GERHMAN

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HEAVY INDUSTRY

Tunnel Ventilation Damper

TVD

At Gerhman we are driven by a strong desire to continuously generate improvements. We do that by developing products and systems that are easy to use and energy efficient, together with industry-leading knowledge, support, logistics and efficient availability.

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Tunnel Ventilation Damper

TVD

TVD heavy duty fire and smoke damper maintains the highest standards of life safety for ventilation in tunnel transit systems.

Typical Applications

Designed for transit tunnels, underground applications, tunnel dampers control volumetric flow and in an emergency can regulate smoke and hot gases.

Designed for

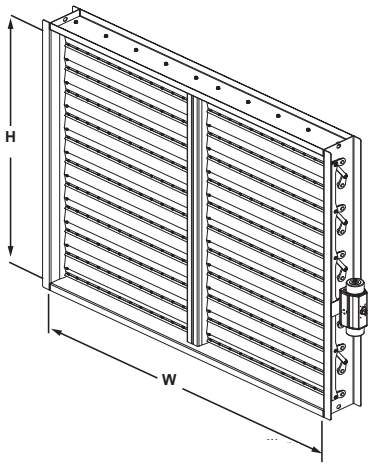
- Transit tunnels
- Underground applications

Frame	Blade
• Galvanized steel Z275 according to EN 10346 • Stainless steel AISI 304L – 1.4307 according to EN 10088 • Stainless steel AISI 316L – 1.4404 according to EN 10088 • Other materials according to customer's specifications	• Galvanized steel Z275 according to EN 10346 • Stainless steel AISI 304L – 1.4307 according to EN 10088 • Stainless steel AISI 316L – 1.4404 according to EN 10088 • Other materials according to customer's specifications

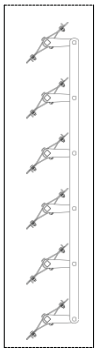
Pressure Balance and control
Dampers applied in the systems are used for discharge of pressure or control air flow

Emergency Fire / Smoke Control
Dampers are placed on ventilation and smoke discharge system are projected and used for helping smoke, pressure and gas discharge system

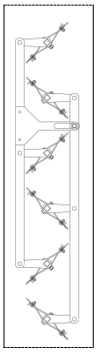
Design



Frame	
200 mm x 3 mm galvanized steel Formed channel frame construction for	TVD-HDD
200 mm x 2 mm galvanized steel Formed channel frame construction	TVD-LDD
Options	
Stainless steel 304 or 316L construction	
Thickness up to 3mm	
BLADES	
2 mm galvanized double skin Airfoil blade	TVD-HDD
1.5 mm galvanized double skin Airfoil blade	TVD-LVD
Options	
Stainless steel 304 or 316L construction.	
Thickness up to 3mm	
BEARING	
Oil impregnated sintered bronze press-fit into frame	
AXLES	
Stainless Steel 304	
LINKAGE	
Stainless Steel 304 linkage	
FINISH	
Mill galvanized	



