THE STRONGEST LINK.

STAHL
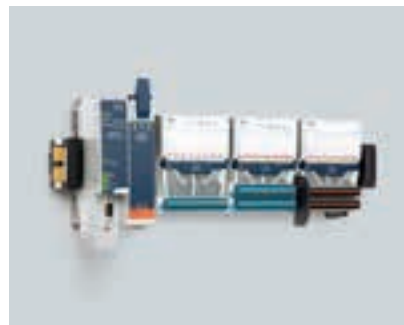
LIFE SCIENCE

Products and systems for hazardous locations
in North America

INNOVATIVE PRODUCTS FOR SAFE PROCESS FLOWS

Ever tougher competition in the international market calls for constant innovations in new active agents, while permanently optimizing existing processes. Increasing production process requirements by regulatory bodies present many enterprises with further challenges. In this environment you need a partner who understands your requirements. R. STAHL is your competent and reliable partner. We ensure that you produce high quality products while optimizing production costs – without compromising on safety.

No matter whether your active agents are produced chemically or biotechnologically, your

processes are conducted in special pharmaceutical conditions like cleanrooms, or machinery and systems are subject to stringent safety requirements – as a leading supplier of explosion-protected products and systems, we satisfy the special demands of the pharmaceutical industry.

We have worked with well-known pharmaceutical companies worldwide for many years. Our installation material and enclosures fulfil hygiene requirements according to GMP and may be installed in cleanrooms. In order to afford the best possible quality, we adhere to cGMP guidelines in automation projects and also offer FAT or SAT.

Implementation of requirements according to FDA 21 CFR Part 11 in the area of operation and monitoring systems completes our service portfolio.

International approvals, certificates and a host of patents underscore R. STAHL's expertise. Internationally approved, our products are NEC, CEC, ATEX and IECEx certified for Class I,II, III, Div 1 and Div 2 as well as Zone 1, 2, 21 and 22. Allowing installation, virtually, any part of the world.

RISKS? – ASK YOUR EX-EXPERT

Economic pressures have increased our customers' requirements for time-, space and money-saving solutions. R. STAHL therefore not only offers individual products – but also turnkey systems that guarantee smooth and safe process flows. You can rely on our long-standing explosion-protection expertise. Thanks to our active participation in codes and standards committees, you obtain competent advice on all current and future explosion protection issues.

Users in the pharmaceutical industry around the globe trust in R. STAHL's innovative, flexible solutions. The IS1+ Remote I/O system is the perfect interface solution for your system – upgraded or new. Both incorporation in your network structures via explosion-protected Ethernet and space-saving integration of intrinsically safe valve islands in the Remote I/O system are possible.

Unique in the world, our operating and monitoring system portfolio offers a wealth of options. Different screen sizes with touchscreen or linking as KVM, Thin Client or Panel PC permit extensive applications. Wireless communication solutions are also featured in our range.

Fully customizable control stations in AISI316L stainless steel enclosures or upon request in electro polsih are the perfect addition to a wash-down process area.

All set-up requirements of your system can be easily implemented with our wide range of certified installation material, safety switches and stainless steel enclosures.

Combination of remote I/O with fieldbus

- Integration of weighing systems and solenoid valve islands
- Use of IS1+ with PROFIBUS DP for all discrete I/O signals
- Foundation Fieldbus H1 with R. STAHL Ex i field device couplers on the high-power trunk

Virtual networks with RDP/VNC communication

- Thin Client with remote HMI firmware
- Closed system, extremely high security level
- Requirements according to cGMP and FDA 21 CFR Part 11
- Suitable for worldwide installation
- Cleanroom solution according GMP

