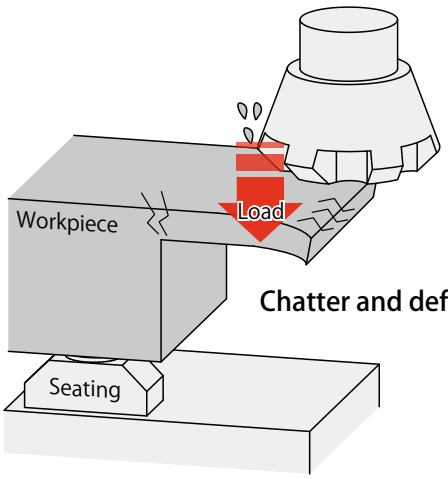
Hydraulic Work Support

Model LD
Model LC
Model TNC
Model TC

Strong Support from opposite side when load is exerted

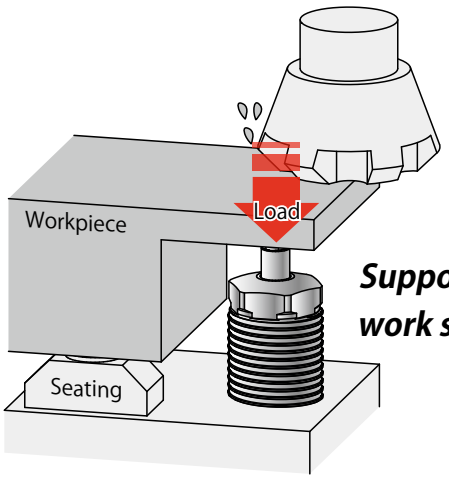
Pioneer and leading innovator of hydraulic work support collet technology. PAT.

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



Chatter and deformation

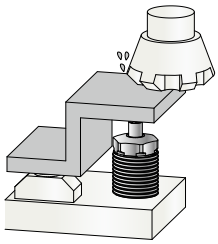
< No work support >



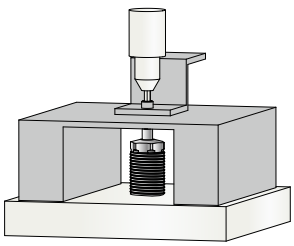
Support by work support

< With work support >

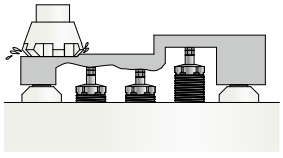
Application Examples



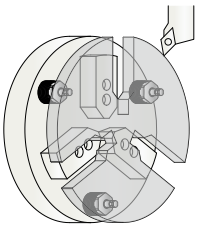
To avoid chattering during machining of thin-walled sections



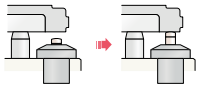
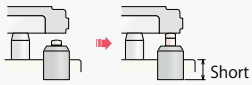
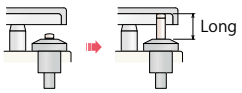
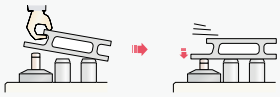
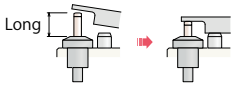
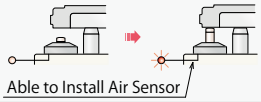
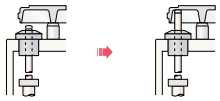
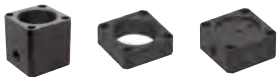
To back up the screw fastener machine and a nut-runner



Workpiece with different heights



To avoid the radial chatter on lathe machining

		Model LD → P.665	Model LC → P.689	Model TNC → P.719	Model TC → P.741
Classification		Low Pressure Single Action External Thread	Low Pressure Single Action Top Flange	High Pressure Single Action External Thread	High Pressure Single Action Top Flange
Operating Pressure Range		2.5～7MPa	2.5～7MPa	7～35MPa	7～25MPa
Standard Hydraulic Advance Model		External Dimensions → P.675	External Dimensions → P.701	External Dimensions → P.729	External Dimensions → P.751
Options	Hydraulic Advance Short Model 	External Dimensions → P.675	—	—	—
Options	Hydraulic Advance Long Stroke Model 	External Dimensions → P.677	External Dimensions → P.703	External Dimensions → P.731	External Dimensions → P.753
Options	Spring Advance Model Spring Advance Short Model 	External Dimensions → P.679	External Dimensions → P.707	External Dimensions → P.733	External Dimensions → P.755
Options	Spring Advance Long Stroke Model 	External Dimensions → P.681	External Dimensions → P.709	★	★
Options	Air Sensing Option 	External Dimensions → P.683	External Dimensions → P.713	External Dimensions → P.735	—
Options	Rodless Hollow Model 	—	External Dimensions → P.711	—	External Dimensions → P.757
Accessories	Manifold Block	—	LZ-MP → P.1218	—	LZ-MP → P.1218
Accessories	Piping Block 	LZ-S/SQ DZ-C/R → P.1221	—	TNZ-S/SQ → P.1226	—
Accessories	Speed Control Valve Plug	—	BZL、BZX、JZG → P.891	—	—
Accessories	Air Vent	—	XLC-VENT → P.761	—	XLC-VENT → P.761

※ Please contact us for details of ★ part.

High-Power Series
Pneumatic Series
Hydraulic Series
Valve / Coupler Hydraulic Unit
Manual Operation Accessories
Cautions / Others

Hole Clamp
SFA
SFC
Swing Clamp
LHA
LHC
LHS
LHW
LT/LG
TLA-2
TLB-2
TLA-1
Link Clamp
LKA
LKC
LKW
LM/LJ
TMA-2
TMA-1
Work Support
LD
LC
TNC
TC
Air Sensing Lift Cylinder
LLW
Compact Cylinder
LL
LLR
LLU
DP
DR
DS
DT
Block Cylinder
DBA
DBC
Centering Vise
FVA
FVD
FVC
Control Valve
BZL
BZT
BZX/JZG
Pallet Clamp
VS
VT
Expansion Locating Pin
VFL
VFM
VFJ
VFK
Pull Stud Clamp
FP
FQ
Customized Spring Cylinder
DWA/DWB

PAT.

Hydraulic Work Support

Model TNC

High Pressure (7～35MPa)

Single Action・Threaded Body Model

Powerful Support・Smooth Action

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Air Sensing Option — P.737

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Accessories

- Piping Block（Common Items of Other Models） — P.1226

Cautions

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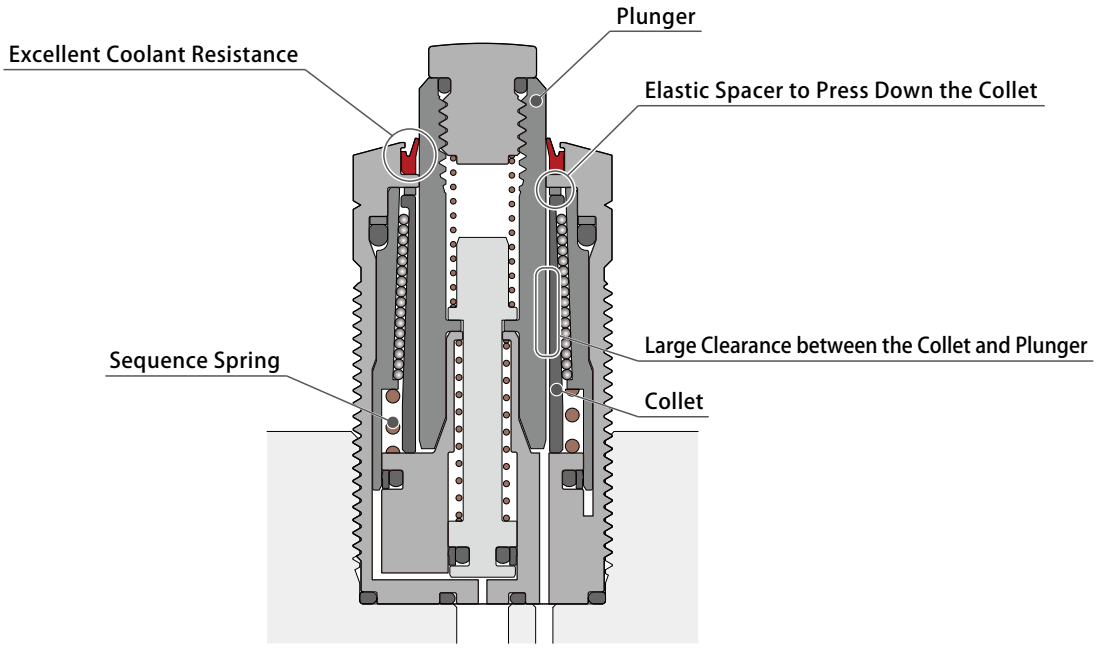
- Cautions (Common) — P.1237
  - Installation Notes ・Hydraulic Fluid List ・Notes on Hydraulic Cylinder Speed Control Circuit
  - Notes on Handling ・Maintenance/Inspection ・Warranty

Cross Section



It adopts the collet structure, the first in the world, ensuring powerful support and smooth action.

KOSMEK was the first to develop the collet design in 1996.
Compared with the traditional sleeve design, it ensures powerful gripping force via a wedge effect.
In addition, a larger gap between collet and plunger is designed to prevent sticking and allow smoother action.

Concrete Workpiece Touch

As the collet gripping the plunger is always pressed downwards, it helps prevent tilting when locked and the clearance with the workpiece.

Certain Sequence Action

As it is equipped with a powerful sequencing spring, the action sequences as such;
Plunger goes up→ workpiece touches→ collet locks. This is carried out via one hydraulic circuit system.

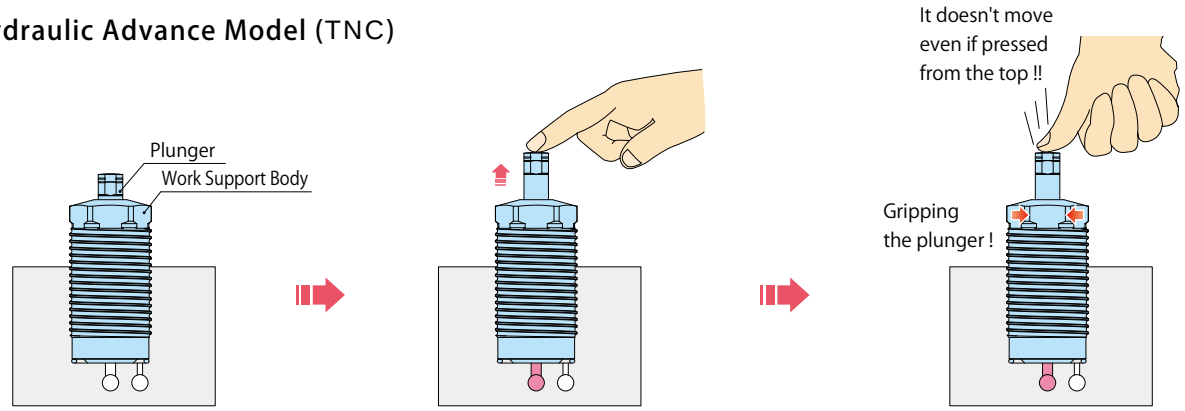
Excellent Coolant Resistance

Our exclusive dust seal is designed to protect against high pressure coolant. It also has high durability against chlorine-based coolant by using a sealing material with excellent chemical resistance.

High-Power Series
Pneumatic Series
Hydraulic Series
Valve / Coupler Hydraulic Unit
Manual Operation Accessories
Cautions / Others
Hole Clamp
SFA
SFC
Swing Clamp
LHA
LHC
LHS
LHW
LT/LG
TLA-2
TLB-2
TLA-1
Link Clamp
LKA
LKC
LKW
LM/LJ
TMA-2
TMA-1
Work Support
LD
LC
TNC
TC
Air Sensing Lift Cylinder
LLW
Compact Cylinder
LL
LLR
LLU
DP
DR
DS
DT
Block Cylinder
DBA
DBC
Centering Vise
FVA
FVD
FVC
Control Valve
BZL
BZT
BZX/JZG
Pallet Clamp
VS
VT
Expansion Locating Pin
VFL
VFM
VFJ
VFK
Pull Stud Clamp
FP
FQ
Customized Spring Cylinder
DWA/DWB

Action Description

Hydraulic Advance Model (TNC)



Hydraulic Pressure : OFF
The state of plunger down.

Hydraulic Pressure : ON
Plunger rises with oil pressure
and stops after touching workpiece.

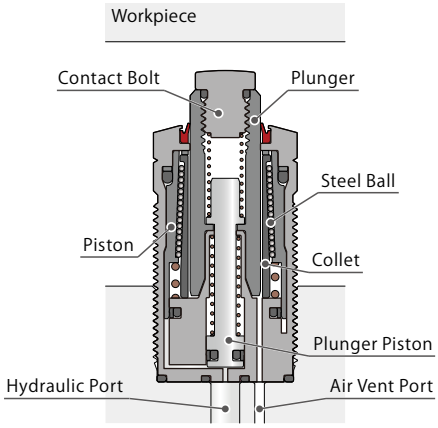
Hydraulic Pressure : ON
Once it is in the stopped position where it touches the workpiece, the plunger doesn't go down even if pressed from above.

Air Sensing Option (TNC-M/TNC-M-E)

Available to check action by connecting the air catch sensor at vent port and then detecting differential pressure.
Please refer to the air sensor page for further details.

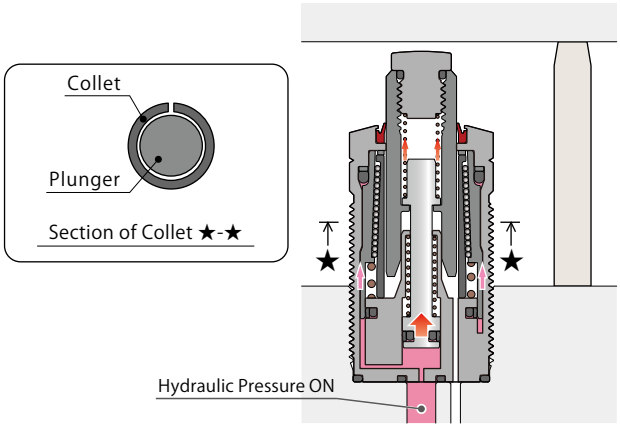
Internal Action Description

Hydraulic Advance model TNC



When Releasing (Cross Section)

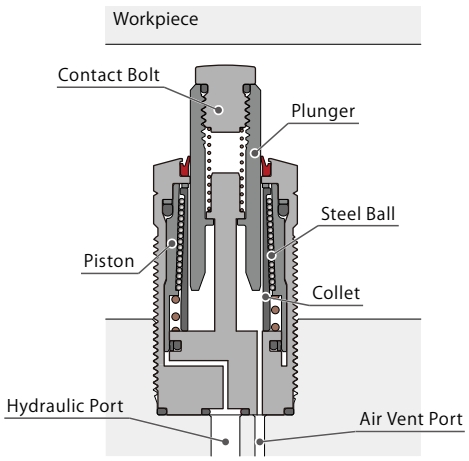
Plunger lowered by spring force.



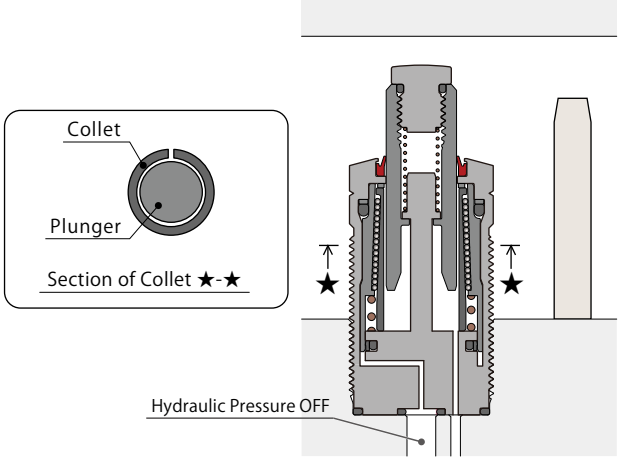
Plunger extends

Plunger piston rises first when hydraulic pressure is supplied. Plunger rises via spring force to the workpiece with this action.

Spring Advance model TNC-E

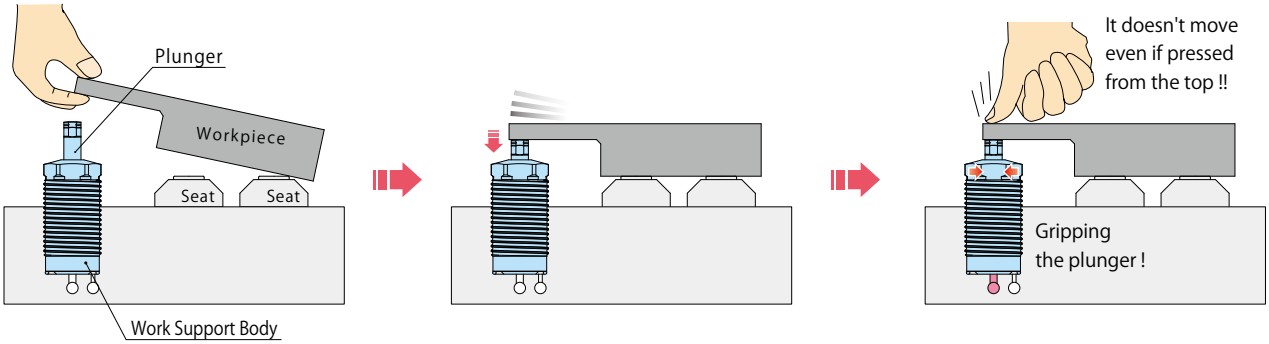


When Releasing (Cross Section)



Released State

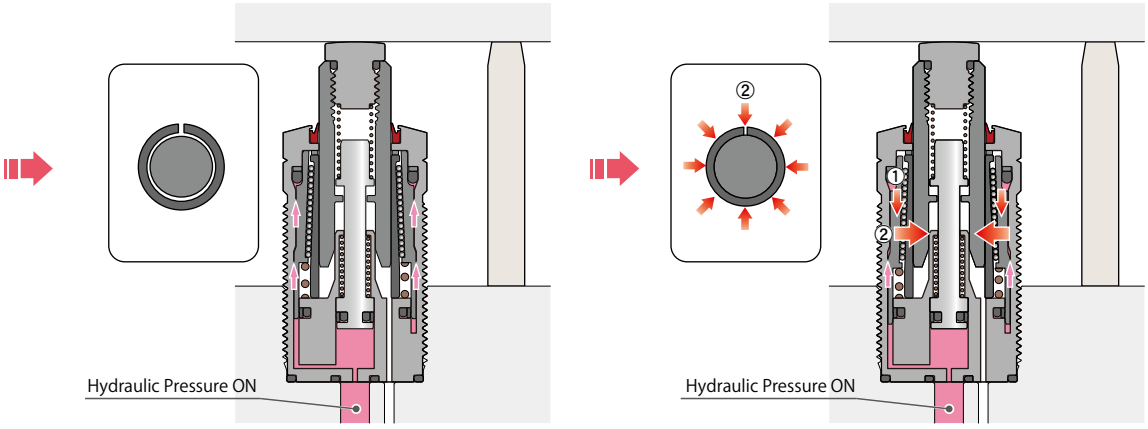
● Spring Advance Model (TNC-E)



Hydraulic Pressure : OFF
The state of plunger up.

Hydraulic Pressure : OFF
When workpiece rests on the work support, plunger goes down due to the weight of workpiece and is balanced.

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

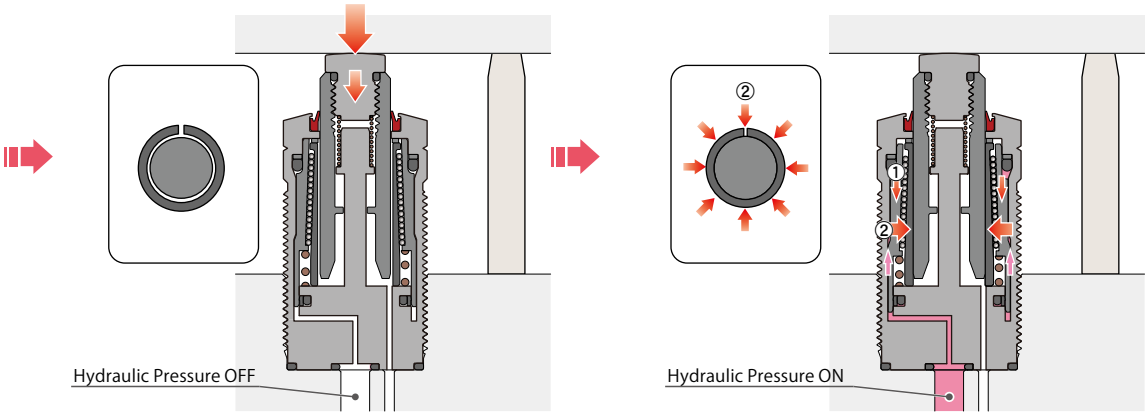


Contact bolt makes contact with workpiece

Plunger piston rises to the upper limit even after contact bolt makes contact with workpiece.

Locked State

① The piston starts to press down via hydraulic pressure.
② The tapering action between the piston and collet affects the steel ball so that the collect can grip the plunger with even and strong power to generate the supporting force.



Workpiece Set (Plunger goes down)

Locked State

Model No. Indication

TNC 040 0 - L □ - □

1 2 3 4 5

1 Support Force

040：Support Force 4.4kN at 35MPa
060：Support Force 7.1kN at 35MPa
100：Support Force 11.7kN at 35MPa
160：Support Force 16.3kN at 35MPa

2 Design No.

0 ：Revision Number

3 Plunger Spring Force

L ：Low Spring Force
H ：High Spring Force
Blank：For 5 Option **Q**

4 Plunger Action Confirmation

Blank：None (Standard)
M ：Air Sensing Option ※1

5 Option

Blank： Hydraulic Advance Model (Standard)
Q ： Hydraulic Advance Long Stroke Model ※1
E ： Spring Advance Model ※1

※ Please contact us for Spring Advance Long Stroke model.

Note：
※1. Please contact us for the combination of 4 M：Air Sensing option and 5 Q：Long Stroke model.

Specifications

Option 5 Blank / E

Model No.		TNC0400-□ TNC0400-□M TNC0400-□-E TNC0400-□M-E	TNC0600-□ TNC0600-□M TNC0600-□-E TNC0600-□M-E	TNC1000-□ TNC1000-□M TNC1000-□-E TNC1000-□M-E	TNC1600-□ TNC1600-□M TNC1600-□-E TNC1600-□M-E
Support Force at 35MPa kN		4.4	7.1	11.7	16.3
Support Force (Calculation Formula) ※2 kN		0.15×P−0.73	0.24×P−1.18	0.39×P−1.95	0.54×P−2.72
Plunger Stroke mm		6.5	8	10	12
Cylinder Capacity cm³	5 Option Blank	0.3	0.6	1.1	1.8
	5 Option E	0.1	0.1	0.3	0.4
Plunger Spring Force ※3 N	L: Low Spring Force	4.0～5.8	4.7～7.8	5.8～9.7	8.3～14.6
	H: High Spring Force	5.6～8.0	6.2～11.0	7.8～13.5	10.1～22.0
Max. Operating Pressure MPa		35			
Min. Operating Pressure MPa		7			
Operating Temperature ℃		0～70			
Mass kg		0.15	0.2	0.3	0.75

Option 5 Q

Model No.	TNC0400-Q	TNC0600-Q	TNC1000-Q	TNC1600-Q
Support Force at 35MPa kN	4.4	7.1	11.7	16.3
Support Force (Calculation Formula) ※2 kN	0.15×P−0.73	0.24×P−1.18	0.39×P−1.95	0.54×P−2.72
Plunger Stroke mm	13	16	20	24
Cylinder Capacity cm³	0.6	1.0	1.9	3.1
Plunger Spring Force ※3 N	6.1～11.4	6.2～12.9	7.8～20.4	10.1～24.8
Max. Operating Pressure MPa	35			
Min. Operating Pressure MPa	7			
Operating Temperature ℃	0～70			
Mass kg	0.2	0.3	0.4	0.95

Notes: ※2. P in the formula for support force indicates the hydraulic pressure (MPa).
※3. The plunger spring force indicates the spring design value. It may vary depending on sliding resistance of the plunger and characteristic of the spring , etc. Please read it as a reference value of workpiece contact force.

Performance Curve (TNC-□ : Hydraulic Advance Model / TNC-□-E : Spring Advance Model)

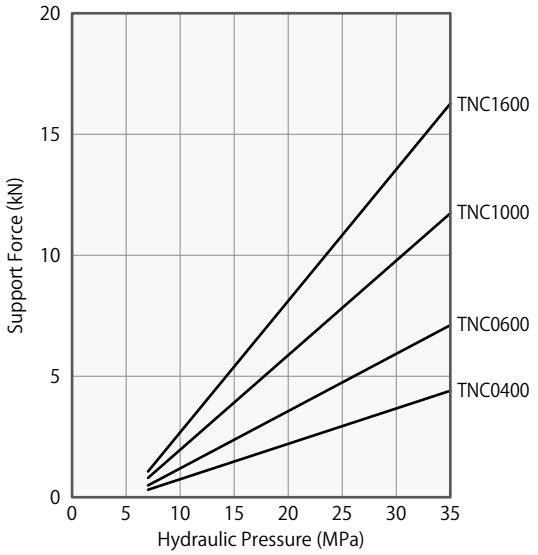
Applicable Model

TNC 040 0 - L H - Blank E

1 Body Size

5 Option : Blank, E

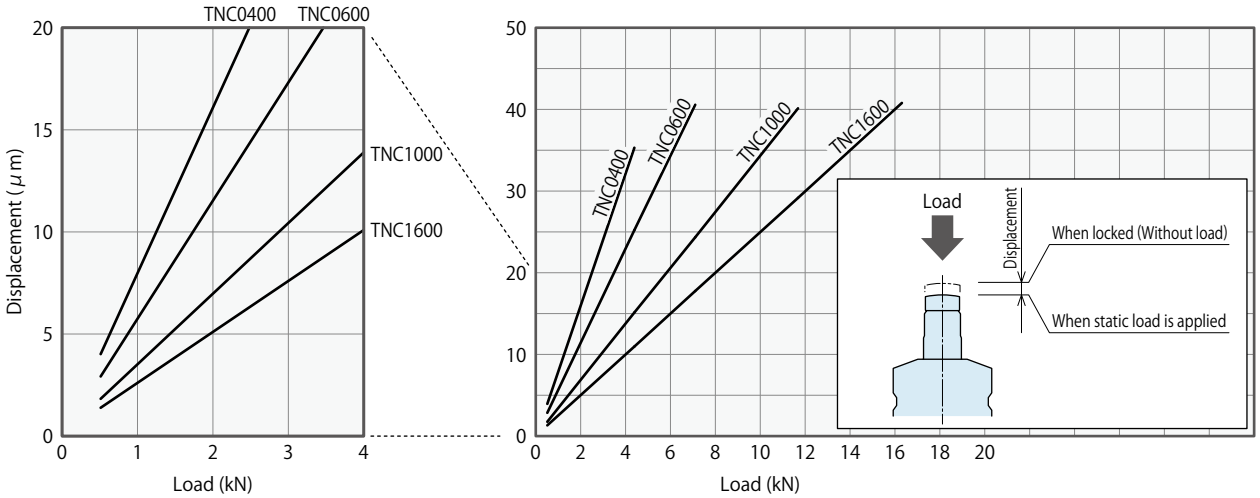
Support Force Graph ※ This graph shows the support force under static load condition.



