

PRATT

Henry Pratt Company

1/2" - 2" Ballcentric® Plug Valve



**Engineering Creative Solutions
for Fluid Systems Since 1901**

A Tradition of Excellence

With the development of the first rubber seated butterfly valve more than 70 years ago, the Henry Pratt Company became a trusted name in the flow control industry, setting the standard for product quality and customer service. Today Pratt provides the following range of superior products to the water, wastewater and power generation industries.

Butterfly Valves: from 3" to 162"

Rectangular Valves: 1' x 1' to 14' x 16'

Ball Valves –

Rubber Seated: from 4" to 60"

Metal Seated: from 6" to 48"

Plug Valves: from 1/2" to 72", 100% port available up to 48", 3 ways

Air Valves for Water and Wastewater: from 1/2" to 20"

Hydraulic Control Systems

Valve Controls

Energy Dissipating Valves and Fixed Energy Dissipaters

Cone Valves

Check Valves

Plunger Valves

A Commitment to Meeting The Customers' Needs

Henry Pratt valves represent a long-term commitment to both the customer and to a tradition of product excellence. This commitment is evident in the number of innovations we have brought to the industries we serve. In fact, the Henry Pratt Company was the first to introduce many of the flow control products in use today, including the first rubber seated butterfly valve, one of the first nuclear N-Stamp valves, and the bonded seat butterfly valve.

Innovative Products For Unique Applications

Though many of the standard valves we produce are used in water filtration and distribution applications, Pratt has built a reputation on the ability to develop specialized products that help customers to meet their individual operational challenges.

Creative Engineering for Fluid Systems

Pratt's ability to provide practical solutions to complex issues is demonstrated by the following case histories.

Earthquake Proof Valves

Pratt designed and manufactured hydraulically actuated valves for a water storage application so that the valves would automatically operate in the event of earthquakes. This led to the development of a valve that will withstand acceleration forces of up to 6gs.

Custom Actuation/Isolation Valves

Pratt has designed and manufactured nuclear quality quarter-turn valves and parts since the first nuclear-powered generating plants were built. Our custom valves are able to close in a millisecond, using specially designed Pratt electro-pneumatic actuators.

Valves Designed for Harsh Environments

Pratt designed and manufactured a 144" diameter butterfly valve for the emergency cooling system at a jet engine test facility. The valve was designed to supply water to help dissipate the tremendous heat generated by the engines during testing.



PRATT
Henry Pratt Company

Through experience, commitment and creative engineering, Pratt is uniquely suited to provide superior products for our customers' special needs. For more information, contact our corporate headquarters in Aurora, Illinois.

Scope of Line

The Henry Pratt criteria of quality, reliability, safety and value are embodied in the Ballcentric® Plug Valve setting higher standards for dependable performance with excellent features achieved by the utilization of the very latest design and manufacturing techniques.

- Computer Aided Design
- High Integrity Casting
- CNC manufacturing delivers consistent sizes on all components

All complemented by a rigorous Quality Control System

Body

The Ballcentric® Plug Valve body casting is ASTM A536 65-45-12 ductile iron using high pressure molding techniques. Threaded connection available on 1/2"-2" sizes. Flanged connection available on 2" size.

Flange diameter, thickness and drilling conform to ANSI B16.1 Class 125.

Seat

The valve seat shall be furnished with an overlay of corrosion and abrasion resistant epoxy.

Stem Seal

High integrity sealing by combining the advantages of a resilient and abrasion resistant U-Cup seal. From vacuum to high pressure, the self-adjusting sealing system (per AWWA C504) gives positive, trouble-free service and is retained independently of the plug stem or external torque device, thereby eliminating periodic maintenance.

Bearings

The plug rotates in permanently lubricated stainless steel bearings, located in the body and bonnet, along with upper and lower PTFE thrust washers which ensure consistently low operating torque.

Plug

Supported on integral trunnions, the plug is totally encapsulated with an elastomer that is molded to the casting providing tight shut off even under vacuum conditions. High integrity corrosion-free sealing is achieved by a variety of abrasion resistant elastomers which protect the plug right up to the trunnions. When assembled, the light compression of the elastomers onto PTFE thrust washers prevents entry of abrasive materials into the bearings.

Bonnet Seal

Superior "O" ring sealing with metal/metal contact means lower bolting stresses compared with compression gaskets.