YOU CAN RELY 100% ON OUR PRODUCTS AND SYSTEMS

R. STAHL offers a comprehensive product portfolio for both hazardous areas and industrial applications. You can also benefit from this diversity in your facility.
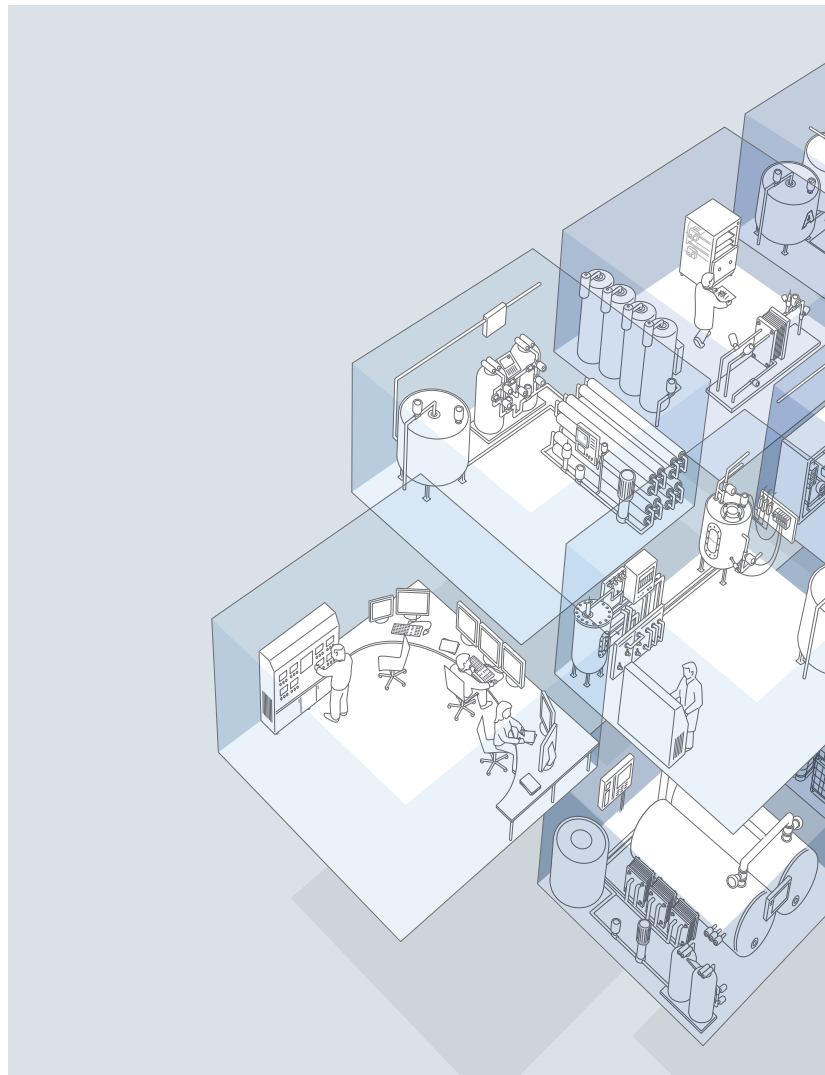
For more information visit **r-stahl.com/pharma**

