Technical Bulletin B-410

Series 41 Full Bore Seated Ball Valves for ANSI 150 – 600 (PN20- 100) DIN/BS 4504 PN10-PN100

Series 41 Features

General

Series 41 ball valves are off-the-shelf standard valves that incorporate many special features. This series of valves is designed for both pressure and vacuum service.

The valves have multiple fire safe guards : a secondary metal seat ; a blowout-proof stem ; and a static electric grounding device. The Valves are available with a full bore and reduced bore.

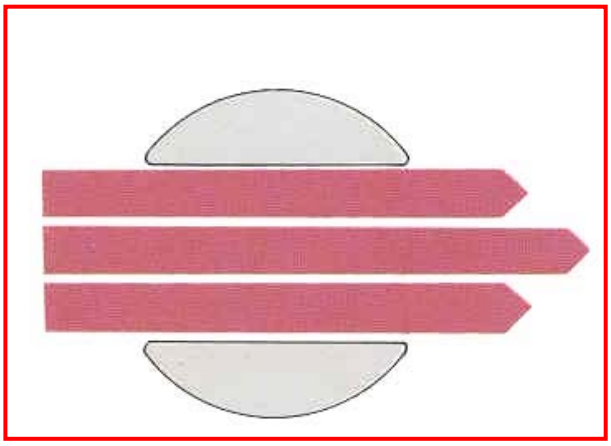


Figure 1. Maximum Flow With Full Bore

Standard Specifications

Flanged end, 2-pcs split body construction, floating ball design, full bore or reduced bore, fields serviceable serviceable, wrench/gear /actuator mounted.

Valve Class : 150 and 300

Test Pressure : As per API 6D Std.

- Shell -

(Hydrostatic)

Class 150 ; 425 psi (30 kg/cm2)

Class 300 ; 1100 psi (77 kg/cm2)

- Seat -

(Air)

Class 150 ; 80 psi (6 kgf/cm2)

Class 300 ; 80 psi (6 kgf/cm2)

Face to Face Dimension : Per Apl 6D Std.(refer to dimension tables)

End Connections : Flanged, conforming to ANSI B 16.5

The ball valves comply with one or more of the following standard specifications as to pressure, temperature ratings and dimensions: ANSI, API, BS, DIN, MSS.

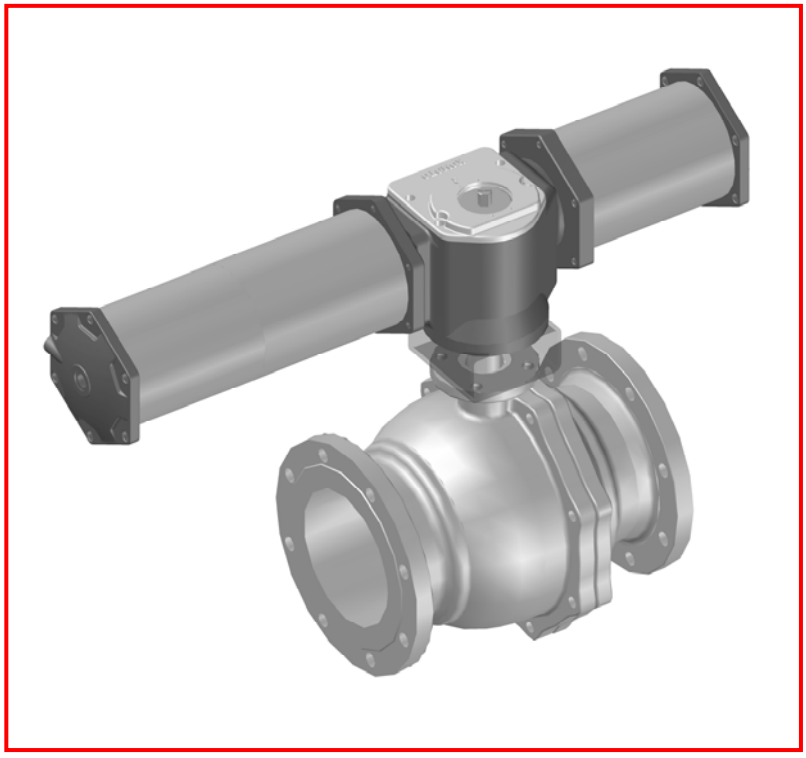
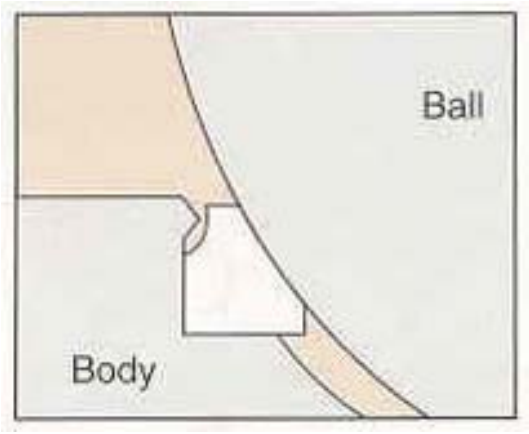


