

GENERAL DESCRIPTION

SKILmatic quarter turn actuators are compact and robust electrically operated spring return fail safe devices, providing a 90 degree travel, for two position applications, on all types of Ball, Butterfly, Plug Valves and Dampers.

The Model SQ301/302 Actuators are the general purpose two position versions of the SKILmatic range, with torque outputs of 24Nm (212 in lbs) to 52Nm (460 in lbs) for the Model SQ301 and 117Nm (1035 in lbs) to 510Nm (4513 in lbs) for the Model SQ302.

The Model SQ301/2 have been specifically designed for Fail Safe isolating and Fire damper application. The actuators combine the simplicity of electrical operation with the Power of hydraulics and the reliability of spring-powered fail safe action. The integral fully sealed SKIL Electro-hydraulic oscillating pump system provides the power to operate the rack and pinion spring return drive offering the most reliable means of positioning the valve or the damper in a safe condition. Available with spring return clockwise or anti-clockwise for fail-safe to close or open on power or signal failure.

The Model SQ301 is supplied as a compact single oscillating Electro-hydraulic pump system. Model SQ302 provides a dual redundant internal oscillating pump system.

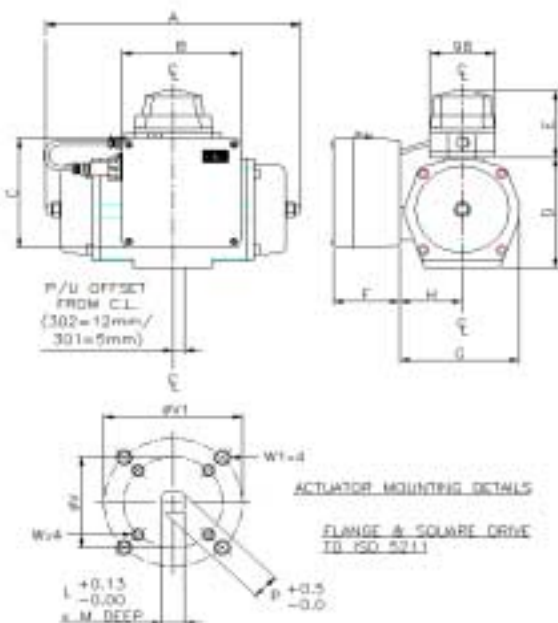
All models are supplied with one spare volt free end of stroke limit switch. Manual gearbox overrides are available for all models and the option of biodegradable oil, making the actuator an ideal choice for the food and water industries. The actuators are also available with thermal jackets to meet fire applications rated 250°C for 2 hours.

For application with multiple actuators to reduce installation costs, Asi field bus communication is available for up to 31 actuators per gateway. The actuators are available with one switch input and two switch outputs.

For Weatherproof to IP67 / NEMA6 and modulating control applications see product specification sheet Model SQ405/6/7.

For Hazardous area Zone 1 / Division 1 application see product specification sheet Model SQ413QT and SQ417QT.

DIMENSIONS



GENERAL PURPOSE ¼ TURN FAIL-SAFE ELECTRIC ACTUATOR ON / OFF CONTROL MODEL SQ301/302



FEATURES

- Electrically operated, spring return – fail-safe.
- Minimal moving parts no motors or gears.
- Model SQ301 compact, single internal Oscillating pump.
- Model SQ302 Dual redundant internal Oscillating pumps.
- Operates from a 230 or 110/120 V.ac 50/60Hz Supply.
- Asi Field Bus compatible.
- Minimal power consumption.

APPLICATIONS

- Remote fail-safe isolating valves.
- Emergency Shutdown.
- Fire Dampers.

| Dimensions | Model SQ301 | | | Model SQ302 | | | |
|-------------|-------------|-----------|-----------|-------------|------------|------------|------------|
| | A | B | C | D | E | F | G |
| A | 204 | 249 | 267 | 360 | 387 | 477 | 517 |
| B | 200 | 200 | 200 | 180 | 180 | 180 | 180 |
| C | 140 | 140 | 140 | 180 | 180 | 180 | 180 |
| D | 93 | 105 | 118 | 143 | 181 | 220 | 259 |
| E | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| F | 90 | 90 | 90 | 110 | 110 | 110 | 110 |
| G | 96 | 107 | 117 | 137 | 182 | 217 | 242 |
| H | 53 | 58 | 63 | 73 | 95 | 113 | 126 |
| L | 14 | 14 | 19 | 22 | 27 | 27 | 36 |
| M | 27 | 30 | 27 | 37 | 37 | 38 | 51 |
| P | 18.1 | 18.1 | 25.2 | 28.2 | 36.2 | 36.2 | 48.2 |
| ØV | 50 | 50 | 50 | 70 | 70 | 102 | 102 |
| ØV1 | 70 | 70 | 70 | 102 | 102 | 125 | 140 |
| W | M6 x10 | M6 x10 | M6 x10 | M8 x13 | M8 x13 | M10 x16 | M10 x16 |
| W1 | M8 x10 | M8 x10 | M8 x13 | M10 x16 | M10 x16 | M12 x20 | M16 x25 |
| Weight (kg) | 7.5 | 8.5 | 9.5 | 17 | 32 | 47 | 58 |

