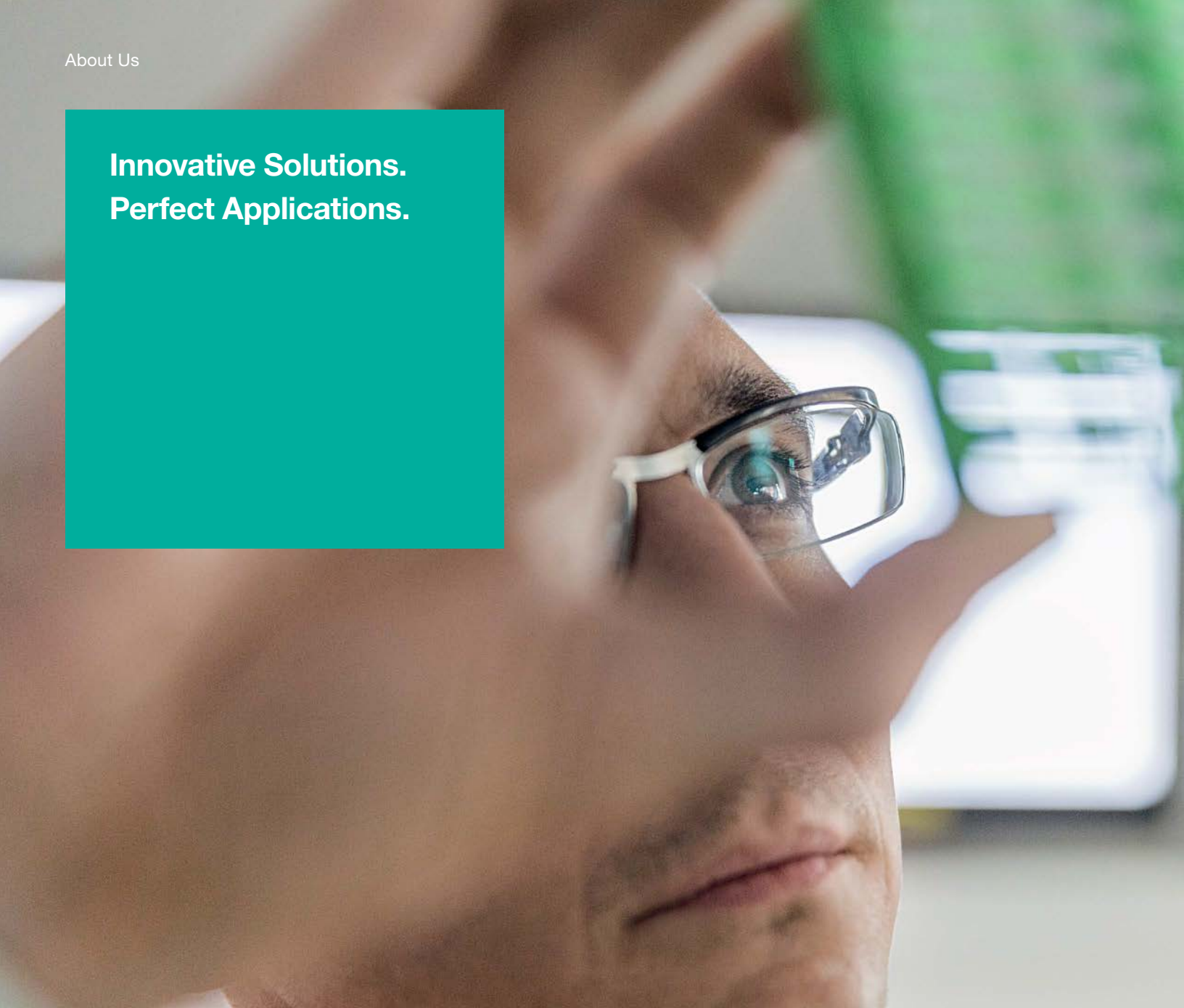# Trusting in experience.
Relying on expertise.
Focusing on solutions.

Bebco EPS® Purge and Pressurization
Product Overview

Your automation, our passion.

PEPPERL+FUCHS

Innovative Solutions.
Perfect Applications.

As a leader in industrial sensor technology and a pioneer in electrical explosion protection, Pepperl+Fuchs has been developing components and solutions for over 70 years. Above all, our goal is to offer the perfect solutions for our customers' applications. This is only possible with close collaboration. Not only do we share our passion for automation with customers—we also share our in-depth expertise and experience.

Forging ahead with new ideas and finding new approaches is what drives us. This is the foundation for technologically advanced solutions that are tailored to individual applications and geared toward future requirements. Creating customer-focused solutions to meet today's and tomorrow's challenges is at the center of everything we do. Our innovation—your competitive advantage.

