Sun Yeh Electrical Ind. Co., Ltd.

# 2012

www.sun-yeh.com

# Spring Return Actuator

## Company Profile

Sun Yeh Electrical Ind. Co., Ltd. was founded in 1986. We have adhered to the highest principle of understanding customer's demand in depth, and continuing to develop quarter-turn actuator, spring return actuator and linear actuator. Sun Yeh offers various products which are widely applied to the control on industry, water treatment, air conditioning, chemical engineering, food industry and so on.

Sun Yeh electric actuators are built on high quality; all products have been certified with approval of CE and CSA. As well as the ISO 9001, ISO 14001, OHSAS 18001, REACH, and RoHS certificates. “Perfect Solution” is the only goal for Sun Yeh.

CE SA® C US 204450

ISO 9001:2008 FM 501148 | ISO 14001:2004 EMS 562513 | OHSAS 18001:2007 OHS 573179

www.tuv.com TÜV TÜV Rheinland Group ID:0000018705 • RoHS Compliance

## Product features

In additional to the normal function, these actuators are designed to provide fail-safe positioning of valves and dampers upon loss of supply voltage. A mechanical spring set is utilized to position the controlled device to either the fully OPEN or fully CLOSED position without any external power source. A mechanical BUFFER employed at the end of the spring stroke for two-position control units to reduce the dynamic effects of the spring return system. A clutchless, leverless manual override design provides full-time manual positioning of the controlled device. The design has already won the new patent in Taiwan, U.S.A., Japan and China.

# Perfect solution

## is the only goal for Sun Yeh.





# General Information

## Standard Capability

- Duty cycle rating：50% (Conform to IEC standard)
- Two-position control

## Ambient Temperature Range

- Temperature：-30℃ ~ +65℃ / -22°F ~ +149°F
- Humidity：30% ~ 95%

## Enclosure

- IP67、NEMA 4X：Water-proof and dust-proof enclosure.
- Material：Dry powder coating aluminum alloy.

## Lubrication

- Gear trains have been already lubricated sufficiently with anti-high temperature lubricant at the factory.

## Position Indicator

- All models have continuous mechanism position indicator on the top of actuator cover.

## Certificates

- CE
- CSA (Conforming to the test standard of outdoor usage.)
- RoHS Compliance

## Specifications

| Model | Max Torque | | Power (Watts) | Weight | | | | Standard Mounting | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N.m | lb.in | | Standard | | W / Manual Override | | Mounting Flange | Shaft | | Depth Of Shaft | |
| | | | | Kg | lb | Kg | lb | (ISO 5211) | mm | inch | mm | inch |
| S500 | 50 | 443 | 50 | 27 | 60 | 37 | 82 | F07 | 17 | 0.67 | 30 | 1.18 |
| S1300 | 130 | 1151 | 130 | 57 | 126 | 74 | 163 | F10 | 22 | 0.87 | 39 | 1.54 |
| S2000 | 200 | 1771 | 130 | 95 | 209 | 135 | 298 | F12 | 27 | 1.06 | 45 | 1.77 |
| S2600 | 260 | 2302 | 130 | 95 | 209 | 135 | 298 | F12 | 27 | 1.06 | 45 | 1.77 |

## Important Notices and Maintenance

### Manual Override

After using the manual override for positioning, the user must manually drive the actuator back to its fully-closed position before the actuator restarts. This is a safety feature.

- Check for correct voltage prior to wiring.
- Turn power off before servicing or for maintenance purpose.
- Use sealant to seal conduit connections after wiring to prevent dusting or water contamination.
- The angle of electric actuator installation must be between 0~180 degree. Do not install upside down or below the horizontal.
- Not intended for vacuum spaces and avoid installing near explosive atmospheres.
- Actuators should be placed at clean and dry place for storage, and protected with outer carton from being affected by great temperature difference or serious vibration.
- Connect the ground wire to PE inside the electric actuator.
- The warranty period is one year.

# Option Items

## Space heater

A space heater can increase the internal temperature and keep dry inside actuator to avoid the freezing lubricant and moisture causing actuator failure under low termperature or high humidity. Heater is not recommended if the ambient temperature is above 35℃/95℉. However, when the temperature varies much from day to night or between summer and winter, heater and thermostat (25±5℃/77±9℉) are recommended.

