

A close-up photograph of two large, white industrial pressure safety valves (PSVs) at a refinery. The valves are mounted on a complex network of pipes and structural steel. Each valve has a large, cylindrical body with multiple flanges secured by numerous bolts. A vertical stem extends from the bottom of each valve body. At the top of each stem, there is a complex assembly including a piston rod, a valve seat, and a safety mechanism. The background shows other industrial equipment, including pipes, valves, and structural steel, under a clear blue sky.

**Get the right safety partner
to protect your plant**

Pressure Safety Valves

Proven solutions and support for overpressure protection.

Europe Only



Without the right safety partner you may not be able to protect plant personnel and equipment

Accurately specified and appropriately maintained pressure safety valves (PSV's) are critical to protect plant personnel and equipment against unexpected overpressure events.

Effective lifecycle management of pressure safety valves can significantly improve operational efficiency ensuring safety, reducing maintenance costs, and increasing plant reliability.

“On a large refinery, a detailed review of the installed pressure safety valves, found that 12% were with more than 3% inlet pressure losses, against all rules and recommendations, with serious destructive risks of instability and chattering.”

–Smith, Burgess & Powers, 2011



“33% of all relief valve incidents were due to mechanical fatigue and 95% of these occurred during start-up or during shutdown. [...] A review should be undertaken of all relief valve installations and associated plant operating procedures to ensure that they operate correctly throughout all the plant operating conditions and processes - including start-ups and shut-downs.”

–UK Health & Safety Executive, 2003



“In 2010 one of the biggest explosions of an oil platform was caused by the failure of eight different safety systems that were meant to prevent this kind of incident. ”

–Newscientist.com 2010





Emerson has the most comprehensive range of pressure safety valves, giving you re-assurance that together we can select the right valve for the job without cutting corners.

Take an informed decision for your plant's benefit How to select the right safety partner?



Emerson has industry leading pressure and safety valve designs with over 140 years of technical and application expertise providing custom engineered solutions for Oil & Gas, Refining, Chemical, Petrochemical, Process and Power applications. Our designs meet global and local codes and standards (PED, ATEX, CU-TR, ASME, API, EN).

After Emerson acquired Pentair's complete Valves & Controls business in 2017, first class names joined like:

- Anderson Greenwood
- Crosby
- Bailey
- Kunkle
- Birkett
- Marston
- Sapag



I really hope to continue working with Emerson. The way they supported my business had real impact. It has been a pleasure and you placed yourself as company in a very high position.”
–Engineering contractor, Spain

More production centres, better service quality

Now with three soon to be four factories producing and assembling safety valves in Europe, we strengthened our supply chain, both in quality and deliveries.

In an effort to streamline orders and better meet your time imperatives, we are making the process easier than ever with remote valve inspections.

Broadest safety valve portfolio for specific needs

Emerson, a single point provider, offers the most extensive product range for reliable performances with lower valve life-cycle costs and really unique solutions.

“By adding Pentair’s Valves & Controls complete business, these highly respected products and aftermarket services, to our portfolio, Emerson is better positioned to serve the needs of our global customers.”

Chairman and Chief Executive Officer David N. Farr.

