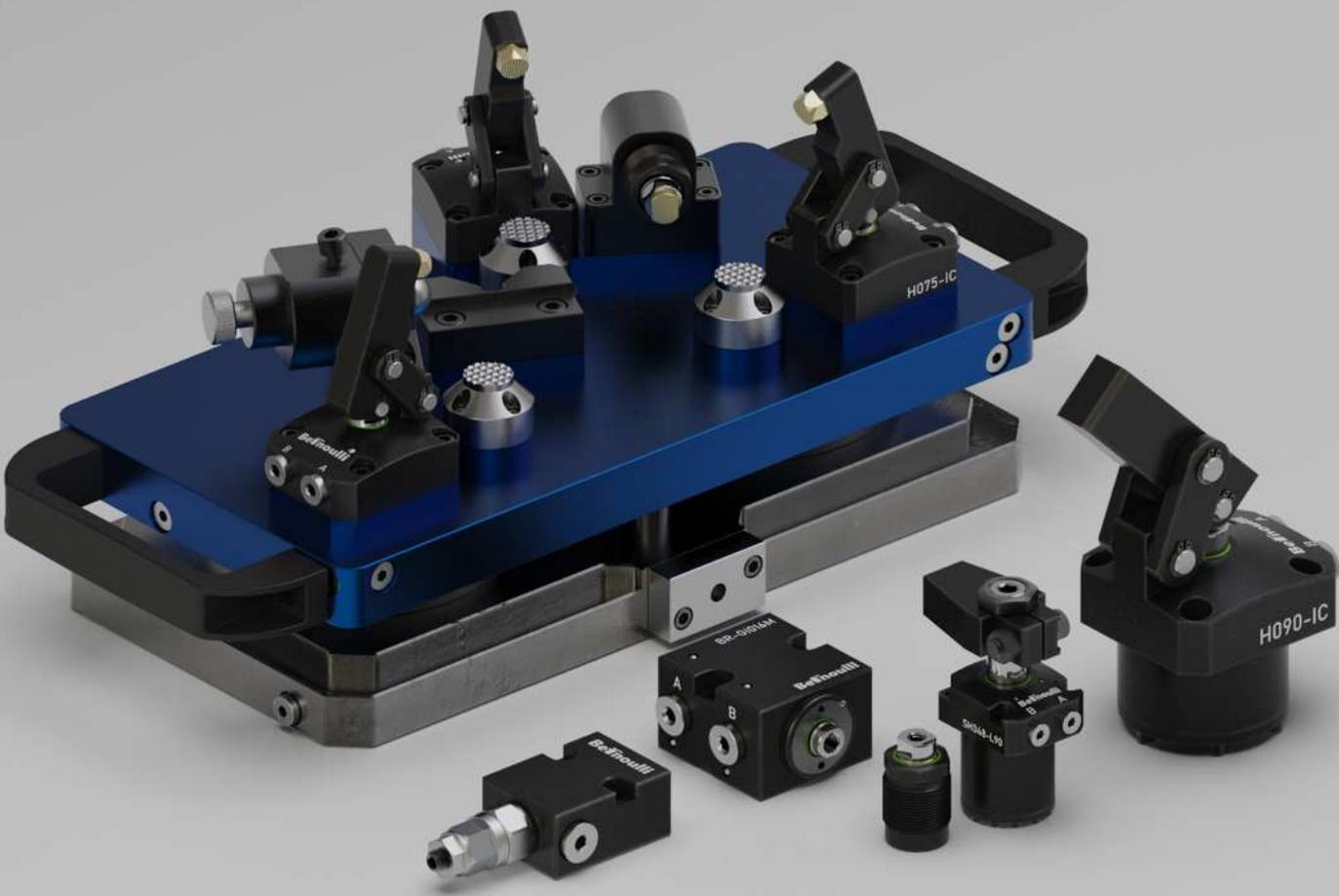


**Betroulli**

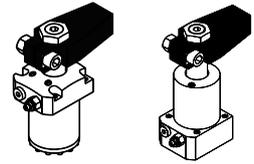


HYDRAULIC CLAMPING SYSTEMS  
2021/2022



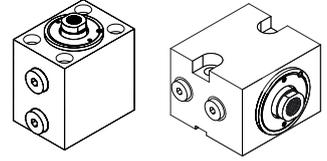
Page 01-24

Swing Cylinder



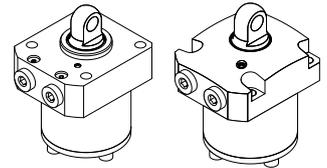
Page 25-66

Block Cylinder



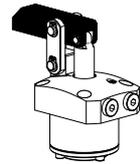
Page 67-91

Push-Pull Cylinder



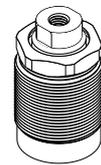
Page 93-104

Hinge Cylinder



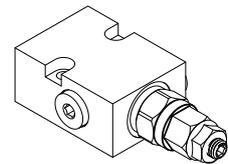
Page 105-114

Threaded Body Cylinder



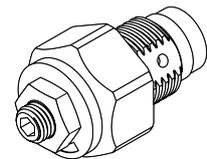
Page 115-121

Sequence Valve



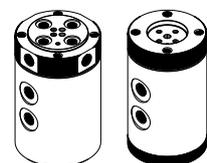
Page 123-129

Flow Control Valve



Page 131-145

Rotary Union





# Hydraulic Double Acting Swing Cylinder

## Model SH

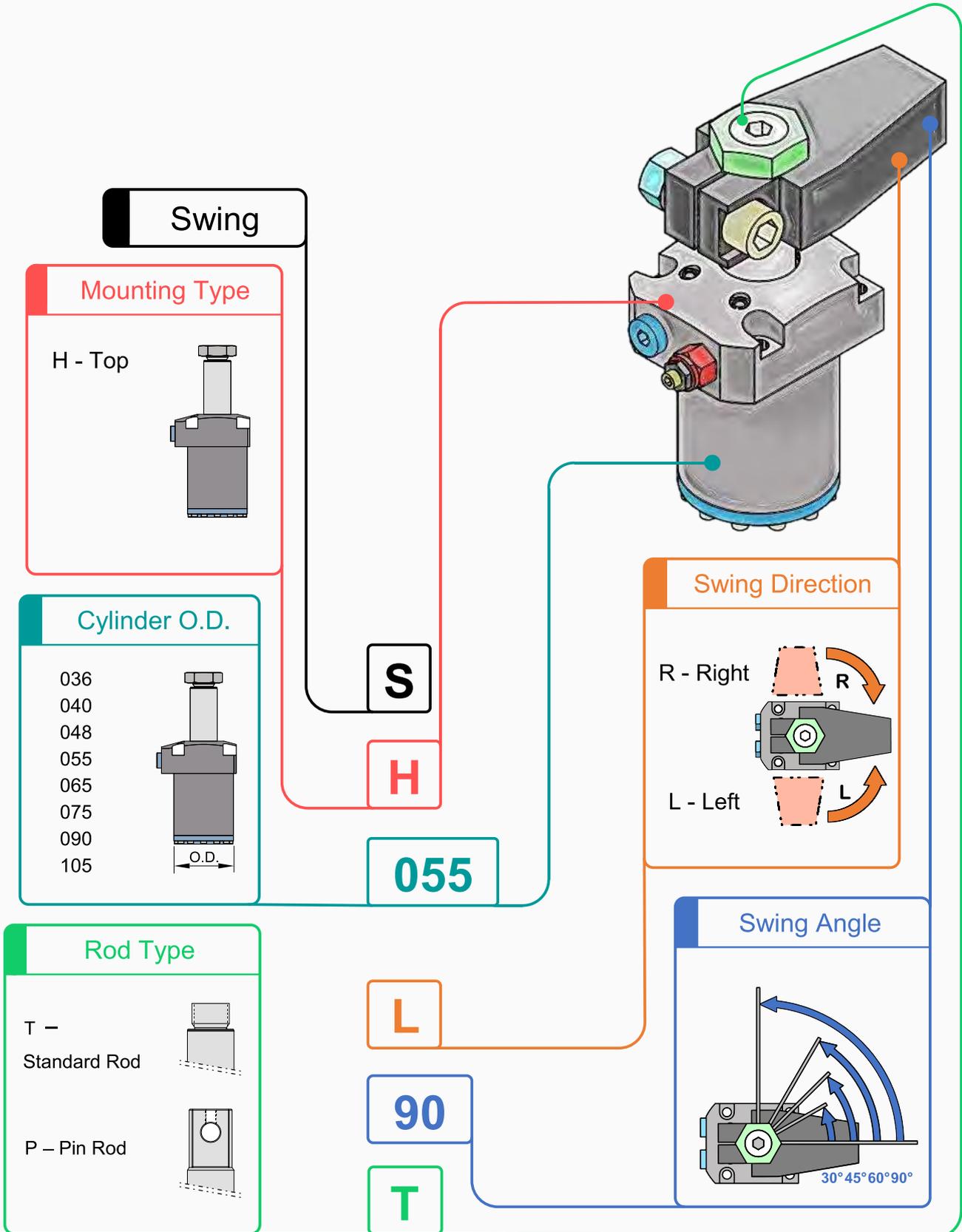
Top Flange

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Hydraulic Circuit Diagram _____	4
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Clamp Design Dimensions _____	9
Instructions _____	10
Hydraulic Connection _____	10
Clamp Mounting Procedure _____	11
Cautions _____	12

Model No. Selection

**S** **H** **055** - **L** **90** **T**



## Technical Data

### Specifications

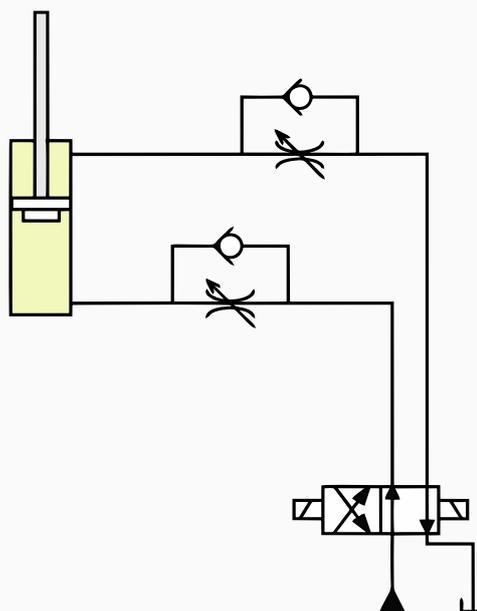
Model No.		SH036-□□□	SH040-□□□	SH048-□□□	SH055-□□□	SH065-□□□	SH075-□□□	SH090-□□□	SH105-□□□	
Cylinder Force	kN	2.15	3.10	4.37	6.14	8.62	12.80	19.41	27.36	
Cylinder Inner Diameter	mm	25	30	36	42	50	60	75	90	
Rod Diameter	mm	15	18	22	25	30	35	45	55	
Effective Area(Clamp)	cm <sup>2</sup>	3.14	4.52	6.37	8.94	12.56	18.65	28.27	39.85	
Swing Angle	30°±2°, 45°±2°, 60°±2°, 90°±2°									
Repeated Clamp Positioning Accuracy	±1°									
Full Stroke	mm	18	20	24	26	28	35	40	45	
Swing Stroke 90°	mm	10	12	16	16	18	23	25	30	
Vertical Stroke	mm	8	8	8	10	10	12	15	15	
Cylinder Capacity	Clamp	cm <sup>3</sup>	5.65	9.04	15.30	23.25	35.18	65.28	113.09	179.36
	Unclamp	cm <sup>3</sup>	8.83	14.13	24.42	36.02	54.97	98.96	176.71	286.27
Mass	Kg	0.7	0.9	1.3	1.8	2.7	4.1	6.8	10.5	

- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

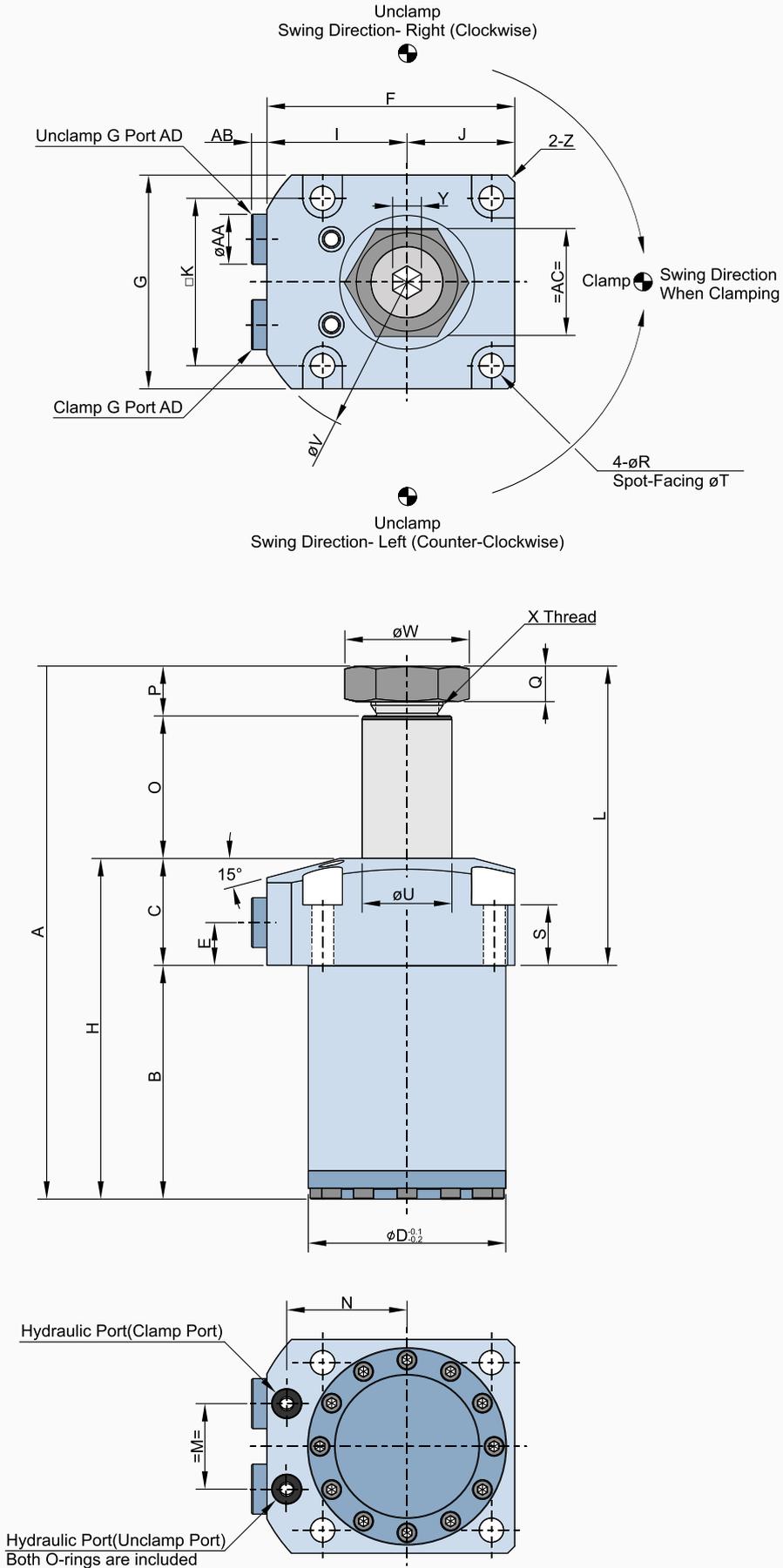
### Hydraulic Circuit Diagram

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

- Please be aware when designing the circuit.



### External Dimensions

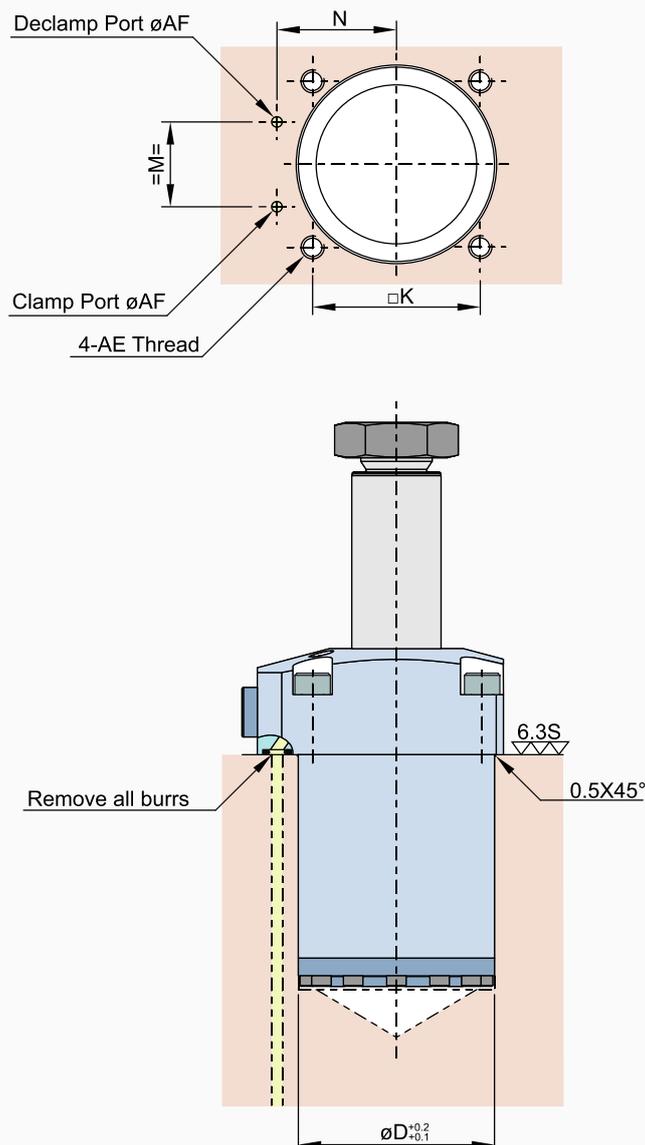


- This figure shows the released position of cylinder.

Model No.	SH036-□□T	SH040-□□T	SH048-□□T	SH055-□□T	SH065-□□T	SH075-□□T	SH090-□□T	SH105-□□T
A	124.6	131.6	147.6	159.6	169.9	202.15	233.15	270.15
B	55.6	58.6	62.6	65.6	69.9	80.15	88.15	93.15
C	25	25	28	30	31	38	46	56
∅D	36	40	48	55	65	75	90	105
E	11	11	13	12	13	16	19	22
F	49	54	61	69	81	92	107	122
G	40	45	51	60	70	80	95	110
H	80.6	83.6	90.6	95.6	100.9	118.15	134.15	149.15
I	29	31.5	35.5	39	46	52	59.5	67
J	20	22.5	25.5	30	35	40	47.5	55
□K	31.4	34	40	47	55	63	75	88
L	69	73	85	94	100	122	145	177
M	16	18	22	24	30	32	37	45
N	23.5	26	30	33.5	39.5	45	52.5	60
O	34	38	45	50	55	68	80	91
P	10	10	12	14	14	16	19	30
Q	7	7	8	10	10	12	14	24
∅R	4.5	5.5	5.5	6.8	6.8	9	11	14
S	16	15	17.5	17	17	21	25	32
∅T	7.5	9	9	11	11	14	17.5	20
∅U	15	18	22	25	30	35	45	55
∅V	66	73	83	88	106	116	136	157
∅W	22	24.3	27.7	34.5	41.6	47.4	63.5	84
X (Nominal X Pitch)	M12X1.75	M14X2	M16X2	M20X2	M24X2	M27X2	M36X2	M48X2
Y	5	6	8	8	10	10	14	14
Z	2	3	3	3	4	5	6	6
∅AA	14	14	14	14	19	19	22	22
AB	5	5	5	5	5	5	5	5
AC	19	21	24	30	36	41	55	75
AD	G1/8	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8	G3/8

- Hexagonal thin nut is included and G-Thread Plug is included.
- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimension "S".
- Flow control valve is sold separately. Select the right model of flow control valve according to the size of the cylinder. See page - 123.

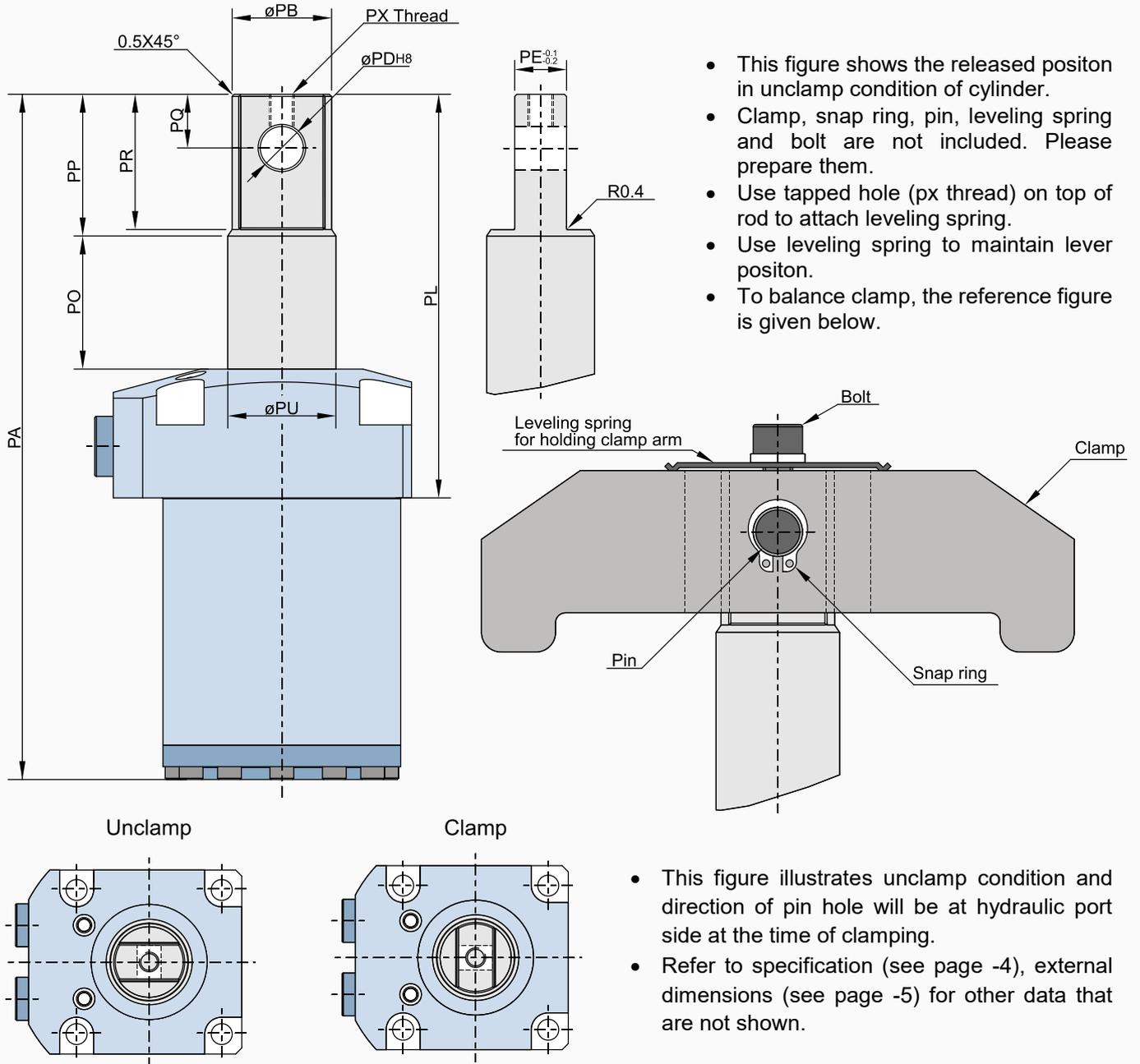
## Mounting Details



Model No.	SH036-□□□	SH040-□□□	SH048-□□□	SH055-□□□	SH065-□□□	SH075-□□□	SH090-□□□	SH105-□□□
ØD	36	40	48	55	65	75	90	105
□K	31.4	34	40	47	55	63	75	88
M	16	18	22	24	30	32	37	45
N	23.5	26	30	33.5	39.5	45	52.5	60
AE (Nominal X Pitch)	M4X0.7	M5X0.8	M5X0.8	M6X1	M6X1	M8X1.25	M10X1.5	M12X1.75
ØAF	2.5	3	3	3	4	4	4	4

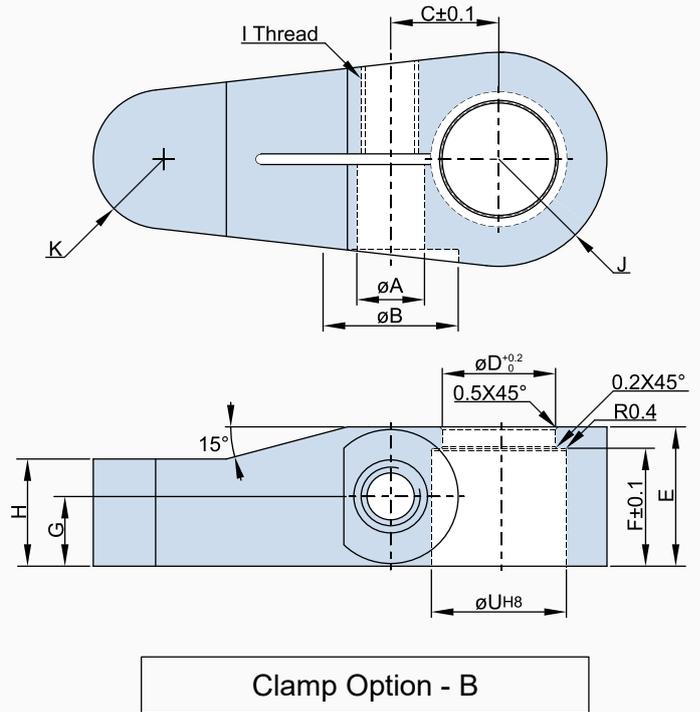
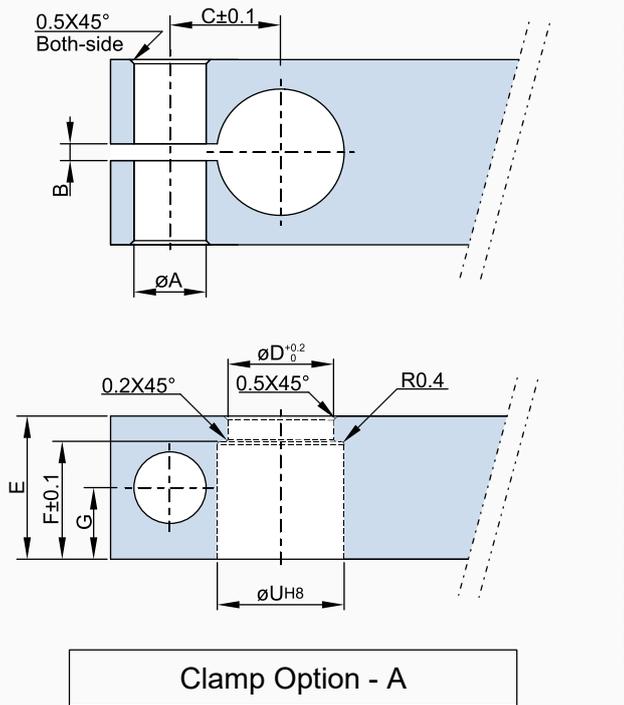
- The depth of the body mounting hole ØD should be decided according to the mounting height referring to dimension B.
- AE tapping depth of mounting bolt should be decided according to the mounting height referring to dimension S.
- The machining dimension ØAF is for gasket option for hydraulic fluid supply.
- For piping installation for hydraulic fluid supply do not perform ØAF hole in machining and close gasket line in cylinder with O-ring. Refer page no. - 10

## External Dimensions for Pin Rod Option



Model No.	SH036-□□P	SH040-□□P	SH048-□□P	SH055-□□P	SH065-□□P	SH075-□□P	SH090-□□P	SH105-□□P
PA	124.6	131.6	147.6	159.6	169.9	202.15	233.15	270.15
ØPB	13.5	16	20	23	28	33.5	43	53
ØPD	6	6	8	10	13	13	16	20
PE	7	8	10	12	14	16	22	26
PL	69	73	85	94	100	122	145	177
PO	20	22	26	28	30	37	42	55
PP	24	26	31	36	39	47	57	66
PQ	9	11	12	12.5	16.5	19	23.5	25.5
PR	23	25	29.5	34.5	37.5	45.5	55.5	64.5
ØPU	15	18	22	25	30	35	45	55
PX (Nominal X Pitch)	M3X0.5	M3X0.5	M4X0.7	M5X0.8	M6X1	M6X1	M8X1.25	M8X1.25

## Clamp Design Dimensions



Clamp Option - A

Clamp Option - B

Clamp Option - A

Model No.	SH036-□□□	SH040-□□□	SH048-□□□	SH055-□□□	SH065-□□□	SH075-□□□	SH090-□□□	SH105-□□□
$\phi A$	8.5	8.5	10.5	12.5	14.5	16.5	21	25
B	2	2	2	2	3	3	4	4
C	13	14.5	17.5	20	23.5	27.5	35	42
$\phi D$	12.5	14.5	16.5	20.5	24.5	27.5	36.5	48.5
E	17	19	23	26	29	35	43	50
F	14	16	19	22	25	31	38	44
G	8.5	9.5	11.5	13	14.5	17.5	21.5	25
$\phi U$	15	18	22	25	30	35	45	55

Clamp Option - B

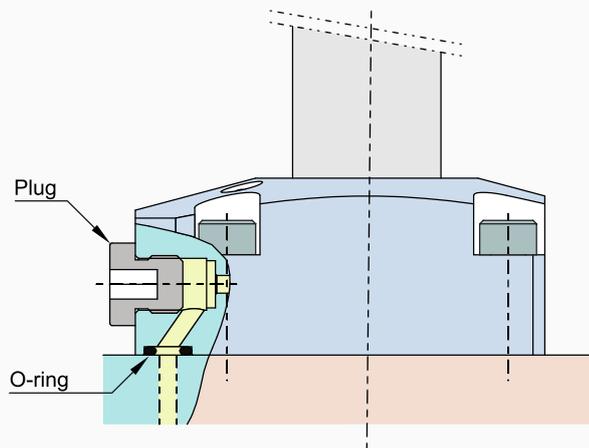
Model No.	SH036-□□□	SH040-□□□	SH048-□□□	SH055-□□□	SH065-□□□	SH075-□□□	SH090-□□□	SH105-□□□
$\phi A$	8.5	8.5	10.5	12.5	14.5	16.5	21	25
$\phi B$	16	16	22	25	29	32	38	45
C	13	14.5	17.5	20	23.5	27.5	35	42
$\phi D$	12.5	14.5	16.5	20.5	24.5	27.5	36.5	48.5
E	17	19	23	26	29	35	43	50
F	14	16	19	22	25	31	38	44
G	8	9	11	13	14	15	18	22
H	14	15	18	20	22	30	36	40
I (Nominal X Pitch)	M8X1.25	M8X1.25	M10X1.5	M12X1.75	M14X2	M16X2	M20X2.5	M24X3
J	R14	R15	R18	R20	R24	R26	R34	R44
K	R8	R9	R13	R13	R18	R19	R24	R36
$\phi U$	15	18	22	25	30	35	45	55

- Clamp is not included in scope of supply.

## Instructions

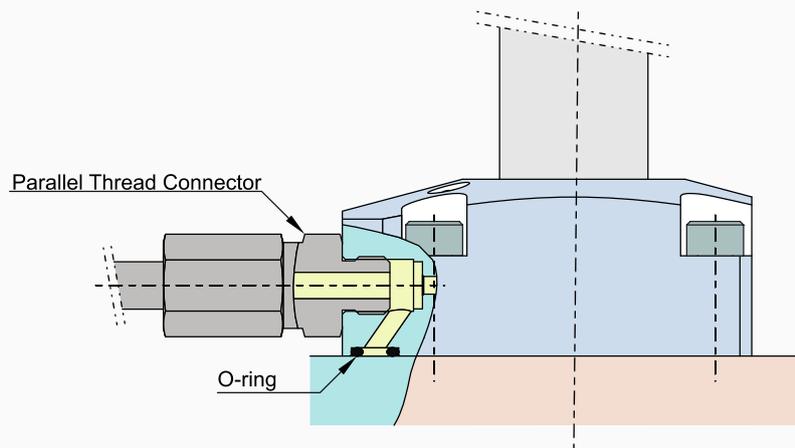
### Hydraulic Connection

#### Gasket Option



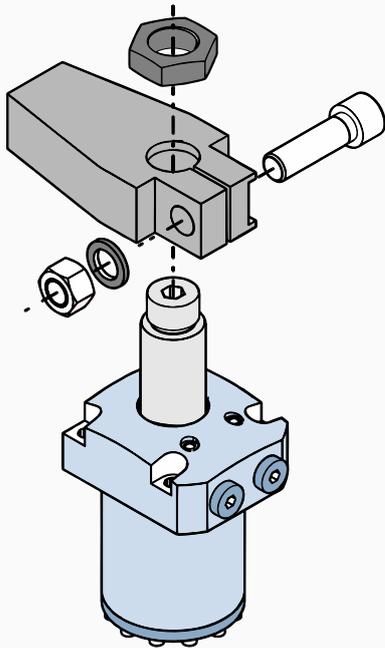
- In a gasket option, a flow control valve is mountable on G-ports of the cylinder.

#### Piping Option

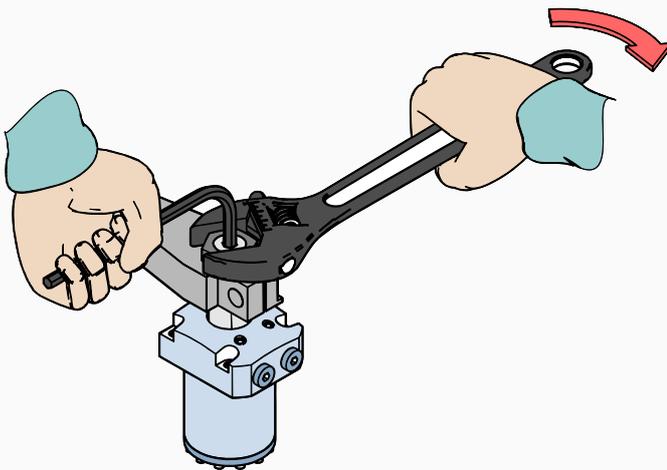


- Remove plugs for piping option (O-ring must be used in gasket holes.).

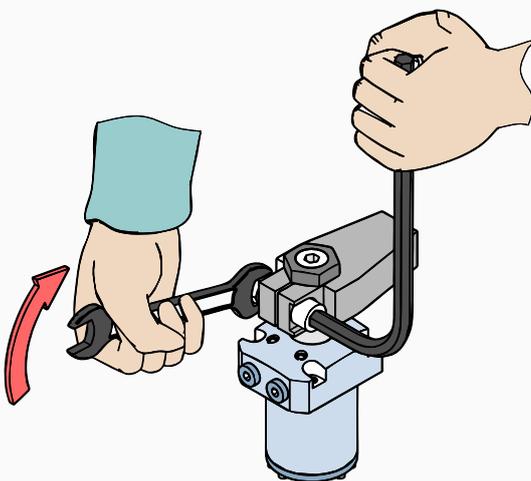
## Clamp Mounting Procedure



- This figure illustrates clamp mounting procedure.
- For standard rod option, please prepare clamp and standard mounting parts (bolt, nut and washer) which is not included. Hexagonal thin nut will be provided.
- For pin rod option, Clamp, snap ring, pin, leveling spring and bolt are not included. Please prepare them.



- First of all, attach the clamp in rod.
- Fix the clamp in vise as in clamp should not rotate when tightening the clamping nut. mount the provided nut upon the rod as shown in figure.
- Tighten the nut with wrench while holding the rod with the allen key.



- Now prepare standard bolt, nut and washer, so that you can assemble it which is illustrated in the figure.
- Tighten the nut with wrench while holding the bolt with the allen key.



## Cautions

---

1. Check the usable fluid.
  - i.e. General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
  - Make sure the hydraulic fluid not deteriorated.
2. Cylinder clamping method
  - Never allow swing clamp to contact work piece during rotation.
3. Hydraulic supply
  - Never exceed the given pressure limit otherwise it will cause malfunction of the product.
  - If the flow rate is too high, excessive swing speed can be caused and lead to wear and damage to cylinder components.
  - The cylinder supply flow must be controlled.
  - The return flow from the cylinder must be free.
4. Installation / removal of the swing clamp
  - Oil or debris on the tightened parts of the clamp or piston rod may cause the rod to loosen.
  - Please clean them thoroughly before installation.
5. Procedure before piping
  - The pipeline, piping connector and fixture circuits should be cleaned by thoroughly flushing.
  - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
  - There is no filter provided with product, which prevents foreign materials and contaminants from getting into the circuit.
  - While applying the sealing tape ensure that no pieces of sealing tape enters into the circuit, it can lead to oil leakage and malfunctions.
  - Please implement piping constructions in a clean environment to prevent anything getting into the product.
6. Do not touch clamp while it is working, otherwise it may cause injury due to clinging.
7. Do not disassemble or modify the product.
  - If the product is modified, then malfunction occurs.
8. Please contact us for overhaul and repair.



# Hydraulic Double Acting Swing Cylinder

## Model SJ

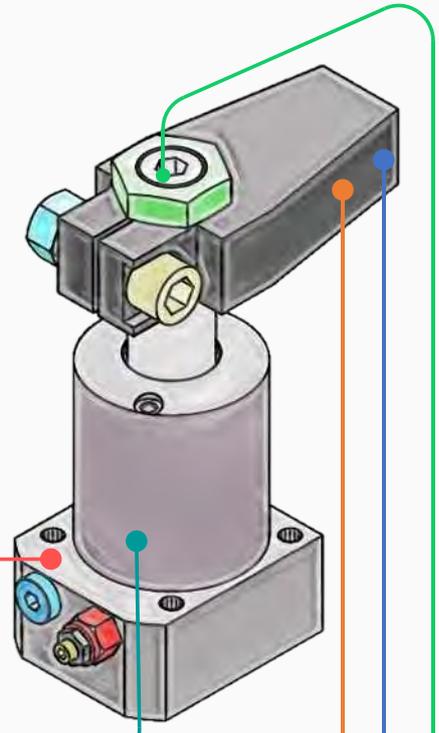
Bottom Flange

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Instructions _____	22
Hydraulic Connection _____	22
Clamp Mounting Procedure _____	23
Cautions _____	24

Model No. Selection

**S** **J** **055** - **L** **90** **T**



**Swing**

**Mounting Type**

J - Bottom

A diagram showing the 'J - Bottom' mounting type. The cylinder is mounted on a base with a rod extending upwards from the top of the cylinder.

**Cylinder O.D.**

036  
040  
048  
055  
065  
075  
090  
105

A diagram of a cylinder with a dimension line indicating the outer diameter (O.D.).

**S**

**J**

**055**

**Swing Direction**

R - Right

A diagram showing the 'R - Right' swing direction. A curved arrow indicates the arm swinging to the right.

L - Left

A diagram showing the 'L - Left' swing direction. A curved arrow indicates the arm swinging to the left.

**Swing Angle**

A diagram showing the swing angle of the cylinder. The arm is shown in various positions, with angles of 30°, 45°, 60°, and 90° indicated by curved arrows.

**Rod Type**

T - Standard Rod

A diagram of a standard rod, which is a simple cylindrical rod.

P - Pin Rod

A diagram of a pin rod, which has a circular hole through its center.

