



# *Durco, Atomac, Automax Product Catalog*



*Experience In Motion*



## Heritage Manufacturers

### Atomac

Specializing in the design and manufacture of lined equipment, Atomac has developed a broad portfolio of products from their headquarters in Ahaus, Germany. Now recognized as a quality leader in the supply of this specialized equipment they have a reputation for satisfying and solving customer applications.

### Automax

From their manufacturing facilities in the United Kingdom, China and India, Automax offers a broad range of rack and pinion and Scotch yoke actuators. They also produce ancillary equipment such as switch boxes, mounting kits and gear overrides to satisfy all actuation requirements.

### Durco

With a history of manufacturing valves in a wide range of specialized alloys Durco of Cookeville TN, USA has focused on meeting the high demands of the Chemical and Petrochemical industry. Strong engineering, metallurgy and research have produced a broad range of diverse valves.

## Product Portfolio

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FlowsERVE rotary valves offer easy maintenance and automation backed by market-friendly expertise and quality heritage brands.



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## Durco SleeveLine® Range

Non-Lubricated Plug Valves  
for Chemical Service



### Features

- Tapered plug/PTFE sleeve primary seal
- Static/self-adjusting dynamic stem seal with the unique TM/PFA reverse lip diaphragm
- Quick thru-line seal adjustment with the valve in-line and under pressure
- Bi-directional flow
- ASME (ANSI) Class 150 and 300 designs at pressures to 740 psi (50 bar) and vacuum to 1 micron (0.133 kPa)
- Quarter-turn operation for cost-effective actuation
- Flanged, screwed, butt and socket weld end connections
- Optional 3-way; partially or fully jacketed; special service trim/cleaning options
- Available with TMHT seat for high temperature services

### Body Materials

- Ductile cast iron
  - Carbon steel
  - CF8 (304 ss)
  - CF8M (316 ss)
  - CD4MCuN (Duplex ss)
  - CN7M (Alloy 20)
  - CK3MCuN (254 SMO® super austenitic ss)
  - N7M (Alloy B)
  - CW6M (Alloy C)
  - Nickel
  - Monel®
  - Inconel
  - Titanium
  - Zirconium
- Consult factory for alternate materials

### Seat Materials

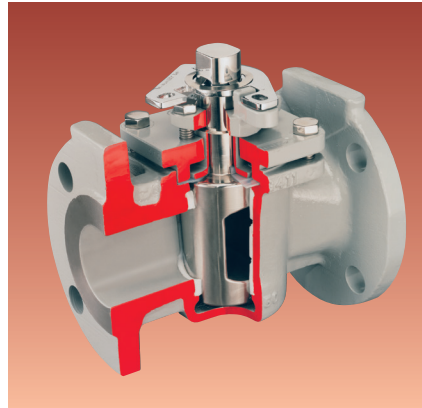
- PTFE standard
- Options
  - Durlon™ II
  - UHMWPE
  - TFEG
  - TMHT high temperature

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## Durco G4 Sleeved Plug



### Features

- Large PTFE sleeve seal area offers positive shut-off and extended service life
- Tapered plug reduces turning torque and seat wear
- In-line seal adjustment under pressure prevents thru-line leakage. Plug adjustment is independent of stem seals. With  $\pm 3/16$  in (5 mm) adjustment, plug cannot bottom out
- Limited cavities to accumulate product
- Sealing is both upstream and downstream
- TM/PFA reverse lip diaphragm provides static and dynamic self-adjusting stem seal
- Large port openings assure less pressure drop and higher  $C_v$  ( $K_v$ )
- Double D plug stem accepts most standard actuation equipment. Splined shaft is used on larger sizes
- Actuator mounting pads are standard on the flanges for solid support
- Lockout meets OSHA and plant safety requirements

### Applications

- Chemical processing
- Process equipment isolation

### Sizes

- $\frac{1}{2}$  in (15 mm) thru 20 in (500 mm)

### Standards

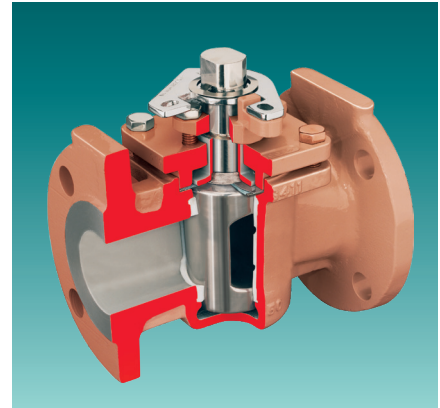
- ASME (ANSI) B16.34

### Other Configurations

- G4Z fire sealed
- G4Z - HF alkylation
- TSG4 severe service
- G4B Marathon
- MG4 3-way
- FJG4 fully jacketed
- G4E DIN design

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## Durco G4Z Fire Sealed



### Features

- Stem seal consists of Grafoil packing, metal diaphragm, TM/PFA diaphragm and Grafoil gasket
- Grafoil packing rings at the stem and Grafoil gaskets at the top cap reduce atmospheric leakage to a negligible amount should fire destroy the PTFE sleeve and diaphragm
- A stainless steel or Monel secondary diaphragm keeps the Grafoil packing in place if the top seal is destroyed
- Line sealing is both upstream and downstream
- In-line seal adjustment under pressure prevents thru-line leakage
- TM/PFA diaphragm provides static and dynamic self-adjusting stem seal
- Vented plug accommodates the forces of fluid thermal expansion

### Applications

- Chemical processing
- Hydrocarbon processing

### Sizes

- $\frac{1}{2}$  in (15 mm) thru 20 in (500 mm)

### Standards

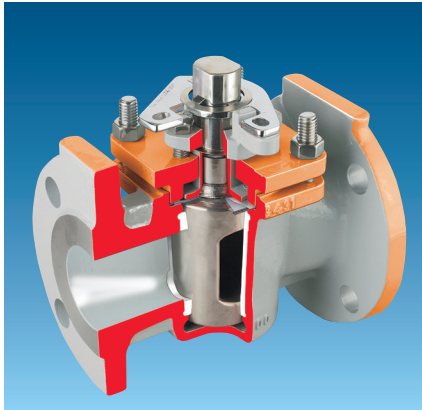
- ASME (ANSI) B16.34
- API 607 for external leakage

### Other Configurations

- G4Z - HF alkylation
- G4BZ Marathon
- G4BZ - HF Marathon

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## Durco G4BZ-HF Alkylation



### Features

- Stem seal consists of Grafoil packing, Monel diaphragm, PFA diaphragm and Grafoil gasket
- Grafoil packing rings at the stem and Grafoil gaskets at the top cap reduce atmospheric leakage to a negligible amount should fire destroy the PTFE sleeve and diaphragm
- A Monel secondary diaphragm keeps the Grafoil packing in place if the top seal is destroyed
- All Monel wetted components
- Non-lubricated design eliminates fouling of flow meter and instrumentation
- PTFE seats/seals provide positive shut-off
- No galling or need for seat relapping
- Vented plug accommodates the forces of fluid thermal expansion
- Quarter-turn operation can be cost effectively actuated with rotary actuators

### Applications

- HF alkylation
- Isomerization
- Blending
- Light ends
- Gas plant
- Sulfur plant
- Crude desalting

### Sizes

- ½ in (15 mm) thru 20 in (500 mm)

### Standards

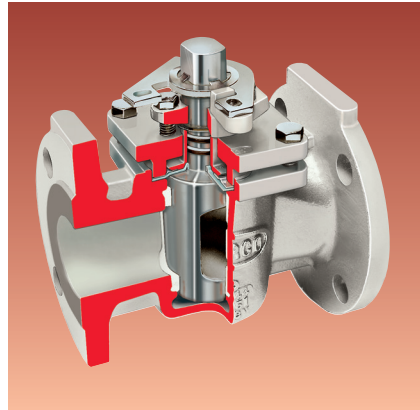
- ASME (ANSI) B16.34
- API 607, for external leakage
- Phillips Licensing Listed
- UOP Process Division Approved

### Other Configurations

- G4BZ - HF alkylation
- G4Z fire sealed
- G4BZ Marathon

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## Durco G4B Marathon™



### Features

- Specifically designed for reliable performance in high cycle on-off or modulating services
- Fugitive emissions containment often equals that of more expensive, severe or toxic service valves
- Unique stem-sealing design consists of the reverse lip TM/PFA diaphragm, an integral thrust collar/alloy diaphragm and Viton O-rings with PTFE back-up rings
  - Viton O-rings provide full pressure containment stem seal. Protects thrust collar from atmospheric corrosion. Kalrez® and other elastomers available. PTFE backup rings help prevent extrusion of elastomer O-rings under pressure
  - Hastelloy® diaphragm is welded to an alloy thrust collar. This self-sealing, dynamic bellows-like diaphragm acts as an expansion joint by allowing the TM/PFA diaphragm to adjust to plug movement and pressure changes. The Hastelloy diaphragm provides an impenetrable barrier to chlorine and many other services
- Highly polished sealing surfaces eliminate wear and enhance seal integrity

### Applications

- Chemical processing
- High cycle services

### Sizes

- ½ in (15 mm) thru 20 in (500 mm)

### Standards

- ASME (ANSI) B16.34
- API 607, for external leakage

### Other Configurations

- G4BZ fire sealed
- G4BZ - HF alkylation

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## Durco TSG4 Severe Service



### Features

- Meets/exceeds CAA fugitive emissions regulations at one-third to one-half the cost of bellows sealed valves
- Triple-sealed valve for lethal, toxic and sub-zero fluid services where an absolute stem seal is required
  - Primary: PTFE sleeve provides large, static seal for positive shut-off and extended service life
  - Secondary: PFA reverse lip diaphragm offers static and dynamic self-adjusting stem sealing assurance
  - Tertiary: live-loaded PTFE packing set further prevents potential emissions while addressing possible permeation related leakage
  - Available in firesealed configuration utilizing graphite gaskets and packing
- Wide range of stuffing box options with independent plug and stem seal adjustments
- Belleville washers accommodate extreme temperature fluctuations
- Lantern rings (optional) for continuous monitoring, inert gas pad or insertion of process compatible lubricants
- Drilled and vented plug balances pressure between plug port and body cavity

### Applications

- Severe chemical processing
  - Chlorine
  - Hydrochloric acid
  - Hydrofluoric acid

