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# EXCEL INDUSTRIES

QUALITY WITH INTEGRITY

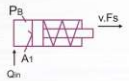
ISO 9001-2015

## Points to be remember

*Formulas & description*

*where,*

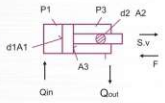
- $Q = V/t$
- $V = A.s$
- $F = p.A$
- $P = F/A$
- $Q = A.v$
- $M = V.p/2\pi$
- $v = s/t$




F: force
p: pressure
A: area
Q: flow
v: speed
V: volume
t: time

**Single acting hydraulic cylinder**

- $V[m/s] = s[ms]/1000t[s]$
- $A[mm^2] = \pi d^2/4\ [mm]$
- $F_s[N] = -0.1 . p_B[bar] . A[mm^2]$.
- $P_B[bar] = -10 F_s[N]/A_1[mm^2]$
- $Q_{in}[lpm] = 0.06 . A[mm^2] . v\ [m/s]$

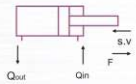



s: travel(stroke)
d:piston diameter
$F_S$: force
$Q_{in}$: inflow
$P_B$: operating pressure
v: piston speed

**Double acting hydraulic cylinder**

**Extending**

- $A_1 = \pi d_1^2/4 = 0.78 d_1^2$
- $A_3 = \pi(d_1^2 - d_2^2)/4$
- $P_1 . A_1 = P_3 . A_3 - F$
- $P_1 = (P_3.A_3 \quad F)/A_1$
- $Q_{in} = A_1 . v$
- $Q_{out} = A_3 . V$




$A_1$:piston area
$d_1$.piston
$A_3$: rod area
$d_2$: rod
F: force
$P_1$: pressure, piston s

ide

$P_3$: result back of pressure from pipes & valves for $Q_{out}$

**simplified**

- $P_1[bar] = \frac{P_3[bar].A_3[mm^2] - 10F[N]}{A_1[mm^2]}$

$$F[N] = \frac{-P_1[bar] . A_1[mm^2] + P_3[bar] . A_3[mm^2]}{10}$$

**Refracting**

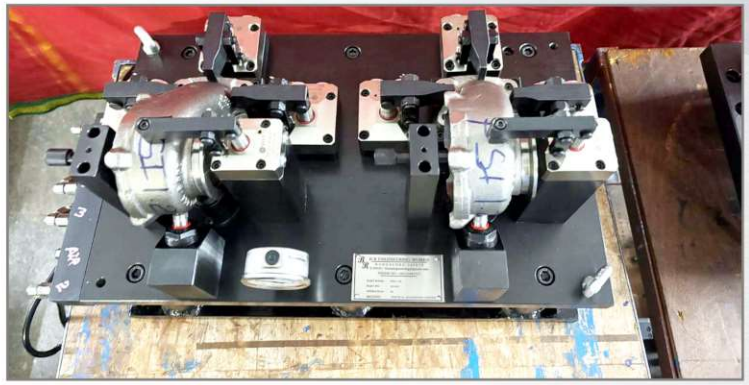
- $Q_{out} = A_1 . V$
- $Q_{in} = A_3 . v$
- $P_1 . A_1 = P_3 . A_3 + F$

$A_1$:piston area
$d_1$.piston
$A_3$: rod area

- $P_1[bar] = \frac{P_3[bar].A_3[mm^2] - 10F[N]}{A_3[mm^2]}$

$$F[N] = \frac{P_1[bar] . A_1[mm^2] - P_3[bar] . A_3[mm^2]}{10}$$

| Nominclature | Codings | Unit | Factor | Unit |
|---|---|---|---|---|
| Pressure | P | 1 N/mm² | 10 | bar |
| | | 1 MPa | 10 | |
| | | 1kgf/cm² | 1 | |
| | | 1 psi | 0.07 | |
| Force | F | 1 kg.m/s2 | 1 | N |
| | | 1 lbf | 4.45 | |



# Index



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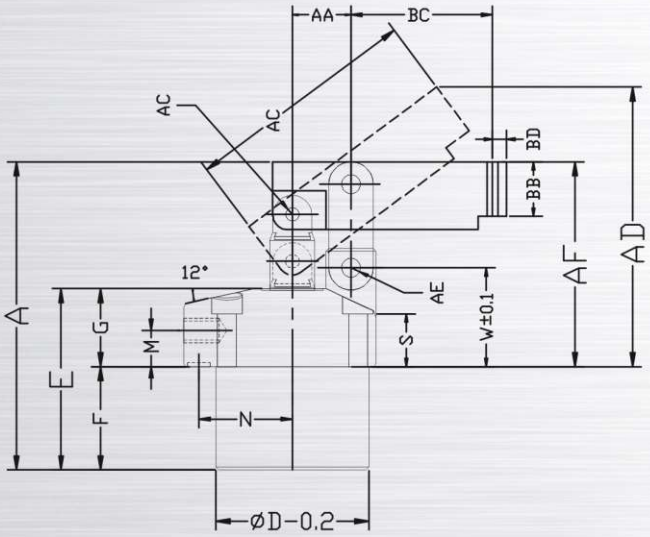
**Product Code : TC-01**

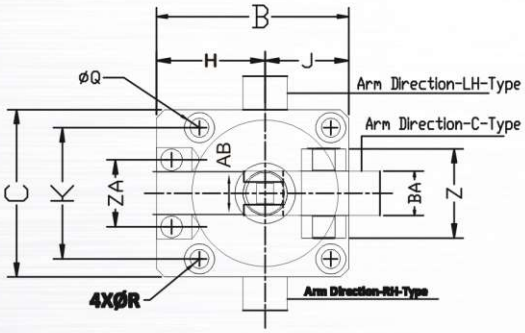

# Toggle Clamp Cylinder

## Features:

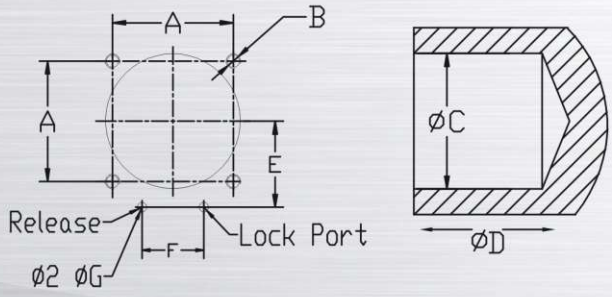
- This is a double acting cylinder with link clamp.
- It is a Chromium plated piston rod with alloy steel body.
- It is hydraulic & centre port configuration.
- These cylinders can be used for clamping of clock wise (RH) & counter clock wise direction (LH).
- It can be used in the range of 15 MPa (minimum operating pressure)
  150 MPa ( maximum operating pressure)
  70 bar N (pushing force)

## External Dimension Drawing :




## Machining Dimension Drawing For Mounting Cylinder :



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## External Dimension Table:

All dimensions in mm

| Model No. | C | TC01-360-C | TC01-400-C | TC01-480-C | TC01-550-C | TC01-650-C | TC01-750-C | TC01-900-C | TC01-1050-C |
|---|---|---|---|---|---|---|---|---|---|
| | RH | TC01-361-R | TC01-401-R | TC01-481-R | TC01-551-R | TC01-651-R | TC01-751-R | TC01-901-R | TC01-1051-R |
| | LH | TC01-362-L | TC01-402-L | TC01-482-L | TC01-552-L | TC01-652-L | TC01-752-L | TC01-902-L | TC01-1052-L |
| BORE DIA | | Ø22 | Ø25 | Ø30 | Ø35 | Ø45 | Ø55 | Ø65 | Ø80 |
| A | | 79 | 87.5 | 101 | 112.5 | 129.5 | 153 | 182 | 211 |
| B | | 51 | 55 | 61 | 69 | 81 | 94.5 | 111 | 127 |
| C | | 42 | 45 | 51 | 60 | 70 | 85 | 100 | 120 |
| ØD | | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 |
| E | | 54 | 56 | 62 | 66 | 74 | 87 | 101 | 117 |
| F | | 29 | 31 | 34 | 37 | 43.5 | 49 | 61 | 65 |
| G | | 25 | 25 | 28 | 28 | 30 | 38 | 40 | 50 |
| H | | 30 | 32 | 35.5 | 39 | 46 | 52 | 61 | 67 |
| J | | 21 | 23 | 25.5 | 30 | 35 | 42.5 | 50 | 60 |
| K | | 31.5 | 34 | 40 | 47 | 55 | 63 | 75 | 88 |
| L | | 70 | 74 | 83 | 88 | 106 | 116 | 136 | 152 |
| M | | 11.70 | 10.70 | 11.50 | 13.50 | 13 | 19.50 | 20 | 22.50 |
| N | | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 |
| P | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 |
| Q | | 7.5 | 9.5 | 9.5 | 11 | 11 | 14 | 17.5 | 20 |
| ØR | | 4.5 | 5.6 | 5.5 | 6.8 | 6.8 | 9 | 11 | 14 |
| S | | 15 | 18 | 18 | 19 | 20 | 22 | 22 | 26 |
| T | | 27 | 30.5 | 35 | 37.5 | 45 | 55 | 65.5 | 77 |
| U | | 10 | 12 | 14 | 16 | 18 | 22 | 28 | 35.5 |
| V | | 22.5 | 25 | 29 | 31.5 | 37 | 45 | 52 | 62 |
| W | | 30 | 30.5 | 34.5 | 35.5 | 39 | 48 | 52.5 | 64 |
| X | | 20 | 22 | 26 | 30 | 35.5 | 43.5 | 52.5 | 64 |
| Y | | 10 | 12 | 13 | 16 | 19 | 25 | 28 | 32 |
| Z | | 19 | 21 | 21 | 28 | 37 | 40 | 49 | 64 |
| ZA | | 16 | 18 | 22 | 24 | 30 | 32 | 37 | 45 |
| Hyd. Port | | G1/8" | G1/8" | G1/8" | G1/8" | G1/4" | G1/4" | G1/4" | G3/8" |
| AA | | 14.5 | 16 | 18.5 | 21 | 24.5 | 30 | 36 | 44 |
| AB | | 5 | 6 | 6 | 8 | 10 | 11 | 13 | 16 |
| ØAC | | 5 | 6 | 6 | 6 | 8 | 10 | 12 | 15 |
| ØAE | | 5 | 6 | 6 | 8 | 10 | 12 | 15 | 18 |
| AD | | 83 | 89 | 92.4 | 101.9 | 111.4 | 130.8 | 146.5 | 173.6 |
| AF | | 43 | 44.5 | 51 | 53.5 | 59 | 72 | 81 | 98 |
| AG | | 18.9 | 19.6 | 19.9 | 20.2 | 20.5 | 21.4 | 22.4 | 23.1 |
| AH | | 5 | 6 | 4.3 | 4.7 | 4.3 | 4.5 | 5 | 4.1 |
| BA | | 10 | 12 | 12 | 16 | 19 | 22 | 25 | 32 |
| BB | | 12.5 | 14 | 16 | 20 | 25 | 32 | 38 | 45 |
| BC | | 14.5 | 16 | 23.5 | 29 | 32 | 37.5 | 41.5 | 21 |
| BD | | 10.5 | 13 | 6 | 8 | 10 | 11 | 14 | 17 |

## Specification Table :

| Lock Cyl. Area (cm) | | 3.8 | 4.9 | 7.07 | 9.62 | 15.9 | 23.7 | 33.2 | 44.2 |
|---|---|---|---|---|---|---|---|---|---|
| Full Stroke mm | | 18.5 | 20 | 23.5 | 26 | 29.5 | 35 | 41 | 49 |
| Locking Stroke mm | | 15.5 | 17 | 20.5 | 23 | 26.5 | 32 | 38 | 46 |
| Extra Stroke mm | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cyl. volume | Lock cm3 | 5.9 | 8.33 | 14.5 | 22.13 | 42.14 | 75.85 | 126.2 | 203.35 |
| | Release cm3 | 4.7 | 6.4 | 11.33 | 17.5 | 35.4 | 63.8 | 102.6 | 157.7 |
| Max operating Pressure (Mpa) | | 15 | | | | | | | |
| Min operating Pressure (Mpa) | | 150 | | | | | | | |
| Design Pressure (Mpa) | | 10.5 | | | | | | | |
| Temperature (0C) | | 0-70 | | | | | | | |
| Weight (Kg) | | 0.72 | 1.15 | 1.50 | 1.80 | 2.50 | 4.20 | 6.50 | 10.20 |

## Machining Dimension Table For Mounting Cylinder :

| Model No. | C | TC01-360-C | TC01-400-C | TC01-480-C | TC01-550-C | TC01-650-C | TC01-750-C | TC01-900-C | TC01-1050-C |
|---|---|---|---|---|---|---|---|---|---|
| | RH | TC01-361-R | TC01-401-R | TC01-481-R | TC01-551-R | TC01-651-R | TC01-751-R | TC01-901-R | TC01-1051-R |
| | LH | TC01-362-L | TC01-402-L | TC01-482-L | TC01-552-L | TC01-652-L | TC01-752-L | TC01-902-L | TC01-1052-L |
| A | | 31.4 | 34 | 40 | 47 | 55 | 63 | 75 | 88 |
| B | | M4 | M5 | M5 | M6 | M6 | M8 | M10 | M12 |
| C+0.2 | | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 |
| D | | 30 | 32 | 35 | 38 | 44.5 | 48 | 62 | 66 |
| E | | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 |
| F | | 16 | 18 | 22 | 24 | 30 | 32 | 37 | 45 |
| G | | 2.5 | 2.5 | 3 | 3 | 3 | 3 | 3 | 4 |



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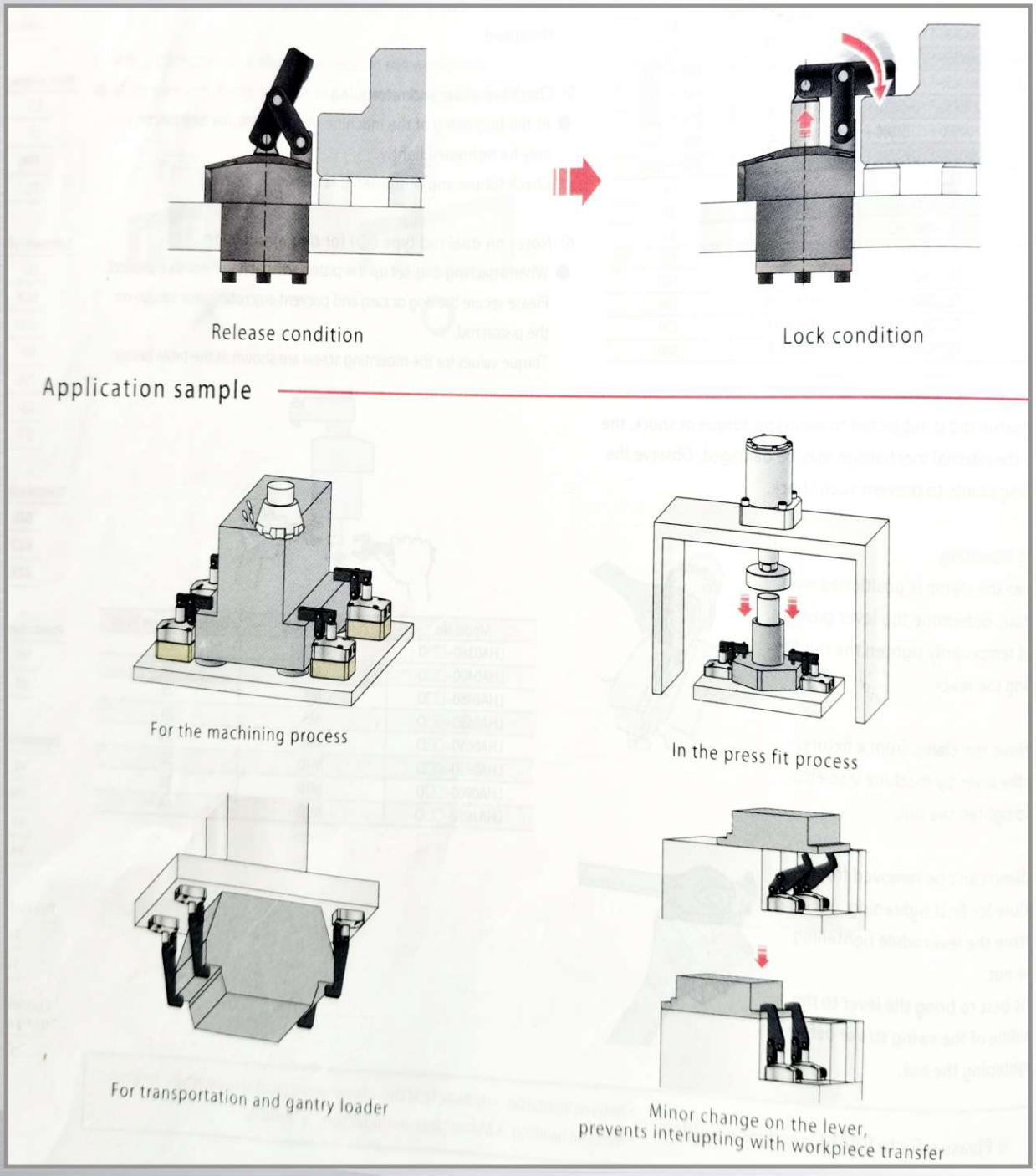
# Action Description



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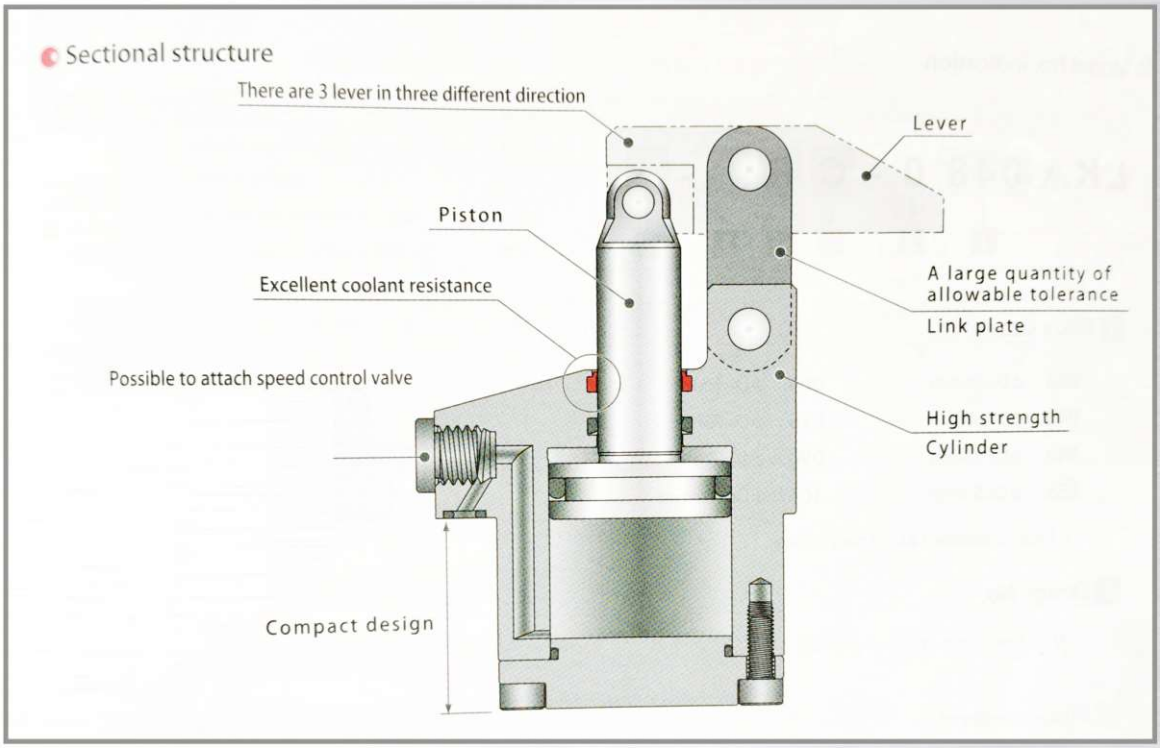
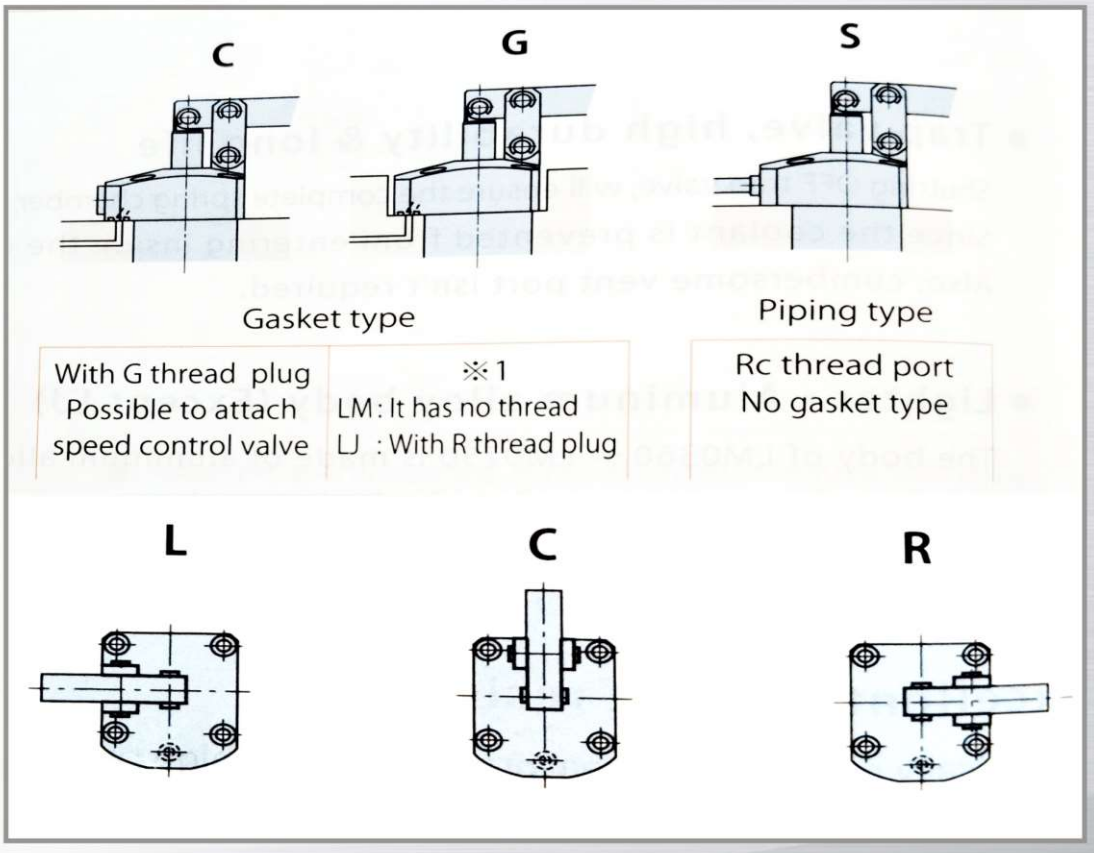
# Action Description



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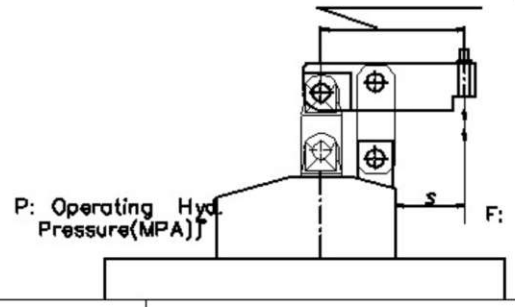
# Toggle Clamp Force Calculation Formula

**Clamping Force Curve. standard Type.**

L: Lever Length (MM)




*Note–*

1–this table show the relation between clamping force and operating hyd pressure

2–cylinder out put (when l=0)canot be calculated from the calculation formulaof clamping force.

3–non useable reange can demage the clamp and lead to fluid leakag.

*1–F: clamping force(KN), P:Oerating hydraulic pressure(MPA).. L: Lever length in (MM)

4 This table only rereference the exact result should be calculated based onthe formula

| TC01–360 | Clamping force calculation formula (KN) F=(5.90XP)/(L–14.5) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) maximum–L=60MM<br>Lever Length (MM) No use reange | | | | | | | |
| (MPA) | (KN) | L=22 | L=27.5 | L=33.5 | L=40 | L=50 | L=60 | L=80 | L=100 |
| 70–Bar | 3.00 | ▬ | ▬ | 2.1 | 1.5 | 1.0 | 0.9 | 0.5 | 0.3 |

| TC01–40 | Clamping force calculation formula (KN) F=(7.64XP)/(L–16) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) maximum–L=70MM<br>Lever Length (MM) No use reange | | | | | | | |
| (MPA) | (KN) | L=25 | L=30 | L=36 | L=40 | L=50 | L=60 | L=80 | L=100 |
| 70–Bar | 3.5 | ▬ | ▬ | 2.5 | 2.3 | 1.6 | 1.2 | 0.9 | 0.7 |

| TC01–480 | Clamping force calculation formula (KN) F=(11.76XP)/(L–18.5) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) maximum–L=80MM<br>Lever Length (MM) No use reange | | | | | | | |
| (MPA) | (KN) | L=30 | L=35 | L=42 | L=50 | L=60 | L=80 | L=100 | L=120 |
| 70–Bar | 5.00 | ▬ | ▬ | 3.5 | 2.5 | 1.8 | 1.2 | 1.0 | 0.8 |

| TC01–550 | Clamping force calculation formula (KN) F=(18.18XP)/(L–21) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) maximum–L=90MM<br>Lever Length (MM) No use reange | | | | | | | |
| (MPA) | (KN) | L=35 | L=40 | L=50 | L=60 | L=70 | L=80 | L=100 | L=120 |
| 70–Bar | 6.5 | ▬ | ▬ | 4.2 | 3.2 | 2.5 | 2.1 | 1.5 | 1.2 |



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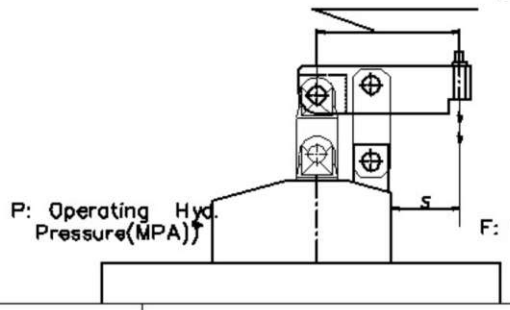
# Toggle Clamp Force Calculation Formula

Clamping Force Curve. standard Type.

L: Lever Length (MM)




*Note—*

1—this table show the relation between clamping force and operating hyd pressure

2—cylinder out put (when l=0)cannot be calculated from the calculation formulaof clamping force.

3—non useable reange can demage the clamp and lead to fluid leakag.