Digital transformation enables new safety valve performances

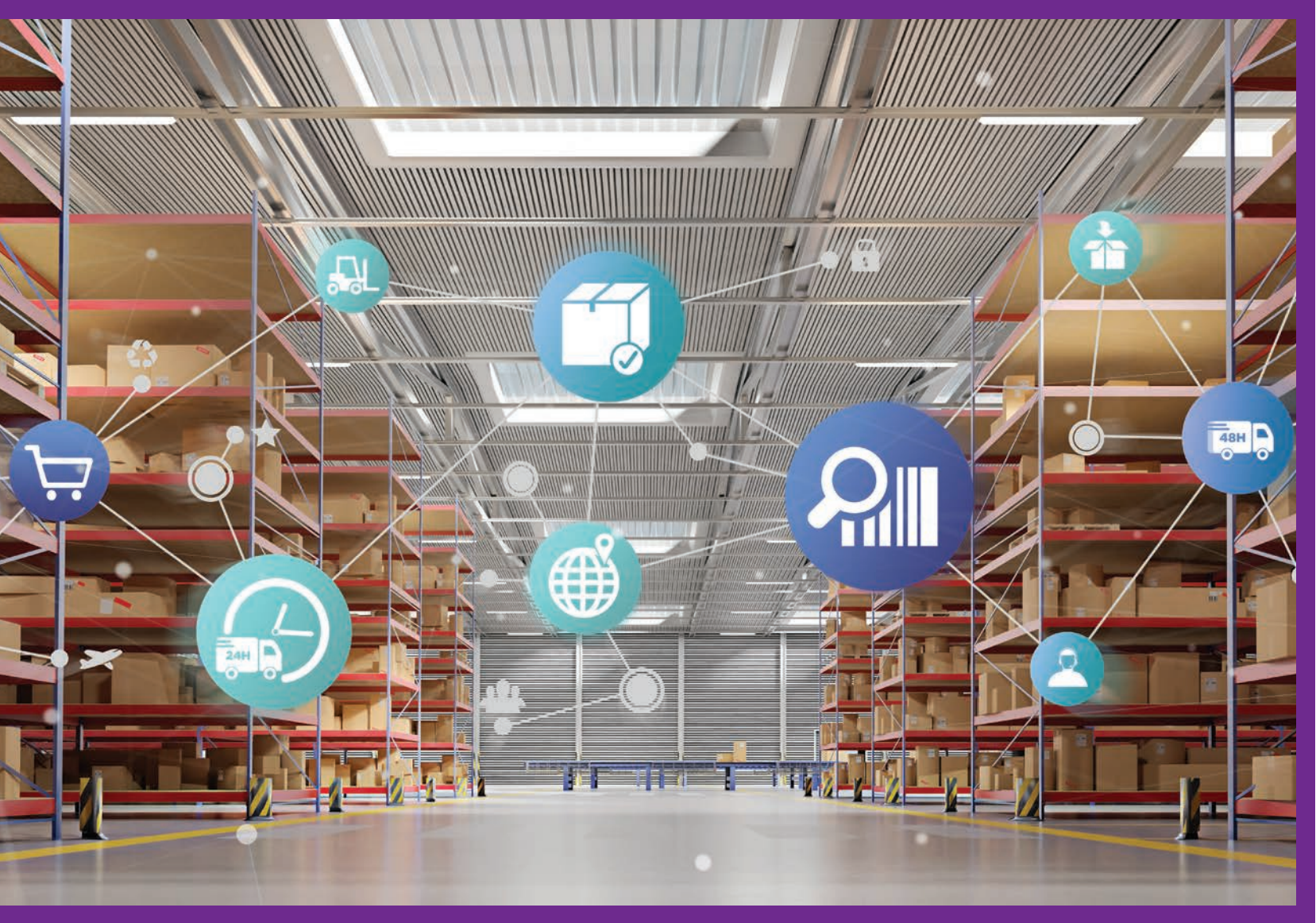
Digital Transformation enables real-time pressure relief and safety valve monitoring, Asset Management Tags and Installed Base Analytics.

Selecting the right valve, and setting a proper servicing plan with an adapted monitoring of its conditions, does help bringing lifecycle costs down, reducing unplanned shutdowns or unnecessary servicing.

New service portfolio to improve cost reduction

From repair/replace assessments and valve refurbishment, calibration and upgrades, Emerson’s broad portfolio of services includes everything required to keep your plant operating at peak performance, day in, day out.

The mobile service centres bring certified repair and on-site service capabilities for small and large maintenance activities.



Now in three European facilities manufacturing and assembling pressure safety valves, Emerson has strengthened the European supply chain

Combined with the constant focus on time efficiencies at the various stages of production and order administration, our factories have set a strong and continuous improvement trend in their requested date service level.

With our strong European bases, you can always count on us being close to you, while we are also pulling on our global resources from all around the world.



Multiple Vendors

Procurement Complexity



Project Challenges

Costs, Delays, Incompatibility



Plant Lifecycle Support

Inventory & Upgrades Management

What's your challenge?



Selecting the right valve is crucial for efficient overpressure protection. But its delivery time is equally crucial to your imperatives, being a shut-down or a new project.



What's your opportunity?

Emerson has dedicated teams focused on supplying quality products exceeding market leading delivery performance.

New European based manufacturing and assembling capabilities



The **Manchester** facility is serving safety valves customers with Crosby J series and OMNI valves in QuickShip delivery scheme, and delivering the Kunkle-Bailey safety valves for steam and cryogenic service all over Europe and beyond.



