



VDH Series

High Performance/Stainless Steel

Volume Control Dampers

SPECIFICATION DATA



General

The **VDH Series High Performance Volume Control Dampers** provide highly efficient airflow control in air handling systems for **aggressive atmosphere**, with **outside air control** as its major application. The VDH is a standard low leakage damper, available with ultra-low leakage feature (optional) and parallel or opposed blade configuration.

The damper frame, blades and linkages are made of stainless steel and guarantee long life with minimum maintenance. Interlocking blade edges and spring steel side seals provide the basis for reduced (LOW) leakage. Specially formed standard components and non-corrosive bearings conform to specifications required for high quality, low leakage, maximum rigidity and low operating torque. This allows the use of smaller or fewer actuators.

Multiple sections are inter-connected with a solid drive shaft and provide, together with individually adjustable internal blade linkages, a positive connection for optimum close-off sealing.

Total damper design and close manufacturing tolerances of Blendair dampers result in **LONG DAMPER LIFE**, **SMOOTH & RELIABLE CONTROL** and **ENERGY SAVING**.

Features

- Spring stainless steel side seal minimises blade end leakage
- 9-breaks interlocking blades ensure rigidity and tighter close-off seal
- Ground stainless steel blade axles and 'Delrin' or Oilite (optional) bearings reduce friction and torque requirements, thus smaller actuators
- Rigid stainless steel construction resists corrosion in aggressive atmosphere and extends damper life
- Corrosive-resistant internal blade linkage allows easy maintenance and field adjustment and interchangeable components
- Clip-on seal (optional) allows field retro-fit
- Low leakage results in energy saving

DESCRIPTION & FUNCTION

The VDH Series Volume Control Damper is a HIGH PERFORMANCE low leakage damper, which provides efficient airflow control in air handling systems with aggressive atmosphere. Airflow controls at sea-side, chemical industry and 'Outside Air' are its major applications.

The damper frame, blades and linkages are made of stainless steel and guarantee extra long life with minimum maintenance. Spring steel side seals and interlocking blade edges are the principle design features for low leakage. Low friction internal blade linkages and blade bearings ensure extra low torque and smooth and efficient modulating operation, it allows the use of smaller or fewer actuators.

Dampers are installed - as standard - with horizontal blade orientation. The opening, closing or modulation of the interconnected blades is effected by electric or pneumatic actuators initiated by control signals. Dampers are also available for manual control setting.

MODELS

- **VDH:** Low Leakage HIGH PERFORMANCE Stainless Steel Volume Control Damper for airflow control of air handling systems in corrosive atmosphere. Dampers are supplied with parallel or opposed blade configuration. Ultra Low Leakage versions are available as option.

GUIDE SPECIFICATION (for the Engineer)

Volume Control Dampers installed for use in corrosive atmosphere or outside air application shall be of design and construction as the VDH Model supplied by -Blendair, meeting requirements of LONG LIFE low leakage, extra low operating torque and smooth operation.

Dampers shall be solid Stainless Steel construction to prevent corrosion and minimise distortion or twisting during transit, installation and operation. Blades shall be of 9-break design and of maximum 1200 mm length and shall be individually adjustable to obtain optimum air shut-

off. Drive blades over 800 mm length shall be fitted with full-length stainless steel shaft to provide even torque distribution over blade length.. Blades shall be pivoting on 12.7 mm S/S shafts and 'Oilite' sintered bronze bearings.

DAMPER TYPES & APPLICATIONS

Dampers are supplied with two types of blade configuration:-

Parallel Blade Dampers are constructed so that each blade rotates in parallel with or in the same direction as the blade next to it. The rotation changes the direction of the airflow and can provide mixing and linear airflow characteristics, with only a small increase in airflow resistance.

