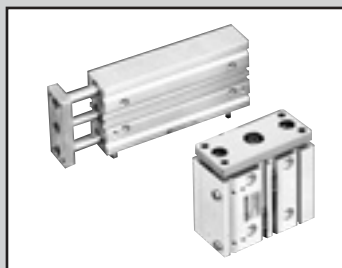


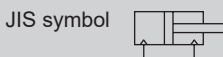
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Guided cylinder, double acting/single rod

STS/STL-M_B Series

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



Specifications

Item	STS-M/B STL-M/B												
	Bore size	mm	$\varnothing 8$	$\varnothing 12$	$\varnothing 16$	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$
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

- Short stroke STS

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

- Long stroke STL

Bore size	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Min. stroke (mm)(switch)
$\varnothing 8$	50,75,100	200	50	50
$\varnothing 12$	125,150			With one or two switches.
$\varnothing 16$	175,200			
$\varnothing 20$	50,75,100 125,150,175 200,225,250 275,300,325 350,375,400	400	30	30
$\varnothing 25$				With one or two switches
$\varnothing 32$				
$\varnothing 40$				
$\varnothing 50$				
$\varnothing 63$				
$\varnothing 80$	75,100,125,150,175 200,225,250,275,300 325,350,375,400	200	55	55
$\varnothing 100$	75,100,125,150,175,200			With one or two switches.

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

Clean-room specifications (Catalog No. CB-033SA)

- Anti-dust generation structure for use in cleanrooms

STS/L-... P7*

STS/L-... P5*

Switch specifications

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

Item	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	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V		T5H/T5V		T8H/T8V		T2YD(*4) T2YDT			
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	-									
Power supply voltage	-				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 100mA		5 to 20 mA (*3)		100 mA or less		50 mA or less		5 to 50mA	7 to 20mA	50 mA or less	20 mA or less	5 to 50mA	7 to 20mA	7 to 10mA	5 to 20mA		
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)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)			
Leakage current	1 mA or less with 100 VAC, 2 mA or less with 200 VAC		1 mA or less		10 µA or less				0mA						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 detailed switch specifications and dimensions.

*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

*3: The 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)

*4: AC magnetic field proof switch (T2YD/T2YDT) cannot be used in DC magnetic fields.

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
ø8	Push	-	7.54	10.1	15.1	20.1	25.1	30.2	35.2	40.2	45.2	50.3
	Pull	-	5.65	7.54	11.3	15.1	18.8	22.6	26.4	30.2	33.9	37.7
ø12	Push	-	17.0	22.6	33.9	45.2	56.5	67.9	79.2	90.5	1.02 x 10 ²	1.13 x 10 ²
	Pull	-	12.7	17.0	25.4	33.9	42.4	50.9	59.4	67.9	76.3	84.8
ø16	Push	-	30.2	40.2	60.3	80.4	1.01 x 10 ²	1.21 x 10 ²	1.41 x 10 ²	1.61 x 10 ²	1.81 x 10 ²	2.01 x 10 ²
	Pull	-	22.6	30.2	45.2	60.3	75.4	90.5	1.06 x 10 ²	1.21 x 10 ²	1.36 x 10 ²	1.51 x 10 ²
ø20	Push	-	47.1	62.8	94.2	1.26 x 10 ²	1.57 x 10 ²	1.88 x 10 ²	2.20 x 10 ²	2.51 x 10 ²	2.83 x 10 ²	3.14 x 10 ²
	Pull	-	35.3	47.1	70.7	94.2	1.18 x 10 ²	1.41 x 10 ²	1.65 x 10 ²	1.88 x 10 ²	2.12 x 10 ²	2.36 x 10 ²
ø25	Push	-	73.6	98.2	1.47 x 10 ²	1.96 x 10 ²	2.45 x 10 ²	2.95 x 10 ²	3.44 x 10 ²	3.93 x 10 ²	4.42 x 10 ²	4.91 x 10 ²
	Pull	-	56.7	75.6	1.13 x 10 ²	1.51 x 10 ²	1.89 x 10 ²	2.27 x 10 ²	2.64 x 10 ²	3.02 x 10 ²	3.40 x 10 ²	3.78 x 10 ²
ø32	Push	80.4	1.21 x 10 ²	1.61 x 10 ²	2.41 x 10 ²	3.22 x 10 ²	4.02 x 10 ²	4.83 x 10 ²	5.63 x 10 ²	6.43 x 10 ²	7.24 x 10 ²	8.04 x 10 ²
	Pull	60.3	90.5	1.21 x 10 ²	1.81 x 10 ²	2.41 x 10 ²	3.02 x 10 ²	3.62 x 10 ²	4.22 x 10 ²	4.83 x 10 ²	5.43 x 10 ²	6.03 x 10 ²
ø40	Push	1.26 x 10 ²	1.88 x 10 ²	2.51 x 10 ²	3.77 x 10 ²	5.03 x 10 ²	6.28 x 10 ²	7.54 x 10 ²	8.80 x 10 ²	1.01 x 10 ³	1.13 x 10 ³	1.26 x 10 ³
	Pull	1.06 x 10 ²	1.58 x 10 ²	2.11 x 10 ²	3.17 x 10 ²	4.22 x 10 ²	5.28 x 10 ²	6.33 x 10 ²	7.39 x 10 ²	8.44 x 10 ²	9.50 x 10 ²	1.06 x 10 ³
ø50	Push	1.96 x 10 ²	2.95 x 10 ²	3.93 x 10 ²	5.89 x 10 ²	7.85 x 10 ²	9.82 x 10 ²	1.18 x 10 ³	1.37 x 10 ³	1.57 x 10 ³	1.77 x 10 ³	1.96 x 10 ³
	Pull	1.65 x 10 ²	2.47 x 10 ²	3.30 x 10 ²	4.95 x 10 ²	6.60 x 10 ²	8.25 x 10 ²	9.90 x 10 ²	1.15 x 10 ³	1.32 x 10 ³	1.48 x 10 ³	1.65 x 10 ³
ø63	Push	3.12 x 10 ²	4.68 x 10 ²	6.23 x 10 ²	9.35 x 10 ²	1.25 x 10 ³	1.56 x 10 ³	1.87 x 10 ³	2.18 x 10 ³	2.49 x 10 ³	2.81 x 10 ³	3.12 x 10 ³
	Pull	2.80 x 10 ²	4.20 x 10 ²	5.61 x 10 ²	8.41 x 10 ²	1.12 x 10 ³	1.40 x 10 ³	1.68 x 10 ³	1.96 x 10 ³	2.24 x 10 ³	2.52 x 10 ³	2.80 x 10 ³
ø80	Push	5.03 x 10 ²	7.54 x 10 ²	1.01 x 10 ³	1.51 x 10 ³	2.01 x 10 ³	2.51 x 10 ³	3.02 x 10 ³	3.52 x 10 ³	4.02 x 10 ³	4.52 x 10 ³	5.03 x 10 ³
	Pull	4.54 x 10 ²	6.80 x 10 ²	9.07 x 10 ²	1.36 x 10 ³	1.81 x 10 ³	2.27 x 10 ³	2.72 x 10 ³	3.17 x 10 ³	3.63 x 10 ³	4.08 x 10 ³	4.54 x 10 ³
ø100	Push	7.85 x 10 ²	1.18 x 10 ³	1.57 x 10 ³	2.36 x 10 ³	3.14 x 10 ³	3.93 x 10 ³	4.71 x 10 ³	5.50 x 10 ³	6.28 x 10 ³	7.07 x 10 ³	7.85 x 10 ³
	Pull	7.15 x 10 ²	1.07 x 10 ³	1.43 x 10 ³	2.14 x 10 ³	2.86 x 10 ³	3.57 x 10 ³	4.29 x 10 ³	5.00 x 10 ³	5.72 x 10 ³	6.43 x 10 ³	7.15 x 10 ³

For cylinder weight, refer to pages 558 to 561.

- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand
- Chuk
- MechHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

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

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

■ Custom stroke

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

E Switch model No.
*1 *3 *5

For the 2-color LED, T1H/V, T8H/V and strong magnetic field proof switches for ø40 and over, insert "L1" with "-" between **A** and **B**.
Example) STS-M-L1-63-50-T2YH3-D-F
For ø80 and ø100, the 2-color LED, 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. (Made-to-order product)
Refer to Ending Page 1 for details.
- *2 : Refer to page 444 (metal bush bearing M) and page 446 (ball bearing B) for combinations of variations/options.
- *3 : T8H/V switch cannot be installed on ø8 to ø16.
- *4 : Refer to page 458 for material details.
- *5 : ø8 to ø25 with ball bearing B are copper and PTFE free as standard.
- *6 : 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, standard single rod

- A** Bearing : Metal bush bearing
- B** Bore size : ø8 mm
- C** Port thread : M5
- D** Stroke : 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	Description
A Bearing	
M	Metal bush bearing
B	Ball bearing

B Bore size (mm)	
8	ø8
12	ø12
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100 (made to order)

C Port thread	
Blank	M5 (ø8 to ø25) Rc thread (ø32 to ø100)
NN	NPT thread (ø32 and over) made-to-order product
GN	G thread (ø32 and over) made-to-order product

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

E Switch model No.						
Straight lead wire	L-shaped lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	●	●			
T2H*	T2V*	Proximity		●	1-color LED	3-wire
T3H*	T3V*			●		
T3PH*	T3PV*			●	1-color LED	3-wire
T2WH*	T2WV*			●	2-color LED	2-wire
T2YH*	T2YV*			●		2-wire
T3WH*	T3WV*			●		3-wire
T3YH*	T3YV*			●		3-wire
T2JH*	T2JV*			●	1-color LED off-delay	2-wire
T2YD*	-			●	2-color LED	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 and guide rod material: SUS) *4
M1	Corrosion proof (Piston rod, guide rod and end plate material: SUS) *4
P6	Copper and PTFE free specifications *5

D Stroke

Series	Stroke (mm)	Applicable bore size										
		ø8	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
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	●	●	●	●	●	●	●	●	●	●	●
	225				●	●	●	●	●	●	●	
	250				●	●	●	●	●	●	●	
	275				●	●	●	●	●	●	●	
	300				●	●	●	●	●	●	●	
	325				●	●	●	●	●	●	●	
	350				●	●	●	●	●	●	●	
	375				●	●	●	●	●	●	●	
400				●	●	●	●	●	●	●		
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.

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

How to order switch

SW - T0V

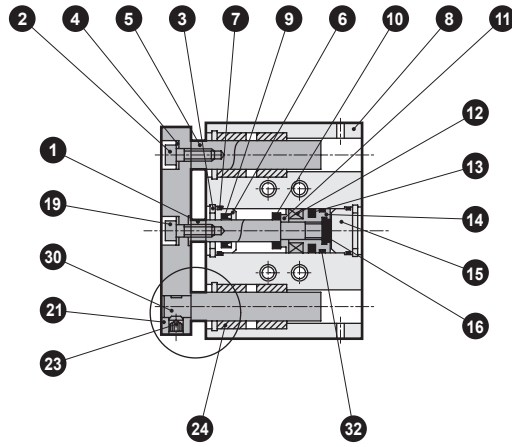
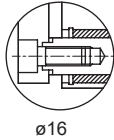
Switch model No.
(Item E on page 450)

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
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Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

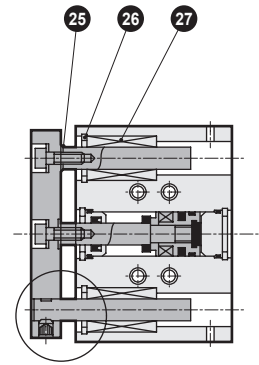
Internal structure and parts list (ø8 to ø80)

● Double acting/
standard single rod
STS-M_B

ø8/ø12/ø16

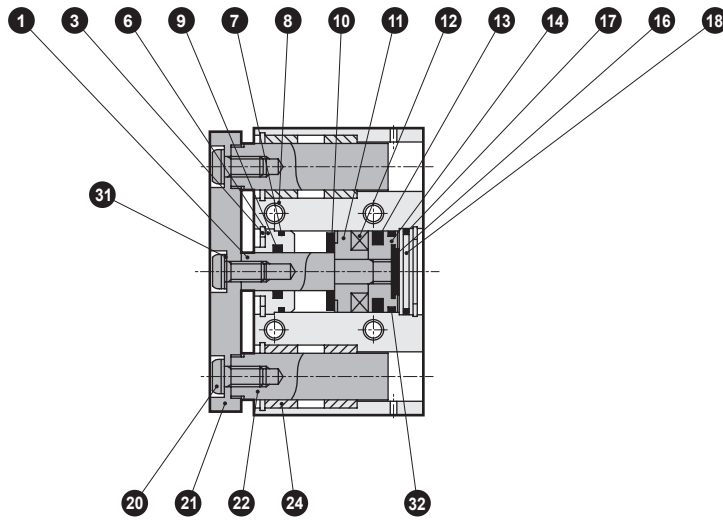


Metal bush bearing

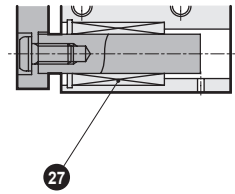


Ball bearing

ø20/ø25

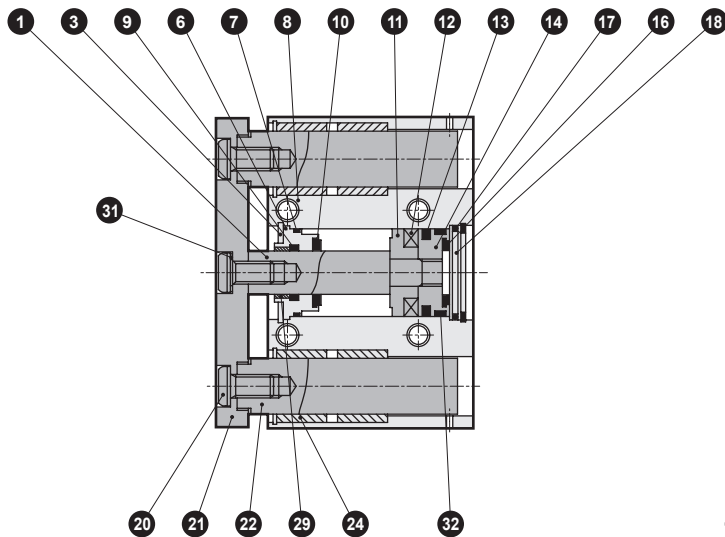


Metal bush bearing

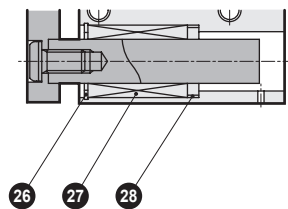


Ball bearing

ø32/ø40/ø50/ø63



Metal bush bearing

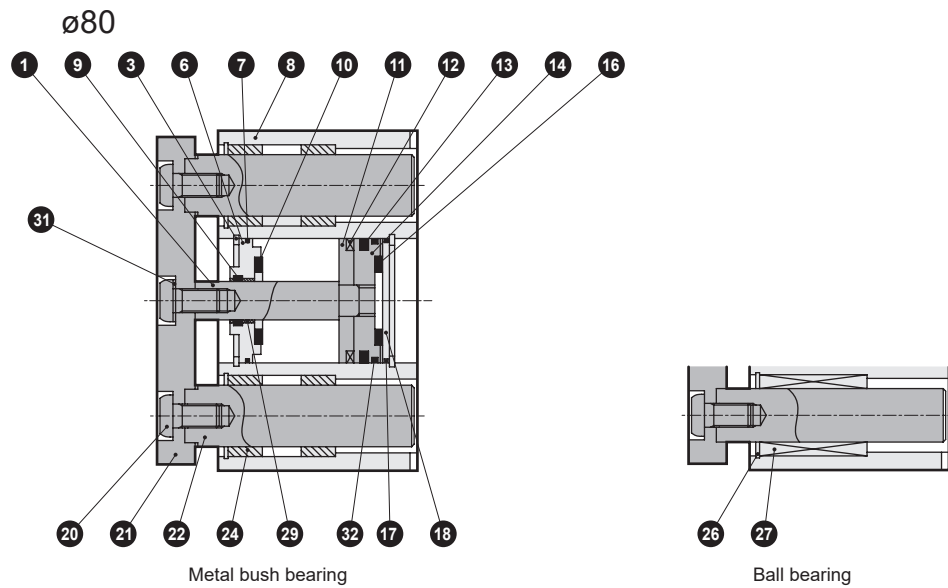


Ball bearing

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Internal structure and parts list (ø8 to ø80)

