

# Пневмоцилиндр большой мощности

## RHC

∅20 ~ 100

- Усовершенствованная конструкция демпфера позволяет поглощать энергию в 10 - 20 раз эффективнее (по сравнению с цилиндром серии CG1) и работать на скоростях до 3000 мм/с.
- Цилиндр RHC имеет более длинное демпфирование, что позволяет останавливать поршень при высоких скоростях или нагрузках.
- Опция ХС93: с высокой влагозащитой и стабильным маслораспылением. Влагозащита в 5 раз выше, чем у стандартного исполнения.
- Опция ХС3: с нестандартным расположением присоединительных отверстий.
- Опция ХС6: из нержавеющей стали.



### Технические характеристики

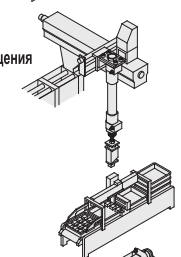
Диаметр поршня (мм)	20	25	32	40	50	63	80	100
Диаметр штока (мм)	10	12		16	20		25	30
Принцип действия	Двустороннего действия с односторонним штоком							
Среда	Очищенный сжатый воздух							
Испытательное давление (МПа)	1.5							
Диапазон рабочих давлений (МПа)	0.05 ~ 1.0							
Смазка	Не требуется							
Допуск по длине хода (мм)	Для длин хода до 1000: <sup>+1.4</sup> / <sub>0</sub> ; для длин хода 1001~1500: <sup>+1.8</sup> / <sub>0</sub>							
Температура рабочей и окружающей среды (°C)	-10 ~ 60							
Скорость поршня (мм/с)	50 ~ 3000							
Демпфирование	Пневматическое							
Максимальное поглощение энергии (Дж)	7	12	21	33	47	84	127	196
Эффективная длина хода демпфирования (мм)	80							

### Примеры применения

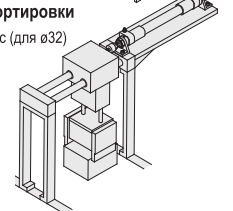
Открытие/закрытие дверей  
(2000 мм/с, несколько десятков кг)



Высокоскоростные вертикальные перемещения  
(до 3000 мм/с, несколько кг)



Оборудование для транспортировки  
40 кг, 1000 мм/с (для ∅32)



### Длина хода

∅ поршня (мм)	Минимальная рекомендуемая длина хода (мм)	Стандартная длина хода (мм)	Максимальная длина хода (мм)
20, 25	250	До 700	1500
32, 40		До 1000	
50, 63		До 1200	
80		До 1400	
100		До 1500	

### Теоретическое усилие (Н)



Диаметр поршня (мм)	Направление действия	S поршня (мм <sup>2</sup> )	Рабочее давление (МПа)									
			0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
20	OUT	314	63	94	126	157	188	220	251	283	314	
	IN	236	47	71	94	118	142	165	189	212	236	
25	OUT	491	98	147	196	246	295	344	393	442	491	
	IN	378	76	113	151	189	227	265	302	340	378	
32	OUT	804	161	241	322	402	482	563	643	724	804	
	IN	691	138	207	276	346	415	484	553	622	691	
40	OUT	1260	252	378	504	630	756	882	1010	1130	1260	
	IN	1060	212	318	424	530	636	742	848	954	1060	
50	OUT	1960	392	588	784	980	1180	1370	1570	1760	1960	
	IN	1650	330	495	660	825	990	1160	1320	1490	1650	
63	OUT	3120	624	936	1250	1560	1870	2180	2500	2810	3120	
	IN	2800	560	840	1120	1400	1680	1960	2240	2520	2800	
80	OUT	5030	1010	1510	2010	2520	3020	3520	4020	4530	5030	
	IN	4540	908	1360	1820	2270	2720	3180	3630	4090	4540	
100	OUT	7850	1570	2360	3140	3930	4710	5500	6280	7070	7850	
	IN	7150	1430	2150	2860	3580	4290	5010	5720	6440	7150	

\* Теоретическое усилие при выдвигении поршня (Н) = Давление (МПа) x S поршня (мм<sup>2</sup>)

### Вес пневмоцилиндра (кг)

Диаметр цилиндра (мм)		20	25	32	40	50	63	80	100
Базовый вес (для длины хода 500 мм)	Базовое крепление	1.20	1.62	2.04	3.20	4.90	6.08	8.93	13.60
	На лапах	1.44	1.88	2.44	3.72	5.95	7.32	11.04	16.67
	На фланце	1.29	1.79	2.23	3.47	5.68	6.97	10.67	15.92
Дополнительный вес на каждые 50 мм хода		0.06	0.08	0.09	0.15	0.22	0.25	0.35	0.51

### Датчики положения

Для цилиндров серии RHC используются электронные датчики положения D-M9N, D-M9P, D-M9B, G59, G5P, K59 и герконовые датчики положения D-A90, D-A93, D-A96.

Датчики положения заказываются отдельно.

### Номер для заказа

**RHC B 25 - 100**

- RHC** - Тип крепления:
  - B Базовый
  - L На лапах
  - F Передний фланец
  - G Задний фланец
- 25** - ∅ поршня (мм):
  - 20
  - 25
  - 32
  - 40
  - 50
  - 63
  - 80
  - 100
- 100** - Ход поршня (см. технические характеристики)

### Запасные части и принадлежности

заказываются отдельно

**Ремкомплект (комплект уплотнений)**

Типоразмер	Номер для заказа
20	RHC20-PS
25	RHC25-PS
32	RHC32-PS
40	RHC40-PS

\*Разборка цилиндров ∅50 и выше невозможна.

### Крепежные элементы

Крепежный элемент	Диаметр поршня (мм)							
	20	25	32	40	50	63	80	100
Лапа <sup>1)</sup>	RHC-L020	RHC-L025	RHC-L032	RHC-L040	RHC-L050	RHC-L063	RHC-L080	RHC-L100
Фланец	RHC-F020	RHC-F025	RHC-F032	RHC-F040	RHC-F050	RHC-F063	RHC-F080	RHC-F100

1) Для одного цилиндра следует заказывать две лапы.



High Power Cylinder  
**Series RHC**  
ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100



**Bore sizes ø50, ø63, ø80 and ø100 added to Series RHC and newly released!  
Suitable for high speed use or heavy loads at low speed.**

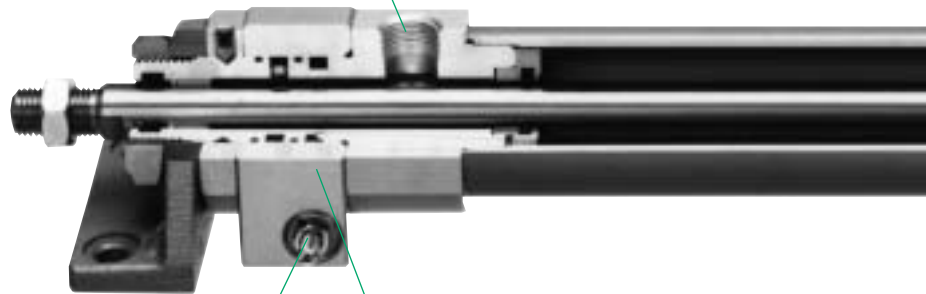
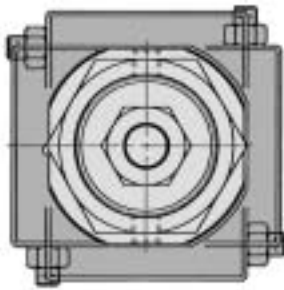
# High Power Cylinder

Smooth cushioning from high speed (3000mm/s)/light

Energy absorbing capacity 10 to 20 times that of general

## Supply/Exhaust port

Port orifices have been enlarged to accommodate high speed movement.



## Relief valve adjustment screw

## Relief valve body

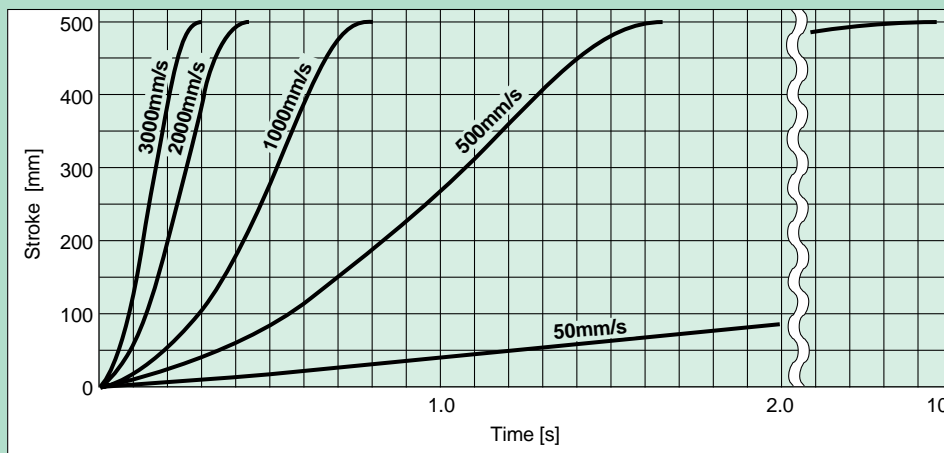
The relief valve body rotates 360° allowing relief adjustment from any direction.

## Mounting and Cushion Adjustment

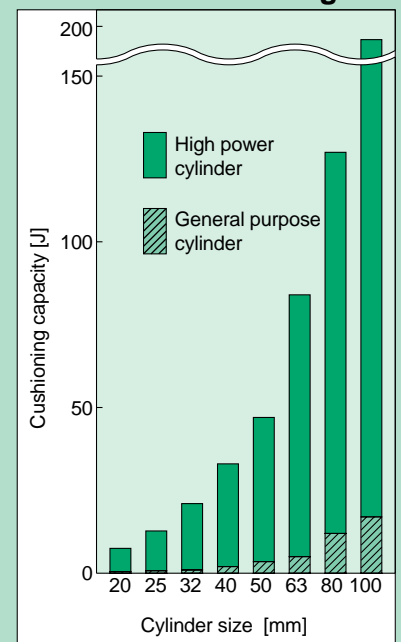
Piping and mounting labor is the same as general purpose cylinders. Cushion adjustment (relief adjustment) labor is the same as general purpose cylinder adjustment (cushion needle adjustment).

### Cushioning quality

(RHCF40-500, load weight 5kg, supply pressure 0.5MPa, horizontal drive)



## Amount of cushioning



# Series RHC

High load to medium low speed/heavy load  
General purpose cylinders



## Cushion ring

The cushion ring has been lengthened for greater energy (speed/weight) absorption.

**New**

Ø50, Ø63, Ø80, Ø100

## Cushion seal

The use of heavy duty seals provides improved durability at high speeds and increased buffer capacity.

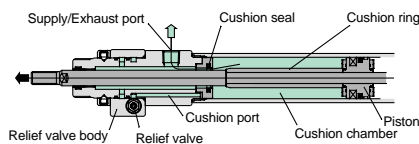


## Relief valve

The use of a relief valve as the cushion valve (pressure control) provides a better cushioning effect as compared with needle adjustment on a general purpose cylinder (flow control).

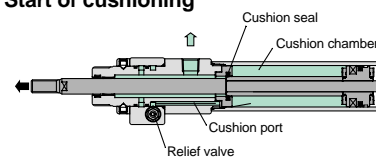
## Operating Principles

### 1. Before cushioning starts



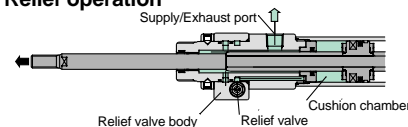
Air passes through the space between the cushion seal and piston rod to the supply/exhaust port.

### 2. Start of cushioning



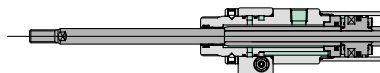
The cushion chamber is closed by the cushion seal. Air flows to the cushion port provided in the rod cover.

### 3. Relief operation



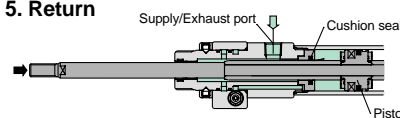
Air passes through the relief valve provided in the relief valve body, and through the inside of the rod cover to the supply/exhaust port.

### 4. Completion of cushioning



Shifting to the reverse stroke, the air that passed through the cushion seal, which works as a check valve, starts to push the piston.

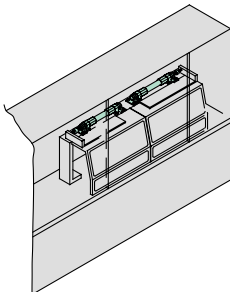
### 5. Return



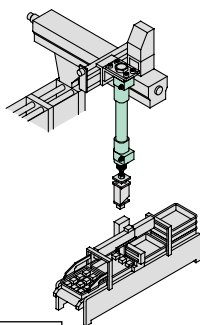
The cushion ring pulls out of the cushion seal beginning the stroke opposite to 1, and the operations in 1 to 4 above are performed on the head cover side.