The **Armentières** site has R&D qualification capabilities, welding core competencies and a new product development centre of excellence for nuclear and severe applications, cryogenic and steam testing, and a large paint shop with Frosio capabilities.



In **Cluj-Napoca** the regulators production started in 2007, constantly adding new manufacturing capabilities, and of course new engineering graduates. It is now a world-class manufacturing facility, and has just started the production of some Crosby safety valves under PED and ASME VIII certifications.

Improved customer service & a new project management organization



The **Customer Service** handles the entire Order Fulfillment chain from customer order receipt until timely delivery at the customer's site. They also act as the first contact for a variety of customer enquiries, non-technical service functions and the distribution of those through the organization.



With the new **Project Management Organization** you have your one go-to person for project accountability. As usual at Emerson, the Europe PMO benefits from our Trained Global Resources, using standard processes and tools with proven execution methodology and improved efficiency: designed globally, executed locally.

Specific QuickShip delivery program for pressure safety valves



QuickShip Emergency provides next day to maximum 2 days delivery for a defined scope for standard constructions and associated spare parts which enables your plant to be up and running in no time, in case of any sort of emergency.



QuickShip Expedite generates on-demand fulfillment and front-of-line assembly for fast and flexible delivery based on your own lead time needs while reducing operational risk and improving responsiveness to late and unexpected changes.



QuickShip Everyday provides market-leading production and shipment services to reduce lead time on commonly-ordered parts and products, ensuring fast, convenient and reliable delivery.





Emerson offers the most extensive product range for reliable performances with really unique solutions and lower valve life-cycle costs

Emerson is indeed the industry leader in pressure safety valve technology. Our unmatched engineering and technical expertise provides you with the pressure management products, application solutions and services that will positively impact your business.

We may have a solution for your challenge that is already running in a plant in Singapore, Abu Dhabi or Santa Cruz: your local Emerson sales office and service support are backed-up by the global Emerson resources and capabilities.

What's your challenge?



Failure to comply puts operators at both legal and financial risk. Critical service valves need to be monitored for seat leakage or opening, as you can spend hours if not days in identifying a solitary leaking valve.

What's your opportunity?



Emerson has developed solutions to help you monitor closely the safety valves on your most critical equipment. Not just 'one switch on a valve' but more than 5 different solutions that we can tailor together for your applications, for your concerns, needs and budget.

Industry leading product portfolio with the most trusted brands in the market



Industries Served

Oil & Gas: Upstream Onshore & Offshore, Midstream and Downstream

Power: Conventional, Combined Cycle and Renewables

Process: Chemical, Petrochemical, Refining

Hybrid: Life Sciences, Pulp & Paper, Food & Beverage, Mining



Comprehensive Product Portfolio

- Direct spring loaded safety valves
- High and low pressure pilot operated safety valves
- Electro pneumatic safety valves
- Safety selector valves



Unique Requirements

- Engineered solutions
- Applications expertise
- Global codes and regulations
- Product sizing and selection tools including PRV²SIZE
- Total valve asset management capability

Operational efficiency with digital transformation



Safety Valve Monitoring can expedite your journey to operational efficiency. Gain insight into your safety valve performances to optimize your valve maintenance schedules and reduce operational costs while ensuring safety and maintaining regulatory compliance.



Asset Management Tags are intrinsically safe devices which use radio frequency identification (RFID) technology to enable quick, easy and complete identification of your safety valves.

Embedded technicians, workshops, and mobile service centres



Emerson can offer a fully qualified project engineer at your facilities to provide full project management and consulting expertise under an extended contract.



For offshore or on site maintenance activities, Emerson can deploy mobile workshops which are fully equipped to carry out all valve repairs, recertification and commissioning.



Emerson now offers the broadest range of safety and relief valves, manufactured in Europe, with a global supply chain



Strong European bases

With our strong European bases, you can always count on us being close to you, thus delivering global strength with local expertise.

The Safety Valves we make in our European facilities are the same than the ones we make in Houston, Shanghai or Wangara. The design of our major range of safety valves is controlled from our engineering centre in Stafford, Tx, USA.

Adapting designs

We also adapt our designs to your specific needs. For that, our European factories have their own engineering capabilities, coordinated by our design and development team based in the Armentières plant, in France.

This way we can guarantee that any valves that we deliver to you is compatible with the rest of your installed based should it be local or global.

