

Fisher® Rotary Valve Selection Guide



W6539

V260 VALVE



W9415

Vee-Ball™ VALVE



W9418-2

Control-Disk™ VALVE

TYPICAL Fisher ROTARY VALVES

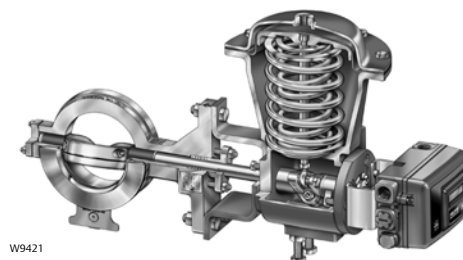
Control-Disk Valve	Expanded control range, lower process variability	Fisher Control-Disk Valve
Vee-Ball Valves	High-capacity, low-friction, non-clogging	Fisher V150, V200, V300, and V150S
High-Performance Butterfly Valves	Outstanding performance under extreme pressure and temperature conditions, available for a variety of throttling or on/off applications	Fisher 8532, 8580, 8590, 9500, A11, A31A, A31C, and A31D
Pipeline Valves	Full- or reduced-bore ball valves for throttling and severe service applications in gas transmission lines, gas distribution, or liquid pipelines	Fisher V250 and V260
Eccentric Plug Valves	Designed for throttling control for a broad range of industrial applications	Fisher V500 and CV500

- ENVIRO-SEAL™ live-loaded packing systems are available to assist in compliance with environmental emissions requirements
- FIELDVUE™ digital valve controllers offer digital control and remote diagnostics. The traditional proven line of Fisher positioners, controllers, transmitters, and switches also is available.
- Spring-return pneumatic diaphragm and double-acting piston actuators
- Contact your Emerson Process Management sales office for details



Fisher Control-Disk Valve

Figure 1. Fisher Control-Disk Valve

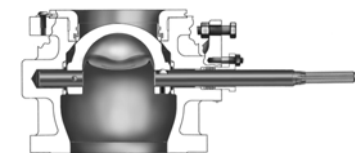


Control-Disk VALVE

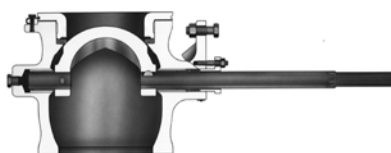
Control-Disk Valve
Applications
Expanded control, lower process variability applications
Style
Wafer and lugged
Sizes
NPS 2, 3, 4, 6, 8, 10, 12, 14, 16, 18, 20, 24, 30, 36
Ratings
PN 10 to 40 CL150, CL300, and CL600
End Connections
Raised-face (RF)
Valve Body Materials
EN: 1.0619 steel, 1.4409 stainless steel, CW2M, or M35-1 ASME: SA216 WCC steel, SA351 CF3M or CF8M stainless steel, CW2M, or M35-1
Disk Material
SA351 CF3M or CF8M stainless steel
Seal Types (Material)
Soft (PTFE, RPTFE, ETFE, or UHMWPE) or metal (S31600)
Flow Characteristics and Maximum Flow Coefficients
Equal percentage Maximum Cv from 60.7 to 59500
Rangeability (Flow Coefficient Ratio)
100 to 1
Shutoff Class
Soft Seal: Class VI Metal Seal: Class IV
Available Actuators (refer to page 10)
Fisher 2052, 1052, and 1061