Figure 2. Class Series 41 Valve Incorporating Contoured Trim and Complete with Series ‘ 3900’ Actuator

Unique ACTI-Seal Seat design uses a lip seal principle for efficient sealing at all pressures from zero to the maximum rated positive or negative pressure.

This design seals with a minimum and nearly uniform torque requirement. fhe seat seals are pre-loaded against the ball on assembly to provide shut off at low pressures. At higher pressures, the ball is forced against the seat and provides a positive seal to maximum rated pressures.

The generous lip section of the seat is added assurance of long and efficient seat life.



(Before fire)

Stem Seal and Bearing

All ball valves incorporate a PTFE bearing to absorb any radial loading on the valve stem. A PTFE thrust bearing is also provided to reduce friction due to axial loading. packing utilizes multiple "V" shaped PTFE rings ; tightening the gland nut spreads each ring and creates a multiple seal between the stem and body. the simple gland adjustment also allows compensation for operational wear. in addition, fluid pressure below the stem packing spreads the rings and improves the seal by increasing the stress on the rings-prohibiting leakage and minimizing maintenance.

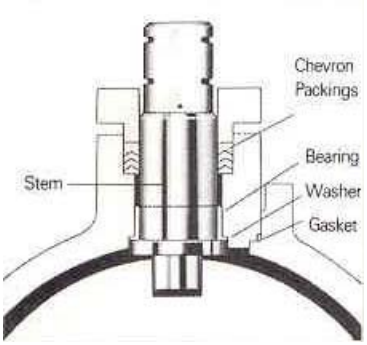


Figure 3. Blow-out proof stem & seal features

Ball

One of the most important components in any ball valve is the ball itself. yhe sphericity and surface finish of the ball are directly related to the life of the valve, its pressure holding capability and the operating torque.

For these reasons, KOMOTO designed special production equipment to produce balls that have a sphericity of ±0008" and a 4RMS surface finish.

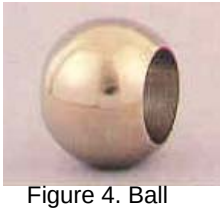
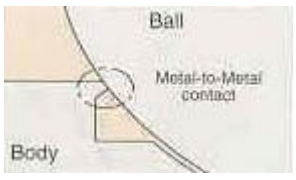


Figure 4. Ball

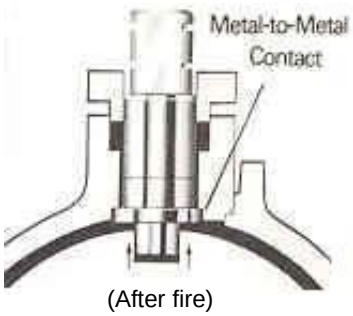
Fire-Safe API-607

One of the many requirements of today's industries is that ball valves must have a metal to metal seal in case the nonmetallic seal is destroyed by fire or other means.

It provides assurance to the user handling flammable or hazardous fluids that should the non-metallic seal be destroyed, the ball valve will stop the flow of material until a new seal is installed.



(Before fire)



(After fire)

SEAT PERFORMANCE DATA

(TFE)

General application seat material, exhibiting lowest operating torque and excellent resistance to chemical attack.

(RTFE)

Most commonly specified seat material, and used as the basis for published torque valves. maintains the excellent chemical resistance of unfilled teflon(TFE) with increased resistance to wear and abrasion resulting in longer life.

