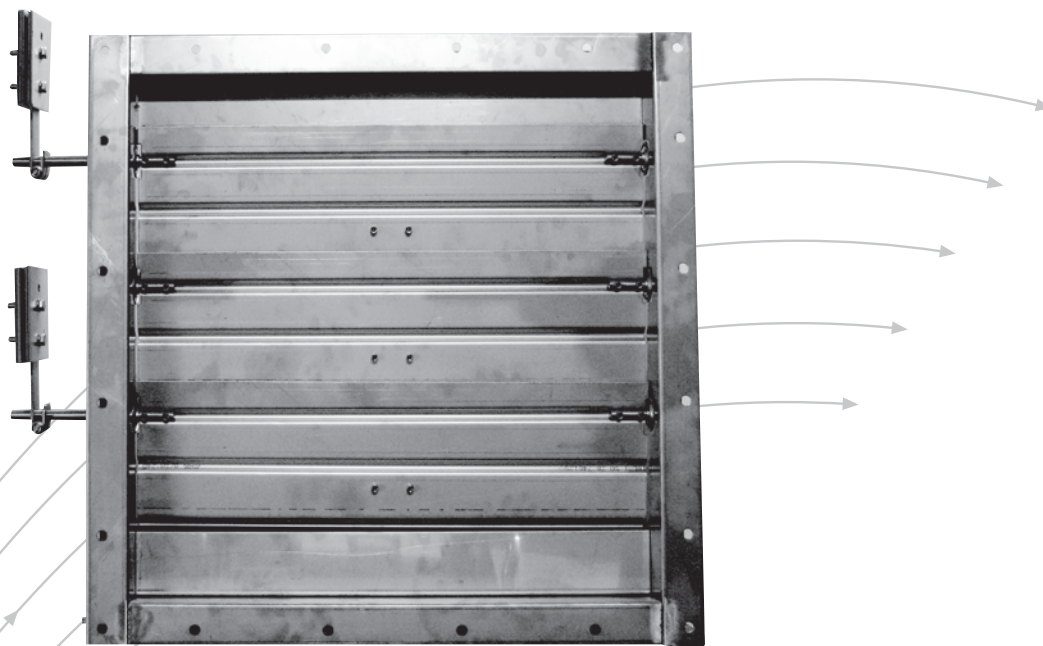


Back Draught Dampers

Type BDD



TROX[®] TECHNIK

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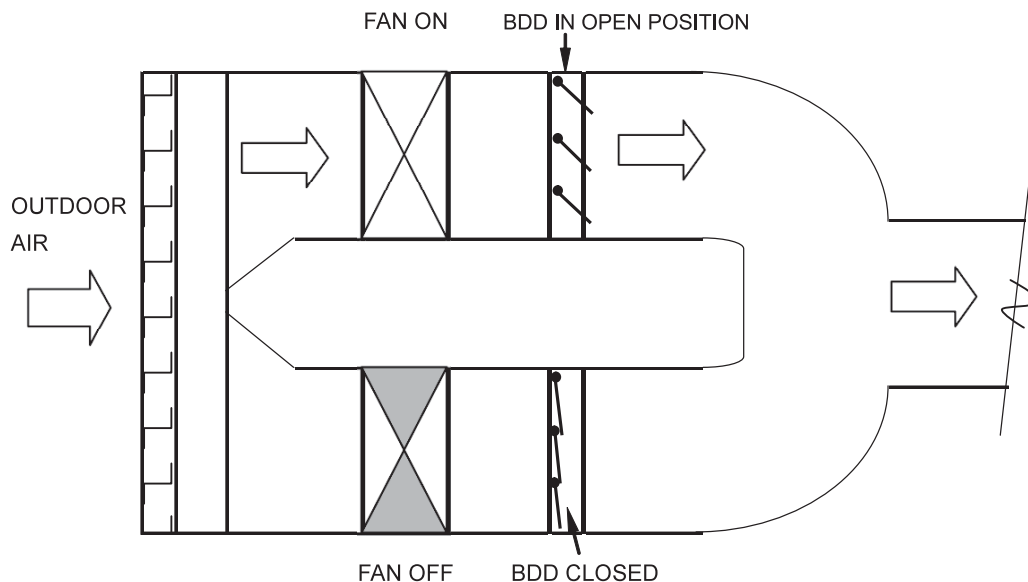
Note: Silicon based sealant will be used on this 'BDD' Type dampers. If required, special silicon free sealant can be applied to the damper.

