CAT. ES20-150-Bb-UK

SMC

Stainless Steel Cylinder

Series CJ5-S/Series CG5-S

ø10, ø16 ø20, ø25, ø32, ø40, ø50, ø63, ø80,ø100

For use in environments with water splashing such as food processing machines

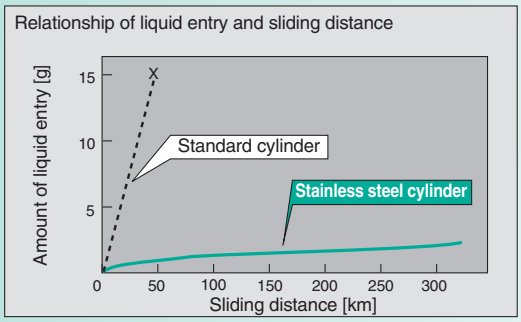
Stainless Steel Cylinder

Series CJ5-S/Series CG5-S

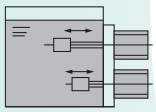
ø10, ø16 ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

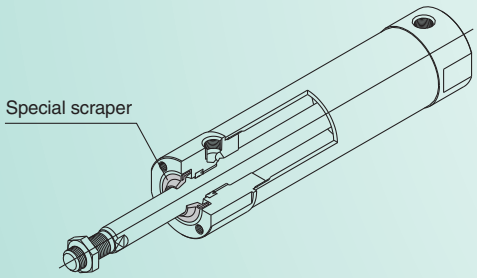
Uses grease for food processing machines that meets FDA (Approved by NSF-H1)

Special scraper (standard) prevents water from entering the cylinder.



Conditions
Working fluid ..... Air
Pressure ..... 0.5 MPa
Liquid ..... Water-soluble coolant
Piston speed ..... 200 mm/sec (60 cpm)





Two types of seal material **NBR** or **FKM** can be selected to accommodate the application.

(Nitrile rubber) (Fluoro rubber)

Can be disassembled (Series **CG5-S ø20 to 40**)
Replacement of seals promotes an extended service life.
(Before disassembly, be sure to see the section regarding maintenance under "Specific Product Precautions" on page 18.)

This product cannot be used in the food zone. Refer to the Product Specific Precautions (page 18) for details.

SMC

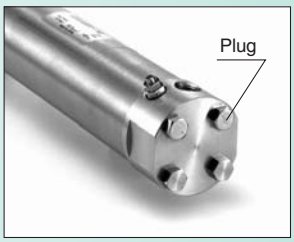
Applicable for use in environments with water splashing such as food processing, etc.

All stainless steel specification (external parts)

Stainless steel (SUS304) is used for external metal parts. Corrosion resistance is improved even in environments with exposure to water.

Exterior configuration reduces residual liquid

- Electropolishing of mounting bracket surfaces makes them smoother to prevent build-up of liquids and foreign matter.
- Plugs are provided for unused mounting threads (Series CG5-S) to prevent residue build-up in the threads.

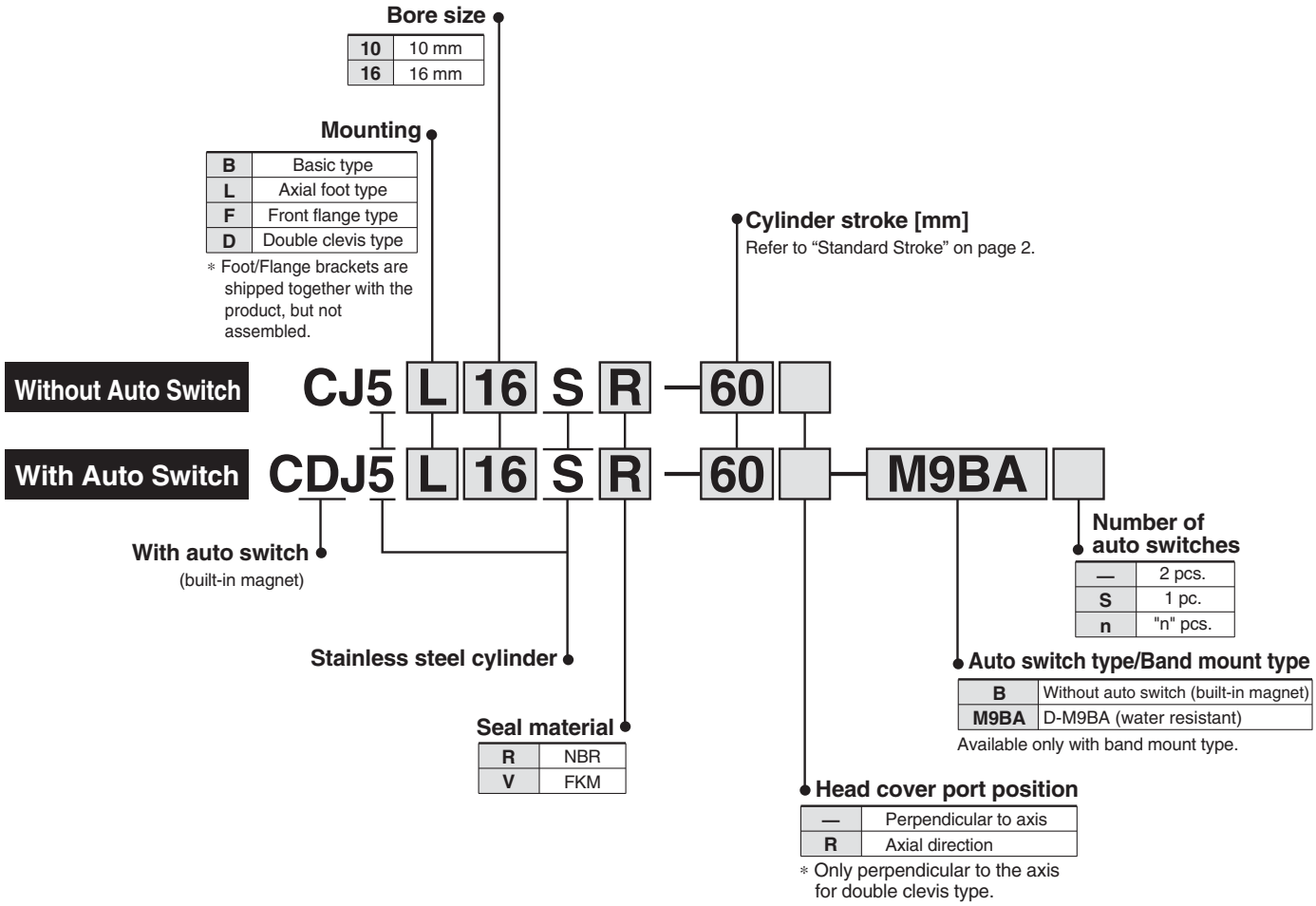


Series Variations

Series	Seal materials	Bore sizes [mm]									
		10	16	20	25	32	40	50	63	80	100
CJ5-S	NBR	●	●	●	●	●	●	●	●	●	●
CG5-S	FKM			●	●	●	●	●	●	●	●

Stainless Steel Cylinder
Series CJ5-S
ø10, ø16

How to Order



Applicable Auto Switches/Refer to pages to Auto Switch Guide for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)∗				Pre-wired connector	Applicable load	
					DC		Band mounting(ø10, ø16)		0.5 (—)	1 (M)	3 (L)	5 (Z)			
							Perpendicular	In-line							
Solid state auto switch	Water resistant (2-colour indication)	Grommet	Yes	3-wire(NPN)	24 V	5 V, 12 V	**M9NAV**	**M9NA**	○	○	●	○	○	IC circuit	Relay, PLC
				3-wire(PNP)			**M9PAV**	**M9PA**	○	○	●	○	○		
				2-wire		12 V	**M9BAV**	**M9BA**	○	○	●	○	○	—	

∗ Lead wire length symbols: — ·····0.5 m (Example) D-M9NA
M ·····1 m (Example) D-M9NAM
L ·····3 m (Example) D-M9NAL
Z ·····5 m (Example) D-M9NAZ

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

• For details about auto switches with pre-wired connector, refer to Auto Switch Guide.

Mounting bracket part numbers

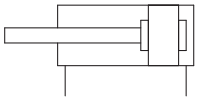
Mounting bracket	Bore size [mm]	
	10	**16**
Foot bracket	CJ-L016SUS	CJK-L016SUS
Flange bracket	CJ-F016SUS	CJK-F016SUS
T-bracket∗	CJ-T010SUS	CJ-T016SUS

∗ The T-bracket is applicable to the double clevis type (D).

Grease pack for stainless steel cylinders/Part number: GR-R-010 (10g)

Symbol

Double acting,
Single rod, Rubber bumper



Specifications

Action		Double acting single rod
Fluid		Air
Proof pressure		1 MPa
Maximum operating pressure		0.7 MPa
Minimum operating pressure		0.1 MPa
Ambient and fluid temperature		Without auto switch: –10 to 70°C, With auto switch: –10 to 60°C
Cushion		Rubber bumper
Lubrication		Not required (non-lube)
Stroke length tolerance		$^{+1.0}_{0}$
Piston speed		50 to 750 mm/s
Allowable kinetic energy	**ø10**	0.035 J
	ø16	0.090 J
Mounting		Basic type, Axial foot type, Front flange type, Double clevis type

Standard Strokes

[mm]

Bore size [mm]	Standard stroke	Maximum manufacturable stroke
10	15, 30, 45, 60, 75, 100, 125, 150	400
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200	

∗ Manufacture of intermediate strokes at 1 mm intervals is possible. (Spacers are not used.)
∗ For the one with auto switch, refer to the minimum stroke for auto switch mounting. (P. 14)

Mounting Types and Accessories

●···Supplied with the product. ○···Please order separately.

Mounting			Basic style	Axial foot style	Rod side flange style	Double clevis style ∗
Standard equipment	Mounting nut		●	●	●	—
	Rod end nut		●	●	●	●
	Clevis pin		—	—	—	●
Option	Single knuckle joint		○	○	○	○
	Double knuckle joint (With pin) ∗		○	○	○	○
	T-bracket		—	—	—	○
	Rod end cap	Flat type	○	○	○	○
		Round type	○	○	○	○

∗ Pin and retaining ring are shipped together with double clevis and double knuckle joint.

Weights

[g]

Bore size [mm]		**10**	**16**
Basic weight∗		52	96
Additional weight per 15 mm of stroke		4	6.5
Mounting bracket weight	Axial foot type	22	22
	Front flange type	16	16
	Double clevis type (with pin)∗∗	6	16

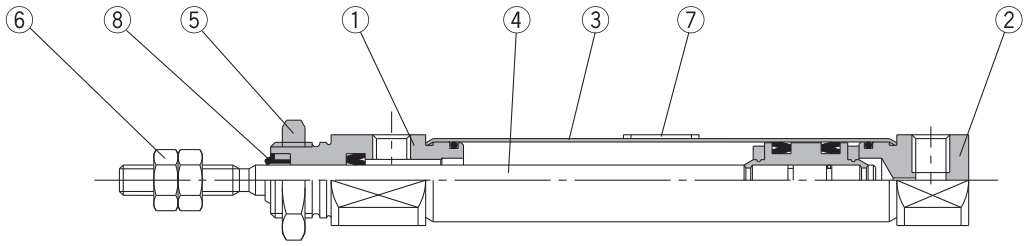
∗ The mounting nut and rod end nut are included in the basic weight.

∗∗ The mounting nut is not included with the double clevis type.