Safety switches and load disconnect switches

Human Machine Interface systems
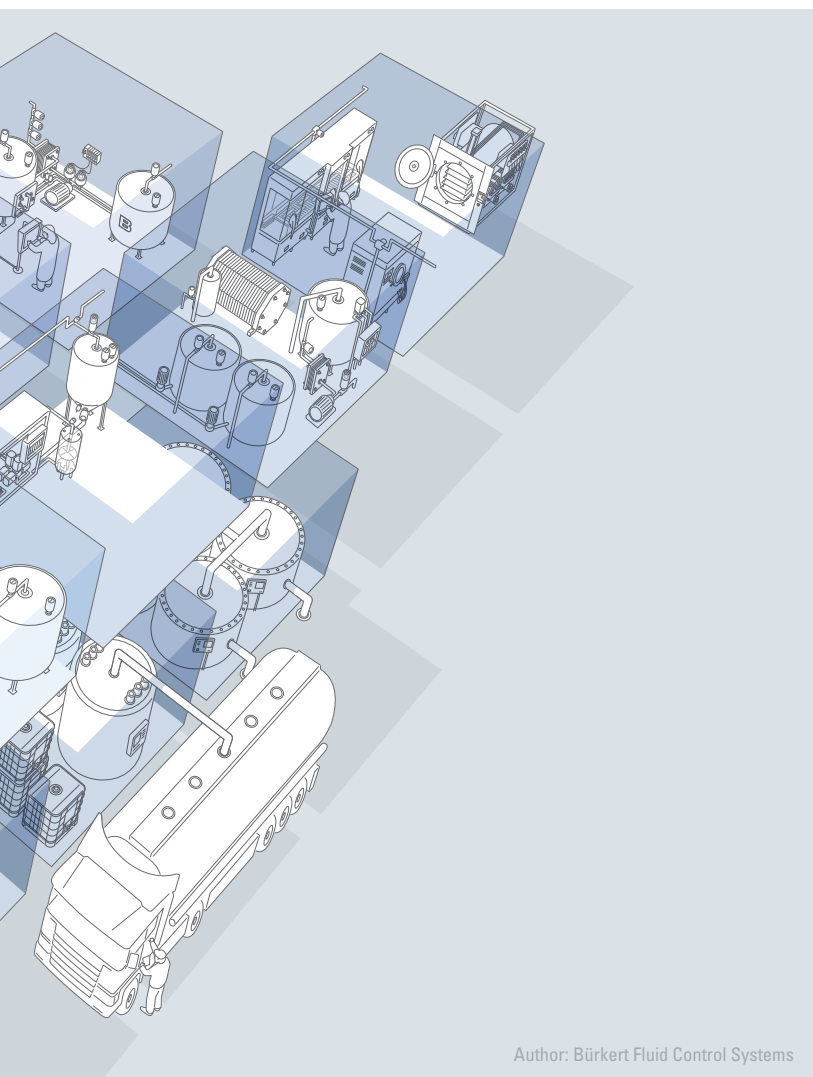
Clean room switched receptacle assemblies

Control boxes

Camera systems

IS1+ Remote IO Cl I, II, Div 2

IS1+ Remote IO Cl,I, Div 1

Purged Systems

Systems & Solutions

Author: Bürkert Fluid Control Systems

Terminal boxes

Control and monitoring devices

R. STAHL QUALITY
IN WORLDWIDE USE

WE OFFER CUSTOMIZED SOLUTIONS FOR VIRTUALLY EVERY TASK AROUND THE GLOBE.

REDUCED INSTALLATION EFFORT

- Remote I/O with integrated solenoid valve islands
- Hot-swap of all modules in Division 1 permissible
- Link to Allen Bradley PLC via EtherNet/IP
- Control cabinet assembly by local partners or R. STAHL Inc, in Houston, TX
- Substantial saving by eliminating conduit cabling through use of the Remote I/O system in Class 1 Div 1

MODERNIZATION OF AN ISOLATOR INSTALLATION IN A DCS UPDATE

- Replacement of an outdated isolator increasing available panel space
- Design of a modern remote I/O solution for control station integration
- At the same time an average of 50% space and cost saving compared to the conventional solution
- Up to 960 digital I/O and 480 analog signals in one control cabinet

REMOTE I/O IN VARIOUS PROCESS AREAS

- Application in reactor sector, solvent recovery and tank farm of a leading supplier of generic active agents (APIs)
- All discrete signals are transmitted via Remote I/O and redundant Profibus DP
- All other signals via fieldbus FF H1 with Ex i field device couplers and redundant fieldbus power supplies
- Integration in Rockwell automation system
- Installations in Zones 1 and 2

CONVERSION TO DIGITAL COMMUNICATION

- Compact Remote I/O system with integrated valve islands
- Extensive diagnosis functions help during process optimisation
- Flexible standard design, optimized for use in both Class I, Division 1 & Class I, Division 2 areas Zone 2 and Zone 1
- Integration in Emerson DeltaV automation system via Profibus DP

