Air Flow Company, Inc.
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# Model BDM - 400
## Backdraft Damper
### Medium / Heavy Duty

Project: _____ Contractor: _____

Arch / Engr: _____ Customer: _____

**CONTROL DAMPER SCHEDULE**

| Item | Qty | Opening Size (W x H) | Frame Style | Finish | Seals | Material gauge | Mullions | Notes |
|---|---|---|---|---|---|---|---|---|
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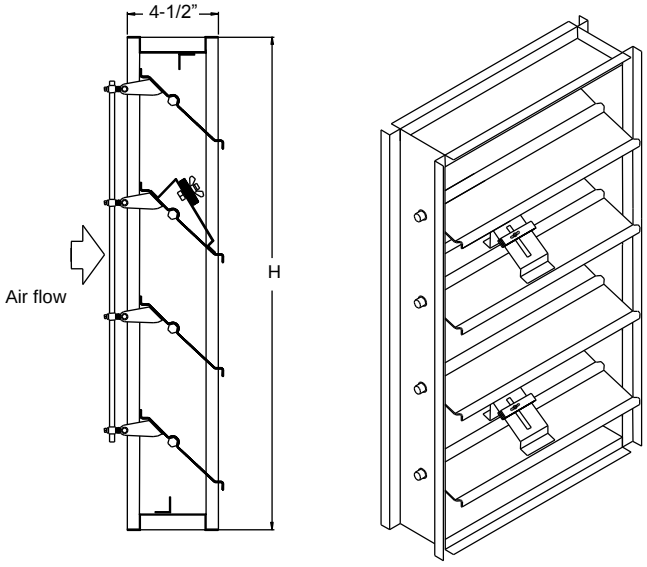
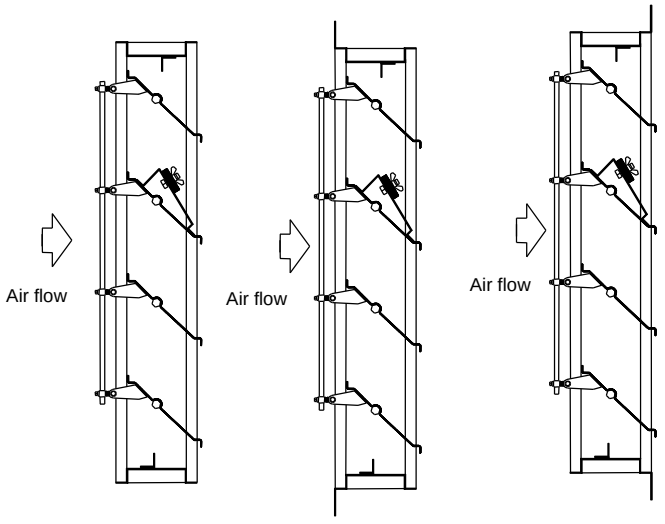



Typical Section




Style 1 Style 2 Style 3

**STANDARD DAMPER CONSTRUCTION**

**Frames**: 16 gauge galvanized steel
**Blades:** .063" thk. formed aluminum
**Bearings:** Ball bearings
**Axles:** 1/2" dia. Aluminum pin
**Linkage**: Plated steel face linkage
**Seals**: Polyurethane Foam
**Temperature Limits**: -40º to 200º F
**Max. Velocity & Back Pressure**: 2400 fpm @ 6" wg. (12" wide)
**Finish:** Mill
**Undersized**: 1/4" under opening sizes
**Minimum size:** 6" x 12"
**Maximum single section:** 48" x 96"

**OPTIONS:**

- Counter Weight: Adjustable Galvanized steel
- Frame: 1-1/2" flange
- Operator: Manual, Electric, or Pneumatic
- Blade Seal: Neoprene foam or extruded vinyl
- Jamb Seal: Aluminum or stainless steel
- Jack-shafting for multiple sections
- Finish: Painted

