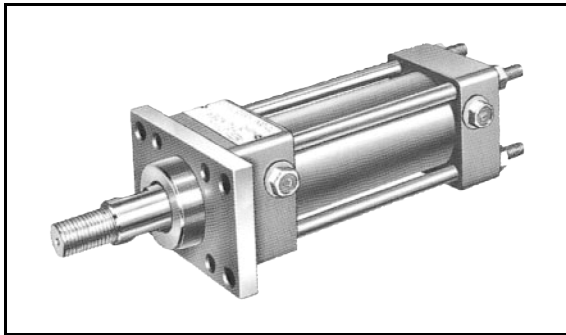


## 7 MPa APPLICATION HYDRAULIC CYLINDER (HC1-X\* SERIES) $\phi 40$ TO $\phi 100$

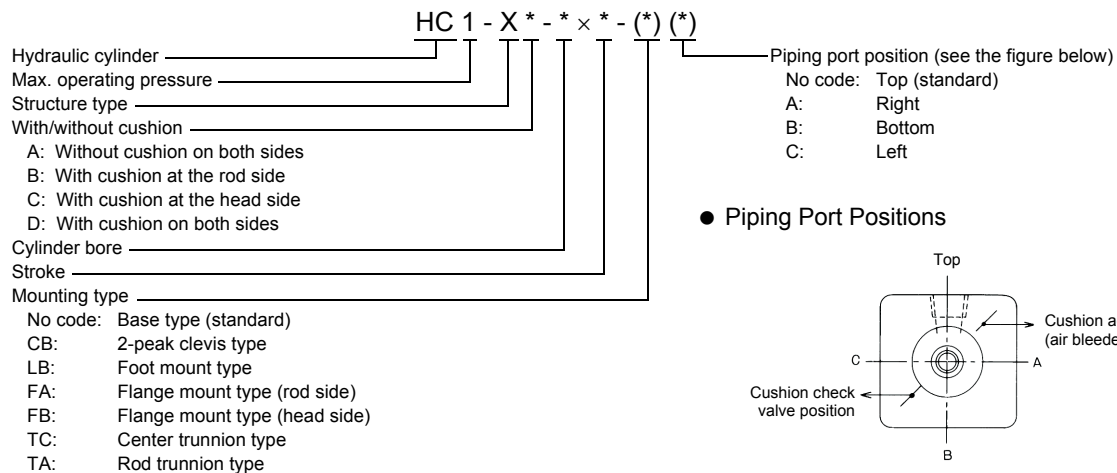


The HC1-X\* series cylinders are the successors of the HC-\*\*X3 series cylinders. The previous series has been redesigned for improved ease of use.

### 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 trunnion mount type has no interchangeability with conventional HC-\*\*X3 series.
  - The maximum available stroke is 1600 mm.

