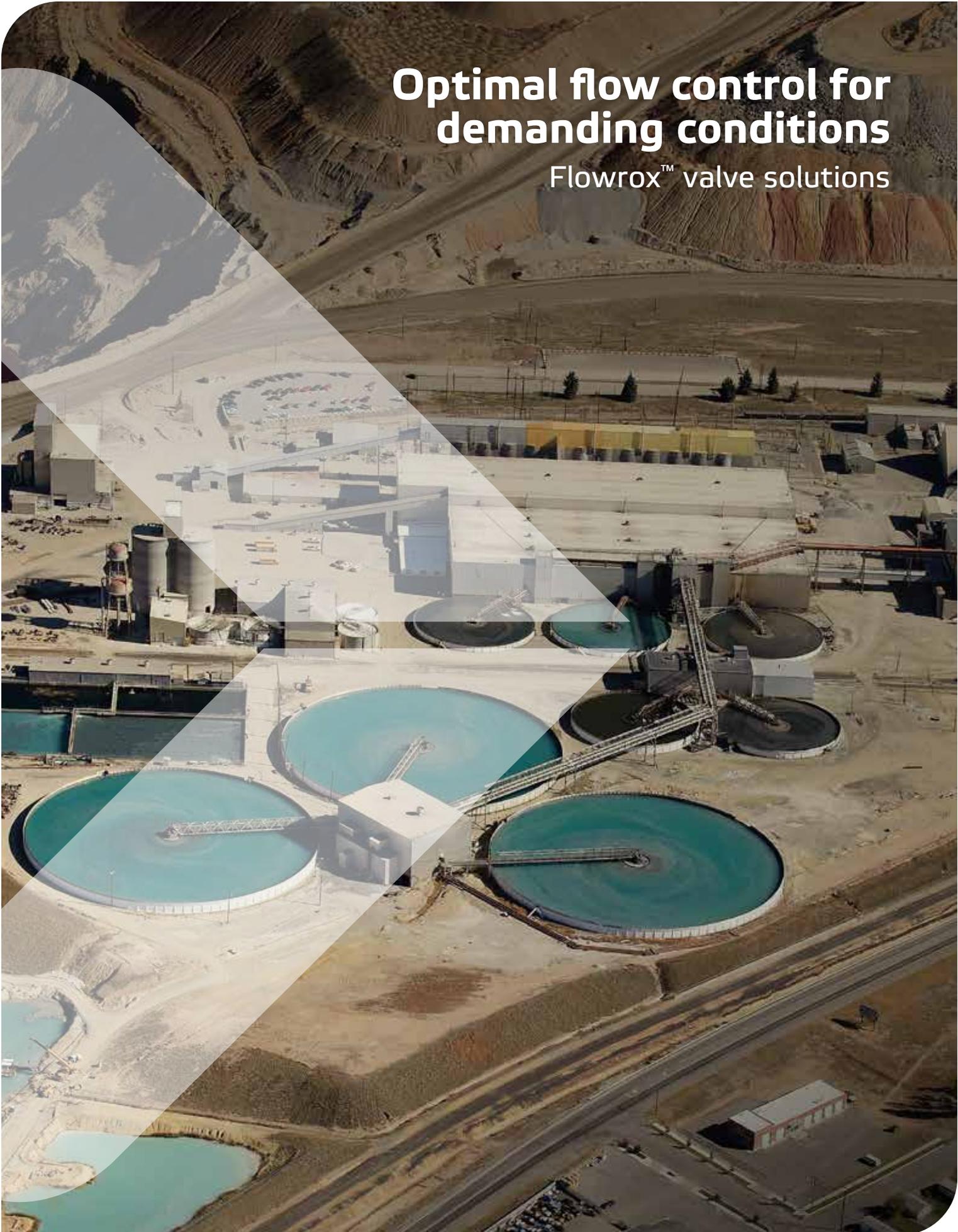


# Optimal flow control for demanding conditions

Flowrox™ valve solutions





# Valve solutions for demanding shut-off and control applications

We deliver flow control solutions for the most demanding process conditions. Our valve technology experts develop the industry benchmark solutions. Over the years we have delivered over 200,000 Flowrox valves. Our robust full bore design enables effortless process flow. We also provide services ranging from valve type selection, sizing, materials selection, installation, spare parts and maintenance to optimise your up- and downstream flows.

