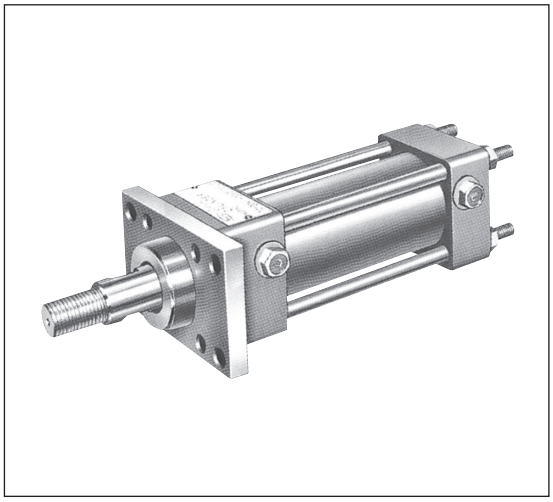
HYDRAULIC CYLINDER FOR 7 MPa (HC1-X*) ϕ40 to ϕ100



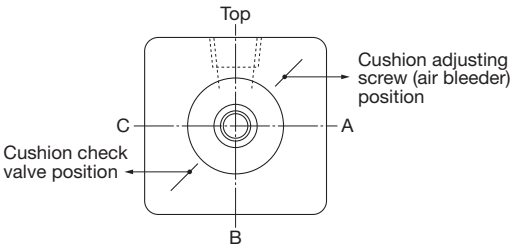
■Features

1. A wide variety of mount types can be configured by assembling the relevant accessories on the base model.
2. The cylinder is highly wear resistant since the cylinder tube internal face is finished by precision honing and the piston rod is coated by hard chromium plating.
3. Highly durable Y-shape packing is adopted for the piston rod.

● The maximum available stroke is 1600 mm.

■Specifications

Max. operating pressure		7 MPa
Min. working pressure	Head side	0.3 MPa or lower
	Rod side	0.4 MPa or lower
Operating speed range		8 to 300 mm/s
Operating temperature range		–15 to 80 ℃



Piping port positions

NOTE 1: The cushion adjusting screw position and cushion check valve position are interchangeable.

NOTE 2: The piping ports, cushion adjusting screw and cushion check valve positions are as shown in the figure above.

■Permissible stroke error

Stroke	100 or less	100 to 250	250 to 630	630 to 1,000	1,000 to 1,600
Permissible error	+0.8 0	+1.0 0	+1.25 0	+1.4 0	+1.6 0

■Description of the model designation

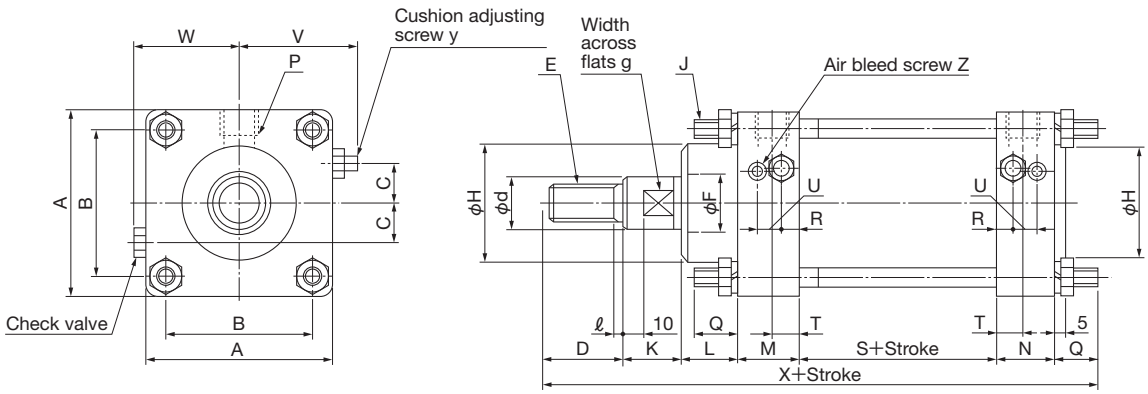
HC1-XD-40×100-(FA)(A)

