
UCM

# BALL VALVES AND ACTUATORS E-CATALOG

# CONTENTS

# Introduction

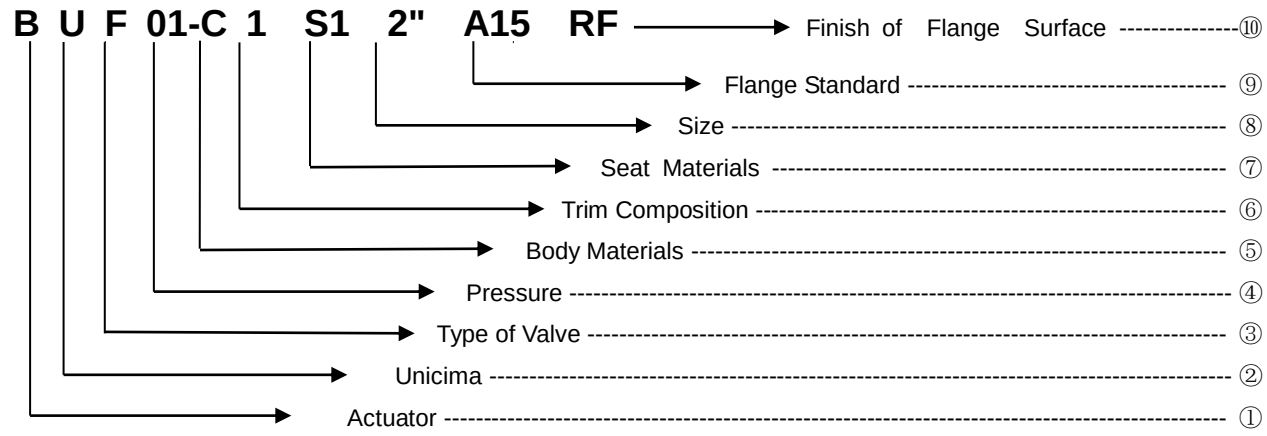
UCM is the specialist of industry ball valve, offered from Japan to the worldwide market, such as “Oil & Gas”, “Petrochemical”, “Chemical”, “Pulp and Paper”,

Based on the year’s experience of UCM’s stuff serving valve sectors, UCM can offer high quality ball valves to the various industry fields. UCM can also offer completely automated and customized valve packages for severe service applications.

The products range cover:

- *Soft Seated Floating Ball Valve*
- *Soft seated TRUNNION mounted ball valve*
- *3-way ball valve*
- *Jacket ball valve*
- *Metal seated ball valve*
- *Pneumatic actuator*

## UCM Ball Valve Model System



① Actuator

1) B ： Non actuator
2) —：Gear operation mode XI、XII
3) —：Lever（no code）
4) —：Actuator mode

②+③+④Valve Model

| Model | Type and Pressure | Size | Model | Type and Pressure | Size |
|---|---|---|---|---|---|
| UF01 | Floating ball valve Class150 | 1/2"～8" | UF03 | Floating ball valve Class300 | 1/2"～8" |
| UT01 | Trunnion ball valve Class150 | 2"～36" | UT03 | Trunnion ball valve Class300 | 2"～36" |
| UF06 | Floating ball valve Class600 | 1/2"～1-1/2" | UT06 | Trunnion ball valve Class600 | 2"～36" |
| UF09 | Floating ball valve Class900 | 1/2"～1" | UT09 | Trunnion ball valve Class900 | 1-1/2"～20" |
| UF15 | Floating ball valve Class1500 | 1/2"～1" | UT15 | Trunnion ball valve Class1500 | 1-1/2"～16" |
| U3T01 | T port 3-way ball valve Class150 | 1/2"～8" | U3T03 | T port 3-way ball valve Class300 | 1/2"～8" |
| U3L01 | L port 3-way ball valve Class150 | 1/2"～8" | U3L03 | L port 3-way ball valve Class300 | 1/2"～8" |
| U3Y01 | Y port 3-way ball valve Class150 | 2"～12" | U3Y03 | Y port 3-way ball valve Class300 | 2"～12" |
| UJ01 | Steam jacketed floating ball valve Class150 | 3/4"～8" | UJ03 | Steam jacketed floating ball valve Class300 | 3/4"～8" |
| UT25 | Trunnion ball valve Class2500 | 2"～8" | | | |

② Unicima

③ Type of valve

1) F : Two way floating valve
2) T : Two way trunnion valve
3) J : Steam jacketed ball valve
4) 3 L: L-pattern Three way
5) 3T: T-pattern Three way
6) 3Y: Y-pattern Three way

Remark: The sign D denotes forged steel ball valve

④ Pressure code

| Code | 01 | 03 | 04 | 06 | 08 | 09 | 15 | 25 |
|---|---|---|---|---|---|---|---|---|
| Pressure | 150LB<br>PN1.6<br>JIS10K | 300LB<br>PN4.0<br>JIS20K | 400LB<br>PN6.3 | 600LB<br>PN10<br>JIS40K | 800LB | 900LB<br>PN15 | 1500LB<br>PN25 | 2500LB<br>PN42 |

⑤ Body Materials

| Code | C | L | 1 | 2 | 3 | D3 | 4 | D4 |
|---|---|---|---|---|---|---|---|---|
| Materials | WCB | LCB | A105 | LF2 | CF3 | 304L | CF8 | 304 |
| Code | 5 | D5 | 6 | D6 | X | | | |
| Materials | CF3M | 316L | CF8M | 316 | Other materials described in the technical note | | | |

⑥ Trim Composition

| Code | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| Materials composition | WCB/A105 (HCr) | WCB/A105 (ENP) | CF8/304 | CF8M/316 | CF3/304L | CF3M/316L |
| Code | 6 | 7 | 8 | X | | |
| Materials composition | LCB /LF2 (HCr) | LCB /LF2 (ENP) | NACE0175 | Other materials described in the technical note | | |

⑦ Seat Materials

| Code | Soft seat | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | S1 | S2 | S3 | N | P | V | D | H |
| Materials | PTFE | Super PTFE | Glass fibre+ MoS2+PTFE | Nylon | PEEK | Viton | Devlon | Special graphite |
| Code | Metal seat | | | | | | | |
| | M1 | M2 | M3 | | M4 | | | |
| Materials | Ball/HCr Seat/Ni45 | Ball/(STL)Stellited Seat/(STL)Stellited | Ball/(SFNI) Nickel Alloy Overlay Seat/(STL)Stellited | | Ball/Tungsten Carbide Seat/Tungsten Carbide | | | |

⑧ Size

1/2"～36"

⑨ Flange Standard

| Standard | ANSI 150～2500 | JB 16～250Kgf/cm$^2$ | JIS 10K～20K | HGJ16～250Kgf/cm$^2$ |
|---|---|---|---|---|
| Pressure | A15～250 | J16～J250 | 10K～20K | H16～250 |

⑩ Finish of Flange Surface

| Code | RF | RTJ | FF | SF | LF |
|---|---|---|---|---|---|
| Code | ST | LT | SM | LM | SG |
| Code | LG | | BW | SW | |

# Floating Type Soft Seated Ball Valve

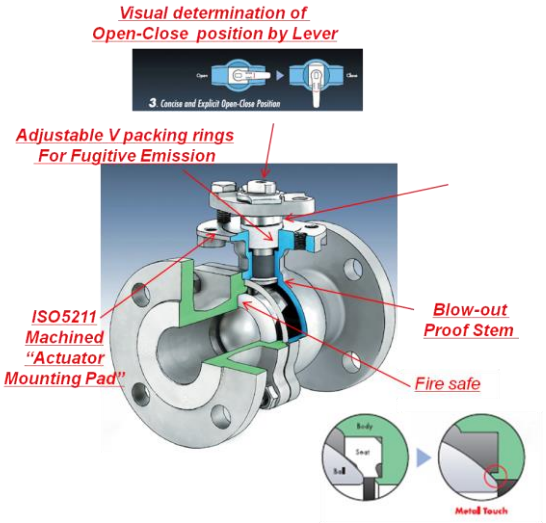
ucm cast steel floating ball valve is a new generation of ball valve with ISO 5211 top flange and low emission control.