Global resource

While you are supported by our people closest to you, you are also using seamlessly our global resources and experiences.

Combined with the resources and experiences from the other Emerson divisions, control valves, sensors, process controls, that represent an unrivaled wealth of resources and experiences you can draw upon simply through your Emerson local contact.

Manufacturing capabilities



Manchester, UK

While being our European centre of excellence for Tank Protection products, the Manchester facility is also serving safety valves customers with Crosby J series and OMNI valves in QuickShip delivery scheme, and delivering the Kunkle-Bailey safety valves for steam and cryogenic service all over Europe and beyond.



- 7300 m² workshop
- 2200 m² offices



- Pressure safety valves
Crosby
Birkett
Bailey
Marston



Armentières, France

The plant has many accreditations across multiple industries. The Armentières site has R&D qualification capabilities, welding core competencies and a new product development centre of excellence for nuclear and severe applications. Cryogenic and steam testing. Large paint shop with Frosio capabilities.



- 18000 m² workshop
- 3200 m² offices



- Pressure safety valves
Anderson Greenwood
Crosby



Cluj-Napoca, Romania

Regulators production started here in 2007, constantly adding new manufacturing capabilities, and of course new engineering graduates. It is now a world-class manufacturing facility, and has just started the production of some Crosby safety valves under PED and ASME VIII certifications.



- 6600 m² workshop



- Pressure safety valves
Crosby

Chelyabinsk, Russia

This facility started a few years ago to assemble and test Metran pressure regulators for the local Russian market. The success of this facility and the growth of our PSV demand in Russia make Chelyabinsk the natural next step for better serving our local customers. The facility will start assembling and testing the Crosby J series and OMNI safety valves very soon.



Spring loaded safety valves for all applications



Anderson Greenwood
Series 81, 83 and 81P



Crosby
Styles 900 OMNI-Trim®



Crosby
Styles JOS-E & JBS-E

Pilot operated safety valves, pop or modulating, for all services



Anderson Greenwood
Series 200



Anderson Greenwood
Series 400 and 800



Anderson Greenwood
Series 500

Safety valves for ASME I boilers, all pressures



Crosby
Style HSJ

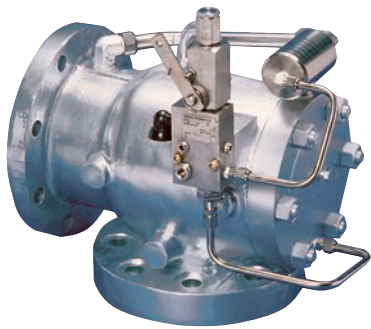


Crosby
Style HCl IsoFlex®



Crosby
Style HCA IsoFlex®

Pilot operated valves and condenser protection for extended steam applications



Anderson Greenwood
Series 727



Anderson Greenwood
Series 5200



Sapag
Series 1100

Low pressure pilot operated safety valves for superior tank protection



Anderson Greenwood
Types 9300 & 9300H



Anderson Greenwood
Type 9200



Anderson Greenwood
Type 93

Engineered pressure relief devices for complete pressure protection solutions



BlockBody Spring or Pilot
Operated Safety Valves



Anderson Greenwood
Safety Selector Valve



Marston
Bursting Discs

Project management organization

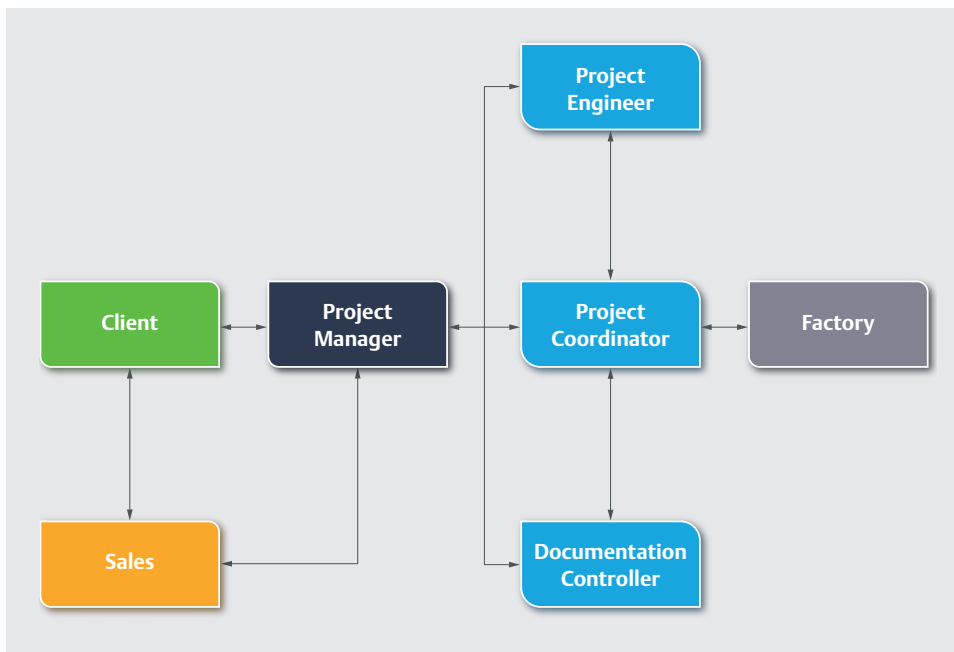
With the new organization you have your one go-to person for project accountability



