# Motorized Multi-Leaf Damper
# VCD-M

**GMCAIR HVAC SYSTEM&EQUIPMENT LLC**
www.gmcair.co.uk

## DESCRIPTION:

Multileaf dampers with gears can only have opposed action blades.

The internal gears transfer the synchronous rotational movement from the drive arm to the individual blades.

Standard blades width 100; min. flow resistance and noise; coupling and drive possibilities for all requirements.

Available in all intermediate sizes and special executions like high strength corrosion-resistant construction.

Rectangular volume control dampers are used for control of flow rate and pressure in ventilation ducts. Opposed blades in damper have aerodynamic structure that has the property of reducing the air friction. Flow rate is adjusted with actuator to OPEN - CLOSED

## MATERIAL :

All of the product casing and blades are manufactured from extruded aluminium profile.

## FUNCTION :

- Multileaf dampers of Type VCD are used as an acting element in the volume flow and pressure control in air conditioning systems
- For low-leakage shut-off of ducts and openings in walls and ceiling slabs
- Powder-coated construction
- Aerofoil blades
- Low-maintenance, robust construction
- Available in standard sizes and many intermediate sizes

## INSTALLATION :

- Screw

## CLASSIFICATION :

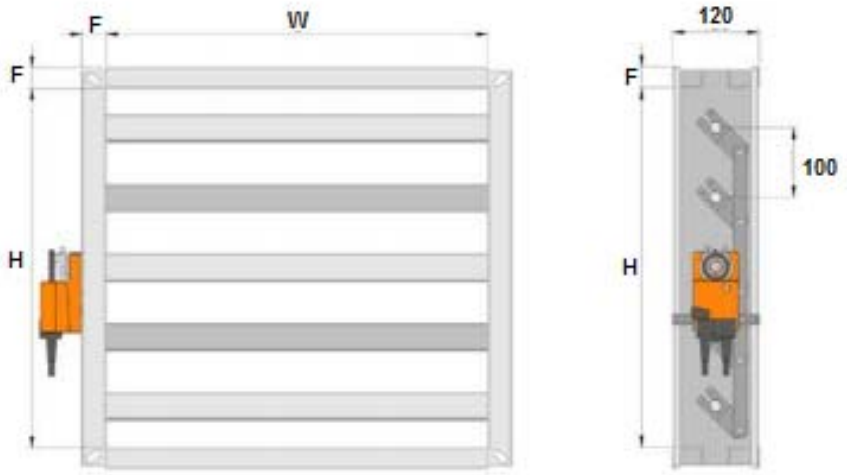
- Closed blade air leakage to EN 1751
- Test pressure up to 2000 Pa
- Class 2

## STANDARD SIZES (mm):

| AVAILABLE SIZES (mm) - Always width x height | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WIDHT | | | | | | | | | | | |
| HEIGHT | 200 | 300 | 400 | 500 | 600 | 800 | 1000 | 1200 | 1400 | 1600 | 1800 | 2000 |
| 105 | X | X | X | X | X | X | X | X | X | X | X | X |
| 205 | X | X | X | X | X | X | X | X | X | X | X | X |
| 305 | X | X | X | X | X | X | X | X | X | X | X | X |
| 405 | X | X | X | X | X | X | X | X | X | X | X | X |
| 505 | X | X | X | X | X | X | X | X | X | X | X | X |
| 605 | X | X | X | X | X | X | X | X | X | X | X | X |
| 705 | X | X | X | X | X | X | X | X | X | X | X | X |
| 805 | X | X | X | X | X | X | X | X | X | X | X | X |
| 905 | X | X | X | X | X | X | X | X | X | X | X | X |
| 1005 | X | X | X | X | X | X | X | X | X | X | X | X |
| 1105 | X | X | X | X | X | X | X | X | X | X | X | X |
| 1205 | X | X | X | X | X | X | X | X | X | X | X | X |
| 1305 | X | X | X | X | X | X | X | X | X | X | X | X |
| 1405 | X | X | X | X | X | X | X | X | X | X | X | X |
| 1505 | X | X | X | X | X | X | X | X | X | X | X | X |
| 1605 | X | X | X | X | X | X | X | X | X | X | X | X |
| 1705 | X | X | X | X | X | X | X | X | X | X | X | X |

