

Drives For Butterfly Valves

FEROPLAST produces several types of devices to drive the throttle valves which are used for a variety of external sources of energy. By applying the elements of automation, these devices can be successfully used to control operation of butterfly valves.

FEROPLAST produces the following types of actuators:

- Manually levered,
- Manually geared,
- Electric,
- Pneumatic.

The main element that is required for automatization of butterfly damper actuator is a device for signaling of the position of the closure body (disk). FEROPLAST also produces and installs devices for the signaling of the position.

Manually levered driving device

Manual lever drive is the most prevalent in butterfly valves and is the simplest way for actuation. It consists of a basic lever, which is ergonomically configured for accepting and starting by hand, auxiliary lever which serves to block the position of the basic levers and plates with grooves to lock position. Grooves on the panel are placed at the angle of 9° to each other, in the range of 0° to 90°. The panel is mounted on the upper flange of the housing and the position of the closure body (disk) is determined by placing the auxiliary lever in the appropriate groove. In this way, true end-positions open-closed are achieved, as well as the desired intermediate positions for the purposes of regulation of pressure or flow.

FEROPLAST supplies manual lever actuators for butterfly valves up to DN200 PN16.

Manually geared driving device

For the butterfly valves PN16, DN250 and larger in size, manually geared drive must be used for management. Construction manual of the gear drive is compact, optimized for easy installation on the wing flap. Gear units with output gear segment have a sufficient stroke for the quarter turnover of the closure body and the hand wheel at the entrance, which allows easy management of a wing flap. For information on the position of the disc, there is mechanical position indicator on the gear unit housing.

Connection to the gear unit to valve complies with the standard EN ISO 5211 so that it can be also used to manage armature from other manufacturers.

The gear unit can be easily connected to a device for signaling the position for automatization of the process.

Electric actuators

In order to achieve full process automatization and management of butterfly flap FEROPLAST offers electric motor drive for butterfly valve. The construction of the actuator is compact, made in good protection against penetration of water and foreign bodies (dust), suitable for various temperature

conditions.

Electric actuator equipment consists of basic equipment and accessories to order:

- **Basic equipment:**

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Electromotor:

voltage 3x400V AC, appropriate power according to the required operating point,

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Gear unit:

appropriate characteristics,

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Torque switches:

one for opening + one for closing,

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Switches stroke:

one for opening + one for closing,

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Position indicator:

mechanical position indicator,

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Protection marking:

IP67, basic color + final acrylic lacquer,

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Operating temperature:

from -25°C to + 55°C,

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Hand wheel:

switching on manually in case of power failure.

- **Accessories to order:**

- Electromotor:

voltage 1×230 V AC or 24 V DC,
- Torque switches:

one for opening + one for closing,
- Switches stroke:

one for opening + one for closing,
- 0-100 Ω Potentiometer:

single piece, or
- Inductive sensor 4-20 mA:

single piece,
- Protection marking:

IP on demand and RAL for the final varnish or laminating,
- Operating temperature:

upon request,
- Heater:

3-15 W AC or DC at the request,
- Controls on site:

on the drive box with buttons to open and close.

When requesting for quotes, you must define all the equipment due to the planned management schemes.

Delivery includes the electric motor mounted on a butterfly valve, tested and tuned torque switches to open and close at a differential pressure equal to the nominal, set the cursor the position. Stroke switches are not set.

Pneumatic actuators

Selection in regards to the type of drive for the butterfly valves is influenced by the source of motion energy that is present for complete process automatization. Thus, for processes where the air is present as the driving fluid, FEROPLAST can offer pneumatic drive for the butterfly valves. Like for the electric motor, in addition to opening and closing the dampers, continuous control of the opening-closing butterfly valves can be achieved, depending on the needs of the process.

Pneumatic drive FEROPLAST is the one with axial pistons which use gear and rack to convert axial into rotary motion of the shaft dampers. Dimensions of pistons are adapted to the usual pressures used in air management systems, which means an operating pressure of 4 - 6 bar.

Pneumatic drive may have a double acting piston (the diameter of the piston rod should be taken into account), or two of the same of the piston set in the opposition, when the achieved force is the same in both directions. The construction has a possibility of hand manifold or manifold, which are controlled by different energy. There is also the possibility of setting up positioner for certain positions when using flap for regulation.

Pneumatic drive is equipped with a mechanical position indicator and a device for manual operation in case of loss of air while the angle of rotation of the closure body (disk) is determined with end mechanical stops. Oiled, purified air without impurities of water should be used for controlling, allowed operating temperature is from -20°C to +80°C.

The device for position signalization

The device for position signalization can be mounted on each of the previous drives (except the manual lever). The device is used to show the position of the closure body (disk) and is in conjunction with the valves shaft. A mechanical position indicator can be installed into the device, or potentiometer, or inductive encoder in case of the need for process automatization. Also, limit switches for signalization the open-closed position and controls of the actuator can be incorporated into the device. In the basic version, the device is made in the protection IP67.