The design is 2-pcs split bolted body construction which is a very popular design in Floating Ball Valve.

ucm cast steel floating ball valve is available to provide three types of seats which are soft seat, carbon seat and metal seat, according to the service condition.

**Design Features**

★Full Bore
★Fire safe design & tested to API 607 4th Edition
★ISO 5211 actuator mounting pad
★Low emission control
★Blow-out proof stem
★Anti-static device
★Smooth & low torque operation
★Suitable for NACE MR-01-75(option)
★Optional locking device




**Products Range**

Size: 1/2″ -8″
Rating: ANSI 150# and 300#
Material: Carbon Steel, Stainless Steel, Special material
Operation: Level, Gear, Pneumatic & Electric Actuator

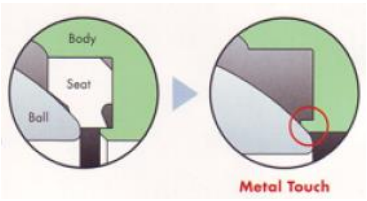
■Seat

PTFE seat reinforced with PFA is standard; this seat has a good performance for high & low pressure, high & low temp, deforming, color contamination, operation torque, etc.

■Fire-Safe

Even non-metal parts like seat, gland packing, gasket burn out, the valve minimizes seat leakage and outside leakage. (Fire safe Tested to API 607 5th Edition)

■Concise and Explicit Open-Close Position




The flat stem top permits only position for the lever installation. When the lever is in parallel to piping, the valve is Open, when the lever is vertical to piping, the valve is closed. To prevent the wrong operation, the valve is lockable with a pad lock at two positions, fully open and fully closed.

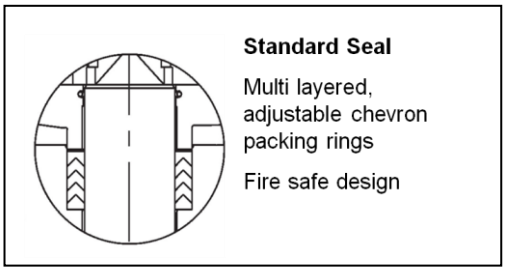
■Anti-Static Device

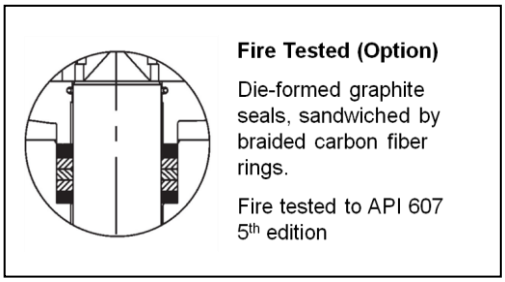
Anti-Static Device according to BS5351 is provided to prevent the electro-static charge in the valve due to the friction between ball and Teflon seat.

■ ISO 5211 Actuator Mounting Pad

Bolts for mounting actuator are independent from gland Bolts for Stem packing, which guarantees good sealing effects.

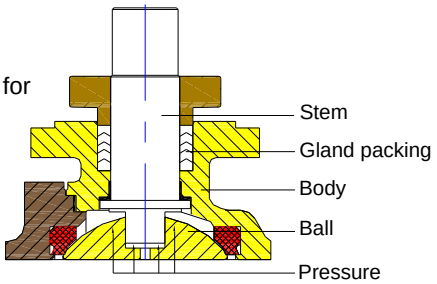
■Gland Packing




■Blow-out Proof Stem (Fire Safe)

In order to prevent the stem from blowing out due to the valve cavity pressure and easily replace of gland packing under pressure, the stem is constructed with a stem flange as shown in the right figure. This design meets the stipulation for external leakage of the valve to API 607 Fire Safe Test.



Blow-out Proof Stem
(Fire Safe)

■Self Cavity Pressure Relief

There is a small hole on the ball to relieve the pressure in the valve cavity.

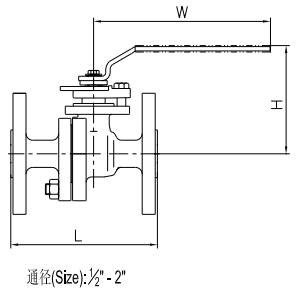
■ Metal Touch Body Construction (Fire Safe)

The joint between body and cap is sealed with gasket and metal touch.
This double seal construction prevents the body/cap from the one-side tightening, and also minimizes the leakage through body/cap, when the gasket burns out.

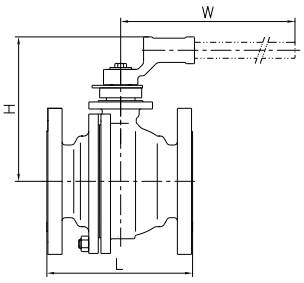
■ Standard Parts Material

| Material Name | Carbon Steel | | | Stainless Steel | | |
|---|---|---|---|---|---|---|
| Material Code | C1 | C2 | C3 | 42 | 43 | 63 |
| Body | A216 WCB | | | A351 CF8 | | A351 CF8M |
| Body Cap | A216 WCB | | | A351 CF8 | | A351 CF8M |
| Ball | A105 ENP | A276 304/ A182 F304 | A276 316/ A182 F316 | A276 304/ A182 F304 | A276 316/ A182 F316 | A276 316/ A182 F316 |
| Stem | A182F6a | A276 304 | A276 316 | A276 304 | A276 316 | A276 316 |
| Seat | Reinforced PTFE | | | Reinforced PTFE | | |
| Stem Bearing | Reinforced PTFE | | | Reinforced PTFE | | |
| Gland Packing | PTFE | | | PTFE | | |

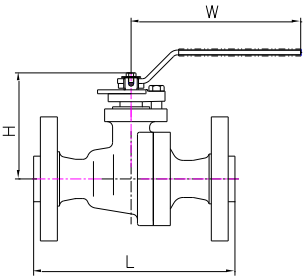
## Dimension Table



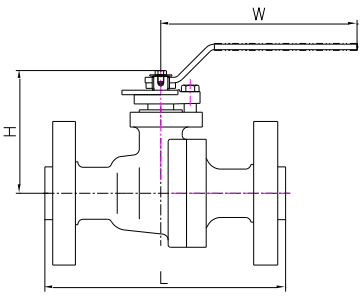
通径(Size):½" - 2"



通径(Size): 2½" - 8"



通径(Size):½" - 1½"



通径(Size):½" - 1"

