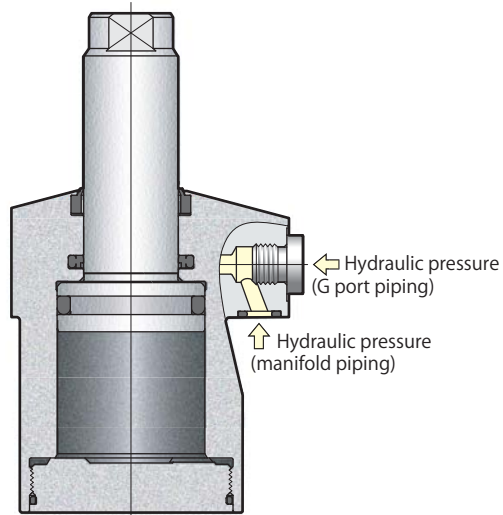
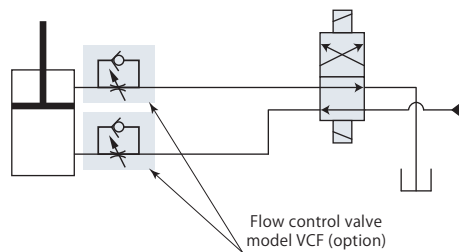


Standard model

model CNA□-□□

Hydraulic circuit diagram

For flow control valve, we recommend the meter-in control. If meter-out control is used, due to the area difference, it will cause back pressure and become high pressure. This can lead to malfunction of the system. Please be aware when designing the circuit.

| | |
|----------------|-----------|
| Specifications | page → 75 |
| Piping | page → 75 |
| Standard | page → 76 |
| Dual rod | page → 84 |
| Air sensor | page → 86 |

Specifications

| Size | Stroke | Rod tip section shapes | Variation code |
|-----------|--|------------------------------|---|
| 02 | 10 15 20 30 40 50 (60) (70) | | (Nil) : Standard |
| 04 | 10 15 20 30 40 50 60 70 | T : Female thread rod | E : Dual rod |
| 06 | 10 15 20 30 40 50 60 70 (80) (90) | P : Pin rod | A1 : Air sensor Detection 1mm before push end |
| 10 | 10 20 30 40 50 60 70 80 (90) (100) | M : Male thread rod | A3 : Air sensor Detection 3mm before push end |
| 16 | 10 20 30 40 50 60 70 80 (90) (100) | | A5 : Air sensor Detection 5mm before push end |
| 25 | 20 30 40 50 60 70 80 90 (100) (110) | | |

■ indicates made to order. Dual rod, air sensor model for the stroke with () are unavailable.

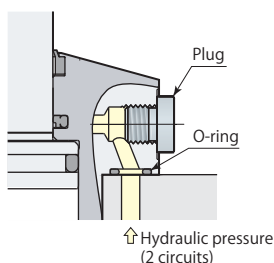
| Model | | | CNA02 | CNA04 | CNA06 | CNA10 | CNA16 | CNA25 |
|--|------|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Cylinder force (hydraulic pressure 7MPa) | Push | kN | 3.4 | 4.9 | 6.7 | 10.6 | 17.2 | 26.9 |
| | Pull | kN | 2.0 | 3.2 | 4.0 | 7.2 | 12.3 | 20.0 |
| Cylinder force calculation formula*1 | Push | | $F=0.49 \times P$ | $F=0.71 \times P$ | $F=0.96 \times P$ | $F=1.52 \times P$ | $F=2.46 \times P$ | $F=3.85 \times P$ |
| | Pull | | $F=0.29 \times P$ | $F=0.45 \times P$ | $F=0.57 \times P$ | $F=1.03 \times P$ | $F=1.76 \times P$ | $F=2.86 \times P$ |
| Cylinder inner diameter | | mm | 25 | 30 | 35 | 44 | 56 | 70 |
| Rod diameter | | mm | 16 | 18 | 22.4 | 25 | 30 | 35.5 |
| Effective area | Push | cm ² | 4.9 | 7.1 | 9.6 | 15.2 | 24.6 | 38.5 |
| | Pull | cm ² | 2.9 | 4.5 | 5.7 | 10.3 | 17.6 | 28.6 |
| Max. oil flow rate | | L/min | 1.0 | 1.6 | 2.1 | 5.0 | 8.4 | 10.5 |
| Recommended tightening torque of mounting screws*2 | | N·m | 7 | 7 | 12 | 29 | 57 | 77 |

- Pressure range : 1–7 MPa
 - Proof pressure : 10.5 MPa
 - Operating temperature : 0–70 °C
 - Fluid used : General mineral based hydraulic oil (ISO-VG32 equivalent)
 - Seals are resistant to chlorine-based cutting fluid. (not thermal resistant specification)
- *1 : F=Cylinder force (kN), P=Hydraulic pressure (MPa) *2 : ISO R898 class 12.9

Manifold piping and G port piping are available.

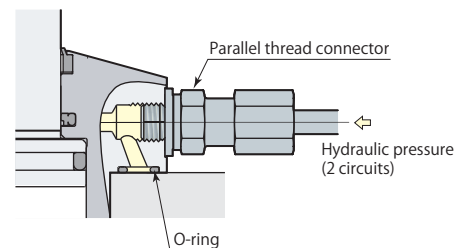
Manifold piping

When choosing manifold piping, a flow control valve (model VCF) and an air bleeding valve (model VCE) are mountable on the G ports of the cylinder.



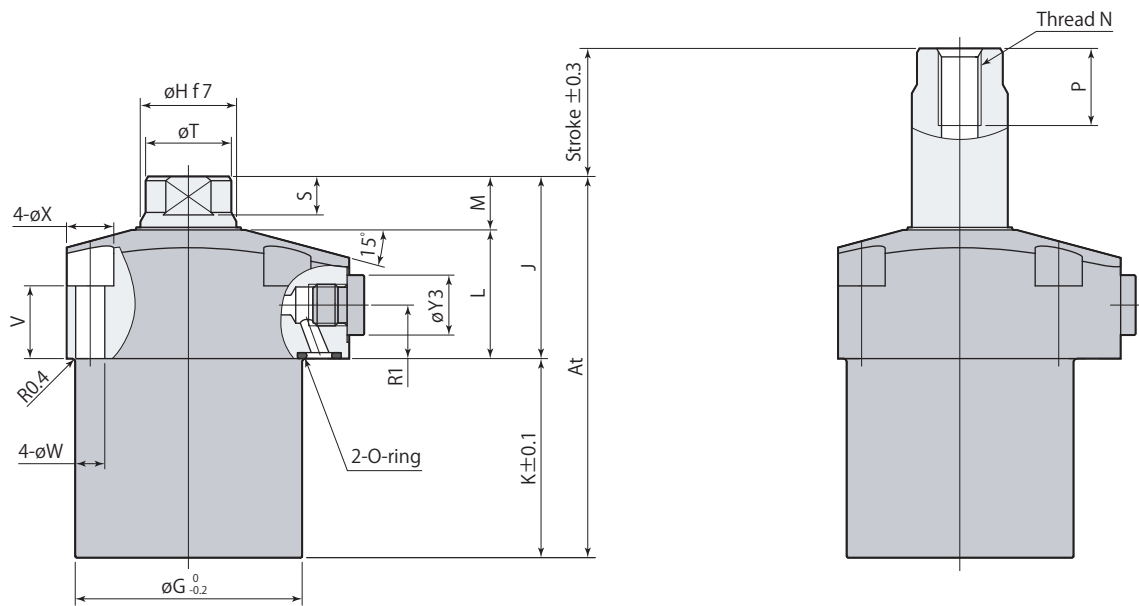
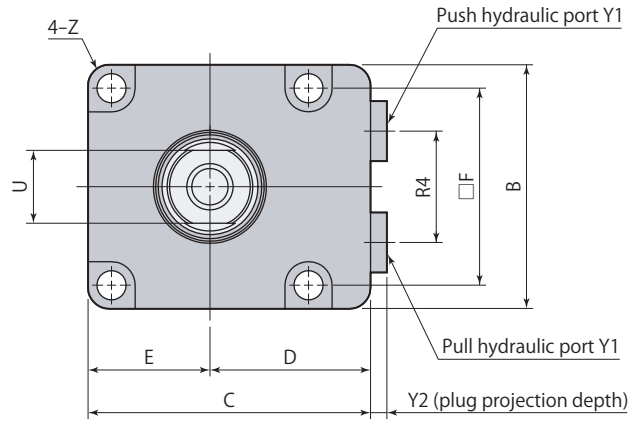
G port piping

Remove plugs when choosing G port piping. (O-ring must be used.) Refer to **page → 150** for details on G port piping flareless fitting. The flow control valve and the air bleeding valve should be installed in the middle of oil path.