NORTH AMERICA: VIRTUALIZATION PROJECT ON CHEMICAL PLANT

- 24" Class I, Div. 1 HMI certified system with built in Y-purge
- Remote HMI Firmware
- Panel PC ET-477 with 3rd party SCADA software on windows 10 LTSB and KVM options available
- Clean room enclosure available upon request
- Wash down compatible

HMI OPERATOR CONTROL AT API MANUFACTURER

- Complete HMI portfolio for all hazardous areas
- For cleanrooms, sugar-coating, centrifuges and formulation processes
- Panel PC ET-436 with 3rd-party SCADA software and printing option
- Customized machine control via 7" widescreen
- 24" widescreens as real KVM system (audit trail, CFR21)

INTRINSICALLY SAFE ISOLATED BARRIERS INSTALLATION

- Point-to-point installation with high density dual channel devices
- SIL 2/3 available for typical applications
- Specialty isolator available for signal splitting, frequency convertors and trip values.
- More than 100 different barrier options available.

CLEAN ROOM SWITCHED RECEPTACLE ASSEMBLIES

- Solution made of electropolished stainless steel (1.4404) for use in cleanrooms, co-developed together with the customer
- Flange mounted enclosure for precision-fit wall installation
- Enclosure with mounting rail for rear wall fastening on tiled walls
- Switch with large handle and auxiliary contact for control and monitoring purposes

MODERN AUTOMATION SOLUTIONS PROTECT AGAINST DOWNTIME

Our explosion-protected high quality automation products are ideally suited to the special requirements in the pharmaceutical industry. After all, production should respond flexibly to market demands in terms of quantity and product type. These aspirations are our motivation for constant innovation.

Constant innovation with our Remote I/O system ensures a high level of flexibility when converting or expanding systems, while at the same time it saves planning and installation costs – by as much as 40% compared to conventional solutions. Thanks to high product quality and life span, the system has been deployed worldwide for many years, for instance in one of the largest production plants for inhalable insulin.
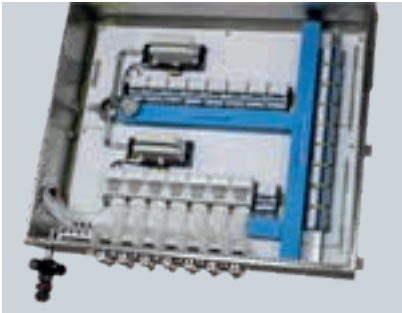
EtherNet/IP

PROFINET

PROFIBUS

Modbus TCP + RTU

HART
COMMUNICATION PROTOCOL

IS1+ REMOTE IO FOR CLASS I, DIV. 1 WITH INTRINSIC SAFETY AND PNEUMATICS OUTPUTS

Our Remote IO System is standard in many pharmaceutical plants. Conversions or expansions are possible during operations in Cl I, Div. 1 and permit easy adaptation to the relevant requirements. IS1+ can communicate with virtually every control system via Ethernet protocols. The comprehensive diagnostics functions are ideally adapted to moder production processes.

INTEGRATED SOLENOID VALVE ISLAND FOR IS1+

The eight-channel module for Cl I, Div 1 brings pneumatics into the Remote I/O system. The module in the IS1+ system can be integrated like any other I/O module without additional expenditure on planning, installation or enclosures. Compared to conventional solutions like external solenoid valves or valve island our integrated valves are up to 20% more cost effective.

IS1+ REMOTE IO CLASS I, II DIV 2 FOR HAZARDOUS LOCATION RATED FIELD DEVICES BOTH INTRINSICALLY SAFE AND NON INTRINSICALLY SAFE

Fully availability and reliability can be achieve by redundancy power and communication modules. This is the standard on IS1+ Class I, II Div 2 and Zone 2 Solution. The flexibility of mixing IO modules with different protection methods for the instruments increase the usability of the system and makes it a universal hub for the instrument signals.

WIFI AT FIELD LEVEL

Wireless communication is becoming more reliable and more available and it is a great solution when additional wires are not possible. Our wireless solution housing allows you to use an industrial type radio in a Class I, II, Div 1 installation.