**L**

**90**

**T**

## Technical Data

### Specifications

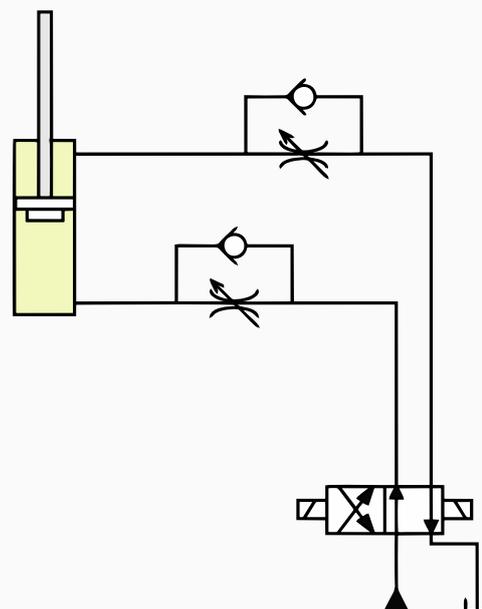
Model No.		SJ036-□□□	SJ040-□□□	SJ048-□□□	SJ055-□□□	SJ065-□□□	SJ075-□□□	SJ090-□□□	SJ105-□□□	
Cylinder Force	kN	2.15	3.10	4.37	6.14	8.62	12.80	19.41	27.36	
Cylinder Inner Diameter	mm	25	30	36	42	50	60	75	90	
Rod Diameter	mm	15	18	22	25	30	35	45	55	
Effective Area(Clamp)	cm <sup>2</sup>	3.14	4.52	6.37	8.94	12.56	18.65	28.27	39.85	
Swing Angle	30°±2°, 45°±2°, 60°±2°, 90°±2°									
Repeated Clamp Positioning Accuracy	±1°									
Full Stroke	mm	<b>18</b>	<b>20</b>	<b>24</b>	<b>26</b>	<b>28</b>	<b>35</b>	<b>40</b>	<b>45</b>	
Swing Stroke 90°	mm	10	12	16	16	18	23	25	30	
Vertical Stroke	mm	8	8	8	10	10	12	15	15	
Cylinder Capacity	Clamp	5.65	9.04	15.30	23.25	35.18	65.28	113.09	179.36	179.36
	Unclamp	8.83	14.13	24.42	36.02	54.97	98.96	176.71	286.27	286.27
Mass	Kg	0.7	0.9	1.3	1.8	2.7	4.1	6.8	10.5	

- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

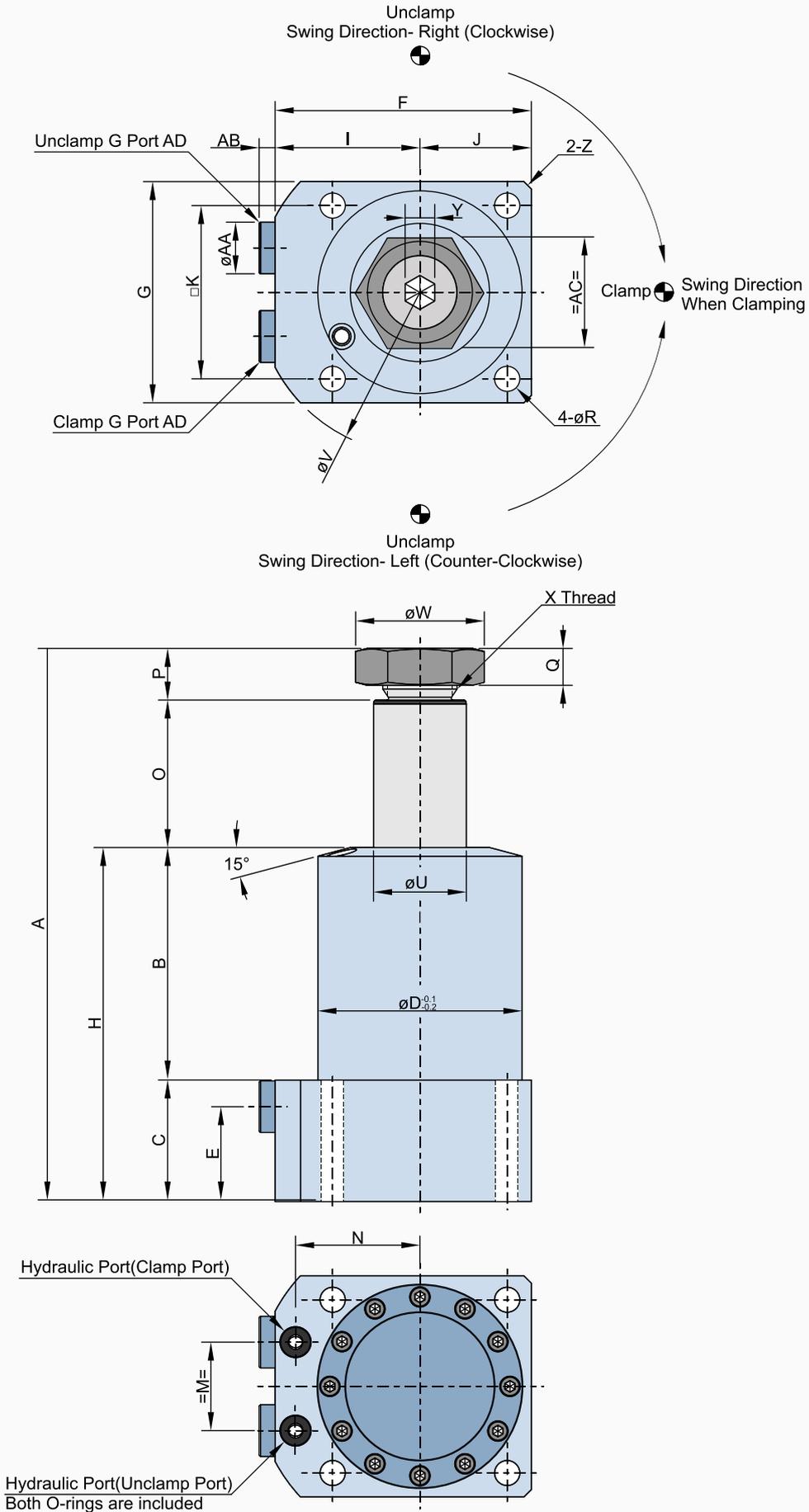
### Hydraulic Circuit Diagram

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

- Please be aware when designing the circuit.



### External Dimensions

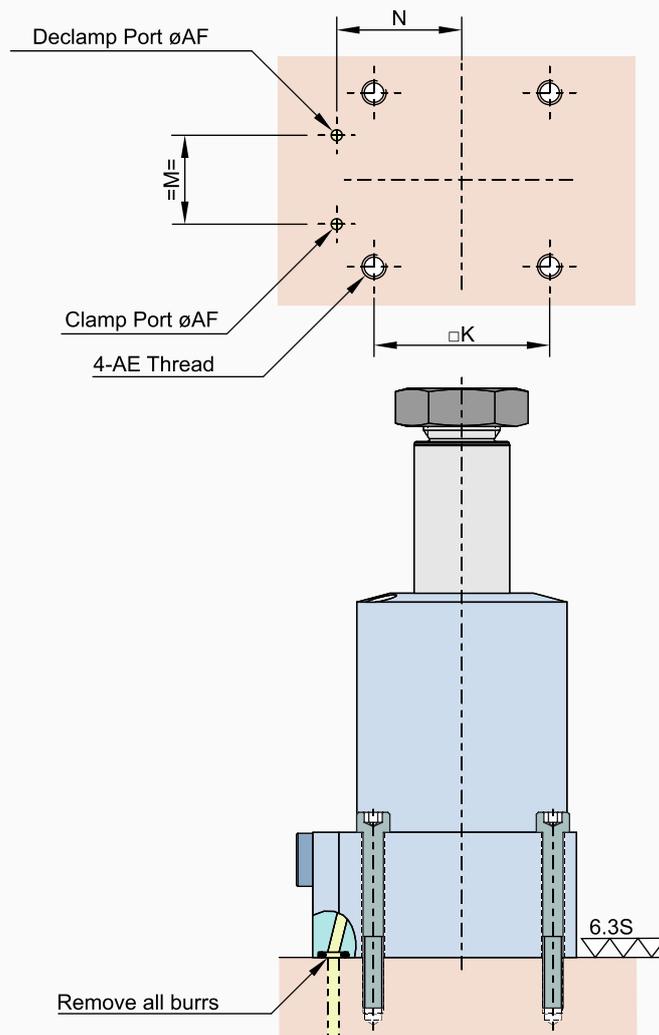


- This figure shows the released position of cylinder.

Model No.	SJ036-□□T	SJ040-□□T	SJ048-□□T	SJ055-□□T	SJ065-□□T	SJ075-□□T	SJ090-□□T	SJ105-□□T
A	125.1	132.1	148.1	160.1	170.4	202.65	233.65	270.65
B	48.1	51.1	58.1	63.1	66.4	76.65	89.65	94.65
C	33	33	33	33	35	42	45	55
∅D	36	40	48	55	65	75	90	105
E	24	24	24	24	24	27	27	27
F	49	54	61	69	81	92	107	122
G	40	45	51	60	70	80	95	110
H	81.1	84.1	91.1	96.1	101.4	118.65	134.65	149.65
I	29	31.5	35.5	39	46	52	59.5	67
J	20	22.5	25.5	30	35	40	47.5	55
□K	31.4	34	40	47	55	63	75	88
M	16	18	22	24	30	32	37	45
N	23.5	26	30	33.5	39.5	45	52.5	60
O	34	38	45	50	55	68	80	91
P	10	10	12	14	14	16	19	30
Q	7	7	8	10	10	12	14	24
∅R	4.5	5.5	5.5	6.8	6.8	9	11	14
∅U	15	18	22	25	30	35	45	55
∅V	66	73	83	88	106	116	136	157
∅W	22	24.3	27.7	34.5	41.6	47.4	63.5	84
X (Nominal X Pitch)	M12X1.75	M14X2	M16X2	M20X2	M24X2	M27X2	M36X2	M48X2
Y	5	6	8	8	10	10	14	14
Z	2	3	3	3	4	5	6	6
∅AA	14	14	14	14	19	19	22	22
AB	5	5	5	5	5	5	5	5
AC	19	21	24	30	36	41	55	75
AD	G1/8	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8	G3/8

- Hexagonal thin nut is included and G-Thread Plug is included.
- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimension "S".
- Speed control valve is sold separately. Select the right model of speed control valve according to the size of the cylinder. See page - 123.

## Mounting Details

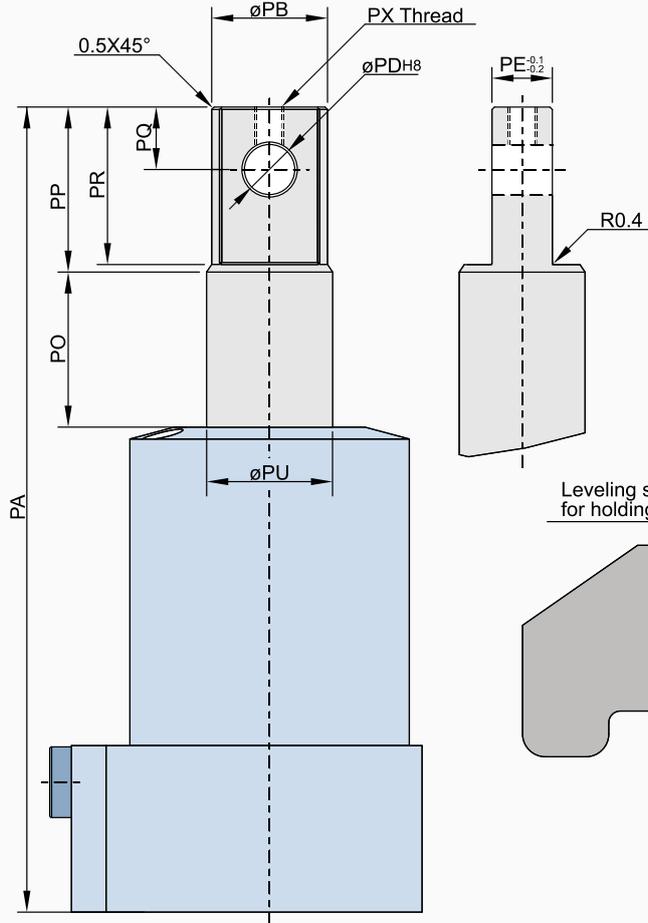


Model No.	SJ036-□□□	SJ040-□□□	SJ048-□□□	SJ055-□□□	SJ065-□□□	SJ075-□□□	SJ090-□□□	SJ105-□□□
□K	31.4	34	40	47	55	63	75	88
M	16	18	22	24	30	32	37	45
N	23.5	26	30	33.5	39.5	45	52.5	60
AE (Nominal X Pitch)	M4X0.7	M5X0.8	M5X0.8	M6X1	M6X1	M8X1.25	M10X1.5	M12X1.75
ØAF	2.5	3	3	3	4	4	4	4

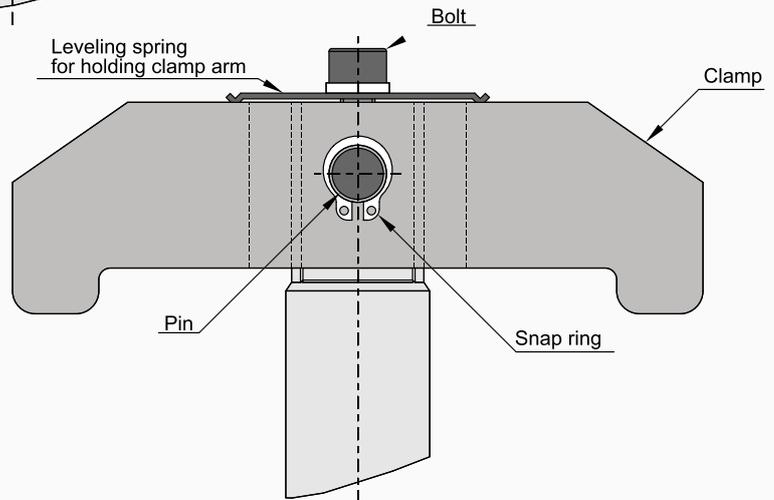
- The depth of the body mounting hole  $\varnothing D$  should be decided according to the mounting height referring to dimension B.
- AE tapping depth of mounting bolt should be decided according to the mounting height referring to dimension S.
- The machining dimension  $\varnothing AF$  is for gasket option for hydraulic fluid supply.
- For piping installation for hydraulic fluid supply do not perform  $\varnothing AF$  hole in machining and close gasket line in cylinder with O-ring. Refer page no.- 22



## External Dimensions for Pin Rod Option

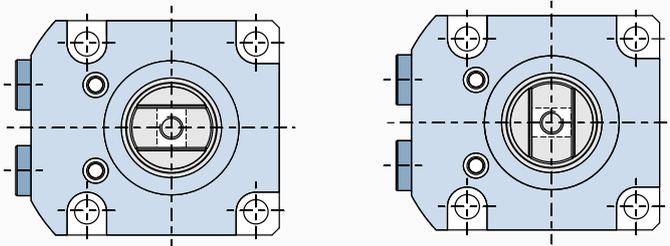


- This figure shows the released position in unclamp condition of cylinder.
- Clamp, snap ring, pin, leveling spring and bolt are not included. Please prepare them.
- Use tapped hole (px thread) on top of rod to attach leveling spring.
- Use leveling spring to maintain lever position.
- To balance clamp, the reference figure is given below.



Unclamp

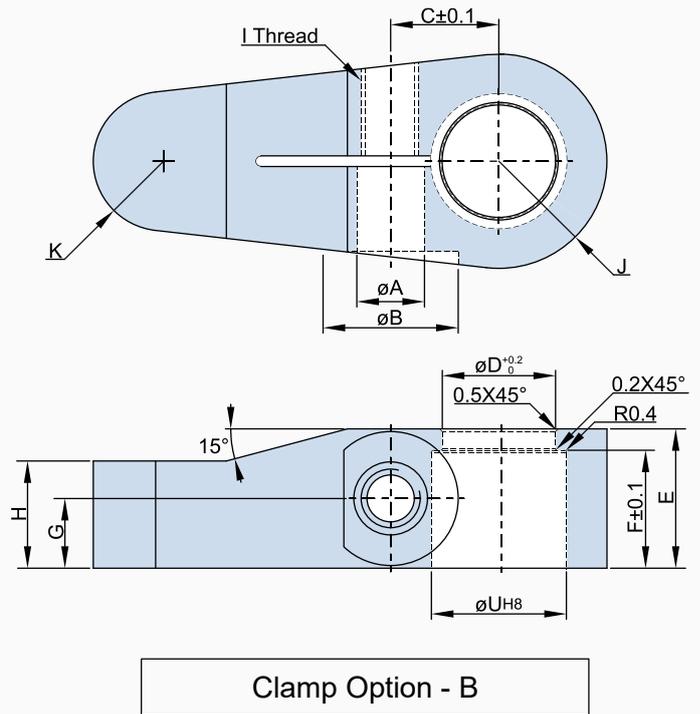
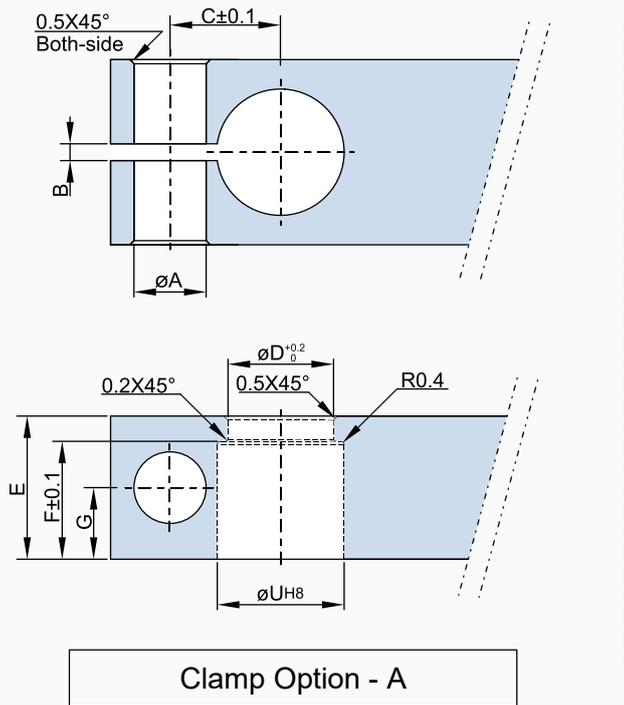
Clamp



- This figure illustrates unclamp condition and direction of pin hole will be at hydraulic port side at the time of clamping.
- Refer to specification (see page - 16), external dimensions (see page -17) for other data that are not shown.

Model No.	SJ036-□□□	SJ040-□□□	SJ048-□□□	SJ055-□□□	SJ065-□□□	SJ075-□□□	SJ090-□□□	SJ105-□□□
PA	125.1	132.1	148.1	160.1	170.4	202.65	233.65	270.65
ØPB	13.5	16	20	23	28	33.5	43	53
ØPD	6	6	8	10	13	13	16	20
PE	7	8	10	12	14	16	22	26
PO	20	22	26	28	30	37	42	55
PP	24	26	31	36	39	47	57	66
PQ	9	11	12	12.5	16.5	19	23.5	25.5
PR	23	25	29.5	34.5	37.5	45.5	55.5	64.5
ØPU	15	18	22	25	30	35	45	55
PX (Nominal X Pitch)	M3X0.5	M3X0.5	M4X0.7	M5X0.8	M6X1	M6X1	M8X1.25	M8X1.25

## Clamp Design Dimensions



Clamp Option - A

Clamp Option - B

Clamp Option - A								
Model No.	SH036-□□□	SH040-□□□	SH048-□□□	SH055-□□□	SH065-□□□	SH075-□□□	SH090-□□□	SH105-□□□
$\phi A$	8.5	8.5	10.5	12.5	14.5	16.5	21	25
B	2	2	2	2	3	3	4	4
C	13	14.5	17.5	20	23.5	27.5	35	42
$\phi D$	12.5	14.5	16.5	20.5	24.5	27.5	36.5	48.5
E	17	19	23	26	29	35	43	50
F	14	16	19	22	25	31	38	44
G	8.5	9.5	11.5	13	14.5	17.5	21.5	25
$\phi U$	15	18	22	25	30	35	45	55

Clamp Option - B								
Model No.	SH036-□□□	SH040-□□□	SH048-□□□	SH055-□□□	SH065-□□□	SH075-□□□	SH090-□□□	SH105-□□□
$\phi A$	8.5	8.5	10.5	12.5	14.5	16.5	21	25
$\phi B$	16	16	22	25	29	32	38	45
C	13	14.5	17.5	20	23.5	27.5	35	42
$\phi D$	12.5	14.5	16.5	20.5	24.5	27.5	36.5	48.5
E	17	19	23	26	29	35	43	50
F	14	16	19	22	25	31	38	44
G	8	9	11	13	14	15	18	22
H	14	15	18	20	22	30	36	40
I (Nominal X Pitch)	M8X1.25	M8X1.25	M10X1.5	M12X1.75	M14X2	M16X2	M20X2.5	M24X3
J	R14	R15	R18	R20	R24	R26	R34	R44
K	R8	R9	R13	R13	R18	R19	R24	R36
$\phi U$	15	18	22	25	30	35	45	55

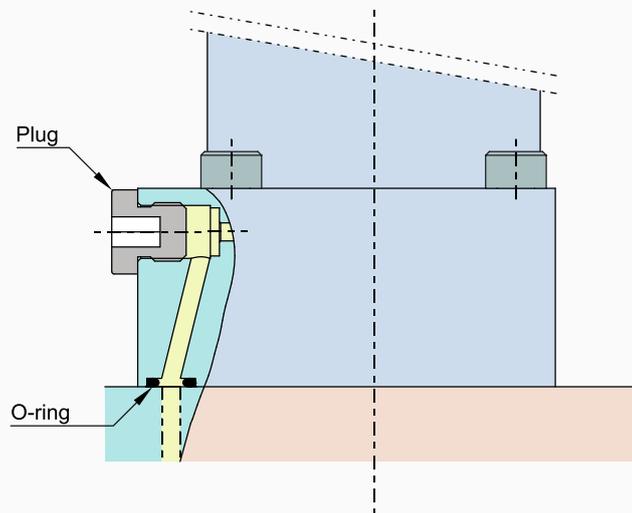
- Clamp is not included in scope of supply.



## Instructions

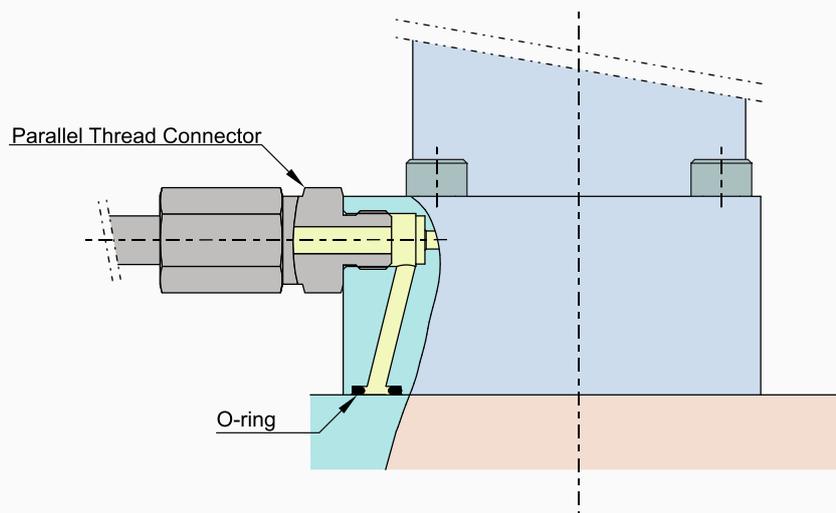
### Hydraulic Connection

#### Gasket Option



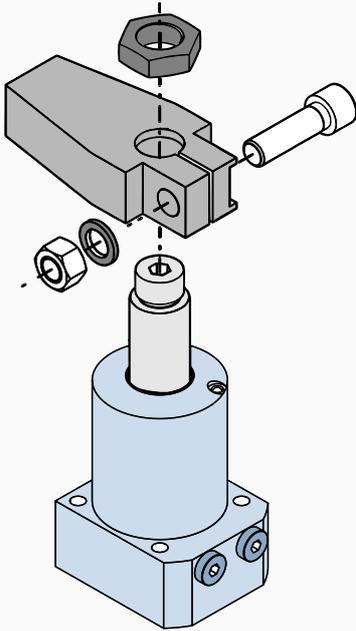
- For gasket option, a flow control valve is mountable on G-ports of the cylinder.

#### Piping Option

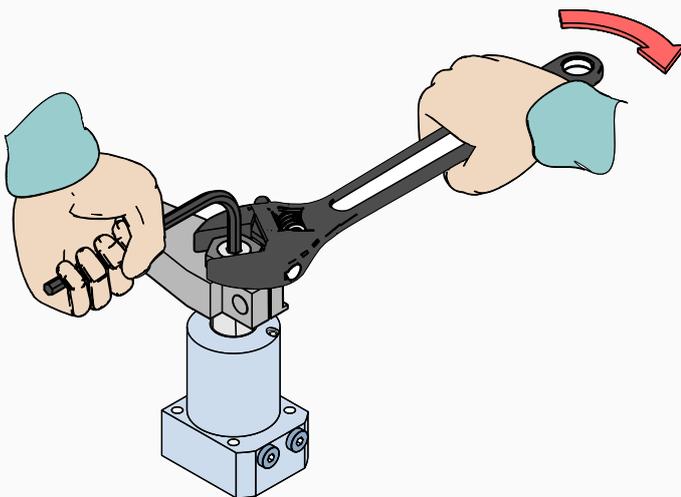


- Remove plugs in piping option. (O-ring must be used in gasket holes.)

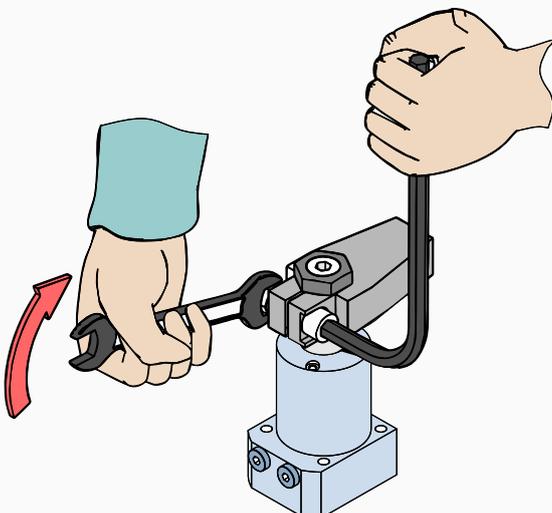
## Clamp Mounting Procedure



- This figure illustrates clamp mounting procedure.
- For standard rod option, please prepare clamp and standard mounting parts (bolt, nut and washer) which is not included. Hexagonal thin nut will be provided.
- For pin rod option, Clamp, snap ring, pin, leveling spring and bolt are not included. Please prepare them.



- First of all, attach the clamp in rod.
- Fix the clamp in vise as in clamp should not rotate when tightening the clamping nut. mount the provided nut upon the rod as shown in figure.
- Tighten the nut with wrench while holding the rod with the allen key.



- Now prepare standard bolt, nut and washer, so that you can assemble it which is illustrated in the figure.
- Tighten the nut with wrench while holding the bolt with the allen key.



## Cautions

---

1. Check the usable fluid.
  - i.e. General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
  - Make sure the hydraulic fluid not deteriorated.
2. Cylinder clamping method
  - Never allow swing clamp to contact work piece during rotation.
3. Hydraulic supply
  - Never exceed the given pressure limit otherwise it will cause malfunction of the product.
  - If the flow rate is too high, excessive swing speed can be caused and lead to wear and damage to cylinder components.
  - The cylinder supply flow must be controlled.
  - The return flow from the cylinder must be free.
4. Installation / removal of the swing clamp
  - Oil or debris on the tightened parts of the clamp or piston rod may cause the rod to loosen.
  - Please clean them thoroughly before installation.
5. Procedure before piping
  - The pipeline, piping connector and fixture circuits should be cleaned by thoroughly flushing.
  - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
  - There is no filter provided with product, which prevents foreign materials and contaminants from getting into the circuit.
  - While applying the sealing tape ensure that no pieces of sealing tape enters into the circuit, it can lead to oil leakage and malfunctions.
  - Please implement piping constructions in a clean environment to prevent anything getting into the product.
6. Do not touch clamp while it is working, otherwise it may cause injury due to clinging.
7. Do not disassemble or modify the product.
  - If the product is modified, then malfunction occurs.
8. Please contact us for overhaul and repair.



# Hydraulic Double Acting Block Cylinder

Model BM

Model BN

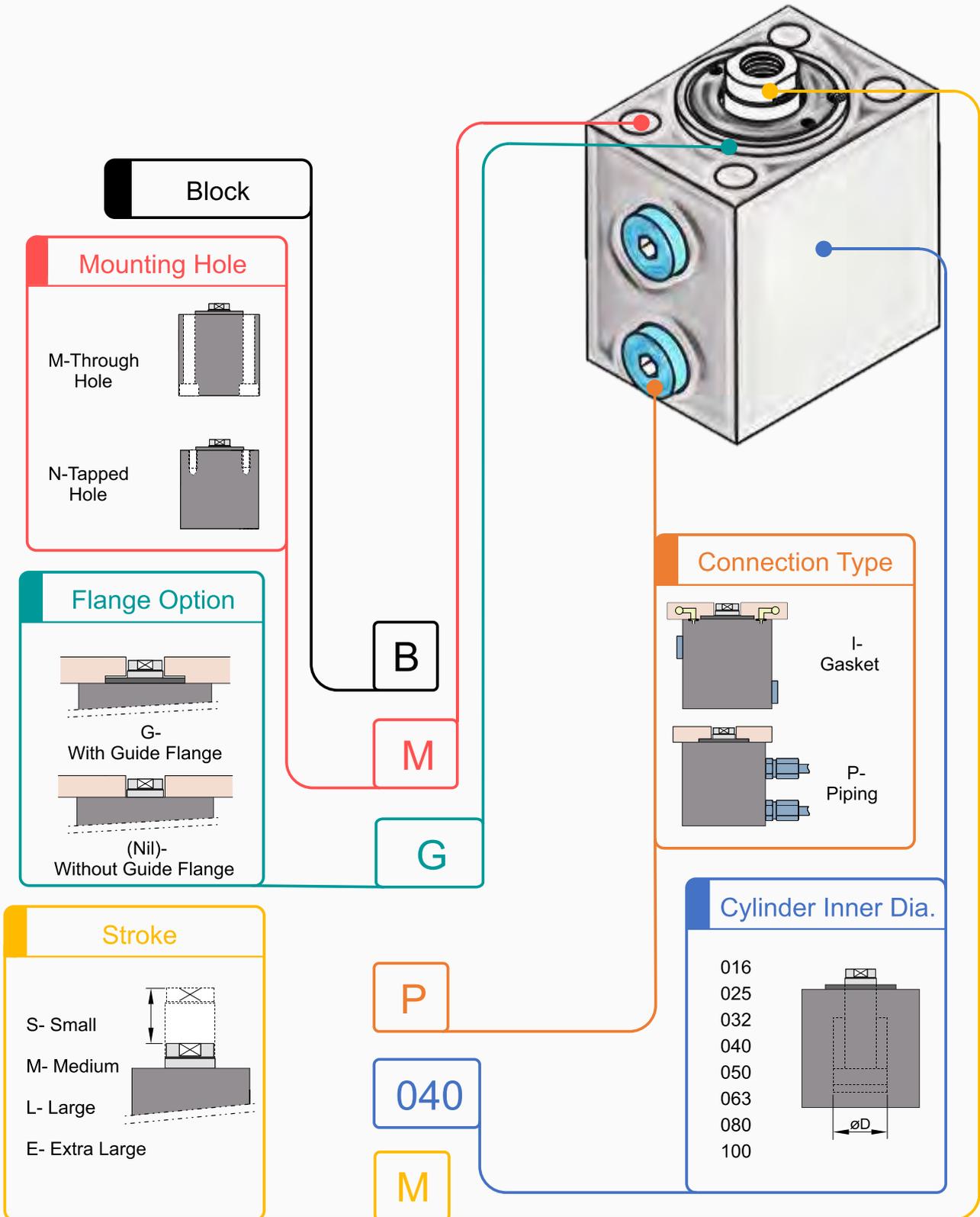
Rod Side Mounting

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Model No. Selection

**B** **M** - **G** **P** **040** **M**



## Technical Data

### Specifications

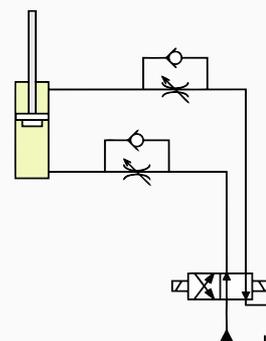
Model No.		B□-□□016□	B□-□□025□	B□-□□032□	B□-□□040□	B□-□□050□	B□-□□063□	B□-□□080□	B□-□□100□
Cylinder Inner Diameter	mm	16	25	32	40	50	63	80	100
Rod Diameter	mm	10	16	20	25	32	40	50	63
Cylinder Force	Push	kN	1.38	3.37	5.52	8.62	13.47	21.4	34.50
	Pull	kN	0.84	1.99	3.36	5.25	7.95	12.77	21.02
Effective area	Push	cm <sup>2</sup>	2.01	4.9	8.04	12.56	19.63	31.17	50.26
	Pull	cm <sup>2</sup>	1.22	2.89	4.9	7.65	11.59	18.6	30.63
<b>Small Stroke (Code-S)</b>		<b>B□-□□016S</b>	<b>B□-□□025S</b>	<b>B□-□□032S</b>	<b>B□-□□040S</b>	<b>B□-□□050S</b>	<b>B□-□□063S</b>	<b>B□-□□080S</b>	<b>B□-□□100S</b>
Full Stroke	mm	<b>16</b>	<b>16</b>	<b>16</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>
Cylinder Capacity	Push	cm <sup>3</sup>	3.21	7.85	12.86	31.41	49.08	77.93	251.32
	Pull	cm <sup>3</sup>	1.96	4.63	7.84	19.14	28.98	46.51	153.15
Mass	Kg	0.9	1.2	1.9	2.8	4.5	7.5	16.7	26.8
<b>Medium Stroke (Code-M)</b>		<b>B□-□□016M</b>	<b>B□-□□025M</b>	<b>B□-□□032M</b>	<b>B□-□□040M</b>	<b>B□-□□050M</b>	<b>B□-□□063M</b>	<b>B□-□□080M</b>	<b>B□-□□100M</b>
Full Stroke	mm	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>75</b>	<b>75</b>
Cylinder Capacity	Push	cm <sup>3</sup>	5.02	12.27	20.1	62.83	98.17	155.86	376.99
	Pull	cm <sup>3</sup>	3.06	7.24	12.25	38.28	57.96	93.03	229.72
Mass	Kg	1	1.4	2.1	3.7	5.6	9.3	19.6	31.4
<b>Large Stroke (Code-L)</b>		<b>B□-□□016L</b>	<b>B□-□□025L</b>	<b>B□-□□032L</b>	<b>B□-□□040L</b>	<b>B□-□□050L</b>	<b>B□-□□063L</b>	<b>B□-□□080L</b>	<b>B□-□□100L</b>
Full Stroke	mm	<b>32</b>	<b>32</b>	<b>32</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>100</b>	<b>100</b>
Cylinder Capacity	Push	cm <sup>3</sup>	6.43	15.7	25.73	94.24	147.26	233.79	502.65
	Pull	cm <sup>3</sup>	3.92	9.27	15.68	57.43	86.94	139.54	306.3
Mass	Kg	1.1	1.5	2.3	4.5	6.8	11	22.5	36
<b>Extra Large Stroke (Code-E)</b>		<b>B□-□□016E</b>	<b>B□-□□025E</b>	<b>B□-□□032E</b>	<b>B□-□□040E</b>	<b>B□-□□050E</b>	<b>B□-□□063E</b>	<b>B□-□□080E</b>	<b>B□-□□100E</b>
Full Stroke	mm	<b>50</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>125</b>	<b>125</b>
Cylinder Capacity	Push	cm <sup>3</sup>	10.05	24.54	40.21	125.66	196.34	311.72	628.31
	Pull	cm <sup>3</sup>	6.12	14.49	24.5	76.57	115.92	186.06	382.88
Mass	Kg	1.4	1.9	2.7	5.3	8	12.8	25.4	40.6

- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

### Hydraulic Circuit Diagram

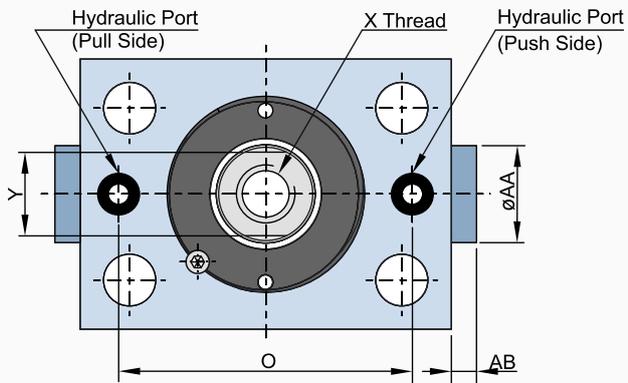
For flow control valve, we recommend the meter-in control. If meter-out control is used due to area difference it will cause back pressure and become high pressure. This can lead to malfunction of the system.

- Please be aware when designing the circuit.

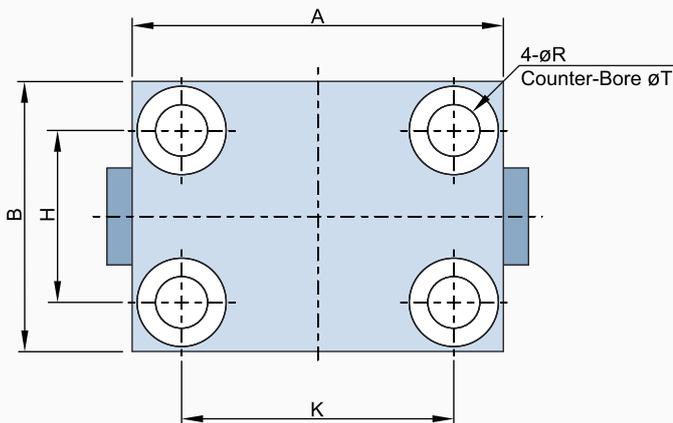
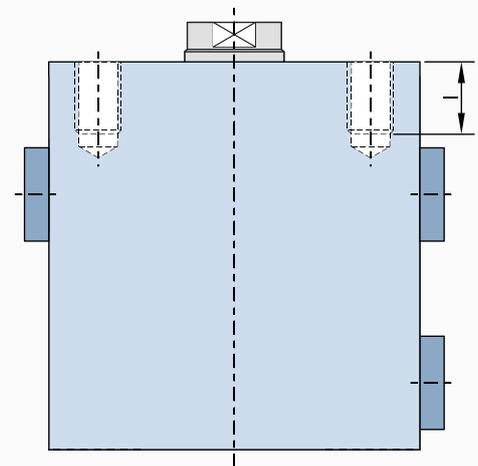
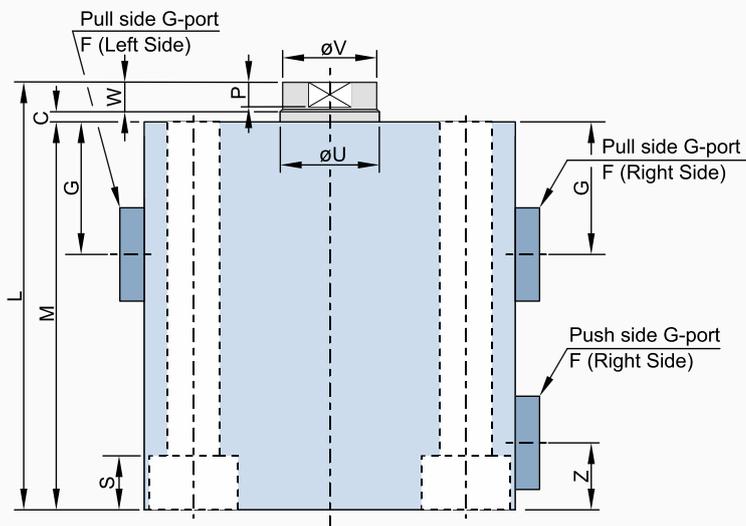
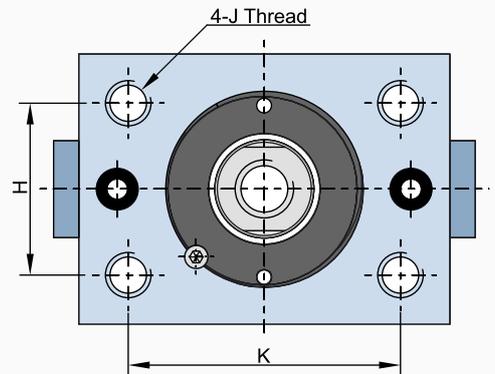


Without Guide Flange Option

BM-□□□: Through hole Option



BN-□□□: Tapped hole Option



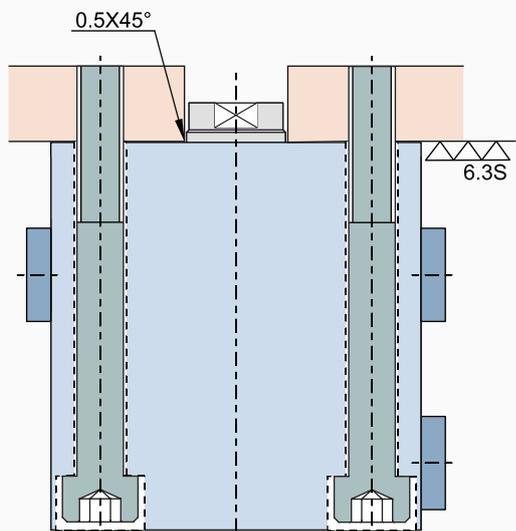
- Both figure shows the retracted position of cylinder.
- For gasket option (B□-I□□), gasket holes will be provided. Pull side G-port is on left side of cylinder and push side G-port is on right side of the cylinder. (Pull side G-port of right side will not be provided.) For more details, please refer page no.-37
- In a piping option (B□-P□□), gasket holes will not be provided. Pull side G-port and push side G-port, both are on right side of the cylinder. (Pull side G-port of left side will not be provided.) For more details, please refer page no.-37