### Sizes

- ½ in (15 mm) thru 8 in (200 mm)

### Standards

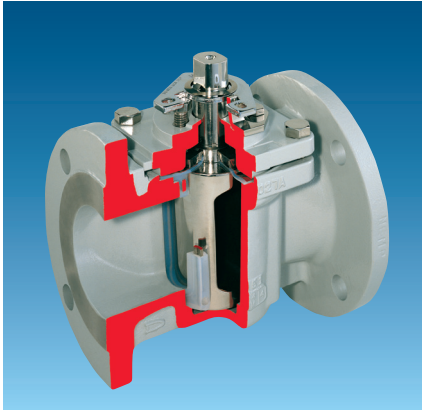
- ASME (ANSI) B16.34
- ISO 15848-1:2006

### Other Configurations

- TSG4Z firesealed

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## Durco Mach 1™ High Performance



### Features

- In-line plug adjustment under pressure stops thru-line leakage
- Easy seat replacement with valve in-line; no special tools required
- PFA reverse lip diaphragm provides dynamic and static, self-adjusting stem seal
- Alloy diaphragm provides stem seal reinforcement
- ISO 5211 mounting pad allows global interchangeability of actuation (optional flange flats mounting)
- With PFA alloy encapsulated full sleeve, Mach 1 can be used in applications up to 525 °F (274 °C) and 1000 psi
- Available in a variety of sleeve configurations
- Anti-rotation lugs to avoid stressing top cap fasteners under actuator load

### Applications

- Chemical processing
- On-off or modulating service

### Sizes

- 1 in (25 mm) thru 8 in (150 mm)

### Standards

- ASME (ANSI) B16.34
- API 607 for external leakage
- ASME (ANSI) Class 150, 300 and 600 (derated)

### Other Configurations

- QVB Marathon
- QVZ Firesealed
- QVBZ Marathon Firesealed
- QVBZ HF Alky

Get Bulletin DVENTB0030.

## Durco G4 V-Port Control



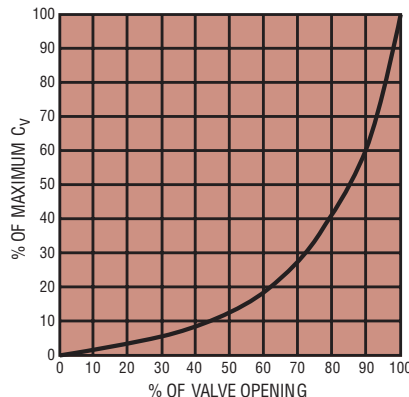
In addition to the features and benefits that have made SleeveLine the process industry's premier plug valve, Flowserve offers the G4 V-Port valve for precise modulating control services.

Durco G4 V-Port control valves are available in a variety of trim configurations to satisfy a user's flow control needs. Sizes include 1 in (25 mm) thru 6 in (150 mm) with full open  $C_v$  values of 3.0 to 400 ( $K_v$  of 2.6 to 345).

Characterized V-port SleeveLine control valves are available as follows:

- G4 - ½ in (15 mm) thru 6 in (150 mm)
- G4B - ½ in (15 mm) thru 6 in (150 mm)
- TSG4 - 1 in (25 mm) thru 6 in (80 mm)
- Mach 1 - 1 in (25 mm) thru 6 in (150 mm)

**A Typical Characteristic Curve  
for G4 V-Port Valves**



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## Durco Full Port Plug



### Features

- Full round port plug valves are designed to offer low differential pressure which will result in energy savings
- Full port valves are ideal for emergency dump systems as they offer the lowest possible resistance to flow
- Tapered plug design allows re-seating of the plug in the event of excessive wear.
- In-line adjustability allows for easy maintenance.
- The Full Port G4 stem seal utilizes many proven aspects of the Durco G4BZ design. The G4 Marathon o-ring seal design ensures emissions protection for the end user. A new vertically loaded, radial firesafe seal provides predictable compression and fire-safe performance for external leakage.

### Applications

- Dump systems of HF alkylation units
- Slurries in mining processes
- Safety relief systems of chemical plants
- Slurries in PTA operations

### Sizes

- 1 in (25 mm) to 8 in (200mm)

### Standards

- ASME B16.34 Class 150 and 300
- API 607 for external leakage on CS or SS firesealed valves
- ISO 10497 for external leakage on alloy firesealed valves

Contact Flowserve representative for more information

## Durco TX3 Triple Offset Butterfly Valve



### Features

- High performance triple offset butterfly valve
- Capable of zero leakage with laminated seal rings
- Even seat loading around the entire seat ring eliminates rubbing between seat and seal during opening and throttling
- Anti-blowout shaft compliant with API 609
- Fugitive Emissions packing available as standard
- Wide variety of materials selection available for different applications
- Wafer, lug, and double flange body configurations available
- ASME Class 150-600, other pressure classes available
- High temperature and Cryogenic configurations upon request

### Sizes

- 3 in (80 mm) thru 24 in (600 mm)
- Other sizes available

### Standards

- ASME B16.34
- API 609 Category B
- PED, CRN, TRCU
- API 607
- ISO 15848-1
- SIL 3

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## Durco BX 2001 High Performance



### Features

- PFA/Viton® energized seat provides positive, bi-directional shut-off with long cycle life on low pressure, vacuum, and high ΔP services
- Double offset disc creates an eccentric seating action which reduces seat wear, lowers torque and allows disc to “cam” into seat for tight shut off
- Large diameter, one-piece high strength shaft reduces deflection for positive, repeatable shut-off at higher ΔP than similar valves
- PolyLube® bearings or optional severe service bearings both offer low torque and high-cycle life
- Wide choice of packing materials including adjustable and self-adjusting live-loaded with leak detection port or purge fittings for lethal, toxic or sub-zero services
- Independent packing set adjustment prevents stem seal emissions
- Blow-out proof stem complies with API 609
- Wide range of optional materials includes Alloy 20, Inconel, Monel, Hastelloy B and C and Nickel
- ASME Class 150 and Class 300; wafer and lug body designs

### Applications

- Chemical processing
- Hydrocarbon processing

### Sizes

- 2 in (50 mm) thru 36 in (900 mm)

### Standards

- ASME (ANSI) B16.34
- API 607
- ISO 5752

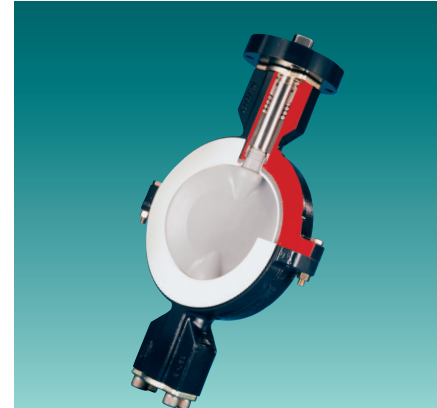
### Other Configurations

- Fire sealed

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## Durco BTV 2000™ Lined Butterfly



### Features

- Maintenance-free, live-loaded triple seal design assures bubble-tight shut-off and leak-tight stem seals
  - Primary seal is formed at the disc hub by the spherical ball and socket/disc liner seal for a 360° contact seat seal
  - Secondary seal of PTFE covered PFA convolutions create tortuous no-leak path on the disc stem
  - Tertiary seal is provided by O-rings in the gland follower
  - Fully compressed spring keep constant pre-load on PTFE stem seal
- Extra wide spheroidal seat design provides positive shutoff. Thick - 1/8 in (3 mm) - rigid machined PTFE or UHMWPE liner is recessed in body preventing cold flow. Live-loaded elastomer seat energizer enhances sealing
- Unequaled performance in high temperature/high cycle services

### Wide Choice of Materials

- Liners
  - PTFE and UHMWPE
  - TFM - molecularly enhanced PTFE
- Discs
  - PFA encapsulated disc (with a DCI/ENP substrate) is standard
  - Optional UHMWPE encapsulated disc
  - Optional metallic discs in most alloys including light reactive
- Bodies
  - DCI standard; 316 SS optional

### Applications

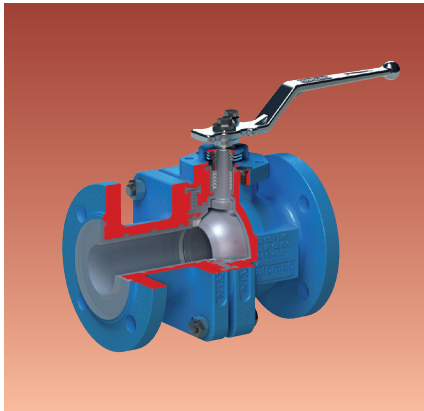
- Severely corrosive/erosive chemical processing
- Pulp & paper
- Mining & metal refining

### Sizes

- 2 in (50 mm) thru 24 in (600 mm)

Get Bulletin DVENTB0020.

