

PRODUCT OVERVIEW VALVES & CONTROLS



AMAL
ANDERSON GREENWOOD
ANDERSON GREENWOOD
INSTRUMENTATION
AVID
BIFFI
CHEMAT
CLARKSON
CROSBY
DEWRANCE
FASANI
FCT
FLOCHECK
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PENTAIR VALVES & CONTROLS

A GLOBAL NETWORK OF INTERNATIONAL BRANDS

PENTAIR VALVES & CONTROLS IS THE NAME BEHIND THE WORLD'S MOST COMPREHENSIVE RANGE OF VALVES, ACTUATORS AND ASSOCIATED FLOW CONTROL PRODUCTS.

Supplying a host of leading global brands, we work closely with the oil & gas, power generation, mining, chemical, food & beverage and marine industries, so we can anticipate their needs and exceed their expectations at every level.

EXCELLENCE IN ENGINEERING

At Pentair Valves & Controls our position as the technology leader in flow control is solidified by the collective resources of our brands. Utilising the latest systems and technology, our specialists produce the highest quality flow products at competitive market pricing.

QUALITY PHILOSOPHY

A strong commitment to maintaining and improving the quality of both product performance and customer service is inherent within our management policy. Our factories and Q.A. procedures are inspected

and audited regularly by major quality authorities such as Lloyds Register, BSI, Bureau Veritas, and TÜV, and are in compliance with ISO 9000: 2000.

APPLICATION SOLUTIONS

Working closely with industry contractors and users, Pentair Valves & Controls engineers are able to develop specific proposals for individual process requirements – by combining advanced technology with outstanding engineering expertise.

PROJECT PACKAGES

The extensive range of product types enables Pentair Valves & Controls to propose and supply integrated project packages. Simplify your supply chain by including Pentair as an approved vendor.

ANYWHERE IN THE WORLD

What's more, Pentair's products can be found at work in every corner of the globe with 30,000 people worldwide, working with clients and partners on six continents. Our flow management solutions are backed by unrivalled customer services, experience and support.

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INDUSTRIAL VALVES



Industrial ball valves

A comprehensive range of one, two and three-piece ball valves to suit a wide range of general industrial applications

FEATURES

- Reduced and full bore models
- ISO 5211 top mounting plate available on selected models
- Three-way, multiport designs available
- Seat material options available
- Fire safe models available
- TA Luft approved

TECHNICAL DATA

Pressure class:

ASME 150/300: PN 10 to 100

Sizes:

DN 8-300 (NPS ¼-12)

End connections:

Screwed - BSPP, BSPT, NPT
Flanged - ASME 150/300, PN 10/16, PN 25/40

MATERIALS

Body: Carbon steel, stainless steel

Ball and shaft: Stainless steel

Seat: Virgin PTFE, reinforced PTFE



Process, floating ball valves

For use in a wide spectrum of chemical, hydrocarbon and other process industry applications

FEATURES

- Full and reduced bore
- High integrity shaft seal
- Blow-out proof and antistatic shaft design
- Fugitive emission detection system available
- Fire test certified models available
- ISO 5211 mounting flange for easy adaptation to automated operation, pneumatic or electric actuators
- Suitable for adaptation for high temperature, cryogenic and vacuum service
- TA Luft / ISO 15848 fugitive emission certified
- Locking device cavity relief low torque operation
- Jacketed valves
- Cryogenic valves
- Tank bottom valves

TECHNICAL DATA

Pressure class:

ASME 150/300/600/900/1500
PN 16 to 100

Sizes:

DN 8-400 (NPS ¼-16)

Temperature range:

-196°C to +500°C

MATERIALS

Body: Carbon and stainless steels, aluminium bronze, duplex steels, alloy 20, Monel, Hastelloy B & C, nickel, Inconel, titanium etc.

Ball and shaft: Stainless steel and other alloys

Seat: Virgin PTFE, glass filled PTFE, copolymer E-seat, PEEK, RTFE, nylon, graphite, metal etc.

Other materials on request



Control (Single-V & Dual-V)

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

FEATURES

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

TECHNICAL DATA

Pressure class:

ASME class 150 to 300

Sizes:

DN 25-300 (FB) (NPS 1-12)
DN 40-500 (RB) (NPS 1½-20)

Temperature range:

-29°C to +350°C

End connection:

Flanged & flangeless

Face to face dimension:

ANSI B16.10 short pattern/long pattern
ISA75.04

MATERIALS

Body: Carbon steel, stainless steel

Other materials on request

Disc: Stainless steel with hard facing

Seat: Laminated metal seat, stellited thick (solid) metal seat



Three-way 2 & 4 seats (L & T port)

Used in mixing or dividing fluid, minimizing space & reducing piping stress

FEATURES

- Positive flow stem indicator
- Fire safe design
- Locking device
- Meets NACE MR0175
- Positive shut-off
- Integral mounting flange
- Blow-out proof stem
- Low torque operation
- Available for high temperature application

TECHNICAL DATA

Pressure class:

ASME class 150 to 300

Sizes:

DN 15-200 (FB) (NPS ½-8)

DN 150-250 (RB) (NPS 6-10)

Temperature range:

-29°C to +270°C (+500°C as option)

End connection:

Flanged

Face to face dimension:

KTM standard

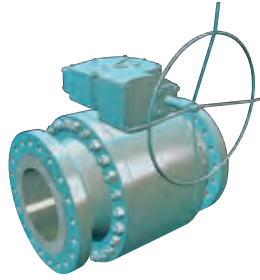
MATERIALS

Body: Carbon steel, stainless steel
Other materials on request

Ball and stem: Stainless steel (304SS, 316SS)

Seat: PTFE, RTFE, PEEK & graphite

GACHOT, KTM, MECAFRANCE



End entry, split body Trunnion mounted

Two-piece (cast) and three-piece (forged) end entry designs for tight shut-off on gas and liquid services

FEATURES

- Full or reduced bore
- Fire safe approved design
- End connections: flanged, butt weld or clamped
- To API 6D or API 6A
- Design to ASME B16.34
- Variations include diverting multi-port designs, and piggable valves
- Soft, metal/soft or metal/metal seating
- Manual or powered operation
- Double Block and Bleed

TECHNICAL DATA

Pressure class:

ASME 150/300/600/900/1500/2500

API 3000/5000/10000

Sizes:

DN 50-1500 (NPS 2-60) three-piece

Temperature range:

-196°C to +350°C

MATERIALS

Complies with NACE MR0175 - 2002

Wide range of materials available, in cast or forged version, including but not limited to:

- Carbon steel
- Super duplex (25% Cr)
- Low alloy steels
- Stainless steel
- Inconel 625 and 718
- Duplex (22% Cr)
- 6 Mo
- Titanium

Seat area weld overlays or coatings available

FCT, KTM



Metal seated

Metal seated ball valves, for high temperature, abrasive or erosive services across a wide spectrum of applications

FEATURES

- Reliable shut-off
- Low torque operation
- High integrity shaft seal
- Fire safe design
- Various coatings available
 - Chromium carbide
 - Tungsten carbide
 - Nickel alloy

TECHNICAL DATA

Pressure class:

ASME 150/300/600/900/1500/2500

Sizes:

DN 15-600 (NPS ½-24)

Temperature range:

Up to 500°C

MATERIALS

Specifications determined in response to individual service requirements

FCT, KTM

INDUSTRIAL VALVES



Top entry

Ideal construction for high pressures and high temperatures. Mainly installed on offshore applications (topsides, sub-sea valves)

FEATURES

- One-piece body construction
- Internal access without dismantling flanges
- Bolted or pressure sealed bonnet
- Fire safe approved design
- End connections: flanged, butt weld, clamped or transition/pup pieces
- To API 6D or API 6A
- Design to ASME B16.34
- Soft, metal/soft or metal/metal seating
- Manual or powered operation
- Double Block and Bleed

TECHNICAL DATA

Pressure class:

ASME 150/300/600/900/1500/2500
API 3000/5000/10000/15000

Sizes:

DN 50-1400 (NPS 2-56)

Temperature range:

-196°C to +350°C

MATERIALS

Complies with NACE MR0175 - 2002

Wide range of materials available, in cast or forged version, including but not limited to:

- Carbon steel
- Super duplex (25% Cr)
- Low alloy steels
- Stainless steel
- Inconel 625 and 718
- Duplex (22% Cr)
- 6 Mo
- Titanium

Seat area weld overlays or coatings available



Fully welded

The one-piece fully welded body construction offers the minimum risk of outside pressure leakage. This design is recommended for gas transportation and storage

FEATURES

- Full or reduced bore
- Fire safe approved design
- To API 6D
- Design to ASME B16.34/B31.3/ASME VIII Div 1&2
- Extensions available for mechanical driving, vent and drains
- Soft, metal/soft or metal/metal seating
- Manual or powered operation
- Double Block and Bleed

TECHNICAL DATA

Pressure class:

ASME 150/300/600/900/1500

Sizes:

DN 50-1500 (NPS 2-60)

Temperature range:

-196°C to +350°C

MATERIALS

Complies with NACE MR0175 - 2002

Wide range of materials available, in cast or forged version, including but not limited to:

- Carbon steel
- Low alloy steels
- Stainless steel

Seat area weld overlays or coatings available



Gate valves

Suitable for oil, gas and petrochemical plants, for throttling and shut-off services

FEATURES

- Designed to ASME B16.34, API 600 and BS 1414
- Bolted bonnet and pressure seal designs
- Bellows sealed designs
- Hazardous service models available, including Chlorine, HF Alkylation, LAB, etc.
- Tested according to API 598
- Material compliance to NACE available

TECHNICAL DATA

Pressure class:

ASME 150 to 4500

Sizes:

DN 15-1800 (NPS 1/2-72)
Larger sizes on request

Temperature range:

-196°C to +650°C

End connections:

Flanged RF and RTJ, butt weld, hub ends

MATERIALS

Body: Carbon, alloy and stainless steels, Monel, Hastelloy, Incoloy, Inconel, duplex, 6 Mo, etc.

Other materials on request



Globe valves

Ideal for throttling and shut-off service in oil, gas and petrochemical applications

FEATURES

- Designed to ASME B16.34 and BS 1873
- Bolted bonnet and pressure seal designs
- Bellows sealed designs
- Tested according to API 598
- Material compliance to NACE available

TECHNICAL DATA

Pressure class:

ASME 150 to 4500

Sizes:

DN 15-600 (NPS ½-24)
Larger sizes on request

Temperature range:

-196°C to +650°C

End connections:

Flanged RF and RTJ, butt weld, hub ends

MATERIALS

Body: Carbon, alloy and stainless steels, Monel, Hastelloy, Incoloy, Inconel, duplex, 6 Mo, etc.
Other materials on request



Gate, globe and check valves

Complete range of gate, globe and check valves suitable for low and medium pressure applications in power generation

FEATURES

- Bolted & welded bonnet designs
- Cast steel or one-piece die forged bodies
- Different trims according to API available
- Depending on valve type: conventional or full port design
- Gate and globe valves have an integral machined backseat
- Graphite packing
- Forged gate and globe valves have swing bolts hardened pins
- Internal surfaces are accurately machined to provide maximum performance

TECHNICAL DATA

Pressure class:

ASME 150/300/600/800/1500

Sizes:

Forged: DN 15-50 (NPS ½-2)
Cast: DN 50-600 (NPS 2-24)

Temperature range:

+649°C (1200°F) for A351 CF8
+425°C for A216 WCB

End connections:

BW to ASME B16.25
SW to ASME B16.11
Flange to ASME B16.5 RF
Tested to API 598

MATERIALS

- Carbon steel
 - Stainless steel
- Other alloy steel on request



Bellows sealed globe valves

For non critical hazardous services such as thermal oil, steam, vacuum and chemicals

FEATURES

- Suitable for thermal oil applications
- Proven technologies for tight sealing on high temperature services (metal or soft seating)
- Steam tracing
- Shaft tightness in accordance with TA Luft (3.1.8.4)
- Manual, actuated and control valves

TECHNICAL DATA

Pressure class:

ASME 150/300/600/800
PN 10/16/25/40/50/100

Sizes:

DN 15-350 (NPS ½-14)

Temperature range:

-60°C to +420°C

MATERIALS

Body and bonnet: Carbon steel, cast iron or stainless steel
Low temperature carbon steel on request

INDUSTRIAL VALVES



CompoSeal innovative resilient seated valves

Wafer type valves in highly engineered composite material, according ISO standards

FEATURES

- Valve body and disc in high engineered composite material
- Patented wafer style body and disc
- Excellent internal and external chemical resistance
- Extremely light weight construction
- All fasteners in stainless steel 316 as standard
- Pressure range up to PN 16
- Can be used in high line velocity applications up to 12 m/sec.
- Can be used in vacuum applications
- Thin disc resulting in high C_v value
- 4 integrated locating holes
- Actuator flange to ISO 5211
- Sustainable production philosophy as the valve materials are 100% recyclable

TECHNICAL DATA

Pressure class:

PN 10/16

Sizes:

DN 40-300 (NPS 1½-12)

Temperature range:

-40°C to +150°C

Flange connections:

DIN PN 6/10/16, ASME 150

Face to face:

EN 558-1/T5, API 609

MATERIALS

Body: Composite XP 1600 / XP 1620

Disc: Composite XP 1620

Liner: EPDM

KEYSTONE



Resilient seated butterfly valves

Wafer, lugged and double flanged versions are available for both general and heavy duty industrial applications

FEATURES

- Actuator flange to ISO 5211
- High solid, glossy, silicone free paint system
- Extended body neck allows pipe insulation
- Face to face dimensions according to EN 558-1 (ISO 5752)
- Polished disc edges for longer seat life and bubble-tight shut-off
- Top bushing absorbs actuator side thrust loads
- TA Luft approved

TECHNICAL DATA

Pressure class:

Full vacuum to PN 25

Sizes:

DN 40-2400 (NPS 1½-96)

Temperature range:

-40°C to +160°C

Flange accommodation:

PN 6/10/16/25, ASME 125/150, JIS 10/16K

MATERIALS

Body: Cast and ductile iron, carbon steel, stainless steel

Disc: Ductile iron, stainless steel, nickel aluminum bronze

Seat: NBR, white NBR, EPDM, XP EPDM, FKM, PTFE/EPDM

Other materials on request

KEYSTONE



High performance butterfly valves

Wafer, lugged and double flanged, double eccentric butterfly valves in compliance with ISO or ASME standards

FEATURES

- Actuator flange to ISO 5211
- Integrated travel stop
- Accessible packing adjustment without operator removal
- Bi-directional shut-off performance
- End-of-line service
- Soft seat, fire-safe and metal seat
- Compact design, low weight
- Double eccentric operating principle
- Shaft bearings to ensure stability during high pressure, high cycle applications
- TA Luft approved

TECHNICAL DATA

Pressure class:

Full vacuum to PN 40, ASME 150/300/600

Sizes:

DN 50-900 (NPS 2-36)

Temperature range:

-50°C to +400°C

Flange accommodation:

PN 10/16/25/40, ASME 150/300/600

MATERIALS

Body: Carbon steel, stainless steel

Disc: Carbon steel, stainless steel

Seat: RTFE, stainless steel, fire safe
Other materials on request

KEYSTONE, WINN



Check valves

Wafer, lugged and double-flanged check valves for all utility, industrial and process applications

FEATURES

- Single, dual plated or torpedo shaped disc design
- Swing, lift or tilting disc principle
- Spring, weight or hydraulic assisted disc action
- Non-slam action
- Compatible with DIN, ASME, BS, PN and JIS standards
- Low cost of maintenance
- Suitable for installation in vertical pipelines
- Material compliance to NACE available
- Rubber lined versions for all water related and industrial applications