KEEP EVERYTHING UNDER CONTROL WITH OUR OPERATING AND MONITORING SOLUTIONS

R. STAHL offers you an extensive portfolio of operating and monitoring solutions for Class CI I,II Div 1 and 2 as well as Zone 1 and 2 location. With products ranging from Thin Clients for virtual networks, KVM systems for point-to-point solutions or operator interfaces for machine operation.

The products are also particularly suitable for the special demands of the pharmaceutical industry (e.g. ergonomics, surface quality, cleanroom compliance). Depending on your requirements, choose between various screen and keyboard sizes with various operating options like touchscreen, trackball or joystick. The front frames of the displays are made of stainless steel or anodized aluminium. Special protective glass panels provide a clear view on the bright displays. The rugged devices can be built into control cabinets or erected on pedestals.

Movicon

Win 10 IoT LTSB

THINMANAGER

CODESYS WebVisu

THIN CLIENTS FOR MODERN NETWORK SOLUTIONS
SUCH AS ABB, EMERSON, SIEMENS AND HONEYWELL

Thin Clients have been designed to address the challenges in the process industry. They seamlessly communicate with PC workstations, virtual servers / workstations as well as with cloud-based systems.

Thin Clients in the field provide most diverse access options to most different systems from any terminal – using single redundant Ethernet, or WiFi over RDP, RealVNC®, Citrix, or Emerson DRDC.

Our Thin Client comes pre-configured with the latest Remote HMI Firmware to provide an integrated security solution from the control center to the Thin Client in the field, ensuring the highest level of system security. They stand out for their high level of compatibility to all DCS systems, such from ABB, Emerson, Siemens, Honeywell, …

The operator stations are optionally available as Panel PC with Windows 10 LTSB for 3rd party SCADA systems and as KVM solutions.

QUICK-RESPONSE OPERATOR INTERFACE
FOR MACHINE OPERATION

The operator interface offers integrated plug-and-play visualization based on Windows Embedded Compact 7 and optionally the Movicon CE Runtime or Codesys WebVisu Runtime. It has a 7" widescreen touch display behind a front of hardened glass, IP69 degree of protection and thus satisfies GMP requirements. It reacts with extreme speed, and with Movicon CE Runtime, applications according to cGMP and FDA 21 CFR 21 Part 11 can be implemented.

IDEAL FOR SIGHT GLASS MONITORING

The compact EC-910 AFZ camera with 3x/10x zoom combines state-of-the-art functions such as full HD, day/night mode, Wide Dynamic Range and backlight compensation, making it ideally suited for sight glass monitoring. The 90° viewing angle and an adaptive sight glass mount provide excellent images of the process inside the batch reactor. Based on AISI 316L with IP66, IP67, IP68, IP69, and deployable in temperature ranges from -40 F to +149 F, it is certified for Zone 1, 2, 21, 22 / Class I Divison 2 according to ATEX, IECEx, NEC/CEC.

NETWORK SYSTEMS ENSURE FUTURE-PROOF CONCEPTS

Networking is a key issue for modern plants in the pharmaceutical industry. It is the only way to efficiently implement requirements for modular automation and linkage to the 'Industrial Internet of Things'. Productive use of Big Data with integration into plant asset management systems plays a crucial role in optimizing processes.

R. STAHL offers you modern, explosion-protected solutions for incorporating your plant and network structure – for example for the deployment of 'mobile workers' via wireless communication solutions with WLAN access points and tablets or smartphones (suitable for use in Class I, Division 1, Class I, Division 2, Zone 1 or 2).

UNMANAGED SWITCH

The 9721 switch is used for linking electrical Ethernet networks with optical 100 Mbit/s Ethernet networks. The 4 FO ports are designed for operation in the hazardous areas with the "op is" type of protection. This way, conventional fibre optic cables can also be used in hazardous areas and may be connected and disconnected during operation (hot-swap).