## Atomac AKH2.2 Lined Ball Valves



### Features

- Contains a static and dynamic middle flange seal
- Incorporates a metal-to-metal body joint which eliminates the need for adjustment in the event of temperature cycling
- Stem packing is pre-loaded by Belleville washers which allows stem packing to adjust for temperature cycling
- Meets environmental standards of TA Luft
- Full port
- Minimal Cavity space minimizes retention of process media
- ISO 5211 mounting pad
- The valve body is fully lined with PFA as standard. Other lining materials are available

### Applications

- Chemical processing
- Automated valves

### Sizes

- NPS 0,5 to NPS 4
- DN 015 to DN 100

### Standards

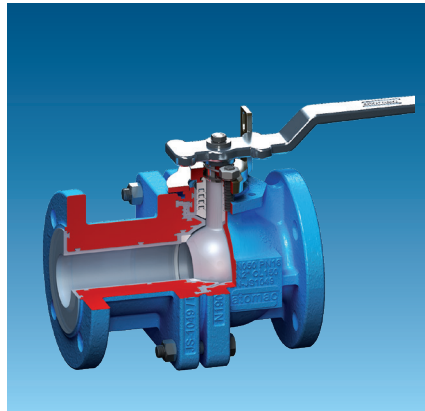
- ASME B16.5
- EN 1092-2
- EN 12516
- EN 558

### Pressure Rating

PN16  
Class 150

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## Atomac AKH8 AKH8A Monoblock Ball valves



### Features:

- The AKH8 features a one-piece ball/stem design
- The solid connection between the ball and stem eliminates premature wear of the Teflon at the joint between ball and stem where heavy loads are applied to the stem
- Eliminates the hysteresis caused by the soft joint between the stem and ball. Improved control characteristics are the result
- Since the stem of the AKH8 is thicker than virtually any other type of lined valve, the AKH8 is better able to handle heavier loads, such as automated applications
- The specially designed heavy duty packing keeps the valve leak free
- Contains a static and dynamic middle flange seal
- Incorporates a metal-to-metal body joint which eliminates the need for adjustment in the event of temperature cycling
- Minimal Cavity space minimizes retention of process media
- ISO 5211 mounting pad

### Applications:

- Automated valves
- High cycling requirements
- Viscous and sticky media

### Sizes:

- AKH8: NPS 0,5 to NPS 4  
DN 015 to DN 100
- AKH8A: NPS 1 to NPS 6

### Standards:

- EN 1092-2
- EN 12516
- EN 558
- ASME B16.34
- ASME B16.10
- ASME B16.5

### Pressure Rating

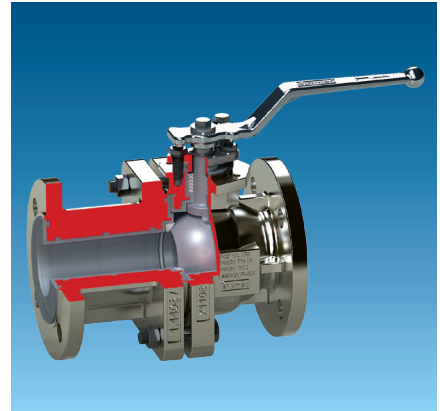
- PN16
- Class 150

### Variations:

- AKH8 DIN
- AKH8 ASME
- AKH8A ASME

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## Atomac AtoStar Stainless Steel Lined Ball



### Features

- The AtoStar stainless steel, PFA lined ball valves deliver improved performance, reliability and safety
- AtoStar full port valves provide bubble tight shutoff, low maintenance, No-leak stem seals and the safety assurance of a blowout-proof stem assembly
- AS6 AtoStar is with integral heating
- ISO 5211 mounting pads

### Applications

- Severely corrosive chemical processing
- Highly corrosive atmospheres
- Low temperature capability of -76F (-60C) due to material selection
- Automated valves

### Sizes

- AS1 PN16:  
DN 015 to DN 150
- AS2 Class 150:  
NPS 0,5 to NPS 6
- AS3 Class 150 (short pattern):  
NPS 0,5 to NPS 6
- AS4 JIS 10K:  
DN 015 to DN 150
- AS5 JIS 10K:  
DN 015 to DN 150
- AS6 Class 150:  
NPS 1 to NPS 8

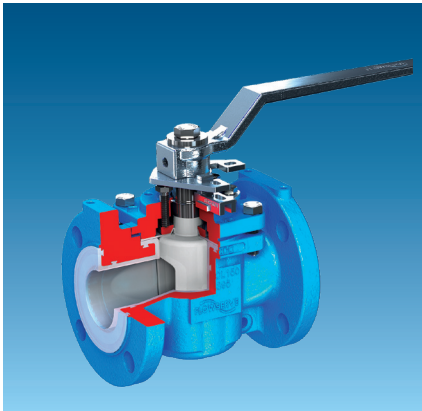
### Standards

- EN 558
- EN 1092-2
- EN 12516
- ASME B 16.10
- ASME B 16.5
- JIS 10K

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## Durco T4E Plug



### Features

- Solid one-piece PFA lining in the body and on flange faces plus a PFA encapsulated plug maximizes corrosion resistance and virtually eliminates leak paths
- A dynamic self-adjusting, self-energizing reverse lip PFA diaphragm seal prevents stem leakage
- Stem seal at top of plug provides double protection against external stem leakage
- In-line seal adjustment under pressure prevents thru-line leakage, assures even stem seal pressure
- One-piece ductile iron body is standard for ASME (ANSI) Class 150 & PN16; carbon steel is standard for ASME (ANSI) Class 300. 316 SS and other alloys available for body armor and plug insert
- Large port areas assure low pressure drop and higher  $C_v$  ( $K_v$ )
- V-port plugs available for modulating control (1 in [25 mm] thru 4 in [100 mm])
- ISO 5211 mounting pad

### Applications

- Chemical processing acids, waste acids, acid brines, bath solutions and other severe corrosives
- Automated valves

### Sizes

- T4E1 Class 150: NPS 0,5 to NPS 14
- T4E2 PN16: DN 015 to DN 300
- T4E3 Class 300: NPS 0,5 to NPS 12

### Ratings

- T4E1 rated 180 psi (12.5 bar) @ 400 °F (205 °C); 250 psi (17 bar) @ 100°F (38°C)
- T4E2 rated 180 psi (12,5 bar) @400 °F (205 °C); 250 psi (17 bar) @ 100°F (38 °C)
- T4E3 rated 320 psi (22 bar) @ 400 °F (205 °C); 740 psi (51 bar) @ 100 °F (38°C)

### Standards

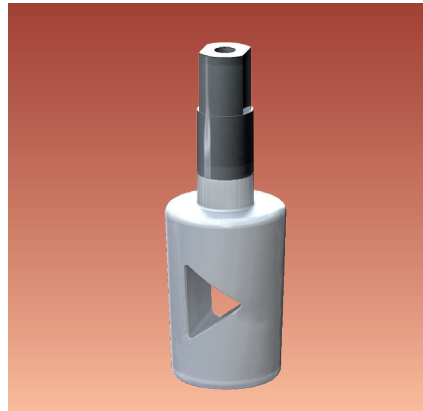
- EN 1092-2 • ASME B16.34
- EN 558 • ASME B16.10
- EN 12516 • ASME B16.5

### Pressure Rating

- Class 150
- PN16
- Class 300

Get Bulletin DVENBR0066, FCD DVATB0001

## Durco T4E V-Port Plug



### Features

- Offers precise modulating control
- Can be used in a wide range of corrosive applications
- T4E V-port control valves are available in a wide variety of trims to satisfy the user's exact flow control needs.
- Available with full open  $C_v$  values of 0.75 to 187 ( $K_v$  0.65 to 161)

### Applications

- Chemical processing, acids, acid brines and other severe corrosive applications
- Modulating flow control

### Sizes

- NPS 0,5 to NPS 4
- DN 025 to DN 100

### Ratings

- T4E1 rated 180 psi (12.5 bar) @ 400 °F (205 °C); 250 psi (17 bar) @ 100°F (38°C)
- T4E3 rated 320 psi (22 bar) @ 400 °F (205 °C); 740 psi (51 bar) @ 100 °F (38°C)
- T4E2 rated 180 psi (12,5 bar) @400 °F (205 °C); 250 psi (17 bar) @ 100°F (38 °C)

### Standards

- EN 1092-2 • ASME B16.34
- EN 558 • ASME B16.10
- EN 12516 • ASME B16.5

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## Atomac AKH2, AKH3, AKH2A Lined Ball



### Features

- PFA lining in the body and on flange faces plus a PFA encapsulated ball maximizes corrosion resistance while eliminating potential leak paths
- Adjustable PTFE chevron packing provides stem seal integrity while maintaining low torque
- Extended, live-loaded packing for additional fugitive emission protection available
- Graphite bearing prevents stem side loading and extends seal life
- Anti-blowout stem assembly even if top works disassembled
- Floating ball seat design for bubble-tight shut off across the pressure range
- Separate ball/stem connection greatly reduces side loading to extend stem seal life
- Metallic and ceramic ball material options are available
- Minimal cavity space minimizes retention of process media
- ISO 5211 mounting pad

### Applications

- Severely corrosive chemical processing
- Automated valves

### Sizes

- AKH2 full port: NPS 0,5 to NPS 14  
DN 015 to DN 300
- AKH3 reduced ball: NPS 1 to NPS 14
- AKH2A full port: NPS 1 to NPS 6
- AKH2-300 full port: NPS 1 to NPS 6

### Standard

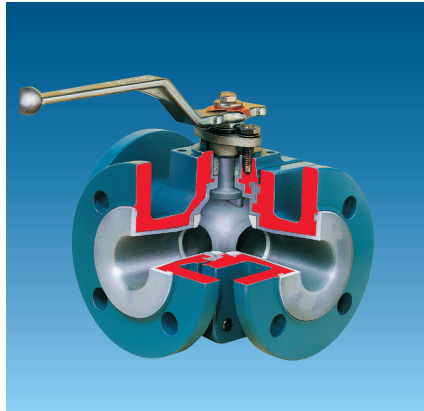
- ASME B16.5
- ASME B16.10
- EN 558
- EN 1092-2
- EN 12516

### Pressure Rating

- PN16
- Class 150

Get Bulletin ATETB001.

## Atomac AMP3 3-Way Lined Ball



### Features

- The AMP3 is available with a L-ball or T-ball configuration to offer a wide variety of flow pattern for 90° or 180° flow combinations. Optional flow arrangements upon request
- High flow capacity with minimal pressure loss through the valve, thereby reducing plant operating cost
- Compact design permits use where space is at a premium
- Lower cost than alloy valves with equal or superior corrosion resistance in difficult services
- PFA standard material for valve lining and encapsulated ball. Rated for services to 400°F (200°C) and ambient pressures to 285 psi (19.7 bar)
- Floating ball seat design for bubble-tight shut-off across the pressure range
- Separate ball/stem connection greatly reduces side loading to extend stem seal life
- Anti-blowout stem assembly even if top works disassembled
- Adjustable PTFE chevron packing provides stem seal integrity while maintaining low turning torque
- Graphite bearing prevents stem side loading and extends seal life
- ISO 5211 mounting pad
- Minimal Cavity space minimizes retention of process media

### Applications

- Severely corrosive chemical processing
- Automated valves

### Sizes

- NPS 1 to NPS 6
- DN 025 to DN 150

### Standards

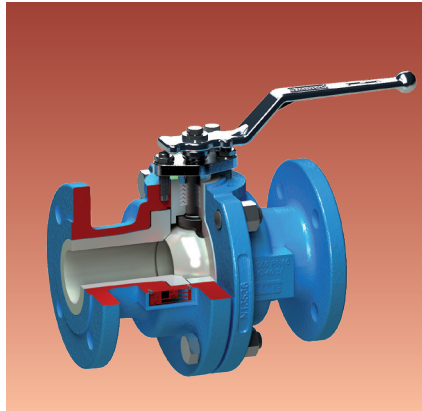
- ASME B16.5
- EN 1092-2
- EN 558
- EN 12516

### Pressure Rating

- PN16
- Class 150

Get Bulletin ATETB001.