For more information, visit us online:
www.pepperl-fuchs.com

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Bebco EPS® Purge and Pressurization: Purging Technology from the Most Recognized Brand in the Industry

Known around the world for excellence, Pepperl+Fuchs Bebco EPS® is the benchmark in purge and pressurization equipment. Our reputation as the global leader in purging technology and hazardous-area protection is unrivalled. With experience that spans decades, nobody knows more about purge and pressurization than we do. And we have the products to prove it!

Unmatched Products and Reputation

As The Leaders in Purging Technology®, Pepperl+Fuchs engineers have expanded and enhanced our product lines with cutting-edge systems that bring purge and pressurization into the 21st century. Keeping ideas simple and user-friendly, they incorporate the best elements of our previous systems and add features that were requested by our customers Internationally approved for use anywhere in the world, the Bebco EPS portfolio provides reliable safety for Division and Zone applications with a full range of Type X, Y, Z, Ex pxb, Ex pyb, and Ex pzc systems.

Custom Solutions Made Easy

Hazardous locations call for increasingly demanding solutions. That is why Pepperl+Fuchs offers support beyond the standard product portfolio. Our global Solution Engineering Centers (SECs) offer customers a full-service supplier of custom solutions to get your application up and running with a wide range of industry-recognized certifications, saving you time and money. Our capabilities include:

- ATEX- and IECEx-rated solutions
- ISO 9001 certified
- UL certified panel manufacturer
- Industrial controls UL-508A and NNNY
- Control panels and assemblies for use in NNNY hazardous locations
- CSA certified manufacturer

Unmatched Service and Support

Nobody knows a product better than the one who builds it. While many suppliers offer purge and pressurization systems, not all provide global service and support after the sale anywhere in the world. At Pepperl+Fuchs, we are committed to working together with you as a partner. We understand the demands of your markets, and we know how to develop reliable solutions that easily integrate into your applications and get your process up and running throughout your entire manufacturing process.

Industries

- Oil and gas
- Pharmaceutical
- Chemical/petrochemical
- Power
- Pulp and paper
- Grain

5

Purge and Pressurization:
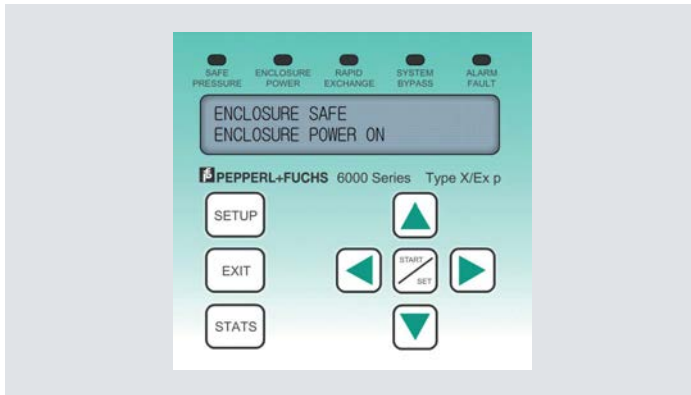# Simple and Reliable Protection for Today's Global Automation Market

Various protection methods can be used when placing equipment into hazardous locations, but none match the versatility, reliability, and efficiency of purge and pressurization. With its straightforward method of protection, purge and pressurization delivers a truly simple and cost-effective solution for using general-purpose equipment in hazardous locations.

Purge and Pressurization Protection

Unlike containment or prevention, purge and pressurization separates general-purpose equipment from the surrounding hazardous atmosphere by placing it inside a common, lightweight enclosure. This enclosure is then purged with industrial-grade air, or an inert gas, and maintained at a pressure higher than the dangerous external atmosphere, preventing the flammable mixture from coming in contact with the internal components.

System Components—
Performance in Every Detail

Control Unit

The control unit is the main component in a purge and pressurization system. Available as either an internal or external mounted component, the control unit provides the essential functions to operate the purge and pressurization of the enclosure. The Bebco EPS portfolio includes fully automatic and manual systems.

Vent

The vent functions as a simple pressure-relief device that allows gas to exit the enclosure during a purge cycle and provides a seal when the enclosure is pressurized. Our vent is gravity controlled and works based on the mechanical movement of springs in response to flow rate pressure. We offer the only vent in the industry that digitally monitors the flow rate and pressures and uses these values to automatically calculate the purge time.

Valve/Manifold

A valve or manifold controls the flow of air or protective gas to the enclosure. An automatic system allows the use of a manifold to control purging flow, pressurization flow, and cooling flow and can compensate for pressure loss flow.

