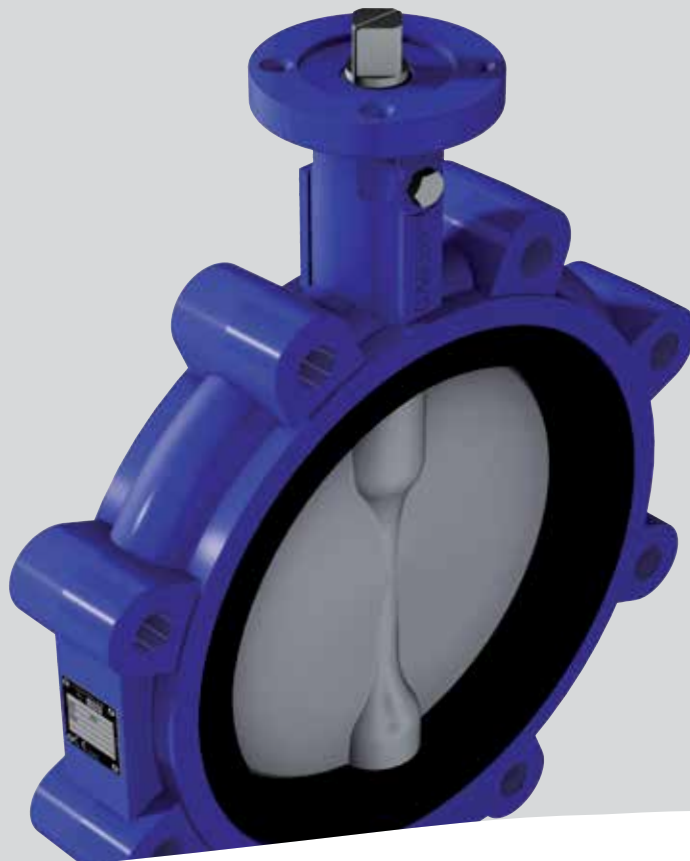


CENTER LINE^{RS}

brands you trust.



Center Line[®] Series RS Butterfly Valves

CRANE[®]

Crane ChemPharma & Energy

www.cranecpe.com

Heritage of Innovation & Quality

Crane Co. is a diversified manufacturer of highly engineered industrial products, founded in 1855. Crane has approximately 11,000 employees in the Americas, Europe, Asia and Australia, and is traded on the New York Stock Exchange (NYSE:CR).

Since its foundation in 1855, Crane has been a symbol of manufacturing excellence, expanding alongside the global industrial revolution and shaping the growth of industry worldwide. Crane ChemPharma & Energy, within Crane's Fluid Handling segment, is proud to be a part of the company's illustrious history,

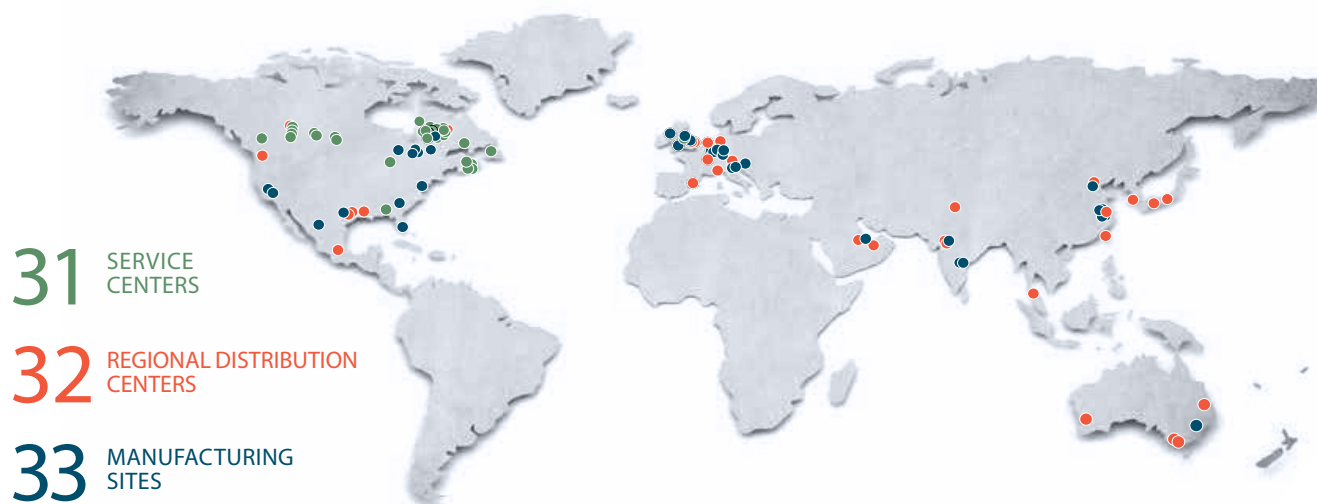
delivering solutions to the fluid handling challenges faced by the industry's most demanding applications.

From the industrial revolution to the modern age, Crane has anticipated the challenges of the market and developed progressive solutions to address them. A comprehensive product portfolio backed by a robust global infrastructure enables Crane CP&E to deliver localized solutions to the chemical processing, biotechnology, pharmaceutical, oil & gas, refining, and power generation industries worldwide. Crane CP&E's highly-engineered offering includes

check valves, sleeved plug valves, lined valves, process ball valves, high-performance butterfly valves, bellows sealed globe valves, aseptic and industrial diaphragm valves, multi/quarter-turn valves, actuation, sight glasses, lined pipe, fittings and hoses, and air operated diaphragm and peristaltic pumps.

With offices, manufacturing plants, distribution networks, and sales & service centers that span the globe, Crane CP&E is a worldwide leader in fluid handling products and solutions.

Crane Fluid Handling: Global Presence, Local Support.



Traceability

A stainless steel, tag is attached to all manufactured and modified valves. It includes standard ASME or DIN information.

Fully Tested

All of our valves are tested in accordance with Crane's strict manufacturing procedures and industry regulations.

Field Repair Services

Crane's technicians are available for field repair and emergency service at your site.