	Support Force (kN)			
Model No.	TNC0400-□	TNC0600-□	TNC1000-□	TNC1600-□
Hydraulic Pressure (MPa)	TNC0400-□-E	TNC0600-□-E	TNC1000-□-E	TNC1600-□-E
35	4.4	7.1	11.7	16.3
32.5	4.0	6.5	10.7	14.9
30	3.7	5.9	9.8	13.6
27.5	3.3	5.3	8.8	12.2
25	2.9	4.7	7.8	10.9
22.5	2.6	4.1	6.8	9.5
20	2.2	3.6	5.9	8.1
17.5	1.8	3.0	4.9	6.8
15	1.5	2.4	3.9	5.4
12.5	1.1	1.8	2.9	4.1
10	0.7	1.2	2.0	2.7
7.5	0.4	0.6	1.0	1.4
Support Force Formula ※1 kN	0.15×P-0.73	0.24×P-1.18	0.39×P-1.95	0.54×P-2.72

Note : ※1. P : Operating Hydraulic Pressure (MPa)

Load / Displacement Graph ※ This graph shows the static load displacement at 35 MPa hydraulic pressure.



Performance Curve (TNC-Q : Hydraulic Advance Long Stroke Model)

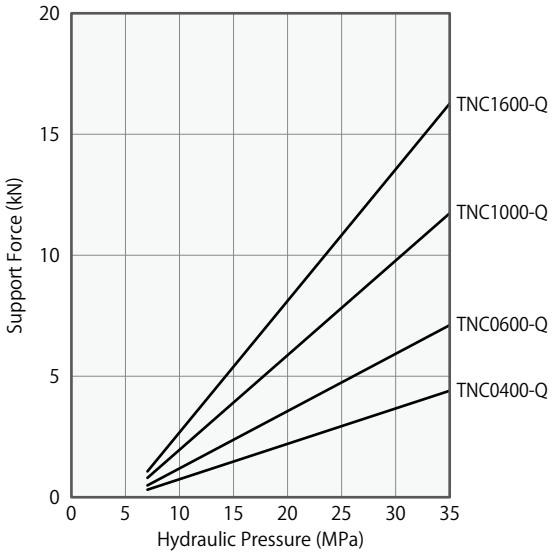
Applicable Model

TNC 040 0 - Q

5 Option : Q

1 Body Size

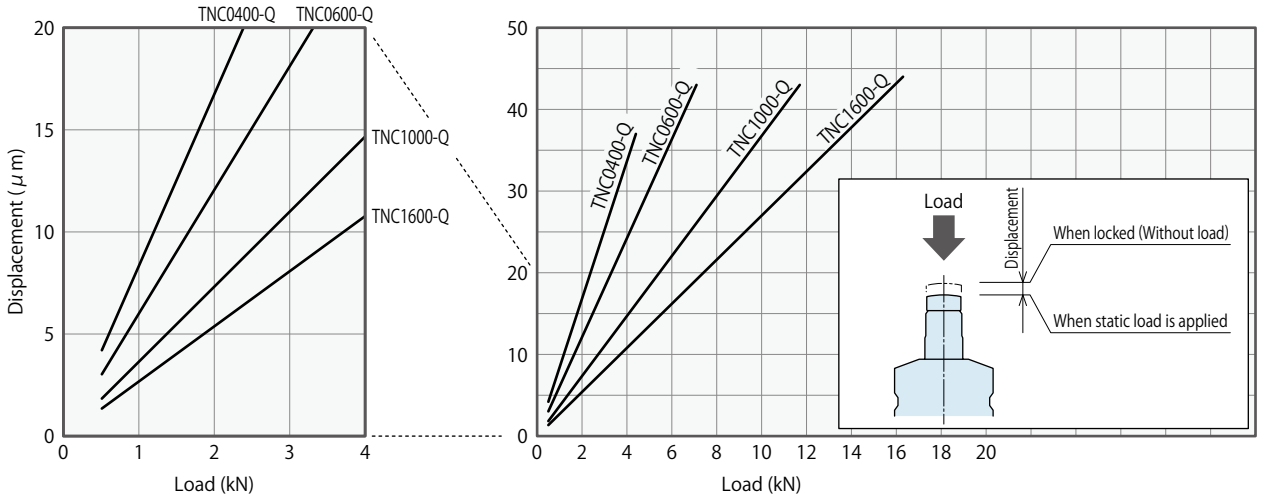
Support Force Graph ※ This graph shows the support force under static load condition.



Model No. / Hydraulic Pressure (MPa)	Support Force (kN) TNC0400-Q	TNC0600-Q	TNC1000-Q	TNC1600-Q
35	4.4	7.1	11.7	16.3
32.5	4.0	6.5	10.7	14.9
30	3.7	5.9	9.8	13.6
27.5	3.3	5.3	8.8	12.2
25	2.9	4.7	7.8	10.9
22.5	2.6	4.1	6.8	9.5
20	2.2	3.6	5.9	8.1
17.5	1.8	3.0	4.9	6.8
15	1.5	2.4	3.9	5.4
12.5	1.1	1.8	2.9	4.1
10	0.7	1.2	2.0	2.7
7.5	0.4	0.6	1.0	1.4
Support Force Formula ※1 kN	0.15×P-0.73	0.24×P-1.18	0.39×P-1.95	0.54×P-2.72

Note : ※1. P : Operating Hydraulic Pressure (MPa)

Load / Displacement Graph ※ This graph shows the static load displacement at 35 MPa hydraulic pressure.



※ The Displacement of TNC-Q : Long Stroke Model is larger than that of TNC : Standard Model.

Performance Curve (TNC-□M：Hydraulic Advance Air Sensing Option / TNC-□M-E：Spring Advance Air Sensing Option)

Applicable Model

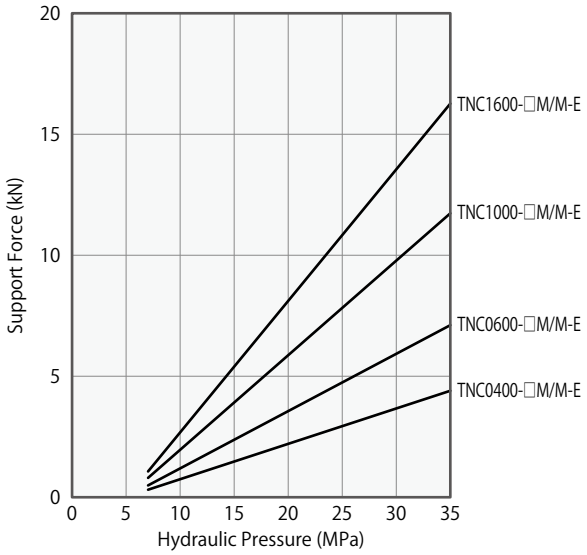
TNC 040 0 - L/H M - Blank/E

1 Body Size

5 Option：Blank, E

4 Plunger Action Confirmation：M

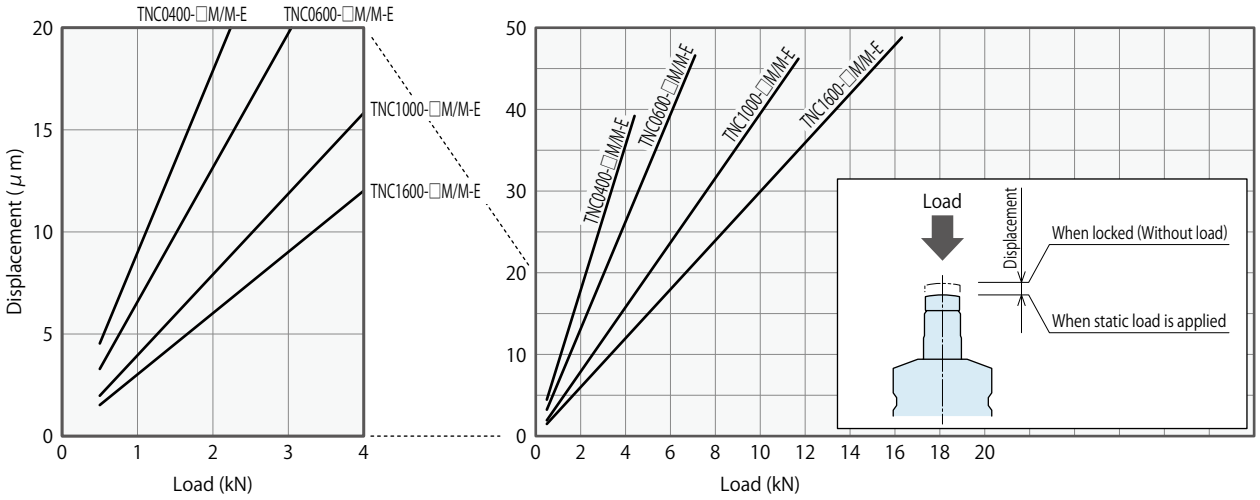
Support Force Graph ※ This graph shows the support force under static load condition.



	Support Force (kN)			
Model No.	TNC0400-□M	TNC0600-□M	TNC1000-□M	TNC1600-□M
Hydraulic Pressure (MPa)	TNC0400-□M-E	TNC0600-□M-E	TNC1000-□M-E	TNC1600-□M-E
35	4.4	7.1	11.7	16.3
32.5	4.0	6.5	10.7	14.9
30	3.7	5.9	9.8	13.6
27.5	3.3	5.3	8.8	12.2
25	2.9	4.7	7.8	10.9
22.5	2.6	4.1	6.8	9.5
20	2.2	3.6	5.9	8.1
17.5	1.8	3.0	4.9	6.8
15	1.5	2.4	3.9	5.4
12.5	1.1	1.8	2.9	4.1
10	0.7	1.2	2.0	2.7
7.5	0.4	0.6	1.0	1.4
Support Force Formula ※1 kN	0.15×P-0.73	0.24×P-1.18	0.39×P-1.95	0.54×P-2.72

Note： ※1. P : Operating Hydraulic Pressure (MPa)

Load / Displacement Graph ※ This graph shows the static load displacement at 35 MPa hydraulic pressure.

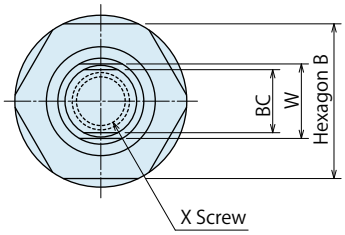


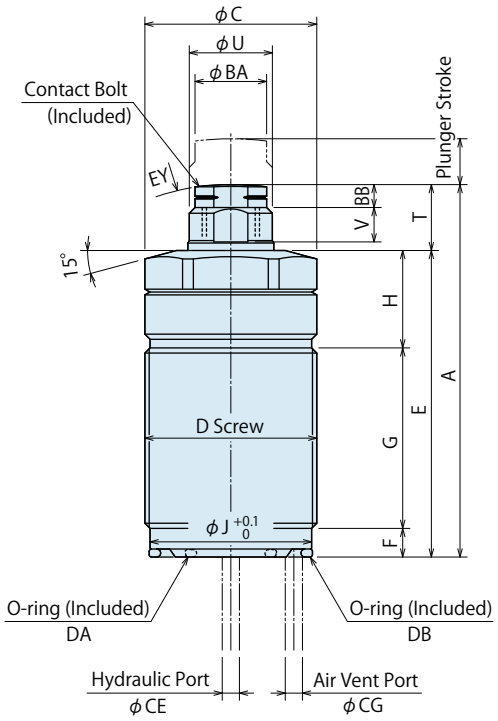
※ The Displacement of TNC-□M / TNC-□M-E：Air Sensing Model is larger than that of TNC/TNC-E：Standard Model.

MEMO

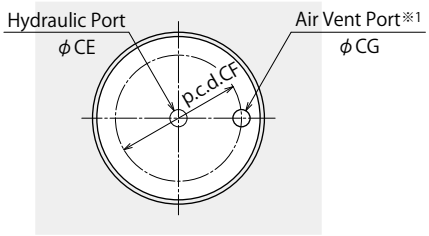
External Dimensions

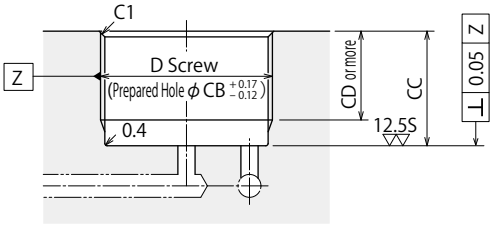
※ This drawing shows the released state of TNC-□ (before the plunger is lifted).





Machining Dimensions of Mounting Area



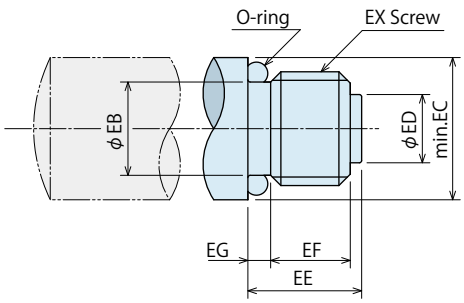


Note :

※1. Air vent port must be open to the atmosphere, and prevent coolant and chips from entering the air vent port.
(Please refer to "Appropriate Measures for the Air Vent Port (P.763)".)

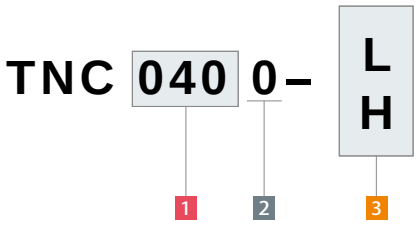
Contact Bolt Design Dimensions

※Reference for designing a contact bolt (attachment) by customer other than the included contact bolt.



Model No. Indication

(Format Example：TNC0480-L)



1 Body Size
2 Design No.
3 Plunger Spring Force
4 Plunger Action Confirmation (Blank)
5 Option (Blank)

External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.	TNC0400-□	TNC0600-□	TNC1000-□	TNC1600-□
Plunger Stroke	6.5	8	10	12
A	60	65	76.5	88
B	24	27	32	41
C	26	30	36	45
D (Nominal×Pitch)	M26×1.5	M30×1.5	M36×1.5	M45×1.5
E	48.5	53.5	64.5	71.5
F	5	5	5	6
G	27.5	31.5	51.2	55.2
H	16	17	8.3	10.3
J	24.2	28.2	34.2	43.2
T	11.5	11.5	12	16.5
U	12	15	18	22
V	6	6	6.5	9
W	10	13	14	19
X (Nominal×Pitch×Depth)	M8×1.25×12	M10×1.5×11	M10×1.5×11	M12×1.75×13
BA	11.5	12.5	12.5	16.5
BB	4	4	4	6
BC	10	11	11	14
CB	24.5	28.5	34.5	43.5
CC	13 ～ 32	13 ～ 36	15 ～ 55	18 ～ 60
CD	CC-4	CC-4	CC-4	CC-5
CE	max. 8	max. 10	max. 10	max. 12
CF	p.c.d. 19	p.c.d. 22	p.c.d. 26	p.c.d. 30
CG	max. 2.5	max. 3	max. 5	max. 6
DA	AS568-013 (90°)	AS568-014 (90°)	AS568-015 (90°)	AS568-017 (90°)
DB	AS568-020 (90°)	AS568-022 (90°)	AS568-026 (90°)	AS568-030 (90°)
EY	SR30	SR50	SR50	SR80
Tightening Torque for Main Body ※2	31.5 N·m	50 N·m	63 N·m	80 N·m

Note : ※2. The torque for mounting the body should be as indicated in the table above.
Excessive torque will cause deformation of the body leading to operation failure.
Also, with insufficient torque, O-ring will be damaged resulting in oil leakage.

Contact Bolt Design Dimensions

※Reference for designing a contact bolt (attachment) by customer other than the included contact bolt.

(mm)

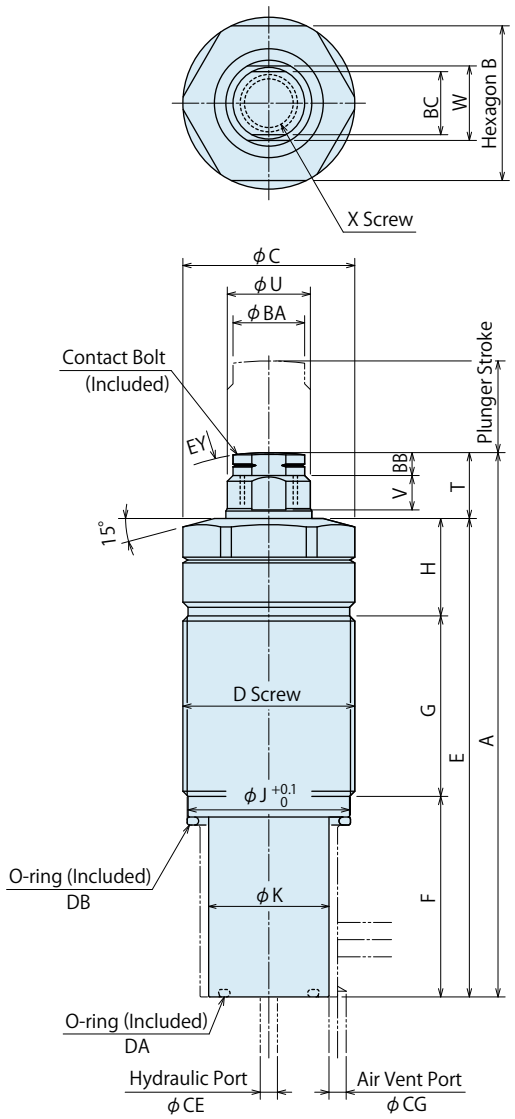
Corresponding Product Model	TNC0400-□	TNC0600-□	TNC1000-□	TNC1600-□
EB	5.4	7.4	7.4	9.4
EC	10	12.5	12.5	16.5
ED	5	6	6	7.5
EE	10	10	10	12
EF	7.3	7.3	7.3	8.7
EG	1.7	1.7	1.7	2.3
EX (Nominal×Pitch)	M8×1.25	M10×1.5	M10×1.5	M12×1.75
O-ring	AS568-009 (70°)	AS568-010 (70°)	AS568-010 (70°)	AS568-012 (70°)

Notes :
1. It should be designed according to the mass of contact bolt and the plunger spring force.
2. If using a contact bolt with different dimensions than those shown above, spring force will be different from the values on catalog, and the plunger spring will be damaged leading to malfunctions.

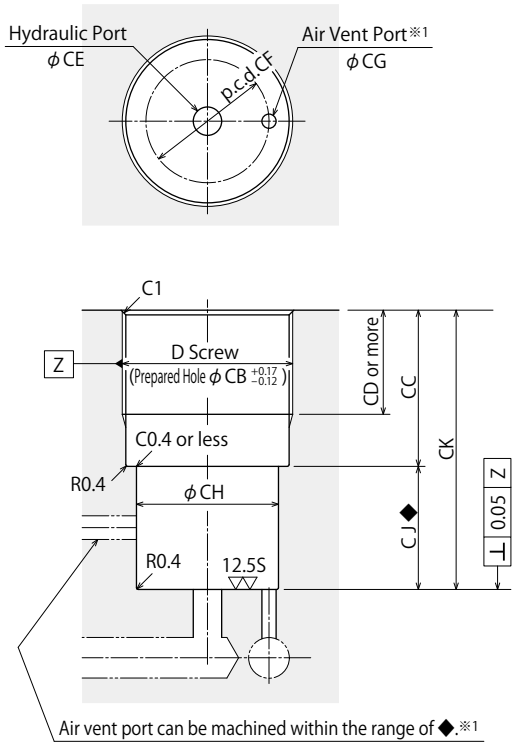
High-Power Series
Pneumatic Series
Hydraulic Series
Valve / Coupler Hydraulic Unit
Manual Operation Accessories
Cautions / Others
Hole Clamp
SFA
SFC
Swing Clamp
LHA
LHC
LHS
LHW
LT/LG
TLA-2
TLB-2
TLA-1
Link Clamp
LKA
LKC
LKW
LM/LJ
TMA-2
TMA-1
Work Support
LD
LC
TNC
TC
Air Sensing Lift Cylinder
LLW
Compact Cylinder
LL
LLR
LLU
DP
DR
DS
DT
Block Cylinder
DBA
DBC
Centering Vise
FVA
FVD
FVC
Control Valve
BZL
BZT
BZX/JZG
Pallet Clamp
VS
VT
Expansion Locating Pin
VFL
VFM
VFJ
VFK
Pull Stud Clamp
FP
FQ
Customized Spring Cylinder
DWA/DWB

External Dimensions

※ This drawing shows the released state of TNC-Q (before the plunger is lifted).



Machining Dimensions of Mounting Area

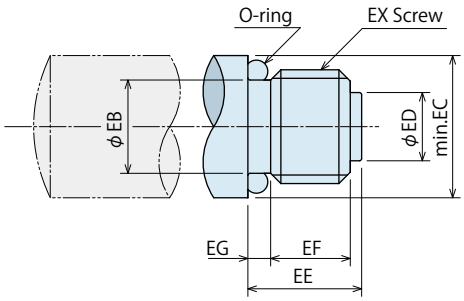


Note :

※1. Air vent port must be open to the atmosphere, and prevent coolant and chips from entering the air vent port.
(Please refer to "Appropriate Measures for the Air Vent Port (P.763)".)

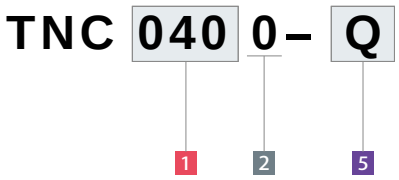
Contact Bolt Design Dimensions

※Reference for designing a contact bolt (attachment) by customer other than the included contact bolt.



Model No. Indication

(Format Example：TNC0480-Q)



1 Body Size
2 Design No.
3 Plunger Spring Force (Blank)
4 Plunger Action Confirmation (Blank)
5 Option Q

External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.	TNC0400-Q	TNC0600-Q	TNC1000-Q	TNC1600-Q
Plunger Stroke	13	16	20	24
A	83.5	95	112	137
B	24	27	32	41
C	26	30	36	45
D (Nominal×Pitch)	M26×1.5	M30×1.5	M36×1.5	M45×1.5
E	72	83.5	100	120.5
F	28.5	35	40.5	55
G	27.5	31.5	51.2	55.2
H	16	17	8.3	10.3
J	24.2	28.2	34.2	43.2
K	18.5	21	23	27
T	11.5	11.5	12	16.5
U	12	15	18	22
V	6	6	6.5	9
W	10	13	14	19
X (Nominal×Pitch×Depth)	M8×1.25×12	M10×1.5×11	M10×1.5×11	M12×1.75×13
BA	11.5	12.5	12.5	16.5
BB	4	4	4	6
BC	10	11	11	14
CB	24.5	28.5	34.5	43.5
CC	13 ～ 32	13 ～ 36	15 ～ 55	18 ～ 60
CD	CC–4	CC–4	CC–4	CC–5
CE	max. 8	max. 10	max. 10	max. 12
CF	p.c.d. 20	p.c.d. 24	p.c.d. 26	p.c.d. 30
CG	max. 2	max. 3	max. 3	max. 5
CH	20	24	30	39
CK	CC + 23.5	CC + 30	CC + 35.5	CC + 49
CJ	23.5	30	35.5	49
DA	AS568-014 (90°)	AS568-015 (90°)	AS568-016 (90°)	AS568-018 (90°)
DB	AS568-020 (90°)	AS568-022 (90°)	AS568-026 (90°)	AS568-030 (90°)
EY	SR30	SR50	SR50	SR80
Tightening Torque for Main Body※2	31.5 N·m	50 N·m	63 N·m	80 N·m

Note : ※2. The torque for mounting the body should be as indicated in the table above.
Excessive torque will cause deformation of the body leading to operation failure.
Also, with insufficient torque, O-ring will be damaged resulting in oil leakage.

Contact Bolt Design Dimensions

※Reference for designing a contact bolt (attachment) by customer other than the included contact bolt.

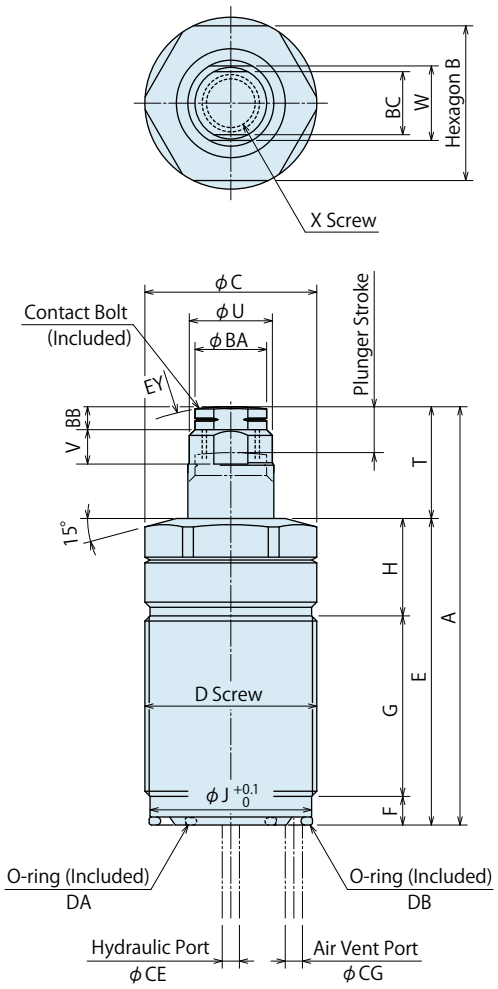
(mm)

Corresponding Product Model	TNC0400-□	TNC0600-□	TNC1000-□	TNC1600-□
EB	5.4	7.4	7.4	9.4
EC	10	12.5	12.5	16.5
ED	5	6	6	7.5
EE	10	10	10	12
EF	7.3	7.3	7.3	8.7
EG	1.7	1.7	1.7	2.3
EX (Nominal×Pitch)	M8×1.25	M10×1.5	M10×1.5	M12×1.75
O-ring	AS568-009 (70°)	AS568-010 (70°)	AS568-010 (70°)	AS568-012 (70°)

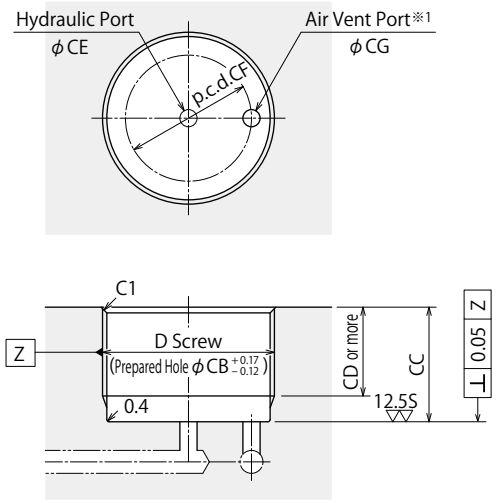
Notes :
1. It should be designed according to the mass of contact bolt and the plunger spring force.
2. If using a contact bolt with different dimensions than those shown above, spring force will be different from the values on catalog, and the plunger spring will be damaged leading to malfunctions.

External Dimensions

※ This drawing shows the released state of release of TNC-□-E (before the plunger is lifted).