## Atomac AKH5 Ceramic Lined Ball



### Features

- Lining, ball and stem are made of solid Mg-PSZ (transformation toughened magnesium partially stabilized zirconia) for superior abrasion resistance. Excellent strength and thermal shock resistance
- Wide selection of stem material options, including 316 SS, Hastelloy C-276 or Mg-PSZ ceramic
- Mg-PSZ ceramic can be applied in services to 660 °F (350 °C). Temperature shock resistant to Δ 302°F (150°C)
- Equal to the metal hardness of Rockwell 89
- PTFE chevron or graphite packing rings in the deep stuffing box protects against external leakage to atmosphere
- Stem sealing requires virtually no maintenance and provides low stem torque. Adjuster and packing gland feature a ball and socket fit for even stem sealing reliability
- Ball seals against machined seat area for bubble-tight shut-off
- Full port minimizes pressure loss and increases flow capacity to reduce energy and pumping costs
- ISO 5211 mounting pad

### Applications

- Severely abrasive/corrosive chemical processing at elevated temperatures
- Automated valves

### Sizes

- NPS 1 to NPS 6
- DN 025 to DN 150

### Standards

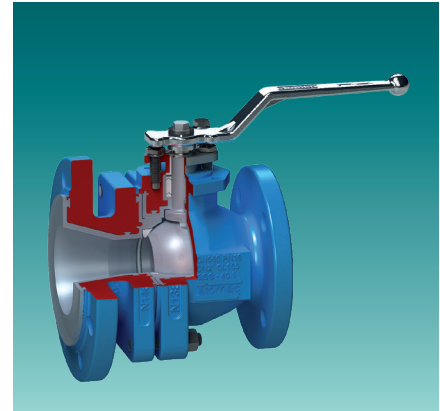
- ASME B16.5
- EN 558
- EN 1092-2
- EN 12516

### Pressure Rating

- PN16
- Class 150

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## Atomac AKH6 Tank Drain



### Features

- Primarily used for tank drainage. AKH6 valves are also commonly installed in place of reducing spools to downsize piping dimensions
- Designed with a larger inlet port, the valve's full port design minimizes pressure loss and increases flow capacity to reduce energy and pumping costs
- PFA liners offer both long service life and superior corrosion resistance.
- Liner's inert non-stick properties make it ideal for highly viscous or high purity services
- Positive stem seal with adjustable PTFE chevron packing
- Floating ball seat design for bubble-tight shut-off across the pressure range
- Anti-blowout stem assembly
- ISO 5211 mounting pad
- Minimal Cavity space minimizes retention of process media

### Applications

- Chemical processing
- Food and beverage
- Automated valves

### Sizes

- NPS 1/2 to NPS 6/8
- DN 025/050 to DN 150/250

### Standards

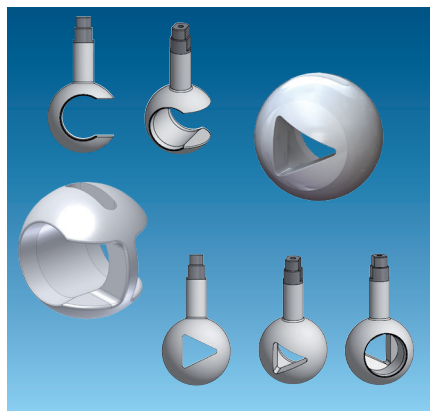
- ASME B16.5
- EN 1092-2
- EN 12516

### Pressure Rating

- PN16
- Class 150

Get Bulletin ATETB001.

## Atomac V-Port & C-Port Control



### Features

- Characterized ball options
  - V-port ball control valve available for throttling services in both fluoropolymer lined and ceramic lined models
  - C-ball eliminates media build-up in ball cavity
- Low, constant and predictable torque
- Thrust bearing supported stem to eliminate side-loading of packing and subsequent leakage during cycling
- Floating ball design for bubble-tight shut-off across the pressure range
- Long-life seats to minimize downtime and maintenance
- ISO 5211 mounting pads
- Characterized ball options (V-ball & C-ball) are available on these valve models:
  - AKH2            – AKH2.2
  - AKH2A        – AKH7
  - AKH3           – AKH8
  - AKH5           – AKH8A
  - AKH6           – AtoStar

### Applications

- Modulating flow control

### Sizes

- V-Port:
  - NPS 0,5 to NPS 6
  - DN 015 to DN 150
- C-Port:
  - NPS 0,5 to NPS 6
  - DN 015 to DN 150

### Standards

- According to valves

Get Bulletin ATETB001.

## Atomac AKH7-KP For Glass Pipe



### Features

- Designed for easy installation in glass systems with socket/ball or plane ends according to DIN EN 12585
- Molded fluorocarbon resin liners are made of either PFA, depending upon application
  - Long service life and high corrosion resistance due to uniform and blowhole-free thickness
  - Non-stick properties ideal for handling highly viscous fluids or those process applications with high purity requirements
  - Available with conductive materials for the linings, seals and gland packings
- Long-term protection against atmospheric leakage provided by adjustable PTFE chevron packing rings in the deep stuffing box and by the molded liner/seal
- Stem is internally assembled to eliminate possibility of blowout
- Floating ball seat design for bubble-tight shut-off across the pressure range
- Separate ball/stem connection greatly reduces side loading to extend stem seal life
- Anti-static device protects against potentially dangerous electrostatic discharge
- Minimal Cavity space minimizes retention of process media
- ISO 5211 mounting pad

### Applications

- Chemical processing
- Food and beverage
- Automated valves

### Sizes

- DN 025 to DN 050

### Standards

- ASME B16.5           • EN 1092-2
- EN 12585            • EN 12516

### Pressure Rating

PN16

### Other Configurations

- AKH7 - KB short Face-to-Face, Wafer
- AKH7 - GK for glass connection with splitting, short face-to-face
- AKH7 - KPF for glass connection with ball, flange connection

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## Atomac AKR2 Piston Check Valves



### Features

- The piston is spring loaded to ensure tight closure
- Check valve can be used in vertical or horizontal orientation
- Piston check valves are designed to handle applications having low differential pressure
- The valve body is all lined with PFA as standard. Other lining materials are available

### Applications

- Chemical processing

### Sizes

- NPS 0,5 to NPS 8
- DN 015 to DN 200

### Standards

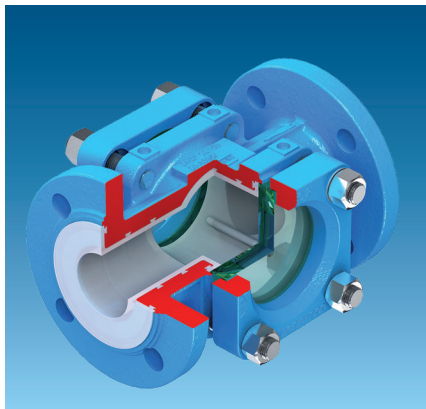
- ASME B16.5
- EN 558
- EN 1092-2
- EN 12516

### Pressure Rating

- PN16
- Class 150

Get bulletin ATETB001

## Atomac ASG Lined Sight Glass



### Features

- Offers clear visual inspection from either side
- Integrated drip lip provides visual flow indication even at low velocity
- Highly corrosion resistant liners
  - All internal components (other than the glass) have same molded fluorocarbon liners
  - PFA, depending upon the application, offer long service life and high corrosion resistance due to thick, uniform blowhole-free liner
  - Non-stick and inert properties are ideal for highly viscous and high purity applications
- Borosilicate safety glass is utilized to withstand high temperatures, mechanical stress and corrosion

### Applications

- Chemical processing

### Sizes

- NPS 1 to NPS 10  
DN 025 to DN 250
- ASG3 - 3 way:  
DN 025 to DN 100
- ASG4 - 4 way:  
DN 025 to DN 080

### Standards

- ASME B16.5
- EN 558
- EN 1092-2
- EN 12516

### Pressure Rating

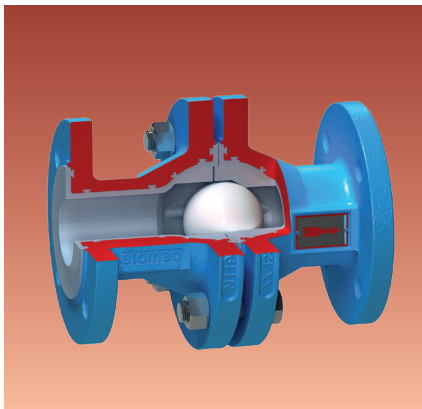
- PN16
- Class 150

### Other Configurations

- ARV/SG sight glass with integral check valve

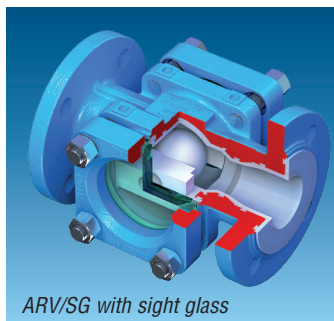
Get Bulletin ATETB001.