- Double acting/
standard single rod
STS-M_B



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
STS-M_B (Standard single rod)							
1	Piston rod	Stainless steel (ø8 to ø25) Steel (ø32 to ø80)	Industrial chrome plating	16	Cushion rubber (H)	Urethane rubber	
2	Hexagon socket head cap screw	Steel	Zinc chromate	17	O-ring	Nitrile rubber	
3	C-snap ring	Steel	Zinc phosphate	18	Base plate	Aluminum alloy (ø20 to ø63)	Chromate
4	Plain washer	Steel	Black finish			Steel (ø80)	Zinc chromate
5	Guide rod (1)	M: Stainless steel	Industrial chrome plating (ø12, ø16)	19	Hexagon nut (ø8)	Steel	Zinc chromate
		B: Alloy steel	Industrial chrome plating		Hex socket head cap screw (ø12, ø16)	Steel	Zinc chromate
6	Rod metal	Special aluminum alloy	Alumite (*1)	20	Hexagon socket button head bolt	Steel	Zinc chromate
7	Metal gasket	Nitrile rubber		21	End plate	Aluminum alloy	Alumite
8	Cylinder body	Aluminum alloy	Hard alumite	22	Guide rod (ø20 to ø80)	Steel	Industrial chrome plating
9	Rod packing	Nitrile rubber		23	Hexagon socket set screw (ø8, ø12)	Steel	Black finish
10	Cushion rubber (R)	Urethane rubber		24	Metal	Oil impregnated bearing alloy	
11	Spacer	Aluminum alloy (ø8 to ø12, ø63, ø80)	Chromate (ø8 to ø12, ø63, ø80)	25	Plain washer	Steel	Black finish
		Polyamide (ø20 to ø50)			26	C-snap ring	Steel
12	Magnet			27	Ball bush		
13	Piston packing	Nitrile rubber		28	Collar	Aluminum alloy	
14	Piston	Special aluminum alloy (ø8)	Chromate	29	Bush	Oiles drymet	
		Aluminum alloy (ø12 to ø80)	(ø8, ø20 to ø80)		30	Guide rod (2) (ø8, ø12)	M: Stainless steel B: Alloy steel
15	Cover	Aluminum alloy		31	Disc spring washer	Steel	
				32	Wear ring	Acetal resin	ø12 to ø80

*1: Chromate-coated for ø32 to ø50 only.

Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
	STS-M _B	
ø8	STS-8K	7 9 10 13 16
ø12	STS-12K	7 9 10 13 16 32
ø16	STS-16K	
ø20	STS-20K	
ø25	STS-25K	
ø32	STS-32K	7 9 10 13
ø40	STS-40K	
ø50	STS-50K	16 17 32
ø63	STS-63K	
ø80	STS-80K	

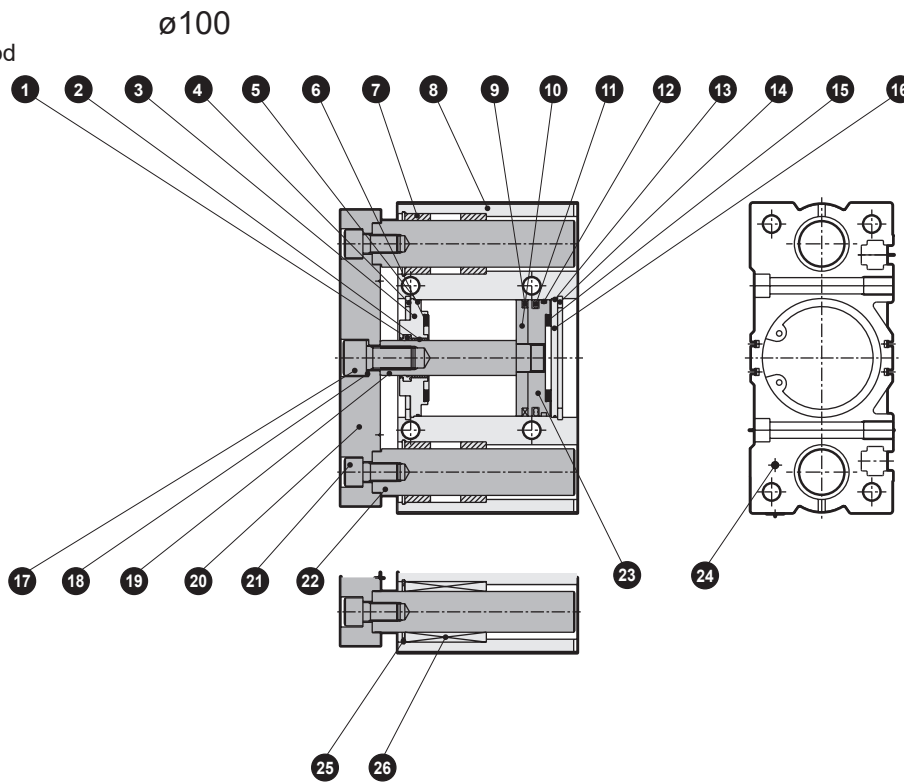
Note: Specify the kit No. when placing an order.

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand
- Chuk
- MechHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

Internal structure and parts list (ø100)

● Double acting/
standard single rod
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-snap ring	Steel	Zinc phosphate
2	Bush	Oiles drymet		15	Cushion rubber (H)	Urethane rubber	
3	Rod metal	Aluminum alloy	Chromate	16	Base plate	Steel	Zinc chromate
4	C-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			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-snap ring	Steel	Zinc phosphate
13	O-ring	Nitrile rubber		26	Ball bearing		

Repair parts kit

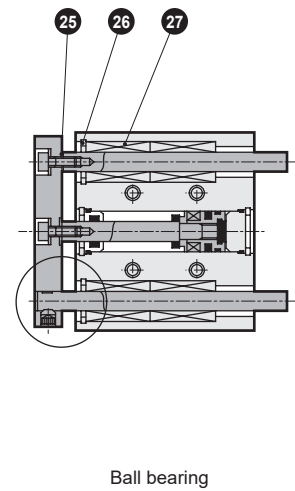
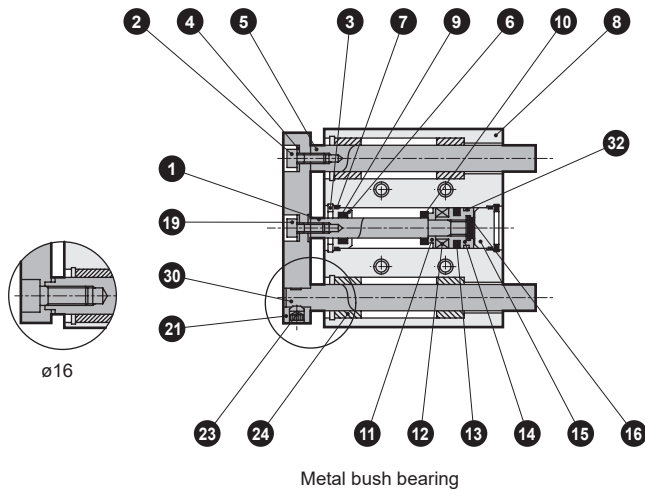
Bore size (mm)	Kit No.	Repair parts No.
	STS-M _B	
ø100	STS-100K	1 5 6 11 12 13 15

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

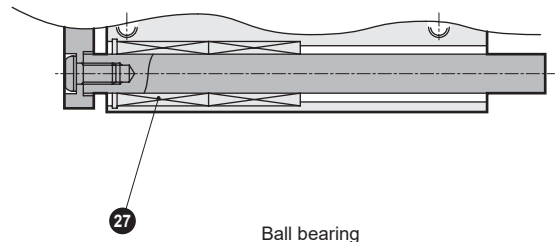
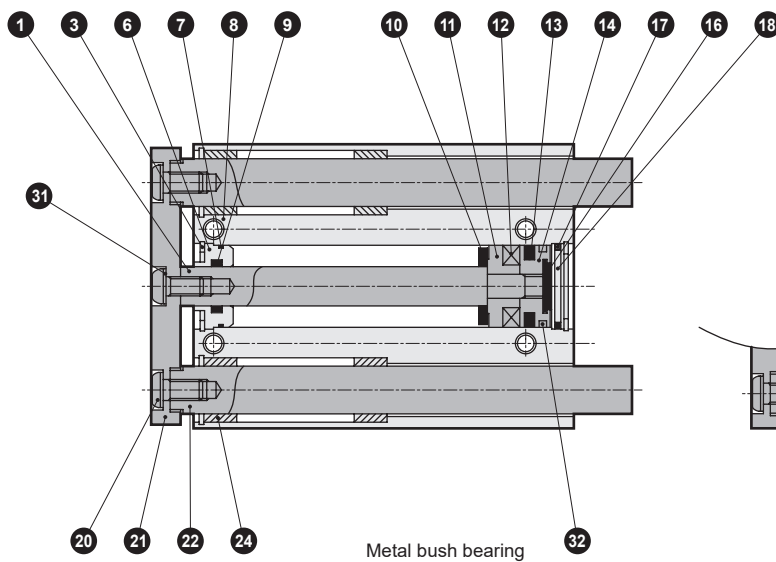
Internal structure and parts list (ø8 to ø80)

● Double acting/standard single rod
STL-M_B

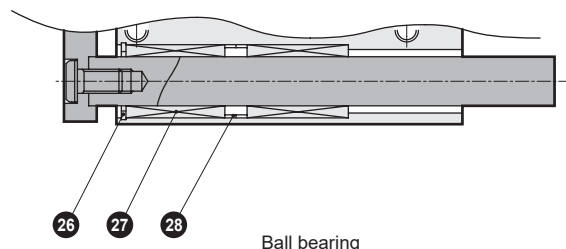
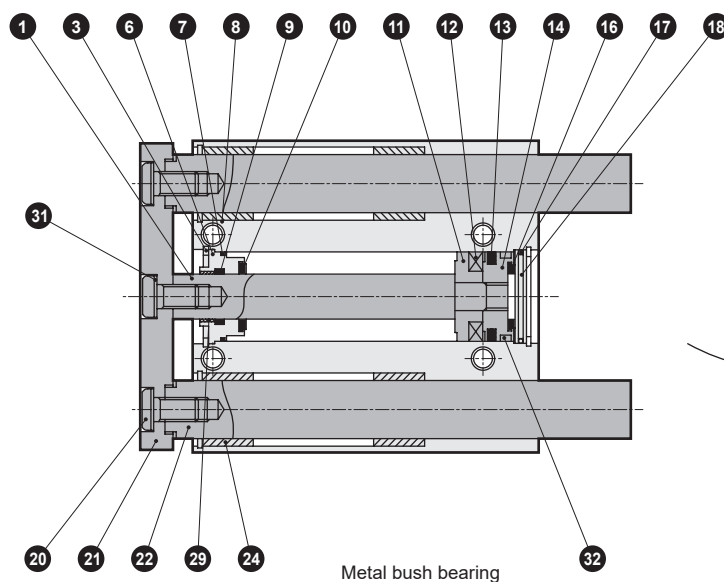
ø8 / ø12 / ø16



ø20 / ø25



ø32 / ø40 / ø50 / ø63

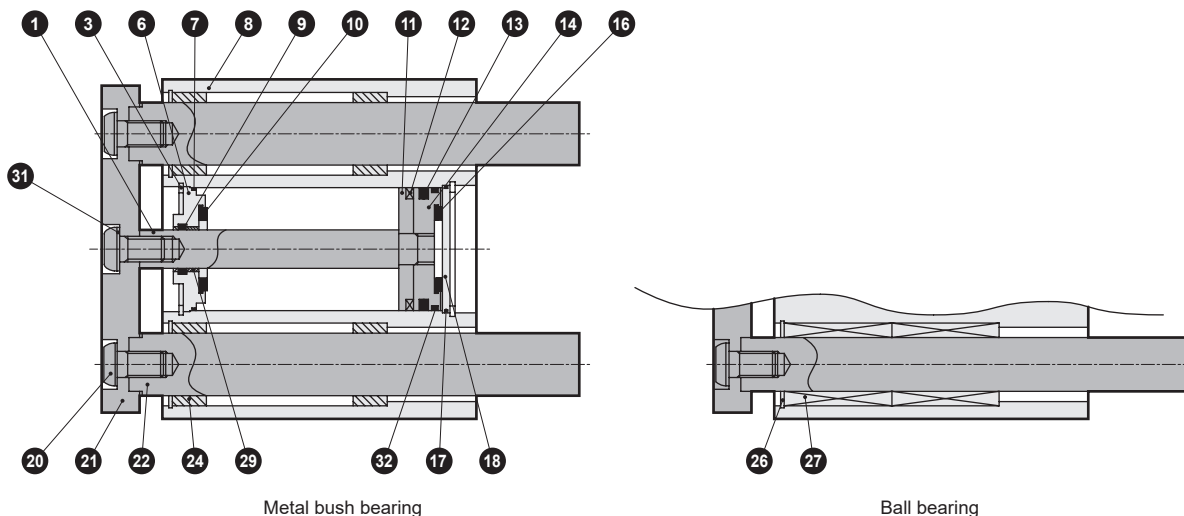


LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Internal structure and parts list (ø8 to ø80)

● Standard single rod ø80

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 (ø8 to ø25) Steel (ø32 to ø80)	Industrial chrome plating	16	Cushion rubber (H)	Urethane rubber	
2	Hexagon socket head cap screw	Steel	Zinc chromate	17	O-ring	Nitrile rubber	
3	C-snap ring	Steel	Zinc phosphate	18	Base plate	Aluminum alloy (ø20 to ø63)	Chromate (ø20 to ø63)
4	Plain washer	Steel	Black finish			Steel (ø80)	Zinc chromate (ø80)
5	Guide rod (1)	M: Stainless steel	Industrial chrome plating (ø12, ø16)	19	Hexagon nut (ø8)	Steel	Zinc chromate
		B: Steel	Industrial chrome plating		Hex socket head cap screw (ø12, ø16)	Steel	
6	Rod metal	Special aluminum alloy	Alumite (*1)	20	Hexagon socket button head bolt	Steel	Zinc chromate
7	Metal gasket	Nitrile rubber		21	End plate	Aluminum alloy	Alumite
8	Cylinder body	Aluminum alloy	Hard alumite	22	Guide rod (ø20 to ø80)	Steel	Industrial chrome plating
9	Rod packing	Nitrile rubber		23	Hexagon socket set screw (ø8, ø12)	Steel	Black finish
10	Cushion rubber (R)	Urethane rubber		24	Metal	Oil impregnated bearing alloy	
11	Spacer	Aluminum alloy (ø8 to ø12, ø63, ø80)	Chromate (ø8, ø12, ø63, ø80)	25	Plain washer	Steel	Black finish
		Polyamide (ø20 to ø50)		26	C-snap ring	Steel	Zinc phosphate
12	Magnet			27	Ball bush		
13	Piston packing	Nitrile rubber		28	Collar	Aluminum alloy	
14	Piston	Special aluminum alloy (ø8)	Chromate	29	Bush	Oiles drymet	
		Aluminum alloy (ø12 to ø80)		30	Guide rod (2) (ø8, ø12)	M: Stainless steel B: Steel	Industrial chrome plating (ø12) Industrial chrome plating
15	Cover	Aluminum alloy		31	Disc spring washer	Steel	
				32	Wear ring	Acetal resin	ø12 to ø80

*1: Chromate-coated for ø32 to ø50 only.