## Applications

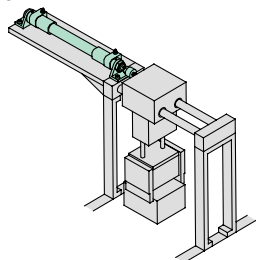
Opening and closing doors  
(2000mm/s, several 10kg)



High speed Z-axis  
(to 3000mm/s, several kg)



Transfer equipment  
40kg, 1000mm/s (with Ø32)



# High Power Cylinder Series RHC

ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

## How to Order

High Power Cylinder

RHC B 20 — C73

High power cylinder

Mounting brackets

B	Basic type
L	Axial foot type
F	Front flange type
G	Rear flange type

Bore size

20	20mm
25	25mm
32	32mm
40	40mm
50	50mm
63	63mm
80	80mm
100	100mm

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Auto switch type

Nil	Without auto switch
-----	---------------------

\* Select applicable auto switches from the table below.

Cylinder stroke

\* Refer to the stroke table on page 2.

### Applicable Auto Switches/Refer to pages 10 through 14 for detailed auto switch specifications.

Type	Special function	Electrical entry	Indicator/light	Wiring (output)	Load voltage		Auto switch model	Lead wire length (m)*				Applicable loads			
					DC	AC		0.5 (Nil)	3 (L)	5 (Z)	None (N)				
Reed switch	—	Grommet	Yes	3 wire (NPN equiv.)	—	5V	—	C76	●	●	—	—	IC circuit	—	
				2 wire	24V	12V	100V, 200V	B53	●	●	●	—	—	—	PLC
							200V or less	B54	●	●	—	—	—	—	
						12V	100V	C73	●	●	●	—	—	—	—
		Connector	Yes	5V, 12V	100V or less	C80	●	●	—	—	—	—	IC circuit	—	
				12V	—	C73C	●	●	●	●	—	—	—	—	
		Diagnostic indication (2 color indicator)	Grommet	Yes	5V, 12V	24V or less	C80C	●	●	●	●	—	—	IC circuit	—
—	—				B59W	●	●	—	—	—	—	—			
Solid state switch	—	Grommet	Yes	3 wire (NPN)	5V, 12V	—	—	H7A1	●	●	○	—	IC circuit	Relay, PLC	
				3 wire (PNP)				H7A2	●	●	○	—	—		
		Connector	2 wire	H7B	●	●	○	—	—	—					
				H7C	●	●	●	●	—	—					
	Diagnostic indication (2 color indicator)	Grommet	Yes	3 wire (NPN)	5V, 12V	—	—	H7NW	●	●	○	—	IC circuit		
				3 wire (PNP)				H7PW	●	●	○	—	—		
				2 wire				H7BW	●	●	○	—	—		
				Water resistant (2 color indicator)				H7BA	—	●	○	—	—		
				With timer				G5NT	—	●	○	—	—		
				With diagnostic output (2 color indicator)				H7NF	●	●	○	—	IC circuit		
				Latch type with diagnostic output (2 color indicator)				H7LF	●	●	○	—	—		

\* Lead wire length symbols 0.5m ..... Nil (Example) C73C 5m ..... Z (Example) C73CZ 3m ..... L C73CL None ... N C73CN

\* Solid state switches marked with a "○" are produced upon receipt of order.

### Mounting bracket part nos.

Refer to Page 2 for part numbers of air cylinder mounting brackets other than the basic type.

# High Power Cylinder *Series RHC*

## Specifications



<b>Fluid</b>	Air
<b>Proof pressure</b>	1.5MPa
<b>Maximum operating pressure</b>	1.0MPa
<b>Minimum operating pressure</b>	0.05MPa
<b>Ambient and fluid temperature</b>	-10 to 60°C (with no freezing)
<b>Piston speed</b>	50 to 3000mm/s
<b>Cushion</b>	Air cushion
<b>Lubrication</b>	None (non-lube)
<b>Thread tolerance</b>	JIS class 2
<b>Stroke length tolerance</b>	to 1000st +1.4
<b>Mounting brackets</b>	Basic type, Axial foot type, Front (Rear) flange type

## Stroke Table

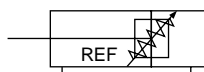
Unit: mm

Bore size (mm)	Standard stroke <sup>Note 1)</sup>	Maximum stroke <sup>Note 2)</sup>
20	to 700	1500
25	to 700	1500
32	to 1000	1500
40	to 1000	1500
50	to 1200	1500
63	to 1200	1500
80	to 1400	1500
100	to 1500	1500

## Energy Absorption/Cushion Stroke

Bore size (mm)	Max. energy absorption [J (kgfcm)]	Effective cushion stroke (mm)
20	7 (70)	80
25	12 (120)	80
32	21 (210)	80
40	33 (330)	80
50	47 (470)	80
63	84 (840)	80
80	127 (1270)	80
100	196 (1960)	80

## Symbol



Note 1) When the standard stroke is exceeded, it is outside the guaranteed range.

Note 2) Contact SMC if a stroke greater than the maximum stroke is desired.

## Mounting Bracket Part Numbers

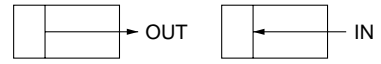
Bore size (mm)	20	25	32	40	50	63	80	100
Axial foot type*	RHC-L020	RHC-L025	RHC-L032	RHC-L040	RHC-L050	RHC-L063	RHC-L080	RHC-L100
Flange*	RHC-F020	RHC-F025	RHC-F032	RHC-F040	RHC-F050	RHC-F063	RHC-F080	RHC-F100

## Auto Switch Mounting Bracket Part Numbers (Band and screw included)

Applicable auto switches		Bore size (mm)							
		20	25	32	40	50	63	80	100
Reed	D-C73, D-C76, D-C80 D-C73C, D-C80C								
Solid state	D-H7A1, D-H7A2, D-H7B, D-H7C D-H7NW, D-H7PW, D-H7BW D-H7LF, D-H7NF, D-H7BAL	BMA2-020	BMA2-025	BMA2-032	BMA2-040	BMA2-050	BMA2-063	—	—
Reed	D-B53, D-B54, D-B64, D-B59W	BA-01	BA-02	BA-32	BA-04	BA-05	BA-06	BA-08	BA-10
Solid state	D-G5NTL								
Reed	D-A33, D-A34, D-A4	—	—	—	BD1-04M	BD1-05M	BD1-06M	BD1-08M	BD1-10M
Solid state	D-G39, D-K39								

# Series RHC

## Theoretical Output Table



Unit: N

Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm <sup>2</sup> )	Operating pressure MPa								
				0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
20	10	OUT	314	63	94	126	157	188	220	251	283	314
		IN	236	47	71	94	118	142	165	189	212	236
25	12	OUT	491	98	147	196	246	295	344	393	442	491
		IN	378	76	113	151	189	227	265	302	340	378
32	12	OUT	804	161	241	322	402	482	563	643	724	804
		IN	691	138	207	276	346	415	484	553	622	691
40	16	OUT	1260	252	378	504	630	756	882	1010	1130	1260
		IN	1060	212	318	424	530	636	742	848	954	1060
50	20	OUT	1963	393	589	785	982	1178	1374	1570	1767	1964
		IN	1473	295	442	589	736	884	1031	1178	1325	1473
63	20	OUT	3117	623	935	1247	1559	1870	2182	2494	2806	3117
		IN	2626	525	788	1051	1313	1576	1839	2101	2364	2626
80	25	OUT	5027	1005	1508	2011	2513	3016	3519	4021	4524	5027
		IN	4320	864	1296	1728	2160	2592	3024	3456	3888	4320
100	30	OUT	7854	1570	2356	3142	3927	4712	5498	6283	7069	7854
		IN	6892	1378	2068	2757	3446	4135	4824	5514	6203	6892

1N: Approx. 0.102kgf 1MPa: Approx. 10.2kgf/cm<sup>2</sup>

Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm<sup>2</sup>)

## Weight Table (Based on a 500mm stroke for each bore size.)

Bore size (mm)		20	25	32	40	50	63	80	100
Basic weight	Basic type	1.20	1.62	2.04	3.20	4.90	6.08	8.93	13.60
	Axial foot type	1.44	1.88	2.44	3.72	5.95	7.32	11.04	16.67
	Flange type	1.29	1.79	2.23	3.47	5.68	6.97	10.67	15.92
Additional weight per 50mm of stroke		0.06	0.08	0.09	0.15	0.22	0.25	0.35	0.51

Calculation method Example: RHCL32-600

• Basic weight ..... 2.44 [foot type ø32]

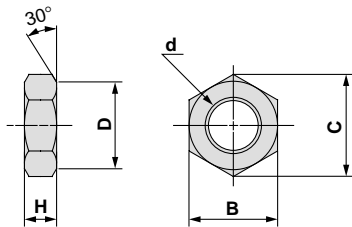
• Additional weight .... 0.09/50mm stroke

• Cylinder stroke ..... 600mm stroke

2.44 + 0.09 x 100/50 = 2.62kg

## Accessories

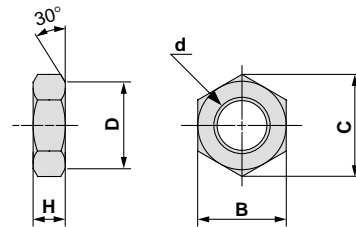
### Mounting nut



(mm) Material: Carbon steel

Part No.	Applicable bore size	B	C	D	d	H
SOR-20	20	26	30	26	M22 x 1.5	8
SOR-25	25	32	36.9	32	M24 x 1.5	8
SOR-32	32	38	43.9	38	M30 x 1.5	9
SOR-40	40	41	47.3	41	M33 x 2.0	11

### Rod end nut

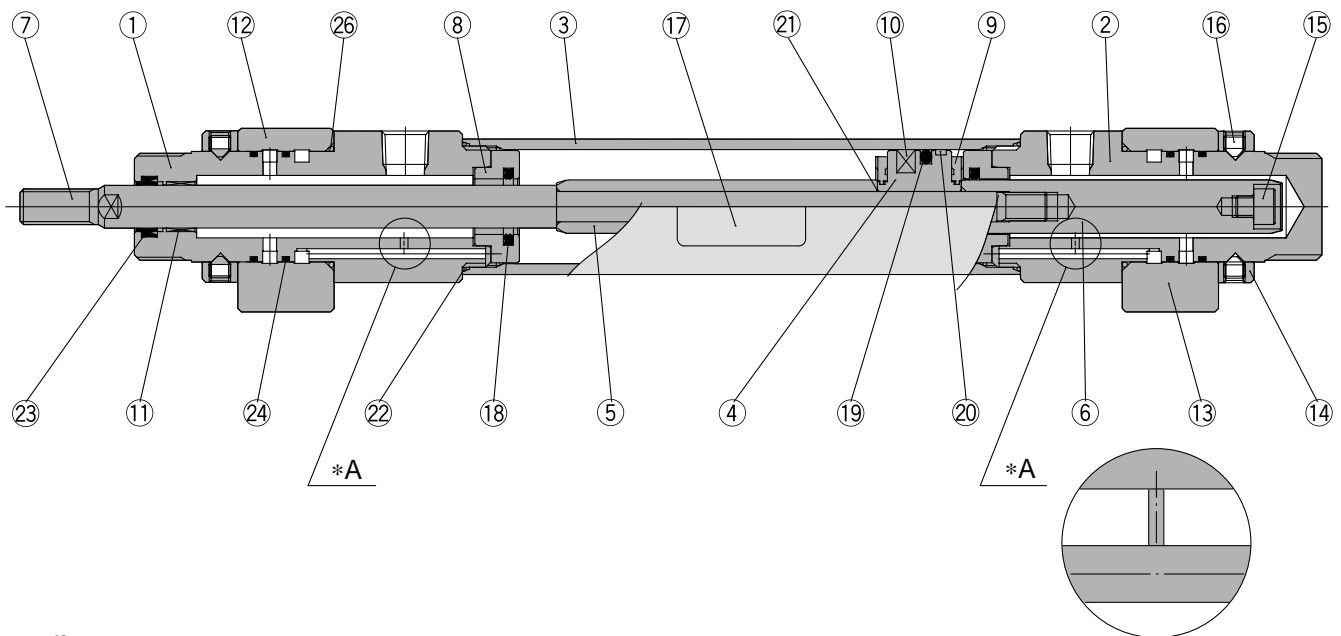


(mm) Material: Carbon steel

Part No.	Applicable bore size	B	C	D	d	H
NT-02	20	13	15	12.5	M8 x 1.25	5
NT-03	25/32	17	19.6	16.5	M10 x 1.25	6
NT-04	40	22	25.4	21.0	M14 x 1.5	8
NT-05	50	27	31	26	M18 x 1.5	11
NT-05	63	27	31	26	M18 x 1.5	11
NT-08	80	32	37	31	M22 x 1.5	13
NT-10	100	41	47.3	39	M26 x 1.5	16

# High Power Cylinder *Series RHC*

## Construction (ø20 to ø40)



### Parts list

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	Clear anodized
2	Head cover	Aluminum alloy	Clear anodized
3	Cylinder tube	Aluminum alloy	Hard anodized
4	Piston	Aluminum alloy	Chromated
5	Cushion ring A	Carbon steel	Hard chrome plated
6	Cushion ring B	Carbon steel	Hard chrome plated
7	Piston rod	Carbon steel	Hard chrome plated
8	Cushion spacer	Stainless steel	
9	Bumper	Urethane	
10	Magnet	—	
11	Bushing	Oil containing sintered metal	
12	Relief valve assembly (rod side)	—	
13	Relief valve assembly (head side)	—	
14	Relief valve body retainer	Aluminum alloy	Clear anodized
15	Hexagon socket head cap screw	Chromium molybdenum steel	ø20: M5 x 0.8 x 6 ø25, ø32: M6 x 1 x 6 ø40: M8 x 1.25 x 8 Nickel plated
16	Hexagon socket head set screw	Chromium molybdenum steel	ø20, ø25: M5 x 0.8 x 6 ø32, ø40: M6 x 1 x 8 Nickel plated
17	Label	—	
18	Cushion seal	Special resin	
19	Piston seal	NBR	
20	Wear ring	Resin	
21	Piston gasket	NBR	
22	Cylinder tube gasket	NBR	
23	Rod seal	NBR	
24	O-ring	NBR	
25	O-ring	NBR	