## Atomac ARV2 Lined Check Valves



### Features

- Vertical or horizontal installation, depending upon application
- Solid PTFE ball has the same properties as the PFA lining material. Optional hollow PTFE ball
- Full port design offers excellent flow characteristics to minimize pressure loss
- Minimum opening pressure to unseat the ball in the vertical position is 1 psi (0.07 bar)
- Borosilicate safety glass, in accordance with DIN 7080, withstands high temperatures, mechanical stress and corrosion



ARV/SG with sight glass

### Applications

- Chemical processing

### Sizes

- NPS 2 to NPS 16  
DN 050 to DN 400
- ARV/SG:  
NPS 1 to NPS 4  
DN 025 to DN 150

### Standards

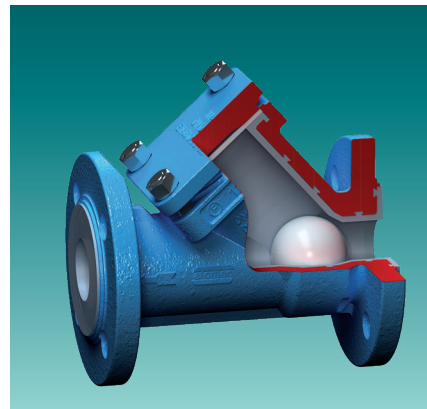
- ASME B16.5
- EN 558
- EN 1092-2
- EN 12516

### Pressure Rating

- PN16
- Class 150

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## Atomac ARL Angle Check Valve



### Features

- Fully PFA Lined angle check valves are applicable for a wide range of corrosive applications.
- Can be installed vertically or horizontally
- PTFE Ball falls into machined seat within valve body when pressure cuts off
- Offer unobstructed flows as ball is pushed into angle section during normal flow conditions
- Where there is moderate turbulence, the choice of the ARL is the ideal solution to avoid liner damage

### Applications

- Chemical processing

### Sizes

- NPS 1 to NPS 3
- DN 025 to DN 080

### Standards

- ASME B16.10
- ASME B16.5
- EN 558
- EN 1092-2
- EN 12516

### Pressure Rating

- PN16
- Class 150

Get Bulletin ATETB001.

## Atomac ARK2 Swing check valve



### Features:

- Fully PFA Lined Swing check valves are ideal for use in highly corrosive applications
- Can replace swing check valves made from exotic alloys due to the universal corrosion resistance of the fluoropolymer lining
- Can be used in vertical or horizontal installations
- Will seal even in conditions of very low system pressure
- Mimimizes potential leak path of conventional design since seat face is integrated in the body
- Disc can swing freely without interference from the diameter of the connecting pipe

### Applications

- Chemical processing

### Sizes

- NPS 2 to NPS 16
- DN 050 to DN 400

### Standards

- EN 558
- EN 1092-2
- EN 12516
- ASME B16.10
- ASME B16.5

### Pressure Rating

- PN16
- Class 150

Get Bulletin ATETB001

## Atomac AtoPro Sampling



### Features

- Provides safe sampling of toxic or highly corrosive media without interruption of process flow
- Manual or automatic operation for convenience or safety
- Horizontal or vertical piping installation
- PFA or conductive linings available
- Designed with a minimum of dead space
- Sample volumes between 15 and 90 ml
- Optional connections for sample bottles
- 180° turn of the handle captures, isolates and discharges a sample into the bottle. The process remains isolated at all times
- Available also as lined and non lined stainless steel valve
- Minimal Cavity space minimizes retention of process media

### Applications

- Chemical processing

### Sizes

- DN 025 to DN 080

### Standards

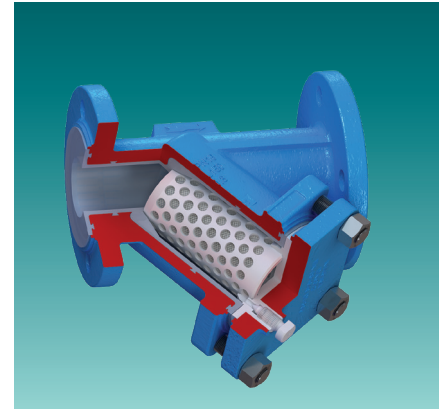
- EN 558
- EN 1092-2
- EN 12516

### Pressure Rating

PN16

Get Bulletin ATETB001.

## Atomac ASF Lined Strainer



### Features

- Corrosion resistant filter insert: consists of two perforated PTFE cylinders with an ETFE filter screen in between
- Same outstanding corrosion resistant properties as the PFA lining material
- Standard mesh is 60 (300 micron)  
Optional mesh: 150 micron  
1000 micron  
2000 micron  
Other mesh openings on request
- Easy servicing and maintenance as the filter insert can be changed or cleaned with the strainer in-line
- Residual fluid in insert area can be evacuated by means of the PTFE drain plug prior to removal of the access flange
- Optional ball valve may be specified in place of PTFE plug for added operator safety and convenience
- Flowpath through the filter insert is a larger area than the original pipe cross-section. This minimizes pressure loss

### Applications

- Chemical processing

### Sizes

- NPS 1 to NPS 8
- DN 025 to DN 200

### Standards

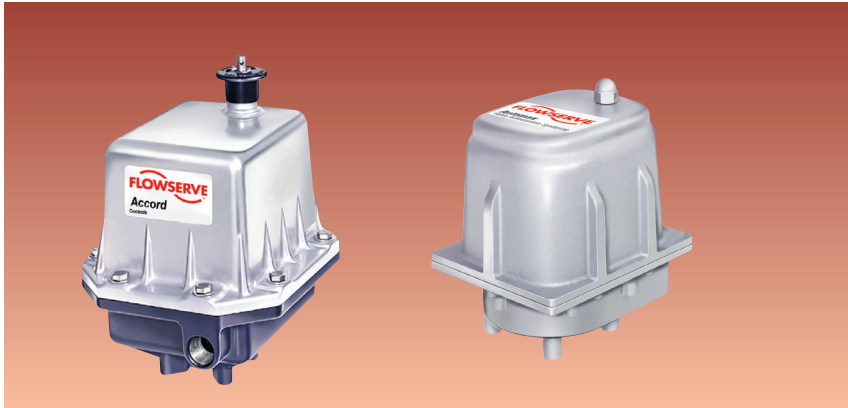
- ASME B16.5
- ASME B16.10
- EN 558
- EN 1092-2
- EN 12516

### Pressure Rating

- PN16
- Class 150

Get Bulletin ATETB001.

## Centura Series Electric Actuators



### Features

- CE Series
  - Electrical cut-off switch; captive cover bolts; Quick-Set cams; simple mounting arrangements; heavy-duty brake option; 3/4 NPT conduits standard; massive gear train; rugged single phase permanent split capacitor gearmotor, NEMA 4, 4x, 7, 9
- AE Series
  - Captive cover bolts; Quick-Set cams; 1/2-inch NPT conduits standard; permanently lubricated, precision cut, heat treated alloy steel gear train; rugged single phase permanent split capacitor gearmotor; corrosion resistant housing; manual override standard, NEMA 4
- Control Boxes
  - Available for a variety of local and remote control options, Control Boxes are available in engineered resin, carbon steel, and stainless steel enclosures with weatherproof and explosion-proof approvals

### Models Available

- CE Series
  - the workhorse of the Centura series
- E Series
  - combines maximum performance and corrosion in one package

### Torque Range

Up to 3500 in-lbs (4031 cm-kg) depending upon the model

### Temperature Range

-40 Deg F (with heater) to 158 Deg F (-40 Deg C to +70 Deg C) depending upon the model

### Supply Voltage

- 115 VAC 50/60, 12 VDC, 24 VDC, 230 VAC 50/60, 24 VAC
- On-Off, 3-position control, and modulating options are available

- Fieldbus digital communications available in AS-i, FOUNDATION Fieldbus, and PROFIBUS DP protocols

### Applications

- HVAC, Mining, Water
- Power Generation, Nuclear Service
- Oil & Gas

### Standards

- NEMA 4, 4x, 7 and 9

Get more information:

Product catalog:  
AC-2

Installation instructions:

CE Series ACEIM0075 (AC-75); ACEIM0075 (AC-75)

## SuperNova B-Series Actuators



### Features

- Twin piston rack and pinion actuator
- Corrosion and wear resistant hard anodized aluminum housing
- Nitride chemical conversion process for pinion corrosion resistance
- Field convertible double acting and spring return models
- 180 degree double acting
- Compliance to NAMUR VDI/VDE 3845 mounting specifications for controls and accessories
- Compliance to ISO 5211 mounting specifications for actuator to valve interface
- Field reversible fail action
- Precision die cast pistons have full length gear engagement, large cylinder bearings, and piston guide bands to ensure long life
- Flats on pinion drive shaft for manual overrides and accessories
- Upper and lower pinion bearings to ensure long cycle life
- Integral bi-directional travel stops
- Concentric-nested spring design ensures extended spring life
- 11 standard sizes
- IEC 61508 SIL2 Capable

### Torque Range

Up to 58,232 in-lbs (6579 Nm)

### Temperature Range

-55 °F to +300 °F  
-50 °C to +150 °C

### Maximum Pressure

150 psi (10 bar)

### Applications

- HVAC, Mining, Water
- Chemical
- Petrochemical & Refining
- Process Industries

### Standards

- ISO 5211
- NAMUR VDI/VDE 3845
- ATEX Directive 94/9/EC

Get Bulletin AXENBR0005

## SuperNova Actuator NAMUR Accessories



- S25N Directional Valve
  - Mounts directly to SuperNova series actuators which eliminates the cost of tubing and fittings. The high 1.8 C<sub>v</sub> spool valves are available for double acting and spring return actuators with NEMA 4, 7 and 9 or intrinsically-safe and low power solenoid operators.
  - For more information see bulletins (AUTO-95) AXENBR0005 and (AUTO-12) AXENIM0012*
- APS1 Air Purge Module
  - Provided with the S25N solenoid valve, the APS1 diverts instrument quality exhaust air from between the pistons into the spring chamber, preventing corrosive atmospheres from being pulled into the spring chamber.
  - For more information see bulletins (AUTO-95) AXENBR0005 and (AUTO-15) AXENIM0015*
- APS2 Air Purge Module
  - Provided for remote/line mounted solenoid valves, the APS2 diverts instrument quality exhaust air from between the pistons into the spring chamber, preventing corrosive atmospheres from being pulled into the spring chamber.
  - For more information see bulletins (AUTO-95) AXENBR0005 and (AUTO-16) AXENIM0016*
- LV1 Lockout & Vent Valve
  - May be used with a manual override to shut off supply air and to vent actuator. May also be used as a pneumatic lockout valve which, when properly implemented, will satisfy OSHA Standard 1910.47. May be sandwich mounted with other Automax NAMUR accessories or may be used with the NPT1 adaptor.
  - For more information see bulletins (AUTO-95) AXENBR0005 and (AUTO-17) AXENIM0017*
- FC1, FCDA and FCSR
  - Flow control modules provide compact and precise adjustment of SuperNova actuator speeds. May be sandwich mounted with other Automax accessories or may be used with the NPT1 adaptor.