Enhanced level of reliability and accountability

Following Emerson's long established and proven stage gate process, the PMO assigns and organizes teams based on the requirements for each specific project. One assigned Project Manager serves as your main point of contact, your go-to person for project accountability.

This individual will support you through the various stages of the project from the kick-off meeting up until the start-up and commissioning.



Based on the requirements the project team can include:

- **Project Engineer**
technical expertise throughout the project, sizing and selection, initial Project Schedule, and initial ITP
- **Project Coordinator**
oversees collaboration and execution on the factory side
- **Documentation Controller**
manages and facilitates documentation deliverables and approvals



Customer service

Bringing daily support to your safety inquiries

Located all across Europe

Emerson's Safety Valves Application Engineers work in the background to support your local sales offices and product specialists.

Dedicated to the 'day-to-day' business

The team of application engineers deals with:

- Technical queries
- Quotation support
- Spare parts inquiries

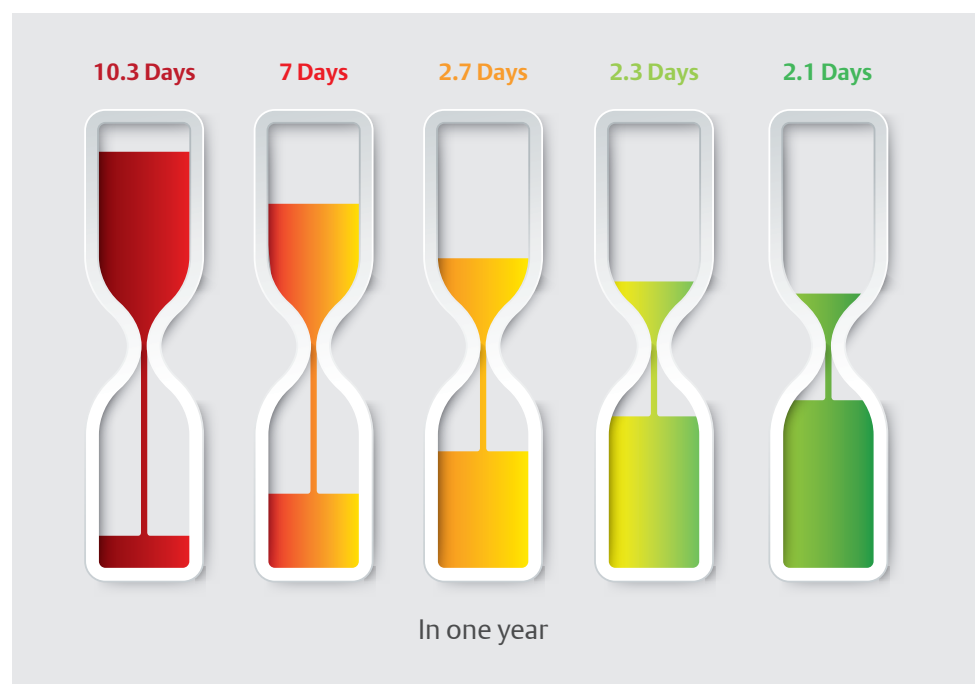


Challenges

- Compliance with regional codes and standards
- Application problems
- Technical queries
- Start up and commissioning

How it works

They have access to resources beyond those which are typically accessible to the sales office personnel. This can include: Engineering, Procurement and Operations personnel, depending upon the need and may even extend beyond the European centres of excellence to include global manufacturing resources, design headquarters and research and development centres.