Machining Dimensions of Mounting Area

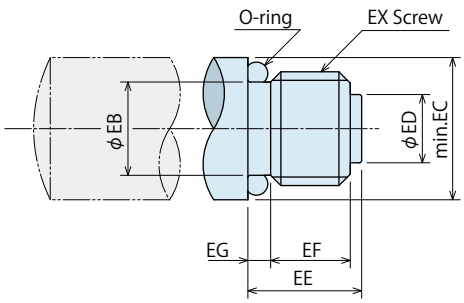


Note :

※1. Air vent port must be open to the atmosphere, and prevent coolant and chips from entering the air vent port.
(Please refer to "Appropriate Measures for the Air Vent Port (P.763)".)

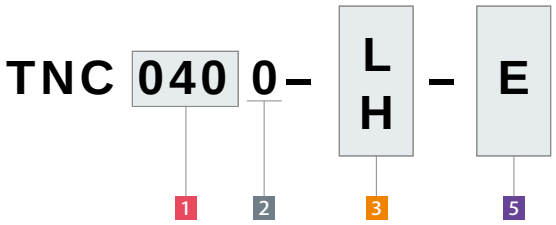
Contact Bolt Design Dimensions

※Reference for designing a contact bolt (attachment) by customer other than the included contact bolt.



Model No. Indication

(Format Example：TNC0480-L-E)



1 Body Size
2 Design No.
3 Plunger Spring Force
4 Plunger Action Confirmation (Blank)
5 Option E

External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.	TNC0400-□-E	TNC0600-□-E	TNC1000-□-E	TNC1600-□-E
Plunger Stroke	6.5	8	10	12
A	66.5	73	86.5	100
B	24	27	32	41
C	26	30	36	45
D (Nominal×Pitch)	M26×1.5	M30×1.5	M36×1.5	M45×1.5
E	48.5	53.5	64.5	71.5
F	5	5	5	6
G	27.5	31.5	51.2	55.2
H	16	17	8.3	10.3
J	24.2	28.2	34.2	43.2
T	18	19.5	22	28.5
U	12	15	18	22
V	6	6	6.5	9
W	10	13	14	19
X (Nominal×Pitch×Depth)	M8×1.25×12	M10×1.5×11	M10×1.5×11	M12×1.75×13
BA	11.5	12.5	12.5	16.5
BB	4	4	4	6
BC	10	11	11	14
CB	24.5	28.5	34.5	43.5
CC	13 ～ 32	13 ～ 36	15 ～ 55	18 ～ 60
CD	CC-4	CC-4	CC-4	CC-5
CE	max. 8	max. 10	max. 10	max. 12
CF	p.c.d. 19	p.c.d. 22	p.c.d. 26	p.c.d. 30
CG	max. 2.5	max. 3	max. 5	max. 6
DA	AS568-013 (90°)	AS568-014 (90°)	AS568-015 (90°)	AS568-017 (90°)
DB	AS568-020 (90°)	AS568-022 (90°)	AS568-026 (90°)	AS568-030 (90°)
EY	SR30	SR50	SR50	SR80
Tightening Torque for Main Body※2	31.5 N·m	50 N·m	63 N·m	80 N·m

Note : ※2. The torque for mounting the body should be as indicated in the table above.
Excessive torque will cause deformation of the body leading to operation failure.
Also, with insufficient torque, O-ring will be damaged resulting in oil leakage.

Contact Bolt Design Dimensions

※Reference for designing a contact bolt (attachment) by customer other than the included contact bolt.

(mm)

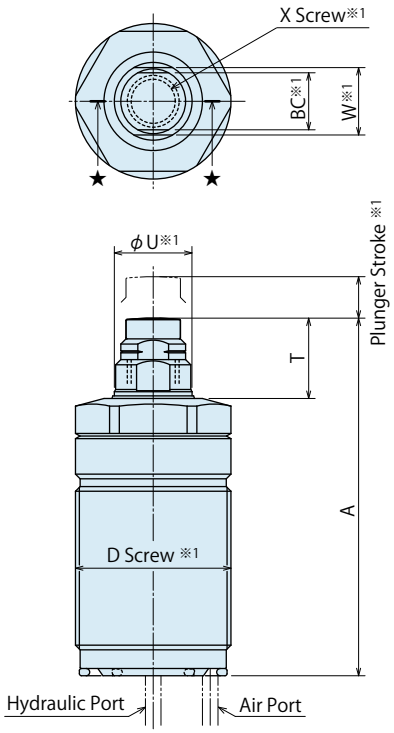
Corresponding Product Model	TNC0400-□-E	TNC0600-□-E	TNC1000-□-E	TNC1600-□-E
EB	5.4	7.4	7.4	9.4
EC	10	12.5	12.5	16.5
ED	5	6	6	7.5
EE	10	10	10	12
EF	7.3	7.3	7.3	8.7
EG	1.7	1.7	1.7	2.3
EX (Nominal×Pitch)	M8×1.25	M10×1.5	M10×1.5	M12×1.75
O-ring	AS568-009 (70°)	AS568-010 (70°)	AS568-010 (70°)	AS568-012 (70°)

Notes :
1. It should be designed according to the mass of contact bolt and the plunger spring force.
2. If using a contact bolt with different dimensions than those shown above, spring force will be different from the values on catalog, and the plunger spring will be damaged leading to malfunctions.

External Dimensions

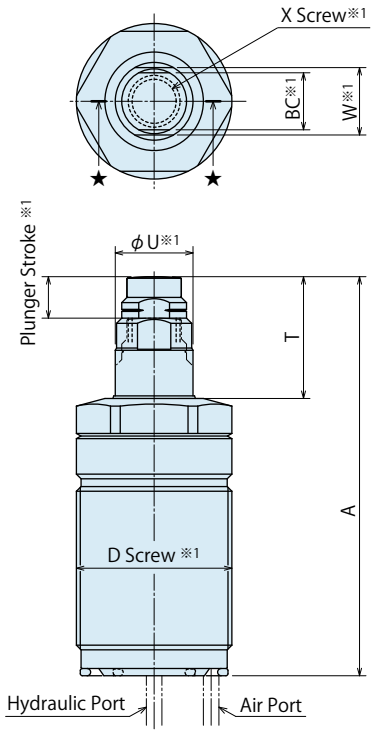
TNC-□M : Hydraulic Advance Model

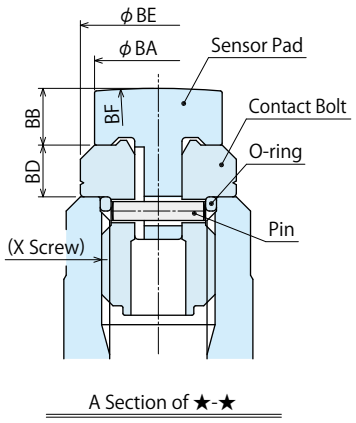
※ This drawing shows the released state of TNC-□M (before the plunger is lifted). Refer to Hydraulic Advance Model (Standard) (P.729, P.730) for unlisted dimensions.



TNC-□M-E : Spring Advance Model

※ This drawing shows the released state of TNC-□M-E (plunger rises). Refer to Spring Advance Model (P.733, P.734) for unlisted dimensions.





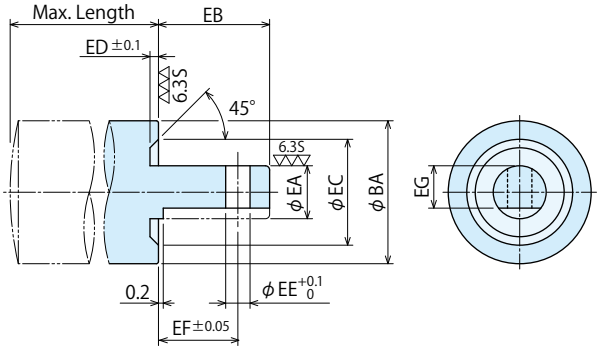
A Section of ★-★

Notes :

※1. Dimensions with ※1 are the same as TNC Standard Model and TNC-E Model.

1. Even if the contact bolt for TNC standard model/TNC-E model is exchanged with air sensing option, it does not work as air sensing option. Internal part (plunger) must be changed with air sensor corresponding product.
2. Please contact us for the dimensions of Long Stroke Model.
3. Please refer to P.737, P.738 for Air Sensing Chart.

Sensor Pad Design Dimension

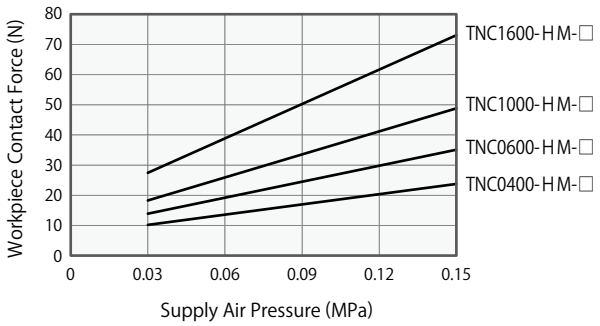


※ When changing the sensor pad, please design it according to the sensor pad design dimensions. (Please contact us when changing the contact bolt.)

Workpiece Contact Force Curve (Reference)

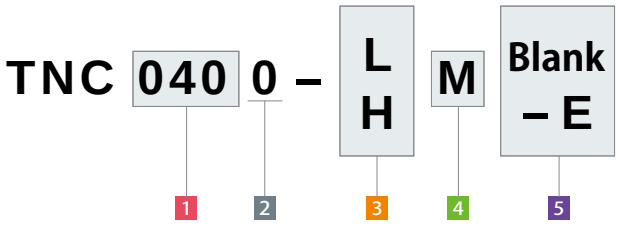
This graph shows the workpiece contact force (reference value) when a work support with Plunger Spring Force **H** : High Spring contacts a workpiece in the middle of plunger stroke.

※ Refer to P.737 for the calculation formula of workpiece contact force.



Model No. Indication

(Format Example：TNC0400-HM-E, TNC1000-LM)



1 Body Size
2 Design No.
3 Plunger Spring Force
4 Plunger Action Confirmation：M
5 Option
Blank：Hydraulic Advance Model
E ：Spring Advance Model

External Dimension List

(mm)

Model No.	TNC0400-□M TNC0400-□M-E	TNC0600-□M TNC0600-□M-E	TNC1000-□M TNC1000-□M-E	TNC1600-□M TNC1600-□M-E
Plunger Stroke ※1	6.5	8	10	12
A 5 Blank：Hydraulic Advance	64	69	80.5	94
A 5 E：Spring Advance	70.5	77	90.5	106
D (Nominal×Pitch)※1	M26×1.5	M30×1.5	M36×1.5	M45×1.5
T 5 Blank：Hydraulic Advance	15.5	15.5	16	22.5
T 5 E：Spring Advance	22	23.5	26	34.5
U※1	12	15	18	22
W※1	10	13	14	19
X (Nominal×Pitch×Depth) ※1	M8×1.25×12	M10×1.5×11	M10×1.5×11	M12×1.75×13
BA	9.5	10.5	10.5	13.5
BB	4	4	4	6
BC※1	10	11	11	14
BD	4	4	4	6
BE	11.5	12.5	12.5	16.5
BF	SR30	SR50	SR50	SR80
Pin (Diameter×Length)	ϕ1×5	ϕ1×6.8	ϕ1×6.8	ϕ2×7.8
O-ring	AS568-009 (70°)	AS568-010 (70°)	AS568-010 (70°)	AS568-012 (70°)

Note： ※ 1. Dimensions with ※1 are the same as TNC Standard Model and TNC-E Model.

Sensor Pad Design Dimension List

(mm)

Corresponding Model No.	TNC0400-□M TNC0400-□M-E	TNC0600-□M TNC0600-□M-E	TNC1000-□M TNC1000-□M-E	TNC1600-□M TNC1600-□M-E
EA	$3g7\ ^{-0.002}_{-0.012}$	$4g7\ ^{-0.004}_{-0.016}$	$4g7\ ^{-0.004}_{-0.016}$	$5g7\ ^{-0.004}_{-0.016}$
EB	7.5	7.5	7.5	10.5
EC	7.5	8.5	8.5	10
ED	0.8	0.8	0.8	0.8
EE	1.2	1.2	1.2	2.3
EF	5.3	5.3	5.3	7.5
EG	2.1	3.2	3.2	3.9
Max. Length ※2	max. 8	max. 8	max. 8	max. 12

Note： ※ 2. Sensor response may decrease if the pad is longer than maximum length.

Air Sensing Option (Plunger Action Confirmation･･･M：Air Sensing Option)

Plunger action is detected by the circuit at the vent port like the drawing below. This is done by detecting the differential pressure between P1 and P2 with air catch sensor.

Applicable Model

TNC 040 0 - [L / H] [M] - [Blank / E]

4 Plunger Action Confirmation：M

- Workpieces even with rough, casting or forged surface can be accurately detected since the structure does not detect the workpiece surface directly.
- Detected with higher accuracy compared to a switch detection with a dog, etc.
- Designed to prevent coolant from entering into the sensing area.

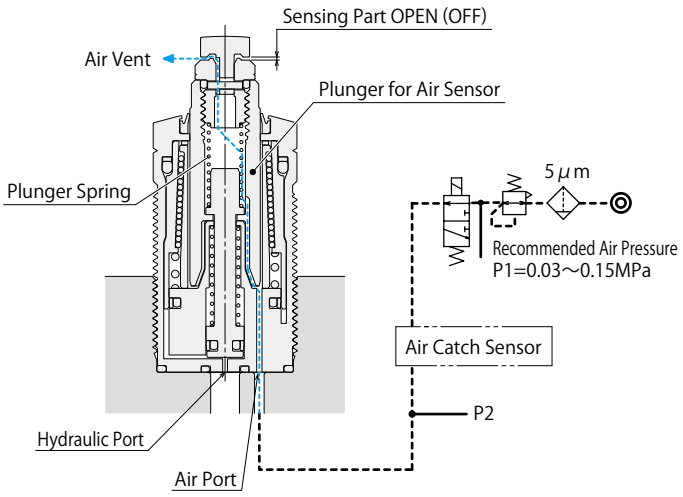
Structure Drawing

Recommended Operating Air Pressure：0.03～0.15 MPa

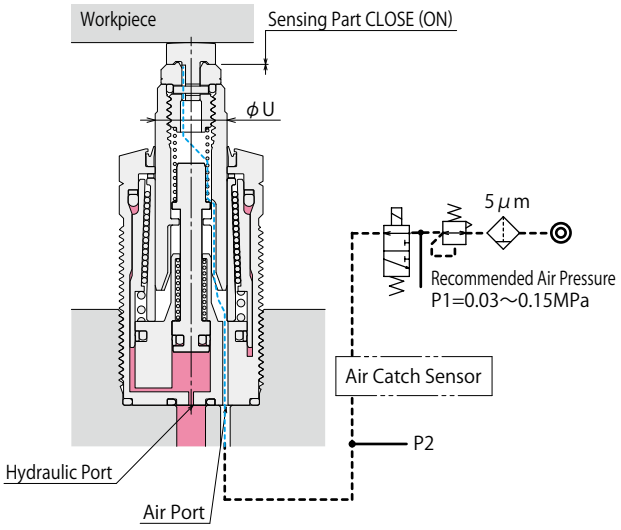
Recommended Air Catch Sensor

Manufacturer	SMC	CKD
Name	Air Catch Sensor	Gap Switch
Model No.	ISA2-G, ISA3-G	GPS2-05-15

TNC Released State (Air Sensor OFF)



TNC Plunger Extends・Contacts Workpiece (Air Sensor ON)



Workpiece Contact Force Formula when using Air Sensor ※1

Workpiece Contact Force (N) = Plunger Spring Force (N) + Supply Air Pressure (MPa) × U^2 (mm) × π ／4

Model No.		TNC0400-□M TNC0400-□M-E	TNC0600-□M TNC0600-□M-E	TNC1000-□M TNC1000-□M-E	TNC1600-□M TNC1600-□M-E
U	mm	12	15	18	22
Plunger Spring Force※2 N	L : Low Spring Force	4.0～5.8	4.7～7.8	5.8～9.7	8.3～14.6
	H : High Spring Force	5.6～8.0	6.2～11.0	7.8～13.5	10.1～22.0

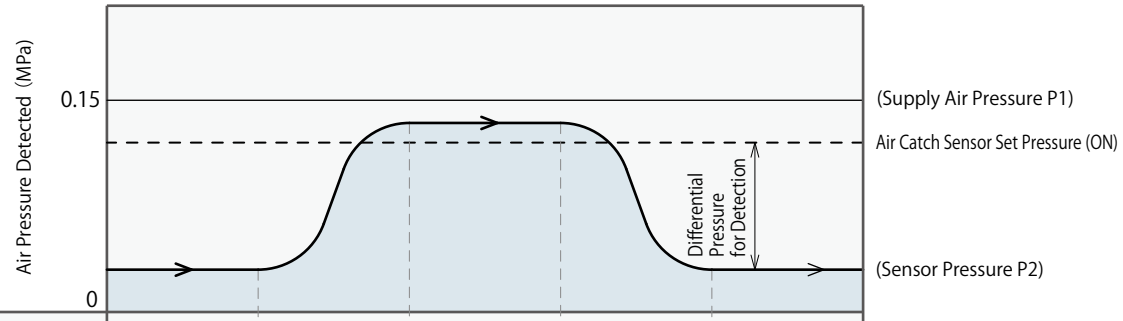
Notes :

※1. Please prepare a stopper if necessary when using light and/or thin workpiece. Otherwise it might be pushed up by work support.

※2. The plunger spring force indicates the spring design value.
It may vary depending on sliding resistance of the plunger and characteristic of the spring , etc. Please read it as a reference value of workpiece contact force.

Air Sensing Chart

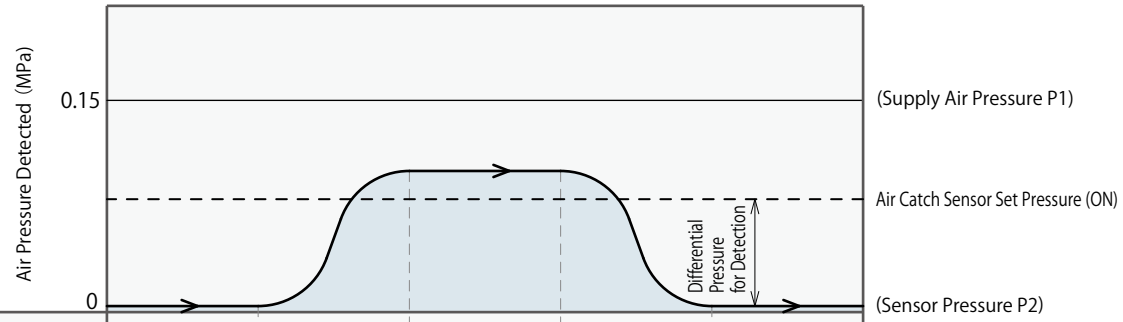
Connect one work support with one air catch sensor
Supply Pressure of Air Catch Sensor P1=0.15MPa



Air Catch Sensor		OFF	OFF→ON	ON	ON→OFF	OFF
Hydraulic Advance Model	Hydraulic Valve	Hydraulic Pressure OFF	Hydraulic Pressure ON	Hydraulic Pressure ON	Hydraulic Pressure OFF	Hydraulic Pressure OFF
	Work Support Action	Released State	Ascending Completed Locking State	Locking Completed	Releasing State Descending State	Releasing Completed
Spring Advance Model	Hydraulic Valve	Hydraulic Pressure OFF	Hydraulic Pressure OFF	Hydraulic Pressure ON	Hydraulic Pressure OFF	Hydraulic Pressure OFF
	Work Support Action	Released State	Loading Workpiece	Locking Completed	Unloading Workpiece	Releasing Completed

Note : 1. Depending on the usage condition, the detection differential pressure may be decreased by repeated action.
Please contact us for overhaul when the detection differential pressure is decreased.

Connect four work supports with one air catch sensor
Supply Pressure of Air Catch Sensor P1=0.15MPa



Air Catch Sensor		OFF	OFF→ON	ON	ON→OFF	OFF
Hydraulic Advance Model	Hydraulic Valve	Hydraulic Pressure OFF	Hydraulic Pressure ON	Hydraulic Pressure ON	Hydraulic Pressure OFF	Hydraulic Pressure OFF
	Work Support Action	Released State	Ascending Completed Locking State	Locking Completed	Releasing State Descending State	Releasing Completed
Spring Advance Model	Hydraulic Valve	Hydraulic Pressure OFF	Hydraulic Pressure OFF	Hydraulic Pressure ON	Hydraulic Pressure OFF	Hydraulic Pressure OFF
	Work Support Action	Released State	Loading Workpiece	Locking Completed	Unloading Workpiece	Releasing Completed

Note : 1. Depending on the usage condition, the detection differential pressure may be decreased by repeated action.
Please contact us for overhaul when the detection differential pressure is decreased.

Notes

1. This specification is designed for confirming the plunger action of the work support.
   If it is used for confirming the close contact with the workpiece, other clamping (force) is necessary.
2. If the plunger goes up too fast, it may bounce back and locks itself. Resulting in a gap with the workpiece and possible damage to the internal parts due to the impact force. Set the plunger action time at 0.5-1.0 sec. to adjust the air supply with the flow control valve with check valve (meter-in), and make sure that there is no clearance with the workpiece for operation.
3. If it is used in the condition where cutting fluids or cutting chips may invade, the vent port needs to have air supply at all the times.
   If it is used when the air supply is shut off, the coolant or cutting chips may contaminate the sensing area.
   This may lead to malfunctioning of the work support.
4. Even if the contact bolt for TNC standard model/TNC-E model is exchanged with air sensing option, it does not work as air sensing option.
   Internal part (plunger) must be changed with air sensor corresponding product.
5. In certain circumstances it has been known for the plunger to move slower through continued use because of the airflow change in the circuit, turn the operating air supply off fully to reset the work support.

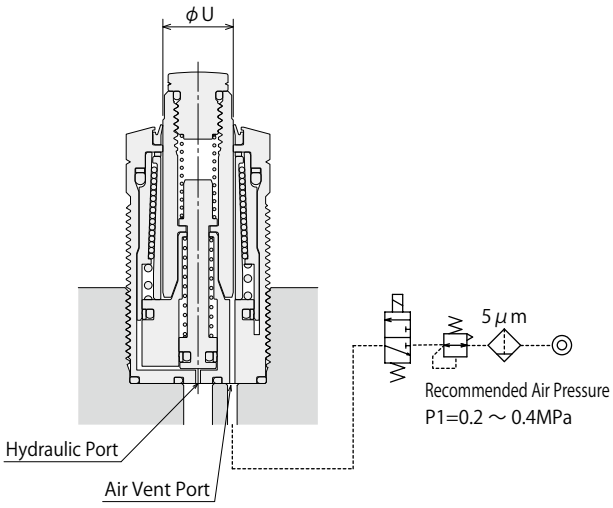
High-Power Series
Pneumatic Series
Hydraulic Series
Valve / Coupler Hydraulic Unit
Manual Operation Accessories
Cautions / Others
Hole Clamp
SFA
SFC
Swing Clamp
LHA
LHC
LHS
LHW
LT/LG
TLA-2
TLB-2
TLA-1
Link Clamp
LKA
LKC
LKW
LM/LJ
TMA-2
TMA-1
Work Support
LD
LC
TNC
TC
Air Sensing Lift Cylinder
LLW
Compact Cylinder
LL
LLR
LLU
DP
DR
DS
DT
Block Cylinder
DBA
DBC
Centering Vise
FVA
FVD
FVC
Control Valve
BZL
BZT
BZX/JZG
Pallet Clamp
VS
VT
Expansion Locating Pin
VFL
VFM
VFJ
VFK
Pull Stud Clamp
FP
FQ
Customized Spring Cylinder
DWA/DWB

Air Purge Function

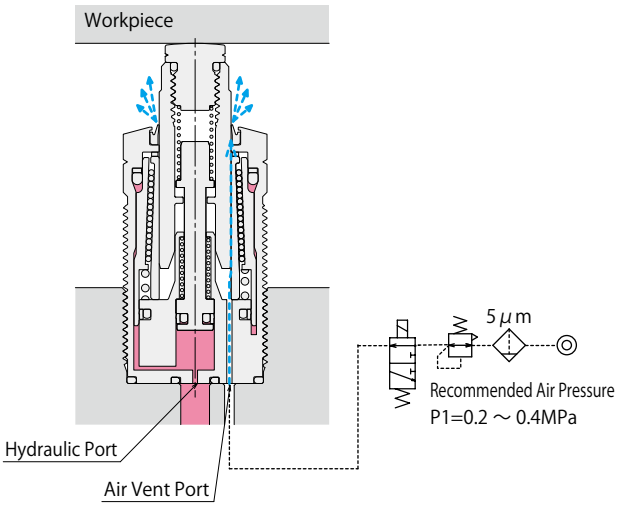
The special dust seal that features low friction and high sealing capabilities is used in TNC. However, when using TNC in worse condition, air purge function is available by providing the circuit to the air vent port like the drawing below.

Structure Drawing

TNC Plunger Descending and at Releasing State (Air Supply OFF) ※1



TNC Plunger Ascending and at Locking State (Air Supply ON) ※1



Workpiece Contact Force Formula when Using Air Purge Function ※2

Workpiece Contact Force (N) = Plunger Spring Force (N) + Supply Air Pressure (MPa) × U^2 (mm) × π ／ 4

Model No.		TNC0400-□ TNC0400-□-E	TNC0600-□ TNC0600-□-E	TNC1000-□ TNC1000-□-E	TNC1600-□ TNC1600-□-E
U	mm	12	15	18	22
Plunger Spring Force ※3 N	**L** :Low Spring Force	4.0～5.8	4.7～7.8	5.8～9.7	8.3～14.6
	H :High Spring Force	5.6～8.0	6.2～11.0	7.8～13.5	10.1～22.0

Model No.		TNC0400-Q	TNC0600-Q	TNC1000-Q	TNC1600-Q
U	mm	12	15	18	22
Plunger Spring Force ※3	N	6.1～11.4	6.2～12.9	7.8～20.4	10.1～24.8

Notes :

※2. Please prepare a stopper if necessary when using light and/or thin workpiece. Otherwise it might be pushed up by work support.

※3. The plunger spring force indicates the spring design value. It may vary depending on sliding resistance of the plunger and characteristic of the spring , etc. Please read it as a reference value of workpiece contact force.

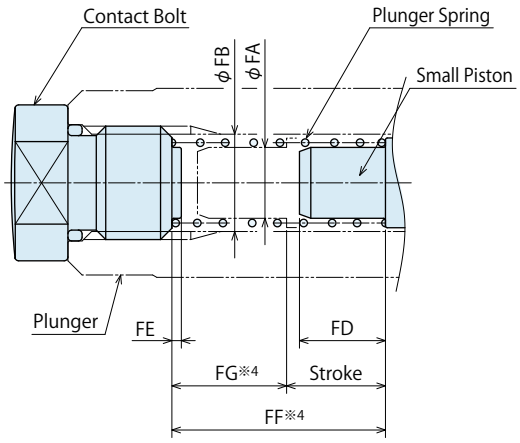
Notes

※1. When the plunger is descending, shut off the air supply. The plunger does not go back when air is supplied.

1. If the plunger ascends too fast, it may bounce back and locks itself resulting in a gap with the workpiece, and possible damage to the internal parts due to the impact. Set the plunger action time at 0.5-1.0 sec. to adjust the air supply with the flow control valve with check valve (meter-in), and make sure that there is no clearance with the workpiece for operation.
2. Air cannot be vented as the air supply pressure is too low because the cracking pressure at the dust seal lip is about 0.1MPa.

Plunger Spring Design Dimension

※Reference for designing a plunger spring by customer other than the included plunger spring.
※This drawing shows the released state.



