

Worcester Controls

Condensed Catalog

CS-100-21

Valve, Actuator, and Control Solutions for Critical Applications

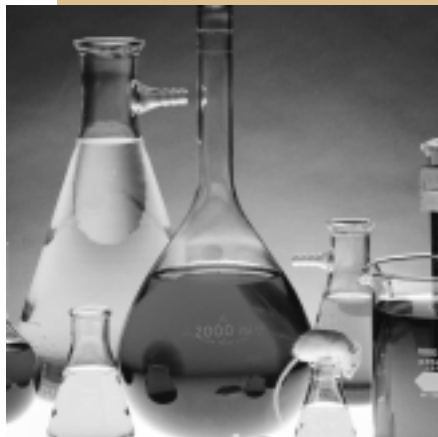


www.worcestercc.com

invensys

Flow Control

Industries Served



Worcester valves, actuators and controls serve a wide range of industries including chemical and petrochemical, pulp and paper, pharmaceutical and biotech, food and beverage, rubber and plastics, oil production, steam and thermal. Specialty ball valves handle cryogenics, toxic fluids, high pressure, batch cooking, high purity gases for microchip manufacturing and high cycle production processes.

- Pulp and Paper
- Steam and Thermal
- Rubber and Plastics
- Food and Beverage
- Chemical and Petrochemical
- Pharmaceutical and Biotech
- Toxic Service and Fugitive Emissions
- Oil Production

Custom Products

Should your application call for products which are not normally available, our Custom Products Department can provide modifications to standard designs, special materials of construction and non-standard accessories to suit your special requirements.



Worcester Controls/McCANNA

is the *Quality Solution*

Worcester Controls began serving the valve industry in the early 1950s as Worcester Valve. Since our inception, Worcester products have served as a benchmark for quality in the industry. Today, Worcester serves an international market and is stronger than ever. One reason is that we realize the key to success is innovation. We work in partnership with our customers to develop durable, reliable, quality products that meet their specialized needs. You can rely upon Worcester's product management, engineering teams, and custom products to provide the technical back-up that your projects may require. Our nationwide network of stocking distributors is your assurance that valves and spare parts are quickly available.

The Worcester products in this catalog reflect the leading edge of ball valve and flow control technology, from utility and general purpose applications to critical processes.



WORCESTER CONTROLS/McCANNA
Corporate Headquarters, Marlborough, MA

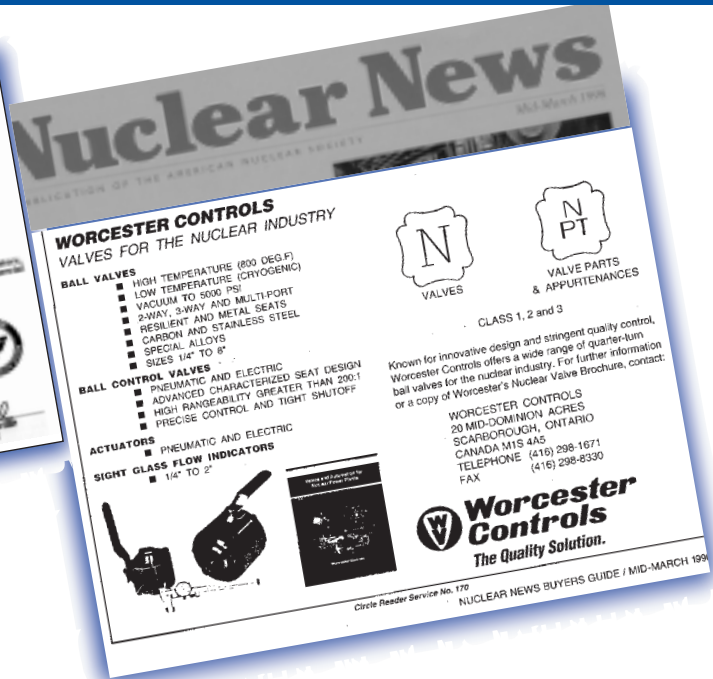
Mission Statement

Worcester Controls / McCANNA is dedicated to maintaining a leadership role as a global manufacturer of high quality valves, actuators, and flow control equipment. Our team's commitment is to exceed the expectations of our customers and to provide:

- The highest quality product *"On Time"*
- Complete service before, during, and after the sale
- Single source accountability
- Custom process engineering capabilities with leading edge designs
- Global availability with adherence to applicable specifications

"Supplying critical application solutions based on more than 100 years of experience"

Manufacturing and Quality Assurance



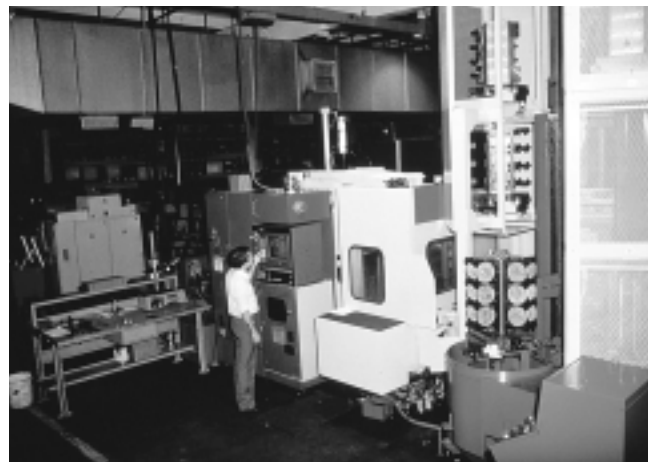
ISO 9001 Setting the Standard

Worcester Controls is an ISO 9001 Registered Company. ISO 9001 is the most stringent standard of the International Organization for Standardization (ISO), relating to the quality of the entire production process. It contains guidelines for quality assurance in design, development, production, installation and servicing. As a company, registration means a corporate commitment to perform to the highest of international standards.

Worcester's valves, actuators and controls conform to the evolving national, international, industry and customer standards including ASME, ANSI, API, FM, UL and CSA. In addition, our Canadian Plant is ASME Nuclear "N" stamp and NPT stamp certified, producing nuclear valves, valve parts and appurtenances. Meeting these standards reflects our commitment to quality and service to you, our valued customer.

Worcester Control's manufacturing plants are located in Mississippi, North Carolina and Ontario, Canada. All three plants are highly automated with the latest in computer controlled machining centers, assembly and test equipment. In-place Statistical Process Control quality assurance programs assure top performance from our valves and controls. Worcester has a program, defined in its Quality Control Manual, addressing all facets of the company's operation. The program complies with API Q-1, various military standards and the requirements of U.L., F.M. and CSA.

All Worcester products are 100% tested and inspected prior to packaging and shipping utilizing special test equipment that perform shell tests, hydro-tests, air under water and helium tests as required. Worcester also assembles all clean service and cryogenic valves in a Class 100 work area.



Technical Support

Technical Seminars

We have a team of engineers available for technical seminars on valves, actuators and controls. They travel to customers giving lectures on topics such as electric versus pneumatic actuation, EPA emission rules and design methods to reduce valve leakage, fire safe system design, pressure vessel codes and valve specifications.

Valve Sizing

Worcester offers a control valve sizing program available in PC compatible digital format. This program utilizes current ISA formulas, featuring an easy to use menu and will determine sizing for the following categories: liquids, air and gas in volumetric units, air and gas by weight and steam. User convenience is enhanced by built-in modules that provide pertinent reference data during data entry. The program will output data for both English and metric standards.

Stocking Distribution Network

Worcester has a national network of stocking distributors. Our regional and area sales managers work closely with distributor sales personnel to service customer needs and coordinate delivery dates. Worcester personnel and distributors are equipped with the technical know-how they need to help provide practical solutions to customer problems.