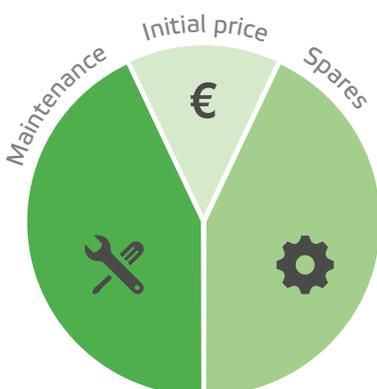


- 1977** Pinch valves
- 2000** Plastic body valves
- 2002** Pumps introduced
- 2009** Slurry knife gate valves
- 2011** Name changed from Larox Flowsys to Flowrox
- 2020** Big knife gate valves DN900-1500 / 36"-60"
- 2021** Flowrox brand acquired by Neles
- 2022** Valmet and Neles merged

## We provide the optimal solution

Here you can see the relative costs over a five-year period between a conventional stainless ball valve with PTFE seats and a Flowrox DN100 / 4" pinch valve feeding abrasive slurry. The valve operates 4-6 times per hour.

**Ball valve**



**Flowrox pinch valve solution**



## Customer benefits

- Low total cost of ownership
- Low operating costs
- Improved process performance
- Long service intervals
- Heavy duty design

# Heavy duty pinch valves

Flowrox heavy duty pinch valves are made to last and are ideal where shut-off and control applications involve abrasive or corrosive slurries, powders or coarse substances. They are widely used in various process industry applications, especially in mining, minerals processing, metallurgy, construction, energy, environment and chemical industries.

## Made to last

The operating principle of Flowrox pinch valves is simple. In the open position, the valve is full bore with no flow restrictions. During closing, two pinch bars squeeze the valve sleeve shut on the centerline. The sleeve is naturally wear-resistant and

when particles hit the sleeve's rubber surface, the energy is absorbed and released when the rubber bounces back.

Heavy duty pinch valves provide bubble tight shut-off even if solids have built up on the sleeve wall.

When compressed, any crystallized particles flake off the sleeve surface. The full bore structure ensures free flow of the medium. The construction and materials of the three main components (sleeve, body and actuator) can be tailored to suit your process conditions.

## From features to benefits

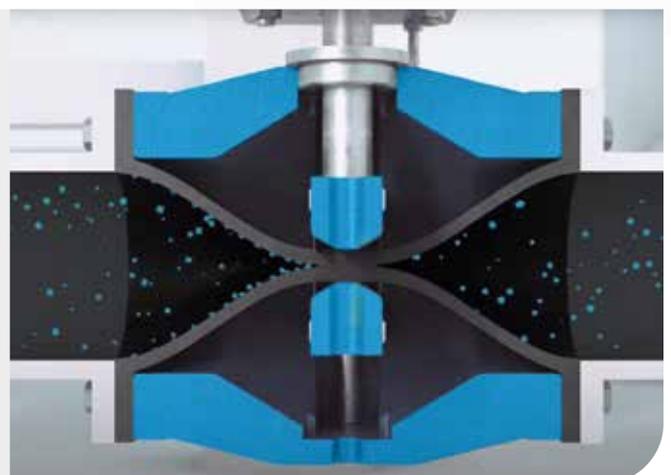
Full bore	→	No flow restrictions
Center line closing	→	Increased sleeve lifetime
Only sleeve in contact with medium	→	Only one wearing part
Self cleaning	→	No jamming
Several options for sleeve materials	→	Process fit
Robust design	→	Long service intervals