Consistent Quality

Crane's high quality standards are supported by our extensive practical experience, state-of-the-art manufacturing, and quality assurance certified by international inspections authorities. Please visit our website for details.

Product Features

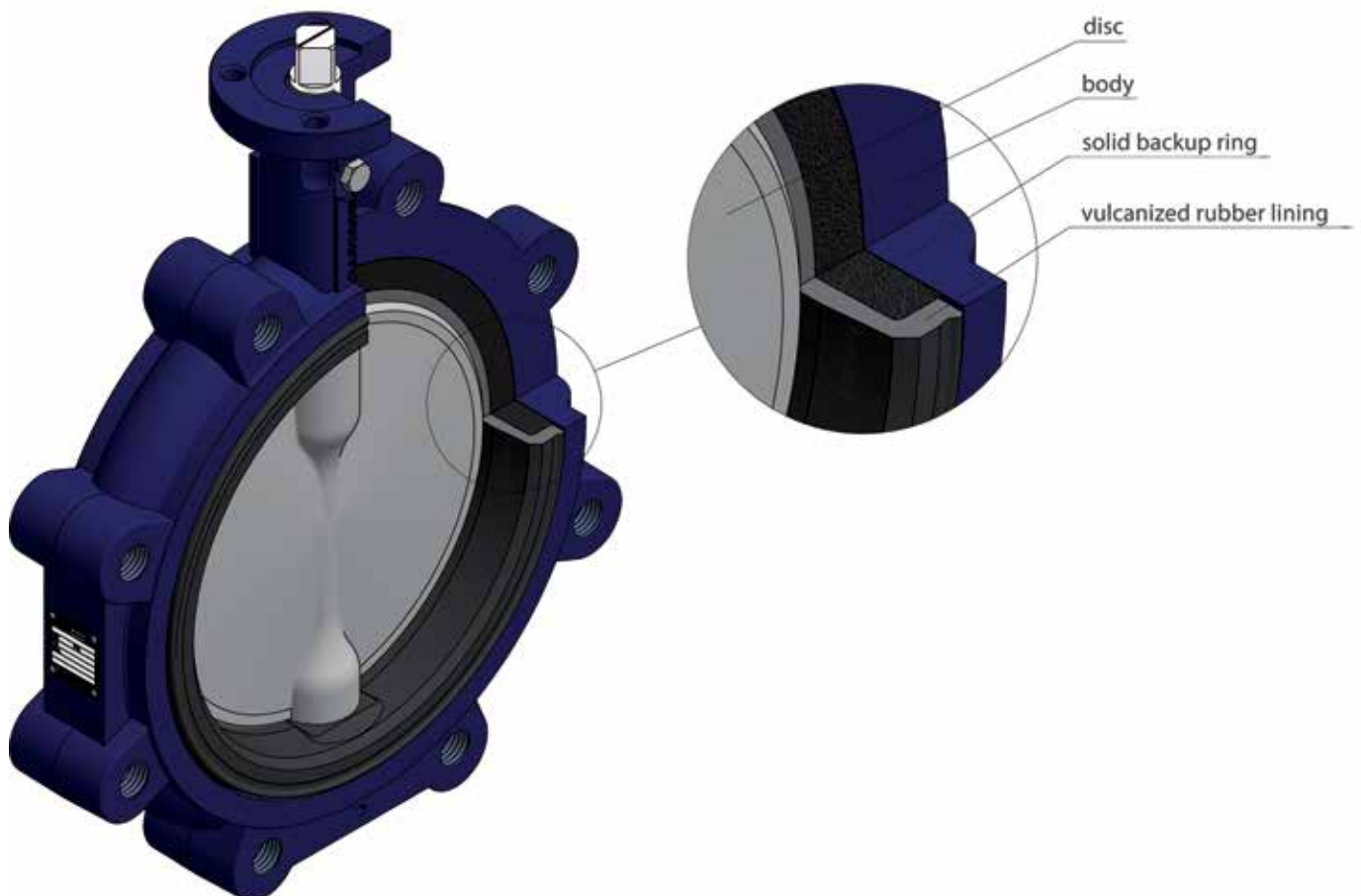
A resilient seated butterfly valve with superior design features and materials of construction to provide repeatable vacuum tight shutoff in severe abrasive and corrosive environments for a variety of applications.

Key Features

- ① Replaceable cartridge seat design with solid backup ring allows best fit for vacuum applications and minimum costs over lifetime
- ② Only 2 wetted parts, disc and seat, with no exposed metal-to-metal contact points, for maximum corrosion resistance
- ③ Self-centering disc with smooth finish and spherical edge reduces wear and resists corrosion and abrasion

Importance of a backup ring design?

- Easy seat replacement by maintenance staff due to cartridge seat design
- Suitable for severe vacuum applications
- extended life time due to durable seat design with low torques



Product Overview

Size Range

- DN 40 up to DN 1400, 1 1/2" up to 56"

Pressure Ratings

- PN10, PN16, ASME class 150

Temperature Range

- -30°C (-22°F) up to 200°C (392°F)
depending on material selection

Body Configurations

- Lug type
- Wafer type
- Wafer type with centering lugs
- Double flanged

Flange Connections

- EN 1092-1
- ASME B16.5
- ASME B16.47 series A*
- ASME B16.47 series B*

*on request

Special Options

- Additional trunion bearing for high cycling applications
- Shaft extensions





Compliance

- DVGW CE-0085AR0325
- PED 2014/68/ EU
- Canadian Registration Number (CRN)
- FDA/BfR/EG1935
- KTW Guideline (UBA)

