

GAPS Energy Pvt. Ltd.

THE COMPLETE FLOW CONTROL SYSTEM'S...

Butterfly Damper:- (GEPL-111) TEE / Diverter Damper:- (GEPL-222) Multi-Louver Damper:- (GEPL-333) Radial Vane Damper (VIV):- (GEPL-444) Double Flap Valve:- (GEPL-555) 'Y' Type Diverter Damper :- (GEPL-666) Guillotine Damper:- (GEPL-777) Slide Gate:- (GEPL-888)

Poppet Damper:- (GEPL-999)



Introduction

GEPL is mainly an industrial damper manufacturing company that has committed itself to always respond flexibly according to the individual requests of its customers. We complete your projects efficiently and on schedule & for that we employed skilled & motivated team. Product quality and customer satisfaction are our goals.

Our hi-tech designing/production facility and superior supply network are the prime reasons for delivering better-quality products at affordable prices.

Quality manufacture is part of every GEPL damper. Our policy is to ensure that the standard

of equipment is commensurate with customer requirements. This is achieved by strict control

of engineering and manufacturing from initial design to final assembly and testing.

Workshop testing is carried out to ensure all our dampers are fully operational and

functioning as designed before leaving the workshop.

We pride ourselves on our customizable product offering with free, dedicated support and

advice available from our Designers and Engineers.

We offer a wide range of manufactured products and turnkey services to our customers in a variety of industries including power, biomass, textile, pulp and paper, iron and steel, cement, lime, petrochemical, chemical, foundry and mining.

At GAPS ENERGY PVT LTD , we provide dampers for: - System Control and Modulation -Zero Leakage Capability -High Temperature Applications -High Differential Pressures - Corrosive/Abrasive Environments -Custom Applications.



Seal Options:



The most simple of all the seal options is no seal at all. A nominal gap is left between the vane edge and the inside of the damper body. This is the option to choose if the damper is required to perform solely a flow-control function where the closed position sealing efficiency is not important. The no-seal option is also commonly used on manual trimming dampers which are anually set to balance the flow characteristics of a particular section of ductwork. A solid ledge seal is the most simple 'mechanical stop' seal. This consists of an annular steel ring, which is welded around the inside periphery of the vane and which mates with the vane edge in the fully-closed position. A ledge seal gives a reasonably good seal (compared to no seal at all) and is very robust and maintenance-free.

In order to increase the sealing efficiency beyond that of a solid steel on steel contact, GEPL offers a range of more sophisticated seals. A flexible metallic seal consists of a twin layer of 0.5mm stainless steel seal elements which are clamped to the vane periphery and mate with a landing bar welded around the inside periphery of the damper body. The flex in the seal elements compensate for any slight fabrication tolerances and ensures a firm contact around the full periphery of the seal.



A rubber 'P'-section compression seal is clamped to an angle welded around the inside of the damper body. As the vane closes is compresses the bulk of the rubber 'P'-section. Several rubber materials are available including nitrile, silicone, Viton and PTFE. This type of seal provides an excellent (single seal row) sealing efficiency but has temperature limitations to the properties of the rubber material. The 'P'-section compression type seal can also be made from ceramic fiber if higher temperatures are involved. This material is suitable up to around 900°C.

A rubber wiper seal can also be fitted which consists of a flexible rubber strip which is clamped around the vane periphery and which wipes against the inside of the damper body in the fully closed position. This type of seal is particularly useful on small dampers where the air stream contains some non-abrasive traces of particulates, as there is no edge for dust to build up against. Whereas a shutoff damper usually incorporates a single seal row, our isolation dampers incorporate a double seal row and a 'pressure barrier' between the two seal rows (the seal interspace).

A small vent damper is fitted to the main damper body and allows air to flow either into or out of the seal interspace. The small vent damper is fitted with its own actuator, or can be linked to the main actuator, such that the vent damper opens as the main damper vane closes, and vice versa.



Actuation

GEPL offers several options for actuating our dampers. Of the two powered forms of actuation, we use on our dampers, pneumatic actuation works out to be the most cost-effective solution. It's also the most versatile, providing open/close, regulating and fail-safe options in a modular actuator combination.

For open/closed pneumatic actuation a solenoid valve is provided complete with manual over-ride and exhaust port flow restrictors for speed control. For regulating duty, a positioner is provided, usually controlled using a 4-20mA control signal. With the addition of a rotary spring return unit, the damper becomes fail-safe on loss of either pneumatic air pressure or electrical control signal, whether controlled by a solenoid valve or positioner.

Electric actuation is the next most cost-effective form of powered actuation. Open/closed and regulating control are both available on the electric actuators we use, but a fail-safe facility is more challenging and expensive using electric rather than pneumatic actuation.

All the above actuation types are available for use in hazardous areas.

We also manufacture manually-operated dampers, either with a hand lever and locking quadrant or, for large dampers with a higher operating torque requirement, a worm and wheel gearbox with manual hand wheel.

Manually-operated dampers are often used where shut-off is required only fairly infrequently, or where the damper is required for flow balancing (or trimming).

