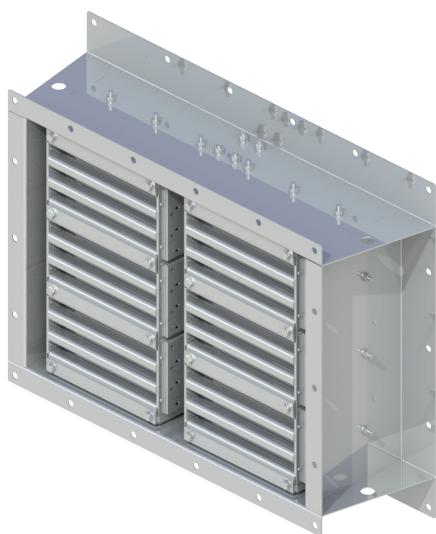


PV-KK-S BLAST VALVE

Self actuating blast protection for industrial and marine environment



SPECIFICATION

The PV-KK-S blast valve block comprises three spring balanced closing elements moving in a slot and closing the air passage against the valve seats in response to both positive and negative (suction) phase of the blast. The valve blocks are mounted in structural steel frames.

PV-KK-S

The valve is completely corrosion resistant. The valve closing elements are made of special non-corroding aluminum alloy, all springs are made of stainless steel EN 1.4571 (AISI316Ti), and frame made of structural steel are hot dip galvanized.

PRODUCT CODING

The material, size and form of the multi-column valves are indicated in the product code as follows.

- **PV-KK-S-number (columns x rows)** for hot dip galvanized steel

where

number = total number of valve blocks

columns = number of valve block vertical columns

rows = number of valve block horizontal rows,

when blocks are in horizontal position as illustrated in picture.

APPLICATIONS

The blast valve PV-KK-S is an application of the PV-KK blast valve for mounting on blast resistant wall surface. It is specifically designed for installation on steel walls. It can also be installed in existing buildings where casting of the valve frame in concrete is not possible. The valve is also applicable to industrial applications with risk of chemical and dust explosions.

The PV-KK-S blast valve is available in various different sizes. Maximum height is 10 rows and width 9 columns. Contact Halton Marine for the availability of frames with custom dimensions.

The number of blocks in valve depends on the air flow requirement at desired pressure drop. When the valve dimensions do not match the opening to be covered, custom made adaptors are available.

DESIGN CRITERIA

The PV-KK-S blast valve is designed for a blast load with 100 kPa (1.0 bar) reflected peak pressure. The valve is tested with pressure waves thus simulating hydrocarbon or dust cloud explosions.

TEST AND PERFORMANCE DATA

The valve is verified by tests to effectively attenuate slowly rising long duration (peak duration > 4s) pressure wave loads within the load range up to 100 kPa (1.0bar). The valve is designed to function within the operating temperature range of -45...+150°C.

TEST REPORTS

Test reports for PV-KK-S by VTT Technical Research Centre of Finland are available upon request.

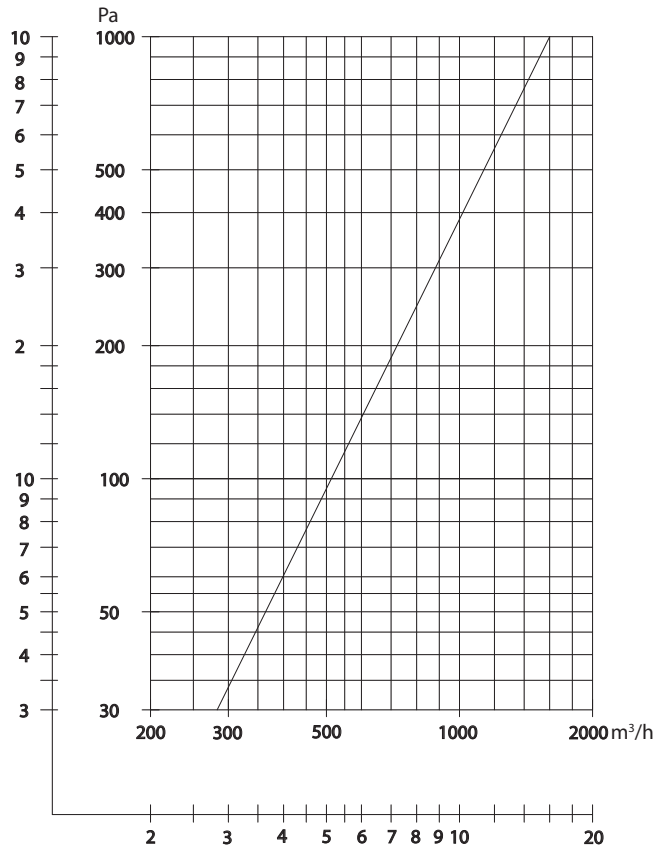
INSTALLATION ALTERNATIVES

The valve is designed to be installed onto the blast side of the blast resistant wall. The valve can be in upright or horizontal position or on ceiling/floor.

The valve is installed on a concrete wall by means of anchor bolts of type HILTI HSA M12 x 100. On a steel wall the valve can be installed by welding or bolting using M12 machine bolts.

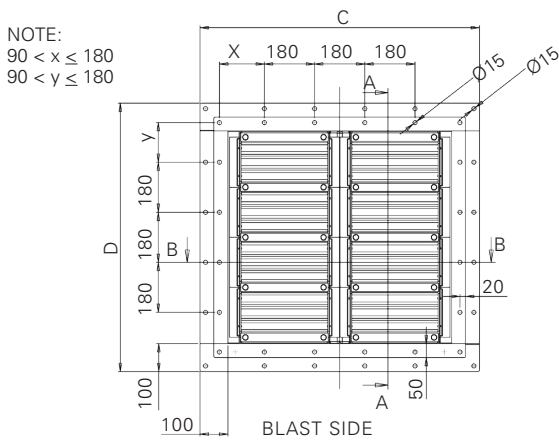
AIRFLOW CHARACTERISTICS

Air flow characteristics of one PV-KK-S blast valve block are given in the above chart. The flow curve is measured at 20 °C corresponding to air density of 1.2 kg/m³. The required number of valve blocks in a specific application is determined by dividing the total air flow by the air flow capacity of one valve block at desired pressure drop.

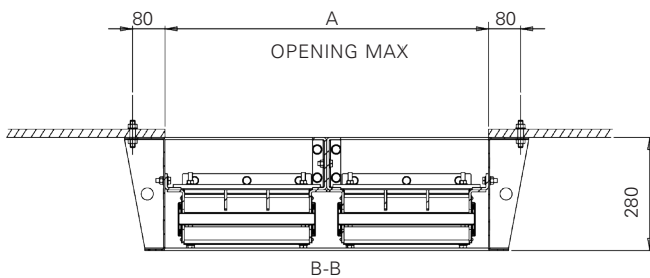
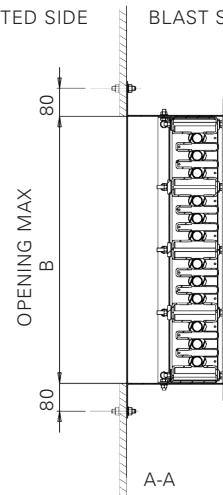


GENERAL PV-KK-S DRAWINGS, MULTI-COLUMN

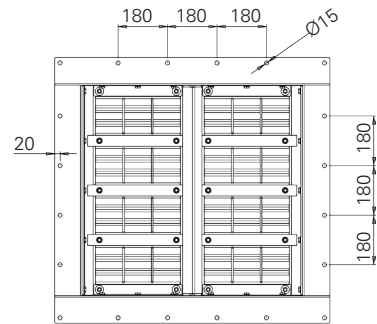
NOTE:
 90 < x ≤ 180
 90 < y ≤ 180



BOLTING ON A STEEL WALL
 PROTECTED SIDE BLAST SIDE



BOLTING ON A STEEL WALL



PROTECTED SIDE

CHARACTERISTICS AND DIMENSIONS OF PV-KK-S SINGLE COLUMN VALVES

Valve type code	Concrete wall (mm)		Steel wall (mm)			D (mm)	Airflow at 100 Pa (m ³ /h)	Airflow at 200 Pa (m ³ /h)
	A _{max}	B _{max}	A _{max}	B _{max}	C (mm)			
PV-KK-S-1	325	145	406	225	605	425	500	700
PV-KK-S-2	325	325	406	405	605	605	1000	1400
PV-KK-S-3	325	505	406	585	605	785	1490	2100
PV-KK-S-4	325	685	406	765	605	965	2000	2800
PV-KK-S-5	325	865	406	945	605	1145	2500	3500
PV-KK-S-6	325	1045	406	1125	605	1325	3000	4200
PV-KK-S-7	325	1225	406	1305	605	1505	3500	4900
PV-KK-S-8	325	1405	406	1485	605	1685	4000	5600
PV-KK-S-9	325	1585	406	1665	605	1865	4460	6300
PV-KK-S-10	325	1765	406	1845	605	2045	4950	7000

Key characteristics of the valves are given above relating to legends in drawings. Note that the size of opening to be covered depend on wall material due to the safety margin in bolting.

CHARACTERISTICS AND DIMENSIONS OF PV-KK-S MULTICOLUMN VALVES

Valve type code	Concrete wall (mm)		Steel wall (mm)			D (mm)	Airflow at 100 Pa (m ³ /h)	Airflow at 200 Pa (m ³ /h)
	A _{max}	B _{max}	A _{max}	B _{max}	C (mm)			
PV-KK-S-4 (2x2)	722	325	802	405	1002	605	2000	2800
PV-KK-S-6 (2x3)	722	505	802	585	1002	785	3000	4200
PV-KK-S-8 (2x4)	722	685	802	765	1002	965	4000	5600
PV-KK-S-16 (2x8)	722	1405	802	1485	1002	1685	8000	11200
PV-KK-S-18 (2x9)	722	1585	802	1665	1002	1865	8900	12620
PV-KK-S-12 (3x4)	1118	685	1198	765	1398	965	6000	8400
PV-KK-S-15 (3x5)	1118	865	1198	945	1398	1145	7400	10500
PV-KK-S-18 (3x6)	1118	1045	1198	1125	1398	1325	9000	12620
PV-KK-S-21 (3x7)	1118	1225	1198	1305	1398	1505	10400	14700
PV-KK-S-20 (4x5)	1514	865	1594	945	1794	1145	9900	14000
PV-KK-S-24 (4x6)	1514	1045	1594	1125	1794	1325	11900	16800
PV-KK-S-20 (5x4)	1910	685	1990	765	2190	965	9900	14000
PV-KK-S-25 (5x5)	1910	865	1990	945	2190	1145	12400	17500
PV-KK-S-35 (5x7)	1910	1225	1990	1305	2190	1505	17350	24550
PV-KK-S-40 (5x8)	1910	1405	1990	1485	2190	1685	19800	28000
PV-KK-S-24 (6x24)	2306	685	2386	765	2586	965	11900	16800
PV-KK-S-30 (6x5)	2306	865	2386	945	2586	1145	14800	21050
PV-KK-S-48 (6x8)	2306	1405	2386	1485	2586	1685	23800	33650
PV-KK-S-54 (6x9)	2306	1585	2386	1665	2586	1865	26800	37900
PV-KK-S-35 (7x5)	2702	865	2782	945	2982	1145	17350	24550
PV-KK-S-70 (7x10)	2702	1765	2782	1845	2982	2045	34700	49100
PV-KK-S-48 (8x6)	3098	1045	3178	1125	3378	1325	23800	33650
PV-KK-S-80 (8x10)	3098	1765	3178	1845	3378	2045	39650	56100
PV-KK-S-63 (9x7)	3494	1225	3574	1305	3774	1505	31200	44150
PV-KK-S-90 (9x10)	3494	1765	3574	1845	3774	2045	44500	63000

Key characteristics of the valves are given above relating to legends in drawings. Note that the size of opening to be covered depend on wall material due to the safety margin in bolting.

