Fast Electrically Actuated Valves

FAIL-SAFE CONTROL VALVE FOR MODULATING CONTROL OF INSTANTANEOUS WATER HEATER & HEAT EXCHANGER APPLICATIONS

SERIES

ARIA

ADVANCED, RELIABLE, INDUSTRIAL ACTUATOR

MODELS

- **ARA** - 3-Way ,Flanged Steel Mix Valves; 1/2″ - 2″
- **ARB** - 2-Way & 3-Way, NPT Threaded Bronze & SS Valve; 1/2″ - 2″
- **ARC** - 2-Way & 3-Way, Flanged, Cast Iron Valves; 2-1/2″ - 6″
- **ARD** - 2-Way, Flanged Steel Cage Valves; 1/2″ - 2″

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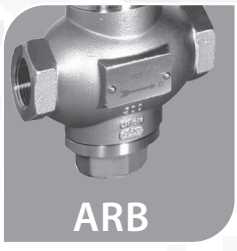
ARA


ARB

ARC

ARD

ARC PRODUCT SPEC

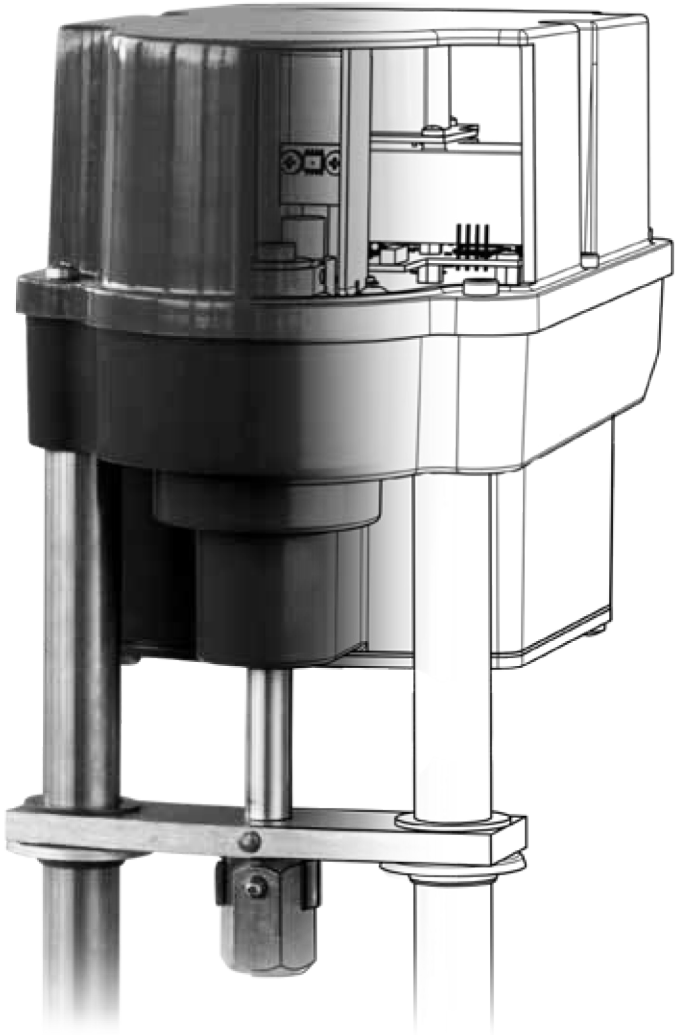
WARREN CONTROLS

2600 EMRICK BLVD • BETHLEHEM, PA 18020 • USA • 800-922-0085 • WWW.WARRENCONTROLS.COM

DEPENDABLE, RUGGED, PRECISION CONTROL VALVES AND ACCESSORIES

ARIA SERIES: small frame actuators

High Quality, Modulating, Linear, Industrial Electric Valve Actuator



WARREN CONTROLS INC. A VETERAN OWNED, PRIVATELY HELD, SMALL BUSINESS

AGENCY APPROVALS

CRN REGISTERED — SEE TABLE ON PAGE 22

ISO 9001:2015 REGISTERED FIRM

At 2mm/sec travel speed (12 seconds/inch), the ARIA Series Actuators incorporate spring-fail open or closed (model dependent) on loss of power or signal. The actuator is mounted onto the control valve via pillars and mounting base and attached via a yoke locknut. The actuator stem and valve stem are connected as well.

Based on a brushless DC motor (BLDC) the generated torque is transmitted via a multi-stage spur gear onto a spindle nut. The spindle nut transmits the input torque into an axial thrust force of 450 Lbf, via a spindle. The linear stroke is transmitted to the valve spindle by a coupling piece.

The stroke is measured and controlled by a linear 12 Bit Hall sensor. In case of mains power loss, the stroke movement is in OPEN or CLOSE direction by spring force. Electrical wiring is terminated at a terminal block under the actuator cover.

The ARIA Series actuated control valves are ideally suited for challenging, modulating, industrial processes that require electric actuation with the actuation speed and reliability of pneumatics.

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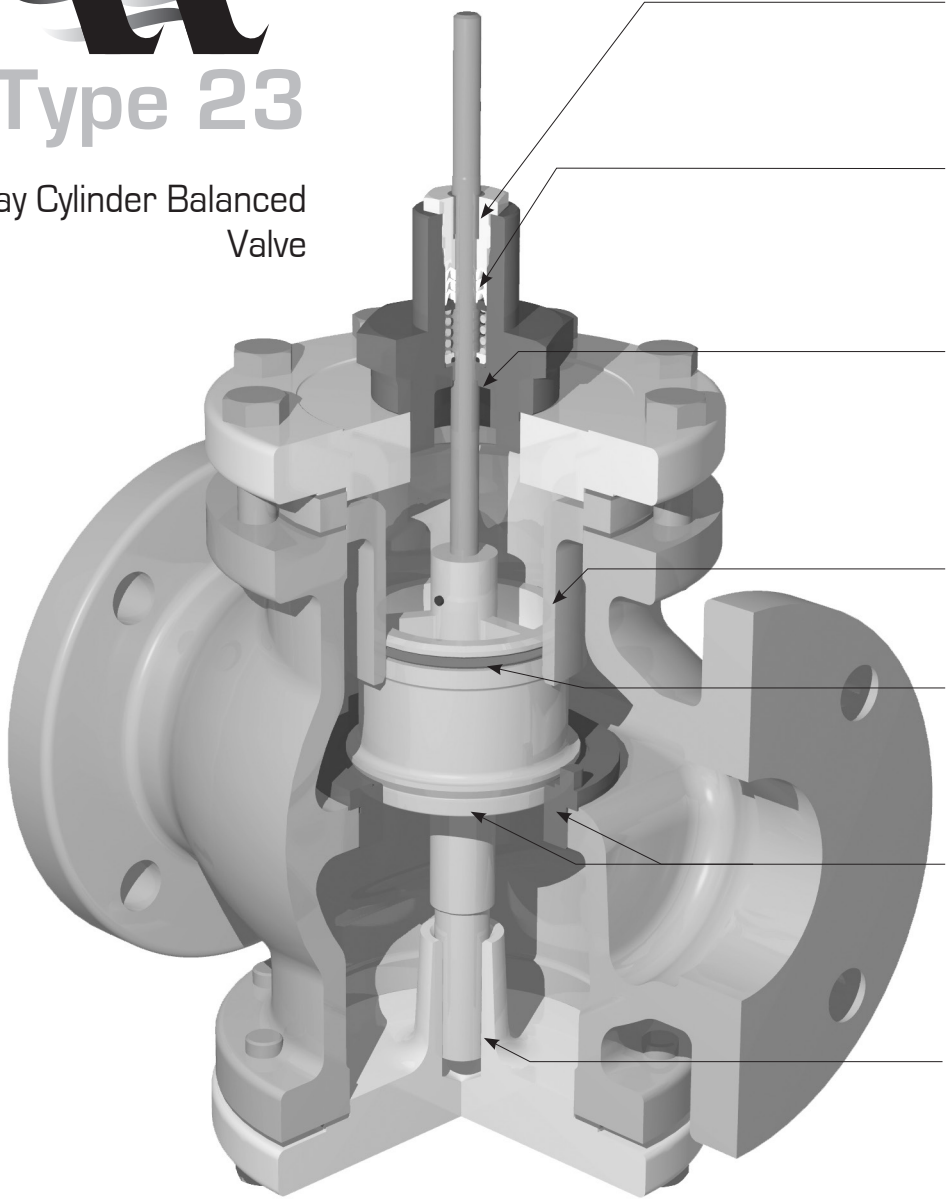
Type 23

Two-Way Cylinder Balanced Valve



Peek Bearing
for low friction provides stem guiding and protects packing box from external debris.

Robust Spring-Loaded PTFE V-Ring Packing
has low friction and is self adjusting for zero maintenance.

Peek Bearing in Lower Bonnet Assembly
provides stem guiding and protects packing box from entrained solids for longer packing life.

Thick Balancing Chamber
in bronze, 300 SS, or 17-4pH.

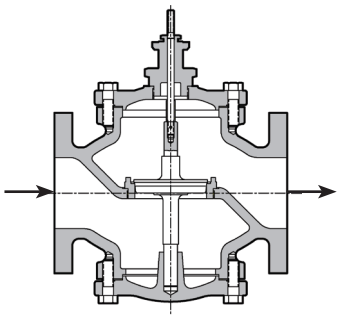
EPDM O-Ring or Fluoraz O-Ring (for higher temperatures)
maintains pressure balance seal.

