

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 200W x 250H mm)

Minimum Size

200W x 250H x 400D mm

Maximum Size

1200W x 2000H x 400D mm

Materials of Construction

Casing and Flanges:

Materials

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

Thickness

5.0 mm 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

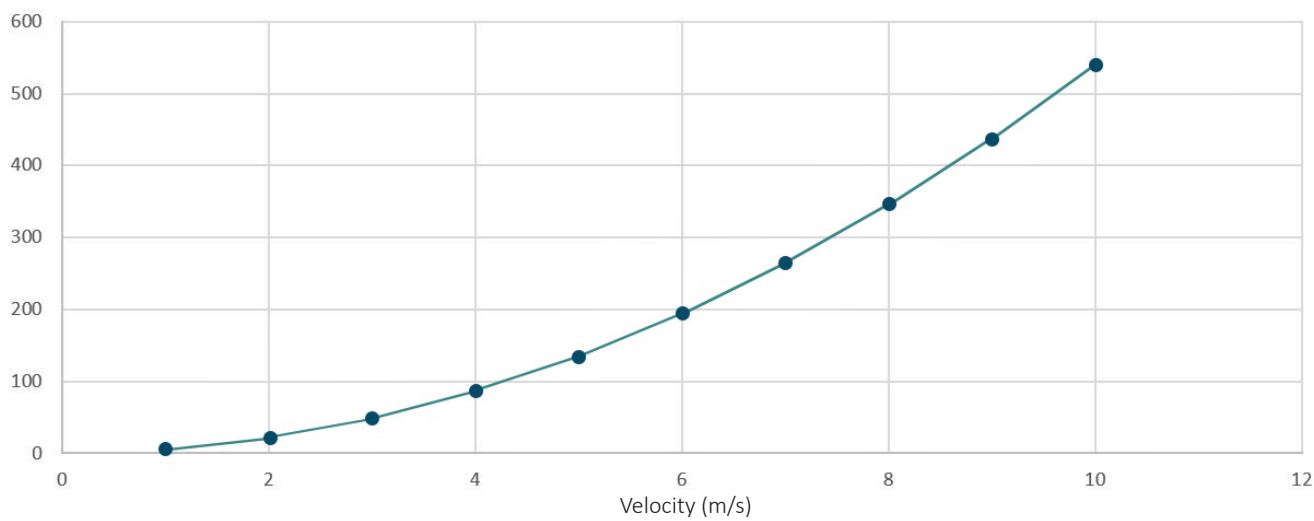


Physics of a Blast

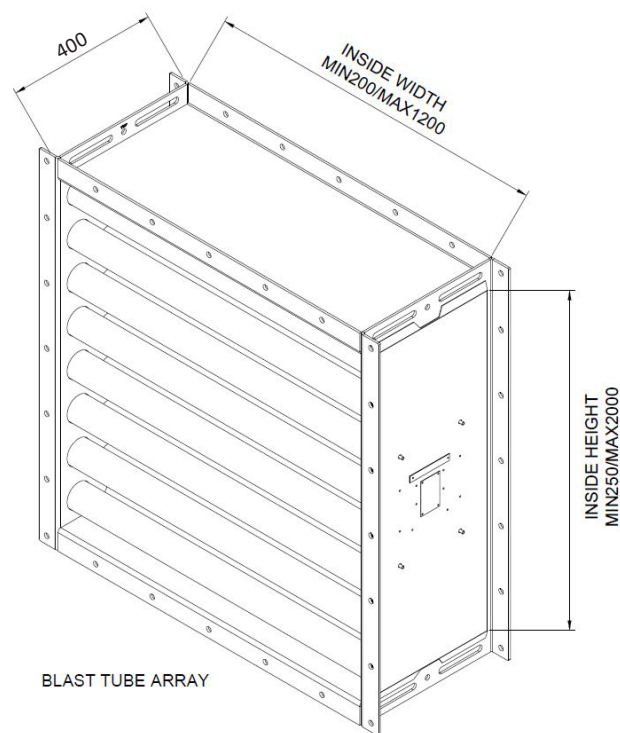
An explosion releases energy into the atmosphere. Pressure increases almost instantaneously from ambient to a peak pressure (also referred to as Peak Overpressure) forming a pressure shock wave with highly compressed air known as the Incident Blast Wave. The minuscule rise time from ambient to peak pressure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



