

**RG** SERIES

**GEARBOXES**





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# RG SERIES

## Product Overview

RG series linear gearboxes RG-3 to RG-8 are intended for the operation of knife gate valves, globe valves and designed to combine with quarter-turn electrical actuators. The gearboxes provide thrust ranges from 3 kN to 21 kN (675 lbf to 4721 lbf). Excellent sealing of joined surface provides IP67 enclosure for outdoor use. Removable output sleeve can be machined to suit valves.

Aluminum alloy housing with high strength and durability is used for RG series. The spur gear and rack gear structure have the advantages of high efficiency and long life. Gear trains are factory lubricated and can withstand an ambient operating temperature range of -30°C to +65°C (-22°F to +149°F).

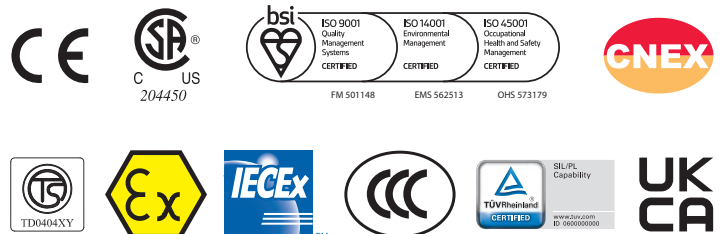


## Company Profile

Sun Yeh Electrical Ind. Co., Ltd. was established in 1986 and it is committed to continuous technological innovation, the most advanced product quality management, organizational excellence, and outstanding customer satisfaction.

Our sustainable development drives the product line extension to include quarter-turn actuators, spring-return fail-safe actuators, SuperCap fail-safe actuators, linear actuators, multi-turn actuators, and explosion-proof actuators. Sun Yeh offers various products that can be widely applied to the control of industrial processes, fluid control, HVAC, chemical engineering, food processing, etc.

Sun Yeh is dedicated to providing you with high-quality products which have been certified with CE, CSA, CCC, ATEX, IECEx, CNEX, TS, UKCA, UKEX, JPEX and SIL approvals, as well as meet RoHS, REACH and China RoHS environmental regulations, in addition to ISO 9001, ISO14001, ISO 45001, and AEO.



## Product Features

- Converting quarter-turn actuators to linear motion by the spur and rack gear structure.
- Various stroke lengths can be chosen.
- ISO 5211 flange (input) allows disassembly and changeover of the actuator easy and fast.
- Mounting kits made to suit valves.
- Maximum output thrust up to 21 kN (4721 lbf) and maximum stroke up to 300 mm (12 inch).
- NEMA type 4X, 5 & IP67 protection intended for outdoor use.
- The gear lubricated at the factory for life.

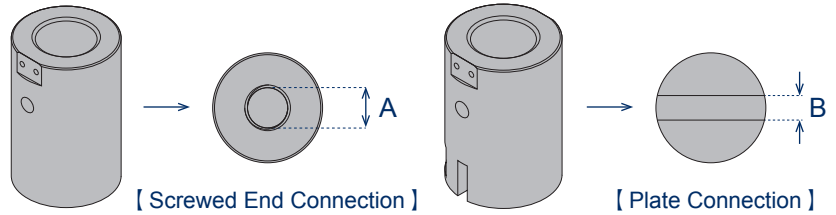


### Standard Specification

## Service Condition

- Ambient temperature: -30°C to +65°C (-22°F to +149°F)
- Relative humidity: 30% to 95%

## Technical Data for RG series gearboxes



Model	Input Shaft		Max Input Torque		Input Mounting Flange (ISO 5211)	Weight		Max. Stroke		Max. Output Thrust		Max. Allowable Valve Stem (Output)	
	mm	inch	Nm	in-lb		kg	lb	mm	inch	kN	lbf	Screwed End Connection (A)	Plate Connection (B)
												mm	mm
RG-3	□22	0.866	150	1330	F10	14.5	32	100	4	3	675	Ø44	6
RG-6	□36	1.417	650	5755	F12	28	62	200	8	12	2670	Ø55	8.5
RG-8	Ø35	1.378	1500	13280	F14	52.5	116	300	12	21	4721	Ø60	11.5

Please contact your salesperson for other special requirements.