*1—F: clamping force(KN), P: Oerating hydraulic pressure(MPA), L: Lever length in (MM)

4. This table only rereference the exact result should be. calculated based onthe formula.

| TC01—650 | Clamping force calculation formula (KN) F=(35.06XP)/(L—24.5) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) maximum—L=100MM | | | | | | | |
| | | Lever Length (MM) No use reange | | | | | | | |
| (MPA) | (KN) | L=40 | L=50 | L=56.2 | L=80 | L=100 | L=120 | L=150 | L=160 |
| 70—Bar | 11.0 | ▬ | ▬ | 7.5 | 4.4 | 3.2 | 2.5 | 2.1 | 1.5 |

| TC01—75 | Clamping force calculation formula (KN) F=(64.14XP)/(L—30) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) maximum—L=110MM | | | | | | | |
| | | Lever Length (MM) No use reange | | | | | | | |
| (MPA) | (KN) | L=50 | L=60 | L=67.5 | L=80 | L=100 | L=120 | L=140 | L=160 |
| 70—Bar | 16.5 | ▬ | ▬ | 12.0 | 9.0 | 6.5 | 5.0 | 4.0 | 3.2 |

| TC01—900 | Clamping force calculation formula (KN) F=(117X66XP)/(L—36) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) maximum—L=150MM | | | | | | | |
| | | Lever Length (MM) No use reange | | | | | | | |
| (MPA) | (KN) | L=60 | L=70 | L=77.5 | L=100 | L=120 | L=140 | L=160 | L=200 |
| 70—Bar | 25.5 | ▬ | ▬ | 19.5 | 12.5 | 9.6 | 7.8 | 6.5 | 5..0 |

| TC01—105 | Clamping force calculation formula (KN) F=(199.05XP)/(L—44) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) maximum—L=200MM | | | | | | | |
| | | Lever Length (MM) No use reange | | | | | | | |
| (MPA) | (KN) | L=70 | L=80 | L=95 | L=110 | L=130 | L=150 | L=170 | L=230 |
| 70—Bar | 35.0 | ▬ | ▬ | 27.0 | 21.0 | 16.0 | 13.0 | 11.0 | 7.2 |



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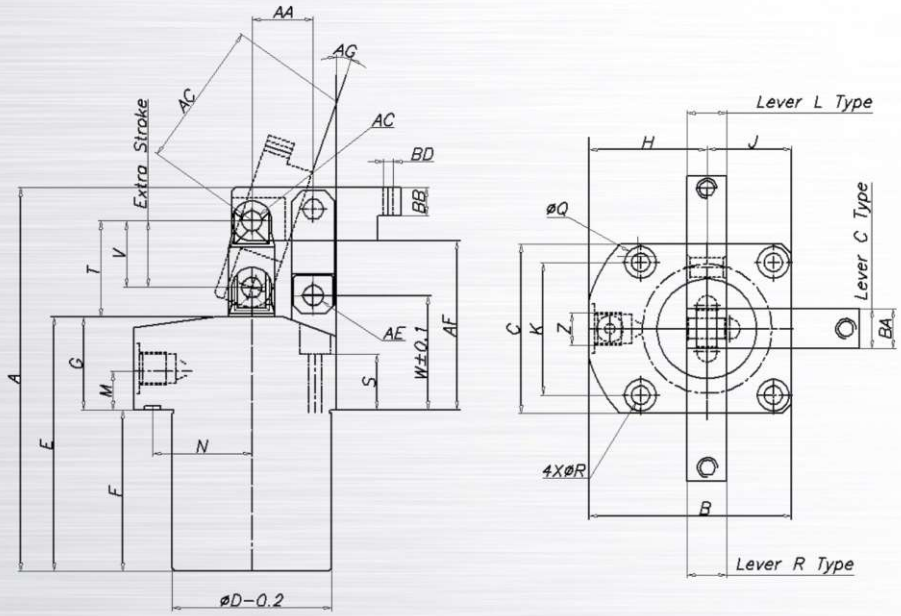
# Toggle Single Acting Cylinder

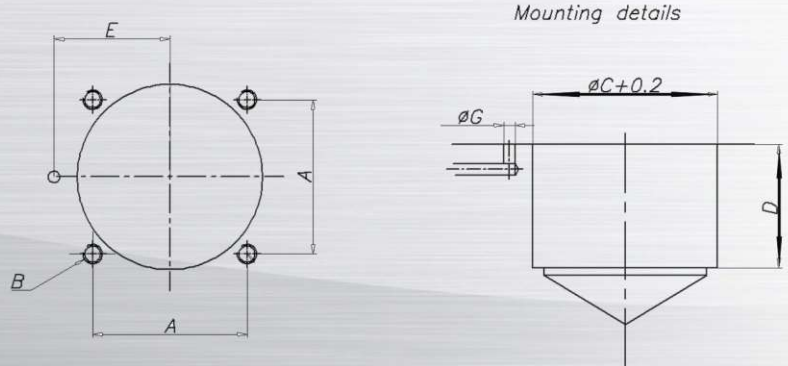
## Features:

- This is a Single acting cylinder with link clamp.
- It is a Chromium plated piston rod with alloy steel body.
- It is hydraulic & centre port configuration.
- These cylinders can be used for clamping of clock wise (RH) & counter clock wise direction (LH).
- It can be used in the range of 15 MPa (minimum operating pressure)
  150 MPa ( maximum operating pressure)
  70 bar N (pushing force)

## External Dimension Drawing :




## Machining Dimension Drawing For Mounting Cylinder :



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## External Dimension Table:

All dimensions in mm

| Model No. | C | TSAC01-360-C | TSAC01-400-C | TSAC01-480-C | TSAC01-550-C | TSAC01-650-C | TSAC01-750-C | | |
|---|---|---|---|---|---|---|---|---|---|
| | RH | TSAC01-361-R | TSAC01-401-R | TSAC01-481-R | TSAC01-551-R | TSAC01-651-R | TSAC01-751-R | | |
| | LH | TSAC01-362-L | TSAC01-402-L | TSAC01-482-L | TSAC01-552-L | TSAC01-652-L | TSAC01-752-L | | |
| BORE DIA | | Ø22 | Ø25 | Ø30 | Ø35 | Ø45 | Ø55 | | |
| A | | 88 | 102 | 156 | 132 | 157 | 186 | | |
| B | | 51 | 55 | 61 | 69 | 81 | 94.5 | | |
| C | | 42 | 45 | 51 | 60 | 70 | 85 | | |
| ØD | | 36 | 40 | 48 | 55 | 65 | 75 | | |
| E | | 64 | 70 | 76.5 | 86 | 104 | 118 | | |
| F | | 38.5 | 45 | 48.6 | 57 | 73.5 | 80 | | |
| G | | 25 | 25 | 28 | 28 | 30 | 38 | | |
| H | | 30 | 32 | 35.5 | 39 | 46 | 52 | | |
| J | | 21 | 23 | 25.5 | 30 | 35 | 42.5 | | |
| K | | 31.5 | 34 | 40 | 47 | 55 | 63 | | |
| L | | 70 | 74 | 83 | 88 | 106 | 116 | | |
| M | | 11 | 11 | 11 | 14 | 13 | 15 | | |
| N | | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | | |
| P | | 3 | 3 | 3 | 3 | 3 | 3 | | |
| Q | | 7.5 | 9.5 | 9.5 | 11 | 11 | 14 | | |
| ØR | | 4.5 | 5.6 | 5.5 | 6.8 | 6.8 | 9 | | |
| S | | 15 | 18 | 18 | 19 | 20 | 22 | | |
| T | | 27 | 30.5 | 35 | 37.5 | 45 | 55 | | |
| U | | 10 | 12 | 14 | 16 | 18 | 22 | | |
| V | | 22.5 | 25 | 29 | 31.5 | 37 | 45 | | |
| W | | 30 | 30.5 | 34.5 | 35.5 | 39 | 48 | | |
| X | | 20 | 22 | 26 | 30 | 35.5 | 43.5 | | |
| Y | | 10 | 12 | 13 | 16 | 19 | 25 | | |
| Z | | 19 | 21 | 21 | 28 | 37 | 40 | | |
| ZA | | 16 | 18 | 22 | 24 | 30 | 32 | | |
| Hyd. Port | | G1/8" | G1/8" | G1/8" | G1/8" | G1/4" | G1/4" | | |
| AA | | 14.5 | 16 | 18.5 | 21 | 24.5 | 30 | | |
| AB | | 5 | 6 | 6 | 8 | 10 | 11 | | |
| ØAC | | 5 | 6 | 6 | 6 | 8 | 10 | | |
| ØAE | | 5 | 6 | 6 | 8 | 10 | 12 | | |
| AD | | 83 | 89 | 92.4 | 101.9 | 111.4 | 130.8 | | |
| AF | | 43 | 44.5 | 51 | 53.5 | 59 | 72 | | |
| AG | | 18.9 | 19.6 | 19.9 | 20.2 | 20.5 | 21.4 | | |
| AH | | 5 | 6 | 4.3 | 4.7 | 4.3 | 4.5 | | |
| BA | | 10 | 12 | 12 | 16 | 19 | 22 | | |
| BB | | 12.5 | 14 | 16 | 20 | 25 | 32 | | |
| BC | | 14.5 | 16 | 23.5 | 29 | 32 | 37.5 | | |
| BD | | 10.5 | 13 | 6 | 8 | 10 | 11 | | |

## Specification Table :

| Lock Cyl. Area (cm) | | 3.8 | 4.9 | 7.07 | 9.62 | 15.9 | 23.7 | | |
|---|---|---|---|---|---|---|---|---|---|
| Full Stroke mm | | 18.5 | 20 | 23.5 | 26 | 29.5 | 35 | | |
| Locking Stroke mm | | 15.5 | 17 | 20.5 | 23 | 26.5 | 32 | | |
| Extra Stroke mm | | 3 | 3 | 3 | 3 | 3 | 3 | | |
| Cyl. volume | Lock cm3 | 5.9 | 8.33 | 14.5 | 22.13 | 42.14 | 75.85 | | |
| | Release cm3 | 4.7 | 6.4 | 11.33 | 17.5 | 35.4 | 63.8 | | |
| Max operating Pressure (Mpa) | | 15 | | | | | | | |
| Min operating Pressure (Mpa) | | 150 | | | | | | | |
| Design Pressure (Mpa) | | 10.5 | | | | | | | |
| Temperature (0C) | | 0-70 | | | | | | | |
| Weight (Kg) | | 0.72 | 1.15 | 1.50 | 1.80 | 2.50 | 4.20 | | |

## Machining Dimension Table For Mounting Cylinder :

| Model No. | C | TSAC01-360-C | TSAC01-400-C | TSAC01-480-C | TSAC01-550-C | TSAC01-650-C | TSAC01-750-C | | |
|---|---|---|---|---|---|---|---|---|---|
| | RH | TSAC01-361-R | TSAC01-401-R | TSAC01-481-R | TSAC01-551-R | TSAC01-651-R | TSAC01-751-R | | |
| | LH | TSAC01-362-L | TSAC01-402-L | TSAC01-482-L | TSAC01-552-L | TSAC01-652-L | TSAC01-752-L | | |
| A | | 31.4 | 34 | 40 | 47 | 55 | 63 | | |
| B | | M4 | M5 | M5 | M6 | M6 | M8 | | |
| C+0.2 | | 36 | 40 | 48 | 55 | 65 | 75 | | |
| D | | 39.5 | 46 | 49.6 | 58 | 76.5 | 81 | | |
| E | | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | | |
| F | | 16 | 18 | 22 | 24 | 30 | 32 | | |
| G | | 2.5 | 2.5 | 3 | 3 | 3 | 3 | | |



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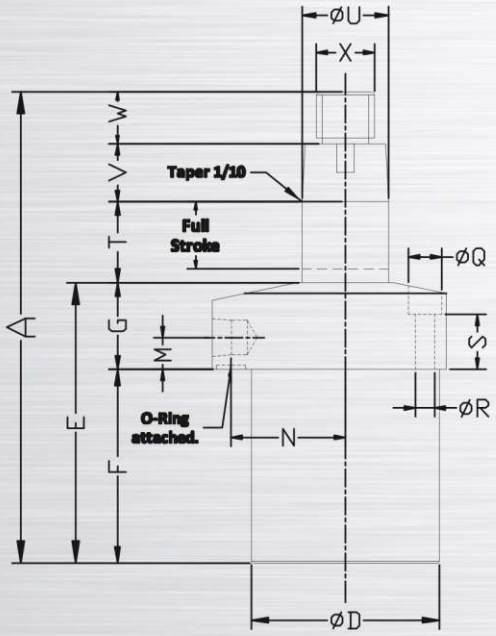
Product Code : SC-02

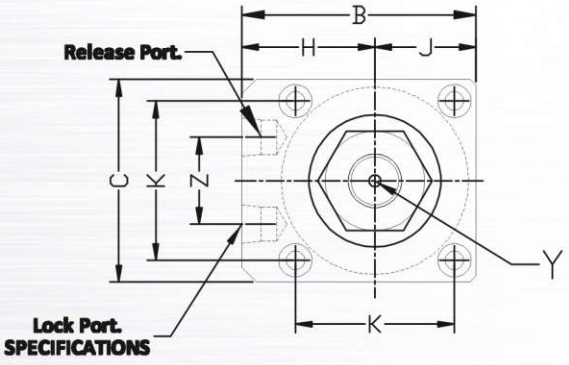

# Swing Cylinder (Top Mounting)

## Features:

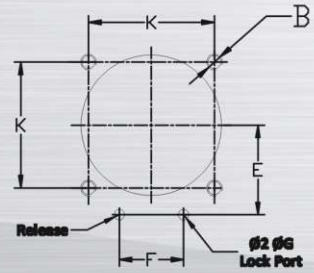
- This is a double acting cylinder with swing clamp.
- It is a Chromium plated piston rod with alloy steel body.
- It can be used with the rotation of 90°.
- These cylinders can be used for clamping of clock wise (RH) & counter clock wise direction (LH).
- It can be used in the range of 15 MPa (minimum operating pressure)
  150 MPa ( maximum operating pressure)
  70 bar N (pushing force)

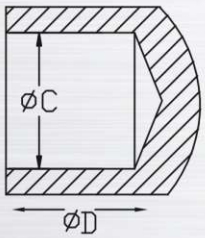
## External Dimension Drawing :




## Machining Dimension Drawing For Mounting Cylinder :



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## External Dimension Table:

All dimensions in mm

| Model No. | RH | SC02-361-R | SC02-401-R | SC02-481-R | SC02-551-R | SC02-651-R | SC02-751-R | SC02-901-R | SC02-1051-R |
|---|---|---|---|---|---|---|---|---|---|
| | LH | SC02-362-L | SC02-402-L | SC02-482-L | SC02-552-L | SC02-652-L | SC02-752-L | SC02-902-L | SC02-1052-L |
| BORE DIA | | Ø22 | Ø25 | Ø35 | Ø40 | Ø50 | Ø55 | Ø75 | Ø80 |
| A | | 114 | 128 | 141 | 159 | 163 | 195 | 215 | 263 |
| B | | 50 | 55 | 61 | 69 | 81 | 92 | 107 | 127 |
| C | | 41 | 46 | 51 | 60 | 70 | 80 | 95 | 120 |
| ØD | | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 |
| E | | 72 | 78.5 | 88.2 | 97 | 97.8 | 115.5 | 126 | 153 |
| F | | 45 | 53 | 58.5 | 68.2 | 67.3 | 78 | 85 | 102 |
| G | | 25 | 25.5 | 29.6 | 28.8 | 30.5 | 37.5 | 41 | 51 |
| H | | 29.5 | 32 | 35 | 39 | 46 | 52 | 59.5 | 67 |
| J | | 20.5 | 23 | 26 | 30 | 35 | 40 | 47.5 | 60 |
| K | | 31.5 | 34 | 40 | 47 | 55 | 63 | 75 | 88 |
| L | | 69 | 74 | 83 | 88 | 106 | 116 | 136 | 152 |
| M | | 14 | 11.7 | 12.7 | 10.7 | 12 | 18 | 18.7 | 29.80 |
| N | | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 |
| P | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 |
| Q | | 7.5 | 9.5 | 9.5 | 11 | 11 | 14.5 | 17.5 | 20 |
| R | | 4.5 | 5.5 | 5.5 | 6.6 | 6.6 | 9 | 11 | 14 |
| S | | 17 | 18 | 18 | 18.5 | 20 | 22 | 22 | 26 |
| T | | 21 | 22 | 23 | 25.6 | 28 | 36 | 36 | 47 |
| U | | 14 | 16 | 22 | 25 | 30 | 36 | 45 | 55 |
| V | | 9 | 12 | 14 | 20 | 20 | 26 | 32 | 38 |
| W | | 12 | 15 | 15 | 15 | 18 | 18 | 22 | 25 |
| X | | M10 X 1.5 | M12 X 1.5 | M16 X 1.5 | M16 X 1.5 | M20 X 1.5 | M30 X 1.5 | M36 X 1.5 | M45 X 1.5 |
| Y(Hex Depth) | | 5X4 | 6X5 | 6X6 | 8X6 | 10X8 | 10X10 | 10X10 | 12X10 |
| Z | | 16 | 18 | 22 | 24 | 30 | 32 | 37 | 45 |
| Hyd. Port | | G1/8" | G1/8" | G1/8" | G1/8" | G1/4" | G1/4" | G1/4" | G3/8" |
| Taper Angle | | 6° | 6° | 6° | 6° | 6° | 6° | 11° | 11° |

## Specification Table :

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lock Cyl. Area (cm) | | 2.03 | 2.36 | 5 | 8 | 14 | 19.7 | 31.2 | 40.7 |
| Full Stroke (90°rotation)mm | | 18 | 20 | 22 | 24 | 24 | 31 | 32 | 42 |
| Swing Stroke (90°rotation)mm | | 10 | 12 | 12 | 14 | 14 | 19 | 20 | 26 |
| Locking Stroke mm | | 3 | 3 | 10 | 10 | 10 | 12 | 12 | 16 |
| Cyl. volume | Lock cm3 | | | 7 | 13.2 | 25.2 | 42.3 | 102.6 | 151 |
| | Release cm3 | 4.9 | 6.38 | 12.5 | 20.9 | 37.1 | 68.7 | 127.8 | 199.5 |
| Max operating Pressure (Mpa) | | 150 | | | | | | | |
| Min operating Pressure (Mpa) | | 15 | | | | | | | |
| Design Pressure (Mpa) | | 10.5 | | | | | | | |
| Temperature (°C) | | 0-70 | | | | | | | |
| Weight (Kg) | | 0.80 | 1 | 1.30 | 1.80 | 2.70 | 4.20 | 5.50 | 9 |

## Machining Dimension Table For Mounting Cylinder :

| Model No. | RH | SC02-361-R | SC02-401-R | SC02-481-R | SC02-551-R | SC02-651-R | SC02-751-R | SC02-901-R | SC02-1051-R |
|---|---|---|---|---|---|---|---|---|---|
| | LH | SC02-362-L | SC02-402-L | SC02-482-L | SC02-552-L | SC02-652-L | SC02-752-L | SC02-902-L | SC02-1052-L |
| K | | 31.5 | 34 | 40 | 47 | 55 | 63 | 75 | 88 |
| B | | M4 | M5 | M5 | M6 | M6 | M8 | M10 | M12 |
| C+0.2 | | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 |
| D | | 46 | 54 | 59.5 | 69 | 68 | 79 | 86 | 103 |
| E | | 23.5 | 26 | 26 | 33.5 | 39.5 | 45 | 52.5 | 60 |
| F | | 16 | 18 | 22 | 24 | 30 | 32 | 37 | 45 |
| G | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 |



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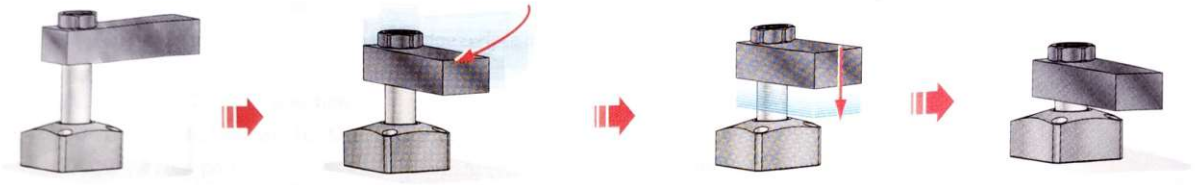
# Action Description



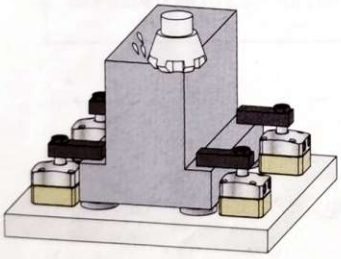
Before swinging
(Release condition)

The lever descends as it swings
(For LHS, lever swings parallel)

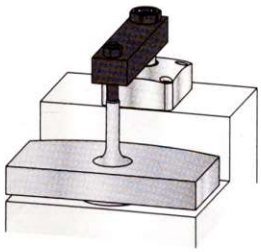
After completing swing,
it descends vertically

Action completed
(Lock condition)

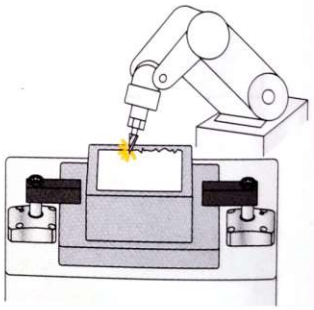
## Application sample



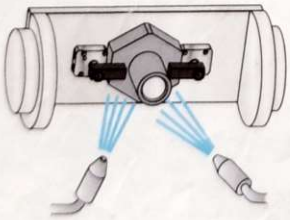
For the machining process



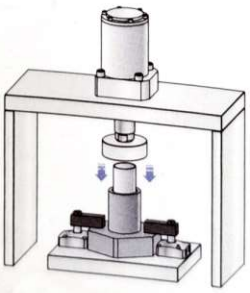
For the area where repeatability
locating accuracy is needed



For deburing



For the cleaning process



In the press fit process



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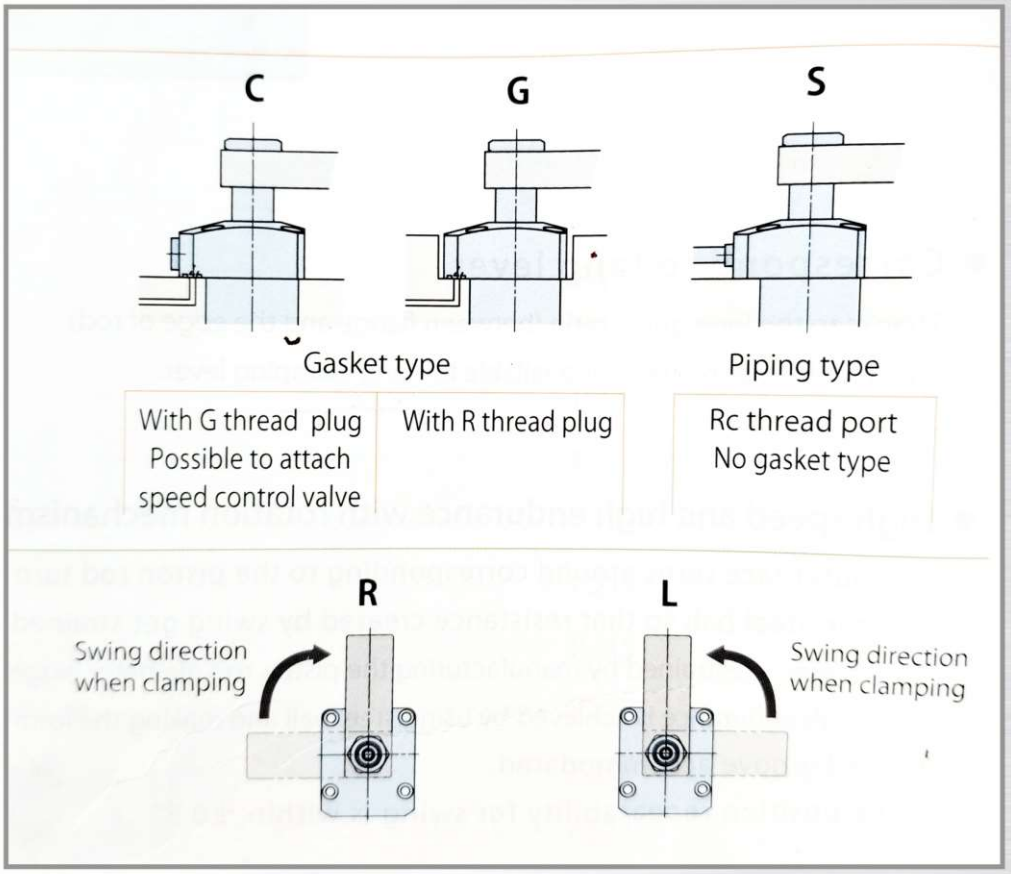
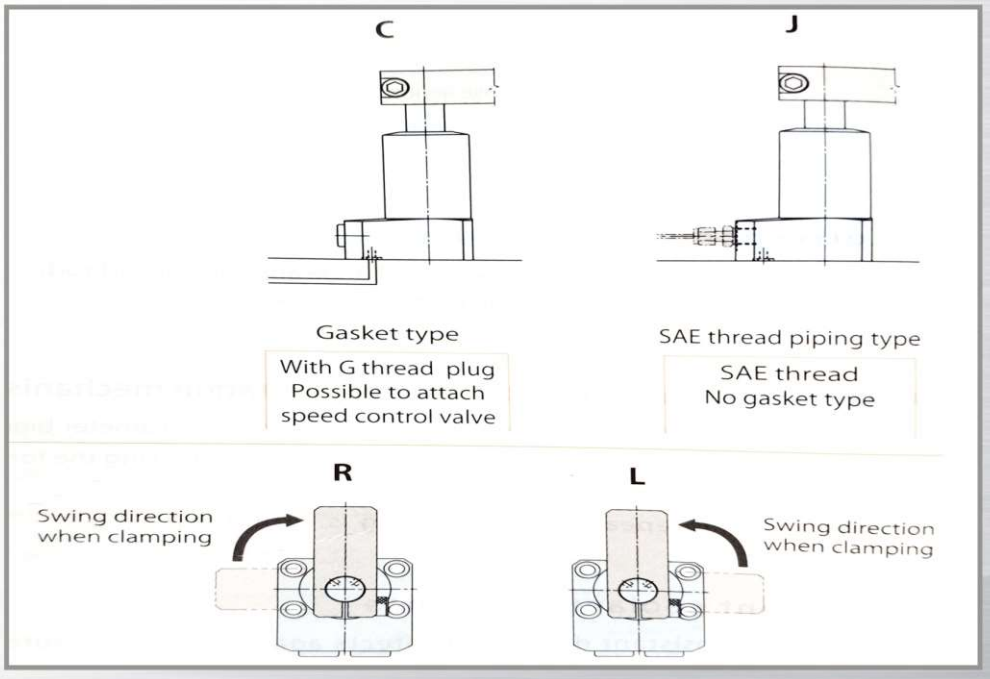
# Piping Method Top




# Piping Method BM



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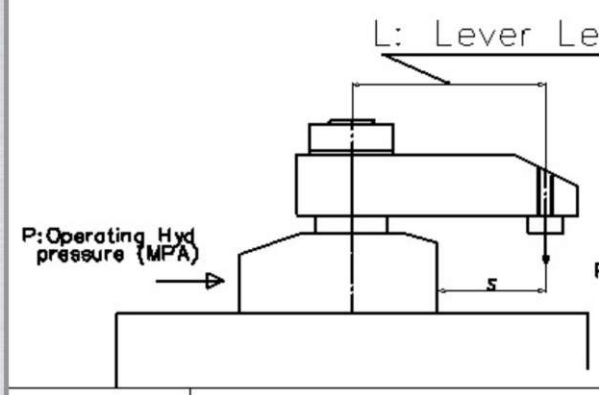
# Swing Clamp Force Calculation Formula

**Clamping Force Curve. standard Type.**




***Note—*** 1-this table show the relation between clamping force and operating hyd pressure

2-cylinder out put (when!=0)canot be calculated from the calculation formulaof clamping force

3-non useable reange can demage the clamp and lead to fluid leakag.

*1-F: clamping force(KN). P:Oerating hydraulic pressure(MPA).. L: Lever length in (MM)

4.This table only rereference the exact result should be calculated based onthe formula.

| ***SC02-360*** | Clamping force calculation formula (KN)F=P(1-0.0021XL)/(2.9379+0.0052XL) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) | | | | | | | maximum-L=50MM |
| | | Lever Length (MM) | | | | | No use reange | | |
| (MPA) | (KN) | L=30 | L=40 | L=50 | L=60 | L=80 | L=100 | L=120 | L=150 |
| 70-Bar | 2.3 | 2.0 | 1.9 | 1.6 | 1.3 | 1.0 | | | |

| ***SC02-400*** | Clamping force calculation formula (KN) F=(P(1-0.0016XL/(2.0920+0.0040XL) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) | | | | | | | maximum-L=55MM No use reange |
| | | Lever Length (MM) | | | | | | | |
| (MPA) | (KN) | L=40 | L=50 | L=60 | L=70 | L=80 | L=100 | L=120 | L=150 |
| 70-Bar | 3.2 | 2.8 | 2.6 | 2.5 | 2.2 | 1.6 | 1.0 | 0.9 | |

| ***SC02-480*** | Clamping force calculation formula (KN) F=(P(1-0.0009XL)/(1.4892+0.0018XL) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) | | | | | | | maximum-L=65MM |
| | | Lever Length (MM) | | | | | | No use reange | |
| (MPA) | (KN) | L=50 | L=60 | L=80 | L=100 | L=120 | L=140 | L=160 | L=200 |
| 70-Bar | 4.8 | 4.2 | 4.1 | 4.0 | 3.8 | 3.6 | 3.3 | | |

| ***SC02-550*** | Clamping force calculation formula (KN) F=(P1-0.0011XL)/(1.0039+0.0011XL) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) | | | | | | | maximum-L=75MM |
| | | Lever Length (MM) | | | | | | No use reange | |
| (MPA) | (KN) | L=50 | L=60 | L=80 | L=100 | L=120 | L=140 | L=160 | L=200 |
| 70-Bar | 7.2 | 6.2 | 6.0 | 5.7 | 5.3 | 5.1 | 4.8 | | |



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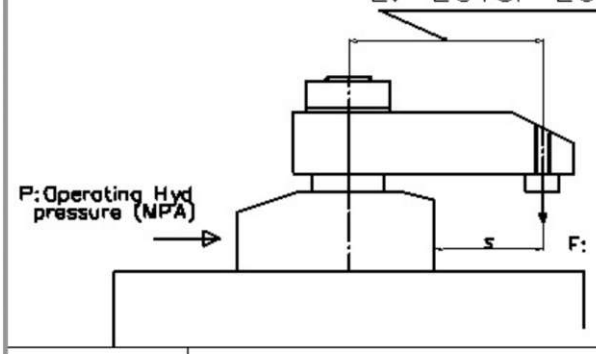
# Swing Clamp Force Calculation Formula

**Clamping Force Curve. standard Type.**




***Note*** – 1–this table show the relation between clamping force and operating hyd pressure

2–cylinder out put (when l=0)canot be calculated from the calculation formuloof clamping force.

