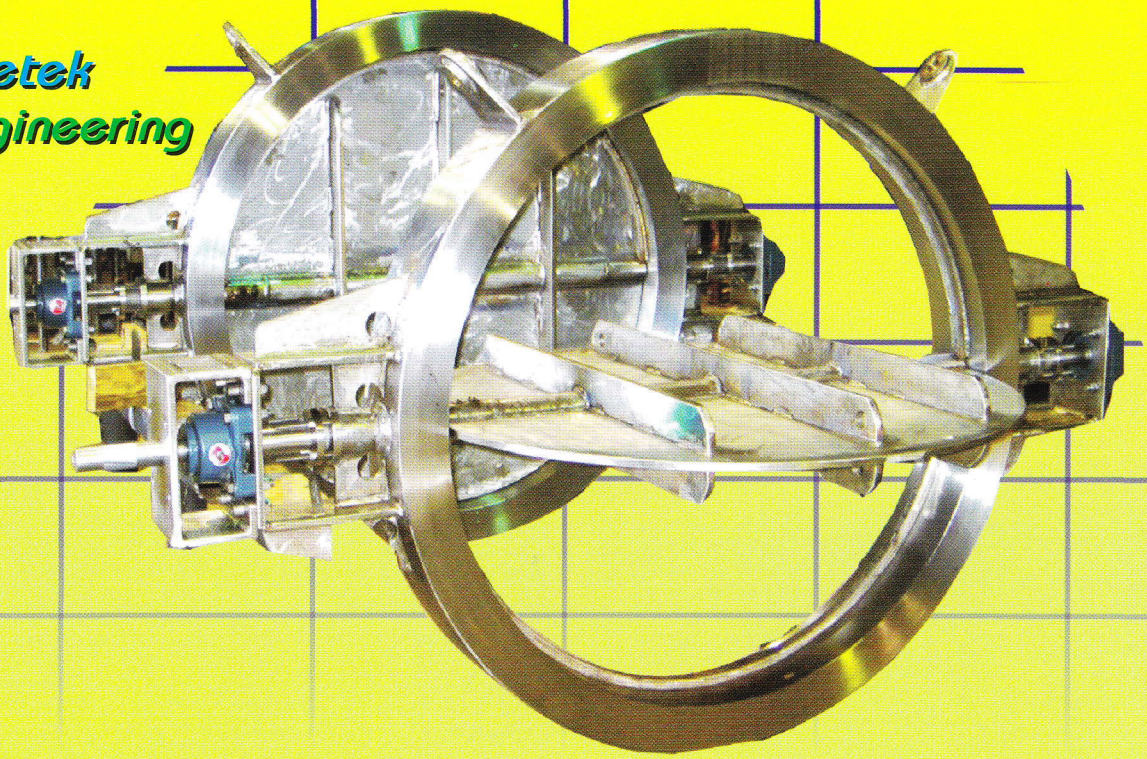
Valvetek Engineering



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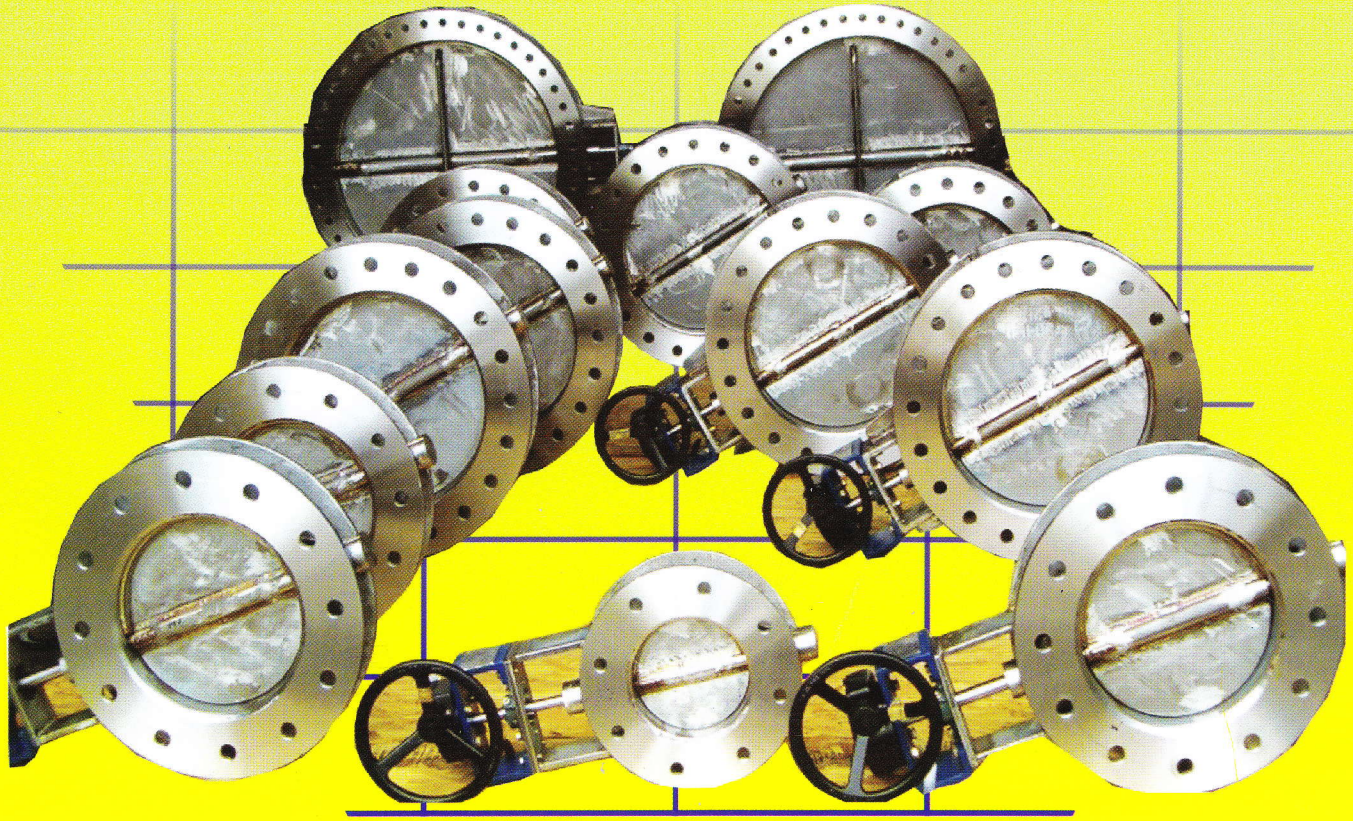

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Pneumatic Cylinder operated Flanged end Butterfly Damper / Valves ON - OFF application

Type	: Butterfly Single Flap
Service	: Air Handling
Max working Temperature	: 200°C
Max ambient Temperature	: 60°C
Max working Pressure	: 1000 mm WC
Leakage Efficiency	: 99 %
Painting	: Aluminum

Design

