

CAD Constant Air Damper

■ Description

ASLI Constant Air Damper (CAD) is designed to maintain constant air flow rate mechanically over the entire differential pressure range without power supply. The nominal air flow rate can be set easily at the external control box without using any tools.

■ Materials

- Body: 0.7mm Galvanized steel.
- Blade: 1.0mm Galvanized steel.
- Spring: Galvanized steel.
- Control box: 0.7mm Galvanized steel.

■ Surface Finish

- Mill galvanized.

■ Features

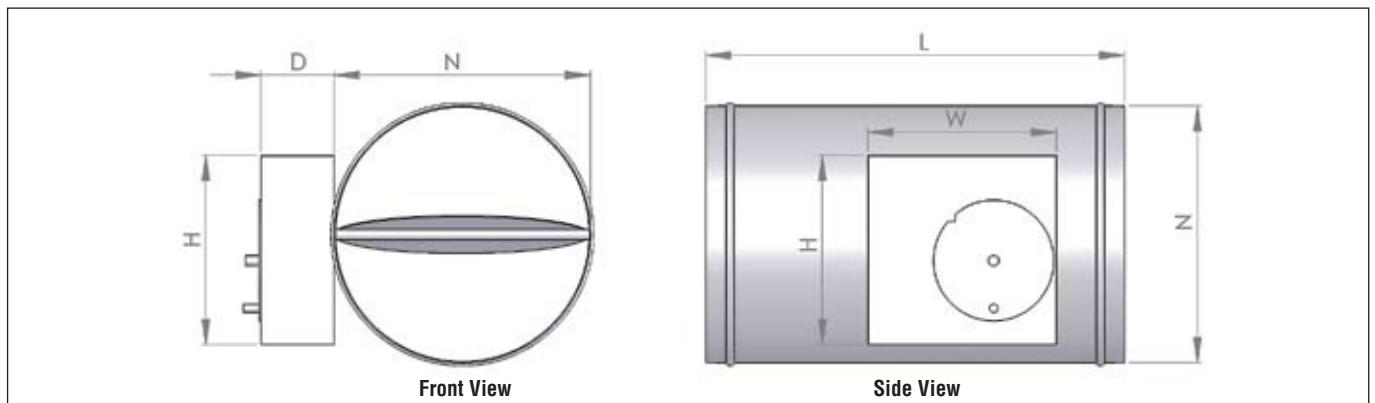
- Mechanically powered, no power supply required.
- Pressure independent.
- Flow accuracy +/- 10%.
- For supply or exhaust air.
- Air flow rate adjustable at control box by rotating the external scale.
- Self balancing operation reduce on site commissioning.
- Operational pressure 50 ~ 1000Pa.
- Blade stopper to prevent blade from over-turning.
- Blade stopper with PE foam to reduce noise generated when blade touches stopper.



■ Standard Sizes

- 150, 200, 250, 300, 350, 400 (mm)