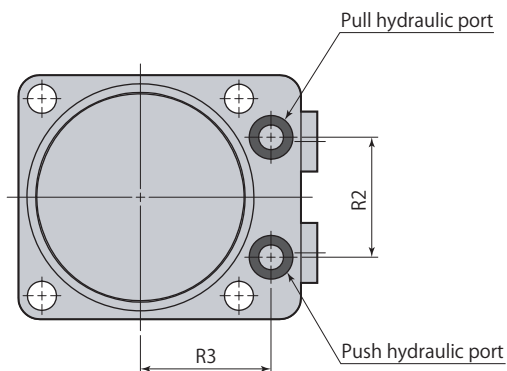
Dimensions

(Female thread rod)



Pull end

Push end



- Mounting screws are not included.
- Refer to **pages →84–89** for specifications of dual rod and air sensor models.

Push, pull cylinder

CNA-T
Female thread rod

| | | | | | | | mm |
|-------------------------------------|---------------------------------|---------------------------------|-----------------------------------|---------------------------------|---------------------------------|-----------------------------------|---------|
| Model | CNA02-□T | CNA04-□T | CNA06-□T | CNA10-□T | CNA16-□T | CNA25-□T | |
| B | 45 | 50 | 57 | 70 | 86 | 108 | |
| C | 55 | 60 | 66 | 82 | 96 | 120 | |
| D | 32.5 | 35 | 37.5 | 47 | 53 | 66 | |
| E | 22.5 | 25 | 28.5 | 35 | 43 | 54 | |
| F | 35 | 40 | 46 | 56 | 68 | 88 | |
| øG | 39 | 47 | 53 | 63 | 78 | 100 | |
| øH | 16 ^{-0.016 -0.034} | 18 ^{-0.016 -0.034} | 22.4 ^{-0.020 -0.041} | 25 ^{-0.020 -0.041} | 30 ^{-0.020 -0.041} | 35.5 ^{-0.025 -0.050} | |
| J | 38 | 39.5 | 42.5 | 51 | 57 | 65.5 | |
| L | 27.5 | 28 | 30 | 37.5 | 41.5 | 48.5 | |
| M | 10.5 | 11.5 | 12.5 | 13.5 | 15.5 | 17 | |
| N | M8×1.25 | M8×1.25 | M10×1.5 | M12×1.75 | M16×2 | M20×2.5 | |
| P | 14 | 14 | 18 | 21 | 27 | 33 | |
| R1 | 12.5 | 12.5 | 12.5 | 14 | 14 | 21 | |
| R2 | 22 | 24 | 28 | 36 | 45 | 50 | |
| R3 | 25 | 28 | 30.5 | 36 | 42 | 57 | |
| R4 | 20 | 22 | 26 | 30 | 38 | 50 | |
| S (width across flats height) | 7 | 8 | 9 | 10 | 12 | 14 | |
| øT | 14±0.2 | 16±0.2 | 20±0.2 | 23±0.2 | 28±0.2 | 33.5±0.3 | |
| U (width across flats) | 12 | 14 | 17 | 19 | 24 | 30 | |
| V | 18 | 17 | 17 | 20 | 20 | 20 | |
| øW | 5.5 | 5.5 | 6.8 | 9 | 11 | 14 | |
| øX | 9.5 | 9.5 | 11 | 14 | 17.5 | 20 | |
| Y1 | G1/8 | G1/8 | G1/8 | G1/4 | G1/4 | G3/8 | |
| Y2 | 3.8 | 3.8 | 3.8 | 4.8 | 4.8 | 4.8 | |
| øY3 | 14 | 14 | 14 | 19 | 19 | 22 | |
| Z | R3 | R5 | R5 | R6 | R7 | R10 | |
| O-ring (fluorocarbon hardness Hs90) | P7 | P7 | P7 | P8 | P8 | P10 | |
| Flow control valve* | Meter-in | VCF01 | VCF01 | VCF01 | VCF02 | VCF02 | VCF03 |
| | Meter-out | VCF01-O | VCF01-O | VCF01-O | VCF02-O | VCF02-O | VCF03-O |
| Air bleeding valve* | VCE01 | VCE01 | VCE01 | VCE02 | VCE02 | VCE03 | |

*: Select the right model of VCF and VCE according to the size of the cylinder.

Refer to each page for the details of options. ● Flow control valve **page →100** ● Air bleeding valve **page →102**

● CNA□-□T (Female thread rod) size 02, 04, 16, 25 or more than 60 mm stroke are made to order.

| CNA02-Stroke | | | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 |
|-------------------|------|-----------------|-----|-----|-----|------|------|------|------|------|
| Cylinder capacity | Push | cm ³ | 4.9 | 7.4 | 9.8 | 14.7 | 19.6 | 24.5 | 29.4 | 34.3 |
| | Pull | cm ³ | 2.9 | 4.3 | 5.8 | 8.7 | 11.6 | 14.5 | 17.4 | 20.3 |
| | At | mm | 66 | | 81 | | 101 | | 121 | |
| | K | mm | 28 | | 43 | | 63 | | 83 | |
| | Mass | kg | 0.7 | | 0.8 | | 1.0 | 0.9 | 1.1 | |

● Stroke 10, 20, 40, and 60 use spacers.

| CNA04-Stroke | | | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 |
|-------------------|------|-----------------|------|------|------|------|-------|------|-------|------|
| Cylinder capacity | Push | cm ³ | 7.1 | 10.6 | 14.1 | 21.2 | 28.3 | 35.3 | 42.4 | 49.5 |
| | Pull | cm ³ | 4.5 | 6.8 | 9.0 | 13.6 | 18.1 | 22.6 | 27.1 | 31.7 |
| | At | mm | 70.5 | | 85.5 | | 105.5 | | 125.5 | |
| | K | mm | 31 | | 46 | | 66 | | 86 | |
| | Mass | kg | 0.9 | | 1.1 | | 1.3 | | 1.5 | |

● Stroke 10, 20, 40, and 60 use spacers.

| CNA06-Stroke | | | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|-------------------|------|-----------------|------|------|------|------|------|------|------|------|-------|------|
| Cylinder capacity | Push | cm ³ | 9.6 | 14.4 | 19.2 | 28.9 | 38.5 | 48.1 | 57.7 | 67.3 | 77.0 | 86.6 |
| | Pull | cm ³ | 5.7 | 8.5 | 11.4 | 17.0 | 22.7 | 28.4 | 34.1 | 39.8 | 45.4 | 51.1 |
| | At | mm | 74 | | 89 | | 109 | | 129 | | 149 | |
| | K | mm | 31.5 | | 46.5 | | 66.5 | | 86.5 | | 106.5 | |
| | Mass | kg | 1.2 | | 1.4 | | 1.7 | | 1.9 | | 2.2 | |

● Stroke 10, 20, 40, 60 and 80 use spacers.

| CNA10-Stroke | | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|-------------------|------|-----------------|------|------|-------|------|-------|------|-------|-------|-------|-------|
| Cylinder capacity | Push | cm ³ | 15.2 | 30.4 | 45.6 | 60.8 | 76.0 | 91.2 | 106.4 | 121.6 | 136.8 | 152.1 |
| | Pull | cm ³ | 10.3 | 20.6 | 30.9 | 41.2 | 51.5 | 61.8 | 72.1 | 82.4 | 92.7 | 103.0 |
| | At | mm | 88.5 | | 108.5 | | 128.5 | | 148.5 | | 168.5 | |
| | K | mm | 37.5 | | 57.5 | | 77.5 | | 97.5 | | 117.5 | |
| | Mass | kg | 2.1 | | 2.4 | | 2.7 | | 3.1 | | 3.4 | |

● Stroke 10, 30, 50, 70 and 90 use spacers.