Major control applications:

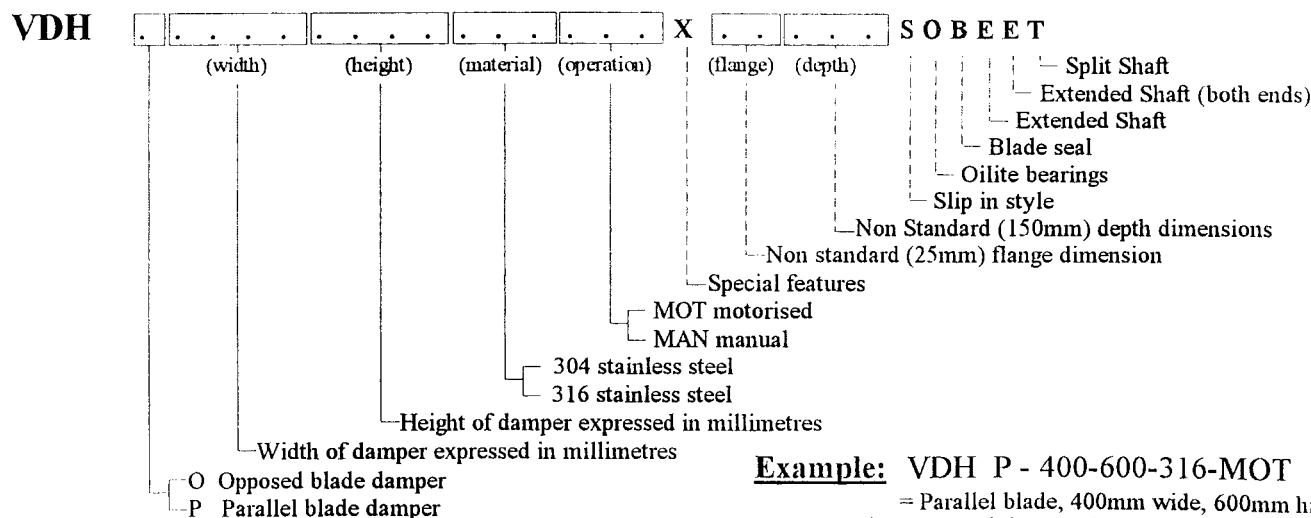
Return Air
Outdoor or Exhaust Air (w/o weather louvre or bird screen)
Bypass (w/o perforated baffle)
Two Positions or On/Off (all applications)
Outside Air

Opposed Blade Dampers are constructed so that adjacent blades rotate opposite to each other. The rotation does not change the direction of the airflow, but it does increase the airflow resistance as the air is funnelled through a smaller opening. Opposed blade dampers must be opened wider to obtain the same airflow as a parallel damper.

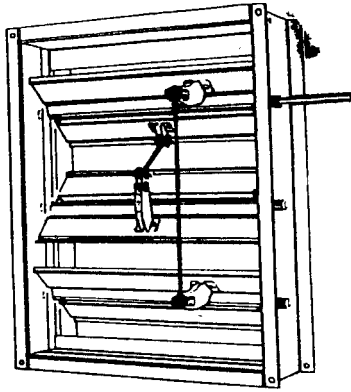
Major control applications:

Outdoor or Exhaust Air (with weather louvre or bird screen)
Coil Face
Bypass (with perforated baffle)

DAMPER ORDERING SPECIFICATION



VDH: VOLUME CONTROL DAMPERS



Opposed Blade

Note: For further information on damper selection refer to **Damper Selection Manual**

DAMPER SIZING SPECIFICATION

Modules are supplied in the following standard sizes:

Single Module: from 150mm x 150mm (min)
to 1200mm x 2400mm (max)

Size Increment: 50mm

Multi Modules: available, for details refer to Sales or Factory

Note: When specifying damper sizes (width and height), quote internal duct dimensions.