The TROX 'BDD' Type damper is a non-return damper intended to be used in a mechanical ventilation systems and buildings to prevent back-flow. The damper is designed to allow air flow in only one direction. It will close automatically when the supply fan located upstream of the damper is switched off or, when there is a sudden build up of pressure down stream of the damper. It can also serve as an adjustable pressure relief damper.

When this damper is installed to the discharge side of a duty and a stand-by fan, the damper will only open when the fan upstream of the damper is in operation as shown in the Figure 1 below.

Note: This damper should only be mounted vertically in a horizontal ducting.

Figure 1: Application of Non-return Damper is a dual fan arrangement to prevent short-circuiting.



Construction · Materials · Standard Sizes

Type BDD

- The damper casing and blades are made from 1.5 mm thick galvanized steel sheet.
- The blades are fitted with 12 mm diameter mild steel spindle in zinc plating.
- The blade spindles are connected to the damper casing with bearing journals which have a maximum operating temperature of 80 °C.
- The damper has face linkage with parallel blade arrangement.
- Counter-weight arm(s) is fitted to the side of the damper casing complete with adjustable weights, located outside of the air stream.
- The blades are fitted with tip seals made of Silicon rubber.

Note: PVC top seals are available if requested.

Type BDE

This is of similar construction to Type 'BDD' damper except that the damper casing, blades, and, blade spindles and linkage are made from Grade 430 (or equivalent) stainless steel. This variant will be fitted with stainless steel bearings instead.

Damper constructed in Grade 304 stainless steel is also available if requested.

- ① Casing
- ② Landing angle
- ③ Blade assembly
- ④ Linkage Spindle
- ⑤ Joining rod
- ⑥ Stub spindle
- ⑦ Drive spindle
- ⑧ Counter weight

Type BDD/E – A

With 40 mm wide flange casing (as standard supply)

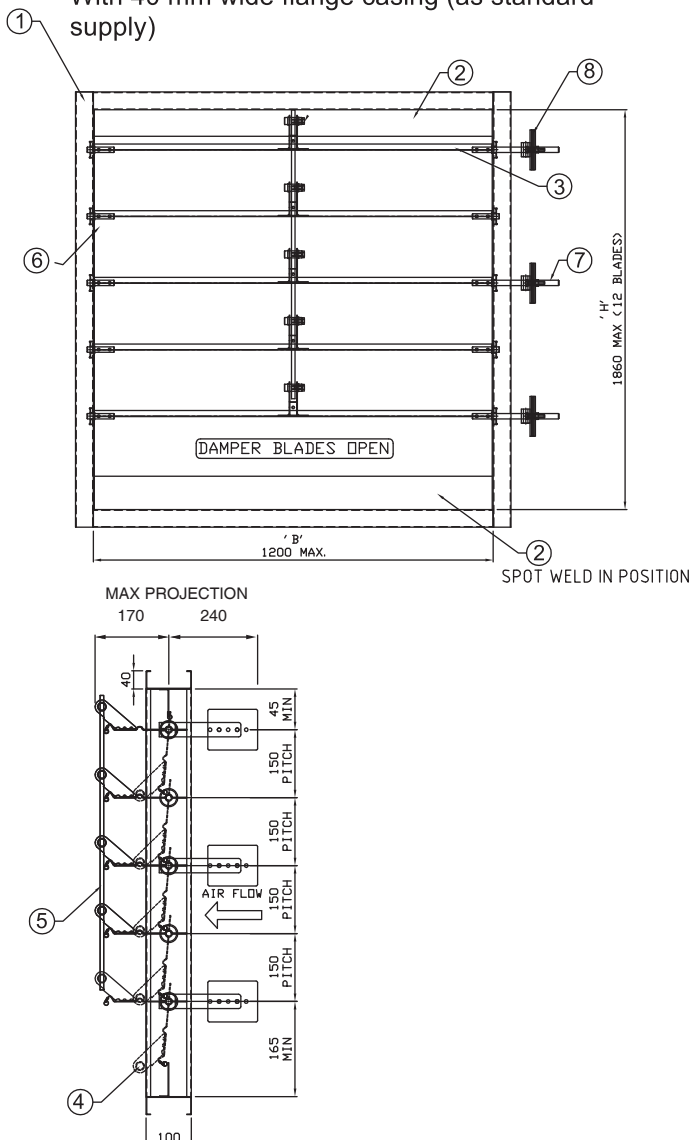


Table 1: Standard Sizes for BDD/E – A

B (mm)	H (mm)	No. of blades
150	210	1
200	360	2
250	510	3
300	660	4
350	810	5
400	960	6
450	1110	7
500	1260	8
600	1410	9
700	1560	10
800	1710	11
900	1860	12
1000		
1100		
1200		