■ CAD Construction Illustrations



■ CAD Physical Dimension Unit:mm

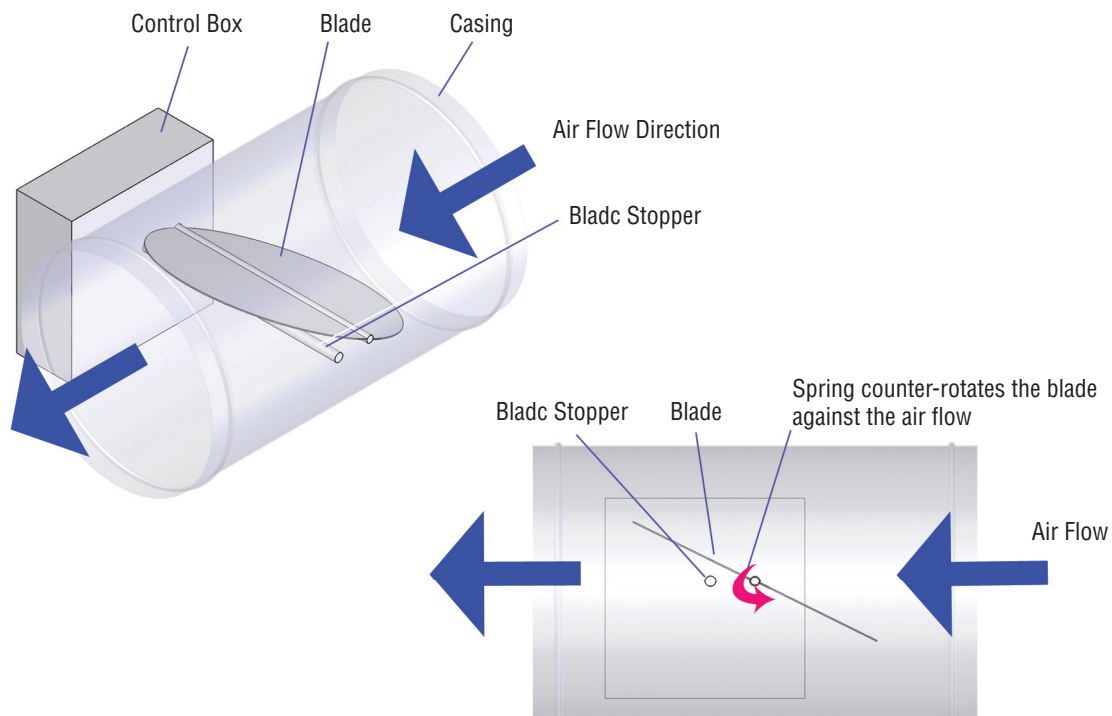
| Unit Size | N | D | L | W | H |
|-----------|-----|----|-----|-----|-----|
| 150 | 145 | 80 | 400 | 180 | 180 |
| 200 | 195 | 80 | 400 | 180 | 180 |
| 250 | 245 | 80 | 400 | 180 | 180 |
| 300 | 295 | 80 | 400 | 180 | 180 |
| 350 | 345 | 80 | 400 | 180 | 180 |
| 400 | 395 | 80 | 400 | 180 | 180 |

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■ Function of CAD

CAD is a pressure independent air terminal. The air volume is adjustable by rotating a scale at the control box without using any tools. When air flow is present, the blade is supposed to be closed by the air flow due to its inclined angle, but the spring in the control box will act against the aerodynamic force of air to counter-rotate the blade to open up to the required air volume as preset in the control box. The preset air volume can be held at constant for a wide range of differential pressure, 50~1000Pa. The spring and the cam in the control box have been calibrated so that when the differential pressure of the system changes, e.g. due to the opening or closing of duct sections, the blade will be positioned instantly at an angle which could provide constant air volume within close tolerances. This will greatly reduce the work of commissioning or air flow balancing.

The absorber in the control box acts as an oscillation damper to prevent the blade from oscillating rapidly when the inlet pressure changes dramatically. The blade stopper with PE foam reduces the blade stopper is wrapped with plastic tube to reduce the noise generated when the blade touches the stopper.



■ Air Volume Ranges

| Unit Size | Air Volume Range (Min-Max) | |
|-----------|----------------------------|------------|
| | CMH | Liter/s |
| 150 | 340 – 670 | 94 – 186 |
| 200 | 430 – 1160 | 119 – 322 |
| 250 | 880 – 1990 | 244 – 553 |
| 300 | 1350 – 2870 | 375 – 797 |
| 350 | 1510 – 3930 | 419 – 1092 |
| 400 | 2650 – 5050 | 736 – 1403 |

- Turbulent flow approaching the terminal will create additional noise, pressure drop and greater air volume variation. It is recommended for optimum performance there should be a minimum of 3 duct diameters of straight inlet duct, same size as inlet, between the inlet and any transition, take off or fitting.
- A minimum differential pressure of 50Pa (0.2 inch w.g.) is required for all unit sizes to achieve the required air volume.



TERMINAL UNITS

CAD Constant Air Damper

Performance Data (Discharge Sound Power Level)