SHIPPING WEIGHTS (Kg)

Height (mm)	200	400	Width (mm)	600	800	1000	1200
200	9	13	17	20	23	28	
400	15	19	23	28	33	38	
600	20	25	30	36	41	48	
800	25	32	38	44	50	58	
1000	32	38	45	53	59	68	
1200	37	44	53	60	68	78	
1400	42	50	60	68	77	88	
1600	47	57	66	77	86	98	
1800	53	63	74	84	95	105	
2000	58	69	81	92	104	118	
2200	64	76	88	100	112	128	
2400	69	82	96	108	121	138	

Note: For weights of multi modules, add total weight by interpolating with above weight table.

SPECIFICATIONS - Construction

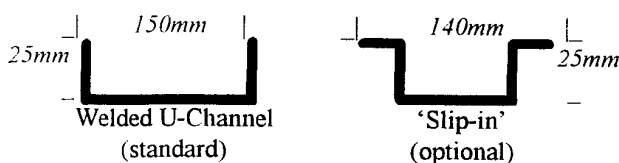
Materials & Finishes:

- Damper frame and blades are manufacture of 304 Stainless Steel sheet material (316 S/S optional). Welds are wire brushed to clean off welding spatter and scale.

Damper Frame:

Standard Construction: Press-formed 304 S/S (316 S/S optional)

Material Thickness: 2.0 mm



Blades:

Standard Construction: Press-formed 304 S/S (316 S/S optional)

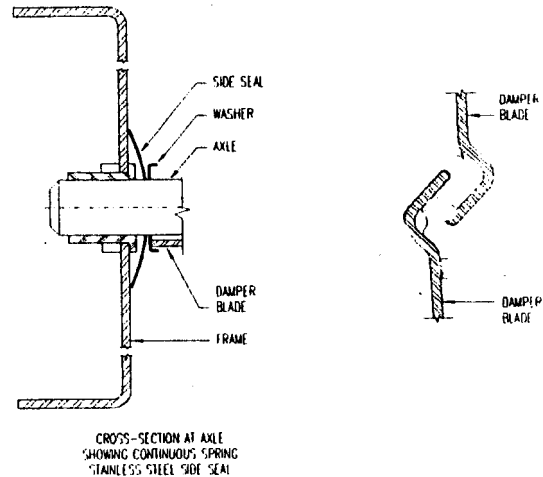
Material Thickness: 1.6 mm



Blade Seals:

Blade Ends: Spring stainless steel continuous strips (Side Seal)

Blade Edge: Clip-on, (optional)



Blade Bearings:

Bearing Types: **'Delrin'** (standard) for operating temperature -40 to +100 degree C and horizontal blade mounting.
'Oilite' sintered bronze bearings (optional) for high temperature application (max 200 degree C) and vertical blade mounting (optional)

Blade Axle & Drive Shaft:

Material: 12.7 mm diameter ground 303/316 (optional) Stainless Steel

Blade Axles: Blades are fastened to 50 mm long axles with special self-locking, shake-proof bolts.

Drive Shaft: Drive Blade is fitted with 225 mm long drive shaft that extends outside the frame for external motor mounting, but is retracted for protection purpose during transit. Dampers with over 800 mm blade length or over 0.6 m2 are fitted with full-length drive shaft.

Manual Drive Hardware:

For manual operation, dampers are fitted with adjustable and lockable Quadrant and supplied without side seals.

Blade Linkage Hardware:

Linkage Bracket: Press-formed 304 S/S (316 S/S optional) with interchangeable pivots and bushes

Linkage Connection Rod:

8.00 mm 303 S/S (316 S/S optional)

Set Screws & Blade Mounting Bolts:

303 S/S (316 S/S optional)

VDH: VOLUME CONTROL DAMPERS

Blade Orientation:

Dampers are available in two blade orientations (to be specified by customer): **Parallel** and **Opposed**.

