J

ACTUATORS

■ Standard Hydraulic Cylinders..... Page J-3





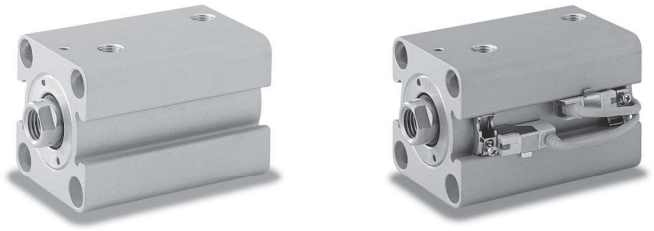
Standard Hydraulic Cylinders



Mini Type Hydraulic Cylinders

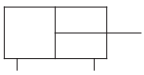
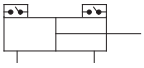
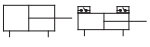


Position Sensing Type Hydraulic Cylinders



"CBY14 Series" Compact Type Hydraulic Cylinders

Hydraulic Cylinders

Cylinder Type	Graphic Symbols	Nominal Pressure MPa	Cylinder Bore mm	Page
Standard Type		3.5	32, 40, 50, 63, 80, 100, 125, 160	J-8
		7 14	32, 40, 50, 63, 80, 100, 125, 140, 150, 160 180, 200, 220, 250	J-19
		21	40, 50, 63, 80, 100, 125, 140, 160	J-54
Compact Type 21 MPa Series		21	40, 50, 63, 80, 100, 125, 140, 160	J-41
Switch Set Type		3.5	32, 40, 50, 63, 80, 100	J-68
		7, 14	32, 40, 50, 63, 80, 100, 125	
Switch Set Compact Type 21 MPa Series		21	40, 50, 63, 80	
CBY14 Series Compact Type		14	32, 40, 50, 63, 80, 100	J-79
Mini Type		3.5, 7	20, 25, 30	J-88
Position Sensing Type		7, 14	50, 63, 80, 100, 125, 140, 150, 160, 180	J-89

Instructions

Hydraulic Fluids

Type of Hydraulic Fluids

The following Hydraulic Fluids can be used.
The specifications remain the same regardless of which oil is used.

Compatibility of Hydraulic fluid and Packing material

Packing Material	Hydraulic fluids				
	Petroleum Base Oils	Water-glycols	Phosphate esters	W/O Emulsion	O/W Emulsion
Nitrile Rubber	○	○	×	○	○
Fluoro Rubber (F-)	○	×	○	○	○
Hydrogenated Nitrile Rubber (6-)	○	◎	×	◎	◎

Note 1. The mark ◎ and ○ are allowed, × is not allowed.
Note 2. The mark ◎ is the recommended packing for anti-wear type.

Viscosity and Oil Temperature

Use hydraulic fluid within both viscosities of 20 to 400 ㎟/s and temperatures of -10 to +60°C.

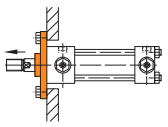
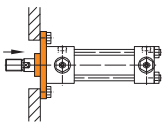
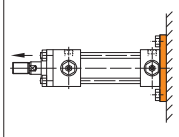
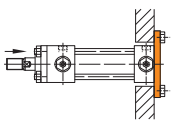
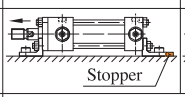
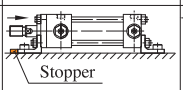
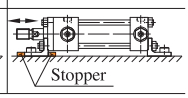
Control of Contamination

Since foreign matter in the hydraulic fluid interferes with the normal operation of the cylinder, always keep the hydraulic fluid clean (contamination level: within NAS 1638-12 class) and use a filter for pipelines of 25 μm or less.

Place of Installation

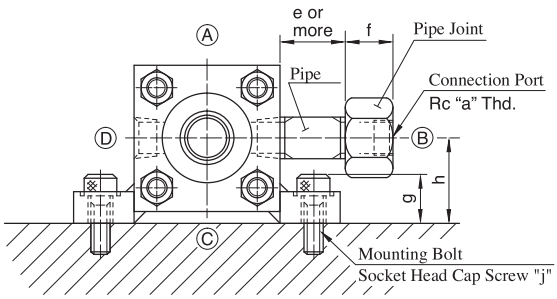
- Use indoors.
- For use in the following environments, please consult us separately.
  - Sand, dust, soil, chips, welding spatter, etc.
  - Rainwater, water, seawater, oil, chemicals, etc.
  - Direct sunlight, humidity, etc.
  - High and low temperature, freezing, etc.
  - High Magnetic Fields
  - Vibration

Installation

Mounting Type	Installation method		
	Push	Pull	Push and Pull
FA FC FE FY			Select one of the installation methods shown on the left based on either push or pull output, whichever is greater. If maximum output is required for both push and pull, please consult us separately.
FB FD FF			
LA LB	 Stopper	 Stopper	 Stopper
CA CB	Avoid horizontal installation if the stroke is 1000 mm or more.		

Foot Mounting Side Lugs (LA Type) Piping Precautions

For LA type cylinders with bore diameters from 32 to 100, if the port is used with the direction of Ⓑ or Ⓓ, the piping joint may interfere with the cylinder installation bolts, making piping impossible. When using this type, follow the illustration below.



CJT 35

Cylinder Bore	a	e	f	g	h	j
32	1/4	20	30	16	27	M 8
40	3/8	25	30	18	31	M10
50	3/8	25	30	22	37	M10
63	3/8	26	30	22	38	M10
80	1/2	28	40	25	47	M12
100	1/2	34	40	34	57	M16

CJT 70/140

Cylinder Bore	a	e	f	g	h	j
32	3/8	26	30	24	35	M10
40	3/8	27	30	24	37.5	M10
50	1/2	33	40	29	45	M12
63	1/2	36	40	35	50	M16
80	3/4	40	42	41	60	M16
100	3/4	46	42	47	71	M20

CJT 210C

Cylinder Bore	a	e	f	g	h	j
40	3/8	29	30	25	41	M10
50	1/2	33	40	32	51	M12
63	1/2	38	40	41	56	M16
80	3/4	38	42	46	70	M16
100	3/4	48	42	55	80	M20

CJT 210

Cylinder Bore	a	e	f	g	h	j
40	3/8	28.5	30	29	47	M10
50	1/2	32.5	40	36	61	M12
63	1/2	41	40	51	69	M16
80	3/4	48.5	42	61	85	M20
100	3/4	62.5	42	74	95	M24

When using a bite type joint, refer to the above figure and select a long type.

Air Bleeding

Feed low-pressure oil into the cylinder (to the extent that the cylinder moves at a low speed of 10 mm/s), loosen the air vent valve one or two turns counterclockwise to bleed air. Repeat the procedure until all the air is removed.

⚠ WARNING

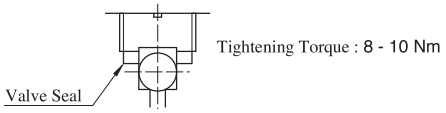
Do not loosen the air vent valve more than the specified lift during the air bleed operation.
Doing so may result in a serious accident due to valve parts ejecting or oil spewing out.

⚠ WARNING

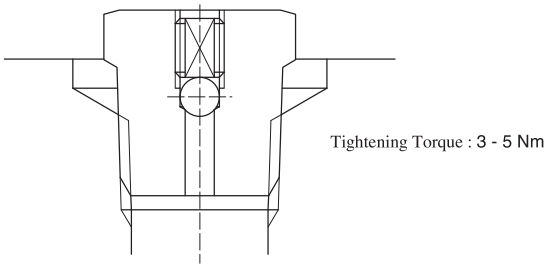
Cylinders should be completely purged of air at low pressure.
Failure to do so may result in injury due to unexpected movement of the cylinder.

After venting, tighten the air vent valve to the specified torque and confirm that there are no oil leaks.

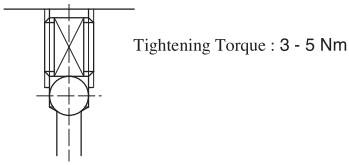
● CJT 35 : Cylinder Bore 32 to 160



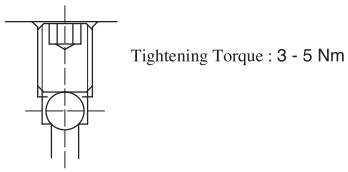
● CJT 70/140 : Cylinder Bore 125 or more



● CJT 70/140 : Cylinder Bore 32 to 100



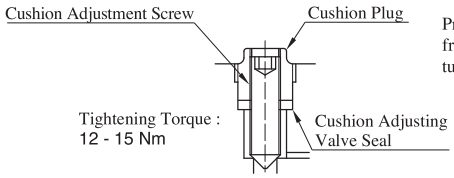
● CJT 210C/210



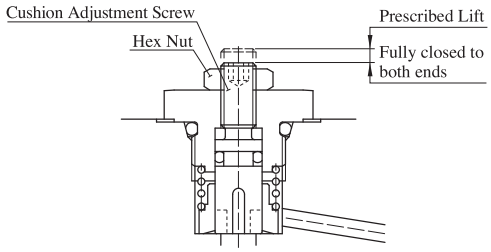
Cushion Adjusting Valve

The cushion adjusting valve is not adjusted at the time of shipment, so be sure to adjust it.

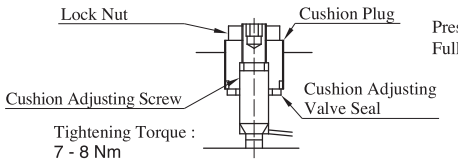
CJT 35



CJT 70/140



CJT 210C/210



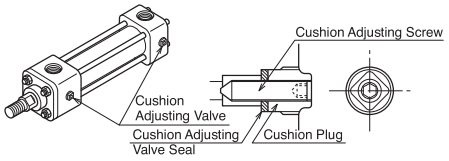
⚠ WARNING 1

Do not loosen the Cushion Adjusting Valve more than the specified lift for cushion adjustment work.
Doing so may cause valve parts to pop out or oil to spray out, which could result in a serious accident.

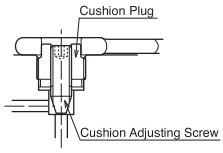
⚠ WARNING 2

When adjusting the cushion, start with a low speed (50 mm/s or less) and gradually increase the speed.
If the speed is increased from the beginning, abnormal surge pressure may be generated, resulting in a serious accident due to damage to the cylinder or machine.

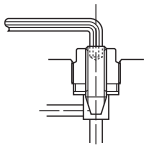
CJT 35 Cushion Adjusting Valve Adjustment Method



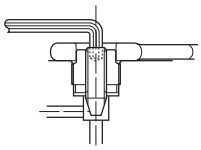
①Loosen the cushion plug 1/4 turn with a wrench or similar tool.



②Turn only the cushion adjusting screw with a hexagonal bar wrench.
Clockwise⇒Slowing down the cushioning process
Counterclockwise⇒Speeds up the cushioning process



③After adjustment the cushion adjusting screw, fix the cushion adjusting screw with a hexagonal bar wrench to prevent it from moving and tighten the cushion plug.
(Tightening torque: 12 to 15 Nm)



CJT 70/140/210C/210 Cushion Adjusting Valve Adjustment Method

(1) Cushion adjustment should be made by turning the hex nut or lock nut counterclockwise approximately 1/4 turn and then adjusting the cushion to the movement of the machine. Turning the cushion adjusting screw clockwise will slow down the cushioning process. Turning it counterclockwise speeds up the cushioning process.

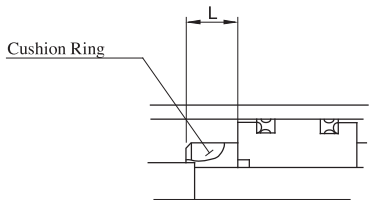
(2) After adjustment, be sure to tighten the hexagon nut or lock nut.

Cushion

The cushion ring has a special orifice finish that provides a smooth cushioning effect.
Note, however, that the cushioning effect will weaken if the cushioning ring is not used at the end of the stroke and is stopped more than *mm before the end of the stroke.
In such cases, a cushion ring with a parallel part (ℓ -dimension) long is also available.

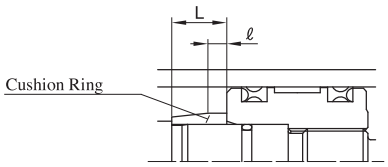
Series Number	*
CJT 35/70/140	3
CJT 210C/210	5

CJT 35



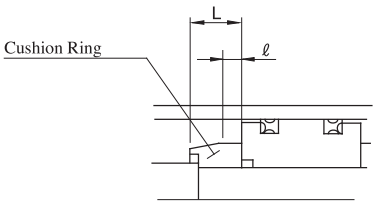
Cylinder Bore mm	Cushion Ring Length L mm
32 - 63	16
80 - 125	20
160	23

CJT 210C/210



Cylinder Bore mm	Cushion Ring Length L mm	Cushion Ring Parallel Part Length ℓ mm
40	26	10
50, 63	28	10
80, 100	30	12
125 - 160	33	15

CJT 70/140



Cylinder Bore mm	Cushion Ring Length L mm	Cushion Ring Parallel Part Length ℓ mm
32, 40	23	13
50, 63	25	13
80 - 220	30	13
250	35	8

Definition of Terms

The definitions of pressure terms used in this catalog are as follows

- Nominal Pressure.....This is the maximum value of the set pressure in a hydraulic circuit using a cylinder. When fixed displacement pump is used as the hydraulic pressure source, this refers to the pressure setting of the pressure control valve (relief valve or pressure reducing valve), and when a variable displacement pump is used, this refers to the full cutoff pressure.
- Maximum Allowable Pressure.....The maximum pressure at which a temporary pressure increase, including surge pressure, can be used for strength.
- Proof Test Pressure.....The pressure test pressure that must be withstood without causing a loss of performance when returned to nominal pressure.

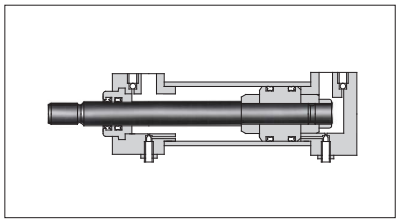
Maintenance and storage precautions

Seals may need to be replaced when the product is used after prolonged storage.

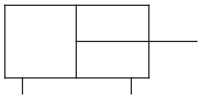
"CJT 3.5 MPa" Series Hydraulic Cylinders

YUKEN's "CJT 3.5 MPa" Series Hydraulic Cylinders are provided with many mounting types so that they can be used for wide use of general purpose industrial machines such as machine tools.
Moreover, Switch-Set "CJT" Series Hydraulic Cylinders with a proximity switch which facilitates detecting a position with a slide proximity switch on the cylinder body is also available.
(Refer to page J-69 for details.)





Graphic Symbol



Specifications

Model Numbers			CJT35–＊＊＊＊＊–＊＊＊–30
Cylinder Bore mm			32, 40, 50, 63, 80 100, 125, 160
Mounting Type			SD, LA, LB, FA, FB, CA, CB, TA, TC
Nominal Pressure ★1			3.5 MPa
Maximum Allowable Pressure ★1			4.5 MPa
Proof Test Pressure ★1			5.0 MPa
Minimum Working Pressure			0.2 MPa
Operating Maximum Speed			300 mm/s
Operating Minimum Speed			8 mm/s
Maximum Stroke ★2 mm	Cylinder Bore	32	1000
		40	1000
		50, 63	1200
		80	1600
		100	1600
		125, 160	1800
Tolerance of Stroke			Refer to the table "Tolerance of Stroke" ★3
Tolerance of Thread			JIS B 0211–6g(JIS grade 2 or equivalence)
Ambient Temperature Range			–10 - +80°C
Applicable Standard			Compliant with former JIS B8354

★1. See page J-7 for definition of pressure terms.
★2. May be limited to even lower value in accordance with the buckling strength.
Refer to page J-10 for strokes above buckling strength.

★3. Tolerance of Stroke

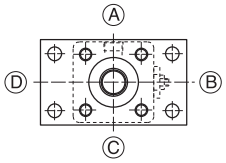
Stroke mm	Tolerance mm
100 or less	$^{+0.8}_{0}$
More than 100 to 250	$^{+1.0}_{0}$
More than 250 to 630	$^{+1.25}_{0}$
More than 630 to 1000	$^{+1.4}_{0}$
More than 1000 to 1600	$^{+1.6}_{0}$
More than 1600 to 2000	$^{+1.8}_{0}$

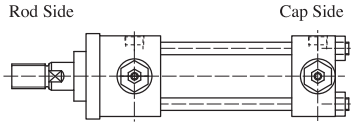
Model Number Designation

F—	CJT35	—LB	32	S	100	B	—A	B	D	—K	—30
Packing Material	Series Number	Mounting Type	Cylinder Bore mm	Rod Size	Cylinder Stroke mm	Cushion Type	★1 Port Position	★1 Cushion Adj. Valve Position	★1 Air Vent Valve Position	Options★2	Design Number
None : Nitrile Rubber (standard) F : Fluoro Rubber 6 : Hydrogenated Nitrile Rubber	CJT35 : 3.5 MPa Series Standard Cylinder	SD, LA LB, FA FB, CA CB, TA TC	32, 40 50, 63 80, 100 125, 160	S : Special	Cylinder Stroke	B : With Cushion on Both ends R : With Cushion on the Rod side H : With Cushion on the Cap side N : Without Cushion	(Viewed from Rod End) A : Upper (Standard) B : Right C : Under D : Left	B : Right (Standard) A : Upper C : Under D : Left N : No Cushion adj. valve (Standard)	D : Left (Standard) A : Upper B : Right C : Under	F : With Dust Cover (Material: Nylon Tarpaulin, Heat resistant up to 80°C) G : With Dust Cover (Material: Chloroprene , Heat resistant up to 130°C) H : With Dust Cover (Material: Conex, Heat resistant up to 200°C) K : With Lock Nut (Std.) L : With T-End (Rod End Eye) M : With Y-End (Rod End Clevis)	30

★1. As for each direction of port, cushion adj. valve & air vent valve, please select from ⒶⒷⒸⒹ viewed from rod end(see the figure on the right).
<Standard directions>
Port : Ⓐ, Cusion Adjusting Valve : Ⓑ, Air Vent Valve : Ⓓ
Note : The direction of port and cushion adj.valve is not available to be the same direction. However, the other combinations are available.

★2. Using the options in combination is available.
Please specify the option code in the alphabet.
Ex. FKL





Mounting Type

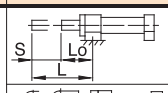
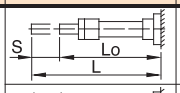
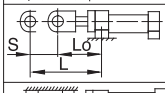
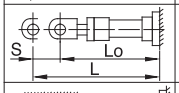
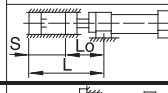
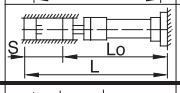
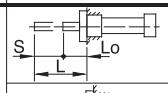
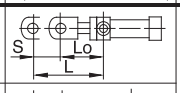
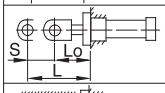
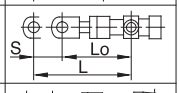
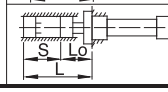
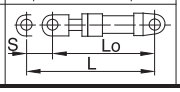
Code	Name	Illustration of Mounting Type	Code	Name	Illustration of Mounting Type
SD	Basic Type		CA	Cap Detachable Eye	
LA	Foot Mounting Side Lugs		CB	Cap Detachable Clevis	
LB	Foot Mounting Side End Angles		TA	Rod Trunnion	
FA	Rod Rectangular Flange		TC	Intermediate Trunnion	
FB	Cap Rectangular Flange				

Maximum stroke limited by buckling strength

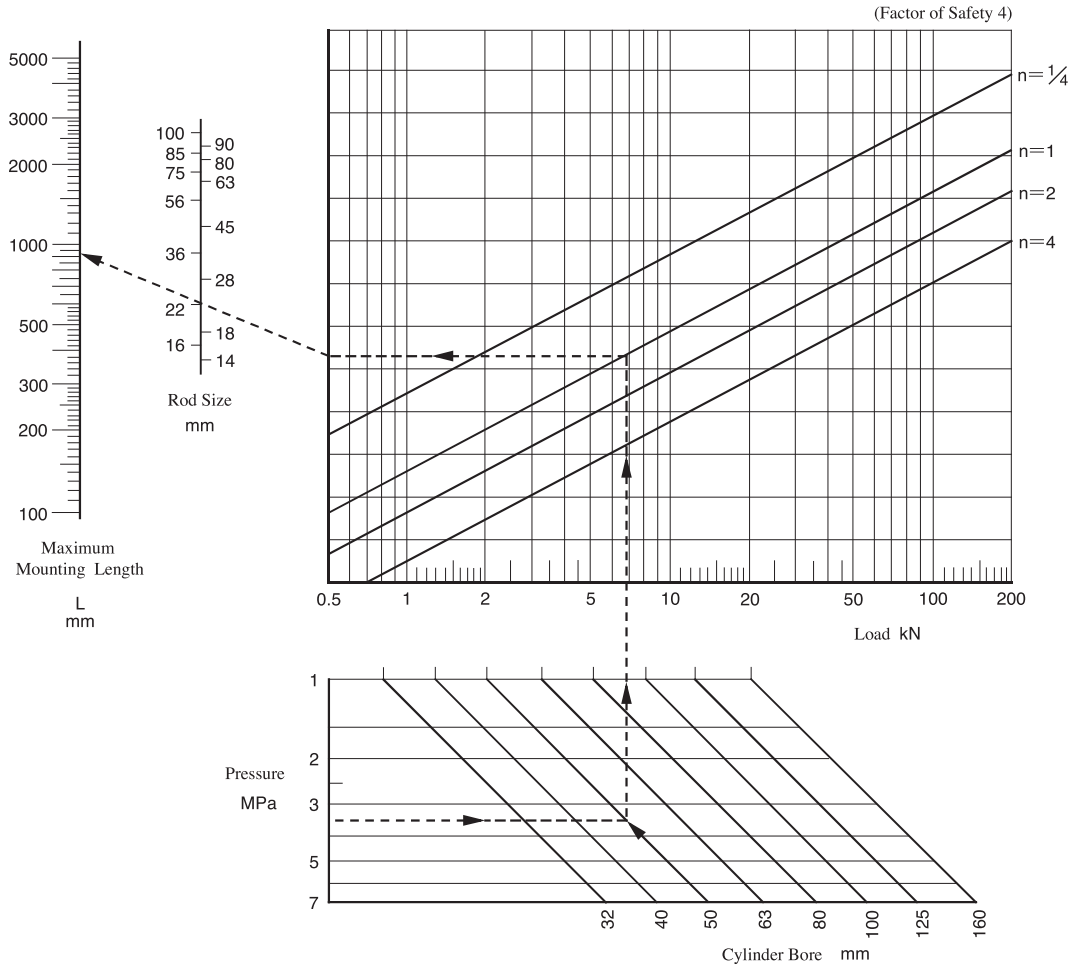
Calculation of Maximum Stroke

1. Calculate rod end coefficient n from the table on the right.
2. Calculate the maximum installation length L by applying various values such as cylinder bore, rod size, pressure, and rod end coefficient to the figure below.
3. Refer to the external dimensions and calculate the mounting length Lo when retracted.
   Use the formula S=L–Lo and calculate the maximum stroke S.
   (Example) Cylinder bore 50 mm, rod size 22 mm, mounting type TA (rod trunnion type) standard cylinder operated at 3.5 MPa pressure. Calculate the maximum stroke. Assume that the lock nut for rod end attachment is not used.

   From the table on the right n=1
   From the figure below L≒930
   From Dimensional Drawing (J-16) and Rod End Attachment (J-17)
   Lo= (44+64)=108
   therefore S=L–Lo=930–108
   hence S≒822 mm

Mounting Type	Type	Rod End Coefficient n	Mounting Type	Type	Rod End Coefficient n
LA		1/4	FB		1/4
		2			2
LB		4			4
FA		1/4	TA		
		2	TC		1
		4	CA CB		

S=L–Lo
S : Stroke mm
L : Mounting Length at extension mm
Lo : Mounting Length at contraction mm
Note: For Lo dimensions, refer to dimensional drawing and add the dimensions of rod end attachment.



Syllabus Table

Rod Size Code	Cylinder Bore mm	Rod Size mm	Push/Pull	Pressurized Area cm^2	Output kN		Velocity by a unit flow rate 10L/min mm/s	Flow rate by a unit velocity 10mm/s L/min
					1MPa	3.5MPa		
S	32	16	Push	8.0	0.8	2.81	208	0.5
			Pull	6.0	0.6	2.11	277	0.4
	40	16	Push	12.6	1.26	4.40	132	0.8
			Pull	10.6	1.06	3.69	157	0.6
	50	22	Push	19.6	1.96	6.87	85	1.2
			Pull	15.8	1.58	5.54	105	0.9
	63	22	Push	31.2	3.12	10.91	53	1.9
			Pull	27.4	2.74	9.58	61	1.6
	80	28	Push	50.3	5.03	17.59	33	3.0
			Pull	44.1	4.41	15.44	38	2.6
	100	36	Push	78.5	7.85	27.49	21	4.7
			Pull	68.4	6.84	23.93	24	4.1
	125	45	Push	122.7	12.27	42.95	14	7.4
			Pull	106.8	10.68	37.38	16	6.4
	160	56	Push	201.0	20.10	70.37	8.3	12.1
			Pull	176.4	17.64	61.75	9.4	10.6

Mass Table

Approx. Mass may be obtained from the formula below.

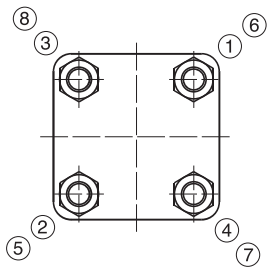
Mass=Ⓐ+[Ⓑ×Stroke(mm)/100]+Ⓒ+Ⓓ

Cylinder Bore mm	ⒶBasic Mass SD type	ⒷAdditional Mass By A Unit Stroke 100mm	ⒸBasic Mass(Each Mounting)								ⒹAdditional Mass		
			LA	LB	FA	FB	CA	CB	TA	TC	T-End (Rod End Eye) L	Y-End (Rod End Clevis) M	Lock Nut (Std.) K
32	1.17	0.41	0.12	0.19	0.17	0.24	0.12	0.12	0.05	0.3	0.15	0.20	0.02
40	1.77	0.45	0.19	0.23	0.25	0.32	0.18	0.15	0.19	0.48	0.16	0.34	0.02
50	2.56	0.78	0.28	0.36	0.41	0.50	0.26	0.30	0.19	0.56	0.22	0.35	0.03
63	3.98	0.94	0.29	0.46	0.56	0.64	0.40	0.36	0.19	0.70	0.22	0.35	0.03
80	7.55	1.22	0.66	0.86	1.40	1.56	1.02	0.82	0.19	1.15	0.78	1.01	0.1
100	11.4	2.00	0.96	1.60	1.96	2.25	1.28	1.38	0.41	3.10	1.30	1.76	0.3
125	15.6	3.30	1.42	2.24	3.78	4.24	4.24	4.42	0.58	4.80	3.19	4.36	0.5
160	35.0	4.90	2.60	5.68	7.76	8.78	8.05	8.91	1.13	6.10	4.29	5.82	1.1

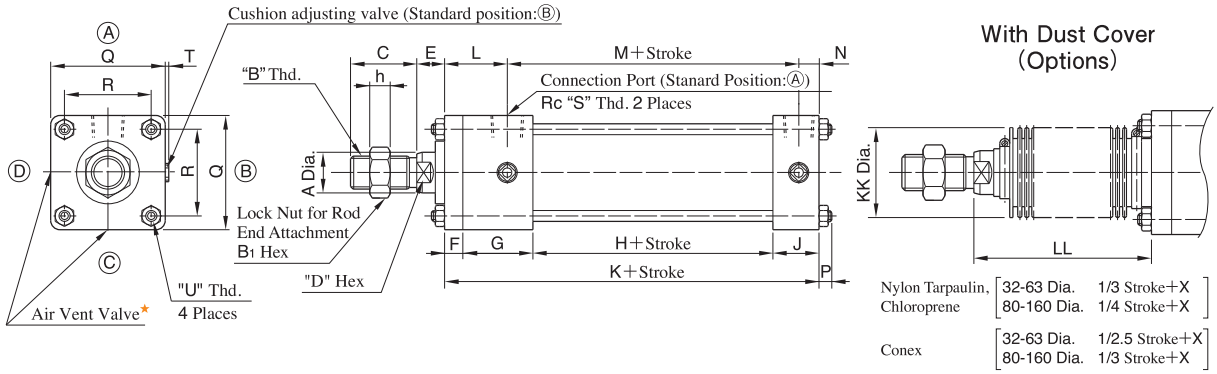
Tie Rod Tightening

When tightening tie rods, do not tighten only one tie rod tightly at a time, but gradually tighten the tie rods in the order of the numbers shown in the figure on the right. Note that one-sided tightening of tie rods may cause operation failure or chattering.

Bore mm	32	40	50	63	80	100	125	160
Tightening Torque Nm	4.1	4.1	4.1	10	21	35	87	180



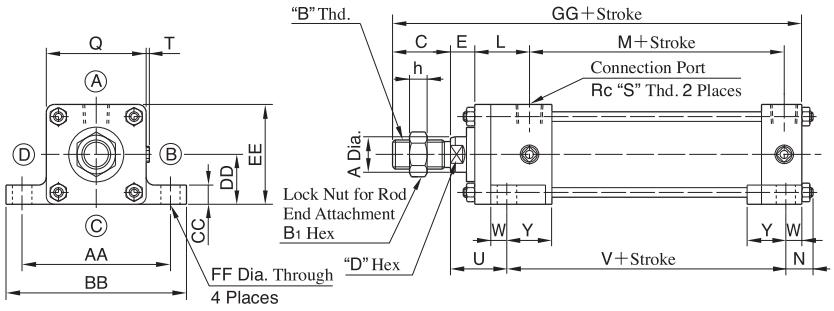
SD : Basic Type



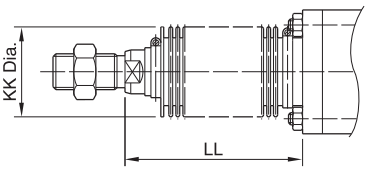
★The air vent valve can provided at the remaining two of the four locations in position Ⓐ,Ⓑ,Ⓒ,Ⓓ, that are not designated as port and cushion adjusting valve positions.
(Port direction: Ⓐ, cushion adjusting valve direction : Ⓒ and Ⓓ for standard Ⓑ)

Cylinder Bore	A	B	B_1	C	D	E	F	G	H	h	J	K	L	M	N	P	Q	R	S	T	U	KK	X
32	16	M12×1.25	19	24	13	15	10	38	30	7	25	103	34	58	11	7	44	33	1/4	Max. 5	M6×1	36	50
40	16	M12×1.25	19	24	13	15	10	38	30	7	25	103	34	58	11	7	50	37	3/8	Max. 5	M6×1	40	50
50	22	M18×1.5	24	36	19	15	10	38	30	11	25	103	34	58	11	7	62	47	3/8	Max. 5	M6×1	45	55
63	22	M18×1.5	24	36	19	15	10	38	33	11	25	106	34	61	11	9	76	56	3/8	Max. 5	M8×1.25	45	55
80	28	M24×2	32	48	24	19	16	45	31	14	32	124	43	67	14	10	94	70	1/2	Max. 5	M10×1.25	60	65
100	36	M30×2	41	60	30	23	16	45	31	17	32	124	43	67	14	12	114	89	1/2	Max. 5	M12×1.5	71	65
125	45	M42×2	60	84	41	25	20	45	37	22	32	134	47	73	14	16	138	110	1/2	Max. 5	M16×1.5	80	65
160	56	M48×2	70	96	50	29	25	50	42	26	38	155	54	84	17	19	176	142	3/4	Max. 5	M20×1.5	100	70

LA : Foot Mounting Side Lugs



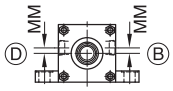
With Dust Cover (Options)



Nylon Tarpaulin, Chloroprene	32-63 Dia.	1/3 Stroke+X
	80-160 Dia.	1/4 Stroke+X
Conex	32-63 Dia.	1/2.5 Stroke+X
	80-160 Dia.	1/3 Stroke+X

Notes:1. The socket head cap screw shall be used as a mounting bolt.

2. As for cylinder bore 32-100, in case the port direction is Ⓑ or Ⓓ, pipe fittings may interference with cylinder mounting bolts. And as for cylinder bore 32-100, the port positions are as shown on the right(MM dimensions). Refer to instructions on page J-4 for details.

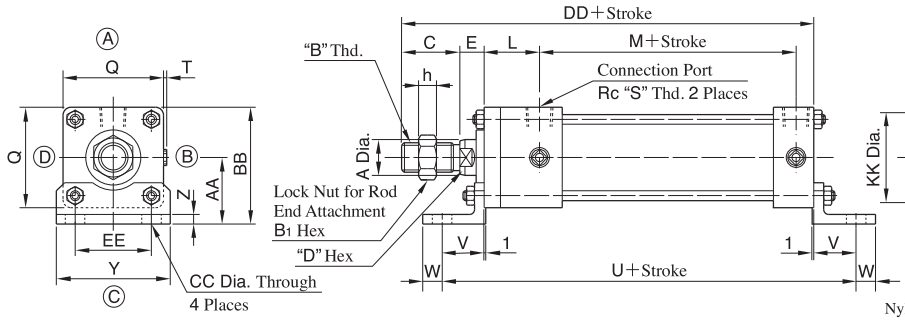


mm

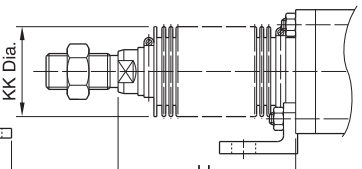
Cylinder Bore	32	40	50
MM	5	6	6

Cylinder Bore	A	B	B_1	C	D	E	h	L	M	N	Q	S	T	U	V	W	Y	AA	BB	CC	DD	EE	FF	GG	KK	X
32	16	M12×1.25	19	24	13	15	7	34	58	17	44	1/4	Max.5	35	73	10	18	69	84	8	22 $^{-0.300}_{-0.384}$	44	9	142	36	50
40	16	M12×1.25	19	24	13	15	7	34	58	17	50	3/8	Max.5	35	73	10	24	80	100	8	25 $^{-0.300}_{-0.384}$	50	12	142	40	50
50	22	M18×1.5	24	36	19	15	11	34	58	17	62	3/8	Max.5	35	73	10	24	92	112	12	31 $^{-0.310}_{-0.410}$	62	12	154	45	55
63	22	M18×1.5	24	36	19	15	11	34	61	19	76	3/8	Max.5	35	76	10	24	108	128	12	38 $^{-0.300}_{-0.410}$	76	12	157	45	55
80	28	M24×2	32	48	24	19	14	43	67	23	94	1/2	Max.5	48	82	13	32	128	150	19	47 $^{-0.320}_{-0.420}$	94	14	191	60	65
100	36	M30×2	41	60	30	23	17	43	67	30	114	1/2	Max.5	57	72	18	27	154	182	24	57 $^{-0.340}_{-0.460}$	114	18	207	71	65
125	45	M42×2	60	84	41	25	22	47	73	38	138	1/2	Max.5	67	70	22	23	189	224	29	69 $^{-0.360}_{-0.480}$	138	22	243	80	65
160	56	M48×2	70	96	50	29	26	54	84	43	176	3/4	Max.5	78	82	24	26	236	278	42	89 $^{-0.380}_{-0.520}$	178	26	280	100	70

LB : Foot Mounting Side End Angles



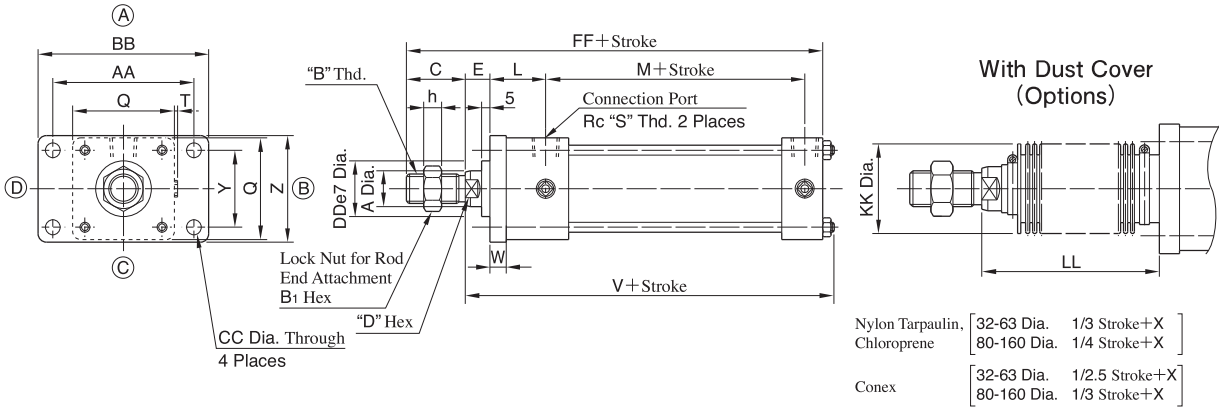
With Dust Cover (Options)



Nylon Tarpaulin, Chloroprene	32-63 Dia.	1/3 Stroke+X
	80-160 Dia.	1/4 Stroke+X
Conex	32-63 Dia.	1/2.5 Stroke+X
	80-160 Dia.	1/3 Stroke+X

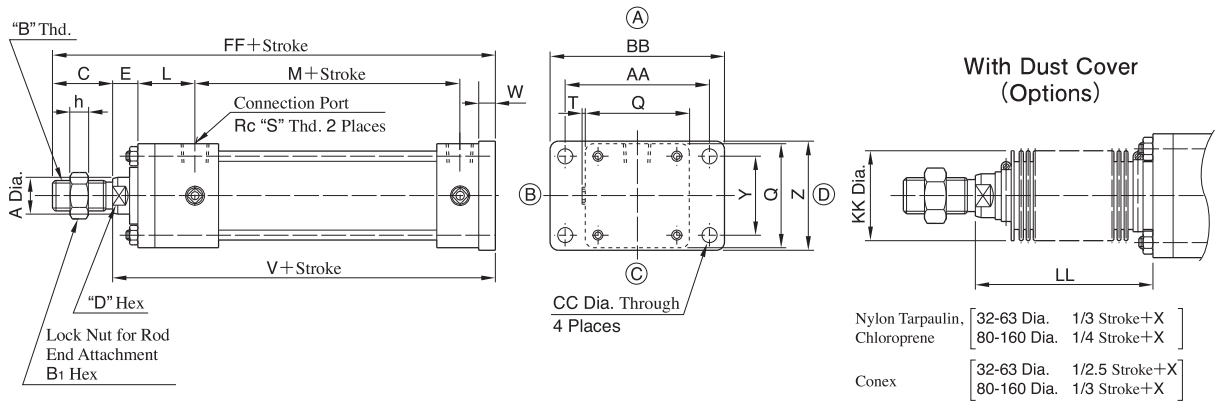
Cylinder Bore	A	B	B_1	C	D	E	h	L	M	Q	S	T	U	V	W	Y	Z	AA	BB	CC	DD	EE	KK	X
32	16	M12×1.25	19	24	13	15	7	34	58	44	1/4	Max.5	149	23	10	54	5	33	55	9	142	33	36	50
40	16	M12×1.25	19	24	13	15	7	34	58	50	3/8	Max.5	153	25	12	60	5	35	60	12	142	37	40	50
50	22	M18×1.5	24	36	19	15	11	34	58	62	3/8	Max.5	155	26	12	70	6	41	72	12	154	47	45	55
63	22	M18×1.5	24	36	19	15	11	34	61	76	3/8	Max.5	162	28	12	80	6	48	86	12	157	56	45	55
80	28	M24×2	32	48	24	19	14	43	67	94	1/2	Max.5	192	34	14	97	8	59	106	14	191	70	60	65
100	36	M30×2	41	60	30	23	17	43	67	114	1/2	Max.5	204	40	18	120	9	70	127	18	207	89	71	65
125	45	M42×2	60	84	41	25	22	47	73	138	1/2	Max.5	228	47	22	138	10	86	155	22	243	95	80	65
160	56	M48×2	70	96	50	29	26	54	84	176	3/4	Max.5	271	58	26	178	15	111	200	26	280	128	100	70

FA : Rod Rectangular Flange



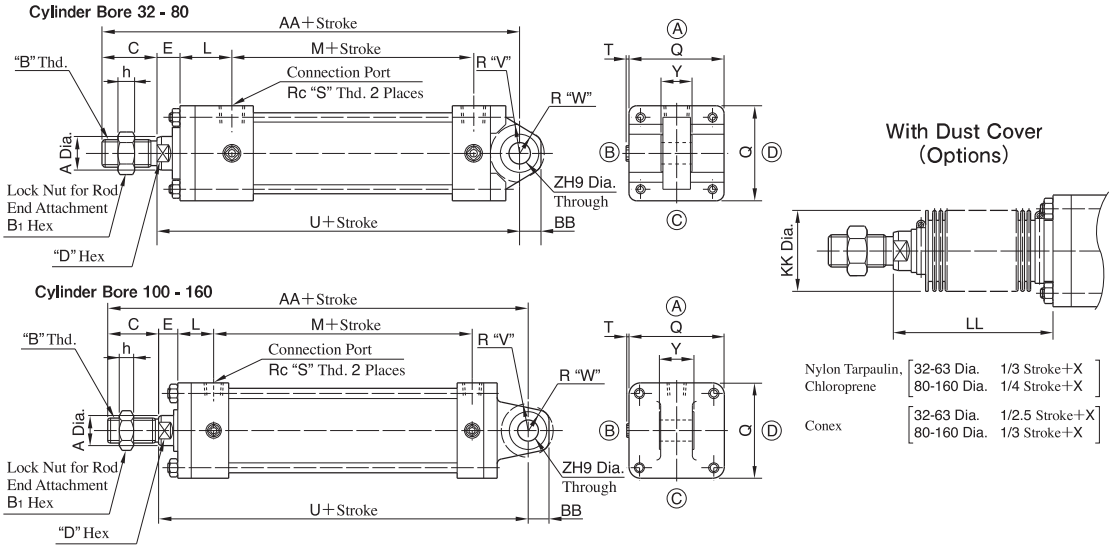
Cylinder Bore	A	B	B_1	C	D	E	h	L	M	Q	S	T	V	W	Y	Z	AA	BB	CC	DD	FF	KK	X
32	16	M12×1.25	19	24	13	15	7	34	58	44	1/4	Max.5	125	10	33	47	58	72	7	30	142	36	50
40	16	M12×1.25	19	24	13	15	7	34	58	50	3/8	Max.5	125	10	36	52	70	84	7	30	142	40	50
50	22	M18×1.5	24	36	19	15	11	34	58	62	3/8	Max.5	125	10	47	65	86	104	9	34	154	45	55
63	22	M18×1.5	24	36	19	15	11	34	61	76	3/8	Max.5	130	10	56	76	98	116	9	34	157	45	55
80	28	M24×2	32	48	24	19	14	43	67	94	1/2	Max.5	153	16	70	95	119	143	12	42	191	60	65
100	36	M30×2	41	60	30	23	17	43	67	114	1/2	Max.5	159	16	84	115	140	166	14	50	207	71	65
125	45	M42×2	60	84	41	25	22	47	73	138	1/2	Max.5	175	20	110	138	176	212	18	60	243	80	65
160	56	M48×2	70	96	50	29	26	54	84	176	3/4	Max.5	203	25	142	178	225	225	22	72	280	100	70

FB : Cap Rectangular Flange



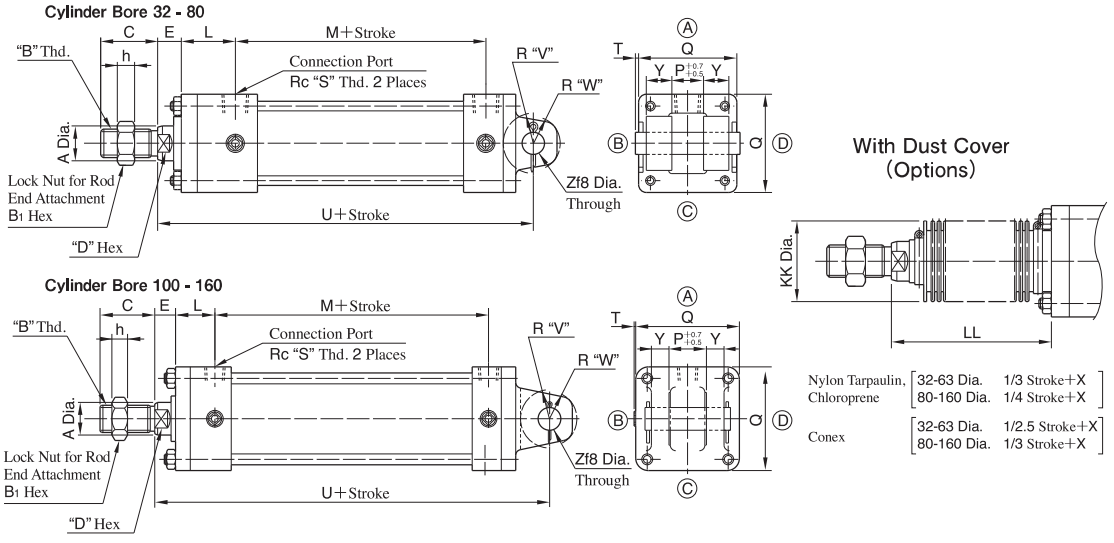
Cylinder Bore	A	B	B_1	C	D	E	h	L	M	Q	S	T	V	W	Y	Z	AA	BB	CC	FF	KK	X
32	16	M12×1.25	19	24	13	15	7	34	58	44	1/4	Max.5	128	10	33	47	58	72	7	152	36	50
40	16	M12×1.25	19	24	13	15	7	34	58	50	3/8	Max.5	128	10	36	52	70	84	7	152	40	50
50	22	M18×1.5	24	36	19	15	11	34	58	62	3/8	Max.5	128	10	47	65	86	104	9	164	45	55
63	22	M18×1.5	24	36	19	15	11	34	61	76	3/8	Max.5	131	10	56	76	98	116	9	167	45	55
80	28	M24×2	32	48	24	19	14	43	67	94	1/2	Max.5	159	16	70	95	119	143	12	207	60	65
100	36	M30×2	41	60	30	23	17	43	67	114	1/2	Max.5	163	16	84	115	140	166	14	223	71	65
125	45	M42×2	60	84	41	25	22	47	73	138	1/2	Max.5	179	20	110	138	176	212	18	263	80	65
160	56	M48×2	70	96	50	29	26	54	84	176	3/4	Max.5	209	25	142	178	225	225	22	305	100	70

CA : Cap Detachable Eye



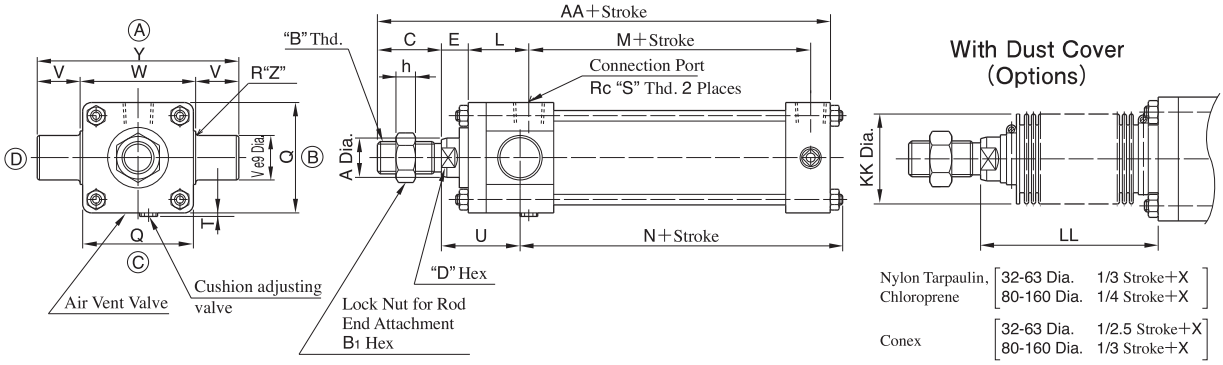
Cylinder Bore	A	B	B1	C	D	E	h	L	M	Q	S	T	U	V	W	Y	Z	AA	BB	KK	X
32	16	M12×1.25	19	24	13	15	7	34	58	44	1/4	Max.5	137	17	14	$16^{0}_{-0.070}$	12	161	12	36	50
40	16	M12×1.25	19	24	13	15	7	34	58	50	3/8	Max.5	137	17	16	$20^{0}_{-0.084}$	14	161	14	40	50
50	22	M18×1.5	24	36	19	15	11	34	58	62	3/8	Max.5	137	19	16	$20^{0}_{-0.084}$	14	173	14	45	55
63	22	M18×1.5	24	36	19	15	11	34	61	76	3/8	Max.5	140	19	16	$20^{0}_{-0.084}$	14	176	14	45	55
80	28	M24×2	32	48	24	19	14	43	67	94	1/2	Max.5	175	26	22	$32^{0}_{-0.100}$	20	223	20	60	65
100	36	M30×2	41	60	30	23	17	43	67	114	1/2	Max.5	200	32	30	$40^{0}_{-0.100}$	25	260	25	71	65
125	45	M42×2	60	84	41	25	22	47	73	138	1/2	Max.5	226	42	36	$45^{0}_{-0.100}$	32	310	32	80	65
160	56	M48×2	70	96	50	29	26	54	84	176	3/4	Max.5	261	45	42	$50^{0}_{-0.100}$	36	357	36	100	70

CB : Cap Detachable Clevis



Cylinder Bore	A	B	B1	C	D	E	h	L	M	P	Q	S	T	U	V	W	Y	Z	KK	X
32	16	M12×1.25	19	24	13	15	7	34	58	16	44	1/4	Max.5	137	18	15	8	12	36	50
40	16	M12×1.25	19	24	13	15	7	34	58	20	50	3/8	Max.5	137	18	15	12	14	40	50
50	22	M18×1.5	24	36	19	15	11	34	58	20	62	3/8	Max.5	137	19	17	16	14	45	55
63	22	M18×1.5	24	36	19	15	11	34	61	20	76	3/8	Max.5	140	19	17	16	14	45	55
80	28	M24×2	32	48	24	19	14	43	67	32	94	1/2	Max.5	175	32	23	16	20	60	65
100	36	M30×2	41	60	30	23	17	43	67	40	114	1/2	Max.5	200	32	30	20	25	71	65
125	45	M42×2	60	84	41	25	22	47	73	45	138	1/2	Max.5	226	42	36	22.5	32	80	65
160	56	M48×2	70	96	50	29	26	54	84	50	176	3/4	Max.5	261	45	42	25	36	100	70

TA : Rod Trunnion



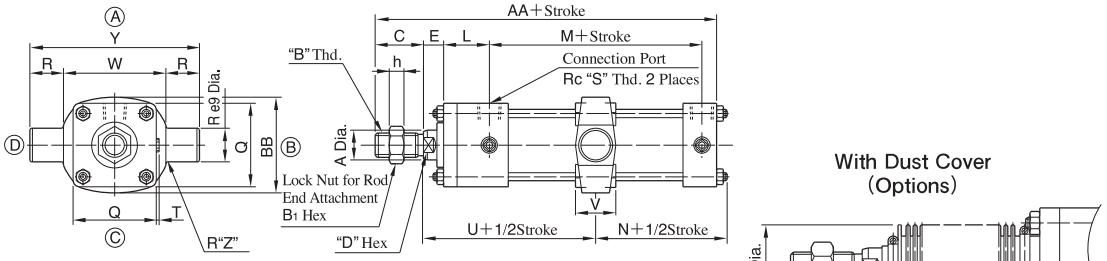
Nylon Tarpaulin, Chloroprene	32-63 Dia.	1/3 Stroke+X
	80-160 Dia.	1/4 Stroke+X
Conex	32-63 Dia.	1/2.5 Stroke+X
	80-160 Dia.	1/3 Stroke+X

Positions of port at the rod side, cushion adjusting valve and air vent valve are only available below:
●Port position:Ⓐ Cushion adjusting valve position:Ⓒ Air vent valve position:Ⓒ
Please specify the positions (Ⓐ,Ⓑ,Ⓒ,Ⓓ) at cap cover side only.