| Unit Size | Air Volume (CMH) | Sound Power Level, Lw, re 10 ⁻¹² watts | | | | | | | | | | | | | | | | | | | | | | | |
|-----------|------------------|---|----|----|----|----|----|-----------------------|----|----|----|----|----|-----------------------|----|----|----|----|----|------------------------|----|----|----|----|----|
| | | ΔPs 125 Pa (0.5 W.G.) | | | | | | ΔPs 250 Pa (1.0 W.G.) | | | | | | ΔPs 500 Pa (2.0 W.G.) | | | | | | ΔPs 1000 Pa (4.0 W.G.) | | | | | |
| | | Octave Band | | | | | | Octave Band | | | | | | Octave Band | | | | | | Octave Band | | | | | |
| | | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 |
| 150 | 350 | 58 | 53 | 49 | 43 | 42 | 32 | 65 | 61 | 58 | 52 | 53 | 44 | 68 | 66 | 63 | 58 | 60 | 53 | 69 | 69 | 67 | 62 | 65 | 59 |
| | 457 | 58 | 54 | 50 | 46 | 44 | 36 | 68 | 64 | 61 | 55 | 55 | 47 | 70 | 70 | 67 | 61 | 62 | 55 | 73 | 74 | 72 | 66 | 70 | 62 |
| | 563 | 62 | 57 | 53 | 51 | 48 | 42 | 71 | 66 | 64 | 57 | 57 | 50 | 72 | 72 | 70 | 64 | 65 | 57 | 77 | 77 | 76 | 70 | 73 | 65 |
| | 670 | 65 | 59 | 56 | 54 | 51 | 46 | 71 | 65 | 63 | 58 | 58 | 51 | 74 | 74 | 72 | 65 | 66 | 58 | 78 | 80 | 79 | 72 | 75 | 66 |
| 200 | 430 | 53 | 48 | 46 | 44 | 43 | 38 | 60 | 55 | 53 | 51 | 50 | 49 | 63 | 61 | 58 | 58 | 57 | 56 | 67 | 64 | 63 | 65 | 65 | 62 |
| | 673 | 57 | 51 | 50 | 49 | 48 | 43 | 64 | 58 | 56 | 53 | 53 | 51 | 68 | 64 | 61 | 59 | 58 | 57 | 71 | 69 | 67 | 66 | 66 | 64 |
| | 917 | 60 | 54 | 52 | 51 | 53 | 47 | 69 | 61 | 59 | 56 | 56 | 54 | 73 | 66 | 64 | 61 | 60 | 59 | 75 | 72 | 69 | 66 | 67 | 64 |
| | 1160 | 63 | 56 | 54 | 53 | 55 | 49 | 71 | 62 | 60 | 58 | 59 | 56 | 75 | 68 | 65 | 62 | 62 | 61 | 78 | 75 | 71 | 68 | 69 | 66 |
| 250 | 880 | 51 | 48 | 47 | 43 | 44 | 38 | 60 | 56 | 54 | 52 | 53 | 49 | 64 | 63 | 59 | 58 | 59 | 56 | 67 | 67 | 67 | 66 | 68 | 64 |
| | 1250 | 56 | 50 | 51 | 47 | 49 | 44 | 65 | 58 | 57 | 53 | 55 | 51 | 69 | 64 | 62 | 59 | 61 | 57 | 73 | 71 | 69 | 66 | 68 | 65 |
| | 1620 | 60 | 54 | 54 | 50 | 53 | 47 | 69 | 60 | 59 | 54 | 56 | 54 | 74 | 66 | 64 | 60 | 62 | 59 | 77 | 72 | 71 | 67 | 70 | 66 |
| | 1990 | 63 | 57 | 57 | 53 | 55 | 50 | 71 | 63 | 62 | 57 | 60 | 58 | 77 | 69 | 66 | 62 | 64 | 62 | 79 | 75 | 72 | 69 | 71 | 67 |
| 300 | 1350 | 53 | 50 | 49 | 46 | 46 | 40 | 59 | 56 | 54 | 52 | 54 | 50 | 64 | 62 | 59 | 58 | 59 | 57 | 67 | 66 | 65 | 64 | 65 | 63 |
| | 1857 | 56 | 52 | 52 | 48 | 48 | 44 | 63 | 60 | 58 | 55 | 57 | 53 | 68 | 65 | 63 | 60 | 61 | 59 | 73 | 70 | 68 | 66 | 67 | 65 |
| | 2363 | 60 | 55 | 55 | 52 | 51 | 47 | 66 | 62 | 60 | 57 | 58 | 56 | 72 | 68 | 65 | 62 | 64 | 62 | 77 | 73 | 71 | 69 | 69 | 67 |
| | 2870 | 64 | 59 | 58 | 54 | 54 | 51 | 69 | 65 | 62 | 59 | 60 | 57 | 76 | 70 | 67 | 64 | 65 | 63 | 80 | 75 | 73 | 71 | 70 | 68 |
| 350 | 1510 | 54 | 52 | 52 | 51 | 51 | 44 | 60 | 58 | 56 | 57 | 58 | 53 | 65 | 63 | 62 | 63 | 64 | 60 | 67 | 68 | 67 | 68 | 70 | 67 |
| | 2317 | 57 | 54 | 55 | 53 | 53 | 48 | 64 | 61 | 60 | 59 | 61 | 56 | 68 | 66 | 65 | 64 | 66 | 62 | 73 | 71 | 70 | 70 | 72 | 69 |
| | 3123 | 61 | 57 | 56 | 56 | 56 | 50 | 67 | 63 | 62 | 61 | 62 | 59 | 72 | 68 | 67 | 66 | 68 | 65 | 76 | 73 | 72 | 72 | 73 | 70 |
| | 3930 | 65 | 60 | 59 | 57 | 59 | 54 | 70 | 66 | 65 | 63 | 65 | 61 | 76 | 71 | 69 | 68 | 69 | 66 | 80 | 75 | 74 | 74 | 74 | 72 |
| 400 | 2650 | 55 | 53 | 54 | 56 | 56 | 47 | 61 | 59 | 58 | 61 | 62 | 56 | 65 | 64 | 64 | 67 | 68 | 63 | 67 | 69 | 69 | 72 | 74 | 70 |
| | 3450 | 58 | 56 | 57 | 58 | 58 | 51 | 64 | 62 | 61 | 63 | 64 | 59 | 68 | 66 | 66 | 68 | 70 | 65 | 72 | 71 | 72 | 74 | 76 | 72 |
| | 4250 | 62 | 58 | 57 | 59 | 61 | 53 | 67 | 64 | 64 | 65 | 66 | 61 | 71 | 68 | 68 | 69 | 71 | 67 | 75 | 73 | 73 | 75 | 77 | 73 |
| | 5050 | 65 | 61 | 60 | 60 | 63 | 57 | 70 | 66 | 67 | 66 | 69 | 64 | 75 | 71 | 70 | 71 | 73 | 69 | 79 | 75 | 75 | 76 | 78 | 75 |