UF01/03 ANSI 150/300LB

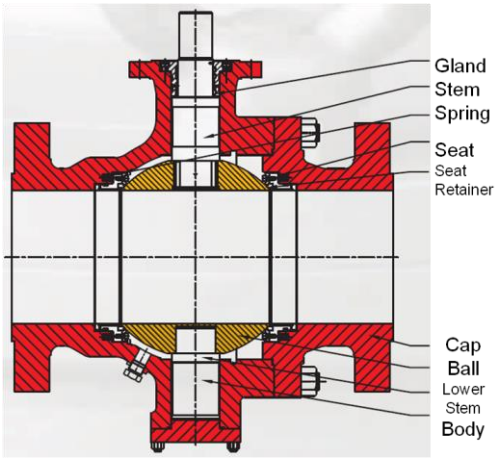
| Size (inch) | Nominal Size(mm) | Ball Bore | L | | H | | W | |
|---|---|---|---|---|---|---|---|---|
| | | | 150LB | 300LB | 150LB | 300LB | 150LB | 300LB |
| ½" | 15 | 13 | 108 | 140 | 80 | | 130.3 | |
| ¾" | 20 | 19 | 117 | 152 | 83 | | 130.3 | |
| 1" | 25 | 25 | 127 | 165 | 97.6 | | 160 | |
| 1½" | 40 | 38 | 165 | 190 | 113.5 | | 231.5 | |
| 2" | 50 | 51 | 178 | 216 | 123 | | 231.5 | |
| 2½" | 65 | 64 | 190 | 241 | 177.5 | | 400 | |
| 3" | 80 | 76 | 203 | 283 | 187 | | 400 | |
| 4" * | 100 | 102 | 229 | 305 | 226.5 | | 685 | |
| 6" | 150 | 152 | 394 | 403 | 321 | | 1050 | |
| 8" | 200 | 203 | 457 | 502 | 399 | | 1410 | |

UF06/09 ANSI 600/900LB

| Size (inch) | Nominal Size(mm) | Ball Bore | L | H | W |
|---|---|---|---|---|---|
| | | | 600LB | 600LB | 600LB |
| ½" | 15 | 13 | 165 | 74.5 | 160 |
| ¾" | 20 | 19 | 190 | 79.5 | 160 |
| 1" | 25 | 25 | 216 | 101 | 230 |
| 1½" | 40 | 38 | 241 | 111 | 230 |
| Size (inch) | Nominal Size(mm) | Ball Bore | L | H | W |
| | | | 900LB | 900LB | 900LB |
| ½" | 15 | 13 | 216 | 138 | 160 |
| ¾" | 20 | 19 | 229 | 141 | 230 |
| 1" | 25 | 25 | 254 | 143 | 230 |

# Cast Steel Trunnion Mounted Ball Valve

Cast Steel Trunnion Mounted Ball Valve
Cast Steel Body is popular for trunnion ball valve according to API 6D Specification. Cast steel trunnion mounted ball valve has unique spring loaded seats which provide double-tight shut off and low operating torque. They are suitable for above-ground and under-ground services.



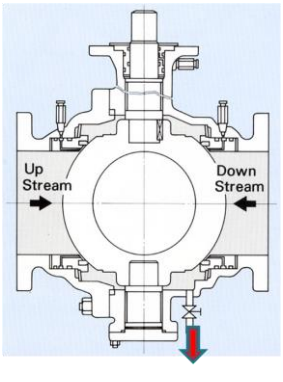

**Design Features**

★Full bore and reduced bore
★Fire Safe design & tested to API 607 4th edition
★Double block & bleed
★Cavity pressure self-relief
★Emergency sealant injection system
★Anti-static device (option)
★Smooth & low torque operation
★Suitable for NACE MR-01-75(option)
★Product Range
Size: 2″ -24”
Rating: 150#-2500#
Material: Carbon steel and stainless steel(ASTM A216 WCB,A 352 LCB,A351 CF8,A351 CF8M）
Operation: lever, gear, pneumatic & electric actuator

■Double Block and Bleed

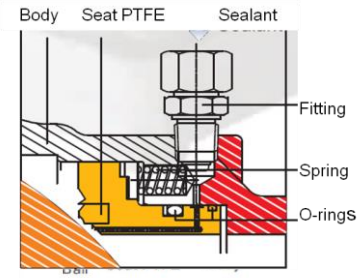
This is a construction of sealing that each seat shuts off the flow fluid independently on upstream and downstream seats when the valve is in fully closed or open position,and draining the flow fluid accumulated in the body cavity. This construction is:

●The fluid contamination can be minimized
●Seat leakage or damage can be checked in advance
●Stem packing and gland sealing material can be replaced under pressure



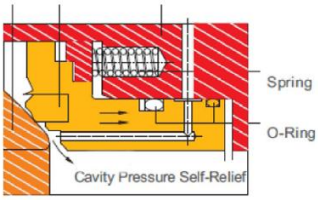
■ Sealant injection fitting

Sealant injection fitting are installed on both stem and seat seals. When the leakage occurs from stem and seat due to damage, the leakage from stem and seat seals will be stopped emergently by injection of sealant those fittings.




■ Pressure Self-Relief

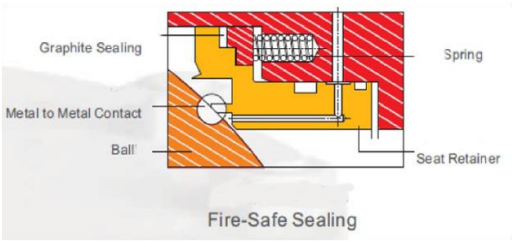
When cavity pressure increases greatly, the force of medium in cavity acting on seat retainer overcomes spring force and force of medium in flow acting on seat, which makes seat retainer move away from ball surface and forms a gap between seat and ball, thus overpressure in the cavity is released into the flow.




■Fire Safe Design

Even if the O-ring and RPTFE seat are destroyed by abnormal heating in an emergency such as fire, the amount of leakage shall be limited by the metal to metal touch.

Seat retainer moves to ball by spring and medium pressure, then leakage shall be minimizes by the metal touch between ball and seat retainer, conform to requirement of API607.

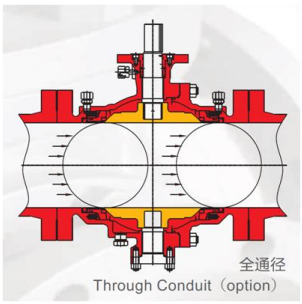



■Anti-Static Device (option)

Static may be produced because of friction of ball and seat, the static is eliminated through stem and body and conduit pipe.

■Through Conduit（option）

For lines using cleaning pigs or spheres for creating a boundary between different types of oil in products, it is necessary, besides a full bore, to align the pipe inner diameter with the valve fluid passage.



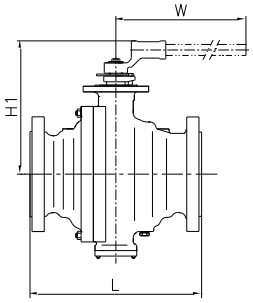

■Smooth & Low Torque Operation

Operating torque is small and operation is very smooth, because low friction coeffi sliding portions like seat bearing and stem bearing.