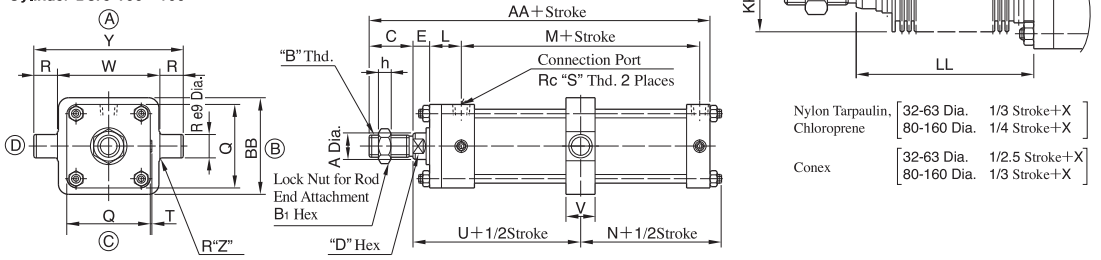
Cylinder Bore	A	B	B1	C	D	E	h	L	M	N	Q	S	T	U	V	W	Y	Z	AA	KK	X
32	16	M12×1.25	19	24	13	15	7	34	58	81	44	1/4	Max.5	44	16	44	76	1	142	36	50
40	16	M12×1.25	19	24	13	15	7	34	58	81	50	3/8	Max.5	44	25	50	100	1.6	142	40	50
50	22	M18×1.5	24	36	19	15	11	34	58	81	62	3/8	Max.5	44	25	63	113	1.6	154	45	55
63	22	M18×1.5	24	36	19	15	11	34	61	86	76	3/8	Max.5	44	25	76	126	1.6	157	45	55
80	28	M24×2	32	48	24	19	14	43	67	96	94	1/2	Max.5	57	25	95	145	1.6	191	60	65
100	36	M30×2	41	60	30	23	17	43	67	98	114	1/2	Max.5	61	32	114	178	2.5	207	71	65
125	45	M42×2	60	84	41	25	22	47	73	108	138	1/2	Max.5	67	36	144	216	2.5	243	80	65
160	56	M48×2	70	96	50	29	26	54	84	124	176	3/4	Max.5	79	45	184	274	3	280	100	70

TC : Intermediate Trunnion

Cylinder Bore 32 - 80



Cylinder Bore 100 - 160



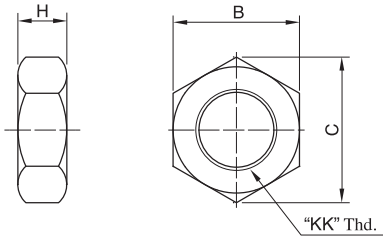
Nylon Tarpaulin, Chloroprene	32-63 Dia.	1/3 Stroke+X
	80-160 Dia.	1/4 Stroke+X
Conex	32-63 Dia.	1/2.5 Stroke+X
	80-160 Dia.	1/3 Stroke+X

Cylinder Bore	A	B	B1	C	D	E	h	L	M	N	Q	R	S	T	U	V	W	Y	Z	AA	BB	KK	X
32	16	M12×1.25	19	24	13	15	7	34	58	47	44	16	1/4	Max.5	78	30	55	87	1	142	52	36	50
40	16	M12×1.25	19	24	13	15	7	34	58	47	50	25	3/8	Max.5	78	30	63	113	1.6	142	59	40	50
50	22	M18×1.5	24	36	19	15	11	34	58	47	62	25	3/8	Max.5	78	30	76	126	1.6	154	71	45	55
63	22	M18×1.5	24	36	19	15	11	34	61	50.5	76	25	3/8	Max.5	79.5	30	88	138	1.6	157	86	45	55
80	28	M24×2	32	48	24	19	14	43	67	57.7	94	25	1/2	Max.5	95.5	35	114	164	1.6	191	104	60	65
100	36	M30×2	41	60	30	23	17	43	67	59.5	114	32	1/2	Max.5	99.5	40	140	204	2.5	207	132	71	65
125	45	M42×2	60	84	41	25	22	47	73	66.5	138	36	1/2	Max.5	108.5	53	166	238	2.5	243	160	80	65
160	56	M48×2	70	96	50	29	26	54	84	78	176	45	3/4	Max.5	125	58	214	304	3	280	208	100	70

Options

Lock Nut

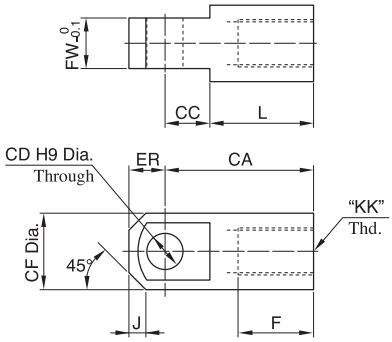
Option Code : K



KK	H	B	C
M12×1.25	7	19	21.9
M18×1.5	11	27	31.2
M24×2	14	36	41.6
M30×2	17	46	53.1
M42×2	22	65	75
M48×2	26	75	86.5

Rod End Attachment

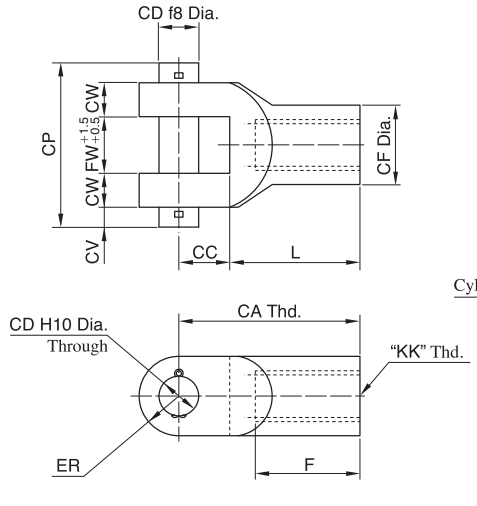
T-End (Rod End Eye) Option Code : L



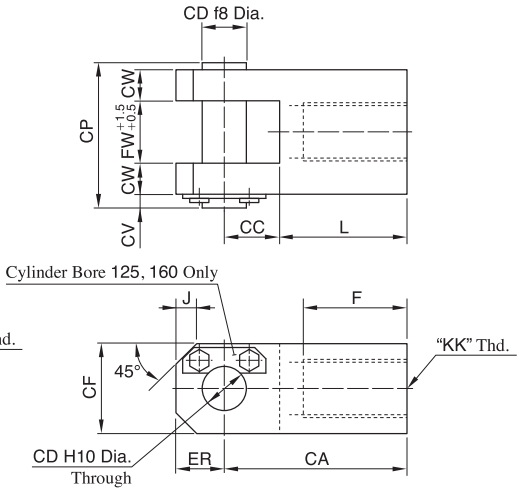
Cylinder Bore	KK	F	CA	CC	CD	CF	ER	FW	J	L
32	M12×1.25	25	55	20	12	24	R12	16	–	35
40	M12×1.25	25	60	20	14	24	R12	20	–	40
50	M18×1.5	37	64	18	14	28	R14	20	–	46
63										
80	M24×2	49	100	30	20	38	R19	32	–	70
100	M30×2	61	110	37	25	48	R24	40	–	73
125	M42×2	67	132	40	32	70	32	45	15	92
160	M48×2	78	150	45	36	79	36	50	19	105

Y-End (Rod End Clevis) Option Code : M

●Cylinder Bore 32 - 100



●Cylinder Bore 125, 160

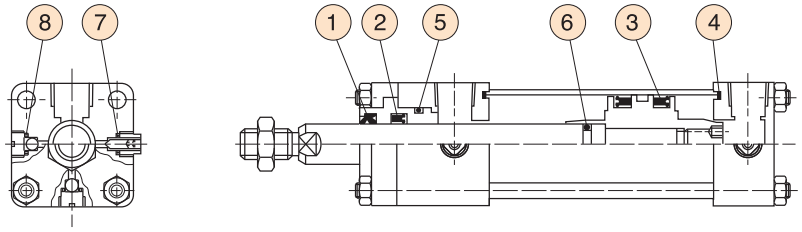


Cylinder Bore	KK	F	CA	CC	CD	CF	CW	ER	FW	CV	CP	J	L
32	M12×1.25	25	55	20	12	24	8	R12	16	7	46	–	35
40	M12×1.25	25	60	20	14	24	12	R12	20	7	58	–	40
50	M18×1.5	37	64	18	14	28	12	R14	20	7	58	–	46
63													
80	M24×2	49	100	28	20	38	16	R19	32	7	78	–	72
100	M30×2	61	110	35	25	48	20	R24	40	7	94	–	75
125	M42×2	75	132	40	32	65	22.5	35	45	10	105	15	92
160	M48×2	86	150	45	36	70	25	40	50	10	115	15	105

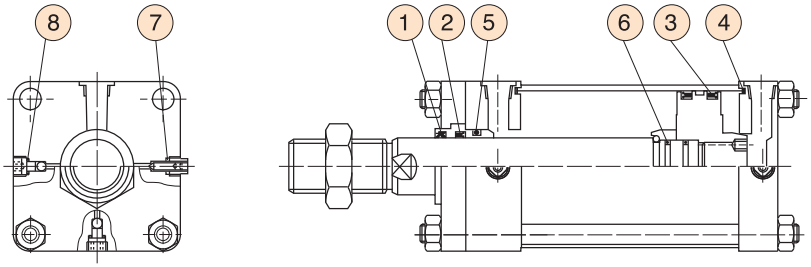
List of Seals

CJT 35

Cylinder Bore 32 - 100



Cylinder Bore 125 - 160



Item		①	②	③	④	⑤	⑥	⑦	⑧
Cylinder Bore	Name / Model Numbers for Seal Kit ★1 / Q'ty	Dust Seal	Rod Packing	Piston Packing	Packing for Cover	O-Ring for Bush ★2	O-Ring for Piston ★2	Cushion Valve Seal	Check Valve Seal
	Q'ty	1	1	2	2	1	2	2	4
32	KS-CJT35- 32S-30	DHS-16	UHR-16	RHP-32	TX- 32	G25	S10	TF- 8	CR- 8
40	KS-CJT35- 40S-30	DHS-16	UHR-16	RHP-40	TX- 40	G25	P12	TF- 8	CR- 8
50	KS-CJT35- 50S-30	DHS-22	UHR-22	RHP-50	TX- 50	G35	P18	TF- 8	CR- 8
63	KS-CJT35- 63S-30	DHS-22	UHR-22	RHP-63	TX- 63	G35	P18	TF-12	CR-12
80	KS-CJT35- 80S-30	DHS-28	UHR-28A	RHP-80A	TX- 80	P36	P22A	TF-12	CR-12
100	KS-CJT35-100S-30	DHS-36	UHR-36	RHP-100A	TX-100	P46	G30	TF-14	CR-14
125	KS-CJT35-125S-30	DHS-45	UHR-45A	RHP-125A	TX-125	G55	G40	TF-14	CR-14
160	KS-CJT35-160S-30	DHS-56	UHR-56	RHP-160	TX-160	G65	G50	TF-14	CR-18

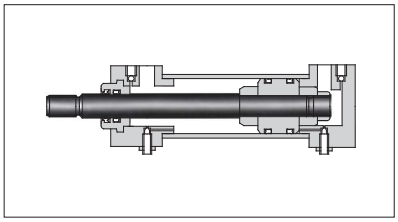
★1. Please specify the seal kit numbers above when ordering the seals.
★2. O-ring is OR NBR-70-1 P(G)**-N. Reference The O-ring code "S" for the cylinder bore 32 is a special standard.
★3. Material of standard packing is Nitrile Rubber. About Fluoro Rubber and Hydrogenated Nitrile Rubber, please specify "F-" in addition to the model of seal kit after "KS".
Fluorine Rubber：F- Hydrogenated Nitrile Rubber：6-
Note: The packing code changes without notice.

"CJT 7/14 MPa" Series Hydraulic Cylinders

YUKEN's "CJT 7/14 MPa" Series Hydraulic Cylinders are provided with many mounting types so that they can be used for wide use of general purpose industrial machines such as machine tools.
In particular, the cushion mechanism has been improved to achieve smoother stopping characteristics with fewer shocks.
Moreover, Switch-Set "CJT" Series Hydraulic Cylinders with a proximity switch which facilitates detecting a position with a slide proximity switch on the cylinder body is also available.(Refer to page J-69 for details)

- Various mounting types.
- Excellent ability in low speed and high-precision operation.
- Gentle stop characterisitics obtained with a smooth cushion effect.

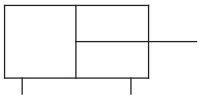




Specifications

Descriptions \ Series Number				CJT70	CJT140
Cylinder Bore mm				32, 40, 50, 63, 80, 100, 125, 140, 150, 160, 180, 200, 220, 250	
Mounting Type				SD, LA, LB, FA, FB, FC, FD, FE, FF, FY, CA, CB, TA, TC	SD, LA, LB, FC, FD, FE, FF, FY, CA, CB, TA, TC
Nominal Pressure ★1 MPa				7	14 ★4
Maximum Allowable Pressure ★1 MPa	Cap Side			9	18
	Rod Side	Rod Size	A	15	18
			B	13.5	18
			C	11	14
Proof Test Pressure ★1 MPa				10.5	21
Minimum Working Pressure				0.3 MPa. or less	
Operating Maximum Speed mm/s	Cylinder Bore	32 - 63		400	
		80 - 125		300	
		140 - 250		200	
Operating Minimum Speed mm/s				8	
Maximum Stroke ★2 mm	Cylinder Bore	32		1000	
		40,50		1200	
		63,80		1600	
		100 - 250		2000	
Tolerance of Stroke				Refer to the table "Tolerance of Stroke" ★3	
Tolerance of Thread				JIS B 0211–6g (JIS grade 2 or equivalence)	
Ambient Temperature Range				–10 - +80℃	
Mass kg				Refer to Page J-22	
Applicable Standard				Compliant with former JIS B8354	

Graphic Symbol



TC Type Mounting Minimum Stroke Fabrication Range

Cylinder Bore mm	Minimum Stroke mm
32, 40, 50	15
63	20
80	25
100, 125	15
140 - 250	0

★1. Refer to page J-7 for definitions of pressure terms.
★2. May be limited to even lower value in accordance with the buckling strength. Refer to page J-23 for strokes above buckling strength.
★3. Tolerance of Stroke

Stroke mm	Tolerance mm
100 or less	+0.8 0
More than 100 to 250	+1.0 0
More than 250 to 630	+1.25 0
More than 630 to 1000	+1.4 0
More than 1000 to 1600	+1.6 0
More than 1600 to 2000	+1.8 0

★4. In case of the double rod type cylinder, the nominal pressure is limited by the cylinder bore size.

Cylinder Bore	Nominal Pressure MPa	
	Double Rod Main Cover Side	Double Rod Driven Cover Side
32 - 125	14	14
140 - 250	14	7

Model Number Designation

F–	CJT140	–LA	125	B	100	B	–A	B	D	–E	–20
Packing Material	Series Number	Mounting Type	Cylinder Bore mm	Rod Size	Cylinder Stroke mm	Cushion Type	Port Position ★2	Cushion Adj. Valve Position ★2	Air Vent Valve Position ★2	Options ★1	Design Number
None : Nitrile Rubber (standard) F : Fluoro Rubber	CJT70 : 7MPa Series Standard Cylinder	SD, LA, LB, FA, FB, FC, FD, FE, FF, FY, CA, CB, TA★4, TC	40, 50, 63, 80, 100, 125, 140, 150, 160, 180, 200, 220, 250	A : Rod A (Super Strong)	Cylinder Stroke	B : ★3 With Cushion on Both ends R : ★3 With Cushion on the Rod side H : With Cushion on the Cap side N : Without Cushion	(Viewed from Rod End) A : Upper (Standard) B : Right C : Under D : Left	B : Right (Standard) A : Upper C : Under D : Left N : No Cushion adj. valve (Standard)	D : Left (Standard) A : Upper B : Right C : Under	Please consult us separately for options for Rod A. E : Long Rod End Thread F : With Dust Cover (Material: Nylon Tarpaulin, Heat resistant up to 80°C) G : With Dust Cover (Material: Chloroprene , Heat resistant up to 130°C) H : With Dust Cover (Material: Sylicon Glass, Heat resistant up to 250°C) K : With Lock Nut (E:Used in combination with long rod end thread) L : With T-End (Rod End Eye) M : With Y-End (Rod End Clevis) N : Double Rod	20
	CJT140 : 14MPa Series Standard Cylinder	SD, LA, LB, FC, FD, FE, FF, FY, CA, CB, TA★4, TC	32, 40, 50, 63, 80, 100, 125, 140, 150, 160, 180, 200, 220, 250	B : Rod B (Strong) C : Rod C (Standard)							

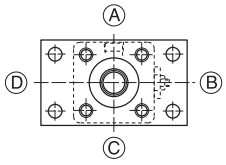
★1. Using the options in combination is available.
Please specify the option code in the alphabet.
Ex.: EKL
However, in case of the double rod type, the options E, F, G, H and K are attached to the both ends. The options L and M are attached at one end only.
Please consult the details about cylinder bore 180 or larger the options L and M with us. (This is a special design products)

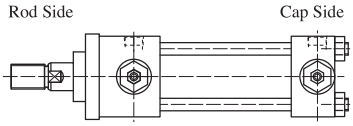
★2. As for each direction of port, cushion adj. valve and air vent valve, please select from ⒶⒷⒸⒹ viewed from rod end (see the figure on the right).
<Standard directions>
Port: Ⓐ,Cushion adj. valve: Ⓑ, Air vent valve: Ⓓ
Note: The direction of port and cushion adj. valve is not available to be the same direction. However, the other combinations are available.

★3. Cushion type "B" and "R" are not available for rod size A with cylinder bore 40, 50, 63.

★4. Mounting Type TA （Rod Trunnion） cylinder bore 180-250 cannot be selected.

★5. Phosphate ester type fluids are also supported. When phosphate ester type are used, prefix "F-" to the model number because the special seals (fluororubber) are required to used.





Mounting Type

Code	Name	Illustration of Mounting Type	Code	Name	Illustration of Mounting Type
SD	Basic Type		FD	Cap Square Flange	
LA	Foot Mounting Side Lugs		CA	Cap Detachable Eye	
LB	Foot Mounting Side End Angles		CB	Cap Detachable Clevis	
FA FE FY	Rod Rectangular Flange		TA	Rod Trunnion	
FB FF	Cap Rectangular Flange		TC	Intermediate Trunnion	
FC	Rod Square Flange				

Syllabus Table

Push (Cap Side Pressure)

Cylinder Bore mm	Pressurised Area cm^2	Output kN					Velocity by a unit flow rate 10L/min mm/s	Flow rate by a unit velocity 10mm/s L/min
		1 MPa	3 MPa	7 MPa	10.5 MPa	14 MPa		
32	8.0	0.80	2.41	5.63	8.44	11.26	208	0.5
40	12.6	1.26	3.77	8.79	13.19	17.58	132	0.8
50	19.6	1.96	5.89	13.74	20.61	27.48	85	1.2
63	31.2	3.12	9.35	21.81	32.71	43.62	53	1.9
80	50.3	5.03	15.07	35.17	52.75	70.34	33	3.0
100	78.5	7.85	23.55	54.95	82.43	109.90	21	4.7
125	122.7	12.27	36.80	85.86	128.79	171.72	14	7.4
140	153.9	15.39	46.16	107.70	161.55	215.40	10.8	9.2
150	176.7	17.67	53.01	123.70	185.55	247.40	9.4	10.6
160	201.0	20.10	60.29	140.67	211.01	281.34	8.3	12.1
180	254.3	25.43	76.30	178.04	267.06	356.08	6.6	15.3
200	314.0	31.40	94.20	219.80	329.70	439.60	5.3	18.8
220	379.9	37.99	113.98	265.96	398.94	531.92	4.4	22.8
250	490.6	49.06	147.19	343.44	515.16	686.88	3.4	29.4

Pull (Rod Side Pressure)

Cylinder Bore mm	Rod Size Code	Rod Size mm	Pressurised Area cm^2	Output kN					Velocity by a unit flow rate 10L/min mm/s	Flow rate by a unit velocity 10mm/s L/min
				1 MPa	3 MPa	7 MPa	10.5 MPa	14 MPa		
32	B	18	5.5	0.55	1.65	3.85	5.78	7.70	303	0.3
	C	14	6.5	0.65	1.95	4.55	6.83	9.10	256	0.4
40	A	28	6.4	0.64	1.92	4.48	6.72	8.96	260.5	0.4
	B	22	8.8	0.88	2.63	6.13	9.20	12.27	189	0.5
	C	18	10.0	1.00	3.00	7.00	10.50	14.00	167	0.6
50	A	36	9.4	0.94	2.82	6.58	9.87	13.16	177.3	0.6
	B	28	13.5	1.35	4.04	9.43	14.14	18.86	123	0.8
	C	22	15.8	1.58	4.75	11.08	16.62	22.16	105	0.9
63	A	45	15.3	1.53	4.59	10.71	16.07	21.42	109	0.9
	B	36	21.0	2.10	6.29	14.69	22.03	29.38	79	1.3
	C	28	25.0	2.50	7.50	17.50	26.25	35.00	67	1.5
80	A	56	25.7	2.57	7.71	17.99	26.99	35.98	64.9	1.5
	B	45	34.3	3.43	10.30	24.04	36.06	48.08	49	2.1
	C	36	40.1	4.01	12.02	28.05	42.07	56.09	42	2.4
100	A	70	40.0	4.00	12.00	28.00	42.00	56.00	41.7	2.4
	B	56	53.9	5.39	16.17	37.72	56.58	75.44	31	3.2
	C	45	62.6	6.26	18.78	43.82	65.73	87.65	27	3.8
125	A	90	59.1	5.91	17.73	41.37	62.06	82.74	28.2	3.5
	B	70	84.2	8.42	25.26	58.93	88.40	117.87	20	5.1
	C	56	98.0	9.80	29.41	68.63	102.94	137.25	17	5.9
140	A	100	75.4	7.54	22.62	52.78	79.17	105.56	22.1	4.5
	B	80	103.6	10.36	31.09	72.53	108.80	145.07	16	6.2
	C	63	122.7	12.27	36.81	85.89	128.84	171.78	14	7.4
150	A	106	88.5	8.85	26.55	61.95	92.93	123.90	18.8	5.3
	B	85	120.0	12.00	35.99	83.98	125.97	167.96	13.9	7.2
	C	67	141.5	14.15	42.44	99.02	148.53	198.04	11.8	8.5
160	A	110	106.0	10.60	31.80	74.20	111.30	148.40	15.7	6.4
	B	90	137.4	13.74	41.21	96.16	144.24	192.33	12	8.2
	C	70	162.5	16.25	48.75	113.75	170.62	227.49	10.3	9.8
180	A	125	131.6	13.16	39.48	92.12	138.18	184.24	12.7	7.9
	B	100	175.8	17.58	52.75	123.09	184.63	246.18	9.5	10.5
	C	80	204.1	20.41	61.23	142.87	214.31	285.74	8.2	12.2
200	A	140	160.1	16.01	48.03	112.07	168.11	224.12	10.4	9.6
	B	110	219.0	21.90	65.70	153.31	229.97	306.62	7.6	13.1
	C	90	250.4	25.04	75.12	175.29	262.94	350.58	6.7	15.0
220	A	160	178.9	17.89	53.67	125.23	187.85	250.46	9.3	10.7
	B	125	257.3	25.73	77.19	180.10	270.15	360.20	6.5	15.4
	C	100	301.4	30.14	90.43	211.01	316.51	422.02	5.5	18.1
250	A	180	236.3	23.63	70.89	165.41	248.12	330.82	7.1	14.2
	B	140	336.8	33.68	101.03	235.74	353.60	471.47	4.9	20.2
	C	110	395.6	39.56	118.69	276.95	415.42	553.90	4.2	23.7

Mass Table

Approx. Mass may be obtained from the formula below.

$$〔\text{Mass}〕 = 〔\text{Basic Mass}〕 + \left\{\text{Additional Mass By A Unit Stroke 100mm} \times \frac{\text{Stroke (mm)}}{100}\right\}$$

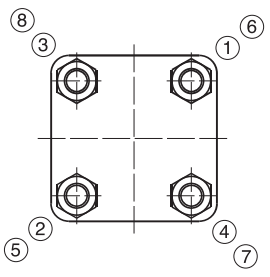
Basic mass by mounting type and additional mass by a unit stroke 100 mm

Cylinder Bore	Rod Size Code	Basic Mass kg													Additional Mass By A Unit Stroke 100mm kg
		SD	LA	LB	FA	FB	FC	FD	FE·FY	FF	CA	CB	TA	TC	
32	B	3.3	3.8	3.9	3.5	3.8	3.9	4.2	3.5	3.8	3.9	4.0	3.4	3.8	0.8
	C	3.2	3.7	3.8	3.4	3.7	3.8	4.1	3.3	3.6	3.8	3.9	3.3	3.7	0.7
40	A	4.4	4.8	4.9	4.7	5.0	5.2	5.4	4.8	5.2	5.0	5.1	4.5	5.0	1.1
	B	4.2	4.6	4.7	4.5	4.8	5.0	5.2	4.6	5.0	4.8	4.9	4.3	4.8	1.0
	C	4.1	4.5	4.6	4.4	4.7	4.9	5.1	4.5	4.9	4.7	4.8	4.2	4.7	0.9
50	A	7.3	8.1	8.1	7.8	8.4	8.7	9.3	8.3	8.9	8.3	8.5	7.4	8.3	1.7
	B	6.8	7.6	7.6	7.3	7.9	8.2	8.8	7.8	8.4	7.8	8.0	6.9	7.8	1.3
	C	6.7	7.5	7.5	7.2	7.8	8.1	8.7	7.7	8.3	7.7	7.9	6.8	7.7	1.2
63	A	10.8	11.7	12.4	11.4	12.5	12.7	13.8	12.1	13.1	13.0	13.7	11.2	12.6	2.4
	B	10.0	10.9	11.6	10.6	11.7	11.9	13.0	11.3	12.3	12.2	12.9	10.4	11.8	1.9
	C	9.9	10.8	11.5	10.5	11.6	11.8	12.9	11.2	12.2	12.1	12.8	10.3	11.7	1.6
80	A	17.0	17.8	19.1	18.0	19.8	19.9	21.6	19.0	20.7	19.8	20.7	17.4	19.2	3.6
	B	15.6	16.4	17.7	16.6	18.4	18.5	20.2	17.6	19.3	18.4	19.3	16.0	17.8	2.9
	C	15.2	16.0	17.3	16.2	18.0	18.1	19.8	17.2	18.9	18.0	18.9	15.6	17.4	2.4
100	A	28.8	30.0	32.1	30.4	33.4	33.3	36.3	32.2	35.6	34.4	35.9	29.6	33.5	5.6
	B	26.1	27.3	29.4	27.7	30.7	30.6	33.6	29.5	32.9	31.7	33.2	26.9	30.8	4.4
	C	25.7	26.9	29.0	27.3	30.3	30.2	33.2	29.1	32.5	31.3	32.8	26.5	30.4	3.8
125	A	53.4	55.5	62.5	55.9	61.3	60.7	66.0	59.1	64.4	63.4	66.4	54.0	60.5	8.9
	B	47.6	49.7	56.7	50.1	55.5	54.9	60.2	53.3	58.6	57.6	60.6	48.2	54.7	7.8
	C	47.2	49.3	56.3	49.7	55.1	54.5	59.8	52.9	58.2	57.2	60.2	47.8	54.3	6.6
140	A	70.5	73.5	83.5	73.6	81.8	80.7	87.0	78.4	85.6	85.6	91.7	72.4	81.2	11.7
	B	63.0	66.0	76.0	66.1	74.3	73.2	79.5	70.9	78.1	78.1	84.2	64.9	73.7	10.4
	C	60.4	63.4	73.4	63.5	71.7	70.6	76.9	68.3	75.5	75.5	81.6	62.3	71.1	8.9
150	A	82.6	89.1	101.0	88.7	97.4	97.0	105.0	94.6	103.0	99.8	104.5	88.9	96.6	12.7
	B	73.7	80.2	92.1	79.8	88.5	88.1	96.1	85.7	94.1	90.9	95.6	80.0	87.7	11.2
	C	70.1	76.6	88.5	76.2	84.9	84.5	92.5	82.1	90.5	87.3	92.0	76.4	84.1	9.6
160	A	98.4	102.6	115.2	103.5	114.7	113.0	124.2	109.0	120.2	120.9	129.8	100.7	114.7	13.9
	B	89.4	93.6	106.2	94.5	105.7	104.0	115.2	100.0	111.2	111.9	120.8	91.7	105.7	12.5
	C	86.1	90.3	102.9	91.2	102.4	100.7	111.9	96.7	107.9	108.6	117.5	88.4	102.4	10.6
180	A	126.1	141.8	159.1	142.6	156.9	155.0	169.2	151.4	165.7	164.4	179.4	–	153.0	19.1
	B	111.7	127.4	144.7	128.2	142.5	140.6	154.8	137.0	151.3	150.0	165.0	–	138.6	17.9
	C	106.7	122.4	139.7	123.2	137.5	135.6	149.8	132.0	146.3	145.0	160.0	–	133.6	15.7
200	A	162.1	170.7	199.0	172.3	192.2	190.5	210.4	184.3	204.2	209.2	228.6	–	178.0	23.3
	B	141.5	150.1	178.4	151.7	171.6	169.9	189.8	163.7	183.6	188.6	208.0	–	157.4	21.7
	C	136.4	145.0	173.3	146.6	166.5	164.8	184.7	158.6	178.5	183.5	202.9	–	152.3	19.0
220	A	238.0	247.2	295.0	252.3	279.7	276.4	303.8	270.8	298.2	297.7	322.7	–	273.9	33.8
	B	208.4	217.6	265.4	222.7	250.1	246.8	274.2	241.2	268.6	268.1	293.1	–	244.3	26.4
	C	198.5	207.7	255.5	212.8	240.2	236.9	264.3	231.3	258.7	258.2	283.2	–	234.4	23.0
250	A	335.7	349.1	416.2	353.2	390.7	385.6	422.8	376.9	415.1	409.4	435.0	–	373.0	40.8
	B	291.2	304.6	371.7	308.7	346.2	341.1	378.3	332.4	370.6	364.9	390.5	–	328.5	32.8
	C	280.8	294.2	361.3	298.3	335.8	330.7	367.9	322.0	360.2	354.5	380.1	–	318.1	28.4

Tie Rod Tightening

When tightening tie rods, do not tighten only one tie rod tightly at a time, but gradually tighten the tie rods in the order of the numbers shown in the figure on the right. Note that one-sided tightening of tie rods may cause operation failure or chattering.

Bore mm	32	40	50	63	80	100	125
Tightening Torque Nm	18	35	62	100	150	300	550
Bore mm	140	150	160	180	200	220	250
Tightening Torque Nm	800	800	1100	1100	1400	2400	3000

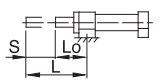
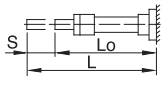
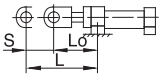
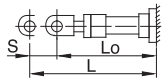
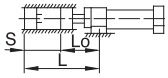
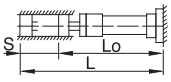
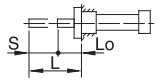
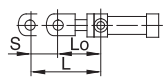
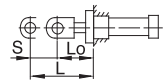
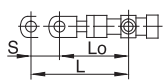
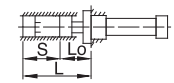
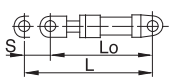


Maximum stroke limited by buckling strength

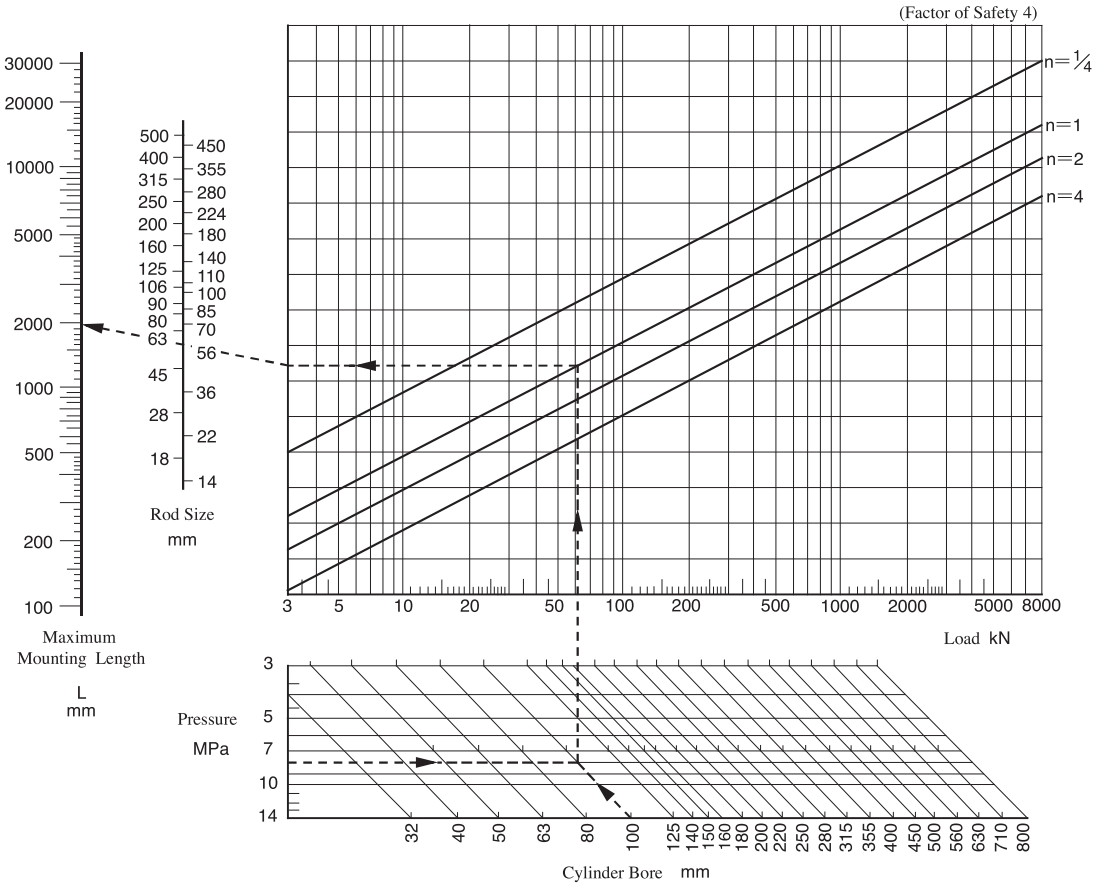
Calculation of Maximum Stroke

1. Calculate rod end coefficient n from the table on the right.
2. Calculate the maximum installation length L by applying various values such as cylinder bore, rod size, pressure, and rod end coefficient to the figure below.
3. Refer to the external dimensions and calculate the mounting length Lo when retracted.
   Use the formula S=L–Lo and calculate the maximum stroke S.
   (Example) Cylinder bore 100 mm, rod size 56 mm, mounting type TC (intermediate trunnion type) standard cylinder operated at 8 MPa pressure. Calculate the maximum stroke.

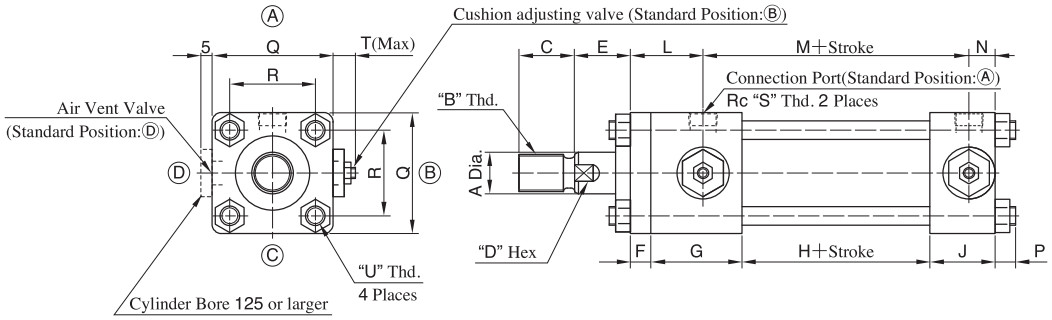
   From the table on the right n=1
   From the figure below L≒1980
   From Dimensional Drawing (J-37) and Rod End Attachment (J-38)
   $Lo=(156+145)+\frac{S}{2}$
   therefore $S=L-Lo=1980-[(156+145)+\frac{S}{2}]$
   hence S≒1120 mm

Mounting Type	Type	Rod End Coefficient n	Mounting Type	Type	Rod End Coefficient n
LA		1/4	FB		1/4
LB		2	FD FF		2
		4			4
FA		1/4	TA		
FC FE FY		2	TC		1
		4	CA CB		

S=L–Lo
S : Stroke mm
L : Mounting Length at extension mm
Lo : Mounting Length at contraction mm
Note: For Lo dimensions, refer to dimensional drawing and add the dimensions of rod end attachment.



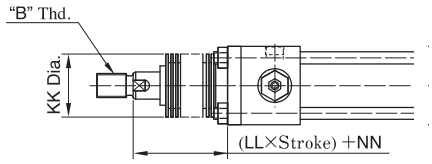
SD : Basic Type.....Nominal Pressure 7 · 14 MPa



Options

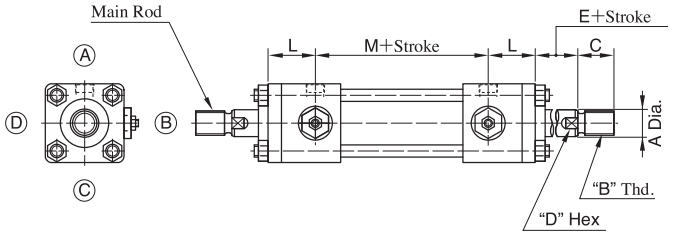
With Dust Cover

Type F: Material: Nylon Tarpaulin, heat resistant up to 80°C
Type G: Material: Chloroprene, heat resistant up to 130°C
Type H: Material:Silicon Glass,heat resistant up to 250°C



Note : FE type & the other mounting type has difference in dimension "NN".

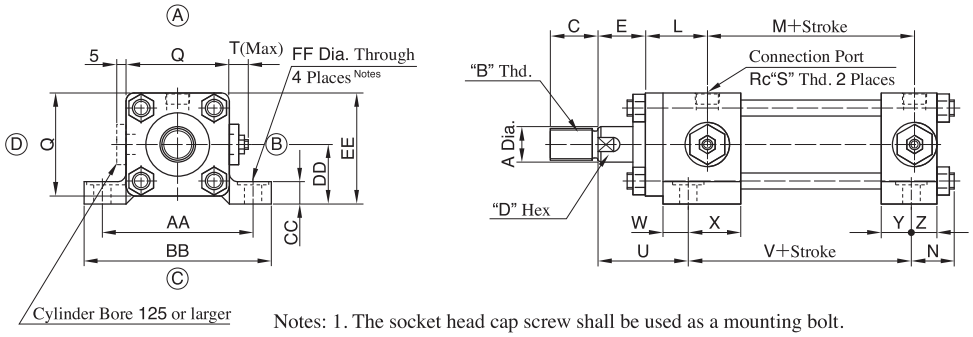
Double Rod Type "N"



Cylinder Bore	A			B			C★1			D			KK		E	F	G	H	J	L	M	N	P	Q	R	S	T	U	★2 LL	★3 NN
	Rod Size			Rod Size			Rod Size			Rod Size			Rod Size																	
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"B"	"C"																
32	–	18	14	–	M16×1.5	M12×1.25	–	25 (32)	18 (24)	–	14	12	46	46	30	11	49	46	35	39	88	14	9	58	40	3/8	12	M8×1.0		45 (45)
40	28	22	18	M24×1.5	M20×1.5	M16×1.5	35 (48)	30 (40)	25 (32)	24	19	14	52	48	30	11	49	46	35	39	88	14	11	65	45	3/8	12	M10×1.25	1/3.5	45 (43)
50	36	28	22	M30×1.5	M24×1.5	M20×1.5	45 (60)	35 (48)	30 (40)	30	24	19	59	52	30	13	56	46	40	44	96	15	13	80	55	1/2	12	M12×1.25		45 (40)
63	45	36	28	M39×1.5	M30×1.5	M24×1.5	60 (78)	45 (60)	35 (48)	41	30	24	69	59	35	15	44	70	34	42	104	17	14.5	94	65	1/2	12	M14×1.5		55 (50)
80	56	45	36	M48×1.5	M39×1.5	M30×1.5	75 (96)	60 (78)	45 (60)	50	41	30	81	69	35	18	50	78	38	48	118	18	16.5	110	82	3/4	12	M16×1.5	1/4	55 (49)
100	70	56	45	M64×2.0	M48×1.5	M39×1.5	95 (128)	75 (96)	60 (78)	65	50	41	100	81	40	20	57	74	41	54	120	18	19.5	138	103	3/4	12	M20×1.5		55 (47)
125	90	70	56	M80×2.0	M64×2.0	M48×1.5	120 (140)	95 (128)	75 (96)	85	65	50	118	100	45	24	67	78	51	63	134	23	23	168	125	1	15	M24×1.5		65 (56)
140	100	80	63	M95×2.0	M72×2.0	M56×2.0	140 (165)	110 (128)	80 (112)	95	75	55	129	106	50	26	67	86	51	65	142	23	25	188	141	1	15	M27×1.5		65 (54)
150	106	85	67	M100×2.0	M76×2.0	M60×2.0	150 (175)	115 (128)	85 (120)	100	80	60	135	112	50	28	67	91	54	67	147	26	25	196	148	1	15	M27×1.5		65 (54)
160	110	90	70	M100×2.0	M80×2.0	M64×2.0	150 (175)	120 (140)	95 (128)	105	85	65	140	118	55	31	65	98	59	66	158	29	28.5	215	160	1	15	M30×1.5	1/5	65 (55)
180	125	100	80	M120×2.0	M95×2.0	M72×2.0	180 (210)	140 (165)	110 (128)	120	95	75	151	129	55	33	75	106	61	75	172	28	27	235	182	1 1/4	15	M30×1.5		65 (52)
200	140	110	90	M130×2.0	M100×2.0	M80×2.0	195 (225)	150 (175)	120 (140)	135	105	85	170	140	55	37	85	110	69	85	184	32	29	262	200	1 1/2	15	M33×1.5		65 (51)
220	160	125	100	M150×2.0	M120×2.0	M95×2.0	225 (260)	180 (210)	140 (175)	155	120	95	183	151	60	41	85	110	69	89	184	32	34	292	225	1 1/2	15	M39×1.5	1/6	80 (63)
250	180	140	110	M170×2.0	M130×2.0	M100×2.0	255 (295)	195 (225)	150 (175)	175	135	105	205	170	65	46	105	110	85	106	200	40	37	325	250	2	15	M42×1.5		80 (61)

★1. Only long rod end thread type : the dimension "C" is the value in parentheses.
★2. If the calculated value of LL x stroke has a fraction less than a whole number, correct (round up) to the nearest 0.5 mm.
★3. NN dimensions are in parentheses only when Mounting Type is FE type.

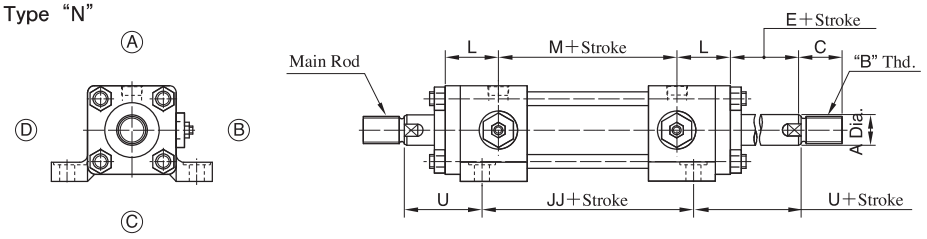
LA : Foot Mounting Side Lugs.....Nominal Pressure 7・14 MPa



Notes: 1. The socket head cap screw shall be used as a mounting bolt.
2. As for cylinder bore 32-100, in case the port direction is "B" or "D", pipe fittings may interference with cylinder mounting bolts. See instructions on page J-4 for details.