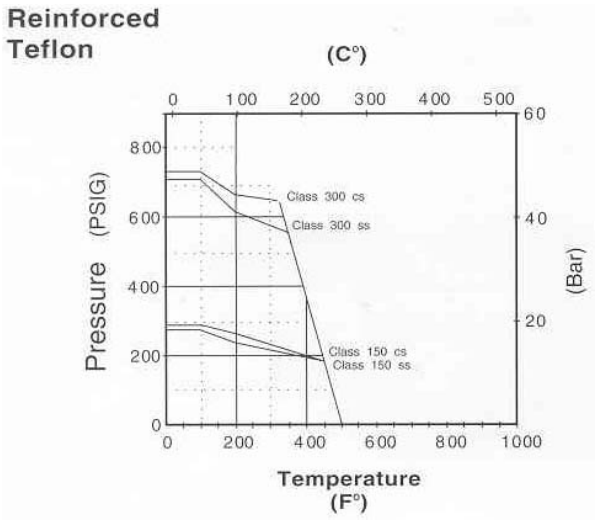
(Carbon Graphite)

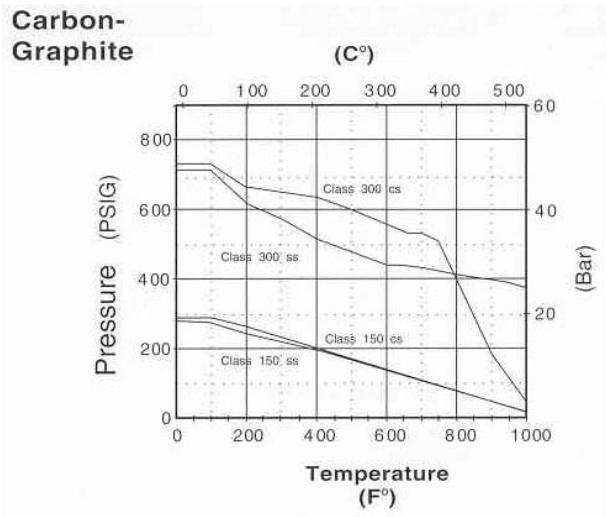
Designed for high temperature applications. maximum service temperature is limited to 759° F in oxidizing applications. this seat like all hard seat materials does not necessarily provide "bubble tight" shut-off. most test standards have allowable leakage rates or list "classes" of shut-off for this type of seat. be aware of the system design requirements when specifying this or any hard sea.

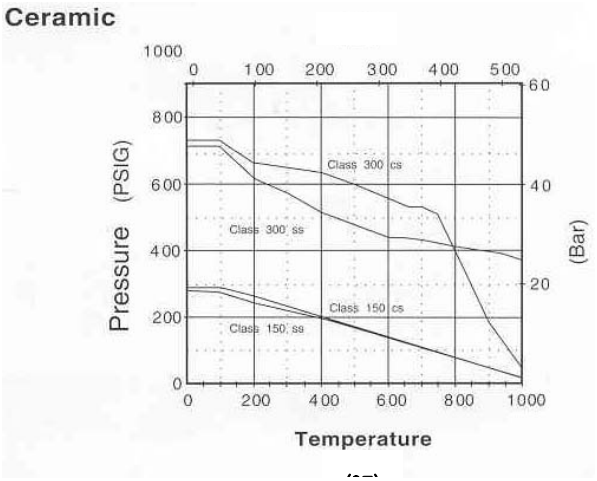
(Ceramic)

Working in conjunction with a ceramic ball, this seat out performs all other materials in throttling and abrasive applications. it possesses excellent chemical resistance.

Coast is very high, and unless experience dictates its use, other alternatives should be evaluated first. this seat like all hard seat materials does not necessarily provide "bubble tight" shut-off. Most test standards have a allowable leakage rates or list "classes" of shut-off for this type of seat. Be aware of the system design requirements when specifying this or any rigid seat.