TECHNICAL DATA

Pressure class:

Up to ASME 4500

Sizes:

DN 40-1600 (NPS 1½-64)

Temperature range:

-196°C to +650°C

End connections:

Flanged RF and RTJ, butt weld, hub ends, wafer, lugged

MATERIALS

Body: Cast and ductile iron, carbon steel, stainless steel, nickel aluminum bronze

Disc: Carbon steel, stainless steel, nickel aluminum bronze

Seat: NBR, EPDM, FPM, stellite
Other materials on request



Triple offset valves

Bi-directional, zero leakage shut-off, suitable for 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
- Hardfaced, integral metal seating
- All-metal construction gives inherent fire safety
- Blow-out proof stem, retained both externally and internally
- Suitable for cryogenic and high temperature services
- Design codes: ASME & EN

TECHNICAL DATA

Pressure class:

ASME 150 to 1500

PN 10 to 160

Sizes:

DN 80-2800 (NPS 3-112)

Temperature range:

-254°C to +815°C

MATERIALS

Body and disc: Carbon, stainless and duplex steels, aluminum bronze

Seat: All-metallic, stellite
Other materials on request



Knife gate valves

Knife gate valves for service in polluted media such as sewage water, soft solids, coal dust, emulsions, granulates, powders, pastes, etc.

FEATURES

- Two-part body with metallic gate guides
- Can be installed as inlet/outlet valve or between flanges
- Tight shut-off in both directions
- Self-adjusting transverse sealing to atmosphere
- Flush-out corners ensure flushing of the seat area
- Segmental gate radius avoids a possible jam effect
- Cutting edge in lower body
- Handwheel, electric, pneumatic or hydraulic available
- Face-to-face to EN 558-1 (DIN 3202 part 1)

TECHNICAL DATA

Pressure range:

From vacuum up to 25 bar

Sizes:

DN 50-1400 (NPS 2-56)

Temperature range:

Up to 400°C

Flange accommodation:

PN 10/16/25, ASME

MATERIALS

Body: Cast iron, ductile iron, stainless steel, Hastelloy

Gate: Stainless steel, Hastelloy, special material

Sealing: NBR, EPDM, FPM, PTFE, ceramic fiber

DEWRANCE, FASANI, FLOCHECK, GULF, KEYSTONE, PRINCE, RAIMONDI, SAPAG, SEMPELL

VANESSA

CLARKSON, KEYSTONE, L&M VALVE, ROVALVE

CONTROLS & INSTRUMENTATION



Quarter turn pneumatic actuators

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 or spring return
- Top and bottom bearings
- Anti friction piston pads
- Hard anodised and ESPC finish
- Field reversible
- ISO, DIN, NAMUR and Keystone mounting standards
- Bi-directional adjustable travel stops
- Aluminum housing for lower weight
- Anti blow-out shaft design
- Suitable for SIL2 applications

TECHNICAL DATA

Torque outputs:

Double acting models:
Up to 2054 Nm (5.5 barg)

Spring return models:
Up to 1414 Nm

Max supply pressure:
10 barg

Temperature range:
-30°C to +90°C

MATERIALS

Body: Hard anodised aluminum
Pistons: Aluminum
O-ring seals: NBR
Bearing pads: Polyamide

KEYSTONE, MORIN



Pneumatic actuators

Scotch yoke, pneumatic actuators for efficient on-off or modulating control of quarter turn valves

FEATURES

- Double acting or spring return
- Stainless steel or ductile iron housing
- Stainless steel cylinders for unrivalled corrosion protection
- Easy disarming of spring for safe maintenance
- ISO 5211 mounting pattern
- Bi-directional travel stops
- Symmetrical or canted yoke

Optional features

- Jackscrew override
- Partial stroke test device
- Integral lock out device

TECHNICAL DATA

Torque outputs:

Double acting models:
Up to 124,256 Nm (5.5 barg)

Spring return models:
Up to 65,903 Nm (spring end torque)

Supply pressure:
2.8 to 8.3 barg

Temperature range:
-30°C to +100°C

Option:
-45°C to +150°C

Angular rotation:
90° ± 8°

MATERIALS

Body: Ductile iron, stainless steel
Cylinders: Carbon steel Xylan coated, stainless steel
Shaft: High strength alloy steel
Bushings: Sintered bronze
Guide bands: PTFE

KTM, MORIN



Heavy duty pneumatic actuators

Heavy duty scotch yoke, pneumatic actuators suitable for quarter turn on-off or modulating service

FEATURES

- Double acting or spring return
- Carbon steel construction for maximum strength
- Totally enclosed, weatherproof housing
- Ideal for larger valves with high break-out torques and valves with high working pressures
- Fully encapsulated, welded spring cartridge for maximum safety and ease of assembly
- External travel stops for precise stroke adjustment
- Special coatings available for offshore or corrosive environments
- 'Gas over Oil' and hydraulic versions

TECHNICAL DATA

Torque outputs:

Double acting models:
Up to 226,400 Nm (5 barg)

Spring return models:
Up to 78,900 Nm (spring end torque)

Supply pressure:
10.5 barg max

Temperature range:
-30°C to +100°C

Other ranges on request

MATERIALS

Body: Carbon steel
Cylinders: ENP and polished
Piston rods and guide bars: Hard chrome plated and polished
Bushings: Bronze or sintered bronze, charged with PTFE

BIFFI



Solenoid valves

High flow, pilot operated solenoid valves for direct mounting to pneumatic actuators

FEATURES

- Compact design, constructed on the diaphragm-operated poppet valve principle
- Positive sealing and high air flow characteristics
- 5/2 or 3/2 selectable via adapter plate
- 3/2 operation provides spring chamber purge function
- Meets internationally accepted NAMUR standards for use in aggressive environments
- Available versions include:
 - Weatherproof to IP65
 - Explosion-proof type 'ed', 'm'
 - Intrinsically safe

TECHNICAL DATA

Air pressure range:

2-8 barg

Voltage:

24-230 V

Temperature range:

-25°C to +55°C

Port size:

ISO 228 - G1/4

MATERIALS

See individual product datasheets for details of construction and materials

AVID



Position monitoring devices

A complete range of AVID®, quarter turn valve position monitoring devices

FEATURES

- Model CR – economical IP66 enclosure with solenoid valve integration as standard
- Model XA – rugged enclosure, suitable for hazardous area, Ex d applications
- Model ZR – corrosion resistant IP67 enclosure, for general purpose and intrinsically safe applications
- Model ZR Plus – for positioning monitoring and integrated solenoid valve control in a single housing
- Low profile switchbox – simplified setting of switches or sensors in an aluminum enclosure
- All models feature a HiVue beacon for long distance visibility, an Easifix shaft for screwless switch adjustment and a Modmount assembly for direct mounting to the R&P actuators

TECHNICAL DATA

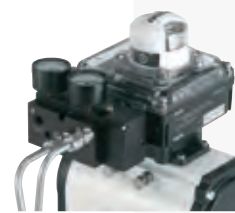
Options available for all hazardous area classifications

Conforms to VDI/VDE 3845 Standard

MATERIALS

See individual product datasheets for details of construction and materials

AVID



Positioners

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

FEATURES

- Analog
 - Auto calibration via push buttons or infrared
 - Corrosion resistant enclosure
 - HiVue local display
 - Optional switches or sensors for fully open or close position detection
- Programmable
 - For advanced control of rotary and linear actuators
 - Auto calibration via keypad or HART
 - Diagnostic information available (FDT/DTM)
 - Programmable PID characteristics
 - Remote mount sensor option for high vibrating environments (max. 15 m / 50 ft)

TECHNICAL DATA

Working pressure:

2.8 to 8 bar

Signal:

0.2 to 1.0 bar

4-20 mA

Temperature range:

-40°C to +75°C

MATERIALS

See individual product datasheets for details of construction and materials

AVID

CONTROLS & INSTRUMENTATION



Compact electric actuators

For the operation of quarter turn valves or dampers

FEATURES

- Compact, epicyclic geared actuator in robust construction (IP68) suitable for corrosive environments
- Interchangeable base plates for simple connection to all valve types
- Adjustable (+/- 10°) travel stops in both directions
- Manual override is independent of the motor drive
- An innovative motor operating with the whole range of voltages; duty rated at 100%
- Incorporates a local valve position indicator
- Universal voltage supply for DC or 1-ph AC (3-ph optional)
- Variable speed control independently adjustable in both directions
- Accurate and adjustable torque control from 40% to 100% of nominal torque
- Optional modules for various features

TECHNICAL DATA

Torque:

Up to 2,000 Nm

Voltage supply ranges:

24 V up to 240 V DC or single phase AC (3-phase optional)

Control voltages range:

24 V up to 120 V DC or single phase

Temperature range:

-40°C to +70°C

Speed range:

Adjustable

MATERIALS

Anodized aluminum gear case and enclosure
Electro static powder coating

KEYSTONE



Intelligent programmable actuators

The new generation of intelligent electric actuators will set a further step into the integration in automated process plants

FEATURES

- Easy set-up and commissioning
- Non-intrusive configuration
- Reduced set-up time
- Double displays
- Position indication in case of power failure
- Local push buttons for full actuator access
- Password protection to avoid unauthorized access
- Diagnostics are displayed in a choice of languages for both alarms and warnings
- Bluetooth interface as standard
- Reduced number of parts ensures higher reliability and lower maintenance cost
- FDT/DTM support

TECHNICAL DATA

Torque:

Up to 340,000 Nm

Voltage:

110-690 V

Temperature range:

-55°C to +85°C

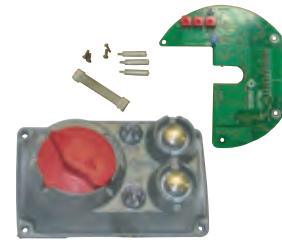
Speed range:

6 to 180 secs

MATERIALS

Anodized aluminum enclosures with epoxy-vinyl paint protection RAL 9007 (grey)

BIFFI



Accessories

A complete range of accessories to ensure maximum performance from the whole range of compact electric actuators with integrated electronic controls

FEATURES

- Multi-functional module with features as follows:
 - Analog position input: 4-20 mA (0-10 V DC)
 - Analog position output: 4-20 mA
 - 4 additional SPST output contacts
 - Motor relay
 - Blinker for motor running
- Local interface device with local/remote selector, OP/CL push buttons and 2 LEDs for local indication
- Optional modules for 3-phase voltage supply
- Backup alkaline battery or external 24 V DC to update remote indications during power supply failure
- Fieldbus communication modules for different bus protocols:
 - DeviceNet
 - Profibus DP
 - Foundation Fieldbus
 - Modbus
 - Bluetooth module

TECHNICAL DATA

See individual product datasheets for further technical details

MATERIALS

See individual product datasheets for details of construction and materials

BIFFI, KEYSTONE



AS-Interface

Reduced wiring
Reduced installation



DeviceNet

Diagnostics control



ProfiBus

Diagnostics and control,
including hazardous
areas and redundancy



Fieldbus Foundation

Diagnostics and control,
including hazardous
areas and redundancy

CABLE	2 core	2 twisted pairs	2 twisted pairs	Twisted pair
DISTANCE	100 m ^[1]	500 m ^[1]	1200 m ^[1]	1900 m ^[1]
ADDRESSES	62 ^[2]	63	126	126
SPEED	167 kb/s	125/250/500 kb/s	9.6/19.2/93.75/187.5 kb/s	93.75 kb/s
TOPOLOGY	Line, tree, star, trunk/drop	Trunk/drop, daisy chain	Trunk/drop (max 0.3 m), daisy chain	Trunk/drop, star daisy chain
INPUTS	4	4	6	4
OUTPUTS	4	2	2	2
DIAGNOSTICS	Yes ^[3]	Yes	Yes	Yes
REDUNDANCY	No	No	No	Yes
ON/OFF	Yes	Yes	Yes	Yes
CONTROL	Yes ^[3]	Yes	Yes	Yes
ELECTRIC ACTUATOR	Yes	Yes	Yes	Yes
PNEUMATIC ACTUATOR	Yes	Yes	Yes	Yes
HAZARDOUS	EExnA, EEx d ^[4]	EEx d	EEx d, EEx ia ^[5]	EEx d, EEx ia ^[5]
COMMUNICATION	Gateway	Scanner card	Scanner card	Scanner card
	Will communicate with higher level fieldbus via a gateway ie. ProfiBus, DeviceNet, InterBus	Will communicate directly with PLC or DCS	Will communicate directly with PLC or DCS	Will communicate directly with PLC or DCS
	AVID, KEYSTONE	AVID, KEYSTONE	AVID, BIFFI, KEYSTONE	AVID, BIFFI, KEYSTONE

[1] Repeaters may be used to extend the distance limits

[2] Version 2.1

[3] For further information, please contact your local
Pentair Sales Office

[4] Hermetically sealed housing

[5] Number of addresses reduces for intrinsically safe
hazardous areas

Note: The system designer must give due consideration
to the constraints of distance and speed





Pilot operated

For premium tightness on difficult services such as gas liquid, steam, flashing fluids, cryogenics etc.

FEATURES

- Pop or modulating action
- Bubble tight performance
- Low-cost maintenance
- Not sensitive to back pressure
- Externally adjustable blowdown
- Stable even in two-phase flow
- In-situ testing available
- High capacity/high pressure
- Configurations to suit dirty services

TECHNICAL DATA

Pressure range:

1 to 425 bar (up to 690 bar optional)

Sizes:

NPS 1 x 2 to NPS 8 x 10 (single or dual outlet)

Temperature range:

-252°C to +538°C

MATERIALS

- Carbon steel
- Austenitic stainless steels
- Hastelloy
- Monel
- Duplex
- Inconel/Incoloy
- Titanium

Other materials on request



Spring operated

Metal or soft seated range of safety valves for the oil & gas and process applications

FEATURES

- Capacity certified
- High capacity
- Full nozzle design
- Conventional/bellows open bonnet design
- Design codes according to ASME VIII / API 526 and TRD / AD 2
- Liquid trim design
- In-situ testing
- Cost-effective maintenance
- Flanged, threaded, hub, socket and butt welded connections

TECHNICAL DATA

Pressure class:

ASME 150 to 2500

PN 10 to 400

Sizes:

NPS ½ x 1 to NPS 28 x 36

Temperature range:

-196°C to +815°C

End connections:

Conforming to ASME/DIN connections

MATERIALS

- Carbon steel
- Austenitic stainless steels
- Hastelloy
- Monel
- Duplex
- Inconel/Incoloy
- Titanium

Other materials on request



ASME 1- boiler

Drum, superheater, reheater and economizer valves for all types of boiler and steam systems

FEATURES

- Seat tightness up to 96%+ of set pressure
- Exceptional tightness minimises maintenance resources and repair interval times
- Reduced life-cycle costs
- Full and semi nozzle designs available
- Lift restriction facility available on HCl style
- Open and closed bonnets available
- Weather hoods for outdoor service

TECHNICAL DATA

Pressure class:

ASME 150 to 2500 flanged or butt welded inlets and flanged outlets

Sizes:

DN 40-150 (NPS 1½-6) inlets

Temperature range:

Saturated steam to 593°C

MATERIALS

Body and bonnet: Carbon steel, alloy steel

Other body materials on request

Stainless steel nozzle

Stainless steel/Inconel disc insert

SAFETY RELIEF VALVES



Safety selector and changeover valves

Dual pressure relief system for all process industry applications

FEATURES

- Dual safety valves system
- Either 1 valve active and 1 stand-by or 2 valves in service with possibility to isolate one for maintenance
- Guaranteed less than 3% pressure drop
- Bleed valves standard
- Enhanced external tightness without bellows
- Integral flat seats
- Rising non-rotating stem
- Positive drive chain interlocking