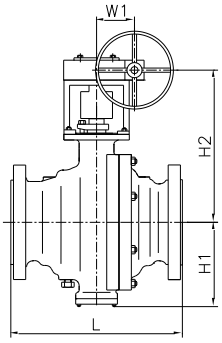
■ Standard Parts Material

| Material Name | Carbon Steel | | | Stainless Steel | | |
|---|---|---|---|---|---|---|
| Material Code | C1 | C2 | C3 | | | |
| Body | A216 WCB | | | A351 CF8 | | A351 CF8M |
| Body Cap | A216 WCB | | | A351 CF8 | | A351 CF8M |
| Ball | A105 ENP | A276 304 | A276 316 | A276 304 | A276 316 | A276 316 |
| Seat Retainer | A105 ENP | A276 304 | A276 316 | A276 304 | A276 316 | A276 316 |
| Stem | A182 F6a | A276304 | A276 316 | A276304 | A276 316 | A276 316 |
| Lower Stem | A182 F6a | A276304 | A276 316 | A276304 | A276 316 | A276 316 |
| Seat | Reinforced PTFE | | | Reinforced PTFE | | |
| Gland Packing | PTFE/O-Ring | | | PTFE/O-Ring | | |
| Spring | Inconel X750/17-7PH | | | Inconel X750/17-7PH | | |
| Stem Bearing | Metal Backed PTFE | | | Metal Backed PTFE | | |
| Lower Stem Bearing | Metal Backed PTFE | | | Metal Backed PTFE | | |

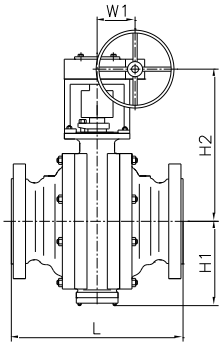
## Dimension Table




通径(Size): 2" - 4"



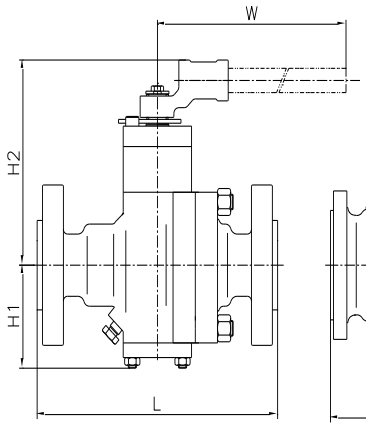

通径(Size): 6" - 20"



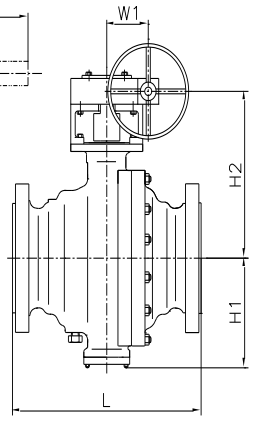

通径(Size): 22" - 24"

UT01/03 ANSI 150/300LB

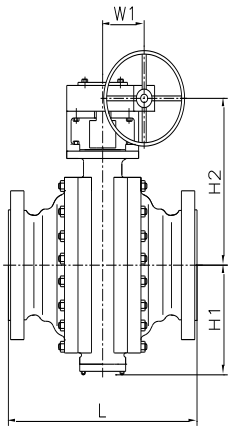
| Size (inch) | Nominal Size(mm) | Ball Bore | L | | H1 | | H2 | | W | | W1 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 150LB | 300LB | 150LB | 300LB | 150LB | 300LB | 150LB | 300LB | 150LB | 300LB |
| 2" | 50 | 51 | 178 | 216 | 126 | | — | | 230 | | — | |
| 3" | 80 | 76 | 203 | 283 | 180 | | 218 | | 430 | | 52 | |
| 4" | 100 | 102 | 229 | 305 | 204 | | 251 | | 650 | | 52 | |
| 6" | 150 | 152 | 394 | 403 | 297 | | 356 | | 1050 | | 65.5 | |
| 8" | 200 | 203 | 457 | 502 | 371 | | 523 | | 1410 | | 84 | |
| 10" | 250 | 254 | 533 | 568 | 325 | | 405 | | — | | 92.9 | |
| 12" | 300 | 305 | 610 | 648 | 365 | | 455 | | — | | 105 | |
| 14" | 350 | 337 | 686 | 762 | 400 | | 490 | | — | | 105 | |
| 16" | 400 | 387 | 762 | 838 | 440 | | 550 | | — | | 129 | |
| 18" | 450 | 438 | 864 | 914 | 500 | | 620 | | — | | 129 | |
| 20" | 500 | 489 | 914 | 991 | 555 | | 680 | | — | | 129 | |
| 22" | 550 | 540 | 1016 | 1092 | 635 | | 806 | | — | | 191 | |
| 24" | 600 | 591 | 1067 | 1143 | 700 | | 870 | | — | | 191 | |




通径(Size): 2" - 4"




通径(Size): 6" - 16"




通径(Size): 18" - 24"

UT06 ANSI 600LB

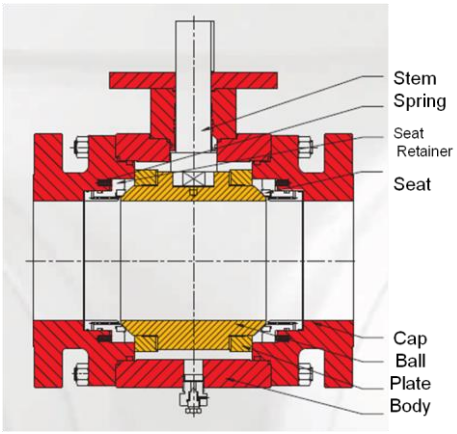
| Size (inch) | Nominal Size(mm) | Ball Bore | L | H1 | H2 | W | W1 |
|---|---|---|---|---|---|---|---|
| | | | 600LB | 600LB | 600LB | 600LB | —— |
| 2" | 50 | 51 | 292 | 115 | 168 | 400 | —— |
| 3" | 80 | 76 | 356 | 133 | 197 | 650 | —— |
| 4" | 100 | 102 | 432 | 159 | 235 | 1050 | —— |
| 6" | 150 | 152 | 559 | 215 | 327 | —— | 116 |
| 8" | 200 | 203 | 660 | 294 | 374 | —— | 171 |
| 10" | 250 | 254 | 787 | 370 | 445 | —— | 171 |
| 12" | 300 | 305 | 838 | 420 | 515 | —— | 257 |
| 14" | 350 | 324 | 889 | 460 | 550 | —— | 257 |
| 16" | 400 | 375 | 991 | 505 | 615 | —— | 257 |
| 18" | 450 | 426 | 1092 | 560 | 700 | —— | 150 |
| 20" | 500 | 473 | 1194 | 630 | 810 | —— | 150 |
| 24" | 600 | 572 | 1397 | 825 | 1010 | —— | 83 |

# Forged Steel Trunnion Mounted Ball Valve

Forged steel body is free from the inevitable defects of casting like cavity, pin-hole. And also forged steel trunnion mounted ball valve has an advantage of short delivery comparing with cast steel trunnion mounted ball valve. Therefore, now forged steel trunnion mounted ball valve is getting more and more popular in oil and gas industry

**Design Features is the same as Cast Steel Trunnion Mounted Ball Valve**

★Full bore and reduced bore
★Fire safe design & tested to API 607 5th edition
★Double block & bleed
★Cavity pressure self-relief
★Emergency sealant injection system
★Anti-static device (option)
★Smooth & low torque operation
★Suitable for NACE MR-01-75(option)