External Dimensions for Mounting
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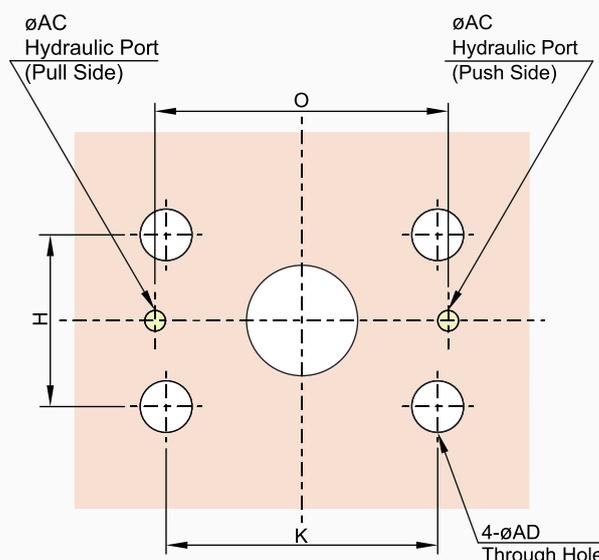
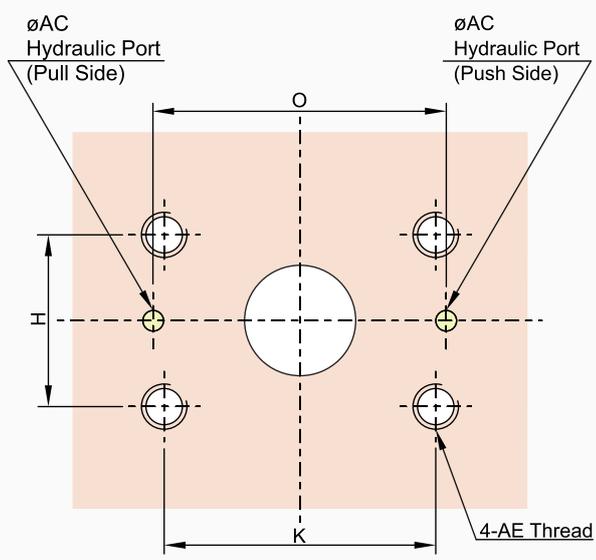
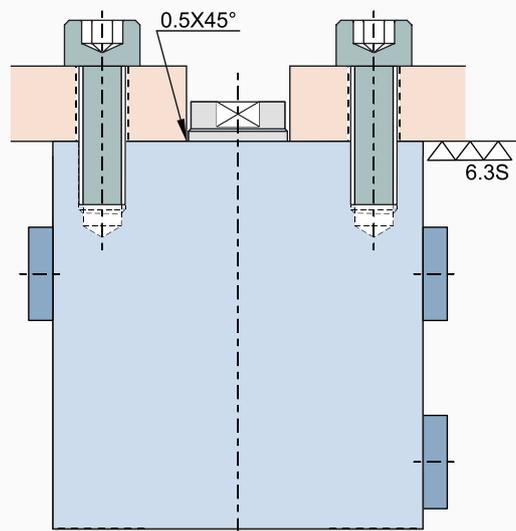
Model No.	B□-□016□	B□-□025□	B□-□032□	B□-□040□	B□-□050□	B□-□063□	B□-□080□	B□-□100□
A	60	65	75	85	100	125	160	200
B	35	45	55	63	75	95	120	150
C	2	2	4	4	4	5	4	3
F	G1/4	G1/4	G1/4	G1/4	G1/4	G3/8	G3/8	G3/8
G	22	22.5	27	29	35	35	43	44
I	9	12	15	15	18	24	30	36
J (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2	M20X2.5	M24X3
H	22	30	35	40	45	65	80	108
K	40	50	55	63	76	95	120	158
O	44	52	59	69	80	99	135	174
P	3	4	5	5	5	8	9	10
ØR	6.8	9	11	11	14	17.5	22	26
S	4	9	11	11	13	17	21	25
ØT	11	14	18	18	19	25	33	40
ØU	10	16	20	25	32	40	50	63
ØV	9.2	15	19	24	30.5	38.7	48	61
W	4	5	6	6	6	9	10	12
X (Nominal X Pitch X Depth)	M6X1X10	M10X1.5X15	M12X1.75X15	M16X2X25	M20X2.5X30	M27X2.5X40	M30X3X40	M42X4X60
Y	8	13	17	22	27	36	44	56
Z	13	14	14	14	15	19	19	22
ØAA	19	19	19	19	19	22	22	22
AB	5	5	5	5	5	5	5	5
<b>Stroke Code-S (Small)</b>								
Stroke	<b>16</b>	<b>16</b>	<b>16</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>
L	68	70.5	80	91	101	111	148	153
M	62	63.5	70	81	91	97	134	138
<b>Stroke Code-M (Medium)</b>								
Stroke	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>75</b>	<b>75</b>
L	77	79.5	89	116	126	136	173	178
M	71	72.5	79	106	116	122	159	163
<b>Stroke Code-L (Large)</b>								
Stroke	<b>32</b>	<b>32</b>	<b>32</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>100</b>	<b>100</b>
L	84	86.5	96	141	151	161	198	203
M	78	79.5	86	131	141	147	184	188
<b>Stroke Code-E (Extra Large)</b>								
Stroke	<b>50</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>125</b>	<b>125</b>
L	102	104.5	114	166	176	186	223	228
M	96	97.5	104	156	166	172	209	213

Mounting Details

BM-□□□: Through hole Option



BN-□□□: Tapped hole Option



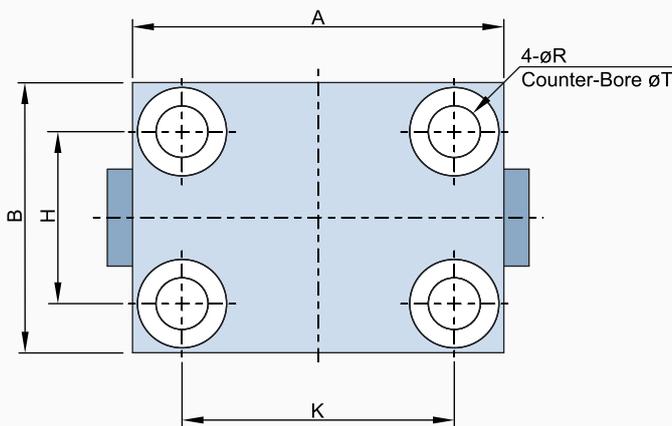
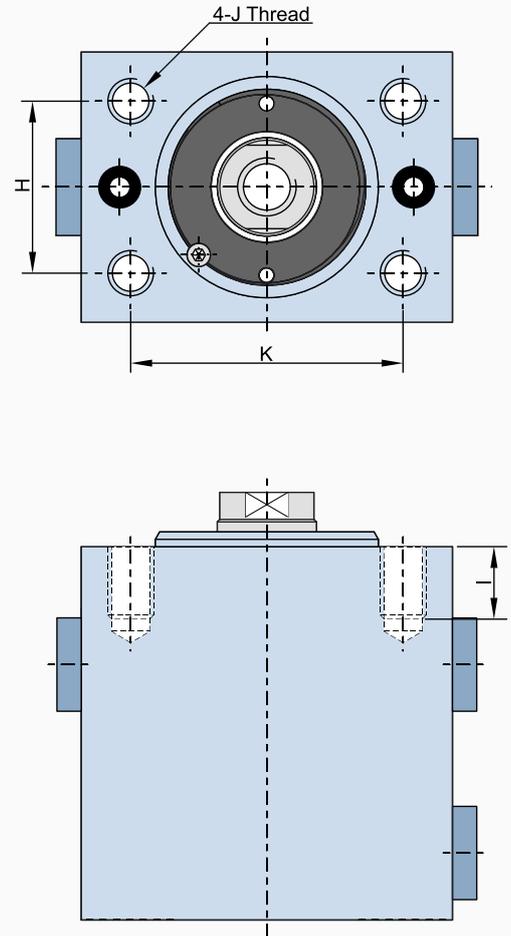
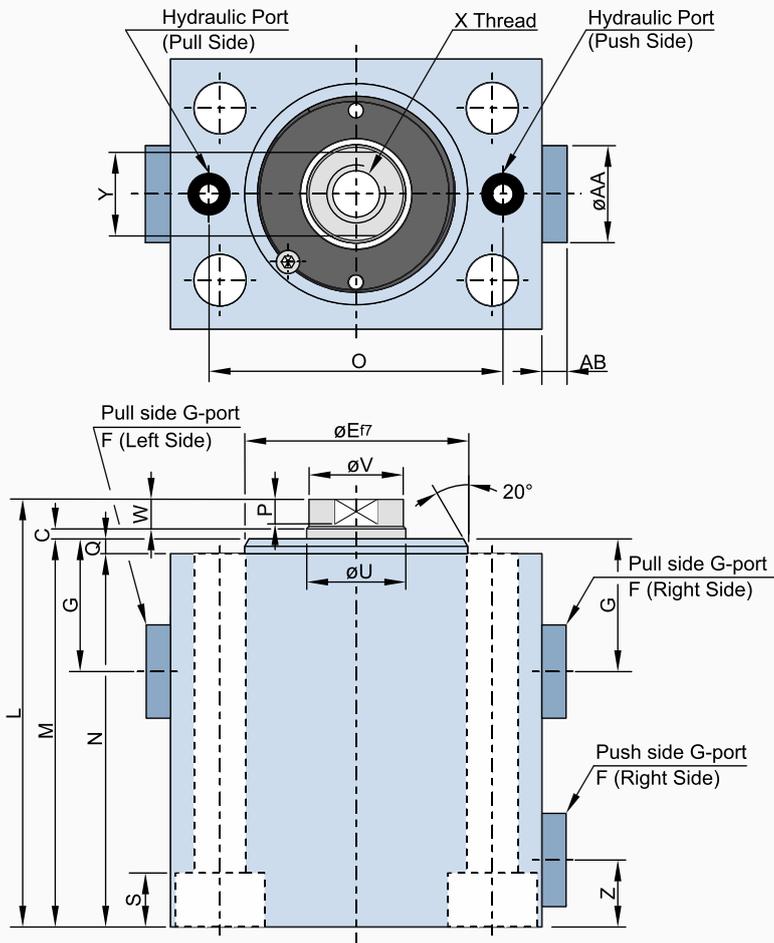
Model No.	B□-□016□	B□-□025□	B□-□032□	B□-□040□	B□-□050□	B□-□063□	B□-□080□	B□-□100□
H	22	30	35	40	45	65	80	108
K	40	50	55	63	76	95	120	158
O	44	52	59	69	80	99	135	174
øAC	3	4	4	4	5	5	5	6
øAD	6.8	9	11	11	14	17.5	22	26
AE (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2	M20X2.5	M24X3

- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimensions.
- Flow control valve is sold separately. Select the right model of flow control valve according to the size of the cylinder. See page - 123.
- The piston rod has female thread. No contact bolt is included. Prepare them according to the dimensions and application.
- G-thread plug is included and O-ring is provided at gasket option holes.
- For piping option, gasket holes will not be provided.
- When choosing gasket option, piping option holes will be provided for flow control valve. A flow control valve is mountable on G-ports of the cylinder.
- Remove plugs when choosing piping in gasket option (O-ring must be used in gasket option holes.).
- For gasket option (B□-I□□), gasket holes will be provided. Pull side G-port is on left side of cylinder and push side G-port is on right side of the cylinder. (Pull side G-port of right side will not be provided.) For more details, please refer page no.-37
- In a piping option (B□-P□□), gasket holes will not be provided. Pull side G-port and push side G-port, both are on right side of the cylinder. (Pull side G-port of left side will not be provided.) For more details, please refer page no.-37

With Guide Flange Option

BM-G□□□: Through hole Option

BN-G□□□: Tapped hole Option



- Both figure shows the retracted positon of cylinder.
- In a gasket option (B□-G□□□), gasket holes will be provided. Pull side G-port is on left side of cylinder and push side G-port is on right side of the cylinder. (Pull side G-port of right side will not be provided.) For more details, please refer page no.-37
- For piping option (B□-GP□□), gasket holes will not be provided. Pull side G-port and push side G-port, both are on right side of the cylinder. (Pull side G-port of left side will not be provided.) For more details, please refer page no.-37

External Dimensions for Mounting
----------------------------------

Model No.	B□-G□016□	B□-G□025□	B□-G□032□	B□-G□040□	B□-G□050□	B□-G□063□	B□-G□080□	B□-G□100□
A	60	65	75	85	100	125	160	200
B	35	45	55	63	75	95	120	150
C	2	2	4	4	4	5	4	3
F	G1/4	G1/4	G1/4	G1/4	G1/4	G3/8	G3/8	G3/8
G	22	22.5	27	29	35	35	43	44
I	9	12	15	15	18	24	30	36
J (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2	M20X2.5	M24X3
H	22	30	35	40	45	65	80	108
K	40	50	55	63	76	95	120	158
O	44	52	59	69	80	99	135	174
P	3	4	5	5	5	8	9	10
E	30	40	45	56	65	80	105	125
Q	3	3	3	3	3	3	3	3
ØR	6.8	9	11	11	14	17.5	22	26
S	4	9	11	11	13	17	21	25
ØT	11	14	18	18	19	25	33	40
ØU	10	16	20	25	32	40	50	63
ØV	9.2	15	19	24	30.5	38.7	48	61
W	4	5	6	6	6	9	10	12
X (Nominal X Pitch X Depth)	M6X1X10	M10X1.5X15	M12X1.75X15	M16X2X25	M20X2.5X30	M27X2.5X40	M30X3X40	M42X4X60
Y	8	13	17	22	27	36	44	56
Z	13	14	14	14	15	19	19	22
ØAA	19	19	19	19	19	22	22	22
AB	5	5	5	5	5	5	5	5

## Stroke Code-S (Small)

Stroke	16	16	16	25	25	25	50	50
L	68	70.5	80	91	101	111	148	153
M	62	63.5	70	81	91	97	134	138
N	59	60.5	67	78	88	94	131	135

## Stroke Code-M (Medium)

Stroke	25	25	25	50	50	50	75	75
L	77	79.5	89	116	126	136	173	178
M	71	72.5	79	106	116	122	159	163
N	68	69.5	76	103	113	119	156	160

## Stroke Code-L (Large)

Stroke	32	32	32	75	75	75	100	100
L	84	86.5	96	141	151	161	198	203
M	78	79.5	86	131	141	147	184	188
N	75	76.5	83	128	138	144	181	185

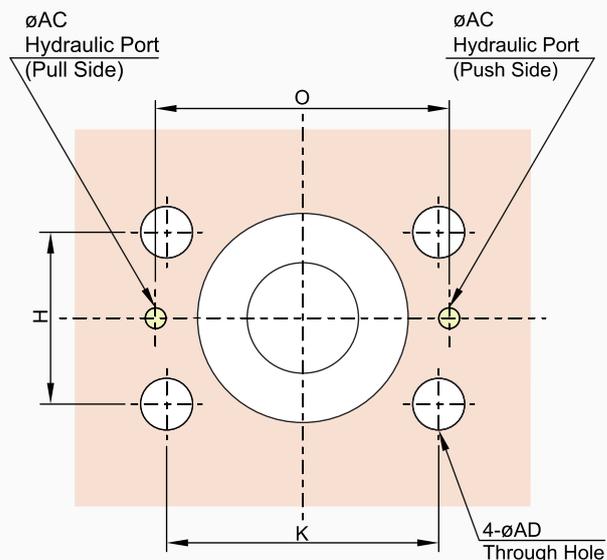
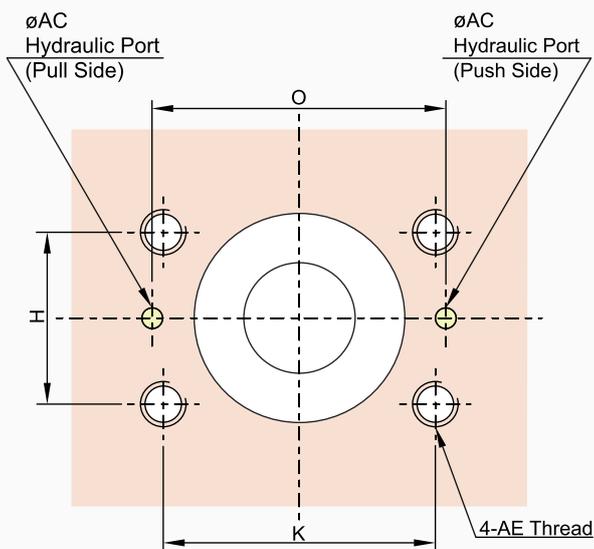
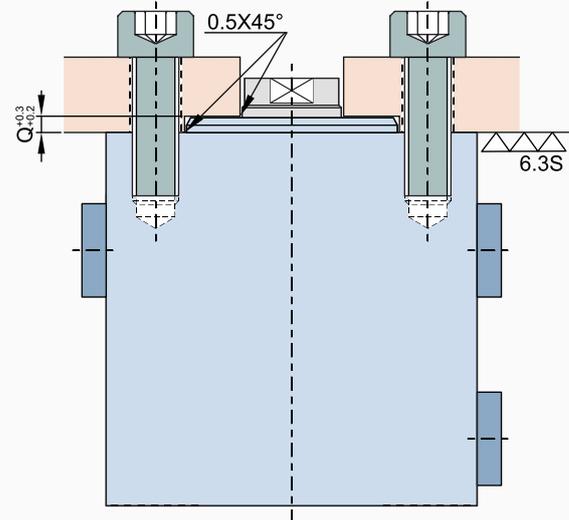
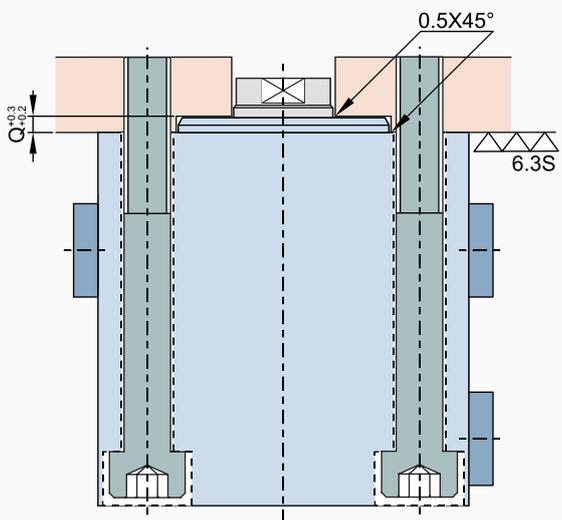
## Stroke Code-E (Extra Large)

Stroke	50	50	50	100	100	100	125	125
L	102	104.5	114	166	176	186	223	228
M	96	97.5	104	156	166	172	209	213
N	93	94.5	101	153	163	169	206	210

Mounting Details

BM-G□□□: Through hole Option

BN-G□□□: Tapped hole Option

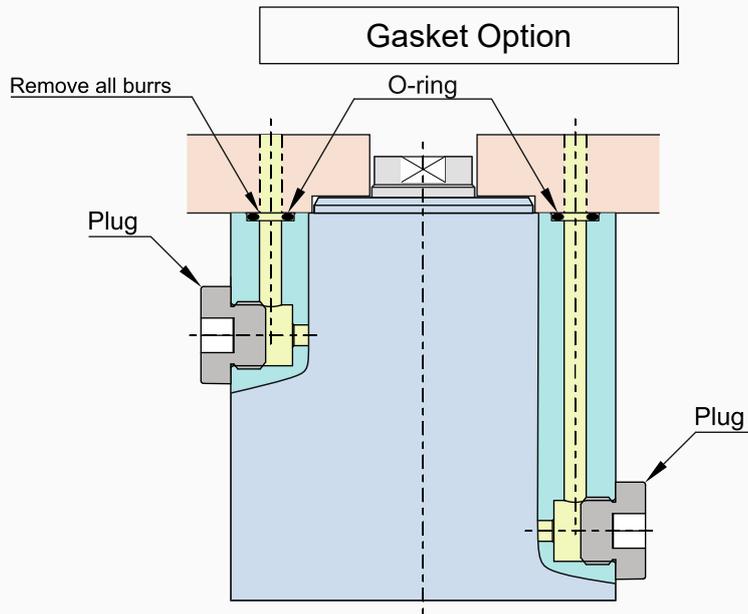


Model No.	B□-G□016□	B□-G□025□	B□-G□032□	B□-G□040□	B□-G□050□	B□-G□063□	B□-G□080□	B□-G□100□
H	22	30	35	40	45	65	80	108
K	40	50	55	63	76	95	120	158
O	44	52	59	69	80	99	135	174
Q	3	3	3	3	3	3	3	3
øAC	3	4	4	4	5	5	5	6
øAD	6.8	9	11	11	14	17.5	22	26
AE (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2	M20X2.5	M24X3

- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimensions.
- Flow control valve is sold separately. Select the right model of flow control valve according to the size of the cylinder. See page - 123.
- The piston rod has female thread. No contact bolt is included. Prepare them according to the dimensions and application.
- G-thread plug is included and O-ring is provided at gasket option holes.
- For piping option, gasket holes will not be provided.
- When choosing gasket option, piping option holes will be provided for flow control valve. A flow control valve is mountable on G-ports of the cylinder.
- Remove plugs when choosing piping in gasket option (O-ring must be used in gasket option holes.).
- For gasket option (B□-GI□□), gasket holes will be provided. Pull side G-port is on left side of cylinder and push side G-port is on right side of the cylinder. (Pull side G-port of right side will not be provided.) For more details, please refer page no.-37
- In a piping option (B□-GP□□), gasket holes will not be provided. Pull side G-port and push side G-port, both are on right side of the cylinder. (Pull side G-port of left side will not be provided.) For more details, please refer page no.-37

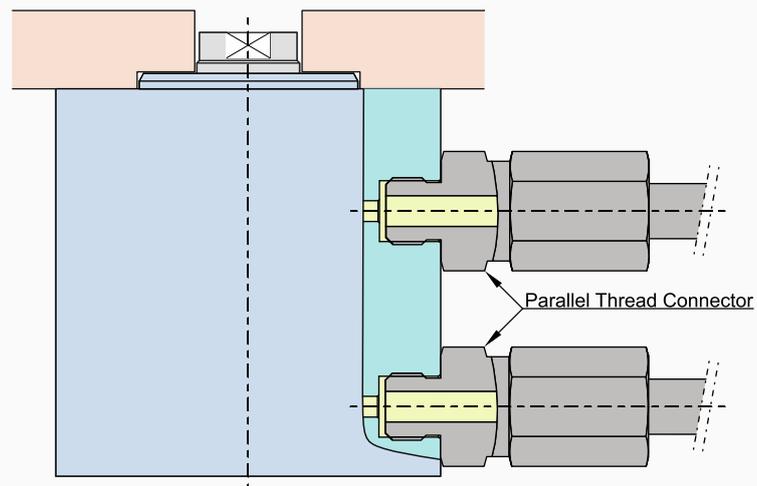
## Instructions

### Hydraulic Connection



- In a gasket option, a flow control valve is mountable on G-ports of the cylinder.

### Piping Option



- Remove plugs for piping option. (For gasket option, to prefer piping installation for hydraulic fluid supply do not perform gasket hole in machining and close gasket line in cylinder with O-ring.)



## Cautions

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1. Check the usable fluid.
  - i.e. General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
  - Make sure the hydraulic fluid not deteriorated.
2. Cylinder clamping method
  - Make sure no forces applied to the piston rod except from the axial direction. Otherwise it may cause a reduction in working life and leakages leading to the destruction of the cylinder.
3. Hydraulic supply
  - Never exceed the given pressure limit otherwise it will cause malfunction of the product.
  - If the flow rate is too high, excessive speed can be caused and lead to wear and damage to cylinder components.
  - The cylinder supply flow must be controlled, flow control valve must be installed.
  - The return flow from the cylinder must be free.
4. Procedure before piping
  - The pipeline, piping connector and fixture circuits should be cleaned by thoroughly flushing.
  - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
  - There is no filter provided with product, which prevents foreign materials and contaminants from getting into the circuit.
  - While applying the sealing tape ensure that no pieces of sealing tape enters into the circuit, it can lead to oil leakage and malfunctions.
  - Please implement piping constructions in a clean environment to prevent anything getting into the product.
5. Do not touch cylinder while it is working, otherwise it may cause injury due to clinging.
6. Do not disassemble or modify the product.
  - If the product is modified, then malfunction occurs.
7. Please contact us for overhaul and repair.



# Hydraulic Double Acting Block Cylinder

Model BK

Model BL

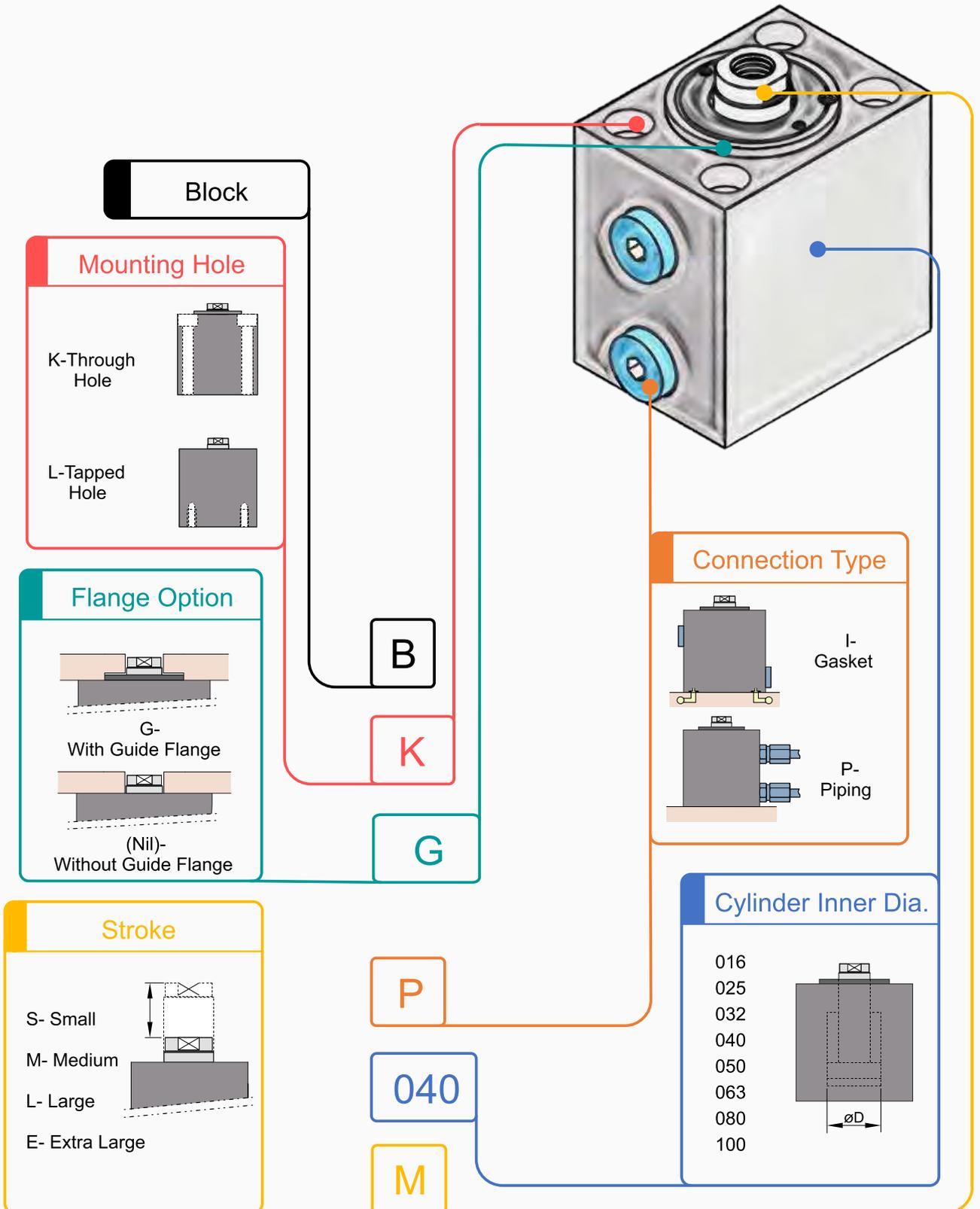
Bottom Side Mounting

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Model No. Selection

**B** **K** - **G** **P** **040** **M**



## Technical Data

### Specifications

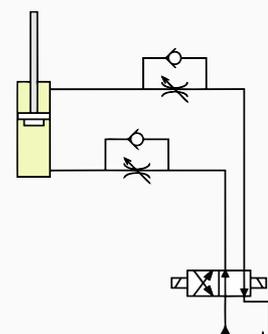
Model No.		B□-□□016□	B□-□□025□	B□-□□032□	B□-□□040□	B□-□□050□	B□-□□063□	B□-□□080□	B□-□□100□
Cylinder Inner Diameter	mm	16	25	32	40	50	63	80	100
Rod Diameter	mm	10	16	20	25	32	40	50	63
Cylinder Force	Push	1.38	3.37	5.52	8.62	13.47	21.4	34.50	53.91
	Pull	0.84	1.99	3.36	5.25	7.95	12.77	21.02	32.51
Effective area	Push	2.01	4.9	8.04	12.56	19.63	31.17	50.26	78.53
	Pull	1.22	2.89	4.9	7.65	11.59	18.6	30.63	47.36
<b>Small Stroke (Code-S)</b>		<b>B□-□□016S</b>	<b>B□-□□025S</b>	<b>B□-□□032S</b>	<b>B□-□□040S</b>	<b>B□-□□050S</b>	<b>B□-□□063S</b>	<b>B□-□□080S</b>	<b>B□-□□100S</b>
Full Stroke	mm	<b>16</b>	<b>16</b>	<b>16</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>
Cylinder Capacity	Push	cm <sup>3</sup>	3.21	7.85	12.86	31.41	49.08	77.93	251.32
	Pull	cm <sup>3</sup>	1.96	4.63	7.84	19.14	28.98	46.51	153.15
Mass	Kg	0.9	1.2	1.9	2.8	4.5	7.5	16.7	26.8
<b>Medium Stroke (Code-M)</b>		<b>B□-□□016M</b>	<b>B□-□□025M</b>	<b>B□-□□032M</b>	<b>B□-□□040M</b>	<b>B□-□□050M</b>	<b>B□-□□063M</b>	<b>B□-□□080M</b>	<b>B□-□□100M</b>
Full Stroke	mm	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>75</b>	<b>75</b>
Cylinder Capacity	Push	cm <sup>3</sup>	5.02	12.27	20.1	62.83	98.17	155.86	376.99
	Pull	cm <sup>3</sup>	3.06	7.24	12.25	38.28	57.96	93.03	229.72
Mass	Kg	1	1.4	2.1	3.7	5.6	9.3	19.6	31.4
<b>Large Stroke (Code-L)</b>		<b>B□-□□016L</b>	<b>B□-□□025L</b>	<b>B□-□□032L</b>	<b>B□-□□040L</b>	<b>B□-□□050L</b>	<b>B□-□□063L</b>	<b>B□-□□080L</b>	<b>B□-□□100L</b>
Full Stroke	mm	<b>32</b>	<b>32</b>	<b>32</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>100</b>	<b>100</b>
Cylinder Capacity	Push	cm <sup>3</sup>	6.43	15.7	25.73	94.24	147.26	233.79	502.65
	Pull	cm <sup>3</sup>	3.92	9.27	15.68	57.43	86.94	139.54	306.3
Mass	Kg	1.1	1.5	2.3	4.5	6.8	11	22.5	36
<b>Extra Large Stroke (Code-E)</b>		<b>B□-□□016E</b>	<b>B□-□□025E</b>	<b>B□-□□032E</b>	<b>B□-□□040E</b>	<b>B□-□□050E</b>	<b>B□-□□063E</b>	<b>B□-□□080E</b>	<b>B□-□□100E</b>
Full Stroke	mm	<b>50</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>125</b>	<b>125</b>
Cylinder Capacity	Push	cm <sup>3</sup>	10.05	24.54	40.21	125.66	196.34	311.72	628.31
	Pull	cm <sup>3</sup>	6.12	14.49	24.5	76.57	115.92	186.06	382.88
Mass	Kg	1.4	1.9	2.7	5.3	8	12.8	25.4	40.6

- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

### Hydraulic Circuit Diagram

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

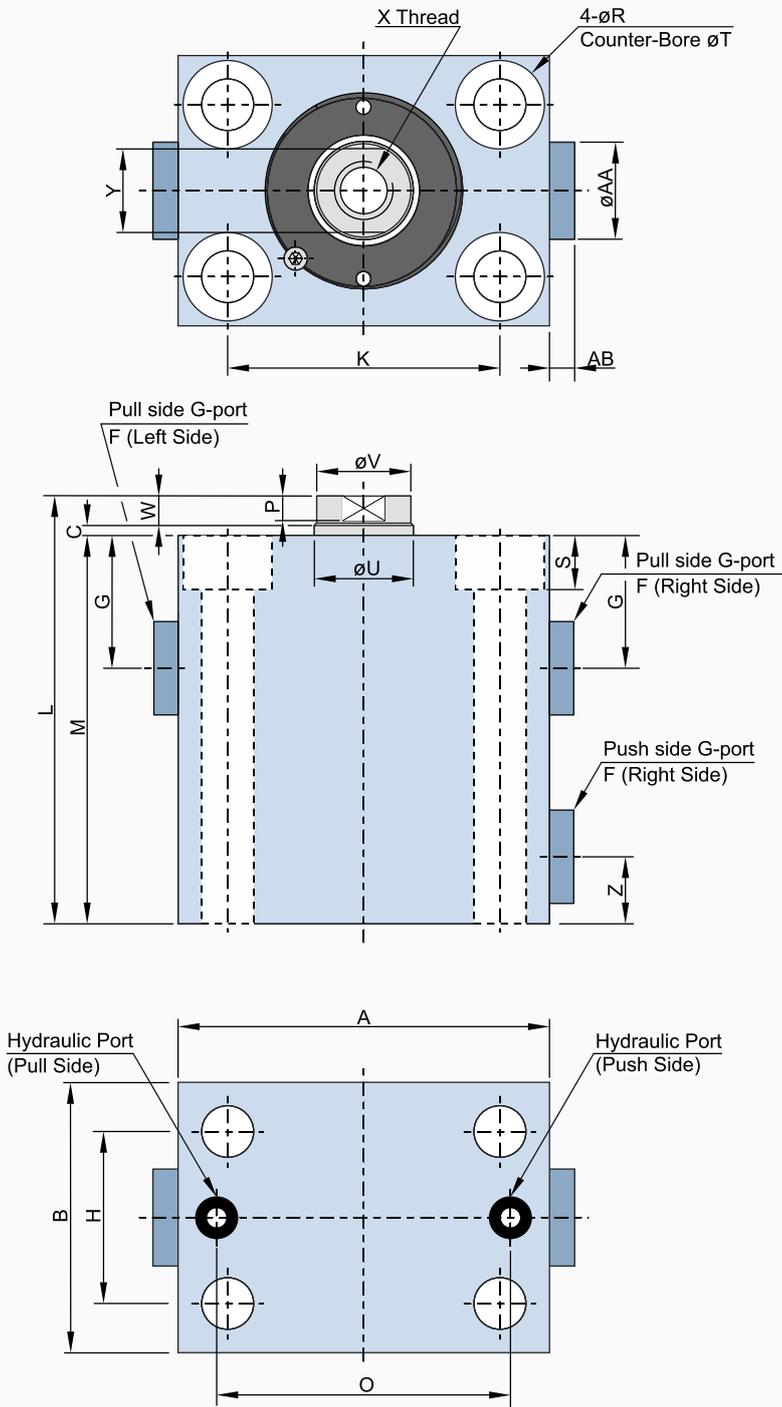
- Please be aware when designing the circuit.



Without Guide Flange Option

BK-□□□: Through hole Option

BL-□□□: Tapped hole Option



- Both figure shows the retracted position of cylinder.
- In a gasket option (B□-I□□), gasket holes will be provided. Pull side G-port is on left side of cylinder and push side G-port is on right side of the cylinder. (Pull side G-port of right side will not be provided.) For more details, please refer page no.-51
- For piping option (B□-P□□), gasket holes will not be provided. Pull side G-port and push side G-port, both are on right side of the cylinder. (Pull side G-port of left side will not be provided.) For more details, please refer page no.-51

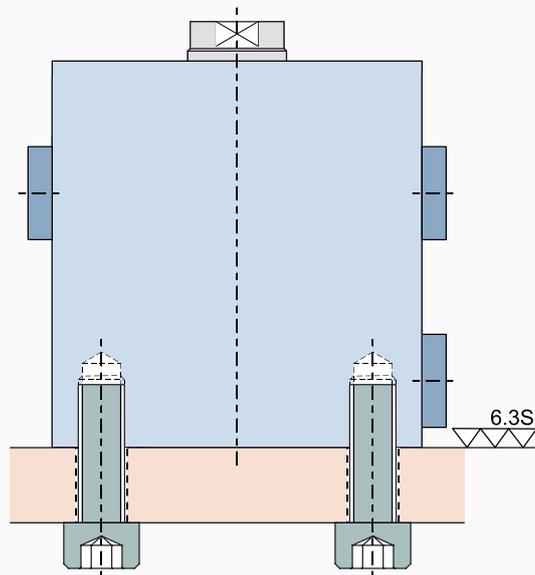
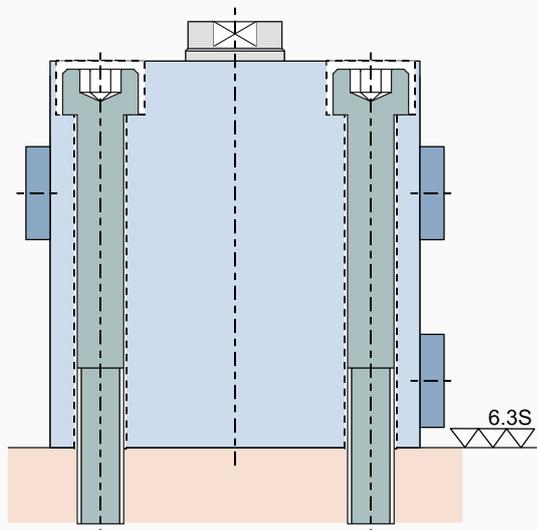
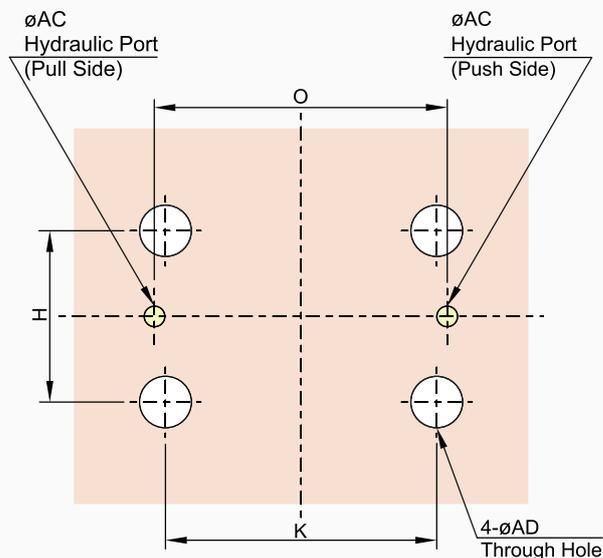
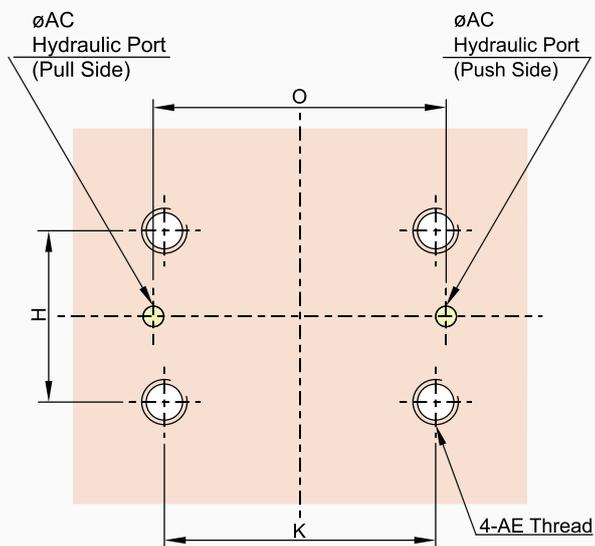
External Dimensions for Mounting
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Model No.	B□-□016□	B□-□025□	B□-□032□	B□-□040□	B□-□050□	B□-□063□	B□-□080□	B□-□100□
A	60	65	75	85	100	125	160	200
B	35	45	55	63	75	95	120	150
C	2	2	4	4	4	5	4	3
F	G1/4	G1/4	G1/4	G1/4	G1/4	G3/8	G3/8	G3/8
G	22	22.5	27	29	35	35	43	44
I	9	12	15	15	18	24	30	36
J (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2	M20X2.5	M24X3
H	22	30	35	40	45	65	80	108
K	40	50	55	63	76	95	120	158
O	44	52	59	69	80	99	135	174
P	3	4	5	5	5	8	9	10
ØR	6.8	9	11	11	14	17.5	22	26
S	7	9	11	11	13	17	21	25
ØT	11	14	18	18	19	25	33	40
ØU	10	16	20	25	32	40	50	63
ØV	9.2	15	19	24	30.5	38.7	48	61
W	4	5	6	6	6	9	10	12
X (Nominal X Pitch X Depth)	M6X1X10	M10X1.5X15	M12X1.75X15	M16X2X25	M20X2.5X30	M27X2.5X40	M30X3X40	M42X4X60
Y	8	13	17	22	27	36	44	56
Z	13	14	14	14	15	19	19	22
ØAA	19	19	19	19	19	22	22	22
AB	5	5	5	5	5	5	5	5
<b>Stroke Code-S (Small)</b>								
Stroke	<b>16</b>	<b>16</b>	<b>16</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>
L	68	70.5	80	91	101	111	148	153
M	62	63.5	70	81	91	97	134	138
<b>Stroke Code-M (Medium)</b>								
Stroke	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>75</b>	<b>75</b>
L	77	79.5	89	116	126	136	173	178
M	71	72.5	79	106	116	122	159	163
<b>Stroke Code-L (Large)</b>								
Stroke	<b>32</b>	<b>32</b>	<b>32</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>100</b>	<b>100</b>
L	84	86.5	96	141	151	161	198	203
M	78	79.5	86	131	141	147	184	188
<b>Stroke Code-E (Extra Large)</b>								
Stroke	<b>50</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>125</b>	<b>125</b>
L	102	104.5	114	166	176	186	223	228
M	96	97.5	104	156	166	172	209	213