Materials of Construction

Material	Body	Disc	Shaft	Seat
EN-JL1040 (EN-GJL-250) ASTM A48 Gr. 40 B	•			
EN-JS1030 (EN-GJS-400-15) ASTM A536 Gr. 60-40-18	•			
EN-JS1025 (EN-GJS-400-18-LT) ASTM A395	•			
1.0619 (GP240GH) ASTM A216 Gr. WCB	•			
1.4408 (GX5CrNiMo19-11-2) ASTM A351 Gr. CF8M	•	•		
EN-JS1030 (EN-GJS-400-15) ASTM A536 60-40-18 nickel plated		•		
1.4581 (GX5CrNiMoNb19-11-2) ASTM A351 Gr. CF8MC		•		
Hastelloy C Hastelloy C22		•		
EN-JS1030 (EN-GJS-400-15) ASTM A536 60-40-18 PE-UHMW lined		•		
1.4469 (GX2CrNiMoNa25-7-3) ASTM A995 Gr. 5A Superduplex		•		
1.4021 (X20Cr13) ASTM A276 Gr. 420			•	
1.4401 (X5CrNiMo17-12-2) ASTM A276 Gr. 316			•	
EPDM				•
EPDM-H (KTW)				•
EPDM (BfR / FDA)				•
EPDM bright				•
EPDM bright (BfR / FDA)				•
EPDM-H (KTW, aluminum free)				•
NBR (DVGW)				•
NBR (BfR / FDA)				•
NBR bright				•
NBR bright (BfR / FDA)				•
H-NBR				•
FPM				•
FPM 0677				•
FPM-FDA 0674				•

Applications

													
		Lug type			Wafer type			Wafer type with centering lugs			Double flanged		
DN *1 (mm)	NPS *1 (inch)	PN10	PN16	cl. 150	PN10	PN16	cl. 150	PN10	PN16	cl. 150	PN10	PN16	cl. 150
		EN558 Serie 20			EN558 Serie 20			EN558 Serie 20			EN558 Serie 20		
40	1 1/2	●	-	-	●	●	●	-	-	-	-	-	-
50	2	●	-	●	●	●	●	●	●	-	-	-	-
65	2 1/2	●	-	●	●	●	●	●	●	-	-	-	-
80	3	●	-	●	●	●	●	●	●	-	-	-	-
100	4	●	-	●	●	●	●	●	●	-	-	-	-
125	5	●	-	●	●	●	●	●	●	-	-	-	-
150	6	●	-	●	●	●	●	●	●	-	-	-	-
200	8	●	●	●	●	●	●	●	●	-	-	-	-
250	10	●	●	●	●	●	●	●	●	-	-	-	-
300	12	●	●	●	●	●	●	●	●	-	-	-	-
350	14	●	●	●	●	●	●	-	-	-	-	-	-
400	16	●	●	●	●	●	●	-	-	-	-	-	-
450	18	●	●	●	●	●	●	-	-	-	-	-	-
500	20	●	●	●	●	●	●	-	-	-	-	-	-
600	24	●	●	●	●	●	●	-	-	-	-	-	-
700	28	-	-	-	-	-	-	-	-	-	●	●	A*2 B*2
750	30	-	-	-	-	-	-	-	-	-	-	-	A*2 B*2
800	32	-	-	-	-	-	-	-	-	-	●	●	A*2 B*2
900	36	-	-	-	-	-	-	-	-	-	●	●	A*2 B*2
1000	40	-	-	-	-	-	-	-	-	-	●	●	A*2 B*2
1050	42	-	-	-	-	-	-	-	-	-	-	-	A*2 B*2
1200	48	-	-	-	-	-	-	-	-	-	●	●	A*2 B*2
1400	56	-	-	-	-	-	-	-	-	-	●	●	A*2 B*2

*1 other sizes in request

*2 on request

Product features:

- Usable as quick closing valve
- Concentric design
- Soft seat design
- No pins needed to attach the disc to the shaft, only 2 parts in contact with the medium
- Replaceable body lining with firm back-up ring
- Permanently tight closure
- Optimum operation under vacuum conditions
- Standardized top flange for actuator adaption
- Materials for almost all media
- Short face-to-face dimension
- Maintenance-free version
- Blow-out proof shaft
- Direct mounting of actuators without any additional brackets