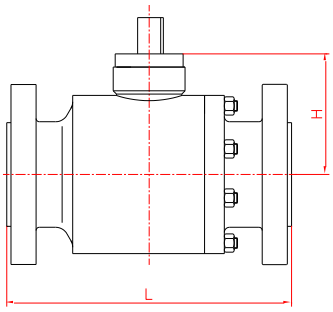



★Products Range
Size: 2″ -24”
Rating: 150#-2500#
Material: Carbon Steel and Stainless Steels (ASTM A105, A350 LF2, ASTM A182 F304, F316, F51, F53, others）
Operation: Lever, Gear, Pneumatic & Electric Actuator

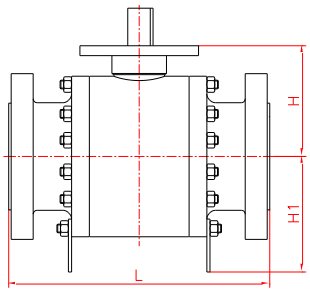
■ Standard Material

| Material Name | Carbon steel | | | Stainless steel | | |
|---|---|---|---|---|---|---|
| Material Code | 11 | 12 | 13 | D42 | D43 | D63 |
| Body | A105 | | | A182 F304 | A182 F316 | |
| Body Cap | A105 | | | A182 F304 | A182 F316 | |
| Ball | A105 ENP | A182 F304 | A276 316 | A182 F304 | A182 F316 | A182 F316 |
| Seat Retainer | A105 ENP | A276 304 | A276 316 | A276 304 | A276 316 | A276 316 |
| Stem | A182 F6a | A276 304 | A276 316 | A276 304 | A276 316 | A276 316 |
| Bearing Retainer | A105 | A105 | A105 | A105 ENP | A105 ENP | A105 ENP |
| Seat | Reinforced PTFE | | | Reinforced PTFE | | |
| Gland Packing | PTFE/O-Ring | | | PTFE/O-Ring | | |
| Spring | Inconel X750/17-7PH | | | Inconel X750/17-7PH | | |
| Stem Bearing | Metal Backed PTFE | | | Metal Backed PTFE | | |

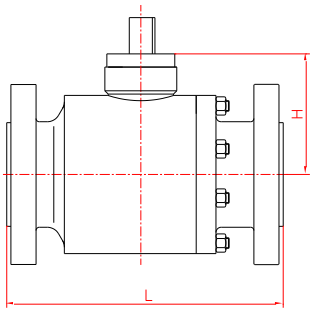
## Dimension Table



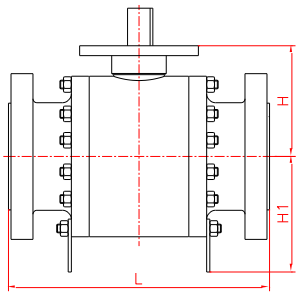

Size: 2″ - 4″




Size: 6″ - 24″




Size: 2″ - 4″




Size: 6″ - 24″

UTD01/03 ANSI 150/300/600LB

| Size (inch) | Nominal Size(mm) | Ball Bore | L | | | H | | | H1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 150LB | 300LB | 600LB | 150LB | 300LB | 600LB | 150LB | 300LB | 600LB |
| 2″ | 50 | 49 | 178 | 216 | 292 | 106 | 100 | 102 | —— | | |
| 3″ | 80 | 74 | 203 | 283 | 356 | 157 | 150 | 165 | —— | | |
| 4″ | 100 | 100 | 229 | 305 | 432 | 198 | 200 | 210 | —— | | |
| 6″ | 150 | 150 | 394 | 403 | 559 | 247 | 245 | 250 | 187 | 200 | 200 |
| 8″ | 200 | 201 | 457 | 502 | 660 | 280 | 275 | 288 | 224 | 230 | 255 |
| 10″ | 250 | 252 | 533 | 568 | 787 | 320 | 330 | 330 | 278 | 295 | 308 |
| 12″ | 300 | 303 | 610 | 648 | 838 | 337 | 355 | 378 | 306 | 330 | 348 |
| 14″ | 350 | 334 | 686 | 762 | 889 | 374 | 390 | 394 | 334 | 345 | 360 |
| 16″ | 400 | 385 | 762 | 838 | 991 | 408 | 430 | 430 | 358 | 390 | 410 |
| 18″ | 450 | 436 | 864 | 914 | 1092 | 439 | 455 | 467 | 390 | 410 | 430 |
| 20″ | 500 | 487 | 914 | 991 | 1194 | 492 | 500 | 500 | 434 | 465 | 492 |
| 22″ | 550 | 538 | 991 | 1092 | 1296 | 528 | 525 | 950 | 477 | 480 | 505 |
| 24″ | 600 | 589 | 1067 | 1143 | 1397 | 588 | 590 | 594 | 523 | 545 | 570 |

UTD09/15 ANSI 900/1500LB

| Size (inch) | Nominal Size(mm) | Ball Bore | | L | | H | | H1 | |
|---|---|---|---|---|---|---|---|---|---|
| | | 900LB | 1500LB | 900LB | 1500LB | 900LB | 1500LB | 900LB | 1500LB |
| 2″ | 50 | 49 | 49 | 368 | 368 | 104 | 106 | —— | |
| 3″ | 80 | 74 | 74 | 381 | 470 | 163 | 167 | —— | |
| 4″ | 100 | 100 | 100 | 457 | 546 | 211 | 179 | —— | |
| 6″ | 150 | 150 | 144 | 610 | 705 | 259 | 260 | 213 | 233 |
| 8″ | 200 | 201 | 192 | 737 | 832 | 297 | 304 | 264 | 290 |
| 10″ | 250 | 252 | 239 | 838 | 991 | 342 | 363 | 333 | 352 |
| 12″ | 300 | 303 | 287 | 965 | 1130 | 384 | 417 | 379 | 425 |
| 14″ | 350 | 322 | 315 | 1029 | 1257 | 398 | 437 | 368 | 426 |
| 16″ | 400 | 373 | 360 | 1130 | 1384 | 436 | 475 | 437 | 493 |
| 18″ | 450 | 423 | 405 | 1219 | 1477 | 484 | 563 | 497 | 608 |
| 20″ | 500 | 471 | 455 | 1321 | 1664 | 532 | 617 | 503 | 645 |
| 24″ | 600 | 570 | 530 | 1549 | 1782 | 617 | 698 | 633 | 724 |

# Steam Jacketed Soft Seated Ball Valve

The steam jacketed ball valve is applicable to treat such fluids which need thermal or cool preservation

**Design Features**

★With all characteristic of general soft seated floating ball valve

★Sufficient space containing thermal or cooling media can maintain

**Products Range**

Size: 3/4″ -8″

Rating: 150#-300#

Material: Carbon Steel and Stainless Steel(ASTM A216 WCB,A352 LCB, A351 CF8,A351 CF8M.,etc)

Operation: lever, gear, pneumatic & electric actuator

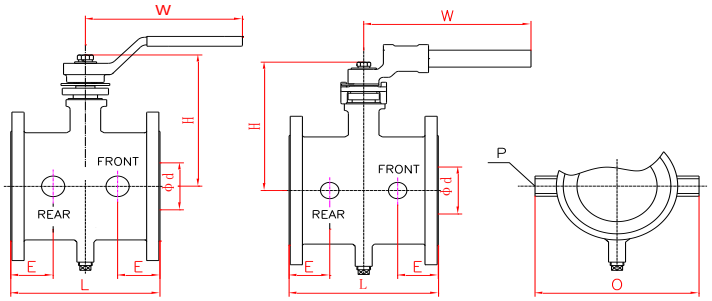
**Flange Dimensions:**

Attention please when make an order, the specification of steam jacketed ball valve is bigger than general ball Valve.