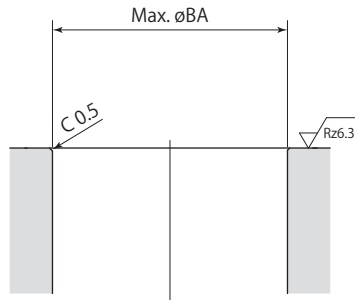
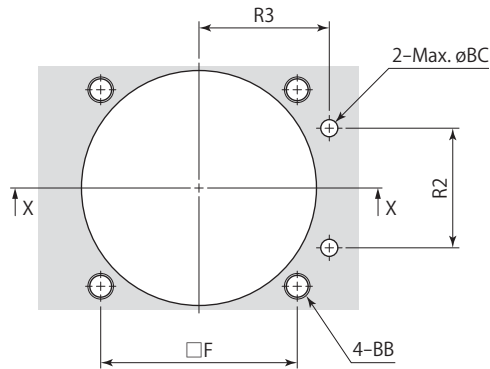
| CNA16-Stroke | | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|-------------------|------|-----------------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| Cylinder capacity | Push | cm ³ | 24.6 | 49.3 | 73.9 | 98.5 | 123.2 | 147.8 | 172.4 | 197.0 | 221.7 | 246.3 |
| | Pull | cm ³ | 17.6 | 35.1 | 52.7 | 70.2 | 87.8 | 105.4 | 122.9 | 140.5 | 158.1 | 175.6 |
| | At | mm | 96 | | 116 | | 136 | | 156 | | 176 | |
| | K | mm | 39 | | 59 | | 79 | | 99 | | 119 | |
| | Mass | kg | 3.3 | | 3.8 | | 4.3 | | 4.7 | | 5.2 | |

● Stroke 10, 30, 50, 70 and 90 use spacers.

| CNA25-Stroke | | | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 |
|-------------------|------|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Cylinder capacity | Push | cm ³ | 77.0 | 115.5 | 153.9 | 192.4 | 230.9 | 269.4 | 307.9 | 346.4 | 384.8 | 423.3 |
| | Pull | cm ³ | 57.2 | 85.8 | 114.3 | 142.9 | 171.5 | 200.1 | 228.7 | 257.3 | 285.9 | 314.5 |
| | At | mm | 115.5 | | 135.5 | | 155.5 | | 175.5 | | 195.5 | |
| | K | mm | 50 | | 70 | | 90 | | 110 | | 130 | |
| | Mass | kg | 6.3 | | 7.1 | | 7.8 | | 8.6 | | 9.4 | |

● Stroke 20, 40, 60, 80 and 100 use spacers.

Mounting details



X-X

Rz: ISO4287(1997)

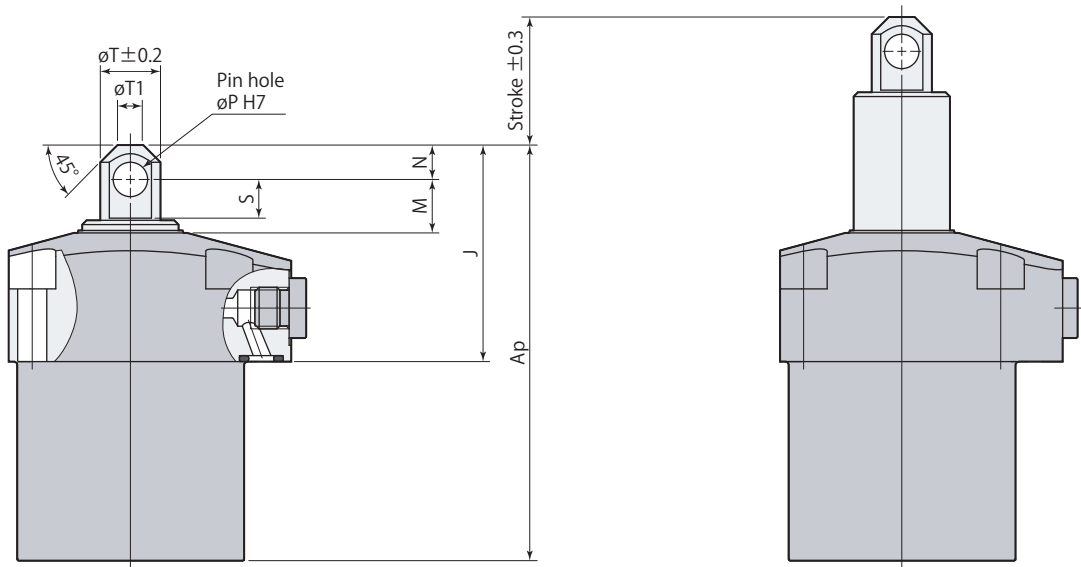
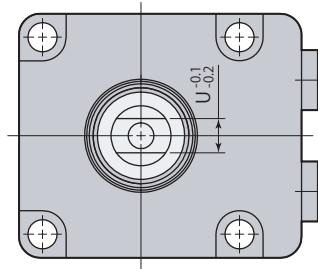
CNA-T
Female thread rod
Push, pull cylinder

mm

| Model | CNA02-□T | CNA04-□T | CNA06-□T | CNA10-□T | CNA16-□T | CNA25-□T |
|-------|----------|----------|----------|----------|----------|----------|
| F | 35 | 40 | 46 | 56 | 68 | 88 |
| R2 | 22 | 24 | 28 | 36 | 45 | 50 |
| R3 | 25 | 28 | 30.5 | 36 | 42 | 57 |
| øBA | 40 | 48 | 54 | 64 | 79 | 101 |
| BB | M5 | M5 | M6 | M8 | M10 | M12 |
| øBC | 4 | 4 | 4 | 6 | 6 | 8 |

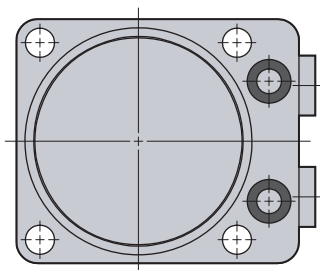
Dimensions

(Pin rod)



Pull end

Push end



- Mounting screws are not included.
- Recommended material for pin: SCM435-H (HB269-331)
- Refer to **pages →76-79** for specifications and dimensions that are not shown in the diagram.
- Refer to **pages →84-89** for specifications of dual rod and air sensor models.

Push, pull cylinder

CNA-P
Pin rod

| Model | CNA02-□P | CNA04-□P | CNA06-□P | CNA10-□P | CNA16-□P | CNA25-□P |
|-------|----------------------------------|----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| J | 42.5 | 44.5 | 50.5 | 60 | 67 | 79.5 |
| M | 10 | 10.5 | 12.5 | 13.5 | 14.5 | 18 |
| N | 5 | 6 | 8 | 9 | 11 | 13 |
| øP | 6 ^{+0.012} ₀ | 6 ^{+0.012} ₀ | 8 ^{+0.015} ₀ | 10 ^{+0.015} ₀ | 12 ^{+0.018} ₀ | 14 ^{+0.018} ₀ |
| S | 6.5 | 7 | 9 | 10 | 10.8 | 14.5 |
| øT | 10 | 12 | 14 | 16 | 20 | 26 |
| øT1 | 5 | 5 | 6 | 8 | 10 | 14 |
| U | 6 | 6 | 8 | 11 | 14 | 16 |

mm

● CNA□-□P (Pin rod) is made to order.

| CNA02-Stroke | | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 |
|--------------|----|------|----|------|----|-------|-----|-------|----|
| Ap | mm | 70.5 | | 85.5 | | 105.5 | | 125.5 | |
| Mass | kg | 0.7 | | 0.8 | | 1.0 | 0.9 | 1.1 | |

| CNA04-Stroke | | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 |
|--------------|----|------|----|------|----|-------|----|-------|----|
| Ap | mm | 75.5 | | 90.5 | | 110.5 | | 130.5 | |
| Mass | kg | 0.9 | | 1.1 | | 1.3 | | 1.5 | |

| CNA06-Stroke | | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|--------------|----|-----|-----|----|-----|----|-----|----|-----|----|----|
| Ap | mm | 82 | 97 | | 117 | | 137 | | 157 | | |
| Mass | kg | 1.2 | 1.4 | | 1.7 | | 1.9 | | 2.2 | | |

