



VALVES & CONTROLS



**PENTAIR VALVES & CONTROLS**  
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SUGAR & ETHANOL

INDUSTRY BROCHURE





## BENEFITS FROM PENTAIR'S KNOWLEDGE

### RELIABILITY, EXPERTISE, AVAILABILITY, PARTNERSHIP

Designed to deliver results to our customers, we provide exactly what you need, no matter what, where or when. This approach has helped make us the world's premier manufacturer of valves, actuators and controls with an extensive portfolio of well-known brands and an unrivalled service offering. So, when it comes to flow control, you can count on Pentair.

#### RELIABILITY

Pentair Valves & Controls delivers more than the world's most innovative valve solutions. Our unmatched reputation for quality and performance and, above all, reliability gives our customers something even more valuable – peace-of-mind. It's something we've been working on for more than 100 years with industry leading brands such as Keystone, KTM and Anderson Greenwood Crosby. The result is a customer portfolio that is the envy of the industry and the ability to deliver one of the lowest total-cost-of-ownership (TCO) figures in the market.

#### EXPERTISE

There is a reason why Pentair Valves & Controls is always top of the short-list when the process industry is looking for products and service partners it

can rely on. The reason is our in-depth technical expertise in a host of industries and process applications, including sugar and ethanol products and services. As an expert in flow control solutions, Pentair has an unparalleled understanding of the intricacies of each solution – from valve sizing to servicing – and the needs of the customers that depend on them.

#### AVAILABILITY

One of the keys to Pentair Valves & Controls' success is availability. Our global network, local presence and in-depth market knowledge means that we are there whenever and wherever our customers need us. With 15,000 employees, and more than 350 manufacturing, sales, distribution and service facilities in 45 countries we can respond rapidly, providing the right service or solution every time.

#### PARTNERSHIP

Partnership is the cornerstone of Pentair Valves & Controls' business model. Our overriding goal is to create a win-win relationship with our customers and provide solutions that contribute to their success. Nowhere is this more visible than in our end-to-end project management. It starts with engineering capabilities such as R&D and customization, and continues through the sales process. Coupled with specialty capabilities, such as key account management, it all adds up to one thing – a unique approach in helping customers grow their business while at the same time protecting people, assets and the environment.





## PENTAIR VALVES & CONTROLS A DEDICATED PROCESS TEAM

Committed to meeting the specific needs of the industry, Pentair Valves & Controls' Sugar & Ethanol Products and Services Team delivers everything you need from a single contact point. As a valve manufacturer whose expertise spans so many different product types, the team has an unmatched understanding of the intricacies of each solution and the needs of the customers that depend on them. This track record for performance, quality and reliability has won the team the trust of customers all over the world. Our qualified, fully-certified engineers, with a wealth of experience in a wide-range of Sugar & Ethanol applications, guarantee the highest quality support whenever you need it.

### EXCELLENCE IN ENGINEERING

At Pentair, our position as the technology leader in flow control is solidified by the collective resources of

our brands. Utilizing the latest systems and technology, our specialists produce the highest quality flow products, incorporating key design features.

### QUALITY PHILOSOPHY

We are driven by a strong commitment to maintain and improve the quality of our product performance and customer service.

### CUSTOMER SATISFACTION

With the highest level of commitment to deliver and maintain the highest level of performance, it's no wonder Pentair Valves & Controls can count some of the biggest Sugar & Ethanol producers as its satisfied customers.

- Adkins Energy
- Bajaj Hindustan
- BioEtanol, S.A.
- British Sugar
- Cargill
- Compañía Azucarera, Salvadoreña, S.A. de C.V.
- Central Romana
- CJ Cheiljedang Corporation
- Daurala Sugars
- ESIC
- Ingenio INCAUCA
- Ingenio Monte Rosa
- Ingenio Pantaleon
- Ingenio Providencia
- Ingenio San Antonio
- Lesaffre
- Little Sioux Corn Processing
- Nicaragua Sugar
- Nordzucker
- Renuka Sugar
- Royal Cosun
- Samyang Corporation
- Sucrogen
- Südzucker
- United sugar company