Note:

The standard sizes given in tables 1, 2 and 3 are to the external duct connection dimensions. Where possible, standard damper sizes as indicated in the table above should be used. If non-standard damper sizes are required, then the technical performance data for the next smaller standard height should be used as an appropriate performance guide. In this case, please contact TROX for further details.

Minimum and Maximum module size:

Min. size - 150 mm (B) x 210 mm (H)
 Max. size - 1200 mm (B) x 1860 mm (H)

Construction · Standard Sizes

• **Type BDD/E – A2**
With rectangular spigot

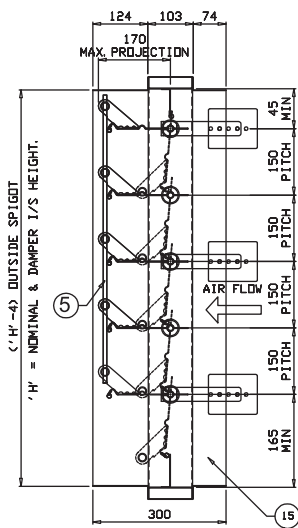
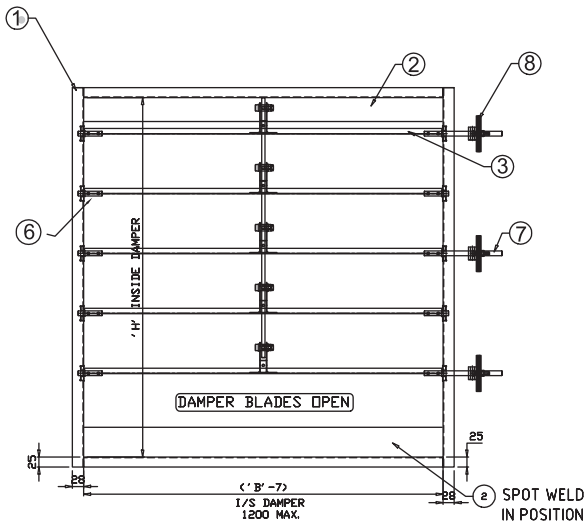


Table 2: Standard Sizes for BDD/E – A2

B (mm)	H (mm)	No. of blades
150	210	1
200	360	2
250	510	3
300	660	4
350	810	5
400	960	6
450	1110	7
500	1260	8
600	1410	9
700	1560	10
800	1710	11
900	1860	12
1000		
1100		
1200		

Minimum and Maximum module size:
Min. size - 150 mm (B) x 210 mm (H)
Max. size - 1200 mm (B) x 1860 mm (H)

Type BDD/E – A3
With circular spigot

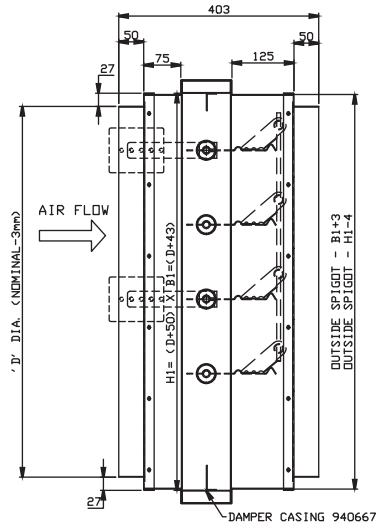
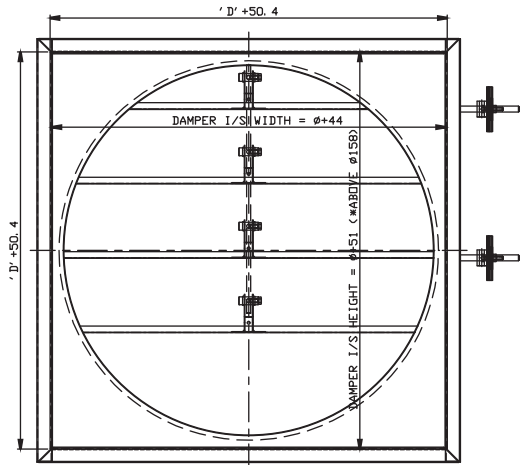