3–non useable reange can demage the clamp and lead to fluid leakag.

*1–F: clamping force(KN), P: Oerating hydraulic pressure(MPA)., L: Lever length in (MM)

4.This table only rereference the exact result should be. calculated bosed onthe formula.

| ***SC02–650*** | Clamping force calculation formula (KN) F=P(1–0.1119XL)/(0.7822+0.0010XL) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) maximum–L=90 | | | | | | | |
| | | Lever Length (MM) No use reange | | | | | | | |
| (MPA) | (KN) | L=50 | L=60 | L=80 | L=100 | L=120 | L=140 | L=160 | L=200 |
| 70–Bar | 9.3 | 8.0 | 7.5 | 7.2 | 6.9 | | | | |

| ***SC02–750*** | Clamping force calculation formula (KN) F=P(1–0.0007XL)/(0.5175+0.0006XL) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) maximum–L=100MM | | | | | | |
| | | Lever Length (MM) No use reange | | | | | | |
| (MPA) | (KN) | L=50 | L=60 | L=80 | L=100 | L=120 | L=140 | L=160 | L=200 |
| 70–Bar | 14.2 | 12.4 | 12.0 | 11.5 | 11.0 | 10.8 | 10.0 | | |

| ***SC02–900*** | Clamping force calculation formula (KN) F=P(1–0.0009XL)/(0.3547+0.0004XL) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) maximum–L=120 | | | | | | |
| | | Lever Length (MM) No use reange | | | | | | |
| (MPA) | (KN) | L=60 | L=75 | L=100 | L=120 | L=140 | L=170 | L=200 | L=250 |
| 70–Bar | 20.62 | 17.0 | 16.9 | 16.0 | 15.2 | 14.0 | 13.9 | 13.0 | |

| ***SC02–105*** | Clamping force calculation formula (KN) F=P(1–0.0008XL)/(0.2495+0.0002XL) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Operating hydraulic pressure | Cylinder Force | Clamping Force(KN) maximum–L=150 | | | | | | |
| | | Lever Length (MM) No use reange | | | | | | |
| (MPA) | (KN) | L=80 | L=100 | L=120 | L=140 | L=170 | L=200 | L=250 | L=300 |
| 70–Bar | 28.90 | 24.5 | 23.5 | 23.0 | 22.2 | 21.0 | 20.0 | | |



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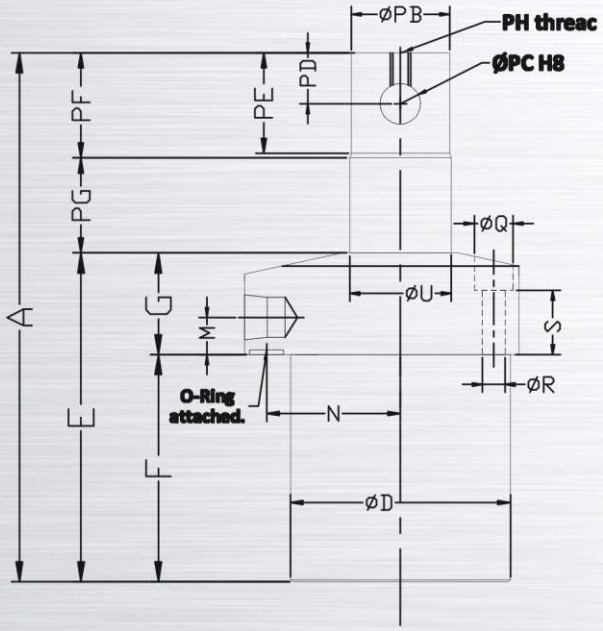
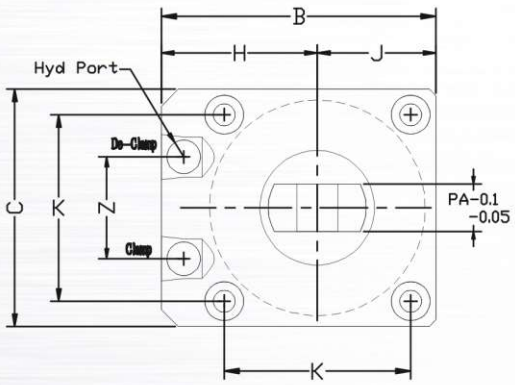
# Swing Cylinder (Top Mounting P Type)

## Features:

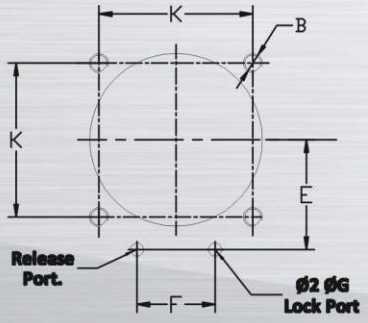
- This is a double acting cylinder with swing clamp.
- It is a Chromium plated piston rod with alloy steel body.
- It can be used with the rotation of 90°.
- These cylinders can be used for clamping of clock wise (RH) & counter clock wise direction (LH).
- It can be used in the range of 15 MPa (minimum operating pressure)
  150 MPa ( maximum operating pressure)
  70 bar N (pushing force)

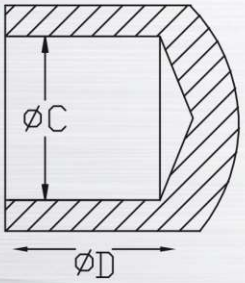
## External Dimension Drawing :




## Machining Dimension Drawing For Mounting Cylinder :



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## External Dimension Table:

All dimensions in mm

| Model No. | RH | SC02-361-RP | SC02-401-RP | SC02-481-RP | SC02-551-RP | SC02-651-RP | SC02-751-RP | SC02-901-RP | SC02-1051-RP |
|---|---|---|---|---|---|---|---|---|---|
| | LH | SC02-362-LP | SC02-402-LP | SC02-482-LP | SC02-552-LP | SC02-652-LP | SC02-752-LP | SC02-902-LP | SC02-1052-LP |
| BORE DIA | | Ø22 | Ø25 | Ø35 | Ø40 | Ø50 | Ø55 | Ø75 | Ø80 |
| A | | 110 | 119 | 136 | 141.5 | 156 | 189 | 205.5 | 254 |
| B | | 50 | 55 | 61 | 69 | 81 | 92 | 107 | 127 |
| C | | 41 | 46 | 52 | 60 | 70 | 80 | 95 | 120 |
| ØD | | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 |
| E | | 72 | 78.5 | 88.2 | 97 | 97.8 | 115.5 | 126 | 153 |
| F | | 45 | 53 | 58.6 | 68.2 | 67.3 | 78 | 85 | 102 |
| G | | 27 | 25.5 | 29.6 | 28.8 | 30.5 | 37.5 | 41 | 51 |
| H | | 29.5 | 32 | 35 | 39 | 46 | 52 | 59.5 | 67 |
| J | | 20.5 | 23 | 26 | 30 | 35 | 40 | 47.5 | 60 |
| K | | 31.5 | 34 | 40 | 47 | 55 | 63 | 75 | 88 |
| L | | 69 | 74 | 83 | 88 | 106 | 116 | 136 | 152 |
| M | | 12 | 12.5 | 14 | 18 | 18 | 24 | 24 | 31 |
| N | | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 |
| P | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 |
| Q | | 7.5 | 9 | 9.5 | 11 | 11 | 14.5 | 17.5 | 20 |
| R | | 4.5 | 5.5 | 5.5 | 6.6 | 6.6 | 9 | 11 | 14 |
| S | | 16 | 17 | 18 | 18.5 | 19 | 22 | 22 | 24.5 |
| U | | 14 | 16 | 22 | 25 | 30 | 36 | 45 | 55 |
| PG | | 21 | 21 | 24 | 28 | 29 | 32 | 33.5 | 44.5 |
| PF | | 17 | 20 | 25 | 30.5 | 32 | 41.5 | 46 | 56.5 |
| PE | | 16 | 18 | 23.5 | 29 | 30.5 | 38.5 | 44.5 | 53.5 |
| PH Thread | | M3 | M3 | M4 | M5 | M6 | M6 | M8 | M8 |
| PD | | 7 | 9 | 10 | 12 | 15 | 16.5 | 20 | 24 |
| ØPB | | 13 | 14.5 | 20 | 23 | 28 | 34 | 43 | 53 |
| ØPC H8 | | 6 | 6 | 8 | 10 | 12 | 12 | 16 | 20 |
| PA | | 7 | 8 | 10 | 12 | 14 | 16 | 22 | 26 |
| Z | | 16 | 18 | 22 | 24 | 30 | 32 | 37 | 45 |
| Hyd. Port | | G1/8" | G1/8" | G1/8" | G1/8" | G1/4" | G1/4" | G1/4" | G3/8" |

## Specification Table :

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lock Cyl. Area (cm) | | 2.6 | 3.07 | 5 | 8 | 14 | 19.7 | 31.2 | 40.7 |
| Full Stroke (90°rotation)mm | | 18 | 20 | 22 | 24 | 24 | 31 | 32 | 42 |
| Swing Stroke (90°rotation)mm | | 10 | 12 | 12 | 14 | 14 | 19 | 20 | 26 |
| Locking Stroke mm | | 8 | 8 | 10 | 10 | 10 | 12 | 16 | 17 |
| Cyl. volume | Lock cm3 | 4.8 | 7 | 7.3 | 13.2 | 25.2 | 42.3 | 102.6 | 151 |
| | Release cm3 | 7.2 | 10.9 | 12.5 | 20.9 | 37.1 | 68.7 | 127.8 | 199.5 |
| Max operating Pressure (Mpa) | | 150 | | | | | | | |
| Min operating Pressure (Mpa) | | 15 | | | | | | | |
| Design Pressure (Mpa) | | 10.5 | | | | | | | |
| Temperature (0C) | | 0-70 | | | | | | | |
| Weight (Kg) | | 0.70 | 0.9 | 1.30 | 1.80 | 2.70 | 4.20 | 5.50 | 9 |

## Machining Dimension Table For Mounting Cylinder :

| Model No. | RH | SC02-361-RP | SC02-401-RP | SC02-481-RP | SC02-551-RP | SC02-651-RP | SC02-751-RP | SC02-901-RP | SC02-1051-RP |
|---|---|---|---|---|---|---|---|---|---|
| | LH | SC02-362-LP | SC02-402-LP | SC02-482-LP | SC02-552-LP | SC02-652-LP | SC02-752-LP | SC02-902-LP | SC02-1052-LP |
| K | | 31.5 | 34 | 40 | 47 | 55 | 63 | 75 | 88 |
| B | | M4 | M5 | M5 | M6 | M6 | M8 | M10 | M12 |
| C+0.2 | | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 |
| D | | 46 | 54 | 59.5 | 69 | 68 | 79 | 86 | 103 |
| E | | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 |
| F | | 16 | 18 | 22 | 24 | 30 | 32 | 37 | 45 |
| G | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 |



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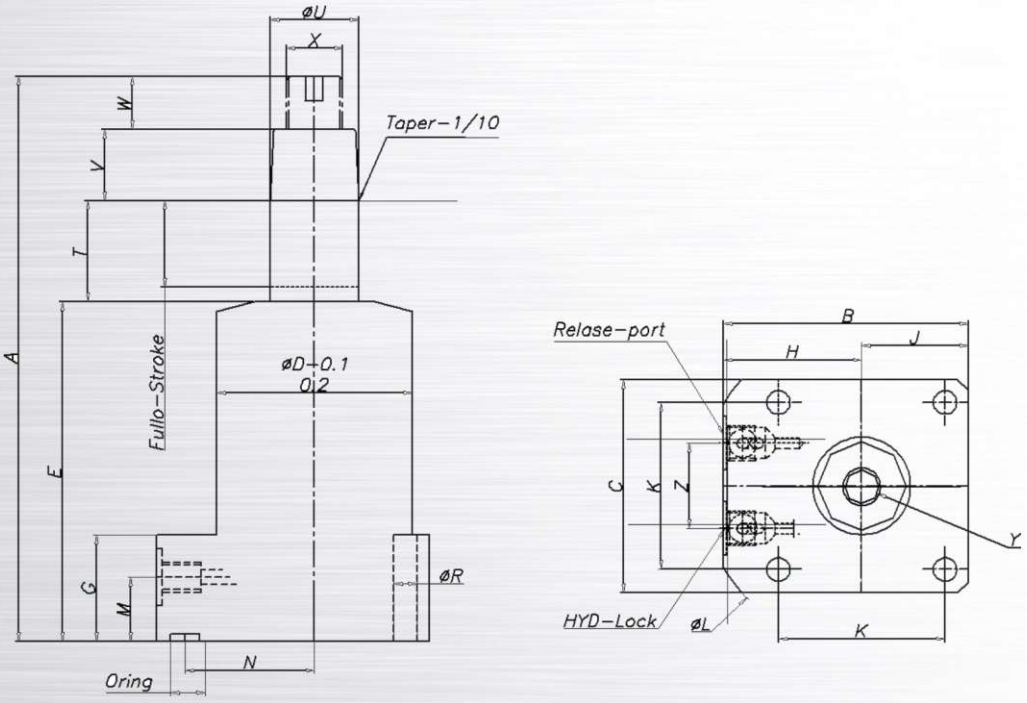
# Swing Cylinder (Bottom Mounting)

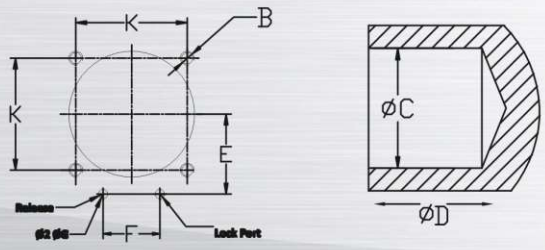
## Features:

- This is a double acting cylinder with swing clamp.
- It is a Chromium plated piston rod with alloy steel body.
- It can be used with the rotation of 90°.
- These cylinders can be used for clamping of clock wise (RH) & counter clock wise direction (LH).
- It can be used in the range of 15 MPa (minimum operating pressure)
  150 MPa ( maximum operating pressure)
  70 bar N (pushing force)

## External Dimension Drawing :




## Machining Dimension Drawing For Mounting Cylinder :



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## External Dimension Table:

All dimensions in mm

| Model No. | RH | SB03-361-R | SB03-401-R | SB03-481-R | SB03-551-R | SB03-651-R | SB03-751-R | SB03-901-R | SB03-1051-R |
|---|---|---|---|---|---|---|---|---|---|
| | LH | SB03-362-L | SB03-402-L | SB03-482-L | SB03-552-L | SB03-652-L | SB03-752-L | SB03-902-L | SB03-1052-L |
| BORE DIA | | Ø22 | Ø25 | Ø35 | Ø40 | Ø50 | Ø55 | Ø75 | Ø85 |
| A | | 116 | 127 | 136 | 159 | 163 | 194.5 | 215 | 262 |
| B | | 50 | 55 | 61 | 69 | 81 | 92 | 107 | 127 |
| C | | 41 | 46 | 52 | 60 | 70 | 80 | 95 | 120 |
| D | | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 |
| E | | 73.5 | 78.5 | 88 | 97 | 97.5 | 115.5 | 126 | 153 |
| F | | 48.5 | 50 | 58.5 | 66 | 67 | 77.5 | 84 | 100 |
| G | | 25 | 28 | 28 | 30 | 30 | 37 | 40 | 53 |
| H | | 29.5 | 32 | 35 | 39 | 46 | 52 | 59.5 | 67 |
| J | | 20.5 | 23 | 26 | 30 | 35 | 40 | 47.5 | 60 |
| K | | 31.5 | 34 | 40 | 47 | 55 | 63 | 75 | 88 |
| L | | 69 | 74 | 83 | 88 | 106 | 116 | 136 | 152 |
| M | | 14 | 15 | 16 | 18 | 18 | 19 | 24 | 31 |
| N | | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 |
| P | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 |
| Q | | 7.5 | 9.5 | 9.5 | 11 | 11 | 14.5 | 17.5 | 20 |
| R | | 4.5 | 5.5 | 5.5 | 6.6 | 6.6 | 9 | 11 | 14 |
| S | | 17 | 17 | 18 | 18 | 18.5 | 22 | 22 | 24.5 |
| T | | 22 | 22.5 | 25 | 28 | 29 | 36 | 36 | 46 |
| U | | 14 | 16 | 22 | 25 | 30 | 36 | 45 | 55 |
| V | | 9 | 12 | 14 | 20 | 20 | 26 | 32 | 38 |
| W | | 7 | 15 | 15 | 15 | 18 | 18 | 22 | 25 |
| X | | M10X1.5 | M12X1.5 | M16X1.5 | M16X1.5 | M20X1.5 | M30X1.5 | M36X1.5 | M45X1.5 |
| Y (Hex X Depth) | | 4X5 | 4X5 | 5X6 | 5X8 | 6X8 | 6X10 | 8X10 | 10X10 |
| Z | | 16 | 18 | 22 | 24 | 30 | 32 | 37 | 45 |
| Hyd. Port | | G1/8" | G1/8" | G1/8" | G1/8" | G1/4" | G1/4" | G1/4" | G3/8" |
| Taper Angle | | 6° | 6° | 6° | 6° | 6° | 6° | 11° | 11° |

## Specification Table :

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lock Cyl. Area (cm) | | 2.03 | 2.36 | 5 | 8 | 14 | 19.7 | 31.2 | 40.7 |
| Full Stroke (90°rotation)mm | | 18 | 20 | 22 | 24 | 24 | 31 | 32 | 42 |
| Swing Stroke (90°rotation)mm | | 10 | 12 | 12 | 14 | 14 | 19 | 20 | 26 |
| Locking Stroke mm | | 8 | 8 | 10 | 10 | 10 | 12 | 12 | 16 |
| Cyl. volume | Lock cm3 | 2.6 | 3.07 | 7 | 13.2 | 25.2 | 42.3 | 102.6 | 151 |
| | Release cm3 | 4.9 | 6.38 | 12.5 | 20.9 | 37.1 | 68.7 | 127.8 | 199.5 |
| Max operating Pressure (Mpa) | | 150 | | | | | | | |
| Min operating Pressure (Mpa) | | 15 | | | | | | | |
| Design Pressure (Mpa) | | 10.5 | | | | | | | |
| Temperature (0C) | | 0-70 | | | | | | | |
| Weight (Kg) | | 0.80 | 1 | 1.30 | 1.80 | 2.70 | 4.20 | 5.50 | 9 |

## Machining Dimension Table For Mounting Cylinder :

| Model No. | RH | SB03-361-R | SB03-401-R | SB03-481-R | SB03-551-R | SB03-651-R | SB03-751-R | SB03-901-R | SB03-1051-R |
|---|---|---|---|---|---|---|---|---|---|
| | LH | SB03-362-L | SB03-402-L | SB03-482-L | SB03-552-L | SB03-652-L | SB03-752-L | SB03-902-L | SB03-1052-L |
| K | | 31.5 | 34 | 40 | 47 | 55 | 63 | 75 | 88 |
| B | | M4 | M5 | M5 | M6 | M6 | M8 | M10 | M12 |
| C+0.2 | | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 |
| D | | 49.5 | 57 | 59.5 | 67 | 68 | 78.5 | 85 | 101 |
| E | | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 |
| F | | 16 | 18 | 22 | 24 | 30 | 32 | 37 | 45 |
| G | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 |



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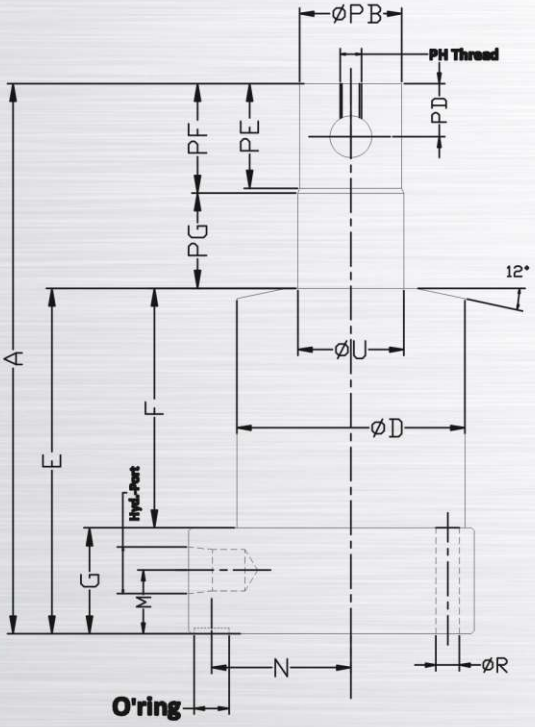
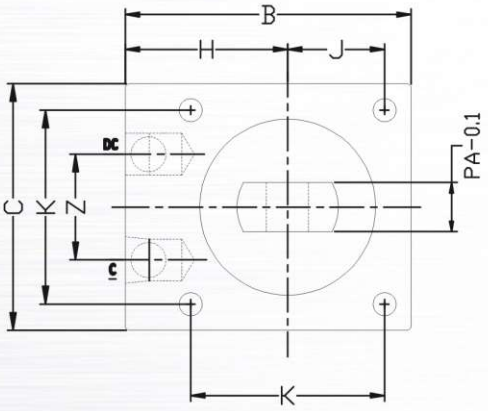
# Swing Cylinder (Bottom Mounting P Type)

## Features:

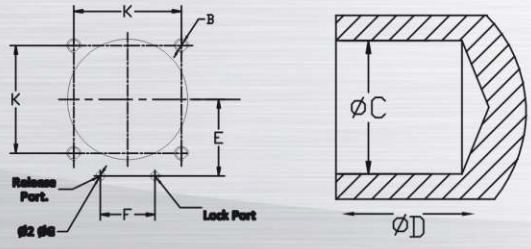
- This is a double acting cylinder with swing clamp.
- It is a Chromium plated piston rod with alloy steel body.
- It can be used with the rotation of 90°.
- These cylinders can be used for clamping of clock wise (RH) & counter clock wise direction (LH).
- It can be used in the range of 15 MPa (minimum operating pressure)
  150 MPa ( maximum operating pressure)
  70 bar N (pushing force)

## External Dimension Drawing :




## Machining Dimension Drawing For Mounting Cylinder :



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## External Dimension Table:

All dimensions in mm

| Model No. | RH | SB03-361-RP | SB03-401-RP | SB03-481-RP | SB03-551-RP | SB03-651-RP | SB03-751-RP | SB03-901-RP | SB03-1051-RP |
|---|---|---|---|---|---|---|---|---|---|
| | LH | SB03-362-LP | SB03-402-LP | SB03-482-LP | SB03-552-LP | SB03-652-LP | SB03-752-LP | SB03-902-LP | SB03-1052-LP |
| BORE DIA | | Ø22 | Ø25 | Ø35 | Ø40 | Ø50 | Ø55 | Ø75 | Ø80 |
| A | | 112 | 119 | 126 | 141.5 | 156 | 189 | 205.5 | 254 |
| B | | 50 | 55 | 61 | 69 | 81 | 92 | 107 | 127 |
| C | | 41 | 46 | 52 | 60 | 70 | 80 | 95 | 120 |
| ØD | | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 |
| E | | 73.5 | 78.5 | 88.2 | 97 | 97.8 | 115.5 | 126 | 153 |
| F | | 48.5 | 50 | 58.5 | 67 | 68 | 77.5 | 84 | 100 |
| G | | 25 | 28 | 28 | 30 | 30 | 37 | 40 | 53 |
| H | | 29.5 | 32 | 35 | 39 | 46 | 52 | 59.5 | 67 |
| J | | 20.5 | 23 | 26 | 30 | 35 | 40 | 47.5 | 60 |
| K | | 31.5 | 34 | 40 | 47 | 55 | 63 | 75 | 88 |
| L | | 69 | 74 | 83 | 88 | 106 | 116 | 136 | 152 |
| M | | 14.5 | 16 | 18 | 18 | 19 | 24 | 24 | 31 |
| N | | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 |
| P | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 |
| Q | | 7.5 | 9 | 9.5 | 11 | 11 | 14.5 | 17.5 | 20 |
| R | | 4.5 | 5.5 | 5.5 | 6.6 | 6.6 | 9 | 11 | 14 |
| S | | 15 | 16 | 17 | 18 | 18.5 | 22 | 22 | 24.5 |
| U | | 14 | 16 | 22 | 25 | 30 | 36 | 45 | 55 |
| PG | | 21 | 21 | 25 | 28 | 29 | 32 | 33.5 | 46 |
| PF | | 17 | 20 | 25 | 30.5 | 32 | 41.5 | 46 | 56.5 |
| PE | | 16 | 18 | 23.5 | 29 | 30.5 | 38.5 | 44.5 | 53.5 |
| PH Thread | | M3 | M3 | M4 | M5 | M6 | M6 | M8 | M8 |
| PD | | 7 | 9 | 10 | 12 | 15 | 16.5 | 20 | 24 |
| ØPB | | 13 | 14.5 | 20 | 23 | 28 | 34 | 43 | 53 |
| ØPC H8 | | 6 | 6 | 8 | 10 | 12 | 12 | 16 | 20 |
| PA | | 7 | 8 | 10 | 12 | 14 | 16 | 22 | 26 |
| Z | | 16 | 18 | 22 | 24 | 30 | 32 | 37 | 45 |
| Hyd. Port | | G1/8" | G1/8" | G1/8" | G1/8" | G1/4" | G1/4" | G1/4" | G3/8" |

## Dimension Specification Table:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lock Cyl. Area (cm) | | 2.6 | 3.07 | 5 | 8 | 14 | 19.7 | 31.2 | 40.7 |
| Full Stroke (90°rotation)mm | | 18 | 20 | 22 | 24 | 24 | 31 | 32 | 42 |
| Swing Stroke (90°rotation)mm | | 10 | 12 | 12 | 14 | 14 | 19 | 20 | 26 |
| Locking Stroke mm | | 8 | 8 | 10 | 10 | 10 | 12 | 16 | 17 |
| Cyl. volume | Lock cm3 | 4.8 | 7 | 7.3 | 13.2 | 25.2 | 42.3 | 102.6 | 151 |
| | Release cm3 | 7.2 | 10.9 | 12.5 | 20.9 | 37.1 | 68.7 | 127.8 | 199.5 |
| Max operating Pressure (Mpa) | | 150 | | | | | | | |
| Min operating Pressure (Mpa) | | 15 | | | | | | | |
| Design Pressure (Mpa) | | 10.5 | | | | | | | |
| Temperature (0C) | | 0-70 | | | | | | | |
| Weight (Kg) | | 0.70 | 0.90 | 1.30 | 1.80 | 2.70 | 4.20 | 5.50 | 9 |

## Machining Dimension Table For Mounting Cylinder :

| Model No. | RH | SC02-361-RP | SC02-401-RP | SC02-481-RP | SC02-551-RP | SC02-651-RP | SC02-751-RP | SC02-901-RP | SC02-1051-RP |
|---|---|---|---|---|---|---|---|---|---|
| | LH | SC02-362-LP | SC02-402-LP | SC02-482-LP | SC02-552-LP | SC02-652-LP | SC02-752-LP | SC02-902-LP | SC02-1052-LP |
| K | | 31.5 | 34 | 40 | 47 | 55 | 63 | 75 | 88 |
| B | | M4 | M5 | M5 | M6 | M6 | M8 | M10 | M12 |
| C+0.2 | | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 |
| D | | 49 | 51 | 59.5 | 68 | 69 | 78.5 | 85 | 102 |
| E | | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 |
| F | | 16 | 18 | 22 | 24 | 30 | 32 | 37 | 45 |
| G | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 |