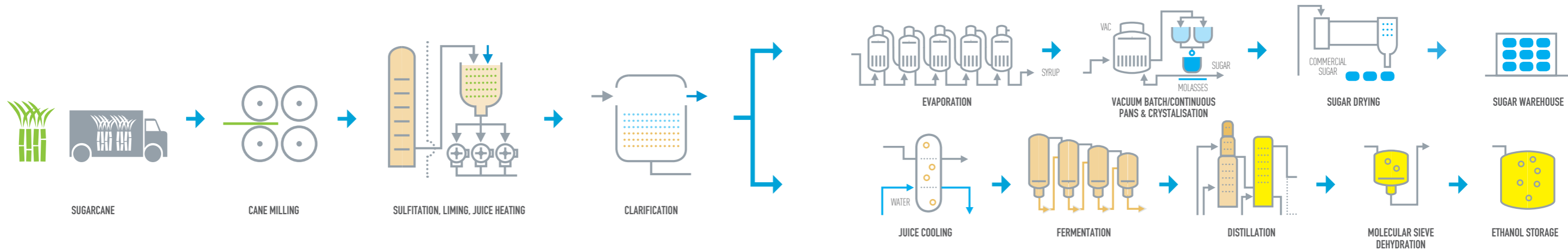
### PROJECT PACKAGES

The vast range of product types available from our manufacturing facilities enables Pentair Valves & Controls to supply integrated project packages. Simplify your supply chain by including Pentair as an approved vendor.

Some of the standards that Pentair Valves & Controls meets:



# SUGARCANE-TO SUGAR/ETHANOL PROCESS



Pentair Valves & Controls comes into the picture with our extensive range of quality valves, actuators and controls. We are dedicated to continually bringing you the newest and most innovative products. We are always willing to work with you too, combining our extensive experience in the Sugarcane-to-Sugar/Ethanol process and flow control know-how, to help you solve the toughest process application problems.

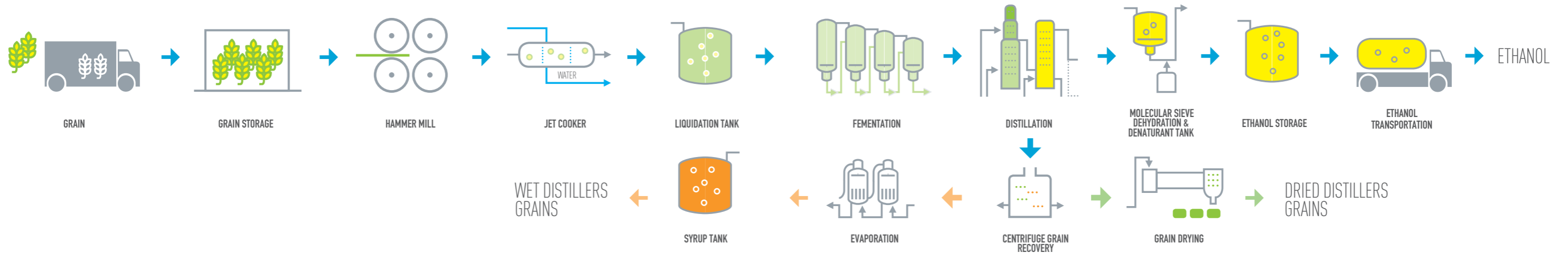
VALVE TYPE	DESIGN
<b>Ball Valves</b>	Soft Seated
	Lined
<b>Butterfly Valves</b>	Resilient Seated
	High Performance
<b>Control Valves</b>	V-Ball
<b>Check Valves</b>	Wafer
<b>Gate Valves</b>	Wedge
<b>Triple Offset Valves</b>	
<b>Pressure Relief Valves</b>	Spring Operated
	Vacuum Relief
<b>Flame Arresters</b>	
<b>Manholes</b>	
<b>Knife Gate Valves</b>	
<b>Steam Desuperheaters</b>	
<b>Steam Traps</b>	
<b>Level Gauges &amp; Cocks</b>	
<b>Actuation &amp; Controls</b>	Pneumatic
	Electric
	Positioner
	Position Monitor

## SUGAR PRODUCTION PROCESS

## ETHANOL PRODUCTION PROCESS

Extraction, Milling or Diffusion	Lime Feed	Juice Heater & Scales	Clarification & Sulfitation	Evaporation	Vacuum Batch & Continuous Pans	Centrifugals	Boilers, ESD, Turbines & Steam	Cooling	Raw Juice & Molasses	Fermentation	Distillation	MSDH	Storage Tanks	Vinasses
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# GRAIN-TO-ETHANOL PROCESS



Pentair Valves & Controls' expertise covers every aspect of the grain-to-ethanol process. Whether the feedstock is corn, wheat, sorghum, barley or any other grain, we can offer the ideal solution. Our world-leading flow control portfolio includes over 90 valve brands, including KTM, Keystone and Anderson Greenwood Crosby. Our technical knowledge and detailed industry insight makes Pentair the partner of choice when it comes to designing, implementing and managing flow control applications in the most challenging conditions.

