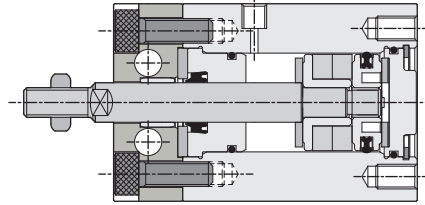


# ND series Free Mount Cylinder

## Product features

CHELIC

### Internal structure



### Specification

Item	Bore size (mm)	Ø16	Ø20	Ø25	Ø32	Ø40
Action		Double acting				
Fluid		Air				
Mounting type		Horizontal, Vertical, Side mounting and Flang type				
Pressure range	Kgf/cm <sup>2</sup> (kPa)	1.5 ~ 8.5 ( 150 ~ 850 )				
Ambient and fluid temperature	°C	0 ~ 60				
Piston speed	mm/s	50 ~ 700				
Body material		Aluminum alloy				
Cushion		Rubber washer				
Lubrication		Lubrication free type				
Port size		M5x8.0P			Rc 1/8	
Sensing device		Standard: Without magnet/ S: With magnet				
Standard stroke	mm	10, 20, 30, 40, 50, 60				

### Bore size and stroke

#### Standard

Item	Stroke	10	20	30	40	50	60
ND NDD	Ø16 ~ Ø40	●	●	●	●	●	●
NDI NDO	Ø16 ~ Ø40	●	●	●	—	—	—

#### With magnet

Item	Stroke	10	20	30	40	50	60
ND NDD	Ø16	●	●	●	●	●	—
	Ø20 ~ Ø40	●	●	●	●	●	●
NDI NDO	Ø16 ~ Ø40	●	●	●	—	—	—

### Code of order

**ND** × **20** × **30** - **F** - **B** - **S T 2**

**Model**      **Bore size**      **Stroke**      **Mounting type**      **Thread type**      **Sensor switch**

ND: Standard (Double acting)

NDI: Single acting (Normal in)

NDO: Single acting (Normal out)

NDD: Double acting (Double rod)

16 - Ø 16 mm  
20 - Ø 20 mm  
25 - Ø 25 mm  
32 - Ø 32 mm  
40 - Ø 40 mm

Ø16 - 10 ~ 60 mm  
Ø20 - 10 ~ 60 mm  
Ø25 - 10 ~ 60 mm  
Ø32 - 10 ~ 60 mm  
Ø40 - 10 ~ 60 mm

※ with magnet to 50mm stroke only.

None: Standard

F: Front flange mounting

M: Bottom flange mounting

None: Female thread

B: Male thread

CS-15T    S | T | 2

None: Standard

S : With magnet

T : Sensor switch (CS-15T)

2 : Number of sensor switch  
1 = 1 PCS  
2 = 2 PCS

⚠ None  
● Magnet must be marked "S"

⚠ Note  
● Standard: female thread  
● Male thread must be marked "B".

NA

NA2

NB

NU

ND

NQ

MSI

JQ

JD

JG

JTD

JTF

JCB

JCF

JE

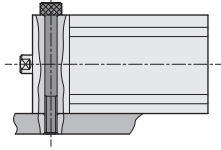
JM

# ND series Free Mount Cylinder

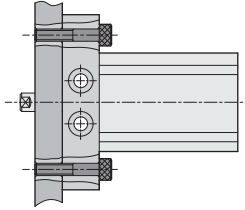
## Product features

CHELIC

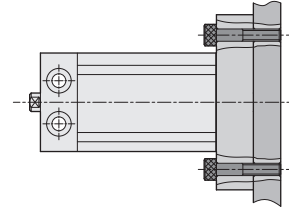
### Mounting type



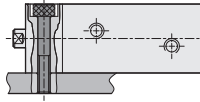
● Top mounting type



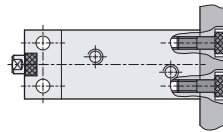
● Front flange type - **F**



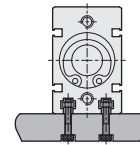
● Bottom flange type - **M**  
(Option)



