## Tie rod cylinder double acting non-rotating type

## SCG-M Series

Bore size: $\phi 32, \phi 40, \phi 50, \phi 63$

RoHS

Specifications

| Descriptions | SCG-M |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Bore size $\quad \mathrm{mm}$ | $\phi 32$ | $\phi 40$ | $\phi 50$ | $\phi 63$ |
| Actuation | Double acting |  |  |  |
| Working fluid | Compressed air |  |  |  |
| Max. working pressure MPa | 1.0 |  |  |  |
| Min. working pressure MPa |  | 0.1 |  | 0.05 |
| Withstanding pressure MPa | 1.6 |  |  |  |
| Ambient temperature $\quad{ }^{\circ} \mathrm{C}$ | -10 to 60 (no freezing) |  |  |  |
| Port size | Rc1/8 | Rc1/4 |  | Rc3/8 |
| Stroke torance mm Rubber cushioned | ${ }_{0}^{+1.4}$ (Up to 600) |  |  |  |
| Stroke tolerance mm ${ }^{\text {m }}$ Air cushioned | ${ }_{0}^{+1.0}$ (Up to 360), ${ }_{0}^{+1.4}$ (361 to 600) |  |  |  |
| Working piston speed $\mathrm{mm} / \mathrm{s}$ | 50 to 1000 (use within the allowable energy absorption. ) |  |  |  |
| Cushion | Selection of air cushion and rubber cushion possible |  |  |  |
| Effective air cushion length mm | 8.6 | 8.6 | 13.4 | 13.4 |
| Lubrication | Not required (when lubricating, use turbine oil Class 1 ISO VG32.) |  |  |  |
| $\underline{\text { Revolvable angle tolerance Degree }}$ | $\pm 1$ |  |  |  |
| Allowable energy Rubber cushioned | 0.5 | 0.9 | 1.6 | 1.6 |
| absorption J Air cushioned | 2.5 | 3.7 | 8.0 | 14.4 |

## Stroke length

| Bore size (mm) | Standard stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) |
| :---: | :---: | :---: | :---: |
| $\phi 32$ | $25,50,75,100$ |  |  |
| $\phi 40$ | $150,200,250$ |  |  |
| $\phi 50$ | $300,350,400$ | 600 | 1 |
| $\phi 63$ | 450,500 |  |  |

Note 1: The custom stroke can be manufactured in 1 mm increments.
Note 2: If the maximum stroke is exceeded, product specifications may not be met, depending on operating conditions. Consult with CKD in this case.

Min. stroke length with T0/T5 switch

| Switch quantity | Different surface installation |  |  |  | Same surface installation |  |  |  | Center trunnion installation |  |  |  | Rod end trunnion installation The position cannot be detected on rod side stroke end. | Head end trunnion installation The position cannot be detected on head side stroke end. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Bore size (mm) | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 1 |
| \$32 | 9 | 17 | 34 | 51 | 9 | 48 (33) | 78 (64) | 109 (94) | 94 (94) | 94 (94) | 169 (155) | 169 (155) | 42 | 42 |
| \$40 | 9 | 18 | 36 | 54 | 9 | 48 (33) | 78 (64) | 109 (94) | 81 (81) | 81 (81) | 164 (142) | 164 (142) | 38 | 38 |
| ¢50 | 9 | 18 | 36 | 54 | 9 | 18 | 36 | 54 | 112 (112) | 112 (112) | 121 (121) | 121 (121) | 51 | 53 |
| ¢63 | 10 | 19 | 38 | 57 | 10 | 19 | 38 | 57 | 85 (73) | 85 (73) | 91 (91) | 91 (91) | 41 | 42 |

- Note 1: Value in ( ) for $\mathrm{T}^{*} \mathrm{~V}$ (Radial lead wire).

Note 2: When stroke length is not greater than 15 mm , two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Min. stroke length with T8 switch

| Switch quantity | Different surface installation |  |  |  | Same surface installation |  |  |  | Center trunnion installation |  |  |  | Rod end trunnion installation The position cannot be detected on rod side stroke end. | Head end trunnion installation <br> The position cannot be detected on head side stroke end. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Bore size (mm) | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 1 |
| ¢ 32 | 9 | 17 | 34 | 51 | 9 | 54 (31) | 84 (62) | 115 (92) | 100 (100) | 100 (100) | 191 (161) | 191 (161) | 45 | 45 |
| \$40 | 9 | 18 | 36 | 54 | 9 | 54 (31) | 84 (62) | 115 (92) | 87 (87) | 87 (87) | 178 (148) | 178 (148) | 41 | 41 |
| $\phi 50$ | 9 | 18 | 36 | 54 | 9 | 18 | 36 | 54 | 116 (116) | 116 (116) | 121 (121) | 121 (121) | 54 | 55 |
| \$63 | 10 | 19 | 38 | 57 | 10 | 19 | 38 | 57 | 89 (77) | 89 (77) | 99 (99) | 99 (99) | 44 | 44 |

