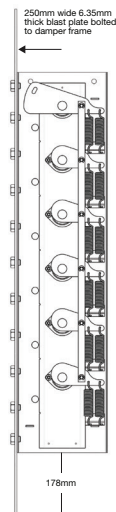
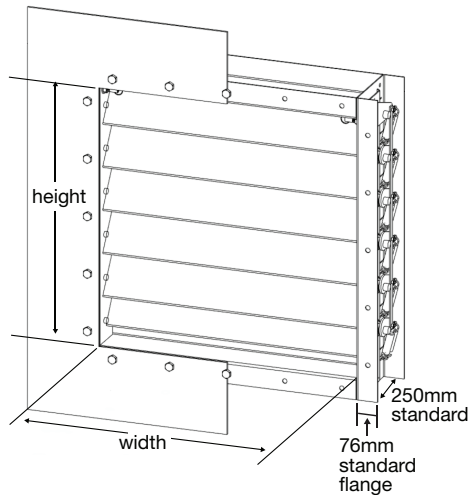


Blast Protection Damper

BL-201 Series



Application

- The BL-201 Series damper is designed for protection against sudden blasts and instantaneous pressure changes.
- Vertical and horizontal mounting applications
- Max velocity: 20 m/s

Standard Construction

- Frame: 76x250x76mm, 10 ga. (3.4mm) carbon steel channel with 250mm wide x 6.35mm faceplate
- Blades: 3.4mm carbon steel double skin airfoil
- Blade Lock: Latch mechanism to lock blades in closed position after blast
- Axles: Ø 25.4mm solid HSLA steel (ASTM 588)
- Linkage: 6.35mm thick x 19mm wide bars
- Bearings: Two hole flange ball bearing (type II)
- Finish: Gray primer to prevent rust

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

- Stainless steel construction (ASTM-A240, SA240, AMS 5513)
- Powder coating, select color
- Blast deflector on jambs
- Equalizing/debris grid (-GR models)
- Omit blast plate (in duct mounting)
- Galvanized steel construction
- Combined damper assembly with MAT BD-200-HD fire resistant pressure relief damper

Models BL-201, BL-201-GR

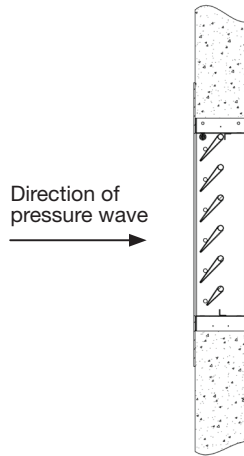
6235 South Oak Park Avenue Chicago, IL 60638 USA
 Toll free: 800.585.7686 +1.708.552.4040
 Fax: +1.708.594.0396 www.metairtech.com

Represented by:

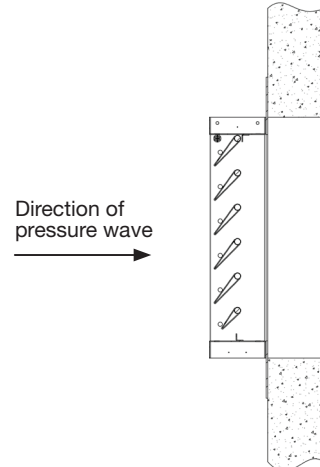
Blast Protection Damper

BL-201 Series

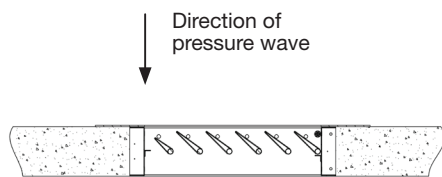
Blast Arrangement #1
Blast damper normally open



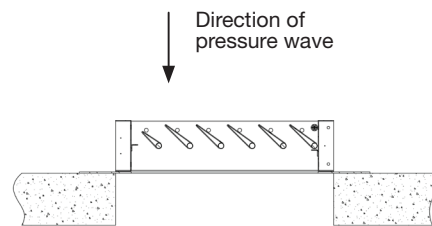
Blast Arrangement #2
Blast damper normally open



