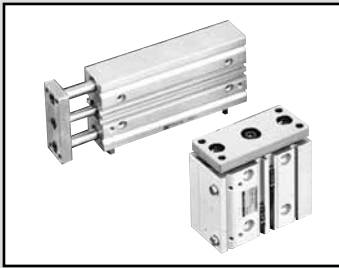


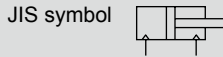
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Guided cylinder, double acting/single rod

STS/STL-^M/_B Series

- Bore size: $\phi 8/\phi 12/\phi 16/\phi 20/\phi 25/\phi 32$
 $\phi 40/\phi 50/\phi 63/\phi 80/\phi 100$



Specifications

Descriptions	STS-M/B STL-M/B												
	Bore size	mm	$\phi 8$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$
Actuation	Double acting												
Working fluid	Compressed air												
Max. working pressure	MPa	1.0 (≈ 150 psi, 10 bar)											
Min. working pressure	MPa	0.15 (≈ 22 psi, 1.5 bar)						0.1 (≈ 15 psi, 1 bar)					
Proof pressure	MPa	1.6 (≈ 230 psi, 16 bar)											
Ambient temperature	$^{\circ}\text{C}$	-10 (14°F) to 60 (140°F) (no freezing)											
Port size		M5				Rc1/8			Rc1/4		Rc3/8		
Stroke tolerance	mm	+2.0 0											
Working piston speed	mm/s	50 to 500						50 to 300					
Cushion		With rubber cushion											
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)											
Allowable absorbed energy	J	0.029	0.056	0.088	0.157	0.157	0.401	0.627	0.980	1.560	2.510	3.92	

Stroke length

- Short stroke STS

Bore size	Standard stroke (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke (mm)(switch)
$\phi 8$	10,20,30	50	5	5 With one or two switches
$\phi 12$				
$\phi 16$				
$\phi 20$				
$\phi 25$				
$\phi 32$				
$\phi 40$				
$\phi 50$				
$\phi 63$				
$\phi 80$	25,50,75,100			
$\phi 100$				

Clean-room specifications

(Catalog No. CB-033SA)

- Anti-dust generation structure for use in cleanrooms

STS/L-..... **P7***

STS/L-..... **P5***

- Long stroke length STL

Bore size	Standard stroke (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke (mm)(switch)
$\phi 8$	50,75,100	200	50	50
$\phi 12$	125,150			With one or two switches.
$\phi 16$	175,200			
$\phi 20$	50,75,100	400	30	30 With one or two switches
$\phi 25$	125,150,175			
$\phi 32$	200,225,250			
$\phi 40$	275,300,325			
$\phi 50$	350,375,400			
$\phi 63$				
$\phi 80$	75,100,125,150,175 200,225,250,275,300 325,350,375,400			
$\phi 100$	75,100,125,150,175,200			

Note : The custom stroke length is available in 5 mm increments.
However, the total length is the same as that of the next longer standard stroke length.

Switch specifications

● 1-color/2-color display/for AC magnetic field proof

Descriptions	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire				Proximity 2-wire			
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD			
Applications	For programmable controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay, IC circuit (no indicator lamp), serial connection		For programmable controller, relay		For programmable controller		
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*2)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	≤50 mA	≤20 mA	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)	
Leakage current	≤1 mA at 100 VAC, ≤2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA				1 mA or less			
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80		1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272		

*1 : Refer to Ending Page 1 for other switch specifications.

*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
φ8	Push	-	-	10.1	15.1	20.1	25.1	30.2	35.2	40.2	45.2	50.3
	Pull	-	-	7.54	11.3	15.1	18.8	22.6	26.4	30.2	33.9	37.7
φ12	Push	-	-	22.6	33.9	45.2	56.5	67.9	79.2	90.5	1.02×10 ²	1.13×10 ²
	Pull	-	-	17.0	25.4	33.9	42.4	50.9	59.4	67.9	76.3	84.8
φ16	Push	-	-	40.2	60.3	80.4	1.01×10 ²	1.21×10 ²	1.41×10 ²	1.61×10 ²	1.81×10 ²	2.01×10 ²
	Pull	-	-	30.2	45.2	60.3	75.4	90.5	1.06×10 ²	1.21×10 ²	1.36×10 ²	1.51×10 ²
φ20	Push	-	-	62.8	94.2	1.26×10 ²	1.57×10 ²	1.88×10 ²	2.20×10 ²	2.51×10 ²	2.83×10 ²	3.14×10 ²
	Pull	-	-	47.1	70.7	94.2	1.18×10 ²	1.41×10 ²	1.65×10 ²	1.88×10 ²	2.12×10 ²	2.36×10 ²
φ25	Push	-	-	98.2	1.47×10 ²	1.96×10 ²	2.45×10 ²	2.95×10 ²	3.44×10 ²	3.93×10 ²	4.42×10 ²	4.91×10 ²
	Pull	-	-	75.6	1.13×10 ²	1.51×10 ²	1.89×10 ²	2.27×10 ²	2.64×10 ²	3.02×10 ²	3.40×10 ²	3.78×10 ²
φ32	Push	80.4	1.21×10 ²	1.61×10 ²	2.41×10 ²	3.22×10 ²	4.02×10 ²	4.83×10 ²	5.63×10 ²	6.43×10 ²	7.24×10 ²	8.04×10 ²
	Pull	60.3	90.5	1.21×10 ²	1.81×10 ²	2.41×10 ²	3.02×10 ²	3.62×10 ²	4.22×10 ²	4.83×10 ²	5.43×10 ²	6.03×10 ²
φ40	Push	1.26×10 ²	1.88×10 ²	2.51×10 ²	3.77×10 ²	5.03×10 ²	6.28×10 ²	7.54×10 ²	8.80×10 ²	1.01×10 ³	1.13×10 ³	1.26×10 ³
	Pull	1.06×10 ²	1.58×10 ²	2.11×10 ²	3.17×10 ²	4.22×10 ²	5.28×10 ²	6.33×10 ²	7.39×10 ²	8.44×10 ²	9.50×10 ²	1.06×10 ³
φ50	Push	1.96×10 ²	2.95×10 ²	3.93×10 ²	5.89×10 ²	7.85×10 ²	9.82×10 ²	1.18×10 ³	1.37×10 ³	1.57×10 ³	1.77×10 ³	1.96×10 ³
	Pull	1.65×10 ²	2.47×10 ²	3.30×10 ²	4.95×10 ²	6.60×10 ²	8.25×10 ²	9.90×10 ²	1.15×10 ³	1.32×10 ³	1.48×10 ³	1.65×10 ³
φ63	Push	3.12×10 ²	4.68×10 ²	6.23×10 ²	9.35×10 ²	1.25×10 ³	1.56×10 ³	1.87×10 ³	2.18×10 ³	2.49×10 ³	2.81×10 ³	3.12×10 ³
	Pull	2.80×10 ²	4.20×10 ²	5.61×10 ²	8.41×10 ²	1.12×10 ³	1.40×10 ³	1.68×10 ³	1.96×10 ³	2.24×10 ³	2.52×10 ³	2.80×10 ³
φ80	Push	5.03×10 ²	7.54×10 ²	1.01×10 ³	1.51×10 ³	2.01×10 ³	2.51×10 ³	3.02×10 ³	3.52×10 ³	4.02×10 ³	4.52×10 ³	5.03×10 ³
	Pull	4.54×10 ²	6.80×10 ²	9.07×10 ²	1.36×10 ³	1.81×10 ³	2.27×10 ³	2.72×10 ³	3.17×10 ³	3.63×10 ³	4.08×10 ³	4.54×10 ³
φ100	Push	7.85×10 ²	1.18×10 ³	1.57×10 ³	2.36×10 ³	3.14×10 ³	3.93×10 ³	4.71×10 ³	5.50×10 ³	6.28×10 ³	7.07×10 ³	7.85×10 ³
	Pull	7.15×10 ²	1.07×10 ³	1.43×10 ³	2.14×10 ³	2.86×10 ³	3.57×10 ³	4.29×10 ³	5.00×10 ³	5.72×10 ³	6.43×10 ³	7.15×10 ³

For cylinder weight, refer to pages 554 to 557.

STS/STL-M_B Series

How to order

● Short stroke

Without switch (built-in magnet for switch)

STS - **M** - **8** - **10** - **F**

With switch (built-in magnet for switch)

STS - **M** - **8** - **10** - **T2H** - **R** - **F**

● Long stroke length

Without switch (built-in magnet for switch)

STL - **M** - **8** - **50** - **F**

With switch (built-in magnet for switch)

STL - **M** - **8** - **50** - **T2H** - **R** - **F**

Model No.

A Bearing

B Bore size

C Port thread

D Stroke length

■ Custom stroke length
Available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.

E Switch model No.
*1 *3 *5

For the 2-color display, T1H/V, T8H/V and strong magnetic field proof switches for $\phi 40$ and over, insert "L1" with "-" between **A** and **B**.
Example) STS-M-L1-63-50-T2YH3-D-F
For $\phi 80$ and $\phi 100$, the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches cannot be retrofitted on a previously purchased standard product.
In this case, order the model No. with "L1" inserted between **A** and **B**.
(Example) STS-M-L1-80-50-F

F Switch quantity

G Option

⚠ Precautions for model No. selection

- *1 : Switches other than **E** Switch model No. are also available. (Custom order product)
Refer to Ending Page 1 for details.
- *2 : Refer to page 440 (metal bush bearing M) and page 442 (ball bearing B) for combinations of variations/options.
- *3 : T8H/V switch cannot be installed on $\phi 8$ to $\phi 16$.
- *4 : $\phi 8$ to $\phi 25$ with ball bearing B are copper and PTFE free as standard.
- *5 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

STS-M-8-30-T0H-R-F

Model: Guided cylinder, short stroke length, standard single rod

- A** Bearing : Metal bush bearing
- B** Bore size : $\phi 8$ mm
- C** Port thread : Rc thread
- D** Stroke length : 30 mm
- E** Switch model No. : Reed switch T0H, 1 m lead wire length
- F** Switch quantity : 1 on rod side
- G** Option : End plate material: steel

Code	Content
A Bearing	
M	Metal bush bearing
B	Ball bearing

B Bore size (mm)	
8	$\phi 8$
12	$\phi 12$
16	$\phi 16$
20	$\phi 20$
25	$\phi 25$
32	$\phi 32$
40	$\phi 40$
50	$\phi 50$
63	$\phi 63$
80	$\phi 80$
100	$\phi 100$ (custom order)

C Port thread	
Blank	Rc thread
NN	NPT thread ($\phi 32$ and over) custom order product
GN	G thread ($\phi 32$ and over) custom order product

D Stroke length (mm)	
Refer to the stroke length table on the following page.	

E Switch model No.		Contact	Voltage		Indicator	Lead wire
Axial lead wire	Radial lead wire		AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●		
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*		●	●		
T2H*	T2V*	Proximity		●	1-color display (custom)	3-wire
T3H*	T3V*			●		
T3PH*	T3PV*			●	2-color display	2-wire
T2WH*	T2WV*			●		
T2YH*	T2YV*			●	2-color display	2-wire
T3WH*	T3WV*			●		
T3YH*	T3YV*			●	3-wire	
T2JH*	T2JV*			●		1-color display off-delay
T2YD*	-			●	2-color display	2-wire
T2YDT*	-			●		

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

F Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

G Option	
F	End plate material: steel
M	Corrosion proof (Piston rod, guide rod SUS)
M1	Corrosion proof (M + end plate SUS)
P6	Copper and PTFE free specifications *4

D Stroke length

Series	Stroke length (mm)	Applicable bore size										
		φ8	φ12	φ16	φ20	φ25	φ32	φ40	φ50	φ63	φ80	φ100
STS	10	●	●	●								
	20	●	●	●								
	25				●	●	●	●	●	●	●	●
	30	●	●	●								
	40	●	●	●								
	50	●	●	●	●	●	●	●	●	●	●	●
	75										●	●
100										●	●	
	Min. stroke length	*1	5									
	Custom stroke	*1, 2	In 5 mm increments									
STL	50	●	●	●	●	●	●	●	●	●		
	75	●	●	●	●	●	●	●	●	●	●	●
	100	●	●	●	●	●	●	●	●	●	●	●
	125	●	●	●	●	●	●	●	●	●	●	●
	150	●	●	●	●	●	●	●	●	●	●	●
	175	●	●	●	●	●	●	●	●	●	●	●
	200	●	●	●	●	●	●	●	●	●	●	●
	225				●	●	●	●	●	●	●	
	250				●	●	●	●	●	●	●	
	275				●	●	●	●	●	●	●	
	300				●	●	●	●	●	●	●	
	325				●	●	●	●	●	●	●	
	350				●	●	●	●	●	●	●	
	375				●	●	●	●	●	●	●	
400				●	●	●	●	●	●	●		
	Min. stroke length	*1	50			30				55		
	Custom stroke	*1, 2	In 5 mm increments									

*1: The total dimensions are the same as the longer standard stroke length.

*2: Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

How to order switch

SW - T0V

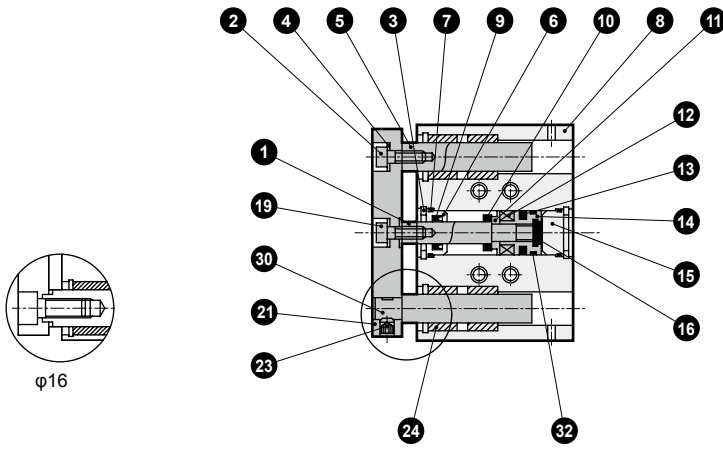
Switch model No.
(Item E on the previous page)

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

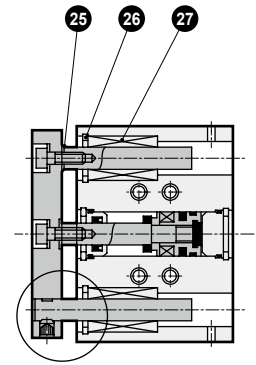
Internal structure and parts list ($\phi 8$ to $\phi 63$)

- Double acting/
standard single rod
- STS-M_B

$\phi 8/\phi 12/\phi 16$

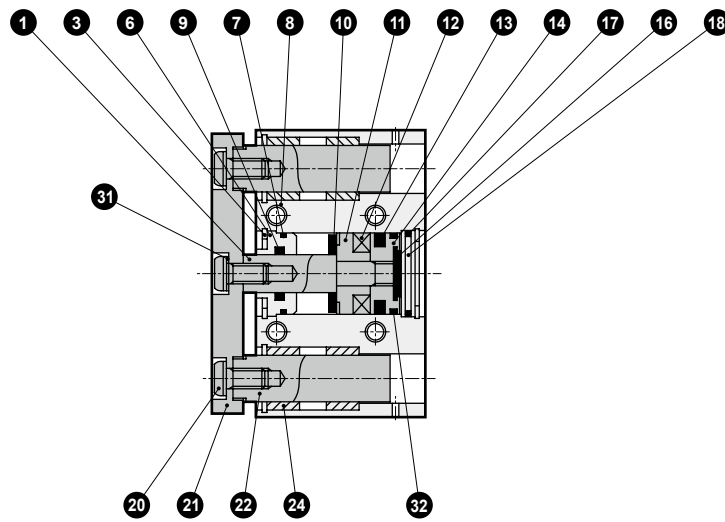


Metal bush bearing

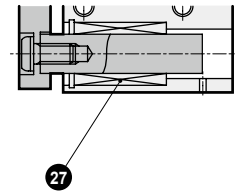


Ball bearing

$\phi 20/\phi 25$

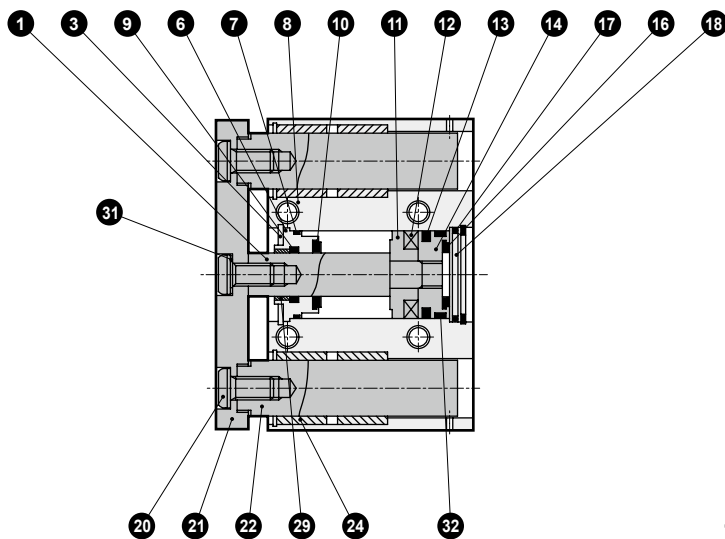


Metal bush bearing

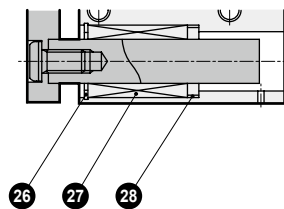


Ball bearing

$\phi 32/\phi 40/\phi 50/\phi 63$



Metal bush bearing

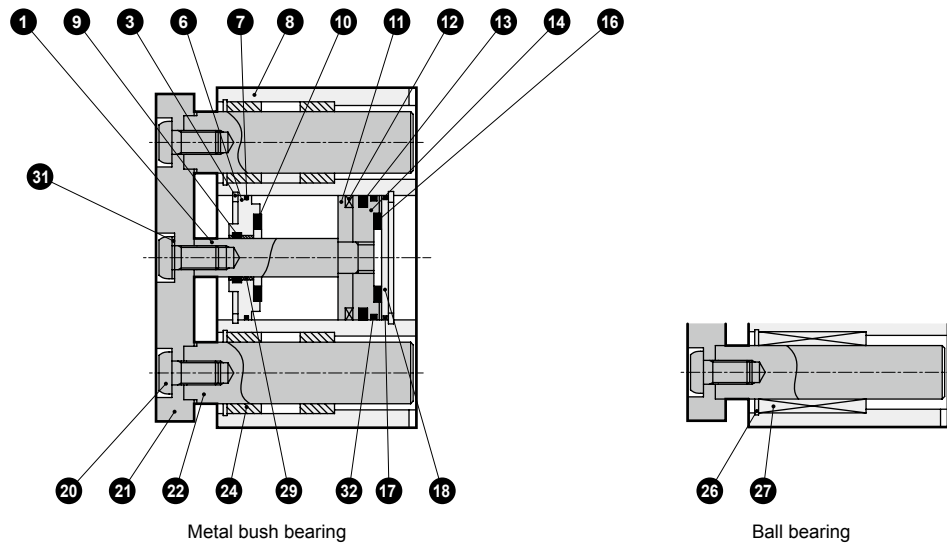


Ball bearing

- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

Internal structure and parts list (φ80)

- Double acting/standard single rod φ80
- STS-M_B



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
STS-M_B (Standard single rod)							
1	Piston rod	Stainless steel (φ8 to φ25) Steel (φ32 to φ80)	Industrial chrome plating	16	Cushion rubber (H)	Urethane rubber	
2	Hexagon socket head cap screw	Alloy steel	Zinc chromate	17	O-ring	Nitrile rubber	
3	C type snap ring	Steel	Zinc phosphate	18	Base plate	Aluminum alloy (φ20 to φ63) Steel (φ80)	Chromate (φ20 to φ63) Zinc chromate (φ80)
4	Plain washer	Steel	Black finish	19	Hexagon nut (φ8)	Steel	Zinc chromate
5	Guide rod (1)	M: Stainless steel B: Alloy steel	Industrial chrome plating (φ12, φ16) Industrial chrome plating	20	Hex socket head cap screw (φ12, φ16)	Alloy steel	Zinc chromate
6	Rod metal	Special aluminum alloy	Alumite (*1)	21	End plate	Aluminum alloy	Alumite
7	Metal gasket	Nitrile rubber		22	Guide rod (φ20 to φ80)	Steel	Industrial chrome plating
8	Cylinder body	Aluminum alloy	Hard alumite	23	Hexagon socket set screw (φ8, φ12)	Alloy steel	Black finish
9	Rod packing	Nitrile rubber		24	Metal	Oil impregnated bearing alloy	
10	Cushion rubber (R)	Urethane rubber		25	Plain washer	Steel	Black finish
11	Spacer	Aluminum alloy (φ8 to φ12, φ63, φ80) Polyamide (φ20 to φ50)	Chromate (φ8 to φ12, φ63, φ80)	26	C type snap ring	Steel	Zinc phosphate
12	Magnet	Plastic		27	Ball bush		
13	Piston packing	Nitrile rubber		28	Collar	Aluminum alloy	
14	Piston	Special aluminum alloy (φ8) Aluminum alloy (φ12 to φ80)	Chromate (φ8, φ20 to φ80)	29	Bush	Multi-layered, oilless metal	
15	Cover	Aluminum alloy		30	Guide rod (2) (φ8, φ12)	M: Stainless steel B: Alloy steel	Industrial chrome plating (φ12) Industrial chrome plating
				31	Disc spring washer	Steel	
				32	Wear ring	Acetal resin	φ12 to φ80

*1: Chromate-coated for φ32 to φ50 only.

Repair parts list

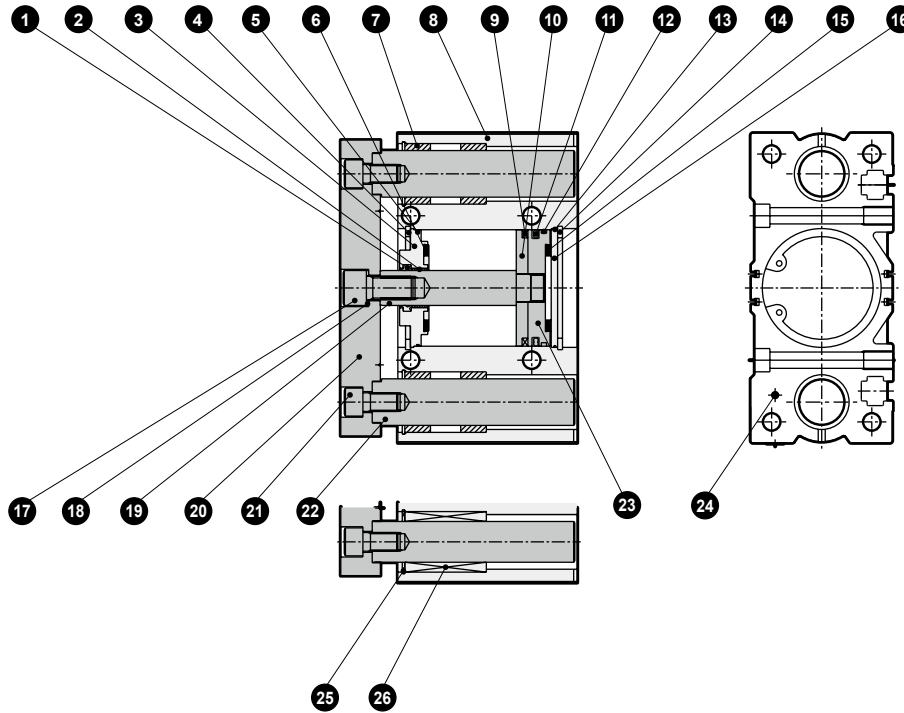
Bore size (mm)	Kit No.	Repair parts No.
	STS-M _B	
φ8	STS-8K	7 9 10 13 16
φ12	STS-12K	7 9 10 13 16 32
φ16	STS-16K	
φ20	STS-20K	
φ25	STS-25K	
φ32	STS-32K	7 9 10 13
φ40	STS-40K	
φ50	STS-50K	16 17 32
φ63	STS-63K	
φ80	STS-80K	

Note: Specify the kit No. when placing an order.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Internal structure and parts list (φ100)

● Double acting/standard single rod φ100
STS-M_B



Mod No.	Part name	Material	Remarks	Mod No.	Part name	Material	Remarks
STS/L-M (Standard rod)							
1	Rod packing	Nitrile rubber		14	C type snap ring	Steel	Zinc phosphate
2	Bush	Dry bearing		15	Cushion rubber (H)	Urethane rubber	
3	Rod metal	Aluminum alloy	Chromate	16	Base plate	Steel	Zinc chromate
4	C type snap ring	Steel	Zinc phosphate	17	Hexagon socket head cap screw	Steel	Zinc chromate
5	Metal gasket	Nitrile rubber		18	Disc spring washer	Steel	Zinc chromate
6	Cushion rubber (R)	Urethane rubber		19	Piston rod	Steel	Industrial chrome plating
7	Metal	Oil impregnated bearing alloy		20	End plate	Aluminum alloy	Alumite
8	Tube body	Aluminum alloy	Hard alumite	21	Hexagon socket head cap screw	Steel	Zinc chromate
9	Magnet	Plastic		22	Guide rod	Steel	Industrial chrome plating
10	Spacer	Aluminum alloy	Chromate	23	Piston	Aluminum alloy	Chromate
11	Piston packing	Nitrile rubber		24	Hexagon socket set screw	Steel	Black finish
12	Wear ring	Acetal resin		25	C type snap ring	Steel	Zinc phosphate
13	O-ring	Nitrile rubber		26	Ball bearing		

Repair parts kit

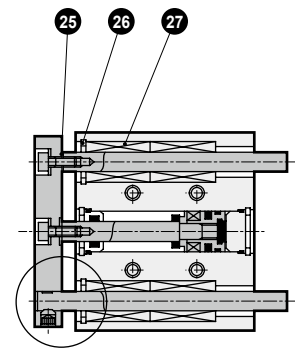
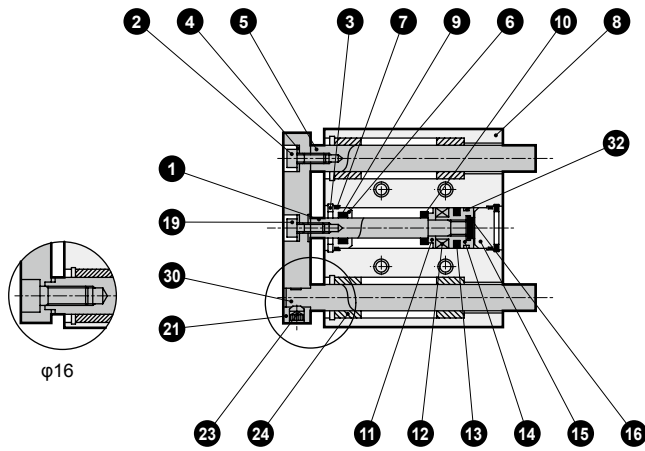
Bore size (mm)	Kit No.	Repair parts No.
	STS-M _B	
φ100	STS-100K	1 5 6 11 12 13 15

Note: Specify the kit No. when placing an order.

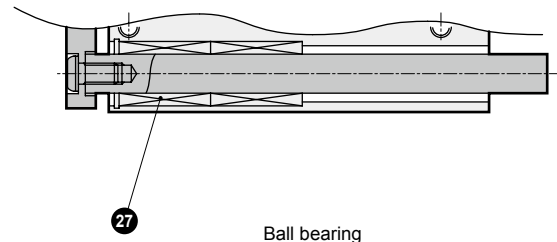
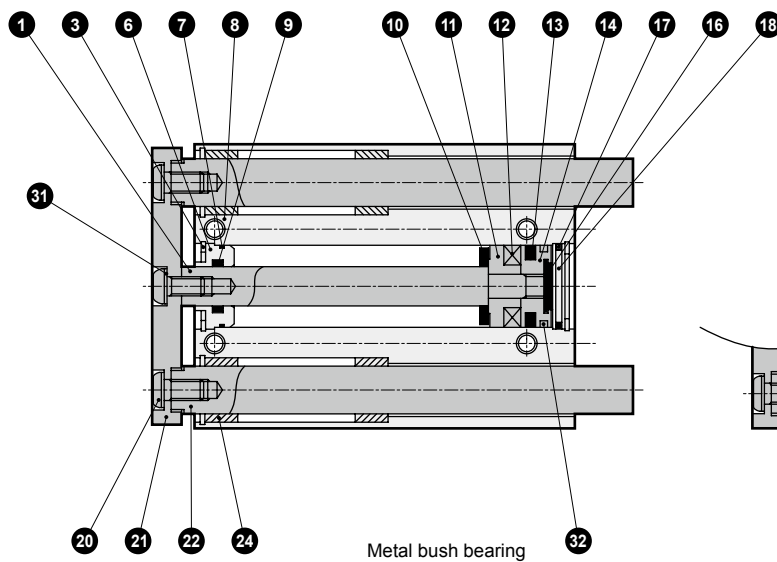
Internal structure and parts list (φ8 to φ63)

- Double acting/
standard single rod
STL-M_B

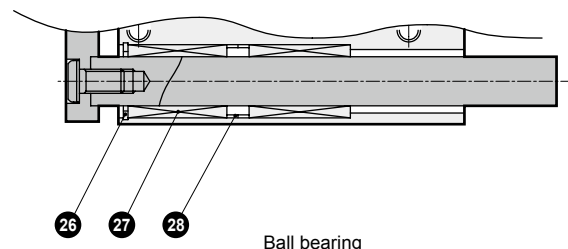
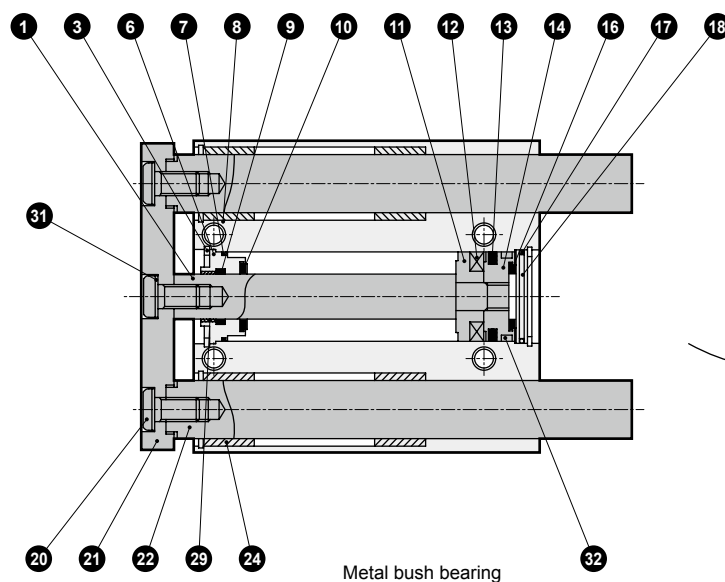
φ8/φ12/φ16



φ20/φ25



φ32/φ40/φ50/φ63

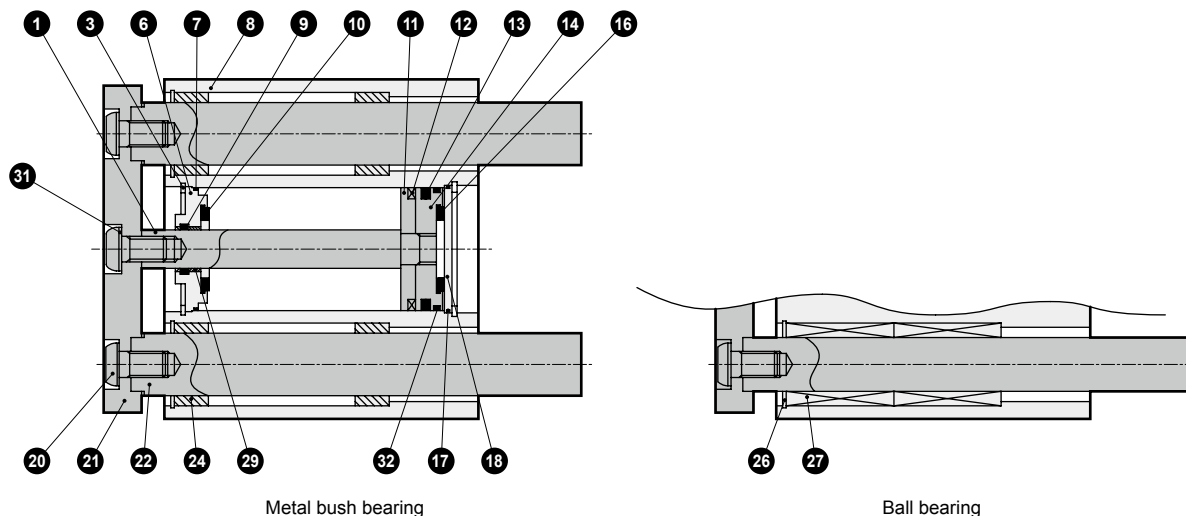


LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Internal structure and parts list (φ80)

● Standard single rod φ80

STL-M_B



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
STL-M_B (Double acting/standard single rod)							
1	Piston rod	Stainless steel (φ8 to φ25) Steel (φ32 to φ80)	Industrial chrome plating	16	Cushion rubber (H)	Urethane rubber	
2	Hexagon socket head cap screw	Alloy steel	Zinc chromate	17	O-ring	Nitrile rubber	
3	C type snap ring	Steel	Zinc phosphate	18	Base plate	Aluminum alloy (φ20 to φ63) Steel (φ80)	Chromate (φ20 to φ63) Zinc chromate (φ80)
4	Plain washer	Steel	Black finish	19	Hexagon nut (φ8)	Steel	Zinc chromate
5	Guide rod (1)	M: Stainless steel B: Alloy steel	Industrial chrome plating (φ12, φ16) Industrial chrome plating		Hex socket head cap screw (φ12, φ16)	Alloy steel	
6	Rod metal	Special aluminum alloy	Alumite (*1)	20	Hexagon socket button head bolt	Alloy steel	Zinc chromate
7	Metal gasket	Nitrile rubber		21	End plate	Aluminum alloy	Alumite
8	Cylinder body	Aluminum alloy	Hard alumite	22	Guide rod (φ20 to φ80)	Steel	Industrial chrome plating
9	Rod packing	Nitrile rubber		23	Hexagon socket set screw (φ8, φ12)	Alloy steel	Black finish
10	Cushion rubber (R)	Urethane rubber		24	Metal	Oil impregnated bearing alloy	
11	Spacer	Aluminum alloy (φ8 to φ12, φ63, φ80) Polyamide (φ20 to φ50)	Chromate (φ8, φ12, φ63, φ80)	25	Plain washer	Steel	Black finish
12	Magnet	Plastic		26	C type snap ring	Steel	Zinc phosphate
13	Piston packing	Nitrile rubber		27	Ball bush		
14	Piston	Special aluminum alloy (φ8) Aluminum alloy (φ12 to φ80)	Chromate	28	Collar	Aluminum alloy	
15	Cover	Aluminum alloy		29	Bush	Dry bearing	
				30	Guide rod (2)	M: Stainless steel B: Alloy steel	Industrial chrome plating (φ12) Industrial chrome plating
				31	Disc spring washer	Steel	
				32	Wear ring	Acetal resin	φ12 to φ80

*1: Chromate-coated for φ32 to φ50 only.

Repair parts list

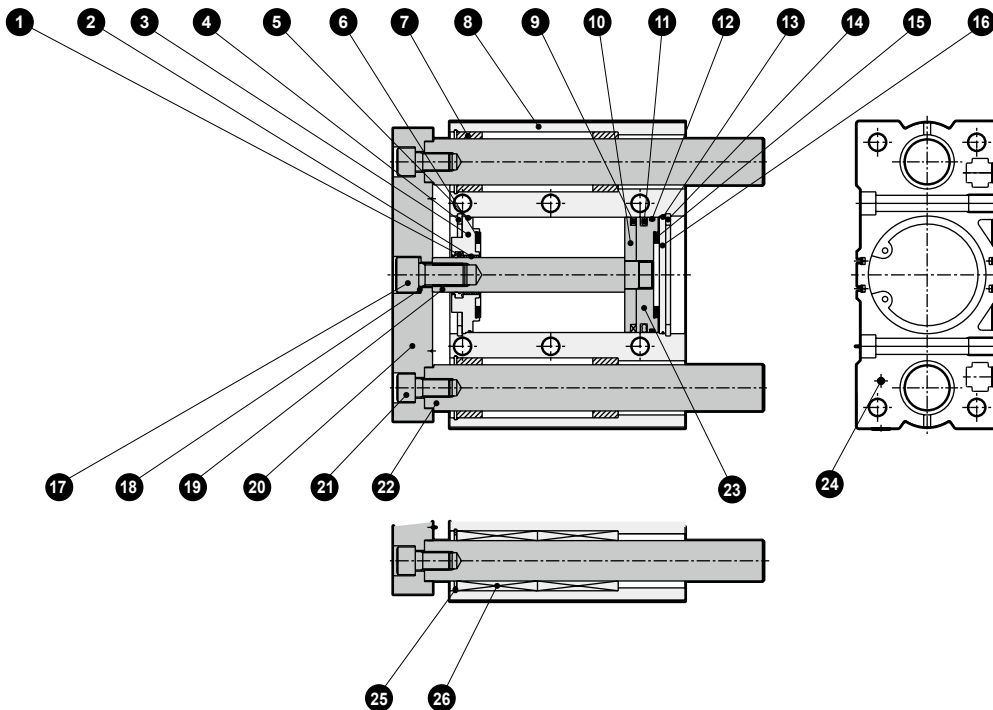
Bore size (mm)	Kit No.	Repair parts No.
	STL-M _B	
φ8	STS-8K	7 9 10 13 16
φ12	STS-12K	7 9 10 13 16 32
φ16	STS-16K	7 9 10 13 16 32
φ20	STS-20K	
φ25	STS-25K	
φ32	STS-32K	7 9 10
φ40	STS-40K	
φ50	STS-50K	13 16 17 32
φ63	STS-63K	
φ80	STS-80K	

Note: Specify the kit No. when placing an order.

Internal structure and parts list (φ100)

● Double acting/standard single rod φ100

STL-M_B



Mod No.	Part name	Material	Remarks	Mod No.	Part name	Material	Remarks
STS/L-M _B (Standard rod)							
1	Rod packing	Nitrile rubber		14	C type snap ring	Steel	Zinc phosphate
2	Bush	Dry bearing		15	Cushion rubber (H)	Urethane rubber	
3	Rod metal	Aluminum alloy	Chromate	16	Base plate	Steel	Zinc chromate
4	C type snap ring	Steel	Zinc phosphate	17	Hexagon socket head cap screw	Steel	Zinc chromate
5	Metal gasket	Nitrile rubber		18	Disc spring washer	Steel	
6	Cushion rubber (R)	Urethane rubber		19	Piston rod	Steel	Industrial chrome plating
7	Metal	Oil impregnated bearing alloy		20	End plate	Aluminum alloy	Alumite
8	Tube body	Aluminum alloy	Hard alumite	21	Hexagon socket head cap screw	Steel	Zinc chromate
9	Magnet	Plastic		22	Guide rod	Steel	Industrial chrome plating
10	Spacer	Aluminum alloy	Chromate	23	Piston	Aluminum alloy	Chromate
11	Piston packing	Nitrile rubber		24	Hexagon socket set screw	Steel	Black finish
12	Wear ring	Acetal resin		25	C type snap ring	Steel	Zinc phosphate
13	O-ring	Nitrile rubber		26	Ball bearing		

Repair parts kit

Bore size (mm)	Kit No.	Repair parts No.
	STL-M _B	
φ100	STS-100K	1 5 6 11 12 13 15

Note: Specify the kit No. when placing an order.

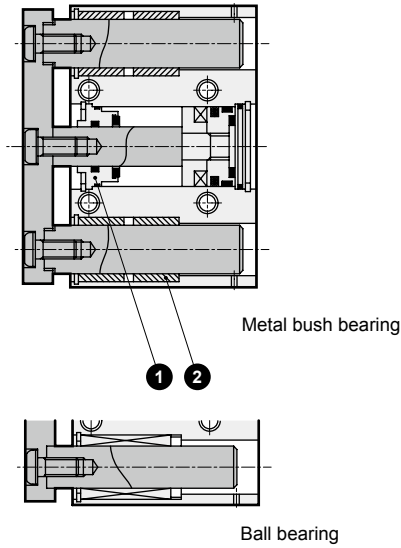
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS/STL-^M_B Series

Internal structure and parts list (φ8 to φ100)

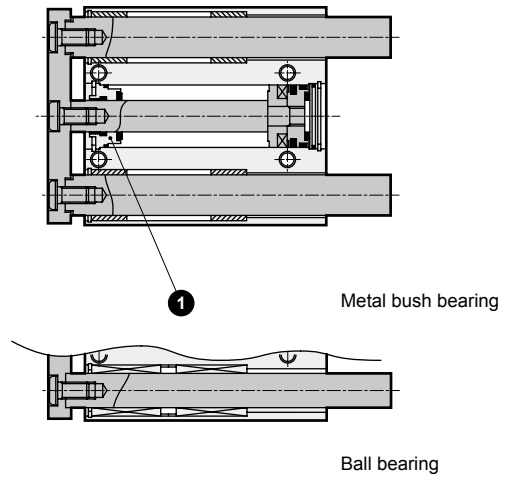
● Copper and PTFE free

STS-^M_B-P6 * P6 does not include a 29 bush.



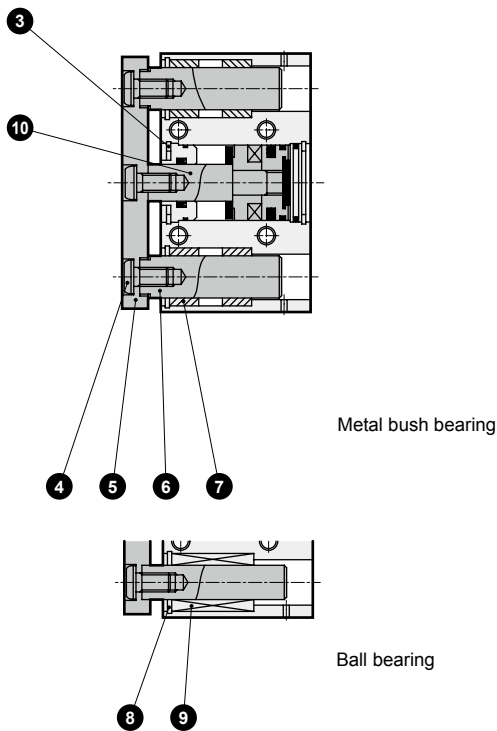
● Copper and PTFE free

STL-^M_B-P6 * P6 does not include a 29 bush.



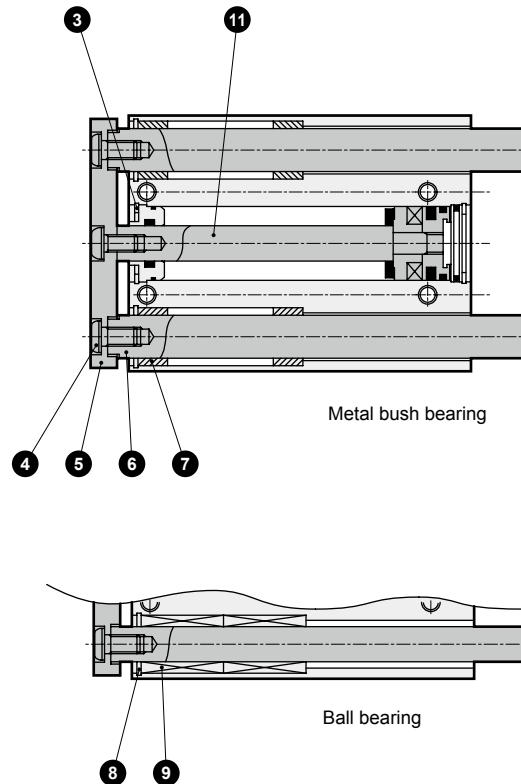
● Corrosion proof

STS-^M_B-M/M1



● Corrosion proof

STL-^M_B-M/M1



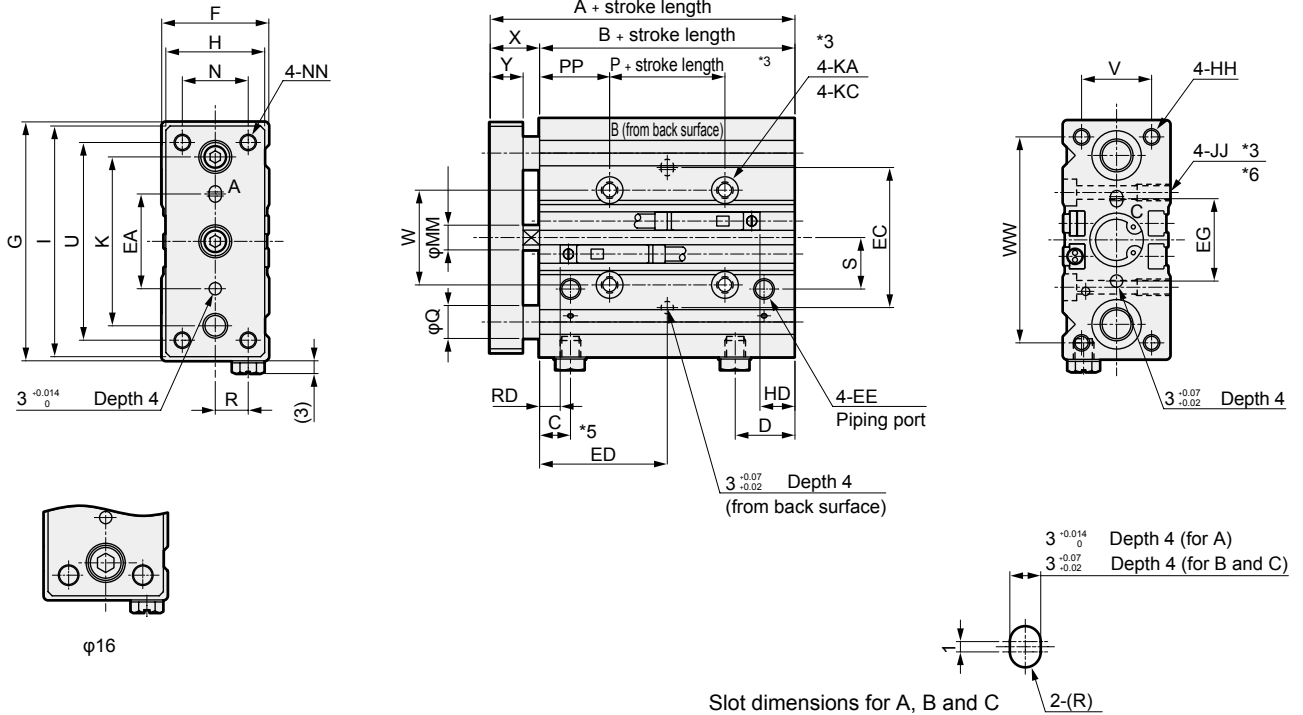
Parts list (Parts not listed below are the same as those of the double acting/standard single rod. Refer to pages 449 to 453.)

