Fisher® Rotary Valve Selection Guide

V260 VALVE

Vee-Ball™ VALVE

Control-Disk™ VALVE

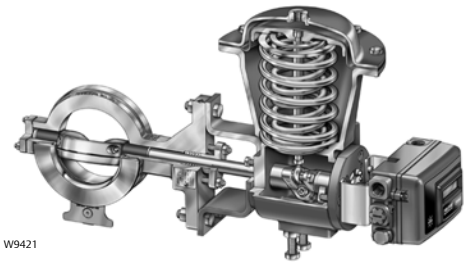
TYPICAL Fisher ROTARY VALVES

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 8510, 8532, 8580, 9500, and DSV Fisher POSI-SEAL™ A11, A31A, A31C, A31D, and A81
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

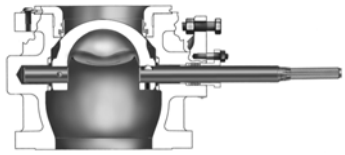


Control-Disk VALVE

Control-Disk Valve
Applications
Expanded control, lower process variability applications
Style
Wafer and single flange
Sizes
NPS 2, 3, 4, 6, 8, 10, 12
Ratings
PN 10 to 40 CL150 and CL300
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 stainless steel, CW2M, or M35-1
Disk Material
SA351 CF3M stainless steel
Seal Types (Material)
Soft (PTFE or UHMWPE) or metal (S31600)
Flow Characteristics and Maximum Flow Coefficients
Equal percentage Maximum Cv from 60.7 to 4530
Rangeability (Flow Coefficient Ratio)
100 to 1
Shutoff Class
Soft Seal: Bubble-tight **Metal Seal:** 1% of Class IV
Available Actuators (refer to page 11)
Fisher 2052, 1051, 1052, and 1061

Fisher Vee-Ball Valves

Figure 2. Fisher Vee-Ball Valves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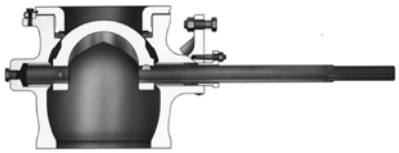
V150 and V300 VALVES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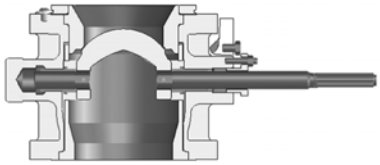
V200 VALVE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V150S VALVE

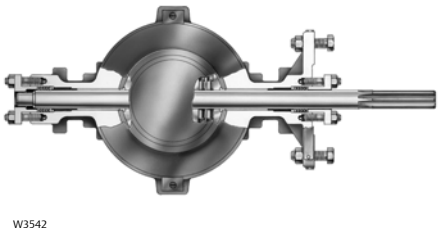
V150 AND V300	V200	V150S
Applications		
Excellent for fibrous slurries as well as liquids, gas, and steam. Shearing V-notch ball for smooth, non-clogging action.	Excellent for fibrous slurries as well as liquids, gas, and steam. Shearing V-notch ball for smooth, non-clogging action.	Highly wear-resistant trim materials and an unrestricted flow path make this design ideal for controlling the most abrasive of slurries.
Sizes		
V150: DN 25 - 500 or NPS 1 - 24 x 20 **V300:** DN 25 - 500 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	Raised-face (RF) flanged
Valve Body Materials		
EN: 1.0619 steel, 1.4409 stainless steel, M35-1, or CW2M **ASME:** SA216 WCC steel, SA351 CF3M, CG8M stainless steel, M35-1, or CW2M	**EN:** 1.0619 steel, 1.4409 stainless steel, M35-1, or CW2M **ASME:** SA216 WCC steel, SA351 CF3M, CG8M stainless steel, M35-1, 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) metal, or flow ring	TCM Plus, metal (S31600), HD (heavy duty) metal, 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 11)		
Fisher 2052, 1051, 1052, 1061, and FieldQ™		

