

# Xactrol®

Severe Service Control Valves

Severe Service • Zero-Leakage • Exact Flow Control

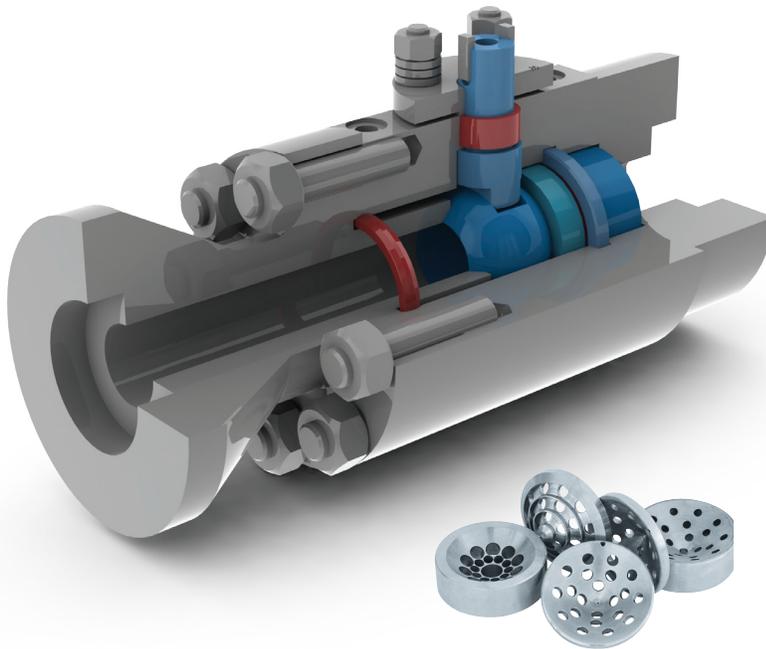
# Xactrol®

## Severe Service Control Valve ANSI/ASME 150-4500#, 1/2 - 36"

ValvTechnologies Xactrol® severe service control valves are engineered for applications where minimum flow and relatively high differential pressures are required. They provide "exact" flow control solution every time, from minimum or normal control to full rangeability across a wide range of pressure drops and conditions.

The Xactrol® product group unites Valvtechnologies' zero-leakage technology with special designs that allow rotary modulating control. From the Mark I design that features a characterized upstream seat, to the Mark III's precision engineered stacked disks, the Xactrol® allows the customer to combine precise flow control with tight shutoff.

Xactrol® - Engineered  
for precision.



## Applications

The Xactrol® control valve is typically used in applications where minimum flow and relatively high differential pressures are encountered:

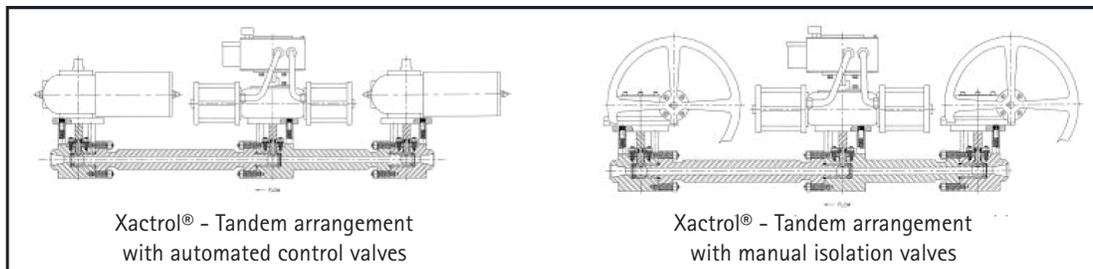
- Power: Continuous blowdown, boiler feedpump recirculating bypass, main steam start-up vent
- Process: Pump outlet flow control, tank level control valve
- Mining: Make-up water control, dilution water control, process water isolation and control

Superior failure resistance and reliability.

## Available Designs

Mark I	Mark II	Mark III
1/2" - 36", ANSI/ASME 150 - 4500	1/2" - 36", ANSI/ASME 150 - 4500	1/2" - 36", ANSI/ASME 150 - 4500
Designed for minimum/normal flow control conditions	Designed for minimum/normal flow control conditions	Designed for minimum/normal flow control conditions
Variety of characterized upstream seats available	Variety of characterized upstream seats available	Variety of characterized upstream seats available
Engineered to meet your control needs	Engineered to meet your control needs	Engineered to meet your control needs
Zero-leakage	Zero-leakage	Zero-leakage
	Includes a second flow port designed to handle continuous minimum flow conditions	For applications requiring very high pressure drops
		Includes a series of upstream pressure reducing plates
		For the most difficult control applications