Type	: Flanged End
Size	: 3"- 4000 mm
Face to Face Distance	: As per drawing
Flange Outer diameter	: As per drawing
Bolt Hole PCD	: As per drawing
No. of holes	: As per Drawing
Bolt Hole Dia.	: As per drawing
Hole location	: Off center equispaced

Material of construction

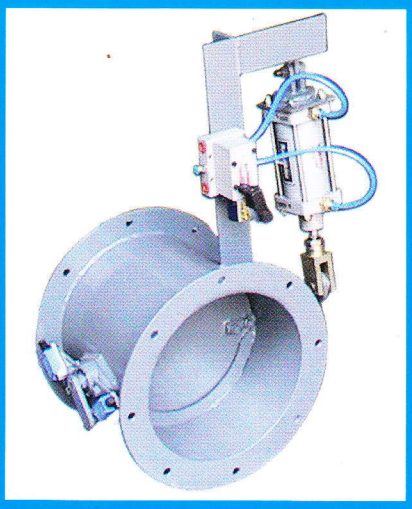
Body & Flange	: MS/SS304
Disc / Flap	: MS/SS304
Shaft	: EN-8/SS304
Gland Pkg	: Non - Asbestos
Bearing Type	: Ball Bearing / Bush Brg
Position indicator	: Mechanical Position indicator