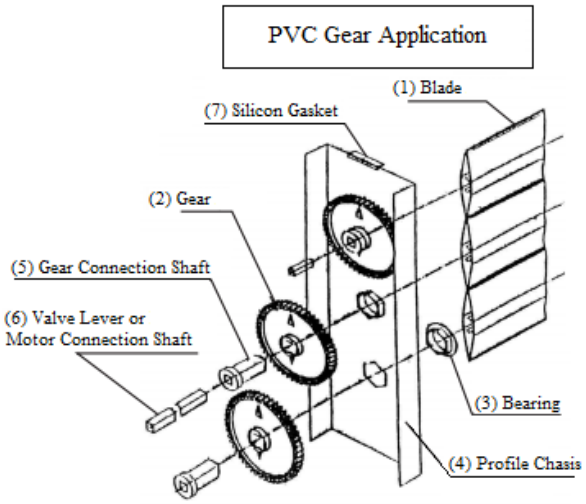
## DRAWING

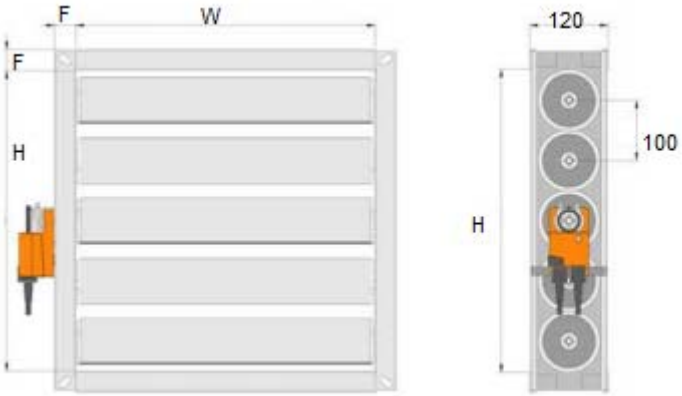
### Volume Control Damper With Latch Command