- Piping port position (see the figure below)
  - No code: Top (standard) A: Right
  - B: Bottom C: Left
- Mounting type
  - No code: Base type (standard)
  - CB: 2-peak clevis type
  - LB: Foot mount type
  - FA: Flange mount type (rod side)
  - FB: Flange mount type (head side)
  - TC: Center trunnion type
  - TA: Rod trunnion type
- Stroke
- Cylinder bore
- With/without cushion
  - A: Without cushion on both sides
  - B: With cushion at the rod side
  - C: With cushion at the head side
  - D: With cushion on both sides
- Structure type
- Max. operating pressure 1: 7 MPa
- Hydraulic cylinder

■Thrust obtainable at each operating pressure (Theoretical value)

Cylinder bore (mm)	Cylinder cross sectional area (cm^2)	Rod diameter (mm)	Rod cross sectional area (cm^2)	Pressure receiving area (cm^2)		Obtainable thrust at each operating pressure (kgf)			
						2MPa	3.5MPa	5MPa	7MPa
40	12.6	20	3.1	Head side	12.6	252	441	630	882
				Rod side	9.5	190	333	475	665
50	19.6	25	4.9	Head side	19.6	392	686	980	1372
				Rod side	14.7	294	515	735	1029
63	31.2	31.5	7.8	Head side	31.2	624	1092	1560	2184
				Rod side	23.4	468	819	1170	1638
80	50.3	40	12.6	Head side	50.3	1006	1761	2515	3521
				Rod side	37.7	754	1320	1885	2639
100	78.5	50	19.6	Head side	78.5	1570	2748	3925	5495
				Rod side	58.9	1178	2062	2945	4123

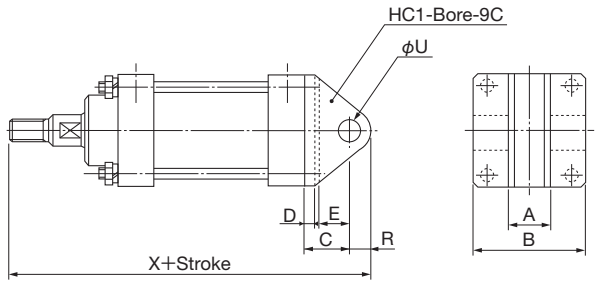
Base type



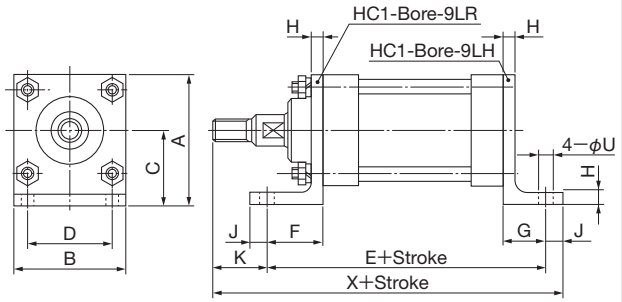
Mass (kg)

Stroke \ Bore	40	50	63	80	100
When "0"	3	5	8	14	21
For each 10 mm	0.1	0.15	0.2	0.25	0.4

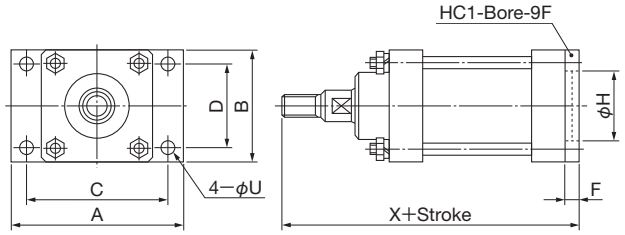
CB (2-peak clevis type)



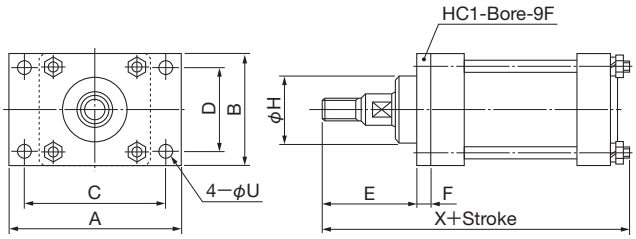
LB (Foot mount type)



