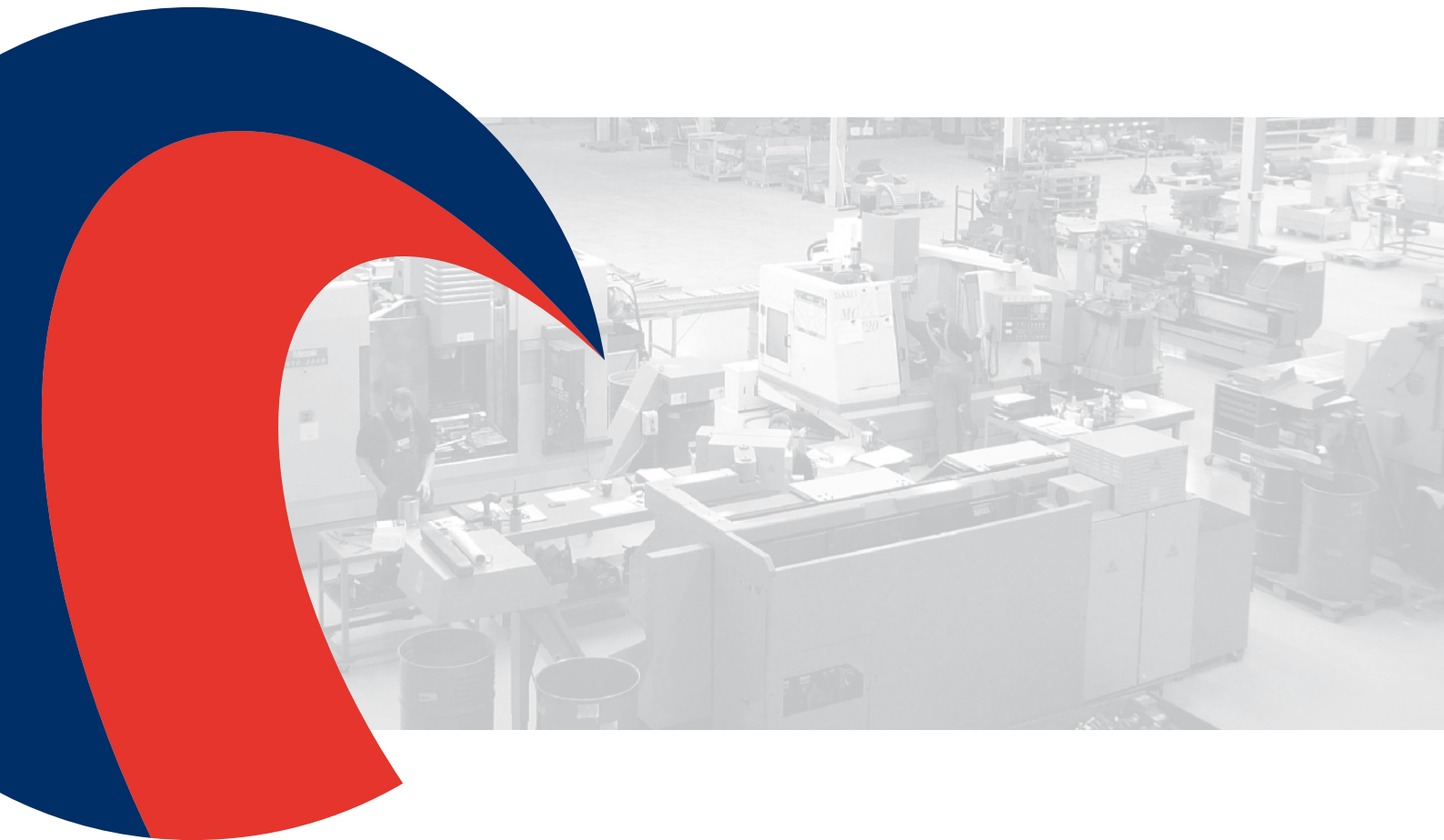


Lift & Turn actuators



**Innovative solutions in
valve automation
systems**

SITE



SITE LIFT & TURN ACTUATORS

The new, innovative fail-safe SITE Lift & Turn actuator from Doedijns Pneumatics is a real engineering challenge. A respond to the wish of various end users: *'look for an alternative for fast wearing ball valves in abrasive media'*. One linear movement – resulting in lifting, turning and reseating – makes the Lift & Turn the first spring-return actuator for lift plug valves.