Plug and Seat
in choice of Bronze, 300 SS, 17-4pH, or Alloy 6 provide Class IV shut off. (Depending on trim style)

Bottom Post Guide
for additional stability, allowing higher pressure drop.

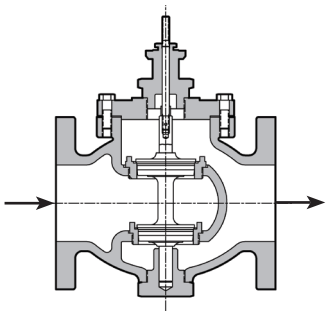
MODEL: ARC

High Capacity
General Purpose Globe
Control Valves



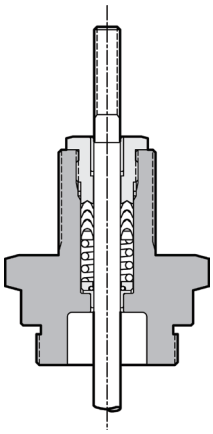
Type 20

Two-Way Single Seat
Unbalanced Valve

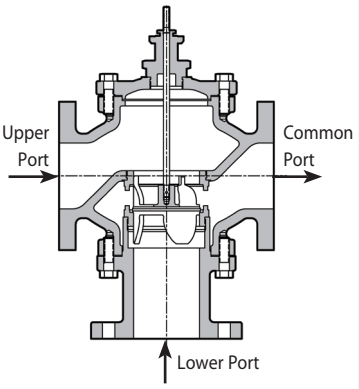


Type 22

Two-Way Double Seat
Balanced Valve

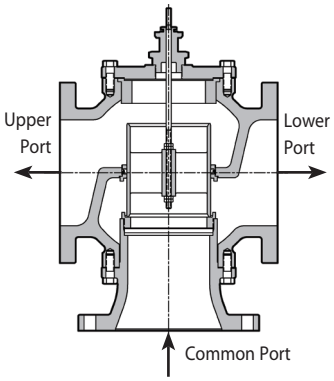


Guided Low-Friction
TFE V-Ring Packing
Spring Loaded



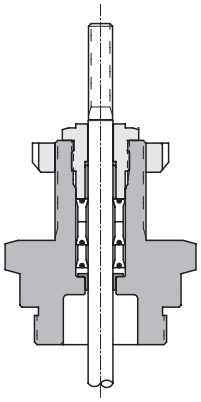
Type 30

Three-Way
Mixing/Bypass Valve



Type 32

Three-Way
Diverting Valve



Long-Life Multi-Stack
EPDM Lip Packing

Description

Warren Controls High Capacity General Purpose Globe Control Valves feature rugged iron bodies with a variety of trim materials. The equal percentage plugs in the 2-way valves and linear plugs in the 3-way valves provide excellent modulating control of a wide variety of fluids. The ARC is ideally suited where value and long life are important objectives for applications including but not limited to: Food & Beverage, Packaged Water Heaters, Pharmaceutical, General Service, and Waste Water having moderate pressure drops and temperatures from -20° to 400°F.

RUGGEDNESS AND HIGH PERFORMANCE	
Features	Advantages
Cast Iron guide style valve body	Reduces envelope size and weight without sacrificing pressure boundary integrity or high Cv's.
Precision manufactured valve components	Valve bodies machined in single operation in 4 axis computer numerical controlled horizontal machining centers. Bodies and trim components held to exacting geometric tolerances ensuring smooth reliable operation of finished valve.
Trim components	Durable rugged plug and seat construction shuts off tightly.
Equal % or Linear plug	Provides exceptional modulating control with 50:1 rangeability.
Trim materials	Alloy 6 wrapped stainless bronze, steel trim promotes long dependable service life in applications controlling hard to handle fluids. 316 & 17-4 stainless steel trim.
Oversized bearings and shafts	Ideal for high pressure drops.
Valve stem to plug connection	Rigid connection provides zero backlash. Assures minimum dead band and hysteresis.
Threaded valve stem connection and split stem connector	Solid actuator interface. Provides zero backlash. Assures minimum dead band and hysteresis.
Factory lubricated packing and valve stem	Minimizes hysteresis from packing friction.

INCREASED SERVICEABILITY AND REDUCED MAINTENANCE	
Features	Advantages
Integral valve body flanges	Promote secure valve installations and piping integrity. Easy installation. Eliminate exposed line flange bolting. Shorten alignment and installation time. Many different classes of pipe flanges.
Roller burnished valve stem	Ultra smooth finish minimizes packing wear and maximizes life. Smooth function and minimum stick/slip.
Bonnet and packing nut bearings and stem wiper	Prevent external particles from infiltrating and damaging packing.

ESTABLISHED FEATURES AND QUALITY	
Features	Advantages
Linear Control Valve	Combines reciprocating globe valve ruggedness with linear actuators to produce heavy duty automatic throttling control valve which dependably controls fluids in process industries.
Quality valve design & engineering	Components and materials designed and selected to meet or exceed demanding applications, specifications, functional and chemical and temperature compatibility requirements. Product quality built on tried and tested designs and engineering.
Fast electric actuators	Full valve travel as fast as 8 seconds, mimics performance of pneumatic actuators. Incorporates mechanical Spring-Fail for loss of power for open or closed. Available for 24 Vac/Vdc or 115/230 Vac power sources. Using all common process signals (0-10 Vdc, 2-10 Vdc, 0-20 mA, 4-20 mA) the analog controls and feedback signals are galvanically isolated. Also offer flow curve correction and split-range inputs as options, all in an IP67 enclosure.
Factory testing and set-up	Each control valve undergoes careful set-up and thorough testing by our highly skilled and experienced factory assembly personnel to ensure it is pre-set for its specified service.

BODY STYLE VERSUS APPLICATION

2-WAY VALVES (Control of Liquids, Gases, and Steam)

Type 20
2-Way Single Seat Unbalanced Valve

The most commonly applied solution for sizes 3" and under with ANSI Class IV leakage rating. **See Table on page 21 for Fluid Temperature Limits.**

Sizes:	2-1/2, 3, 4 inch
Body:	ANSI B16.1 Iron 125LB Flange or 250LB Flange
Trim:	Linear: 300 Series Stainless Steel EQ%: Bronze, 300 Series Stainless Steel, or 17-4 pH Hardened Stainless Steel
Packing:	Long-Life Multi-Stack, EPDM Lip Packing (EPDM Lip Packing is not suitable for use with oils, hydrocarbons, or acids.) Guided Low-Friction TFE V-Ring, Spring Loaded Packing
Rangeability:	50:1

Type 22
2-Way Double Seat Balanced Valve

A balanced valve that is an effective solution for sizes over 3" and for higher pressures. Its double seat design allows for dirtier fluids and requires less force to operate than unbalanced valves so smaller actuators can be used. It is limited to ANSI Class III leakage rating. **See Table on page 21 for Fluid Temperature Limits.**

Sizes:	2-1/2, 3, 4, 5, 6 inch
Body:	ANSI B16.1 Iron 125LB Flange or 250LB Flange
Trim:	EQ%: Bronze or 300 Series Stainless Steel
Packing:	Long-Life Multi-Stack, EPDM Lip Packing (EPDM lip packing is not suitable for use with oils, hydrocarbons, or acids) Guided Low-Friction TFE V-Ring, Spring Loaded Packing
Rangeability:	50:1

Type 23
2-Way Cylinder Balanced Valve

A balanced valve that is an effective solution for sizes over 3" and for higher pressures. It requires less force to operate than unbalanced valves so smaller actuators can be used. Its single seat o-ring seal design facilitates ANSI Class IV leakage rating. It is limited to cleaner fluids. **See Table on page 21 for Fluid Temperature Limits.**

Sizes:	2-1/2, 3, 4, 5 inch
Body:	ANSI B16.1 Iron 125LB Flange or 250LB Flange
Trim:	Linear: 300 Stainless Steel only EQ%: Bronze, 300 Stainless Steel, 17-4 pH Hardened Stainless Steel, or Alloy 6
Packing:	Long-Life Multi-Stack, EPDM Lip Packing (EPDM lip packing is not suitable for use with oils, hydrocarbons, or acids.) Guided Low-Friction TFE V-Ring, Spring Loaded Packing
O-Ring:	EPDM (Bronze Trim) *Fluoraz 797 (300 SS Trim, 17-4 pH or Alloy 6 Trim)
Rangeability:	50:1

3-WAY VALVES (Control of Liquids)

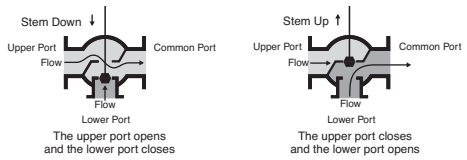
Type 30 3-Way Mixing/Bypass Valve

This valve has two inlets and one outlet, and is the simplest solution for mixing or bypass applications with an ANSI Class IV leakage rating. In normal applications the inlet pressures are near equal and control is possible from 5% to 95% of travel with inlet pressures up to 100 PSI. **See Table on page 21 for Fluid Temperature Limits.**

Sizes:	2-1/2, 3 inch
Body:	ANSI B16.1 Iron 125LB Flange or 250LB Flange
Trim:	Linear: Bronze or 300 Series Stainless Steel
Packing:	Long-Life Multi-Stack, EPDM Lip Packing, (EPDM lip packing is not suitable for use with oils, hydrocarbons, or acids.) Guided Low-Friction TFE V-Ring, Spring Loaded Packing
Rangeability:	50:1

NOTE: The Type 30 Mixing/Bypass valve is designed for service with two inlets and one outlet. When it is ARIA actuated it cannot be offered for Reverse Flow / Diverting service.