- Transmission rate 100 Mbit/s.
- Transmission range up to 5 km (multi- mode). or up to 30 km (single mode).
- Extended temperature range -22 F … +158 F.
- Suitable for installation in Class I, Division 2, or Zone 2.

REMOTE I/O WITH ETHERNET CONNECTIVITY

Process automation meets Ethernet – with IS1+, the first explosion-protected remote I/O. The fast 100 Mbits/s interface with interference-immune FO technology ensures a stable and reliable link to common Modbus TCP, EtherNet/IP, PROFINET and FF HSE protocols.

WIRELESS LAN/WIFI

Rugged and efficient WIFI access points for hazardous locations form the reliable infrastructure for mobile use of data and monitoring of production processes. Flexible explosion protection concepts allow you to use the industrial WIFI access points of your choice.

HFISOLATOR 9730

The HFisolator 9730 series from R. STAHL, which can easily be switched between a wireless device and an antenna and vice-versa, converts the radio signal into an intrinsically safe signal. R. STAHL offers two versions of this device, as a simple signal converter and coax bushing.

- Use the entire antenna spectrum.
- Additional frequency range.
- Temperature range : -40 F … +176 F.

MACHINERY AND EQUIPMENT MANUFACTURERS RELY ON US

Picture source:
A. Junghans GmbH & Co. KG

Machinery and plants in the pharmaceutical industry are subject to stringent safety requirements. In order to comply with these special standards, machinery and equipment manufacturers turn to R. STAHL for long-serving, virtually maintenance-free solutions. In close cooperation with our customers, we have thus designed and built various explosion protection solutions for laboratory dryers, centrifuge systems, inline dispersing machines and mobile filtration systems. Depending on requirements and fringe conditions, various types of protection are used, for instance purge & pressurization 'Ex p' to permit deployment of standard industrial controls in hazardous areas.

STANDARD ENCLOSURE

Our extensive range of ex-stock enclosures made from sheet steel, stainless steel and non-metallic guarantee short delivery times and flexible solutions. Our modular systems make extensions and modifications easy. Standard enclosures in stainless steel 1.4301 (AISI 304) or 1.4404 (AISI 316L) are available in 54 different sizes, with cover screws or hinges.

CONTROL BOXES, CONTROL AND MONITORING DEVICES

Control boxes are used for the operation and monitoring of many different electrical and switching circuits, machinery and system parts.
R. STAHL offers a varied selection of control and monitoring devices to enhance safe on-site handling of production plants and machinery. Customers can also choose from a wide range of installation devices.

ISOLATED BARRIERS

The ISpac Ex i isolator is a proven solution for intrinsically safe signal separation and additionally provides SIL rating to the loop, if required. The unique concept focuses on compactness, long service life and easy installation.

PURGED SYSTEMS

We turn your industrial applications into explosion-protected control systems without impairing their functions, so you benefit from a proven and affordable solution for all machine control systems and other electrical units. Internationally accepted certificates (ATEX, NEC, CEC, IECEx) aids to worldwide use.

R. STAHL CUSTOMERS BENEFIT FROM OUR EXPERIENCE

The pharmaceutical and chemical industry
is one of R. STAHL's major customers.
Our expertise and efficiency in equipping plants has
been proven worldwide.

3M

ABBOTT LABORATORIES

ALCALIBER

BASF SE

BAYER AG

BAXTER

BIOCON LTD

BOEHRINGER INGELHEIM

BRISTOL-MYERS SQUIBB COMPANY

BUNGE

CARGILL

CIPLA LTD

CLARIANT AG

DR REDDY'S LABORATORIES LTD

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MSD MERCK & CO., INC

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PFIZER INC

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ROCHE

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SANOFI

SOLVAY

SUN PHARMACEUTICAL INDUSTRIES LTD

TAKEDA PHARMACEUTICAL CO., LTD

TEVA PHARMACEUTICAL INDUSTRIES LTD

THERAPURE BIOPHARMA INC.

UCB