### MODEL DESIGNATION



**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.

### 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°C

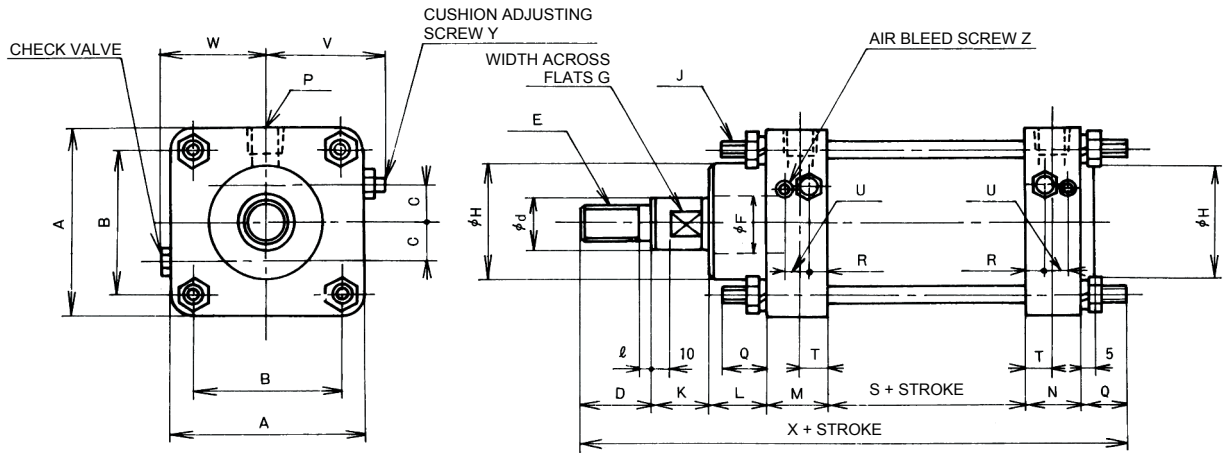
### PERMISSIBLE STROKE ERROR

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

### THRUST OBTAINABLE AT EACH OPERATING PRESSURE (THEORETICAL VALUE)

Cylinder Bore (mm)	Cylinder Cross Sectional Area (cm <sup>2</sup> )	Rod Diameter (mm)	Rod Cross Sectional Area (cm <sup>2</sup> )	Pressure Receiving Area (cm <sup>2</sup> )		Obtainable Thrust at Each Operating Pressure (kgf)			
						2 MPa	3.5 MPa	5 MPa	7 MPa
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

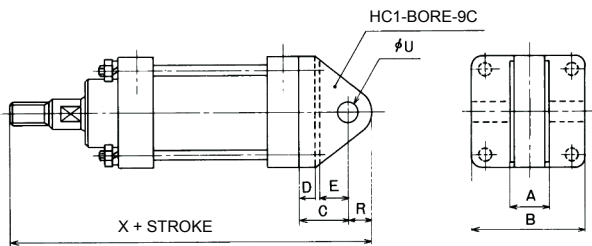
● BASE TYPE



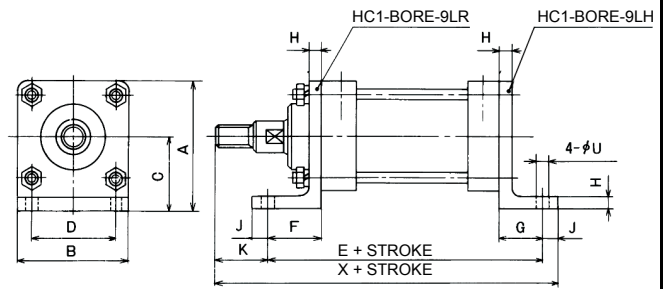
Mass (kg)

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

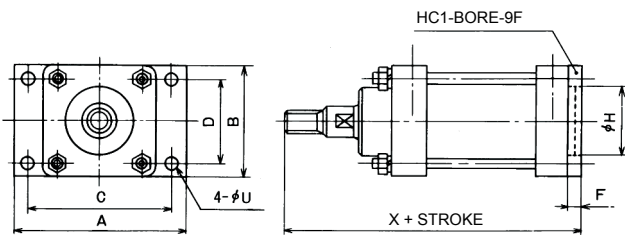
● CB (Clevis Type)



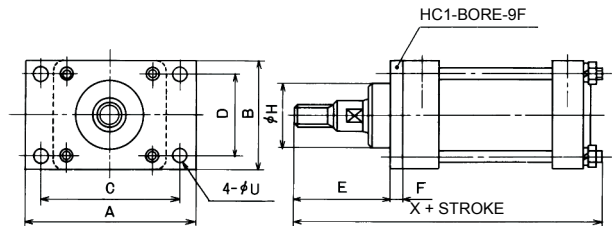
● LB (Foot Mount Type)



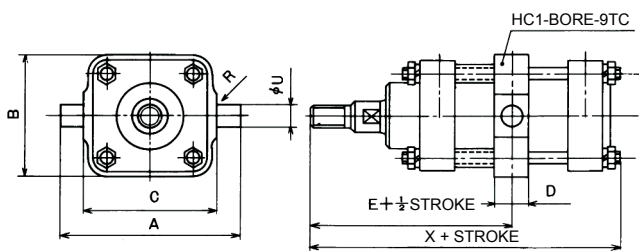
● FB (Head Side Flange Mount Type)