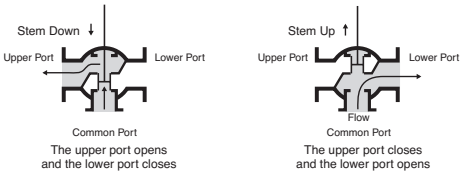
Reverse flow would be, "Flow-Over-The-Plug", regardless of port. With the ARIA actuator, stroke in the spring-fail direction is driven by the actuator fail-spring with the gear train. As such, in this flow condition, with the flow stream flowing over the plug, the plug would slam into the seat and result in excessive trim wear or damage. As such, the ARIA / Type 30 valve is not possible for diverting service.



Type 32 3-Way Diverting Valve

Designed as a diverting valve with one inlet and two outlets with ANSI Class II leakage rating. The difference between the upper port and lower port pressure must not exceed 50PSID. **See Table on page 21 for Fluid Temperature Limits.**

Sizes:	2-1/2, 3, 4, 5 inch
Body:	ANSI B16.1 Iron 125LB Flange or 250LB Flange
Trim:	Linear: Bronze or 300 Series Stainless Steel
Packing:	Long-Life Multi-Stack, EPDM Lip Packing, (EPDM lip packing is not suitable for use with oils, hydrocarbons, or acids.) Guided Low-Friction TFE V-Ring, Spring Loaded Packing
O-Ring:	EPR
Rangeability:	50:1



Note: Fluoraz o-ring in Type 2923 is not compatible with the following solvents: acetates, acetone, benzene, carbon tetrachloride, ethers, Freons, ketones, lacquers, methyl ethyl ketone, and toluene. Consult Factory with service conditions for alternate o-ring selection.

Body Pressure-Temperature Ratings (PSIG):		
Temp. (°F)	**125 FLG**	**250 FLG**
-20° To 150	175	400
175	170	385
200	165	370
225	157	355
250	150	340
275	145	325
300	140	310
350	125	280
375	-	265
400	-	250

Pressure ratings are PSIG

For applications below 32°F, consult factory

Body Pressure — Temperature Ratings conform to ANSI based on body/flange rating and body material. As the fluid temperature increases, the maximum allowable internal pressure decreases. Verify maximum pressures and temperatures prior to selecting body material and body/flange rating.

Trim Materials	Flowing Differential Pressure Limit
Bronze	50 PSID
300 Series Stainless Steel	100 PSID
17-4 pH Hardened Steel	200 PSID
Alloy 6	300 PSID

NOTE: Approaching limits for continuous use will reduce trim life. For continuous use, stay within half of rated maximum.

NOTE ON BEARINGS: PEEK Bearings should not be used for temperatures above 400°F or flowing differential pressure above 300 PSIG.

ALLOWABLE SEAT LEAKAGE CLASSES *(See poducts listed on page 5)*				
Leakage Class	**Maximum Seat Leakage**	**Test Fluid**	**Test Pressure**	**Relative Seat Tightness ****
ANSI Class II	0.05% of rated CV	Water	45 to 60 PSI	1
ANSI Class III	0.1% of rated CV	Water	45 to 60 PSI	5
ANSI Class IV	0.01% of rated CV	Water	45 to 60 PSI	50

** Relative to ANSI Class II Leakage Class Maximum Seat Leakage of 0.5% at rated Cv.

TRIM STYLE

EQUAL % VS. LINEAR

Trim style describes how the plug's shape (style) changes a valve's capacity as the plug moves (travels) inside it. With the Equal % Trim Style, the shape of the plug produces an equal percentage change in capacity for each equal incremental change in travel. As a typical case this results in 3% of capacity at 10% of travel, 4.4% of capacity at 20% of travel, 6.7% of capacity at 30% of travel, on up to 100% of capacity at 100% of travel. With the Linear Trim Style, the shape of the plug produces a linear incremental change in capacity for each incremental change in travel. This results in 10% of capacity at 10% of travel, 20% of capacity at 20% of travel, 30% of capacity at 30% of travel, on up to 100% of capacity at 100% of travel. Compared to the Linear Trim Style, the Equal % Trim Style produces smaller capacities for equal travels. This makes the Equal % Trim Style better suited for flows that are a small percentage of its total capacity, which may occur if the valve is not operating near full capacity, or when flows vary widely over time. The Linear Trim Style is better suited for flows that are a larger percentage of its total capacity which may occur if the valve is operating near full capacity and flows are more steady over time.

TRIM MATERIAL

316 STAINLESS STEEL

316 stainless steel is our most common and lowest cost trim material choice. 316 stainless steel trim is suitable for flowing differential pressures up to 100 psig, is capable of tight Class IV leakage ratings, is corrosion resistant to many fluids, but is less erosion resistant than Alloy 6 wrapped trims. It contains nickel and molybdenum, and a greater amount of chromium, making it more corrosion resistant than 400 series stainless steel

ALLOY 6 WRAPPED 316 STAINLESS STEEL

Alloy 6 wrapped 316 stainless steel is an extremely durable choice for trim material. Alloy 6 wrapped trim is suitable for flowing differential pressures up to 300 psig, is capable of tight Class IV leakage rating. While somewhat corrosion resistant, Alloy 6 wrapped trim is particularly well suited to wear longer in a cavitation prone environment. Alloy 6 wrapped 316 stainless steel is more corrosion resistant, but less erosion resistant, than Alloy 6 wrapped 400 stainless steel trim.

17-4 PH STAINLESS STEEL

17-4 PH stainless steel is our most durable stainless steel trim material choice. 17-4 PH stainless steel trim is suitable for flowing differential pressures up to 200 PSIG, is capable of tight Class IV leakage ratings, is corrosion resistant to many fluids, but is less erosion resistant than Alloy 6 wrapped trims. 17-4 PH stainless steel contains a greater amount of carbon, so it can be heat treated, making it harder and more erosion resistant than 316 stainless steel.

BRONZE

Bronze trim is reserved for low differential pressure water service or steam, 15 PSI or Less.

PACKING TYPE

TEFLON V-RING
Teflon v-ring packing is the most common choice for steam and most chemical applications. Teflon v-ring packing is good from 60°F to 400°F. TFE v-ring packing is not suitable for service below 60°F.

EPDM LIP
EPDM lip packing is commonly used for water packing. EPDM lip packing is good from -20°F to 400°F. EPDM lip packing is not suitable for fluids containing or contaminated with oil. For applications from 32°F to -20°F when condensation on the stem can turn to ice (consult factory) an optional stem heater is also recommended.

VACUUM SERVICE
Vacuum service packing is teflon v-ring packing that is designed for use when the pressure inside the valve is lower than the atmospheric pressure outside the valve. Like teflon v-ring packing, vacuum service packing is good from 60°F to 400°F. Vacuum service packing is not suitable for service below 60°F.

BONNET CONSTRUCTION

PEEK BEARINGS
Bonnet constructions using PEEK Bearings are our most common and lowest cost choices for water and chemical applications. PEEK bearings are good to 400°F. PEEK Bearings are used with EPDM lip, teflon v-ring, or vacuum service packing.

ARIA SERIES: small frame actuators

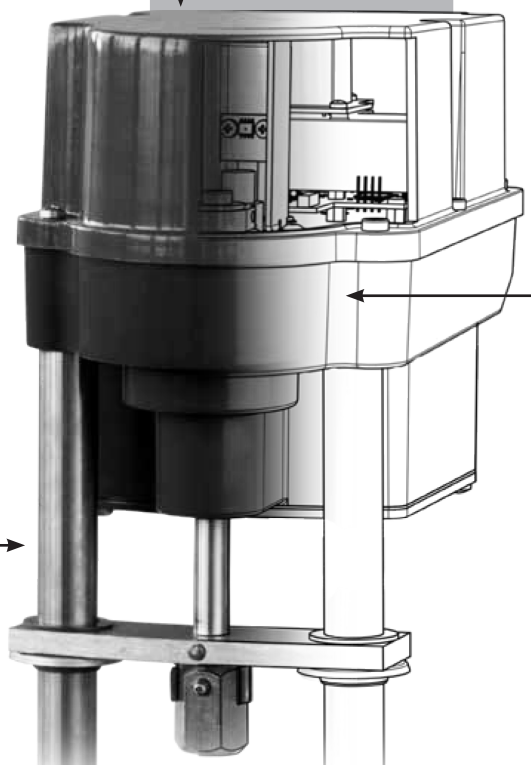
Fast-Acting, Modulating, Linear, Industrial Electric Valve Actuator

For smaller sized control valves, this compact design packs a nice set of features at an economical price point. The Brushless DC motor ensures long life.