Dimension Drawing Example



Weights

BTA Weight Matrix (Duct Mounting) - 400D

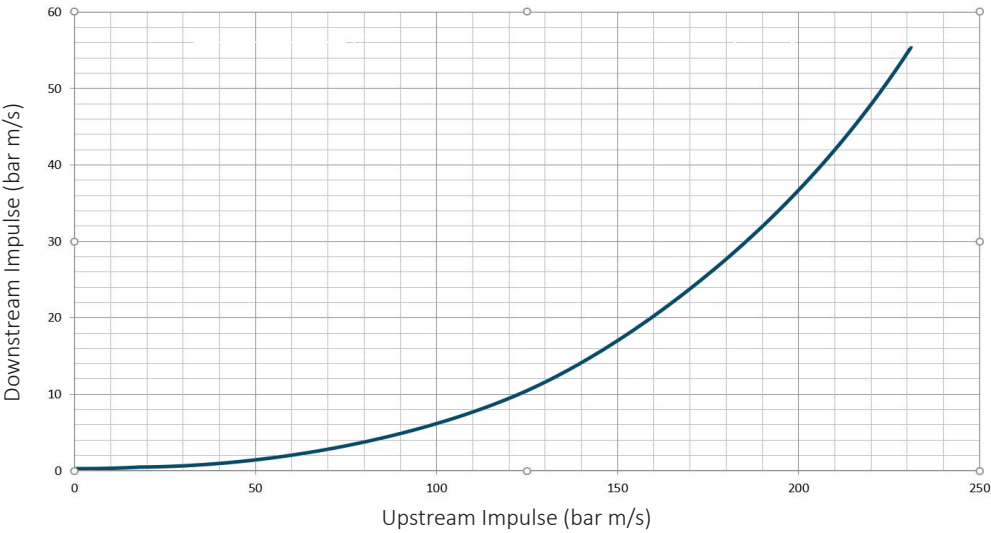
Kg		H (mm)									
		250	400	600	800	1000	1200	1400	1600	1800	2000
W (mm)	200	31	46	63	79	96	122	140	158	175	193
	300	39	56	76	96	116	146	167	188	209	230
	400	48	66	89	112	136	170	194	218	242	266
	500	56	76	103	129	155	193	221	248	276	303
	600	64	86	116	146	176	217	247	278	309	340
	700	71	96	130	162	195	241	275	309	342	376
	800	80	106	143	179	216	264	301	339	376	414
	900	87	117	156	195	235	298	329	369	409	450
	1000	94	127	170	213	255	311	355	399	443	486
	1100	112	147	194	241	288	336	382	429	476	524
	1200	120	158	208	258	308	359	409	460	509	560

BTA Weight Matrix (Wall Mounting) - 400D

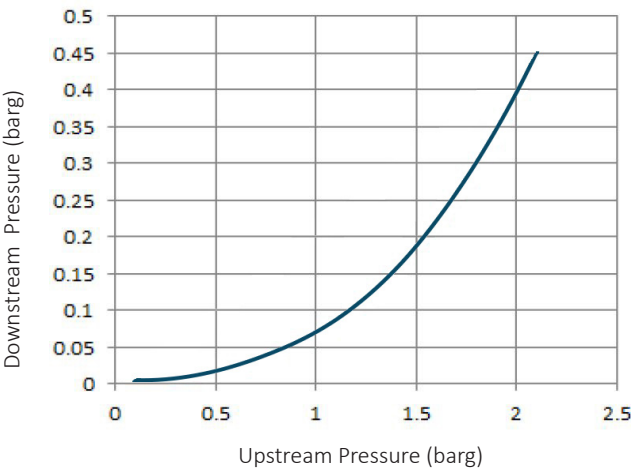
Kg		H (mm)									
		250	400	600	800	1000	1200	1400	1600	1800	2000
W (mm)	200	49	64	84	102	122	142	161	181	200	219
	300	59	75	98	121	144	166	189	212	235	257
	400	67	87	112	139	165	191	217	242	268	295
	500	76	98	128	157	186	215	245	274	303	332
	600	86	110	142	175	208	240	272	305	337	370
	700	94	122	158	193	228	264	300	336	371	407
	800	104	133	172	211	250	289	328	367	406	445
	900	113	145	186	229	271	314	356	398	440	483
	1000	121	156	202	247	292	338	384	429	475	520
	1100	131	167	216	265	314	363	411	460	509	558
	1200	140	179	231	283	335	387	439	492	543	595