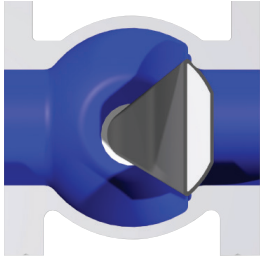
Flow

The full round port design with streamlined internal contours gives the highest industry capacity straight through flow in the full open position, reducing turbulence and pressure drop and the effect of erosive media. Handling of sludges and slurries is therefore enhanced.

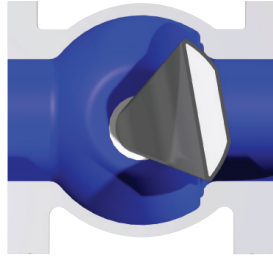
Travel Stops

Adjustable open and closed travel stops are fitted as standard on both wrench and gear operated Ballcentric® Plug Valves.

Features and Benefits



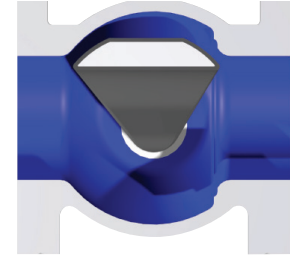
- Valve in closed position for bubble tight shut-off
- Normal flow direction gives pressure assisted sealing
- Torques are low even in reverse flow



- Plug rotates away from the seat for instant opening
- Seat wear and operating torque reduced
- No further seat contact until valve is closed again



- Design of Ballcentric® plug valve allows modulating control over the full 90° travel
- Ideally suited for balancing service
- Standard rotary valve provides control and tight shut off in one valve



- Plug is out of flow path when fully open
- Straight through, uninterrupted smooth flow
- Round port reduces turbulence and erosion, lowers pumping costs and can be "pigged" to clean the pipeline

Installation

The Ballcentric® Plug Valve is suitable for flow and shut-off in either direction. Seat end downstream is the preferred orientation and any reverse flow requirement should be stated at the time of order. For use on fluids with suspended solids, installation with the seat upstream and the valve stem horizontal is recommended with plug rotation to the top of the valve.

In-Line Maintenance

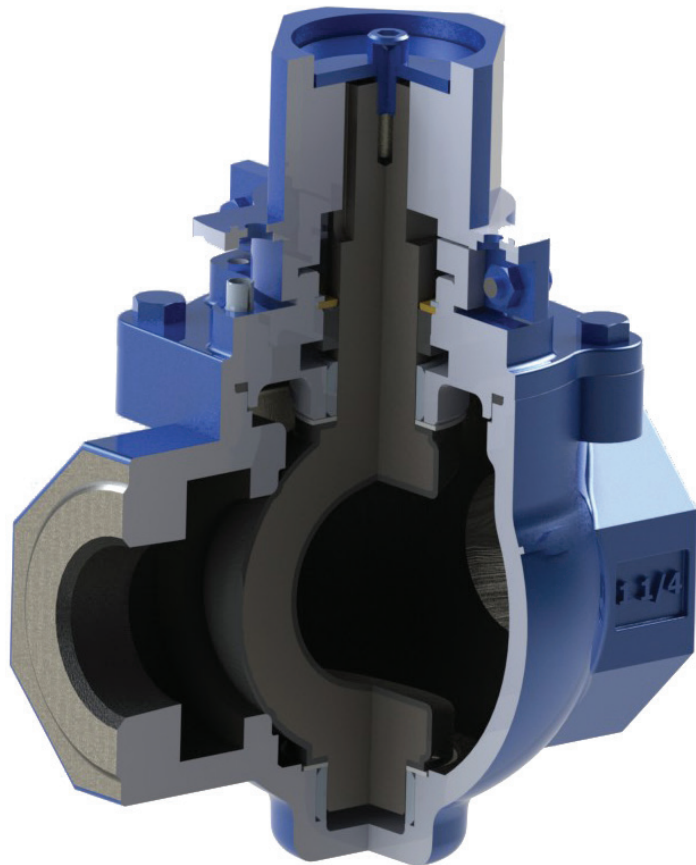
In the unlikely event of stem leakage, the stem seals can be easily replaced without removing the bonnet. Access to the body for cleaning or inspection does not require removal from the line.

