

BDH – Blast protection damper



Overview

- Shock tube tested for detonation (shock) type pressure wave
- Shock tube tested for deflagration (blast) type pressure wave
- Shock tube testing in compliance with GSA TS01 and ASTM F 1642-04(2010).
- Debris (steel balls and wood plank missile) impact tested
- Debris impact testing in compliance with ASTM E 1886-13a and ASTM E 1996-14a
- Aerodynamic testing according to EN 1751
- Blade angle in normal open position is 45 degrees
- ATEX certified
- Recommended maximum air velocity 10 m/s
- Maximum shock and blast wave pressure 1.0 bar
- Normal operation temperature for stainless steel damper is between -60 °C to +80 °C
- Normal operation temperature for carbon steel damper is between -20 °C to +80 °C

Specification

Halton BDH blast dampers protect against overpressure in offshore, onshore and heavy industry ventilation systems. The BDH can be installed in rectangular ducts or wall openings. When the blades are in the open position, the device does not cause significant pressure loss, noise or flow disturbance. The BDH has an adjustable arming mechanism to cope with different air velocity and closing pressure requirements. An open-closed indicator is visible on the outside of the damper. There is no external power source needed to operate damper. In case of a blast incident, the pressure wave closes the blades. There is a locking mechanism preventing the blades from opening during the negative phase. After a blast incident, the blades remain locked in the closed position, until the damper is set (armed) again.

Dimensions and Material Thickness

BDH blast protection dampers are available for rectangular ducts and wall openings. Width B is 300-1200 mm, 25 mm division. Height H is 200-1200 mm, 50 mm division. Larger damper available as a modular construction.

As a standard, flange width and bolt hole drilling is according to ISO 15138 standard.

Frame depth is 400 mm, frame thickness is 5 mm.

Blade thickness is 5 mm, blade shaft diameter is 25 mm. Blades are bolted to shafts.

Damper has 1 – 6 blades. In multiblade damper (2 – 6 blades), blades are connected via linkage and operate in parallel. Linkage thickness is 8 mm.

Debris catcher is diameter 6 mm wire, open area between wires is 40 x 40 mm.

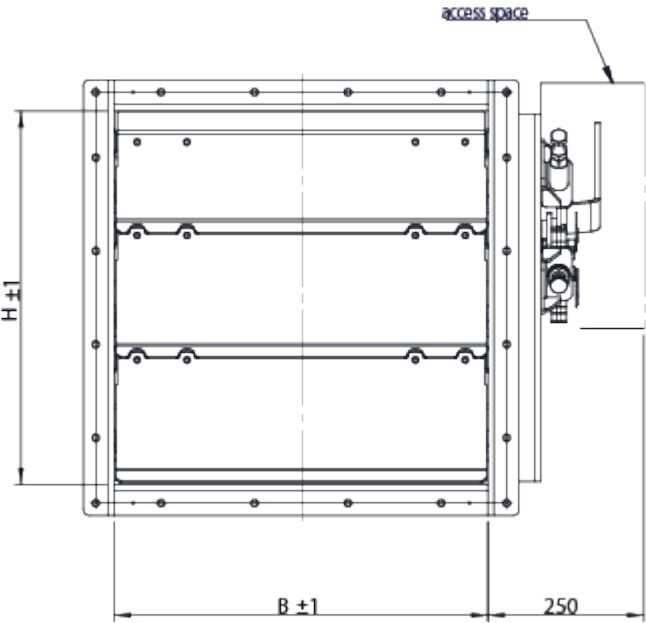
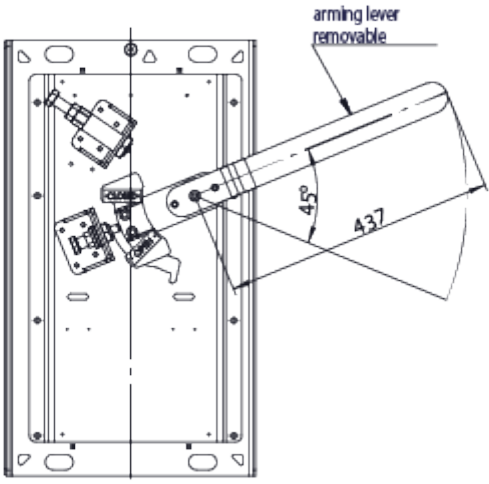
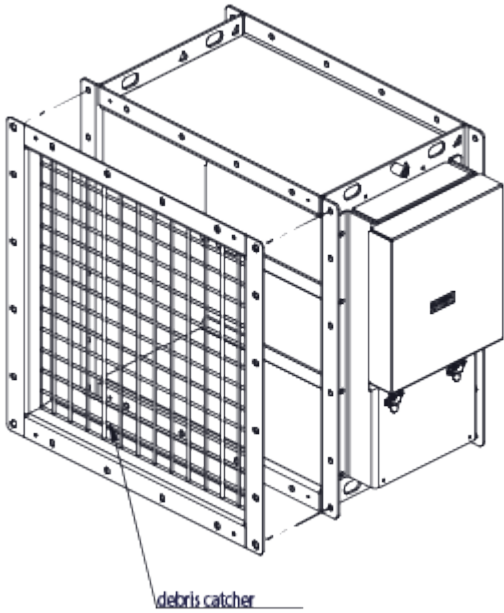
Damper size BxH	Opening size concrete wall (max) Bf x Hf	Opening size steel wall / duct / coaming (max) BxH
300x300	190x190	300x300
400x400	280x280	400x400
500x500	380x380	500x500
600x600	480x480	600x600
700x700	580x580	700x700
800x800	680x680	800x800
900x900	780x780	900x900
1000x1000	880x880	1000x1000
1100x1100	970x970	1100x1100
1200x1200	1070x1070	1200x1200