Average response time

What is QuickShip and why would you need it?



Critical failure

- Which can cause plant breakdown or shutdown

During routine maintenance

- When unplanned spare parts are required due to extreme damage or where critical tolerances are exceeded

During project execution

- Last minute design modifications, or unexpected shortages could threaten completion deadlines

Emerson's QuickShip program has been designed to support both critical and expedited lead times

QuickShip Everyday



FAST

QuickShip Expedite



FASTER

QuickShip Emergency



FASTEST

QuickShip delivery program for pressure safety valves



	QuickShip Everyday	QuickShip Expedite	QuickShip Emergency
	2 Weeks	Customer Requested Lead Time	24 - 48 Hours
	Manchester Armentières Cluj-Napoca		
	<div> <div>  <div> Crosby Styles JOS-E & JBS-E </div> </div> <div>  <div> Crosby Styles 900 OMNI-Trim® </div> </div> </div>		



Digital transformation of PSV's installed base

Increase operational efficiency with wireless pressure safety valve monitoring



Why do you need PSV Monitoring?

- Regulatory Compliance
- Safety
- Reliability
- Cost Reduction

Real-time information enables you to:

- Proactively develop proper corrective actions
- Optimize maintenance schedules
- Improve asset management while ensuring regulatory compliance

Emerson has monitoring solutions for any PSV application



All PSV Non-Intrusive

Rosemount™ 708 Wireless
Acoustic Transmitter

- Event Timestamp
and Duration
- Leakage Detection

Direct Spring PSV

Fisher™ 4320 Wireless
Position Monitor

- Event Timestamp
and Duration
- Volumetric Release

Pilot-Operated PSV

Rosemount 2051/3051
Wireless DP Transmitter

- Event Timestamp
and Duration
- Volumetric Release

Connectivity and User Interface

WirelessHart® Interface

- Modbus® RTU/TCP, OPC
and EtherNet/IP™
- DeltaV™, AMS™,
Plantweb™ Insight and
More

Simplify pressure safety valve monitoring and event detection

See

Devices provide data foundation



MONITORING

Temperature



Acoustic Level



Decide



PLANTWEB
insight

Analytics transform data into actionable information for intelligent decision making



- PSV event detection (releases)
- Excess emissions
- Lost production costs

Act

Preventive and proactive actions can be taken



Repair/replace pressure safety valves



Recoup production losses



Simplify regulatory compliance



Reduce fugitive emission fines

Intuitive interface allows instant identification and diagnosis

Dashboard



- Aggregated view into all assets
- Quickly identify number of releases and duration
- Recognize business impact with loss to production calculation

Asset summary

- Tabular summary of every asset
- Searchable and sortable for quick identification / prioritization
- Exportable for custom reports

Asset details



- Information pertaining to location, process details
- Basic device information (battery status) to ensure reliable data
- Specific PSV history and graph

Event log collects relevant information to simplify regulatory compliance

Event Log

Regulatory Reporting



- Summary of releases and events
- Exportable for custom reports
- Ability to insert Inspection ID, date, and explanation

Pre-built



- Easily deployed via a virtual machine
- Access from multiple web browsers
- Quick start up and configuration
- Integrate with existing wireless infrastructure

Scalable



- Steam traps, safety showers, pumps, heat exchangers, and more
- Integration with OSIsoft PI System™ and other data historians
- Deploy in small, large or enterprise-wide operations



Visit Emerson.com

Digital transformation of PSV's installed base

Discover a valve's identity with one scan



Why do you need asset management tagging?