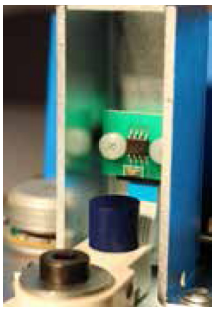
Robust industrial design with polycarbonate cover, enclosure IP67

Compact design with low installation height, durable aluminium gearbox

Integrated power spring for fail safe function in case of loss of power supply, either extending or retracting actuator stem



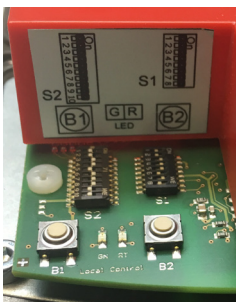
DESIGN FEATURES



Contactless, non-wearing travel detection with Hall sensor for exact positioning

Brushless DC motor (BLDC). Controller with integrated positioner function. Status display and automatic commissioning

Manual operation with push buttons or handwheel. Parameter setting via DIP switches



ADDITIONAL ARIA SPECIFICATIONS

Power Supply	24 VAC/DC, optionally wide range power supply (100-240 VAC)
Motor Protection	Electronic motor current monitoring with safety cut-off
Duty cycle as per IEC 60034-1,8	S2 30 min / S4 1200c/h - 50% ED
Isolation	Galvanically isolated inputs and outputs
Permitted ambient temperature	-4°F to 140°F (-20 to +60°C)
Signal to Stroke Resolution	~2000 Parts to full scale stroke
Accuracy	±0.1 mA or ±50 mV
Linearity	±1.0%
Repeatability	±0.2%
Internal fault monitoring	Thrust, set value, temperature, power supply
Binary control	24 - 230 VAC for ON/OFF service
Control Signal and Feedback	0-20 mA, 4-20 mA, 0-10 V, 2-10 V, selectable (or split - ranges)
Mounting position	Any position, except below horizontal
Conduit entries	Up to 3 each 1/2 NPT
Enclosure Rating	NEMA 4X/IP67
Cover material	Polycarbonate
Gear case material	High quality aluminium die casting, powder-coated (60 µm thickness)
Pillar material	Steel 1.4104

	UNITS	SPECIFICATIONS
Thrust / Force	(Lbf)	450
MAX Stroke	(Inches)	1.31
Pillar distance, C to C	(Inches)	4
Weight, approx. kg 5.6	(Lbs.)	12.3
Stroke Speed	(Secs /Inch)	12
Approximate Height	(Inches)	11
Approx. clearance above to remove cover	(Inches)	3.25
Manual Override		Electrically via 2 push buttons
What happens under the condition of:		
Overvoltage/Undervoltage on the power supply or loss of power		Actuator engages Spring Fail, to Open or Closed, depending on model
Loss of Analog Control Signal		Actuator engages Spring Fail, to Open or Closed, depending on model
Loss of Binary Input Control Signal		Actuator stops in position when event occurs
Loss of Binary Override		Actuator responds to Analog Control Signal

ENERGY CONSUMPTION

ELECTRIC PARAMETER	UNITS	POWER SUPPLY VOLTAGE			
		115 VAC	230 VAC	24 VAC	24 VDC
Nominal Current	(Amps)	0.2	0.4	2.0	1.2
Max Current	(Amps)	0.2	0.4	2.0	1.2
Power Consumption	(Watts)	28	28	28	27

FACTORY DEFAULT SOFTWARE SETTINGS & ALTERNATE SOFTWARE SETTINGS

Control Signal:
- 4-20 mA (2-10 Vdc, wiring dependent) <FACTORY DEFAULT>
- 0-20 mA (0-10 Vdc, wiring dependent)

Control Action:
- Decreasing Signal Closes valve (2-way) closes Lower Port (3-Way) <FACTORY DEFAULT>
- Increasing Signal Opens valve (2-way) opens Lower Port (3-Way)

Feedback Signal:
- 4-20 mA (2-10 Vdc, wiring dependent) <FACTORY DEFAULT>
- 0-20 mA (0-10 Vdc, wiring dependent)

Feedback Action:
- Closing Valve (2-way), Lower Port Closing (3-Way); Decreases Signal <FACTORY DEFAULT>
- Closing Valve (2-way), Lower Port Closing (3-Way); Increases Signal

Control Signal Ranges:
- 4-20 mA (2-10 VDC) <FACTORY DEFAULT>
- 0-20 mA (0-10 VDC)
- 12-20 mA (6-10 VDC) Split Range HIGH
- 10-20 mA (5-10 VDC) Split Range HIGH
- 4-12 mA (2-6 VDC) Split Range LOW
- 0-10 mA (0-5 VDC) Split Range LOW

} Split-Range capability for parallel high/low valve configurations

Flow Curve Correction:
- Travel is Linear w/Signal <FACTORY DEFAULT>
- Travel is Quick Opening w/Signal

BLANKETS & ACTUATOR ORIENTATION

Fluid Temperature Limit Thresholds

The engineering data within our product specification will share information about MAX fluid temperature limits as if it is an absolute for any configurable valve assembly. It is not. The MAX fluid temperatures listed, sometimes as high as 800°F depending on the valve, is only an absolute one for the valve body itself. It does not take into consideration the actuation or accessories. Actuators and accessories each have their own MAX ambient temperature limits that may be anywhere from 122°F to 250°F depending on the items for the electronics or soft goods these items contain. ***It is nearly impossible to correlate JUST fluid temperature to determine when any of these actuators or accessories will have their ambient exceeded.***

Predicting Safe Fluid Temperatures for Actuators & Accessories

THERE ARE SEVERAL FACTORS THAT DETERMINE FLUID TEMPERATURE LIMIT THRESHOLDS WHICH INCLUDE BUT ARE NOT LIMITED TO:

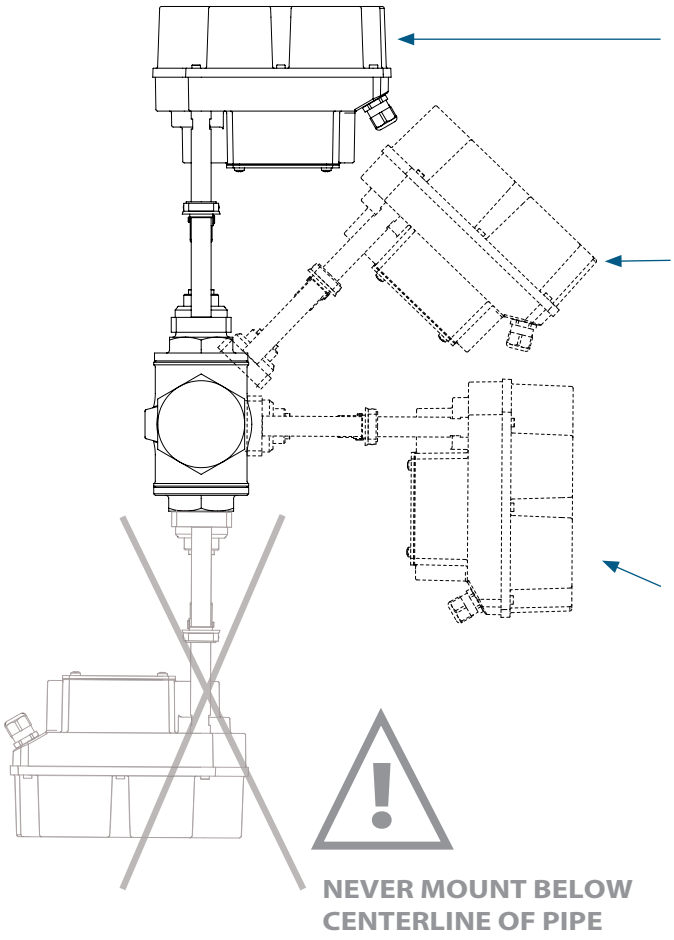
- valve size
- actuator orientation
- room ambient temperature
- distance from the valve body to the components of interest
- bonnet style/size
- conducted heat versus radiated heat
- ventilation

With all of these variables it is a challenge to come up with reliable guidelines.
However, we have attempted to do that in the table that follows on page 14. Realize these are only guidelines.

Actuator Mounting VS *Insulating Blankets*

When working with higher fluid temperatures, thermal insulating blankets can ***dramatically reduce surface temperatures on pipes, valves and other fixtures*** in a fluid control system such that the ambient room temperatures in these environments are dramatically reduced as well. This is often required for valve actuators and accessories to reliably survive when fluid temperatures rise well above the safe ambient temperatures of the devices. Radiant heat and convected heat are the major sources for damage to these actuators and accessories. When a valve actuator is mounted to the side of a valve there is still radiant heat, but convected heat is mostly eliminated. ***For globe control valves, having the actuator mounted vertically above the valve is best for optimum valve packing life but will then suffer the most with both radiant and convected heat to deal with.*** Alternatives to blankets and the mounting orientation listed include longer yoke actuators and extension bonnets on valves. These put distance between the heat sources and the components you are trying to protect from heat.

Actuator Mounting Orientations



VERTICAL ABOVE PIPING

This is the recommended position for mounting as it is the best position to ensure the service life of the equipment; however this is where it will encounter the most heat and sound vibrations.

45° FROM VERTICAL ABOVE PIPING ON EITHER SIDE

You may mount in this position to try to reduce the heat in high temperature applications; however this will reduce the life of the packing.

90° TO PIPING HORIZONTAL ON EITHER SIDE

This orientation provides the best temperature relief w/higher fluid temperatures but places the greatest strain on the valve packing, reducing packing life.

The table that follows on page 14 will identify temperature ranges, valve size ranges, actuator orientation and use of thermal blankets to determine what is required to get longevity out of your actuators.