TECHNICAL DATA

Pressure class:

Up to ASME 2500

Sizes:

DN 50-300 (NPS 1-12)

Temperature range:

-252°C to +427°C

MATERIALS

- Carbon steel
- Stainless steel
- Duplex
- other alloys

Seat: PTFE, PEEK or Grafoil



Commodity industrial

Metal or soft seated range of safety valves for all industrial applications

FEATURES

- Capacity certified
- ASME I, IV, VIII
- High capacity
- Full or semi nozzle
- Conventional/open bonnet design ASME B16.47, BS 3243

TECHNICAL DATA

Pressure class:

ASME 150 to 900

PN 10 to 63

Sizes:

DN 8-150 (NPS ¼-6)

Temperature range:

-196°C to +427°C

End connections:

To ASME/DIN standards

MATERIALS

- Carbon steel
- Austenitic stainless steels
- Bronze
- Iron
- Aluminum



Pneumatic controlled

The efficiency of plant operation can be increased by application of pneumatically controlled operation on a spring loaded safety valve

FEATURES

- High tightness up to set pressure by supplement loading
- Small opening and closing differences
- High setting accuracy and reproducibility
- Pressure setting of safety valve during normal plant operation
- One control unit can be combined with two or more valves

TECHNICAL DATA

Pressure class:

ASME 150 to 2500

PN 10 to 400

Sizes:

DN 50-600 (NPS 2-24)

Temperature range:

-20°C to +700°C

End connections:

To ASME/DIN standards

MATERIALS

- Carbon steel
- Stainless steel
- High temperature alloy steel



Tank blanketing regulators

For preservation of stored liquids and safe operation of low pressure storage tanks

FEATURES

- Spring loaded or pilot operated
- Perfect tightness
- Single stage up to 14 bar of DP
- One single setting
- Reduced installation costs
- Low-cost maintenance

TECHNICAL DATA

Pressure range:

Up to 14 bar

Sizes:

NPS ½, 1 and 2

Temperature range:

Up to 260°C

MATERIALS

- Carbon steel
- Stainless steel

Seat: Elastomeric

ANDERSON GREENWOOD, CROSBY,
MARVAC, WHESSOE



Low pressure pilot operated safety valves

Safety valves for low pressure tanks, refrigerated, cryogenic and chemical processes and liquified gas carriers

FEATURES

- Pop or modulating action
- Excels in cryogenic service
- Externally adjustable blowdown
- Not sensitive to back pressure
- In-situ testing
- Perfect tightness
- Large capacities

TECHNICAL DATA

Pressure range:

Full vacuum to +3.5 bar

Sizes:

NPS 2-12, vent or piped outlet

Temperature range:

-252°C to +205°C

MATERIALS

- Aluminum
- Stainless steel
- Carbon steel

Seat: Elastomeric or plastic

ANDERSON GREENWOOD, CROSBY,
LUCEAT, MARVAC, WHESSOE



Breather valves

Pressure and vacuum relief valves for tank safety and integrity

FEATURES

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

TECHNICAL DATA

Pressure range:

0.0025 bar to 3.5 bar

Vacuum range:

-0.0025 bar to -0.8 bar

Sizes:

DN 50-300 (NPS 2-12)

End connections:

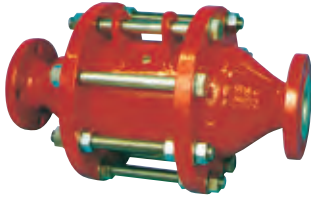
Flanges to ASME, DIN or other standards

MATERIALS

- Aluminum
- Cast iron
- Carbon steel
- Stainless steel
- Monel
- other alloys

MARVAC, WHESSOE

SAFETY RELIEF VALVES



Flame and detonation arresters

A complete range of flame and detonation arresters for maximum protection against flame and explosion propagation

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

TECHNICAL DATA

Sizes:

DN 8-600 (NPS ¼-24)

Temperature range:

-30°C to +150°C

MATERIALS

- Aluminum
- Cast iron
- Carbon steel
- Stainless steel
- Hastelloy
- other alloys



Gauge hatches, vents and other tank accessories

Emergency relief man hole covers, gauge hatches, emergency vents and other tank accessories

FEATURES

- Emergency vents
 - Combined vacuum relief available
 - Air cushion seat available
- Reserve capacity relief valves
 - For large LNG and LPG tanks
 - Instantaneous opening
 - High capacity
- Gauge hatches
 - Locking mechanisms available
- Internal tank valves
 - For cryogenic, low temperature and other tanks
 - Bottom or side mounted
 - Pivot or plug style for high capacities

TECHNICAL DATA

See individual product datasheets for further technical details

MATERIALS

- Aluminum
- Carbon steel
- Stainless steel

Seats: Metal, NBR, PTFE



Floating suction

Prevents product contamination by tank debris or water

FEATURES

- Facilitates removal of product from stratified tanks, without removal of water or tank debris
- Incorporate maintenance free swivels
- Designed to avoid creating a vortex

TECHNICAL DATA

Designed to suit particular service conditions

Sizes:

DN 50-600 (NPS 2-24)

MATERIALS

- Aluminum
- Steel
- Stainless steel



Bursting discs and explosion panels

Complete range of rupture discs and explosion vent panels for all applications

FEATURES

- Foolproofing features for the prevention of incorrect installation
- Non-torque sensitive for easier and safer installation
- Forward or reverse buckling, scored or not
- Non-fragmenting design for use upstream of safety valves
- Vacuum/reverse support available
- All styles of holders
- Hygienic designs
- Certified and designed per BS, AD A1, ISPEL, ASME VIII, ISO, UDT, etc.

TECHNICAL DATA

Pressure range:

0.04 to 1,030 bar
(2.0 bar max for panels)

Sizes:

DN 6-1200 (NPS ¼-48)

Temperature range:

-200°C to +600°C (+500°C for panels)

Panels vent area:

0.23 to 1.25 m²

MATERIALS

- Aluminum
- Nickel
- Stainless steel
- Inconel
- Graphite
- PTFE
- PFA
- Monel
- Tantalum
- etc.

MARSTON



Reheat isolation devices

For quick isolation of reheat section of boiler for testing, maintenance etc.

FEATURES

- Pressure seal bonnet
- Manufactured from cast or forged steel
- Eliminates pressure loss experienced using normal isolation valves
- Alleviates the need for cutting into pipes and fitting blanking flanges
- Stellite seating faces
- Designs in acc. with ASME B16.34, API, DIN, TRD codes

TECHNICAL DATA

Pressure class:

ASME 500 to 2500
PN 100 to 320

Sizes:

DN 65-900 (NPS 2½-36)

Temperature range:

-30°C to +425°C

End connections:

Butt weld

MATERIALS

- Carbon steel
- Alloy steel
- High alloy steel

DEWRANCE, RAIMONDI, SEMPELL



INSTRUMENT VALVES & ENCLOSURES



Valves and manifolds

Hand, gauge valves and manifolds for instrument isolating, draining, calibrating and venting service

FEATURES

- Single isolation valves for venting or isolating service
- 2, 3, 4 or 5 valve versions
- Close coupling or remote mounted
- Suitable for coplanar or biplanar transmitter flange connections
- Version to Shell international standard
- Gas, liquid or steam service
- Adjustable gland packing for longer valve life
- Non rotating ball end stem for bubble tight shut off
- Power or natural gas configurations

TECHNICAL DATA

Pressure range:

414 bar as standard
690 bar available

Sizes:

Hand valves NPS 1/4-1, manifolds NPS 1/4-1/2
Manifolds have NPS 2 1/8 (DN 54) CTRS

Temperature range:

Up to 538°C

MATERIALS

- Carbon steel
- Stainless steel
- Monel
- Duplex
- and other exotic materials



Primary isolation

Instrument primary isolation for block, block and bleed and double block and bleed service

FEATURES

- Primary isolation service
- Replaces conventional bulky valve assemblies
- Close coupling of instruments
- One-piece forged body
- Fire safe tested and certified to API 607
- Flanged or threaded connections
- Needle / globe / ball valve combinations
- Meets ASME B16.5 and B16.34 standard
- Choice of block, block and bleed and double block and bleed combinations

TECHNICAL DATA

Pressure class:

ASME 150 to 2500: 10,000 API

Sizes:

NPS 1/2 flanged to NPS 3

Temperature range:

Up to 538°C

MATERIALS

- Carbon steel
- Stainless steel
- Monel
- Duplex
- and other exotic materials



Enclosure systems

Protection of field instrumentation from cold temperatures and harsh environments

FEATURES

- Choice of enclosure sizes
- Complete design and installation service
- 2, 3 and 5 valve enclosure manifolds reduce internal brackets and pipe work
- Weatherproof to IP66
- Complete range of accessories, windows, cable glands and brackets
- Heated version available
- Insulated version available

TECHNICAL DATA

Pressure range:

414 bar as standard
690 bar available

Sizes:

5L (single 330x400x428 mm)
15L (double 500x495x600 mm)
24L (multiple 800x495x600 mm)

Temperature range:

From -70°C

MATERIALS

- Tough fire resistant GRP
- Antistatic and insulated options available



Wedge gate valves

Suitable for a wide range of power applications

FEATURES

- Pressure seal bonnet
- Manufactured from cast steel
- Various wedge configurations
- Stellite seating faces
- Full bore design
- Designs to ASME B16.34

TECHNICAL DATA

Pressure class:

ASME 900 to 2500

Sizes:

DN 50-600 (NPS 2-24)

Temperature range:

-30°C to +650°C

End connections:

Flanged and butt weld

MATERIALS

- Carbon steel
 - Alloy steel
 - High alloy steel
 - Stainless steel
- Other exotic materials on request



Split wedge and parallel slide gate valves

Ideally suited for reliable isolation of high pressure and high temperature steam and water

FEATURES

- Pressure seal bonnet
- Manufactured from forged steel
- Parallel slide disc/split wedge
- Stellite seating faces
- Tailored bore design and interpolated ratings available
- Designs to ASME B16.34, DIN, TRD

TECHNICAL DATA

Pressure class:

ASME 900 to 4500

PN 160 to 720

Sizes:

DN 20-600 (NPS ¾-24)

Temperature range:

-30°C to +650°C

End connections:

Butt weld

MATERIALS

- Carbon steel
 - Alloy steel
 - High alloy steel
 - Stainless steel
- Other exotic materials on request



Parallel slide gate valves (Eyelet design)

High pressure parallel slide gate valves, with 'low pressure loss' or 'high velocity flow' specifications

FEATURES

- Pressure seal bonnet
- Manufactured from cast steel
- Parallel slide disc
- Eyelet follower (conduit)
- Stellite seating faces
- Design to ASME B16.34

TECHNICAL DATA

Pressure class:

ASME 1000 to 2850

Sizes:

DN 125-600 (NPS 5-24)

Temperature range:

-30°C to +650°C

End connections:

Butt weld

MATERIALS

- Carbon steel
- Alloy steel
- High alloy steel

STEAM & POWER PRODUCTS



Globe valves

Globe and screw down non return valves suitable for a wide range of power applications

FEATURES

- Bolted and pressure seal bonnet designs available
- Manufactured from cast and forged steel
- 'Y', 'T' and elbow down pattern configurations available
- Stellite seating faces
- Designs to ASME B16.34, DIN and TRD codes
- Screw down non return models available

TECHNICAL DATA

Pressure class:

ASME 900 to 2700

PN 160 to 500

Sizes:

DN 15-600 (NPS ½-24)

Temperature range:

-30°C to +650°C

End connections:

Flanged, socket or butt weld ends

MATERIALS

- Carbon steel
 - Alloy steel
 - High alloy steel
 - Stainless steel
- Other materials on request

DEWRANCE, FASANI, HANCOCK,
INTERVALVE, RAIMONDI, SAPAG,
SEMPELL, YARWAY



Piston/lift check valves

Suitable for non return duties in a wide range of power applications

FEATURES

- Bolted and pressure seal bonnet designs available
- Manufactured from cast and forged steel
- Stellite seating faces
- Designs to ASME B16.34, DIN and TRD codes

TECHNICAL DATA

Pressure class:

ASME 150 to 2700

PN 40 to 500

Sizes:

DN 50-600 (NPS 2-24)

Temperature range:

-30°C to +650°C

End connections:

Flanged, socket or butt weld ends

MATERIALS

- Carbon steel
 - Alloy steel
 - High alloy steel
 - Stainless steel
- Other exotic materials on request

DEWRANCE, FASANI, HANCOCK,
INTERVALVE, SEMPELL



Swing and tilting disc check valves

Suitable for non return duties in a wide range of power applications

FEATURES

- Bolted and pressure seal bonnet designs available
- Manufactured from cast and forged steel
- Stellite seating faces
- Designs to ASME B16.34, DIN and TRD codes

TECHNICAL DATA

Pressure class:

ASME 900 to 2850

PN 160 to 320

Sizes:

DN 50-600 (NPS 2-24)

Temperature range:

-30°C to +650°C

End connections:

Flanged or butt weld ends

MATERIALS

- Carbon steel
 - Alloy steel
 - High alloy steel
 - Stainless steel
- Other exotic materials on request

DEWRANCE, FASANI, INTERVALVE,
RAIMONDI, SAPAG, SEMPELL



Boiler trim valves

Blow-off and continuous blow-down valves

FEATURES

- Seatless valves
 - No seat, live loaded packing and slow opening
- Unit tandem
 - Combination of hardseat/hardseat or hardseat/seatless in a single body
 - Reduces potential leaks
 - Fits into confined space
- Hardseat valves
 - Stellite valve and seat
 - Provides long service life
 - Resistant to wear

TECHNICAL DATA

Pressure class:

ASME 300 to 2700

Sizes:

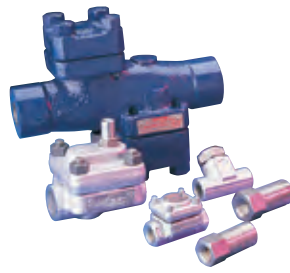
DN 25-65 (NPS 1-2½)

End connections:

Flanged, socket or butt weld ends to ASME standards

MATERIALS

- Carbon steel
- Alloy steel



Steam traps and strainers

For use in dripleg, tracing and process applications

FEATURES

- Non-repairable drip and tracer steam traps
 - Thermostatic and thermodynamic technologies
- Repairable drip and tracer steam traps
 - Thermostatic, thermodynamic and variable orifice technologies
 - Unibody plus technology
- Process steam traps
 - Thermostatic dual range for batch and continuous process applications
 - Thermostatic: high capacities up to 100,000 kg/hr
 - Variable orifice technology for high pressure applications
 - Lever technology for high capacity applications

TECHNICAL DATA

Pressure class:

ASME 150 to 4500

PN 25 to 640

Sizes:

DN 10-100 (NPS ¾-4)

End connections:

Flanged, socket or butt weld ends to DIN and ASME standards

MATERIALS

- Carbon steel
- Stainless steel
- Alloy steel



Bled steam and cold reheat check valves

Specifically designed, 'free to swing' check valve for bled steam or cold reheat non-return applications

FEATURES

- Bolted and pressure seal bonnet designs available
- Tilting disc or swing disc
- Stellite seat faces
- Counterweight available
- Side mounted or centrally mounted actuator
- Pneumatic or gravity operation
- Designs in accordance with ASME B16.34, DIN, TRD codes