Design Features

Position indicator

Top flange according to ISO5211

High performance shaft bearing
- minimum torque
- maintenance free

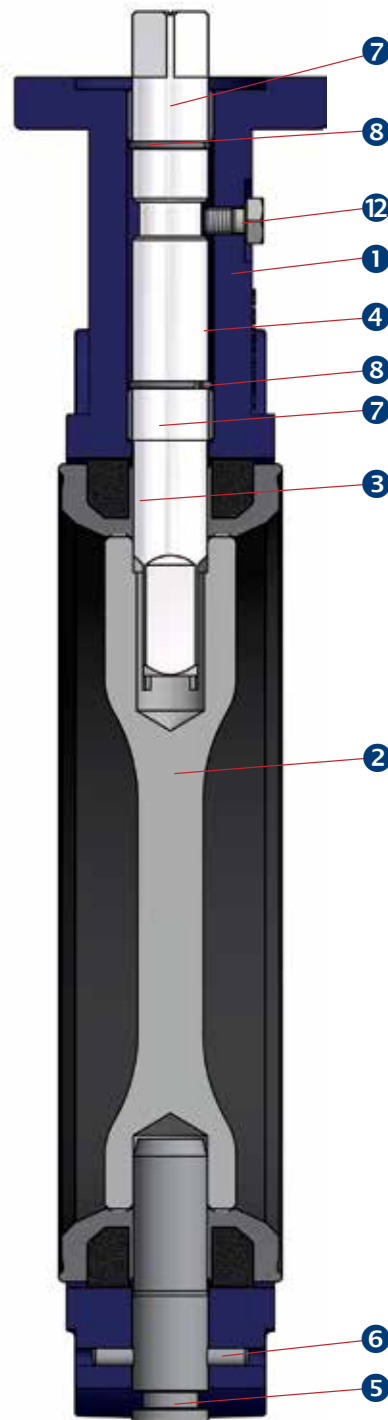
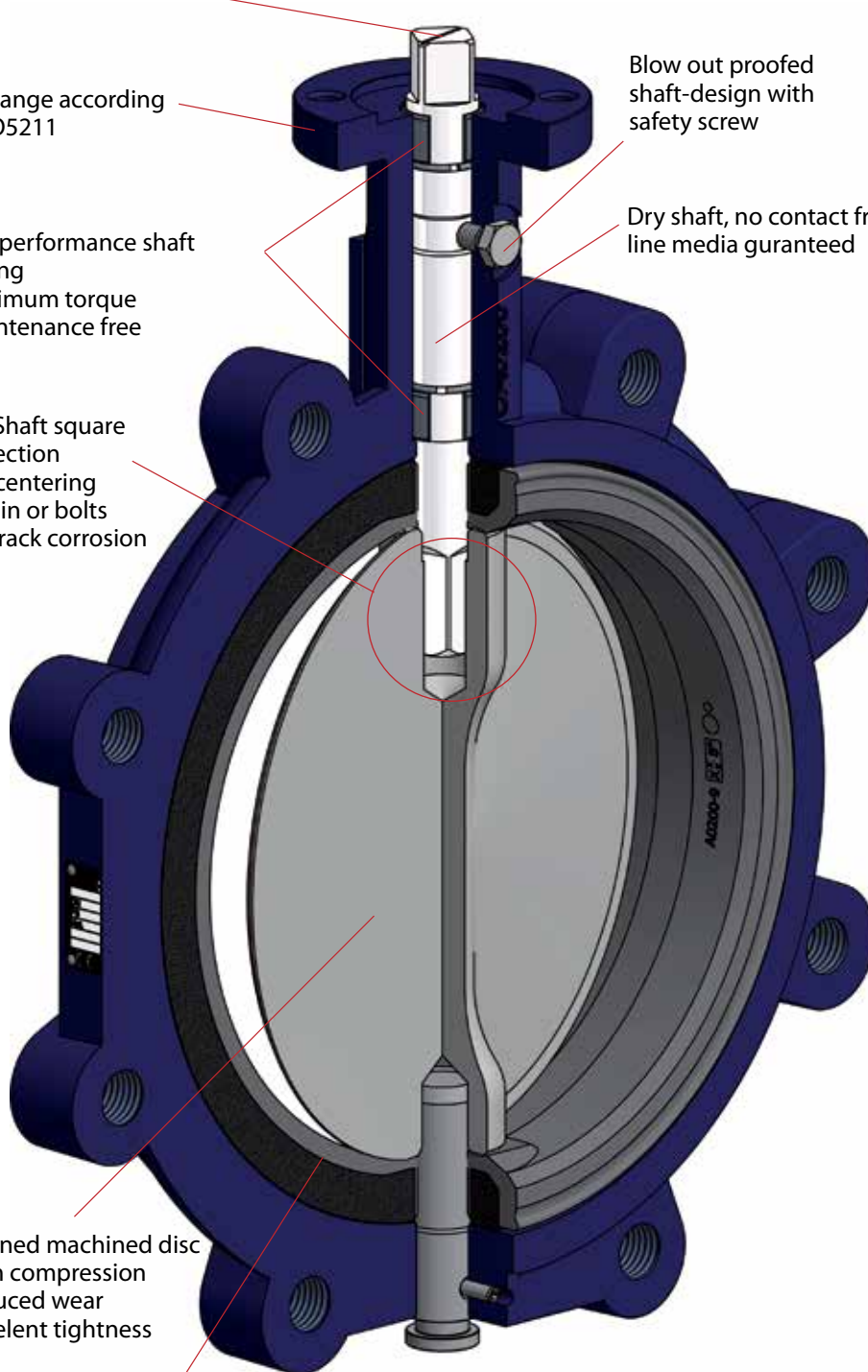
Disc/Shaft square connection
- self centering
- no pin or bolts
- no crack corrosion

Flattened machined disc
- even compression
- reduced wear
- excellent tightness

Cartridge seat with solid backup ring
- replaceable
- vacuum proof
- no stretching
- no squeezing out during installation
- minimized wear of rubber
- face design eliminates need for flange gaskets

Blow out proofed shaft-design with safety screw

Dry shaft, no contact from line media guaranteed



1	Body
2	Disc
3	Seat
4	Shaft
5	Trunion

6	Dowel pin
7	Bearing
8	Retaining ring
12	Locking screw

Design Features

Corrosion resistance

With Center Line® Series RS Butterfly Valves only two parts of the valve are wetted parts. This means that neither the body nor mechanical parts such as the shaft are exposed to the corrosive application.

The only two parts in contact with the medium are the body lining and the disc. These are available in a selection of materials so that a suitable corrosion resistant combination can be chosen for most application.

Bi-directional shutoff

Center Line® Butterfly Valves are liquid and gas-tight in both flow directions. The disc presses with uniform compression into the elastic cartridge seat over the entire circumference of the valve.

Replaceable cartridge seat

The replaceable seat consists of a reinforced back-up ring, on which the elastomer seat material is vulcanized. When mounting the valve between the pipe flanges this stable seat cannot be deformed or displaced. The cartridge design also prevents deformation when the valve is cycled, such as stretching and bending of the elastomer in front of the moving disc.

The fixed connection between elastomer and back-up ring allows the use of the valve in full vacuum and high flow velocities. The slightly protruding sealing lip of the seat also serves as the flange seal.

Square disc/shaft connection

Eliminates the need for pins allowing axial movement and self-centering of the disc. This eliminates excess wear and stress of the elastomer seat.

Blow-out proof shaft

All Center Line® Series RS Butterfly Valves feature a lock at the valve neck to prevent shaft blow-out.

Actuator mounting

All Center Line® Series RS Butterfly Valves feature an ISO 5211 top flange for simple mounting of hand lever, gear, pneumatic or other actuators. A conversion – even during operation – from manual to automatic actuator and reverse is possible without any difficulties.

Actuator adaptation

Center Line® Series RS Butterfly Valves are available for 3 closing pressures 3.5 bar/51 psl, 10 bar/145 psl, and 16 bar/232 psl. The actuators size can be selected individually against the pipeline pressure available, so smaller actuators can be utilized when torque requirements are low.

