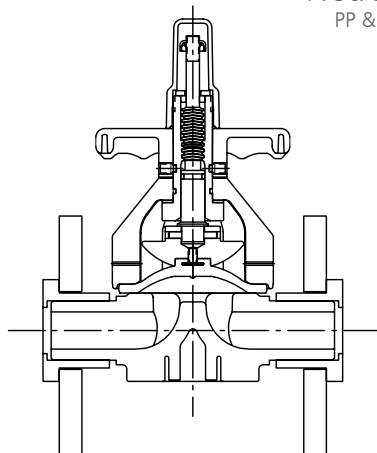
**SPIGOT WELD**

PVC & CPVC: IPS SCH 80  
PP & PVDF: DIN 11



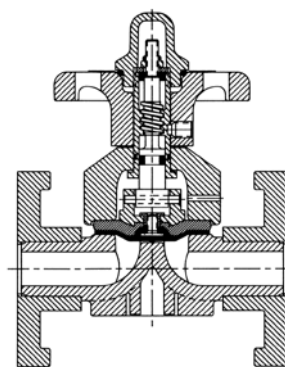
**SOCKET WELD**

PVC & CPVC: SCH. 80  
PP & PVDF: SCH. 80



**FLANGED\***

PP & PVDF: RING FLANGE



**FLANGED\***

PVC & CPVC: FIXED FLANGES

# Weir Valve Selections

## Solid Plastic

The body of the Dia-Flo plastic diaphragm valve is available in a variety of high-performance engineered polymers including polyvinyl chloride (PVC), chlorinated polyvinyl chloride (CPVC), and natural polyvinylidene fluoride (PVDF). The bonnet is manufactured from glass-reinforced polymer, PAS (polyarylsulfone). An optional PAS pneumatic actuator is also available.



### SCREWED PLASTIC<sup>4</sup>

1/2"-2"	PVC	2406
1/2"-2"	CPVC	2416
1/2"-2"	PVDF <sup>2,3</sup>	2417



### SOCKET WELD PLASTIC<sup>4</sup>

1/2"-2"	PVDF <sup>2,3</sup>	2427
1/2"-2"	PVC	2451
1/2"-2"	CPVC	2463



### FLANGED PLASTIC<sup>2,4</sup>

1/2"-4"	PVC	2436
1/2"-2"	CPVC	2442
1/2"-4"	PVDF <sup>3</sup>	2447



### SPIGOT WELD PLASTIC<sup>4</sup>

<b>IPS-SPIGOT</b>		
1/2"-2"	CPVC	2443
1/2"-4"	PVC	2486

### DLN-SPIGOT<sup>4</sup>

1/2"-4"	PVDF <sup>3</sup>	2487
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\*150# ANSI Dimensions

## Glass Lined

- Excellent lining for contaminant-free or corrosion-resistant applications
- Available in cast or ductile iron
- 100% spark testing before and after assembly assures the highest lining integrity

### Flanged Glass Lined<sup>1,4</sup>

#### Cast Iron

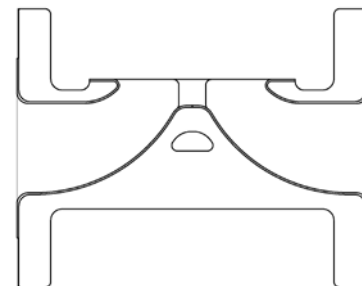
1/2"-8" Glass 2511

#### Ductile Iron

1/2"-10" Glass 2544



Maximum temperature for glass lined valves is 350° F<sup>5</sup> (177° C).



### Notes:

1. 3/4" flanged valve is supplied with 1" bonnet and diaphragm
2. Not available in 1 1/4" size
3. Unpigmented
4. 1 1/4" valves are supplied with 1 1/2" bonnet and diaphragm
5. Temperature may decrease dependent upon media, pressure and valve size

# Weir Valve Selections

The diaphragm material and design are integral to the successful performance of the diaphragm valve.