TECHNICAL DATA

Pressure class:

ASME 150 to 1000

PN 40 to 100

Sizes:

DN 150-1000 (NPS 6-40)

Temperature range:

-30°C to +650°C

End connections:

Butt weld

MATERIALS

- Carbon steel
- Alloy steel
- High alloy steel

STEAM & POWER PRODUCTS



Pump protection valves and systems

Automatic minimum flow valves or systems for the protection of centrifugal pumps

FEATURES

- Single valve functions as:
 - Integral check valve
 - Flow sensing element
 - Bypass control valve
 - Bypass actuator
 - Multistage pressure letdown valve
- Reduces installation and maintenance costs
- Eliminates cavitation in valve and piping
- Intrinsically safe mechanical design with static seals, packless design, no leak path to atmosphere
- Flow loop testing and performance curve evaluation certification
- Multi-stage turbo-cascade control valve

TECHNICAL DATA

Pressure class:

ASME 150 to 4500
PN 25/40 to 640

Sizes:

DN 25-300 (NPS 1-12)

End connections:

Flanged or butt weld to ASME or DIN standards

MATERIALS

- Carbon steel
 - Stainless steel
 - Alloy steel
 - High alloy steel
- Other exotic materials on request

YARWAY



Boiler level gauges

Level visualization in power and process applications

FEATURES

- Complete range of products to cover mainly power applications:
- 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-color display indicator
- Magnetic
 - Anodised gold follower
 - Flag or follower design

TECHNICAL DATA

Glasses:

Transparent and reflex (LP and MP)
Bulls eye type (HP steam/water)

Steam/water application:

Up to 200 bar at saturation T°

Process applications:

-198°C to +315°C up to 413 bar

Water column electronic types:

Pressure rating:

<45 bar, 138 bar and 207 bar water column

Probe temperature:

648°C maximum

MATERIALS

- Carbon steel
 - Stainless steel
 - Alloy steel
 - Plastics
- Other materials on request

NARVIK, PENBERTHY, YARWAY



Desuperheaters

A full range of control valves for precise and economical control of steam temperature

FEATURES

- Multiple nozzle, steam assisted, high temperature desuperheaters
- Venturi style, fixed nozzle design available
- Easy installation: few components, compact size
- Excellent and near uniform spray quality
- Water capacities up to 100 m³/hr
- Steam temperature: control within 5°C of saturation
- Repeatability ±1%
- Large control range >1:60
- Stellite seat for long life tight shut-off
- Construction to TRD100, ASME B16.34, Stoomwezen (Holland), IBR IIIC (India), Austrian TÜV

TECHNICAL DATA

Pressure class:

ASME 150 to 2500
PN 25/40 to 400

Sizes:

Water side
DN 25-80 (NPS 1-3)
Steam side
DN 80-100 (NPS 3-4)

End connections:

Flanged acc. EN, ASME, DIN and BS and butt weld

MATERIALS

- Carbon steel
 - Alloy steel
 - Stainless steel
- Other materials on request

NARVIK, YARWAY



Steam conditioning valves and turbine bypass systems

Reducing of steam pressure and temperature in one single unit

FEATURES

- Single unit takes the place of conventional pressure reducing and desuperheating systems
- Steam atomizing attemperator with very small water droplets
- No thermal shock protection sleeve needed to protect the steam pipe (HP design)
- Perforated plug, single or multiple stage reduces noise level
- LP, IP and HP turbine bypass valves with hydraulic or pneumatic actuators
- LP, IP and HP turbine bypass valves with quick opening safety function as per German code TRD421
- Perforated cage protects valves against thermal shocks

TECHNICAL DATA

Pressure class:

ASME 150 to 4500
PN 25/40 to 640

Sizes:

DN 10-600 (NPS 3/8-24)

Temperature range:

+150°C to +620°C

End connections:

Flanged or butt weld

MATERIALS

- Carbon steel
- Alloy steel
- High alloy steel



Steam and feed water control valves

Control valves in water and steam cycles of power generation plants

FEATURES

- Low noise level and cavitations free, due to multiple stage trim system
- Pressure balanced plug gives low stem forces
- Enlarged outlet size for reduction of velocity of steam-water mixture
- Easy to maintain and to re-fit internal parts
- Separated throttling and sealing area
- Large volume body reduces effects of flashing
- Construction according to DIN and ASME standards

TECHNICAL DATA

Pressure class:

ASME 300 to 4500
PN 64 to 640

Sizes:

DN 15-700 (NPS 1/2-28)

Temperature range:

+20°C to +550°C

End connections:

Flanged or butt weld

MATERIALS

- Carbon steel



Feedwater bypass valves

Used to bypass the pipes in the preheater in case of pipe leaks

FEATURES

- Medium-operated acc. to releasing principle with blocking stem
- High tightening forces by the system medium
- Quick and safe shut-off of the preheaters

TECHNICAL DATA

Pressure class:

ASME 900 to 4500
PN 160 to 500

Sizes:

DN 80-500 (NPS 3-20)

Temperature range:

+100°C to +360°C

End connections:

Butt weld

MATERIALS

- Forged or cast carbon steel

SPECIAL SERVICE VALVES



Lined butterfly valves

Wafer, lugged and double flanged lined butterfly valves for highly corrosive liquids, gases and slurries

FEATURES

- Mechanically loaded shaft seals
- Polyester coated body withstanding severe atmospheric corrosion
- Serrated body flanges reduce the cold flow of the seat
- High C_v value
- Actuator flange according to ISO 5211
- Self-lubricating bearing
- TA Luft approved

TECHNICAL DATA

Pressure class:

Full vacuum to PN 10

Sizes:

DN 40-900 (NPS 1½-36)

Temperature range:

-40°C to +200°C

Flange accommodations:

PN 10/16, ASME, JIS

MATERIALS

Body: Ductile iron

Disc: PFA, conductive PFA, UHMWPE, stainless steel

Seat: PTFE, TFM, conductive TFM, UHMWPE

Backing ring: Silicone, FKM



Lined ball valves

High performance, lined ball valves for isolation and control in corrosive applications

FEATURES

- Body fully lined in PFA
- High integrity shaft sealing and lined shaft
- Fugitive emission detection system available
- Full bore
- Constant operating torque
- One-piece ball/shaft construction
- Captivity reduced to a minimum
- Models for control services
- TA Luft approved

TECHNICAL DATA

Pressure class:

Full vacuum to 16 bar and ASME 150

Sizes:

DN 15-150 (NPS ½-6)

Temperature range:

-40°C to +210°C

MATERIALS

Body: Ductile iron or carbon steel PFA-lined

Ball: PFA-lined, ceramic

Seat: PTFE

Shaft: PFA-lined

Other materials on request



Sampling valves

Compact systems for the extraction of representative samples from pipelines or reaction vessels, without process interruption

FEATURES

- Inline sampling guarantees a true representative sample
- Offered with either a bottle or syringe collection method
- PFA lining is available for aggressive services
- The reliability of each sample is assured due to the ease of assembly and disassembly for cleaning
- The use of a universal seat for all sizes allows a quick and easy seat change
- Tightness according EN 12266, leakage rate A bubble tight
- TA Luft approved

TECHNICAL DATA

Sizes:

Valve: DN 25-100 (NPS 1-4) wafer or flanged

Syringe: 20-250 ml

Pressure:

Valve: 16/25 bar

Syringe: 10 bar

Vacuum: 0.1 mbar

Temperature:

Valve: SS up to 200°C

PFA lined up to 180°C

Syringe: Up to 160°C

MATERIALS

- PFA lined
- Stainless steel
- Hastelloy



Reactor sampling systems

Designed to handle highly corrosive liquids. The lifting of the liquid sample takes place during the reaction process with a closed reactor. No toxic gases escape into the atmosphere