## Common Configurations



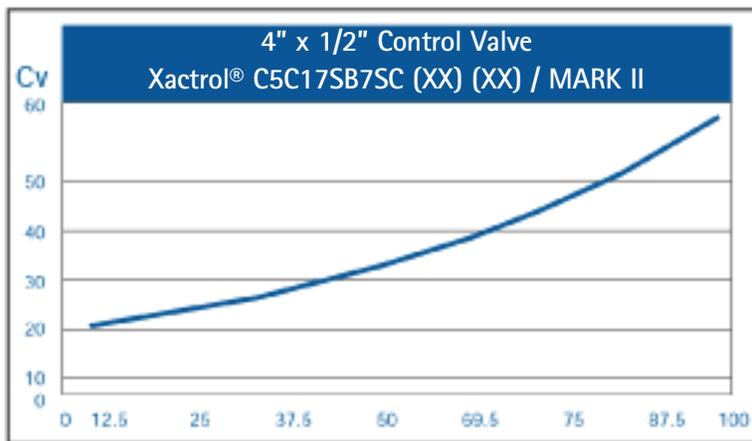
From simple minimum or normal flow control to full range-ability over a wide range of pressure drops and conditions, we have the solution for you.

Our Xactrol® Mark I is designed for minimum or normal flow control conditions as is experienced in a large number of flow control applications. The Mark I comes with a variety of characterized upstream seats, which can be specifically engineered/ designed to suit your control needs.

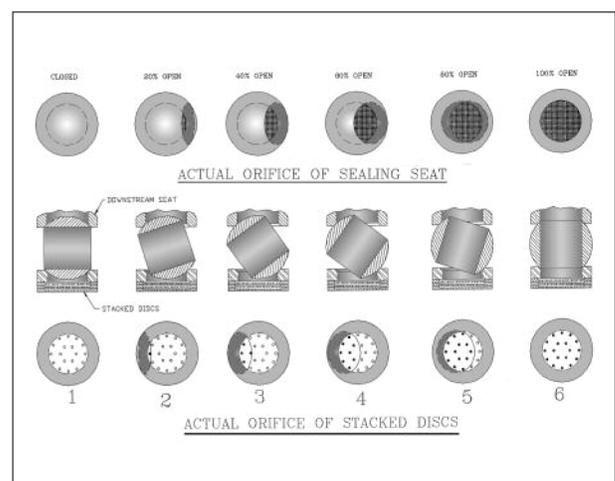
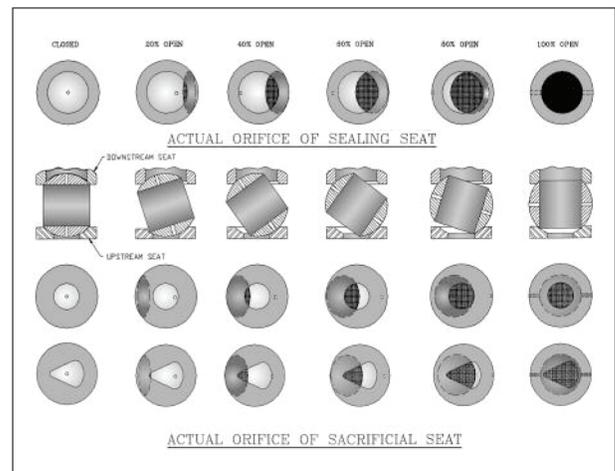
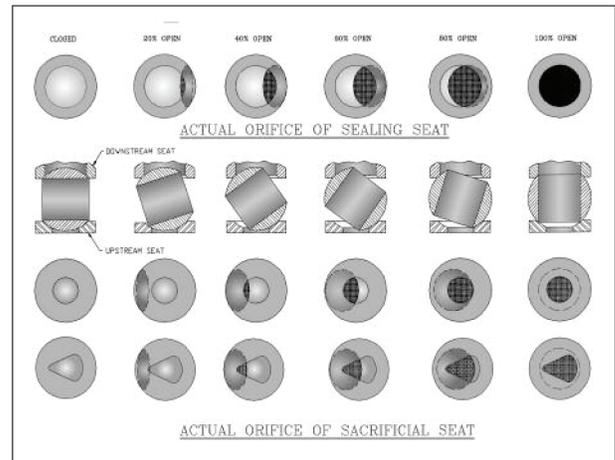
The next step is the Mark II (see page 3). In addition to the normal flow conditions, the Mark II has a second flow port through the ball which is designed to handle your continuous minimum flow conditions.