*Get Bulletins AXENBR0005 and AXENIM0018*

## SuperNova Actuator Accessories



- Lockouts
  - Permits easy mechanical lockout of automated valves. Lockouts can be field retrofitted and are designed to withstand the rated output torque of the actuator, with the intent to meet the requirements of OSHA Standard 1910.47 (The Control of Hazardous Energy, Lockout / Tagout)
- Gear Overrides
  - Declutchable gear overrides are options that allow local manual control of actuated valves and dampers. The gear overrides are sized for easy operation and can be combined with other control accessories
- “Pharos” NAMUR Indicator
  - Provides an economical solution for positive visual indication of the actuator position. The Pharos NAMUR Indicator, constructed of tough industrial engineered resin, can be used on actuators that utilize a NAMUR mounting interface.
  - For more information see bulletins (AUTO-24) AXENBR0006 and (AUTO-22) AXENIM0022*
- AutoBrakits
  - Heavy-duty mounting kits are designed to close tolerances to assure consistency and proper alignment, which are essential to ensure maximum actuator and valve cycle life

*Get Bulletin AXENBR0005*

## SXL Series Stainless Steel Actuators



### Features

- Twin piston rack and pinion actuator
- Field convertible double acting and spring return models
- Compliance to NAMUR VDI/VDE 3845 mounting specifications for controls and accessories
- Compliance to ISO 5211 mounting specifications for actuator to valve interface
- Optional air purge modules available
- Flats on pinion drive shaft for manual overrides and accessories
- Upper and lower pinion bearings to ensure long cycle life
- Precision die cast pistons have full length gear engagement, large cylinder bearings, and piston guide bands to ensure long life
- Integral bi-directional travel stops
- Field reversible fail action
- Concentric-nested spring design ensures extended spring life
- Optional SST pistons and springs are available for optimum corrosion resistance
- Seven standard sizes
- Ideal for corrosive and sanitary environments

### Torque Range

Up to 8,734 in-lbs (987 Nm)

### Temperature Range

-55 °F to +300 °F  
(-50 °C to +150 °C)

### Maximum Pressure

120 psi (8 bar)

### Applications

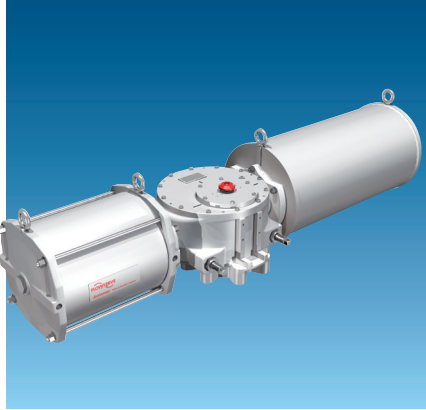
- HVAC, Mining, Water
- Chemical
- Petrochemical & Refining
- Process Industries

### Standards

- ISO 5211
- NAMUR VDI/VDE 3845

*Get Bulletin AXENBR0005*

## RG Series Heavy-Duty Scotch Yoke Actuator



### Features:

- True Modular Design
- On-Off, Multi-Position and Throttling
- Pneumatic, Gas and Hydraulic Models
- Spring Return "Fail Safe" and Double Acting
- Jack Screw, Sandwich Gear and Hydraulic Overrides
- IEC 61508 SIL 3 Suitable
- IP67M Ingress Protection
- Nuclear Capable, NQA-1

### Torque Range:

- DA – 2.2M in-lbs. (248K Nm)
- SR – 1.2M in-lbs. (124K Nm)

### Temperature Range:

- Std: -20 °F to +180 °F  
-29 °C to +82 °C
- High Temp: 0 °F to +300 °F  
-18 °C to +149 °C
- Low Temp: -55 °F to +180 °F  
-48 °C to +82 °C
- Extreme Low Temp: -67 °F to +180 °F  
-55 °C to +82 °C

### Pressure Range:

- Pneumatic: 40 - 150 psi (3 - 10 bar)
- Hydraulic: 500 - 3000 psi (34 - 207 bar)

### Standards:

- IP67M (1 meter depth for 30 minutes)
- IEC 61508 SIL 3 Suitable
- ATEX Certified

### Applications:

- Chemical, Petrochemical & Refining
- Oil & Gas, Power

Get Bulletin AXENBR0005-03

## UltraSwitch WS/WM-Series



### Description

Provides a compact and economical globally-certified weatherproof, non-incendive or intrinsically safe package for visual and remote electrical indication of valve position.

### Features

- UltraDome visual position indicators for high contrast, wide angle viewing
- Compliance to NAMUR VDI/VDE 3845 mounting specifications eliminates coupler and maximizes interchangeability
- Captive stainless steel cover screws
- Prewired multipoint terminal strip
- Quick-Set spring loaded cams are extra wide and splined to permit tool-free limit switch calibration
- Extensive switch offering for a wide range of applications including mechanical, proximity and solid state feedback options

### Housing Material

Die cast aluminum; dichromate conversion undercoat; electrostatic powder top coat  
Engineered resin enclosure; 25-33% fiber-glass-filled for harsh, corrosive applications

### Standards

- IP66, IP67, NEMA 4, 4x

### Hazardous Area Classifications

- Intrinsically Safe ATEX II 1GD Ex ia IIC T4/T5/T6
- Intrinsically Safe cCSAus, Cl. I, Div. 1, Gr. A,B,C,D, Cl. II, Div. 1, Gr. F,G, Cl. III T3
- Non-Incendive cCSAus, Cl. I, Div. 2, Gr. A,B,C,D, Cl. II, Div. 2, Gr E,F,G T3

Get Bulletin AXENBR0134

## UltraSwitch XCL/XML-Series



### Description

Provides a heavy-duty and rugged globally-certified explosion-proof package for visual and remote electrical indication of valve position.

### Features

- UltraDome visual position indicators for high contrast, wide angle viewing
- Compliance to NAMUR VDI/VDE 3845 mounting specifications eliminates coupler and maximizes interchangeability
- Captive stainless steel cover screws
- Prewired multipoint terminal strip
- Quick-Set spring loaded cams are extra wide and splined to permit tool-free limit switch calibration
- Extensive switch offering for a wide range of applications including mechanical, proximity, solid state, and analog feedback options

### Housing Material

Die cast aluminum; dichromate conversion undercoat; electrostatic powder top coat

### Standards

- IP66, IP67, NEMA 4, 4X, 7 and 9

### Hazardous Area Classifications

- Flameproof ATEX II 2GD Ex d IIB T5, Ex tD A21 IP66/IP67
- Flameproof IECEx Ex d IIB T5, Ex tD A21 IP66/IP67
- IExplosion-Proof cCSAus Cl. I, Div. 1, Gr. C & D, Cl. II, Div. 1, Gr. E,F,G, Cl. III, T3
- Non-Incendive cCSAus Cl. I, Div. 2, Gr. A,B,C,D T3
- Intrinsically Safe FM(US/CAN)/cCSAus, Cl. I,II,III, Div. 1, Gr. A,B,C,D,E,F,G T5
- KOSHA Ex d IIB T5
- INMETRO Ex d IIB T5 Gb, Ex tb IIIC T100 °C Db IP65

Get Bulletin AXENBR0006



## UltraSwitch PS/PM-Series



### Description

Engineered resin enclosure provides excellent protection in harsh, corrosive environments. Globally-certified weatherproof, non-incendive or intrinsically safe package for visual and remote electrical indication of valve position.

### Features

- UltraDome visual position indicators for high contrast, wide angle viewing
- Compliance to NAMUR VDI/VDE 3845 mounting specifications eliminates coupler and maximizes interchangeability
- Captive stainless steel cover screws
- Prewired multipoint terminal strip
- Quick-Set spring loaded cams are extra wide and splined to permit tool-free limit switch calibration
- Extensive switch offering for a wide range of applications including mechanical, proximity, solid state and analog feedback options

### Housing Material

Engineered resin enclosure; 25 - 33% fiberglass-filled for harsh, corrosive applications

### Standards

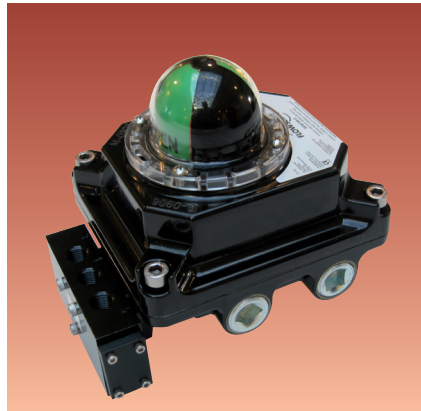
- IP66, NEMA 4, 4X

### Hazardous Area Classifications

- Intrinsically Safe ATEX II 1G Ex ia IIC T4/T5/T6
- Increased Safety ATEX II 2G Ex e mb IIC T6
- Intrinsically Safe IECEX Ex ia IIC T4/T5/T6
- Intrinsically Safe cFMus/cCSAus, Cl. I,II,III, Div. 1, Gr. A,B,C,D,E,F,G T5
- Non-Incendive cFMus/cCSAus, Cl. I, Div. 2, Gr. A,B,C,D, Cl. II, Div. 2, Gr E,F,G T5

Get Bulletin AXENBR0006

## Aviator II Integrated Valve Controller



### Description

Designed for use with pneumatic rotary industrial valve actuators in hazardous locations. With the same features as the UltraSwitch, the Aviator provides actuator/valve control by receiving a direct solenoid voltage signal. Also provides remote indication of open and closed valve positions by completing separate electrical circuits.