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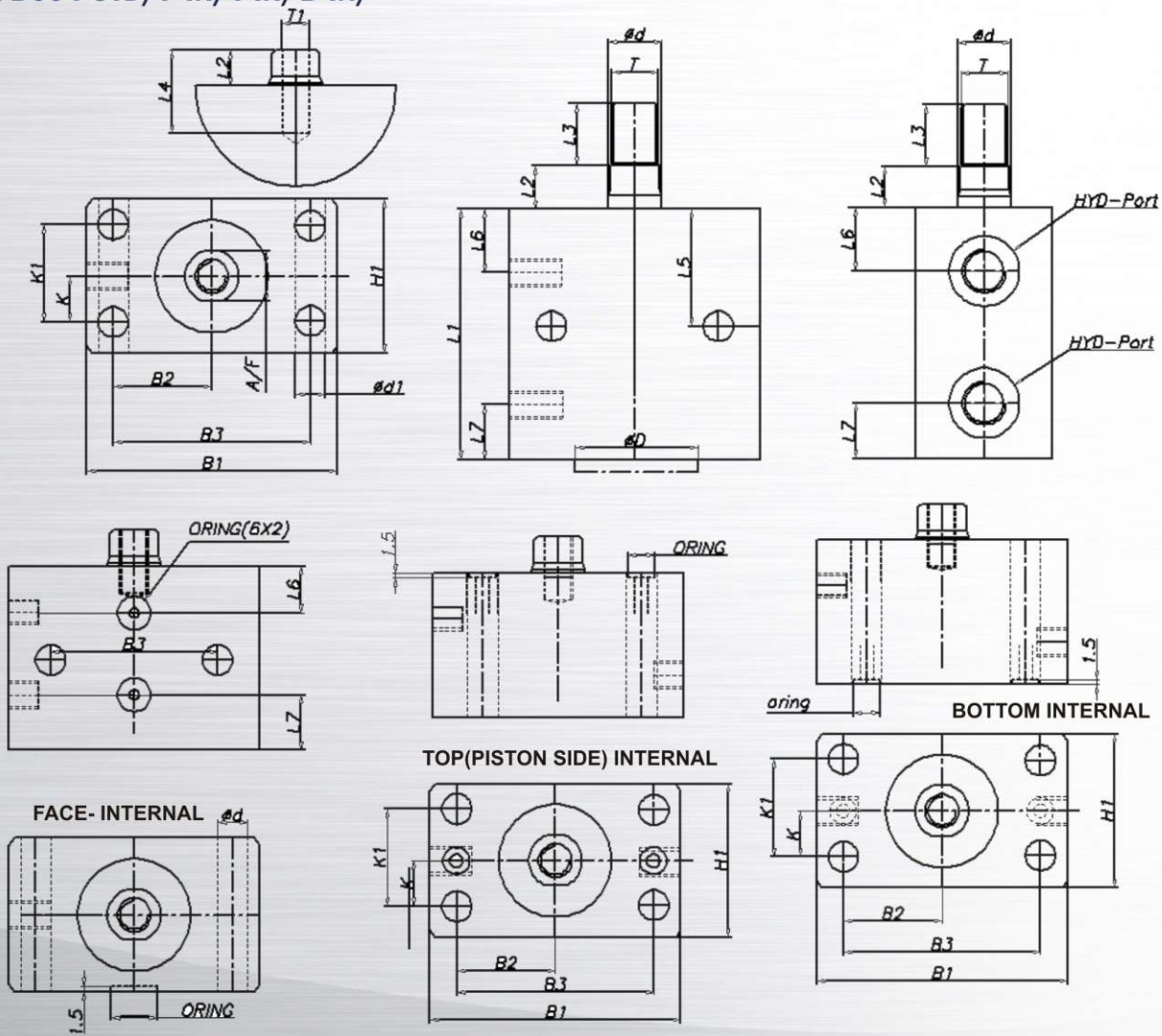
# Block Cylinder

## Features:

- This is a double acting cylinder with universal mounting.
- It is a Chromium plated piston alloy steel body with male & female threaded piston ends.
- It can be used with the stroke range : 10 /16 /25 /50 /75 /100
- It can be used in the range of 15 MPa (minimum operating pressure)
  150 MPa (maximum operating pressure)
  70 bar
- This cylinder are also available with internal port option

## External Dimension Drawing :

**Code : BC04-STD/F-IN/T-IN/B-IN/**






Note : 16Bore to 32 Bore Oring Size(4x2). 40Bore to 80Bore Oring Size(6x2)

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## External Dimension Table:

All dimensions in mm

| Model No. | Male Thread | BC04 16-16M | BC04 16-25M | BC04 16-50M | BC04 20-16M | BC04 20-25M | BC04 20-50M | BC04 25-16M | BC04 25-25M | BC04 25-50M | BC04 32-25M | BC04 32-50M | BC04 32-75M | BC04 40-25M | BC04 40-50M | BC04 40-75M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Female Thread | BC04 16-16F | BC04 16-25F | BC04 16-50F | BC04 20-16F | BC04 20-25F | BC04 20-50F | BC04 25-16F | BC04 25-25F | BC04 25-50F | BC04 32-25F | BC04 32-50F | BC04 32-75F | BC04 40-25F | BC04 40-50F | BC04 40-75F |
| Piston ØD | | 16 | | | 20 | | | 25 | | | 32 | | | 40 | | |
| Rod Ød | | 10 | | | 12 | | | 16 | | | 20 | | | 25 | | |
| Ød1 | | 7 | | | 9 | | | 9 | | | 11 | | | 11 | | |
| Stroke (S) | | 16 | 25 | 50 | 16 | 25 | 50 | 16 | 25 | 50 | 25 | 50 | 75 | 25 | 50 | 75 |
| L1 | | 60 | 69 | 94 | 66 | 75 | 100 | 66 | 75 | 100 | 80 | 105 | 130 | 80 | 105 | 130 |
| L2 | | 8 | | | 10 | | | 10 | | | 12 | | | 12 | | |
| L3 | | 15 | | | 16 | | | 18 | | | 22 | | | 28 | | |
| L4 | | 16 | | | 16 | | | 19 | | | 21 | | | 25 | | |
| L5 | | 30 | | | 35 | | | 35 | | | 40 | | | 40 | | |
| L6 | | 16 | | | 19 | | | 19 | | | 22.5 | | | 22.5 | | |
| L7 | | 14 | | | 16.5 | | | 16.5 | | | 17 | | | 17 | | |
| B1 | | 51 | | | 61 | | | 66 | | | 76 | | | 86 | | |
| B2 | | 18 | | | 22.5 | | | 25 | | | 27.5 | | | 31.5 | | |
| B3 | | 36 | | | 45 | | | 50 | | | 55 | | | 63 | | |
| H | | 17.5 | | | 20 | | | 22.5 | | | 27.5 | | | 31.5 | | |
| H1 | | 36 | | | 41 | | | 46 | | | 56 | | | 64 | | |
| K | | 11.5 | | | 12.5 | | | 15 | | | 17.5 | | | 31.5 | | |
| K1 | | 23 | | | 25 | | | 30 | | | 35 | | | 43 | | |
| Hyd. Port | | G1/8" | | | G1/8" | | | G1/8" | | | G1/8" | | | G1/4" | | |
| A/F | | 8 | | | 10 | | | 13 | | | 17 | | | 23 | | |
| T | | M8X1.25 | | | M10X1.5 | | | M14X1.5 | | | M16X1.5 | | | M20X1.5 | | |
| T1 | | M6 | | | M6 | | | M10 | | | M12 | | | M16 | | |
| Pushing Force 70 Bar | KN | 2 | | | 2.2 | | | 3.43 | | | 5.63 | | | 8.79 | | |
| Pulling Force 70 Bar | KN | 1.00 | | | 1.41 | | | 2.03 | | | 3.43 | | | 5.63 | | |

| Model No. | Male Thread | BC04 50-25M | BC04 50-50M | BC04 50-75M | BC04 50-100M | BC04 65-25M | BC04 65-50M | BC04 65-75M | BC04 65-100M | BC04 75-25M | BC04 75-50M | BC04 75-75M | BC04 75-100M | BC04 80-25M | BC04 80-50M | BC04 80-75M | BC04 80-100M | BC04 100-25M | BC04 100-50M | BC04 100-75M | BC04 100-100M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Female Thread | BC04 50-25F | BC04 50-50F | BC04 50-75F | BC04 50-100F | BC04 65-25F | BC04 65-50F | BC04 65-75F | BC04 65-100F | BC04 75-25F | BC04 75-50F | BC04 75-75F | BC04 75-100F | BC04 80-25F | BC04 80-50F | BC04 80-75F | BC04 80-100F | BC04 100-25F | BC04 100-50F | BC04 100-75F | BC04 100-100F |
| Piston ØD | | 50 | | | | 65 | | | | 75 | | | | 80 | | | | 100 | | | |
| Rod Ød | | 32 | | | | 40 | | | | 45 | | | | 50 | | | | 60 | | | |
| Ød1 | | 13 | | | | 13 | | | | 17 | | | | 22 | | | | 22 | | | |
| Stroke (S) | | 25 | 50 | 75 | 100 | 25 | 50 | 75 | 100 | 25 | 50 | 75 | 100 | 25 | 50 | 75 | 100 | 25 | 50 | 75 | 100 |
| L1 | | 95 | 120 | 145 | 170 | 100 | 125 | 150 | 175 | 100 | 125 | 150 | 175 | 105 | 130 | 155 | 180 | 105 | 130 | 155 | 180 |
| L2 | | 14 | | | | 15 | | | | 15 | | | | 16 | | | | 16 | | | |
| L3 | | 36 | | | | 36 | | | | 36 | | | | 40 | | | | 40 | | | |
| L4 | | 25 | | | | 28 | | | | 28 | | | | 40 | | | | 42 | | | |
| L5 | | 50 | | | | 50 | | | | 50 | | | | 60 | | | | 65 | | | |
| L6 | | 30 | | | | 30.5 | | | | 31.5 | | | | 37 | | | | 37 | | | |
| L7 | | 17 | | | | 20 | | | | 20 | | | | 23 | | | | 23 | | | |
| B1 | | 101 | | | | 126 | | | | 141 | | | | 146 | | | | 161 | | | |
| B2 | | 38 | | | | 50 | | | | 55 | | | | 55 | | | | 65 | | | |
| B3 | | 76 | | | | 100 | | | | 110 | | | | 110 | | | | 130 | | | |
| H | | 38 | | | | 44 | | | | 54 | | | | 60 | | | | 70 | | | |
| H1 | | 77 | | | | 89 | | | | 109 | | | | 121 | | | | 141 | | | |
| K | | 22.5 | | | | 30 | | | | 30 | | | | 40 | | | | 50 | | | |
| K1 | | 45 | | | | 60 | | | | 60 | | | | 80 | | | | 100 | | | |
| Hyd. Port | | G1/4" | | | | G1/4" | | | | G1/4" | | | | G3/8" | | | | G1/2" | | | |
| A/F | | 26 | | | | 36 | | | | 41 | | | | 45 | | | | 55 | | | |
| T | | M24X1.5 | | | | M30X1.5 | | | | M36X1.5 | | | | M40X1.5 | | | | M45X1.5 | | | |
| T1 | | M20 | | | | M24 | | | | M30 | | | | M36 | | | | M42 | | | |
| Pushing Force 70 Bar | KN | 13.74 | | | | 21.48 | | | | 28.5 | | | | 35.19 | | | | 54.98 | | | |
| Pulling Force 70 Bar | KN | 8.12 | | | | 12.68 | | | | 17.37 | | | | 21.44 | | | | 35.9 | | | |



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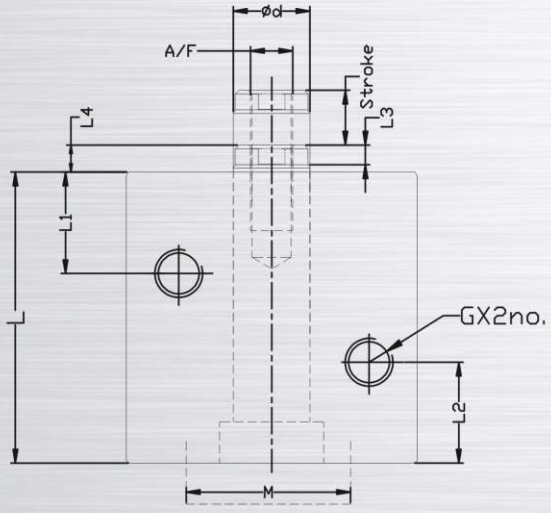
# Compact Cylinder

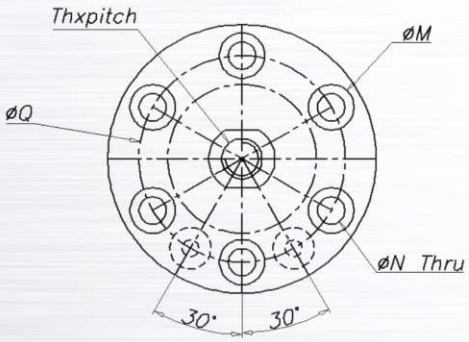
## Features:

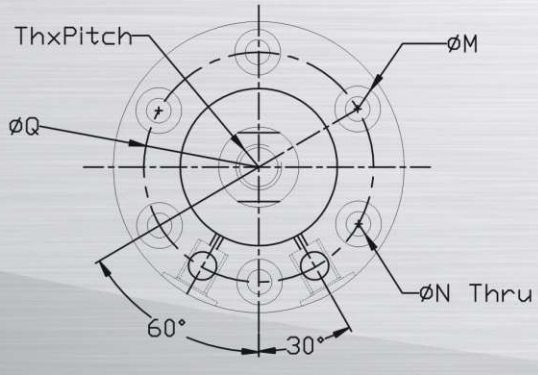
- This is a manifold mounting cylinder with compact design.
- It is a space saving & easy mounting with male & female threaded piston ends.
- These cylinders are provided with universal mounting.
- These cylinders are threaded directly into manifold, clamping, pushing, pulling, ejection & riverting operations.
- It can be used in the range of 15 MPa (minimum operating pressure)
  150 MPa ( maximum operating pressure)
  70 bar N (pushing force)

## External Dimension Drawing :

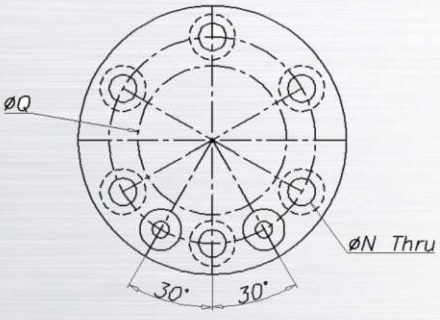



### Bm-Internal




### Top - Internal



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## External Dimension Table:

All dimensions in mm

| Model No. | CC05 4525 | CC05 6525 | CC05 7625 | CC05 9525 |
|---|---|---|---|---|
| Bore Ø M | Ø22 | Ø32 | Ø40 | Ø50 |
| Pushing Force KN | 3.8 | 8 | 12.5 | 19.63 |
| Pulling Force KN | 0.8 | 2.1 | 3.1 | 5.3 |
| Thread X Pitch | M6 X 10 | M10 X 18 | M12 X 20 | M16 X 25 |
| L4 | 7 | 7 | 8 | 9 |
| d | 12 | 16 | 20 | 25 |
| D | 45 | 65 | 76 | 95 |
| G | 1/8" | 1/8" | 1/8" | 1/4" |
| A/F | 10 | 14 | 17 | 22 |
| L1 | 16.5 | 16.5 | 17.5 | 22.5 |
| L2 | 12 | 12 | 12 | 12 |
| L3 | 4 | 4 | 4 | 4 |
| ØN | 4.5 | 6.6 | 6.6 | 9 |
| ØM X Deep | 8 X 5 | 11 X 7 | 11 X 7 | 14.5 X 9 |
| ØQ (PCD) | 35 | 50 | 60 | 75 |
| Stroke | 25 | 25 | 25 | 25 |
| L | 63 | 63 | 67 | 73 |
| Oil Volume Pushing CC | 8cc | 20cc | 31cc | 49cc |
| Oil Volume Pulling CC | 5cc | 15cc | 24cc | 37cc |



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Product Code : TC-06

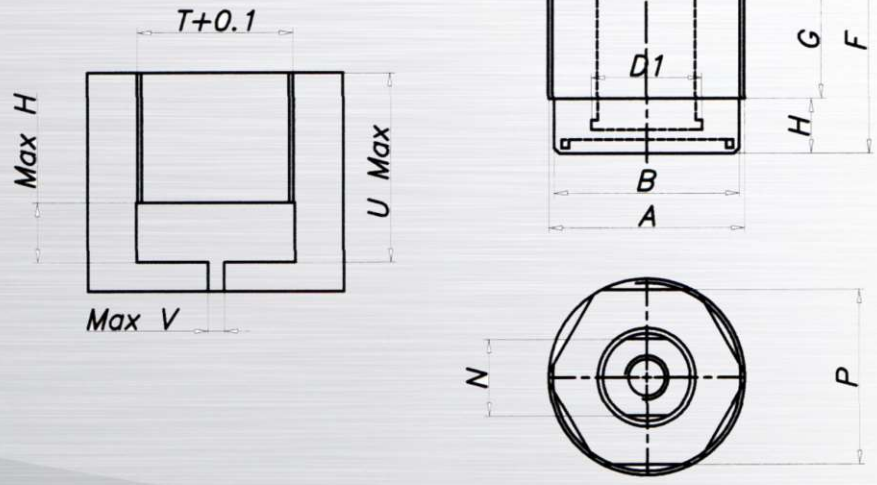

# Threaded Body Cylinder

## Features:

- It is a manifold mounting spring return type cylinder with compact design.
- It is a space saving mounting with male & female threaded piston ends.
- These cylinders are threaded directly into manifold, pushing, pulling, ejection & reverting operations.
- It can be used for direct clamping as well as positioning & support.
- The range of use 15 MPa (minimum operating pressure)
  150 MPa ( maximum operating pressure)
  70 bar N (pushing force)

## External Dimension Drawing :

## Mounting Details Drawing :



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## External Dimension Table :

All dimensions in mm

| Model No. | TC06 M16 | | | TC06 M22 | | | TC06 M24 | | | TC06 M30 | | | TC06 M36 | | | TC06 M45 | | | TC06 M55 | | | TC06 M65 | | | TC06 M80 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stroke Code | S | M | L | S | M | L | S | M | L | S | M | L | S | M | L | S | M | L | S | M | L | S | M | L | S | M | L |
| A (Nominal X Pitch) | M16 X 1.5 | | | M22 X 1.5 | | | M24 X 1.5 | | | M30 X 1.5 | | | M36 X 1.5 | | | M45 X 1.5 | | | M55 X 1.5 | | | M65 X 1.5 | | | M80 X 1.5 | | |
| B | 14.3 | | | 20.3 | | | 22.3 | | | 28.3 | | | 34.3 | | | 43.3 | | | 52.6 | | | 62.6 | | | 77.6 | | |
| C | 7.5 | | | 11.2 | | | 13 | | | 17 | | | 19 | | | 28 | | | 34.5 | | | 42 | | | 52 | | |
| D | 7 | | | 12 | | | 14 | | | 16 | | | 18 | | | 30 | | | 36 | | | 45 | | | 55 | | |
| D1Ø | 11 | 11 | 11 | 15 | 15 | 15 | 16 | 16 | 16 | 20 | 20 | 20 | 25 | 25 | 25 | 33 | 33 | 33 | 35 | 35 | 35 | 45 | 45 | 45 | 50 | 50 | 50 |
| E | 16 | | | 21.2 | | | 24.5 | | | 30 | | | 35.5 | | | 45 | | | 55 | | | 66 | | | 80 | | |
| F | 35 | 39 | 45 | 28 | 36 | 49 | 32.5 | 40 | 56.5 | 35 | 44 | 63.5 | 41.5 | 62.5 | 75.5 | 47 | 60 | 82.5 | 52 | 67 | 89 | 62 | 78 | 113 | 69 | 87 | 118 |
| G | 24 | 28 | 34 | 13 | 21 | 34 | 17.5 | 25 | 41.5 | 18 | 27 | 46.5 | 23.5 | 36.5 | 57.5 | 23 | 36 | 58.5 | 27 | 43 | 65 | 35 | 51 | 80.5 | 42 | 60 | 91 |
| H | 6 | | | 8 | | | 8 | | | 9 | | | 10 | | | 12 | | | 12 | | | 13 | | | 13 | | |
| J | 5 | | | 7 | | | 7 | | | 8 | | | 8 | | | 12 | | | 12 | | | 14 | | | 14 | | |
| K | 6 | | | 7 | | | 7 | | | 8.5 | | | 9.5 | | | 12 | | | 13 | | | 16 | | | 19 | | |
| L | 4 | | | 5.5 | | | 5.5 | | | 7 | | | 8 | | | 10 | | | 11 | | | 13 | | | 16 | | |
| M (Nominal X Depth) | M5 X 8 | | | M6 X 7 | | | M6 X 7 | | | M8 X 10 | | | M8 X 10 | | | M10 X 11 | | | M12 X 12 | | | M16 X 16 | | | M20 X 20 | | |
| N | 7 | | | 10 | | | 10 | | | 14 | | | 17 | | | 24 | | | 30 | | | 36 | | | 41 | | |
| P | 16 | | | 22 | | | 24 | | | 30 | | | 32 | | | 41 | | | 50 | | | 60 | | | | | |
| T | 14.5 | | | 20.5 | | | 22.5 | | | 28.5 | | | 34.5 | | | 43.5 | | | 53 | | | 63 | | | 78 | | |
| MAX U | 12 | | | 14 | | | 14 | | | 15 | | | 16 | | | 18 | | | 20 | | | 25 | | | 25 | | |
| MAX V | 23 | 29 | 38 | 20 | 28 | 41 | 24 | 32 | 48 | 26 | 54 | 65 | 32 | 45 | 66 | 34 | 47 | 69 | 38 | 53 | 76 | 47 | 63 | 92 | 54 | 72 | 103 |
| MAX H | 3 | | | 3 | | | 3 | | | 6 | | | 6 | | | 8 | | | 8 | | | 8 | | | 8 | | |

## Stroke & Load Details:

| Model No. | TC06 M16 | | | TC06 M22 | | | TC06 M24 | | | TC06 M30 | | | TC06 M36 | | | TC06 M45 | | | TC06 M55 | | | TC06 M65 | | | TC06 M80 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stroke Code | S | M | L | S | M | L | S | M | L | S | M | L | S | M | L | S | M | L | S | M | L | S | M | L | S | M | L |
| Stroke mm | 6 | 10 | 16 | 6 | 10 | 16 | 8 | 12 | 20 | 8 | 12 | 20 | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 20 | 32 | 16 | 25 | 40 | 16 | 25 | 40 |
| Cylinder Area cm2 | 0.95 | | | 1.1 | | | 1.5 | | | 2.5 | | | 3.9 | | | 7.1 | | | 9.9 | | | 15.9 | | | 23.8 | | |
| Cylinder Area cm3 | 0.6 | 1.0 | 1.5 | 0.7 | 1.1 | 1.8 | 1.2 | 1.8 | 3.1 | 2.0 | 3.1 | 5.1 | 3.9 | 6.3 | 9.9 | 7.1 | 11.0 | 17.7 | 12.0 | 20.0 | 31.7 | 25.0 | 40.0 | 63.6 | 38.0 | 59.4 | 95.0 |
| Release Spring Force (N) | 12.4-24.0 | | | 26.0-24.0 | | | 33.0-61.0 | | | 50.0-99.0 | | | 79.0-150 | | | 157-319 | | | 236-452 | | | 353-657 | | | 564-1040 | | |
| Supply Pressure (7Mpa) Force in KN | 0.665 | | | 0.7 | | | 1.01 | | | 1.66 | | | 2.59 | | | 4.6 | | | 6.44 | | | 10.4 | | | 15.5 | | |
| Calculation Formula-KN | (0.01p)-0.024 | | | (0.11p)-0.041 | | | (0.154p)-0.060 | | | (0.254p)-0.099 | | | (0.394p)-0.150 | | | (0.707p)-0.319 | | | (0.990p)-0.452 | | | (1.59p)-0.657 | | | (2.38p)-1.04 | | |
| Max.operating pressure (Mpa) | 150 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Min.operating pressure (Mpa) | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | |



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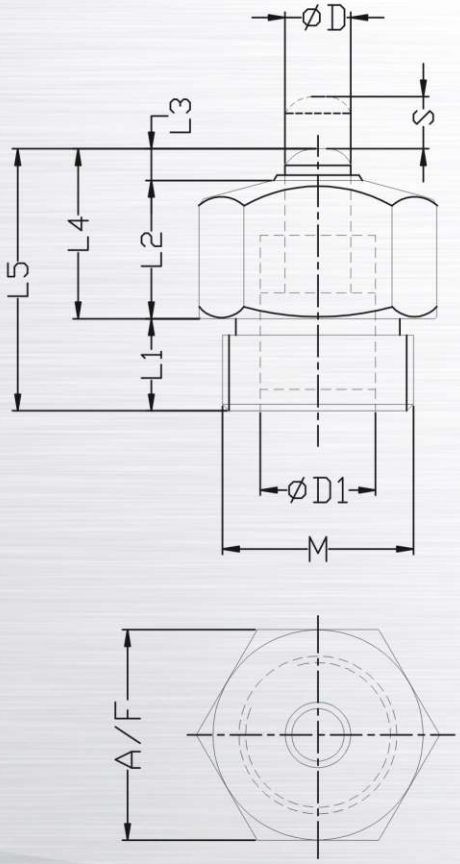
Product Code : TMC-07


# Threaded Body Cylinder
## (Hexgaon Manifold Mount)

### Features:

- This is a manifold mounting cylinder with compact design.
- It is a space saving mounting with male & female threaded plunger ends.
- These cylinders are threaded directly into manifold, pushing, pulling, ejection & riverting operations.
- It can be used in the range of 15 MPa (minimum operating pressure)
  150 MPa ( maximum operating pressure)
  70 bar N (pushing force)

### External Dimension Drawing :



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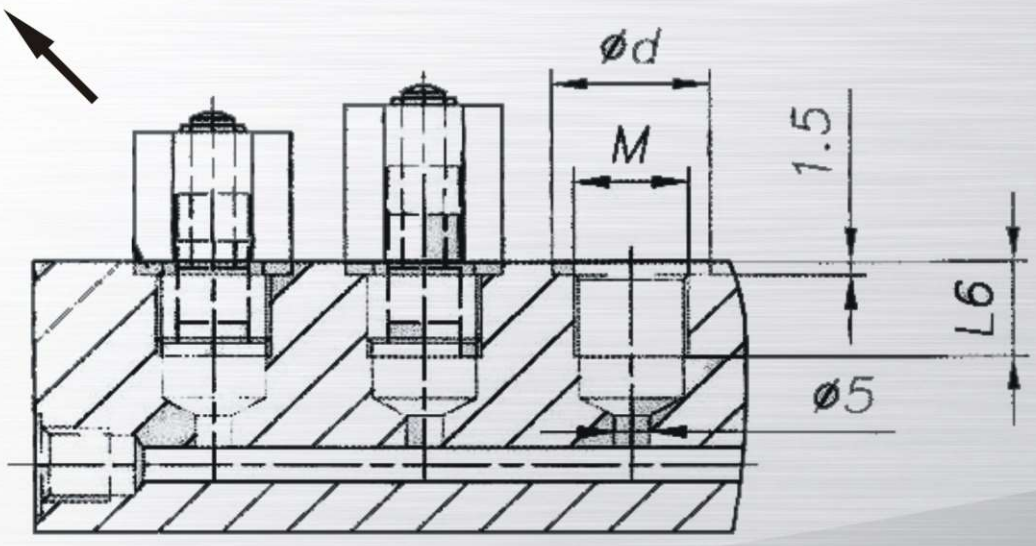
## External Dimension Table :

All dimensions in mm

| Model No. | TM07 M16-S | TM07 M16-M | TM07 M20-S | TM07 M20-M | TM07 M24-S | TM07 M24-M | TM07 M30-S | TM07 M30-M | TM07 M36-S | TM07 M36-M |
|---|---|---|---|---|---|---|---|---|---|---|
| Rod ØD | 6 | | 8 | | 10 | | 12 | | 16 | |
| PistonØD1 | 10 | | 12 | | 16 | | 20 | | 25 | |
| Stroke - S | 4 | 8 | 4 | 8 | 6 | 10 | 8 | 12 | 12 | 16 |
| M | M16 X 1.5 | | M20 X 1.5 | | M24 X 1.5 | | M30 X 1.5 | | M36 X 1.5 | |
| L1 | 12 | | 12 | | 14 | | 18 | | 21 | |
| L2 | 19 | 23 | 19 | 23 | 21 | 25 | 27 | 31 | 33 | 37 |
| L3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| L4 | 22 | 26 | 22 | 26 | 24 | 28 | 30 | 34 | 36 | 40 |
| L5 | 34 | 38 | 34 | 38 | 38 | 42 | 48 | 52 | 57 | 61 |
| L6 | 14 | | 14 | | 16 | | 23 | | 23 | |
| A/F | 21 | | 27 | | 30 | | 38 | | 44 | |
| Ød | 22 | | 28 | | 32 | | 42 | | 48 | |