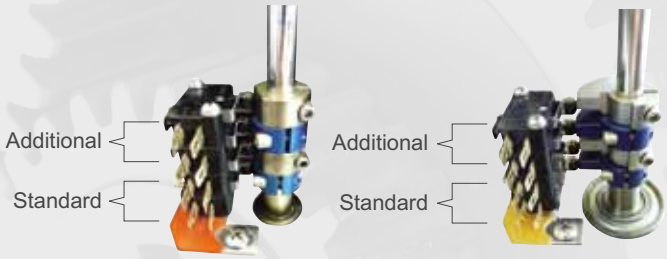
AC/DC 24V AC 220V AC 110V AC 380V~440V/3PH

## Heater thermostat

The option can switch the heater off when the temperature inside the actuator is over 25℃/77℉.

## Additional limit switches

The standard model equips with the 1st & 2nd switches for fully-open and fully-closed. The option consists of the 3rd & 4th auxiliary switches which provide dry contacts for fully-open and fully-closed.




S500 S1300~S2600

## Current position transmitter

The option can provide 4-20mA output signal and suit for two-position control units.

The picture is based on AC 110/220V

## Floating controller

The actuator can be controlled by external controller to open, close and stop at any position between 0 and 90 degree and will fail clockwise to the end position on loss of power.
(Based on the standard running direction that the actuator fails clockwise on loss of power.)

The picture is based on AC 110/220V

## Modulating controller

Actuator can be operated according to input signal and provide the output signal for feedback.

Input signal：4-20mA, 1-5V, 2-10V
Output signal：4-20mA, 2-10V

The picture is based on AC 110/220V

## Operating direction

Standard : Fail clockwise on loss of power.
Optional : Fail counter-clockwise on loss of power.

Standard

Optional

## Manual override

Standard：
Without manual override

Optional：
With manual override

## Potentiometer unit (1K or 5K)

The option can be ordered with two-position control actuators. The selection has 1k or 5k ohm resistance values. It provides feedback signal for position indicator.

## Various voltage

- AC/DC 24V
- AC 110/220V, 1-Phase
- AC 220/380/440V, 3-Phase

## Conduit entrance

- Standard : 1/2" NPT
- Optional : 3/4" NPT
  M20

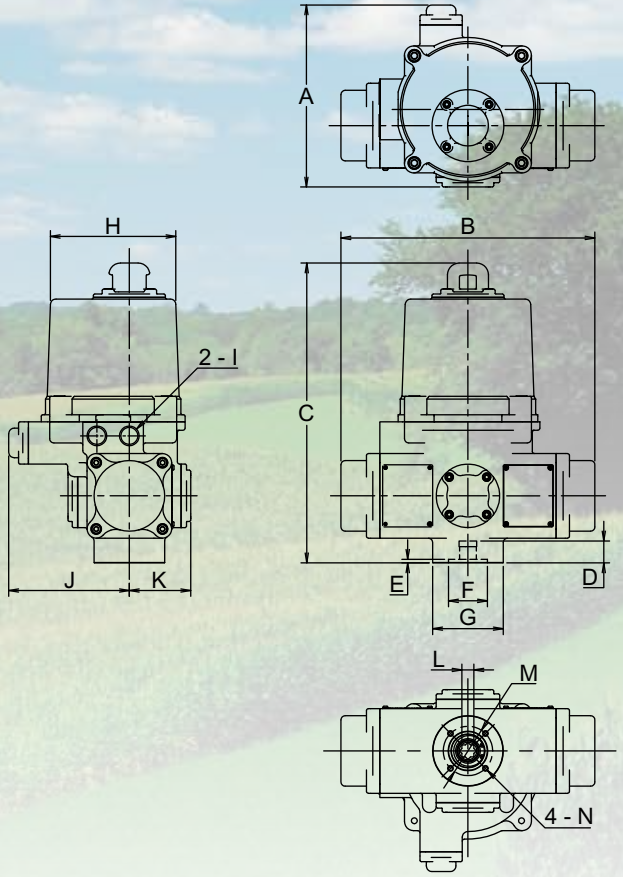
## Enclosure

Nylon coating
E.D. coating
Epoxy coating

# Outline Dimensions

- Running direction is based on viewing actuator from the top.
- Drawings are based on the standard running direction that the actuator fails clockwise on loss of power.

