

# AVCO

*Alloy Valves and Control*

## BALL VALVES 1700 SERIES



### Size

1/4" - 4" (Full Port)  
2000 WOG

### End Connections

NPT  
Butt Weld  
Socket Weld  
Flanged (150#, 300#, 600#)

### Valve Materials

316 Stainless Steel  
Carbon Steel  
Hastelloy C  
Monel

### Ball and Stem Materials

316 Stainless Steel  
Hastelloy B & C  
Monel 400  
Alloy 20

### Seat Materials

Teflon (PTFE)  
25% Carbon Filled Teflon  
15% Glass Filled Teflon  
Kel-F (PCTFE)  
PEEK  
UHMWPE  
Metals

### Service Applications

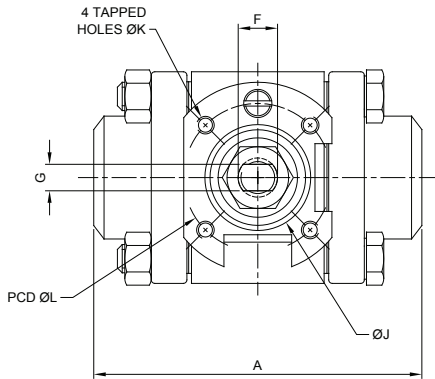
Chemical  
Dry/Liquid Chlorine  
Food Processing  
Hydraulic  
Oxygen  
Steam  
Thermal Fluids  
Vacuum  
Water/Oil/Gas