## Typical Mounting:

**Nilon Ring**



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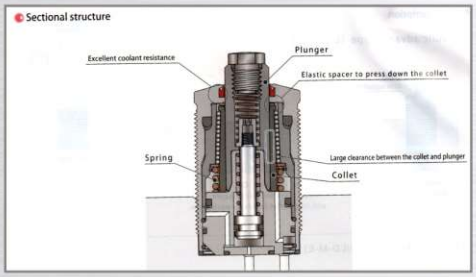
# Threaded Body Work Support

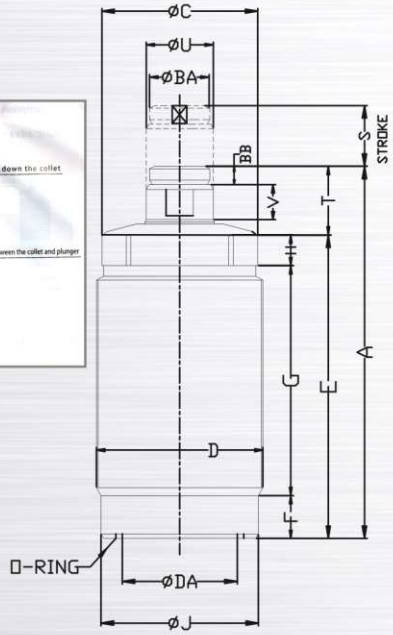
## Hydraulic Advance

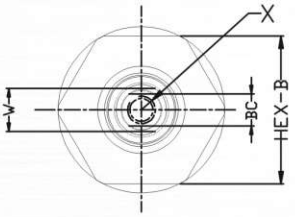
### Features:

- This is a threaded body with compact design of single acting Hydraulic
- It is a wide operating pressure range.
- This work support is a hydraulic advance with manifold mounting & also, spring advance
- It can be used in the range of 7 Mpa
- Minimum operating pressure 10bar Max
- Maximum operating pressure 70bar Max

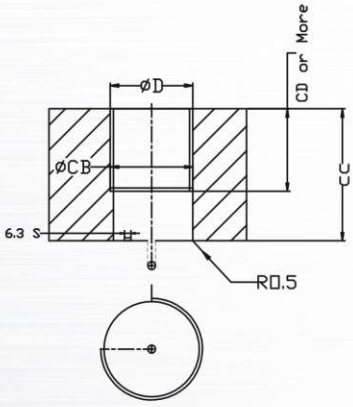
### External Dimension Drawing :



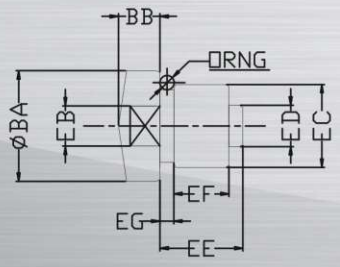



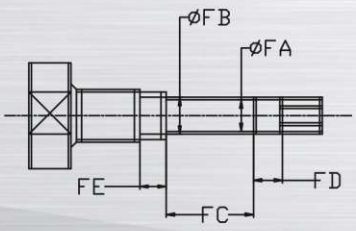



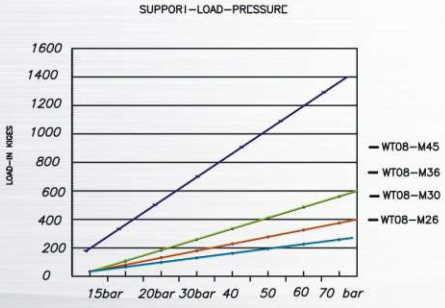

### Mounting Dimension Drawing :




### Plunger Spring & Contact Bolt Dimension :



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## External Dimension Table:

All dimensions in mm

| Model No. | WT08-M26 | WT08-M30 | WT08-M36 | WT08-M45 |
|---|---|---|---|---|
| A | 66 | 74 | 80 | 80 |
| B | 24 | 27 | 32 | 41 |
| C | 26 | 30 | 36 | 45 |
| D | M26 X 1.5 | M30 X 1.5 | M36 X 1.5 | M45 X 1.5 |
| E | 55 | 61 | 65 | 66 |
| F | 10 | 11 | 10 | 12.5 |
| G | 40 | 44 | 50 | 49 |
| H | 8 | 9 | 9 | 10 |
| J | 24.6 | 28.4 | 34 | 43 |
| T | 9.5 | 9.5 | 11.5 | 12.5 |
| U | 10 | 12 | 15 | 16 |
| V | 5 | 6 | 8.5 | 8 |
| W | 8 | 10 | 13 | 14 |
| X | M6 | M8 | M10 | M10 |
| BA | 9.5 | 11.5 | 13 | 13 |
| BB | 4 | 4 | 4 | 4 |
| BC | 8 | 10 | 12 | 13 |
| CB | 24.5 | 28.5 | 34.5 | 43.5 |
| CC | 16~47 | 17~50 | 18~48 | 21~58 |
| CD | CC-7 | CC-7 | CC-8 | CC-8 |
| ØDA X Thick | 12 X 2 | 14 X 2 | 14 X 2 | 20 X 2 |

## Specification Table :

| Support Force 7Mpa (KN) | 3 | 3.8 | 4.5 | 9.5 |
|---|---|---|---|---|
| Support Force Formula Mpa | 0.53 X P-0.68 | 0.67 X P-0.91 | 0.825 X P-1.25 | 1.7 X P-2.28 |
| Plunger stroke S (mm) | 6 | 8 | 8 | 10 |
| Plunger Rising Force I (N) | 2.8~4.1 | 3.6~5.7 | 4.7~7.8 | 5.8~9.7 |
| Plunger Rising Force H (N) | 3.8~5.9 | 4.9~8 | 6.2~11 | 7.9~13.6 |
| Cylinder Volume (cm) | 0.6 | 0.9 | 1.3 | 2 |
| Min. Pressure | 10 Mpa | | | |
| Max. Presssure | 70 Mpa | | | |
| Weight (Kg) | 0.2 | 0.25 | 0.35 | 0.75 |

## Pad Dimensions:

| ØEB | 4.9 | 6 | 8.2 | 10 |
|---|---|---|---|---|
| EC | M6 | M8 | M10 | M10 |
| ØED | 2.5 | 5 | 5 | 5.5 |
| EE | 9 | 10 | 10 | 10 |
| EG | 2 | 2 | 2 | 2 |
| O-RING | 5 X 1.5 | 4 X 2 | 8 X 1.5 | 8 X 1.5 |
| ØFA | 2.6 | 5 | 5.8 | 5.8 |
| ØFB | 3.6 | 6 | 8.5 | 8.5 |
| FC | 11.5 | 10 | 12 | 13 |
| FD | 4 | 4 | 8 | 8 |
| FE | 2 | 2 | 2 | 2 |
| Mounting Torque (Nm) | 31.5 | 50 | 63 | 80 |



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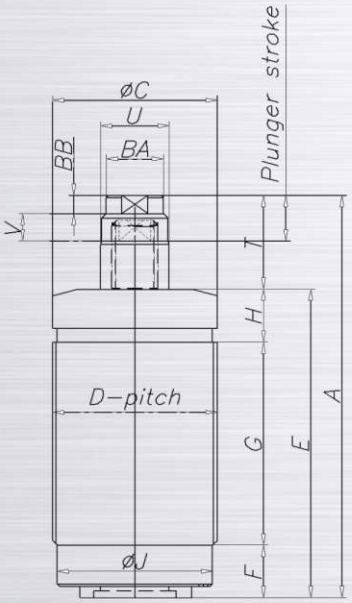
# Threaded Body Work Support

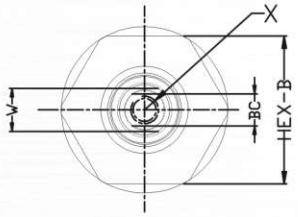
## Spring Advance

### Features:

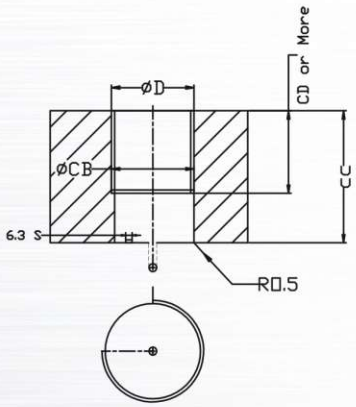
- This is a threaded body with compact design of single acting Spring Advance
- It is a wide operating pressure range.
- This work support is a hydraulic advance with manifold mounting & also, spring advance
- It can be used in the range of 7 Mpa
- Minimum operating pressure 10bar Max
- Maximum operating pressure 70bar Max

### External Dimension Drawing :

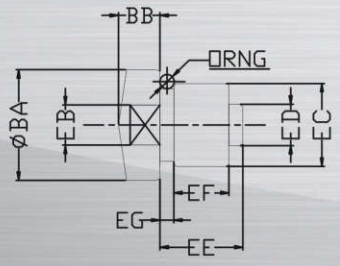


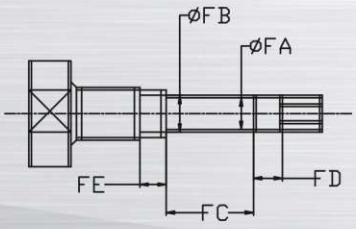



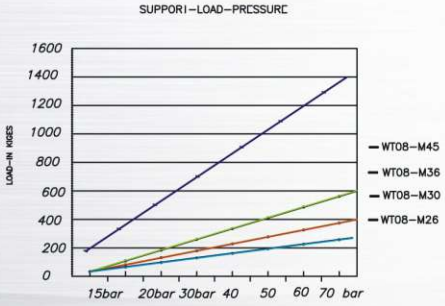

### Mounting Dimension Drawing :




### Plunger Spring & Contact Bolt Dimension :



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## External Dimension Table:

All dimensions in mm

| Model No. | WTSA-08-M26 | WTSA-08-M30 | WTSA-08-M36 | WTSA-08-M45 |
|---|---|---|---|---|
| A | 72 | 82 | 88 | 90 |
| B | 24 | 27 | 32 | 41 |
| C | 26 | 30 | 36 | 45 |
| D Pitch | M26 X 1.5 | M30 X 1.5 | M36 X 1.5 | M45 X 1.5 |
| E | 55 | 61 | 65 | 66 |
| F | 10 | 11 | 10 | 12.5 |
| G | 40 | 44 | 50 | 49 |
| H | 8 | 9 | 9 | 10 |
| J | 24.6 | 28.4 | 34 | 43 |
| T | 9.5 | 9.5 | 11.5 | 12.5 |
| U | 10 | 12 | 15 | 16 |
| V | 5 | 6 | 8.5 | 8 |
| W | 8 | 10 | 13 | 14 |
| X | M6 | M8 | M10 | M10 |
| BA | 9.5 | 11.5 | 13 | 13 |
| BB | 4 | 4 | 4 | 4 |
| BC | 8 | 10 | 12 | 13 |
| CB | 24.5 | 28.5 | 34.5 | 43.5 |
| CC | 16~47 | 17~50 | 18~48 | 21~58 |
| CD | CC-7 | CC-7 | CC-8 | CC-8 |
| ØDA X Thick | 12 X 2 | 14 X 2 | 14 X 2 | 20 X 2 |

## Specification Table :

| Support Force 7Mpa (KN) | 3 | 3.8 | 4.5 | 9.5 |
|---|---|---|---|---|
| Support Force Formula Mpa | 0.53 X P-0.68 | 0.67 X P-0.91 | 0.825 X P-1.25 | 1.7 X P-2.28 |
| Plunger stroke S (mm) | 6 | 8 | 8 | 10 |
| Plunger Rising Force I (N) | 2.8~4.1 | 3.6~5.7 | 4.7~7.8 | 5.8~9.7 |
| Plunger Rising Force H (N) | 3.8~5.9 | 4.9~8 | 6.2~11 | 7.9~13.6 |
| Cylinder Volume (cm) | 0.6 | 0.9 | 1.3 | 2 |
| Min. Pressure | 10 Mpa | | | |
| Max. Presssure | 70 Mpa | | | |
| Weight (Kg) | 0.2 | 0.25 | 0.35 | 0.75 |

## Pad Dimensions:

| ØEB | 4.9 | 6 | 8.2 | 10 |
|---|---|---|---|---|
| EC | M6 | M8 | M10 | M10 |
| ØED | 2.5 | 5 | 5 | 5.5 |
| EE | 9 | 10 | 10 | 10 |
| EG | 2 | 2 | 2 | 2 |
| O-RING | 5 X 1.5 | 4 X 2 | 8 X 1.5 | 8 X 1.5 |
| ØFA | 2.6 | 5 | 5.8 | 5.8 |
| ØFB | 3.6 | 6 | 8.5 | 8.5 |
| FC | 11.5 | 10 | 12 | 13 |
| FD | 4 | 4 | 8 | 8 |
| FE | 2 | 2 | 2 | 2 |
| Mounting Torque (Nm) | 31.5 | 50 | 63 | 80 |



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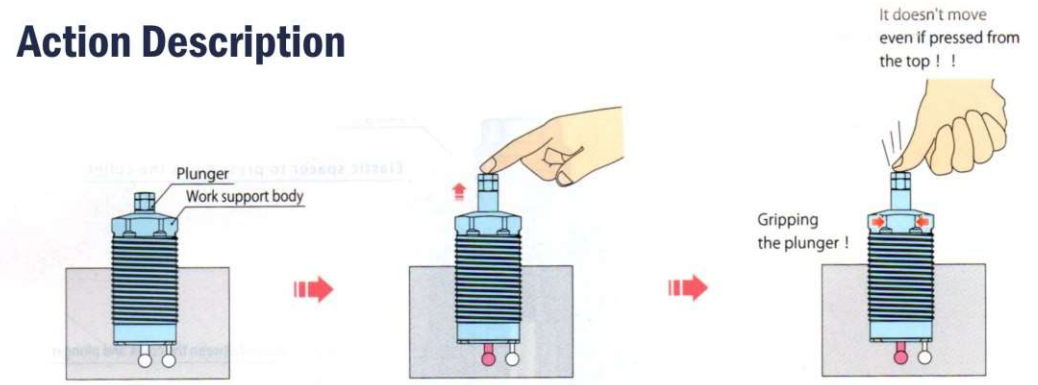
# Hydraulic Advance Type

## Action Description



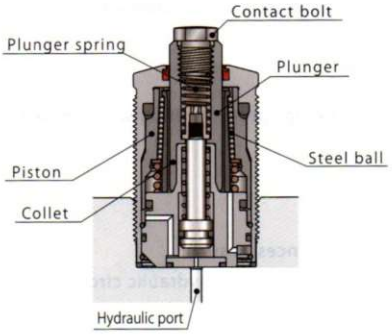

Hydraulic pressure : OFF
The state of plunger down.

Hydraulic pressure : ON
Plunger rises with oil pressure
and stops after touching work piece.

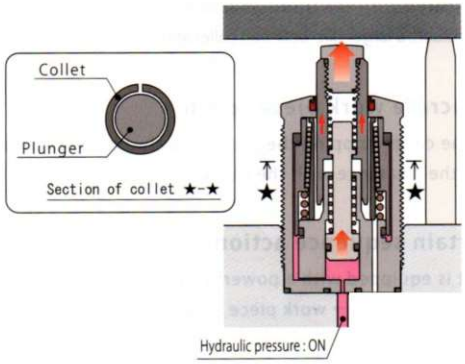
Hydraulic pressure : ON
Once it is in the stopped position where
it touches the work piece, the plunger
doesn't go down even if pressed from above.

### Internal action description

- **Hydraulic advance type** model LD

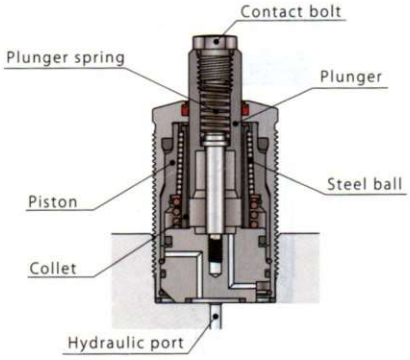



When releasing (Sectional structure)

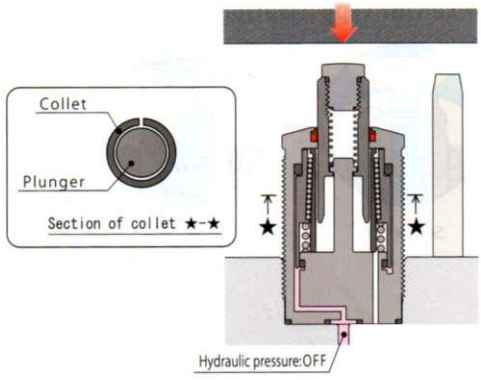



Plunger extends

- **Spring advance type** model LD-E




When releasing (Sectional structure)




Release condition



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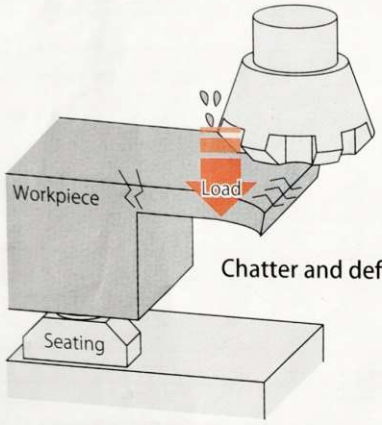
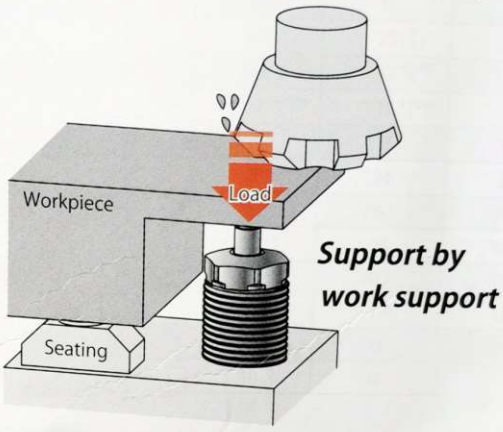
## Work support eliminates chattering while machining and prevents deformation by the cutting load.

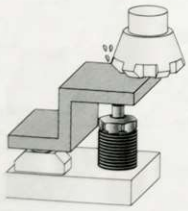



< No work support >

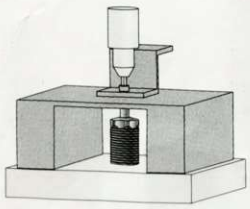



< With work support >

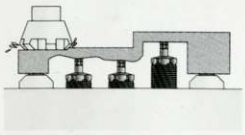
### Application sample



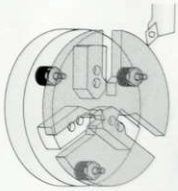
To avoid chattering during machining of thin-walled sections.



To back up the screw fastener machine and a nut-runner.



Work piece with different heights.



To avoid the radial chatter on lathe machining.

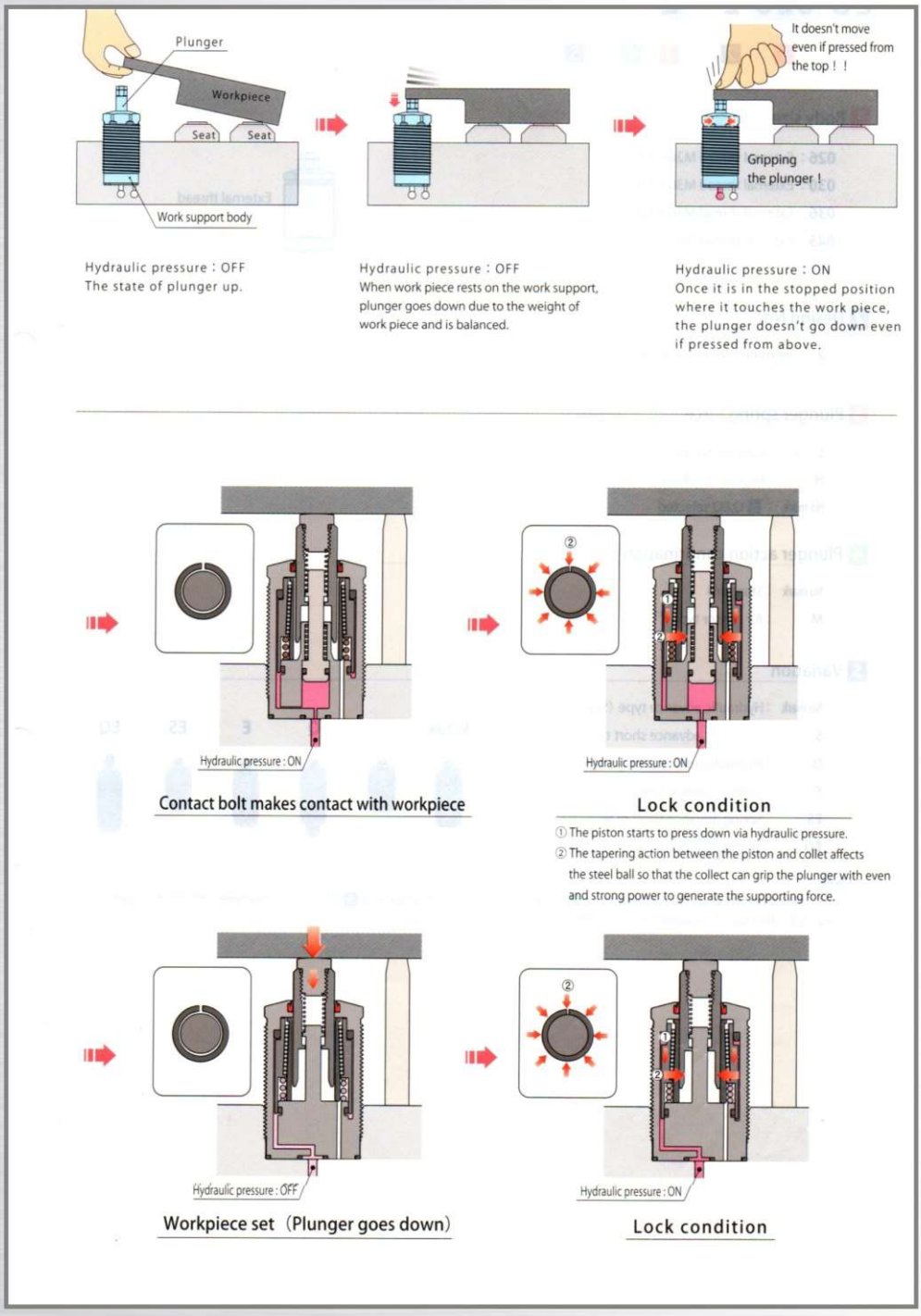


Email : shresvt@gmail.com

# Spring Advance Type

**Product Code : WTSA-08**

## Action Description

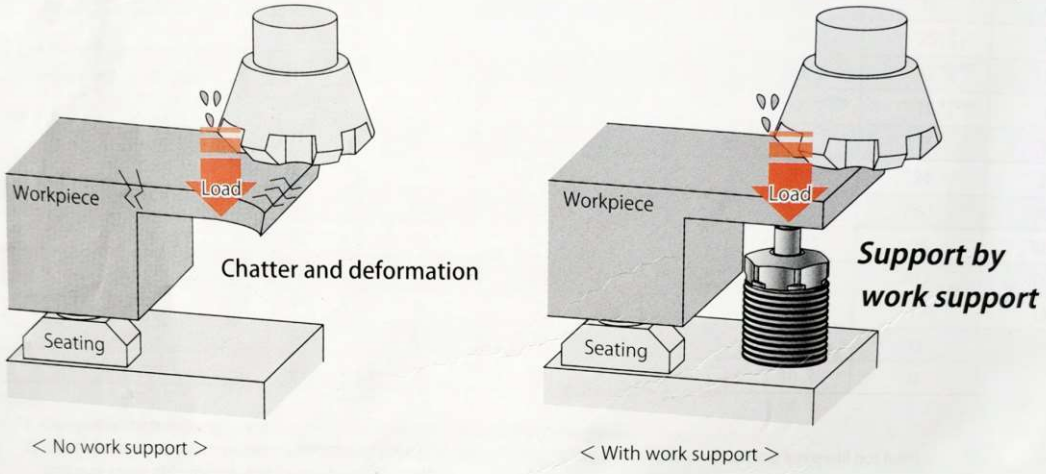




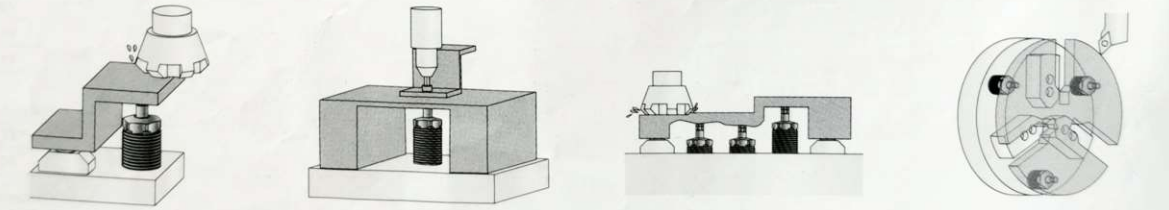

Email : shresvt@gmail.com

# Action Description

**Work support eliminates chattering while machining and prevents deformation by the cutting load.**




Application sample



To avoid chattering during machining of thin-walled sections.

To back up the screw fastener machine and a nut-runner.

Work piece with different heights.

To avoid the radial chatter on lathe machining.