Calculation (Example) CJ5L10SR-45
- Basic weight …..... 52 g (ø10)
- Additional weight …..... 4 g/15 mm stroke
- Cylinder stroke …..... 45 mm
- Mounting bracket weight … 22 g (axial foot type)

52 + 4/15 x 45 + 22 = 86 g

Construction (Cannot be disassembled)



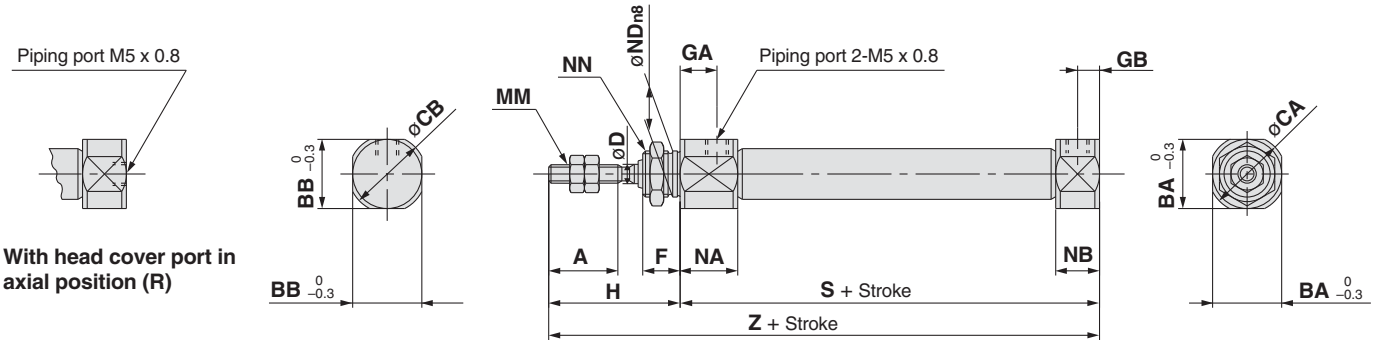
Parts list

No.	Description	Material	
1	**Rod cover**	SUS304	
2	**Head cover**	SUS304	
3	**Cylinder tube**	SUS304	
4	**Piston rod**	SUS304	
5	**Mounting nut**	SUS304	
6	**Rod end nut**	SUS304	
7	**Label protector**	PET	
8	**Water resistant scraper**	**CJ5□□SR**	NBR
		CJ5□□SV	FKM

Note) Component part material and surface treatment other than listed above are the same as the standard type of Series CJ2.

Dimensions

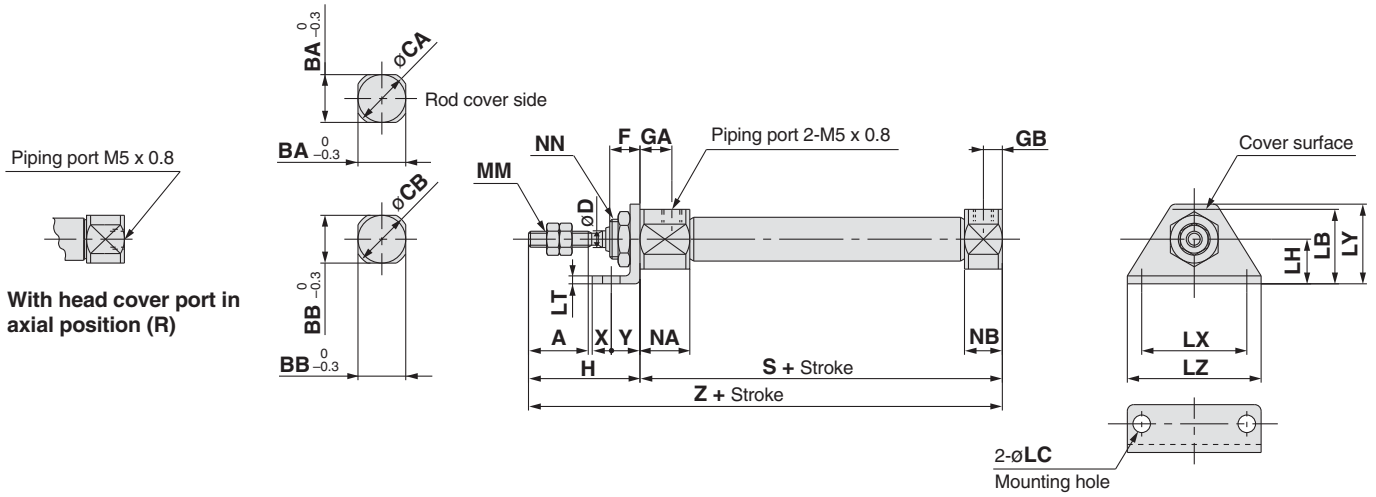
Basic type (B)/C□J5B□S $^{R}_{V}$



[mm]

Bore size [mm]	A	BA	BB	CA	CB	D	F	GA	GB	H	MM	NN	NA	NB	ND_{n8}	S	Z
10	15	15	12	17	14	4	8	8	5	28	M4 x 0.7	M10 x 1.0	12.5	9.5	$10^{\ 0}_{-0.022}$	46	74
16	15	18.3	18.3	20	20	5	8	8	5	28	M5 x 0.8	M12 x 1.0	12.5	9.5	$12^{\ 0}_{-0.027}$	47	75

Axial foot type (L)/C□J5L□S $^{R}_{V}$

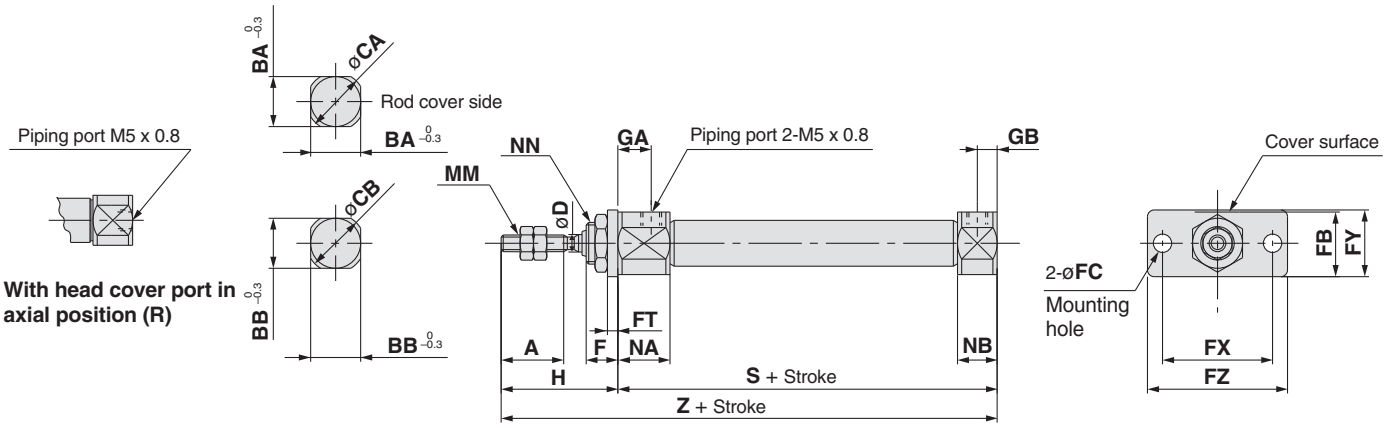


[mm]

Bore size [mm]	A	BA	BB	CA	CB	D	F	GA	GB	H	LB	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	S	X	Y	Z
10	15	15	12	17	14	4	8	8	5	28	21.5	5.5	14	2.5	33	25	42	M4 x 0.7	M10 x 1.0	12.5	9.5	46	6	9	74
16	15	18.3	18.3	20	20	5	8	8	5	28	23	5.5	14	2.5	33	25	42	M5 x 0.8	M12 x 1.0	12.5	9.5	47	6	9	75

Dimensions

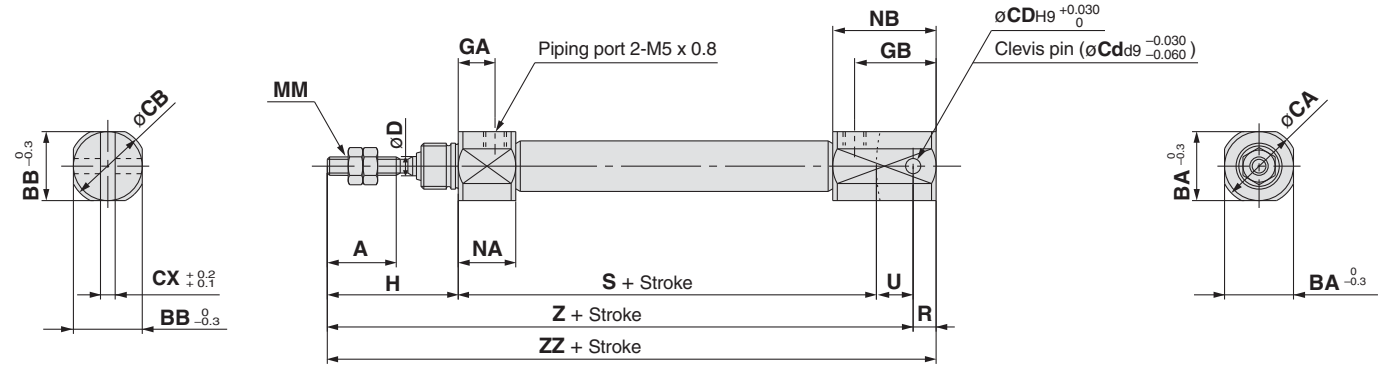
Front flange type (F)/C□J5F□S $^{R}_{V}$



[mm]

Bore size [mm]	A	BA	BB	CA	CB	D	F	FB	FC	FT	FX	FY	FZ	GA	GB	H	MM	NN	NA	NB	S	Z
10	15	15	12	17	14	4	8	17.5	5.5	2.5	33	20	42	8	5	28	M4 x 0.7	M10 x 1.0	12.5	9.5	46	74
16	15	18.3	18.3	20	20	5	8	19	5.5	2.5	33	20	42	8	5	28	M5 x 0.8	M12 x 1.0	12.5	9.5	47	75

Double clevis type (D)/C□J5D□S $^{R}_{V}$



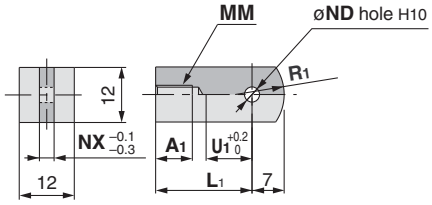
[mm]

Bore size [mm]	A	BA	BB	CA	CB	CD (Cd)	CX	D	GA	GB	H	MM	NA	NB	R	S	U	Z	ZZ
10	15	15	12	17	14	3.3	3.2	4	8	18	28	M4 x 0.7	12.5	22.5	5	46	8	82	87
16	15	18.3	18.3	20	20	5	6.5	5	8	23	28	M5 x 0.8	12.5	27.5	8	47	10	85	93

∗ Clevis pin and retaining ring are shipped together.

Accessory Dimensions

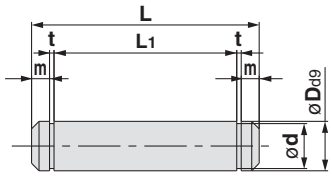
Single knuckle joint



Material: SUS304

Part no.	Applicable bore size [mm]	A1	L1	MM	NDH10	NX	R1	U1
I-J010SUS	10	8	21	M4 x 0.7	3.3 +0.048 0	3.1	8	9
I-J016SUS	16	8	25	M5 x 0.8	5 +0.048 0	6.4	12	14

Clevis pin

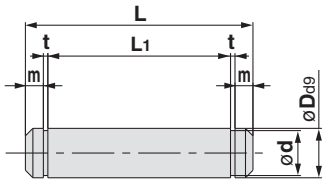


Material: Pin and retaining ring both stainless steel 304

Part no.	Applicable bore size [mm]	Dd9	d	L	L1	m	t	Snap ring
CD-J010	10	3.3 −0.030 −0.060	3	15.2	12.2	1.2	0.3	C type 3.2
CD-Z015SUS	16	5 −0.030 −0.060	4.8	22.7	18.3	1.5	0.7	C type 5

∗ Retaining rings are included.