**Notes:**

1. Dampers to be mounted horizontally specify air flow upward or air flow downward.
2. Unless specified all multiple sections up to 72" x 72" high will be shipped factory assembled. Units larger than the above will require field assembly of sections with hardware provided.
3. Specify motor operator mounting options: out of air stream or in the air stream.
4. When damper is supplied with counterweights final field adjustments will be necessary to obtain desired pressure.
5. Factory mounted sleeve up to 36" deep with 8 gauge to 20 gauge galvanized steel.
6. Burglar bars or filter racks to be mounted in sleeve.
7. Consult factory if pressures exceeds 6" wg. or air velocity exceeds 2500 fpm.
8. If to be used near a fan discharge, damper should be mounted no greater than 1/2 the wheel diameter of the fan discharge.
9. When joining multiple section assemblies, use #10 x 1/2 " self-drilling screws at 12" oc.

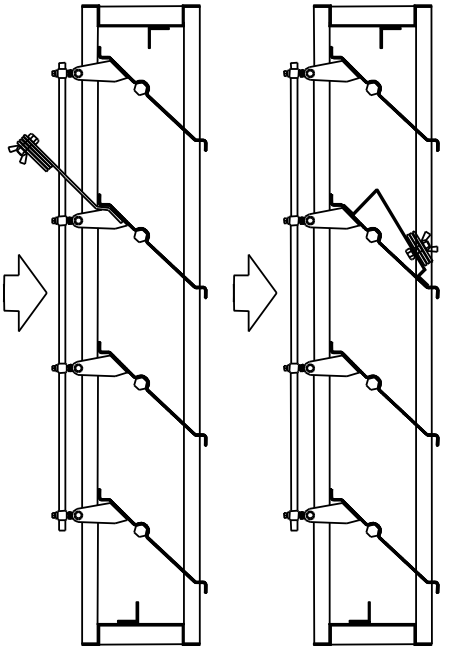
Air Flow Company, Inc.

# Model BDM 400

- Free Area
- Air Performance
- Air Leakage

## Free Area Calculations (sq. ft.)

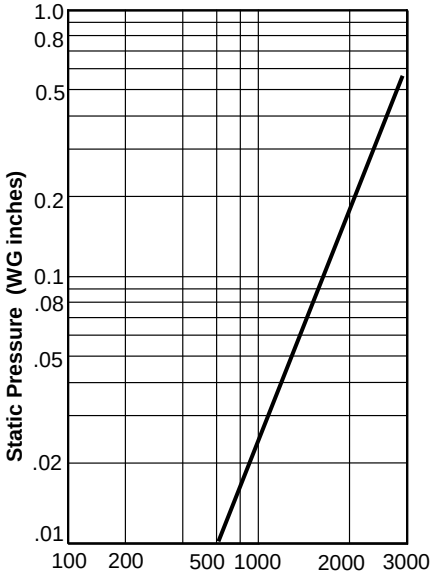
| HEIGHT (inches) | WIDTH (inches) 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 0.63 | 0.87 | 1.11 | 1.35 | 1.59 | 1.83 | 2.07 | 2.31 | 2.55 | 2.79 |
| 16 | 0.89 | 1.23 | 1.57 | 1.90 | 2.24 | 2.58 | 2.92 | 3.25 | 3.59 | 3.93 |
| 20 | 1.15 | 1.58 | 2.02 | 2.45 | 2.89 | 3.33 | 3.76 | 4.20 | 4.63 | 5.07 |
| 24 | 1.45 | 2.00 | 2.56 | 3.11 | 3.66 | 4.21 | 4.76 | 5.31 | 5.86 | 6.42 |
| 28 | 1.71 | 2.36 | 3.01 | 3.66 | 4.31 | 4.96 | 5.61 | 6.26 | 6.91 | 7.56 |
| 32 | 1.97 | 2.71 | 3.46 | 4.21 | 4.96 | 5.70 | 6.45 | 7.20 | 7.95 | 8.69 |
| 36 | 2.27 | 3.14 | 4.00 | 4.86 | 5.73 | 6.59 | 7.45 | 8.32 | 9.18 | 10.04 |
| 40 | 2.53 | 3.49 | 4.45 | 5.41 | 6.38 | 7.34 | 8.30 | 9.26 | 10.22 | 11.18 |
| 44 | 2.79 | 3.85 | 4.91 | 5.96 | 7.02 | 8.08 | 9.14 | 10.20 | 11.26 | 12.32 |
| 48 | 3.04 | 4.20 | 5.36 | 6.52 | 7.67 | 8.83 | 9.99 | 11.15 | 12.30 | 13.46 |
| 52 | 3.35 | 4.62 | 5.90 | 7.17 | 8.44 | 9.72 | 10.99 | 12.26 | 13.54 | 14.81 |
| 56 | 3.61 | 4.98 | 6.35 | 7.72 | 9.09 | 10.46 | 11.83 | 13.21 | 14.58 | 15.95 |
| 60 | 3.86 | 5.33 | 6.80 | 8.27 | 9.74 | 11.21 | 12.68 | 14.15 | 15.62 | 17.09 |
| 64 | 4.17 | 5.75 | 7.34 | 8.92 | 10.51 | 12.10 | 13.68 | 15.27 | 16.85 | 18.44 |
| 68 | 4.42 | 6.11 | 7.79 | 9.48 | 11.16 | 12.84 | 14.53 | 16.21 | 17.89 | 19.58 |
| 72 | 4.68 | 6.46 | 8.24 | 10.03 | 11.81 | 13.59 | 15.37 | 17.15 | 18.93 | 20.72 |
| 76 | 4.94 | 6.82 | 8.70 | 10.58 | 12.46 | 14.34 | 16.22 | 18.10 | 19.98 | 21.85 |
| 80 | 5.24 | 7.24 | 9.23 | 11.23 | 13.23 | 15.22 | 17.22 | 19.21 | 21.21 | 23.20 |
| 84 | 5.50 | 7.59 | 9.69 | 11.78 | 13.88 | 15.97 | 18.06 | 20.16 | 22.25 | 24.34 |
| 88 | 5.76 | 7.95 | 10.14 | 12.33 | 14.52 | 16.72 | 18.91 | 21.10 | 23.29 | 25.48 |
| 92 | 6.06 | 8.37 | 10.68 | 12.99 | 15.29 | 17.60 | 19.91 | 22.22 | 24.52 | 26.83 |
| 96 | 6.32 | 8.73 | 11.13 | 13.54 | 15.94 | 18.35 | 20.75 | 23.16 | 25.57 | 27.97 |