Parallel blade mechanism

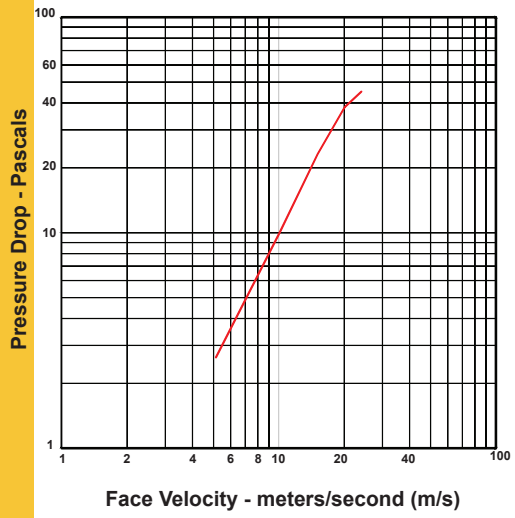


Opposite blade mechanism

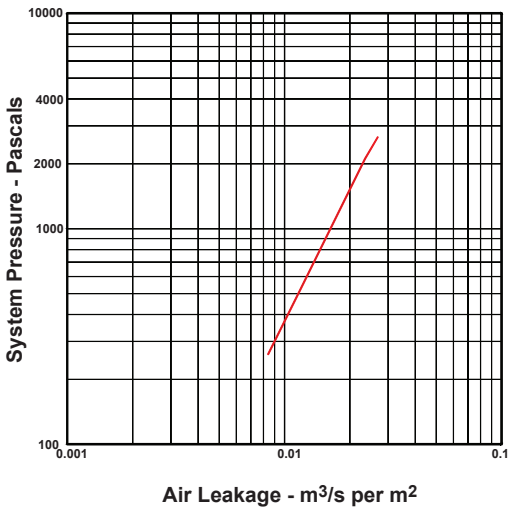
Performance

Approved Performance Characteristics	
Tested and Approved Fire Resitance	2 hour BS476 Part:20 standards
Tested and Approved Smoke Control Classification According to EN Norms	According to EN1366-10 standards, E S 120 Class
Tested and Approved Operational Temperature Classes (Damper, Actuator and Switch Boxes)	250c/1h
	250c/2h
	250c/4h
	400c/2h
Tested and Approved Damper Position	Vertical and Horizontal
Tested and Approved Thermal Shock Resistance	-5 to 250c in 20 sec.
Tested and Approved Operational Pressure Resistance	Accidental: 10.000 Pa / Continuous: 6.000 Pa
Tested and Approved Pressure Drop	12 Pa Under 10 m/s velocity
Tested and Approved Leakage	Tested in accordance with EN1751 standard. At a pressure of 1000 Pa maximum 0.030 m3 / s.m2
Tested and Approved Life Time	100.000 Open/Close tested

PRESSURE DROP
1000 x 1000 mm

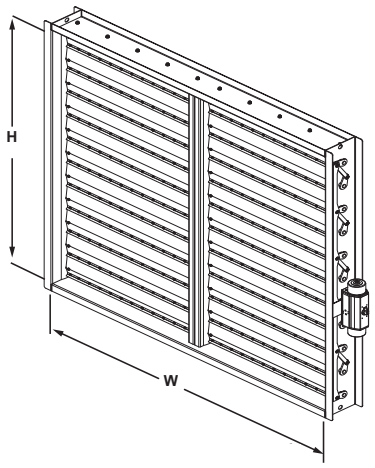


LEAKAGE
1000 x 1000 mm



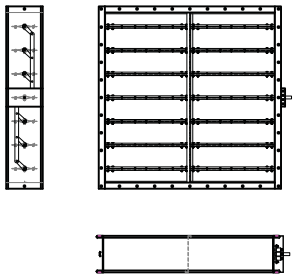
Dimensions

Single Module Size		
	Minimum	**Maximum**
Height (H)	250	2500
Width (W)	400	2500

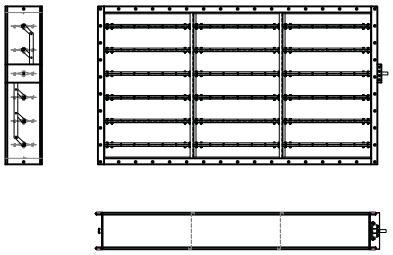


Multiple module dimensions upon request.

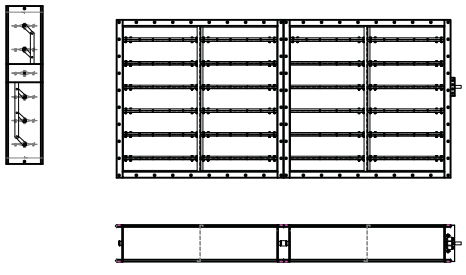
Example 1: Single body, double sections



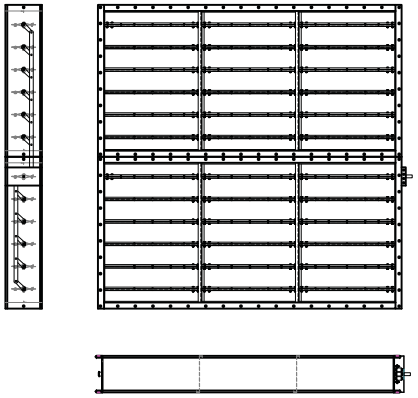
Example 2: Single body three sections



Example 3: horizontally divided double body, each body has double sections



Example 4: vertically divided double body, each body has three sections



Actuation

ACTUATION

- Electric or Pneumatic, quarter-turn, rotary actuators, as required.
- Double-Acting or Spring-Return.
- For open/close or modulating applications.
- Mounted internal or external to the airstream.

LIMIT SWITCHES

- Elevated temperature model Proximity switches for remote and local indication of damper blade position.

Options:

1. Thermal enclosure: 400°C/2h
2. Limit switch 400°C

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