



Blast Tube Array (BTA)

Protecting equipment and personnel from reflected blast pressures with the Wozair BTA Blast Tube Array.



Blast Tube Array

The BTA is designed to provide protection to persons and equipment during blast events, mitigating the passage of blast pressure along a ventilation system using only a static design array of Stainless Steel tubes. The unique design of the BTA carries a European Patent (no. EPO - 2024674) and USA Patent (no. US 9,920,871 B2).

It has been tested successfully with blast pressures from 0.05-10 barg, without damage. Tests have been performed by Eurofins Export Services (formerly VTT Expert Services) and have been verified by DNV GL.

The BTA is for use in ventilation system at any facility with potential for a blast event to occur such as Nuclear power plants, Naval and Military installations, and Oil & Gas production facilities and refineries.

The BTA has a fully welded casing. Welding is performed by coded welders, with NDT available on request.

Features & Benefits

The BTA has several advantages over a conventional reactive device such as:

- Maintenance free
- Suitable for use in all hazardous or safe areas
- Seismic resistant
- Installation in any orientation – vertical or horizontal duct or concrete wall
- Bi-directional airflow – consistent pressure drop regardless of airflow direction
- Bi-directional blast – consistent blast pressure attenuation regardless of blast direction



Technical Information

Blast Pressure

Blast 0.06 - 2.1 barg for a maximum of 20 consecutive blasts. Also individually tested at 5-10 barg (size 8"W x 10"H)

Minimum Size

8"W x 10"H x 13.75"D

Maximum Size

47.25"W x 78.75"H x 13.75"D

Materials of Construction

Casing and Flanges:

Materials

Stainless Steel 304L/316L (1.4307/1.4404)

Thickness

6G thick

Fully welded

Flange drilling detail to ISO 15138:2018

Custom flanges as option including option for bolting to concrete wall

Baffle:

Materials

Static tube array. No moving parts.

Mechanical Options

The following options can be incorporated if required.

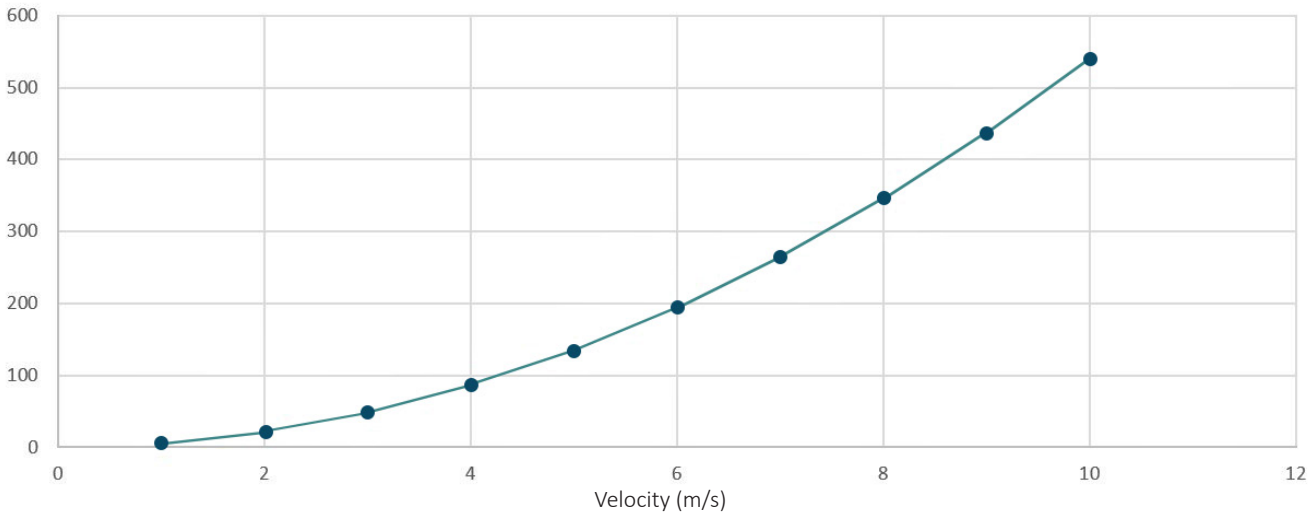
- Various options for fitting into circular ductwork
- Earth bosses
- Lifting lugs

Physics of a Blast

An explosion releases energy into the atmosphere. Pressure increases almost instantaneously from ambient to a peak pressure (also referred to as Peak Overpressure) forming a pressure shock wave with highly compressed air known as the Incident Blast Wave. The minuscule rise time from ambient to peak pressure is referred as the Blast Duration.

