

ELECTRIC COMPACT ACTUATOR GAS TURBINE ET25

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1. Applications

The actuator type ET25 is especially designed to meet the extreme requirements of motorized valves used in gas & oil feed systems in gas turbines / power plants worldwide.

The actuator is designed for the service in combustion chambers feed systems of gas turbines as extreme high ambient temperatures and vibrations occur permanently.

EXaL Technology can supply the electric actuators mounted on ball valves as required.

1.1 Gas / fuel oil transfer multi way valve combination

The actuator ET 25 is used for a combination of two valves, one two-way ball valve in angle for the return line of the gas burner and one three-way ball valve for the air or oil supply. Both valves are operated by one shaft.



1.2 Fuel gas ball valve

Valve for the gas supply to the combustion chamber



1.3 Pilot gas ball valve

Valve for the pilot gas supply to the combustion chamber



2. Principle of operation

The model ET25 is designed as an electrical rotational actuator for quarter turn valves, such as ball valves or similar.

Electrical operation the circuit board is designed for the correct control of the motor. The valve torque angles are adjusted with the help of the cam switches being on integral part of the circuit board and with the cams located on the cam shaft. The motor is equipped with a planet gear box at the outgoing torque direction, which is connected via a parallel shaft gear transmission to a pinion gear. The parallel shaft gear transmits the torque to the valve stem. The cam shaft and the drive gear are connected tightly. This way it is assured that the cams always show the correct position of the valve stem. The cam shaft is extended through the top of the cover body and is ends into the external position indicator.

3. Key features

The main features of the ET25 electric actuators are:

- Angle of rotation 0°-90° within <4sec.
- Limit switches are adjustable independently from each other, this way any desirable system control program is possible
- Back current brake allows precise positioning of any exact angle (<1°)
- Fast stop of actuator/valve with immediate stop by means of back current brake
- Electrical surge protection secures against overloading of motor
- Max. output torque for valve clearly limited
- Heating system installed into housing as a standard supply
- Visual position indicator for 0°-90°
- Equipped with hand wheel as a standard with no additional assembly
- Standard compact design and dimensions allow any installation position
- Simple assembly by universal mechanical interface to valve top plate
- Using flying leads/ leaf leads will make electrical start-up simple and safe
- Explosion-proof according to ATEX DIN EN60079-0:2012 and EN60079-15:2010 II 3G Ex nR IIC T3 or T4 Gc
- Ambient temperature range : appr. -28°C/ +140°C

4. Technical data

Power supply:	220 V DC, 230 V AC, 400 V AC (+10% / -15%), others on request The voltage is fixed from factory, cannot be changed on site.
Motor isolation class:	F
Power:	0,2KW
Explosion protection:	EEx nR IIB T4 according to ATEX 679-0 and 679-15
Cable entries:	2 x M25 with cable fittings PG21 in Ex version.
Housing protection:	IP65 according to IEC 529
Torque:	max 350 Nm, at continuous operation 80 Nm
Run time:	< 6 sec.
Ambient temperature:	-28°C up to 140°C
Operating temperature:	-28°C up to 140°C
Operations:	Max 6 per hour
Dimensions:	height 370 mm width 200 mm depth 170 mm
Weight:	13 kg
Installation position:	any, preferred position is vertical
Torque switch:	at high torque the actuator is disconnected

5. Advantages of EXaL electric actuator ET25

The new actuator type ET25 carries authoritatively to increased security, reliability, and economics in gas turbines by eliminating failures like:

- The fracturing of the valve stem or its adaptors, released through uncontrolled torque duty of the actuators.
- The mis-observance of end positions released through false or late signals given by the limit switches.
- High ambient temperatures will not give problems to non-lubricated planet gears or motor brake, as only direct mechanical transmission is executed (no plastics used sensitive to temperature, no additional mechanical brake is used).
- In its geometry, the new actuator type ET25 constructs come even smaller than previously used models.