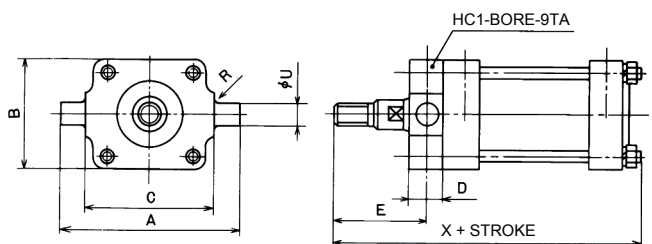
● FA (Rod Side Flange Mount Type)



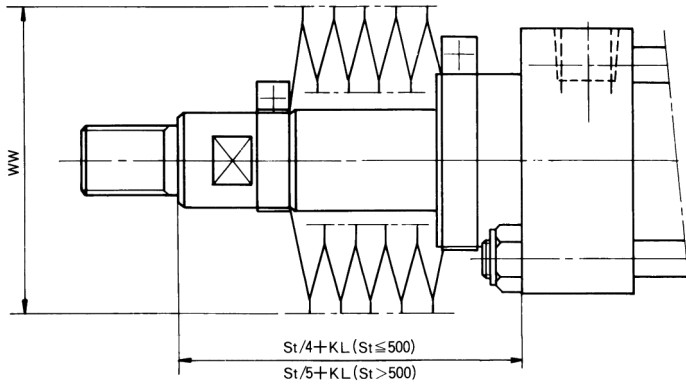
● TC (Center Trunnion Type)



● TA (Rod Trunnion Type)



● Dustproof Cover Mounting Dimensions



MODEL DESIGNATION

HC1-J \*-x\*-\*\*

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.

Type	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	Rc1/4	Rc3/8	Rc1/2	Rc3/4	Rc3/4
	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

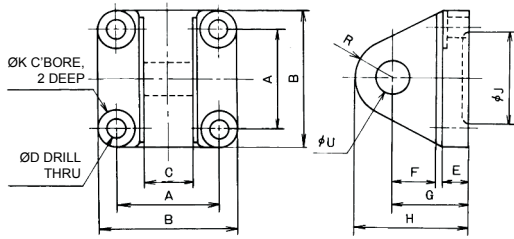
Type	Symbol	Bore				
		40	50	63	80	100
LB Type	H	10	12	14	14	16
	J	10	11	13	15	17
	K	33	38	40	43	53
	u	9	11	13	15	17
	X	222	253	294	330	366
FB Type	A	95	117	142	175	195
	B	60	75	90	114	130
	C	77	97	116	145	165
	D	44	55	65	84	100
	F	10	12	14	16	18
	H	40	50	60	70	80
	u	9	11	13	15	17
	X	194	222	258	291	319
	A	95	117	142	175	195
	B	60	75	90	114	130
FA Type	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
	A	109	135	160	180	225
	B	67	81	94	116	141
	C	69	85	98	118	145
TC Type	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
	A	109	135	160	180	225
	B	60	75	90	114	130
TA Type	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
	KL	65	72	74	81	83

# ACCESSORIES

## ● Knuckle Bracket

HC-A1 - \*

— Diameter  
— Knuckle bracket

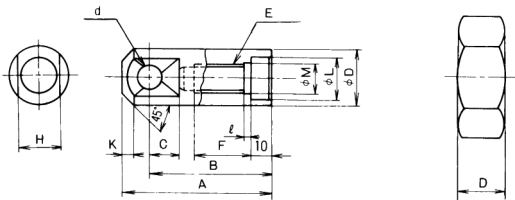


Name	Symbol	Bore				
		40	50	63	80	100
Knuckle Bracket	A	44	55	65	84	100
	B	60	75	90	114	130
	C	19	27	30	36	48
	D	9	11	13	15	17
	E	12	14	16	20	24
	F	22	24	27	35	50
	G	37	41	46	60	80
	H	57	63	71	90	120
	J	40	50	60	70	80
	K	19	23	28	31	34
	R	20	22	25	30	40
	u(H8)	16	18	20	25	35
	Used bolts		M8×25	M10×30	M12×35	M14×35