● Side mounting

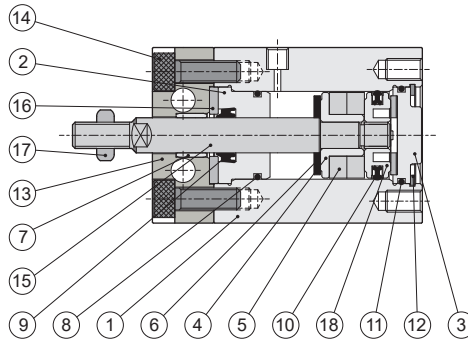


● Bottom mounting



● Bottom slide mounting type  
(For Ø32, Ø40 only)

### Internal structure



### Component and material list

No.	Item	Material	No.	Item	Material
01	Body	Aluminum alloy	10	Piston O-ring	NBR
02	Front cover	Copper alloy	11	Rear cap O-ring	NBR
03	Rear cover	Aluminum alloy	12	Rear cap clip	Spring steel
04	Magnet cap	Copper alloy	13	Front cover plate	Aluminum alloy
05	Magnet	Plastic	14	Mounting bolt	Alloy steel
06	Plain washer	Rubber	15	Piston rod	Stainless steel
07	Bearing	LFB Bearing	16	Front cover plate	Copper alloy
08	Front cover O-ring	NBR	17	Nut	Alloy steel
09	Shaft packing	NBR	18	Piston	Aluminum alloy

### Packing and O-ring

Unit: mm

Item	Shaft packing	Shaft packing	Front cover O-ring	Rear cover O-ring	Plain washer
<b>Bore size</b>	<b>No.</b>				
	1	1	1	1	2
Ø 16	COP-16	DRP-6	13.2X1.5	15.5X1.45	RP-16
Ø 20	COP-20	DRP-8	17.5X1.5	17.5X1.5	RP-20
Ø 25	COP-25	DRP-10	20.8X2.0	24.5X2.0	RP-25
Ø 32	COP-32	DRP-12	28.5X2.0	30.0X2.0	RP-32
Ø 40	COP-40	DRP-16	36.0X2.0	38.5X2.0	RP-40

※ Note: The piston packing and shaft packing are from MITSUBISHI, SAKAGAMI or the same good level of quality material.

# ND series Free Mount Cylinder

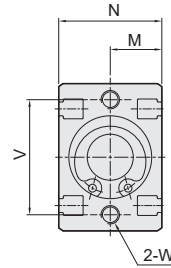
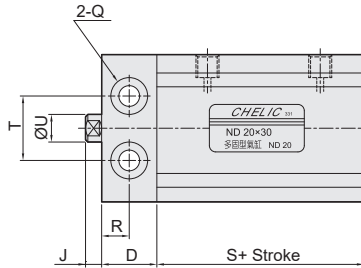
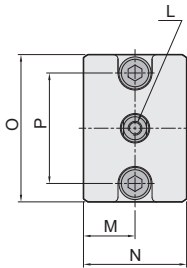
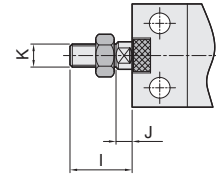
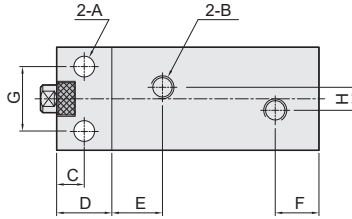
Dimension-Standard type

CHELIC

ND Ø16 ~ Ø40



● Male thread ( - B )