Application Help

Qualified Engineers and Sales Managers are available for consultations on valve sizing for proper flow characteristics, application data, recommended materials of construction for media and process compatibility, as well as system automation design related to valves.



Product Drawings on Disk

For several years, Worcester has been providing its customers with product dimensional drawings on disk. The files can be provided in various software formats.

Documentation of Valve Parts and Quality

Worcester has the capability of supplying various levels of quality and testing certifications as well as other forms of objective evidence of quality as the need arises.



Training

Several times a year, Worcester conducts advanced technical training programs to keep our distributors and national sales force up-to-date on the latest technological innovations and product improvements. Worcester can also supply customers with instructional videotapes to supplement our printed instructions for most new products.

Standard Process Valves

Worcestor offers, for general process applications, a number of standardized lines of ball valves, each with its own service to industry. The wide choice of body styles, materials of construction, end connections and automation packages allows you to standardize on one manufacturer for many different application requirements.

Valve styles include Series 44 3-piece valves, Series 45 large diameter 3-piece ball valves, Series 151/301 wafer valves, Series 51/52 flanged valves, full port valves and directional valves.

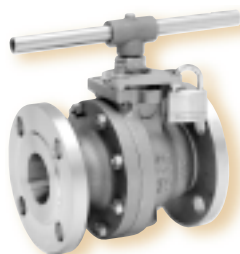
In ball valves, the pressure, temperature and material compatibility limits are governed by the seat and seal materials. By changing these two components, you can vary the valve limits. Worcestor has put many years' of research into developing seat and seal materials that extend the ball valves' pressure and temperature capability from -320°F to + 800°F and high vacuum to 5000 psi pressure.

The range of Worcestor's seat materials is unmatched. It easily handles a great majority of industrial fluids including steam, chemicals, petroleum products, fats and oils, pharmaceuticals, caustics and fluids containing solids, fibrous and abrasive materials.

ADVANCED TECHNOLOGY SEATS

TFE Seats (T)	-50°F to +450°F pressures to 1000 psi
Reinforced TFE Seats (R)	-50°F to +450°F pressures to 1500 psi
Polyfill® Seats (P)	-320°F to +500°F pressures to 1500 psi
Lubetal™ (Delrin® AF) seats (Y)	-70°F to +180°F pressures to 5000 psi
UHMWPE Seats (U)	0°F to +200°F pressures to 1500 psi
High-Per Fill® Seats (X)	-70°F to +600°F pressures to 6000 psi
Metal A Seats (A)	-50°F to +600°F (TFE filled 316L metal matrix) pressures to 1000 psi
Metal G Seats (G)	temperatures to 800°F (Graphite Filled 316L metal matrix) pressures to 1000 psi

Series 818/828 Flanged Full Port Ball Valves with OSHA lockout and ISO actuator mounting, Sizes 2" - 8" ANSI Class 150 & 300 Brochure PB 800



Series 44 3-piece Ball Valves
Sizes ¼"-2"
ANSI Class 600
Brochure PB 401



Series 45 Ball Valves
Sizes 2½"-6"
ANSI Class 300
Brochure SB 45



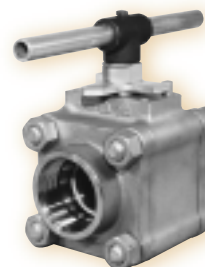
Series 151/301 Wafer Ball Valves
Sizes 3"-6"
ANSI Class 150 & 300
Brochure SB 502



Series 51/52 Flanged Ball Valves
Sizes ½"-10"
ANSI Class 150 & 300
Brochure PB 51



Series 59 3-piece Full Port Ball Valves
Sizes ¼"-4"
ANSI Class 600 (¼"-2")
ANSI Class 300 (3"& 4")
Brochure PB 451



Series D44/T44/D51 Directional Ball Valves
Sizes ½"-2" 3-piece,
ANSI Class 600
Sizes 2"-8" Flanged,
ANSI Class 150
Brochure PB 903 3-piece
Brochure PB 933 Flanged



