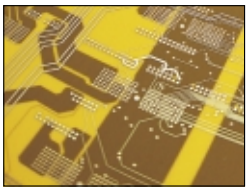
Group Product Overview

tyco / Flow Control / Tyco Valves & Controls

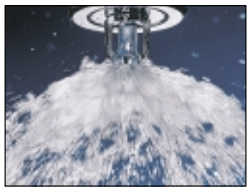
Tyco International Ltd - at a glance

Tyco is a diversified manufacturing and service company, currently listed amongst the top 100 companies in the world and employing more than 200,000 people in over 100 countries. The many diverse companies are grouped into business segments as described below.



Electronics
A major producer of passive and active electronic components. We make complete power systems, private radio systems for governments, and design, manufacture, and operate undersea fiber optic telecommunications systems. Expanding beyond components, Tyco Electronics also offers after-sale engineering, installation and services capabilities for the power systems and networking markets.

Engineered Products
Encompasses an entire universe of diverse specialized building products and services including the design, manufacture, installation and management of electrical and mechanical components and systems. Tyco is a global leader in water management, environmental services, engineering technology, and transportation management.



Fire & Security
Tyco is the worldwide leader in fire and security services. The companies of this division manufacture, distribute, install and maintain systems and services for building, transportation and life-safety applications that protect people and property, improve facilities and increase productivity.

Healthcare
The major business segments include Medical, Surgical, Respiratory, Imaging, Pharmaceutical and Retail products. Medical products include Wound Care, Incontinent Care, Nursing Care, Vascular Compression, Sharps/Needles & Syringes, Electrodes.

Plastics & Adhesives
A leading manufacturer and maker of products used in packaging, including polyethylene films, laminated and coated products, tapes, adhesives, and plastic garment hangers.

Tyco Infrastructure Services
is an international provider of global water management and transportation, engineering and environmental services. Access to clean water and reliable sanitation service is a critical global challenge. Tyco's Global Environmental specializes in clean air, landfill development, site remediation, and waste systems. Tyco's Engineering Technology group provides the full spectrum of services needed to plan, design, and construct complete projects.

Tyco Flow Control
A full line of industrial valves and control products including: butterfly, gate, globe, check, ball, plug, safety relief, knife gate, sampling and other valves as well as actuators, positioners and related products; heat tracing products and thermal control systems for industrial, commercial and residential markets

Tyco Electrical & Metal Products
Group's AFC Cables Systems is a leading designer, manufacturer and supplier of electrical distribution products, used in the construction of office buildings, institutional facilities, shopping centers and multi-family dwellings. Tyco's Allied Tube & Conduit is the largest manufacturer and supplier of tubular and pipe products in North America, including electrical conduit, fence framework and mechanical tubing.

Tyco Fire & Building Products Group
offers a wide array of quality fire protection and building products. Tyco's Fire Protection product line of sprinklers, nozzles, valves, devices, pipe, fittings, hangers, and accessories are used in the fabrication of fire protection systems for residential, commercial, industrial, institutional and special hazard applications.

Tyco Valves & Controls

A global network, bringing together the manufacture, marketing and sales of the most comprehensive range of industrial flow control products in the world.

The organisation markets technically advanced valve, actuator, instrumentation and control systems from group-owned manufacturing operations across the world, including internationally renowned brand names.

Manufacturing - Industrial Valves Group

Manufacturing - Energy Valves Group

Sales & Distribution Europe, Middle East & Africa

Companies within Tyco Valves & Controls

- *Amal*
- *Anderson Greenwood Crosby*
- *Anderson Greenwood Instrumentation Products*
- *Biffi*
- *Burbach*
- *Chemat*
- *Descote*
- *Dewrance*
- *Fasani*
- *FCT*
- *FloCheck*
- *Gachot*
- *Gimpel*
- *Hancock*
- *Hindle*
- *Hovap*
- *Intervalve*
- *Keystone*
- *Klein*
- *KTM*
- *Kunkle*
- *Luceat*
- *Marston*
- *Marvac*
- *Morin*
- *Narvik*
- *Neotecha*
- *Penberthy*
- *Raimondi*
- *RMI*
- *Sapag*
- *Sempell*
- *Triangle Controls*
- *Tyco*
- *Valvtron*
- *Vanessa*
- *Vonk*
- *Whessoe*
- *Winn*
- *Yarway*

Contents

"at the forefront of floating ball valve design and manufacturing technology"

Utility 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

Technical Data

Pressure Class:
ASME 150/300:
PN 10 to PN 100

Sizes: DN 8-300 (1/4"-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 Stem: Stainless steel
Seat: Virgin PTFE, reinforced PTFE

Tyco

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 stem seal
- Blow-out proof and antistatic stem 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 low temperature and cryogenic service

Technical Data

Pressure Class:
ASME 150/300/600/
900/1500/2500
PN 16 to PN 100

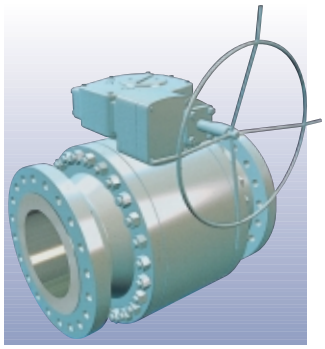
Sizes: DN 8-400 (1/4"-16")

Temperature range:
-196°C to +220°C

Materials

Body: Carbon and stainless steels, aluminium bronze, duplex steels and other alloys
Ball and Stem: Stainless steel and other alloys
Seat: Virgin PTFE, glass filled PTFE, PEEK, etc.
Other materials on request

Hindle, Gachot, Chemat, Tyco, KTM



End Entry, Split Body

2 piece (cast) and
3 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, pig valves, etc
- 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 50-600 (2"-24") 3-piece
DN 50-1500 (2"-60") 2-piece