## Product benefits

- Long service intervals
- Only one wearing part
- Excellent for dry powders
- Low maintenance cost

**Image:** During closing, two pinch bars squeeze the valve sleeve shut on the centerline.





### Control valves

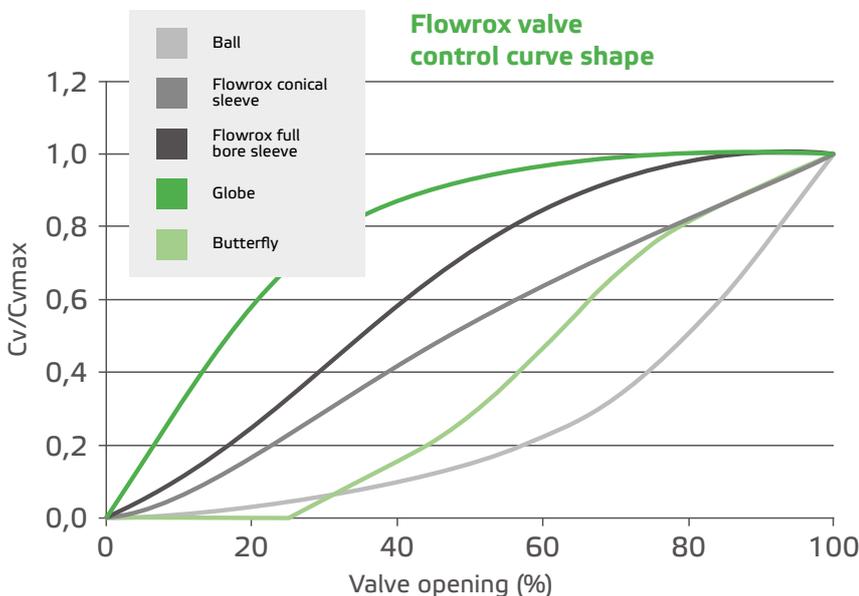
Flowrox control valves are designed for demanding control applications in which conventional valves encounter problems with wear due to increased turbulence.

When the controlled flow is abrasive, it is a big advantage to have only one, wear-resistant, valve part in contact with the medium. The need

for maintenance and spare parts is reduced. Each valve can be sized and optimized for the optimal control range, to limit wear and velocity, and also to prevent cavitation from occurring in the control valve. Controllability can be further improved, for example through the use of conical sleeves and smart positioners, or linearizing and widening.

The Flowrox slurry control valves sizing and selection is done with the Nelprof™ control valve sizing program. The Nelprof control valve sizing program is available as a free web-based tool to ease your work.

### Improved controllability with conical sleeve results in linear control curve



### Customer benefits

- Cost-effective
- Reliable operation
- Predictive maintenance
- Sizing programme to choose correct valve
- Process-optimized equipment

# General line pinch valves

Flowrox general line pinch valves are ideal for low cycle applications involving abrasion, corrosion and aggressive slurries.

## PVG and PVEG valves

Flowrox pinch valves are robust and cost-effective valves with simple, single-sided closing mechanism. PVG valves have a strong valve body and opening tags in the sleeve as standard. PVEG valves have a corrosion resistant and lightweight plastic body.

Efficient design eliminates jamming and provides a precise fit for your processes. Thanks to their reliability, Flowrox pinch valves offer substantial savings based on improved performance, long servicelifetime and low total cost of ownership.

## From features to benefits

Full bore	→	No flow restrictions
Only sleeve in contact with medium	→	Only one wearing part
Self cleaning	→	No jamming
Several options for sleeve materials	→	Process fit
Simplified construction	→	Lower initial cost



## Product benefits

- Long service intervals
- Only one wearing part
- Excellent for dry powders
- Simple sleeve replacement

**Image:** The closing element squeezes the sleeve shut against the lower body half, providing a 100 % tight shut-off.





# Slurry knife gate valves

Heavy duty slurry knife gate valves isolate flow, even in the most demanding process conditions. The complete valve is built around an ease-of-maintenance concept.