Fisher Vee-Ball Valves

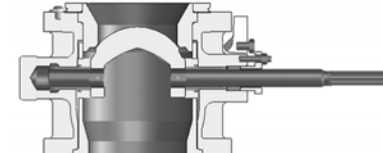
Figure 2. Fisher Vee-Ball Valves



V150 and V300 VALVES



V200 VALVE



V150S VALVE

V150 AND V300	V200	V150S
Applications		
Excellent for fibrous slurries as well as liquids, gas, and steam. Shearing V-notch ball for smooth, non-clogging action.	Excellent for fibrous slurries as well as liquids, gas, and steam. Shearing V-notch ball for smooth, non-clogging action.	Highly wear-resistant trim materials and an unrestricted flow path make this design ideal for controlling the most abrasive of slurries.
Sizes		
V150: DN 25 - 300 or NPS 1 - 24 x 20 V300: DN 25 - 300 or NPS 1 - 20	NPS 1, 1-1/2, 2, 3, 4, 6, 8, 10	NPS 3, 4, 6, 8, 10, 12
Ratings		
V150: PN 10/16 or CL150 V300: PN 25/40 or CL300	CL150, CL300, or CL600, depending on size.	CL150
End Connections		
Raised-face (RF) flanged	Flangeless or flanged, depending on size.	Raised-face (RF) flanged
Valve Body Materials		
EN: 1.0619 steel, 1.4409 stainless steel, M35-2, or CW2M ASME: SA216 WCC steel, SA351 CF3M, CG8M stainless steel, M35-2, or CW2M	EN: 1.0619 steel, 1.4409 stainless steel, M35-2, or CW2M ASME: SA216 WCC steel, SA351 CF3M, CG8M stainless steel, M35-2, or CW2M	SA216 WCC steel body liner: (high-chrome iron SA532 Class III Type A)
Ball Material		
SA351 CF3M, or CG8M stainless steel, CW2M	SA351 CF3M or CG8M stainless steel, CW2M	High-chrome iron SA532 Class III Type A (PSZ ceramic ball is optional)
Seal Types (Material)		
TCM Plus, metal (S31600), HD (heavy duty), or flow ring	TCM Plus, metal (S31600), HD (heavy duty), or flow ring	Flow ring construction
Flow Characteristics and Maximum Flow Coefficients		
Modified equal percentage Maximum Cv from 3.64 to 10,300	Modified equal percentage Maximum Cv from 8.4 to 3000	Modified equal percentage Maximum Cv from 170 to 2850
Rangeability		
300 to 1	300 to 1	
Shutoff Class		
Composition Seal: Class VI Metal Seal: Class IV Flow Ring Construction: 5% of wide-open capacity	Composition Seal: Class VI Metal Seal: Class IV Flow Ring Construction: 5% of wide-open capacity	Class I
Available Actuators (refer to page 10)		
Fisher 2052, 1052, 1061, and FieldQ™		

Fisher High-Performance Butterfly Valves

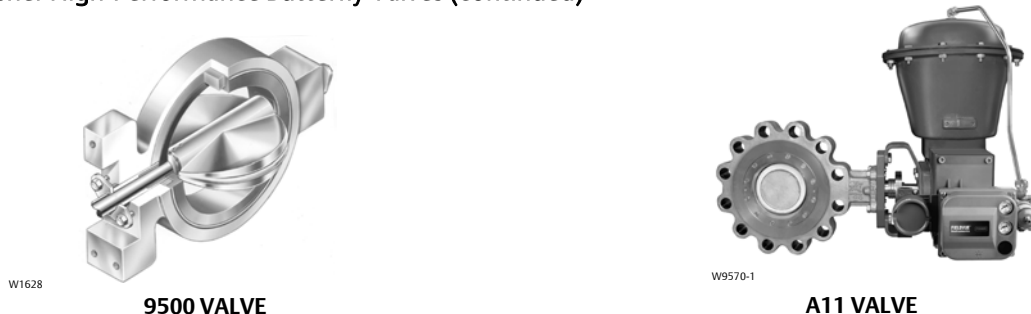
Figure 3. Fisher High-Performance Butterfly Valves