Standard




## mm

| Model | A | B | C | D | E | F | G | H | I | J | K | L | M | N | Flange Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S500 | 258 | 360 | 425 | 31 | 5 | Ø55 | Ø100 | Ø178 | 1/2"NPT | 171 | 87 | 17 | Ø70 | M8*1.25 | F07 |
| S1300 | 365 | 462 | 503 | 41 | 5 | Ø70 | Ø140 | Ø265 | 1/2"NPT | 247 | 110 | 22 | Ø102 | M10*1.5 | F10 |
| S2000 | 438 | 600 | 577 | 46 | 6 | Ø85 | Ø170 | Ø305 | 1/2"NPT | 305 | 133 | 27 | Ø125 | M12*1.75 | F12 |
| S2600 | 438 | 600 | 577 | 46 | 6 | Ø85 | Ø170 | Ø305 | 1/2"NPT | 305 | 133 | 27 | Ø125 | M12*1.75 | F12 |

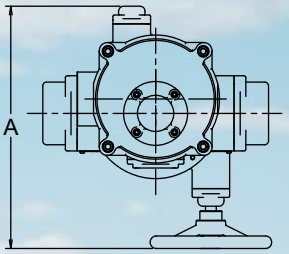
C=462→S500：With DC Power Supply C=462

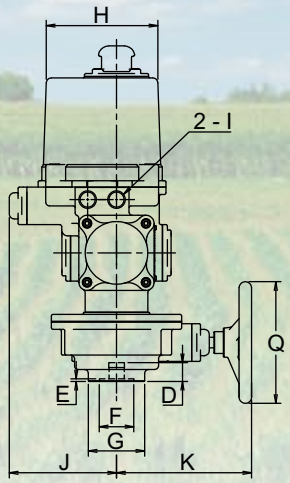
## inch

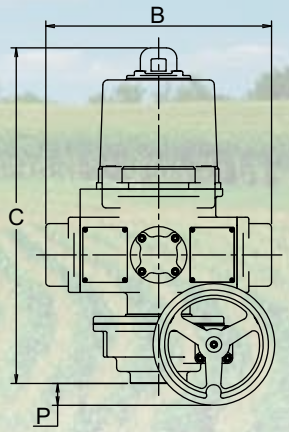
| Model | A | B | C | D | E | F | G | H | I | J | K | L | M | N | Flange Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S500 | 10.157 | 14.173 | 16.732 | 1.220 | 0.197 | Ø2.165 | Ø3.937 | Ø7.008 | 1/2"NPT | 6.732 | 3.425 | 0.669 | Ø2.756 | M8*1.25 | F07 |
| S1300 | 14.370 | 18.189 | 19.803 | 1.614 | 0.197 | Ø2.756 | Ø5.511 | Ø10.433 | 1/2"NPT | 9.724 | 4.331 | 0.866 | Ø4.016 | M10*1.5 | F10 |
| S2000 | 17.244 | 23.622 | 22.717 | 1.811 | 0.236 | Ø3.346 | Ø6.693 | Ø12.008 | 1/2"NPT | 12.008 | 5.236 | 1.063 | Ø4.921 | M12*1.75 | F12 |
| S2600 | 17.244 | 23.622 | 22.717 | 1.811 | 0.236 | Ø3.346 | Ø6.693 | Ø12.008 | 1/2"NPT | 12.008 | 5.236 | 1.063 | Ø4.921 | M12*1.75 | F12 |

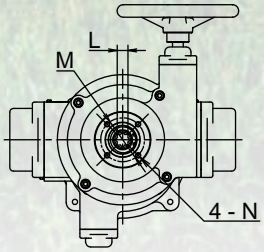
C=462→S500：With DC Power Supply C=18.189

W / Manual Override




## mm

| Model | A | B | C | D | E | F | G | H | I | J | K | L | M | N | P | Q | Flange Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S500 | 387 | 360 | 535 | 30 | 4 | Ø55 | Ø90 | Ø178 | 1/2"NPT | 171 | 216 | 17 | Ø70 | M8*1.25 | 35 | Ø194 | F07 |
| S1300 | 484 | 462 | 638 | 41 | 5 | Ø70 | Ø125 | Ø265 | 1/2"NPT | 247 | 237 | 22 | Ø102 | M10*1.5 | 68 | Ø295 | F10 |
| S2000 | 589 | 600 | 732 | 45 | 5 | Ø85 | Ø150 | Ø305 | 1/2"NPT | 305 | 284 | 27 | Ø125 | M12*1.75 | 109 | Ø398 | F12 |
| S2600 | 589 | 600 | 732 | 45 | 5 | Ø85 | Ø150 | Ø305 | 1/2"NPT | 305 | 284 | 27 | Ø125 | M12*1.75 | 109 | Ø398 | F12 |