Flowrox slurry knife gate valves are based on years of experience providing reliable solutions for abrasive and corrosive process applications.

They feature a load distribution ring that prevents over-compression and ensures tight sealing between the sleeve and the valve gate. To ease maintenance, the load distribution

ring is integrated into the valve's sleeves.

The valve's universal tower design accommodates most actuator types, allowing the actuator's interchangeability. The tower also ensures that the top plate, body and actuator are always aligned and the gate is in the right position. The valve body itself is a one-piece casting, eliminating the

need for sealing between the body halves.

Flowrox SKF knife gate valves DN 900 – 1500 (36" – 60") use a new approach. Instead of a tower design, two actuator cylinders are positioned on the sides reducing the valve's dimension by one third of the valve's total height.

## From features to benefits

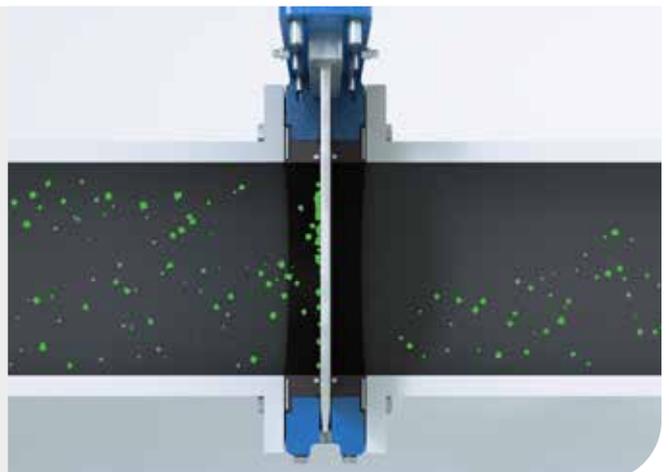
One piece body	→	No leak risk
Full bore	→	No flow restrictions
Integrated load distribution ring	→	Reliability in installation
Lubricated secondary seal	→	Reliable operation
Bi-directional flow	→	Easy installation
Removable bottom plate with flushing ports	→	Increased process safety



### Product benefits

- Small face-to-face dimension
- Easy installation
- Available in large size scale
- Low maintenance cost

**Image:** Elastomer sleeves on both sides of the gate provide a tight shut off.



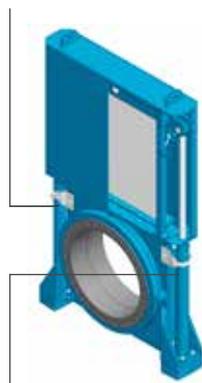
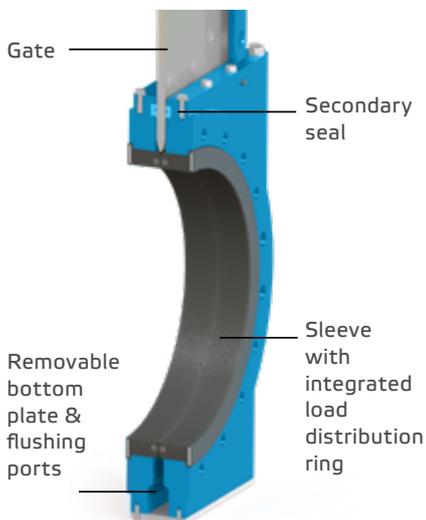


## Slurry knife gate body design

**SKW wafer DN50-600 / 2"-24"**  
**SKF flanged DN80-600 / 3"-24"**

**SKF flanged 700-1500 / 28"-60"**  
**SKH high pressure 80-600 / 3"-24"**

Flowrox SKF knife gate valves  
 DN900-1500 / 36" - 60" use a new approach.