## DRY MILL PROCESS

VALVE TYPE	DESIGN	Grain Storage	Cook/Slurry Tanks	Jet Cooker	Liquefaction Tank	Ethanol Fermentation	Distillation	Molecular Sieve	Denaturant Tank	Ethanol Storage	Ethanol Transportation	Centrifuge Grain Recovery	Evaporation System	Syrup Tank	Grain Drying
<b>Ball Valves</b>	Metal Seated			•	•		•								
	Soft Seated		•	•	•	•	•	•	•	•	•	•	•	•	•
<b>Butterfly Valves</b>	Resilient Seated		•	•	•	•	•	•	•	•	•	•	•	•	•
	High Performance			•	•	•	•	•		•			•	•	
<b>Control Valves</b>	V-Ball					•		•							
<b>Triple Offset Valves</b>			•	•	•	•	•	•		•			•	•	
<b>Pressure Relief Valves</b>	Spring Operated	•	•	•	•	•	•		•	•	•	•	•	•	•
<b>Knife Gate Valves</b>		•										•			•
<b>Breather Valves</b>			•		•				•	•				•	
<b>Actuation &amp; Controls</b>	Pneumatic	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Electric						•			•					
	Positioner					•		•							
	Position Monitor	•	•	•	•	•	•	•	•	•	•	•	•	•	•



# PENTAIR PRODUCT RANGE



## BALL VALVES – FLOATING

A complete range of metal or soft seated ball valves suitable for high temperature, high pressure, anti-abrasive and anti-corrosion services and utilities

### FEATURES

- Full/Reduced bore
- High integrity stem seal
- Blow-out proof and antistatic shaft design
- Fugitive emission detection system available
- Fire test certified models available
- ISO 5211 mounting flange for easy adaption to automated operation, pneumatic or electric actuators

KTM, RICHARDS, TVC



## BALL VALVES – TRUNNION MOUNTED

2 piece and 3 piece full bore designs for tight shut-off, high frequency, high pressure and heavy duty services

### FEATURES

- Soft, Metal/Soft or Metal/Metal seating
- End connections: Integrated flange
- Double block and bleed function; self pressure relief
- Manual or automated operation
- Fire tested approved design
- Design to ASME B16.34, API 6D, ISO 17292 etc

KTM



## BALL VALVES – LINED

PFA lined ball valves excellent for dirty media due to the pre-energized seat construction. The special C ball design makes the valve extremely suitable for highly corrosive control applications

### FEATURES

- PFA lining offers highest corrosion resistance
- Full bore offers high  $K_V$  value
- One-piece ball/stem, optional in C ball design: no possibility of damaging PFA-lining on ball by the stem, no hysteresis, ideal for flow control applications and CIP construction
- Specific anti blow-out shaft design

NEOTECHA



## CONTROL VALVES – SINGLE AND ISA V-PORT

KTM's Single-V and ISA V-port design provides shearing action between the V-notch ball and seat for a smooth, non-clogging operation

### FEATURES

- Split body (Single-V)
- Trunnion mounted
- RTFE or Stellite bearings
- Adjustable packing
- Side entry
- Uni-directional
- Wide rangeability
- High  $C_v$
- Cavity free
- Accuracy of control

KTM



## STEAM DESUPERHEATERS

Allow precise and economical control of steam temperature, automatically introducing cooling water into steam flow in response to a pneumatic or electronic control signal

### FEATURES

- Fabricated or forged construction
- Wide range of  $K_V$  capacities
- Pneumatic or electric actuator available
- Multiple atomizer technology
- Specialist designs for boiler attemperation
- Variable nozzle type with integrated water control valve
- Steam temperature: control within 5°C of saturation

NARVIK, YARWAY



## STEAM TRAPS

For use in dripleg, tracing and process applications

### FEATURES

- Zero steam loss
- Compact, energy efficient disc trap
- Ideal for tracing and/or tracing and steam line drip
- Renewable in-line for easy service
- Unibody plus technology

