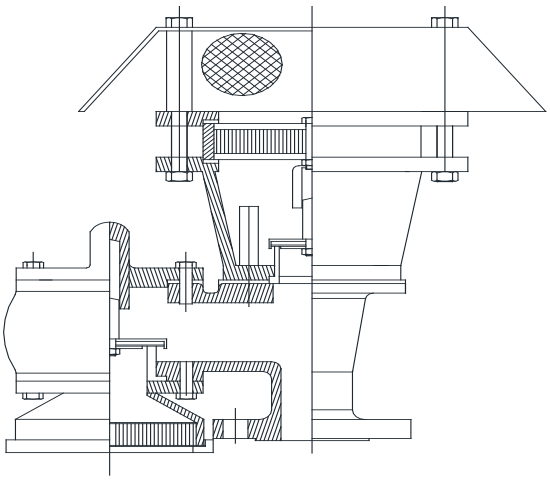
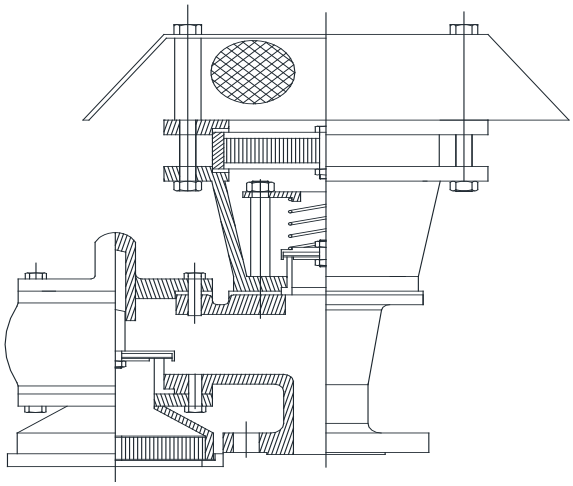
BREATHER VALVE WITH FLAME ARRESTER

MODEL NO: 2053-CV-PVR

END OF LINE DEFLAGRATION / ATEX CERTIFIED
TANK PRESSURE PROTECTION DEVICES THAT PROTECTS ENVIRONMENT, EQUIPMENT AND HUMAN LIVES





When storing flammable products or processing chemical products that can create explosive mixtures, the opening of the storage tank or vessel must be additionally protected with flame arresters. The task was to develop a device that combined the properties of a flame arrester and a valve into one design. PRECON® valves with integrated flame arrester units have the unique advantage that the flame arrester units are external and hence easily accessible.

The operating conditions must be carefully considered. Depending on the possible combustion processes, protection must be provided against atmospheric deflagration, and/or short time burning, and/or endurance burning.

DESIGN

The valve technology and function of the pressure and vacuum valves with integrated flame arrester units are equal to those without flame arrester units. It must be realized that the downstream flame arrester unit creates a certain back pressure which has no impact on the set pressure but influences the overpressure behavior. This is considered in the flow charts.

Pressure and Vacuum Relief Valves with Flame Arrester

Pressure and vacuum relief valves with integrated flame arrester units have the same functions as valves without flame arrester. They serve to maintain pressure (vapour conservation), relief pressure and enable tank breathing.

Flame Arrester

The valves also have an integrated flame arrester unit. The explosion group of the chemical products to be protected needs to be considered in the flame-transmission-proof selection of the valve. The chemical products are categorized into explosion groups according to the maximum experimental safe gap (MESG) of the mixtures. The valve is tested and approved for the explosion group.

Location of installation

Valves with flame arrester units are always end-of-line valves since the heat must be released to the environment with no heat build-up to prevent transmission of flame. Otherwise the unallowable heat build-up would effect a heat accumulation at the flame arrester which finally results in a flash-back. They are primarily used for storage tanks and containers in which flammable liquids are stored or processed and for relief openings in process containers in which the occurence of explosive mixtures cannot be excluded.

Selection

Since PRECON® pressure/vacuum relief valves with flame arrester units are always end-of-line valves, they are selected taking into consideration their function as a pressure valve, vacuum valve, or combined pressure and vacuum relief valve. After the explosion group of the products and the possible combustion process have been determined, the valve can be selected regarding its flame-transmission protection. When selecting PRECON® valves with a flame arrester unit, one must establish whether flame-transmission protection is to be provided against atmospheric deflagrations or endurance burning.