Enclosure

The enclosure is simply the container that houses the equipment in which purging and pressurization takes place. Enclosure volumes are possible up to 450 ft^3. You can choose to have a single enclosure or multiple enclosures for your system with interconnecting pipe or wire way. A typical enclosure consists of the following:

- Alarm, indicator, or cut-off switch
- Protective gas supply from enclosure pressurizing system
- Optional pressure-relief device

Proven Protection Meets Modern Technology

Pepperl+Fuchs purge and pressurization technology brings more than simplicity to your process facility. It takes hazardous area protection to a new level of innovation and confidence. The technology in our systems not only provides purge and pressurization; it also continuously monitors the conditions in the enclosure, makes automatic adjustments, and provides output alarms for reliable protection. No other protection method can do this.
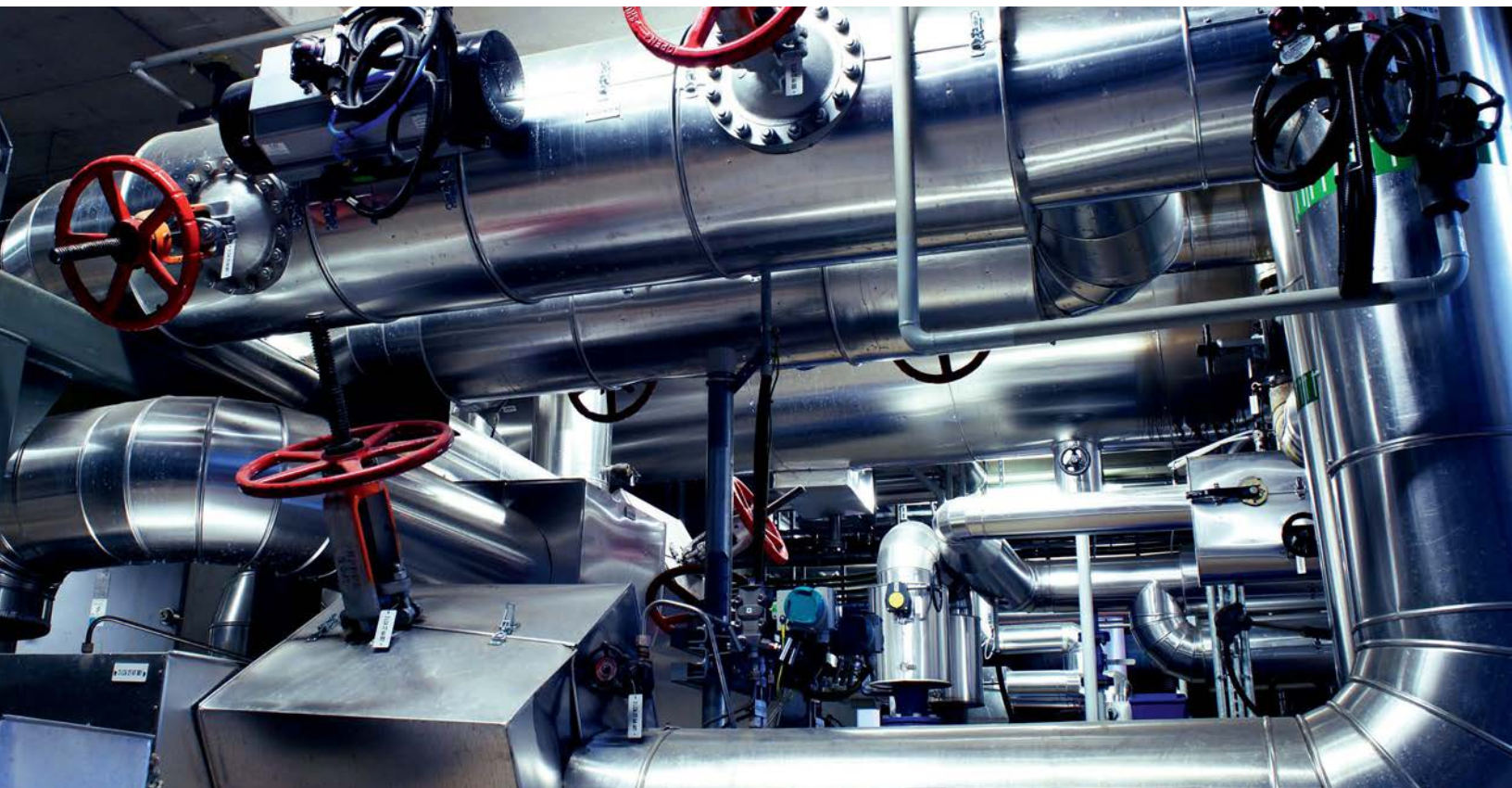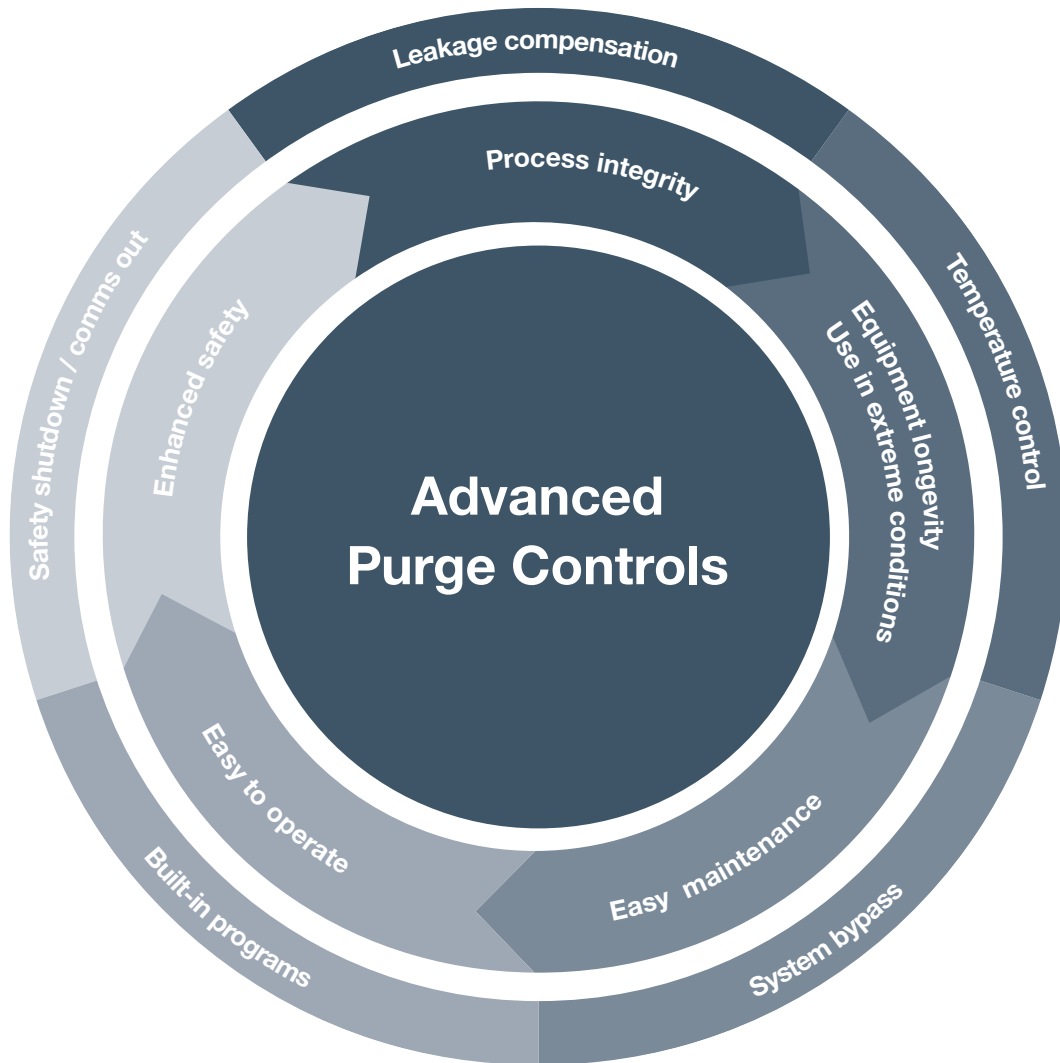
Unrivalled Versatility