(mm)

Corresponding Model No.	TNC0400-□ TNC0400-□M	TNC0600-□ TNC0600-□M	TNC1000-□ TNC1000-□M	TNC1600-□ TNC1600-□M
FA	5	6	6	7.5
FB	6.8	8.5	8.5	10.3
FD	7.1	8.1	8.1	9.1
FE	1	1	1	1
FF※4	15.1	17.6	19.6	22.6
FG※4	8.6	9.6	9.6	10.6
Stroke	6.5	8	10	12

(mm)

Corresponding Model No.	TNC0400-□-E TNC0400-□M-E	TNC0600-□-E TNC0600-□M-E	TNC1000-□-E TNC1000-□M-E	TNC1600-□-E TNC1600-□M-E
FA	5	6	6	7.5
FB	6.8	8.5	8.5	10.3
FD	7.1	2.5	2.5	3
FE	1	1	1	1
FF※4	15.1	17.6	19.6	22.6
FG※4	8.6	9.6	9.6	10.6
Stroke	6.5	8	10	12

(mm)

Corresponding Model No.	TNC0400-Q	TNC0600-Q	TNC1000-Q	TNC1600-Q
FA	5	6	6	7.5
FB	6.8	8.5	8.5	10.3
FD	7.1	8.1	8.1	9.1
FE	1	1	1	1
FF※4	23.6	28.6	36.2	40.5
FG※4	10.6	12.6	16.2	16.5
Stroke	13	16	20	24

Note :
※4. When designing a spring, make sure that the spring set length is below FF dimension and the spring contact length is below FG dimension.

High-Power Series
Pneumatic Series
Hydraulic Series
Valve / Coupler Hydraulic Unit
Manual Operation Accessories
Cautions / Others

Hole Clamp
SFA
SFC
Swing Clamp
LHA
LHC
LHS
LHW
LT/LG
TLA-2
TLB-2
TLA-1
Link Clamp
LKA
LKC
LKW
LM/LJ
TMA-2
TMA-1
Work Support
LD
LC
TNC
TC
Air Sensing Lift Cylinder
LLW
Compact Cylinder
LL
LLR
LLU
DP
DR
DS
DT
Block Cylinder
DBA
DBC
Centering Vise
FVA
FVD
FVC
Control Valve
BZL
BZT
BZX/JZG
Pallet Clamp
VS
VT
Expansion Locating Pin
VFL
VFM
VFJ
VFK
Pull Stud Clamp
FP
FQ
Customized Spring Cylinder
DWA/DWB

PAT.

Hydraulic Work Support

Model TC

High Pressure（7～25MPa）

Single Action・Flange Model

Powerful Support・Smooth Action

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- Hydraulic Advance Model (Long Stroke Model) (TC-Q) — P.753
- Spring Advance Model (TC-E) — P.755
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- Manifold Block（Common Items of Other Models） — P.1218

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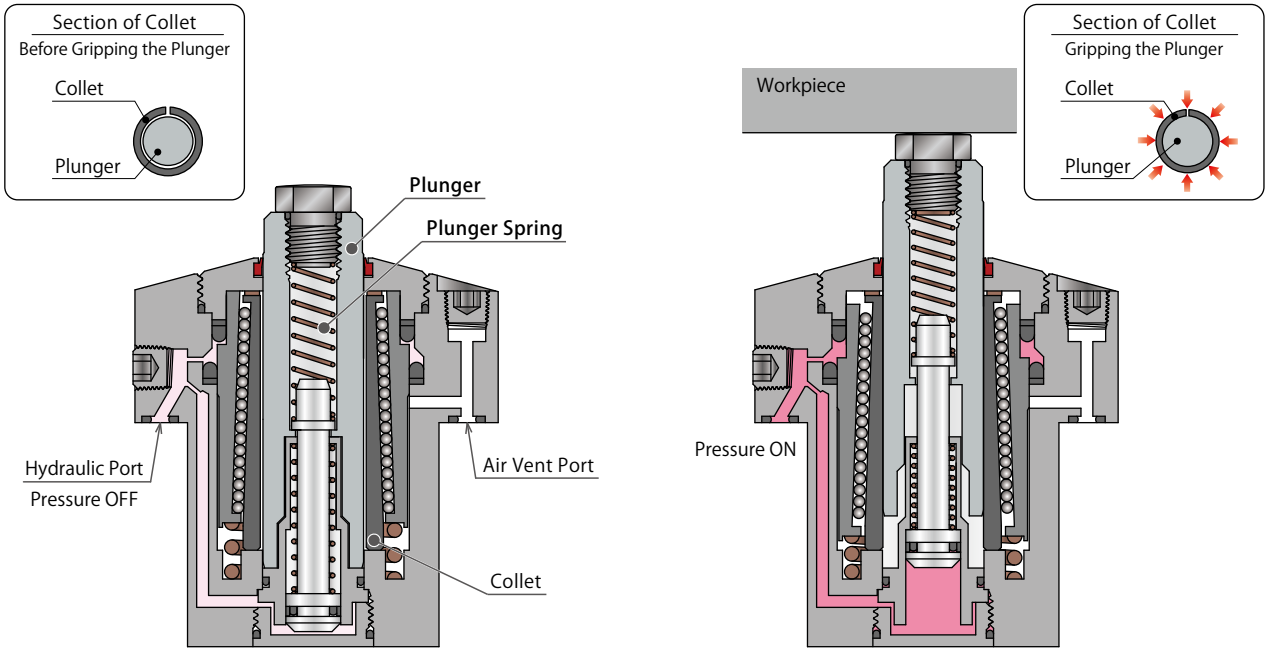
- Cautions (Common) — P.1237
  - Installation Notes ・Hydraulic Fluid List ・Notes on Hydraulic Cylinder Speed Control Circuit
  - Notes on Handling ・Maintenance/Inspection ・Warranty

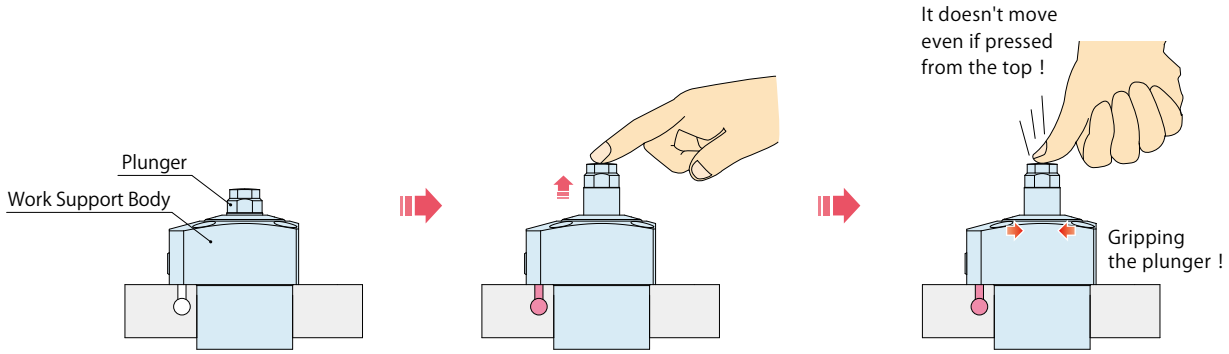
Hydraulic Advance Model (Standard) (TC)

Cross Section



Released State | **Locked State**

Action Description



Hydraulic Pressure：OFF
The state of plunger down.

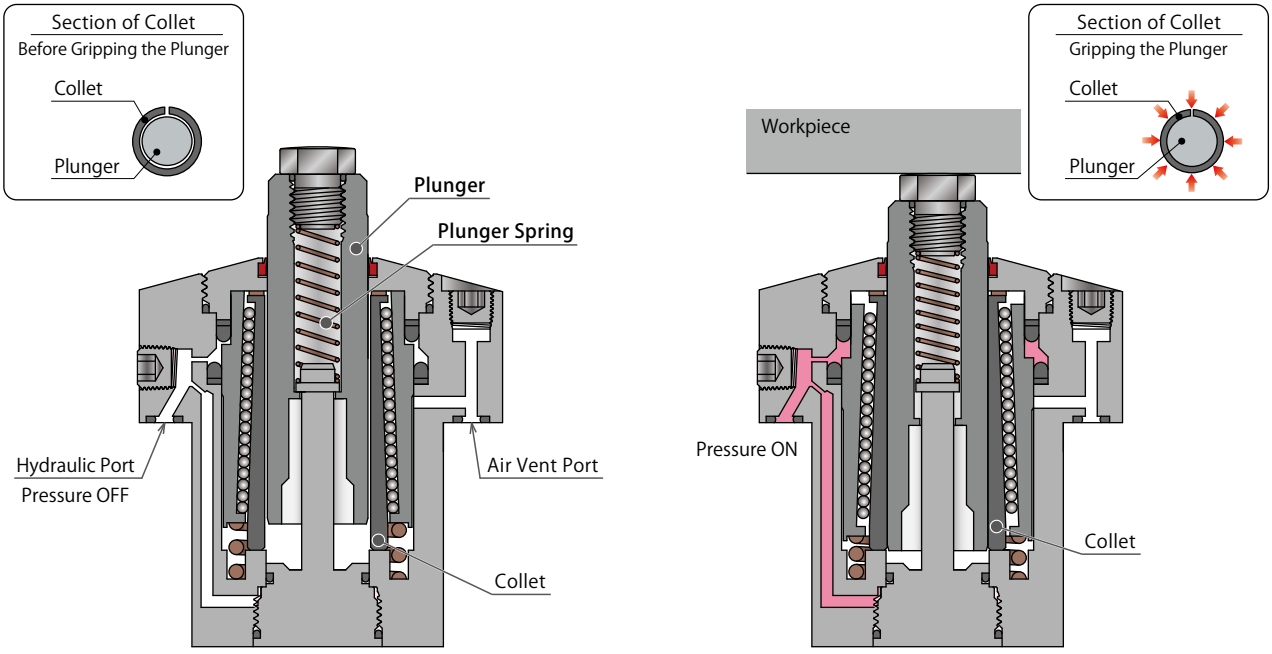
Hydraulic Pressure：ON
Plunger rises with hydraulic pressure and stops after touching workpiece.

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

High-Power Series
Pneumatic Series
Hydraulic Series
Valve / Coupler Hydraulic Unit
Manual Operation Accessories
Cautions / Others
Hole Clamp
SFA
SFC
Swing Clamp
LHA
LHC
LHS
LHW
LT/LG
TLA-2
TLB-2
TLA-1
Link Clamp
LKA
LKC
LKW
LM/LJ
TMA-2
TMA-1
Work Support
LD
LC
TNC
TC
Air Sensing Lift Cylinder
LLW
Compact Cylinder
LL
LLR
LLU
DP
DR
DS
DT
Block Cylinder
DBA
DBC
Centering Vise
FVA
FVD
FVC
Control Valve
BZL
BZT
BZX/JZG
Pallet Clamp
VS
VT
Expansion Locating Pin
VFL
VFM
VFJ
VFK
Pull Stud Clamp
FP
FQ
Customized Spring Cylinder
DWA/DWB

Spring Advance Model (TC-E)

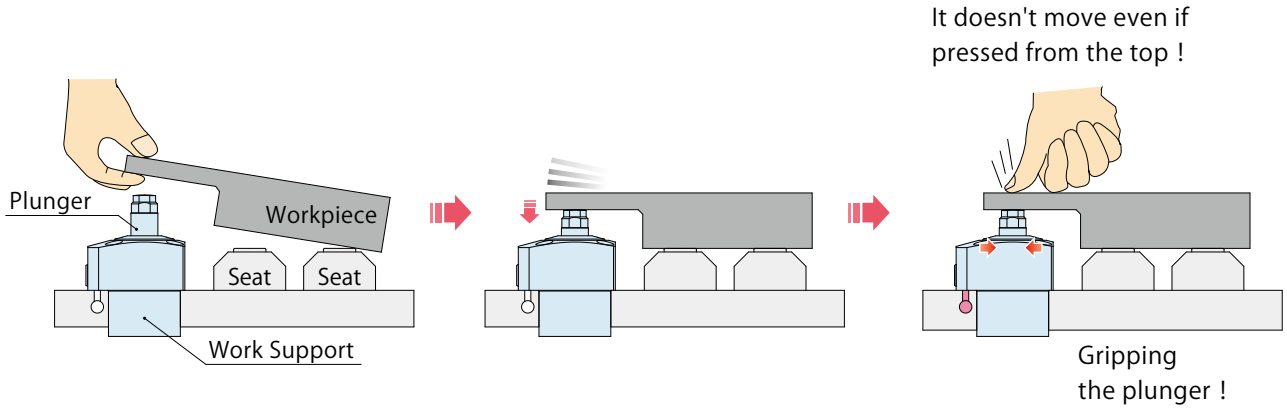
Cross Section



Released State

Locked State

Action Description



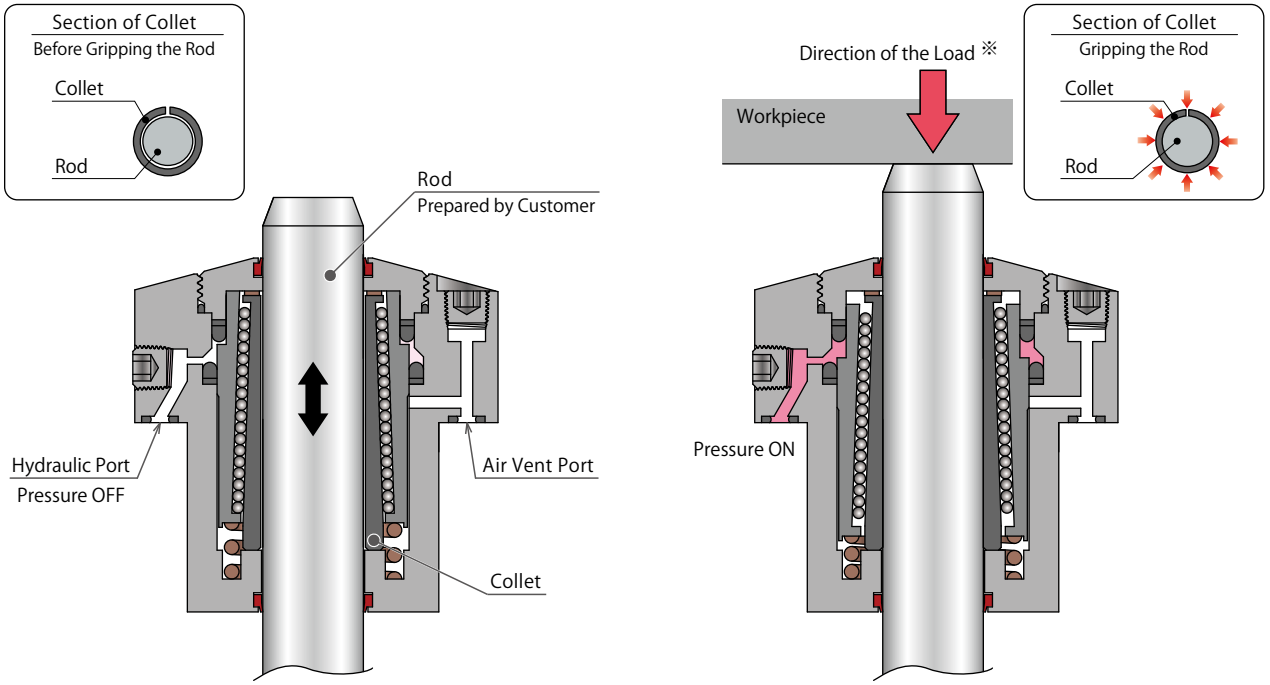
Hydraulic Pressure：OFF
The state of plunger down.

Hydraulic Pressure：OFF
The plunger descends according to the workpiece weight and stops in balance.

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

Rodless Hollow Model (TC-D)

Cross Section

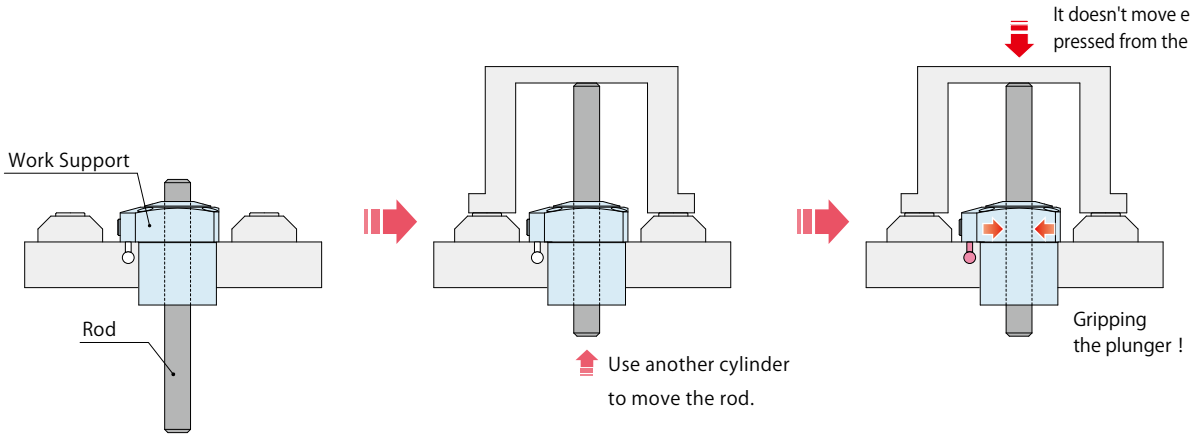


Released State

Locked State

※ The load acts towards the arrow direction as shown in the drawing.

Action Description



Hydraulic Pressure：OFF
Work Support is not gripping the rod.
(Rod is prepared by customer.)

Hydraulic Pressure：OFF
Use another cylinder to move the rod until it touches the workpiece.

Hydraulic Pressure：ON
After gripping is completed, the rod does not go down even when load is applied from the top.

High-Power Series
Pneumatic Series
Hydraulic Series
Valve / Coupler Hydraulic Unit
Manual Operation Accessories
Cautions / Others
Hole Clamp
SFA
SFC
Swing Clamp
LHA
LHC
LHS
LHW
LT/LG
TLA-2
TLB-2
TLA-1
Link Clamp
LKA
LKC
LKW
LM/LJ
TMA-2
TMA-1
Work Support
LD
LC
TNC
TC
Air Sensing Lift Cylinder
LLW
Compact Cylinder
LL
LLR
LLU
DP
DR
DS
DT
Block Cylinder
DBA
DBC
Centering Vise
FVA
FVD
FVC
Control Valve
BZL
BZT
BZX/JZG
Pallet Clamp
VS
VT
Expansion Locating Pin
VFL
VFM
VFJ
VFK
Pull Stud Clamp
FP
FQ
Customized Spring Cylinder
DWA/DWB

Model No. Indication

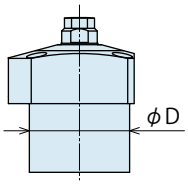
TC 040 2 - G L -

1 2 3 4 5

1 Body Size

040： ϕD=40mm
048： ϕD=48mm
055： ϕD=55mm
065： ϕD=65mm
075： ϕD=75mm

※ Outer diameter (ϕD) of the cylinder.

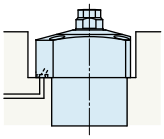


2 Design No.

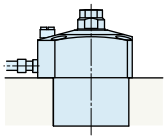
2 ： Revision Number

3 Piping Method

G ： Gasket Option (With R Thread Plug)
S ： Piping Option (Rc Thread Port)



Gasket Option
With R Thread Plug



Piping Option
Rc Thread Port
No Gasket Port

4 Plunger Spring Force

L ： Low Spring Force
H ： High Spring Force
Blank： For 5 Option **Q, D**

5 Option

Blank： Hydraulic Advance Model (Standard)
Q ： Hydraulic Advance Long Stroke Model
E ： Spring Advance Model
D ： Rodless Hollow Model (Rod is prepared by customer.)

Specifications

Option 5 Blank / E

Model No.		TC0402-□□ TC0402-□□-E	TC0482-□□ TC0482-□□-E	TC0552-□□ TC0552-□□-E	TC0652-□□ TC0652-□□-E	TC0752-□□ TC0752-□□-E
Support Force at 25MPa kN		10	15.5	25	40	65
Support Force (Calculation Formula)※1 kN		0.47×P-1.63	0.72×P-2.52	1.16×P-4.07	1.86×P-6.51	3.02×P-10.58
Plunger Stroke mm		10	12	14	16	20
Cylinder Capacity cm³	5 Option Blank	1.1	1.9	2.5	4.7	6.5
	5 Option E	0.3	0.6	0.9	1.5	2.5
Plunger Spring Force※2 N	L:Low Spring Force	5.8～9.7	8.3～14.6	9.8～14.6	12.4～18.8	14.6～21.0
	H:High Spring Force	7.9～13.6	10.1～21.9	15.8～22.0	18.7～31.9	21.4～34.2
Max. Operating Pressure MPa		25				
Min. Operating Pressure MPa		7				
Withstanding Pressure MPa		37.5				
Operating Temperature ℃		0～70				
Mass kg		0.7	1.1	1.6	2.7	4.3

Option 5 Q

Model No.	TC0402-□-Q	TC0482-□-Q	TC0552-□-Q	TC0652-□-Q	TC0752-□-Q
Support Force at 25MPa kN	10	15.5	25	40	65
Support Force (Calculation Formula)※1 kN	0.47×P-1.63	0.72×P-2.52	1.16×P-4.07	1.86×P-6.51	3.02×P-10.58
Plunger Stroke mm	20	24	28	32	40
Cylinder Capacity cm³	1.9	3.3	4.0	7.9	10.5
Plunger Spring Force※2 N	7.8～20.4	10.1～24.8	15.8～28.4	18.7～42.3	21.4～44.0
Max. Operating Pressure MPa	25				
Min. Operating Pressure MPa	7				
Withstanding Pressure MPa	37.5				
Operating Temperature ℃	0～70				
Mass kg	0.8	1.3	1.8	3.0	4.6

Option 5 D

Model No.	TC0402-□-D	TC0482-□-D	TC0552-□-D	TC0652-□-D	TC0752-□-D
Support Force at 25MPa kN	6.3	10	16	25	40
Support Force (Calculation Formula)※1 kN	0.29×P-1.03	0.47×P-1.63	0.74×P-2.60	1.16×P-4.07	1.86×P-6.51
Cylinder Capacity cm³	0.3	0.6	0.9	1.5	2.5
Max. Operating Pressure MPa	25				
Min. Operating Pressure MPa	7				
Withstanding Pressure MPa	37.5				
Operating Temperature ℃	0～70				
Mass kg	0.5	0.8	1.3	2.2	3.5

Notes : ※1. P in the formula for support force indicates the hydraulic pressure (MPa).
※2. The plunger spring force indicates the spring design value. It may vary depending on sliding resistance of the plunger and characteristic of the spring , etc. Please read it as a reference value of workpiece contact force.

Performance Curve (TC-□□ : Hydraulic Advance Model / TC-□□-E : Spring Advance Model)

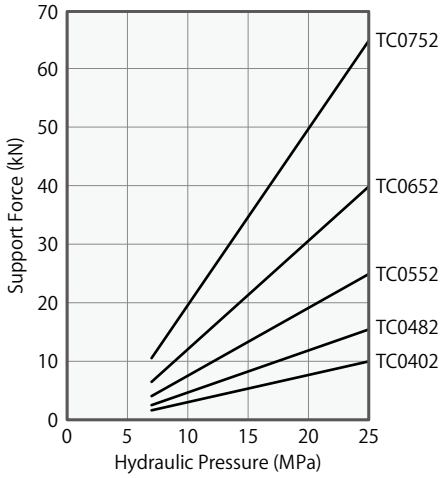
Applicable Model

TC 040 2 - G S L H - Blank E

1 Body Size

5 Option : Blank, E

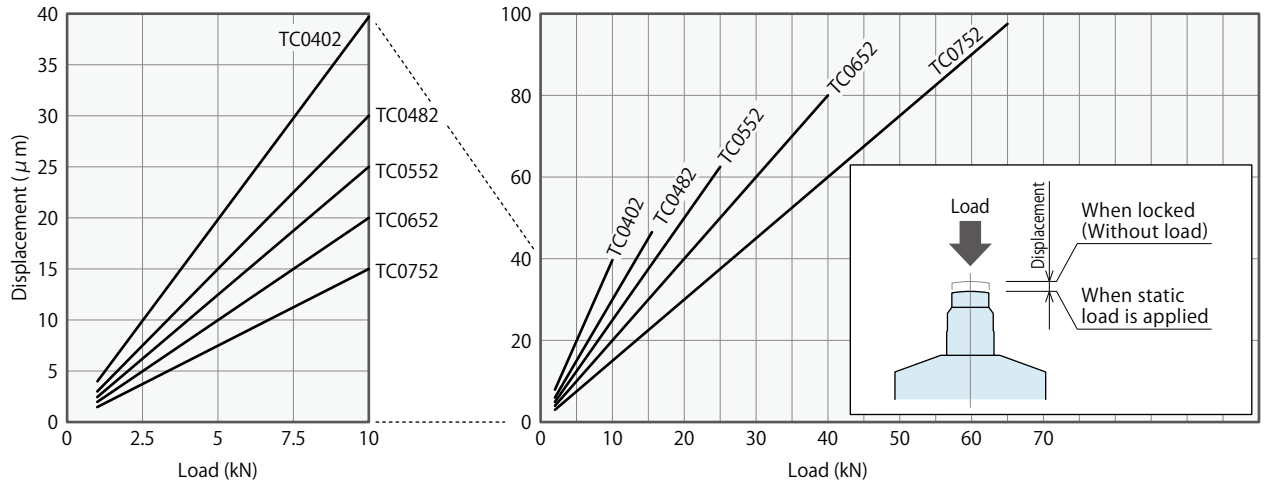
Support Force Graph ※ This graph shows the support force under static load condition.



	Support Force (kN)				
Model No.	TC0402-□□	TC0482-□□	TC0552-□□	TC0652-□□	TC0752-□□
Hydraulic Pressure (MPa)	TC0402-□□-E	TC0482-□□-E	TC0552-□□-E	TC0652-□□-E	TC0752-□□-E
25	10.0	15.5	25.0	40.0	65.0
22.5	8.9	13.7	22.0	35.3	57.4
20	7.8	11.9	19.1	30.7	49.8
17.5	6.6	10.1	16.2	26.0	42.3
15	5.4	8.3	13.3	21.4	34.7
12.5	4.2	6.5	10.4	16.7	27.2
10	3.1	4.7	7.5	12.1	19.6
7.5	1.9	2.9	4.6	7.4	12.1
Support Force Formula ※1 kN	0.47×P−1.63	0.72×P−2.52	1.16×P−4.07	1.86×P−6.51	3.02×P−10.58

Note : ※1. P : Operating Hydraulic Pressure (MPa)

Load / Displacement Graph ※ This graph shows the static load displacement at 25 MPa hydraulic pressure.