Knuckle pin

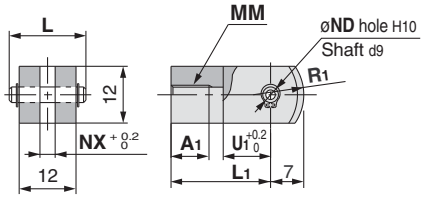


Material: Pin and retaining ring both stainless steel 304

Part no.	Applicable bore size [mm]	Dd9	d	L	L1	m	t	Snap ring
CD-J010	10	3.3 −0.030 −0.060	3	15.2	12.2	1.2	0.3	C type 3.2
IY-J015SUS	16	5 −0.030 −0.060	4.8	16.6	12.2	1.5	0.7	C type 5

∗ Clevis pin is used instead for ø10.
∗ Retaining rings are included.

Double knuckle joint



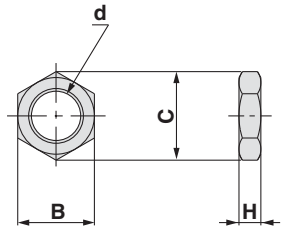
∗ Knuckle pin and retaining ring are packaged together.

Material: SUS304

Part no.	Applicable bore size [mm]	A1	L	L1	MM	NDd9
Y-J010SUS	10	8	15.2	21	M4 x 0.7	3.3 −0.030 −0.060
Y-J016SUS	16	11	16.6	21	M5 x 0.8	5 −0.030 −0.060

Part no.	NDH10	NX	R1	U1
Y-J010SUS	3.3 +0.048 0	3.2	8	10
Y-J016SUS	5 +0.048 0	6.5	12	10

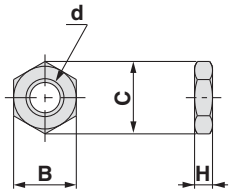
Mounting nut



Material: SUS304

Part no.	Applicable bore size [mm]	B	C	d	H
SNJ-016SUS	10	14	16.2	M10 x 1.0	4
SNKJ-016SUS	16	17	19.6	M12 x 1.0	4

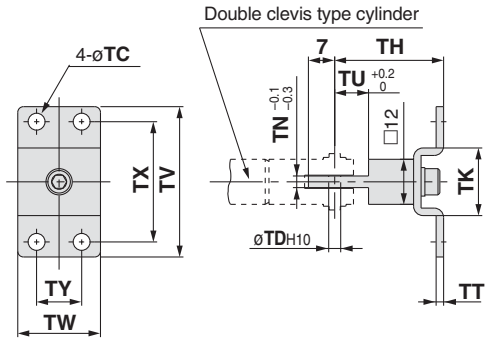
Rod end nut



Material: SUS304

Part no.	Applicable bore size [mm]	B	C	d	H
NTJ-010SUS	10	7	8.1	M4 x 0.7	3.2
NTJ-015SUS	16	8	9.2	M5 x 0.8	4

T-bracket

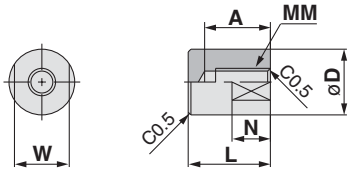


Material: SUS304

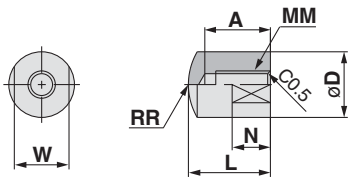
Part no.	Applicable bore size [mm]	TC	TDH10	TH	TK	TN	TT	TU	TV	TW	TX	TY
CJ-T010SUS	10	4.5	3.3 +0.048 0	29	18	3.1	2	9	40	22	32	12
CJ-T016SUS	16	5.5	5 +0.048 0	35	20	6.4	2.5	14	48	28	38	16

Rod end cap

Flat type/**CJ-CF□□□**



Round type/**CJ-CR□□□**



Material: Polyacetal

Part no.		Applicable bore size [mm]	A	D	L	MM	N	R	W
Flat type	Round type								
CJ-CF010	CJ-CR010	10	8	10	13	M4 x 0.7	6	10	8
CJ-CF016	CJ-CR016	16	10	12	15	M5 x 0.8	7	12	10

Stainless Steel Cylinder
Series CG5-S
ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

How to Order

Without Auto Switch CG5 L N 25 TF S R — 100 – □

With Auto Switch CDG5 L N 25 TF S R — 100 — G5BAL □ – □

With auto switch
(built-in magnet)

Mounting

B	Basic type
L	Axial foot type
F	Front flange type
G	Rear flange type
E	Integral clevis type

Type

N	Non-lube, rubber bumper
A	Non-lube, air cushion

Bore size

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

Seal material

R	NBR
V	FKM

Stainless steel cylinder

Port thread type

Rubber bumper

—	Rc	ø20 to ø100
TN	NPT	
TF	M5 x 0.8	ø20, ø25
	G	ø32 to ø100

Air cushion

—	M5 x 0.8	ø20, ø25
	Rc	ø32 to ø100
TN	NPT	
TF	G	

Cylinder stroke [mm]
Refer to the standard stroke table on page 8.

Auto switch type/Band mount type

—	Without auto switch (built-in magnet)
G5BAL	D-G5BAL (water resistant)

Auto switches are available in the band mount type only.

Number of auto switches

—	2 pcs.
S	1 pc.
n	"n" pcs.

Made to Order
Refer to page 8 for details.

Applicable Auto Switches/Refer to Auto Switch Guide for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Auto switch model	Lead wire length [m]* 3 (L)	Lead wire length [m]* 5 (Z)	Pre-wired connector	Applicable load
Solid state auto switch	Water resistant (2-colour indication)	Grommet	Yes	2-wire	24 V	12 V	G5BA	●	○	○	Relay, PLC

* Lead wire length symbols: 3 m·····L (Example) G5BAL
5 m·····Z (Example) G5BAZ

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

• For details about auto switches with pre-wired connector, refer to Auto Switch Guide.

Mounting bracket part numbers

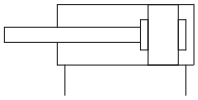
Mounting bracket	Bore size [mm]							
	20	**25**	**32**	**40**	**50**	**63**	**80**	**100**
Axial foot Note 1)	CG-L020SUS	CG-L025SUS	CG-L032SUS	CG-L040SUS	CG-L050SUS	CG-L063SUS	CG-L080SUS	CG-L100SUS
Flange	CG-F020SUS	CG-F025SUS	CG-F032SUS	CG-F040SUS	CG-F050SUS	CG-F063SUS	CG-F080SUS	CG-F100SUS
Trunnion bracket Note 2)	CG-E020SUS		CG-E032SUS		CG-E050SUS		CG-E080SUS	

Note 1) Order two foot brackets for each cylinder.
Note 2) Includes a clevis pin and 2 retaining rings.

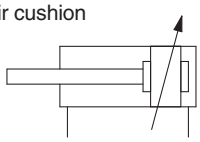
Grease pack for stainless steel cylinders/Part number: GR-R-010 (10g)

Symbol

Double acting,
Single rod, Rubber bumper



Air cushion



Made to Order Specifications

(For details, refer to pages 15 to 17.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat resistant cylinder (150°C)*

* Heat resistant grease (non-food grease) is used.

Specifications

Action		Double acting single rod
Fluid		Air
Proof pressure		1.5 MPa
Maximum operating pressure		1.0 MPa
Minimum operating pressure		0.05 MPa
Ambient and fluid temperature		Without auto switch: –10 to 70°C, With auto switch: –10 to 60°C
Cushion		Rubber bumper, Air cushion
Piston speed	**ø20 to ø63**	50 to 1000 mm/s
	ø80, ø100	50 to 700 mm/s
Lubrication		Not required (Non-lube)
Stroke length tolerance	**ø20 to ø63**	to 1000 $^{+1.4}_{0}$ mm, to 1200 $^{+1.8}_{0}$ mm
	ø80, ø100	to 1000 $^{+1.4}_{0}$ mm, to 1500 $^{+1.8}_{0}$ mm
Mounting		Basic type, Axial foot type, Front flange type, Rear flange type, Integral clevis type

Standard Strokes

[mm]

Bore size [mm]	Standard stroke	Long stroke	Maximum manufacturable stroke
20	25, 50, 75, 100, 125, 150, 200	201 to 350	1500
25	25, 50, 75, 100, 125, 150, 200 250, 300	301 to 400	
32		301 to 450	
40		301 to 800	
50, 63		301 to 1200	
80		301 to 1400	
100		301 to 1500	

* Manufacture of intermediate strokes at 1 mm intervals is possible. (Spacers are not used.)
* Long stroke applies to the axial foot style and the rod side flange style. If other mounting brackets are used, or the length exceeds the long stroke limit, the stroke should be determined based on the stroke selection table, in that case, please contact SMC.

Accessories

●···Supplied with the product. ○···Please order separately.

Mounting		Basic style	Axial foot style	Rod side flange style	Head side flange style	Clevis integrated style
Standard equipment	Rod end nut	●	●	●	●	●
Option	Single knuckle joint	○	○	○	○	○
	Double knuckle joint (With pin & retaining ring)	○	○	○	○	○
	Pivot bracket (With pin and retaining ring)	—	—	—	—	○

Weights

[kg]

Bore size		20	25	32	40	50	63	80	100
Standard weight	**Basic type**	0.32	0.42	0.61	0.97	1.78	2.73	5.20	8.13
	Axial foot type	0.40	0.53	0.72	1.13	2.12	3.19	5.91	9.50
	Flange type	0.43	0.53	0.71	1.12	2.04	3.25	5.86	9.29
	Integral clevis type	0.37	0.48	0.72	1.12	2.17	3.26	6.48	9.94
Trunnion bracket		0.08	0.08	0.18	0.18	0.46	0.46	1.65	1.65
Single knuckle joint		0.04	0.07	0.07	0.11	0.22	0.22	0.53	0.78
Double knuckle joint (with pin)		0.05	0.09	0.09	0.18	0.33	0.33	0.73	1.07
Additional weight per 50 mm of stroke		0.06	0.08	0.14	0.18	0.27	0.33	0.50	0.73
Additional weight with air cushion		0.02	0.02	0.03	0.02	0.06	0.07	0.14	0.16

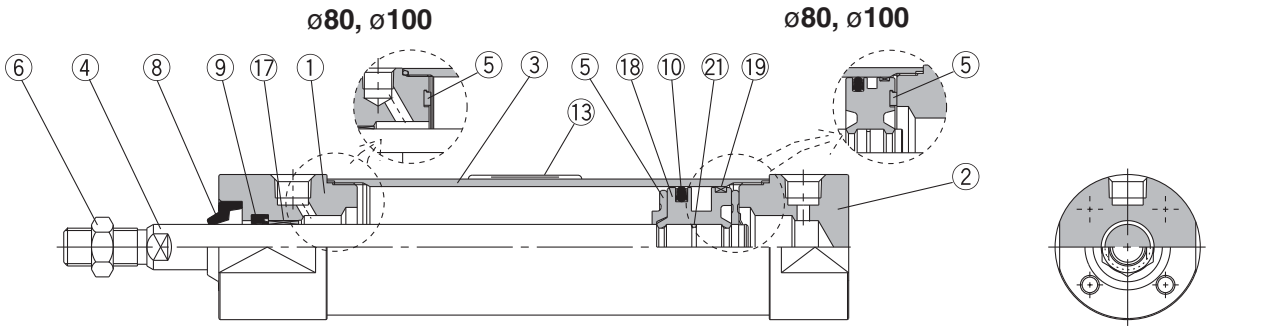
Calculation (Example) CG5LA 20SR-100
(Foot type ø20, 100mm stroke)