YARWAY



## BUTTERFLY VALVES – RESILIENT SEATED

Wafer, lugged and double flanged versions with a choice of seats suitable for a variety of services

### FEATURES

- Polished disc edges for longer seat life and bubble-tight shut-off
- Extended body neck allows pipe insulation
- High solid, glossy, silicone free, paint system
- Dirt scraper prevents moisture penetrating into the shaft area
- Top bushing absorbs actuator side thrust loads
- Actuator flange according ISO 5211 and Keystone standard
- Face to face dimensions to ISO 5752 and API 609

KEYSTONE, GRINNELL



## BUTTERFLY VALVES – HIGH PERFORMANCE

RTFE and metal seated wafer, lugged and double flanged, double eccentric butterfly valves in compliance with ISO or ANSI standards. Suitable for more demanding service conditions including both high pressures and temperatures

### FEATURES

- Integrated travel stop
- Accessible packing adjustment without operator removal
- Bi-directional shut-off performance
- End-of-line service on lug style valves
- Soft seat, fire-safe and metal seat
- Double eccentric design allows for high cycle life
- Shaft bearings to ensure stability during high pressure, high cycle applications

KEYSTONE, WINN



## TRIPLE OFFSET VALVES

Bi-directional, zero leakage shut-off, suitable for all process applications up to extremes of pressure and temperature

### FEATURES

- Torque-generated resilient metal seal provides zero leakage performance (API 598-Resilient Seated)
- Quarter turn, triple offset geometry achieves non-rubbing design
- All-metal construction gives inherent fire safety
- Hardfaced, Stellite 21 integral metal seating
- Blow-out proof stem, retained both externally and internally
- Suitable for cryogenic, high temperature and high pressure service

VANESSA



## WAFER CHECK VALVES

A comprehensive range of check valves including swing/tilting, dual plate, axial and lifting ball design

### FEATURES

- Single or dual plated design
- Spring, weight or hydraulic assisted disc action
- Non-slam action
- Compatible with DIN, ANSI, BS, PN and JIS standards
- Low cost of maintenance
- Suitable for installation in vertical pipelines
- Available in a wide variety of trims
- Light weight and compact design

KEYSTONE, PRINCE, GULF



## GATE VALVES

The bolted bonnet type valves are manufactured to guarantee the highest performance in the widest spectrum service applications

### FEATURES

- Designed as per API 600
- Low pressure drop
- Excellent reliability
- Easy maintenance
- Low operating torque
- High tightness

FASANI



## KNIFE GATE VALVES

Knife Gate valves offer reliability and long life in a variety of tough applications including heavy slurries and abrasive media

### FEATURES

- One-piece integrated body in both carbon and stainless steel
- Gate age bevel for easier packing
- Round, square or rectangular port
- Various range of metal and soft seat
- As per MSS-SP 81
- Handwheel or actuated operation

ROVALVE, KEYSTONE

# PENTAIR PRODUCT RANGE



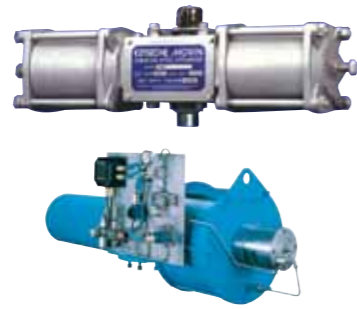
## ACTUATORS – ELECTRIC

The Pentair range of electric actuators suits a large variety of 1/4 turn and linear valves in multiple applications

### FEATURES

- Supply voltage from 24 to 240 V AC/DC single phase or 208 to 690 V AC 3-phase
- Configurable stroking time
- Adjustable torque output
- Optional module for valve modulation
- Versatile valve connection adaptors
- Manual override facility as standard
- Local pushbutton for control and Local/Remote selector
- Non-intrusive configuration and advanced diagnostics via Bluetooth connection
- Fieldbus communication support for Foundation Fieldbus, Profibus, DeviceNet, Lonworks, and AS-interface

BIFFI, KEYSTONE



## ACTUATORS – PNEUMATIC

Heavy duty scotch yoke, pneumatic actuators suitable for 90°, on-off or modulating service