Fisher High-Performance Butterfly Valves

Figure 3. Fisher High-Performance Butterfly Valves

8580 VALVE

8532 VALVE

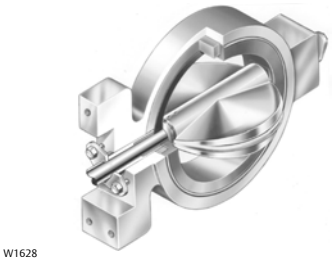


8510 VALVE

8580	8532	8510
Applications		
Precise throttling service for process temperatures from -129 to 454°C	Throttling service, high-temperature, and cryogenic applications; -196 to 816°C	General-purpose valve for a variety of liquids and gasses
Style		
Wafer and single flange	Wafer and single flange	Wafer and single-flange
Sizes		
NPS 2, 3, 4, 6, 8, 10, 12	NPS 14, 16, 18 ,20, 24	DN 350, 400, 500, 600 NPS 14, 16, 18, 20, 24
Ratings		
PN 10 to 40 CL150 and CL300	CL150 and CL300	PN 16 CL150
End Connections		
Raised-face (RF)	Raised-face (RF) and ring-type joint (RTJ)	Raised-face (RF)
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 stainless steel High-alloy materials are available
Disc Material		
SA351 CF3M stainless steel	SA351 CF8M stainless steel	SA216 WCC steel or SA351 CF8M stainless steel
Seal Types (Materials)		
Soft (PTFE or UHMWPE) or metal (S31600)	Soft (PTFE), NOVEX, and Phoenix III	Soft (PTFE) or metal (S31600)
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 21,500	Approximately linear Maximum Cv from 7040 to 21,800
Rangeability		
100 to 1	100 to 1	100 to 1
Shutoff Class		
Soft Seal: Class VI **Metal Seal:** 1% of Class IV	**Soft Seal:** Class VI **NOVEX Seal:** SP-61 **Phoenix III Seal:** Class VI	**PTFE Seal:** Bidirectional Class VI **S31600 Seal:** 1/10 of Class IV
Available Actuators (refer to page 11)		
Fisher 2052, 1051, 1052, and 1061	Fisher 1051, 1052, and 1061	Fisher 2052, 1051, 1052, and 1061

Fisher High-Performance Butterfly Valves (continued)

Figure 4. Fisher High-Performance Butterfly Valves (continued)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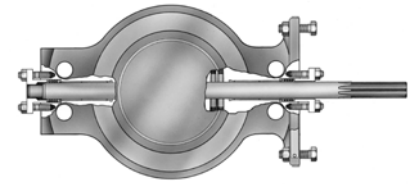
9500 VALVE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DSV VALVE

9500	DSV
Applications	
Fully lined butterfly valve for on/off or throttling service for tight-shutoff applications	Rapid on/off, high-cycle applications; temperatures to 232°C
Style	
Wafer	Wafer
Sizes	
NPS 2, 3, 4, 6, 8, 10, 12	NPS 4, 6, 8, 10, 12, 14
Ratings	
PN10, PN13, CL125B, CL150, or CL300 depending on size and material	CL300
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	Mates with CL300 RF flanges
Valve Body Materials	
Cast iron, carbon steel, S31600 stainless steel	SA240 S31600 stainless steel
Disc Material	
Aluminum bronze, S31600 stainless steel	SA351 CG8M stainless steel
Seal Types (Material)	
Fully lined nitrile or PTFE	No seal
Flow Characteristics and Maximum Flow Coefficients	
Approximately equal percentage through 90° rotation for FISHTAIL™ disc and through 60° rotation for conventional disc Maximum Cv from 91 to 7020	On/off service Maximum Cv from 434 to 7040
Rangeability	
100 to 1	100 to 1
Shutoff Class	
Class VI	5% of valve capacity
Available Actuators (refer to page 11)	
Fisher 2052, 1051, 1052, and 1061	Fisher 1061