See the below table for detailed specification:

| Valve Nominal size | | 20 | 25 | 40 | 50 | 80 | 100 | 150 | 200 |
|---|---|---|---|---|---|---|---|---|---|
| Flange Nominal size | Full bore | 40 | 50 | 65 | 80 | 150 | 200 | 250 | 350 |
| | Reduced bore | — | — | — | — | — | 150 | 200 | 250 |

## Dimensional Table




**UJ01/03 150/300LB**

| Nominal size | Ball Bore | L 150/300LB | Steam jacketed | | | H | W |
|---|---|---|---|---|---|---|---|
| | | | E | O | P | | |
| 20 | 19 | 117 | 58.5 | 147 | Rp3/4 | 103 | 160 |
| 25 | 25 | 127 | 63.5 | 156 | Rp3/4 | 108 | 160 |
| 40 | 38 | 165 | 62.5 | 181 | Rp3/4 | 126 | 230 |
| 50 | 51 | 178 | 68 | 218 | Rp3/4 | 135 | 230 |
| 80 | 76 | 229 | 82 | 275 | Rp3/4 | 193 | 400 |
| 100 | 102 | 254 | 83 | 300 | Rp3/4 | 265 | 650 |
| 150 | 152 | 292 | 95 | 403 | Rp1 | 355 | 1053 |
| 200 | 203 | 330 | 100 | 492 | Rp1 | 410 | 1414 |

# 3-Way Ball Valve

3-way ball valve are used for dividing, confluence or mixing fluid. UCM can supply T port, L port, Y port three way ball valve with revolving angle $90^0$、$120^0$、$135^0$.

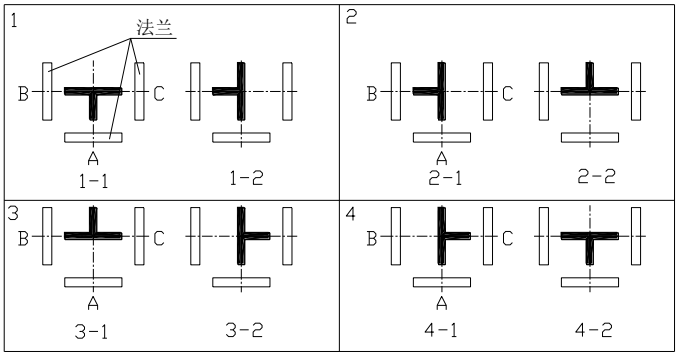
**Design Features**

- ■Full bore and reduced bore
- ■Floating/trunnion soft seated ball valve
- ■With all characteristics of floating/trunnion soft seated ball valve
- ■Used for dividing, confluence or mixing fluid
- ■Y port 3-way ball valve has the function of pipeline clean (option)
- ■Dependable and easy operation

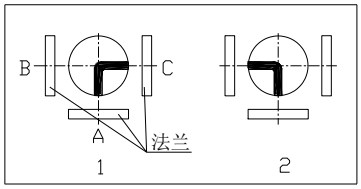
**Products Range**

Size: 3/4″ -8″
Rating: 150#-300#
Material: Carbon Steel and Stainless Steel
（ASTM A216 WCB,A352 LCB,A351 CF8,A351 CF8M.,etc）
Operation: lever, gear, pneumatic & electric actuator

T Port Position

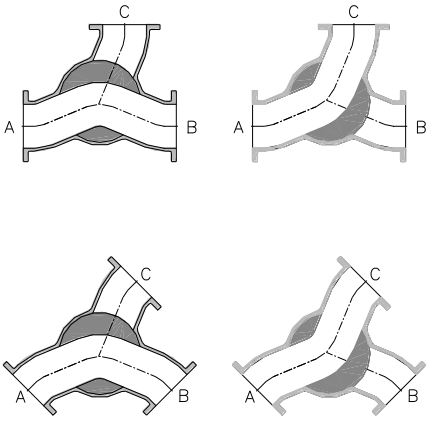



L Port Position

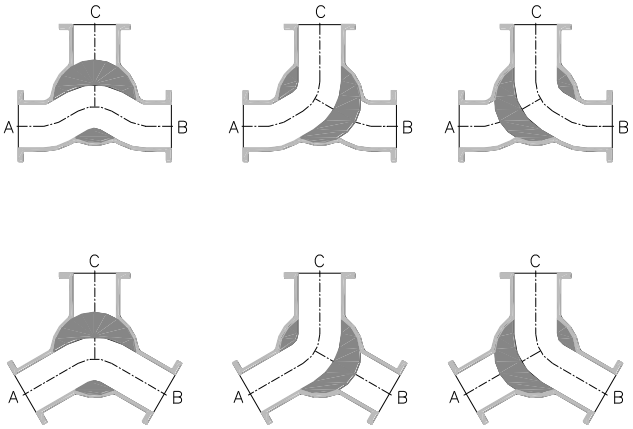


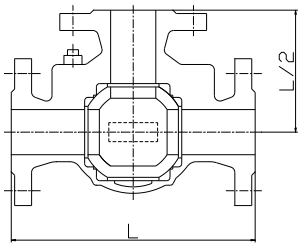

Remark: When spring return pneumatic actuator is equipped the failure positions can only be: T port :1-2,2-2,3-2,4-2；L port : 2

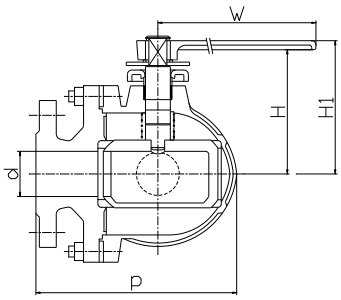
**135°Port Position**




**120°Port Position**





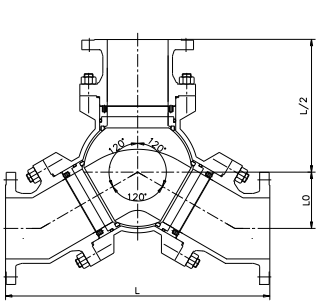

**Dimension Table 150LB**

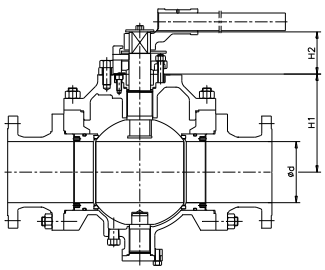
| Nominal Size | | d | H | H1 | L | P | W |
|---|---|---|---|---|---|---|---|
| 15 | 1/2" | 13 | 70 | 90 | 140 | 95 | 160 |
| 20 | 3/4" | 19 | 86 | 106 | 150 | 105 | 230 |
| 25 | 1" | 25 | 88 | 109 | 160 | 114 | 230 |
| 40 | 11/2" | 38 | 132 | 132 | 210 | 156 | 400 |
| 50 | 2" | 51 | 137 | 137 | 220 | 172.5 | 400 |
| 65 | 21/2" | 64 | 162 | 206 | 250 | 199 | 700 |
| 80 | 3" | 76 | 170 | 214 | 260 | 217 | 700 |
| 100 | 4" | 102 | 229 | 286 | 330 | 271 | 1050 |
| 125 | 5" | 127 | 247 | 304 | 430 | 347 | 1050 |
| 150 | 6" | 152 | 314 | — | 510 | 401 | — |
| 200 | 8" | 200 | 414 | — | 580 | 486 | — |