- Basic weight ..... 0.40 kg (Foot type ø20)
- Additional stroke weight ..... 0.06 kg/50 mm stroke
- Air cylinder stroke .....100 mm
- Additional air cushion weight ..... 0.02 kg

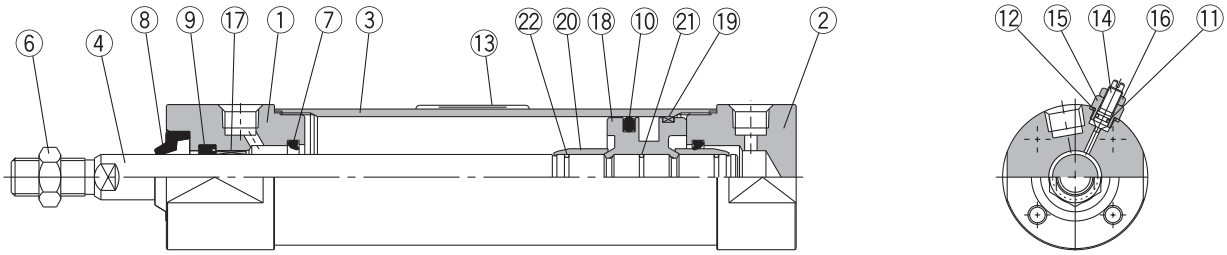
0.40 + 0.06 x 100/50 + 0.02 = 0.54 kg

Construction

With rubber bumper



With air cushion



Component Parts

No.	Description	Material	
1	**Rod cover**	Stainless steel 304	
2	**Head cover**	Stainless steel 304	
3	**Cylinder tube**	Stainless steel 304	
4	**Piston rod**	Stainless steel 304	Hard chrome plated
5	**Bumper**	Urethane	
6	**Rod end nut**	Stainless steel 304	
7	**Cushion seal**	Urethane	
14	**Cushion valve**	Stainless steel 304	
15	**Valve retainer**	Stainless steel 304	
16	**Lock nut**	Stainless steel 304	
17	**Bushing**	Bearing alloy	
18	**Piston**	Aluminium alloy	
19	**Wearing**	Resin	
20	**Cushion ring**	Aluminium alloy	

No.	Description	Material	
		CG5□□□SR	**CG5□□□SV**
8	**Water resistant scraper**	NBR	FKM
9	**Rod seal**		
10	**Piston seal**		
11	**Valve seal**		
12	**Valve retainer gasket**		
21	**Piston gasket**		
22	**Cushion ring gasket**		
13	**Label protector**	PET	

Note 1) Component part material and surface treatment other than listed above are the same as the standard type of Series CG1.
Note 2) For cylinders with an auto switch, the piston is fixed with a magnet.

Replacement Parts/Seal Kit

Bore size (mm)	Rubber bumper		Air cushion	
	CG5□N□SR	**CG5□N□SV**	**CG5□A□SR**	**CG5□A□SV**
20	CG5N20SR-PS	CG5N20SV-PS	CG5A20SR-PS	CG5A20SV-PS
25	CG5N25SR-PS	CG5N25SV-PS	CG5A25SR-PS	CG5A25SV-PS
32	CG5N32SR-PS	CG5N32SV-PS	CG5A32SR-PS	CG5A32SV-PS
40	CG5N40SR-PS	CG5N40SV-PS	CG5A40SR-PS	CG5A40SV-PS
Contents	Set of ⑨ and ⑩ above		Set of ⑨, ⑩, ⑪ and ⑫ above	

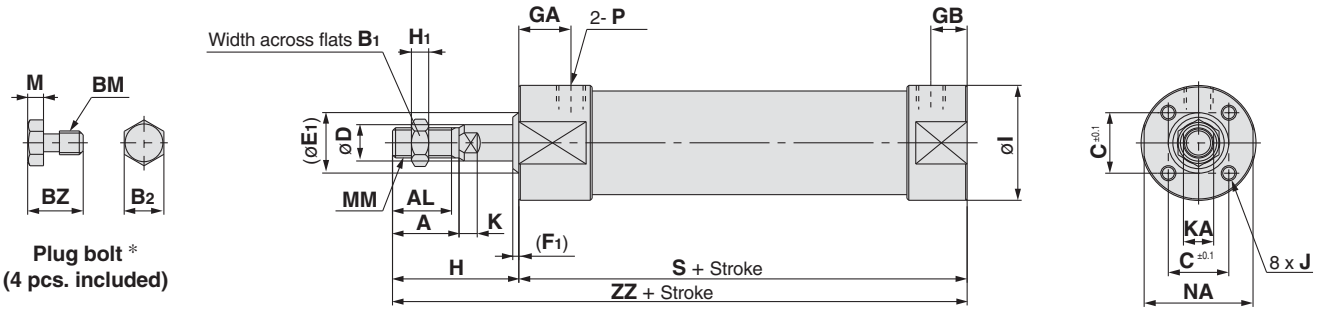
∗ Seal kit includes a grease pack (10 g).
Order with the following part number when only the grease pack is needed.
Grease pack part number: GR-R-010 (10 g)

⚠ Caution

When disassembling cylinders with bore sizes of ø20 through ø40, grip the double flat part of either the tube cover or the rod cover with a vise and loosen the other side with a wrench or a monkey wrench, etc., and then remove the cover. When retightening, tighten approximately 2 degrees more than the original position. (Cylinders with ø50 or larger bore sizes are tightened with a large tightening torque and cannot be disassembled.)

Dimensions

Basic type (B)/C□G5BN□S$^{R}_{V}$: With rubber bumper

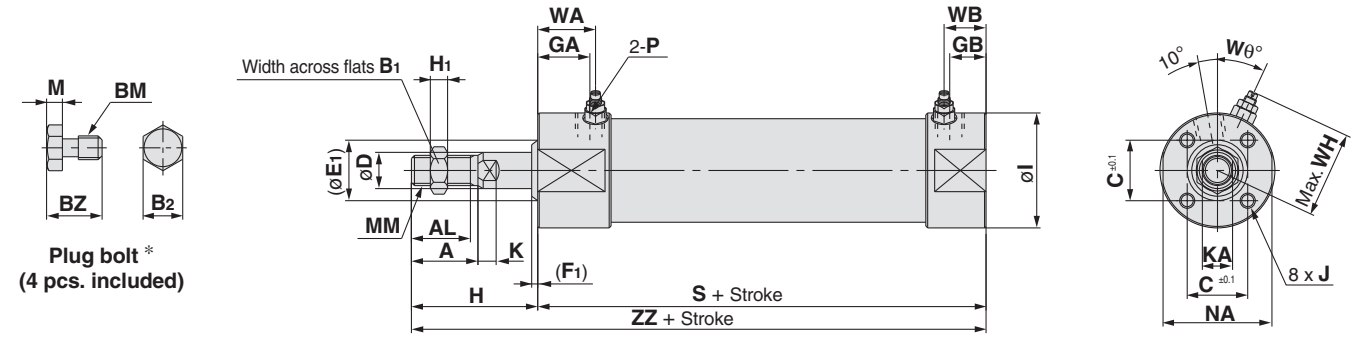


[mm]

Bore size [mm]	Stroke range	Rc, NPT port			G port			A	AL	B1	B2	BM	BZ	C	D	E1	F1	H	H1	I	J	K	KA	M	MM	NA	S	ZZ
	Standard	GA	GB	P	GA	GB	P																					
20	Up to 350	18	12	1/8	18	12	M5 x 0.8	18	15.5	13	7	M4 x 0.7	9	16.5	8	15	3	35	5	31	M4 x 0.7 depth 7	5	6	3	M8 x 1.25	29	83	118
25	Up to 400	18	12	1/8	18	12	M5 x 0.8	22	19.5	17	8	M5 x 0.8	9.5	18.5	10	17	3	40	6	33	M5 x 0.8 depth 8	5.5	8	3.5	M10 x 1.25	29	83	123
32	Up to 450	18	12	1/8	16	10	1/8	22	19.5	17	8	M5 x 0.8	9.5	20	12	19	3	40	6	38	M5 x 0.8 depth 8	5.5	10	3.5	M10 x 1.25	35.5	85	125
40	Up to 800	19	13	1/8	16	10	1/8	30	27	19	10	M6 x 1.0	12	26	16	23	3	50	8	47	M6 x 1.0 depth 12	6	14	4	M14 x 1.5	44	93	143
50	Up to 1200	21	14	1/4	19	12	1/4	35	32	27	13	M8 x 1.25	15.5	32	20	28	3	58	11	58	M8 x 1.25 depth 16	7	18	5.5	M18 x 1.5	55	109	167
63	Up to 1200	21	14	1/4	19	12	1/4	35	32	27	17	M10 x 1.5	19	38	20	28	3	58	11	72	M10 x 1.5 depth 16	7	18	7	M18 x 1.5	69	109	167
80	Up to 1400	28	20	3/8	25	17	3/8	40	37	32	17	M10 x 1.5	19	50	25	33	3	71	13	89	M10 x 1.5 depth 22	10	22	7	M22 x 1.5	80	130	201
100	Up to 1500	29	20	1/2	26	17	1/2	40	37	41	19	M12 x 1.75	24	60	30	38	3	71	16	110	M12 x 1.75 depth 23	10	26	8	M26 x 1.5	100	131	202

∗ Install plug bolts, which are included, in any unused mounting holes.

Basic type (B)/C□G5BA□S$^{R}_{V}$: With air cushion



[mm]

Bore size [mm]	Stroke range	Rc, NPT port			G port			A	AL	B1	B2	BM	BZ	C	D	E1	F1	H	H1	I	J	K	KA	M	MM	NA	S
	Standard	GA	GB	P	GA	GB	P																				
20	Up to 350	18	12	M5 x 0.8	18	12	M5 x 0.8	18	15.5	13	7	M4 x 0.7	9	16.5	8	15	3	35	5	31	M4 x 0.7 depth 7	5	6	3	M8 x 1.25	29	83
25	Up to 400	18	12	M5 x 0.8	18	12	M5 x 0.8	22	19.5	17	8	M5 x 0.8	9.5	18.5	10	17	3	40	6	33	M5 x 0.8 depth 8	5.5	8	3.5	M10 x 1.25	29	83
32	Up to 450	18	12	1/8	16	10	1/8	22	19.5	17	8	M5 x 0.8	9.5	20	12	19	3	40	6	38	M5 x 0.8 depth 8	5.5	10	3.5	M10 x 1.25	35.5	85
40	Up to 800	19	13	1/8	16	10	1/8	30	27	19	10	M6 x 1.0	12	26	16	23	3	50	8	47	M6 x 1.0 depth 12	6	14	4	M14 x 1.5	44	93
50	Up to 1200	21	14	1/4	19	12	1/4	35	32	27	13	M8 x 1.25	15.5	32	20	28	3	58	11	58	M8 x 1.25 depth 16	7	18	5.5	M18 x 1.5	55	109
63	Up to 1200	21	14	1/4	19	12	1/4	35	32	27	17	M10 x 1.5	19	38	20	28	3	58	11	72	M10 x 1.5 depth 16	7	18	7	M18 x 1.5	69	109
80	Up to 1400	28	20	3/8	25	17	3/8	40	37	32	17	M10 x 1.5	19	50	25	33	3	71	13	89	M10 x 1.5 depth 22	10	22	7	M22 x 1.5	80	130
100	Up to 1500	29	20	1/2	26	17	1/2	40	37	41	19	M12 x 1.75	24	60	30	38	3	71	16	110	M12 x 1.75 depth 23	10	26	8	M26 x 1.5	100	131

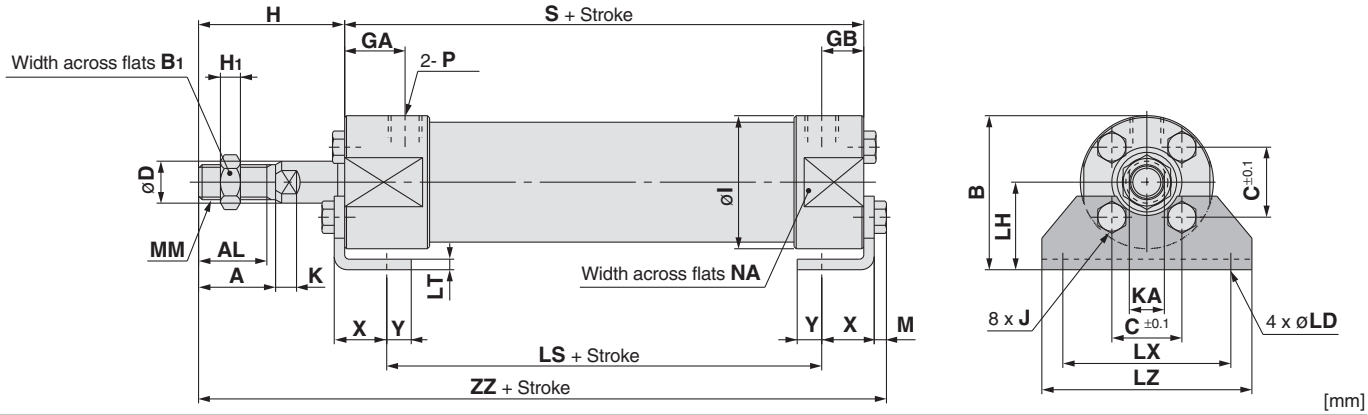
∗ Install plug bolts, which are included, in any unused mounting holes.