Bore size	A	B	C	D	E	F	G	H	I	J	K	L
Ø16	4.5	M5 x 0.8P	6	12	11	9.5	14	5	14	4	M5 x 0.8P x 10 dp	M3 x 0.5P x 6 dp
Ø20	5.5	M5 x 0.8P	7	14	14.5	7.5	16	12	18	3.7	M6 x 1.0P x 14 dp	M4 x 0.7P x 10 dp
Ø25	5.5	M5 x 0.8P	7	14	14	8	20	14	19.5	4	M8 x 1.25P x 16 dp	M5 x 0.8P x 12 dp
Ø32	6.5	PT 1/8"	8	16	15	9.5	24	22	20.5	3.5	M10 x 1.25P x 17 dp	M6 x 1.0P x 14 dp
Ø40	6.5	PT 1/8"	8	16	15.5	10	30	25	30.5	3.5	M14 x 1.5P x 27 dp	M8 x 1.25P x 14 dp

Bore size	M	N	O	P	Q	R	S	T	U	V	W
Ø16	11.4	22.4	32.1	25	Ø 4.5 Thru-hole, Pole hole Ø 8 x 6.5 dp	6	25	14	6	25	M4 x 0.7P x 5 dp
Ø20	13.4	26.4	40.1	30	Ø 5.5 Thru-hole, Pole hole Ø 9 x 8 dp	7	27.5	16	8	30	M5 x 0.8P x 8 dp
Ø25	16.2	32	50.1	38	Ø 5.5 Thru-hole, Pole hole Ø 9.5 x 8.5 dp	7	29.5	20	10	38	M5 x 0.8P x 8 dp
Ø32	20.2	40	62.1	48	Ø 6.5 Thru-hole, Pole hole Ø 11 x 11 dp	8	32	24	12	48	M6 x 1.0P x 12 dp
Ø40	24.2	48	70.1	55	Ø 6.5 Thru-hole, Pole hole Ø 11 x 12 dp	8	34.5	32	16	55	M6 x 1.0P x 12 dp

※ Note: With magnet type, additional 10mm shall be added to the body length.

NA

NA2

NB

NU

ND

NQ

MSI

JQ

JD

JG

JTD

JTF

JCB

JCF

JE

JM

# ND series Free Mount Cylinder

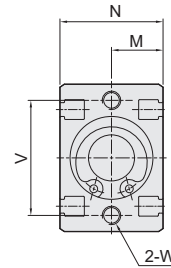
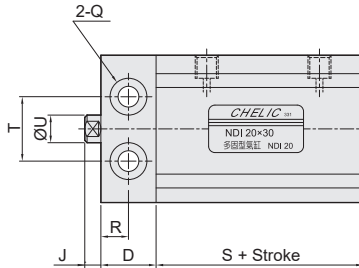
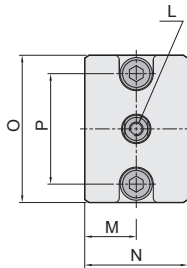
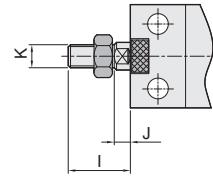
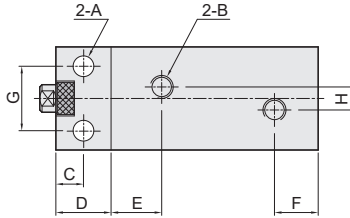
Dimension-Single acting normal in

CHELIC

NDI Ø16 ~ Ø40



● Male thread ( - B )



Bore size	A	B	C	D	E	F	G	H	I	J	K	L
Ø16	4.5	M5 x 0.8P	6	12	11	9.5	14	5	14	4	M5 x 0.8P x 10 dp	M3 x 0.5P x 6 dp
Ø20	5.5	M5 x 0.8P	7	14	14.5	7.5	16	12	18	3.7	M6 x 1.0P x 14 dp	M4 x 0.7P x 10 dp
Ø25	5.5	M5 x 0.8P	7	14	14	8	20	14	19.5	4	M8 x 1.25P x 16 dp	M5 x 0.8P x 12 dp
Ø32	6.5	PT 1/8"	8	16	15	9.5	24	22	20.5	3.5	M10 x 1.25P x 17 dp	M6 x 1.0P x 14 dp
Ø40	6.5	PT 1/8"	8	16	15.5	10	30	25	30.5	3.5	M14 x 1.5P x 27 dp	M8 x 1.25P x 14 dp