Fisher POSI-SEAL High-Performance Butterfly Valves

Figure 5. Fisher POSI-SEAL High-Performance Butterfly Valves


W9529-2


W9570-1

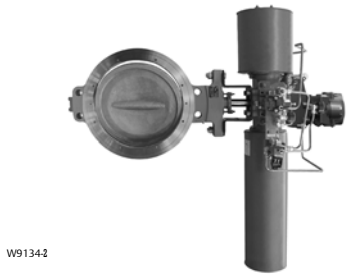
A11 VALVES

A11
Applications
Throttling and automated on/off service, high-pressure, high-temperature, and cryogenic applications; -254 to 816°C
Style
Wafer and single flange
Ratings and Sizes
CL150/150 and CL150: NPS 30, 36, 42, 48, 54, 60, 66, 72 **CL300:** NPS 30, 36, 42, 48 **CL600:** NPS 3, 4, 6, 8, 10, 12, 14, 16, 18, 20, 24, 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
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
SA216 WCC steel or SA351CF8M stainless steel Other carbon steel, stainless steel, and high-alloy materials are available
Disc Material
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)
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
Maximum Cv from 182 to 106,000
Rangeability (Flow Coefficient Ratio)
100 to 1
Shutoff Class
Soft Seal: Bidirectional bubble-tight (Class VI or better) **NOVEX Seal:** Class V (standard), Class VI (optional) **Metal Seal:** 20% of Class IV **High-Pressure Seal:** Class V (standard), Class VI (optional) **Phoenix III Seal:** Class VI **Cryogenic Seal:** 0.1% of Class IV
Available Actuators (refer to page 11)
Fisher 2052, 1051, 1052, 1061, FieldQ, and Bettis™

Fisher POSI-SEAL High-Performance Butterfly Valves (continued)

Figure 6. Fisher POSI-SEAL High-Performance Butterfly Valves (continued)

A81 VALVE



A31A VALVE

A81	A31A	A31D
Applications		
On/off service, rack-and-pinion actuator for temperatures from -129 to 454°C	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 single flange	Wafer and single flange	Double flange
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	CL150 and CL300	CL150 and CL300
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 stainless steel High-alloy materials are available
Disc Material		
SA351 CF3M stainless steel	SA351 CF8M stainless steel	SA351 CF8M stainless steel
Seal Types (Material)		
Soft (PTFE or UHMWPE) or Metal (S31600)	Soft (PTFE), NOVEX, or Phoenix III	Soft (PTFE), NOVEX, or Phoenix III
Flow Characteristics and Maximum Flow Coefficients		
Maximum Cv from 83.7 to 5080	Maximum Cv from 4550 to 21,500	
Rangeability		
100 to 1	100 to 1	100 to 1
Shutoff Class		
Soft Seal: SP-61 **Metal Seal:** SP-61	**Soft Seal:** Class VI **NOVEX Seal:** SP-61 **Phoenix III Seal:** Class VI	**Soft Seal:** Bidirectional bubble-tight (Class VI or better) **NOVEX Seal:** Class V (standard); Class VI (optional) **Phoenix III Seal:** Class VI
Available Actuators (refer to page 11)		
FieldQ	Bettis	Fisher 2052, 1051, 1052, 1061 and Bettis