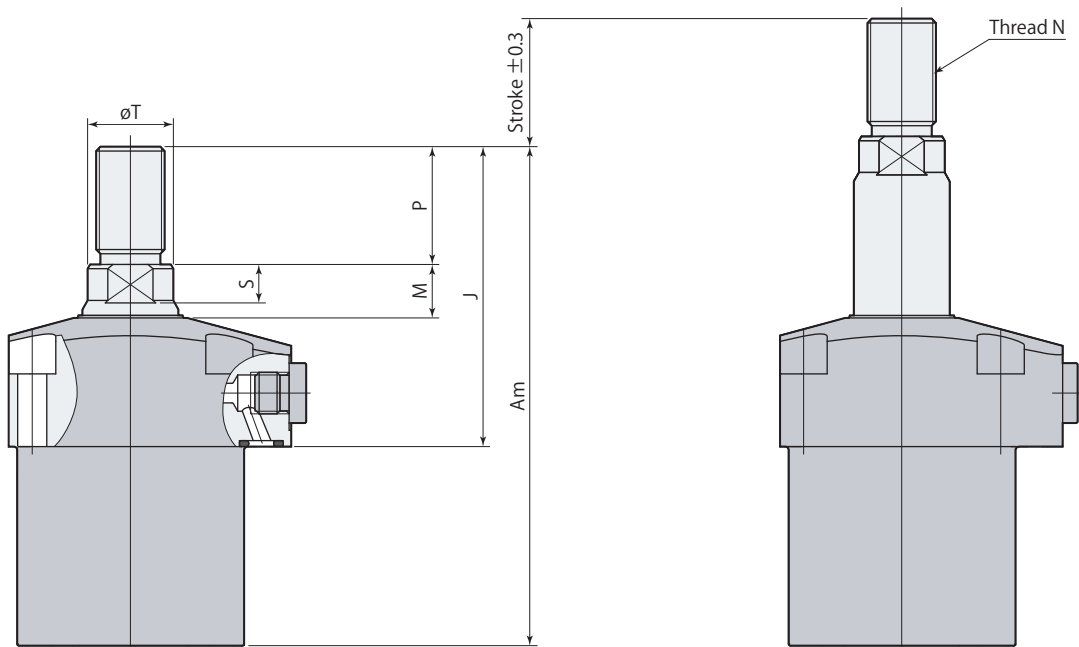
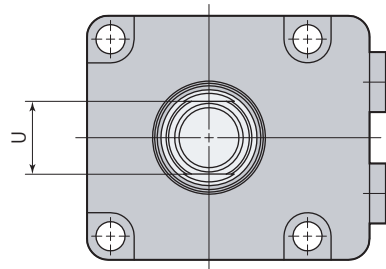
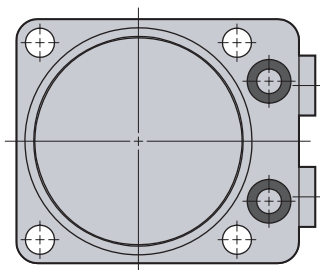
| CNA10-Stroke | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|--------------|----|------|-------|----|-------|----|-------|----|-------|----|-----|
| Ap | mm | 97.5 | 117.5 | | 137.5 | | 157.5 | | 177.5 | | |
| Mass | kg | 2.1 | 2.4 | | 2.7 | | 3.1 | | 3.4 | | |

| CNA16-Stroke | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|--------------|----|-----|-----|----|-----|----|-----|----|-----|----|-----|
| Ap | mm | 106 | 126 | | 146 | | 166 | | 186 | | |
| Mass | kg | 3.3 | 3.8 | | 4.3 | | 4.7 | | 5.2 | | |

| CNA25-Stroke | | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 |
|--------------|----|-------|-------|----|-------|----|-------|----|-------|-----|-----|
| Ap | mm | 129.5 | 149.5 | | 169.5 | | 189.5 | | 209.5 | | |
| Mass | kg | 6.3 | 7.1 | | 7.9 | | 8.6 | | 9.5 | 9.4 | |

Dimensions

(Male thread rod)

Pull endPush end

- Mounting screws are not included.
- Refer to **pages →76–79** for specifications and dimensions that are not shown in the diagram.
- Refer to **pages →84–89** for specifications of dual rod and air sensor models.

| Model | CNA02-□M | CNA04-□M | CNA06-□M | CNA10-□M | CNA16-□M | CNA25-□M |
|-------------------------------|----------|----------|----------|----------|----------|----------|
| J | 58 | 64.5 | 70 | 81 | 92 | 110.5 |
| M | 10.5 | 11.5 | 12.5 | 13.5 | 15.5 | 17 |
| N | M12×1.25 | M14×1.5 | M16×1.5 | M20×1.5 | M24×1.5 | M30×1.5 |
| P | 20 | 25 | 27.5 | 30 | 35 | 45 |
| S (width across flats height) | 7 | 8 | 9 | 10 | 12 | 14 |
| øT | 14±0.2 | 16±0.2 | 20±0.2 | 23±0.2 | 28±0.2 | 33.5±0.3 |
| U (width across flats) | 12 | 14 | 17 | 19 | 24 | 30 |

mm

● CNA□-□M (Male thread rod) is made to order.

| CNA02-Stroke | | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 |
|--------------|----|-----|----|-----|----|-----|----|-----|----|
| Am | mm | 86 | | 101 | | 121 | | 141 | |
| Mass | kg | 0.7 | | 0.8 | | 1.0 | | 1.1 | |

| CNA04-Stroke | | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 |
|--------------|----|------|----|-------|----|-------|----|-------|----|
| Am | mm | 95.5 | | 110.5 | | 130.5 | | 150.5 | |
| Mass | kg | 1.0 | | 1.1 | | 1.3 | | 1.5 | |

| CNA06-Stroke | | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|--------------|----|-------|----|-------|----|-------|----|-------|----|-------|----|
| Am | mm | 101.5 | | 116.5 | | 136.5 | | 156.5 | | 176.5 | |
| Mass | kg | 1.3 | | 1.5 | | 1.7 | | 2.0 | | 2.3 | |

| CNA10-Stroke | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|--------------|----|-------|----|-------|----|-------|----|-------|----|-------|-----|
| Am | mm | 118.5 | | 138.5 | | 158.5 | | 178.5 | | 198.5 | |
| Mass | kg | 2.2 | | 2.5 | | 2.8 | | 3.2 | | 3.5 | |

| CNA16-Stroke | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|--------------|----|-----|----|-----|----|-----|----|-----|----|-----|-----|
| Am | mm | 131 | | 151 | | 171 | | 191 | | 211 | |
| Mass | kg | 3.5 | | 4.0 | | 4.4 | | 4.9 | | 5.4 | |

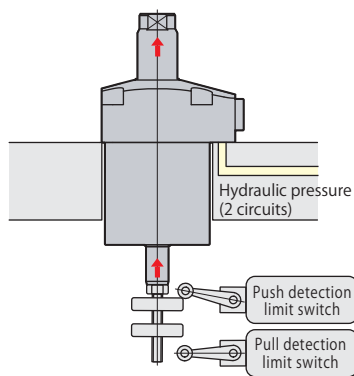
| CNA25-Stroke | | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 |
|--------------|----|-------|----|-------|----|-------|----|-------|----|-------|-----|
| Am | mm | 160.5 | | 180.5 | | 200.5 | | 220.5 | | 240.5 | |
| Mass | kg | 6.6 | | 7.4 | | 8.2 | | 9.0 | | 9.7 | |