### Applicable Standards

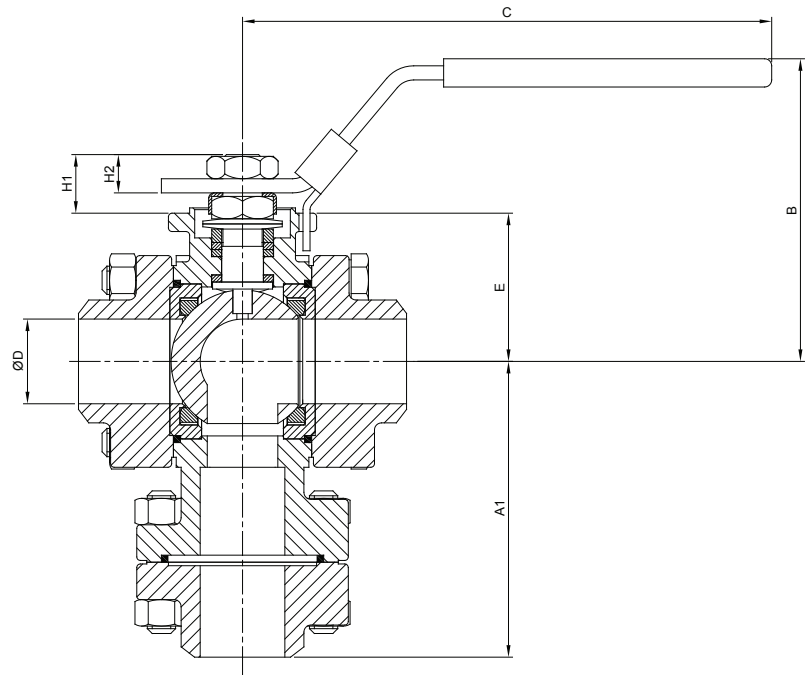
ASME B16.34  
API 598

### Alloy Valves and Control

#### 1/4" THRU 2" (NPT, BW, SW)

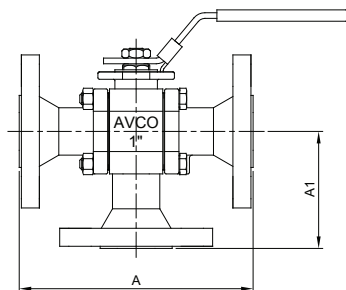


Plan View with Handle Removed



| SIZE   | A (in.) | A1 (in.) | B (in.) | C (in.) | D (in.) | E (in.) | F (in.) | G (in.) | H1 (in.) | H2 (in.) | J (in.) | K  | L (in.) | ISO 5211 | Weight (lbs) | TORQUE (in-lbs) |
|--------|---------|----------|---------|---------|---------|---------|---------|---------|----------|----------|---------|----|---------|----------|--------------|-----------------|
| 1/4"   | 2.61    | 2.72     | 2.48    | 4.53    | 0.36    | 1.24    | 0.38    | 0.22    | 0.52     | 0.28     | 0.98    | M5 | 1.42    | F03      | 2            | 65              |
| 3/8"   | 2.61    | 2.72     | 2.48    | 4.53    | 0.49    | 1.24    | 0.38    | 0.22    | 0.52     | 0.28     | 0.98    | M5 | 1.42    | F03      | 2            | 65              |
| 1/2"   | 2.97    | 2.90     | 2.48    | 4.53    | 0.59    | 1.24    | 0.38    | 0.22    | 0.52     | 0.28     | 0.98    | M5 | 1.42    | F03      | 2            | 65              |
| 3/4"   | 3.17    | 3.05     | 2.56    | 4.53    | 0.75    | 1.32    | 0.38    | 0.22    | 0.52     | 0.29     | 0.98    | M5 | 1.42    | F04      | 2.5          | 80              |
| 1"     | 3.67    | 3.31     | 3.38    | 5.91    | 0.95    | 1.65    | 0.44    | 0.30    | 0.65     | 0.43     | 1.18    | M5 | 1.65    | F04      | 4            | 120             |
| 1 1/4" | 4.37    | 3.93     | 3.50    | 5.91    | 1.18    | 1.82    | 0.44    | 0.30    | 0.67     | 0.47     | 1.18    | M5 | 1.65    | F04      | 6            | 235             |
| 1 1/2" | 4.72    | 4.23     | 3.92    | 6.85    | 1.50    | 1.90    | 0.57    | 0.34    | 1.14     | 0.60     | 1.38    | M6 | 1.97    | F05      | 8            | 290             |
| 2"     | 5.53    | 4.85     | 4.25    | 6.85    | 1.97    | 2.22    | 0.57    | 0.34    | 1.14     | 0.60     | 1.38    | M6 | 1.97    | F05      | 14           | 450             |

#### 1/2" THRU 2" (Standard Flanged Ends 150#, 300#, 600#)



| SIZE   | A (in.) |      |       | A1 (in.) |      |      |
|--------|---------|------|-------|----------|------|------|
|        | 150#    | 300# | 600#  | 150#     | 300# | 600# |
| 1/2"   | 5.50    | 5.50 | 6.50  | 2.75     | 2.75 | 3.25 |
| 3/4"   | 6.00    | 6.00 | 7.50  | 3.00     | 3.00 | 3.75 |
| 1"     | 6.50    | 6.50 | 8.50  | 3.25     | 3.25 | 4.25 |
| 1 1/4" | 7.00    | 7.00 | 9.00  | 3.50     | 3.50 | 4.50 |
| 1 1/2" | 7.50    | 7.50 | 9.50  | 3.75     | 4.33 | 4.75 |
| 2"     | 8.50    | 8.50 | 11.50 | 4.25     | 4.75 | 5.75 |

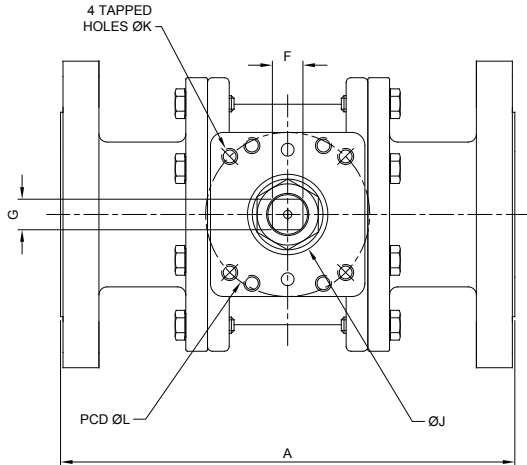
See main table on this page for all other dimensions