Section A enlarged view

### Replacement parts: Seal kits

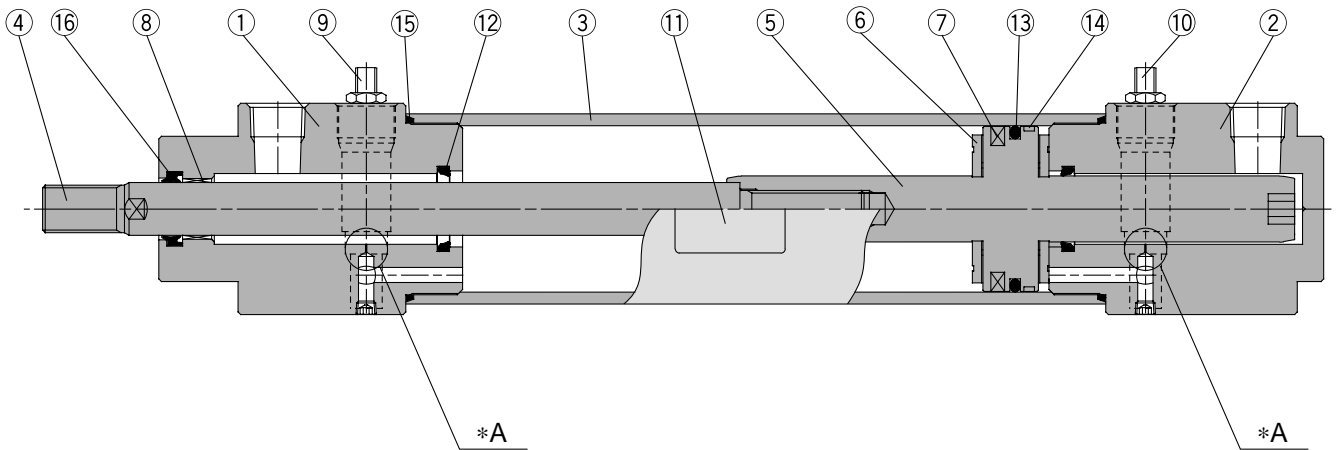
Bore size (mm)	Seal kit no.	Contents
20	RHC20-PS	Set of nos. 19 to 25 above
25	RHC25-PS	
32	RHC32-PS	
40	RHC40-PS	

\* Seal kits are sets consisting of items 19 through 25, which can be ordered using the seal kit number for each bore size.



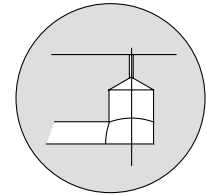
# Series RHC

## Construction (ø50 to ø100)



### Parts list

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	Clear anodized
2	Head cover	Aluminum alloy	Clear anodized
3	Cylinder tube	Aluminum alloy	Hard anodized
4	Piston rod	Carbon steel	Hard chrome plated
5	Piston	Aluminum alloy	Hard anodized
6	Bumper	Urethane	
7	Plastic magnet	—	
8	Bushing	—	
9	Relief valve assembly L	—	
10	Relief valve assembly R	—	
11	Label	—	
12	Cushion seal	Urethane	
13	Piston seal	NBR	
14	Wear ring	Resin	
15	Cylinder tube gasket	NBR	
16	Rod seal	NBR	



Section A enlarged view

### Replacement parts: Seal kits

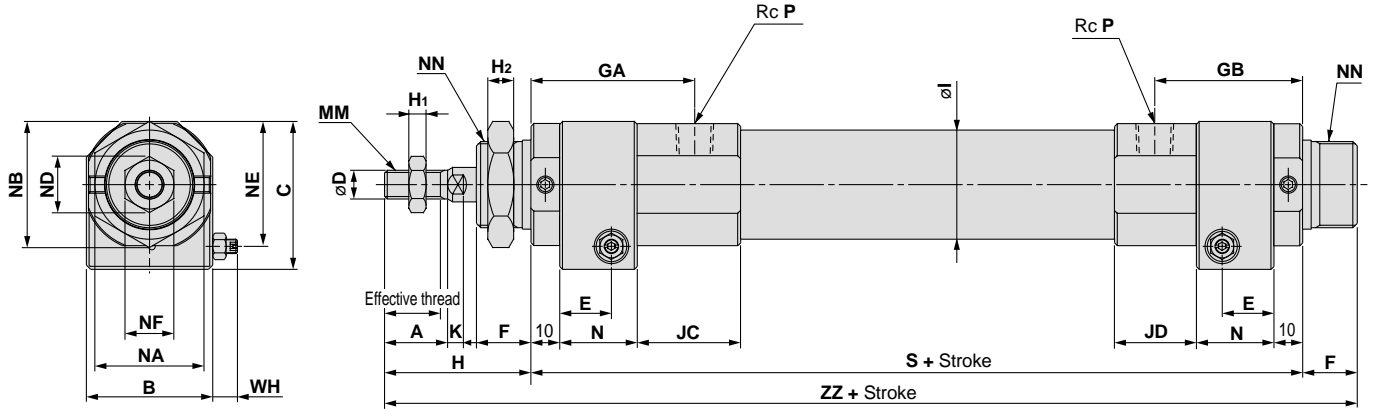
Bore size (mm)	Seal kit no.	Contents
50	RHC50-PS	Set of nos. 12 to 16 above
63	RHC63-PS	
80	RHC80-PS	
100	RHC100-PS	

\* Seal kits are sets consisting of items 12 through 16, which can be ordered using the seal kit number for each bore size.

# High Power Cylinder *Series RHC*

## Dimensions/Basic Type

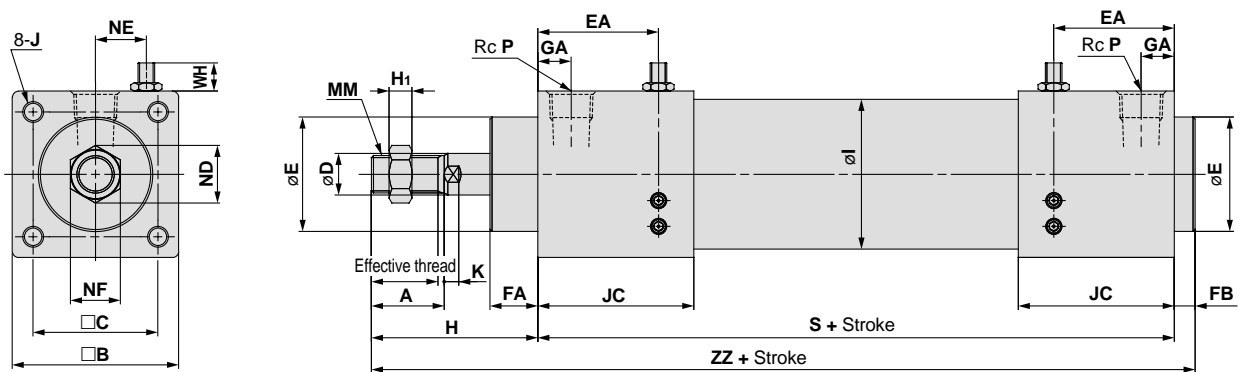
### ø20 to ø40



Bore size (mm)	Stroke range (mm)	Effective thread length	A	B	C	D	E	F	GA	GB	H	H1	H2	I
20	200 to 700	15.5	18	32	40.5	10	14.5	16	53.5	47.5	44	5	8	26
25	200 to 700	19.5	22	36	45.5	12	18	16	56.5	49.5	48	6	8	31
32	200 to 1000	19.5	22	44	51.5	12	18	19	55	51.5	51	6	9	38
40	200 to 1000	21	24	53	61.5	16	20.5	21	56	51.5	54.5	8	11	47

Bore size (mm)	JC	JD	K	MM	N	NE	NA	NB	NF	ND	NN	P	S	WH	ZZ
20	43	30.5	5	M8 x 1.25	22	33.5	26	30	13	15.0	M22 x 1.5	1/4	192	5.8 to 8.8	252
25	39	25.5	5.5	M10 x 1.25	27	37	32	36.9	17	19.6	M24 x 1.5	1/4	193		257
32	36	28.5	5.5	M10 x 1.25	27	43.5	38	43.9	17	19.6	M30 x 1.5	3/8	195		265
40	32	23	7.5	M14 x 1.5	30	52.5	41	47.3	22	25.4	M33 x 2.0	3/8	201.5	6.8 to 11.3	277

### ø50 to ø100



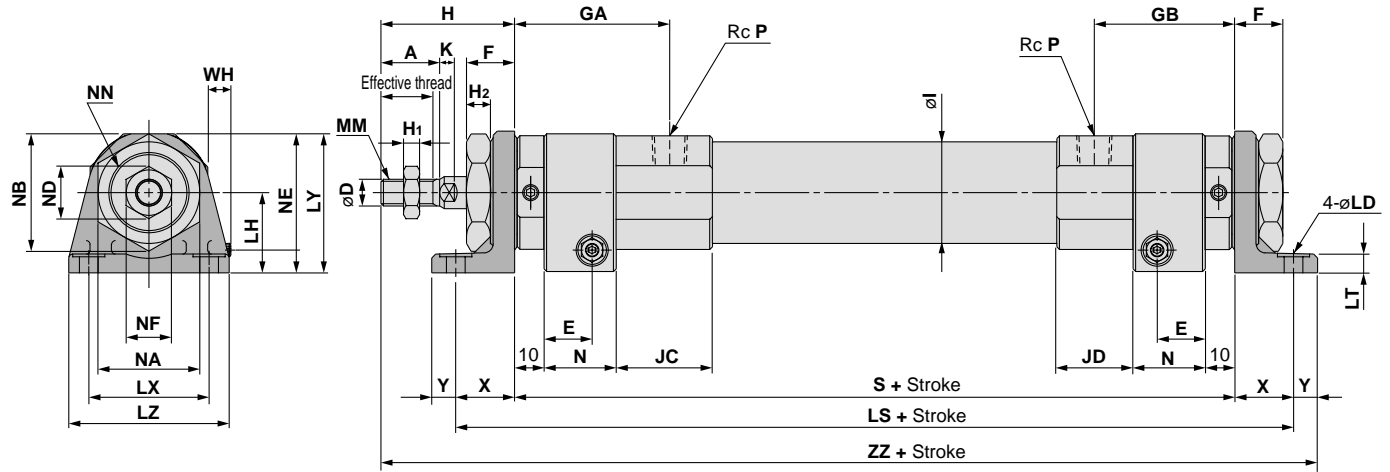
Bore size (mm)	Stroke range (mm)	Effective thread length	A	B	C	D	E	EA	FA	FB	GA	H
50	250 to 1000	32	35	70	53	20	50 <sup>0</sup> <sub>-0.042</sub>	62	23	10	16	80
63	250 to 1000	32	35	80	60	20	55 <sup>0</sup> <sub>-0.074</sub>	58	23	10	16	80
80	250 to 1000	37	40	95	75	25	65 <sup>0</sup> <sub>-0.074</sub>	61	23	10	20	90
100	250 to 1000	37	40	116	90	30	80 <sup>0</sup> <sub>-0.074</sub>	63	25	10	20	95

Bore size (mm)	H1	I	J	JC	K	MM	ND	NE	NF	P	S	WH	ZZ
50	11	58	M10 x 1.5 thread depth 20	75	7	M18 x 1.5	27.7	25	24	1/2	215	6.8 to 11.3	305
63	11	72	M10 x 1.5 thread depth 20	75	7	M18 x 1.5	27.7	24.5	24	1/2	215		305
80	13	89	M12 x 1.75 thread depth 25	78	10	M22 x 1.5	37	30.5	32	3/4	228	8.5 to 13.5	328
100	16	110	M12 x 1.75 thread depth 25	80	10	M26 x 1.5	47.3	34	41	3/4	236		341