The blast wave rapidly expands into the atmosphere spherically until equilibrium is reached, thereafter pressure decays with time and displacement. A negative pressure phase is also formed in the process as shown below. The negative pressure phase is longer in duration and is not considered critical in designing blast resistant and blast proof structures.

Pressure Drop



Weights

BTA Weight Matrix (Duct Mounting) - 13.75"D

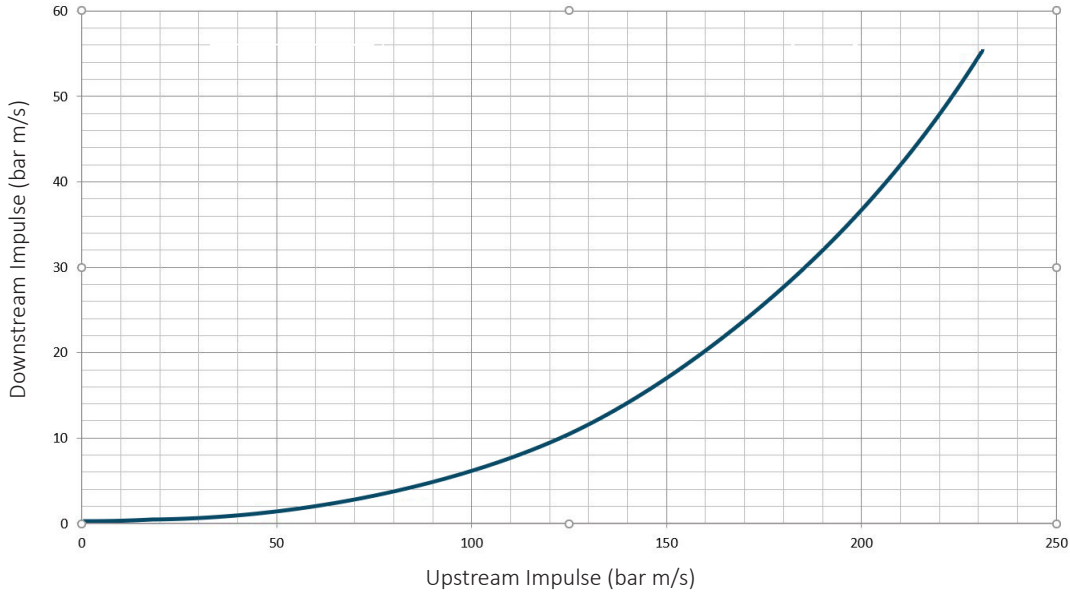
lb	H (in)										
	10	16	24	31	39	47	55	63	71	79	
W (in)	8	64	95	130	165	201	256	293	331	368	406
	12	79	117	159	201	243	309	353	397	441	485
	16	99	137	187	236	287	359	410	463	514	564
	20	117	159	216	271	328	410	470	527	586	646
	24	132	181	245	309	373	461	527	593	659	725
	28	148	201	273	344	414	514	586	659	732	805
	31	165	223	302	379	459	564	644	725	805	886
	35	181	245	331	414	500	615	703	791	877	966
	39	196	267	359	452	545	666	761	855	950	1045
	43	234	311	412	514	615	719	820	922	1023	1127
47	251	333	441	551	659	769	877	988	1096	1206	