#### Note

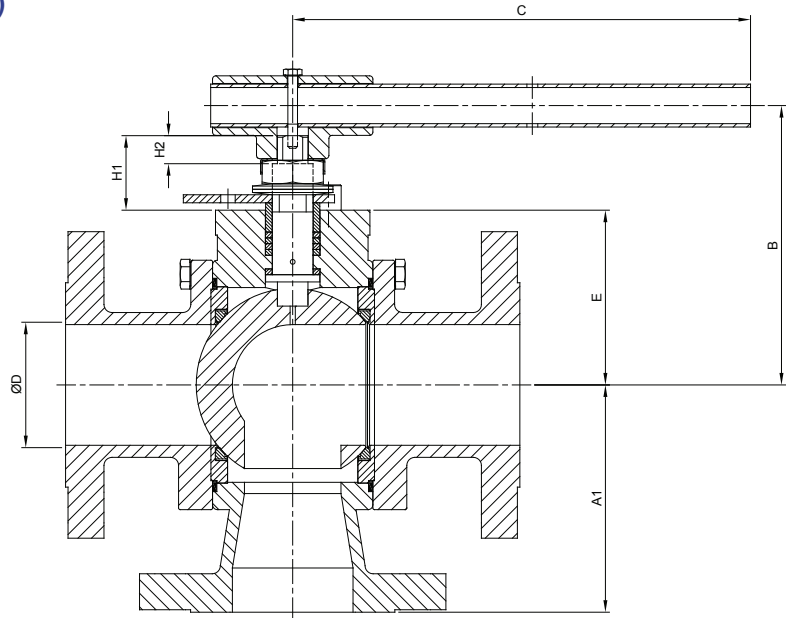
Please contact AVCO if you require flanged ends to be other than standard raised face.

## Alloy Valves and Control

2 1/2" THRU 4" (FLANGED 150#, 300#, 600#)

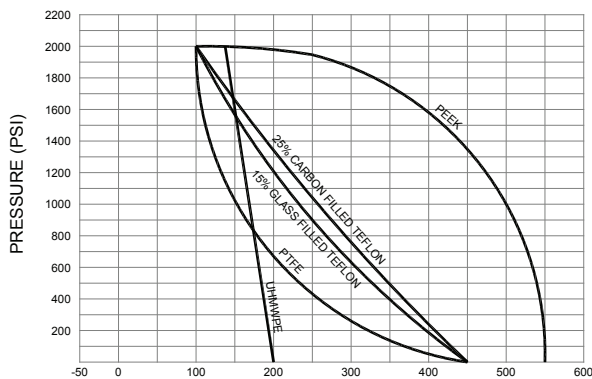


Plan View with Handle Removed



| SIZE   | A (in.) |       |       | A1 (in.) |      |      | B (in.) | C (in.) | D (in.) | E (in.) | F (in.) | G (in.) | H1 (in.) | H2 (in.) | J (in.) | K   | L (in.) | ISO 5211 | Weight (lbs) | TORQUE (in-lbs) |
|--------|---------|-------|-------|----------|------|------|---------|---------|---------|---------|---------|---------|----------|----------|---------|-----|---------|----------|--------------|-----------------|
|        | 150#    | 300#  | 600#  | 150#     | 300# | 600# |         |         |         |         |         |         |          |          |         |     |         |          |              |                 |
| 2 1/2" | 9.50    | 9.50  | 13.00 | 4.75     | 5.75 | 6.50 | 5.28    | 8.84    | 2.52    | 3.25    | 0.79    | 0.55    | 1.65     | 0.72     | 1.58    | M8  | 2.76    | F07      | 22           | 685             |
| 3"     | 11.12   | 11.12 | 14.00 | 6.25     | 6.25 | 7.00 | 6.84    | 13.74   | 2.95    | 4.28    | 0.75    | 0.75    | 1.82     | 0.69     | 1.97    | M10 | 4.02    | F10      | 35           | 1200            |
| 4"     | 12.00   | 12.00 | 17.00 | 7.25     | 7.25 | 8.50 | 7.37    | 13.74   | 3.78    | 4.81    | 0.75    | 0.75    | 1.82     | 0.69     | 1.97    | M10 | 4.02    | F10      | 55           | 2000            |

