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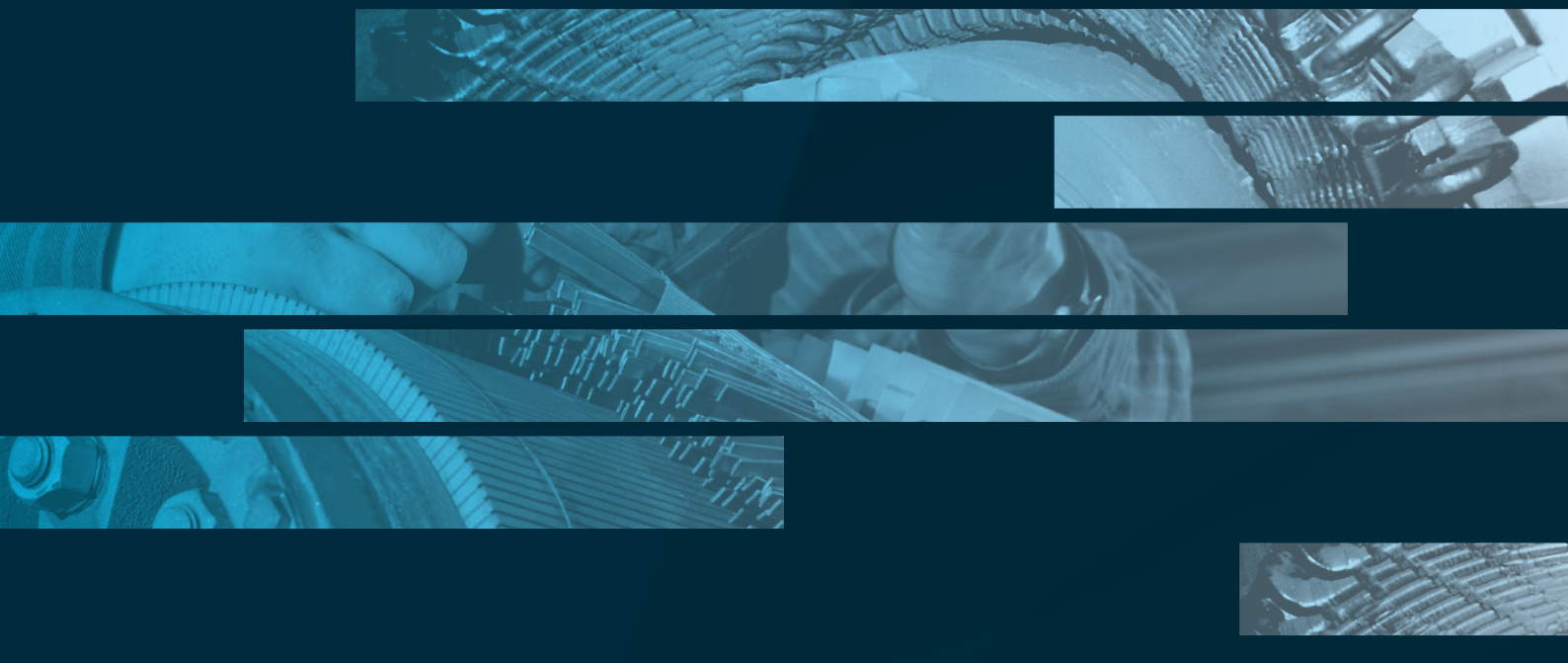


PP1214 - PURGE AND PRESSURISATION SYSTEM

ENHANCED CONTROL
EFFICIENT PRESSURE MONITORING
INTELLIGENT LEAKAGE COMPENSATION

PPI ENGINEERING LTD

PPI Engineering is an international engineering company specialising in the design, supply and support of rotating machines and associated equipment. We operate an ISO9001:2008 quality system and have an established reputation for technical excellence, quality and reliability. Our team of highly qualified engineers are drawn from the major UK electrical machine manufacturers, with extensive onshore and offshore, mechanical and electrical expertise.

PPI Engineering's market leading Purge and Pressurisation safety device ensures the safe operation of electrical machines and enclosures within Zone 1/21 and 2/22 hazardous areas. The unique attributes of this system provides numerous advantages over its competitors.

STANDARD SYSTEM ADVANTAGES

- **Minimum supply pressure of 3barg.**
- **Fully automatic, electronically controlled system, reducing commissioning time (does not require outlet valve orifice plate changing to achieve correct flow rate).**
- **No pneumatic connections between inlet and outlet unit, reducing installation time.**
- **Automatically compensates varying air leakages in machine, eliminating the need for manual valve leakage adjustment**
- **Automatic machine leakage compensation display – essential information for machine maintenance.**
- **LCD information display.**
- **Mechanically interchangeable with expo systems**
- **Up to 4250ls/min [standard litres per minute] automatic leakage compensation already built in, i.e. no additional "BOOST"equipment needed to increase leakage compensation.**
- **Local or remote control/monitoring.**
- **No pneumatic logics used, therefore reducing the possibility of faults created by leakages or blockages.**
- **Risk of failure minimised due to simplified layout – fewer components needed.**

CONCEPT

PP1214 is designed in accordance with IEC 60079-2/ EN 60079-2, ensuring a pressurised and leakage compensated enclosure. This creates a non-hazardous atmosphere inside the enclosure by keeping a positive differential pressure between the pressurised enclosure and atmospheric pressure to ensure that no potentially explosive gases enter the electrical equipment.