10 weir elastomer diaphragms and 2 weir PTFE diaphragms are available to handle a multitude of process fluids and parameters.

## Elastomer Diaphragms<sup>1</sup>



Grade	Material (FDA Compliant)	Size	Temperature <sup>1,2</sup>	Typical Services
Grade B	Black Butyl (FDA Compliant)	1/2"-12"	-20 to 250° F (-29 to 121° C)	Chemicals, gases, stronger acids
Grade W1	White Butyl (FDA Compliant)	1/2"-6"	0 to 225° F (-18 to 107° C)	Foods, beverages, pharmaceuticals
Grade E1	EPDM (FDA Compliant)	1/2"-8"	-30 to 300° F (-34 to 149° C)	Beverages, pharmaceuticals
Grade M	EPDM	1/2"-12"	-30 to 300° F (-34 to 149° C)	Chemicals, acids, hi-temp, abrasives
Grade S	Natural Rubber	1/2"-8"	-30 to 180° F (-34 to 82° C)	Water, abrasives
Grade T	Neoprene <sup>3</sup>	1/2"-12"	-20 to 200° F (-29 to 93° C)	Weak chemicals, air, oil resistant
Grade DP	Buna N <sup>4</sup> NBR (FDA Compliant) Direct Loaded Valve only	1/2"-3"	10 to 180° F (-12 to 82° C)	For direct load valve only
Grade P	Buna N <sup>4</sup> NBR (FDA Compliant)	1/2"-12"	+10 to 180° F (-12 to 82° C)	Foods, oils
Grade V	Viton <sup>4</sup> FKM <sup>4</sup>	1/2"-6"	-20 to 325° F (-29 to 163° C)	Specific solvents & chemicals, oils

<sup>1</sup> To be used as general guide; for complete service guide see section 5 of this binder.

<sup>2</sup> Diaphragms at maximum temperature cannot be used satisfactorily at maximum pressures. Pressure/temperature charts are provided in section 5 of this binder.

<sup>3</sup> Cast Iron, Ductile Iron & Carbon Steel should not be used below -20 degrees F (-29 C).

<sup>4</sup> Viton is a registered trademark of DuPont de Nemours and Co. Inc.

Our elastomer diaphragms are available in a variety of materials to address various process characteristics. Some elastomer diaphragms are softer and better suited to abrasive and slurry applications. Others are harder, providing greater chemical resistivity and higher temperature limitations. All elastomer diaphragms in sizes 1"-8" are molded in the closed position to provide the most effective seal. Each diaphragm contains markings identifying the size, material, mold date and diaphragm supplier.

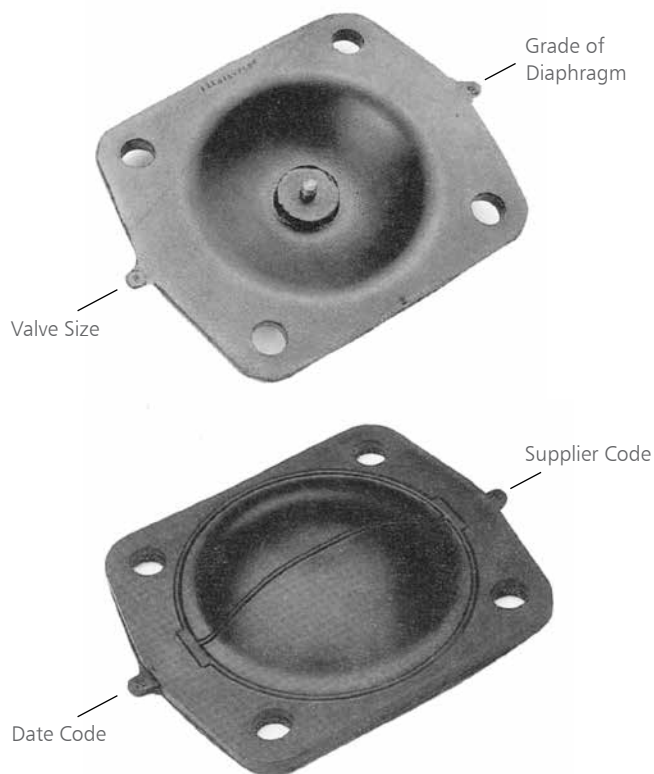
The molded closed design increases the sealing properties of the diaphragm. The relaxed position of the diaphragm is contoured to the same shape as the weir which increases the ability of the diaphragm to provide a bubble-tight shut-off.