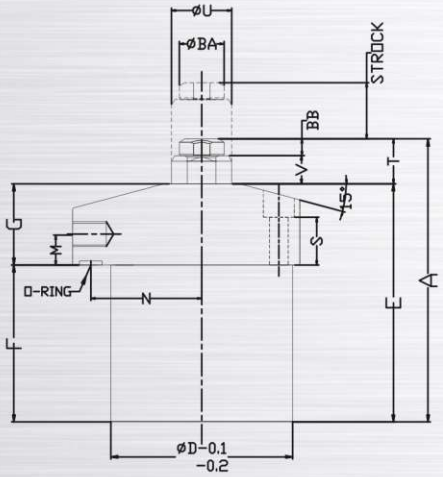
Email : shresvt@gmail.com

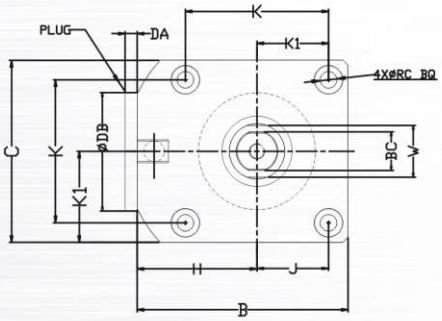

# Flange Work Support
## Hydraulic Advance

### Features:

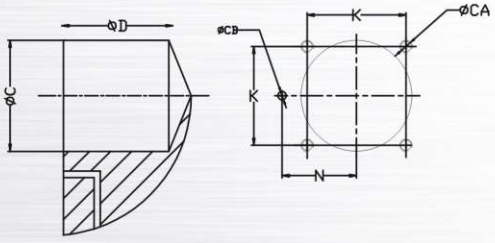
- This is a flange body with compact design of single acting Hydraulic
- It is a low operating pressure range.
- This work support is a hydraulic advance with flange mounting & With Spring Advance
- It can be used in the range of 7 Mpa
- Minimum operating pressure 10bar Max
- Maximum operating pressure 70bar Max

### External Dimension Drawing :

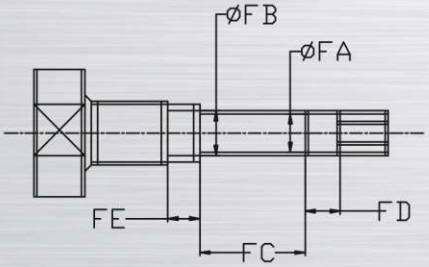


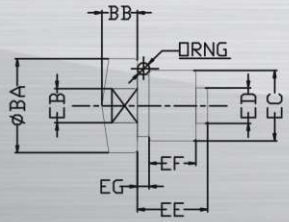



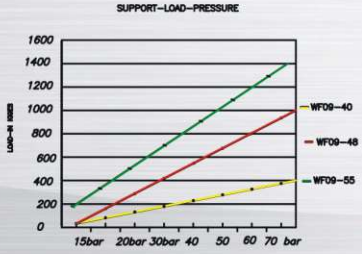

### Mounting Dimension Drawing :

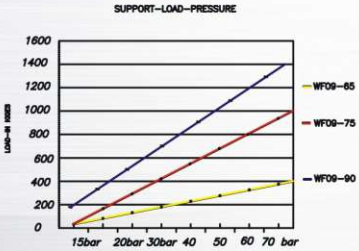



### Plunger Spring & Contact Bolt Dimension :






Email : shresvt@gmail.com

## External Dimension Table:

All dimensions in mm

| Model No. | WF09-40 | WF09-48 | WF09-55 | WF09-65 | WF09-75 | WF09-90 |
|---|---|---|---|---|---|---|
| A | 77 | 78 | 101 | 103 | 126 | 140 |
| B | 54 | 61 | 69 | 81 | 92 | 107 |
| C | 45 | 51 | 60 | 70 | 802 | 95 |
| D | 40 | 48 | 55 | 65 | 75 | 90 |
| E | 63 | 64.5 | 73 | 85 | 107 | 128 |
| F | 38 | 39 | 45 | 56 | 72 | 88 |
| G | 25 | 25 | 29 | 30 | 35 | 40 |
| H | 31.5 | 35.5 | 39 | 46 | 52 | 59.5 |
| J | 22.5 | 25.5 | 30 | 35 | 40 | 47.5 |
| K | 34 | 40 | 47 | 55 | 63 | 75 |
| K1 | 17 | 20 | 23.5 | 27.5 | 31.5 | 37.5 |
| ØL | 68 | 73 | 83 | 94 | 106 | 126 |
| M | 10 | 12 | 11 | 10 | 12.5 | 13 |
| N | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 |
| O | 9.5 | 9.5 | 11 | 11 | 14.5 | 17.5 |
| R | 5.5 | 5.5 | 6.6 | 6.6 | 9 | 11 |
| S | 15 | 15 | 17 | 17 | 17 | 18 |
| T | 13 | 13 | 15 | 16 | 18.5 | 22 |
| ØU | 15 | 16 | 20 | 22 | 25 | 32 |
| V | 8.7 | 9 | 9.5 | 9.5 | 10.5 | 10 |
| W | 13 | 14 | 18 | 19 | 22 | 24 |
| X | M10 | M10 | M12 | M12 | M16 | M16 |
| Hyd. Port | G1/8" | G1/8" | G1/8" | G1/8" | G1/4" | G1/4" |
| O Ring | 4 X 2 | 4 X 2 | 4 X 2 | 6 X 2 | 6 X 2 | 6 X 2 |

## Specification Table :

| Support Force 7Mpa (KN) | 4.5 | 9.5 | 14 | 21 | 33 | 45 |
|---|---|---|---|---|---|---|
| Support Force Formula Mpa | 0.825 X P-1.25 | 1.55 X P-1.25 | 2.36 X P-2.28 | 3.83 X P-5.7 | 5.60 X P-6.13 | 7.5 X P-6.87 |
| Plunger Stroke ST (mm) | 8 | 10 | 12 | 14 | 16 | 20 |
| Cylinder Volume (cm) | 12 | 2 | 3.3 | 4.8 | 8.9 | 13.1 |
| Plunger Spring Force | L N 2.8~4.1 | L N 3.6~5.7 | L N 4.7~7.8 | L N 9.8~14.6 | L N 12.4~18.8 | L N 14.6~21.0 |
| | H N 3.8~5.9 | H N 4.9~8.0 | H N 6.2~11 | H N16.8~22.0 | H N 18.7~31.9 | H N 21.4~34.2 |
| Max. Presssure | 70 Mpa | | | | | |
| Min. Pressure | 10 Mpa | | | | | |
| Design Pressure Mpa | 10.5 Mpa | | | | | |
| Temperature OC | 0.7 | | | | | |
| Weight (Kg) | 0.6 | 0.8 | 1.4 | 2.2 | 3.6 | 6 |

## Plunger Spring, Contact Bolt & Mounting Dimension Table :

| Model No. | | WF09-40 | WF09-48 | WF09-55 | WF09-65 | WF09-75 | WF09-90 |
|---|---|---|---|---|---|---|---|
| Contact Bolt | ØBA | 12.5 | 12.5 | 16.5 | 16.5 | 21.5 | 30 |
| | BB | 4 | 4 | 6 | 6 | 9 | 9 |
| | BC | 13 | 13 | 16 | 16 | 20 | 28 |
| | ØEB | 7.5 | 7.5 | 10 | 10 | 13.5 | 13.5 |
| | EC | M10 | M10 | M12 | M12 | M16 | M16 |
| | ØED | 5.5 | 6 | 6 | 6.5 | 9 | 10 |
| | EE | 10 | 10 | 11 | 13 | 16 | 16 |
| | EF | 2 | 2 | 2 | 2.5 | 3 | 3 |
| Mounting Dimension | CA | M5 | M5 | M6 | M6 | M8 | M10 |
| | ØCB | 2 | 2.5 | 2.5 | 3 | 5 | 5 |
| | DA | 3.5 | 3.5 | 3.5 | 3.5 | 4.5 | 4.5 |
| | ØDB | 14 | 14 | 14 | 14 | 18 | 18 |
| | ØC+0.2 | 40 | 48 | 55 | 65 | 75 | 90 |
| | D | 39 | 40 | 46 | 57 | 73 | 89 |
| Plunger Spring Housing Dimension | ØFA | 5.8 | 5.8 | 6 | 6.4 | 10 | 10 |
| | ØFB | 8.5 | 8.5 | 10.2 | 10.2 | 14 | 14 |
| | FC | 9.5 | 10 | 12 | 16 | 21 | 44 |
| | FD | 6 | 6 | 6 | 8 | 12 | 12 |
| | FE | 2 | 2 | 2 | 2 | 2 | 2 |
| | FF | 7.5 | 19.5 | 20 | 29.5 | 30 | 38.5 |



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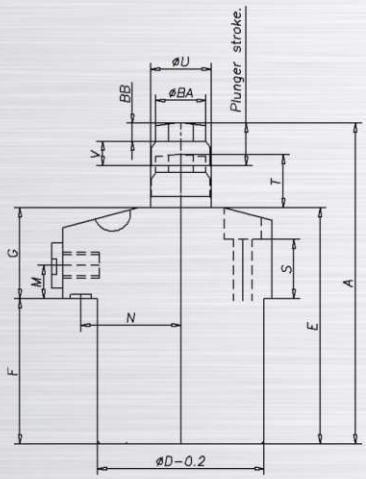
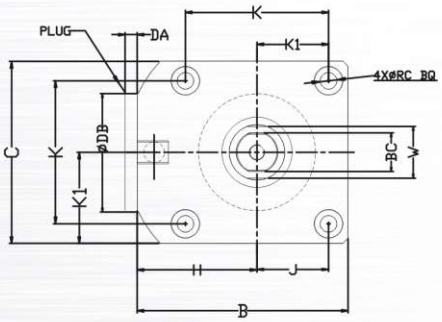
# Flange Work Support
## Spring Advance

### Features:

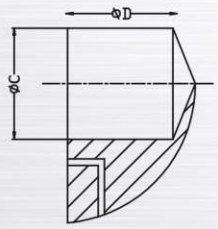
- This is a flange body with compact design of single acting Spring Advance
- It is a low operating pressure range.
- This work support is a hydraulic advance with flange mounting & With Spring Advance
- It can be used in the range of 7 Mpa
- Minimum operating pressure 10bar Max
- Maximum operating pressure 70bar Max

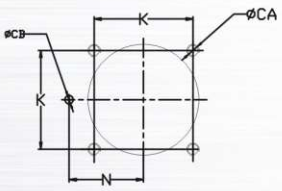
### External Dimension Drawing :



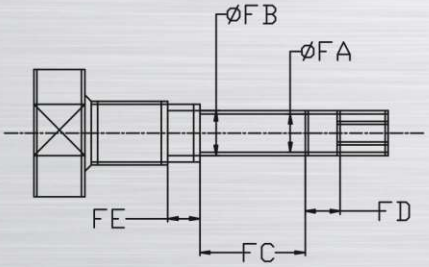



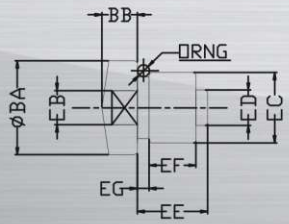

### Mounting Dimension Drawing :

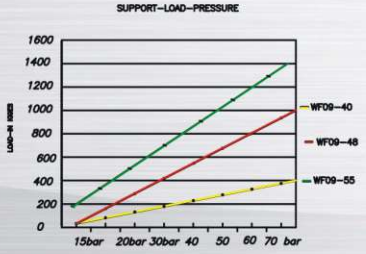


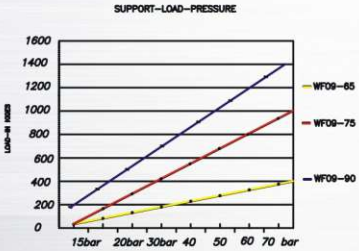




### Plunger Spring & Contact Bolt Dimension :






Email : shresvt@gmail.com

## External Dimension Table:

All dimensions in mm

| Model No. | WFSA-09-40 | WFSA-09-48 | WFSA-09-55 | WFSA-09-65 | WFSA-09-75 | WFSA-09-90 |
|---|---|---|---|---|---|---|
| A | 85 | 88 | 113 | 117 | 142 | 160 |
| B | 54 | 61 | 69 | 81 | 92 | 107 |
| C | 45 | 51 | 60 | 70 | 802 | 95 |
| D | 40 | 48 | 55 | 65 | 75 | 90 |
| E | 63 | 64.5 | 73 | 85 | 107 | 128 |
| F | 38 | 39 | 45 | 56 | 72 | 88 |
| G | 25 | 25 | 29 | 30 | 35 | 40 |
| H | 31.5 | 35.5 | 39 | 46 | 52 | 59.5 |
| J | 22.5 | 25.5 | 30 | 35 | 40 | 47.5 |
| K | 34 | 40 | 47 | 55 | 63 | 75 |
| K1 | 17 | 20 | 23.5 | 27.5 | 31.5 | 37.5 |
| ØL | 68 | 73 | 83 | 94 | 106 | 126 |
| M | 10 | 12 | 11 | 10 | 12.5 | 13 |
| N | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 |
| O | 9.5 | 9.5 | 11 | 11 | 14.5 | 17.5 |
| R | 5.5 | 5.5 | 6.6 | 6.6 | 9 | 11 |
| S | 15 | 15 | 17 | 17 | 17 | 18 |
| T | 13 | 13 | 15 | 16 | 18.5 | 22 |
| ØU | 15 | 16 | 20 | 22 | 25 | 32 |
| V | 8.7 | 9 | 9.5 | 9.5 | 10.5 | 10 |
| W | 13 | 14 | 18 | 19 | 22 | 24 |
| X | M10 | M10 | M12 | M12 | M16 | M16 |
| Hyd. Port | G1/8" | G1/8" | G1/8" | G1/8" | G1/4" | G1/4" |
| O Ring | 4 X 2 | 4 X 2 | 4 X 2 | 6 X 2 | 6 X 2 | 6 X 2 |

## Specification Table :

| Support Force 7Mpa (KN) | 4.5 | 9.5 | 14 | 21 | 33 | 45 |
|---|---|---|---|---|---|---|
| Support Force Formula Mpa | 0.825 X P-1.25 | 1.55 X P-1.25 | 2.36 X P-2.28 | 3.83 X P-5.7 | 5.60 X P-6.13 | 7.5 X P-6.87 |
| Plunger Stroke ST (mm) | 8 | 10 | 12 | 14 | 16 | 20 |
| Cylinder Volume (cm) | 12 | 2 | 3.3 | 4.8 | 8.9 | 13.1 |
| Plunger Spring Force | L N 2.8~4.1 | L N 3.6~5.7 | L N 4.7~7.8 | L N 9.8~14.6 | L N 12.4~18.8 | L N 14.6~21.0 |
| | H N 3.8~5.9 | H N 4.9~8.0 | H N 6.2~11 | H N16.8~22.0 | H N 18.7~31.9 | H N 21.4~34.2 |
| Max. Presssure | 70 Mpa | | | | | |
| Min. Pressure | 10 Mpa | | | | | |
| Design Pressure Mpa | 10.5 Mpa | | | | | |
| Temperature OC | 0.7 | | | | | |
| Weight (Kg) | 0.6 | 0.8 | 1.4 | 2.2 | 3.6 | 6 |

## Plunger Spring, Contact Bolt & Mounting Dimension Table :

| Model No. | | WFSA-09-40 | WFSA-09-48 | WFSA-09-55 | WFSA-09-65 | WFSA-09-75 | WFSA-09-90 |
|---|---|---|---|---|---|---|---|
| Contact Bolt | ØBA | 12.5 | 12.5 | 16.5 | 16.5 | 21.5 | 30 |
| | BB | 4 | 4 | 6 | 6 | 9 | 9 |
| | BC | 13 | 13 | 16 | 16 | 20 | 28 |
| | ØEB | 7.5 | 7.5 | 10 | 10 | 13.5 | 13.5 |
| | EC | M10 | M10 | M12 | M12 | M16 | M16 |
| | ØED | 5.5 | 6 | 6 | 6.5 | 9 | 10 |
| | EE | 10 | 10 | 11 | 13 | 16 | 16 |
| | EF | 2 | 2 | 2 | 2.5 | 3 | 3 |
| Mounting Dimension | CA | M5 | M5 | M6 | M6 | M8 | M10 |
| | ØCB | 2 | 2.5 | 2.5 | 3 | 5 | 5 |
| | DA | 3.5 | 3.5 | 3.5 | 3.5 | 4.5 | 4.5 |
| | ØDB | 14 | 14 | 14 | 14 | 18 | 18 |
| | ØC+0.2 | 40 | 48 | 55 | 65 | 75 | 90 |
| | D | 39 | 40 | 46 | 57 | 73 | 89 |
| Plunger Spring Housing Dimension | ØFA | 5.8 | 5.8 | 6 | 6.4 | 10 | 10 |
| | ØFB | 8.5 | 8.5 | 10.2 | 10.2 | 14 | 14 |
| | FC | 9.5 | 10 | 12 | 16 | 21 | 44 |
| | FD | 6 | 6 | 6 | 8 | 12 | 12 |
| | FE | 2 | 2 | 2 | 2 | 2 | 2 |
| | FF | 7.5 | 19.5 | 20 | 29.5 | 30 | 38.5 |



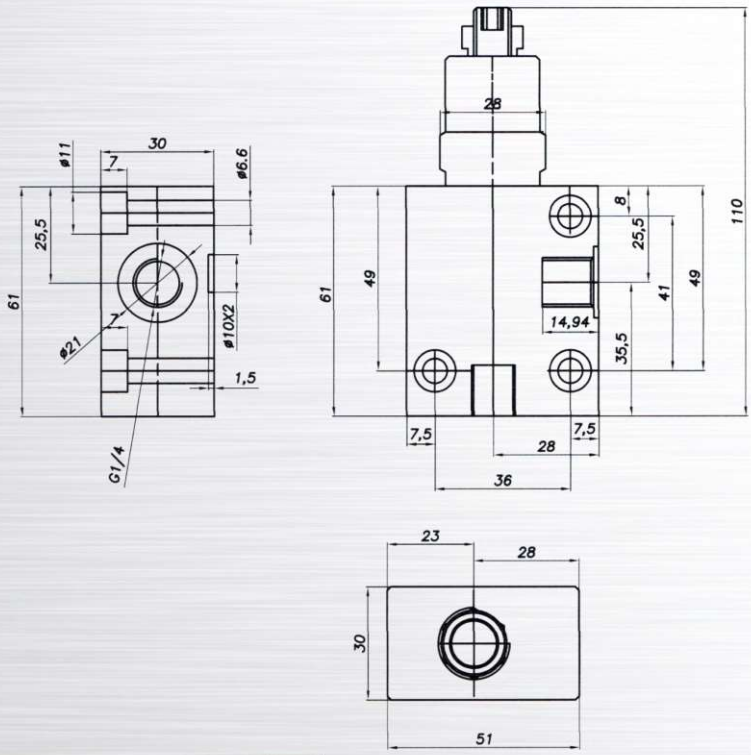
Email : shresvt@gmail.com

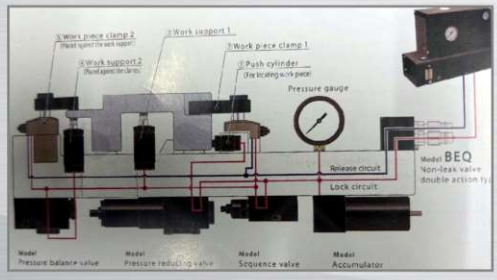

# Sequence Valve (External)

## Features:

- This is a cartridge type with compact design.
- It is a G1/4 port with alloy steel body.
- It is hydraulic & space saving mounting.
- These valves can be used for external piping option & internal piping option.
- It can be used in the range of 1 MPa (minimum operating pressure)
  10 Mpa ( maximum operating pressure)
  70 bar

## External Dimension Drawing : External Sequence Valve Product Code : SV11 EX02





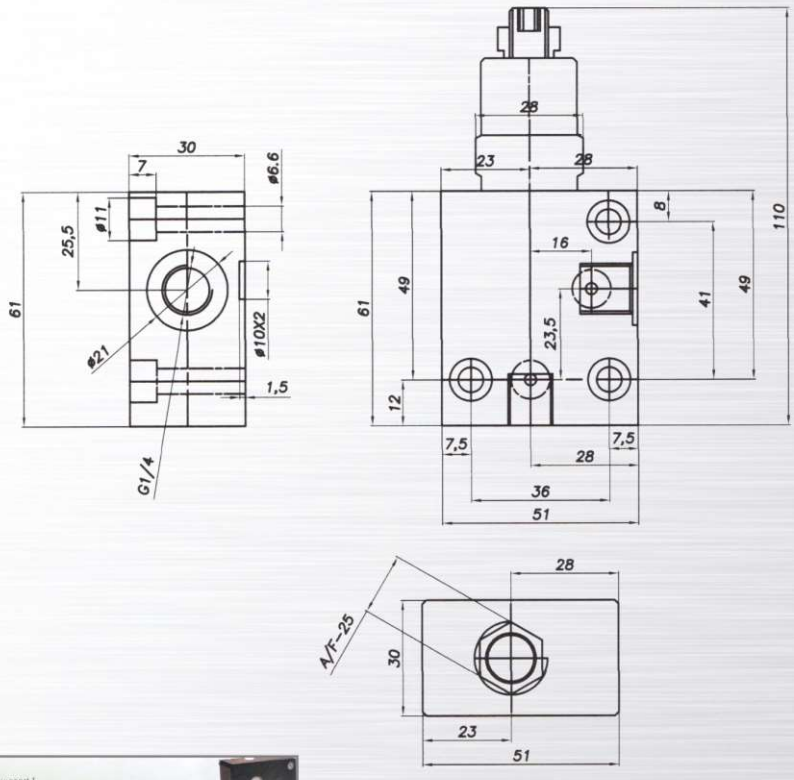

Email : shresvt@gmail.com

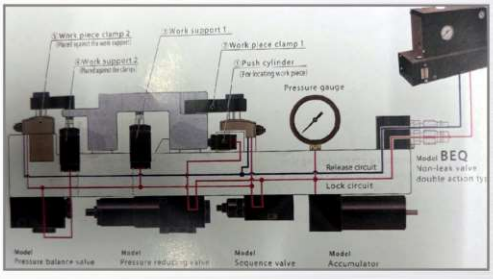

# Sequence Valve (Internal)

## Features:

- This is a cartridge type with compact design.
- It is a G1/4 port with alloy steel body.
- It is hydraulic & space saving mounting.
- These valves can be used for external piping option & internal piping option.
- It can be used in the range of 1 MPa (minimum operating pressure)
  10 Mpa ( maximum operating pressure)
  70 bar

## External Dimension Drawing : Internal Sequence Valve  Product Code : SV11 IN03






Email : shresvt@gmail.com

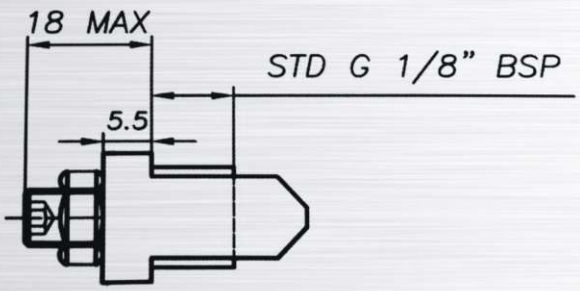
# Flow Control Valve G181 & G142

## Features:

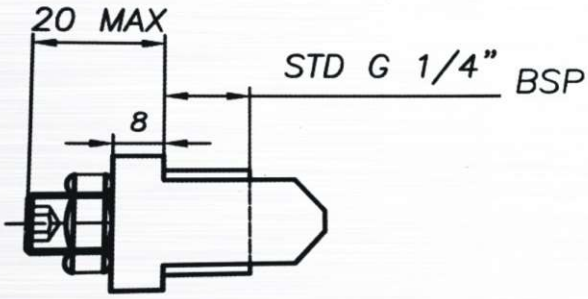
- This is a alloy steel body type with compact design.
- It can be directly mounted on to individual elements like cylinders or
- work supports.
  It is hydraulic & internal mounting.
- These valves do not required external speed control.
- It can be individual adjustment & very easy.
- It is available in G1/8, G1/4, sizes. & 101pm ( maximum flow allowed)

## External Dimension Drawing :

### FC-10-181




### FC-10-142




- Directly mounted to clamps

Flow control valve, air bleeding valve, G-thread plug for G-thread (-C option) directly mounted.


Speed control valve

Speed control valve
Model

Speed control valve
Model

G thread plug
Model

Model



Email : shresvt@gmail.com

# Rotary Union - 2 Port

## Low Rpm Hydraulic Rotary Union


### Features:

- This is hydraulic 2port type with compact design.
- It is a G1/4 port housing with alloy steel body.
- These distributors can be mounted through single screw from back side.
- It can be used in the range of 1-30 MPa (maximum operating pressure)

  18lpm ( maximum flow allowed)

  15 mpa

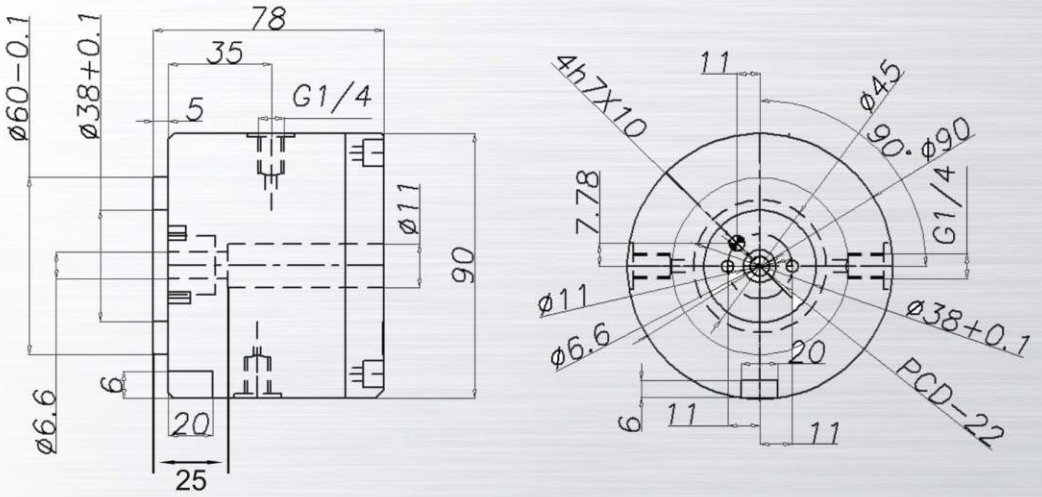
  70 bar

### Applications:

- It is used for clamp & de-clamp oil connections through rotating medium.
- Used for air & oil connections in parallel.
- It can be available in 2 port(min) to 12 port (max) design.

**External Dimension Drawing :**

## 2 - Port Rotary (MTG) Details






Email : shresvt@gmail.com

# Rotary Union - 4 Port

## Low Rpm Hydraulic Rotary Union


### Features:

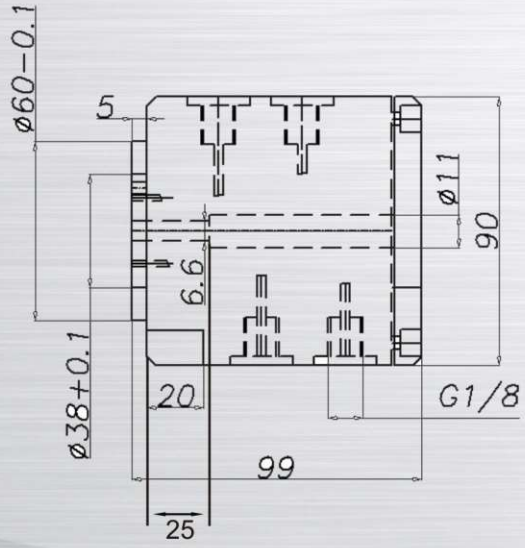
- This is hydraulic 4 port type with compact design.
- It is a G1/4 port housing with alloy steel body.
- These distributors can be mounted through single screw from back side.
- It can be used in the range of 1-30 MPa (maximum operating pressure)
  18lpm ( maximum flow allowed)
  15 mpa
  70 bar

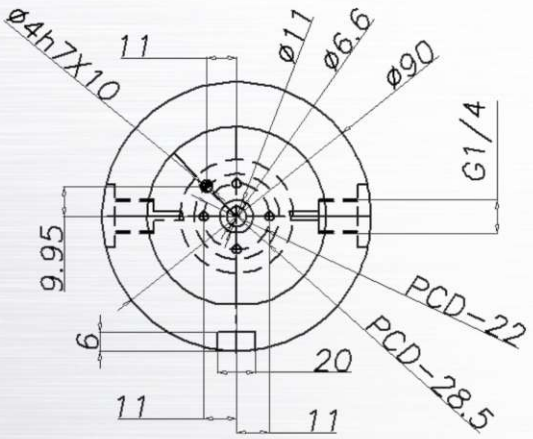
### Applications:

- It is used for clamp & de-clamp oil connections through rotating medium.
- Used for air & oil connections in parallel.
- It can be available in 2 port(min) to 12 port (max) design.

**External Dimension Drawing :**

## 4 - Port Rotary (MTG) Details






Email : shresvt@gmail.com

# Rotary Union - 6 Port

## Low Rpm Hydraulic Rotary Union


### Features:

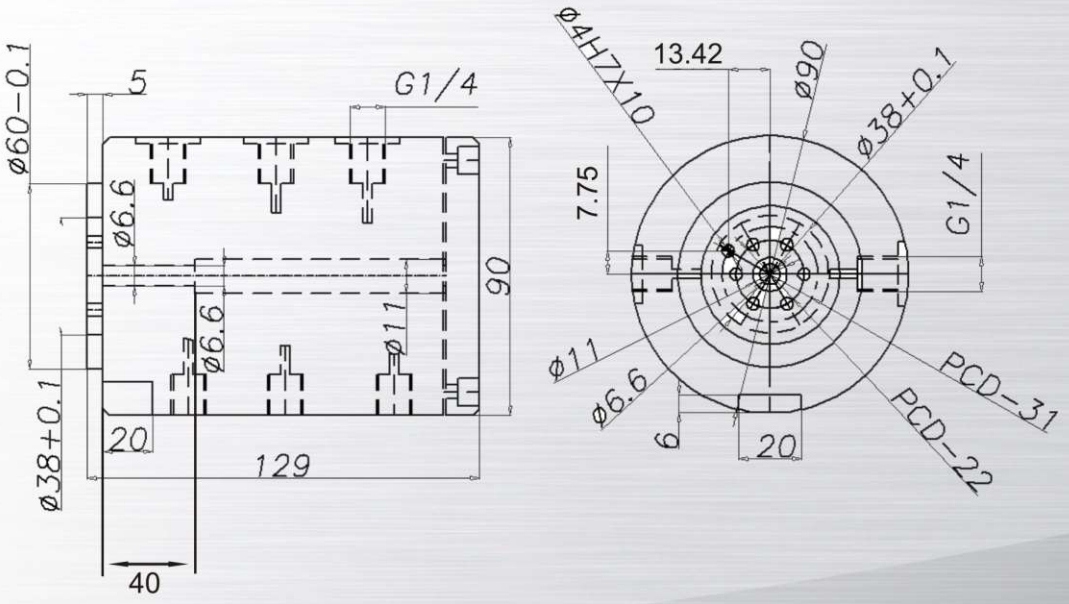
- This is hydraulic **6** port type with compact design.
- It is a G1/4 port housing with alloy steel body.
- These distributors can be mounted through single screw from back side.
- It can be used in the range of 1-30 MPa (maximum operating pressure)
  18lpm ( maximum flow allowed)
  15 mpa
  70 bar N (pushing force)

### Applications:

- It is used for clamp & de-clamp oil connections through rotating medium.
- Used for air & oil connections in parallel.
- It can be available in 2 port(min) to 12 port (max) design.