8580	8532	8590
Applications		
Precise throttling and automated on-off service for process temperatures from -46 to 454°C	Throttling service, high-temperature, and cryogenic applications; -196 to 816°C	Throttling or automated on-off service in a variety of process applications
Style		
Lugged (NPS 2 Wafer)	Wafer and lugged	Lugged
Sizes		
NPS 2, 3, 4, 6, 8, 10, 12	NPS 14, 16, 18, 20, 24	NPS 3, 4, 6, 8, 10, 12, 14, 16, 18, 20, 24
Ratings		
PN 10 to 40 CL150 and CL300 NPS 2 (CL150/300/600)	CL150 and CL300	CL600
End Connections		
Raised-face (RF)	Raised-face (RF) and ring-type joint (RTJ)	Raised-face (RF) and ring-type joint (RTJ)
Valve Body Materials		
EN: 1.0619 steel, 1.4409 stainless steel ASME: SA216 WCC steel, SA351 CF3M stainless steel High-alloy materials are available	SA216 WCC steel or SA351 CF8M stainless steel High-alloy materials are available	SA216 WCC steel or SA351 CF8M high-alloy materials are available
Disk Material		
SA351 CF3M stainless steel	SA351 CF8M stainless steel	SA351 CF8M stainless steel with chrome plated disk edge
Seal Types (Materials)		
Soft (PTFE, RPTFE, or UHMWPE) or metal (S31600)	Soft (PTFE), NOVEX, and Phoenix III	Soft (ETFE), Metal (S21800, S20910), HPS (S21800, S20910), Phoenix III (S31600/ETFE)
Flow Characteristics and Maximum Flow Coefficients		
Approximately linear Maximum C_v from 83.7 to 5080	Modified equal percentage Maximum C_v from 4550 to 21500	Approximately linear Maximum C_v from 167 to 13565
Rangeability		
100 to 1	100 to 1	100 to 1
Shutoff Class		
Soft Seal: Class VI Metal Seal: Class IV	Soft Seal: Class VI NOVEX Seal: Class IV Phoenix III Seal: Class VI	Soft Seal: Class VI Metal Seal: Class IV HPS: Class VI Phoenix III Seal: Class VI
Available Actuators (refer to page 10)		
Fisher 2052, FieldQ, 1052, and 1061	Fisher 1052 and 1061	Fisher 2052, 1052, 1061, FieldQ, and Bettis

Fisher High-Performance Butterfly Valves (continued)

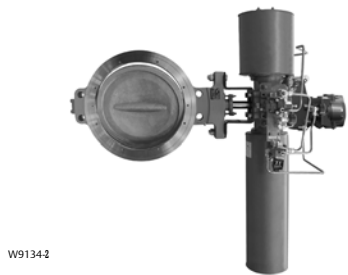
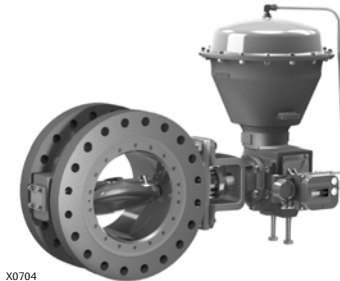
Figure 4. Fisher High-Performance Butterfly Valves (continued)



9500	A11
Applications	
Fully lined butterfly valve for on/off or throttling service for tight-shutoff applications	Throttling and automated on/off service, high-pressure, high-temperature, and cryogenic applications; -254 to 816°C
Style	
Wafer	Wafer and lugged
Ratings and Sizes	
PN10, PN13, CL125B, CL150, or CL300 depending on size and material NPS 2, 3, 4, 6, 8, 10, 12	CL150/150 and CL150: NPS 30, 36, 42, 48, 54, 60, 66, 72 CL300: NPS 30, 36, 42, 48 CL600: NPS 30, 36, 42, 48 (CL300 trim available for NPS 3 through 48) CL900: NPS 6, 8, 10, 12, 14, 16, 18, 20, 24, 30, 36 (CL300 and CL600 trim available for NPS 3 through 48) CL1500: NPS 10, 12, 14, 16, 18, 20 (CL300 and CL600 trim available for NPS 3 through 48, CL900 trim available for NPS 6 through 36) CL2500: Consult your Emerson Process Management sales office
End Connections	
Cast Iron Bodies: Mate with PN 10 (NPS 2, 3, 6, 8, 10) or CL125B FF flanges Steel and Stainless Steel Bodies: Mate with PN16, CL150, CL300 RF flanges	Raised-face (RF), ring-type joint (RTJ), and buttwelding ends (BWE) NPS 3 through 24 comply with ASME B16.5 NPS 30 through NPS 60 comply with MSS-SP-44
Valve Body Materials	
Cast iron, carbon steel, S31600 stainless steel	SA216 WCC steel or SA351 CF8M stainless steel Other carbon steel, stainless steel, and high-alloy materials are available
Disk Material	
Aluminum bronze, S31600 stainless steel	CL150/150, CL150, and CL300: SA351 CF8M stainless steel or SA216 WCC steel CL600: SA351 CF8M stainless steel CL900 and CL1500: CB7Cu-1
Seal Types (Material)	
Fully lined nitrile or PTFE	CL150 and CL300: Soft (PTFE), NOVEX (S31600), Phoenix III (S31600/PTFE), and cryogenic (CTFE) CL600, CL900, and CL1500: Soft (ETFE), Metal (S20910), high-pressure (S20910), Phoenix III (S31600/ETFE), and cryogenic (CTFE)
Flow Characteristics and Maximum Flow Coefficients	
Approximately equal percentage through 90° rotation for FISHTAIL™ disk and through 60° rotation for conventional disk Maximum Cv from 91 to 7020	Modified Equal Percentage Maximum Cv from 182 to 106000
Rangeability	
100 to 1	100 to 1
Shutoff Class	
Class VI	Soft Seal: Class VI, NOVEX Seal: Class VI, Metal Seal: Class IV, High-Pressure Seal: Class VI, Phoenix III Seal: Class VI, Cryogenic Seal: Class IV
Available Actuators (refer to page 10)	
Fisher 2052, 1052, and 1061	Fisher 2052, 1052, 1061, FieldQ, and Bettis™