Options

Double Rod Type "N"

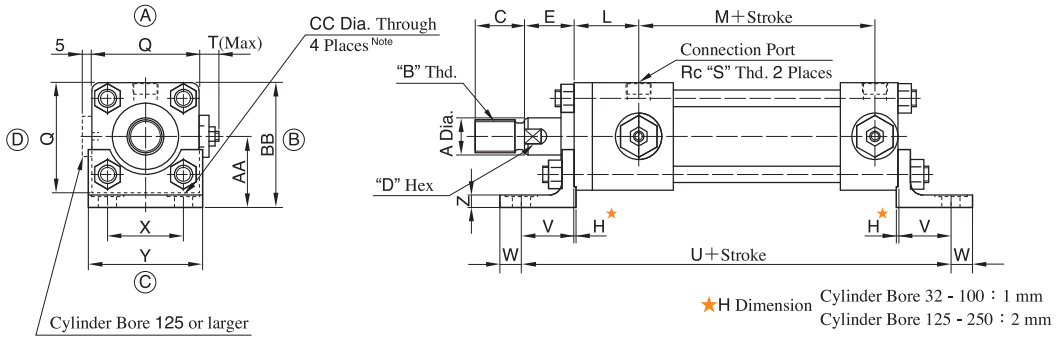


With Dust Cover:
Refer to SD type page J-24 for dimensions of dust cover.

Cylinder Bore	A			B			C★1			D			E	L	M	N	Q	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	JJ
	Rod Size			Rod Size			Rod Size			Rod Size																						
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"																				
32	–	18	14	–	M16 × 1.5	M12 × 1.25	–	25 (32)	18 (24)	–	14	12	30	39	88	25	58	3/8	12	57	98	16	33	19	16	88	109	14	35 ± 0.15	64	11	112
40	28	22	18	M24 × 1.5	M20 × 1.5	M16 × 1.5	35 (48)	30 (40)	25 (32)	24	19	14	30	39	88	27	65	3/8	12	57	98	16	33	19	16	95	118	14	37.5 ± 0.15	70	11	112
50	36	28	22	M30 × 1.5	M24 × 1.5	M20 × 1.5	45 (60)	35 (48)	30 (40)	30	24	19	30	44	96	30	80	1/2	12	60	108	17	39	23	17	115	145	17	45 ± 0.15	85	14	124
63	45	36	28	M39 × 1.5	M30 × 1.5	M24 × 1.5	60 (78)	45 (60)	35 (48)	41	30	24	35	42	104	35	94	1/2	12	71	106	21	23	13	21	132	165	19	50 ± 0.15	97	18	116
80	56	45	36	M48 × 1.5	M39 × 1.5	M30 × 1.5	75 (96)	60 (78)	45 (60)	50	41	30	35	48	118	37	110	3/4	12	74	124	21	29	17	21	155	190	25	60 ± 0.25	115	18	136
100	70	56	45	M64 × 2.0	M48 × 1.5	M39 × 1.5	95 (128)	75 (96)	60 (78)	65	50	41	40	54	120	44	138	3/4	12	85	122	25	32	16	25	190	230	27	71 ± 0.25	140	22	138
125	90	70	56	M80 × 2.0	M64 × 2.0	M48 × 1.5	120 (140)	95 (128)	75 (96)	85	65	50	45	63	134	53	168	1	15	99	136	30	37	21	30	224	272	32	85 ± 0.25	169	26	152
140	100	80	63	M95 × 2.0	M72 × 2.0	M56 × 2.0	140 (165)	110 (128)	80 (112)	95	75	55	50	65	142	55	188	1	15	106	144	30	37	21	30	250	300	35	95 ± 0.25	189	26	160
150	106	85	67	M100 × 2.0	M76 × 2.0	M60 × 2.0	150 (175)	115 (128)	85 (120)	100	80	60	50	67	147	58	196	1	15	111	146	33	34	21	33	270	320	37	106 ± 0.25	204	30	159
160	110	90	70	M100 × 2.0	M80 × 2.0	M64 × 2.0	150 (175)	120 (140)	95 (128)	105	85	65	55	66	158	64	215	1	15	122	150	36	29	23	36	285	345	42	112 ± 0.25	219.5	33	156
180	125	100	80	M120 × 2.0	M95 × 2.0	M72 × 2.0	180 (210)	140 (165)	110 (128)	120	95	75	55	75	172	62	235	1 1/4	15	123	172	35	40	26	35	315	375	47	125 ± 0.25	242.5	33	186
200	140	110	90	M130 × 2.0	M100 × 2.0	M80 × 2.0	195 (225)	150 (175)	120 (140)	135	105	85	55	85	184	68	262	1 1/2	15	131	186	39	46	30	39	355	425	52	140 ± 0.25	271	36	202
220	160	125	100	M150 × 2.0	M120 × 2.0	M95 × 2.0	225 (260)	180 (210)	140 (175)	155	120	95	60	89	184	73	292	1 1/2	15	140	186	39	46	30	39	395	475	52	150 ± 0.25	296	42	202
250	180	140	110	M170 × 2.0	M130 × 2.0	M100 × 2.0	255 (295)	195 (225)	150 (175)	175	135	105	65	106	200	84	325	2	15	158	206	47	58	38	47	425	515	57	170 ± 0.25	332.5	45	226

★1. Only long rod end thread type : the dimension "C" is the value in parentheses.

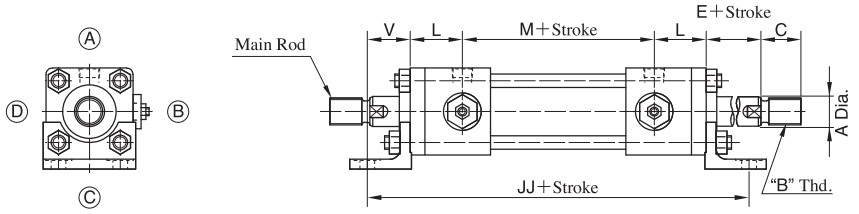
LB : Foot Mounting Side End Angles.....Nominal Pressure 7・14 MPa



Note: The socket head cap screw shall be used as a mounting bolt.

Options

Double Rod Type "N"



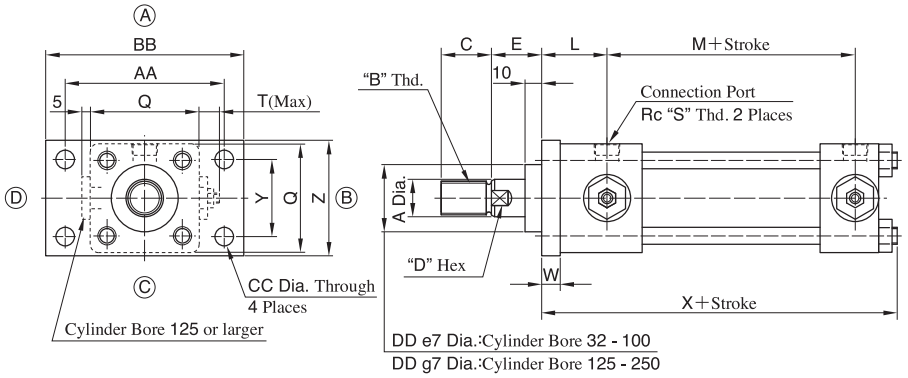
With Dust Cover:

Refer to SD type page J-24 for dimensions of dust cover.

Cylinder Bore	A			B			C ★1			D			E	L	M	Q	S	T	U	V	W	X	Y	Z	AA	BB	CC	JJ
	Rod Size			Rod Size			Rod Size			Rod Size																		
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"																
32	–	18	14	–	M16 × 1.5	M12 × 1.25	–	25 (32)	18 (24)	–	14	12	30	39	88	58	3/8	12	205	32	13	40	63	7.5	40 ± 0.15	69	11	230
40	28	22	18	M24 × 1.5	M20 × 1.5	M16 × 1.5	35 (48)	30 (40)	25 (32)	24	19	14	30	39	88	65	3/8	12	205	32	13	46	69	7.5	43 ± 0.15	75.5	11	230
50	36	28	22	M30 × 1.5	M24 × 1.5	M20 × 1.5	45 (60)	35 (48)	30 (40)	30	24	19	30	44	96	80	1/2	12	225	35	15	58	85	7.5	50 ± 0.15	90	14	254
63	45	36	28	M39 × 1.5	M30 × 1.5	M24 × 1.5	60 (78)	45 (60)	35 (48)	41	30	24	35	42	104	94	1/2	12	247	42	18	65	98	11.5	60 ± 0.15	107	18	272
80	56	45	36	M48 × 1.5	M39 × 1.5	M30 × 1.5	75 (96)	60 (78)	45 (60)	50	41	30	35	48	118	110	3/4	12	284	50	20	87	118	11.5	72 ± 0.25	127	18	314
100	70	56	45	M64 × 2.0	M48 × 1.5	M39 × 1.5	95 (128)	75 (96)	60 (78)	65	50	41	40	54	120	138	3/4	12	302	55	23	109	150	12.5	85 ± 0.25	154	22	338
125	90	70	56	M80 × 2.0	M64 × 2.0	M48 × 1.5	120 (140)	95 (128)	75 (96)	85	65	50	45	63	134	168	1	15	352	66	29	130	175	14.5	105 ± 0.25	189	26	397
140	100	80	63	M95 × 2.0	M72 × 2.0	M56 × 2.0	140 (165)	110 (128)	80 (112)	95	75	55	50	65	142	188	1	15	370	70	30	145	195	17.5	115 ± 0.25	209	26	412
150	106	85	67	M100 × 2.0	M76 × 2.0	M60 × 2.0	150 (175)	115 (128)	85 (120)	100	80	60	50	67	147	196	1	15	390	75	30	155	210	17.5	123 ± 0.25	221	30	431
160	110	90	70	M100 × 2.0	M80 × 2.0	M64 × 2.0	150 (175)	120 (140)	95 (128)	105	85	65	55	66	158	215	1	15	403	75	35	170	225	17.5	132 ± 0.25	239.5	33	440
180	125	100	80	M120 × 2.0	M95 × 2.0	M72 × 2.0	180 (210)	140 (165)	110 (128)	120	95	75	55	75	172	235	1 1/4	15	445	85	40	185	243	19.5	148 ± 0.25	265.5	33	492
200	140	110	90	M130 × 2.0	M100 × 2.0	M80 × 2.0	195 (225)	150 (175)	120 (140)	135	105	85	55	85	184	262	1 1/2	15	497	98	40	206	272	24.5	165 ± 0.25	296	36	550
220	160	125	100	M150 × 2.0	M120 × 2.0	M95 × 2.0	225 (260)	180 (210)	140 (175)	155	120	95	60	89	184	292	1 1/2	15	535	115	45	230	310	29.5	185 ± 0.25	331	42	592
250	180	140	110	M170 × 2.0	M130 × 2.0	M100 × 2.0	255 (295)	195 (225)	150 (175)	175	135	105	65	106	200	325	2	15	606	130	50	250	335	34.5	208 ± 0.25	370.5	45	672

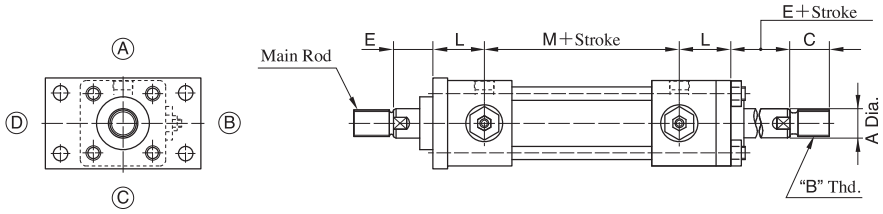
★1. Only long rod end thread type : the dimension "C" is the value in parentheses.

FA : Rod Rectangular Flange.....Nominal Pressure 7 MPa



Options

Double Rod Type "N"



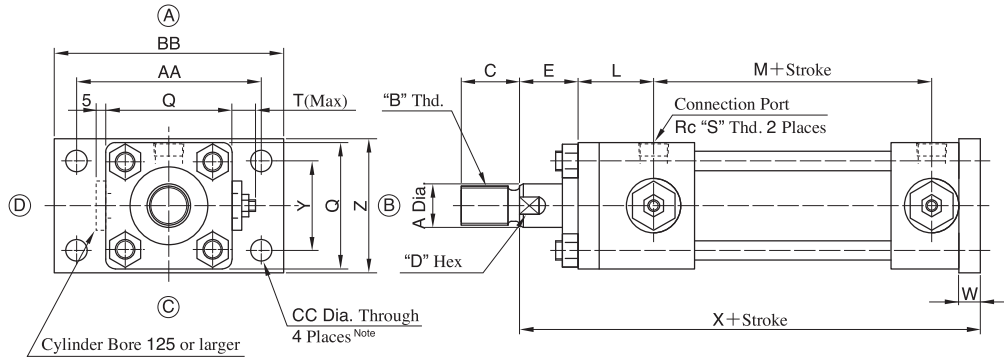
With Dust Cover:

Refer to SD type page J-24 for dimensions of dust cover.

Cylinder Bore	A			B			C ★1			D			DD			E	L	M	Q	S	T	W	X	Y	Z	AA	BB	CC
	Rod Size			Rod Size			Rod Size			Rod Size			Rod Size															
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"													
32	–	18	14	–	M16 × 1.5	M12 × 1.25	–	25 (32)	18 (24)	–	14	12	–	34	34	30	39	88	58	3/8	12	11	150	40	63	88	109	11
40	28	22	18	M24 × 1.5	M20 × 1.5	M16 × 1.5	35 (48)	30 (40)	25 (32)	24	19	14	46	40	36	30	39	88	65	3/8	12	11	152	46	69	95	118	11
50	36	28	22	M30 × 1.5	M24 × 1.5	M20 × 1.5	45 (60)	35 (48)	30 (40)	30	24	19	55	46	40	30	44	96	80	1/2	12	13	168	58	85	115	145	14
63	45	36	28	M39 × 1.5	M30 × 1.5	M24 × 1.5	60 (78)	45 (60)	35 (48)	41	30	24	65	55	46	35	42	104	94	1/2	12	15	177.5	65	98	132	165	18
80	56	45	36	M48 × 1.5	M39 × 1.5	M30 × 1.5	75 (96)	60 (78)	45 (60)	50	41	30	80	65	55	35	48	118	110	3/4	12	18	200.5	87	118	155	190	18
100	70	56	45	M64 × 2.0	M48 × 1.5	M39 × 1.5	95 (128)	75 (96)	60 (78)	65	50	41	95	80	65	40	54	120	138	3/4	12	20	211.5	109	150	190	230	22
125	90	70	56	M80 × 2.0	M64 × 2.0	M48 × 1.5	120 (140)	95 (128)	75 (96)	85	65	50	115	95	80	45	63	134	168	1	15	24	243	130	175	224	272	26
140	100	80	63	M95 × 2.0	M72 × 2.0	M56 × 2.0	140 (165)	110 (128)	80 (112)	95	75	55	125	105	85	50	65	142	188	1	15	26	255	145	195	250	300	26
150	106	85	67	M100 × 2.0	M76 × 2.0	M60 × 2.0	150 (175)	115 (128)	85 (120)	100	80	60	135	110	90	50	67	147	196	1	15	28	265	155	210	270	320	30
160	110	90	70	M100 × 2.0	M80 × 2.0	M64 × 2.0	150 (175)	120 (140)	95 (128)	105	85	65	140	115	95	55	66	158	215	1	15	31	281.5	170	225	285	345	33
180	125	100	80	M120 × 2.0	M95 × 2.0	M72 × 2.0	180 (210)	140 (165)	110 (128)	120	95	75	150	125	105	55	75	172	235	1 1/4	15	33	302	185	243	315	375	33
200	140	110	90	M130 × 2.0	M100 × 2.0	M80 × 2.0	195 (225)	150 (175)	120 (140)	135	105	85	170	140	115	55	85	184	262	1 1/2	15	37	330	206	272	355	425	36
220	160	125	100	M150 × 2.0	M120 × 2.0	M95 × 2.0	225 (260)	180 (210)	140 (175)	155	120	95	195	150	125	60	89	184	292	1 1/2	15	41	339	230	310	395	475	42
250	180	140	110	M170 × 2.0	M130 × 2.0	M100 × 2.0	255 (295)	195 (225)	150 (175)	175	135	105	215	170	140	65	106	200	325	2	15	46	383	250	335	425	515	45

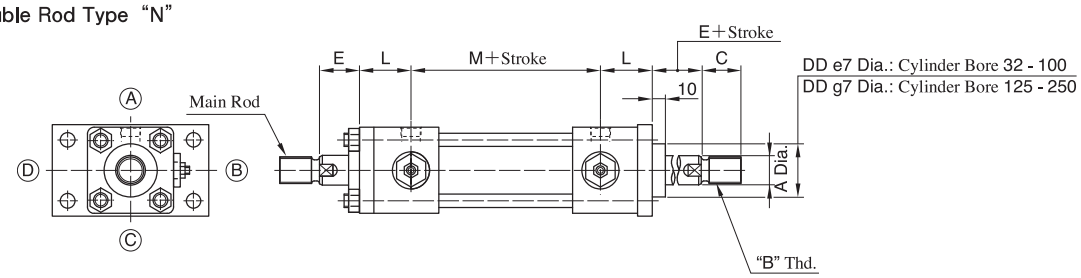
★1. Only long rod end thread type : the dimension "C" is the value in parentheses.

FB : Cap Rectangular Flange.....Nominal Pressure 7 MPa



Options

Double Rod Type "N"



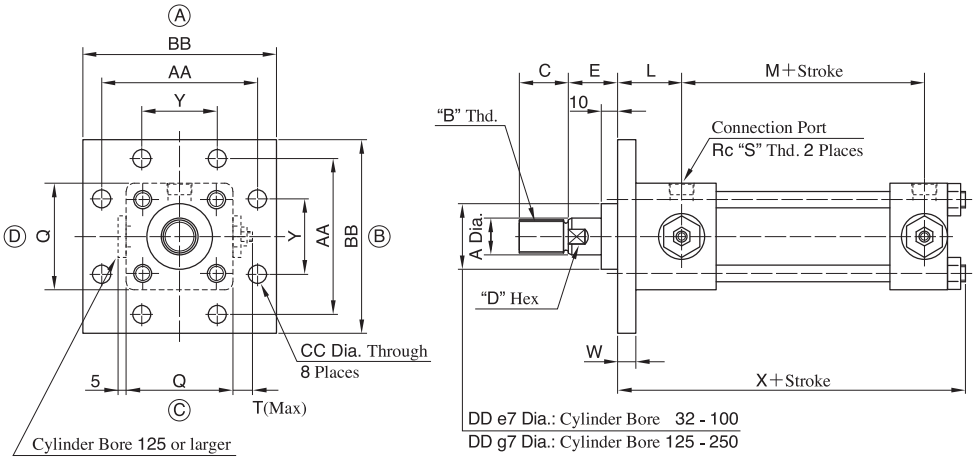
With Dust Cover:

Refer to SD type page J-24 for dimensions of dust cover.

Cylinder Bore	A			B			C★1			D			DD			E	L	M	Q	S	T	W	X	Y	Z	AA	BB	CC
	Rod Size			Rod Size			Rod Size			Rod Size			Rod Size															
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"													
32	–	18	14	–	M16 × 1.5	M12 × 1.25	–	25 (32)	18 (24)	–	14	12	–	34	34	30	39	88	58	3/8	12	11	182	40	63	88	109	11
40	28	22	18	M24 × 1.5	M20 × 1.5	M16 × 1.5	35 (48)	30 (40)	25 (32)	24	19	14	46	40	36	30	39	88	65	3/8	12	11	182	46	69	95	118	11
50	36	28	22	M30 × 1.5	M24 × 1.5	M20 × 1.5	45 (60)	35 (48)	30 (40)	30	24	19	55	46	40	30	44	96	80	1/2	12	13	198	58	85	115	145	14
63	45	36	28	M39 × 1.5	M30 × 1.5	M24 × 1.5	60 (78)	45 (60)	35 (48)	41	30	24	65	55	46	35	42	104	94	1/2	12	15	213	65	98	132	165	18
80	56	45	36	M48 × 1.5	M39 × 1.5	M30 × 1.5	75 (96)	60 (78)	45 (60)	50	41	30	80	65	55	35	48	118	110	3/4	12	18	237	87	118	155	190	18
100	70	56	45	M64 × 2.0	M48 × 1.5	M39 × 1.5	95 (128)	75 (96)	60 (78)	65	50	41	95	80	65	40	54	120	138	3/4	12	20	252	109	150	190	230	22
125	90	70	56	M80 × 2.0	M64 × 2.0	M48 × 1.5	120 (140)	95 (128)	75 (96)	85	65	50	115	95	80	45	63	134	168	1	15	24	289	130	175	224	272	26
140	100	80	63	M95 × 2.0	M72 × 2.0	M56 × 2.0	140 (165)	110 (128)	80 (112)	95	75	55	125	105	85	50	65	142	188	1	15	26	306	145	195	250	300	26
150	106	85	67	M100 × 2.0	M76 × 2.0	M60 × 2.0	150 (175)	115 (128)	85 (120)	100	80	60	135	110	90	50	67	147	196	1	15	28	318	155	210	270	320	30
160	110	90	70	M100 × 2.0	M80 × 2.0	M64 × 2.0	150 (175)	120 (140)	95 (128)	105	85	65	140	115	95	55	66	158	215	1	15	31	339	170	225	285	345	33
180	125	100	80	M120 × 2.0	M95 × 2.0	M72 × 2.0	180 (210)	140 (165)	110 (128)	120	95	75	150	125	105	55	75	172	235	1 1/4	15	33	363	185	243	315	375	33
200	140	110	90	M130 × 2.0	M100 × 2.0	M80 × 2.0	195 (225)	150 (175)	120 (140)	135	105	85	170	140	115	55	85	184	262	1 1/2	15	37	393	206	272	355	425	36
220	160	125	100	M150 × 2.0	M120 × 2.0	M95 × 2.0	225 (260)	180 (210)	140 (175)	155	120	95	195	150	125	60	89	184	292	1 1/2	15	41	406	230	310	395	475	42
250	180	140	110	M170 × 2.0	M130 × 2.0	M100 × 2.0	255 (295)	195 (225)	150 (175)	175	135	105	215	170	140	65	106	200	325	2	15	46	457	250	335	425	515	45

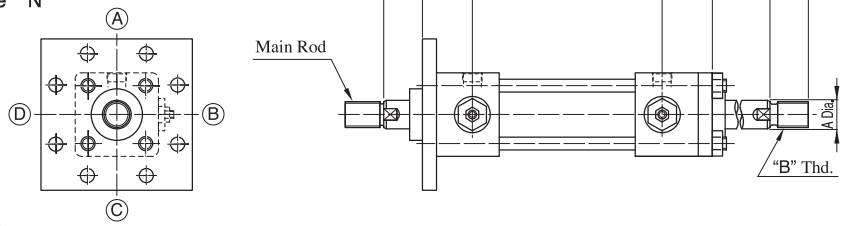
★1. Only long rod end thread type : the dimension "C" is the value in parentheses.

FC : Rod Square Flange.....Nominal Pressure 7・14 MPa



Options

Double Rod Type "N"



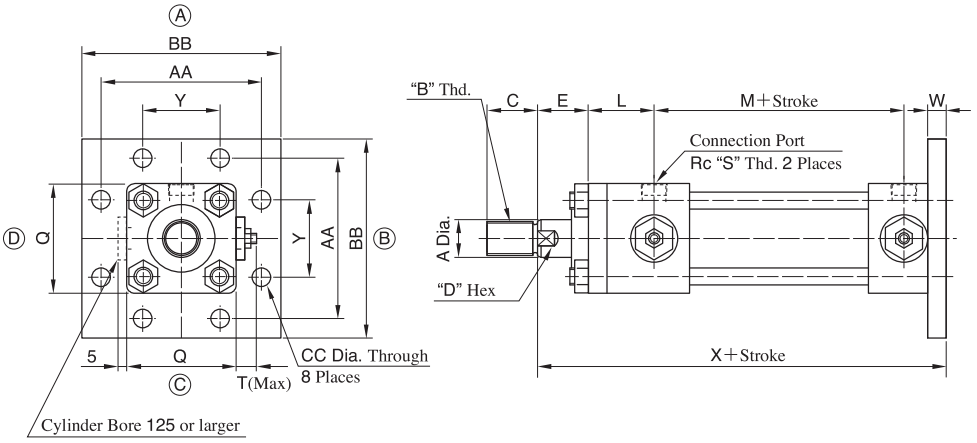
With Dust Cover:

Refer to SD type page J-24 for dimensions of dust cover.

Cylinder Bore	A			B			C★1			D			DD			E	L	M	Q	S	T	W	X	Y	AA	BB	CC
	Rod Size			Rod Size			Rod Size			Rod Size			Rod Size														
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"												
32	–	18	14	–	M16 × 1.5	M12 × 1.25	–	25 (32)	18 (24)	–	14	12	–	34	34	30	39	88	58	3/8	12	11	150	40	88	109	11
40	28	22	18	M24 × 1.5	M20 × 1.5	M16 × 1.5	35 (48)	30 (40)	25 (32)	24	19	14	46	40	36	30	39	88	65	3/8	12	11	152	46	95	118	11
50	36	28	22	M30 × 1.5	M24 × 1.5	M20 × 1.5	45 (60)	35 (48)	30 (40)	30	24	19	55	46	40	30	44	96	80	1/2	12	13	168	58	115	145	14
63	45	36	28	M39 × 1.5	M30 × 1.5	M24 × 1.5	60 (78)	45 (60)	35 (48)	41	30	24	65	55	46	35	42	104	94	1/2	12	15	177.5	65	132	165	18
80	56	45	36	M48 × 1.5	M39 × 1.5	M30 × 1.5	75 (96)	60 (78)	45 (60)	50	41	30	80	65	55	35	48	118	110	3/4	12	18	200.5	87	155	190	18
100	70	56	45	M64 × 2.0	M48 × 1.5	M39 × 1.5	95 (128)	75 (96)	60 (78)	65	50	41	95	80	65	40	54	120	138	3/4	12	20	211.5	109	190	230	22
125	90	70	56	M80 × 2.0	M64 × 2.0	M48 × 1.5	120 (140)	95 (128)	75 (96)	85	65	50	115	95	80	45	63	134	168	1	15	24	243	130	224	272	26
140	100	80	63	M95 × 2.0	M72 × 2.0	M56 × 2.0	140 (165)	110 (128)	80 (112)	95	75	55	125	105	85	50	65	142	188	1	15	26	255	145	250	300	26
150	106	85	67	M100 × 2.0	M76 × 2.0	M60 × 2.0	150 (175)	115 (128)	85 (120)	100	80	60	135	110	90	50	67	147	196	1	15	28	265	155	270	320	30
160	110	90	70	M100 × 2.0	M80 × 2.0	M64 × 2.0	150 (175)	120 (140)	95 (128)	105	85	65	140	115	95	55	66	158	215	1	15	31	281.5	170	285	345	33
180	125	100	80	M120 × 2.0	M95 × 2.0	M72 × 2.0	180 (210)	140 (165)	110 (128)	120	95	75	150	125	105	55	75	172	235	1 1/4	15	33	302	185	315	375	33
200	140	110	90	M130 × 2.0	M100 × 2.0	M80 × 2.0	195 (225)	150 (175)	120 (140)	135	105	85	170	140	115	55	85	184	262	1 1/2	15	37	330	206	355	425	36
220	160	125	100	M150 × 2.0	M120 × 2.0	M95 × 2.0	225 (260)	180 (210)	140 (175)	155	120	95	195	150	125	60	89	184	292	1 1/2	15	41	339	230	395	475	42
250	180	140	110	M170 × 2.0	M130 × 2.0	M100 × 2.0	255 (295)	195 (225)	150 (175)	175	135	105	215	170	140	65	106	200	325	2	15	46	383	250	425	515	45

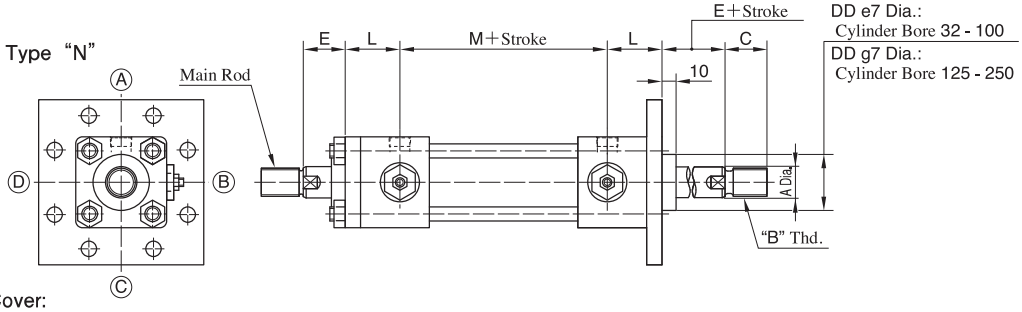
★1. Only long rod end thread type : the dimension "C" is the value in parentheses.

FD : Cap Square Flange.....Nominal Pressure 7・14 MPa



Options

Double Rod Type "N"



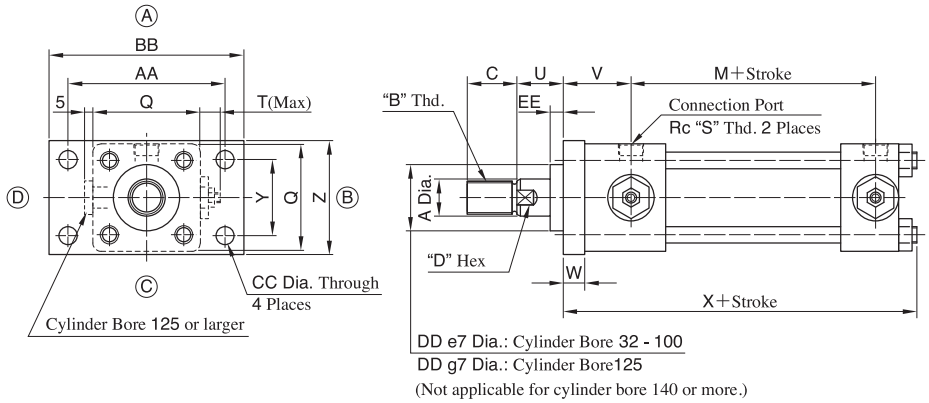
With Dust Cover:

Refer to SD type page J-24 for dimensions of dust cover.

Cylinder Bore	A			B			C★1			D			DD			E	L	M	Q	S	T	W	X	Y	AA	BB	CC
	Rod Size			Rod Size			Rod Size			Rod Size			Rod Size														
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"												
32	–	18	14	–	M16×1.5	M12×1.25	–	25 (32)	18 (24)	–	14	12	–	34	34	30	39	88	58	3/8	12	11	182	40	88	109	11
40	28	22	18	M24×1.5	M20×1.5	M16×1.5	35 (48)	30 (40)	25 (32)	24	19	14	46	40	36	30	39	88	65	3/8	12	11	182	46	95	118	11
50	36	28	22	M30×1.5	M24×1.5	M20×1.5	45 (60)	35 (48)	30 (40)	30	24	19	55	46	40	30	44	96	80	1/2	12	13	198	58	115	145	14
63	45	36	28	M39×1.5	M30×1.5	M24×1.5	60 (78)	45 (60)	35 (48)	41	30	24	65	55	46	35	42	104	94	1/2	12	15	213	65	132	165	18
80	56	45	36	M48×1.5	M39×1.5	M30×1.5	75 (96)	60 (78)	45 (60)	50	41	30	80	65	55	35	48	118	110	3/4	12	18	237	87	155	190	18
100	70	56	45	M64×2.0	M48×1.5	M39×1.5	95 (128)	75 (96)	60 (78)	65	50	41	95	80	65	40	54	120	138	3/4	12	20	252	109	190	230	22
125	90	70	56	M80×2.0	M64×2.0	M48×1.5	120 (140)	95 (128)	75 (96)	85	65	50	115	95	80	45	63	134	168	1	15	24	289	130	224	272	26
140	100	80	63	M95×2.0	M72×2.0	M56×2.0	140 (165)	110 (128)	80 (112)	95	75	55	125	105	85	50	65	142	188	1	15	26	306	145	250	300	26
150	106	85	67	M100×2.0	M76×2.0	M60×2.0	150 (175)	115 (128)	85 (120)	100	80	60	135	110	90	50	67	147	196	1	15	28	318	155	270	320	30
160	110	90	70	M100×2.0	M80×2.0	M64×2.0	150 (175)	120 (140)	95 (128)	105	85	65	140	115	95	55	66	158	215	1	15	31	339	170	285	345	33
180	125	100	80	M120×2.0	M95×2.0	M72×2.0	180 (210)	140 (165)	110 (128)	120	95	75	150	125	105	55	75	172	235	1 1/4	15	33	363	185	315	375	33
200	140	110	90	M130×2.0	M100×2.0	M80×2.0	195 (225)	150 (175)	120 (140)	135	105	85	170	140	115	55	85	184	262	1 1/2	15	37	393	206	355	425	36
220	160	125	100	M150×2.0	M120×2.0	M95×2.0	225 (260)	180 (210)	140 (175)	155	120	95	195	150	125	60	89	184	292	1 1/2	15	41	406	230	395	475	42
250	180	140	110	M170×2.0	M130×2.0	M100×2.0	255 (295)	195 (225)	150 (175)	175	135	105	215	170	140	65	106	200	325	2	15	46	457	250	425	515	45

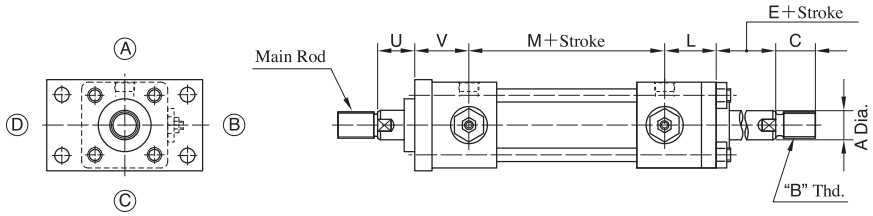
★1. Only long rod end thread type : the dimension "C" is the value in parentheses.

FE : Rod Rectangular Flange.....Nominal Pressure 7・14 MPa



Options

Double Rod Type "N"



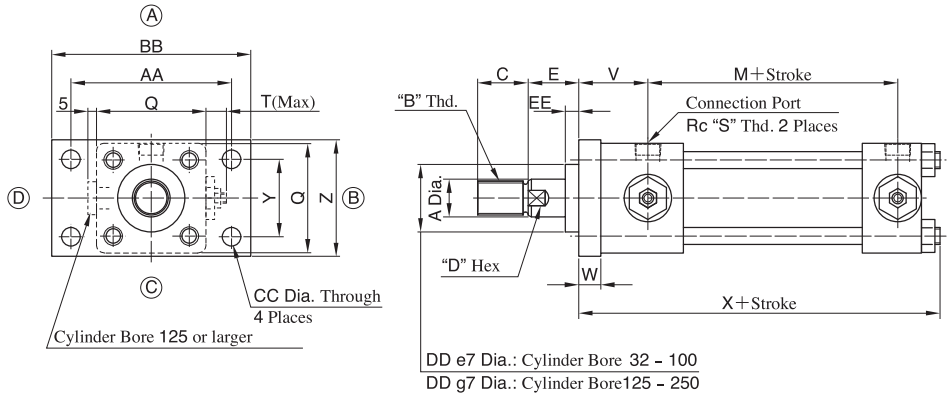
With Dust Cover:

Refer to SD type page J-24 for dimensions of dust cover.

Cylinder Bore	A			B			C★1			D			DD			E	L	M	Q	S	T	U	V	W	X	Y	Z	AA	BB	CC	EE
	Rod Size			Rod Size			Rod Size			Rod Size			Rod Size																		
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"																
32	–	18	14	–	M16 × 1.5	M12 × 1.25	–	25 (32)	18 (24)	–	14	12	–	34	34	30	39	88	58	3/8	12	28	41	13	152	40	63	88	109	11	8
40	28	22	18	M24 × 1.5	M20 × 1.5	M16 × 1.5	35 (48)	30 (40)	25 (32)	24	19	14	46	40	36	30	39	88	65	3/8	12	28	41	13	154	46	69	95	118	11	8
50	36	28	22	M30 × 1.5	M24 × 1.5	M20 × 1.5	45 (60)	35 (48)	30 (40)	30	24	19	55	46	40	30	44	96	80	1/2	12	25	49	18	173	58	85	115	145	14	5
63	45	36	28	M39 × 1.5	M30 × 1.5	M24 × 1.5	60 (78)	45 (60)	35 (48)	41	30	24	65	55	46	35	42	104	94	1/2	12	30	47	20	182.5	65	98	132	165	18	5
80	56	45	36	M48 × 1.5	M39 × 1.5	M30 × 1.5	75 (96)	60 (78)	45 (60)	50	41	30	80	65	55	35	48	118	110	3/4	12	29	54	24	206.5	87	118	155	190	18	4
100	70	56	45	M64 × 2.0	M48 × 1.5	M39 × 1.5	95 (128)	75 (96)	60 (78)	65	50	41	95	80	65	40	54	120	138	3/4	12	32	62	28	219.5	109	150	190	230	22	2
125	90	70	56	M80 × 2.0	M64 × 2.0	M48 × 1.5	120 (140)	95 (128)	75 (96)	85	65	50	115	95	80	45	63	134	168	1	15	36	72	33	252	130	175	224	272	26	1
140	100	80	63	M95 × 2.0	M72 × 2.0	M56 × 2.0	140 (165)	110 (128)	80 (112)	95	75	55	–	–	–	50	65	142	188	1	15	39	76	37	266	145	195	250	300	26	–
150	106	85	67	M100 × 2.0	M76 × 2.0	M60 × 2.0	150 (175)	115 (128)	85 (120)	100	80	60	–	–	–	50	67	147	196	1	15	39	78	39	276	155	210	270	320	30	–
160	110	90	70	M100 × 2.0	M80 × 2.0	M64 × 2.0	150 (175)	120 (140)	95 (128)	105	85	65	–	–	–	55	66	158	215	1	15	45	76	41	291.5	170	225	285	345	33	–
180	125	100	80	M120 × 2.0	M95 × 2.0	M72 × 2.0	180 (210)	140 (165)	110 (128)	120	95	75	–	–	–	55	75	172	235	1 1/4	15	42	88	46	315	185	243	315	375	33	–
200	140	110	90	M130 × 2.0	M100 × 2.0	M80 × 2.0	195 (225)	150 (175)	120 (140)	135	105	85	–	–	–	55	85	184	262	1 1/2	15	41	99	51	344	206	272	355	425	36	–
220	160	125	100	M150 × 2.0	M120 × 2.0	M95 × 2.0	225 (260)	180 (210)	140 (175)	155	120	95	–	–	–	60	89	184	292	1 1/2	15	43	106	58	356	230	310	395	475	42	–
250	180	140	110	M170 × 2.0	M130 × 2.0	M100 × 2.0	255 (295)	195 (225)	150 (175)	175	135	105	–	–	–	65	106	200	325	2	15	46	125	65	402	250	335	425	515	45	–

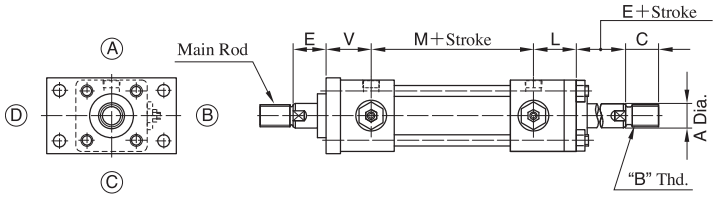
★1. Only long rod end thread type : the dimension "C" is the value in parentheses.

FY : Rod Rectangular Flange.....Nominal Pressure 7・14 MPa



Options

Double Rod Type "N"



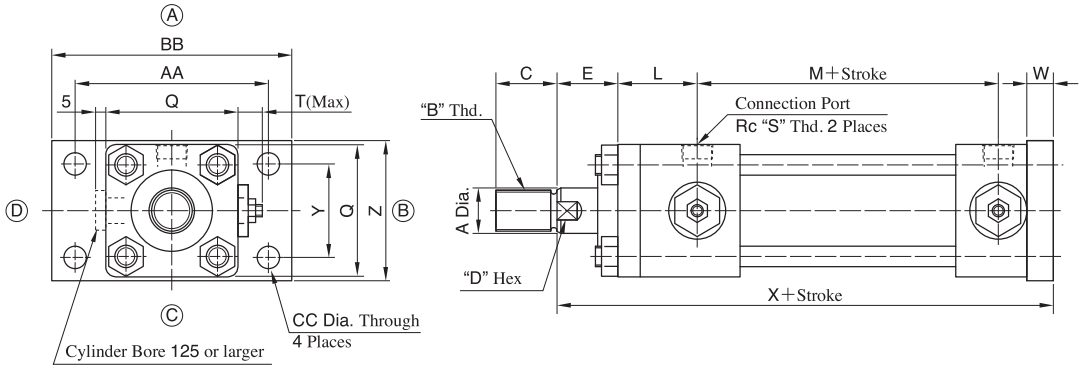
With Dust Cover:

Refer to SD type page J-24 for dimensions of dust cover.

Cylinder Bore	A			B			C★1			D			DD			E	L	M	Q	S	T	V	W	X	Y	Z	AA	BB	CC	EE
	Rod Size			Rod Size			Rod Size			Rod Size			Rod Size																	
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"															
32	–	18	14	–	M16 × 1.5	M12 × 1.25	–	25 (32)	18 (24)	–	14	12	–	34	34	30	39	88	58	3/8	12	41	13	152	40	63	88	109	11	8
40	28	22	18	M24 × 1.5	M20 × 1.5	M16 × 1.5	35 (48)	30 (40)	25 (32)	24	19	14	46	40	36	30	39	88	65	3/8	12	41	13	154	46	69	95	118	11	8
50	36	28	22	M30 × 1.5	M24 × 1.5	M20 × 1.5	45 (60)	35 (48)	30 (40)	30	24	19	55	46	40	30	44	96	80	1/2	12	49	18	173	58	85	115	145	14	10
63	45	36	28	M39 × 1.5	M30 × 1.5	M24 × 1.5	60 (78)	45 (60)	35 (48)	41	30	24	65	55	46	35	42	104	94	1/2	12	47	20	182.5	65	98	132	165	18	10
80	56	45	36	M48 × 1.5	M39 × 1.5	M30 × 1.5	75 (96)	60 (78)	45 (60)	50	41	30	80	65	55	35	48	118	110	3/4	12	54	24	206.5	87	118	155	190	18	10
100	70	56	45	M64 × 2.0	M48 × 1.5	M39 × 1.5	95 (128)	75 (96)	60 (78)	65	50	41	95	80	65	40	54	120	138	3/4	12	62	28	219.5	109	150	190	230	22	10
125	90	70	56	M80 × 2.0	M64 × 2.0	M48 × 1.5	120 (140)	95 (128)	75 (96)	85	65	50	115	95	80	45	63	134	168	1	15	72	33	252	130	175	224	272	26	10
140	100	80	63	M95 × 2.0	M72 × 2.0	M56 × 2.0	140 (165)	110 (128)	80 (112)	95	75	55	125	105	85	50	65	142	188	1	15	76	37	266	145	195	250	300	26	10
150	106	85	67	M100 × 2.0	M76 × 2.0	M60 × 2.0	150 (175)	115 (128)	85 (120)	100	80	60	135	110	90	50	67	147	196	1	15	78	39	276	155	210	270	320	30	10
160	110	90	70	M100 × 2.0	M80 × 2.0	M64 × 2.0	150 (175)	120 (140)	95 (128)	105	85	65	140	115	95	55	66	158	215	1	15	76	41	291.5	170	225	285	345	33	10
180	125	100	80	M120 × 2.0	M95 × 2.0	M72 × 2.0	180 (210)	140 (165)	110 (128)	120	95	75	150	125	105	55	75	172	235	1 1/4	15	88	46	315	185	243	315	375	33	10
200	140	110	90	M130 × 2.0	M100 × 2.0	M80 × 2.0	195 (225)	150 (175)	120 (140)	135	105	85	170	140	115	55	85	184	262	1 1/2	15	99	51	344	206	272	355	425	36	10
220	160	125	100	M150 × 2.0	M120 × 2.0	M95 × 2.0	225 (260)	180 (210)	140 (175)	155	120	95	195	150	125	60	89	184	292	1 1/2	15	106	58	356	230	310	395	475	42	10
250	180	140	110	M170 × 2.0	M130 × 2.0	M100 × 2.0	255 (295)	195 (225)	150 (175)	175	135	105	215	170	140	65	106	200	325	2	15	125	65	402	250	335	425	515	45	10

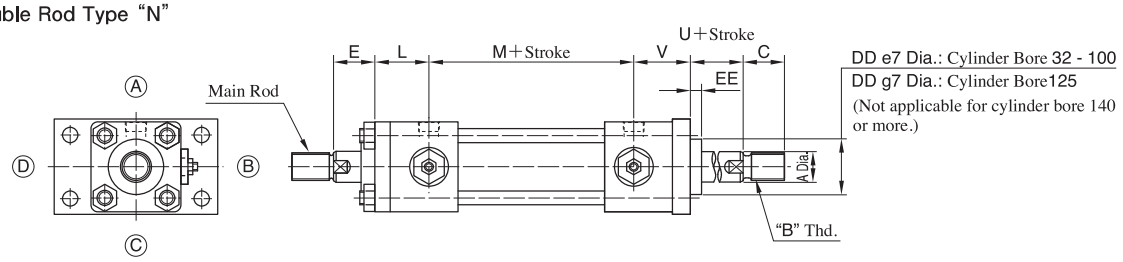
★1. Only long rod end thread type : the dimension "C" is the value in parentheses.

FF : Cap Rectangular Flange.....Nominal Pressure 7・14 MPa



Options

Double Rod Type "N"



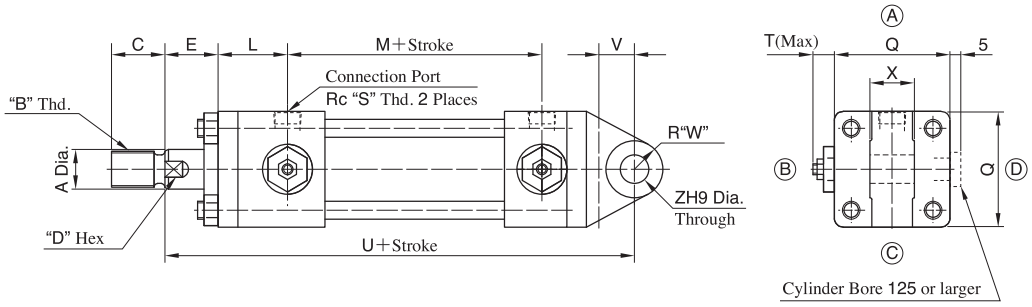
With Dust Cover:

Refer to SD type page J-24 for dimensions of dust cover.