Mounting Details

BK-□□□: Through hole Option

BL-□□□: Tapped hole Option



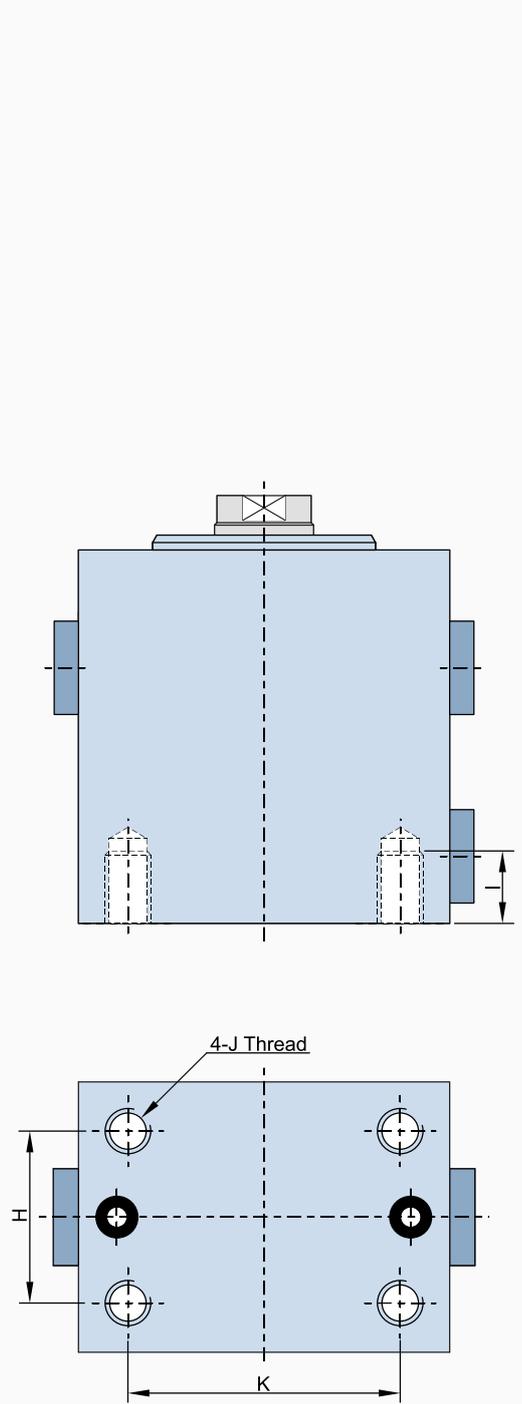
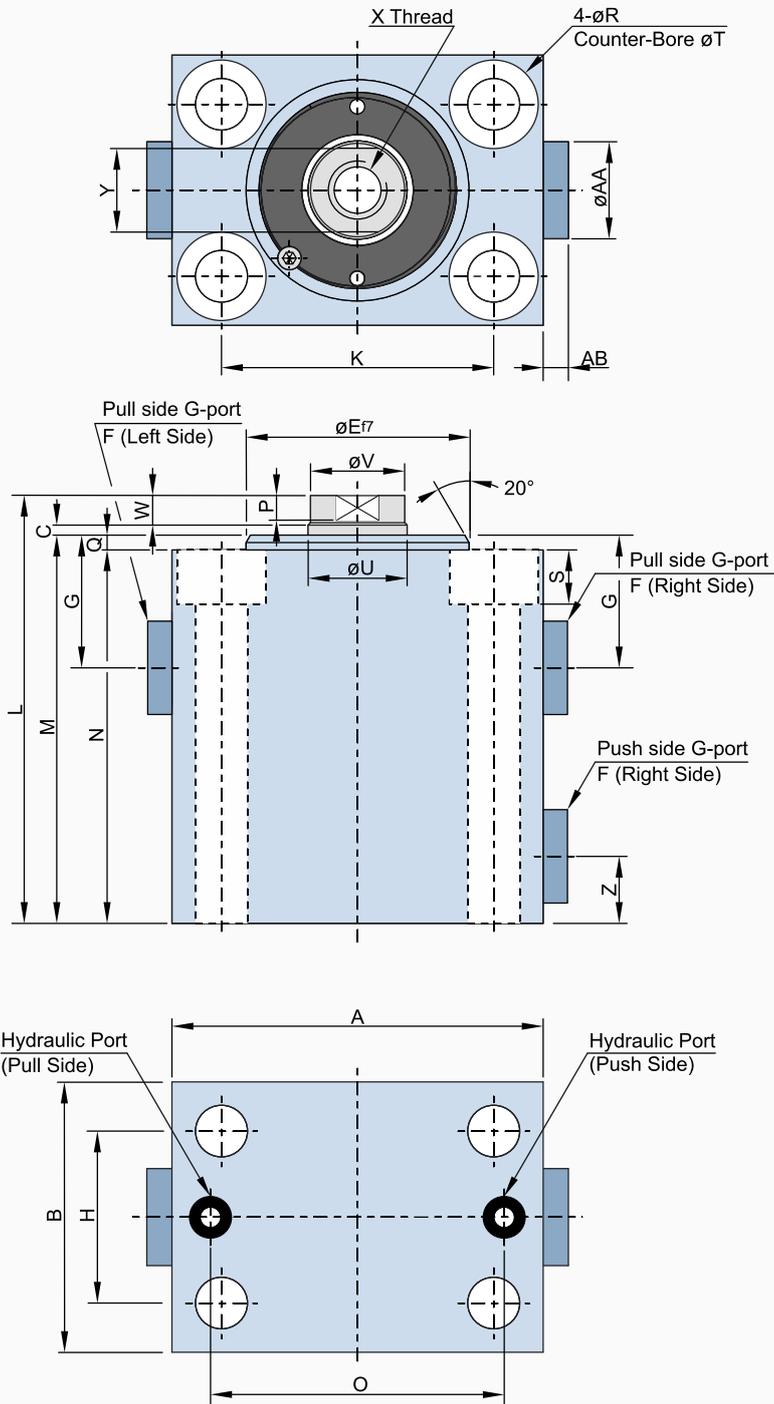
Model No.	B□-□016□	B□-□025□	B□-□032□	B□-□040□	B□-□050□	B□-□063□	B□-□080□	B□-□100□
H	22	30	35	40	45	65	80	108
K	40	50	55	63	76	95	120	158
O	44	52	59	69	80	99	135	174
ØAC	3	4	4	4	5	5	5	6
ØAD	6.8	9	11	11	14	17.5	22	26
AE (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2	M20X2.5	M24X3

- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimensions.
- Flow control valve is sold separately. Select the right model of flow control valve according to the size of the cylinder. See page - 123.
- The piston rod has female thread. No contact bolt is included. Prepare them according to the dimensions and application.
- G-thread plug is included and O-ring is provided at gasket option holes.
- For piping option, gasket holes will not be provided.
- When choosing gasket option, piping option holes will be provided for flow control valve. A flow control valve is mountable on G-ports of the cylinder.
- Remove plugs when choosing piping in gasket option (O-ring must be used in gasket option holes.)
- For gasket option (B□-I□□), gasket holes will be provided. Pull side G-port is on left side of cylinder and push side G-port is on right side of the cylinder. (Pull side G-port of right side will not be provided.) For more details, please refer page no.-51
- In a piping option (B□-P□□), gasket holes will not be provided. Pull side G-port and push side G-port, both are on right side of the cylinder. (Pull side G-port of left side will not be provided.) For more details, please refer page no.-51

With Guide Flange Option

BK-G□□□: Through hole Option

BL-G□□□: Tapped hole Option



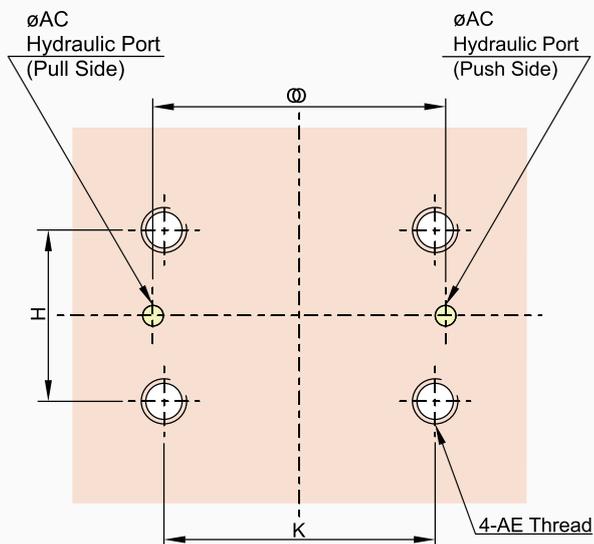
- Both figure shows the retracted positon of cylinder.
- In a gasket option (B□-G□□), gasket holes will be provided. Pull side G-port is on left side of cylinder and push side G-port is on right side of the cylinder. (Pull side G-port of right side will not be provided.) For more details, please refer page no.-51
- For choose piping option (B□-GP□□), gasket holes will not be provided. Pull side G-port and push side G-port, both are on right side of the cylinder. (Pull side G-port of left side will not be provided.) For more details, please refer page no.-51

External Dimensions for Mounting
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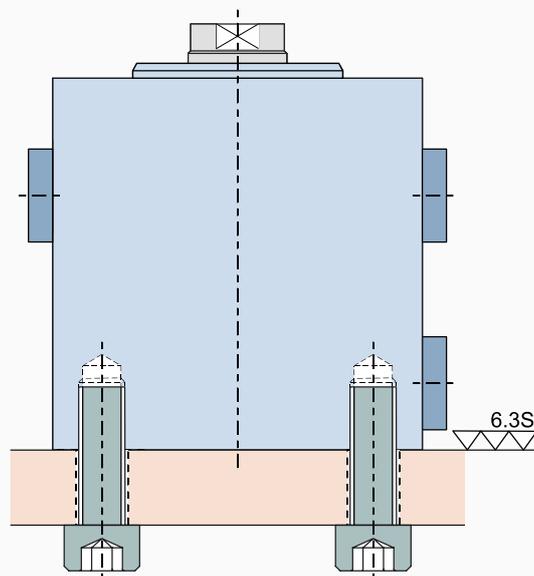
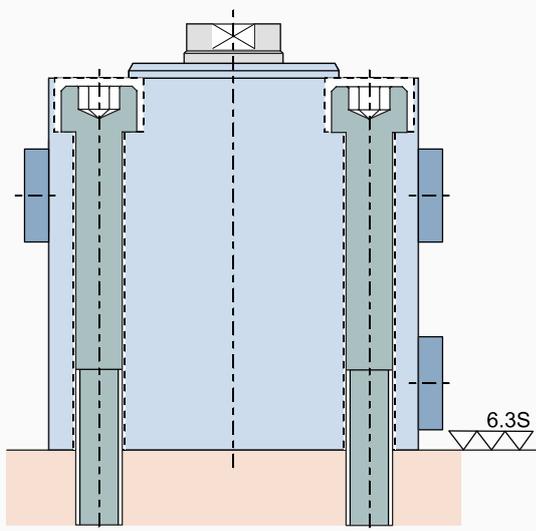
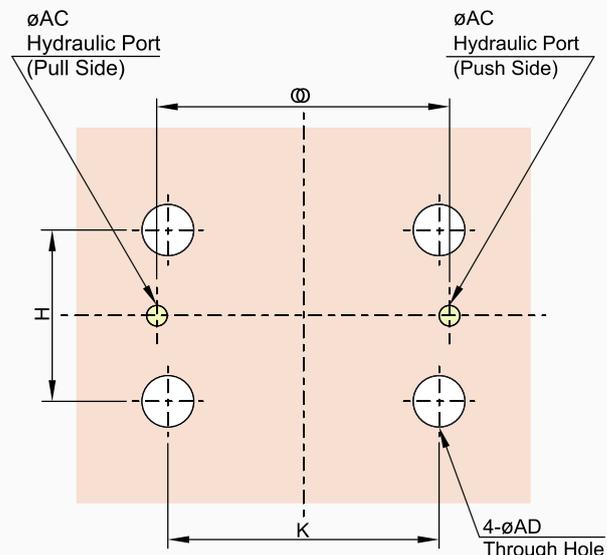
Model No.	B□-G□016□	B□-G□025□	B□-G□032□	B□-G□040□	B□-G□050□	B□-G□063□	B□-G□080□	B□-G□100□
A	60	65	75	85	100	125	160	200
B	35	45	55	63	75	95	120	150
C	2	2	4	4	4	5	4	3
F	G1/4	G1/4	G1/4	G1/4	G1/4	G3/8	G3/8	G3/8
G	22	22.5	27	29	35	35	43	44
I	9	12	15	15	18	24	30	36
J (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2	M20X2.5	M24X3
H	22	30	35	40	45	65	80	108
K	40	50	55	63	76	95	120	158
O	44	52	59	69	80	99	135	174
P	3	4	5	5	5	8	9	10
E	30	40	45	56	65	80	105	125
Q	3	3	3	3	3	3	3	3
ØR	6.8	9	11	11	14	17.5	22	26
S	7	9	11	11	13	17	21	25
ØT	11	14	18	18	19	25	33	40
ØU	10	16	20	25	32	40	50	63
ØV	9.2	15	19	24	30.5	38.7	48	61
W	4	5	6	6	6	9	10	12
X (Nominal X Pitch X Thread)	M6X1X10	M10X1.5X15	M12X1.75X15	M16X2X25	M20X2.5X30	M27X2.5X40	M30X3X40	M42X4X60
Y	8	13	17	22	27	36	44	56
Z	13	14	14	14	15	19	19	22
ØAA	19	19	19	19	19	22	22	22
AB	5	5	5	5	5	5	5	5
<b>Stroke Code-S (Small)</b>								
Stroke	<b>16</b>	<b>16</b>	<b>16</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>
L	68	70.5	80	91	101	111	148	153
M	62	63.5	70	81	91	97	134	138
N	59	60.5	67	78	88	94	131	135
<b>Stroke Code-M (Medium)</b>								
Stroke	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>75</b>	<b>75</b>
L	77	79.5	89	116	126	136	173	178
M	71	72.5	79	106	116	122	159	163
N	68	69.5	76	103	113	119	156	160
<b>Stroke Code-L (Large)</b>								
Stroke	<b>32</b>	<b>32</b>	<b>32</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>100</b>	<b>100</b>
L	84	86.5	96	141	151	161	198	203
M	78	79.5	86	131	141	147	184	188
N	75	76.5	83	128	138	144	181	185
<b>Stroke Code-E (Extra Large)</b>								
Stroke	<b>50</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>125</b>	<b>125</b>
L	102	104.5	114	166	176	186	223	228
M	96	97.5	104	156	166	172	209	213
N	93	94.5	101	153	163	169	206	210

Mounting Details

BK-G□□□: Through hole Option



BL-G□□□: Tapped hole Option



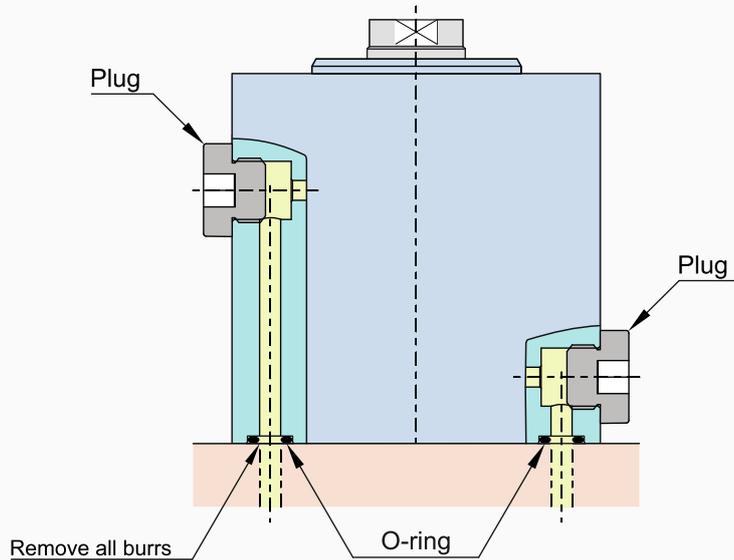
Model No.	B□-G□016□	B□-G□025□	B□-G□032□	B□-G□040□	B□-G□050□	B□-G□063□	B□-G□080□	B□-G□100□
H	22	30	35	40	45	65	80	108
K	40	50	55	63	76	95	120	158
O	44	52	59	69	80	99	135	174
ØAC	3	4	4	4	5	5	5	6
ØAD	6.8	9	11	11	14	17.5	22	26
AE (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2	M20X2.5	M24X3

- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimensions.
- Flow control valve is sold separately. Select the right model of flow control valve according to the size of the cylinder. See page - 123.
- The piston rod has female thread. No contact bolt is included. Prepare them according to the dimensions and application.
- G-thread plug is included and O-ring is provided at gasket option holes.
- For piping option, gasket holes will not be provided.
- When choosing gasket option, piping option holes will be provided for flow control valve. A flow control valve is mountable on G-ports of the cylinder.
- Remove plugs when choosing piping in gasket option (O-ring must be used in gasket option holes.).
- For gasket option (B□-GI□□), gasket holes will be provided. Pull side G-port is on left side of cylinder and push side G-port is on right side of the cylinder. (Pull side G-port of right side will not be provided.) For more details, please refer page no.-51
- For piping option (B□-GP□□), gasket holes will not be provided. Pull side G-port and push side G-port, both are on right side of the cylinder. (Pull side G-port of left side will not be provided.) For more details, please refer page no.-51

## Instructions

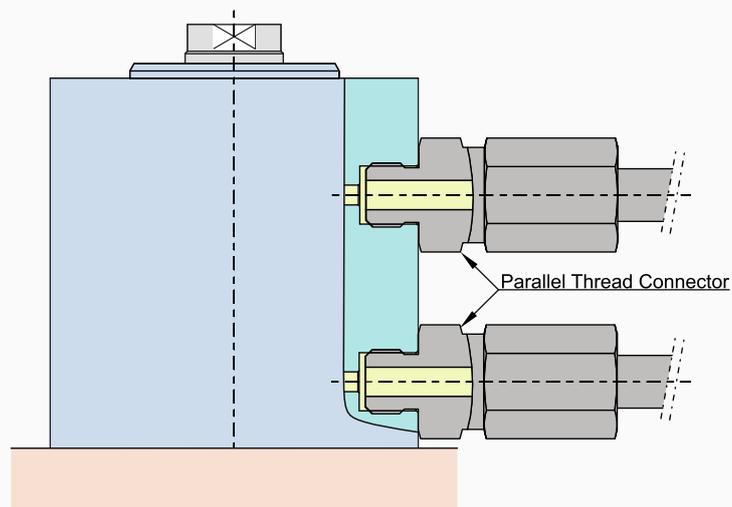
### Hydraulic Connection

#### Gasket Option



- In a gasket option, a flow control valve is mountable on G-ports of the cylinder.

#### Piping Option



- Remove plugs in piping option. (For gasket option, to prefer piping installation for hydraulic fluid supply do not perform gasket hole in machining and close gasket line in cylinder with O-ring.)



## Cautions

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1. Check the usable fluid.
  - i.e. General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
  - Make sure the hydraulic fluid not deteriorated.
2. Cylinder clamping method
  - Make sure no forces applied to the piston rod except from the axial direction. Otherwise it may cause a reduction in working life and leakages leading to the destruction of the cylinder.
3. Hydraulic supply
  - Never exceed the given pressure limit otherwise it will cause malfunction of the product.
  - If the flow rate is too high, excessive speed can be caused and lead to wear and damage to cylinder components.
  - The cylinder supply flow must be controlled, flow control valve must be installed.
  - The return flow from the cylinder must be free.
4. Procedure before piping
  - The pipeline, piping connector and fixture circuits should be cleaned by thoroughly flushing.
  - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
  - There is no filter provided with product, which prevents foreign materials and contaminants from getting into the circuit.
  - While applying the sealing tape ensure that no pieces of sealing tape enters into the circuit, it can lead to oil leakage and malfunctions.
  - Please implement piping constructions in a clean environment to prevent anything getting into the product.
5. Do not touch cylinder while it is working, otherwise it may cause injury due to clinging.
6. Do not disassemble or modify the product.
  - If the product is modified, then malfunction occurs.
7. Please contact us for overhaul and repair.



# Hydraulic Double Acting Block Cylinder

Model BR

Model BT

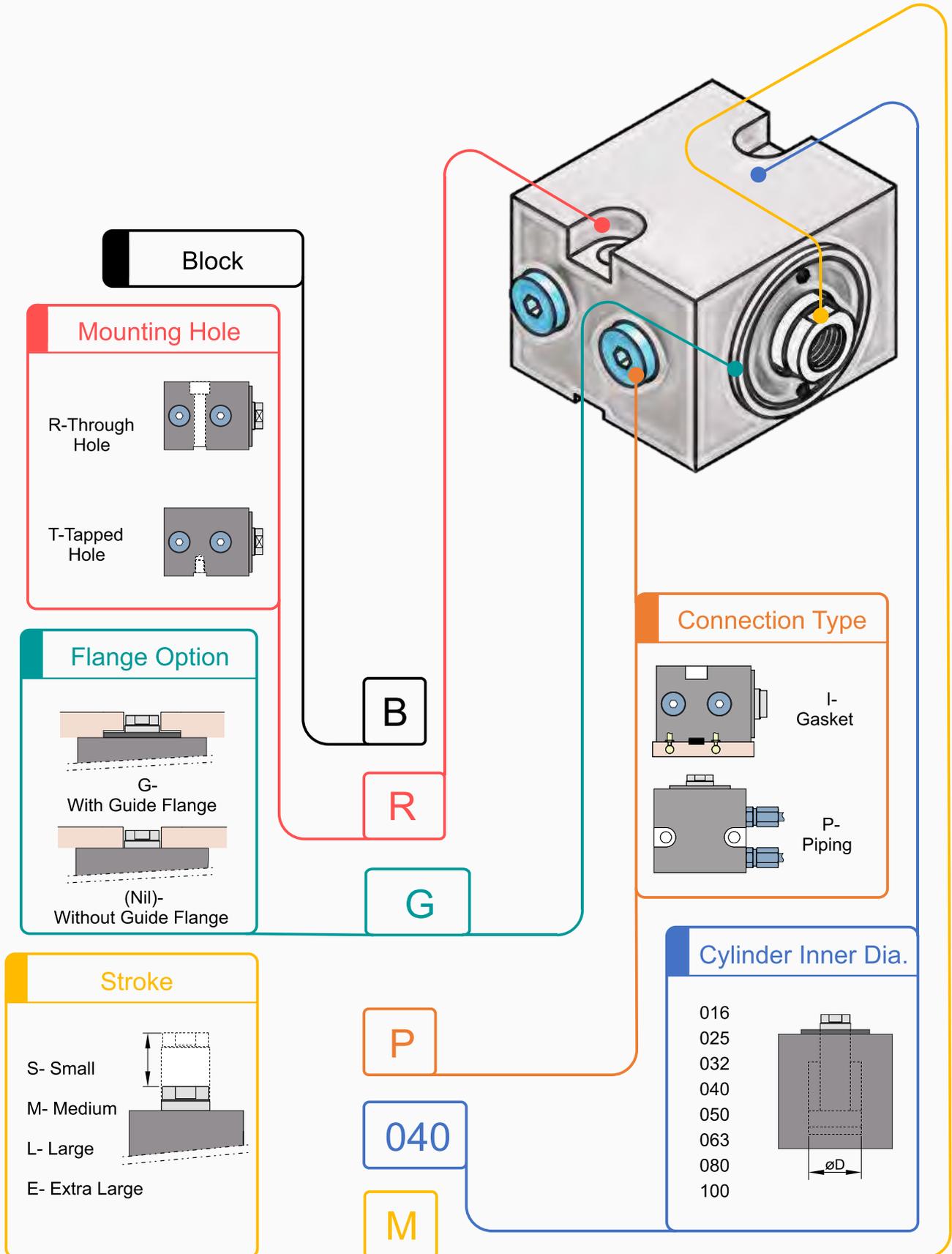
Broad Side Mounting

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Model No. Selection

**B** **R** - **G** **I** **040** **M**



## Technical Data

### Specifications

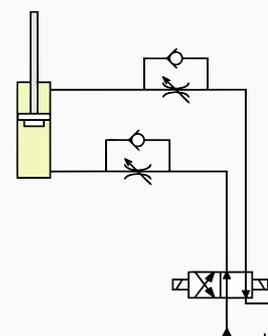
Model No.		B□-□□016□	B□-□□025□	B□-□□032□	B□-□□040□	B□-□□050□	B□-□□063□	B□-□□080□	B□-□□100□
Cylinder Inner Diameter	mm	16	25	32	40	50	63	80	100
Rod Diameter	mm	10	16	20	25	32	40	50	63
Cylinder Force	Push	1.38	3.37	5.52	8.62	13.47	21.4	34.50	53.91
	Pull	0.84	1.99	3.36	5.25	7.95	12.77	21.02	32.51
Effective area	Push	2.01	4.9	8.04	12.56	19.63	31.17	50.26	78.53
	Pull	1.22	2.89	4.9	7.65	11.59	18.6	30.63	47.36
<b>Small Stroke (Code-S)</b>		<b>B□-□□016S</b>	<b>B□-□□025S</b>	<b>B□-□□032S</b>	<b>B□-□□040S</b>	<b>B□-□□050S</b>	<b>B□-□□063S</b>	<b>B□-□□080S</b>	<b>B□-□□100S</b>
Full Stroke	mm	<b>16</b>	<b>16</b>	<b>16</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>
Cylinder Capacity	Push	cm <sup>3</sup>	3.21	7.85	12.86	31.41	49.08	77.93	251.32
	Pull	cm <sup>3</sup>	1.96	4.63	7.84	19.14	28.98	46.51	153.15
Mass	Kg	0.9	1.2	1.9	2.8	4.5	7.5	16.7	26.8
<b>Medium Stroke (Code-M)</b>		<b>B□-□□016M</b>	<b>B□-□□025M</b>	<b>B□-□□032M</b>	<b>B□-□□040M</b>	<b>B□-□□050M</b>	<b>B□-□□063M</b>	<b>B□-□□080M</b>	<b>B□-□□100M</b>
Full Stroke	mm	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>75</b>	<b>75</b>
Cylinder Capacity	Push	cm <sup>3</sup>	5.02	12.27	20.1	62.83	98.17	155.86	376.99
	Pull	cm <sup>3</sup>	3.06	7.24	12.25	38.28	57.96	93.03	229.72
Mass	Kg	1	1.4	2.1	3.7	5.6	9.3	19.6	31.4
<b>Large Stroke (Code-L)</b>		<b>B□-□□016L</b>	<b>B□-□□025L</b>	<b>B□-□□032L</b>	<b>B□-□□040L</b>	<b>B□-□□050L</b>	<b>B□-□□063L</b>	<b>B□-□□080L</b>	<b>B□-□□100L</b>
Full Stroke	mm	<b>32</b>	<b>32</b>	<b>32</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>100</b>	<b>100</b>
Cylinder Capacity	Push	cm <sup>3</sup>	6.43	15.7	25.73	94.24	147.26	233.79	502.65
	Pull	cm <sup>3</sup>	3.92	9.27	15.68	57.43	86.94	139.54	306.3
Mass	Kg	1.1	1.5	2.3	4.5	6.8	11	22.5	36
<b>Extra Large Stroke (Code-E)</b>		<b>B□-□□016E</b>	<b>B□-□□025E</b>	<b>B□-□□032E</b>	<b>B□-□□040E</b>	<b>B□-□□050E</b>	<b>B□-□□063E</b>	<b>B□-□□080E</b>	<b>B□-□□100E</b>
Full Stroke	mm	<b>50</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>125</b>	<b>125</b>
Cylinder Capacity	Push	cm <sup>3</sup>	10.05	24.54	40.21	125.66	196.34	311.72	628.31
	Pull	cm <sup>3</sup>	6.12	14.49	24.5	76.57	115.92	186.06	382.88
Mass	Kg	1.4	1.9	2.7	5.3	8	12.8	25.4	40.6

- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

### Hydraulic Circuit Diagram

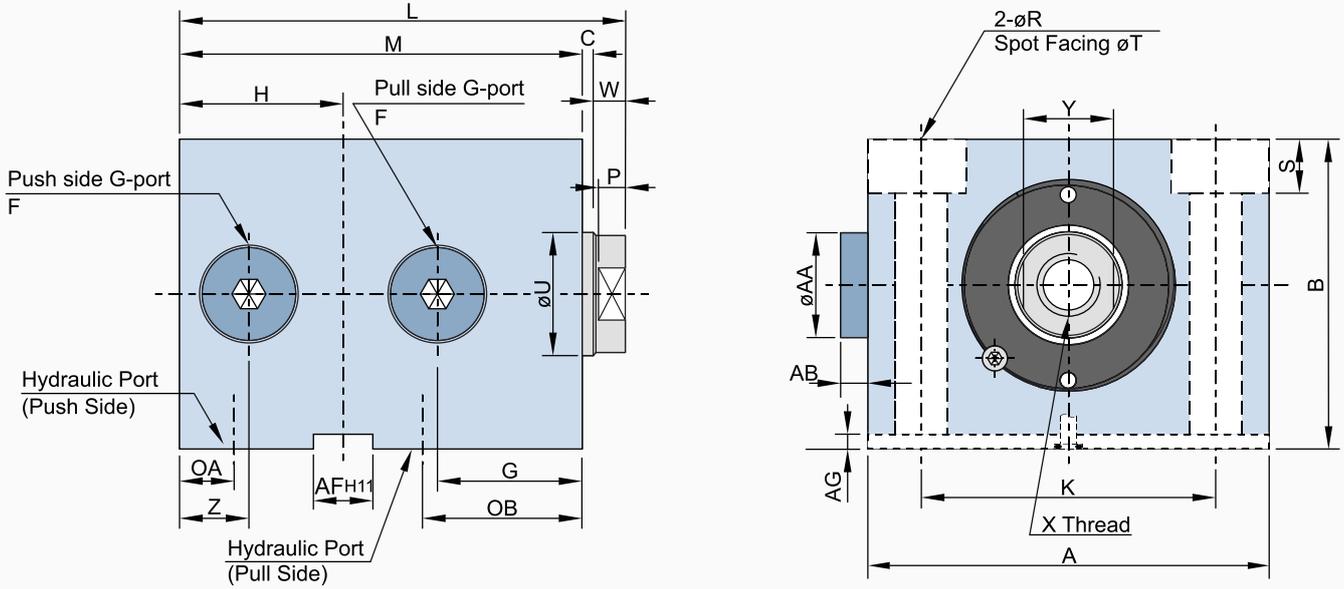
For flow control valve, we recommend the meter-in control. If meter-out control is used due to area difference it will cause back pressure and become high pressure. This can lead to malfunction of the system.

- Please be aware when designing the circuit.

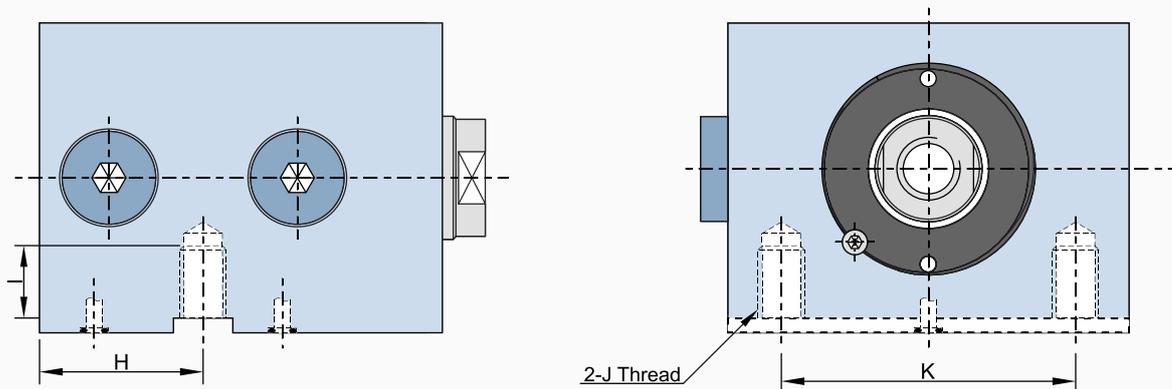


Without Guide Flange Option

BR-□□□: Through hole Option



BT-□□□: Tapped hole Option



- Both figure shows the retracted position of cylinder.

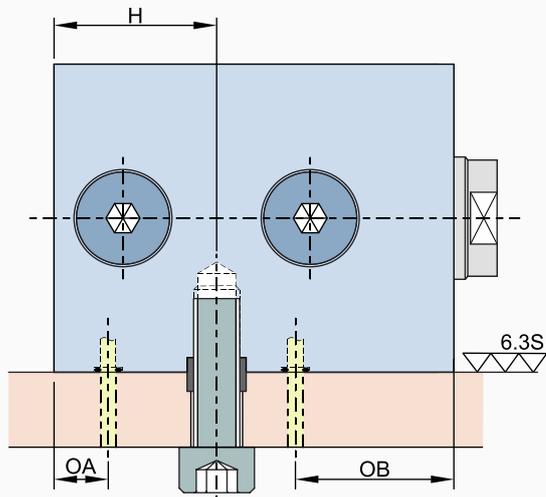
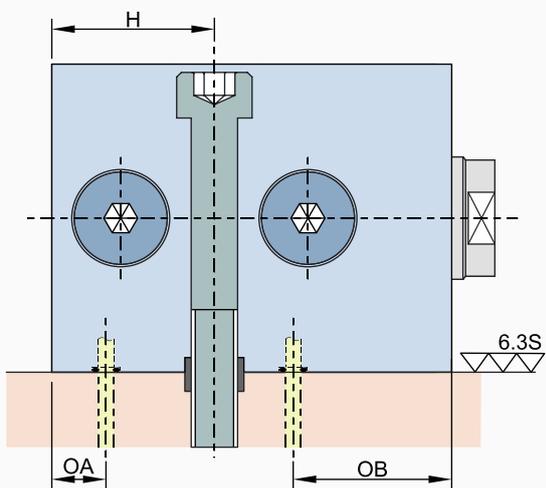
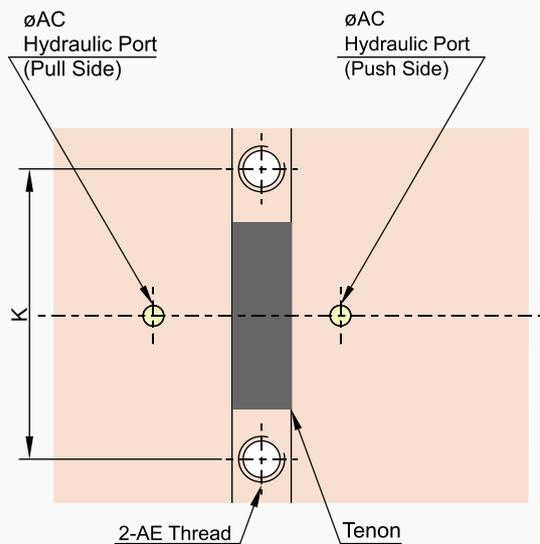
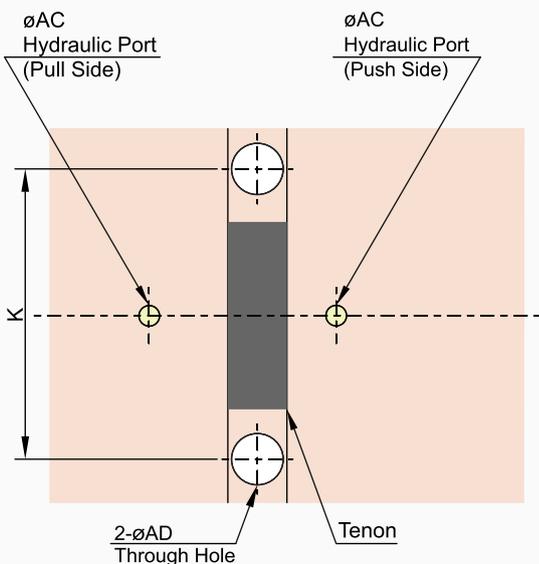
External Dimensions for Mounting
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Model No.	B□-□016□	B□-□025□	B□-□032□	B□-□040□	B□-□050□	B□-□063□	B□-□080□	B□-□100□
A	60	65	75	85	100	125	160	200
B	35	45	55	63	75	95	120	150
C	2	2	4	4	4	5	4	3
F	G1/4	G1/4	G1/4	G1/4	G1/4	G3/8	G3/8	G3/8
G	22	22.5	27	29	35	35	43	44
I	9	12	15	15	18	24	30	36
J (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2	M20X2.5	M24X3
K	40	50	55	63	76	95	120	158
OA	10	10.5	11	11	12	15	15	18
OB	25	26	30	32	38	39	47	48
P	3	4	5	5	5	8	9	10
ØR	6.8	9	11	11	14	17.5	22	26
S	7	9	11	11	13	17	21	25
ØT	11	14	18	18	19	25	33	40
ØU	10	16	20	25	32	40	50	63
ØV	9.2	15	19	24	30.5	38.7	48	61
W	4	5	6	6	6	9	10	12
X (Nominal X Pitch X Depth)	M6X1X10	M10X1.5X15	M12X1.75X15	M16X2X25	M20X2.5X30	M27X2.5X40	M30X3X40	M42X4X60
Y	8	13	17	22	27	36	44	56
Z	13	14	14	14	15	19	19	22
ØAA	19	19	19	19	19	22	22	22
AB	5	5	5	5	5	5	5	5
AF	8	10	12	12	15	20	24	28
AG	2	2	3	3	5	5	7	7
<b>Stroke Code-S (Small)</b>								
Stroke	<b>16</b>	<b>16</b>	<b>16</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>
L	68	70.5	80	91	101	111	148	153
M	62	63.5	70	81	91	97	134	138
H	26.5	27.5	28.5	33	35.5	40.5	55	58
<b>Stroke Code-M (Medium)</b>								
Stroke	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>75</b>	<b>75</b>
L	77	79.5	89	116	126	136	173	178
M	71	72.5	79	106	116	122	159	163
H	31	32	33	45.5	48	53	67.5	70.5
<b>Stroke Code-L (Large)</b>								
Stroke	<b>32</b>	<b>32</b>	<b>32</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>100</b>	<b>100</b>
L	84	86.5	96	141	151	161	198	203
M	78	79.5	86	131	141	147	184	188
H	34.5	35.5	36.5	58	60.5	65.5	80	83
<b>Stroke Code-E (Extra Large)</b>								
Stroke	<b>50</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>125</b>	<b>125</b>
L	102	104.5	114	166	176	186	223	228
M	96	97.5	104	156	166	172	209	213
H	43.5	44.5	45.5	70.5	73	78	92.5	95.5

Mounting Details

BR-□□□: Through hole Option

BT-□□□: Tapped hole Option

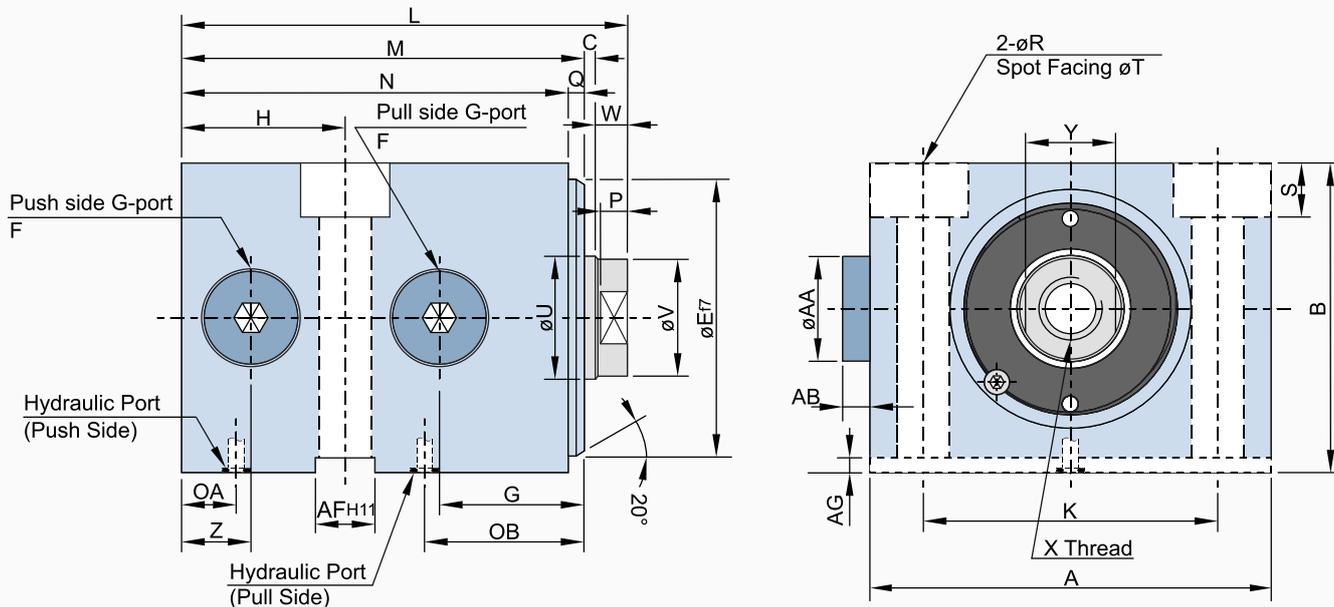


Model No.	B□-□016□	B□-□025□	B□-□032□	B□-□040□	B□-□050□	B□-□063□	B□-□080□	B□-□100□
K	40	50	55	63	76	95	120	158
OA	10	10.5	11	11	12	15	15	18
OB	25	26	30	32	38	39	47	48
ØAC	3	4	4	4	5	5	5	6
ØAD	6.8	9	11	11	14	17.5	22	26
AE (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2	M20X2.5	M24X3
<b>Stroke Code-S (Small)</b>								
Stroke	<b>16</b>	<b>16</b>	<b>16</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>
H	26.5	27.5	28.5	33	35.5	40.5	55	58
<b>Stroke Code-M (Medium)</b>								
Stroke	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>75</b>	<b>75</b>
H	31	32	33	45.5	48	53	67.5	70.5
<b>Stroke Code-L (Large)</b>								
Stroke	<b>32</b>	<b>32</b>	<b>32</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>100</b>	<b>100</b>
H	34.5	35.5	36.5	58	60.5	65.5	80	83
<b>Stroke Code-E (Extra Large)</b>								
Stroke	<b>50</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>125</b>	<b>125</b>
H	43.5	44.5	45.5	70.5	73	78	92.5	95.5

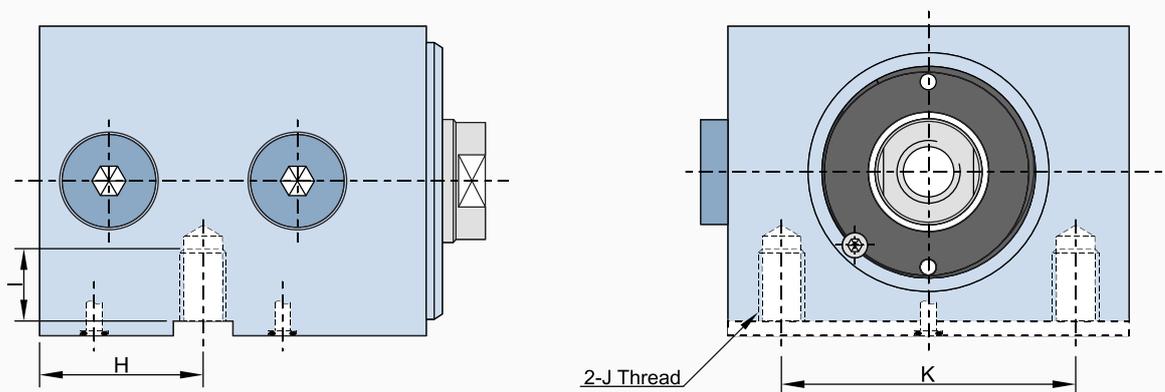
- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimensions.
- Flow control valve is sold separately. Select the right model of flow control valve according to the size of the cylinder. See page - 123.
- The piston rod has female thread. No contact bolt is included. Prepare them according to the dimensions and application.
- G-thread plug is included and O-ring is provided at gasket option holes.
- For piping option, gasket holes will not be provided.
- In a gasket option, piping option holes will be provided for flow control valve. A flow control valve is mountable on G-ports of the cylinder.
- Remove plugs for piping in gasket option (O-ring must be used in gasket option holes.).