Temperature range:
-196°C to +350°C

Materials

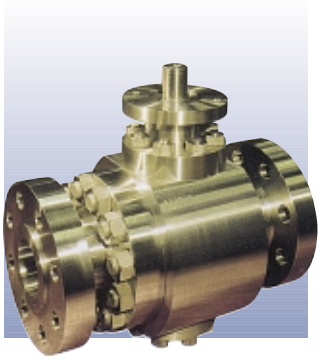
Conforms to NACE requirements MR0175 latest edition.
Wide range of materials available, in cast or forged version, including but not limited to:

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

Seat area weld overlays or coatings available

FCT, Raimondi, Hindle

“a complete range of trunnion mounted ball valve designs”



Metal Seated

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

- Reliable shut-off
- Low torque operation
- High integrity stem seal
- Inherently fire safe
- Various coatings available
  - Chromium carbide
  - Tungsten carbide

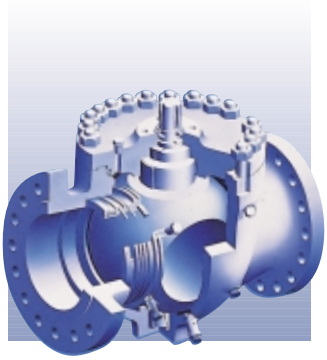
Pressure Class: ASME 150/300/600/900/1500/2500

Sizes: DN 15-600 (1/2" - 24")

Temperature range: up to 500°C

Specifications determined in response to individual service requirements

FCT, Hindle, KTM



Top Entry

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

- 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 B 16.34
- Soft, metal/soft or metal/metal seating
- Manual or powered operation
- Double Block and Bleed

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

Sizes: DN 50-1400 (2" - 56")

Temperature range: -196°C to +350°C

Conforms to NACE requirements MR0175 latest edition.
Wide range of materials available, in cast or forged version, including but not limited to:

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

Seat area weld overlays or coatings available

FCT

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.

- Full or reduced bore
- Fire safe approved design
- To API 6D
- Design to ASME B16.34/B 31.3
- Extensions available for mechanical driving, vent and drains
- Soft, metal/soft or metal/metal seating
- Manual or powered operation

Pressure Class: ASME 150/300/600/900/1500

Sizes: DN 50-1500 (2" - 60")

Temperature range: -196°C to +350°C

Conforms to NACE requirements MR0175 latest edition
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

FCT

Features

Technical Data

Materials

“a complete range of butterfly valves for general industrial and process applications”

Resilient Seated (Utility Valves)

Monoflange or lugged, resilient seated butterfly valves, conforming to ISO standards

Features

- Bubble tight shut-off
- One piece, wafer thin disc/stem
- Extended body neck, according to HeizAnlV, allows for pipe insulation
- The seat and disc are the only parts in contact with the medium
- Face to face dimensions according to ISO 3202 Part 3, K1 (ISO 5752 series 20)
- Integral dew point barrier
- Lockable, shaped hand lever
- Actuator flange to ISO 5211
- Bi-directional, fully rated for end of line service

Technical Data

Pressure class:
Full vacuum to PN 16

Sizes: DN 20-300 (3/4"-12")

Temperature range:
-40°C to +120°C

Flange accommodations:
PN 6/10/16: ASME 150

Materials

Body: Ductile Iron
Disc: Stainless steel, NiAlBz.
Liner: NBR, EPDM

Keystone

Resilient Seated Butterfly

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

Features

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

Technical Data

Pressure class:
Full vacuum to PN 25

Sizes: DN 40-2400 (1 1/2"-96")

Temperature range:
-40°C +150°C

Flange accommodation:
PN 6/10/16/25, ASME 150, JIS 10/16K

Materials

Body: Cast and ductile iron, carbon steel
Disc: Ductile iron, stainless steel, nickel aluminum bronze
Seat: NBR, white NBR, EPDM, Fluorel, PTFE/EPDM
Other materials available on request

Keystone, Winn

High Performance Butterfly

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

Features

- Actuator flange according 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 stuffing box (optional)

Technical Data

Pressure class:
Full vacuum to PN 25, ASME 150/300/600

Sizes: DN 50-700 (2"-28")

Temperature range:
-50°C to + 520°C

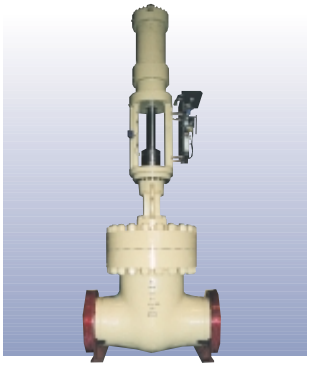
Flange accommodation:
PN 10/16/25, ASME 150/300/600

Materials

Body: Carbon steel, stainless steel
Disc: Carbon steel, stainless steel
Seat: RTFE, stainless steel, fire safe
Other materials available on request

Keystone, Winn

“a complete range of gate, globe & check valves for general industrial and process applications”



Gate Valves

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

- Designed to ASME B16.34, API 600 and BS1414
- 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

Pressure Class: ASME 150 to 4500

Sizes: DN15-1800 (1/2"-72") and larger

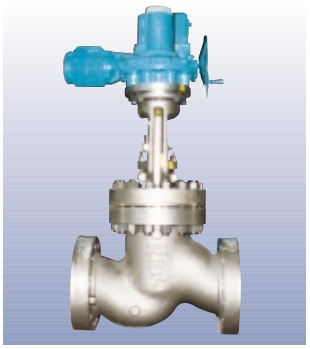
Temperature range: -196°C to +650°C

End connections: Flanged RF and RTJ, butt weld, hub ends

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

Alternative materials on request

Fasani, Raimondi. RMI



Globe Valves

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

- Designed to ASME B16.34 and BS1873
- 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