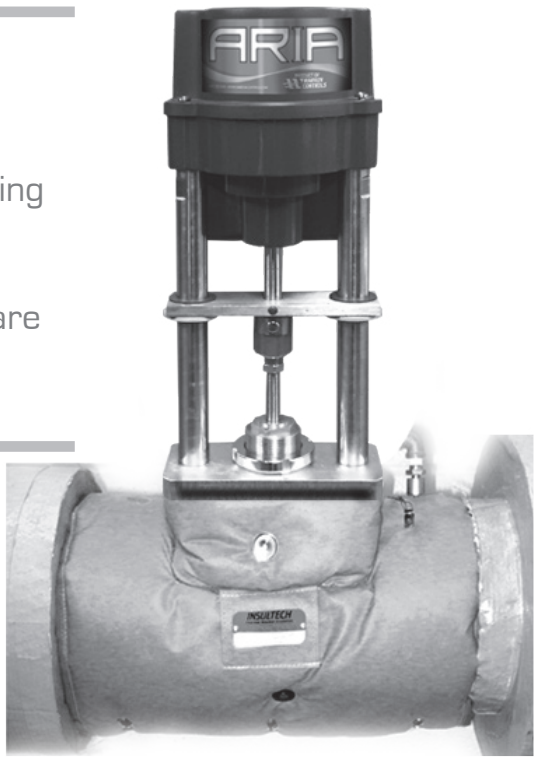
Choose the right blanket

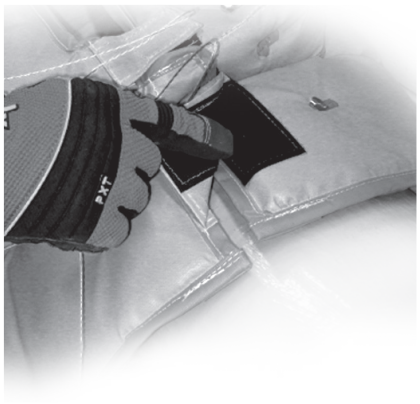
ACOUSTIGUARD™ VS THERMIGUARD™

At Warren Controls our AcoustiGuard™ & ThermiGuard™ blankets are nearly identical. In fact they have identical thermal properties. The AcoustiGuard™ has an additional layer of high density barium sulfate vinyl reflector for sound reflection. Each blanket is specifically designed in a one or two piece design that is made to be easily removable for valve servicing. When used in conjunction with high temperature fluids, significant energy savings, lower surface and ambient temperatures, and a ***safer environment for employees*** are just some of the benefits.

BLANKETS & ACTUATOR ORIENTATION

Whether you need to lower your mechanical room temperature, protect your actuator, avoid getting burned, reduce harmful noise or save energy, our blanket wraps are your solution!





AcoustiGuard™ & ThermiGuard™ are custom fit high quality insulation blanket systems pre-engineered to either reduce harmful noise or save energy by retaining radiant heat. Both are designed to improve the surrounding work environment. While AcoustiGuard™ is designed to act as a "sound attenuation" and thermal barrier, ThermiGuard™ is capable of withstanding weather conditions and chemical environments. Both are capable of withstanding maximum service temperatures of 450°F (AcoustiGuard™ & ThermiGuard™) or up to 800°F with the High Temperature option. Any piece will not exceed 40 pounds. AcoustiGuard™ comes with two fastening options: Lacing Pins & Metal "D" Ring Strap with Velcro Tab. In addition to these fastening options, ThermiGuard™ comes with two additional fastening options: Velcro Flaps & Side Release Buckles. The AcoustiGuard™ & ThermiGuard™ products are designed to be flexible and easier to install, easy to remove and reinstall, allowing quick access and easy equipment serviceability.

- ***EASY TO INSTALL & REINSTALL***
- ***CAN WITHSTAND UP TO 450°F OR 800°F***
- ***MULTIPLE FASTENING OPTIONS***

AcoustiGuard Insertion Loss Sound Pressure Levels

107 dBA Source	A-Weighted Measurements	Linear Weighted Measurements
Test Frequency (In Hz)	Noise Reduction (In dBA)	Insertion Loss (In dBA)
100	13	13
125	14	13
160	13	13
200	13	13
250	13	12
315	15	15
400	19	19
500	25	25
630	26	33
800	39	39
1000	38	39
1250	42	42
1600	43	43
2000	43	43
2500	44	44
3150	45	44
4000	44	45
5000	46	45

Fluid Temperature Limit Guidelines

ARIA SERIES • MODEL: ARC

Ensures reliable, long-term performance of electric actuator.

STANDARD BONNET

	Valves: 2 1/2" - 6"
ACTUATOR ORIENTATION	***FLUID TEMPERATURE LIMIT***
Above the Valve	300ºF
35º - 45º To the Side of the Valve	350ºF
With either above actuator orientation and Thermiguard*	400ºF

**Custom Fit Insulating Blankets, assumes pipes are insulated as well.*

These are simply rough guidelines and not absolute thresholds.

As a matter of reliability, for all steam applications ABOVE 52 PSI (300°F), Warren Controls will require the use of a Thermiguard Insulating Blanket when actuator orientation is directly above the valve. Alternatively, the customer can opt in writing that they will take the responsibility for insulating the valve, and/or alternate actuator orientations.

THE MAXIMUM PERMITTED RUNNING AMBIENT TEMPERATURE FOR THE ARIA ACTUATOR IS 140°F (60°C).

IF AN OVER-TEMPERATURE EVENT OCCURS, THE ACTUATOR WILL STILL FAIL TO ITS PRESCRIBED FAILURE MODE.

FLOW COEFFICIENTS (CV) VERSUS TRAVEL

2-WAY VALVES (Control Of Liquids, Gases, And Steam)

Type 20 FLOW COEFFICIENTS (CV) 2-Way Single Seat Unbalanced Valve

VALVE		%Travel									
Valve Size (IN)	Trim Style	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%
2-1/2	EQ%	65.0	55.6	43.8	29.8	15.4	8.07	5.67	4.11	2.81	1.49
	Linear	65.0	58.5	52.0	45.5	39.0	32.5	26.0	19.5	13.0	6.50
3	EQ%	90.0	83.6	75.1	63.8	49.2	31.6	12.9	4.75	3.37	1.99
	Linear	90.0	81.0	72.0	63.0	54.0	45.0	36.0	27.0	18.0	9.00
4	EQ%	170	159	143	122	95.1	62.9	31.3	15.6	9.89	4.11
	Linear	170	153	136	119	102	85	68.0	51.0	34.0	17.0

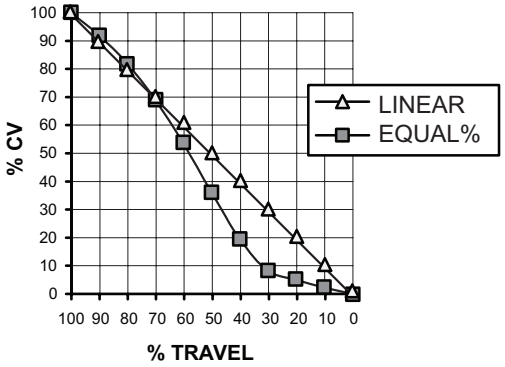
Type 22 FLOW COEFFICIENTS (CV) 2-Way Double Seat Balanced Valve

VALVE		%Travel									
Valve Size (IN)	Trim Style	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%
2-1/2	EQ%	70.0	59.5	45.9	30.2	15.7	8.60	6.36	4.12	3.44	2.75
3	EQ%	100	87.6	71.2	50.8	28.7	12.2	8.54	6.58	4.60	3.27
4	EQ%	200	180	155	126	91.0	53.3	17.8	8.36	6.07	4.54
5	EQ%	260	239	212	178	138	100	74.3	53.8	32.2	9.9
6	EQ%	350	323	286	238	178	113	63.2	44.8	27.5	9.9

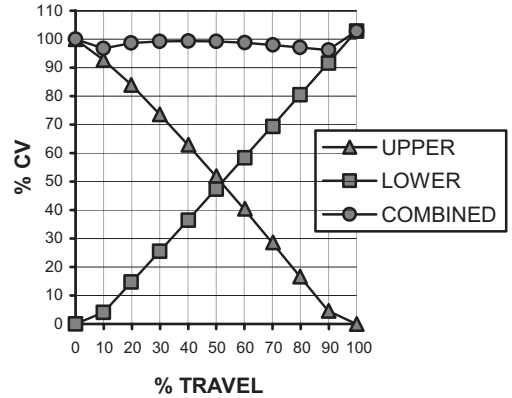
Type 23 FLOW COEFFICIENTS (CV) 2-Way Cylinder Balanced Valve

VALVE		%Travel									
Valve Size (IN)	Trim Style	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%
2-1/2	EQ%	65.0	55.6	43.8	29.8	15.4	8.07	5.67	4.11	2.81	1.49
	Linear	65.0	58.5	52.0	45.5	39.0	32.5	26.0	19.5	13.0	6.50
3	EQ%	90.0	83.6	75.1	63.8	49.2	31.6	12.9	4.75	3.37	1.99
	Linear	90.0	81.0	72.0	63.0	54.0	45.0	36.0	27.0	18.0	9.00
4	EQ%	170	159	143	122	95.1	62.9	31.3	15.6	9.89	4.11
	Linear	170	153	136	119	102	85	68.0	51.0	34.0	17.0
5	EQ	280	258	230	144	150	102	54.7	23.1	14.0	6.4
	Linear	280	252	224	196	168	146	112	84	56.0	28.0

2-WAY VALVE TYPICAL FLOW CURVES



TYPE 30 Mixing/Bypass
TYPICAL FLOW CURVE



3-WAY VALVES (Control of Liquids)

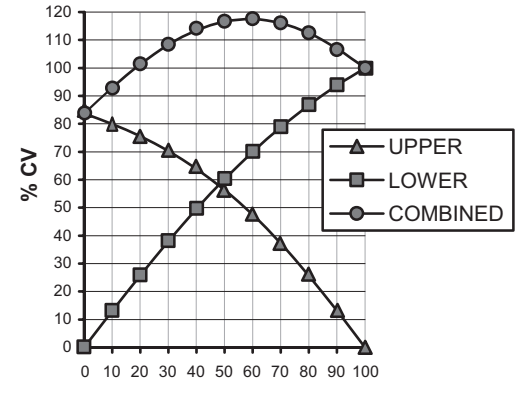
Type 30 FLOW COEFFICIENTS (CV) 3-Way Mixing/Bypass Valve

VALVE		Travel
Valve Size (IN)	Trim Style	100%
2-1/2	LINEAR	69
3	LINEAR	86

Type 32 FLOW COEFFICIENTS (CV) 3-Way Diverting

VALVE		Travel 100%	
Valve Size (IN)	Trim Style	Upper	Lower
2-1/2	LINEAR	68	75
3	LINEAR	85	95
4	LINEAR	160	180
5	LINEAR	195	220

TYPE 32 DIVERTING
TYPICAL FLOW CURVE



ARC

Close-Off ΔP Ratings

NOTES:

1) Type 20 leakage rating is ANSI Class IV.
   Type 22 leakage rating is ANSI Class III.
   Type 23 leakage rating is ANSI Class IV.