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
ST^S_L-^M_B-P6 (copper and PTFE free)				6	Guide rod	Stainless steel	Industrial chrome plating (M type only)
1	Rod metal	Special aluminum alloy		7	Metal	Bearing with solid lubricant	
2	Metal	Cast iron oil-impregnated bearing		8	Adaptor (φ8 to φ16) C type snap ring (φ32 to φ100)	Aluminum alloy Stainless steel	
ST^S_L-^M_B-M/M1 (corrosion proof)				9	Ball bush	Made of stainless steel	
3	C type snap ring	Stainless steel		10	Piston rod	Stainless steel Steel (φ8 to φ100)	Industrial chrome plating
4	Hex socket button head bolt (φ8 to φ80) Hex socket head cap screw (φ100)	Stainless steel		11	Piston rod	Stainless steel Steel (φ8 to φ100)	Industrial chrome plating
5	End plate	M: Aluminum alloy M1: Stainless steel	Alumite				

Dimensions: $\phi 8/\phi 12/\phi 16$



- Standard single rod STS-M_B
- Corrosion proof STS-M_B-M/M1



Code	Standard stroke length (mm)		A	B	C	D	DD	EE	EA	EC	ED	EG	F	G	H	HH
$\phi 8$	10, 20, 30	40	40	28	11	14.5	6.5	M5	20	25	15+ <small>Stroke length 2</small>	20	24	53	22	M4 depth 8
$\phi 12$			44	32	7.5	14.5	7.5	M5	23	34	16+ <small>Stroke length 2</small>	20	26	58	24	M4 depth 8
$\phi 16$	40, 50	45	32	7.5	17	7.5	M5	24	36	16+ <small>Stroke length 2</small>	24	30	64	28	M5 depth 10	

Code	I	JJ	K	KA	KC	MM	N	NN	P	PP	Q		R
Bore size (mm)	ST5-M		ST5-B										
$\phi 8$	51	M4 depth 10	40	3.3 through	6.5 spot face depth 3.3	4	15	M4 through	-10	20	6	5	7.5
$\phi 12$	56	M4 depth 10	41	3.3 through	6.5 spot face depth 3.3	6	16	M4 through	-2	17	8	6	8
$\phi 16$	62	M5 depth 10	46	4.3 through	8 spot face depth 4.4	8	18	M5 through	-2	17	10	8	10

Code	S	U	V	W	WW	X	Y	T0/T5/T2/T3	T2W/T3W		
Bore size (mm)	RD		HD		RD		HD				
$\phi 8$	13.5	43	16	25	45	12 ⁰ _{-1.5}	8	6.5	2.5	8.5	4.5
$\phi 12$	12.5	48	17	23	50	12 ⁰ _{-1.5}	8	5	8.5	7	10.5
$\phi 16$	13	52	22	25	54	13 ⁰ _{-1.5}	9	4.5	9.5	6	11.5

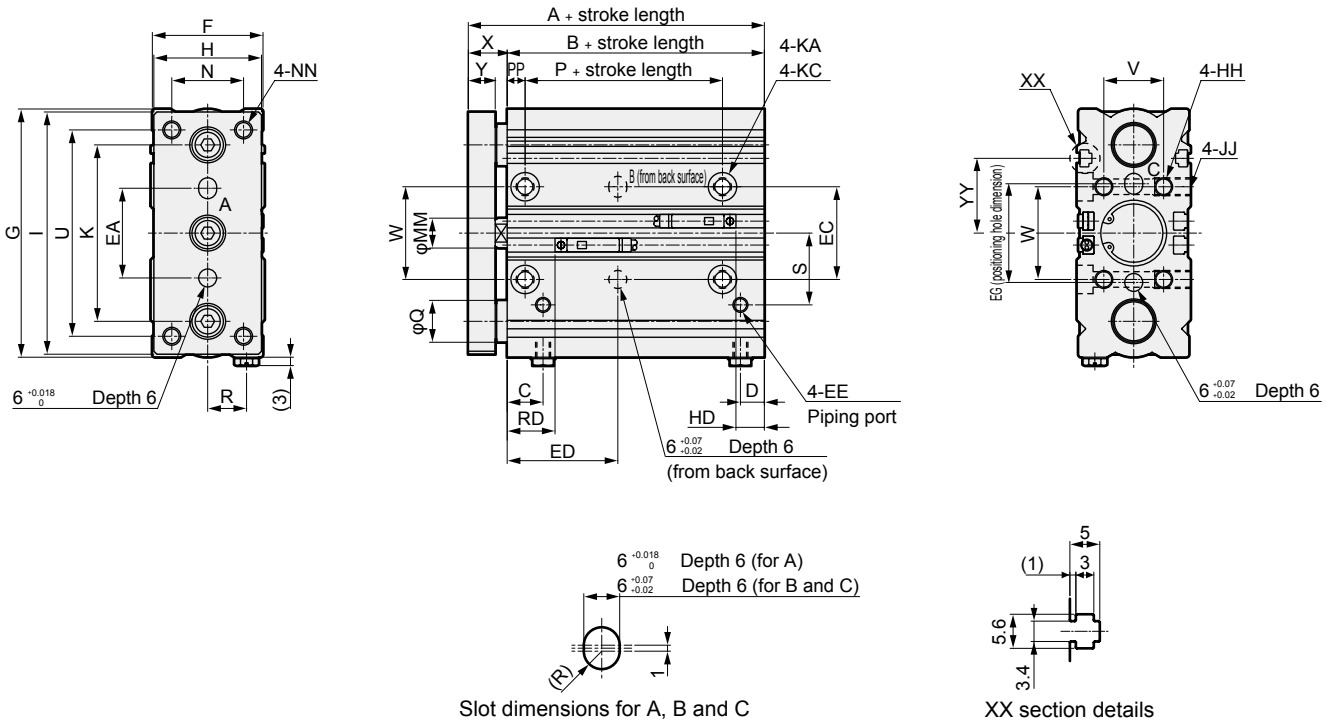
- *1 : HD and RD dimensions for 10 mm stroke length differ from these dimensions according to the setting.
- *2 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.
- *3 : 2-KA, 2-KC and 2-JJ (two mounting holes) for STS-M_B-8-10 (10 mm stroke length).
- *4 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.
- *5 : ED is 5 for STS-M_B-8-10 (10 mm stroke length).
- *6 : For STS-M_B-16-10 (10 mm stroke length), use only two mounting holes for JJ M5 screw, although there are four mounting holes in the figure.

- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- ST5/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending



Dimensions: $\phi 20/\phi 25$

- Standard single rod STS-M-B
- Corrosion proof STS-M-B-M/M1



Code	Standard stroke length (mm)	A	B	C	D	EE	EA	EC	EG	ED	F	G	H	HH		
Bore size (mm)	25, 50	53	40	12	8	M5	30	31	33	14+ $\frac{\text{Stroke length}}{2}$	38	83	36	M6 depth 12		
		54	41	12	9	M5	32	35	37	14.5+ $\frac{\text{Stroke length}}{2}$	42	86	38	M6 depth 12		
Code	I	JJ	K	KA	KC				MM	N	NN	P	PP	Q		R
Bore size (mm)														STS-M	STS-B	
	81	M6 depth 12	59	5.2 through	9.5 spot face depth 5.4				10	24	M6 through	20	6	14	12	13
	84	M6 depth 12	63	5.2 through	9.5 spot face depth 5.4				12	26	M6 through	20	6	14	12	14
Code	S	U	V	W	X	Y	YY	T0/T5/T2/T3		T2W/T3W						
Bore size (mm)								RD	HD	RD	HD					
	24	69	20	31	13 $\frac{0}{-2}$	9	25	12	9.5	12.5	12.5					
	26	72	24	35	13 $\frac{0}{-2}$	9	27	13	9	14.5	11					

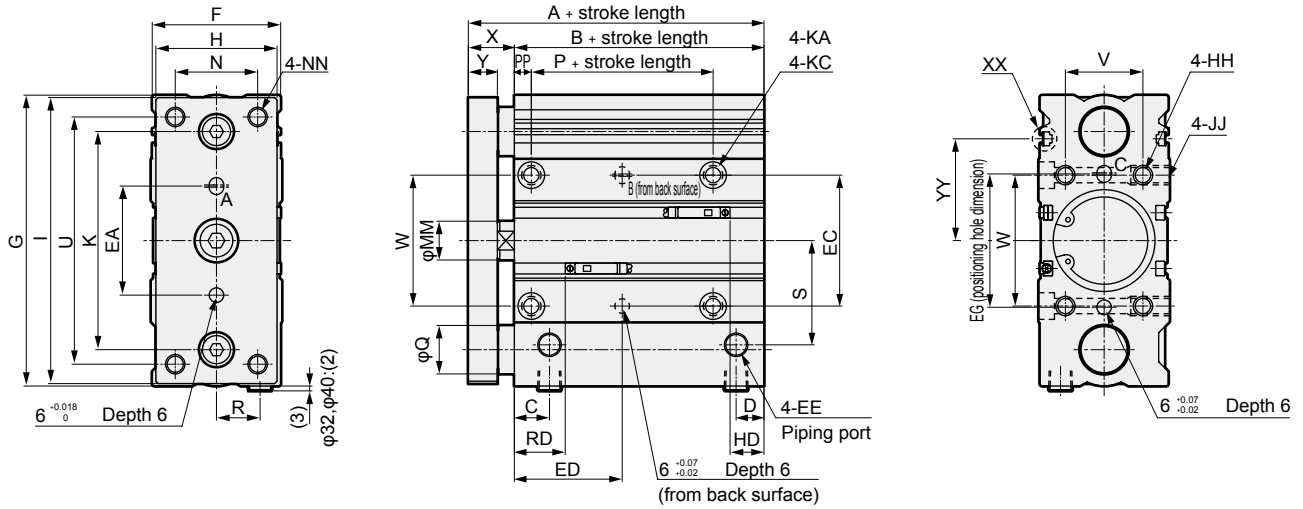
*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Dimensions: $\phi 32/\phi 40/\phi 50/\phi 63$



- Standard single rod STS-M_B
- Corrosion proof STS-M_B-M/M1



Slot dimensions for A, B and C

XX section details

Code	Standard stroke length (mm)	A	B	C	D	EE	EA	EC	EG	ED	F	G	H	HH
$\phi 32$	25, 50	68	49	14	10.5	Rc1/8	42	45	46	17.5+ <small>Stroke length 2</small>	47	111	45	M8 depth 16
$\phi 40$		72	53	14.5	12	Rc1/8	45	54	55	19.5+ <small>Stroke length 2</small>	54	120	50	M8 depth 16
$\phi 50$		77	55	16	12.5	Rc1/4	55	66	69	19.5+ <small>Stroke length 2</small>	66	147	64	M10 depth 20
$\phi 63$		83	61	17.5	17.5	Rc1/4	62	79	82	22.5+ <small>Stroke length 2</small>	79	162	75	M10 depth 20
Code	I	JJ	K	KA	KC		MM	N	NN	P	PP	Q		R
$\phi 32$	109	M8 depth 16	81	6.3 through	11 spot face depth 6.5		16	29	M8 through	22	7	20	16	16
$\phi 40$	118	M8 depth 16	90	6.3 through	11 spot face depth 6.5		16	34	M8 through	25	7	20	16	18
$\phi 50$	145	M10 depth 20	110	8.6 through	14 spot face depth 8.6		20	44	M10 through	26	8	25	20	22
$\phi 63$	160	M10 depth 20	124	8.6 through	14 spot face depth 8.6		20	55	M10 through	26	8	25	20	26
Code	S	U	V	W	X	Y	YY	T0/T5/T2/T3		T2W/T3W				
$\phi 32$	39	93	25	45	19 ⁰ / ₂	12	39	17.5	13.5	19	15			
$\phi 40$	43	102	32	54	19 ⁰ / ₂	12	42	21	14	22.5	16			
$\phi 50$	49	125	38	66	22 ⁰ / ₂	16	45	22	16	23.5	16.5			
$\phi 63$	56	140	50	79	22 ⁰ / ₂	16	52	20	23	21.5	24.5			

*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

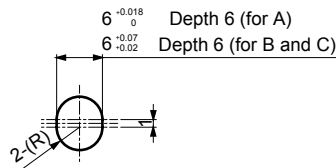
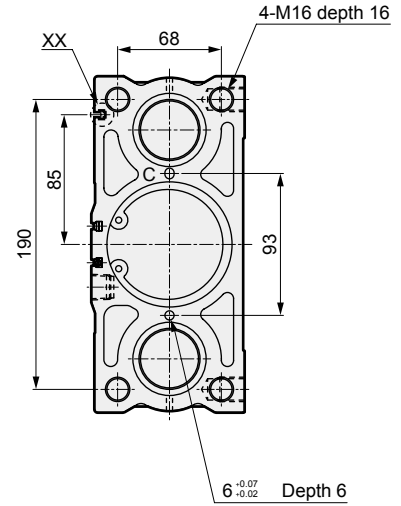
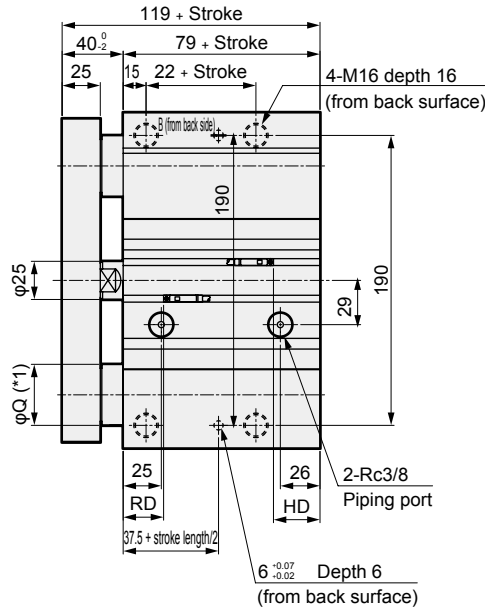
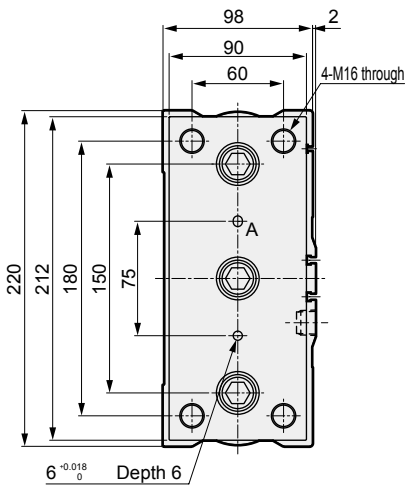
*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

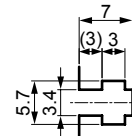


Dimensions: $\phi 80$

- Standard single rod STS-M-B
- Corrosion proof STS-M-B-M/M1



Slot dimensions for A, B and C



XX section details

Code	T0/T5/T2/T3		T2W/T3W	
	RD	HD	RD	HD
Bore size (mm)				
$\phi 80$	26.5	30.5	28	35.5

*1 : $\phi 40$ for M (metal bush bearing) and $\phi 35$ for B (ball bearing).

*2 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length. The standard stroke lengths of $\phi 80$ are 25, 50, 75 and 100 mm.

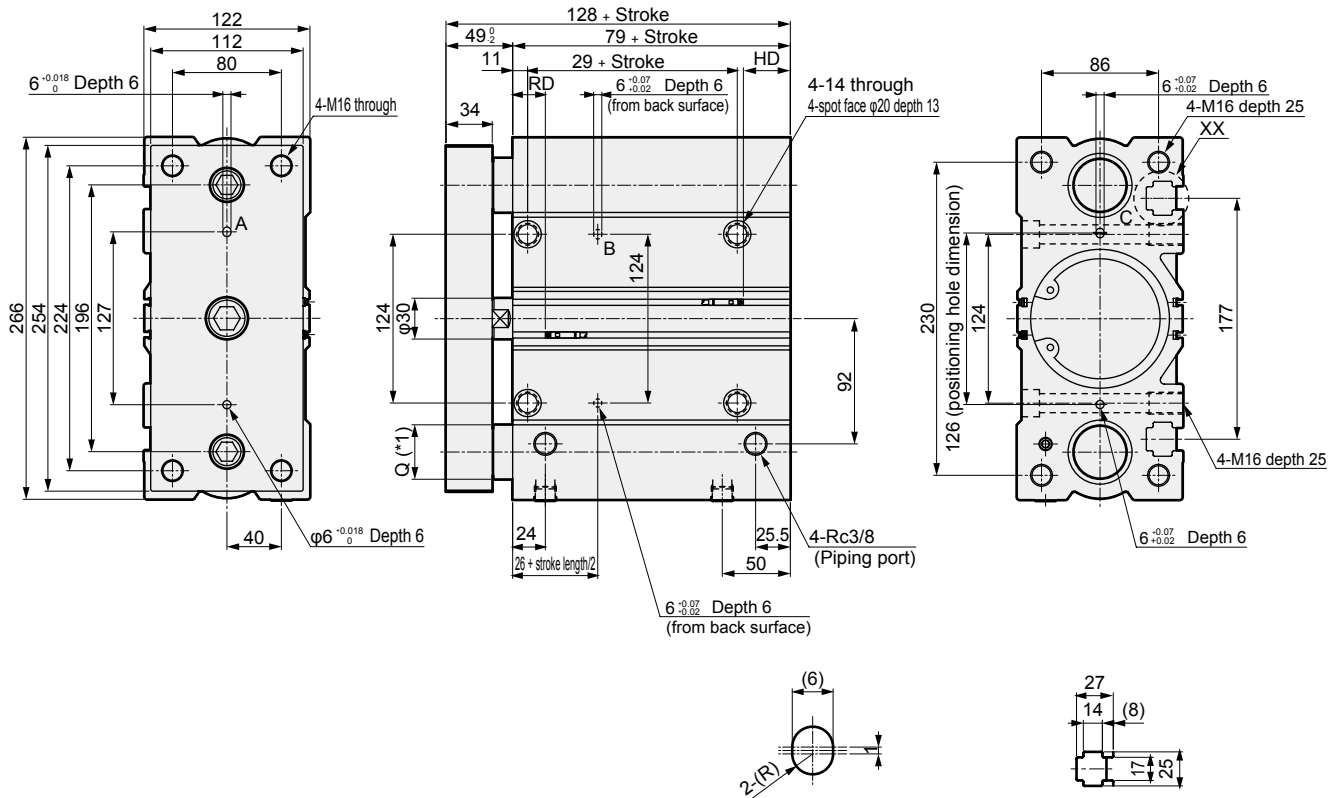
*3 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

Dimensions: $\phi 100$



- Standard single rod STS-M_B
- Corrosion proof STS-M_B-M/M1
- Copper and PTFE free STS-M_B-P6



Slot dimensions for A, B and C

XX section details

Code	T0/T5/T2/T3		T2W/T3W	
	RD	HD	RD	HD
$\phi 100$	24	34.5	27	37

*1 : Dimension Q is $\phi 40$ for M (metal bush bearing) and $\phi 35$ for B (ball bearing).

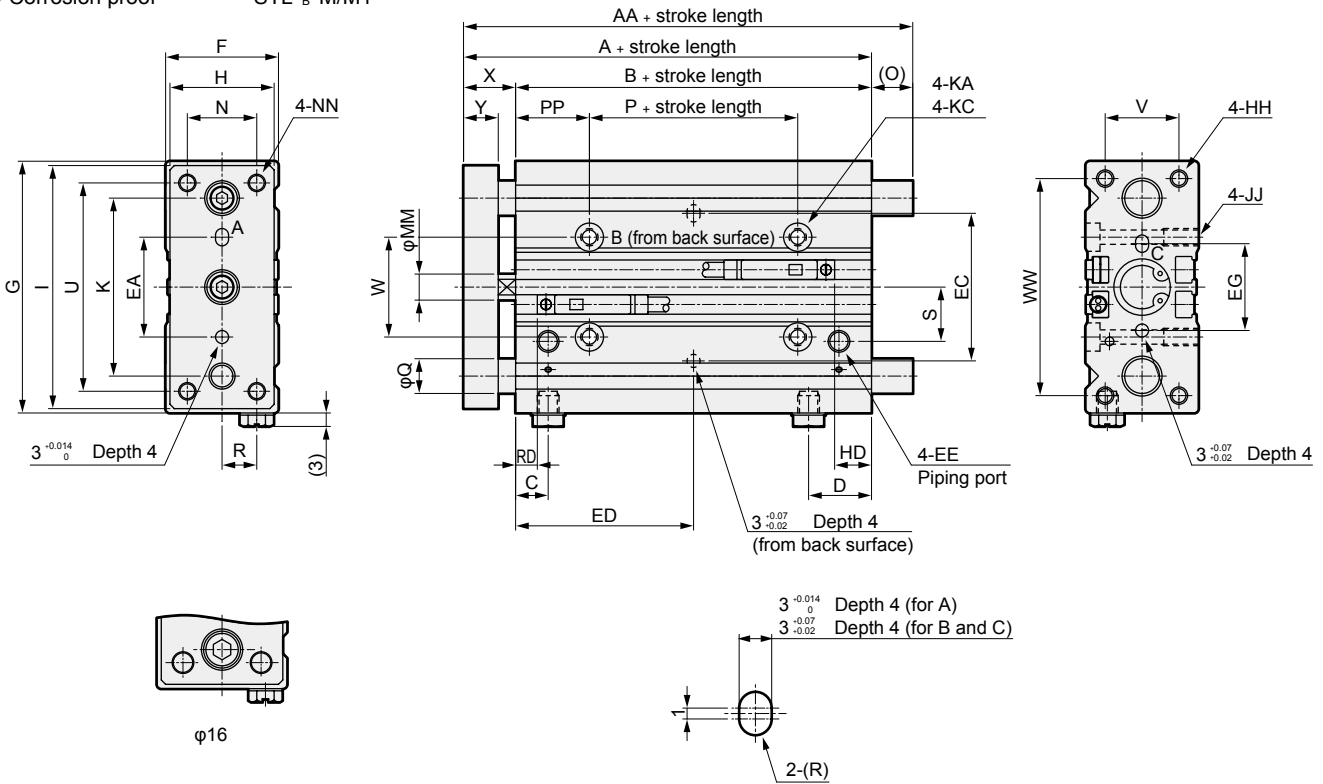
*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Dimensions: $\phi 8/\phi 12/\phi 16$



- Standard single rod STL-M_B
- Corrosion proof STL-M_B-M/M1



Code	Standard stroke length (mm)	A	AA	B	C	D	DD	EE	EA	EC	ED	EG	F	G	H	HH
$\phi 8$	50, 75, 100, 125, 150, 175, 200	40	46	28	11	14.5	6.5	M5	20	25	15+ Stroke length 2	20	24	53	22	M4 depth 8
$\phi 12$		44	53.5	32	7.5	14.5	7.5	M5	23	34	16+ Stroke length 2	20	26	58	24	M4 depth 8
$\phi 16$		45	64	32	7.5	17	7.5	M5	24	36	16+ Stroke length 2	24	30	64	28	M5 depth 10

Code	I	JJ	K	KA	KC	MM	N	NN	O	P	PP	Q		R
Bore size (mm)	STL-M		STL-B											
$\phi 8$	51	M4 depth 10	40	3.3 through	6.5 spot face depth 3.3	4	15	M4 through	6	-10	20	6	5	7.5
$\phi 12$	56	M4 depth 10	41	3.3 through	6.5 spot face depth 3.3	6	16	M4 through	9.5	-2	17	8	6	8
$\phi 16$	62	M5 depth 10	46	4.3 through	8 spot face depth 4.4	8	18	M5 through	19	-2	17	10	8	10

Code	S	U	V	W	WW	X	Y	T0/T5/T2/T3		T2W/T3W	
Bore size (mm)	RD		HD		RD		HD				
$\phi 8$	13.5	43	16	25	45	12 ⁰ _{-1.5}	8	6.5	2.5	8.5	4.5
$\phi 12$	12.5	48	17	23	50	12 ⁰ _{-1.5}	8	5	8.5	7	10.5
$\phi 16$	13	52	22	25	54	13 ⁰ _{-1.5}	9	4.5	9.5	6	11.5

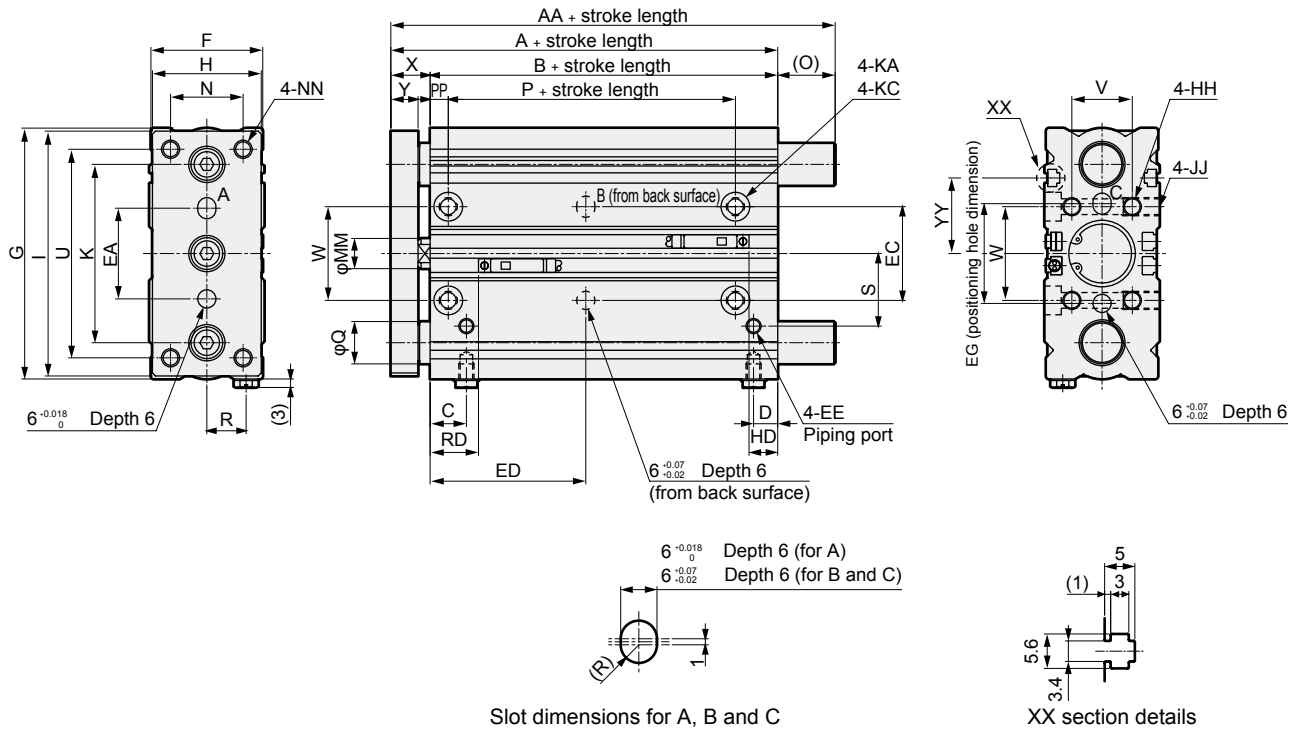
*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

Dimensions: $\phi 20/\phi 25$



- Standard single rod STL-M-B
- Corrosion proof STL-M-B-M/M1



LCW
LCR
LCG
LCX
LCM
STM
STG
ST5/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Code	Standard stroke length (mm)												A	AA	B	C	D	EE	EA	EC	EG	ED	F	G	H	
$\phi 20$	50, 75, 100, 125, 150, 175, 200, 225,												53	72	40	12	8	M5	30	31	33	14.0+	Stroke length 2	38	83	36
$\phi 25$	250, 275, 300, 325, 350, 375, 400												54	72	41	12	9	M5	32	35	37	14.5+	Stroke length 2	42	86	38
Code	HH	I	JJ	K	KA	KC	MM	N	NN	O	P	PP	Q		R											
$\phi 20$	M6 depth 12	81	M6 depth 12	59	5.2 through	9.5 spot face depth 5.4	10	24	M6 through	19	20	6	14	12	13											
$\phi 25$	M6 depth 12	84	M6 depth 12	63	5.2 through	9.5 spot face depth 5.4	12	26	M6 through	18	20	6	14	12	14											
Code	S	U	V	W	X	Y	YY	T0/T5/T2/T3		T2W/T3W																
$\phi 20$	24	69	20	31	13.0	9	25	RD	HD	RD	HD															
$\phi 25$	26	72	24	35	13.0	9	27	12	9.5	12.5	12.5															
$\phi 25$	26	72	24	35	13.0	9	27	13	9	14.5	11															

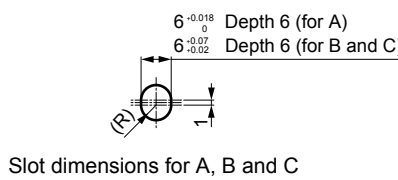
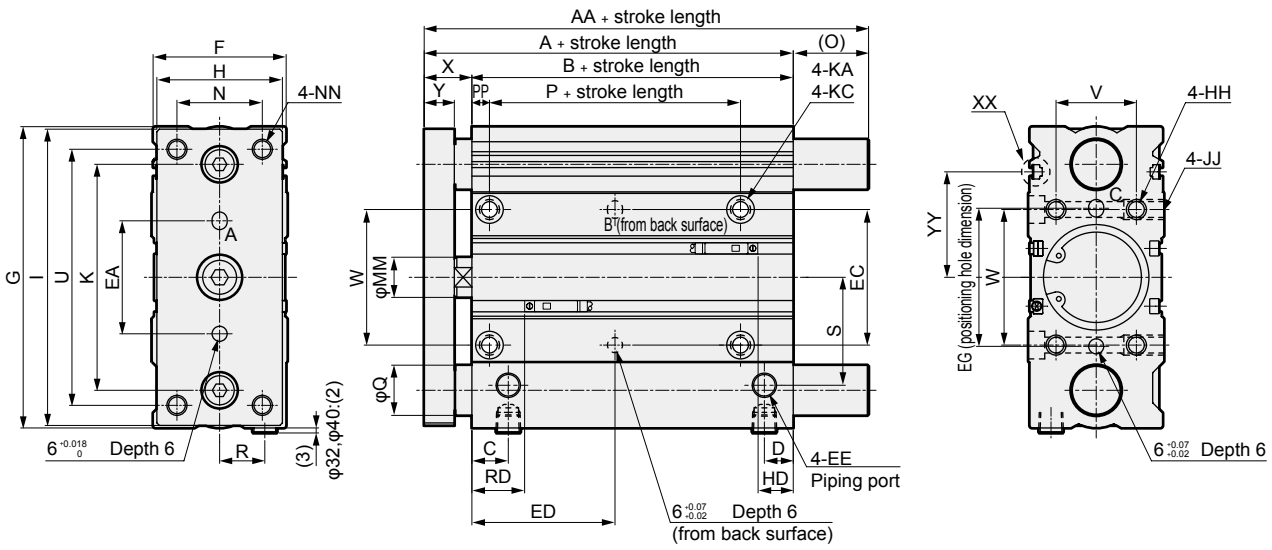
*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Dimensions: $\phi 32/\phi 40/\phi 50/\phi 63$




- Standard single rod STL-M_B
- Corrosion proof STL-M_B-M/M1



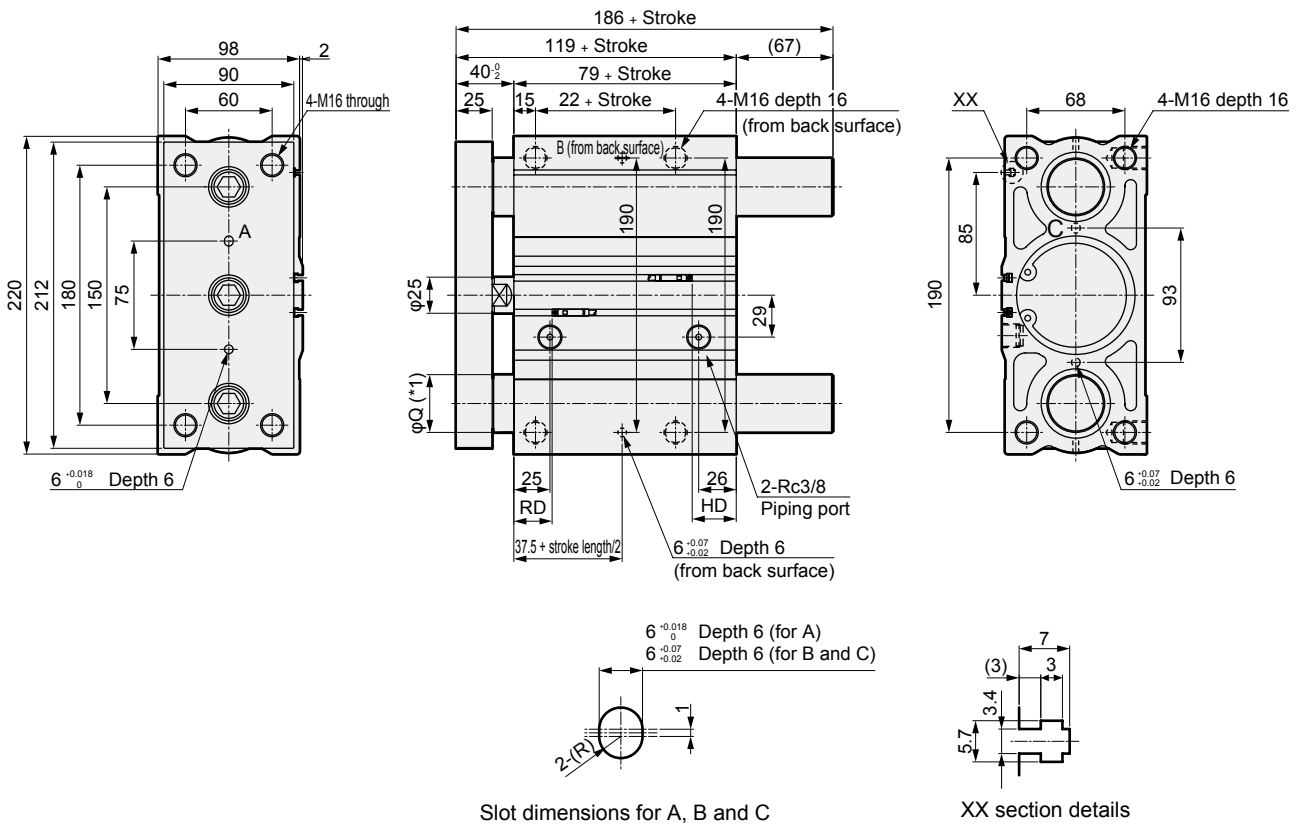
Code	Standard stroke length (mm)	A	AA	B	C	D	EE	EA	EC	EG	ED	F	G	H	HH			
Bore size (mm)																		
$\phi 32$	50, 75, 100, 125, 150,	68	102	49	14	10.5	Rc1/8	42	45	46	17.5+ <small>Stroke length 2</small>	47	111	45	M8 depth 16			
$\phi 40$	175, 200, 225, 250, 275,	72	102	53	14.5	12	Rc1/8	45	54	55	19.5+ <small>Stroke length 2</small>	54	120	50	M8 depth 16			
$\phi 50$	300, 325, 350, 375, 400	77	125	55	16	12.5	Rc1/4	55	66	69	19.5+ <small>Stroke length 2</small>	66	147	64	M10 depth 20			
$\phi 63$		83	125	61	17.5	17.5	Rc1/4	62	79	82	22.5+ <small>Stroke length 2</small>	79	162	75	M10 depth 20			
Code	I	JJ	K	KA	KC	MM	N	NN	O	P	PP	Q		R	S	U	V	W
Bore size (mm)												STL-M	STL-B					
$\phi 32$	109	M8 depth 16	81	6.3 through	11 spot face depth 6.5	16	29	M8 through	34	22	7	20	16	16	39	93	25	45
$\phi 40$	118	M8 depth 16	90	6.3 through	11 spot face depth 6.5	16	34	M8 through	30	25	7	20	16	18	43	102	32	54
$\phi 50$	145	M10 depth 20	110	8.6 through	14 spot face depth 8.6	20	44	M10 through	48	26	8	25	20	22	49	125	38	66
$\phi 63$	160	M10 depth 20	124	8.6 through	14 spot face depth 8.6	20	55	M10 through	42	26	8	25	20	26	56	140	50	79
Code	X	Y	YY	T0/T5/T2/T3		T2W/T3W												
Bore size (mm)				RD	HD	RD	HD											
$\phi 32$	$19^{+0}_-0.2}$	12	39	17.5	13.5	19	15											
$\phi 40$	$19^{+0}_-0.2}$	12	42	21	14	22.5	16											
$\phi 50$	$22^{+0}_-0.2}$	16	45	22	16	23.5	16.5											
$\phi 63$	$22^{+0}_-0.2}$	16	52	20	23	21.5	24.5											

*1 : All dimensions not shown are the same as those of the standard. When using a custom stroke length, the dimensions are the same as the longer standard stroke length.
*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Dimensions: $\phi 80$ 

- Standard single rod STL-B^M
- Corrosion proof STL-B^M-M/M1

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Code	T0/T5/T2/T3		T2W/T3W	
	RD	HD	RD	HD
$\phi 80$	26.5	30.5	28	35.5

*1 : $\phi 40$ for M (metal bush bearing) and $\phi 35$ for B (ball bearing).

*2 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length. The standard stroke length of $\phi 80$ can be selected from 75 to 400 mm in 25 mm increments.

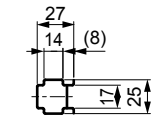
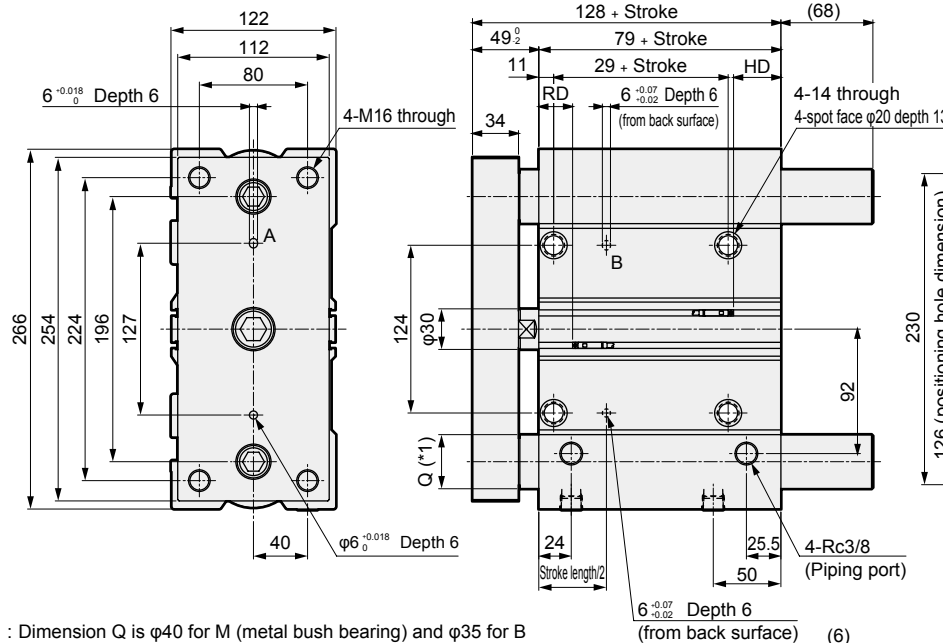
*3 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.



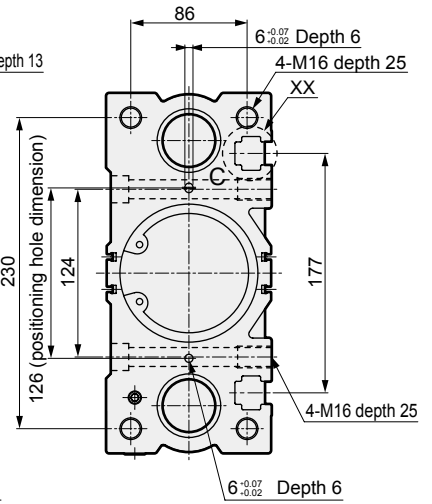
Dimensions: $\phi 100$

- Standard single rod STL-M_B
- Corrosion proof STL-M_B-M/M1
- Copper and PTFE free STL-M_B P6

[100 or less stroke length]

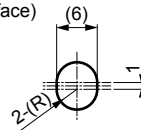


XX section details



*1 : Dimension Q is $\phi 40$ for M (metal bush bearing) and $\phi 35$ for B (ball bearing).

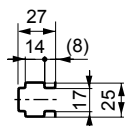
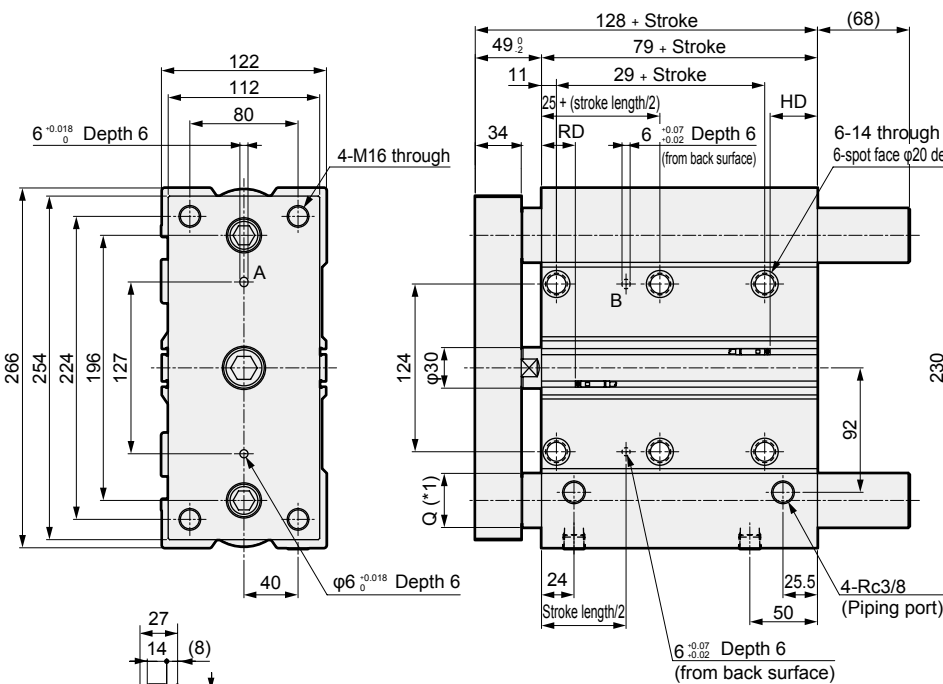
*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.



Slot dimensions for A, B and C

Code	T0/T5/T2/T3		T2W/T3W	
	RD	HD	RD	HD
$\phi 100$	25	35	27	37

[125 and over stroke length]



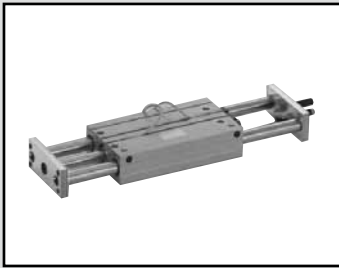
XX section details

*1 : Dimension Q is $\phi 40$ for M (metal bush bearing) and $\phi 35$ for B (ball bearing).

MEMO

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

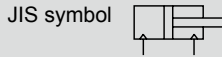
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Guided cylinder Double acting/stroke adjustable

STS/STL-M_BP Series

- Bore size: $\phi 8/\phi 12/\phi 16/\phi 20/\phi 25/\phi 32$
 $\phi 40/\phi 50/\phi 63/\phi 80$



Specifications

Descriptions	STS-MP/BP STL-MP/BP											
	Bore size	mm	$\phi 8$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$
Actuation	Double acting/stroke adjustable											
Working fluid	Compressed air											
Max. working pressure	MPa	1.0 (≈ 150 psi, 10 bar)										
Min. working pressure	MPa	0.2 (≈ 29 psi, 2 bar)					0.15 (≈ 22 psi, 1.5 bar)					
Proof pressure	MPa	1.6 (≈ 230 psi, 16 bar)										
Ambient temperature	$^{\circ}\text{C}$	-10 (14°F) to 60 (140°F) (no freezing)										
Port size		M5					Rc1/8		Rc1/4		Rc3/8	
Stroke tolerance	mm	+2.0 0										
Working piston speed	mm/s	50 to 500								50 to 300		
Cushion	With rubber cushion, with shock absorber for push											
Adjustable stroke range	mm	25										
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)											
Allowable absorbed energy	J	0.029	0.056	0.088	0.157	0.157	0.401	0.627	0.980	1.560	2.510	

Stroke length

- Short stroke STS

Bore size	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
$\phi 8$	10,20,30,40,50	50	10	10
$\phi 12$				
$\phi 16$				
$\phi 20$	25,50	400	25	25
$\phi 25$				
$\phi 32$				
$\phi 40$				
$\phi 50$				
$\phi 63$	25,50,75,100	100	75	With one or two switches
$\phi 80$				

- Long stroke length STL

Bore size	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
$\phi 8$	50,75,100,125,150 175,200	200	50	50
$\phi 12$				
$\phi 16$				
$\phi 20$	75,100,125,150,175 200,225,250,275,300 325,350,375,400	400	75	With one or two switches
$\phi 25$				
$\phi 32$				
$\phi 40$				
$\phi 50$				
$\phi 63$				
$\phi 80$	75,100,125,150,175 200,225,250,275,300 325,350,375,400	100	75	With one or two switches
$\phi 80$				

Switch specifications

● 1-color/2-color display/for AC magnetic field proof

Descriptions	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire				Proximity 2-wire			
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD			
Applications	For programmable controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay, IC circuit (no indicator lamp), serial connection		For programmable controller, relay		For programmable controller		
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*2)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	≤50 mA	≤20 mA	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Without indicator lamp	LED (Lit when ON)		Red/green LED (Lit when ON)			
Leakage current	≤1 mA at 100 VAC, ≤2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA				1 mA or less			
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80		1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272		

*1 : Refer to Ending Page 1 for other switch specifications.

*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
φ8	Push	-	-	10.1	15.1	20.1	25.1	30.2	35.2	40.2	45.2	50.3
	Pull	-	-	7.54	11.3	15.1	18.8	22.6	26.4	30.2	33.9	37.7
φ12	Push	-	-	22.6	33.9	45.2	56.5	67.9	79.2	90.5	1.02 × 10 ²	1.13 × 10 ²
	Pull	-	-	17.0	25.4	33.9	42.4	50.9	59.4	67.9	76.3	84.8
φ16	Push	-	-	40.2	60.3	80.4	1.01 × 10 ²	1.21 × 10 ²	1.41 × 10 ²	1.61 × 10 ²	1.81 × 10 ²	2.01 × 10 ²
	Pull	-	-	30.2	45.2	60.3	75.4	90.5	1.06 × 10 ²	1.21 × 10 ²	1.36 × 10 ²	1.51 × 10 ²
φ20	Push	-	-	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²	2.51 × 10 ²	2.83 × 10 ²	3.14 × 10 ²
	Pull	-	-	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push	-	-	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	-	-	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	60.3	90.5	1.21 × 10 ²	1.81 × 10 ²	2.41 × 10 ²	3.02 × 10 ²	3.62 × 10 ²	4.22 × 10 ²	4.83 × 10 ²	5.43 × 10 ²	6.03 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.06 × 10 ²	1.58 × 10 ²	2.11 × 10 ²	3.17 × 10 ²	4.22 × 10 ²	5.28 × 10 ²	6.33 × 10 ²	7.39 × 10 ²	8.44 × 10 ²	9.50 × 10 ²	1.06 × 10 ³
φ50	Push	1.96 × 10 ²	2.95 × 10 ²	3.93 × 10 ²	5.89 × 10 ²	7.85 × 10 ²	9.82 × 10 ²	1.18 × 10 ³	1.37 × 10 ³	1.57 × 10 ³	1.77 × 10 ³	1.96 × 10 ³
	Pull	1.65 × 10 ²	2.47 × 10 ²	3.30 × 10 ²	4.95 × 10 ²	6.60 × 10 ²	8.25 × 10 ²	9.90 × 10 ²	1.15 × 10 ³	1.32 × 10 ³	1.48 × 10 ³	1.65 × 10 ³
φ63	Push	3.12 × 10 ²	4.68 × 10 ²	6.23 × 10 ²	9.35 × 10 ²	1.25 × 10 ³	1.56 × 10 ³	1.87 × 10 ³	2.18 × 10 ³	2.49 × 10 ³	2.81 × 10 ³	3.12 × 10 ³
	Pull	2.80 × 10 ²	4.20 × 10 ²	5.61 × 10 ²	8.41 × 10 ²	1.12 × 10 ³	1.40 × 10 ³	1.68 × 10 ³	1.96 × 10 ³	2.24 × 10 ³	2.52 × 10 ³	2.80 × 10 ³
φ80	Push	5.03 × 10 ²	7.54 × 10 ²	1.01 × 10 ³	1.51 × 10 ³	2.01 × 10 ³	2.51 × 10 ³	3.02 × 10 ³	3.52 × 10 ³	4.02 × 10 ³	4.52 × 10 ³	5.03 × 10 ³
	Pull	4.54 × 10 ²	6.80 × 10 ²	9.07 × 10 ²	1.36 × 10 ³	1.81 × 10 ³	2.27 × 10 ³	2.72 × 10 ³	3.17 × 10 ³	3.63 × 10 ³	4.08 × 10 ³	4.54 × 10 ³

For cylinder weight, refer to pages 554 to 557.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS/STL-MP Series

How to order

● Short stroke

Without switch (built-in magnet for switch)

STS - **M** P - **8** - **10** - **F**

With switch (built-in magnet for switch)

STS - **M** P - **8** - **10** - **T2H** - **R** - **F**

● Long stroke length

Without switch (built-in magnet for switch)

STL - **M** P - **8** - **50** - **F**

With switch (built-in magnet for switch)

STL - **M** P - **8** - **50** - **T2H** - **R** - **F**

Model No.

