3Z Standard Port Plug Valve
FIG 120, 320, 620

3Z Live Loaded Plug Valve FIG 120LL, 320LL,620LL

3Z Full Port Plug Valve
FIG 120FB, 320FB, 620FB

3Z 3-Way Plug Valve
FIG 130, 330, 630

3Z 5-Way Plug Valve
FIG 150, 350, 650

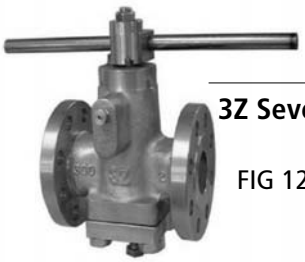
3Z Jacketed Plug Valve, Full or Partial
FIG 120FJ, 320FJ, 620FJ, 120PJ, 320PJ, 620PJ

3Z Nuclear Plug Valve
FIG 122N BW, 322NBW, 622N BW

3Z Screwed End Plug Valve
FIG 122SE, 322SE, 622SE

3Z 3-Way Full Port Plug Valve
FIG 130FB, 330FB, 630FB

3Z Socket Welded End Plug Valve
FIG 122SW, 322SW, 622SW



3Z Severe Service Valve
FIG 120SS, 320SS, 620SS

3Z Electric Control Plug Valve
FIG 120CVE

3Z Direct Mounted Pneumatic Control Plug Valve
FIG 120CVD

3Z Pneumatic Control Metal Seated Plug Valve
FIG 123CV

3Z Interlocked Type Plug Valve
FIG 120CVT

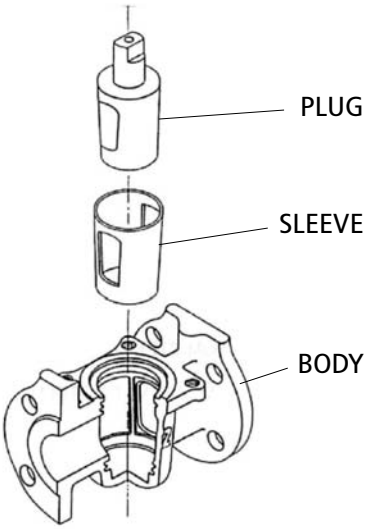
3Z Direct Mounted Pneumatic Fingertrol Control valve
FIG 120CVD

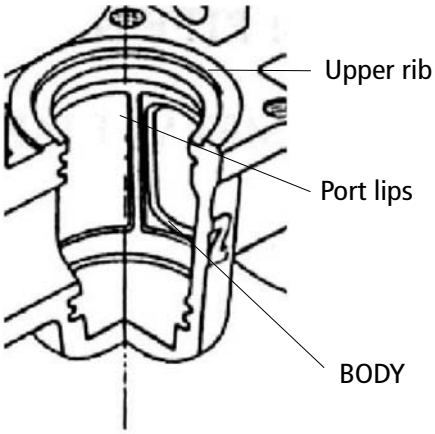
120CVE 3Z Sleeved valves are also available for various Hydrofluoric Acid applications.

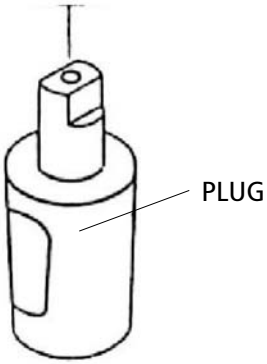
3Z CAGED PLUG Valve
FIG 120CG,320CG,620CG

- **3Z Autoclave Line Plug Valve**
- **3Z Black Liquor Line Plug Valve**
- **3Z Bleed Systems Valv**
- **3Z Cryogenic Plug Valve**
- **3Z Chlorine Valve**
- **3Z Caged Plug Valve**
- **3Z Diverted Type Plug Valve**
- **3Z Fingertrol Plug Valve**
- **3Z Fire Safe Plug Valve**
- **3Z Gas Distribution Plug Valve**
- **3Z Metal Proving Plug Valve**
- **3Z Piloted Plug Valve**
- **3Z Power Plant Plug Valve**
- **3Z Spandex Plug Valve**
- **3Z System Flush Plug Valve**
- **3Z Tandem Plug Valve**
- **3Z Underground Plug Valve**
- **3Z Vacuum Plug Valve**

Construction of Sleeved Plug Valves



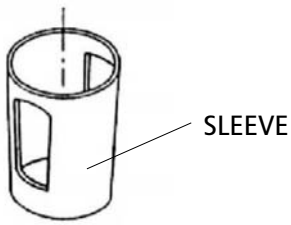




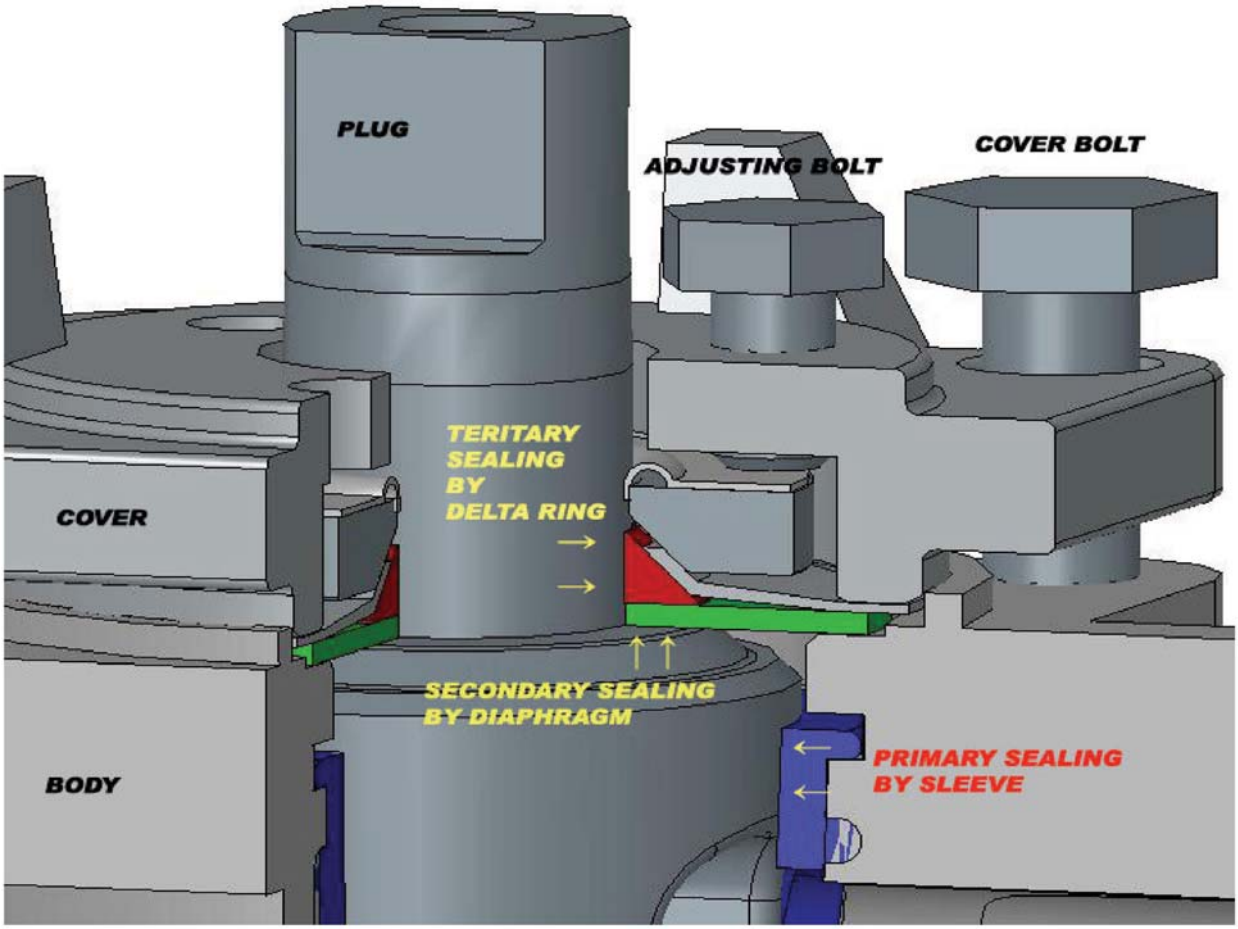
Basic structure is plug, sleeve, body. Sleeve is inserted and encaged inside the body. Tapered plug is inserted onto the sleeve. The sleeve is acting as a soft seat. And completely surrounds plug creating areal sealing surfaces. Also not permitting any dead space in the flow path. Plug is rotating 90 degree. When it is aligned with the body port, flow is open. When the plug is rotated so that plug port is perpendicular to the body port the flow is blocked. The media kept in the plug while at closed position, will be contained in the plug port only, and when the valve is open again, the flow will flush the out. And no remains

