

**Control Valves:**  
Solutions for oil & gas



Welcome  
to uptime.







There is a place where the process always flows. Where efficiency reigns. Where safety is supreme. And where costs are always lower. That place is called uptime.

**Metso control valve solutions give you the chance to experience it.**

## The right control valve makes all the difference.

Control valves are the most important part of any process control loop. Nothing influences the stability of your process like they do. They are central to the overall performance of your process — especially when reliability and productivity are your primary goals. They are the key to profitable uptime.

But finding the best control valve solution for your process is not always easy. There are many things to consider. Process and fluid dynamics. Metallurgy. Sealing technology. Noise and emissions control. Piping and vessel design. Diagnostics. Standards and certifications.

Ultimately, the right control valve is one that is engineered, manufactured, tested and optimized for your specific application. One that is trouble-free. And, of course, worry-free.

This is what Metso products offer.

# The right supplier makes all the difference too.

You need more than just the right products. You need a control valve supplier that can help you during every phase of the product life cycle. One that follows through on its promises and honors its commitments. In other words, you need a partner. Metso offers a proven approach that continuously provides new ways to help you drive cost out of the process and achieve your ROI goals.

**Our comprehensive approach helps ensure your success:**

## **1 We listen to understand your unique application requirements**

- Specifications
- Timing and delivery
- Cost parameters

## **2 We help you specify the best solution for your application**

- Product sizing and selection tools
- Field-proven products and accessories
- Proactive service programs

## **3 We implement to the highest standards**

- Sophisticated manufacturing and quality control
- Testing
- Installation and start-up
- Warranty

## **4 We support your maintenance strategy**

- Local repair services and technical assistance
- Diagnostics and predictive maintenance

Our story of dependability begins with our industry-leading **Neles®** and **Jamesbury®** product lines. Each offers unique capabilities and proven performance across a wide range of applications.

# Neles® metal-seated control valves. Perfect for challenging process conditions.

## GLOBE VALVES



### Neles® Rotary Globe Valve

The best of rotary and globe technology in one package. Designed to control a wide range of process liquids, gases and vapors. Available with a variety of trim choices for general, difficult and even severe service applications.



### Neles® Linear Globe Valve

Offering the best possible control accuracy and wide rangeability. Equipped with our ND series intelligent valve controllers to allow for online performance monitoring.



### Neles® Linear Angle Control Valve

A series style can be used in both modulating control and on-off services. Available with unbalanced, balanced and Omega multistage trim options.



### Neles® Steam Conditioning Valve

Especially suitable for high-pressure superheated steam and de-superheating in the turbine bypass system.

## BALL VALVES



### Neles® Modular Ball Valve, Series X

Incorporates a robust stem-to-ball connection in both trunnion-mounted and seat-supported models. Seat options helps facilitate long-lasting tightness.



### Neles® Ceramic Ball control Valve, Series E

Next generation ceramics make this valve suitable for severe erosive and abrasive applications.



### Neles® High-pressure Modular Ball Valves, Series XH & XS

Has the right combination of seat design, seat material and coating for high-cycle shut-off and throttling service.



### Neles® Top Entry Rotary Ball Valve, Series T5

Equipped with a unique trunnion-mounted Stemball®. Ideal for heavy-duty applications such as anti-surge and blow down.





## BALL VALVES



### Neles® Trunnion Ball Valve, Series D

Incorporates Metso's unique metal-to-metal seat technology to improve reliability in demanding high-capacity applications.

## BUTTERFLY VALVES



### Neles® Neldisc High-performance Butterfly Valves, Series L

A triple eccentric disc valve with close to equal percentage characteristics and superior tightness. A proven performer in a wide range of applications.

## ECCENTRIC PLUG VALVES



### Neles® Finetrol Eccentric Rotary Plug Valve

Designed for liquid, gas, vapor and slurry control in general and demanding applications. Reliable and safe.