Performance Data (Radiated Sound Power Level)

| Unit Size | Air Volume (CMH) | Sound Power Level, Lw, re 10 ⁻¹² watts | | | | | | | | | | | | | | | | | | | | | | | |
|-----------|------------------|---|----|----|----|----|----|-----------------------|----|----|----|----|----|-----------------------|----|----|----|----|----|------------------------|----|----|----|----|----|
| | | ΔPs 125 Pa (0.5 W.G.) | | | | | | ΔPs 250 Pa (1.0 W.G.) | | | | | | ΔPs 500 Pa (2.0 W.G.) | | | | | | ΔPs 1000 Pa (4.0 W.G.) | | | | | |
| | | Octave Band | | | | | | Octave Band | | | | | | Octave Band | | | | | | Octave Band | | | | | |
| | | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 |
| 150 | 350 | 47 | 45 | 43 | 41 | 39 | 29 | 54 | 53 | 52 | 50 | 50 | 41 | 57 | 58 | 57 | 56 | 57 | 50 | 58 | 61 | 61 | 60 | 62 | 56 |
| | 457 | 47 | 46 | 44 | 44 | 41 | 33 | 57 | 56 | 55 | 53 | 52 | 44 | 59 | 62 | 61 | 59 | 59 | 52 | 62 | 66 | 66 | 64 | 67 | 59 |
| | 563 | 51 | 49 | 47 | 49 | 45 | 39 | 60 | 58 | 58 | 55 | 54 | 47 | 61 | 64 | 64 | 62 | 62 | 54 | 66 | 69 | 70 | 68 | 70 | 62 |
| | 670 | 54 | 51 | 50 | 52 | 48 | 43 | 60 | 57 | 57 | 56 | 55 | 48 | 63 | 66 | 66 | 63 | 63 | 55 | 67 | 72 | 73 | 70 | 72 | 63 |
| 200 | 430 | 48 | 45 | 43 | 42 | 40 | 35 | 55 | 52 | 50 | 49 | 47 | 46 | 58 | 58 | 55 | 56 | 54 | 53 | 62 | 61 | 60 | 63 | 62 | 59 |
| | 673 | 52 | 48 | 47 | 47 | 45 | 40 | 59 | 55 | 53 | 51 | 50 | 48 | 63 | 61 | 58 | 57 | 55 | 54 | 66 | 66 | 64 | 64 | 63 | 61 |
| | 917 | 55 | 51 | 49 | 49 | 50 | 44 | 64 | 58 | 56 | 54 | 53 | 51 | 68 | 63 | 61 | 59 | 57 | 56 | 70 | 69 | 66 | 64 | 64 | 61 |
| | 1160 | 58 | 53 | 51 | 51 | 52 | 46 | 66 | 59 | 57 | 56 | 56 | 53 | 70 | 65 | 62 | 60 | 59 | 58 | 73 | 72 | 68 | 66 | 66 | 63 |
| 250 | 880 | 48 | 46 | 45 | 41 | 41 | 35 | 57 | 54 | 52 | 50 | 50 | 46 | 61 | 61 | 57 | 56 | 56 | 53 | 64 | 65 | 65 | 64 | 65 | 61 |
| | 1250 | 53 | 48 | 49 | 45 | 46 | 41 | 62 | 56 | 55 | 51 | 52 | 48 | 66 | 62 | 60 | 57 | 58 | 54 | 70 | 69 | 67 | 64 | 65 | 62 |