PTFE is an plastic material, even though they are high grade engineering material. All plastics are subject to cold flow.; at higher temperature volume increase, escape to the low pressure area and don't get back to its original position even after removal of temperature, pressure. But, if they get confined , they would not cold flow. Upper boundary and lower boundary, and 360 port lips. Recessed wall is acting as absorption of inflated volume of PTFE when volume is increased due to temperature.
The vertical, upper horizontal, and lower horizontal pressure ribs are provided to provide pressure seal lines along plug any time.
True circularity of body center bore is very important for firm sealing. Ribs and lips must be truly circular and concentrically defined as cast state. 3Z is has its own foundry. Did this for over 20 years. Reliable.

Plug is tapered. Monolithic design. Wedge action. Lowering 1 mm will result in side pressure vectors. Adjustable. Solid not unstable as pressure dependent.
Materials can be upgraded for the plug alone to be better resistive than the body corrosion rate.



Sleeve is also tapered to accepted the configure of plug. They are snuggly fit into the void space created by upper, lower and metal port lips.
The PTFE materials are rigid enough, resilient enough, elastic enough. Corrosion resistant. Temperature, pressure.
For highly radioactive environment, higher temperatures, several different materials are used.



Threefold Sealing System

The zero leakage stem sealing is achieved by threefold sealing system.
The primary seal is provided by the sleeve. The sealing is so tight that no leakage can be observed even without a valve cover.

The secondary and tertiary seal (top seal package) are provided by a PTFE Teflon delta ring and a diaphragm. The sealing is also so tight that no leakage can be observed even without a sleeve.
A test report is available at request

1.0 Types of generic valve failures
Valves fail to serve their function when they indicate leakage or inoperability. They have to be repaired to function properly. Any valve design have a moving part which close or open the flow path. The part protrudes through the pressure boundary to be operated outside. At gate valve design it is called wedge/stem; globe valve, plug/stem; ball valve, ball/stem; etc.

1.1 Leakage - This type of failure can occur internally or externally at this moving part. External leakage can be generated at the pressure boundary through stem of the valve. Internal leakage can be generated between the seat of the body and the moving part. When leakage develops the valves can be judged failed. The leakage damages various factors. Depending on the degree of seriousness, users determine whether to repair the valve or to use it as is.

1.2 Inoperability - This type of failure occurs when the moving part of the valve cannot be engaged or disengaged due to various reasons, such as by the slurry accumulated at the crevice of wedge way in gate valve design. This type of failure hampers serious problems in flow control. They have to be repaired right away to perform the intended role of the valve.

1.3 Life-time - At initial inspection and test stage, almost all the valves function properly. That is, it does not leak and open/close well. But when installed and exposed at actual conditions, after a certain period of time, the valve start to fail. The time is called "Life-time" of the valve. If the life-time is practically and economically too short, the valve is not suitable for the service.

2.0 Factors influencing valve failures/life-time
Natures and conditions of flow media, modes of operation and environmental conditions are important factors. The valve design employed must have features to overcome the given conditions.

2.1 Phase of Media - The flow media can be in the phase of solid, liquid, or gas. The solids can be in powder, granule or larger particles. They can be dissolved or suspended in a solution. They can crystallize, precipitate, solidify, polymerize, crack, react chemically or physically, etc. They can in the form of slurry/sludge. They may carry unexpected impurities or wastes, generated from reactors or pipe lines.

2.2 Nature of Media - The media can be corrosive, toxic when ingested or inhaled, carcinogenic, irritative to skin and eyes, explosive, flammable, oxidizing with air infiltrated in, etc.

2.3 Modes of operation - They may be in different cycle time, temperature/pressure variations, start up mode, shut down mode, emergency mode, etc.

2.4 Environmental Conditions - They may be under hot or cold weather, facing salty sea wind, at corrosive atmosphere.

3.0 Valve problems cost a lot of money
When improperly designed valves are use, capital cost for repeated procurement of valves, materials and labor cost for frequent repair of installed valves, production disturbance cost, safety protection cost, environmental protection cost, administrative cost for valve maintenance management cost, etc., adds up to enormous cost and expenses.

4.0 Conventional valves, too short a life-time
The conventional valves had been developed to meet the requirement of steam handling since the industrial revolution of 200 years ago. The new industrial revolution of hydrocarbon processing of oil, gas and petrochemicals outbroke 50 years ago. The conventional valves have been used for the process industries but with failures. The life-time is too short to be safe, reliable and economic.

4.1 Gate valves - Valve cannot be closed when solids accumulates at the void space at the seat where the wedge seats in. It galls. Over-tightening when closing damage valve seals quickly. Gland seal fails quickly.

4.3 Globe valves - Direction changes, 6 times of 90 degree, may be okay for throttling but prohibitive for normal flow use. Over-tightening when closing damage valve seals quickly. Slurry clogs port quickly. Gland seal fails quickly.

4.2 Ball valves - Valve seal ring fails quickly due to the slurry kept in dead space between ball and body. Gland seal fails quickly.

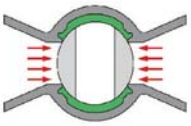
4.3 Diaphragm valves - Rubber containing diaphragm ages about a year. Quickly torn away by aging and over-tightening. Gland seal fails quickly. Diaphragm gets damaged by solids in the media.

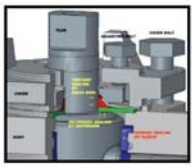
4.4 Butterfly valves - Slurry gotten in dead space at the bottom stem damage the valve. Excessive rubbing action and aging wears and tears off seat rubber. Gland seal fails quickly.

5.0 3Z, the solution for valve problems
3Z sleeved plug valves are specifically designed to overcome the problems described above.

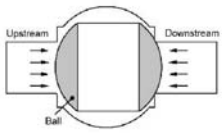
Zero Leakage

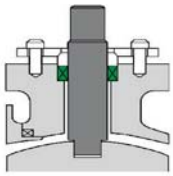
3Z PLUG VALVE





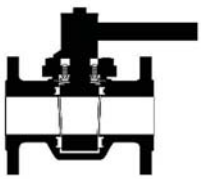
OTHER VALVES

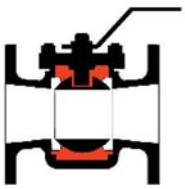




The zero leakage stem sealing is achieved by the Threefold Stem Sealing System.
The primary seal is provided by the sleeve. The sealing is so tight that no leakage can be observed even without a valve cover. The secondary and the tertiary seal (top seal package) are provided by a delta ring and a diaphragm made of RTFE (Rein forced Teflon). The sealing is also so tight that no leakage can be observed even with out a sleeve.

Zero Cavity





Plug is always surrounded by PTFE sleeve 360 degree around and therefore the liquid in the plug internal cannot flow into no dead space whether it's open or close. When the valve is open the line flow would flush out the liquid in the plug internals.
Ball Valve & other Valve : When the ball is closed, the liquid containing slurry which was kept in ball openings, flows into the dead space between ball and body.
The liquid imprisoned at the dead space will stay during life time of the valve.
When PVC slurry of sludge is precipitated and accumulated in this dead space the burdened solids will block the rotation of ball, pushes out the seal surface of Teflon ring, and gives damages to the seal, which eventually produces the leakage.