Performance Curve (TC-□-Q : Hydraulic Advance Long Stroke Model)

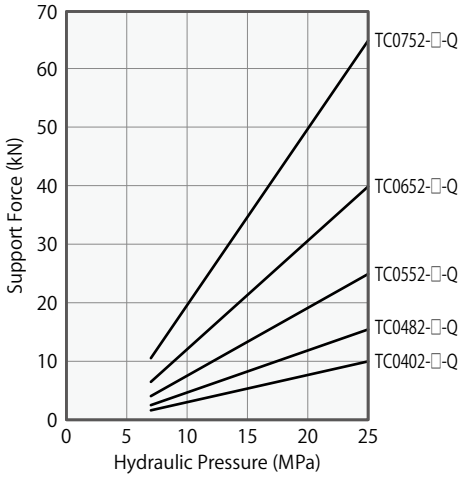
Applicable Model

TC 040 2 - G S - Q

1 Body Size

5 Option : Q

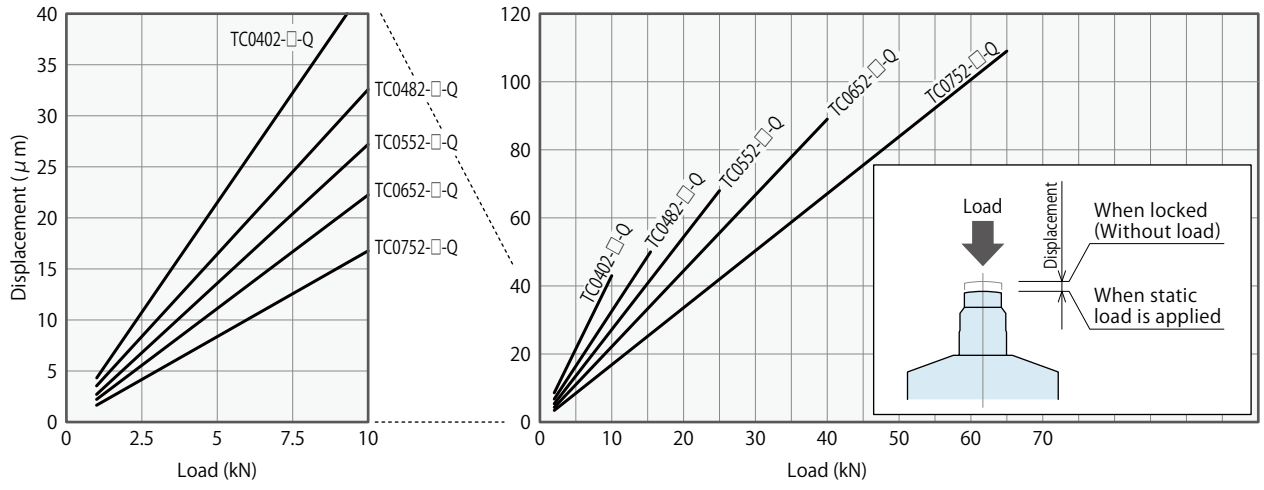
Support Force Graph ※ This graph shows the support force under static load condition.



Model No. / Hydraulic Pressure (MPa)	Support Force (kN) TC0402-□-Q	TC0482-□-Q	TC0552-□-Q	TC0652-□-Q	TC0752-□-Q
25	10.0	15.5	25.0	40.0	65.0
22.5	8.9	13.7	22.0	35.3	57.4
20	7.8	11.9	19.1	30.7	49.8
17.5	6.6	10.1	16.2	26.0	42.3
15	5.4	8.3	13.3	21.4	34.7
12.5	4.2	6.5	10.4	16.7	27.2
10	3.1	4.7	7.5	12.1	19.6
7.5	1.9	2.9	4.6	7.4	12.1
Support Force Formula ※1 kN	0.47×P−1.63	0.72×P−2.52	1.16×P−4.07	1.86×P−6.51	3.02×P−10.58

Note : ※1. P : Operating Hydraulic Pressure (MPa)

Load / Displacement Graph ※ This graph shows the static load displacement at 25 MPa hydraulic pressure.



※ The Displacement of TC-□-Q : Long Stroke Model is larger than that of TC-□□ : Standard Model.

Performance Curve (TC-□-D : Rodless Hollow Model)

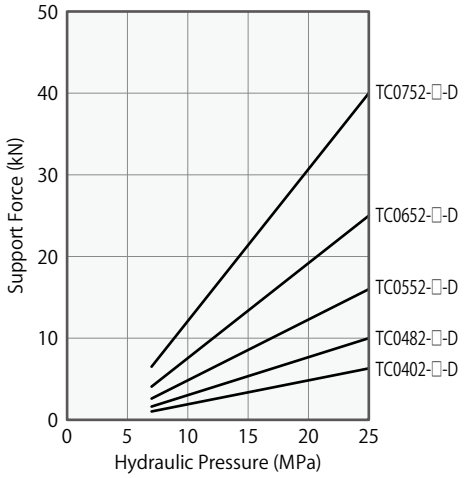
Applicable Model

TC 040 2 - G S - D

1 Body Size

5 Option : D

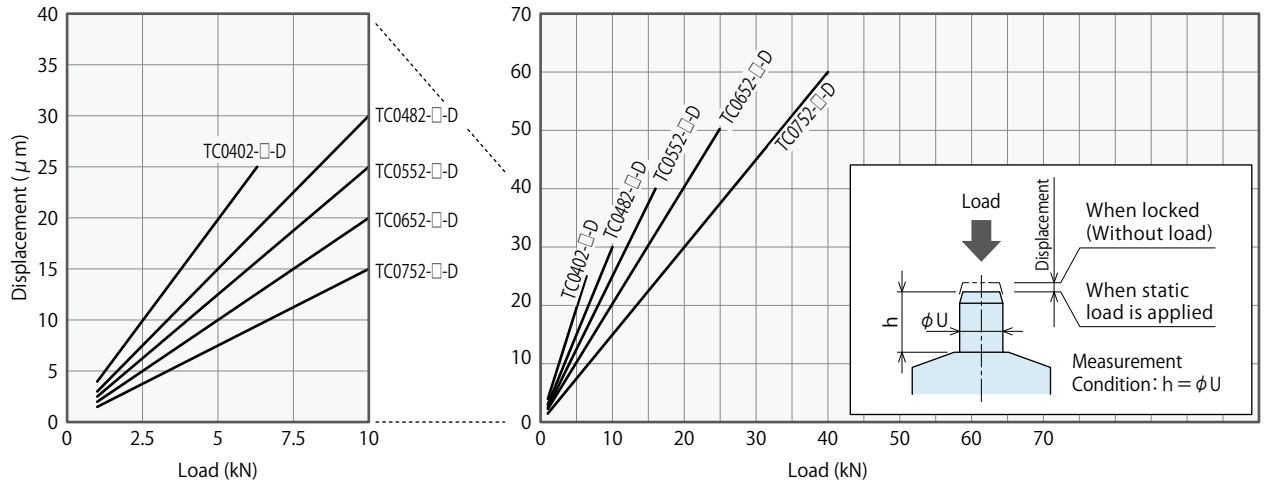
Support Force Graph ※ This graph shows the support force under static load condition.



Model No. / Hydraulic Pressure (MPa)	Support Force (kN) TC0402-□-D	TC0482-□-D	TC0552-□-D	TC0652-□-D	TC0752-□-D
25	6.3	10.0	16.0	25.0	40.0
22.5	5.6	8.8	14.1	22.1	35.3
20	4.8	7.7	12.3	19.2	30.7
17.5	4.1	6.5	10.4	16.3	26.0
15	3.4	5.3	8.6	13.4	21.4
12.5	2.6	4.2	6.7	10.5	16.7
10	1.9	3.0	4.8	7.6	12.1
7.5	1.2	1.9	3.0	4.7	7.4
Support Force Formula ※1 kN	0.29×P−1.03	0.47×P−1.63	0.74×P−2.60	1.16×P−4.07	1.86×P−6.51

Note : ※1. P : Operating Hydraulic Pressure (MPa)

Load / Displacement Graph ※ This graph shows the static load displacement at 25 MPa hydraulic pressure.

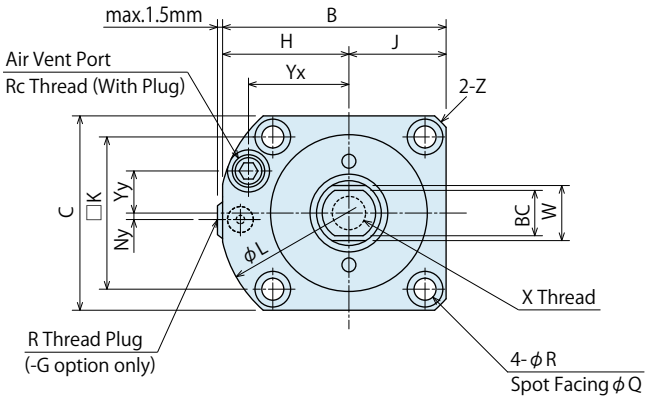


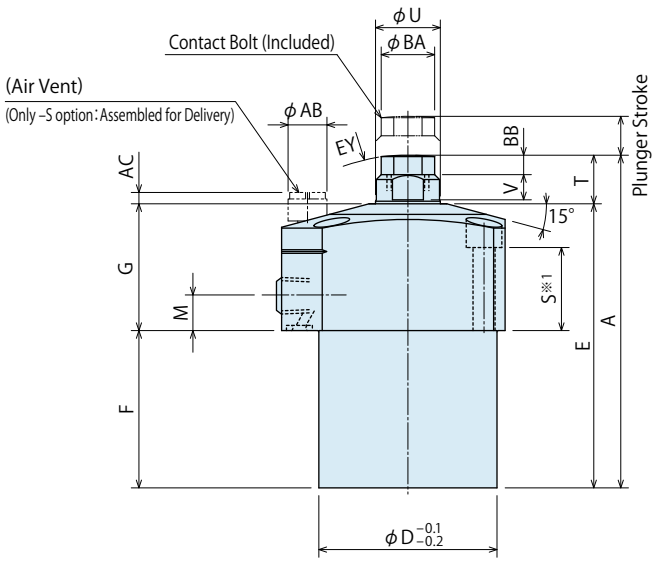
MEMO

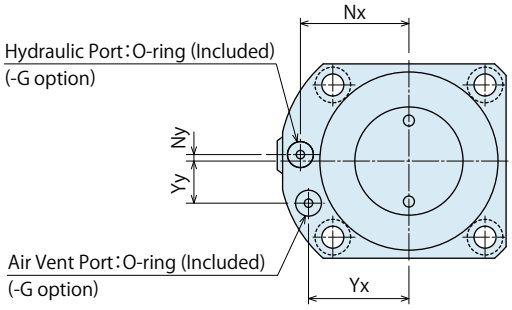
External Dimensions

G：Gasket Option (with R Thread Plug)

※ This drawing shows the released state of TC-G□ (before the plunger is lifted).



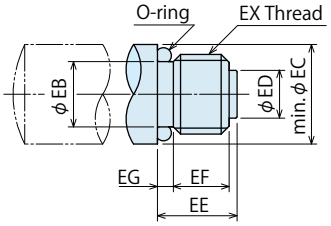




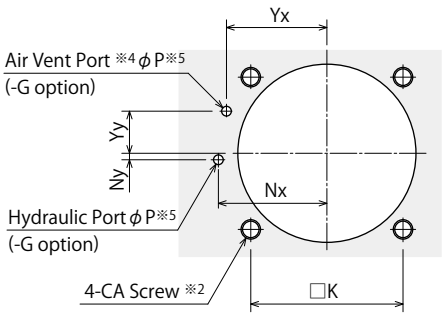
Note：

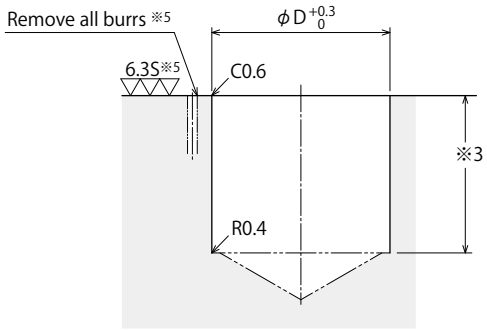
※1. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.

Contact Bolt Design Dimensions



Machining Dimensions of Mounting Area





Notes：

※2. CA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.

※3. The depth of the body mounting hole ϕD should be decided according to the mounting height referring to dimension 'F'.

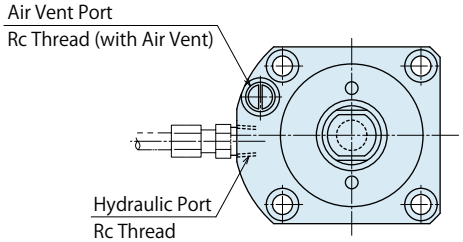
※4. Air vent port must be open to the atmosphere, and prevent coolant and chips from entering the air vent port. (Please refer to "Appropriate Measures for the Air Vent Port (P.763)".)

※5. The machining dimension is for -G：Gasket option.

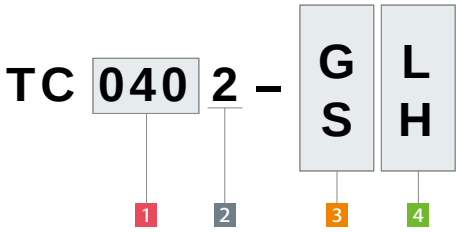
Piping Method

S：Piping Option (Rc Thread)

※This drawing shows TC-S□.



Model No. Indication



(Format Example：TC0402-GL, TC0752-SH)

1 Body Size
2 Design No.
3 Piping Method
4 Plunger Spring Force
5 Option：Blank

External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.	TC0402-□□	TC0482-□□	TC0552-□□	TC0652-□□	TC0752-□□
Plunger Stroke	10	12	14	16	20
A	75	85	101	126	149
B	54	61	69	81	92
C	45	51	60	70	80
D	40	48	55	65	75
E	64	70	85	107	128
F	28	34	49	69	82
G	36	36	36	38	46
H	31.5	35.5	39	46	52
J	22.5	25.5	30	35	40
K	34	40	47	55	63
L	68	73	80	94	106
M	11	12	12	12	14
Nx	26	30	33.5	39.5	45
Ny	5	0	0	0	0
P	3	3	3	5	5
Q	9.5	9.5	11	11	14
R	5.5	5.5	6.8	6.8	9
S	26	25	23	24	29
T	11	15	16	19	21
U	16	20	22	25	30
V	6	8	9	9	10.5
W	13	17	19	22	24
X (Nominal×Pitch×Depth)	M10×1.5×11	M12×1.75×13	M12×1.75×13	M16×2×20	M16×2×20
Yx	25	28	31	37	42.5
Yy	8	11	13	14	15
Z (Chamfer)	C1	C3	R40	R47	R53
AB	12	12	12	12	12
AC	5	4.5	4	3	1.5
BA	12.5	16.5	16.5	21.5	21.5
BB	4	6	6	9	9
BC	11	14	14	19	19
CA (Nominal×Pitch)	M5×0.8	M5×0.8	M6×1	M6×1	M8×1.25
EY	SR50	SR80	SR80	SR125	SR125
Hydraulic Port -S option	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/4
R Thread Plug -G option	R1/8	R1/8	R1/8	R1/8	R1/4
O-ring (-G option)	1BP5	1BP5	1BP5	1BP7	1BP7
Air Vent Port Rc Thread	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8

Contact Bolt Design Dimensions

※Reference for designing a contact bolt (attachment) by customer other than the included contact bolt.

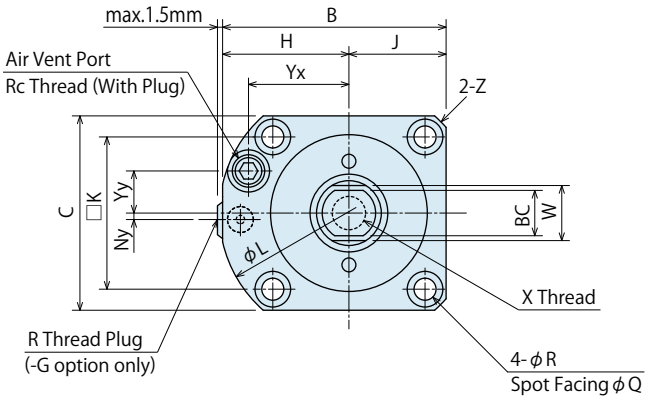
(mm)

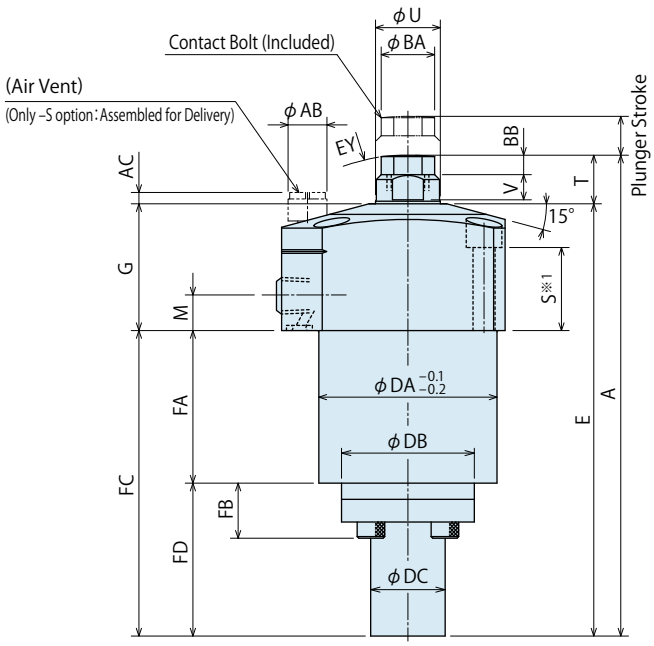
Corresponding Item Model No.	TC0402-□□	TC0482-□□	TC0552-□□	TC0652-□□	TC0752-□□
EB	8.2	10	10	13.5	13.5
EC	12.5	16.5	16.5	21.5	21.5
ED	6	7.5	7.5	10.5	10.5
EE	10	12	12	16	16
EF	7	8	8	11	11
EG	2	3	3	4	4
EX (Nominal×Pitch)	M10×1.5	M12×1.75	M12×1.75	M16×2	M16×2
O-ring	S8 (Made by NOK)	S10 (Made by NOK)	S10 (Made by NOK)	AS568-014 (70°)	AS568-014 (70°)

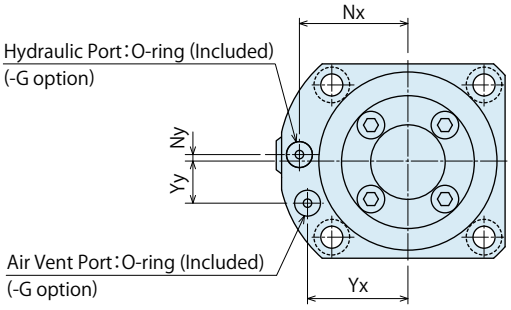
External Dimensions

G：Gasket Option (with R Thread Plug)

※ This drawing shows the released state of TC-G-Q (before the plunger is lifted).



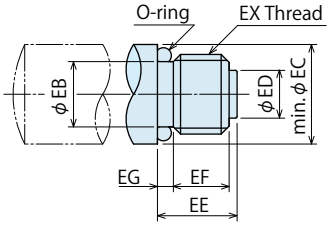




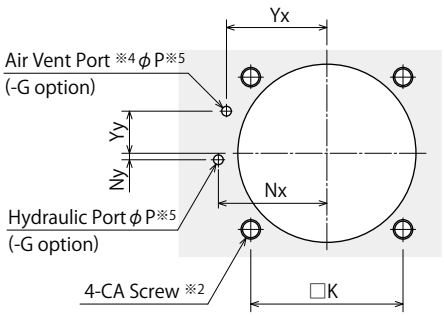
Note：

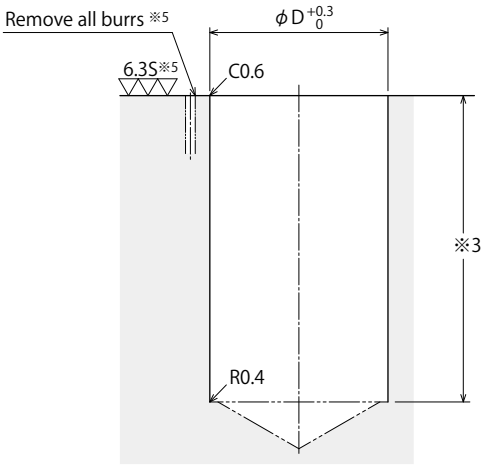
※1. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.

Contact Bolt Design Dimensions



Machining Dimensions of Mounting Area





Notes：

※2. CA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.

※3. The depth of the body mounting hole ϕD should be decided according to the mounting height referring to dimension 'FC'.

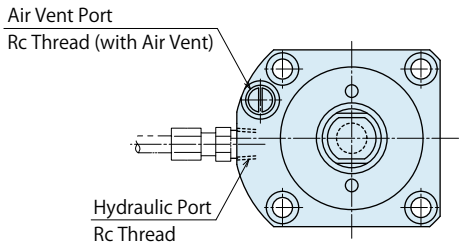
※4. Air vent port must be open to the atmosphere, and prevent coolant and chips from entering the air vent port. (Please refer to "Appropriate Measures for the Air Vent Port (P.763)".)

※5. The machining dimension is for -G：Gasket option.

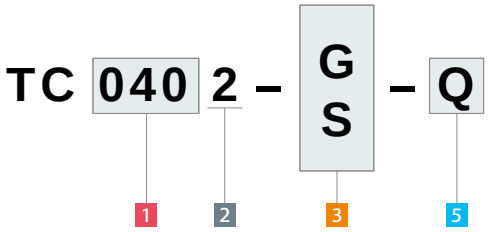
Piping Method

S：Piping Option (Rc Thread)

※This drawing shows TC-S-Q.



Model No. Indication



(Format Example：TC0402-G-Q, TC0752-S-Q)

1 Body Size
2 Design No.
3 Piping Method
4 Plunger Spring Force (Blank)
5 Option：Q

External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.	TC0402-□-Q	TC0482-□-Q	TC0552-□-Q	TC0652-□-Q	TC0752-□-Q
Plunger Stroke	20	24	28	32	40
A	112	131.5	149.5	178	212.5
B	54	61	69	81	92
C	45	51	60	70	80
DA	40	48	55	65	75
DB	34	41	41	48	53
DC	19	23	23	30	30
E	101	116.5	133.5	159	191.5
FA	23	30.5	47	68	85
FB	14	17	17	21	21
FC	65	80.5	97.5	121	145.5
FD	42	50	50.5	53	60.5
G	36	36	36	38	46
H	31.5	35.5	39	46	52
J	22.5	25.5	30	35	40
K	34	40	47	55	63
L	68	73	80	94	106
M	11	12	12	12	14
Nx	26	30	33.5	39.5	45
Ny	5	0	0	0	0
P	3	3	3	5	5
Q	9.5	9.5	11	11	14
R	5.5	5.5	6.8	6.8	9
S	26	25	23	24	29
T	11	15	16	19	21
U	16	20	22	25	30
V	6	8	9	9	10.5
W	13	17	19	22	24
X (Nominal×Pitch×Depth)	M10×1.5×11	M12×1.75×13	M12×1.75×13	M16×2×20	M16×2×20
Yx	25	28	31	37	42.5
Yy	8	11	13	14	15
Z (Chamfer)	C1	C3	R40	R47	R53
AB	12	12	12	12	12
AC	5	4.5	4	3	1.5
BA	12.5	16.5	16.5	21.5	21.5
BB	4	6	6	9	9
BC	11	14	14	19	19
CA (Nominal×Pitch)	M5×0.8	M5×0.8	M6×1	M6×1	M8×1.25
EY	SR50	SR80	SR80	SR125	SR125
Hydraulic Port -S option	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/4
R Thread Plug -G option	R1/8	R1/8	R1/8	R1/8	R1/4
O-ring (-G option)	1BP5	1BP5	1BP5	1BP7	1BP7
Air Vent Port Rc Thread	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8

Contact Bolt Design Dimensions

※Reference for designing a contact bolt (attachment) by customer other than the included contact bolt.

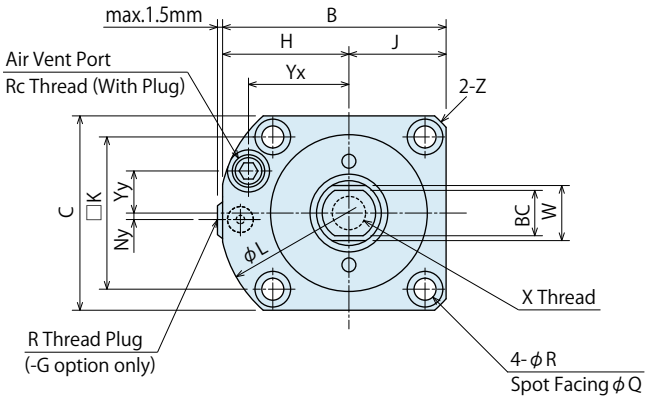
(mm)

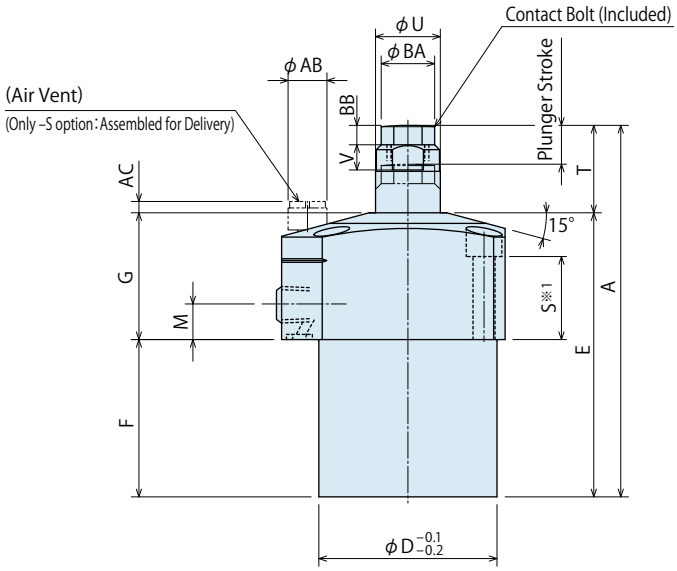
Corresponding Model No.	TC0402-□-Q	TC0482-□-Q	TC0552-□-Q	TC0652-□-Q	TC0752-□-Q
EB	8.2	10	10	13.5	13.5
EC	12.5	16.5	16.5	21.5	21.5
ED	6	7.5	7.5	10.5	10.5
EE	10	12	12	16	16
EF	7	8	8	11	11
EG	2	3	3	4	4
EX (Nominal×Pitch)	M10×1.5	M12×1.75	M12×1.75	M16×2	M16×2
O-ring	S8 (Made by NOK)	S10 (Made by NOK)	S10 (Made by NOK)	AS568-014 (70°)	AS568-014 (70°)

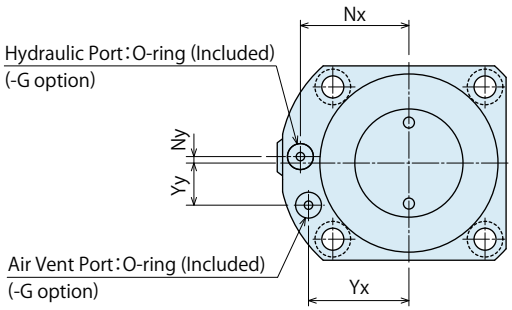
External Dimensions

G：Gasket Option (with R Thread Plug)

※ This drawing shows the released state of TC-G□-E (before the plunger is lifted).