## Volume Control Damper with External Pvc Gear

### DAMPER PARTS



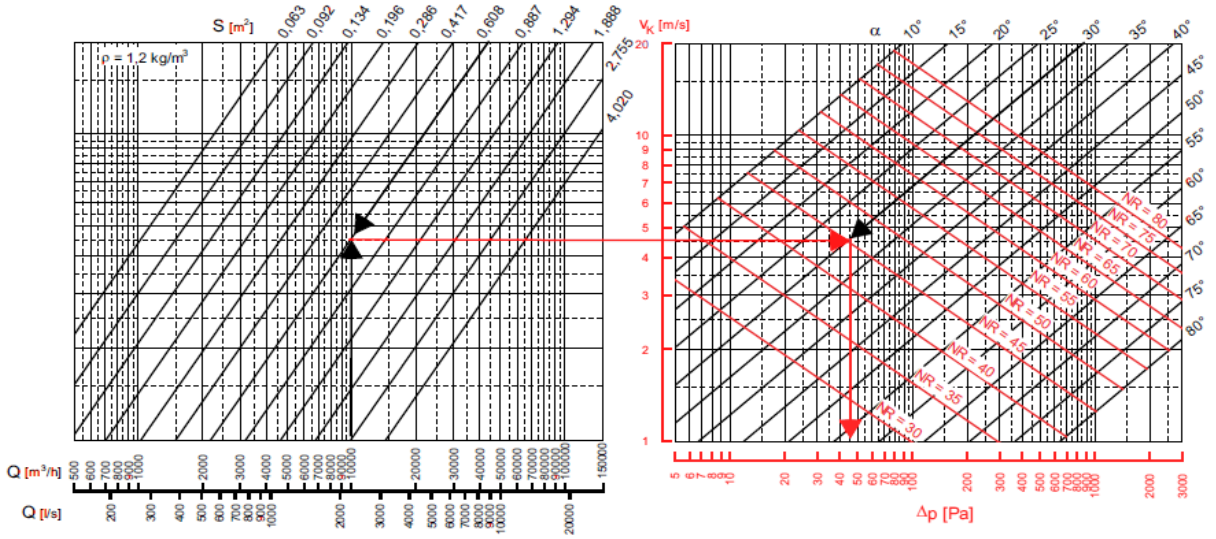



## SELECTION TABLES

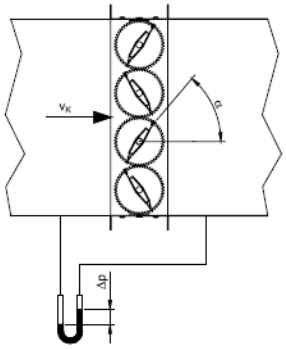
## VCD-M EFFECTIVE AREA TABLE (m2)

| S [m²] | | B [mm] | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 |
| H [mm] | 210 | 0,063 | 0,084 | 0,105 | 0,126 | 0,147 | 0,168 | 0,189 | 0,210 | 0,231 | 0,252 | 0,273 | 0,294 | 0,315 | 0,336 | 0,357 | 0,378 | 0,399 | 0,420 |
| | 310 | 0,093 | 0,124 | 0,155 | 0,186 | 0,217 | 0,248 | 0,279 | 0,310 | 0,341 | 0,372 | 0,403 | 0,434 | 0,465 | 0,496 | 0,527 | 0,558 | 0,589 | 0,620 |
| | 410 | 0,123 | 0,164 | 0,205 | 0,246 | 0,287 | 0,328 | 0,369 | 0,410 | 0,451 | 0,492 | 0,533 | 0,574 | 0,615 | 0,656 | 0,697 | 0,738 | 0,779 | 0,820 |
| | 510 | 0,153 | 0,204 | 0,255 | 0,306 | 0,357 | 0,408 | 0,459 | 0,510 | 0,561 | 0,612 | 0,663 | 0,714 | 0,765 | 0,816 | 0,867 | 0,918 | 0,969 | 1,020 |
| | 610 | 0,183 | 0,244 | 0,305 | 0,366 | 0,427 | 0,488 | 0,549 | 0,610 | 0,671 | 0,732 | 0,793 | 0,854 | 0,915 | 0,976 | 1,037 | 1,098 | 1,159 | 1,220 |
| | 710 | 0,213 | 0,284 | 0,355 | 0,426 | 0,497 | 0,568 | 0,639 | 0,710 | 0,781 | 0,852 | 0,923 | 0,994 | 1,065 | 1,136 | 1,207 | 1,278 | 1,349 | 1,420 |
| | 810 | 0,243 | 0,324 | 0,405 | 0,486 | 0,567 | 0,648 | 0,729 | 0,810 | 0,891 | 0,972 | 1,053 | 1,134 | 1,215 | 1,296 | 1,377 | 1,458 | 1,539 | 1,620 |
| | 910 | 0,273 | 0,364 | 0,455 | 0,546 | 0,637 | 0,728 | 0,819 | 0,910 | 1,001 | 1,092 | 1,183 | 1,274 | 1,365 | 1,456 | 1,547 | 1,638 | 1,729 | 1,820 |
| | 1010 | 0,303 | 0,404 | 0,505 | 0,606 | 0,707 | 0,808 | 0,909 | 1,010 | 1,111 | 1,212 | 1,313 | 1,414 | 1,515 | 1,616 | 1,717 | 1,818 | 1,919 | 2,020 |