# Series RHC

## Dimensions/Axial Foot Type

ø20 to ø40

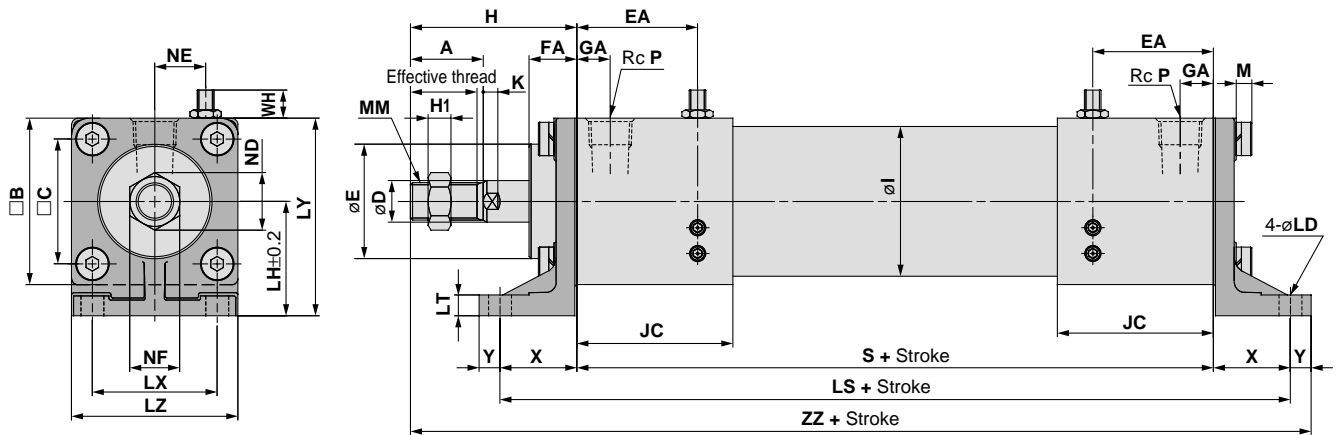


																	(mm)		
Bore size (mm)	Stroke range (mm)	Effective thread length	A	D	E	F	GA	GB	H	I	JC	JD	K	LD	LH	H1	H2		
20	200 to 700	15.5	18	10	14.5	16	53.5	47.5	44	26	43	30.5	5	7	25	5	8		
25	200 to 700	19.5	22	12	18	16	56.5	49.5	48	31	39	25.5	5.5	7	28	6	8		
32	200 to 1000	19.5	22	12	18	19	55	51.5	51	38	36	28.5	5.5	7	30	6	9		
40	200 to 1000	21	24	16	20.5	21	56	51.5	54.5	47	32	23	7.5	9	35	8	11		

Bore size (mm)	LS	LT	LX	LY	LZ	MM	N	NA	NB	NE	NF	ND	NN	P	S	WH	X	Y	ZZ
20	232	5.5	40	41	55	M8 x 1.25	22	26	30	33.5	13	15.0	M22 x 1.5	1/4	192	5.8 to 8.8	20	9	265
25	233	5.5	40	46.5	55	M10 x 1.25	27	32	36.9	37	17	19.6	M24 x 1.5	1/4	193		20	9	270
32	241	6	45	53	60	M10 x 1.25	27	38	43.9	43.5	17	19.6	M30 x 1.5	3/8	195		23	9	278
40	251.5	6	55	62	75	M14 x 1.5	30	41	47.3	52.5	22	25.4	M33 x 2.0	3/8	201.5	6.8 to 11.3	25	11	292

ø50 to ø100



																	(mm)		
Bore size (mm)	Stroke range (mm)	Effective thread length	A	B	C	D	E	EA	FA	GA	H	H1	I	JC	K	LD			
50	250 to 1000	32	35	70	53	20	50 <sup>0</sup> <sub>-0.042</sub>	62	23	16	80	11	58	75	7	11			
63	250 to 1000	32	35	80	60	20	55 <sup>0</sup> <sub>-0.074</sub>	58	23	16	80	11	72	75	7	11			
80	250 to 1000	37	40	95	75	25	65 <sup>0</sup> <sub>-0.074</sub>	61	23	20	90	13	89	78	10	13			
100	250 to 1000	37	40	116	90	30	80 <sup>0</sup> <sub>-0.074</sub>	63	25	20	95	16	110	80	10	13			

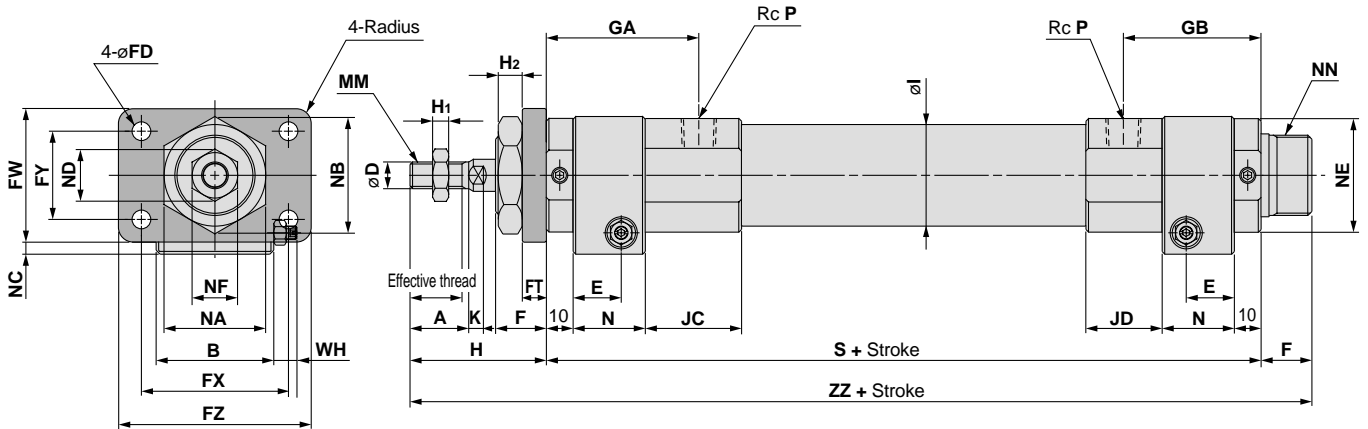
  

Bore size (mm)	LH	LS	LT	LY	LX	LZ	M	MM	ND	NE	NF	P	S	WH	X	Y	ZZ
50	52	275	10	88.5	53	73	7.5	M18 x 1.5	27.7	25	24	1/2	215	6.8 to 11.3	30	10	335
63	55	289	10	95	60	80	7.5	M18 x 1.5	27.7	24.5	24	1/2	215	8.5 to 13.5	37	10	342
80	65	308	12	115	75	100	10	M22 x 1.5	37	30.5	32	3/4	228		40	13	371
100	80	330	14	139	90	118	10	M26 x 1.5	47.3	34	41	3/4	236	47	13	391	

# High Power Cylinder *Series RHC*

## Dimensions/Front Flange Type

### ø20 to ø40

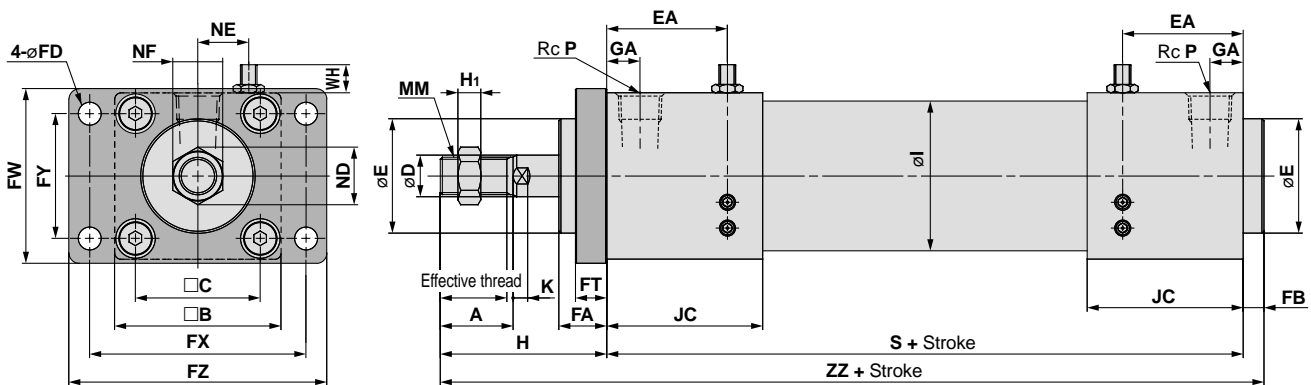


Bore size (mm)	Stroke range (mm)	Effective thread length	A	B	D	E	F	FD	FT	FX	FY	FW	FZ	GA	GB	H1	H2
20	200 to 700	15.5	18	32	10	14.5	16	7	6	51	21	38	68	53.5	47.5	5	8
25	200 to 700	19.5	22	36	12	18	16	7	9	53	27	44	70	56.5	49.5	6	8
32	200 to 1000	19.5	22	44	12	18	19	7	9	55	33	50	72	55	51.5	6	9
40	200 to 1000	21	24	53	16	20.5	21	9	9	66	36	60	84	56	51.5	8	11

Bore size (mm)	H	I	JC	JD	K	MM	N	NA	NB	NC	NE	NF	ND	NN	P	S	WH	ZZ
20	44	26	43	30.5	5	M8 x 1.25	22	26	30	5.5	33.5	13	15.0	M22 x 1.5	1/4	192	5.8 to 8.8	252
25	48	31	39	25.5	5.5	M10 x 1.25	27	32	36.9	5.5	37	17	19.6	M24 x 1.5	1/4	193		257
32	51	38	36	28.5	5.5	M10 x 1.25	27	38	43.9	4.5	43.5	17	19.6	M30 x 1.5	3/8	195		265
40	54.5	47	32	23	7.5	M14 x 1.5	30	41	47.3	4.5	52.5	22	25.4	M33 x 2.0	3/8	201.5		6.8 to 11.3

### ø50 to ø100



Bore size (mm)	Stroke range (mm)	Effective thread length	A	B	C	D	E	EA	FA	FB	FD	FT	FW	FX
50	250 to 1000	32	35	70	53	20	50 <sup>0</sup> <sub>-0.042</sub>	62	23	10	11	15	78	96
63	250 to 1000	32	35	80	60	20	55 <sup>0</sup> <sub>-0.074</sub>	58	23	10	11	15	84	104
80	250 to 1000	37	40	95	75	25	65 <sup>0</sup> <sub>-0.074</sub>	61	23	10	13	18	106	130
100	250 to 1000	37	40	116	90	30	80 <sup>0</sup> <sub>-0.074</sub>	63	25	10	13	20	120	145

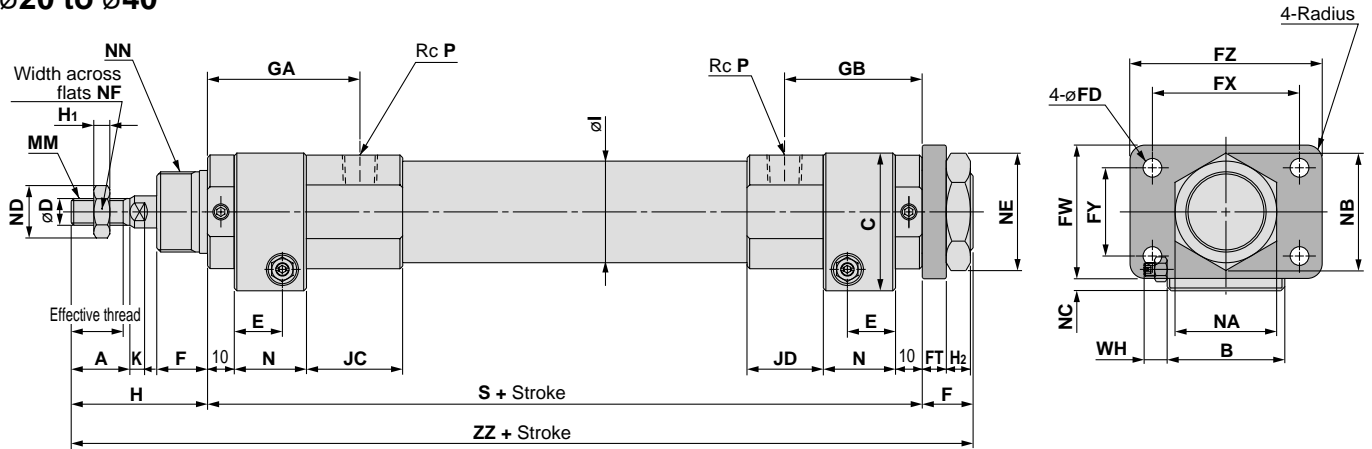
  

Bore size (mm)	FY	FZ	GA	H	H1	I	JC	K	MM	ND	NE	NF	P	S	WH	ZZ
50	53	116	16	80	11	58	75	7	M18 x 1.5	27.7	25	24	1/2	215	6.8 to 11.3	305
63	60	124	16	80	11	72	75	7	M18 x 1.5	27.7	24.5	24	1/2	215		305
80	75	155	20	90	13	89	78	10	M22 x 1.5	37	30.5	32	3/4	228	8.5 to 13.5	328
100	90	172	20	95	16	110	80	10	M26 x 1.5	47.3	34	41	3/4	236		341