## Important Notices

- Ensure the flange surfaces of both the gearbox and the actuator should be free of any damage, scratches, or debris, and kept clean before mounting an actuator to a gearbox.
- Fasten all the connecting components when mounting an actuator to a gearbox and/or mounting a gearbox to a valve.
- Use certified slings when lifting the gearbox by hoist.

### Actuator Specification

## Enclosure

- Aluminum alloy, polyester powder coated. Corrosion protection C3 according to ISO 12944-2.
- NEMA type 4X, 5 & IP67 (Waterproof and dustproof enclosure intended for outdoor use).

## Duty Cycle

- 30% Duty Cycle.

## Technical Data for RG series gearboxes combined with OM series

Gearbox Model	SunYeh OM Series	Input Torque		Valve	Output Thrust		Stroke		Running Speed
		Nm	in-lb		kN	lbf	mm	inch	mm / sec
RG-3	OM-2	90	800	2"	2	450	50	2	4
				2.5"			64	2.5	4
	OM-3	150	1330	3"	3	675	76	3	2.6
				4"			100	4	2.6
RG-6	OM-H	300	2655	4"	6	1348	100	4	3.3
	OM-4	400	3540	5"	7	1575	127	5	4.1
	OM-5	500	4430	6"	9	2023	152	6	3
	OM-6	650	5755	8"	12	2700	200	8	2.3
RG-8	OM-7	1000	8855	10"	14	3147	254	10	2
	OM-8	1500	13280	12"	21	4721	300	12	2

- The technical data is based on the full set of OM actuator combined with RG gearbox and gate valve supplied by Sun Yeh. If a RG gearbox is combined with an actuator not made by Sun Yeh and/or to be used for operating a valve not supplied by Sun Yeh, the given values will be differential.
- Some mechanical components of OM actuators shall be changed and reset to suit RG gearboxes.

**It is a must to assemble OM quarter turn actuators with RG gearboxes at Sun Yeh facility.**

## Supply Voltages

- 12 V DC, 24 V DC, 24 V AC, 110-120 V AC, 220-240 V AC.
- 220-240 V AC / 3PH, 380-415 V AC / 3PH, 440-480 V AC / 3PH.

**Please contact your salesperson for other voltage requirements.**

**Do not parallel wire multiple actuators together without utilizing isolation relays.**



## Options

### Torque Switches

- This option provides torque overload protection.
- It must be ordered with the actuator as well as installed and set up at the factory.
- Available for OM-2 to OM-8, OM-H.

### Communication Protocols

- Modbus RTU RS485
- Available for OM-2 to OM-5, OM-H, 110-120, 220-240 V AC / 1PH, 30% duty cycle  
OM-2 to OM-5, OM-H, 110-120, 220-240 V AC / 1PH, 75% duty cycle

### Anti-condensation Heater

- The heater is used to raise the internal temperature of actuators to prevent lubricants from freezing and keeps inside of actuator dry to avoid damage caused by too much humidity.
- Heater is not recommended if the ambient temperature is over 35°C (95 °F).
- If the temperature varies much from day to night or between summer and winter, heater and heater thermostat are recommended.

### Heater Thermostat

- Heater thermostat switches off the heater when internal temperature of actuators is higher than 25±5°C (77±9 °F).

### Auxiliary Limit Switches

- Actuators come standard with two limit switches, LS1 for fully-open and LS2 for fully-closed positioning. Two auxiliary limit switches (LS3 & LS4) are optional for fully-open and fully-closed position feedback.

### Isolation Relay Module

- When using one control switch to operate two or more actuators, the isolation relay module is recommended.

### Modulating Control

- A proportional control unit.  
Analog input: 4-20 mA, 1-5 V, and 2-10 V  
Analog output: 4-20 mA and 2-10 V

## Potentiometer

- Recommended to use with a floating control actuator to output signal for position indicator.
- Two resistance values, 1k ohm or 5k ohm for selection.