Sizing of the Valves

The maximum possible volumetric flow, the maximum permissible pressures, and the operating data (process parameters) must be taken into account when sizing pressure/ vacuum relief valves.

Definitions:

Set pressure = the valve starts to open = adjusted set pressure of the valve at 0 bar back pressure,

Relieving pressure = set pressure plus overpressure.

Overpressure = pressure increase over the set pressure.

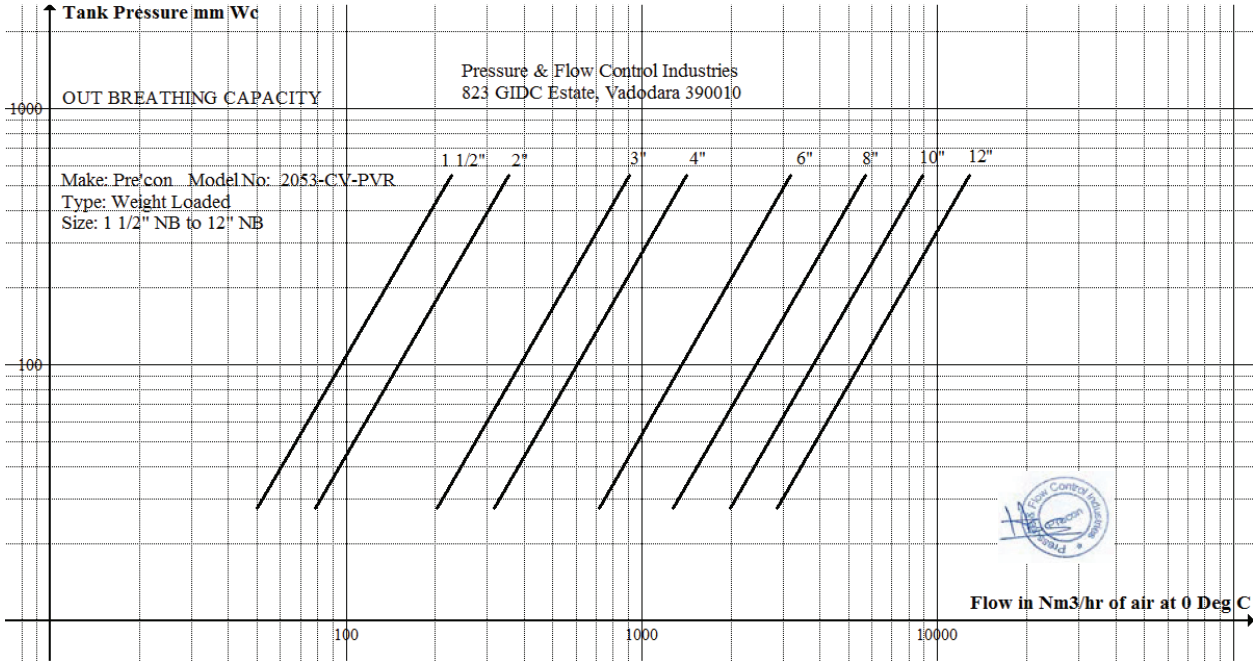
The maximum allowable design pressure of an equipment, storage tank or vessel may not be exceeded. The maximum possible flow must be reliably discharged through the valve so that the maximum allowable design pressure of the equipment is not exceeded. Safety factors must be taken into account.

