



RASAI

FLOW LINES PVT LTD

matchless product since 1981



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Introduction

RFL established 1980 manufacturing Sleeved Plug Valve (Non lubricated), Lined Plug Valve, Lined Ball Valve, Lined check Valve with PFA/ FEP procure from EI DUPONT and 'V' Notch Control Ball Valve .

Material of construction:

Different material like WCB, WCC, LCB, CF8, CF8M, CF3M, CF3, CD4MCu, super alloy like Duplex. St. St. family - 4A, 5A, Alloy 20, Hastalloy B, Hastalloy C, CZ100, Inconnel, 904L... to suit different acid and chemical and highly corrosive & erosive application.

Standard:

We manufacture the valve with ANSI, DIN, JIS & BS Table, also tailor made Valve - Face to Face & Drilling standard (Non-Standard) Valves to satisfy the end user.

Application:

Fertilizers, Petrochemical, Refineries, Paper & Pulp, Pharma, Heavy water plant, Nuclear application, Atomic Energy, Oil & Gas, to any processing Industries ... etc .

Pressure class:

Our Pressure class 125 # , 150# , 300# , 600# , 800# & 1500# , DIN PN16, PN40 & above as per PED (CE) norms.

Special design:

CAGE type, 3 way, 4 way and fully Jacketed & Partially Jacketed not only for Sleeved Plug Valve also for Lined Plug Valve too.

Lined Ball Valve:

The Unique seat design introduced with cushion effect at 45° angle to cover entire 360 degree, result is the ball will have zero pressure or equal pressure outcome is longer life due to low friction on seat.

Sleeved Plug Valve:

This is the best replacement for lubricated plug valve and globe valve, No maintenance, No external lubrication, No Jamming effect due to non-lubrication, 360 degree covered by PTFE Sleeve gives best performance, Port designed for maximum flow etc.,

Lined Plug Valve:

Low cost in price compare to high alloy valve (material of construction) it works in low pressure area, all wetted portion are PFA/ FEP Teflon lined it can be used even mixed acid where designers cannot select expect high alloy.

Lined Check Valve:

This Valve is unique designed for vertical as well horizontal flow media. The puppet taper will never change even after million operations.





Store

Semi finished stock available all times in store to facilitate in time supply

High Accuracy CNC Machining

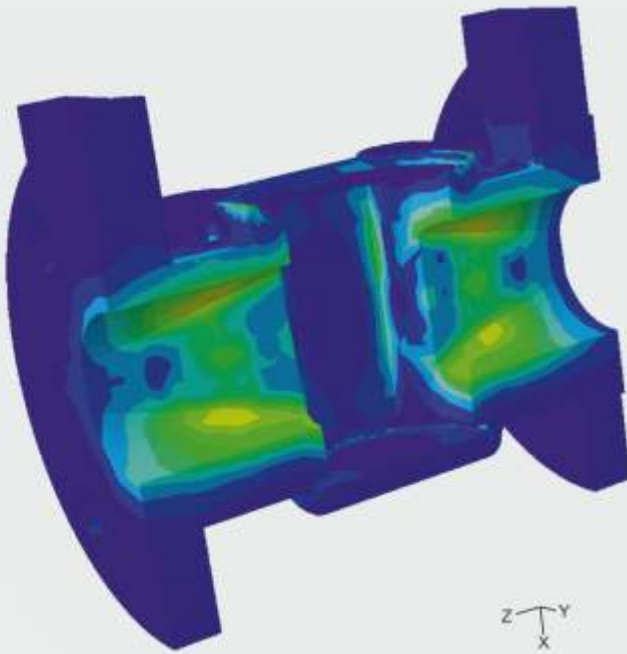
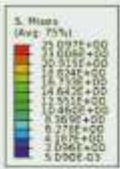


Lined Valves

Lined Component controlled by QC dept., to 10000 V –

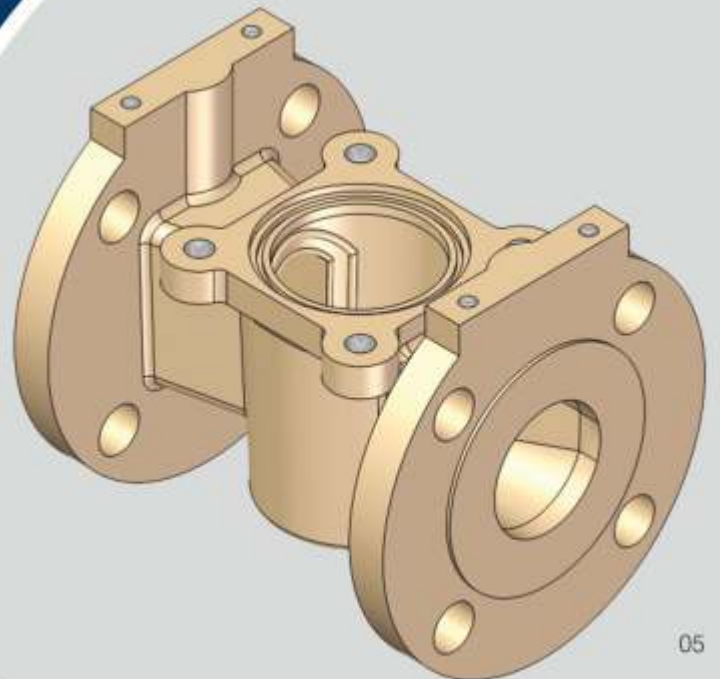
QC

RFL takes at most care
to inspect each component
100% in house



FEA design capability

Valve body 3D design



C E R T I F I C A T E

CERTIFICATE 

Management system as per ISO 9001:2008

In accordance with TUV NORD procedures, it is hereby certified that

RASAI FLOW LINES PRIVATE LIMITED
 CORPORATE OFFICE : #34, New Street,
 Madhavankarai, Guindy, Chennai - 600 032
 FACTORY : 15D/2, SIPCOT Industrial Complex,
 Pudukkottai - 622 902, India



holds a quality management system in line with the above standard for the following scope:

Design, Manufacture, Supply and Servicing of Industrial Valves

Certificate Registration No. **08 99 90117**
 Issue/Report No. **0 27510309**

Valid until **18.01.2015**
 Valid from **18.01.2013**
 Next Certification **18.01.2015**


 Certificate No. **08 99 90117**
 Date **17.01.2013**
 Place **Mumbai**

This certificate was prepared in accordance with the TUV NORD auditing and certification procedures and is subject to further surveillance audits.

TUV India Pvt. Ltd., Patel Plaza - 1, L.B.S. Marg, Okhla Phase (IV), Mumbai - 400 084, India



 **ENGINEERS INDIA LIMITED**
 18 Good Hope Building

18 Good Hope Building, 18 Good Hope Street, Chennai - 600 032
 High Office - Engineers India Building - 1, Rajiv Gandhi Park, New Delhi - 110002
Procurement Development Department

Ref: **AI990004649132** 21st JANUARY 2013

M/s Rasai Flow Lines Pvt. Ltd
 No. 34, New Street
 Madhavankarai, Guindy
 Chennai - 600 032

Dear Sirs,

Re: Bidding / Enlistment with RL

We refer to your request on subject matter and are pleased to inform that you have been selected with RL for the work as described below:

Item Description		Quantity / Range			
Plug Valve - 2"DN	Steel, W.P.	500	1000	1500	2000
	W.P.	1000	1500	2000	2500
(This enlistment is valid for your works located at No. 15 D2, SIPCOT Industrial Complex, Production Area, Pudukkottai - 622902)					

Please note that the enlistment is subject to satisfactory execution of orders in delivery and quality of work performed same when ordered for our various projects.

Further, it may be noted that any change in the product range, location of Work/Orders Office, Management Organization structure etc. shall be intimated to us immediately along with relevant documents for our necessary action. In case, information to any of the above referred changes is not intimated timely, our authorities may not reach you.

Enlistment with RL shall not guarantee any regular flow of enquiries.

In the event of direct / indirect orders for RL, attended projects, materials will be supplied directly on basis of the order / single / work as stated above including agreed responsibility matrix, if applicable. The validity of this ENLISTMENT is upto 31st January, 2013.

You are advised to apply for requisitions 'on-line' 5 working before expiry of the enlistment. Detailed procedure for requisition can be seen on our website: www.riindia.com/ENR201302

Thanking you,


 Dy. General Manager
 Procurement Development Department
 Engineers India Limited - 18 Good Hope Street

Website: <http://www.riindia.com> Email: enr@riindia.com

18 Good Hope Street, Chennai - 600 032
 Phone: +91 44 24254200 Fax: +91 44 24254201





SERTIFIKAT / CERTIFICATE

TAM KUALITI (QUALITY MODEL) IS - SYSTEM PRESSURE EQUIPMENT DIRECTIVE
 KEMAMPUAN MELAKSANAKAN JAJARAN BAWAH DARI 25 MPa (250 BAR)

Certificate No. **FMD-Q-09071** Report No. FMD-R-019/11 (14-11-2012)
 Issued to:

RASAI FLOW LINES PRIVATE LIMITED
 No. 15D/2 SIPCOT Industrial Complex, Pudukkottai - 622 902
 India

DESIGN AND MANUFACTURE OF SLEEZED PLUG VALVE

Atas nama TUV SUD memberikan SERTIFIKAT ini sebagai tanda jaminan mutu kepada pengguna yang menggunakan peralatan industri yang terdapat dalam lingkup lingkup Sistem perantara di bawah 25 MPa (250 BAR) untuk semua konfigurasi yang digunakan. SERTIFIKAT ini hanya berlaku untuk konfigurasi perantara yang digunakan pada sistem perantara dengan tekanan operasi maksimum 25 MPa (250 BAR) dan hanya berlaku untuk konfigurasi perantara tersebut.

The manufacturer to be used in industry - after consultation of the manufacturer - is only to be done according to the provisions of the CE (mark) and must be subject to TUV SUD surveillance audits, at intervals of six and one day in order to ensure its compliance.




 Manager (Quality)
 Procurement Development Department
 Engineers India Limited - 18 Good Hope Street



18 Good Hope Street, Chennai - 600 032
 Phone: +91 44 24254200 Fax: +91 44 24254201



180 First Floor, 602
 602, Old Park Road
 Chennai - 600 003
 Contact: 044-2344 2000
 Fax: +91 44 2344 2000
 Website: www.tsa.gov.in

March 25, 2014

CATHERINE DIBLOCK
DESIGNEE S/2008, GONDARWING LTD,
 120 SANDALS IN SUITE 9
 WATERLOO ON CANADA

Service Request Type: Riveting Registration
Service Request No.: 172859
Registration No.: ENC-7052
RASAI FLOW LINES PRIVATE LIMITED

Dear Ms. Catherine,

Technical Standards and Safety Authority (TSSA) is pleased to inform you that your submission has been reviewed and registered as follows:

OSR No.: RC-18188-5
Non Design No.: 131005A-07-AL
Expiry Date: 26-Mar-2024

Please be advised that a valid quality control system must be maintained for the Riveting registration to remain valid until the expiry date.

Listed test values, steel check valves, steel plug valves, steel sight glass valve where plug valve

The stamped copy of the approved registration and the invoice are mailed separately. Should you have any questions or require further assistance, please contact a Customer Service Advisor at 1-877-842-7334 (877) or e-mail: customeradv@tsa.gov. We will be happy to assist you. When contacting TSSA regarding this file, please refer to the Service Request number provided above.