### Pressure/Temperature Rating



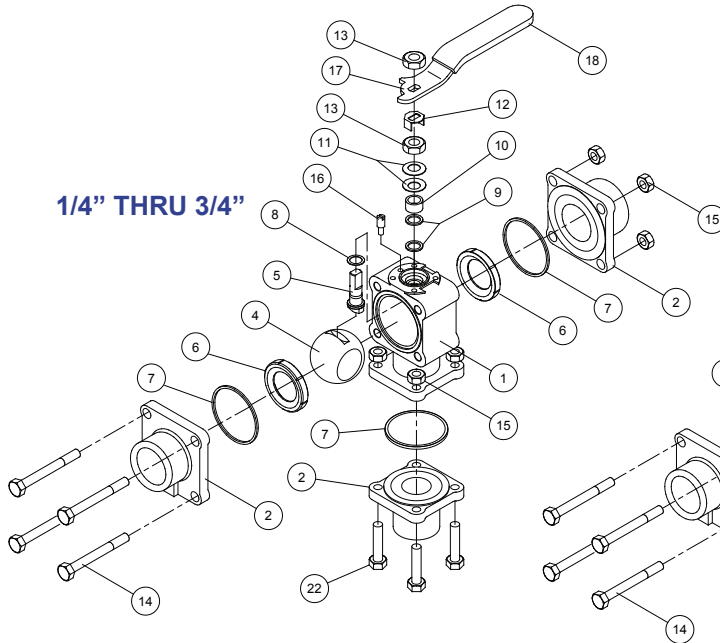
### Notes

Please contact AVCO if you require customized versions of our valves. CAD drawings are available for most variations, including actuators etc.

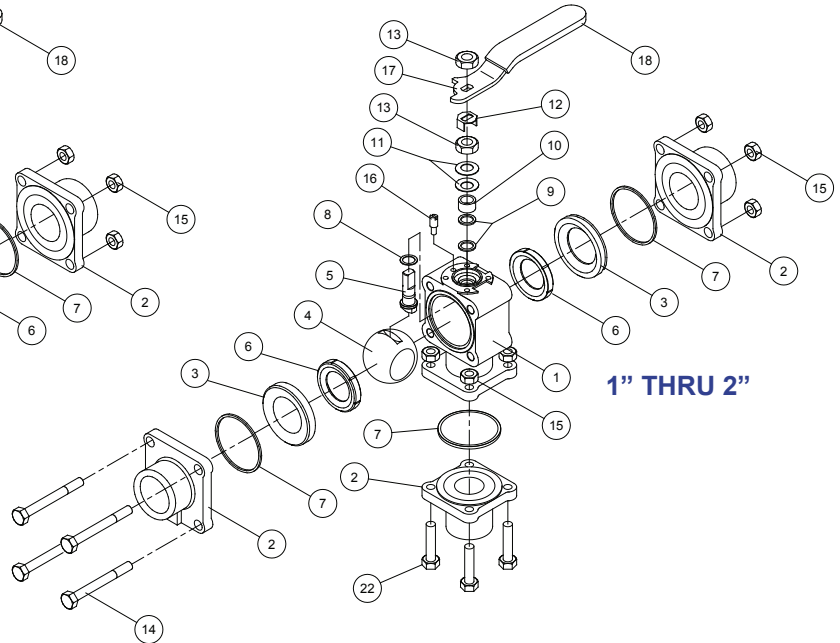
### Alloy Valves and Control

1/4" THRU 2" (NPT, BW, SW)