Cylinder Bore	A			B			C★1			D			DD		E	L	M	Q	S	T	U	V	W	X	Y	Z	AA	BB	CC	EE
	Rod Size			Rod Size			Rod Size			Rod Size			Rod Size																	
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"B"	"C"																
32	–	18	14	–	M16 × 1.5	M12 × 1.25	–	25 (32)	18 (24)	–	14	12	34	34	30	39	88	58	3/8	12	28	41	13	184	40	63	88	109	11	8
40	28	22	18	M24 × 1.5	M20 × 1.5	M16 × 1.5	35 (48)	30 (40)	25 (32)	24	19	14	40	36	30	39	88	65	3/8	12	28	41	13	184	46	69	95	118	11	8
50	36	28	22	M30 × 1.5	M24 × 1.5	M20 × 1.5	45 (60)	35 (48)	30 (40)	30	24	19	46	40	30	44	96	80	1/2	12	25	49	18	203	58	85	115	145	14	5
63	45	36	28	M39 × 1.5	M30 × 1.5	M24 × 1.5	60 (78)	45 (60)	35 (48)	41	30	24	55	46	35	42	104	94	1/2	12	30	47	20	218	65	98	132	165	18	5
80	56	45	36	M48 × 1.5	M39 × 1.5	M30 × 1.5	75 (96)	60 (78)	45 (60)	50	41	30	65	55	35	48	118	110	3/4	12	29	54	24	243	87	118	155	190	18	4
100	70	56	45	M64 × 2.0	M48 × 1.5	M39 × 1.5	95 (128)	75 (96)	60 (78)	65	50	41	80	65	40	54	120	138	3/4	12	32	62	28	260	109	150	190	230	22	2
125	90	70	56	M80 × 2.0	M64 × 2.0	M48 × 1.5	120 (140)	95 (128)	75 (96)	85	65	50	95	80	45	63	134	168	1	15	36	72	33	298	130	175	224	272	26	1
140	100	80	63	M95 × 2.0	M72 × 2.0	M56 × 2.0	140 (165)	110 (128)	80 (112)	95	75	55	–	–	50	65	142	188	1	15	39	76	37	317	145	195	250	300	26	–
150	106	85	67	M100 × 2.0	M76 × 2.0	M60 × 2.0	150 (175)	115 (128)	85 (120)	100	80	60	–	–	50	67	147	196	1	15	39	78	39	329	155	210	270	320	30	–
160	110	90	70	M100 × 2.0	M80 × 2.0	M64 × 2.0	150 (175)	120 (140)	95 (128)	105	85	65	–	–	55	66	158	215	1	15	45	76	41	349	170	225	285	345	33	–
180	125	100	80	M120 × 2.0	M95 × 2.0	M72 × 2.0	180 (210)	140 (165)	110 (128)	120	95	75	–	–	55	75	172	235	1 1/4	15	42	88	46	376	185	243	315	375	33	–
200	140	110	90	M130 × 2.0	M100 × 2.0	M80 × 2.0	195 (225)	150 (175)	120 (140)	135	105	85	–	–	55	85	184	262	1 1/2	15	41	99	51	407	206	272	355	425	36	–
220	160	125	100	M150 × 2.0	M120 × 2.0	M95 × 2.0	225 (260)	180 (210)	140 (175)	155	120	95	–	–	60	89	184	292	1 1/2	15	43	106	58	423	230	310	395	475	42	–
250	180	140	110	M170 × 2.0	M130 × 2.0	M100 × 2.0	255 (295)	195 (225)	150 (175)	175	135	105	–	–	65	106	200	325	2	15	46	125	65	476	250	335	425	515	45	–

★1. Only long rod end thread type : the dimension "C" is the value in parentheses.

CA : Cap Detachable Eye.....Nominal Pressure 7・14 MPa



Options

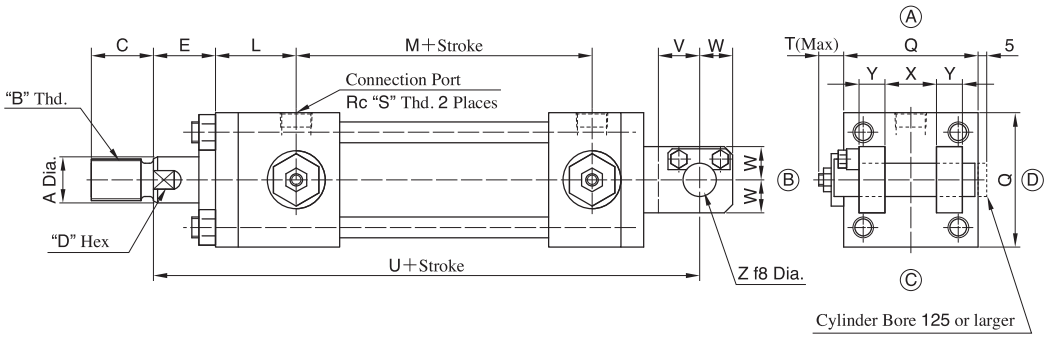
With Dust Cover:

Refer to SD type page J-24 for dimensions of dust cover.

Cylinder Bore	A			B			C★1			D			E	L	M	Q	S	T	U	V	W	X	Z
	Rod Size			Rod Size			Rod Size			Rod Size													
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"											
32	–	18	14	–	M16×1.5	M12×1.25	–	25 (32)	18 (24)	–	14	12	30	39	88	58	3/8	12	209	20	16	$25^{-0.1}_{-0.4}$	16
40	28	22	18	M24×1.5	M20×1.5	M16×1.5	35 (48)	30 (40)	25 (32)	24	19	14	30	39	88	65	3/8	12	209	20	16	$25^{-0.1}_{-0.4}$	16
50	36	28	22	M30×1.5	M24×1.5	M20×1.5	45 (60)	35 (48)	30 (40)	30	24	19	30	44	96	80	1/2	12	230	25	20	$31.5^{-0.1}_{-0.4}$	20
63	45	36	28	M39×1.5	M30×1.5	M24×1.5	60 (78)	45 (60)	35 (48)	41	30	24	35	42	104	94	1/2	12	261	40	31.5	$40^{-0.1}_{-0.4}$	31.5
80	56	45	36	M48×1.5	M39×1.5	M30×1.5	75 (96)	60 (78)	45 (60)	50	41	30	35	48	118	110	3/4	12	291	40	31.5	$40^{-0.1}_{-0.4}$	31.5
100	70	56	45	M64×2.0	M48×1.5	M39×1.5	95 (128)	75 (96)	60 (78)	65	50	41	40	54	120	138	3/4	12	316	50	40	$50^{-0.1}_{-0.4}$	40
125	90	70	56	M80×2.0	M64×2.0	M48×1.5	120 (140)	95 (128)	75 (96)	85	65	50	45	63	134	168	1	15	365	62	55	$63^{-0.1}_{-0.4}$	50
140	100	80	63	M95×2.0	M72×2.0	M56×2.0	140 (165)	110 (128)	80 (112)	95	75	55	50	65	142	188	1	15	400	79	65	$80^{-0.1}_{-0.6}$	63
150	106	85	67	M100×2.0	M76×2.0	M60×2.0	150 (175)	115 (128)	85 (120)	100	80	60	50	67	147	196	1	15	412	82	65	$80^{-0.1}_{-0.6}$	63
160	110	90	70	M100×2.0	M80×2.0	M64×2.0	150 (175)	120 (140)	95 (128)	105	85	65	55	66	158	215	1	15	445	89	75	$80^{-0.1}_{-0.6}$	71
180	125	100	80	M120×2.0	M95×2.0	M72×2.0	180 (210)	140 (165)	110 (128)	120	95	75	55	75	172	235	1 1/4	15	480	100	80	$100^{-0.1}_{-0.6}$	80
200	140	110	90	M130×2.0	M100×2.0	M80×2.0	195 (225)	150 (175)	120 (140)	135	105	85	55	85	184	262	1 1/2	15	526	115	90	$125^{-0.1}_{-0.6}$	90
220	160	125	100	M150×2.0	M120×2.0	M95×2.0	225 (260)	180 (210)	140 (175)	155	120	95	60	89	184	292	1 1/2	15	550	125	100	$125^{-0.1}_{-0.6}$	100
250	180	140	110	M170×2.0	M130×2.0	M100×2.0	255 (295)	195 (225)	150 (175)	175	135	105	65	106	200	325	2	15	596	125	110	$125^{-0.1}_{-0.6}$	100

★1. Only long rod end thread type : the dimension "C" is the value in parentheses.

CB : Cap Detachable Clevis.....Nominal Pressure 7・14 MPa



Option

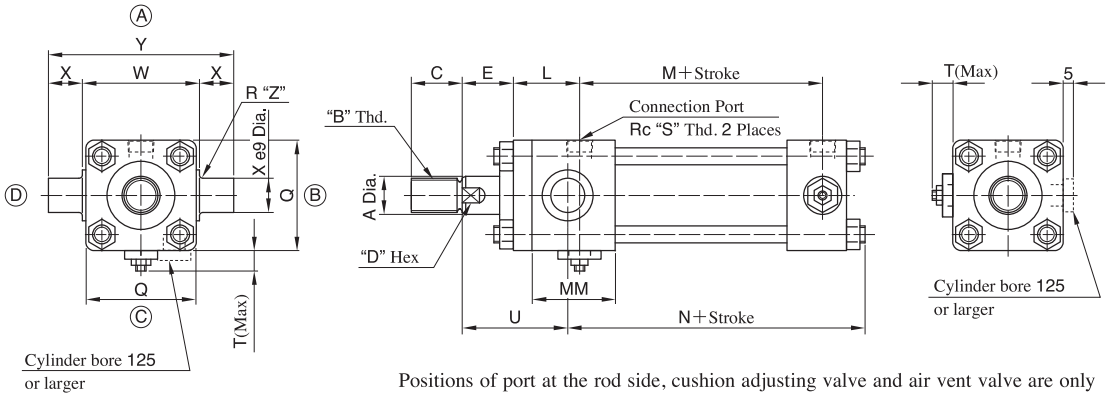
With Dust Cover:

Refer to SD type page J-24 for dimensions of dust cover.

Cylinder Bore	A			B			C★1			D			E	L	M	Q	S	T	U	V	W	X	Y	Z
	Rod Size			Rod Size			Rod Size			Rod Size														
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"												
32	–	18	14	–	M16×1.5	M12×1.25	–	25 (32)	18 (24)	–	14	12	30	39	88	58	3/8	12	209	20	16	25 +0.4 +0.1	12.5	16
40	28	22	18	M24×1.5	M20×1.5	M16×1.5	35 (48)	30 (40)	25 (32)	24	19	14	30	39	88	65	3/8	12	209	20	16	25 +0.4 +0.1	12.5	16
50	36	28	22	M30×1.5	M24×1.5	M20×1.5	45 (60)	35 (48)	30 (40)	30	24	19	30	44	96	80	1/2	12	230	25	20	31.5 +0.4 +0.1	16	20
63	45	36	28	M39×1.5	M30×1.5	M24×1.5	60 (78)	45 (60)	35 (48)	41	30	24	35	42	104	94	1/2	12	261	40	30	40 +0.4 +0.1	20	31.5
80	56	45	36	M48×1.5	M39×1.5	M30×1.5	75 (96)	60 (78)	45 (60)	50	41	30	35	48	118	110	3/4	12	291	40	30	40 +0.4 +0.1	20	31.5
100	70	56	45	M64×2.0	M48×1.5	M39×1.5	95 (128)	75 (96)	60 (78)	65	50	41	40	54	120	138	3/4	12	316	50	40	50 +0.4 +0.1	25	40
125	90	70	56	M80×2.0	M64×2.0	M48×1.5	120 (140)	95 (128)	75 (96)	85	65	50	45	63	134	168	1	15	365	62	50	63 +0.4 +0.1	31.5	50
140	100	80	63	M95×2.0	M72×2.0	M56×2.0	140 (165)	110 (128)	80 (112)	95	75	55	50	65	142	188	1	15	400	79	65	80 +0.6 +0.1	40	63
150	106	85	67	M100×2.0	M76×2.0	M60×2.0	150 (175)	115 (128)	85 (120)	100	80	60	50	67	147	196	1	15	412	82	65	80 +0.6 +0.1	40	63
160	110	90	70	M100×2.0	M80×2.0	M64×2.0	150 (175)	120 (140)	95 (128)	105	85	65	55	66	158	215	1	15	445	89	75	80 +0.6 +0.1	40	71
180	125	100	80	M120×2.0	M95×2.0	M72×2.0	180 (210)	140 (165)	110 (128)	120	95	75	55	75	172	235	1 1/4	15	480	100	80	100 +0.6 +0.1	50	80
200	140	110	90	M130×2.0	M100×2.0	M80×2.0	195 (225)	150 (175)	120 (140)	135	105	85	55	85	184	262	1 1/2	15	526	115	90	125 +0.6 +0.1	63	90
220	160	125	100	M150×2.0	M120×2.0	M95×2.0	225 (260)	180 (210)	140 (175)	155	120	95	60	89	184	292	1 1/2	15	550	125	100	125 +0.6 +0.1	63	100
250	180	140	110	M170×2.0	M130×2.0	M100×2.0	255 (295)	195 (225)	150 (175)	175	135	105	65	106	200	325	2	15	596	125	110	125 +0.6 +0.1	63	100

★1. Only long rod end thread type : the dimension "C" is the value in parentheses.

TA : Rod Trunnion.....Nominal Pressure 7・14 MPa



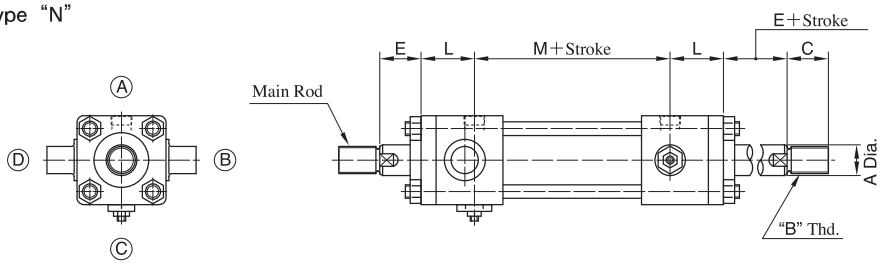
Positions of port at the rod side, cushion adjusting valve and air vent valve are only available below.

- Port position:Ⓐ
- Cushion adjusting valve position:Ⓒ
- Air vent valve position:Ⓒ

Please specify the positions (Ⓐ,Ⓑ,Ⓒ,Ⓓ) at cap cover side only.

Options

Double Rod Type "N"



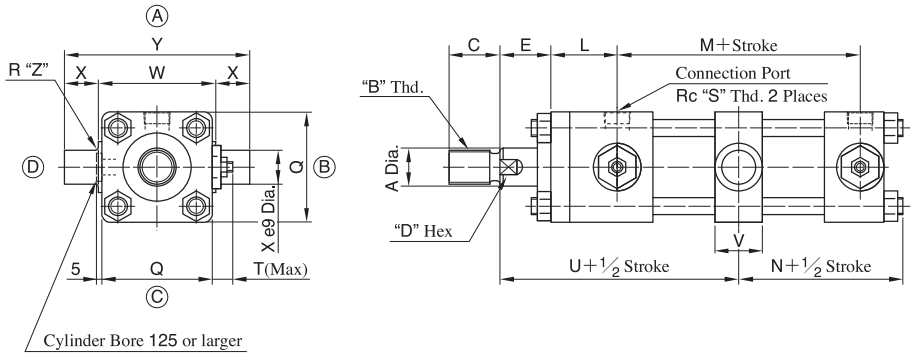
With Dust Cover:

Refer to SD type page J-24 for dimensions of dust cover.

Cylinder Bore	A			B			C★1			D			E	L	M	N	Q	S	T	U	W	X	Y	Z	MM
	Rod Size			Rod Size			Rod Size			Rod Size															
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"													
32	–	18	14	–	M16 × 1.5	M12 × 1.25	–	25 (32)	18 (24)	–	14	12	30	39	88	118	58	3/8	12	62	$58^{0}_{-0.3}$	20	98	2	49
40	28	22	18	M24 × 1.5	M20 × 1.5	M16 × 1.5	35 (48)	30 (40)	25 (32)	24	19	14	30	39	88	120	65	3/8	12	62	$69^{0}_{-0.3}$	20	109	2	49
50	36	28	22	M30 × 1.5	M24 × 1.5	M20 × 1.5	45 (60)	35 (48)	30 (40)	30	24	19	30	44	96	132	80	1/2	12	66	$85^{0}_{-0.35}$	25	135	2.5	56
63	45	36	28	M39 × 1.5	M30 × 1.5	M24 × 1.5	60 (78)	45 (60)	35 (48)	41	30	24	35	42	104	138	94	1/2	12	74	$98^{0}_{-0.35}$	31.5	161	2.5	44
80	56	45	36	M48 × 1.5	M39 × 1.5	M30 × 1.5	75 (96)	60 (78)	45 (60)	50	41	30	35	48	118	153	110	3/4	12	82	$118^{0}_{-0.35}$	31.5	181	2.5	50
100	70	56	45	M64 × 2.0	M48 × 1.5	M39 × 1.5	95 (128)	75 (96)	60 (78)	65	50	41	40	54	120	162	138	3/4	12	89	$145^{0}_{-0.4}$	40	225	3	57
125	90	70	56	M80 × 2.0	M64 × 2.0	M48 × 1.5	120 (140)	95 (128)	75 (96)	85	65	50	45	63	134	185	168	1	15	103	$175^{0}_{-0.4}$	50	275	3	67
140	100	80	63	M95 × 2.0	M72 × 2.0	M56 × 2.0	140 (165)	110 (128)	80 (112)	95	75	55	50	65	142	193	188	1	15	112	$195^{0}_{-0.46}$	63	321	4	74
150	106	85	67	M100 × 2.0	M76 × 2.0	M60 × 2.0	150 (175)	115 (128)	85 (120)	100	80	60	50	67	147	203	196	1	15	112	$206^{0}_{-0.46}$	63	332	4	74
160	110	90	70	M100 × 2.0	M80 × 2.0	M64 × 2.0	150 (175)	120 (140)	95 (128)	105	85	65	55	66	158	210	215	1	15	126	$218^{0}_{-0.46}$	71	360	4	81

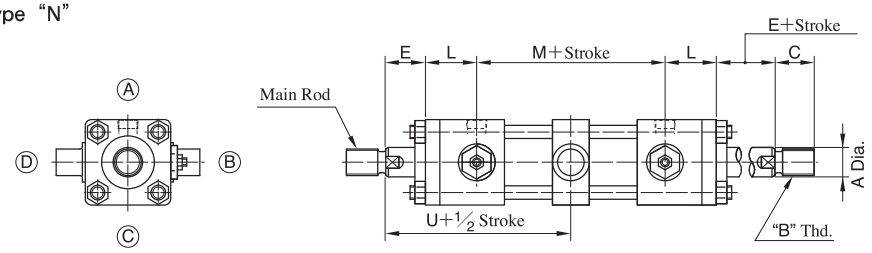
★1. Only long rod end thread type : the dimension "C" is the value in parentheses.

TC : Intermediate Trunnion.....Nominal Pressure 7・14 MPa



Options

Double Rod Type "N"



With Dust Cover:

Refer to SD type page J-24 for dimensions of dust cover.

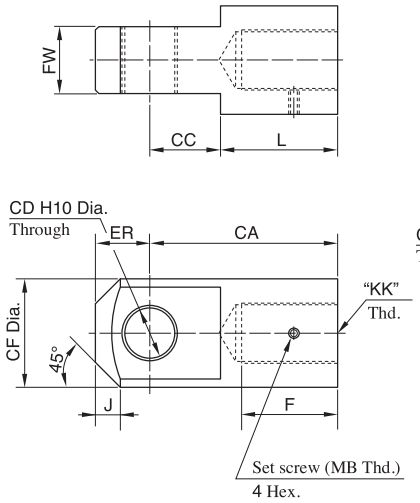
Cylinder Bore	A			B			C★1			D			E	L	M	N	Q	S	T	U	V	W	X	Y	Z
	Rod Size			Rod Size			Rod Size			Rod Size															
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"													
32	–	18	14	–	M16 × 1.5	M12 × 1.25	–	25 (32)	18 (24)	–	14	12	30	39	88	67	58	3/8	12	113	30	$58^{0}_{-0.3}$	20	98	2
40	28	22	18	M24 × 1.5	M20 × 1.5	M16 × 1.5	35 (48)	30 (40)	25 (32)	24	19	14	30	39	88	69	65	3/8	12	113	30	$69^{0}_{-0.3}$	20	109	2
50	36	28	22	M30 × 1.5	M24 × 1.5	M20 × 1.5	45 (60)	35 (48)	30 (40)	30	24	19	30	44	96	77	80	1/2	12	121	38	$85^{0}_{-0.35}$	25	135	2.5
63	45	36	28	M39 × 1.5	M30 × 1.5	M24 × 1.5	60 (78)	45 (60)	35 (48)	41	30	24	35	42	104	80	94	1/2	12	132	45	$98^{0}_{-0.35}$	31.5	161	2.5
80	56	45	36	M48 × 1.5	M39 × 1.5	M30 × 1.5	75 (96)	60 (78)	45 (60)	50	41	30	35	48	118	89	110	3/4	12	146	45	$118^{0}_{-0.35}$	31.5	181	2.5
100	70	56	45	M64 × 2.0	M48 × 1.5	M39 × 1.5	95 (128)	75 (96)	60 (78)	65	50	41	40	54	120	95	138	3/4	12	156	57	$145^{0}_{-0.4}$	40	225	3
125	90	70	56	M80 × 2.0	M64 × 2.0	M48 × 1.5	120 (140)	95 (128)	75 (96)	85	65	50	45	63	134	111	168	1	15	177	58	$175^{0}_{-0.4}$	50	275	3
140	100	80	63	M95 × 2.0	M72 × 2.0	M56 × 2.0	140 (165)	110 (128)	80 (112)	95	75	55	50	65	142	117	188	1	15	188	78	$195^{0}_{-0.46}$	63	321	4
150	106	85	67	M100 × 2.0	M76 × 2.0	M60 × 2.0	150 (175)	115 (128)	85 (120)	100	80	60	50	67	147	121	196	1	15	194	78	$206^{0}_{-0.46}$	63	332	4
160	110	90	70	M100 × 2.0	M80 × 2.0	M64 × 2.0	150 (175)	120 (140)	95 (128)	105	85	65	55	66	158	129	215	1	15	207	88	$218^{0}_{-0.46}$	71	360	4
180	125	100	80	M120 × 2.0	M95 × 2.0	M72 × 2.0	180 (210)	140 (165)	110 (128)	120	95	75	55	75	172	141	235	1 1/4	15	216	98	$243^{0}_{-0.46}$	80	403	4
200	140	110	90	M130 × 2.0	M100 × 2.0	M80 × 2.0	195 (225)	150 (175)	120 (140)	135	105	85	55	85	184	153	262	1 1/2	15	232	108	$272^{0}_{-0.52}$	90	452	5
220	160	125	100	M150 × 2.0	M120 × 2.0	M95 × 2.0	225 (260)	180 (210)	140 (175)	155	120	95	60	89	184	158	292	1 1/2	15	241	117	$300^{0}_{-0.52}$	100	500	5
250	180	140	110	M170 × 2.0	M130 × 2.0	M100 × 2.0	255 (295)	195 (225)	150 (175)	175	135	105	65	106	200	177	325	2	15	271	117	$335^{0}_{-0.57}$	100	535	5

★1. Only long rod end thread type : the dimension "C" is the value in parentheses.

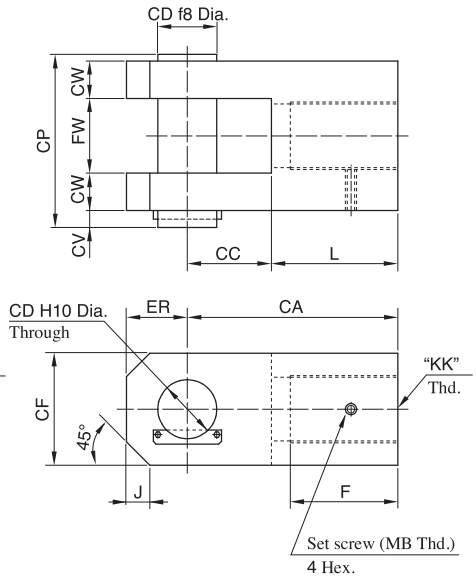
Options

Rod End Attachment

T-End (Rod End Eye) : Option Code "L"



Y-End (Rod End Clevis) : Option Code "M"



Approx.Mass kg

Cylinder Bore		Rod End Attachment T-End (L)	Rod End Attachment Y-End (M)
32	B	0.5	0.6
	C	0.5	0.6
40	B	0.4	0.5
	C	0.5	0.6
50	B	0.9	1.0
	C	0.9	1.1
63	B	2.4	3.4
	C	2.5	3.5
80	B	2.1	3.1
	C	2.4	3.4
100	B	4.2	7.0
	C	4.8	7.5
125	B	8.4	13.4
	C	9.8	14.8
140	B	19.0	26.4
	C	21.1	28.5
150	B	16.8	24.2
	C	19.7	27.1
160	B	22.4	32.1
	C	24.8	34.5

Option Code "L"

Cylinder Bore	Rod Size	KK	F	CA	CC	CD	CF	ER	FW	J	L
32	B	M16×1.5	34	60	23	16	39	20	$25^{-0.1}_{-0.4}$	8	37
	C	M12×1.25	27								
40	B	M20×1.5	39	60	23	16	39	20	$25^{-0.1}_{-0.4}$	8	37
	C	M16×1.5	34								
50	B	M24×1.5	44	70	28	20	49	25	$31.5^{-0.1}_{-0.4}$	10	42
	C	M20×1.5	39								
63	B	M30×1.5	50	115	43	31.5	62	35	$40^{-0.1}_{-0.4}$	15	72
	C	M24×1.5	44								
80	B	M39×1.5	65	115	43	31.5	62	35	$40^{-0.1}_{-0.4}$	15	72
	C	M30×1.5	50								
100	B	M48×1.5	80	145	55	40	79	40	$50^{-0.1}_{-0.4}$	20	90
	C	M39×1.5	65								
125	B	M64×2.0	100	180	65	50	100	50	$63^{-0.1}_{-0.4}$	25	115
	C	M48×1.5	80								
140	B	M72×2.0	115	225	85	63	130	65	$80^{-0.1}_{-0.6}$	30	140
	C	M56×2.0	85								
150	B	M76×2.0	120	225	85	63	130	65	$80^{-0.1}_{-0.6}$	30	140
	C	M60×2.0	90								
160	B	M80×2.0	125	240	90	71	140	70	$80^{-0.1}_{-0.6}$	35	150
	C	M64×2.0	100								

Option Code "M"

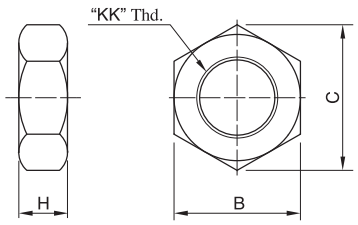
Cylinder Bore	Rod Size	KK	F	CA	CC	CD	CF	ER	CW	FW	CV	CP	J	L
32	B	M16×1.5	33	60	27	16	32	16	12.5	$25^{+0.4}_{+0.1}$	12	68	4	33
	C	M12×1.25	33											
40	B	M20×1.5	33	60	27	16	32	16	12.5	$25^{+0.4}_{+0.1}$	12	68	4	33
	C	M16×1.5	33											
50	B	M24×1.5	38	70	32	20	40	20	16	$31.5^{+0.4}_{+0.1}$	12	80	10	38
	C	M20×1.5	38											
63	B	M30×1.5	50	115	50	31.5	60	30	20	$40^{+0.4}_{+0.1}$	12	98	12	65
	C	M24×1.5	40											
80	B	M39×1.5	65	115	50	31.5	60	30	20	$40^{+0.4}_{+0.1}$	12	98	12	65
	C	M30×1.5	50											
100	B	M48×1.5	85	145	60	40	80	40	25	$50^{+0.4}_{+0.1}$	18	125	15	85
	C	M39×1.5	65											
125	B	M64×2.0	100	180	70	50	100	50	31.5	$63^{+0.4}_{+0.1}$	18	150	20	110
	C	M48×1.5	80											
140	B	M72×2.0	115	225	90	63	120	65	40	$80^{+0.6}_{+0.1}$	18	185	25	135
	C	M56×2.0	85											
150	B	M76×2.0	120	225	90	63	120	65	40	$80^{+0.6}_{+0.1}$	18	185	25	135
	C	M60×2.0	90											
160	B	M80×2.0	125	240	100	71	140	70	40	$80^{+0.6}_{+0.1}$	18	185	30	140
	C	M64×2.0	100											

★ Please consult us separately for cylinder bore 180 or larger. (special design products)

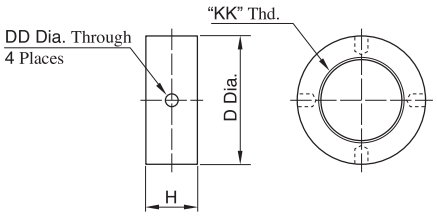
Options

Lock Nut : Option Code "K"

M12 - M95



M100 - M130

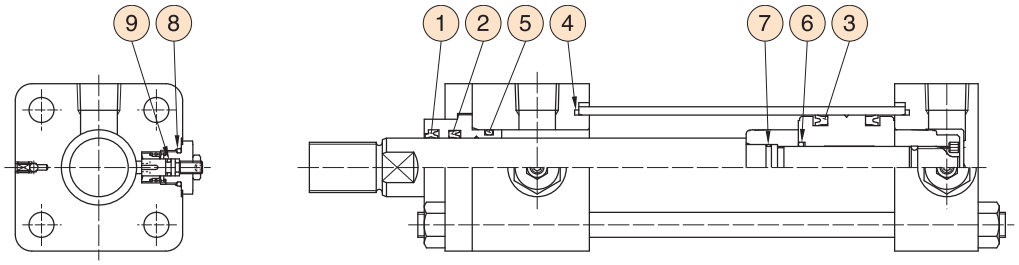


KK	H	B	C	Approx.Mass kg	KK	H	B	C	Approx.Mass kg
M12×1.25	7	19	21.9	0.02	M56×2	30	80	92.4	0.77
M16×1.5	10	22	25.4	0.02	M60×2	33	85	98.1	0.94
M20×1.5	12	27	31.2	0.03	M64×2	35	90	104	1.10
M24×1.5	14	32	37	0.05	M72×2	38	100	115	1.44
M30×1.5	17	41	47.3	0.11	M76×2	40	105	121	1.65
M39×1.5	20	55	63.5	0.24	M80×2	43	110	127	1.93
M48×1.5	26	70	80.8	0.52	M95×2	47	130	150	2.90

KK	H	D	DD	Z	Approx.Mass kg
M100×2	60	150	15	18	4.9
M120×2	72	180	15	18	8.9
M130×2	78	200	20	25	11.9

List for Seals

$CJT\frac{70}{140}$ - ＊32 - 50

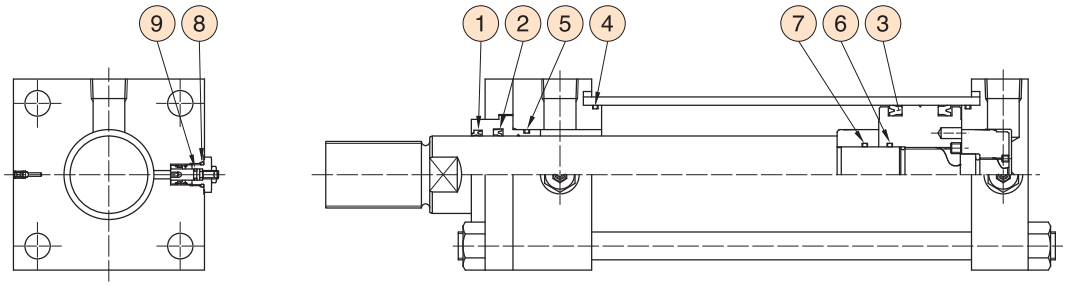


Cylinder Bore	Rod Size	★1 Model Numbers for Seal Kit	① Dust Seal	② Rod Packing	③ Piston Packing	④★3 Packing for Cover	⑤ O-Ring for Bush (OR NBR-90 P(G)＊＊-N)	⑥ O-Ring for Piston (OR NBR-90 P(G)＊＊-N)	⑦★4 O-Ring for Cushion Ring (OR NBR-90 P(G)＊＊-N)	⑧ O-Ring for Plug (OR NBR-90 P(G)＊＊-N)	⑨ O-Ring for Slide Rod (OR NBR-70-1 P5-N)
		Q'ty	1	1	2	2	1	1	1	2	2
32	B	KS-CJT32B-20	SDR-18	SKY-18	SKY-24	GR-32	P21	P12	S12	P14	P5
	C	KS-CJT32C-20	SDR-14	SKY-14							
40	A	KS-CJT40A-20	SDR-28	SKY-28	SKY-30	GR-40	G30	P16	—	P14	P5
	B	KS-CJT40B-20	SDR-22	SKY-22			G25		S16		
	C	KS-CJT40C-20	SDR-18	SKY-18							
50	A	KS-CJT50A-20	SDR-36	SKY-36	SKY-40	GR-50	G40	P20	—	P14	P5
	B	KS-CJT50B-20	SDR-28	SKY-28			G30		S20		
	C	KS-CJT50C-20	SDR-22	SKY-22							

★1. Please specify the seal kit numbers above when ordering the seals.
★2. Material of standard packings is Nitrile-Rubber. Please select Fluoro-Rubber packing material if Phosphate Esters oil is used. Please specify "F-" in addition to the model of seal kit after "KS".
★3. Packing code "GR" of item No.4 is square O-ring.
★4. O-ring code "S" of item No.7 is special O-ring.
Note : The packing code changes without notice.

List of Seals

CJT$^{70}_{140}$ - ＊ 63 - 250



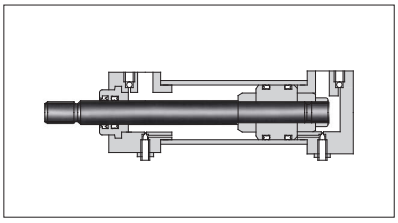
Cylinder Bore	Rod Size	★1 Model Numbers for Seal Kit	① Dust Seal	② Rod Packing	③ Piston Packing	④ Packing for Cover	⑤ O-Ring for Bush	⑥ O-Ring for Piston	⑦ O-Ring for Cushion Ring	⑧ O-Ring for Plug	⑨ O-Ring for Slide Rod (OR NBR-70-1 P＊＊-N)
		Q'ty	1	1	2	2	1	1	1	★3	★3
			(OR NBR-90 P(G)＊＊-N)								
63	A	KS-CJT 63A-20	SDR- 45	SKY- 45A	SKY- 53	G 55	G 50	G25	–	P14	P5
	B	KS-CJT 63B-20	SDR- 36	SKY- 36			G 40		G25		
	C	KS-CJT 63C-20	SDR- 28	SKY- 28							
80	A	KS-CJT 80A-20	SDR- 56	SKY- 56	SKY- 71	G 75	G 60	P31	–	P14	P5
	B	KS-CJT 80B-20	SDR- 45	SKY- 45A			G 50		P31		
	C	KS-CJT 80C-20	SDR- 36	SKY- 36							
100	A	KS-CJT100A-20	SDR- 70	SKY- 70	SKY- 85	G 95	G 75	G40	–	P14	P5
	B	KS-CJT100B-20	SDR- 56	SKY- 56			G 60		G40		
	C	KS-CJT100C-20	SDR- 45	SKY- 45A							
125	A	KS-CJT125A-20	SDR- 90	SKY- 90	SKY-112A	G120	G 95	G50	G50	P18, P14	P7, P5
	B	KS-CJT125B-20	SDR- 70	SKY- 70			G 75			P18	P7
	C	KS-CJT125C-20	SDR- 56	SKY- 56							
140	A	KS-CJT140A-20	SDR-100	SKY-100	SKY-125	G135	G110	G50	–	P18, P14	P7, P5
	B	KS-CJT140B-20	SDR- 80	SKY- 80			G 85			P18	P7
	C	KS-CJT140C-20	SDR- 63	SKY- 63							
150	A	KS-CJT150A-20	SDR-106	SKY-106	SKY-136	G145	G115	G55	–	P18, P14	P7, P5
	B	KS-CJT150B-20	SDR- 85	SKY- 85			G 90			P18	P7
	C	KS-CJT150C-20	SDR- 67	SKY- 67							
160	A	KS-CJT160A-20	SDR-110	SKY-110	SKY-145	G150	G125	G60	–	P18, P14	P7, P5
	B	KS-CJT160B-20	SDR- 90	SKY- 90			G 95			P18	P7
	C	KS-CJT160C-20	SDR- 70	SKY- 70							
180	A	KS-CJT180A-20	SDR-125	SKY-125	SKY-165	G170	G140	G70	–	P18	P7
	B	KS-CJT180B-20	SDR-100	SKY-100			G110				
	C	KS-CJT180C-20	SDR- 80	SKY- 80							
200	A	KS-CJT200A-20	SDR-140	SKY-140	SKY-180	G190	G155	G75	–	P18	P7
	B	KS-CJT200B-20	SDR-110	SKY-110			G125				
	C	KS-CJT200C-20	SDR- 90	SKY- 90							
220	A	KS-CJT220A-20	SDR-160	SKY-160	SKY-200	G210	G175	G85	–	P18	P7
	B	KS-CJT220B-20	SDR-125	SKY-125			G140				
	C	KS-CJT220C-20	SDR-100	SKY-100							
250	A	KS-CJT250A-20	SDR-180	SKY-180	SKY-230	G240	G195	G95	–	P18	P7
	B	KS-CJT250B-20	SDR-140	SKY-140			G155				
	C	KS-CJT250C-20	SDR-110	SKY-110							

★1. Please specify the seal kit numbers above when ordering the seals.
★2. Material of standard packings is Nitrile-Rubber. Please select Fluoro-Rubber packing material if Phosphate Esters oil is used. Please specify "F-" in addition to the model of seal kit after "KS".
★3. There are 2 O-Rings.
The large O-Rings (1 each) / Cap Side, The small O-Rings (1 each) / Rod Side.
Note : The packing code changes without notice.

"CJT 21 MPa" Series Compact Type Hydraulic Cylinders

YUKEN's "CJT 21 MPa" Series Compact Type Hydraulic Cylinders are higher nominal pressure for use in a wide range of general-purpose industrial machinery.
Compared to the conventional "CJT 21 MPa" Series Hydraulic Cylinders, the smaller outer dimensions allow for more compact equipment.
Moreover, Switch-Set "CJT" Series Hydraulic Cylinders with a proximity switch which facilitates detecting a position with a slide proximity switch on the cylinder body is also available.
(Refer to page J-69 for details)



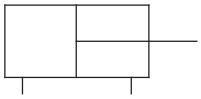


Specifications

Model Numbers			CJT210C–＊＊＊＊＊–＊＊＊＊–＊–20
Cylinder Bore mm			40, 50, 63, 80, 100, 125, 140, 160
Mounting Type			SD, LA, FA, FB, CA, TC
Nominal Pressure ★1			21 MPa
Maximum Allowable Pressure ★1	Cap Side Rod A,B		26.5 MPa
	Rod Side Rod A		26.5 MPa
	Rod Side Rod B		24.5 MPa
Proof Test Pressure ★1			31.5 MPa
Minimum Working Pressure	Rod Side Rod A		0.6 MPa or less
	Rod Side Rod B		0.45 MPa or less
	Cap Side Rod A,B		0.3 MPa or less
Operating Maximum Speed			Cylinder Bore 40 - 63 400 mm/s Cylinder Bore 80 - 125 300 mm/s Cylinder Bore 140, 160 200 mm/s
Operating Minimum Speed			8 mm/s
Maximum Stroke ★2 mm	Cylinder Bore	40	1600
		50 - 160	2000
Tolerance of Stroke			Refer to the table "Tolerance of Stroke" ★3
Tolerance of Thread			JIS B 0211–6g (JIS grade 2 or equivalence)
Ambient Temperature Range			–10 - +80°C
Applicable Standard			Compliant with former JIS B8354

★1. Refer to page J-7 for definition of pressure terms.
★2. May be limited to even lower value in accordance with the buckling strength.
Refer to page J-44 for strokes above buckling strength.

Graphic Symbol



●Intermediate Trunnion (TC Type) Minimum Stroke Fabrication Range

Cylinder Bore mm	Minimum Stroke mm	
	Rod A	Rod B
80	28	14
100	33	21
125	48	34
140	52	38
160	55	41

★3. Tolerance of Stroke

Stroke mm		Tolerance mm
	100 or less	$^{+0.8}_{0}$
More Than	100 to 250	$^{+1.0}_{0}$
More Than	250 to 630	$^{+1.25}_{0}$
More Than	630 to 1000	$^{+1.4}_{0}$
More Than	1000 to 1600	$^{+1.6}_{0}$
More Than	1600 to 2000	$^{+1.8}_{0}$

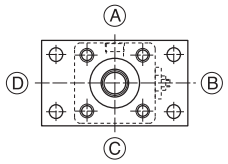
Model Number Designation

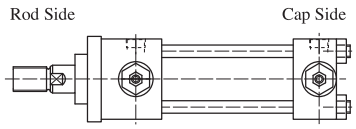
F—	CJT210C	—LA	50	B	100	B	—A	B	D	—F	—20
Packing Material	Series Number	Mounting Type	Cylinder Bore mm	Rod Size	Cylinder Stroke mm	Cushion Type	Port Position ★2	Cushion Adj. Valve Position ★2	Air Vent Valve Position ★2	Options ★1	Design Number
None : Nitrile Rubber (Standard) F : Fluoro Rubber 6 : Hydroge-nated Nitrile Rubber	CJT210C : 21MPa Series Compact Type Standard Cylinder	SD,LA FA,FB CA,TC	40, 50, 63, 80, 100, 125, 140, 160	A : Rod A B : Rod B	Cylinder Stroke	B : With Cushion on Both ends R : With Cushion on the Rod side H : With Cushion on the Cap side N : Without Cushion	(Viewed from Rod End) A : Upper (Standard) B : Right C : Under D : Left	B : Right (Standard) A : Upper C : Under D : Left N : No Cushion adj. valve (Standard)	D : Left (Standard) A : Upper B : Right C : Under	E : With Long Rod End Thread F : With Dust Cover (Material: Nylon Tarpaulin, Heat resistant up to 80°C) G : With Dust Cover (Material: Chloroprene , Heat resistant up to 130°C) H : With Dust Cover (Material: Conex, Heat resistant up to 200°C) K : With Lock Nut (E : Used in combination with long rod end thread) L : With T-End ★3 (Rod End Eye) M : With Y-End ★3 (Rod End Clevis)	20

★1. Using the options in combination is available.
Please specify the option code in the alphabet.
Ex.: EKL

★2. As for each direction of port, cushion adj.valve and air vent valve, please select from ⒶⒷⒸⒹ viewed from rod end(see the figure on the below).
<Standard directions>
Port: Ⓐ, Cushion adj.valve: Ⓑ, Air vent valve: Ⓓ
The arrangement of the air vent valve and cushion adj. valve is shown in the table below.

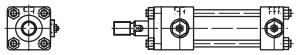
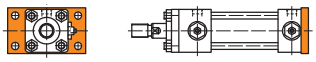
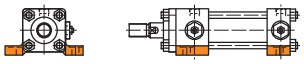
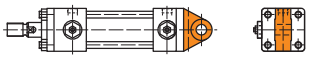
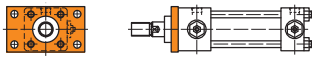
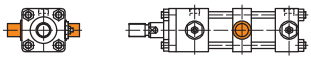
Port Position	Cushion Adj. Valve Position	Air Vent Valve Position
A, B, C, D	Except port side	Except port side and cushion adjusting valve side





★3. Rod end attachment is for rod size B only. If rod end attachment is used with rod size A, the thread dimensions will be those of rod size B. Moreover, the rod end attachment with lock nut and without lock nut have different fixing method.
①With Lock Nut
Lock the rod end attachment with a lock nut since a set screw for fixing is not included.
②Without Lock Nut
Locked by set screw for fixing. Rod threads have pointings (drill holes). Please consult us separately for without pointing.

Mounting Type

Code	Name	Illustration of Mounting Type	Code	Name	Illustration of Mounting Type
SD	Basic Type		FB	Cap Rectangular Flange	
LA	Foot Mounting Side Lugs		CA	Cap Detachable Eye	
FA	Rod Rectangular Flange		TC	Intermediate Trunnion	

Syllabus Table

Push (Cap Side Pressure)

Cylinder Bore mm	Pressurized Area cm²	Output kN				Velocity by a unit flow rate 10L/min mm/s	Flow rate by a unit velocity 10mm/s L/min
		1 MPa	7 MPa	14 MPa	21 MPa		
40	12.6	1.26	8.79	17.58	26.37	132	0.8
50	19.6	1.96	13.74	27.48	41.20	85	1.2
63	31.2	3.12	21.81	43.62	65.41	53	1.9
80	50.3	5.03	35.17	70.34	105.50	33	3.0
100	78.5	7.85	54.95	109.90	164.85	21	4.7
125	122.7	12.27	85.86	171.72	257.46	14	7.4
140	153.9	15.39	107.70	215.40	322.98	10.8	9.2
160	201.0	20.10	140.67	281.34	421.89	8.3	12.1

Pull (Rod Side Pressure)

Cylinder Bore mm	Rod Size Code	Rod Size mm	Pressurized Area cm²	Output kN				Velocity by a unit flow rate 10L/min mm/s	Flow rate by a unit velocity 10mm/s L/min
				1 MPa	7 MPa	14 MPa	21 MPa		
40	A	28	6.4	0.64	4.46	8.92	13.37	260.5	0.4
	B	22	8.8	0.88	6.13	12.27	18.39	189	0.5
50	A	36	9.4	0.94	6.55	13.10	19.64	177.3	0.6
	B	28	13.5	1.35	8.43	18.86	28.28	123	0.8
63	A	45	15.3	1.53	10.66	21.32	31.97	109	0.9
	B	36	21.0	2.10	14.69	29.38	44.05	79	1.3
80	A	56	25.7	2.57	17.90	35.80	53.71	64.9	1.5
	B	45	34.3	3.43	24.04	48.08	72.11	49	2.1
100	A	70	40.0	4.00	27.86	55.73	83.59	41.7	2.4
	B	56	53.9	5.39	37.72	75.44	113.14	31	3.2
125	A	90	59.1	5.91	41.24	82.34	123.50	28.2	3.5
	B	70	84.2	8.42	58.39	117.87	176.79	20	5.1
140	A	100	75.4	7.54	52.52	105.05	157.57	22.1	4.5
	B	80	103.6	10.36	72.53	145.07	217.56	16	6.2
160	A	110	106.0	10.60	73.84	147.68	221.51	15.7	6.4
	B	90	137.4	13.74	96.16	192.33	288.33	12	8.2

Mass Table

Approx. Mass may be obtained from the formula below.