Pressure Class: ASME 150 to 4500

Sizes: DN15-600 (1/2"-24") and larger

Temperature range: -196°C to +650°C

End connections: Flanged RF and RTJ, butt weld, hub ends

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

Alternative materials on request

Fasani, Raimondi, Descote / Klein, Sempell

Bellows Sealed Globe Valves

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

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

Pressure Class: ASME *150/300/600/800* PN 10/16/25/40/50/100

Sizes: DN 15-350 (1/2"-14")

Temperature range: -60°C to +420°C

Body and bonnet: Carbon steel, Cast iron or Stainless steel

Low temperature carbon steel on request

Descote / Klein

Features

Technical Data

Materials

Industrial Valves

"specialised valves for applications where pressure and temperature extremes are encountered"

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

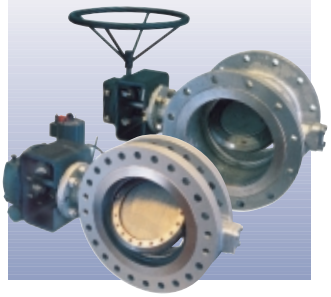
Technical Data

Pressure range: up to ASME 10,000
Sizes: DN40-1600 (11/2"-64")
Temperature rating: -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
Alternative materials on request

Raimondi, Fasani, Sapag, FloCheck, FCT, Keystone, Sempell, Dewrance



Rotary Process

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 B16.47, BS 3243

Technical Data

Pressure class: ASME 150 to 1500 PN 10 to 160
Sizes: DN 80-2100 (3"-84")
Temperature range: -254°C to +815°C

Materials

Body and disc: Carbon, stainless and duplex steels, aluminium bronze
Seat: All-metallic construction
Other materials on request

Vanessa

Knife Gate Valves

Wafer type, compact knife gate valves suitable for all industrial and waste water slurries containing fibrous matter

Features

- One piece integral cast body and chest
- Design prevents the buildup of particles, etc.
- Self aligning gland
- Integral guides to support gate
- Integral RTFE gate scraper
- Complies with MSS SP-81 face -to-face dimensions

Technical Data

Pressure class: Full vacuum to 10 bar
Sizes: DN 50-600 (2"-24")
Temperature range: up to 150°C (resilient seated) up to 230°C (stainless steel seated)
Flange accommodation: PN 6/10/16, ASME 150

Materials

Body: Ductile iron, stainless steel
Gate: Stainless steel
Seat: Ductile iron, stainless steel, RTFE or FPM

Keystone, Burbach

“a complete range of pneumatic actuators for smooth operation of quarter turn valves”

1/4 Turn Pneumatic Actuators

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

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

Torque outputs at 5.5 barg

Double acting models: up to 2054Nm
Spring return models: up to 1414Nm
Max supply pressure: 10 barg
Temperature range: -30°C to +90°C

Body: Hard anodised aluminium
Pistons: Aluminium
O-ring Seals: NBR
Bearing pads: Polyamide

Tyco, Keystone

Pneumatic Actuators

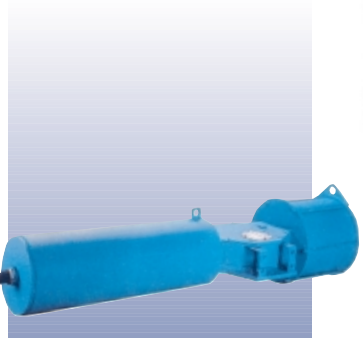
Scotch yoke, pneumatic actuators for efficient, on-off or modulating control of quarter turn valves

- Double acting or spring return models available
- Ductile iron housing, pistons and end caps for cost effective, durable life
- Stainless steel cylinders for unrivaled corrosion protection
- Easy disarming of spring for safe maintenance
- ISO 5211 mounting pattern for easy valve adaption
- Bi-directional travel stops for accurate positional adjustment

Torque outputs: to 8450 Nm
Supply pressure: 2.8 to 11 barg
Temperature range: -30°C to +100°C
Option: -20°C to +150°C
Angular rotation: 90° ± 8°

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

Morin



Pneumatic Actuators

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

- 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 of personnel 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 available

Spring end torques: Models available from 390 Nm - 400 000 Nm
Supply pressure: 10.5 barg max
Temperature range: -30°C to +100°C

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

Features

Technical Data

Materials

“complete range of diverse accessories for today’s demanding market requirements”

Solenoid Valves

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

Position Monitoring Devices

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

Positioners

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

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 provide 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

- Model ER – economical IP66 enclosure with solenoid valve integration as standard
- Model XA – rugged enclosure, suitable for hazardous area applications
- Model ZR – corrosion resistant IP66 enclosure, for general purpose and intrinsically safe applications
- Model ZR Plus – for integrated monitoring and control of automated valves in a single housing
- K-Block – compact IP67 dual proximity device incorporating LED’s as standard
- Low profile switchbox – simplified setting of switches or sensors in an aluminium enclosure

- Analogue
  - Auto calibration via push buttons or infrared
  - Corrosion resistant enclosure
  - HiVue local display
  - Switches or sensors
- Programmable
  - For advanced control of rotary and linear actuators
  - Auto calibration via keypad or HART
  - Diagnostic information available
  - Programmable characteristics
  - Hazardous area certified
  - Remote mount option

Technical Data

Air pressure range: 2-8 bar g
Voltage: 24-230V
Temperature range: -25°C to +55°C
Port size: ISO 228 - G1/4

Options available for all classifications of Hazardous Areas

Conforms to VDI/VDE 3845 Standard

Working pressure: 1.4 to 8 bar
Signal: 0.2 to 1.0 bar 4-20mA
Temperature range: -20°C to +80°C