| | 1620 | 57 | 52 | 52 | 48 | 50 | 44 | 66 | 58 | 57 | 52 | 53 | 51 | 71 | 64 | 62 | 58 | 59 | 56 | 74 | 70 | 69 | 65 | 67 | 63 |
| | 1990 | 60 | 55 | 55 | 51 | 52 | 47 | 68 | 61 | 60 | 55 | 57 | 55 | 74 | 67 | 64 | 60 | 61 | 59 | 76 | 73 | 70 | 67 | 68 | 64 |
| 300 | 1350 | 51 | 48 | 47 | 44 | 43 | 37 | 57 | 54 | 52 | 50 | 51 | 47 | 62 | 60 | 57 | 56 | 56 | 54 | 65 | 64 | 63 | 62 | 62 | 60 |
| | 1857 | 54 | 50 | 50 | 46 | 45 | 41 | 61 | 58 | 56 | 53 | 54 | 50 | 66 | 63 | 61 | 58 | 58 | 56 | 71 | 68 | 66 | 64 | 64 | 62 |
| | 2363 | 58 | 53 | 53 | 50 | 48 | 44 | 64 | 60 | 58 | 55 | 55 | 53 | 70 | 66 | 63 | 60 | 61 | 59 | 75 | 71 | 69 | 67 | 66 | 64 |
| | 2870 | 62 | 57 | 56 | 52 | 51 | 48 | 67 | 63 | 60 | 57 | 57 | 54 | 74 | 68 | 65 | 62 | 62 | 60 | 78 | 73 | 71 | 69 | 67 | 65 |
| 350 | 1510 | 51 | 50 | 50 | 49 | 48 | 41 | 57 | 56 | 54 | 55 | 55 | 50 | 62 | 61 | 60 | 61 | 61 | 57 | 64 | 66 | 65 | 66 | 67 | 64 |
| | 2317 | 54 | 52 | 53 | 51 | 50 | 45 | 61 | 59 | 58 | 57 | 58 | 53 | 65 | 64 | 63 | 62 | 63 | 59 | 70 | 69 | 68 | 68 | 69 | 66 |
| | 3123 | 58 | 55 | 54 | 54 | 53 | 47 | 64 | 61 | 60 | 59 | 59 | 56 | 69 | 66 | 65 | 64 | 65 | 62 | 73 | 71 | 70 | 70 | 70 | 67 |
| | 3930 | 62 | 58 | 57 | 55 | 56 | 51 | 67 | 64 | 63 | 61 | 62 | 58 | 73 | 69 | 67 | 66 | 66 | 63 | 77 | 73 | 72 | 72 | 71 | 69 |
| 400 | 2650 | 51 | 51 | 52 | 54 | 53 | 44 | 57 | 57 | 56 | 59 | 59 | 53 | 61 | 62 | 62 | 65 | 65 | 60 | 63 | 67 | 67 | 70 | 71 | 67 |
| | 3450 | 54 | 54 | 55 | 56 | 55 | 48 | 60 | 60 | 59 | 61 | 61 | 56 | 64 | 64 | 64 | 66 | 67 | 62 | 68 | 69 | 70 | 72 | 73 | 69 |
| | 4250 | 58 | 56 | 55 | 57 | 58 | 50 | 63 | 62 | 62 | 63 | 63 | 58 | 67 | 66 | 66 | 67 | 68 | 64 | 71 | 71 | 71 | 73 | 74 | 70 |
| | 5050 | 61 | 59 | 58 | 58 | 60 | 54 | 66 | 64 | 65 | 64 | 66 | 61 | 71 | 69 | 68 | 69 | 70 | 66 | 75 | 73 | 73 | 74 | 75 | 72 |

• ΔPs is the differential pressure across CAD

All stated specifications are updated at the printing date and subject to change without notice or obligation. The actual product might differ from pictures shown.