### FEATURES

- Carbon steel construction for maximum strength or stainless steel for maximum corrosion protection
- Totally enclosed, weatherproof housing
- Scotch Yoke design is ideal for larger valves with high break-out torques and valves with high working pressures
- Fully encapsulated, welded spring cartridge for maximum safety of personnel and ease of assembly
- External travel stops for precise stroke adjustment

BIFFI, KTM, MORIN



## ACTUATORS – 1/4 TURN PNEUMATIC

Rack and pinion pneumatic actuators, developing a constant output torque, ideal for the smooth operation of quarter turn valves etc

### FEATURES

- Compact rack and pinion design
- Double acting & Spring return (single acting)
- Top and bottom bearings
- Anti friction piston pads
- Hard anodised and ESPC finish
- Field reversible
- ISO, DIN, Namur and Keystone mounting standards

KEYSTONE, KTM



## PRESSURE RELIEF VALVES – SPRING OPERATED

Metal or soft seated range of Safety Valves to protect the critical process systems and ancillary raw material feed systems

### FEATURES

- Capacity certified (air, gas, liquid & steam)
- High capacity
- Flanged/Threaded/Hub and Socket Welded connections
- Conventional/bellows, open bonnet design
- Full nozzle, liquid trim design
- Cost effective maintenance
- In-situ testing available
- Design codes according to ASME VIII/API 526 and TRD/AD 2

ANDERSON GREENWOOD, CROSBY, SEMPELL



## MANHOLES

Design for quick and easy access to storage tanks

### FEATURES

- Permits access into tank
- 10", 16", 18", 20" and 24" sizes
- Numerous material combinations
- Vacuum pallet is spring loaded to desired setting
- Various flange drillings available
- Hinged cover prevents misalignment and smashed appendages

VAREC, WHESSOE



## FLAME ARRESTERS

A complete range of flame arresters for maximum protection against flame

### FEATURES

- Suitable for low flash-point flammable gases or vapours
- In-line, end-of-line, or in conjunction with pressure and vacuum relief valves
- Suitable for gas groups IIA, IIB and IIC
- Special models for engine protection
- Detonation and deflagration units available
- Minimal pressure drops
- Designed to BS 7244, UL, USCG and EN 'long-burn' requirements

VAREC, WHESSOE, AMAL



## POSITION MONITORING DEVICES

A complete range of Pentair AVID®, 1/4-turn valve position monitoring devices

### FEATURES

- Model CR – compact IP66 enclosure for general purpose applications
- Model ZR – corrosion resistant IP67 enclosure, for general purpose and intrinsically safe applications
- Model ZR Plus – integrated aluminum or stainless steel solenoid valve for monitoring and control of automated valves in a single housing
- Model LP – low profile aluminium switchbox with simplified setting of switches or sensors
- Model XA – rugged aluminium/stainless steel flame proof enclosure, suitable for Exd applications
- Available in all Communications Protocol

AVID



## POSITIONERS

The Pentair AVID® range of pneumatic and electro-pneumatic positioners for proportional operation and advanced digital control of actuated valves

### FEATURES

- Full auto calibration routine locally or remotely
- Corrosion resistant enclosure
- ATEX/IEC certified Intrinsically safe unit
- Supports both linear and rotary applications
- Suitable for both single acting as spring return pneumatic actuators
- Diagnostic information available
- Remote sensor option for high vibration applications
- Fieldbus communication support for Foundation Fieldbus and HART

AVID



## NETWORK SOLUTIONS

- Pentair offers a comprehensive range of intelligent products supporting network solutions based on open protocols. We advise you with the selection of the correct fieldbus solution, supply the complete package of required components, provide assistance during commissioning and start-up, and train the maintenance people how to use the system during operation.



## BREATHER VALVES

Pressure and vacuum relief valves for tank safety and integrity

### FEATURES

- Available in 'vent to atmosphere' and in 'pipeaway' models
- Weight loaded/spring loaded models available
- Replaceable pressure and vacuum seat rings reduce maintenance time
- Steam jackets available
- Options for severe chemical service

VAREC, WHESSOE



## LEVEL GAUGES & COCKS

Level visualisation in process applications

### FEATURES

- Mechanical
  - Two colour readings
  - Belleville washers design for thermal expansion
  - High intensity illuminators
  - High quality mica protection of inner glass surface
- Electronic
  - No moving parts
  - High/low water level trips and alarms
  - Redundant power supplies
  - Fault diagnostic modules
  - Self calibrating
  - Bi-colour display indicator
- Magnetic
  - Anodised gold follower
  - Flag or follower design

PENBERTHY, NARVIK-YARWAY

**SATURATED  
STEAM  
APPLICATIONS**



**DIRECT SPRING-OPERATED PRESSURE RELIEF VALVE  
ANDERSON GREENWOOD CROSBY**

The Crosby series JOS-E is ideal for saturated steam applications found on sugar and ethanol process evaporators. The JOS-E has a rugged and standardized design, which provides for ease of maintenance, reliability and long service life.