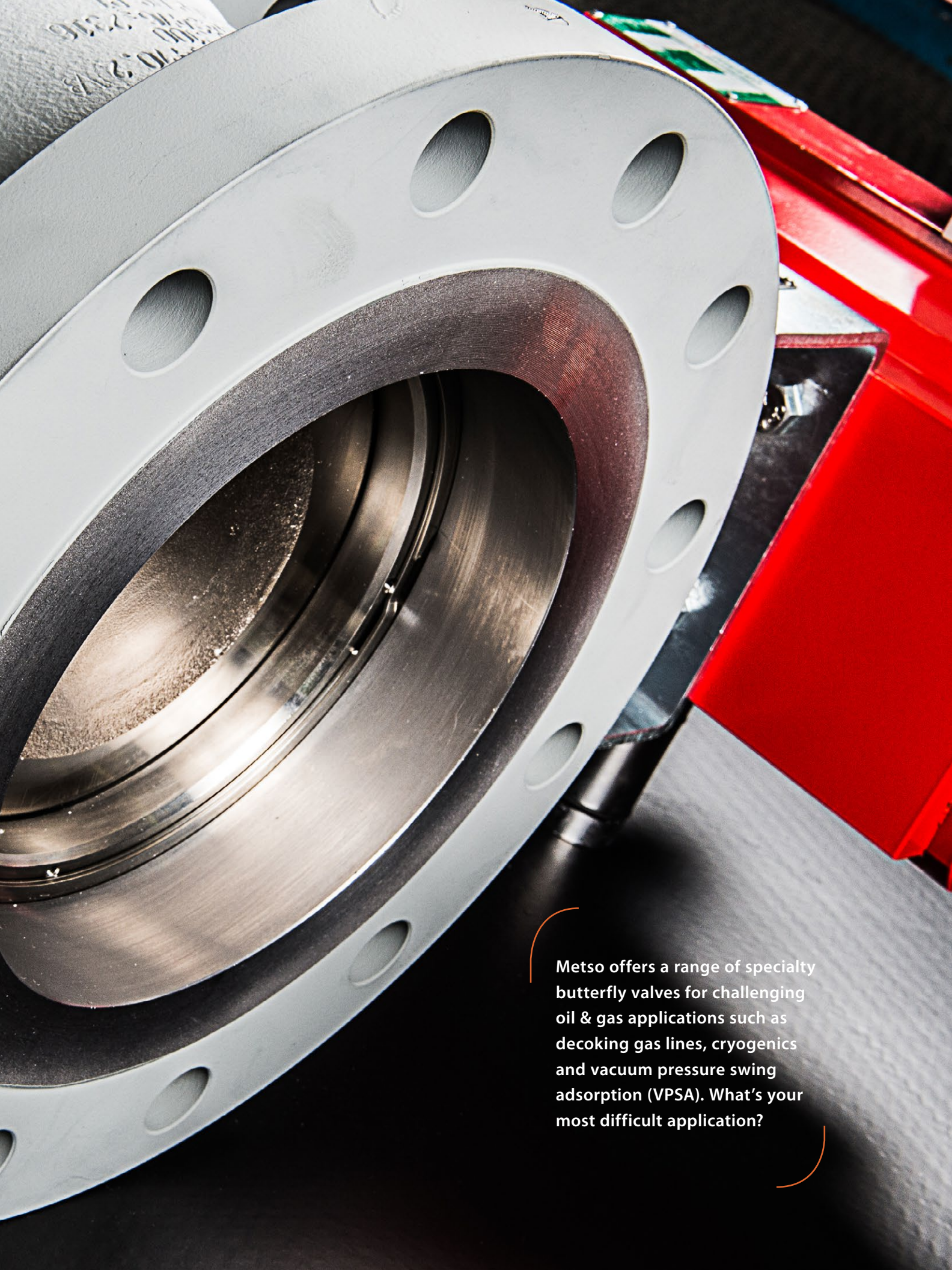
## SEGMENT VALVES



### Neles® R-Series V-port Segment Valve

Accurate and reliable performance for high capacity and wide rangeability applications. Lightweight and low torque.





Metso offers a range of specialty butterfly valves for challenging oil & gas applications such as decoking gas lines, cryogenics and vacuum pressure swing adsorption (VPSA). What's your most difficult application?



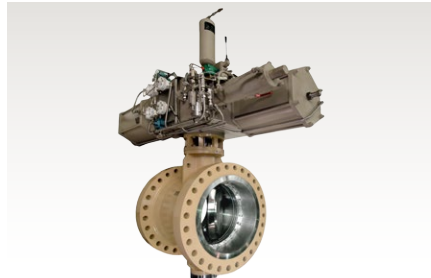
# Neles® custom engineered butterfly control valves. For extra demanding applications.