Due to diaphragm area limitations, sizes smaller than 1" are molded open.

## Diaphragm Traceability

All diaphragm materials and physical properties are batch traceable via permanent codes molded into the diaphragm tabs. The molding date, material type, and diaphragm size provide traceability to original batch records.

## Diaphragm Identification



See chart above for Diaphragm Grades.

# Weir Valve Selections

## PTFE Diaphragms



Grade	Material (FDA Compliant)	Size	Temperature <sup>2,3</sup>
Grade TM	Modified PTFE (FDA Compliant)	1/2"-6"	-30 to 350° F (-34-177° C)
Grade R2	PTFE (FDA Compliant)	8"-10"	-30 to 350° F (-34-177° C)

The two-piece PTFE (Polytetrafluoroethylene) diaphragm assembly utilized in the Dia-Flo® diaphragm valve has proven through years of outstanding service to be the best design available. The two-piece construction, consisting of PTFE diaphragm and ethylene propylene elastomer backing cushion, fully eliminates the problem of delamination permeational cracking common to competitive "PTFE-faced" designs.

To ensure the best possible diaphragm, ITT maintains a continuing development program to utilize new materials and improve existing compounds. The result of this effort is the recent introduction of the PTFE-grade TM diaphragm (1/2"-6").

Proven benefits of the PTFE grade TM diaphragm versus conventional PTFE diaphragms are:

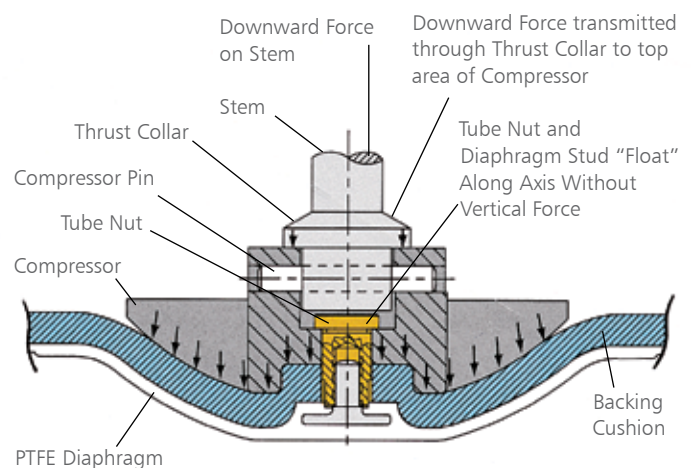
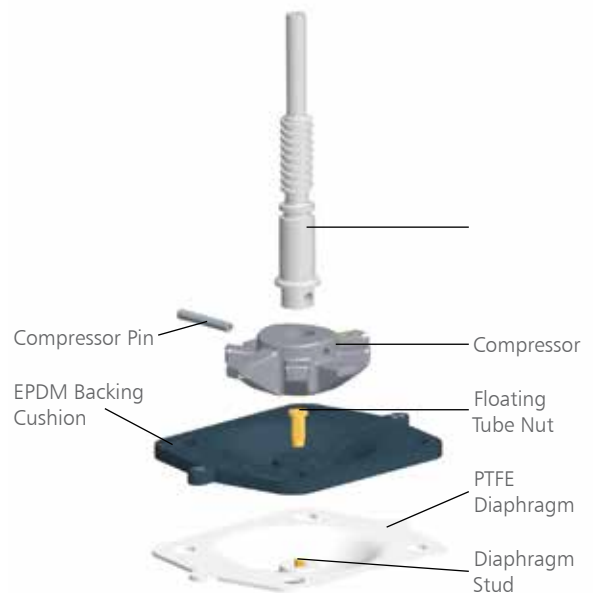
- Reduced permeation due to a more homogeneous microstructure with minimal voids
- Reduced cold flow similar to 25% carbon reinforced PTFE
- Increased cycle life due to a more amorphous compound