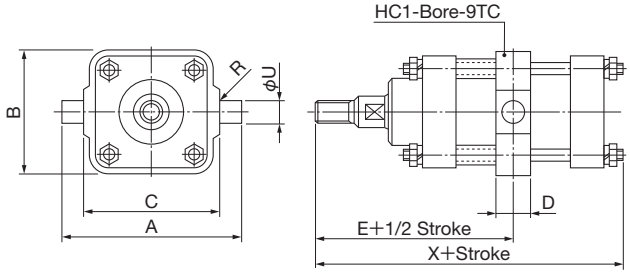
FB (Head side flange mount type)



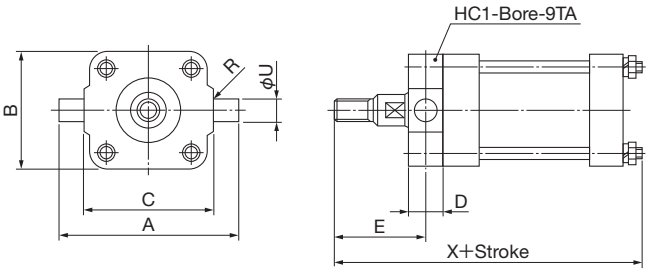
FA (Rod side flange mount type)



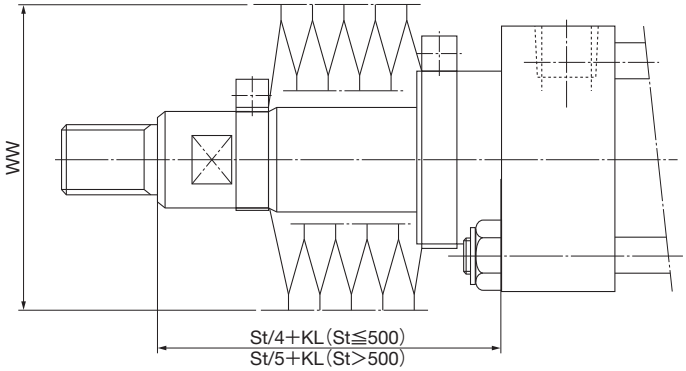
TC (Center trunnion type)



TA (Rod trunnion type)



Dustproof cover mounting dimensions



■Description of the model designation

HC1-J*-*×*-**

With dustproof cover

Note: If a calculated value includes a decimal fraction, round up the result to an integer. For the ta type, please consult us since special calculation is necessary to obtain the dimension.

(Unit: mm)

Model	Symbol \ Bore	40	50	63	80	100
Base type	A	60	75	90	114	130
	B	44	55	65	84	100
	C	11	16	18.5	22	30
	D	25	30	35	40	55
	E	M16×1.5	M20×1.5	M24×2	M30×2	M42×3
	ℓ	3	3	4	4	6
	F	20	25	31.5	40	50
	G	17	21	24	32	41
	d(h7)	20	24	30	38	48
	H(h9)	40	50	60	70	80
	J	M8×1.25	M10×1.5	M12×1.75	M14×2	M16×2
	K	24	26	28	29	31
	L	22	26	28	30	33
	M	33	38	45	48	50
	N	26	28	32	40	40
	P	Rc¼	Rc⅜	Rc½	Rc¾	Rc¾
	Q	16	19	22	23	26
	S	54	62	76	88	92
	T	13	14	16	20	20
	V	36	46	52	67	75
	W	37	45	52	68	76
	X	200	229	266	298	327
	R	9	10	10	14	14
	u	12	13	15	19	19
	Y	M8×1.25	M8×1.25	M8×1.25	M12×1.75	M12×1.75
	Z	M6×1	M6×1	M6×1	M6×1	M6×1
CB type	A	20	28	32	38	50
	B	60	75	90	114	130
	C	38	42	50	60	75
	D	12	14	16	18	20
	E	23	25	30	35	45
	R	20	22	25	30	40
	u(H9)	16	18	20	25	35
	X	242	274	319	365	416
LB type	A	80	97.5	115	142	160
	B	60	75	90	114	130
	C	50	60	70	85	95
	D	44	55	65	84	100
	E	179	204	241	272	296
	F	38	44	51	56	66
	G	28	32	37	40	48

