Intelligent reliability in the world of valves
One of the building blocks of intelligent reliability is inherent reliability. It means that to perform reliably for a long time, a valve needs to be well engineered. Our engineers use the best tools and methods, such as computational fluid dynamics, FEM modeling, 3D CAD as well as the Failure Modes, Effects and Diagnostic Analysis (FMEDA) in developing high-performance valve solutions.

Secondly, intelligent reliability features in-depth application know-how. It means that Metso has the skills and tools to select just the right solution for your application, for example with the Nelprof valve selection program.

And thirdly, of course, the concept uses intelligence, to predict problems and maintain performance during the whole valve life cycle. We integrate valves with control systems through various communication protocols (FF/Profinet/HART/ASI), when using Metso FieldCare™ asset management and online diagnostics tools and intelligent valve controllers, such as Neles ND9000®.

World-leading product brands
Metso has three world-leading valve product brands, which are renowned for their performance. Neles® represents metal-to-metal seating technology with products such as Neldisc® and Stemball® valves. Jamesbury® stands for leading-edge technology in soft seating technology with products such as Double-Seal® and Wafer-Sphere® valves as well as Xtreme® seats. Mapag® valves are used across a wide spectrum of industries, such as chemical and petrochemical, offshore and LNG, as well as nuclear and conventional power stations. The products include a special range for safety critical applications, for example patented fire and earthquake shut-down systems, and special rapid closing emergency shut-down valves.
To help you optimize your process performance cost effectively, Metso approaches each process and application as a unique challenge with proven technology. Our control, on-off and ESD valves, accessories, intelligent devices, and software products offer innovative, yet fundamentally simple construction, operation and maintenance features.

Reliability in words and actions, too
In an analysis carried out by a third party, our valves proved their reliability by having an MTBF (mean-time-between-failure) up to ten times higher than the industry average.

From our wide product portfolio you will find applications from standard to very demanding, with sizes from DN15 (½") to DN2500 (100`). The temperature range extends from cryogenic -270 °C up to very high temperature gas applications at +1450 °C.

Products built to perform and last
For over 80 years, the world’s major process industries have trusted Neles, Jamesbury & Mapag valves to perform reliably and last for decades in the harshest environments.

Metso valve deliveries in numbers:
More than
- 130,000 Smart devices connected to Metso FieldCare
- 270,000 Smart Neles control valves
- 800,000 Neles control valves
- 1,000,000 Automated Neles on-off valves
- 10,000,000 Jamesbury valves
- 40,000 Mapag valves to gas industry
- 2,000 custom designed Mapag high performance valves
Intelligence adds to performance

To keep pace with your needs, Metso’s technology know-how has expanded from reliable, high-quality valve solutions to a broad range of intelligent valve controllers and software solutions.

The intelligent valve controllers have been designed to improve the control of industrial processes by maximizing the availability of valves, minimizing the variability of control loops, in addition to increasing and maintaining plant safety.

High availability and easy interpretation are vital for effective field device data analysis. We are committed to supporting open and standardized technologies enabling you to choose the best field devices and ensuring the availability and usability of diagnostics information independent from your control, safety or asset management system. Boost your processes by integrating Metso’s intelligent flow control solutions into all your automation and safety systems.

Metso FieldCare™ is field device asset management software with a condition monitoring capability, which supports open and standardized FDT technology. Neles ND9000® is an intelligent valve controller that provides a unique combination of optimum performance and second generation predictive diagnostics.

Neles ValvGuard™ is a cost-effective partial stroke testing solution for ESD and ESV valves, which fulfills the IEC 61508 standard.

Neles SwitchGuard™ is an intelligent controller for process critical switching and high-cycle applications.

Axiom™ is the combined solenoid and limit switch unit with latest on-off valve monitoring and networking technology.

Case: Mondi uses Metso FieldCare™ in configuration and maintenance

Mondi South Africa expanded and modernized its Richards Bay Mill in KwaZulu-Natal to increase its bleached eucalyptus pulp production by 32%. The project involved building a new cooking plant and a bleaching plant, in addition to rebuilding the pulp drying machine and modifying the recovery line.

Metso FieldCare remote device configuration and diagnostic tool were installed in four mill areas: the fiber line, the evaporation plant, the lime kiln, and the maintenance workshop for diagnostics. All the valves in these areas are linked to FieldCare.

During commissioning, FieldCare played a significant role in the online configuration and device verification. Now that the plant is up and running, it is an essential tool for maintenance and instrumentation. According to the mill, the software paid for itself already during commissioning, but more benefits will be unlocked with preventive maintenance.
Protecting your employees, environment and investment should always be a top priority when designing a process plant.

With Metso’s proven valves you can rest assured that your safety system is fully equipped and ready to function when needed. We provide a wide variety of different valve constructions for applications that require SIL (Safety Integrity Level) considerations.

Our valves are continuously developed taking health, safety and environmental (HSE) issues into consideration. In accordance with a corporation-wide initiative, Metso Flow Laboratories has obtained certification for numerous Neles, Mapag and Jamesbury valve products to meet the requirements of global ISO15848-1 standards. Such certified valves are regarded as fulfilling the most stringent emission standards, and meeting this qualification signifies compliance with many other emission standards as well.

Reducing fugitive emissions not only helps meet regulations and reduce costs relating to leaking, but more importantly FE-certified valves improve safety and help ensure a healthy working environment for plant personnel. While fugitive emissions may lead to compromised plant safety, in many cases they may also result in reduced productivity.