In the SKF series instead of tower design, we use the "twin-actuator" where the actuators are positioned on the sides.

## Customer benefits

- Cost-effective
- Reliable operation
- Long service intervals
- Trouble-free operation

# Sleeves – The core of Flowrox valves

Our technologically advanced Flowrox sleeves guarantee high resistance to wear and corrosion, trouble-free operation and extended lifetime.

## Robust heart of the pinch valve

The handmade sleeve has reinforced construction, making it the pressure-containing part of the valve.

Standard Flowrox PV, PVE and PVG sleeves are equipped with opening tags to ensure valve opening in most of process conditions.

The high-grade Flowrox sleeve materials range from wear resistant styrene butadiene to numerous other elastomers and rubber compounds. These materials are highly resistant to abrasive and corrosive slurries, powders and granular substances.

### Sleeve Material Alternatives

- SBRT = Styrene butadiene
- EPDM = Ethylene propylene
- NR = Natural rubber

- NBR = Nitrile
- CSM = Hypalon
- EPDMB = Green liquor sleeve
- CR = Chloroprene
- IIR = Butyl
- NRF = Foodstuff natural rubber
- NBRF = Foodstuff Nitrile
- HNBR = Hydrogenated nitrile

## Ring sleeves for knife gate valves

The sleeve is a moulded part with a reinforced steel ring integrated near the sealing area. The flange of the sleeve is reinforced with a load distribution ring to ensure even compression.

### Ring sleeve material alternatives:

- NR
- EPDM
- NBR

## Special Sleeve Features

- Conical sleeve for control valves
- Suction sleeve for negative pressure applications
- Polyurethane-lined sleeve with improved protection against wear in abrasive control applications
- Food grade rubber for FDA requirements

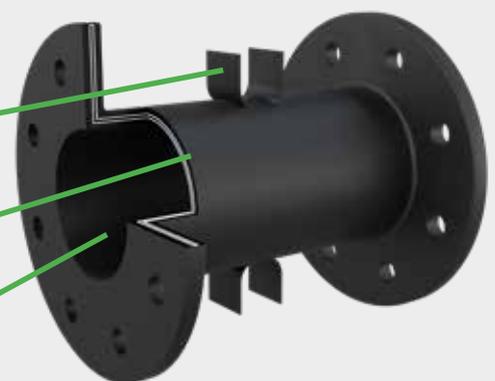
## Product benefits

- Flexible
- Self-cleaning
- Multilayer construction
- Full bore
- 100% tight
- Only the sleeve is in contact with the medium
- Numerous elastomer compounds
- Special sleeve designs

Opening tags

Reinforcing cords

Wear-resistant inner lining



The standard sleeve design consists of three sets of layers: the inner layer, the reinforcement layer and the outer layer.





# Global product support with local presence

We offer prompt support, spare parts and services in order to maximize your performance.

## Optimizing operations

We manufacture and deliver original spare parts and components for all Flowrox products including valves, hose pumps, and PC pumps.

Thanks to our dependable, fast, and trouble-free delivery of spares and services you can rest assured that downtime is minimized. Top-quality product construction ensures the longevity of your equipment.

And thanks to our optimized service cycles and reliability, you can expect noticeable cost savings in your operations.