# Series RHC

## Dimensions/Rear Flange Type

### ø20 to ø40

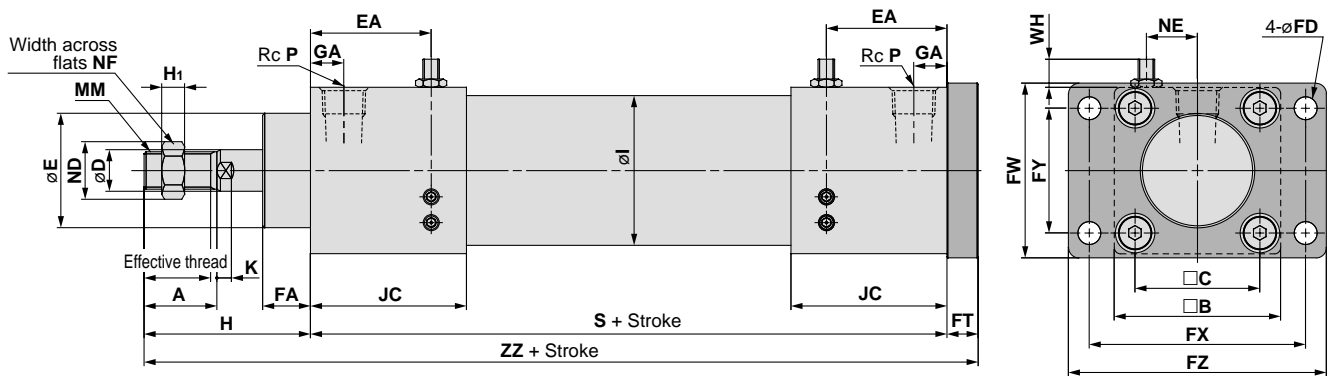


																	(mm)	
Bore size (mm)	Stroke range (mm)	Effective thread length	A	B	C	D	E	F	FD	FT	FX	FY	FW	FZ	GA	GB	H <sub>1</sub>	
20	200 to 700	15.5	18	32	40.5	10	14.5	16	7	6	51	21	38	68	53.5	47.5	5	
25	200 to 700	19.5	22	36	45.5	12	18	16	7	9	53	27	44	70	56.5	49.5	6	
32	200 to 1000	19.5	22	44	51.5	12	18	19	7	9	55	33	50	72	55	51.5	6	
40	200 to 1000	21	24	53	61.5	16	20.5	21	9	9	66	36	60	84	56	51.5	8	

Bore size (mm)	H	I	JC	JD	K	MM	N	NA	NB	NC	NE	NF	ND	NN	P	S	WH	ZZ
20	44	26	43	30.5	5	M8 x 1.25	22	26	30	5.5	33.5	13	15.0	M22 x 1.5	1/4	192	5.8 to 8.8	252
25	48	31	39	25.5	5.5	M10 x 1.25	27	32	36.9	5.5	37	17	19.6	M24 x 1.5	1/4	193		257
32	51	38	36	28.5	5.5	M10 x 1.25	27	38	43.9	4.5	43.5	17	19.6	M30 x 1.5	3/8	195		265
40	54.5	47	32	23	7.5	M14 x 1.5	30	41	47.3	4.5	52.5	22	25.4	M33 x 2.0	3/8	201.5	6.8 to 11.3	277

### ø50 to ø100



																(mm)	
Bore size (mm)	Stroke range (mm)	Effective thread length	A	B	C	D	E	EA	FA	FD	FT	FW	FX	FY			
50	250 to 1000	32	35	70	53	20	50 <sup>0</sup> <sub>-0.042</sub>	62	23	11	15	78	96	53			
63	250 to 1000	32	35	80	60	20	55 <sup>0</sup> <sub>-0.074</sub>	58	23	11	15	84	104	60			
80	250 to 1000	37	40	95	75	25	65 <sup>0</sup> <sub>-0.074</sub>	61	23	13	18	106	130	75			
100	250 to 1000	37	40	116	90	30	80 <sup>0</sup> <sub>-0.074</sub>	63	25	13	20	120	145	90			

Bore size (mm)	FZ	GA	H	H <sub>1</sub>	I	JC	K	MM	ND	NE	NF	P	S	WH	ZZ
50	116	16	80	11	58	75	7	M18 x 1.5	27.7	25	24	1/2	215	6.8 to 11.3	310
63	124	16	80	11	72	75	7	M18 x 1.5	27.7	24.5	24	1/2	215	8.5 to 13.5	310
80	155	20	90	13	89	78	10	M22 x 1.5	37	30.5	32	3/4	228		336
100	172	20	95	16	110	80	10	M26 x 1.5	47.3	34	41	3/4	236		351

# Series RHC Auto Switch Specifications

\* Refer to CAT.E274-A "Auto Switch Guide" for detailed specifications of auto switch units.



## Applicable Auto Switches



Auto switch type	Auto switch model	Electrical entry
Reed switch	D-C7, C8	Grommet
	D-C73C, C80C	Connector
	D-B5, B6	Grommet
	D-B59W	Grommet (2 color indicator)
Solid state switch	D-H7A, H7B	Grommet
	D-H7C	Connector
	D-H7□W	Grommet (2color indicator)
	D-H7BAL	Grommet (water resistant/2 color indicator)
	D-G5NT	Grommet (with timer)
	D-H7NF	Grommet (with diagnostic output /2 color indicator)
	D-H7LF	Grommet (latch type with diagnostic output/2 color indicator)

## Auto Switch Mounting Bracket Part Numbers (Band and screw included)

Applicable auto switches		Bore size (mm)							
		20	25	32	40	50	63	80	100
Reed	D-C73, D-C76, D-C80 D-C73C, D-C80C	BMA2-020	BMA2-025	BMA2-032	BMA2-040	BMA2-050	BMA2-063	—	—
Solid state	D-H7A1, D-H7A2, D-H7B, D-H7C D-H7NW, D-H7PW, D-H7BW D-H7LF, D-H7NF, D-H7BAL								
Reed	D-B53, D-B54, D-B64, D-B59W	BA-01	BA-02	BA-32	BA-04	BA-05	BA-06	BA-08	BA-10
Solid state	D-G5NTL								
Reed	D-A33, D-A34, D-A4	—	—	—	BD1-04M	BD1-05M	BD1-06M	BD1-08M	BD1-10M
Solid state	D-G39, D-K39								

## Specific Product Precautions

Be sure to read before handling. Refer to Pages 17 through 22 for safety instructions and common precautions.

# Series RHC Auto Switch Specifications

## Contact Protection Boxes/CD-P11, CD-P12

### <Applicable auto switches >

D-C7, C8, D-C73C, C80C, D-B53

The above auto switches do not have internal contact protection circuits.

1. The operating load is an induction load.
2. The length of wiring to the load is 5m or more.
3. The load voltage is 100VAC.

A contact protection box should be used in any of the above situations. The life of the contacts may otherwise be reduced. (They may stay on continuously.) Even in the case of types which have internal contact protection circuits (D-B54, D-B64, D-B59W), when the length of wiring to the load is very long (30m or more) and a PLC having a large rush current is used, a contact protection box may be necessary. This should be confirmed.

### Contact protection box specifications

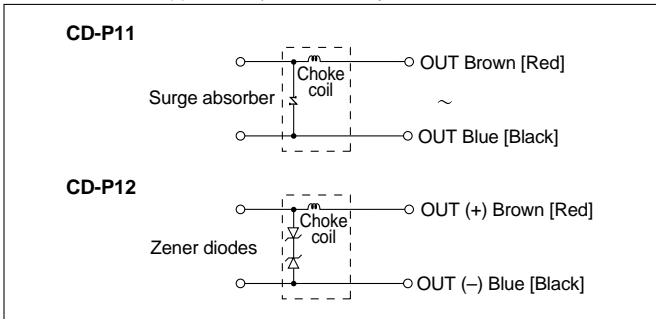
Part No.	CD-P11		CD-P12
	Load voltage	100VAC	200VAC
Max. load current	25mA	12.5mA	50mA

\* Lead wire length — Switch connection side 0.5m  
Load connection side 0.5m

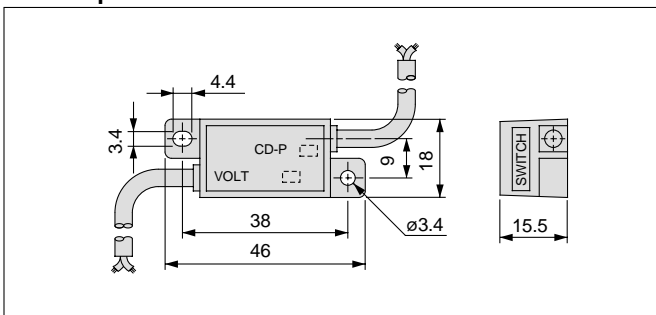


### Contact protection box internal circuits

Lead wire colors inside ( ) are those prior to conformity with IEC standards.



### Contact protection box dimensions



### Contact Protection Box Connection

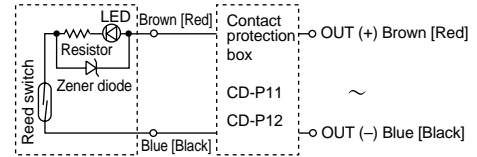
To connect a switch unit to a contact protection box, connect the lead wires from the side of the contact protection box marked SWITCH to the lead wires coming out of the switch unit. Further, the switch unit should be kept as close as possible to the contact protection box, with a lead wire length of no more than 1 meter.

## Auto Switch Internal Circuits

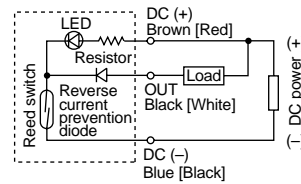
Lead wire colors inside ( ) are those prior to conformity with IEC standards.

### Reed Switches

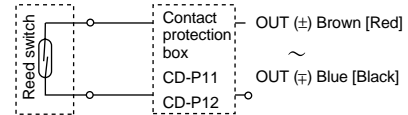
#### D-C73



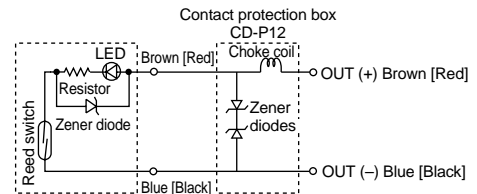
#### D-C76



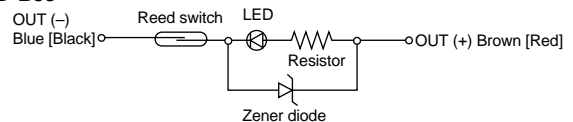
#### D-C80



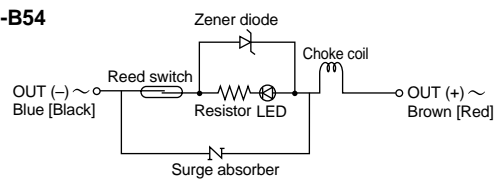
#### D-C73C



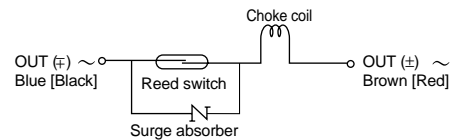
#### D-B53



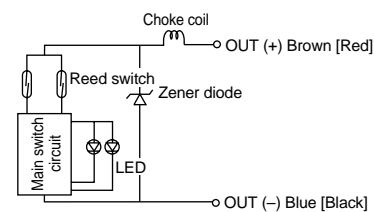
#### D-B54



#### D-B64



#### D-B59W

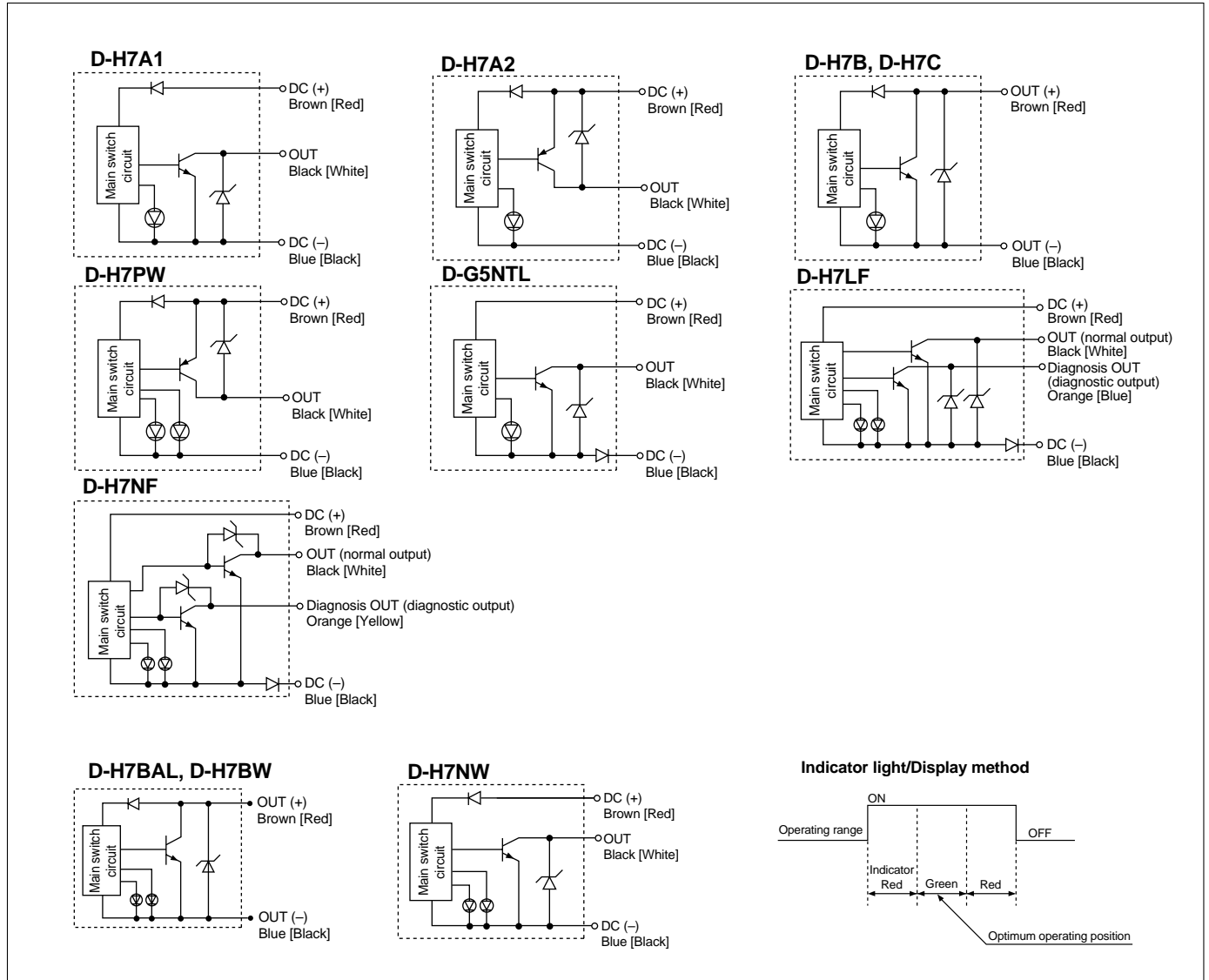


# Series RHC Auto Switch Specifications

## Auto Switch Internal Circuits

Lead wire colors inside ( ) are those prior to conformity with IEC standards.