## BUTTERFLY VALVES



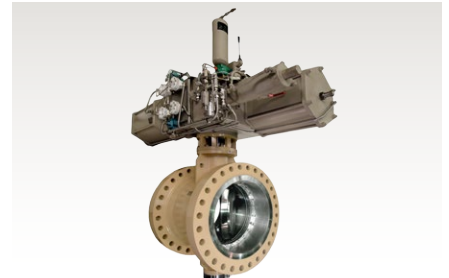
**Neles® Mapabloc High-performance Butterfly Valve, Series BM**

Designed for ethylene plants to optimize transfer and decoking gas line processes. It is a superior alternative to gate valves. Offers a unique double block and bleed sealing system.



**Neles® High-performance Butterfly Valve, Series BW**

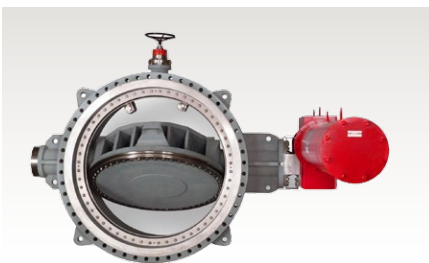
A metal-seated triple-eccentric disc valve designed for accurate control and tight shut-off in severe service. It offers extended life in high cycle, high-temperature and abrasive applications.



**Neles® Eccentric Soft-seated Butterfly Valve, Series BN**

Full bore butterfly valve with a one-piece body and an eccentric soft seat. Ideal for industrial gas applications requiring long-lasting tight shut-off, excellent flow characteristics and long service life.

## BUTTERFLY VALVES



**Neles® High-cycle Butterfly Valve, Series BO**

A wafer type, soft-seated single eccentric disc butterfly valve. Designed specifically for vacuum pressure swing adsorption plants (VPSA). Maintains tightness even up to 2 million cycles.



**Neles® Three Lever Valve, Series BH**

Excellent for air separation units as an air inlet shutoff valve. It is inherently safe to prevent pressure shocks in absorber beds. High capacity. Soft or metal seats.



**Neles® Metal-seated Butterfly Valve, Series BK**

Ideal for applications that utilize gaseous and liquid nitrogen, LNG, nitrogen, hydrogen and other cryogenic fluids. Compact design facilitates rapid cool down and minimizes boil off loss.

# Jamesbury® polymeric-seated control valves. Engineered for high sealing integrity.

## BALL VALVES



Jamesbury® Standard Port Flanged Ball Valve, Series 7000

Our top-performing ball valve. Very long, trouble-free service life. Bubble-tight shut-off. Low emission stem seal technology.



Jamesbury® Full Port Flanged Ball Valve, Series 9000

Also a top performer. Self-relieving seat. Low emissions. Long-life. Bubble-tight shut-off. controllers to allow for online performance monitoring.



Safety Shut-off Valve

Jamesbury® automatic safety shut-off valves are approved by FM Global, CSA, AGA and EC. Wide range of sizes. Low maintenance.

## BUTTERFLY VALVES



Jamesbury® High-performance Butterfly Valve, Series 800


Wafer or lugged body. Flexible-lip seat technology for superior sealing. Bubble-tight shut-off. Fire-tight and cryogenic designs available. High-cycle options.



Customer Engineered Solutions

Metso's extensive design and build capabilities enable us to supply innovative, one-of-a-kind solutions for your most challenging applications.





Jamesbury® products are subjected to strenuous fire, cryogenic, temperature, pressure and emissions testing. We can also perform custom tests to make sure our products will perform in your specific application.

# Other unique solutions for oil & gas.

## SOFTWARE



### Nelprof® Control Valve Sizing & Selection Software

Enables the selection and sizing of the ideal Metso control valve solution for your application. Also simulates online performance to study controllability in a closed control loop.



### Metso FieldCare™ Device & Asset Management Software

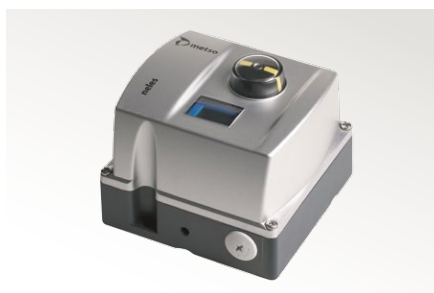
Collects operating data and helps analyze field device condition. Manages any device in any communication protocol. Enables predictive maintenance.