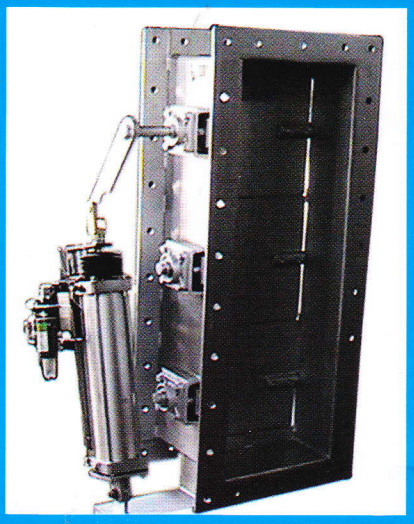
Accessories (Optional)

Companion Flanges	: MS/SS304
Mounting Hardware	: Standard /SS/ None
Gasket	: Standard
Limit Switch Box	: ½ Nos switches with SPDT Contact, Mounted on the Non Drive end of the damper.

Operation

Single acting / Double acting pneumatic cylinders





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Valvetek Engineering
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Valvetek Engineering

Outlet dampers for centrifugal fans

Motorised Multilouver dampers with direct mounted actuator.

These are Heavy duty Rectangular dampers having multiple louvers (flaps) which operate in unison to offer a smooth flow control of Blower Air . These are typically suitable for Industrial applications and mounted in ducts.

These units are with a sturdy sheet metal construction suitable to handle large quantities of Air and are mounted at the Suction or delivery side of combustion air blowers.

The operating actuators are directly coupled to the Damper shaft. This eliminates the linkage arrangement and thus the relatively tedious linkage settings. The end limits can be set by means of adjustable limit switches inside the actuator.

Features :

Sturdy Sheet Metal body. Louvers are provided with pressed ribs to provide adequate stiffness. The shafts of all the Multilouvers are supported between Ball Bearing at both the ends.

This reduces the frictional torque required to be overcome by the actuators and ensures a smooth operation.

The Ball bearings are enclosed type and ensure that no lubrication is required during its lifetime.

Actuators with suitable torque and Operating time is provided as an actuator for achieving the desired control over 0 to 90 degree travel of the motor.

Actuator is provided with either 4-20mA, 2-10V dc or SPDT floating control input Actuator is available in 230 or 110 VAC power supply Actuator is directly mounted on the Multilouver damper shaft. Actuators have an IP-65 degree protection hence suitable for weatherproof applications.

Position Feedback available in 4-20mA or 2-10Vdc (field configurable) for the models with 4-20mA or 2-10Vdc control input.

Auto declutchable Manual Handwheel is provided for operating the damper by in event of power failure. Visual indicator provided on the actuator to indicate FULL OPEN/ FULL CLOSE position.

Dampers in SS construction available on request.

Specifications :

Type	: Rectangular Multilouver
Service	: Air Handling
Sizes	: As per user specifications
Flange Drilling	: To be done by the user else to be specified prior to ordering
Max ambient temperature	: 60°C
Max working Pressure	: 1000 mmWC
Leakage efficiency	: 99%
Body & Flange	: Carbon Steel
Louvers	: Carbon Steel
Shaft	: EN - 8
Painting	: Aluminum paint.
Actuator :	
Type	: Direct mounted
Power Supply	: 230VAC/110VAC/440V AC
Control Input	: 4-20mA ,2-10Vdc/SPDT
Operation	: Directly coupled to damper shaft.
Painting	: Aluminum paint.
	: MOC in SS304 available on request.
	: Higher sizes are available in direct mounted actuator versions.
	: Manual knob operation for specific model instead of hand wheel.

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Pneumatic Cylinder operated Flanged end Butterfly Dampers / Valves ON-OFF application

These are Low cost Pneumatic cylinder operated dampers which are intended to be used for applications only.These are suitable for Combustion/Blower Air handling. The pneumatic cylinder is double acting/single acting type based on the applications of user and is provided alongwith the standard accessories viz. Solenoid valve, flow control valve in Close stroke, pneumatic tubing and tubing accessories.