Bore size	M	N	O	P	Q	R	S	T	U	V	W
Ø16	11.4	22.4	32.1	25	Ø 4.5 Thru-hole, Pole hole Ø 8 x 6.5 dp	6	25	14	6	25	M4 x 0.7P x 5 dp
Ø20	13.4	26.4	40.1	30	Ø 5.5 Thru-hole, Pole hole Ø 9 x 8 dp	7	27.5	16	8	30	M5 x 0.8P x 8 dp
Ø25	16.2	32	50.1	38	Ø 5.5 Thru-hole, Pole hole Ø 9.5 x 8.5 dp	7	29.5	20	10	38	M5 x 0.8P x 8 dp
Ø32	20.2	40	62.1	48	Ø 6.5 Thru-hole, Pole hole Ø 11 x 11 dp	8	32	24	12	48	M6 x 1.0P x 12 dp
Ø40	24.2	48	70.1	55	Ø 6.5 Thru-hole, Pole hole Ø 11 x 12 dp	8	34.5	32	16	55	M6 x 1.0P x 12 dp

※ Note: 1. Max. stroke= 30 mm.

2. With magnet type, additional 10mm shall be added to the body length.

# ND series Free Mount Cylinder

Dimension-Single acting normal out

CHELIC

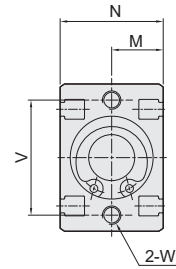
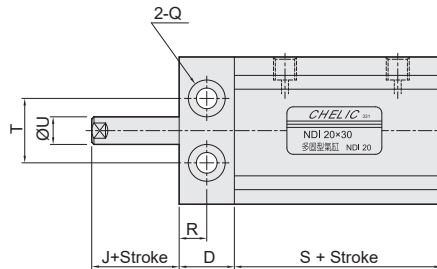
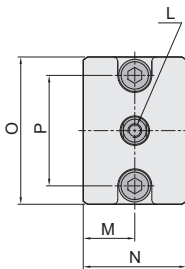
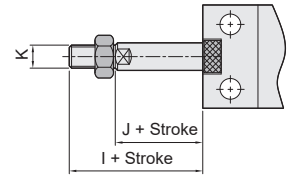
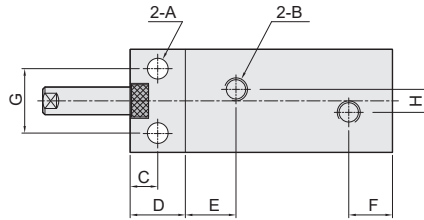
● NDO Ø16 ~ Ø40



NDO □ x □ ST



● Male thread ( - B )



Bore size	A	B	C	D	E	F	G	H	I	J	K	L
Ø16	4.5	M5 x 0.8P	6	12	11	9.5	14	5	14	4	M5 x 0.8P x 10 dp	M3 x 0.5P x 6 dp
Ø20	5.5	M5 x 0.8P	7	14	14.5	7.5	16	12	18	3.7	M6 x 1.0P x 14 dp	M4 x 0.7P x 10 dp
Ø25	5.5	M5 x 0.8P	7	14	14	8	20	14	19.5	4	M8 x 1.25P x 16 dp	M5 x 0.8P x 12 dp
Ø32	6.5	PT 1/8"	8	16	15	9.5	24	22	20.5	3.5	M10 x 1.25P x 17dp	M6 x 1.0P x 14 dp
Ø40	6.5	PT 1/8"	8	16	15.5	10	30	25	30.5	3.5	M14 x 1.5P x 27 dp	M8 x 1.25P x 14 dp