The purge system is easily integrated, internally or externally, into an enclosure suitable for purging and pressurization. Because a heavy, explosion-proof enclosure is not required, purge and pressurization saves money, weight, and space over traditional explosion-proof methods and provides greater design flexibility. Enclosures can be made of stainless steel, aluminum, or cast iron. They can be designed in any shape for your specific requirements, with a footprint up to 450 ft^3, and if required, one purge and pressurization system can purge multiple enclosures in series.

Intelligent Programming

With advanced programming options for switch inputs, temperature modules, enclosure power contacts, auxiliary outputs, and various operational functions, our solutions offer simple access to essential control and monitoring—day or night, 24/7. System outputs can provide different alarm signals as preventive error messages and can be programmed to automatically perform a variety of functions, including:

- Automatic pressurization for leakage compensation
- Automatic temperature control (output signal for heater, cooler, or external A/C unit)
- Automatic power shut-off and alarm to the enclosure in the event pressure drifts beyond min/max pressure settings

Continuous Status Information

Analog pressure gauges are a thing of the past with these units. All information on flow, pressure, and status of the system is displayed on the LCD screen. With continuous system status indication, it's easy to monitor the system, identify any issues, and quickly make adjustments. Newer systems offer Bluetooth® and RS-485 with PACTware for remote monitoring.

Increased Equipment Longevity

An additional benefit of purge and pressurization is the ability to eliminate problems with equipment inside the enclosure due to heat exposure, moisture buildup, dust, and corrosion by providing a continuous supply of air. Eliminating these problems extends the life of expensive electrical equipment and reduces the need for excess inventory.