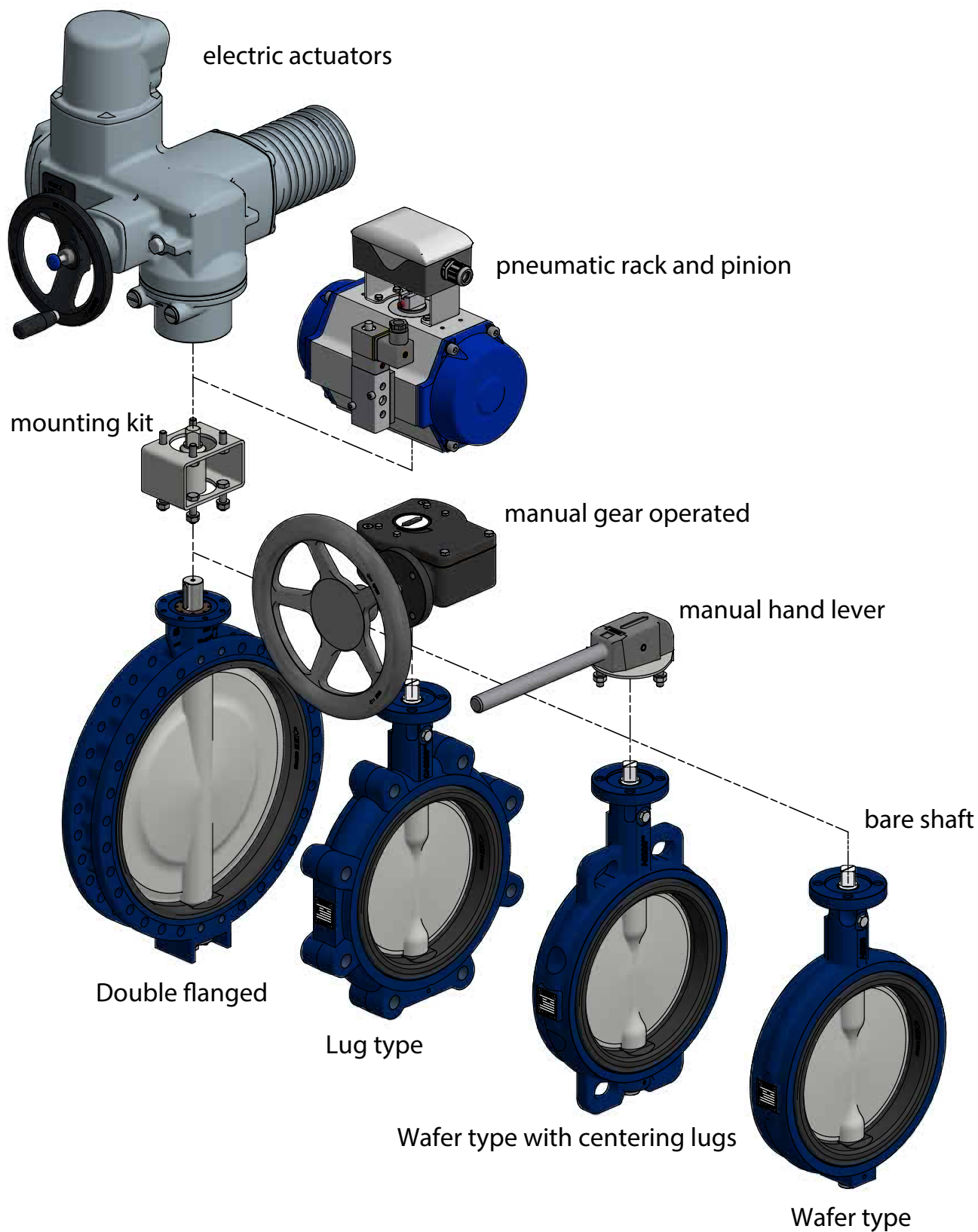
Maintenance-free operation

The shafts of the Center Line® Series RS Butterfly Valves are mounted in self-lubricating DU® bearings eliminating the need for maintenance even after a long operating period.

Modular System

With the proven modular system, Center Line® Series RS Butterfly Valves can be directly equipped with a variety of actuators. Available ex stock, various manual or automatic actuators can be fitted and assembled quickly to meet your needs. A number of accessories are available.

Valve actuation



Applications and Processes

The Preferred Industrial Valve for Critical Applications and Processes

Areas of application

Center Line® Series RS Butterfly Valves are reliable, maintenance-free shutoff and control valves with permanently gas-tight seal. This valve has proved itself as a leak-free and corrosion-resistant valve in various applications under the most difficult operating conditions.

The safety and reliability of a valve is especially important when used for aggressive media, all components within the Center Line Series® RS Butterfly Valves have been designed accordingly.

Over hundred thousands Center Line® Series RS Butterfly Valves are installed in numerous power generation sites and many sugar refineries worldwide. Used on the most hazardous conditions, this is proof of the Series RS durability and reliability when in operation.

Industries

- Paper industry
- Sugar industry
- Power generation plants
- Chemical and petrochemical industry
- Steel industry
- Automotive industry
- Energy supply
- Shipbuilding industry
- Breweries
- Cement plants
- Cleaning Units

Benefits of Center Line RS in Sugar Applications

- Suitable for full-vacuum conditions as required in the evaporator and the crystallization process.
- Materials selection and design enables long-term, leak-tight shutoff in corrosive and abrasive services.
- Long life time reduces plant services and cost for inspection and repair.
- Field experience in more than 150 sugar plants globally

Sugar Process

1. Juice Extraction
2. Juice Cleaning
3. Juice Evaporation
4. Crystallization Auxiliaries



Sugar plant
Centerline RS installed in a thin juice station

Applications and Processes

Benefits of Center Line RS in Flue Gas Desulfurization (FGD)

The design and material selection of the Center Line RS valves ensures CRANE can be used at any wet FGD slurry isolation valve application. Material selection is the results of more than 30 years of research and experience with installations in over 130 FGD systems globally.