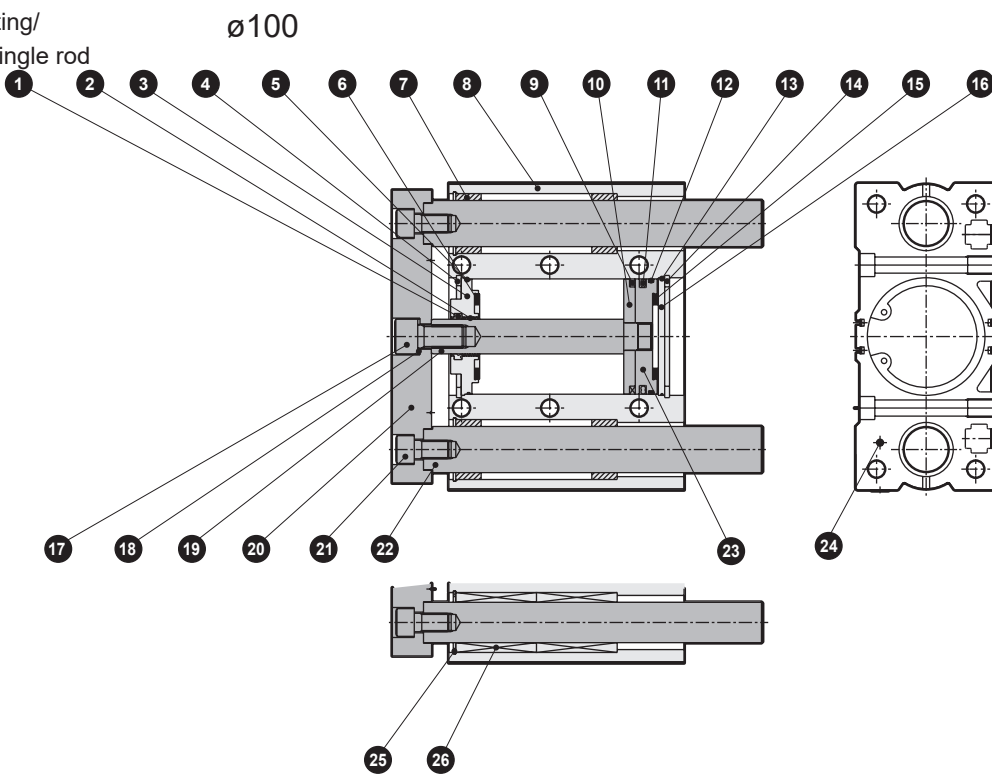
Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
	STL-M _B	
ø8	STS-8K	7 9 10 13 16
ø12	STS-12K	7 9 10 13 16 32
ø16	STS-16K	
ø20	STS-20K	
ø25	STS-25K	
ø32	STS-32K	7 9 10
ø40	STS-40K	
ø50	STS-50K	13 16 17 32
ø63	STS-63K	
ø80	STS-80K	

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

Internal structure and parts list (ø100)

● Double acting/
standard single rod
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-snap ring	Steel	Zinc phosphate
2	Bush	Oiles drymet		15	Cushion rubber (H)	Urethane rubber	
3	Rod metal	Aluminum alloy	Chromate	16	Base plate	Steel	Zinc chromate
4	C-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			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-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	
ø100	STS-100K	1 5 6 11 12 13 15

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

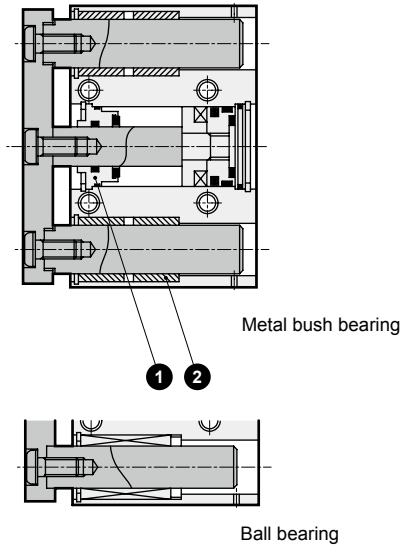
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS/STL-^M_B Series

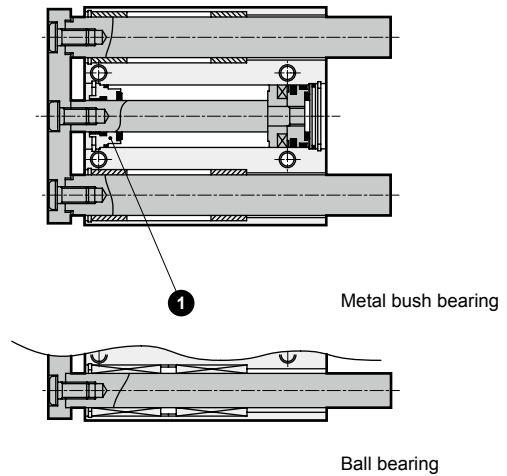
Internal structure and parts list (Copper and PTFE free/Corrosion proof ø8 to ø100)

LCM
LCR
LCG
LCW
LX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

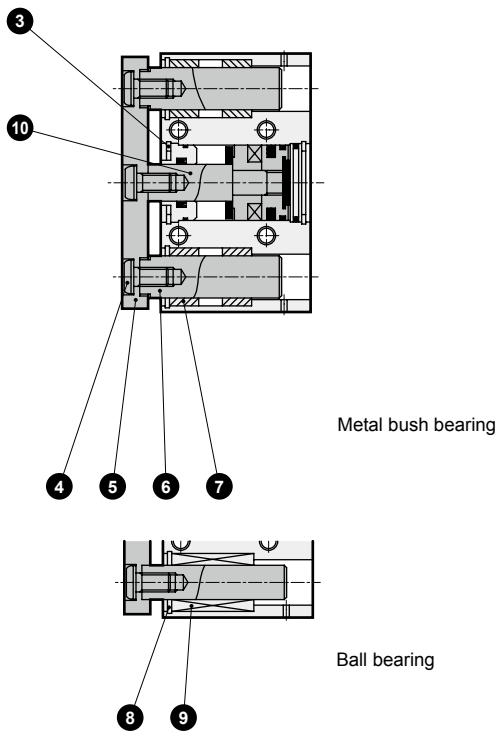
● Copper and PTFE free
STS-^M_B-P6 * P6 does not include a 29 bush.



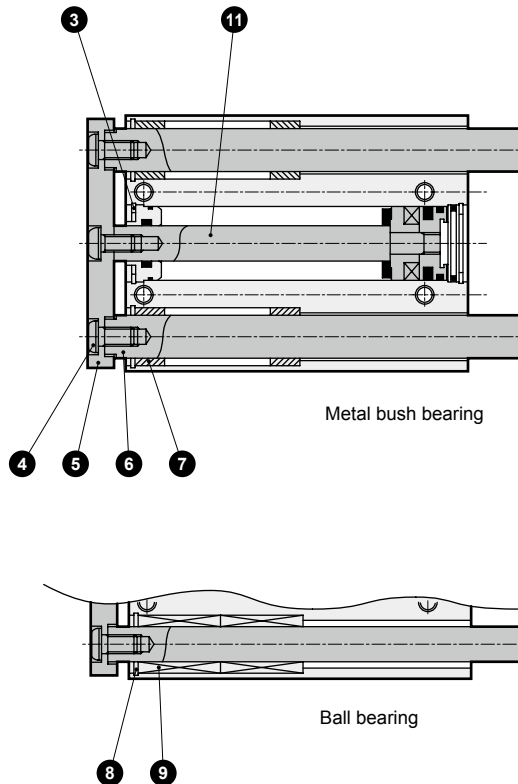
● Copper and PTFE free
STL-^M_B-P6 * P6 does not include a 29 bush.



● Corrosion proof
STS-^M_B-M/M1



● Corrosion proof
STL-^M_B-M/M1



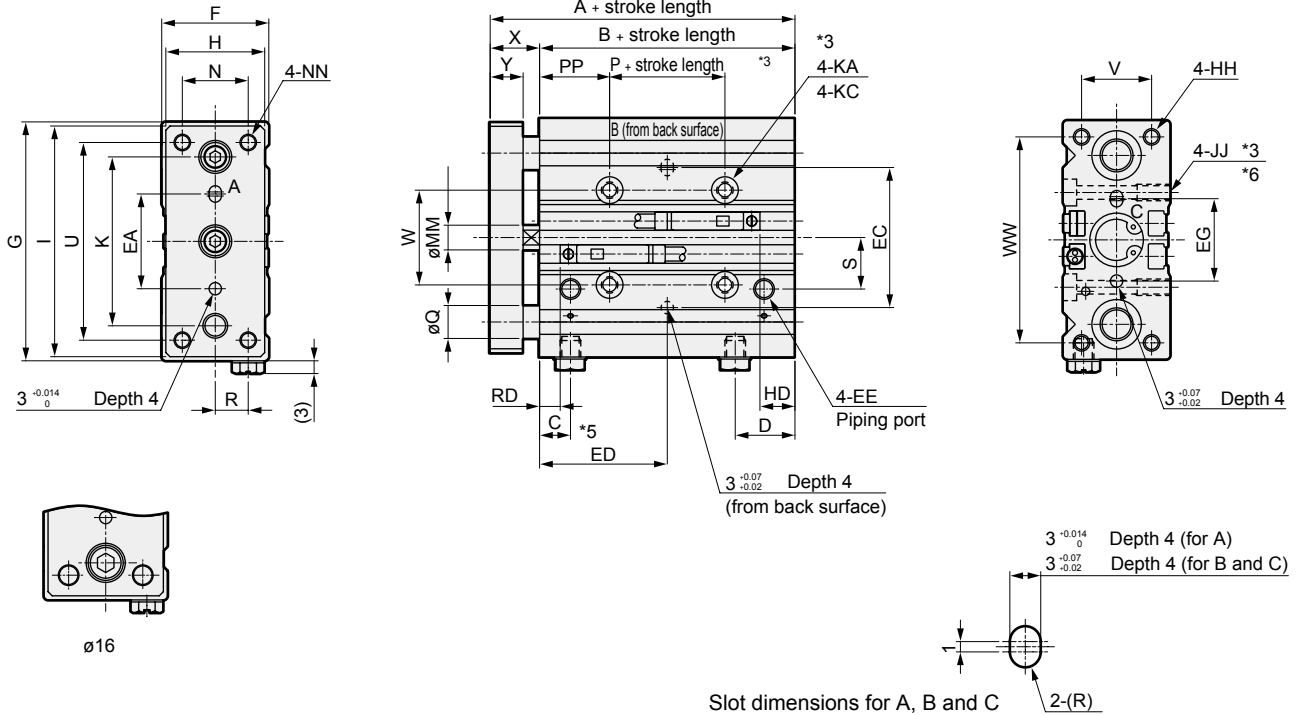
Parts list (Parts not listed below are the same as those of the double acting/standard single rod. Refer to pages 453 to 457.)

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 (ø8 to ø16) C type snap ring (ø32 to ø100)	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 (ø8 to ø100)	Industrial chrome plating
4	Hex socket button head bolt (ø8 to ø80) Hex socket head cap screw (ø100)	Stainless steel		11	Piston rod	Stainless steel Steel (ø8 to ø100)	Industrial chrome plating
5	End plate	M: Aluminum alloy M1: Stainless steel	Alumite				

Dimensions: ø8/ø12/ø16



- 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
ø8	10, 20, 30	40	40	28	11	14.5	6.5	M5	20	25	15+ Stroke length 2	20	24	53	22	M4 depth 8
ø12			44	32	7.5	14.5	7.5	M5	23	34	16+ Stroke length 2	20	26	58	24	M4 depth 8
ø16	40, 50	45	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	P	PP	Q		R
Bore size (mm)	ST5-M		ST5-B										
ø8	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
ø12	56	M4 depth 10	41	3.3 through	6.5 spot face depth 3.3	6	16	M4 through	-2	17	8	6	8
ø16	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		RD		RD		RD		RD		
ø8	13.5	43	16	25	45	12 ⁰ _{-1.5}	8	6.5	2.5	8.5	4.5
ø12	12.5	48	17	23	50	12 ⁰ _{-1.5}	8	5	8.5	7	10.5
ø16	13	52	22	25	54	13 ⁰ _{-1.5}	9	4.5	9.5	6	11.5

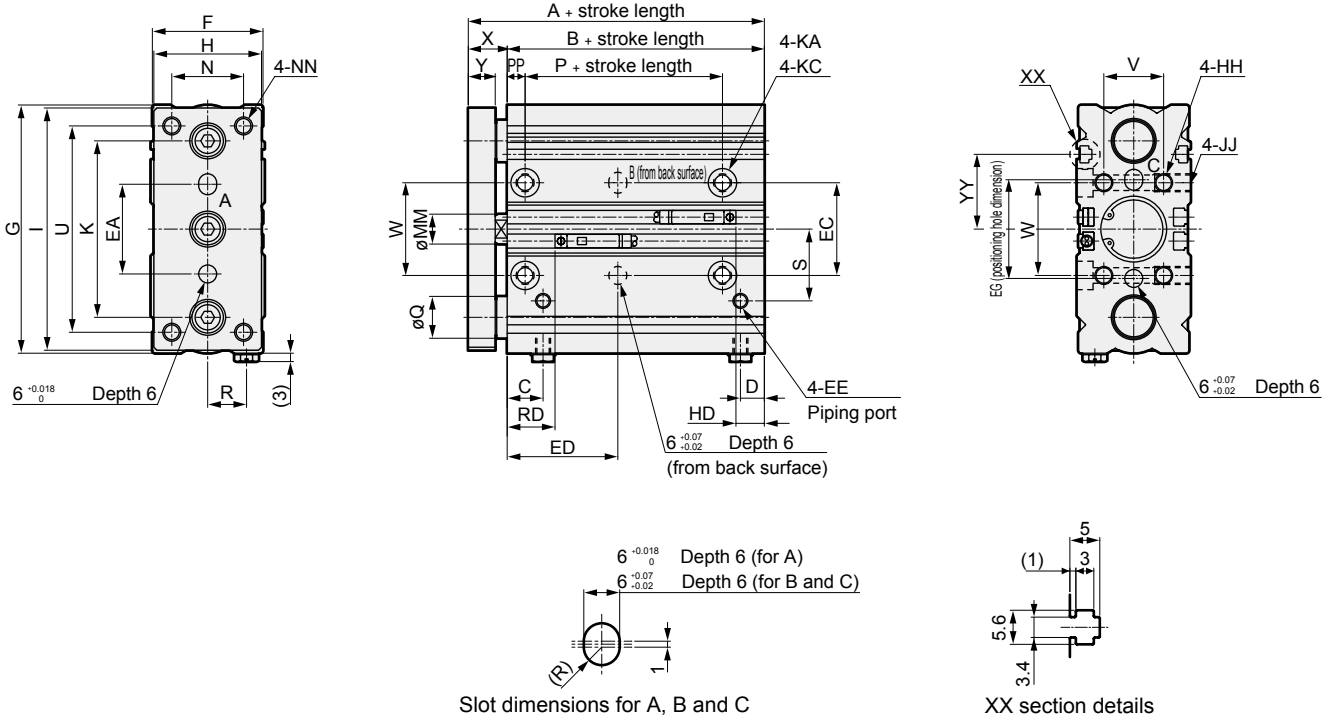
- *1 : HD and RD dimensions for 10 mm stroke length differ from these dimensions according to the setting.
- *2 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.
- *3 : 2-KA, 2-KC and 2-JJ (two mounting holes) for STS-M_B-8-10 (10 mm stroke length).
- *4 : Refer to pages 552 and 553 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.

- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand
- Chuk
- MechHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

Dimensions: $\varnothing 20/\varnothing 25$



- Standard single rod STS-M
- Corrosion proof STS-M-MM1



Code	Standard stroke length (mm)										A	B	C	D	EE	EA	EC	EG	ED	F	G	H	HH	
Bore size (mm)																								
$\varnothing 20$	25, 50										53	40	12	8	M5	30	31	33	14+ $\frac{\text{Stroke length}}{2}$	38	83	36	M6 depth 12	
$\varnothing 25$											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									
$\varnothing 20$	81	M6 depth 12	59	5.2 through	9.5 spot face depth 5.4				10	24	M6 through	20	6	14	12	13								
$\varnothing 25$	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													
$\varnothing 20$	24	69	20	31	13 $\frac{0}{-2}$	9	25	12	9.5	12.5	12.5													
$\varnothing 25$	26	72	24	35	13 $\frac{0}{-2}$	9	27	13	9	14.5	11													

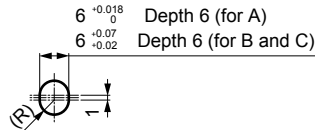
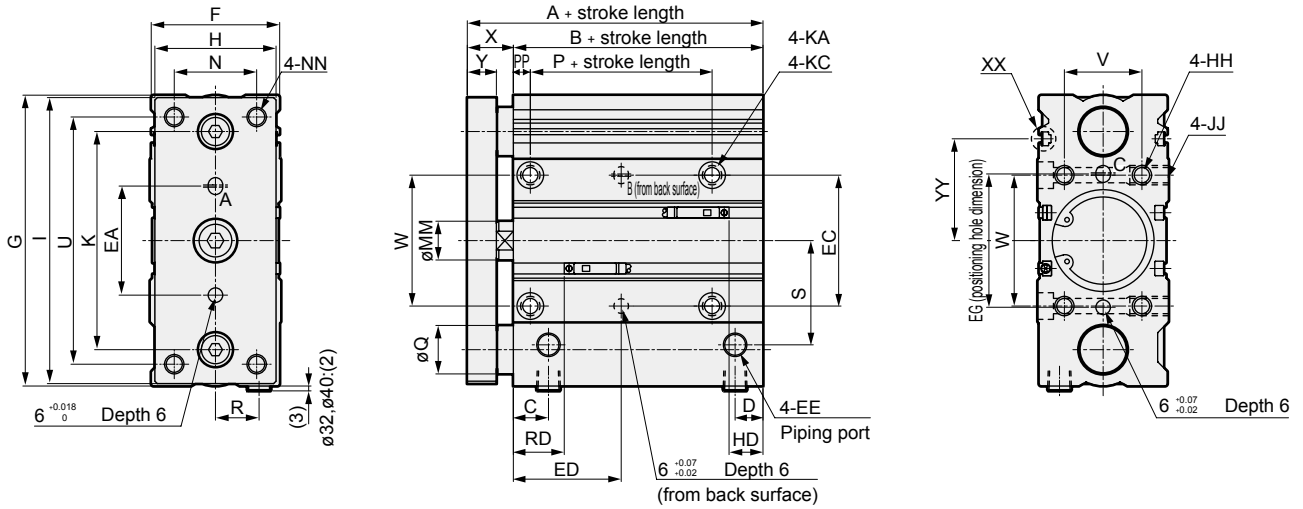
*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

*2 : Refer to pages 552 and 553 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.

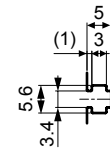
Dimensions: ø32/ø40/ø50/ø63



- 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
ø32	25, 50	68	49	14	10.5	Rc1/8	42	45	46	17.5+ Stroke length 2	47	111	45	M8 depth 16
ø40		72	53	14.5	12	Rc1/8	45	54	55	19.5+ Stroke length 2	54	120	50	M8 depth 16
ø50		77	55	16	12.5	Rc1/4	55	66	69	19.5+ Stroke length 2	66	147	64	M10 depth 20
ø63		83	61	17.5	17.5	Rc1/4	62	79	82	22.5+ Stroke length 2	79	162	75	M10 depth 20

Code	I	JJ	K	KA	KC	MM	N	NN	P	PP	Q		R
Bore size (mm)											STS-M	STS-B	
ø32	109	M8 depth 16	81	6.3 through	11 spot face depth 6.5	16	29	M8 through	22	7	20	16	16
ø40	118	M8 depth 16	90	6.3 through	11 spot face depth 6.5	16	34	M8 through	25	7	20	16	18
ø50	145	M10 depth 20	110	8.6 through	14 spot face depth 8.6	20	44	M10 through	26	8	25	20	22
ø63	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		
Bore size (mm)								RD	HD		
ø32	39	93	25	45	19 ⁰ / ₂	12	39	17.5	13.5	19	15
ø40	43	102	32	54	19 ⁰ / ₂	12	42	21	14	22.5	16
ø50	49	125	38	66	22 ⁰ / ₂	16	45	22	16	23.5	16.5
ø63	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.

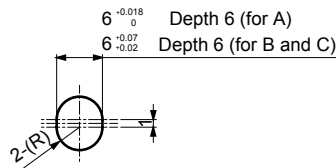
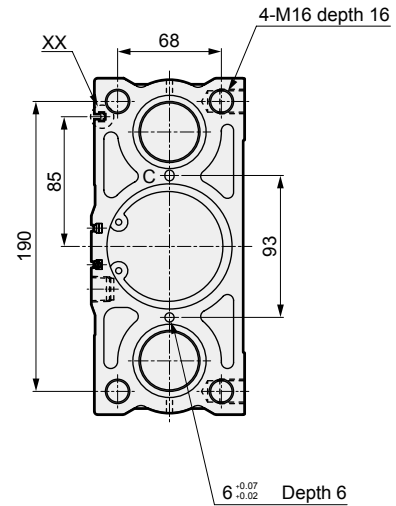
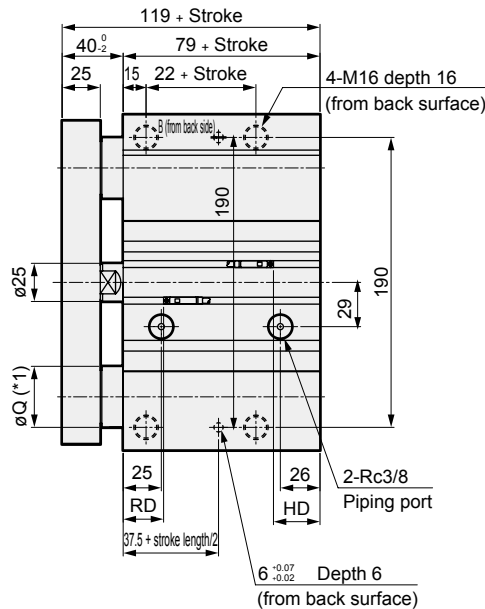
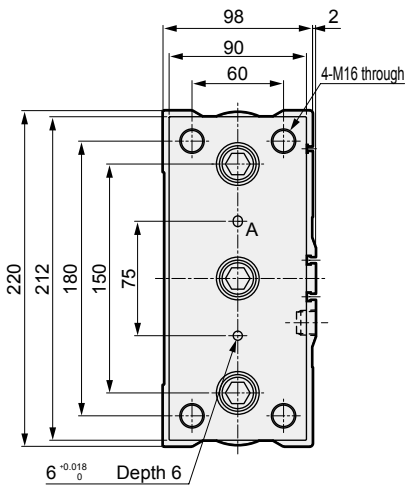
*2 : Refer to pages 552 and 553 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand
- Chuk
- MechHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

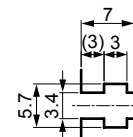


Dimensions: $\varnothing 80$

- 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)				
$\varnothing 80$	26.5	30.5	28	35.5

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

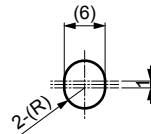
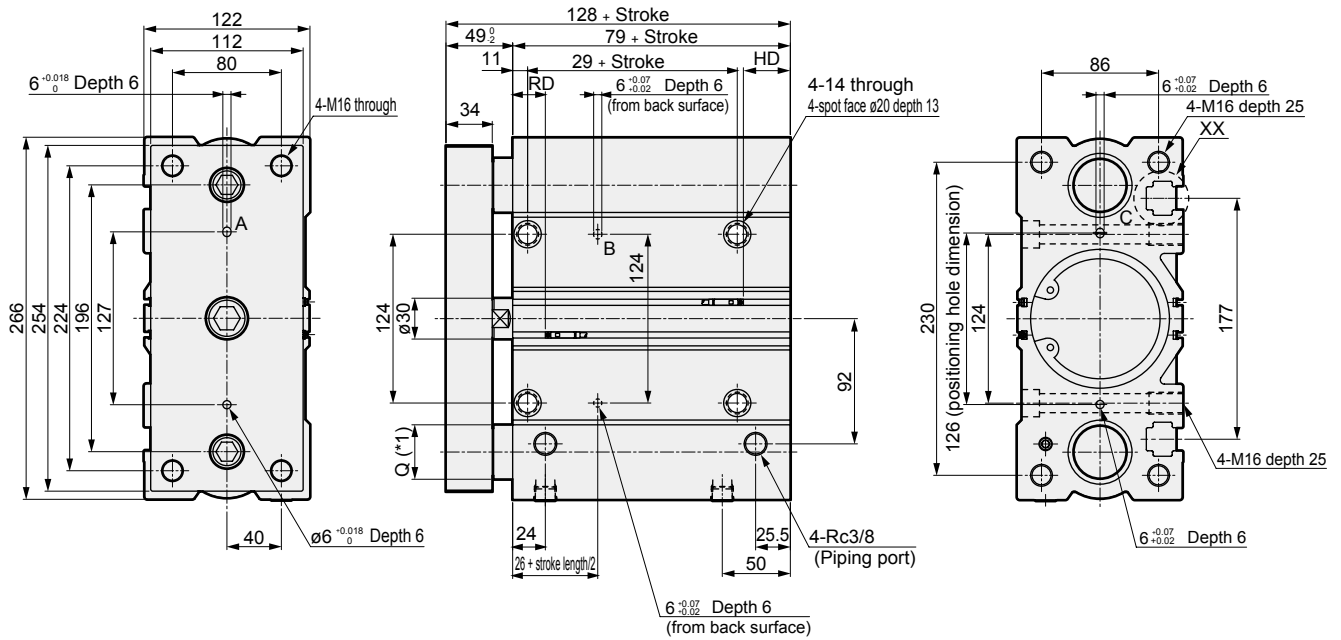
*2 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length. The standard stroke lengths of $\varnothing 80$ are 25, 50, 75 and 100 mm.

*3 : Refer to pages 552 and 553 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.

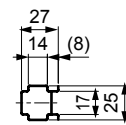
Dimensions: ø100



- 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
ø100	24	34.5	27	37

*1 : Dimension Q is ø40 for M (metal bush bearing) and ø35 for B (ball bearing).

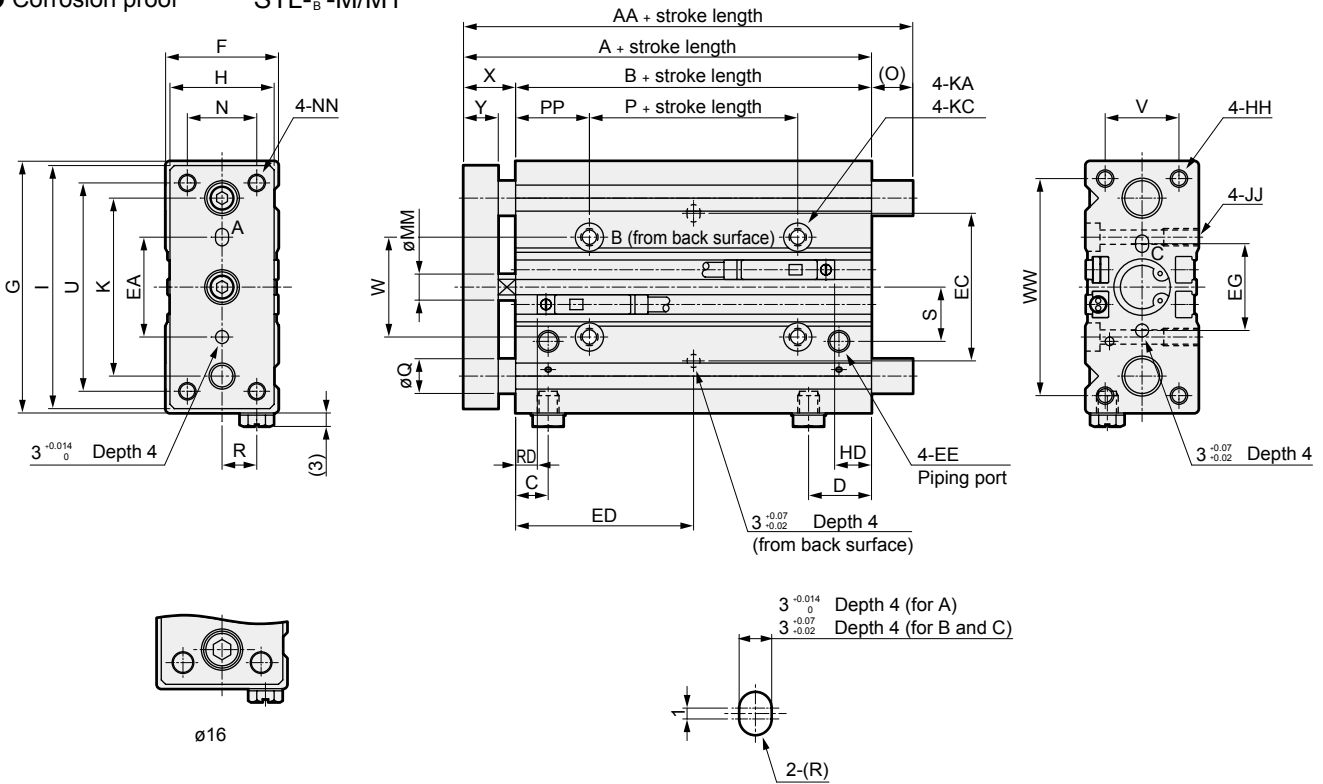
*2 : Refer to pages 552 and 553 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

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



- 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
$\varnothing 8$	50, 75, 100, 125, 150, 175, 200	40	46	28	11	14.5	6.5	M5	20	25	15+ <small>Stroke length z</small>	20	24	53	22	M4 depth 8
$\varnothing 12$		44	53.5	32	7.5	14.5	7.5	M5	23	34	16+ <small>Stroke length z</small>	20	26	58	24	M4 depth 8
$\varnothing 16$		45	64	32	7.5	17	7.5	M5	24	36	16+ <small>Stroke length z</small>	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											
$\varnothing 8$	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
$\varnothing 12$	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
$\varnothing 16$	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				
$\varnothing 8$	13.5	43	16	25	45	$12^{+0}_{-1.5}$	8	6.5	2.5	8.5	4.5
$\varnothing 12$	12.5	48	17	23	50	$12^{+0}_{-1.5}$	8	5	8.5	7	10.5
$\varnothing 16$	13	52	22	25	54	$13^{+0}_{-1.5}$	9	4.5	9.5	6	11.5