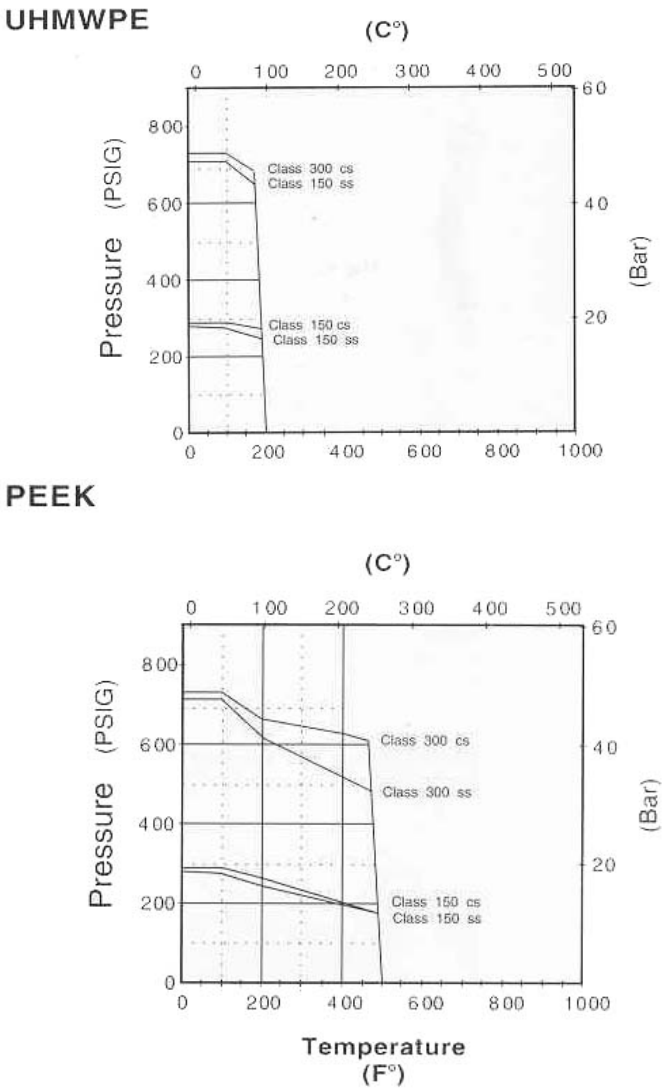
(UHMWPE)

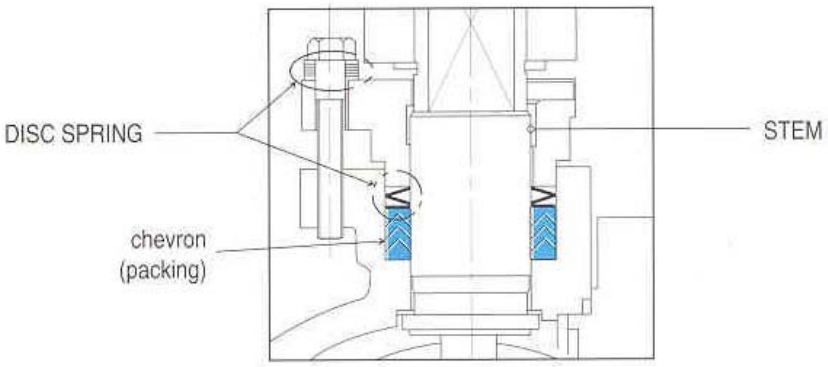
Ultra High Molecular Weight Polyethylene offers good abrasion resistance making it suitable for use in high solids or slurry applications. These seats are completely confined by a metallic seatholder enhancing their performance in abrasive.

This seat is frequently specified in services where fluorine off-gassing in even the slightest amounts is objectionable. Example of these services. UHMWPE should be used with caution in the presence of solvents, and the operating torque can be expected to be 30% higher than that of the teflon based seat materials.

(PEEK)

PEEK (Poly Ether Ether Ketone) offers a high strength alternative to RTFE, resistant to creep and cold flow. This seat offers good abrasion resistance. Higher in cost, this material offers similar chemical resistance to TFE but should be checked on application. Operating torque tend to be 40% higher than RTFE.