Materials

See individual product datasheets for details of construction and materials

See individual product datasheets for details of construction and materials

See individual product datasheets for details of construction and materials

Tyco, Keystone

Tyco AVID

Tyco AVID

“one of the world’s largest ranges of high performance electric actuators”

Compact, Economical, Electric Actuators

For the operation of 1/4 turn valves or dampers

- Compact, epicyclic design of robust construction (IP65) suitable for corrosive environments
- Gears run in permanently lubricated ball and needle bearings
- Direct mounting to all Keystone butterfly valves
- Manual override is independent of the motor drive
- Suitable for intermittent or continuous operation
- Incorporates a local valve position indicator

Torque: up to 1695 Nm
Voltages: 24V, single and 3 phase voltages available
Temperature range: -25°C to +65°C
Speed range: 10 to 65 secs

Hard anodized aluminium gear case and enclosure
ABS cover on the smaller models
Coating epoxy spray RAL 9011

Keystone Tyco

Heavy Duty Electric Actuators

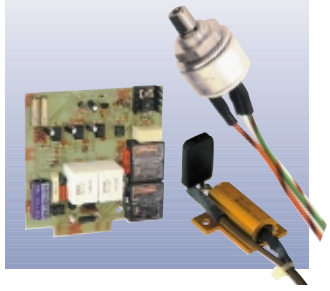
Suitable for the actuation of 1/4 turn and linear valve operation in heavy duty applications such as oil, gas, petrochemical and water industries

- Light weight and compact
- Constant torque output throughout travel
- Torque control in both rotation directions
- Manual override facility as standard
- Models incorporating integral starter
- 1/4 turn and multi-turn linear operation models
- Non intrusive capability
- Diagnostic capability

Torque: up to 340000 Nm
Voltages: 110 - 480V
Temperature range: -30°C to +65°C
Speed range: 6 to 180 secs

Anodized aluminum enclosures with epoxy -vinyl paint protection RAL 5021 or 3020

Biffi



Accessories

A complete range of accessories to ensure maximum performance from the whole range of electric actuators

- Anti-condensation heaters for applications with varying ambient temperatures
- Ancillary and special switches packs available
- Actuator position feedback transmitters
- Speed control module for adjustment of speed in either direction
- Servo amplified module to control valves in modulating service
- Suitable for easy incorporation into the whole range of electric actuators
- Conforms to required safety specifications

See individual product datasheets

See individual product technical datasheets

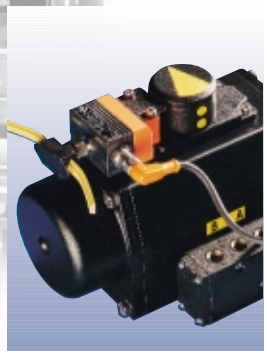
Keystone

Features

Technical Data

Materials

"providing actuated valve packages capable of interfacing with the major network protocols"



AS-Interface

Reduced wiring
Reduced installation

DeviceNet

Diagnostics control

ProfiBus

Diagnostics and control, including hazardous areas

Fieldbus Foundation

Diagnostics and control, including hazardous areas and redundancy

	AS-Interface	DeviceNet	ProfiBus	Fieldbus Foundation
Cable	2 Core	2 Twisted pairs	Twisted pair	Twisted pair
Distance	100m†	500m†	1200m†	1900m†
Addresses	31	64	126	32*
Speed	167 Kbs	125 Kbs	93.75 Kbs	31.25 Kbs
Topology	Line, tree, star	Tree	Tree	Daisy chain / trunk
Inputs	4	8	8	5
Outputs	4	4	4	3
Diagnostics	No	Yes	Yes	Yes
Redundancy	No	No	No	Yes
On/Off	Yes	Yes	Yes	Yes
Control	No	Yes	Yes	Yes
Electric actuator	Yes	Yes	Yes	Yes
Pneumatic actuator	Yes	Yes	Yes	Yes
Hazardous	EEx d	EEx d	EEx d EEx ia *	EEx d EEx ia *
Communication	Gateway	Scanner card	Scanner card	Peer / peer
	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
	Tyco	Tyco	Tyco Biffi	Tyco Biffi

† Repeaters may be used to extend the distance limits
* Number of addresses reduces for intrinsically safe hazardous areas

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

"a complete range of safety relief valves"

Pilot Operated Safety Valves

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

- 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

Pressure Range:
1 to 425 bar (up to 690 bar optional)
Sizes: 1" x 2" to 8" x 10" (single or dual outlet)
Temperature range:
- 252°C to +538°C

Carbon steel
Austenitic stainless steels
Hastelloy
Monel
Duplex
Inconel / Incoloy
Titanium
other materials on request

Anderson Greenwood Crosby, Sempell

Spring Operated Safety Valves

Metal or soft seated range of safety valves for all process industry applications

- 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

Pressure Class:
ASME 150 to 2500
PN 10 to 400
Sizes: 1/2" x 1" to 28" x 36"
Temperature range:
-196°C to +815°C
End connections:
Conforming to ASME/DIN connections

Carbon steel
Austenitic stainless steels
Hastelloy
Monel
Duplex
Inconel/incoloy
Titanium
other materials on request

Anderson Greenwood Crosby, Sapag, Sempell, Triangle Controls

ASME 1- Boiler Safety Valves

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

- 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

Pressure Class:
ASME 150 to 2500
Flanged or butt welded
Inlets and flanged outlets
Sizes: 1 1/2" to 6" inlets
Temperature range:
Saturated steam to 593°C

Body/bonnet:
Carbon steel,
Alloy steel,
other body materials available on request
Stainless steel nozzle
Stainless steel/inconel disc insert