Features :

Incorporates Centric shaft design, Light weight sheet metal construction, Ball bearings for sizes greater than 150NB,Asbestos gland packing,Pneumatic Cylinder with suitable stroke and bore to deliver the required torque is provided on the damper body.. Pneumatic cylinder either single or Double acting Adjustable tie rod type linkage ensures easy and proper zero flow setting of the damper flap. Standard acessories include the Solenoid valve, Flow control valve in Close direction. Flexible air tubes and tubing accessories. The flow control valve provided in the close direction ensure impactless closing thereby improving the life of the moving 2 components.
Thus the operation of the damper is Fast Opening Slow closing. The closing time of the damper can be adjusted by adjusting the flow control valve. Optionally a flow control valve can also be provided for the Open direction thus enabling the user to control the opening time of the damper as well. Ball Bearings are enclosed type and require no lubrication during its lifetime. High temperature versions are provided with SS disc and shaft to ensure longer life. The entire disassembly of the damper including Pneumatic cylinder and accessories, linkages, the shaft Bearings and disc is possible thereby providing a very easy maintenance and 3 repair if required. High temperature versions are painted in suitable HR grade aluminum paint to ensure paint durability. Dial type Mechanical position indicator with a 0 to 100% scale is provided for monitoring and setting the damper position at the time of installation and commissioning. Damper shaft mounted Limit switch box can be given additionally for correct information on damper position (Open/Close)

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Outlet dampers for centrifugal fans

Valvetek Engineering

WHEN TO USE OPPOSED BLADE VS. PARALLEL BLADE

PARALLEL BLADE

Parallel blade dampers are usually selected for volume control from wide open to 75% of wide open. A relatively large control arm swing provides sen- sitive control through a relatively small change in air volume. Parallel blade dampers also offer the best first-cost selection for simple open-closed damper requirements.

OPPOSED BLA DE

Opposed blade dampers are selected for applications requiring volume control over a broad range, from wide open to 25% of wide open, as the control arm swing is more proportional to the dampered effect.

BEARING AND TEMPERATURE OPTIONS

STANDARD DAMPERS

Standard dampers [Illustration 1] use aluminum sleeve bushings...suitable for applications requiring infrequent modulation.

Temperature options [temperature limits refer to airstream temperatures].

300°F. maximum for standard damper with standard paint.

800°F. maximum for standard damper with high temperature paint and SST case bushings.

1000°F. maximum for standard damper with high temperature paint and SST case bushings, blades and rods.

Stuffing-box option [Illustration 2] available with sleeve bushing design only...provides for minimum leakage through damper casing.

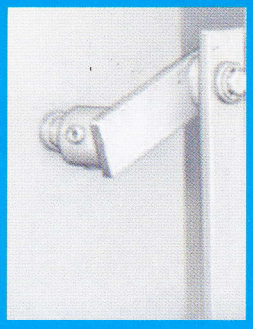

Illustration 1-Sleeve brushing detail

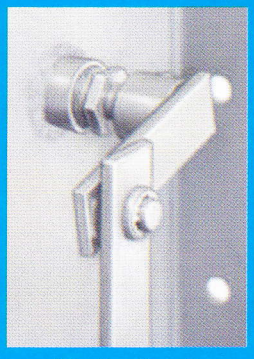

Illustration 2 - Stuffing-box option

CONSTRUCTION

Ball-bearing construction [Illustration 3] is recommended for applications requiring frequent modulation…vane

BALL - BEARING

Temperature options [temperature limits refer to airstream temperatures].

300°F. maximum for ball-bearing damper with standard paint.

800°F. maximum for ball-bearing damper with high temperature paint, SST case bushings, and heat sinks [Illustration 4].

Illustration 3 Ball bearing to 300°F

Illustration 4 Ball bearing to 800°F.

Temperature options shown pertain to outlet dampers only. The temperature capability of the fan may not be equal to that of the damper. The temperature capability of the actual fan/damper assembly is the lesser of the two components: the fan or the damper.

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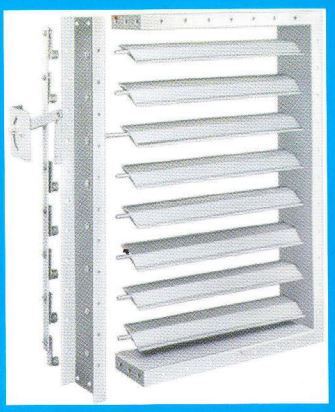
Valvetek Engineering

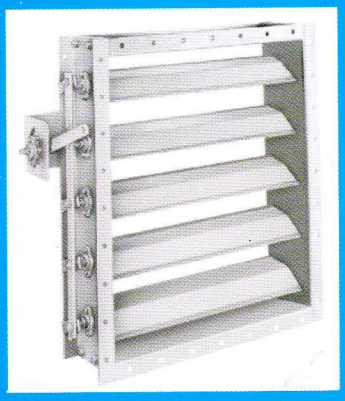
DAMPER FEATURES

Rugged construction for long service. Choice of parallel or opposed vanes to best suit dampering requirements. Choice of sleeve bushing or ball-bearing design to best suit modulation requirements. Serviceable design . . . removable linkage and removable casing side allow replacement of bear- ings and vanes . . . replacement part packages available.