## A reliable partnership

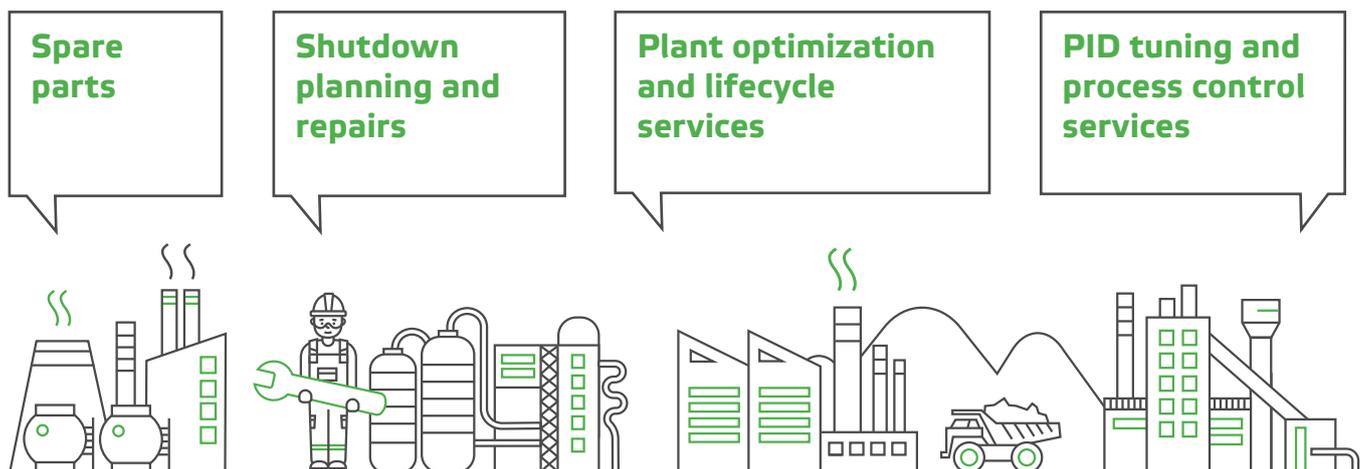
Enjoy the benefits that come with selecting a valve partner that understands your process needs and unique challenges.

Our products provide industry-proven efficiency and reliability based on well-thought-out designs and material selections paired with dedicated service expertise.

Full product assemblies with service coverage across their entire lifecycle, all from one responsible source, ensure optimized performance.

## Comprehensive valve installation, maintenance and spare services

- Site survey services
- Spare parts and component services
- Installation, maintenance and repair services
- Analysis services / commissioning / training



## Your reliability partner

Our global service network and process know-how are the result of over 65 years of working closely with the process industry. Flow control expert services and digital tools help keep your process running safely and profitably while minimizing downtime. Our best practices and spare parts also maximize the lifespan and performance of your valves.

# Flowrox valve product portfolio

## Valves

Flowrox™ pinch valves				
Product	Series	Design	Specifications	Application
<b>Flowrox heavy duty pinch valves with enclosed body</b> 	<b>PVE, PVE/S and PVS-series</b>	Enclosed body prevents premature sleeve deterioration and protects the sleeve, making it extremely safe to operate. The rubber sleeve is the only wearing part.	<b>Size:</b> DN 25 – 600 NPS 1" – 24" Bigger sizes upon request <b>Pressure:</b> Up to 100 bar / 1500 psi <b>Temperature:</b> -50 to +130 °C / -58 to +266 °F <b>Actuator:</b> Manual, manual with gear, pneumatic, electric, hydraulic	High cycle applications Shut off and control applications involving abrasive or corrosive slurries, powders or granular substances.
<b>Flowrox heavy duty pinch valves with open body</b> 	<b>PV-series</b>	Open body for non-hazardous media, lower pressures, and operating temperatures. Isolates vibration and tolerates minor misalignments of the pipeline.	<b>Size:</b> DN 80 – 600 / NPS 3"– 24" Bigger sizes upon request <b>Pressure:</b> 25 bar / 375 psi <b>Temperature:</b> -50 to +50 °C / -58 to +122 °F <b>Actuator:</b> Manual, manual with gear, pneumatic, electric, hydraulic	
<b>Flowrox general line pinch valves with actuator</b> 	<b>PVG-series</b>	Robust with strong metal body, single-sided simple closing mechanism. Substantial savings based on improved performance.	<b>Size:</b> DN50 – 250 / 2" – 10" <b>Pressure:</b> Up to 10 bar / 150 psi <b>Temperature:</b> 0 to +110 °C / 32 to +230 °F <b>Actuator:</b> Manual, pneumatic, electric	Low cycle applications Isolation duty Shut off involving heat, abrasion, corrosion and aggressive slurries.
<b>Flowrox general line pinch valve with polyamide body</b> 	<b>PVEG-series</b>	A robust yet compact and light-weight, made of polyamide blend with single-sided closing mechanism.	<b>Size:</b> DN 50 – 150 / NPS 2" – 6" <b>Pressure:</b> Up to 10 bar / 150 psi <b>Temperature:</b> 0 to +70 °C / 32 to +158 °F <b>Actuator:</b> Manual, pneumatic	Low cycle applications Isolation duty Industries that require bubble tight shut-off involving aggressive slurries, abrasion and corrosion.