Modular Construction

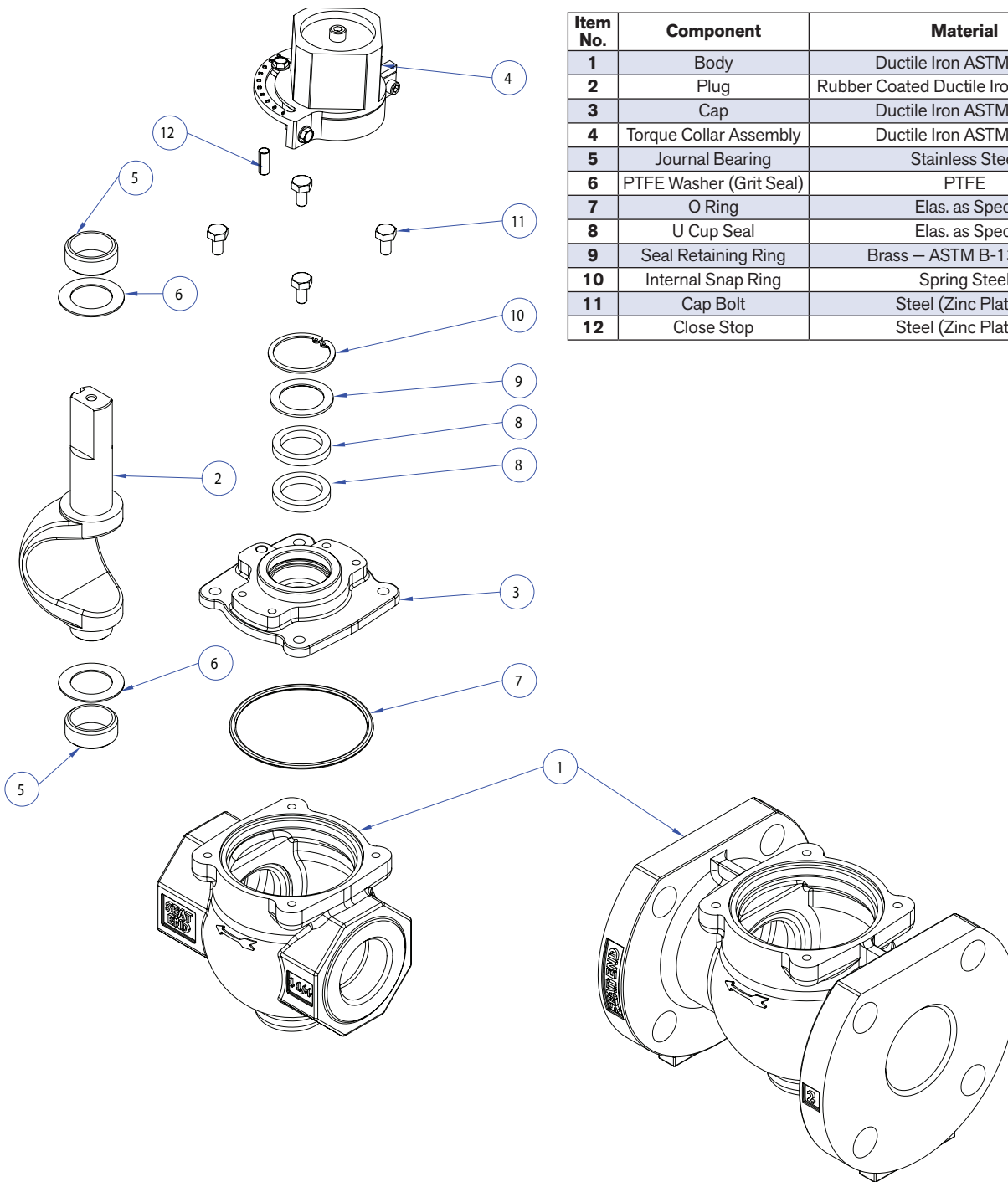
Design of the bonnet and stem allows for on-site adaption of gear operators, power actuators, or extension devices on to standard valves. Conversion can be easily undertaken without removing the valve bonnet, thereby minimizing downtime.

Power Operation

Pneumatic, electric or hydraulic operation is available, complete with accessories such as limit switches, solenoid valves and positioners when required.