## Analog Output

- Recommended to use with a floating control actuator for position indication.
- Analog output: 0-20 mA, 4-20 mA, 0-5 V, 0-10 V, 1-5 V and 2-10 V.

## Time Delay Controller

- Time Delay Controller enables the running time to be delayed from a standard to 30s, 60s, etc. (Max. 200s, 300s or 600s) per system requirements.
- Available for OM-2 to OM-5, OM-H 110 V AC / 1PH and 220 V AC / 1PH.

Time Delay Controller Set-up Table (sec.)										
Dip Switch (SR1)	1	2	3	4	5	6	7	8	9	0
200 (J2)	Rated speed	30	60	90	120	150	200	200	200	200
300 (J1)		60	90	120	150	180	210	240	270	300
600 (J3)		60	100	150	200	250	300	400	500	600

## Extended Duty Cycle Kit (Including Motor, IEC Standard)

- This option is suggested for extending duty cycle.

Model	75% Duty Cycle
OM-2 to OM-8, OM-H	√

## Junction Box

- Junction box allows external electrical connection to be done without removing the actuator cover.

## Local Control Unit

- Two rotary selector switches are provided, LOCAL / REMOTE and CLOSE / OFF / OPEN. In LOCAL mode, the valves are directly being controlled in the field and can be operated to close, stop or open by using CLOSE / OFF / OPEN selector switch.
- Standard: IP65  
Option: IP67
- For OM-2 to OM-8, 3-phase power supply units with modulating control must be optioned with LCU.

## Conduit Entries

- Standard: 1/2" PS.
- Option: 3/4" PF, 1/2" NPT, 3/4" NPT, M20.

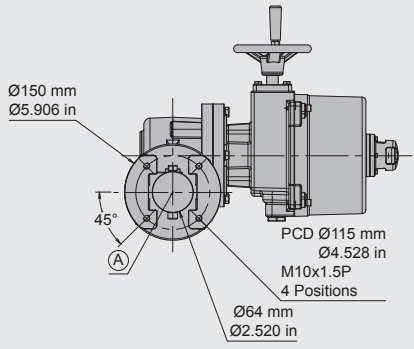
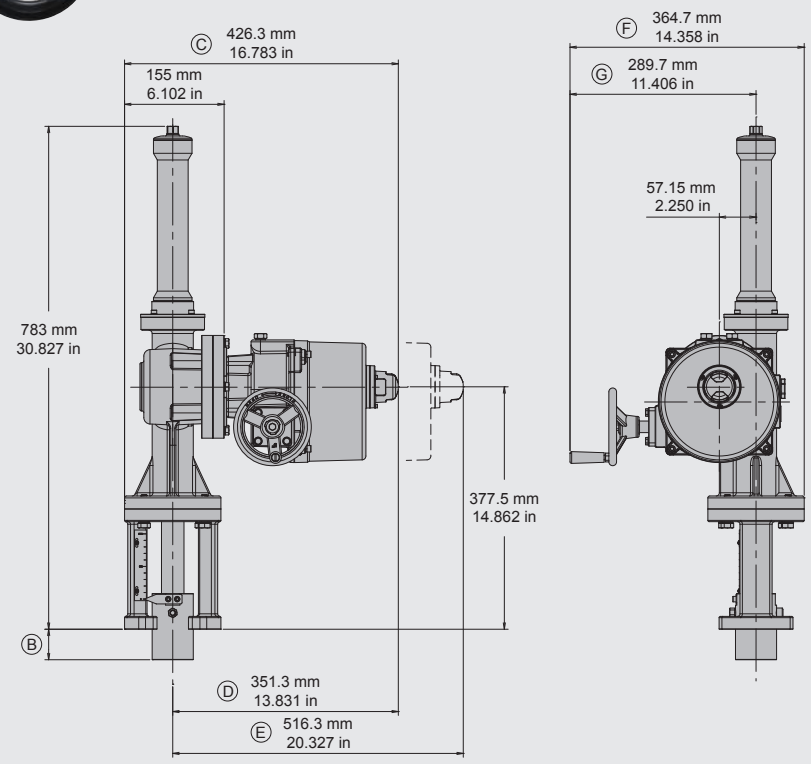
Please contact your salesperson if other conduit entries are required.