Mass=Ⓐ+[Ⓑ×Stroke(mm)/100]+Ⓒ+Ⓓ

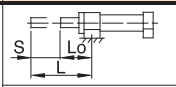
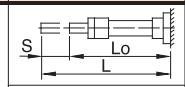
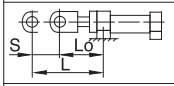
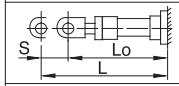
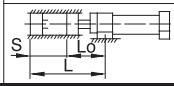
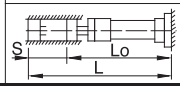
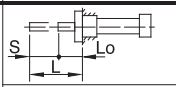
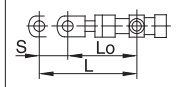
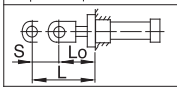
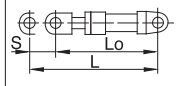
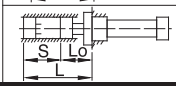
Cylinder Bore mm	Rod Size Code	ⒶBasic Mass SD type	ⒷAdditional Mass By A Unit Stroke 100mm	ⒸBasic Mass(Each Mounting)							ⒹAdditional Mass		
				LA	FA	FB	CA	CB	TA	TC	T-End (Rod End Eye) L	Y-End (Rod End Clevis) M	Lock Nut K
40	A	4.2	1.2	0.60	0.59	0.88	0.43	0.83	0.18	0.62	—	—	0.18
	B	4.1	1.1	0.59	0.49	0.88	0.42	0.60	0.18	0.62	0.74	1.17	0.12
50	A	7.3	1.9	0.97	1.11	1.69	0.82	1.56	0.28	1.02	—	—	0.36
	B	7.0	1.6	0.97	0.99	1.69	0.80	1.13	0.28	1.02	1.67	2.30	0.18
63	A	11.0	2.8	1.42	1.66	2.68	1.44	2.80	0.62	1.64	—	—	0.81
	B	10.5	2.4	1.42	1.51	2.67	1.40	2.00	0.62	1.64	2.51	3.97	0.36
80	A	18.1	4.3	2.27	2.57	4.29	4.10	4.98	1.29	3.07	—	—	1.48
	B	17.4	3.6	2.25	2.12	4.18	4.08	4.96	1.29	3.07	3.77	6.54	0.81
100	A	28.2	6.5	3.22	4.91	8.18	7.83	9.39	3.22	6.24	—	—	3.10
	B	26.0	5.4	3.21	4.41	8.01	7.86	9.42	3.25	6.24	7.47	12.62	1.48
125	A	51.2	10.3	5.66	7.96	13.52	14.47	17.74	4.96	12.70	—	—	5.80
	B	47.4	8.4	5.56	6.82	13.13	14.55	17.82	4.96	12.70	12.41	22.96	3.10
140	A	73.0	13.1	6.93	8.67	18.01	20.34	24.63	7.64	18.26	—	—	9.60
	B	67.6	10.9	6.93	7.08	17.53	20.45	24.74	7.60	18.26	19.17	33.75	4.42
160	A	100.7	16.6	9.95	13.04	26.79	29.30	35.85	17.49	22.91	—	—	11.14
	B	95.4	14.1	9.95	10.86	26.22	29.49	36.04	17.28	22.91	26.97	46.72	5.80

Maximum stroke limited by buckling strength

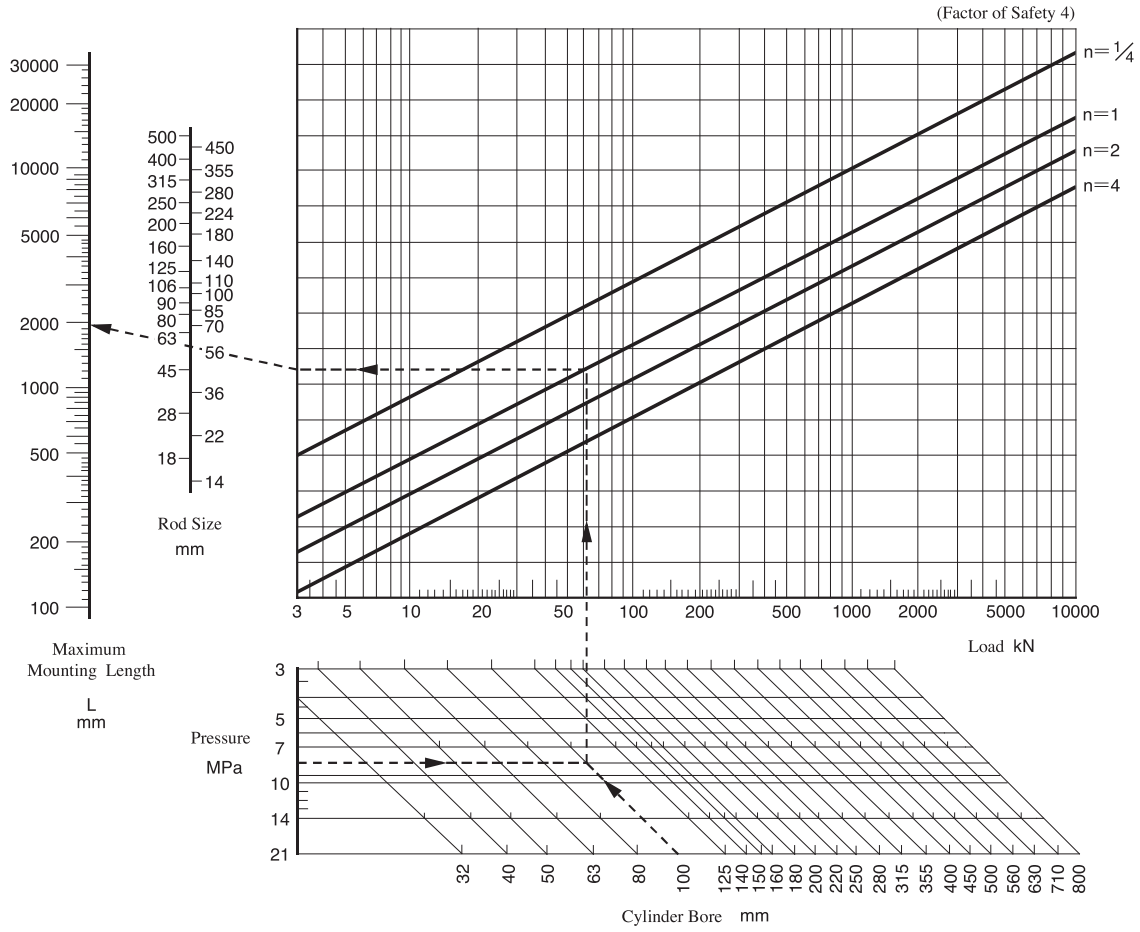
Calculation of Maximum Stroke

1. Calculate rod end coefficient n from the table on the right.
2. Calculate the maximum installation length L by applying various values such as cylinder bore, rod size, pressure, and rod end coefficient to the figure below.
3. Refer to the external dimensions and calculate the mounting length Lo when retracted.
   Use the formula S=L–Lo and calculate the maximum stroke S.
   (Example) Cylinder bore 100 mm, rod size 56 mm, mounting type TC (intermediate trunnion type) standard cylinder operated at 8 MPa pressure. Calculate the maximum stroke. The rod end attachment dimension when calculating the installation length Lo shall be 135 mm.

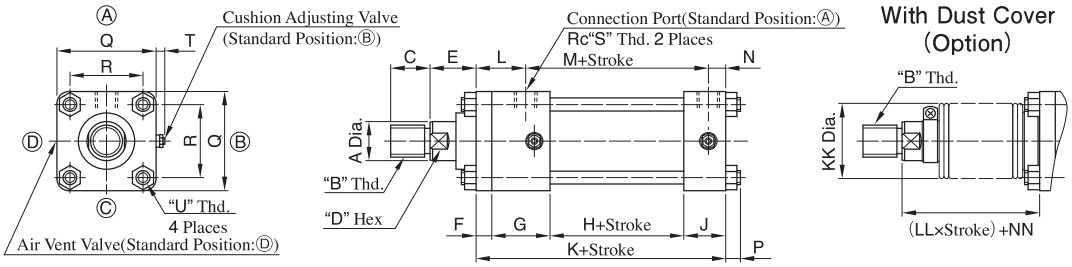
   From the table on the right n=1
   From the figure below L≒1980
   From Dimensional Drawing (J-47) and Rod End Attachment (J-48)
   $Lo=(180+135)+\frac{S}{2}$
   therefore $S=L-Lo=1980-[(180+135)+\frac{S}{2}]$
   hence S≒1110 mm

Mounting Type	Type	Rod End Coefficient n	Mounting Type	Type	Rod End Coefficient n
LA		1/4	FB		1/4
		2			2
		4			4
FA		1/4	TC		1
		2	CA		
		4			

S=L–Lo
S : Stroke mm
L : Mounting Length at extension mm
Lo : Mounting Length at contraction mm
Note: For Lo dimensions, refer to dimensional drawing and add the dimensions of rod end attachment.



SD : Basic Type

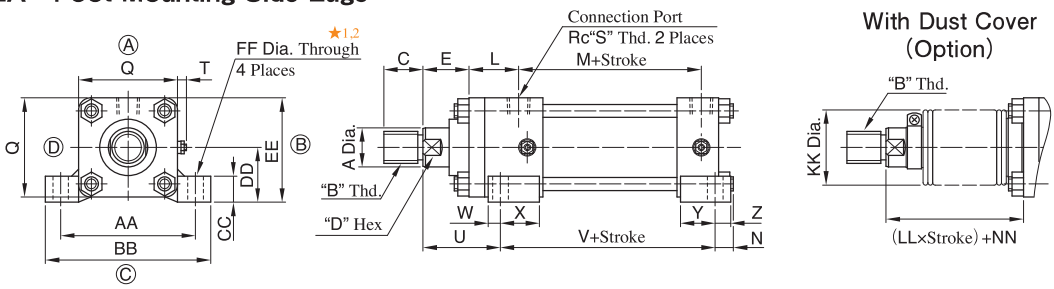


★1. Rod size (A Dia.) 90 or larger has two holes for a pin spanner. Cylinder bore 160 the rod B has a rod size 90, but it is hex.
★2. Long rod end thread type : the dimension "C" is the value marked in parentheses.

Cylinder Bore	Rod B							Rod A							E	G	H	J	M
	A	B	C★2	D	F	K	L	A	B	C★2	D	F	K	L					
40	22	M20×1.5	25 (45)	19	11	145	38	28	M 24×1.5	30 (50)	24	11	145	38	32	50	48	36	94
50	28	M24×1.5	30 (50)	24	13	162	42	36	M 30×1.5	35 (60)	30	13	162	42	36	56	48	45	102
63	36	M30×1.5	35 (60)	30	15	171	47	45	M 39×1.5	45 (80)	41	15	171	47	43	59	52	45	106
80	45	M39×1.5	45 (80)	41	18	187	57	56	M 48×1.5	55 (95)	50	18	187	57	48	67	54	48	110
100	56	M48×1.5	55 (95)	50	20	192	58	70	M 64×2	75 (125)	65	22	194	60	53	66	60	46	116
125	70	M64×2	75 (125)	65	24	228	73	90	M 80×2	90 (155)	12 Dia.★1	24	228	73	60	82	64	58	130
140	80	M72×2	80 (140)	75	32	244	81	100	M 95×2	105 (185)	12 Dia.★1	32	244	81	60	82	72	58	138
160	90	M80×2	90 (155)	85★1	37	267	86	110	M100×2	110 (190)	15 Dia.★1	37	267	86	60	87	80	63	156

Cylinder Bore	N	P	Q	R	S	T	U	Rod B				Rod A			
								KK	LL Nylon Tarpaulin, Chloroprene	LL Conex	NN	KK	LL Nylon Tarpaulin, Chloroprene	LL Conex	NN
40	13	11	65	45	3/8	Max.13	M10×1.25	50	1/3.5	1/2.5	45	63	1/3.5	1/2.5	45
50	18	13	80	56	1/2	Max.13	M12×1.25	63			45	71	1/4	1/3	55
63	18	14	94	68	1/2	Max.13	M14×1.5	71	1/4	1/3	55	80	1/4	1/3	55
80	20	16	114	84	3/4	Max.13	M16×1.5	80			55	100	1/4	1/3	55
100	18	18	135	102	3/4	Max.13	M18×1.5	100			55	125	1/5	1/3.5	65
125	25	21	165	125	1	Max.13	M22×1.5	125	1/5	1/3.5	65	140	1/5	1/4	65
140	25	25	192	144	1	Max.13	M27×2	125			65	160			65
160	25	27	218	164	1	Max.13	M30×2	140		1/4	65	180			65

LA : Foot Mounting Side Lugs

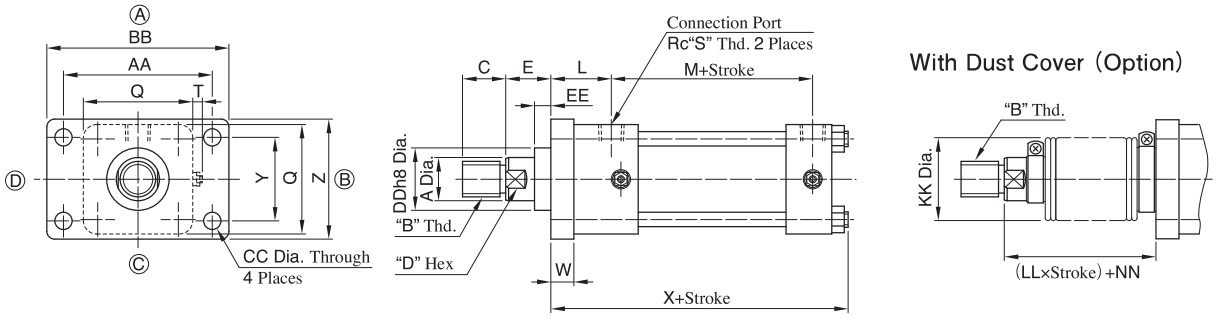


★1. The socket head cap screw shall be used as a mounting bolt.
★2. As for cylinder bore size 40-100, in case the port direction is Ⓑ or Ⓓ, pipe fittings may interference with cylinder mounting bolts. See Instructions on page J-4 for details.
★3. Rod size (A Dia.) 90 or larger has two holes for a pin spanner. Cylinder bore 160 the rod B has a rod size 90, but it is hex.
★4. Long rod end thread type : the dimension "C" is the value marked in parentheses.

Cylinder Bore	Rod B						Rod A						M	N	Q	S	T	U	V	W	X
	A	B	C★4	D	E	L	A	B	C★4	D	E	L									
40	22	M20×1.5	25 (45)	19	35	38	28	M 24×1.5	30 (50)	24	35	38	94	27	65	3/8	Max.13	59	105	13	37
50	28	M24×1.5	30 (50)	24	36	42	36	M 30×1.5	35 (60)	30	36	42	102	31	80	1/2	Max.13	67	113	18	32
63	36	M30×1.5	35 (60)	30	43	47	45	M 39×1.5	45 (80)	41	43	47	106	29	94	1/2	Max.13	76	123	18	32
80	45	M39×1.5	45 (80)	41	51	57	56	M 48×1.5	55 (95)	50	51	57	110	24	114	3/4	Max.13	87	143	18	47
100	56	M48×1.5	55 (95)	50	60	58	70	M 64×2	75 (125)	65	58	60	116	22	135	3/4	Max.13	98	150	18	48
125	70	M64×2	75 (125)	65	65	73	90	M 80×2	90 (155)	12 Dia.★3	65	73	130	29	165	1	Max.13	112	173	23	59
140	80	M72×2	80 (140)	75	60	81	100	M 95×2	105 (185)	12 Dia.★3	60	81	138	26	192	1	Max.13	120	183	28	54
160	90	M80×2	90 (155)	85★1	60	86	110	M100×2	110 (190)	15 Dia.★3	60	86	156	25	218	1	Max.13	127	202	30	57

Cylinder Bore	Y	Z	AA	BB	CC	DD	EE	FF	Rod B				Rod A			
									KK	LL Nylon Tarpaulin, Chloroprene	LL Conex	NN	KK	LL Nylon Tarpaulin, Chloroprene	LL Conex	NN
40	16	16	98	122	15	36±0.15	68.5	11	50	1/3.5	1/2.5	48	63	1/3.5	1/2.5	48
50	27	18	115	145	20	45±0.15	85	14	63			45	71	1/4	1/3	55
63	35	15	136	169	25	50±0.15	97	18	71	1/4	1/3	55	80			55
80	40	18	155	190	30	60±0.25	117	18	80			58	100			58
100	42	18	190	230	35	70±0.25	137.5	22	100			62	125	1/5	1/3.5	70
125	50	23	224	272	45	85±0.25	167.5	26	125	1/5	1/3.5	70	140		1/4	70
140	57	28	262	320	45	100±0.25	196	30	125			65	160			65
160	65	30	294	356	55	115±0.25	224	33	140		1/4	65	180			65

FA : Rod Rectangular Flange

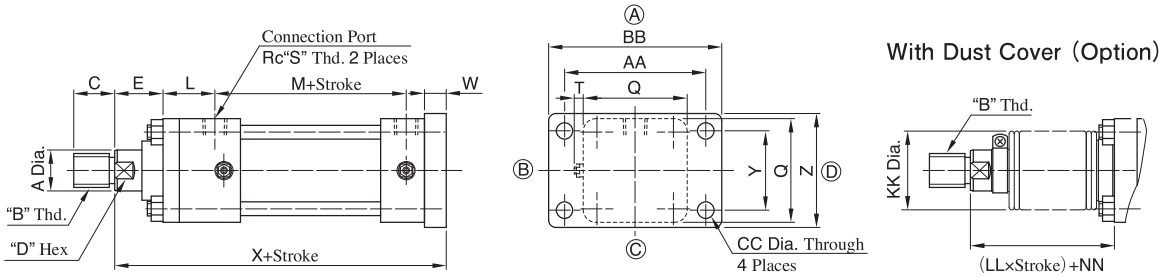


★1. Rod size (A Dia.) 90 or larger has two holes for a pin spanner. Cylinder bore 160 the rod B has a rod size 90, but it is hex.
★2. Long rod end thread type : the dimension "C" is the value marked in parentheses.

Cylinder Bore	Rod B								Rod A								L	M	Q
	A	B	C★2	D	E	DD	EE	Z	A	B	C★2	D	E	DD	EE	Z			
40	22	M20×1.5	25 (45)	19	28	40	12	73	28	M 24×1.5	30 (50)	24	28	43	11	80	42	94	65
50	28	M24×1.5	30 (50)	24	29	46	9	85	36	M 30×1.5	35 (60)	30	29	55	8	92	49	102	80
63	36	M30×1.5	35 (60)	30	34	55	6	98	45	M 39×1.5	45 (80)	41	34	65	10	105	56	106	94
80	45	M39×1.5	45 (80)	41	42	65	12	125	56	M 48×1.5	55 (95)	50	42	80	13	140	63	110	114
100	56	M48×1.5	55 (95)	50	44	80	6	150	70	M 64×2	75 (125)	65	44	95	12	165	69	116	135
125	70	M64×2	75 (125)	65	47	95	6	175	90	M 80×2	90 (155)	12 Dia.★1	47	120	15	195	86	130	165
140	80	M72×2	80 (140)	75	51	105	6	195	100	M 95×2	105 (185)	12 Dia.★1	51	130	15	215	90	138	192
160	90	M80×2	90 (155)	85★1	51	120	6	225	110	M100×2	110 (190)	15 Dia.★1	51	140	15	245	95	156	218

Cylinder Bore	S	T	W	X	Y	AA	BB	CC	Rod B				Rod A			
									KK	LL		NN	KK	LL		NN
										Nylon Tarpaulin, Chloroprene	Conex			Nylon Tarpaulin, Chloroprene	Conex	
40	3/8	Max.13	15	160	46	95	118	11	50	1/3.5	1/2.5	45	63	1/3.5	1/2.5	45
50	1/2	Max.13	20	182	58	115	145	14	63			45	71	1/4	1/3	55
63	1/2	Max.13	24	194	65	132	165	18	71	1/4	1/3	55	80			55
80	3/4	Max.13	24	209	87	155	190	18	80			55	100			55
100	3/4	Max.13	31	221	109	190	230	22	100			55	125	1/5	1/3.5	65
125	1	Max.13	37	262	130	224	272	26	125	1/5	1/3.5	65	140		1/4	65
140	1	Max.13	41	278	145	250	300	30	125			65	160			65
160	1	Max.13	46	303	170	285	345	33	140		1/4	65	180			65

FB : Cap Rectangular Flange

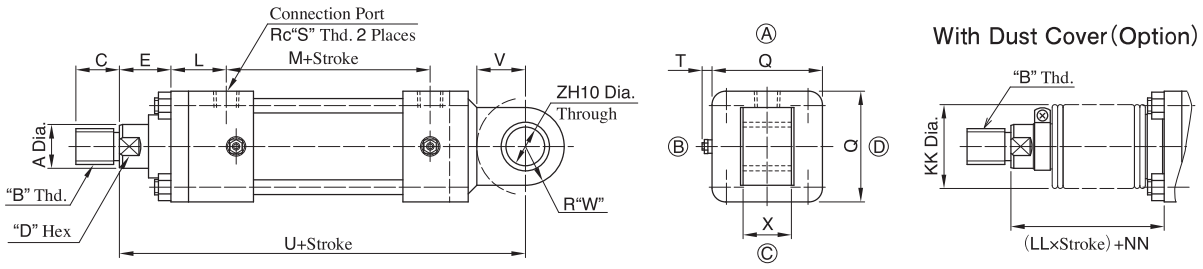


★1. Rod size (A Dia.) 90 or larger has two holes for a pin spanner. Cylinder bore 160 the rod B has a rod size 90, but it is hex.
★2. Long rod end thread type : the dimension "C" is the value marked in parentheses.

Cylinder Bore	Rod B						Rod A						M	Q	S	T	W	X	Y	Z
	A	B	C★2	D	E	L	A	B	C★2	D	E	L								
40	22	M20×1.5	25 (45)	19	34	38	28	M 24×1.5	30 (50)	24	34	38	94	65	3/8	Max.13	15	194	46	73
50	28	M24×1.5	30 (50)	24	36	42	36	M 30×1.5	35 (60)	30	36	42	102	80	1/2	Max.13	20	218	58	85
63	36	M30×1.5	35 (60)	30	46	47	45	M 39×1.5	45 (80)	41	46	47	106	94	1/2	Max.13	24	241	65	98
80	45	M39×1.5	45 (80)	41	63	57	56	M 48×1.5	55 (95)	50	63	57	110	114	3/4	Max.13	24	274	87	125
100	56	M48×1.5	55 (95)	50	74	58	70	M 64×2	75 (125)	65	72	60	116	135	3/4	Max.13	31	297	109	150
125	70	M64×2	75 (125)	65	80	73	90	M 80×2	90 (155)	12 Dia.★1	80	73	130	165	1	Max.13	37	345	130	175
140	80	M72×2	80 (140)	75	82	81	100	M 95×2	105 (185)	12 Dia.★1	82	81	138	192	1	Max.13	41	367	145	195
160	90	M80×2	90 (155)	85★1	83	86	110	M100×2	110 (190)	15 Dia.★1	83	86	156	218	1	Max.13	46	396	170	225

Cylinder Bore	AA	BB	CC	Rod B				Rod A			
				KK	LL		NN	KK	LL		NN
					Nylon Tarpaulin, Chloroprene	Conex			Nylon Tarpaulin, Chloroprene	Conex	
40	95	118	11	50	1/3.5	1/2.5	47	63	1/3.5	1/2.5	47
50	115	145	14	63			45	71	1/4	1/3	55
63	132	165	18	71	1/4	1/3	58	80			58
80	155	190	18	80			70	100			70
100	190	230	22	100			76	125	1/5	1/3.5	84
125	224	272	26	125	1/5	1/3.5	85	140		1/4	85
140	250	300	30	125			87	160			87
160	285	345	33	140		1/4	88	180			88

CA : Cap Detachable Eye

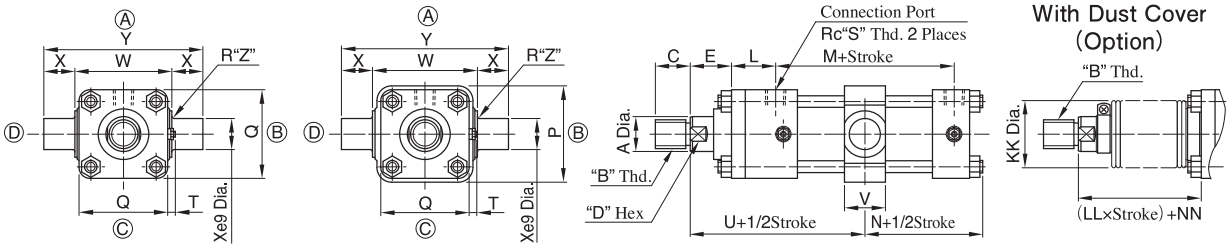


★1. Rod size (A Dia.) 90 or larger has two holes for a pin spanner. Cylinder bore 160 the rod B has a rod size 90, but it is hex.
★2. Long rod end thread type : the dimension "C" is the value marked in parentheses.

Cylinder Bore	Rod B						Rod A						M	Q	S	T	U	V	W
	A	B	C★2	D	E	L	A	B	C★2	D	E	L							
40	22	M20×1.5	25 (45)	19	38	38	28	M 24×1.5	30 (50)	24	38	38	94	65	3/8	Max.13	214	25	25
50	28	M24×1.5	30 (50)	24	42	42	36	M 30×1.5	35 (60)	30	42	42	102	80	1/2	Max.13	242	32	30
63	36	M30×1.5	35 (60)	30	53	47	45	M 39×1.5	45 (80)	41	53	47	106	94	1/2	Max.13	271	40	35
80	45	M39×1.5	45 (80)	41	51	57	56	M 48×1.5	55 (95)	50	51	57	110	114	3/4	Max.13	316	50	40
100	56	M48×1.5	55 (95)	50	56	58	70	M 64×2	75 (125)	65	54	60	116	135	3/4	Max.13	345	63	50
125	70	M64×2	75 (125)	65	56	73	90	M 80×2	90 (155)	12 Dia.★1	56	73	130	165	1	Max.13	398	71	63
140	80	M72×2	80 (140)	75	55	81	100	M 95×2	105 (185)	12 Dia.★1	55	81	138	192	1	Max.13	425	80	70
160	90	M80×2	90 (155)	85★1	52	86	110	M100×2	110 (190)	15 Dia.★1	52	86	156	218	1	Max.13	460	90	80

Cylinder Bore	X	Z	Rod B				Rod A			
			KK	LL		NN	KK	LL		NN
				Nylon Tarpaulin, Chloroprene	Conex			Nylon Tarpaulin, Chloroprene	Conex	
40	25 $^{-0.1}_{-0.4}$	20	50	1/3.5	1/2.5	51	63	1/3.5	1/2.5	51
50	32 $^{-0.1}_{-0.4}$	25	63			51	71	1/4	1/3	61
63	40 $^{-0.1}_{-0.4}$	32	71	1/4	1/3	65	80			65
80	50 $^{-0.1}_{-0.4}$	40	80			58	100			58
100	63 $^{-0.1}_{-0.4}$	50	100			58	125	1/5	1/3.5	66
125	80 $^{-0.1}_{-0.6}$	63	125	1/5	1/3.5	61	140		1/4	61
140	90 $^{-0.1}_{-0.6}$	70	125			60	160			60
160	100 $^{-0.1}_{-0.6}$	80	140		1/4	57	180			57

TC : Intermediate Trunnion



Cylinder Bore 40 - 80 Cylinder Bore 100 - 160

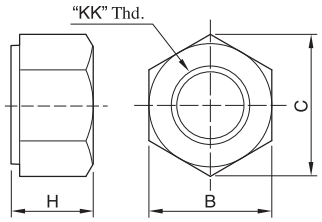
★1. Rod size (A Dia.) 90 or larger has two holes for a pin spanner. Cylinder bore 160 the rod B has a rod size 90, but it is hex.
★2. Long rod end thread type : the dimension "C" is the value marked in parentheses.

Cylinder Bore	Rod B							Rod A							M	P	Q	S	T	U	V
	A	B	C★2	D	E	L	N	A	B	C★2	D	E	L	N							
40	22	M20×1.5	25 (45)	19	32	38	71	28	M 24×1.5	30 (50)	24	32	38	71	94	—	65	3/8	Max.13	117	33
50	28	M24×1.5	30 (50)	24	36	42	82	36	M 30×1.5	35 (60)	30	36	42	82	102	—	80	1/2	Max.13	129	33
63	36	M30×1.5	35 (60)	30	43	47	83.5	45	M 39×1.5	45 (80)	41	43	47	83.5	106	—	94	1/2	Max.13	144.5	43
80	45	M39×1.5	45 (80)	41	41	57	76.5	56	M 48×1.5	55 (95)	50	48	57	83.5	110	—	114	3/4	Max.13	167.5	53
100	56	M48×1.5	55 (95)	50	49	58	79	70	M 64×2	75 (125)	65	53	60	85	116	146	135	3/4	Max.13	180	63
125	70	M64×2	75 (125)	65	53	73	94	90	M 80×2	90 (155)	12 Dia.★1	60	73	101	130	185	165	1	Max.13	208	78
140	80	M72×2	80 (140)	75	53	81	101	100	M 95×2	105 (185)	12 Dia.★1	60	81	108	138	210	192	1	Max.13	221	88
160	90	M80×2	90 (155)	85★1	53	86	111.5	110	M100×2	110 (190)	15 Dia.★1	60	86	118.5	156	230	218	1	Max.13	235.5	98

Cylinder Bore	W	X	Y	Z	Rod B				Rod A			
					KK	LL		NN	KK	LL		NN
						Nylon Tarpaulin, Chloroprene	Conex			Nylon Tarpaulin, Chloroprene	Conex	
40	73 $^{0}_{-0.3}$	20	110	2.5	50	1/3.5	1/2.5	45	63	1/3.5	1/2.5	45
50	85 $^{0}_{-0.35}$	25	135	2.5	63			45	71	1/4	1/3	55
63	100 $^{0}_{-0.35}$	32	164	2.5	71	1/4	1/3	55	80			55
80	125 $^{0}_{-0.4}$	40	205	3	80			48	100			55
100	155 $^{0}_{-0.4}$	50	255	3	100			51	125	1/5	1/3.5	65
125	195 $^{0}_{-0.46}$	63	321	4	125	1/5	1/3.5	58	140		1/4	65
140	220 $^{0}_{-0.46}$	70	360	4	125			58	160			65
160	240 $^{0}_{-0.46}$	80	400	4	140		1/4	58	180			65

Options

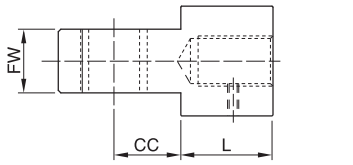
Lock Nut : Option Code "K"

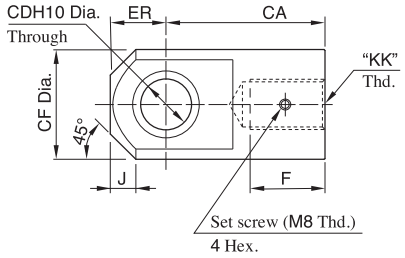


KK	H	B	C
M20×1.5	18	30	34.6
M24×1.5	20	36	41.6
M30×1.5	25	46	53.1
M39×1.5	32	60	69.3
M48×1.5	38	75	86.6
M64×2	51	95	109.7
M72×2	58	105	121.2
M80×2	64	115	132.8

Rod End Attachment

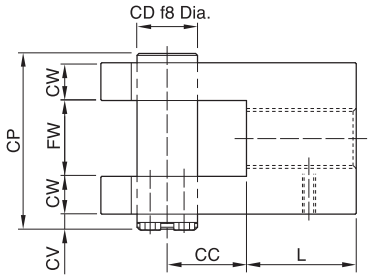
T-End (Rod End Eye) : Option Code "L"

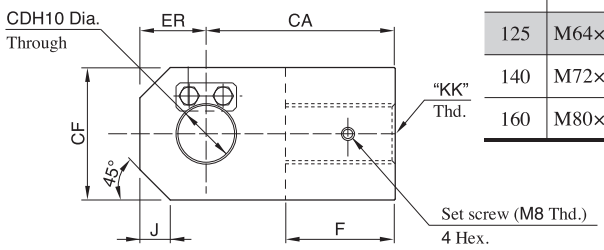




Cylinder Bore	KK	F	CA	CC	CD	CF	ER	FW	J	L
40	M20×1.5	32	70	27	20	45	22.5	$25^{-0.1}_{-0.4}$	8	43
50	M24×1.5	35	80	34	25	55	30	$32^{-0.1}_{-0.4}$	15	46
63	M30×1.5	40	95	42	32	70	35	$40^{-0.1}_{-0.4}$	16	53
80	M39×1.5	53	110	52	40	80	40	$50^{-0.1}_{-0.4}$	15	58
100	M48×1.5	62	135	65	50	98	50	$63^{-0.1}_{-0.4}$	20	70
125	M64×2	80	160	75	63	118	63	$80^{-0.1}_{-0.6}$	30	85
140	M72×2	87	180	82	70	138	70	$90^{-0.1}_{-0.6}$	35	98
160	M80×2	96	195	94	80	158	80	$100^{-0.1}_{-0.6}$	40	101

Y-End (Rod End Clevis) : Option Code "M"



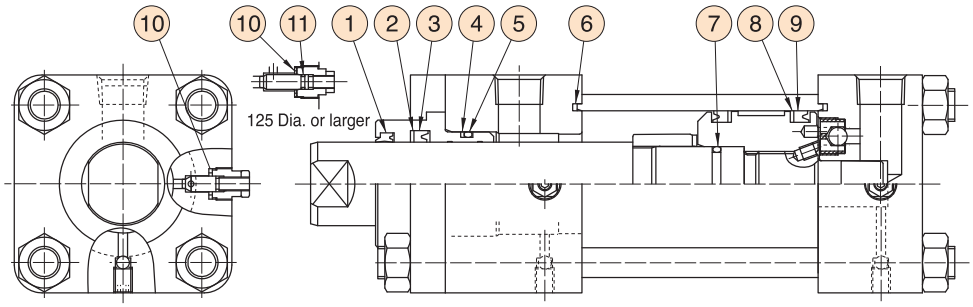


Cylinder Bore	KK	F	CA	CC	CD	CF	ER	FW	CW	CV	CP	J	L
40	M20×1.5	43	70	27	20	45	22.5	$25^{+0.4}_{+0.1}$	12.5	8	63	8	43
50	M24×1.5	46	80	34	25	60	30	$32^{+0.4}_{+0.1}$	16	8	77	15	46
63	M30×1.5	53	95	42	32	70	35	$40^{+0.4}_{+0.1}$	20	8	93	16	53
80	M39×1.5	58	110	52	40	80	40	$50^{+0.4}_{+0.1}$	25	12	117	15	58
100	M48×1.5	70	135	65	50	100	50	$63^{+0.4}_{+0.1}$	31.5	12	143	20	70
125	M64×2	85	160	75	63	120	63	$80^{+0.6}_{+0.1}$	40	18	183	30	85
140	M72×2	98	180	82	70	140	70	$80^{+0.6}_{+0.1}$	45	18	203	35	98
160	M80×2	101	195	94	80	160	80	$100^{+0.6}_{+0.1}$	50	24	230	40	101

★Rod End Attachment thread size "KK" is available only for rod size B.
When used with rod size A, change to rod size B thread diameter.

List of Seals

CJT 210C



Cylinder Bore	Model Numbers for Seal Kit ★1	Rod B					Rod A				
		Dust Seal ①	Backup Ring for Rod Packing ②	Rod Packing ③	Backup Ring for Bush ④	O-Ring ★2 for Bush ⑤	Dust Seal ①	Backup Ring for Rod Packing ②	Rod Packing ③	Backup Ring for Bush ④	O-Ring ★2 for Bush ⑤
40	KS-CJT210C-40*-20	LBH-22	22×30×1	IUH-22A	BUR-G25	G25	LBH-28	28×35.5×1	IUH-28	BUR-G31 ★3	G30
50	KS-CJT210C-50*-20	LBH-28	28×35.5×1	IUH-28	BUR-G31 ★3	G30	LBH-36	36×46×1.5	IUH-36	BUR-G40	G40
63	KS-CJT210C-63*-20	LBH-36	36×46×1.5	IUH-36	BUR-G40	G40	LBH-45	45×56×1.5	IUH-45A	BUR-G55	G55
80	KS-CJT210C-80*-20	LBH-45	45×56×1.5	IUH-45A	BUR-G55	G55	LBH-56	56×66×1.5	IUH-56	BUR-G65	G65
100	KS-CJT210C-100*-20	LBH-56	56×66×1.5	IUH-56	BUR-G65	G65	LBH-70	70×80×1.5	IUH-70	BUR-G80	G80
125	KS-CJT210C-125*-20	LBH-70	70×80×1.5	IUH-70	BUR-G80	G80	LBH-90	90×105×2	IUH-90	BUR-G100	G100
140	KS-CJT210C-140*-20	LBH-80	80×90×1.5	IUH-80	BUR-G90	G90	LBH-100	100×115×2	IUH-100	BUR-G110	G110
160	KS-CJT210C-160*-20	LBH-90	90×105×2	IUH-90	BUR-G100	G100	LBH-110	110×125×2	IUH-110	BUR-G125	G125

Cylinder Bore	Model Numbers for Seal Kit ★1	Cover Seal ⑥	O-Ring for Piston ★2 ⑦	Backup Ring for Piston Packing ⑧	Piston Packing ⑨	Cushion Valve Seal ⑩	O-Ring for Cushion ★2 ⑪
40	KS-CJT210C-40*-20	TT-40	P16	40×30×1.5	OUHR-40	CX-12H	—
50	KS-CJT210C-50*-20	TT-50	P21	50×40×1.5	OUHR-50	CX-12H	—
63	KS-CJT210C-63*-20	TT-63	G25	63×53×1.5	OUHR-63	CX-12H	—
80	KS-CJT210C-80*-20	TT-80	G35	80×71×2	OUHR-80A	CX-14H	—
100	KS-CJT210C-100*-20	TT-100	G45	100×85×3	OUHR-100	CX-14H	—
125	KS-CJT210C-125*-20	TT-125	G55	125×112×3	OUHR-125	CR-18H	S7
140	KS-CJT210C-140*-20	TT-140	G65	140×125×3	OUHR-140	CR-18H	S7
160	KS-CJT210C-160*-20	TT-160	G75	160×145×3	OUHR-160	CR-18H	S7

Item	Q'ty
①	1
②	1
③	1
④	1
⑤	1
⑥	2
⑦	1
⑧	2
⑨	2
⑩	2
⑪	2

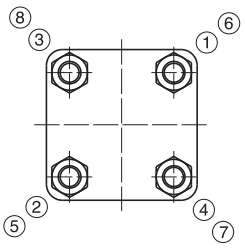
★1. Please indicate rod size A or B in * of the seal kit numbers.
★2. O-rings are the following standards.

Model Numbers	Standard
⑤O-Ring for Bush	OR NBR-70-1 P(G)**-N
⑦O-Ring for Piston	OR NBR-90 P(G)**-N
⑪O-Ring for Cushion	Special Standard

★3. Backup rings are made to our standard.
★4. Material of standard packings is Nitrile Rubber. For Fluorocarbon Rubber and Hydrogenated Nitrile Rubber materials, specify the following code after "KS-".
Fluoro rubber: F-, Hydrogenated nitrile rubber: 6-
Note : The packing code changes without notice.

Tie Rod Tightening

When tightening tie rods, do not tighten only one tie rod tightly at a time, but gradually tighten the tie rods in the order of the numbers shown in the figure on the right. Note that one-sided tightening of tie rods may cause operation failure or chattering.



Mounting Type (SD·LA·FA·FB·CA)

Bore mm	40	50	63	80	100	125	140	160
Tightening Torque Nm	41	70	120	170	280	500	880	1100

Mounting Type (TC)

Bore mm	Rod Size	40	50	63	80	100	125	140	160
Tightening Torque Nm	A	41	70	120	200	330	600	1050	1300
	B	41	70	120	170	280	500	880	1100

Interchangeability in Installation between Current and New Design

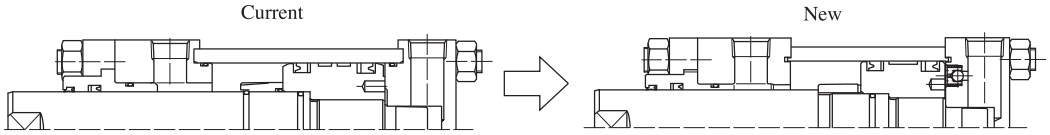
YUKEN's "CJT 21 MPa" series compact type hydraulic cylinders has undergone the following model changes to make it more compact and lightweight, contributing to space saving.

Major Changes

①Overall length shortened

②Structural Change

- The cushion structure has been changed for more stable cushioning performance.
- The conventional structure with a check valve on the outer surface of the cover has been eliminated, and a cushion ring that doubles as a check valve has been adopted on the rod side.
  A check valve directly connected to the bottom hole of the port is used on the cap side.
- An air vent valve is installed separately from the check valve to prevent the check valve from being exposed to the outside surface.
- All cushion adjusting valves have been commonized.
- Basically, internal parts of current and new products are not interchangeable.



Design Number

Series Number	Change Detail
CJT210C	10 Design to 20 Design

Interchangeability in Installation

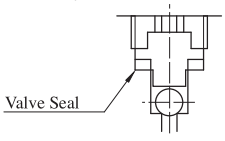
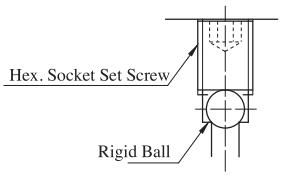
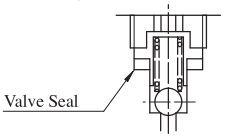
The distance between ports and the total length have been changed, but there is no change in the basic installation.

Series Number	Change of port-to-port distance
CJT210C	Pages J-52 to J-53, dimemsion M.

Please consult us separately for dimensions in "CA" and "TC" Type.

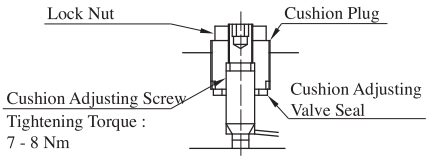
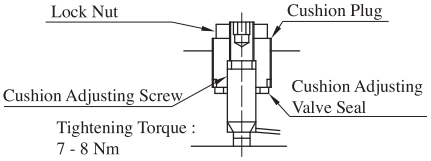
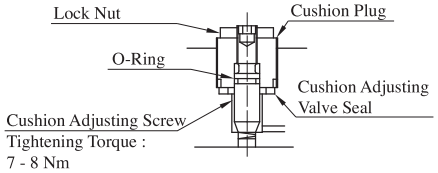
Air Vent Valve

Shape has been changed and unified.

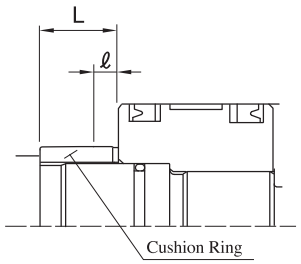
Current	New
Cylinder Bore 40 - 125  	 Tightening Torque : 3 - 5 Nm
Cylinder Bore 140,160  	

Cushion Adjusting Valve

Unify the shape with current design cylinder bore 40-80.

Current	New
Cylinder Bore 40 - 80  Prescribed lift: from fully closed to end of stroke.	 Prescribed lift: from fully closed to end of stroke.
Cylinder Bore 100 - 160  Prescribed lift: from fully closed to end of stroke.	

Cushion



Cushion Length

Cylinder Bore mm	Current		New	
	Cushion Ring Length L mm	Cushion Ring Parallel Part Length ℓ mm	Cushion Ring Length L mm	Cushion Ring Parallel Part Length ℓ mm
40	25	7	26	10
50	25	7	28	10
63	25	7	28	10
80	30	8	30	12
100	30	8	30	12
125	30	8	33	15
140	30	12	33	15
160	30	12	33	15

Note : The cushioning effect will weaken if the cushion ring is not used at the end of the stroke and is stopped more than 5mm before the end of the stroke.

Specifications

The new and current are identical except for the following.

Cylinder Bore mm	Maximum Stroke	
	Current mm	New mm
40	1500	1600

Model Number Designation

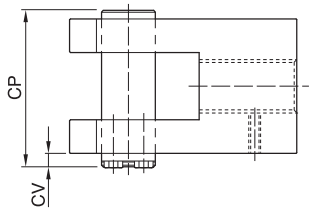
The notes have been changed along with the model numbers. Refer to page J-42 for the changed notes.

Mass Table

Mass has been changed in general. Refer to page J-43 for changed mass.

Option

Y-End(Rod End Clevis) : Option Code "M"



Cylinder Bore	Current		New	
	CV	CP	CV	CP
160	24	230	18	223

List of Seals

Seals have been changed and deleted. Refer to page J-49 for changes.

①Change: Tail end of Model Numbers

②Change: Cover Seal

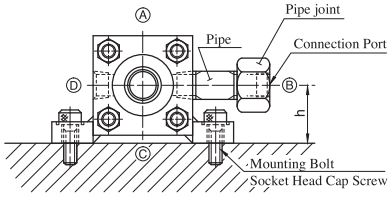
Current	New
O-Ring for cover, Back Up Ring for cover	Cover Seal

③Delete: O-Ring for cushion ring and Back Up Ring for cushion ring

④Change: O-Ring dimension for cushion(partial)

⑤Delete: Check Valve Seal

Foot Mounting Side Lugs (LA Type) Piping Precautions

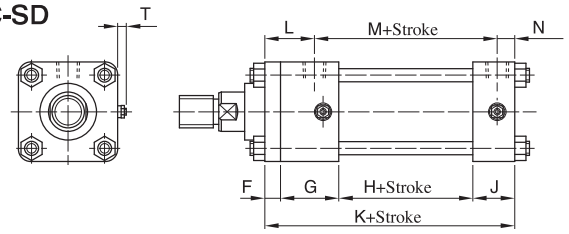


Cylinder Bore	h	
	Current	New
40	36	41
50	45	51
63	56	56
80	60	70
100	80	80

Dimensions

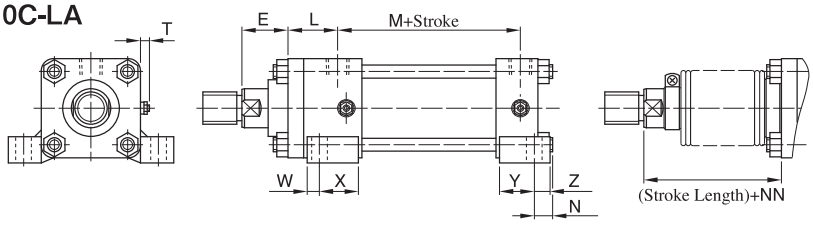
The new and current are identical except for the following dimensions.