Fisher High-Performance Butterfly Valves (continued)

Figure 5. Fisher High-Performance Butterfly Valves (continued)

**A31A VALVE****A31D VALVE**

A31A	A31D
Applications	
On/off service, high-temperature and cryogenic applications; -196 to 816°C	On/off and throttling service, high-temperature and cryogenic applications; -196 to 816°C
Style	
Wafer and lugged	Double flange
Sizes	
NPS 14, 16, 18, 20, 24	NPS 3, 4, 6, 8, 10, 12, 14, 16, 18, 20, 24
Ratings	
CL150 and CL300	CL150 and CL300
End Connections	
Raised-face (RF) and ring-type joint (RTJ)	Raised-face (RF) and ring-type joint (RTJ)
Valve Body Materials	
SA216 WCC steel or SA351 CF8M stainless steel High-alloy materials are available	SA216 WCC steel or SA351 CF8M stainless steel High-alloy materials are available
Disk Material	
SA351 CF8M stainless steel	SA351 CF8M stainless steel
Seal Types (Material)	
Soft (PTFE), NOVEX, or Phoenix III	Soft (PTFE), NOVEX, or Phoenix III
Flow Characteristics and Maximum Flow Coefficients	
Modified Equal Percentage Maximum Cv from 4550 to 21500	Modified Equal Percentage Maximum Cv from 188 to 21500
Rangeability	
100 to 1	100 to 1
Shutoff Class	
Soft Seal: Class VI NOVEX Seal: Class IV Phoenix III Seal: Class VI	Soft Seal: Class VI NOVEX Seal: Class IV Phoenix III Seal: Class VI
Available Actuators (refer to page 10)	
Bettis	Fisher 2052, 1052, 1061, and Bettis

Cryogenic Butterfly Valves

Figure 6. Fisher Cryogenic Butterfly Valves



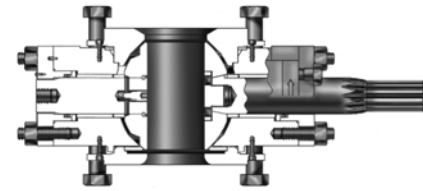
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TYPICAL CRYOGENIC BUTTERFLY VALVE