Anderson Greenwood Crosby

Features

Technical Data

Materials

“a complete range of 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 and possibility to isolate one for maintenance
- Guarantee less than 3% pressure drop
- Bleed valves standard
- Enhanced external tightness without bellows
- Globe shaped body
- Integral flat seats
- Rising non-rotating stem
- Bellows sealed design
- Positive drive chain interlocking

Technical Data

Pressure Class:
Up to ASME 2500

Sizes: DN50-300 (1"-12")

Temperature range:
-252°C to +427°C

Materials

Carbon steel
Stainless steel
Duplex
other alloys

Seat: PTFE, PEEK or Grafoil

Anderson Greenwood Crosby

Commodity Industrial Safety Valves

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

Technical Data

Pressure Class:
ASME 150 to 900
PN 10 to 63

Sizes: DN8-150 (1/4"-6")

Temperature range:
-196°C to + 427°C

End connections:
to ASME/DIN standards

Materials

Carbon steel
Austenitic stainless steels
Bronze
Iron
Aluminium

Kunkle

Assisted Safety Valves

Controlled safety pressure relief systems to provide perfect tightness on high pressure/high temperature applications such as boiler protection

Features

- Equipped with additional pneumatic actuator, controlled by a redundant system of pressure sensors
- Can be combined with two or more independent operating valves
- Complies with the (preliminary) EN 4126 part 5 and TRD 421
- Flexible design to suit any high pressure steam application
- Bell deflector for low noise characteristics
- No stuffing box, minimising friction

Technical Data

Pressure Class:
PN 40 to 400
ASME 300 to 2500

Sizes: DN 150-400 (6"-16")

Temperature range:
20°C to 580°C

Materials

Carbon steel
Stainless steel,
High temperature alloy steel

Sempell

“ the world’s leading specialists in storage tank equipment ”

Tank Blanketing Regulators

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

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

Pressure class: up to 14 Barg
Sizes: 1/2", 1" and 2"
Temperature range: Up to 260°C

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

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

Pressure class: Full vacuum to +3.5 bar
Sizes: 2" - 12", vent or piped outlet
Temperature range: -252°C to +205°C

Aluminium
Stainless steel
Carbon steel

Seat: Elastomeric or plastic

Anderson Greenwood Crosby, Luceat

Breather Valves

Pressure and vacuum relief valves for tank safety and integrity

- Available in ‘vent to atmosphere’ and in ‘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

Pressure range: 0.0025 barg to 3.5 barg
Vacuum range: -0.0025 barg to -0.8 barg
Sizes: DN50-300 (2"-12")
End connections: Flanges to ASME, DIN or other standards

Aluminium,
Cast iron,
Carbon steel,
Stainless steel,
Monel,
other alloys

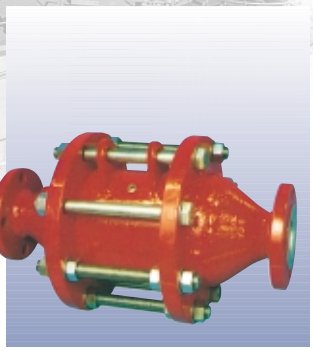
Whessoe, Marvac

Features

Technical Data

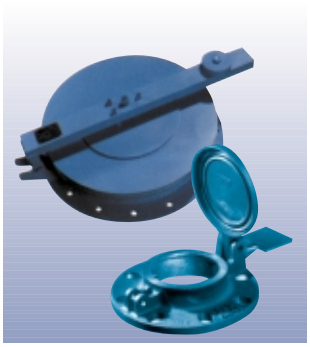
Materials

“the world’s leading specialists in storage tank equipment”



Flame and Detonation Arresters

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



Gauge Hatches, Vents and other Tank Accessories

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

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

- 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

Sizes: DN8-600 (1/4"-24")

Temperature range:
-30°C to +150°C

See individual product datasheets for further technical details

Materials

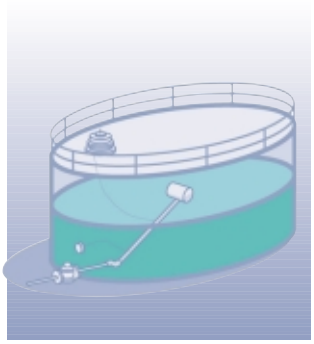
Aluminium,
Cast iron,
Carbon steel,
Stainless steel,
Hastelloy,
other alloys

Aluminium,
Carbon steel,
Stainless steel
Seats: Metal, Buna-N, PTFE

Marvac, Whessoe, Amal

Anderson Greenwood Crosby, Whessoe, Marvac

"floating suctions, bursting discs and reheat isolation devices"



Floating Suctions

Prevents product contamination by tank debris or water

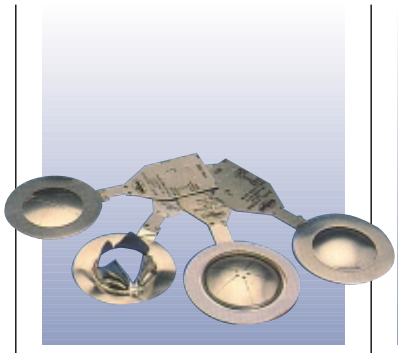
- Facilitates removal of product from stratified tanks, without removal of water or tank debris
- Incorporates maintenance free swivels
- Designed to avoid creating a vortex

Designed to suit particular service conditions

Sizes: DN50-600 (2"-24")

Aluminium,
Steel,
Stainless steel

Whessoe



Bursting Discs and Explosion Panels

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

- 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, ISPESL, ASME VIII, ISO, UDT, etc.

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

Sizes: DN6-1200 (3/8"-48")

Temperature range:
-200°C to +600°C
(+500°C for panels)

Panels vent area:
0.23 to 1.25 m^2

Aluminium,
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.