**Counterweight to assist**

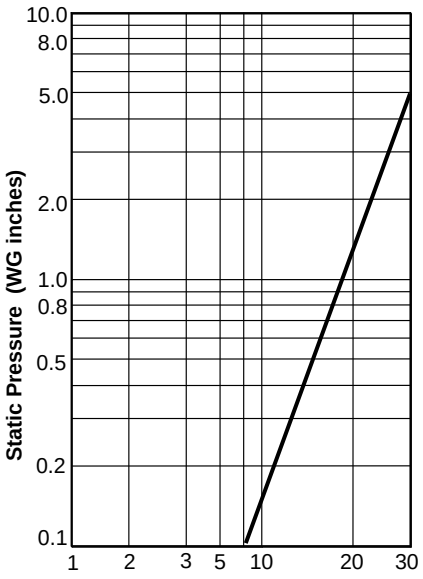
**Counterweight to retard**

### Pressure Drop – Damper in Open Position




**Air Velocity in FPM of face area**
**Per AMCA 500, Fig. 5.5 plenum mounted**

### Air Leakage – Damper in Closed Position




**Air Leakage in CFM/ sq. ft. of face area**
**Per AMCA 500, Fig. 5.5 plenum mounted**

| Vertical Installation (inches WG.) | | |
|---|---|---|
| Counterweight | Blades start to open | Blade fully open |
| Without Counterweight | 0.10 | 0.35 |
| Counterweight to assist | 0.05 | 0.15 |

| Performance | | | |
|---|---|---|---|
| Damper Width | Maximum Pressure | Maximum Velocity | Leakage per S. F. |
| 12" | 6" wg. | 2500 FPM | 35 CFM |
| 24" | 5" wg. | 2000 FPM | 30 CFM |
| 36" | 4" wg. | 1800 FPM | 28 CFM |
| 48" | 3" wg. | 1500 FPM | 25 CFM |