Outline Dimensions



# RG-3

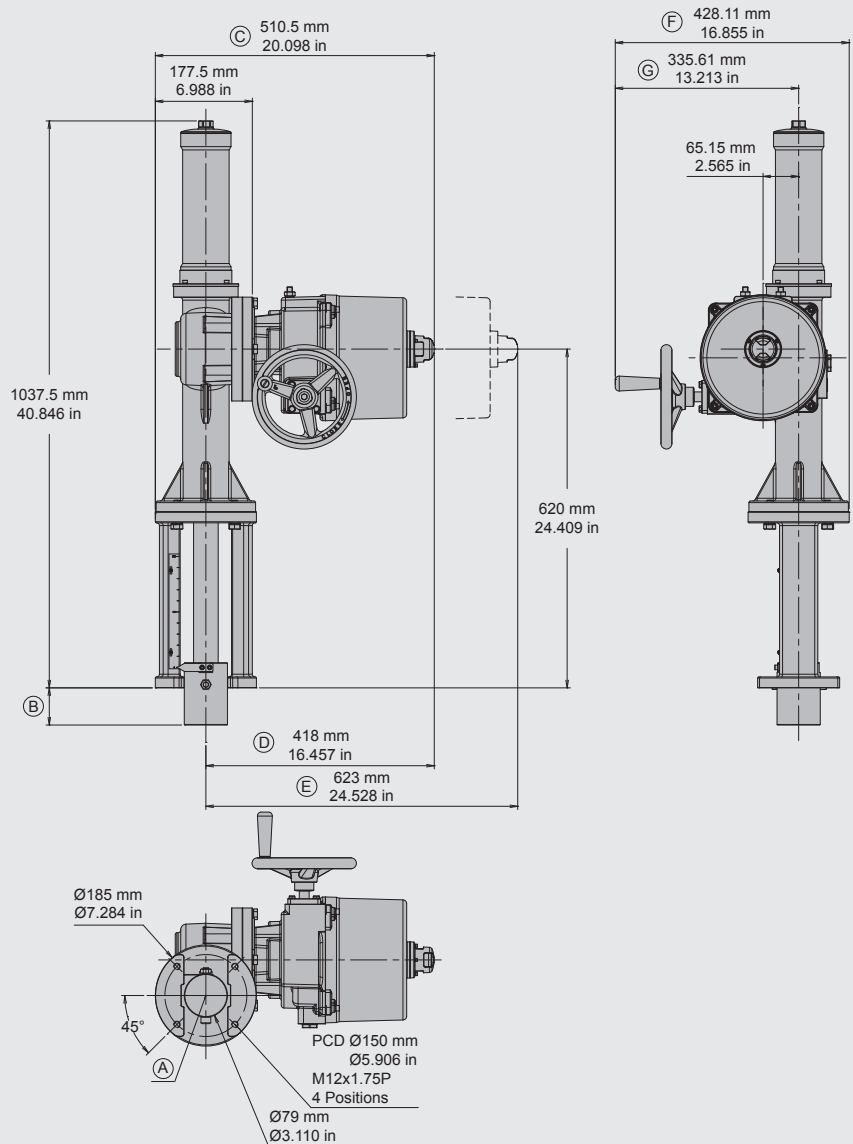
## +OM-2 to 3



- Customized Coupling: ⑩ and ⑪ depends on the valve specification.
- Apply to DC models or 75% duty cycle, ① 460.3 mm (18.122 in), ② 385.3 mm (15.169 in), Cover removal clearance ⑤ 550.3 mm (21.665 in).
- With Torque Switch, ⑦ 401.7 mm (15.815 in), ⑧ 326.7 mm (12.862 in).