Standard Materials of Construction, Fig. 613A/611A, 1/2" - 2"



Item No.	Component	Material	Qty.
1	Body	Ductile Iron ASTM A536	1
2	Plug	Rubber Coated Ductile Iron ASTM A536	1
3	Cap	Ductile Iron ASTM A536	1
4	Torque Collar Assembly	Ductile Iron ASTM A536	1
5	Journal Bearing	Stainless Steel	2
6	PTFE Washer (Grit Seal)	PTFE	2
7	O Ring	Elas. as Spec.	1
8	U Cup Seal	Elas. as Spec.	2
9	Seal Retaining Ring	Brass – ASTM B-138-675	1
10	Internal Snap Ring	Spring Steel	1
11	Cap Bolt	Steel (Zinc Plated)	AR
12	Close Stop	Steel (Zinc Plated)	1

Technical Data

ORDERING INFORMATION

Valve Types

Threaded NPT Ductile Iron
ANSI 125 Flanged Ductile Iron (2" only)
Threaded NPT 316 SS
ANSI 150 Flanged 316SS (2" only)

Designation

613A
611A
603AS
601AS

SEAT

Epoxy
316SS (on stainless steel valve only)

E
S

ELASTOMER TRIM

EPDM
Buna-Nitrile
Viton*
Neoprene*

0
1
2
3

* Consult factory for availability

MANUAL OPERATORS

Lever/Wrench
Direct Nut
Above Ground Gear & Handwheel
Above Ground Gear & 2" Nut
Buried Gear with 2" Nut
Memory Stop Gear & Handwheel
Above Ground Gear & Chainwheel

L
TC
AGHW
AGNUT
BG
MGHW
AGCW

Valves are only tested for bi-directional shut-off if specified at time of order. Contact Henry Pratt for bi-directional ratings.