| | 1110 | 0,333 | 0,444 | 0,555 | 0,666 | 0,777 | 0,888 | 0,999 | 1,110 | 1,221 | 1,332 | 1,443 | 1,554 | 1,665 | 1,776 | 1,887 | 1,998 | 2,109 | 2,220 |
| | 1210 | 0,363 | 0,484 | 0,605 | 0,726 | 0,847 | 0,968 | 1,089 | 1,210 | 1,331 | 1,452 | 1,573 | 1,694 | 1,815 | 1,936 | 2,057 | 2,178 | 2,299 | 2,420 |
| | 1310 | 0,393 | 0,524 | 0,655 | 0,786 | 0,917 | 1,048 | 1,179 | 1,310 | 1,441 | 1,572 | 1,703 | 1,834 | 1,965 | 2,096 | 2,227 | 2,358 | 2,489 | 2,620 |
| | 1410 | 0,423 | 0,564 | 0,705 | 0,846 | 0,987 | 1,128 | 1,269 | 1,410 | 1,551 | 1,692 | 1,833 | 1,974 | 2,115 | 2,256 | 2,397 | 2,538 | 2,679 | 2,820 |
| | 1510 | 0,453 | 0,604 | 0,755 | 0,906 | 1,057 | 1,208 | 1,359 | 1,510 | 1,661 | 1,812 | 1,963 | 2,114 | 2,265 | 2,416 | 2,567 | 2,718 | 2,869 | 3,020 |
| | 1610 | 0,483 | 0,644 | 0,805 | 0,966 | 1,127 | 1,288 | 1,449 | 1,610 | 1,771 | 1,932 | 2,093 | 2,254 | 2,415 | 2,576 | 2,737 | 2,898 | 3,059 | 3,220 |
| | 1710 | 0,513 | 0,684 | 0,855 | 1,026 | 1,197 | 1,368 | 1,539 | 1,710 | 1,881 | 2,052 | 2,223 | 2,394 | 2,565 | 2,736 | 2,907 | 3,078 | 3,249 | 3,420 |
| | 1810 | 0,543 | 0,724 | 0,905 | 1,086 | 1,267 | 1,448 | 1,629 | 1,810 | 1,991 | 2,172 | 2,353 | 2,534 | 2,715 | 2,896 | 3,077 | 3,258 | 3,439 | 3,620 |
| | 1910 | 0,573 | 0,764 | 0,955 | 1,146 | 1,337 | 1,528 | 1,719 | 1,910 | 2,101 | 2,292 | 2,483 | 2,674 | 2,865 | 3,056 | 3,247 | 3,438 | 3,629 | 3,820 |
| | 2010 | 0,603 | 0,804 | 1,005 | 1,206 | 1,407 | 1,608 | 1,809 | 2,010 | 2,211 | 2,412 | 2,613 | 2,814 | 3,015 | 3,216 | 3,417 | 3,618 | 3,819 | 4,020 |