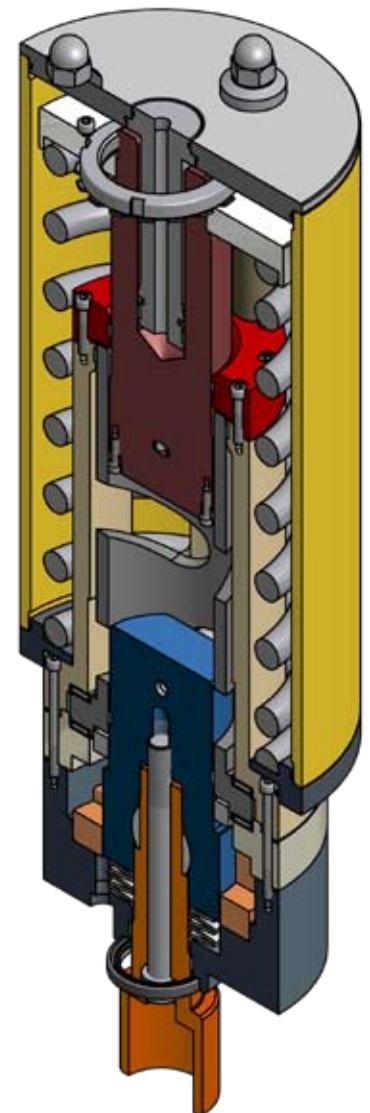
Capability upgrade

The development of the Lift & Turn actuator is an excellent example of our customer oriented approach. The result is a unique solution: upgrading the overall capabilities of the lift plug valve, making it the best possible fail-safe solution in abrasive media. There never was a single actuator for this specific valve. In order to actuate the lift plug valve, two actuators were needed or a manual hand wheel and lever. This has changed with the SITE Lift & Turn actuator by Doedijns. Our actuator makes the valve suitable for many more (remote) situations because it can be operated from a distance.

Markets

The Lift & Turn actuator combined with a lift plug valve can be used in any abrasive situation where other valve types e.g. ball valves wear out fast. These are the markets where the lift plug valve already has been applied with great success:

- Oil & gas (e.g. oil sands)
- Mineral extraction (e.g. mining)
- Refineries and (petro-)chemical industries
(e.g. pharmaceutical or fertilizers)
- Power generation plants (e.g. water power generation)





OPERATING PRINCIPLE

The Lift & Turn actuator basically consists of a mechanism, spring and power module. The mechanism converts a linear movement of the power module into a lift-turn-push motion. Upon loss of power to the power module, the spring ensures reverse action of the mechanism to stroke the valve to its fail-safe position.

Lift – Turn – Reseat

The Lift Plug actuator performs a three dimensional movement:

1. Lift

- The either hydraulic or pneumatic cylinder (the power module) will compress the spring
- In the same time, the stem is lifted by the mechanism so that the connected plug inside the valve is lifted from its seats

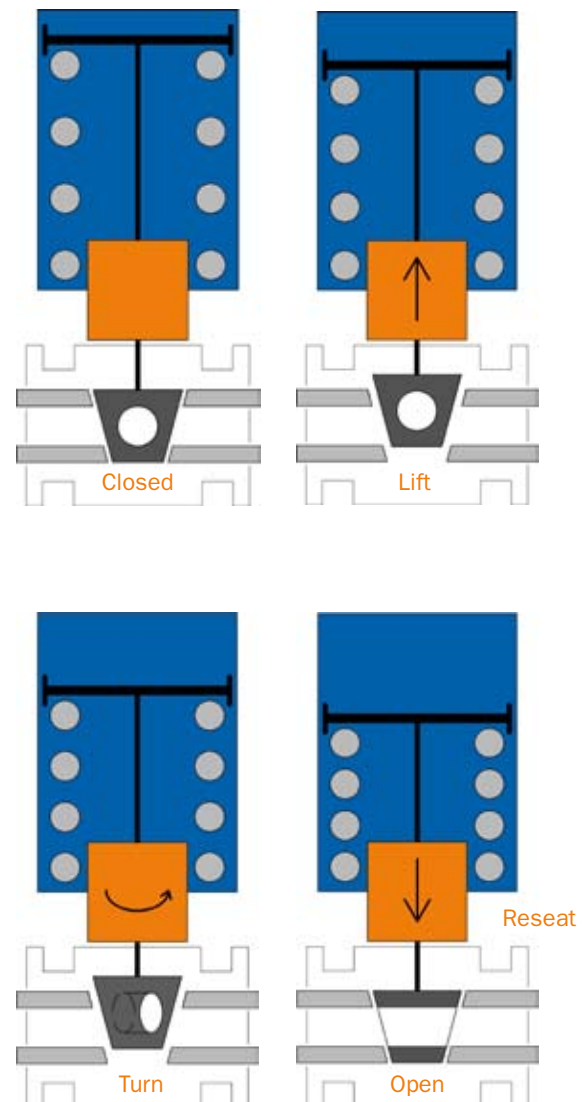
2. Turn

- After lifting, the stem connected to the plug is turned 90°
- The spring is compressed further

3. Reseat

- The final motion: the power module will be completely filled with more air or hydraulic fluid
- Result: both the spring and plug are pressed back into the valve's seal
- Now the valve position has changed a quarter turn in open or closed

When the pressure in the cylinder is released, the spring ensures the reverse three dimensional stroke: Lift – Turn – Reseat.