[^0]- Note 2: When stroke length is not greater than 15 mm , two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Specifications
Min. stroke length with T2/T3 switch

| Switch quantity | Different surface installation |  |  |  | Same surface installation |  |  |  | Center trunnion installation |  |  |  | Rod end trunnion installation The position cannot be detectied | Head end trunnion instiallation <br> The position cannot be detected on head side stroke end |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Bore size (mm) | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 1 |
| \$32 | 5 | 10 | 20 | 30 | 5 | 40 (33) | 70 (64) | 101 (94) | 64 (34) | 64 (34) | 131 (95) | 131 (95) | 27 | 27 |
| \$40 | 5 | 10 | 20 | 30 | 5 | 40 (33) | 70 (64) | 101 (94) | 69 (39) | 69 (39) | 152 (100) | 152 (100) | 32 | 32 |
| $\phi 50$ | 5 | 10 | 20 | 30 | 5 | 10 | 20 | 30 | 71 (41) | 71 (41) | 71 (61) | 71 (61) | 31 | 32 |
| \$63 | 6 | 11 | 21 | 32 | 6 | 11 | 21 | 32 | 77 (47) | 77 (47) | 77 (68) | 77 (68) | 37 | 38 |

Note 1: Value in () for $\mathrm{T}^{*} \mathrm{~V}$ (Radial lead wire).
Note 2: When stroke length is not greater than 15 mm , two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

## Min. stroke length with T1/T2Y/T3Y/T2YD switch

| Switch quantity | Different surface installation |  |  |  | Same surface installation |  |  |  | Center trunnion installation |  |  |  | Rod end trumnion installation The position cannot be detectied on rod side stroke end. | Head end trunnion installation The position cannot be deteccied |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Bore size (mm) | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 1 |
| ¢32 | 6 | 11 | 22 | 33 | 6 | 62 (49) | 92 (80) | 123 (110) | 86 (56) | 86 (56) | 177 (117) | 177 (117) | 38 | 38 |
| ¢ 40 | 6 | 11 | 22 | 33 | 6 | 62 (49) | 92 (80) | 123 (110) | 91 (61) | 91 (61) | 182 (122) | 182 (122) | 43 | 43 |
| ¢50 | 6 | 12 | 24 | 36 | 6 | 12 | 24 | 36 | 93 (63) | 93 (63) | 93 (68) | 93 (68) | 42 | 43 |
| \$63 | 6 | 12 | 24 | 36 | 6 | 12 | 24 | 36 | 99 (69) | 99 (69) | 99 (74) | 99 (74) | 48 | 49 |

- Note 1: Value in () for $\mathrm{T}^{\star} \mathrm{V}$ (Radial lead wire). Note that radial lead wire (V) is not available for T2YD.
- Note 2: When stroke length is not greater than 15 mm , two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.


## Switch specifications

* The T0/T5 switch can be used with 220 VAC

1 color/2 color indicator, strong magnetic field proof Consult with CKD for working conditions.

| Descriptions | Proximity 2-wire |  | Proximity 3-wire |  |  | Reed 2-wire |  |  | Proximity 2-wire |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | T1H/T1V | T2H/T2V/ T2JHT2JV | T3H/T3V ${ }^{\text {T }}$ | T3PH/T3PV (Custom order) | T3YH/T3YV | TOH/TOV | T5H/T5V | T8H/T8V | T2YD |
| Applications | Programmable controller relay, small solenoid valve | Programmable <br> controller dedicated | Programmable controller, relay |  |  | Programmable controller, relay | Programmable controller, relay IC circuit (wlo light) serial connection | Programmable controller, relay | Programmable controller dedicated |
| Output method | - |  |  |  |  |  |  | - |  |
| Power voltage | - |  | 10 to 28 VDC |  |  | - - |  |  |  |
| Load voltage | 85 to 265 VAC | 10 to 30 VDC | 30 VDC or less |  |  | 12/24 VDC 110 VAC | 5/1224 VDC 1110 VAC | 112/24 VDC 1110 VAC 220 VAC | $24 \mathrm{VDC} \pm 10 \%$ |
| Load current | 5 to 100 mA | 5 to 20 mA (Note 1) | 100 mA or less |  | 50 mA or less | 5 to 50 mA 7 to 20 mA | 50 mA or less 20 mA or less | 5 to 50 mA 7 7 to 20 mA 7 7 to 10 mA | 5 to 20 mA |
| Light | LED (ON lighting) |  | LED (ON lighting) | $\begin{array}{\|c\|} \hline \text { Green } \\ \text { LED } \\ (\text { ON lighting }) \end{array}$ | $\left.\begin{gathered} \text { Red/green } \\ \text { LED } \\ \text { (ON lighting) } \end{gathered} \right\rvert\,$ | LED (ON lighting) | w/o light | LED (ON lighting) | Red/green LED (ON lighting) |
| Leakage current | 1 mA or less with 100 VAC 2 mA or less with 200 VAC | 1 mA or less | $10 \mu \mathrm{~A}$ or less |  |  | 0 mA |  |  | 1 mA or less |