Blast Arrangement #3 (Horizontal Mount)
Blast damper normally open



Blast Arrangement #4 (Horizontal Mount)
Blast damper normally open



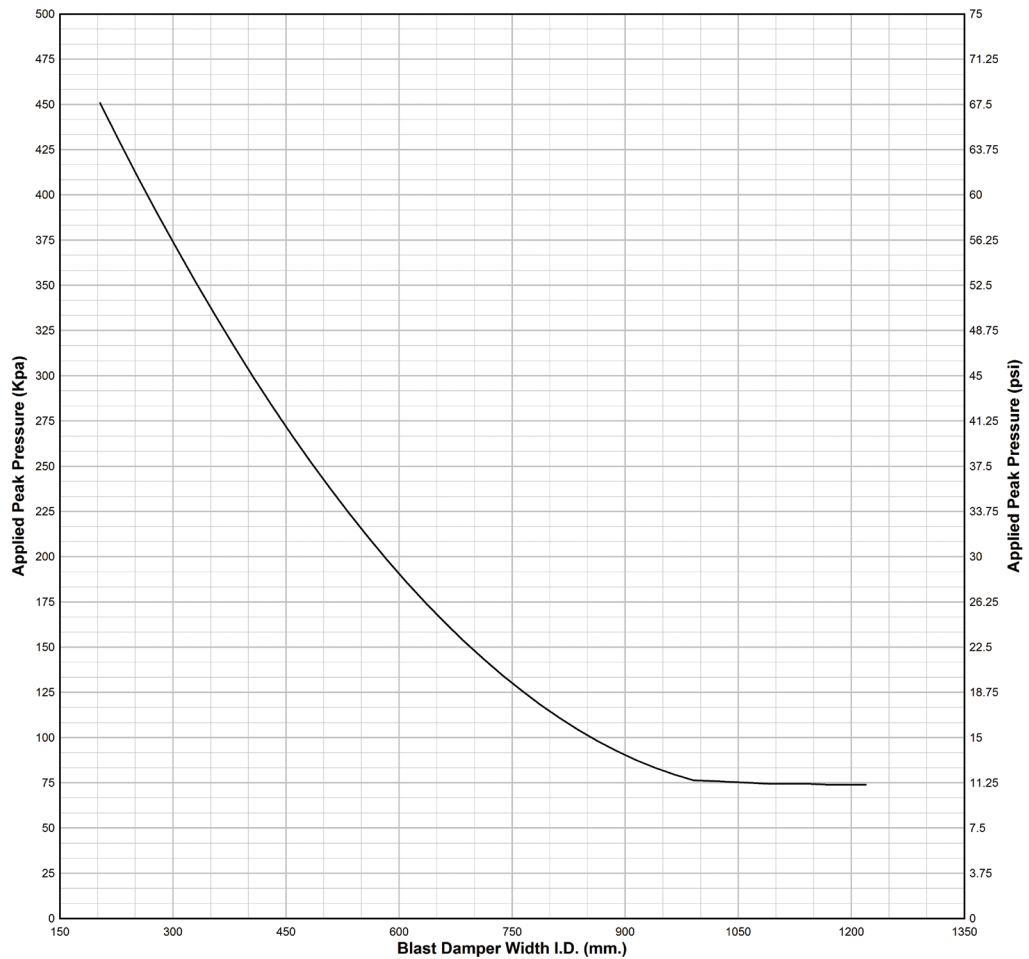
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Blast Protection Damper

BL-201 Series

Total Reflective Pressure vs. Blast Damper Width



Note: Multi-section dampers may be required to meet high overpressure ratings

Shock Tube Testing: 32"x32" I.D. Blast Damper * Model BL-201				
Test	Test Specimen	Applied Peak Pressure (psi)	Applied Positive Phase Impulse (psi-ms)	Positive Phase Duration (ms)
1	1	16.3	1477	312.4
2	2**	3.2	128	77.1
3	2**	5.8	229	83.2
4	2**	8.7	370	103.4
5	2**	11.1	753	203.5
6	2**	16.2	1439	322.4
Shock Tube Testing: 48"x48" I.D. Blast Damper *** Model BL-201				
1	1	11.6	92	14.13

*Shock Testing of the 32"x32" Blast Damper was performed by Baker Risk Structural Component Testing Labs.