CJT210C-SD



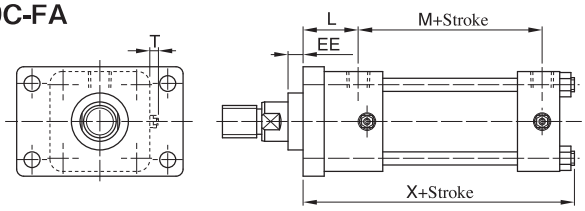
Cylinder Bore	Current									New								
	F Rod A	G	H	J	K	M	N	L	T	F Rod A	G	H	J	K	M	N	L	T
40	11	43	62	31	147	94	15	38	Max.10	11	50	48	36	145	94	13	38	Max.13
50	13	47	66	36	162	102	18	42	Max.10	13	56	48	45	162	102	18	42	Max.13
63	15	50	73	36	174	109	18	47	Max.10	15	59	52	45	171	106	18	47	Max.13
80	18	60	83	41	202	125	20	57	Max.10	18	67	54	48	187	110	20	57	Max.13
100	22	60	90	41	213	132	20	61	Max.11	20	66	60	46	192	116	18	Rod B 58 Rod A 60	Max.13
125	24	75	98	51	248	150	25	73	Max.11	24	82	64	58	228	130	25	73	Max.13
140	32	75	108	51	266	160	25	81	Max.13	32	82	72	58	244	138	25	81	Max.13
160	37	106	127	51	290	179	25	86	Max.13	37	87	80	63	267	156	25	86	Max.13

CJT210C-LA



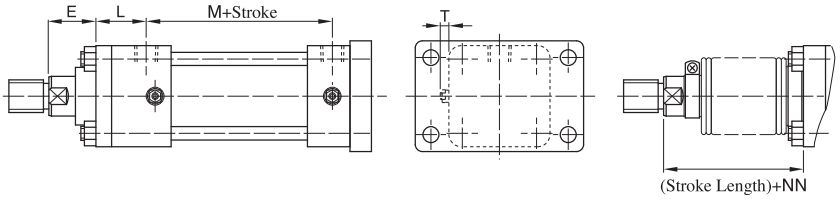
Cylinder Bore	Current										New									
	E	L	M	N	T	W	X	Y	Z	NN	E	L	M	N	T	W	X	Y	Z	NN
40	32	38	94	26	Max.10	16	27	16	15	45	35	38	94	27	Max.13	13	37	16	16	48
50	36	42	102	31	Max.10	18	29	18	18	45	36	42	102	31	Max.13	18	32	27	18	55
63	43	47	109	32	Max.10	18	32	18	18	55	43	47	106	29	Max.13	18	32	35	15	55
80	48	57	125	36	Max.10	21	39	21	20	55	51	57	110	24	Max.13	18	47	40	18	58
100	53	61	132	36	Max.11	23	37	23	18	55	Rod B 60 Rod A 58	Rod B 58 Rod A 60	116	22	Max.13	18	48	42	18	Rod B 62 Rod A 70
125	60	73	150	44	Max.11	28	47	28	23	65	65	73	130	29	Max.13	23	59	50	23	70
140	60	81	160	53	Max.13	28	47	28	28	65	60	81	138	26	Max.13	28	54	57	28	65
160	60	86	179	57	Max.13	30	45	30	30	65	60	86	156	25	Max.13	30	57	65	30	65

CJT210C-FA



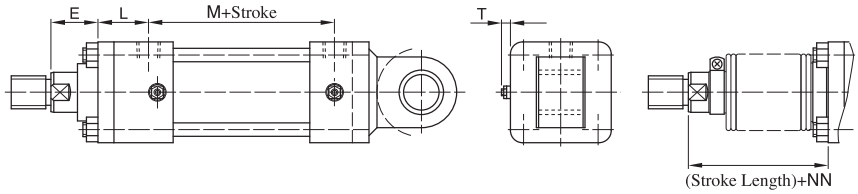
Cylinder Bore	Current						New					
	L	M	T	X	EE		L	M	T	X	EE	
					Rod B	Rod A					Rod B	Rod A
40	42	94	Max.10	162	7	11	42	94	Max.13	160	12	11
50	49	102	Max.10	182	6	8	49	102	Max.13	182	9	8
63	56	109	Max.10	197	6	10	56	106	Max.13	194	6	10
80	63	125	Max.10	224	6	13	63	110	Max.13	209	12	13
100	70	132	Max.11	240	6	10	69	116	Max.13	221	6	12
125	86	150	Max.11	282	6	15	86	130	Max.13	262	6	15
140	90	160	Max.13	300	6	15	90	138	Max.13	278	6	15
160	95	179	Max.13	326	6	15	95	156	Max.13	303	6	15

CJT210C-FB



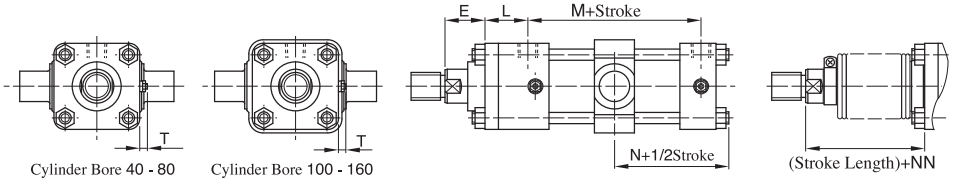
Cylinder Bore	Current						New					
	E	L	M	T	NN		E	L	M	T	NN	
					Rod B	Rod A					Rod B	Rod A
40	32	38	94	Max.10	45	45	34	38	94	Max.13	47	47
50	36	42	102	Max.10	45	55	36	42	102	Max.13	45	55
63	43	47	109	Max.10	55	55	46	47	106	Max.13	58	58
80	48	57	125	Max.10	55	55	63	57	110	Max.13	70	70
100	53	61	132	Max.11	55	65	Rod B 74 Rod A 72	Rod B 58 Rod A 60	116	Max.13	76	84
125	60	73	150	Max.11	65	65	80	73	130	Max.13	85	85
140	60	81	160	Max.13	65	65	82	81	138	Max.13	87	87
160	60	86	179	Max.13	65	65	83	86	156	Max.13	88	88

CJT210C-CA



Cylinder Bore	Current						New					
	E	L	M	T	NN		E	L	M	T	NN	
					Rod B	Rod A					Rod B	Rod A
40	32	38	94	Max.10	45	45	38	38	94	Max.13	51	51
50	36	42	102	Max.10	45	55	42	42	102	Max.13	51	61
63	43	47	109	Max.10	55	55	53	47	106	Max.13	65	65
80	48	57	125	Max.10	55	55	51	57	110	Max.13	58	58
100	53	61	132	Max.11	55	65	Rod B 56 Rod A 54	Rod B 58 Rod A 60	116	Max.13	58	66
125	60	73	150	Max.11	65	65	56	73	130	Max.13	61	61
140	60	81	160	Max.13	65	65	55	81	138	Max.13	60	60
160	60	86	179	Max.13	65	65	52	86	156	Max.13	57	57

CJT210C-TC

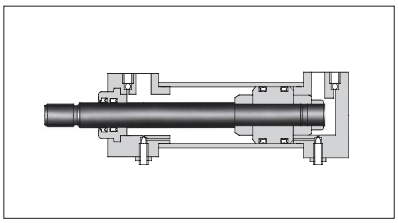


Cylinder Bore	Current						New						
	E	L	M	T	N	NN	E	L	M	T	N		NN
	Rod B					Rod B	Rod B				Rod B	Rod A	Rod B
40	32	38	94	Max.10	73	45	32	38	94	Max.13	71	71	45
50	36	42	102	Max.10	82	45	36	42	102	Max.13	82	82	45
63	43	47	109	Max.10	86.5	55	43	47	106	Max.13	83.5	83.5	55
80	48	57	125	Max.10	98.5	55	41	57	110	Max.13	76.5	83.5	48
100	53	61	132	Max.11	104	55	49	Rod B 58 Rod A 60	116	Max.13	79	85	51
125	60	73	150	Max.11	121	65	53	73	130	Max.13	94	101	58
140	60	81	160	Max.13	130	65	53	81	138	Max.13	101	108	58
160	60	86	179	Max.13	141.5	65	53	86	156	Max.13	111.5	118.5	58

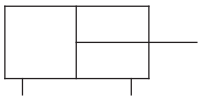
"CJT 21 MPa" Series Hydraulic Cylinders

YUKEN's "CJT 21 MPa" Series Hydraulic Cylinders are higher nominal pressure for use in a wide range of general-purpose industrial machinery.





Graphic Symbol



Specifications

Model Numbers		CJT210–＊＊＊＊＊–＊＊＊＊–＊–30
Cylinder Bore mm		40, 50, 63, 80, 100, 125, 140, 160
Mounting Type		LA, FA, FB, CA, TC★3
Nominal Pressure★1		21 MPa
Maximum Allowable Pressure★1	Cap Side	24.5 MPa
	Rod Side	26.5 MPa
Proof Test Pressure★1		31.5 MPa
Minimum Working Pressure		Rod Side 0.45 MPa Cap Side 0.3 MPa
Operating Maximum Speed		Cylinder Bore 40 - 63 400 mm/s Cylinder Bore 80 - 125 300 mm/s Cylinder Bore 140, 160 200 mm/s
Operating Minimum Speed		8 mm/s
Maximum Stroke★2 mm	Cylinder Bore 40	1600
	Cylinder Bore 50 - 160	2000
Tolerance of Stroke		Refer to the table "Tolerance of Stroke"★4
Tolerance of Thread		JIS B 0211–6g (JIS grade 2 or equivalence)
Ambient Temperature Range		–10 - +80℃
Applicable Standard		Compliant with former JIS B8354

★1. Refer to page J-7 for definition of pressure terms.
★2. May be limited to even lower value in accordance with the buckling strength. Refer to page J-57 for strokes above buckling strength.
★3. Mounting Type SD(basic) is not available. If SD type is required, please select from "CJT 21MPa" series compact type (page J-41)
★4. Tolerance of Stroke

Stroke mm		Tolerance mm
	100 or less	$^{+0.8}_{0}$
More Than	100 to 250	$^{+1.0}_{0}$
More Than	250 to 630	$^{+1.25}_{0}$
More Than	630 to 1000	$^{+1.4}_{0}$
More Than	1000 to 1600	$^{+1.6}_{0}$
More Than	1600 to 2000	$^{+1.8}_{0}$

Intermediate Trunnion (TC Type) Minimum Stroke Fabrication Range

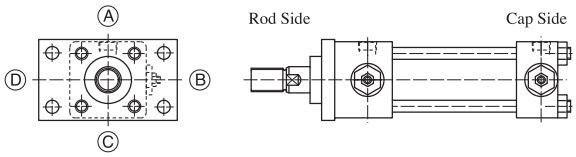
Cylinder Bore mm	Minimum Stroke mm
63	15
80	31
100	39
125	34
140	32
160	54

Model Number Designation

F—	CJT210	—LA	50	B	100	B	—A	B	D	—F	—30
Packing Material	Series Number	Mounting Type	Cylinder Bore mm	Rod Size	Cylinder Stroke mm	Cushion Type	Port Position ★2	Cushion Adj. Valve Position ★2	Air Vent Valve Position ★2	Options ★1	Design Number
None : Nitrile Rubber (Standard) F : Fluoro Rubber 6 : Hydrogenated Nitrile Rubber	CJT210 : 21MPa Series Standard Cylinder	LA, FA, FB, CA, TC	40, 50, 63, 80, 100, 125, 140, 160	B : Rod B (Strong)	Cylinder Stroke	B : With Cushion on Both ends R : With Cushion on the Rod side H : With Cushion on the Cap side N : Without Cushion	(Viewed from Rod End) A : Upper (Standard) B : Right C : Under D : Left	B : Right (Standard) A : Upper C : Under D : Left N : No Cushion adj. valve (Standard)	D : Left (Standard) A : Upper B : Right C : Under	E : With Long Rod End Thread F : With Dust Cover (Material: Nylon Tarpaulin, Heat resistant up to 80°C) G : With Dust Cover (Material: Chloroprene , Heat resistant up to 130°C) H : With Dust Cover (Material: Conex, Heat resistant up to 200°C) K : With Lock Nut (E : Used in combination with long rod end thread) L : With T-End ★4 (Rod End Eye) M : With Y-End ★4 (Rod End Clevis)	30

★1. Using the options in combination is available.
Please specify the option code in the alphabet.
Ex.: EKL

★2. As for each direction of port, cushion adjustable valve and air vent valve, please select from ⒶⒷⒸⒹ viewed from rod end (see the figure on the below).
However, the direction of port, cushion adjusting valve, and air vent valve are subject to the restrictions in the table below.



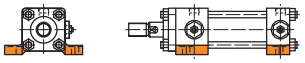
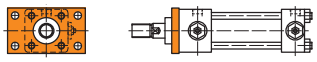
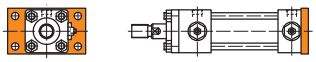
Port Position	Cushion Adjusting Valve Position	Air Vent Valve Position
A, B, C, D	Except port position	Except port position and cushion adjusting valve position

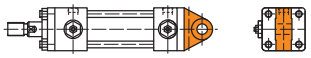
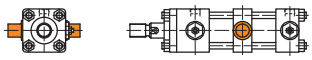
★3. Material of standard packings is Nitrile Rubber.
F: Fluoro rubber, 6: Hydrogenated nitrile rubber are also available.

★4. Rod end attachment are fixed differently with and without lock nuts.
①With Lock Nut
Lock the rod end attachment with a lock nut since a set screw for fixing is not included.
②Without Lock Nut
Locked by set screw for fixing. Rod threads have pointings (drill holes). Please consult us separately for without pointing.

★5. Mounting Type SD is not available for CJT210. If SD type is required, please select from "CJT 21MPa" series compact type.

Mounting Type

Code	Name	Illustration of Mounting Type
LA	Foot Mounting Side Lugs	
FA	Rod Rectangular Flange	
FB	Cap Rectangular Flange	

Code	Name	Illustration of Mounting Type
CA	Cap Detachable Eye	
TC	Intermediate Trunnion	

Syllabus Table

Rod Size Code	Cylinder Bore mm	Rod Size mm	Push/ Pull	Pressurized Area cm^2	Output kN 1 MPa	7 MPa	14 MPa	21 MPa	Velocity by a unit flow rate 10L/min mm/s	Flow rate by a unit velocity 10mm/s L/min
B	40	22	Push	12.6	1.26	8.79	17.58	26.37	132	0.8
			Pull	8.8	0.88	6.13	12.27	18.39	189	0.5
	50	28	Push	19.6	1.96	13.74	27.48	41.20	85	1.2
			Pull	13.5	1.35	9.43	18.86	28.28	123	0.8
	63	36	Push	31.2	3.12	21.81	43.62	65.41	53	1.9
			Pull	21.0	2.10	14.69	29.38	44.05	79	1.3
	80	45	Push	50.3	5.03	35.17	70.34	105.50	33	3.0
			Pull	34.3	3.43	24.04	48.08	72.11	49	2.1
	100	56	Push	78.5	7.85	54.95	109.90	164.85	21	4.7
			Pull	53.9	5.39	37.72	75.44	113.14	31	3.2
	125	70	Push	122.7	12.27	85.86	171.72	257.46	14	7.4
			Pull	84.2	8.42	58.93	117.87	176.79	20	5.1
	140	80	Push	153.9	15.39	107.70	215.40	322.98	10.8	9.2
			Pull	103.6	10.36	72.53	145.07	217.56	16	6.2
	160	90	Push	201.0	20.10	140.67	281.34	421.89	8.3	12.1
			Pull	137.4	13.74	96.16	192.33	288.33	12	8.2

Mass Table

Approx. Mass may be obtained from the formula below.

Mass=Ⓐ+[Ⓑ×Stroke(mm)/100]+Ⓒ+Ⓓ

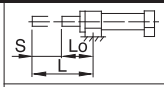
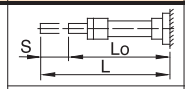
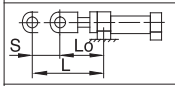
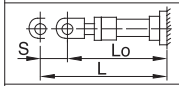
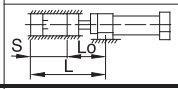
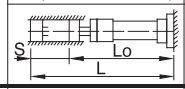
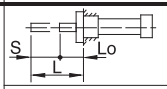
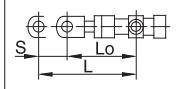
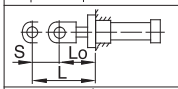
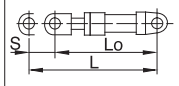
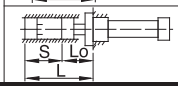
Cylinder Bore mm	ⒶBasic Mass	ⒷAdditional Mass By A Unit Stroke 100mm	ⒸBasic Mass(Each Mounting) LA	FA	FB	CA	CB	TA	TC	ⒹAdditional Mass T-End (Rod End Eye) L	Y-End (Rod End Clevis) M	Lock Nut K
40	4.13	1.05	0.80	0.59	1.00	0.56	0.77	0.32	0.74	1.0	1.2	0.03
50	7.04	1.57	1.24	1.04	1.78	0.93	1.28	0.34	1.04	1.4	2.2	0.05
63	10.46	2.40	2.51	1.91	3.15	1.45	2.18	0.70	1.71	2.2	3.7	0.11
80	17.35	3.63	3.99	3.16	5.35	4.17	5.04	1.34	2.99	4.2	7.7	0.24
100	26.04	5.39	5.40	6.12	9.97	7.95	9.51	3.76	6.79	8.0	14.6	0.52
125	47.40	8.38	9.84	12.99	19.59	15.46	18.57	5.42	13.25	20.8	31.7	1.10
140	67.60	10.87	7.85	11.30	21.95	21.30	25.02	8.03	18.75	24.4	38.4	1.44
160	95.44	14.10	11.29	15.42	31.28	31.43	37.60	18.86	24.28	38.9	57.0	1.93

Maximum stroke limited by buckling strength

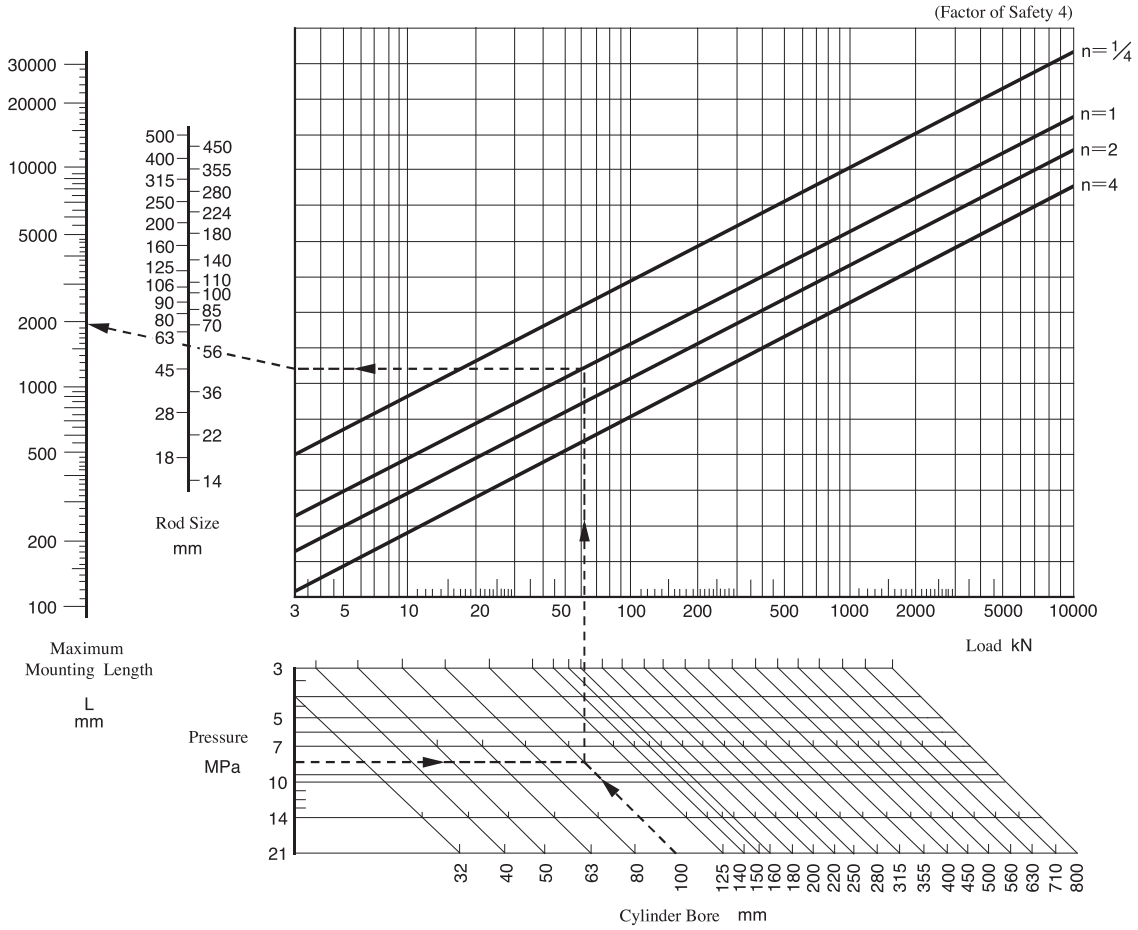
Calculation of Maximum Stroke

1. Calculate rod end coefficient n from the table on the right.
2. Calculate the maximum installation length L by applying various values such as cylinder bore, rod size, pressure, and rod end coefficient to the figure below.
3. Refer to the external dimensions and calculate the mounting length Lo when retracted.
   Use the formula S=L–Lo and calculate the maximum stroke S.
   (Example) Cylinder bore 100 mm, rod size 56 mm, mounting type TC (intermediate trunnion type) standard cylinder operated at 8 MPa pressure. Calculate the maximum stroke. The rod end attachment dimension when calculating the installation length Lo shall be 180 mm.

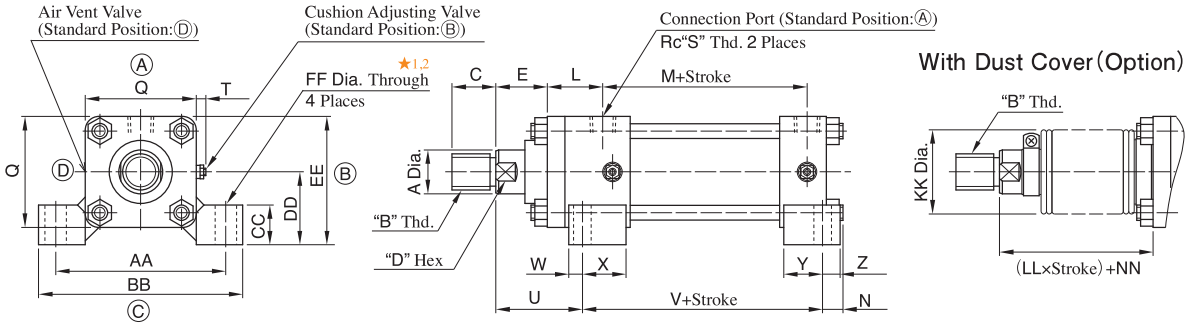
   From the table on the right n=1
   From the figure below L≒1980
   From Dimensional Drawing (J-60) and Rod End Attachment (J-61)
   $Lo=(181+180)+\frac{S}{2}$
   therefore $S=L-Lo=1980-[(181+180)+\frac{S}{2}]$
   hence S≒1080 mm

Mounting Type	Type	Rod End Coefficient n	Mounting Type	Type	Rod End Coefficient n
LA		1/4	FB		1/4
		2			2
		4			4
FA		1/4	TC		1
		2	CA		
		4			

S=L–Lo
S : Stroke mm
L : Mounting Length at extension mm
Lo : Mounting Length at contraction mm
Note: For Lo dimensions, refer to dimensional drawing and add the dimensions of rod end attachment.



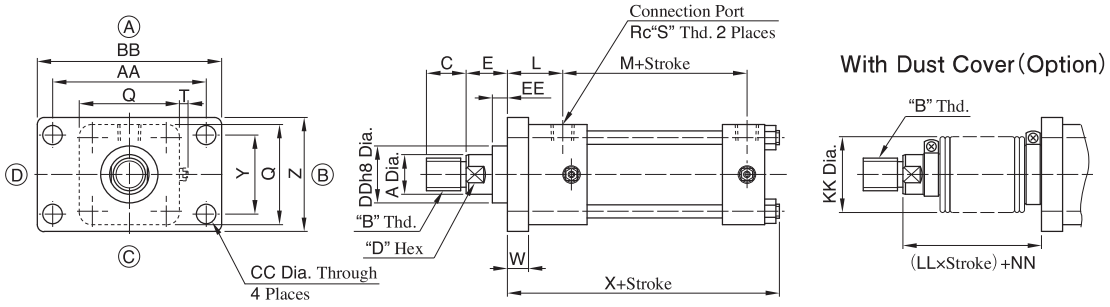
LA : Foot Mounting Side Lugs



★1. The socket head cap screw shall be used as a mounting bolt.
★2. As for cylinder bore size 40-100, in case the port direction is Ⓑ or Ⓓ, pipe fittings may interference with cylinder mounting bolts. Refer to instructions on page J-4 for details.
★3. Long rod end thread type : the dimension "C" is the value marked in parentheses.

Cylinder Bore	A	B	C★3	D	E	L	M	N	Q	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	KK	LL		NN
																									Nylon Tarpaulin, Chloroprene	Conex	
40	22	M20×1.5	25 (45)	19	36	38	94	22	65	3/8	Max.13	59	111	12	38	25	11	98	122	19	42±0.15	74.5	11	50	1/3.5	1/2.5	53
50	28	M24×1.5	30 (50)	24	36	42	102	28	80	1/2	Max.13	63	120	14	36	30	15	118	145	24	55±0.15	95	14	63			56
63	36	M30×1.5	35 (60)	30	38	47	106	20	94	1/2	Max.13	71	132	18	41	39	18	140	175	35	63±0.15	110	18	71	1/4	1/3	64
80	45	M39×1.5	45 (80)	41	44	57	110	15	114	3/4	Max.13	80	152	18	49	49	18	175	210	41	75±0.25	132	22	80			64
100	56	M48×1.5	55 (95)	50	46	58	116	5	135	3/4	Max.13	89	162	23	43	59	23	215	260	40	85±0.25	152.5	26	100			66
125	70	M64×2	75 (125)	65	54	73	130	15	165	1	Max.13	106	182	28	54	64	28	270	330	47	105±0.25	187.5	33	125	1/5	1/3.5	78
140	80	M72×2	80 (140)	75	54	81	138	22	192	1	Max.13	114	187	28	54	61	28	280	335	45	112±0.25	208	33	125			74
160	90	M80×2	90 (155)	85	59	86	156	14	218	1	Max.13	127	212	31	56	76	31	315	375	50	125±0.25	234	36	140		1/4	74

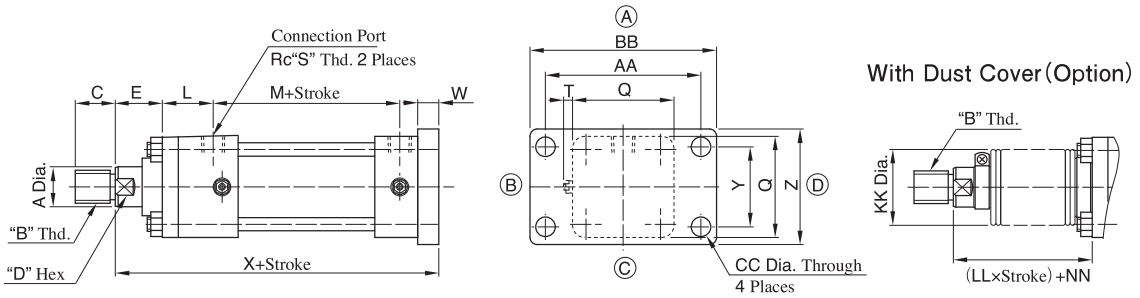
FA : Rod Rectangular Flange



★ Long rod end thread type : the dimension "C" is the value marked in parentheses.

Cylinder Bore	A	B	C★	D	E	L	M	Q	S	T	W	X	Y	Z	AA	BB	CC	DD	EE	KK	LL		NN
																					Nylon Tarpaulin, Chloroprene	Conex	
40	22	M20×1.5	25 (45)	19	28	43	94	65	3/8	Max.13	16	161	50	73	98	122	11	40	11	50	1/3.5	1/2.5	45
50	28	M24×1.5	30 (50)	24	25	49	102	80	1/2	Max.13	20	182	60	88	118	145	14	46	9	63			45
63	36	M30×1.5	35 (60)	30	29	56	106	94	1/2	Max.13	24	194	73	106	140	175	18	55	6	71	1/4	1/3	55
80	45	M39×1.5	45 (80)	41	35	66	110	114	3/4	Max.13	27	212	90	130	175	210	22	65	9	80			55
100	56	M48×1.5	55 (95)	50	35	69	116	135	3/4	Max.13	31	221	115	165	215	260	26	80	6	100			55
125	70	M64×2	75 (125)	65	41	88	130	165	1	Max.13	39	264	145	205	270	330	33	95	4	125	1/5	1/3.5	65
140	80	M72×2	80 (140)	75	45	90	138	192	1	Max.13	41	278	160	218	280	335	33	105	6	125			65
160	90	M80×2	90 (155)	85	50	95	156	218	1	Max.13	46	303	180	243	315	375	36	120	6	140		1/4	65

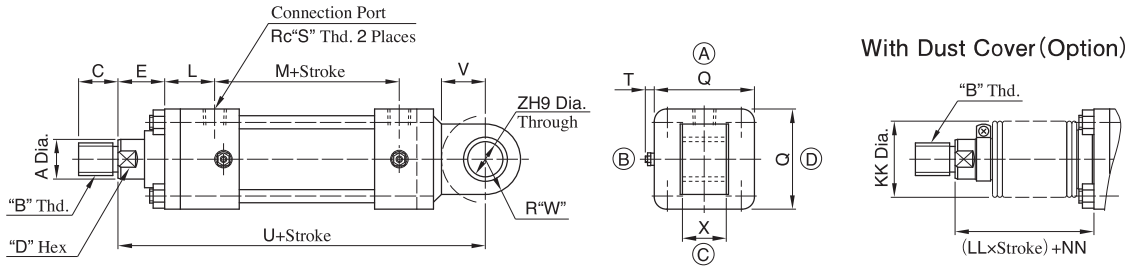
FB : Cap Rectangular Flange



★ Long rod end thread type : the dimension "C" is the value marked in parentheses.

Cylinder Bore	A	B	C★	D	E	L	M	Q	S	T	W	X	Y	Z	AA	BB	CC	KK	LL		NN
																			Nylon Tarpaulin, Chloroprene	Conex	
40	22	M20×1.5	25 (45)	19	40	38	94	65	3/8	Max.13	16	201	50	73	98	122	11	50	1/3.5	1/2.5	57
50	28	M24×1.5	30 (50)	24	40	42	102	80	1/2	Max.13	20	222	60	88	118	145	14	63			60
63	36	M30×1.5	35 (60)	30	51	47	106	94	1/2	Max.13	24	246	73	106	140	175	18	71	1/4	1/3	77
80	45	M39×1.5	45 (80)	41	63	57	110	114	3/4	Max.13	27	277	90	130	175	210	22	80			83
100	56	M48×1.5	55 (95)	50	78	58	116	135	3/4	Max.13	31	301	115	165	215	260	26	100			98
125	70	M64×2	75 (125)	65	82	73	130	165	1	Max.13	39	349	145	205	270	330	33	125	1/5	1/3.5	106
140	80	M72×2	80 (140)	75	81	81	138	192	1	Max.13	41	366	160	218	280	335	33	125			101
160	90	M80×2	90 (155)	85	92	86	156	218	1	Max.13	46	405	180	243	315	375	36	140		1/4	107

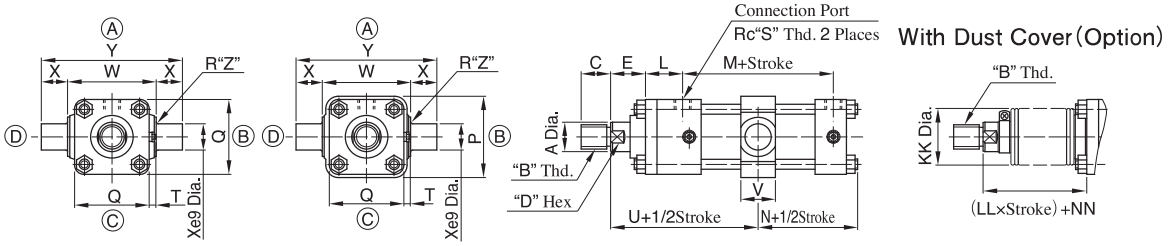
CA : Cap Detachable Eye



★ Long rod end thread type : the dimension "C" is the value marked in parentheses.

Cylinder Bore	A	B	C★	D	E	L	M	Q	S	T	U	V	W	X	Z	KK	LL		NN
																	Nylon Tarpaulin, Chloroprene	Conex	
40	22	M20×1.5	25 (45)	19	45	38	94	65	3/8	Max.13	221	25	25	$32^{-0.1}_{-0.4}$	20	50	1/3.5	1/2.5	62
50	28	M24×1.5	30 (50)	24	47	42	102	80	1/2	Max.13	247	32	30	$36^{-0.1}_{-0.4}$	25	63			67
63	36	M30×1.5	35 (60)	30	59	47	106	94	1/2	Max.13	277	40	35	$40^{-0.1}_{-0.4}$	31.5	71	1/4	1/3	85
80	45	M39×1.5	45 (80)	41	58	57	110	114	3/4	Max.13	323	50	40	$50^{-0.1}_{-0.4}$	40	80			78
100	56	M48×1.5	55 (95)	50	61	58	116	135	3/4	Max.13	350	63	50	$63^{-0.1}_{-0.4}$	50	100			81
125	70	M64×2	75 (125)	65	67	73	130	165	1	Max.13	417	79	63	$80^{-0.1}_{-0.6}$	63	125	1/5	1/3.5	91
140	80	M72×2	80 (140)	75	57	81	138	192	1	Max.13	440	89	71	$80^{-0.1}_{-0.6}$	71	125			77
160	90	M80×2	90 (155)	85	66	86	156	218	1	Max.13	484	100	80	$100^{-0.1}_{-0.6}$	80	140		1/4	81

TC : Intermediate Trunnion



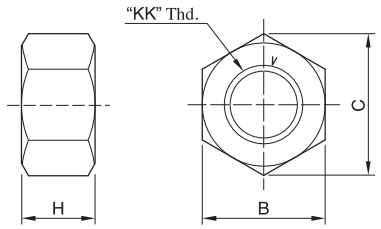
Cylinder Bore 40 - 80 Cylinder Bore 100 - 160

★ Long rod end thread type : the dimension "C" is the value marked in parentheses.

Cylinder Bore	A	B	C★	D	E	L	M	N	P	Q	S	T	U	V	W	X	Y	Z	KK	LL		NN
																				Nylon Tarpaulin, Chloroprene	Conex	
40	22	M20×1.5	25 (45)	19	30	38	94	64	—	65	3/8	Max.13	122	33	$73_{-0.3}^{0}$	25	123	2.5	50	1/3.5	1/2.5	47
50	28	M24×1.5	30 (50)	24	33	42	102	77	—	80	1/2	Max.13	131	33	$88_{-0.35}^{0}$	25	138	2.5	63			53
63	36	M30×1.5	35 (60)	30	36	47	106	73	—	94	1/2	Max.13	148	43	$106_{-0.35}^{0}$	31.5	169	2.5	71	1/4	1/3	62
80	45	M39×1.5	45 (80)	41	41	57	110	75	—	114	3/4	Max.13	169	53	$128_{-0.4}^{0}$	40	208	3	80			61
100	56	M48×1.5	55 (95)	50	47	58	116	76	146	135	3/4	Max.13	181	63	$170_{-0.4}^{0}$	50	270	3	100			67
125	70	M64×2	75 (125)	65	60	73	130	101	185	165	1	Max.13	208	78	$205_{-0.46}^{0}$	63	331	4	125	1/5	1/3.5	84
140	80	M72×2	80 (140)	75	60	81	138	111	210	192	1	Max.13	218	88	$225_{-0.46}^{0}$	71	367	4	125			80
160	90	M80×2	90 (155)	85	60	86	156	112	230	218	1	Max.13	242	98	$255_{-0.52}^{0}$	80	415	4	140		1/4	75

Options

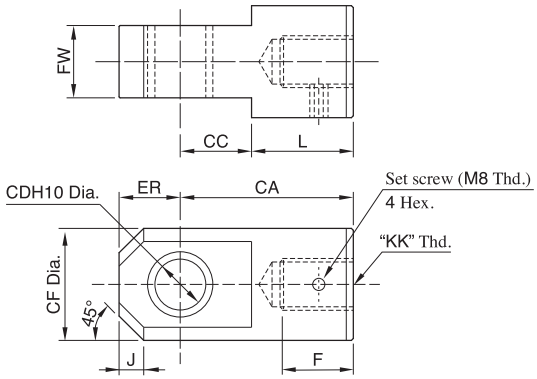
Lock Nut : Option Code "K"



KK	H	B	C
M20×1.5	12	27	31.2
M24×1.5	14	32	37.0
M30×1.5	17	41	47.3
M39×1.5	20	55	63.5
M48×1.5	26	70	80.8
M64×2	35	90	104
M72×2	38	100	115
M80×2	43	110	127

Rod End Attachment

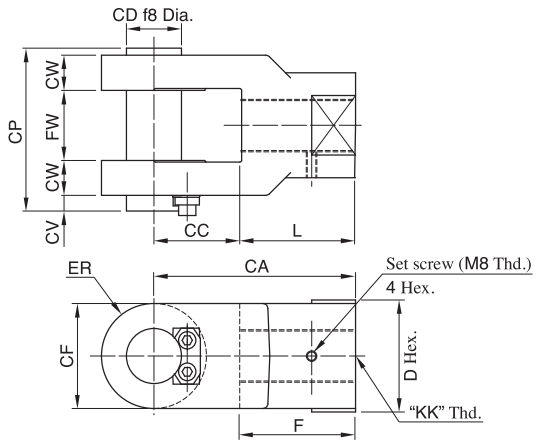
T-End (Rod End Eye) : Option Code "L"



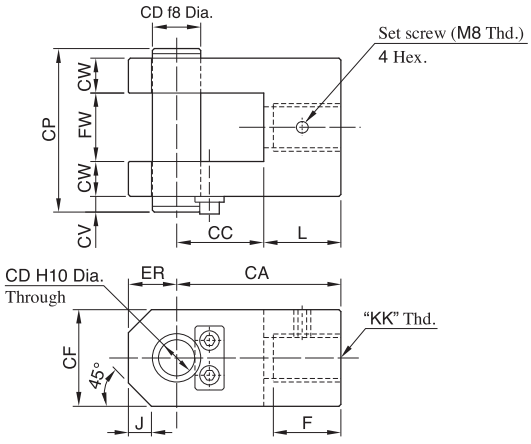
Cylinder Bore	KK	F	CA	CC	CD	CF	ER	FW	J	L
40	M20×1.5	32	70	28	20	49	25	$31.5^{-0.1}_{-0.4}$	10	42
50	M24×1.5	35	85	35	25	55	30	$35.5^{-0.1}_{-0.4}$	12	50
63	M30×1.5	47	115	43	31.5	62	35	$40^{-0.1}_{-0.4}$	15	72
80	M39×1.5	62	145	55	40	79	40	$50^{-0.1}_{-0.4}$	20	90
100	M48×1.5	77	180	65	50	100	50	$63^{-0.1}_{-0.4}$	30	115
125	M64×2	82	225	85	63	130	65	$80^{-0.1}_{-0.6}$	40	140
140	M72×2	97	240	90	71	140	70	$80^{-0.1}_{-0.6}$	45	150
160	M80×2	112	280	100	80	160	80	$100^{-0.1}_{-0.6}$	50	180

Y-End (Rod End Clevis) : Option Code "M"

Cylinder Bore 40, 63, 80



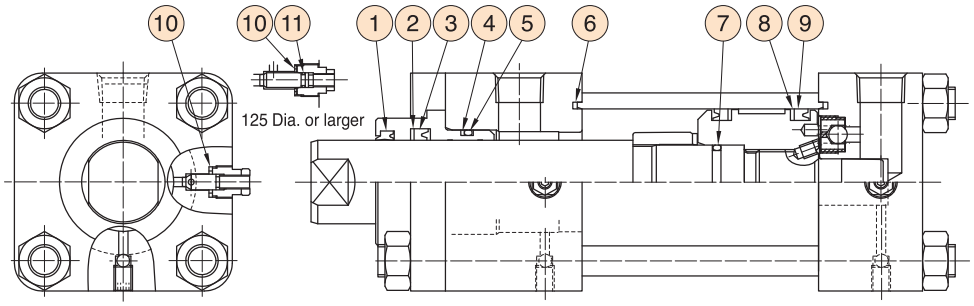
Cylinder Bore 50, 100 - 160



Cylinder Bore	KK	F	CA	CC	CD	CF	ER	FW	CW	CV	CP	D	J	L
40	M20×1.5	38	70	32	20	40	R20	$31.5^{+0.4}_{+0.1}$	16	8	76.5	41	–	38
50	M24×1.5	35	85	45	25	50	25	$35.5^{+0.4}_{+0.1}$	18	8	84.5	–	12	40
63	M30×1.5	65	115	50	31.5	60	R30	$40^{+0.4}_{+0.1}$	20	8	93	60	–	65
80	M39×1.5	85	145	60	40	80	R40	$50^{+0.4}_{+0.1}$	25	12	117	80	–	85
100	M48×1.5	77	180	70	50	100	50	$63^{+0.4}_{+0.1}$	31.5	12	143	–	30	110
125	M64×2	82	225	90	63	120	65	$80^{+0.6}_{+0.1}$	40	18	183	–	30	135
140	M72×2	97	240	100	71	140	70	$80^{+0.6}_{+0.1}$	40	18	183	–	40	140
160	M80×2	112	280	110	80	160	80	$100^{+0.6}_{+0.1}$	40	24	210	–	40	170

List of Seals

CJT 210



Cylinder Bore	Model Numbers for Seal Kit ★1	Dust Seal ①	Backup Ring for Rod Packing ②	Rod Packing ③	Backup Ring for Bush ④	O-Ring for Bush ★2 ⑤
40	KS-CJT210-40B-30	LBH-22	22×30×1	IUH-22A	BUR-G25	G25
50	KS-CJT210-50B-30	LBH-28	28×35.5×1	IUH-28	BUR-G31 ★3	G30
63	KS-CJT210-63B-30	LBH-36	36×46×1.5	IUH-36	BUR-G40	G40
80	KS-CJT210-80B-30	LBH-45	45×56×1.5	IUH-45A	BUR-G55	G55
100	KS-CJT210-100B-30	LBH-56	56×66×1.5	IUH-56	BUR-G65	G65
125	KS-CJT210-125B-30	LBH-70	70×80×1.5	IUH-70	BUR-G80	G80
140	KS-CJT210-140B-30	LBH-80	80×90×1.5	IUH-80	BUR-G90	G90
160	KS-CJT210-160B-30	LBH-90	90×105×2	IUH-90	BUR-G100	G100

Cylinder Bore	Model Numbers for Seal Kit ★1	Cover Seal ⑥	O-Ring for Piston ★2 ⑦	Backup Ring for Piston Packing ⑧	Piston Packing ⑨	Cushion Valve Seal ⑩	O-Ring for Cushion ★2 ⑪
40	KS-CJT210-40B-30	TT-40	P16	40×30×1.5	OUHR-40	CX-12H	—
50	KS-CJT210-50B-30	TT-50	P21	50×40×1.5	OUHR-50	CX-12H	—
63	KS-CJT210-63B-30	TT-63	G25	63×53×1.5	OUHR-63	CX-12H	—
80	KS-CJT210-80B-30	TT-80	G35	80×71×2	OUHR-80A	CX-14H	—
100	KS-CJT210-100B-30	TT-100	G45	100×85×3	OUHR-100	CX-14H	—
125	KS-CJT210-125B-30	TT-125	G55	125×112×3	OUHR-125	CR-18H	S7
140	KS-CJT210-140B-30	TT-140	G65	140×125×3	OUHR-140	CR-18H	S7
160	KS-CJT210-160B-30	TT-160	G75	160×145×3	OUHR-160	CR-18H	S7

Item	Q'ty
①	1
②	1
③	1
④	1
⑤	1
⑥	2
⑦	1
⑧	2
⑨	2
⑩	2
⑪	2

★1. Please specify the seal kit numbers above when ordering the seals.
★2. O-rings are the following standards.

Model Numbers	Standard
⑤O-Ring for Bush	OR NBR-70-1 P(G)**-N
⑦O-Ring for Piston	OR NBR-90 P(G)**-N
⑪O-Ring for Cushion	Special Standard

★3. Backup rings are made to our standard
★4. Material of standard packings is Nitrile Rubber. For Fluorocarbon Rubber and Hydrogenated Nitrile Rubber materials, specify the following code after "KS-".
Fluoro rubber: F-, Hydrogenated nitrile rubber: 6-
Note : The packing code changes without notice.

Tie Rod Tightening

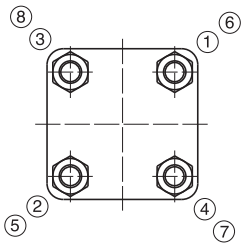
When tightening tie rods, do not tighten only one tie rod tightly at a time, but gradually tighten the tie rods in the order of the numbers shown in the figure on the right. Note that one-sided tightening of tie rods may cause operation failure or chattering.

Mounting Type (SD·LA·FA·FB·CA)

Bore mm	40	50	63	80	100	125	140	160
Tightening Torque Nm	41	70	120	170	280	500	880	1100

Mounting Type (TC)

Bore mm	Rod Size	40	50	63	80	100	125	140	160
Tightening Torque Nm	A	41	70	120	200	330	600	1050	1300
	B	41	70	120	170	280	500	880	1100



Installation between Current and New Design

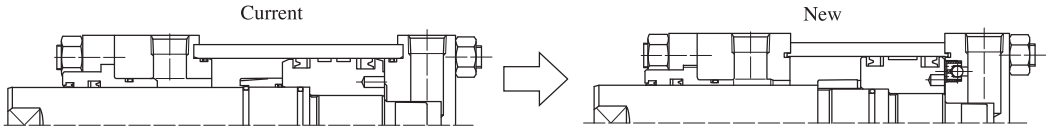
"CJT 21 MPa" Series Hydraulic Cylinders undergone the following model changes.

Major Changes

①Overall length shortened

②Structural Change

- The cushion structure has been changed for more stable cushioning performance.
- The conventional structure with a check valve on the outer surface of the cover has been eliminated, and a cushion ring that doubles as a check valve has been adopted on the rod side.
  A check valve directly connected to the bottom hole of the port is used on the cap side.
- An air vent valve is installed separately from the check valve to prevent the check valve from being exposed to the outside surface.
- All cushion adjusting valves have been commonized.
- Basically, internal parts of current and new products are not interchangeable.



Design Number

Series Number	Change Design
CJT210	20 Design to 30 Design

Mounting Type

Mounting type "SD" has been eliminated in the 30 design.
If mounting type "SD" is required, please select from "CJT 21MPa" series compact type.

Interchangeability in Installation

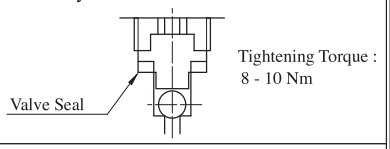
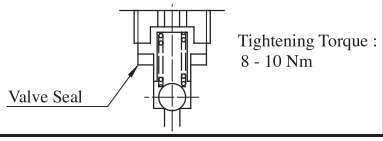
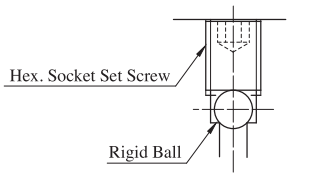
The distance between ports and the total length have been changed, but there is no change in the basic installation.

Series Number	Change of port-to-port distance.
CJT210	Pages J-65 to J-67, dimemsion M.

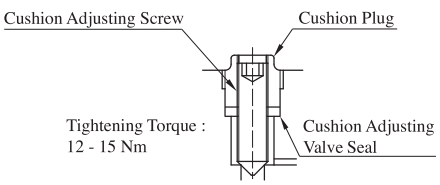
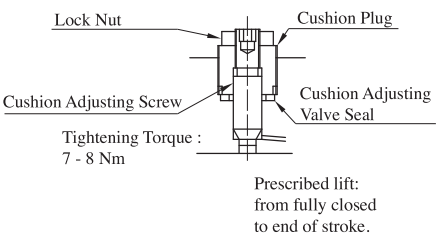
★Please consult us separately for dimensions in "CA" and "TC" Series.

Air Vent Valve

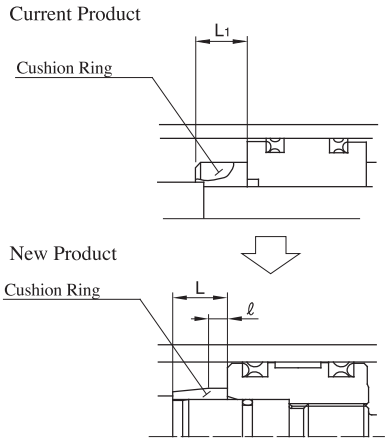
The shape has been changed and unified.

Current	New
Cylinder Bore 40 – 80  Cylinder Bore 100 – 160  	 Tightening Torque：3 - 5 Nm

Cushion Adjusting Valve

Current	New
 Prescribed lift: from fully closed to 3 turns.	 Prescribed lift: from fully closed to end of stroke.

Cushion



Cushion Length

Cylinder Bore mm	Current	New	
	Cushion Ring Length L1 mm	Cushion Ring Length L mm	Cushion Ring Parallel Part Length ℓ mm
40	20	26	10
50	20	28	10
63	20	28	10
80	25	30	12
100	25	30	12
125	25	33	15
140	25	33	15
160	25	33	15

Note : The cushioning effect will weaken if the cushion ring is not used at the end of the stroke and is stopped more than 5mm before the end of the stroke.

Specifications

The new and current are identical except for the following.

Cylinder Bore mm	Maximum Stroke	
	Current mm	New mm
40	1500	1600

Model Number Designation

The notes have been changed along with the design numbers. Refer to page J-55 for the changed notes.

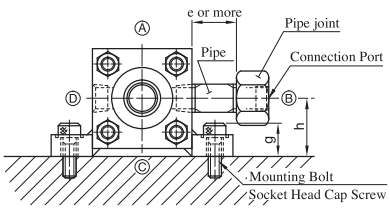
Mass Table

Mass has been changed in general. Refer to page J-56 for changed mass.

List of Seals

Seals have been added, changed and deleted. Refer to page J-62 for changes.