Cryogenic Butterfly Valves

Figure 7. Fisher Cryogenic Butterfly Valves

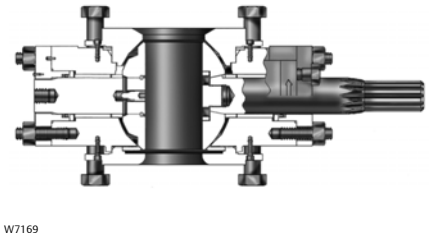
W7449

TYPICAL CRYOGENIC BUTTERFLY VALVE

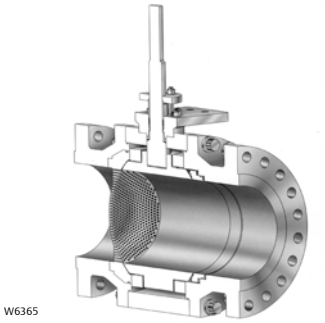
A31C	8532	A31A	A11
Applications			
A31C stainless steel cryogenic valves for liquified natural gas and other special chemical and hydrocarbon applications with temperatures to -254°C	8532 stainless steel cryogenic valves for liquified natural gas and other special chemical and hydrocarbon applications 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, single flange, and double flanged	Wafer, single flange, and double flanged	Wafer, single flange, and double flanged	Wafer, single flange, 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
Disc 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			
Maximum Cv from 188 to 4940	Maximum Cv from 4550 to 21,500	Maximum Cv from 4550 to 21,500	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:** 0.1% of Class IV **Cryogenic (CTFE/Aluminum) Seal:** Class VI	**NOVEX Seal:** Class VI **Cryogenic (CTFE) Seal:** 0.1% of Class IV **Cryogenic (CTFE/Aluminum) Seal:** Class VI	**NOVEX Seal:** Class VI **Cryogenic (CTFE) Seal:** 0.1% of Class IV **Cryogenic (CTFE/Aluminum) Seal:** Class VI	**NOVEX Seal:** Class VI **Cryogenic (CTFE) Seal:** 0.1% of Class IV **Cryogenic (CTFE/Aluminum) Seal:** Class VI **HPS:** Class VI
Available Actuators (refer to page 11)			
Fisher 2052, 1051, 1052, 1061; FieldQ and Bettis		FieldQ and Bettis	Fisher 2052, 1052, 1061; FieldQ and Bettis

Fisher Pipeline Valves

Figure 8. Fisher Pipeline Valves



V250 VALVE

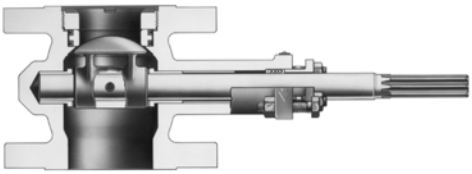


V260 VALVE

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: Lass than 1% of Class IV **Flow Ring:** 1% of valve capacity	**Single or Dual Seal:** Less than 10% of Class IV **PEEK/PTFE Seal:** Less than 10% of Class IV **POM Seal:** Lass than 10% of Class IV
Available Actuators (refer to page 11)	
Fisher 1051, 1052, 1061, and Bettis	Fisher 1051, 1052, 1061, and Bettis

Fisher Eccentric Plug Valves

Figure 9. Fisher Eccentric Plug Valves



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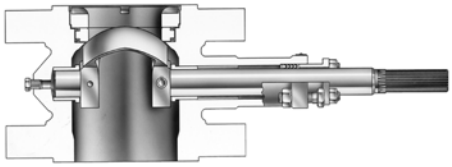
V500 VALVE



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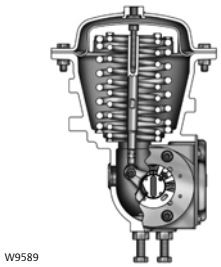
CV500 VALVE

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 316 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 11)	
Fisher 2052, 1051, 1052, 1061, and FieldQ	Fisher 2052, 1051, 1052, 1061, and FieldQ

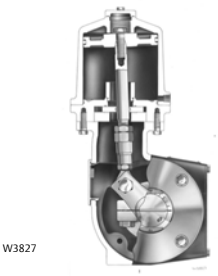
Fisher 2052, 1051, 1052, and 1061 Actuators

Figure 10. Fisher Rotary Valve Actuators



2052 ACTUATOR

1051 AND 1052 ACTUATORS



1061 ACTUATOR

2052	1051 AND 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)		
50.8 to 565 N•m	85 to 1370 N•m	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 11. Rotary Valve Actuators

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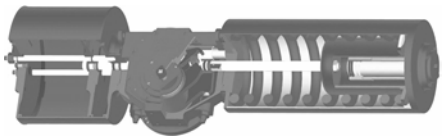
FieldQ ACTUATORS



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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.

Figure 12. Typical Fisher Rotary Products

W8755

DVC2000

W9418-2

DVC6200 on Control-Disk VALVE

- A complete line of actuators and accessories for the Fisher rotary valves is offered that meet your price/performance expectations
- FIELDVUE digital valve controllers are communicating, microprocessor-based controllers that use HART® and FOUNDATION™ fieldbus protocols. Through digital communications, the controllers give easy access to actuator, valve, and instrument information that is critical to process operation
- ValveLink™ software and AMS Suite: Intelligent Device Manager allow you to care for and maintain equipment assets -- such as valves, transmitters, analyzers, motors, pumps, and plant unit equipment such as pipes, vessels, tanks, columns, reactors, digesters, etc. -- to improve yields and minimize downtime of industrial manufacturing processes.
- Contact your Emerson Process Management sales office for details

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