A Bearing

B Bore size

C Port thread

D Stroke length

E Switch model No.
*1 *3 *4

For the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches for $\phi 40$ and over, insert "L1" with "-" between **A** and **B**.
(Example) STS-MP-L1-63-50-T2YH3-D-F

For $\phi 80$, the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches cannot be retrofitted on a previously purchased standard product. In this case, order the model No. with "L1" inserted between **A** and **B**.
(Example) STS-MP-L1-80-50-F

F Switch quantity

G Option

⚠ Precautions for model No. selection

- *1 : Switches other than **E** Switch model No. are also available. (Custom order product)
Refer to Ending Page 1 for details.
- *2 : Refer to pages 440 to 443 for combinations of variations/options.
- *3 : T8H/V switch cannot be installed on $\phi 8$ to $\phi 16$.
- *4 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

STS-MP-8-30-T0H-R-F

Model: Guided cylinder, short stroke length, standard/stroke adjustable

- A** Bearing : Metal bush bearing
- B** Bore size : $\phi 8$ mm
- C** Port thread : Rc thread
- D** Stroke length : 30 mm
- E** Switch model No. : Reed T0H, lead wire length 1 m
- F** Switch quantity : 1 on rod side
- G** Option : End plate material: steel

Code	Content
A Bearing	
M	Metal bush bearing
B	Ball bearing

B Bore size (mm)	
8	$\phi 8$
12	$\phi 12$
16	$\phi 16$
20	$\phi 20$
25	$\phi 25$
32	$\phi 32$
40	$\phi 40$
50	$\phi 50$
63	$\phi 63$
80	$\phi 80$

C Port thread	
Blank	Rc thread
NN	NPT thread ($\phi 32$ and over) custom order product
GN	G thread ($\phi 32$ and over) custom order product

D Stroke length (mm)
Refer to the stroke length table on the following page.

E Switch model No.						
Axial lead wire	Radial lead wire	Voltage		Contact	Indicator	Lead wire
		AC	DC			
T0H*	T0V*	●	●	Reed	1-color display	2-wire
T5H*	T5V*	●	●		Without indicator lamp	
T8H*	T8V*	●	●		1-color display	
T1H*	T1V*	●	●			
T2H*	T2V*		●	Proximity	1-color display (custom)	3-wire
T3H*	T3V*		●			
T3PH*	T3PV*		●		2-color display	2-wire
T2WH*	T2WV*		●			3-wire
T2YH*	T2YV*		●		2-color display for AC magnetic field	2-wire
T3WH*	T3WV*		●			3-wire
T3YH*	T3YV*		●		3-wire	
T2JH*	T2JV*		●	1-color display off-delay	2-wire	
T2YD*	-		●	2-color display for AC magnetic field	2-wire	
T2YDT*	-		●			

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

F Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

G Option	
F	End plate material: steel

D Stroke length

Series	Stroke length (mm)	Applicable bore size										
		φ8	φ12	φ16	φ20	φ25	φ32	φ40	φ50	φ63	φ80	
STS	Standard stroke length	10	●	●	●							
		20	●	●	●							
		25				●	●	●	●	●	●	●
		30	●	●	●							
		40	●	●	●							
		50	●	●	●	●	●	●	●	●	●	●
		75										●
	100										●	
	Min. stroke length	5										
STL	Standard stroke length	50	●	●	●	●	●	●	●	●	●	●
		75	●	●	●	●	●	●	●	●	●	●
		100	●	●	●	●	●	●	●	●	●	●
		125	●	●	●	●	●	●	●	●	●	●
		150	●	●	●	●	●	●	●	●	●	●
		175	●	●	●	●	●	●	●	●	●	●
		200	●	●	●	●	●	●	●	●	●	●
		225				●	●	●	●	●	●	●
		250				●	●	●	●	●	●	●
		275				●	●	●	●	●	●	●
		300				●	●	●	●	●	●	●
		325				●	●	●	●	●	●	●
		350				●	●	●	●	●	●	●
375				●	●	●	●	●	●	●		
	400				●	●	●	●	●	●		
	Min. stroke length	50										

Note: Custom stroke length is not available. Adjust the stroke length with the stroke adjustment mechanism.

How to order switch

SW - TOV

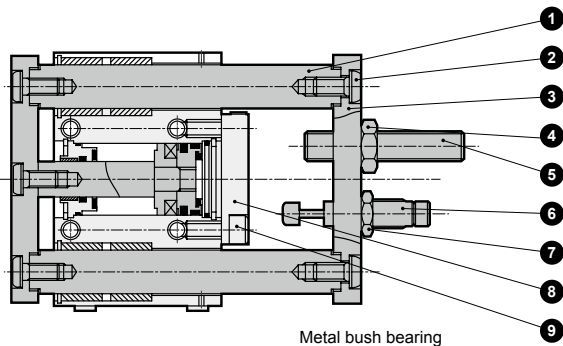
Switch model No.
(Item E on the previous page)

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

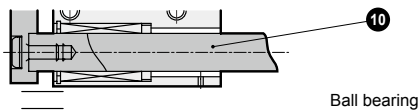
Internal structure and parts list

● Stroke adjustable

STS-M_BP

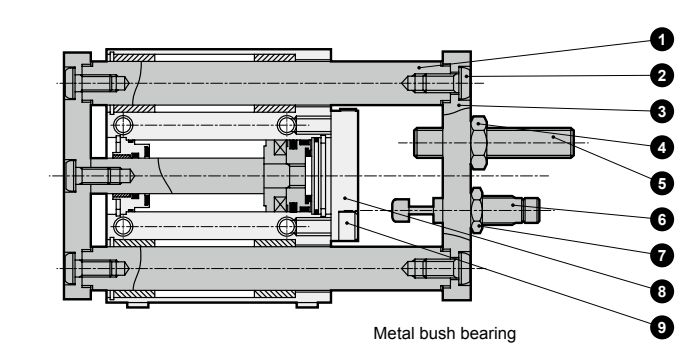


Metal bush bearing

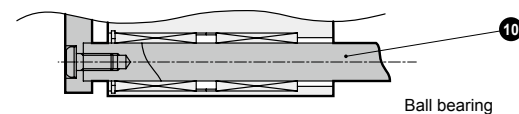


Ball bearing

STL-M_BP



Metal bush bearing



Ball bearing

Parts list

(Parts not listed below are the same as those of the standard. Refer to pages 449 to 453.)

No.	Part name	Material	Remarks
ST_L-M_BP (Stroke adjustable)			
1	Guide rod	Steel	Industrial chrome plating
2	Hexagon socket button head bolt	Alloy steel	Zinc chromate
3	End plate (H)	Aluminum alloy	Alumite
4	Hexagon nut	Steel	Black finish
5	Hexagon socket set screw	Steel	Black finish
6	Shock absorber	-	
7	Hexagon nut	Steel	Zinc chromate
8	Stopper plate	Steel	Zinc chromate
9	Hexagon socket head cap screw	Alloy steel	Zinc chromate
10	Guide rod	Alloy steel	Industrial chrome plating

Repair parts list

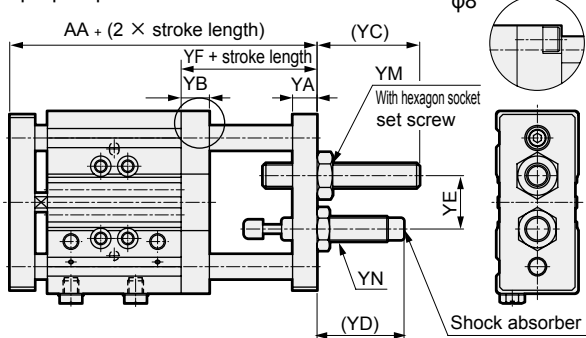
The repair parts list is common with the double acting/single rod. Refer to page 449 for STS Series and page 452 for STL Series.



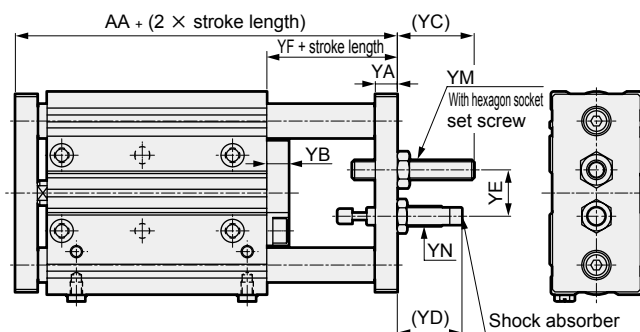
Dimensions

● Stroke adjustable (Dimensions not listed below are the same as those of the double acting/single rod.)

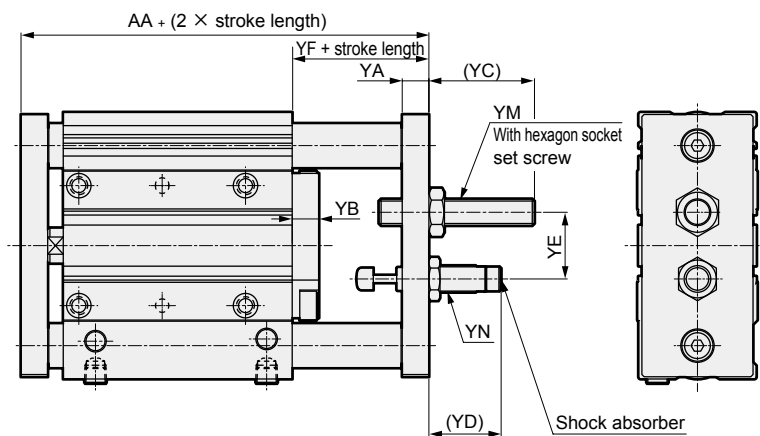
φ8/φ12/φ16



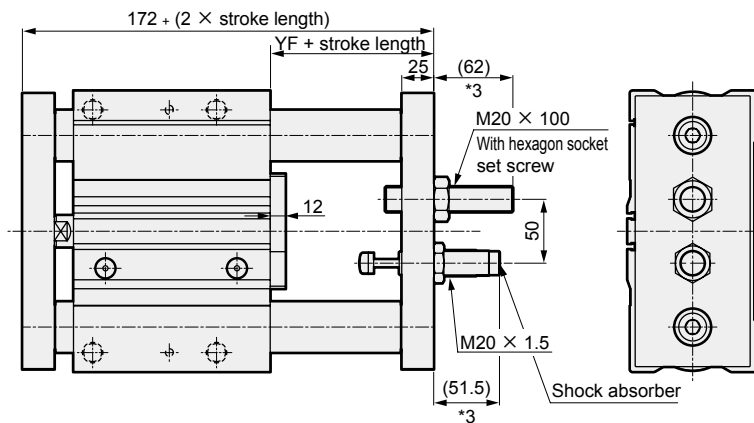
φ20/φ25



φ32/φ40/φ50/φ63



φ80



Code	AA	YA	YB	YC *3	YD *3	YE	YF	YM	YN	Shock absorber model No.
φ8	67.5	8	9	32.5	27.5	17	27.5	M8X50	M8X0.75	NCK-00-0.3-C
φ12	71.5	8	9	32.5	27.5	17	27.5	M8X50	M8X0.75	NCK-00-0.3-C
φ16	73.5	9	9	31.5	26.5	17	28.5	M8X50	M8X0.75	NCK-00-0.3-C
φ20	81.5	9	9	31.5	26.5	19	28.5	M8X50	M8X0.75	NCK-00-0.3-C
φ25	84	9	9	30	29	19	30	M8X50	M10X1	NCK-00-0.7-C
φ32	104.5	12	12	47.5	32.5	30	36.5	M12X70	M12X1	NCK-00-1.2-C
φ40	108.5	12	12	47.5	32.5	30	36.5	M12X70	M12X1	NCK-00-1.2-C
φ50	124	16	16	51	52	40	47	M16X80	M14X1.5	NCK-00-2.6-C
φ63	130	16	16	51	52	40	47	M16X80	M14X1.5	NCK-00-2.6-C
φ80	172	25	12	62	51.5	50	53	M20X100	M20X1.5	NCK-00-7.0-C

*1 : Custom stroke length is not available.

*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

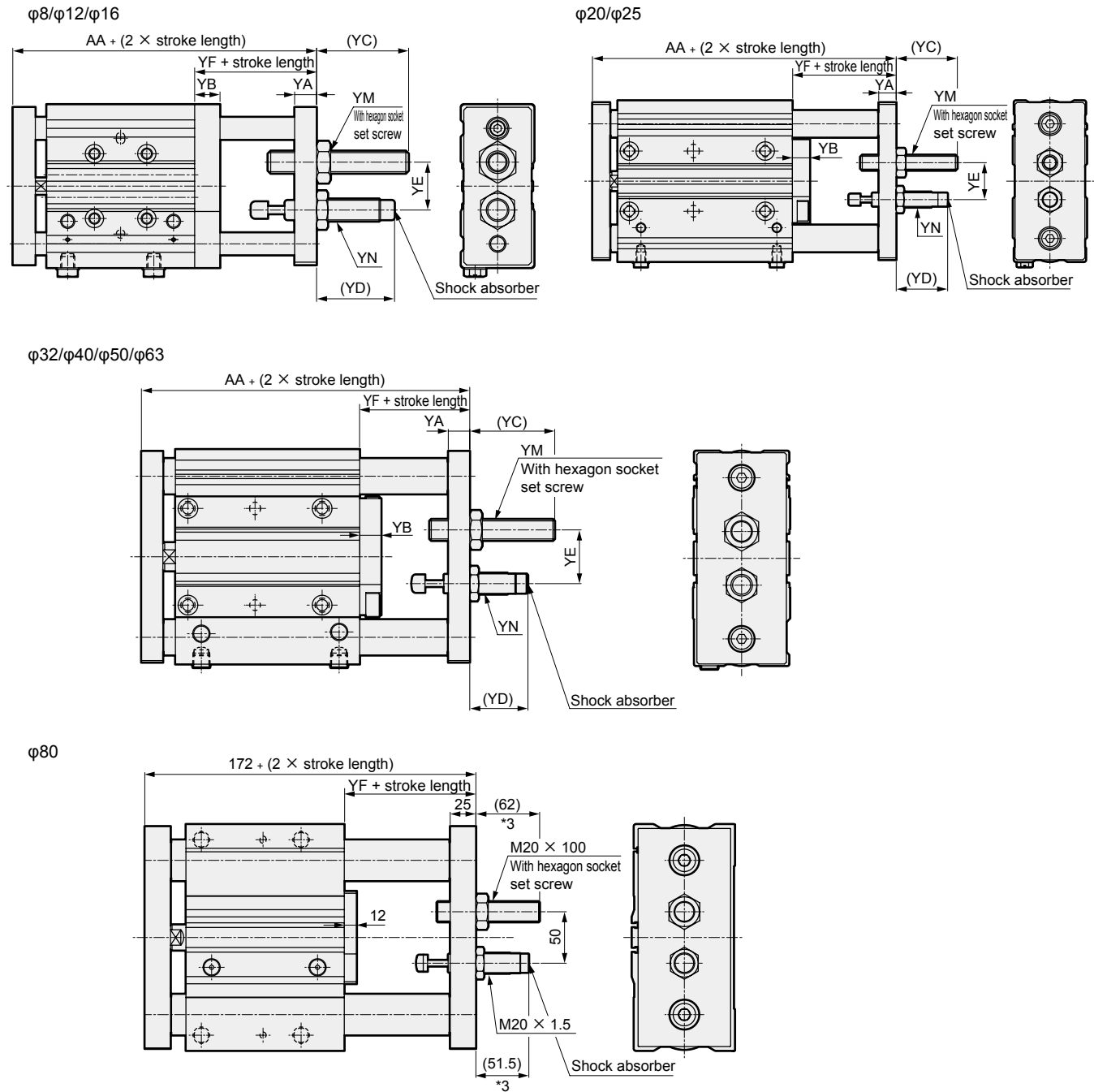
*3 : YC and YD are dimensions at shipment.

- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

Dimensions



- Stroke adjustable (Dimensions not listed below are the same as those of the double acting/single rod.)



LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Code	AA	YA	YB	YC *3	YD *3	YE	YF	YM	YN	Shock absorber model No.
φ8	67.5	8	9	32.5	27.5	17	27.5	M8X50	M8X0.75	NCK-00-0.3-C
φ12	71.5	8	9	32.5	27.5	17	27.5	M8X50	M8X0.75	NCK-00-0.3-C
φ16	73.5	9	9	31.5	26.5	17	28.5	M8X50	M8X0.75	NCK-00-0.3-C
φ20	81.5	9	9	31.5	26.5	19	28.5	M8X50	M8X0.75	NCK-00-0.3-C
φ25	84	9	9	30	29	19	30	M8X50	M10X1	NCK-00-0.7-C
φ32	104.5	12	12	47.5	32.5	30	36.5	M12X70	M12X1	NCK-00-1.2-C
φ40	108.5	12	12	47.5	32.5	30	36.5	M12X70	M12X1	NCK-00-1.2-C
φ50	124	16	16	51	52	40	47	M16X80	M14X1.5	NCK-00-2.6-C
φ63	130	16	16	51	52	40	47	M16X80	M14X1.5	NCK-00-2.6-C
φ80	172	25	12	62	51.5	50	53	M20X100	M20X1.5	NCK-00-7.0-C

*1 : Custom stroke length is not available.


*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

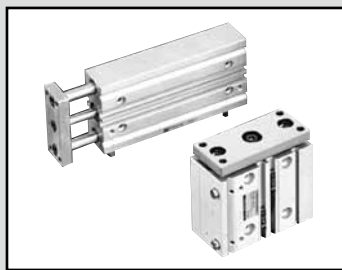
*3 : YC and YD are dimensions at shipment.

Guided cylinder Double acting/heat resistant

STS/STL-MT Series

- Bore size: $\phi 12/\phi 16/\phi 20/\phi 25/\phi 32/\phi 40$
 $\phi 50/\phi 63/\phi 80$

JIS symbol 



Specifications

Descriptions		STS-MT/BT STL-MT/BT								
Bore size	mm	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$
Actuation		Double acting/heat resistant								
Working fluid		Compressed air								
Max. working pressure	MPa	1.0 (≈ 150 psi, 10 bar)								
Min. working pressure	MPa	0.2 (≈ 29 psi, 2 bar)				0.15 (≈ 22 psi, 1.5 bar)				
Proof pressure	MPa	1.6 (≈ 230 psi, 16 bar)								
Ambient temperature	$^{\circ}\text{C}$	5 (41°F) to 120 (248°F)								
Port size		M5			Rc1/8			Rc1/4		Rc3/8
Stroke tolerance	mm	+2.0								
		0								
Working piston speed	mm/s	50 to 500						50 to 300		
Cushion		None								
Lubrication		Not required (Periodically apply additional heat-resistant grease.)								
Allowable absorbed energy	J	0.004	0.01	0.016	0.021	0.025	0.092	0.1	0.12	0.27

Stroke length

● Short stroke STS

Bore size	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
$\phi 12$	10,20,30,40,50	50	5
$\phi 16$			
$\phi 20$			
$\phi 25$	25,50		
$\phi 32$			
$\phi 40$			
$\phi 50$	25,50,75,100	100	
$\phi 63$			
$\phi 80$			

● Long stroke length STL

Bore size	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
$\phi 12$	50,75,100,125,150	200	50
$\phi 16$	175,200		
$\phi 20$	50,75,100,125,150 175,200,225,250 275,300,325,350 375,400	400	30
$\phi 25$			
$\phi 32$			
$\phi 40$			
$\phi 50$			
$\phi 63$	75,100,125,150,175 200,225,250,275,300 325,350,375,400		55
$\phi 80$			

Note: The custom stroke length is available in 5 mm increments.
However, the total length is the same as that of the next longer standard stroke length.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
$\phi 12$	Push	-	-	22.6	33.9	45.2	56.5	67.9	79.2	90.5	1.02×10^2	1.13×10^2
	Pull	-	-	17.0	25.4	33.9	42.4	50.9	59.4	67.9	76.3	84.8
$\phi 16$	Push	-	-	40.2	60.3	80.4	1.01×10^2	1.21×10^2	1.41×10^2	1.61×10^2	1.81×10^2	2.01×10^2
	Pull	-	-	30.2	45.2	60.3	75.4	90.5	1.06×10^2	1.21×10^2	1.36×10^2	1.51×10^2
$\phi 20$	Push	-	-	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	-	-	47.1	70.7	94.2	1.18×10^2	1.41×10^2	1.65×10^2	1.88×10^2	2.12×10^2	2.36×10^2
$\phi 25$	Push	-	-	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	-	-	75.6	1.13×10^2	1.51×10^2	1.89×10^2	2.27×10^2	2.64×10^2	3.02×10^2	3.40×10^2	3.78×10^2
$\phi 32$	Push	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	60.3	90.5	1.21×10^2	1.81×10^2	2.41×10^2	3.02×10^2	3.62×10^2	4.22×10^2	4.83×10^2	5.43×10^2	6.03×10^2
$\phi 40$	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
$\phi 50$	Push	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
$\phi 63$	Push	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
$\phi 80$	Push	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3

For cylinder weight, refer to pages 554 to 557.

How to order

Short stroke (switch not mountable)

STS - **M** T - **12** - **10** - **F**

Long stroke (switch not mountable)

STL - **M** T - **12** - **50** - **F**

Model No.

A Bearing

B Bore size

C Port thread

E Option

D Stroke length

■ The custom stroke length is available in 5mm increments. However, the total length is the same as that of the next longer standard stroke length.

⚠ Precautions for model No. selection

*1 : Refer to pages 440 to 443 for combinations of variations/options.

*2 : Ball bearing (B) only.

[Example of model No.]

STS-MT-12-30-F

Model: Guided cylinder, short stroke length, standard/heat resistance

- A** Bearing : Metal bush bearing
- B** Bore size : φ12 mm
- C** Port thread : Rc thread
- D** Stroke length : 30 mm
- E** Option : End plate material: steel

D Stroke length

Series	Stroke length (mm)	Applicable bore size								
		φ12	φ16	φ20	φ25	φ32	φ40	φ50	φ63	φ80
STS	10	●	●							
	20	●	●							
	25			●	●	●	●	●	●	●
	30	●	●							
	40	●	●							
	50	●	●	●	●	●	●	●	●	●
	75									●
	100								●	
	Min. stroke length *1	5								
	Custom stroke *1, 2	In 5 mm increments								
STL	50	●	●	●	●	●	●	●	●	●
	75	●	●	●	●	●	●	●	●	●
	100	●	●	●	●	●	●	●	●	●
	125	●	●	●	●	●	●	●	●	●
	150	●	●	●	●	●	●	●	●	●
	175	●	●	●	●	●	●	●	●	●
	200	●	●	●	●	●	●	●	●	●
	225			●	●	●	●	●	●	●
	250			●	●	●	●	●	●	●
	275			●	●	●	●	●	●	●
	300			●	●	●	●	●	●	●
	325			●	●	●	●	●	●	●
	350			●	●	●	●	●	●	●
	375			●	●	●	●	●	●	●
400			●	●	●	●	●	●	●	
	Min. stroke length *1	50		30					55	
	Custom stroke *1, 2	In 5 mm increments								

*1 : The total dimensions are the same as the longer standard stroke length.

*2 : Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

Code	Content
A Bearing	
M	Metal bush bearing
B	Ball bearing (not available for φ20 and φ25)
B Bore size (mm)	
12	φ12
16	φ16
20	φ20
25	φ25
32	φ32
40	φ40
50	φ50
63	φ63
80	φ80
C Port thread	
Blank	Rc thread
NN	NPT thread (φ32 and over) custom order product
GN	G thread (φ32 and over) custom order product
D Stroke length (mm)	
Refer to the stroke length table below.	
E Option	
F	End plate material: steel
M	Corrosion proof (Piston rod, guide rod SUS) (custom order product) *2
M1	Corrosion proof (M + end plate SUS) (custom order product) *2

- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

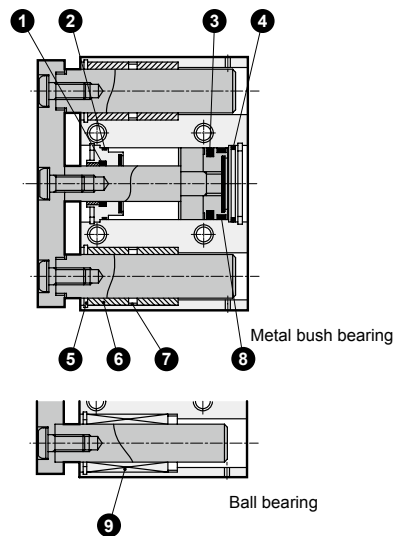
STS/STL-^M_BT Series

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

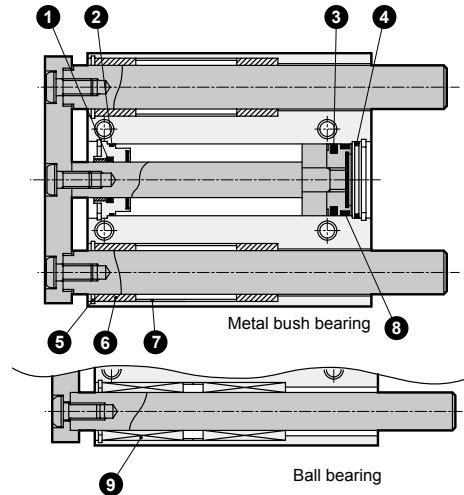
Internal structure and parts list

● Heat resistance

STS-^M_BT



STL-^M_BT



*1: Ball bearing is not available for the heat resistant $\phi 20$ and $\phi 25$.

Parts list (Dimensions other than those listed below are the same as those of double acting/standard single rod. Refer to pages 449 to 453.)

No.	Part name	Material	Remarks
ST^S_L-^M_BT (heat resistance)			
1	Rod packing	Fluoro rubber	
2	Metal gasket	Fluoro rubber	
3	Piston packing	Fluoro rubber	
4	O-ring	Fluoro rubber	
5	Round R type snap ring	Steel	Black finish
6	Metal	Bearing with solid lubricant	
7	Collar	Aluminum alloy	
8	Wear ring	Tetrafluoroethylene resin ($\phi 12, \phi 16$) Special resin ($\phi 20$ to $\phi 80$)	
9	Ball bush		

Repair parts list

● ST^S_L-^M_BT (heat resistance)

Bore size (mm)	Kit No.	Repair parts No.
$\phi 12$	STS-T-12K	
$\phi 16$	STS-T-16K	
$\phi 20$	STS-T-20K	
$\phi 25$	STS-T-25K	1 2 3
$\phi 32$	STS-T-32K	
$\phi 40$	STS-T-40K	4 8
$\phi 50$	STS-T-50K	
$\phi 63$	STS-T-63K	
$\phi 80$	STS-T-80K	

Note: Specify the kit No. when placing an order.

Dimensions

Same as STS/STL Series (double acting/single rod). Refer to the pages below.

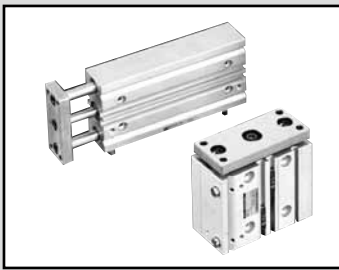
STS Series : Page 455 ($\phi 8$ to $\phi 16$), page 456 ($\phi 20$ and $\phi 25$), page 457 ($\phi 32$ to $\phi 63$) and page 458 ($\phi 80$)

STL Series : Page 460 ($\phi 8$ to $\phi 16$), page 461 ($\phi 20$ and $\phi 25$), page 462 ($\phi 32$ to $\phi 63$) and page 463 ($\phi 80$)

MEMO

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

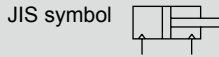
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Guided cylinder Double acting/packing seal material fluoro rubber

STS/STL-^M_BT2 Series

● Bore size: φ12/φ16/φ20/φ25/φ32/φ40/φ50/φ63/φ80



Specifications

Descriptions		STS-MT2, BT2 STL-MT2, BT2								
Bore size	mm	φ12	φ16	φ20	φ25	φ32	φ40	φ50	φ63	φ80
Actuation		Double acting/packing material fluoro rubber								
Working fluid		Compressed air								
Max. working pressure	MPa	1.0 (≈150 psi, 10 bar)								
Min. working pressure	MPa	0.15 (≈22 psi, 1.5 bar)				0.1 (≈15 psi, 1 bar)				
Proof pressure	MPa	1.6 (≈230 psi, 16 bar)								
Ambient temperature	°C	-10 (14°F) to 60 (140°F) (no freezing)								
Port size		M5			Rc1/8		Rc1/4		Rc3/8	
Stroke tolerance	mm	+2.0 0								
Working piston speed	mm/s	50 to 500						50 to 300		
Cushion		With rubber cushion								
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)								
Allowable absorbed energy	J	0.056	0.088	0.157	0.157	0.401	0.627	0.980	1.560	2.510

Stroke length

● Short stroke STS

Bore size	Stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
φ12	10,20,30,40,50	50	5	5 With one or two switches
φ16				
φ20	25,50	50	5	5 With one or two switches
φ25				
φ32				
φ40				
φ50	25,50,75,100	100	5	5 With one or two switches
φ63				
φ80				

● Long stroke length STL

Bore size	Stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
φ12	50,75,100,125,150	200	50	50 With one or two switches
φ16	175,200			
φ20	50,75,100,125,150 175,200,225,250 275,300,325,350 375,400	400	30	30 With one or two switches
φ25				
φ32				
φ40				
φ50	75,100,125,150,175 200,225,250,275,300 325,350,375,400	400	55	55 With one or two switches
φ63				
φ80				

Note: The custom stroke length is available in 5 mm increments.
However, the total length is the same as that of the next longer standard stroke length.

Switch specifications

● 1-color/2-color display/for AC magnetic field proof

Descriptions	Proximity 2-wire		Proximity 2-wire			Proximity 3-wire				Reed 2-wire				Proximity 2-wire		
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD			
Applications	For programmable controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay, IC circuit (no indicator lamp), serial connection		For programmable controller, relay		For programmable controller		
Output method	-			NPN output	PNP output	NPN output	NPN output	-								
Pwr. supp. V.	-			10 to 28 VDC				-								
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*2)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	≤50 mA	≤20 mA	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)	
Leakage current	≤1 mA at 100 VAC, ≤2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA				1 mA or less			
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80				1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272		

*1 : Refer to Ending Page 1 for other switch specifications.

*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
φ20	Push	-	-	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²	2.51 × 10 ²	2.83 × 10 ²	3.14 × 10 ²
	Pull	-	-	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push	-	-	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	-	-	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	60.3	90.5	1.21 × 10 ²	1.81 × 10 ²	2.41 × 10 ²	3.02 × 10 ²	3.62 × 10 ²	4.22 × 10 ²	4.83 × 10 ²	5.43 × 10 ²	6.03 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.06 × 10 ²	1.58 × 10 ²	2.11 × 10 ²	3.17 × 10 ²	4.22 × 10 ²	5.28 × 10 ²	6.33 × 10 ²	7.39 × 10 ²	8.44 × 10 ²	9.50 × 10 ²	1.06 × 10 ³
φ50	Push	1.96 × 10 ²	2.95 × 10 ²	3.93 × 10 ²	5.89 × 10 ²	7.85 × 10 ²	9.82 × 10 ²	1.18 × 10 ³	1.37 × 10 ³	1.57 × 10 ³	1.77 × 10 ³	1.96 × 10 ³
	Pull	1.65 × 10 ²	2.47 × 10 ²	3.30 × 10 ²	4.95 × 10 ²	6.60 × 10 ²	8.25 × 10 ²	9.90 × 10 ²	1.15 × 10 ³	1.32 × 10 ³	1.48 × 10 ³	1.65 × 10 ³
φ63	Push	3.12 × 10 ²	4.68 × 10 ²	6.23 × 10 ²	9.35 × 10 ²	1.25 × 10 ³	1.56 × 10 ³	1.87 × 10 ³	2.18 × 10 ³	2.49 × 10 ³	2.81 × 10 ³	3.12 × 10 ³
	Pull	2.80 × 10 ²	4.20 × 10 ²	5.61 × 10 ²	8.41 × 10 ²	1.12 × 10 ³	1.40 × 10 ³	1.68 × 10 ³	1.96 × 10 ³	2.24 × 10 ³	2.52 × 10 ³	2.80 × 10 ³
φ80	Push	5.03 × 10 ²	7.54 × 10 ²	1.01 × 10 ³	1.51 × 10 ³	2.01 × 10 ³	2.51 × 10 ³	3.02 × 10 ³	3.52 × 10 ³	4.02 × 10 ³	4.52 × 10 ³	5.03 × 10 ³
	Pull	4.54 × 10 ²	6.80 × 10 ²	9.07 × 10 ²	1.36 × 10 ³	1.81 × 10 ³	2.27 × 10 ³	2.72 × 10 ³	3.17 × 10 ³	3.63 × 10 ³	4.08 × 10 ³	4.54 × 10 ³

For cylinder weight, refer to pages 554 to 557.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS/STL-M^T2 Series

How to order

● Short stroke

Without switch (built-in magnet for switch)

STS - **M** T2 - **12** - **10** - **F**

With switch (built-in magnet for switch)

STS - **M** T2 - **12** - **10** - **T2H** - **R** - **F**

● Long stroke length

Without switch (built-in magnet for switch)

STL - **M** T2 - **12** - **50** - **F**

With switch (built-in magnet for switch)

STL - **M** T2 - **12** - **50** - **T2H** - **R** - **F**

Model No.

A Bearing

B Bore size

C Port thread

D Stroke length

■ Custom stroke length
Available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.

E Switch model No.

*1 *3 *4

For the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches for φ40 and over, insert "L1" with "-" between **A** and **E**.

Example) For STS-MT2-L1-63-50-T2YH3-D-F φ80, the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches cannot be retrofitted on a previously purchased standard product. In this case, order the model No. with "L1" inserted between **A** and **E**.

Example) STS-MT2-L1-80-50-F

F Switch quantity

G Option

⚠ Precautions for model No. selection

- *1 : Switches other than switch model No. are also available. (Custom order product)
Refer to Ending Page 1 for details.
- *2 : Refer to pages 440 to 443 for combinations of variations/options.
- *3 : T8H/V cannot be installed on φ12 and φ16.
- *4 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

STS-MT2-12-30-T0H-R-F

Model: Guided cylinder, short stroke length, standard/packing seal material fluoro rubber

- A** Bearing : Metal bush bearing
- B** Bore size : φ12 mm
- C** Port thread : Rc thread
- D** Stroke length : 30 mm
- E** Switch model No. : Reed switch T0H, 1 m lead wire length
- F** Switch quantity : 1 on rod side
- G** Option : End plate material: steel

Code	Content
A Bearing	
M	Metal bush bearing
B	Ball bearing

B Bore size (mm)	
12	φ12
16	φ16
20	φ20
25	φ25
32	φ32
40	φ40
50	φ50
63	φ63
80	φ80

C Port thread	
Blank	Rc thread
NN	NPT thread (φ32 and over) custom order product
GN	G thread (φ32 and over) custom order product

D Stroke length (mm)	
Refer to the stroke length table on the following page.	

E Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*		●	●		
T2H*	T2V*	Proximity		●	1-color display (custom)	3-wire
T3H*	T3V*			●		
T3PH*	T3PV*			●	2-color display	2-wire
T2WH*	T2WV*			●		
T2YH*	T2YV*			●	2-color display	3-wire
T3WH*	T3WV*			●		
T3YH*	T3YV*			●	1-color display off-delay	2-wire
T2JH*	T2JV*			●		
T2YD*	-		●	2-color display	2-wire	
T2YDT*	-		●	AC magnetic field		

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

F Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

G Option	
F	End plate material: steel
M	Corrosion proof (Piston rod, guide rod SUS) (custom order product)
M1	Corrosion proof (M + end plate SUS) (custom order product)

D Stroke length

Series	Stroke length (mm)	Applicable bore size									
		φ12	φ16	φ20	φ25	φ32	φ40	φ50	φ63	φ80	
STS	Standard stroke length	10	●	●							
		20	●	●							
		25			●	●	●	●	●	●	●
		30	●	●							
		40	●	●							
		50	●	●	●	●	●	●	●	●	●
		75									●
		100									●
		Min. stroke length *1	5								
		Custom stroke *1, 2	In 5 mm increments								
STL	Standard stroke length	50	●	●	●	●	●	●	●	●	●
		75	●	●	●	●	●	●	●	●	●
		100	●	●	●	●	●	●	●	●	●
		125	●	●	●	●	●	●	●	●	●
		150	●	●	●	●	●	●	●	●	●
		175	●	●	●	●	●	●	●	●	●
		200	●	●	●	●	●	●	●	●	●
		225			●	●	●	●	●	●	●
		250			●	●	●	●	●	●	●
		275			●	●	●	●	●	●	●
		300			●	●	●	●	●	●	●
		325			●	●	●	●	●	●	●
		350			●	●	●	●	●	●	●
		375			●	●	●	●	●	●	●
		400			●	●	●	●	●	●	●
Min. stroke length *1	50	30						55			
Custom stroke *1, 2	In 5 mm increments										

*1: The total dimensions are the same as the longer standard stroke length.

*2: Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

How to order switch

SW - T0V

Switch model No.
(Item E on the previous page)

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

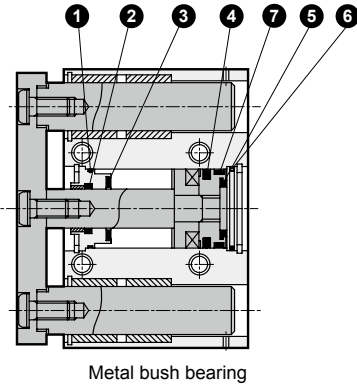
STS/STL-^M_BT2 Series

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

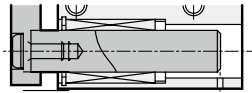
Internal structure and parts list

● Packing material fluoro rubber
STS-^M_BT2

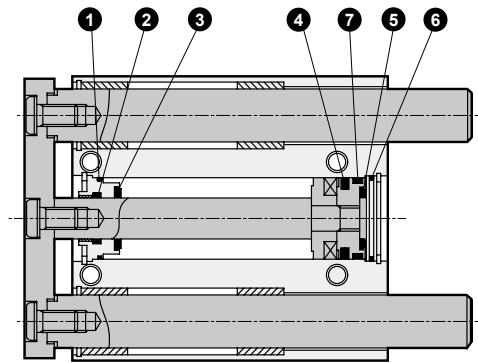
STL-^M_BT2



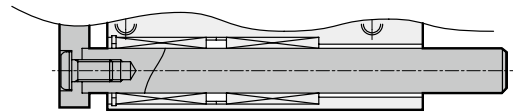
Metal bush bearing



Ball bearing



Metal bush bearing



Ball bearing

Parts list (Parts not listed below are the same as those of the double acting/standard single rod. Refer to pages 449 to 453.)

No.	Part name	Material	Remarks
ST^S_L-^M_BT2 (packing material fluoro rubber)			
1	Metal gasket	Fluoro rubber	
2	Rod packing	Fluoro rubber	
3	Cushion rubber (R)	Urethane rubber	
4	Piston packing	Fluoro rubber	
5	Cushion rubber (H)	Urethane rubber	
6	O-ring	Fluoro rubber	
7	Wear ring	Acetal resin	

Repair parts list

● ST^S_L-^M_BT2 (packing material fluoro rubber)

Bore size (mm)	Kit No.	Repair parts No.
φ12	STS-T2-12K	
φ16	STS-T2-16K	
φ20	STS-T2-20K	1 2 3 4
φ25	STS-T2-25K	
φ32	STS-T2-32K	5 6 7
φ40	STS-T2-40K	
φ50	STS-T2-50K	
φ63	STS-T2-63K	
φ80	STS-T2-80K	

Note: Specify the kit No. when placing an order.

Dimensions

Same as STS/STL Series (double acting/single rod). Refer to the pages below.

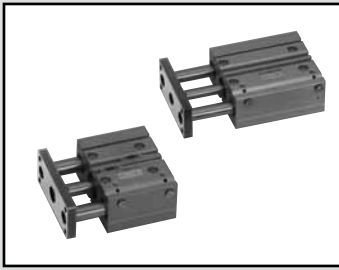
STS Series: Page 455 (φ8 to φ16), page 456 (φ20 and φ25), page 457 (φ32 to φ63) and page 458 (φ80)

STL Series: Page 460 (φ8 to φ16), page 461 (φ20 and φ25), page 462 (φ32 to φ63) and page 463 (φ80)

MEMO

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

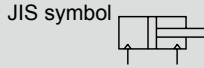
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Guided cylinder Rubber-air cushioned

STS/STL-M-B-*C Series

● Bore size: $\phi 32/\phi 40/\phi 50/\phi 63/\phi 80$



Specifications

Descriptions		STS/L-M/B-*C				
Bore size	mm	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	1.0 (≈ 150 psi, 10 bar)				
Min. working pressure	MPa	0.2 (≈ 29 psi, 2 bar)				
Proof pressure	MPa	1.6 (≈ 230 psi, 16 bar)				
Ambient temperature	$^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$) to 60 (140 $^{\circ}\text{F}$) (no freezing)				
Port size		Rc1/8		Rc1/4		Rc3/8
Stroke tolerance	mm	+2.0 0				
Working piston speed	mm/s	50 to 500			50 to 300	
Cushion		Rubber-air cushioned				
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)				
Allowable absorbed energy	J	0.401	0.627	0.980	1.560	2.510

Stroke length

· Short stroke STS

Bore size (mm)	Stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
$\phi 32$	25, 50	50	5	5
$\phi 40$				
$\phi 50$				
$\phi 63$	25, 50, 75, 100	100	10	10
$\phi 80$				

With one or two switches

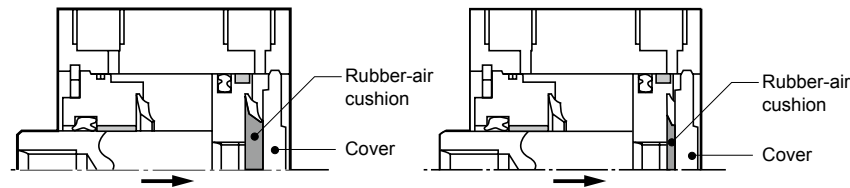
· Long stroke length STL

Bore size (mm)	Stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
$\phi 32$	50, 75, 100, 125, 150	400	30	30
$\phi 40$	175, 200, 225, 250			
$\phi 50$	275, 300, 325, 350			
$\phi 63$	375, 400			
$\phi 80$	75, 100, 125, 150, 175	55	55	55
	200, 225, 250, 275, 300 325, 350, 375, 400			

Note : The custom stroke length is available in 5 mm increments.

With one or two switches

Rubber-air cushion mechanism



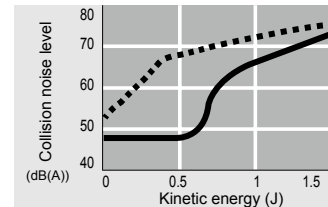
When pulled

An airtight space is created in the area when the piston operates and the rubber-air cushion and cover make contact. Air in the airtight area is further compressed, absorbing energy as the piston operates.

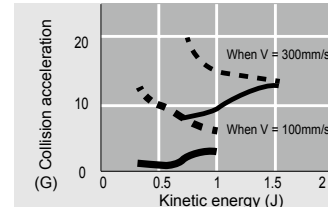
At the end of the stroke, energy generated by compression distortion of the air cushion is also added.

--- Cylinder with rubber cushion
— Cylinder with rubber-air cushion

Data of the reduction of collision noise level (an example case)



Data of the reduction of collision acceleration level (an example case)



Switch specifications

● 1-color/2-color display/for AC magnetic field proof

Descriptions	Proximity 2-wire		Proximity 2-wire				Proximity 3-wire				Reed 2-wire				Proximity 2-wire		
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD				
Applications	For programming controller, relay, compact solenoid valve	Dedicated for programmable controller				For programmable controller, relay				For programmable controller, relay	For programmable controller, relay, IC circuit (no indicator lamp), serial connection		For programmable controller, relay	Dedicated for programmable controller			
Output method	-				NPN output	PNP output	NPN output	NPN output	-								
Pwr. supp. V.	-				10 to 28 VDC				-								
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%	
Load current	5 to 100 mA	5 to 20 mA (*2)				100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	≤50 mA	≤20 mA	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Without indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)			
Leakage current	≤1 mA at 100 VAC, ≤2 mA at 200 VAC	1 mA or less				10 µA or less				0 mA				1 mA or less			
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80				1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272		

*1 : Refer to Ending Page 1 for other switch specifications.