Manufactured according to the ASME Pressure Vessel Code Section VIII, the JOS-E is capacity certified by the National Board of Boiler and Pressure Vessel Inspectors. All valves on air or steam service (including water above 140°C) must be fitted with a lifting lever and the Crosby valve has a standard screwed cap and lifting lever for this

application. The valve body and bonnet are manufactured from ASME SA216 Gr. WCB steel with 316 type stainless steel nozzle and disc insert. The design of the disc insert, disc holder and the nozzle ring have been engineered to improve maintenance and minimize spare parts. The valve has a chrome steel spring and is also fully compliant with API standards 526 and 527.

With a pedigree gained on some of the most demanding industrial processes the Crosby JOS-E provides safety and reliability allowing your plant to operate efficiently whilst maximizing your production uptime.

**DISTILLATION /  
MOLECULAR SIEVE -  
SUGARCANE**



**RESILIENT SEATED BUTTERFLY VALVE  
KEYSTONE**

The Keystone F990 butterfly valve with EPDM seat (FDA certified) is ideal for the slightly abrasive and corrosive media encountered in distillation, providing a durable solution with extended valve life cycle.

The Keystone F990 has a one-piece disc stem that provides positive disc control and minimum obstruction to flow. The disc is available mirror polished or coated with EPDM to ensure positive sealing and maximum seat life.

F990 butterfly valves are used in both on/off and control applications and are also suitable for highly viscous fluids such as molasses. They can be combined with Keystone actuators and controls for a complete automated valve package.

**HIGH PERFORMANCE BUTTERFLY VALVE  
KEYSTONE**

The Keystone K-LOK butterfly valve with RTFE seat, is ideal for the Molecular Sieve process and the demands of high cycling and fluctuating process conditions.

RTFE Polymer seats incorporate a stainless steel braided wire winding, this allows flexibility in both directions of flow, ideal for this application where the valves are required to open and shut quickly and are exposed to both pressure and vacuum conditions.

The K-LOK has been designed with a double offset disc/stem/seat geometry which minimises seat/disc wear and the disc profile maximises flow capacity.

**LIMING &  
EVAPORATION**



**CONTROL BALL VALVE  
KTM**

The KTM Dual V-ball high performance control ball valve is suitable for both on/off and control applications in the liming process and evaporation process in the sugar production process.

The Dual V-ball valve has a unique secondary V-notch, which will control extremely small and accurate flow rates – with a rangeability in excess of 250:1 – as well as the primary V-ball providing straight through non-clogging flow for large capacity heterogeneous fluids.

This characteristic is ideal for process control applications involving fibrous juice following sugar milling, including liming and evaporation. The liming operation

requires accurate control of small flow rates without clogging and evaporation requires throttling control for level, pressure and density, which is provided by the high performance Dual V-ball valve.

The heavy duty V-ball surface and a spring loaded Stellited seat provide excellent sealing performance at low torque, even on abrasive media, whilst the Unibody design reduces stress and the minimum body cavity reduces build up of any transition process materials.

The KTM Dual V-ball provides Class VI shut-off and has been proven in tough operating conditions, including sugar mills and ethanol plants across the globe.

**MOLECULAR  
SIEVE - GRAIN**



**TRIPLE OFFSET VALVE  
VANESSA**

The Molecular Sieve process is regarded as a challenging application in Ethanol production due to its high temperatures and aggressive ZEOLITE and clay mixture.

The sieve tanks have an operating temperature of approximately 150°C (300°F), but in-line valves can experience temperatures of over 315°C (600°F) for a period of several hours. Vanessa valves have an all metal construction and are suitable for a wide range of temperature conditions from -254°C to 815°C (-425°F to 1500°F) making them ideal for this application.