2) Inlet pressure **cannot** exceed Body Pressure-Temperature Rating.

Type 20			CLOSE-OFF (PSIG)
Valve Size (IN)	CV Rating	Plug Travel (IN)	Fail Open or Closed
2 1/2	65	3/4	51
3	90	3/4	31
4	170	1-1/4	15

Type 22			CLOSE-OFF (PSIG)
Valve Size (IN)	CV Rating	Plug Travel (IN)	Fail Open or Closed
2 1/2	70	3/4	400
3	100	3/4	400
4	200	3/4	400
5	260	1-1/4	354
6	350	1-1/4	278

Type 23			CLOSE-OFF (PSIG)
SIZES	CV Rating	Plug Travel (IN)	Fail Open or Closed
2 1/2″	65	3/4	378
3″	90	3/4	272
4″	170	1-1/8	127
5	280	1-1/8	41

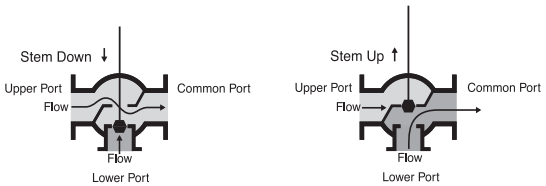
NOTES:

1) Type 30 leakage rating is ANSI Class IV. Type 30 Mixing Valves have two inlets and one outlet. Published shut-off values are with respect to worst-case conditions with zero downstream pressure on the outlet port and zero upstream pressure on the opposing inlet port.

2) Inlet pressure **cannot** exceed Body Pressure-Temperature Rating.

Type 30			LOWER PORT	UPPER PORT
			CLOSE-OFF (PSIG)	
Valve Size (IN)	CV Rating	Plug Travel (IN)	Fail Lower Port Open or Closed	
2 1/2	69	3/4	43	52
3	86	3/4	25	32

Type 30 Three-Way Mixing/Bypass Valve



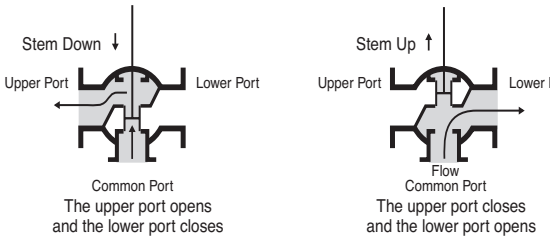
NOTES:

1) Type 32 leakage rating is ANSI Class II. Published shut-off values are for diverting applications. The values are worst case and based on the pressure difference between the inlet and the outlet that is closed. Consult the factory if the required shut-off exceeds the published value and the pressure at the inlet and both outlets is known. For proper operation in diverting applications, the pressure difference between both outlets must not exceed 50 psi.

2) Inlet pressure **cannot** exceed Body Pressure-Temperature Rating.

Type 32			LOWER PORT	UPPER PORT
			CLOSE-OFF (PSIG)	
Valve Size (IN)	CV Rating	Plug Travel (IN)	Fail Lower Port Open or Closed	
2 1/2	68/75	3/4	100	100
3	85/95	3/4	100	100
4	160/180	3/4	100	100
5	195/220	1 1/4	100	100

Type 32 Three-Way Diverting



PIPING NOTE*: The Type 32 is **NOT compatible with an elbow directly connected or in close proximity to the common port without the use of a flow straighter. Otherwise a minimum of 10 diameters of straight pipe are required for the common port connection.

SIZING REFERENCE

STEAM TABLE					
Steam Pressure	Temp. °F	Temp. °C	Sensible Heat BTU/Lb.	Latent Heat BTU/Lb.	Total Heat BTU/Lb.
0	212	100	180	971	1151
10	239	115	207	952	1159
25	266	130	236	934	1170
50	297	147	267	912	1179
75	320	160	290	896	1186
100	338	170	309	881	1190
125	353	178	325	868	1193
150	365	185	339	858	1197
200	387	197	362	838	1200
250	406	208	381	821	1202
300	422	217	399	805	1204
400	448	231	438	778	1216
500	470	243	453	752	1205
600	489	254	475	729	1204

Rectangular Tank Capacity in Gallons

$$\text{Gallons} = \frac{\text{Height x Width x Length (inches)}}{230}$$

or

Gallons = H x W x L (Ft.) x 7.5

Circular Tank Storage Capacity in Gallons

Storage = $6D^2$ x L (Gallons)

Where:
D = Tank Diameter in Feet
L = Length in Feet

LOAD SIZING CALCULATIONS

Glossary of Terms
t = Time in Hours
Cp = Specific Heat of Liquid
S = Specific Gravity of Fluid
W = Weight in Lbs.
ΔT = Temperature Rise or Fall in °F
h_{fg} = Latent Heat of Steam

Conversion Factors

1 Lb. Steam / Hr. =	1000 BTU / Hr.
1 Cubic Meter =	264 U.S. Gallons
1 Cubic Foot Water =	62.4 Lbs.
1 PSI =	2.04 Inches of Mercury
1 PSI =	2.3 Feet of Water
1 PSI =	27.7 Inches of Water
1 U.S. Gallon Water =	231 Cubic Inches
1 U.S. Gallon Water =	8.33 Lbs.

Heating Water with Steam

Quick Method

$$\text{Lbs./Hr.} = \frac{\text{GPM}}{2} \times \Delta T$$

Accurate Method

$$\text{Lbs./Hr.} = \frac{\text{GPM} \times 500 \times \Delta T}{h_{fg}}$$

Heating or Cooling Water with Water

$$\text{GPM}_1 = \text{GPM}_2 \times \frac{\text{°F water}_2 \text{ temp. rise or drop}}{\text{°F water}_1 \text{ temp. rise or drop}}$$

Heating or Cooling Water

$$\text{GPM} = \frac{\text{BTU / Hr.}}{(\text{°F water temp. rise or drop}) \times 500}$$

Heating Oil with Steam

$$\text{Lbs./Hr.} = \frac{\text{GPM}}{4} \times (\text{°F oil temp. rise})$$

Heating Air with Water

$$\text{GPM} = 2.16 \times \frac{\text{CFM x (°F air temp. rise)}}{1000 \text{ x (°F water temp. drop)}}$$

Heating Liquids with Steam

$$\text{Lbs./Hr.} = \frac{\text{GPM} \times 60 \times \text{Cp} \times \text{W}}{h_{fg}} \times \Delta T$$

Heating Liquids in Steam Jacketed Kettles

$$\text{Lbs./Hr.} = \frac{\text{Gallons} \times \text{Cp} \times \text{S} \times 8.33}{h_{fg} \times t} \times \Delta T$$

General Liquid Heating

$$\text{Lbs./Hr.} = \frac{\text{W} \times \text{Cp}}{h_{fg} \times t} \times \Delta T$$

Heating Air with Steam

$$\text{Lbs./Hr.} = \frac{\text{CFM}}{900} \times \Delta T$$

WARREN CONTROLS
2600 EMRICK BLVD • BETHLEHEM, PA 18020 • USA •800-922-0085 • WWW.WARRENCONTROLS.COM
DEPENDABLE, RUGGED, PRECISION CONTROL VALVES AND ACCESSORIES

VALVE SIZING DATA SHEET

DATE:

Customer Information

Highlight Preferred Contact Method

Company		Phone	
Contact		Fax	
Address		Email	
City, State, Zip		Project	

Application Data (**Indicates "Required" Information) (*Indicates Valuable Information)

System Information			
Valve Tag (Name)			
System	*		
Fluid	* *		
Specific Gravity			
Pipe Size	* *		
Pipe Material	*		
Process Information			
	Maximum	Normal	Minimum
Flow Rate (GPM)/(Lbs./Hr.)	* *		*
…or, Required Cv	* *		*
P_1 = Inlet Pressure (PSIG)	* *		*
DP = Pressure Drop (PSIG)	* *		*
…or, P_2 = Outlet Pressure (PSIG)	* *		*
Temperature (Degrees F)	* *		*