**Dimension Table 300 LB**

| Nominal Size | | d | H | W | L |
|---|---|---|---|---|---|
| 15 | 1/2" | 15 | 96 | 160 | 260 |
| 20 | 3/4" | 19 | 96 | 160 | 260 |
| 25 | 1" | 25 | 96 | 500 | 260 |
| 40 | 1-1/2" | 40 | 165 | 500 | 340 |
| 50 | 2" | 50 | 180 | 800 | 400 |
| 65 | 2-1/2" | 65 | 241 | 800 | 500 |
| 80 | 3" | 80 | 241 | 850 | 500 |
| 100 | 4" | 100 | 295 | 600 | 600 |

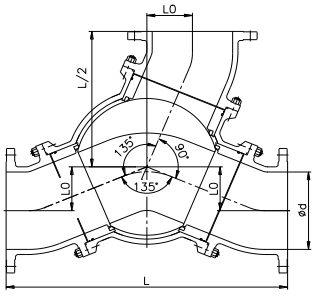
## 120°Y Type 3-Way Ball Valve Dimensions

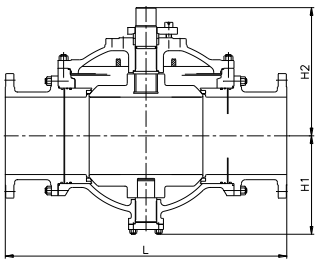



| Nominal Size | | d | L | L0 | H1 | H2 |
|---|---|---|---|---|---|---|
| 100 | 4" | 102 | 560 | 110 | 220 | 100 |
| 150* | 6" | 152 | 660 | 140 | 244 | 150* |
| 200* | 8" | 203 | 750 | 160 | 310 | 200* |
| 250* | 10" | 254 | 900 | 180 | 370 | 250* |
| 300* | 12" | 305 | 1050 | 210 | 428 | 300* |

## 135° Y Type 3-Way Ball Valve Dimensions

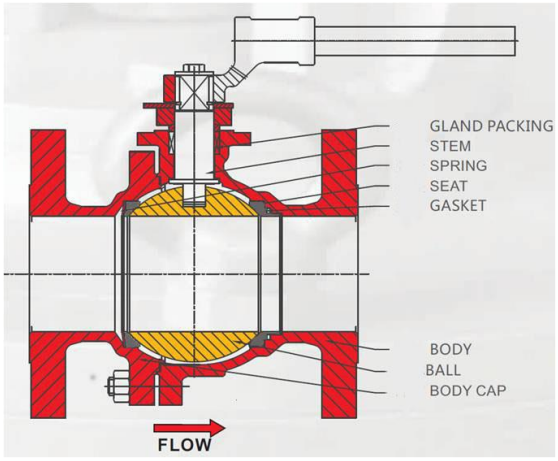



| Nominal Size | | d | L | L0 | H1 | H2 |
|---|---|---|---|---|---|---|
| 100 | 4" | 102 | 470 | 70 | 186 | 276 |
| 150* | 6" | 152 | 600 | 100 | 234 | 328 |
| 200* | 8" | 203 | 750 | 120 | 285 | 386 |
| 250* | 10" | 254 | 900 | 140 | 332 | 443 |
| 300* | 12" | 305 | 1050 | 170 | 383 | 497 |

# Floating Type Metal Seated Ball Valve

Floating type metal seated ball valve is available for particulates containing, powder and high viscosity fluids services in uni-directional flow




**Design Features**

■Full bore and reduced bore
■Ball and seat hardened by plating or overlay with anti-friction & anti-corrosion alloy
■ISO 5211 actuator mounting pad
■Blow-out Proof Stem
■ANSI B16.104 Class Ⅴ
■Dependable and easy operation
■Suitable for NACE MR-01-75 (option)
■Optional locking device

**Products Range**

Size: 1/2″ -8″
Rating: 150#-300#
Material: Carbon Steel and Stainless Steel
（ASTM A216 WCB,A352 LCB,A351 CF8,A351 CF8M）
Operation: lever, gear, pneumatic & electric actuator

■ A integrated ball and seat construction eliminates static leakage points. Standards product conforms to ANSI B16.104 Class Ⅴ sealing requirements. In particular, UCM can provide metal seated ball valve which conforms to ANSI B16.104 Class Ⅵ.

■ Ball and seat hardened by plating or overlay with anti-friction & anti-corrosion alloy, available for powder service

Ball Hardness Table

| Hardening | Hardness | Operating Temperature |
|---|---|---|
| Hard Chrome plated | HRC60 | ≤350°C（662°F） |
| Nickel alloy overlay | HRC55 | ≤500°C（932°F） |
| Tungsten carbon alloy overlay | HRC72 | ≤500°C（932°F） |

Seat Hardness Table

| Hardening | Hardness | Operating Temperature |
|---|---|---|
| No.12　Stellited No.12 | HRC45 | ≤350°C（662°F） |
| No.1016　Stellited No.1016 | HRC58 | ≤500°C（932°F） |

■ Standard Parts Material

| Material Name | Carbon steel | | | | Stainless steel | | | |
|---|---|---|---|---|---|---|---|---|
| Material Code | C-M1 | C-M2 | C-M3 | C-M4 | 4-M1 | 4-M2 | 4-M3 | 4-M4 |
| Temp. Range | -29℃～250℃ | -29℃～350℃ | -29℃～500℃ | | -29℃～250℃ | -29℃～350℃ | -29℃～500℃ | |
| Body | A216 WCB | | | | A351 CF8 | | | |
| Ball | A182 F304 HCr | A182 F304 Stellited | A182 F304 SFNIc | A182 F304 CW Alloy | A182 F304 HCr | A182 F304 Stellited | A182 F304 SFNIc | A182 F304 CW Alloy |
| Stem | 17-4PH | | Hastelloy-C | | 17-4PH | | Hastelloy-C | |
| Seat | A182 F304 Stellited | | | A182 F304 CW Alloy | A182 F304 Stellited | | | A182 F304 CW Alloy |
| Spring | 17-7PH | | Inconel X750 | | 17-7PH | | Inconel X750 | |
| Gasket | R.PTFE | Soft Carbon | | | R.PTFE | Soft Carbon | | |
| Gland Packing | R.PTFE | Soft Carbon | | | R.PTFE | Soft Carbon | | |

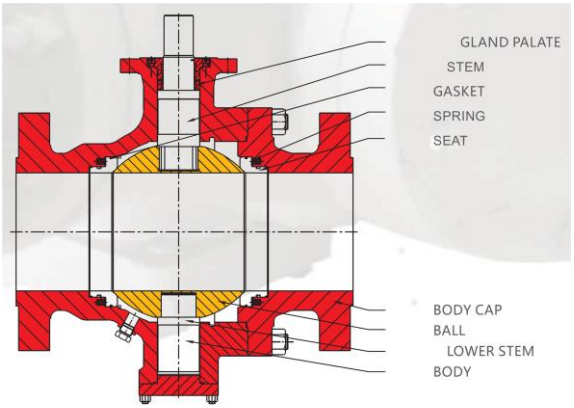
■ Dimension is the same as Floating Type Soft Seated Ball Valve.