## With preventive maintenance output

| Descriptions | Proximity 3-wire | Proximity 4-wire | Proximity 3-wire | Proximity 4-wire |
| :---: | :---: | :---: | :---: | :---: |
|  | T2YFH/V | T3YFH/V | T2YMH/V | T3YMH/V |
| Applications | Programmable controller dedicated | Programmable controller, relay | Programmable controller dedicated | Programmable controller, relay |
| Output method | NPN output |  |  |  |
| $\pm$ Instalation position adusisment section | Red/Green LeD (ON lighting) |  |  |  |
| - Preventive maintenance output |  |  | Yellow LED (ON lighting) |  |
| - Power voltage | - | 10 to 28 VDC | - | 10 to 28 VDC |
| 줃 끌 Load voltage | 10 to 30 VDC | 30 VDC or less | 10 to 30 VDC | 30 VDC or less |
| $\stackrel{0}{\sim}$ O Load current | 5 to 20 mA | 50 mA or less | 5 to 20 mA | 50 mA or less |
| Leakage current | 1 mA or less | $10 \mu \mathrm{~A}$ or less | 1.2 mA or less | $10 \mu \mathrm{~A}$ or less |
|  | 30 VDC or less |  |  |  |
|  | 20 mA or less | 50 mA or less | 5 to 20 mA or less | 50 mA or less |
|  | $10 \mu \mathrm{~A}$ or less |  |  |  |

Note 1: Refer to Ending 1 for other switch specifications.
Note 2: Max load current above: 20 mA at $25^{\circ} \mathrm{C}$. When ambient temperature around switch is more than $25^{\circ} \mathrm{C}$, the value is lower than 20 mA . ( 5 to 10 mA at $60^{\circ} \mathrm{C}$ )

## Weight

| $\begin{aligned} & \text { Bore size } \\ & (\mathrm{mm}) \end{aligned}$ | Product weight when $\mathrm{S}=0 \mathrm{~mm}$ : |  |  |  |  |  | Stroke length : <br> Additional weight per 50 mm | Accessory weight |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Basic type (00) | Foot type (LB) | Flange type (FA, FB) | $\begin{array}{\|c\|} \text { Eye bracket type } \\ \text { (CA) } \end{array}$ | Clevis bracket type <br> (CB) | $\begin{array}{\|c\|} \text { Trunnion type } \\ \text { (TC) } \end{array}$ |  | I | Y |
| \$32 | 0.50 | 0.61 | 0.58 | 0.65 | 0.68 | 0.67 | 0.12 | 0.07 | 0.10 |
| \$40 | 0.66 | 0.80 | 0.77 | 0.85 | 0.85 | 1.00 | 0.17 | 0.07 | 0.13 |
| ¢50 | 1.13 | 1.29 | 1.31 | 1.54 | 1.54 | 1.61 | 0.23 | 0.20 | 0.30 |
| \$63 | 1.39 | 1.73 | 1.68 | 1.95 | 1.96 | 2.27 | 0.25 | 0.20 | 0.30 |

## How to order



Note: The rubber cushion type is longer than the air cushion type.
(E) Stroke length (mm)

## Note on model no. selection

Note 1: The mounting bracket is shipped with the product. (However, trunnion type and rod end flange with bellows are installed onto before shipment. ) Note 2: Refer to page 402 for min. stroke length with switch. Note 3: When selecting TA or TB for mounting, the number of switches is limited to " H " (one on head end) for TA, and "R" (one on rod end) for TB.
Note 4: "I" and "Y" cannot be selected at the same time.
<Example of model number>

## SCG-M-LB-40B-100-T2H-D-JI

Model: Tie rod cylinder double acting non-rotating type
(A) Mounting style
: Axial foot type
B Bore size
: $\phi 40 \mathrm{~mm}$
C Port thread type
D Cushion
: Rc thread
E Stroke length
: Air cushioned

G
G Switch quantity
(H) Option

Proximity T2H switch, lead wire 1 m
(1)

With bellows
.