7500 Series—Type Z/Ex pzc: Revolutionizing Protection

The 7500 series sets a new standard for global purge and pressurization solutions. It offers all the features of an advanced system in a cost-effective, compact housing. Engineered for simplicity, the 7500 series delivers the features needed for reliable protection in Class I and Class II, Div. 2 and Zone 2/22 hazardous locations. In addition to providing purged pressurization, it also continuously monitors enclosure conditions, makes automatic adjustments, and provides an output alarm for reliable protection—all in a low-cost, streamlined solution.

Product Details

- Low cost, compact design, easy to use
- Universal power: AC or DC
- NEC, CEC, ATEX, and IECEx third-party certifications
- Large, multi-feature touch display with all-digital setup
- Backlit LCD, vertical or horizontal orientation
- Bar graph for pressure and flow, LEDs for visual indication
- Easy setup with pre-set purge programs
- Automatic pressure compensation with digital manifold
- User-configurable alarm contact
- Compact, marine-grade aluminum powder coated housing
- External or panel mount

Easy Configuration and Maintenance

A large multi-feature touch display enables convenient setup and gives users access to key parameters. Status LEDs, a bar graph for pressure, and pre-set programs simplify operation.

Space-Saving, Flexible Design

The 7500 uses universal AC/DC power and is available in both panel mount and external mount versions with various accessories. All unique features for reliable explosion protection are united in an extremely compact housing.

Technical information	
Hazardous environment	Class I and Class II, Div. 2 and Zone 2/22 to nonhazardous
Approvals	NEC, CEC, ATEX, IECEx, and others
Size	5.9 x 4 x 2 in (150 x 100 x 50 mm)
Weight	1 lb 10 oz (710 g)
Material/degree of protection	A380, A356, or 6061-T6 aluminum / Type 4X, IP66
Operating temperature	Depends on T class. See the certificates.
Inputs/outputs	Pressure / enclosure contact, alarm contact, automatic purge valve
Rated voltage	20 ... 30 V DC at 0.1 A 90 ... 250 V AC, 50 ... 60 Hz at 0.04 A without solenoid valve. Supply voltage can be line-to-line or line-to-neutral, single phase OVC II

5500 Series—Type Z/Ex pzc: Compact and Versatile Protection

The 5500 series was engineered to provide a global, all-in-one solution for Type Z/Ex pzc purge applications. With many of the same features as our 6000 series, the 5500 provides a complete solution for Division/Zone 2 hazardous operations in a small, compact design. Combine this with fully automatic temperature and pressure control, and it ranks among the most versatile purge systems on the market.

Product Details

- Global certification conforms to ATEX, IECEx, NFPA 496, and ISA 12.4 standards
- Single unit certified for gas or dust applications
- Completely automatic control unit provides purge, power, and monitoring to enclosure
- Automatic Rapid Exchange® for temperature control and leak compensation
- 2 RTD inputs for simple temperature monitoring and control
- 5 pre-set programs allow easy implementation without extensive technical knowledge
- User interface rotates for horizontal or vertical mounting
- 2-line, intrinsically safe, backlit LCD programming screen
- 100% mechanical vent, no cable required
- Internal and external mounting capabilities
- Flexible vent design for different flow rates

Technical information	
Hazardous environment	Class I and Class II, Div. 2 to nonhazardous; Zone 2/22 to nonhazardous
Approvals	UL, cULus, IECEx, ATEX, and others
Size	6.5 x 8 x 4.2 in (165 x 203 x 105 mm)
Weight	3.1 lb (1.4 kg)
Material/degree of protection	316 stainless steel/Type 4X, IP66
Operating temperature	-4 … 140 °F (-20 … 60 °C)
Inputs/outputs	Temperature and bypass / enclosure contact, alarm contact, automatic valve output
Rated voltage	AC: 90 … 264 V / 48 … 62 Hz DC: 20 … 30 V DC

Implementation Made Easy

The 5500 is application-oriented, letting users select from a menu of preconfigured programs. Specialized knowledge is not required. The user interface guides you intuitively through programmable configurations, making this system easy to implement, install, and operate.

Global Performance in One Design

The 5500 is specially designed to handle all Type Z/Ex pzc applications with one simple design. Both the control unit and vent conform to the same form factor whether they are internally or externally mounted, making it easy to specify and install anywhere in the world.

6000 Series—Type X/Ex pxb: Cutting-Edge Technology for Dependable Protection

The 6000 series is the most advanced Type X/Ex pxb purge system on the market. Designed as the complete solution for Division/Zone 1 hazardous operations, this stainless steel unit contains the controller, pneumatics, electrical I/O, and programming interface in one sleek, fully automatic package. With an intuitive user interface that allows you to configure the system to meet your specific application needs, the 6000 series provides reliable protection in the most demanding applications.