- 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

Pressure class:
ASME 500 to 2500
PN 100-320

Sizes: DN65-900 (2 1/2"-36")

Temperature range:
-30°C to +425°C

End connections:
Butt weld

Carbon steel,
Alloy steel
High alloy steel (9% Cr)

Dewrance,
Sempell

Features

Technical Data

Materials

"instrumentation valve solutions for static and differential pressure measurement"

Instrument 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 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:
6,000 psig (414 barg) as standard
10,000 psig (690 barg) available

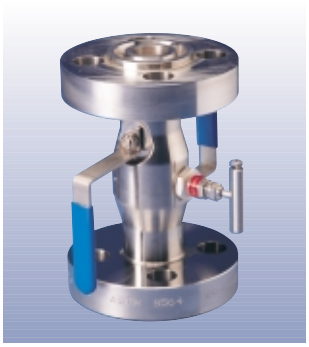
Sizes: hand valves 1/4"- 1"
manifolds 1/4" - 1/2"
Manifolds have 2 1/8" (54 mm) CTRS

Temperature range:
up to 538°C

Materials

Carbon Steel,
Stainless Steel
Monel
Duplex
and other exotic materials

Anderson Greenwood Instrumentation



Primary Instrument Isolation Valves

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

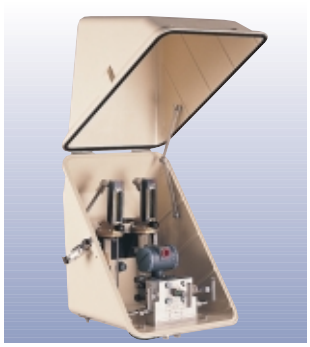
Sizes: 1/2" flanged NPS to 3" NPS

Temperature range:
up to 538°C

Materials

Carbon Steel
Stainless Steel
Monel
Duplex
and other exotic materials

Anderson Greenwood Instrumentation



Instrument 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 IP 66
- Complete range of accessories, windows, cable glands and brackets
- Heated version available
- Insulated version available

Technical Data

Pressure Range:
6,000 psig (414 barg) as standard
10,000 psig (690 barg) 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

Anderson Greenwood Instrumentation

“ gate valves for steam and the power generation industry ”

High Pressure Wedge Gate Valves

Suitable for a wide range of power applications

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

Pressure Class:
ASME 900 to 2500
PN 100 to 320

Sizes: DN50-600 (2"-24")

Temperature range:
-30°C to +650°C

End connections:
Flanged BWE and SWE

Carbon steel,
Alloy steel
High alloy steel (9% Cr)
Stainless steel
other exotic materials on request

Fasani, Intervalve, Raimondi, Sempell

High Pressure Parallel Slide Gate Valves

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

- Pressure seal bonnet
- Manufactured from cast and forged steel
- Parallel slide disc
- Stellite seating faces
- Full bore design
- Designs to ASME B16.34, DIN, TRD

Pressure Class:
ASME 900 to 2500
PN 100 to 320

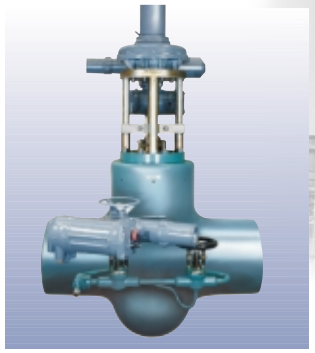
Sizes: DN20-600 (3/4"-24")

Temperature range:
-30°C to +650°C

End connections:
Flanged BWE and SWE

Carbon steel,
Alloy steel
High alloy steel (9% Cr)
Stainless steel
other exotic materials on request

Dewrance, Fasani, Intervalve, Raimondi, Sapag, Sempell



High Pressure Parallel Slide Gate Valves (Eyelet Design)

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

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

Pressure Range:
ASME 1000 to 2850

Sizes: DN125-600 (5"-24")

Temperature range:
-30°C to +650°C

End Connections:
butt weld

Carbon steel,
Alloy steel
High alloy steel (9% Cr)

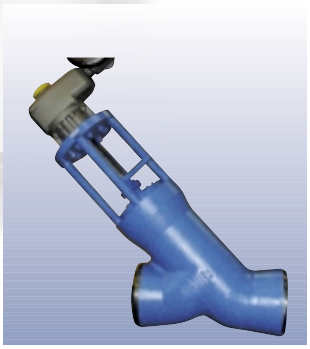
Dewrance

Features

Technical Data

Materials

“ globe and check valves for steam and the power generation industry ”



High Pressure 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
- Both ‘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: DN15-600 (1/2"-24")

Temperature range:
-30°C to 650°C

End Connections:
Flanged BWE and SWE

Materials

Carbon steel,
Alloy steel
High alloy steel (9% Cr)
Stainless steel
other exotic 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: DN50-600 (2"-24")

Temperature range:
-30°C to +650°C

End Connections:
Flanged BWE and SWE

Materials

Carbon steel,
Alloy steel
High alloy steel (9% Cr)
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 2500
PN 160 to 320

Sizes: DN50-600 (2"-24")

Temperature range:
-30°C to +650°C

End Connections:
Flanged and BWE

Materials

Carbon steel,
Alloy steel
High alloy steel (9% Cr)
Stainless steel
other exotic materials on request

Dewrance, Fasani, Intervalve, Raimondi, Sapag, Sempell

“a complete range of boiler trim and control valves”

Boiler Trim Valves

Blow-Off and Continuous Blowdown Valves

- 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

Pressure Range: ASME 300 to 2700
Size: DN 25-65 (1"-2 1/2")
End connections: flanged, socket or butt weld ends to ASME standards

Carbon steel
Alloy steel

Yarway, Hancock

Steam Traps and Strainers

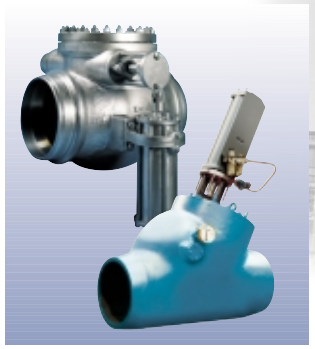
For use in dripleg, tracing and process applications

- 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

Pressure Class: ASME 150 to 4500, PN 25 to PN 640
Size: DN 10-100 (3/8"-4")
End connections: flanged, socket or butt weld ends to DIN and ASME standards

Carbon steel
Stainless steel
Alloy steel

Yarway



Bled Steam and Cold Reheat Check Valves

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

- 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.