### Solid State Switches

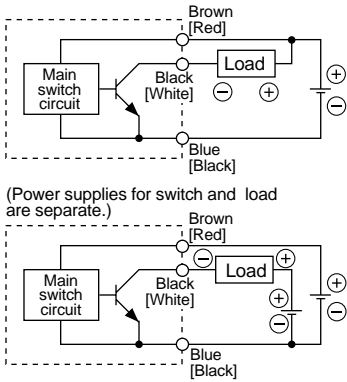




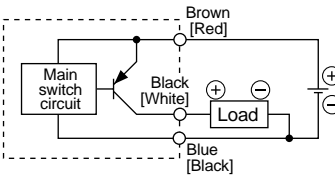
# Series RHC Auto Switch Connections and Examples

## Basic Wiring

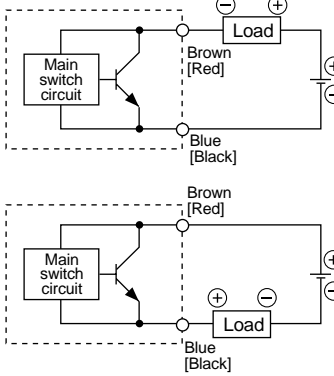
### Solid state 3 wire, NPN



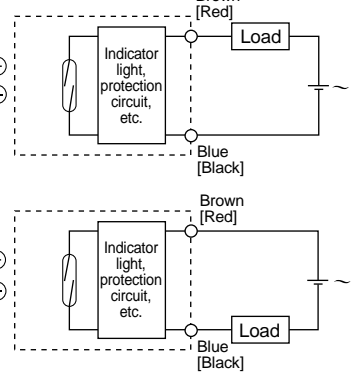
### Solid state 3 wire, PNP



### 2 wire <Solid state>



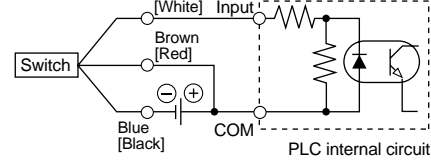
### 2 wire <Reed switch>



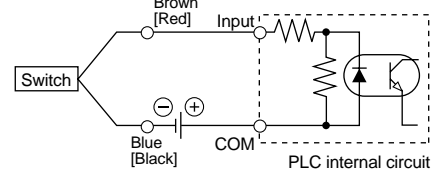
## Examples of Connection to PLC

### Sink input specifications

#### 3 wire, NPN

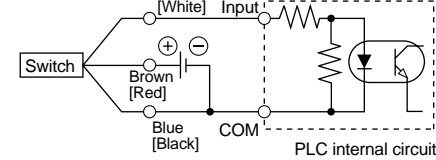


#### 2 wire

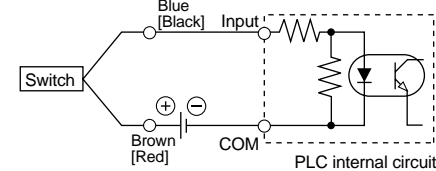


### Source input specifications

#### 3 wire, PNP



#### 2 wire

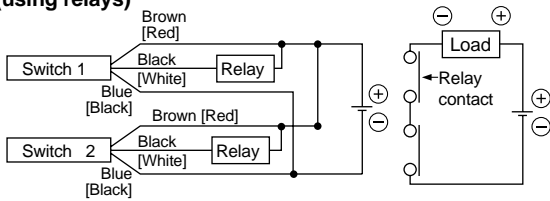


Connect according to the applicable PLC input specifications, as the connection method will vary depending on the PLC input specifications.

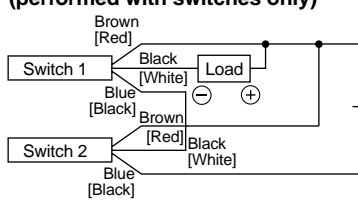
## Connection Examples for AND (Series) and OR (Parallel)

### 3 wire

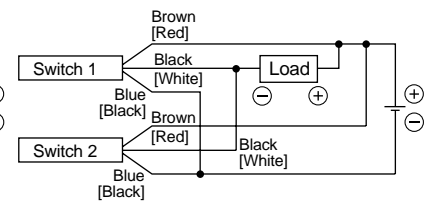
#### AND connection for NPN output (using relays)



#### AND connection for NPN output (performed with switches only)

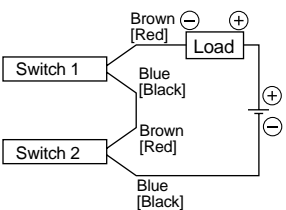


#### OR connection for NPN output



The indicator lights will light up when both switches are turned ON.

### 2 wire with 2 switch AND connection

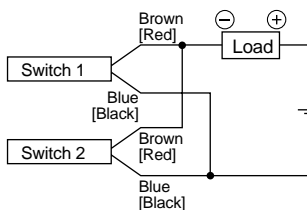


When two switches are connected in series, a load may malfunction because the load voltage will decline when in the ON state. The indicator lights will light up if both of the switches are in the ON state.

$$\begin{aligned} \text{Load voltage at ON} &= \text{Power supply voltage} - \text{Residual voltage} \times 2 \text{ pcs.} \\ &= 24\text{V} - 4\text{V} \times 2 \text{ pcs.} \\ &= 16\text{V} \end{aligned}$$

Example: Power supply is 24VDC  
Voltage decline in switch is 4V

### 2 wire with 2 switch OR connection



#### <Solid state>

When two switches are connected in parallel, malfunction may occur because the load voltage will increase when in the OFF state.

#### <Reed switch>

Because there is no current leakage, the load voltage will not increase when turned OFF. However, depending on the number of switches in the ON state, the indicator lights may sometimes get dark or not light up, because of dispersion and reduction of the current flowing to the switches.

$$\begin{aligned} \text{Load voltage at OFF} &= \text{Leakage current} \times 2 \text{ pcs.} \times \text{Load impedance} \\ &= 1\text{mA} \times 2 \text{ pcs.} \times 3\text{k}\Omega \\ &= 6\text{V} \end{aligned}$$

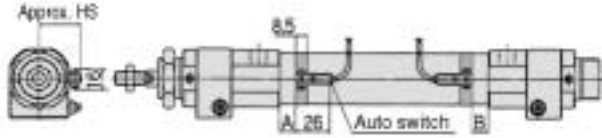
Example: Load impedance is 3kΩ  
Leakage current from switch is 1mA

# Series RHC Auto Switch Specifications

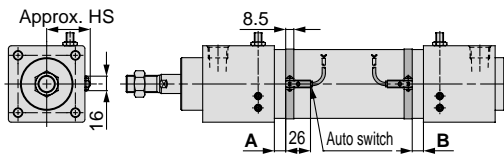
## Auto Switches/Proper Mounting Position and Mounting Height for Stroke End Detection

### D-C7/C8 type

ø20 to 40



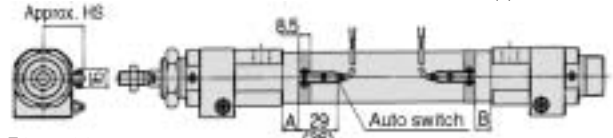
ø50 to 63



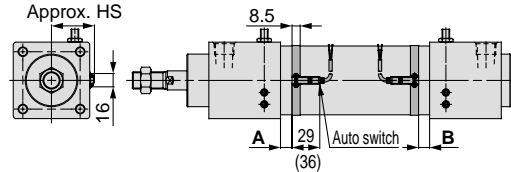
### D-H7□/H7□W/H7□F/H7BAL type

ø20 to 40

\* Values inside ( ) are for D-H7LF.

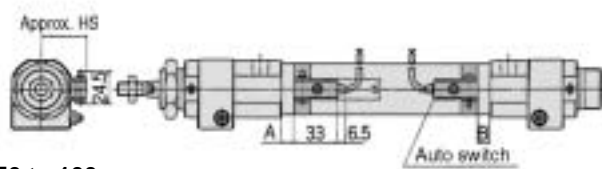


ø50 to 63

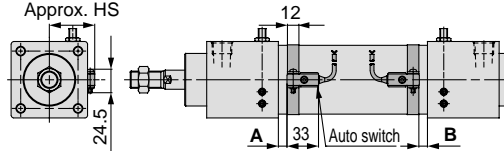


### D-B5/B6/B59W type

ø20 to 40

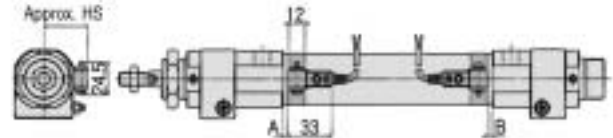


ø50 to 100

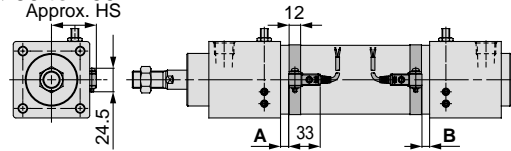


### D-G5NTL type

ø20 to 40

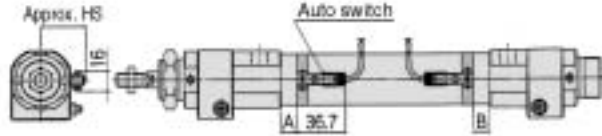


ø50 to 100

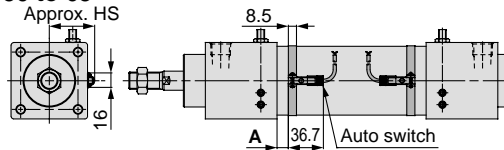


### D-C73C/C80C type

ø20 to 40

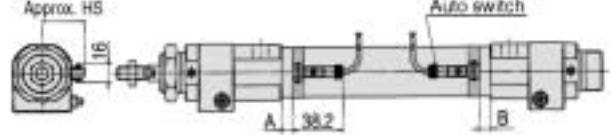


ø50 to 63

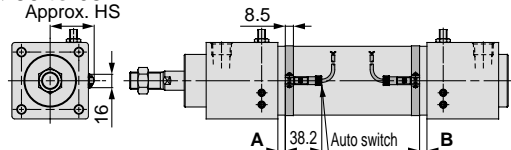


### D-H7C type

ø20 to 40



ø50 to 63



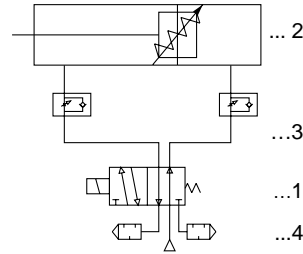
### Proper auto switch mounting position (mm)

Bore size (mm)	D-C7 D-C8 D-C73C D-C80C		D-B5 D-B6		D-H7□ D-H7C		D-G5NTL		D-H7□ W D-H7□ F D-H7BAL		D-B59W	
	A	B	A	B	A	B	A	B	A	B	A	B
20	15	20.5	9	14.5	14	19.5	10.5	16	12.5	18	12	17.5
25	15	20.5	9	14.5	14	19.5	10.5	16	12.5	18	12	17.5
32	15	22.5	9	16.5	14	21.5	10.5	18	12.5	20	12	19.5
40	20	27.5	14	21.5	19	26.5	15.5	23	17.5	25	17	24.5
50	18	28	12	22	17	27	13.5	23.5	15.5	25.5	15	28.5
63	18	28	12	22	17	27	13.5	23.5	15.5	25.5	15	28.5
80	—	—	13.5	27.5	—	—	15	29	—	—	16.5	30.5
100	—	—	15.5	29.5	—	—	17	31	—	—	18.5	32.5

### Auto switch mounting height (mm)

Bore size (mm)	D-C7, D-C8 D-H7□ D-H7C D-H7□ W D-H7□ F D-H7BAL		D-B5/B6 D-B59W D-G5NTL		D-C73C D-C80C	
	HS	HS	HS	HS	HS	HS
20	24.5	27.5	27	27	—	—
25	27	30	29.5	29.5	—	—
32	30.5	33.5	33	33	—	—
40	35	38	37.5	37.5	—	—
50	40.5	43.5	43	43	—	—
63	47.5	50.5	50.5	50.5	—	—
80	—	59	—	—	—	—
100	—	69.5	—	—	—	—

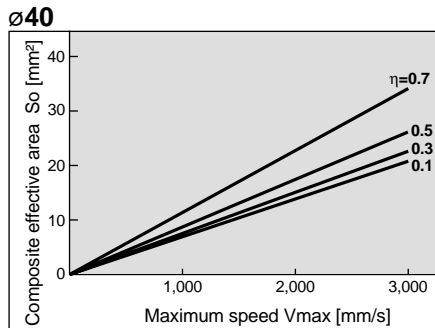
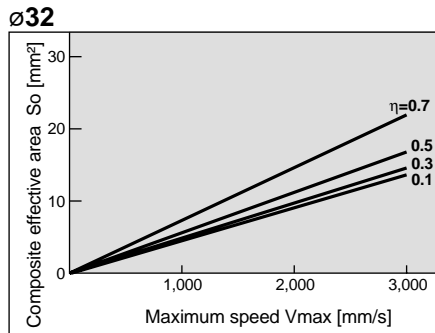
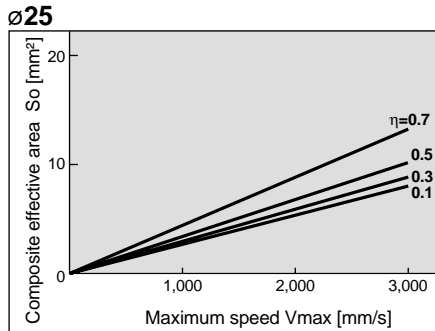
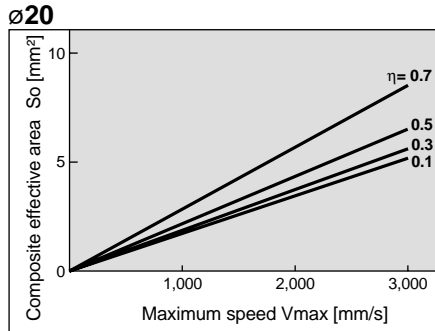
# Series RHC High Power Cylinder System Selection



1. Solenoid valve (A to G group)
2. Speed control valve (1-A to 2-B)
3. Piping 3m
4. Silencer  
(Supply pressure 0.5MPa)

Find the effective area  $S_o$  from the graphs by assigning values for  $\eta$  and  $V_{max}$ .