### RapidDraw 3D™ Model Generation Software

Ideal for engineers who want realistic, to-scale, 3D valve assembly drawings to import into their plant piping diagrams.

## CONTROLLERS & POSITIONERS



### Neles® Intelligent Valve Controller, Series ND

Designed to operate with every control valve actuator. Accurate, reliable and future-proof. Enables diagnostics for performance optimization and proactive maintenance. Also available in stainless steel construction for corrosive environments.



### Neles® Control Valve Positioners, Series NE & NP

Offers excellent repeatability and accuracy in a wide range of linear or rotary valve applications. Rugged construction with few parts.

## SAFETY SOLUTIONS

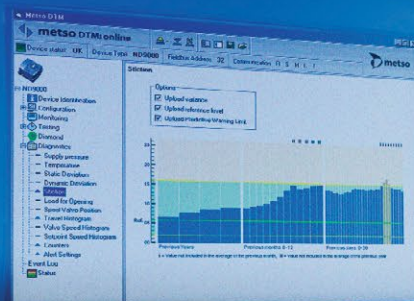
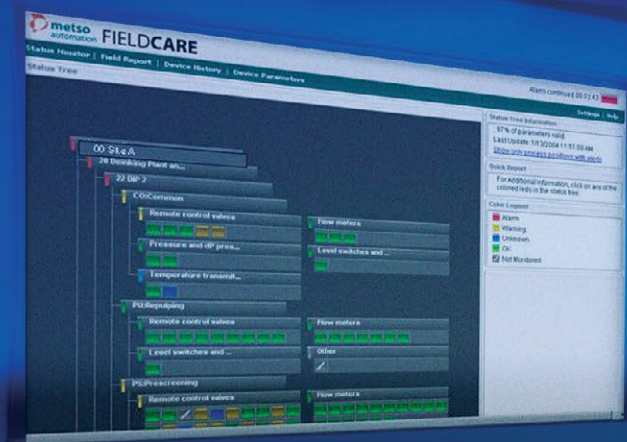


### Metso ESD Valve Solutions

We offer several safety control valve options accompanied by more than 50 years of application experience and knowledge of safety standards and systems.



In addition to our highly reliable control valve offering Metso also offers a wide range of support tools and accessories to help optimize productivity and minimize costs. Uptime is always the goal.







## Metso services help improve your uptime.

Metso has over 90 service centers strategically located around the world. Highly skilled technicians are available 24/7 to ensure you get the support you need, when you need it.

Our commitment to you doesn't end after installation. In fact, it is just the beginning. Metso personnel take a proactive approach, continuously supporting your business and process performance goals so that you receive the highest possible return on investment.

We offer a range of technical support services to help you succeed. They can be combined to offer a customized approach for your application and process.





### Installed Base Analysis

A tag-by-tag inspection to verify field device details, confirm availability and assess condition. Allows you to make better maintenance and spare parts decisions.



### Maintenance Supervision

An on-site, certified Metso technician supervises your maintenance activities to ensure work complies with recommended procedures.



### On-call Service

Experts are immediately available by phone to answer important technical questions. Saves the time and cost of a site visit.



### Valve Maintenance and Repair

Quality repairs, conducted by skilled technicians utilizing genuine OEM parts extends the product life cycle. Avoids the risk of shoddy repairs.



### Resident, On-site Expert

Metso can place a skilled technician in your facility to provide hands-on support. Facilitates proactive resolution of emerging issues.



### Spare Parts

Metso spare parts are manufactured to meet original material and specification requirements. Original parts ensure wear and maintenance is kept to a minimum.



### Service Container

We provide you with a customized container of spare parts and tools that likely will be required during a shutdown. Avoids guesswork and delays.



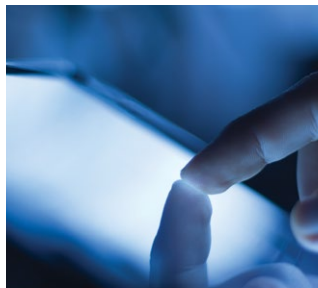
### Start-up Supervision

On-site troubleshooting support to ensure a smooth production start-up after a shutdown or production stop.



### Control Valve Training

We offer a variety of training courses so that your employees can get the most out of Metso's control valve products. Training can be customized to your particular needs.



### Control Performance Evaluation

Metso can provide an expert assessment of your process controls, highlighting potential problem areas as well as their impact on production.