Temperature ranges available to 1000°F. Stuffing-box option available for minimal leakage through casing. Locking quadrant furnishedas standard.



REMOVABLE CASING DETAIL

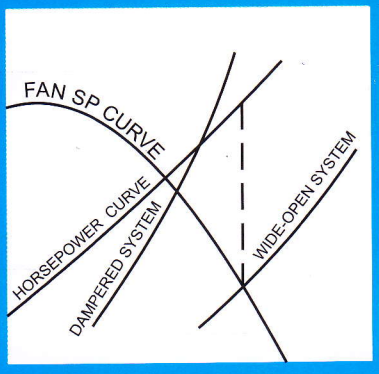


PARALLEL BLADE DAMPER

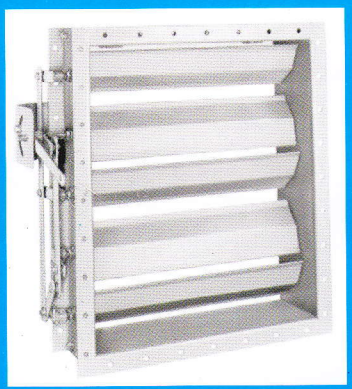
THE EFFECTS OF DAMPERS ON FAN PERFORMANCE

Outlet dampers work on the principle of adding resistance to airflow. Consequently when a wide-open damper begins to close, a variable system is created causing fan performance to follow the fan's pressure curve to a new point of operationto the left of the originalpoint. The result is lower volume and a new corresponding BHP requirement.

CURVE-1



Curve 1 shows a typical performance change when dampering a radial-bladed fan. The horsepowercurve of a radial-bladed fan rises with volume;there-fore,a reduction in volume yields a reduction in horsepower



OPPOSED BLADE DAMPER

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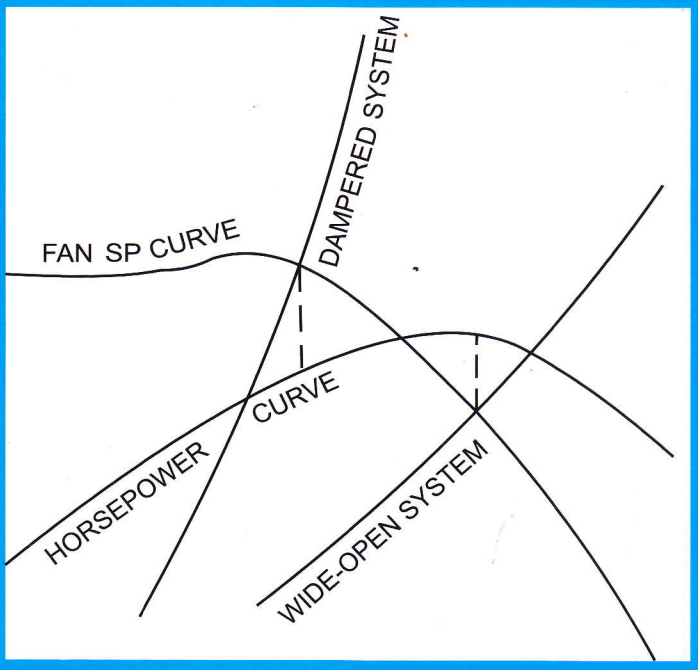
Outlet dampers for centrifugal fans