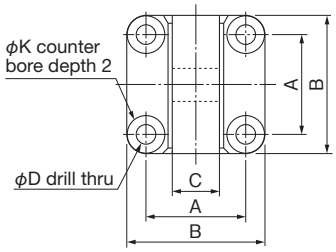
Model	Symbol \ Bore	40	50	63	80	100
LB type	H	10	12	14	14	16
	J	10	11	13	15	17
	K	33	38	40	43	53
	u	9	11	13	15	17
	X	222	253	294	330	366
FB type	A	95	117	142	175	195
	B	60	75	90	114	130
	C	77	97	116	145	165
	D	44	55	65	84	100
	F	10	12	14	16	18
	H	40	50	60	70	80
	u	9	11	13	15	17
	X	194	222	258	291	319
FA type	A	95	117	142	175	195
	B	60	75	90	114	130
	C	77	97	116	145	165
	D	44	55	65	84	100
	E	61	70	77	83	101
	F	10	12	14	16	18
	H	40	50	60	70	80
	u	9	11	13	15	17
	X	206	236	274	305	335
TC type	A	109	135	160	180	225
	B	67	81	94	116	141
	C	69	85	98	118	145
	D	30	38	44	48	58
	E	131	151	174	191	215
	R	2	2.5	2.5	2.5	3
	u(e8)	20	25	31.5	31.5	40
	X	196	224	260	293	321
TA type	A	109	135	160	180	225
	B	60	75	90	114	130
	C	69	85	98	118	145
	D	22	28	34	34	44
	E	60	68	74	82	97
	R	2	2.5	2.5	2.5	3
	u(e8)	20	25	31.5	31.5	40
	X	196	224	260	293	321
Dustproof Cover	WW	70	80	90	100	110
	KL	65	72	74	81	83

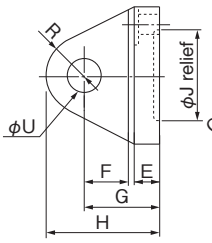
■Accessories

(Unit: mm)