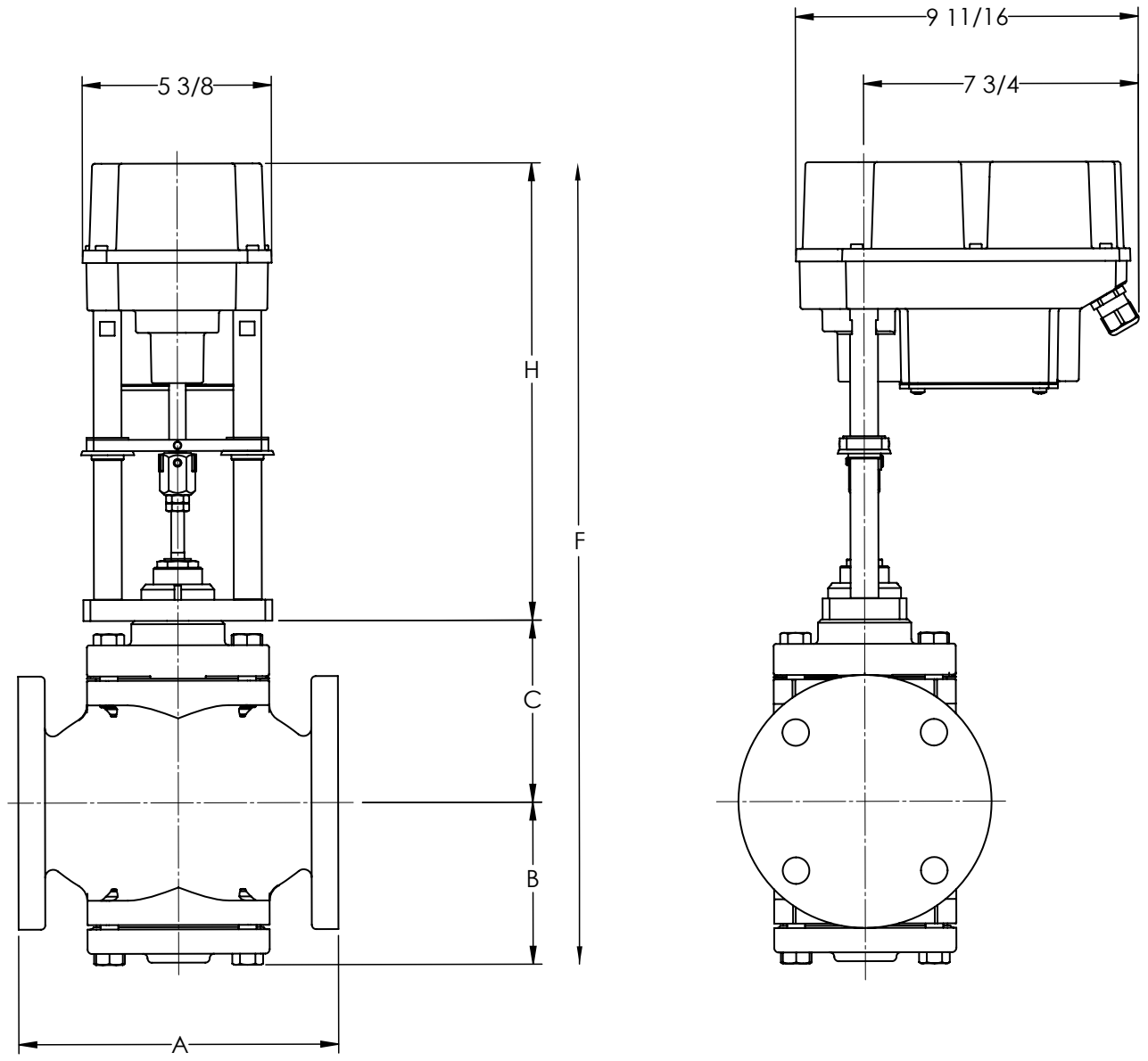
Valve Information			
Type (Globe, Rotary, Any 2-way, 3-way Mix, 3-way Divert)		Operation (on-off, mix, divert, modulating)	
Size		End Connections	
Pressure Class		Trim Cv (FP, 1R, 2R, etc.)	
Body Material		Flow Direction (FTO,FTC)	
Trim Materials		Shaft Design	
Packing & Seals		Shut-Off Requirement	

Actuator & Control Information	
	Pneumatic / Electric / Model / Ratings
Type	
Supply Available / Air - (PSIG) Power – (VAC/Hz)	
Positioner Type / Increasing Signal (opens/closes)	
Control Signal (3-15psi, 4-20mA, etc.)	
Solenoid and/or Limit Switches	
Air Filter/Regulator (If Applicable / Range)	
Manual Override w/ Handwheel	
Failure Mode (open / close / As Is) Spring / Electric / None	
Tubing Material (copper, SS)	
Special Set ups or Misc. Accessories	

Notes • Specifications • Further Information

Ted Fischl / J.P. Melencio / Keith Kelchner • 2600 Emrick Blvd. • Bethlehem, PA 18020
Phone: (800) 922-0085 • Fax: (610) 317-2989 •
E-mails: tfischl@warrencontrols.com jpmelencio@warrencontrols.com kkelchner@warrencontrols.com

MEASUREMENT IN INCHES



2-WAY or 3-WAY

Actuator Removal Clearance (IN)					
Valve Type	VALVE SIZE (IN)				
	2-1/2	3	4	5	6
20	6-1/8	6-1/8	6-5/8	--	--
22	6-1/8	6-1/8	6-1/8	6-5/8	6-5/8
23	6-1/8	6-1/8	6-1/2	6-1/2	--
30	6-1/8	6-1/8	--	--	--
32	6-1/8	6-1/8	6-1/8	6-5/8	--

Allow 3-1/4 inch above actuator for cover removal

MODEL: ARC
Type 20, 22, 23

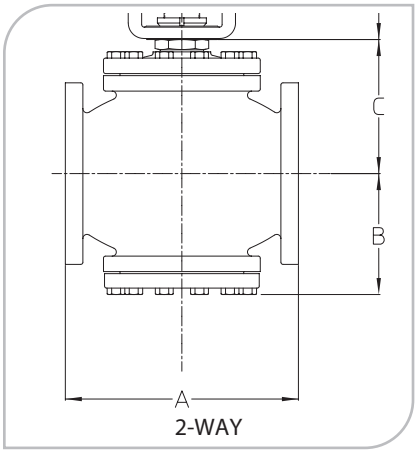
DIMENSION (IN) Type 20		VALVE SIZE (IN)		
Variable		**2-1/2**	**3**	**4**
A	125FLG	9	10	13
	250FLG	9-5/8	10-3/4	13-5/8
B		4-3/4	5-3/8	6-3/8
C		5-1/2	6-1/8	7-1/8
H		13		
F		23	24-1/2	26-1/2
Weight (LB) Body Only	125FLG	55	72	119
	250FLG	64	77	131
Weight (LB) Actuator Only		12.5		

DIMENSION (IN) Type 23		VALVE SIZE (IN)			
Variable		**2-1/2**	**3**	**4**	**5**
A	125FLG	9	10	13	15-3/4
	250FLG	9-5/8	10-3/4	13-5/8	16-5/8
B		4-3/4	5-3/8	6-3/8	5-3/4
C		6	6-5/8	7-3/4	8-1/4
H		13			
F		23-1/2	25	27-1/8	27-5/8
Weight (LB) Body Only	125FLG	57	75	127	149
	250FLG	66	80	139	181
Weight (LB) Actuator Only		12.5			

DIMENSION (IN) Type 22		VALVE SIZE (IN)				
Variable		**2-1/2**	**3**	**4**	**5**	**6**
A	125FLG	7-3/4	9	11-3/8	12	14-1/8
	250FLG	8-3/8	9-3/4	12	12-7/8	14-1/2
B		4-1/8	4-3/8	5	6-7/8	7-5/8
C		4-7/8	5-3/8	6-5/8	7-5/8	8-1/2
H		13				
F		22	22-1/2	24-5/8	27-1/2	29-1/8
Weight (LB) Body Only	125FLG	32	42	77	124	169
	250FLG	42	54	96	162	220
Weight (LB) Actuator Only		12.5				

Face to face dimensions conform to historical Warren Controls standards and are NOT ANSI/ISA compatible.

Consult factory for drawings, weights, and dimensions of configurations not shown.

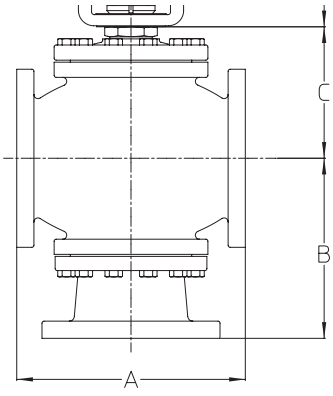


2-WAY

DIMENSION (IN) Type 30		VALVE SIZE (IN)	
Variable		**2-1/2**	**3**
A	125FLG	9	10
	250FLG	9-5/8	10-3/4
B	125FLG	7-1/16	7-15/16
	250FLG	7-3/8	8-5/16
C		5-1/2	6-1/8
H		13	
F	125FLG	25-5/16	27-1/16
	250FLG	25-5/8	27-7/16
Weight (LB) Body Only	125FLG	64	83
	250FLG	73	94
Weight (LB) Actuator Only		12.5	

Consult factory for drawings, weights, and dimensions of configurations not shown.