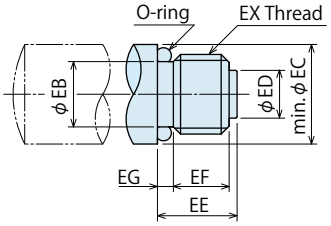




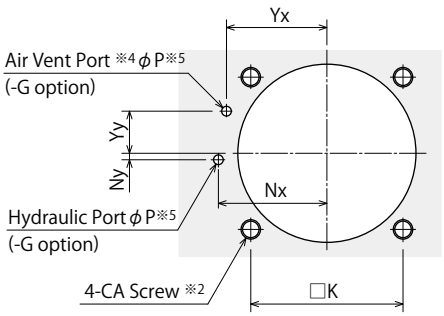
Note：

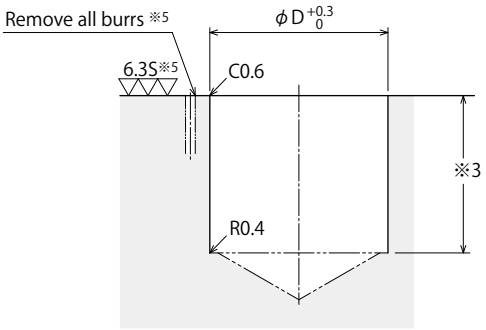
※1. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.

Contact Bolt Design Dimensions



Machining Dimensions of Mounting Area





Notes：

※2. CA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.

※3. The depth of the body mounting hole ϕD should be decided according to the mounting height referring to dimension 'F'.

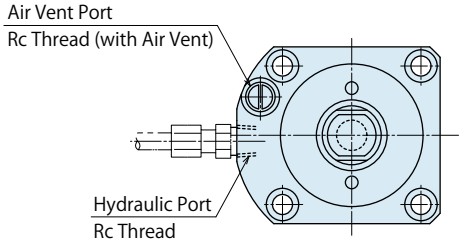
※4. Air vent port must be open to the atmosphere, and prevent coolant and chips from entering the air vent port. (Please refer to "Appropriate Measures for the Air Vent Port (P.763)".)

※5. The machining dimension is for -G：Gasket option.

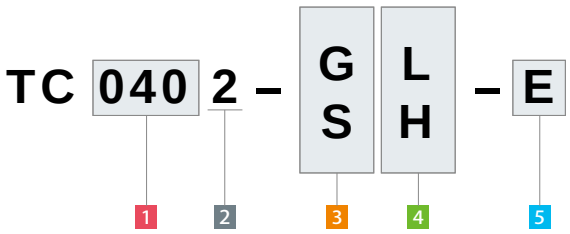
Piping Method

S：Piping Option (Rc Thread)

※This drawing shows TC-S□-E.



Model No. Indication



(Format Example：TC0402-GL-E, TC0752-SH-E)

1 Body Size
2 Design No.
3 Piping Method
4 Plunger Spring Force
5 Option：E

External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.	TC0402-□□-E	TC0482-□□-E	TC0552-□□-E	TC0652-□□-E	TC0752-□□-E
Plunger Stroke	10	12	14	16	20
A	85	97	115	142	169
B	54	61	69	81	92
C	45	51	60	70	80
D	40	48	55	65	75
E	64	70	85	107	128
F	28	34	49	69	82
G	36	36	36	38	46
H	31.5	35.5	39	46	52
J	22.5	25.5	30	35	40
K	34	40	47	55	63
L	68	73	80	94	106
M	11	12	12	12	14
Nx	26	30	33.5	39.5	45
Ny	5	0	0	0	0
P	3	3	3	5	5
Q	9.5	9.5	11	11	14
R	5.5	5.5	6.8	6.8	9
S	26	25	23	24	29
T	21	27	30	35	41
U	16	20	22	25	30
V	6	8	9	9	10.5
W	13	17	19	22	24
X (Nominal×Pitch×Depth)	M10×1.5×11	M12×1.75×13	M12×1.75×13	M16×2×20	M16×2×20
Yx	25	28	31	37	42.5
Yy	8	11	13	14	15
Z (Chamfer)	C1	C3	R40	R47	R53
AB	12	12	12	12	12
AC	5	4.5	4	3	1.5
BA	12.5	16.5	16.5	21.5	21.5
BB	4	6	6	9	9
BC	11	14	14	19	19
CA (Nominal × Pitch)	M5×0.8	M5×0.8	M6×1	M6×1	M8×1.25
EY	SR50	SR80	SR80	SR125	SR125
Hydraulic Port -S option	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/4
R Thread Plug -G option	R1/8	R1/8	R1/8	R1/8	R1/4
O-ring (-G option)	1BP5	1BP5	1BP5	1BP7	1BP7
Air Vent Port Rc Thread	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8

Contact Bolt Design Dimensions

※Reference for designing a contact bolt (attachment) by customer other than the included contact bolt.

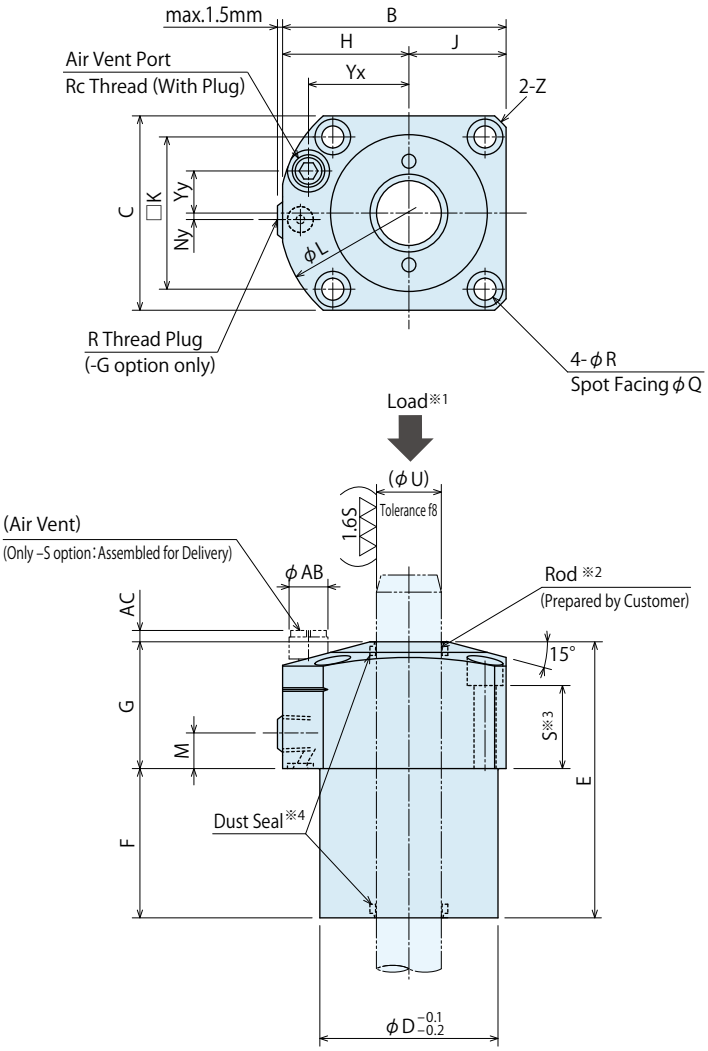
(mm)

Corresponding Model No.	TC0402-□□-E	TC0482-□□-E	TC0552-□□-E	TC0652-□□-E	TC0752-□□-E
EB	8.2	10	10	13.5	13.5
EC	12.5	16.5	16.5	21.5	21.5
ED	6	7.5	7.5	10.5	10.5
EE	10	12	12	16	16
EF	7	8	8	11	11
EG	2	3	3	4	4
EX (Nominal × Pitch)	M10×1.5	M12×1.75	M12×1.75	M16×2	M16×2
O-ring	S8 (Made by NOK)	S10 (Made by NOK)	S10 (Made by NOK)	AS568-014 (70°)	AS568-014 (70°)

External Dimensions

G：Gasket Option (with R Thread Plug)

※ This drawing shows the released state of TC-G-D (before the plunger is lifted).



Note：

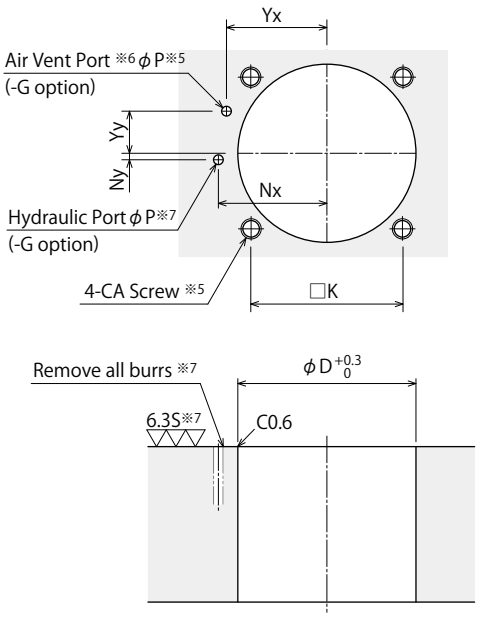
※ 1. The load acts towards the arrow direction (⬇) as shown in the drawing. If used in a reversed position the internal parts are likely to be damaged.

※ 2. The surface hardness of the rod (prepared by the customer) should be above HRC60. (The hard Chromic plated metal is acceptable.)

※ 3. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.

※ 4. Deburr the rod end, and pay attention not to damage the dust seal when the rod is inserted into the body (upper and lower parts).

Machining Dimensions of Mounting Area



Notes：

※ 5. CA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.

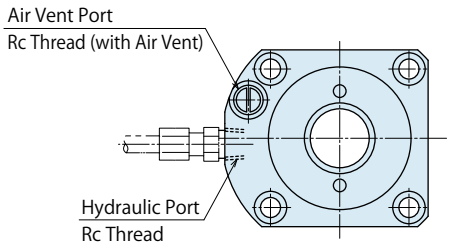
※ 6. Air vent port must be open to the atmosphere, and prevent coolant and chips from entering the air vent port. (Please refer to "Appropriate Measures for the Air Vent Port (P.763)".)

※ 7. The machining dimension is for -G：Gasket option.

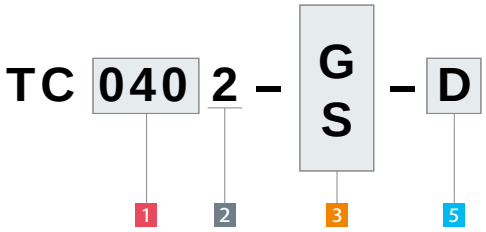
Piping Method

S：Piping Option (Rc Thread)

※This drawing shows TC-S-D.



Model No. Indication



(Format Example：TC0402-G-D, TC0752-S-D)

1 Body Size
2 Design No.
3 Piping Method
4 Plunger Spring Force (Blank)
5 Option：D

External Dimensions and Machining Dimensions for Mounting

(mm)

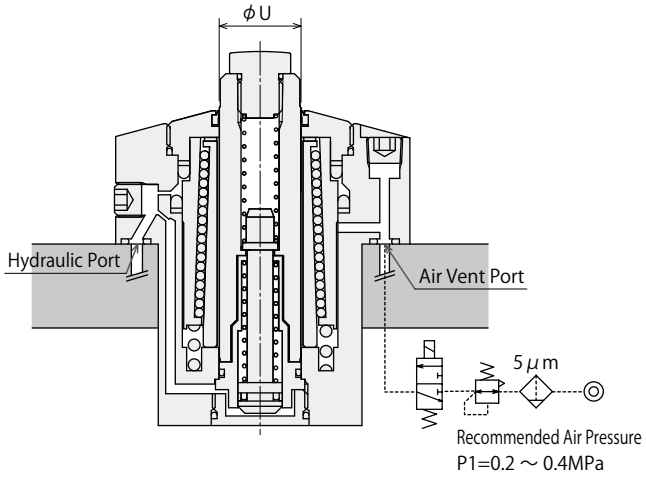
Model No.		TC0402-□-D	TC0482-□-D	TC0552-□-D	TC0652-□-D	TC0752-□-D
B		54	61	69	81	92
C		45	51	60	70	80
D		40	48	55	65	75
E		56	63	80	101	128
F		20	27	44	63	82
G		36	36	36	38	46
H		31.5	35.5	39	46	52
J		22.5	25.5	30	35	40
K		34	40	47	55	63
L		68	73	80	94	106
M		11	12	12	12	14
Nx		26	30	33.5	39.5	45
Ny		5	0	0	0	0
P		3	3	3	5	5
Q		9.5	9.5	11	11	14
R		5.5	5.5	6.8	6.8	9
S		26	25	23	24	29
U		$16^{-0.016}_{-0.043}$	$20^{-0.020}_{-0.053}$	$22^{-0.020}_{-0.053}$	$25^{-0.020}_{-0.053}$	$30^{-0.020}_{-0.053}$
Yx		25	28	31	37	42.5
Yy		8	11	13	14	15
Z (Chamfer)		C1	C3	R40	R47	R53
AB		12	12	12	12	12
AC		5	4.5	4	3	1.5
CA (Nominal × Pitch)		M5×0.8	M5×0.8	M6×1	M6×1	M8×1.25
Hydraulic Port	-S option	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/4
R Thread Plug	-G option	R1/8	R1/8	R1/8	R1/8	R1/4
O-ring (-G option)		1BP5	1BP5	1BP5	1BP7	1BP7
Air Vent Port Rc Thread		Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8

Air Purge Function

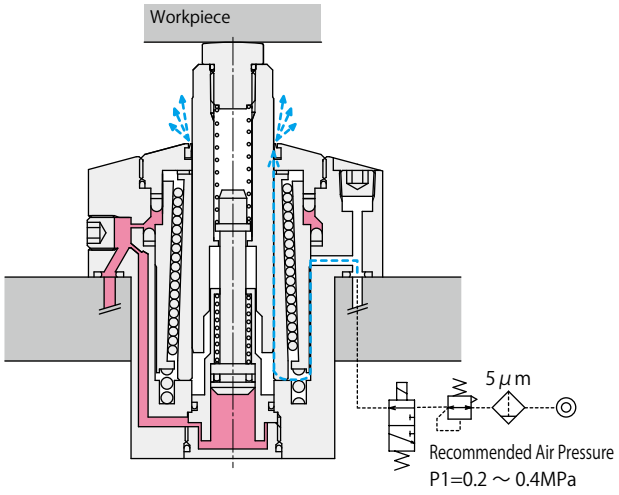
The special dust seal that features low friction and high sealing capabilities is used in TC .
However, when using TC in worse condition, air purge function is available by providing the circuit to the air vent port like the drawing below.

Structure Drawing

TC Plunger Descending and at Releasing State (Air Supply OFF) ※1



TC Plunger Ascending and at Locking State (Air Supply ON) ※1



Workpiece Contact Force Formula when Using Air Purge Function ※2

Workpiece Contact Force (N) = Plunger Spring Force (N) + Supply Air Pressure (MPa) × U^2 (mm) × π ／ 4

Model No.		TC0402-□ TC0402-□-E	TC0482-□ TC0482-□-E	TC0552-□ TC0552-□-E	TC0652-□ TC0652-□-E	TC0752-□ TC0752-□-E
U mm		16	20	22	25	30
Plunger Spring Force ※3 N	**L** :Low Spring Force	5.8～9.7	8.3～14.6	9.8～14.6	12.4～18.8	14.6～21.0
	H :High Spring Force	7.8～13.6	10.1～21.9	15.8～22.0	18.7～31.9	21.4～34.2

Model No.	TC0402-□-Q	TC0482-□-Q	TC0552-□-Q	TC0652-□-Q	TC0752-□-Q
U mm	16	20	22	25	30
Plunger Spring Force ※3 N	7.8～20.4	10.1～24.8	15.8～28.4	18.7～42.3	21.4～44.0

Notes :

※2. Please prepare a stopper if necessary when using light and/or thin workpiece. Otherwise it might be pushed up by work support.

※3. The plunger spring force indicates the spring design value. It may vary depending on sliding resistance of the plunger and characteristic of the spring , etc. Please read it as a reference value of workpiece contact force.

1. Except D：Rodless Hollow Option

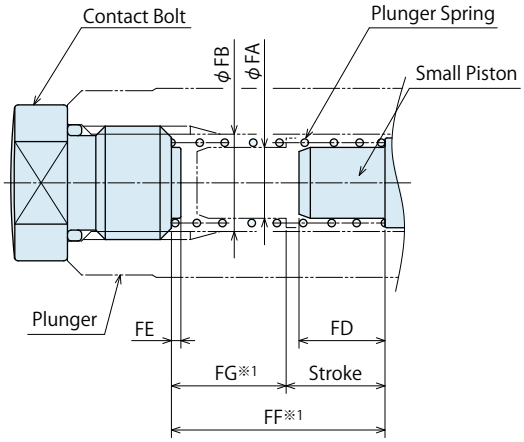
Notes

※1. When the plunger is descending, shut off the air supply. The plunger does not go back when air is supplied.

1. If the plunger ascends too fast, it may bounce back and locks itself resulting in a gap with the workpiece, and possible damage to the internal parts due to the impact. Set the plunger action time at 0.5-1.0 sec. to adjust the air supply with the flow control valve with check valve (meter-in), and make sure that there is no clearance with the workpiece for operation.
2. Air cannot be vented as the air supply pressure is too low because the cracking pressure at the dust seal lip is about 0.1MPa.

Plunger Spring Design Dimension

※ Please use as reference in case springs other than an attached plunger spring are designed and manufactured to the customer.
※ This drawing shows the released state.



Model No. **TC** 040 **2** - C G S / L H Blank - **Blank E Q**

5 Option

(mm)

Corresponding Model No.		TC0402-□□ TC0402-□□-E	TC0482-□□ TC0482-□□-E	TC0552-□□ TC0552-□□-E	TC0652-□□ TC0652-□□-E	TC0752-□□ TC0752-□□-E
FA		6	7.5	7.5	10.5	10.5
FB		8.5	10.3	10.3	14	14
FD	5 Option **Blank**	8.1	9.1	9.1	12.6	12.6
	5 Option **E**	2.5	3	3	3.5	3.5
FE		1	1	1	1	1
FF※1		19.6	22.6	34.6	34.3	46.3
FG※1		9.6	10.6	20.6	18.3	26.3
Stroke		10	12	14	16	20

(mm)

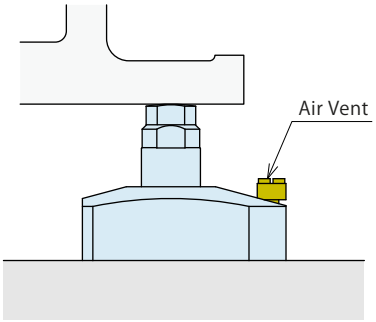
Corresponding Model No.	TC0402-□-Q	TC0482-□-Q	TC0552-□-Q	TC0652-□-Q	TC0752-□□-Q
FA	6	7.5	7.5	10.5	10.5
FB	8.5	10.3	10.3	14	14
FD	8.1	9.1	9.1	12.6	12.6
FE	1	1	1	1	1
FF※1	36.2	40.5	49.5	53.5	66.9
FG※1	16.2	16.5	21.5	21.5	26.9
Stroke	20	24	28	32	40

Note :
※1. When designing a spring, make sure that the spring set length is below FF dimension and the spring contact length is below FG dimension.

Accessory (Air Vent)

Air venting is required for Work Support.

The work support, although only slightly, breathes like a single-action cylinder.
Consider the environment and avoid cutting fluid, coolant or any contaminants.
If using it without air vent port, it will not function properly.
For further information, please refer to " 7) Appropriate Measures for the Air Vent Port" on Cautions for Work Support.
Make sure to use the air vent with the mounting position as shown below and in the environment without the influence of coolant. If coolant enters into the product, it will not function properly.
※ This product is attached to LC-S / TC-S for delivery. Please order it if necessary for LC-G / LC-C / TC-G / TC-C.



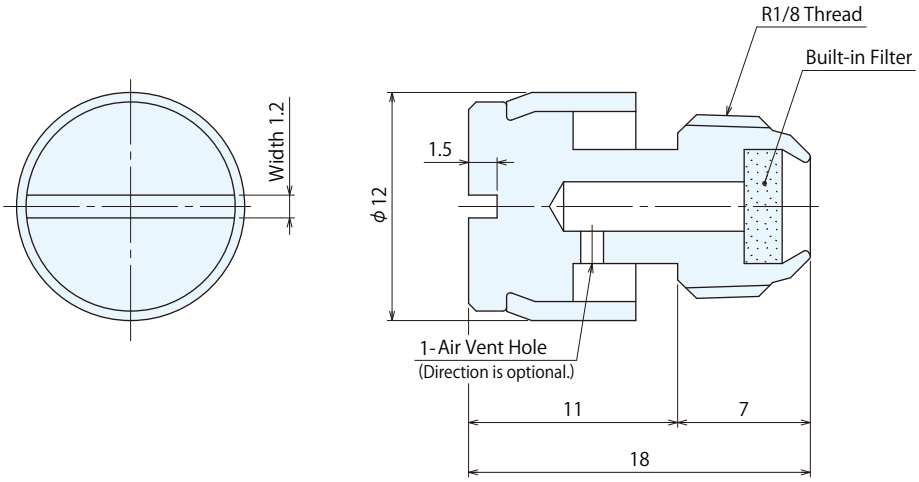
Model No . Indication

XLC-VENT

Specifications

Model No.		XLC-VENT
Filtration Precision of Filter	μm	40
Tightening Torque	N•m	2

Internal Structure



※ For installation, use a screw driver, etc. and tighten it with the tightening torque shown above.

MEMO

High-Power Series
Pneumatic Series
Hydraulic Series
Valve / Coupler Hydraulic Unit
Manual Operation Accessories
Cautions / Others

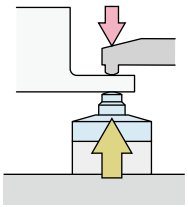
Hole Clamp
SFA
SFC
Swing Clamp
LHA
LHC
LHS
LHW
LT/LG
TLA-2
TLB-2
TLA-1
Link Clamp
LKA
LKC
LKW
LM/LJ
TMA-2
TMA-1
Work Support
LD
LC
TNC
TC
Air Sensing Lift Cylinder
LLW
Compact Cylinder
LL
LLR
LLU
DP
DR
DS
DT
Block Cylinder
DBA
DBC
Centering Vise
FVA
FVD
FVC
Control Valve
BZL
BZT
BZX/JZG
Pallet Clamp
VS
VT
Expansion Locating Pin
VFL
VFM
VFJ
VFK
Pull Stud Clamp
FP
FQ
Customized Spring Cylinder
DWA/DWB

Cautions

Notes for Design

1) Check Specifications

- Please use each product according to the specifications.
- When using a work support opposite to the clamp, set the support force at more than 1.5 times the clamping force.



2) Notes for Circuit Design

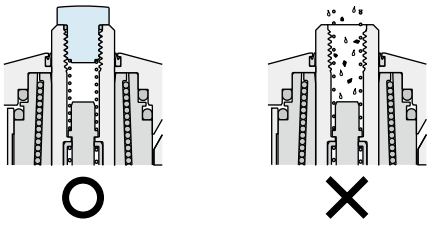
- Please read "Notes on Hydraulic Cylinder Speed Control Circuit" on P.1238 to assist with proper hydraulic circuit designing. Improper circuit design may lead to malfunctions and damages.

3) Install temporary stopper for workpiece if necessary.

- When multiple work supports are used for a light workpiece, the plunger spring force may be higher than the weight of the workpiece causing it to lift the workpiece.

4) Contact bolt or attachment is required for the plunger.

- Always use contact bolt or attachment with the plunger. Plunger does not rise since plunger spring is free to move.
- You must set an O-ring at the attachment. With contact bolt or attachment removed, cutting fluid or other foreign material will get in easily, causing malfunction.

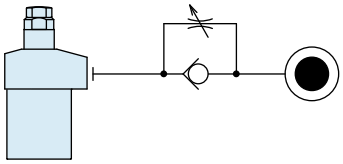


5) When using on a welding fixture, plunger surface should be protected.

- If spatter gets onto the sliding surface it may lead to a sliding failure and an insufficient support function.

6) Adjust plunger operation time with flow rate.

- A rough guideline for the full stroke is between 0.5 and 1 second.
- As with single-action cylinders, use a flow regulating valve with a check valve (meter-in) in consideration of the decreasing speed at release.
- If the action speed is too fast, the plunger may bounce back and locks itself resulting in a gap with the workpiece.
- Use a flow regulating valve with check valve that has 0.1 MPa or less of cracking pressure. If the cracking pressure is too high the plunger will not move at the time of release.

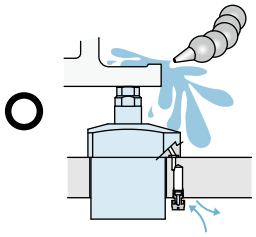


7) Appropriate Measures for Air Vent Port

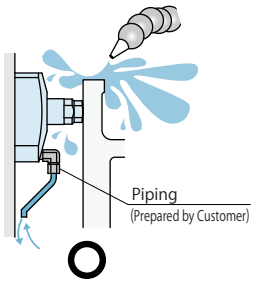
- The work support, although only slightly, breathes like a single-action cylinder. Consider the environment and avoid cutting fluid, coolant or any contaminants.
- If using it without air vent port, it will not function properly. Make sure it breathes without the influence of cutting chips or coolant.
- The attached air vent of **S**：Piping Option can be used only in the environment without cutting chips (such as dry machining). If cutting fluid enters in the product, it will not function properly.

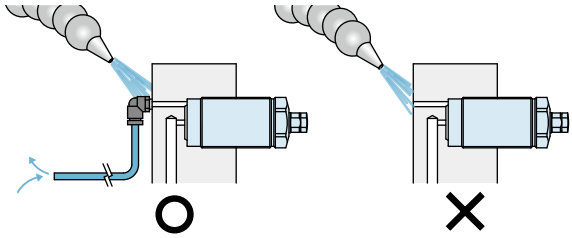
【Example】

① Prepare the air vent hole within the fixture with manifold piping. Make sure it breathes without the influence of cutting chips, coolant or any contaminants.

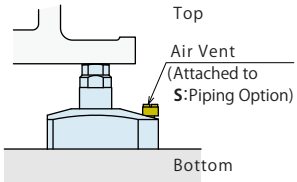


② Prepare the external piping. If it is impossible to prepare manifold piping like the case ①, move the breathe hole by using fitting and steel piping etc. to the place without influence of coolant or any contaminants.



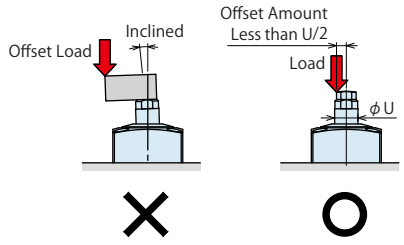


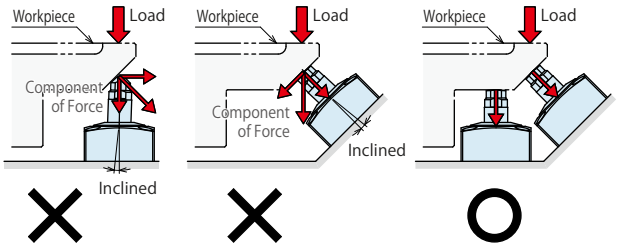
③ **S**：Piping Option is shipped assembled with XLC-VENT as illustrated exclusively use for dry cutting application.



8) Make sure that offset load and component of force do not affect the product.

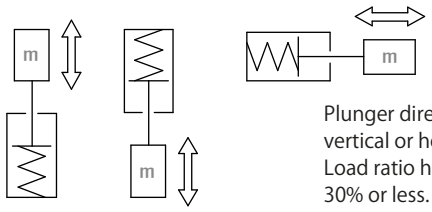
- If using the product as illustrated below, the displacement against load will be increased. Also large load will damage the internal parts.