Yours truly,

Gerry Gleen
 Tel. No.: 416-734-2623
 Fax. No.: 416-734-6160
ggleen@tsa.gov

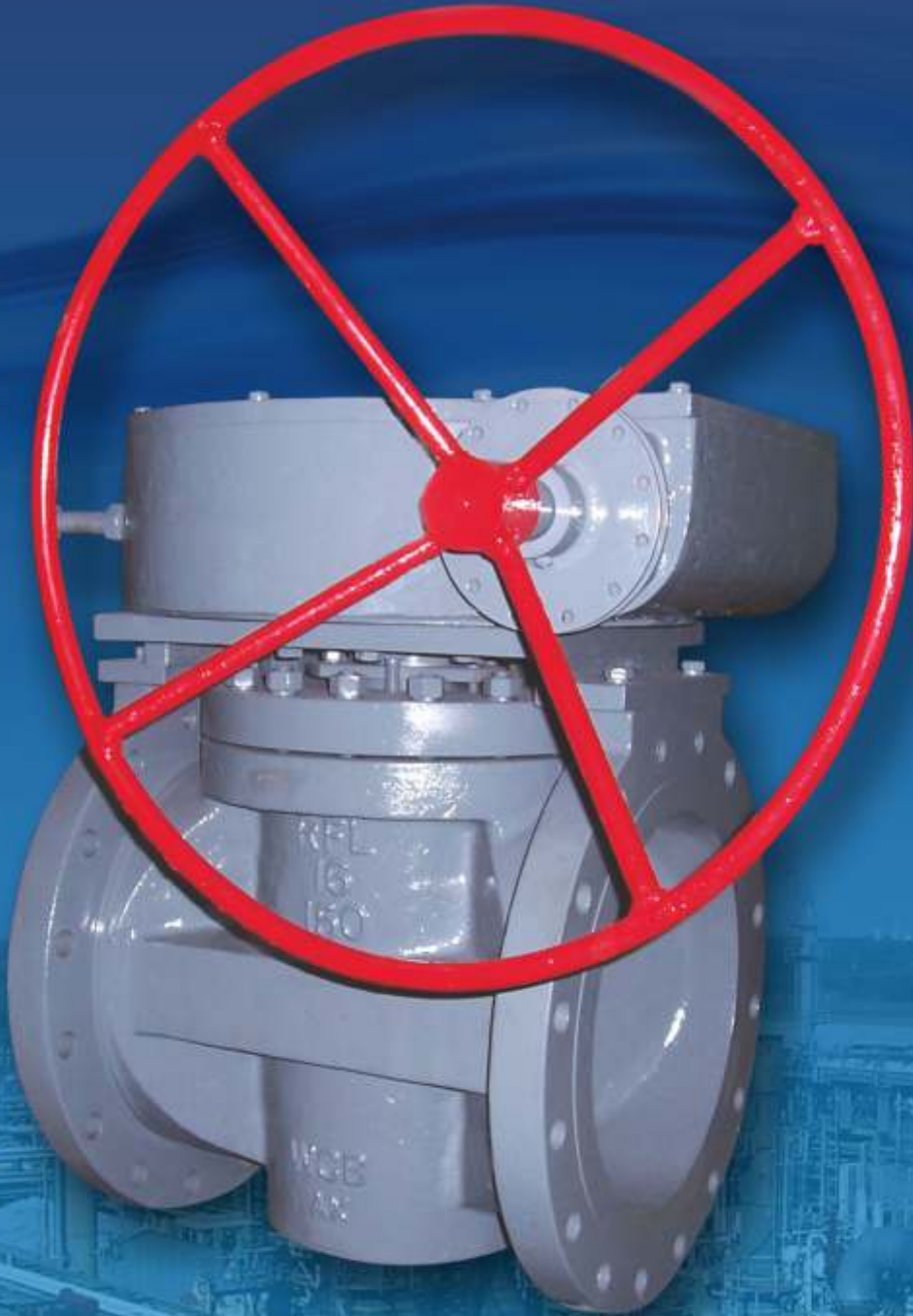
Patting Public Safety First



RASAI

SLEEVED PLUG VALVES

MATCHLESS IN QUALITY AND VALUE



**Most Efficient, Non-Lubricated,
Corrosion Resisting, Self-Sealing and Long Lasting.**



RASAI

SLEEVED PLUG VALVES

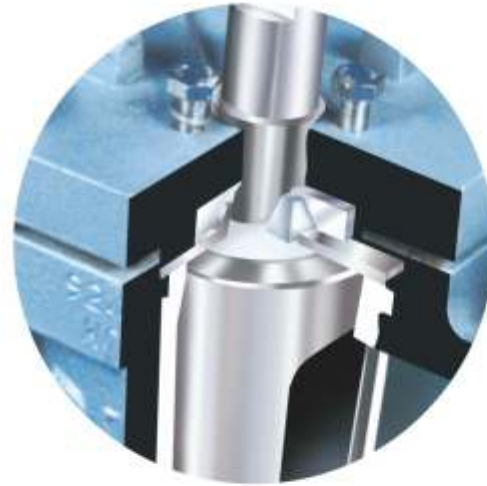


Components

Body / Cover	See Page No 7
Plug	
Sleeve	PTFE
Diaphragm And Wedge Ring	PTFE
Metal Diaphragm	SS 316
Thrust Collar	SS 316
Washer	PTFE
Studs & Nut	B7 & 2H / SS 316

Design Features

- Valves up to 4" in investment casting.
- 6" and above made out of Sand or Shell Casting.
- Superior Finish and longer life of valve body.
- Bi-directional flow.
- Positive shut-off with inline adjustment.
- Positive stem seal with reverse lip design.
- Inline PTFE sleeve surrounds the plug.
- PTFE sleeve locked in the body and field replaceable, on line.
- Designed for throttling.
- Unique plug and body design for low torque operation.
- Non-Lubricated, self-cleaning of plugs while in operation.
- Zero leakage (Bubble tight shut-off).
- Easy assembling and disassembling.
- Technologically superior design, our speciality.
- Cost effective and top value for your dollar.
- Proven performance.
- Self sealing.

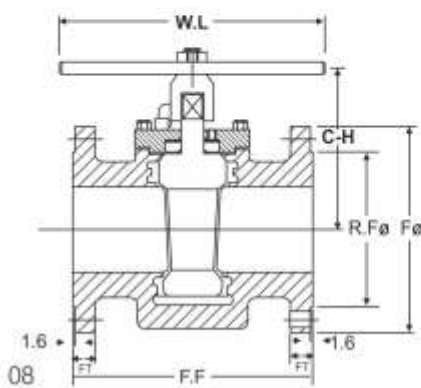


DIAPHRAGM AND WEDGE RING EXPOSED VIEW

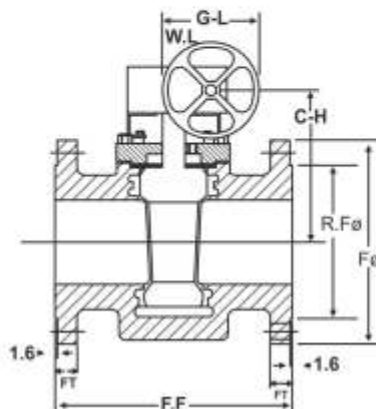
Options Available

- Both ANSI 150# And 300#
- Fully Jacketed
- Partially Jacketed
- Flanged End
- Butt Weld
- Socket Weld
- 3-way
- 3-way Jacketed
- 4-way

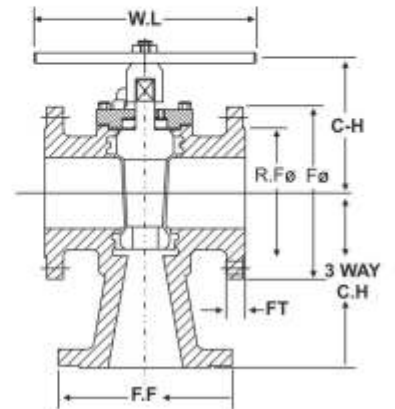
1/2" TO 4"



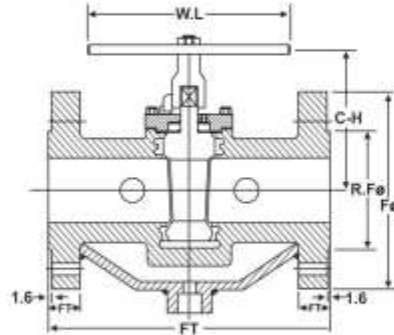
6" and Above, Gear Operated



3-Way Valves



Fully Jacketed Valve

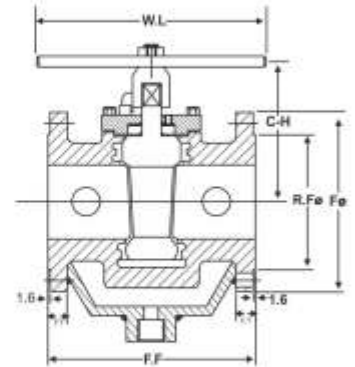


- Fully jacketed valve is specially designed for circulation of hot or cold gas or liquids.
- Design permits through hydrostatic or pneumatic testing of the body prior to addition of jacket.
- Proven performance in critical temperature control applications.
- Multiple connections allow for proper jacket drainage.
- Fully jacketed sleeved plug valve is the chosen preference for complex fluid applications.
- Over-sized flange in accordance with international standards.
- Can withstand up to 270°C temperature.
- Anti-static eliminator is a standard feature in RASAI valves.

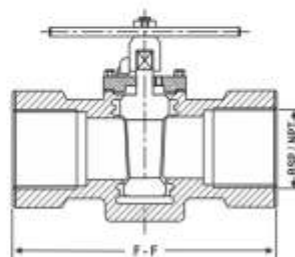
Partially Jacketed Valve



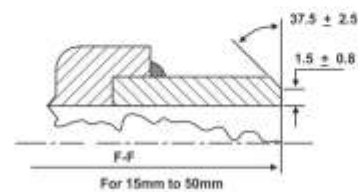
- Designed in compliance with international standards.
- Design portion extends up to body level only with normal flanges.
- Anti-static eliminator is a standard feature in RASAI valves.
- F-F Dimensions and Flange Diameter will vary to that of Fully Jacketed type.
- Total height of the valve including handle cup will differ.