Series 82/83 Flanged Full Port Ball Valves
Sizes ½"-10"
ANSI Class 150 & 300
Brochure PB 8283



Special Service Valves

ENERGY CONSERVATION/HIGH CYCLE

The **Energy/Thermal Fluid Mizer™** ball valve is ideal for saturated steam to 500 psig and thermal fluids for temperatures up to 650°F at 30 psi. Exclusive Polyfill and High-Per Fill seats and blowout-proof stem result in bubble tight sealing and let you save on fuel. Steam loss, excessive maintenance and downtime, repacking and stem leakage often experienced with gate or globe valves used in this service are eliminated. In fact, these valves are backed by Worcester's 120 day money back guarantee. Optional bracket with oval or lever handles keeps hands away from the heat in conformance with OSHA standards. Available in sizes ¼" - 6", in 3-piece, flanged, wafer and full port configurations. Brochure SB 601.

For high cycle thermal fluid applications, the Series 94 is recommended. See page 8.

The **MP44** was designed to meet the challenge of rapid and frequent cycling in rubber and plastics molding operations. With Polyfill or High-Per Fill seats, special stem seals and stainless steel pipe ends, the MP44 easily handles thermal shock, corrosion, heat, dirt and acidity. An excellent, high endurance, automated molding press valve. Available in sizes ¼" - 2". Brochure PB MP44.

HIGH PRESSURE/HIGH TEMPERATURE

The **High-Per Mizer®**, incorporating exclusive abrasion resistant filled metal seats or resilient seats, is built to withstand the rigors of high temperature (up to 650°F), superheated steam, abrasive fluids and pressure to 1440 psi. Available in sizes ¼" - 6" in a variety of body configurations. Brochure PB HP.

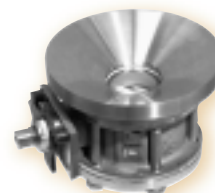
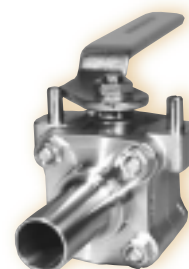
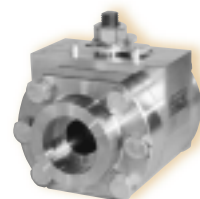
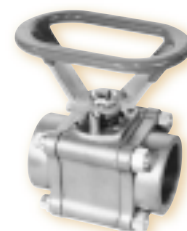
The **Dyn-O-Mizer®** is a resilient seated 3-piece valve for high pressure hydraulic and pneumatic applications of up to 5000 psi and temperatures up to 450°F. Available in sizes ¼" - 2". Brochure SB 950. Special valves available for pressures to 6000 psi.

The **Series H71 Hydro Mizer™** is a line of safe, durable ball valves for high pressure fluids to 6000 psi. The 3-piece design is compact with low torque quarter-turn operation, blowout proof stem and easy repair and maintenance. Series H71 can be built for harsh environments, from seabed systems to corrosive chemicals. Brochure PB 951.

HIGH PURITY/HIGH VACUUM

The **Series WK70** is a forged, 316L stainless steel tube bore valve featuring verifiable ferrite and sulfur control to meet critical fabrication and passification requirements of clean valve users. Each valve is Helium tested, Class 100 white room cleaned and double bagged for high purity process needs. Available in sizes ½" - 2", quick disconnect or extended butt weld ends and either unpolished 25Ra finish or electropolished 15 Ra finish. Brochure PB WK70.

The **Flush Bottom Tank Valve** is a high quality line of stainless steel flush bottom tank valves for industrial vessels, pharmaceutical fermentation reactors, primary food processing, cosmetic mixing vessels, chemical feedstock tanks, biotech reactors and pressure cookers. Options include manual or automated operation, cavity-filled versions, self-draining configurations, steam-in-place versions and high-purity versions. Available in sizes 1" - 4". Brochure PB FBT.