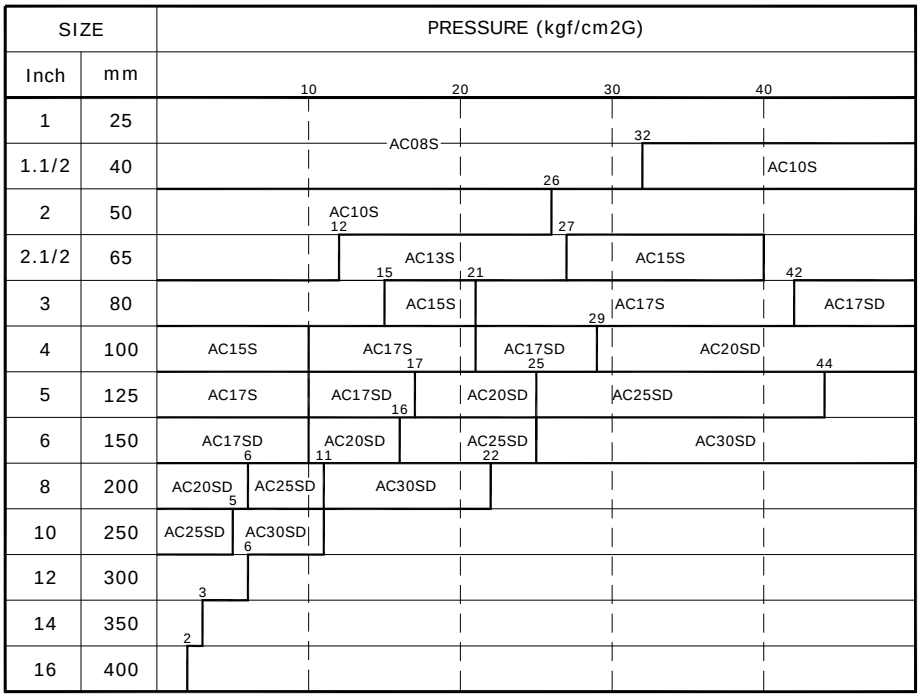
DOUBLE LIVE LOADED STEM
& CHEVRON PACKING
(OPTION : L)

ΔP Limitation for Ball Valve

A0-3900 Spring Return Cylinder Actuator (Air To Open)

Supply Air : 5.0 kgf/cm2G.

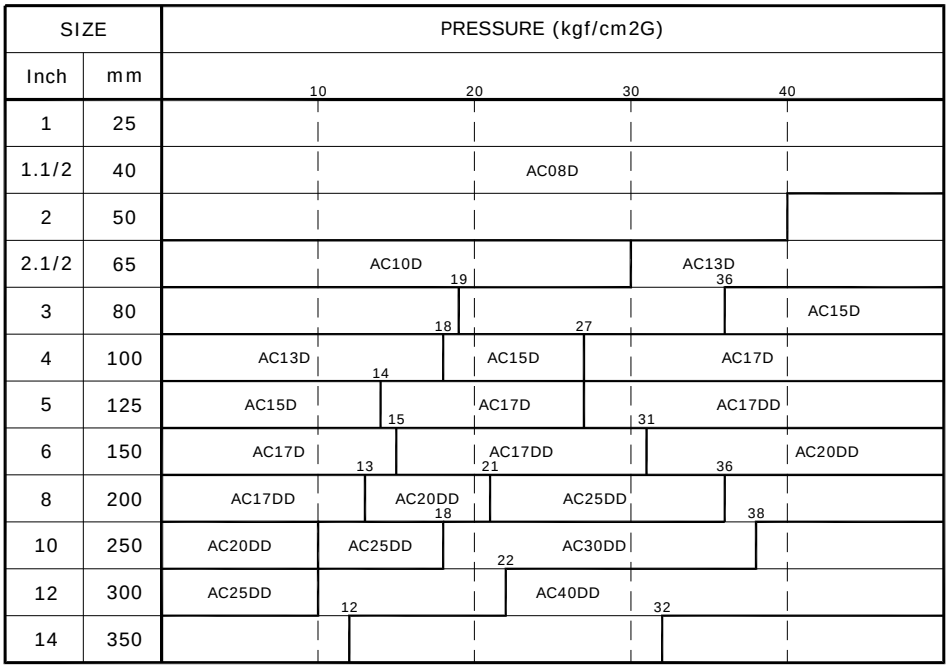
Spring Range : 2~3 kgf/cm2G.



ΔP Limitation for Ball Vavle

A0-3900 Double Acting Spring Return Cylinder Actuator

SUPPLY AIR : 5.0 kgf/cm2G.



Series 41 Outline Dimensions (Double Acting Cylinder)

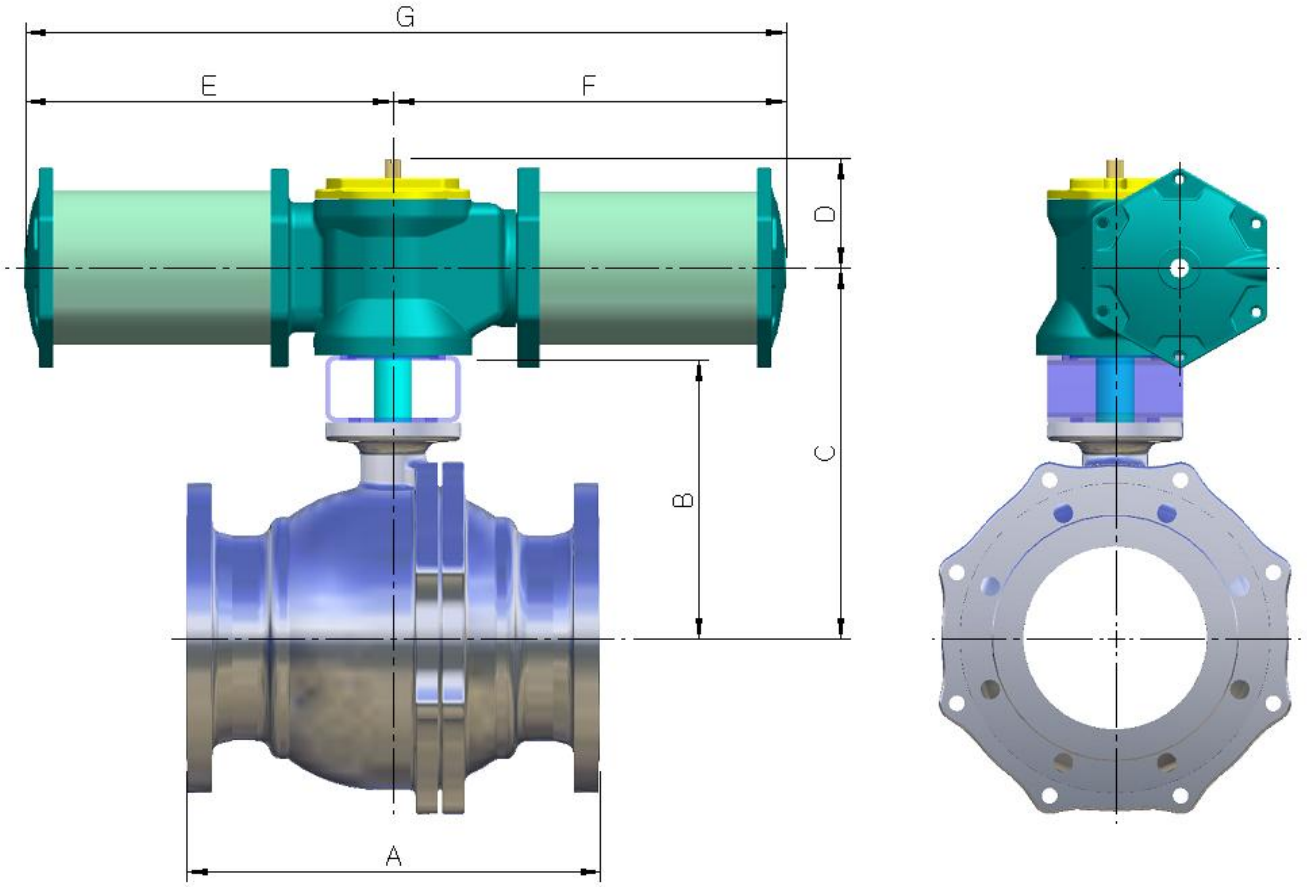


Figure 5. Ball valve & cylinder actuator assembly dimension

Table 1. Demension (DD : Double Acting Cylinder) (unit : mm)

Size	A	B	C	D	E	F	G	Actuator
1/2"	108	64	115	82	236	71	307	AC08D
3/4"	117	64	115	82	236	71	307	AC08D
1"	127	78	148.5	95	315	96	411	AC13D
1 1/2"	165	102	172	95	315	96	411	AC13D
2"	178	110	180	95	290	296	586	AC15DD
3"	203	150	220	95	290	296	586	AC15DD
4"	229	175	279	128	398	425	823	AC17DD
6"	394	255	359	128	398	425	823	AC17DD
8"	457	330	434	128	429	429	858	AC20DD
10"	533	410	537.5	114.5	652	652	1304	AC25DD
12"	610	432	600	187	675	675	1350	AC30DD

Series 41 Outline Dimensions (Spring Return Cylinder)