*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	60.3	90.5	1.21 × 10 ²	1.81 × 10 ²	2.41 × 10 ²	3.02 × 10 ²	3.62 × 10 ²	4.22 × 10 ²	4.83 × 10 ²	5.43 × 10 ²	6.03 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.06 × 10 ²	1.58 × 10 ²	2.11 × 10 ²	3.17 × 10 ²	4.22 × 10 ²	5.28 × 10 ²	6.33 × 10 ²	7.39 × 10 ²	8.44 × 10 ²	9.50 × 10 ²	1.06 × 10 ³
φ50	Push	1.96 × 10 ²	2.95 × 10 ²	3.93 × 10 ²	5.89 × 10 ²	7.85 × 10 ²	9.82 × 10 ²	1.18 × 10 ³	1.37 × 10 ³	1.57 × 10 ³	1.77 × 10 ³	1.96 × 10 ³
	Pull	1.65 × 10 ²	2.47 × 10 ²	3.30 × 10 ²	4.95 × 10 ²	6.60 × 10 ²	8.25 × 10 ²	9.90 × 10 ²	1.15 × 10 ³	1.32 × 10 ³	1.48 × 10 ³	1.65 × 10 ³
φ63	Push	3.12 × 10 ²	4.68 × 10 ²	6.23 × 10 ²	9.35 × 10 ²	1.25 × 10 ³	1.56 × 10 ³	1.87 × 10 ³	2.18 × 10 ³	2.49 × 10 ³	2.81 × 10 ³	3.12 × 10 ³
	Pull	2.80 × 10 ²	4.20 × 10 ²	5.61 × 10 ²	8.41 × 10 ²	1.12 × 10 ³	1.40 × 10 ³	1.68 × 10 ³	1.96 × 10 ³	2.24 × 10 ³	2.52 × 10 ³	2.80 × 10 ³
φ80	Push	5.03 × 10 ²	7.54 × 10 ²	1.01 × 10 ³	1.51 × 10 ³	2.01 × 10 ³	2.51 × 10 ³	3.02 × 10 ³	3.52 × 10 ³	4.02 × 10 ³	4.52 × 10 ³	5.03 × 10 ³
	Pull	4.54 × 10 ²	6.80 × 10 ²	9.07 × 10 ²	1.36 × 10 ³	1.81 × 10 ³	2.27 × 10 ³	2.72 × 10 ³	3.17 × 10 ³	3.63 × 10 ³	4.08 × 10 ³	4.54 × 10 ³

For cylinder weight, refer to pages 554 to 557.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
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RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
Mech/Hand/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS/STL-M-B-*C Series

How to order

● Short stroke

Without switch (built-in magnet for switch)

STS - M - 32 - C - 50 - F

With switch (built-in magnet for switch)

STS - M - 32 - C - 50 - T0H - R - F

● Long stroke length

Without switch (built-in magnet for switch)

STL - M - 32 - C - 100 - F

With switch (built-in magnet for switch)

STL - M - 32 - C - 100 - T0H - D - F

A Bearing

B Bore size

C Port thread

Rubber-air cushioned

D Stroke length

- The custom stroke length is available in 5mm increments. However, the total length is the same as that of the next longer standard stroke length.
- Total length dimension with custom stroke length is handled as custom stroke dedicated length. (Custom order)

⚠ Precautions for model No. selection

- *1 : The total dimensions are the same as the longer standard stroke length.
- *2 : Refer to pages 440 and 443 for combinations of variations/options.
- *3 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.] STS-M-32C-50-T0H-R

Model : Guided cylinder, short stroke length
Rubber-air cushioned

- A** Bearing : Metal bush bearing
- B** Bore size : φ32 mm
- C** Port thread : Rc thread
- D** Stroke length : 50 mm
- E** Switch model No. : Reed T0H switch, lead wire 1 m
- F** Switch quantity : 1 on rod side

How to order switch

SW - T0H

Switch model No.
(Item **E** above)

E Switch model No.
*3

For the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches for φ40 and over, insert "L1" with "." between Items **A** and **B**.
(Example) STS-M-L1-63C-50-T2YH3-D-F
For φ80, the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches cannot be retrofitted on a previously purchased standard product. In this case, order the model No. with "L1" inserted between **A** and **B**.
(Example) STS-M-L1-80C-50-F

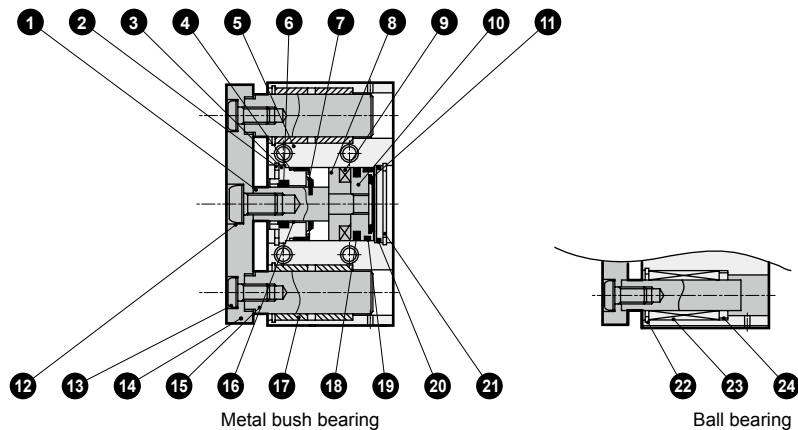
F Switch quantity

G Option

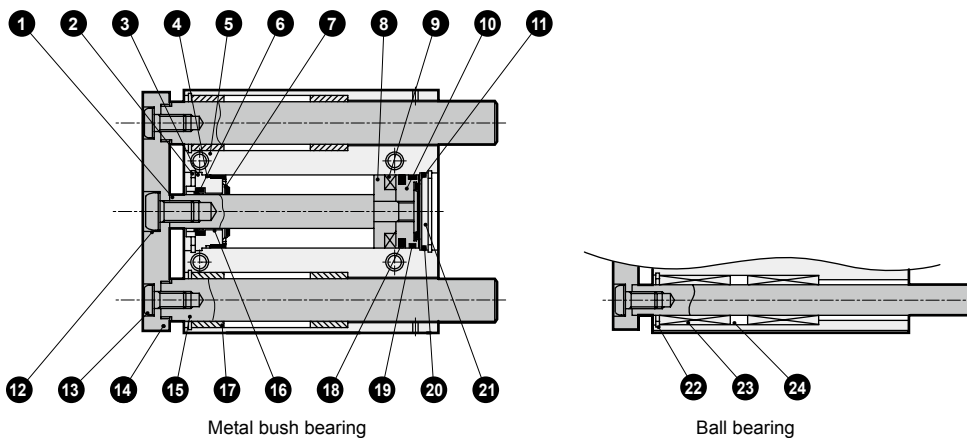
Code	Content					
A Bearing						
M	Metal bush bearing					
B	Ball bearing					
B Bore size (mm)						
32	φ32					
40	φ40					
50	φ50					
63	φ63					
80	φ80					
C Port thread						
Blank	Rc thread					
N	NPT thread (custom order product)					
G	G thread (custom order product)					
D Stroke length						
Series	Stroke length (mm)	Applicable bore size				
		φ32	φ40	φ50	φ63	φ80
STS	Standard	25	●	●	●	●
	Stroke length	50	●	●	●	●
		75				●
		100				●
	Min. stroke length *1		5		10	
STL	Custom stroke *1	In 5 mm increments				
		50	●	●	●	●
		75	●	●	●	●
		100	●	●	●	●
		125	●	●	●	●
		150	●	●	●	●
		175	●	●	●	●
	Standard	200	●	●	●	●
	stroke length	225	●	●	●	●
		250	●	●	●	●
		275	●	●	●	●
		300	●	●	●	●
		325	●	●	●	●
		350	●	●	●	●
		375	●	●	●	●
	400	●	●	●	●	
Min. stroke length *1		30			55	
Custom stroke *1		In 5 mm increments				
E Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage AC/DC	Display	Lead wire	
T0H*	T0V*	Reed	● ●	1-color display	2-wire	
T5H*	T5V*		● ●	Without indicator lamp		
T8H*	T8V*		● ●	1-color display		
T1H*	T1V*		● ●			
T2H*	T2V*	Proximity	● ●	2-color display	2-wire	
T3H*	T3V*		● ●			
T3PH*	T3PV*		● ●	1-color display (custom)	3-wire	
T2WH*	T2WV*		● ●	2-color display	2-wire	
T2YH*	T2YV*		● ●		3-wire	
T3WH*	T3WV*		● ●		3-wire	
T3YH*	T3YV*		● ●	1-color display off-delay	2-wire	
T2JH*	T2JV*		● ●			
T2YD*	-		● ●	2-color display	2-wire	
T2YDT*	-		● ●	AC magnetic field		
* Lead wire length (m)						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
F Switch quantity						
R	1 on rod side					
H	1 on head side					
D	2					
G Option						
F	End plate material (steel)					
M	Corrosion proof (Piston rod, guide rod SUS) (custom order)					
M1	Corrosion proof (M + end plate SUS) (custom order)					
P6	Copper and PTFE free (custom order)					

Internal structure and parts list

● STS-M-B-32C to 80C (short stroke)



● STL-M-B-32C to 80C (long stroke length)



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Steel	Industrial chrome plating	13	Hexagon socket button head bolt	Alloy steel	Zinc chromate
2	C type snap ring	Steel	Zinc phosphate	14	End plate	Aluminum alloy	Alumite
3	Rod metal	Special aluminum alloy	Alumite	15	Guide rod	Steel	Industrial chrome plating
4	Metal gasket	Nitrile rubber		16	Bush	DU dry bearing	
5	Cylinder body	Aluminum alloy	Hard alumite	17	Metal	Oil impregnated bearing alloy	
6	Rod packing	Nitrile rubber		18	Piston packing	Nitrile rubber	
7	Rubber air cushion (R)	Urethane rubber		19	Wear ring	Acetal resin	
8	Spacer	Aluminum alloy		20	O-ring	Nitrile rubber	
9	Magnet	Plastic		21	Base plate	Aluminum alloy (φ32 to φ63), steel (φ80)	Zinc chromate (φ80)
10	Piston	Aluminum alloy		22	C type snap ring	Steel	Zinc phosphate
11	Rubber air cushion (H)	Special rubber		23	Ball bush		
12	Disc spring washer	Steel		24	Collar	Aluminum alloy	(Not provided for φ80)

Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
φ32	STS-32CK	
φ40	STS-40CK	4 6 7 11
φ50	STS-50CK	18 19 20
φ63	STS-63CK	
φ80	STS-80CK	

Dimensions

Same as STS/STL Series (double acting/single rod). Refer to the pages below.

STS Series : Page 455 (φ8 to φ16), page 456 (φ20 and φ25), page 457 (φ32 to φ63) and page 458 (φ80)

STL Series : Page 460 (φ8 to φ16), page 461 (φ20 and φ25), page 462 (φ32 to φ63) and page 463 (φ80)

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

- LCW
- LCR
- LCC
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

Technical data

Refer to page 550 for guided cylinder selection guide.

[Comparison of collision noise level]

Values are comparison samples obtained under the conditions below.

As the values vary with base rigidity, etc., they are not guaranteed.

(Test conditions)

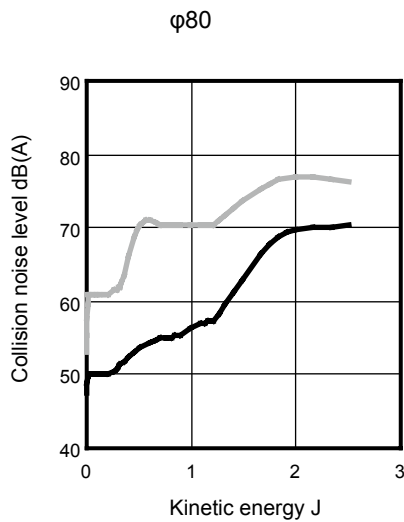
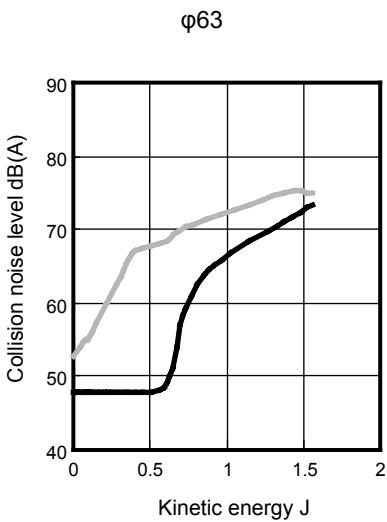
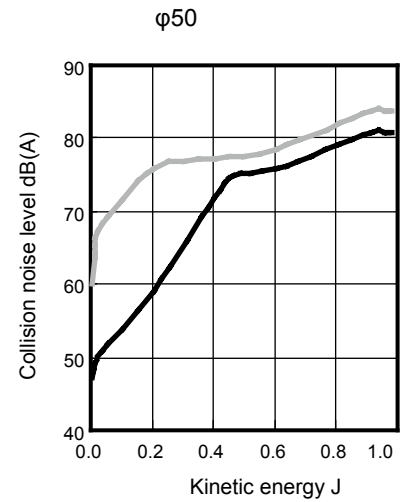
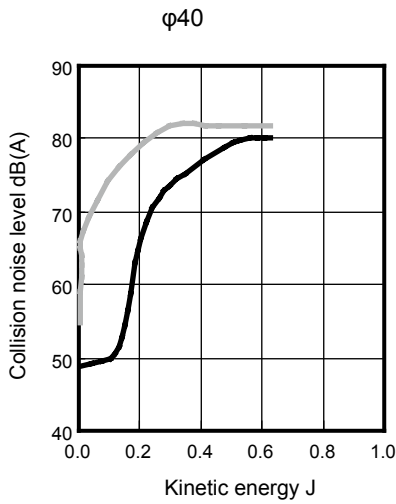
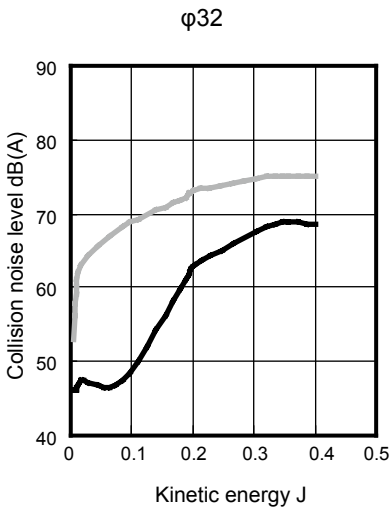
Cylinder : STS/L

Mounting direction of cylinder : Vertical with rod upward

Cylinder supply pressure : 0.5 MPa

Position of sound level meter : 1 m from sample

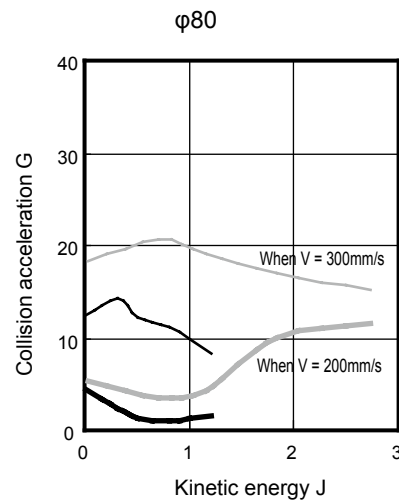
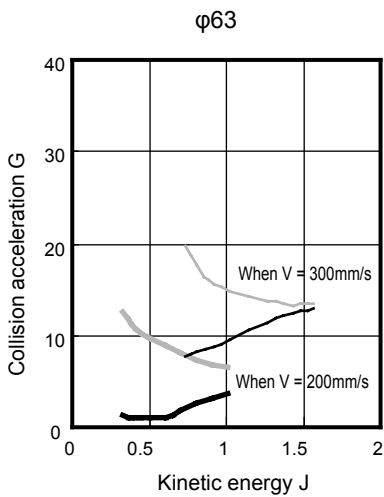
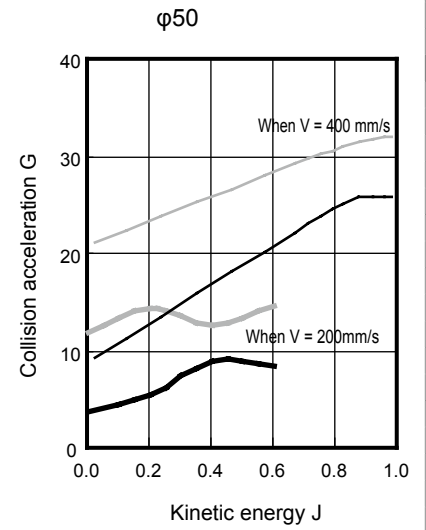
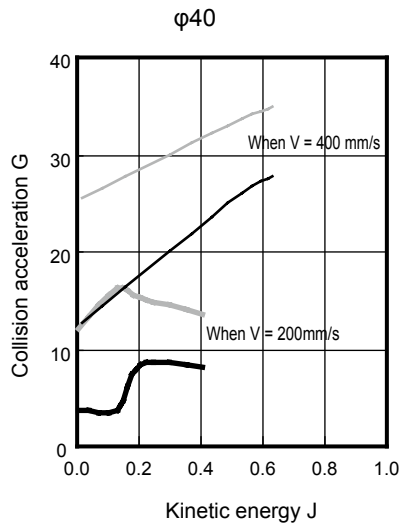
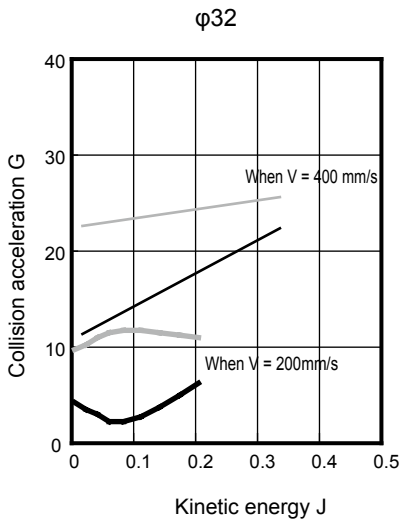
Standard rubber cushion:
 Rubber-air cushion :



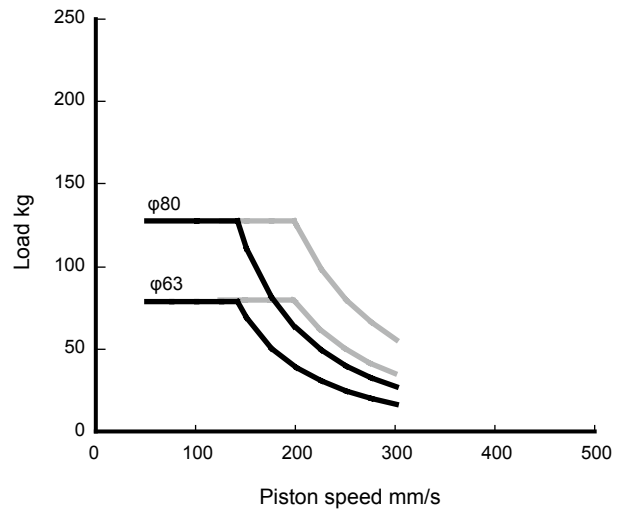
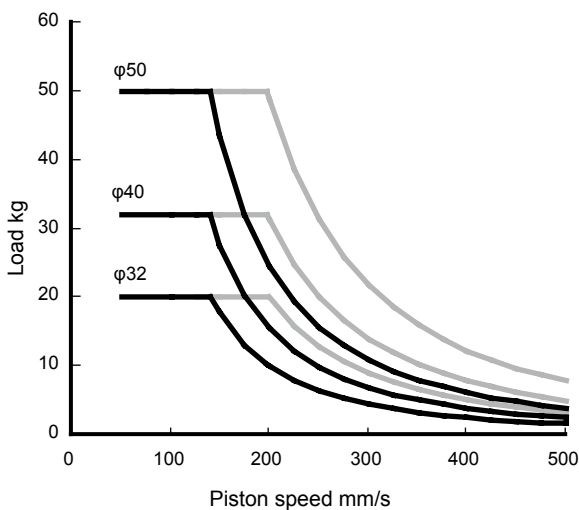
Technical data

[Comparison of collision acceleration]

Standard rubber cushion:
 Rubber-air cushion:



[Allowable energy value]



Usable in the range below and to the left of the curve.

Although it can be used in the range marked with , the use within the range marked with solid line is recommended to maximize the noise reduction effect.

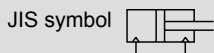
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Guided cylinder, double acting/air cushioned

STS/STL-^M_BC Series

● Bore size: φ25/φ32/φ40/φ50/φ63/φ80



LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Specifications

1 MPa = 10 bar

Descriptions	STS-MC/BC, STL-MC/BC					
Bore size mm	φ25	φ32	φ40	φ50	φ63	φ80
Actuation	Double acting/air cushioned					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)					
Min. working pressure MPa	0.15 (≈22 psi)					0.1 (≈15 psi, 1 bar)
Proof pressure MPa	1.6 (≈230 psi, 16 bar)					
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)					
Port size	M5	Rc1/8		Rc1/4		Rc3/8
Stroke tolerance mm	+2.0 0					
Working piston speed mm/s	50 to 500			50 to 300		
Cushion	With air cushion					
Effective cushion length mm	8.1	8.6		13.4		15.4
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					
Allowable absorbed energy J	1.18	2.27	3.05	3.81	15.64	20.18

Stroke length

· Short stroke STS

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm) Note	Min. stroke with switch (mm) Note
φ25	25, 50	50	15	15 With one or two switches
φ32				
φ40				
φ50				
φ63				
φ80	25, 50, 75, 100	100		

Note: For min. stroke length and below, select the basic since there is no cushion effect.

· Long stroke length STL

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
φ25	50, 75, 100, 125, 150 175, 200, 225, 250 275, 300, 325, 350 375, 400	400	30	30 With one or two switches
φ32				
φ40				
φ50				
φ63				
φ80	75, 100, 125, 150, 175 200, 225, 250, 275, 300 325, 350, 375	375	55	55 With one or two switches

Note: The custom stroke length is available in 1mm increments. (Custom order)

Switch specifications

● 1-color/2-color display/for AC magnetic field proof

Descriptions	Proximity 2-wire		Proximity 2-wire			Proximity 3-wire				Reed 2-wire				Proximity 2-wire		
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD			
Applications	For programmable controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay, IC circuit (no indicator lamp), serial connection		For programmable controller, relay		For programmable controller		
Output method	-			NPN output	PNP output	NPN output	NPN output	-								
Pwr. supp. V.	-			10 to 28 VDC				-								
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*2)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	≤50 mA	≤20 mA	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Without indicator lamp	LED (Lit when ON)		Red/green LED (Lit when ON)			
Leakage current	≤1 mA at 100 VAC, ≤2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA				1 mA or less			
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272			

*1 : Refer to Ending Page 1 for other switch specifications.

*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
φ25	Push	-	-	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	-	-	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	60.3	90.5	1.21 × 10 ²	1.81 × 10 ²	2.41 × 10 ²	3.02 × 10 ²	3.62 × 10 ²	4.22 × 10 ²	4.83 × 10 ²	5.43 × 10 ²	6.03 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.06 × 10 ²	1.58 × 10 ²	2.11 × 10 ²	3.17 × 10 ²	4.22 × 10 ²	5.28 × 10 ²	6.33 × 10 ²	7.39 × 10 ²	8.44 × 10 ²	9.50 × 10 ²	1.06 × 10 ³
φ50	Push	1.96 × 10 ²	2.95 × 10 ²	3.93 × 10 ²	5.89 × 10 ²	7.85 × 10 ²	9.82 × 10 ²	1.18 × 10 ³	1.37 × 10 ³	1.57 × 10 ³	1.77 × 10 ³	1.96 × 10 ³
	Pull	1.65 × 10 ²	2.47 × 10 ²	3.30 × 10 ²	4.95 × 10 ²	6.60 × 10 ²	8.25 × 10 ²	9.90 × 10 ²	1.15 × 10 ³	1.32 × 10 ³	1.48 × 10 ³	1.65 × 10 ³
φ63	Push	3.12 × 10 ²	4.68 × 10 ²	6.23 × 10 ²	9.35 × 10 ²	1.25 × 10 ³	1.56 × 10 ³	1.87 × 10 ³	2.18 × 10 ³	2.49 × 10 ³	2.81 × 10 ³	3.12 × 10 ³
	Pull	2.80 × 10 ²	4.20 × 10 ²	5.61 × 10 ²	8.41 × 10 ²	1.12 × 10 ³	1.40 × 10 ³	1.68 × 10 ³	1.96 × 10 ³	2.24 × 10 ³	2.52 × 10 ³	2.80 × 10 ³
φ80	Push	5.03 × 10 ²	7.54 × 10 ²	1.01 × 10 ³	1.51 × 10 ³	2.01 × 10 ³	2.51 × 10 ³	3.02 × 10 ³	3.52 × 10 ³	4.02 × 10 ³	4.52 × 10 ³	5.03 × 10 ³
	Pull	4.54 × 10 ²	6.80 × 10 ²	9.07 × 10 ²	1.36 × 10 ³	1.81 × 10 ³	2.27 × 10 ³	2.72 × 10 ³	3.17 × 10 ³	3.63 × 10 ³	4.08 × 10 ³	4.54 × 10 ³

For cylinder weight, refer to pages 554 to 557.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
Mech/Hand/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS/STL-M^BC Series

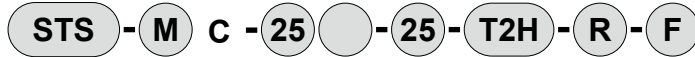
How to order

● Short stroke

Without switch (built-in magnet for switch)

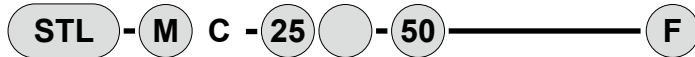


With switch (built-in magnet for switch)

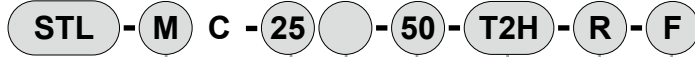


● Long stroke length

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



● A Bearing

● B Bore size

● C Port thread

● D Stroke length

● E Switch model No.

*1, *4

⚠ Precautions for model No. selection

- *1 : Switches other than ● E Switch model No. are also available. (Custom order product)
Refer to Ending Page 1 for details.
- *2 : Refer to pages 440 to 443 for combinations of variations/options.
- *3 : φ25 with ball bearing B is copper and PTFE free as standard.
- *4 : Switches are shipped with the product.
Contact CKD if assembling before shipment is necessary.

For the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches for φ40 and over, insert "L1" with "-" between ● A and ● B.
(Example) STS-MC-L1-63-50-T2YH3-D-F
For φ80, the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches cannot be retrofitted on a previously purchased standard product.

In this case, order the model No. with "L1" inserted between ● A and ● B.
(Example) STS-MC-L1-80-50-F

[Example of model No.]

STS-MC-25-50-T0H-R-F

Model: Guided cylinder, short stroke length, standard/air cushioned

- A Bearing : Metal bush bearing
- B Bore size : φ25 mm
- C Port thread : Rc thread
- D Stroke length : 50 mm
- E Switch model No. : Reed switch T0H, 1 m lead wire length
- F Switch quantity : 1 on rod side
- G Option : End plate material: steel

Code	Content
● A Bearing	
M	Metal bush bearing
B	Ball bearing

● B Bore size (mm)	
25	φ25
32	φ32
40	φ40
50	φ50
63	φ63
80	φ80

● C Port thread	
Blank	Rc thread
NN	NPT thread (φ32 and over) custom order product
GN	G thread (φ32 and over) custom order product

● D Stroke length (mm)	
Refer to the stroke length table on the following page.	

● E Switch model No.					
Axial lead wire	Radial lead wire	Contact	Voltage AC/DC	Indicator	Lead wire
T0H*	T0V*	Reed	● ●	1-color display	2-wire
T5H*	T5V*		● ●	no indicator lamp	
T8H*	T8V*		● ●	1-color display	
T1H*	T1V*		● ●		
T2H*	T2V*	Proximity	● ●	2-color display	2-wire
T3H*	T3V*		● ●		
T3PH*	T3PV*		● ●	1-color display (custom)	3-wire
T2WH*	T2WV*		● ●	2-color display	2-wire
T2YH*	T2YV*	● ●			
T3WH*	T3WV*	● ●	1-color display off-delay	2-wire	
T3YH*	T3YV*	● ●			
T2JH*	T2JV*	● ●	2-color display (AC magnetic field)	2-wire	
T2YD*	-	● ●			
T2YDT*	-	● ●			

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

● F Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

● G Option	
F	End plate material (steel)
M	Corrosion proof (Piston rod, guide rod SUS) (custom order product)
M1	Corrosion proof (M + end plate SUS) (custom)
P6 *3	Copper/PTFE free specs (custom)

D Stroke length

Series	Stroke length (mm)	Applicable bore size						
		φ25	φ32	φ40	φ50	φ63	φ80	
STS	Standard stroke length	25	●	●	●	●	●	●
		50	●	●	●	●	●	●
		75						●
		100						●
	Min. stroke length	15						
STL	Standard stroke length	50	●	●	●	●	●	
		75	●	●	●	●	●	●
		100	●	●	●	●	●	●
		125	●	●	●	●	●	●
		150	●	●	●	●	●	●
		175	●	●	●	●	●	●
		200	●	●	●	●	●	●
		225	●	●	●	●	●	●
		250	●	●	●	●	●	●
		275	●	●	●	●	●	●
		300	●	●	●	●	●	●
		325	●	●	●	●	●	●
		350	●	●	●	●	●	●
		375	●	●	●	●	●	●
		400	●	●	●	●	●	●
		Min. stroke length	30					55

Note: Custom stroke length is available as custom order.

How to order switch

SW - T0V

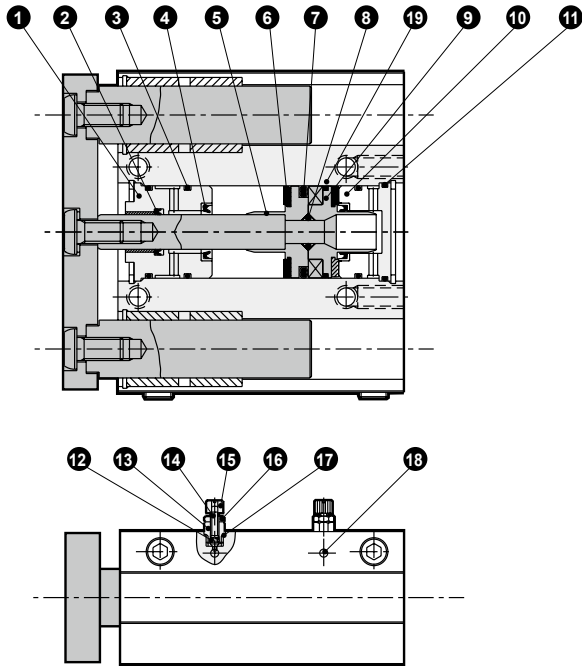
Switch model No.
(Item (E) on the previous page)

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

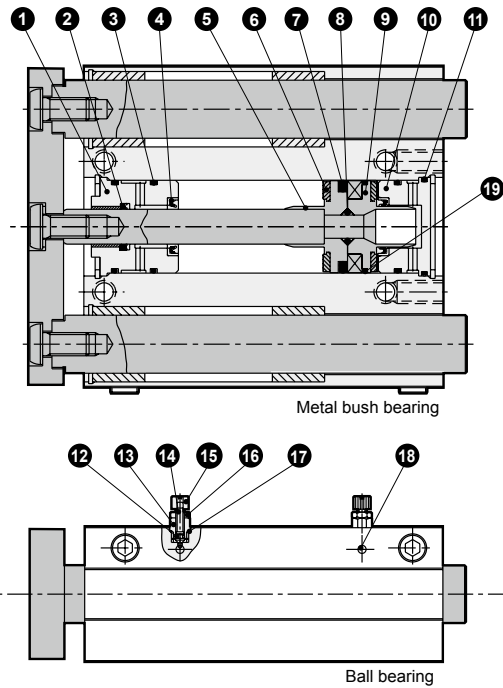
STS/STL-^MBC Series

Internal structure and parts list

● With air cushion
STS-^M_BC



● With air cushion
STL-^M_BC



Parts list (Parts not listed below are the same as those of the double acting/standard single rod. Refer to pages 449 to 453.)

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
STS-^M_BC (air-cushioned)							
1	Rod metal	Special aluminum alloy	Alumite	10	Base plate	Aluminum alloy	Chromate
2	Rod packing	Nitrile rubber		11	O-ring	Nitrile rubber	
3	Metal gasket	Nitrile rubber		12	O-ring	Nitrile rubber	
4	Cushion packing	Nitrile rubber/steel		13	Needle holder	Aluminum alloy	
5	Piston R	Aluminum alloy		14	Needle	Stainless steel	
6	Cushion rubber	Urethane rubber		15	Knob	Aluminum alloy	
7	Piston packing	Nitrile rubber		16	Lock nut	Steel	Nickeling
8	O-ring	Nitrile rubber		17	O-ring	Nitrile rubber	
9	Piston H	Aluminum alloy		18	Steel ball	Alloy steel	
				19	Wear ring	Acetal resin	

Repair parts list

● STS-^M_BC (air-cushioned)

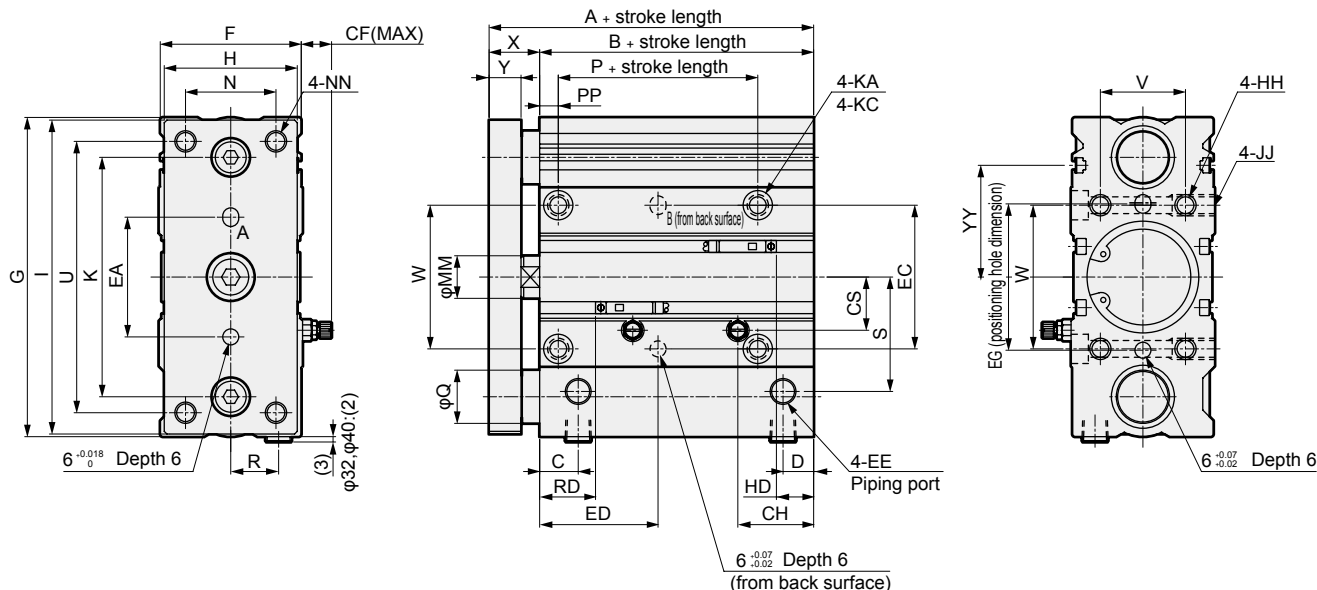
Bore size (mm)	Kit No.	Repair parts No.
φ25	STS-C-25K	
φ32	STS-C-32K	
φ40	STS-C-40K	2 3 4 6
φ50	STS-C-50K	7 11 19
φ63	STS-C-63K	
φ80	STS-C-80K	

Note: Specify the kit No. when placing an order.

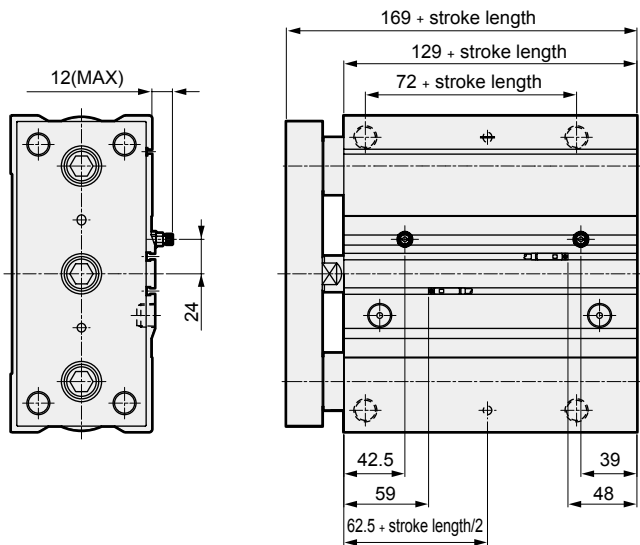
Dimensions



- With air cushion
- STS-M^BC (Dimensions not listed below are the same as those of the double acting/standard single rod.)
- φ25/φ32/φ40/φ50/φ63



· φ80



- *1 : The custom stroke length is available in 1 mm increments. (Custom order)
- *2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.
- *3 : Port plug of φ25 is hexagonal.

● STS-M/BC(φ25 to φ63)

Code	A	B	C	D	EE	EA	EC	EG	ED	F	G	H	HH	I	JJ	K	KA	KC
φ25	79	66	12	9	M5×0.8	32	35	37	27 + $\frac{\text{Stroke length}}{2}$	42	86	38	M6 depth 12	84	M6 depth 12	63	5.2 through	9.5 spot face depth 5.4
φ32	93	74	14	10.5	Rc1/8	42	45	46	30 + $\frac{\text{Stroke length}}{2}$	47	111	45	M8 depth 16	109	M8 depth 16	81	6.3 through	11 spot face depth 6.5
φ40	97	78	14.5	11.5	Rc1/8	45	54	55	32 + $\frac{\text{Stroke length}}{2}$	54	120	50	M8 depth 16	118	M8 depth 16	90	6.3 through	11 spot face depth 6.5
φ50	102	80	16	12.5	Rc1/4	55	66	69	32 + $\frac{\text{Stroke length}}{2}$	66	147	64	M10 depth 20	145	M10 depth 20	110	8.6 through	14 spot face depth 8.6
φ63	108	86	12.5	17.5	Rc1/4	62	79	82	35 + $\frac{\text{Stroke length}}{2}$	79	162	75	M10 depth 20	160	M10 depth 20	124	8.6 through	14 spot face depth 8.6

Code	MM	N	NN	P	PP	Q		R	S	U	V	W	X	Y	YY	CF	CH	CR	CS	T0/T5/T2/T3	T2W/T3W		
						STS-M	STS-B													HD	RD	HD	RD
φ25	12	26	M6 through	45	6	14	12	14	26	72	24	35	13 $\frac{0}{2}$	9	27	15	24.5	27	25	19	28	29.5	21
φ32	16	29	M8 through	47	7	20	16	16	39	93	25	45	19	12	39	14	28	33	34	21.5	34.5	36	22
φ40	16	34	M8 through	50	7	20	16	18	43	102	32	54	19 $\frac{0}{2}$	12	42	14	29	35	20	22	38	40	24
φ50	20	44	M10 through	51	8	25	20	22	49	125	38	66	22	16	45	17	29	36	23	24.5	38.5	40	24.5
φ63	20	55	M10 through	51	8	25	20	26	56	140	50	79	22 $\frac{0}{2}$	16	52	17	29	41.5	25	26	44	45.5	27.5

- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

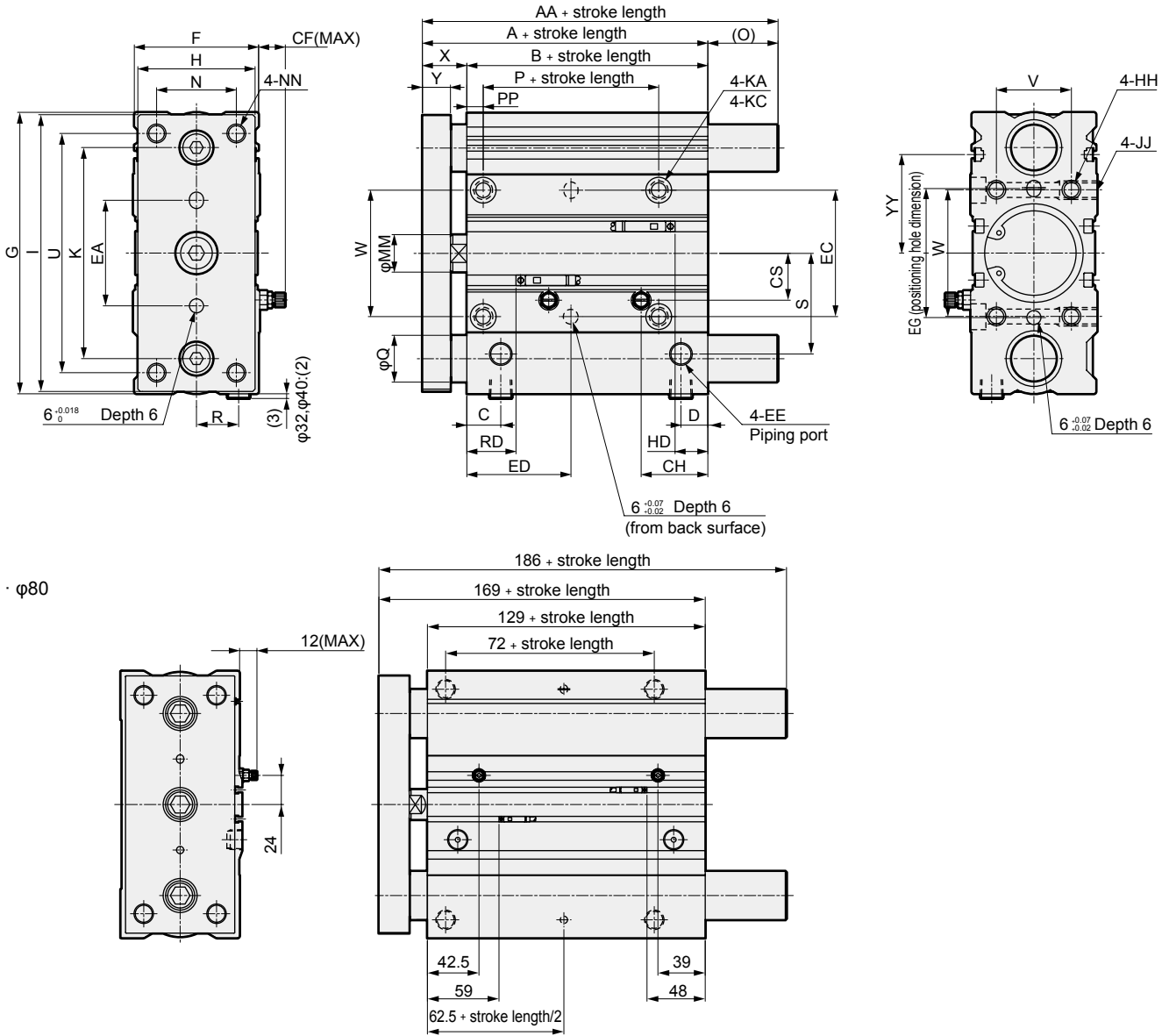


Dimensions

● Air cushion

STL-M^{BC} C (Dimensions not listed below are the same as those of the double acting/standard single rod.)

· φ25/φ32/φ40/φ50/φ63



*1 : The custom stroke length is available in 1 mm increments. (Custom order)

*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

*3 : Port plug of φ25 is hexagonal.

● STL-M/BC(φ25 to φ63)

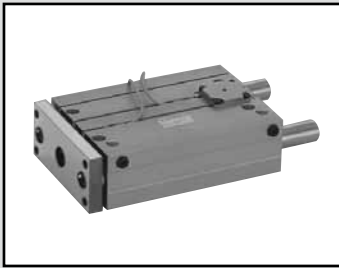
Code	A	AA	B	C	D	EE	EA	EC	EG	ED	F	G	H	HH	I	JJ	K	KA	KC
φ25	79	79	66	12	9	M5x0.8	32	35	37	27 + $\frac{\text{Stroke length}}{2}$	42	86	38	M6 depth 12	84	M6 depth 12	63	5.2 through	9.5 spot face depth 5.4
φ32	93	102	74	14	10.5	Rc1/8	42	45	46	30 + $\frac{\text{Stroke length}}{2}$	47	111	45	M8 depth 16	109	M8 depth 16	81	6.3 through	11 spot face depth 6.5
φ40	97	102	78	14.5	11.5	Rc1/8	45	54	55	32 + $\frac{\text{Stroke length}}{2}$	54	120	50	M8 depth 16	118	M8 depth 16	90	6.3 through	11 spot face depth 6.5
φ50	102	125	80	16	12.5	Rc1/4	55	66	69	32 + $\frac{\text{Stroke length}}{2}$	66	147	64	M10 depth 20	145	M10 depth 20	110	8.6 through	14 spot face depth 8.6
φ63	108	125	86	12.5	17.5	Rc1/4	62	79	82	35 + $\frac{\text{Stroke length}}{2}$	79	162	75	M10 depth 20	160	M10 depth 20	124	8.6 through	14 spot face depth 8.6

Code	MM	N	NN	O	P	PP	Q		R	S	U	V	W	X	Y	YY	CF	CH	CR	CS	T0/T5/T2/T3	T2W/T3W		
							STL-M	STL-B													HD	RD	HD	RD
φ25	12	26	M6 through	0	45	6	14	12	14	26	72	24	35	13	9 $\frac{0}{2}$	27	15	24.5	27	25	19	28	29.5	21
φ32	16	29	M8 through	9	47	7	20	16	16	39	93	25	45	19	12	39	14	28	33	34	21.5	34.5	36	22
φ40	16	34	M8 through	5	50	7	20	16	18	43	102	32	54	19	12 $\frac{0}{2}$	42	14	29	35	20	22	38	40	24
φ50	20	44	M10 through	23	51	8	25	20	22	49	125	38	66	22	16	45	17	29	36	23	24.5	38.5	40	24.5
φ63	20	55	M10 through	17	51	8	25	20	26	56	140	50	79	22	16 $\frac{0}{2}$	52	17	29	41.5	25	26	44	45.5	27.5

MEMO

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

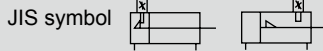
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Guided cylinder, double acting/position locking

STS/STL-^M_BQ Series

● Bore size: φ20/φ25/φ32/φ40/φ50/φ63/φ80



Specifications

Descriptions	STS-MQ/BQ, STL-MQ/BQ								
	Bore size	mm	φ20	φ25	φ32	φ40	φ50	φ63	φ80
Actuation	Double acting/position locking								
Working fluid	Compressed air								
Max. working pressure	MPa	1.0 (≈150 psi, 10 bar)							
Min. working pressure	MPa	0.2 (≈29 psi, 2 bar)			0.15 (≈22 psi, 1.5 bar)				
Proof pressure	MPa	1.6 (≈230 psi, 16 bar)							
Ambient temperature	°C	-10 (14°F) to 60 (140°F) (no freezing)							
Port size		M5		Rc1/8		Rc1/4		Rc3/8	
Stroke tolerance	mm	+2.0 0							
Working piston speed	mm/s	50 to 500					50 to 300		
Cushion	With rubber cushion								
Position locking mechanism	Rod side or head side								
Holding force	N	Max. thrust x 0.7							
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)								
Allowable absorbed energy	J	0.157	0.157	0.401	0.627	0.980	1.560	2.510	

Stroke length

· Short stroke STS

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
φ20	25, 50	50	5	5 With one or two switches
φ25				
φ32				
φ40				
φ50				
φ63	25, 50, 75, 100	100		
φ80				

· Long stroke length STL

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
φ20	50, 75, 100, 125, 150, 175	400	30	30 With one or two switches
φ25	200, 225, 250, 275, 300			
φ32	325, 350, 375, 400			
φ40	50, 75, 100, 125, 150, 175	375		
φ50	200, 225, 250, 275, 300			
φ63	325, 350, 375			
φ80	75, 100, 125, 150, 175	350	55	55 With one or two switches
	200, 225, 250, 275, 300 325, 350			

Note: The custom stroke length is available in 5 mm increments.
However, the total length is the same as that of the next longer standard stroke length.

▲ Be sure to read the “Safety precautions” Position locking on pages 562 to 565 before use.

Switch specifications

● 1-color/2-color display/for AC magnetic field proof

Descriptions	Proximity 2-wire		Proximity 2-wire			Proximity 3-wire				Reed 2-wire				Proximity 2-wire			
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD				
Applications	For programmable controller, relay, compact solenoid valve		Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay		For programmable controller, relay, IC circuit (no indicator lamp), serial connection		For programmable controller, relay		For programmable controller	
Output method	-					NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-					10 to 28 VDC				-							
Load voltage	85 to 265 VAC		10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA		5 to 20 mA (*2)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	≤50 mA	≤20 mA	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)		
Leakage current	≤1 mA at 100 VAC, ≤2 mA at 200 VAC		1 mA or less			10 µA or less				0 mA				1 mA or less			
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80				1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272		

*1 : Refer to Ending Page 1 for other switch specifications.

