

ISO Standard Hydraulic Cylinder

Series CHSG

16 MPa

ø32, ø40, ø50, ø63, ø80, ø100

How to Order

CH D SG B 40 - 100 - M9BW

Magnet for auto switch

Nil	Without
D	Built-in

Series type

Symbol	Nominal pressure
G	16 MPa

Mounting style

B	Basic
LA	Transaxial foot style
FY	Rod rectangular flange style
FZ	Head rectangular flange style
CA	Single clevis
CB	Double clevis
TA	Rod trunnion
TC	Center trunnion

Bore size

32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

Port thread type

Nil	Rc
TN	NPT
TF	GF

Stroke

Refer to the standard stroke table on the next page 262.

Cylinder suffix

Rod end nut	Nil	Without rod end nut
Presence of cushion	A	With rod end nut
N	With cushion on both sides	
R	Without cushion	
H	With front bumper	
	With rear bumper	

Auto switch

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

* Select an applicable auto switch model from the table below.

Port position

Symbol	Position	Port and cushion valve location viewed from the side of piston rod end thread
Nil	Port on top, cushion valve on the right	
A	Port on top, cushion valve on the left	
B	Port on top, cushion valve down	
C	Port on the right, cushion valve down	
D	Port on the right, cushion valve on top	
E	Port on the right, cushion valve on the left	

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) CHDSGB50-100

Note) When more than one symbol is to be specified, indicate them in alphabetical order.

Applicable Auto Switches: Refer to pages 347 to 406 for further details on each auto switch.

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage		Auto switch model	Lead wire length (m)				Pre-wired connector	Applicable load
					DC	AC		0.5 (Nil)	1 (M)	3 (L)	5 (Z)		
Solid state switch			Yes	3-wire (NPN)	24 V	5 V, 12 V	M9N	●	●	●	○	○	IC circuit
				3-wire (PNP)			F59	●	●	●	○	○	
				2-wire	12 V	100 V, 200 V	M9P	●	●	●	○	○	—
							F5P	●	●	●	○	○	
	Diagnostic indication (2-color display)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	M9B	●	●	●	○	○	—
				3-wire (PNP)			J59	●	●	●	○	○	
				2-wire	12 V	100 V, 200 V	M9NW	●	●	●	○	○	IC circuit
							F59W	●	●	●	○	○	
	Water resistant (2-color indicator)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	M9PW	●	●	●	○	○	IC circuit
				3-wire (PNP)			F5PW	●	●	●	○	○	
				2-wire	12 V	100 V, 200 V	M9BW	●	●	●	○	○	—
							J59W	●	●	●	○	○	
Reed switch			Yes	3-wire (NPN)	24 V	5 V, 12 V	M9NA	○	○	○	○	○	IC circuit
				3-wire (PNP)			M9PA	○	○	○	○	○	
				2-wire	12 V	100 V, 200 V	M9BA	○	○	○	○	○	—
							F5BA	○	○	○	○	○	
	Diagnostic output (2-color display)	Grommet	Yes	4-wire (NPN)	24 V	5 V, 12 V	F59F	●	●	●	○	○	IC circuit
				3-wire (NPN equiv.)			Z76	●	●	●	○	○	
				2-wire	12 V	100 V, 200 V	Z73	●	●	●	○	○	IC circuit
							Z80	●	●	●	○	○	
			No	2-wire	24 V	100 V, 200 V	A54	●	●	●	○	○	—
							A64	●	●	●	○	○	
	Diagnostic output (2-color display)		Yes	2-wire	24 V	100 V, 200 V	A59W	●	●	●	○	○	—

* Lead wire length symbols: 0.5 m Nil (Example) M9NW
1 m M (Example) M9NWM
3 m L (Example) M9NWL
5 m Z (Example) M9NWZ

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

* Besides the models in the above table, there are some other auto switches that are applicable. For more information, refer to page 269.

* For details about auto switches with pre-wired connector, refer to pages 389 and 390.

* D-M9□, M9□W, M9□AL, Z7□, Z80 auto switches are shipped together, (not assembled). (Only auto switch mounting brackets are packed assembled.)

Note 1) Refer to table 1 for manufacturability.
Note 2) Diagrams illustrate the view from the rod on the left side of the cylinder dimensions.
Note 3) For mounting types FY, FZ, or TA, indicate port position with the symbol B.

Table 1 Manufacturability Check List by Mounting Type and Port Position

Port position	Mounting bracket	B	LA	FY FZ	CA CB	TA	TC
Nil	○	○	○	○	○	○	○
A	○	○	○	○	○	○	○
B	○	○	○	○	○	○	○
C	Note)	—	○	○	○	○	○
D	Note)	—	○	○	○	○	○
E	Note)	—	○	○	○	○	○

○: Standard product ○: Made to order

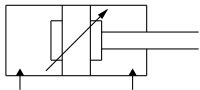
—: Not available due to size limitation.