Bore size	M	N	O	P	Q	R	S	T	U	V	W
Ø16	11.4	22.4	32.1	25	Ø 4.5 Thru-hole, Pole hole Ø 8 x 6.5 dp	6	35	14	6	25	M4 x 0.7P x 5 dp
Ø20	13.4	26.4	40.1	30	Ø 5.5 Thru-hole, Pole hole Ø 9 x 8 dp	7	37.5	16	8	30	M5 x 0.8P x 8 dp
Ø25	16.2	32	50.1	38	Ø 5.5 Thru-hole, Pole hole Ø 9.5 x 8.5 dp	7	39.5	20	10	38	M5 x 0.8P x 8 dp
Ø32	20.2	40	62.1	48	Ø 6.5 Thru-hole, Pole hole Ø 11 x 11 dp	8	42	24	12	48	M6 x 1.0P x 12 dp
Ø40	24.2	48	70.1	55	Ø 6.5 Thru-hole, Pole hole Ø 11 x 12 dp	8	44.5	32	16	55	M6 x 1.0P x 12 dp

※ Note: 1. Max. stroke= 30 mm.

2. With magnet type, additional 10mm shall be added to the body length.

NA

NA2

NB

NU

ND

NQ

MSI

JQ

JD

JG

JTD

JTF

JCB

JCF

JE

JM

# ND series Free Mount Cylinder

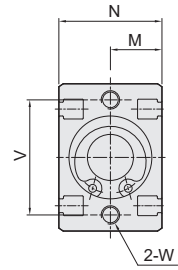
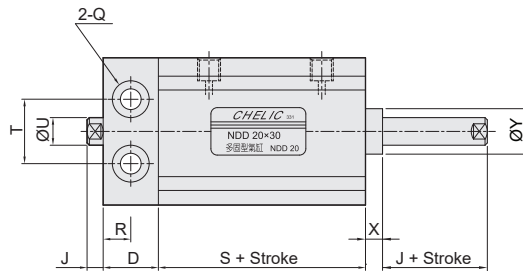
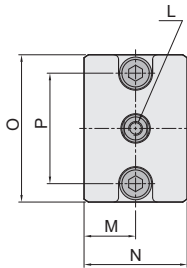
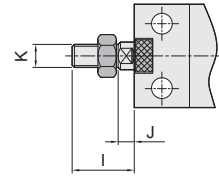
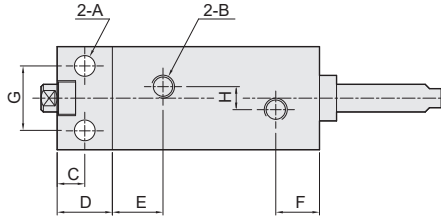
Dimension-Double rod

CHELIC

☉ NDD Ø16 ~ Ø40



Male thread ( - B )



Bore size	A	B	C	D	E	F	G	H	I	J	K	L	M
Ø16	4.5	M5 x 0.8P	6	12	11	9.5	14	5	14	4	M5 x 0.8P x 10 dp	M3 x 0.5P x 6 dp	11.4
Ø20	5.5	M5 x 0.8P	7	14	14.5	7.5	16	12	18	3.7	M6 x 1.0P x 14 dp	M4 x 0.7P x 10 dp	13.4
Ø25	5.5	M5 x 0.8P	7	14	14	8	20	14	19.5	4	M8 x 1.25P x 16 dp	M5 x 0.8P x 12 dp	16.2
Ø32	6.5	PT 1/8"	8	16	15	9.5	24	22	20.5	3.5	M10 x 1.25P x 17 dp	M6 x 1.0P x 14 dp	20.2
Ø40	6.5	PT 1/8"	8	16	15.5	10	30	25	30.5	3.5	M14 x 1.5P x 27 dp	M8 x 1.25P x 14 dp	24.2

Bore size	N	O	P	Q	R	S	T	U	V	W	X	Y
Ø16	22.4	32.1	25	Ø 4.5 Thru-hole, Pole hole Ø 8 x 6.5 dp	6	25	14	6	25	M4 x 0.7P x 5 dp	-	10
Ø20	26.4	40.1	30	Ø 5.5 Thru-hole, Pole hole Ø 9 x 8 dp	7	27.5	16	8	30	M5 x 0.8P x 8 dp	1.5	13
Ø25	32	50.1	38	Ø 5.5 Thru-hole, Pole hole Ø 9.5 x 8.5 dp	7	29.5	20	10	38	M5 x 0.8P x 8 dp	2	17
Ø32	40	62.1	48	Ø 6.5 Thru-hole, Pole hole Ø 11 x 11 dp	8	32	24	12	48	M6 x 1.0P x 12 dp	3.5	22
Ø40	48	70.1	55	Ø 6.5 Thru-hole, Pole hole Ø 11 x 12 dp	8	34.5	32	16	55	M6 x 1.0P x 12 dp	3.5	28

※ Note: With magnet type, additional 10mm shall be added to the body length.