*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
φ20	Push	-	-	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²	2.51 × 10 ²	2.83 × 10 ²	3.14 × 10 ²
	Pull	-	-	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push	-	-	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	-	-	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	60.3	90.5	1.21 × 10 ²	1.81 × 10 ²	2.41 × 10 ²	3.02 × 10 ²	3.62 × 10 ²	4.22 × 10 ²	4.83 × 10 ²	5.43 × 10 ²	6.03 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.06 × 10 ²	1.58 × 10 ²	2.11 × 10 ²	3.17 × 10 ²	4.22 × 10 ²	5.28 × 10 ²	6.33 × 10 ²	7.39 × 10 ²	8.44 × 10 ²	9.50 × 10 ²	1.06 × 10 ³
φ50	Push	1.96 × 10 ²	2.95 × 10 ²	3.93 × 10 ²	5.89 × 10 ²	7.85 × 10 ²	9.82 × 10 ²	1.18 × 10 ³	1.37 × 10 ³	1.57 × 10 ³	1.77 × 10 ³	1.96 × 10 ³
	Pull	1.65 × 10 ²	2.47 × 10 ²	3.30 × 10 ²	4.95 × 10 ²	6.60 × 10 ²	8.25 × 10 ²	9.90 × 10 ²	1.15 × 10 ³	1.32 × 10 ³	1.48 × 10 ³	1.65 × 10 ³
φ63	Push	3.12 × 10 ²	4.68 × 10 ²	6.23 × 10 ²	9.35 × 10 ²	1.25 × 10 ³	1.56 × 10 ³	1.87 × 10 ³	2.18 × 10 ³	2.49 × 10 ³	2.81 × 10 ³	3.12 × 10 ³
	Pull	2.80 × 10 ²	4.20 × 10 ²	5.61 × 10 ²	8.41 × 10 ²	1.12 × 10 ³	1.40 × 10 ³	1.68 × 10 ³	1.96 × 10 ³	2.24 × 10 ³	2.52 × 10 ³	2.80 × 10 ³
φ80	Push	5.03 × 10 ²	7.54 × 10 ²	1.01 × 10 ³	1.51 × 10 ³	2.01 × 10 ³	2.51 × 10 ³	3.02 × 10 ³	3.52 × 10 ³	4.02 × 10 ³	4.52 × 10 ³	5.03 × 10 ³
	Pull	4.54 × 10 ²	6.80 × 10 ²	9.07 × 10 ²	1.36 × 10 ³	1.81 × 10 ³	2.27 × 10 ³	2.72 × 10 ³	3.17 × 10 ³	3.63 × 10 ³	4.08 × 10 ³	4.54 × 10 ³

For cylinder weight, refer to pages 554 to 557.

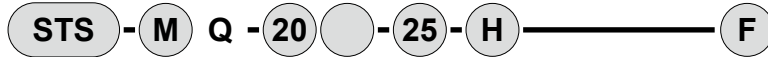
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS/STL-MQ Series

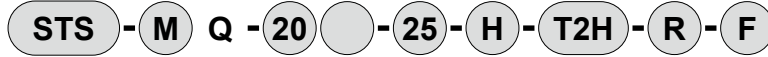
How to order

● Short stroke

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)

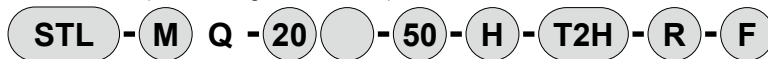


● Long stroke length

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



A Bearing

B Bore size

C Port thread

D Stroke length

E Position locking mechanism

F Switch model No.

■ The custom stroke length is available in 5mm increments. However, the total length is the same as that of the next longer standard stroke length.

⚠ Precautions for model No. selection

*1 : Switches other than **F** Switch model No. are also available. (Custom order product)
Refer to Ending Page 1 for details.

*2 : Refer to pages 440 to 443 for combinations of variations/options.

*3 : φ20 and φ25 with ball bearing B are copper and PTFE free as standard.

*4 : In some cases, a switch cannot be inserted from the rod side of the head side position locking of 25 mm stroke length or less. In this case, temporarily remove the end plate and install the switch. Contact CKD to inquire about the removal and assembling method of the end plate.

*5 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

For the 2-color display, T1H/V and AC magnetic field proof switches for φ40 and over, insert "L1" with "-" between Items **A** and **B**.

(Example) STS-MQ-L1-63-50-T2YH3-D-F
For φ80, the 2-color display, T1H/V and AC magnetic field proof switches cannot be retrofitted on a previously purchased standard product. In this case, order the model No. with "L1" inserted between **A** and **B**.
(Example) STS-MQ-L1-80-50-F

[Example of model No.]

STS-MQ-20-25-H-T0H-R-F

Model: Guided cylinder, short stroke length, position locking

- A** Bearing : Metal bush bearing
- B** Bore size : φ20 mm
- C** Port thread : Rc thread
- D** Stroke length : 25 mm
- E** Position locking mechanism : With head side position locking
- F** Switch model No. : Reed switch T0H, 1 m lead wire length
- G** Switch quantity : 1 on rod side
- H** Option : End plate material: steel

G Switch quantity

H Option

Code	Content
A Bearing	
M	Metal bush bearing
B	Ball bearing

B Bore size (mm)	
20	φ20
25	φ25
32	φ32
40	φ40
50	φ50
63	φ63
80	φ80

C Port thread	
Blank	Rc thread
NN	NPT thread (φ32 and over) custom order product
GN	G thread (φ32 and over) custom order product

D Stroke length (mm)	
Refer to the stroke length table on the following page.	

E Position locking mechanism	
H	Head side position locking mechanism
R	Rod side position locking mechanism

F Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	no indicator lamp	
T1H*	T1V*	Proximity	●	●	1-color display	2-wire
T2H*	T2V*		●	●		
T3H*	T3V*		●	●		
T3PH*	T3PV*		●		1-color display (custom)	3-wire
T2WH*	T2WV*		●		2-color display	2-wire
T2YH*	T2YV*		●			
T3WH*	T3WV*		●			
T3YH*	T3YV*		●		3-wire	
T2JH*	T2JV*		●		1-color display off-delay	2-wire
T2YD*	-		●		2-color display (AC magnetic field)	2-wire
T2YDT*	-		●			

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

G Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

H Option	
F	End plate material (steel)
M	Corrosion proof (Piston rod, guide rod SUS) (custom order product)
M1	Corrosion proof (M + end plate SUS) (custom)
P6 *4	Copper/PTFE free specs (custom)

D Stroke length

Series	Stroke length (mm)	Applicable bore size							
		φ20	φ25	φ32	φ40	φ50	φ63	φ80	
STS	Standard stroke length	25	●	●	●	●	●	●	●
		50	●	●	●	●	●	●	●
		75							●
		100							●
	Min. stroke length *1	5							
Custom stroke *1, 2	In 5 mm increments								
STL	Standard stroke length	50	●	●	●	●	●	●	
		75	●	●	●	●	●	●	●
		100	●	●	●	●	●	●	●
		125	●	●	●	●	●	●	●
		150	●	●	●	●	●	●	●
		175	●	●	●	●	●	●	●
		200	●	●	●	●	●	●	●
		225	●	●	●	●	●	●	●
		250	●	●	●	●	●	●	●
		275	●	●	●	●	●	●	●
		300	●	●	●	●	●	●	●
		325	●	●	●	●	●	●	●
		350	●	●	●	●	●	●	●
		375	●	●	●	●	●	●	
		400	●	●	●				
Min. stroke length *1	30						55		
Custom stroke *1, 2	In 5 mm increments								

*1: The total dimensions are the same as the longer standard stroke length.

*2: Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

How to order switch

SW - T0V

Switch model No.
(Item ⑤ on the previous page)

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

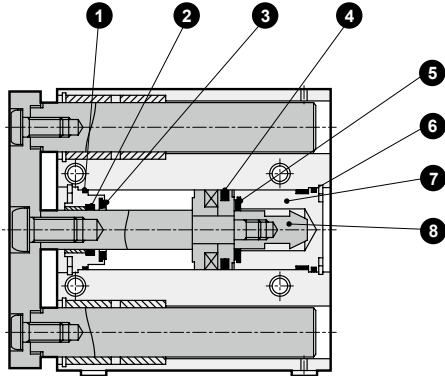
STS/STL-^M_BQ Series

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
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Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

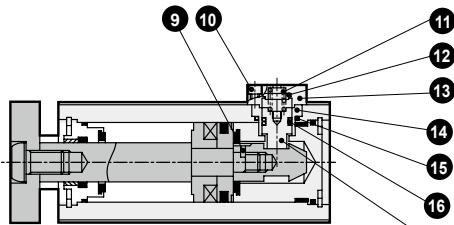
Internal structure and parts list

● Position locking/head side

STS-^M_BQ-H

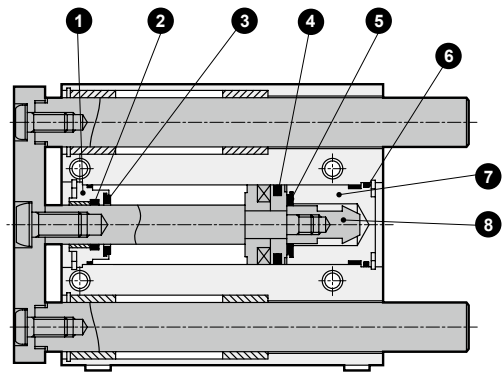


Metal bush bearing

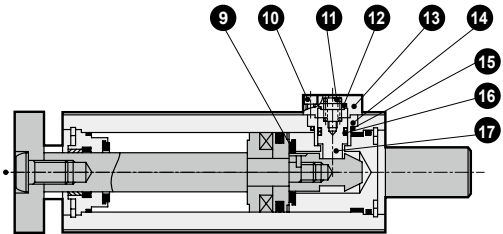


Ball bearing

STL-^M_BQ-H



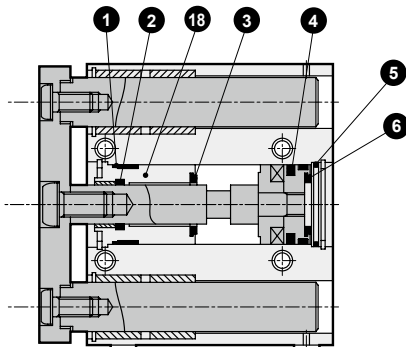
Metal bush bearing



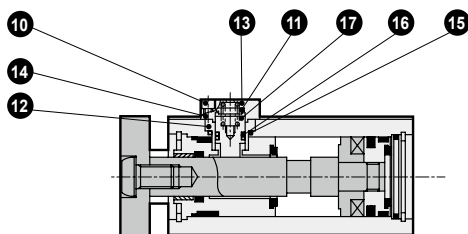
Ball bearing

● Position locking/rod side

STS-^M_BQ-R

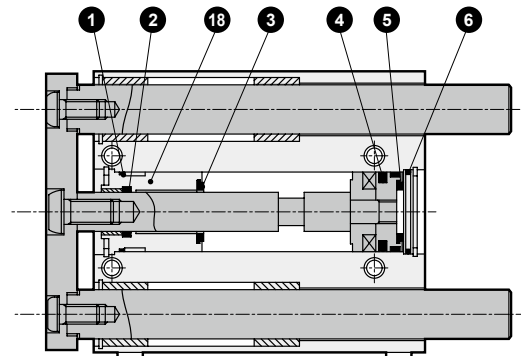


Metal bush bearing

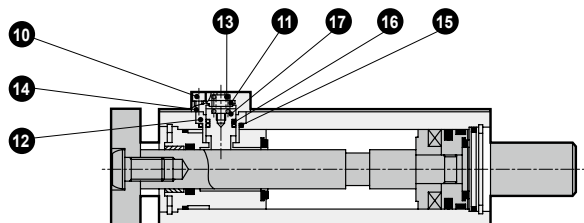


Ball bearing

STL-^M_BQ-R



Metal bush bearing



Ball bearing

Parts list (Parts not listed below are the same as those of the double acting/standard single rod. Refer to pages 449 to 453.)

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
ST ^S _L ^M _B Q-H (position locking/head side)				ST ^S _L ^M _B Q-R (position locking/rod side)			
1	Metal gasket	Nitrile rubber		1	Metal gasket	Nitrile rubber	
2	Rod packing	Nitrile rubber		2	Rod packing	Nitrile rubber	
3	Cushion rubber (R)	Urethane rubber		3	Cushion rubber (R)	Urethane rubber	
4	Piston packing	Nitrile rubber		4	Piston packing	Nitrile rubber	
5	Cushion rubber (H)	Urethane rubber		5	Cushion rubber (H)	Urethane rubber	
6	O-ring	Nitrile rubber		6	O-ring	Nitrile rubber	
7	Head cover	Aluminum alloy		10	Hexagon socket head cap screw	Alloy steel	Zinc chromate
8	Sleeve	Steel	Nitriding	11	Coil spring	Steel	Electrodeposition
9	Spring pin	Steel	Black finish	12	Cushion rubber	Urethane rubber	
10	Hexagon socket head cap screw	Alloy steel	Zinc chromate	13	Stopper cover	Aluminum alloy	Alumite
11	Coil spring	Steel	Electrodeposition	14	Stopper housing	Aluminum alloy	Alumite
12	Cushion rubber	Urethane rubber		15	O-ring	Nitrile rubber	
13	Stopper cover	Aluminum alloy	Alumite	16	Stopper packing	Nitrile rubber	
14	Stopper housing	Aluminum alloy	Alumite	17	Stopper piston	Stainless steel	
15	O-ring	Nitrile rubber		18	Rod cover	Aluminum alloy	Alumite
16	Stopper packing	Nitrile rubber					
17	Stopper piston	Steel	Nitriding				

Repair parts list

● ST^S_L^M_BQ (position locking)

Bore size (mm)	Kit No.	Repair parts No.
φ20	STS-Q-H-20K STS-Q-R-20K	
φ25	STS-Q-H-25K STS-Q-R-25K	
φ32	STS-Q-32K	
φ40	STS-Q-40K	
φ50	STS-Q-50K	
φ63	STS-Q-63K	
φ80	STS-Q-80K	

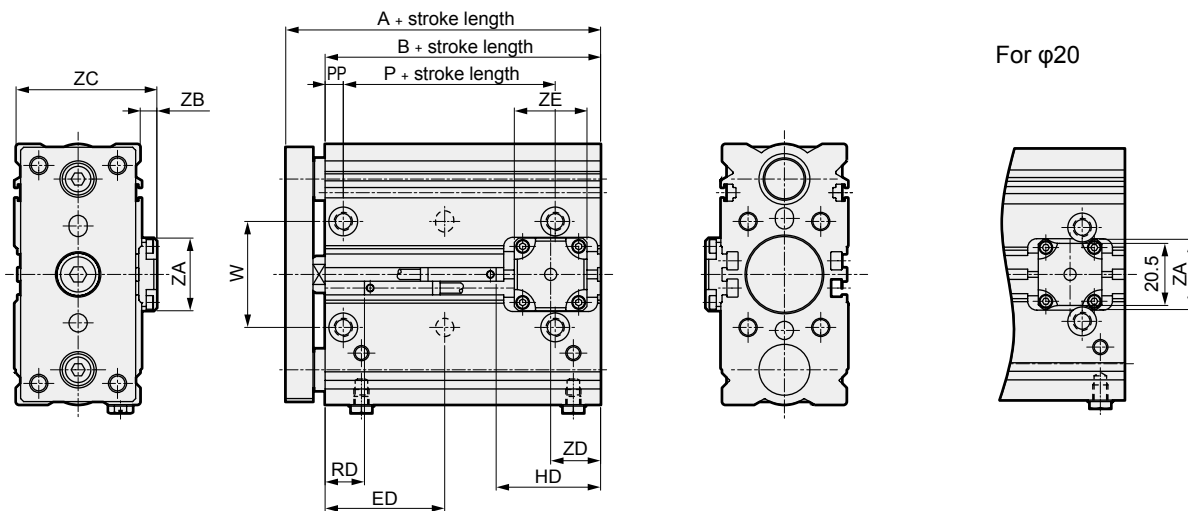
Note: Specify the kit No. when placing an order.
The kit No. of φ20 and φ25 differs depending on the side of position locking.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

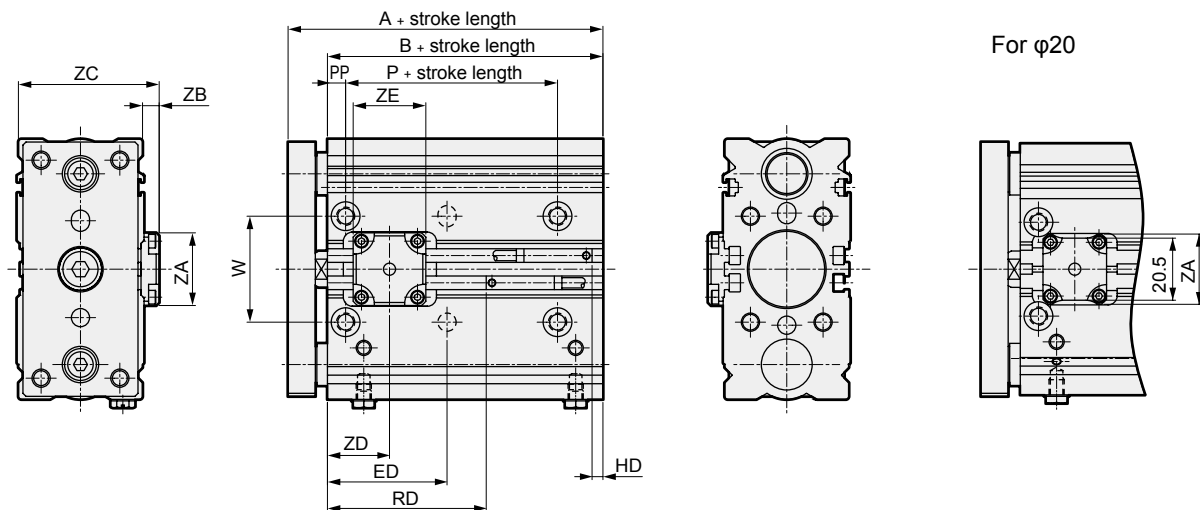


Dimensions: $\phi 20$, $\phi 25$

- Position locking/head side (Dimensions not listed below are the same as those of the double acting/single rod)
STS-M_BQ-H



- Position locking/rod side (Dimensions not listed below are the same as those of the double acting/single rod)
STS-M_BQ-R



Code Bore size (mm)	A	B	EA	EC	EG	ED	P	PP	W	ZA	ZB	ZC	ZE	STS-M _B Q-H				STS-M _B Q-R					
														ZD	T0/T5/T2/T3		T2W/T3W		ZD	T0/T5/T2/T3		T2W/T3W	
															RD	HD	RD	HD		RD	HD		
$\phi 20$	78	65	30	31	33	$26.5 + \frac{\text{Stroke length}}{2}$	45	6	31	23.2	6	44	21	18	12	34.5	12.5	37.5	20	37	9.5	37.5	12.5
$\phi 25$	79	66	32	35	37	$27 + \frac{\text{Stroke length}}{2}$	45	6	35	24	5	47	24	16.5	13	34	14.5	36	20.5	38	9	39.5	11

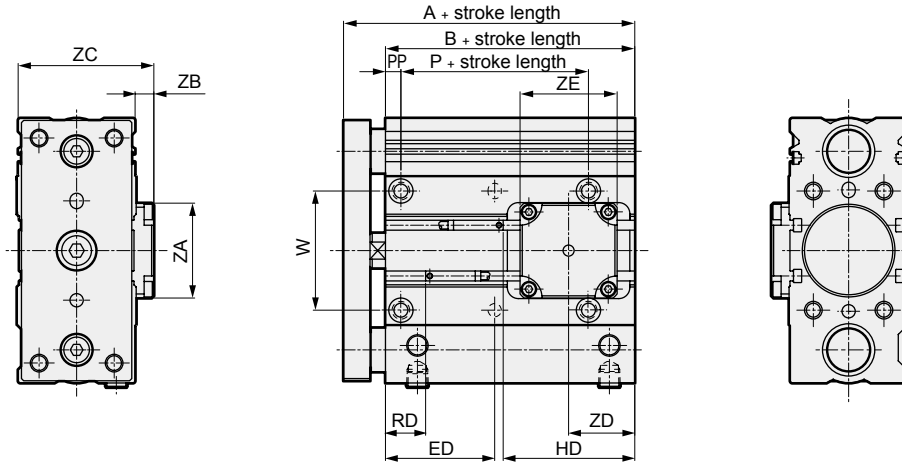
*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

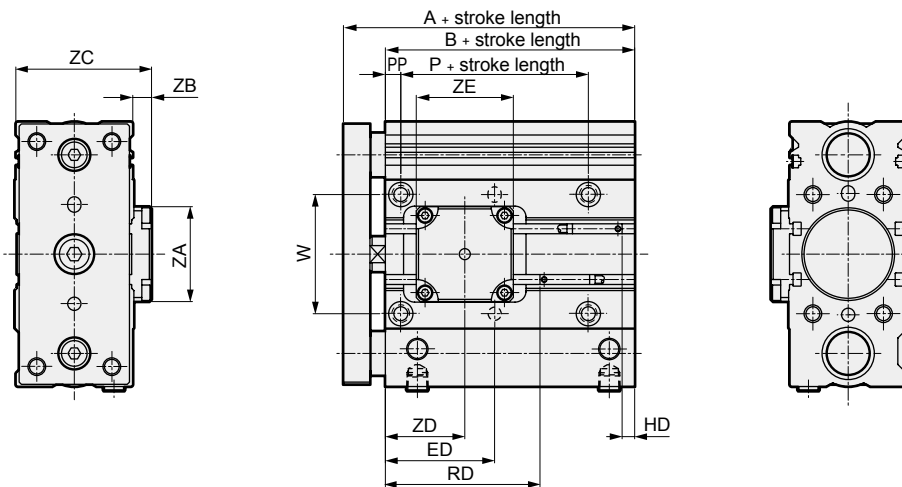
Dimensions: φ32/φ40/φ50/φ63



- Position locking/head side (Dimensions not listed below are the same as those of the double acting/single rod)
STS-M_BQ-H



- Position locking/rod side (Dimensions not listed below are the same as those of the double acting/single rod)
STS-M_BQ-R




LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Code Bore size (mm)	A	B	EA	EC	EG	ED	P	PP	W	ZA	ZB	ZC	ZE	STS-M _B Q-H				STS-M _B Q-R					
														ZD	T0/T5/T2/T3		T2W/T3W		ZD	T0/T5/T2/T3		T2W/T3W	
															RD	HD	RD	HD		RD	HD	RD	HD
φ32	93	74	42	45	46	30 + $\frac{\text{Stroke length}}{2}$	47	7	45	32	6.5	53.5	24	21	17.5	38.5	19	40	25	42.5	13.5	44	15
φ40	122	103	45	54	55	44.5 + $\frac{\text{Stroke length}}{2}$	75	7	54	43	8	62	44	30	21	64	22.5	66	36	71	14	72.5	16
φ50	127	105	55	66	69	44.5 + $\frac{\text{Stroke length}}{2}$	76	8	66	43	7.5	73.5	44	33	22	66	23.5	66.5	40	72	16	73.5	16.5
φ63	133	111	62	79	82	47.5 + $\frac{\text{Stroke length}}{2}$	76	8	79	47	7.5	86.5	47	35	20	73	21.5	74.5	40	70	23	71.5	24.5

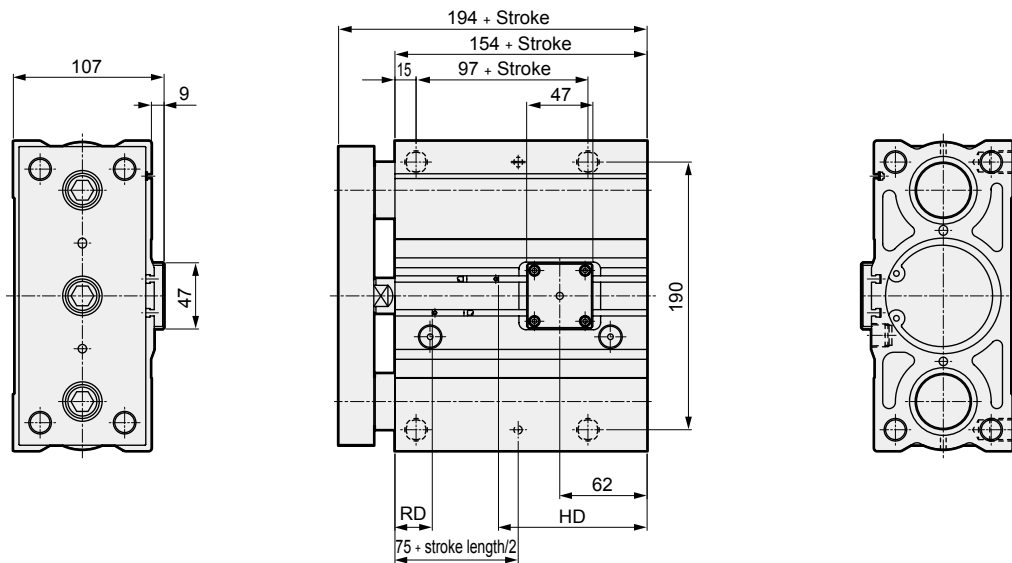
*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

Dimensions: $\phi 80$ 

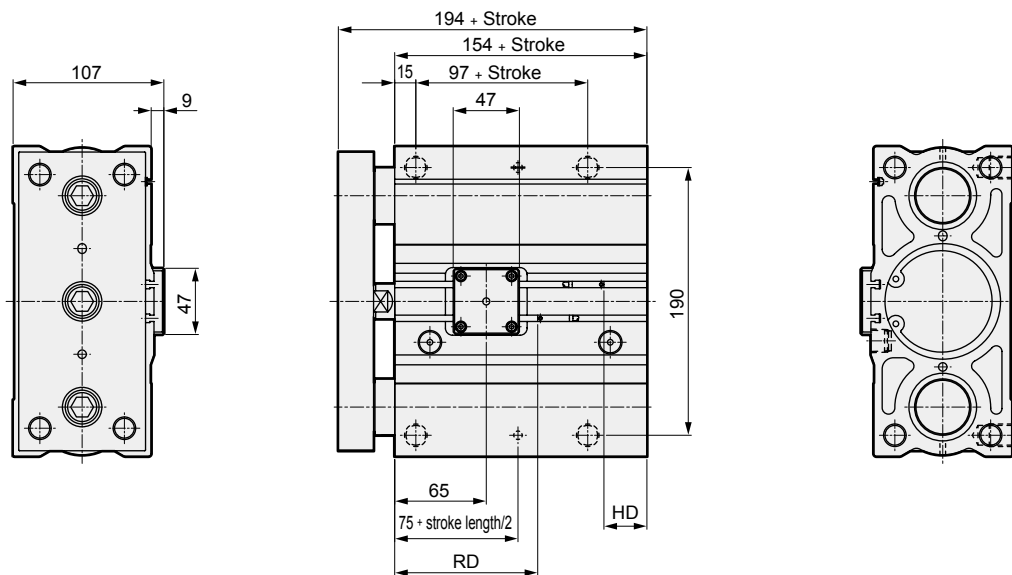
- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

● Position locking/head side (Dimensions not listed below are the same as those of the double acting/single rod)
STS-M_BQ-H



T0/T5/T2/T3		T2W/T3W	
RD	HD	RD	HD
26.5	105.5	28	110.5

● Position locking/rod side (Dimensions not listed below are the same as those of the double acting/single rod)
STS-M_BQ-R



T0/T5/T2/T3		T2W/T3W	
RD	HD	RD	HD
101.5	30.5	103	35.5

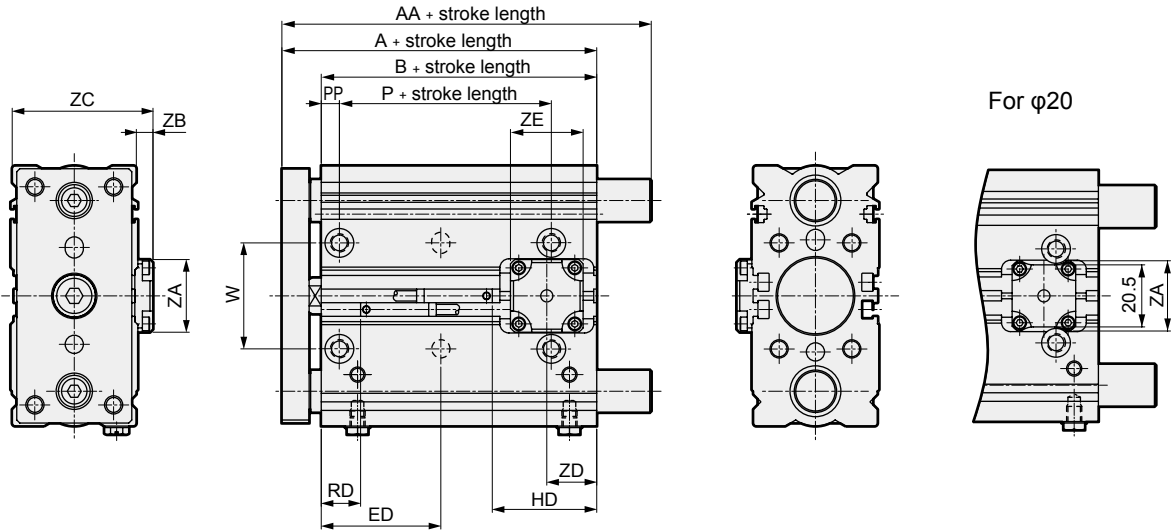
*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

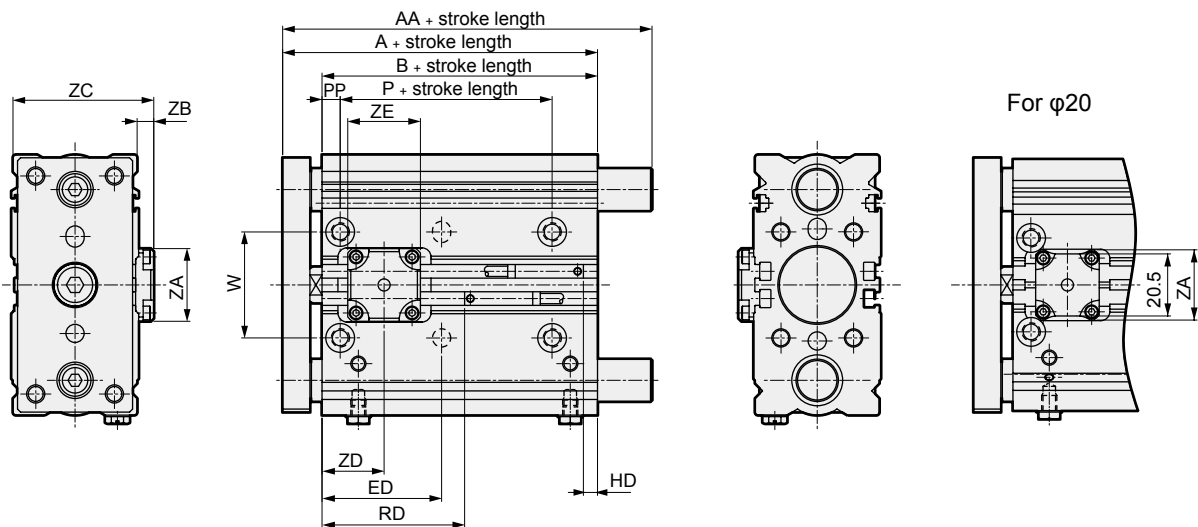
Dimensions: $\phi 20/\phi 25$



- Position locking/head side (Dimensions not listed below are the same as those of the double acting/single rod)
STL-M_BQ-H



- Position locking/rod side (Dimensions not listed below are the same as those of the double acting/single rod)
STL-M_BQ-R



LCW
LCR
LCG
LCX
LCM
STM
STG
STJ
STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Code	A	AA	EA	EC	EG	ED	B	P	PP	W	ZA	ZB	ZC	ZE	STL-M _B Q-H				STL-M _B Q-R					
															ZD	T0/T5/T2/T3		T2W/T3W		ZD	T0/T5/T2/T3		T2W/T3W	
																RD	HD	RD	HD		RD	HD	RD	HD
$\phi 20$	78	97	30	31	33	$26.5 + \frac{\text{Stroke length}}{2}$	65	45	6	31	23.2	6	44	21	18	12	34.5	37.5	12.5	20	37	9.5	12.5	37.5
$\phi 25$	79	97	32	35	37	$27 + \frac{\text{Stroke length}}{2}$	66	45	6	35	24	5	47	24	16.5	13	34	39.5	11	20.5	38	9	14.5	36

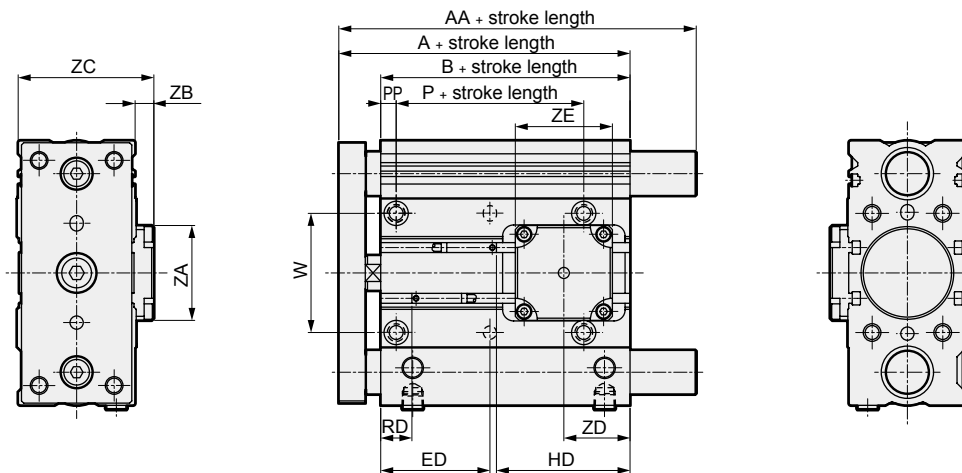
*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

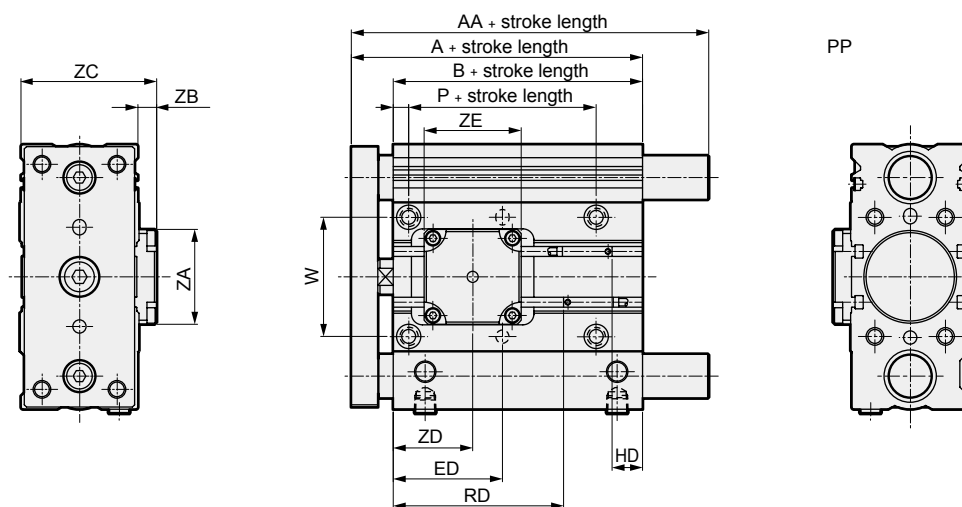
Dimensions: $\phi 32/\phi 40/\phi 50/\phi 63$



- Position locking/head side (Dimensions not listed below are the same as those of the double acting/single rod)
STL-M_BQ-H



- Position locking/rod side (Dimensions not listed below are the same as those of the double acting/single rod)
STL-M_BQ-R



Code	STL-M _B Q-H															STL-M _B Q-R									
	Bore size (mm)	A	AA	EA	EC	EG	ED	B	P	PP	W	ZA	ZB	ZC	ZE	ZD	T0/T5/T2/T3		T2W/T3W		ZD	T0/T5/T2/T3		T2W/T3W	
		RD	HD	RD	HD	RD	HD	RD	HD	RD	HD														
$\phi 32$	93	127	42	45	46	30	$\frac{\text{Stroke length}}{2}$	74	47	7	45	32	6.5	53.5	24	21	17.5	38.5	44	15	25	42.5	13.5	19	40
$\phi 40$	122	152	45	54	55	44.5	$\frac{\text{Stroke length}}{2}$	103	75	7	54	43	8	62	44	30	21	64	72.5	16	36	71	14	22.5	66
$\phi 50$	127	175	55	66	69	44.5	$\frac{\text{Stroke length}}{2}$	105	76	8	66	43	7.5	73.5	44	33	22	66	73.5	16.5	40	72	16	23.5	66.5
$\phi 63$	133	175	62	79	82	47.5	$\frac{\text{Stroke length}}{2}$	111	76	8	79	47	7.5	86.5	47	35	20	73	71.5	24.5	40	70	23	21.5	74.5

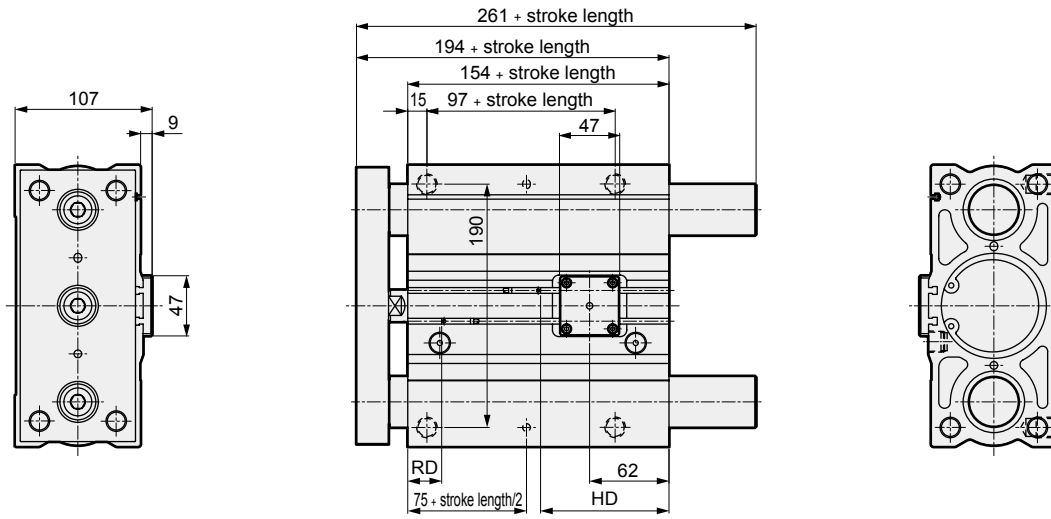
*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

Dimensions: $\phi 80$

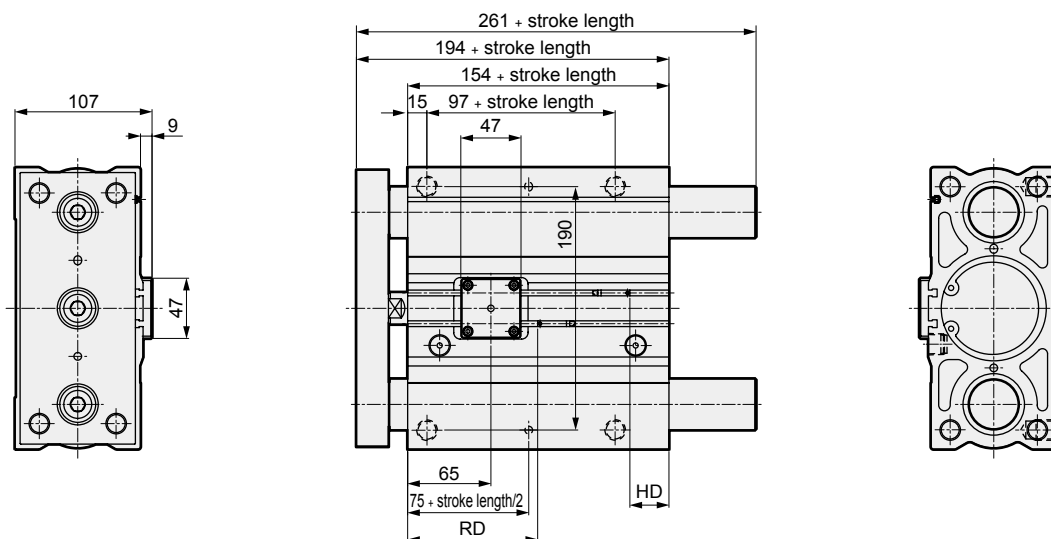


- Position locking/head side (Dimensions not listed below are the same as those of the double acting/single rod)
STL-M_BQ-H



T0/T5/T2/T3		T2W/T3W	
RD	HD	RD	HD
26.5	105.5	28	110.5

- Position locking/rod side (Dimensions not listed below are the same as those of the double acting/single rod)
STL-M_BQ-R



T0/T5/T2/T3		T2W/T3W	
RD	HD	RD	HD
101.5	30.5	103	35.5

*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.


- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- ST/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending



Guided cylinder/fine speed

STS/STL-MF Series

- Bore size: $\phi 8$, $\phi 12$, $\phi 16$, $\phi 20$, $\phi 25$, $\phi 32$, $\phi 40$, $\phi 50$, $\phi 63$, $\phi 80$

JIS symbol 



Specifications

Descriptions	STS-MF, STS-BF (short stroke length)/STL-MF, STL-BF (long stroke length)										
Bore size mm	$\phi 8$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	
Actuation	Double acting										
Working fluid	Compressed air										
Max. working pressure MPa	1.0 (≈ 150 psi, 10 bar)										
Min. working pressure MPa	0.15 (≈ 22 psi, 1.5 bar)					0.1 (≈ 15 psi, 1 bar)					
Proof pressure MPa	1.6 (≈ 230 psi, 16 bar)										
Ambient temperature $^{\circ}\text{C}$	5 (41°F) to 60 (140°F)										
Port size	M5					Rc1/8			Rc1/4		Rc3/8
Stroke tolerance mm	$^{+2.0}_0$										
Working piston speed mm/s	1 to 200										
Cushion	Rubber cushion										
Lubrication	Not available										
Allowable absorbed energy J	0.029	0.056	0.088	0.157	0.157	0.401	0.627	0.980	0.1560	2.510	

*1: Refer to page 445 for theoretical thrust table.

Stroke length

Model No.	Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
STS-MF	$\phi 8$, $\phi 12$, $\phi 16$	10, 20, 30, 40, 50	50	5
	$\phi 20$, $\phi 25$, $\phi 32$, $\phi 40$, $\phi 50$, $\phi 63$	25, 50		
STS-BF	$\phi 80$	25, 50, 75, 100	100	
	$\phi 8$, $\phi 12$, $\phi 16$	50, 75, 100, 125, 150, 175, 200	200	50
STL-MF	$\phi 20$, $\phi 25$, $\phi 32$, $\phi 40$, $\phi 50$, $\phi 63$	50, 75, 100, 125, 150, 175, 200		200
	STL-BF	$\phi 80$	75, 100, 125, 150, 175, 200	

*1: The custom stroke length is available in 5mm increments. However, the total length is the same as that of the next longer standard stroke length.

Switch specifications

- 1-color/2-color display/for AC magnetic field proof

Descriptions	Proximity 2-wire		Proximity 2-wire				Proximity 3-wire				Reed 2-wire				Proximity 2-wire	
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD			
Applications	For programmable controller, relay, compact solenoid valve	Dedicated for programmable controller				For programmable controller, relay				For programmable controller, relay	For programmable controller, relay, IC circuit (no indicator lamp), serial connection		For programmable controller, relay	For programmable controller		
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC $\pm 10\%$		30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC $\pm 10\%$
Load current	5 to 100 mA	5 to 20 mA (*2)		100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	≤ 50 mA	≤ 20 mA	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA	
Indicator lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Without indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less		10 μA or less				0 mA				1 mA or less				
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18	1 m:33	1 m:18		1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142		1 m:61		
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49	3 m:87	3 m:49							3 m:166		
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80	5 m:142	5 m:80							5 m:272		

*1 : Refer to Ending Page 1 for other switch specifications.

*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

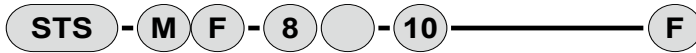
*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

For cylinder weight, refer to pages 554 to 557.

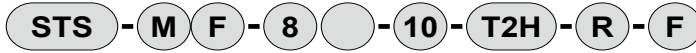
How to order

● Short stroke length

Without switch (built-in magnet for switch)

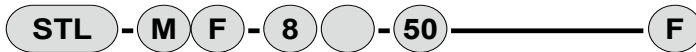


With switch (built-in magnet for switch)

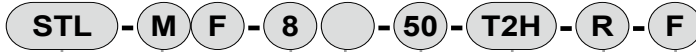


● Long stroke length

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



Model No.

● A Bearing ● B Bore size

⚠ Precautions for model No. selection

*1: Refer to pages 440 and 443 for combinations of variations/options.

[Example of model No.]

STL-MF-8-50-T2H-R-F

Model: Guided cylinder, long stroke length, fine speed

- A Bearing : Metal bush bearing
- B Bore size : $\phi 8$ mm
- C Port thread : Rc thread
- D Stroke length : 50 mm
- E Switch model No.: Proximity switch T2H, lead wire 1 m
- F Switch quantity : 1 on rod side
- G Option : End plate material: steel

■ The custom stroke length is available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.

● E Switch model No. *3 *4

● D Stroke length

Series	Stroke length (mm)	Applicable bore size									
		$\phi 8$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$
STS	10	●	●	●							
	20	●	●	●							
	25	●	●	●							
	30	●	●	●	●	●	●	●	●	●	●
	40	●	●	●	●	●	●	●	●	●	●
	50	●	●	●	●	●	●	●	●	●	●
	75	●	●	●	●	●	●	●	●	●	●
100	●	●	●	●	●	●	●	●	●	●	
	Min. stroke *1	5									
	Custom stroke *1,2	In 5 mm increments									
STL	50	●	●	●	●	●	●	●	●	●	●
	75	●	●	●	●	●	●	●	●	●	●
	100	●	●	●	●	●	●	●	●	●	●
	125	●	●	●	●	●	●	●	●	●	●
	150	●	●	●	●	●	●	●	●	●	●
	175	●	●	●	●	●	●	●	●	●	●
	200	●	●	●	●	●	●	●	●	●	●
	Min. stroke *1	50					30			55	
	Custom stroke *1,2	In 5 mm increments									

*1 : The total dimensions are the same as the longer standard stroke length.

*2 : Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

*3 : T8H/V switch cannot be installed on $\phi 8$ to $\phi 16$.

*4 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

For the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches for $\phi 40$ and over, add "L1" to the model No. (Example) STS-MF-L1-63-50-T2YH-D
For $\phi 80$, the 2-color display, T1H/V and AC magnetic field proof switches cannot be retrofitted on a previously purchased standard product. In this case, order the model No. with "L1" inserted between ● A and ● B. (Example) STL-MF-L1-80-50-F

How to order switch



Switch model No. (Item ● E above)

● G Option

Dimensions

Same as STS/STL Series (double acting/single rod).