# Trunnion Type Metal Seated Ball Valve

Trunnion type metal seated ball valve is available for particulates containing, powder and high viscosity fluids services bi-directional flow

**Design Features**

■Full bore and reduced bore
■Ball and seat hardened by plating or overlay with anti-friction & anti-corrosion alloy
■ISO 5211 actuator mounting pad
■Blow-out Proof Stem
■ANSI B16.1 04 Class Ⅴ
■Dependable and easy operation
■Suitable for NACE MR-01-75 (option)
■With all characteristics of trunnion mounted ball valve




**Products Range**

Size: 2″ -20″
Rating: 150#-1500#
Material: Carbon Steel and Stainless Steel(ASTM A216 WCB,A352 LCB,A351 CF8, A351 CF8M,A105, A350 LF2, A182 F304,A182 F316, etc)
Operation: lever, gear, pneumatic & electric actuator.

■ UCM can provide metal seated ball valve which conforms to ANSI B16.104 Class Ⅴ.
■ With all characteristics of general trunnion mounted ball valve, metal seat meets the requirements of API 607
■ Ball and seat hardened by plating or overlaying with anti-friction & anti-corrosion alloy, available for powder service, same with floating type metal seated ball valve.

The dimension of trunnion type metal seated ball valve is same with the dimension of trunnion type soft seated ball valve

■ Standard Material

| Material Name | Carbon steel | | | | Stainless steel | | | |
|---|---|---|---|---|---|---|---|---|
| Material Code | C-M1 | C-M2 | C-M3 | C-M4 | 4-M1 | 4-M2 | 4-M3 | 4-M4 |
| Temp. Range | -29℃～250℃ | -29℃～350℃ | -29℃～500℃ | | -29℃～250℃ | -29℃～350℃ | -29℃～500℃ | |
| Body | A216 WCB | | | | A351 CF8 | | | |
| Ball | A182 F304 HCr | A182 F304 Stellited | A182 F304 SFNIc | A182 F304 CW Alloy | A182 F304 HCr | A182 F304 Stellited | A182 F304 SFNIc | A182 F304 CW Alloy |
| Stem | 17-4 PH | 17-4PH Stellited | Hastelloy-C Stellited | | 17-4 PH | 17-4PH Stellited | Hastelloy-C Stellited | |
| Lower Stem | A276 304 | A276 304 Stellited | Hastelloy-C Stellited | | A276 304 | A276 304 Stellited | Hastelloy-C Stellited | |
| Seat | A182 F304 Stellited | | | A182 F304 CW Alloy | A182 F304 Stellited | | | A182 F304 CW Alloy |
| Spring | 17-7PH | | Inconel X750 | | 17-7PH | | Inconel X750 | |
| Gasket | R.PTFE O-Ring | Soft Carbon | | | R.PTFE O-Ring | Soft Carbon | | |
| Gland Packing | R.PTFE O-Ring | Soft Carbon | | | R.PTFE O-Ring | Soft Carbon | | |

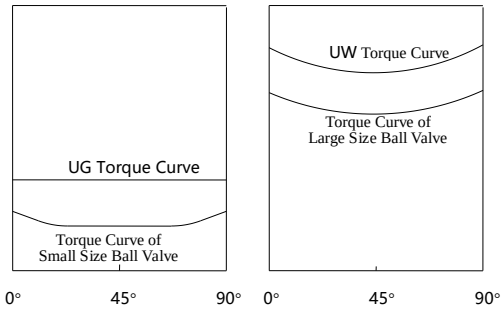
# Pneumatic Ball Valve

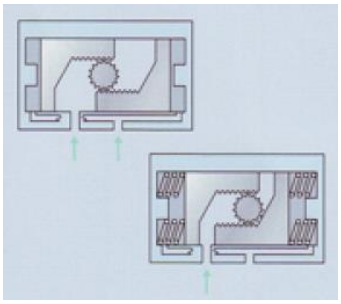
The floating ball valve, trunnion mounted ball valve, thre way ball valve, floating type metal seated ball valve, trunnion mounted type metal seated ball valve manufacture by UNICIMA Valve Manufacturing(Chengdu) Co.,Ltd, all of them can become pneumatic ball valve after mounting actuator. They are applicable for oil, chemical, petrochemical, gas, metallurgical etc. Pneumatic ball valve consists of pneumatic actuator, ball valve, air control components and electric accessories. This control system can be connected with computer process control system to realize both separate control and centralized control. Equipped with relevant electrical components is applicable for flammable and combustible services.

## How to Choose the Pneumatic Actuator

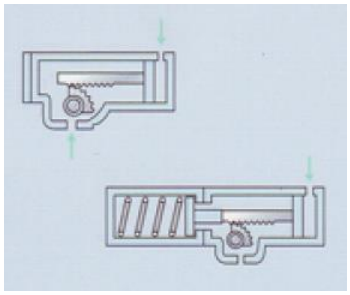
Please see the figure as the comparison of pneumatic actuator output torque and valve required torque.

For small size, adopt UG/UK pneumatic actuator, for big size, adopt UW pneumatic actuator.

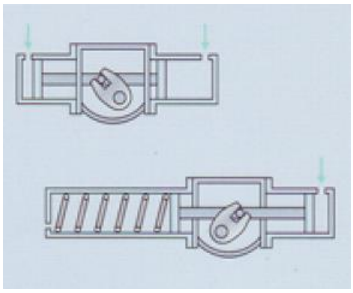


UK/UK-S



UG/UG-S



UW/UW-S

**UG double action actuator torque table**

| Model | Mpa Pressure Mpa | | | | |
|---|---|---|---|---|---|
| | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |
| UG06 | 21 | 28 | 35.5 | 42 | 50 |
| UG09 | 63 | 84 | 105 | 126 | 147 |
| UG13 | 202 | 270 | 337 | 405 | 472 |

**UW double action actuator torque table** Unit：N·M

| Model | Mpa Pressure Mpa | | | | |
|---|---|---|---|---|---|
| | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |
| UW13 | 350-600 | 470-800 | 590-1000 | 710-1200 | 830-1400 |
| UW17 | 760-1280 | 1010-1710 | 1270-2140 | 1520-2570 | 1780-3000 |
| UW20 | 1700-2860 | 2270-3820 | 2830-4770 | 3400-5730 | 3970-6680 |
| UW28 | 4080-7180 | 5440-9162 | 6800-11450 | 8160-13740 | 9520-16030 |

**UG、UW single action actuator torque table** Unit：N·M

| Model | Spring Torque | | Torque of Air to (Pressure MPa) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 0.4 | | 0.5 | | 0.6 | |
| | Begin | End | Begin | End | Begin | End | Begin | End |
| UG06S | 18 | 12 | 18 | 12 | 23 | 15 | 27 | 18 |
| UG09S | 53 | 35 | 53 | 35 | 63 | 44 | 80 | 53 |
| UG13S | 178 | 108 | 178 | 108 | 223 | 135 | 267 | 162 |
| UW13S | 462 | 280 | 462 | 280 | 578 | 350 | 693 | 420 |
| UW17S | 1024 | 650 | 1024 | 650 | 1280 | 813 | 1536 | 975 |
| UW20S | 2328 | 1450 | 2328 | 1450 | 2910 | 1813 | 3492 | 2175 |
| UW28S | 5362 | 3500 | 5362 | 3500 | 6703 | 4375 | 8043 | 5250 |

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