Efficiency

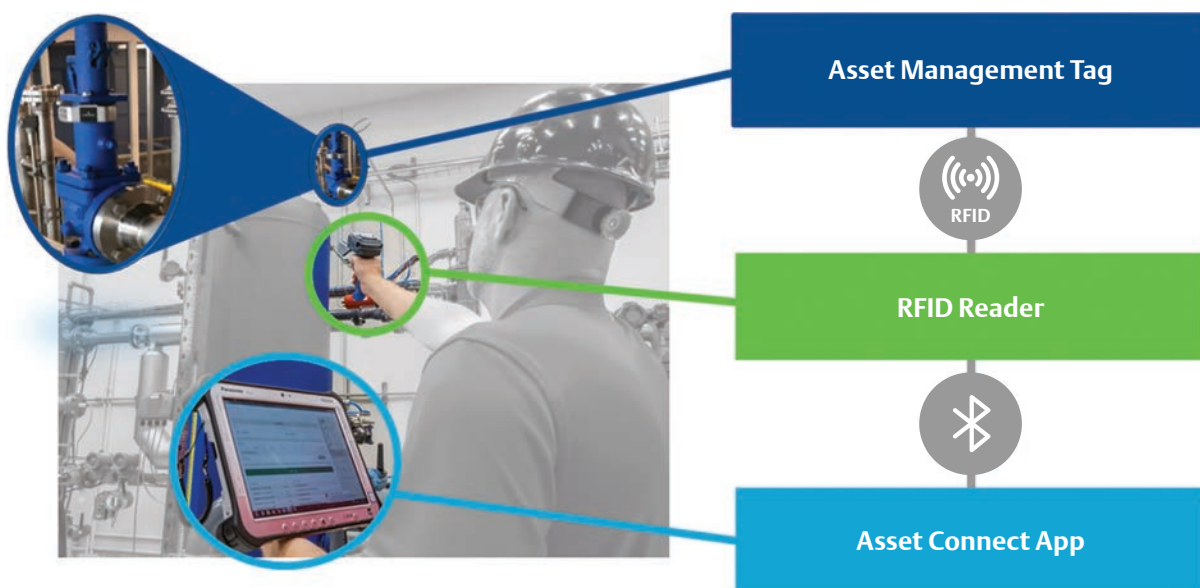
- Safer, faster, and more accurate asset information gathering
- Reduce costly data entry with pen and paper, which is time consuming and error prone

Proactive Maintenance

- Service records immediately accessible
- Accurately enables a more proactive maintenance and plant management approach through asset data review

Safety

- Safe distance scanning
- Access repair and certification notes in real-time
- Avoid time-consuming of locating or scraping nameplates to uncover asset information



Lifecycle Services

Next level of valve maintenance

What level of agreement would serve you best?

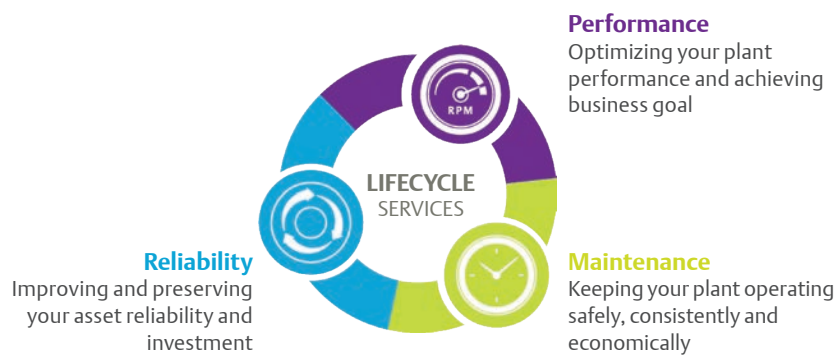
From simple PSV testing to complete management of valves' maintenance, you have the flexibility to decide how involved Emerson is in your maintenance, reliability and safety strategy.

Emerson Lifecycle Services

- Walkdowns
- Valves overhauling and testing
- Mobile Service Centers
- Spare parts management
- Start up and Commissioning
- Valve data management and compliance
- Obsolescence review
- Long Term Service agreement
- Educational services



Experience the benefit of Emerson Lifecycle Services



- Extend life of your valves
- Optimize maintenance intervals reducing unnecessary interventions
- Keep under control maintenance needs and mandatory deadlines
- Ensure onsite assistance for ordinary and extraordinary maintenance
- Maintain digital records of all service interventions
- Efficiently plan your STOs
- Wisely plan spare parts purchases
- Reduce maintenance costs



- Tailor made maintenance programs
- Efficient spare parts delivery
- 'Bad actors' identification for timely intervention and down time reduction
- On site presence of skilled personnel and hi-tech equipment
- Digital support and tracking of all activities with dedicated apps and software

Reduce unwanted downtime and unplanned outages, including extending the operational life of the valve asset



Preventive Maintenance

- Effective planning & scheduling of all the routine and non-routine maintenance
- Valve asset management database assesses historical valve data and performance to improve reliability and avoid valve failure
- Ensures valves are maintained to correct standards and procedures

Predictive Maintenance

- Emerson valve asset management database (eDge) provides electronic risk based Inspection on pressure safety valve products in order to extend maintenance periodicity in compliance with local regulations
- Utilizing historical data and tests results to assess performance
- Availability of predictive spares through spares look aheads
- Valve diagnostics & connective services allow to define predictive maintenance programs

Embedded Engineer

Emerson can offer a fully qualified project engineer at a customer's site to provide full project management and consulting expertise under an extended contract.