[mm]

Bore size [mm]	WA	WB	WH	Wθ	ZZ
20	22	16	23	30°	118
25	22	16	25	30°	123
32	22	16	28.5	25°	125
40	22	16	33	20°	143
50	25	18	40.5	20°	167
63	25	18	47.5	20°	167
80	30	22	60.5	20°	201
100	31	22	71	20°	202

Dimensions

Axial foot style (L): C□G5L$^{N}_{A}$□S$^{R}_{V}$



[mm]

Bore size [mm]	Stroke range	Rc, NPT port			G port			A	AL	B1	B	C	D	H	H1	I	J	K	KA	LD	LH	LS	LT	LX	LZ	M
	Standard	GA	GB	P	GA	GB	P																			
20	Up to 350	18	12	1/8 (1)	18	12	M5 x 0.8	18	15.5	13	37.5	16.5	8	35	5	31	M4 x 0.7	5	6	6	22	59	3	40	50	3
25	Up to 400	18	12	1/8 (1)	18	12	M5 x 0.8	22	19.5	17	41.5	18.5	10	40	6	33	M5 x 0.8	5.5	8	6	25	59	3	44	60	3.5
32	Up to 450	18	12	1/8	16	10	1/8	22	19.5	17	44	20	12	40	6	38	M5 x 0.8	5.5	10	7.2	25	59	3	44	60	3.5
40	Up to 800	19	13	1/8	16	10	1/8	30	27	19	53.5	26	16	50	8	47	M6 x 1.0	6	14	7.2	30	66	3	54	75	4
50	Up to 1200	21	14	1/4	19	12	1/4	35	32	27	69	32	20	58	11	58	M8 x 1.25	7	18	10	40	74	4	66	90	5.5
63	Up to 1200	21	14	1/4	19	12	1/4	35	32	27	81	38	20	58	11	72	M10 x 1.5	7	18	12	45	74	4	82	110	7
80	Up to 1400	28	20	3/8	25	17	3/8	40	37	32	99.5	50	25	71	13	89	M10 x 1.5	10	22	12	55	82	4	100	130	7
100	Up to 1500	29	20	1/2	26	17	1/2	40	37	41	125	60	30	71	16	110	M12 x 1.75	10	26	14	70	83	6	120	160	8

∗ Foot brackets and plug bolts are installed when shipped from factory.

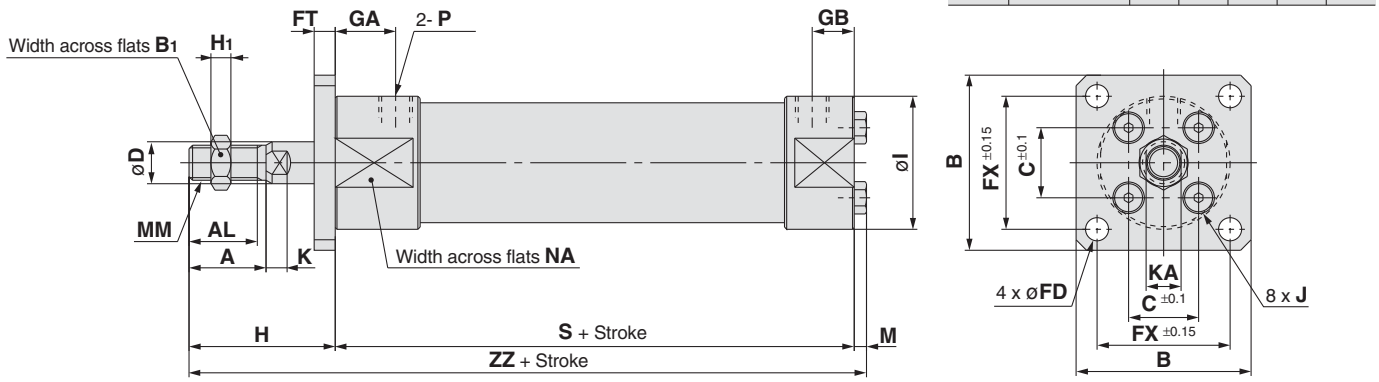
Note 1) ø20 and ø25 cylinders with an air cushion: M5 x 0.8

Note 2) Refer to the basic type (B)/CG5BA□S∗ for the dimensions of air cushion needles.

[mm]

Bore size (mm)	MM	NA	S	X	Y	ZZ
20	M8 x 1.25	29	83	15	7	124
25	M10 x 1.25	29	83	15	7	129.5
32	M10 x 1.25	35.5	85	16	6	131.5
40	M14 x 1.5	44	93	16.5	6.5	150
50	M18 x 1.5	55	109	21.5	11.5	176.5
63	M18 x 1.5	69	109	21.5	11.5	178
80	M22 x 1.5	80	130	28	17	212
100	M26 x 1.5	100	131	30	15	216

Rod side flange style (F): C□G5F$^{N}_{A}$□S$^{R}_{V}$



[mm]

Bore size [mm]	Stroke range	Rc, NPT port			G port			A	AL	B1	B	C	D	FX	FD	FT	H	H1	I	J	K	KA	M	MM	NA	S	ZZ
	Standard	GA	GB	P	GA	GB	P																				
20	Up to 350	18	12	1/8 (1)	18	12	M5 x 0.8	18	15.5	13	50	16.5	8	36	5.5	6	35	5	31	M4 x 0.7	5	6	3	M8 x 1.25	29	83	121
25	Up to 400	18	12	1/8 (1)	18	12	M5 x 0.8	22	19.5	17	50	18.5	10	36	5.5	6	40	6	33	M5 x 0.8	5.5	8	3.5	M10 x 1.25	29	83	126.5
32	Up to 450	18	12	1/8	16	10	1/8	22	19.5	17	50	20	12	38	6.6	6	40	6	38	M5 x 0.8	5.5	10	3.5	M10 x 1.25	35.5	85	128.5
40	Up to 800	19	13	1/8	16	10	1/8	30	27	19	60	26	16	46	6.6	6	50	8	47	M6 x 1.0	6	14	4	M14 x 1.5	44	93	147
50	Up to 1200	21	14	1/4	19	12	1/4	35	32	27	75	32	20	58	9	9	58	11	58	M8 x 1.25	7	18	5.5	M18 x 1.5	55	109	172.5
63	Up to 1200	21	14	1/4	19	12	1/4	35	32	27	90	38	20	70	11	9	58	11	72	M10 x 1.5	7	18	7	M18 x 1.5	69	109	174
80	Up to 1400	28	20	3/8	25	17	3/8	40	37	32	100	50	25	82	11	9	71	13	89	M10 x 1.5	10	22	7	M22 x 1.5	80	130	208
100	Up to 1500	29	20	1/2	26	17	1/2	40	37	41	125	60	30	100	14	10	71	16	110	M12 x 1.75	10	26	8	M26 x 1.5	100	131	210

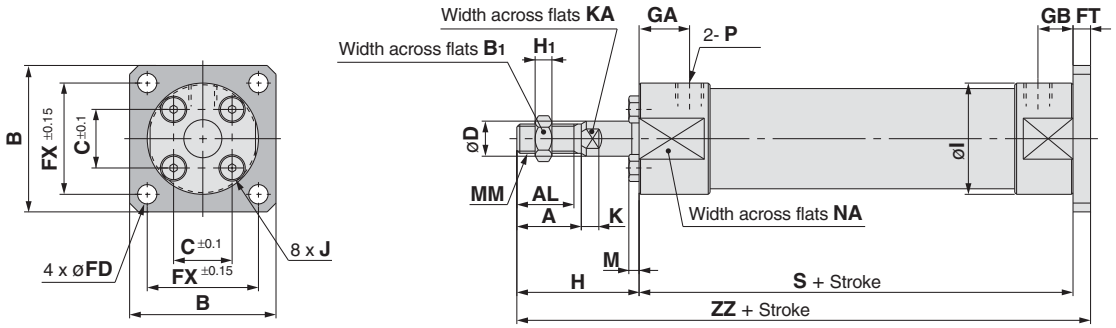
∗ Flange bracket and plug bolt are installed when shipped from factory.

Note 1) ø20 and ø25 cylinders with an air cushion: M5 x 0.8

Note 2) Refer to the basic type (B)/CG5BA□S∗ for the dimensions of air cushion needles.

Dimensions

Head side flange style (G): C□G5G$^{N}_{A}$□S$^{R}_{V}$



[mm]

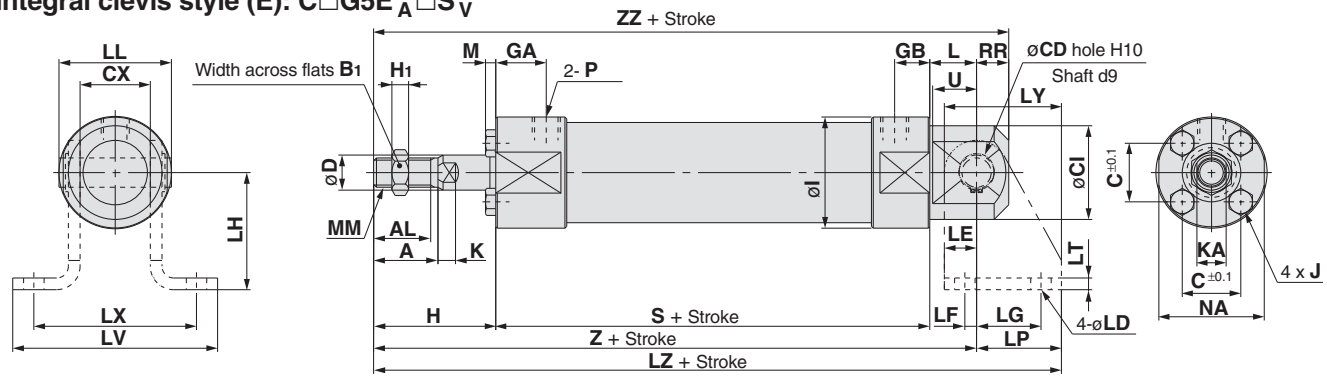
Bore size [mm]	Stroke range	Rc, NPT port			G port			A	AL	B1	B	C	D	FX	FD	FT	H	H1	I	J	K	KA	M	MM	NA	S	ZZ
	Standard	GA	GB	P	GA	GB	P																				
20	Up to 200	18	12	1/8 (1)	18	12	M5 x 0.8	18	15.5	13	50	16.5	8	36	5.5	6	35	5	31	M4 x 0.7	5	6	3	M8 x 1.25	29	83	124
25	Up to 300	18	12	1/8 (1)	18	12	M5 x 0.8	22	19.5	17	50	18.5	10	36	5.5	6	40	6	33	M5 x 0.8	5.5	8	3.5	M10 x 1.25	29	83	129
32	Up to 300	18	12	1/8	16	10	1/8	22	19.5	17	50	20	12	38	6.6	6	40	6	38	M5 x 0.8	5.5	10	3.5	M10 x 1.25	35.5	85	131
40	Up to 500	19	13	1/8	16	10	1/8	30	27	19	60	26	16	46	6.6	6	50	8	47	M6 x 1.0	6	14	4	M14 x 1.5	44	93	149
50	Up to 600	21	14	1/4	19	12	1/4	35	32	27	75	32	20	58	9	9	58	11	58	M8 x 1.25	7	18	5.5	M18 x 1.5	55	109	176
63	Up to 600	21	14	1/4	19	12	1/4	35	32	27	90	38	20	70	11	9	58	11	72	M10 x 1.5	7	18	7	M18 x 1.5	69	109	176
80	Up to 750	28	20	3/8	25	17	3/8	40	37	32	100	50	25	82	11	9	71	13	89	M10 x 1.5	10	22	7	M22 x 1.5	80	130	210
100	Up to 750	29	20	1/2	26	17	1/2	40	37	41	125	60	30	100	14	10	71	16	110	M12 x 1.75	10	26	8	M26 x 1.5	100	131	212