Specifications

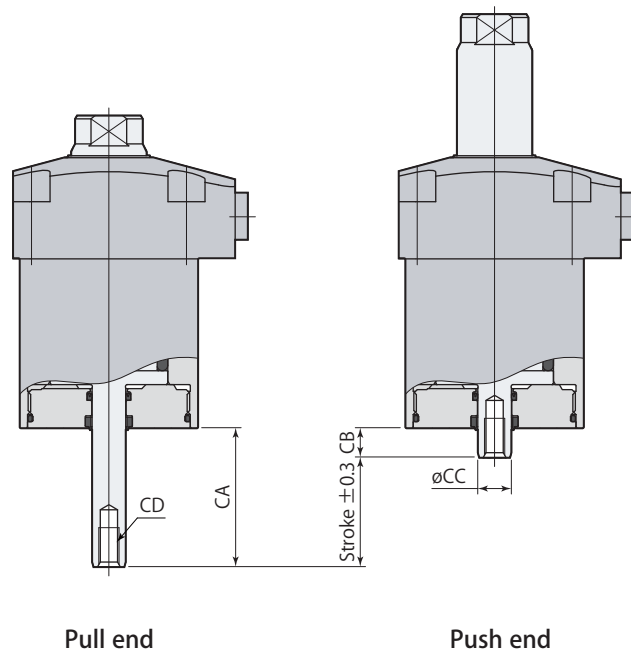
| Model | | | CNA02-□□E | CNA04-□□E | CNA06-□□E | CNA10-□□E | CNA16-□□E | CNA25-□□E |
|--|------|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Cylinder force (hydraulic pressure 7MPa) | Push | kN | 3.1 | 4.4 | 6.2 | 9.9 | 16.4 | 25.5 |
| | Pull | kN | 2.0 | 3.2 | 4.0 | 7.2 | 12.3 | 20.0 |
| Cylinder inner diameter | | mm | 25 | 30 | 35 | 44 | 56 | 70 |
| Rod diameter | | mm | 16 | 18 | 22.4 | 25 | 30 | 35.5 |
| Sensor rod diameter | | mm | 8 | 10 | 10 | 12 | 12 | 16 |
| Effective area | Push | cm ² | 4.4 | 6.3 | 8.8 | 14.1 | 23.5 | 36.5 |
| | Pull | cm ² | 2.9 | 4.5 | 5.7 | 10.3 | 17.6 | 28.6 |

● CNA□-□□E (Dual rod) is made to order.

Usage example



Dimensions



- This diagram depicts shape of female thread rod.
- Mounting screws are not included.
- Refer to specifications (page →75), dimensions (pages →76–83) for specifications and dimensions that are not shown in the diagram.

| CNA02-Stroke | | | 10 | 15 | 20 | 30 | 40 | 50 |
|-------------------|------------------------|-----------------|----------------|-----|-----|------|------|------|
| Cylinder capacity | Push | cm ³ | 4.4 | 6.6 | 8.8 | 13.2 | 17.6 | 22.0 |
| | Pull | cm ³ | 2.9 | 4.3 | 5.8 | 8.7 | 11.6 | 14.5 |
| | CA | mm | 23 | 23 | 38 | 38 | 58 | 58 |
| | CB | mm | 13 | 8 | 18 | 8 | 18 | 8 |
| | øCC | mm | 8 | | | | | |
| | CD | mm | M5×0.8 depth 8 | | | | | |
| Mass | TE : Female thread rod | kg | 0.7 | 0.7 | 0.8 | 0.8 | 0.9 | 0.9 |
| | PE : Pin rod | kg | 0.7 | 0.7 | 0.8 | 0.8 | 0.9 | 0.9 |
| | ME : Male thread rod | kg | 0.7 | 0.7 | 0.8 | 0.8 | 1.0 | 1.0 |

● Stroke 10, 20, and 40 use spacers.

Push, pull cylinder

CNA-E Dual rod

| CNA04-Stroke | | | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 |
|-------------------|------------------------|-----------------|---------------|-----|------|------|------|------|------|------|
| Cylinder capacity | Push | cm ³ | 6.3 | 9.4 | 12.6 | 18.8 | 25.1 | 31.4 | 37.7 | 44.0 |
| | Pull | cm ³ | 4.5 | 6.8 | 9.0 | 13.6 | 18.1 | 22.6 | 27.1 | 31.7 |
| CA | | mm | 23 | 23 | 38 | 38 | 58 | 58 | 78 | 78 |
| CB | | mm | 13 | 8 | 18 | 8 | 18 | 8 | 18 | 8 |
| øCC | | mm | 10 | | | | | | | |
| CD | | mm | M6×1 depth 11 | | | | | | | |
| Mass | TE : Female thread rod | kg | 0.9 | | 1.1 | | 1.3 | | 1.5 | |
| | PE : Pin rod | kg | 0.9 | | 1.1 | | 1.3 | | 1.5 | |
| | ME : Male thread rod | kg | 0.9 | | 1.1 | | 1.3 | | 1.5 | |

● Stroke 10, 20, 40, and 60 use spacers.

| CNA06-Stroke | | | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 |
|-------------------|------------------------|-----------------|---------------|------|------|------|------|------|------|------|
| Cylinder capacity | Push | cm ³ | 8.8 | 13.3 | 17.7 | 26.5 | 35.3 | 44.2 | 53.0 | 61.9 |
| | Pull | cm ³ | 5.7 | 8.5 | 11.4 | 17.0 | 22.7 | 28.4 | 34.1 | 39.8 |
| CA | | mm | 23 | 23 | 38 | 38 | 58 | 58 | 78 | 78 |
| CB | | mm | 13 | 8 | 18 | 8 | 18 | 8 | 18 | 8 |
| øCC | | mm | 10 | | | | | | | |
| CD | | mm | M6×1 depth 11 | | | | | | | |
| Mass | TE : Female thread rod | kg | 1.2 | 1.2 | 1.4 | 1.4 | 1.7 | 1.7 | 1.9 | 1.9 |
| | PE : Pin rod | kg | 1.2 | 1.2 | 1.4 | 1.4 | 1.7 | 1.7 | 1.9 | 1.9 |
| | ME : Male thread rod | kg | 1.3 | 1.3 | 1.5 | 1.4 | 1.7 | 1.7 | 2.0 | 2.0 |

● Stroke 10, 20, 40, and 60 use spacers.

| CNA10-Stroke | | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 |
|-------------------|------------------------|-----------------|------------------|------|------|------|------|------|------|-------|
| Cylinder capacity | Push | cm ³ | 14.1 | 28.1 | 42.2 | 56.3 | 70.4 | 84.4 | 98.5 | 112.6 |
| | Pull | cm ³ | 10.3 | 20.6 | 30.9 | 41.2 | 51.5 | 61.8 | 72.1 | 82.4 |
| CA | | mm | 28 | 28 | 48 | 48 | 68 | 68 | 88 | 88 |
| CB | | mm | 18 | 8 | 18 | 8 | 18 | 8 | 18 | 8 |
| øCC | | mm | 12 | | | | | | | |
| CD | | mm | M8×1.25 depth 15 | | | | | | | |
| Mass | TE : Female thread rod | kg | 2.2 | 2.1 | 2.5 | 2.5 | 2.8 | 2.8 | 3.2 | 3.1 |
| | PE : Pin rod | kg | 2.2 | 2.1 | 2.5 | 2.5 | 2.8 | 2.8 | 3.2 | 3.1 |
| | ME : Male thread rod | kg | 2.2 | 2.2 | 2.6 | 2.5 | 2.9 | 2.9 | 3.2 | 3.2 |