Zero Maintenance

Owed to the merits of its structure, the valve is zero leakage and no maintenance is required.
When seal pressure adjustment is required due to PTFE sleeve wear,
a quarter turn of adjustment bolts pushes the plug down regenerating a sealing pressure as if it is a new valve. Therefore no disassembles, no repair is required for more than 10 years for the most of cases. Line repair is possible because the plug is the top entry type.

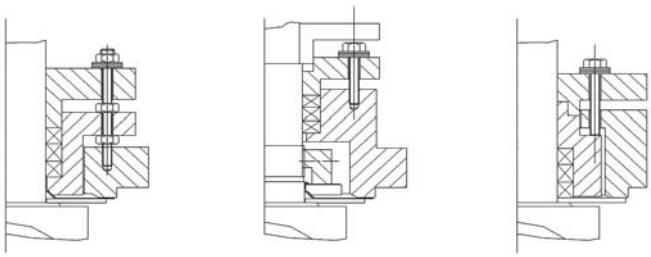
For lethal, toxic and sub-zero fluid services where an absolute stem seal is required.

3Z Live Loaded Plug Valve

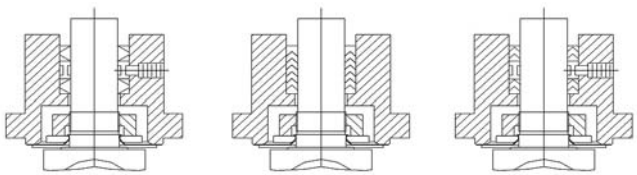
Fig. 120, 320, 620LL

- Designed and built to eliminate fugitive emissions and to handle the toughest services such as
  Chlorine
  Hydrofluoric Acid
  Anhydrous HCl
- A true stuffing box design with all the positive shut-off, corrosion resisting features of other 3Z Sleeved Plug Valves.
- Will accommodate all standard packing.
- Many options such as bonnet tap for insertion of chlorine compatible lubricant or other greases, for inert gas pad, or as a leak-off connection.
- V-Port and 3-way plug configuration are available as options.
- Port : 2-5 way
- Class : 150/300/600
- Size : 1/2"- 24"
- Temperature Range : -30℃ to 260℃

Live Loaded Design Options



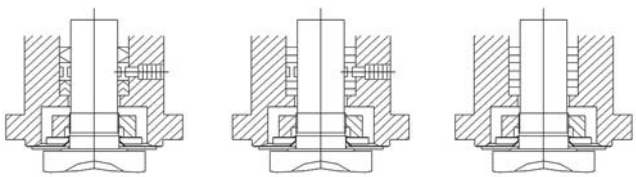
Wide Range of Stuffing Box Options



Cup and cone packing with lantern ring

Chevron packing set

Chevron packing with lantern ring



Combination packing set cup and cone(upper) chevron(lower) with lantern ring

Compression packing with lantern ring

Compression packing set

The versatility of 3Z multiport valves and the variety of flow arrangements in which they are available make these valves ideal for many types of piping systems handling liquids, gases, slurries or other applications where tight shutoff is required.

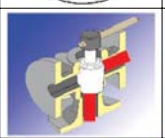
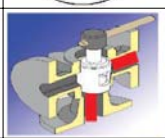
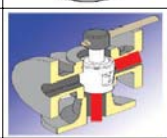
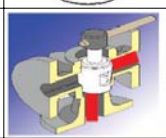
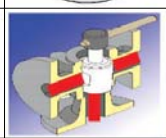
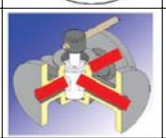
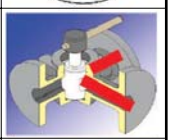
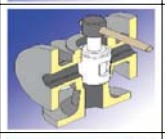
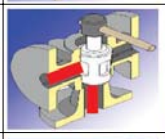
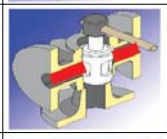
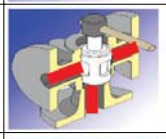
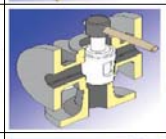
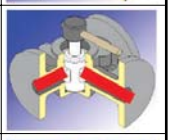
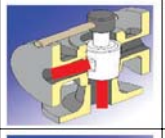
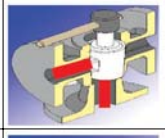
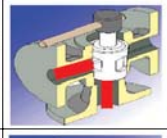
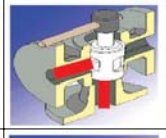
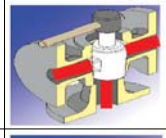
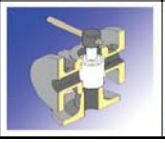
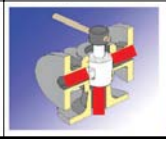
3Z 3-Way Plug Valve
FIG 130, 330, 630

3Z 5-Way Plug Valve
FIG 150, 350, 650

3Z 4-Way Plug Valve
FIG 140, 340, 640

3Z 3-Way Full Port Plug Valve
FIG 130FB, 330FB, 630FB

3 way Port Arrangement

FORMS / FLOW	A	AX	D	C	I	T	L
POSITION 1 0°							
POSITION 2 90°							
POSITION 3 180°							
POSITION 4 270°							

Designed for Nuclear Power Plant application .Standard type : Sleeve is "UHMWPE"

- Port : 2-5 way
- Class : 150/300/600
- Size : 1/2"- 24"
- Temperature Range : -30℃ to 260℃

3Z FIG 322N.BW
BUTT WELD END
NUCLEAR
PLUG VALVE

2-Way
Class 150/300
1/2-6 inch

3Z FIG 322N.P
PUP WELDED
NUCLEAR
PLUG VALVE

2-Way
Class 150/300
1/2-6 inch
Pup Welded

3Z FIG 322N.SW
SOCKET WELD END
NUCLEAR
PLUG VALVE

2-Way
Class 150/300
1/2-6 inch
For Nuclear Service

3Z FIG 332N
BUTT WELD END
NUCLEAR
PLUG VALVE

3-Way
Class 150/300
1/2-6 inch

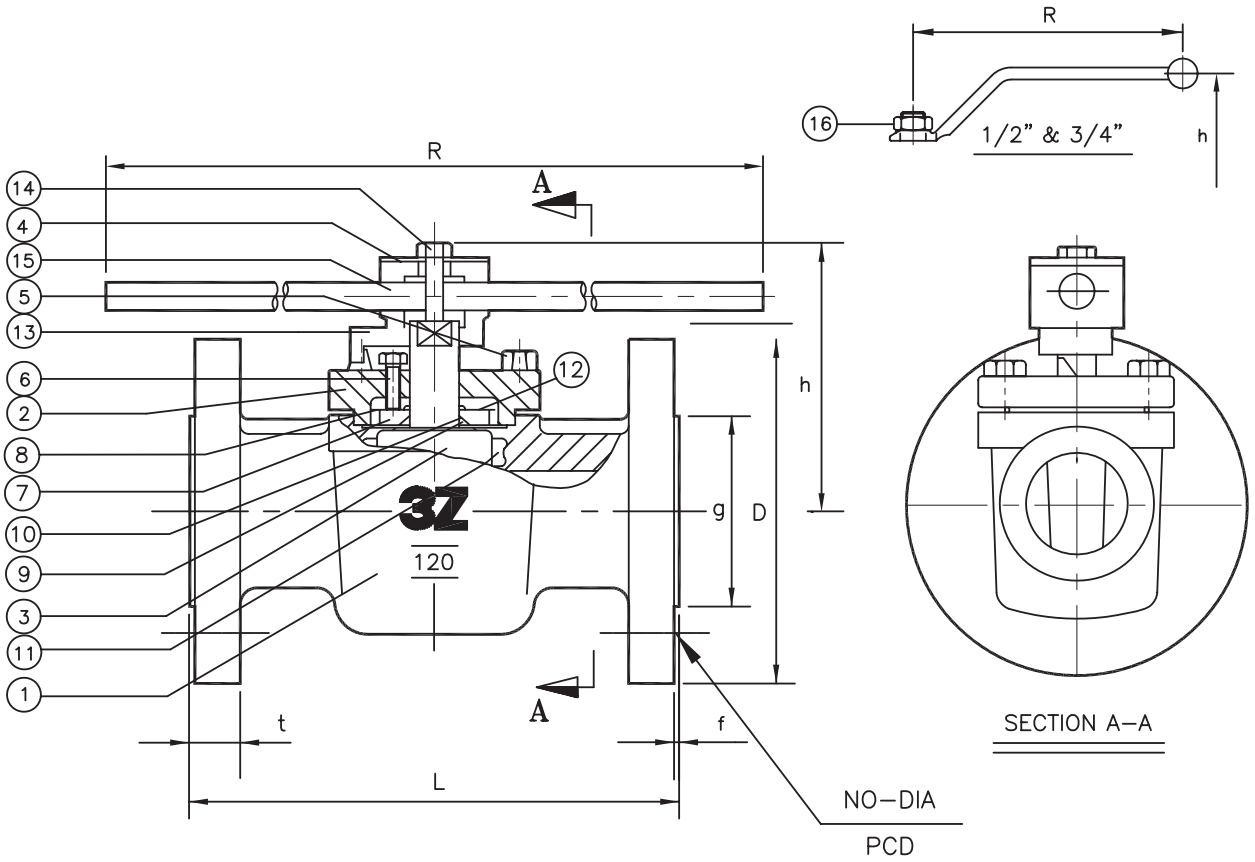
3Z FIG 322N.CV
PNEUMATIC
NUCLEAR
CONTROL
PLUG VALVE

Double Acting Type
2-Way
Class 150/300
1/2-6 inch

3Z FIG 322N.CV
PNEUMATIC
NUCLEAR
CONTROL
PLUG VALVE

Spring Return Type
2-Way
Class 150/300
1/2-6 inch

NO.	PART NAME	Q'TY	MATERIALS
1	BODY	1	CARBON STEEL
2	COVER	1	CALBON STEEL
3	PLUG	1	STAINLESS STEEL
4	NAME PLATE	1	STAINLESS STEEL
5	COVER BOLT	1S	ALLOY STEEL
6	ADJUSTING BOLT	3	STAINLESS STEEL
7	THRUST COLLAR	1	STAINLESS STEEL
8	METAL DIAPHR'M	1	STAINLESS STEEL
9	DELTA RING	1	RTFE
10	REVERS LIP	1	RTFE
11	SLEEVE	1	PTFE
12	ANTISTATIC DEVICE	1	STAINLESS STEEL
13	HUB	1	STAINLESS STEEL
14	HUB BOLT	1	STAINLESS STEEL
15	HANDLE	1	CARBON STEEL
16	HANDLE NUT	1	STAINLESS STEEL



DIMENSIONS(mm)

NOMINAL SIZE				END FLANGES							
					BOLT HOLE						
IN	MM	L	h	D	PCD	NO	DIA	g	t	f	R
0.5	15	108	110	89	60.5	4	16	35	9.7	1.6	180
0.75	20	117	110	98	70	4	16	43	10.4	1.6	180
1	25	127	90.6	108	79.5	4	16	51	11.2	1.6	222
1.5	40	165	110.9	127	98.5	4	16	73	14.2	1.6	318
2	50	178	126	152	120.5	4	19	92	15.8	1.6	458
2.5	65	190	140.7	178	139.5	4	19	105	25.4	1.6	597
3	80	208	140.7	190	152.5	4	19	127	19.1	1.6	597
4	100	229	174.4	229	190.5	8	19	157	23.9	1.6	746

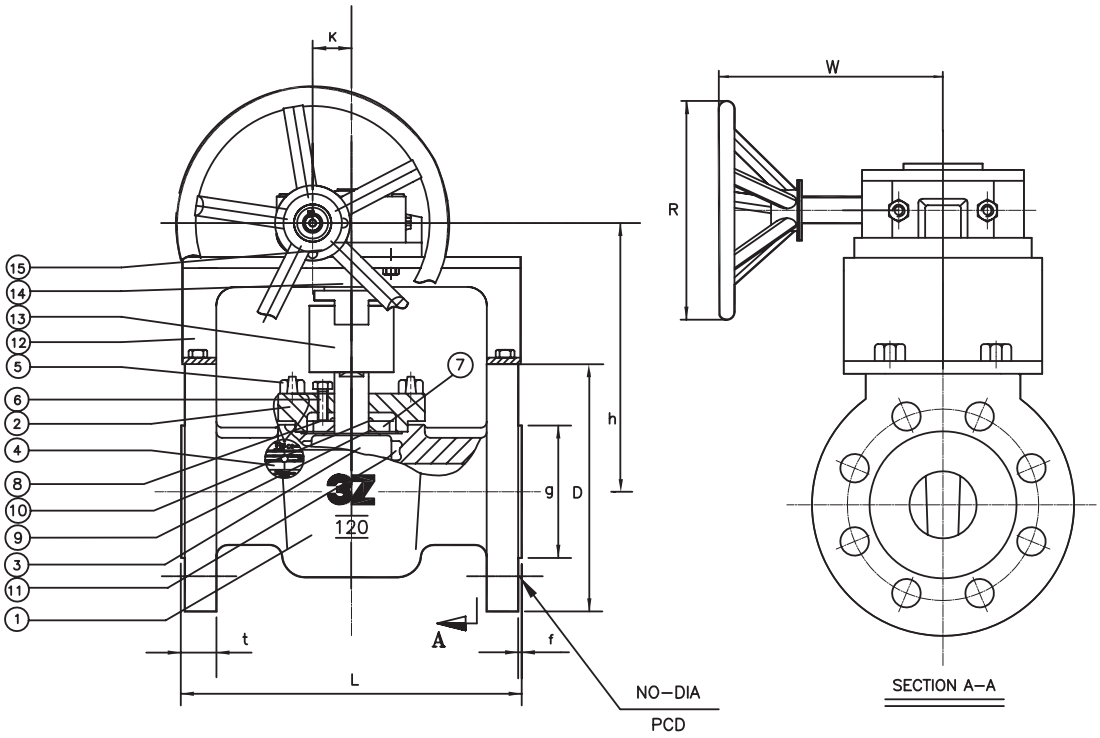
END CONNECTION : RF		
STD	TEST	ANSI B 16.34
	FACE TO FACE or END TO END	ANSI B 16.10 CLASS 150
	DIMENSIONS OF FLANGE	ANSI B 16.5 CLASS 150
	WALL THICKNESS	ANSI B 16.34 CLASS 150

3Z SLEEVED PLUG VALVES

PRODUCTION NO.

120.1–W.6

NO.	PART NAME	Q'TY	MATERIALS
1	BODY	1	CARBON STEEL
2	COVER	1	CARBON STEEL
3	PLUG	1	STAINLESS STEEL
4	NAME PLATE	1	STAINLESS STEEL
5	COVER BOLT	1S	ALLOY STEEL
6	ADJUSTING BOLT	3	STAINLESS STEEL
7	THRUST COLLAR	1	STAINLESS STEEL
8	METAL DIAPHR'M	1	STAINLESS STEEL
9	DELTA RING	1	RTFE
10	REVERS LIP	1	RTFE
11	SLEEVE	1	PTFE
12	BRACKET	1	CARBON STEEL
13	COMPENSATOR	1	CARBON STEEL
14	TORQUE BAR	1	CARBON STEEL
15	GEAR OPERATOR	1	STEEL



DIMENSIONS(mm)

NOMINAL SIZE				END FLANGES									
					BOLT HOLE								
IN	MM	L	h	D	PCD	NO	DIA	g	t	f	R	K	W
6	150	267	282	279	241.5	8	22	216	25.4	1.6	200	73	300
8	200	292	348	343	298.5	8	22	269.9	28.6	1.6	225	108	350
10	250	330	379	406	362	12	25	324	30.2	1.6	225	108	350
12	300	356	418	483	432	12	25	381	31.8	1.6	280	108	350
14	350	381	506	533	476	12	29	413	35.1	1.6	315	166	450
16	400	762	559	597	539.5	16	29	470	36.6	1.6	315	166	450

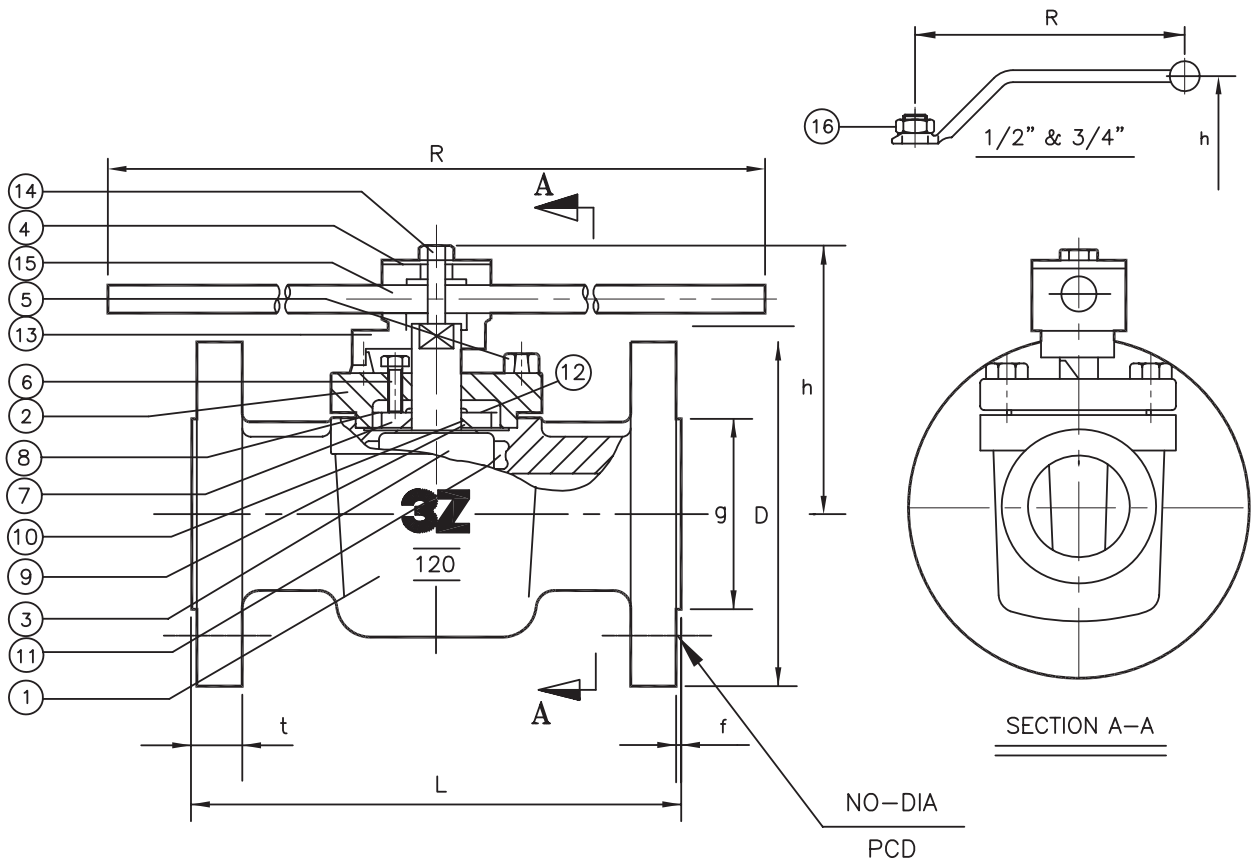
END CONNECTION : RF		
STD	TEST	ANSI B 16.34
	FACE TO FACE or END TO END	ANSI B 16.10 CLASS 150
	DIMENSIONS OF FLANGE	ANSI B 16.5 CLASS 150
	WALL THICKNESS	ANSI B 16.34 CLASS 150

3Z SLEEVED PLUG VALVES

PRODUCTION NO.

120.2–W.6

NO.	PART NAME	Q'TY	MATERIALS
1	BODY	1	STAINLESS STEEL
2	COVER	1	STAINLESS STEEL
3	PLUG	1	STAINLESS STEEL
4	NAME PLATE	1	STAINLESS STEEL
5	COVER BOLT	1S	STAINLESS STEEL
6	ADJUSTING BOLT	3	STAINLESS STEEL
7	THRUST COLLAR	1	STAINLESS STEEL
8	METAL DIAPHR'M	1	STAINLESS STEEL
9	DELTA RING	1	RTFE
10	REVERS LIP	1	RTFE
11	SLEEVE	1	PTFE
12	ANTISTATIC DEVICE	1	STAINLESS STEEL
13	HUB	1	STAINLESS STEEL
14	HUB BOLT	1	STAINLESS STEEL
15	HANDLE	1	CARBON STEEL
16	HANDLE NUT	1	STAINLESS STEEL



NOMINAL SIZE				END FLANGES							
					BOLT HOLE						
IN	MM	L	h	D	PCD	NO	DIA	g	t	f	R
0.5	15	108	110	89	60.5	4	16	35	9.7	1.6	180
0.75	20	117	110	98	70	4	16	43	10.4	1.6	180
1	25	127	90.6	108	79.5	4	16	51	11.2	1.6	222
1.5	40	165	110.9	127	98.5	4	16	73	14.2	1.6	318
2	50	178	126	152	120.5	4	19	92	15.8	1.6	458
2.5	65	190	140.7	178	139.5	4	19	105	25.4	1.6	597
3	80	208	140.7	190	152.5	4	19	127	19.1	1.6	597
4	100	229	174.4	229	190.5	8	19	157	23.9	1.6	746

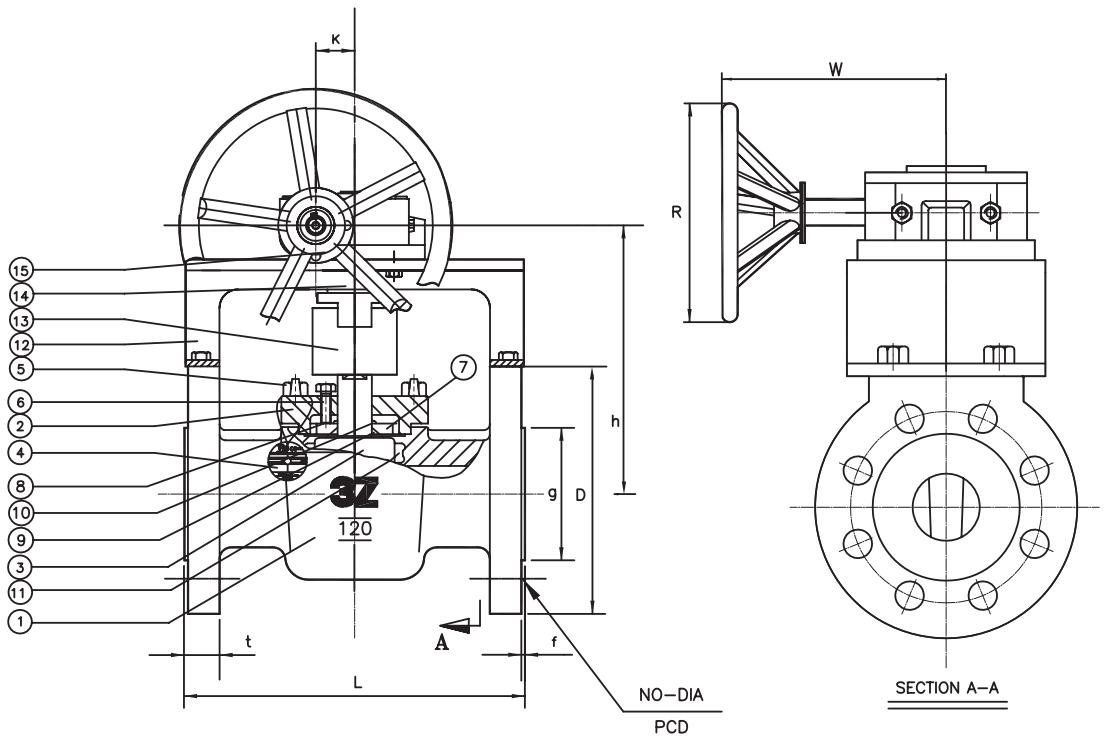
END CONNECTION : RF		
STD	TEST	ANSI B 16.34
	FACE TO FACE or END TO END	ANSI B 16.10 CLASS 150
	DIMENSIONS OF FLANGE	ANSI B 16.5 CLASS 150
	WALL THICKNESS	ANSI B 16.34 CLASS 150

3Z SLEEVED PLUG VALVES

PRODUCTION NO.

120.1–6.6

NO.	PART NAME	Q'TY	MATERIALS
1	BODY	1	STAINLESS STEEL
2	COVER	1	STAINLESS STEEL
3	PLUG	1	STAINLESS STEEL
4	NAME PLATE	1	STAINLESS STEEL
5	COVER BOLT	1S	STAINLESS STEEL
6	ADJUSTING BOLT	3	STAINLESS STEEL
7	THRUST COLLAR	1	STAINLESS STEEL
8	METAL DIAPHR'M	1	STAINLESS STEEL
9	DELTA RING	1	RTFE
10	REVERS LIP	1	RTFE
11	SLEEVE	1	PTFE
12	BRACKET	1	CARBON STEEL
13	COMPENSATOR	1	CARBON STEEL
14	TORQUE BAR	1	CARBON STEEL
15	GEAR OPERATOR	1	STEEL



DIMENSIONS(mm)

	NOMINAL SIZE				END FLANGES									
						BOLT HOLE								
	IN	MM	L	h	D	PCD	NO	DIA	g	t	f	R	K	W
	6	150	267	282	279	241.5	8	22	216	25.4	1.6	200	73	300
*	8	200	292	348	343	298.5	8	22	269.9	28.6	1.6	225	108	350
**	10	250	330	379	406	362	12	25	324	30.2	1.6	225	108	350
	12	300	356	418	483	432	12	25	381	31.8	1.6	280	108	350
	14	350	381	506	533	476	12	29	413	35.1	1.6	315	166	450
	16	400	762	559	597	539.5	16	29	470	36.6	1.6	315	166	450

NOTE.

1. * 2 TOP HOLES IN FLANGES ARE TAPPING FOR 3/4–10UNC
2. ** 2 TOP HOLES IN FLANGES ARE TAPPING FOR 8/7–9UNC

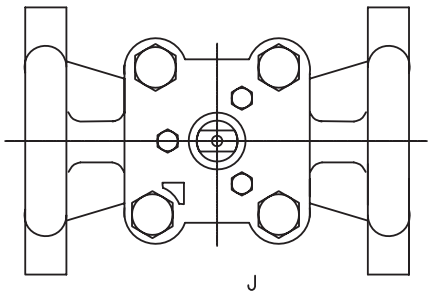
END CONNECTION : RF		
STD	TEST	ANSI B 16.34
	FACE TO FACE or END TO END	ANSI B 16.10 CLASS 150
	DIMENSIONS OF FLANGE	ANSI B 16.5 CLASS 150
	WALL THICKNESS	ANSI B 16.34 CLASS 150

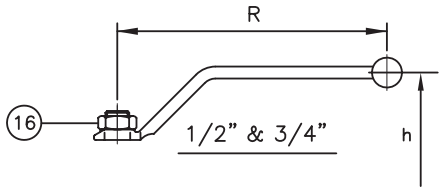
3Z SLEEVED PLUG VALVES

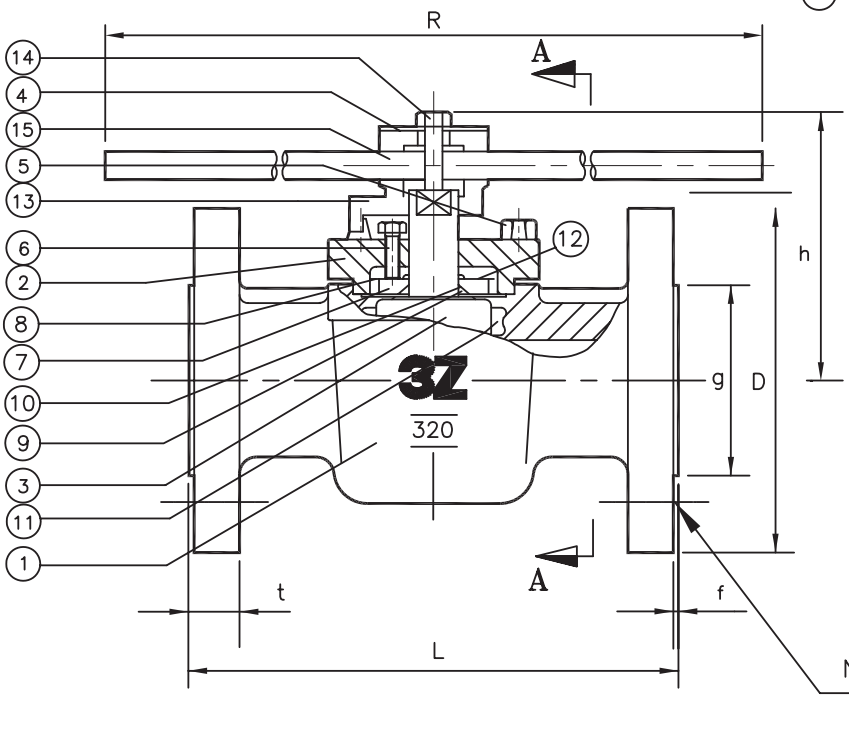
PRODUCTION NO.

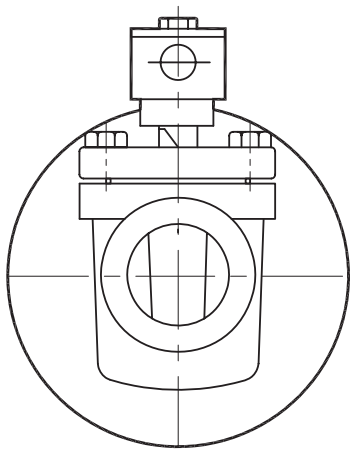
120.2–6.6

NO.	PART NAME	Q'TY	MATERIALS
1	BODY	1	CARBON STEEL
2	COVER	1	CARBON STEEL
3	PLUG	1	STAINLESS STEEL
4	NAME PLATE	1	STAINLESS STEEL
5	COVER BOLT	1S	ALLOY STEEL
6	ADJUSTING BOLT	3	STAINLESS STEEL
7	THRUST COLLAR	1	STAINLESS STEEL
8	METAL DIAPHR'M	1	STAINLESS STEEL
9	DELTA RING	1	RTFE
10	REVERS LIP	1	RTFE
11	SLEEVE	1	PTFE
12	ANTISTATIC DEVICE	1	STAINLESS STEEL
13	HUB	1	STAINLESS STEEL
14	HUB BOLT	1	STAINLESS STEEL
15	HANDLE	1	CARBON STEEL
16	HANDLE NUT	1	STAINLESS STEEL









SECTION A–A

DIMENSIONS(mm)

NOMINAL SIZE				END FLANGES							
					BOLT HOLE						
IN	MM	L	h	D	PCD	NO	DIA	g	t	f	R
0.5	15	140	110	95	66.5	4	16	35	14.3	1.6	180
0.75	20	152	110	117	82.5	4	19	43	15.9	1.6	180
1	25	165	90.6	124	89	4	19	51	17.5	1.6	222
1.5	40	190	110.9	156	114.5	4	22	73	20.7	1.6	318
2	50	216	126	165	127	8	19	92	22.3	1.6	458
2.5	65	241	140.7	190	149	8	22	105	25.4	1.6	597
3	80	283	140.7	210	168	8	22	127	28.6	1.6	597
4	100	305	174.4	254	200	8	22	157	31.8	1.6	746

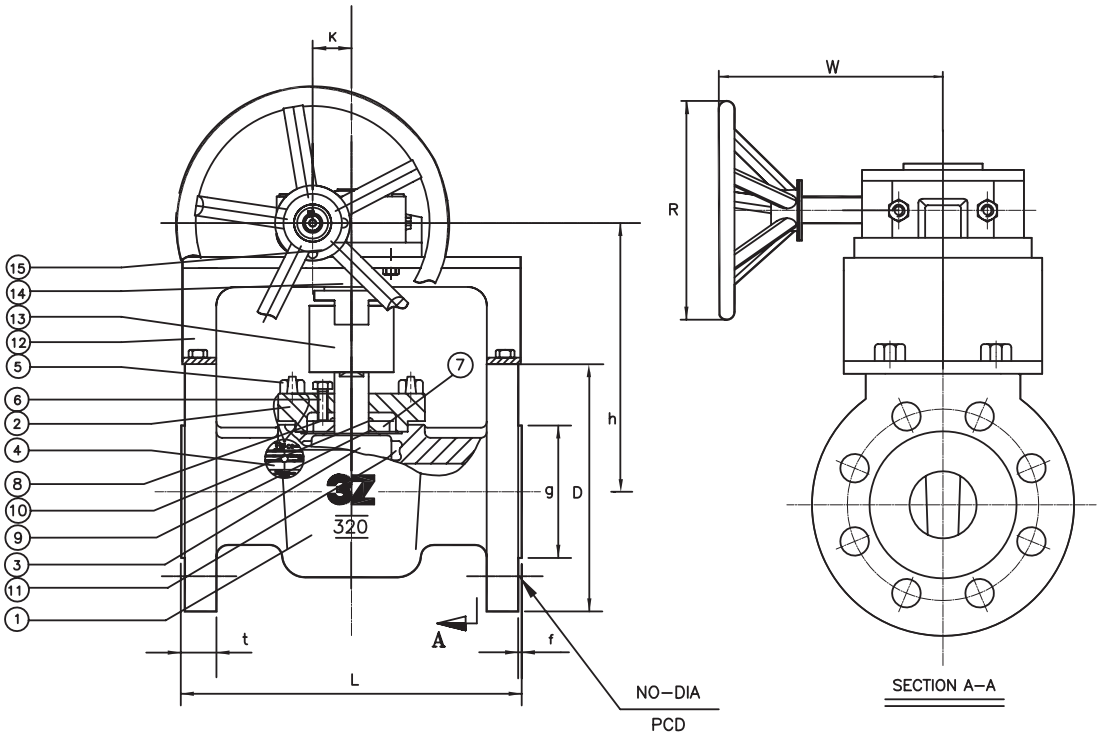
	END CONNECTION : RF	
STD	TEST	ANSI B 16.34
	FACE TO FACE or END TO END	ANSI B 16.10 CLASS 300
	DIMENSIONS OF FLANGE	ANSI B 16.5 CLASS 300
	WALL THICKNESS	ANSI B 16.34 CLASS 300

3Z SLEEVED PLUG VALVES

PRODUCTION NO.

320.1–W.6

NO.	PART NAME	Q'TY	MATERIALS
1	BODY	1	CARBON STEEL
2	COVER	1	CARBON STEEL
3	PLUG	1	STAINLESS STEEL
4	NAME PLATE	1	STAINLESS STEEL
5	COVER BOLT	1S	ALLOY STEEL
6	ADJUSTING BOLT	3	STAINLESS STEEL
7	THRUST COLLAR	1	STAINLESS STEEL
8	METAL DIAPHR'M	1	STAINLESS STEEL
9	DELTA RING	1	RTFE
10	REVERS LIP	1	RTFE
11	SLEEVE	1	PTFE
12	BRACKET	1	CARBON STEEL
13	COMPENSATOR	1	CARBON STEEL
14	TORQUE BAR	1	CARBON STEEL
15	GEAR OPERATOR	1	STEEL



DIMENSIONS(mm)

NOMINAL SIZE				END FLANGES									
					BOLT HOLE								
IN	MM	L	h	D	PCD	NO	DIA	g	t	f	R	K	W
6	150	403	282	318	270	12	22	216	36.6	1.6	200	73	300
8	200	419	348	381	330	12	25	269.9	41.3	1.6	225	108	350
10	250	457	379	444	387.5	16	29	324	47.7	1.6	225	108	350
12	300	502	418	521	451	16	32	381	50.8	1.6	280	108	350
14	350	762	506	584	514.5	20	32	413	54	1.6	315	166	450
16	400	838	559	648	571.5	20	35	470	57.2	1.6	315	166	450

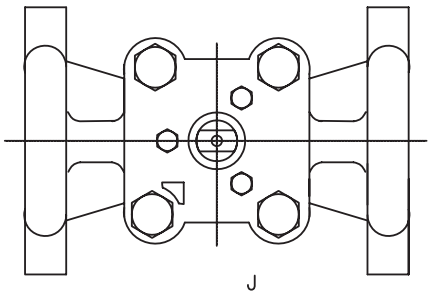
END CONNECTION : RF		
STD	TEST	ANSI B 16.34
	FACE TO FACE or END TO END	ANSI B 16.10 CLASS 300
	DIMENSIONS OF FLANGE	ANSI B 16.5 CLASS 300
	WALL THICKNESS	ANSI B 16.34 CLASS 300

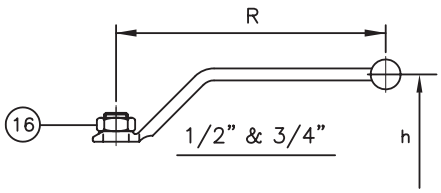
3Z SLEEVED PLUG VALVES

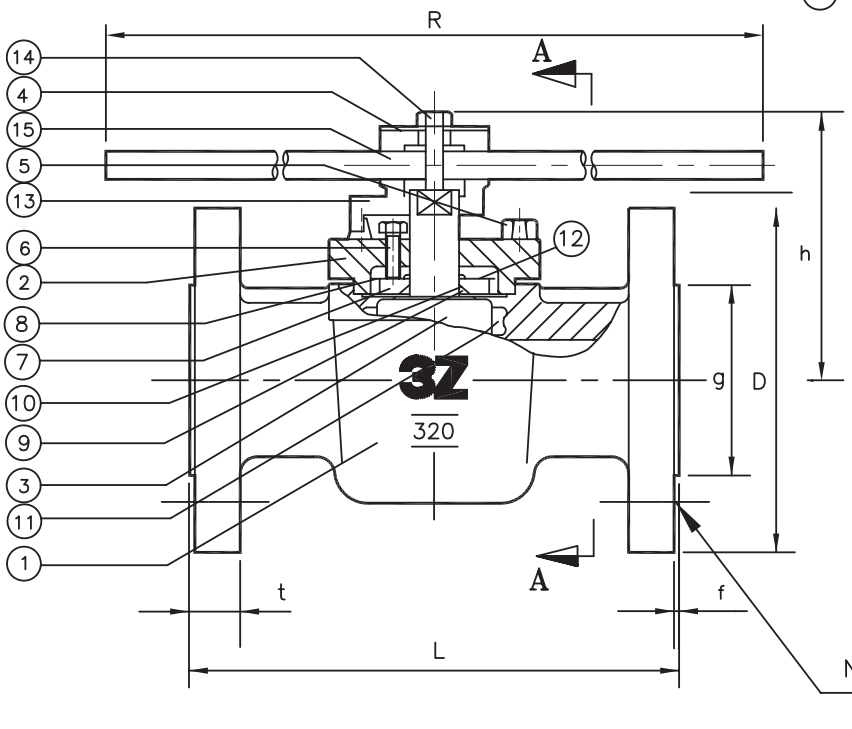
PRODUCTION NO.

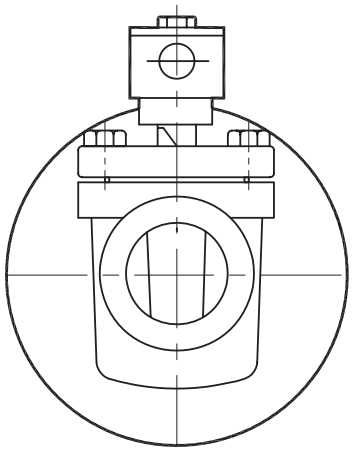
320.2–W.6

NO.	PART NAME	Q'TY	MATERIALS
1	BODY	1	STAINLESS STEEL
2	COVER	1	STAINLESS STEEL
3	PLUG	1	STAINLESS STEEL
4	NAME PLATE	1	STAINLESS STEEL
5	COVER BOLT	1S	STAINLESS STEEL
6	ADJUSTING BOLT	3	STAINLESS STEEL
7	THRUST COLLAR	1	STAINLESS STEEL
8	METAL DIAPHR'M	1	STAINLESS STEEL
9	DELTA RING	1	RTFE
10	REVERS LIP	1	RTFE
11	SLEEVE	1	PTFE
12	ANTISTATIC DEVICE	1	STAINLESS STEEL
13	HUB	1	STAINLESS STEEL
14	HUB BOLT	1	STAINLESS STEEL
15	HANDLE	1	CARBON STEEL
16	HANDLE NUT	1	STAINLESS STEEL









DIMENSIONS(mm)

NOMINAL SIZE				END FLANGES							
					BOLT HOLE						
IN	MM	L	h	D	PCD	NO	DIA	g	t	f	R
0.5	15	140	110	95	66.5	4	16	35	14.3	1.6	180
0.75	20	152	110	117	82.5	4	19	43	15.9	1.6	180
1	25	165	90.6	124	89	4	19	51	17.5	1.6	222
1.5	40	190	110.9	156	114.5	4	22	73	20.7	1.6	318
2	50	216	126	165	127	8	19	92	22.3	1.6	458
2.5	65	241	140.7	190	149	8	22	105	25.4	1.6	597
3	80	283	140.7	210	168	8	22	127	28.6	1.6	597
4	100	305	174.4	254	200	8	22	157	31.8	1.6	746

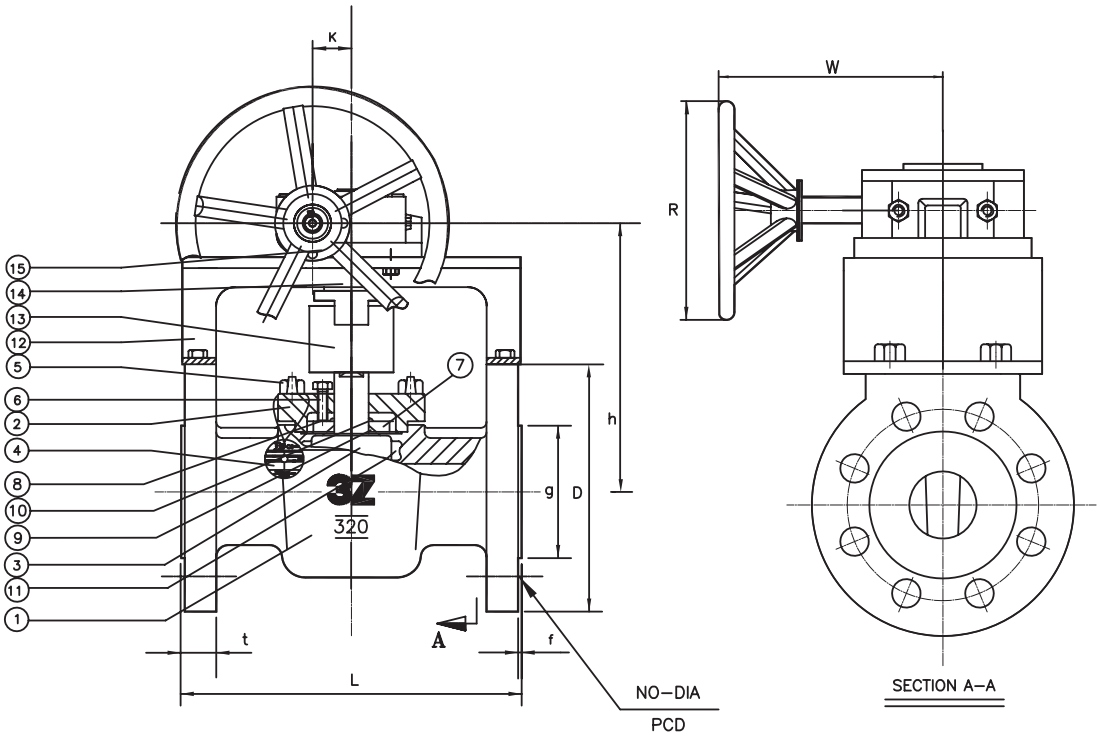
	END CONNECTION : RF	
STD	TEST	ANSI B 16.34
	FACE TO FACE or END TO END	ANSI B 16.10 CLASS 300
	DIMENSIONS OF FLANGE	ANSI B 16.5 CLASS 300
	WALL THICKNESS	ANSI B 16.34 CLASS 300

3Z SLEEVED PLUG VALVES

PRODUCTION NO.

320.1–6.6

NO.	PART NAME	Q'TY	MATERIALS
1	BODY	1	STAINLESS STEEL
2	COVER	1	STAINLESS STEEL
3	PLUG	1	STAINLESS STEEL
4	NAME PLATE	1	STAINLESS STEEL
5	COVER BOLT	1S	STAINLESS STEEL
6	ADJUSTING BOLT	3	STAINLESS STEEL
7	THRUST COLLAR	1	STAINLESS STEEL
8	METAL DIAPHR'M	1	STAINLESS STEEL
9	DELTA RING	1	RTFE
10	REVERS LIP	1	RTFE
11	SLEEVE	1	PTFE
12	BRACKET	1	CARBON STEEL
13	COMPENSATOR	1	CARBON STEEL
14	TORQUE BAR	1	CARBON STEEL
15	GEAR OPERATOR	1	STEEL



DIMENSIONS(mm)

NOMINAL SIZE				END FLANGES									
					BOLT HOLE								
IN	MM	L	h	D	PCD	NO	DIA	g	t	f	R	K	W
6	150	403	282	318	270	12	22	216	36.6	1.6	200	73	300
8	200	419	348	381	330	12	25	269.9	41.3	1.6	225	108	350
10	250	457	379	444	387.5	16	29	324	47.7	1.6	225	108	350
12	300	502	418	521	451	16	32	381	50.8	1.6	280	108	350
14	350	762	506	584	514.5	20	32	413	54	1.6	315	166	450
16	400	838	559	648	571.5	20	35	470	57.2	1.6	315	166	450

END CONNECTION : RF		
STD	TEST	ANSI B 16.34
	FACE TO FACE or END TO END	ANSI B 16.10 CLASS 300
	DIMENSIONS OF FLANGE	ANSI B 16.5 CLASS 300
	WALL THICKNESS	ANSI B 16.34 CLASS 300

3Z SLEEVED PLUG VALVES

PRODUCTION NO.

320.2–6.6