9) Keep the right weight when designing attachments.

- Make sure the weight of attachments is 30% or less of the plunger spring force.

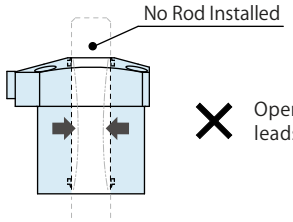


Plunger direction either vertical or horizontal : Load ratio has to be 30% or less.

- Ex.) In the case of LC0402-L with the plunger spring force 4.7-7.8N. The maximum mass of contact bolt = 4.7×0.3/9.807=0.14kg Since it may vary depending on sliding resistance of the plunger and characteristic of the spring, it is recommended to design the contact bolt as light as possible.
- The dimensions of the mounting thread area need to be processed according to the design dimensions for contact bolts as shown on respective product pages.
- Since the attachment is also used for fixing the plunger spring, if the dimensions of thread part are different, it will cause spring force fluctuation or damage leading to malfunction.

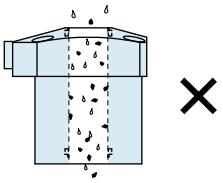
10) Notes on **D** : Rodless Hollow Model

- Do not supply hydraulic pressure without a rod installed. The collet will be deformed leading to release failure.



Operation without the rod leads to breakage.

- Make sure the rod is always inserted during the operation. At the rodless state, contaminants and cutting chips enter into the product leading to malfunctions.



※ Please refer to P.1237 for common cautions.
・Installation Notes ・Hydraulic Fluid List ・Notes on Hydraulic Cylinder Speed Control Circuit
・Notes on Handling ・Maintenance/Inspection ・Warranty

Cautions

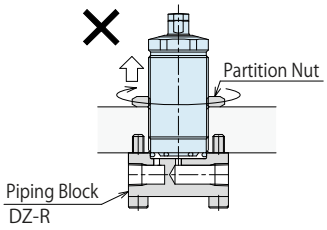
Notes for Design

11） Notes on Mounting Method of LD/TNC (Threaded Model)

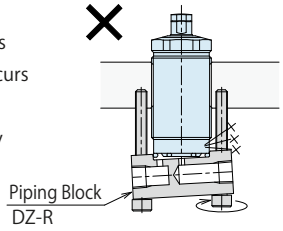
● When mounting LD/TNC, make sure the base is horizontal to the bearing surface, and the load is received at the base. With the following installations, the load cannot be received at the base, leading to increase of displacement amount and damage on the product.

【Examples of Improper Use】

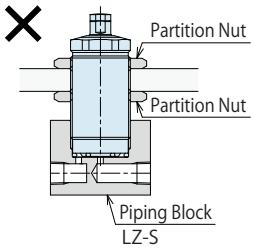
① Work support is lifted up by tightening the partition nut, and it cannot receive load by on bearing surface.



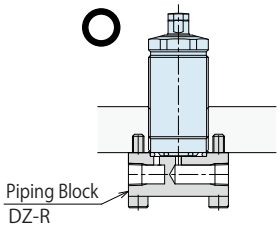
② Bearing surface contact part is not horizontal, a clearance occurs and it cannot receive load. Moreover, there is a possibility of damaging equipment by tightening bolts.



③ Since the piping block which receives load has floated, load cannot be received.



【Example of Proper Use】



Cautions

Installation Notes

1) Check the Usable Fluid

- Please use the appropriate fluid by referring to the Hydraulic Fluid List. (Refer to P.1237 for Hydraulic Fluid List)

2) Installation of the Product

- When mounting LC/TC (Flanged Model), use hexagon socket bolts as multiple bolt holes for mounting (with tensile strength of 12.9) and tighten them with the torque shown in the table below.

Model No.		Thread Size	Tightening Torque (N·m)
LC	LC0262	M3×0.5	1.3
	LC0302	M4×0.7	3.2
	LC0362	M4×0.7	3.2
	LC0402	M5×0.8	6.3
	LC0482	M5×0.8	6.3
	LC0552	M6×1	10
	LC0652	M6×1	10
	LC0752	M8×1.25	25
	LC0902	M10×1.5	50
TC	TC0402	M5×0.8	6.3
	TC0482	M5×0.8	6.3
	TC0552	M6×1	10
	TC0652	M6×1	10
	TC0752	M8×1.25	25

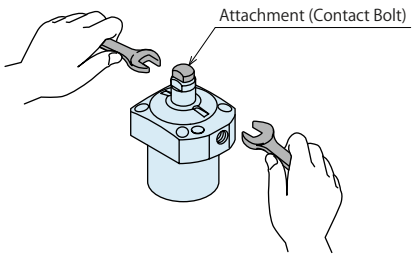
- For LD/TNC (Threaded Model), be careful not to damage the O-ring for sealing the base. Tighten them with the torque shown in the table below.

Model No.		Thread Size	Tightening Torque (N·m)
LD	LD0222	M22×1.5	16
	LD0262	M26×1.5	31.5
	LD0302	M30×1.5	50
	LD0362	M36×1.5	63
	LD0452	M45×1.5	80
TNC	TNC0400	M26×1.5	31.5
	TNC0600	M30×1.5	50
	TNC1000	M36×1.5	63
	TNC1600	M45×1.5	80

- Apply an adequate amount of grease to the O-ring.
- If it is mounted under dry state, the O-ring may have twisting or be defective.
- If it is tightened with higher torque, it may lead to malfunction.

3) Replacement of Attachment

- Do not lose the plunger spring when the attachment (contact bolt) is removed.
- When mounting the attachment, stop the plunger with a spanner at edge and tighten it with torque as shown in the table below.



Model No.		Head Thread Size	Tightening Torque (N·m)
LC	LC0262	M4×0.7	1.6
	LC0302	M6×1	5
	LC0362	M8×1.25	10
	LC0402	M10×1.5	16
	LC0482	M10×1.5	16
	LC0552	M12×1.75	40
	LC0652	M12×1.75	40
	LC0752	M16×2	80
	LC0902	M16×2	80
TC	TC0402	M10×1.5	16
	TC0482	M12×1.75	40
	TC0552	M12×1.75	40
	TC0652	M16×2	80
	TC0752	M16×2	80
LD	LD0222	M4×0.7	1.6
	LD0262	M6×1	5
	LD0302	M8×1.25	10
	LD0362	M10×1.5	16
	LD0452	M10×1.5	16
TNC	TNC0400	M8×1.25	10
	TNC0600	M10×1.5	16
	TNC1000	M10×1.5	16
	TNC1600	M12×1.75	40

※ Please refer to P.1237 for common cautions. • Installation Notes • Hydraulic Fluid List • Notes on Hydraulic Cylinder Speed Control Circuit • Notes on Handling • Maintenance/Inspection • Warranty

Cautions

Installation Notes (For Hydraulic Series)

1) Check the Usable Fluid

- Please use the appropriate fluid by referring to the Hydraulic Fluid List.

2) Procedure before Piping

- The pipeline, piping connector and fixture circuits should be cleaned by thorough flushing.
- The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
- There is no filter provided with Kosmek's product except for a part of valves which prevents foreign materials and contaminants from getting into the circuit.

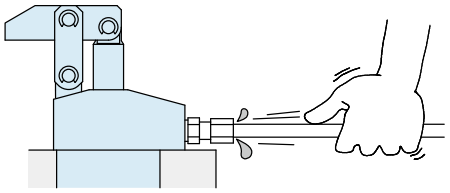
3) Applying Sealing Tape

- Wrap with tape 1 to 2 times following the screw direction.
- Pieces of the sealing tape can lead to oil leakage and malfunction.
- In order to prevent a foreign substance from going into the product during the piping work, it should be carefully cleaned before working.

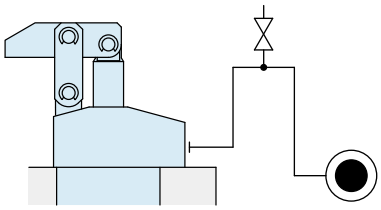
4) Air Bleeding of the Hydraulic Circuit

- If the hydraulic circuit has excessive air, the action time may become very long. If air enters the circuit after connecting the hydraulic port or under the condition of no air in the oil tank, please perform the following steps.

① Reduce hydraulic pressure to less than 2MPa.
② Loosen the cap nut of pipe fitting closest to the clamp by one full turn.
③ Wiggle the pipeline to loosen the outlet of pipe fitting.
Hydraulic fluid mixed with air comes out.



④ Tighten the cap nut after bleeding.
⑤ It is more effective to bleed air at the highest point inside the circuit or at the end of the circuit.
(Set an air bleeding valve at the highest point inside the circuit.)



5) Checking Looseness and Retightening

- At the beginning of the machine installation, the bolt and nut may be tightened lightly. Check the looseness and re-tighten as required.

Hydraulic Fluid List

ISO Viscosity Grade ISO-VG-32

Maker	Anti-Wear Hydraulic Oil	Multi-Purpose Hydraulic Oil
Showa Shell Sekiyu	Tellus S2 M 32	Morlina S2 B 32
Idemitsu Kosan	Daphne Hydraulic Fluid 32	Daphne Super Multi Oil 32
JX Nippon Oil & Energy	Super Hyrando 32	Super Mulpus DX 32
Cosmo Oil	Cosmo Hydro AW32	Cosmo New Mighty Super 32
ExxonMobil	Mobil DTE 24	Mobil DTE 24 Light
Matsumura Oil	Hydol AW-32	
Castrol	Hyspin AWS 32	

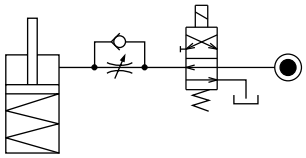
Note As it may be difficult to purchase the products as shown in the table from overseas, please contact the respective manufacturer.

Notes on Hydraulic Cylinder Speed Control Unit

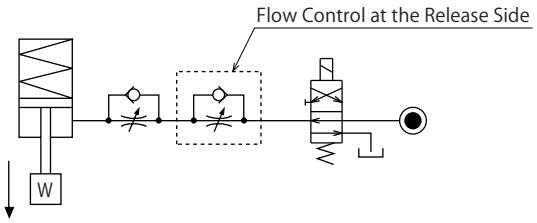
Please pay attention to the cautions below. Design the hydraulic circuit for controlling the action speed of hydraulic cylinder. Improper circuit design may lead to malfunctions and damages. Please review the circuit design in advance.

Flow Control Circuit for Single Acting Cylinder

For spring return single acting cylinders, restricting flow during release can extremely slow down or disrupt release action. The preferred method is to control the flow during the lock action using a valve that has free-flow in the release direction. It is also preferred to provide a flow control valve at each actuator.



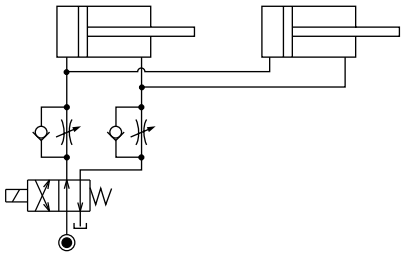
Accelerated clamping speed by excessive hydraulic flow to the cylinder may sustain damage. In this case add flow control to regulate flow. (Please add flow control to release flow if the lever weight is put on at the time of release action when using swing clamps.)



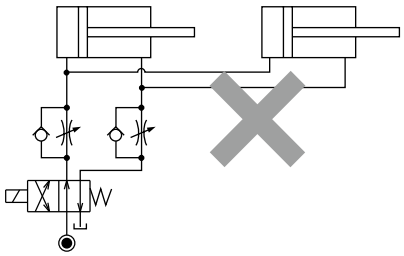
Flow Control Circuit for Double Acting Cylinder

Flow control circuit for double acting cylinder should have meter-out circuits for both the lock and release sides. Meter-in control can have adverse effect by presence of air in the system.
However, in the case of controlling LKE, TMA, TLA, both lock side and release side should be meter-in circuit.
Refer to P.75 for speed adjustment of LKE.
For TMA and TLA, if meter-out circuit is used, abnormal high pressure is created, which causes oil leakage and damage.

【Meter-out Circuit】(Except LKE/TMA/TLA)

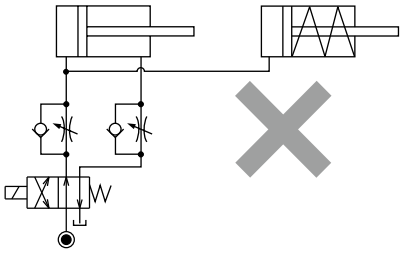


【Meter-in Circuit】(LKE/TMA/TLA must be controlled with meter-in.)



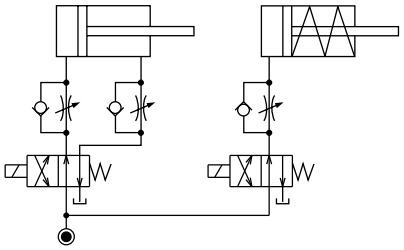
In the case of meter-out circuit, the hydraulic circuit should be designed with the following points.

① Single acting components should not be used in the same flow control circuit as the double acting components.
The release action of the single acting cylinders may become erratic or very slow.

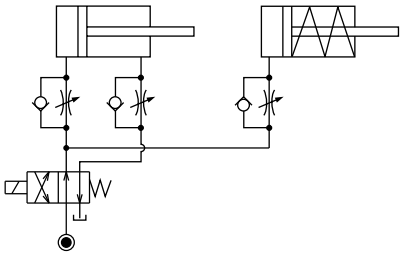


Refer to the following circuit when both the single acting cylinder and double acting cylinder are used together.

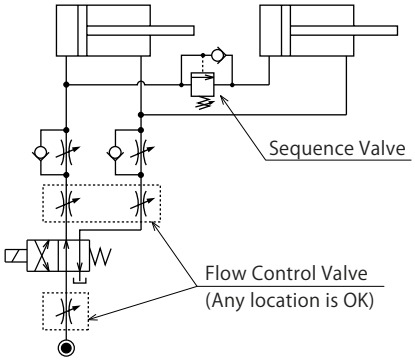
○ Separate the control circuit.



○ Reduce the influence of double acting cylinder control unit. However, due to the back pressure in tank line, single action cylinder is activated after double action cylinder works.



② In the case of meter-out circuit, the inner circuit pressure may increase during the cylinder action because of the fluid supply. The increase of the inner circuit pressure can be prevented by reducing the supplied fluid beforehand via the flow control valve. Especially when using sequence valve or pressure switches for clamping detection. If the back pressure is more than the set pressure then the system will not work as it is designed to.



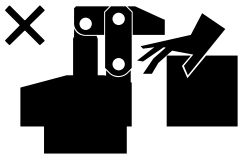
Cautions

Notes on Handling

1) It should be handled by qualified personnel.
- The hydraulic machine and air compressor should be handled and maintained by qualified personnel.

2) Do not handle or remove the machine unless the safety protocols are ensured.
① The machine and equipment can only be inspected or prepared when it is confirmed that the preventive devices are in place.
② Before the machine is removed, make sure that the above-mentioned safety measures are in place. Shut off the air of hydraulic source and make sure no pressure exists in the hydraulic and air circuit.
③ After stopping the machine, do not remove until the temperature cools down.
④ Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.

3) Do not touch clamp (cylinder) while clamp (cylinder) is working. Otherwise, your hands may be injured due to clinching.

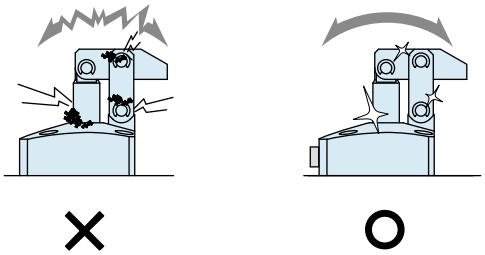


4) Do not disassemble or modify.
- If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

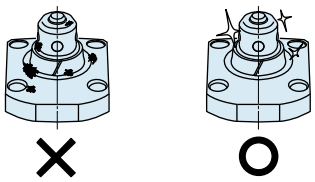
Maintenance and Inspection

1) Removal of the Machine and Shut-off of Pressure Source
- Before the machine is removed, make sure that the above-mentioned safety measures are in place. Shut off the air of hydraulic source and make sure no pressure exists in the hydraulic and air circuit.
- Make sure there is no abnormality in the bolts and respective parts before restarting.

2) Regularly clean the area around the piston rod and plunger.
- If it is used when the surface is contaminated with dirt, it may lead to packing seal damage, malfunctioning, fluid leakage and air leaks.



3) Please clean out the reference surface regularly (taper reference surface and seating surface) of locating machine. (VS/VT/VFL/VFM/VFJ/VFK/WVS/VWM/VWK/VX/VXF)
- Location products, except VX/VXF model, can remove contaminants with cleaning functions.
  When installing pallets makes sure there is no thick sludge like substances on pallets.
- Continuous use with dirt on components will lead to locating functions not work properly, leaking and malfunction.



4) If disconnecting by couplers on a regular basis, air bleeding should be carried out daily to avoid air mixed in the circuit.

5) Regularly tighten nuts, bolts, pins, cylinders and pipe line to ensure proper use.

6) Make sure the hydraulic fluid has not deteriorated.

7) Make sure there is smooth action and no abnormal noise.
- Especially when it is restarted after left unused for a long period, make sure it can be operated correctly.

8) The products should be stored in the cool and dark place without direct sunshine or moisture.

9) Please contact us for overhaul and repair.

Warranty

1) Warranty Period

- The product warranty period is 18 months from shipment from our factory or 12 months from initial use, whichever is earlier.

2) Warranty Scope

- If the product is damaged or malfunctions during the warranty period due to faulty design, materials or workmanship, we will replace or repair the defective part at our expense.
  Defects or failures caused by the following are not covered.

① If the stipulated maintenance and inspection are not carried out.
② If the product is used while it is not suitable for use based on the operator's judgment, resulting in defect.
③ If it is used or handled in inappropriate way by the operator.
(Including damage caused by the misconduct of the third party.)
④ If the defect is caused by reasons other than our responsibility.
⑤ If repair or modifications are carried out by anyone other than Kosmek, or without our approval and confirmation, it will void warranty.
⑥ Other caused by natural disasters or calamities not attributable to our company.
⑦ Parts or replacement expenses due to parts consumption and deterioration.
(Such as rubber, plastic, seal material and some electric components.)

Damages excluding from direct result of a product defect shall be excluded from the warranty.

High-Power Series
Pneumatic Series
Hydraulic Series
Valve / Coupler Hydraulic Unit
Manual Operation Accessories
Cautions / Others

Cautions
Installation Notes (For Hydraulic Series)
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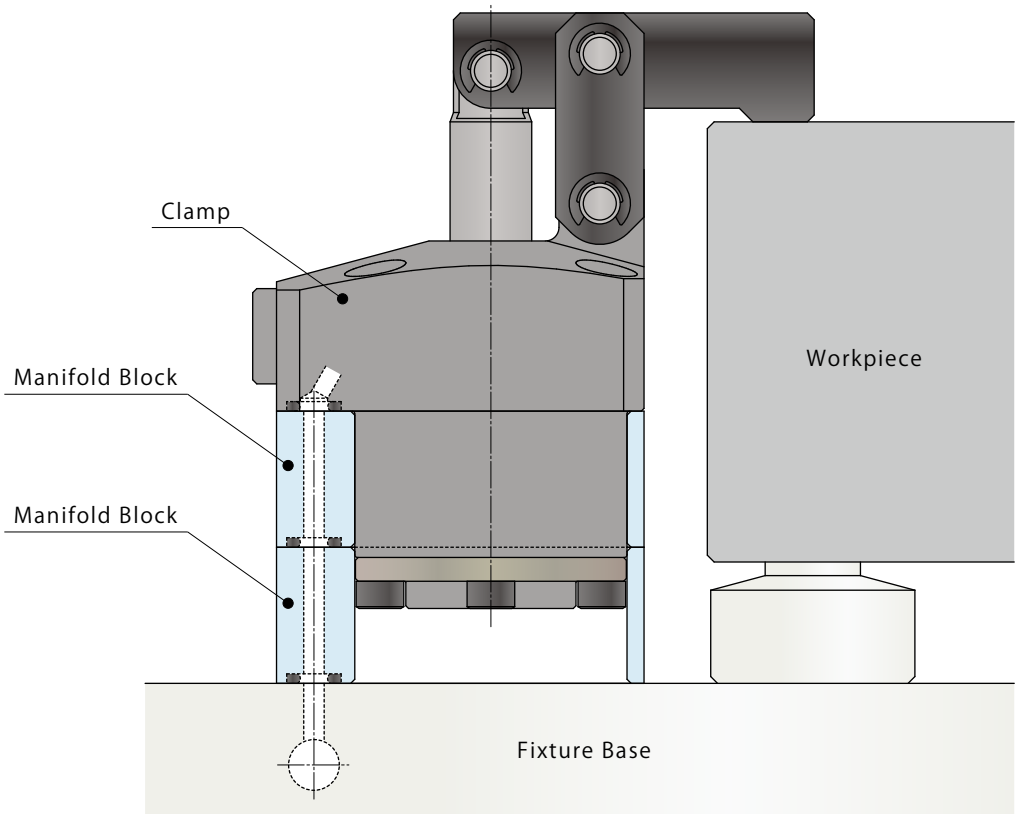
Sales Offices

Manifold Block

Model WHZ-MD
Model LZY-MD
Model LZ-MS
Model LZ-MP
Model TMZ-1MB
Model TMZ-2MB
Model DZ-MG□
Model DZ-MS□

Manifold Block

The mounting height of clamp is adjustable with the manifold block.

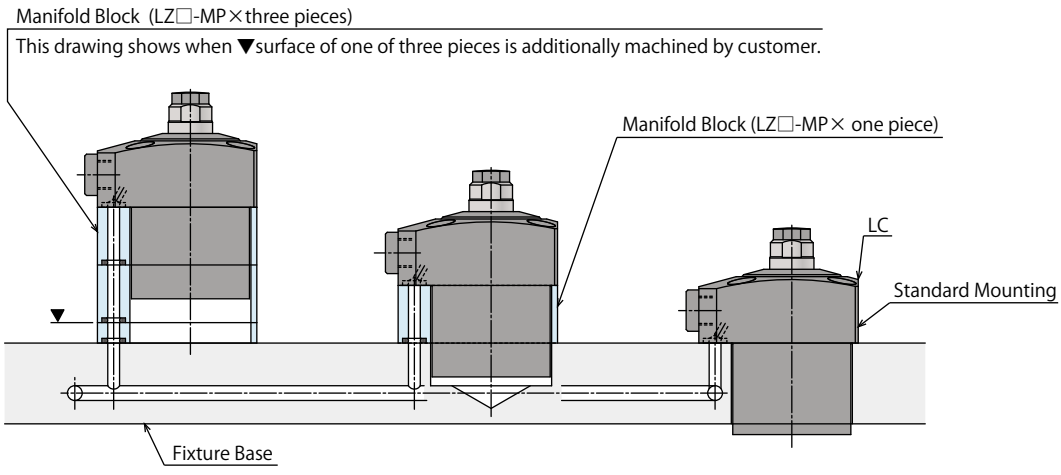


Applicable Model

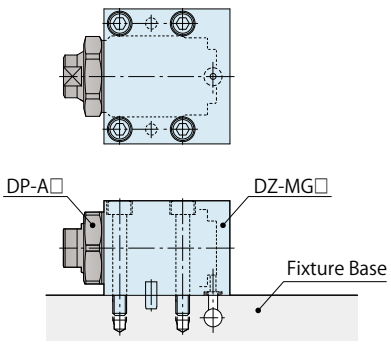
Manifold Block Model No.	Corresponding Item Model No.
Model WHZ-MD	Model WCA, Model WHA, Model WCE, Model WHE
Model LZY-MD	Model LKA, Model LKE, Model LHC, Model LHS, Model LKC, Model LHA, Model LHE, Model LL
Model LZ-MS	Model LM, Model LT, Model LJ, Model LG
Model LZ-MP	Model LC, Model TC
Model TMZ-1MB	Model TMA-1
Model TMZ-2MB	Model TMA-2
Model DZ-MG□/MS□	Model DP

Application Examples

Work Support (LC) Application Example



Push Cylinder (DP) Application Example

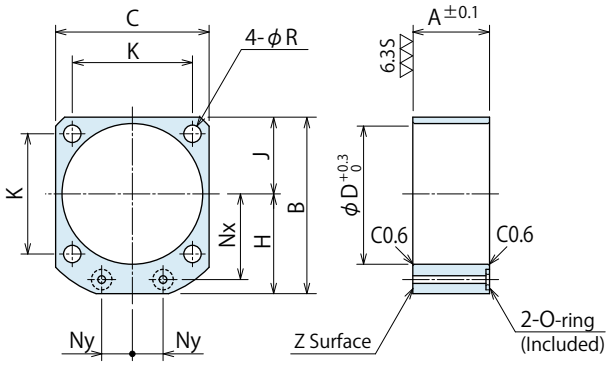


Manifold Block for WCA/WCE/WHA/WHE

Model No. Indication

WHZ 048 0 – MD

- 048: Size (Refer to following table)
- 0: Design No. (Revision Number)



(mm)

Model No.	WHZ0600-MD	WHZ0320-MD	WHZ0400-MD	WHZ0500-MD	WHZ0630-MD
Corresponding Item Model Number	WCE0602 WHE0600	WCA0321 WCE1002 WHA0320 WHE1000	WCA0401 WCE1602 WHA0400 WHE1600	WCA0501 WCE2502 WHA0500 WHE2500	WCA0631 WCE4002 WHA0630 WHE4000
A	23	25	27	31	35
B	54	60	67	77	88.5
C	45	50	58	68	81
D	40	46	54	64	77
H	31.5	35	38	43	48
J	22.5	25	29	34	40.5
K	34	39	45	53	65
Nx	26	28	31	36	41
Ny	9	10	13	15	20
R	5.5	5.5	5.5	6.5	6.5
O-ring	1BP5	1BP7	1BP7	1BP7	1BP7
Mass kg	0.1	0.1	0.1	0.2	0.2

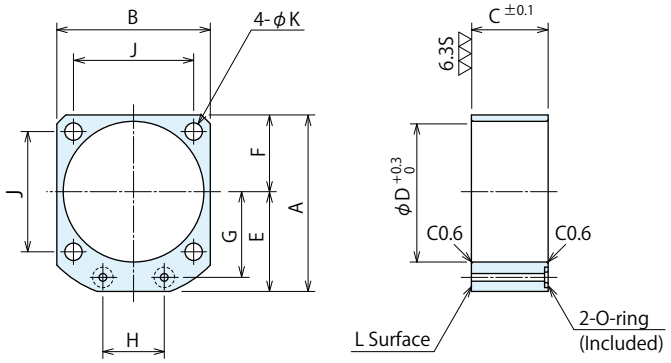
Notes :
1. Material : A2017BE-T4
2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the A dimensions as a reference.
3. If thickness other than A is required, perform additional machining on surface Z. Please refer to the drawing.