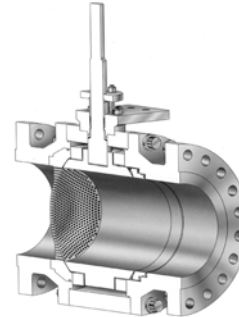
A31C	8532	A31A	A11
Applications			
A31C stainless steel cryogenic valves for liquified natural gas and other special chemical and hydrocarbon applications with temperatures to -254°C	8532 stainless steel cryogenic valves for liquified natural gas and other special chemical and hydrocarbon applications with temperatures to -254°C.	A31 stainless steel cryogenic valves for liquified natural gas and other special chemical and hydrocarbon applications with temperatures to -254°C.	A11 stainless steel cryogenic valves for liquified natural gas and other special chemical and hydrocarbon applications with temperatures to -254°C.
Style			
Wafer, lugged, and double flanged	Wafer, lugged, and double flanged	Wafer, lugged, and double flanged	Wafer, lugged, and double flanged
Ratings and Sizes			
CL150 and CL300: NPS 3 - 12	CL150 and CL300: NPS 14 - 24	CL150 and CL300: NPS 14 - 24	CL150/150, CL150, CL300: NPS 30 - 48 CL600: NPS 3 - 24 CL900: NPS 6 - 24 CL1500: NPS 10 - 20
End Connections			
Raised-face (RF), ring-type joint (RTJ)	Raised-face (RF), ring-type joint (RTJ)	Raised-face (RF), ring-type joint (RTJ)	Raised-face (RF), ring-type joint (RTJ)
Valve Body Materials			
SA351 CF8M stainless steel	SA351 CF8M stainless steel	SA351 CF8M stainless steel	SA351 CF8M stainless steel
Disk Material			
SA351 CF8M stainless steel	SA351 CF8M stainless steel	SA351 CF8M stainless steel	SA351 CF8M stainless steel
Seal Types (Material)			
NOVEX and Cryogenic (CTFE and CTFE/aluminum)	NOVEX and Cryogenic (CTFE and CTFE/aluminum)	NOVEX and Cryogenic (CTFE and CTFE/aluminum)	CL150 and CL300: NOVEX and Cryogenic (CTFE) CL600, CL900, and CL1500: HPS and cryogenic (CTFE)
Flow Characteristics and Maximum Flow Coefficients			
Modified Equal Percentage Maximum Cv from 188 to 4940	Modified Equal Percentage Maximum Cv from 4550 to 21,500	Modified Equal Percentage Maximum Cv from 4550 to 21,500	Modified Equal Percentage Maximum Cv from 182 to 106,000
Rangeability			
100 to 1	100 to 1	100 to 1	100 to 1
Shutoff Class			
NOVEX Seal: Class VI Cryogenic (CTFE) Seal: Class IV Cryogenic (CTFE/Aluminum) Seal: Class VI	NOVEX Seal: Class VI Cryogenic (CTFE) Seal: Class IV Cryogenic (CTFE/Aluminum) Seal: Class VI	NOVEX Seal: Class VI Cryogenic (CTFE) Seal: Class IV Cryogenic (CTFE/Aluminum) Seal: Class VI	NOVEX Seal: Class VI Cryogenic (CTFE) Seal: Class IV Cryogenic (CTFE/Aluminum) Seal: Class VI HPS: Class VI
Available Actuators (refer to page 10)			
Fisher 2052, 1052, 1061; FieldQ and Bettis	FieldQ and Bettis		Fisher 2052, 1052, 1061, FieldQ, and Bettis

Fisher Pipeline Valves

Figure 7. Fisher Pipeline Valves



W7169

V250 VALVE

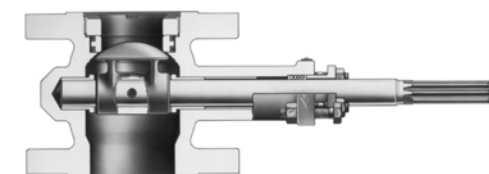
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V260 VALVE