How to order

## How to order switch




Note: Consult CKD when using the environment compatible T-types witch.

How to order mounting bracket

| Bore size (mm) | $\phi 32$ | $\phi 40$ | $\phi 50$ | $\phi 63$ | $\phi 80$ |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Mounting bracket | SCG-LB-32 | SCG-LB-40 | SCG-LB-50 | SCG-LB-63 | SCG-LB-80 | SCG-LB-100 |
| Foot (LB) | SC |  |  |  |  |  |
| Flange (FA) (FB) Note 1 | SCG-FA-32 | SCG-FA-40 | SCG-FA-50 | SCG-FA-63 | SCG-FA-80 | SCG-FA-100 |
| Eye (CA) | SCG-CA-32 | SCG-CA-40 | SCG-CA-50 | SCG-CA-63 | SCG-CA-80 | SCG-CA-100 |
| Clevis (CB) | SCG-CB-32 | SCG-CB-40 | SCG-CB-50 | SCG-CB-63 | SCG-CB-80 | SCG-CB-100 |

Note 1: Designate "SCG-FA-(bore size)-J" for the flange with bellows (FA).
Note 2: The foot type bracket is a 2 pcs./set.

## SCG-M ${ }_{\text {series }}$

|  |
| :---: |
| SCP*2 |
| CMA2 |
| SCM |
| SCG |
| SCA2 |
| SCS |
| CKV2 |
| CA/OV2 |
| SSD |
| CAT |
| MDC2 |
| MVC |
| SMD2 |
| MSD* |
| FC* |
| STK |
| ULK* |
| JSK/M2 |
| JSG |
| JSC3 |
| USSD |
| USC |
| JSB3 |
| LMB |
| STG |
| STS/L |
| LCS |
| LCG |
| LCM |
| LCT |
| LCY |
| STR2 |
| JCA2 |
| HCM |
| HCA |
| SRL2 |
| SRG |
| SRM |
| SRT |
| MRL2 |
| MRG2 |
| SM-25 |
| CAC3 |
| UCAC |
| RCC2 |
| MFC |
| SHC |
| GLC |
| Ending |

Internal structure drawing
It is the same as standard type. Refer to page 354.
Note that the following part is different material.

| No. | Parts name | Material | Remarks |
| :---: | :---: | :---: | :---: |
| 2 | Piston rod | $\phi$ 32: Stainless steel copper |  |
|  |  | $\phi 40$ to 63: Steel | Industrial chrome plating |

Repair parts list

- Air cushioned

| Bore size (mm) | Kit No. | Repair parts number |
| :---: | :---: | :---: |
| $\phi 32$ | SCG-M-32BK | (3) 6 7 |
| $\phi 40$ | SCG-M-40BK |  |
| $\phi 50$ | SCG-M-50BK |  |
| $\phi 63$ | SCG-M-63BK |  |

Note: Indicate the kit No. when placing an order.

| Bore size (mm) | Kit No. | Repair parts number |
| :---: | :---: | :---: |
| ¢ 32 | SCG-M-32DK | $\begin{aligned} & \text { (3) } 6 \times 10 \\ & \text { (13) } 16 \times 3 \end{aligned}$ |
| ¢ 40 | SCG-M-40DK |  |
| $\phi 50$ | SCG-M-50DK |  |
| $\phi 63$ | SCG-M-63DK |  |

Mounting bracket material

| Mounting style | Material | Remarks |
| :---: | :--- | :--- |
| LB | Steel | Nickel plating |
| FA/FB | Steel | Paint |
| CA/CB | Cast iron | Paint |
| TA/TB/TC | Cast iron | Paint |

Double acting non-rotating type
Dimensions
Basic type (00)


Note 1: Dimensions shown parentheses are for the rubber cushion type. This type is longer than the air cushion type.
( $\phi 32, \phi 40 ;+6 \mathrm{~mm}, \phi 50, \phi 63 ;+8 \mathrm{~mm}, \phi 80, \phi 100 ;+10 \mathrm{~mm}$ )
Note 2: RD and HD in the dimensions indicate the switch end positions, and GC and DC indicate the switch rail end positions.


Note 3: Refer to page 426 for the HD, RD and projecting dimensions of 2-color indicators with preventive maintenance output.
Note 4: Refer to pages 428, 429 for accessory dimensions.
Each installation method of the mounting style is the same as SCG (double acting single rod type). Refer to pages 356 to 363.


[^0]:    - Note 1: Value in () for $\mathrm{T}^{\star} \mathrm{V}$ (Radial lead wire).