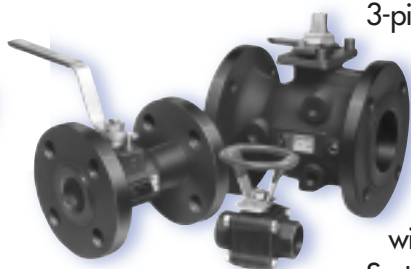
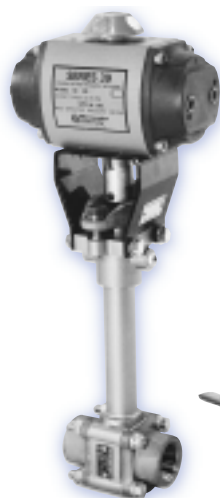
Special Service Valves



CRYOGENICS

Series C44, C4, C51 Cryogenic Valves are the quality solution for tough applications involving all types of cryogenics: oxygen, hydrogen, methane, ammonia, nitrogen, fluorine, LNG and deuterium. Our complete line of cryogenic valves backed by years of successful field experience, incorporates superior technology and design. This means automatic or manual control of cryogenic fluids with no contamination, no fluid degradation and no waste while assuring safety to human life, property and the environment.

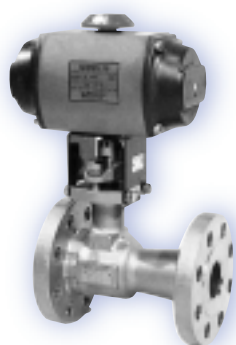
Series C4 and C51 valves feature positive ball cavity relief, blowout-proof stem, zero leak packing, low thermal stress parts, bonnet extensions that work and electric and pneumatic automation. Available in sizes ¼"-6" in a variety of valve configurations. Brochure SB 442.



TOXIC/HAZARDOUS ENVIRONMENTS

The Chlorine Valves consist of three lines of manually operated and automated valves for tough applications involving chlorine, from the manufacture of the basic chemical, to processes involving its use, including pulp and paper bleaching and production of feedstocks. The Series CL44 3-piece and CL51/52 flanged ball valves are used for general service. The Series CL94 valves are for high-cycle, anti-fugitive emission fluid containment. All valves feature leak tight seats, adjustable stem seals, body cavity pressure relief and corrosion resistant materials. An emission monitoring port is standard with the CL94 design.

All of Worcester's chlorine ball valves are constructed in accordance with the guidelines of the Chlorine Institute as outlined in pamphlet 6, Piping Systems for Dry Chlorine. Available in sizes ¼"-4". Brochure SB 441.



EPA LISTED HAZARDOUS MATERIALS AND HIGH CYCLE OPERATION

The Series 94 Valve provides zero-leakage operation. They're the high cycle, maintenance-free valves which meet EPA standards before, during and even after a catastrophe. Two different types of seals with a leak-off connection — that's the Series 94 difference. Together, they ensure zero-leakage for unmatched protection against fugitive emissions, even in the unlikely event of a primary seal failure. Valve performance, exceeding EPA standards, has been verified by independent laboratory testing. Available in sizes ½"-6". Brochure PB 94.

FIRE RATED VALVES

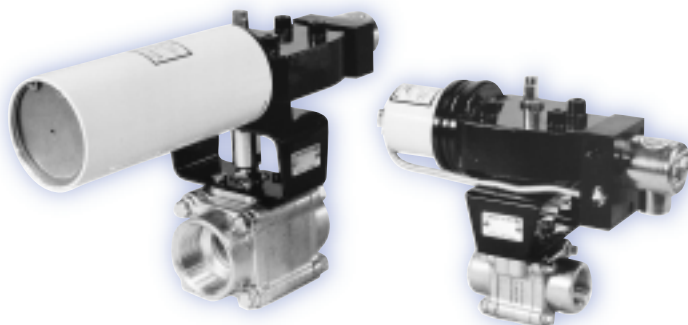
The Fire Rated Ball Valve provides the quality solution for tough valve applications where operational integrity must be maintained before, during and after a fire. The solution is Worcester's five lines of fire rated valves that assure tight shutoff and prevent external leakage in the tremendous heat of an industrial fire. Each line of valves meet specific standards including EXES 3-14-1-24, API 607 Edition 4, British Standards BS 6755 PT2, and Factory Mutual Standards. Available in sizes ¼"-8" in 3-piece flanged and full port flanged configuration. Brochure PB FZ.