∗ Foot brackets and plug bolts are installed when shipped from factory.

Note 1) ø20 and ø25 cylinders with an air cushion: M5 x 0.8

Note 2) Refer to the basic type (B)/CG5BA□S∗ for the dimensions of air cushion needles.

Integral clevis style (E): C□G5E$^{N}_{A}$□S$^{R}_{V}$



[mm]

Bore size [mm]	Stroke range	Rc, NPT port			G port			A	AL	B1	C	CD(Hole)	CI	CX	D	H	H1	I	J	K	KA	L	M	MM	NA
	Standard	GA	GB	P	GA	GB	P																		
20	Up to 200	18	12	1/8 (1)	18	12	M5 x 0.8	18	15.5	13	16.5	$8^{+0.058}_{0}$	25	$16^{0}_{-0.2}$	8	35	5	31	M4 x 0.7	5	6	14	3	M8 x 1.25	29
25	Up to 300	18	12	1/8 (1)	18	12	M5 x 0.8	22	19.5	17	18.5	$8^{+0.058}_{0}$	27	$16^{0}_{-0.2}$	10	40	6	33	M5 x 0.8	5.5	8	14	3.5	M10 x 1.25	29
32	Up to 300	18	12	1/8	16	10	1/8	22	19.5	17	20	$10^{+0.058}_{0}$	32	$24^{0}_{-0.2}$	12	40	6	38	M5 x 0.8	5.5	10	16	3.5	M10 x 1.25	35.5
40	Up to 500	19	13	1/8	16	10	1/8	30	27	19	26	$10^{+0.058}_{0}$	40	$24^{0}_{-0.2}$	16	50	8	47	M6 x 1.0	6	14	16	4	M14 x 1.5	44
50	Up to 600	21	14	1/4	19	12	1/4	35	32	27	32	$14^{+0.070}_{0}$	50	$40^{0}_{-0.2}$	20	58	11	58	M8 x 1.25	7	18	22	5.5	M18 x 1.5	55
63	Up to 600	21	14	1/4	19	12	1/4	35	32	27	38	$14^{+0.070}_{0}$	60	$40^{0}_{-0.2}$	20	58	11	72	M10 x 1.5	7	18	22	7	M18 x 1.5	69
80	Up to 750	28	20	3/8	25	17	3/8	40	37	32	50	$22^{+0.084}_{0}$	75	$60^{0}_{-0.3}$	25	71	13	89	M10 x 1.5	10	22	33	7	M22 x 1.5	80
100	Up to 750	29	20	1/2	26	17	1/2	40	37	41	60	$22^{+0.084}_{0}$	90	$60^{0}_{-0.3}$	30	71	16	110	M12 x 1.75	10	26	33	8	M26 x 1.5	100

[mm]

Bore size [mm]	RR	S	U	Z	ZZ	Pivot bracket	CD(Shaft)	LD	LE	LF	LG	LH	LL	LP	LT	LV	LX	LY	LZ
20	9	83	13	132	141	CG-E020SUS	$8^{-0.040}_{-0.076}$	7	9	2	14	30	27.6	21	3	56.5	42	30	153
25	9	83	13	137	146	CG-E020SUS	$8^{-0.040}_{-0.076}$	7	9	2	14	30	27.6	21	3	56.5	42	30	158
32	11	85	15	141	152	CG-E032SUS	$10^{-0.040}_{-0.076}$	7	11	4	22	40	38.4	29	4	70.5	56	40	170
40	11	93	15	159	170	CG-E032SUS	$10^{-0.040}_{-0.076}$	7	11	4	22	40	38.4	29	4	70.5	56	40	188
50	15	109	21	189	204	CG-E050SUS	$14^{-0.050}_{-0.093}$	12	15	5	25	50	59.6	35	6	106.5	84	50	224
63	15	109	21	189	204	CG-E050SUS	$14^{-0.050}_{-0.093}$	12	15	5	25	50	59.6	35	6	106.5	84	50	224
80	23	130	32	234	257	CG-E080SUS	$22^{-0.065}_{-0.117}$	14	23	6	40	80	87.2	57	9	144.5	120	80	291
100	23	131	32	235	258	CG-E080SUS	$22^{-0.065}_{-0.117}$	14	23	6	40	80	87.2	57	9	144.5	120	80	292

∗ Plug bolts are installed when shipped from factory.

∗ Pivot bracket (with clevis pin and snap ring) are optional. (Not included.)

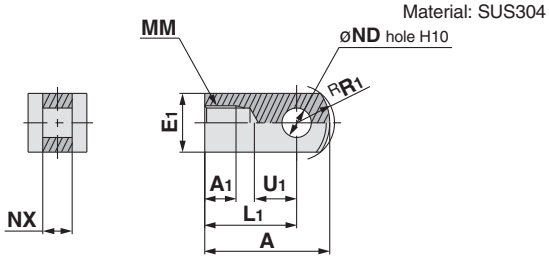
Note 1) ø20 and ø25 cylinders with an air cushion: M5 x 0.8

Note 2) Refer to the basic type (B)/CG5BA□S∗ for the dimensions of air cushion needles.

Accessory Dimensions

Single knuckle joint

Material: SUS304

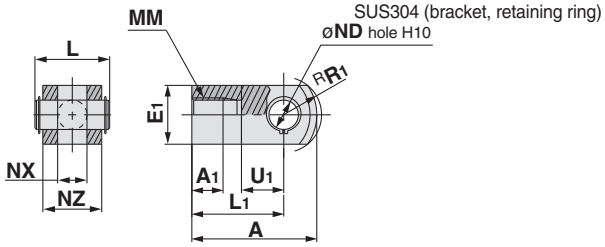


[mm]

Part no.	Applicable bore size [mm]	A	A1	E1	L1	MM	ND H10	NX	R1	U1
I-G02SUS	20	34	8.5	□16	25	M8 x 1.25	$8^{+0.058}_{0}$	$8^{-0.2}_{-0.4}$	10.3	11.5
I-G03SUS	25, 32	41	10.5	□20	30	M10 x 1.25	$10^{+0.058}_{0}$	$10^{-0.2}_{-0.4}$	12.8	14
I-G04SUS	40	42	14	□22	30	M14 x 1.5	$10^{+0.058}_{0}$	$18^{-0.3}_{-0.5}$	12	14
I-G05SUS	50, 63	56	18	□28	40	M18 x 1.5	$14^{+0.070}_{0}$	$22^{-0.3}_{-0.5}$	16	20
I-G08SUS	80	71	21	□38	50	M22 x 1.5	$18^{+0.070}_{0}$	$28^{-0.3}_{-0.5}$	21	27
I-G10SUS	100	79	21	□45	55	M26 x 1.5	$22^{+0.084}_{0}$	$32^{-0.3}_{-0.5}$	24	31

Double knuckle joint

Material: SUS440 (pin)
SUS304 (bracket, retaining ring)



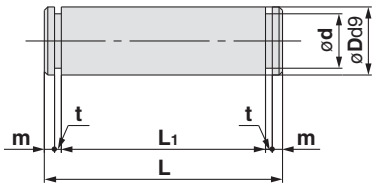
[mm]

Part no.	Applicable bore size [mm]	A	A1	E1	L	L1	MM	ND H10	NX	NZ	R1	U1	Applicable pin no.
Y-G02SUS	20	34	8.5	16	21	25	M8 x 1.25	$8^{+0.058}_{0}$	$8^{+0.4}_{+0.2}$	16	10.3	11.5	IY-G02SUS
Y-G03SUS	25,32	41	10.5	20	25.6	30	M10 x 1.25	$10^{+0.058}_{0}$	$10^{+0.4}_{+0.2}$	20	12.8	14	IY-G03SUS
Y-G04SUS	40	42	16	22	41.6	30	M14 x 1.5	$10^{+0.058}_{0}$	$18^{+0.5}_{+0.3}$	36	12	14	IY-G04SUS
Y-G05SUS	50,63	56	20	25	50.6	40	M18 x 1.5	$14^{+0.070}_{0}$	$22^{+0.5}_{+0.3}$	44	16	20	IY-G05SUS
Y-G08SUS	80	71	23	35	64	50	M22 x 1.5	$18^{+0.070}_{0}$	$28^{+0.5}_{+0.3}$	56	21	27	IY-G08SUS
Y-G10SUS	100	79	24	40	72	55	M26 x 1.5	$22^{+0.084}_{0}$	$32^{+0.5}_{+0.3}$	64	24	31	IY-G10SUS

∗ Knuckle joint pins and retaining rings are included.

Knuckle joint pin

Material: SUS440 (pin)
SUS304 (retaining ring)



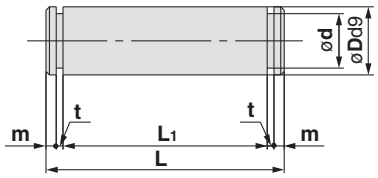
[mm]

Part no.	Applicable bore size [mm]	Dd9	d	L	L1	m	t	Applicable retaining ring
IY-G02SUS	20	$8^{-0.040}_{-0.076}$	7.6	21	16.2	1.5	0.9	C type 8 for axis
IY-G03SUS	25, 32	$10^{-0.040}_{-0.076}$	9.6	25.6	20.2	1.55	1.15	C type 10 for axis
IY-G04SUS	40	$10^{-0.040}_{-0.076}$	9.6	41.6	36.2	1.55	1.15	C type 10 for axis
IY-G05SUS	50, 63	$14^{-0.050}_{-0.093}$	13.4	50.6	44.2	2.05	1.15	C type 14 for axis
IY-G08SUS	80	$18^{-0.050}_{-0.093}$	17	64	56.2	2.55	1.35	C type 18 for axis
IY-G10SUS	100	$22^{-0.065}_{-0.117}$	21	72	64.2	2.55	1.35	C type 22 for axis

∗ Retaining rings are included.