# ND series Free Mount Cylinder

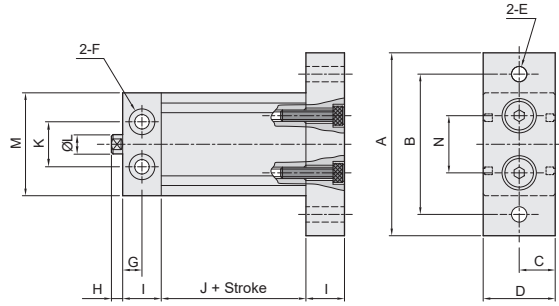
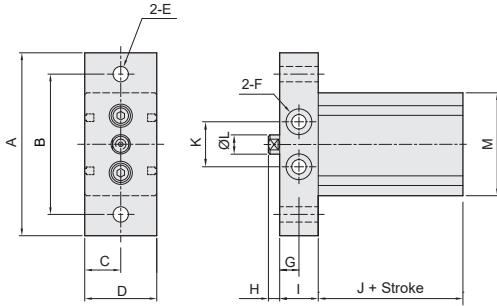
## Mounting type

CHELIC

### Dimension of flange mounting type

● Front flange type ND  X  - **F**

● Bottom flange type ND  X  - **M**



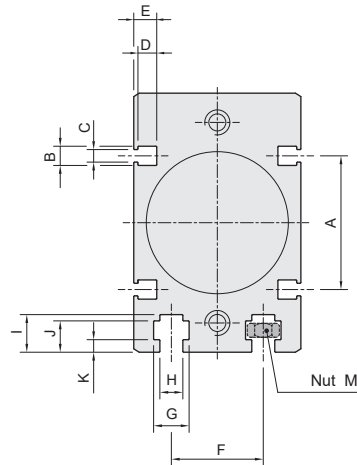
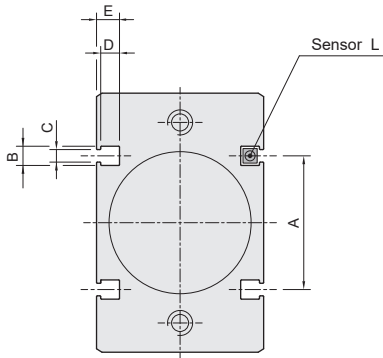
Bore size	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Ø16	52	42	11.4	22.4	Ø 4.5 Thru-hole	Ø 4.5 Thru-hole, Pole hole Ø 8 x 6.5 dp	6	4	12	25	14	6	32	25
Ø20	64	52	13.4	26.4	Ø 5.5 Thru-hole	Ø 5.5 Thru-hole, Pole hole Ø 9 x 8 dp	7	3.7	14	27.5	16	8	40	30
Ø25	74	62	16.2	32	Ø 5.5 Thru-hole	Ø 5.5 Thru-hole, Pole hole Ø 9.5 x 8.5 dp	7	4	14	29.5	20	10	50	38
Ø32	90	76	20.2	40	Ø 6.5 Thru-hole	Ø 6.5 Thru-hole, Pole hole Ø 11 x 11 dp	8	3.5	16	32	24	12	62	48
Ø40	98	84	24.2	48	Ø 6.5 Thru-hole	Ø 6.5 Thru-hole, Pole hole Ø 11 x 12 dp	8	3.5	16	34.5	32	16	70	55

※ Note: With magnet type, additional 10mm shall be added to the body length.