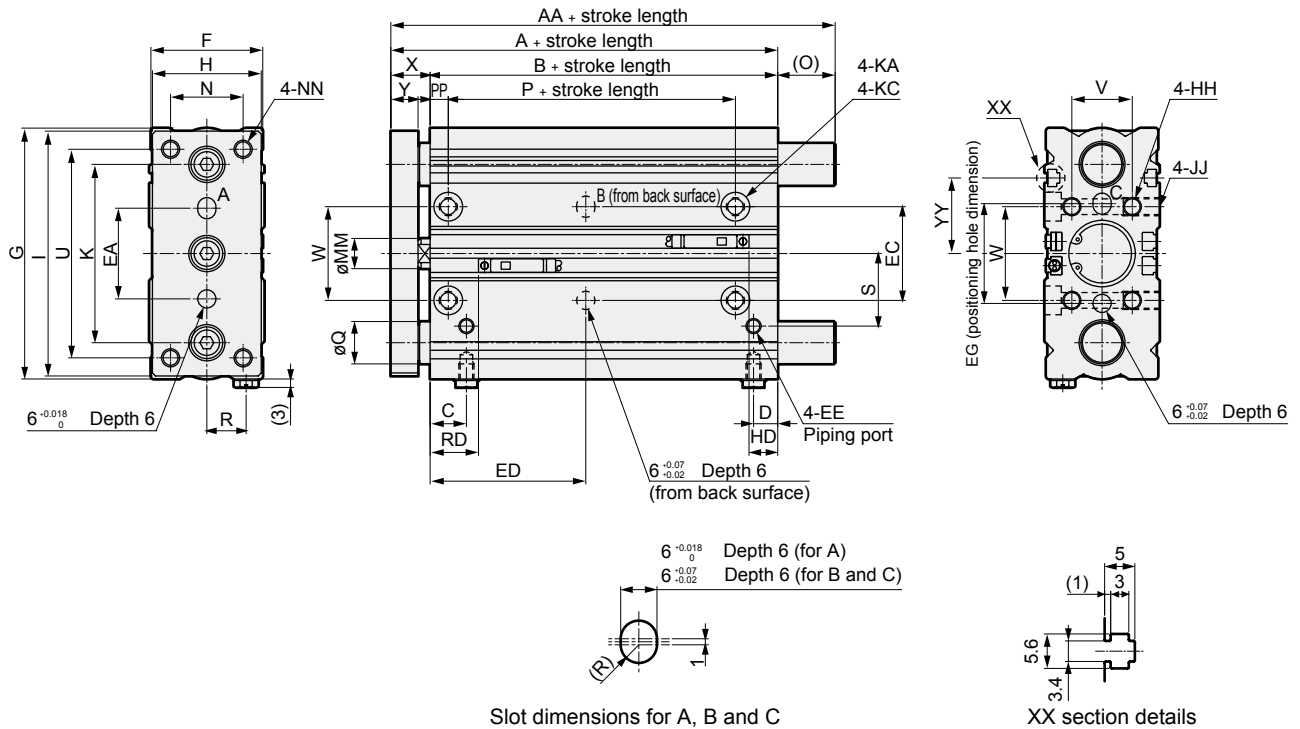
*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

*2 : Refer to pages 552 and 553 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: $\varnothing 20/\varnothing 25$



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



LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechAndChuk
ShkAbs
FJ
FK
SpdContr
Ending

Code	Standard stroke length (mm)												A	AA	B	C	D	EE	EA	EC	EG	ED		F	G	H
Bore size (mm)																						Stroke length 2				
$\varnothing 20$	50, 75, 100, 125, 150, 175, 200, 225,												53	72	40	12	8	M5	30	31	33	14.0+		38	83	36
$\varnothing 25$	250, 275, 300, 325, 350, 375, 400												54	72	41	12	9	M5	32	35	37	14.5+		42	86	38
Code	HH	I	JJ	K	KA	KC		MM	N	NN	O	P	PP	Q		R										
Bore size (mm)														STL-M	STL-B											
$\varnothing 20$	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										
$\varnothing 25$	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																
Bore size (mm)								RD	HD	RD	HD															
$\varnothing 20$	24	69	20	31	13 _{0.2}	9	25	12	9.5	12.5	12.5															
$\varnothing 25$	26	72	24	35	13 _{0.2}	9	27	13	9	14.5	11															

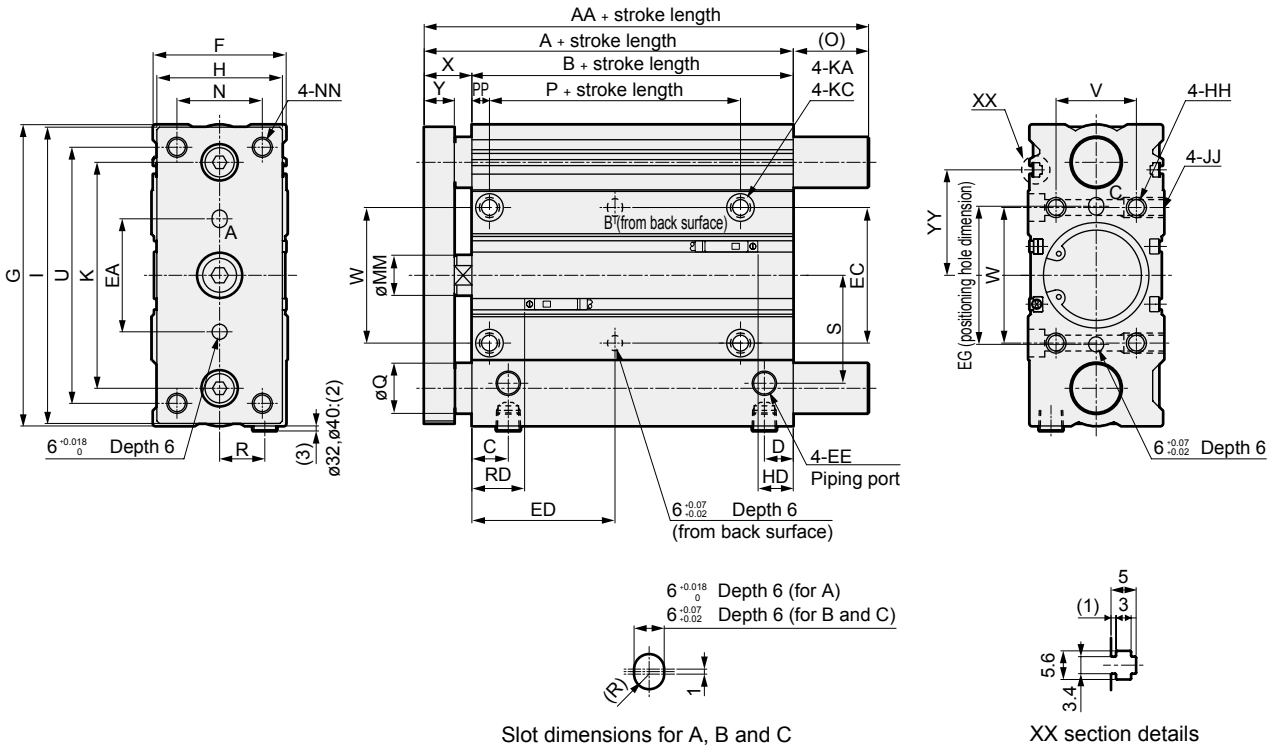
*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

*2 : Refer to pages 552 and 553 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				
Hand	$\phi 32$	68	102	49	14	10.5	Rc1/8	42	45	46	17.5+ Stroke length 2	47	111	45	M8 depth 16				
Chuk	$\phi 40$	72	102	53	14.5	12	Rc1/8	45	54	55	19.5+ Stroke length 2	54	120	50	M8 depth 16				
MecHnd/Chuk	$\phi 50$	77	125	55	16	12.5	Rc1/4	55	66	69	19.5+ Stroke length 2	66	147	64	M10 depth 20				
ShkAbs	$\phi 63$	83	125	61	17.5	17.5	Rc1/4	62	79	82	22.5+ Stroke length 2	79	162	75	M10 depth 20				
Code	I	JJ	K	KA	KC	MM	N	NN	O	P	PP	Q		R	S	U	V	W	
SpdContr	$\phi 32$	109	M8 depth 16	81	6.3 through	11 spot face depth 6.5	16	29	M8 through	34	22	7	STL-M	STL-B	16	39	93	25	45
Ending	$\phi 40$	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													
Hand	$\phi 32$	19 ⁰ / ₂	12	39	RD	HD	RD	HD											
	$\phi 40$	19 ⁰ / ₂	12	42	17.5	13.5	19	15											
	$\phi 50$	22 ⁰ / ₂	16	45	21	14	22.5	16											
	$\phi 63$	22 ⁰ / ₂	16	52	20	23	21.5	24.5											

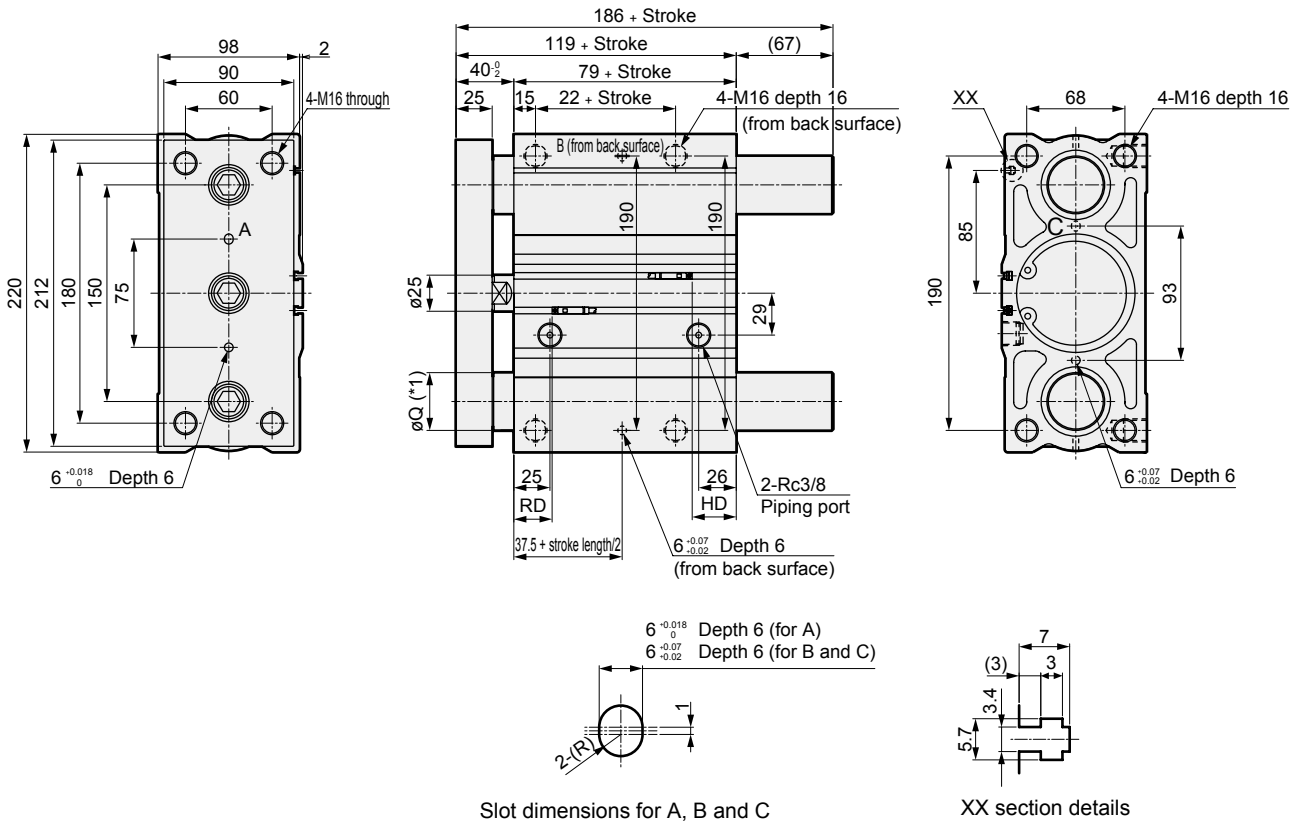
*1 : All dimensions not shown are the same as those of the standard. When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

*2 : Refer to pages 552 and 553 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: ø80 

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

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



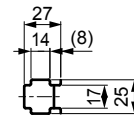
Code	T0/T5/T2/T3		T2W/T3W	
Bore size (mm)	RD	HD	RD	HD
ø80	26.5	30.5	28	35.5

- *1 : ø40 for M (metal bush bearing) and ø35 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 ø80 can be selected from 75 to 400 mm in 25 mm increments.
 *3 : Refer to pages 552 and 553 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.



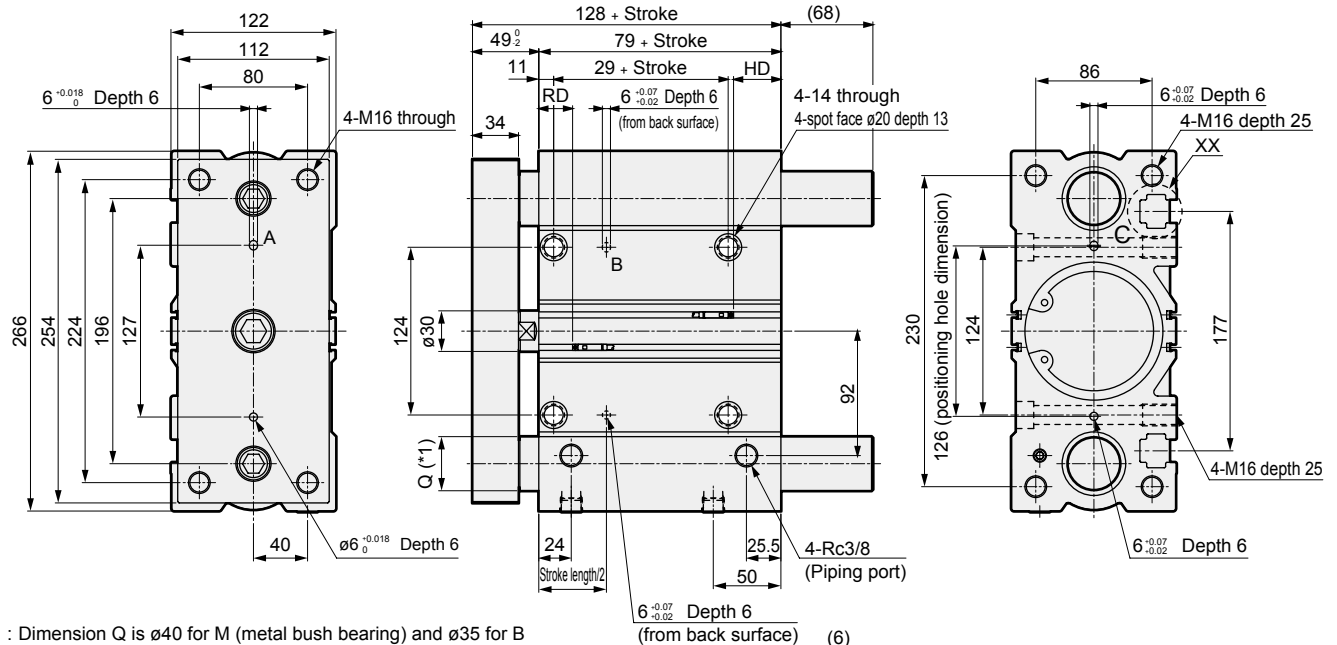
Dimensions: $\varnothing 100$

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



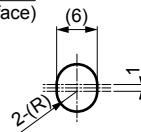
XX section details

[100 or less stroke length]



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

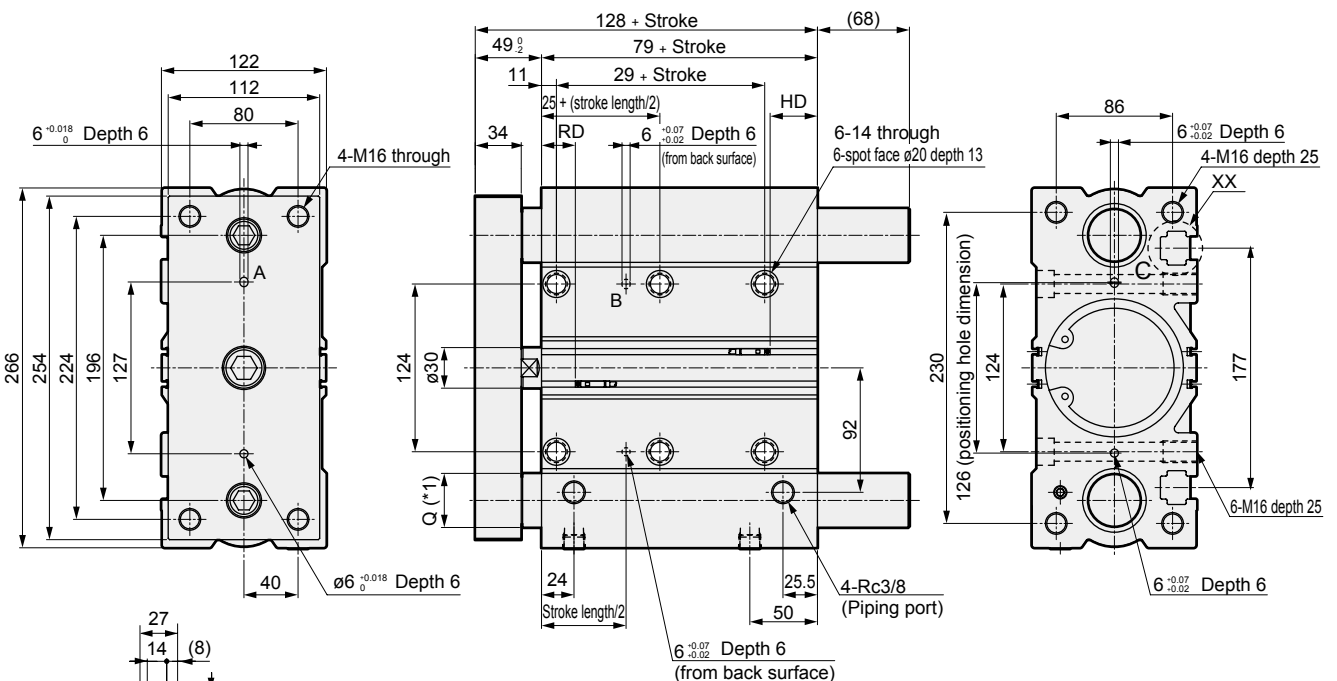
*2 : Refer to pages 552 and 553 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.