GEPL also offers gravity-actuated (counter-weight) dampers.



1. Butterfly Damper Valve :- (GEPL-111)



General applications:

-These butterfly damper valves are suitable to work with a wide range of air and gases. They are particularly suitable for controlling the flow of gas in pipelines. Used mainly in: - Cogeneration plants. - Thermal powerstations, Electrical powerstations. - Chemical plants. Energy Sector.

Sizes:-

From DN 80 up to DN 3000 (larger sizes on request).

Working (ΔP):-

Maximum standard work pressure is 0.5 kg/cm2 ; greater pressures upon request.



Joint flanges: -

There are two options to secure these valves to the conduit: • Flange connection: The valve is manufactured with "WAFER" type design. • Bolting the flanges: The valve is manufactured with bored flanges.

Sealing Eff:-

Theses Butterfly damper valve sealing eff up to 98 % to 99.5% (i.e 98% sealing eff for Coal & wastes material & 99.5% sealing eff for Air & Gas .

Quality dossier: -

All Damper valves are tested at GAPS ENERGY PVT LTD and material and testing certificates can be supplied on request. - The watertight integrity of the seat area is measured with gauges.

Automatic:-

Electrical Actuator(fig.25) Pneumatic Actuator (fig-26) Pneumatic/Hydraulic Cylinder (fig-28) Emergency manual actuators (fig. 30) Elongated supports (fig. 23):

Manual.:-

Hand Lever Operated (fig-24) Gear Operated (fig-29) Bare Damper (fig-27)





Electrovalves Positioners Limit switches (fig. 31) Proximity detectors





OPTIONS FOR HIGH TEMPERATURES:-

If a damper butterfly is required to work at high working temperatures, there are different options available in line with the temperature and the space for the Damper valve.

1- Elongated supports (fig. 32):

When the damper butterfly has to work at high temperatures, there is the option of elongating the body supports. This moves the bearings and the actuator away from the source of heat, protecting them from possible damage due to the high temperatures of the conduit. Whenever the valve is fitted with a manual actuator, this allows the operator to use it without any risk of burns.



2- Insulation (fig. 33):

Whenever the damper butterfly has to work as high temperatures and it is necessary to avoid unnecessary loss of heat through the valve, e.g. to maintain optimum performance of the facility, there is the option of protecting the valve body with exterior insulation. Sufficient free space is left around the body in order to fit the insulation whenever the customer deems appropriate. The packing, bearings and drive systems therefore remain easily accessible and maintenance work can be carried out without having to remove the insulation.





3- Heat dissipaters (fig. 34):

Heat dissipaters are installed in facilities in which the valve works at high temperatures and there is not enough space to extend the body support pieces (or the length required is greater than normal). They are installed principally in the shafts, since they are solid and have great thermal conductivity. The aim is to dissipate the heat and bring the temperature of the shafts down in the areas where the bearings and the actuator are assembled. This allows them to work at a lower temperature, causing less wear and tear and extending their working life.



4- Interior insulation (fig. 35):

This type of damper butterfly is occasionally installed in conduits where the working temperature is very high. It may be the case that the temperature is too hot for the option of fitting insulation or that the valve is to be installed as close as possible to the source of heat. In these cases the inside of the body can be insulated with refractory material. In valves which use this system, the diameter of the collar in the body is usually significantly larger than the nominal diameter of the conduit. The reason for this characteristic is that the refractory insulator is attached to the interior surface of the collar in the body. In consequence, higher temperatures will require higher quantities of refractory material. For this reason, the difference between the nominal diameter of the conduit and the diameter of the body must be larger.





2) Diverter Damper :- (GEPL-222-Series)



Flow diverter dampers are commonly used throughout process recovery, heat recovery, and turbine exhaust systems to direct gas flow in one or two directions. Flow diverter damper metallurgies are designed based on system design, pressure, temperature, and chemistry of the system or gas stream. These systems are fully assembled and operationally tested by Experienced engineers prior to shipment or installation.

For heat recovery systems, the flow diverter damper will direct the gas to a waste heat recovery system or in a bypass mode through a silencer or stack. These diverter dampers can be manufactured with a single end pivoted blade to direct gas flow into one of the two damper outlets. The turbine exhaust diverter damper can be furnished complete with two dampers, T-duct sections, expansion joints, and damper actuators with fail-safe systems.

USED FOR

- Cement Plants
- Steel Plants
- Chemical plants.
- Power plants.



3)MULTI-LOUVER DAMPERS .:-(GEPL-333-Series)



Louver dampers are designed and built for the specific requirement of heavyduty service applications where reliable modulation of hard to handle media is required. Louvers are available in parallel or opposed blade operation and in a variety of materials to withstand the most difficult combinations of temperature and atmosphere.

Louver dampers can be supplied for high temperature applications. For high temperature service, the frame is internally lined with refractory and the blade material is of an alloy suitable for that specified temperature

Louver Dampers can be manufactured circular or rectangular, and in a variety of configurations. Generally, multi-blade louver dampers are used as control dampers – or as isolation dampers in rectangular or square ducts of a large cross-sectional area, where use of a single blade would be impractical.