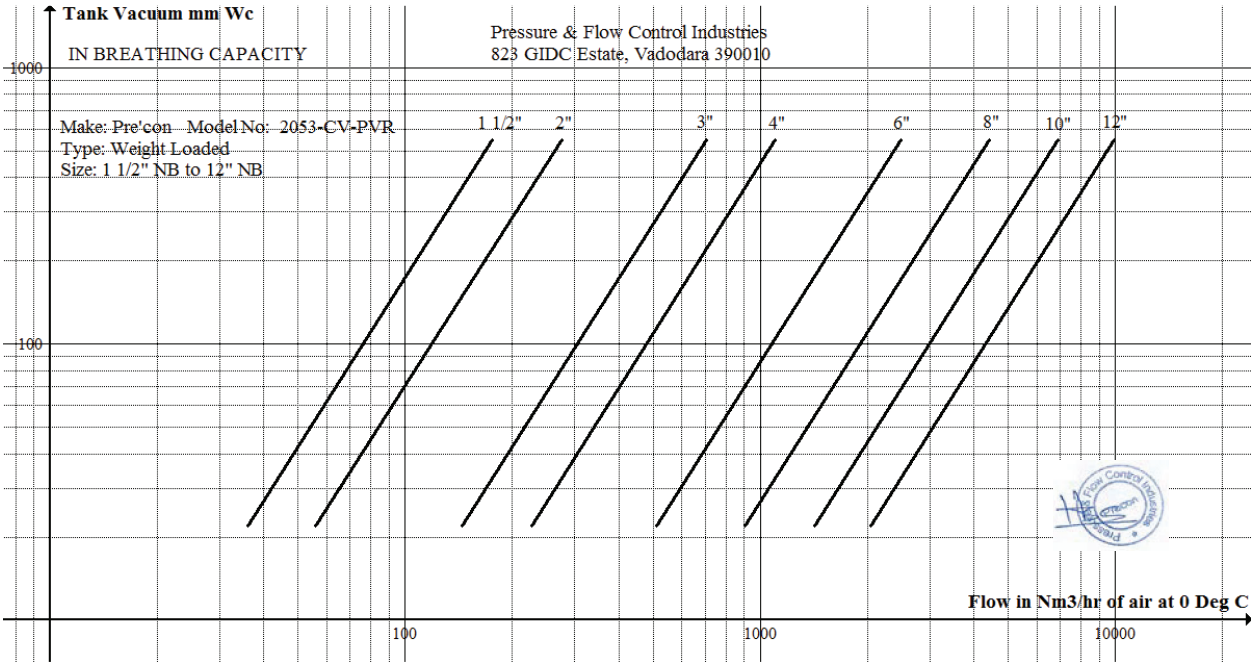
Breather valve With Flame arresters tested according to EN ISO 16852 fulfil the health and safety requirements of current ATEX directive.

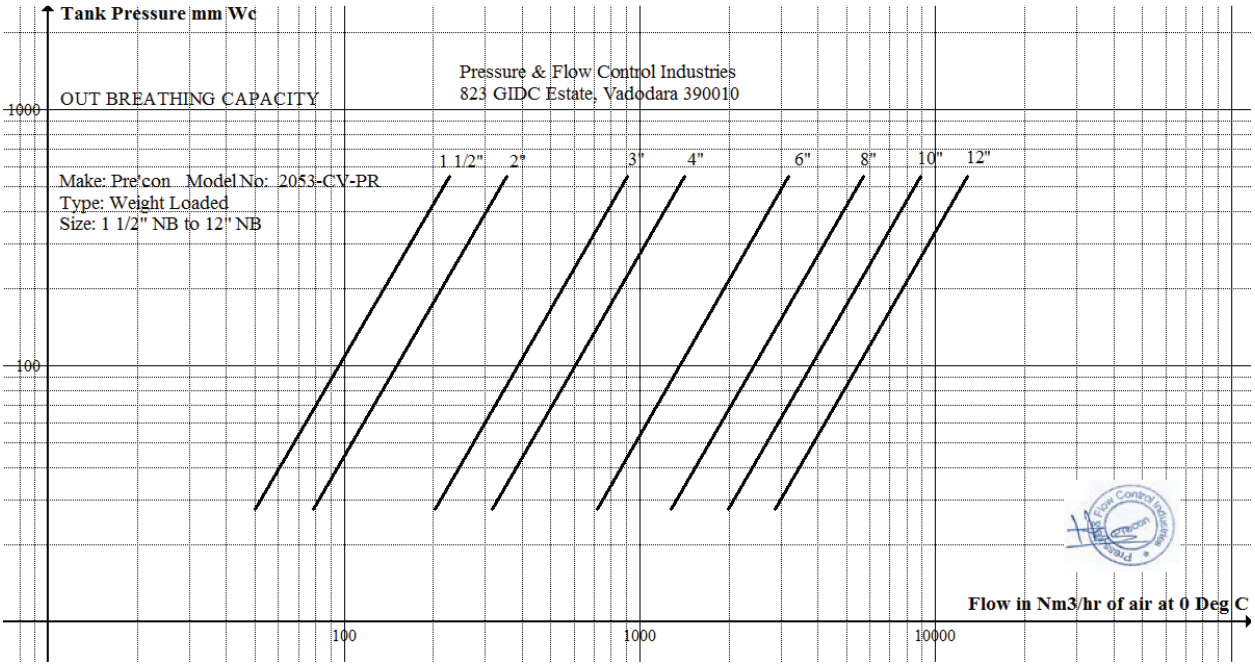
PRE'CON®
Registered Trade Mark of
Pressure and Flow Control Industries

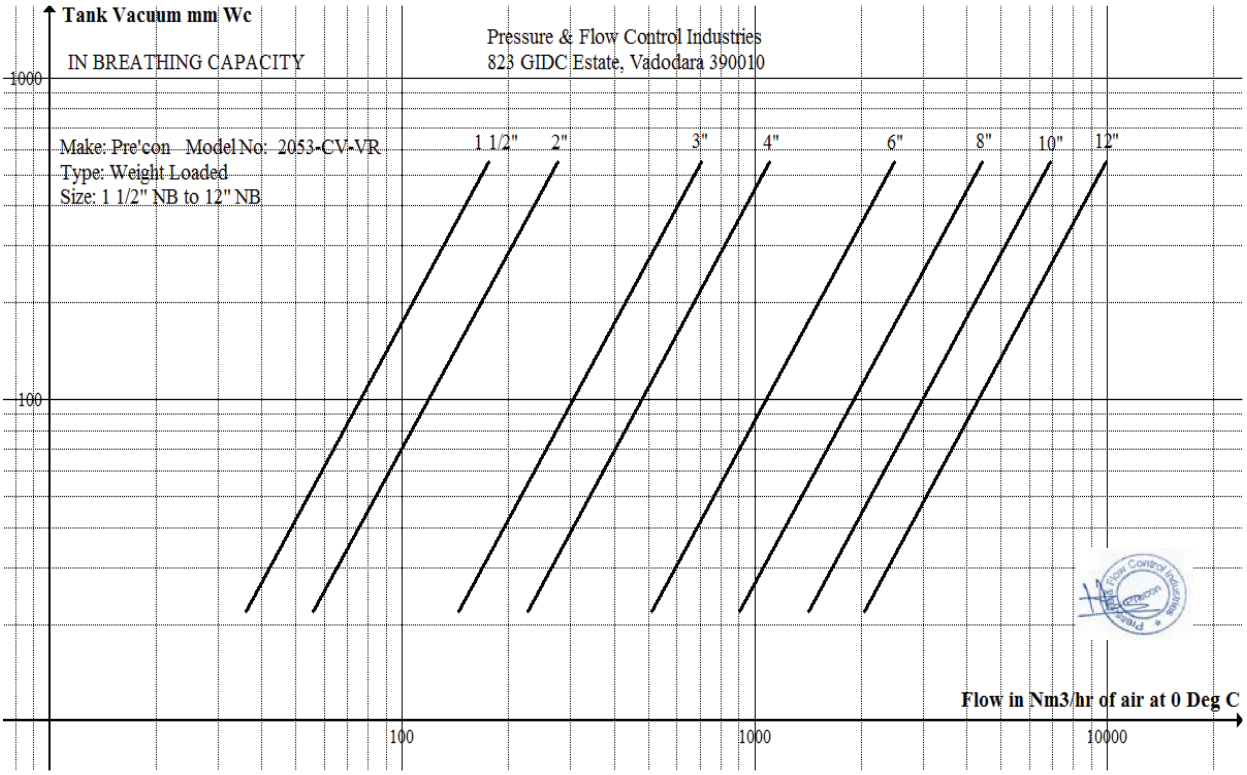
BREATHER VALVE WITH FLAME ARRESTER (END OF LINE DEFLAGRATION)		
The carefully constructed seat and pallet assembly offer superior combination for High flow capacity with minimum over pressure. The seats are easily replaceable. Flame arrester element geometry maximizes flame quenching capability while minimizing pressure drop. Proven spiral-wound, crimped ribbon, flame element provides reliable flame protection. Modular design allows easy and cost effective flame bank maintenance. Drains and instrument ports available upon request. Exterior painting or coating available. DIN or ASME/ANSI drilling available.		
Sizes 1 ½ " through 12". Housing standard material: Carbon steel (WCB/CS), stainless steel (CF8/304/CF8M/316), Aluminum Pallet material : SS 304/SS 316 Diaphragm : PTFE Flame element material: SS 316. Other materials available upon request Good for Explosion gas group IIA1, IIA, IIB1,IIB2, IIB3. Certified to ATEX Directive 94/9/EC in compliance with EN ISO 16852:2010		
Certificate No: IBExU16ATEX2084 X	Size : 1½" NB to 12" NB	To: 60 Deg C
Certificate No: IBExU16ATEX2095 X	Size : 1½" NB to 12" NB	To: 60 Deg C
Certificate No: IBExU16ATEX2096 X	Size : 1½" NB to 12" NB	To: 60 Deg C