**Tests 2-6 were performed consecutively on the same test specimen.

***Shock Testing of the 48"x48" Blast Damper was performed by ATI-Intertek Architectural Testing Lab.

Blast Protection Damper

Model BL-201 Performance Data

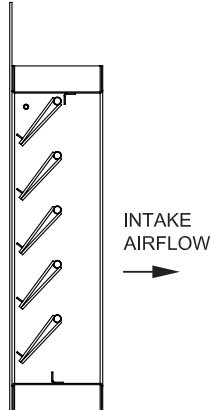
12"x 12"			
Face Velocity		Pressure Drop	
ft/m	m/s	in. H2O	Pa.
2997.0	15.2	7.1	1765.5
2490.0	12.6	5.0	1233.0
1987.0	10.1	3.2	801.0
1492.0	7.6	1.8	454.6
927.0	4.7	0.7	177.9

12"x 48"			
Face Velocity		Pressure Drop	
ft/m	m/s	in. H2O	Pa.
3265.0	16.6	7.7	1912.1
2627.0	13.3	5.0	1252.4
1980.0	10.1	2.8	706.5
1323.0	6.7	1.2	310.6
664.0	3.4	0.3	79.1

24"x 24"			
Face Velocity		Pressure Drop	
ft/m	m/s	in. H2O	Pa.
3382.0	17.2	10.9	2718.6
2719.0	13.8	7.0	1743.1
2217.0	11.3	4.7	1160.3
1725.0	8.8	2.8	703.5
1239.0	6.3	1.4	356.6

36"x 36"			
Face Velocity		Pressure Drop	
ft/m	m/s	in. H2O	Pa.
2971.0	15.1	8.1	2023.3
2394.0	12.2	5.2	1300.7
1798.0	9.1	2.9	709.9
1198.0	6.1	1.2	306.1
593.0	3.0	0.3	74.4

48"x 12"			
Face Velocity		Pressure Drop	
ft/m	m/s	in. H2O	Pa.
2880	14.6304	8.884	2210.6946
2318	11.77544	5.8	1443.272
1740	8.8392	3.228	803.25552
1166	5.92328	1.457	362.55988
588	2.98704	0.364	90.57776



Tested per AMCA Standard 500-D (fig. 5.1)
At Standard Air Density

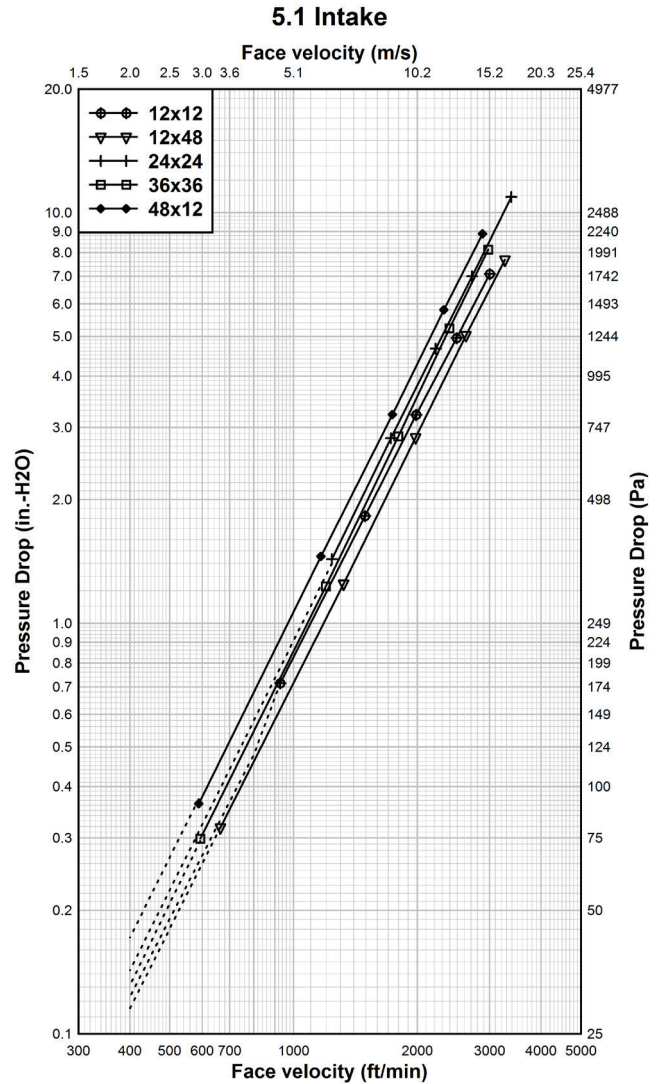
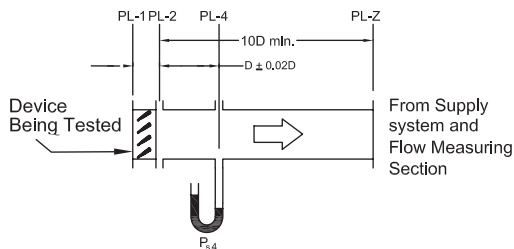