Due to the multiple blade arrangement, sealing efficiencies are lower than in single blade butterfly dampers. However, by placing two louver dampers adjacent to each other and purging the cavity between the two sets of blades when closed, with air at a higher pressure than the system pressure, total isolation of process gas may be achieved.

When used as control dampers, the blades are normally arranged to counter rotate, this provides very good control characteristics through the entire range of operation.

Materials of construction, gland seal and bearing arrangements and drive configurations are selected and designed to suit the application and customer requirements.

4)Radial Vane Damper (VIV) :- (GEPL-444- Series)



Radial Vane dampers provide additional flow control for fan inlets, and also provide prespin of the air into the fan. Starting the fan while the damper is in the closed position allows for a low horsepower startup. GEPL Equipment supplies all radial vane dampers with a cantilevered blade design complete with two external bearings, eliminating the need for blade support and bearings in the gas stream. GEPL Equipment also has a cantilevered conical design for FD fan applications.



5) Double Flap Valve:- (GEPL-555-Series)



Double flap valve that allow flow of dust and maintain airlock across the valve. Manufactured with suitable for handling highly abrasive and gritty materials along with high vacuum across the valve. Available in several designs and technical specifications, this double flap valve can be availed from us at most economical prices are best applied to balance or control flow.

6) "Y" TYPE DIVERTING GATE.: (GEPL-666-Series)



Diverter gate are used to change the direction of flow of bulk materials as they are discharged from equipment above. Bulk materials can be diverted to another process stream or used to divert off-spec material to a bin.

Features

- Reliable operation
- Rugged design
- Easy to use and maintain
- Corrosion Resistance



7) Guillotine Damper:-(GEPL-777-Series)



Guillotine dampers can be used in any application where a positive location is required for routine maintenance or entry to a duct behind a medium source. Acutation can be manual, pneumatic or electric, with various designs to suit all budgets and specifications. Occasionally, Guillotine dampers are specified for bypass ducts, if operation requirements allow enough time for the slow-moving blade to travell across the opening.

Construction

The basic mechanical elements of the guillotine damper are a blade, a peripheral-seal system to prevent gas leakage at all stages of blade movement, support members for the blade, and continuously from open to close and back again. Where flow control is not require but positive shut off is mandatory, guillotine dampers are the most logical choice.

Function

• Isolates a duct section for process of maintenance reasons.

- 100% Isolation is achived with seal air.
- Actual forces conveyed by robust rack & pinion.

Advantage

- Short face-to-face length
- Low Pressure drop
- Low seal air requirement
- Closed bonnet design avoids condensation



8)SLIDE GATE:- (GEPL-888-Series)



A slide gate has a flat closure element that slides into the flow stream to stop the materials. They are one of the most commonly used valves, and are primarily used to permit or prevent the flow of materials. Gate valves can be used in demanding environments such as high temperature and high pressure environments.

Application

- Power Plants
- Water Treatment
- Mining
- Offshore Application



9)POPPET DAMPER.:-(GEPL-999-Series)



GEPL manufacture & carefully engineered all poppet dampers to highest quality standards to assure installed performance & longevity. . Poppet dampers are used on inlets, outlets and bypasses of certain baghouse designs

GEPL Poppet damper has several design features that make it superior to the design of many of our competitors'. We provide a seat ring with either a Blanchard ground or a machined sealing surface. Our Poppet disc also has the ability to accept misalignment before final seating. These design features provide a better sealing Poppet.

We can provide poppet damper in section or complete assembled. Some customers do not require the complete poppet assembly. In such cases GEPL can supply the poppet disc, seat, cylinder stand, shaft and operator for assembly into the customer duct work.

All poppet damper manufactured by GEPL comes equipped with a locking mechanism in both the open & closed position. This provides a safeguard against injury of personnel during maintenance of the bag house or thermo oxidizer



Services

GEPL dampers are supported by our dedicated team of skilled engineers, and we are able to provide the 24hr. emergency repair services available for all existing installations Dampers worldwide. Hence, we are able to provide the following services.: -

- Service Inspection
- Routine Maintenance
- Commissioning
- Troubleshooting
- Repairs /Retrofit
- Spares Parts

GEPL has a complete selection of tried and tested, original spare parts to keep your damper systems up and running. These include sealings, gland packing, bearings, limit switches, actuators and more. Our dampers are designed with very long lifespan and easy servicing in mind.

Our service engineers are fully qualified and hold all the necessary training qualifications and certification to carry out these activities.



INDUSTRIAL APPLICATION







Mining plant

Electronics plant

Steel Plant







Coking Plant

Asphalt Stir Plant



chemical plant

Waste incineration



Food factory



Cement plant

power plant



Metallurgy plant





GAPS ENERGY PVT LTD

Office & Mfg Address.: Plot No-08, Gat No-396, Dehu-Alandi Road, Talwade, Pune-411062.

Email:- marketing@gapsenergy.com,sales@gapsenergy.com ,info@gapsenergy.com, www.gapsenergy.com Cell Phone :-+91 9637752345,9822885585,+91 7774038613.

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