With Guide Flange Option

BR-G□□□: Through hole Option



BT-G□□□: Tapped hole Option



- Both figure shows the retracted position of cylinder.

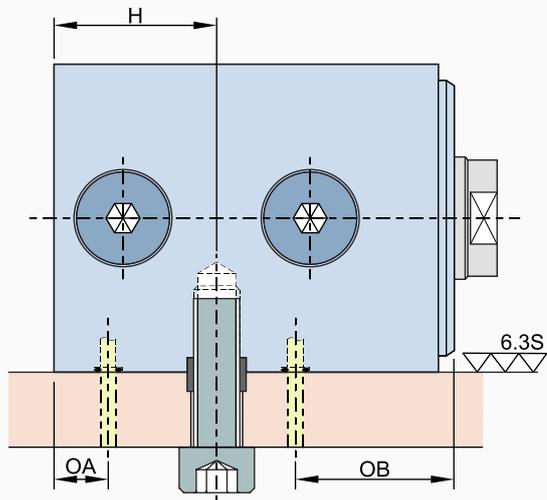
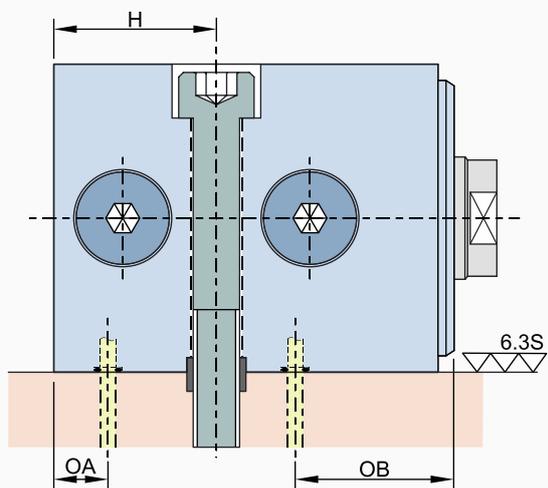
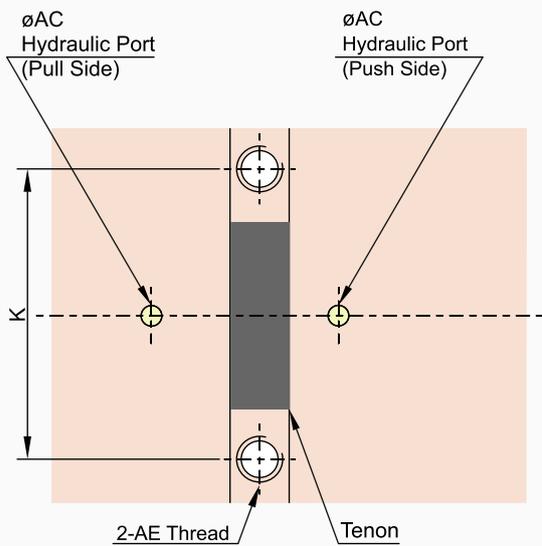
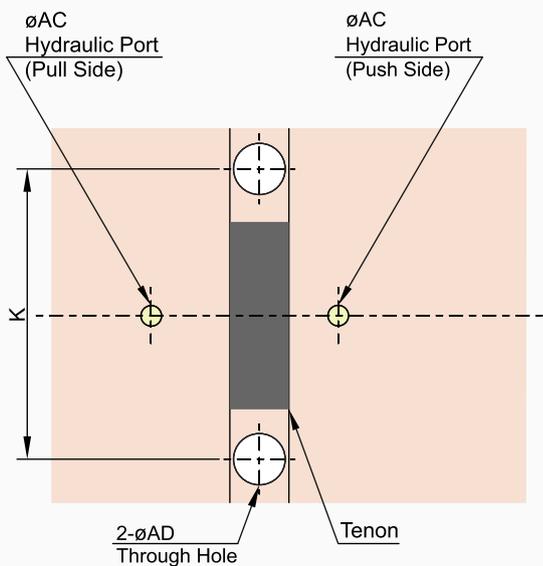
## External Dimensions for Mounting

Model No.	B□-G□016□	B□-G□025□	B□-G□032□	B□-G□040□	B□-G□050□	B□-G□063□	B□-G□080□	B□-G□100□
A	60	65	75	85	100	125	160	200
B	35	45	55	63	75	95	120	150
C	2	2	4	4	4	5	4	3
F	G1/4	G1/4	G1/4	G1/4	G1/4	G3/8	G3/8	G3/8
G	22	22.5	27	29	35	35	43	44
I	9	12	15	15	18	24	30	36
J (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2	M20X2.5	M24X3
K	40	50	55	63	76	95	120	158
OA	10	10.5	11	11	12	15	15	18
OB	25	26	30	32	38	39	47	48
P	3	4	5	5	5	8	9	10
E	30	40	45	56	65	80	105	125
Q	3	3	3	3	3	3	3	3
ØR	6.8	9	11	11	14	17.5	22	26
S	7	9	11	11	13	17	21	25
ØT	11	14	18	18	19	25	33	40
ØU	10	16	20	25	32	40	50	63
ØV	9.2	15	19	24	30.5	38.7	48	61
W	4	5	6	6	6	9	10	12
X (Nominal X Pitch X Thread)	M6X1X10	M10X1.5X15	M12X1.75X15	M16X2X25	M20X2.5X30	M27X2.5X40	M30X3X40	M42X4X60
Y	8	13	17	22	27	36	44	56
Z	13	14	14	14	15	19	19	22
ØAA	19	19	19	19	19	22	22	22
AB	5	5	5	5	5	5	5	5
AF	8	10	12	12	15	20	24	28
AG	2	2	3	3	5	5	7	7
<b>Stroke Code-S (Small)</b>								
Stroke	<b>16</b>	<b>16</b>	<b>16</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>
L	68	70.5	80	91	101	111	148	153
M	62	63.5	70	81	91	97	134	138
N	59	60.5	67	78	88	94	131	135
H	26.5	27.5	28.5	33	35.5	40.5	55	58
<b>Stroke Code-M (Medium)</b>								
Stroke	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>75</b>	<b>75</b>
L	77	79.5	89	116	126	136	173	178
M	71	72.5	79	106	116	122	159	163
N	68	69.5	76	103	113	119	156	160
H	31	32	33	45.5	48	53	67.5	70.5
<b>Stroke Code-L (Large)</b>								
Stroke	<b>32</b>	<b>32</b>	<b>32</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>100</b>	<b>100</b>
L	84	86.5	96	141	151	161	198	203
M	78	79.5	86	131	141	147	184	188
N	75	76.5	83	128	138	144	181	185
H	34.5	35.5	36.5	58	60.5	65.5	80	83
<b>Stroke Code-E (Extra Large)</b>								
Stroke	<b>50</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>125</b>	<b>125</b>
L	102	104.5	114	166	176	186	223	228
M	96	97.5	104	156	166	172	209	213
N	93	94.5	101	153	163	169	206	210
H	43.5	44.5	45.5	70.5	73	78	92.5	95.5

Mounting Details

BR-G□□□: Through hole Option

BT-G□□□: Tapped hole Option



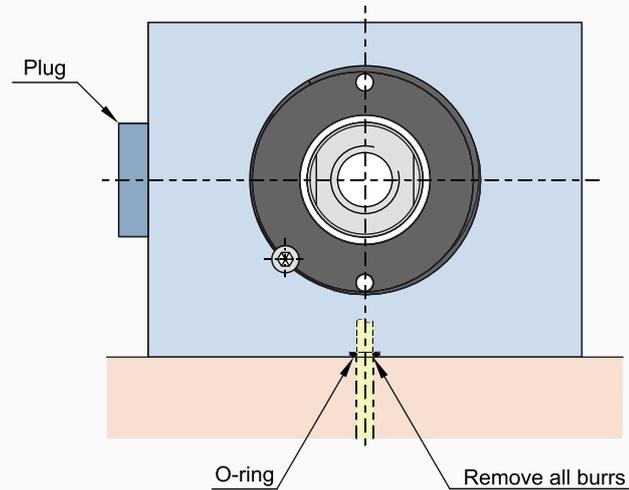
Model No.	B□-G□016□	B□-G□025□	B□-G□032□	B□-G□040□	B□-G□050□	B□-G□063□	B□-G□080□	B□-G□100□
K	40	50	55	63	76	95	120	158
OA	10	10.5	11	11	12	15	15	18
OB	25	26	30	32	38	39	47	48
ØAC	3	4	4	4	5	5	5	6
ØAD	6.8	9	11	11	14	17.5	22	26
AE (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2	M20X2.5	M24X3
<b>Stroke Code-S (Small)</b>								
Stroke	<b>16</b>	<b>16</b>	<b>16</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>
H	26.5	27.5	28.5	33	35.5	40.5	55	58
<b>Stroke Code-M (Medium)</b>								
Stroke	<b>25</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>75</b>	<b>75</b>
H	31	32	33	45.5	48	53	67.5	70.5
<b>Stroke Code-L (Large)</b>								
Stroke	<b>32</b>	<b>32</b>	<b>32</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>100</b>	<b>100</b>
H	34.5	35.5	36.5	58	60.5	65.5	80	83
<b>Stroke Code-E (Extra Large)</b>								
Stroke	<b>50</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>125</b>	<b>125</b>
H	43.5	44.5	45.5	70.5	73	78	92.5	95.5

- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimensions.
- Flow control valve is sold separately. Select the right model of flow control valve according to the size of the cylinder. See page - 123.
- The piston rod has female thread. No contact bolt is included. Prepare them according to the dimensions and application.
- G-thread plug is included and O-ring is provided at gasket option holes.
- For piping option, gasket holes will not be provided.
- For gasket option, piping option holes will be provided for flow control valve. A flow control valve is mountable on G-ports of the cylinder.
- Remove plugs for piping in gasket option (O-ring must be used in gasket option holes.).

## Instructions

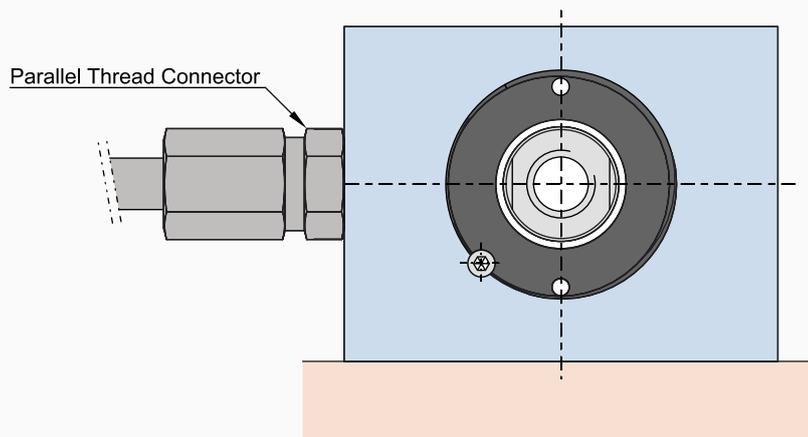
### Hydraulic Connection

#### Gasket Option



- In a gasket option, a flow control valve is mountable on G-ports of the cylinder.

#### Piping Option



- Remove plugs for piping option. (For gasket option, to prefer piping installation for hydraulic fluid supply do not perform gasket hole in machining and close gasket line in cylinder with O-ring.)



## Cautions

---

1. Check the usable fluid.
  - i.e. General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
  - Make sure the hydraulic fluid not deteriorated.
2. Cylinder clamping method
  - Make sure no forces applied to the piston rod except from the axial direction. Otherwise it may cause a reduction in working life and leakages leading to the destruction of the cylinder.
3. Hydraulic supply
  - Never exceed the given pressure limit otherwise it will cause malfunction of the product.
  - If the flow rate is too high, excessive speed can be caused and lead to wear and damage to cylinder components.
  - The cylinder supply flow must be controlled, flow control valve must be installed.
  - The return flow from the cylinder must be free.
4. Procedure before piping
  - The pipeline, piping connector and fixture circuits should be cleaned by thoroughly flushing.
  - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
  - There is no filter provided with product, which prevents foreign materials and contaminants from getting into the circuit.
  - While applying the sealing tape ensure that no pieces of sealing tape enters into the circuit, it can lead to oil leakage and malfunctions.
  - Please implement piping constructions in a clean environment to prevent anything getting into the product.
5. Do not touch cylinder while it is working, otherwise it may cause injury due to clinging.
6. Do not disassemble or modify the product.
  - If the product is modified, then malfunction occurs.
7. Please contact us for overhaul and repair.



# Hydraulic Double Acting Push-Pull Cylinder

## Model PH

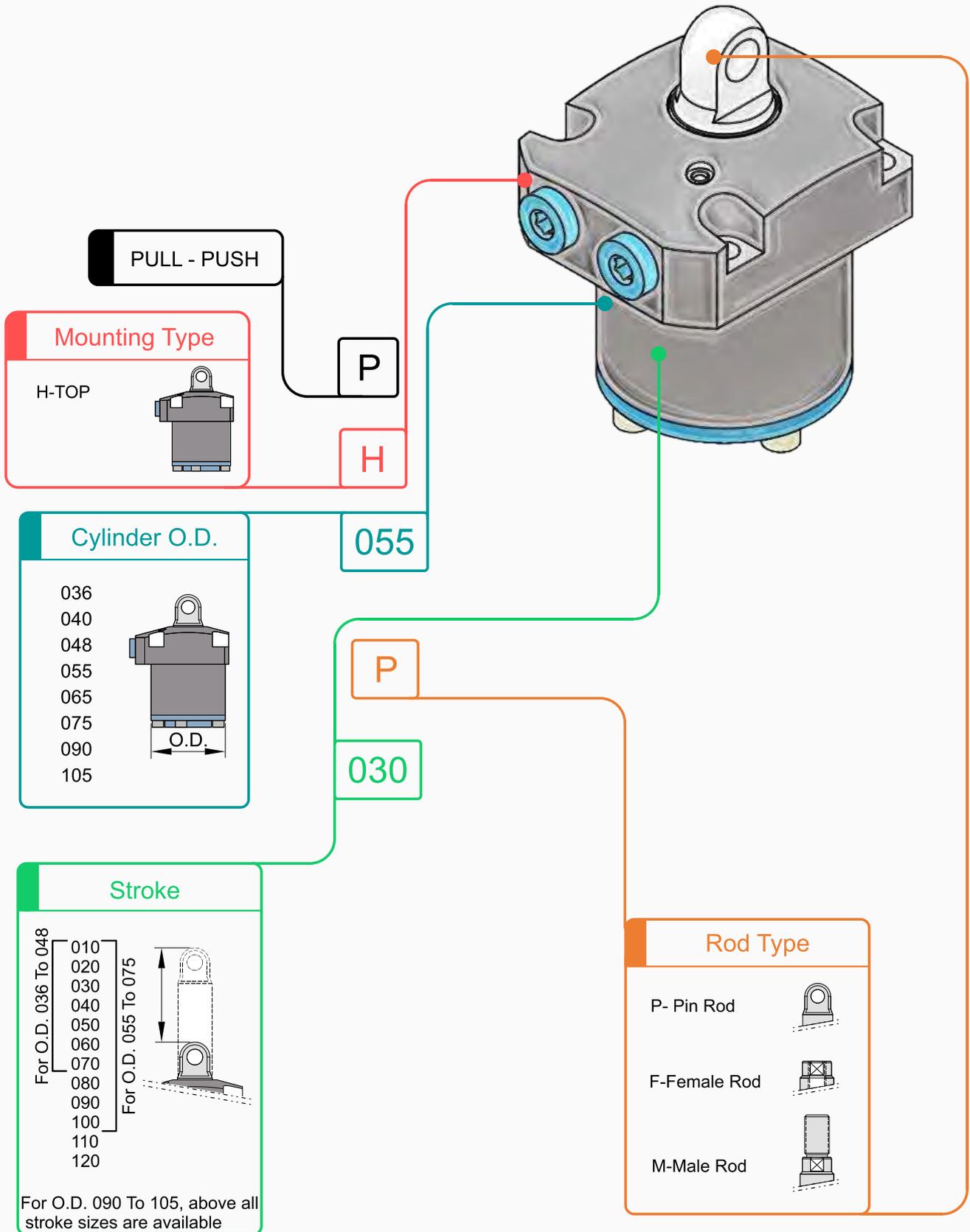
Top Flange

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Model No. Selection

P H 055 - P 030



## Technical Data

### Specifications

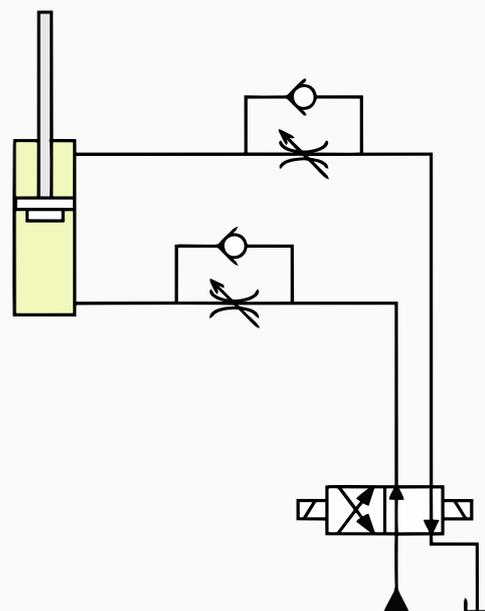
Model No.		PH036-□□	PH040-□□	PH048-□□	PH055-□□	PH065-□□	PH075-□□	PH090-□□	PH0105-□□	
Cylinder Inner Diameter	mm	24	25	32	35	45	55	65	80	
Rod Diameter	mm	16	18	20	22	25	30	35	45	
Cylinder Force	Push	kN	3.10	3.37	5.52	6.60	10.91	16.30	22.77	34.50
	Pull	kN	1.72	1.62	3.36	3.99	7.54	11.45	16.17	23.58
Effective area	Push	cm <sup>2</sup>	4.52	4.90	8.04	9.62	15.90	23.75	33.18	50.26
	Pull	cm <sup>2</sup>	2.51	2.36	4.90	5.81	10.99	16.68	23.56	34.36
Full Stroke	mm	<b>10~70</b>	<b>10~70</b>	<b>10~70</b>	<b>10~100</b>	<b>10~100</b>	<b>10~100</b>	<b>10~120</b>	<b>10~120</b>	
Cylinder Capacity	Push	cm <sup>3</sup>	strokeX0.45	strokeX0.49	strokeX0.80	strokeX0.96	strokeX1.59	strokeX2.37	strokeX3.31	strokeX5.02
	Pull	cm <sup>3</sup>	strokeX0.25	strokeX0.23	strokeX0.49	strokeX0.58	strokeX1.09	strokeX1.66	strokeX2.35	strokeX3.43
Mass	Kg	0.5~0.9	0.7~1.1	0.9~1.6	1.2~2.5	1.8~3.3	2.5~4.5	4.0~7.0	6.0~10.3	

- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

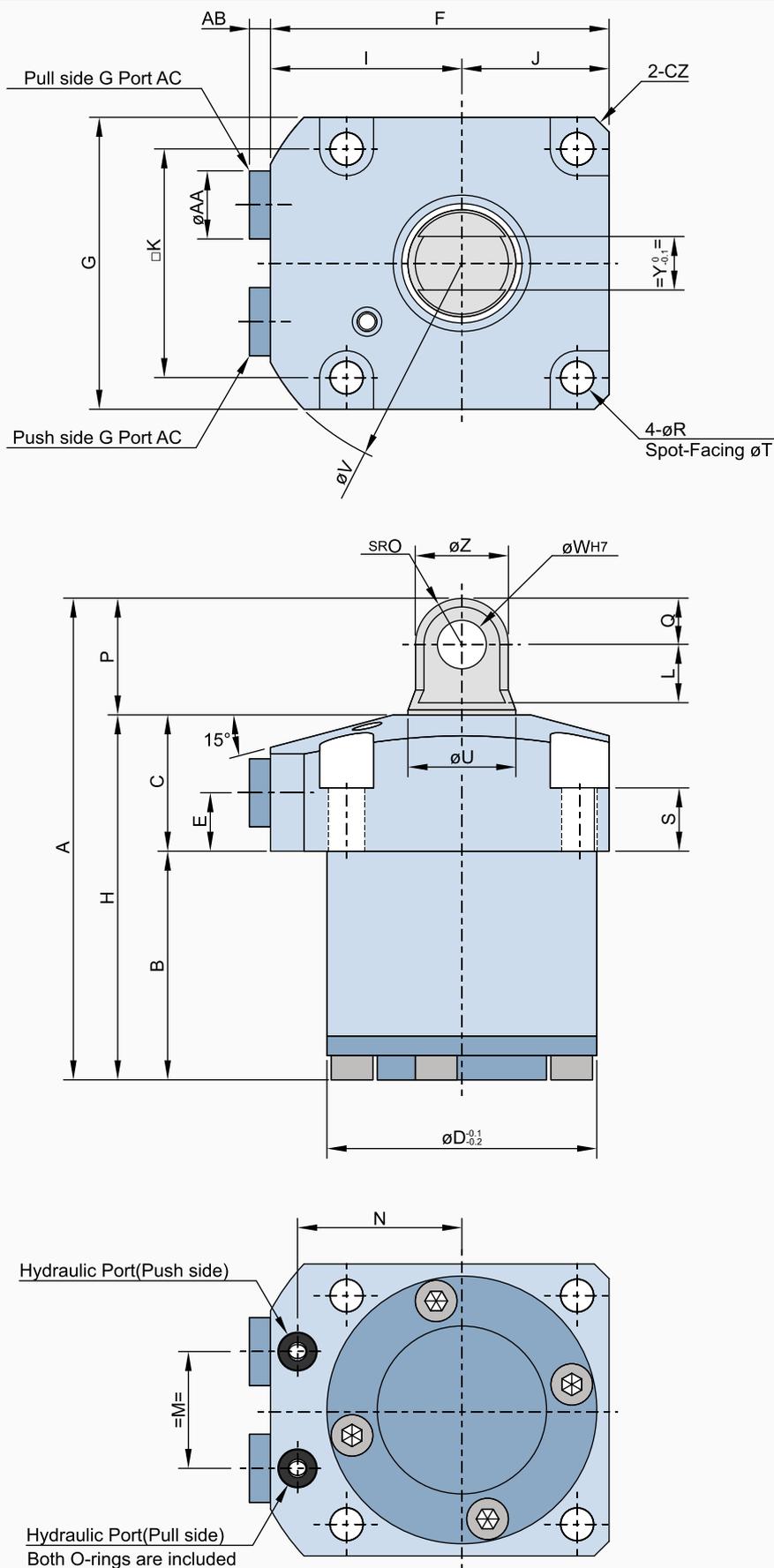
### Hydraulic Circuit Diagram

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

- Please be aware when designing the circuit.



### External Dimensions



- This figure shows the retracted position of cylinder.

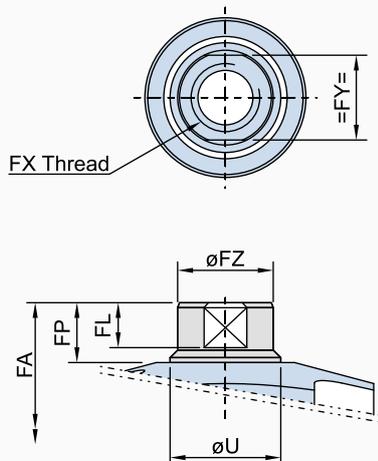
Model No.	PH036-P□	PH040-P□	PH048-P□	PH055-P□	PH065-P□	PH075-P□	PH090-P□	PH105-P□
A	Stroke+53	Stroke+61	Stroke+65	Stroke+69	Stroke+78	Stroke+87	Stroke+100	Stroke+116
B	Stroke+13	Stroke+17	Stroke+16	Stroke+17	Stroke+20	Stroke+17	Stroke+23	Stroke+25
C	25	25	28	28	30	37	40	45
D	36	40	48	55	65	75	90	105
E	11	11	12	12	13	16	16	17
F	49	54	61	69	81	92	107	122
G	40	45	51	60	70	80	95	110
I	29	31.5	35.5	39	46	52	59.5	67
J	20	22.5	25.5	30	35	40	47.5	55
H	Stroke+38	Stroke+42	Stroke+44	Stroke+45	Stroke+50	Stroke+54	Stroke+63	Stroke+70
K	31.4	34	40	47	55	63	75	88
M	16	18	22	24	30	32	37	45
N	23.5	26	30	33.5	39.5	45	52.5	60
O	6	8	9	10	12	14	16	21
P	15	19	21	24	28	33	37	46
Q	6	8	9	10	12	14	16	21
L	7.5	9.5	10.5	12	14	17	19	23
ØR	4.5	5.5	5.5	6.8	6.8	9	11	14
S	16	14	15.5	13	15.5	17.5	16.5	17.5
ØT	7.5	9.5	9.5	11	11	14	17.5	20
ØU	16	18	20	22	25	30	35	45
ØV	66	73	83	88	106	116	136	160
W	6	8	8	10	12	14	16	20
Y	6	8	10	11	13	16	19	22
ØZ	12	15	17	19	22	27	32	42
ØAA	14	14	14	14	19	19	22	22
AB	5	5	5	5	5	5	5	5
AC	G1/8	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8	G3/8
CZ	2	3	3	3	4	5	6	6

Model No.	Stroke											
	10	20	30	40	50	60	70	-	-	-	-	-
PH036-□□	10	20	30	40	50	60	70	-	-	-	-	-
PH040-□□	10	20	30	40	50	60	70	-	-	-	-	-
PH048-□□	10	20	30	40	50	60	70	-	-	-	-	-
PH055-□□	10	20	30	40	50	60	70	80	90	100	-	-
PH065-□□	10	20	30	40	50	60	70	80	90	100	-	-
PH075-□□	10	20	30	40	50	60	70	80	90	100	-	-
PH090-□□	10	20	30	40	50	60	70	80	90	100	110	120
PH105-□□	10	20	30	40	50	60	70	80	90	100	110	120

- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimension “S”.
- Speed control valve is sold separately. Select the right model of speed control valve according to the size of the cylinder. See page - 123.

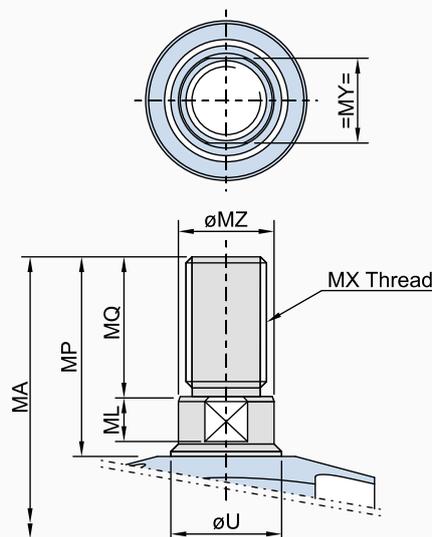
## External Dimensions for Rod Options

### PH□-F□: Female Thread Option



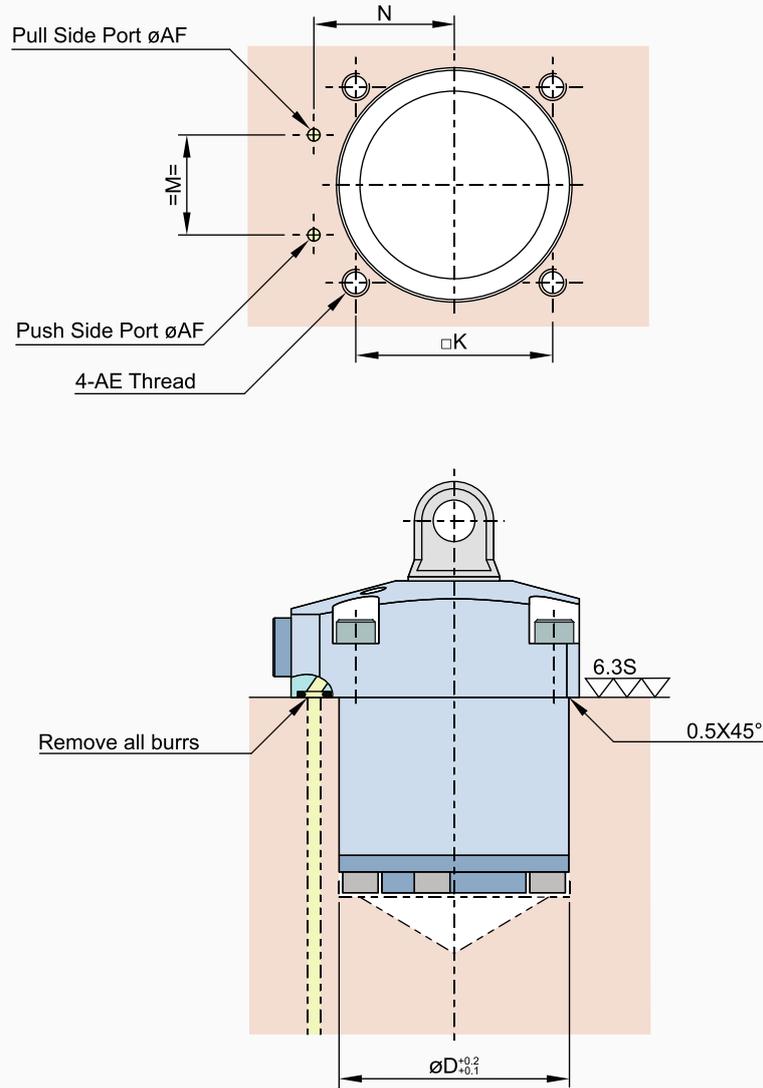
Model No.	PH036-F□	PH040-F□	PH048-F□	PH055-F□	PH065-F□	PH075-F□	PH090-F□	PH105-F□
FA	Stroke+47	Stroke+52	Stroke+55	Stroke+57	Stroke+63	Stroke+69	Stroke+79	Stroke+88
FP	9	10	11	12	13	15	16	18
øFZ	14	15	17	19	22	27	33	42
FY	12	13	14	17	19	24	30	36
FL	7.5	7.5	8.5	9	10	12	13	15
FX (Nominal X Pitch)	M6X1X12	M8X1.25X16	M8X1.25X16	M10X1.5X20	M12X1.75X24	M16X2X32	M20X2.5X40	M24X3X48

### PH□-M□: Male Thread Option



Model No.	PH036-M□	PH040-M□	PH048-M□	PH055-M□	PH065-M□	PH075-M□	PH090-M□	PH105-M□
MA	Stroke+63	Stroke+72	Stroke+79	Stroke+85	Stroke+95	Stroke+104	Stroke+125	Stroke+142
MP	25	30	35	40	45	50	62	72
øMZ	14	17	19	21	24	29	34.5	42
MY	12	14	17	17	19	24	30	36
ML	7.5	7.5	8.5	9	10	12	13	15
MX (Nominal X Pitch)	M10X1.25	M12X1.25	M14X1.5	M16X1.5	M20X1.5	M24X1.5	M30X1.5	M36X1.5
MQ	16	20	24	28	32	35	46	54

## Mounting Details



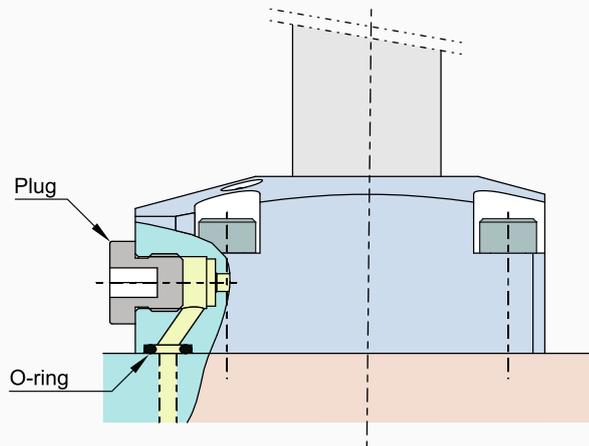
Model No.	PH036-□□	PH040-□□	PH048-□□	PH055-□□	PH065-□□	PH075-□□	PH090-□□	PH105-□□
ØD	36	40	48	55	65	75	90	105
□K	31.4	34	40	47	55	63	75	88
M	16	18	22	24	30	32	37	45
N	23.5	26	30	33.5	39.5	45	52.5	60
AE (Nominal X Pitch)	M4X0.7	M5X0.8	M5X0.8	M6X1	M6X1	M8X1.25	M10X1.5	M12X1.75
ØAF	2.5	3	3	3	3	4	4	4

- The depth of the body mounting hole  $\text{ØD}$  should be decided according to the mounting height referring to dimension B.
- AE tapping depth of mounting bolt should be decided according to the mounting height referring to dimension S.
- The machining dimension  $\text{ØAF}$  is for gasket option for hydraulic fluid supply.
- For piping installation for hydraulic fluid supply do not perform  $\text{ØAF}$  hole in machining and close gasket line in cylinder with O-ring.

## Instructions

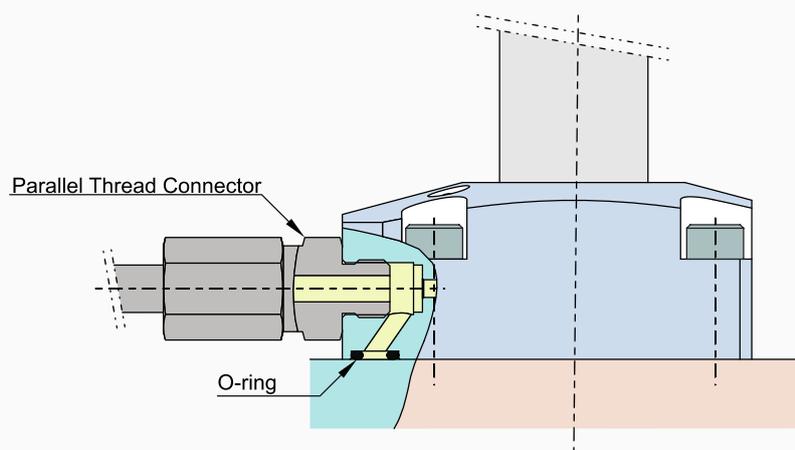
### Hydraulic Connection

#### Gasket Option



- For gasket option, a flow control valve is mountable on G-ports of the cylinder.

#### Piping Option



- Remove plugs for piping option. (O-ring must be used in gasket holes.)





## Cautions

---

1. Check the usable fluid.
  - i.e. General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
  - Make sure the hydraulic fluid not deteriorated.
2. Cylinder clamping method
  - Make sure no forces applied to the piston rod except from the axial direction. Otherwise it may cause a reduction in working life and leakages leading to the destruction of the cylinder.
3. Hydraulic supply
  - Never exceed the given pressure limit otherwise it will cause malfunction of the product.
  - If the flow rate is too high, excessive speed can be caused and lead to wear and damage to cylinder components.
  - The cylinder supply flow must be controlled, flow control valve must be installed.
  - The return flow from the cylinder must be free.
4. Procedure before piping
  - The pipeline, piping connector and fixture circuits should be cleaned by thoroughly flushing.
  - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
  - There is no filter provided with product, which prevents foreign materials and contaminants from getting into the circuit.
  - While applying the sealing tape ensure that no pieces of sealing tape enters into the circuit, it can lead to oil leakage and malfunctions.
  - Please implement piping constructions in a clean environment to prevent anything getting into the product.
5. Do not touch cylinder while it is working, otherwise it may cause injury due to clinging.
6. Do not disassemble or modify the product.
  - If the product is modified, then malfunction occurs.
7. Please contact us for overhaul and repair.