Figure 5.1- Test Device Setup with Outlet Duct Intake Application



Metropolitan Air Technology certifies that model BL-201 blast damper shown hereon (or herein) is licensed to bear the AMCA Listing Label. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Rating Seal applies to Air Performance.

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Blast Protection Damper

Model BL-201 Performance Data

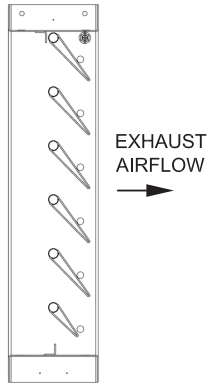
12" x 12"			
Face Velocity		Pressure Drop	
ft/m	m/s	in. H2O	Pa.
2625.0	13.3	7.3	1827.0
2463.0	12.5	6.4	1602.3
1971.0	10.0	4.1	1029.9
1493.0	7.6	2.4	590.2
920.0	4.7	0.9	217.7

12" x 48"			
Face Velocity		Pressure Drop	
ft/m	m/s	in. H2O	Pa.
3746.0	19.0	3.8	936.6
3011.0	15.3	2.5	621.4
2256.0	11.5	1.5	364.3
1500.0	7.6	0.7	171.7
740.0	3.8	0.2	43.8

24" x 24"			
Face Velocity		Pressure Drop	
ft/m	m/s	in. H2O	Pa.
3425.0	17.4	4.7	1181.0
2751.0	14.0	3.1	773.4
2063.0	10.5	1.8	450.6
1383.0	7.0	0.9	215.0
677.0	3.4	0.2	54.0

36" x 36"			
Face Velocity		Pressure Drop	
ft/m	m/s	in. H2O	Pa.
2824.0	14.3	2.9	732.1
2261.0	11.5	1.9	484.2
1696.0	8.6	1.2	289.6
1130.0	5.7	0.5	134.1
560.0	2.8	0.1	33.3

48" x 12"			
Face Velocity		Pressure Drop	
ft/m	m/s	in. H2O	Pa.
3117	15.83436	5.736	1427.34624
2505	12.7254	3.864	961.51776
1881	9.55548	2.234	555.90856
1250	6.35	1.002	249.33768
611	3.10388	0.243	60.46812