Clevis pin

Material: SUS440 (pin)
SUS304 (retaining ring)



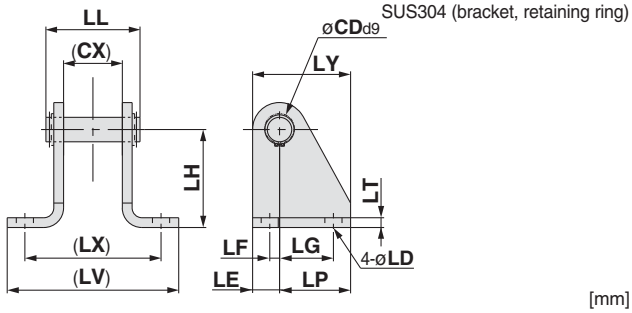
[mm]

Part no.	Applicable bore size [mm]	Dd9	d	L	L1	m	t	Applicable retaining ring
CD-E02SUS	20, 25	ø8 $^{-0.040}_{-0.076}$	7.6	27.6	22.8	1.5	0.9	C type 8 for axis
CD-E03SUS	32, 40	ø10 $^{-0.040}_{-0.076}$	9.6	38.4	33	1.55	1.15	C type 10 for axis
CD-E05SUS	50, 63	ø14 $^{-0.050}_{-0.093}$	13.4	59.6	53.2	2.05	1.15	C type 14 for axis
CD-E08SUS	80, 100	ø22 $^{-0.065}_{-0.117}$	21	87.2	79.4	2.55	1.35	C type 22 for axis

∗ Retaining rings are included.

Trunnion bracket

Material: SUS440 (pin)
SUS304 (bracket, retaining ring)



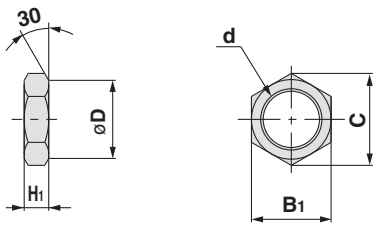
[mm]

Part no.	Applicable bore size [mm]	CD (retaining ring)	CX	LD	LE	LF	LG	LH	LL	LP	LT	LV	LX	LY
CG-E020SUS	20, 25	$8^{-0.040}_{-0.076}$	16	7	9	2	14	30	27.6	21	3	56.5	42	30
CG-E032SUS	32, 40	$10^{-0.040}_{-0.076}$	24	7	11	4	22	40	38.4	29	4	70.5	56	40
CG-E050SUS	50, 63	$14^{-0.050}_{-0.093}$	40	12	15	5	25	50	59.6	35	6	106.5	84	50
CG-E080SUS	80, 100	$22^{-0.065}_{-0.117}$	60	14	23	6	40	80	87.2	57	9	144.5	120	80

∗ Clevis pins and retaining rings are included.

Rod end nut

Material: SUS304



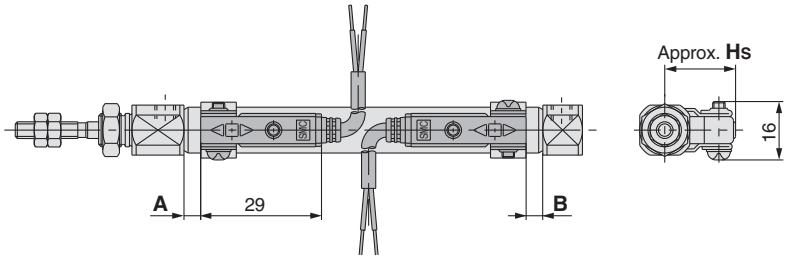
[mm]

Part no.	Applicable bore size [mm]	B1	C	D	d	H1
NT-02SUS	20	13	(15)	12.5	M8 x 1.25	5
NT-03SUS	25, 32	17	(19.6)	16.5	M10 x 1.25	6
NT-G04SUS	40	19	(21.9)	18	M14 x 1.5	8
NT-05SUS	50, 63	27	(31.2)	26	M18 x 1.5	11
NT-08SUS	80	32	(37.0)	31	M22 x 1.5	13
NT-10SUS	100	41	(47.3)	39	M26 x 1.5	16

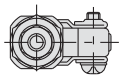
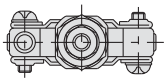
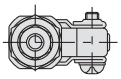
Auto Switch Mounting

Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height

Series CJ5-S
D-M9□A(V)
D-H7BA



Minimum strokes for auto switch mounting

Mounting bracket	Basic type, Foot type, Flange type, Clevis type		
Number of switches	1 pc. (Rod cover side)	2 pcs. (Different sides)	2 pcs. (Same side)
Mounting surface / Switch type	Port surface	Port surface	Port surface
			
Minimum stroke [mm]	10	15	60

Operating Range [mm]

Auto switch model	Bore size [mm]	
	10	**16**
D-H7BA	5	5

∗ Since this is a guideline including hysteresis, not meant to be guaranteed. (Assuming approximately ±30% dispersion) There may be the case to change substantially depending on an ambient environment.

Auto Switch Mounting Bracket / Part No.

Auto switch model	Bore size [mm]	
	ø10	**ø16**
D-M9□A **D-M9□AV**	BJ6-010S Note 1)	BJ6-016S Note 1)
D-H7BA	BJ2-010S	BJ2-016S

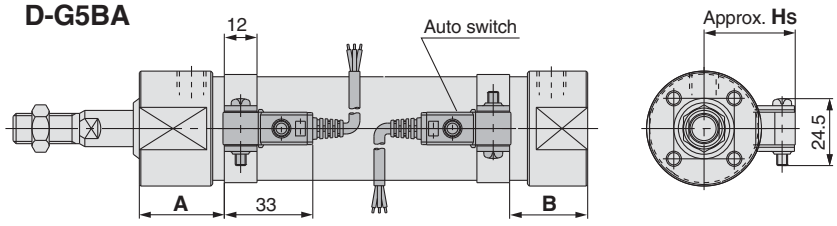
∗ With stainless steel mounting screws.
Note 1) Set part number which includes the auto switch mounting band (BJ2-□□□S) and the holder kit (BJ4-1/Switch bracket: White).
Note 2) For D-M9□A(V), avoid the indicator LED for mounting the switch bracket.

Proper Auto Switch Mounting Position and Its Mounting Height [mm]

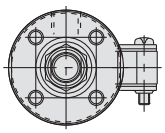
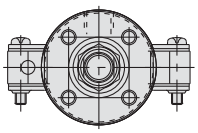
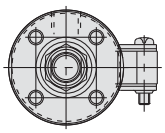
Applicable bore size [mm] \ Auto switch model	D-H7BA		
	A	**B**	**Hs**
10	0	0	17
16	0.5	0.5	20.5

Note) Adjust the auto switch after confirming the operating condition in the actual setting.

Series CG5-S
D-G5BA



Minimum strokes for auto switch mounting

Mounting bracket	Basic type, Foot type, Flange type, Clevis type		
Number of switches	1 pc. (Rod cover side)	2 pcs. (Different sides)	2 pcs. (Same side)
Mounting surface / Switch type	Port surface	Port surface	Port surface
			
Minimum stroke [mm]	10	15	75

Operating Range [mm]

Auto switch model	Bore size [mm]							
	20	**25**	**32**	**40**	**50**	**63**	**80**	**100**
D-G5BA	5	5	5.5	6	7	7.5	7.5	8

∗ Since this is a guideline including hysteresis, not meant to be guaranteed. (Assuming approximately ±30% dispersion) There may be the case to change substantially depending on an ambient environment.

Auto Switch Mounting Bracket / Part No.

Auto switch model	Bore size [mm]							
	20	**25**	**32**	**40**	**50**	**63**	**80**	**100**
D-G5BA	NBA-088S	NBA-106S	BGS1-032S	BAF-04S	BAF-05S	BAF-06S	BAF-08S	BAF-10S

∗ With stainless steel mounting screws.

Proper Auto Switch Mounting Position and Its Mounting Height [mm]

Applicable bore size [mm] \ Auto switch model	D-G5BA		
	A	**B**	**Hs**
20	31.5	24	26
25	31.5	24	28.5
32	32.5	25	33
40	37	28	36.5
50	45.5	36	42
63	45.5	36	48.5
80	56	46	57.5
100	57	46	68

Note) Adjust the auto switch after confirming the operating condition in the actual setting.

Simple Specials:
-XA0 to XA30: Change of Rod End Shape

These changes are dealt with Simple Specials System.

1 Change of Rod End Shape

Symbol
-XA0 to XA30

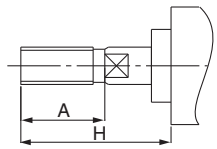
Applicable Series

Series			Action	Symbol for change of rod end shape	Note
CG5	Stainless steel cylinder	**CG5·S**	Double acting, Single rod	XA0 to 30	

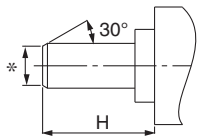
⚠ Precautions

1. SMC will make appropriate arrangements if no dimension, tolerance, or finish instructions are given in the diagram.
2. Standard dimensions marked with "∗" will be as follows to the rod diameter (D). Enter any special dimension you desire.
D ≤ 6 → D – 1 mm, 6 < D ≤ 25 → D – 2 mm, D > 25 → D – 4 mm
3. In the case of double rod type and single acting retraction type, enter the dimensions when the rod is retracted.

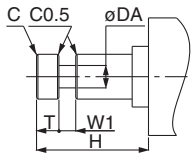
Symbol: A0



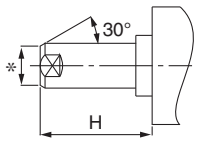
Symbol: A1



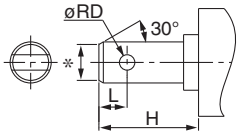
Symbol: A2



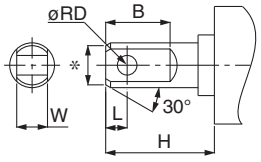
Symbol: A3



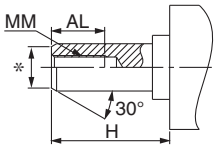
Symbol: A4



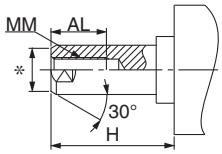
Symbol: A5



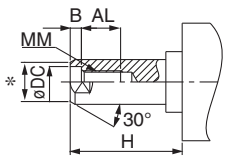
Symbol: A6



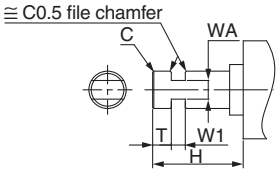
Symbol: A7



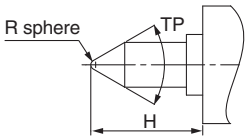
Symbol: A8



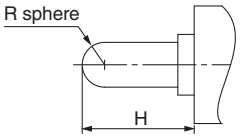
Symbol: A9



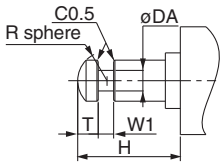
Symbol: A10



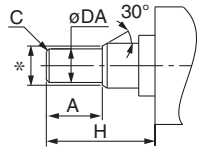
Symbol: A11



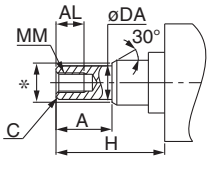
Symbol: A12



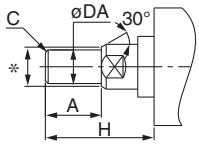
Symbol: A13



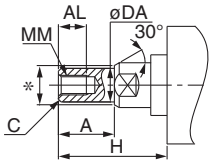
Symbol: A14



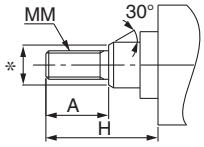
Symbol: A15



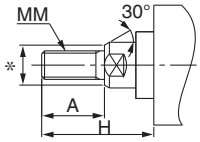
Symbol: **A16**



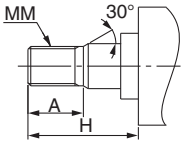
Symbol: **A17**



Symbol: **A18**



Symbol: **A19**



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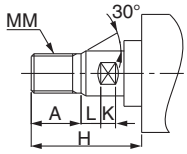

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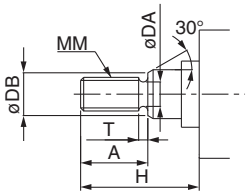

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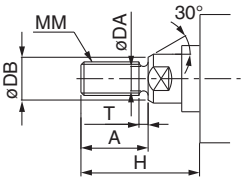

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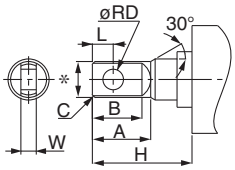

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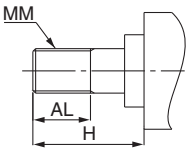

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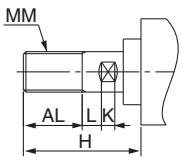

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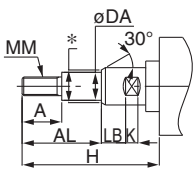

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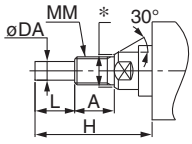

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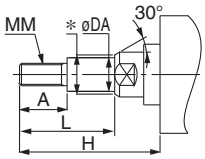

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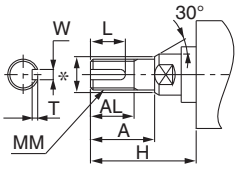

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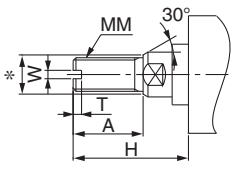


Made to Order Common Specifications:
-XB6: Heat Resistant Cylinder (–10 to 150°C)

Made to Order

Symbol

2 Heat Resistant Cylinder (–10 to 150°C) -XB6

Air cylinder which changed the seal material and grease, so that it could be used even at higher temperature up to 150 from –10°C.