# Hydraulic Double Acting Push-Pull Cylinder

## Model PJ

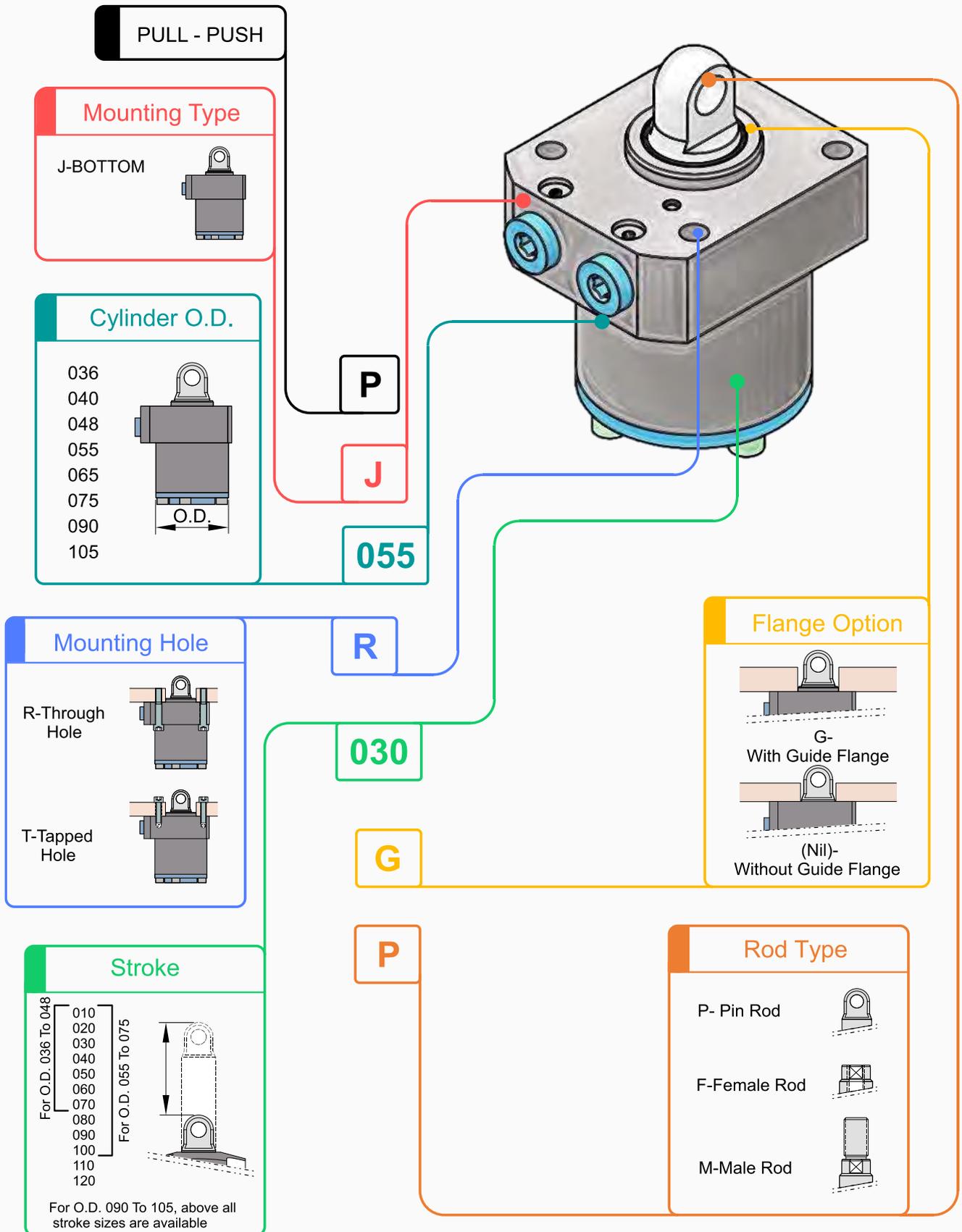
Bottom Flange

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Model No. Selection

**P** **J** **055** - **R** **030** **G** **P**



## Technical Data

### Specifications

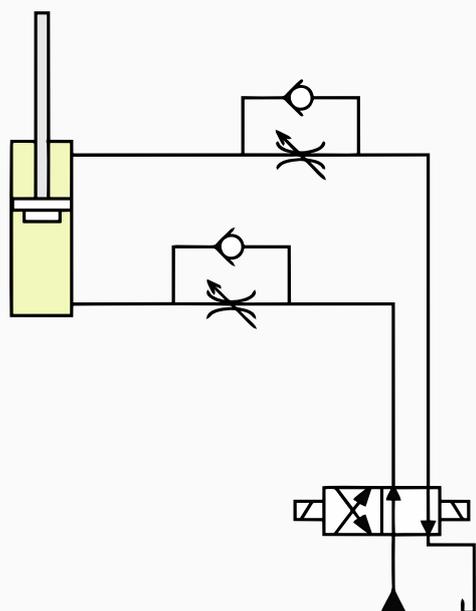
Model No.		PJ036-□□□□	PJ040-□□□□	PJ048-□□□□	PJ055-□□□□	PJ065-□□□□	PJ075-□□□□	PJ090-□□□□	PJ105-□□□□	
Cylinder Inner Diameter	mm	24	25	32	35	45	55	65	80	
Rod Diameter	mm	16	18	20	22	25	30	35	45	
Cylinder Force	Push	kN	3.10	3.37	5.52	6.60	10.91	16.30	22.77	34.50
	Pull	kN	1.72	1.62	3.36	3.99	7.54	11.45	16.17	23.58
Effective area	Push	cm <sup>2</sup>	4.52	4.90	8.04	9.62	15.90	23.75	33.18	50.26
	Pull	cm <sup>2</sup>	2.51	2.36	4.90	5.81	10.99	16.68	23.56	34.36
Full Stroke	mm	<b>10~70</b>	<b>10~70</b>	<b>10~70</b>	<b>10~100</b>	<b>10~100</b>	<b>10~100</b>	<b>10~120</b>	<b>10~120</b>	
Cylinder Capacity	Push	cm <sup>3</sup>	strokeX0.45	strokeX0.49	strokeX0.80	strokeX0.96	strokeX1.59	strokeX2.37	strokeX3.31	strokeX5.02
	Pull	cm <sup>3</sup>	strokeX0.25	strokeX0.23	strokeX0.49	strokeX0.58	strokeX1.09	strokeX1.66	strokeX2.35	strokeX3.43
Mass	Kg	0.5~0.9	0.7~1.1	0.9~1.6	1.2~2.5	1.8~3.3	2.5~4.5	4.0~7.0	6.0~10.3	

- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

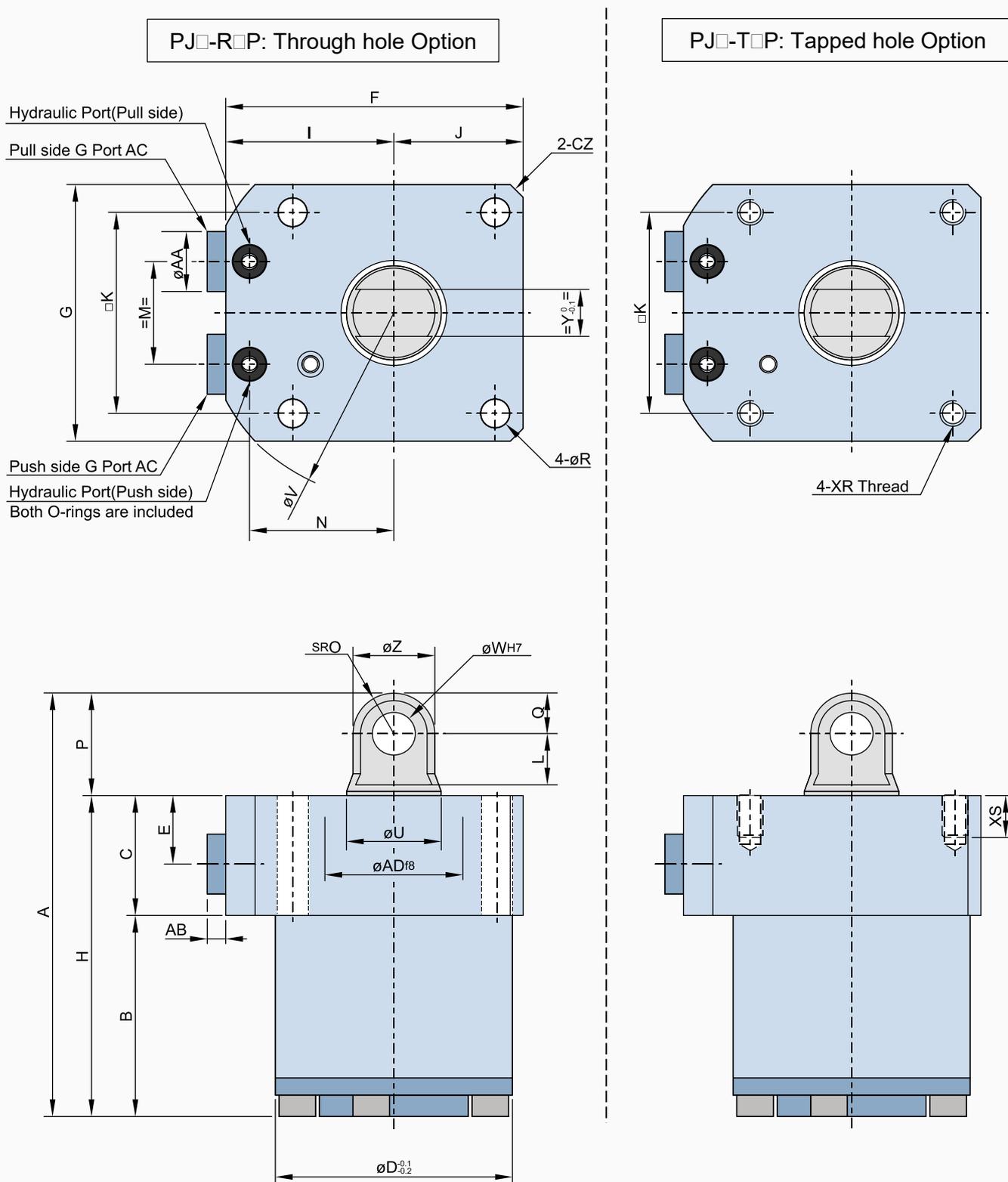
### Hydraulic Circuit Diagram

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

- Please be aware when designing the circuit.



Without Guide Flange Option



- Both figure shows the retracted positon of cylinder.

External Dimensions for Mounting
----------------------------------

Model No.	PJ036-□□P	PH040-□□P	PH048-□□P	PH055-□□P	PH065-□□P	PH075-□□P	PH090-□□P	PH105-□□P
A	Stroke+53	Stroke+61	Stroke+65	Stroke+69	Stroke+78	Stroke+87	Stroke+100	Stroke+116
B	Stroke+13	Stroke+17	Stroke+16	Stroke+17	Stroke+20	Stroke+17	Stroke+23	Stroke+25
C	25	25	28	28	30	37	40	45
D	36	40	48	55	65	75	90	105
E	14	14	16	16	17	21	24	28
F	49	54	61	69	81	92	107	122
G	40	45	51	60	70	80	95	110
I	29	31.5	35.5	39	46	52	59.5	67
J	20	22.5	25.5	30	35	40	47.5	55
H	Stroke+38	Stroke+42	Stroke+44	Stroke+45	Stroke+50	Stroke+54	Stroke+63	Stroke+70
K	31.4	34	40	47	55	63	75	88
M	16	18	22	24	30	32	37	45
N	23.5	26	30	33.5	39.5	45	52.5	60
O	6	8	9	10	12	14	16	21
P	15	19	21	24	28	33	37	46
Q	6	8	9	10	12	14	16	21
L	7.5	9.5	10.5	12	14	17	19	23
ØR	4.5	5.5	5.5	6.8	6.8	9	11	14
ØU	16	18	20	22	25	30	35	45
ØV	66	73	83	88	106	116	136	160
W	6	8	8	10	12	14	16	20
Y	6	8	10	11	13	16	19	22
ØZ	12	15	17	19	22	27	32	42
ØAA	14	14	14	14	19	19	22	22
AB	5	5	5	5	5	5	5	5
AC	G1/8	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8	G3/8
CZ	2	3	3	3	4	5	6	6
XR (Nominal X Pitch)	M4X0.7	M5X0.8	M5X0.8	M6X1	M6X1	M8X1.25	M10X1.5	M12X1.75
XS	8	10	10	12	12	16	20	24

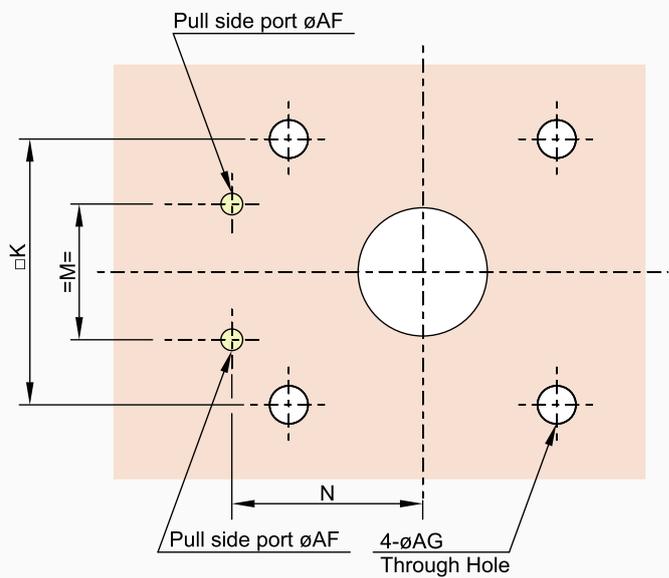
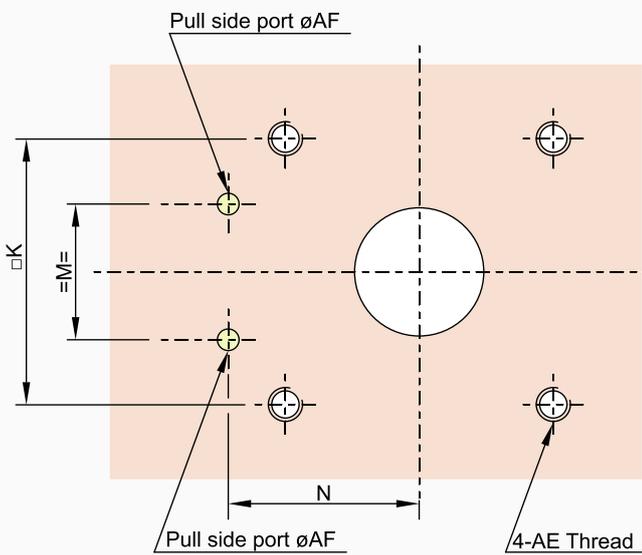
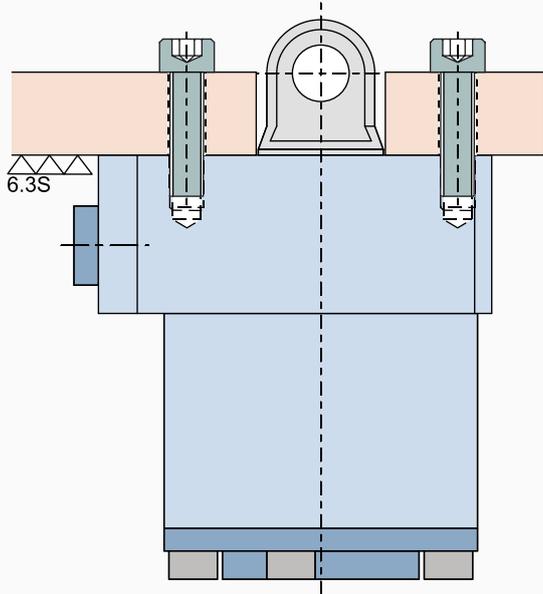
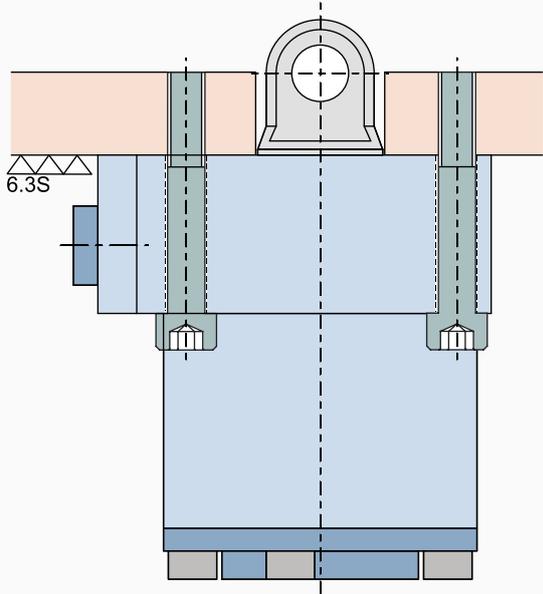
Model No.	Stroke											
	10	20	30	40	50	60	70	-	-	-	-	-
PH036-□□□	10	20	30	40	50	60	70	-	-	-	-	-
PH040-□□□	10	20	30	40	50	60	70	-	-	-	-	-
PH048-□□□	10	20	30	40	50	60	70	-	-	-	-	-
PH055-□□□	10	20	30	40	50	60	70	80	90	100	-	-
PH065-□□□	10	20	30	40	50	60	70	80	90	100	-	-
PH075-□□□	10	20	30	40	50	60	70	80	90	100	-	-
PH090-□□□	10	20	30	40	50	60	70	80	90	100	110	120
PH105-□□□	10	20	30	40	50	60	70	80	90	100	110	120

- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimension "S".
- Speed control valve is sold separately. Select the right model of speed control valve according to the size of the cylinder. See page - 123.

Mounting Details

PJ-R: Through hole Option

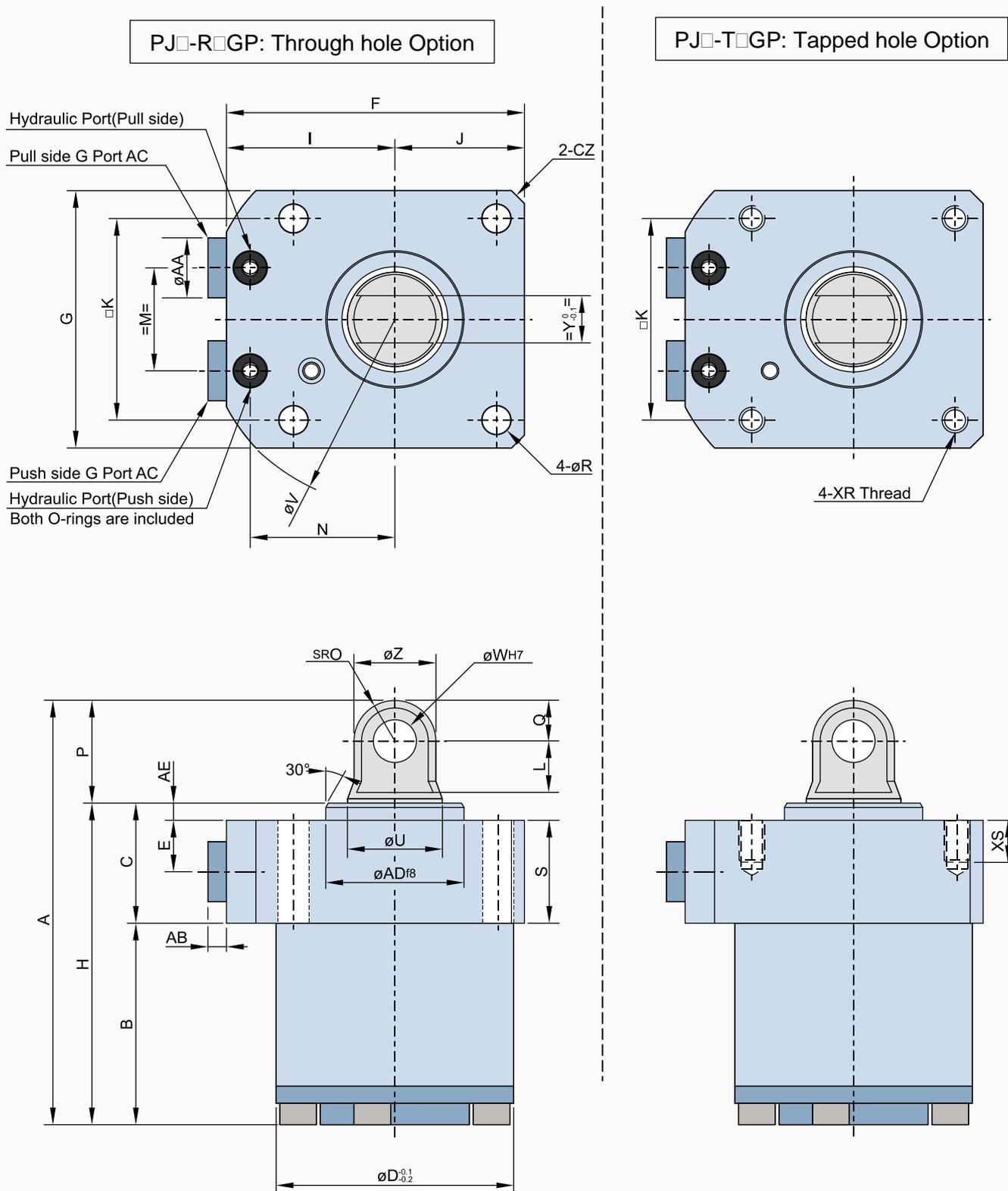
PJ-T: Tapped hole Option



Model No.	PJ036-□□□	PJ040-□□□	PJ048-□□□	PJ055-□□□	PJ065-□□□	PJ075-□□□	PJ090-□□□	PJ105-□□□
□K	31.4	34	40	47	55	63	75	88
M	16	18	22	24	30	32	37	45
N	23.5	26	30	33.5	39.5	45	52.5	60
AE (Nominal X Pitch)	M4X0.7	M5X0.8	M5X0.8	M6X1	M6X1	M8X1.25	M10X1.5	M12X1.75
∅AF	2.5	3	3	3	3	4	4	4
∅AG	4.5	5.5	5.5	6.8	6.8	9	11	14

- The depth of the body mounting hole  $\varnothing D$  should be decided according to the mounting height referring to dimension B.
- AE tapping depth of mounting bolt should be decided according to the mounting height referring to dimension S.
- The machining dimension  $\varnothing AF$  is for gasket option for hydraulic fluid supply.
- For piping installation for hydraulic fluid supply do not perform  $\varnothing AF$  hole in machining and close gasket line in cylinder with O-ring.

With Guide Flange Option



- Both figure shows the retracted position of cylinder.

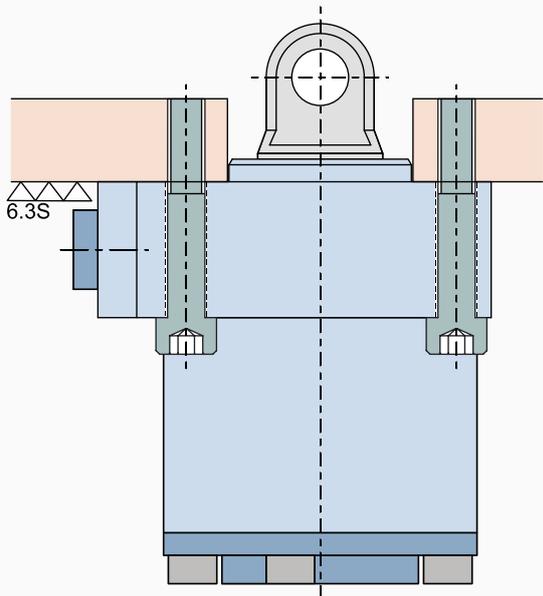
Model No.	PJ036-□□GP	PH040-□□GP	PH048-□□GP	PH055-□□GP	PH065-□□GP	PH075-□□GP	PH090-□□GP	PH105-□□GP
A	Stroke+53	Stroke+61	Stroke+65	Stroke+69	Stroke+78	Stroke+87	Stroke+100	Stroke+116
B	Stroke+13	Stroke+17	Stroke+16	Stroke+17	Stroke+20	Stroke+17	Stroke+23	Stroke+25
C	25	25	28	28	30	37	40	45
D	36	40	48	55	65	75	90	105
E	10	10	12	12	13	16	19	22
F	49	54	61	69	81	92	107	122
G	40	45	51	60	70	80	95	110
I	29	31.5	35.5	39	46	52	59.5	67
J	20	22.5	25.5	30	35	40	47.5	55
H	Stroke+38	Stroke+42	Stroke+44	Stroke+45	Stroke+50	Stroke+54	Stroke+63	Stroke+70
K	31.4	34	40	47	55	63	75	88
M	16	18	22	24	30	32	37	45
N	23.5	26	30	33.5	39.5	45	52.5	60
O	6	8	9	10	12	14	16	21
P	15	19	21	24	28	33	37	46
Q	6	8	9	10	12	14	16	21
L	7.5	9.5	10.5	12	14	17	19	23
ØR	4.5	5.5	5.5	6.8	6.8	9	11	14
S	21	21	24	24	26	32	35	39
ØU	16	18	20	22	25	30	35	45
ØV	66	73	83	88	106	116	136	160
W	6	8	8	10	12	14	16	20
Y	6	8	10	11	13	16	19	22
ØZ	12	15	17	19	22	27	32	42
ØAA	14	14	14	14	19	19	22	22
AB	5	5	5	5	5	5	5	5
AC	G1/8	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8	G3/8
ØAD	25	28	28	32	38	44	50	60
AE	4	4	4	4	4	5	5	6
CZ	2	3	3	3	4	5	6	6
XR (Nominal X Pitch)	M4X0.7	M5X0.8	M5X0.8	M6X1	M6X1	M8X1.25	M10X1.5	M12X1.75
XS	8	10	10	12	12	16	20	24

Model No.	Stroke											
	10	20	30	40	50	60	70	-	-	-	-	-
PH036-□□□□	10	20	30	40	50	60	70	-	-	-	-	-
PH040-□□□□	10	20	30	40	50	60	70	-	-	-	-	-
PH048-□□□□	10	20	30	40	50	60	70	-	-	-	-	-
PH055-□□□□	10	20	30	40	50	60	70	80	90	100	-	-
PH065-□□□□	10	20	30	40	50	60	70	80	90	100	-	-
PH075-□□□□	10	20	30	40	50	60	70	80	90	100	-	-
PH090-□□□□	10	20	30	40	50	60	70	80	90	100	110	120
PH105-□□□□	10	20	30	40	50	60	70	80	90	100	110	120

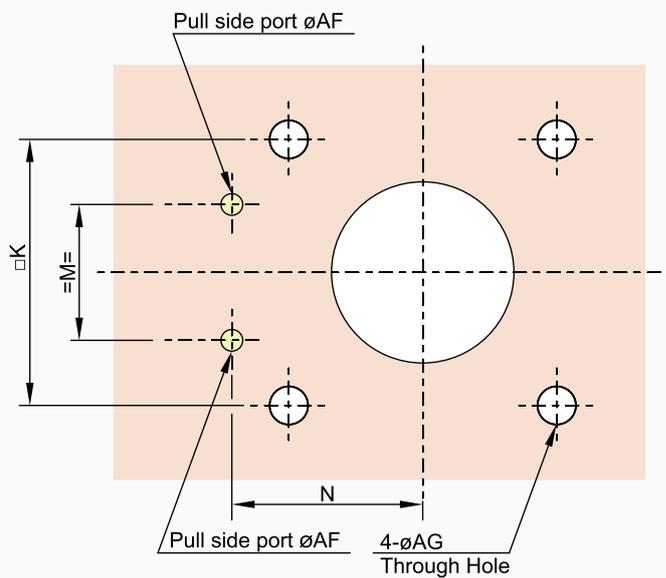
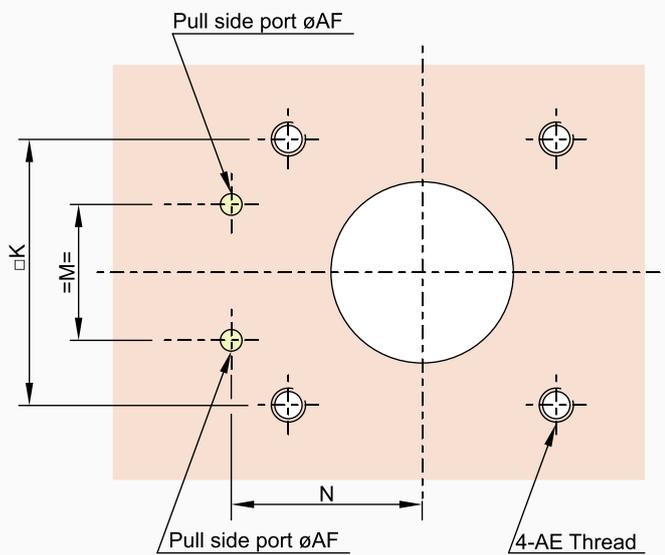
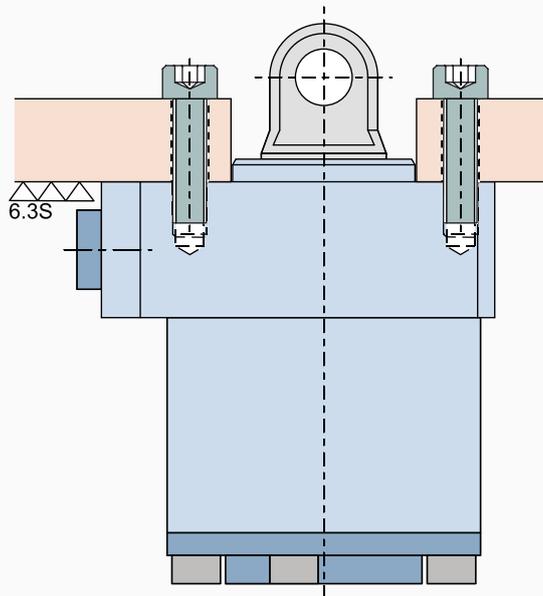
- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimension “S”.
- Speed control valve is sold separately. Select the right model of speed control valve according to the size of the cylinder. See page - 123.

Mounting Details

PJ-R-G: Through hole



PJ-T-G: Tapped hole Option

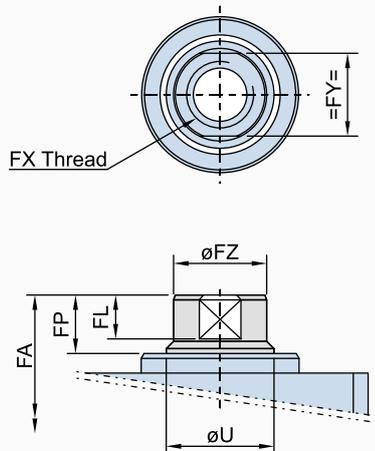


Model No.	PJ036-□□G□	PJ040-□□G□	PJ048-□□G□	PJ055-□□G□	PJ065-□□G□	PJ075-□□G□	PJ090-□□G□	PJ0105-□□G□
□K	31.4	34	40	47	55	63	75	88
M	16	18	22	24	30	32	37	45
N	23.5	26	30	33.5	39.5	45	52.5	60
AE (Nominal X Pitch)	M4X0.7	M5X0.8	M5X0.8	M6X1	M6X1	M8X1.25	M10X1.5	M12X1.75
∅AF	2.5	3	3	3	3	4	4	4
∅AG	4.5	5.5	5.5	6.8	6.8	9	11	14

- The depth of the body mounting hole  $\varnothing D$  should be decided according to the mounting height referring to dimension B.
- AE tapping depth of mounting bolt should be decided according to the mounting height referring to dimension S.
- The machining dimension  $\varnothing AF$  is for gasket option for hydraulic fluid supply.
- For piping installation for hydraulic fluid supply do not perform  $\varnothing AF$  hole in machining and close gasket line in cylinder with O-ring.

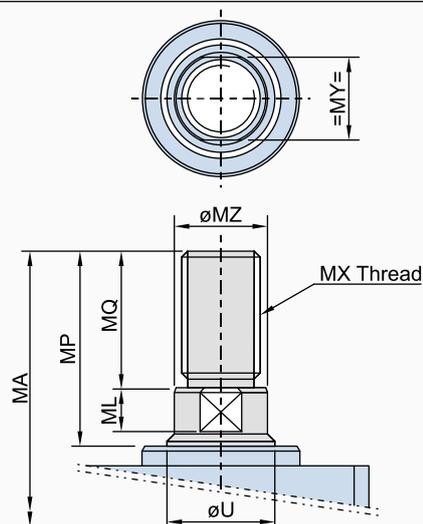
## External Dimensions for Rod Options

### PJ□-□□□F: Female Thread Option



Model No.	PJ036-□□□F	PJ040-□□□F	PJ048-□□□F	PJ055-□□□F	PJ065-□□□F	PJ075-□□□F	PJ090-□□□F	PJ0105-□□□F
FA	Stroke+47	Stroke+52	Stroke+55	Stroke+57	Stroke+63	Stroke+69	Stroke+79	Stroke+88
FP	9	10	11	12	13	15	16	18
øFZ	14	15	17	19	22	27	33	42
FY	12	13	14	17	19	24	30	36
FL	7.5	7.5	8.5	9	10	12	13	15
FX (Nominal X Pitch)	M6X1X12	M8X1.25X16	M8X1.25X16	M10X1.5X20	M12X1.75X24	M16X2X32	M20X2.5X40	M24X3X48

### PJ□-□□□M: Male Thread Option

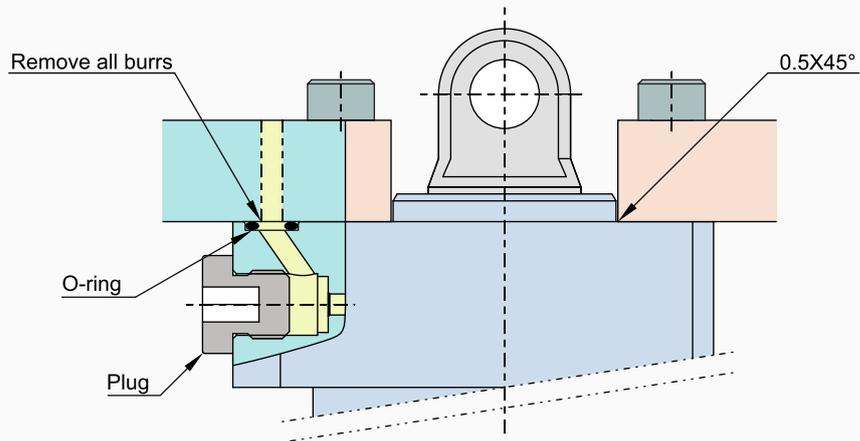


Model No.	PJ036-□□□M	PJ040-□□□M	PJ048-□□□M	PJ055-□□□M	PJ065-□□□M	PJ075-□□□M	PJ090-□□□M	PJ0105-□□□M
MA	Stroke+63	Stroke+72	Stroke+79	Stroke+85	Stroke+95	Stroke+104	Stroke+125	Stroke+142
MP	25	30	35	40	45	50	62	72
øMZ	14	17	19	21	24	29	34.5	42
MY	12	14	17	17	19	24	30	36
ML	7.5	7.5	8.5	9	10	12	13	15
MX (Nominal X Pitch)	M10X1.25	M12X1.25	M14X1.5	M16X1.5	M20X1.5	M24X1.5	M30X1.5	M36X1.5
MQ	16	20	24	28	32	35	46	54

## Instructions

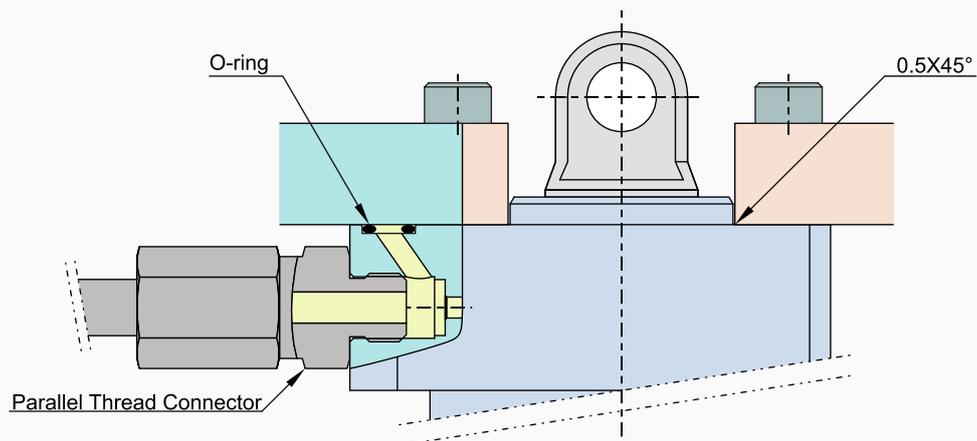
### Hydraulic Connection

#### Gasket Option



- In a gasket option, a flow control valve is mountable on G-ports of the cylinder.

#### Piping Option



- Remove plugs for piping option. (O-ring must be used in gasket holes.)



## Cautions

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1. Check the usable fluid.
  - i.e. General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
  - Make sure the hydraulic fluid not deteriorated.
2. Cylinder clamping method
  - Make sure no forces applied to the piston rod except from the axial direction. Otherwise it may cause a reduction in working life and leakages leading to the destruction of the cylinder.
3. Hydraulic supply
  - Never exceed the given pressure limit otherwise it will cause malfunction of the product.
  - If the flow rate is too high, excessive speed can be caused and lead to wear and damage to cylinder components.
  - The cylinder supply flow must be controlled, flow control valve must be installed.
  - The return flow from the cylinder must be free.
4. Procedure before piping
  - The pipeline, piping connector and fixture circuits should be cleaned by thoroughly flushing.
  - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
  - There is no filter provided with product, which prevents foreign materials and contaminants from getting into the circuit.
  - While applying the sealing tape ensure that no pieces of sealing tape enters into the circuit, it can lead to oil leakage and malfunctions.
  - Please implement piping constructions in a clean environment to prevent anything getting into the product.
5. Do not touch cylinder while it is working, otherwise it may cause injury due to clinging.
6. Do not disassemble or modify the product.
  - If the product is modified, then malfunction occurs.
7. Please contact us for overhaul and repair.







# Hydraulic Double Acting Hinge Cylinder

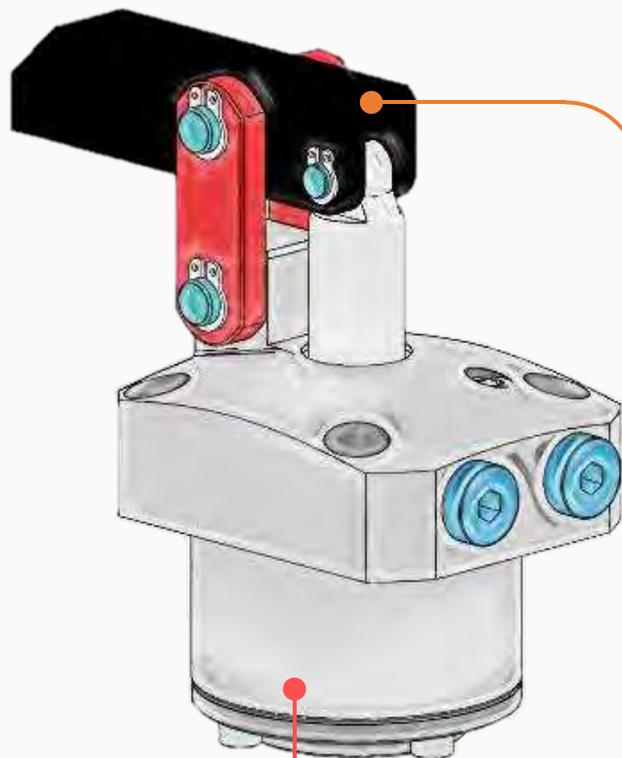
## Model H

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Model No. Selection

**H** **055** - **C**



Hinge

**Body Size**

036
040
048
055
065
075
090
105

A cross-sectional diagram of the cylinder body showing the internal piston and rod. The diameter of the cylinder is indicated by the symbol  $\varnothing D$ .

**H**

**055**

**Lever Direction**

A diagram showing the lever in three different positions: L (Left), C (Center), and R (Right). The lever is shown in a vertical position with dashed lines indicating its range of motion.

L- Left  
C- Center  
R- Right

**C**

## Technical Data

### Specifications

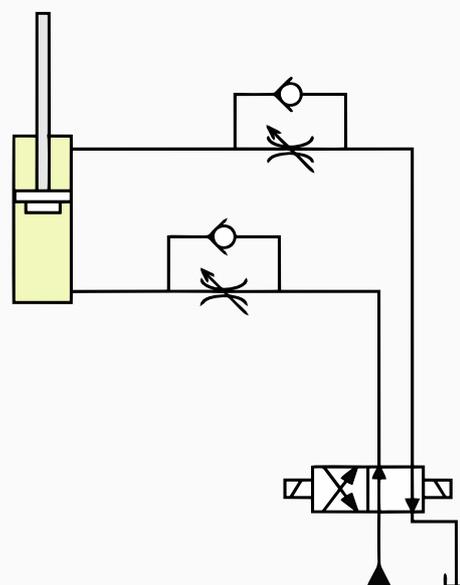
Model No.		H036-□	H040-□	H048-□	H055-□	H065-□	H075-□	H090-□	H0105-□	
Cylinder Inner Diameter	mm	24	25	30	35	45	55	65	80	
Rod Diameter	mm	12	14	14	16	20	22	28	35	
Cylinder Force	kN	3.10	3.37	4.85	6.60	10.91	16.30	22.77	34.50	
Effective area	cm <sup>2</sup>	4.52	4.90	7.06	9.62	15.90	23.75	33.18	50.26	
Full Stroke	mm	18.5	20.5	23.5	26	29.5	35	41	49	
Lock Stroke	mm	16	17.5	20.5	23	26.5	32	38	46	
Extra Stroke	mm	2.5	3	3	3	3	3	3	3	
Cylinder Capacity	Push	cm <sup>3</sup>	8.36	10	16.61	25.01	46.91	83.15	136.05	246.30
	Pull	cm <sup>3</sup>	6.27	6.90	13	19.78	37.65	69.84	110.80	199.15
Mass	Kg	0.5	0.7	1	1.4	2.2	3.2	5.5	8.5	

- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

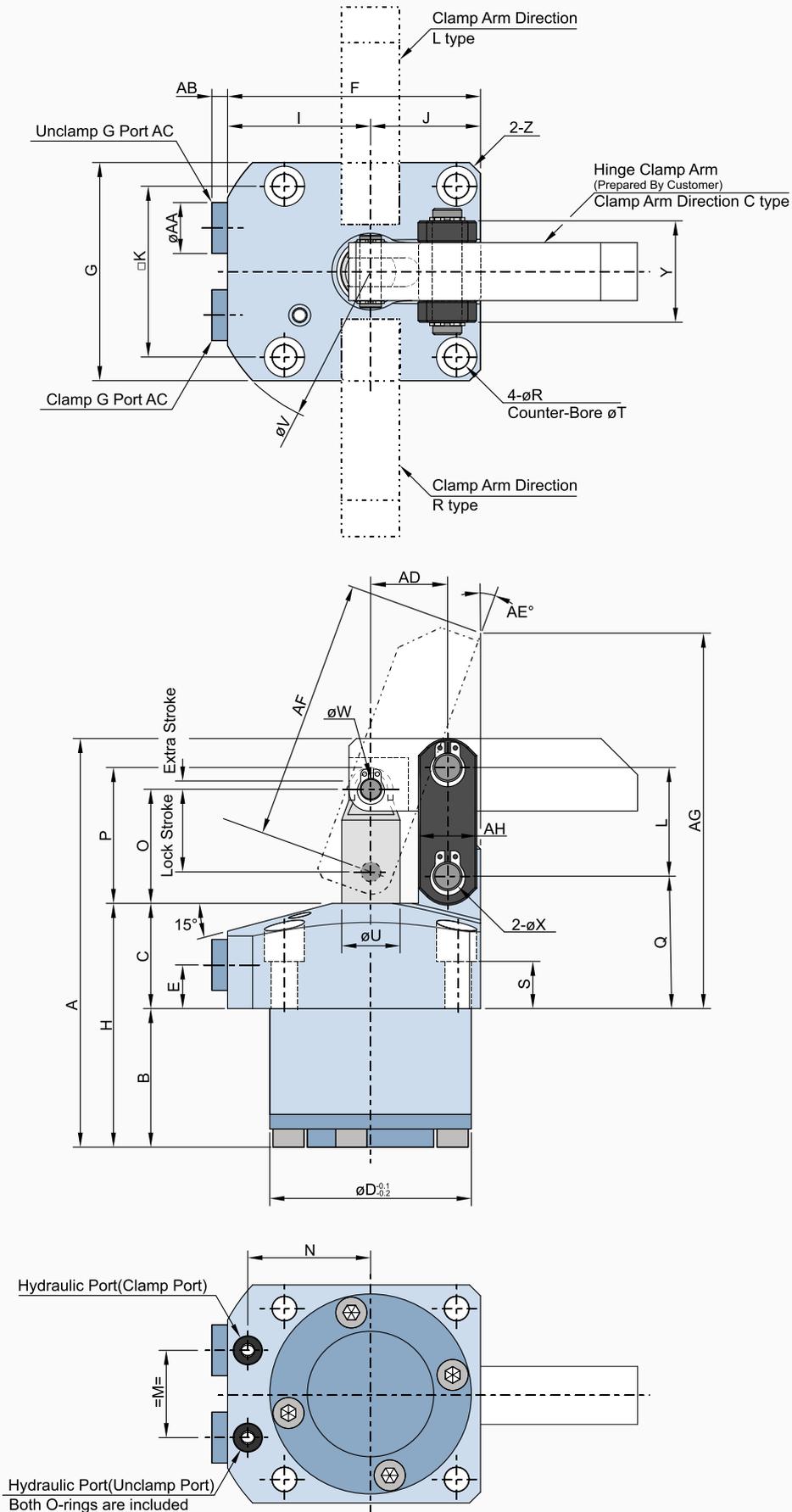
### Hydraulic Circuit Diagram

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

- Please be aware when designing the circuit.