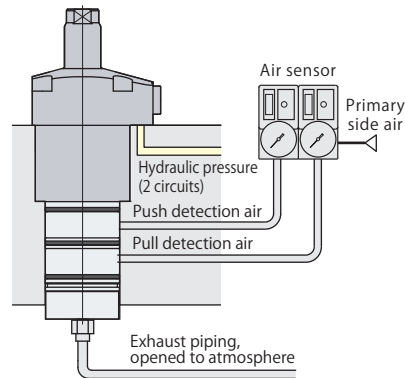
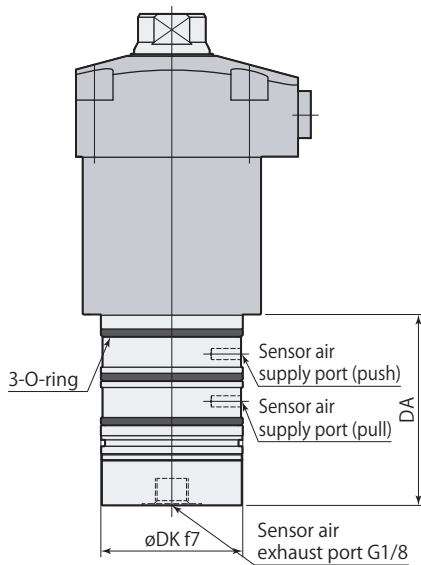
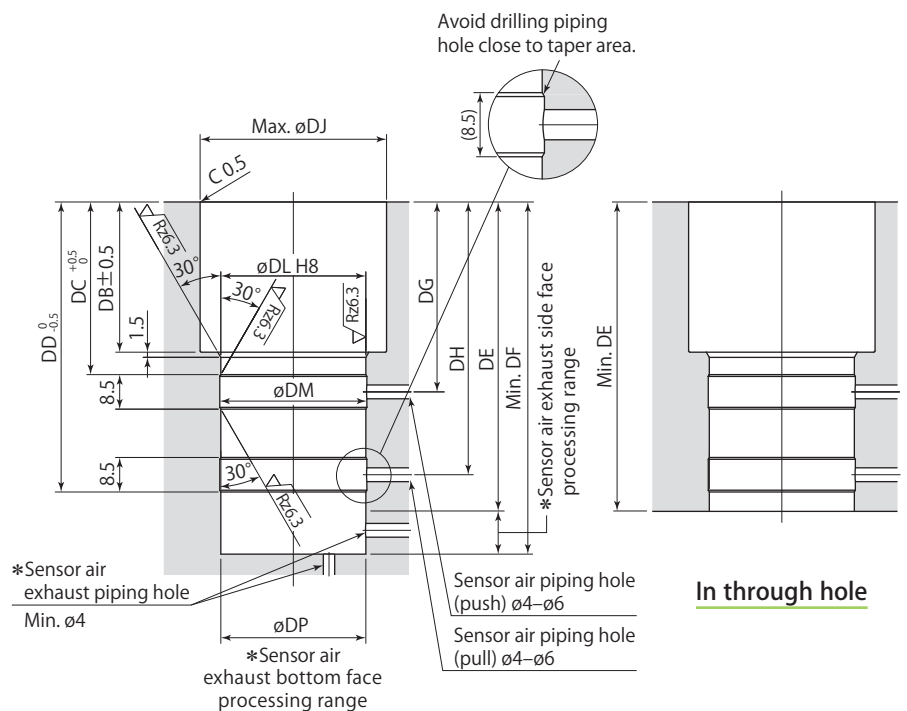
● Stroke 10, 30, 50 and 70 use spacers.

| CNA16-Stroke | | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 |
|-------------------|------------------------|-----------------|------------------|------|------|------|-------|-------|-------|-------|
| Cylinder capacity | Push | cm ³ | 23.5 | 47.0 | 70.5 | 94.0 | 117.5 | 141.0 | 164.5 | 188.0 |
| | Pull | cm ³ | 17.6 | 35.1 | 52.7 | 70.2 | 87.8 | 105.4 | 122.9 | 140.5 |
| CA | | mm | 28 | 28 | 48 | 48 | 68 | 68 | 88 | 88 |
| CB | | mm | 18 | 8 | 18 | 8 | 18 | 8 | 18 | 8 |
| øCC | | mm | 12 | | | | | | | |
| CD | | mm | M8×1.25 depth 15 | | | | | | | |
| Mass | TE : Female thread rod | kg | 3.4 | 3.3 | 3.9 | 3.8 | 4.3 | 4.3 | 4.8 | 4.8 |
| | PE : Pin rod | kg | 3.4 | 3.3 | 3.9 | 3.8 | 4.4 | 4.3 | 4.9 | 4.8 |
| | ME : Male thread rod | kg | 3.5 | 3.4 | 3.9 | 3.9 | 4.4 | 4.4 | 4.9 | 4.9 |

● Stroke 10, 30, 50 and 70 use spacers.

| CNA25-Stroke | | | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|-------------------|------------------------|-----------------|------------------|-------|-------|-------|-------|-------|-------|-------|
| Cylinder capacity | Push | cm ³ | 72.9 | 109.4 | 145.9 | 182.4 | 218.8 | 255.3 | 291.8 | 328.3 |
| | Pull | cm ³ | 57.2 | 85.8 | 114.3 | 142.9 | 171.5 | 200.1 | 228.7 | 257.3 |
| CA | | mm | 38 | 38 | 58 | 58 | 78 | 78 | 98 | 98 |
| CB | | mm | 18 | 8 | 18 | 8 | 18 | 8 | 18 | 8 |
| øCC | | mm | 16 | | | | | | | |
| CD | | mm | M10×1.5 depth 18 | | | | | | | |
| Mass | TE : Female thread rod | kg | 6.3 | 6.2 | 7.2 | 7.0 | 7.9 | 7.8 | 8.7 | 8.7 |
| | PE : Pin rod | kg | 6.4 | 6.3 | 7.2 | 7.1 | 8.0 | 7.9 | 8.8 | 8.7 |
| | ME : Male thread rod | kg | 6.6 | 6.6 | 7.4 | 7.4 | 8.3 | 8.2 | 9.1 | 9.0 |

● Stroke 20, 40, 60, and 80 use spacers.

Usage exampleDimensionsMounting detailsIn through holeIn blind hole

Rz: ISO4287(1997)

- This diagram depicts shape of female thread rod.
- Exhaust port must be opened to atmosphere. If sensor is embedded in a jig, prepare an exhaust piping hole. Furthermore, provide the piping if there is a risk of coolant or metal chips intrusion. Use one-touch fittings manufactured by SMC for G port piping. (See SMC catalog for the details of the fitting.)
- Apply an appropriate amount of grease to the chamfer and the bore when mounting. Excessive grease may be a blockage in the air passage, causing malfunction of the sensor.
- The 30° taper machining must be provided to avoid the damage of the O-ring. Ensure that there are no interference on taper area when drilling the hole for sensor air.
- Refer to specifications (**page →84**), dimensions (**pages →76–83**) for specifications and dimensions that are not shown in the diagram.
- CNA□-□□A (Air sensor) is made to order.

| CNA02-Stroke | | 10 | 15 | 20 | 30 | 40 | 50 |
|--------------|-----------------------|--|-----|--|-----|------|-----|
| DA | mm | 41 | | 56 | | 76 | |
| DB | mm | 29 | | 44 | | 64 | |
| DC | mm | 35.5 | | 50.5 | | 70.5 | |
| DD | mm | 58 | | 73 | | 93 | |
| DE | mm | 64.5 | | 79.5 | | 99.5 | |
| DF | mm | 73 | | 103 | | 143 | |
| DG | mm | 40 | | 55 | | 75 | |
| DH | mm | 53.5 | | 68.5 | | 88.5 | |
| øDJ | mm | | | 40 | | | |
| øDK | mm | | | 38 ^{-0.025} _{-0.050} | | | |
| øDL | mm | | | 38 ^{+0.039} ₀ | | | |
| øDM | mm | | | 38.6 | | | |
| øDP | mm | | | 38 | | | |
| O-ring | | AS568-028 (fluorocarbon hardness Hs70) | | | | | |
| Mass | TA :Female thread rod | kg | 0.8 | | 1.0 | | 1.2 |
| | PA :Pin rod | kg | 0.8 | | 1.0 | | 1.2 |
| | MA :Male thread rod | kg | 0.9 | | 1.0 | | 1.2 |