Slot dimensions for A, B and C

Code	T0/T5/T2/T3		T2W/T3W	
	RD	HD	RD	HD
Bore size (mm)	25	35	27	37
$\varnothing 100$				

[125 and over stroke length]



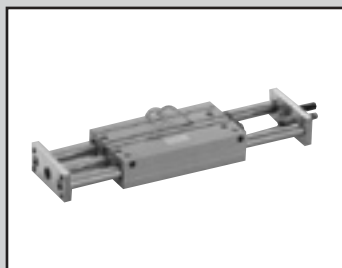
XX section details

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

MEMO

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Guided cylinder Double acting/stroke adjustable

STS/STL-M_BP Series

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

JIS symbol



Specifications

Item	STS-MP/BP STL-MP/BP											
	Bore size	mm	$\varnothing 8$	$\varnothing 12$	$\varnothing 16$	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$
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

● Short stroke STS

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

● Long stroke STL

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

Switch specifications

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

Item	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	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD(*4) T2YDT			
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 100mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50mA	7 to 20mA	50 mA or less	20 mA or less	5 to 50mA	7 to 20mA	7 to 10mA	5 to 20mA
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)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)	
Leakage current	1 mA or less with 100 VAC, 2 mA or less with 200 VAC	1 mA or less			10 µA or less				0mA				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 detailed switch specifications and dimensions.

*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

*3: The 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)

*4: AC magnetic field proof switch (T2YD/T2YDT) cannot be used in DC magnetic fields.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø8	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
ø12	Push	-	22.6	33.9	45.2	56.5	67.9	79.2	90.5	1.02 x 10 ²	1.13 x 10 ²
	Pull	-	17.0	25.4	33.9	42.4	50.9	59.4	67.9	76.3	84.8
ø16	Push	-	40.2	60.3	80.4	1.01 x 10 ²	1.21 x 10 ²	1.41 x 10 ²	1.61 x 10 ²	1.81 x 10 ²	2.01 x 10 ²
	Pull	-	30.2	45.2	60.3	75.4	90.5	1.06 x 10 ²	1.21 x 10 ²	1.36 x 10 ²	1.51 x 10 ²
ø20	Push	-	62.8	94.2	1.26 x 10 ²	1.57 x 10 ²	1.88 x 10 ²	2.20 x 10 ²	2.51 x 10 ²	2.83 x 10 ²	3.14 x 10 ²
	Pull	-	47.1	70.7	94.2	1.18 x 10 ²	1.41 x 10 ²	1.65 x 10 ²	1.88 x 10 ²	2.12 x 10 ²	2.36 x 10 ²
ø25	Push	-	98.2	1.47 x 10 ²	1.96 x 10 ²	2.45 x 10 ²	2.95 x 10 ²	3.44 x 10 ²	3.93 x 10 ²	4.42 x 10 ²	4.91 x 10 ²
	Pull	-	75.6	1.13 x 10 ²	1.51 x 10 ²	1.89 x 10 ²	2.27 x 10 ²	2.64 x 10 ²	3.02 x 10 ²	3.40 x 10 ²	3.78 x 10 ²
ø32	Push	1.21 x 10 ²	1.61 x 10 ²	2.41 x 10 ²	3.22 x 10 ²	4.02 x 10 ²	4.83 x 10 ²	5.63 x 10 ²	6.43 x 10 ²	7.24 x 10 ²	8.04 x 10 ²
	Pull	90.5	1.21 x 10 ²	1.81 x 10 ²	2.41 x 10 ²	3.02 x 10 ²	3.62 x 10 ²	4.22 x 10 ²	4.83 x 10 ²	5.43 x 10 ²	6.03 x 10 ²
ø40	Push	1.88 x 10 ²	2.51 x 10 ²	3.77 x 10 ²	5.03 x 10 ²	6.28 x 10 ²	7.54 x 10 ²	8.80 x 10 ²	1.01 x 10 ³	1.13 x 10 ³	1.26 x 10 ³
	Pull	1.58 x 10 ²	2.11 x 10 ²	3.17 x 10 ²	4.22 x 10 ²	5.28 x 10 ²	6.33 x 10 ²	7.39 x 10 ²	8.44 x 10 ²	9.50 x 10 ²	1.06 x 10 ³
ø50	Push	2.95 x 10 ²	3.93 x 10 ²	5.89 x 10 ²	7.85 x 10 ²	9.82 x 10 ²	1.18 x 10 ³	1.37 x 10 ³	1.57 x 10 ³	1.77 x 10 ³	1.96 x 10 ³
	Pull	2.47 x 10 ²	3.30 x 10 ²	4.95 x 10 ²	6.60 x 10 ²	8.25 x 10 ²	9.90 x 10 ²	1.15 x 10 ³	1.32 x 10 ³	1.48 x 10 ³	1.65 x 10 ³
ø63	Push	4.68 x 10 ²	6.23 x 10 ²	9.35 x 10 ²	1.25 x 10 ³	1.56 x 10 ³	1.87 x 10 ³	2.18 x 10 ³	2.49 x 10 ³	2.81 x 10 ³	3.12 x 10 ³
	Pull	4.20 x 10 ²	5.61 x 10 ²	8.41 x 10 ²	1.12 x 10 ³	1.40 x 10 ³	1.68 x 10 ³	1.96 x 10 ³	2.24 x 10 ³	2.52 x 10 ³	2.80 x 10 ³
ø80	Push	7.54 x 10 ²	1.01 x 10 ³	1.51 x 10 ³	2.01 x 10 ³	2.51 x 10 ³	3.02 x 10 ³	3.52 x 10 ³	4.02 x 10 ³	4.52 x 10 ³	5.03 x 10 ³
	Pull	6.80 x 10 ²	9.07 x 10 ²	1.36 x 10 ³	1.81 x 10 ³	2.27 x 10 ³	2.72 x 10 ³	3.17 x 10 ³	3.63 x 10 ³	4.08 x 10 ³	4.54 x 10 ³

For cylinder weight, refer to pages 558 to 561.

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/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

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

E Switch model No.

*1 *3 *4

For the 2-color LED, T1H/V, T8H/V and AC magnetic field proof switches for ø40 and over, insert "L1" with "-" between **A** and **B**.
(Example) STS-MP-L1-63-50-T2YH3-D-F

For ø80, the 2-color LED, 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. (Made-to-order product)
Refer to Ending Page 1 for details.

*2 : Refer to pages 444 to 447 for combinations of variations/options.

*3 : T8H/V switch cannot be installed on ø8 to ø16.

*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, standard/stroke adjustable

- A** Bearing : Metal bush bearing
- B** Bore size : ø8 mm
- C** Port thread : M5
- D** Stroke : 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	Description
A Bearing	
M	Metal bush bearing
B	Ball bearing

B Bore size (mm)	
8	ø8
12	ø12
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80

C Port thread	
Blank	M5 (ø8 to ø25) Rc thread (ø32 to ø80)
NN	NPT thread (ø32 and over) made-to-order product
GN	G thread (ø32 and over) made-to-order product

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

E Switch model No.						
Straight lead wire	L-shaped lead wire	Voltage		Contact	Indicator	Lead wire
		AC	DC			
T0H*	T0V*	●	●	Reed	1-color LED	2-wire
T5H*	T5V*	●	●		No indicator lamp	
T8H*	T8V*	●	●	Proximity	1-color LED	3-wire
T1H*	T1V*	●				
T2H*	T2V*		●			
T3H*	T3V*		●			
T3PH*	T3PV*		●	1-color LED	3-wire	
T2WH*	T2WV*		●			
T2YH*	T2YV*		●	2-color LED	2-wire	2-wire
T3WH*	T3WV*		●		3-wire	3-wire
T3YH*	T3YV*		●	1-color LED off-delay	2-wire	
T2JH*	T2JV*		●			
T2YD*	-		●	2-color LED 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

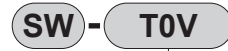
G Option	
F	End plate material: steel

D Stroke

Series	Stroke (mm)	Applicable bore size									
		ø8	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80
STS	10	●	●	●							
	20	●	●	●							
	25				●	●	●	●	●	●	●
	30	●	●	●							
	40	●	●	●							
	50	●	●	●	●	●	●	●	●	●	●
	75										●
	100									●	
	Min. stroke	5									
STL	50	●	●	●	●	●	●	●	●	●	●
	75	●	●	●	●	●	●	●	●	●	●
	100	●	●	●	●	●	●	●	●	●	●
	125	●	●	●	●	●	●	●	●	●	●
	150	●	●	●	●	●	●	●	●	●	●
	175	●	●	●	●	●	●	●	●	●	●
	200	●	●	●	●	●	●	●	●	●	●
	225				●	●	●	●	●	●	●
	250				●	●	●	●	●	●	●
	275				●	●	●	●	●	●	●
	300				●	●	●	●	●	●	●
	325				●	●	●	●	●	●	●
	350				●	●	●	●	●	●	●
	375				●	●	●	●	●	●	●
400				●	●	●	●	●	●	●	
	Min. stroke	50									

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

How to order switch



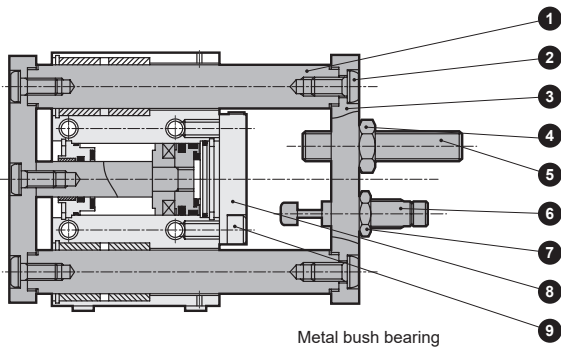
Switch model No.
(Item E on page 472)

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

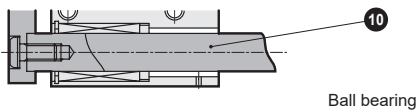
Internal structure and parts list

● Stroke adjustable

STS-M_BP

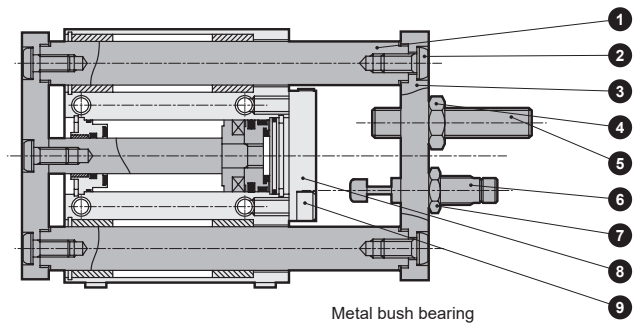


Metal bush bearing

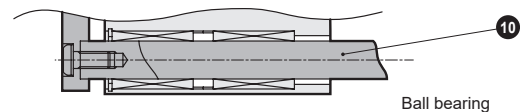


Ball bearing

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 453 to 456.)

No.	Part name	Material	Remarks
ST_L^S-M_BP (Stroke adjustable)			
1	Guide rod	Steel	Industrial chrome plating
2	Hexagon socket button head bolt	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	Steel	Zinc chromate
10	Guide rod	Steel	Industrial chrome plating

Repair parts list

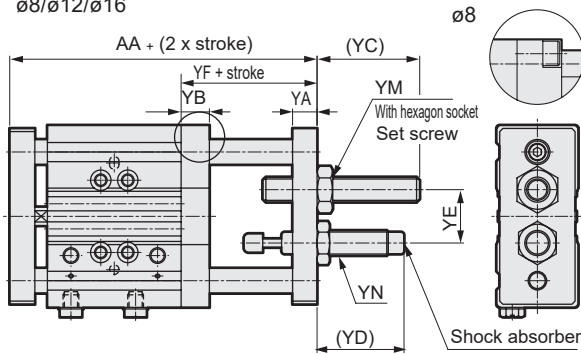
The repair parts list is common with the double acting/single rod. Refer to page 453 for STS Series and page 456 for STL Series.



