

1000-Series Electric Rotary Actuator For Quarter Turn Application



Ball Valve with
Electric Actuator



Butterfly Valve with
Electric Actuator



Plug Valve with
Electric Actuator



VIV Damper with
Electric Actuator



Technology + Field Engineering + Implementation + Back-up

SDTORK Electric Actuator type 1000 series have been designed for remote control of Ball valves, Butterfly valves, Dampers & other actuating devices, which require up to 90 ° rotary actuation & tight closure in end positions.

It is simple in design with compact in size, lighter in weight due to high grade aluminum alloy housing.

1000-series electric actuator is designed with a specially developed low rpm synchronous stall duty motor with single stage worm reduction gear box which makes this actuator totally trouble free i.e. Fit and Forget type. Specially used in process industries for On-off/Inching and modulating duty.

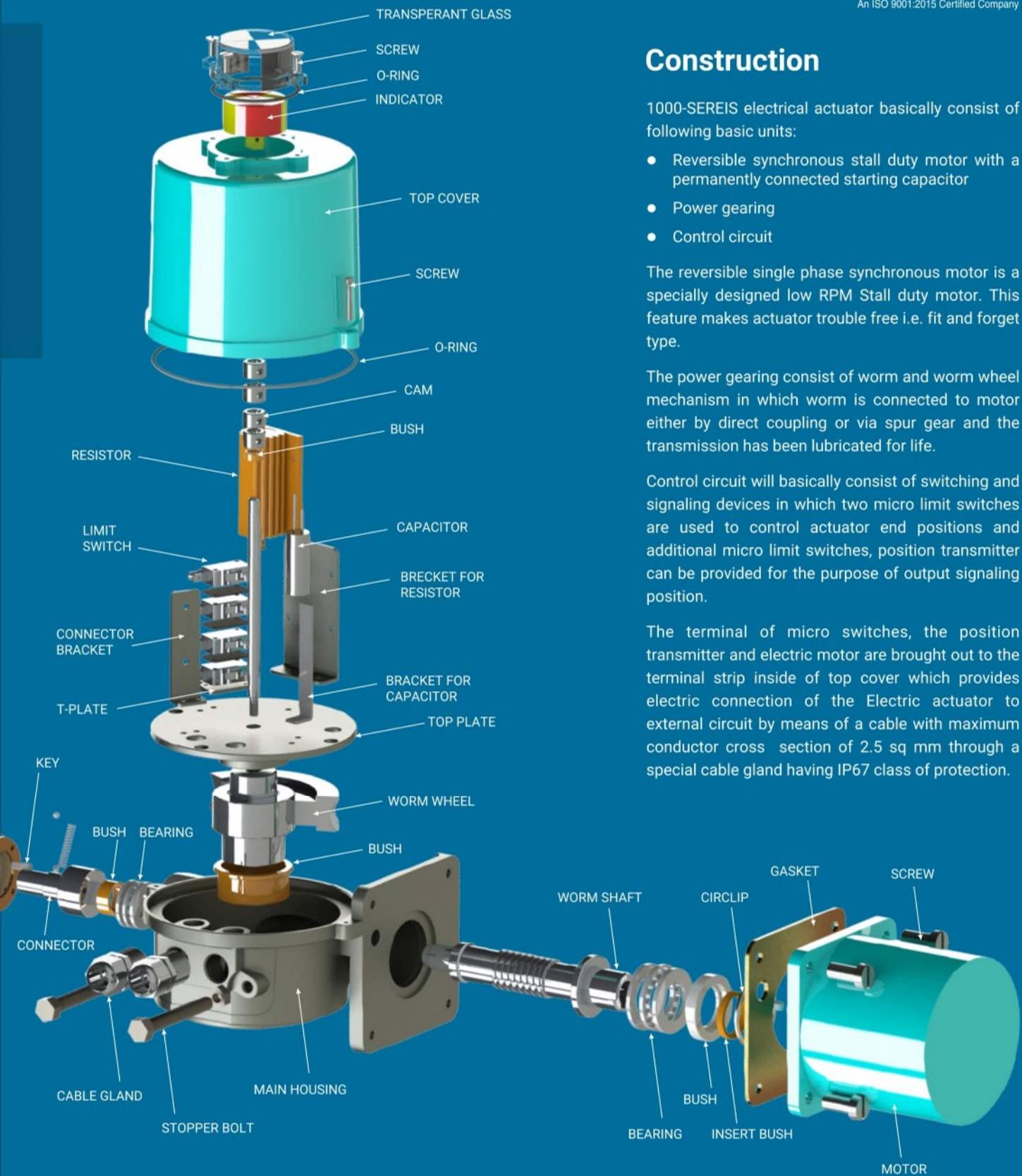
Features

- Mounting flanges in accordance with ISO5211
- Fully interchangeable parts
- IP65 protection standard, IP67/IP68 available on request
- Stall Duty motor eliminates torque switches requirement
- Stay put action on de-energization of motor
- Manual operator provided with engage and dis-engage mechanism
- Extra limit switches, potentiometer of 135 ohms, 500 ohms & 1000 ohms available on request.
- Good torque weight ratio
- Steps angle 1.8 degree ± 0.1
- Temperature rise maximum 80° C
- Constant speed irrespective of change in load condition.
- Maintenance free fit and forget type
- Simple design with compact size
- Most reliable Electric Actuator which has a maximum Guarantee of 2 years provided they are used within the specification, cost effective too.
- Designed to withstand the toughest corrosive environment
- Accessories are designed to allow customization to meet specific customer needs
- Actuator has its own traceability documentation
- Actuator parts are inspected as our assembly department receives them and several inspections are done during the assembly process so that Actuator on cycle testing performs 100% to the customer satisfaction
- Can be operated in any position



CONTENTS

Section	Page
Introduction	...
Features	...
Construction	01



Construction

1000-SEREIS electrical actuator basically consist of following basic units:

- Reversible synchronous stall duty motor with a permanently connected starting capacitor
- Power gearing
- Control circuit

The reversible single phase synchronous motor is a specially designed low RPM Stall duty motor. This feature makes actuator trouble free i.e. fit and forget type.

The power gearing consist of worm and worm wheel mechanism in which worm is connected to motor either by direct coupling or via spur gear and the transmission has been lubricated for life.

Control circuit will basically consist of switching and signaling devices in which two micro limit switches are used to control actuator end positions and additional micro limit switches, position transmitter can be provided for the purpose of output signaling position.