1/4" THRU 3/4"

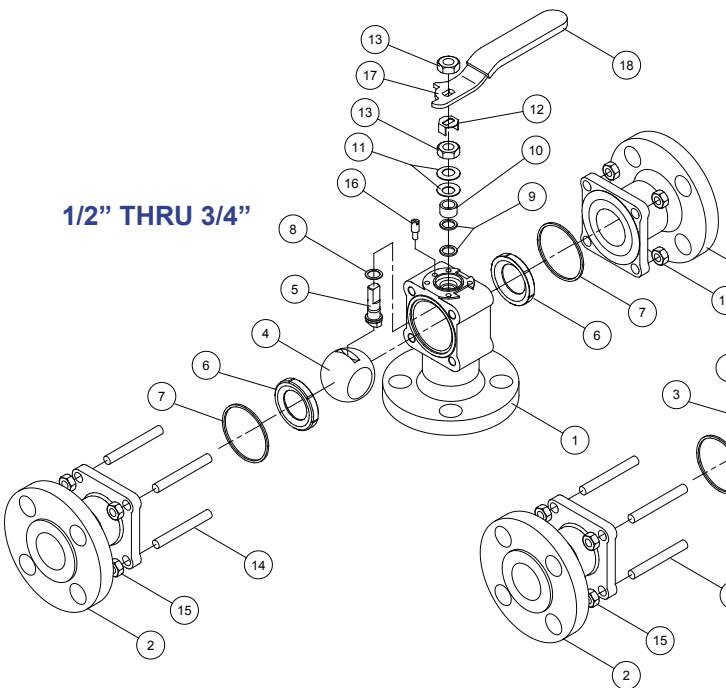


1" THRU 2"

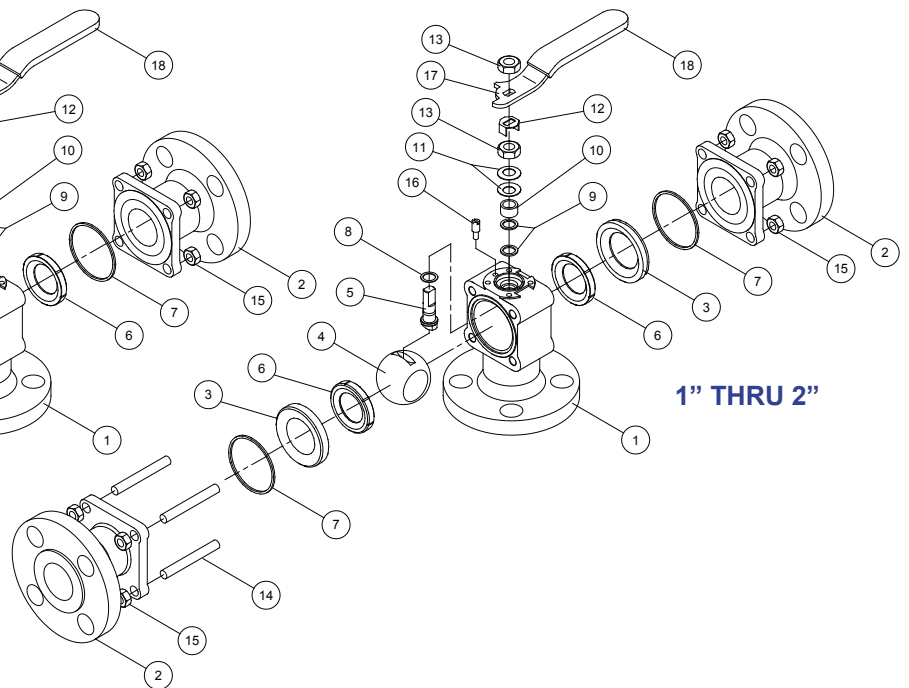


1/4" THRU 2" (FLANGED)