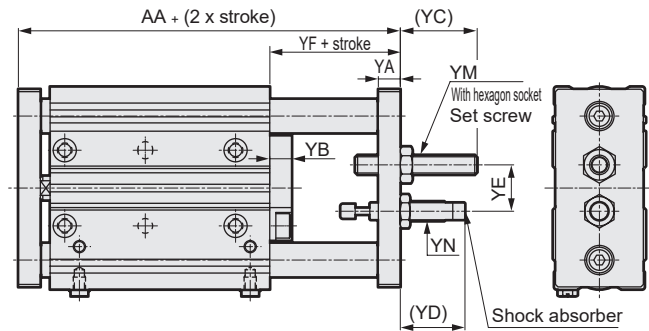
Dimensions

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

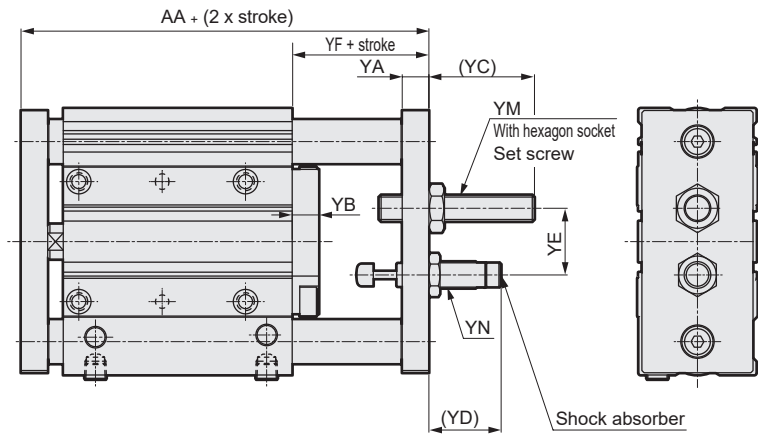
ø8/ø12/ø16



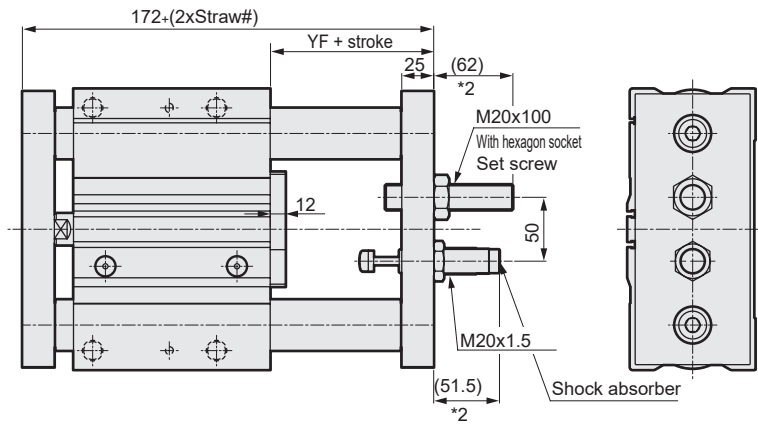
ø20/ø25



ø32/ø40/ø50/ø63



ø80



Code	AA	YA	YB	YC *2	YD *2	YE	YF	YM	YN	Shock absorber model No.
ø8	67.5	8	9	32.5	27.5	17	27.5	M8X50	M8X0.75	NCK-00-0.3-C
ø12	71.5	8	9	32.5	27.5	17	27.5	M8X50	M8X0.75	NCK-00-0.3-C
ø16	73.5	9	9	31.5	26.5	17	28.5	M8X50	M8X0.75	NCK-00-0.3-C
ø20	81.5	9	9	31.5	26.5	19	28.5	M8X50	M8X0.75	NCK-00-0.3-C
ø25	84	9	9	30	29	19	30	M8X50	M10X1	NCK-00-0.7-C
ø32	104.5	12	12	47.5	32.5	30	36.5	M12X70	M12X1	NCK-00-1.2-C
ø40	108.5	12	12	47.5	32.5	30	36.5	M12X70	M12X1	NCK-00-1.2-C
ø50	124	16	16	51	52	40	47	M16X80	M14X1.5	NCK-00-2.6-C
ø63	130	16	16	51	52	40	47	M16X80	M14X1.5	NCK-00-2.6-C
ø80	172	25	12	62	51.5	50	53	M20X100	M20X1.5	NCK-00-7.0-C

*1: Custom stroke is not available.

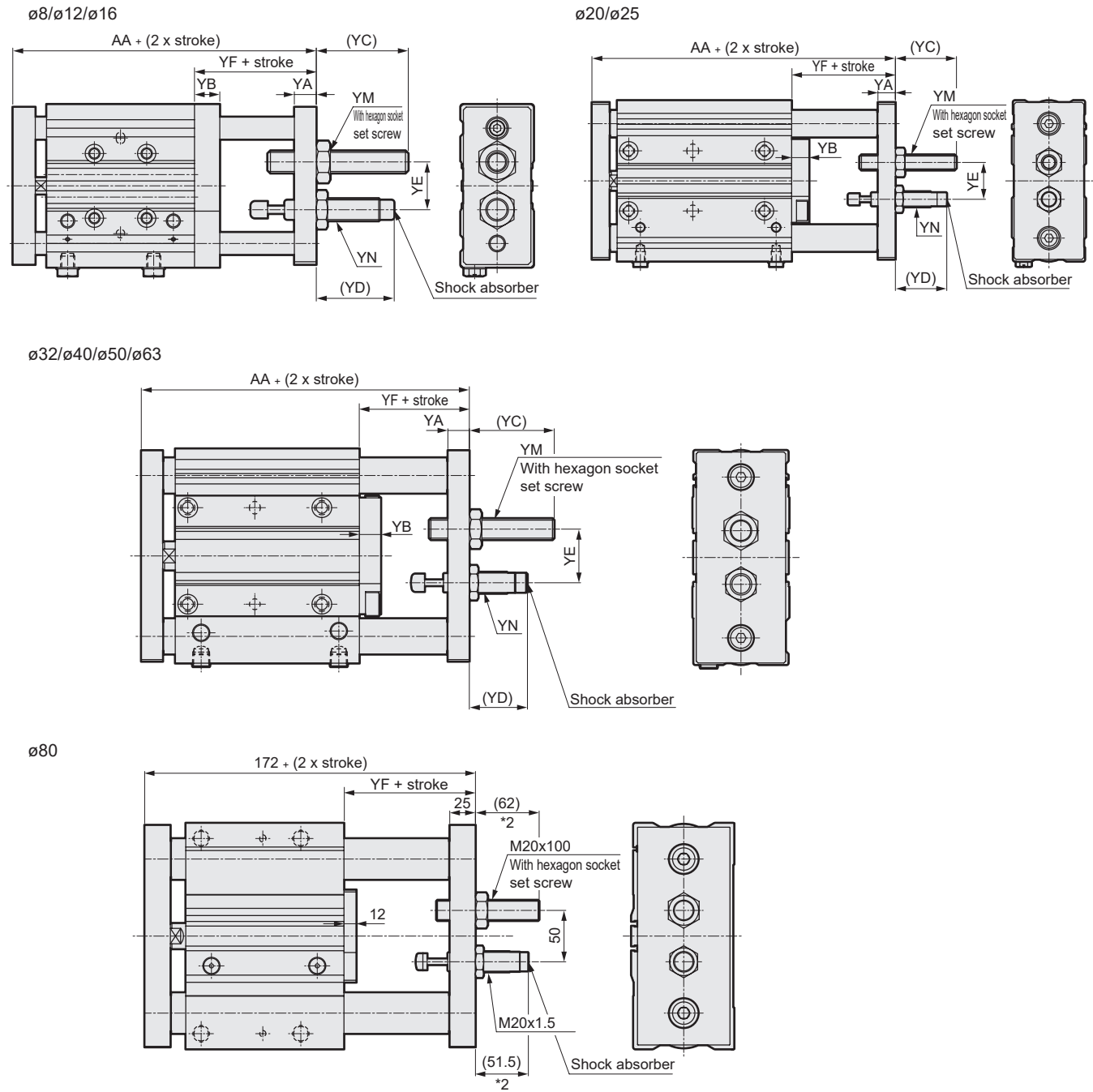
*2: YC and YD are dimensions at shipment.

- LCM
- LCR
- LCG
- LCW
- L CX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- 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.)



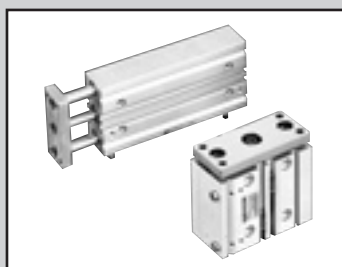
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Code	AA	YA	YB	YC *2	YD *2	YE	YF	YM	YN	Shock absorber model No.
ø8	67.5	8	9	32.5	27.5	17	27.5	M8X50	M8X0.75	NCK-00-0.3-C
ø12	71.5	8	9	32.5	27.5	17	27.5	M8X50	M8X0.75	NCK-00-0.3-C
ø16	73.5	9	9	31.5	26.5	17	28.5	M8X50	M8X0.75	NCK-00-0.3-C
ø20	81.5	9	9	31.5	26.5	19	28.5	M8X50	M8X0.75	NCK-00-0.3-C
ø25	84	9	9	30	29	19	30	M8X50	M10X1	NCK-00-0.7-C
ø32	104.5	12	12	47.5	32.5	30	36.5	M12X70	M12X1	NCK-00-1.2-C
ø40	108.5	12	12	47.5	32.5	30	36.5	M12X70	M12X1	NCK-00-1.2-C
ø50	124	16	16	51	52	40	47	M16X80	M14X1.5	NCK-00-2.6-C
ø63	130	16	16	51	52	40	47	M16X80	M14X1.5	NCK-00-2.6-C
ø80	172	25	12	62	51.5	50	53	M20X100	M20X1.5	NCK-00-7.0-C

*1 : Custom stroke is not available.

*2 : YC and YD are dimensions at shipment.

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



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

Item	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

● Short stroke STS

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

● Long stroke STL

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

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

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa									
		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	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	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	1.88×10^2	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	1.58×10^2	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	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	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	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	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	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	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 558 to 561.

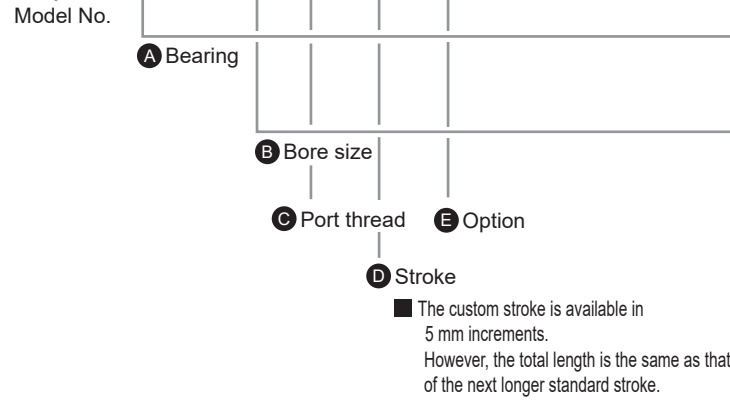
How to order

Short stroke (switch not mountable)

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

Long stroke (switch not mountable)

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



⚠ Precautions for model No. selection

*1 : Refer to pages 444 to 447 for combinations of variations/options.

*2 : Ball bearing (B) only.

Refer to page 458 for material details.

[Example of model No.]

STS-MT-12-30-F

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

- A** Bearing : Metal bush bearing
- B** Bore size : ϕ 12 mm
- C** Port thread : M5
- D** Stroke : 30 mm
- E** Option : End plate material: steel

D Stroke

Series	Stroke (mm)	Applicable bore size								
		ϕ 12	ϕ 16	ϕ 20	ϕ 25	ϕ 32	ϕ 40	ϕ 50	ϕ 63	ϕ 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	●	●	●	●	●	●	●	●	●
	225			●	●	●	●	●	●	●
	250			●	●	●	●	●	●	●
	275			●	●	●	●	●	●	●
	300			●	●	●	●	●	●	●
	325			●	●	●	●	●	●	●
	350			●	●	●	●	●	●	●
	375			●	●	●	●	●	●	●
400			●	●	●	●	●	●	●	
	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.

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

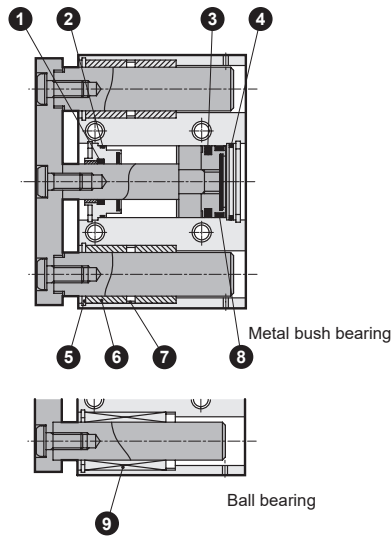
Code	Description
A Bearing	
M	Metal bush bearing
B	Ball bearing (not available for ϕ 20 and ϕ 25)
B Bore size (mm)	
12	ϕ 12
16	ϕ 16
20	ϕ 20
25	ϕ 25
32	ϕ 32
40	ϕ 40
50	ϕ 50
63	ϕ 63
80	ϕ 80
C Port thread	
Blank	M5 (ϕ 12 to ϕ 25) Rc thread (ϕ 32 to ϕ 80)
NN	NPT thread (ϕ 32 and over) made-to-order product
GN	G thread (ϕ 32 and over) made-to-order product
D Stroke (mm)	
Refer to the stroke table below.	
E Option	
F	End plate material: steel
M	Corrosion proof (Piston rod and guide rod material: SUS) (made-to-order product) *2
M1	Corrosion proof (Piston rod, guide rod and end plate material: SUS) (made-to-order product) *2

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

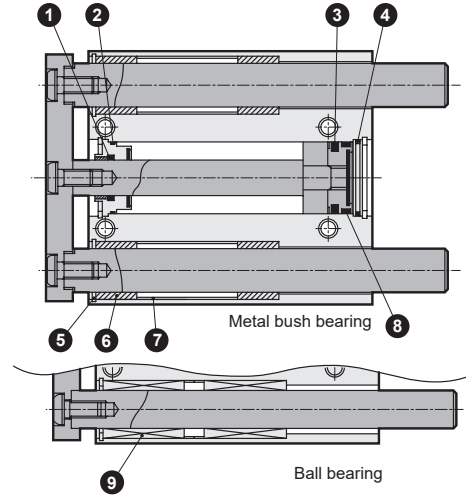
Internal structure and parts list

● 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 453 to 457.)

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 459 ($\phi 8$ to $\phi 16$), page 460 ($\phi 20$ and $\phi 25$), page 461 ($\phi 32$ to $\phi 63$) and page 462 ($\phi 80$)

STL Series : Page 464 ($\phi 8$ to $\phi 16$), page 465 ($\phi 20$ and $\phi 25$), page 466 ($\phi 32$ to $\phi 63$) and page 467 ($\phi 80$)

MEMO

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
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: $\phi 12/\phi 16/\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63/\phi 80$

JIS symbol



Specifications

Item	STS-MT2, BT2 STL-MT2, BT2										
	Bore size	mm	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$
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	$^{\circ}\text{C}$	-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	0.056	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)
$\phi 12$	10,20,30,40,50 25,50	50	5	5 With one or two switches
$\phi 16$				
$\phi 20$				
$\phi 25$				
$\phi 32$				
$\phi 40$				
$\phi 50$				
$\phi 63$				
$\phi 80$	25,50,75,100	100		

● Long stroke length STL

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

Item	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	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V		T8H/T8V			T2YD(*4) T2YDT		
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 (*3)			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: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 detailed switch specifications and dimensions.

*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

*3: The 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)

*4: AC magnetic field proof switch (T2YD/T2YDT) cannot be used in DC magnetic fields.

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
ø20	Push	-	47.1	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	-	35.3	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
ø25	Push	-	73.6	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	-	56.7	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
ø32	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
ø40	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
ø50	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
ø63	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
ø80	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 558 to 561.

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS/STL-M^TB 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 ø40 and over, insert "L1" with "-" between **A** and **E**.

Example) For STS-MT2-L1-63-50-T2YH3-D-F ø80, 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. (Made-to-order product)
Refer to Ending Page 1 for details.
- *2 : Refer to pages 444 to 447 for combinations of variations/options.
- *3 : T8H/V cannot be installed on ø12 and ø16.
- *4 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.
- *5 : Refer to page 458 for material details.

[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 : ø12 mm
- C** Port thread : M5
- 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	Description
A Bearing	
M	Metal bush bearing
B	Ball bearing

B Bore size (mm)	
12	ø12
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80

C Port thread	
Blank	M5 (ø12 to ø25) Rc thread (ø32 to ø80)
NN	NPT thread (ø32 and over) made-to-order product
GN	G thread (ø32 and over) made-to-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	3-wire
T3H*	T3V*			●		
T3PH*	T3PV*			●	1-color display	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	
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 and guide rod material: SUS) (made-to-order product) *5
M1	Corrosion proof (Piston rod, guide rod and end plate material: SUS) (made-to-order product) *5

D Stroke length

Series	Stroke length (mm)	Applicable bore size									
		ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	
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. (Made to order)

How to order switch

SW - T0V

Switch model No.
(Item E) on page 482)

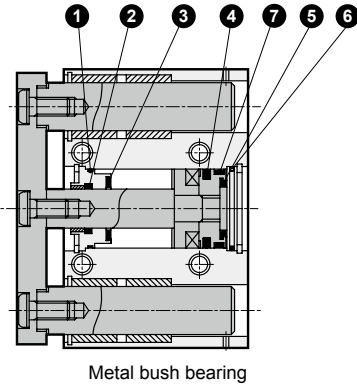
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS/STL-^M_BT2 Series

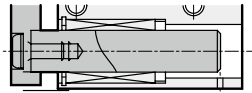
Internal structure and parts list

● Packing material fluoro rubber
STS-^M_BT2

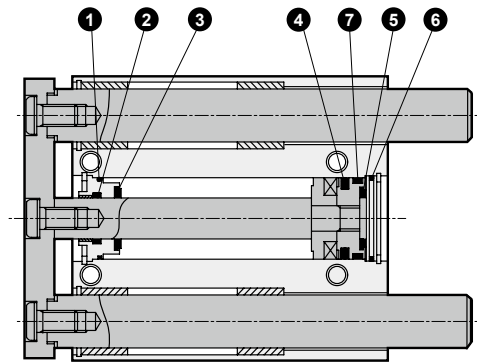
STL-^M_BT2



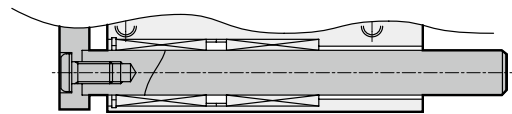
Metal bush bearing



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 453 to 457.)