Mobile Service Centre

Fully equipped mobile workshops provide an efficient and effective solution to valve full test and overhaul on site eliminating the need for costly transportation for all type of valves (including tank breathers) of any manufacturer.



Expertise

OEM trained technicians to original equipment standards.

Quality

Valves overhauled and tested in accordance with relevant standards and procedures with top quality equipment.

On Site Capability

Mobile service centres deployed at customer site eliminate need to move valves off site for repair.

Uptime

Get more of your systems by increasing efficiency, maximizing uptime, and reducing risk.



Contact your local sales office

Product specialists will assist you

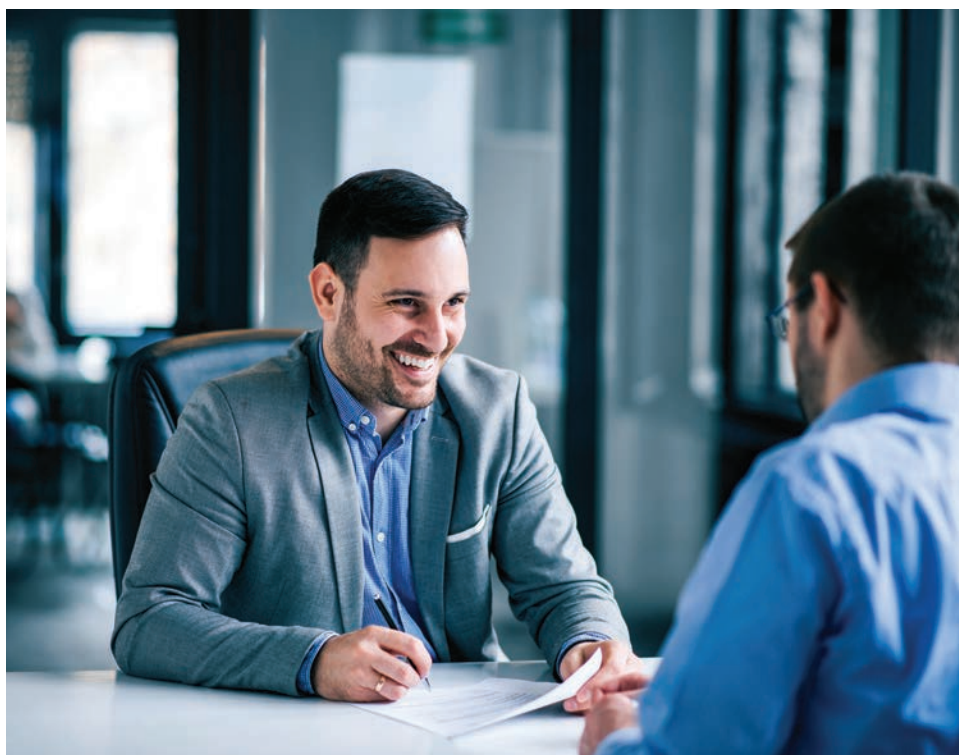
With the largest network of sales offices in Europe, you can rely on a local Emerson team with product specialists to support your business. In some countries, Emerson has established long term relationships with the most experienced local partners.

Global network

This dense sales network around Europe is supported by dedicated teams of:

- customer support
- application engineers and project managers

They can tap into the large resources of products and application experts, product engineers from Emerson's global network.



My deepest gratitude to you for supporting our company's efforts to restore its plants.

We received the needed critical materials and products within a vastly shortened timeframe, allowing us to deliver shipments in record time.

This helped to accelerate facility restoration efforts and stay on schedule for a return to full operation.

Again, we want to simply say 'thank you' for your great work and dedication.



The right Safety Partner bringing you the solutions that you require, when you need them.



Now with Emerson you can have the right Safety Partner to help you operate safely and reliably, and optimise your plant performances.

Emerson Automation Solutions

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CONSIDER IT SOLVED.™