Upstream/Downstream Curve

Note - Blast Duration 40 to 70 ms



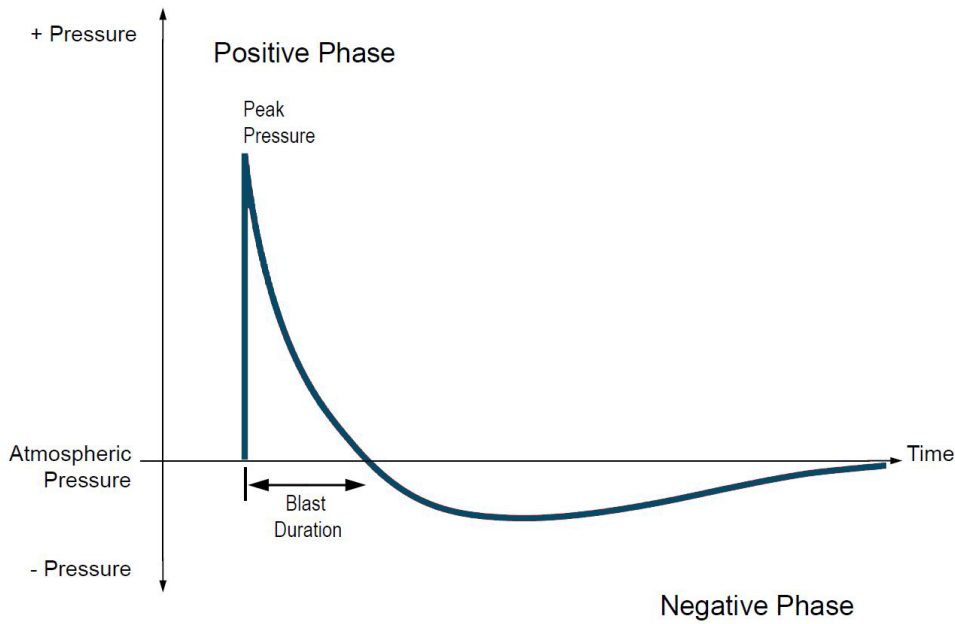
Performance - Explosion Curve (short duration blast)



Ordering

Type:	BTA	Duct Width:	1000
Duct Height:	1000	Case Depth:	200
Type Wozair: BTA			
Case Material:			
<u>Stainless Steel</u>			
Low Carbon 1.4307 = 304L			
Low Carbon 1.4404 = 316L			
Case Thickness: 5.0 mm			
Order Code Example:			
BTA/316L/5.0/1000W/1000H			

Pressure Transient of a Blast Wave



Additional Images



Wozair Limited

Grosvenor Road
Gillingham Business Park
Gillingham
Kent
ME8 0SA
United Kingdom

Phone +44 (0)1634 790 336

Email hvac@wozair.com

Wozair (USA) Ltd

3601 North Loop
336 West
Conroe
Texas
77304
United States of America

Phone +1 936 521 5990

Email houstonhvac@wozair.com

Wozair (Asia) Pte Ltd

2 Venture Drive
8-23 Vision Exchange
608526
Singapore

Phone +65 6890 6506

Email hvac@wozair.com.sg

Wozair Middle East

JAFZA One
Tower B, Office 1316
Jebel Ali Free Zone
Dubai, UAE
P.O. Box 262404

Phone +971 (0) 4 887 0147

Email dubaihvac@wozair.com