### Dimension of sensor switch holder

● Ø 16, Ø 20, Ø 25

● Ø 32, Ø 40 (With nut groove)



Bore size	A	B	C	D	E	F	G	H	I	J	K	L	M
Ø16	21	4.5	3	4.5	5.5	—	—	—	—	—	—	CS - 15T(B)	—
Ø20	23	4.5	3	4.5	5.5	—	—	—	—	—	—	CS - 15T(B)	—
Ø25	28	4.5	3	4.5	5.5	—	—	—	—	—	—	CS - 15T(B)	—
Ø32	32	4.5	3	4.5	5.5	22	8.5	5.5	9	7.5	3	CS - 15T(B)	M5 x 0.8P
Ø40	34	4.5	3	4.5	5.5	24	10.5	6.5	11.5	9.5	4	CS - 15T(B)	M6 x 1.0P

NA

NA2

NB

NU

ND

NQ

MSI

JQ

JD

JG

JTD

JTF

JCB

JCF

JE

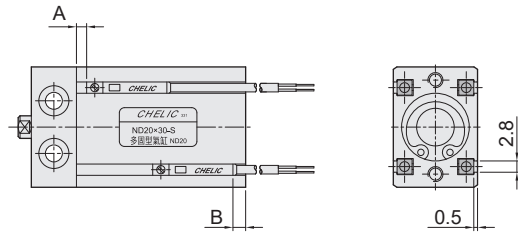
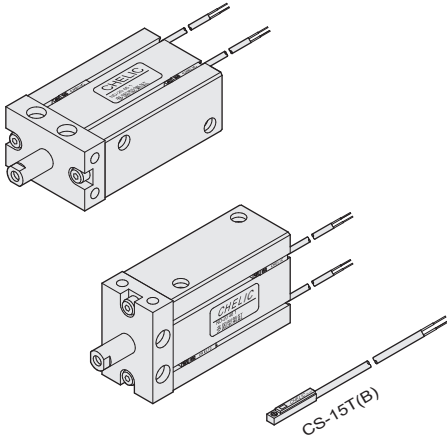
JM

# ND series Free Mount Cylinder

## Sensor switch operating range and the setting

CHELIC

### ● Sensor switch installation



Unit: mm

Bore size	A	B
Ø 16	6.5	0
Ø 20	3	1.5
Ø 25	3.5	3
Ø 32	7	3.5
Ø 40	8	6

### ● Sensing range

Sensor switch is fixed on the cylinder body. The magnetic piston head will activate the Sensor switch when it enters the operating range. It has 0.5mm differential.

### ● Operating range

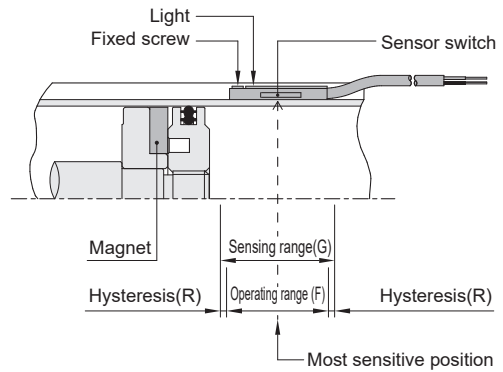
When piston head moves the switch setting and adjustment will be based on the responding range generated by the magnetic field and the switch. (Please refer to the below table)

Unit: mm

Model	CS-15T(B)	
Bore size	Operating range(F)	Hysteresis(R)
Ø 16	11.5	1
Ø 20	10	1
Ø 25	12	1
Ø 32	10	1.2
Ø 40	11.5	1.2

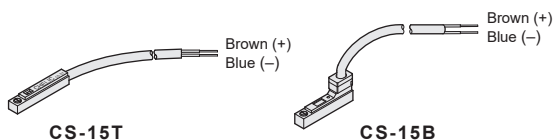
### ● Sensor switch setting and operating range

#### ● CS-15T(B)



#### ● Mounting type of sensor switch

### ● Connection type



Voltage : DC 5 ~ 120V  
AC 5 ~ 120V