FLOW CAPACITY CURVES






Tank Pressure mm Wc
Pressure & Flow Control Industries
823 GIDC Estate, Vadodara 390010
OUT BREATHING CAPACITY
1000
100
Make: Pre'con Model No: 2053-CV-PR
Type: Weight Loaded
Size: 1 1/2" NB to 12" NB
1 1/2"
2"
3"
4"
6"
8"
10"
12"
Flow in Nm3/hr of air at 0 Deg C
100
1000
10000


Tank Vacuum mm Wc
Pressure & Flow Control Industries
823 GIDC Estate, Vadodara 390010
IN BREATHING CAPACITY
1000
100
Make: Pre'con Model No: 2053-CV-VR
Type: Weight Loaded
Size: 1 1/2" NB to 12" NB
1 1/2"
2"
3"
4"
6"
8"
10"
12"
Flow in Nm3/hr of air at 0 Deg C
100
1000
10000

Model D Coding & Ordering Information
Model No: 2053-CV

Table 1 : TYPE

Pressure & Vacuum Relief with Flame Arrester	PVR
Pressure Relief with Flame Arrester	PR
Vacuum relief Valve with Flame Arrester	VR

Table 2 Selection of Material

Description	A	B	C	D
Body	BS 1490 Gr LM 6	Carbon Steel	A 351 Gr CF8/SS304	A 351 Gr CF8M/SS316
Shell	A 216 GR WCB	A 216GR WCB	A 351 CF8	A 351 CF8M
Flame Element	SS 316 / SS 316L	SS 316 / SS 316L	SS 316 / SS 316L	SS 316 / SS 316L
Gasket	NAM 39	NAM 39	PTFE	PTFE
Fasteners	C/S zinc plated	C/S zinc plated	SS 304	SS 316
Seat	S.S.304	S.S.304	S.S.304	S.S.316
Pallet	S.S.304	S.S.304	S.S.304	S.S.316
Diaphragm	FEP/PTFE	FEP/PTFE	FEP/PTFE	FEP/PTFE

Table 3 Explosion Group

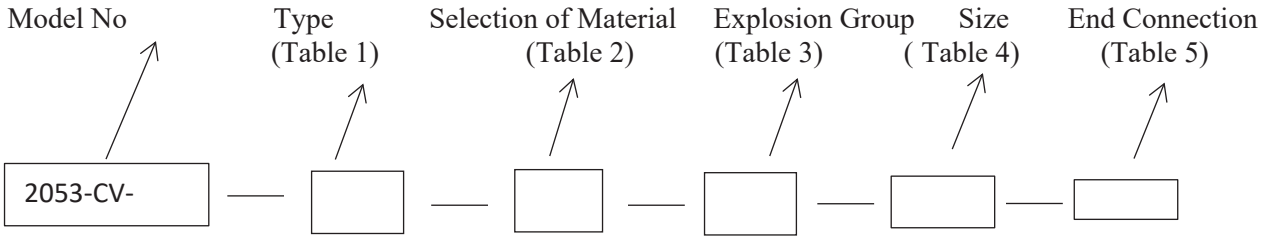
MESG	Explosion Group (IEC)
>0.9 mm	IIA
≥ 0.65 mm	IIB3

Table 4 Size

40 mm	50 mm	65 mm	80 mm	100 mm	150 mm	200 mm	250 mm	300 mm

Table 5 End connection

BS 10 Table D,E,F	BS
DIN PN 6, PN 10, PN 16	DIN
ANSI 150 FF/RF, 300 RF	ANSI



ORDERING INFORMATION

2053-CV	PVR	D	IIB3	200	ANSI