STS Series : Page 455 ($\phi 8$ to $\phi 16$), page 456 ($\phi 20$ and $\phi 25$), page 457 ($\phi 32$ to $\phi 63$) and page 458 ($\phi 80$)

STL Series : Page 460 ($\phi 8$ to $\phi 16$), page 461 ($\phi 20$ and $\phi 25$), page 462 ($\phi 32$ to $\phi 63$) and page 463 ($\phi 80$)

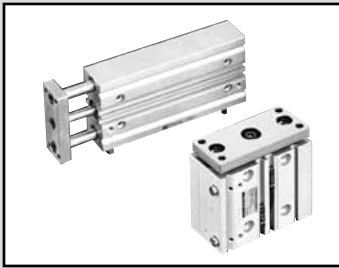
Technical data

Refer to Measuring methods (in Pneumatic Cylinders I (Catalog No.CB-029SA) on page 1161), for technical data regarding measuring dimensions.

Code	Content					
A Bearing						
M	Metal bush bearing					
B	Ball bearing					
B Bore size (mm)						
8	$\phi 8$					
12	$\phi 12$					
16	$\phi 16$					
20	$\phi 20$					
25	$\phi 25$					
32	$\phi 32$					
40	$\phi 40$					
50	$\phi 50$					
63	$\phi 63$					
80	$\phi 80$					
C Port thread						
Blank	Rc thread					
NN	NPT thread ($\phi 32$ and over) custom order product					
GN	G thread ($\phi 32$ and over) custom order product					
D Stroke length (mm)						
Refer to the stroke length table below.						
E Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage	Indicator	Lead wire	
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	no indicator lamp	
T8H*	T8V*		●	●		
T1H*	T1V*	Proximity	●		1-color display	2-wire
T2H*	T2V*		●	●	display	
T3H*	T3V*		●	●		3-wire
T3PH*	T3PV*		●	●	1-color display (custom)	
T2WH*	T2WV*		●	●		2-wire
T2YH*	T2YV*		●	●	2-color display	
T3WH*	T3WV*		●	●		3-wire
T3YH*	T3YV*	●	●	display		
T2JH*	T2JV*	●	●	1-color display off-delay	2-wire	
T2YD*	-	●	●	2-color display		
T2YDT*	-	●	●	(AC magnetic field)	2-wire	
* Lead wire length						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
F Switch quantity						
R	1 on rod side					
H	1 on head side					
D	2					
T	3					
G Option						
F	End plate material (steel)					
M	Corrosion proof (Piston rod, guide rod SUS) (custom order product)					
M1	Corrosion proof (M + end plate SUS) (custom order product)					

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Guided cylinder Double acting/low speed

STS/STL-^M_BO Series

● Bore size: $\phi 8/\phi 12/\phi 16/\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63/\phi 80$

JIS symbol



Specifications

Descriptions		STS-MO/BO, STL-MO/BO									
Bore size	mm	$\phi 8$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$
Actuation		Double acting/low speed									
Working fluid		Compressed air									
Max. working pressure	MPa	1.0 (≈ 150 psi, 10 bar)									
Min. working pressure	MPa	0.15 (≈ 22 psi, 1.5 bar)					0.1 (≈ 15 psi, 1 bar)				
Proof pressure	MPa	1.6 (≈ 230 psi, 16 bar)									
Ambient temperature	$^{\circ}\text{C}$	-10 (14°F) to 60 (140°F) (no freezing)									
Port size		M5					Rc1/8		Rc1/4		Rc3/8
Stroke tolerance	mm	$+2.0$ 0									
Working piston speed	mm/s	10 to 200									
Cushion		With rubber cushion									
Lubrication		Not available									
Allowable absorbed energy	J	0.029	0.056	0.088	0.157	0.157	0.401	0.627	0.980	0.1560	2.510

Stroke length

· Short stroke length STS

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
$\phi 8$	10, 20, 30, 40, 50			
$\phi 12$				
$\phi 16$	25, 50	50	5	5 With one or two switches
$\phi 20$				
$\phi 25$				
$\phi 32$				
$\phi 40$				
$\phi 50$				
$\phi 63$	25, 50, 75, 100	100		
$\phi 80$				

· Long stroke length STL

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
$\phi 8$	50, 75, 100, 125, 150	150	50	50
$\phi 12$				
$\phi 16$				
$\phi 20$	50, 75, 100, 125, 150 175, 200, 225, 250 275, 300	300	30	30 With one or two switches
$\phi 25$				
$\phi 32$				
$\phi 40$				
$\phi 50$				
$\phi 63$				
$\phi 80$	75, 100, 125, 150, 175 200, 225, 250, 275, 300		55	55 With one or two switches

Note : The custom stroke length is available in 5 mm increments.
However, the total length is the same as that of the next longer standard stroke length.

Switch specifications

● 1-color/2-color display/for AC magnetic field proof

Descriptions	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire				Proximity 2-wire			
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD			
Applications	For programmable controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay, IC circuit (no indicator lamp), serial connection		For programmable controller, relay		For programmable controller		
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*2)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	≤50 mA	≤20 mA	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Without indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)		
Leakage current	≤1 mA at 100 VAC, ≤2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA				1 mA or less			
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80		1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272		

*1 : Refer to Ending Page 1 for other switch specifications.

*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
φ8	Push	-	-	10.1	15.1	20.1	25.1	30.2	35.2	40.2	45.2	50.3
	Pull	-	-	7.54	11.3	15.1	18.8	22.6	26.4	30.2	33.9	37.7
φ12	Push	-	-	22.6	33.9	45.2	56.5	67.9	79.2	90.5	1.02 × 10 ²	1.13 × 10 ²
	Pull	-	-	17.0	25.4	33.9	42.4	50.9	59.4	67.9	76.3	84.8
φ16	Push	-	-	40.2	60.3	80.4	1.01 × 10 ²	1.21 × 10 ²	1.41 × 10 ²	1.61 × 10 ²	1.81 × 10 ²	2.01 × 10 ²
	Pull	-	-	30.2	45.2	60.3	75.4	90.5	1.06 × 10 ²	1.21 × 10 ²	1.36 × 10 ²	1.51 × 10 ²
φ20	Push	-	-	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²	2.51 × 10 ²	2.83 × 10 ²	3.14 × 10 ²
	Pull	-	-	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push	-	-	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	-	-	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	60.3	90.5	1.21 × 10 ²	1.81 × 10 ²	2.41 × 10 ²	3.02 × 10 ²	3.62 × 10 ²	4.22 × 10 ²	4.83 × 10 ²	5.43 × 10 ²	6.03 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.06 × 10 ²	1.58 × 10 ²	2.11 × 10 ²	3.17 × 10 ²	4.22 × 10 ²	5.28 × 10 ²	6.33 × 10 ²	7.39 × 10 ²	8.44 × 10 ²	9.50 × 10 ²	1.06 × 10 ³
φ50	Push	1.96 × 10 ²	2.95 × 10 ²	3.93 × 10 ²	5.89 × 10 ²	7.85 × 10 ²	9.82 × 10 ²	1.18 × 10 ³	1.37 × 10 ³	1.57 × 10 ³	1.77 × 10 ³	1.96 × 10 ³
	Pull	1.65 × 10 ²	2.47 × 10 ²	3.30 × 10 ²	4.95 × 10 ²	6.60 × 10 ²	8.25 × 10 ²	9.90 × 10 ²	1.15 × 10 ³	1.32 × 10 ³	1.48 × 10 ³	1.65 × 10 ³
φ63	Push	3.12 × 10 ²	4.68 × 10 ²	6.23 × 10 ²	9.35 × 10 ²	1.25 × 10 ³	1.56 × 10 ³	1.87 × 10 ³	2.18 × 10 ³	2.49 × 10 ³	2.81 × 10 ³	3.12 × 10 ³
	Pull	2.80 × 10 ²	4.20 × 10 ²	5.61 × 10 ²	8.41 × 10 ²	1.12 × 10 ³	1.40 × 10 ³	1.68 × 10 ³	1.96 × 10 ³	2.24 × 10 ³	2.52 × 10 ³	2.80 × 10 ³
φ80	Push	5.03 × 10 ²	7.54 × 10 ²	1.01 × 10 ³	1.51 × 10 ³	2.01 × 10 ³	2.51 × 10 ³	3.02 × 10 ³	3.52 × 10 ³	4.02 × 10 ³	4.52 × 10 ³	5.03 × 10 ³
	Pull	4.54 × 10 ²	6.80 × 10 ²	9.07 × 10 ²	1.36 × 10 ³	1.81 × 10 ³	2.27 × 10 ³	2.72 × 10 ³	3.17 × 10 ³	3.63 × 10 ³	4.08 × 10 ³	4.54 × 10 ³

For cylinder weight, refer to pages 554 to 557.

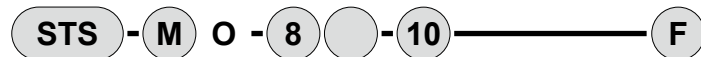
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS/STL-M_BO Series

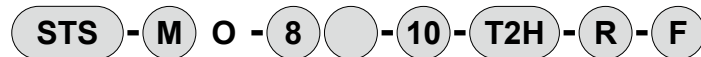
How to order

● Short stroke length

Without switch (built-in magnet for switch)

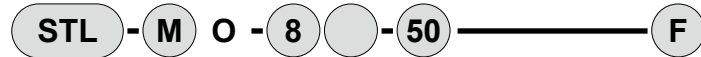


With switch (built-in magnet for switch)

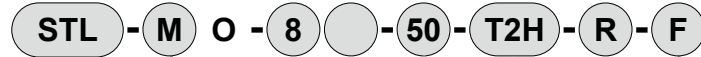


● Long stroke length

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



Ⓐ Bearing

Ⓑ Bore size

Ⓒ Port thread

Ⓓ Stroke length

■ Custom stroke length

Available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.

Ⓔ Switch model No.

*1, *3, *4

⚠ Precautions for model No. selection

*1 : Switches other than Ⓔ Switch model No. are also available. (Custom order product)

Refer to Ending Page 1 for details.

*2 : Refer to pages 440 to 443 for combinations of variations/options.

*3 : T8H/V switch cannot be installed on $\phi 8$ to $\phi 16$.

*4 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

For the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches for $\phi 40$ and over, insert "L1" with "-" between Ⓐ and Ⓑ.
(Example) STS-MO-L1-63-50-T2YH3-D-F
For $\phi 80$, the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches cannot be retrofitted on a previously purchased standard product.

In this case, order the model No. with "L1" inserted between Ⓐ and Ⓑ.

(Example) STS-MO-L1-80-50-F

[Example of model No.]

STS-MO-8-30-T0H-R-F

Model: Guided cylinder, short stroke length, standard/low speed

Ⓐ Bearing : Metal bush bearing

Ⓑ Bore size : $\phi 8$ mm

Ⓒ Port thread : Rc thread

Ⓓ Stroke length : 30 mm

Ⓔ Switch model No.: Reed T0H, lead wire length 1 m

Ⓕ Switch quantity : 1 on rod side

Ⓖ Option : End plate material: steel

Ⓕ Switch quantity

Ⓖ Option

Code	Content
Ⓐ Bearing	
M	Metal bush bearing
B	Ball bearing

Ⓑ Bore size (mm)	
8	$\phi 8$
12	$\phi 12$
16	$\phi 16$
20	$\phi 20$
25	$\phi 25$
32	$\phi 32$
40	$\phi 40$
50	$\phi 50$
63	$\phi 63$
80	$\phi 80$

Ⓒ Port thread	
Blank	Rc thread
NN	NPT thread ($\phi 32$ and over) custom order product
GN	G thread ($\phi 32$ and over) custom order product

Ⓓ Stroke length (mm)	
Refer to the stroke length table on the following page.	

Ⓔ Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*	Reed	●	●	no indicator lamp	
T8H*	T8V*	Reed	●	●	1-color display	2-wire
T1H*	T1V*	Proximity	●	●		
T2H*	T2V*	Proximity	●	●	display	3-wire
T3H*	T3V*	Proximity	●	●		
T3PH*	T3PV*	Proximity	●	●	1-color display (custom)	3-wire
T2WH*	T2WV*	Proximity	●	●	2-color display	2-wire
T2YH*	T2YV*	Proximity	●	●		
T3WH*	T3WV*	Proximity	●	●	display	3-wire
T3YH*	T3YV*	Proximity	●	●	1-color display off-delay	2-wire
T2JH*	T2JV*	Proximity	●	●		
T2YD*	-	Proximity	●	●	2-color display	2-wire
T2YDT*	-	Proximity	●	●	(AC magnetic field)	

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

Ⓕ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

Ⓖ Option	
F	End plate material (steel)
M	Corrosion proof (Piston rod, guide rod SUS) (custom order product)
M1	Corrosion proof (M + end plate SUS) (custom order product)

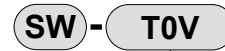
D Stroke length

Series	Stroke length (mm)	Applicable bore size																			
		φ8	φ12	φ16	φ20	φ25	φ32	φ40	φ50	φ63	φ80										
STS	Standard stroke length	10	●	●	●																
	20	●	●	●																	
	25				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	30	●	●	●																	
	40	●	●	●																	
	50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	75																				●
	100																				●
	Min. stroke length *1		5																		
	Custom stroke *1, 2		In 5 mm increments																		
STL	Standard stroke length	50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	75	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	100	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	125	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	150	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	175				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	200				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	225				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	250				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	275				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	300				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Min. stroke length *1		50			30						55										
Custom stroke *1, 2		In 5 mm increments																			

*1 : The total dimensions are the same as the longer standard stroke length.

*2 : Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

How to order switch



Switch model No.
(Item ⑤ on the previous page)

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Internal structure and parts list

Same as double acting/single rod. Refer to pages 449 to 453.

Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
	STS-M _B O	
φ8	STS-O-8K	7 9 10 13 16
φ12	STS-O-12K	7 9 10 13 16 32
φ16	STS-O-16K	
φ20	STS-O-20K	
φ25	STS-O-25K	
φ32	STS-O-32K	7 9 10 13
φ40	STS-O-40K	
φ50	STS-O-50K	16 17 32
φ63	STS-O-63K	
φ80	STS-O-80K	

Note : Specify the kit No. when placing an order.

Dimensions

Same as STS/STL Series (double acting/single rod). Refer to the pages below.

STS Series : Page 455 (φ8 to φ16), page 456 (φ20 and φ25), page 457 (φ32 to φ63) and page 458 (φ80)

STL Series : Page 460 (φ8 to φ16), page 461 (φ20 and φ25), page 462 (φ32 to φ63) and page 463 (φ80)



Guided cylinder Double acting/rubber scraper

STS/STL-M_BG Series

Double acting/coil scraper

STS/STL-M_BG1 Series

● Bore size: φ20/φ25/φ32/φ40/φ50/φ63/φ80

JIS symbol 



LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Specifications

Descriptions	STS-MG/BG, STS-MG1/BG1, STL-MG/BG, STL-MG1/BG1							
Bore size mm	φ20	φ25	φ32	φ40	φ50	φ63	φ80	
Actuation	Double acting/scraper							
Working fluid	Compressed air							
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)							
Min. working pressure MPa	0.2 (≈29 psi, 2 bar)			0.15 (≈22 psi, 1.5 bar)				
Proof pressure MPa	1.6 (≈230 psi, 16 bar)							
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)							
Port size	M5		Rc1/8		Rc1/4		Rc3/8	
Stroke tolerance mm	+2.0 0							
Working piston speed mm/s	50 to 500					50 to 300		
Cushion	With rubber cushion							
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)							
Allowable absorbed energy J	0.157	0.157	0.401	0.627	0.980	1.560	2.510	

Stroke length

· Short stroke length STS

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
φ20	25, 50	50	5	5 With one or two switches
φ25				
φ32				
φ40				
φ50				
φ63	25, 50, 75, 100	100		
φ80				

· Long stroke length STL

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
φ20	50, 75, 100, 125, 150 175, 200, 225, 250 275, 300, 325, 350 375, 400	400	30	30 With one or two switches
φ25				
φ32				
φ40				
φ50				
φ63	75, 100, 125, 150, 175 200, 225, 250, 275, 300 325, 350, 375, 400		55	55 With one or two switches
φ80				

Note : The custom stroke length is available in 5 mm increments.
However, the total length is the same as that of the next longer standard stroke length.

Switch specifications

● 1-color/2-color display/for AC magnetic field proof

Descriptions	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire				Proximity 2-wire			
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD			
Applications	For programmable controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay, IC circuit (no indicator lamp), serial connection		For programmable controller, relay		For programmable controller		
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*2)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	≤50 mA	≤20 mA	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Without indicator lamp	LED (Lit when ON)		Red/green LED (Lit when ON)			
Leakage current	≤1 mA at 100 VAC, ≤2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA				1 mA or less			
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80		1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272		

*1 : Refer to Ending Page 1 for other switch specifications.

*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
φ20	Push	-	-	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²	2.51 × 10 ²	2.83 × 10 ²	3.14 × 10 ²
	Pull	-	-	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push	-	-	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	-	-	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	60.3	90.5	1.21 × 10 ²	1.81 × 10 ²	2.41 × 10 ²	3.02 × 10 ²	3.62 × 10 ²	4.22 × 10 ²	4.83 × 10 ²	5.43 × 10 ²	6.03 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.06 × 10 ²	1.58 × 10 ²	2.11 × 10 ²	3.17 × 10 ²	4.22 × 10 ²	5.28 × 10 ²	6.33 × 10 ²	7.39 × 10 ²	8.44 × 10 ²	9.50 × 10 ²	1.06 × 10 ³
φ50	Push	1.96 × 10 ²	2.95 × 10 ²	3.93 × 10 ²	5.89 × 10 ²	7.85 × 10 ²	9.82 × 10 ²	1.18 × 10 ³	1.37 × 10 ³	1.57 × 10 ³	1.77 × 10 ³	1.96 × 10 ³
	Pull	1.65 × 10 ²	2.47 × 10 ²	3.30 × 10 ²	4.95 × 10 ²	6.60 × 10 ²	8.25 × 10 ²	9.90 × 10 ²	1.15 × 10 ³	1.32 × 10 ³	1.48 × 10 ³	1.65 × 10 ³
φ63	Push	3.12 × 10 ²	4.68 × 10 ²	6.23 × 10 ²	9.35 × 10 ²	1.25 × 10 ³	1.56 × 10 ³	1.87 × 10 ³	2.18 × 10 ³	2.49 × 10 ³	2.81 × 10 ³	3.12 × 10 ³
	Pull	2.80 × 10 ²	4.20 × 10 ²	5.61 × 10 ²	8.41 × 10 ²	1.12 × 10 ³	1.40 × 10 ³	1.68 × 10 ³	1.96 × 10 ³	2.24 × 10 ³	2.52 × 10 ³	2.80 × 10 ³
φ80	Push	5.03 × 10 ²	7.54 × 10 ²	1.01 × 10 ³	1.51 × 10 ³	2.01 × 10 ³	2.51 × 10 ³	3.02 × 10 ³	3.52 × 10 ³	4.02 × 10 ³	4.52 × 10 ³	5.03 × 10 ³
	Pull	4.54 × 10 ²	6.80 × 10 ²	9.07 × 10 ²	1.36 × 10 ³	1.81 × 10 ³	2.27 × 10 ³	2.72 × 10 ³	3.17 × 10 ³	3.63 × 10 ³	4.08 × 10 ³	4.54 × 10 ³

For cylinder weight, refer to pages 554 to 557.

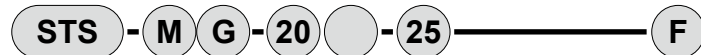
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
Mech/Hand/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS/STL-M_BG/G1 Series

How to order

● Short stroke length

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)

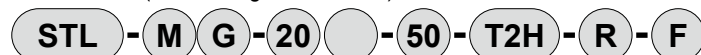


● Long stroke length

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



A Bearing

B Model No.

D Port thread

C Bore size

E Stroke length

■ Custom stroke length

Available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.

F Switch model No.

*1, *4

⚠ Precautions for model No. selection

*1 : Switches other than **F** Switch model No. are also available.

(Custom order product)

*2 : Refer to pages 440 to 443 for details.

*3 : Refer to pages 440 to 443 for combinations of variations/options.

*3 : φ20 and φ25 with ball bearing B are copper and PTFE free as standard. Not available for coil scraper G1.

*4 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

For the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches for φ40 and over, insert "L1" with "." between **E** and **C**.

(Example) STS-MG-L1-63-50-T2YH3-D-F

For φ80, the 2-color display, T1H/V, T8H/V and strong magnetic field proof switches cannot be retrofitted on a previously purchased standard product.

In this case, order the model No. with "L1" inserted between **E** and **C**.

(Example) STS-MG-L1-80-50-F

[Example of model No.]

STS-MG-20-25-T0H-R-F

Model: Guided cylinder, short stroke length

- A** Bearing : Metal bush bearing
- B** Model No. : Rubber scraper
- C** Bore size : φ20 mm
- D** Port thread : Rc thread
- E** Stroke length : 25 mm
- F** Switch model No. : Reed T0H, lead wire length 1 m
- G** Switch quantity : 1 on rod side
- H** Option : End plate material: steel

Code	Content
A Bearing	
M	Metal bush bearing
B	Ball bearing

B Model No.	
G	Rubber scraper
G1	Coil scraper

C Bore size (mm)	
20	φ20
25	φ25
32	φ32
40	φ40
50	φ50
63	φ63
80	φ80

D Port thread	
Blank	Rc thread
NN	NPT thread (φ32 and over) custom order product.
GN	G thread (φ32 and over) custom order product.

E Stroke length (mm)	
Refer to the stroke length table on the following page.	

F Switch model No.					
Axial lead wire	Radial lead wire	Contact	Voltage ACDC	Indicator	Lead wire
T0H*	T0V*	Reed	● ●	1-color display	2-wire
T5H*	T5V*		● ●	no indicator lamp	
T8H*	T8V*		● ●	● ●	1-color display
T1H*	T1V*	●	●		
T2H*	T2V*		●	display	3-wire
T3H*	T3V*		●		
T3PH*	T3PV*		●	1-color display (custom)	3-wire
T2WH*	T2WV*	Proximity	●	2-color display	2-wire
T2YH*	T2YV*		●		
T3WH*	T3WV*		●	3-wire	
T3YH*	T3YV*		●		
T2JH*	T2JV*		●	1-color display off-delay	2-wire
T2YD*	-		●	2-color display (AC magnetic field)	2-wire
T2YDT*	-		●		

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

G Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

H Option	
F	End plate material (steel)
M	Corrosion proof (Piston rod, guide rod SUS) (custom order product)
M1	Corrosion proof (M + end plate SUS) (custom order product)
P6	*3 Copper/PTFE free specs (custom) (N/A for G1 coil scraper)

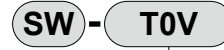
Ⓔ Stroke length

Series	Stroke length (mm)	Applicable bore size							
		φ20	φ25	φ32	φ40	φ50	φ63	φ80	
STS	Standard stroke length	25	●	●	●	●	●	●	●
		50	●	●	●	●	●	●	●
		75							●
		100							●
	Min. stroke length *1	5							
Custom stroke *1, 2	In 5 mm increments								
STL	Standard stroke length	50	●	●	●	●	●	●	●
		75	●	●	●	●	●	●	●
		100	●	●	●	●	●	●	●
		125	●	●	●	●	●	●	●
		150	●	●	●	●	●	●	●
		175	●	●	●	●	●	●	●
		200	●	●	●	●	●	●	●
		225	●	●	●	●	●	●	●
		250	●	●	●	●	●	●	●
		275	●	●	●	●	●	●	●
		300	●	●	●	●	●	●	●
		325	●	●	●	●	●	●	●
		350	●	●	●	●	●	●	●
		375	●	●	●	●	●	●	●
		400	●	●	●	●	●	●	●
		Min. stroke length *1	30						55
		Custom stroke *1, 2	In 5 mm increments						

*1 : The total dimensions are the same as the longer standard stroke length.

*2 : Special total length for custom stroke length can be provided when a custom stroke length is used.
(Custom order)

How to order switch



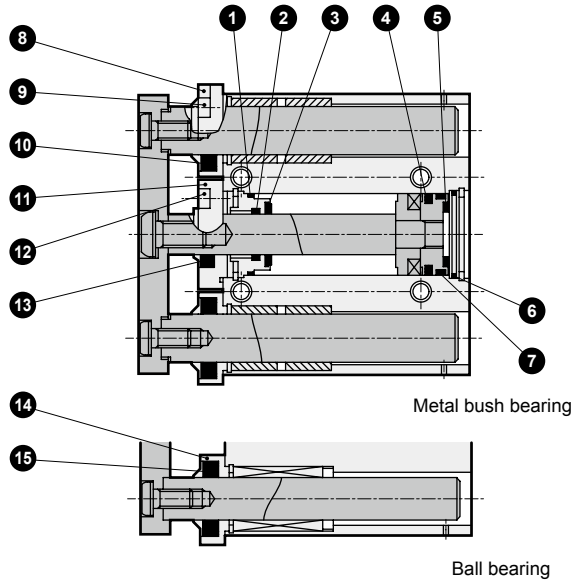
Switch model No.
(Item Ⓕ on the previous page)

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

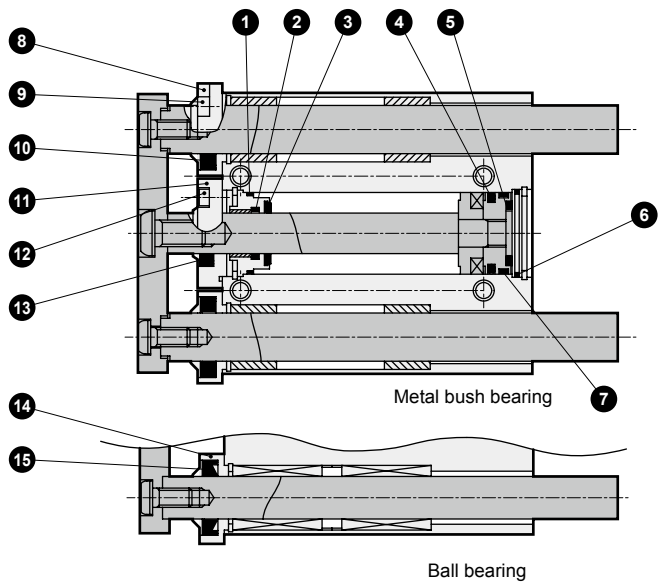
STS/STL-^M_BG/G1 Series

Internal structure and parts list

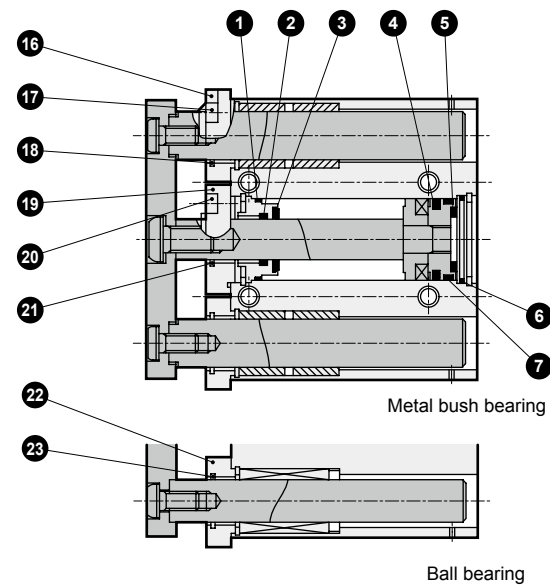
● Rubber scraper
STS-^M_BG



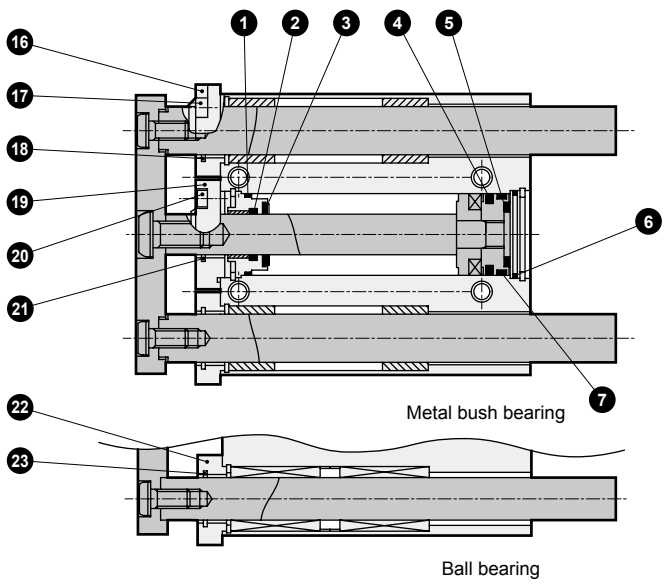
STL-^M_BG



● Coil scraper
STS-^M_BG1



STL-^M_BG1



Parts list (Parts not listed below are the same as those of the double acting/standard single rod. Refer to pages 449 to 453.)

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
ST^S_L-^MB^G (Rubber scraper)				ST^S_L-^MB^G1 (Coil scraper)			
1	Metal gasket	Nitrile rubber		1	Metal gasket	Nitrile rubber	
2	Rod packing	Nitrile rubber		2	Rod packing	Nitrile rubber	
3	Cushion rubber (R)	Urethane rubber		3	Cushion rubber (R)	Urethane rubber	
4	Piston packing	Nitrile rubber		4	Piston packing	Nitrile rubber	
5	Cushion rubber (H)	Urethane rubber		5	Cushion rubber (H)	Urethane rubber	
6	O-ring	Nitrile rubber		6	O-ring	Nitrile rubber	
7	Wear ring	Acetal resin		7	Wear ring	Acetal resin	
8	Adaptor B	Aluminum alloy	Alumite	16	Adaptor B	Aluminum alloy	Alumite
9	Hexagon socket head cap screw	Alloy steel	Zinc chromate	17	Hexagon socket head cap screw	Alloy steel	Zinc chromate
10	Rubber scraper	Nitrile rubber + steel		18	Coil scraper	Phosphor bronze	
11	Adaptor A	Aluminum alloy	Alumite	19	Adaptor A	Aluminum alloy	Alumite
12	Hexagon socket head cap screw	Alloy steel	Zinc chromate	20	Hexagon socket head cap screw	Alloy steel	Zinc chromate
13	Rubber scraper	Nitrile rubber + steel		21	Coil scraper	Phosphor bronze	
14	Adaptor C	Aluminum alloy	Alumite	22	Adaptor C	Aluminum alloy	Alumite
15	Rubber scraper	Nitrile rubber + steel		23	Coil scraper	Phosphor bronze	

Repair parts list (Note: specify the kit No. when ordering repair parts.)

● STS-MG/STL-MG (Rubber scraper)

Bore size (mm)	Kit No.	Repair parts No.
φ20	STS-MG-20K	
φ25	STS-MG-25K	
φ32	STS-MG-32K	1 2 3
φ40	STS-MG-40K	4 5 6
φ50	STS-MG-50K	7 10 13
φ63	STS-MG-63K	
φ80	STS-MG-80K	

● STS-BG/STL-BG (Rubber scraper)

Bore size (mm)	Kit No.	Repair parts No.
φ20	STS-BG-20K	
φ25	STS-BG-25K	
φ32	STS-BG-32K	1 2 3
φ40	STS-BG-40K	4 5 6
φ50	STS-BG-50K	7 13 15
φ63	STS-BG-63K	
φ80	STS-BG-80K	

● STS-MG1/STL-MG1 (Coil scraper)

Bore size (mm)	Kit No.	Repair parts No.
φ20	STS-MG1-20K	
φ25	STS-MG1-25K	
φ32	STS-MG1-32K	1 2 3
φ40	STS-MG1-40K	4 5 6
φ50	STS-MG1-50K	7 18 21
φ63	STS-MG1-63K	
φ80	STS-MG1-80K	

● STS-BG1/STL-BG1 (Coil scraper)

Bore size (mm)	Kit No.	Repair parts No.
φ20	STS-BG1-20K	
φ25	STS-BG1-25K	
φ32	STS-BG1-32K	1 2 3
φ40	STS-BG1-40K	4 5 6
φ50	STS-BG1-50K	7 21 23
φ63	STS-BG1-63K	
φ80	STS-BG1-80K	

- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

STS-M-B-G/G1 Series



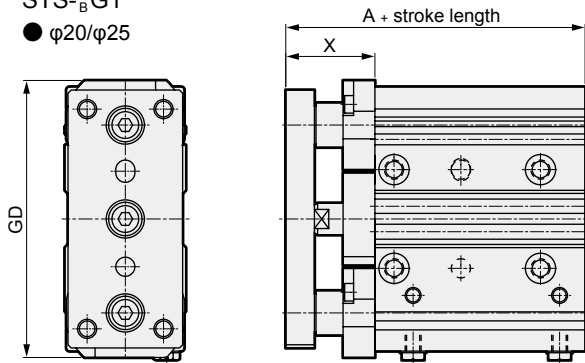
Dimensions

● Coil scraper (Dimensions not listed below are the same as those of the double acting/single rod on pages 455 to 458.)

● Rubber scraper (Dimensions not listed below are the same as those of the double acting/single rod on pages 455 to 458.)

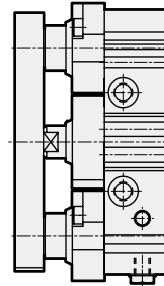
STS-M-B-G1

● $\phi 20/\phi 25$



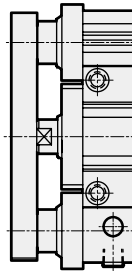
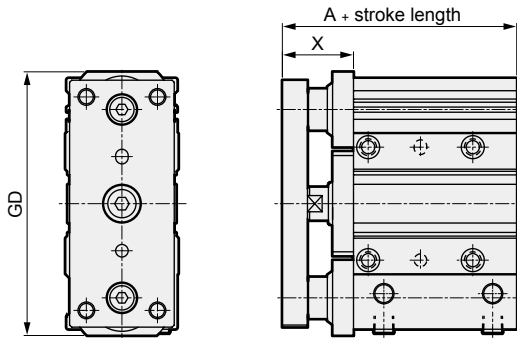
STS-M-B-G

● $\phi 20/\phi 25$



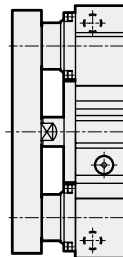
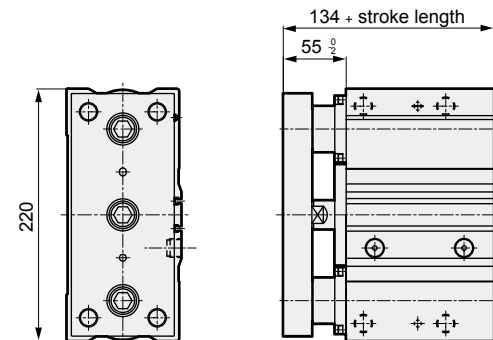
● $\phi 32/\phi 40/\phi 50/\phi 63$

● $\phi 32/\phi 40/\phi 50/\phi 63$



● $\phi 80$

● $\phi 80$



Code	A	X	GD
Bore size (mm)			
$\phi 20$	68	28	87
$\phi 25$	69	28	91
$\phi 32$	83	34	117
$\phi 40$	87	34	126
$\phi 50$	92	37	152
$\phi 63$	98	37	166
$\phi 80$	134	55	220

*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

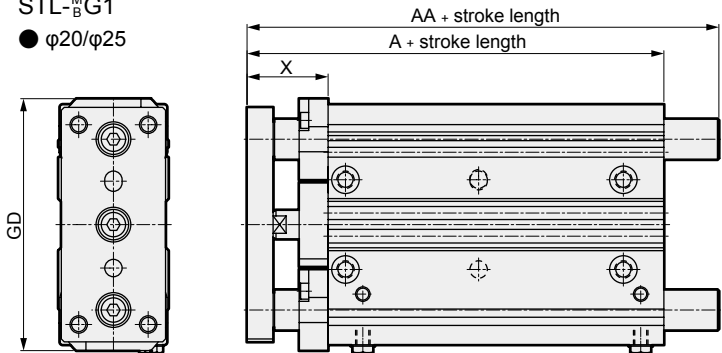
*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Dimensions

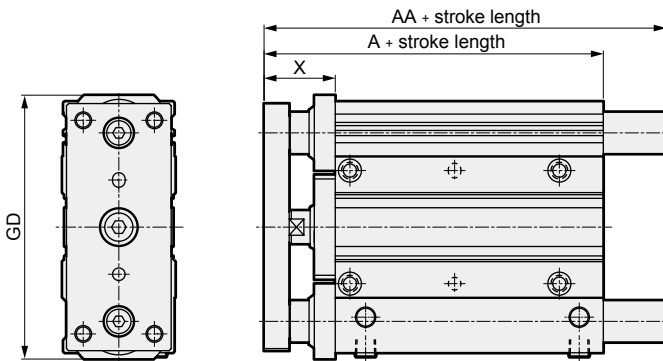
- Coil scraper
(Dimensions not listed below are the same as those of double acting/single rod on pages 460 to 463.)

STL-M_BG1

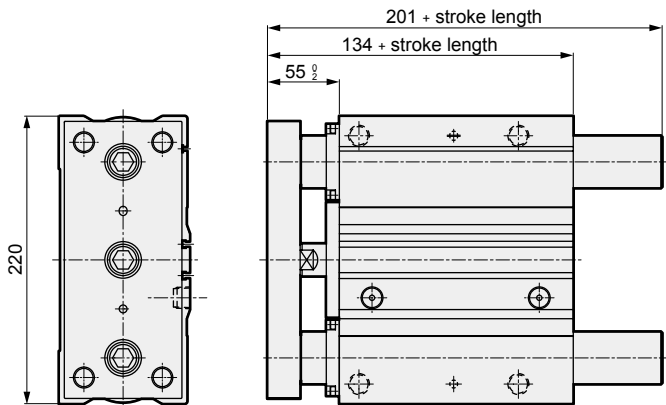
- $\phi 20/\phi 25$



- $\phi 32/\phi 40/\phi 50/\phi 63$



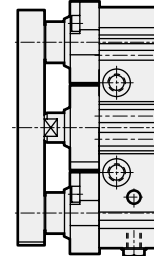
- $\phi 80$



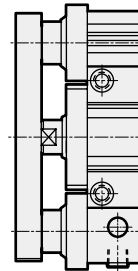
- Rubber scraper
(Dimensions not listed below are the same as those of double acting/single rod on pages 460 to 463.)

STL-M_BG

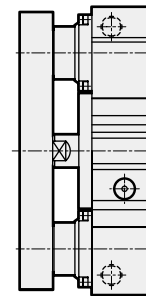
- $\phi 20/\phi 25$



- $\phi 32/\phi 40/\phi 50/\phi 63$



- $\phi 80$



Code	A	AA	X	GD
Bore size (mm)				
$\phi 20$	68	87	28 ± 0.05	87
$\phi 25$	69	87	28 ± 0.05	91
$\phi 32$	83	117	34 ± 0.05	117
$\phi 40$	87	117	34 ± 0.05	126
$\phi 50$	92	140	37 ± 0.05	152
$\phi 63$	98	140	37 ± 0.05	166
$\phi 80$	134	201	55 ± 0.05	220

*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

LCW
LCR
LCG
LCX
LCM
STM
STG
ST5/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Guided cylinder Double acting/coolant proof

STS/STL-^M_BG²₃ Series

● Bore size: φ20/φ25/φ32/φ40/φ50/φ63/φ80

JIS symbol



Specifications

Descriptions	STS/STL- ^M _B G ² ₃							
Bore size mm	φ20	φ25	φ32	φ40	φ50	φ63	φ80	
Actuation	Double acting/coolant proof							
Working fluid	Compressed air							
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)							
Min. working pressure MPa	0.2 (≈29 psi, 2 bar)			0.15 (≈22 psi, 1.5 bar)				
Proof pressure MPa	1.6 (≈230 psi, 16 bar)							
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)							
Port size	M5		Rc1/8			Rc1/4		Rc3/8
Stroke tolerance mm	+ ^{2.0} ₀							
Working piston speed mm/s	50 to 500					50 to 300		
Cushion	Rubber cushioned (urethane rubber)							
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)							
Allowable absorbed energy J	0.157	0.157	0.401	0.627	0.980	1.560	2.510	

Stroke length

● Scraper

· Short stroke length STS

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
φ20	25, 50	50	5	5 With one or two switches
φ25				
φ32				
φ40				
φ50				
φ63	25, 50, 75, 100	100		
φ80				

· Long stroke length STL

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
φ20	50, 75, 100, 125, 150 175, 200, 225, 250 275, 300, 325, 350 375, 400	400	30	30 With one or two switches
φ25				
φ32				
φ40				
φ50			75, 100, 125, 150, 175 200, 225, 250, 275, 300 325, 350, 375, 400	
φ63				
φ80				

*1 : The custom stroke length is available in 5mm increments.

However, the total length is the same as that of the next longer standard stroke length.

*2 : Stroke length over standard to maximum is available in increments of 25.

CAUTION: The rod side with scraper is coolant proof but the head side without scraper is not. Therefore, protect it with a cover.

Switch specifications

Type/model No.	Proximity switch specifications	
Descriptions	T2YLH/T2YLV	T3YLH/T3YLV
Applications	Dedicated for programmable controller	Programmable controller, relay
Output method	-	NPN output
Power supply voltage	-	10 to 28 VDC
Load voltage/current	10 to 30 VDC, 5 to 20 mA *1	30 VDC or less, 50 mA or less
Indicator lamp	Red/green LED (Lit when ON)	
Leakage current	1 mA or less	10 µA or less
Shock resistance	980 m/S ²	
Weight	1 m:33 3 m:87 5 m:142	

*1 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
φ20	Push	-	-	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²	2.51 × 10 ²	2.83 × 10 ²	3.14 × 10 ²
	Pull	-	-	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push	-	-	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	-	-	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	60.3	90.5	1.21 × 10 ²	1.81 × 10 ²	2.41 × 10 ²	3.02 × 10 ²	3.62 × 10 ²	4.22 × 10 ²	4.83 × 10 ²	5.43 × 10 ²	6.03 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.06 × 10 ²	1.58 × 10 ²	2.11 × 10 ²	3.17 × 10 ²	4.22 × 10 ²	5.28 × 10 ²	6.33 × 10 ²	7.39 × 10 ²	8.44 × 10 ²	9.50 × 10 ²	1.06 × 10 ³
φ50	Push	1.96 × 10 ²	2.95 × 10 ²	3.93 × 10 ²	5.89 × 10 ²	7.85 × 10 ²	9.82 × 10 ²	1.18 × 10 ³	1.37 × 10 ³	1.57 × 10 ³	1.77 × 10 ³	1.96 × 10 ³
	Pull	1.65 × 10 ²	2.47 × 10 ²	3.30 × 10 ²	4.95 × 10 ²	6.60 × 10 ²	8.25 × 10 ²	9.90 × 10 ²	1.15 × 10 ³	1.32 × 10 ³	1.48 × 10 ³	1.65 × 10 ³
φ63	Push	3.12 × 10 ²	4.68 × 10 ²	6.23 × 10 ²	9.35 × 10 ²	1.25 × 10 ³	1.56 × 10 ³	1.87 × 10 ³	2.18 × 10 ³	2.49 × 10 ³	2.81 × 10 ³	3.12 × 10 ³
	Pull	2.80 × 10 ²	4.20 × 10 ²	5.61 × 10 ²	8.41 × 10 ²	1.12 × 10 ³	1.40 × 10 ³	1.68 × 10 ³	1.96 × 10 ³	2.24 × 10 ³	2.52 × 10 ³	2.80 × 10 ³
φ80	Push	5.03 × 10 ²	7.54 × 10 ²	1.01 × 10 ³	1.51 × 10 ³	2.01 × 10 ³	2.51 × 10 ³	3.02 × 10 ³	3.52 × 10 ³	4.02 × 10 ³	4.52 × 10 ³	5.03 × 10 ³
	Pull	4.54 × 10 ²	6.80 × 10 ²	9.07 × 10 ²	1.36 × 10 ³	1.81 × 10 ³	2.27 × 10 ³	2.72 × 10 ³	3.17 × 10 ³	3.63 × 10 ³	4.08 × 10 ³	4.54 × 10 ³

For cylinder weight, refer to pages 554 to 557.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

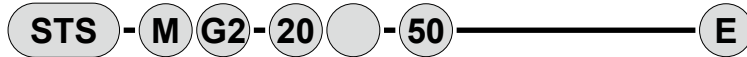
STS/STL-M^BG2/G3 Series

- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

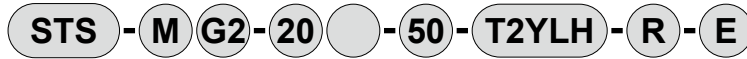
How to order

● Short stroke length

Without switch (built-in magnet for switch)

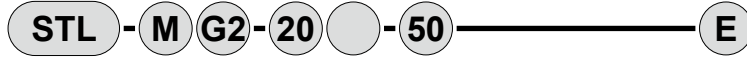


With switch (built-in magnet for switch)

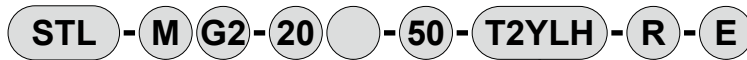


● Long stroke length

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



A Bearing

B Degree of protection level

C Bore size

D Port thread

E Stroke length

■ Custom stroke length

Available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.

F Switch model No.

*2

G Switch quantity

H Option

⚠ Precautions for model No. selection

*1 : Refer to pages 440 to 443 for combinations of variations/options.

*2 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

STS-MG2-20-50-T2YLH-R

Model: Guided cylinder, short stroke length

- A** Bearing : Metal bush bearing
- B** Degree of protection level : Coolant proof scraper + packing NBR
- C** Bore size : φ20 mm
- D** Port thread : Rc thread
- E** Stroke length : 50 mm
- F** Switch model No. : Proximity switch T2YLH, lead wire 1 m
- G** Switch quantity : 1 on rod side

Code	Content
------	---------

A Bearing	
M	Metal bush bearing
B	Ball bearing

B Degree of protection level	
G2	Coolant proof scraper + packing NBR
G3	Coolant proof scraper + packing FKM

C Bore size (mm)	
20	φ20
25	φ25
32	φ32
40	φ40
50	φ50
63	φ63
80	φ80

D Port thread	
Blank	Rc thread
NN	NPT thread (φ32 and over) custom order product
GN	G thread (φ32 and over) custom order product

E Stroke length (mm)	
Refer to the stroke length table on the following page.	

F Switch model No.					
Axial lead wire	Radial lead wire	Contact	Voltage	Indicator	Lead wire
T2YLH*	T2YLV*	Proximity	DC	2-color display	2-wire
T3YLH*	T3YLV*				3-wire

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

G Switch quantity	
R	1 on rod side
H	1 on head side
D	2

H Option	
M1	Corrosion proof (Piston rod, guide rod SUS) (custom order product)

Ⓔ Stroke length

Series	Stroke length (mm)	Applicable bore size							
		φ20	φ25	φ32	φ40	φ50	φ63	φ80	
STS	Standard stroke length	25	●	●	●	●	●	●	●
		50	●	●	●	●	●	●	●
		75							●
		100							●
	Min. stroke length *1	5							
Custom stroke *1, *2	In 5 mm increments								
STL	Standard stroke length	50	●	●	●	●	●	●	●
		75	●	●	●	●	●	●	●
		100	●	●	●	●	●	●	●
		125	●	●	●	●	●	●	●
		150	●	●	●	●	●	●	●
		175	●	●	●	●	●	●	●
		200	●	●	●	●	●	●	●
		225	●	●	●	●	●	●	●
		250	●	●	●	●	●	●	●
		275	●	●	●	●	●	●	●
		300	●	●	●	●	●	●	●
		325	●	●	●	●	●	●	●
		350	●	●	●	●	●	●	●
		375	●	●	●	●	●	●	●
		400	●	●	●	●	●	●	●
		Min. stroke length *1	30					55	
		Custom stroke *1, *2	In 5 mm increments						

*1 : The total dimensions are the same as the longer standard stroke length.