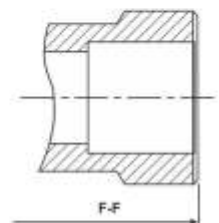
Screwed End



Butt Weld



Socket Weld



D Type Plug

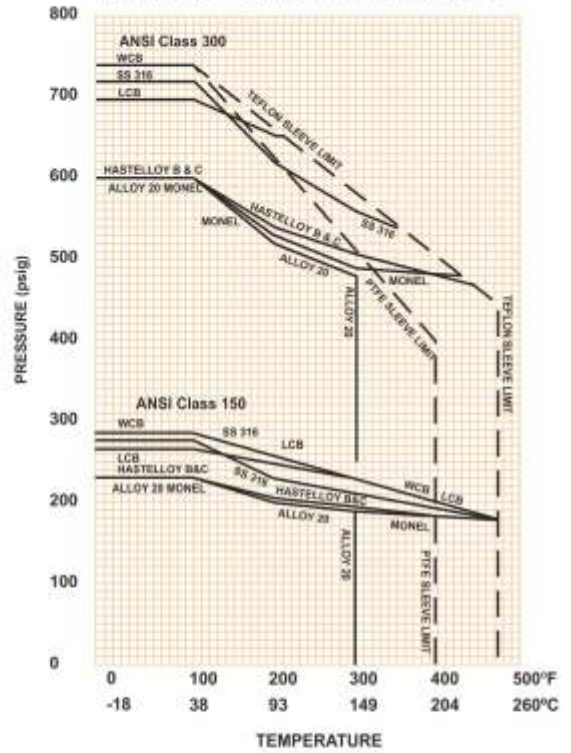


4 Way Valve



PLUG	POSITION #1	POSITION #2	POSITION #3	
				FLOW 1
				FLOW 2
				FLOW 3
				FLOW 4
				FLOW 5
				FLOW 6
				FLOW 7
				FLOW 8

PRESSURE - TEMPERATURE RATINGS



For Class 150#

Size		Break - Away Torque inch Lbs (Nm)	Flow Rate (Value)	
Inch	mm		Cv	Kv
½	15	192 (25.5)	9.5	11
¾	20	192 (25.5)	9.5	11
1	25	308 (35)	42	49
1½	40	460 (52)	95	112
2	50	630 (71)	190	224
3	80	965 (110)	326	384
4	100	1450 (165)	694	816
6	150	3820 (370)	1112	1308
8	200	6366 (721)	1665	1960

Torque

- Start - Break - Away Torque
- Running - 60% of B.A.T
- Close - 80% of B.A.T
- To obtain - Kv Value multiply Cv Value by 0.85

Sleeved plug valve with extended gland packing

Extended Gland Packing is also a RASAI's specialty. Extended Packing is available upon customers' request, when specified.



HOW TO ORDER YOUR SLEEVED PLUG VALVE ?

VALVE TYPE

SPV	SLEEVED PLUG VALVE
SPV PJ	PJSLEEVED PLUG VALVE PARTIALLY JACKETED
SPV FJ	FJSLEEVED PLUG VALVE FULLY JACKETED

PRESSURE CLASS

1	150#
3	300#
6	600#

BODY / END PIECE MATERIAL

01	CI
02	DI
03	WCB
04	SS 316 (CF8M)
05	SS 316L (CF3M)
06	CD4Mcu
07	ALLOY 20 (CN7M)
08	Hastalloy 'B'
09	Hastalloy 'C'
10	Monel 400
11	SS 304 (CF8)
12	SS 304L (CF3)
13	LCB
14	NICKEL CZ 100
15	904 L
16	Duplex St. St.

PLUG

02	DI
03	WCB
04	SS 316 (CF8M)
05	SS 316L (CF3M)
06	CD4Mcu
07	ALLOY 20 (CN7M)
08	Hastalloy 'B'
09	Hastalloy 'C'
10	Monel 400
11	SS 304 (CF8)
12	SS 304L (CF3)
13	LCB
14	NICKEL CZ 100
15	904 L
16	Duplex St. St.

LINING

N	NO LINING *
---	-------------

*Created to Balance Part Nos.

END CONNECTION

FE	FLANGED END
SE	SCREWED END
BW	BUTT WELD
SW	SOCKET WELD
3W	3 WAY
4W	4 WAY

OPERATION

W	WRENCH OPERATED
G	GEAR OPERATED
P	PNEUMATIC OPERATED
E	ELECTRICAL ACTUATOR

SIZES

SIZES	INCHES	MM
0050	½"	15
0075	¾"	20
0100	1"	25
0150	1 ½"	40
0200	2"	50
0300	3"	80
0400	4"	100
0600	6"	150
0800	8"	200
1000	10"	250
1200	12"	300
1400	14"	350
1600	16"	400

Easy Method of Ordering Using Part Numbers

EXAMPLE*

Sleeved plug valve	SPV
Class 300#	3
WCB Body	03
SS 316 Plug	04
No lining	N
Wrench Operated	W
Flanged End	FE
Size 1½"	0150

For easy method of Ordering use the chart and use the part numbers specified above.

***Example:** SPV30304NWFE0150
SLEEVED PLUG VALVE, CLASS 300#, BODY - WCB, PLUG-SS316, SLEEVE-N(NO LINING) WRENCH OPERATED, END CONNECTION - FLANGED END, SIZE - 1½"

Note Available in both ANSI class 150# & 300# & DIN and BS standards.
Special alloy valves are also available upon request. Pressure tested to standard **API 598/6755 Part -1** and design code **BS 5353**

SPV – 12” NON STANDARD

SPV We have developed for ICS Senegal
3rd World Largest Phosphoric Acid
Plant as per F-F Saunders type “A” design



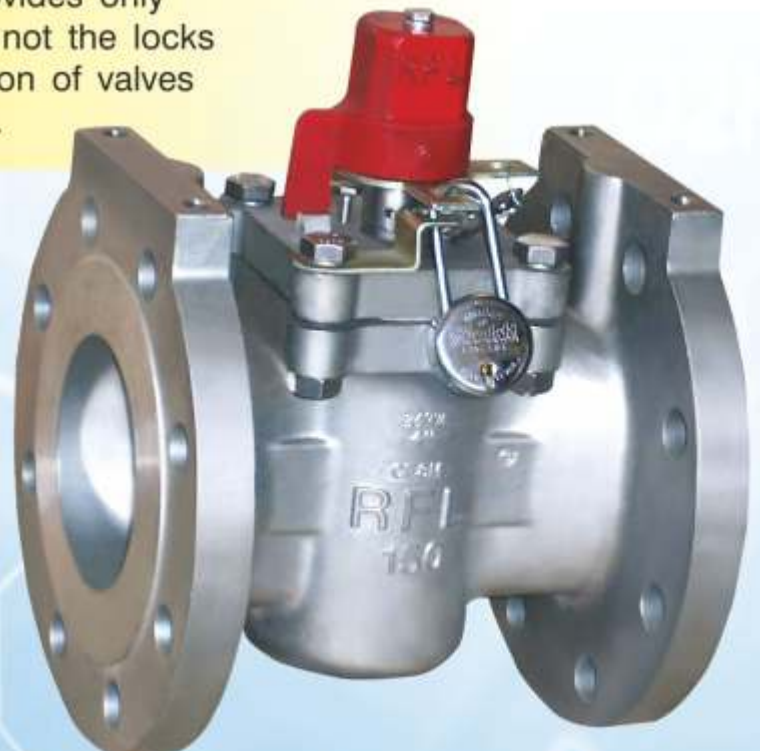
Gear with locking provision



Sleeved Plug Valve with locking device



Sleeved Plug Valves with locking device is also our specialty. **RASAI** provides only the provision for locking device, not the locks themselves, this ensures protection of valves from any unauthorized operation.





RASAI

LINED PLUG VALVES

MATCHLESS IN QUALITY AND VALUE



Effective in high vacuum and pressure applications

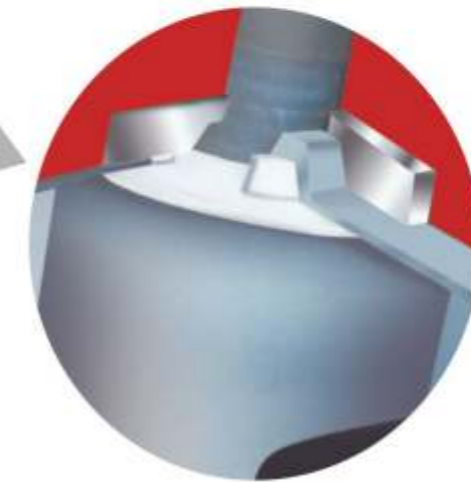
COMPONENTS AND DESIGN FEATURES



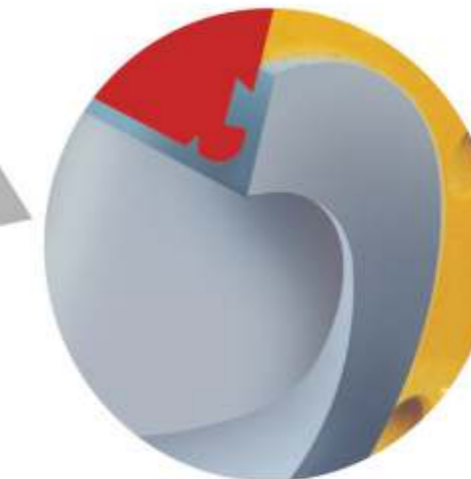
Diaphragm and wedge ring
Sub assembly view