Product Details

- Global certification conforms to ATEX, IECEx, NFPA 496, and ISA 12.4 standards
- Single unit certified for gas and dust applications
- Automatic setup with menu-driven configuration
- Automatic Rapid Exchange® for temperature control and leak compensation
- Bypass function for easy maintenance and commissioning
- Digital pressure relief vent with flow and pressure monitoring
- User interface rotates for horizontal or vertical mounting
- 2-line, intrinsically safe, backlit LCD programming screen
- Automatic power shutdown controls power shutdown to enclosure during system failure
- Available in a component kit for easy and clean integration into OEM applications

Responsive Monitoring and Control

The optional temperature hub and sensor work seamlessly in conjunction with the 6000 control unit to provide automatic temperature monitoring and control to the inside of the enclosure. With the ability to power up to three external sensors, this intrinsically safe accessory allows the control unit to easily purge the inside of the enclosure or activate an external component such as an air cooler or heater.

Technical information	
Hazardous environment	Class I and Class II, Div. 1 to nonhazardous; Zone 1/21 to nonhazardous
Approvals	DEMKO, UL, cULus, IECEx
Size	7.2 x 14.45 x 6 in (183 x 367.5 x 152.5 mm)
Weight	25 lb (11.4 kg)
Material/degree of protection	316L stainless steel/Type 4X, IP66
Operating temperature	-4 … 140 °F (-20 … 60 °C)
Inputs/outputs	(4) inputs, temperature, (2) vents / enclosure, (2) auxiliary, purge valve
Rated voltage	AC: 90 … 264 V / 48...62 Hz DC: 20 … 30 V DC

6500 Series—Type Ex pxb/pyb: Engineered for Simplicity

The 6500 Series Ex pxb/pyb purge and pressurization system offers streamlined, automatic protection for Zone 1/21 hazardous locations. A universal design allows the system to deliver reliable protection for a wide range of demanding Zone 1/21 applications. From large control cabinets to complex custom solutions, the 6500 series provides field-proven safety that you can trust.

Product Details

- User-friendly, easy programming
- Automatic control of power, pneumatics, and temperature/pressure monitoring
- Universal power: AC or DC
- ATEX/IECEx Zone 1/21 certifications
- Certified to SIL 2 acc. to IEC 61508
- Intrinsically safe LCD touchpad user interface allows configuration and monitoring during operation
- Remote monitoring capabilities via RS-485/HART and Bluetooth® connection
- Pre-set programs for simple configuration
- Digital pressure relief vent for various flow rates and continuous flow/dilution
- Dilution control and monitoring for analyzers
- Compact design with panel mounts or direct mounts available

Universal Design for Easy Integration

The 6500 series was designed to reduce the burden of typical purge installations. With universal AC/DC power requirements and internal or external mounting options, the 6500 series makes it easy to integrate, specify, and install into a wide variety of applications. Also available as a component kit, the 6500 series allows the control unit and user interface to be separated up to 19.8 m.

Automatic Monitoring for Increased Reliability

Shutting down a critical process on the plant floor can be a costly waste of time and manpower. With its ability to continuously monitor the purged solution, the 6500 series can automatically control essential functions to keep the application running day and night, 24/7. An RS-485/HART communication port allows users to remotely monitor key diagnostic and preventative maintenance variables in the control room or asset management software.

Technical information	
Hazardous environment	Gas, dust, gas and dust
Approvals	ATEX, IECEx
Size	6500-01-EXT1: 150 x 150 x 145 mm (5.9" x 5.9" x 5.7") 6500-01-PM01: 150 x 150 x 185 mm (5.9" x 5.9" x 7.3") 6500-01-PM02: EPCU: 150 x 150 x 145 mm (5.9" x 5.9" x 5.7"), UIC: 150 x 150 x 45 mm (5.9" x 5.9" x 1.8")
Weight	Appx. 11 lb (5 kg)
Material/degree of protection	UIC display: Makrolon FI cover and A380 Aluminum anodized casing Housing: 316L stainless steel Hardware: 316L stainless steel
Operating temperature	-4 ... 158 °F (-20 ... 70 °C)
Inputs/outputs	(1) input, temperature, (1) vent / enclosure, auxiliary, RS-485, digital and proportional valve
Rated voltage	20 ... 30 V DC 100 ... 240 V AC, 48 ... 62 Hz / 0.2 A

Enviro-Line—General Purpose: Reliable Operation for Specialized Applications

The Enviro-Line pressurization system provides an uncomplicated and straightforward solution to eliminate dirty, dusty, and corrosive environments in nonhazardous locations. In doing so, the Enviro-Line helps extend the life of the enclosure and its expensive electrical equipment and instrumentation. And because it is designed specifically for nonhazardous locations, there is no need to use certified pressurization systems designed for use in hazardous locations.