Select solenoid valves, speed control valves and tubing sizes, etc., using the system selection table.



$\eta$ : Cylinder load factor  
 $V_{max}$ : Maximum speed (Refer to Page 24)

## System Selection Table

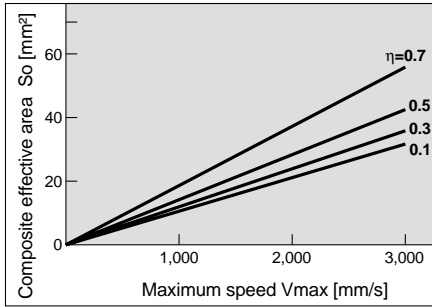
Cylinder bore size mm	Maximum cylinder speed mm/s	Composite effective area mm <sup>2</sup>	Solenoid valves ( ) indicates effective area mm <sup>2</sup> □ indicates metal seal type					Speed controller		Piping tube O.D. mm Steel tube piping size
			A group	B group	C group	D group	E group	1 With One-touch fitting	2 Standard type	
			3.6 to 6.3 VQ1000 (3.6) VQ1000 (5.4) SY3000 (5.4) SX3000 (5.4) SYJ5000 (4.5) VQZ1000 (3.6) VQZ1000 (6.3)	9.0 to 14.4 VQ2000 (14.4) — SY5000 (12.6) SX5000 (12.6) SYJ7000 (12.6) VQZ2000 (12.6) VQZ2000 (12.6)	16.2 to 21.6 — VQ2000 (16.2) — SY7000 (21.6) SX7000 (21.6) — VQZ3000 (16.2) VQZ3000 (21.6)	36 to 45 — VQ4000 (36.0) — VQ4000 (39.6) — — —	64.8 to 67 — — — — — — — —			
20	500	1.5						1-A AS22□1F (3.5) 1-B AS23□1F (3.5) 1-C AS2051F (4.5) 2-A AS22□0 (2.9) 2-B AS2000 (3.8)	∅6 1/8, 1/4	
	1000	3						1-C AS3001F (6.5) 2-B AS3000, AS3500 (12.3)	∅6 1/4, 3/8	
	1500	4.5						1-C AS4001F (16) 2-B AS3000, AS3500 (12.3)	∅10 1/4, 3/8	
	2000	6						1-C AS4001F (16) 2-B AS3000, AS3500 (12.3)	∅10 1/4, 3/8	
	2500	7.5						1-C AS4001F (16) 2-B AS3000, AS3500 (12.3)	∅10 1/4, 3/8	
	3000	9						1-C AS4001F (16) 2-B AS3000, AS3500 (12.3)	∅10 1/4, 3/8	
25	500	2.5						1-C AS2051F (4.5) 2-B AS3000, AS3500 (12.3)	∅6 1/4, 3/8	
	1000	5						1-C AS3001F (10) 2-B AS3000, AS3500 (12.3)	∅8 1/4, 3/8	
	1500	7.5						1-C AS4001F (16) 2-B AS3000, AS3500 (12.3)	∅10 1/4, 3/8	
	2000	10						1-C AS4001F (16) 2-B AS4000 (25.5)	∅10 1/4	
	2500	12.5						2-B AS4000 (25.5)	1/4	
	3000	15						2-B AS4000 (25.5)	1/4	
32	500	4						1-A AS32□1F (10) 1-B AS33□1F (10) 1-C AS4001F (16) 2-A AS32□0 (13) 2-B AS3000, AS3500 (12.3)	∅6 ∅10 1/4, 3/8	
	1000	8						1-C AS4001F (16) 2-A AS32□0 (13) 2-B AS3000, AS3500 (12.3)	∅10 1/4, 3/8	
	1500	12						2-B AS4000 (25.5)	1/4, 3/8	
	2000	16						2-B AS5000 (74)	3/8	
	2500	20						2-B AS5000 (74)	3/8	
	3000	24						2-B AS5000 (74)	3/8	
40	500	6						1-A AS32□1F (10) 1-B AS33□1F (10) 1-C AS4001F (16) 2-A AS32□0 (13) 2-B AS3000, AS3500 (12.3)	∅8 ∅10 1/4, 3/8	
	1000	12						2-B AS4000 (25.5)	3/8∅12	
	1500	18						2-B AS5000 (74)	3/8∅12	
	2000	24						2-B AS5000 (74)	3/8∅12	
	2500	30						2-B AS5000 (74)	3/8∅12	
	3000	36						2-B AS420 (74)	3/8∅12	

Note) Since the cushion capacity may be exceeded in high speed, high load operation, confirm the maximum energy absorption on page 2.

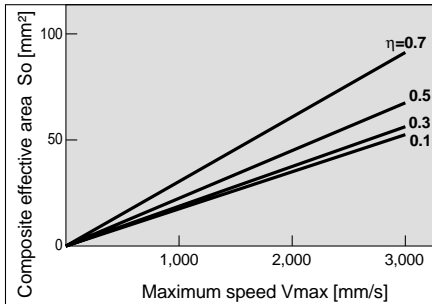
Find the effective area  $S_o$  from the graphs by assigning values for  $\eta$  and  $V_{max}$ .

Select solenoid valves, speed control valves and tubing sizes, etc., using the system selection table.

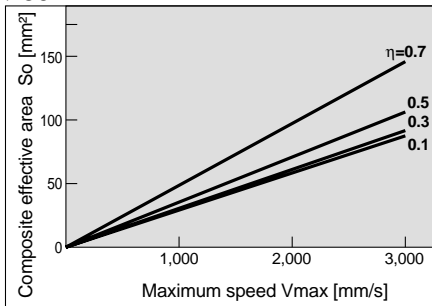
**Ø50**



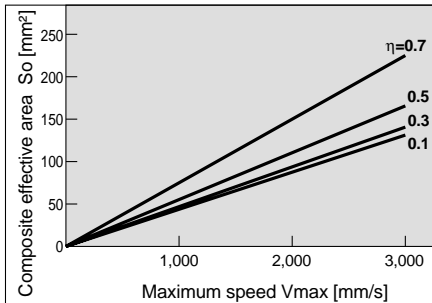
**Ø63**



**Ø80**



**Ø100**



$\eta$  : Cylinder load factor  
 $V_{max}$  : Maximum speed (Refer to page 24)

## System Selection Table

Cylinder bore size mm	Maximum cylinder speed mm/s	Composite effective area mm <sup>2</sup>	Solenoid valve ( ) indicates effective area mm <sup>2</sup> □ indicates metal seal type.					Speed controller		Piping tube O.D. mm Steel tube piping size	
			C group	D group	E group	F group	G group	Standard fitting	1-A Elbow type		
			16.2 to 21.6	36 to 45	64.8 to 67	102.6 to 120	180 to 300				
50	500	9.5	—	—	—	—	—	1 With One-touch fitting	1-A Elbow type	Ø8, Ø10 1/4	
		1000	19	—	—	—	—		1-A AS42□1F (24)		1-B Universal type
			28.5	—	—	—	—		2-B AS43□1F (24)		1-C In-line type
			38	—	—	—	—		2-A AS4200 (26)		2-A Metal elbow type
			47	—	—	—	—		2-B AS420 (102)		2-B In-line type
			56.5	—	—	—	—		2-B AS420 (102)		2-B In-line type
	1500	2000	38	—	—	—	—	—	1-A AS42□1F (26)		Ø12, Ø16 1/4, 3/8
		2500	47	—	—	—	—	—	2-B AS43□1F (24)		
		3000	56.5	—	—	—	—	—	2-A AS4200 (26)		
		—	—	—	—	—	—	—	2-B AS420 (102)		
		—	—	—	—	—	—	—	2-B AS420 (102)		
		—	—	—	—	—	—	—	2-B AS420 (102)		
63	500	15	—	—	—	—	2 Standard fitting	1-A AS42□1F (24)	Ø10, Ø12, Ø16 1/4, 3/8		
		1000	30	—	—	—		—		2-B AS43□1F (24)	
			45	—	—	—		—		1-C AS4001F (16)	
			60	—	—	—		—		2-A AS4200 (26)	
			75	—	—	—		—		2-B AS420 (102)	
			89.5	—	—	—		—		2-B AS420 (102)	
	1500	2000	45	—	—	—	—	—		2-B AS420 (102)	
		2500	60	—	—	—	—	—		2-B AS420 (102)	
		3000	75	—	—	—	—	—		2-B AS420 (102)	
		—	—	—	—	—	—	—		2-B AS600 (258)	
		—	—	—	—	—	—	—		2-B AS500 (123)	
		—	—	—	—	—	—	—		2-B AS420 (102)	
80	500	24.5	—	—	—	—	2 Standard fitting	2-A AS4200 (26)	Ø16 3/8, 1/2		
		1000	48.5	—	—	—		—		2-B AS420 (102)	
			72.5	—	—	—		—		2-B AS500 (123)	
			96.5	—	—	—		—		2-B AS600 (258)	
			120.5	—	—	—		—		2-B AS600 (258)	
			106	—	—	—		—		2-B AS600 (258)	
	1500	2000	96.5	—	—	—	—	—		2-B AS600 (258)	
		2500	120.5	—	—	—	—	—		2-B AS600 (258)	
		3000	106	—	—	—	—	—		2-B AS600 (258)	
		—	—	—	—	—	—	—		2-B AS600 (258)	
		—	—	—	—	—	—	—		2-B AS600 (258)	
		—	—	—	—	—	—	—		2-B AS500 (123)	
100	500	38	—	—	—	—	2 Standard fitting	2-B AS420 (102)	3/8, 1/2, Ø16 3/4		
		1000	75.5	—	—	—		—		—	
			113	—	—	—		—		—	2-B AS600 (258)
			110.5	—	—	—		—		—	2-B AS600 (258)
			138	—	—	—		—		—	2-B AS800 (586)
			88.5	—	—	—		—		—	2-B AS500 (123)
	1500	2000	110.5	—	—	—	—	—		2-B AS600 (258)	
		2500	138	—	—	—	—	—		2-B AS800 (586)	
		3000	88.5	—	—	—	—	—		2-B AS500 (123)	
		—	—	—	—	—	—	—		2-B AS500 (123)	
		—	—	—	—	—	—	—		2-B AS500 (123)	
		—	—	—	—	—	—	—		2-B AS500 (123)	

Note) Since the cushion capacity may be exceeded in high speed, high load operation, confirm the maximum energy absorption on page 2.



# Series RHC Specific Product Precautions

Be sure to read before handling.

Refer to pages 17 through 22 for safety instructions, actuator precautions and auto switch precautions.

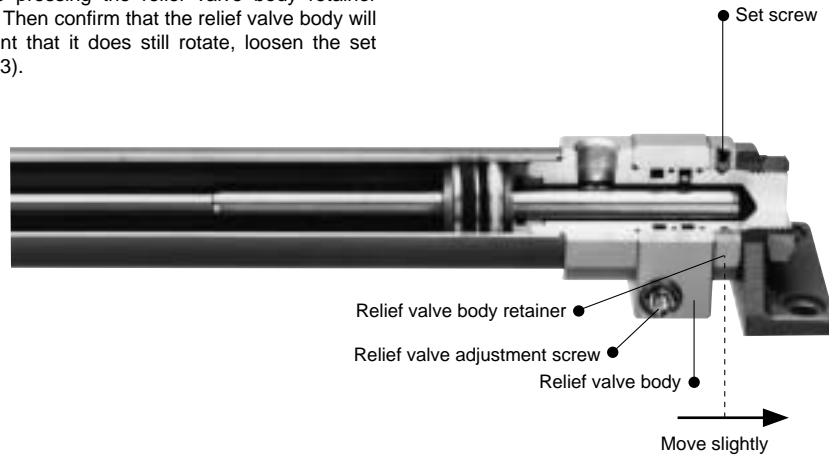
## Rotation of the Relief Valve Body (ø20, 25, 32, 40)

### ⚠ Caution

The relief valve adjustment screw can be set in the desired direction by rotating the relief valve body according to the following procedure.