Manifold Block for LKA/LKC/LKE/LHA/ LHC/LHE/LHS/LL

Model No. Indication

LZY 048 0 – MD

- 048: Size (Refer to following table)
- 0: Design No. (Revision Number)



(mm)

Model No.	LZY0360-MD	LZY0400-MD	LZY0480-MD	LZY0550-MD	LZY0650-MD	LZY0750-MD	LZY0900-MD	LZY1050-MD
Corresponding Item Model Number	LKA0360 / LKE0360 LHA0360 / LHC0360 LHE0360 / LHS0360 LL0360	LKA0400 / LKC0400 LKE0400 / LHA0400 LHC0400 / LHE0400 LHS0400 / LL0400	LKA0480 / LKC0480 LKE0480 / LHA0480 LHC0480 / LHE0480 LHS0480 / LL0480	LKA0550 / LKC0550 LKE0550 / LHA0550 LHC0550 / LHE0550 LHS0550 / LL0550	LKA0650 / LKC0650 LHA0650 / LHC0650 LHS0650 LL0650	LKA0750 LHA0750 LHS0750 LL0750	LKA0900 LHA0900 LHS0900 LL0900	LKA1050 LHA1050 LHS1050 LL1050
A	49	54	61	69	81	92	107	122
B	40	45	51	60	70	80	95	110
C	20	20	27	30	32	37	45	50
D	36	40	48	55	65	75	90	105
E	29	31.5	35.5	39	46	52	59.5	67
F	20	22.5	25.5	30	35	40	47.5	55
G	23.5	26	30	33.5	39.5	45	52.5	60
H	16	18	22	24	30	32	37	45
J	31.4	34	40	47	55	63	75	88
K	4.5	5.5	5.5	6.8	6.8	9	11	14
O-ring	1BP5	1BP5	1BP5	1BP5	1BP7	1BP7	1BP7	1BP7
Mass kg	0.2	0.2	0.3	0.4	0.5	0.8	1.2	1.7

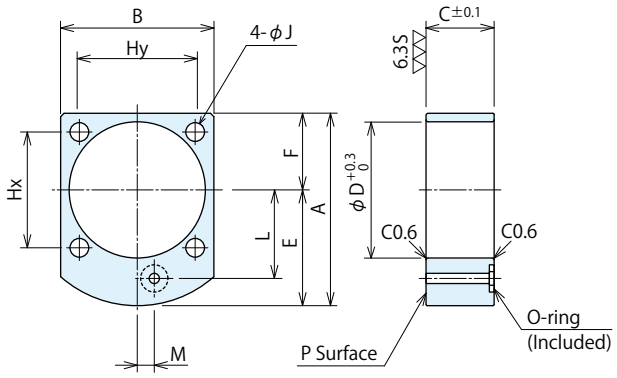
Notes :
1. Material : S45C
2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the C dimensions as a reference.
3. If thickness other than C is required, perform additional machining on surface L. Please refer to the drawing.

Manifold Block for LM/LJ/LT/LG

Model No. Indication

LZ 048 0 – MS

- 048: Size (Refer to following table)
- 0: Design No. (Revision Number)



(mm)

Model No.	LZ0300-MS	LZ0360-MS	LZ0400-MS	LZ0480-MS	LZ0550-MS	LZ0650-MS	LZ0750-MS	LZ0900-MS	LZ1050-MS
Corresponding Item Model Number	LT0301 / LG0301 LM0300 / LJ0302	LT036□ / LG036□ LM0360 / LJ0362	LT040□ / LG040□ LM0400 / LJ0402	LT048□ / LG048□ LM0480 / LJ0482	LT055□ / LG055□ LM0550 / LJ0552	LT065□ / LG065□ LM0650 / LJ0652	LT075□ / LG075□ LM0750 / LJ0752	LG090□ LJ0902	LG105□ LJ1052
A	48	51.5	56.5	62	70	82	93	107	122
B	34	40	45	51	60	70	80	95	110
C	18	20	20	27	30	32	37	45	50
D	30	36	40	48	55	65	75	90	105
E	28.5	31.5	34	36.5	40	47	53	59.5	67
F	19.5	20	22.5	25.5	30	35	40	47.5	55
Hx	30	31.4	34	40	47	55	63	75	88
Hy	23	31.4	34	40	47	55	63	75	88
J	4.5	4.5	5.5	5.5	6.8	6.8	9	11	14
L	20.5	23.5	26	30	33.5	39.5	45	52.5	60
M	3	5	5	0	0	0	0	0	0
O-ring	1BP5	1BP5	1BP5	1BP5	1BP5	1BP7	1BP7	1BP7	1BP7
Mass kg	0.1	0.2	0.2	0.3	0.4	0.5	0.8	1.2	1.7

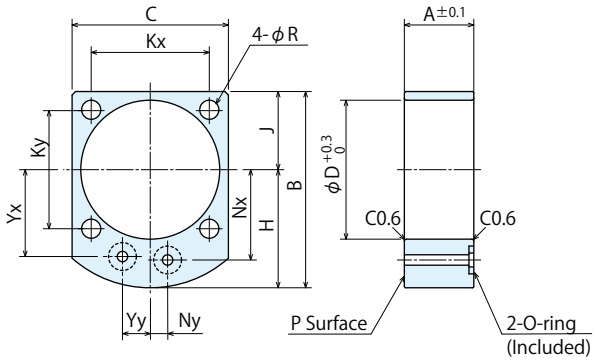
Notes :
1. Material:S45C
2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the C dimensions as a reference.
3. If thickness other than C is required, perform additional machining on surface P. Please refer to the drawing.

Manifold Block for LC/TC

Model No. Indication

LZ 048 0 – MP

- 048: Size (Refer to following table)
- 0: Design No. (Revision Number)



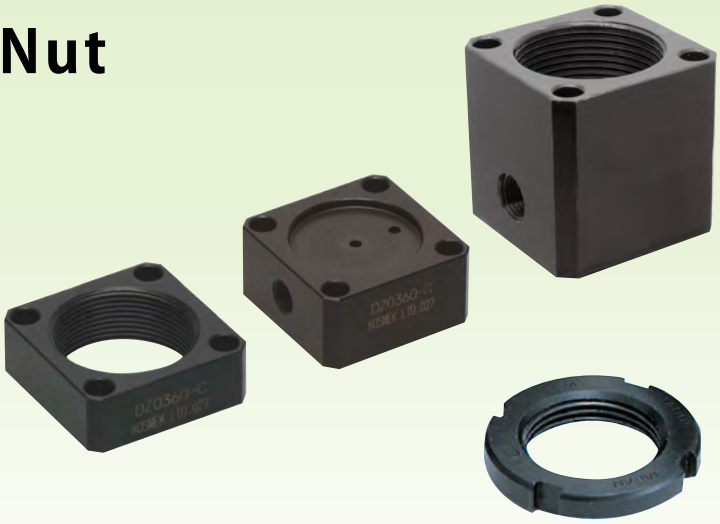
(mm)

Model No.	LZ0260-MP	LZ0300-MP	LZ0360-MP	LZ0400-MP	LZ0480-MP	LZ0550-MP	LZ0650-MP	LZ0750-MP	LZ0900-MP
Corresponding Item Model Number	LC0262	LC0302	LC0362	LC0402 TC0402	LC0482 TC0482	LC0552 TC0552	LC0652 TC0652	LC0752 TC0752	LC0902
A	18	18	20	20	27	30	32	37	45
B	43	48	51.5	56.5	62	70	82	93	107
C	29	34	40	45	51	60	70	80	95
D	26	30	36	40	48	55	65	75	90
H	26.5	28.5	31.5	34	36.5	40	47	53	59.5
J	16.5	19.5	20	22.5	25.5	30	35	40	47.5
Kx	25	30	31.4	34	40	47	55	63	75
Ky	21	23	31.4	34	40	47	55	63	75
Nx	18.5	20.5	23.5	26	30	33.5	39.5	45	52.5
Ny	3	3	5	5	0	0	0	0	0
R	3.4	4.5	4.5	5.5	5.5	6.8	6.8	9	11
Yx	18.5	20.5	23.5	25	28	31	37	42.5	50
Yy	7	7	8	8	11	13	14	15	15
O-ring	1BP5	1BP5	1BP5	1BP5	1BP5	1BP5	1BP7	1BP7	1BP7
Mass kg	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.8	1.2

Notes :
1. Material:S45C
2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the A dimensions as a reference.
3. If thickness other than A is required, perform additional machining on surface P. Please refer to the drawing.

Manifold Block / Nut

Model DZ-R
Model DZ-C
Model DZ-P
Model DZ-B
Model LZ-S
Model LZ-SQ
Model TNZ-S
Model TNZ-SQ
Model WNZ-SQ

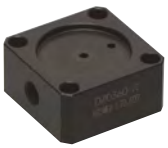


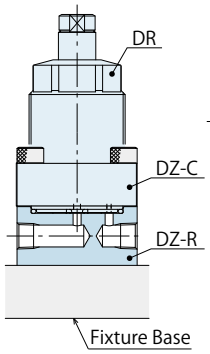
Applicable Model/Application Examples

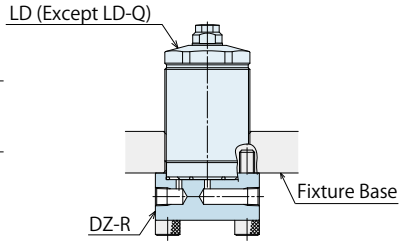
DZ-R

Manifold Block for DR/LD/WNC

Corresponding Item Model No. : DR / LD / WNC



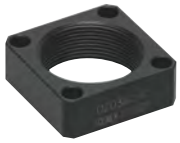


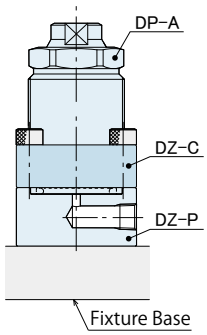


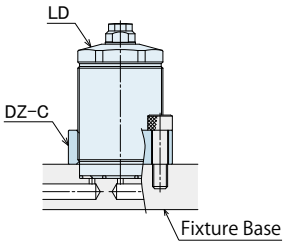
DZ-C

Flanged Nut for DP/DR/DS/DT/LD/WNC

Corresponding Item Model No. : DP / DR / DS / DT / LD / WNC





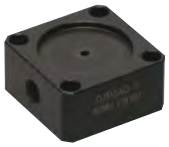


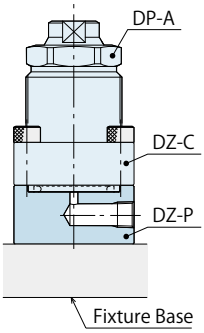
Applicable Model/Application Examples

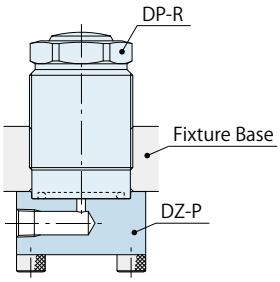
DZ-P

Manifold Block for DP

Corresponding Item Model No. : DP



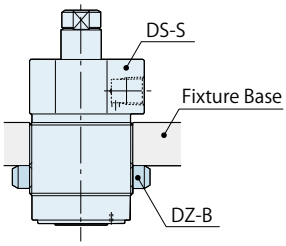


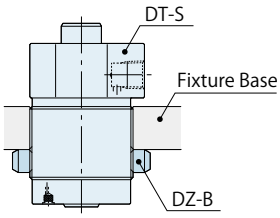


DZ-B

Bulkhead Nut for DP/DR/DS/DT

Corresponding Item Model No. : DP / DR / DS / DT

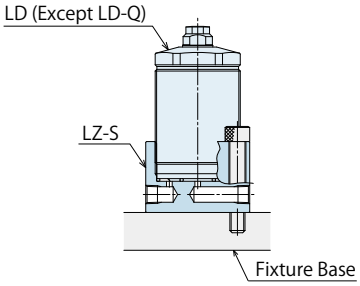




LZ-S

Manifold Block for LD/WNC

Corresponding Item Model No. : LD / WNC



TNZ-S

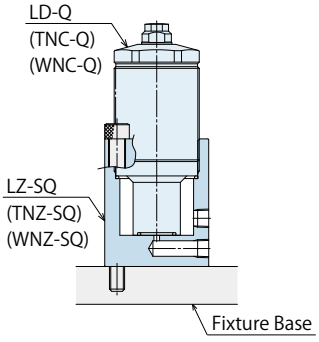
Manifold Block for TNC

Corresponding Item Model No. : TNC

LZ-SQ

Manifold Block for LD-Q

Corresponding Item Model No. : LD-Q



TNZ-SQ

Manifold Block for TNC-Q

Corresponding Item Model No. : TNC-Q

WNZ-SQ

Manifold Block for WNC-Q

Corresponding Item Model No. : WNC-Q

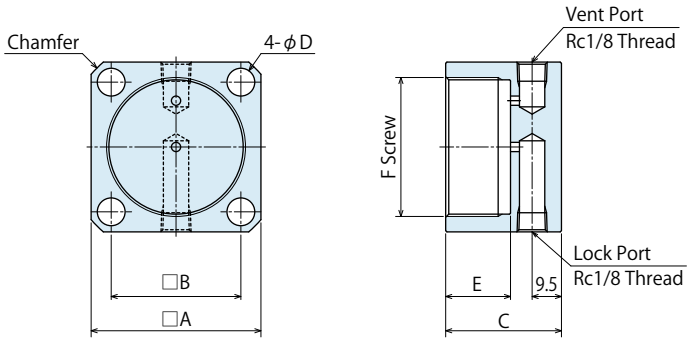
High-Power Series
Pneumatic Series
Hydraulic Series
Valve / Coupler Hydraulic Unit
Manual Operation Accessories
Cautions / Others
Screw Locator
VXF
Manual Expansion Locating Pin
VX
Manifold Block
WHZ-MD
LZY-MD
LZ-MS
LZ-MP
TMZ-1MB
TMZ-2MB
DZ-M
Manifold Block / Nut
DZ-R
DZ-C
DZ-P
DZ-B
LZ-S
LZ-SQ
TNZ-S
TNZ-SQ
WNZ-SQ
Pressure Switch
JBA
Pressure Gauge
JGA/JGB
Manifold
JX
Coupler Switch
PS
G-Thread Fitting

Manifold Block for LD/WNC

Model No. Indication

LZ 036 0 – S

- 036: Size (Refer to following table)
- 0: Design No. (Revision Number)



(mm)

Model No.	LZ0220-S	LZ0260-S	LZ0300-S	LZ0360-S	LZ0450-S	LZ0600-S
Corresponding Item Model No.	LD0222 (Except Q option) ※1 WNC0350	LD0262 (Except Q option) ※1 WNC0600	LD0302 (Except Q option) ※1 WNC1000	LD0362 (Except Q option) ※1 WNC1600	LD0452 (Except Q option) ※1 WNC3000	– WNC6000
A	28	35	38	45	55	75
B	21	26	29	35	42	59
C	30.5	32.5	33.5	34.5	37.5	41.5
D	4.5	5.5	5.5	6.8	9	11
E	14	16	17	18	21	25
F (Nominal×Pitch)	M22×1.5	M26×1.5	M30×1.5	M36×1.5	M45×1.5	M60×2
Chamfer	C2	C3	C3	C3	C4	C4
Mass kg	0.12	0.20	0.24	0.34	0.52	1.12

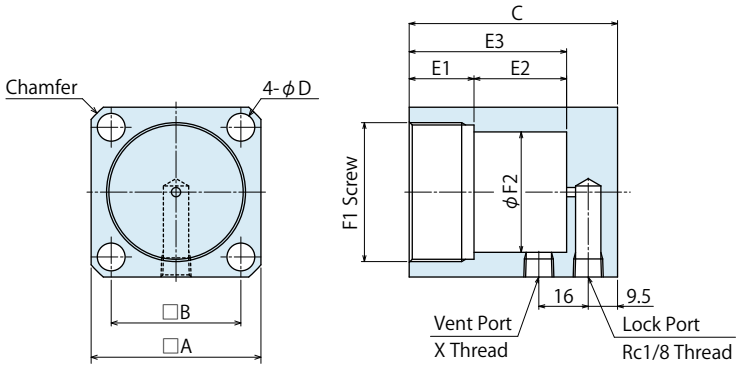
Notes : 1. Material : S45C
2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the C dimensions as a reference.
※1. It is not applicable for LD-Q : Work Support Hydraulic Advance Long Stroke option. (Please select from LZ-SQ.)

Manifold Block for LD-Q

Model No. Indication

LZ 036 0 – SQ

- 036: Size (Refer to following table)
- 0: Design No. (Revision Number)



(mm)

Model No.	LZ0220-SQ	LZ0260-SQ	LZ0300-SQ	LZ0360-SQ	LZ0450-SQ
Corresponding Item Model No.	LD0222-Q※2	LD0262-Q※2	LD0302-Q※2	LD0362-Q※2	LD0452-Q※2
A	28	35	38	45	55
B	21	26	29	35	42
C	50	49.5	53	60.5	67.5
D	4.5	5.5	5.5	6.8	9
E1	14	16	17	18	21
E2	19.5	17	19.5	26	30
E3	33.5	33	36.5	44	51
F1 (Nominal×Pitch)	M22×1.5	M26×1.5	M30×1.5	M36×1.5	M45×1.5
F2	16	20	24	30	39
X Thread	M5×0.8	Rc1/8	Rc1/8	Rc1/8	Rc1/8
Chamfer	C2	C3	C3	C3	C4
Mass kg	0.21	0.31	0.38	0.58	0.89

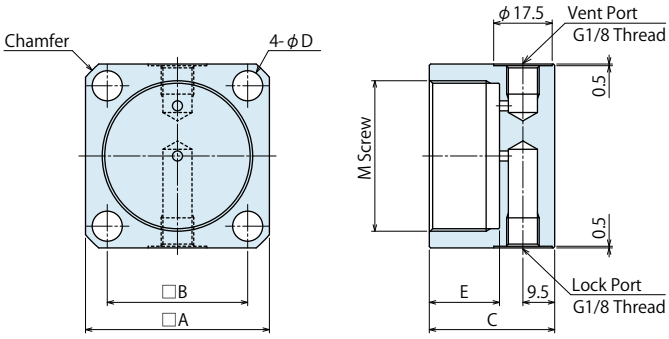
Notes : 1. Material : S45C
2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the C dimensions as a reference.
※2. It is not applicable for LD-EQ : Work Support Hydraulic Advance Long Stroke option. (Please select from LZ-S.)

Manifold Block for TNC

Model No. Indication

TNZ 060 0 – S

- 060: Size (Refer to following table)
- 0: Design No. (Revision Number)



(mm)

Model No.	TNZ0400-S	TNZ0600-S	TNZ1000-S	TNZ1600-S
Corresponding Item Model No.	TNC0400 (Except Q option) ※3	TNC0600 (Except Q option) ※3	TNC1000 (Except Q option) ※3	TNC1600 (Except Q option) ※3
A	35	38	45	55
B	26	29	35	42
C	32.5	33.5	34.5	37.5
D	5.5	5.5	6.8	9
E	16	17	18	21
M (Nominal × Pitch)	M26×1.5	M30×1.5	M36×1.5	M45×1.5
Chamfer	C3	C3	C3	C4
Mass kg	0.20	0.23	0.34	0.52

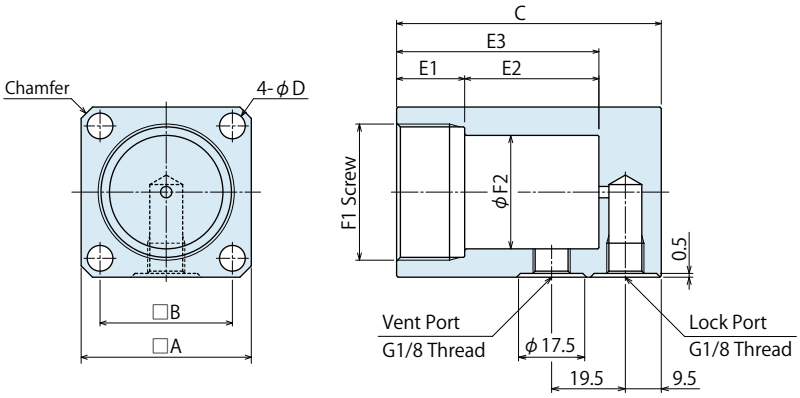
Notes : 1. Material : S45C
2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the C dimensions as a reference.
※3. It is not applicable for TNC-Q : Work Support Hydraulic Advance Long Stroke option. (Please select from TNZ-SQ.)

Manifold Block for TNC-Q

Model No. Indication

TNZ 060 0 – SQ

- 060: Size (Refer to following table)
- 0: Design No. (Revision Number)



(mm)

Model No.	TNZ0400-SQ	TNZ0600-SQ	TNZ1000-SQ	TNZ1600-SQ
Corresponding Item Model No.	TNC0400-Q	TNC0600-Q	TNC1000-Q	TNC1600-Q
A	35	38	45	55
B	26	29	35	42
C	56	63.5	70	86.5
D	5.5	5.5	6.8	9
E1	16	17	18	21
E2	23.5	30	35.5	49
E3	39.5	47	53.5	70
F1 (Nominal×Pitch)	M26×1.5	M30×1.5	M36×1.5	M45×1.5
F2	20	24	30	39
Chamfer	C3	C3	C3	C4
Mass kg	0.36	0.46	0.68	1.16

Notes : 1. Material : S45C
2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the C dimensions as a reference.

High-Power Series
Pneumatic Series
Hydraulic Series
Valve / Coupler Hydraulic Unit
Manual Operation Accessories
Cautions / Others
Screw Locator
VXF
Manual Expansion Locating Pin
VX
Manifold Block
WHZ-MD
LZY-MD
LZ-MS
LZ-MP
TMZ-1MB
TMZ-2MB
DZ-M
Manifold Block / Nut
DZ-R
DZ-C
DZ-P
DZ-B
LZ-S
LZ-SQ
TNZ-S
TNZ-SQ
WNZ-SQ
Pressure Switch
JBA
Pressure Gauge
JGA/JGB
Manifold
JX
Coupler Switch
PS
G-Thread Fitting

Sales Offices

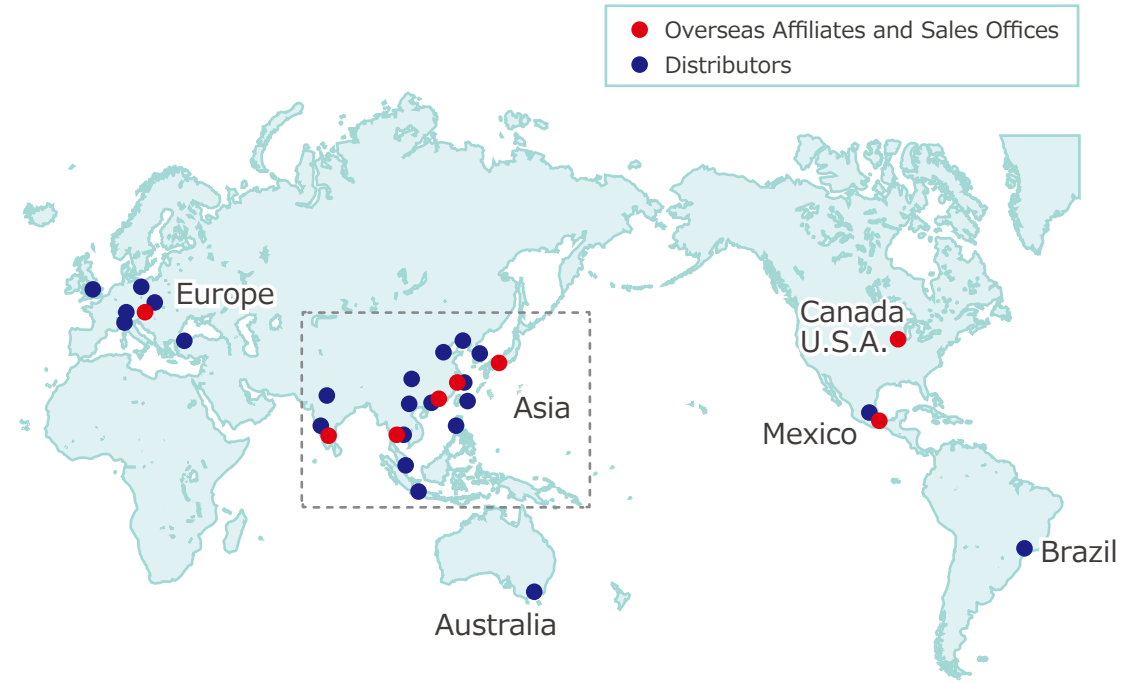
Sales Offices across the World

Japan Overseas Sales	**TEL. +81-78-991-5162**	FAX. +81-78-991-8787 KOSMEK LTD. 1-5, 2-chome, Murotani, Nishi-ku, Kobe-city, Hyogo, Japan 651-2241 〒651-2241　兵庫県神戸市西区室谷2丁目1番5号
USA KOSMEK（USA）LTD.	**TEL. +1-630-620-7650**	FAX. +1-630-620-9015 650 Springer Drive, Lombard, IL 60148 USA
Mexico KOSMEK USA Mexico Office	**TEL. +52-442-161-2347**	Blvd Jurica la Campana 1040, B Colonia Punta Juriquilla Queretaro, QRO 76230 Mexico
EUROPE KOSMEK EUROPE GmbH	**TEL. +43-463-287587**	FAX. +43-463-287587-20 Schleppeplatz 2 9020 Klagenfurt am Wörthersee Austria
China KOSMEK（CHINA）LTD. 考世美(上海)貿易有限公司	**TEL.+86-21-54253000**	FAX.+86-21-54253709 Room601, RIVERSIDE PYRAMID No.55, Lane21, Pusan Rd, Pudong Shanghai 200125, China 中国上海市浦东新区浦三路21弄55号银亿滨江中心601室200125
India KOSMEK LTD. - INDIA	**TEL.+91-9880561695**	F 203, Level-2, First Floor, Prestige Center Point, Cunningham Road, Bangalore -560052 India
Thailand Thailand Representative Office	**TEL. +66-2-300-5132**	FAX. +66-2-300-5133 67 Soi 58, RAMA 9 Rd., Suanluang, Suanluang, Bangkok 10250, Thailand
Taiwan (Taiwan Exclusive Distributor) Full Life Trading Co., Ltd. 盈生貿易有限公司	**TEL. +886-2-82261860**	FAX. +886-2-82261890 16F-4, No.2, Jian Ba Rd., Zhonghe District, New Taipei City Taiwan 23511 台湾新北市中和區建八路2號 16F－4（遠東世紀廣場）
Philippines (Philippines Exclusive Distributor) G.E.T. Inc, Phil.	**TEL.+63-2-310-7286**	FAX. +63-2-310-7286 Victoria Wave Special Economic Zone Mt. Apo Building, Brgy. 186, North Caloocan City, Metro Manila, Philippines 1427
Indonesia (Indonesia Exclusive Distributor) P.T PANDU HYDRO PNEUMATICS	**TEL. +62-21-5818632**	FAX. +62-21-5814857 Ruko Green Garden Blok Z-Ⅱ No.51 Rt.005 Rw.008 Kedoya Utara-Kebon Jeruk Jakarta Barat 11520 Indonesia

Sales Offices in Japan

Head Office Osaka Sales Office Overseas Sales	**TEL.078-991-5115**	FAX.078-991-8787 〒651-2241　兵庫県神戸市西区室谷2丁目1番5号
Tokyo Sales Office	**TEL.048-652-8839**	FAX.048-652-8828 〒331-0815　埼玉県さいたま市北区大成町4丁目81番地
Nagoya Sales Office	**TEL.0566-74-8778**	FAX.0566-74-8808 〒446-0076　愛知県安城市美園町2丁目10番地1
Fukuoka Sales Office	**TEL.092-433-0424**	FAX.092-433-0426 〒812-0006　福岡県福岡市博多区上牟田1丁目8-10-101

Global Network



Asia Detailed Map

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