SPECIFICATION

Enclosure: Weatherproof to IP65 / NEMA 4;
Aluminium Al Si 12,DIN1725

Piston: Aluminium alloy GA ISi 7Mg.
DIN 1725/2

Drive shaft: Aluminium alloy Alzn MgCu 1.5
DIN 1725/1

Springs: Steel Class C, DIN 17223

Paint Finish: Stove Enamel .

Weight: See dimensional table

Operating Temperature: -25°C to 75°C (-13 to 167°F),
Optional - Thermal jacket for Low -40°C,
and High 250°C (for two hours) temperature applications.

Mounting: Vertical or horizontal
(See Instruction Manual)

Action: Spring return clockwise or anti-clockwise.

Failure Mode: Fail-safe in the direction of the spring or
Fail in last position.

Torque/Stroke Speed: See order information.

Hydraulic Fluid: 10 cSt hydraulic fluid ,
15 cSt biodegradable fluid
or silicon fluid for low temperatures.

Electrical Supply: 230V a.c. 110V/120V a.c./ 50/ 60Hz ± 10%

Power Consumption: Model SQ301 160VA(81watts) max,
reducing to 15VA(6watts) in balanced state.
Model SQ302 305VA(156watts) max,
reducing to 15VA(6watts) in balanced state.

Limit Switches: Two spare volt free switch rated at 5A
at 230Vac.

Cable Entries: One threaded M20 (optional 1/2 NPT adapter)

Duty Rating: 80 % rated

Optional:

Field Bus Asi interface
Suitable for connection to device net
through gateway.

For modulating control applications see product specification SQ405/6/7.

ORDERING INFORMATION AND MODEL CODE

KEY MODEL CODE **SQ302 - A6 - D1 - MO-55**

Table 1 - Supply Voltage

Table 2 - Actuator Torque

Table 3 - Accessories

KEY MODEL CODE

| Code | Description |
|-------|--|
| SQ301 | 1/4 Turn Fail –safe electro-hydraulic. actuator with torque output type A, B or C Table 2 |
| SQ302 | 1/4 Turn Fail – safe electro-hydraulic actuator with torque output type D, E, F or G Table 2 |

TABLE 1 - SUPPLY VOLTAGE

| Code | Description |
|------|----------------------------|
| A6 | 230V a.c ± 10% 50Hz |
| B6 | 110/120V a.c ± 10% 50/60Hz |

TABLE 2 - ACTUATOR TORQUE

| Code | | Torque Nm | | | | Stroke speed (see table3) | | |
|--------------------------------|------------------------------|------------------|--------|---------------|--------|---------------------------|---------------------|-------|
| Spring Return clockwis e | Return anti- clockwise | Hydraulic stroke | | Spring return | | Hydraulic Direction | Spring Direction | |
| | | start | finish | start | finish | | Std | 445-3 |
| A1 | AA1 | 34 | 17 | 38 | 24 | 16 | 3 | - |
| B1 | BA1 | 50 | 23 | 60 | 38 | 22 | 4 | - |
| C1 | CA1 | 79 | 41 | 84 | 52 | 37 | 6 | 1.5 |
| D1 | DA1 | 170 | 85 | 186 | 117 | 38 | 12 | 2.5 |
| E1 | EA1 | 280 | 140 | 330 | 210 | 66 | 20 | 4 |
| F1 | FA1 | 496 | 246 | 554 | 348 | 115 | 30 | 5 |
| G1 | GA1 | 751 | 371 | 825 | 510 | 165 | 45 | 9 |

TABLE 3 - ACCESSORIES

| Code | Description |
|-------|---|
| MO-21 | SQ301 geared manual override |
| MO-55 | SQ301 XX-C and SQ302XX-D/E geared manual override |
| MO-88 | SQ302-XXF/G geared manual override |
| TJ | High temperature Thermal Jacket |
| NPT | 1/2 " NPT cable entry |
| BIO | Bio-degradable oil (for water and food industries) |
| SI | Silicone fluid for low temperature applications |
| Asi | Field Bus Interface |
| 445-3 | Quick closure Manifold solenoid (see stroke speeds in table 2) |

NOTES

- All torques are in Nm. For torque in lbs in x 8.85.
- Stroke speeds are typical for actuators with no load at 20°C
Tolerance ± 10%.