Product Details

- Cost-effective approach for nonhazardous applications
- Kit includes all required hardware and tubing
- Optional general-purpose switch
- Ensures longer electrical equipment life
- Keeps caustic, corrosive, and dusty environment outside of enclosure

Uncomplicated and Clear-Cut

The Enviro-Line pressurization system is delivered as a complete kit and installs easily with all connection and mounting accessories included. Mounting plates are adaptable for every configuration with the Enviro-Line kit. Simply attach the mounting plate to best fit your application, align the pressure gauge, and the Enviro-Line is ready to go!

Technical information	
Hazardous environment	Nonhazardous
Size	8 x 7 x 6 in (203 x 178 x 152.5 mm)
Weight	6 lb (2.7 kg)
Material	Mounting Flange: 316L stainless steel Regulator Body: Zinc with enamel finish
Operating temperature	-20 … 120 °F (-29 … 49 °C)

Purge Selection Process:
Get Your Application Up and Running

When it comes to selecting a purge and pressurization solution for today's demanding hazardous area applications, choosing the right system saves you time and money. With Pepperl+Fuchs' comprehensive product offering of globally certified purge systems, we make it easy to specify and select the right solution to get your process up and running.

Zone Applications

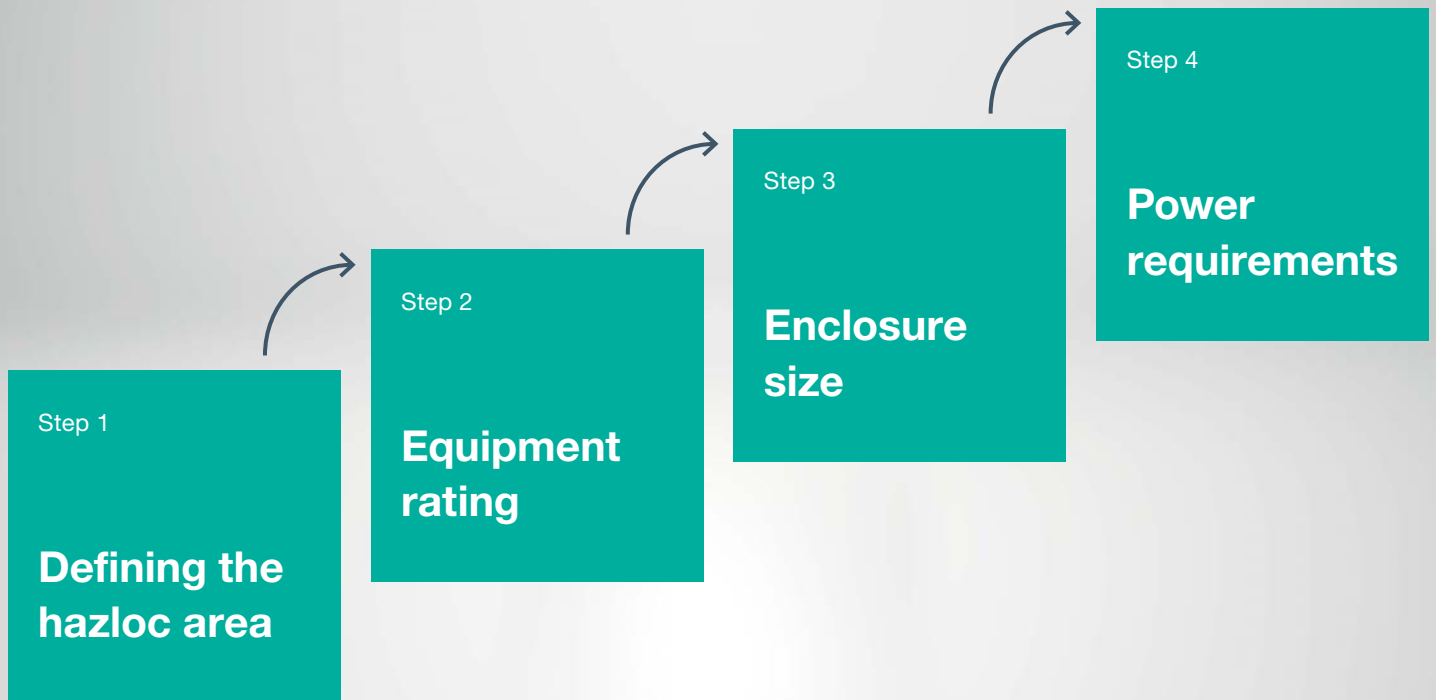| Cert*	Zone	Type	Group	Equipment	Enclosure < 250 ft³ (7.0 m³)
1, 2, 3	2/22	Ex pzc	IIC	General purpose	7500 series
1, 2, 3	2/22	Ex pzc	IIC	General purpose	5500 series
1, 2, 3	1/21	Ex pxb	IIC	General purpose	6000 series <450 ft³ (12.75m³)
1, 2	1/21	Ex pxb, pyb	IIC	General purpose	6500 series <450 ft³ (12.75m³)