# RG-6 +OM-4 to 6

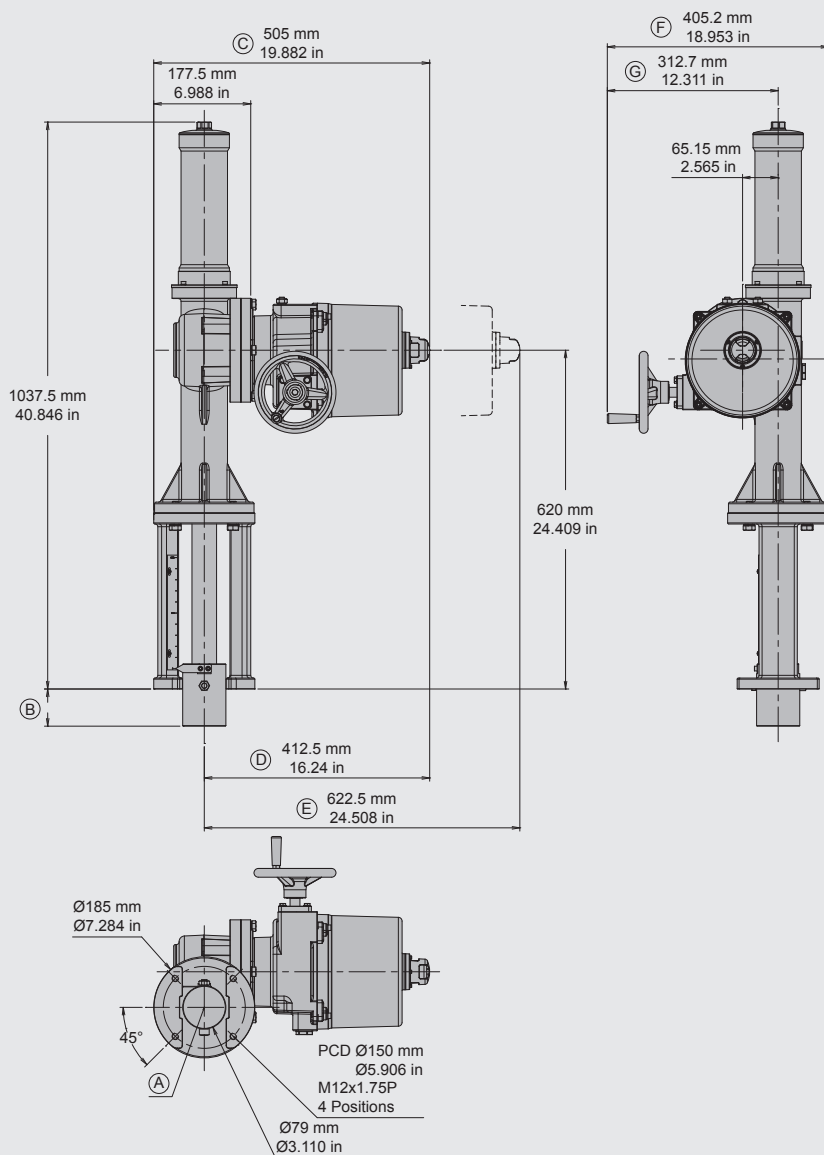


- Customized Coupling: ① and ② depends on the valve specification.
- With Local Control Unit, ③ 606.5 mm (23.878 in), ④ 514 mm (20.236 in), Cover removal clearance ⑤ 801 mm (31.535 in).
- With Torque Switch, ⑦ 494.11 mm (19.453 in), ⑧ 421.61 mm (16.599 in).

