

## For Safe Starting of Ex e and Ex n Motor in Hazardous Area Gas Applications



### Features / benefits

- Fully third-party approved for Zone 1 Exe ATEX & IECEx Electrical Rotating Machines. Suitable to protect Class I, Div 2 Electrical Rotating Machines
- Low temperature variants for service down to  $-60^{\circ}\text{C}$
- Three sizes to cover wide range
- Ventilation time: User selectable 1-99 minutes
- Local and Remote Start options
- Continuous Ventilation Option to permit immediate motor re-start after start-up trip
- Three output signal options

### What is it?

Pre-Start Ventilation (PV) is recommended for safe starting of high voltage Ex e and Ex n motors in hazardous areas, where the overall risk assessment (under 60079-7 and 60079-15 respectively) calls for "Special measures".

Expo Pre-Start Ventilation Systems enable users to readily demonstrate compliance with the above equipment standards, and greatly improves safety by eliminating any potentially flammable atmosphere from the machine enclosure prior to start up.

### How does it work?

The PV System has two components; the Control Unit (CU) and the Outlet Valve (OV).

The CU controls flow into the motor enclosure, with pneumatic logic operating the OV based on flow and time.

The OV has two valves; one allows normal ventilation flow and the second provides machine overpressure relief.

In operation, the system provides local indication of ventilation condition and progress, plus volt-free contacts for external indication (see Technical Specification).

For the Low Temperature variant, the CU components are housed in an insulated enclosure, with the logic compartment and incoming logic air maintained at a temperature  $>-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ )

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## Pre-Start Ventilation Systems

## Specifications

Hazardous environment	Zone 1; Class 1 Division 2
Ambient temperature range	-20°C ~ 60°C -60°C ~ 60°C (LT option Only)
Hazardous area approvals	IECEX; ATEX; UKCA; INMETRO; CCC; NEC
Purging mode	Pre-start Ventilation Continuous Ventilation mode (/CV option)
Purge gas supply	Purge gas: Clean Dry Air or Inert Gas. 4-10 barg (58-145 psi)
Purge flow rate	3PV = 500~1500 NI/min (18~53SCFM) 5PV = 2,000~6,000 NI/min (71~212 SCFM) 7PV = 7,000~14,000 NI/min (247~494 SCFM)
Purge time	User Selectable up to 99 min
Starting mode	Local Start Remote Start Options
Relief valve	Automatically-open Outlet Valve (3PV & 5PV) Pneumatically Operated Valve (7PV)
Status indication	Dual visual indicators
Signal outputs	System Contact in Ex i (/IS option) or Ex e (PA option) Pneumatic Output in Ex d (/PO option)
Power supply	IS Battery Pack (/ET option) EPPS (Electro-Pneumatic Power Supply) (/ES option)
Material of Construction	Stainless Steel 316

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# Pre-Start Ventilation Systems

### Part Code:

Prestart Ventilation System	#PV	/SS	/RS31	/N	/ET	/PA	/Other Option
<b>System Size (Flow Rate)</b>							
3PV	500 - 1,500 NI/min	3PV					
5PV	2,000 - 6,000 NI/min	5PV					
7PV	7,000 - 14,000 NI/min	7PV					
<b>Starting Mode:</b>							
Local Start			LS				
24VDC Ex m			RS31				
24VDC Ex i			RS11				
110VAC Ex m			RS02				
230VAC Ex m			RS03				
24 VDC FM C1D2			RS24				
115VAC FM C1D2			RS25				
<b>Inlet / Outlet Connection:</b>							
NPT				N			
BSPP				G			
ANSI				A			
DIN				D			
<b>Electronic Timer:</b>							
with IS Battery					ET		
with EPPS					ES		
<b>Output Signal:</b>							
Ex e terminal box						PA	
Suitable for IS circuits						IS	
Pneumatic outputs						PO	
<b>Optional:</b>							
None							(Blank)
NEC Compliance Version <sup>1</sup>							US
Continuous Ventilation							CV
Pneumatically Operated Outlet Valve							OV
Low Temperature Version <sup>2</sup>							LT

<sup>1</sup> NEC compliance version must be order with suitable starting mode and output option.

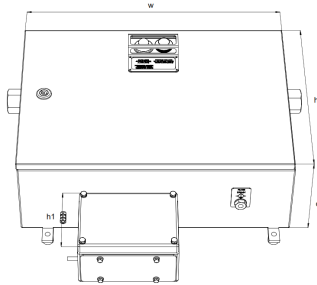
<sup>2</sup> Low Temperature version is approved for IECEx / ATEX Ex db eb ia IIC T4 Gb Tamb -60 to +60°C



# Pre-Start Ventilation Systems

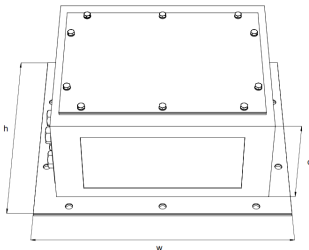
## General Arrangement Drawings

Control Unit



Dimensions	3PV	5PV (5PV-LT)	7PV
Width w	386.5mm (15.22")	500 (600)mm (19.69 (23.62)")	600mm (23.62")
CU Height h	350mm (13.78")	360 (930)mm (14.17 (36.61)")	670mm (26.38")
JB Height h1	130mm (5.12")	130mm (N/A) (5.12")	130mm (5.12")
Depth d	175mm (6.89")	175 (314)mm (6.89 (12.36)")	270mm (10.63")
Weight	16.5kg (36.38lbs)	20.6 (72)kg (45.42 (158.73))lbs)	43kg (94.8lbs)

Relief Valve



Dimensions	3PV	5PV (5PV-LT)	7PV
Width w	200mm (8")	330 (330)mm (13")	540mm (21.3")
Height h	130mm (5")	280 (280)mm (11")	410mm (16")
Depth d	131mm (5")	136 (136)mm (5.4")	288mm (11.3")
Weight	4kg (8.8lbs)	7 (7)kg (15.4lbs)	25kg (55lbs)

### Process Connections:

3PV Ventilation inlet & outlet 3/4" NPT (F)

5PV Ventilation inlet & outlet 1" NPT (F)

7PV Ventilation inlet & outlet 2" NPT (F)

Reference point & signals: 1/8" NPT (F).

## Hazardous Area Approvals:

ATEX / IECEx / UKCA / INMETRO / CCC

### Purge System:

Ex eb ia IIC T4 Gb Tamb -20 to +60°C

Ex eb ia IIC T5 Gb Tamb -20 to +59°C

### Junction Box:

Ex e IIC T4 Gb IP66 Tamb -20 to +60°C

## NEC Compliance Version

### Purge System (/PO/US):

Class I Division 2 Groups B, C and D, T4

Tamb: -10°C to +50°C

### Explosion Proof Junction Box

IECEX Zone 1 Ex db IIC T6/T5 Gb

ATEX II 2 G Ex db IIC T6/T5 Gb

UL Listing E81696—Class 1 Div 1 Groups B, C & D

### Explosion Proof Pressure Operated Switch

IECEX Zone 1 Ex db IIC T6/T5 Gb

ATEX II 2 G Ex db IIC T6/T5 Gb

UL Listing E38812—Class 1 Div 1 Groups B, C & D

### Purge System (/PA or /IS):

Class I Zone 1 AEx ia IIC T4 GC

Tamb: -20°C to +60°C

### Explosion Proof Junction Box:

IECEX Zone 1 Ex db IIC T6/T5 Gb

ATEX II 2 G Ex db IIC T6/T5 Gb

UL Listing E81696—Class 1 Div 1 Groups B, C & D

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