Model	Vent	
5500	EPV-5500-XX-XX	Gas/Dust
6000	EPV-6000-XX-XX	Gas/Dust
6500	EPV-6500-XX-XX	Gas/Dust

Class I Applications

Cert*	Div.	Type	Group	Equipment	Enclosure < 250 ft³ (7.0 m³)
1, 2, 3	2	Z	A-D	General purpose	7500 series
1, 2, 3	2	Z	A-D	General purpose	5500 series
1, 2, 3	1	X	A-D	General purpose	6000 series < 450 ft³ (12.75 m³)
3	1	Y	A-D	Div. 2	3000 series

A product configurator is available to select a purge system that's right for your application: **www.quotepf.com/bebco/configurator**

Class II Applications

Cert*	Div.	Type	Group	Equipment	Enclosure < 250 ft³ (7.0 m³)
1, 2, 3	2	Z	E-G	General purpose	5500 series
1, 2, 3	1	X	E-G	General purpose	6000 series < 450 ft³ (12.75 m³)
1, 2, 3	2	Z	E-G	General purpose	7500 series

* 1 Zone: ATEX   2 Zone: IECEx   3 Class/Div: UL, cULus, CSA

Step 1

Defining the hazloc area

Step 2

Equipment rating

Step 3

Enclosure size

Step 4

Power requirements

Hazardous Location Rating of Area

The area classification determines the type of purge protection level needed and specifies which system is correct for your applications.

Equipment inside the Enclosure

The hazardous rating on the equipment inside the enclosure determines which purge system to use for the particular application. Temperature specifications on the equipment also play a vital role in determining which control and monitoring functions your purge system will need.

Enclosure Specification

The size of the enclosure and whether there will be doors, windows, or accessories determines which purge system and vent configuration will be adequate for the application. When using multiple enclosures, required air volume and flow will also need to be considered for the overall solution.

Power Requirements

Based on the power requirements needed for a given application, evaluation of required voltage (AC/DC) and contact ratings is required. Further, certain area classifications require systems that shut off enclosure power in the event of system or pressure failure.

Purge and Pressurization Solutions Tailored to Your Needs

Pepperl+Fuchs offers more than just products. As leaders in hazardous area protection, our global Solution Engineering Centers (SECs) offer our customers around the globe customized system solutions for a wide variety of industries and applications.

While it's true that customers can obtain their own certification for the purge and pressurization products that we provide, having us do this for you saves you time and money. Our SEC can provide all you need for your certified solution. It's all about making our explosion protection solutions convenient for you.

6000 Series—Compressor monitoring control panel for Class I, Div. 1 areas

5500 Series—AC drive cabinet for Class I, Div. 2 areas

Comprehensive Range of Services

Pepperl+Fuchs works across a variety of industries and scales to satisfy our customers' needs, from single, unique, small-scale solutions to complex, global, high-quantity installation projects. Our customers include integrators, OEMS, skid manufacturers, EPCs, and end users. In addition, our large umbrella of products, such as enclosures, HMI, and interface components, allows us to become a one-stop shop for even the most demanding custom solution.

Going the Distance by Being There

Our SECs work closely with the sales team during the quotation phase from the initial inquiry and feasibility study to the product calculation and solution quotation. Once the contract is awarded, complete responsibility for the project and its execution is transferred to an SEC. This allows us to offer a service that sets us apart from many other companies. We offer solutions that meet all applicable safety requirements and have the necessary local, regional, or international certification. Pepperl+Fuchs holds accreditations for all major degrees of protection, as well as approval to manufacture certified solutions for applications in Zone 2/22, Division 1 and 2 in accordance with regional specifications. SECs deliver made-to-order, turnkey solutions anywhere in the world—all from a single source.

5500 Series—OEM skid application for Class I, Div. 2 areas

7500 Series—Large cabinet solution for Zone 2 / Div. 2

Your automation, our passion.

Explosion Protection

- Intrinsic Safety Barriers
- Signal Conditioners
- FieldConnex® Fieldbus
- Remote I/O Systems
- Electrical Ex Equipment
- Purge and Pressurization
- Industrial HMI
- Mobile Computing and Communications
- HART Interface Solutions
- Surge Protection
- Wireless Solutions
- Level Measurement

Industrial Sensors

- Proximity Sensors
- Photoelectric Sensors
- Industrial Vision
- Ultrasonic Sensors
- Rotary Encoders
- Positioning Systems
- Inclination and Acceleration Sensors
- Fieldbus Modules
- AS-Interface
- Identification Systems
- Displays and Signal Processing
- Connectivity

Pepperl+Fuchs Quality
Download our latest policy here:

www.pepperl-fuchs.com/quality