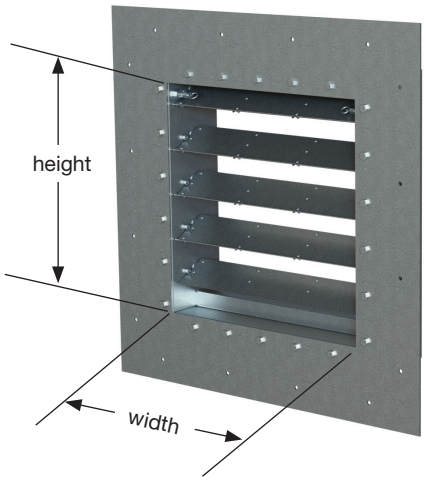
Blast Protection Damper

BL-301 Series

Damper shown with blast plate for surface mount applications



PATENT PENDING

Application

- The BL-301 Series damper is designed for protection against sudden blasts and instantaneous pressure changes. Typical use is the protection of vent openings and/or HVAC supply & exhaust openings in exterior building walls.
- Blast pressures up to 12 psi.
- Vertical and horizontal mounting applications. Surface mounting or duct flange mount
- Max air velocity: 20 m/s.

Standard Construction

- Frame: 76 x 252 x 76mm, 12 ga. (2.66mm) carbon steel channel
- 252mm wide x 6.35mm thick blast plate for surface mount applications
- Blades: 12 ga. (2.66mm) carbon steel with rib and spar supports
- Optional Blade Lock: Latch mechanism can be set to lock blades in the closed position after a blast or set to allow the blades to open
- Axles: Ø 22mm hexagonal 1018 steel
- Linkage: 6.35mm thick x 19mm wide bars
- Bushings: bronze oilite
- Stainless steel springs (to hold blades in open position)
- Finish: Gray zinc rich primer for rust prevention

Min. Size*	200mm x 200mm
Max. Single Section*	1220mm x 1524mm (see graph for blast pressure limitations).
Max. Multi-Section*	2440mm x 1524mm (subject to blast pressure limitations)

*as measured to inside frame dimensions

Options

- Powder coating
- Stainless steel construction (ASTM-A240, SA240, AMS 5513)
- Galvanized steel construction
- Equalizing/debris grid (-GR models)
- Combined damper assembly with MAT BD-200-HD fire resistant pressure relief damper

Models BL-301, BL-301-GR

6235 South Oak Park Avenue Chicago, IL 60638 USA
Toll free: 800.585.7686 +1.708.552.4040
Fax: +1.708.594.0396 www.metairtech.com

Represented by:

© 2021 Metropolitan Air Technology. All rights reserved.

Blast Protection Damper

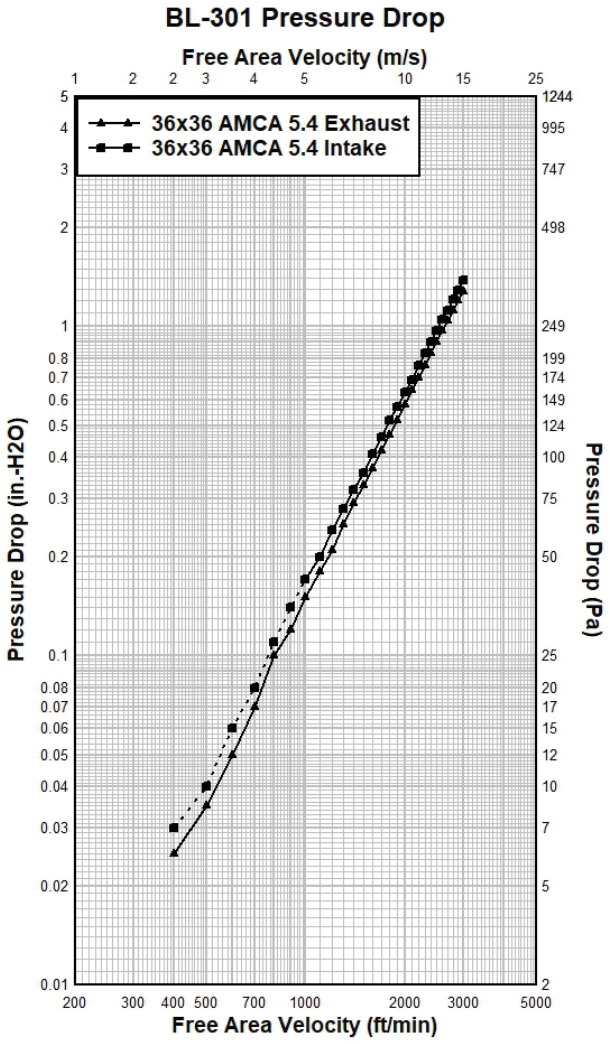
BL-301 Performance Data

Summary of Test Results - Shock Tube Blast Load Testing

Test	Sample No.	Applied Peak Pressure (psi)	Gauge Pressure Upstream of Damper (psi)	Gauge Pressure Downstream of Damper (psi)	Impulse* Upstream of Damper	Impulse Downstream of Damper	Damper Closing Time	Percent of Impulse* Blocked
1	1	9.9	8.7	6.3	526	84	22	84%
2	1	15.5	12.3	8.9	965	88	19	92%

* Impulse is a measure of the energy (or the load) imparted on the blast damper.

The percent of blast load (impulse) that the damper blocks is determined by the time it takes the damper to close.
The closing time of the damper is determined by the size of the load (impulse) applied to the damper and the open blade angle of the damper.



Represented by:

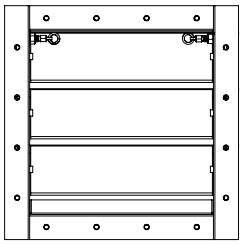
6235 South Oak Park Avenue Chicago, IL 60638 USA
Toll free: 800.585.7686 +1.708.552.4040
Fax: +1.708.594.0396 www.metairtech.com

© 2021 Metropolitan Air Technology. All rights reserved.

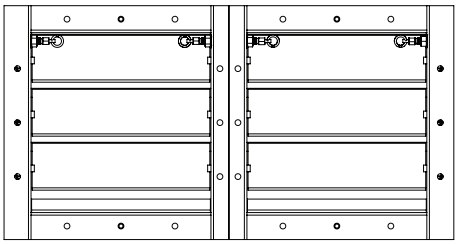
Metropolitan Air Technology

Blast Protection Damper

Model BL-301 Mounting Arrangements



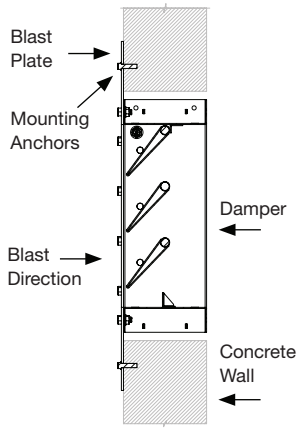
Single Section



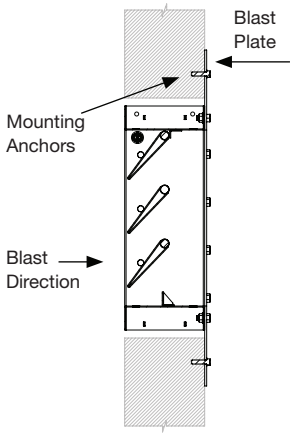
Multi-Section

Vertical Mounting Arrangements

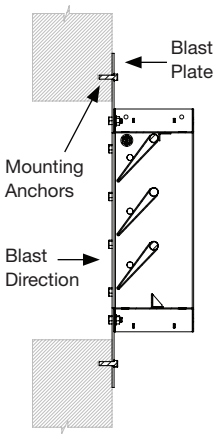
#1



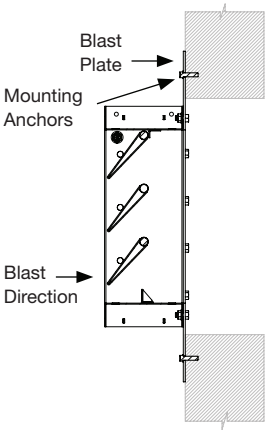
#2



#3

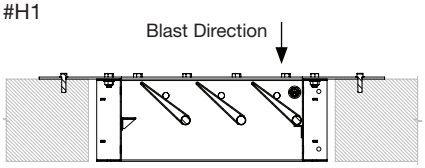


#4

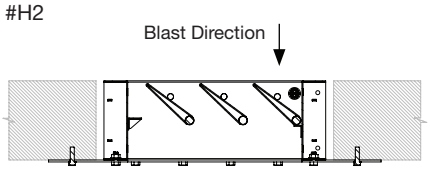


Horizontal Mounting Arrangements

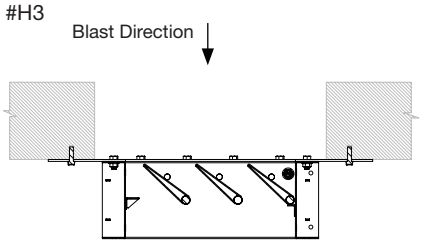
#H1



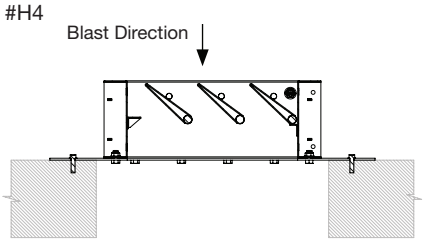
#H2



#H3

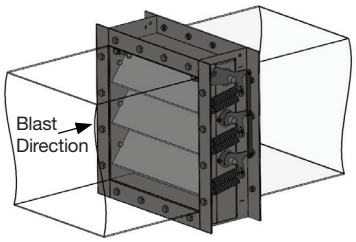


#H4



Duct Mounting Arrangement

#5



Dampers can be mounted in concrete or steel walls, and in ductwork. See MAT Model BL-301 Installation Instructions for mounting details and installation requirements.

© 2021 Metropolitan Air Technology. All rights reserved.

Blast Protection Damper

BL-301 Series

Suggested Specification

Furnish at locations shown in plans or in accordance with schedules, industrial grade blast dampers meeting the following construction standards. Frame shall be minimum 252mm deep x 76mm flange 12 gage carbon steel channel. Sleeve with inner frame is not acceptable. Blades shall be maximum 175mm wide, minimum 12 ga. carbon steel with rib and spar reinforcement. A 252mm wide x 6.35mm thick steel blast plate to be bolted to front flange for surface mount applications. Axles shall be continuous 22mm hex diameter 1018 steel fastened to blade brackets (ribs). Linkage shall be 6.35mm thick, 19mm wide bar located on side of damper outside of airstream.

Linkages shall include externally mounted release springs to keep damper open until blast pressure forces blades closed. Damper shall include blade locks for protection against a delayed exothermic reaction (a moving flame front) and the negative pressure wave. Damper shall be tested by an independent lab at equally spaced successive overpressures up to 12 psi, using the shock tube method. Dampers shall be pressure drop tested in accordance with AMCA Standard 500-D. Damper shall be Metropolitan Air Technology's Model BL-301 blast damper. Add "-GR" suffix for inclusion of an equalizing grid.

© 2021 Metropolitan Air Technology. All rights reserved.