FEATURES

- Can be direct mounted on all reactors, lined, enamelled or stainless steel
- Direct connection of the PFA heavy duty suction hose
- All wetted parts are PFA, PTFE or glass
- Ball check valve with soft seal protects vacuum line and is suitable for an automated process
- Direct mounting of all auxiliary valves with integrated 2-hole mounting flange
- Easy fitting of pH-probe
- Transfer device eliminates the need to stop the process or to open the reactor
- Modular design, various transfer devices and auxiliary valves can be mounted directly

TECHNICAL DATA

Pressure:

Max. 10 bar

Temperature:

Max. 200°C

Sample volume:

150/250/500 ml

MATERIALS

PFA lined stainless steel



45° Y type angle slurry valves

Flanged Y angle and tank bottom slurry globe valve for the isolation and drainage of highly abrasive and scaling media

FEATURES

- Split and monoblock body
- Venture body in low pressure and full bore for high pressure
- Over specification on wall thickness
- Low pressure drop
- Installation on pipe or direct mount on tank
- Manual and large range of electric, pneumatic and hydraulic actuators
- Proven design in high scale and abrasive slurries
- PED approved

TECHNICAL DATA

Pressure class:

ASME 150 to 600

Sizes:

DN 50-800 (NPS 2-32)

Temperature range:

-29°C to +455°C

Flange accommodations:

ASME

MATERIALS

Body: Carbon steel

Disc and seat: Carbon steel or stainless steel with stellited overlay



90° Y type angle slurry valves

Flanged 90° angle, bayonet, 3-way combination and check slurry valve for isolation and diverting highly abrasive and scaling media

FEATURES

- Bolted angle piston type check valve
- Angle, bayonet and 3-way combination valves are with in-line regrindable seat design
- Over specification on wall thickness
- Large stem diameter for strength and stiffness
- Pinion shaft arrangement for air motor operation
- Optional bolted clutch arrangement for hammerless operation
- Manual and large range of electrical, pneumatic and hydraulic actuators
- Proven design in high scale and abrasive slurries
- PED approved

TECHNICAL DATA

Pressure class:

ASME 150 to 600

Sizes:

DN 50-900 (NPS 2-36)

Temperature range:

-29°C to +455°C

Flange accommodations:

ASME

MATERIALS

Body: Carbon steel

Disc and seat: Carbon steel or stainless steel with stellited overlay
Other materials on request

HYGIENIC SERVICES



Mixproof process valves

EHEDG and 3A approved, linear diverter valves suitable for all demanding hygienic applications in dairies, breweries and all related food processes

FEATURES

- Available in stop-, multi-way and tank bottom valves
- One-piece body design
- Water hammer proof
- No additional CIP connections needed
- Patented double seat design, 100% mixproof
- In-line servicing and cleaning
- Suitable to build manifolds up to 150 valves
- Integrated 3 position pneumatic actuator for independent seat lifting
- Control head for local and remote position detection and integral 3 solenoid valves available
- Fieldbus support for AS-interface and DeviceNet

TECHNICAL DATA

Pressure rating:
Full vacuum to PN 10

Sizes:
DN 10-150 (NPS ¾-6)

Temperature range:
-40°C to +110°C

End connections:
Butt weld

MATERIALS

Body: Stainless steel
Other parts: Stainless steel
Seat: PTFE, FPM

HOVAP, KEYSTONE



Centrifugal pumps

Stainless steel, centrifugal pumps designed to handle all food process related liquids

FEATURES

- Standard electric motors available in EEX e and EEX d versions
- Standard mechanical seals to DIN 24960
- Favourable NPSH
- Low noise
- Suitable for CIP
- Wide variety of available options such as heating jackets, frequency controllers, flushed seal, etc.
- Available with unions, plane ends or flanges
- Designed to EHEDG recommendations
- Self priming options available

TECHNICAL DATA

Discharge pressures:
Up to 60 bar

Maximum flow capacity:
230 m³/h

Temperature range:
Up to 110°C

MATERIALS

All components: Stainless steel
Seals: Stainless steel, silicium coated
Elastomers: NBR, EPDM, PTFE, FPM
Other materials on request

HOVAP



Hygienic butterfly valves, actuators and controls

Stainless steel butterfly valves in wafer, flanged, screwed or butt weld configurations for all shut off and control applications in hygienic processes

FEATURES

- Offers huge potential savings by greatly reducing maintenance time
- Available to suit both imperial and metric tubing
- Approved food grade seat and seal material options
- Suitable for both isolation or flow control functions
- Bi-directional capability
- One-piece, mirror polished disc and stem assembly
- High C_v, slim profile disc
- Integral padlocking

TECHNICAL DATA

Pressure rating:
Full vacuum to PN 10

Sizes:
DN 25-150 (NPS 1-6)

Temperature range:
-10°C to +95°C

MATERIALS

Body: Stainless steel
Disc: Stainless steel
Seat: Silicone, EPDM, FPM

HOVAP, KEYSTONE



Cryogenic temperature service valves

Many of the valve brands incorporated in this brochure are suitable for, or can be readily modified for, use in low temperature and cryogenic service conditions

FEATURES

- Expertise in manufacturing and assembling to low temperature specifications
- In-house specialized testing facilities for seat area and atmospheric leakage
- Capability to test at specified temperatures down to -254°C
- Clean area assembly facilities
- Track record of major contract execution in this specialised field
- Extensive familiarity with major end user specification requirements

TECHNICAL DATA

Pressure class:

ASME 150/300/600/900/1500

Sizes:

DN 8-1200 (NPS ¼-48)

Temperature range:

-20°C to -254°C

End connections:

As specified

MATERIALS

Body: Carbon steels, stainless steels

Seats: PTFE or other, as specified



**ANDERSON GREENWOOD, CROSBY,
FASANI, FCT, HINDLE, LUCEAT,
RAIMONDI, VANESSA**



Valve management

Professional management of user's valve population data to increase efficiency and reduce overall maintenance costs

FEATURES

- Data integrity management
 - Proven methodology for managing valve servicing
 - Data interface with clients Maintenance Management System (MMS)
 - Inventory reductions through spares rationalisation, etc
- Valve criticality review
 - Maintenance strategy development
 - Spares optimization analysis
- Risk based inspection
 - Development of models for valve RBI management and reporting
- Inventory management
 - Stock profiling
 - Component identification
 - Storage and logistics
 - Pre-event coordination
 - Inventory reduction
- Safety valve performance analysis
 - Increased 'meantime' between service and/or failure
 - Verification against process conditions



Valve repair services and valve testing

A full service capability of testing and repair, for all valve types, from all sources

FEATURES

- Valve repair service
 - Safety valves (spring or pilot), control valves, isolation valves and actuators
 - Fully trained and experienced work force
 - Access to OEM technical data and support
 - ISO 9002 accreditation
 - Onshore, offshore, marine
 - Fully equipped mobile workshops, approved for hazardous areas
 - Co-ordination and supervision of shutdowns, start-ups, etc.
- Full range of safety valve test equipment
 - Suitable for flanged or screwed connections
 - Suitable for operation on gas, liquid or both
 - Manual or automatic clamping
 - Safety interlock systems
 - Customised systems available
 - Test pressures up to 10,000 psi (690 bar)
- In-situ safety valve test device
 - Set pressure verification without removing valve from the process line
 - Suitable for most spring operated safety relief valves



Training

Comprehensive range of training courses on valve/actuator related subjects

FEATURES

- Training courses at customer's premises or at any of the Pentair facilities throughout Europe, Middle East, Africa
- Safety valves
 - Maintenance, for technicians
 - Appreciation courses for supervisors and managers
 - Refresher courses
 - Individually structured courses to customer's requirements
- Isolation valves, including:
 - 'Triple off-set technology and application
 - 'Quarter-turn' selection criteria and application
 - 'Safe sampling' devices. Selection, application and maintenance
- Control and actuation
 - Electro (bus), hydraulic, pneumatic interface devices. Selection, application and maintenance conditions





PENTAIR VALVES & CONTROLS

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