Metso valve products minimize fugitive emissions even at high operating temperatures, meeting demands of even the harshest hydrocarbon processing plant environments. We offer a multitude of 3rd party witnessed and certified valve designs that fulfill all the strict ISO 15848 requirements for valve fugitive emissions, helping you create a safer and healthier working environment while simultaneously improving your plants productivity and environmental performance.

Did you know…?
Veracel, the world’s largest single line bleached eucalyptus pulp mill, located in Brazil, has more than 1,000 Neles valves in the fiber line and white liquor treatment, as well as in the recovery boiler, evaporation plant and water treatment. There are also 600 critical flow control applications.

Did you know…?
Metso delivered all the automated process valves required for Sappi’s fiberline expansion in the Ngodwana mill in South Africa. The existing fiberline was expanded to produce chemical (specialized) cellulose, also known as dissolving pulp. In total, over 700 automated valves were delivered during the final quarter of 2012, and the mill start-up was in early 2013.

Metso was selected because of the proven quality and reliability of its solutions in similar applications worldwide. The existing, large installed valve base in the mill made it beneficial to select Neles products once again, as this facilitated the successful management of shutdowns, inventories and spare parts. The long relationship between the organizations and the excellent service support provided to the mill also played a key role.

Metso supplied all the automated on-off and control valves with intelligent Profibus positioners for the new fiberline, and for upgraded process areas in evaporation, recausticising and ash leaching. The delivery included valves in stainless steel, duplex stainless steel, titanium, SMO and ceramic material in sizes from DN25 to DN500. All valves were equipped with pneumatic cylinder actuators and intelligent positioners or limit switches. The delivery also included Neles metal-seated ball valves, segment and triple eccentric Neldisc butterfly valves as well as Jamesbury soft-seated ball valves.

Metso also supplied specially designed high-consistency valves for the fiberline as well as capping and discharge valves for six batch digesters for the cooking plant. All these high-performance solutions support the mill’s goals of increased efficiency and reduced energy consumption.

The expanded fiberline will produce 210,000 tonnes per annum of chemical (specialized) cellulose, which is widely used in the textile, pharmaceutical and food industries. Sappi is the global leader in chemical (specialized) cellulose production.
Reach for **higher performance** with us

A full palette of support resources and a vast array of options to match your specific needs are at your disposal whenever and wherever you need them.

Starting with valve selection, sizing and support through full life cycle management services, Metso makes it easy for you. Through our global sales and service network in over 39 countries you can reach us effortlessly. Elsewhere, just turn to our agent and representative network to cater to your needs locally.

Our total project management provides you with timely actions and high-quality results. We have a large pool of very experienced project managers, in-house engineers and project engineers in various locations around the globe – true professionals at your service.

Each project is handled by a team, which looks after every stage from sales to execution and commissioning. Each team is led by a project manager, who is your single point of contact during your project.

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Case: No more problems with heater-pass applications

Petrobras, a leading oil company in Brazil, operates 16 refineries with a throughput of 1,707 million barrels of crude oil per day. A few years ago, some of its refineries were experiencing major heater pass valve problems, which led to unscheduled shutdowns and frequent maintenance.

To solve the problems, Petrobras REVAP in São José dos Campos City tested several valve options. Eventually, the refinery changed the design of the valves used to control the heater passes, replaced them with rotary plug-type valves, and adopted Metso’s reliable Neles Finetrol® valve for the job.

In addition to reduced incidents of jammed valves, there have been no unscheduled maintenance or unscheduled shutdowns since. Process operation is more stable and accurate, which has enhanced both quality and productivity. Environmental problems previously associated with the heater have been eliminated.

Petrobras has accepted Neles Finetrol as the preferred answer to the majority of its heater pass flow control problems when handling high-viscosity, high-temperature oil products. Neles Finetrol is now the valve type recommended to sites with similar process conditions throughout Brazil and elsewhere in South America.

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MAPABLOC patented technology for ethylene plants

Mapag, one of the world’s leading high performance butterfly valve specialists, has developed MAPABLOC for use in ethylene plants. Featuring a patented double block and bleed sealing system, MAPABLOC optimizes the design of the transfer gas and decoking gas line.
Metso Intelligent Shutdown is a service solution that concentrates expert resources to where they are most needed. We can provide you with a detailed shutdown execution plan covering everything from pre-shutdown analysis to start-up supervision.

The service starts with the creation of an optional pre-screen shutdown list, which determines devices to be analyzed in weekly maintenance and ensures that key devices only accessible during the shut are not ignored. We build an understanding of the importance of individual system elements to assign maintenance priorities. A condition analysis is carried out on selected devices before the shutdown, to identify underperforming equipment as well as any hidden or developing problems prior to failure.

The careful planning means that spare part orders can be focused on a reduced list of devices to be maintained. The Metso Service Container ensures instant availability of recommended spare parts on-site, reducing the risk of delays and unnecessary costs. The needed repairs and maintenance can then be carried out under Metso supervision, optimizing costs and reducing risks. When needed, Metso carries out quality repairs and upgrades to ensure maximized lifetime and availability.

To ensure a safe and smooth start-up, Metso offers its expertise in product knowledge and trouble shooting in the form of start-up supervision carried out by our technicians. We also follow up each shutdown event by comparing the shutdown list to findings made during the maintenance actions and by reviewing key performance indexes in co-operation with the client.

Ensuring and improving efficiency and reliability are of the utmost importance in today’s process industries. Getting the most out of scheduled maintenance shutdowns through well-planned execution is one way to create savings.
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