### Housing Material

- Die cast aluminum; dichromate conversion undercoat; electrostatic powder top coat (XVU model)
- Engineered Resin (WR model)

### Standards

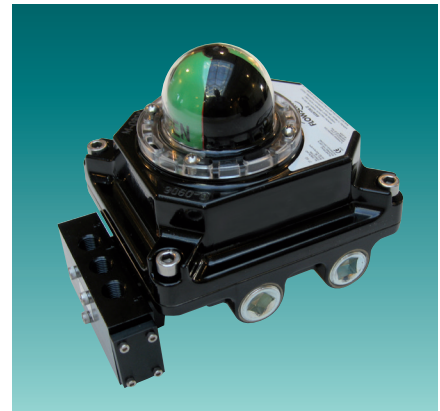
- IP65, NEMA 4, 4X, 7 and 9

### Hazardous Area Classifications

- Flameproof ATEX II 2G Ex d IIB T3/T4
- Flameproof IECEX Ex d IIB T3/T4 IP65
- Explosion-Proof cCSAus Cl. I, Div. 1, Gr. C & D, Cl. II, Div. 1, Gr. E,F,G, Div. 2 F,G, Cl. III
- Flameproof cCSAus Cl. 1, Zone 1, Gr. IIB, Ex d IIB T3/T4 IP65, Aex d IIB T3/T4 IP65
- Non-Incendive cCSAus Class I, Div. 2, Gr. A,B,C,D
- Intrinsically Safe FM(US/CAN)/cCSAus, Cl. I,II,III, Div. 1, Gr. A,B,C,D,E,F,G T5
- INMETRO Exd IIB Gb T3/T4 IP65

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## BUSwitch Integrated Valve Controller



### Description

Designed for use with pneumatic rotary industrial valve actuators in hazardous locations with digital fieldbus communications. With the same features as the Aviator, the BUSwitch provides actuator/valve control by receiving a direct solenoid voltage signal. Also provides remote indication of open and closed valve positions by completing separate electrical circuits. Available in the following protocols: AS-i, DeviceNet, FOUNDATION Fieldbus and PROFIBUS DP.

### Housing Material

- Die cast aluminum; dichromate conversion undercoat; electrostatic powder top coat (XVU model)
- Engineered Resin (WR model)

### Standards

- IP65, NEMA 4, 4x (XVU model)
- NEMA 4, 4x (WR model)

### Hazardous Area Classifications

- cCSAus Class 1, Div. 1 & 2, Groups C,D, Class 2, Div. 1 & 2, Groups E,F,G
- Class II, Division 2 Groups F&G
- Class I, Division 2, Groups A, B, C, D on your network. Even create reports for configuration, calibration, and event data.
- Focus on device health, not alarms. Alarms can be confusing and difficult to interpret, so ValveSight uses the manufacturer's experience to translate alarms into an overall assessment of health so you don't have to.
- Focus on "why," not just "what." ValveSight helps you to identify root causes, not just symptoms, so you can fix the problem the first time.
- Understand proactive steps that can be taken to keep your process running longer, and what you need to do NOW.

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## APEX 7000 Positioner



### Description

Compact, rugged design provides accurate valve positioning at a competitive price. Available with pneumatic and electro-pneumatic input options that can be field retrofitted.

### Housing Material

Die cast aluminum with electrostatic epoxy powder coating or TUFAM Severe Service Coating

### Features

- Compact, rugged design has few moving parts adding to its reliability and performance
- Non-interactive zero and span adjustment greatly simplifies and reduces calibration.
- Interchangeable I/P Modules allow positioner to be field converted for 3-15 psi or 4-20 mA input signals
- Multiple cam options allow configuration of positioner characteristics to match valve requirements
- Gold-plated spool valves available in low or high flow versions to match actuator/valve load requirements
- Low-profile flat or optional UltraDome visual indicator provides full-area, wide angle viewing of valve position.
- Compliance to NAMUR VDI/VDE 3845 mounting specifications eliminates coupler and maximizes interchangeability
- Captive stainless steel cover screws
- Top-Mounted UltraSwitch optional for position feedback requirements

### Standards

NEMA 4, 4x

### Hazardous Area Classifications

- FM/CSA Class I, Divisions 1 and 2, Groups B,C,D
- FM/CSA Class II, Groups E, F, G
- ATEX II 2 G EEx d IIB + H2
- ATEX II 2 G EEx d IIC
- FM Intrinsically Safe ATEX II 2 G EEx ia IIC
- FM Intrinsically Safe Class I, Division 1, Groups A,B,C,D

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## APEX 8000 Positioner



### Description

The APEX 8000 positioner provides extremely precise control for a wide range of valve and damper applications.

The two-stage pneumatic relay provides faster, more sensitive response characteristics to meet the most demanding control objectives. Pneumatic and electro-pneumatic input options available that can be field retrofitted. Also available with many advanced features such as limit switch feedback, analog feedback and UltraDome visual position indicators.

### Housing Material

Die cast aluminum with electrostatic powder coating or optional epoxy coating

### Features

- Low profile flat or optional UltraDome visual position indicator for high contrast, wide-angle viewing of valve position
- Compliance to NAMUR VDI/VDE 3845 mounting specifications eliminates coupler and maximizes interchangeability
- Captive stainless steel cover screws
- Interchangeable I/P Modules allow positioner to be field converted for 3-15 psi or 4-20 mA input signals
- Multiple cam options allow configuration of positioner characteristics to match valve requirements
- Quick-Cal function provides fast, single push-button automatic or option LCD calibration of positioner
- State-of-the-art piezo technology provides precise control with low steady state air consumption
- Local Status LED's provide instant information relating to status and calibration
- AutoTune function and configurable gain selections ensures consistency and optimum performance for control applications
- Optional limit switch and analog feedback options available

### Standards

NEMA 4, 4x, 7 and 9

### Hazardous Area Classifications

- FM Class I, Divisions 1 & 2, Groups B,C,D, Class II, Divisions 1 & 2, E,F,G
- FM Intrinsically Safe Class I, Division 1, Groups A, B, C, D T4
- FM Class I Zone 0 AEx ia IIC T4
- FM Non-incendive Class I, Division 2, Groups A, B, C, D T4
- ATEX Intrinsically Safe II 1 G EEx ia IIC T6
- FM Class I, Division 2, IIC T4
- ATEX II 2 GD EEx d IIB + H2 T6

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## APEX 9000 Digital Positioner



### Description

The APEX 9000 is a compact digital positioner that is very simple and quick to install and operate. The cost competitive package is ideal for weatherproof, non-incendive, intrinsically safe and explosionproof digital positioner applications. To calibrate it, simply press the button for 5 seconds, the APEX 9000 will auto-calibrate and tune itself in a few seconds. The APEX 9000 can be fitted with optional 4-20 mA transmitter feedback and limit switches. HART communication is also possible as an option. For visual indication you can select between flat indicator or an UltraDome indicator.

### Housing Material

Die cast aluminum with electrostatic epoxy powder coat

### Features

- Low profile flat or optional UltraDome visual position indicator for high contrast, wide-angle viewing of valve position
- Compliance to NAMUR VDI/VDE 3845 mounting specifications eliminates coupler and maximizes interchangeability
- Captive stainless steel cover screws
- Quick-Cal One-Button Calibration. Simply set the configuration DIP switches and press the Quick-Cal button. The Direct User Interface permits local access to positioner control and quick commissioning independent of a handheld configurator or laptop/PC. The advanced tuning process optimizes the tuning parameters quickly and automatically.
- Blinking, high visibility LEDs allow you to see status from a distance. With the optional LCD screen, quickly use advanced functions and view the system status in 8 languages. The main LCD view shows command and position and other important information using icons and scrolling status lines – all visible without removing the cover.
- Precision components, inner loop control and advanced control algorithms provide Logix MD+ digital positioners with the accuracy and reliability demanded by the most critical applications.

- Independent gains for opening and closing directions are automatically set during the Quick-Cal and allow for optimal performance with actuators with heavy springs or process loads.
- A rotary Selectable Gain Switch allows you to instantly boost the responsiveness or stability of the valve without directly changing the PID values.
- Two relay options are available to optimize your valve system performance. The high capacity spool relay will quickly move large actuators with ease and are ideal for small actuators that need the fastest response. The spool relay is field convertible for single or double acting applications. The low air consumption poppet relay offers great performance on single acting valves when air consumption is critical.
- Engineered with quality and reliability for safety shutdown applications. Designed to move to the failsafe position when current drops below 3.6 mA per IEC 61508 Safety Integrity Level 3 (SIL3) requirements.
- A fast CPU with a real-time clock and plenty of memory enables the processor to store signatures and time-stamped event histories, calculate diagnostic functions, and maintain precise position control. Over 130 independent diagnostic evaluations during calibration and normal operation provide you with a fast and accurate way to troubleshoot any issue.
- 21-Point Custom Characterization permits the user to control the valve in virtually any position desired for a given input signal
- Jog Calibrate function allows users to easily calibrate the positioner on actuators without physical stroke stops
- Optional limit switch and analog feedback options available. The Logix MD+ Multifunction Card (MFC) can be configured to act as an analog output (AO), discrete output (DO), or discrete input (DI). A variety of Logix MD+ limit switch kits are available to provide independent verification of the position.

### Standards

IP66, NEMA 4, 4x

### Hazardous Area Classifications

- cFMus Non-Incendive CL I, Div. 2, Groups A,B,C,D
- cFMus Intrinsically Safe CL I, Div. 1, Groups A,B,C,D
- ATEX II 1 G Ex ia IIC T4 Ta = -62 to +185 °F (-52 to +85 °C), T6 Ta = -62 to +113 °F (-52 to +45°C)
- IECEx Ex ia IIC T4/T6

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## ValveSight™ FDT/DTM Technology



### Description

ValveSight™ DTM software utilizes FDT/DTM technology and HART protocol to give you 24/7 access to monitor any Logix positioner on your network – all from a single workstation or DCS. ValveSight streamlines and simplifies your ability to quickly and accurately assess the health of any attached Logix device, allowing you to deal with existing problems directly and better understand the magnitude of any developing issues.

### Features

- Open the Dashboard window to gain real-time feedback on the status of your valve including valve stem position, control signal, health indications and active alarms, basic positioner configuration, actuator and supply pressures, supply air humidity, and positioner temperature.
- ValveSight™ DTM Annunciator panels show the current status of all alarms.
- ValveSight™ DTM Health pages show detailed alarm status, list implications and possible solutions and allow you to configure the alarm limits.
- ValveSight™ DTM On-Line Diagnostics pages allow you to monitor and log the positioner sensors, see long term trends and configure the continuous stroke test.
- ValveSight™ DTM Off-Line Diagnostics pages allow you to run Ramp, Step, HDRL and Partial Stroke Tests.
- ValveSight™ DTM calibration and configuration screens fully support Logix MD+ functionality.
- Store configuration and calibration histories and view event logs for each digital positioner

## Digital Positioner Logix 520MD+



### Description

The Logix 520MD+ digital positioner combines state-of-the-art piezo valve technology with inner-loop feedback for extremely precise control for a wide range of valve and damper applications. The cost competitive package is ideal for weatherproof, intrinsically safe and non-incendive digital positioner applications. The Logix 520MD+ is available with the industry standard HART protocol with advanced features such as dual gain tuning, 21-point custom characterization, and signatures for advanced predictive/preventive maintenance diagnostics. Also available with many advanced features such as limit switch feedback, analog feedback and UltraDome visual position indicators.