**External Dimension Drawing :**

## 6 - Port Rotary (MTG) Details






Email : shresvt@gmail.com

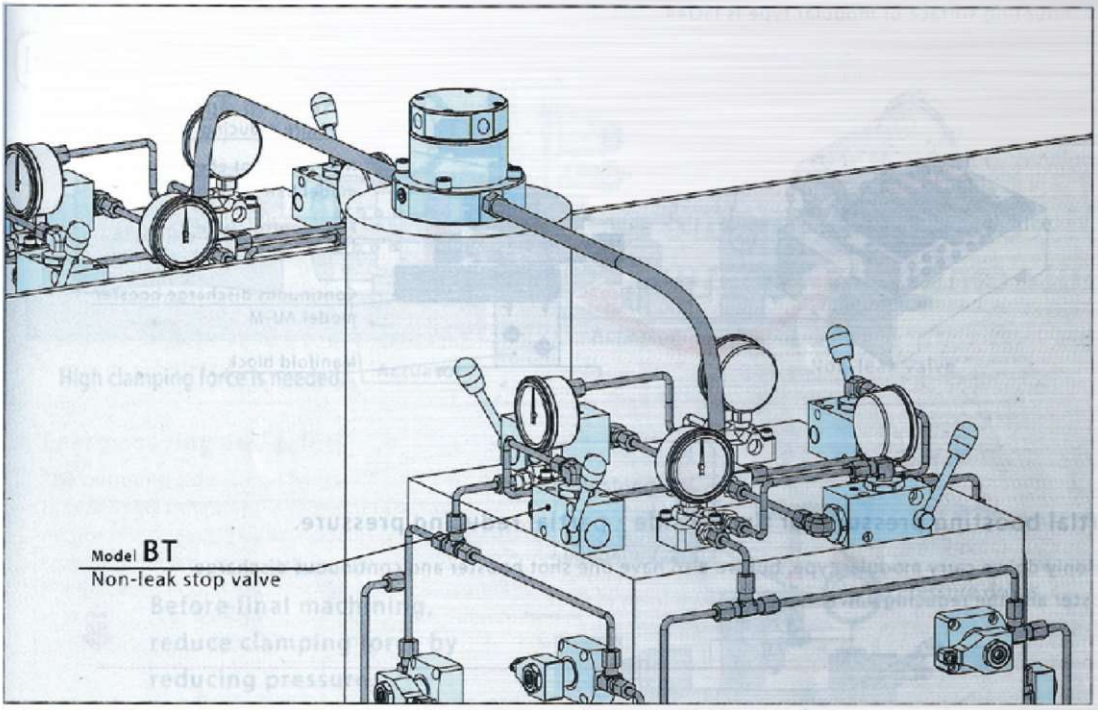
Product Code : CFTR-17

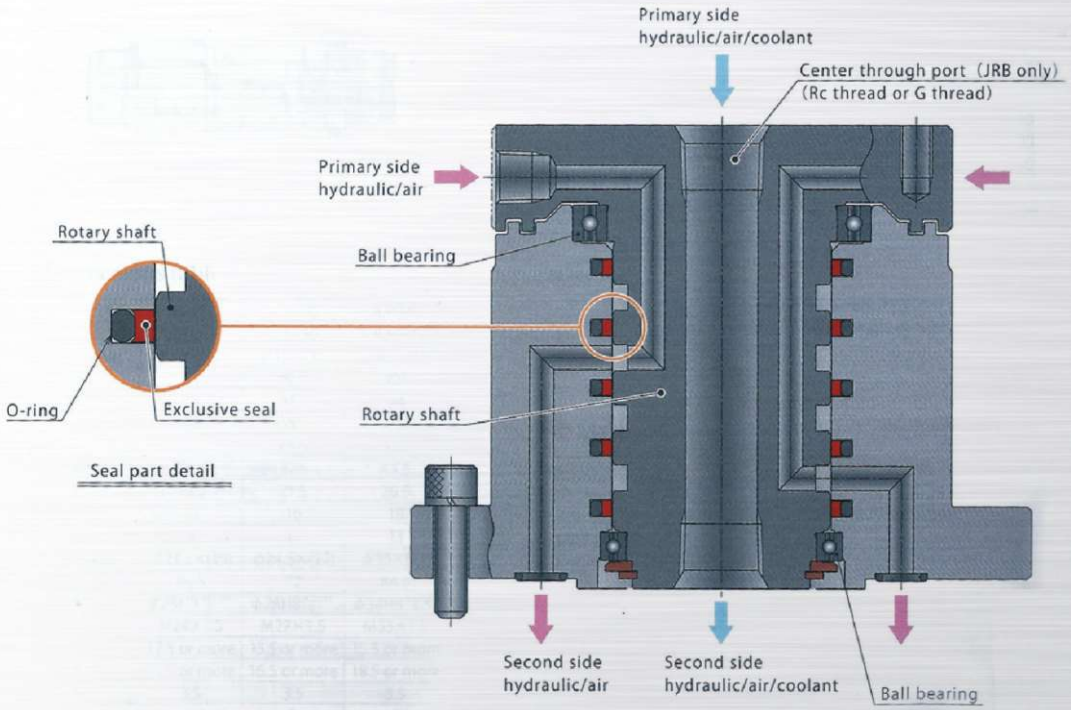
# Customized Flange Type Rotary



Email : shresvt@gmail.com

# Rotary Union Exampal






Email : shresvt@gmail.com

Product Code : CFTR-17

# Customized Flange Type Rotary

## Low Rpm Hydraulic Rotary Union


### Features:

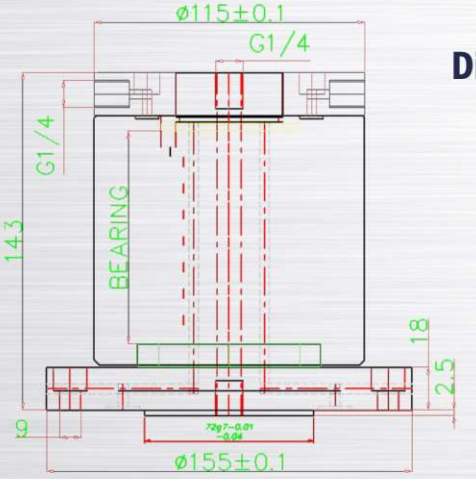
- This is hydraulic 4 port type with compact design.
- It is a G1/4 port housing with alloy steel body.
- These distributors can be mounted through single screw from back side.
- It can be used in the range of 1-30 MPa (maximum operating pressure)
  18lpm ( maximum flow allowed)
  15 mpa
  70 bar

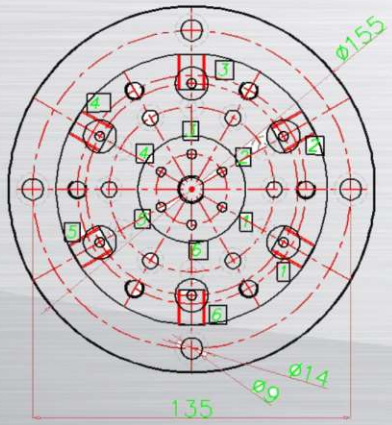
### Applications:

- It is used for clamp & de-clamp oil connections through rotating medium.
- Used for air & oil connections in parallel.
- It can be available in 2 port(min) to 12 port (max) design.

### External Dimension Drawing :

**SPL (Customised Machine Rotary (Sample)**




**Different Types of Customized Rotary**

**Made to order : 2-Port to 12-Port**



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# Customized Shaft Type Rotary

## Low Rpm Hydraulic Rotary Union

## Features:

- This is hydraulic 4 port type with compact design.
- It is a G1/4 port housing with alloy steel body.
- These distributors can be mounted through single screw from back side.
- It can be used in the range of 1-30 MPa (maximum operating pressure)
  18lpm ( maximum flow allowed)
  15 mpa
  70 bar

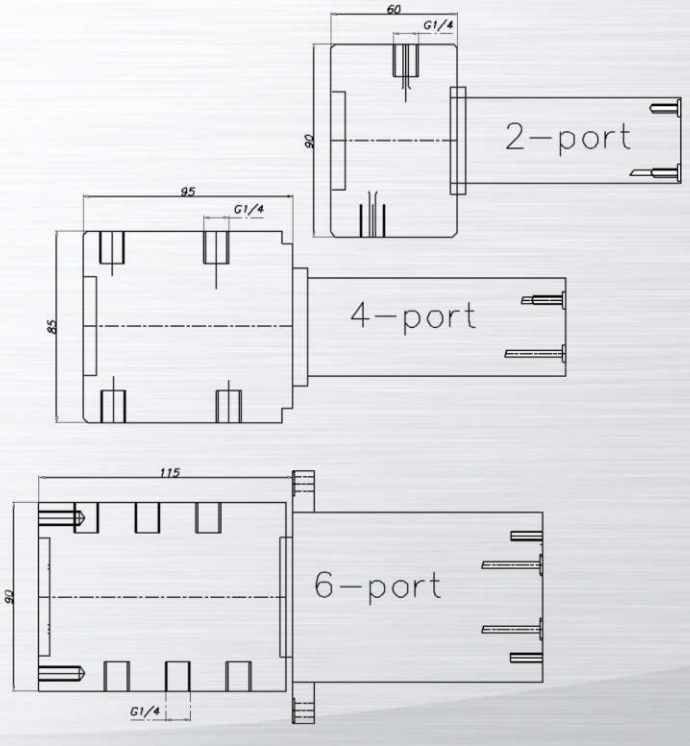
## Applications:

- It is used for clamp & de-clamp oil connections through rotating medium.
- Used for air & oil connections in parallel.
- It can be available in 2 port(min) to 12 port (max) design.

## External Dimension Drawing :

### Different Types of Customized Rotary

### Made to order : 2-Port to 8-Port



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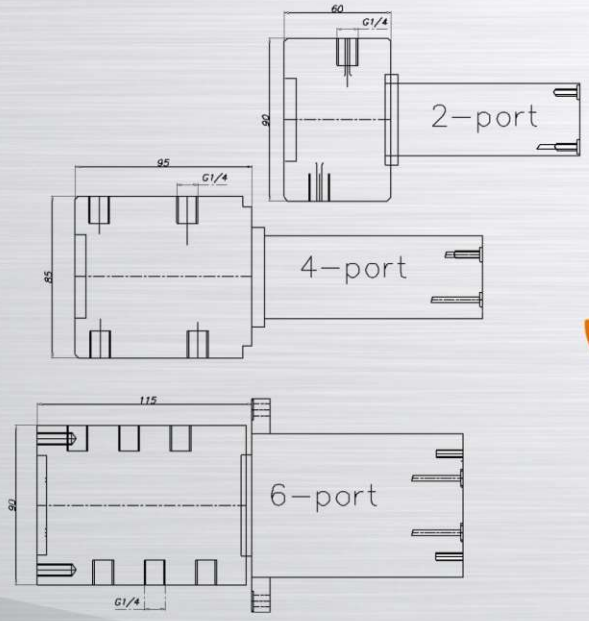
# Applications Sample shaft Type Rotary

**Applications Sample**

- It is used for clamp & de-clamp oil connections through rotating medium.
- Used for air & oil connections in parallel.
- It can be available in 2 port(min) to 8 port (max) design.

## External Dimension Drawing :

## Different Shaft Types of Customized Rotary




## Application



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# High Speed Rotary

Product Code : HRU-200-18


## Rotary

Rotary Joints Rotary Joints convey Fluid Under Pressure fro a stationary source to a rotating system or vice versa. They are also referenda Rotating unions, Rotary couplings, Swivel Joints etc.

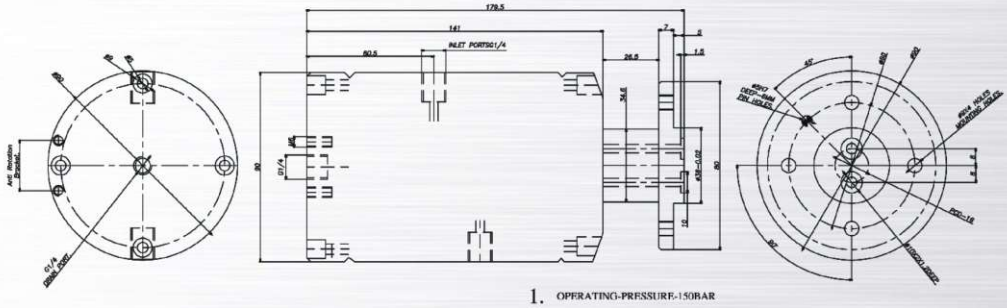
We also provide Customised solutions for individual applications based on the specific operating parameters demanded by each customer designs / application.

There is no filter provided with this product to prevent foreign materials & contaminants from getting into the hydraulic system & pipes.

## Application

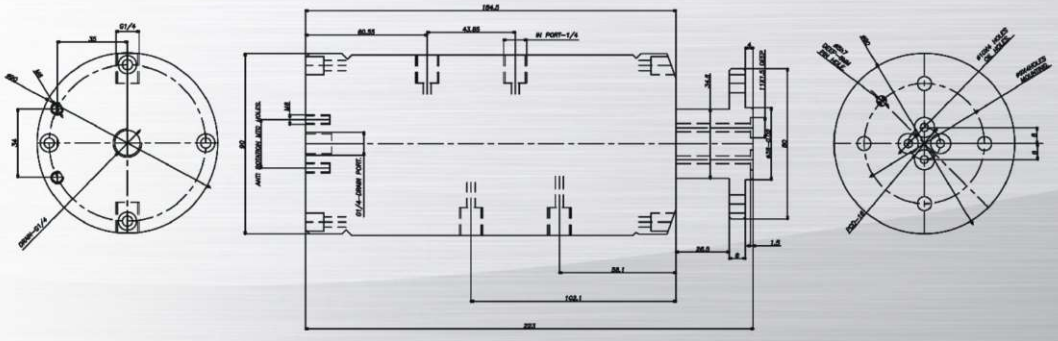
- Earth moving Equipments
- Material Handling Equipments
- Machine Tools
- Hydro Electric Turbines
- Special Purpose Machines
- Robotics & Automation
- Mobile Cranes
- Wagon Tipplers
- Test Rigs & Simulators
- Automation
- Mining Equipments.
- Available in 2 port & 4 port

## External Dimension Drawing : _____ Model No. HRU200-2P



1. OPERATING-PRESSURE-150BAR
2. RATED FLOW CAPACITY- 25LPM
3. OPERATING-PRESSURE-150BAR
4. Connection to the housing must be using flexible hoses.
5. used oring dia-8x2 2ns oring face sealing

## External Dimension Drawing : _____ Model No. HRU400-4P





Email : shresvt@gmail.com

# Tie Rod Cylinder

## Basic Cylinder

ME5- Head Mounting Rectangular

ME6- Head Mounting Rectangular

MT1- Head Mounting Integral Trunnion

MT2- Cap Mounting Integral Trunnion

MT4-Mounting with Intermediate Fixed Trunnion

MX2- Cap Mounting Tie Rods Extended

MX3- Head Mounting Tie Rods Extended

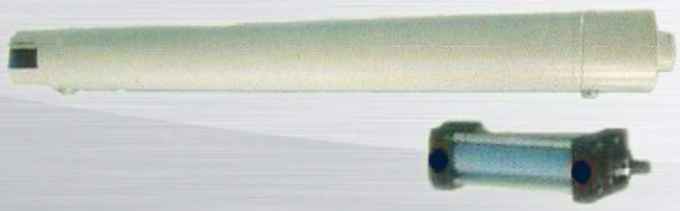
MP1- Cap Mounting Fixed Clevis

MP3- Cap Mounting Fixed Eye

MS2- Mounting with side Lugs

### Features :

- This is hydraulic basic cylinder with cushioning from 63 mm bore onwards.
- It is used for bronze filled telfon seals with minimum speed & without stick-slip (5mm/min).
- It can be used in the range of 160 bar (maximum operating pressure)
  12 m/min ( maximum reciprocating speed )
  3-5 bar (break away pressure)
  20mm (standard cushioning length)
  400mm/min or less(minimum cushioning speed)





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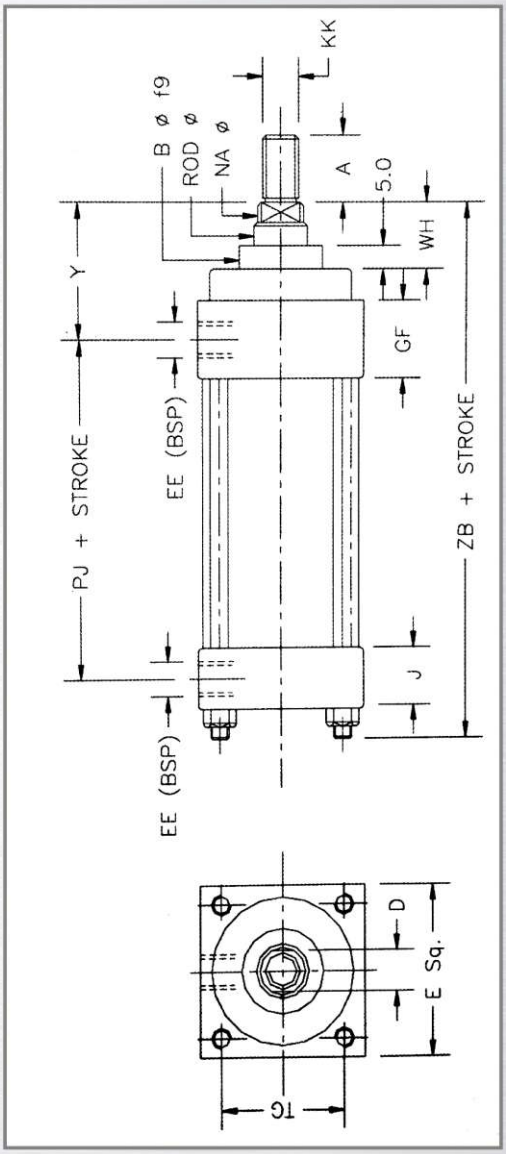
## Out line Dimension :




## Dimension Table :

| BORE | ROD | | A | | B | | D | | E | EE | GF | J | KK | | NA | | PJ | TG | WH | Y | ZB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 12 | | 14 | | 24 | | 10 | | 40 | 1/4" | 35 | 20 | M10x1.25 | | 11 | | 53 | 28.3 | 15 | 50 | 121 |
| 40 | 18 | 28 | 18 | 28 | 30 | 42 | 15 | 22 | 63 | 3/8" | 39 | 30 | M14x1.5 | M20x1.5 | 17 | 26 | 73 | 41.7 | 25 | 62 | 166 |
| 50 | 22 | 36 | 22 | 36 | 34 | 50 | 18 | 30 | 75 | 1/2" | 40 | 32 | M16x1.5 | M27x2 | 21 | 34 | 74 | 52.3 | 25 | 67 | 176 |
| 63 | 28 | 45 | 28 | 45 | 42 | 60 | 22 | 36 | 90 | 1/2" | 37 | 32 | M20x1.5 | M33x2 | 26 | 43 | 80 | 64.3 | 32 | 71 | 185 |
| 80 | 36 | 56 | 36 | 56 | 50 | 72 | 30 | 46 | 115 | 3/4" | 44 | 38 | M27x2 | M42x2 | 34 | 54 | 93 | 82.7 | 31 | 77 | 212 |
| 100 | 45 | 70 | 45 | 63 | 60 | 88 | 36 | 60 | 130 | 3/4" | 43 | 38 | M33x2 | M48x2 | 43 | 68 | 101 | 96.9 | 35 | 82 | 225 |



Email : shresvt@gmail.com

# Tie Rod Cylinder Hydraulic

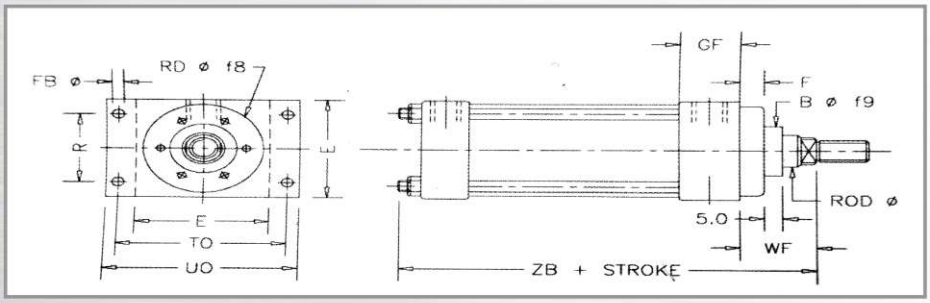
## Features :

- This is hydraulic basic cylinder with cushioning from 63 mm bore onwards.
- It is used for bronze filled telfon seals with minimum speed & without stick-slip (5mm/min).
- These are high finish on cylinder tube for long seal life.
- All cylinders confirm to ISO standarads.
- It can be used in the range of 0.5 MPa (minimum operating pressure)
  16MPa ( maximum operating pressure )
  Ø63 (cushioning from high bore)

## Applications :

- It is used for clamp work pieces (push or pull method).
- Used for design (direct mounting on th application).
- These are used for various combination of endings & mounting.
- Used for international quality seals with hard chrome plated & ground piston.
- It can clamp a wide range of components (used in assembly auto machine).

## ME5 - Head Mounting Rectangular :




| BORE | ROD | | F | FB | R | RD | | TO | UO | WF |
|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 12 | | 10 | 5.5 | 27 | 38 | | 51 | 65 | 25 |
| 40 | 18 | 28 | 10 | 11 | 41 | 62 | 62 | 87 | 110 | 35 |
| 50 | 22 | 36 | 16 | 14 | 52 | 74 | 74 | 105 | 130 | 41 |
| 63 | 28 | 45 | 16 | 14 | 65 | 75 | 88 | 117 | 145 | 48 |
| 80 | 36 | 56 | 20 | 18 | 83 | 82 | 105 | 149 | 180 | 51 |
| 100 | 45 | 70 | 22 | 18 | 97 | 92 | 125 | 162 | 200 | 57 |



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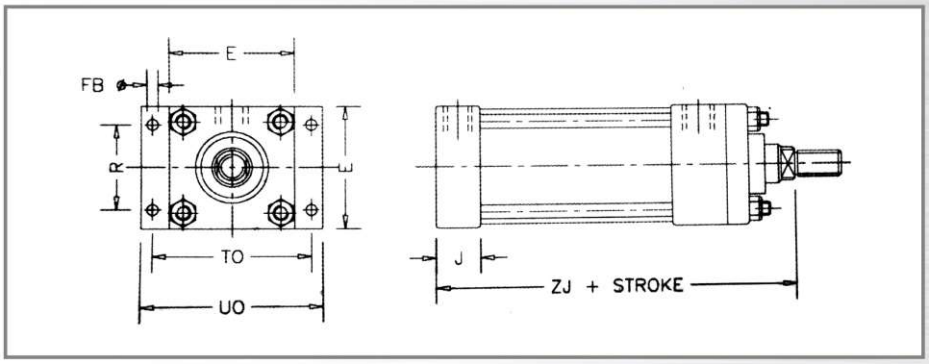
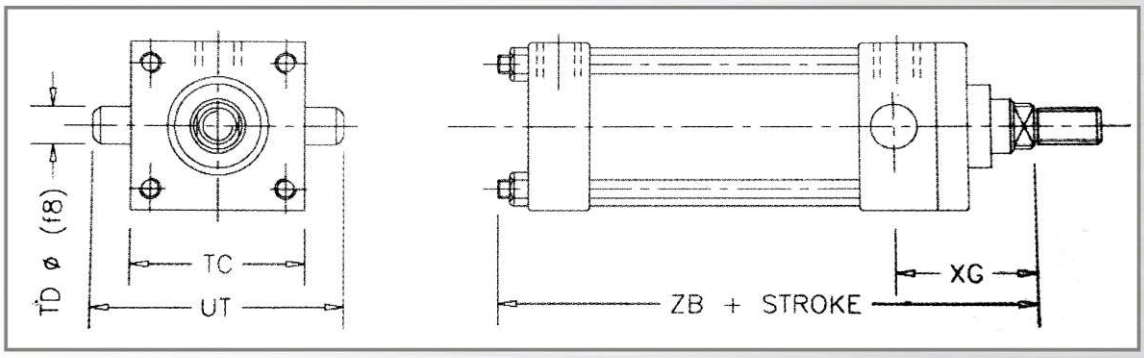
## ME6 - Cap Mounting Rectangular :




| BORE | E | FB | J | R | TO | UO | ZJ |
|---|---|---|---|---|---|---|---|
| 25 | 40 | 5.5 | 20 | 27 | 51 | 65 | 114 |
| 40 | 63 | 11 | 30 | 41 | 87 | 110 | 153 |
| 50 | 75 | 14 | 32 | 52 | 105 | 130 | 159 |
| 63 | 90 | 14 | 32 | 65 | 117 | 145 | 168 |
| 80 | 115 | 18 | 38 | 83 | 149 | 180 | 190 |
| 100 | 130 | 18 | 38 | 97 | 162 | 200 | 203 |

## MT1 - Head Mounting integral Trunnion :




| BORE | TC | TD | UT | XG | ZB |
|---|---|---|---|---|---|
| 25 | 38 | 12 | 58 | 44 | 121 |
| 40 | 63 | 20 | 95 | 57 | 166 |
| 50 | 76 | 25 | 116 | 64 | 176 |
| 63 | 89 | 32 | 139 | 70 | 185 |
| 80 | 114 | 40 | 178 | 76 | 212 |
| 100 | 127 | 50 | 207 | 71 | 225 |



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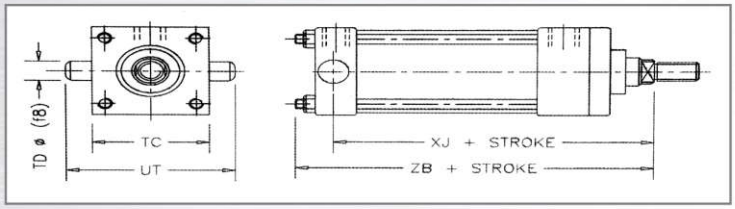
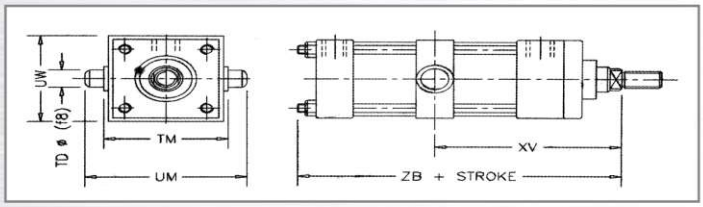
# Tie Rod Cylinder

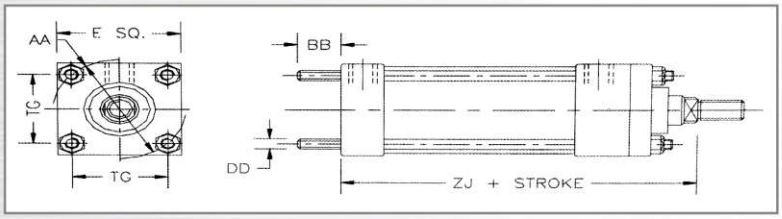
## MT2 - Cap Mounting Integral Trunnion



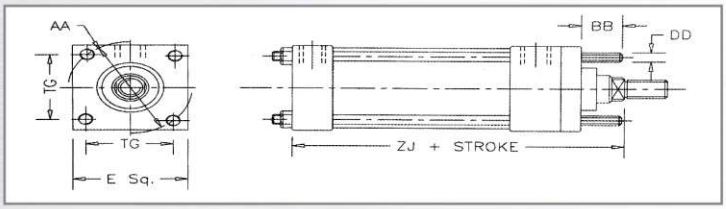

## MT4 - Mounting with Intermediate Fixed Trunnion



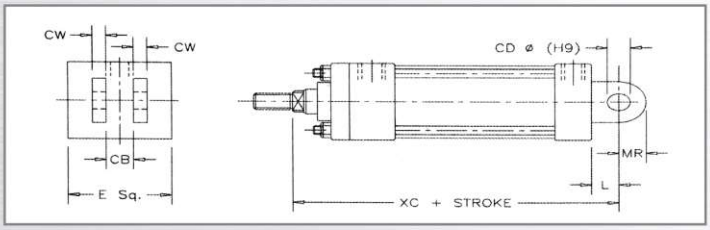

## MX2- Cap Mounting Tie Rods Extended



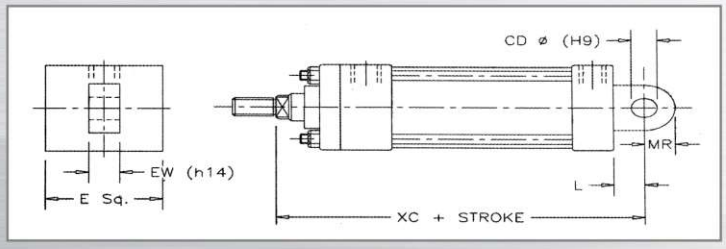

## MX3- Head Mounting Tie Rods Extended




## MP1- Cap Mounting Fixed Clevis




## MP3- Cap Mounting Fixed Eye



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## Dimension Table :

| BORE | TC | TD | UT | XJ | ZB |
|---|---|---|---|---|---|
| 25 | 38 | 12 | 58 | 101 | 121 |
| 40 | 63 | 20 | 95 | 134 | 166 |
| 50 | 76 | 25 | 116 | 140 | 176 |
| 63 | 89 | 32 | 139 | 149 | 185 |
| 80 | 114 | 40 | 178 | 168 | 212 |
| 100 | 127 | 50 | 207 | 187 | 225 |

| BORE | TD | TM | UM | UW | XV | ZB |
|---|---|---|---|---|---|---|
| 25 | 12 | 48 | 68 | 63 | To be specified | 121 |
| 40 | 20 | 76 | 108 | 92 | | 166 |
| 50 | 25 | 89 | 129 | 112 | | 176 |
| 63 | 32 | 100 | 150 | 126 | | 185 |
| 80 | 40 | 127 | 191 | 160 | | 212 |
| 100 | 50 | 140 | 220 | 180 | | 225 |

| BORE | AA | BB | DD | E | TG | ZJ |
|---|---|---|---|---|---|---|
| 25 | 40 | 19 | M 5x0.8 | 40 | 28.3 | 114 |
| 40 | 59 | 35 | M 8x1.0 | 63 | 41.7 | 153 |
| 50 | 74 | 46 | M 12x1.25 | 75 | 52.3 | 159 |
| 63 | 91 | 46 | M 12x1.25 | 90 | 64.3 | 168 |
| 80 | 117 | 59 | M 16x1.5 | 115 | 82.7 | 190 |
| 100 | 137 | 59 | M 16x1.5 | 130 | 96.9 | 203 |

| BORE | AA | BB | DD | E | TG | ZJ |
|---|---|---|---|---|---|---|
| 25 | 40 | 19 | M 5X0.8 | 40 | 28.3 | 114 |
| 40 | 59 | 35 | M 8X1.0 | 63 | 41.7 | 153 |
| 50 | 74 | 46 | M 12X1.25 | 75 | 52.3 | 159 |
| 63 | 91 | 46 | M 12X1.25 | 90 | 64.3 | 168 |
| 80 | 117 | 59 | M 16X1.5 | 115 | 82.7 | 190 |
| 100 | 137 | 59 | M 16X1.5 | 130 | 96.9 | 203 |