1/2" THRU 3/4"

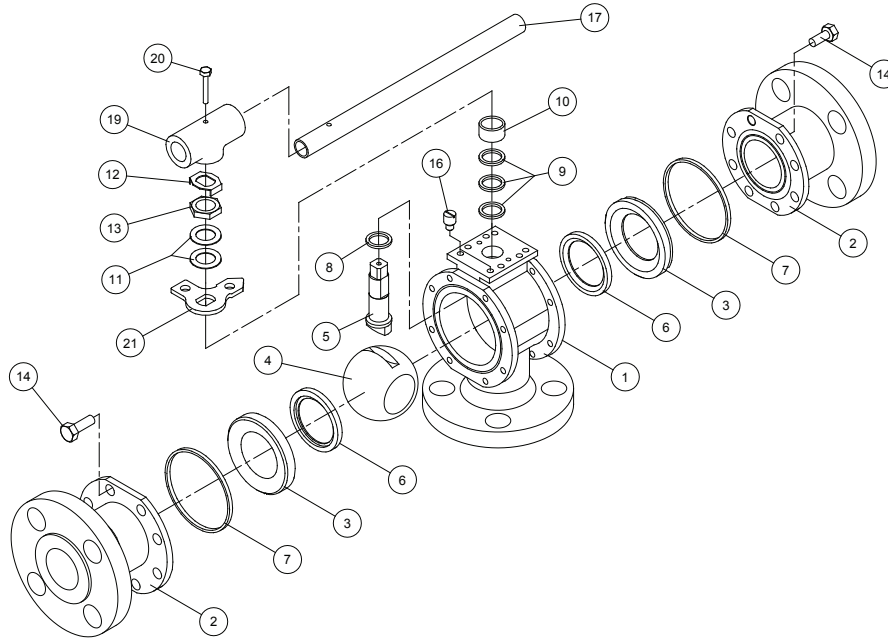


1" THRU 2"



*Alloy Valves and Control*

2 1/2" THRU 4" (FLANGED)



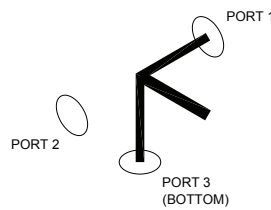
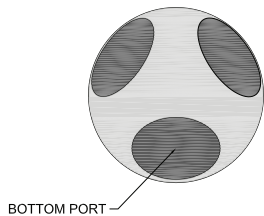
### Features

ANSI Class 150#, 300# & 600#  
 2000 WOG  
 Encapsulated Seats, Seals & Body Bolts  
 Spring Loaded Stem Packing  
 Bottom Entry Stem to Prevent Blow-Out  
 ISO 5211 Mounting Pad  
 Locking Handle  
 Inter-Changeable End Connections

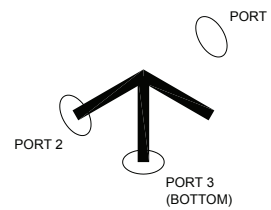
| Item | Parts         |
|------|---------------|
| 1    | Body          |
| 2    | End Cap       |
| 3    | Retainer      |
| 4    | Ball          |
| 5    | Stem          |
| 6    | Ball Seat     |
| 7    | Body Seal     |
| 8    | Thrust Washer |
| 9    | Packing       |
| 10   | Gland Ring    |
| 11   | Disc Spring   |
| 12   | Lock Tab      |
| 13   | Stem Nut      |
| 14   | Body Bolt     |
| 15   | Body Nut      |
| 16   | Stop Pin      |
| 17   | Handle        |
| 18   | Handle Sleeve |
| 19   | Wrench Block  |
| 20   | Handle Bolt   |
| 21   | Lock Pad      |
| 22   | End Cap Bolt  |

### Alloy Valves and Control

#### Ball Options



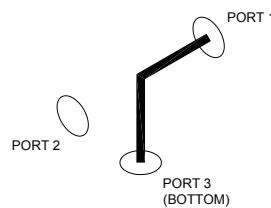
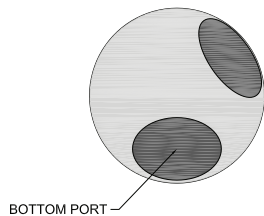
**Start Position**



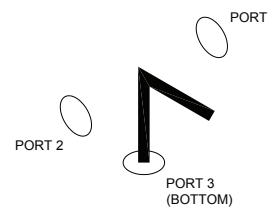
**90 Degree Rotation**

#### 90 Degree Diverter Ball

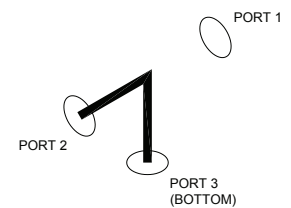
Media flows between port 1 and port 3 when the valve handle is in-line with pipeline. Upon 90 degree rotation the media is diverted to flow between port 2 and port 3. The valve handle can be locked off in either position thus preventing unwanted tampering.



**Start Position**



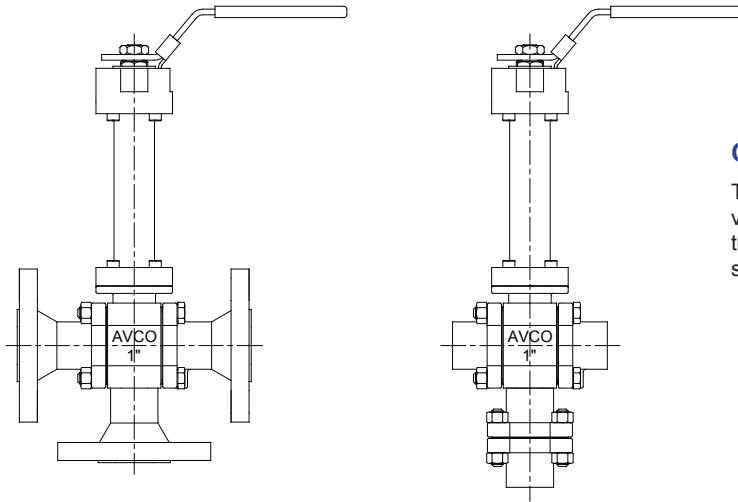
**90 Degree Rotation**



**180 Degree Rotation**

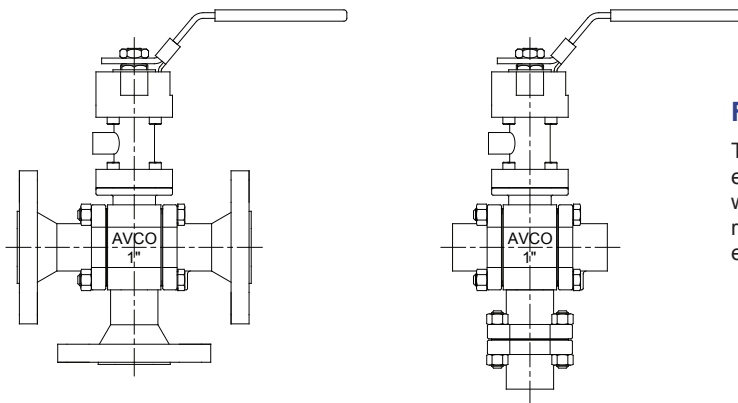
#### 180 Degree Diverter Ball

Media flows between port 1 and port 3 and can be locked off in this position. Upon 90 degree rotation the valve will be isolated resulting in no flow and can be locked off. Upon 180 degree rotation the flow path diverts to port 2 and port 3, but cannot be locked off.



### **Cryogenic Option**

The AVCO 1700 series ball valves are available as cryogenic valves. The extended bonnet can be shortened or lengthened to suit many applications and is also available 'off the shelf' in standard lengths (see 1500 series literature).