C=462→S500：With DC Power Supply C=572

## inch

| Model | A | B | C | D | E | F | G | H | I | J | K | L | M | N | P | Q | Flange Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S500 | 15.236 | 14.173 | 21.063 | 1.181 | 0.157 | Ø2.165 | Ø3.543 | Ø7.008 | 1/2"NPT | 6.732 | 8.504 | 0.669 | Ø2.756 | M8*1.25 | 1.378 | Ø7.638 | F07 |
| S1300 | 19.055 | 18.189 | 25.118 | 1.614 | 0.197 | Ø2.756 | Ø4.921 | Ø10.433 | 1/2"NPT | 9.724 | 9.331 | 0.866 | Ø4.016 | M10*1.5 | 2.677 | Ø11.614 | F10 |
| S2000 | 23.189 | 23.622 | 28.819 | 1.772 | 0.197 | Ø3.346 | Ø5.906 | Ø12.008 | 1/2"NPT | 12.008 | 11.181 | 1.063 | Ø4.921 | M12*1.75 | 4.291 | Ø15.669 | F12 |
| S2600 | 23.189 | 23.622 | 28.819 | 1.772 | 0.197 | Ø3.346 | Ø5.906 | Ø12.008 | 1/2"NPT | 12.008 | 11.181 | 1.063 | Ø4.921 | M12*1.75 | 4.291 | Ø15.669 | F12 |

C=462→S500：With DC Power Supply C=22.520

# Motor Data

Run：Full Load Ampere
Lock：Locked Rotor Ampere

AC 110 / 120V, 1-Phase

| Model | Operating Time (Sec / 90°) | | Current (60Hz / 50Hz) | | | |
|---|---|---|---|---|---|---|
| | | | AC 110V | | AC 120V | |
| | Motor(50Hz / 60Hz) | Spring | Run | Lock | Run | Lock |
| S500 | 7 / 9 | 3 | 1.0A / 1.3A | 2.0A / 2.2A | 1.0A / 1.3A | 2.0A / 2.2A |
| S1300 | 7 / 9 | 8 | 2.6A / 4.5A | 10A / 10.5A | 3.8A / 6.9A | 11A / 11.5A |
| S2000 | 11 / 13 | 12 | 2.6A / 4.5A | 10A / 10.5A | 3.8A / 6.9A | 11A / 11.5A |
| S2600 | 14 / 17 | 12 | 2.6A / 4.5A | 10A / 10.5A | 3.8A / 6.9A | 11A / 11.5A |

AC 220 / 240V, 1-Phase

| Model | Operating Time (Sec / 90°) | | Current (60Hz / 50Hz) | | | |
|---|---|---|---|---|---|---|
| | | | AC 220V | | AC 240V | |
| | Motor(50Hz / 60Hz) | Spring | Run | Lock | Run | Lock |
| S500 | 7 / 9 | 3 | 0.6A / 0.7A | 1.0A / 1.2A | 0.7A / 0.8A | 1.3A / 1.5A |
| S1300 | 7 / 9 | 8 | 1.5A / 2.2A | 5.0A / 5.1A | 2.1A / 3.8A | 5.6A / 5.7A |
| S2000 | 11 / 13 | 12 | 1.5A / 2.2A | 5.0A / 5.1A | 2.1A / 3.8A | 5.6A / 5.7A |
| S2600 | 14 / 17 | 12 | 1.5A / 2.2A | 5.0A / 5.1A | 2.1A / 3.8A | 5.6A / 5.7A |

AC 380 / 440V, 3-Phase

| Model | Operating Time (Sec / 90°) | | Current (60Hz / 50Hz) | | | |
|---|---|---|---|---|---|---|
| | | | AC 380V | | AC 440V | |
| | Motor(50Hz / 60Hz) | Spring | Run | Lock | Run | Lock |
| S500 | 7 / 8.5 | 3 | 0.4A / 0.4A | 0.5A / 0.6A | 0.3A / 0.4A | 0.5A / 0.6A |
| S1300 | 7 / 8.5 | 8 | 1.0A / 1.5A | 2.8A / 3.0A | 0.7A / 1.0A | 2.1A / 2.2A |
| S2000 | 11 / 13 | 12 | 1.0A / 1.5A | 2.8A / 3.0A | 0.7A / 1.0A | 2.1A / 2.2A |
| S2600 | 14 / 17 | 12 | 1.0A / 1.5A | 2.8A / 3.0A | 0.7A / 1.0A | 2.1A / 2.2A |

AC / DC 24V, 1-Phase

| Model | Operating Time (Sec / 90°) | | Current | |
|---|---|---|---|---|
| | | | AC / DC 24V | |
| | Motor | Spring | Run | Lock |
| S500 | 7 | 3 | 3.0A | 4.0A |
| S1300 | 8 | 3 | 9.0A | 19.0A |
| S2000 | 11 | 3 | 9.0A | 19.0A |
| S2600 | 17 | 3 | 9.0A | 19.0A |

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