### ValveTriage Service

Helps you identify valves and/or other instruments that are disturbing the process and develop a prioritized maintenance action plan.



## You expect results. That is what Metso delivers.

Metso can help you make choices that will optimize your process performance and drive down costs. We have produced documented results with customers all across the globe.

**Here are a few real-life examples:**

EUR 356,932 (\$1,488,350) documented savings over two years.

### **REPLACEMENT OF COMPETITIVE VALVE PRODUCTS**

- Metso resized and replaced several mis-specified competitive products.
- Metso replaced a high-cost competitive valve with a better-performing, lower-cost solution.
- Metso replaced a competitive valve that had required repairs every three months with a Metso valve that hasn't required a repair in over 12 months.
- Metso installed a control valve that reduced process variability and provided better process control.
- Metso replaced competitive analog valve positioners with new intelligent valve positioners.
- Metso replaced several other low-performing competitive valves.

### **IMPLEMENTATION OF SERVICE SOLUTIONS**

- Metso implemented a service agreement that allowed for significantly faster valve repair than normal.
- Metso diagnostic services identified a potential issue before it caused an unscheduled process shutdown.
- Metso uncovered additional savings in routine valve maintenance.
- Metso audits helped eliminate dead stock inventory items.

### **PROJECT PRICING ADVANTAGES**

- Metso project pricing helped reduce acquisition costs.



## Over EUR 335,546 (\$368,044) in annual savings.

The long-term reliability and value of Metso control valve solutions go far beyond the purchase price. For this customer, the annual savings were significant:

	Metso	Competitor's Valve
Total number of 14" valves	6	6
Years before repairs are required	7	4
Total annual cost	EUR 33,021 (\$36,219)	EUR 102,328 (\$112,238)
Total number of 24" valves	8	8
Years before repairs are required	7	4
Total annual cost	EUR 63,994 (\$70,190)	EUR 181,837 (\$199,448)
Total number of 30" valves	8	8
Years before repairs are required	7	4
Total annual cost	EUR 96,683 (\$106,047)	EUR 245,470 (\$269,244)
Total annual costs	EUR 193,698 (\$212,457)	EUR 529,634 (\$580,930)
Total Metso savings: EUR 335,937 (\$368,044)		

## Predictive maintenance program pays for itself many times over

Metso implemented a cost-saving predictive maintenance program for one of its South American customers.

### YEAR ONE: AUDIT AND ANALYSIS OF INSTALLED VALVES

- Metso helped identify which of the valves would actually require service during its shutdown. Metso service personnel downloaded the performance data for 74 critical control valves for analysis with Metso FieldCare condition monitoring software during the three-month period prior to the shutdown. This data was supplied through the valves' Neles® ND9000 intelligent valve controllers.
- Of the valves monitored, only seven needed to be taken off-line and repaired. Nine others required minor servicing and in-line calibration. In the past, many more valves would have been taken off-line and repaired because of an inaccurate understanding of the valves' true condition.
- Metso's predictive maintenance with FieldCare resulted in substantial savings by eliminating unnecessary assembly and disassembly work and reducing man-hours required during shutdown. It also reduced administrative costs required for planning and purchasing.

### YEAR TWO ANALYSIS

- The following year, Metso analyzed the information from 146 intelligent valve controllers in five different areas. At this shutdown, 27 valves were taken out for maintenance, which Metso performed on site. Positioner maintenance service was also carried out as needed, based on the information gathered through FieldCare. The correct spare parts were ordered well in time for the shutdowns.
- The cost of the predictive maintenance contract was paid for many times over by reducing the number of valves taken out during the process and disassembled. The Mean Time Between Repair (MTBR) was extended for monitored valves, and the company recorded additional savings by reducing the spare part stock based on Metso's recommendations. There was also a reduction in administrative time normally spent buying spare parts. These savings were allocated to other important maintenance activities at the plant.

## Metso people know oil & gas, inside and out.

It takes constant innovation to keep up with oil & gas industry control valve challenges. We put our 60 years of experience into every valve. And this has enabled us to solve some of the most difficult application challenges – often when no one else could.

With a staff of over 14,000 highly skilled experts in more than 50 countries, the engineered solutions we deliver are backed by real world process experience and in-depth application knowledge unavailable anywhere else.

Contact us today to see how we can improve your results.

Welcome to uptime.

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