## ● Knuckle

HC-B1 - \*

— Diameter  
— Knuckle

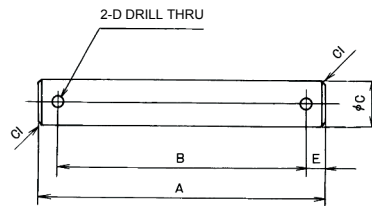


Name	Symbol	Bore				
		40	50	63	80	100
Knuckle	A	75	80	85	105	140
	B	60	63	67	85	113
	C	16	17	20	25	32
	D	28	32	38	46	56
	d(H8)	13	16	16	22	30
	E	M16×1.5	M20×1.5	M24×2	M30×2	M42×3
	F	28	33	38	43	60
	H	22	24	27	32	41
	K	5	5	8	10	14
	L(F8)	20	24	30	38	48
	M	16.2	20.3	24.4	30.5	43
	L	4	4	5	5	7

## ● Bracket Pin

HC-C1 - \*

— Diameter  
— Bracket pin

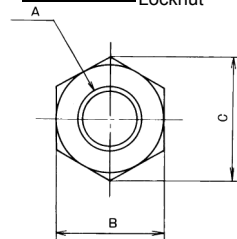


Name	Symbol	Bore				
		40	50	63	80	100
Bracket Pin	A	78	95	112	140	160
	B	70	86	102	128	148
	C(18)	16	18	20	25	35
	D	2.5	2.5	2.5	3	4
	E	4	4.5	5	6	6
	A	78	95	112	140	160

## ● Locknut

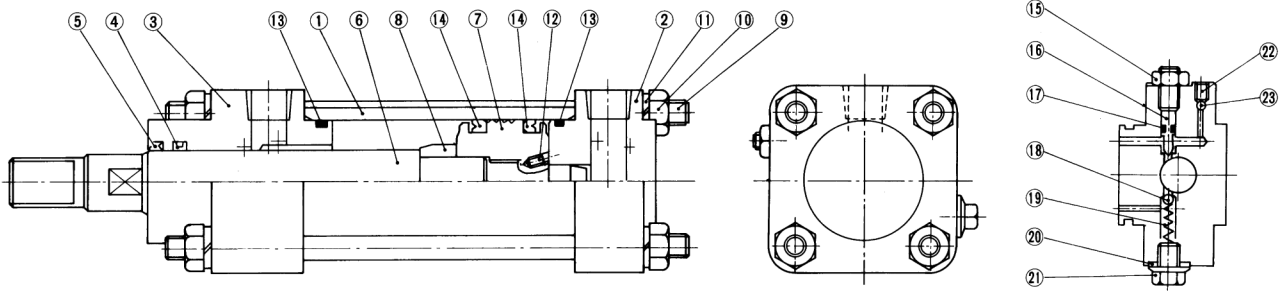
HC-N1 - \*

— Diameter  
— Locknut



Name	Symbol	Bore				
		40	50	63	80	100
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	No.	Part Name	No.	Part Name	No.	Part Name	No.	Part Name
①	Cylinder tube	⑥	Piston rod	⑪	Washer	⑯	Cushion valve	⑳	Check valve
②	Head cover	⑦	Piston	⑫	Setscrew	⑰	O-ring	㉑	Air bleeding screw
③	Rod cover	⑧	Cushion ring	⑬	O-ring	⑱	Steel ball	㉒	Steel ball
④	Rod seal	⑨	Tie rod	⑭	Piston seal	⑲	Spring		
⑤	Scraper	⑩	Hex. nut	⑮	Hex. nut	⑳	Seal washer		

● 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 B2401-G40	JIS B2401-G45	JIS B2401-G58	JIS B2401-G75	JIS B2401-G95
		2				
⑭	Piston seal	SKY-30	SKY-40	SKY-53	SKY-71	SKY-85
		2				
⑰	O-ring at cushion valve	JIS B2401-P3			JIS B2401-P6	
		*			*	
⑳	Seal washer at check valve	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.