The terminal of micro switches, the position transmitter and electric motor are brought out to the terminal strip inside of top cover which provides electric connection of the Electric actuator to external circuit by means of a cable with maximum conductor cross section of 2.5 sq mm through a special cable gland having IP67 class of protection.

For automatic positioning of Actuator output shaft depending on Input signal servo controller* can be provided. In this input signal is compared with the feed back signal of the position transmitter/pot meter. The resulting control deviation if any is used for actuator run control, the actuator output shaft being brought into the position corresponding to the Input control.

Technical Specification of Actuator

Specification	Details
Supply Voltage	Single phase 230 VAC / 110 VAC $\pm 10\%$, Frequency 50Hz $\pm 5\%$ (Alternate power supply also available consult Sdtork)
Duty	S2-10 min, S4-30% - 1200 cycles/hour.
Insulation resistance	at least 20 M Ω under dry condition. at least 2 M Ω after a damp test.
Actuator life	at least 1×10^6 operations with a running time of 0.75 s at the rated torque.
Self-locking	Self-locking facility of the actuators is provided by mechanical locking feature of worm & worm wheel mechanism.
Local position Indicator	A continuous local mechanical position indicator is provided with actuator which always gives a faithful indication of actuator position independent of power supply.
Adjustable mechanical stoppers	Two adjustable mechanical stoppers are provided with actuator in open & close direction. This feature gives backup safety to final control device.
Travel Limit Switches	Maximum two numbers of micro limit switches for intermediate end position can be provided. Type: 1 NO+1NC change over contact, Contact rating: 10A, 125 - 250 V AC.
Extra Limit Switches	Maximum two numbers of micro limit switches for end position can be provided. Type: 1 NO+1NC change over contact, Contact rating: 10A, 125 - 250 V AC.
Torque limit switches	Not Applicable as the Motor supplied is Synchronous Stall Duty Motor.

Optional Accessories supplied on demand

Feed back Potentiometer	A multi turn pot meter is used for 100-235 ohms, 0-500 ohms, 0-1000 ohms out put feedback value
Position controller	Field/Panel mounted having Input signal: 4-20mA / 0-10 V DC
Position Transmitter	Actuator mounted having Input from actuator mounted Potentiometer & output will be 4-20mA proportionate.
Remote position indicator	Panel mounted digital position indicator for 0-100% open indication.
Space heater	To prevent water condensation, the actuator are fitted with an anti condensation heater called as space heater, the latter can be connected to the AC or DC voltage of 230 V.

Special accessories also can be supplied on request after confirmation with SDTORK.