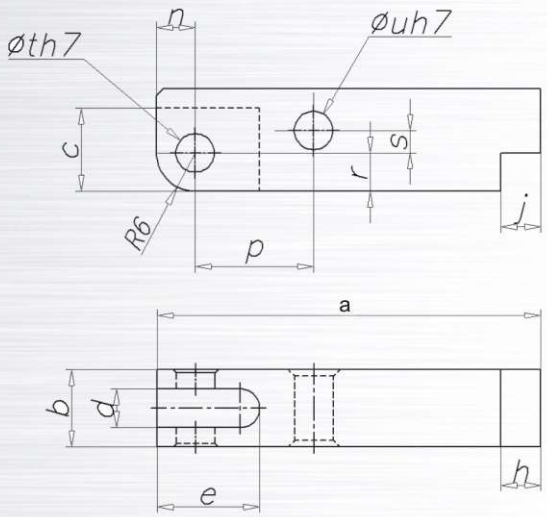
| BORE | A | | CB | CD | CW | E | L | MR | XC |
|---|---|---|---|---|---|---|---|---|---|
| 25 | 14 | | 12 | 10 | 6 | 40 | 13 | 12 | 127 |
| 40 | 18 | 28 | 20 | 14 | 10 | 63 | 19 | 17 | 172 |
| 50 | 22 | 36 | 30 | 20 | 15 | 75 | 32 | 29 | 191 |
| 63 | 28 | 45 | 30 | 20 | 15 | 90 | 32 | 29 | 200 |
| 80 | 36 | 56 | 40 | 28 | 20 | 115 | 39 | 34 | 229 |
| 100 | 45 | 63 | 50 | 36 | 25 | 130 | 54 | 50 | 257 |

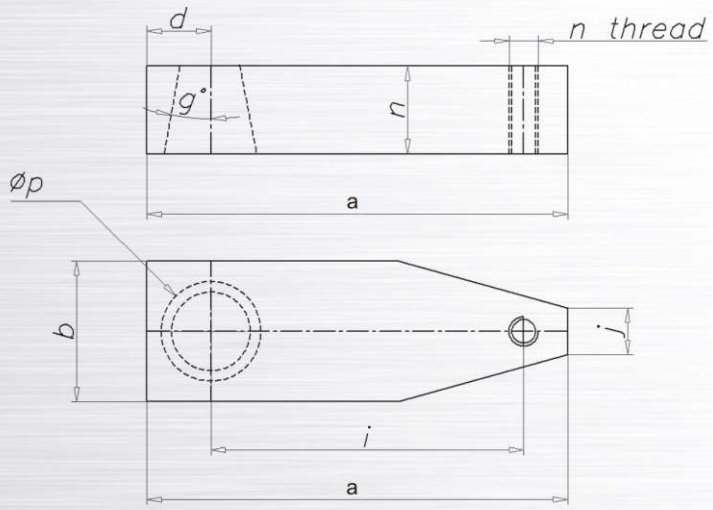
| BORE | A | | CD | E | EW | L | MR | XC |
|---|---|---|---|---|---|---|---|---|
| 25 | 14 | | 10 | 40 | 12 | 13 | 12 | 127 |
| 40 | 18 | 28 | 14 | 63 | 20 | 19 | 17 | 172 |
| 50 | 22 | 36 | 20 | 75 | 30 | 32 | 29 | 191 |
| 63 | 28 | 45 | 20 | 90 | 30 | 32 | 29 | 200 |
| 80 | 36 | 56 | 28 | 115 | 40 | 39 | 34 | 229 |
| 100 | 45 | 63 | 36 | 130 | 50 | 54 | 50 | 257 |

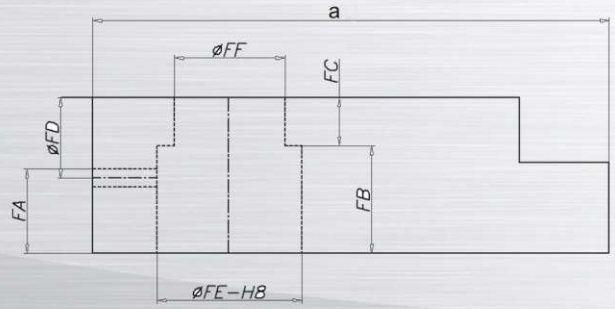


Email : shresvt@gmail.com

# Standered Clamp Arm






Email : shresvt@gmail.com

## Clamp Arm table Standard: FOR TC01/TSAC-01

| Model No. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | C | TC01-360 | TC01-400 | TC01-480 | TC01-550 | TC01-650 | TC01-750 | TC01-900 | TC01-1050 |
| | R | TC01-361 | TC01-401 | TC01-481 | TC01-551 | TC01-651 | TC01-751 | TC01-901 | TC01-1051 |
| | L | TC01-362 | TC01-402 | TC01-482 | TC01-552 | TC01-652 | TC01-752 | TC01-902 | TC01-1052 |
| a | | 60 | 70 | 80 | 90 | 100 | 110 | 150 | 200 |
| b | | 10 | 12 | 12 | 16 | 19 | 22 | 25 | 32 |
| c | | 13 | 14 | 16 | 20 | 25 | 32 | 38 | 45 |
| d | | 5 | 6 | 6 | 8 | 10 | 11 | 13 | 16 |
| e | | 13 | 14.5 | 16 | 17 | 22 | 26 | 31 | 36 |
| g | | 10 | 12 | 13 | 17 | 18 | 22 | 26 | 31 |
| h | | 10.5 | 13 | 13 | 17 | 22 | 25 | 31 | 38 |
| j | | 3 | 3 | 3 | 4 | 5 | 5 | 6 | 6 |
| n | | 4.5 | 5.5 | 6 | 6 | 8 | 10 | 11 | 13 |
| p | | 14.5 | 16 | 18.5 | 21 | 24.5 | 30 | 36 | 44 |
| r | | 4.5 | 5.5 | 6 | 6 | 8 | 10 | 11 | 13 |
| s | | 2.5 | 2.5 | 3.5 | 6 | 7.5 | 9.5 | 13 | 16 |
| Øt | | 5 | 6 | 6 | 6 | 8 | 10 | 12 | 15 |
| Øu | | 5 | 6 | 6 | 8 | 10 | 12 | 15 | 18 |

## Clamp arm table without sleeve Standard: FOR SC02-SB03

| Model | 90RH | SC02- 361 R | SC02- 401 R | SC02- 481 R | SC02- 551 R | SC02- 651 R | SC02- 751 R | SC02- 901 R | SC02- 1051 R |
|---|---|---|---|---|---|---|---|---|---|
| | 90LH | SC02- 362 L | SC02- 402 L | SC02- 482 L | SC02- 552 L | SC02- 652 L | SC02- 752 L | SC02- 902 L | SC02- 1052 L |
| a | | 50 | 55 | 65 | 75 | 90 | 100 | 120 | 150 |
| b | | 26 | 28 | 35 | 38 | 50 | 58 | 75 | 90 |
| c | | 11 | 13 | 16 | 22 | 22 | 28 | 34 | 40 |
| d | | 13 | 14 | 17.5 | 19 | 25 | 29 | 38 | 45 |
| g | | 3 | 3 | 3 | 3 | 3 | 5.5 | 5.5 | 5.5 |
| l | | 32 | 36.5 | 42 | 50 | 56.5 | 65 | 75 | 90 |
| j | | 10 | 12 | 12 | 17 | 19 | 22 | 27 | 32 |
| n | | M5 | M6 | M6 | M8 | M8 | M10 | M12 | M16 |
| Øp | | 15 | 18 | 22 | 25 | 30 | 36 | 45 | 55 |

## Clamp arm table with sleeve Standard: FOR SC02-SB03

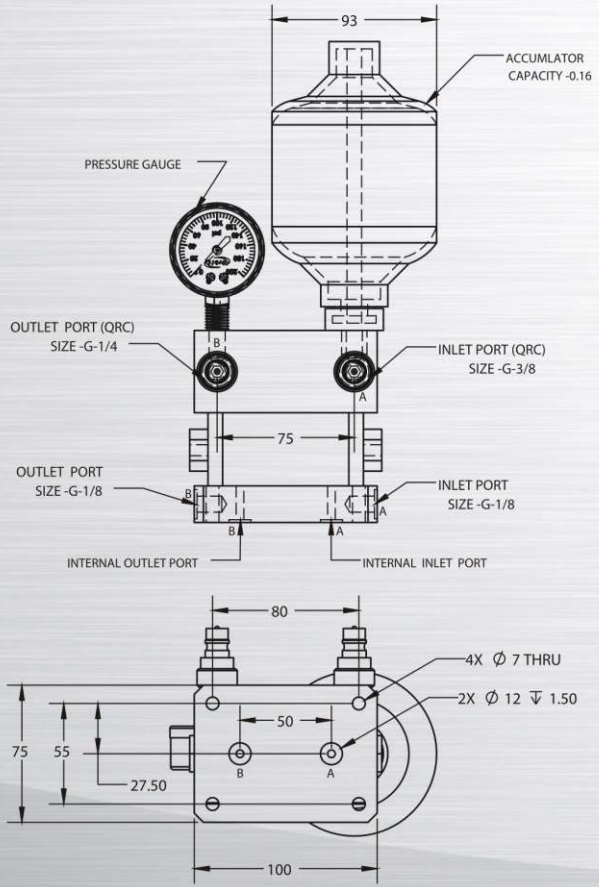
| Model | 90RH | SB03- 361 R | SB03- 401 R | SB03- 481 R | SB03- 551 R | SB03- 651 R | SB03- 751 R | SB03- 901 R | SB03- 1051 R |
|---|---|---|---|---|---|---|---|---|---|
| | 90LH | SB03- 362 L | SB03- 402 L | SB03- 482 L | SB03- 552 L | SB03- 652 L | SB03- 752 L | SB03- 902 L | SB03- 1052 L |
| FA | | 12 | 16 | 19 | 25 | 25 | 32 | 38 | 45 |
| FB | | 9.5 | 13 | 15 | 21 | 21 | 27 | 33 | 39 |
| FC | | 2.5 | 3 | 4 | 4 | 4 | 5 | 5 | 6 |
| FD | | 4.3 | 5.3 | 6.3 | 6.3 | 7.5 | 8.5 | 9.5 | 10.5 |
| ØFE | | 17 | 20 | 25 | 28 | 34 | 40 | 49 | 60 |
| FF | | 13.9 | 16.7 | 20.6 | 23 | 28 | 32.9 | 14.8 | 51.2 |
| FG | | 4 | 5 | 5 | 6 | 6 | 8 | 8 | 8 |

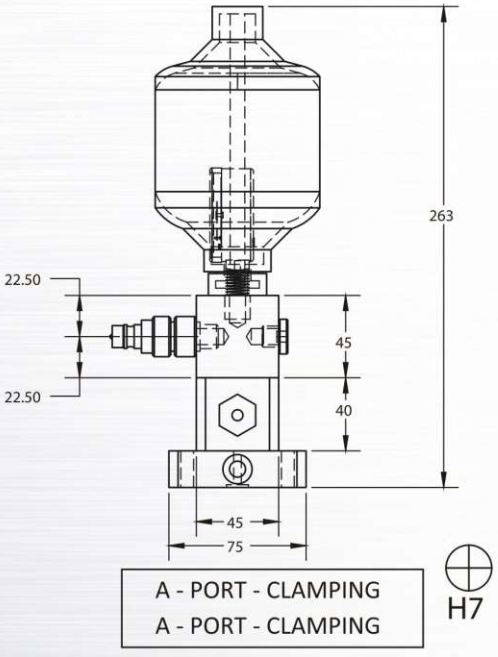


Email : shresvt@gmail.com

Product Code : DCU-21

# D. Coupler Unit



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# Sample




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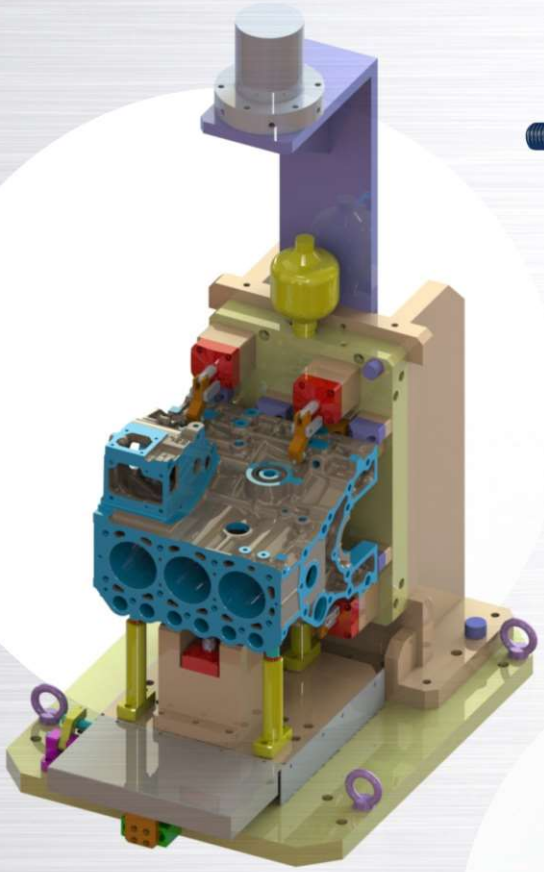
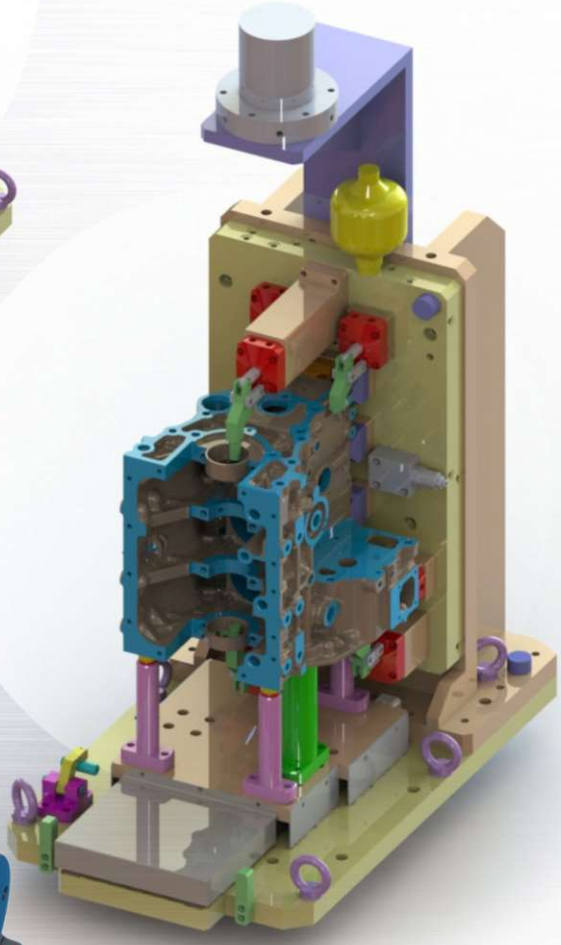
# Applications







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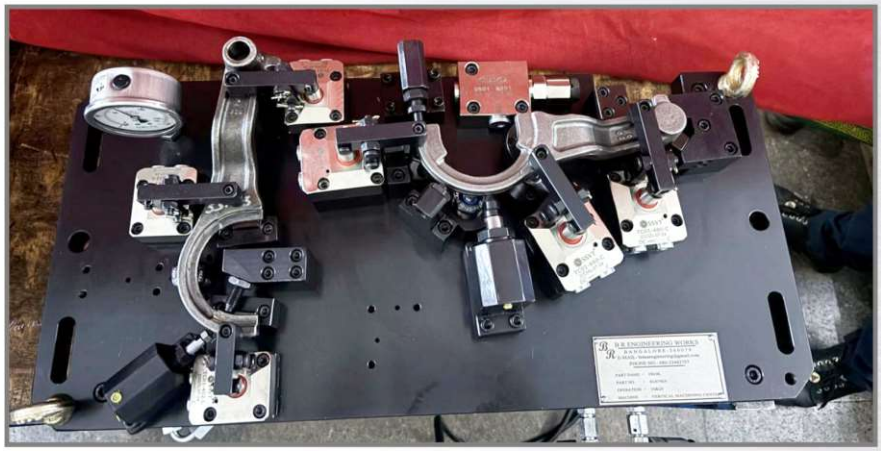
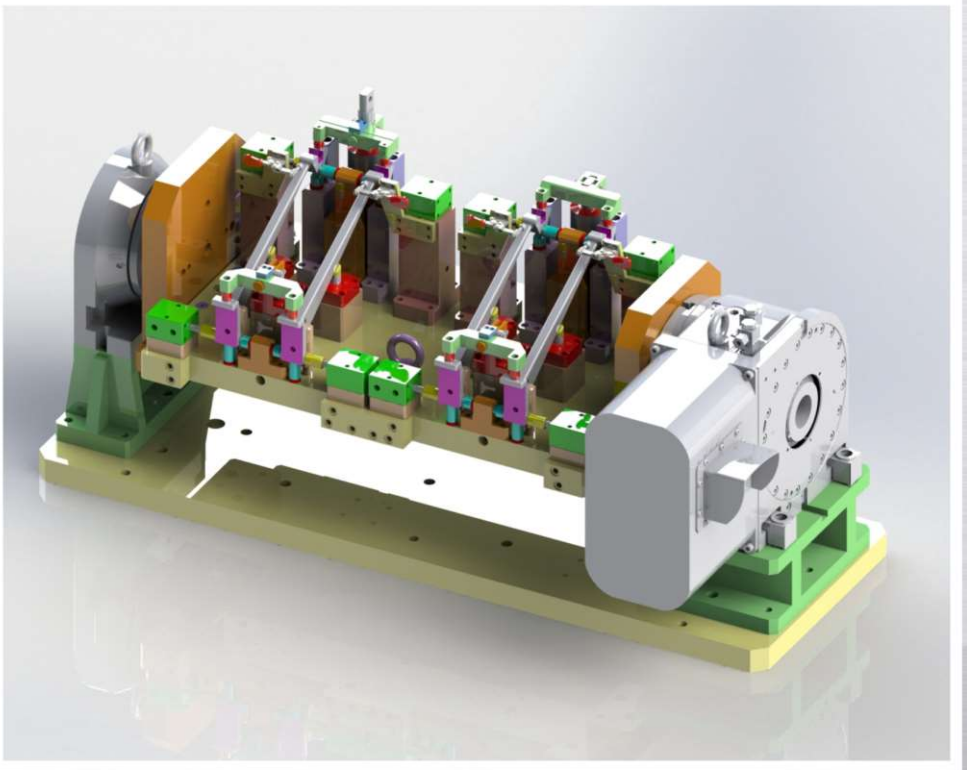
# Applications





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## Warranty :

**Warranty period.**
The product warranty period is for 1.5 years after shipment from our plant or 1 year of use, whichever is shorter.

**Warranty scope.**
Defects or failures caudes by the following are not covered.

1. Proper maintenance & inspections were not performed.
2. The product was used in an imperfect state at the decision of the user.
3. The user did not use or handle the product properly. ( including damages caused by a third party)
4. The cause was due to some factor other than our product.
5. The product was modified or repaired by another company or was modified or repaired without our approval or confirmation.
6. The damage or defect was caused by natural disaster or accident through no fault of our own.
7. Parts & replacements necessary due to wear & tear. ( rubber, plastic, sealant, ceratin electrical components, etc.)

## Our Authorized Dealers :

### MILLENNIUM TOOLINGES

Plot No. 91, House No: 1593
Korgaonkarcolony, Malwadi Shiroli,
Kolhapur-416122 (MH)
Mob : 9049847799
Email : accounts@mtoolings.co.in

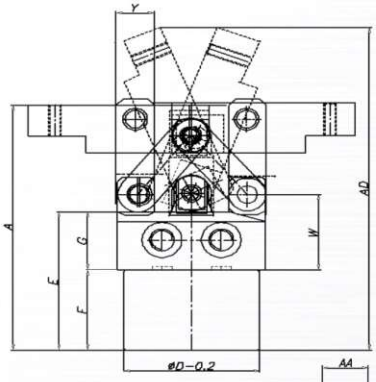
### AG ENTERPRISE

Quality Circle Forum,Gawali Matachowak,
Telco Road, Bhosari Pune-411026
Mob : 9552204600, 7757989988
Email : agenterprise02@gmail.com

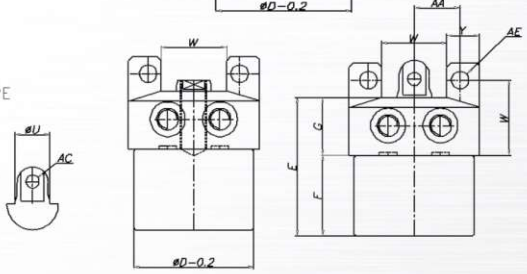
# Double Hinge Toggle Clamp Cylinder

## Standard Type Range - 55/65/75/95/105
## Made to order

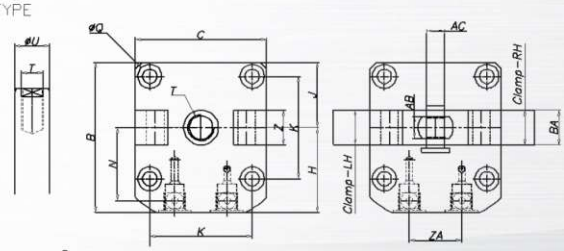





STD−TYPE




FIMALE−TYPE




| Model No. | | C | RH | LH |
|---|---|---|---|---|
| | | TC01-550-C | TC01-551-R | TC01-552-L |
| | | TC01-650-C | TC01-651-R | TC01-652-L |
| | | TC01-750-C | TC01-751-R | TC01-752-L |
| | | TC01-900-C | TC01-901-R | TC01-902-L |
| | | TC01-1050-C | TC01-1051-R | TC01-1052-L |
| BORE DIA | | Ø35 | Ø45 | Ø55 | Ø65 | Ø80 |
| A | | 112.5 | 129.5 | 153 | 182 | 211 |
| B | | 69 | 81 | 94.5 | 111 | 127 |
| C | | 60 | 70 | 85 | 100 | 120 |
| ØD | | 55 | 65 | 75 | 90 | 105 |
| E | | 66 | 74 | 87 | 101 | 117 |
| F | | 37 | 43.5 | 49 | 61 | 65 |
| G | | 28 | 30 | 38 | 40 | 50 |
| H | | 39 | 46 | 52 | 61 | 67 |
| J | | 30 | 35 | 42.5 | 50 | 60 |
| K | | 47 | 55 | 63 | 75 | 88 |
| L | | 88 | 106 | 116 | 136 | 152 |
| M | | 13.50 | 13 | 19.50 | 20 | 22.50 |
| N | | 33.5 | 39.5 | 45 | 52.5 | 60 |
| P | | 3 | 3 | 3 | 3 | 4 |
| Q | | 11 | 11 | 14 | 17.5 | 20 |
| ØR | | 6.8 | 6.8 | 9 | 11 | 14 |
| S | | 19 | 20 | 22 | 22 | 26 |
| T | | 37.5 | 45 | 55 | 65.5 | 77 |
| U | | 16 | 18 | 22 | 28 | 35.5 |
| V | | 31.5 | 37 | 45 | 52 | 62 |
| W | | 35.5 | 39 | 48 | 52.5 | 64 |
| X | | 30 | 35.5 | 43.5 | 52.5 | 64 |
| Y | | 16 | 19 | 25 | 28 | 32 |
| Z | | 28 | 37 | 40 | 49 | 64 |
| ZA | | 24 | 30 | 32 | 37 | 45 |
| Hyd. Port | | G1/8" | G1/4" | G1/4" | G1/4" | G3/8" |
| AA | | 21 | 24.5 | 30 | 36 | 44 |
| AB | | 8 | 10 | 11 | 13 | 16 |
| ØAC | | 6 | 8 | 10 | 12 | 15 |
| ØAE | | 8 | 10 | 12 | 15 | 18 |
| AD | | 101.9 | 111.4 | 130.8 | 146.5 | 173.6 |
| AF | | 53.5 | 59 | 72 | 81 | 98 |
| AG | | 20.2 | 20.5 | 21.4 | 22.4 | 23.1 |
| AH | | 4.7 | 4.3 | 4.5 | 5 | 4.1 |
| BA | | 16 | 19 | 22 | 25 | 32 |
| BB | | 20 | 25 | 32 | 38 | 45 |
| BC | | 29 | 32 | 37.5 | 41.5 | 21 |
| T | | M10 | M12 | M16 | M20 | M20 |

**Specification Table :**

| | | | | | | |
|---|---|---|---|---|---|---|
| Lock Cyl. Area (cm) | | 9.62 | 15.9 | 23.7 | 33.2 | 44.2 |
| Full Stroke mm | | 26 | 29.5 | 35 | 41 | 49 |
| Locking Stroke mm | | 23 | 26.5 | 32 | 38 | 46 |
| Extra Stroke mm | | 3 | 3 | 3 | 3 | 3 |
| Cyl. volume | Lock cm3 | 22.13 | 42.14 | 75.85 | 126.2 | 203.35 |
| | Release cm3 | 17.5 | 35.4 | 63.8 | 102.6 | 157.7 |
| Max operating Pressure (Mpa) | | 15 | | | | |
| Min operating Pressure (Mpa) | | 150 | | | | |
| Design Pressure (Mpa) | | 10.5 | | | | |
| Temperature (0C) | | 0-70 | | | | |
| Weight (Kg) | | 1.80 | 2.50 | 4.20 | 6.50 | 10.20 |

**Machining Dimension Table For Mounting Cylinder :**

| Model No. | C | RH | LH |
|---|---|---|---|
| | TC01-550-C | TC01-551-R | TC01-552-L |
| | TC01-650-C | TC01-651-R | TC01-652-L |
| | TC01-750-C | TC01-751-R | TC01-752-L |
| | TC01-900-C | TC01-901-R | TC01-902-L |
| | TC01-1050-C | TC01-1051-R | TC01-1052-L |
| A | 47 | 55 | 63 | 75 | 88 |
| B | M6 | M6 | M8 | M10 | M12 |
| C+0.2 | 55 | 65 | 75 | 90 | 105 |
| D | 38 | 44.5 | 48 | 62 | 66 |
| E | 33.5 | 39.5 | 45 | 52.5 | 60 |
| F | 24 | 30 | 32 | 37 | 45 |
| G | 3 | 3 | 3 | 3 | 4 |



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