Pressure Range: ASME 150 to 1000, PN 40-100
Temperature range: -30°C to +650°C
Size: DN 150-1000 (6"-40")
End connections: Butt weld

Carbon steel,
Alloy steel
High alloy steel (9% Cr)

Dewrance, Fasani, Gimpel, Sempell

Features

Technical Data

Materials

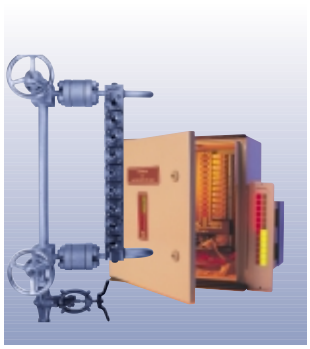
“a complete range of boiler trim and control valves”

Pump Protection Valves and Systems

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

Steam Turbine Protection Throttling Valves

Turbomachinery Protection System



Boiler Level Gauges

Level visualisation in power and process applications

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

- Construction according to ASME B16.34, B16.5
- ASME Boiler and Pressure Vessel code Section VIII, API 611 and API 612
- Separate on-line partial stroking capability with no disruption in normal turbine operation
- Handwheel provides throttling capability for use during start-up
- Pull-to-close backseated design with no stem leakage when valve is fully open
- Plug type, piloted design capable of opening against full steam pressure
- Disc and seat contact areas hardfaced with chrome cobalt as standard
- Permanent steam strainer as standard

- 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-colour display indicator
- Magnetic
  - Anodised gold follower
  - Flag or follower design

Technical Data

Pressure class: ASME 150 (PN 25/40) to ASME 4500 (PN 640)

Sizes: DN 25-300 (1"-12")

End connections: flanged or butt weld to ASME or DIN standards

Pressure class: ASME 150 (PN 25/40) to ASME 2500 (PN 400)

Sizes: DN 50-600 (2"-24")

End connections: flanged, socket or butt weld to ASME or DIN standards

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

Steam/water application: up to 207 bar at saturation T°

Process applications: -198°C to +315°C up to 413 bar

Water column electronic types:

Pressure rating: < 650 psi (45 bar), 2000 psi (138 bar) and 3000 psi (207 bar) water column

Probe temperature: 648°C maximum

Materials

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

Carbon steel
Stainless steel
Alloy steel

Carbon steel
Stainless steel
Alloy steel
Plastics

Narvik, Yarway, Sempell

Gimpel

Narvik, Yarway, Penberthy

“a complete range of boiler trim and control valves”

Desuperheaters

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

- Multiple nozzle, steam assisted, high temperature desuperheaters
- No thermal shock protection sleeve needed to protect steam pipe
- 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

Pressure class: ASME 150 (PN 25/40) to ASME 2500 (PN 400)

Sizes: Water side: DN 25-80 (1"-3")

Sizes: Steam side: DN 80-100 (3"-4")

End connections: flanged acc. DIN, ASME, JIS and BS and butt weld

Carbon 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

- 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, MP and HP turbine bypass valves with hydraulic or pneumatic actuators
- LP, MP and HP turbine bypass valves with quick opening safety function as per German code TRD 421
- Perforated cage protects valves against thermal shocks
- Easy accessible internal parts

Pressure class: ASME 150 (PN 25/40) to ASME 4500 (PN 640)

Sizes: DN 10-600 (3/8"-24")

Temperature range: +150°C to 600°C

End connections: flanged or butt weld

Carbon steel
Austenitic cast steel
Stainless steel
Alloy steel

Sempell

Steam and Feed Water Control Valves

Control valves in water-steam cycles of power generation plants

- Low noise level and cavitation 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

Pressure class: ASME 300 (PN 64) to ASME 4500 (PN 640)

Sizes: DN 15-700 (1/2"-28")

Temperature range: +20°C to +550°C

End connections: flanged or butt weld

Carbon steel
Stainless steel
Alloy steel

Sempell

Features

Technical Data

Materials

“fully lined equipment eliminates contamination and corrosion problems in areas of high purity and in highly corrosive applications”

Lined Butterfly Valves

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

Features

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

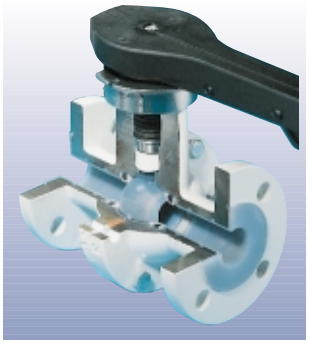
Technical Data

Pressure class: Full vacuum to PN 10
Sizes: DN 40 – 600 (1 1/2"-24")
Temperature range: -40°C to +200°C
Flange accommodations: PN 10, ASME, JIS