*2 : Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

How to order switch

SW - T2YLH

Switch model No.
(Item Ⓔ on the previous page)

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS-M_BG2/G3 Series

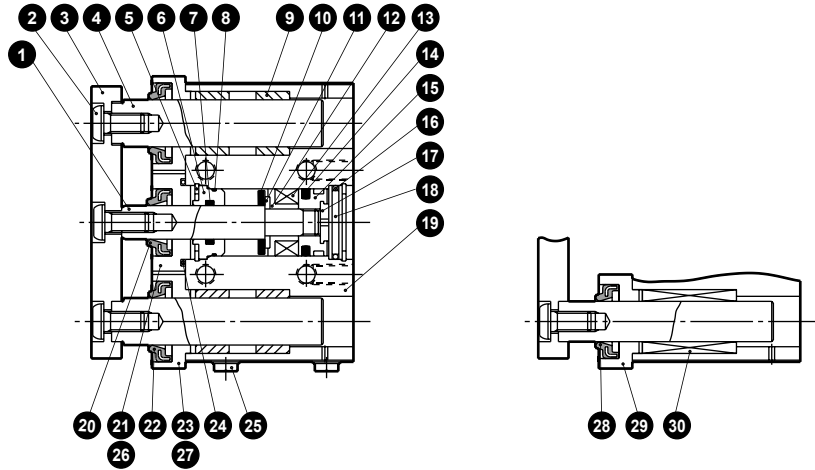
Internal structure and parts list

● Degree of protection: Packing NBR/FKM

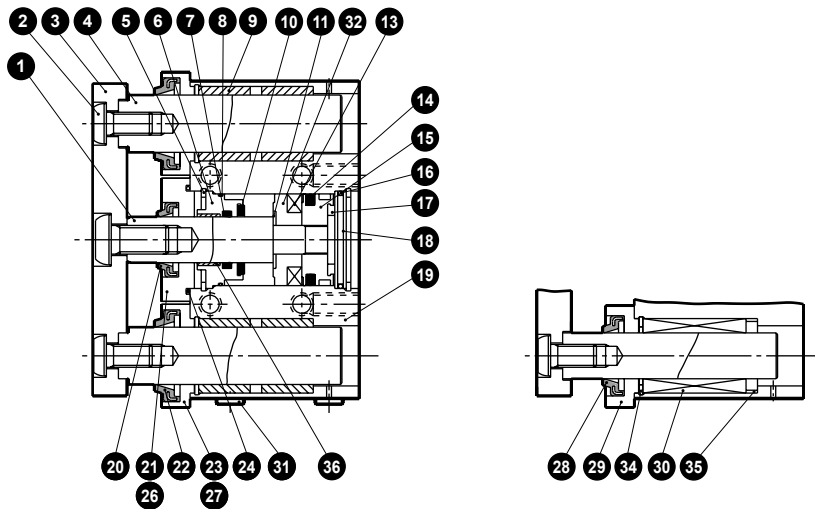
STS-M_BG2

STS-M_BG3

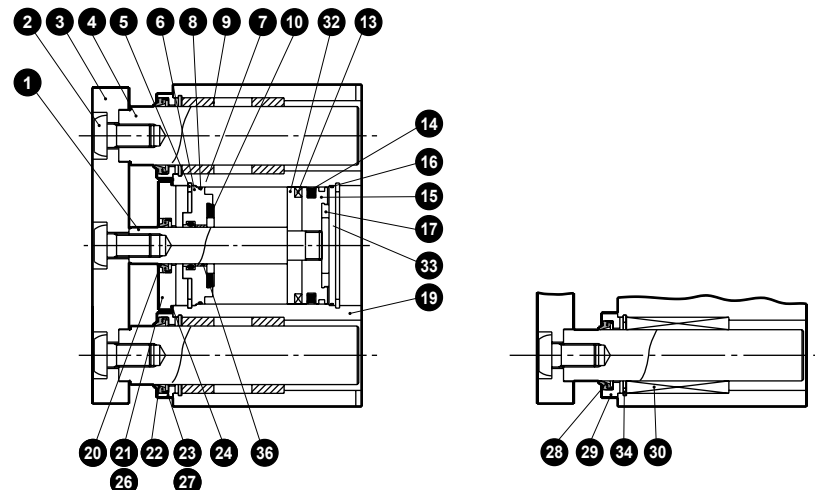
● φ20/φ25



● φ32/φ40/φ50/φ63



● φ80



LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Parts list

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Stainless steel	Industrial chrome plating	19	Tube body	Aluminum alloy	Hard alumite
2	Hexagon socket button head bolt	Stainless steel		20	Scraper	G2	Nitrile rubber
3	End plate	Aluminum alloy	Alumite			G3	Fluoro rubber
4	Guide rod	Stainless steel	Industrial chrome plating	21	Adaptor A	Aluminum alloy	Alumite
5	C type snap ring for hole	Stainless steel		22	Scraper	G2	Nitrile rubber
6	Rod metal	Special aluminum	Alumite			G3	Fluoro rubber
7	Rod packing	G2	Nitrile rubber	23	Adaptor B	Aluminum alloy	
		G3	Fluoro rubber			24	O-ring
8	Metal gasket	G2	Nitrile rubber	G3	Fluoro rubber		
		G3	Fluoro rubber			25	Plug
9	Metal	Oil impregnated bearing alloy		26	Hexagon socket head cap screw	Stainless steel	
10	Cushion rubber (R)	Urethane rubber		27	Hexagon socket head cap screw	Stainless steel	
11	Spacer washer	Stainless steel	φ20 to φ50	28	Scraper	G2	Nitrile rubber
12	Spacer	Polyamide	φ20 to φ50			G3	Fluoro rubber
13	Magnet	Plastic		29	Adaptor C	Aluminum alloy	Alumite
14	Piston packing	G2	Nitrile rubber	30	Bearing	Stainless steel	
		G3	Fluoro rubber	31	Hexagon socket flush plug	Stainless steel	φ32 to φ63
15	Piston	Aluminum alloy	Chromate	32	Spacer	Aluminum alloy	φ63.φ80
16	O-ring	G2	Nitrile rubber	33	Base plate	Steel	Zinc chromate φ80
		G3	Fluoro rubber	34	C type snap ring for hole	Stainless steel	φ32 to φ80
17	Cushion rubber (H)	Urethane rubber		35	Collar	Aluminum alloy	φ32 to φ63
18	Base plate	Aluminum alloy	φ20 to φ63	36	Bush	Multi-layered, oilless metal	φ32 to φ80

Repair parts list

● STS-MG2 (metal bush bearing, nitrile rubber packing)

Bore size (mm)	Kit No.	Repair parts No.
φ20	STS-MG2-20K	
φ25	STS-MG2-25K	7 8 10
φ32	STS-MG2-32K	14 16 17
φ40	STS-MG2-40K	20 22 24
φ50	STS-MG2-50K	
φ63	STS-MG2-63K	
φ80	STS-MG2-80K	

● STS-BG2 (ball bearing, nitrile rubber packing)

Bore size (mm)	Kit No.	Repair parts No.
φ20	STS-BG2-20K	
φ25	STS-BG2-25K	7 8 10
φ32	STS-BG2-32K	14 16 17
φ40	STS-BG2-40K	20 24 28
φ50	STS-BG2-50K	
φ63	STS-BG2-63K	
φ80	STS-BG2-80K	

● STS-MG3 (metal bush bearing, fluoro rubber packing)

Bore size (mm)	Kit No.	Repair parts No.
φ20	STS-MG3-20K	
φ25	STS-MG3-25K	7 8 10
φ32	STS-MG3-32K	14 16 17
φ40	STS-MG3-40K	20 22 24
φ50	STS-MG3-50K	
φ63	STS-MG3-63K	
φ80	STS-MG3-80K	

● STS-BG3 (ball bearing, fluoro rubber packing)

Bore size (mm)	Kit No.	Repair parts No.
φ20	STS-BG3-20K	
φ25	STS-BG3-25K	7 8 10
φ32	STS-BG3-32K	14 16 17
φ40	STS-BG3-40K	20 24 28
φ50	STS-BG3-50K	
φ63	STS-BG3-63K	
φ80	STS-BG3-80K	

Note : Specify the kit No. when placing an order.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STL-^M_BG2/G3 Series

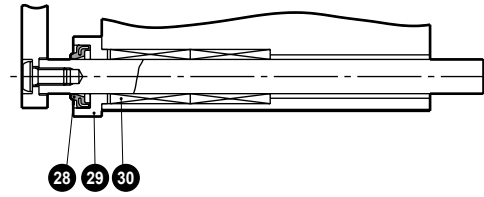
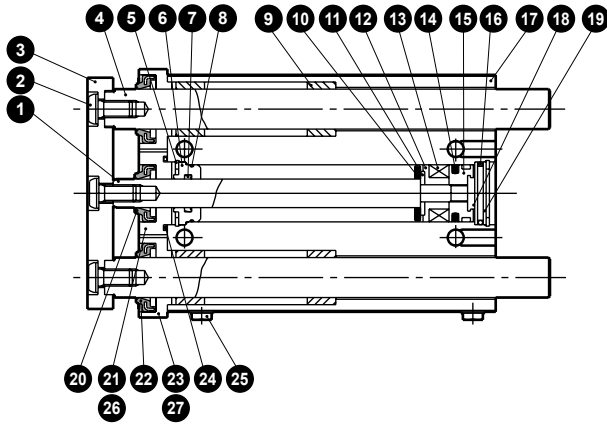
Internal structure and parts list

● Degree of protection: Packing NBR/FKM

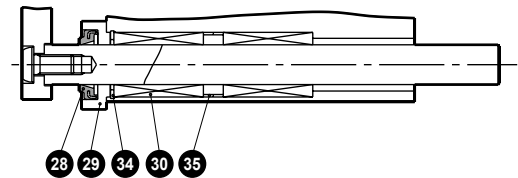
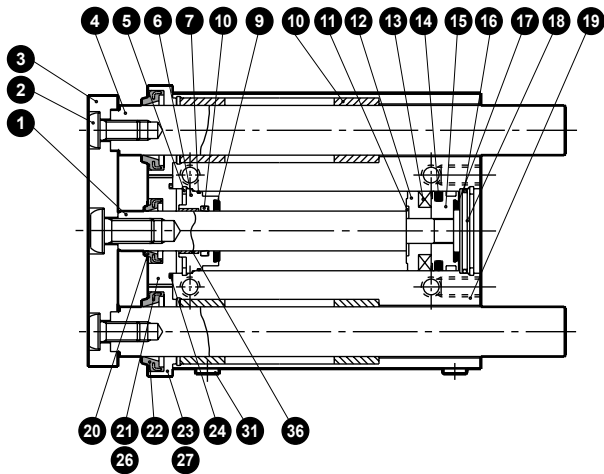
STL-^M_BG2

STL-^M_BG3

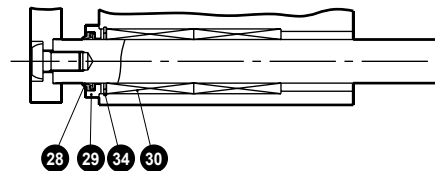
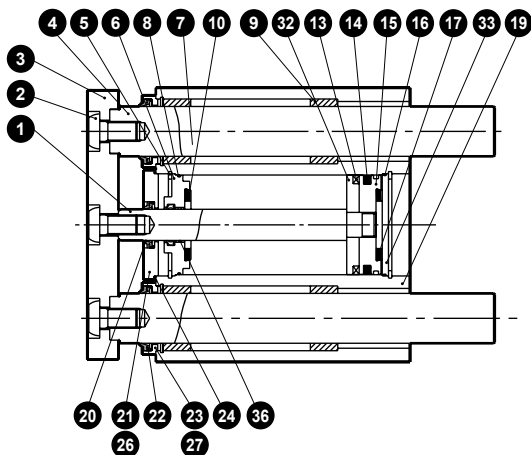
● φ20/φ25



● φ32/φ40/φ50/φ63



● φ80



LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Parts list

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Stainless steel	Industrial chrome plating	19	Tube body	Aluminum alloy	Hard alumite
2	Hexagon socket button head bolt	Stainless steel		20	Scraper	G2	Nitrile rubber
3	End plate	Aluminum alloy	Alumite			G3	Fluoro rubber
4	Guide rod	Stainless steel	Industrial chrome plating	21	Adaptor A	Aluminum alloy	Alumite
5	C type snap ring for hole	Stainless steel		22	Scraper	G2	Nitrile rubber
6	Rod metal	Special aluminum	Alumite			G3	Fluoro rubber
7	Rod packing	G2	Nitrile rubber	23	Adaptor B	Aluminum alloy	
		G3	Fluoro rubber			Alumite	
8	Metal gasket	G2	Nitrile rubber	24	O-ring	G2	Nitrile rubber
		G3	Fluoro rubber			G3	Fluoro rubber
9	Metal	Oil impregnated bearing alloy		25	Plug	Copper alloy	Nickeling
10	Cushion rubber (R)	Urethane rubber		26	Hexagon socket head cap screw	Stainless steel	
11	Spacer washer	Stainless steel	φ20 to φ50	27	Hexagon socket head cap screw	Stainless steel	
12	Spacer	Polyamide	φ20 to φ50	28	Scraper	G2	Nitrile rubber
13	Magnet	Plastic				G3	Fluoro rubber
14	Piston packing	G2	Nitrile rubber	29	Adaptor C	Aluminum alloy	Alumite
		G3	Fluoro rubber	30	Bearing	Stainless steel	
15	Piston	Aluminum alloy	Chromate	31	Hexagon socket flush plug	Stainless steel	φ32 to φ63
16	O-ring	G2	Nitrile rubber	32	Spacer	Aluminum alloy	φ63.φ80
		G3	Fluoro rubber	33	Base plate	Steel	Zinc chromate φ80
17	Cushion rubber (H)	Urethane rubber		34	C type snap ring for hole	Stainless steel	φ32 to φ80
18	Base plate	Aluminum alloy	φ20 to φ63	35	Collar	Aluminum alloy	φ32 to φ63
				36	Bush	Multi-layered, oilless metal	φ32 to φ80

Repair parts list

● STS-MG2 (metal bush bearing, nitrile rubber packing)

Bore size (mm)	Kit No.	Repair parts No.
φ20	STS-MG2-20K	
φ25	STS-MG2-25K	7 8 10
φ32	STS-MG2-32K	
φ40	STS-MG2-40K	14 16 17
φ50	STS-MG2-50K	
φ63	STS-MG2-63K	20 22 24
φ80	STS-MG2-80K	

● STS-BG2 (ball bearing, nitrile rubber packing)

Bore size (mm)	Kit No.	Repair parts No.
φ20	STS-BG2-20K	
φ25	STS-BG2-25K	7 8 10
φ32	STS-BG2-32K	
φ40	STS-BG2-40K	14 16 17
φ50	STS-BG2-50K	
φ63	STS-BG2-63K	20 24 28
φ80	STS-BG2-80K	

● STS-MG3 (metal bush bearing, fluoro rubber packing)

Bore size (mm)	Kit No.	Repair parts No.
φ20	STS-MG3-20K	
φ25	STS-MG3-25K	7 8 10
φ32	STS-MG3-32K	
φ40	STS-MG3-40K	14 16 17
φ50	STS-MG3-50K	
φ63	STS-MG3-63K	20 22 24
φ80	STS-MG3-80K	

● STS-BG3 (ball bearing, fluoro rubber packing)

Bore size (mm)	Kit No.	Repair parts No.
φ20	STS-BG3-20K	
φ25	STS-BG3-25K	7 8 10
φ32	STS-BG3-32K	
φ40	STS-BG3-40K	14 16 17
φ50	STS-BG3-50K	
φ63	STS-BG3-63K	20 24 28
φ80	STS-BG3-80K	

Note : Specify the kit No. when placing an order.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS-M_BG2/G3 Series

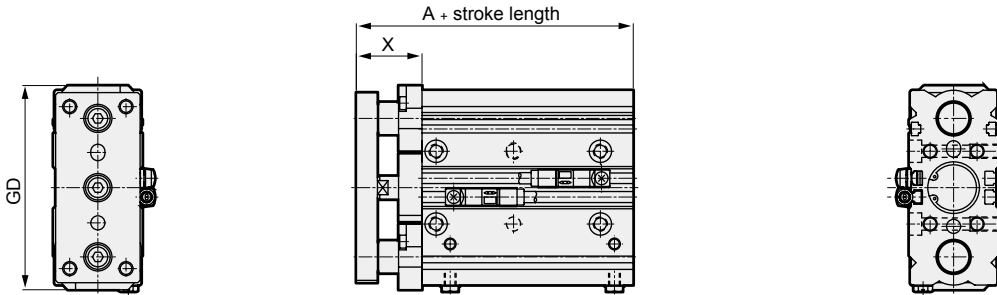
Dimensions



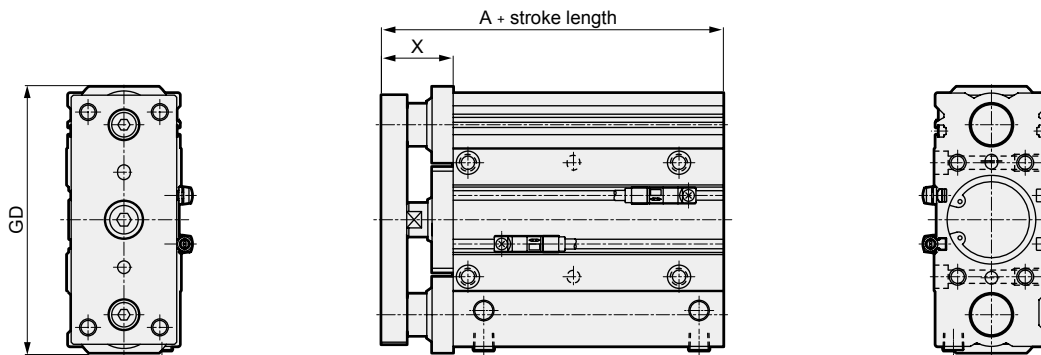
● Coolant proof (Dimensions not listed below are the same as those of the double acting/single rod.)

STS-M_BG2/G3

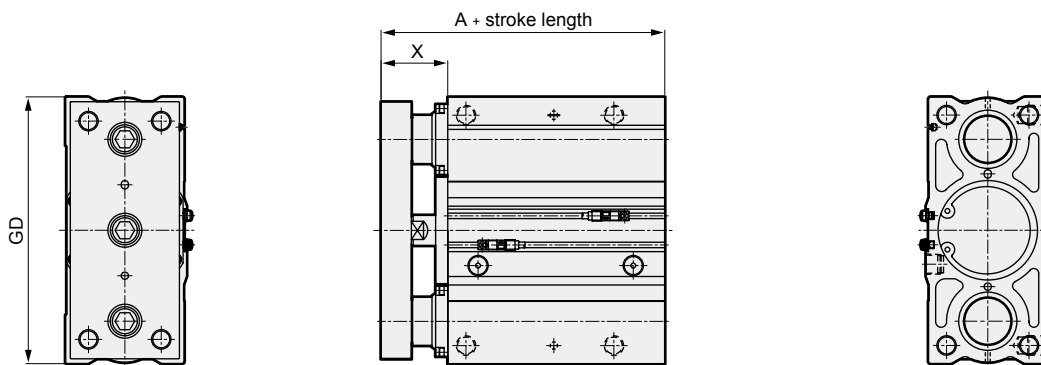
● $\phi 20/\phi 25$



● $\phi 32/\phi 40/\phi 50/\phi 63$



● $\phi 80$



*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

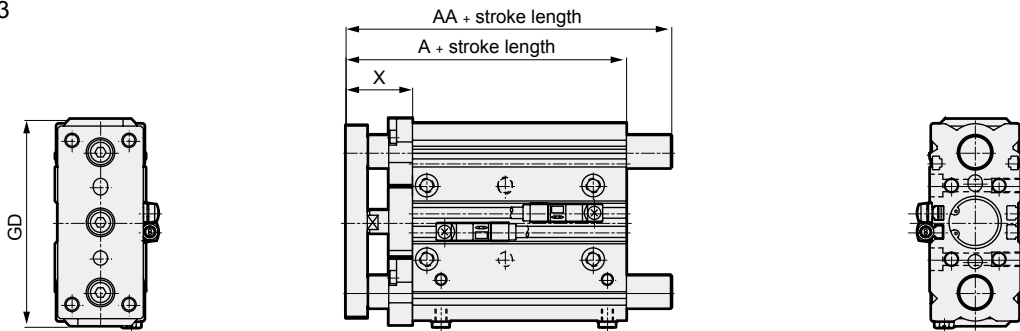
Code	A	GD	X
Bore size (mm)			
$\phi 20$	68	87	$28 \frac{0}{2}$
$\phi 25$	69	91	$28 \frac{0}{2}$
$\phi 32$	83	117	$34 \frac{0}{2}$
$\phi 40$	87	126	$34 \frac{0}{2}$
$\phi 50$	92	152	$37 \frac{0}{2}$
$\phi 63$	98	166	$37 \frac{0}{2}$
$\phi 80$	134	220	$55 \frac{0}{2}$

- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

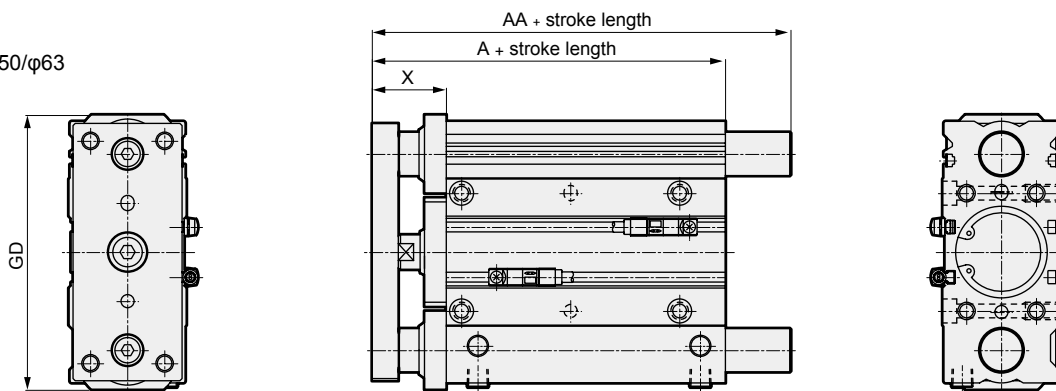
Dimensions

- Coolant proof (Dimensions not listed below are the same as those of the double acting/single rod.)
STL-M_BG2/G3

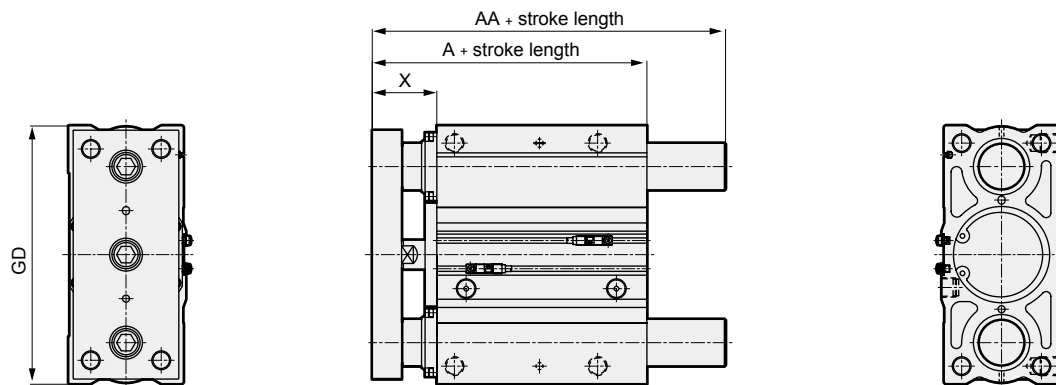
- $\phi 20/\phi 25$



- $\phi 32/\phi 40/\phi 50/\phi 63$



- $\phi 80$

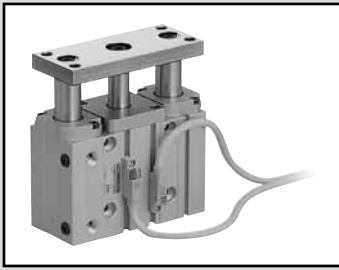


*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

Code Bore size (mm)	A	AA	GD	X
$\phi 20$	68	87	87	28^{0}_{-2}
$\phi 25$	69	87	91	28^{0}_{-2}
$\phi 32$	83	117	117	34^{0}_{-2}
$\phi 40$	87	117	126	34^{0}_{-2}
$\phi 50$	92	140	152	37^{0}_{-2}
$\phi 63$	98	140	166	37^{0}_{-2}
$\phi 80$	134	201	220	55^{0}_{-2}

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

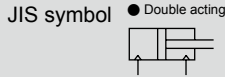
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Guided cylinder Anti-spatter adherence

STS/STL-G4 Series

● Bore size: φ40/φ50/φ63/φ80



Specifications

Descriptions	STS/STL-G4			
Bore size mm	φ40	φ50	φ63	φ80
Actuation	Double acting			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)			
Min. working pressure MPa	0.15 (≈22 psi, 1.5 bar)			
Proof pressure MPa	1.6 (≈230 psi, 16 bar)			
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)			
Port size	Rc1/8	Rc1/4		Rc3/8
Stroke tolerance mm	+2.0 0			
Working piston speed mm/s	50 to 500		50 to 300	
Cushion	With rubber cushion			
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			
Allowable absorbed energy J	0.627	0.980	1.560	2.510

Stroke length

· Short stroke length STS

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
φ40	25, 50	50	5	5 With one switch or two switches.
φ50				
φ63				
φ80	25, 50, 75, 100	100		

· Long stroke length STL

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
φ40	50, 75, 100, 125, 150	400	30	30 With one or two switches
φ50	175, 200, 225, 250, 275, 300, 325, 350, 375, 400			
φ63	75, 100, 125, 150, 175 200, 225, 250, 275, 300 325, 350, 375, 400		55 With one or two switches	

*1: The custom stroke length is available in 5mm increments.

However, the total length is the same as that of the next longer standard stroke length.

Switch specifications

Descriptions	Proximity 2-wire	
	T2YD	
Applications	Dedicated for programmable controller	
Indicator lamp	Red/green LED (Lit when ON)	
Load voltage	24 VDC ±10%	
Load current	DC5 to 20 mA	
Internal voltage drop	6 V or less	
Leakage current	1.0 mA or less	
Weight g	1 m:61 3 m:166 5 m:272	

*1 : Flame-resistant lead wires are available as options.

*2 : This switch cannot be used in DC magnetic field.

*3 : Refer to Ending Page 1 for other switch specifications.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.06 × 10 ²	1.58 × 10 ²	2.11 × 10 ²	3.17 × 10 ²	4.22 × 10 ²	5.28 × 10 ²	6.33 × 10 ²	7.39 × 10 ²	8.44 × 10 ²	9.50 × 10 ²	1.06 × 10 ³
φ50	Push	1.96 × 10 ²	2.95 × 10 ²	3.93 × 10 ²	5.89 × 10 ²	7.85 × 10 ²	9.82 × 10 ²	1.18 × 10 ³	1.37 × 10 ³	1.57 × 10 ³	1.77 × 10 ³	1.96 × 10 ³
	Pull	1.65 × 10 ²	2.47 × 10 ²	3.30 × 10 ²	4.95 × 10 ²	6.60 × 10 ²	8.25 × 10 ²	9.90 × 10 ²	1.15 × 10 ³	1.32 × 10 ³	1.48 × 10 ³	1.65 × 10 ³
φ63	Push	3.12 × 10 ²	4.68 × 10 ²	6.23 × 10 ²	9.35 × 10 ²	1.25 × 10 ³	1.56 × 10 ³	1.87 × 10 ³	2.18 × 10 ³	2.49 × 10 ³	2.81 × 10 ³	3.12 × 10 ³
	Pull	2.80 × 10 ²	4.20 × 10 ²	5.61 × 10 ²	8.41 × 10 ²	1.12 × 10 ³	1.40 × 10 ³	1.68 × 10 ³	1.96 × 10 ³	2.24 × 10 ³	2.52 × 10 ³	2.80 × 10 ³
φ80	Push	5.03 × 10 ²	7.54 × 10 ²	1.01 × 10 ³	1.51 × 10 ³	2.01 × 10 ³	2.51 × 10 ³	3.02 × 10 ³	3.52 × 10 ³	4.02 × 10 ³	4.52 × 10 ³	5.03 × 10 ³
	Pull	4.54 × 10 ²	6.80 × 10 ²	9.07 × 10 ²	1.36 × 10 ³	1.81 × 10 ³	2.27 × 10 ³	2.72 × 10 ³	3.17 × 10 ³	3.63 × 10 ³	4.08 × 10 ³	4.54 × 10 ³

How to order

● Short stroke length

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



● Long stroke length

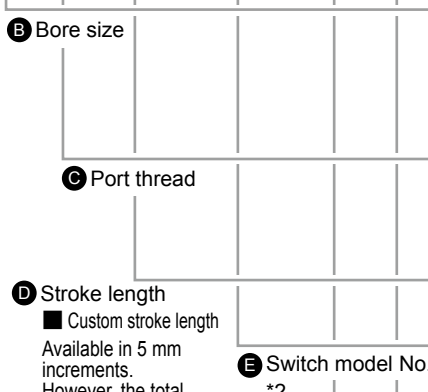
Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



Series model No.



D Stroke length
 Custom stroke length
 Available in 5 mm increments.
 However, the total length is the same as that of the next longer standard stroke length.

⚠ Precautions for model No. selection

- *1 : Refer to pages 440 to 443 for combinations of variations/options.
- *2 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

D Stroke length

Series	Stroke length (mm)	Bore size				
		φ40	φ50	φ63	φ80	
STS	Standard stroke length	25	50	75	100	
	Min. stroke length *1	5				
	Custom stroke *1, 2	In 5 mm increments				
	STL	50	●	●	●	●
		75	●	●	●	●
100		●	●	●	●	
125		●	●	●	●	
150		●	●	●	●	
175		●	●	●	●	
200		●	●	●	●	
225		●	●	●	●	
250		●	●	●	●	
275		●	●	●	●	
300		●	●	●	●	
325		●	●	●	●	
350	●	●	●	●		
375	●	●	●	●		
400	●	●	●	●		
Min. stroke length *1		30		55		
Custom stroke *1, 2		In 5 mm increments				

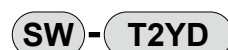
*1: The total dimensions are the same as the longer standard stroke length.

*2: Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

* For cylinder weight, refer to pages 554 to 557.

Code	Remarks				
A Bearing					
M	Metal bush bearing				
B	Ball bearing				
B Bore size (mm)					
40	φ40				
50	φ50				
63	φ63				
80	φ80				
C Port thread					
Blank	Rc thread				
NN	NPT thread Custom order product				
GN	G thread Custom order product				
D Stroke length (mm)					
Refer to the stroke length table below.					
E Switch model No.					
Axial lead wire	Radial lead wire	Contact	Voltage	Indicator	Lead wire
T2YD*	—	Proximity	DC	2-color display	2-wire
T2YDT*	—	Proximity	DC	AC magnetic field	2-wire
* Lead wire length					
Blank	1 m (standard)				
3	3 m (option)				
5	5 m (option)				
F Switch quantity					
R	1 on rod side				
H	1 on head side				
D	2				
T	3				
G Option					
F	End plate material: steel				
M	Corrosion proof (Piston rod, guide rod SUS) (custom order product)				
M1	Corrosion proof (M + end plate SUS) (custom order product)				

How to order switch



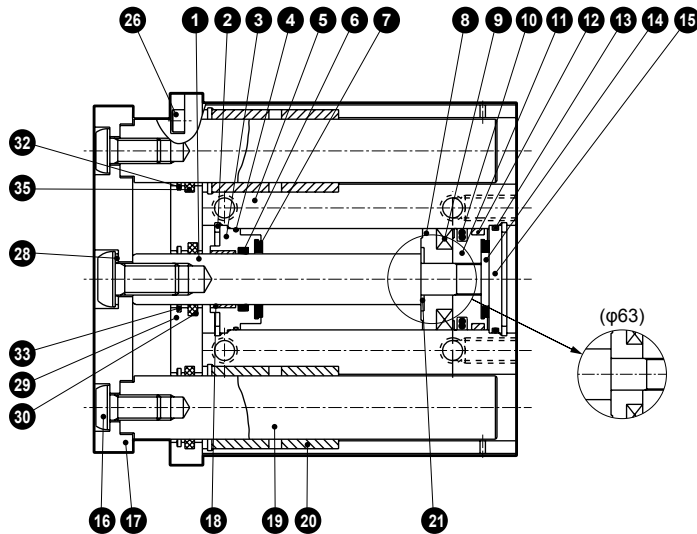
Switch model No.
(Item E above)

- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

STS-G4 Series

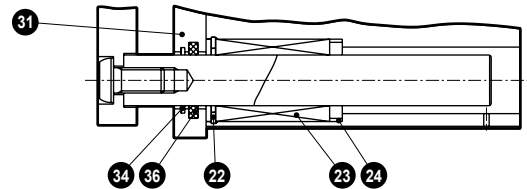
Internal structure and parts list

● Double acting/standard $\phi 40/\phi 50/\phi 63$
single rod STS-_MG4

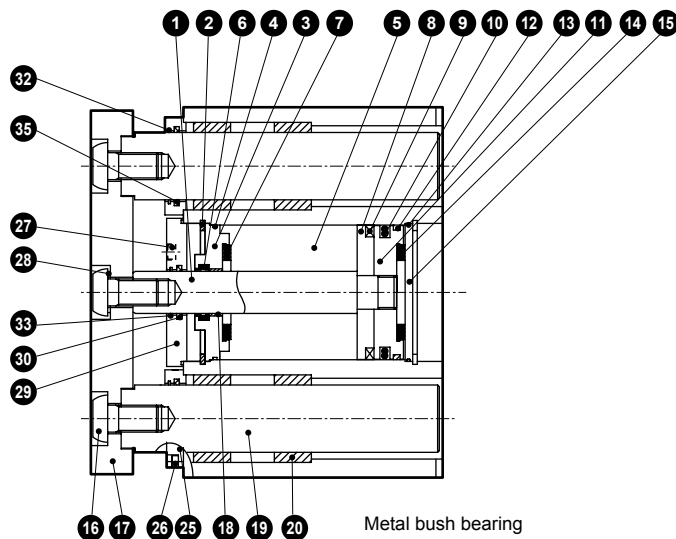


Metal bush bearing

$\phi 80$

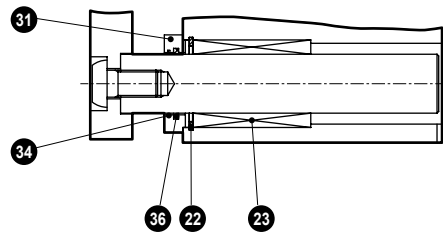


Ball bearing



Metal bush bearing

$\phi 80$

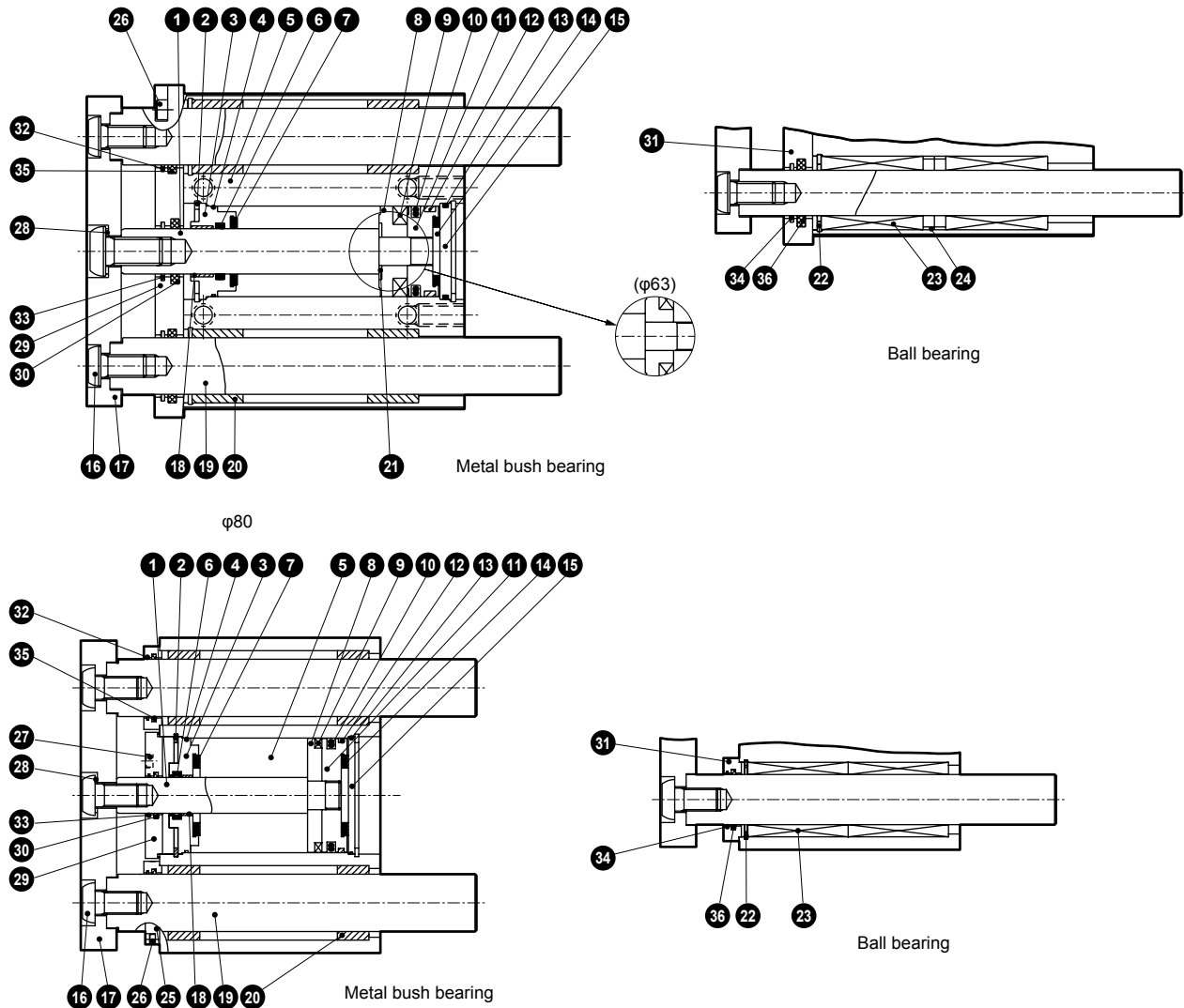


Ball bearing

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Steel	Industrial chrome plating	18	Bush	Dry bearing	
2	C type snap ring	Steel	Zinc phosphate	19	Guide rod	Steel	Industrial chrome plating
3	Rod metal	Special aluminum alloy	Alumite	20	Metal	Oil impregnated bearing alloy	
4	Metal gasket	Nitrile rubber		21	Spacer washer	Stainless steel	
5	Cylinder body	Aluminum alloy	Hard alumite	22	C type snap ring	Steel	Zinc phosphate
6	Rod packing	Nitrile rubber		23	Ball bushing		
7	Cushion rubber (R)	Urethane rubber		24	Collar	Aluminum alloy	
8	Spacer	Polyamide ($\phi 40/\phi 50$) Aluminum alloy ($\phi 63/\phi 80$)	Chromate ($\phi 63/\phi 80$)	25	Adaptor B	Aluminum alloy	Alumite
9	Magnet	Plastic		26	Hexagon socket head cap screw	Alloy steel	Zinc chromate
10	Piston packing	Nitrile rubber		27	Hexagon socket head cap screw	Alloy steel	Zinc chromate
11	Piston	Aluminum alloy	Chromate	28	Conical spring washer	Steel	
12	Wear ring	Acetal resin		29	Adaptor A	Aluminum alloy	Alumite
13	O-ring	Nitrile rubber		30	Lube keeping structure	Special rubber	
14	Cushion rubber (H)	Urethane rubber		31	Adaptor C	Aluminum alloy	Alumite
15	Base plate	Aluminum alloy ($\phi 40$ to $\phi 63$) Steel ($\phi 80$)	Chromate ($\phi 40$ to $\phi 63$) Zinc chromate ($\phi 80$)	32	Coil scraper	Phosphor bronze	
16	Hexagon socket button head bolt	Steel	Zinc chromate	33	Coil scraper	Phosphor bronze	
17	End plate	Aluminum alloy	Alumite	34	Coil scraper	Phosphor bronze	
				35	Lube keeping structure	Special rubber	
				36	Lube keeping structure	Special rubber	

Internal structure and parts list

- Double acting/standard $\phi 40/\phi 50/\phi 63$
single rod STL-M₃G4



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Steel	Industrial chrome plating	18	Bush	Dry bearing	
2	C type snap ring	Steel	Zinc phosphate	19	Guide rod	Steel	Industrial chrome plating
3	Rod metal	Special aluminum alloy	Alumite	20	Metal	Oil impregnated bearing alloy	
4	Metal gasket	Nitrile rubber		21	Spacer washer	Stainless steel	
5	Cylinder body	Aluminum alloy	Hard alumite	22	C type snap ring	Steel	Zinc phosphate
6	Rod packing	Nitrile rubber		23	Ball bushing		
7	Cushion rubber (R)	Urethane rubber		24	Collar	Aluminum alloy	
8	Spacer	Polyamide ($\phi 40/\phi 50$) Aluminum alloy ($\phi 63/\phi 80$)	Chromate ($\phi 63/\phi 80$)	25	Adaptor B	Aluminum alloy	Alumite
9	Magnet	Plastic		26	Hexagon socket head cap screw	Alloy steel	Zinc chromate
10	Piston packing	Nitrile rubber		27	Hexagon socket head cap screw	Alloy steel	Zinc chromate
11	Piston	Aluminum alloy	Chromate	28	Conical spring washer	Steel	
12	Wear ring	Acetal resin		29	Adaptor A	Aluminum alloy	Alumite
13	O-ring	Nitrile rubber		30	Lube keeping structure	Special rubber	
14	Cushion rubber (H)	Urethane rubber		31	Adaptor C	Aluminum alloy	Alumite
15	Base plate	Aluminum alloy ($\phi 40$ to $\phi 63$) Steel ($\phi 80$)	Chromate ($\phi 40$ to $\phi 63$) Zinc chromate ($\phi 80$)	32	Coil scraper	Phosphor bronze	
16	Hexagon socket button head bolt	Steel	Zinc chromate	33	Coil scraper	Phosphor bronze	
17	End plate	Aluminum alloy	Alumite	34	Coil scraper	Phosphor bronze	
				35	Lube keeping structure	Special rubber	
				36	Lube keeping structure	Special rubber	

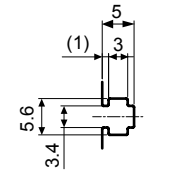
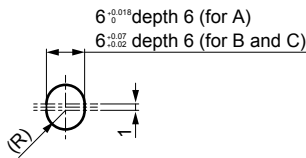
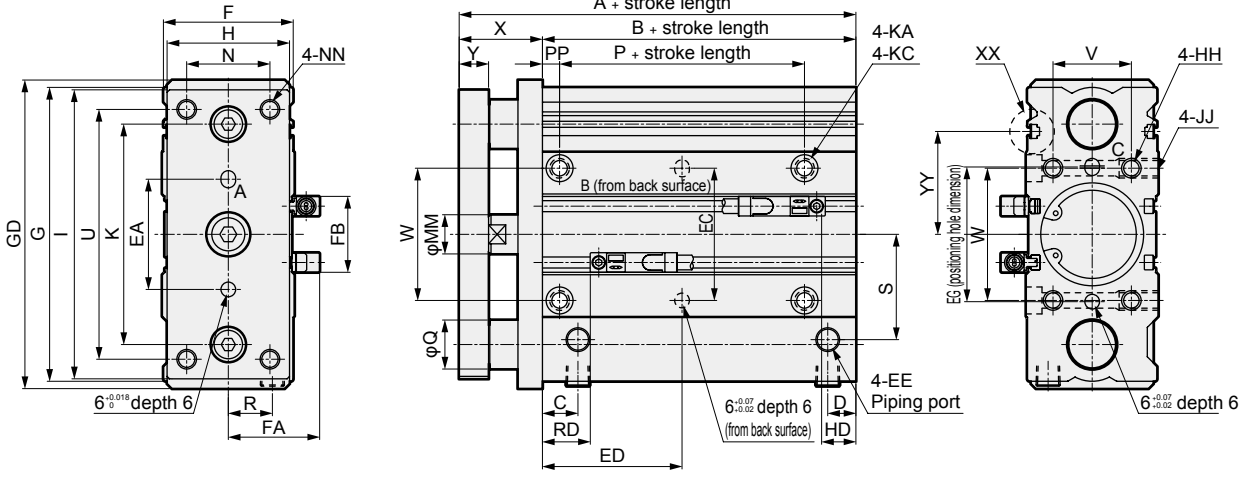
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS-G4 Series



Dimensions: $\phi 40/\phi 50/\phi 63$

- Double acting/standard single rod STS- $\frac{M}{B}$ G4



Slot dimensions for A, B and C

XX section details

*1: When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

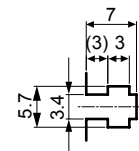
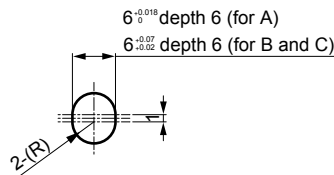
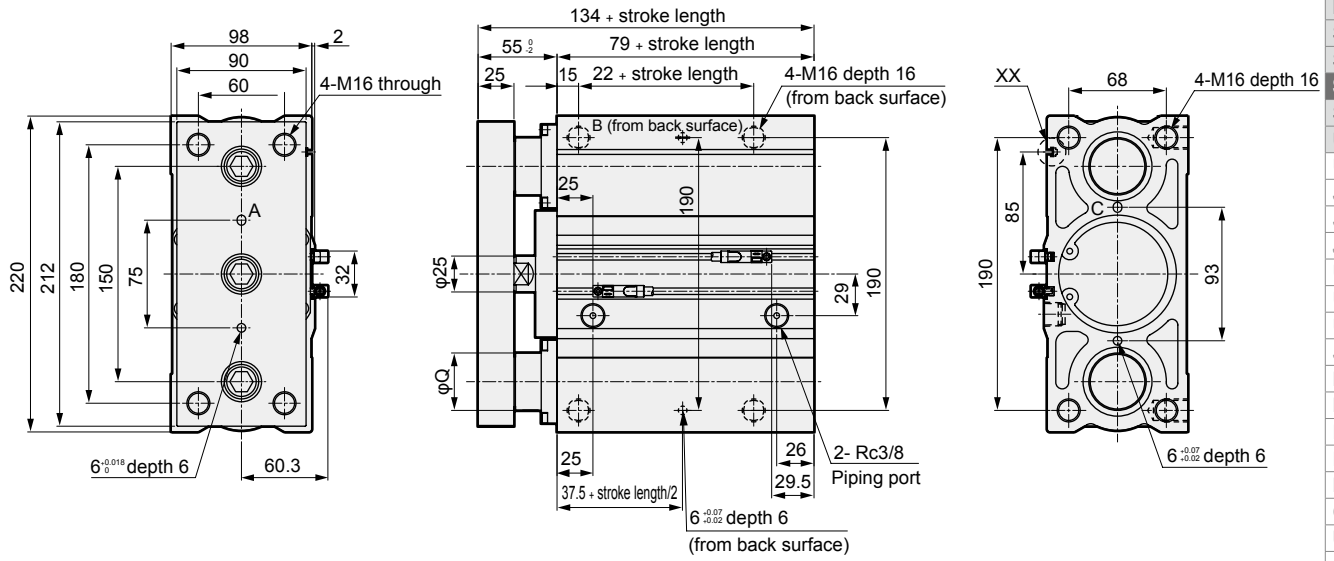
STS- $\frac{M}{B}$ -G4																			
Code	A	B	C	D	E	EE	EA	EC	EG	ED	F	G	GD	H	HH	I	JJ	KA	
Bore size (mm)																			
$\phi 40$	87	53	14.5	12	5.6	Rc1/8	45	54	55	19.5 + $\frac{\text{Stroke length}}{2}$	54	120	126	50	M8 depth 16	118	M8 depth 16	90	6.3 through
$\phi 50$	92	55	16	12.5	5.6	Rc1/4	55	66	69	19.5 + $\frac{\text{Stroke length}}{2}$	66	147	152	64	M10 depth 20	145	M10 depth 20	110	8.6 through
$\phi 63$	98	61	17.5	17.5	5.6	Rc1/4	62	79	82	22.5 + $\frac{\text{Stroke length}}{2}$	79	162	166	75	M10 depth 20	160	M10 depth 20	124	8.6 through

STS- $\frac{M}{B}$ -G4																							
Code	KC	L	M	MM	N	NN	P	PP	Q	R	S	T	U	V	W	X	Y	YY	Z	RD	HD	FA	FB
Bore size (mm)																							
$\phi 40$	11 spot face depth 6.5	1	3.4	16	34	M8 through	25	7	20	18	43	5	102	32	54	$34_{-0.2}^{+0.2}$	12	42	3	19.5	12.5	32.3	31
$\phi 50$	14 spot face depth 8.6	1	3.4	20	44	M10 through	26	8	25	22	49	5	125	38	66	$37_{-0.2}^{+0.2}$	16	45	3	21.5	13.5	38.3	32
$\phi 63$	14 spot face depth 8.6	1	3.4	20	55	M10 through	26	8	25	26	56	5	140	50	79	$37_{-0.2}^{+0.2}$	16	52	3	18.5	21.5	44.8	32

Dimensions: $\phi 80$



- Double acting/standard single rod STS-M/G4



Slot dimensions for A, B and C

XX section details

Dimension Q is $\phi 40$ for M (metal bush bearing) and $\phi 35$ for B (ball bearing).