| CNA04-Stroke | | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 | |
|--------------|-----------------------|--|-----|-------|-----|--|-----|-------|-----|-----|
| DA | mm | 43.5 | | 56.5 | | 76.5 | | 96.5 | | |
| DB | mm | 32 | | 47 | | 67 | | 87 | | |
| DC | mm | 38.5 | | 53.5 | | 73.5 | | 93.5 | | |
| DD | mm | 61 | | 76 | | 96 | | 116 | | |
| DE | mm | 67.5 | | 82.5 | | 102.5 | | 122.5 | | |
| DF | mm | 78.5 | | 106.5 | | 146.5 | | 186.5 | | |
| DG | mm | 43 | | 58 | | 78 | | 98 | | |
| DH | mm | 56.5 | | 71.5 | | 91.5 | | 111.5 | | |
| øDJ | mm | | | | | 48 | | | | |
| øDK | mm | | | | | 42 ^{-0.025} _{-0.050} | | | | |
| øDL | mm | | | | | 42 ^{+0.039} ₀ | | | | |
| øDM | mm | | | | | 42.6 | | | | |
| øDP | mm | | | | | 42 | | | | |
| O-ring | | AS568-029 (fluorocarbon hardness Hs70) | | | | | | | | |
| Mass | TA :Female thread rod | kg | 1.1 | 1.1 | 1.4 | 1.3 | 1.6 | 1.6 | 1.9 | 1.9 |
| | PA :Pin rod | kg | 1.1 | 1.1 | 1.4 | 1.3 | 1.6 | 1.6 | 1.9 | 1.9 |
| | MA :Male thread rod | kg | 1.2 | 1.2 | 1.4 | 1.4 | 1.7 | 1.6 | 1.9 | 1.9 |

| CNA06-Stroke | | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 | |
|--------------|-----------------------|--|-----|------|-----|--|-----|-------|-----|-----|
| DA | mm | 43.5 | | 56.5 | | 76.5 | | 96.5 | | |
| DB | mm | 32.5 | | 47.5 | | 67.5 | | 87.5 | | |
| DC | mm | 39 | | 54 | | 74 | | 94 | | |
| DD | mm | 61.5 | | 76.5 | | 96.5 | | 116.5 | | |
| DE | mm | 68 | | 83 | | 103 | | 123 | | |
| DF | mm | 79 | | 107 | | 147 | | 187 | | |
| DG | mm | 43.5 | | 58.5 | | 78.5 | | 98.5 | | |
| DH | mm | 57 | | 72 | | 92 | | 112 | | |
| øDJ | mm | | | | | 54 | | | | |
| øDK | mm | | | | | 42 ^{-0.025} _{-0.050} | | | | |
| øDL | mm | | | | | 42 ^{+0.039} ₀ | | | | |
| øDM | mm | | | | | 42.6 | | | | |
| øDP | mm | | | | | 42 | | | | |
| O-ring | | AS568-029 (fluorocarbon hardness Hs70) | | | | | | | | |
| Mass | TA :Female thread rod | kg | 1.4 | 1.3 | 1.6 | 1.6 | 1.9 | 1.9 | 2.2 | 2.2 |
| | PA :Pin rod | kg | 1.4 | 1.3 | 1.6 | 1.6 | 1.9 | 1.9 | 2.2 | 2.2 |
| | MA :Male thread rod | kg | 1.4 | 1.4 | 1.7 | 1.6 | 2.0 | 2.0 | 2.3 | 2.3 |

| CNA10-Stroke | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | |
|--------------|-----------------------|--|-----|------|-----|-------|-----|-------|-----|-----|
| DA | mm | 47.5 | | 67.5 | | 87.5 | | 107.5 | | |
| DB | mm | 38.5 | | 58.5 | | 78.5 | | 98.5 | | |
| DC | mm | 45 | | 65 | | 85 | | 105 | | |
| DD | mm | 67.5 | | 87.5 | | 107.5 | | 127.5 | | |
| DE | mm | 74 | | 94 | | 114 | | 134 | | |
| DF | mm | 89 | | 129 | | 169 | | 209 | | |
| DG | mm | 49.5 | | 69.5 | | 89.5 | | 109.5 | | |
| DH | mm | 63 | | 83 | | 103 | | 123 | | |
| øDJ | mm | 64 | | | | | | | | |
| øDK | mm | 45 ^{-0.025} _{-0.050} | | | | | | | | |
| øDL | mm | 45 ^{+0.039} ₀ | | | | | | | | |
| øDM | mm | 45.6 | | | | | | | | |
| øDP | mm | 45 | | | | | | | | |
| O-ring | | AS568-030 (fluorocarbon hardness Hs70) | | | | | | | | |
| Mass | TA :Female thread rod | kg | 2.6 | 2.5 | 3.0 | 2.9 | 3.4 | 3.3 | 3.8 | 3.7 |
| | PA :Pin rod | kg | 2.6 | 2.5 | 3.0 | 2.9 | 3.4 | 3.3 | 3.8 | 3.7 |
| | MA :Male thread rod | kg | 2.6 | 2.6 | 3.1 | 3.0 | 3.5 | 3.4 | 3.9 | 3.8 |

| CNA16-Stroke | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | |
|--------------|-----------------------|--|-----|-------|-----|-------|-----|-------|-----|-----|
| DA | mm | 47.5 | | 67.5 | | 87.5 | | 107.5 | | |
| DB | mm | 40 | | 60 | | 80 | | 100 | | |
| DC | mm | 46.5 | | 66.5 | | 86.5 | | 106.5 | | |
| DD | mm | 69 | | 89 | | 109 | | 129 | | |
| DE | mm | 75.5 | | 95.5 | | 115.5 | | 135.5 | | |
| DF | mm | 90.5 | | 130.5 | | 170.5 | | 210.5 | | |
| DG | mm | 51 | | 71 | | 91 | | 111 | | |
| DH | mm | 64.5 | | 84.5 | | 104.5 | | 124.5 | | |
| øDJ | mm | 79 | | | | | | | | |
| øDK | mm | 45 ^{-0.025} _{-0.050} | | | | | | | | |
| øDL | mm | 45 ^{+0.039} ₀ | | | | | | | | |
| øDM | mm | 45.6 | | | | | | | | |
| øDP | mm | 45 | | | | | | | | |
| O-ring | | AS568-030 (fluorocarbon hardness Hs70) | | | | | | | | |
| Mass | TA :Female thread rod | kg | 4.0 | 3.9 | 4.5 | 4.4 | 5.1 | 5.0 | 5.6 | 5.5 |
| | PA :Pin rod | kg | 4.0 | 3.9 | 4.5 | 4.5 | 5.1 | 5.0 | 5.6 | 5.6 |
| | MA :Male thread rod | kg | 4.1 | 4.1 | 4.7 | 4.6 | 5.2 | 5.2 | 5.8 | 5.7 |

| CNA25-Stroke | | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | |
|--------------|-----------------------|--|-----|-------|-----|-------|-----|-------|-----|-----|
| DA | mm | 58.5 | | 78.5 | | 98.5 | | 118.5 | | |
| DB | mm | 51 | | 71 | | 91 | | 111 | | |
| DC | mm | 57.5 | | 77.5 | | 97.5 | | 117.5 | | |
| DD | mm | 80 | | 100 | | 120 | | 140 | | |
| DE | mm | 86.5 | | 106.5 | | 126.5 | | 146.5 | | |
| DF | mm | 112.5 | | 152.5 | | 192.5 | | 232.5 | | |
| DG | mm | 62 | | 82 | | 102 | | 122 | | |
| DH | mm | 75.5 | | 95.5 | | 115.5 | | 135.5 | | |
| øDJ | mm | 101 | | | | | | | | |
| øDK | mm | 52 ^{-0.030} _{-0.060} | | | | | | | | |
| øDL | mm | 52 ^{+0.039} ₀ | | | | | | | | |
| øDM | mm | 52.6 | | | | | | | | |
| øDP | mm | 52 | | | | | | | | |
| O-ring | | AS568-032 (fluorocarbon hardness Hs70) | | | | | | | | |
| Mass | TA :Female thread rod | kg | 6.6 | 6.5 | 7.5 | 7.4 | 8.3 | 8.3 | 9.2 | 9.1 |
| | PA :Pin rod | kg | 6.6 | 6.5 | 7.5 | 7.4 | 8.4 | 8.3 | 9.3 | 9.2 |
| | MA :Male thread rod | kg | 6.9 | 6.8 | 7.8 | 7.7 | 8.7 | 8.6 | 9.6 | 9.5 |

