**Blast Valves for HVAC Ducting**

**Introduction**
European EMC Products Ltd was established in July 1996 to supply high quality products and services to the Electromagnetic Compatibility (EMC) market.

**Quality**
European EMC Products are registered to BS EN ISO 9000:2008, certificate No. FS 38901. License scope: The design, assembly, servicing and testing of RF Shielded structures and equipment including EMI shielding and thermal management materials; Gas tight doors; and specialised mobile electromagnetic pulse protected (EMPP) containers.

**Blast Valves**
EEP’s Modular Blast Valves are used when a large airflow is required through rectangular HVAC ducts and openings in blast resistant walls. They are suitable for both inlet and exhaust air and have been designed to withstand loads of 1.0 MPa (10 Bar) from both sides. The modular blast valves can withstand temperatures of up to 150°C.

**Design & Materials**
The valve consists of modules fitted into wall frames. The valves can be installed both vertically and horizontally. The valve closes on impact of the blast and also during the reverse pressure phase. When the blast has passed, the valve returns to its open position.

The frames are made from steel and are designed for casting into concrete. If required they can also be supplied for bolting onto or welding into steel walls. The modules are made from aluminium alloy.

Modular blast valve block designed to allow any size blast valve wall to be constructed.
Surface Treatment

The frames are primed for a high level of corrosion protection. Other finishes are available on request.

Air Flow Capacity

The air volume at the required pressure drop will determine the total number of valves. The chart on the following page shows flow rates relating to one valve. The airflow/pressure drop is the same for both inlets and outlets.

<table>
<thead>
<tr>
<th>AIR FLOW DATA</th>
<th>m/s</th>
<th>Pa</th>
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<tbody>
<tr>
<td>6.8</td>
<td></td>
<td>500</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>400</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>300</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>200</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>50</td>
</tr>
</tbody>
</table>

Air flow: m³/h
Pressure drop: Pa
Air velocity: m/s

The example shows an air flow of 600 m³/h at a pressure drop of 190 Pa, and an air velocity of 4 m/s

Blast Rating

The valves have been designed and tested to withstand loads of up to 2.0MPa, and short duration loads of up to 10MPa.

Accessories

The wall frames can be fitted with particle filters and shields for protection against weather and shrapnel.
Sequence of Operation

\[ P_r = \text{Maximum blast pressure at valve (Mpa)} \]
\[ T_s = \text{Valve closing time (s)} \]
\[ T_p = \text{Overpressure duration (s)} \]
Installation
The blast valve is normally supplied in 2 parts:

1. Item A. Blast valve frame.
2. Item B. Blast valve.

The frame (Item A) can be cast into concrete, or bolted to a steel frame. Item B is used after the frame is fixed.

Actions before fitting the frame (Item A):

- Remove the packing from the frame.
- Check for transport damages.
- Check the label on the frame for drawing reference and serial number.
- Turn the frame to make the arrow point in the right direction.
- Check that the frame is turned with the side exterior in the right direction.
- Lift the whole unit into its position in the formwork, or into the steel mounting frame.
- Ensure that the frame is correctly aligned and fixed.
- Fix the frame properly by welding the anchor bars to the reinforcement. Or bolt into the mounting frame. **Do not weld anything to the valve frame, as this will damage the surface treatment.**

- The formwork is to be firmly fixed to the valve unit preventing concrete between the valve and the formwork ensuring that the valve flanges will be at the face of the barrier.
- Seal any gaps between the valve frame and the formwork with suitable sealant.
- Pour the concrete, if applicable.
- Check the frame for concrete stains and clean it from concrete after the formwork has been removed. Make paint repairs.
- Take item B unit to the place of installation
- Remove the packing and check for any transport damages.
- Place the first valve at the bottom of the frame and fix it to the frame with 4 bolts and nuts.
- Mount the following valves modules on top of each other in the frame fixing them to the frame in the correct installation order.
- The bolts are tightened with 13 mm socket to a torque of 25 Nm.
- It is important that the frames are properly treated for corrosion protection before the blast valves modules are installed.

Mounting blast valve module (Item B) into frame (Item A)

Tightening blast valve unit (Item B) into the frame (Item A)