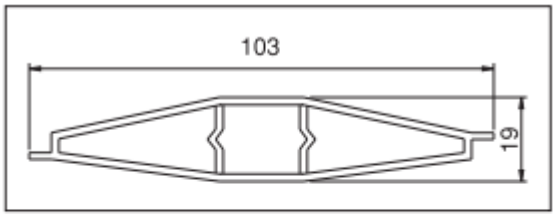
## VCD - PRESSURE DROP AND NOISE LEVELS

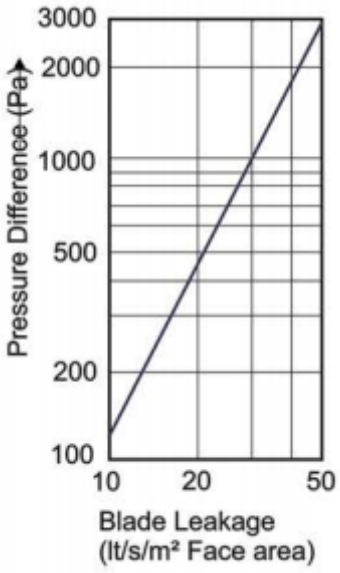


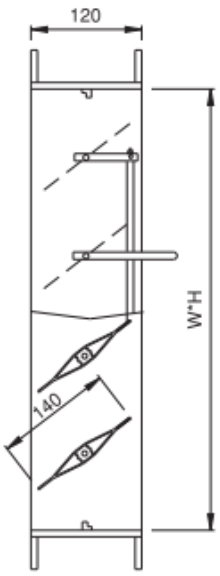

| | |
|---|---|
| Q [m³/h] [l/s] | through air flow rate |
| S [m²] | Damper surface area |
| $v_k$ [m/s] | velocity relating to the effective outlet area S |
| Δp [Pa] | total pressure loss |
| α | angle of inclination of the blade |
| NR | noise rating (ISO standard, in relation to $10^{-12}$ W) taking no account of the attenuation of the room |