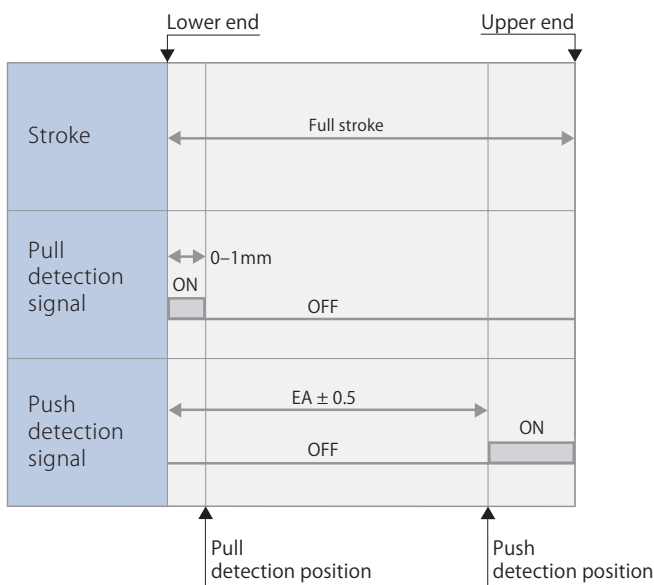
Air sensor

| | |
|--------------------------|---|
| Supplier and model | ISA3-G series manufactured by SMC GPS2-05 series manufactured by CKD |
| Air supply pressure | 0.2 MPa |
| Inner diameter of piping | ø4 mm |
| Overall piping length | 5 m or less |

- Supply the dry and filtered air. Particulate size 5 μm or less is recommended.
- Use a solenoid valve with needle for air sensor unit and control it supplying air all the time in order to eliminate intrusion of chips or coolant.

- There is a case that air sensing cannot be successfully made as designed when it is used out of the usage shown on the left. Contact Technical service center for more details.
- Refer to the sensor supplier's instruction manual for the details of setting.
- Sensing performance such as detectable time and pressure differs depending on the supplier and model number of the sensor. Select the right model referring to sensor's application and characteristics.
- Maximum 6 pieces of clamp can be detected at 0.2MPa air pressure by means of 1 piece of sensor. In case of 0.1MPa air pressure, maximum 3 piece of clamp are detectable.

Air sensor triggering point



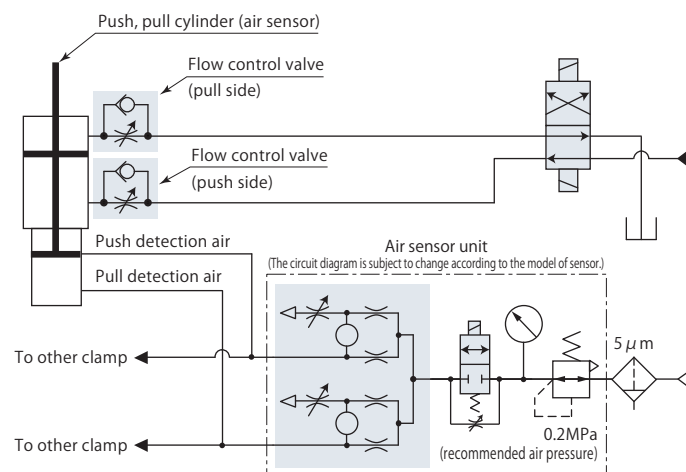
| CNA02-Stroke | | 10 | 15 | 20 | 30 | 40 | 50 |
|-------------------------|--------|----|----|----|----|----|----|
| Push detection position | EA(A1) | 9 | 14 | 19 | 29 | 39 | 49 |
| | EA(A3) | 7 | 12 | 17 | 27 | 37 | 47 |
| | EA(A5) | 5 | 10 | 15 | 25 | 35 | 45 |

| CNA04-CNA06-Stroke | | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 |
|-------------------------|--------|----|----|----|----|----|----|----|----|
| Push detection position | EA(A1) | 9 | 14 | 19 | 29 | 39 | 49 | 59 | 69 |
| | EA(A3) | 7 | 12 | 17 | 27 | 37 | 47 | 57 | 67 |
| | EA(A5) | 5 | 10 | 15 | 25 | 35 | 45 | 55 | 65 |

| CNA10-CNA16-Stroke | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 |
|-------------------------|--------|----|----|----|----|----|----|----|----|
| Push detection position | EA(A1) | 9 | 19 | 29 | 39 | 49 | 59 | 69 | 79 |
| | EA(A3) | 7 | 17 | 27 | 37 | 47 | 57 | 67 | 77 |
| | EA(A5) | 5 | 15 | 25 | 35 | 45 | 55 | 65 | 75 |

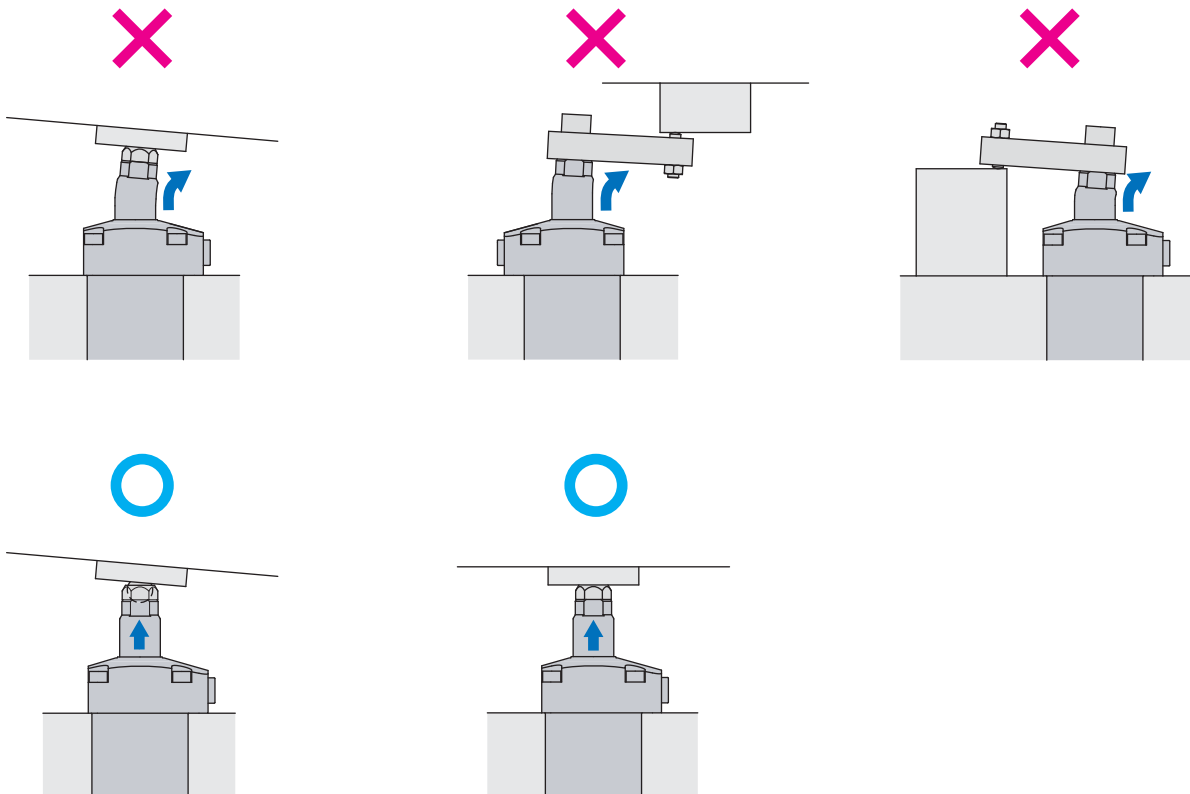
| CNA25-Stroke | | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|-------------------------|--------|----|----|----|----|----|----|----|----|
| Push detection position | EA(A1) | 19 | 29 | 39 | 49 | 59 | 69 | 79 | 89 |
| | EA(A3) | 17 | 27 | 37 | 47 | 57 | 67 | 77 | 87 |
| | EA(A5) | 15 | 25 | 35 | 45 | 55 | 65 | 75 | 85 |

Hydraulic and pneumatic circuit diagram



Caution in use

Please avoid the usage that may apply eccentric load and non-axial force to the piston rod.
This may break the piston rod.

Female thread rod and male thread rod CNA□-□T, □MPin rod CNA□-□P