## Flowrox™ slurry knife gate valves

Product	Series	Design	Specifications	Application
<b>Flowrox slurry wafer knife gate valve</b> 	<b>SKW-series</b>	Wafer Integrated load distribution ring prevents over compression during installation. One-piece body & universal tower design for actuator interchangeability.	<b>Size:</b> DN50 – 600 / 2" – 24" <b>Pressure:</b> 10 bar / 150 psi <b>Temperature:</b> 0 to +100 °C / 32 to +212 °F <b>Seat:</b> Several material options	Isolation duties only For heavy duty purposes to isolate flow, even in the most demanding process conditions.
<b>Flowrox slurry flanged knife gate valve</b> 	<b>SKF-series</b>	Flanged Integrated load distribution ring prevents over compression during installation. One-piece body & universal tower design for actuator interchangeability.	<b>Size:</b> DN80 – 900 / 3" – 36" <b>Pressure:</b> 10 bar / 150 psi <b>Temperature:</b> 0 to +100 °C / 32 to +212 °F <b>Seat:</b> Several material options  <b>Size:</b> DN1000 – 1200 / 40" – 48" <b>Pressure:</b> 6 bar / 90 psi <b>Temperature:</b> 0 to +100 °C / 32 to +212 °F <b>Seat:</b> Several material options  <b>Size:</b> DN1300 – 1500 / 54" – 60" <b>Pressure:</b> 4 bar / 60 psi <b>Temperature:</b> 0 to +100 °C / 32 to +212 °F <b>Seat:</b> Several material options	Bi-directional flow tolerates backflow and elastomer sleeves on both sides of the gate provide tight shut off.
<b>Flowrox slurry high pressure knife gate valve</b> 	<b>SKH-series</b>	Featuring ring sleeve retaining flanges preventing over compression and ease of installation. One-piece body and universal tower design for actuator interchangeability.	<b>Size:</b> DN80 – 600 / 3" – 24" <b>Pressure:</b> Up to 20 bar / 300 psi <b>Temperature:</b> 0 to +100 °C / 32 to +212 °F <b>Seat:</b> Several material options	For high pressure applications Isolation duties only

## Spare parts for Flowrox valves

Spare parts for Flowrox valves				
Product	Series	Design	Specifications	
<b>Sleeves</b> 	PV, PVE, PVE/S, PVS PVEG and PVG-series	Reinforced construction, pressure-containing. Opening tags to ensure opening in most of conditions	<b>Material:</b> SBRT, EPDM, NR, NBR, CSM, EPDMB, CR, NRF, NBRF, HNBR	
<b>Ring sleeves</b> 	SKW, SKF and SKH-series	Moulded part with a reinforced steel ring near the sealing area. Sleeve flange reinforced with a load distribution ring for even compression.	<b>Material:</b> NR, EPDM, NBR	
<b>Sealing sets for valve cylinders</b> 	All		Pneumatic and hydraulic actuators	
<b>Other spare parts</b> 	All		Bushings, secondary seals, sealing strips and others parts	



Valmet's professionals around the world work close to our customers and are committed to moving our customers' performance forward – every day.

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