For applications where very high-pressure drops are required, we offer the Mark III (see page 3), which has a series of upstream pressure reducing plates. The plates will successfully reduce, stage by stage, the pressure in the system, which when combined with the full rangeability of control through the control ball and seat, will solve the toughest of control applications.

Regardless of the complexity of your control application, each of our customized engineered solutions will be calibrated and tested on our state-of-the-art flow test loop.



Each valve package will come complete with its own flow test curve to ensure complete reliability. The above graph is from an actual flow loop test as supplied to the customer.



# Intelligent Valve Controller

## Specifications

EPP100 SR EEx " ib" for single acting actuators  
EPP100 DA EEx " ib" for double acting actuators

## 2-Wire Current Loop Control

The control signal is a "real" 2-wire 4-20 mA current loop, with power and control signal in the same loop. If loop failure occurs, then the valve returns to failsafe position.

## 4-20 mA Feedback Signal

## Actuators

Controller available for double acting and spring return pneumatic actuators.

## Auto Calibration

The self calibration routine sets all the basic settings and measures the actuator size for optimum valve control and fast feedback loop.

## Low Air Consumption

Air is only used when it is needed providing significant savings in instrument air costs.

## Valve Flow Characteristics

Choice of integrated standard valve curve characteristics for ball control valves (equal percentage).

## Manual Setpoint

In service situations the setpoint can be manually chosen from the user menu.

## Four Button Control Panel

The four button control panel makes each command sequence simple and easy to follow.

## Mechanical Stability

The compact design with few moving parts is insensitive to environmental influences providing a high degree of immunity from failure.

## Digital Communication

Up to 32 units can be linked via RS 485 communication interface to a PC or laptop computer for configuration and remote control.

## Digital LCD Display

The two lines of 16 digit alphanumeric display.

## Power Failure Options

If power fails the controller will close the actuator. When power returns the controller will restart and regulate again with no loss of data and configuration.

## Diagnostic Alarms

Internal diagnostic alarm is activated in the event of air failure or if the control valve does not operate and the local LCD display will show an error message.



## Technical Specifications

Control Signal	2 wire 4 - 20 mA, 18-24V
Feedback Signal	4-20 mA, passive transmitter
Operating Temp Range	21.6 -183.6 F°
Hysteresis	0.8%
Linearity	<1%
Sensitivity	0.4%
Air Supply	0 - 100 psi (0 - 7 Bar)
Air Consumption	@0
Air Flow	50 l/min
Air Filtering	<30 um
Air Entry	1/4" NPT
Electrical Entry	2 x M20, 1.5 mm2
Dimensions	L x B x H = 5.9 X 5.9 X 3.94"
Housing Stainless steel	316 ss
Ingress Protection	IP 65
Weight	4.185 lbs.
Maximum Rotation	300°

## Dynamics of a Mark III Xactrol® Control Valve

Upstream pressure reducing plates are stacked so maximum flow (pressure) travels through plate A (Fig. 3) then splits and pressure continues to be reduced as flow proceeds to follow tortuous 90° paths through succeeding holes in various stacked pressure reducing plates. See plates B, C & D (Fig. 3).

Multi-stage pressure reducing plates are positioned such that the diverging streams through the various plates actually collide with each other – greatly reducing their energy – before entering the next plate (Fig. 1).

Pressure reduction is at the upstream side of the valve, thus reducing the torque required to open and close the valve.

Downstream sealing face is protected from flow, thus offering repeatable zero-leakage.