### External Dimensions



- This figure shows the lock position of cylinder.

Model No.	H036-□	H040-□	H048-□	H055-□	H065-□	H075-□	H090-□	H0105-□
A	85.75	91.2	101.45	114.5	131.5	154	183.38	216.5
B	28.75	31.7	33.45	40	46.5	50	63.38	71.5
C	25	25	28	28	30	37	40	50
D	36	40	48	55	65	75	90	105
E	11	10	12	12	13	16	16	19
F	49	54	61	69	81	94.5	109.5	127
G	40	45	51	60	70	85	100	120
H	53.75	56.7	61.45	68	76.5	87	103.4	121.5
I	29	31.5	35.5	39	46	52	59.5	67
J	20	22.5	25.5	30	35	42.5	50	60
K	31.4	34	40	47	55	63	75	88
L	20	22	26	30	35.5	43.5	52.5	64
M	16	18	22	24	30	32	37	45
N	23.5	26	30	33.5	39.5	45	52.5	60
O	24	26	30	32.5	38	46	53	63
P	29	31.5	36	38.5	46	56	65.5	78
Q	31.5	31.5	35.5	36.5	40	49	53.5	65
ØR	4.5	5.5	5.5	6.6	6.6	9	11	13
S	15.5	15	16	13.5	16	17.5	17	23
ØT	7.5	9	9	11	11	14	17	20
ØU	12	14	14	16	20	22	28	35
ØV	66	72	81	88	106	116	136	152
ØW	5	6	6	6	8	10	12	15
ØX	5	6	6	8	10	12	15	18
Y	19	21	24	28	37	40	49	64
Z	2	3	3	3	4	10	11	-
ØAA	14	14	14	14	19	19	22	22
AB	4.5	4.5	4.5	4.5	5	5	5	5
AC	1½	1½	1½	1½	1¼	1¼	3/8	3/8
AD	14.5	16	18.5	21	24.5	30	36	44
AE	19.56	20.2	18.9	19.85	20.46	21.44	22.38	23.08
AF	47	50.2	61.1	71.7	78.6	90.78	104.6	122.52
AG	75.8	78.7	93.4	102.9	112.4	131.8	147.5	174.6
AH	11	13	13	16	19	25	28	32

- G-Thread Plug is included.
- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimension "S".
- Speed control valve is sold separately. Select the right model of speed control valve according to the size of the cylinder. See page - 123.

## Clamping Force Calculation

The clamping force is determined by the clamp arm length and the operating pressure. The F clamping force can thus be calculated using the following formulas:

$$C = \frac{p \times S}{100} \quad [\text{kN}]$$

$$F = \frac{k}{l} \times C \times \eta \quad [\text{kN}]$$

$k$  = Clamp arm dimension [mm]

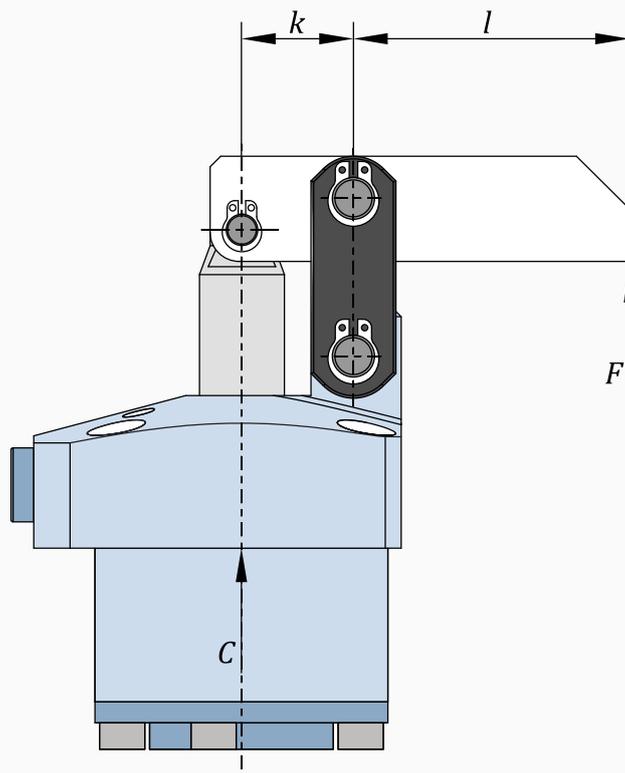
$l$  = Clamp arm length [mm] (clamp arm length to be decided by customer)

$p$  = pressure [bar]

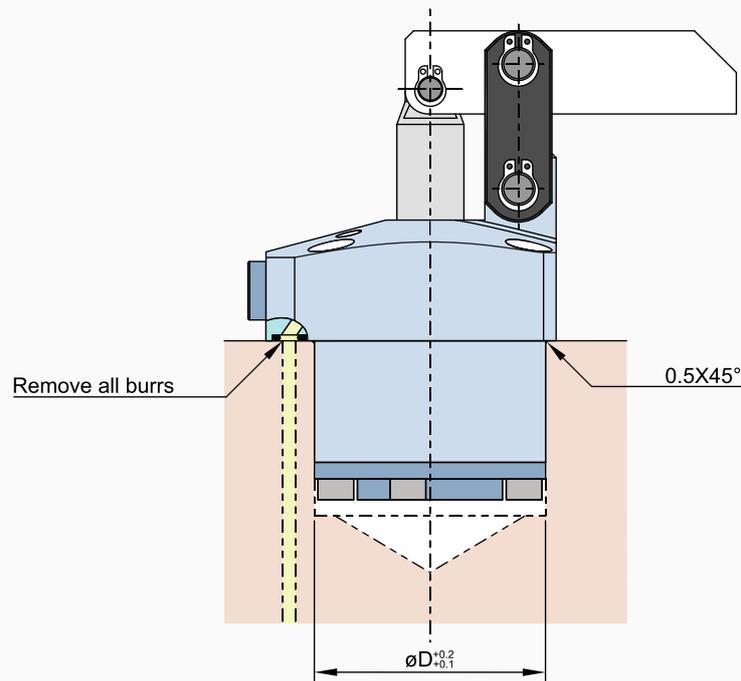
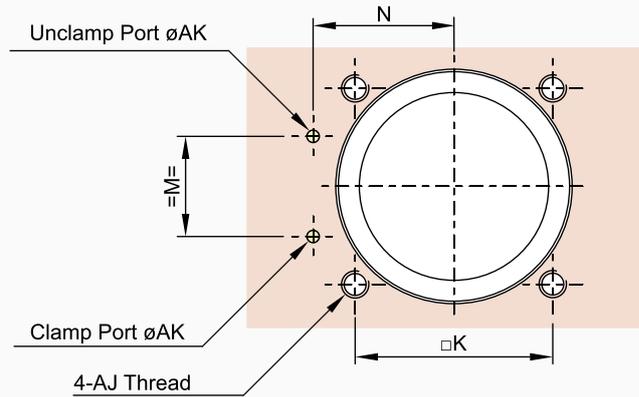
$S$  = clamping area [cm<sup>2</sup>]

$\eta$  = 0.9

Model No.		H036-□	H040-□	H048-□	H055-□	H065-□	H075-□	H090-□	H0105-□
Cylinder Force $C$	kN	3.10	3.37	4.84	6.60	10.91	16.30	22.77	34.50
Effective area $S$	cm <sup>2</sup>	4.52	4.9	7	9.62	15.9	23.75	33.18	50.2
Lever length $k$	mm	14.5	16	18.5	21	24.5	30	36	44
Performance $\eta$		0.9							
Max. operating Pressure $p$	bar	70							



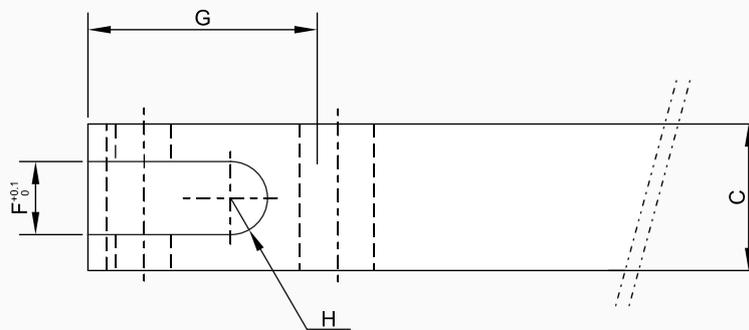
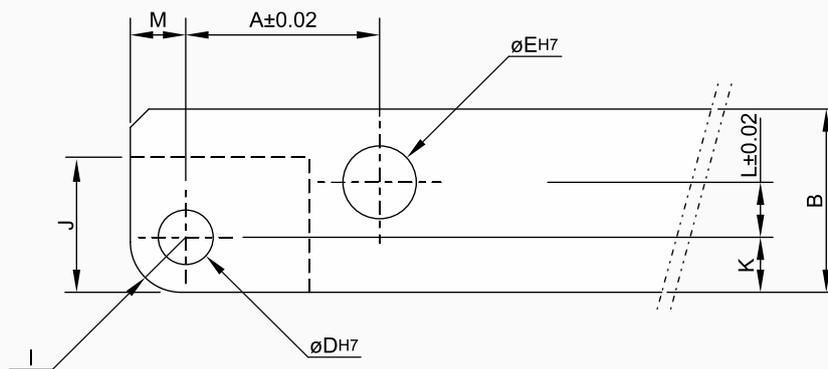
## Mounting Details



Model No.	H036-□	H040-□	H048-□	H055-□	H065-□	H075-□	H090-□	H0105-□
ØD	36	40	48	55	65	75	90	105
K	31.4	34	40	47	55	63	75	88
M	16	18	22	24	30	32	37	45
N	23.5	26	30	33.5	39.5	45	52.5	60
AJ Thread	M4X0.7	M5X0.8	M5X0.8	M6X1	M6X1	M8X1.25	M10X1.5	M12X1.75
ØAK	3	3	3	3	4	4	5	5

- The depth of the body mounting hole  $\varnothing D$  should be decided according to the mounting height referring to dimension B.
- AE tapping depth of mounting bolt should be decided according to the mounting height referring to dimension S.
- The machining dimension  $\varnothing AF$  is for gasket option for hydraulic fluid supply.
- If you choose piping installation for hydraulic fluid supply do not perform  $\varnothing AF$  hole in machining and close gasket line in cylinder with O-ring.

### Clamp Design Dimensions



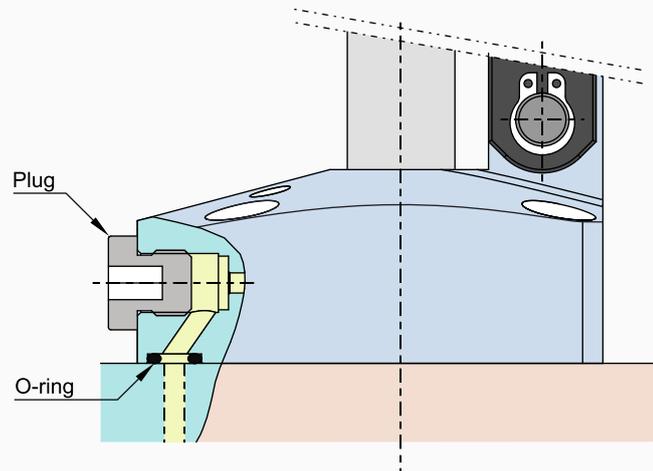
Model No.	H036-□	H040-□	H048-□	H055-□	H065-□	H075-□	H090-□	H0105-□
A	14.5	16	18.5	21	24.5	30	36	44
B	12.5	14	16	20	25	32	38	45
C	10	12	12	16	19	22	25	32
ØD	5	6	6	6	8	10	12	15
ØE	5	6	6	8	10	12	15	18
F	5	6	6	8	10	11	13	16
G	10	11.5	13	13.5	17	20	24	30
H	R2.5	R3	R3	R4	R5	R5.5	R6.5	R8
I	R4.5	R5.5	R6	R6	R8	R10	R11	R13
J	11	12	13	13	17.5	22	26	30.5
K	4.5	5.5	6	6	8	10	11	13
L	2.5	2.5	3.5	6	7.5	9.5	13	16
M	4.5	5.5	6	6	8	10	11	13

- Clamp is not included in scope of supply.

## Instructions

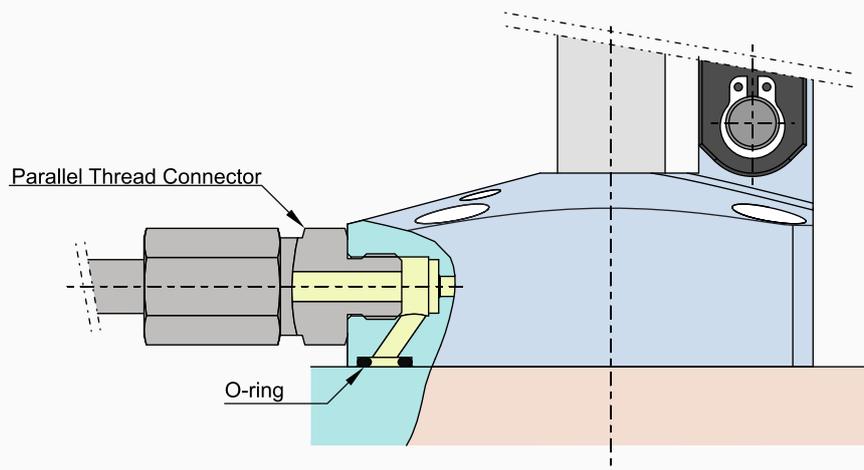
### Hydraulic Connection

#### Gasket Option



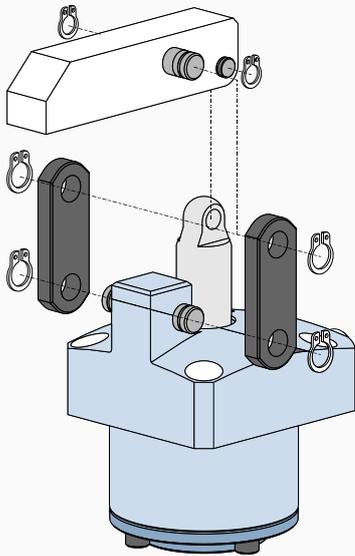
- When choosing gasket option, a flow control valve is mountable on G-ports of the cylinder.

#### Piping Option

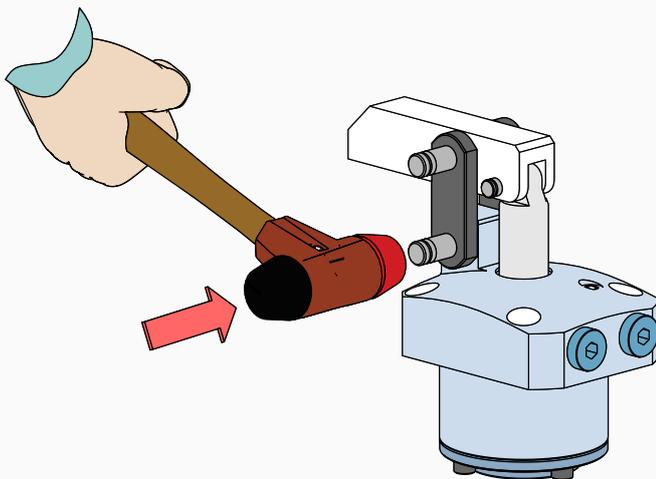


- Remove plugs when choosing piping (O-ring must be used in gasket holes.), flow control valve should be mountable in between hydraulic oil path.

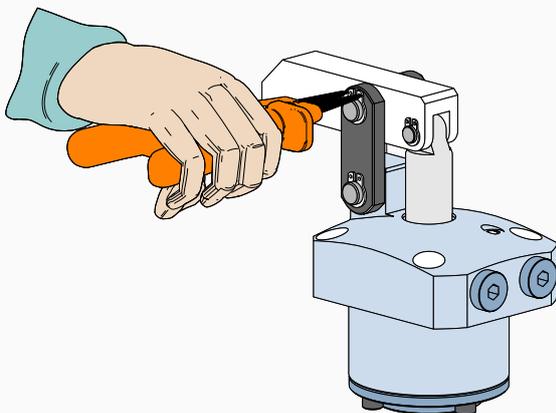
## Clamp Mounting Procedure



- This figure illustrates clamp mounting procedure.
- Please prepare clamp which is not included. Link, Link pin and circlip will be provided.



- First of all, Remove link pin from links.
- Now, attach the clamp in rod.
- Take link and mount the provided link pin into them.
- Use mallet hammer when mounting the link pin into link as shown in figure.



- Now prepare included circlip, so that you can assemble it which is illustrated in the figure.
- Use external circlip plier to insert circlip into all 3 link pins.



## Cautions

---

1. Check the usable fluid.
  - i.e. General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
  - Make sure the hydraulic fluid not deteriorated.
2. Cylinder clamping method
  - Make sure no forces applied to the piston rod except from the axial direction. Otherwise it may cause a reduction in working life and leakages leading to the destruction of the cylinder.
3. Hydraulic supply
  - Never exceed the given pressure limit otherwise it will cause malfunction of the product.
  - If the flow rate is too high, excessive hinge speed can be caused and lead to wear and damage to cylinder components.
  - The cylinder supply flow must be controlled, flow control valve must be installed.
  - The return flow from the cylinder must be free.
4. Installation / removal of the hinge clamp
  - Oil or debris on the tightened parts of the clamp or piston rod may cause the rod to loosen.
  - Please clean them thoroughly before installation.
5. Procedure before piping
  - The pipeline, piping connector and fixture circuits should be cleaned by thoroughly flushing.
  - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
  - There is no filter provided with product, which prevents foreign materials and contaminants from getting into the circuit.
  - While applying the sealing tape ensure that no pieces of sealing tape enters into the circuit, it can lead to oil leakage and malfunctions.
  - Please implement piping constructions in a clean environment to prevent anything getting into the product.
6. Do not touch clamp while it is working, otherwise it may cause injury due to clinging.
7. Do not disassemble or modify the product.
  - If the product is modified, then malfunction occurs.
8. Please contact us for overhaul and repair.



# Hydraulic Single Acting Threaded Body Cylinder

## Model T

### Index

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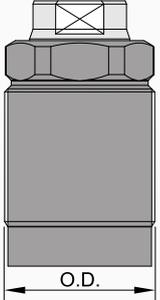
### Model No. Selection

T 036 - F M

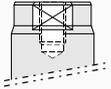
#### Threaded

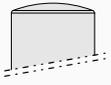
#### Body Size

- 030
- 036
- 045
- 055
- 065
- 080



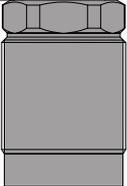
#### Rod Type

F - Female Thread 

R - Round Head 

#### Stroke

S - Small 

M - Medium 

L - Large 



T

036

F

M

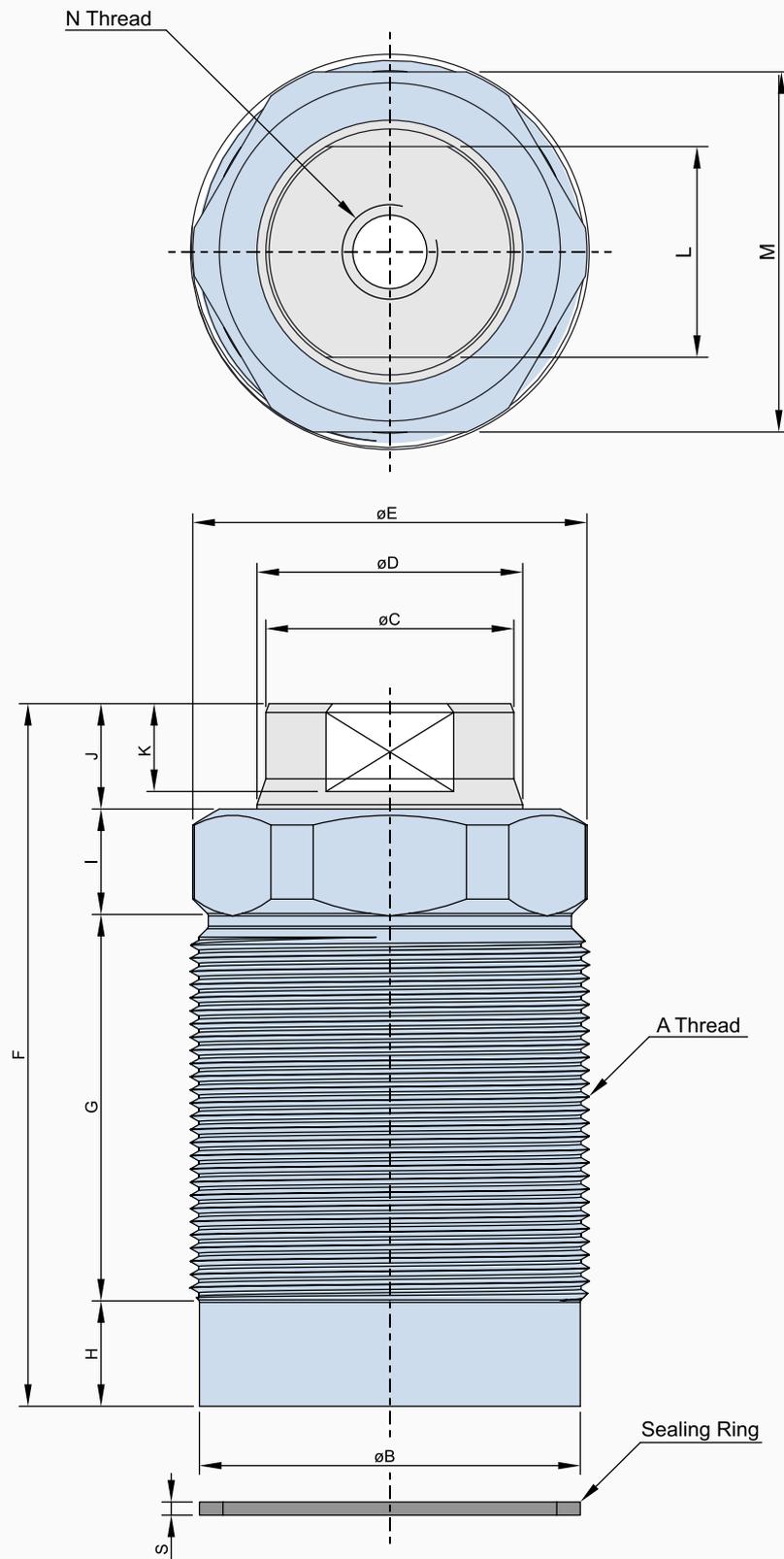
## Technical Data

### Specifications

Model No.		T030-□□	T036-□□	T045-□□	T055-□□	T065-□□	T080-□□
Rod Diameter	mm	18	22	30	35	45	55
Effective area	cm <sup>2</sup>	2.2	3.3	6.4	8.6	14.5	22
Cylinder Force	kN	1.34~1.47	2.15~2.22	4.14~4.22	5.5~5.68	9.55~9.66	14.36~14.55
Release Spring Force	N	47~173.5	76~142.5	154~235	211.5~394.5	314~426.5	581~772
<b>Small Stroke (Code-S)</b>		<b>T030-□S</b>	<b>T036-□S</b>	<b>T045-□S</b>	<b>T055-□S</b>	<b>T065-□S</b>	<b>T080-□S</b>
Full Stroke	mm	<b>8</b>	<b>10</b>	<b>10</b>	<b>12</b>	<b>16</b>	<b>16</b>
Cylinder Capacity	cm <sup>3</sup>	1.77	3.3	6.4	10.32	23.2	35.2
Mass	Kg	0.18	0.3	0.59	0.95	1.6	2.7
<b>Medium Stroke (Code-M)</b>		<b>T030-□M</b>	<b>T036-□M</b>	<b>T045-□M</b>	<b>T055-□M</b>	<b>T065-□M</b>	<b>T080-□M</b>
Full Stroke	mm	<b>12</b>	<b>16</b>	<b>16</b>	<b>20</b>	<b>25</b>	<b>25</b>
Cylinder Capacity	cm <sup>3</sup>	2.66	5.2	10.24	17.2	36.25	55
Mass	Kg	0.22	0.4	0.68	1.2	2	3.3
<b>Large Stroke (Code-L)</b>		<b>T030-□L</b>	<b>T036-□L</b>	<b>T045-□L</b>	<b>T055-□L</b>	<b>T065-□L</b>	<b>T080-□L</b>
Full Stroke	mm	<b>20</b>	<b>25</b>	<b>25</b>	<b>32</b>	<b>40</b>	<b>40</b>
Cylinder Capacity	cm <sup>3</sup>	4.43	8.25	16	27.5	58	88
Mass	Kg	0.31	0.53	0.94	1.6	2.6	4.3

- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General mineral based hydraulic oil (ISO – VG32 Equivalent)
- Cylinder force given in the table is relatively affected by release spring force. So, select the cylinder accordingly. Given value of cylinder forces are at 70 bar pressure.
- Actual forces of the cylinder may vary slightly due to friction losses, seal and wiper drag, and/or return spring forces.

### External Dimensions

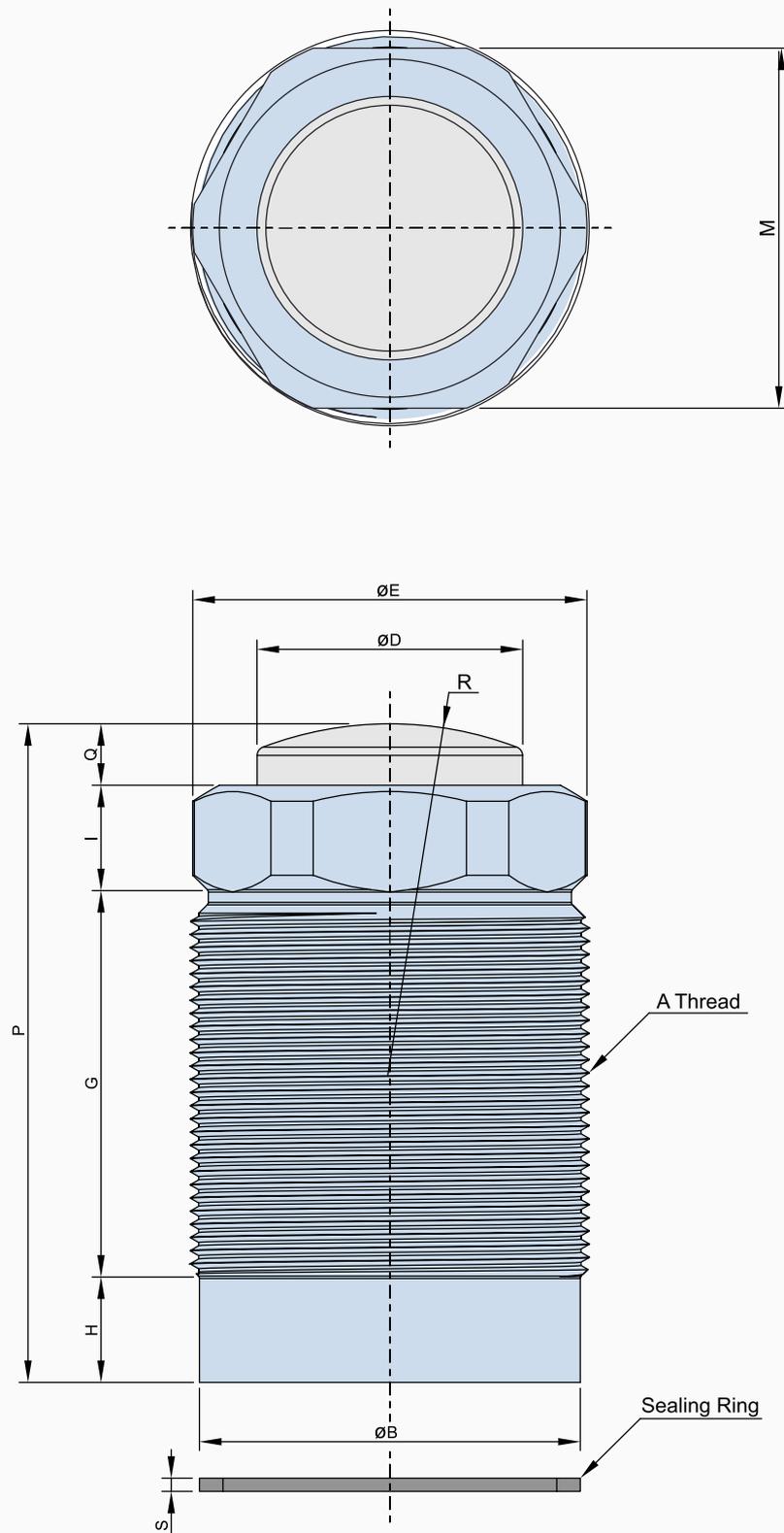


- This figure shows the retracted position of cylinder.

Model No.	T030-F□	T036-F□	T045-F□	T055-F□	T065-F□	T080-F□
A (Nominal X Pitch)	M30X1.5	M36X1.5	M45X1.5	M55X2	M65X2	M80X2
ØB	28	34	43	52	62	77
ØC	17	19	28	34	42	52
ØD	18	22	30	35	45	55
ØE	29.5	35	44.5	54.5	64.5	79.5
H	9	10	12	12	13	13
I	8	8	12	12	14	14
J	8.5	9.5	12	13	16	19
K	7	8	10	11	13	16
L	14	17	24	30	36	41
M	27	32	41	50	60	74
N (Nominal X Pitch X Depth)	M8X1.25X10	M8X1.25X10	M10X1.5X11	M12X1.75X12	M16X2X16	M20X2.5X20
S	1					
<b>Stroke Code-S (Small)</b>						
Stroke	<b>8</b>	<b>10</b>	<b>10</b>	<b>12</b>	<b>16</b>	<b>16</b>
F	50	60	70	75	90	100
G	24.5	32.5	34	38	47	54
<b>Stroke Code-M (Medium)</b>						
Stroke	<b>12</b>	<b>16</b>	<b>16</b>	<b>20</b>	<b>25</b>	<b>25</b>
F	60	73	80	90	105	120
G	34.5	45.5	44	53	62	74
<b>Stroke Code-L (Large)</b>						
Stroke	<b>20</b>	<b>25</b>	<b>25</b>	<b>32</b>	<b>40</b>	<b>40</b>
F	80	94	105	115	136	152
G	54.5	66.5	69	78	93	106

- The piston rod has female thread. No contact bolt is included. Prepare them according to the dimensions and application.
- Sealing ring is included in scope of supply.

## External Dimensions for Round Head Rod Option

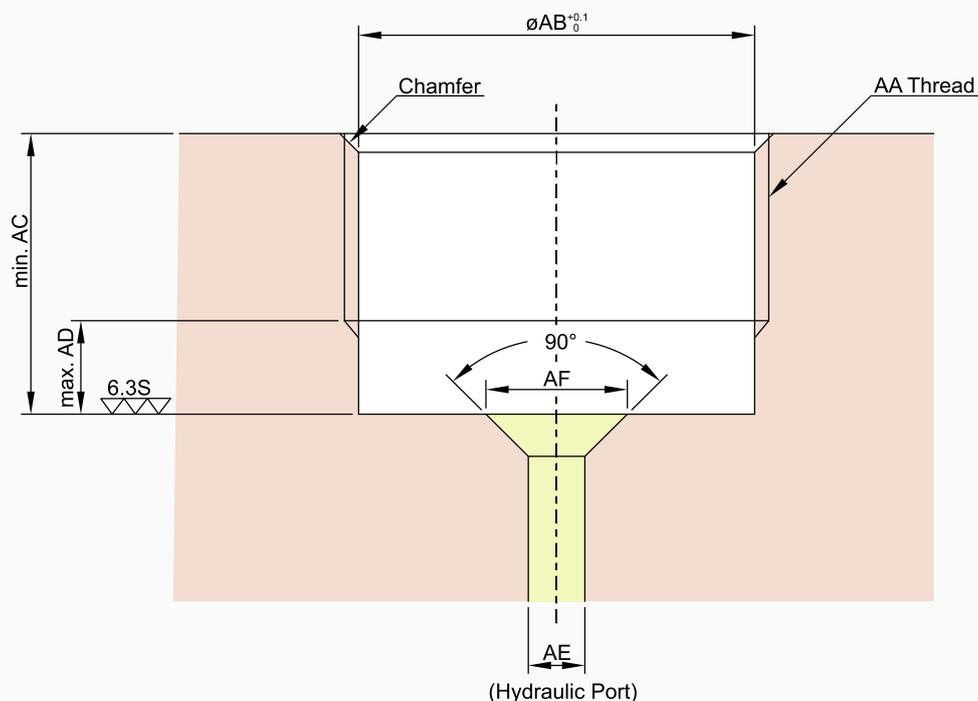


- This figure shows the retracted position of cylinder.



Model No.	T030-R□	T036-R□	T045-R□	T055-R□	T065-R□	T080-R□
A (Nominal X Pitch)	M30X1.5	M36X1.5	M45X1.5	M55X2	M65X2	M80X2
ØB	28	34	43	52	62	77
ØD	18	22	30	35	45	55
ØE	29.5	35	44.5	54.5	64.5	79.5
H	9	10	12	12	13	13
I	8	8	12	12	14	14
M	27	32	41	50	60	74
Q	4.5	5.5	7	7	8	9
R	R20	R30	R40	R50	R60	R70
S	1					
<b>Stroke Code-S (Small)</b>						
Stroke	<b>8</b>	<b>10</b>	<b>10</b>	<b>12</b>	<b>16</b>	<b>16</b>
G	24.5	32.5	34	38	47	54
P	46	56	65	69	82	90
<b>Stroke Code-M (Medium)</b>						
Stroke	<b>12</b>	<b>16</b>	<b>16</b>	<b>20</b>	<b>25</b>	<b>25</b>
G	34.5	45.5	44	53	62	74
P	56	69	75	84	97	110
<b>Stroke Code-L (Large)</b>						
Stroke	<b>20</b>	<b>25</b>	<b>25</b>	<b>32</b>	<b>40</b>	<b>40</b>
G	54.5	66.5	69	78	93	106
P	76	90	100	109	128	142

## Mounting Details



Model No.	T030-□□	T036-□□	T045-□□	T055-□□	T065-□□	T080-□□
AA (Nominal X Pitch)	M30X1.5	M36X1.5	M45X1.5	M55X2	M65X2	M80X2
øAB	28	34	43	52	62	77
AD max.	9	10	12	12	13	13
øAE	3	4	5	6	8	8
øAF	10	14	18	23	30	35
AC min.	20	22	25	28	32	34
Chamfer	1	1	1	1.5	1.5	1.5





## Cautions

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1. Check the usable fluid.
  - i.e. General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
  - Make sure the hydraulic fluid not deteriorated.
2. Cylinder clamping method
  - Make sure no forces applied to the piston rod except from the axial direction. Otherwise it may cause a reduction in working life and leakages leading to the destruction of the cylinder.
3. Hydraulic supply
  - Never exceed the given pressure limit otherwise it will cause malfunction of the product.
  - If the flow rate is too high, excessive speed can be caused and lead to wear and damage to cylinder components.
4. Procedure before piping
  - The pipeline, piping connector and fixture circuits should be cleaned by thoroughly flushing.
  - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
  - There is no filter provided with product, which prevents foreign materials and contaminants from getting into the circuit.
  - While applying the sealing tape ensure that no pieces of sealing tape enters into the circuit, it can lead to oil leakage and malfunctions.
  - Please implement piping constructions in a clean environment to prevent anything getting into the product.
5. Do not touch cylinder while it is working, otherwise it may cause injury due to clinging.
6. Make sure not to overload the piston rod when the cylinder is in rest position.
7. Do not disassemble or modify the product.
  - If the product is modified, then malfunction occurs.
8. Please contact us for overhaul and repair.



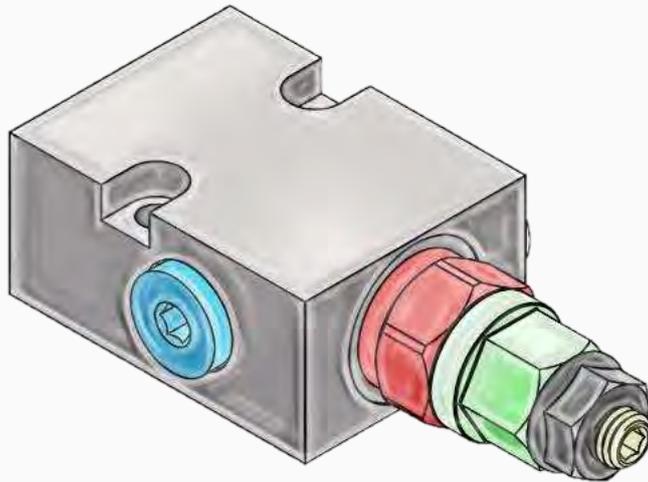
# Sequence Valve

## Model SQ

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## Technical Data

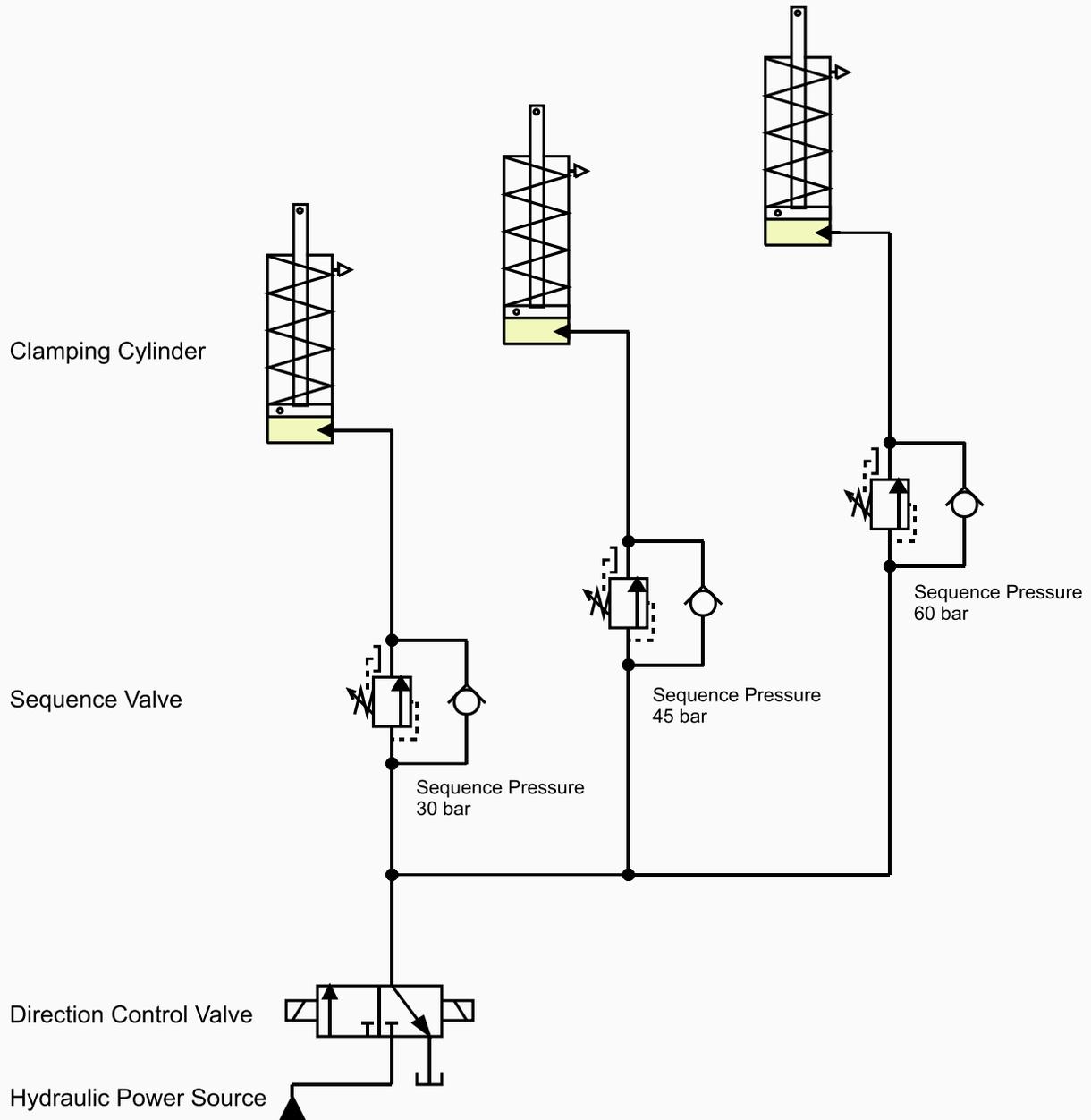


### Specifications

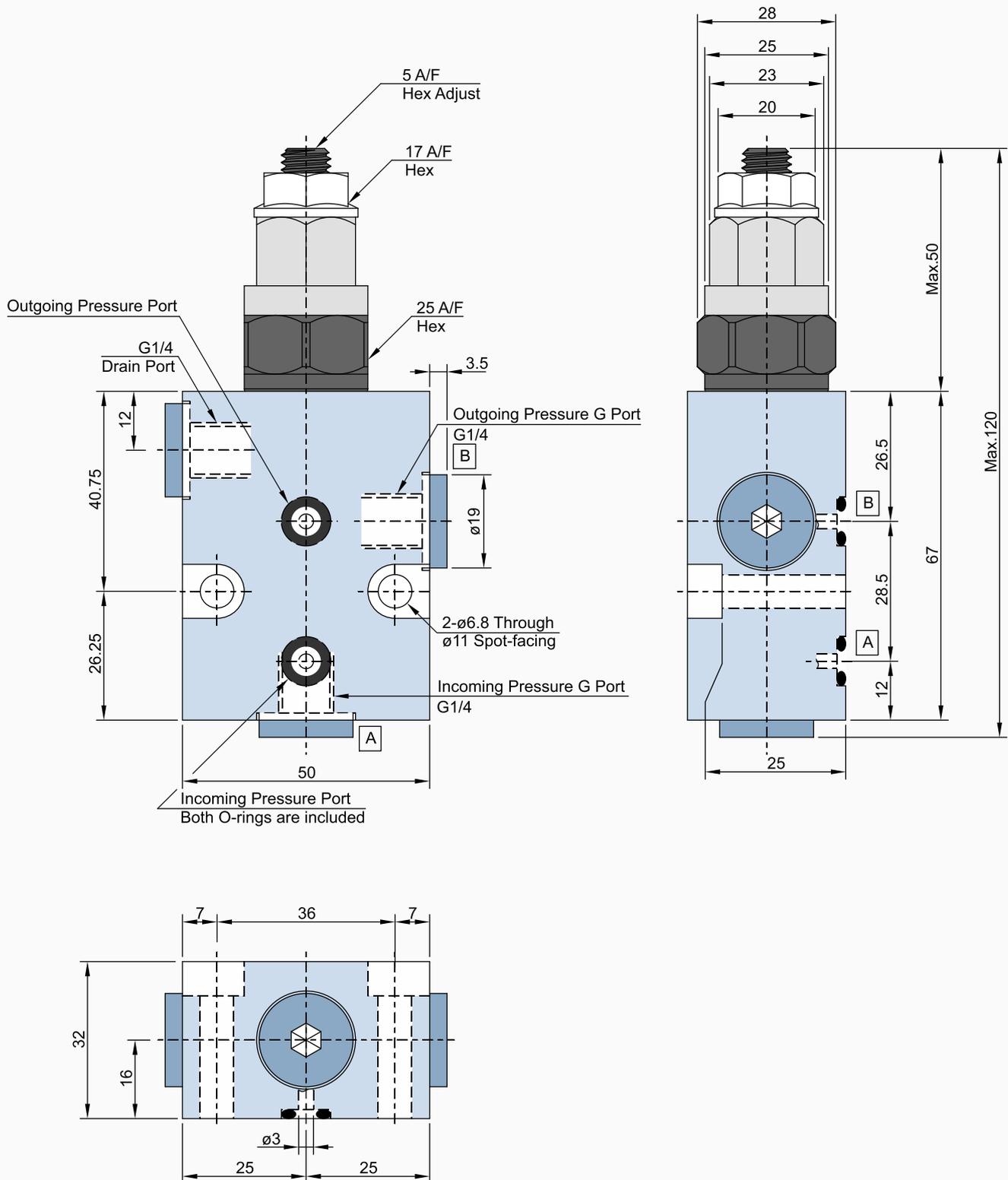
Rated Flow	lpm	40
Pressure Range	bar	10-350
Operating Temperature	°C	-20 to 90
Filtration Level		BS5540/4 Class I8/I3 (25µ nominal)
Viscosity Range	cSt	5-500
Fluid used		General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
Mass	Kg	1

## Hydraulic Circuit Diagram

- This circuit shows sequencing application in cylinders.
- Please be aware when designing the circuit.