PRESSURE RATING

613A	NPT	400 PSI
611A	ANSI 125	175 PSI
603AS	NPT	400 PSI
601AS	ANSI 150	275 PSI

Body Hydrotest = 150% of rated pressure

Seat Test = 100% of rated pressure

Testing per AWWA C517

Elastomer Selection Chart

Service	Elastomer	Average Useful Temp. Range	Service	Elastomer	Average Useful Temp. Range	Service	Elastomer	Average Useful Temp. Range
Acetone	EPDM	-35°F to 250°F	Caustic Soda	EPDM	-35°F to 250°F	Oil, Animal	Nitrile	-20°F to 212°F
Air	EPDM	-35°F to 250°F	Cement Slurry	EPDM	-35°F to 250°F	Oil, Mobil Therm Light	Viton	10°F to 250°F
Air w/Oil	Nitrile	0°F to 212°F	Copper Sulphate	EPDM	-35°F to 250°F	Oil, Mobil Therm 600	Viton	10°F to 250°F
Alcohol AMYL	EPDM	0°F to 212°F	Creosote (Coal)	Nitrile	-20°F to 212°F	Oil, Mobil Therm 603	Nitrile	-20°F to 212°F
Alcohol Aromatic	Viton	10°F to 250°F	Coal Slurry	Nitrile	-20°F to 212°F	Oil, Lubricating	Nitrile	-20°F to 212°F
Alcohol Butyl	Neoprene	-20°F to 225°F	Diesel Fuel No. 3	Nitrile	-20°F to 212°F	Oil, Vegetable	Nitrile	-20°F to 212°F
Alcohol Denatured	Nitrile	-20°F to 212°F	Diethylene Glycol	EPDM	-35°F to 250°F	Paint, Latex	Nitrile	-20°F to 212°F
Alcohol Ethyl	EPDM	-20°F to 250°F	Ethylene Glycol	EPDM	-35°F to 250°F	Phosphate Ester	EPDM	-35°F to 250°F
Alcohol Grain	Nitrile	-20°F to 212°F	Fatty Acid	Nitrile	-20°F to 212°F	Propane	Nitrile	-20°F to 212°F
Alcohol Isopropyl	Neoprene	-20°F to 225°F	Fuel Oil No. 2	Nitrile	-20°F to 212°F	Rape Seed Oil	EPDM	-35°F to 250°F
Alcohol Methyl	EPDM	-20°F to 250°F	Fertilizer Liquid H4N2O2	EPDM	-35°F to 250°F	Sewage with Oils	Nitrile	-20°F to 212°F
Ammonia Anhydrous	Neoprene	-20°F to 225°F	Gasoline Keg	Nitrile	-20°F to 212°F	Sodium Hydroxide 20%	EPDM	-35°F to 250°F
Ammonium Nitrate	EPDM	-20°F to 250°F	Gas Natural	Nitrile	-20°F to 212°F	Starch	EPDM	-35°F to 250°F
Ammonia, water	EPDM	-20°F to 250°F	Glue, Animal	Nitrile	-20°F to 212°F	Steam to 250°F	EPDM	-35°F to 250°F
Animal Fats	Nitrile	-20°F to 212°F	Green Liquor	EPDM	-20°F to 212°F	Stoddard, Solvent	Nitrile	-20°F to 80°F
Black Liquor	EPDM	-20°F to 250°F	Hydraulic Oil (Petro)	Nitrile	-20°F to 212°F	Sulphuric Acid 10% 50%	Neoprene	-20°F to 158°F
Blast Furnace Gas	Neoprene	-20°F to 225°F	Hydrogen	Nitrile	-20°F to 212°F	Sulphuric Acid 100%	Viton	10°F to 300°F
Butane	Nitrile	-20°F to 212°F	JF4, JP5	Viton	-20°F to 212°F	Trichloroethylene Dry	Viton	10°F to 300°F
Bunker Oil "C"	Nitrile	-20°F to 212°F	Kerosene	Nitrile	0°F to 212°F	Triethanol Amine	EPDM	-35°F to 250°F
Calcium Chloride	EPDM	-20°F to 250°F	Ketone	EPDM	-35°F to 250°F	Varnish	Viton	10°F to 300°F
Carbon Dioxide	EPDM	-20°F to 250°F	Lime Slurry	EPDM	-35°F to 250°F	Water, Fresh	EPDM	-35°F to 250°F
Carbon Monoxide (Cold)	Neoprene	-20°F to 150°F	Methane	Nitrile	-20°F to 212°F	Water, Salt	EPDM	-35°F to 250°F
Carbon Monoxide (Hot)	Viton	10°F to 300°F	Methyl Ethyl Ketone	EPDM	-35°F to 250°F	Xylene	Viton	10°F to 300°F
Carbon Tetrachloride	Viton	10°F to 300°F	Naptha (Berzin)	Nitrile	-20°F to 212°F			

NOTE: Above elastomer/temperature chart are guidelines only. See Henry Pratt Compatibility Chart for specific applications.

ELASTOMERS AVAILABLE FOR BALLCENTRIC® PLUG VALVE

Nitrile

A general purpose material sometimes referred to as BUNA-N or HYCAR with a -20°F to 212°F temperature range. Used on sewage, water, hydrocarbon and mineral oils.

EPDM

An excellent polymer for use on chilled water through to LP steam applications having a temperature range of -35°F to 250°F. Resistance to many acids, alkalis, detergents, phosphate esters, alcohols and glycols is an added benefit.

Neoprene

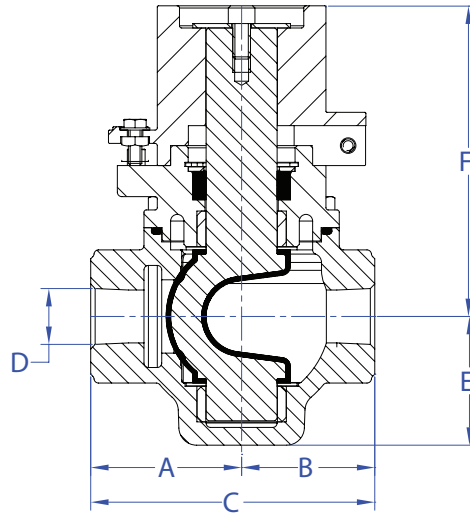
This versatile material shows outstanding resistance to abrasion and ozone. Chemical resistance to a wide range of petroleum base products and dilute acids and alkalis. Temperature range -20°F to 225°F.

Viton

Retention of mechanical properties at high temperature is an important feature of this elastomer: temperature range is -10°F to 300°F. It also has excellent resistance to oils, fuels, lubricants and most mineral acids and aromatic hydrocarbons.