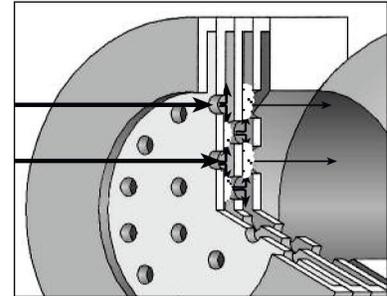


Figure 1

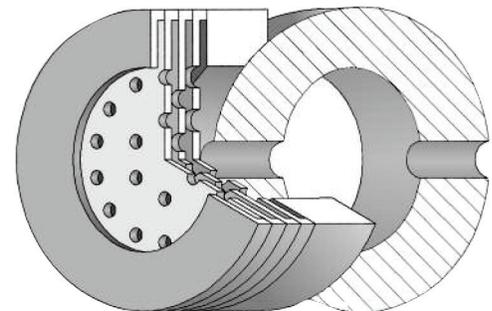


Figure 2

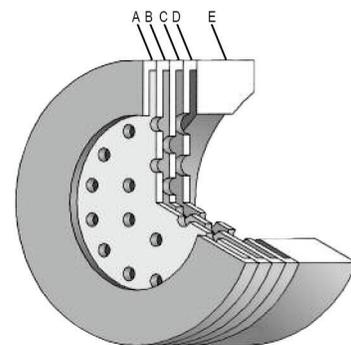


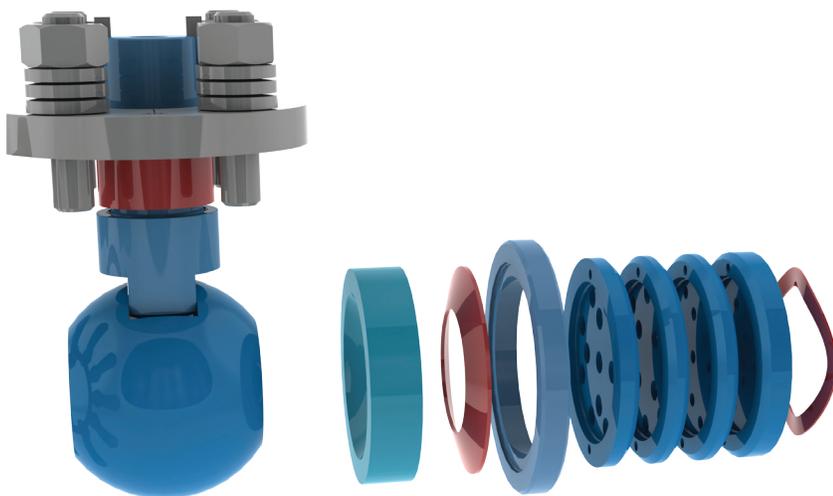
Figure 3

## Xactrol® Features and Benefits

ValvTechnologies is committed to excellence in the design, manufacturing, service and testing of its Xactrol® severe service control valves, while providing control solutions to meet and exceed customer expectations.

Xactrol® Key Performance Features and Benefits	
Features	Benefits
Superior failure resistance and reliability	Enhanced process safety
Constant packing load maintained with four-stud, live-loaded packing assembly	Increased safety, enhanced process efficiency, environmentally friendly
Custom engineered	Process optimization
Consistent flow-rates	Reduced fluid costs
Control trim made from extremely hard components	Reduced wear, increased life of the valve
Zero-leakage	Enhanced process safety, increased efficiency
Resistance to small entrained solids	Lower maintenance costs, increased reliability

Precise flow control.  
Zero-leakage.  
All in a single unit.



# Xactrol®

## Severe Service Control Valves



ValvTechnologies, Inc. is a global leader in the design & manufacturing of flow control devices. Founded in 1987 & headquartered in Houston, Texas, ValvTechnologies remains focused on helping customers meet their daily production and process challenges safely and efficiently.

Having built a global reputation for superior quality & dependability across many industries, ValvTechnologies' products are designed to exceed both the standard & most sophisticated, severe-service processes application requirements. ValvTechnologies meets the demands for total flow control solutions, whether one valve at a time, or system-wide.

Bringing together the best people and the latest in technological design and manufacturing processes, ValvTechnologies has created an atmosphere where quality and dependability are built into every product, start to finish.

### Worldwide Office Locations

#### Headquarters & Manufacturing

ValvTechnologies, Inc.  
5904 Bingle Road  
Houston, Texas 77092 U.S.A.  
Telephone +1 713 860 0400  
Fax +1 713 860 0499  
[info@valv.com](mailto:info@valv.com)

To locate a distributor or satellite office near you, visit us online at: [www.valv.com](http://www.valv.com)

To contact sales anywhere in the world, email [sales@valv.com](mailto:sales@valv.com)

**Peru**  
Lima  
[peru@valv.com](mailto:peru@valv.com)

**Brazil**  
São Paulo  
[brazil@valv.com](mailto:brazil@valv.com)

**United Kingdom**  
Stockton-on-Tees  
[europe@valv.com](mailto:europe@valv.com)

**Australia**  
Brisbane  
[australia@valv.com](mailto:australia@valv.com)

**China**  
Shanghai  
[china@valv.com](mailto:china@valv.com)

**China**  
Chengdu  
[china@valv.com](mailto:china@valv.com)

**China**  
Beijing  
[china@valv.com](mailto:china@valv.com)

**Eastern Europe**  
Warsaw  
[poland@valv.com](mailto:poland@valv.com)

**Middle East**  
Dubai  
[middle.east@valv.com](mailto:middle.east@valv.com)

**India**  
Chennai  
[india@valv.com](mailto:india@valv.com)

**Japan/Korea**  
Seoul  
[korea@valv.com](mailto:korea@valv.com)

**Spain**  
Madrid  
[spain@valv.com](mailto:spain@valv.com)