Note) Each of C, D, E is same as the Nil, A, B just turned.

Series CHSG



JIS Symbol



Specifications

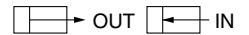
Bore size (mm)		32	40	50	63	80	100
Action		Double Acting: Single Rod					
Fluid		General mineral hydraulic fluid					
Nominal pressure		16 MPa					
Maximum allowable pressure		20 MPa					
Proof pressure		24 MPa					
Minimum operating pressure	With pressure at rod side	0.25 MPa					
	With pressure at head side	0.15 MPa					
Ambient and fluid temperature	Without magnet	-10 to 80°C					
	Built-in magnet	-10 to 60°C					
Piston speed		8 to 300 mm/s					
Cushion		Cushion seal					
Thread tolerance		JIS 6 g/6 H					
Stroke length tolerance	100 mm or less	0 to +0.8 mm					
	101 to 250 mm	0 to +1.0 mm					
	251 to 630 mm	0 to +1.25 mm					
	631 to 1000 mm	0 to +1.4 mm					

Note) Refer to page 134 for definitions of terms related to pressure.

Standard Stroke

Bore size (mm)	Standard stroke (mm)
32	25 to 800
40	25 to 800
50	25 to 800
63	25 to 800
80	25 to 800
100	25 to 1000

Theoretical Output



Unit: N

Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)			
				3.5	7	10	16
32	18	OUT	804	2814	5628	8040	12864
		IN	549	1922	3843	5490	8784
40	22	OUT	1256	4396	8792	12560	20096
		IN	876	3066	6132	8760	14016
50	28	OUT	1963	6871	13741	19630	31408
		IN	1347	4715	9429	13470	21552
63	36	OUT	3117	10910	21819	31170	49872
		IN	2099	7346	14693	20990	33584
80	45	OUT	5026	17591	35182	50260	80416
		IN	3436	12026	24052	34360	54976
100	56	OUT	7853	27486	54971	78530	125648
		IN	5390	18865	37730	53900	86240

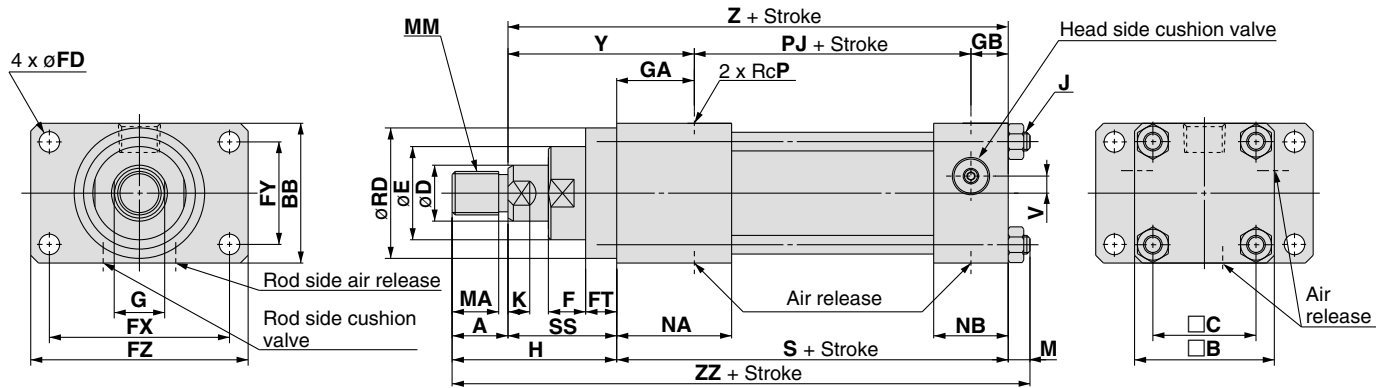
Mass

Theoretical output (N) = Pressure (MPa) x Piston area (mm²)

Unit: kg

Bore size (mm)			32	40	50	63	80	100
Basic mass (0 stroke)	Basic	B	1.60	3.20	4.70	7.80	14.7	20.8
	Transaxial foot	LA	1.80	4.00	5.70	8.65	17.0	23.3
	Rod flange	FY	1.90	4.10	6.00	9.10	16.7	22.9
	Head flange	FZ	1.70	3.90	5.60	8.20	16.4	24.8
	Single clevis	CA	1.60	3.40	5.60	8.20	16.4	24.8
	Double clevis	CB	1.60	3.40	5.60	8.20	16.4	24.8
	Rod trunnion	TA	1.70	3.40	5.20	8.40	15.9	22.5
	Center trunnion	TC	1.90	3.90	5.80	9.40	18.2	25.4
Additional mass per 10 strokes			0.05	0.07	0.12	0.18	0.28	0.42