Foot Mounting Side Lugs (LA Type) Piping Precautions



Cylinder Bore	e		g		h	
	Current	New	Current	New	Current	New
40	26	28.5	25	29	42	47
50	30	32.5	32	36	55	61
63	38	41	41	51	63	69
80	43	48.5	50	61	75	85
100	50	62.5	59	74	85	95

Tie Rod Tightening

Current

Bore mm	40	50	63	80	100	125	140	160
Tightening Torque Nm	70	120	170	250	460	880	1100	1400

New

Mounting Type (SD・LA・FA・FB・CA)

Bore mm	40	50	63	80	100	125	140	160
Tightening Torque Nm	41	70	120	170	280	500	880	1100

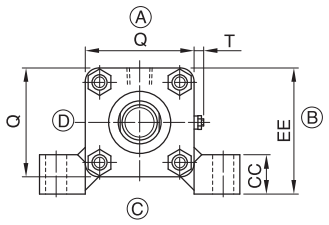
Mounting Type (TC)

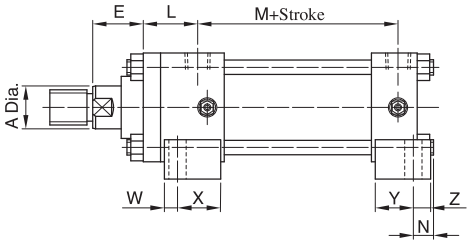
Bore mm	Rod Size	40	50	63	80	100	125	140	160
Tightening Torque Nm	A	41	70	120	200	330	600	1050	1300
	B	41	70	120	170	280	500	880	1100

Dimensions

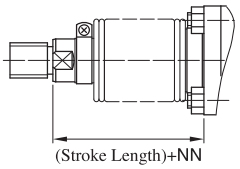
The new and current are identical except for the following dimension.

CJT210-LA



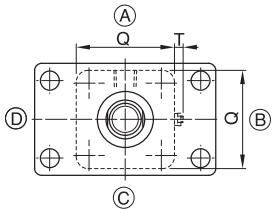


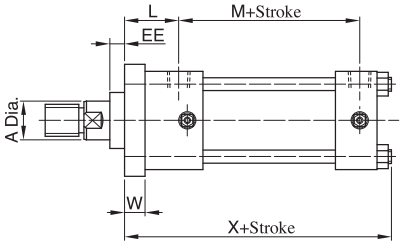
With Dust Cover (Option)



Cylinder Bore	Current														New												
	A	E	L	M	N	Q	T	W	X	Y	Z	CC	EE	NN	A	E	L	M	N	Q	T	W	X	Y	Z	CC	EE	NN
40	22.4	30	43	98	29	70	Max.6	16	31	16	16	15	77	47	22	36	38	94	22	65	Max.13	12	38	25	11	19	74.5	53
50	28	30	48	106	33	85	Max.6	18	34	18	19	20	97.5	50	28	36	42	102	28	80	Max.13	14	36	30	15	24	95	56
63	35.5	35	56	113	35	100	Max.6	18	39	18	19	25	113	61	36	38	47	106	20	94	Max.13	18	41	39	18	35	110	64
80	45	35	69	129	39	125	Max.6	21	46	21	21	30	137.5	55	45	44	57	110	15	114	Max.13	18	49	49	18	41	132	64
100	56	40	71	139	40	160	Max.6	23	44	23	24	35	165	60	56	46	58	116	5	135	Max.13	23	43	59	23	40	152.5	66
125	71	45	83	159	49	190	Max.6	28	49	28	29	45	200	69	70	54	73	130	15	165	Max.13	28	54	64	28	47	187.5	78
140	80	50	86	164	51	215	Max.6	28	49	28	29	45	219.5	70	80	54	81	138	22	192	Max.13	28	54	61	28	45	208	74
160	90	55	94	186	49	240	Max.6	31	49	31	31	50	245	70	90	59	86	156	14	218	Max.13	31	56	76	31	50	234	74

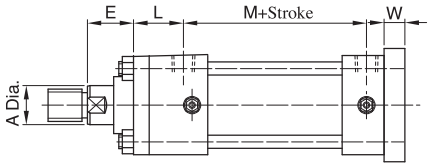
CJT210-FA

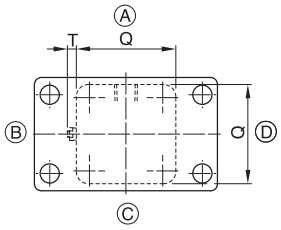




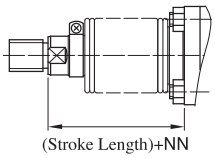
Cylinder Bore	Current								New							
	A	L	M	Q	T	W	X	EE	A	L	M	Q	T	W	X	EE
40	22.4	45	98	70	Max.6	15	171	9	22	43	94	65	Max.13	16	161	11
50	28	53	106	85	Max.6	20	191	9	28	49	102	80	Max.13	20	182	9
63	35.5	62	113	100	Max.6	24	209	9	36	56	106	94	Max.13	24	194	6
80	45	69	129	125	Max.6	24	236	9	45	66	110	114	Max.13	27	212	9
100	56	76	139	160	Max.6	31	256	9	56	69	116	135	Max.13	31	221	6
125	71	87	159	190	Max.6	37	296	9	70	88	130	165	Max.13	39	264	4
140	80	91	164	215	Max.6	41	307	9	80	90	138	192	Max.13	41	278	6
160	90	99	186	240	Max.6	46	338	9	90	95	156	218	Max.13	46	303	6

CJT210-FB



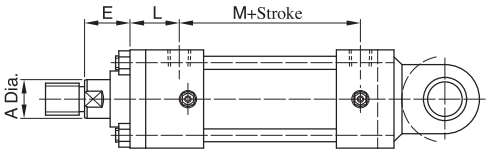


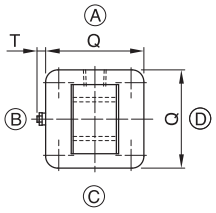
With Dust Cover (Option)



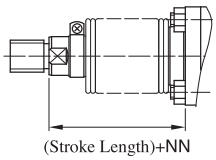
Cylinder Bore	Current								New							
	A	E	L	M	Q	T	W	NN	A	E	L	M	Q	T	W	NN
40	22.4	30	43	98	70	Max. 6	15	47	22	40	38	94	65	Max. 13	16	57
50	28	30	48	106	85	Max. 6	20	50	28	40	42	102	80	Max. 13	20	60
63	35.5	35	56	113	100	Max. 6	24	61	36	51	47	106	94	Max. 13	24	77
80	45	35	69	129	125	Max. 6	24	55	45	63	57	110	114	Max. 13	27	83
100	56	40	71	139	160	Max. 6	31	60	56	78	58	116	135	Max. 13	31	98
125	71	45	83	159	190	Max. 6	37	69	70	82	73	130	165	Max. 13	39	106
140	80	50	86	164	215	Max. 6	41	70	80	81	81	138	192	Max. 13	41	101
160	90	55	94	186	240	Max. 6	46	70	90	92	86	156	218	Max. 13	46	107

CJT210-CA



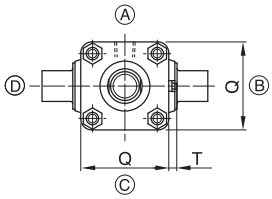


With Dust Cover (Option)

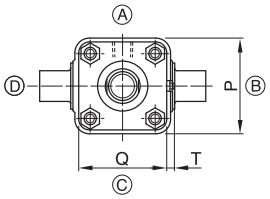


Cylinder Bore	Current							New						
	A	E	L	M	Q	T	NN	A	E	L	M	Q	T	NN
40	22.4	30	43	98	70	Max. 6	47	22	45	38	94	65	Max. 13	62
50	28	30	48	106	85	Max. 6	50	28	47	42	102	80	Max. 13	67
63	35.5	35	56	113	100	Max. 6	61	36	59	47	106	94	Max. 13	85
80	45	35	69	129	125	Max. 6	55	45	58	57	110	114	Max. 13	78
100	56	40	71	139	160	Max. 6	60	56	61	58	116	135	Max. 13	81
125	71	45	83	159	190	Max. 6	69	70	67	73	130	165	Max. 13	91
140	80	50	86	164	215	Max. 6	70	80	57	81	138	192	Max. 13	77
160	90	55	94	186	240	Max. 6	70	90	66	86	156	218	Max. 13	81

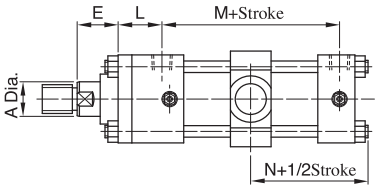
CJT210-TC

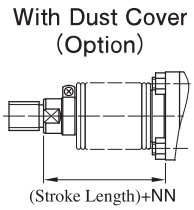


Cylinder Bore 40 - 80



Cylinder Bore 100 - 160





Cylinder Bore	Current									New								
	A	E	L	M	N	P	Q	T	NN	A	E	L	M	N	P	Q	T	NN
40	22.4	30	43	98	77	—	70	Max. 6	47	22	30	38	94	64	—	65	Max. 13	47
50	28	30	48	106	85	—	85	Max. 6	50	28	33	42	102	77	—	80	Max. 13	53
63	35.5	35	56	113	90	—	100	Max. 6	61	36	36	47	106	73	—	94	Max. 13	62
80	45	35	69	129	102	—	125	Max. 6	55	45	41	57	110	75	—	114	Max. 13	61
100	56	40	71	139	110	—	160	Max. 6	60	56	47	58	116	76	146	135	Max. 13	67
125	71	45	83	159	129	—	190	Max. 6	69	70	60	73	130	101	185	165	Max. 13	84
140	80	50	86	164	134	—	215	Max. 6	70	80	60	81	138	111	210	192	Max. 13	80
160	90	55	94	186	146	—	240	Max. 6	70	90	60	86	156	112	230	218	Max. 13	75

Instructions

- Do not use the proximity switch at voltages and currents that exceed its "Specifications" (see page J-71). If the voltage or current is too low, the operation indication light may not light up. Use within the range of "Specifications".

- Electrical Conduit Connection
  - When wiring to the proximity switch, be sure to turn off the power to the electrical circuit on the connection side before proceeding.
  - When wiring switches for DC, pay close attention to the polarity (color of lead wires and plus/minus terminal positions of connectors) and connect them correctly. If the wiring is reversed the operation indication light will not light.
  - When using a cabtyre cord for wiring to the connector type, use a JIS C 3306 VCTF 0.3 to 0.75 ㎟ 2-core, outer diameter 4 to 6 mm or less. For lead wires type, use cabtyre cords of 0.3 to 0.75 ㎟ or less.

- Cylinders with proximity switches use magnetic and electronic components, and should not be used at ambient temperatures above 70°C due to their temperature characteristics. Use hydraulic fluid within both viscosities of 20 to 400 ㎟/s and temperatures of -10 to +60°C.

- The proximity switch may malfunction in locations where there is a strong magnetic field or high current in the surrounding area (e.g., spot welders). In such cases Use an iron plate or other magnetic material to block the magnetism.

- When using multiple cylinders with proximity switches in close proximity, provide a distance of at least 30 mm between the switch and the other cylinders to avoid the influence of the magnet built into the piston.

- Avoid use the proximity switch in locations where the cylinder body is buried in iron or magnetic chips, as this may cause the proximity switch to malfunction.

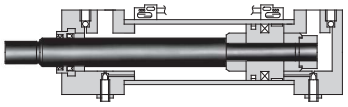
- Since a magnet is used in the cylinder piston section, it may be affected by iron powder in the hydraulic system. We recommend installing a micro-separator (Model No. MGB-260, etc.) in the hydraulic tank to remove such iron powder.

For other instructions, refer to "instructions" pages J-4 to J-7.

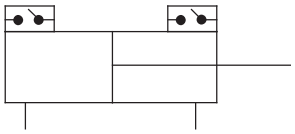
"CJT" Series Hydraulic Cylinders with Proximity Switch

- The detection position of the cylinder can be set arbitrarily and easily by adjusting the position of the slide type proximity switch on the cylinder body.
- The position sensing device attached to the machine body is no longer necessary, which reduces the man-hours required for design and assembly and also makes the equipment more compact.
- Proximity switches are available in lead wire and plug-in connector types, which can be selected according to the application. The lead wire type is available in 1.5 m (standard) and 5 m lead lengths.





Graphic Symbol



Specifications

Descriptions				CJT35L	CJT70L	CJT140L	CJT210CL
Cylinder Bore mm				32, 40, 50 63, 80, 100	32, 40, 50 63, 80, 100 125	32, 40, 50 63, 80, 100 125	40, 50, 63 80
Nominal Pressure ★ MPa				3.5	7	14	21
Maximum Allowable Pressure ★ MPa	Cap Side			4.5	9	18	26.5
	Rod Side	Rod Size	A		15	18	26.5
			B		13.5	18	24.5
			C		11	14	–
Operating Maximum Speed mm/s				300 or less			
Ambient Temperature Range				–10 - +70°C			
Applicable Standard				Compliant with former JIS B8354			

★ Refer to page J-7 for definitions of pressure terms.

Note. The basic specifications of cylinders with proximity switch are the same as those of 3.5, 7,14 MPa series standard cylinder and 21 MPa series compact type cylinder. Please refer to page J-8 (C J T35), J-19 (CJT70/140) and J-41 (CJT210C).
Refer to the table below for the minimum stroke to which the proximity switch can be attached.

Minimum stroke to which the proximity switch can be attached

Series Number	Cylinder Bore mm	Except TC		TC Trunnion Position:Standard	
		Number Of Switches			
		1	2 ★1.2	1	2 ★2
CJT35L	32	25		55	105
	40				
	50				
	63	20			
	80				
	100			60	110
CJT70L CJT140L	32	20	30	50	110
	40				115
	50				
	63			60	125
	80				130
	100			65	135
	125			70	150
CJT210CL	40	20		50	130
	50	15	20		
	63	20		60	150
	80			70	170

★1. When two proximity switches other than the TC type are mounted, the switch mounting surface is different.
★2. For two or more switches, please consult us.

Model Number Designation

F−	CJT140L	−LA	80	B	100	B	−A	B	D	−E	−20
Packing Material	Series Number	Mounting Type	Cylinder Bore mm	Rod Size	Cylinder Stroke mm	Cushion Type	★2 Port Position	★2 Cushion Adj. Valve Position	★2 Air Vent Valve Position	Options ★1	Design Number
None : Nitrile Rubber (Standard) F : Fluoro Rubber 6 : ★5 Hydrogenated Nitrile Rubber	CJT35L : 3.5 MPa Series Standard Cylinder with Proximity Switch	SD,LA LB,FA FB,CA CB,TA TC	32, 40 50, 63 80,100	S : Rod S (Special)	Cylinder Stroke	B : ★4 With Cushion on Both ends R : ★4 With Cushion on the Rod side H : With Cushion on the Cap side N : Without Cushion	(Viewed from Rod End) A : Upper (Standard) B : Right C : Under D : Left	B : Right (Standard) A : Upper C : Under D : Left N : No Cushion valve (Standard)	Two positions except for cushion and port	F : With Dust Cover (Material: Nylon Tarpaulin, Heat resistant up to 80°C) G : With Dust Cover (Material: Chloroprene, Heat resistant up to 130°C) H : With Dust Cover (Material: Conex, Heat resistant up to 200°C) K : With Lock Nut L : With T-End (Rod End Eye) M : With Y-End (Rod End Clevis) X＊＊ / Y＊＊ } Code of proximity switch ★3	30
	CJT70L : 7 MPa Series Standard Cylinder with Proximity Switch	SD,LA LB,FA FB,FC FD,FE FF,FY CA,CB TA,TC	32, 40 50, 63 80,100 125	A : Rod A (Super Strong) B : Rod B (Strong) C : Rod C (Standard)					D : Left (Standard) A : Upper B : Right C : Under	Please consult us separately for options for Rod A. E : With Long Rod End Thread F : With Dust Cover (Material: Nylon Tarpaulin, Heat resistant up to 80°C) G : With Dust Cover (Material: Chloroprene, Heat resistant up to 130°C) H : With Dust Cover (Material: Silicon Glass, Heat resistant up to 250°C) K : K:With Lock Nut (E : Used in combination with long rod end thread) L : With T-End (Rod End Eye) M : With Y-End (Rod End Clevis) N : Double Rod X＊＊ / Y＊＊ } Code and number of proximity switch ★3	20
	CJT140L : 14 MPa Series Standard Cylinder with Proximity Switch	SD,LA LB,FC FD,FE FF,FY CA,CB TA,TC	32, 40 50, 63 80,100 125								
	CJT210CL : 21 MPa Series Compact Type Cylinder with Proximity Switch	SD,LA FA,FB CA,TC	40, 50 63, 80	A : Rod A B : Rod B					Two positions except for cushion and port	E : With Long Rod End Thread F : With Dust Cover (Material: Nylon Tarpaulin, Heat resistant up to 80°C) G : With Dust Cover (Material: Chloroprene, Heat resistant up to 130°C) H : With Dust Cover (Material: Conex, Heat resistant up to 200°C) K : With Lock Nut (E : Used in combination with long rod end thread) L : With T-End (Rod End Eye) M : With Y-End (Rod End Clevis) X＊＊ / Y＊＊ } Code and number of proximity switch ★3	20

★1. Using the options in combination is available.
Please specify the option code in the alphabet.
ex. EGKLX52
However, in case of the double type, the options E,F,G,H and K are attached to the both ends. The options L and M are attached at one end only.

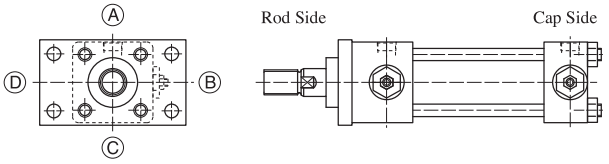
★3. Please refer to the next page for the code and quantity of proximity switches to be ordered. All switches are CE compliant.

★4. Cushion type "B" and "R" are not available for CJT70L and CJT140L rod A series with cylinder bore 40, 50, and 63.

★5. 6 : Hydrogenated Nitrile Rubber is not available for CJT70L/140L.

★2. As for each direction of port & cushion adj. valve, air vent valve, please select from ⒶⒷⒸⒹ viewed from rod end(see the figure on the below).
For standard directions, please see the Model Number Designation.

Note : <CJT35L, CJT210CL>
The direction of port, cushion adj. valve, and air vent valve are not available to be the same direction.
In addition, the direction of air vent valve is two sides except for the port and cushion adj. valve.
<CJT70/140L>
The direction of port and cushion valve are not available to be the same direction.However, port and air vent valve, and cushion adj. valve and air vent valve can be the same direction.



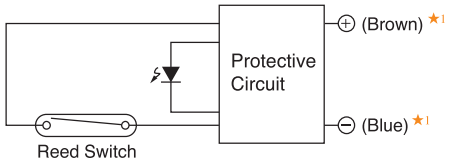
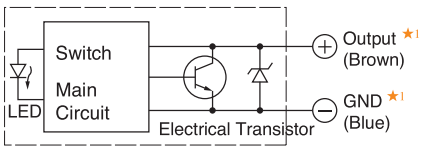
Proximity Switch Code and Number

X1 2
- Number of Switches
  - 1 : 1 Pc.
  - 2 : 2 Pcs.
  - 3 : 3 Pcs.
- Code of Switch (Refer to table on the right)

Code	Switch Type	Detalis	
X1	AX111CE	Contact Switch	Lead Wire 1.5m
X5	AX115CE		Lead Wire 5m
XA	AX11ACE		Plug-in Connector(AC)
XB	AX11BCE		Plug-in Connector(DC)
Y1	AX201CE	Contactless Switch	Lead Wire 1.5m
Y5	AX205CE		Lead Wire 5m

* Please refer to "Switch Specifications" below to determine the proximity switch format.

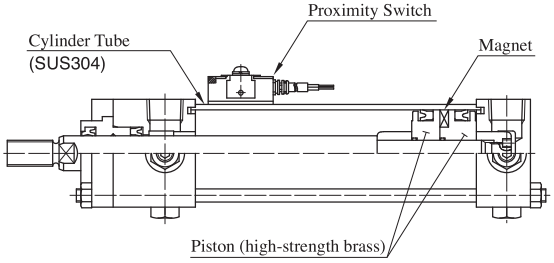
Switch Specifications

		Contact Switch				Contactless Switch	
Type	Lead Wire 1.5m	AX111CE	—	—	—	AX201CE	—
	Lead Wire 5m	—	AX115CE	—	—	—	AX205CE
	Plug-in Connector (AC)	—	—	AX11ACE★3	—	—	—
	Plug-in Connector (DC)	—	—	—	AX11BCE★3	—	—
Load Voltage Range		5 to 120 V AC	5 to 30 V DC	5 to 120 V AC	5 to 30 V DC	5 to 30V DC	
Load Current Range		5 to 20 mA AC	5 to 40 mA DC	5 to 20 mA AC	5 to 40 mA DC	5 to 40mA DC	
Maximum Switching Capacity		2 VA : AC 1.5 W : DC		2 VA	1.5 W	—	
Voltage Drop		TYP；2V (at 10mA) 3V以下				4 V or less	
Current Leakage		10μ A or less				0.1 mA or less	
Operating Time		1 ms or less				10 ms or less	
Repeatability		1 ms or less				10 ms or less	
Insulation Resistance		100 MΩ or more (between case and cord) at 500 V DC mega					
Voltage Proof		1500 V AC for 1 minute (between case and cord)					
Shock Proof		294 m/s^2 (Non-Repetitive)				490 m/s^2 (Non-Repetitive)	
Vibration Proof		±0.75mm amplitude, 10 to 55Hz (1 sweep, 1 minute) 2 hours in each direction X, Y, Z				±0.3mm amplitude, 10 to 200Hz (Log sweep, 1 hour) X, Y, Z directions	
Ambient Temperature		−10 - +70℃ (No freezing)					
Wiring Method		0.3 mm² 2-core, outer diameter 4 mm oil-resistant cabtyre cord					
Protective Structure		IP67 (IEC standard), JIS C 0920 (dust and immersion proof)					
Contact Protection Circuit		Available					
Indicator Light		Light Emitting Diode(Red color lighting when switch is "ON".)					
Allowable Length of Wire★2		10 m : AC 100 m : DC				10 m	
Electrical Circuit							
Compatible Load		Compact Relay Programmable Controller					

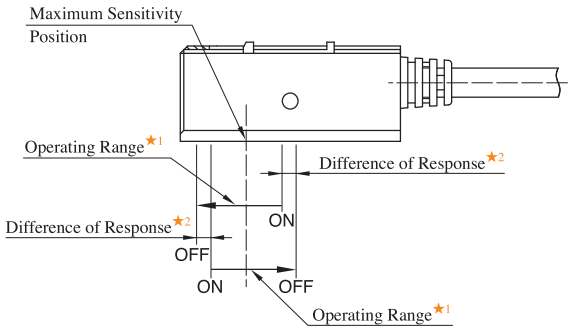
★1. In the case of DC power supply, pay attention to the polarity (color of the lead wires or position of the plus/minus terminals of the connector) and make sure that the wiring is correct.
★2. If the wiring length exceeds the allowable wiring length, please consult us.
★3. The connector used for the type with connector is NECA (Nippon Electric Control Equipment Industries Association standard) 4202 connector for FA sensors (M12 × 1).
★4. When using an inductive load (relay, etc.) without a contact protection circuit, be sure to attach a protection circuit to the load.

Structure and Operation

When the cylinder piston moves and is positioned below the proximity switch, the magnetic field generated by the magnet built into the piston activates the switch to detect the cylinder stroke position.



Operating Characteristics of Proximity Switch



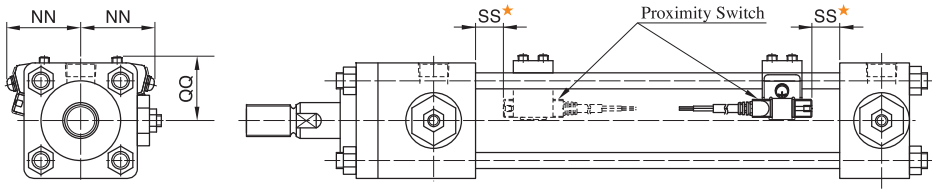
★1. Operating Range
The distance traveled by the piston in one direction from the time the switch turns ON to the time it turns OFF.

★2. Difference of Response
The distance traveled by the piston in one direction from the position where the switch turns ON to the position where the piston travels in the opposite direction to turn OFF. The switch characteristics are unstable in this region.

Series Number	Cylinder Bore mm	Contact Switch		Contactless Switch	
		Operating Range mm	Diff. of Response mm	Operating Range mm	Diff. of Response mm
CJT35L	32	5 - 10	1 or less	3 - 6	1 or less
	40				
	50				
	63	7 - 11		3 - 7	
	80				
	100	8 - 12		4 - 7	
CJT70L CJT140L	32	4 - 14	2 or less	3 - 8	1 or less
	40				
	50				
	63				
	80				
	100	11 - 18		4 - 10	
	125	5 - 15		6 - 13	
CJT210CL	40	4 - 14	2 or less	3 - 8	2 or less
	50				
	63				
	80				

Dimensions

Installation dimensions for cylinders with proximity switch are the same as for the "CJT" series hydraulic cylinders, so please refer to the appropriate page.
The dimensions of the proximity switch and the optimum installation position for stroke end position detection are as follows.

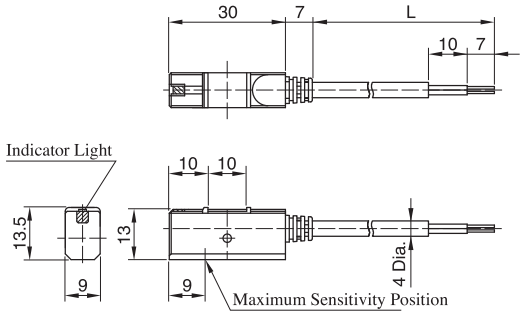


★The SS dimension is the optimum setting position for stroke end detection. The maximum sensitivity position of the switch is SS + 9 mm.

Series Number	Cylinder Bore mm	Piston Rod Size	NN	QQ	SS Contact/Contactless Switch	
					Rod Side	Cap Side
CJT35L	32	S	34	34	5	
	40		36	30	5	
	50		41	35	5	
	63		47	40	6	
	80		54	54	4	
	100		65	60	4	
CJT70L CJT140L	32	A·B·C Common	38	33	14	
	40		41	36	14	
	50		47	45	14	
	63		52	50	26	
	80		62	60	30	
	100		72	73	28	
	125		85	85	30	
CJT210CL	40	A·B Common	40	40	16	14
	50		46	46	17	13
	63		53	53	17	
	80		61	61	18	

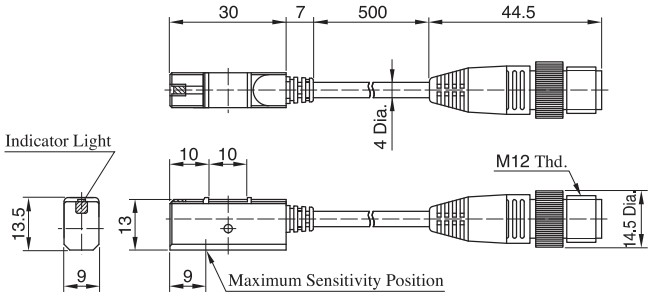
Dimensions of Proximity Switch

Lead Wire Type：AX111CE, AX115CE, AX201CE-1, AX205CE-1



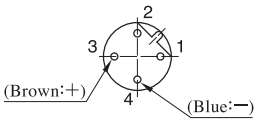
Switch Type	L
AX111CE AX201CE-1	1500
AX115CE AX205CE-1	5000

Plug-in Type：AX11ACE, AX11BCE

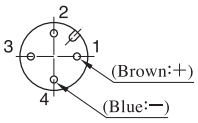


Connector Pin

AX11ACE (AC)



AX11BCE (DC)



Handling Proximity Switch

Method of setting and fixing the detection position

1. The switch can be mounted on any tie rod. Mounting the switch in the most suitable location according to the mounting space and wiring method of the cylinder.
2. Loosen the two set screws securing the bracket on which the switch is mounted with an Allen wrench, and move the switch along the tie rods.
   Refer to the table below for set screw sizes.
3. For position detection at the stroke end, adjust the position referring to the SS dimensions in the outline dimension drawing on the previous page.
   For position detection at the mid-stroke, adjust the position so that the switch indicator light starts to turn on at the desired position.
4. Press down lightly on the top surface of the switch with your finger and tighten the set screw while the cylinder tube is in contact with the detection surface of the switch. Refer to the table below for the proper tightening torque for the set screw.
   Note: If the tightening torque is not appropriate, the switch may be misaligned.

Set Screw Size and Correct Tightening Torque

Series Number	Cylinder Bore	Screw Size	Appropriate Tightening Torque Nm
CJT35L	32 - 80	M5 Thd.	1 - 2
CJT70L	32, 40	M5 Thd.	
CJT140L	50 - 125	M6 Thd.	2 - 3
CJT210CL	40	M5 Thd.	1 - 2
	50 - 80	M6 Thd.	2 - 3

How to Order Proximity Switch

1. When ordering a proximity switch ass'y including bracket, please specify according to the following.

Example：35−X1−40
- 40 — Cylinder Bore
- X1 — Switch Code (Refer to the table "Code and Type")
- 35 — Applicable Series
  - 35：CJT 35L
  - None：CJT 70L/CJT 140L
  - 210C：CJT 210CL

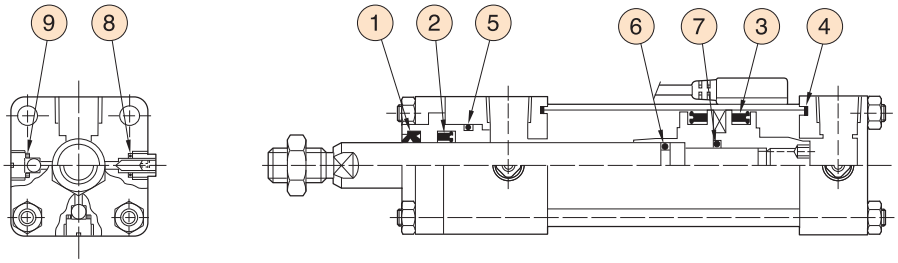
Code and Type

Switch Code	Switch Type	Details	
X1	AX111CE	Contact Type	Lead Wire 1.5 m
X5	AX115CE		Lead Wire 5 m
XA	AX11ACE		Plug-in Connector (AC)
XB	AX11BCE		Plug-in Connector (DC)
Y1	AX201CE	Contactless Type	Lead Wire 1.5 m
Y5	AX205CE		Lead Wire 5 m

2. When ordering a single proximity switch, use the switch code in the table above.
   Ex) Proximity Switch: X1

List of Seals

CJT35L

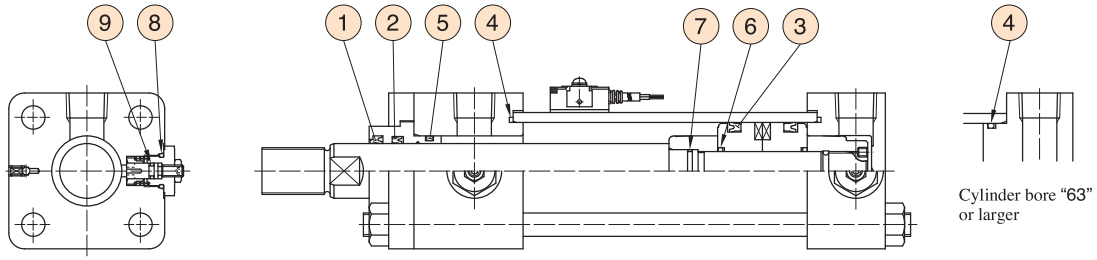


Item / Cylinder Bore	Model Numbers for Seal Kit ★1	① Dust Seal	② Rod Packing	③ Piston Packing	④ Packing for Cover	⑤ O-Ring for Bush ★2	⑥ O-Ring A for Piston ★2	⑦ O-Ring B for Piston	⑧ Cushion Valve Seal	⑨ Check Valve Seal
Name / Q'ty		1	1	2	2	1	1	1	2	4
32	KS-CJT35- 32S-30	DHS-16	UHR-16	RHP-32	TX- 32	G25	S10	P12	TF- 8	CR- 8
40	KS-CJT35- 40S-30	DHS-16	UHR-16	RHP-40	TX- 40	G25	P12	P12	TF- 8	CR- 8
50	KS-CJT35- 50S-30	DHS-22	UHR-22	RHP-50	TX- 50	G35	P18	P18	TF- 8	CR- 8
63	KS-CJT35- 63S-30	DHS-22	UHR-22	RHP-63	TX- 63	G35	P18	P18	TF-12	CR-12
80	KS-CJT35- 80S-30	DHS-28	UHR-28A	RHP-80A	TX- 80	P36	P22A	P24	TF-12	CR-12
100	KS-CJT35-100S-30	DHS-36	UHR-36	RHP-100A	TX-100	P46	G30	G30	TF-14	CR-14

★1. Please specify the seal kit numbers above when ordering the seals.
★2. O-ring is OR NBR-70-1 P(G)＊＊-N. O-ring code "S" for item ⑥ and bore 32 is a special standard.
★3. Material of standard packings is Nitrile Rubber. For Fluorocarbon Rubber and Hydrogenated Nitrile Rubber materials, specify the following code after "KS-".
Fluoro rubber: F-, Hydrogenated nitrile rubber: 6-
Note : The packing code changes without notice.

List of Seals

CJT70L
CJT140L

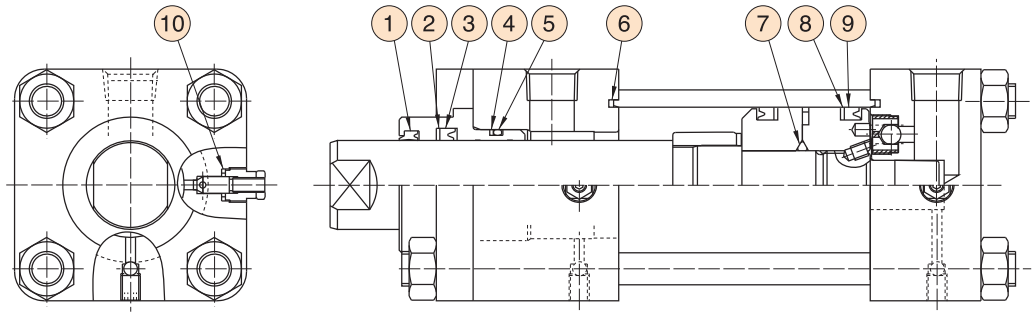


Cylinder Bore	Rod Size	★1 Model Numbers for Seal Kit	Q'ty	① Dust Seal	② Rod Packing	③ Piston Packing	④★3 Packing for Cover	⑤ O-Ring for Bush	⑥ O-Ring for Piston	⑦★4 O-Ring for Cushion Ring	⑧ O-Ring for Plug	⑨ O-Ring for Slide Rod (OR NBR-70-1 P＊＊-N
				1	1	2	2	1	2	1	★5	★5
32	B	KS-CJTL 32B-20		SDR-18	SKY-18	SKY- 24	GR-32	P21	P12	S12	P14	P5
	C	KS-CJTL 32C-20		SDR-14	SKY-14							
40	A	KS-CJTL 40A-20		SDR-28	SKY-28	SKY- 30	GR-40	G30	P16	—	P14	P5
	B	KS-CJTL 40B-20		SDR-22	SKY-22			G25		S16		
	C	KS-CJTL 40C-20		SDR-18	SKY-18							
50	A	KS-CJTL 50A-20		SDR-36	SKY-36	SKY- 40	GR-50	G40	P20	—	P14	P5
	B	KS-CJTL 50B-20		SDR-28	SKY-28			G30		S20		
	C	KS-CJTL 50C-20		SDR-22	SKY-22							
63	A	KS-CJTL 63A-20		SDR-45	SKY-45A	SKY- 53	G 55	G50	G25	—	P14	P5
	B	KS-CJTL 63B-20		SDR-36	SKY-36			G40		G25		
	C	KS-CJTL 63C-20		SDR-28	SKY-28							
80	A	KS-CJTL 80A-20		SDR-56	SKY-56	SKY- 71	G 75	G60	P31	P31	P14	P5
	B	KS-CJTL 80B-20		SDR-45	SKY-45A			G50				
	C	KS-CJTL 80C-20		SDR-36	SKY-36							
100	A	KS-CJTL100A-20		SDR-70	SKY-70	SKY- 85	G 95	G75	G55	G40	P14	P5
	B	KS-CJTL100B-20		SDR-56	SKY-56			G60				
	C	KS-CJTL100C-20		SDR-45	SKY-45A							
125	A	KS-CJTL125A-20		SDR-90	SKY-90	SKY-112A	G120	G95	G80	G50	P18, P14	P7, P5
	B	KS-CJTL125B-20		SDR-70	SKY-70			G75			P18	P7
	C	KS-CJTL125C-20		SDR-56	SKY-56							

★1. Please specify the seal kit numbers above when ordering the seals.
★2. Material of standard packings is Nitrile-Rubber. Please select Fluoro-Rubber packing material if Phosphate Esters oil is used. Please specify "F-" in addition to the model of seal kit after "KS-" .
★3. Packing code "GR" of item No.4 is square O-ring.
★4. O-ring code "S" of item No.7 is special O-ring.
★5. There are 2 O-Rings.
The large O-Rings (1 each) / Cap Side, The small O-Rings (1 each) / Rod Side.
Note : The packing code changes without notice.

List of Seals

CJT210CL



Cylinder Bore	Model Numbers for Seal Kit ★1	Rod B					Rod A				
		Dust Seal ①	Backup Ring for Rod Packing ②	Rod Packing ③	Backup Ring for Bush ④	O-Ring for Bush ⑤ ★2	Dust Seal ①	Backup Ring for Rod Packing ②	Rod Packing ③	Backup Ring for Bush ④	O-Ring for Bush ⑤ ★2
40	KS-CJT210CL-40✱-20	LBH-22	22×30×1	IUH-22A	BUR-G25	G25	LBH-28	28×35.5×1	IUH-28	BUR-G31 ★3	G30
50	KS-CJT210CL-50✱-20	LBH-28	28×35.5×1	IUH-28	BUR-G31 ★3	G30	LBH-36	36×46×1.5	IUH-36	BUR-G40	G40
63	KS-CJT210CL-63✱-20	LBH-36	36×46×1.5	IUH-36	BUR-G40	G40	LBH-45	45×56×1.5	IUH-45A	BUR-G55	G55
80	KS-CJT210CL-80✱-20	LBH-45	45×56×1.5	IUH-45A	BUR-G55	G55	LBH-56	56×66×1.5	IUH-56	BUR-G65	G65

Cylinder Bore	Model Numbers for Seal Kit ★1	Cover Seal ⑥	O-Ring for Piston ⑦ ★2	Backup Ring for Piston Packing ⑧	Piston Packing ⑨	Cushion Valve Seal ⑩
40	KS-CJT210CL-40✱-20	TT-40	S16	40×30×1.5	OUHR-40	CX-12H
50	KS-CJT210CL-50✱-20	TT-50	P22	50×40×1.5	OUHR-50	CX-12H
63	KS-CJT210CL-63✱-20	TT-63	P28	63×53×1.5	OUHR-63	CX-12H
80	KS-CJT210CL-80✱-20	TT-80	P36	80×71×2	OUHR-80A	CX-14H

Item	Q'ty
①	1
②	1
③	1
④	1
⑤	1
⑥	2
⑦	1 ★4
⑧	2
⑨	2
⑩	2

★1. Please indicate rod size A or B in * of the seal kit numbers.

★2. O-rings are the following standards.

Model Numbers	Standard
⑤O-Ring for Bush	OR NBR-70-1 P(G)**-N
⑦O-Ring for Piston Bore 50 - 80	OR NBR-90 P(G)**-N
⑦O-Ring for Piston Bore 40	Special Standard

★3. This is a backup ring of our standard.

★4. Only cylinder bore 40 will be 2 pcs.

★5. Material of standard packings is Nitrile Rubber. For Fluorocarbon Rubber and Hydrogenated Nitrile Rubber materials, specify the following code after "KS-".
Fluoro rubber: F-, Hydrogenated nitrile rubber: 6-
Note : The packing code changes without notice.

Interchangeability in Installation between Current and New Design

"CJT 21 MPa" series compact type hydraulic cylinders with proximity switch has undergone the following model change to make it more compact and lightweight, contributing to space saving.

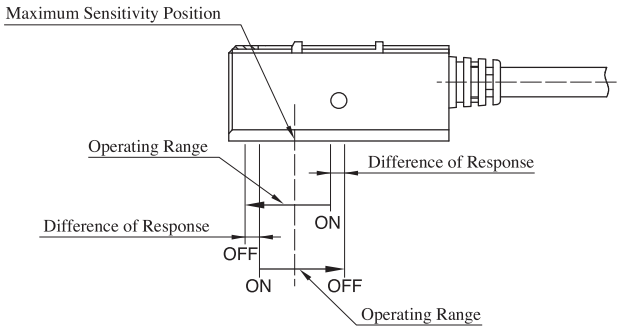
Design Number

Series Number	Change Detail
CJT210CL	10 Design to 20 Design

Proximity Switch

(1) Operating characteristics

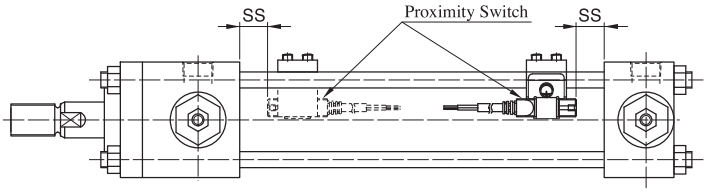
The same regardless of cylinder bore.



Cylinder Bore mm	Current Products				New Products			
	Contact Switch		Contactless Switch		Contact Switch		Contactless Switch	
	Operating Range mm	Diff. of Response mm	Operating Range mm	Diff. of Response mm	Operating Range mm	Diff. of Response mm	Operating Range mm	Diff. of Response mm
40	9	1 or less	4	1 or less	4 - 14	2 or less	3 - 8	2 or less
50	10		5					
63	11		5					
80	12		6					

(2)Dimensions

The stroke end detection setting position is the same regardless of the rod diameter and whether or not a contact switch is used.



Cylinder Bore mm	Piston Rod Size	Current				New	
		Contact Switch SS mm		Contactless Switch SS mm		Contact/Contactless Switch SS mm	
		Rod Side	Cap Side	Rod Side	Cap Side	Rod Side	Cap Side
40	A	21		23		16	14
	B			24	23		
50	A	23		25		17	13
	B						
63	A	26	27	28		17	
	B			29			
80	A	34	32	33		18	
	B	31		34	33		

Other Changes

Same as "CJT 21 MPa" series compact type hydraulic cylinder, refer to page J-50 to J-53.

Major Changes:Interchangeability in installation, air vent valve, cushion adjusting valve, cushion, specifications, mass table, options, list of seals, and dimensions.

Instructions

Instructions

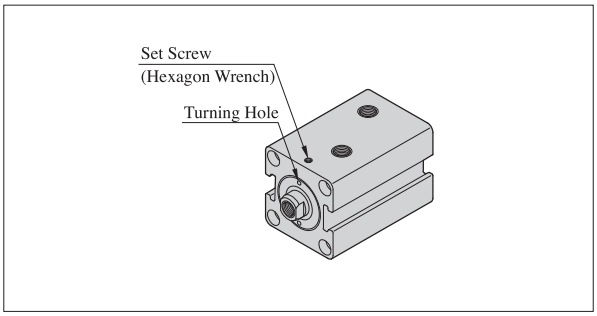
- When using the rod push side output, make sure that the screw is tightened to the rod end face so that no force is applied to the threaded part of the piston rod.
- Since a lateral load (eccentric load) cannot be applied to the piston rod, be careful when adjusting it at the time of mounting.
- When operating the cylinder for the first time, be sure to bleed air from the piping section. After venting, operate the cylinder with the pressure lowered and gradually increase the pressure up to the working pressure.
  Note: The CBY14 series does not have an air vent, so be sure to vent the air from the piping section.
- Use four socket head cap screws (JIS B1176, strength class 10.9 or higher) for mounting the cylinder.
- When mounting bolts are used, screw the bolts into the mounting member at least 80% of their thread diameter. Use a mounting material with a strength equivalent to SS400.
- When tightening mounting bolts with nuts, use steel nuts with a strength class of 6 or higher. (However, do not use a type 3 nut.)
- When fastening the cylinder body with mounting bolts, be sure to tighten them to the tightening torques shown in the table below.

Tightening Torque of Mounting Bolts

Cylinder Bore	Mounting Bolt Size	Tightening Torque Nm
32	M6×1	5.9
40	M8×1.25	14.0
50	M10×1.5	28.0
63	M12×1.75	49.0
80	M14×2	77.0
100	M16×2	120.0

- When tightening the piston rod end screws of double-acting double-rod type, be sure to use the hex. of the rod on the side to be tightened. Since the double-rod type piston rod is fastened with a screw, be careful not to apply a rotating force to the rod at both ends of the piston rod.

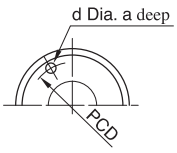
Disassembly and Assembly



- After removing the set screw, remove the bush from the cylinder body using the turning hole in the bush. When removing the jig etc. of the rod end screw, remove any burrs on the rod hex. with a file, etc., and remove the bush afterward.
- The piston rod and piston cannot be disassembled.
- When disassembling the cylinder, replace all seals (packings and gaskets).
- When assembling the cylinder, be careful not to allow dust, iron powder, or other foreign matter to enter the cylinder.
- There is a copper rod under the set screw to protect the bush threads. Remove it before tightening the bush.
- After tightening the bush, insert the copper rod included in the packing set and tighten the set screw.
- When using a cylinder with a switch (CBY14L or CBY14LN), refer to instructions on page J-85.

Replacement of Packing

- Piston packings, rod packings, dust seals, and O-rings for bush can be replaced.
- O-rings for piston rods are not replaceable because they have been designed to prevent loosening of the piston and rod.
- Bush turning hole dimensions



Cylinder Bore	a	d	PCD
32	5	4	32
40	7	4	38
50	8	5	46
63	9	5	58
80	10	8	70
100	12	10	85

"CBY14" Series Compact Type Hydraulic Cylinders

Compared to conventional cylinders, YUKEN's thin cylinder "CBY14 Series" is 1/3 the overall length, making it possible to mounting in places where conventional cylinders cannot be mounted due to lack of space.

●Economical selection is possible

Up to 16 MPa can be used by selecting the operating pressure and the number of times.

●Lightweight and compact design

The cylinder tube and cover are integrated into a single unit, allowing mounting in a small space, thus saving space. Also, it is a lightweight type using a special aluminum alloy for the main body.

●Wide Variety

A wide variety of models are available, including cylinder bore 32 to 100, mounting type, rod shape, and with switches. Select the one that best suits your application.

●Highly durable rod bush and piston

Rod bush and piston are made of a special copper alloy to anti-wear resistance.

●Easy Maintenance

Maintenance is extremely easy, as the packing can be replaced simply by loosening the rod bush without removing the main unit or piping.

Specifications

Descriptions \ Model Numbers	Single Rod Type CBY14*-***N***	Double Rod Type CBY14*N-***N***
Cylinder Bore mm	32, 40, 50, 63, 80, 100	
Mounting Type	SD, LD, FA, FB	SD, LD, FA
Rated Pressure ★1	Cylinder Bore 32, 40, 50 14MPa (fatigue endurance times 2.5×10^6) ★2 12MPa (fatigue endurance times 1.0×10^7) Cylinder Bore 63, 80, 100 14MPa (fatigue endurance times 9.0×10^5) ★2 10MPa (fatigue endurance times 1.0×10^7)	
Pressure Proof	20 MPa	
Minimum Working Pressure	0.3 MPa	
Operating Speed	8 - 100 mm／s	
Standard Stroke mm	Refer to next page "Model Number Designation"	
Tolerance of Stroke mm	0 - 0.8	
Tolerance of Thread	JIS B 0211-6H／6g	
Ambient Temperature Range (Ambient and Oil Temperature)	−10 - +70℃ (No Freezing)	

●Approx. Mass may be obtained from the formula below.
[Mass] = [Basic Mass] + [Additional Mass by a unit stroke 1mm×Stroke (mm)]
The basic mass and the additional mass per 1 mm stroke are shown in the external dimensional drawings, so please obtain them from the external dimensional drawing of the corresponding model numbers.

★1. For the relationship between rated pressure and fatigue endurance times, refer to the "Rated Pressure Diagram".

★2. Please consult us if you require a fatigue endurance times of 1.0×10^7 or higher at 14 MPa.