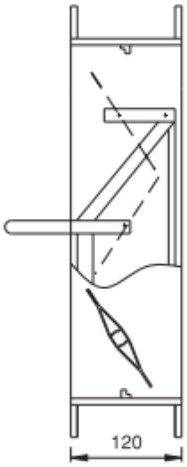
## BLADE TYPE




Parallel Bladed

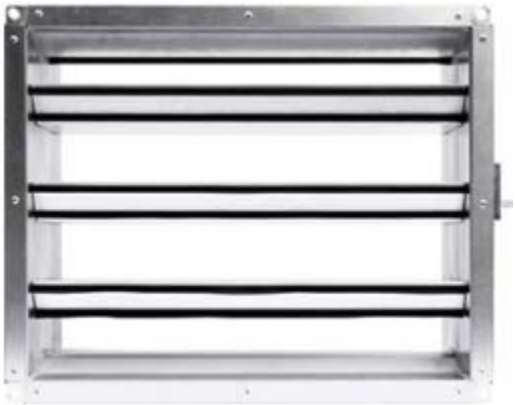



Opposite Bladed

## Damper Blade Position

**Closed Position**

**%50 Open**

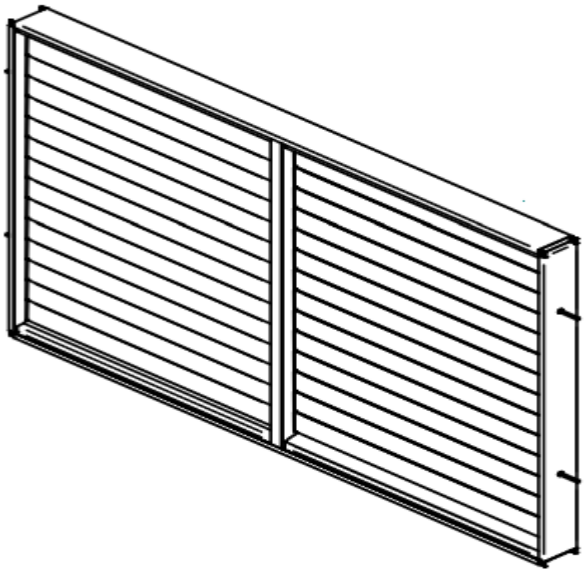


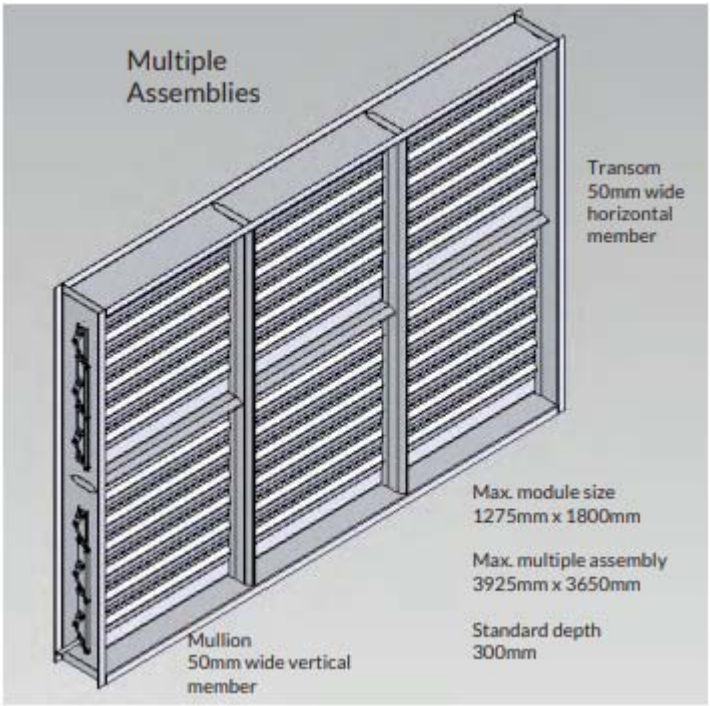
**%100 Open**

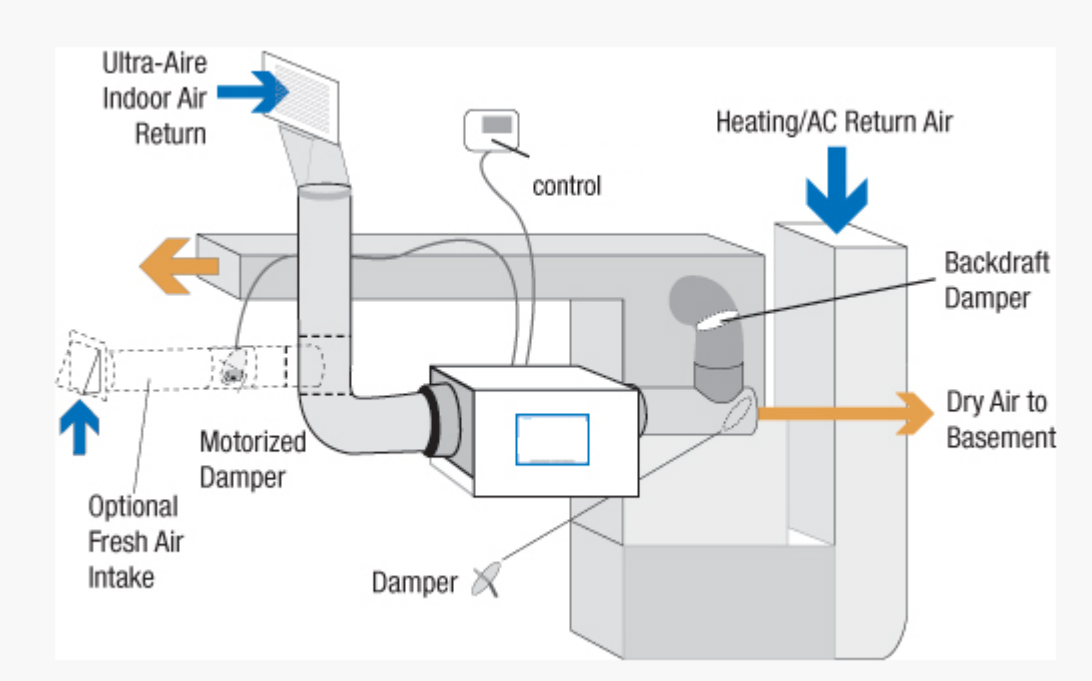
## Installation & Assembly

Larger dampers can be constructed by joining multiple assemblies together. An approved fire-resistant sealant should be inserted between the damper and duct to ensure a good seal.

Each section shall have a drive spindle which can be linked together externally or driven independently






Ultra-Aire
Indoor Air
Return
control
Heating/AC Return Air
Backdraft
Damper
Dry Air to
Basement
Motorized
Damper
Optional
Fresh Air
Intake
Damper

## ORDER CODE

| VCD-M | S | 00 | 00 | N 505x500 |
|---|---|---|---|---|
| VCD-MB | | | | |
| | | | | N: Neck Size<br>F: Frame Size |
| | | | 00: No Mounting<br>SM: Screw Mounting | |
| A: Aluminum (Standard)<br>G: Galvanized Metal Sheet (Optional) | | 00: No coating<br>RAL----: Powder Coating | | |

* We choose the actuator.