CAD Constant Air Damper

■ CAD Performance Data (Selection Guide)

| Unit Size | Air Volume (CMH) | Minimum ΔPs | | Discharge NC | | | | Radiated NC | | | |
|-----------|------------------|-------------|------|-----------------|--------|--------|---------|-----------------|--------|--------|---------|
| | | | | ΔPs Across Unit | | | | ΔPs Across Unit | | | |
| | | Pa | W.G. | 125 Pa | 250 Pa | 500 Pa | 1000 Pa | 125 Pa | 250 Pa | 500 Pa | 1000 Pa |
| 150 | 350 | 50 | 0.20 | - | 20 | 25 | 30 | - | 25 | 31 | 35 |
| | 457 | 50 | 0.20 | - | 23 | 31 | 35 | - | 29 | 35 | 40 |
| | 563 | 50 | 0.20 | - | 27 | 33 | 38 | 22 | 31 | 38 | 45 |
| | 670 | 50 | 0.20 | - | 27 | 35 | 42 | 25 | 31 | 40 | 48 |
| 200 | 430 | 50 | 0.20 | - | 21 | 28 | 33 | - | 23 | 30 | 37 |
| | 673 | 50 | 0.20 | - | 23 | 28 | 35 | 20 | 26 | 32 | 38 |
| | 917 | 50 | 0.20 | - | 26 | 30 | 35 | 22 | 30 | 35 | 40 |
| | 1160 | 50 | 0.20 | 21 | 28 | 32 | 37 | 24 | 31 | 36 | 43 |
| 250 | 880 | 50 | 0.20 | - | - | 26 | 33 | - | 25 | 31 | 39 |
| | 1250 | 50 | 0.20 | - | 21 | 27 | 34 | 22 | 29 | 34 | 41 |
| | 1620 | 50 | 0.20 | - | 24 | 28 | 35 | 25 | 31 | 36 | 44 |
| | 1990 | 50 | 0.20 | 20 | 28 | 32 | 36 | 29 | 34 | 38 | 45 |
| 300 | 1350 | 50 | 0.20 | - | 20 | 27 | 32 | 20 | 25 | 31 | 37 |
| | 1857 | 50 | 0.20 | - | 23 | 28 | 34 | 23 | 30 | 35 | 40 |
| | 2363 | 50 | 0.20 | - | 26 | 31 | 36 | 26 | 32 | 37 | 44 |
| | 2870 | 50 | 0.20 | 21 | 27 | 32 | 37 | 30 | 34 | 39 | 46 |
| 350 | 1510 | 50 | 0.20 | - | 21 | 28 | 34 | 23 | 29 | 35 | 40 |
| | 2317 | 50 | 0.20 | - | 24 | 29 | 36 | 26 | 32 | 37 | 43 |
| | 3123 | 50 | 0.20 | - | 27 | 32 | 37 | 28 | 34 | 39 | 45 |
| | 3930 | 50 | 0.20 | 22 | 28 | 33 | 39 | 31 | 37 | 41 | 47 |
| 400 | 2650 | 50 | 0.20 | - | 24 | 30 | 37 | 28 | 33 | 39 | 44 |
| | 3450 | 50 | 0.20 | - | 27 | 32 | 39 | 30 | 35 | 40 | 46 |
| | 4250 | 50 | 0.20 | 21 | 28 | 34 | 40 | 31 | 37 | 41 | 47 |
| | 5050 | 50 | 0.20 | 25 | 31 | 36 | 42 | 32 | 39 | 43 | 48 |

- ΔPs is the differential static pressure across CAD.
- A minimum ΔPs of 50Pa (0.2 inch w.g.) is required for all unit sizes to achieve the required air volume.
- Dash (-) in space indicates NC less than 20.
- NC are derived from sound power level in accordance with ARI standard 885-98.

■ CAD Suggested Specification

Type CAD circular volume flow rate damper shall be mechanically powered without external power supply. The unit shall be pressure independent. The air volume across the damper shall be maintained constant within 10% tolerance over the pressure range of 50 to 1000Pa. The air volume shall be adjustable at the control box by rotating the scale to the required air volume. The control box shall consist of cam, leaf spring, absorber and rotating plate. The damper casing and control box shall be made of 0.7mm galvanized steel. The damper blade shall be made of 1.0mm galvanized steel. The bearing shall be bronze bush. The blade stopper shaft shall come with PE foam.

■ CAD Order Code

| Model | Unit Size(mm) |
|-------|---------------------------------|
| CAD | 150, 200, 250, 300, 350, 400 mm |

Example: CAD – 200mm