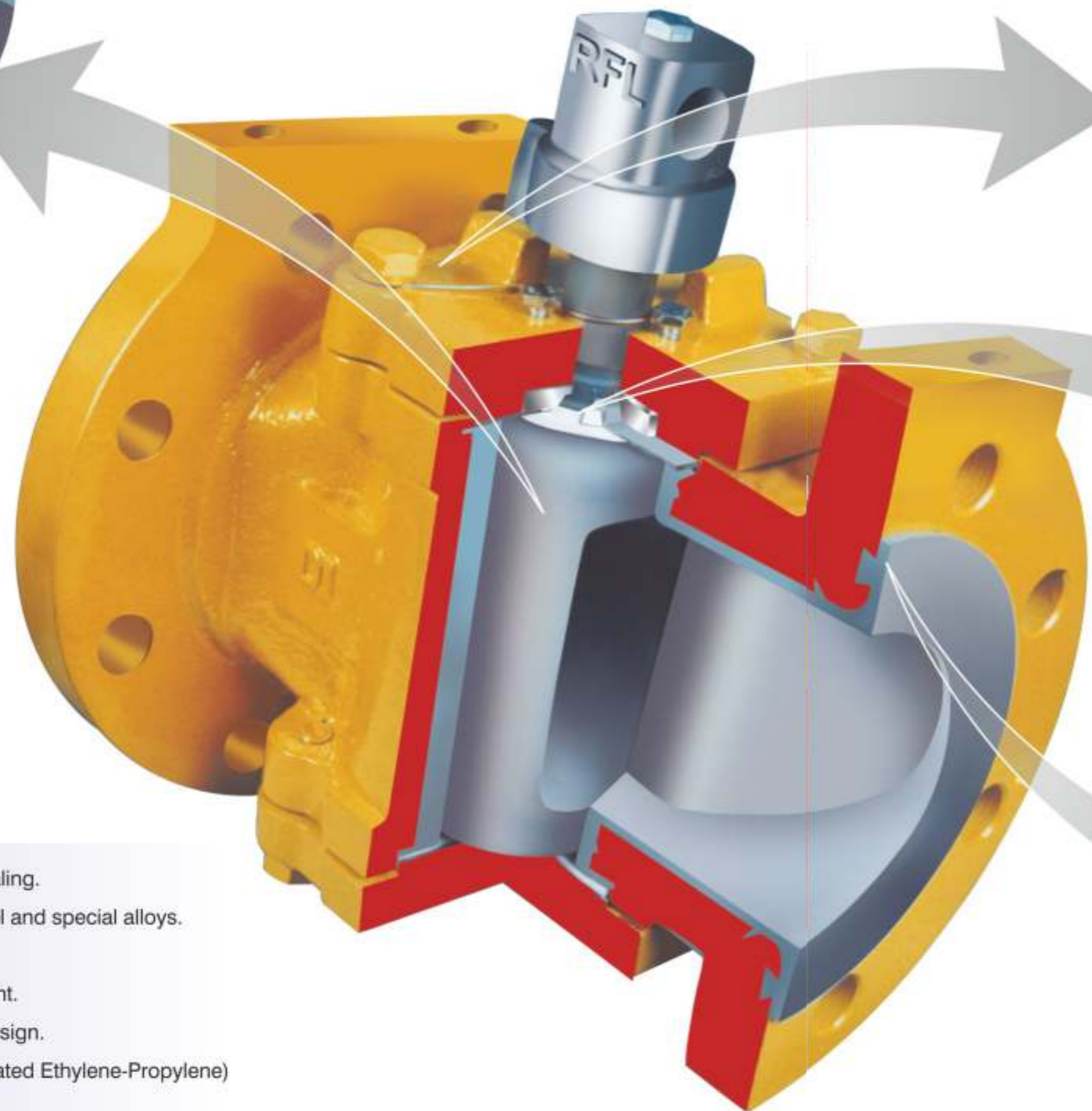
Anti-static eliminator assembly



Exposed view of top side
sealing arrangement



Lining with tongue
and groove



Design features

- More flexible, reliable and tighter sealing.
- Better corrosion resistance than steel and special alloys.
- Better permeation resistance.
- Positive shut off with inline adjustment.
- Positive stem seal with reverse lip design.
- PFA (Perfluoro alkoxy)/ FEP (Fluorinated Ethylene-Propylene) Encapsulated Plug.
- Zero leakage (Bubble tight shut-off).

Valve Application Chart

This ready to use reference table provides a brief over view of the varied applications for which RASAI Valves are well suited.

For detailed information and applications please refer our product wise catalogue or call your nearest RASAI Dealers / Distributors.

Color Legend :

The color in each block indicates a particular Valve's level of appropriateness for a specific function, media or application requirement.

G	Good
B	Better Performance
C	Conditional Usage
N	Not Recommended / Not Applicable

		SLEEVED PLUG VALVE	LINED PLUG VALVE	LINED BALL VALVE	LINED CHECK VALVE
FUNCTION	On / Off	G	G	G	N
	Throttling	B	C	C	N
	Diversion	G	G	N	N
MEDIA	Clean Liquid	G	G	G	G
	Clean Gases	G	G	G	N
	Dirty Liquid	G	C	C	G
	Dirty Gases	G	C	C	N
	Corrosive Liquid	G	G	G	G
	Corrosive Gases	G	G	G	N
	Hazardous Liquid	G	G	G	G
	Hazardous Gases	G	G	G	N
	Viscos Liquid	G	G	G	G
	Scaling Liquids and Slurries	G	B	B	G
	Abrasive Slurries	G	C	C	G
	Fibrous Slurries	G	G	C	G
	High Pressure Steam (>150 Lbs.)	N	N	N	N
	Low Pressure Steam (<150 Lbs.)	C	C	N	N
APPLICATION REQUIREMENTS	Dry Materials	G	G	G	G
	Food/Pharmaceutical	G	G	G	G
	Vacuum Application	G	G	G	N
	High Flow Application	G	G	G	G
	Low Torque	G	G	G	N
	Fugitive Emissions Control	G	G	G	G
	Maintenance Free	G	G	G	G
	Longer Life	G	G	G	G
	SIZES (Inches)	½" – 12"	½" – 8"	½" – 6"	1" – 4"
	Pressure Rating (ANSI Classes)	150#, 300#, 600#	150#, 300#	150#, 300#	150#
	High Temperature	450° F	400° F	400° F	400° F
	Low Temperature	-40° F	-20° F	-20° F	--
	DESIGN FEATURE AND OPERATIONAL BENIFITS.	Low torque, long lasting. Maintenance free, Cavity free, Self-sealing.	Absolutely free from corrosion. Long lasting and Maintenance free.	Innovative elastomer super seat [®] for long lasting and low torque. The Best seat design and integrated Ball and Stem gives longer life to the valve.	Matchless for Horizontal and Vertical applications. Perfect sealing forever. Effective in severe fluid and slurry applications.

DETAILED DESCRIPTION OF LINED PLUG VALVE



RASAI lined plug valves 6" and above are offered with Gear operation. The more flexible, reliable and easy to operate valves with less torque is our speciality. The lining, locked by grooves allows the valves to be used on high vacuum and pressure applications without lining collapse, shrinkage and blow out.

RASAI lined plug valves are virtually unaffected by changes in processing temperature or chemical concentration. Valves can be used in all corrosive fluids.

External body of the valve is coated with corrosion-resistant coating.

For Class 150#

Size		Break - Away Torque inch Lbs (Nm)	Flow Rate (Value)	
Inch	mm		Cv	Kv
1/2	15	240 (27)	8	9.5
3/4	20	240 (27)	10.5	12.5
1	25	308 (43.5)	40	47
1.5	40	575 (85)	93	109
2	50	785 (89)	186	219
3	80	1175 (133)	320	376
4	100	1765 (199)	680	800
6	150	4650 (525)	1090	1282
8	200	7750 (878)	1585	1865

Torque

Start - Break - Away Torque

Running - 60% of B.A.T

Close - 80% of B.A.T

To obtain - Kv Value multiply Cv Value by 0.85

HOW TO ORDER YOUR LINED PLUG VALVE ?

SPECIFY THE FOLLOWING WITH PART NUMBERS:
Lined Plug Valve, Class, Body, Plug, Lining, Operation, End Connection, Size.

*EXAMPLE:

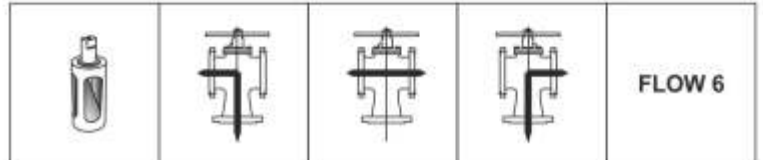
LPV10202BWFE0100

Lined Plug Valve, Class 150#, Body – Ductile Iron ASTM A395,
Plug – Ductile Iron ASTM A395, Lining-FEP (Fluorinated Ethylene-Propylene),
Wrench Operation, End Connection – Flanged End, Size – 1".



Components / Parts	Material Specifications
Body, Cover & plug	Ductile iron, cast steel, SS 316
Lining	PFA / FEP
Diaphragm & wedge ring	PTFE (Poly-tetra Fluoro Ethylene)
Thrust collar	SS 316
Studs & Nuts	B7, 2H & SS 316

LPV – 3 way 6”



**Specially made
for our customer
as per D type Flow 6**

Jacketed LPV – 2 way

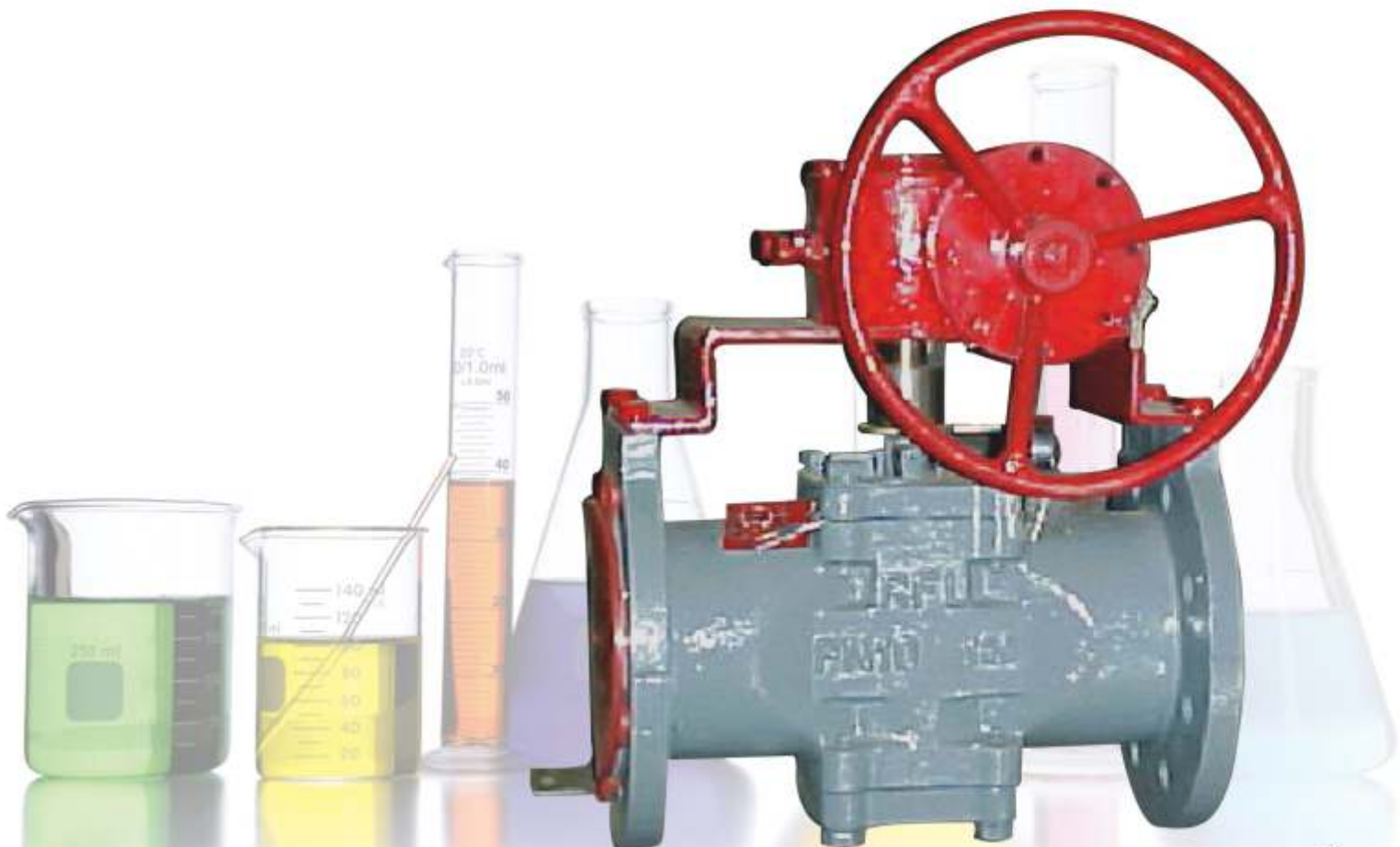


**Not only 3-way we too
make Lined Plug Valve
with Jacketing for special purpose**





**LINED PLUG VALVE
LONG PATTERN WITH PN 16 FACE TO FACE DIMENSION
ALSO WITH LOCKING PROVISION**



LINED SIGHT GLASS

Sizes 1" - 6"

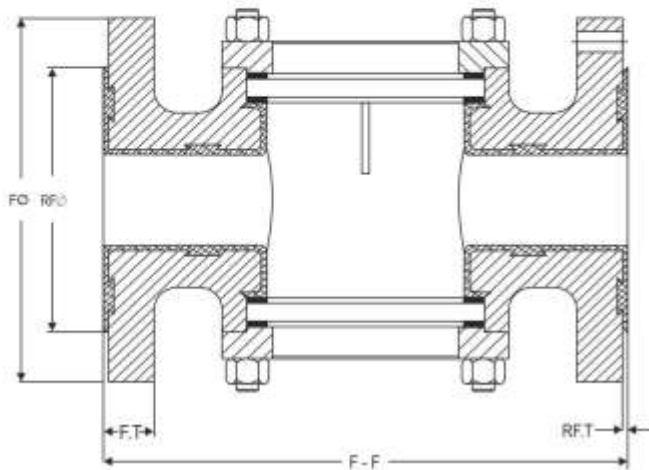
ANSI 150# & 300#

Safe and shatterproof, each window consists of two toughened glasses. Fluid flow can be viewed side ways. The integrated Drip lip provides visual flow indication even at low velocity.



HIGHLY CORROSION RESISTANT LINERS

Molded Fluoro Carbon Liners like PFA or FEP, depending upon application, offer both long service life and high corrosion resistance due to the thick, uniform blowhole free liner. The inherent properties of the liner itself provides non-stick and ideal for highly viscose and high purity applications.

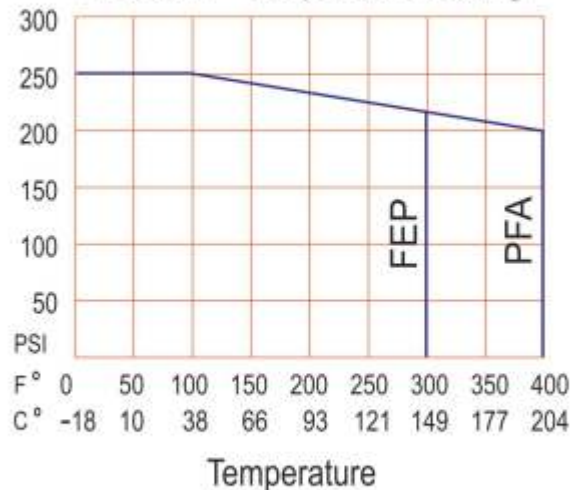


MATERIALS OF CONSTRUCTION	
Body	Ductile iron
Top and bottom covers	Ductile Iron
Top and bottom Glass Cushions	PTFE
Cover Bolts and Nuts	Stainless Steel
Indicator rod support	PTFE
Indicator rod	PTFE
Top and bottom Lens assembly	Toughened Glass
LINING	PFA / FEP

Cv Factors

Size	1"	1½"	2"	3"	4"	6"
	39	80	155	265	493	967

Pressure - Temperature Rating





RASAI

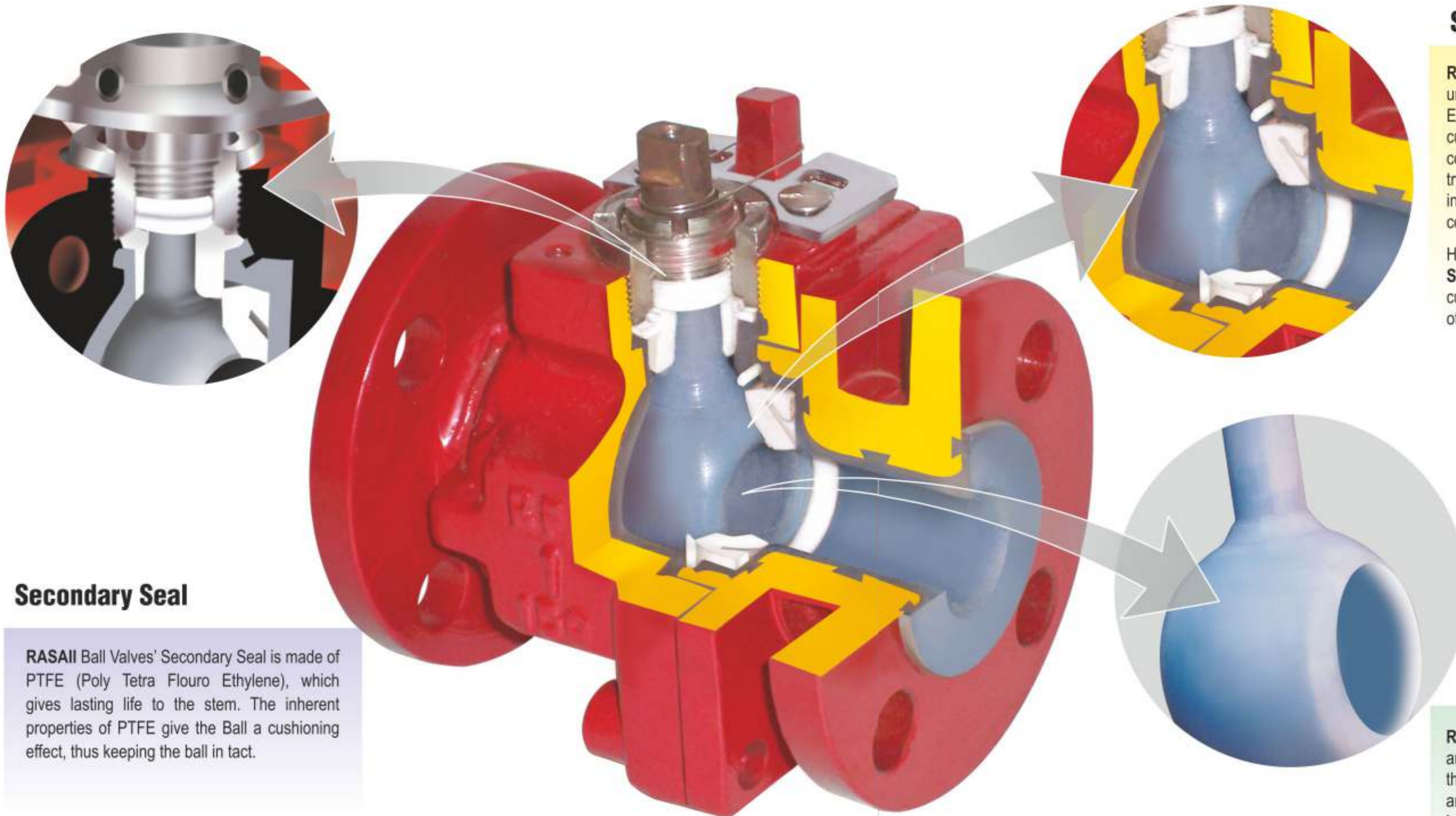
LINED BALL VALVES

MATCHLESS IN QUALITY AND VALUE



Innovative in design, impeccable in performance

SECTIONAL VIEW WITH DESIGN FEATURES



Seat design

RASAI Ball Valves' **Super Seat**® design is unique in nature and is copyrighted. The Elastomer **Super Seat**® gives the ball a cushioning effect whenever it comes into contact with the body. The ball is always trying to reach the body while the valve is in operation due to intense pressure conditions inside the valve.

However, the unique design of Elastomer **Super Seat**® gives the ball an added cushioning effect, thus elongating the life of the valve.

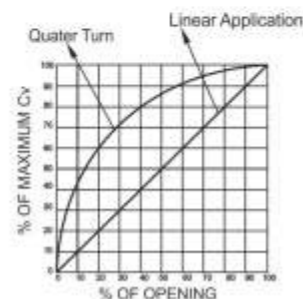
Secondary Seal

RASAI Ball Valves' Secondary Seal is made of PTFE (Poly Tetra Fluoro Ethylene), which gives lasting life to the stem. The inherent properties of PTFE give the Ball a cushioning effect, thus keeping the ball in tact.

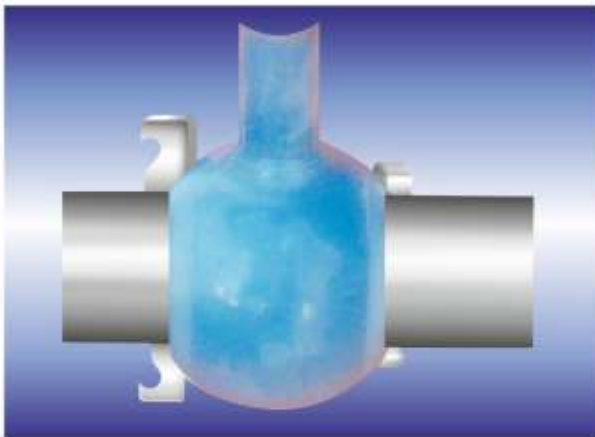
Integral Ball and Stem design

RASAI Ball Valves' design features the ball and stem as an integral piece, thus giving them longer life besides ensuring smooth and trouble-free operation. The two-piece ball and stem often tend to break down quickly. RASAI has been the technological innovator to offer ball and stem as an integral unit.

'V' Notch Control Lined Ball Valve for liner application

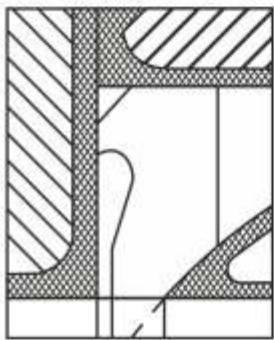


COMPARISON OF ELASTOMER Super Seat[®] DESIGN

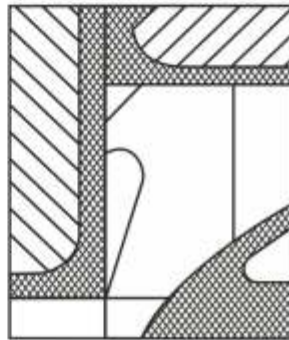


RASAI Elastomer **Super Seat[®]** shown (in the picture) along with other competitors' Seat Design for comparative analysis. End – users looking for reliable, superior and longer lasting Ball Valves will naturally choose and specify RASAI Ball Valves.

Super Seat[®], How it works ?



Valve in Open Position



Valve in Closed Position

RASAI innovation is novel by way of Elastomer characteristics built into the design of our valves. When the Ball rotates, the minute gap between the end piece and the surface face gives the Ball a cushioning effect, whenever the valve is closed. (illustration of operational view open / closed)

Resultant breakage of Two-Piece Ball Design

Broken ball and stem



RASAI Ball and Stem design being an integrated one-piece unit (as per the picture on right hand) offers longer life to our valves. In addition, the unique design of the Elastomer **Super Seat[®]** gives our valves added life.

Use of a two-piece ball and stem design often results in breakdown (as shown in the picture on left), shortening the life of the valves.

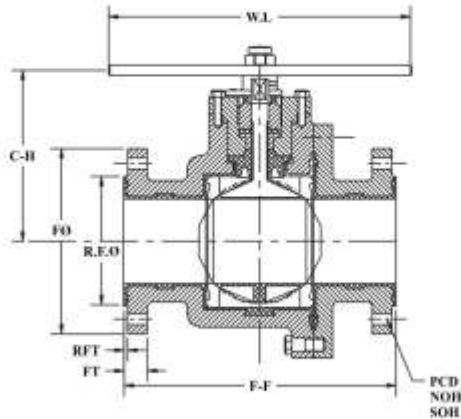
RASAI integral ball and stem design assures longer life and trouble-free operation, compared to other lined ball valve manufacturers' two-piece design.