Note: When using a custom stroke length, the dimensions are the same as the longer standard stroke length. The standard stroke lengths of $\phi 80$ are 25, 50, 75 and 100 mm.

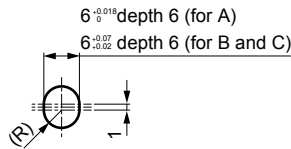
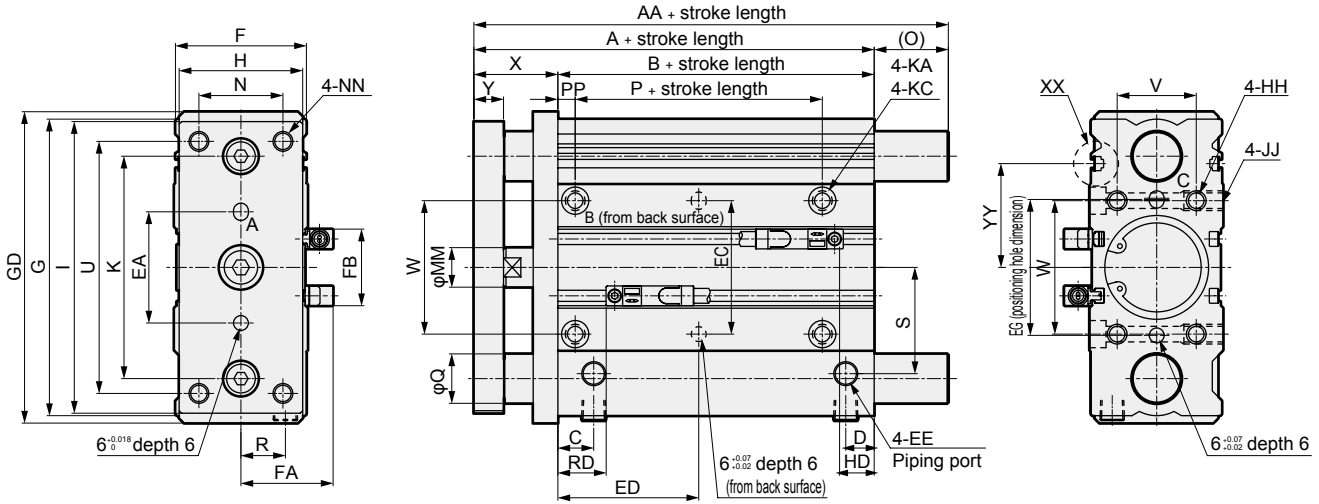
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STL-G4 Series

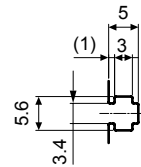


Dimensions: $\phi 40/\phi 50/\phi 63$

- Double acting/standard single rod STL-^M_BG4



Slot dimensions for A, B and C



XX section details

*1: When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

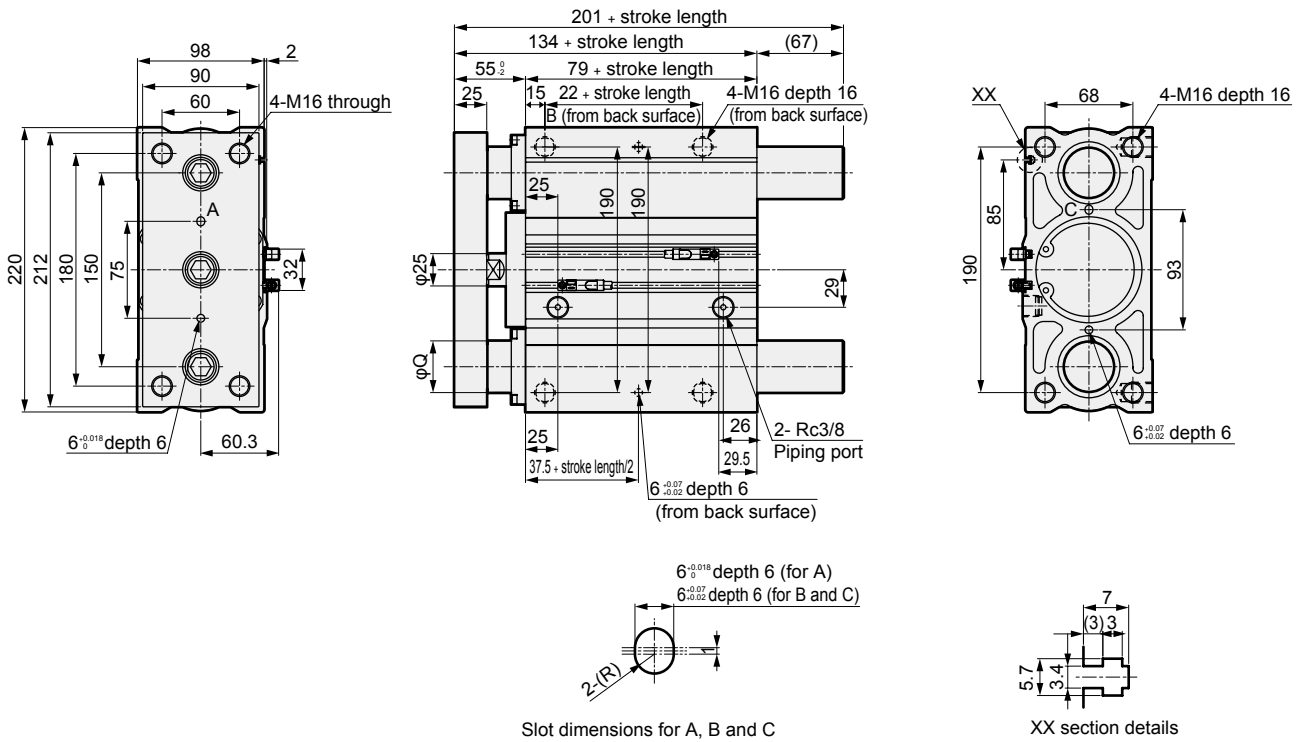
STL- ^M _B -G4																				
Code	A	AA	B	C	D	E	EE	EA	EC	EG	ED	F	G	GD	H	HH	I	JJ	K	KA
Bore size (mm)																				
$\phi 40$	87	117	53	14.5	12	5.6	Rc1/8	45	54	55	$19.5 + \frac{\text{Stroke length}}{2}$	54	120	126	50	M8 depth 16	118	M8 depth 16	90	6.3 through
$\phi 50$	92	140	55	16	12.5	5.6	Rc1/4	55	66	69	$19.5 + \frac{\text{Stroke length}}{2}$	66	147	152	64	M10 depth 20	145	M10 depth 20	110	8.6 through
$\phi 63$	98	140	61	17.5	17.5	5.6	Rc1/4	62	79	82	$22.5 + \frac{\text{Stroke length}}{2}$	79	162	166	75	M10 depth 20	160	M10 depth 20	124	8.6 through

STL- ^M _B -G4																								
Code	KC	L	M	MM	N	NN	O	P	PP	Q	R	S	T	U	V	W	X	Y	YY	Z	RD	HD	FA	FB
Bore size (mm)																								
$\phi 40$	11 spot face depth 6.5	1	3.4	16	34	M8 through	30	25	7	20	18	43	5	102	32	54	$34^{+0.2}_0$	12	42	3	19.5	12.5	32.3	31
$\phi 50$	14 spot face depth 8.6	1	3.4	20	44	M10 through	48	26	8	25	22	49	5	125	38	66	$37^{+0.2}_0$	16	45	3	21.5	13.5	38.3	32
$\phi 63$	14 spot face depth 8.6	1	3.4	20	55	M10 through	42	26	8	25	26	56	5	140	50	79	$37^{+0.2}_0$	16	52	3	18.5	21.5	44.8	32

Dimensions: $\phi 80$



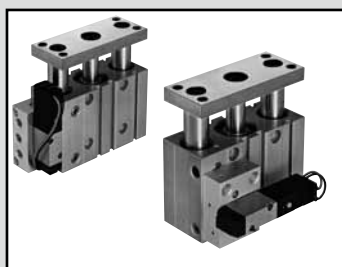
- Double acting/standard single rod STL- $\frac{M}{B}$ G4



Dimension Q is $\phi 40$ for M (metal bush bearing) and $\phi 35$ for B (ball bearing).

Note: When using a custom stroke length, the dimensions are the same as the longer standard stroke length. The standard stroke length of $\phi 80$ can be selected from 75 to 400 mm in 25 mm increments.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

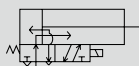


Guided cylinder/valve equipped

STS/STL-V_B^M Series

● Bore size: φ20/φ25/φ32/φ40/φ50/φ63

JIS symbol



Specifications

Descriptions		STS-MV, STS-BV (short stroke length)/STL-MV/STL-BV (long stroke length)					
Bore size	mm	φ20	φ25	φ32	φ40	φ50	φ63
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure	MPa	0.7 (≈100 psi, 7 bar)					
Min. working pressure	MPa	0.15 (≈22 psi, 1.5 bar)					
Proof pressure	MPa	1.0 (≈150 psi, 10 bar)					
Ambient temperature	°C	-5 (23°F) to 50 (122°F) (no freezing)					
Port size		Rc1/8			Rc1/4		
Stroke tolerance	mm	+2.0 0					
Working piston speed	mm/s	50 to 500					50 to 300
Cushion		With rubber cushion					
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					
Incorporated solenoid valve		4KB1 Series			4KB2 Series		
Allowable absorbed energy	J	0.157	0.157	0.401	0.627	0.980	1.560

Note: Refer to "Pneumatic Valves (CB-23SA)" for details on valves.

Stroke length

Bore size (mm)	Standard stroke length (mm)		Max. stroke length (mm)	Min. stroke length (mm)
φ20/φ25/φ32	STS	25/50	100	5
φ40/φ50/φ63	STL	50/75/100		

Custom stroke length

Custom stroke lengths other than the standard are available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.
(Example) For STS-MV1-25-35, a spacer is mounted inside the STS-MV1-25-50 body to obtain a total length the same as that of the 50-stroke.

Switch specifications

● 1-color/2-color display/for AC magnetic field proof

Descriptions	Proximity 2-wire		Proximity 2-wire				Proximity 3-wire			Reed 2-wire				Proximity 2-wire	
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD		
Applications	For programmable controller, relay, compact solenoid valve	Dedicated for programmable controller				For programmable controller, relay			For programmable controller, relay	For programmable controller, relay, IC circuit (no indicator lamp), serial connection	For programmable controller, relay		For programmable controller		
Output method	-				NPN output	PNP output	NPN output	NPN output	-						
Pwr. supp. V.	-				10 to 28 VDC				-						
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%		30 VDC or less			12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*2)		100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	≤50 mA	≤20 mA	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Without indicator lamp		LED (Lit when ON)	Red/green LED (Lit when ON)		
Leakage current	≤1 mA at 100 VAC, ≤2 mA at 200 VAC	1 mA or less		10 μA or less			0 mA				1 mA or less				
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:33 3 m:87 5 m:142	1 m:61 3 m:166 5 m:272			

*1 : Refer to Ending Page 1 for other switch specifications.

*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4 : This switch cannot be used in DC magnetic field.

*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Valve specifications

Descriptions	ST ^{S/L} - M/B V1 ²⁰ V2 ²⁵ ₃₂			ST ^{S/L} - M/B V1 ⁴⁰ V2 ⁵⁰ ₆₃		
Applicable valve series	4KB1 Series			4KB2 Series		
Position Number of solenoids	2-position single			2-position single		
Valve effective cross-sectional area (mm ²) (Cv)	4 (0.22)			14 (0.76)		
Rated voltage (V)	100 AC(50/60 Hz)	200 AC(50/60 Hz)	24 DC	100 AC(50/60 Hz)	200 AC(50/60 Hz)	24 DC
Starting current (A)	0.056/0.044	0.034/0.026	0.075	0.056/0.044	0.028/0.022	0.075
Holding current (A)	0.028/0.022	0.017/0.013		0.028/0.022	0.014/0.011	
Power consumption (W)	1.8/1.4	2.1/1.6	1.8	1.8/1.4		1.8
Voltage fluctuation range	±10%			±10%		
Thermal class	Class B molded coil			Class B molded coil		

Note: Refer to "Pneumatic Valves (CB-023SA)" for details on valves.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
φ20	Push	-	-	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²	2.51 × 10 ²	2.83 × 10 ²	3.14 × 10 ²
	Pull	-	-	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push	-	-	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	-	-	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	60.3	90.5	1.21 × 10 ²	1.81 × 10 ²	2.41 × 10 ²	3.02 × 10 ²	3.62 × 10 ²	4.22 × 10 ²	4.83 × 10 ²	5.43 × 10 ²	6.03 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.06 × 10 ²	1.58 × 10 ²	2.11 × 10 ²	3.17 × 10 ²	4.22 × 10 ²	5.28 × 10 ²	6.33 × 10 ²	7.39 × 10 ²	8.44 × 10 ²	9.50 × 10 ²	1.06 × 10 ³
φ50	Push	1.96 × 10 ²	2.95 × 10 ²	3.93 × 10 ²	5.89 × 10 ²	7.85 × 10 ²	9.82 × 10 ²	1.18 × 10 ³	1.37 × 10 ³	1.57 × 10 ³	1.77 × 10 ³	1.96 × 10 ³
	Pull	1.65 × 10 ²	2.47 × 10 ²	3.30 × 10 ²	4.95 × 10 ²	6.60 × 10 ²	8.25 × 10 ²	9.90 × 10 ²	1.15 × 10 ³	1.32 × 10 ³	1.48 × 10 ³	1.65 × 10 ³
φ63	Push	3.12 × 10 ²	4.68 × 10 ²	6.23 × 10 ²	9.35 × 10 ²	1.25 × 10 ³	1.56 × 10 ³	1.87 × 10 ³	2.18 × 10 ³	2.49 × 10 ³	2.81 × 10 ³	3.12 × 10 ³
	Pull	2.80 × 10 ²	4.20 × 10 ²	5.61 × 10 ²	8.41 × 10 ²	1.12 × 10 ³	1.40 × 10 ³	1.68 × 10 ³	1.96 × 10 ³	2.24 × 10 ³	2.52 × 10 ³	2.80 × 10 ³

For cylinder weight, refer to pages 554 to 557.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

How to order

● Short stroke length

Without switch (built-in magnet for switch)

STS - M V1 S - 20 - 25 - B - 1 - F

With switch (built-in magnet for switch)

STS - M V1 S - 20 - 25 - B - 1 - T0H - R - F

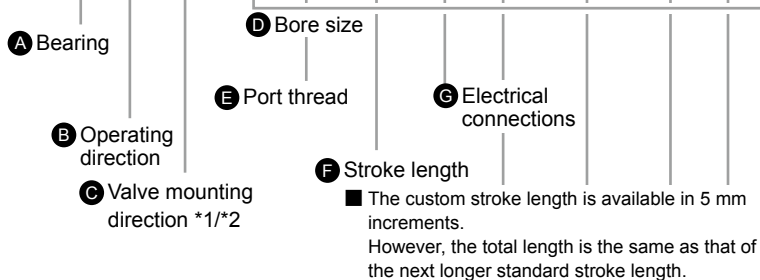
● Long stroke length

Without switch (built-in magnet for switch)

STL - M V1 S - 50 - 50 - B - 1 - F

With switch (built-in magnet for switch)

STL - M V1 S - 50 - 50 - B - 1 - T0H - R - F



⚠ Precautions for model No. selection

- *1 : When selecting types with valve on side with a stroke length of 25 mm or less, the valve mounting dimensions (VC) may exceed the overall length of the cylinder (A + stroke). Check the measurements using the external dimensions chart.
- *2 : The 2-color display and strong magnetic field proof switch cannot be mounted on the valve on front type.
- *3 : Refer to pages 440 and 443 for combinations of variations/options.
- *4 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

STS-MV1S-20-25-B-1-T0H-R-F

Model: Guided cylinder, short stroke length, valve equipped

- A** Bearing : Metal bush bearing
- B** Operating direction: Pushed out when energized
- C** Valve mounting direction: With valve on side
- D** Bore size : φ20 mm
- E** Port thread : Rc thread
- F** Stroke length : 25 mm
- G** Electrical connections: Compact terminal box, without lead wire
- H** Rated voltage : 100 VAC
- I** Switch model No.: Reed T0H, lead wire 1 m
- J** Switch quantity : 1 on rod side
- K** Option : End plate material (steel)

For the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches for φ40 and over, insert "L1" with "-" between **C** and **D**.
Example) STS-MV1S-L1-50-50-B-1-T2YH3-D-F

How to order switch

SW - T0H

Switch model No.
(Item **I** above)

J Switch quantity

K Option

Code	Content					
A Bearing						
M	Metal bush bearing					
B	Ball bearing					
B Operating direction						
V1	Pushed out when energized					
V2	Pull when energized					
C Valve mounting direction						
Blank	With valve on front					
S	With valve on side					
D Bore size (mm)						
20	φ20					
25	φ25					
32	φ32					
40	φ40					
50	φ50					
63	φ63					
E Port thread						
Blank	Rc thread					
NN	NPT thread (φ32 and over) custom order product					
GN	G thread (φ32 and over) custom order product					
F Stroke length						
Refer to the stroke length table on following page.						
G Electrical connections						
Blank	Grommet lead wire (300 mm)					
B	Compact terminal box, without lead wire					
C	C type connector, lead wire (300 mm)					
D	D type connector, lead wire (300 mm)					
H Rated voltage						
1	100 VAC					
2	200 VAC					
3	24 VDC					
I Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
T0H* T5H* T8H* T1H* T2H* T3H* T3PH* T2WH* T2YH* T3WH* T3YH* T2JH* T2YD*	T0V*	Reed	●	●	1-color display Without indicator lamp	2-wire
	T5V*		●	●		
	T8V*		●	●		
	T1V*		●	●		
	T2V*		●	●	1-color display	3-wire
	T3V*		●	●		
	T3PV*		●	●	1-color display (custom)	3-wire
	T2WV*		●	●		
	T2YV*		●	●	2-color display	2-wire
	T3WV*		●	●		
T3YV*	●	●	1-color display off-delay	2-wire		
T2JV*	●	●				
-	-	Proximity	●	●	2-color display for AC magnetic field	2-wire
-	-		●	●		
* Lead wire length (m)						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
J Switch quantity						
R	1 on rod side					
H	1 on head side					
D	2					
K Option						
F	End plate material (steel)					

F Stroke length

Series	Stroke length (mm)		Applicable bore size					
			φ20	φ25	φ32	φ40	φ50	φ63
STS	Standard stroke length	25	●	●	●	●	●	●
		50	●	●	●	●	●	●
	Min. stroke length *1		5					
	Custom stroke *1, 2		In 5 mm increments					
STL	Standard stroke length	50	●	●	●	●	●	●
		75	●	●	●	●	●	●
		100	●	●	●	●	●	●
	Min. stroke length*1		30					
	Custom stroke*1, 2		In 5 mm increments					

*1: The total dimensions are the same as the longer standard stroke length.

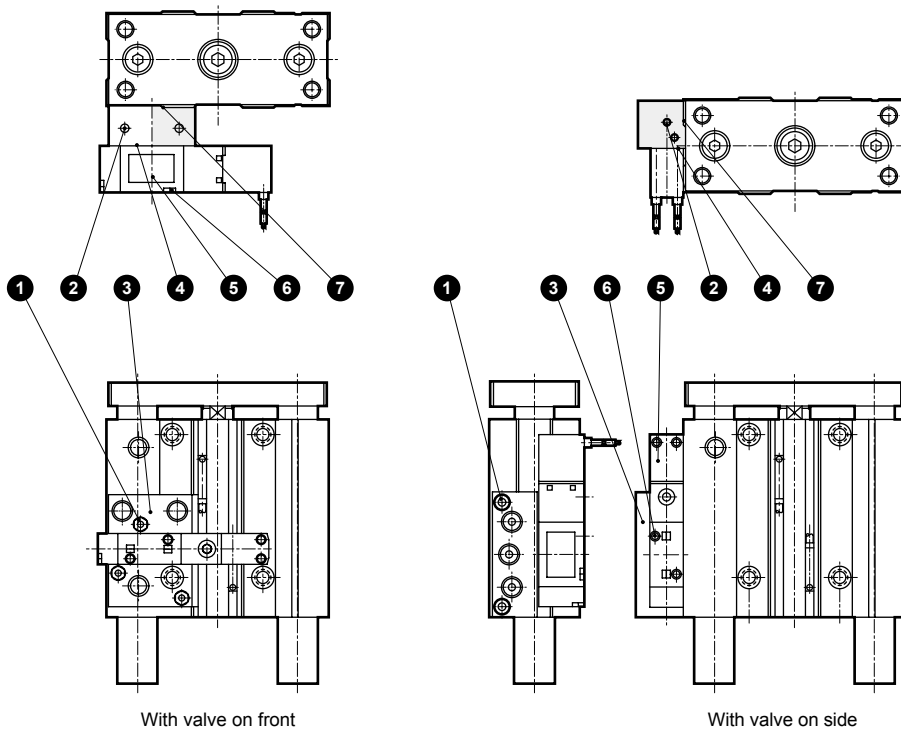
*2: Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

Series variation

Bore size (mm)	Standard stroke length (mm)					Applicable valve series	Position Number of solenoids	Valve effective cross-sectional area (mm ²) (Cv)
	STS		STL					
	25	50	50	75	100			
φ20	●	●	●	●	●	4KB1 Series	2-position single	4(0.22)
φ25	●	●	●	●	●			
φ32	●	●	●	●	●			
φ40	●	●	●	●	●	4KB2 Series	2-position single	14(0.76)
φ50	●	●	●	●	●			
φ63	●	●	●	●	●			

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Internal structure and parts list



No.	Part name	Material	Remarks
1	Hex socket screw	Stainless steel	
2	Hexagon socket set screw	Steel	Black finish
3	Sub-base	Aluminum alloy	Alumite
4	Gasket	Nitrile rubber	
5	Pneumatic valve		
6	Set screw	Steel	Zinc chromate
7	O-ring	Nitrile rubber	

Repair parts list

The repair parts list is common with the double acting/single rod.
Refer to page 449 for STS Series and page 452 for STL Series.

Sub-base kit

Bore size (mm)	Kit No.	Part No.	Bore size (mm)	Kit No.	Part No.		
STS-M/B-V1 (With valve on front Pushed out when energized)	φ20	1 2 3 7	STS-M/B-V1S (With valve on side Pushed out when energized)	φ20	1 2 3 7		
	φ25			STS-V1-20		STS-V1S-20	
	φ32			STS-V1-32		STS-V1S-32	
	φ40			STS-V1-40		STS-V1S-40	
	φ50			STS-V1-50		φ50	STS-V1S-50
	φ63					φ63	
Bore size (mm)	Kit No.	Part No.	Bore size (mm)	Kit No.	Part No.		
STS-M/B-V2 (With valve on front Retracted in when energized)	φ20	1 2 3 7	STS-M/B-V2S (With valve on front Retracted in when energized)	φ20	1 2 3 7		
	φ25			STS-V2-20		STS-V2S-20	
	φ32			STS-V2-32		STS-V2S-32	
	φ40			STS-V2-40		STS-V2S-40	
	φ50			STS-V2-50		φ50	STS-V2S-50
	φ63					φ63	

MEMO

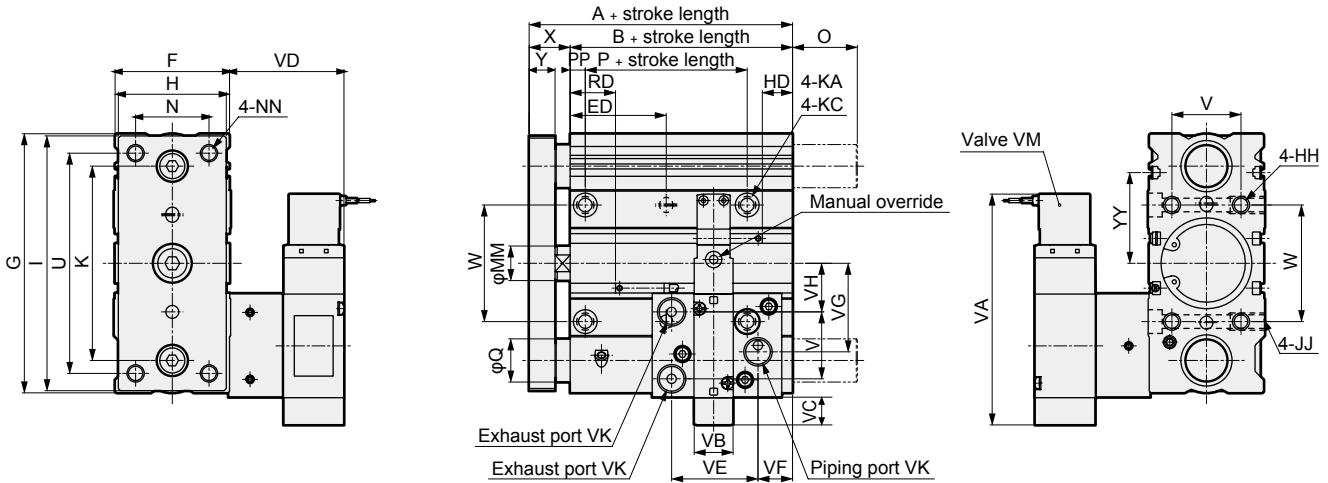
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS/STL-MV Series



Dimensions

● With valve on front



*1: When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

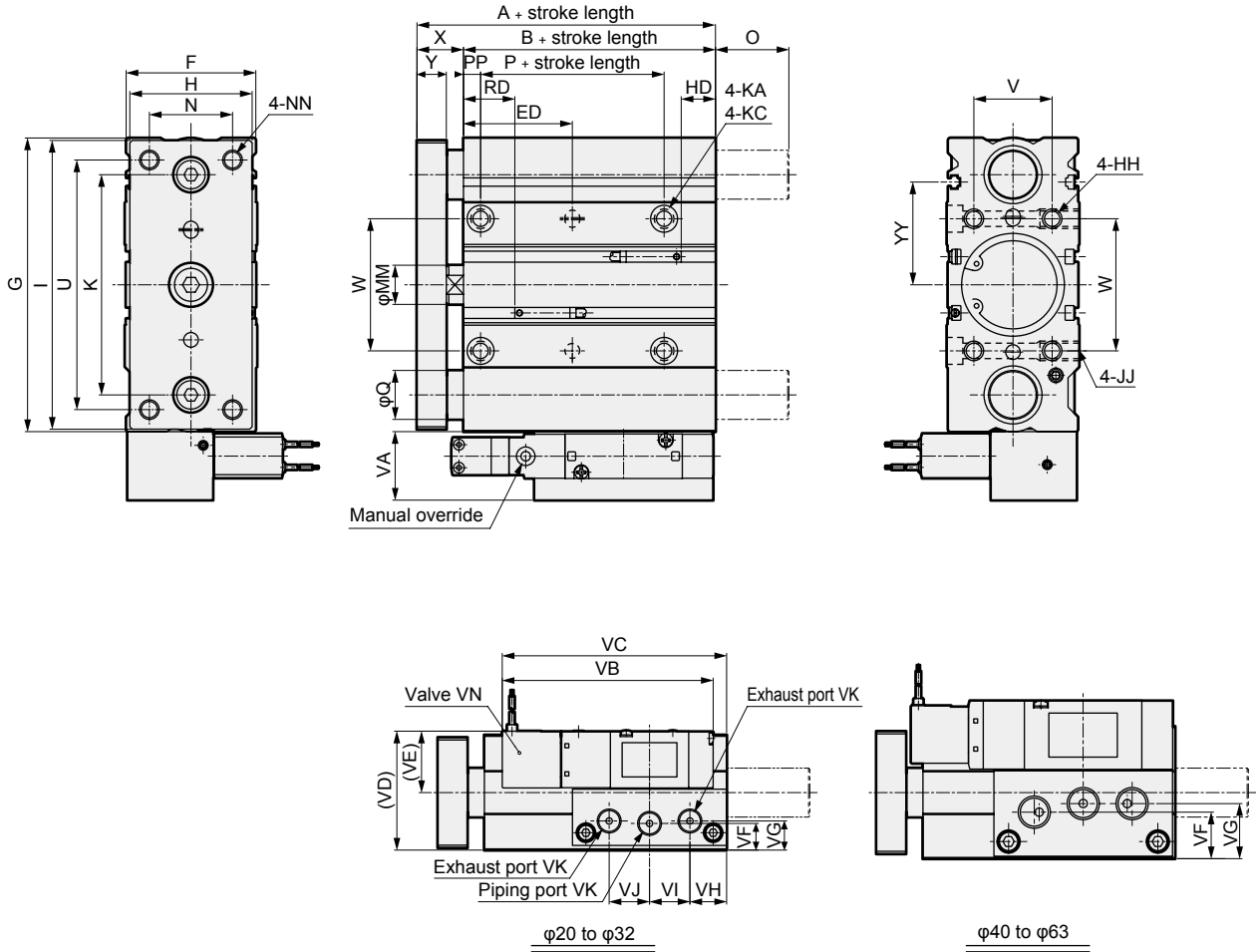
*2: Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Code	A	B	ED	F	G	H	HH	I	JJ	K	KA	KC	MM	N	NN	O		P	
Bore size (mm)																	STS	STL	
φ20	53	40	14 + $\frac{\text{Stroke length}}{2}$	38	83	36	M6 depth 12	81	M6 depth 12	59	5.2 through	9.5 spot face depth 5.4	10	24	M6 through	0	18	20	
φ25	54	41	14.5 + $\frac{\text{Stroke length}}{2}$	42	86	38	M6 depth 12	84	M6 depth 12	63	5.2 through	9.5 spot face depth 5.4	12	26	M6 through	0	17	20	
φ32	68	49	17.5 + $\frac{\text{Stroke length}}{2}$	47	111	45	M8 depth 16	109	M8 depth 16	81	6.3 through	11 spot face depth 6.5	16	29	M8 through	0	34	22	
φ40	72	53	19.5 + $\frac{\text{Stroke length}}{2}$	54	120	50	M8 depth 16	118	M8 depth 16	90	6.3 through	11 spot face depth 6.5	16	34	M8 through	0	30	25	
φ50	77	55	19.5 + $\frac{\text{Stroke length}}{2}$	66	147	64	M10 depth 20	145	M10 depth 20	110	8.6 through	14 spot face depth 8.6	20	44	M10 through	0	48	26	
φ63	83	61	22.5 + $\frac{\text{Stroke length}}{2}$	79	162	75	M10 depth 20	160	M10 depth 20	124	8.6 through	14 spot face depth 8.6	20	55	M10 through	0	42	26	

Code	PP	Q		U	V	W	X	Y	YY	VA	VB	VC	VD	VE	VF	VG	VH	VI	VK	VM	T0/T5/T2/T3			T2W/T3W			
Bore size (mm)		M type	B type																	RD	HD	RD	HD				
φ20	6	14	12	69	20	31	13 $\frac{0}{-2}$	9	25	86	15	8.5	42.5	35.5	9.5	29.5	13	22	Rc1/8	4KB1 Series	12	9	12.5	12.5			
φ25	6	14	12	72	24	35	13 $\frac{0}{-2}$	9	27	86	15	8	42.5	35.5	10.5	30.5	14	22	Rc1/8	4KB1 Series	13	9	14.5	11			
φ32	7	20	16	93	25	45	19 $\frac{0}{-2}$	12	39	86	15	4	42.5	37.5	15.5	39	20.5	26	Rc1/8	4KB1 Series	17.5	13.5	19	15			
φ40	7	20	16	102	32	54	19 $\frac{0}{-2}$	12	42	107	18	15	52.5	40	16	41	22.5	31	Rc1/4	4KB2 Series	21	14	22.5	16			
φ50	8	25	20	125	38	66	22 $\frac{0}{-2}$	16	45	107	18	9	52.5	41	17	49	43	21	Rc1/4	4KB2 Series	22	16	23.5	16.5			
φ63	8	25	20	140	50	79	22 $\frac{0}{-2}$	16	52	107	18	8	52.5	41	23	55.5	49.5	21	Rc1/4	4KB2 Series	20	23	21.5	24.5			

Dimensions

● With valve on side



*1: When using a custom stroke length, the dimensions are the same as the longer standard stroke length.
 *2: Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Code	A	B	ED	F	G	H	HH	I	JJ	K	KA	KC	MM	N	NN	O		P
																STS	STL	
φ20	53	40	14 + Stroke length / 2	38	83	36	M6 depth 12	81	M6 depth 12	59	5.2 through	9.5 spot face depth 5.4	10	24	M6 through	0	18	20
φ25	54	41	14.5+ Stroke length / 2	42	86	38	M6 depth 12	84	M6 depth 12	63	5.2 through	9.5 spot face depth 5.4	12	26	M6 through	0	17	20
φ32	68	49	17.5+ Stroke length / 2	47	111	45	M8 depth 16	109	M8 depth 16	81	6.3 through	11 spot face depth 6.5	16	29	M8 through	0	34	22
φ40	72	53	19.5+ Stroke length / 2	54	120	50	M8 depth 16	118	M8 depth 16	90	6.3 through	11 spot face depth 6.5	16	34	M8 through	0	30	25
φ50	77	55	19.5+ Stroke length / 2	66	147	64	M10 depth 20	145	M10 depth 20	110	8.6 through	14 spot face depth 8.6	20	44	M10 through	0	48	26
φ63	83	61	22.5+ Stroke length / 2	79	162	75	M10 depth 20	160	M10 depth 20	124	8.6 through	14 spot face depth 8.6	20	55	M10 through	0	42	26

Code	PP	Q		U	V	W	X	Y	YY	VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ	VK	VN	T0/T5/T2/T3		T2W/T3W	
		M type	B type																			RD	HD	RD	HD
φ20	6	14	12	69	20	31	13 ⁰ / ₋₂	9	25	23	86	92	47.5	28.5	10	11	15	16.5	16.5	Rc1/8	4KB1 Series	12	9	12.5	12.5
φ25	6	14	12	72	24	35	13 ⁰ / ₋₂	9	27	23	86	92	49.5	28.5	12	13	15	16.5	16.5	Rc1/8	4KB1 Series	13	9	14.5	11
φ32	7	20	16	93	25	45	19 ⁰ / ₋₂	12	39	23	86	92	48.5	25	11	12	15	16.5	16.5	Rc1/8	4KB1 Series	17.5	13.5	19	15
φ40	7	20	16	102	32	54	19 ⁰ / ₋₂	12	42	28	107	108	64.5	37.5	19	22.5	17.5	20	20	Rc1/4	4KB2 Series	21	14	22.5	16
φ50	8	25	20	125	38	66	22 ⁰ / ₋₂	16	45	28	107	108	66.5	33.5	21	24.5	17.5	20	20	Rc1/4	4KB2 Series	22	16	23.5	16.5
φ63	8	25	20	140	50	79	22 ⁰ / ₋₂	16	52	28	107	108	68	28.5	22.5	26	17	20	20	Rc1/4	4KB2 Series	20	23	21.5	24.5

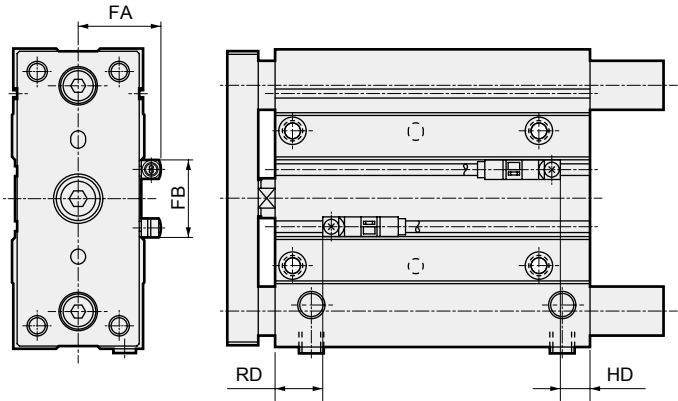
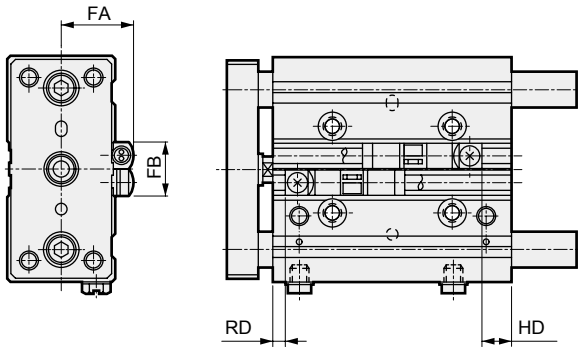
- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

STS/STL Series

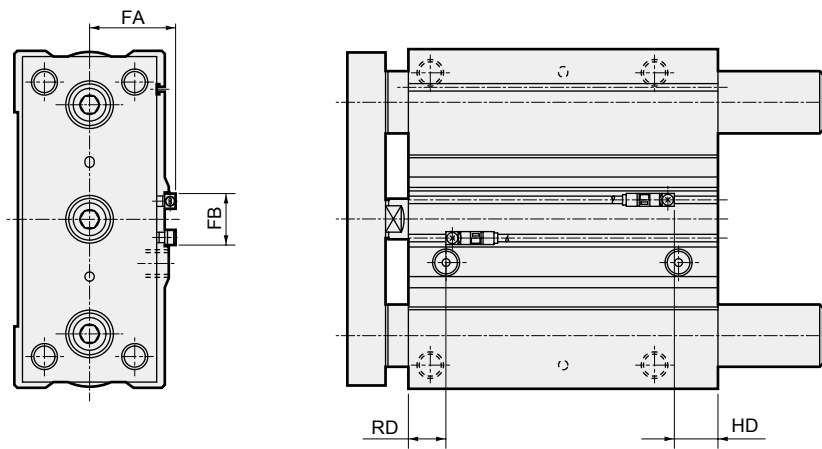
STS/STL Series common/dimensions: 2-color display, off-delay, T8H/V switch mounting method

● Bore size: $\phi 8$ to $\phi 16$

● Bore size: $\phi 20$ to $\phi 63$



● Bore size: $\phi 80$



STS/STL (standard)

Code Bore size (mm)	FA	FB	T*YH/V, T2JH/V		T8H/V	
			RD	HD	RD	HD
$\phi 8$	17.6	16	5.5	1.5	-	-
$\phi 12$	18.8	16	4	7.5	-	-
$\phi 16$	20.8	16	3.5	8.5	-	-
$\phi 20$	24.3	16	9.5	8	5	3.5
$\phi 25$	26.3	17	11.5	7.5	7	3
$\phi 32$	28.8	24	16	12	11.5	7.5
$\phi 40$	32.3	31	19.5	12.5	15	8
$\phi 50$	38.3	32	21.5	13.5	16	10
$\phi 63$	44.8	32	18.5	21.5	14	17
$\phi 80$	55.3	32	25	33	20.5	24.5
$\phi 100$	65	32	24	34	19	29

STS/STL-Q-R (rod side position locking)

Code Bore size (mm)	FA	FB	RD	HD
$\phi 20$	24.3	16	34.5	8
$\phi 25$	26.3	17	36.5	7.5
$\phi 32$	28.8	24	41	12
$\phi 40$	32.3	31	69.5	13
$\phi 50$	38.3	32	71.5	13.5
$\phi 63$	44.8	32	68.5	21.5
$\phi 80$	55.3	32	100	33

*1: T8H/V switch cannot be installed.

STS/STL-Q-H (head side position locking)

Code Bore size (mm)	FA	FB	RD	HD
$\phi 20$	24.3	16	9.5	33
$\phi 25$	26.3	17	11.5	32.5
$\phi 32$	28.8	24	16	37
$\phi 40$	32.3	31	19.5	63
$\phi 50$	38.3	32	21.5	63.5
$\phi 63$	44.8	32	18.5	71.5
$\phi 80$	55.3	32	25	108

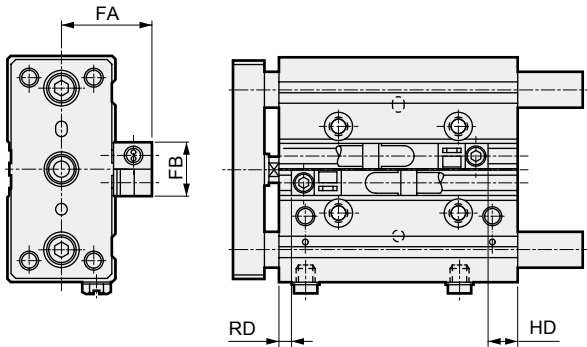
*1: T8H/V switch cannot be installed.

STS/STL-C (air-cushioned)

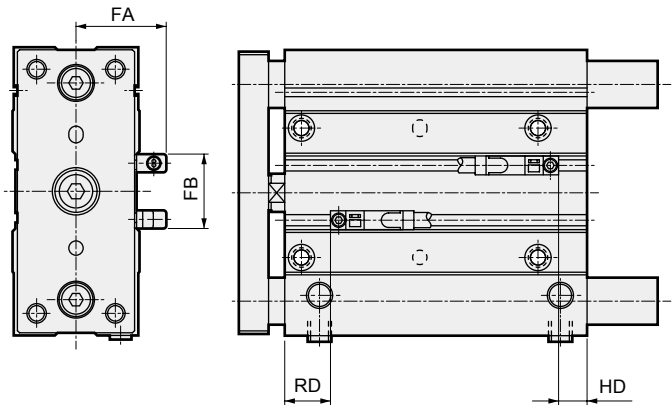
Code Bore size (mm)	FA	FB	T*YH/V, T2JH/V		T8H/V	
			RD	HD	RD	HD
$\phi 25$	26.3	17	26.5	17.5	20.5	11.5
$\phi 32$	28.8	24	33	20	27	14
$\phi 40$	32.3	31	36.5	21	30.5	15
$\phi 50$	38.3	32	37	22	31	16
$\phi 63$	44.8	32	42.5	24.5	36.5	18.5
$\phi 80$	55.3	32	59	49	53	43

STS/STL Series common dimensions: AC magnetic field, T1H/V switch installation dimensions

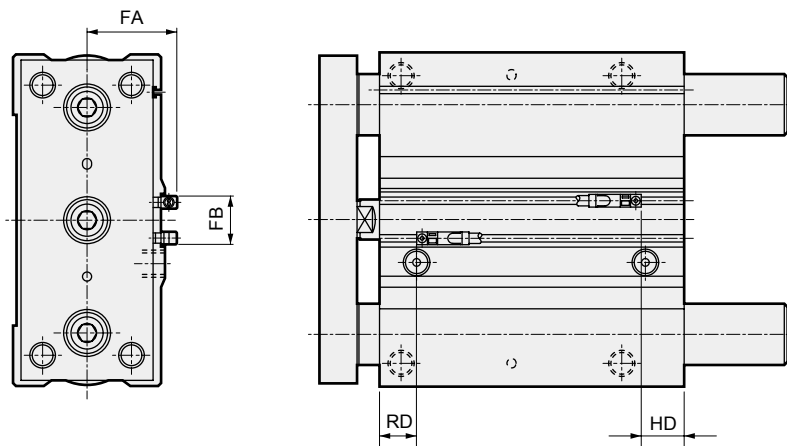
● Bore size: $\phi 8$ to $\phi 16$



● Bore size: $\phi 20$ to $\phi 63$



● Bore size: $\phi 80$



STS/STL (standard)

Code	FA	FB	RD	HD
Bore size (mm)				
$\phi 8$	22.6	16	5.5	1.5
$\phi 12$	23.8	16	4	7.5
$\phi 16$	25.8	16	3.5	8.5
$\phi 20$	29.3	16	9.5	8
$\phi 25$	31.3	17	11.5	7.5
$\phi 32$	33.8	24	16	12
$\phi 40$	37.3	31	19.5	12.5
$\phi 50$	43.3	32	21.5	13.5
$\phi 63$	49.8	32	18.5	21.5
$\phi 80$	60.3	32	25	29.5
$\phi 100$	70.9	32	24	34

STS/STL-Q-R (rod side position locking)

Code	FA	FB	RD	HD
Bore size (mm)				
$\phi 20$	29.3	16	34.5	8
$\phi 25$	31.3	17	36.5	7.5
$\phi 32$	33.8	24	41	12
$\phi 40$	37.3	31	69.5	13
$\phi 50$	43.3	32	71.5	13.5
$\phi 63$	49.8	32	68.5	21.5
$\phi 80$	60.3	32	100	33

STS/STL-Q-H (head side position locking)

Code	FA	FB	RD	HD
Bore size (mm)				
$\phi 20$	29.3	16	9.5	33
$\phi 25$	31.3	17	11.5	32.5
$\phi 32$	33.8	24	16	37
$\phi 40$	37.3	31	19.5	63
$\phi 50$	43.3	32	21.5	63.5
$\phi 63$	49.8	32	18.5	71.5
$\phi 80$	60.3	32	25	108

STS/STL-C (air cushion)

Code	FA	FB	RD	HD
Bore size (mm)				
$\phi 25$	31.3	17	26.5	17.5
$\phi 32$	33.8	24	33	20
$\phi 40$	37.3	31	36.5	21
$\phi 50$	43.3	32	37	22
$\phi 63$	49.8	32	42.5	24.5
$\phi 80$	60.3	32	59	49

- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending