

AVCO

Alloy Valves and Control

TRUNNION BALL VALVES 11100 SERIES



Size

2" - 28" (Full Port)
Fire Safe as Standard

End Connections

150# RF Flanged
300# RF Flanged
600# RF or RTJ Flanged
900# RF or RTJ Flanged
1500# RF or RTJ Flanged
2500# RF or RTJ Flanged
Butt Weld

Valve Materials

304/304L/316/316L Stainless Steel
Carbon Steel
Low Temp. Carbon Steel

Ball and Stem Materials

304/304L/316/316L Stainless Steel
Nickel Plated Carbon Steel

Seat Materials

Teflon
Nylon
PEEK
Devlon
Metal

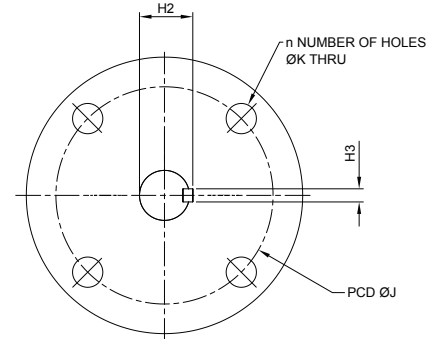
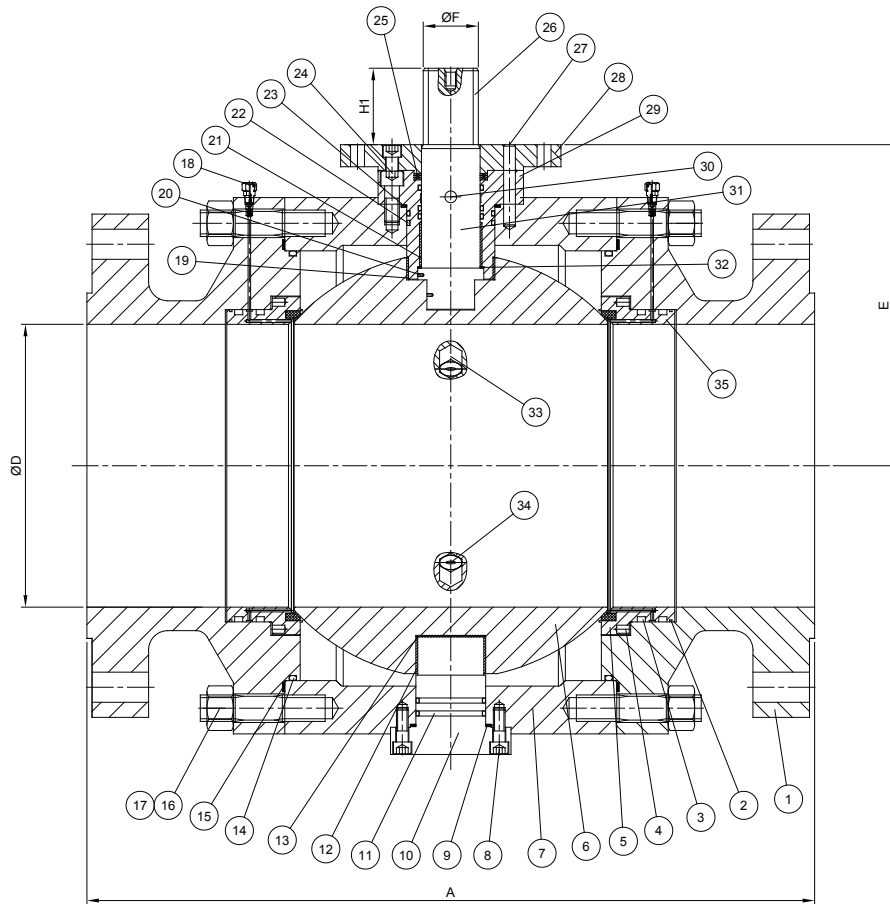
Service Applications

Chemical
Food Processing
Oxygen
Refining
Steam
Thermal Fluids
Water/Oil/Gas

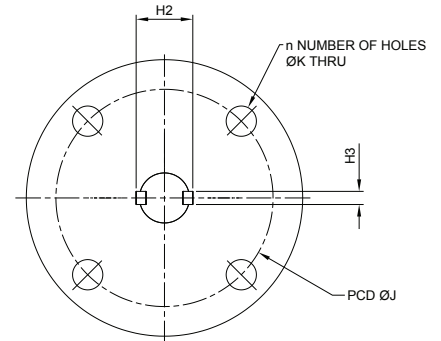
Applicable Standards

ASME B16.34
ASME B16.10
ASME B16.5
API 607/API 6FA
API 6D

Alloy Valves and Control



MOUNT PAD DETAIL (SINGLE KEY)
STEM DIAMETER <30mm



MOUNT PAD DETAIL (DOUBLE KEY)
STEM DIAMETER >30mm

ANSI Class 150 Dimensions

| SIZE | A (mm) | | D (mm) | E (mm) | F (mm) | H1 (mm) | H2 (mm) | H3 (mm) | J (mm) | K (mm) | n | ISO 5211 | Weight (kg) | TORQUE (N.m) | CV |
|--------|------------|-----------|--------|--------|--------|---------|---------|---------|--------|--------|---|----------|-------------|--------------|--------|
| | RF Flanged | Butt Weld | | | | | | | | | | | | | |
| 2" | 178 | 216 | 49 | 115 | 20 | 30 | 22.5 | 6 | 102 | 11 | 4 | F10 | 21 | 45 | 500 |
| 2 1/2" | 191 | 241 | 62 | 128 | 24 | 36 | 27 | 8 | 102 | 11 | 4 | F10 | 28 | 65 | 1050 |
| 3" | 203 | 283 | 74 | 135 | 24 | 36 | 27 | 8 | 102 | 11 | 4 | F10 | 35 | 100 | 1300 |
| 4" | 229 | 305 | 100 | 175 | 28 | 42 | 31 | 8 | 125 | 14 | 4 | F12 | 55 | 165 | 2300 |
| 6" | 394 | 457 | 150 | 242 | 36 | 48 | 42 | 10 | 165 | 23 | 4 | F16 | 164 | 400 | 5400 |
| 8" | 457 | 521 | 201 | 290 | 40 | 60 | 46 | 12 | 165 | 23 | 4 | F16 | 270 | 680 | 10000 |
| 10" | 533 | 559 | 252 | 328 | 50 | 75 | 57 | 14 | 254 | 19 | 8 | F25 | 440 | 1150 | 17800 |
| 12" | 610 | 635 | 303 | 375 | 55 | 85 | 62 | 16 | 254 | 19 | 8 | F25 | 635 | 1650 | 26000 |
| 14" | 686 | 762 | 335 | 405 | 65 | 95 | 73 | 18 | 254 | 19 | 8 | F25 | 850 | 2650 | 32000 |
| 16" | 762 | 838 | 385 | 460 | 65 | 95 | 73 | 18 | 254 | 19 | 8 | F25 | 1140 | 3350 | 44000 |
| 18" | 864 | 914 | 436 | 498 | 75 | 115 | 84 | 20 | 254 | 19 | 8 | F25 | 1450 | 4800 | 58000 |
| 20" | 914 | 991 | 487 | 545 | 85 | 125 | 95 | 22 | 254 | 19 | 8 | F25 | 1940 | 6400 | 75000 |
| 24" | 1067 | 1143 | 589 | 640 | 95 | 130 | 105 | 25 | 298 | 23 | 8 | F30 | 2805 | 11500 | 111200 |
| 28" | 1245 | 1346 | 684 | 715 | 105 | 150 | 117 | 28 | 356 | 33 | 8 | F35 | 4050 | 17000 | 143000 |

Alloy Valves and Control

ANSI Class 300 Dimensions

| SIZE | A (mm) | | D (mm) | E (mm) | F (mm) | H1 (mm) | H2 (mm) | H3 (mm) | J (mm) | K (mm) | n | ISO 5211 | Weight (kg) | TORQUE (N.m) | CV |
|--------|------------|-----------|--------|--------|--------|---------|---------|---------|--------|--------|---|----------|-------------|--------------|--------|
| | RF Flanged | Butt Weld | | | | | | | | | | | | | |
| 2" | 216 | 216 | 49 | 115 | 20 | 30 | 22.5 | 6 | 102 | 11 | 4 | F10 | 25 | 80 | 470 |
| 2 1/2" | 241 | 241 | 62 | 128 | 24 | 36 | 27 | 8 | 102 | 11 | 4 | F10 | 32 | 120 | 850 |
| 3" | 283 | 283 | 74 | 135 | 24 | 36 | 27 | 8 | 102 | 11 | 4 | F10 | 48 | 210 | 1100 |
| 4" | 305 | 305 | 100 | 180 | 28 | 42 | 31 | 8 | 125 | 14 | 4 | F12 | 80 | 360 | 2200 |
| 6" | 403 | 457 | 150 | 238 | 36 | 48 | 42 | 10 | 165 | 23 | 4 | F16 | 175 | 720 | 5400 |
| 8" | 502 | 521 | 201 | 295 | 40 | 60 | 46 | 12 | 165 | 23 | 4 | F16 | 295 | 1050 | 10000 |
| 10" | 568 | 559 | 252 | 328 | 50 | 75 | 57 | 14 | 254 | 19 | 8 | F25 | 510 | 1850 | 17100 |
| 12" | 648 | 635 | 303 | 385 | 55 | 85 | 62 | 16 | 254 | 19 | 8 | F25 | 758 | 2750 | 25000 |
| 14" | 762 | 762 | 335 | 415 | 65 | 95 | 73 | 18 | 254 | 19 | 8 | F25 | 975 | 3850 | 31000 |
| 16" | 838 | 838 | 385 | 465 | 65 | 95 | 73 | 18 | 254 | 19 | 8 | F25 | 1350 | 5150 | 42000 |
| 18" | 914 | 914 | 436 | 510 | 75 | 115 | 84 | 20 | 254 | 19 | 8 | F25 | 1715 | 6800 | 56000 |
| 20" | 991 | 991 | 487 | 560 | 85 | 125 | 95 | 22 | 298 | 23 | 8 | F30 | 2080 | 8350 | 72000 |
| 24" | 1143 | 1143 | 589 | 655 | 95 | 130 | 105 | 25 | 298 | 23 | 8 | F30 | 3850 | 15500 | 102000 |
| 28" | 1346 | 1346 | 684 | 725 | 105 | 150 | 117 | 28 | 356 | 33 | 8 | F35 | 4570 | 23000 | 123000 |

ANSI Class 600 Dimensions

| SIZE | A (mm) | | D (mm) | E (mm) | F (mm) | H1 (mm) | H2 (mm) | H3 (mm) | J (mm) | K (mm) | n | ISO 5211 | Weight (kg) | TORQUE (N.m) | CV |
|--------|--------------------------|-------------|--------|--------|--------|---------|---------|---------|--------|--------|---|----------|-------------|--------------|--------|
| | RF Flanged/ Butt Weld | RTJ Flanged | | | | | | | | | | | | | |
| 2" | 292 | 295 | 49 | 120 | 24 | 35 | 27 | 8 | 102 | 11 | 4 | F10 | 33 | 165 | 400 |
| 2 1/2" | 330 | 333 | 62 | 148 | 32 | 45 | 38 | 10 | 125 | 14 | 4 | F12 | 52 | 280 | 875 |
| 3" | 356 | 359 | 74 | 165 | 32 | 45 | 38 | 10 | 125 | 14 | 4 | F12 | 65 | 340 | 1000 |
| 4" | 432 | 435 | 100 | 198 | 36 | 55 | 42 | 10 | 125 | 14 | 4 | F12 | 110 | 450 | 1800 |
| 6" | 559 | 562 | 150 | 268 | 40 | 65 | 46 | 12 | 165 | 23 | 4 | F16 | 285 | 1750 | 4500 |
| 8" | 660 | 664 | 201 | 320 | 50 | 75 | 57 | 14 | 165 | 23 | 4 | F16 | 470 | 2450 | 8900 |
| 10" | 787 | 791 | 252 | 377 | 65 | 100 | 73 | 18 | 254 | 19 | 8 | F25 | 760 | 3850 | 14500 |
| 12" | 838 | 841 | 303 | 408 | 65 | 100 | 73 | 18 | 254 | 19 | 8 | F25 | 1010 | 5800 | 22000 |
| 14" | 889 | 892 | 335 | 430 | 75 | 110 | 84 | 20 | 254 | 19 | 8 | F25 | 1350 | 8550 | 28000 |
| 16" | 991 | 994 | 385 | 500 | 75 | 110 | 84 | 20 | 254 | 19 | 8 | F25 | 1750 | 9500 | 39000 |
| 18" | 1092 | 1095 | 436 | 560 | 85 | 130 | 95 | 22 | 298 | 23 | 8 | F30 | 2285 | 15350 | 51000 |
| 20" | 1194 | 1200 | 487 | 658 | 95 | 140 | 105 | 25 | 298 | 23 | 8 | F30 | 2815 | 22000 | 66000 |
| 24" | 1397 | 1407 | 589 | 685 | 115 | 170 | 129 | 32 | 356 | 33 | 8 | F35 | 4920 | 31500 | 92000 |
| 28" | 1549 | 1562 | 684 | 750 | 125 | 185 | 139 | 32 | 406 | 39 | 8 | F40 | 6050 | 45000 | 122000 |

Alloy Valves and Control

ANSI Class 900 Dimensions

| SIZE | A (mm) | | D (mm) | E (mm) | F (mm) | H1 (mm) | H2 (mm) | H3 (mm) | J (mm) | K (mm) | n | ISO 5211 | Weight (kg) | TORQUE (N.m) | CV |
|--------|--------------------------|-------------|-----------|-----------|-----------|------------|------------|------------|-----------|-----------|---|-------------|----------------|-----------------|-------|
| | RF Flanged/ Butt Weld | RTJ Flanged | | | | | | | | | | | | | |
| 2" | 368 | 371 | 49 | 132 | 28 | 45 | 31 | 8 | 125 | 14 | 4 | F12 | 65 | 195 | 360 |
| 2 1/2" | 419 | 422 | 62 | 165 | 32 | 50 | 38 | 10 | 125 | 14 | 4 | F12 | 80 | 380 | 750 |
| 3" | 381 | 384 | 74 | 178 | 38 | 58 | 44 | 10 | 125 | 14 | 4 | F12 | 95 | 550 | 1000 |
| 4" | 457 | 460 | 100 | 205 | 42 | 65 | 48 | 12 | 165 | 23 | 4 | F16 | 154 | 950 | 1800 |
| 6" | 610 | 613 | 150 | 280 | 50 | 75 | 57 | 14 | 165 | 23 | 4 | F16 | 390 | 2150 | 4300 |
| 8" | 737 | 740 | 201 | 338 | 65 | 100 | 73 | 18 | 254 | 19 | 8 | F25 | 610 | 4000 | 8400 |
| 10" | 838 | 841 | 252 | 392 | 75 | 115 | 84 | 20 | 254 | 19 | 8 | F25 | 820 | 6450 | 14000 |
| 12" | 965 | 968 | 303 | 425 | 75 | 115 | 84 | 20 | 298 | 23 | 8 | F30 | 1125 | 9650 | 21000 |
| 14" | 1029 | 1038 | 322 | 465 | 85 | 130 | 95 | 22 | 298 | 23 | 8 | F30 | 1620 | 15500 | 26000 |
| 16" | 1130 | 1140 | 373 | 520 | 95 | 140 | 105 | 25 | 298 | 23 | 8 | F30 | 2010 | 18500 | 36000 |
| 18" | 1219 | 1232 | 424 | 570 | 105 | 160 | 117 | 28 | 356 | 33 | 8 | F35 | 2810 | 24500 | 47500 |
| 20" | 1321 | 1334 | 471 | 602 | 115 | 175 | 129 | 32 | 356 | 33 | 8 | F35 | 3460 | 31500 | 60000 |
| 24" | 1549 | 1569 | 570 | 705 | 135 | 205 | 151 | 36 | 406 | 39 | 8 | F40 | 5495 | 47500 | 86000 |

ANSI Class 1500 Dimensions

| SIZE | A (mm) | | D (mm) | E (mm) | F (mm) | H1 (mm) | H2 (mm) | H3 (mm) | J (mm) | K (mm) | n | ISO 5211 | Weight (kg) | TORQUE (N.m) | CV |
|--------|--------------------------|-------------|-----------|-----------|-----------|------------|------------|------------|-----------|-----------|---|-------------|----------------|-----------------|-------|
| | RF Flanged/ Butt Weld | RTJ Flanged | | | | | | | | | | | | | |
| 2" | 368 | 371 | 49 | 155 | 28 | 45 | 31 | 8 | 125 | 14 | 4 | F12 | 65 | 350 | 360 |
| 2 1/2" | 419 | 422 | 62 | 175 | 32 | 50 | 38 | 10 | 140 | 19 | 4 | F14 | 95 | 650 | 690 |
| 3" | 470 | 473 | 74 | 195 | 38 | 58 | 44 | 10 | 165 | 23 | 4 | F16 | 145 | 950 | 900 |
| 4" | 546 | 549 | 100 | 225 | 48 | 72 | 55 | 14 | 165 | 23 | 4 | F16 | 255 | 2500 | 1600 |
| 6" | 705 | 711 | 144 | 275 | 55 | 85 | 63 | 16 | 254 | 19 | 8 | F25 | 475 | 5500 | 4000 |
| 8" | 832 | 841 | 192 | 325 | 75 | 115 | 84 | 20 | 254 | 19 | 8 | F25 | 820 | 7450 | 7900 |
| 10" | 991 | 1000 | 239 | 370 | 85 | 130 | 95 | 22 | 298 | 23 | 8 | F30 | 1195 | 15500 | 13000 |
| 12" | 1130 | 1146 | 287 | 420 | 100 | 150 | 112 | 28 | 298 | 23 | 8 | F30 | 1970 | 16500 | 19000 |
| 14" | 1257 | 1276 | 316 | 445 | 110 | 150 | 112 | 28 | 356 | 33 | 8 | F35 | 2250 | 24000 | 24000 |
| 16" | 1384 | 1407 | 360 | 510 | 120 | 180 | 134 | 32 | 356 | 33 | 8 | F35 | 2760 | 34500 | 33000 |

ANSI Class 2500 Dimensions

| SIZE | A (mm) | | D (mm) | E (mm) | F (mm) | H1 (mm) | H2 (mm) | H3 (mm) | J (mm) | K (mm) | n | ISO 5211 | Weight (kg) | TORQUE (N.m) | CV |
|--------|--------------------------|-------------|-----------|-----------|-----------|------------|------------|------------|-----------|-----------|---|-------------|----------------|-----------------|------|
| | RF Flanged/ Butt Weld | RTJ Flanged | | | | | | | | | | | | | |
| 2" | 451 | 454 | 43 | 170 | 36 | 55 | 42 | 10 | 165 | 23 | 4 | F16 | 90 | 950 | 285 |
| 2 1/2" | 508 | 514 | 50 | 180 | 42 | 65 | 48 | 12 | 165 | 23 | 4 | F16 | 160 | 1350 | 525 |
| 3" | 578 | 584 | 63 | 205 | 48 | 72 | 55 | 14 | 165 | 23 | 4 | F16 | 220 | 1800 | 825 |
| 4" | 673 | 683 | 88 | 250 | 55 | 85 | 63 | 16 | 254 | 19 | 8 | F25 | 385 | 2900 | 1510 |
| 6" | 914 | 927 | 132 | 290 | 65 | 100 | 73 | 18 | 254 | 19 | 8 | F25 | 775 | 6800 | 3590 |
| 8" | 1022 | 1038 | 180 | 340 | 85 | 130 | 95 | 22 | 298 | 23 | 8 | F30 | 1435 | 11000 | 7160 |

Notes Regarding Dimensional Tables

1. All dimensions in the above tables are for guidance only and can be subject to change dependant upon actual operating conditions and design parameters specified at point of sale. Accurate drawings are available for each valve size and can be supplied once an order is placed.
2. The torque values are based upon opening torque for soft seated (RPTFE seat or Nylon/Devlon Seat as per different size/class selection) valves at maximum differential pressure and clean gas or liquid conditions. No safety factor has been applied.
3. Metal seated versions have a torque approximately three times higher than that shown in the tables.
4. The torque values listed in the above table are at ambient temperature.
5. The torque values listed in the above table are to be used as a guide for actuator selction. A safety factor of 1.5 is suggested for actuator sizing.
6. Actual operating conditions should be accounted for when determining torque as they may have an impact on final operating torque.
7. All mount pads conform to ISO 5211.

Bi-directional Upstream Sealing

This valve is equipped with two spring energized seats which provide pre-loading and thereby effective sealing at low pressures. Sealing is enhanced at higher pressures as the upstream pressure creates a piston effect on the seat. Both seats are identical thus ensuring true bi-directional operation.

Anti-Static Design

A number of metal components are isolated by packing and bearing materials which can cause electrical conductance continuity to be lost. To overcome this, spring energized balls are installed to maintain continuity and prevent the possibility of sparking resulting from static.

Emergency Sealant System

Valve sizes 6" and above (smaller sizes upon request where design allows) are fitted with an injection system. This system enables the user to inject special sealing grease around the stem seals and seats to create an emergency temporary seal in the event of a fire or seal/seat failure.

Blow-Out Prevention Stem

The stem has an integral shoulder as part of the design to prevent blow-out if excess pressure is encountered during operation.

Fire-Safe Design

In the event of a fire, several safety features are in place to prevent leakage. The seats have a metal lip that is pushed against the ball after the main seat melts away to effect temporary sealing. The main external joints have spiral wound gaskets to withstand the high temperatures encountered during a fire.

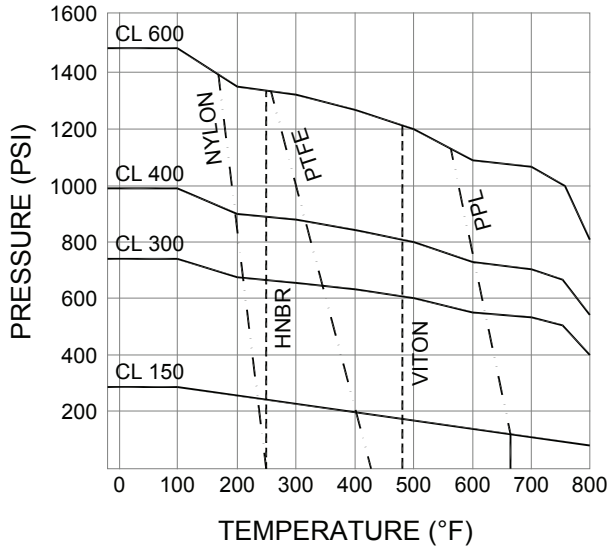
Seat Design Variations

These valves are supplied with self relieving (single piston) seat designs as standard. These seats also act as double block and bleed when the ball is in the closed position via the vent or drain port. Double piston effect seat design is available upon request and is suggested to be used in conjunction with a body cavity relief valve.

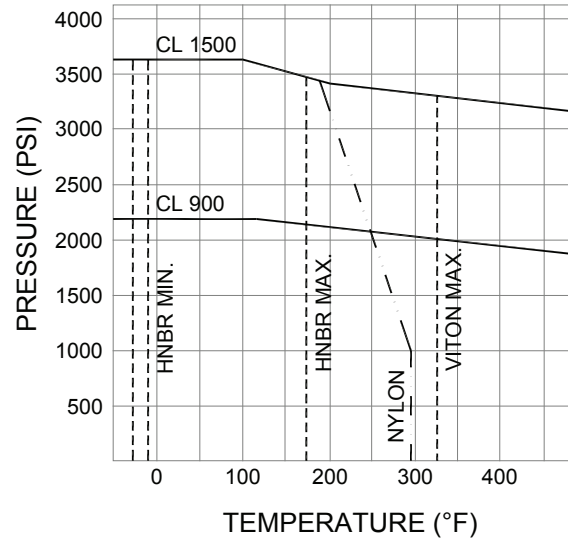
| Item | Description | Materials | | | | |
|------|---------------------|------------------------------------|--------------|---------------------|---------------------|-----------------------|
| | | Carbon Steel | Sulfur Proof | 304 Stainless Steel | 316 Stainless Steel | LF2 |
| 1 | End Caps | A105 | A105 | A182-F304, F304L | A182-F316, F316L | A350-LF2 |
| 2 | Seat Ring Gasket | 304 or 316 + Graphite | | | | |
| 3 | Seat Ring O-Ring | Viton, HNBR | | | | |
| 4 | Seat Ring Spring | 304, 316, 17-7PH, X-750 | | | | |
| 5 | Seat | RPTFE, Nylon, PEEK, Devlon, Metal | | | | |
| 6 | Ball | A105 + ENP | A105 + ENP | 304, 304L | 316, 316L | 304, 316, LF2+ENP |
| 7 | Body | A105 | A105 | A182-F304, F304L | A182-F316, F316L | A350-LF2 |
| 8 | Plug Screw | A193-B7 | A193-B7M | A193-B8/B8M | A193-B8/B8M | A350-L7 |
| 9 | Plug Gasket | 304 or 316 + Graphite Spiral Wound | | | | |
| 10 | Plug | A105 | A105 | 304, 304L | 316, 316L | 304, 316 |
| 11 | Plug O-Ring | Viton, HNBR | | | | |
| 12 | Ball Bearing Sleeve | 304 or 316 + PTFE | | | | |
| 13 | Thrust Bearing | PTFE | | | | |
| 14 | Body O-Ring Seal | Viton, HNBR | | | | |
| 15 | Body Gasket | 304 or 316 + Graphite Spiral Wound | | | | |
| 16 | Body Stud | A193-B7 | A193-B7M | A193-B8/B8M | A193-B8/B8M | A350-L7 |
| 17 | Body Nut | A194-2H | A194-2HM | A194-8/8M | A194-8/8M | A194-7 |
| 18 | Seat Grease Fitting | Assembly | | | | |
| 19 | Ball Bearing Sleeve | 304 or 316 + PTFE | | | | |
| 20 | Anti-Static Device | Assembly | | | | |
| 21 | Stem Bearing Sleeve | 304 or 316 + PTFE | | | | |
| 22 | Seal Cover O-Rings | Viton, HNBR | | | | |
| 23 | Seal Cover Gasket | 304 or 316 + Graphite Spiral Wound | | | | |
| 24 | Screw | A193-B7 | A193-B7M | A193-B8/B8M | A193-B8/B8M | A350-L7 |
| 25 | Stem Packing | Graphite | | | | |
| 26 | Key | AISI 1045 | | | | |
| 27 | Shear Pin | ASTM A276-420 | | | | |
| 28 | Mount Pad | A105 | A105 | A182-F304, F304L | A182-F316, F316L | A350-LF2 |
| 29 | Seal Cover | A105 | A105 | A182-F304, F304L | A182-F316, F316L | A350-LF2 |
| 30 | Stem Grease Fitting | Assembly | | | | |
| 31 | Stem | A182-F6a | A182-F6a | A182-F304, F304L | A182-F316, F316L | A182-F304, F316, F6a |
| 32 | Thrust Washer | PTFE | | | | |
| 33 | Vent Valve | Assembly | | | | |
| 34 | Drain Valve | Assembly | | | | |
| 35 | Seat Ring | A105 + ENP | A105 + ENP | A182-F304, F304L | A182-F316, F316L | F304, F316, LF2 + ENP |

Alloy Valves and Control

**Pressure/Temperature Rating
for Class 150, 300 & 600**



**Pressure/Temperature Rating
for Class 900 & 1500**



Notes Regarding Pressure/Temperature Graphs

- The above graphs represent just some of the seat/seal combinations available covering typical applications. Please contact sales@avcovalve.com for conditions not shown above.

HOW TO ORDER

| 111 | 3 | 3 | R | V | 150 | 200 | SP |
|---|---------------------|----------------------|--------------------|---------------|---------------------|--------------|-------------------|
| Series | Body & End Material | Ball & Stem Material | Seat Material | Seal Material | End Style | Size | Options |
| 11100 Series 3 Piece Forged Fire-Safe Full Port Trunnion Mounted Ball Valve | 1 - Carbon Steel | 1 - Carbon Steel | R - 15% Glass PTFE | H - HNBR | 150 - 150# Flange | 200 - 2" | SP - Sulfur Proof |
| | 3 - 316 SS | 3 - 316 SS | N - Nylon | V - Viton | 300 - 300# Flange | 250 - 2 1/2" | |
| | J - 304 SS | J - 304 SS | P - PEEK | | 600 - 600# Flange | 300 - 3" | |
| | U - LF2 | | D - Devlon | | 900 - 900# Flange | 400 - 4" | |
| | | | M - Metal | | 1500 - 1500# Flange | 600 - 6" | |
| | | | | | 2500 - 2500# Flange | 800 - 8" | |
| | | | | | BW - Butt Weld | 1000 - 10" | |
| | | | | | | 1200 - 12" | |
| | | | | | | 1400 - 14" | |
| | | | | | | 1600 - 16" | |
| | | | | | 1800 - 18" | | |
| | | | | | 2000 - 20" | | |
| | | | | | 2400 - 24" | | |
| | | | | | 2800 - 28" | | |