RASAI integrated ball and stem design



We also supply Lined Ball Valve in Stainless Steel Material of Construction

DIMENSIONAL DETAILS



CLASS 300#, DIN STANDARD WILL BE 3 PIECE DESIGN



The face to face dimension and drilling will be as per DIN and Class 300 std.

TORQUE AND Cv VALUE

For CLASS 150#

Size		Break - Away Torque inch Lbs (Nm)	Flow Rate (Value)	
Inch	mm		Cv	Kv
1	25	75 (8.5)	41	35
1.5	40	245 (28)	173	147
2	50	305 (35)	317	263
3	80	565 (64)	682	580
4	100	870 (98)	1495	1270
6	150	2150 (243)	3558	3025

TORQUE

- Start - Break - Away Torque
- Running - 60% of B.A.T
- Close - 80% of B.A.T
- To obtain - Kv Value multiply Cv Value by 0.85

HOW TO ORDER YOUR LINED BALL VALVE ?

VALVE TYPE

LBV	LINED BALL VALVE
-----	------------------

BALL

02	DI
03	WCB
04	SS 316 (CF8M)

PRESSURE CLASS

1	150#
3	300#
6	600#

BODY / END PIECE MATERIAL

02	DI
03	WCB
04	SS 316 (CF8M)

SIZES

SIZES	INCHES	MM
0050	1/2"	15
0075	3/4"	20
0100	1"	25
0150	1 1/2"	40
0200	2"	50
0300	3"	80
0400	4"	100
0600	6"	150
0800	8"	200
1000	10"	250
1200	12"	300
1400	14"	350
1600	16"	400

LINING

A	PFA
B	FEP

Example*

Lined Ball Valve	LBV
Class 150#	1
DI Body	02
DI Ball	02
FEP Lining	B
Wrench Operation	W
Flanged End	FE
Size 2"	0050

OPERATION

W	WRENCH OPERATED
G	GEAR OPERATED

END CONNECTION

FE	FLANGED END
----	-------------

SPECIFY THE FOLLOWING WITH PART NUMBERS:

Lined Ball Valve, Class, Body, Ball, Lining, Operation, End Connection, Size.

***EXAMPLE:**

LBV10202BWFE0050

Lined Ball Valve, Class 150#, Body – Ductile Iron ASTM A 395 , Ball – Ductile Iron ASTM A 395, Lining-FEP (Fluorinated Ethylene Propylene), Wrench Operation, End Connection – Flanged End, Size – 1/2".

RASAI's Elastomer Super Seat[®]
is our specialty.

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V. Ravichandran
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PFA LINED FLUSH BOTTOM VALVE

SIZE : 2" VALVE WITH 4" END



PFA LINED BALL VALVE CLASS 150# FLANGED TO ANSI B 16.5

**SIZE : 8" REDUCED PORT
TRUNNION MOUNTED**





RASAI

LINED CHECK VALVES

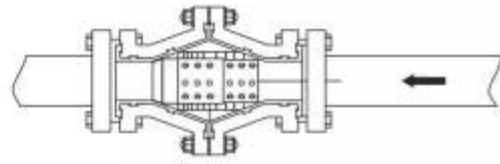
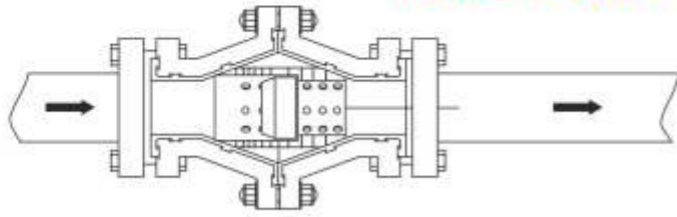
MATCHLESS IN QUALITY AND VALUE



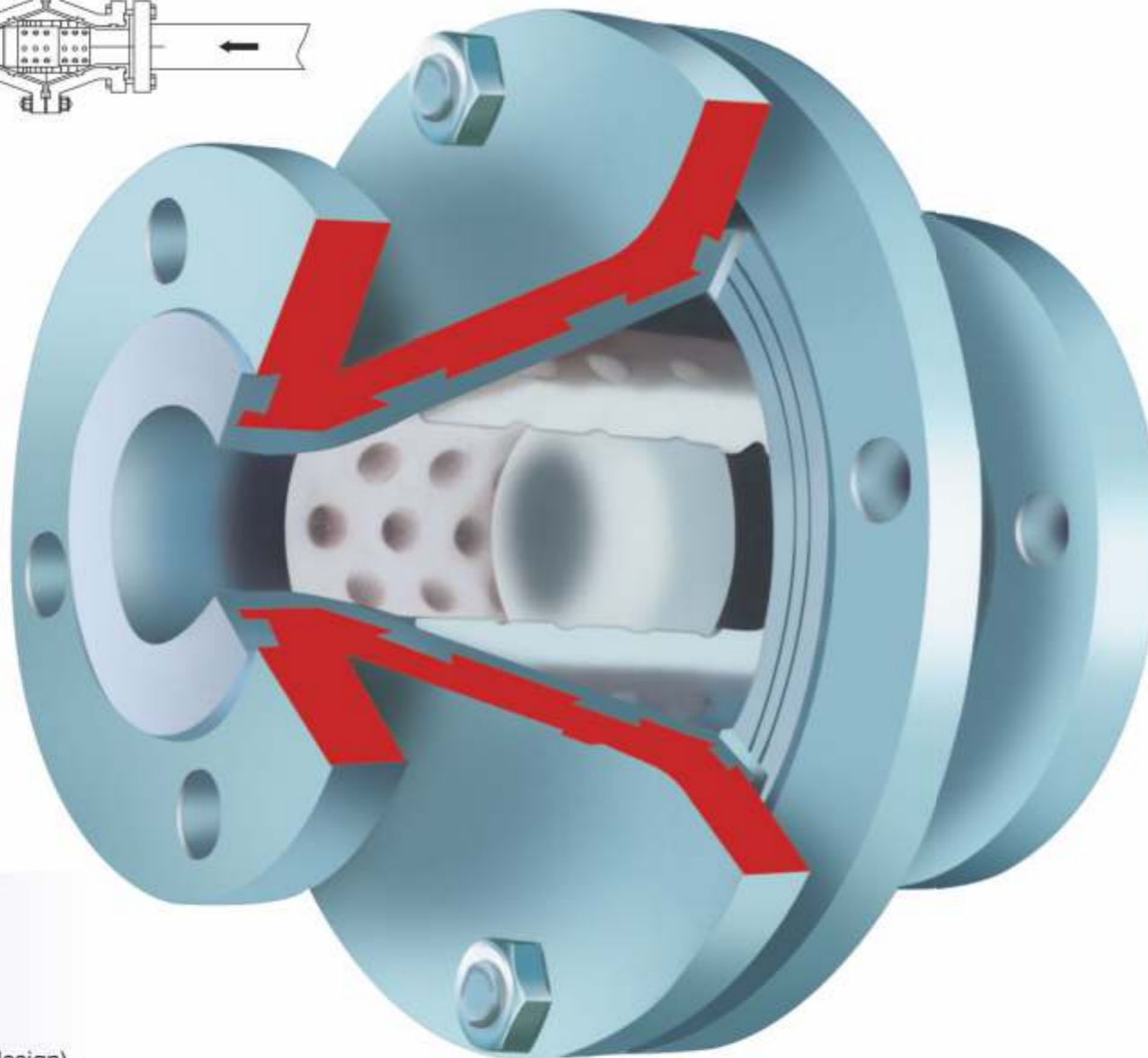
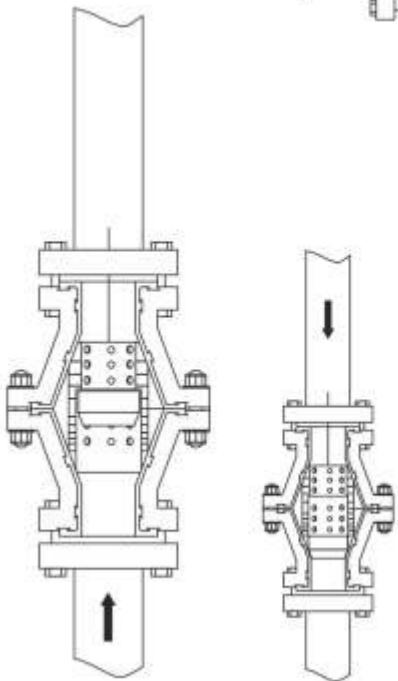
Innovative, Vertical and Horizontal type Check Valves for Slurry, Solvent, Pure Chemicals, Highly Corrosive Acids etc.,

LINED CHECK VALVE TYPE 'A'

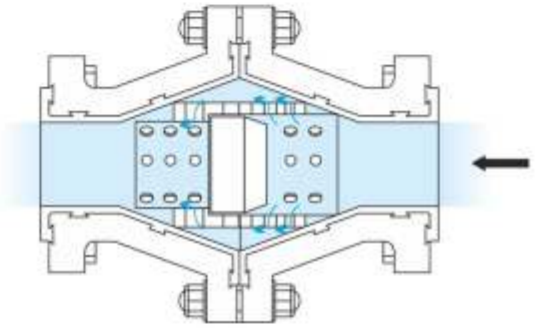
HORIZONTAL FLOW



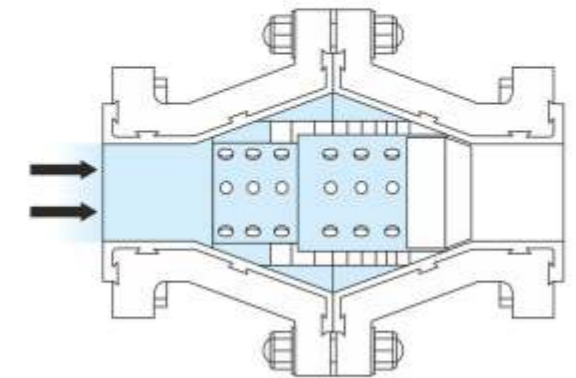
VERTICAL FLOW



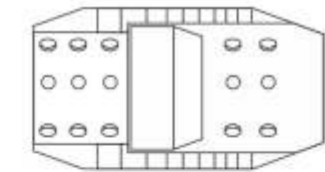
Design	BS 1863	Parts	Ductile iron	Cast steel
Face to Face	BS: 2080 / ANSI B 16.10	Body	ASTM A395 (DI)	ASTM A216 Gr. WCB
Drilling Standard	ANSI B 16.5	Puppet	PTFE	
Inspection and Testing	BS: 6755 PART 1 / API 598	Lining	FEP / PFA	
		Studs	H.T. Steel	ASTM A 193 Gr. B7
		Nuts	Steel	ASTM A 194 Gr. 2H



When in operation



How the back pressure works?