Table 3: Standard Sizes for BDD/E – A3

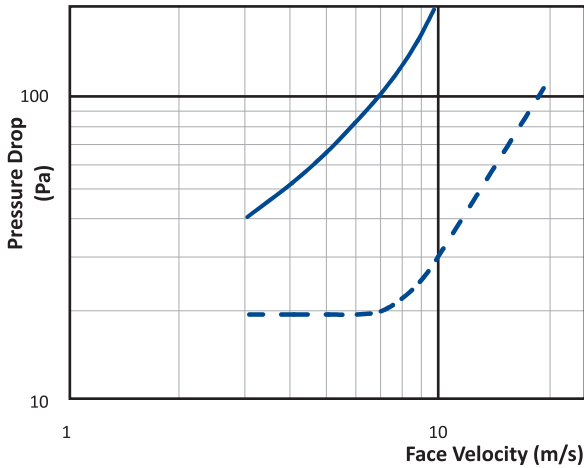
Diameter (mm)	No. of blades
150	1
175	1
200	1
250	1
300	1
350	2
400	2
450	2
500	3
600	3
700	4
800	5
900	5
1000	6

Minimum and Maximum module size:
Min. size - 150 mm Ø
Max. size - 1000 mm Ø

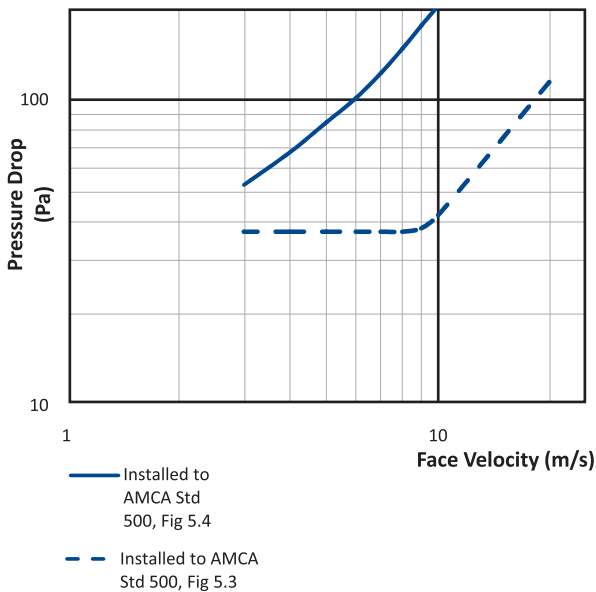
Note:

The tables above are external duct dimensions. Where possible, standard damper sizes as indicated in the table above should be used. If non-standard damper sizes are required, then the technical performance data for the next smaller standard height should be used as an appropriate performance guide. In this case, please contact TROX for further details.

Graph 1: Pressure drop characteristic for a 1000 x 1000 BDD damper fitted with 7 pcs of 90 x 110 mm weights on each counter-weight arm.



Graph 2: Pressure drop characteristic for a 1000 x 1000 BDD damper fitted with 6 pcs of 90 x 110 mm weights on each counter-weight arm.



Notes:

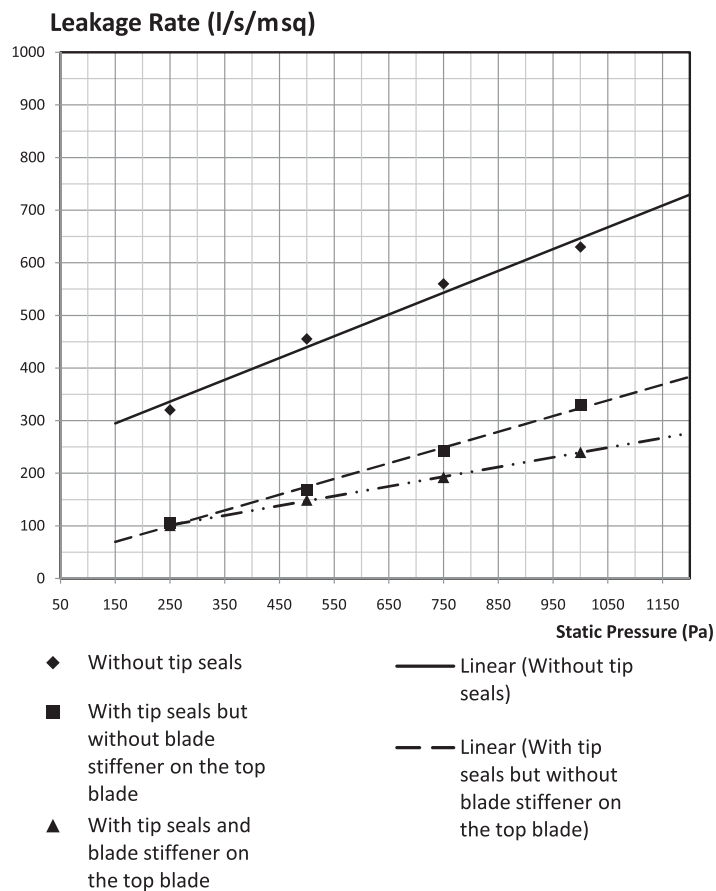
1. Fig. 5.3 in the AMCA Standard shows that the metal ducting is connected on both sides of the damper.
2. Fig. 5.4 in the AMCA Standard shows that the damper is installed to a chamber outlet.