Automation & Throttling Control

PNEUMATIC AUTOMATION

The Series 39 pneumatic actuator is an accurate, compact, powerful, double piston, rack and pinion actuator with an impressive track record for reliability. That's why we back it with an exclusive two-year warranty. One of our customers recently reported 14 million complete cycles without appreciable original seal wear. Complies with the valve mounting requirements of ISO 5211 and limit switch/positioner mounting requirements of Namur VDI/VDE 3845. Brochure PB 302.



The Series 34 pneumatic actuator is compact and features modified scotch yoke design and delivers from 120-1000 in.-lbs. of torque at 60-120 psig. Brochure PB 303.

ELECTRIC AUTOMATION

The Series 75 electric AC or DC actuator designed for on/off and modulating applications and backed by a two-year warranty, provides precise, reliable and automatic rotary valve operation in a rugged and compact package. The Series 75 is available in a variety of NEMA enclosures, and is easily adaptable for PLC/computer applications. Many options, such as feedback systems and positioner/controller, are available. Torques up to 5000 in.-lbs. Brochure PB 730.



The Series 36 AC or DC electric actuator is designed for on/off general purpose automation of quarter turn valves and is equipped with a thermal overload protector as standard. Brochures PB 36 and PB 36T.

The "36T" incorporates a field selectable, solid state timer board. The Auto-Mizer is ideal for draining condensation from steam lines, sampling, purging and other applications.

Actuator Systems and Accessories

ACCESS™ - INTEGRAL VALVE CONTROL UNIT WITH OPTIONAL DIGITAL INTERFACE

ACCESS was designed in response to market requirements for a valve actuator with integral control and communication capabilities. ACCESS is a complete control unit consisting of Worcester's Series 39 double piston/guide rod pneumatic actuator with integral limit switches, low wattage solenoid, manual override and LEDs to assist in calibration and to detect the status of system components. The entire control package is contained in an enclosure with a combined Type 4, 4x, 7, 9 and 12 rating. ACCESS eliminates the need for expensive brackets and couplings commonly used with actuator accessories.

Available for direct digital communications to DeviceNet™, ModBus® or AS-Interface® protocols. Brochure PB 940.



MAS (MODULAR ACCESSORY SYSTEM)

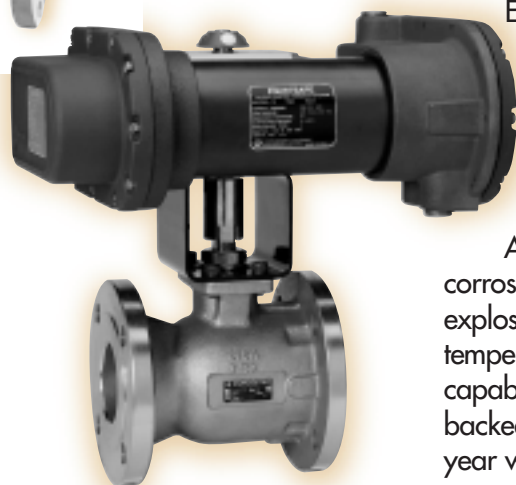
To allow for interface of valves and other related equipment, and enable them to speak a common language, whether mechanical or electrical, digital or analog, Worcester created the MAS allowing the user to bring all his communication signals to, or take all his feedback signals from, one source. Brochure PB MAS.