MODEL: ARC
Type 30, 32



3-WAY

DIMENSION (IN) Type 32		VALVE SIZE (IN)			
Variable		**2-1/2**	**3**	**4**	**5**
A	125FLG	9	10	13	12
	250FLG	9-5/8	10-3/4	13-5/8	12-7/8
B	125FLG	7-1/16	7-15/16	9-7/8	10-1/2
	250FLG	7-3/8	8-5/16	10-3/16	10-15/16
C		5-1/2	6-1/8	6-7/8	7-1/2
H		13			
F	125FLG	25-5/16	27-1/16	29-3/4	31
	250FLG	25-5/8	27-7/16	30-1/16	31-7/16
Weight (LB) Body Only	125FLG	59	78	140	154
	250FLG	73	94	166	215
Weight (LB) Actuator Only		12.5			

Actual shipping weights may vary.

Face to face dimensions conform to historical Warren Controls standards and are NOT ANSI/ISA compatible.

CONFIGURATIONS

VBA Series

ARC – ☐☐ ☐☐☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

VALVE BODY

Model	Valve Type	Size	Body Material	End Connection	Trim Style	Trim Material	Trim Cv	Packing Type
	20 2-Way Single Seat	**250** 2-1/2 inch	**R** Cast Iron	**F** 125 lb. Flanged	**E** Equal % Types 20/22/23	**B** Bronze	**F** Full Port	**T** Teflon
	22 2-Way Double Seat	**300** 3 inch		**G** 250 lb. Flanged	**L** Linear Types 20 Stainless Steel 2.5″-4″ only. 23 Stainless Steel Only 30/32 All	**S** 300 SS		**L** EPDM Lip
	23 2-Way Cylinder Bal.	**400** 4 inch				**H** 17-4 PH **		**V** Vacuum Service
	30 3-Way Mixing	**500** 5 inch				**6** Alloy 6 Wrapped***		
	32 3-Way Diverting	**600** 6 inch				***Only available in Type 20 & 23*		
						****Only available in Type 20*		

Type	Size Available
TYPE 20	2-1/2 inch 3 inch 4 inch
TYPE 22	2-1/2 inch 3 inch 4 inch 5 inch 6 inch
TYPE 23	2-1/2 inch 3 inch 4 inch 5 inch
TYPE 30	2-1/2 inch 3 inch
TYPE 32	2-1/2 inch 3 inch 4 inch 5 inch

VALVE TYPE/TRIM MATERIAL COMBINATIONS:

SIZE	TRIM MATERIAL			
	B Bronze	**S** 300SS	**H** 17-4 PH	**6** Alloy 6 Wrapped
2-1/2 in.	20,22,23*,30,32	20,22,23,30,32	20,23	23
3 inch	20,22,23*,30,32	20,22,23,30,32	20,23	23
4 inch	20,22,23*,32	20,22,23,32	20,23	23
5 inch	22,23*,32	22,23,32	23	23
6 inch	22	22		

*Type 23 is not available in Linear Bronze Trim.

TEMPERATURE LIMITS

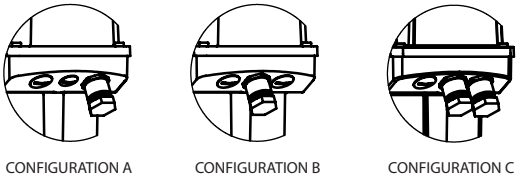
Valve Type	Body Material & Code	End Conn. & Code	Trim Material & Code	Packing Type & Code	T MAX	T MIN
20 2-Way Single Seat	Cast Iron **R**	125 lb **F**	Bronze **B**, 300 SS **S**, 17-4 PH **H**	Teflon **T**, Vacuum Service **V**	350°F	60°F
				EPDM **L**	350°F	-20°F
	Cast Iron **R**	250 lb **G**	Bronze **B**, 300 SS **S**, 17-4 PH **H**	EPDM **L**	400°F	-20°F
				Teflon **T**, Vacuum Service **V**	400°F	60°F
22 2-Way Double Seat	Cast Iron **R**	125 lb **F**	Bronze **B**, 300 SS **S**	Teflon **T**, Vacuum Service **V**	350°F	60°F
				EPDM **L**	350°F	-20°F
		250 lb **G**	Bronze **B**, 300 SS **S**	EPDM **L**	400°F	-20°F
				Teflon **T**, Vacuum Service **V**	400°F	60°F
23 2-Way Cylinder Balanced	Cast Iron **R**	125 lb **F**	Bronze **B**	Teflon **T**, Vacuum Service **V**	300°F	60°F
				EPDM **L**	300°F	-20°F
			300 SS **S**, 17-4 PH **H**, Alloy 6 Wrapped **6**	Teflon **T**, Vacuum Service **V**	350°F	60°F
				EPDM **L**	350°F	23°F
		250 lb **G**	Bronze **B**	Teflon **T**, Vacuum Service **V**	300°F	60°F
				EPDM **L**	300°F	-20°F
			300 SS **S**, 17-4 PH **H**, Alloy 6 Wrapped **6**	EPDM **L**	400°F	23°F
				Teflon **T**, Vacuum Service **V**	400°F	60°F
30 3-Way Mixing	Cast Iron **R**	125 lb **F**	Bronze **B**, 300 SS **S**	Teflon **T**, Vacuum Service **V**	350°F	60°F
				EPDM **L**	350°F	-20°F
		250 lb **G**	Bronze **B**, 300 SS **S**	EPDM **L**	400°F	-20°F
				Teflon **T**, Vacuum Service **V**	400°F	60°F
32 3-Way Diverting	Cast Iron **R**	125 lb **F**, 250 lb **G**	Bronze **B**, 300 SS **S**	Teflon **T**, Vacuum Service **V**	300°F	60°F
				EPDM **L**	300°F	-20°F

NOTE: -20°F T MIN temperature limit is for indoor applications with low humidity where ice will not form on the valve stem.

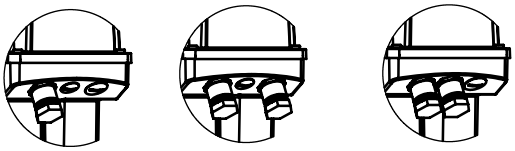
ARIA ACTUATOR ATRIBUTES

Failure Mode	Voltage Supply	Electrical Connectors	Heater	Limit Switches	Actuator Orientation
D Spring Fail Down	**1** 115/230 Vac	**A** (Left) Capped (Middle) Capped (Right) 1/2 NPT	**0** None (Default)	**0** None (Default)	**0** None (Default)
U Spring Fail Up	**4** 24 Vac/ Vdc	**B** (Left) Capped (Middle) 1/2 NPT (Right) Capped	**H** Heater	**S** Silver Contact Limit Switches	**D** Pointing Down Stream
		C (Left) Capped (Middle) 1/2 NPT (Right) 1/2 NPT			**U** Pointing Up Stream
		D (Left) 1/2 NPT (Middle) Capped (Right) Capped			**T** Pointing Towards
		E (Left) 1/2 NPT (Middle) Capped (Right) 1-2 NPT			
		F (Left) 1/2 NPT (Middle) 1/2 NPT (Right) Capped			
		G (Left) 1/2 NPT (Middle) 1/2 NPT (Right) 1/2 NPT			

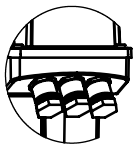
Electrical Connectors Orientation



CONFIGURATION A | CONFIGURATION B | CONFIGURATION C



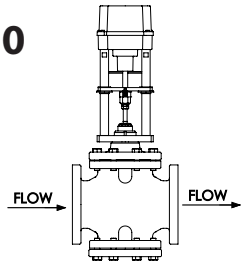
CONFIGURATION D | CONFIGURATION E | CONFIGURATION F



CONFIGURATION G

Actuator Orientations

0



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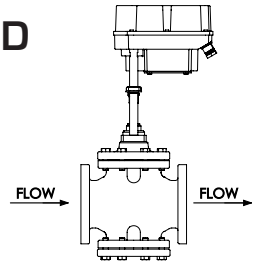

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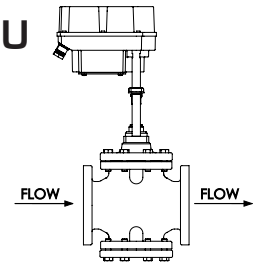

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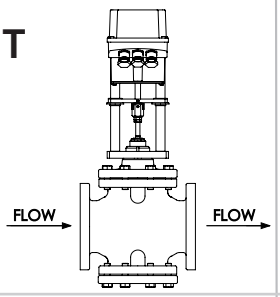
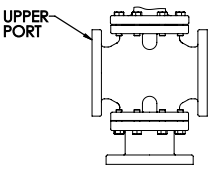


3-WAY VALVE ORIENTATION



CRN REGISTERED (Canadian Registration Number)

Valve	FLG	Size (inch)				
		2-1/2	3	4	5	6
2920	125	Y	Y	Y		
	250	Y	Y	Y		
2922	125	Y	Y	Y	Y	Y
	250	N	N	N	N	N
2923	125	Y	Y	Y	Y	
	250	Y	Y	Y	Y	
2930	125	Y	Y			
	250	Y	Y			
2932	125	Y	Y	Y	Y	
	250	N	N	N	N	

Y = Yes, currently registered - CRN # CSA - OC20496
N = No, not currently registered

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ARC PRODUCT SPEC

ARC is the breed defined that excels in higher capacity flows with a wide range of 2-way and 3-way applications. This cast iron flanged body is available in sizes from 2-1/2" to 4", depending on profile. Various balanced trim designs help achieve incredible close-off performance for such a compact actuator.

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