Innovative puppet cum filter design

Check valve with dual function, filter cum valve®
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V.Ravichandran
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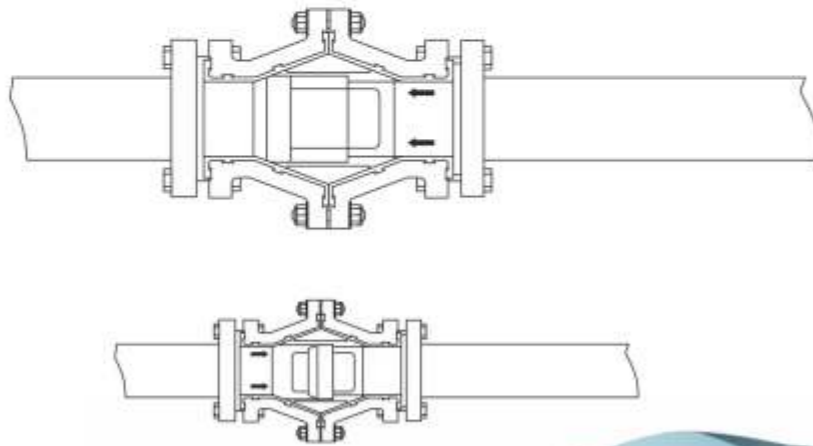
Design features

- Full port.
- Uni-directional flow.
- Less pressure drop.
- Dual function.
- Innovative filter cum valve (Puppet design).
- Hazardous chemical flow regulator.
- Valves often out perform expensive exotic alloy valves, economical handling of corrosive or high-purity flow media.
- External body of the valve is coated with corrosion-resistant.
- Designed in accordance with international standards and specifications

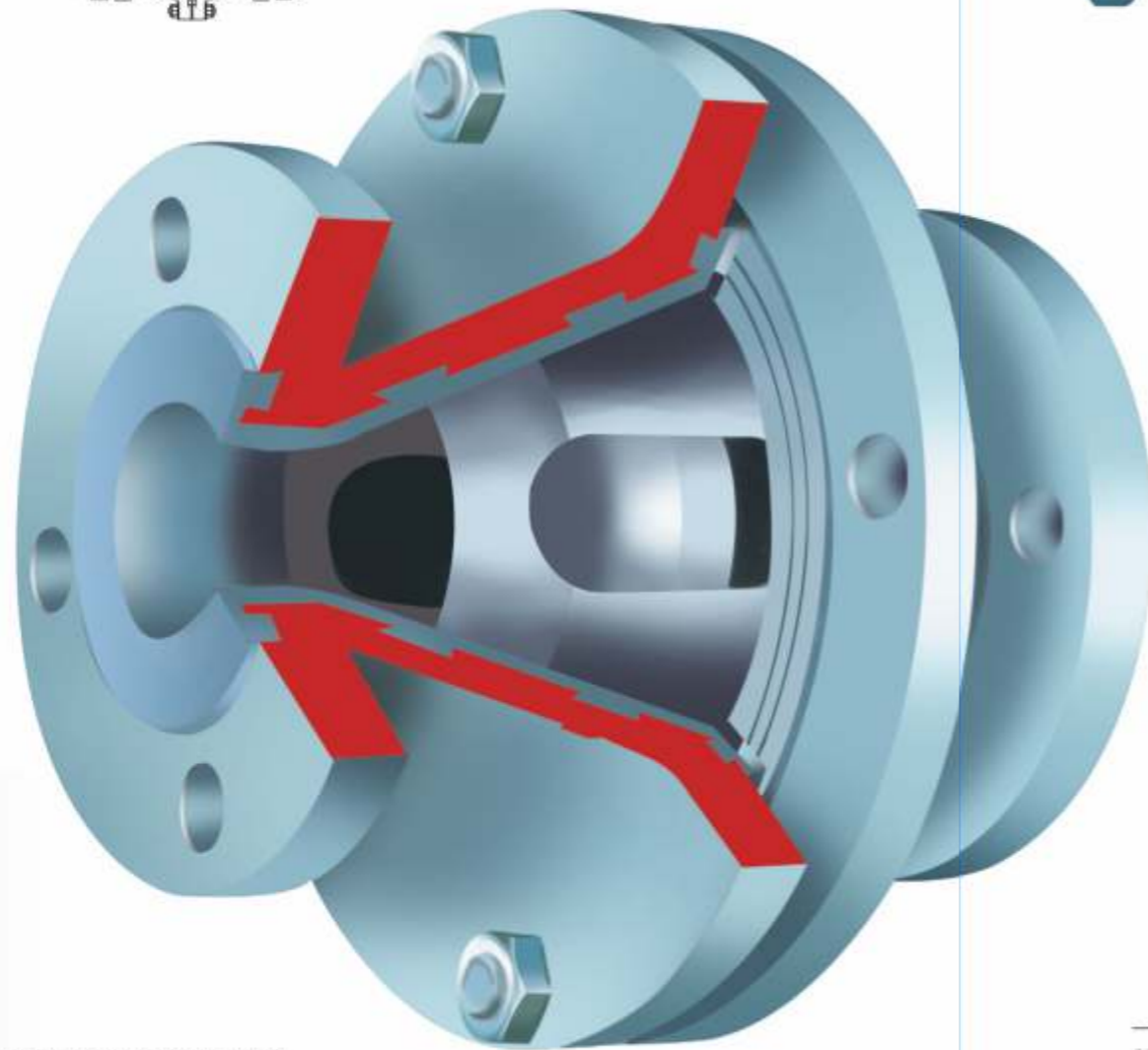
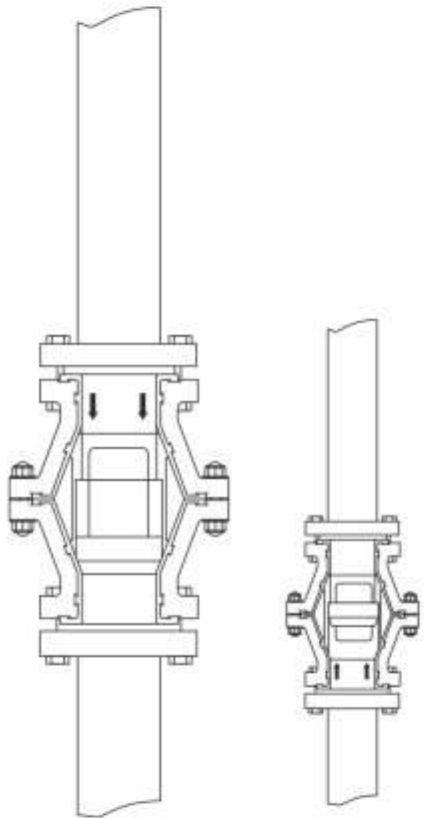
This Valve is specially designed for vertical as well horizontal flow media. The puppet taper will never change even after million operations. Whereas in the ball type, ball lasts it's shape after a few operations. Many more users have two different Valves, one for vertical another for horizontal lines. Wherein, the puppet type is applicable for both functions. We offer this Valve design with filter and puppet. Total area of the perforated holes provided in the filter is more than the pipe area, this minimize the pressure loss across the Valve.

LINED CHECK VALVE TYPE 'B'

HORIZONTAL FLOW



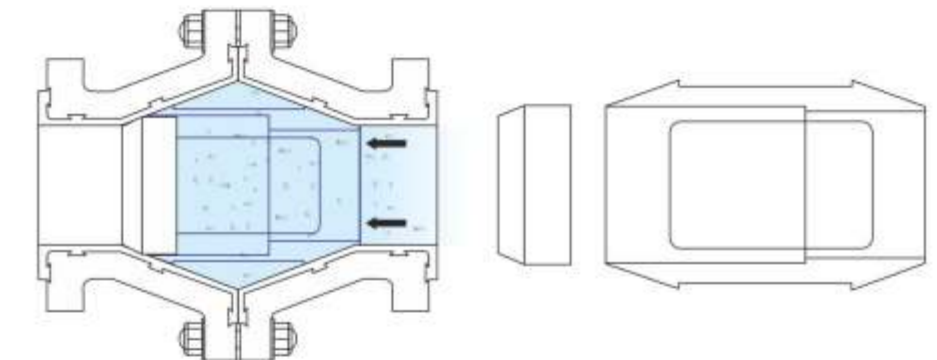
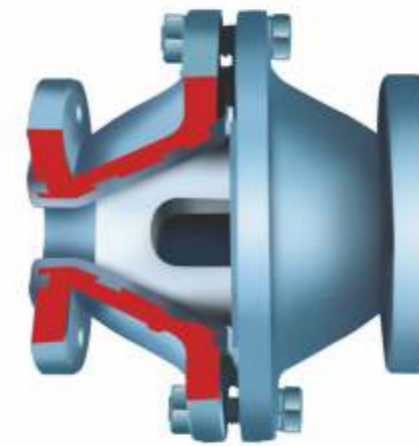
VERTICAL FLOW



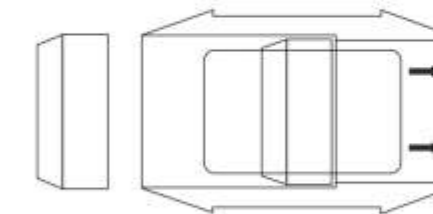
Design features

- Full port.
- Uni-directional flow.
- Less pressure drop.
- Dual function.
- Innovative puppet design.
- Hazardous chemical flow regulator.
- Valves often out perform expensive exotic alloy valves, economical handling of corrosive or high-purity flow media.
- External body of the valve is coated with corrosion-resistant.
- Designed in accordance with international standards and specifications

This Valve is specially designed for vertical as well horizontal flow media. The puppet taper will never change even after million operations. Whereas in the ball type, ball lasts it's shape after a few operations. Many more users have two different Valves, one for vertical another for horizontal lines. Wherein, the puppet type is applicable for both functions. We offer this Valve design with puppet. The Valve is very effective in slurry and sludge operations. The flow level of media is well maintained economically.



PUPPET DESIGN



The puppet design is suitable for slurry and sludge applications

HOW TO ORDER YOUR LINED CHECK VALVE ?

VALVE TYPE

LCV | LINED CHECK VALVE

PRESSURE CLASS

1 | 150#
3 | 300#

BODY

02	DI
03	WCB
04	SS 316 (CF8M)

LINING

A | PFA
B | FEP

PUPPET

N | PTFE (TEFLON)

END CONNECTION

FE | FLANGED END

Sizes

SIZES	INCHES	MM
0100	1"	25
0150	1½"	40
0200	2"	50
0300	3"	80
0400	4"	100

Example*

Lined Check Valve	LCV
Pressure class	1
Body	02
FEP lining	B
Puppet	N
Flanged End	FE
Size 2"	0200

SPECIFY THE FOLLOWING WITH PART NUMBERS:

Lined Check Valve, Class, Body, Lining, Puppet, End Connection, Size.

*EXAMPLE:
LCV102BNFE0200

Lined Check Valve, Class 150#, Body - Ductile Iron, Lining-FEP (Fluorinated Ethylene Propylene), Puppet-PTFE., End Connection - Flanged End, Size - 2".

Segment Ball Valve with Actuator



Actuator fitted



We are manufacturing V Notch Control Ball Valves class 150#,300#,600# Flanged & Wafer type with actuator , Material of construction is in WCB,WCC,LCB,CF8M,CF8,CF3M, CF3,CN7M,CD4Mcu,CG8M,Monel,CZ100,4A,5A ...etc .