PTFE Diaphragm Assembly

## Floating Tube Nut

The floating tube nut feature contributes largely to the successful operation of plastic diaphragms in Dia-Flo® diaphragm valves. The downward force of the stem is transferred to the compressor, bypassing the tube nut. The result is that forces are evenly distributed over the seating area of the diaphragm, thus reducing cold flow and stud pull out concerns. This design is also used on 6" and larger elastomer diaphragms.





# Weir Valve Selections

## Manual Bonnet Assemblies

Dia-Flo® diaphragm valve bonnet assemblies are equipped as standard with:

- Bronze Stem Bushing
- Molded-In Fingers\*
- Grease Fitting\*\* (6"-12")
- Thrust Bearing Visual Position Indication
- Adjustable Travel Stop (1/2"-4")
- Permanently Sealed Lubrication (1/2"-4")
- Clear Stem Cover (1/2"-4")

\*In conjunction with the compressor, the fingers positively support the diaphragm from the closed to open position. The diaphragm is lifted high when the valve is opened and is pressed tightly against the weir when the valve is closed. It is supported in all positions by alternate fingers of the compressor and bonnet. Fingerplates in place of molded in fingers are utilized in 3" through 6" stainless steel bonnet assemblies.

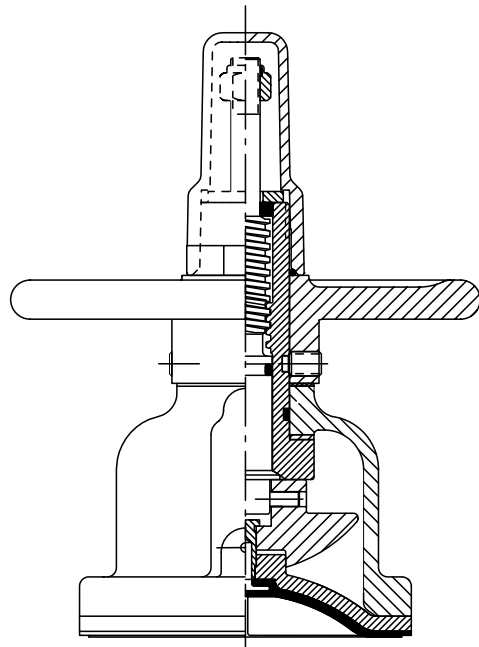
For specific 902 and 903 bonnet parts call-out refer to the technical section of this binder.

Refer to Bonnet Assembly Options pages for other bonnet variations.



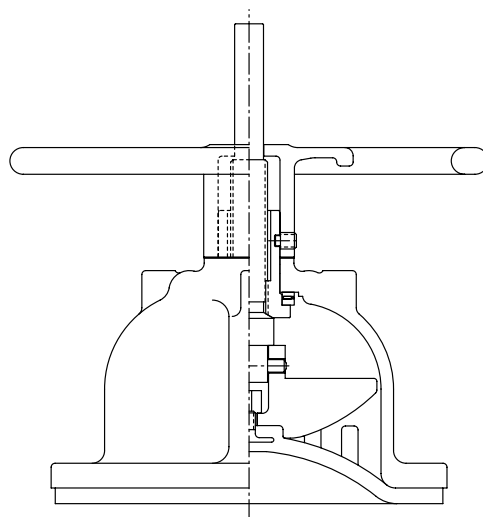
PVDF corrosion resistant coated bonnet shows the molded-in fingers utilized to support the diaphragm in the open position.

\*\* Not used with sealed bonnet



**903 BONNET ASSEMBLY**

Standard on valves 1/2"-4"



**902 BONNET ASSEMBLY**

Standard on valves 6"-12".

See technical section for parts call-outs and materials for 902 and 903 assemblies.