Mode of operation

This damper is fitted with counter-weight arm(s) to the side of the damper casing outside of the air stream. The weights the counter-weight arms and their position can be manually adjusted to allow the damper blades heavier or lighter as required.

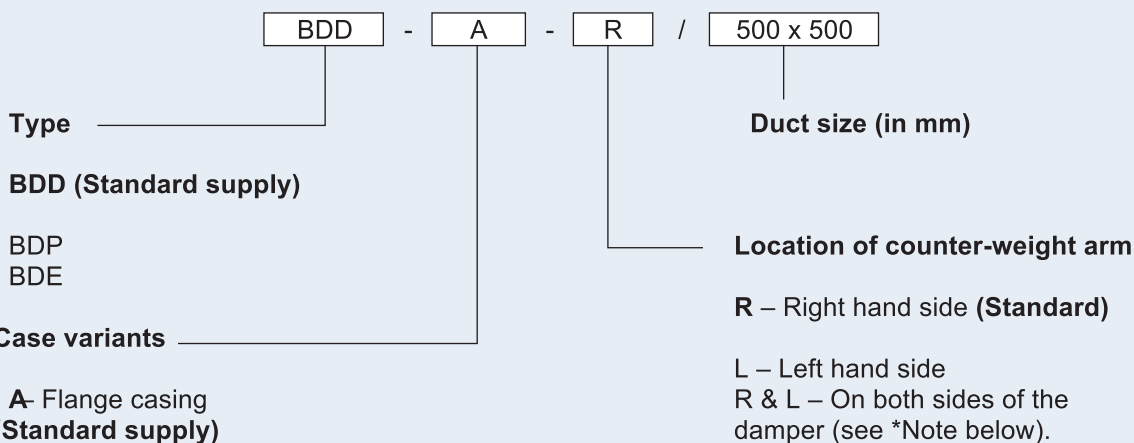
The damper blades will return to the fully closed position when the air pressure exerted from the upstream side of the damper returns to the normal atmospheric pressure.

Graph 3: Closed blade leakage characteristic for a 1000 x 1000 BDD damper with and without tip seals. Leakage (l/s)



Order Details

Order Code



***Note:**
If the damper is made out of two modules and, arranged side by side, then counter-weight arms will be located on both sides of the damper casing.

General specification

This Back Draught (or Non-return) Damper is available in galvanized steel, Type 'BDD' or stainless steel construction, Type 'BDE'. It has been tested to AMCA 500¹ and BS 6821² standards to determine its pressure drop and closed blade leakage performance as shown in the catalogue.

References:

1. AMCA Standard 500-D-98, "Laboratory Methods for Testing Dampers for Rating." Pub. Air Movement and Control Association International, Inc.
2. BS 6821:1988, "Aerodynamic testing of dampers and valves." Pub. British Standards Institution.

NOTE:

Standard supply does **NOT** come with pre-drilled flanges. This is only provided as optional extra. For detail, please contact TROX Malaysia Sdn. Bhd.

Order example

Make: TROX
Type: BDD – A – R / 500 x 500
Quantity: 8 nos.

Case variant	Minimum Size (mm)	Maximum Size (mm)
A	110 x 210	1200 x 1860
A2	120 x 210	1200 x 1860
A3	150 Ø	1000 Ø