What Type of Enviroment Must These Valve Withstand

1. Highly Corrosive
2. Highly Abrasive
3. The most severe conditions in FGD service are too corrosive for high alloys like Hastalloy but Center Line RS offers a solution with Hostalen GUR coated discs

Center Line RS valves in FGD Slurry Isolation Service:

- Corrosion Resistant
- Abrasion Resistant
- Provide reliable tight shut off



Power Plant Neurath (Germany)



Power Plant Jaenschwalde (Germany)



Power Plant Iskenderun, Seawater FDG (Turkey)

Applications and Processes

Benefits of Center Line RS Vacuum Applications

Based on its vulcanized seat design Centerline RS is perfectly proven for vacuum applications

Vacuum tightness through the seat as well as the atmosphere of 10^{-6} mbar l/s

Vacuum Systems

Vacuum Coatings Systems

1. Automotive reflectors for car lights
2. Photovoltaics
3. Solar Panel
4. Concentrated Solar power plants



Industrial Cleaning and Filtrations Process

Industrial cleaning processes

1. Solvent / Dry cleaning units (e.g. PER)
2. Water based cleaning

Cylinder Blocks

1. Gear Parts
2. Fasteners, machine parts

Vacuum filtration

1. Detergent cleaning to dissolve particles out of dry cleaning media



CENTER LINE^{RS}

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CRANE



COMPAC-NOZ

CRANE

DEPA

ELRO **DUO-CHEK**



NOZ-CHEK



RESISTOFLEX



Saunders
the science inside

STOCKHAM



UNI-CHEK

W.T.A.

XOMOX

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CENTER LINE® Resilient Seated Butterfly Valves
Now All Ductile Iron Body Standard on Series 200

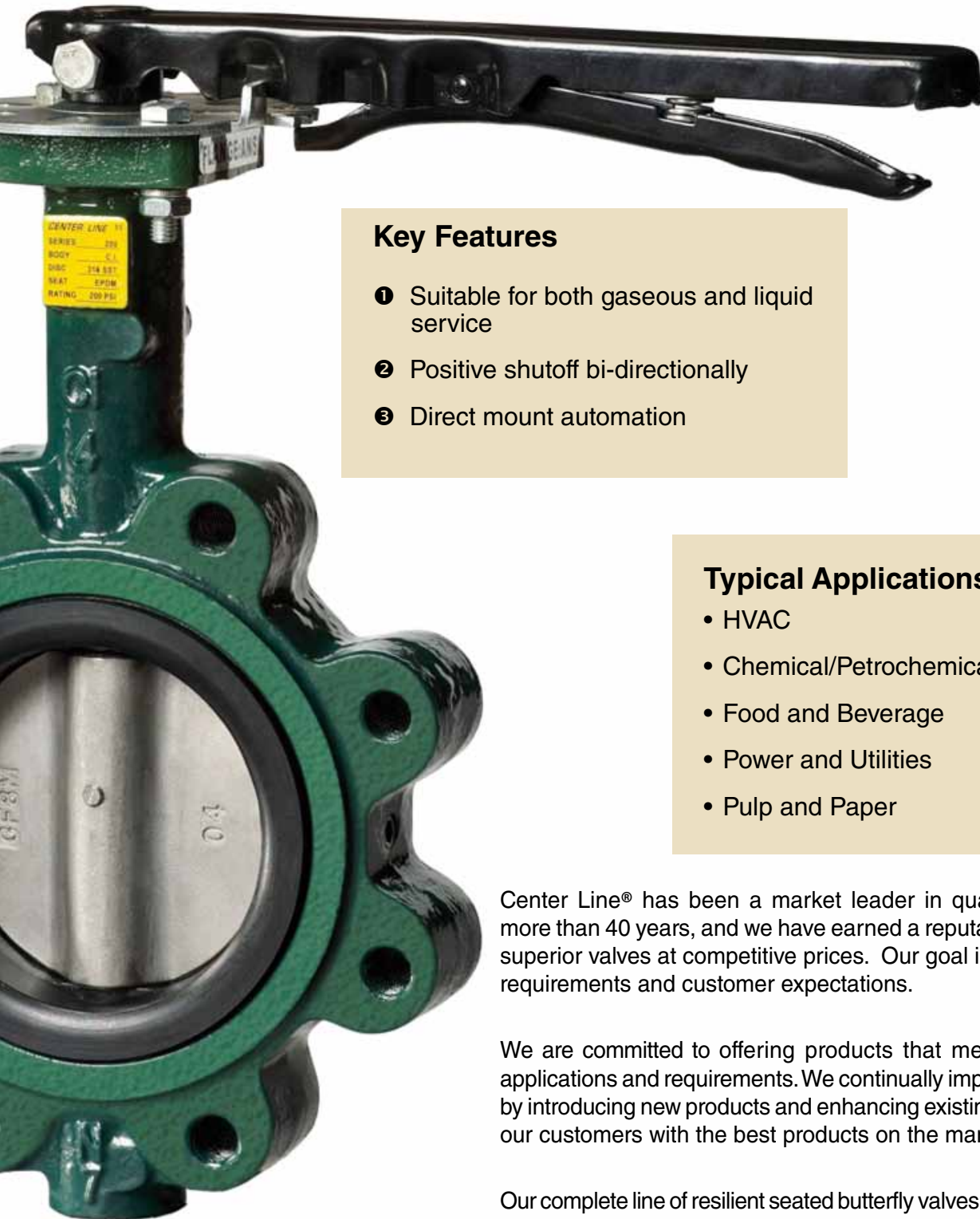
CRANE

Energy Flow Solutions

www.craneenergy.com



Center Line® Key Features and Applications



Key Features

- ❶ Suitable for both gaseous and liquid service
- ❷ Positive shutoff bi-directionally
- ❸ Direct mount automation

Typical Applications

- HVAC
- Chemical/Petrochemical Processing
- Food and Beverage
- Power and Utilities
- Pulp and Paper