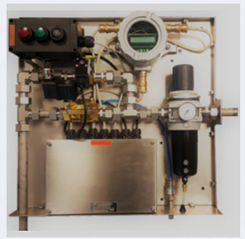
This type of protection consists of two main stages:

Purge Cycle: Activated when the electrical machine is OFF prior to being switched ON. Clean air/inert gas is blown through the machine and monitored to ensure compliance with IEC 60079-2/ EN 60079-2.

Leakage Compensation and Pressurisation Cycle: Once purge cycle is satisfactory the machine is considered non-hazardous and ready to be switched ON. A positive differential pressure to atmospheric has to be maintained.

This is achieved by compensating for any air/inert gas leakages that the machine might experience.

> PP12.1-4 (INLET UNIT)



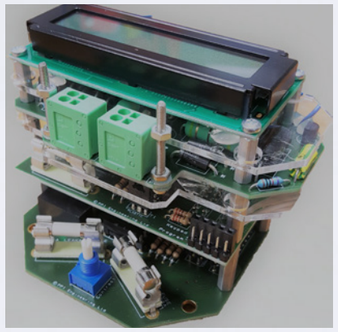
> PP12.1-4 (INLET UNIT) SHOWING INTERNAL COMPONENTS AND P121 (CONTROL UNIT) SITUATED IN A ROUND EX D ENCLOSURE

> PP14.1-2 (OUTLET UNIT)

> PP14.1 (OUTLET UNIT) INTERNAL COMPONENTS

SYSTEM SPECIFICATION

- **Certification and Marking –** CML 15ATEX1185X Issue No. 1
  IECEx CML 15.0089X Issue No. 1
  Purge and Pressurisation Models
  Ⓔx II 2(2)G D, Ex db eb mb [ib] [pxb] IIC T4 Gb Ex tb [pxb] [ib] IIIC T135°C Db Ta= -40°C to +55°C
  Pre Start Purge Systems
  Ⓔx II 2(2)G D, Ex db eb mb [ib] IIC T4 Gb Ex tb [ib] IIIC T135°C Db Ta= -40°C to +55°C
- **Manufacturing -** Quality assurance QAN and QAR against the requirements of EU Directive 94/9EC and IECEX product certification scheme.
  Ⓔx Quality Assurance Notification CMLATEXQ393
  IECEx Quality Assessment Report GB CML/QAR15.0012/02
- **Dimensions -** PP12.1-4 Inlet Unit – 587mm (W) x 572mm (H) x 182mm (D)
  PP14.1 Outlet Unit – 356mm (W) x 326mm (H) x 156mm (D)
- **Weight -**
  PP12.1-4 Inlet Unit – approx. 26 kg
  PP14.1 Outlet Unit – approx. 10 kg
- **Inlet Supply -** 3barg min to 17.5barg max pressure. Minimum req'd flowrate = purge flowrate + leakage flowrate. System fitted with air/inert gas filter regulator 40µm filtration size.
- **Alarms -** Low internal pressure, programed by user (typical values, 3mbarg).
- **Sensors -** Two pressure transmitters controlling full system operation.
- **Purge Flow Rate -** Up to 5000 ls/min
- **Purge Time -** 60 min maximum.
- **Working Pressure -** User programmed (typical values 5 - 12mbarg).
- **Operating Temperature -** -40°C to +55°C
- **Leakage Capacity –** Up to 4250 ls/min.
- **Pressure Relief –** Mechanical backup operating at 50 mbarg.
- **Simplified Installation Connections**
  1: Inlet air supply via 22mm OD compression fitting.
  2: Air supply (to machine) via 22mm OD compression fitting (other fitting sizes available on request).
  3: ¼" OD enclosure pressure sensing pipe.
  4: 2.5mm² 3-core power supply cable, terminated in inlet unit main terminal box via M25 or M20 Ex d cable gland.
  5: 0.5mm² 8-core remote control and signalling cable, terminated in inlet unit main terminal box via M25 or M20 Ex d cable gland.
  6: 2 x 0.25mm² 3-core cables to connect inlet to outlet unit. Both cables to be housed in a protective conduit. Cables terminated in inlet unit main terminal box and outlet unit junction box via M25 or M20 Ex d conduit gland.
  All cables to comply with IEC60079-14 clause 9.
- **General Control –** Local START/STOP key switch via control station or remote START/STOP control via increased safety volt-free contacts terminated inside inlet unit main terminal box.
- **Signaling and Machine Interlocks -** Power On, Pressure OK, Pressure Fail, and Purge OK signals/machine interlocks provided via increased safety volt-free contacts housed inside inlet unit main terminal box. Contacts rating: 2A, 250VAC, 220VDC.
- **Mounting -** 4 x M8 bolts for inlet unit and 10 x M8 bolts for outlet unit.



> P121 (CONTROL UNIT)



MODELS

MODEL	CONTROL	LEAKAGE COMPENSATION
PP1214.1.1	Remote	Manual ball valve
PP1214.2.1	Local	Manual ball valve
PP1214.3.1	Remote	Automatic electrical solenoid valve
PP1214.4.1	Local	Automatic electrical solenoid valve
PP1214.PV.3.1	Remote	None – Pre-start ventilation
PP1214.PV.4.1	Local	None – Pre-start ventilation

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