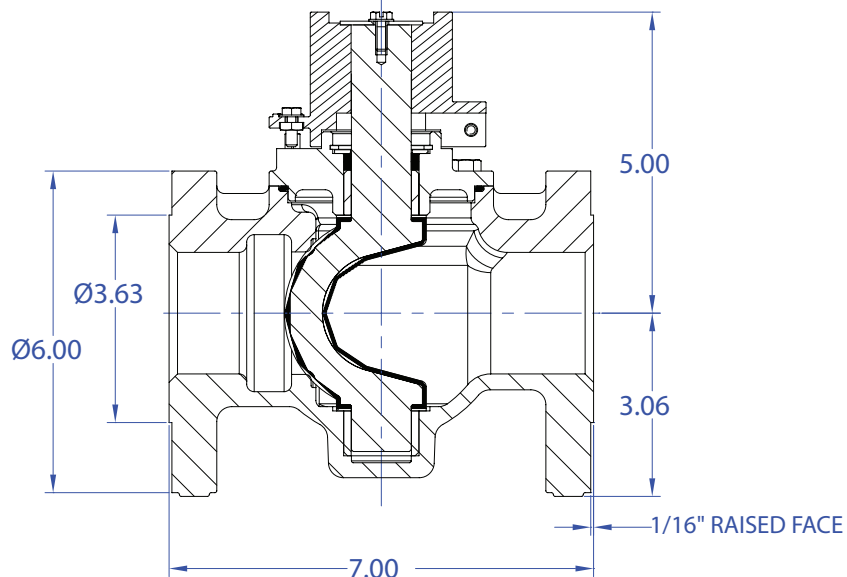
Note: Viton not for water or steam applications.

**Threaded End:
Fig. 613A Ductile Iron/603AS Stainless Steel 1/2" - 2"**



THREADED ENDS						
SIZE	1/2	3/4	1	1-1/4	1-1/2	2
A	2.13	2.13	2.13	3.00	3.00	3.00
B	1.88	1.88	1.88	2.50	2.50	2.50
C	4.00	4.00	4.00	5.50	5.50	5.50
D	1/2" NPT	3/4" NPT	1" NPT	1 1/4" NPT	1 1/2" NPT	2" NPT
E	1.81	1.81	1.81	2.50	2.50	2.50
F	4.38	4.38	4.38	5.00	5.00	5.00
WEIGHT (approx.)	7.50	7.25	7.00	13.00	11.75	10.00

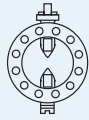
**Flanged End:
Fig. 611A Ductile Iron/601AS Stainless Steel 2"**



FLANGED ENDS	
SIZE	2
WEIGHT (approx.)	18.00

Note: RAISED FACE IS ONLY ON THE 2" FIG. 601AS STAINLESS STEEL.

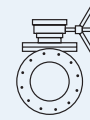
PRATT PRODUCT GUIDE



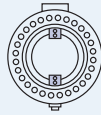
**Model
2FI**



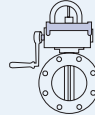
**Monoflange
MKII**



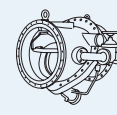
**Plug
Valve**



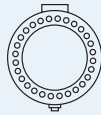
**Triton®
XR70**



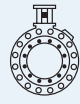
**Indicating Butterfly Valve
UL & FM approved**



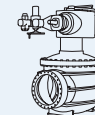
**Tilting Disc
Check Valve**



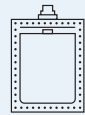
**Triton®
XL**



**N-Stamp Nuclear
Butterfly Valve**



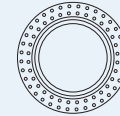
**Cone
Valve**



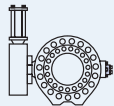
Rectangular



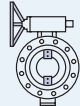
**PIVA Post Indicating Valve Assembly
UL & FM approved**



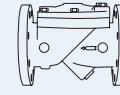
**Sleeve
Valve**



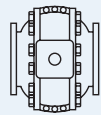
**Rubber Seated
Ball Valve**



**Triton®
HP250**



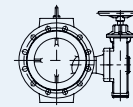
**Check
Valve**



**Metal Seated
Ball Valve**

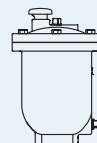


**Control
Systems**



Plunger Valve

PRATT



Air Valve

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