### Housing Material

Die cast copper-free anodized aluminum with epoxy powder coat

### Features

- Low profile flat or optional UltraDome visual position indicator for high contrast, wide-angle viewing of valve position
- Compliance to NAMUR VDI/VDE 3845 mounting specifications eliminates coupler and maximizes interchangeability
- Captive stainless steel cover screws
- Quick-Cal One-Button Calibration. Simply set the configuration DIP switches and press the Quick-Cal button. The Direct User Interface permits local access to positioner control and quick commissioning independent of a handheld configurator or laptop/PC. The advanced tuning process optimizes the tuning parameters quickly and automatically.
- Blinking, high visibility LEDs allow you to see status from a distance. With the optional LCD screen, quickly use advanced functions and view the system status in 8 languages. The main LCD view shows command and position and other important information using icons and scrolling status lines – all visible without removing the cover.
- Precision components, inner loop control and advanced control algorithms provide Logix MD+ digital positioners with the accuracy and reliability demanded by the most critical applications.
- Independent gains for opening and closing directions are automatically set during the Quick-Cal and allow for optimal performance with actuators with heavy springs or process loads.

### Standards

IP66, NEMA 4, 4x

### Hazardous Area Classifications:

- cFMus Non-Incendive CL I, Div. 2, Groups A,B,C,D
- cFMus Intrinsically Safe CL I, Div. 1, Groups A,B,C,D
- ATEX II 1 G Ex ia IIC T4 Ta = -52°C to 85°C, T6 Ta = -52°C to 45°C
- IECEx Ex ia IIC T4/T6

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## Digital Positioner Logix 3200MD/3400MD, 3200MD+/3400MD+



### Description

The Logix 3200MD / 3400MD digital positioner combines state-of-the-art piezo valve technology with inner-loop feedback for extremely precise control for a wide range of valve and damper applications. The Logix 3200MD / 3400MD is available in an explosion-proof and intrinsically safe enclosure for North American and European hazardous locations. With similar Quick-Cal calibration features of the Logix 520MD+, the Logix 3200MD utilizes a powerful 16-bit microprocessor and state-of-the-art piezo technology to deliver unparalleled performance. The Logix 3200MD utilizes the industry standard HART protocol, the Logix 3400MD is available with the FOUNDATION Fieldbus protocol. Both the Logix 3200MD and the Logix 3400MD provide the customer with advanced features such as dual gain tuning, 21-point custom characterization and signatures for advanced predictive/preventive maintenance diagnostics. Also available with many advanced features such as analog feedback and stainless steel enclosures.

### Housing Material

Die cast aluminum with electrostatic epoxy powder coat. Optional 316 stainless steel enclosure.

### Features

- Compliance to NAMUR VDI/VDE 3845 mounting specifications eliminates coupler and maximizes interchangeability
- 16-Bit Microprocessor provides substantial increase in CPU speed, allowing greater onboard diagnostics and control capabilities
- Quick-Cal function provides fast, push-button automatic calibration of positioner
- Direct User Interface permits local access to positioner control and quick commissioning independent of a handheld configurator or laptop/PC
- Jog Calibrate function allows users to easily calibrate the positioner on actuators without physical stroke stops

### Standards

NEMA 4, 4x, 7 and 9, IP65, IP67

### Hazardous Area Classifications

- Explosion-Proof (cCSAus/ATEX) Class I, Divisions 1, Groups C and D, Class II, Divisions 1, Groups E, F and G
- ATEX II 2 G Ex d IIB T4-T6, II 2 D Ex tD A21 IP65
- IEC Ex - Ex d IIB T4-T6, II 2 D Ex tD A21 IP65
- INMETRO BR Ex d IIB T5
- FM/cCSAus Intrinsically Safe - Class I,II,III, Div. 1, Gr A,B,C,D,E,F,G T5
- cCSAus Non-Incendive CL I, Div. 2 only, Gr A,B,C,D
- KOSHA Ex d IIB T5

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## Automated Systems

*Automax Actuators and Instrumentation allows us to supply complete automated on-off or modulating packages to meet exacting technical requirements.*

*Durco and Atomac valves are readily adaptable for automatic operation because the torque is relatively constant and lubrication is not required.*

*Flowserve, a specialist in complete automation systems, produces a broad line of rack and pinion, heavy duty, electric and linear actuators. In addition, a comprehensive range of engineered special control circuits, solenoid valves, limit switches positioners and actuator mounting kits is offered.*

*Our wide range of electrical and pneumatic instrumentation incorporates:*

- *Digital network communication*
- *Superior diagnostics*
- *Intelligent valve controllers*
- *Comprehensive user-friendly software:*
  - ✓ *On-line accessible Automated Drawing System*
  - ✓ *Control sizing software*
  - ✓ *Actuator sizing software*



### **Acid Service**

*A chemical customer uses the Durco BTV lined butterfly valve mounted with Automax SuperNova rack and pinion pneumatic actuator, manual override and analog positioner*



### **Chlorine Dioxide Service**

*A pulp and paper customer uses the PFA lined Atomac full port ball valve with rack and pinion actuator and Automax switch box*



### **Butadiene Service**

*A petrochemical customer uses a Durco plug valve with rack and pinion actuator and Automax positioner.*

## Performance Valve Sizing and Selection

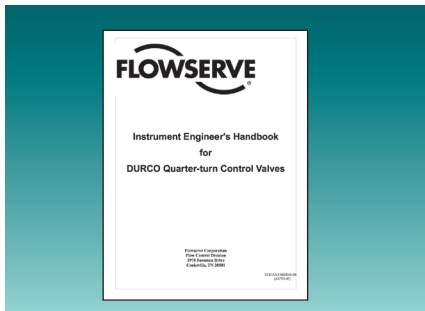


The Performance! Sizing Program helps you identify the control valve package best suited to each set of service conditions. It provides a fast, user friendly and flexible means for:

- Sizing, selecting and generating valve and actuator specifications
- Data entry and verification
- Importing and exporting all spec sheet fields

To learn more, go to [www.flowserve.com](http://www.flowserve.com) and in the search box in the upper right corner, type Performance! - with exclamation mark at the end.

## Flowserve Instrument Engineer's Handbook



Flowserve Instrument Engineer's Handbook for Durco Quarter-turn Control Valves is a publication devoted to the proper selection of Durco Valves for control valve applications. The formulae presented for liquids, gases, and steam are based on the ISA standard S75.01 and are divided into sections to simplify manual calculation for common sizing problems.

To obtain a copy of the Flowserve Instrument Engineer's Handbook visit [www.flowserve.com](http://www.flowserve.com).

## AutoSize Sizing and Selection Software Package

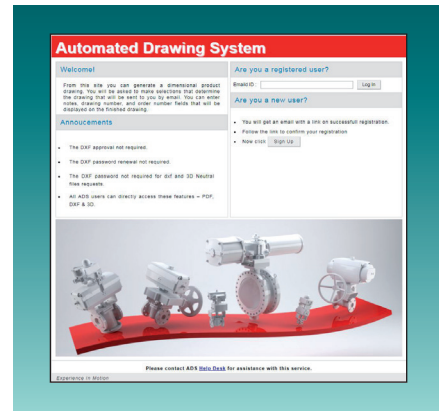


The AutoSize actuator sizing program offers a user friendly windows interface and features intelligent product selection screens suitable for global applications. Engineering calculations include:

- Actuator torque sizing
- Actuator torque curves
- Speed of operation ( $C_v$ , SCFM)
- Hot line distances
- Fail safe accumulator tank sizing

AutoSize is available from your local sales representative.

## Automax Automated Drawing System (ADS)



The Automax Automated Drawing System will allow you to electronically submit assembly drawing requests to our server. Your submittal will create a customized drawing and return it to you via e-mail in a matter of minutes.

To operate the system and submit drawing requests, simply access the website below and select the items that you require in the finished drawing. The finished drawing is returned as a .PDF Adobe Acrobat file.

ADS website: <http://ads.flowserve.com>

## Logix 520MD+/3200MD/3400MD Information Chart

The following information is accessible from the Logix Digital Valve Controller:

### Identification

- Spool identification
- Air action
- Tag number
- Spring type
- Valve style
- Valve material
- Valve body size
- Valve serial number
- Valve manufacturer
- Valve pressure class
- Valve end connections
- Fail position
- Stroke length
- Flow direction
- Trim number/size
- Trim characteristic
- Stem/shaft diameter
- Trim type and material
- Leakage class
- Inlet/outlet pressure
- Actuator size and type
- Device name/description
- Embedded software version
- Electronic serial number
- Engineering units
- Message - up to 32 characters

### Calibration

- Stroke
- 4-20 mA signal
- Pressure sensor
- Calibration date
- Calibrated by initials

### Data Acquisition

- Valve position
- 4-20 mA signal
- Command signal
- Clockwise actuator pressure
- Counter clockwise actuator pressure

### Diagnostics and Signatures

- Step test
- Ramp test
- Internal power test

### Preventive Maintenance

- Actual travel
- Rated travel
- Travel alert
- Packing style
- Cycle counter
- Cycle alert

**Notes:**

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## To Access Literature On-line ▶

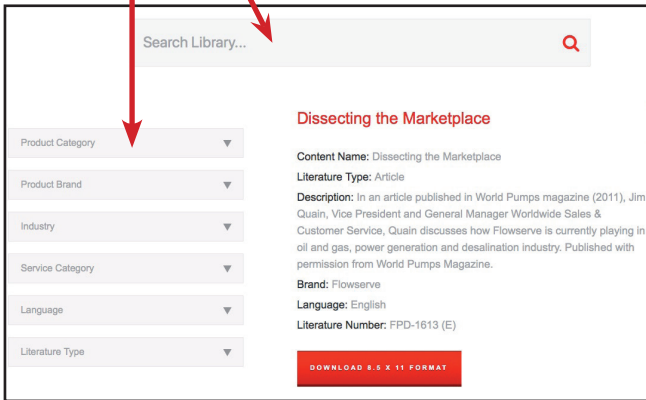
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