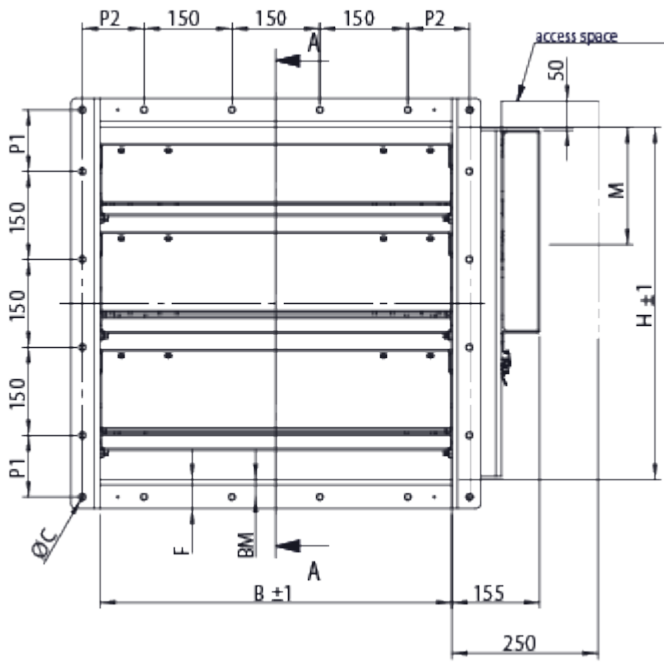
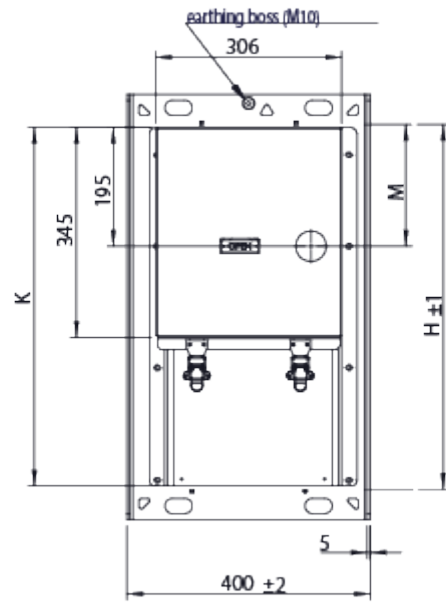
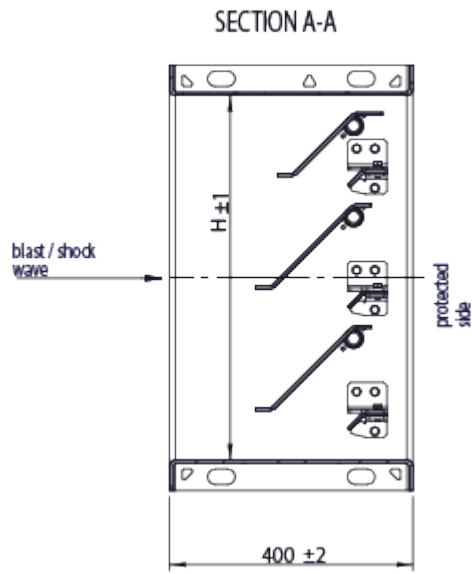
H	M	K
1200	200	1190
1150	200	1140
1100	200	1090
1050	200	1040
1000	200	990
950	200	940
900	200	890
850	200	840
800	200	790
750	200	740
700	200	690
650	200	640
600	200	590
550	200	540
500	200	490
450	250	440
400	200	435