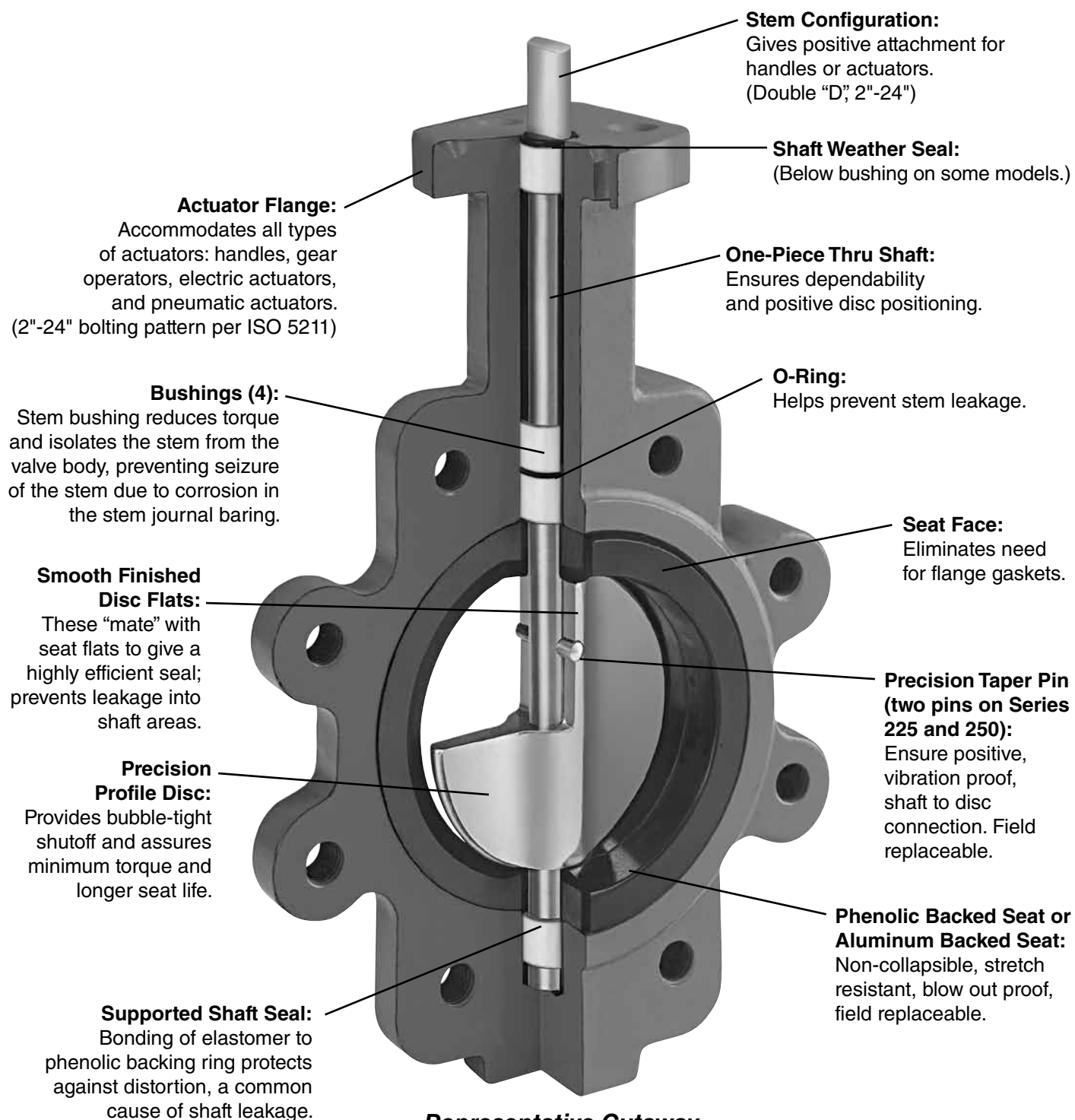
Center Line® has been a market leader in quarter-turn valves for more than 40 years, and we have earned a reputation as a supplier of superior valves at competitive prices. Our goal is to exceed industry requirements and customer expectations.

We are committed to offering products that meet a wide range of applications and requirements. We continually improve our product line by introducing new products and enhancing existing designs, providing our customers with the best products on the market.

Our complete line of resilient seated butterfly valves provides you with the reliability you need, backed by the assurance that comes with using valves designed and produced in company-owned manufacturing facilities.