Knuckle bracket **HC-A1-***

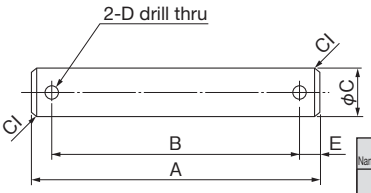
Knuckle bracket — Diameter





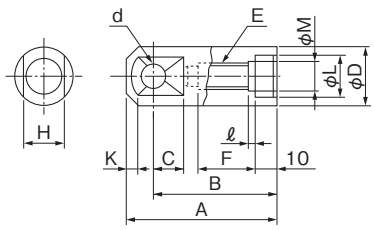
Bracket pin **HC-C1-***

Bracket pin — Diameter



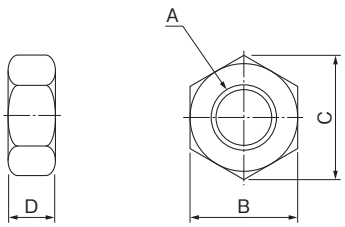
Knuckle **HC-B2-***

Knuckle — Diameter



Locknut **HC-N1-***

Locknut — Diameter

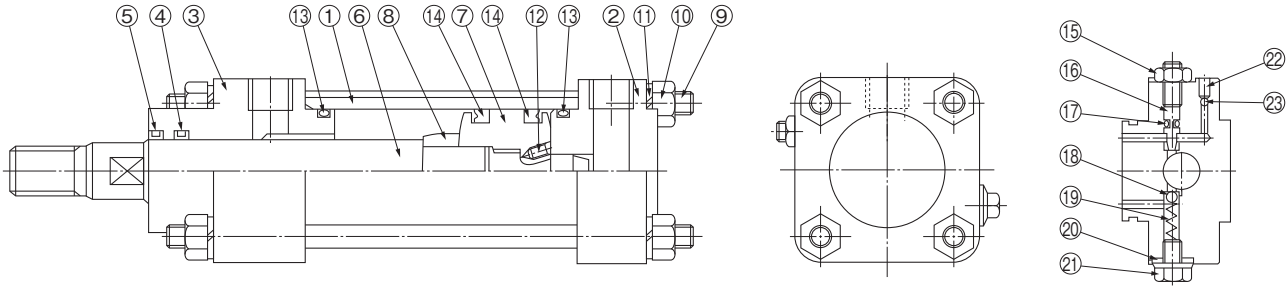


Name \ Symbol \ Bore		40	50	63	80	100
Knuckle bracket	A	44	55	65	84	100
	B	60	75	90	114	130
	C	19	27	30	36	48
	D	9	11	13	15	17
	E	12	14	16	20	24
	F	22	24	27	35	50

Name \ Symbol \ Bore		40	50	63	80	100
Knuckle bracket	G	37	41	46	60	80
	H	57	63	71	90	120
	J	40	50	60	70	80
	K	19	23	28	31	34
	R	20	22	25	30	40
	u (H8)	16	18	20	25	35
	Used bolts	M8×25	M10×30	M12×35	M14×35	M16×40

Name \ Symbol \ Bore		40	50	63	80	100
Bracket pin	A	78	95	112	140	160
	B	70	86	102	128	148
	C (f8)	16	18	20	25	35
	D	2.5	2.5	2.5	3	4
	E	4	4.5	5	6	6
Knuckle	A	75	80	85	105	140
	B	60	63	67	85	113
	C	16	17	20	25	32
	D	28	32	38	46	56
	d (H8)	13	16	16	22	30
	E	M16×1.5	M20×1.5	M24×2	M30×2	M42×3
	F	28	33	38	43	60
	H	22	24	27	32	41
	K	5	5	8	10	14
	L (F8)	20	24	30	38	48
	M	16.2	20.3	24.4	30.5	43
	ℓ	4	4	5	5	7
Locknut	A	M16×1.5	M20×1.5	M24×2	M30×2	M42×3
	B	24	30	36	46	65
	C (Approx.)	27.7	34.6	41.6	53.1	75
	D	10	12	14	18	25

■Internal construction drawing and parts list



No.	Part name
1	Cylinder tube
2	Head cover
3	Rod cover
4	Rod seal
5	Scraper

No.	Part name
6	Piston rod
7	Piston
8	Cushion ring
9	Tie rod
10	Hex. nut

No.	Part name
11	Washer
12	Setscrew
13	O-ring
14	Piston seal
15	Hex. nut

No.	Part name
16	Cushion valve
17	O-ring
18	Steel ball
19	Spring
20	Seal washer

No.	Part name
21	Check valve
22	Air bleeding screw
23	Steel ball

■Packing, o-ring and seal washer list

No.	Location where used \ Cylinder bore	40	50	63	80	100
④	Rod seal	SKY−20	SKY−25	SKY−31.5	SKY−40	SKY−50
		1	←	←	←	←
⑤	Scraper	SDR−20	SDR−25	SDR−31.5	SDR−40	SDR−50
		1	←	←	←	←
⑬	O-ring at cylinder tube	JIS B 2401−G40	JIS B 2401−G45	(Special) JIS B 2401−G58	JIS B 2401−G75	JIS B 2401−G95
		2	←	←	←	←
⑭	Piston seal	SKY−30	SKY−40	SKY−53	SKY−71	SKY−85
		2	←	←	←	←
⑰	O-ring at cushion valve	JIS B 2401−P3	←	←	JIS B 2401−P6	←
		*	←	←	←	←
⑳	Seal washer at check	W8	←	←	W12	←
		*	←	←	←	←

NOTE: *: 2 pcs. for a cylinder with a cushion at both sides, 1 pc. for a cylinder with a cushion at one side, and not used for cylinders without cushions.