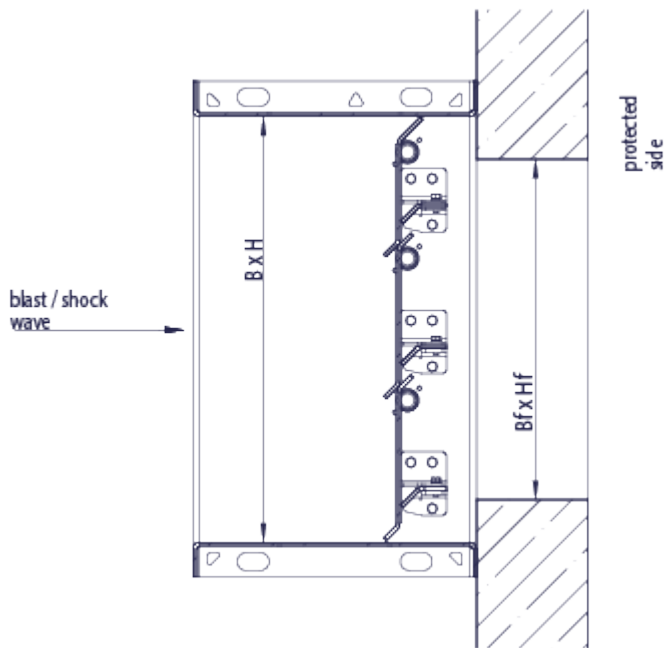
Flange dimensions according to ISO 15138

DIMENSIONS	ØC	F	P1	P2	BM
If longest side ≤ 350	10	40	75...150	75...150	20
If longest side 351...1000	12	50	75...150	75...150	30
If longest side ≥ 1001	14	80	75...150	75...150	40

BDH, General Drawings







Material and Finishing

PART	MATERIAL	FINISHING
Frame	Carbon steel	Painted or hot dip galvanised
Frame	Stainless steel EN 1.4404 (AISI316L)	–
Blades	Carbon steel	Hot dip galvanised
Blades	Stainless steel EN 1.4404 (AISI316L)	–
Setting, closing and locking mechanism	Stainless steel EN 1.4404 (AISI316L)	–
Maintenance-free bearings	Stainless steel EN 1.4404 (AISI316L)	–
Shafts	Stainless steel EN 1.4404 (AISI316L)	–
Debris catcher	Carbon steel	Hot dip galvanised
Debris catcher	Stainless steel EN 1.4404 (AISI316L)	–

Product Models and Accessories

Arming tool to open the damper, at least one tool per building.

Debris catcher to prevent large objects from entering to protected area.

Weights

Weights of standard Halton Marine BDH dampers (KG)

H/Height	B/Width (mm)									
(mm)	300	400	500	600	700	800	900	1000	1100	1200
200	41	43	46	49	52	55	57	60	63	66
300	52	56	60	63	67	71	75	79	83	87
400	63	68	73	78	83	88	93	98	103	108
500	74	80	86	92	99	105	111	117	123	129
600	85	92	100	107	114	122	129	136	143	151
700	96	105	113	122	130	138	147	155	164	172
800	107	117	126	136	146	155	165	174	184	193
900	122	133	143	154	165	175	186	197	207	218
1000	133	145	157	168	180	192	204	216	227	239
1100	144	157	170	183	196	209	222	235	248	260
1200	155	169	183	197	211	226	240	254	268	282

Installation

Damper can be installed outside of the building wall, or between duct flanges.

Wall material can be concrete or steel.

In concrete wall, damper is installed using anchor bolts.

In steel wall, damper is installed using bolts or by welding.

Detailed information on installation available on BDH installation, operation and maintenance manual.