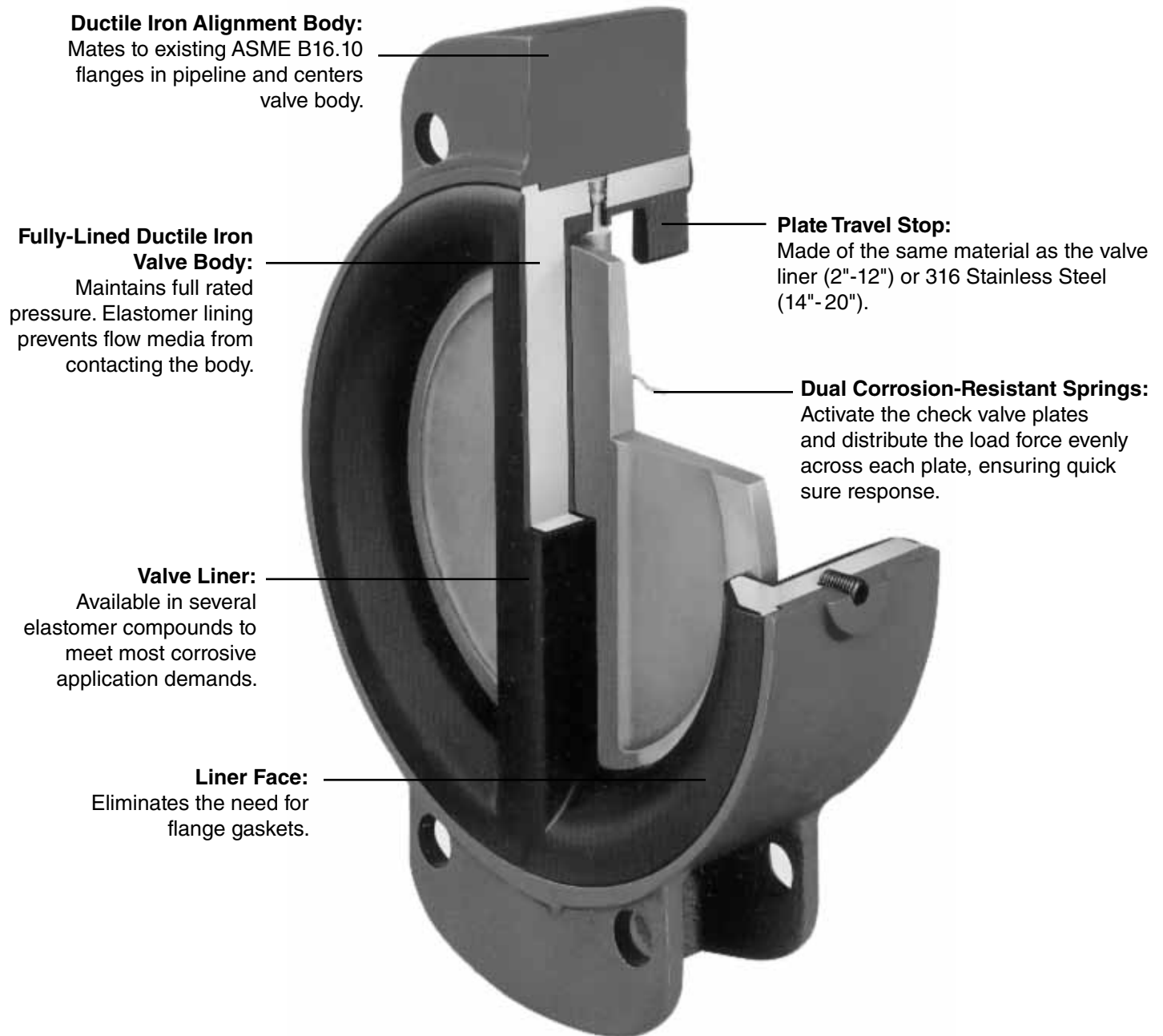
Series 200 - 225 - 250 Overview

Quality is designed into Series 200, 225, and 250 butterfly valves from Center Line®. These valves feature a phenolic backed or aluminum backed cartridge seat and precision-machined parts to assure years of dependable operation.



Series 800 Overview

If you want cost-effective backflow protection for your piping systems, look at what the Series 800 from Center Line® has to offer. It's the only fully elastomer-lined insert check valve available. The ductile iron valve body is completely isolated from line media which can extend the service life of the Series 800 in most applications and makes it an especially economical alternative in applications which would otherwise require check valves made of expensive alloys.



Actuators

ELECTRIC – ON-OFF

Standard Features:

Torque Range – 347 lb ins to 17,359 lb ins
Housing – NEMA 4 & 4X
Electric Motor – 120 VAC, 1 PHASE, 60 Hz
Thermal Overload – Auto re-set
Limit Switches – Adjustable cam operated
Position Indicator – Mechanical Dial Type
Space Heater – Located in the control compartment
Terminal Strip – Pre-wired for motor & limit switches
Manual Override – Directing acting
Brake – “Lock-cut” gear arrangement
Adjustable Mechanical Travel Stops
Temperature Range – -13°F to 131°F
Mounting – Direct mount to Crane valves
Certification/Approvals – CSA-NRTL/C

Optional Features:

AC Voltages – 220 VAC, 1 PHASE, 60 Hz
AC Voltages – 24 VAC 44005 - 44400
DC Voltages – 12/24 VDC 4005 - 44300
Additional Limit Switches – 2 SPDT
Torque Switches – Adjustable open and close
Feedback Potentiometer – 500 ohm
Feedback Transmitter – 4-20 mA
De-clutchable Handwheel Override



ELECTRIC – MODULATING

Standard Features:

Process Control Signal – 4-20 mA, 0-10 VDC
Torque Range – 347 lb ins to 17,359 lb ins
Housing – NEMA 4 & 4X
Electric Motor – 120 VAC, 1 PHASE, 60 Hz
Thermal Overload – Auto re-set
Resolution – 400 increments through 90 degrees
Position Indicator – Mechanical Dial Type
Space Heater – Located in the control compartment
Terminal Strip – Pre-wired for motor & limit switches
Manual Override – Directing acting
Brake – “Lock-cut” gear arrangement
Adjustable Mechanical Travel Stops
Temperature Range – -13°F to 131°F
Mounting – Direct mount to Crane valves
Certification/Approvals – CSA-NRTL/C

Optional Features:

AC Voltages – 220 VAC, 1 PHASE, 60 Hz
AC Voltages – 24 VAC 44010M - 44200M
Torque Switches – Adjustable open and close
De-clutchable Handwheel Override

Actuators

PNEUMATIC – DOUBLE ACTING

Standard Features:

Torque Range – 62 in-lbs to 47,250 in-lbs
Housing – Extruded aluminum, ASTM B210 (6063)
Mounting – DIN ISO 5211, direct mounting to Center Line® butterfly valves
Position Indicator – NAMUR standard
Operating Pressure – 40 to 150 PSIG
Temperature Range – -10°F (-23°C) to 176°F (80°C)
Size Range – 15 models to choose from
Adjustable Travel Stops – Both directions
Accessory Interfaces – VDI/VDE 3845 (NAMUR) standard

Optional Features:

Temperature Range – 10°F to 250°F, -55°F to 176°F
Solenoid Valves – 3 or 4 way
Limit Switches – Adjustable cam operated
Positioners – Pneumatic or Electro-pneumatic
Manual Override – De-clutchable gear type
Speed Controls – Adjust cycle time
Special Applications – Water, Nitrogen, and compatible hydraulic fluids may be used to operate

PNEUMATIC – SPRING RETURN

Standard Features:

Torque Range – 40 in-lbs to 45,466 in-lbs
Housing – Extruded aluminum, ASTM B210 (6063)
Mounting – DIN ISO 5211, direct mounting to Center Line® butterfly valves
Position Indicator – NAMUR standard
Operating Pressure – 40 to 150 PSIG
Temperature Range – -10°F (-23°C) to 176°F (80°C)
Size Range – 15 models to choose from
Adjustable Travel Stops – Both directions
Accessory Interfaces – VDI/VDE 3845 (NAMUR) standard

Optional Features:

Temperature Range – 410°F to 250°F, -55°F to 176°F
Solenoid Valves – 3 or 4 way
Limit Switches – Adjustable cam operated
Positioners – Pneumatic or Electro-pneumatic
Manual Override – De-clutchable gear type
Speed Controls – Adjust cycle time
Special Applications – Water, Nitrogen, and compatible hydraulic fluids may be used to operate



CRANE *Air*

Notes

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Duo-CHEK



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NUCLEAR

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