SERIES 72 ELECTRI-SAFE™ FAIL SAFE ELECTROHYDRAULIC ACTUATOR

Worcester Controls' new Series 72 Electri-SAFE actuator is a patented electrohydraulic unit that offers powerful, economical electric actuation. What's even better, Electri-SAFE is a fast-response, highly reliable alternative to a spring-return pneumatic actuator. And, with its no-reservoir, maintenance-free hydraulic system, Electri-SAFE can be mounted in any position.

Electri-SAFE is designed for Fail Safe action, open or closed, in power failure with fast-moving valve closure in as little as one second. It has cycle times up to five times faster than any other actuator with no batteries to maintain, no clutches to engage, and no hydraulic or pneumatic lines to run.

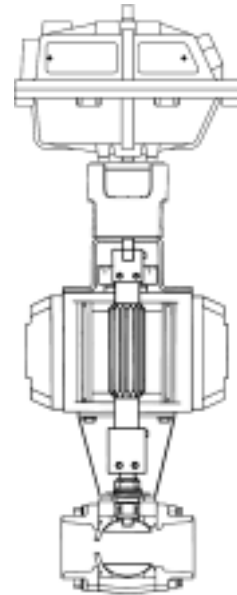
A simple, two-wire 120V AC control and watertight, corrosion control and watertight, corrosion resistant, explosion-proof enclosure offers long operational life in temperatures ranging from -25°F to 150°F with torque capability up to 900 in. lbs. Of course, Electri-SAFE is backed by Worcester Controls' exclusive standard two-year warranty. Brochure PB 936.



Throttling Control Valves, Positioner & Controllers

SERIES CPT CHARACTERIZED SEAT CONTROL VALVE

Worcester introduces the Series CPT, an advanced throttling control valve that exceeds the best performance features of globe and traditional segmented ball and eccentric plug rotary valves. The throttling part of the valve is based on a patented seat technology consisting of a sintered stainless steel seat, impregnated throughout with TFE or graphite, that is laser cut to provide state of the art modulating control. Available in many valve body configurations in sizes ¼"-4". Brochure CV.



PULSAIR III)))

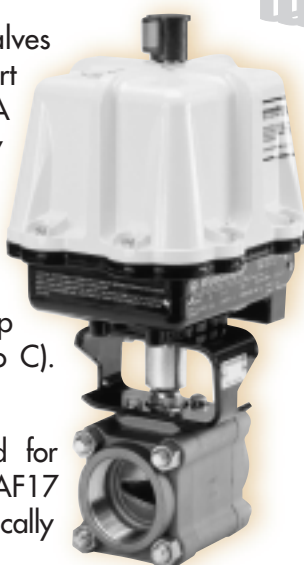
PULSAIR® III

For pneumatically actuated control valves, Worcester offers the Pulsair III Positioner. The Pulsair III uses advanced microprocessor technology for superior performance while maintaining user friendly HMI – Human Machine Interface. This Loop-powered positioner offers auto calibration, performance and maintenance diagnostics and multiple communication protocols for Fieldbus interface. Brochure PB 93

DATAFLO P™ POSITIONER AND DATAFLO C™ CONTROLLER

For electrically actuated control valves Worcester's new DFP17 DataFlo P smart positioner. Controlled by a 4-20mA analog signal from a PLC or digitally from a computer, DataFlo P gives you on-board, microprocessor based calibration, monitoring on diagnostics, either on-site or from a control room computer. DataFlo is also available as a single loop PID controller with auto-tune (DataFlo C). Brochure PB 935.

Standard PM15 positioners are offered for 3-15 psi pneumatic control and AF17 positioners for analog control of electrically actuated control valves. Brochures PB PM and AF 101.





No matter where your operation is located, there's a Worcester Controls facility to provide products, technical support and service.

Our global network of highly trained Worcester Controls stocking distributors as well as our worldwide network, will ensure on-time, on-spec products for your application.

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