V250	V260
Applications	
Heavy-duty, flangeless throttling ball valves. Often used for controlled flow applications in gas transmission lines, gas distribution, and liquid pipelines. Temperatures from -40 to 204°C, depending on seal type	Large, flanged throttling ball valves. Used for demanding pipeline applications such as pump bypass and pipeline take-off. Temperatures from -29 to 93°C, depending on seal type
Style	
Flangeless	Flanged
Sizes	
NPS 4, 6, 8, 10, 12, 16, 18, 20, 24	NPS 8, 10, 12, 16, 20, 24
Ratings	
CL600 or CL900	CL150, CL300, or CL600
End Connections	
Raised-face (RF) or ring-type joint (RTJ)	Raised-face (RF)
Valve Body Materials	
Carbon steel (LCC)	Carbon steel (LF2)
Ball Material	
Chrome-plated WCC steel	Chrome-plated WCC steel
Seal Types (Material)	
Single or dual seal (POM) or flow ring	Single or dual (PEEK/PTFE or POM)
Flow Characteristics and Maximum Flow Coefficients	
Modified equal percentage Maximum Cv from 499 to 18,300	Modified linear or modified equal percentage Maximum Cv from 4960 to 31,000
Rangeability	
100 to 1	100 to 1
Shutoff Class	
Single and Dual Seal: Class IV Flow Ring: 1% of valve capacity	Single or Dual Seal: Class IV PEEK/PTFE Seal: Class IV POM Seal: Class IV
Available Actuators (refer to page 10)	
Fisher 2052, 1052, 1061, and Bettis	Fisher 2052, 1052, 1061, and Bettis

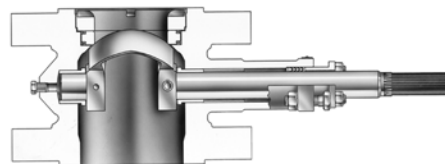
Fisher Eccentric Plug Valves

Figure 8. Fisher Eccentric Plug Valves



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V500 VALVE



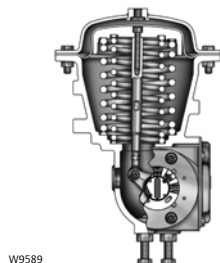
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CV500 VALVE

V500	CV500
Applications	
Flanged or flangeless eccentric plug rotary control valve for erosive, coking, and other hard-to-handle fluids. Throttling or on/off. Temperatures from -198 to 538°C, depending on materials.	Rugged flanged or flangeless cammed-segmented V-notch ball valve offering erosion resistance and pressure control for gases, liquids, and fibrous slurries. Throttling or on/off. Temperatures from -198 to 538°C, depending on materials.
Style	
Flanged or flangeless	Flanged or flangeless
Sizes	
DN 25 - 200 or NPS 1 - 8	DN 80 - 300 or NPS 3 - 12
Ratings	
PN 10 - 100 or CL150 - CL600	PN 10 - 100 or CL150 - CL600
End Connections	
Raised-face (RF) or ring-type joint (RTJ)	Raised-face (RF)
Valve Body Materials	
WCC steel or CF8M stainless steel	EN: 1.0619 steel or 1.4581 stainless steel ASME: WCC steel or CF3M and CF8M stainless steel
Plug Material	
Chrome-plated CF8M, solid alloy 6, or ceramic	CF3M stainless steel
Flow Characteristics and Maximum Flow Coefficients	
Modified linear Maximum Cv from 12.2 to 1050	Modified equal percentage Maximum Cv from 181 to 3080
Rangeability	
100 to 1	200 to 1
Shutoff Class	
Class IV	Class IV
Available Actuators (refer to page 10)	
Fisher 2052, 1052, 1061, and FieldQ	Fisher 2052, 1052, 1061, and FieldQ

Fisher 2052, 1052, and 1061 Actuators

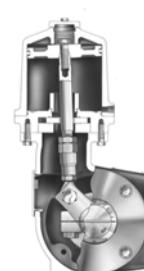
Figure 9. Fisher Rotary Valve Actuators



2052 ACTUATOR



1052 ACTUATORS



1061 ACTUATOR

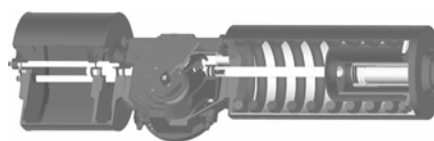
2052	1052	1061
Features		
Heavy-duty actuator with enclosed linkage and splined actuator-valve connection for minimized lost motion		
Style		
Spring-return pneumatic diaphragm actuator	Spring-return pneumatic diaphragm actuator	Double-acting pneumatic piston actuator
Typical Operating Torque Range (Varies with Operating Pressure and Construction)		
25.5 to 630 N • m PDO 25.5 to 930 N • m PDT	Up to 1370 N • m PDT	282 to 19,800 N • m
Accessories		
Pneumatic or electro-pneumatic valve positioners, FIELDVUE digital valve controllers, limit switches, position transmitters, handwheels, travel stops, lock-out device to disable actuator during maintenance, supply pressure filter-regulator.		