### **Fugitive Emissions Option**

The AVCO 1700 series ball valves can be supplied with fugitive emissions (sniffer) bonnets. This gives an early warning system when the valve stem packing is becoming worn and ready for renewal, thus preventing dangerous chemicals/gases from entering the surrounding environment.



### **Vee Port and Slotted Ball Option**

The AVCO 1700 series ball valves can be supplied with vee port or slotted balls for greater control and accuracy. Many configurations are available to suit the needs of the customer.



### Electric Actuator

120 VAC  
12/24 VDC  
NEMA 4/7  
Positioners 4-20 mA  
Reversing  
Telemetry  
Battery Back-up  
Spring Return



### Pneumatic Actuator

Double Acting  
Spring Return  
Solenoid Valves  
Limit Switches  
Positioners 3-15 psi  
Positioners 4-20 mA  
Intelligent Positioner  
Declutchable Manual Override



### Manual Valves

Oval Handle  
Spring Return  
Fusible Link  
Lock Device  
Gear Operators

## HOW TO ORDER

| 17   | 3                     | 3                    | T                   | T                   | SE   | 100          | BAB90                                       |
|--|-----------------------|----------------------|---------------------|---------------------|--|--------------|---|
| Series   | Body & End Material   | Ball & Stem Material | Seat Material       | Seal Material       | End Style  | Size         | Options                                     |
| 1700 Series 3 Piece Bottom Entry Diverter Ball Valve | 1 - Carbon Steel      | 2 - Alloy 20         | T - Teflon (PTFE)   | T - Teflon (PTFE)   | SE - NPT   | 025 - 1/4"   | BAB90 - 90° Rotation Ball                   |
|  | 1L - Low Grade Carbon | 3 - 316 SS           | R - 15% Glass PTFE  | C - 25% Carbon PTFE | SW - Socket Weld   | 038 - 3/8"   | BAB180 - 180° Rotation Ball                 |
|  | 2 - Alloy 20          | 4 - Monel 400        | C - 25% Carbon PTFE | G - Graphoil        | BW - Butt Weld   | 050 - 1/2"   | BAHL - Hardened Ball                        |
|  | 3 - 316 SS            | 5 - Hastelloy B      | P - PEEK            | B - BUNA N          | GR - Grooved   | 075 - 3/4"   | BNIE - Emissions Bonnet                     |
|  | 4 - Monel 400         | 6 - Hastelloy C      | U - UHMWPE          | E - EPDM            | FBT - Flush Bottom Tank  | 100 - 1"     | CF - Cavity Filled                          |
|  | 5 - Hastelloy B       | 7 - Inconel 625      | K - Kel-F (PCTFE)   | V - Viton           | BSP - British Standard Pipe  | 125 - 1 1/4" | O2CB - O2 Clean/Bagged                      |
|  | 6 - Hastelloy C       | 8 - Titanium         | B - Bronze          | N - Neoprene        | AN - Army Navy   | 150 - 1 1/2" | LH - Locking Lever Handle                   |
|  | 7 - Inconel 625       | 9 - Aluminum         | S - Stellite        |                     | 150 - 150# Flange  | 200 - 2"     |   |
|  | 8 - Titanium          |                      | I - Inconel         |                     | 300 - 300# Flange  | 250 - 2 1/2" |   |
|  | 9 - Aluminum          |                      |                     |                     | 600 - 600# Flange  | 300 - 3"     |   |
|  |                       |                      |                     |                     | 400 - 4"   |              |   |
|  |                       |                      |                     |                     | Variations of the above or special ends can be supplied upon request |              | Customized Ports are available upon request |

### Example ordering codes:

1733TT-SE-100-BAB90 = 1" ball valve with stainless steel body/ball, Teflon seats/seals, NPT ends, 90° Rotation Ball & locking lever handle  
1144PG-150-100-BAB180= 1" ball valve with Monel 400 body/ball, PEEK seats, Graphoil Seals, 150# RF Flange, 180° Rotation Ball and bare stem

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