



The engineering of control panels and empty EEx p enclosures requires a high level of experience and technical expertise. We offer the complete systems engineering services necessary to meet your precise requirements.

The data that is necessary for the safe operation of the installation includes the set values of the orifice plate and the size of the air supply solenoid valves. The required purging time will be calculated on our computer for each individual system.



Empty enclosures

Empty enclosures are designed and prepared for use in explosion-protected spaces. Control equipment, pressure monitoring unit and supply air system are fitted as standard.

The following alternatives are available:

- Pressurized apparatus with leakage compensation or
- Pressurized apparatus with continuous circulation of protective gas

Commercially available electrical components are used to complete the switch unit to protection standard EEx p.

Data required for the layout of empty enclosures

Type of pressurized apparatus <input checked="" type="checkbox"/> continuous circulation of protective gas, or <input checked="" type="checkbox"/> leakage compensation	Components <input checked="" type="checkbox"/> Inspection windows <input checked="" type="checkbox"/> Cable entries	Arrangement <input checked="" type="checkbox"/> Isolation point at the supply <input checked="" type="checkbox"/> Transport units <input checked="" type="checkbox"/> Shipping method <input checked="" type="checkbox"/> Free-standing <input checked="" type="checkbox"/> Wall-mounting
Dimensions of enclosure <input checked="" type="checkbox"/> Height <input checked="" type="checkbox"/> Width <input checked="" type="checkbox"/> Depth	Environmental conditions <input checked="" type="checkbox"/> Ambient temperature <input checked="" type="checkbox"/> Corrosive effects <input checked="" type="checkbox"/> Atmosphere <input checked="" type="checkbox"/> Indoor or outdoor location <input checked="" type="checkbox"/> Protective canopy	Installation location of air supply unit <input checked="" type="checkbox"/> inside EEx p enclosure, or <input checked="" type="checkbox"/> outside EEx p enclosure
Electrical data <input checked="" type="checkbox"/> Control voltage <input checked="" type="checkbox"/> Frequency		

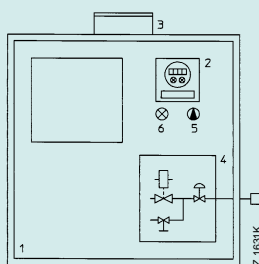


Control panels

Control panels can be supplied in the following designs:

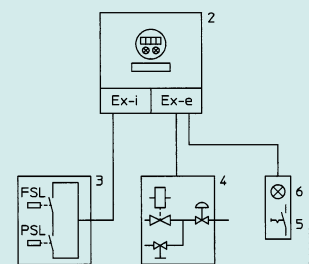
- pressurized apparatus with leakage compensation or
- pressurization with continuous circulation of the protective gas.

The factory-assembled units will be fitted with the necessary components installed to customer's specifications and wired accordingly. Standard location electrical components can be used in EEx p pressurized equipment.



Control panel design

- 1 Control cabinet, degree of protection IP 65
- 2 Control unit 8218 with built-in electronic monitoring and indication
- 3 Protection unit (PU) with orifice plate, flow control switch and pressure control switch



- 4 Air supply unit (ASU) with solenoid valve, fine control valve and pressure regulator
- 5 Control switch for control unit "OFF-ON" (optional)
- 6 Indicator "Control voltage" (optional)

Data required for the layout of control panels

Pressurization

- with continuous circulation of protective gas or
- with leakage compensation

Dimensions

- Max. height
- Width
- Depth

Electrical data

- Single line or wiring diagram
- Schematic for control systems
- Operating, auxiliary and control voltages
- Frequency
- Short-circuit capacity at point of installation
- Whether short-circuit protection integral or remote from distribution unit
- Diversity factor for multiple subcircuits
- Power and current ratings of connected loads

Details of intrinsically safe circuits: when components with intrinsically safe circuits are supplied as customer parts for processing the appropriate certificate from the testing authority must be supplied since it contains important data.

Environmental conditions

- Ambient temperature
- Corrosive effects
- Atmosphere
- Indoor or outdoor location
- Canopy

Incoming/outgoing circuits

- Number of cables
- Number of conductors
- Type of cable
- Cross-section
- Number and location of the lead entries (from above, below, side, centre)
- Type of entries:
 - Compression glands
 - Bell-mouthed glands
 - Cable dividing box
 - Cable glands (for armoured cable)

Arrangement

- Isolation point at supply
- Transport units
- Method of transport
- Free-standing or wall-mounted

Mounting position of air supply unit
 inside or outside EEx p enclosure

Components

Quantities and types of components required, e.g. contactors, switches, circuit breakers, fuses, thermal relays, instruments, terminals etc.

Details:

- a. Switches:
Motor or circuit rating, with or without padlock facilities – special requirements – “switches all within easy reach (0,6 to 1,8 m)” etc.
- b. Contactors:
Switching duty required – category AC 1 to AC 4 – or details of connected load, e.g. crane, fan, heating, whether inching duty, heavy start etc.
- c. Thermal relay:
Type of motor protected, Ex d or Ex e

Motor circuit-breaker:
Rated current I_N ,
Starting current I_{A, t_e}

Details:
time for appropriate ignition temperature class T1 ... T6.
- d. MCB:
L- or G characteristic, details of connected load
- e. Busbars:
Flat copper busbars, rating 400/630 A
Prospective fault rating (peak symm.)
Number of bars L1, L2, L3, N, PE.

Technical data

Explosion protection	EEx ed [ia] IIB T1 ... T3 for T6 (dependent on components used)
Test certificate	Special approval to § 10 ElexV by a registered specialist
Max. capacity to be installed	AC 690 V, 2500 A DC on request
Cable entries	Cable glands (M 16 ... M 63)
Material	Control cabinet Control desk
Inspection window	Standard: Sheet steel, painted RAL 7032 Special: Stainless steel
Keyboard	Inspection windows are available in different sizes Material: Safety glass
Keyboard	Can be fitted
Control unit	Technical data see part 11
Protection unit	Technical data see part 11
Air supply unit	Technical data see part 11