FieldQ and Bettis G Actuators

Figure 10. Rotary Valve Actuators



FieldQ ACTUATORS



BETTIS G-SERIES ACTUATOR

FieldQ ACTUATOR	Bettis G
Features	
Compact rack-and-pinion pneumatic actuator for quarter-turn applications for mounting to Fisher valves	Scotch yoke type actuator for mounting to Fisher rotary valves.
Style	
Double-acting or spring-return pneumatic piston actuator	Double-acting or spring-return series single power module pneumatic actuator
Typical Operating Torque Range (Varies with Operating Pressure and Construction)	
40 to 2444 N • m	531 to 5650 N • m
Accessories	
Pneumatic or electro-pneumatic valve positioners, FIELDVUE digital valve controllers, limit switches, position transmitters, travel stops	Pneumatic or electro-pneumatic valve positioners, FIELDVUE digital valve controllers, limit switches, position transmitters, handwheels, travel stops, supply pressure filter-regulator

Alloy Valve Guidelines

- Emerson Process Management expertise has combined its knowledge of metals and foundry techniques with valve user experience in creating high alloy valves that fight corrosion successfully.
- Guidelines have been developed to help the valve user specify alloy valves correctly. Techniques have also been implemented that verify a foundry's ability to cast alloy valves properly and has established stringent specifications that guide the foundry in providing quality results.
- Valve user guidelines include: Avoid the use of alloy tradenames, Don't specify wrought for cast, Forego non-destructive testing.
- Steps used to qualify a foundry include: Weldability tests to gauge the foundry's ability to pour alloy materials, Dedicating casting patterns solely to high-alloy service.
- Stringent specifications developed by Emerson Process Management include: Raw Material Composition and Quality, Heat Qualification, Visual Inspection, Weld Repair, Heat Treatment, and Nondestructive Testing.

Instruments

- Fisher pneumatic controller C1 and 4195 series provides pressure and temperature control to standalone control loops. These pneumatic controllers provides proportional, integral, and derivative actions towards maintaining the required control loop.
- Electro-pneumatic transducers providing 4-20mA current input to pneumatic output for pneumatic positioners, controllers, volume booster or directly to actuators are available. Fisher 646, i2P-100, and 846 transducers provide the remote capability for connecting pneumatic instruments to control panel or control room.
- Fisher VBL and 2625 volume boosters used in conjunction with a positioner on a throttling control valve increase stroking speed.
- Fisher Wireless 4320 provides valve position monitoring that will improve visibility to valves without the need for wires. The 4320 can provide on/off control with pneumatic output option enabling easier automation of valves, again without wires.
- Fisher 4660 high-low pressure pilots and 377 trip valves provide pneumatic discrete control and are exida certified for use in Safety Instrument System (SIS) applications.

Figure 11. Typical Fisher Rotary Products

- FIELDVUE digital valve controllers are communicating, microprocessor-based controllers that convert a current or digital signal to a pressure signal to operate the actuator.
- Through the HART®, FOUNDATION Fieldbus™, or PROFIBUS communications protocol, the controller gives easy access to critical valve information.
- ValveLink™ Software allows easy access to valve assembly alerts and performance characteristics. Vital information can be obtained without removing the valve from the line.
- Performance Diagnostics tests, including on-line One-Button Sweep, Friction and Deadband analysis, and Trending, can be run while the valve is in service and operating.
- Valve Signature, Dynamic Error Band, and Step Response tests are displayed in an intuitive user-friendly environment that allows easy interpretation of data.
- FIELDVUE models include the DVC6200, DVC6200f and DVC6200p. The DVC6200 SIS is used for Safety applications and the DVC2000 has a local user interface.

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