

QUARTER-TURN VALVES

ACTUATION METHODS

The discs of centric and double-eccentric butterfly valves fulfil a 90° movement to fully open or close the valve. Therefore, they are called quarter-turn valves. This movement is done by an actuator that is attached to the valve shaft. In general, many possibilities are available depending of application, function and size of the valve. The actuation can be manual, electric, pneumatic or hydraulic.

MANUAL ACTUATION

In many cases butterfly or ball valves are in the open position for a very long time. They are only operated very unfrequently and might only be closed for maintenance purposes in the pipeline. For such applications it is very common to work with manual actuation. For small size valves that require a low torque this can be a hand lever directly mounted onto the valve shaft. In order to ensure easier operation, gearboxes and hand wheels are used for larger size valves.



ACTUATION WITH HAND LEVER



ACTUATION WITH GEARBOX AND HAND WHEEL

ELECTRIC ACTUATION

Operating butterfly or ball valves by electric actuators offers various advantages. The actuators open or close the valves automatically according to the settings defined by the operators in the control systems – or by just pushing a button. It is not necessary to send workers to open or close the valves. In addition, the actuator gives feedback about the valve opening position to the control system. This allows the operators to monitor the valves in the system. For small sizes, the electric actuator can be mounted directly onto the valve. For larger sizes, it is very common to use a combination of gearbox and electric actuator.



ACTUATION WITH ELECTRIC ACTUATOR



ACTUATION WITH GEARBOX AND ELECTRIC ACTUATOR

PNEUMATIC ACTUATION

Automation by means of compressed air has become more popular in recent years. Pneumatic actuators are used very often when a large number of valves are to be actuated, especially in water treatment plants. These actuators allow very frequent and reliable opening or closing of the valves, even when no electricity is available. We offer pneumatically actuated butterfly valves up to DN1600. For small sizes, pneumatic quarter turn actuators are used. For large valve sizes, a combination of slider crank mechanism and pneumatic linear cylinder offers a technically and commercially favourable solution.



ACTUATION WITH PNEUMATIC
QUARTER-TURN ACTUATOR



ACTUATION WITH GEARBOX AND
PNEUMATIC LINEAR ACTUATOR

HYDRAULIC ACTUATION

In many systems, especially when turbines and/or pumps are involved, hydraulic oil supply is available. This is often used for hydraulic cylinders to operate the valves. Whenever butterfly or ball valves fulfil a safety function in the piping system, hydraulic drop weight actuators are the ideal solution to open or close the valve reliably – even if no external power supply is available. The compact ERHARD drop weight actuator can be mounted onto any quarter-turn valve and is very often used in the following functions:

- └ Pipe burst protection
- └ Combined pump start-up and non-return valve for pump starting and pump protection
- └ Turbine inlet valve for turbine protection
- └ Quick-opening valve in bypass lines
- └ Overflow control valve in reservoirs



ACTUATION WITH HYDRAULIC DROP
WEIGHT ACTUATOR



ACTUATION WITH HYDRAULIC
ACTUATOR