TECHNICAL SPECIFICATIONS

The basic design of the SITE Lift & Turn actuators will be the same for every brand of lift plug valve. However, the valve interface and output motions can be easily modified to meet your specific valve characteristics. Lift & Turn actuators are suitable for the use in fail-safe applications such as (E)SDV and BDV.

Specifications

- Spring-return or double acting, fail open or fail close
- Pneumatic from 4 to 12 bar (g), hydraulic from 75 to 210 bar (g)
- Valve specific lifting height and rotation angle of 90°
- Carbon steel exterior, (alloy) steel interior
- Ambient temperature range from -30 °C up to 90 °C
- Typically suitable for 0.5" up to 24" lift plug valves
- Internal tie bars
- Maintenance free, lubricated for the lifespan
- Accessory pad for close mounting of control systems
- Certified to CE, ATEX, and PED: other certifications available on request
- Output thrust up to 200,000 N with a torque up to 2,000 Nm
- Patented: NL1034069; patent pending: W02009005348

Optional available

- Custom valve interface
- Various other rotation angles
- Wider ambient temperature ranges
- Larger output thrusts and torques
- Exotic materials
- Wider range of hydraulic or pneumatic pressures
- Customized control systems
- Limit switches





ADVANTAGES

The Lift & Turn actuator is a valuable accessory to your lift plug valve. This single actuator transforms a linear piston movement into a three dimensional movement. Thanks to our Lift & Turn actuator the lift plug valve will be suitable for many more applications.

Actuator and valve

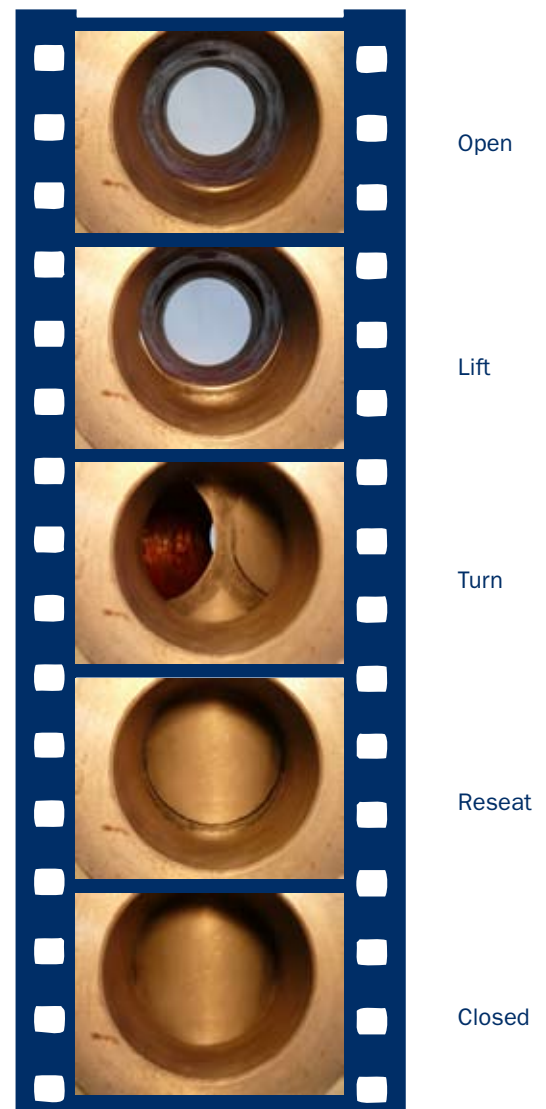
- The lift plug valve has a long lifespan because the plug is lifted from its seats before rotating
- Lift plug valves with metal seats can withstand extreme heat
- Lift plug valves can handle slurry and abrasive media without wearing down fast
- Both the standard hand wheel and lever are replaced by one item: the Lift & Turn actuator; no complex double actuator construction is needed for the triple stroke
- Remote actuator control makes the valve suitable for many more applications

RELATED PRODUCT

With some modifications the Lift & Turn actuator becomes suitable for the rising stem ball valve. This valve is also used in an abrasive environment.

Rising stem ball valve actuator

- The design of the rising stem ball valve actuator is close to the Lift & Turn actuator but performs only 2 movements: lift and turn
- The rising stem ball valve is a non-contact ball valve with positive shut-off and repeated re-sealing capability
- The valve has a relative long lifespan because the rising stem will lift the ball away from its seat before turning; this protects the seats from degradation and wear





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