Double Acting Single Rod Cylinder

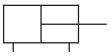
Graphic Symbols



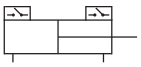
Basic Type CBY14



With Switch CBY14L



Basic Type



With Switch

Double Acting Double Rod Cylinder

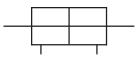
Graphic Symbols



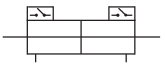
Basic Type CBY14N



With Switch CBY14LN

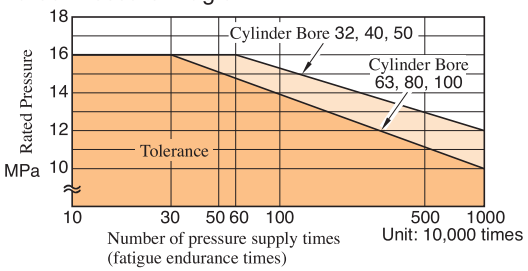


Basic Type



With Switch

Rated Pressure Diagram



How to read a diagram

●The horizontal axis is the number of times the pressure is supplied to the cylinder.

●The pressure that rises vertically and intersects the limit line of each bore is the pressure (rated pressure) that can be used up to that number of supply times. (Probability of breakdown: 1%)

Examination Methods

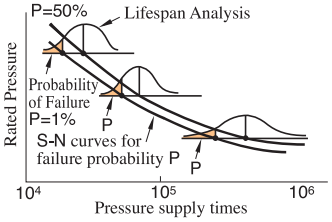
To calculate the rated pressure, a fatigue test is conducted with reference to JFPS 1014: 2002 (Japan Fluid Power Industry Association Standard) "Guidelines for Selection and Use of Hydraulic Cylinders Appendix 2 Strength Test Methods for Hydraulic Cylinders".
Specifically, pressure is repeatedly applied to dozens of supply cylinders, the number of times they break is measured, and statistically processed to obtain the rated pressure.

Determining Rated Pressure Methods

●Fatigue life is determined by substantive fatigue testing as described in the test methods and by statistically processing the data.

●The life distribution is obtained from actual fatigue test data, and the rating diagram is based on the value of 1% probability of fracture in the distribution.

Note: There is no point of 0% in the statistical method.



Model Number Designation

CBY14L	−6	SD	40	N	50	T	G	X1	2	− L
Series Number	Packing Material	Mounting Type	Cylinder Bore (mm)	Cushion Type	Stroke★8 (mm)	Thread★6	Port	Switch Code	Switch Quantity	Lock Nut
CBY14 : 14 MPa Double Acting Single Rod Type	**3** : Fluoro Rubber **6** : Hydrogenated Nitrile Rubber (Standard)	**SD** : Basic Type **LD** : Foot Mounting **FA** : Rod Flange **FB**★1 : Cap Flange	32, 40, 50, 63, 80, 100	**N** : Without Cushion	Cylinder Bore 32 - 80 : 5,10,15,20,25,30, 35,40,45,50,60, 70,80,90,100 Cylinder Bore 100 : 5,10,15,20,25, 30,35,40,45,50	**None** : Internal Thread **T** : External Thread	**None** : Rc Thread **G** : ★2 G Thread	−	−	**None** : None **L** : 1 Lock Nut★4
CBY14L : 14 MPa Double Acting Single Rod Type (with switch)★5								10 codes★3	1, 2	
CBY14N : 14 MPa Double Acting Double Rod Type					5,10,15,20,25, 30,35,40,45,50			−	−	
CBY14LN : 14 MPa Double Acting Double Rod Type (with switch)★5								10 codes★3	1, 2	

★1. Mounting type FB : Cap flange type is not available for double acting double rod cylinder (CBY 14N/CBY14LN).
★2. Port G : G thread is available only for mounting type SD : basic type.
★3. For the switch code, select one of the 10 codes shown in the table below. All switches are CE compliant.
★4. When lock nuts are required on both sides of a double rod cylinder, please arrange one lock nut separately by referring to page J-86.
★5. Switches are not mounted on the cylinder body, but are shipped in the same package as the cylinder body.
★6. Lock nut "-L" is not available for internal thread. If you need a lock nut, please arrange it separately.
In the case of double acting double rod cylinder, both sides are of internal thread or external thread.
★7. Refer to "Specifications of Switch" on the next page to determine the switch type. For switch types other than those shown on the next page, please consult us separately.
★8. For arbitrary stroke, please consult us separately.

Switch Code	Switch Type	Details		Indicator Light
N1	AX101CE	Contact Type	Lead Wire 1.5m	Light Emitting Diode (Red color lighting when switch is "ON".)
N5	AX105CE		Lead Wire 5m	
X1	AX111CE		Lead Wire 1.5m	
X5	AX115CE		Lead Wire 5m	
XA	AX11ACE		Plug-in Connector(AC)	
XB	AX11BCE		Plug-in Connector(DC)	
Y1	AX201CE-1	Contactless Type	Lead Wire 1.5m	
Y5	AX205CE-1		Lead Wire 5m	
M1	AX211CE-1		Lead Wire 1.5m	Light Emitting Diode (2-lighting type Red/Green)
M5	AX215CE-1		Lead Wire 5m	

Specification of Switch(All switches are CE-compliant)

		Contact Switch						Contactless Switch			
Type	Lead Wire 1.5m	AX101CE	—	AX111CE	—	—	—	AX201CE	—	AX211CE	—
	Lead Wire 5m	—	AX105CE	—	AX115CE	—	—	—	AX205CE	—	AX215CE
	Plug-in Connector (AC)★3	—	—	—	—	AX11ACE	—	—	—	—	—
	Plug-in Connector (DC)★3	—	—	—	—	—	AX11BCE	—	—	—	—
Load Voltage Range		5 to 120 V AC 5 to 30 V DC				5 to 120 V AC	5 to 30 V DC	5 to 30 V DC			
Load Current Range		5 to 20 mA AC 5 to 40 mA DC				5 to 20 mA AC	5 to 40 mA DC	5 to 40 mA DC			
Maximum Switching Capacity		2 VA : AC 1.5W : DC				2 VA	1.5 W	–			
Voltage Drop		TYP ; 2 V (at 10 mA) 3 V or less						4 V or less			
Current Leakage		10μA or less						0.1 A or less			
Operating Time		1 ms or less						10 ms or less			
Repeatability		1 ms or less						10 ms or less			
Insulation Resistance		100 MΩ or more (between case and cord) at 500 V DC mega									
Voltage Proof		1500 V AC for 1 minute (between case and cord)									
Shock Proof		294 m／s^2 (Non-Repetitive)						490 m／s^2 (Non-Repetitive)			
Vibration Proof		±0.75mm amplitude, 10 to 55 Hz (1 sweep, 1 minute) 2 hours in each direction X, Y, Z						±0.3mm amplitude, 10 to 200 Hz (Log sweep, 1 hour) X, Y, Z directions			
Ambient Temperature		−10 - +70℃ (No Freezing)									
Wiring Method		0.3 mm^2 2-Core, outer diameter 4 mm oil-resistant cabtyre cord									
Protective Structure		IP67 (IEC standard), JIS C 0920 (dust and immersion proof)									
Contact Protection Circuit		Not available★4			Available						
Indicator Light		Light Emitting Diode (Red color lighting when switch is "ON".)									Light Emitting Diode (2-lighting type Red/ Green)
Allowable Length of Wire★2		10 m : AC 100 m : DC						10 m			
Compatible Load		Compact Relay Programmable Controller									

★1. In the case of DC power supply, pay attention to the polarity (color of the lead wires or position of the plus/minus terminals of the connector) and make sure that the wiring is correct.
★2. If the wiring length exceeds the allowable wiring length, please consult us.
★3. The connector used for the type with connector is NECA (Nippon Electric Control Equipment Industries Association standard) 4202 connector for FA sensors (M12 x 1).
★4. When using an inductive load (relay, etc.) without a contact protection circuit, be sure to attach a protection circuit to the load.

Minimum Stroke for Switch Mounting

Unit : mm

1 switch mounted	2 switch mounted
5	10★1.2

Note: When using two contact switches on one side with 10 strokes, the switches may interfere with each other, so please adjust the switches.
★1. When using a contactless switch with 10 strokes, use two switch mounting slots.
★2. For two or more switches, please consult us separately.

Switch Additional Mass

Unit : kg

Lead Wire 1.5m	Lead Wire 5m	Plug-in Connecter
0.05	0.13	0.04

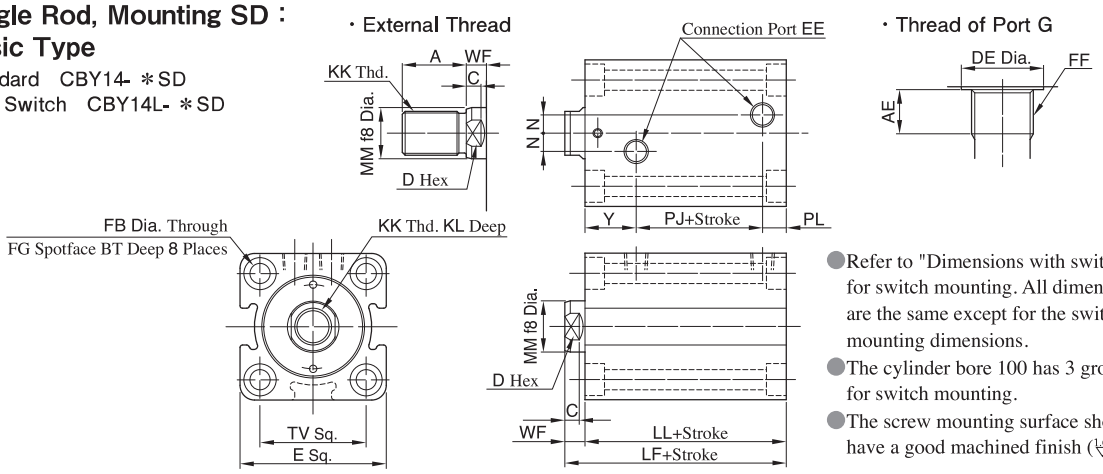
Compatibility of Hydraulic Fluid and Packing Material

Packing Material	Hydraulic Fluid				
	Petroleum Base Oil	Water-Glycols	Phosphate Esters	Water in Oil Emulsion	Oil in Water Emulsion
"3" Fluoro Rubber	○	×	○	○	○
"6" Hydrogenated Nitrile Rubber	○	◎	×	◎	◎

Note 1. The mark ◎ and ○ are allowed, × is not allowed.
2. The mark ◎ is the recommended packing for anti-wear.

Single Rod, Mounting SD : Basic Type

Standard CBY14- ＊SD
With Switch CBY14L- ＊SD



- Refer to "Dimensions with switch" for switch mounting. All dimensions are the same except for the switch mounting dimensions.
- The cylinder bore 100 has 3 grooves for switch mounting.
- The screw mounting surface should have a good machined finish (▽).

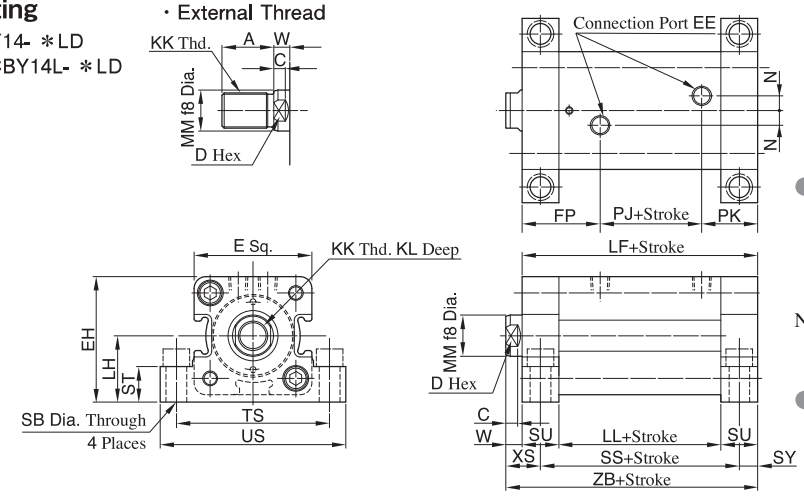
Bore	A	AE	BT	C	D	DE	E	EE	FB	FF	FG	KK		KL	LF	LL	MM	N		PJ		PL		TV	WF	Y		Mass kg		
												Internal Thread	External Thread					Rc Thd.	G Thd.	Rc Thd.	G Thd.	Rc Thd.	G Thd.			Rc Thd	G Thd.	Basic Int. Thd.	Add. Unit St. 1 mm	Add. Ext. Thd.
32	25 (40)	8	6.5	7	14	17.2	62	Rc1/4	6.6	G1/8	11	M12×1.75	M16×1.5	15	64	54	18	10	10	14	14	12	12	47	10	28	28	0.64	0.009	0.05
40	30 (45)	8	8.6	7	19	17.2	70	Rc1/4	9	G1/8	14	M16×2	M20×1.5	20	65	55	22	10	10	16	16	12	12	52	10	27	27	0.85	0.011	0.10
50	35 (50)	12	10.8	8	24	21.5	80	Rc1/4	11	G1/4	17.5	M20×2.5	M24×1.5	24	71	60	28	10	14	19	13.5	13	18.5	58	11	28	28	1.28	0.015	0.18
63	45 (60)	12	13	9	30	21.5	94	Rc1/4	14	G1/4	20	M27×3	M30×1.5	33	80	67	36	10	16	24	20	13	17	69	13	30	30	2.00	0.021	0.40
80	60 (80)	12	15.2	14	41	21.5	114	Rc3/8	16	G1/4	23	M30×3.5	M39×1.5	36	95	78	45	15	19	25	24	18	18	86	17	35	36	3.72	0.031	0.76
100	75 (95)	12	17.5	22	50	25.5	138	Rc3/8	18	G3/8	26	M39×4	M48×1.5	45	122	96	56	15	18	26	26	28	28	106	26	42	42	7.03	0.046	1.50

Note: When using a lock nut, dimension A in parentheses is recommended (to be order-made). In this case, specify by adding a code to the end of the standard model numbers as shown in the example below.

Ex.) CBY14–6SD32N10T–L A00 (T) A–40
Standard Model Numbers
A length : indicated by the dimension in A- parentheses
Rod end special shape: Code A00 (T) is common to all bore diameters

Single Rod, Mounting LD : Foot Mounting

Standard CBY14- ＊LD
With Switch CBY14L- ＊LD



- Refer to "Dimensions with switch" for switch mounting. All dimensions are the same except for the switch mounting dimensions.

Note:Socket head cap screws must be used for mounting bolts.

- The cylinder bore 100 has 3 grooves for switch mounting.

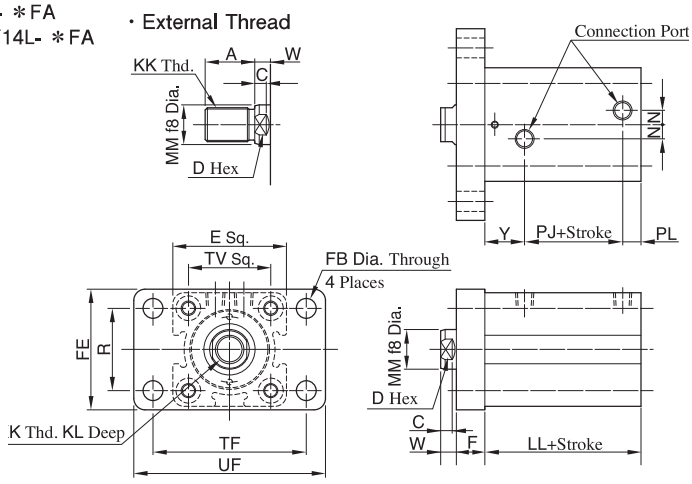
Bore	A	C	D	E	EE	EH	FP	KK		KL	LF	LH	LL	MM	N	PJ	PK	SB	SS	ST	SU	SY	TS	US	W	XS	ZB	Mass kg		
								Internal Thread	External Thread																			Basic Int. Thd.	Add. Unit St. 1 mm	Add. Ext. Thd.
32	25 (40)	7	14	62	Rc1/4	66	48	M12×1.75	M16×1.5	15	94	35±0.15	54	18	10	14	32	9	74	16	20	10	79	94	10	20	104	1.73	0.009	0.05
40	30 (45)	7	19	70	Rc1/4	72.5	47	M16×2	M20×1.5	20	95	37.5±0.15	55	22	10	16	32	11	75	20	20	10	90	108	10	20	105	2.27	0.011	0.10
50	35 (50)	8	24	80	Rc1/4	85	53	M20×2.5	M24×1.5	24	110	45±0.15	60	28	10	19	38	14	85	24	25	12.5	104	126	11	23.5	121	3.71	0.015	0.18
63	45 (60)	9	30	94	Rc1/4	97	55	M27×3	M30×1.5	33	117	50±0.15	67	36	10	24	38	16	92	30	25	12.5	121	146	13	25.5	130	5.30	0.021	0.40
80	60 (80)	14	41	114	Rc3/8	117	65	M30×3.5	M39×1.5	36	138	60±0.25	78	45	15	25	48	18	108	35	30	15	144	172	17	32	155	9.58	0.031	0.76
100	75 (95)	22	50	138	Rc3/8	140	77	M39×4	M48×1.5	45	166	71±0.25	96	56	15	26	63	22	131	43	35	17.5	174	208	26	43.5	192	17.02	0.046	1.50

Note: When using lock nuts, dimension A in parentheses is recommended (to be order-made). In this case, specify by adding a code to the end of the standard model numbers, referring to the "Basic Type" above.

Single Rod, Mounting FA : Rod Flange

Standard CBY14- ＊FA
With Switch CBY14L- ＊FA

・External Thread



- Refer to "Dimensions with switch" for switch mounting. All dimensions are the same except for the switch mounting dimensions.
- The cylinder bore 100 has 3 grooves for switch mounting.

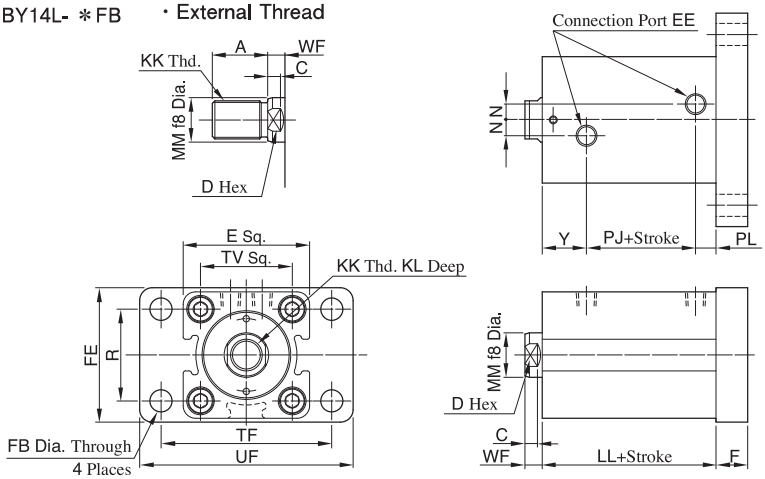
Bore	A	C	D	E	EE	F	FB	FE	KK		KL	LL	MM	N	PJ	PL	R	TF	TV	UF	W	Y	Mass kg		
									Internal Thread	External Thread													Basic Int. Thd.	Add. Unit St. 1 mm	Add. Ext. Thd.
32	25 (40)	7	14	62	Rc1/4	15	6.6	62	M12×1.75	M16×1.5	15	54	18	10	14	12	40	80	47	95	10	28	1.26	0.009	0.05
40	30 (45)	7	19	70	Rc1/4	20	11	70	M16×2	M20×1.5	20	55	22	10	16	12	46	96	52	118	10	27	2.01	0.011	0.10
50	35 (50)	8	24	80	Rc1/4	20	14	85	M20×2.5	M24×1.5	24	60	28	10	19	13	58	108	58	135	11	28	2.88	0.015	0.18
63	45 (60)	9	30	94	Rc1/4	20	14	98	M27×3	M30×1.5	33	67	36	10	24	13	65	124	69	150	13	30	4.02	0.021	0.40
80	60 (80)	14	41	114	Rc3/8	25	18	118	M30×3.5	M39×1.5	36	78	45	15	25	18	87	154	86	185	17	35	7.49	0.031	0.76
100	75 (95)	22	50	138	Rc3/8	30	22	150	M39×4	M48×1.5	45	96	56	15	26	28	109	190	106	230	26	42	14.26	0.046	1.50

Note: When using lock nuts, dimension A in parentheses is recommended (to be order-made). In this case, specify by adding a code to the end of the standard model numbers, referring to the "Basic Type" of the previous page.

Single Rod, Mounting FB : Cap Flange

Standard CBY14- ＊FB
With Switch CBY14L- ＊FB

・External Thread



- Refer to "Dimensions with switch" for switch mounting. All dimensions are the same except for the switch mounting dimensions.
- The cylinder bore 100 has 3 grooves for switch mounting.

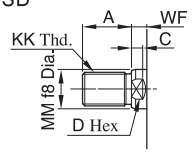
Bore	A	C	D	E	EE	F	FB	FE	KK		KL	LL	MM	N	PJ	PL	R	TF	TV	UF	WF	Y	Mass kg		
									Internal Thread	External Thread													Basic Int. Thd.	Add. Unit St. 1 mm	Add. Ext. Thd.
32	25 (40)	7	14	62	Rc1/4	15	6.6	62	M12×1.75	M16×1.5	15	54	18	10	14	12	40	80	47	95	10	28	1.26	0.009	0.05
40	30 (45)	7	19	70	Rc1/4	20	11	70	M16×2	M20×1.5	20	55	22	10	16	12	46	96	52	118	10	27	2.01	0.011	0.10
50	35 (50)	8	24	80	Rc1/4	20	14	85	M20×2.5	M24×1.5	24	60	28	10	19	13	58	108	58	135	11	28	2.88	0.015	0.18
63	45 (60)	9	30	94	Rc1/4	20	14	98	M27×3	M30×1.5	33	67	36	10	24	13	65	124	69	150	13	30	4.02	0.021	0.40
80	60 (80)	14	41	114	Rc3/8	25	18	118	M30×3.5	M39×1.5	36	78	45	15	25	18	87	154	86	185	17	35	7.49	0.031	0.76
100	75 (95)	22	50	138	Rc3/8	30	22	150	M39×4	M48×1.5	45	96	56	15	26	28	109	190	106	230	26	42	14.26	0.046	1.50

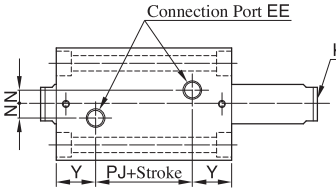
Note: When using lock nuts, dimension A in parentheses is recommended (to be order-made). In this case, specify by adding a code to the end of the standard model numbers, referring to the "Basic Type" of the previous page.

Double Rod, Mounting SD : Basic Type

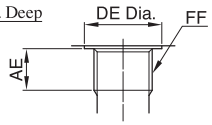
Standard CBY14N- ＊SD
With Switch CBY14LN- ＊SD

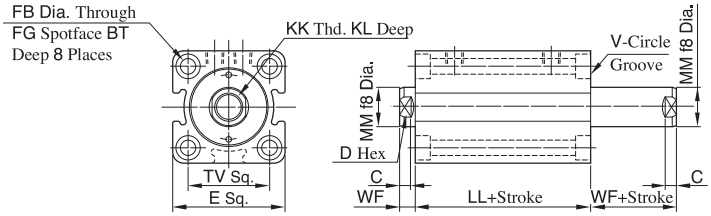
・External Thread





・Thread of Port G





- The end face without V-groove is the mounting surface.
- Refer to "Dimensions with switch" for switch mounting. All dimensions are the same except for the switch mounting dimensions.
- The cylinder bore 100 has 3 grooves for switch mounting.
- The screw mounting surface should have a good machined finish (▽).

Bore	A	AE	BT	C	D	DE	E	EE	FB	FF	FG	KK		KL	LL	MM	N		PJ		TV	WF	Y		Mass kg		
												Internal Thread	External Thread				Rc Thd.	G Thd.	Rc Thd.	G Thd.			Rc Thd.	G Thd.	Basic Int. Thd.	Add. Unit St. 1 mm	Add. Ext. Thd.
32	25 (40)	8	6.5	7	14	17.2	62	Rc1/4	6.6	G1/8	11	M12×1.75	M16×1.5	15	72	18	10	10	16	16	47	10	28	28	1.01	0.011	0.10
40	30 (45)	8	8.6	7	19	17.2	70	Rc1/4	9	G1/8	14	M16×2	M20×1.5	20	72	22	10	10	18	18	52	10	27	27	1.30	0.014	0.20
50	35 (50)	12	10.8	8	24	21.5	80	Rc1/4	11	G1/4	17.5	M20×2.5	M24×1.5	24	75	28	10	14	19	19	58	11	28	28	1.90	0.020	0.36
63	45 (60)	12	13	9	30	21.5	94	Rc1/4	14	G1/4	20	M27×3	M30×1.5	33	82	36	10	16	22	22	69	13	30	30	2.89	0.029	0.80
80	60 (80)	12	15.2	14	41	21.5	114	Rc3/8	16	G1/4	23	M30×3.5	M39×1.5	36	95	45	15	19	25	23	86	17	35	36	5.36	0.043	1.52
100	75 (95)	12	17.5	22	50	25.5	138	Rc3/8	18	G3/8	26	M39×4	M48×1.5	45	108	56	15	18	24	24	106	26	42	42	9.83	0.065	3.00

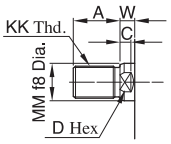
Note: When using a lock nut, dimension A in parentheses is recommended (to be order-made). In this case, specify by adding a code at the end of the standard model numbers as shown in the example below. In this case, dimension A is the specified dimension only on the mounting side. If both sides need to be specified dimensions, please consult us separately.

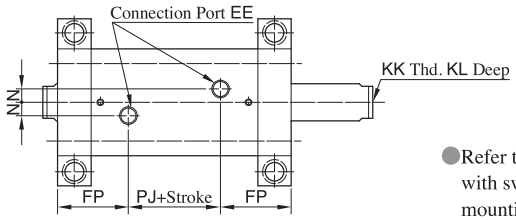
Ex.) CBY14N–6SD32N10T–L A00 (T) A–40
Standard Model Numbers
A length : indicated by the dimension in A- parentheses
Rod end special shape: code A00 (T) is common to all bore diameters

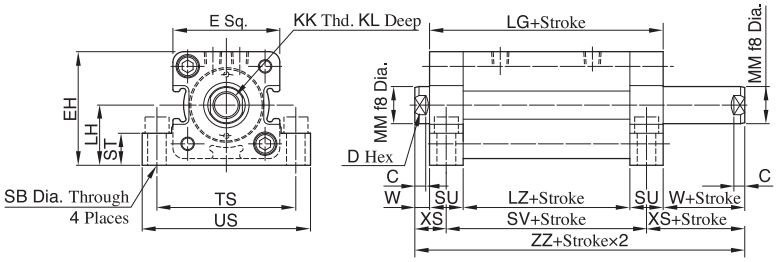
Double Rod, Mounting LD : Foot Mounting

Standard CBY14N- ＊LD
With Switch CBY14LN- ＊LD

・External Thread







- Refer to "Dimensions with switch" for switch mounting. All dimensions are the same except for the switch mounting dimensions.

Note : Socket head cap screws must be used for mounting bolts.

- The cylinder bore 100 has 3 grooves for switch mounting.

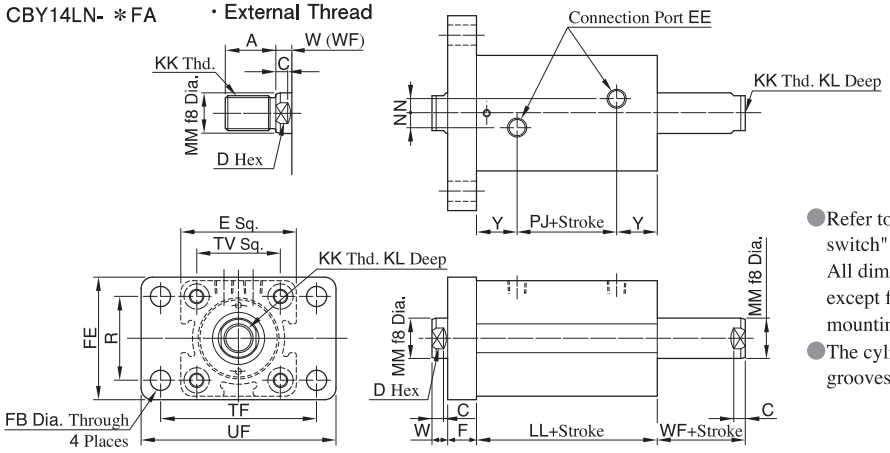
Bore	A	C	D	E	EE	EH	FP	KK		KL	LG	LH	LZ	MM	N	PJ	SB	ST	SU	SV	TS	US	W	XS	ZZ	Mass kg		
								Internal Thread	External Thread																	Basic Int. Thd.	Add. Unit St. 1 mm	Add. Ext. Thd.
32	25 (40)	7	14	62	Rc1/4	66	48	M12×1.75	M16×1.5	15	112	35±0.15	72	18	10	16	9	16	20	92	79	94	10	20	132	2.1	0.011	0.10
40	30 (45)	7	19	70	Rc1/4	72.5	47	M16×2	M20×1.5	20	112	37.5±0.15	72	22	10	18	11	20	20	92	90	108	10	20	132	2.72	0.014	0.20
50	35 (50)	8	24	80	Rc1/4	85	53	M20×2.5	M24×1.5	24	125	45±0.15	75	28	10	19	14	24	25	100	104	126	11	23.5	147	4.33	0.020	0.36
63	45 (60)	9	30	94	Rc1/4	97	55	M27×3	M30×1.5	33	132	50±0.15	82	36	10	22	16	30	25	107	121	146	13	25.5	158	6.19	0.029	0.80
80	60 (80)	14	41	114	Rc3/8	117	65	M30×3.5	M39×1.5	36	155	60±0.15	95	45	15	25	18	35	30	125	144	172	17	32	189	11.22	0.043	1.52
100	75 (95)	22	50	138	Rc3/8	140	77	M39×4	M48×1.5	45	178	71±0.15	108	56	15	24	22	43	35	143	174	208	26	43.5	230	19.82	0.065	3.00

Note: When using lock nuts, dimension A in parentheses is recommended (to be order-made). In this case, specify by adding a code to the end of the standard model numbers, referring to the "Basic Type" above.

Double Rod, Mounting FA : Rod Flange

Standrd CBY14N- ＊FA
With Switch CBY14LN- ＊FA

・External Thread



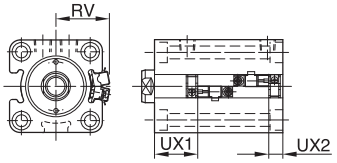
- Refer to "Dimensions with switch" for switch mounting. All dimensions are the same except for the switch mounting dimensions.
- The cylinder bore 100 has 3 grooves for switch mounting.

Bore	A	C	D	E	EE	F	FB	FE	KK		KL	LL	MM	N	PJ	R	TF	TV	UF	W	WF	Y	Mass kg		
									Internal Thread	External Thread													Basic Int. Thd.	Add. Unit St. 1 mm	Add. Ext. Thd.
32	25 (40)	7	14	62	Rc1/4	15	6.6	62	M12×1.75	M16×1.5	15	72	18	10	16	40	80	47	95	10	10	28	1.63	0.011	0.10
40	30 (45)	7	19	70	Rc1/4	20	11	70	M16×2	M20×1.5	20	72	22	10	18	46	96	52	118	10	10	27	2.46	0.014	0.20
50	35 (50)	8	24	80	Rc1/4	20	14	85	M20×2.5	M24×1.5	24	75	28	10	19	58	108	58	135	11	11	28	3.50	0.020	0.36
63	45 (60)	9	30	94	Rc1/4	20	14	98	M27×3	M30×1.5	33	82	36	10	22	65	124	69	150	13	13	30	4.91	0.029	0.80
80	60 (80)	14	41	114	Rc3/8	25	18	118	M30×3.5	M39×1.5	36	95	45	15	25	87	154	86	185	17	17	35	9.13	0.043	1.52
100	75 (95)	22	50	138	Rc3/8	30	22	150	M39×4	M48×1.5	45	108	56	15	24	109	190	106	230	26	26	42	17.06	0.065	3.00

Note: When using lock nuts, dimension A in parentheses is recommended (to be order-made). In this case, specify by adding a code to the end of the standard model numbers, referring to the "Basic Type" of the previous page.

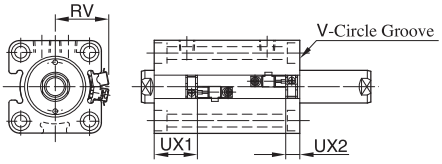
With Switch : CBY14L(N)

Single Rod



- The cylinder bore 100 has 3 grooves for switch mounting.

Double Rod



- The cylinder bore of 100 has 3 grooves for switch mounting.
- The one without V-circle groove on the end face is UX1.

Dimensions

Unit : mm

Code / Bore	RV	UX1		UX2	
		Single Rod	Double Rod	Single Rod	Double Rod
32	37	19	19	17	35
40	41	20	20	17	34
50	46	22	22	20	35
63	54	24	24	25	40
80	63	30	30	30	47
100	75	36	36	42	53

Operating Range and Diff. of Response

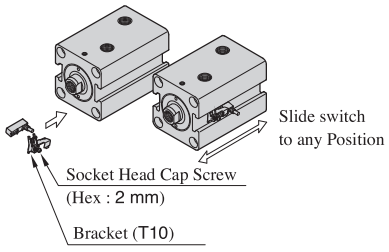
Unit : mm

Bore	Contact		Contactless	
	Operating range	Diff. of Response	Operating range	Diff. of Response
32	10 - 17	2 or less	4 - 8	1 or less
40				
50				
63				
80				
100	6 - 14	2 or less	6 - 9	1 or less

Note: UX dimensions are for reference only. For details, refer to minimum stroke for switch mounting on page J-81.

Adjust the Switch Detection Position

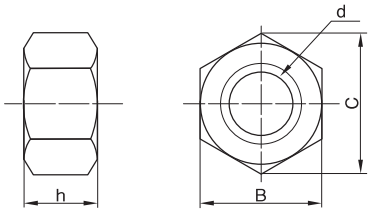
Tightening torque for bracket fixing screw : Approx. 0.4Nm



1. Loosen the bracket fixing screw and fit the bracket into the center of the switch.
2. With the switch and bracket combined, insert them into the switch mounting area of the cylinder body.
3. Slide the switch to the desired position. The detection is most stable when mounted in the center of the operating range.
4. For cylinder stroke end detection, install to UX dimension (optimum setting position).
5. Tighten the bracket fixing screw after sliding it to the detection position.

Note: Incorrect tightening torque may cause misalignment of the switch or damage to the switch itself.

Lock Nut



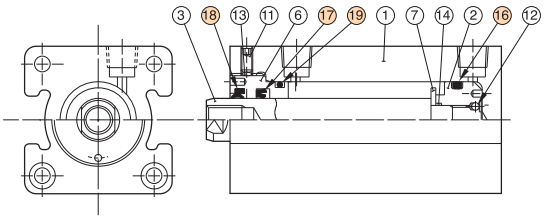
Dimensions

Bore	Parts Numbers	d	B	C	h
32	LNH-16F-H	M16×1.5	22	25.4	10
40	LNH-20F-H	M20×1.5	27	31.2	12
50	LNH-24F-H	M24×1.5	32	37.0	14
63	LNH-30F-H	M30×1.5	41	47.3	17
80	LNH-39F-H	M39×1.5	55	68.5	20
100	LNH-48F-H	M48×1.5	70	80.8	26

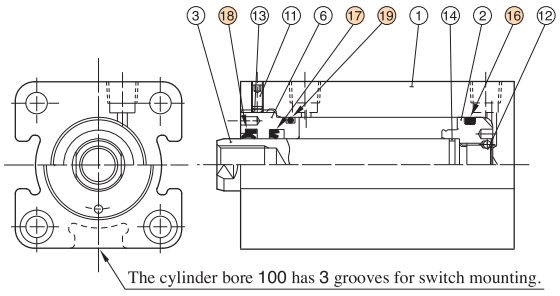
Structure Diagram／Packing List

Single Rod Standard Type : CBY14

●Bore 32

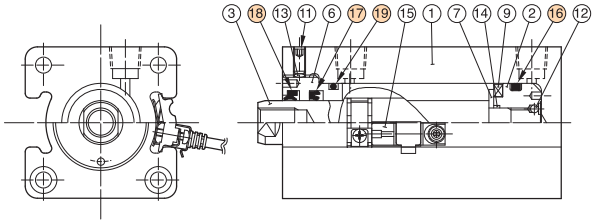


●Bore 40 - 100

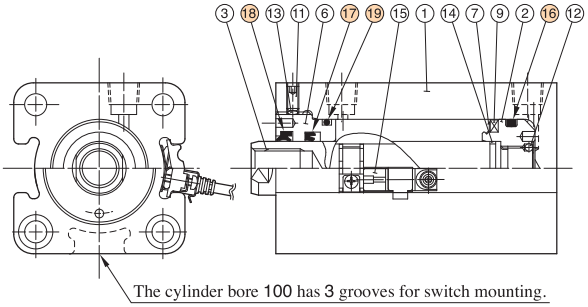


Single Rod with Switch Type : CBY14L

●Bore 32



●Bore 40 - 100



Packing Material “6” Hydrogenated Nitrile Rubber／CBY14 (L) -6

Item	Name	Material	Q'ty	Parts Numbers					
				32	40	50	63	80	100
16	Piston Packing	Hydrogenated Nitrile Rubber	1	NCHY–32	NCHY–40	NCHY–50	NCHY–63	NCHY–80	NCHY–100
17	Rod Packing	Hydrogenated Nitrile Rubber	1	UHR–18	UHR–22	UHR–28A	UHR–36	UHR–45	UHR–56
18	Dust Seal	Hydrogenated Nitrile Rubber	1	DHS–18	DHS–22	DHS–28	DHS–36	DHS–45	DHS–56
19	O-Ring for Bush★	Hydrogenated Nitrile Rubber	1	G–25	G–35	G–45	G–58 (Special)	G–75	G–95

★O-ring is OR HNBR-90 G**-N. O-ring for cylinder bore 63 is a special size.

Packing Material “3” Fluoro Rubber／CBY14 (L) -3

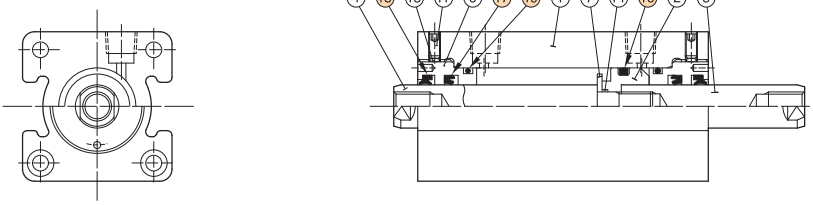
Item	Name	Material	Q'ty	Parts Numbers					
				32	40	50	63	80	100
16	Piston Packing	Fluoro Rubber	1	P–26	P–34	P–44	P–53	P–70	P–90
17	Rod Packing	Fluoro Rubber	1	UHR–18	UHR–22	UHR–28A	UHR–36	UHR–45	UHR–56
18	Dust Seal	Fluoro Rubber	1	DHS–18	DHS–22	DHS–28	DHS–36	DHS–45	DHS–56
19	O-Ring for Bush★	Fluoro Rubber	1	G–25	G–35	G–45	G–58 (Special)	G–75	G–95

★O-ring is OR FKM-90 G＊＊-N. O-ring for cylinder bore 63 is a special size.

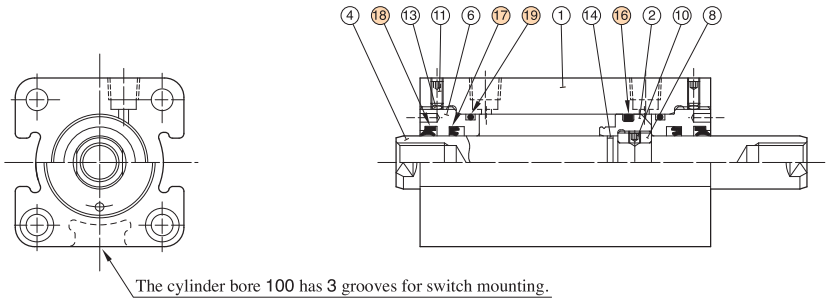
Structure Diagram／Packing List

Double Rod Standard Type : CBY14N

●Bore 32

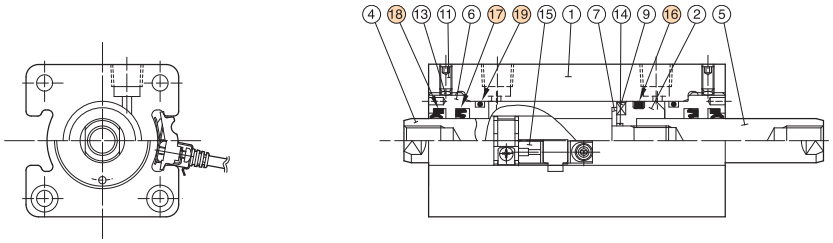


●Bore 40 - 100

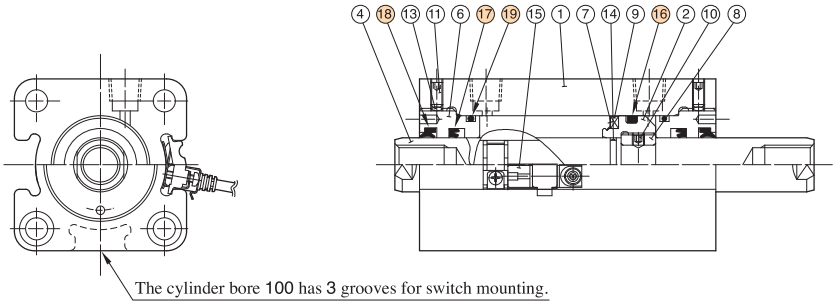


Double Rod with Switch Type : CBY14LN

●Bore 32



●Bore 40 - 100



Packing Material “6” Hydrogenated Nitrile Rubber／CBY14 (L) N-6

Item	Name	Material	Q'ty	Parts Numbers					
				32	40	50	63	80	100
16	Piston Packing	Hydrogenated Nitrile Rubber	1	NCHY–32	NCHY–40	NCHY–50	NCHY–63	NCHY–80	NCHY–100
17	Rod Packing	Hydrogenated Nitrile Rubber	2	UHR–18	UHR–22	UHR–28A	UHR–36	UHR–45	UHR–56
18	Dust Seal	Hydrogenated Nitrile Rubber	2	DHS–18	DHS–22	DHS–28	DHS–36	DHS–45	DHS–56
19	O-Ring for Bush★	Hydrogenated Nitrile Rubber	2	G–25	G–35	G–45	G–58 (Special)	G–75	G–95

★O-ring is OR HNBR-90 G＊＊-N. O-ring for cylinder bore 63 is a special size.

Packing Material “3” Fluoro Rubber／CBY14 (L) N-3

Item	Name	Material	Q'ty	Parts Numbers					
				32	40	50	63	80	100
16	Piston Packing	Fluoro Rubber	1	P–26	P–34	P–44	P–53	P–70	P–90
17	Rod Packing	Fluoro Rubber	2	UHR–18	UHR–22	UHR–28A	UHR–36	UHR–45	UHR–56
18	Dust Seal	Fluoro Rubber	2	DHS–18	DHS–22	DHS–28	DHS–36	DHS–45	DHS–56
19	O-Ring for Bush★	Fluoro Rubber	2	G–25	G–35	G–45	G–58 (Special)	G–75	G–95

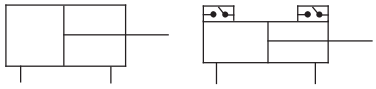
★O-ring is OR FKM-90 G＊＊-N. O-ring for cylinder bore 63 is a special size.

Mini Series Hydraulic Cylinders

The Mini Series Hydraulic Cylinders are hydraulic cylinders developed to meet the needs for miniaturization, such as for space-saving small machine tools and medical equipment. A wide range of mounting types and other variations are available to suit your application.



Graphic Symbols



Specifications

Descriptions \ Model Numbers	SW-1＊＊×＊ -＊＊-＊-＊-＊-00	KM＊-＊＊＊×＊ -＊＊-＊-＊-＊-01	KW-＊＊＊×＊ -＊＊-＊-＊-＊-01
Cylinder Bore mm	20, 25, 30		
Mounting Type	ST, LB, FA, CA, TA, TB		
Operating Maximum Pressure MPa	3.5	7	
Allowable Surge Pressure★1 MPa	5.3	10.5	
Pressure Proof (inspection pressure) MPa	5.3	10.5	
Minimum Working Pressure MPa	0.3	0.3 or less★3	
Ambient Temperature (oil temperature)	–10 - +60	–10 - +80	–10 - +60
Operating Maximum Speed	300 mm/s		
Operating Minimum Speed	10 mm/s		
Maximum Cylinder Stroke★2	300 mm		

★1. The pressure generated in the cylinder due to load inertia should be within the above allowable surge pressure.
★2. It may be limited to even lower values from the buckling strength. Please consult us for details.
★3. The minimum working pressure for double rod types is 0.5 MPa or less.

Please consult us separately for details of Mini Series Hydraulic Cylinders.

"CJT70PS/140PS" Series Position Sensing Type Hydraulic Cylinders

Magnetostrictive mechanism provides highly accurate position detection.



High Accuracy

The magnetostrictive position sensor enables high-accuracy detection of absolute position. Industrial displacement sensors that apply the magnetostrictive phenomenon caused by the Wiedemann effect are used as position sensors.

Various Output Methods

Either analog or digital output can be selected to accommodate various outputs of machinery equipment.

Easy Replacement

The CJT70PS/140PS Series Position Sensing Type Hydraulic Cylinders are interchangeable with the CJT 70/140 Series standard hydraulic cylinders, allowing easy replaceable in machinery equipment. (Except for the mounting types SD/LA/LB)

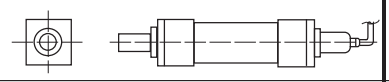
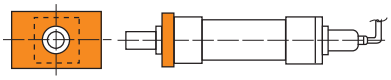
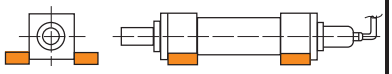
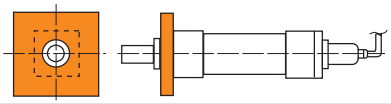
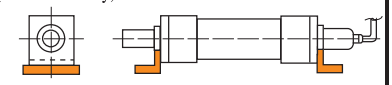
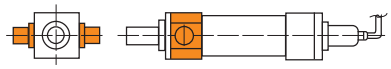
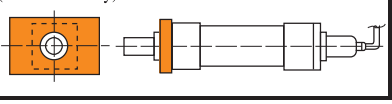
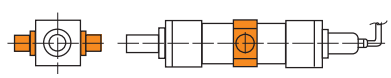
Amplifier built-in type is available

The GYcAT type has an amplifier built into the sensor head, so a high-accuracy analog output can be obtained simply by supplying a 24 V DC power supply.

Specifications

Model Numbers		$CJT^{140}_{70}PS$-＊＊＊＊N-＊N＊-＊＊＊＊-10	
Rod Size		B	C
Cylinder Bore	mm	50, 63, 80, 100, 125, 140, 150, 160, 180	100, 125, 140, 150, 160, 180
Nominal Pressure	MPa	7/14	
Maximum Stroke	mm	Bore 50 : 1200 Bore 100,125,140 : 1500	Bore 63,80 : 1300 Bore 150,160,180 : 2000
Minimum Stroke	mm	15	
Minimum Resolution		1 μm	
Linearity		0.01 %	
Repetitive Precision		0.001 %	
Applicable Standard		Compliant with former JIS B8354	

Mounting Type

Code	Name	Illustration of Mounting Type	Code	Name	Illustration of Mounting Type
SD	Basic Type		FY	Flange Type	
LA	Foot Mounting		FC		
LB	Foot Mounting	(For 7MPa Only) 	TA	Intermediate Trunnion	
FA	Flange Type	(For 7MPa Only) 	TC		

Please consult us separately for details on position sensing type hydraulic cylinders.