The Vanessa series 30,000 valve has a unique triple offset geometry, which eliminates any seat/seal wear extending

valve life. This is a real benefit with the abrasive media. Together with its standard Stellited seat and Duplex SS seal seat ring, the series 30,000 delivers outstanding performance.

The Duplex SS seal ring plays a dual-purpose role ensuring ZERO Leakage shut off when tested per API 598 and/or API 6D. Valves can also be supplied with HVOF shaft hardening in the bearing areas, Stellited bearings, Solid Seal Ring, and Bearing flushing to enhance durability and extend product life.

The Vanessa series 30,000 has a proven track record on the demanding Molecular Sieve process and is successfully used in this application by major end users in Europe, Asia, North & Latin America.





## MAXIMIZING VALVE VALUE RAPID REPAIR AND PRO-ACTIVE MAINTENANCE

When it comes to process solutions, there is no better outsourcing partner than Pentair Valves & Controls. We make it our business to let you concentrate on running yours. A network of service centers across the globe ensures we are well positioned to provide fast and effective support whenever you need it, wherever that might be. Each facility is manned by dedicated staff with an unsurpassed knowledge of the intricacies and selection challenges posed by valves and actuators – including construction, material, applications, maintainability and life cycles.

Whether the job calls for preventative, predictive or corrective measure, Pentair can help you optimize the performance, reliability and safety of your equipment – regardless of the specification or manufacturer.

### ON-SITE SERVICE

Wherever you operate, Pentair Valves & Controls can provide on-site service specialists and portable workshops. From a single valve overhaul to a total shut down, our skilled and experienced staff can be relied upon to provide effective repairs, maintenance and servicing to tight schedules.

### PERMANENT ON-SITE SERVICE

If you need more support, we can go the extra mile to put a permanent workshop at your facility, with expert Pentair Valves & Controls personnel on-site for immediate availability.

### VALVE DIAGNOSTICS

Pentair has access to sophisticated diagnostic equipment, which allows us to check the integrity of critical equipment to access the condition and performance of valve which may need repair and attention to ensure plant safety.

### IN-HOUSE REPAIR

In cases where valve repairs or reconstructions cannot be completed on-site, our specially equipped workshops can deliver results to the highest quality standards, regardless of Pentair or non-Pentair products.

### VALVE ASSET MANAGEMENT

Using either our proprietary software or your existing system, we can monitor repair cycles in real-time and collect statistical data on every installed valve, to create a customized maintenance program to help with predictive maintenance and forecast spare part requirements.

### SPARE PARTS

We stock and have access to the spare parts and other components you need to repair and restore your Pentair valves to their original specifications and condition. Our service teams also have access to non-Pentair parts and regularly maintain valves from other manufacturers.

### WORLD-CLASS PRESSURE RELIEF VALVE CAPABILITIES

Pentair manufactures the widest range of pressure relief valves (PRV) in the industry. Our abilities and skills in handling your PRV repair requirements are unmatched in the industry. We have equipped our shops and field operations with equipment required for proper testing of all types of PRV before they are returned to service:

- Air/Gas Testing Shop and Field
- Liquid Testing Shop and Field
- Field Stream testing using in-line testing devices

### VALVE AUTOMATION PACKAGES BUILT TO YOUR SPECIFICATIONS

From a simple manually operated valve to a complex, certified HIPPS failsafe system, our experienced and knowledgeable engineers know how to deal with it. Pentair Valves & Controls' Valve Automation Centers (VAC) can design and engineer full automation packages for pneumatic, hydraulic and electrical actuator applications for all quarter-turn and linear valves.

Each month thousands of automated valve packages are assembled in our VACs. Hydrostatic tests, standardized seat leakage tests and safety applications which require remote ESD and/or PST functionality can also be fully tested in-house. Our extensive knowledge in valve control adds to the reliability of your critical applications.



# GLOBAL PRESENCE

## LOCAL EXPERTISE

Pentair Valves & Controls offers you something special – the convenience of a truly global footprint, coupled with world-class products and services delivered by local experts. The numbers speak for themselves – 15,000 employees in more than 350 facilities in 45 countries. They add up to a unique ability to help customers to solve problems, reduce risk, increase productivity and protect what’s most vital – people, assets and the environment.



### MAIN PENTAIR VALVES & CONTROLS SALES OFFICES & CONTACTS

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