Tested per AMCA Standards 500-D fig. 5.2
At Standard Air Density

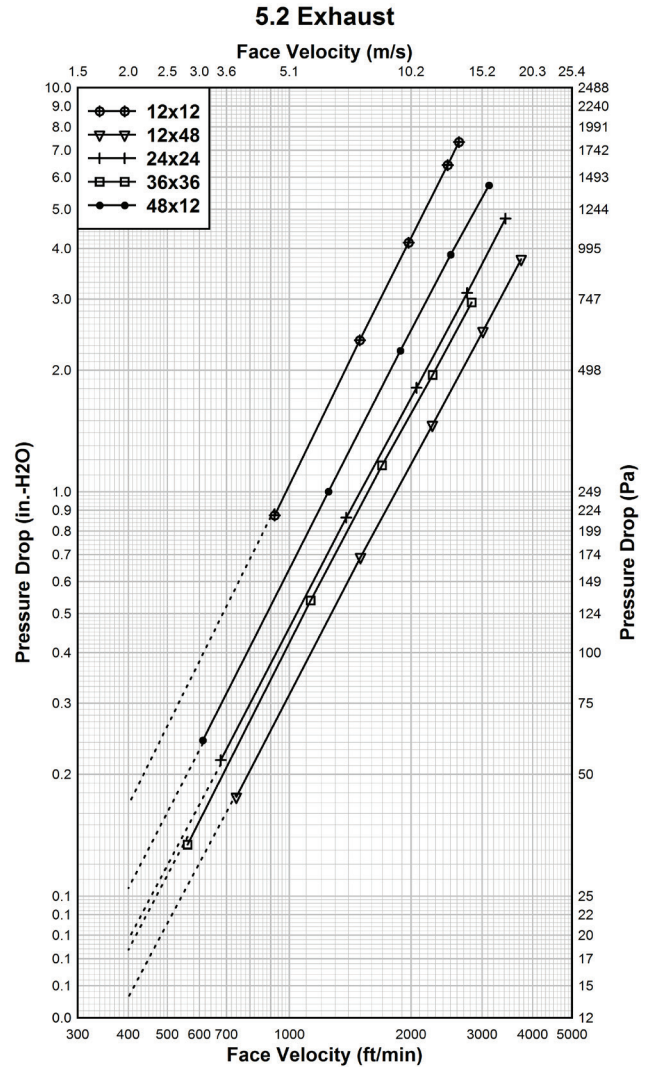
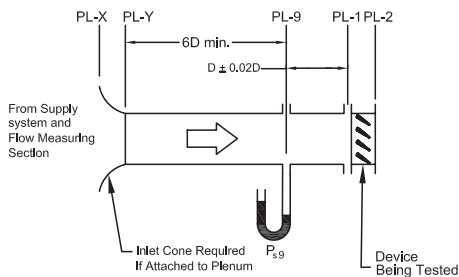


Figure 5.2- Test Device Setup with Inlet Duct Exhaust Application



Metropolitan Air Technology certifies that model BL-201 blast damper shown heron (or herein) is licensed to bear the AMCA Listing Label. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Rating Seal applies to Air Performance.

Blast Protection Damper

BL-201 Series

DAMPER FREE AREA CHART (sqm)

WIDTH (OUTSIDE FRAME DIMENSION)