Valvetek Engineering

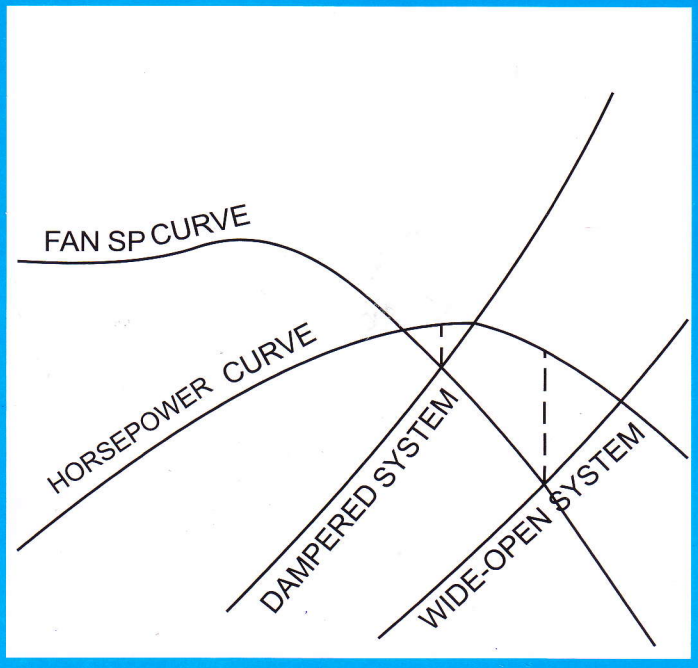
Curve 2 shows a typical performance change when damperinga back wardly inclinedr airfoil fan, which has a non-overloading horsepower characteristic. Since most fans of this type are selected for operation at a point near the maximum BHP, reduced volume normally produces reduced horsepower requirements.

CURVE-2



However, Curve 3 does show that dampering a "non-overloading" type fan from a point far to the right on the fan pressure curve could result in an increasein horsepower requirement. Refer to separate Engineering Letter for complete details. New York Blower Acousta Foil = , PLR, General Purpose, and AF Fans fall into this non-overloading category .

CURVE-3



Important note:
Outlet dampers effectively move the fan's point of operation to the left on the fan's SP curve. Therefore, closing the damper fully may force the point of operation of some types of fans into an unstable region.

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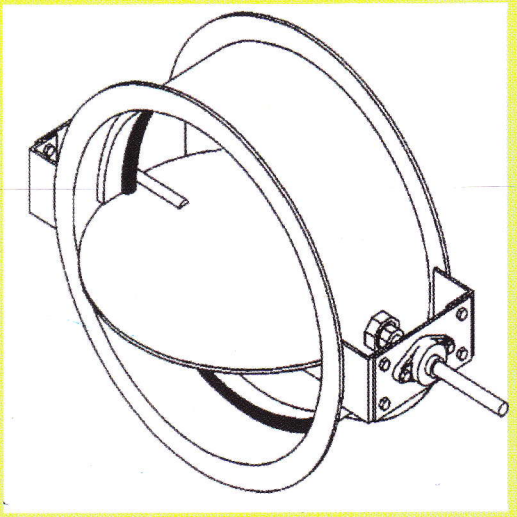
High Temperature Low Leak Damper

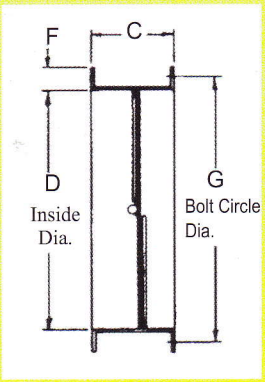
Valvetek Engineering

VTE makes damper , provodes accurate airflow and isolation at extreme elevated temperatures . Designed for round and rectangular duct work capable of 20" w.g. will with-stand limited excursions temperatures of : 1000°C, amd can be easily removed for normal maintenance. Consult VTE for actual design temperatures.



STANDARD CONSTRUCTION

CASING	: Carbon Steel Casing.
BLADE	: One piece Carbon Steel.
SHAFT	: EN - 8, may vary with system conditions.
BEARINGS	: Grease lubricated ball bearings with high temperature Grease and adjustable shaft packing mounted outboard of frame. Combination good to 500°F. Consult VTE if temperatures exceed 500°F.
FINISH	: High temperature aluminum paint
SIZE	: 3" diameter. Max size - 4000mm.
MAXIMUM TEMP.	: Damper design for excursions to 1200°F with normal operating temperature of 500°F . Consult VTE if normal operating temperature exceeds 750°F . Dimensions in parenthesis ( ) indicate millimeters.



Illustrated with Optical Bolt Holes.
+H = Number of Holes
+M = Diameter of Hole

VARIATIONS

Variations to basic design are available at additional cost and include :

- Manual, electric, or pneumatic actuators
- Higher temperatures
- Special finishes
- Special materials and heavier construction
- Bolt holes in one or both flanges

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