OLS
BACKDRAFT DAMPER

MODEL BD3000 DESIGNED FOR INSTALLATION NEAR FAN DISCHARGE

Due to space constraint, backdraft dampers are frequently installed closed to fan discharge in ventilation system causing rattling noise and damage to the blade, blade linkage and its bearings. Our engineer at OLS have produced a completely new version of the backdraft damper that is fail-proof from air turbulence and does not cause rattling noise under turbulence flow.

The OLS BD3000 backdraft damper is a twin blade design that pivot on ball-bearing bushes and does not response to air turbulence like normal backdraft damper. Opening of the damper blade take place with very low pressure and air velocity, 10 Pa and 4 m/s respectively. And air leakage rate in closed position is less than 0.05 m3/s/m2 at 1000 Pa pressure differential not achievable with most backdraft damper. This damper can be constructed to handle high velocity and pressure ventilation system.

CONSTRUCTION

- Minimum size: 250 x 250mm.
- Maximum size single module 800 x 1,200mm.
- Larger size constructed of multiple modules for assembly on site by customer.
- Damper of width equal or less than 400mm is of single-blade construction and damper of width above 400mm is of double-blade construction.
- For single and double-module damper, flange size is 38mm wide and for larger size damper 50mm.
- Damper depth, D, is between 200mm and 250mm depending on damper height.
- As a standard, damper is constructed with pre hot-dipped galvanized steel. Damper is also available in stainless steel SS304 or SS316.

FEATURES

- Low pressure required to open damper.
- Low pressure loss
- No rattling noise due to air turbulence
- Low air leakage across closed damper (less than 1% based on approach velocity of 10 m/s at 1000Pa)
- No wear and tear of bearings and damage to blade when installed in close proximity to fan.
- Trouble-free operation

DAMPER RATING

- Leakage Rating: 1% based on 10 m/s air approach velocity at 1000 Pa.
- Pressure Rating: 2000 Pa (standard construction), >2000-7000 Pa (optional construction - refer to factory)
- Velocity: 10m/s (standard), 15 m/s (optional -refer to factory)
- Temperature rating: 50 degree C (for higher temperature rating - refer to factory)

APPLICATION

Damper is designed for uni-directional airflow application. Damper may be installed in closed proximity to the fan.

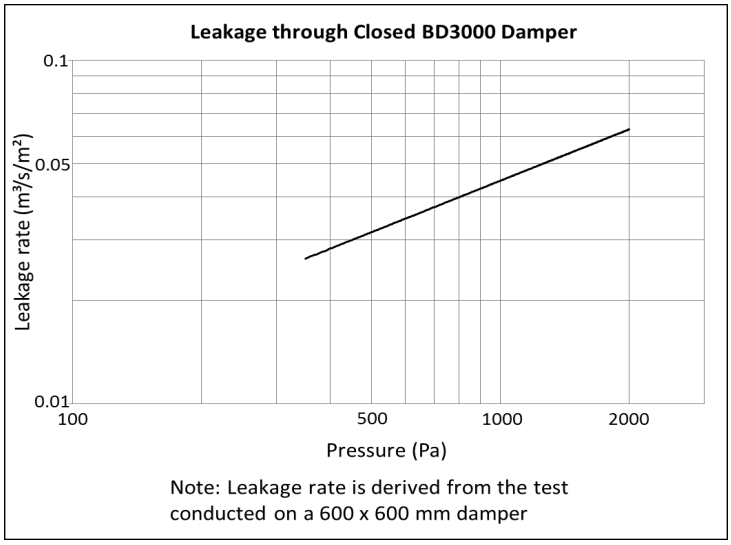
INSTALLATION

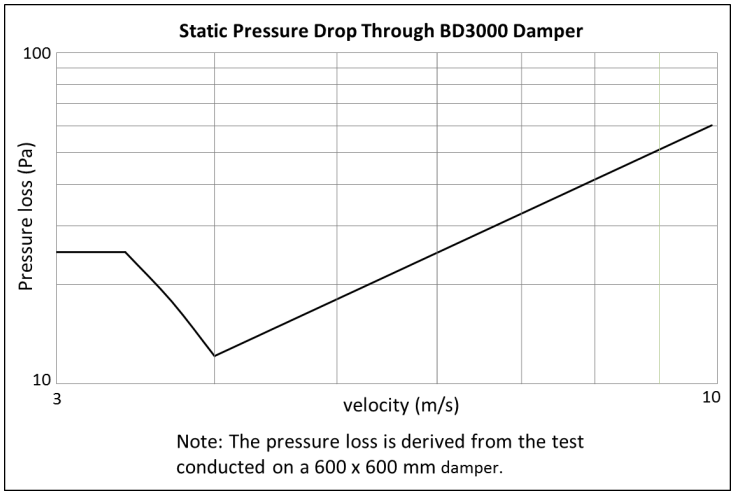
During Installation, it is necessary to check that the airflow direction, damper orientation and that the damper is installed vertically upright. Damper should be connected to duct using fastening cleat and 4 holes will be provided for bolting. Damper is not suitable for installation horizontally.

PERFORMANCE DATA

The pressure loss chart taken from actual test of BD3000 damper of size 600 X 600 mm shows damper is fully opened at air velocity of 4 m/s and pressure across blade of 10 Pa. At 7.5 m/s pressure loss across the damper increased to 38 Pa.

Test on 600 x 600 mm damper indicated leakage of 0.045 $m^3/s/m^2$ at 1000Pa





SPECIFICATION

Backdraft dampers shall be constructed of vertical blades pivoted on ball bearing bush for easy opening and closing and shall not response to air turbulence when installed near to fan discharge. The damper shall be constructed of hot-dip pre-galvanized steel (or stainless steel, type 304, type 316 - please specify according to your choice). Blade, frame and flange shall be constructed of 2 mm thick cold-formed steel. Blade stub shaft shall be square of 12.7 X 12.7 mm plated steel to prevent slipping. Damper shall be supplied in single-module construction of maximum size 800 mm width by 1200 mm height. Damper of larger size shall be supplied in modules for assembly on site. For multiple-module damper, each module shall have a frame constructed of 2.5 mm thick steel. Separate angle flanges of 2.5 mm thick shall be supplied with pre-punched holes for easy assembly on site and for rigidity. Blade-stop seal shall be constructed of double hardness vinyl to ensure effective sealing when the damper is closed. Seal installed on damper shall not prevent closing of the blade when the fan has come to a complete stop. Leakage across the closed damper shall be less than 1% based on pressure differential of 1000 Pa and approach velocity of 10 m/s. Damper shall not rattle and shall withstand turbulence flow when installed in closed proximity to the fan. Noise due to rattling of blades and linkages shall not be acceptable. Damper must be able to be installed within one equivalent diameter distance from the fan discharge.

Damper shall withstand operating pressure of 2000 Pa and velocity of 10 m/s. It shall be maintenance and trouble free in operation. The damper shall be fully open at low air velocity and pressure.

Damper shall be of similar in construction to OLS backdraft damper BD3000.

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