## External Dimensions



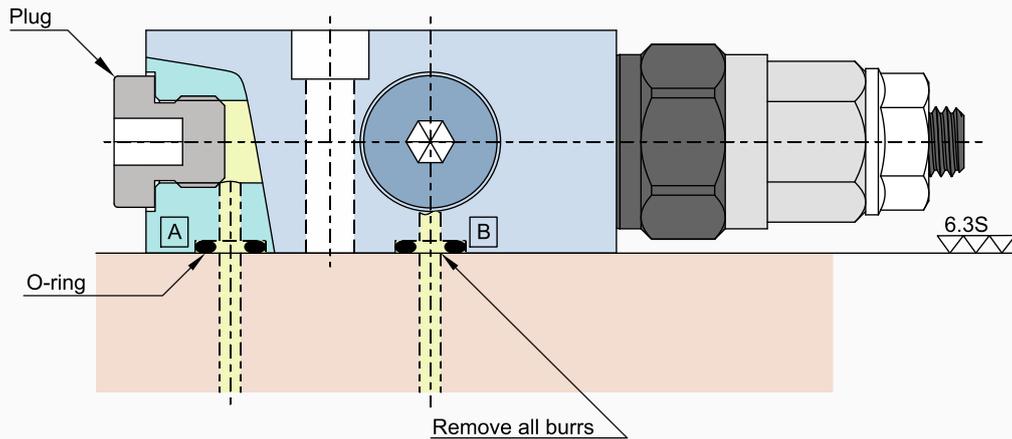
- Mounting Screws are not included.
- Set sequencing pressure by tightening or loosening the grub screw located at end of valve.



## Instructions

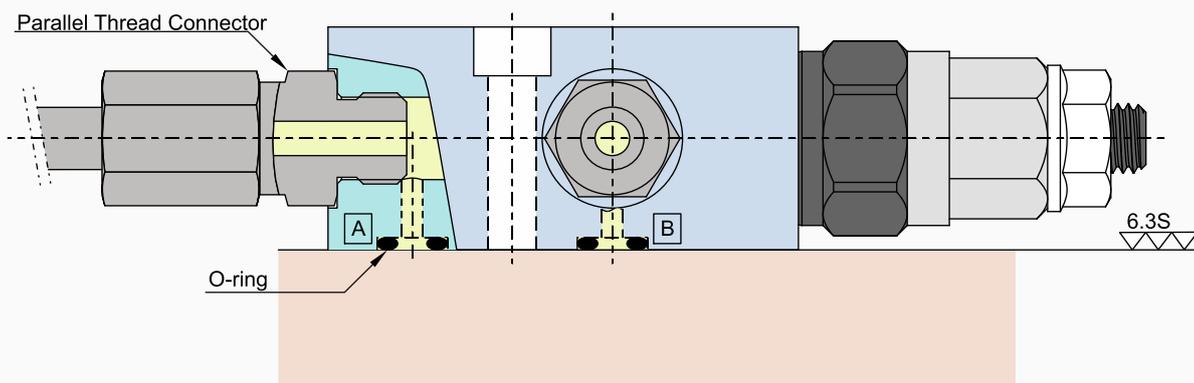
### Hydraulic Connection

#### Gasket Option



- For gasket option, G-ports must be closed with plug.
- The fluid flow is from path A to B.
- Roughness of mounting surface (O-ring seal surface) should be 6.3S or less.

#### Piping Option



- In a piping option, Gasket holes must be closed with O-ring.
- The fluid flow is from path A to B.
- Roughness of mounting surface (O-ring seal surface) should be 6.3S or less.



## Cautions

---

1. Check the usable fluid.
  - i.e. General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
  - Make sure the hydraulic fluid not deteriorated.
2. If there is something wrong with the circuit design, it leads to the applications malfunction and damage.
3. The sequence effect may not be achievable due to a back pressure in case the hydraulic circuit would be built by meter out control or would generate pipe resistance.
4. Hydraulic supply
  - Never exceed the given pressure limit otherwise it will cause malfunction of the product.
  - If the flow rate is too high, excessive speed can be caused and lead to wear and damage to cylinder components.
5. Procedure before piping
  - The pipeline, piping connector and fixture circuits should be cleaned by thoroughly flushing.
  - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
  - There is no filter provided with product, which prevents foreign materials and contaminants from getting into the circuit.
  - While applying the sealing tape ensure that no pieces of sealing tape enters into the circuit, it can lead to oil leakage and malfunctions.
  - Please implement piping constructions in a clean environment to prevent anything getting into the product.
6. Do not disassemble or modify the product.
  - If the product is modified, then malfunction occurs.
7. Please contact us for overhaul and repair.







# Flow Control Valve

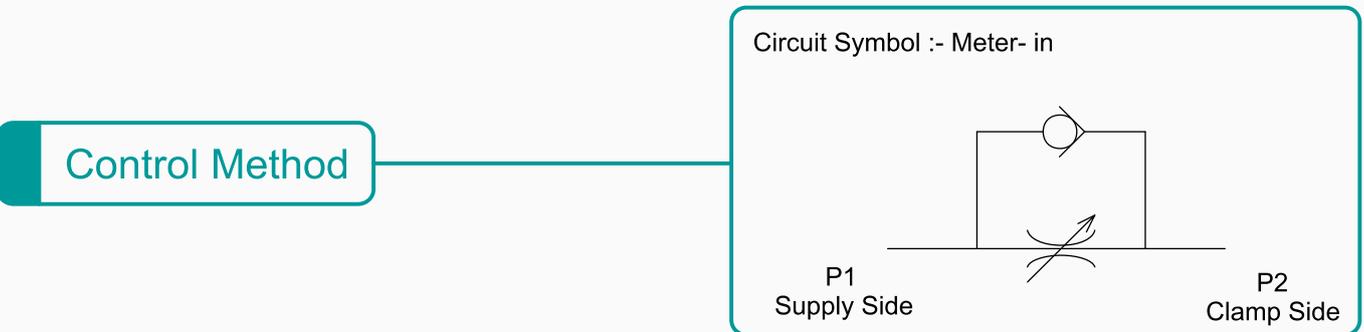
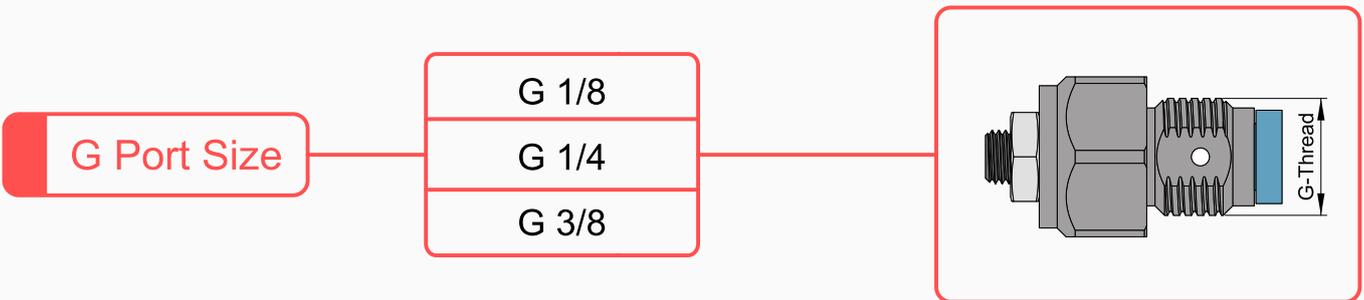
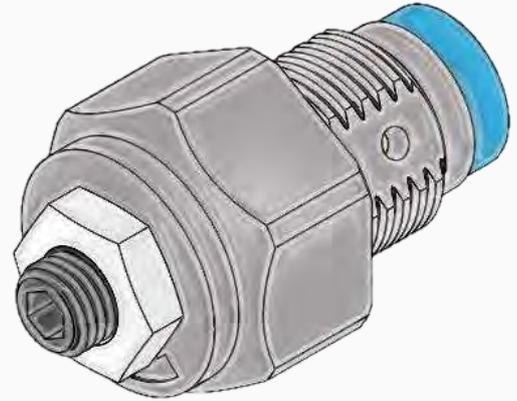
## Model FC

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Model No. Selection

**FC** **G 1/8**



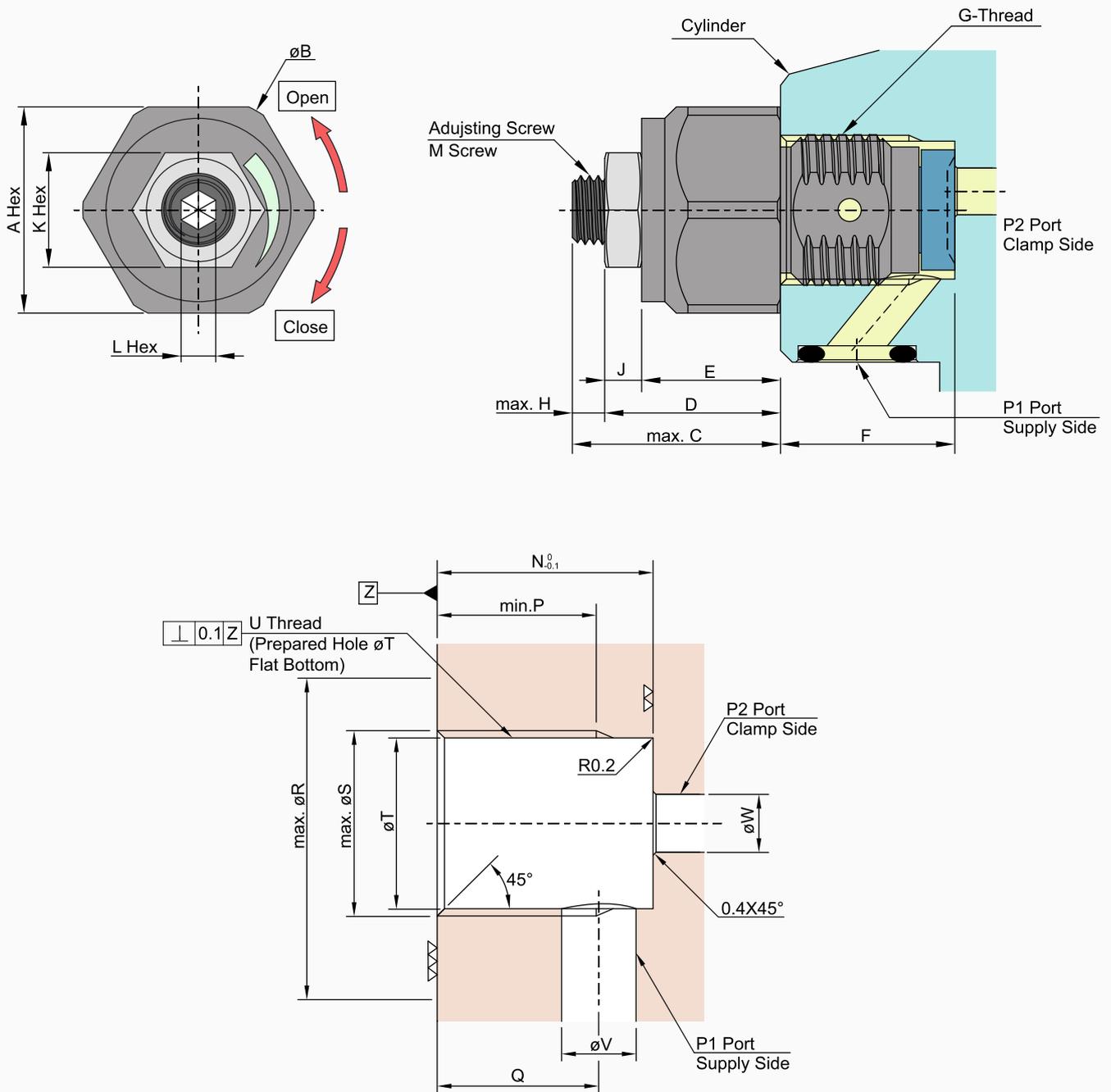
## Technical Data

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Specifications
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- There are three G-thread sizes: G1/8, G1/4 and G3/8
- Control method is meter-in type flow.
- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General mineral based hydraulic oil (ISO – VG32 Equivalent)

## External Dimensions



- Since the  $\nabla\nabla\nabla$  area is sealing part, be careful not to damage it.
- Since the  $\nabla\nabla$  area is the metal sealing part of valve, be careful not to damage it. (Especially when deburring)
- No cutting chips or burr should be at tolerance part of machining hole.
- As the figure illustrates, P1 port is used as hydraulic supply and P2 port as the clamp side.
- Prefer short G-thread plugs for this machining hole when not using flow control valve or else dimension P should be as standard G-thread plug specification.



Model No.	FC-G1/8	FC-G1/4	FC-G3/8
A	14	18	22
ØB	15.5	20	24
C	16.5	18	21
D	13.2	15.2	18
E	10	12	13
F	(11.6)	(15.1)	(17.6)
G Thread	G1/8	G1/4	G3/8
H	3.3	2.8	3
J	3.2	3.2	5
K	10	10	13
L	3	3	4
M Thread	M6X0.75	M6X0.75	M8X0.75
N	11.5	15	17.5
P	8.5	11	13
Q	8.5	11	13
ØR	16	20.5	24.5
ØS	10	13.5	17
ØT	8.7	11.5	15
U Thread	G1/8	G1/4	G3/8
ØV	2~3	3~4	4~5
ØW	2.5~5	3.5~7	4.5~9



## Cautions

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1. Check the usable fluid.
  - i.e. General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
  - Make sure the hydraulic fluid not deteriorated.
2. If there is something wrong with the circuit design, it leads to the applications malfunction and damage.
3. Hydraulic supply
  - Never exceed the given pressure limit otherwise it will cause malfunction of the product.
  - If the flow rate is too high, excessive speed can be caused and lead to wear and damage to cylinder components.
4. It is dangerous to air bleed during operation under high pressure. It must be done under lower pressure.
5. Procedure before piping
  - The pipeline, piping connector and fixture circuits should be cleaned by thoroughly flushing.
  - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
  - There is no filter provided with product, which prevents foreign materials and contaminants from getting into the circuit.
  - While applying the sealing tape ensure that no pieces of sealing tape enters into the circuit, it can lead to oil leakage and malfunctions.
  - Please implement piping constructions in a clean environment to prevent anything getting into the product.
6. Do not disassemble or modify the product.
  - If the product is modified, then malfunction occurs.
7. Please contact us for overhaul and repair.







# Rotary Union

## Model B

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Model No. Selection

**UR** - **B** **4**



Rotary Joint **UR**

Design Type **B**

Circuits  

2	4	6	8
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**4**

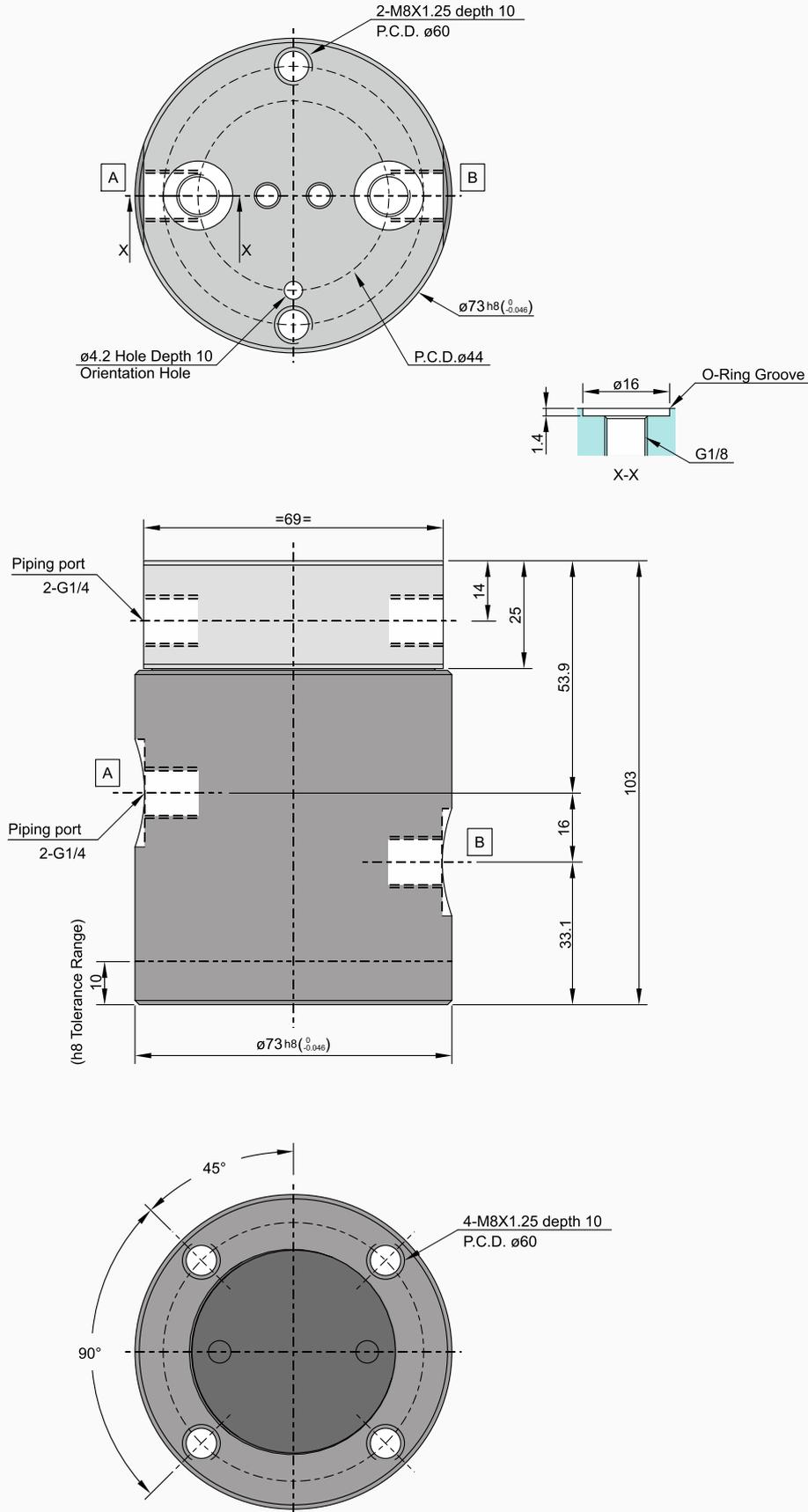
Technical Data

Specifications

Model No.	UR-B2	UR-B4	UR-B6	UR-B8
Number of circuits	2	4	6	8
Fluid Used	General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent) or Air			
Max. pressure	Bar 100			
Operating temperature	°C 0-70			
Connection Type	Housing	Piping only (G1/8 port)		
	Shaft	Piping and Gasket option (counter-bore or groove is provided for O-ring)		
Guide	Housing	External guide of h8 tolerance with range of 10 mm at bottom		
	Shaft	External guide of h8 tolerance		
Centre hole	Without centre hole			
Mass	Kg 3.0	5.5	10	14.4

## External Dimensions

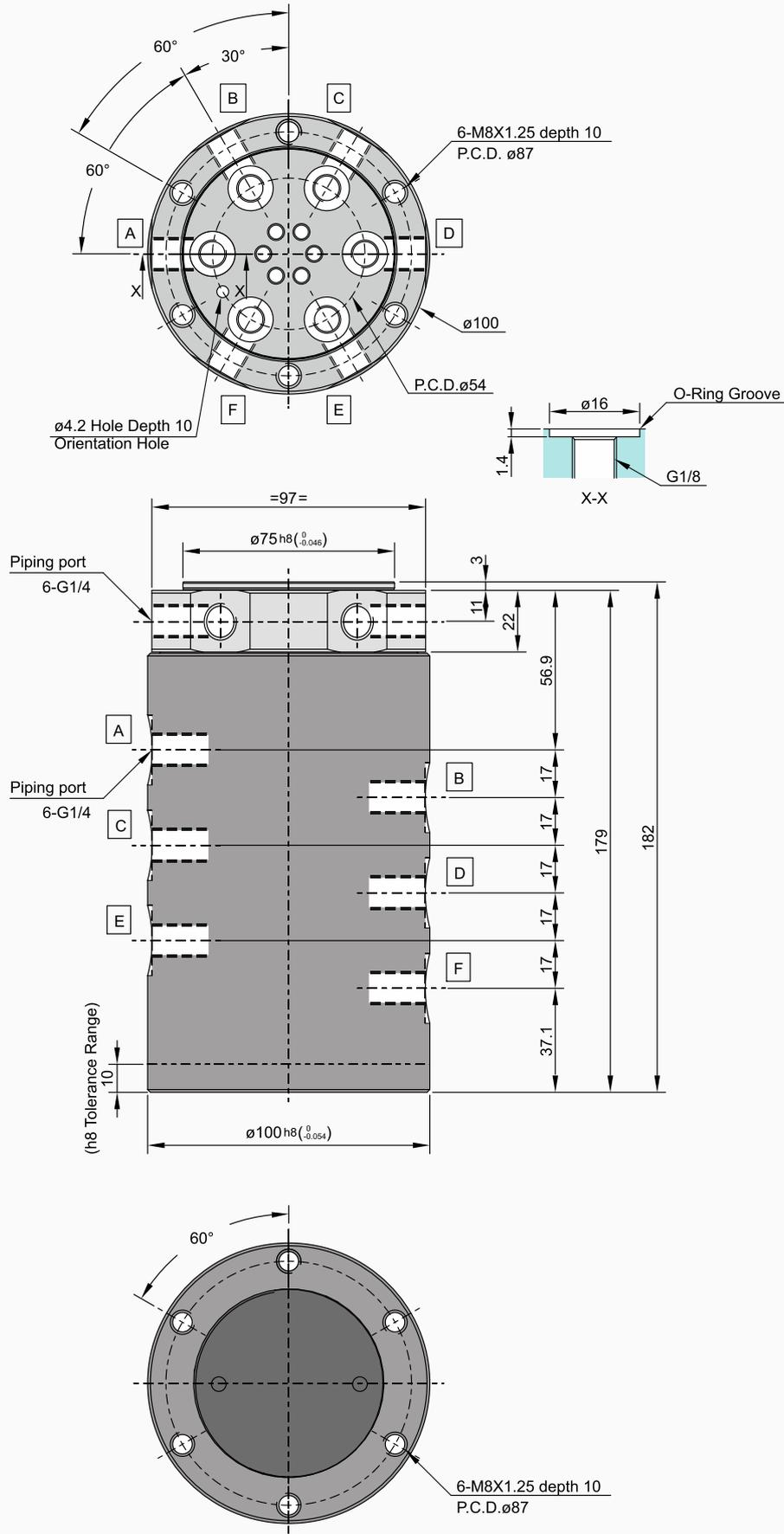
### UR-B2: 2-Circuits



- Each piping port is marked with code A or B.

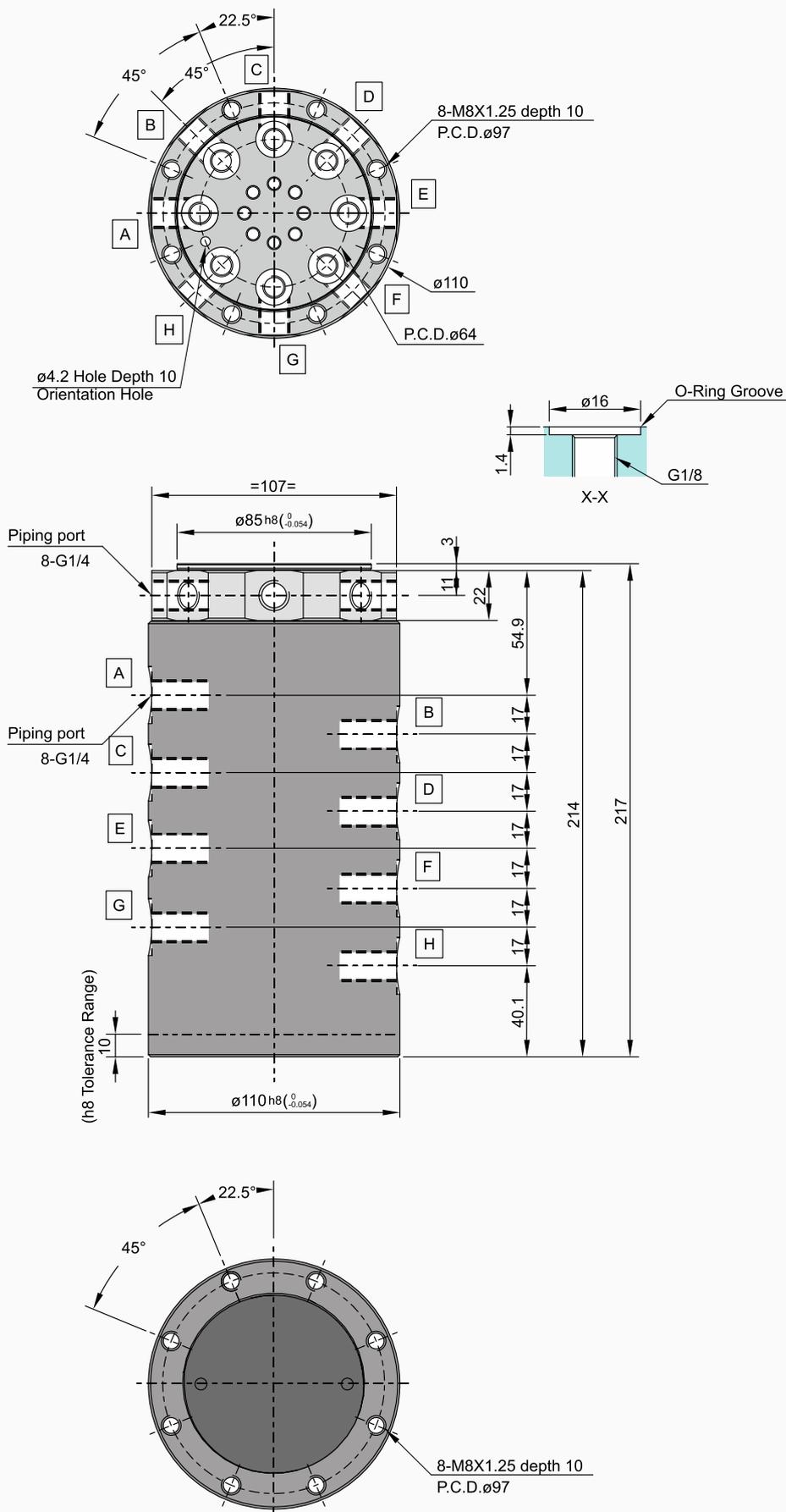


UR-B6: 6-Circuits



- Each piping port is marked with code A through F.

**UR-B8: 8-Circuits**



- Each piping port is marked with code A through H.



## Cautions

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1. Check the usable fluid.
  - i.e. General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
  - Make sure the hydraulic fluid not deteriorated.
2. Hydraulic supply
  - Never exceed the given pressure limit otherwise it will cause malfunction of the product.
3. Procedure before piping
  - The pipeline, piping connector and fixture circuits should be cleaned by thoroughly flushing. Otherwise, the flow characteristics may decrease due to clogging or the packing can be damaged.
  - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
  - This product is not equipped with a protective function to prevent contaminants going into hydraulic circuit and pipers.
  - Please implement piping constructions in a clean environment to prevent anything getting into the product.
  - While applying the sealing tape ensure that no pieces of sealing tape enters into the circuit, it can lead to oil leakage and malfunctions.
4. To avoid offset load, fix rotation side with mounting bolts and hold only rotation side.
5. Use a hose for piping of the stop side. Steel piping increases a load during and leads to malfunction.
6. Please avoid continuous operation. It will cause overheating of the internal packing.
7. The starting torque can be more than double of the rotating torque. It varies depending on the down time.
8. Do not touch product while it is working, otherwise it may cause injury.
9. Do not disassemble or modify the product.
  - If the product is modified, then malfunction occurs.
10. Please contact us for overhaul and repair.



# Rotary Union

## Model C

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### Model No. Selection

**UR** - **C** **4**



Rotary Joint **UR**

Design Type **C**

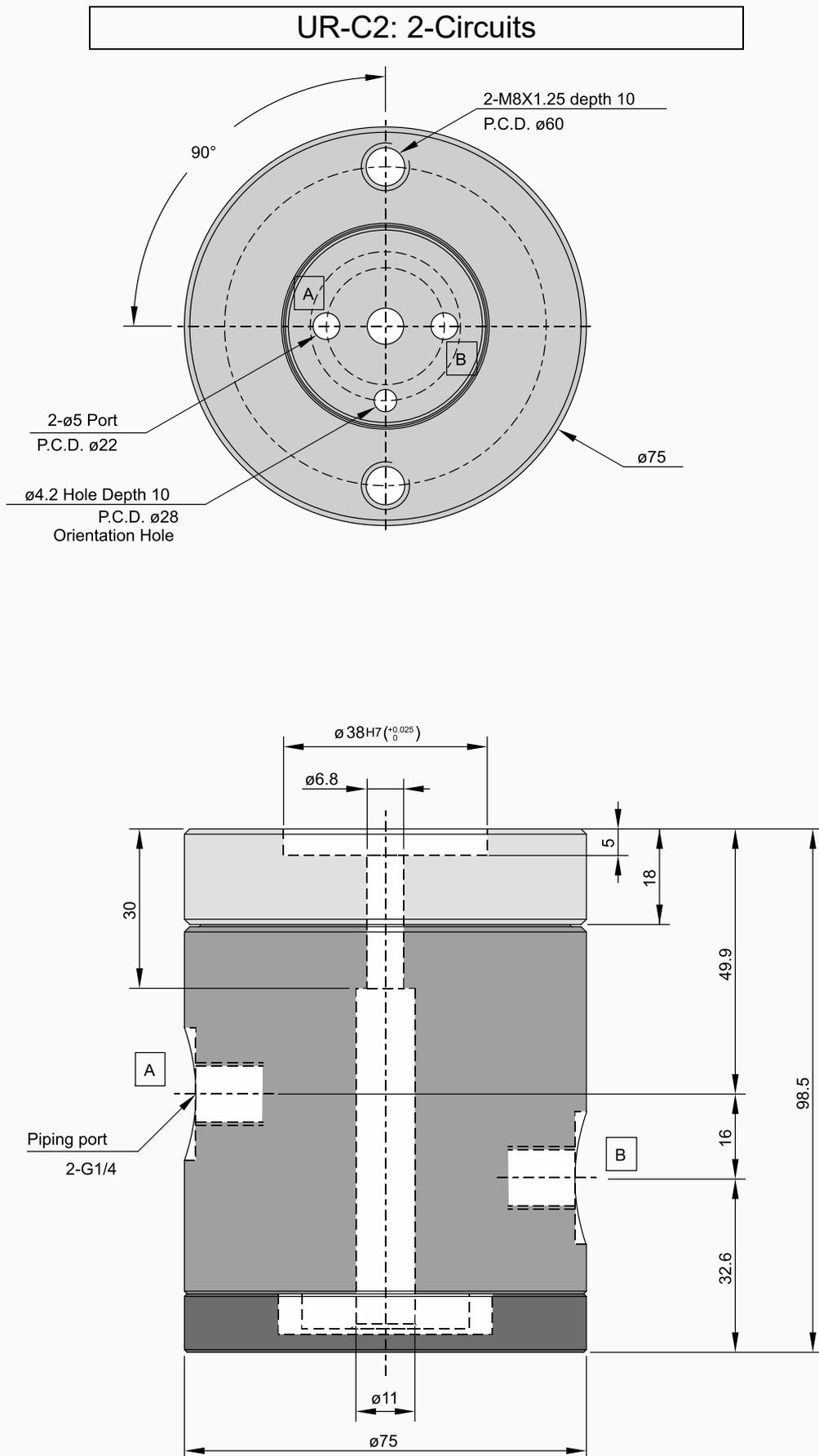
Circuits  
 2    4    6  
**4**

### Technical Data

#### Specifications

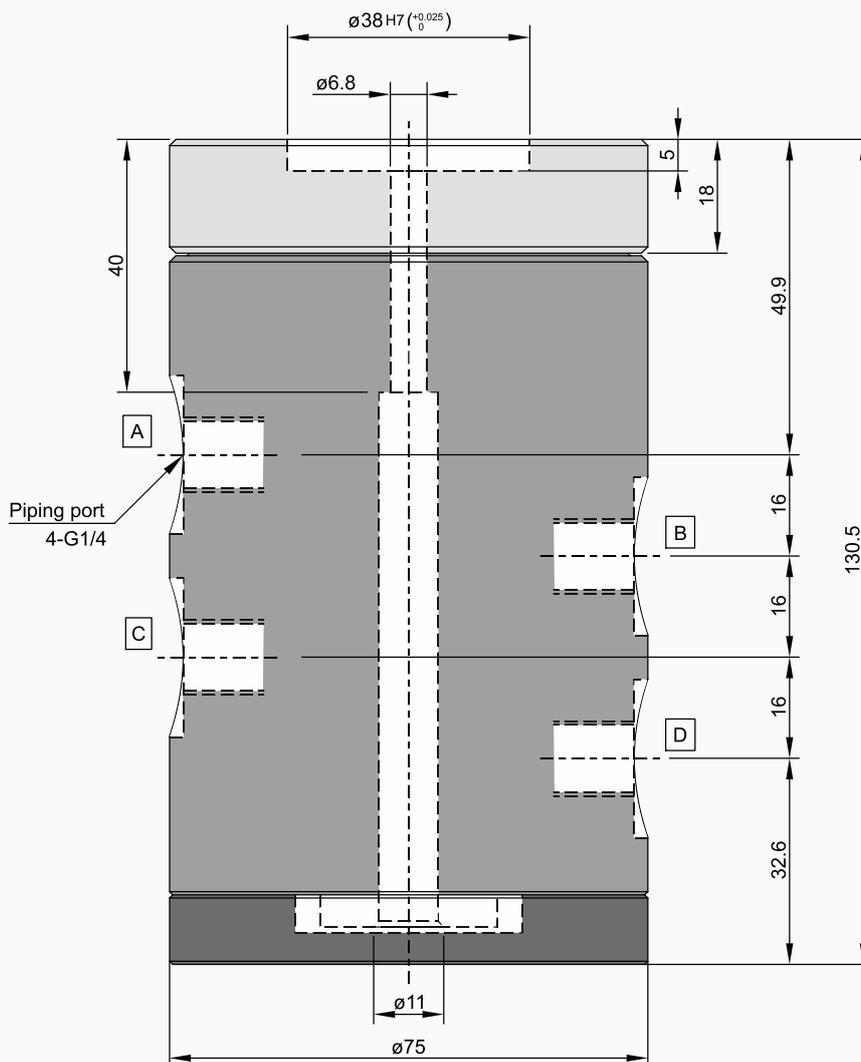
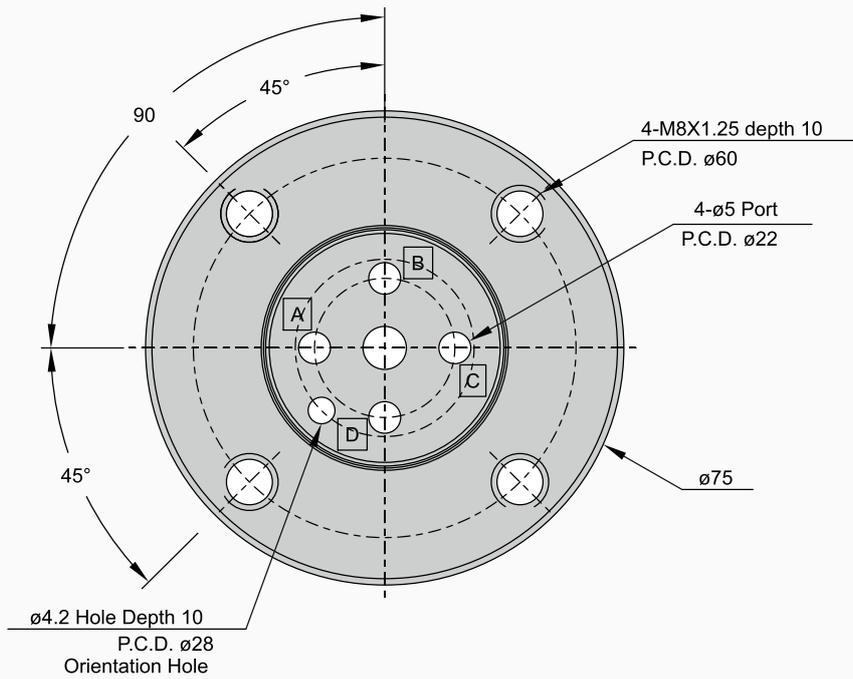
Model No.		UR-C2	UR-C4	UR-C6
Number of circuits		2	4	6
Fluid Used		General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent) or Air		
Max. pressure	Bar	100		
Operating temperature	°C	0-70		
Connection Type	Housing	Piping only (G1/8 port)		
	Shaft	Gasket only (No counter-bore or groove is provided for O-ring)		
Guide	Housing	No guide		
	Shaft	Internal guide of H7 tolerance		
Centre hole		With centre hole		
Mass	Kg	3.0	4	9.7

## External Dimensions



- Each piping port is marked with code A or B.

UR-C4: 4-Circuits



- Each piping port is marked with code A through D.





## Cautions

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1. Check the usable fluid.
  - i.e. General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
  - Make sure the hydraulic fluid not deteriorated.
2. Hydraulic supply
  - Never exceed the given pressure limit otherwise it will cause malfunction of the product.
3. Procedure before piping
  - The pipeline, piping connector and fixture circuits should be cleaned by thoroughly flushing. Otherwise, the flow characteristics may decrease due to clogging or the packing can be damaged.
  - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
  - This product is not equipped with a protective function to prevent contaminants going into hydraulic circuit and pipers.
  - Please implement piping constructions in a clean environment to prevent anything getting into the product.
  - While applying the sealing tape ensure that no pieces of sealing tape enters into the circuit, it can lead to oil leakage and malfunctions.
4. To avoid offset load, fix rotation side with mounting bolts and hold only rotation side.
5. Use a hose for piping of the stop side. Steel piping increases a load during and leads to malfunction.
6. Please avoid continuous operation. It will cause overheating of the internal packing.
7. The starting torque can be more than double of the rotating torque. It varies depending on the down time.
8. Do not touch product while it is working, otherwise it may cause injury.
9. Do not disassemble or modify the product.
  - If the product is modified, then malfunction occurs.
10. Please contact us for overhaul and repair.





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