SPECIFICATIONS - Technical

Maximum Pressure Differential:

1.5 kPa (6 Inch WC)

Maximum Approach Velocity:

20 m/sec (4000 fpm)

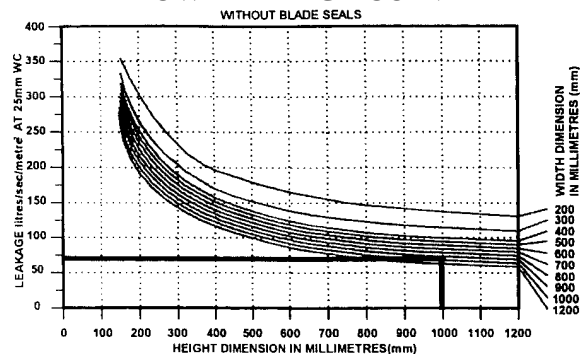
Temperature Range:

-40 to +100 degree C (standard)

-40 to +93 degree C (with seal)

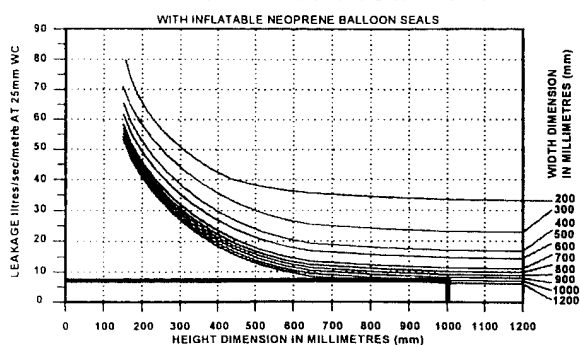
Leakage Characteristics:

LOW LEAKAGE CURVE



LEAKAGE MULTIPLIER (F)	
STATIC	MULTIPLIER (F)
25mm	1.00
50mm	1.41
75mm	1.73
100mm	2.00

ULTRA LOW LEAKAGE CURVE



LEAKAGE MULTIPLIER (F)	
STATIC	MULTIPLIER (F)
25mm	1.00
50mm	1.41
75mm	1.73
100mm	2.00

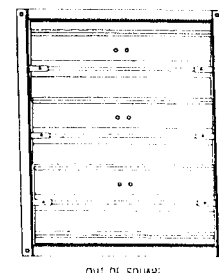
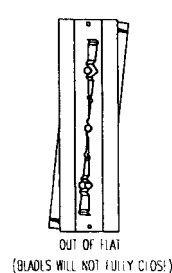
SPARE PARTS

Model No.	Description
VDH-01	Large linkage 304/316
VDH-02	Medium linkage 304/316
VDH-03	Small linkage 304/316
VDH-04	Olite bearing
VDH-05	Blade axle 304/316
VDH-06	Axle lock screw
VDH-07	Nut bolt drive shaft

Note: Other parts may be available on special request

INSTALLATION

Important! Improperly installed dampers prevent blades from sealing (see sketch below). Gaps between the blades and frame indicate that the damper is installed '**out of square**' or '**out of flat**'. These misalignments will cause increased leakage and can result in blade-to-linkage bind or non-closure of blades, thus overloading the damper actuator or render it inoperative.



Installation Hints:

1. Always observe and follow instructions on label affixed to damper.
2. Before installation, ensure that damper is not damaged and blades operate freely.
3. Allow sufficient room on side of damper for mounting of actuator.
4. Install damper 'square and flat' as per warning above. Carry out final field adjustment to blade linkages, ensuring that all damper close tightly and tighten all setscrews
5. Perform trial run of damper & actuator assembly, before attaching other end of duct work to damper.

OTHER DAMPER PRODUCTS

- **Volume Control Dampers:**
Low & Ultra Low Volume Control, Smoke Spill Damper, Min/Max Damper, Face & Bypass Damper, Zone Damper, Non-Return & Barometric Damper
- **Fire Dampers:**
Multi-Blade Fire Damper, Single Blade Fire Damper, Circular Fire Damper, Volume-Fire Damper, Ceiling Fire Damper, Curtain Fire Damper
- **Sub Ducts**
- **Actuators & Damper Accessories:**

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