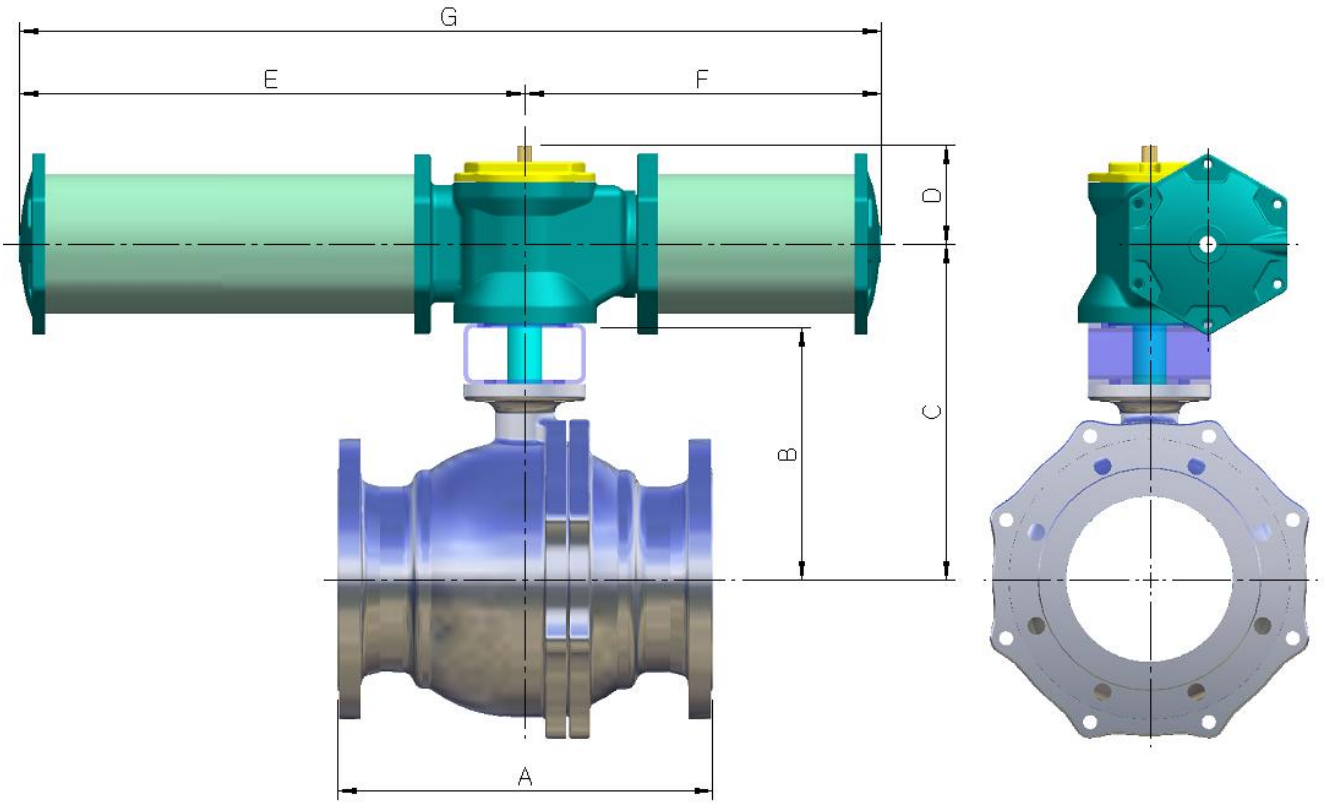


Figure 6. Ball Valve & Cylinder Actuator Assembly Dimension

Table 2. Demension (SD : Spring Return Cylinder) (unit : mm)

Size	A	B	C	D	E	F	G	Actuator
1/2"	108	64	115	82	321	71	392	AC08S
3/4"	117	64	115	82	321	71	392	AC08S
1"	127	78	129.5	82	337	71	408	AC10S
1 1/2"	165	102	172	95	425	96	521	AC13S
2"	178	110	180	95	462	296	758	AC15SD
3"	203	150	220	95	462	296	758	AC15SD
4"	229	175	245	95	462	296	758	AC15SD
6"	394	255	359	128	608	425	1033	AC17SD
8"	457	330	434	128	620	429	1049	AC20SD
10"	533	410	537.5	114.5	973	652	1625	AC25SD
12"	610	432	600	187	1067	675	1742	AC30D

* ANSI 150#

* Please Consult to Our Sales Office for Sizing of Actuator.