#### Procedure

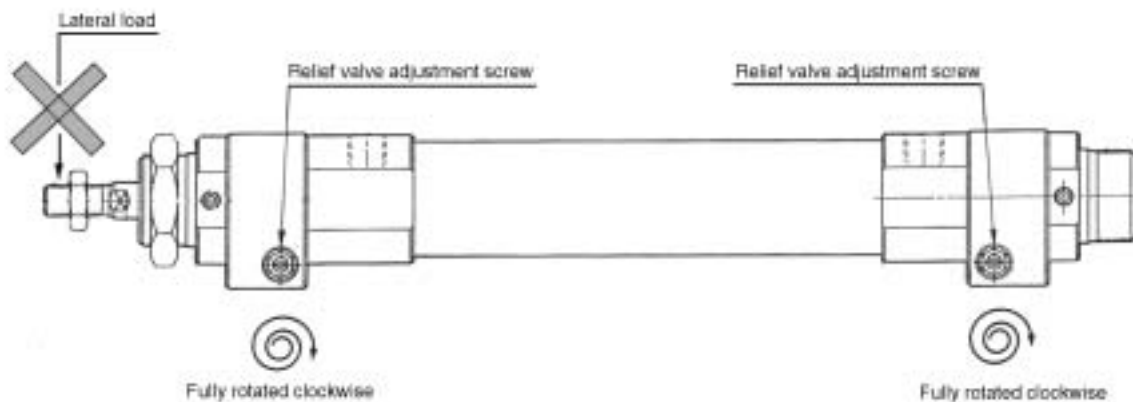
1. After confirming that there is no residual pressure inside the cylinder, loosen the mounting brackets (foot, flange, etc.).
2. Loosen the set screw attached to the relief valve body retainer, and rotate the relief valve body.
3. Secure the set screw while pressing the relief valve body retainer against the relief valve body. Then confirm that the relief valve body will no longer rotate. In the event that it does still rotate, loosen the set screw again and repeat step 3).



## Handling

### ⚠ Caution

1. Confirm that the relief valve body does not rotate when the cylinder is mounted. If there is play in the axial direction of the relief valve body, the cushion may become ineffective. When attaching brackets (foot, flange), do so after loosening the relief valve body set screw. Retighten the relief valve body set screw after the brackets have been attached. (ø20, 25, 32, 40)
2. The cylinder stroke end cushion adjustment screw is adjusted starting from the position where it is rotated fully clockwise (fully closed as when shipped from the factory). Furthermore, it should never be rotated more than six turns (more than 10 turns for ø63, 80 and 100) from the position where it is rotated fully counter-clockwise (fully opened). This can damage the spring inside the relief valve.
3. The cylinder ports are designed so that a maximum speed of 3000mm/s can be obtained. However, it may not be possible to attain the desired speed in the case of short cylinder strokes. It may also be impossible to attain the desired speed due to restriction by component equipment (valves, speed control valves, piping, fittings, etc.). Make every effort to ensure sufficient effective area in the component equipment.
4. Avoid applications in which lateral loads are applied to the cylinder piston rod. Especially in the case of long strokes, implement measures such as providing a guide for the load.



# Series RHC Model Selection

## High Power Cylinder Model Selection Examples

### Selection example 1

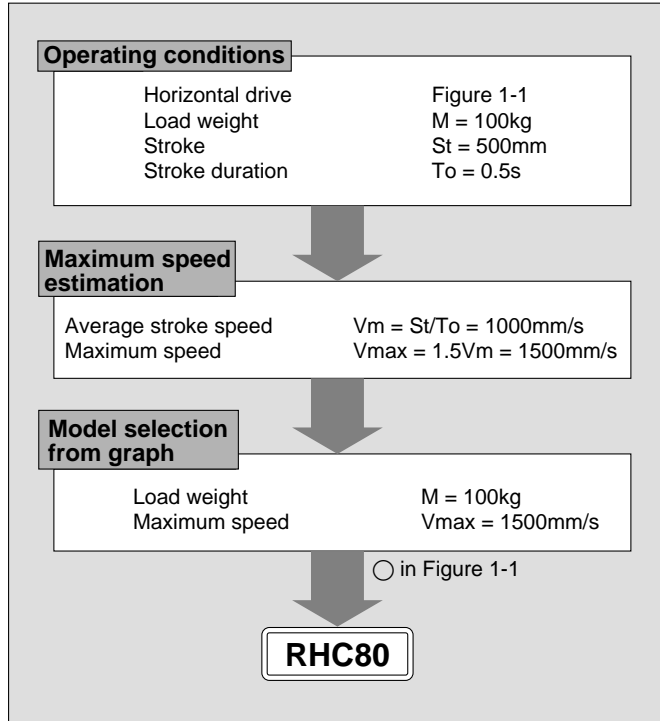
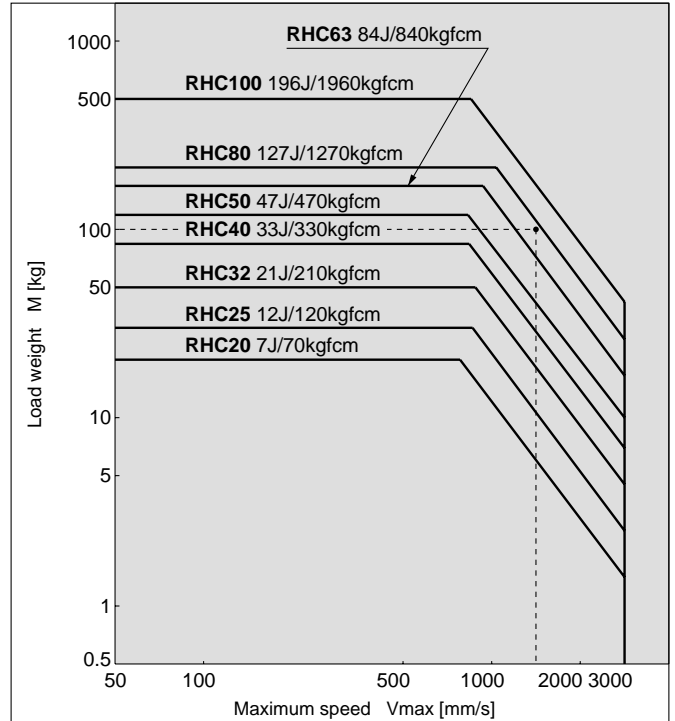


Figure 1-1 Horizontal drive Supply pressure 0.5MPa



### Selection example 2

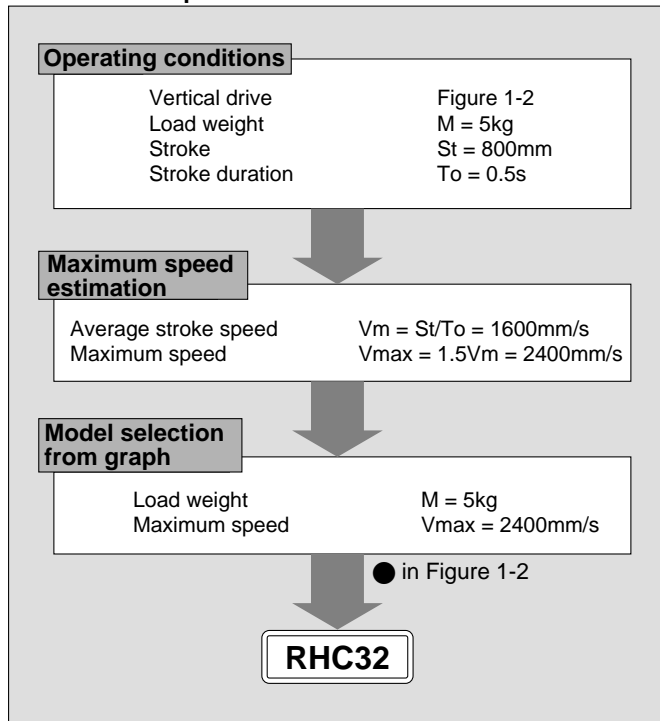
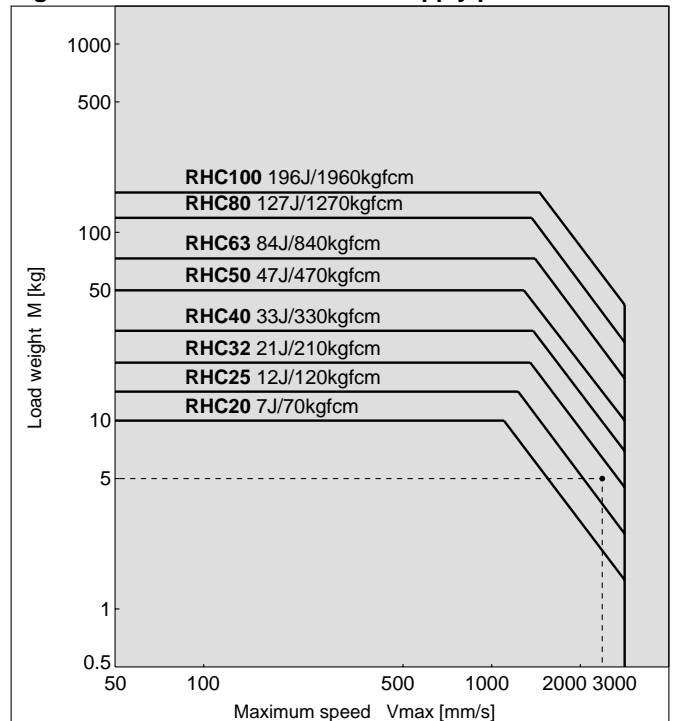


Figure 1-2 Vertical drive Supply pressure 0.5MPa

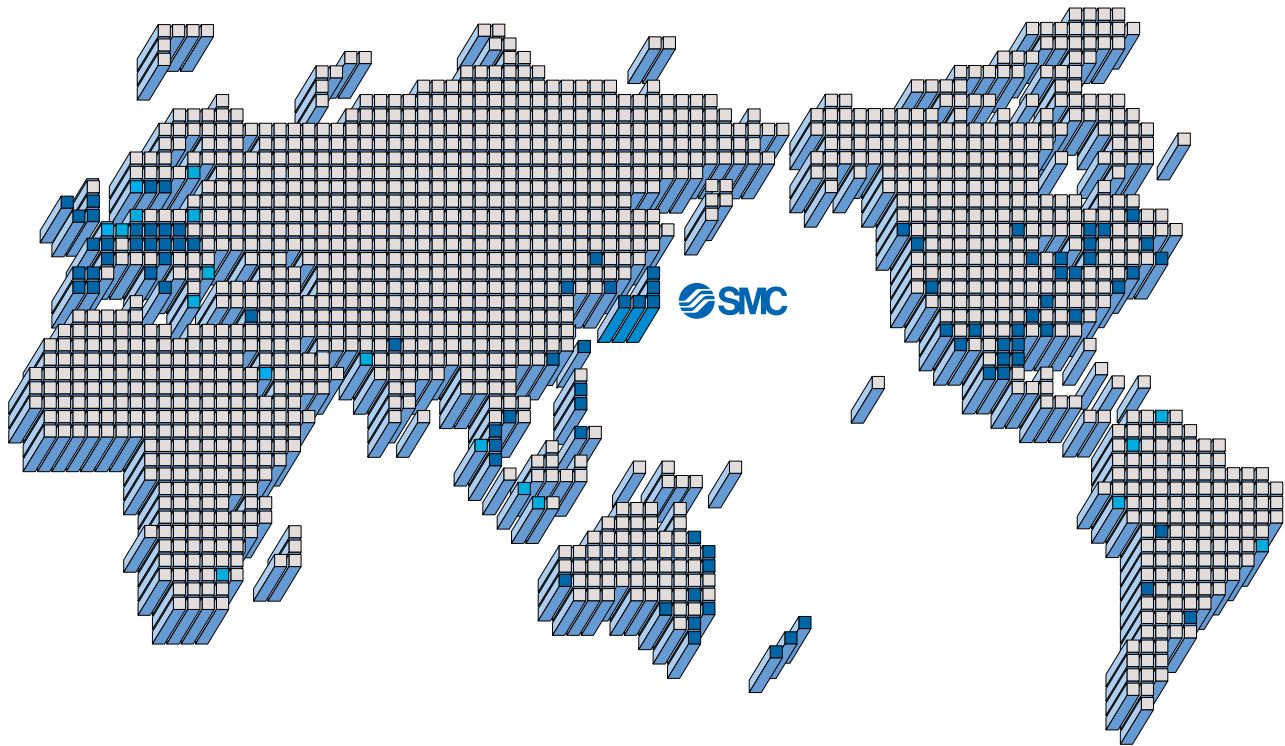


### Maximum energy absorption

Bore size (mm)	20	25	32	40	50	63	80	100
Maximum energy absorption [J (kgfcm)]	7 (70)	12 (120)	21 (210)	33 (330)	47 (470)	84 (840)	127 (1270)	196 (1960)



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