BTA Weight Matrix (Wall Mounting) - 13.75"D

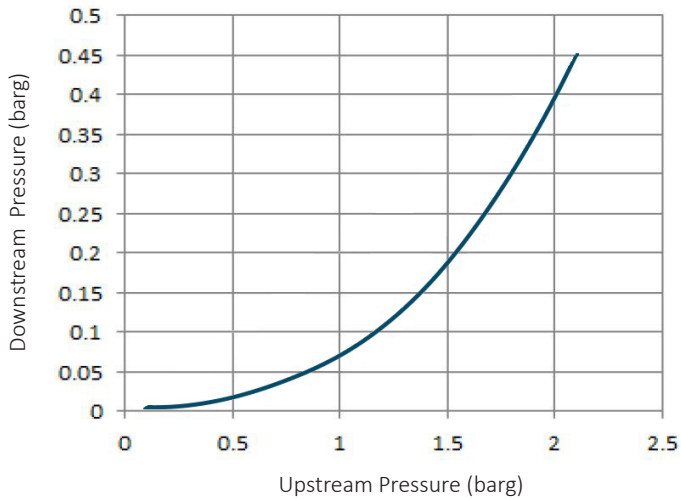
lb	H (in)										
	10	16	24	31	39	47	55	63	71	79	
W (in)	8	104	134	176	216	258	300	340	381	423	463
	12	123	159	207	256	304	353	401	450	498	545
	16	141	183	238	295	351	406	461	516	571	628
	20	161	207	271	333	397	459	522	584	646	710
	24	181	234	302	373	443	511	582	653	721	791
	28	198	258	335	412	487	564	642	719	796	873
	31	218	282	366	450	534	619	703	787	871	955
	35	238	306	397	489	580	672	763	855	946	1038
	39	256	331	430	527	626	725	825	922	1021	1120
	43	276	355	461	567	672	778	884	990	1096	1202
47	295	379	492	606	719	831	944	1058	1171	1283	

Upstream/Downstream Curve

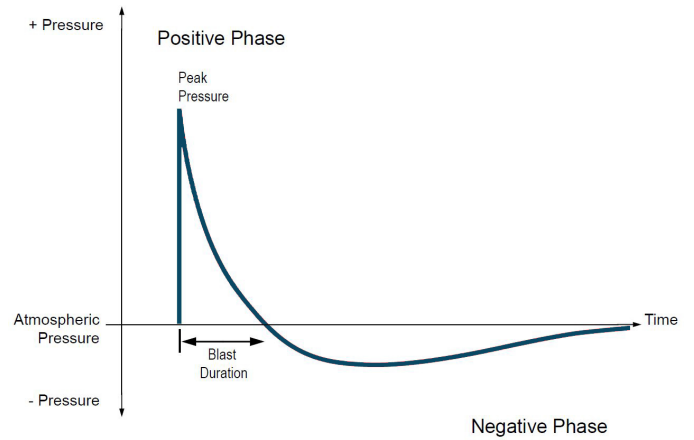
Note - Blast Duration 40 to 70 ms



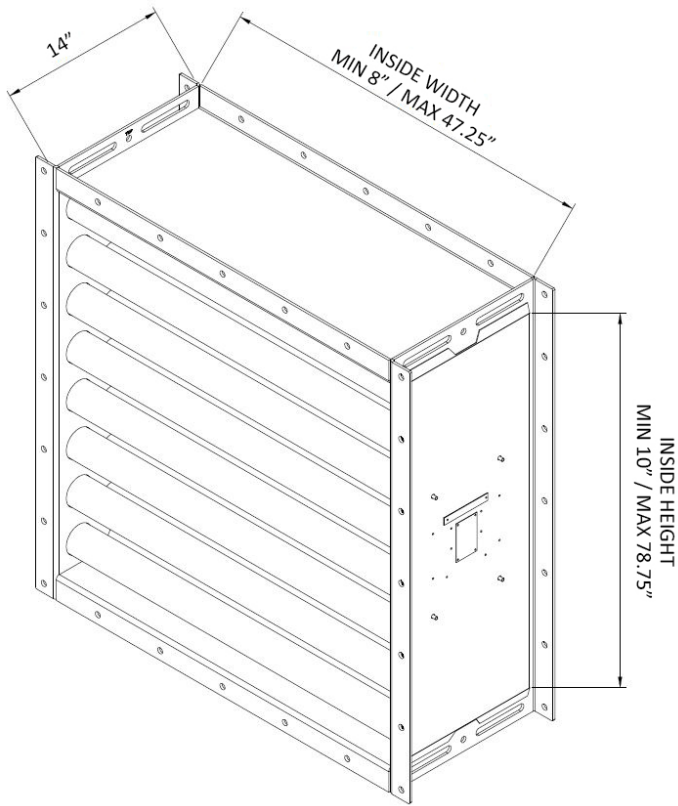
Performance - Explosion Curve (short duration blast)



Pressure Transient of a Blast Wave



Dimension Drawing Example



Ordering

Type: BTA	Duct Width: 39"
Duct Height: 39"	Case Depth: 8"
Type Wozair: BTA	
Case Material: <u>Stainless Steel</u> Low Carbon 1.4307 = 304L Low Carbon 1.4404 = 316L	
Case Thickness: 6G	
Order Code Example: BTA/316L/6G/39W/39H	

Additional Images



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