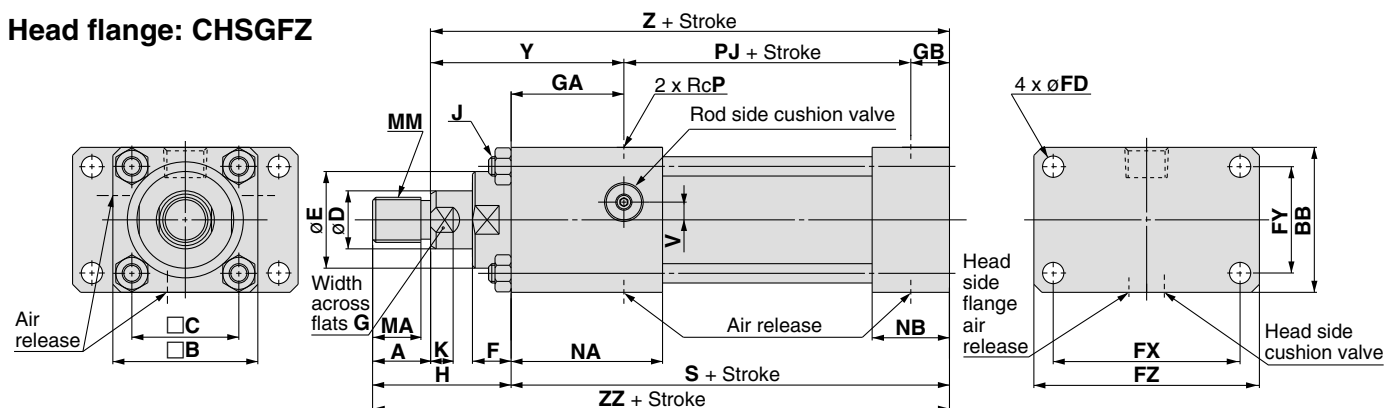
Rod flange: CHSGFY



Bore size (mm)	Stroke range	A	B	BB	C	D	E	F	FD	FT	FX	FY	FZ	G	GA	GB	H	J	K	M	MA	MM	NA	NB	P	PJ
32	25 to 800	18	45	45	33.2	18	30	12	6.6	10	58	33	70	14	25	12	53	M6 x 1	7	7.5	15	M14 x 1.5	36	23	1/4	56
40	25 to 800	22	63	63	41.7	22	34	12	11	10	87	41	110	19	27	18	57	M8 x 1	9	10	19	M16 x 1.5	41	32	3/8	73
50	25 to 800	28	75	75	52.3	28	42	9	14	16	105	52	130	24	26	18	69	M12 x 1.25	11	12	25	M20 x 1.5	41	33	1/2	74
63	25 to 800	36	90	90	64.3	36	50	13	14	16	117	65	145	30	23	17	84	M12 x 1.25	13	12	32	M27 x 2	39	33	1/2	80
80	25 to 800	45	115	115	82.7	45	60	9	18	20	149	83	180	41	26	20	96	M16 x 1.5	17	16	41	M33 x 2	46	40	3/4	93
100	25 to 1000	56	130	130	96.9	56	72	10	18	22	162	97	200	50	25	20	113	M16 x 1.5	19	16	52	M42 x 2	45	40	3/4	101

Bore size (mm)	RD	S	SS	V	Y	Z	ZZ
32	42 -0.025 -0.064	93	35	5.5	60	128	153.5
40	62 -0.030 -0.076	118	35	6.5	62	153	185
50	74	118	41	7	67	159	199
63	82	120	48	12	71	168	216
80	92 -0.036 -0.090	139	51	15	77	190	251
100	105	146	57	15	82	203	275

Head flange: CHSGFZ



Bore size (mm)	Stroke range	A	B	BB	C	D	E	F	FD	FX	FY	FZ	G	GA	GB	H	J	K	MA	MM	NA	NB	P	PJ	S	V	Y	Z	ZZ
32	25 to 800	18	45	45	33.2	18	30	12	6.6	58	33	70	14	35	12	43	M6 x 1	7	15	M14 x 1.5	46	23	1/4	56	103	5.5	60	128	146
40	25 to 800	22	63	63	41.7	22	34	12	11	87	41	110	19	37	18	47	M8 x 1	9	19	M16 x 1.5	51	32	3/8	73	128	6.5	62	153	175
50	25 to 800	28	75	75	52.3	28	42	9	14	105	52	130	24	42	18	53	M12 x 1.25	11	25	M20 x 1.5	57	33	1/2	74	134	7	67	159	187
63	25 to 800	36	90	90	64.3	36	50	13	14	117	65	145	30	39	17	68	M12 x 1.25	13	32	M27 x 2	55	33	1/2	80	136	12	71	168	204
80	25 to 800	45	115	115	82.7	45	60	9	18	149	83	180	41	46	20	76	M16 x 1.5	17	41	M33 x 2	66	40	3/4	93	159	15	77	190	235
100	25 to 1000	56	130	130	96.9	56	72	10	18	162	97	200	50	47	20	91	M16 x 1.5	19	52	M42 x 2	67	40	3/4	101	168	15	82	203	259