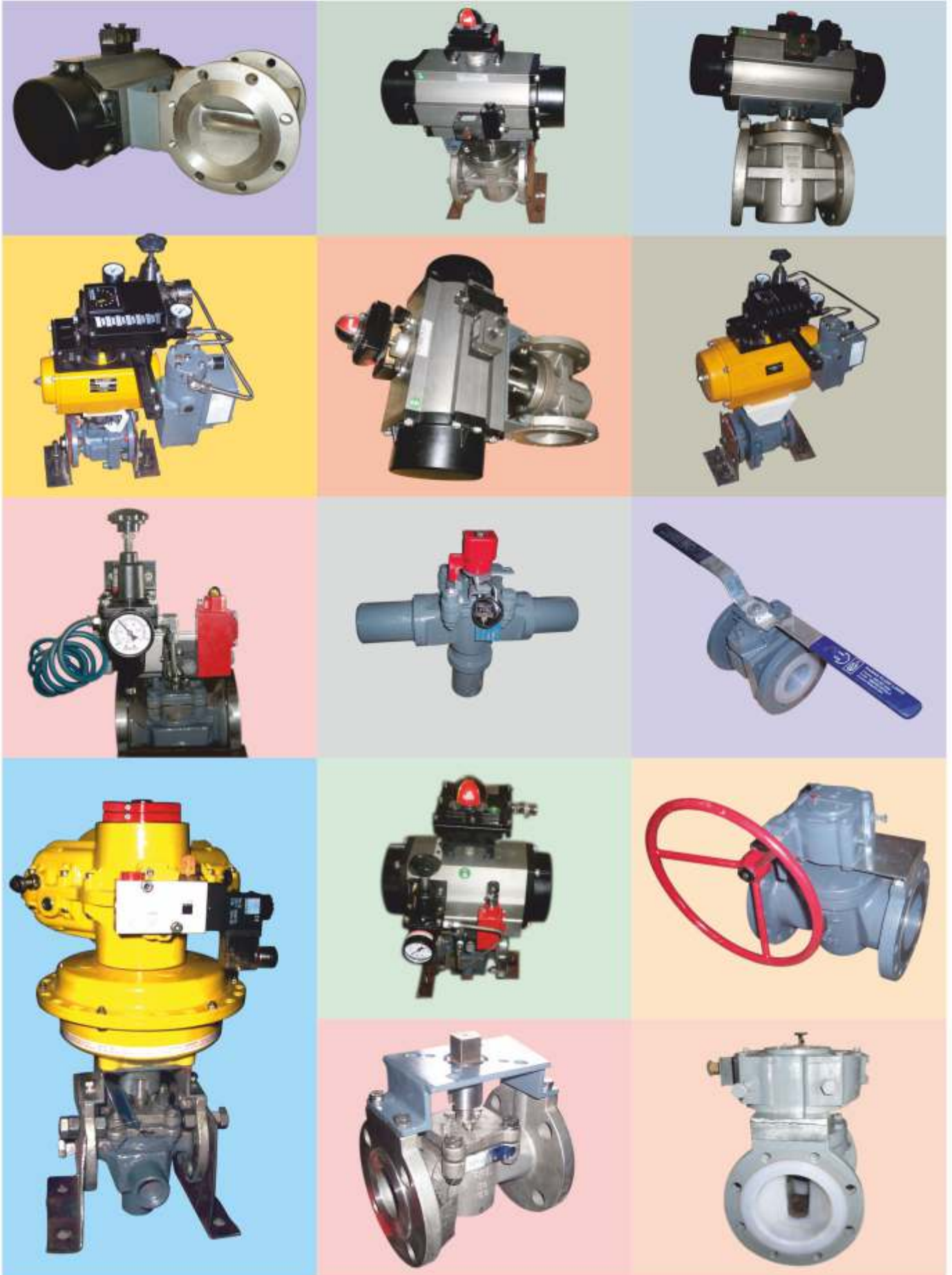
RASAI

MATCHLESS IN QUALITY AND VALUE

'V' Notch Control Ball Valves



VALVE WITH VARIOUS OPERATION AS WELL AS WITH EXTENDED STEM



British Unit

all dimensions in Inches

Size	F-F		FØ		F.T		RF Ø	RFT	P.C.D		NOH		SOH		W.L	G.L	C-H		3-WAY C.H	
	CLASS		CLASS		CLASS				CLASS		CLASS		CLASS				CLASS		CLASS	
	150#	300#	150#	300#	150#	300#			150#	300#	150#	300#	150#	300#			150#	300#	150#	300#
½	4.25	5.50	3.50	3.75	.44	.56	1.38	.06	2.38	2.63	4	4	.63	.63	6.38		2.92	2.92	2.75	2.88
¾	4.63	6.00	3.88	4.63	.44	.63	1.69	.06	2.75	3.25	4	4	.63	.75	6.38		2.92	2.92	2.88	3.00
1	5.00	6.50	4.25	4.88	.44	.69	2.00	.06	3.13	3.50	4	4	.63	.75	8.75		3.25	3.25	3.50	3.78
1½	6.50	7.50	5.00	6.13	.56	.81	2.88	.06	3.88	4.50	4	4	.63	.88	12.50		3.75	3.75	4.13	4.38
2	7.00	8.50	6.00	6.50	.63	.88	3.63	.06	4.75	5.00	4	8	.75	.75	18.00		4.50	4.50	4.50	4.78
2½	8.00	11.13	7.50	8.25	.75	1.13	4.13	.06	5.50	5.88	4	8	.75	.88	24.00		4.75	4.75	5.13	5.58
3	8.00	11.13	7.50	8.25	.75	1.13	5.00	.06	6.00	6.63	4	8	.75	.88	24.00		5.00	5.00	6.13	5.58
4	9.00	12.00	9.00	10.00	.94	1.25	6.19	.06	7.50	7.88	8	8	.75	.88	30.00		6.10	6.10	6.00	6.78
6	10.50	15.88	11.00	12.50	1.00	1.44	8.50	.06	9.50	10.63	8	12	.88	.88		18	7.75	7.75	7.50	8.50
8	11.50	16.50	13.50	15.00	1.13	1.63	10.63	.06	11.75	13.00	8	12	.88	1.00		18	9.50	9.50	9.00	10.00
10	13.00	18.00	16.00	17.50	1.19	1.88	12.75	.06	14.25	15.25	12	16	1.00	1.13		24	11.00	11.00	11.00	12.00
12	14.00	19.75	19.00	20.50	1.25	2.00	15.00	.06	17.00	17.75	12	16	1.00	1.25		30	12.50	12.50		
14	15.00	30.00	21.00	23.00	1.38	2.12	16.25	.06	18.75	20.25	12	20	1.13	1.25		30	13.00	13.00		
16	30.00	33.00	23.50	25.50	1.44	2.25	18.50	.06	21.25	22.50	16	20	1.13	1.38		24	15.00	15.00		

Metric Unit

all dimensions in Millimetre

Size	F-F		FØ		F.T		RF Ø	RFT	P.C.D		NOH		SOH		W.L	G.L	C-H		3-WAY C.H	
	CLASS		CLASS		CLASS				CLASS		CLASS		CLASS				CLASS			
	150#	300#	150#	300#	150#	300#			150#	300#	150#	300#	150#	300#			150#	300#	150#	300#
15	108	140	89	96	11	14.3	35	1.5	60	67	4	4	16	15	152		74	74	70	73
20	117	152	98	117	11	16	43	1.5	70	83	4	4	16	19	152		74	74	73	76
25	127	165	108	124	11	17.5	51	1.5	79	89	4	4	16	19	178		82	82	89	96
40	165	190	127	156	14.3	20.7	73	1.5	98	114	4	4	16	22	229		95	95	105	111
50	178	216	152	165	16	22.3	92	1.5	121	127	4	8	19	19	305		114	114	114	121
65	203	283	190	210	19	29	105	1.5	140	149	4	8	19	22	457		120	120	130	141
80	203	283	190	210	19	29	127	1.5	152	168	4	8	19	22	457		127	127	130	141
100	229	305	229	254	24	32	157	1.5	190	200	8	8	19	22	762		154	154	152	171
150	267	403	279	318	25.4	37	216	1.5	241	270	8	12	22	22		224	196	196	190	216
200	292	419	343	381	29	41	270	1.5	298	330	8	12	22	25		406	241	241	229	254
250	330	457	406	445	30	48	324	1.5	362	387	12	16	25	29		406	279	279	280	305
300	356	502	483	521	32	51	381	1.5	432	450	12	16	25	32		406	317	317		
350	381	762	527	584	35	54	413	1.5	476	514	12	20	29	32		406	330	330		
400	762	838	597	648	37	57.2	470	1.5	540	572	16	20	29	35		459	381	381		

British Unit

all dimensions in Inches

Size	F-F		FØ		F.T		RF Ø	RFT	P.C.D		NOH		SOH		C-H		3-WAY C.H	
	CLASS		CLASS		CLASS				CLASS		CLASS		CLASS		CLASS			
	150#	300#	150#	300#	150#	300#			150#	300#	150#	300#	150#	300#	150#	300#	150#	300#
½ x 1	5.00	6.50	4.25	4.88	.44	.69	2.00	.06	3.13	3.50	4	4	.63	.75	3.25	3.25	3.50	3.75
¾ x 1	5.00	6.50	4.25	4.88	.44	.69	2.00	.06	3.13	3.50	4	4	.63	.75	3.25	3.25	3.50	3.75
1 x 2	7.00	8.50	6.00	6.50	.63	.88	3.63	.06	4.75	5.00	4	8	.75	.75	4.50	4.50	4.50	4.75
1½ x 2½	8.00	11.13	7.50	8.25	.75	1.13	4.13	.06	5.50	5.88	4	8	.75	.88	4.75	4.75	5.13	5.56
2 x 3	8.00	11.13	7.50	8.25	.75	1.13	5.00	.06	6.00	6.63	4	8	.75	.88	5.00	5.00	5.13	5.56
3 x 4	9.00	12.00	9.00	10.00	.94	1.25	6.19	.06	7.50	7.88	8	8	.75	.88	6.10	6.10	6.00	6.75
4 x 6	10.50	15.88	11.00	12.50	1.00	1.44	8.50	.06	9.50	10.63	8	12	.88	.88	7.75	7.75	7.50	8.50
6 x 8	11.50	16.50	13.50	15.00	1.13	1.63	10.63	.06	11.75	13.00	8	12	.88	1.00	9.50	9.50	9.00	10.00
8 x 10	13.00	18.00	16.00	17.50	1.19	1.88	12.75	.06	14.25	15.25	12	16	1.00	1.13	11.00	11.00	11.00	12.00
10 x 12	14.00	19.75	19.00	20.50	1.25	2.00	15.00	.06	17.00	17.75	12	16	1.00	1.25	12.50	12.50		
12 x 14	15.00	30.00	21.00	23.00	1.38	2.12	16.25	.06	18.75	20.25	12	20	1.13	1.25	13.00	13.00		

LEGEND

F-F	FACE TO FACE	NOH	NUMBER OF HOLES
FØ	FLANGE DIAMETRE	SOH	SIZE OF HOLE
F-T	FLANGE THICKNESS	W.L	WRENCH LENGTH
RFØ	RAISED FACE DIAMETRE	G.L	GEAR LENGTH
RFT	RAISED FACE THICKNESS	C-H	CENTER OF FLANGE TO HEIGHT OF BODY
P.C.D	PITCH CIRCLE DIAMETRE	3-WAY C-H	CENTER OF FLANGE TO BOTTOM FLANGE



RASAIR

FLOW LINES PVT LTD

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