Materials

Body: Ductile iron
Disc: PFA
Seat: PTFE
Backing ring: Silicone, FPM

Neotecha, Keystone



Ball Valves

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

Features

- Body fully lined in PFA
- High integrity stem sealing and lined stem
- Fugitive emission detection system available
- Full and reduced bore
- Constant predictable operating torque
- Floating or integral ball/stem
- Dead space eliminated
- Models for control services

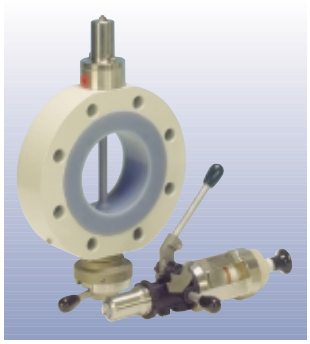
Technical Data

Pressure class: Full vacuum to 16 bar and ASME 150
Sizes: DN 15-150 (1/2"-6")
Temperature range: -40°C to +210°C

Materials

Body: Ductile iron or Carbon steel PFA-lined
Ball: PFA-lined, ceramic
Seat: PTFE
Stem: PFA-lined
Other materials on request

Neotecha, Gachot, Chemat, Hindle



Sampling Valves Sapro

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

Features

- Inline sampling guarentees 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 DIN 3230, leakage rate 1, bubble tight

Technical Data

Sizes: *Valve:* DN 25 - 100 (1"-4") wafer or flanged
Syringe: 20 - 250 ml
Pressure: Valve 16 bar
Syringe 10 bar
Vacuum: 0,1 mbar
Temperature: SS up to 200 °C
PFA lined up to 180 °C
Syringe: up to 160 °C

Materials

PFA Lined
Stainless Steel
Hastelloy

Neotecha

"a wide range of valves for extreme temperatures and critical hazardous services"

Reactor Sampling Systems PV

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

- Can be direct mounted on all reactors, lined, enameled 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

Pressure: max. 10 bar
Temperature: max. 200 °C
Sample volume: 150 / 250 / 500 ml

PFA Lined Stainless Steel

Neotecha

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

- Expertise in manufacturing and assembling to low temperature specifications
- In-house specialised 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

Pressure Class: ANSI 150/300/600/900/1500
Sizes: DN8-1200 (1/4"-48")
Temperature range: -20°C to -254°C
End Connections As specified

Body:
Carbon Steels, Stainless Steels
Seats:
PTFE or other, as specified

Anderson Greenwood Crosby, Luceat, Hindle, Vanessa, FCT, Fasani, Raimondi

Bellows Sealed Globe Valves

For critical hazardous services such as liquefied gas and all lethal, toxic, corrosive fluids in the chemical and petrochemical industry

- Proven technologies to guarantee "zero fugitive emission", including :
  - Central monitoring
  - Double containment
  - Double gasketing
- Approved for liquid chlorine applications
- Worldwide reputation for hazardous area valve applications
- Wide range of international approvals
- Manual, actuated and control valves

Pressure Class: ASME 150 to 2500
PN 16 to PN 420
Sizes: DN15-300 (1/2"-12")
End Connections: flanged, BW, SW, threaded
Standards: ASME, BS, DIN, JIS, NFE, etc.

Carbon steel, Stainless steel, Duplex alloy, Monel, Hastelloy, Inconel, Incoloy, Nickel, etc. according to service conditions

Descote

Features

Technical Data

Materials

"process valves and pumps for hygienic applications"

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 available
- Fieldbus compatible

Technical Data

Pressure rating: Full vacuum to PN 10
Sizes: DN10-150 (3/8"-6")
Temperature range: -40°C to +110°C
End connections: Butt weld

Materials

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

Hovap

Centrifugal Pumps

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

Features

- Standard electric motors available in EEXe and EEXd version
- Standard mechanical seals acc. DIN 24960
- Favourable NPSH
- Low noise
- Suitable for CIP
- Wide variety on available options such as heating jackets, frequency controllers, flushed seal, etc.
- Available with unions, plane ends or flanges
- Designed according EHEDG recommendations
- Self priming options available

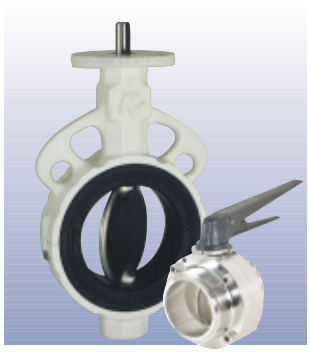
Technical Data

Discharge pressures: Up to 60 bars
Maximum flow capacity: 230 m^3/h
Temperature range: up to 110°C

Materials

All components: Stainless steel
Seals: Stainless steel, silicium coated
Elastomers: NBR, EPDM, PTFE, FPM
Other materials available 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 Cv, slim profile disc
- Integral padlocking

Technical Data

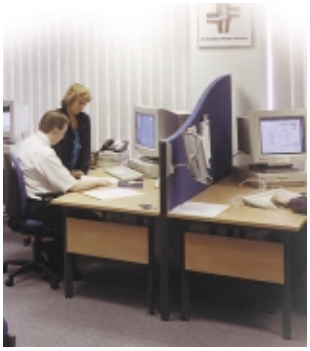
Pressure rating: Full vacuum to PN 10
Sizes: DN25-150 (1"-6")
Temperature range: -10°C to +95°C

Materials

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

Hovap, Keystone

“ a full range of valve management, training, servicing and testing facilities to valve users ”



Valve Management

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

- 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 optimisation 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

Sabo, Sempell

Valve Repair Services and Valve testing

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

- 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 connection
  - 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

Sabo, Sempell

Training

Comprehensive range of training courses on valve/actuator related subjects

- Training courses at customer’s premises or at any of the Tyco 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

Tyco, Sabo, Sempell

www.tycovalves.com

Tyco reserves the right to change product designs and specifications without notice

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HDLDS/0020/EN/0310