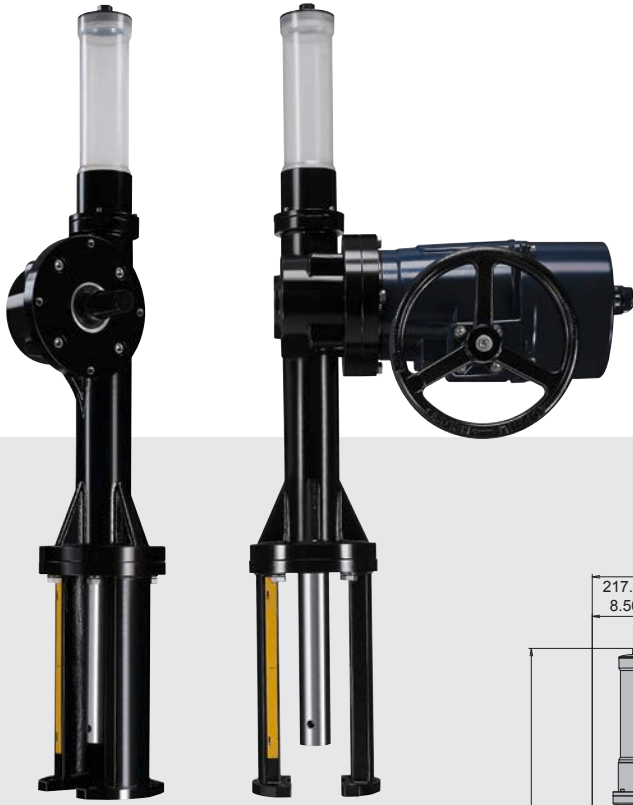
Outline Dimensions



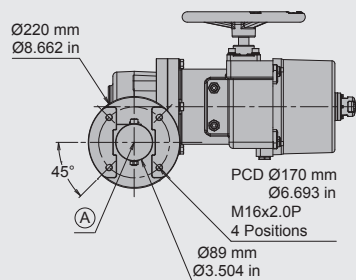
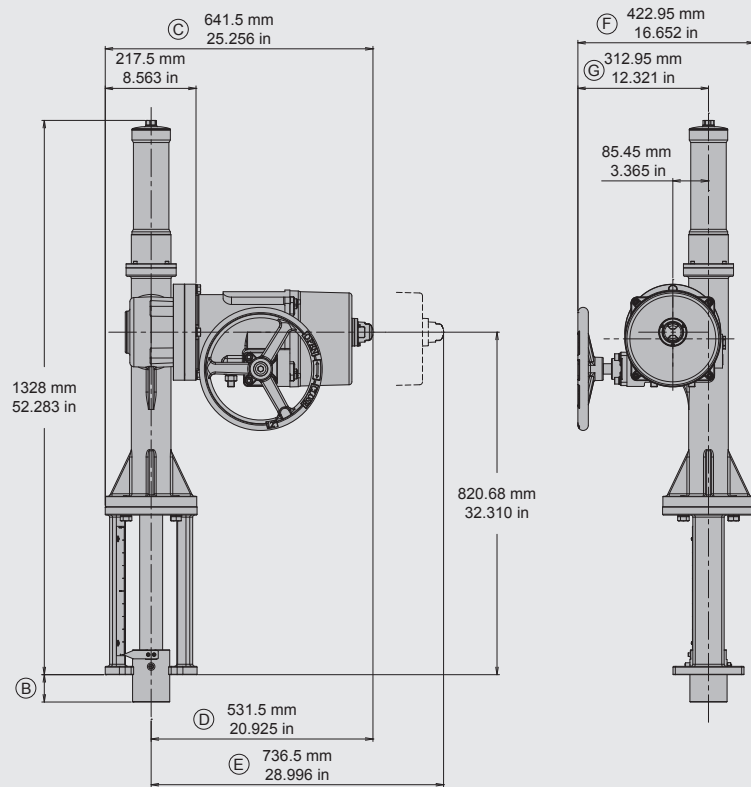
# RG-6 +OM-H



- Customized Coupling: ① and ② depends on the valve specification.
- With 3 Phase Local Control Unit, ③ 585 mm (23.031 in), ④ 492.5 mm (19.90 in), Cover removal clearance ⑤ 702.5 mm (27.657 in).
- With Torque Switch, ⑥ 456.2 mm (17.961 in), ⑦ 363.7 mm (14.319 in).



# RG-8 +OM-7 to 8



- Customized Coupling: ① and ② depends on the valve specification.
- With Local Control Unit, ③ 936.5 mm (36.870 in), ④ 826.5 mm (32.539 in), Cover removal clearance ⑤ 914.5 mm (36.004 in).
- With Torque Switch, ⑥ 510.95 mm (20.116 in), ⑦ 400.95 mm (15.785 in).



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