Technical Data

SDTORK Brand 1000 Series : Single Phase Quarter Turn Stayput Weatherproof Electrical Actuator

Models	Unit	Model Number							
		1000-03		1000-05		1000-10		1000-20	
Base Coupling Type		E		E		E		E	
Actuator Speed	RPM	0.88		0.88		0.75		0.75	
	Sec/Deg	17		17		20		20	
Rated Torque	Nm	30		50		100		200	
Working Stroke (Travel)	Deg	90		90		90		90	
Mounting as per ISO	PCD	F05 & F07		F05 & F07		F07 & F10		F07 & F10	
Bore Dia	mm	30		30		30		30	
Motor Rating	Watts	88		110		154		220	
Standard Power Supply	VAC/Hz	230 ±10%	110 ±10%	230 ±10%	110 ±10%	230 ±10%	110 ±10%	230 ±10%	110 ±10%
Frequency	Hz	50 ±5%		50 ±5%		50 ±5%		50 ±5%	
Rated Current	Amps	0.38	0.76	0.48	0.96	0.65	1.3	0.96	1.92
Local Position Indicator		Continuous local mechanical position indicator							
Degree of Protection confirms to EN 60529		IP65 / IP67		IP65 / IP67		IP65 / IP67		IP65 / IP67	
Cable Gland Details		M20-2Nos		M20-2Nos		M20-2Nos		M20-2Nos	
Weight		8		9		12		13	
Area of Operation		Safe		Safe		Safe		Safe	
Class of Insulation		F		F		F		F	
Ambient Temperature	°C	45		45		45		45	
Travel Limit Switches		Micro Travel limit switches in Actuator to control Open and Close end position, Qty : 2 nos, Type : 1NO+1NC, changeover contact, Rating : 10 A, 125-250 VAC							
Extra Travel Limit Switches		Not applicable, as actuator is supplied with synchronous stall duty motor.							
Torque Limit Switches Duty		S2-10 min, S4-30% - 1200 Cycles/hour							
Adjustable Mechanical Stoppers		Two mechanical adjustable stoppers are provided with actuator in open & close direction. This feature gives backup safety to final control device.							
Manual Operation		Provided with engage and disengage facility (Anticlockwise rotation of hand wheel will close the valve, Clockwise rotation of the hand wheel will open the valve)							
Duty Characteristic		Available on On Off / Inching / Regulating							

Other Products

Basic Actuator Series

- 1000 Series: Single Phase Quarter Turn / Half Turn Weather Proof Stayput Electrical Actuator
- 1001 ECO Series: DC / Single Phase Quarter Turn Weather Proof Stayput Electrical Actuator
- 1001 Series: Single Phase / Three Phase Quarter Turn Weather Proof Stayput Electrical Actuator
- 2000 Series: Single Phase Linear Weather Proof Stayput Electrical Actuator / with Linear to Rotary Converter / With Linkages
- 3000 Series: Single Phase / Three Phase Multi Turn Weather Proof Stayput Electrical Actuator
- FSD-1001-Ex-Series: Single Phase / Three Phase Quarter Turn Flame Proof Stayput Electrical Actuator
- FSD-1001-Series: Single Phase / Three Phase Quarter Turn Flame Proof Stayput Electrical Actuator
- HQ Series: Single Phase Linear Flame Proof Stayput Electrical Actuator with Linear to Rotary Converter / With Linkages
- 12000 Series: Three Phase Multi Turn Flame Proof Stayput Electrical Actuator

Supplimentary Attachment Type

- Quarter Turn / Full Turn Worm Gear Box
- Spur Gear Box / Bevel Gear Box
- Linear Transmitting Unit
- Thruster Unit

Accessories available on demand

- Space Heater
- Thermostat
- Resistive / Inductive Type Potentiometer
- Position Transmitter
- Panel Mounted Servo Controller
- Actuator Mounted Position Control Unit
- Local Control Station with Battery Backup
- Local Control Station with Battery Back up with Solar Panel System
- Local Control Station with Battery Back up with GSM Operating
- Local Control Station with Battery Back up with Solar Panel System with GSM Operating
- Local Push Button Station
- Power Pack inbuild with DC Battery + Charger Circuit + Invertor Circuit with Logic Control Card for Fail Safe Position.
- Can be supplied with PLC, SCADA, Modbus, Profibus, Fieldbus Communication Protocol, RS485
- Complete pressure control loop / temperature control loop / flow control loop
- Automation of existing valves by means of retrofitting
- PID Controller
- 4-20 mA Source generator
- Digital Position Indicator
- Signal Multiplier
- Weather Proof / Flame Proof Reversible Starter
- Local Control Station



Pune Office & Factory

SDTORK CONTROLS PVT. LTD.



Registered Office

Shop No. 1106, 10th Main Road, R.P.C. Layout,
Near R.P.C. Layout Bus Stop, Hampinagar,
Bangalore 560 104. (Old Pin 560040)
Karnataka, India
Tel. : +91 80 2330 2145 / 2314 1104 / 2340 2297
Fax : +91-80-23305729
Cell : +91 9845018216
E-mail : sudeengg@gmail.com

Pune Office / Works :

Gat No. 94/2, Plot No.2, Alandi Markal Road,
Village - Dhanore, Tal - Khed, Pune 412105.
Maharashtra, India
Tel. : +91 9763719689, 9763719690
Cell : +91 9822980003, 9845018216
Email : scpl@sdtork.com

www.sdtork.com | www.sudeengg.com



www.sdtork.com