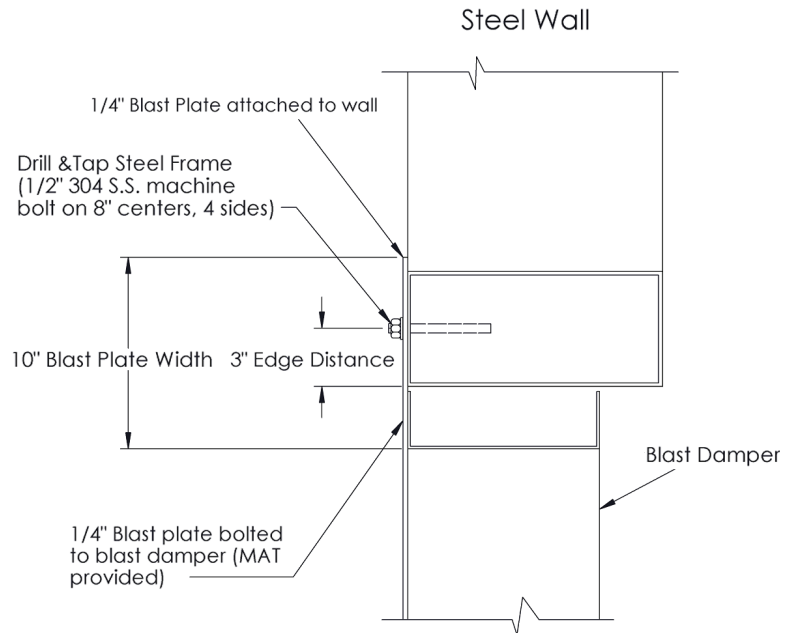
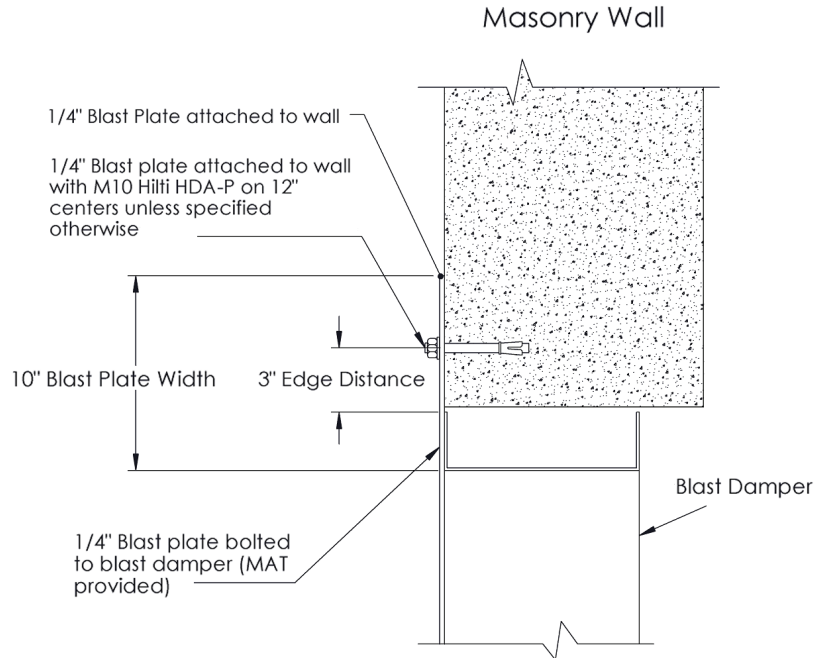
	350	400	500	600	700	800	900	1000	1100	1200	1300	1350
350	0.018	0.022	0.031	0.040	0.049	0.058	0.066	0.075	0.084	0.093	0.102	0.106
400	0.021	0.026	0.036	0.046	0.057	0.067	0.077	0.088	0.098	0.108	0.119	0.124
500	0.028	0.035	0.049	0.063	0.077	0.091	0.105	0.119	0.133	0.147	0.161	0.168
600	0.041	0.051	0.071	0.092	0.112	0.133	0.153	0.174	0.194	0.214	0.235	0.245
700	0.048	0.060	0.084	0.107	0.131	0.155	0.179	0.203	0.227	0.251	0.275	0.286
800	0.058	0.073	0.102	0.131	0.160	0.190	0.219	0.248	0.277	0.306	0.335	0.350
900	0.071	0.089	0.124	0.160	0.196	0.231	0.267	0.302	0.338	0.373	0.409	0.427
1000	0.079	0.099	0.138	0.178	0.217	0.257	0.296	0.336	0.375	0.415	0.454	0.474
1100	0.089	0.111	0.155	0.199	0.244	0.288	0.332	0.377	0.421	0.465	0.510	0.532
1200	0.094	0.118	0.165	0.213	0.260	0.307	0.354	0.401	0.449	0.496	0.543	0.567
1300	0.112	0.140	0.196	0.251	0.307	0.363	0.419	0.475	0.531	0.587	0.643	0.670
1400	0.121	0.152	0.213	0.273	0.334	0.395	0.456	0.516	0.577	0.638	0.699	0.729
1500	0.132	0.165	0.231	0.296	0.362	0.428	0.494	0.560	0.626	0.692	0.758	0.790
1600	0.139	0.174	0.243	0.313	0.382	0.452	0.521	0.590	0.660	0.729	0.799	0.834
1650	0.148	0.184	0.258	0.332	0.406	0.479	0.553	0.627	0.701	0.774	0.848	0.885

Free Area Chart Not Certified by AMCA

Blast Protection Damper Installation Instructions (BL-201Series)

Installation Instructions

- Attachment is to be made on the same side as the blast
- Substrates may vary from above application; site specific engineering may be required.



Blast Protection Damper

BL-201 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 250mm deep x 75mm flange 10 gage carbon steel channel. Sleeve with inner frame is not acceptable. Blades shall be maximum 175mm wide, minimum 10 ga. carbon steel airfoil shaped double-skin. A 250mm wide x 6.35mm thick steel blast plate to be bolted to front flange. Axles shall be continuous 25mm diameter HSLA steel (ASTM 588) welded to blades. 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 1 bar, 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-201 blast damper. Add "-GR" suffix for equalizing grid.