Applicable Series

Series	Description	Model	Action	Note
CG5	Stainless cylinder	CG5	Double acting, Single rod	Except with auto switch. Without a bumper for cylinders with a rubber bumper (Grease for non-food is used.)

How to Order

Standard model no. **–XB6**

Heat resistant cylinder

Specifications

Ambient temperature range	–10 to 150°C
Seals materials	Fluororubber
Grease	Heat resistant grease
Specifications other than above and external dimensions	Same as standard type

Note 1) Operate without lubrication from a pneumatic system lubricator.
Note 2) Please contact SMC for details on the maintenance intervals for this cylinder, which differ from those of the standard cylinder.
Note 3) In principle, it is impossible to make built-in magnet type and the one with auto switch. But, as for the one with auto switch, and the heat resistant cylinder with heat resistant auto switch, since it will be differed depending on the series, please contact SMC.
Note 4) Piston speed is ranged from 50 to 500 mm/s.

⚠ Warning
Precautions

Be aware that smoking cigarettes, etc. after your hands have come into contact with the grease used in this cylinder can create a gas that is hazardous to humans.

Technical Data
Chemical Resistance Table

◎ : No influence or almost no influence
○ : Some influence, but operational depending on conditions
△ : Avoid use if possible
× : Substantial influence, not suitable for use
— : Not tested

Chemical Resistance Table

Parts			Body		Seal		Water resistant auto switch	
Material			Stainless steel	Aluminum*	Nitrile rubber	Fluororubber	Resin casing	Lead wire
Chemical (Concentration weight %, Temperature °C) / Symbol			Stainless steel 304	Al	NBR (–10 to 60°C)	FKM (–40 to 150°C)	PBT (–10 to 60°C)	PVC (–10 to 60°C)
Inorganic salt	1	**Hydrochloric acid (20%, Room temperature)**	×	×	○	◎	◎	○
	2	**Chromic acid (25%, 70°C)**	○	×	×	◎	◎	○
	3	**Boric acid**	○	×	◎	◎	◎	○
	4	**Sulfuric acid (30%, Room temperature)**	×	×	◎	◎	◎	○
	5	**Phosphoric acid (50%, Room temperature)**	○	×	◎	◎	◎	○
Inorganic alkali	6	**Ammonium hydroxide (28%)**	○	○	○	×	◎	○
	7	**Sodium hydroxide (30%, Room temperature)**	◎	×	◎	△	◎	×
	8	**Calcium hydroxide**	△	×	◎	◎	◎	◎
	9	**Magnesium hydroxide**	○	○	◎	◎	◎	◎
Organic solvent	10	**Acetylene**	◎	◎	◎	◎	◎	◎
	11	**Formic acid (25%, Room temperature)**	○	△	×	△	△	△
	12	**Citric acid**	△	×	◎	◎	△	○
	13	**Acetic acid (10%, Room temperature)**	◎	△	△	○	◎	○
	14	**Lactic acid (5%, 20°C)**	○	×	◎	◎	◎	○
Others (oil, gas, etc.)	15	**Linseed oil**	◎	○	◎	◎	△	△
	16	**Polassium chloride**	○	△	◎	◎	◎	◎
	17	**Calcium chloride**	○	◎	◎	◎	◎	◎
	18	**Mineral oil**	◎	◎	◎	◎	◎	△
	19	**Sodium hypochlorite (2%, Room temperature)**	○	×	×	◎	◎	△
	20	**Sodium chloride**	○	—	◎	◎	◎	◎
	21	**Carbon dioxide**	◎	◎	◎	◎	◎	◎
	22	**Natural gas**	◎	◎	◎	◎	◎	◎
	23	**Boric acid**	○	×	◎	◎	◎	○

∗ Unless noted otherwise, the solution concentration is in a saturated state.
∗ Chemical resistance is a guide that applies only to the stainless steel cylinder parts, and does not guarantee the performance of air cylinders (auto switches). Be sure to perform a verification test before operating.

∗) Reference data

Stainless Steel Cylinder Series CJ5-S/CG5-S
Specific Product Precautions 1

Be sure to read before handling.
Refer to safety instructions and actuator common precautions.

Caution on Design

⚠Warning

1. Note the weight of the stainless steel products.

Since the weight of stainless steel cylinders is approximately 1.5 to 3 times heavier than the standard products (with aluminum body), be careful when calculating weight estimates. Also, when mounting the cylinder on equipment where vibration is expected, avoid using single side brackets such as the flange type, and use double side brackets such as the foot type instead.

⚠Caution

1. Adjust the speed control for the environment in which it will be used.

Speed adjustment may be changed depending on the environment.

2. Dust may accumulate on this product's mounting screws and brackets in some operating conditions.

Measures must be applied depending on the operating conditions when mounting.

Selection

⚠Warning

1. Generally, use nitrile rubber (NBR) seals with liquids that do not contain chlorine and sulphur, and use fluoro rubber (FKM) seals with liquids that contain chlorine and sulphur.

However, depending on the type and the brand of liquid (such as cleaning solvent) that splashes on the cylinder, the operating life of seals may be reduced dramatically. In cases where special additives are used, or where liquid caused trouble with the conventional nitrile or fluoro rubber seals in the past, request an investigation or set up a test period for the use of the seals.

2. Even the fluoro rubber specification may not be applicable depending on the type of chemicals and the operating temperature. Therefore, be sure to verity the seal's applicability before use.

Mounting

⚠Warning

1. Do not rotate the cover.

If a cover is rotated when installing a cylinder or screwing a fitting into the port, it is likely to damage the junction part with cover.

2. When using pins, apply grease, etc., in order to prevent them from degrading of shape and rusting.

Operating Precautions

⚠Warning

1. For details about operating precautions, refer to Series CJ2 and Series CG1.

⚠Caution

1. If cleaning the rotating part, grease may leak out, which shortens product service life. Thus, cleaning must be as infrequent as possible.

2. If excess water gets into mounting holes, unwanted bacteria may reproduce. Plug them with plug bolts or external covers to avoid this.

Operating Environment

⚠Warning

1. Fully consider the compatibility of stainless steel.

The corrosion resistance of stainless steel is not effective against all media and corrosive environments. Corrosion proceeds rapidly with strong hydrochloric acid, hydrofluoric acid, and high temperature ammonium gas, etc. Therefore its compatibility to the environment must be considered carefully.

2. Do not operate cylinders with auto switches in environments where oil and chemicals are used.

Contact SMC when operating in environments with coolants, cleaning solvents, various oils or chemicals, as it may cause adverse effects (faulty insulation, malfunction due to swelling of the potting resin, and hardening of lead wires, etc) to auto switches even in a short period of time. Even with the fluoro rubber seal specification, the auto switch related parts (switch body, mounting bracket, and built-in magnet) are identical to the standard specifications. Therefore, consult SMC regarding the cylinder's compatibility (such as chemical resistance) with an environment (chemicals, etc.) before operating.

3. Do not immerse the cylinder in water or chemicals.

When the cylinder is operated in a condition with water pressure, the fluid leaks into the cylinder in the early stages. In the worst case, the fluid may back flow inside the piping and damage the solenoid valve.

⚠Caution

1. Avoid installing and using a cylinder inside a food zone.

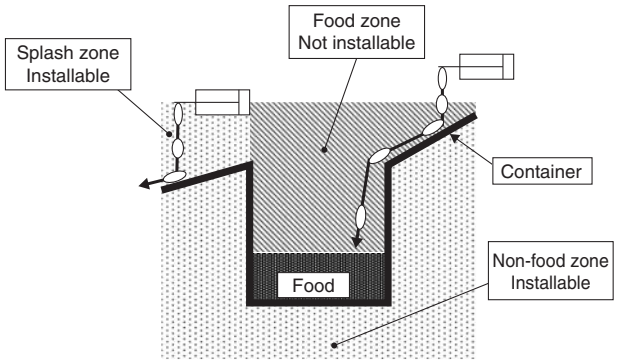
<Not installable>

Food zone ····· An environment where food which will be sold as merchandize, directly touches the cylinder's components.

<Installable>

Splash zone ····· An environment where food which will not be sold as merchandize, directly touches the cylinder's components.

Non-food zone ····· An environment where there is no contact with food.



2. When cleaning solvent or chemicals splashes on a cylinder, the service life may be extremely shortened. Please contact SMC for details.

3. When cleaning cylinders with steam, do it as quickly as possible, keeping the cylinder's temperature range in mind.

4. When cleaning cylinders with a brush, etc., do not apply excessive force to the weaker parts, such as auto switch lead wire, etc.

Specific Product Precautions 2

Be sure to read before handling.
Refer to safety instructions and actuator common precautions.

Maintenance

⚠ Warning

1. If this cylinder is lubricated, it may cause malfunctions.

If grease other than designated is used, it may also cause malfunctions.

- Order with the following part number when only the grease for maintenance is needed.
  Grease pack part number for stainless steel cylinders
  Grease for food processing machines: GR-R-010 (10 g)

2. Do not wipe grease attached to the rotating part of the air cylinder.

If grease attached to the rotating part is forcibly wiped off, it may cause malfunctions.

If the cylinder is operated for a long period of time, the rotating part may become black. In such cases, wipe the grease attached to the rotating part and reapply fresh grease to enable the cylinder to operate for a long period of time.

(Wipe the grease with water. Using alcohol or solvents may damage seals.)

Precautions for series CG5-S

1. Sealant* is used on the threads of the connecting sections of the cover and the cylinder tube for air-tight construction. When disassembling the cylinder, the old sealant must be completely removed, and new sealant must be applied before re-assembling.

* Loctite 542 (medium strength) or equivalent

2. ø50 or larger bore size cylinders cannot be disassembled.

When disassembling cylinders with bore sizes of ø20 through ø40, grip the double flat part of either the head cover or the rod cover with a vise and loosen the other side with a wrench or a monkey wrench, etc., and then remove the cover. When re-tightening, tighten approximately 2 degrees more than the original position. (Cylinders with ø50 or larger bore sizes are tightened with a large tightening torque and cannot be disassembled. Contact SMC when disassembly is required.)