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.
ø12	STS-T2-12K	
ø16	STS-T2-16K	
ø20	STS-T2-20K	1 2 3 4
ø25	STS-T2-25K	
ø32	STS-T2-32K	5 6 7
ø40	STS-T2-40K	
ø50	STS-T2-50K	
ø63	STS-T2-63K	
ø80	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.

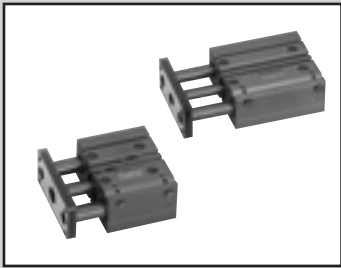
STS Series: Page 459 (ø8 to ø16), page 460 (ø20 and ø25), page 461 (ø32 to ø63) and page 462 (ø80)

STL Series: Page 464 (ø8 to ø16), page 465 (ø20 and ø25), page 466 (ø32 to ø63) and page 467 (ø80)

MEMO

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
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

Item	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

· Short stroke STS

Bore size (mm)	Stroke (mm)	Max. stroke (mm)	Min. stroke (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 STL

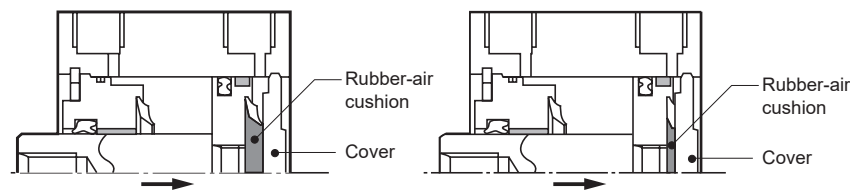
Bore size (mm)	Stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Min. stroke with switch (mm)
$\phi 32$	50, 75, 100, 125, 150	400	30	30
$\phi 40$	175, 200, 225, 250			
$\phi 50$	275, 300, 325, 350			
$\phi 63$	375, 400			
$\phi 80$	75, 100, 125, 150, 175 200, 225, 250, 275, 300 325, 350, 375, 400		55	55

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

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

With one or two switches

Rubber-air cushion mechanism

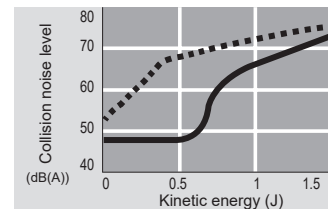


When pulled

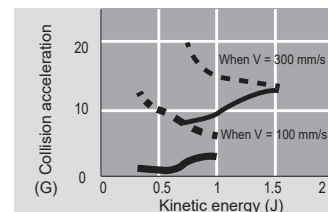
An airtight space is created in the ■ area when the piston operates and the rubber-air cushion and cover make contact. Air in the airtight area is further compressed, absorbing energy as the piston operates. At the end of the stroke, energy generated by compression distortion of the air cushion is also 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 LED/for AC magnetic field proof

Item	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	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V			T2YD(*4) T2YDT		
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 100mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50mA	7 to 20mA	50 mA or less	20 mA or less	5 to 50mA	7 to 20mA	7 to 10mA	5 to 20mA
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)	No indicator lamp	LED (Lit when ON)			Red/green LED (Lit when ON)		
Leakage current	1 mA or less with 100 VAC, 2 mA or less with 200 VAC	1 mA or less			10 µA or less				0mA						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 detailed switch specifications and dimensions.

*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

*3: The 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)

*4: AC magnetic field proof switch (T2YD/T2YDT) cannot be used in DC magnetic fields.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa								
		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø32	Push	1.61 x 10 ²	2.41 x 10 ²	3.22 x 10 ²	4.02 x 10 ²	4.83 x 10 ²	5.63 x 10 ²	6.43 x 10 ²	7.24 x 10 ²	8.04 x 10 ²
	Pull	1.21 x 10 ²	1.81 x 10 ²	2.41 x 10 ²	3.02 x 10 ²	3.62 x 10 ²	4.22 x 10 ²	4.83 x 10 ²	5.43 x 10 ²	6.03 x 10 ²
ø40	Push	2.51 x 10 ²	3.77 x 10 ²	5.03 x 10 ²	6.28 x 10 ²	7.54 x 10 ²	8.80 x 10 ²	1.01 x 10 ³	1.13 x 10 ³	1.26 x 10 ³
	Pull	2.11 x 10 ²	3.17 x 10 ²	4.22 x 10 ²	5.28 x 10 ²	6.33 x 10 ²	7.39 x 10 ²	8.44 x 10 ²	9.50 x 10 ²	1.06 x 10 ³
ø50	Push	3.93 x 10 ²	5.89 x 10 ²	7.85 x 10 ²	9.82 x 10 ²	1.18 x 10 ³	1.37 x 10 ³	1.57 x 10 ³	1.77 x 10 ³	1.96 x 10 ³
	Pull	3.30 x 10 ²	4.95 x 10 ²	6.60 x 10 ²	8.25 x 10 ²	9.90 x 10 ²	1.15 x 10 ³	1.32 x 10 ³	1.48 x 10 ³	1.65 x 10 ³
ø63	Push	6.23 x 10 ²	9.35 x 10 ²	1.25 x 10 ³	1.56 x 10 ³	1.87 x 10 ³	2.18 x 10 ³	2.49 x 10 ³	2.81 x 10 ³	3.12 x 10 ³
	Pull	5.61 x 10 ²	8.41 x 10 ²	1.12 x 10 ³	1.40 x 10 ³	1.68 x 10 ³	1.96 x 10 ³	2.24 x 10 ³	2.52 x 10 ³	2.80 x 10 ³
ø80	Push	1.01 x 10 ³	1.51 x 10 ³	2.01 x 10 ³	2.51 x 10 ³	3.02 x 10 ³	3.52 x 10 ³	4.02 x 10 ³	4.52 x 10 ³	5.03 x 10 ³
	Pull	9.07 x 10 ²	1.36 x 10 ³	1.81 x 10 ³	2.27 x 10 ³	2.72 x 10 ³	3.17 x 10 ³	3.63 x 10 ³	4.08 x 10 ³	4.54 x 10 ³

For cylinder weight, refer to pages 558 to 561.

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/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

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

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

⚠ Precautions for model No. selection

- *1 : The total dimensions are the same as the longer standard stroke.
- *2 : Refer to pages 444 to 447 for combinations of variations/options.
- *3 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.
- *4 : Refer to page 458 for material details.

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

Model : Guided cylinder, short stroke
Rubber-air cushioned

- A** Bearing : Metal bush bearing
- B** Bore size : $\phi 32$ mm
- C** Port thread : Rc thread
- D** Stroke : 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 LED, T1H/V, T8H/V and AC magnetic field proof switches for $\phi 40$ and over, insert "L1" with "-" between Items **A** and **B**.
(Example)
STS-M-L1-63C-50-T2YH3-D-F
For $\phi 80$, the 2-color LED, 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

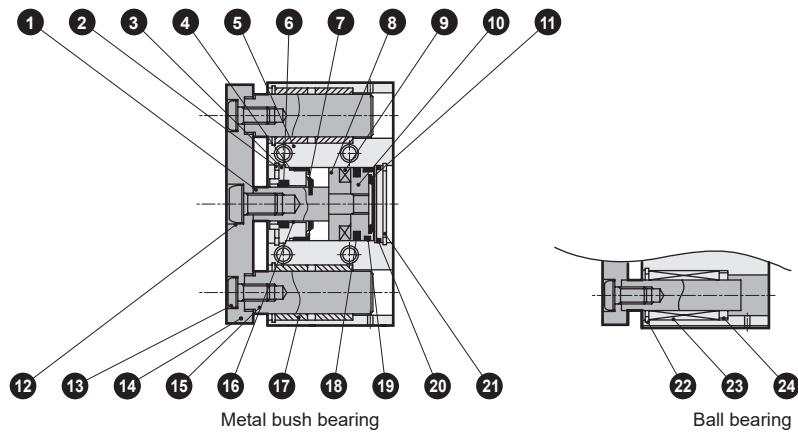
F Switch quantity

G Option

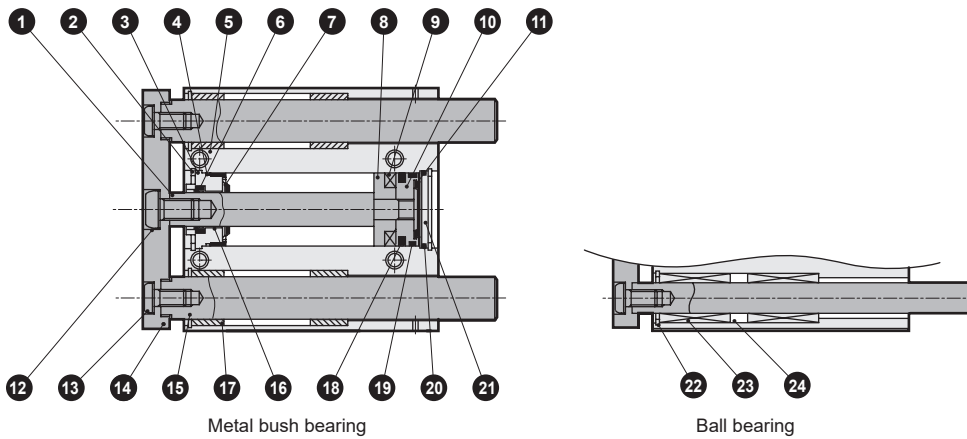
Code	Description						
A Bearing							
M	Metal bush bearing						
B	Ball bearing						
B Bore size (mm)							
32	$\phi 32$						
40	$\phi 40$						
50	$\phi 50$						
63	$\phi 63$						
80	$\phi 80$						
C Port thread							
Blank	Rc thread						
N	NPT thread (made-to-order product)						
G	G thread (made-to-order product)						
D Stroke							
Series	Stroke (mm)	Applicable bore size					
STS	Standard stroke	25	●	●	●	●	●
		50	●	●	●	●	●
		75					●
	100					●	
	Min. stroke *1		5		10		
Custom stroke *1	In 5 mm increments						
STL	Standard stroke	50	●	●	●	●	●
		75	●	●	●	●	●
		100	●	●	●	●	●
		125	●	●	●	●	●
		150	●	●	●	●	●
		175	●	●	●	●	●
		200	●	●	●	●	●
		225	●	●	●	●	●
		250	●	●	●	●	●
		275	●	●	●	●	●
		300	●	●	●	●	●
		325	●	●	●	●	●
		350	●	●	●	●	●
375	●	●	●	●	●		
400	●	●	●	●	●		
Min. stroke *1		30			55		
Custom stroke *1	In 5 mm increments						
E Switch model No.							
Straight lead wire	L-shaped lead wire	Contact	Voltage AC/DC	Indicator	Lead wire		
T0H*	T0V*	Reed	● ●	1-color LED	2-wire		
T5H*	T5V*	Reed	● ●	No indicator lamp			
T8H*	T8V*	Reed	● ●	1-color LED			
T1H*	T1V*	Reed	● ●				
T2H*	T2V*	Proximity	● ●	2-color LED	2-wire		
T3H*	T3V*	Proximity	● ●				
T3PH*	T3PV*	Proximity	● ●		1-color LED	3-wire	
T2WH*	T2WV*	Proximity	● ●				
T2YH*	T2YV*	Proximity	● ●	2-color LED	2-wire		
T3WH*	T3WV*	Proximity	● ●				
T3YH*	T3YV*	Proximity	● ●	1-color LED off-delay	3-wire		
T2JH*	T2JV*	Proximity	● ●				
T2YD*	-	Proximity	● ●	2-color LED	2-wire		
T2YDT*	-	Proximity	● ●	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 and guide rod material: SUS) (made to order) *4						
M1	Corrosion proof (Piston rod, guide rod and end plate material: SUS) (made to order) *4						
P6	Copper and PTFE free (made to order)						

Internal structure and parts list

● STS-M_B-32C to 80C (short stroke)



● STL-M_B-32C to 80C (long stroke)



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Steel	Industrial chrome plating	13	Hexagon socket button head bolt	Steel	Zinc chromate
2	C-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	Oiles drymet	
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 (ø32 to ø63), steel (ø80)	Zinc chromate (ø80)
10	Piston	Aluminum alloy		22	C-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 ø80)

Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø32	STS-32CK	
ø40	STS-40CK	4 6 7 11
ø50	STS-50CK	18 19 20
ø63	STS-63CK	
ø80	STS-80CK	

Dimensions

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

STS Series : Page 459 (ø8 to ø16), page 460 (ø20 and ø25), page 461 (ø32 to ø63) and page 462 (ø80)

STL Series : Page 464 (ø8 to ø16), page 465 (ø20 and ø25), page 466 (ø32 to ø63) and page 467 (ø80)

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Technical data

Refer to page 554 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)

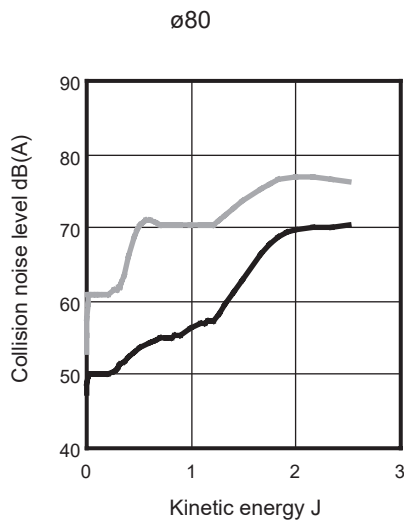
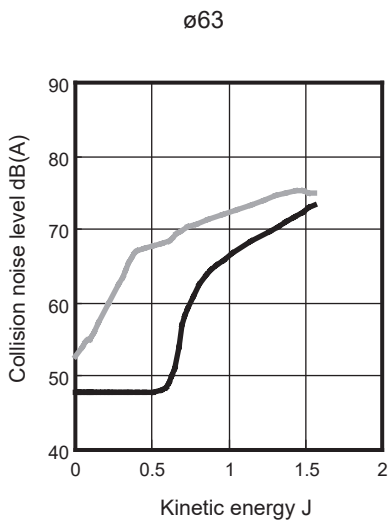
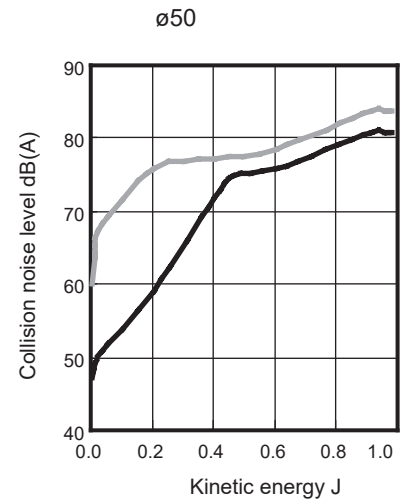
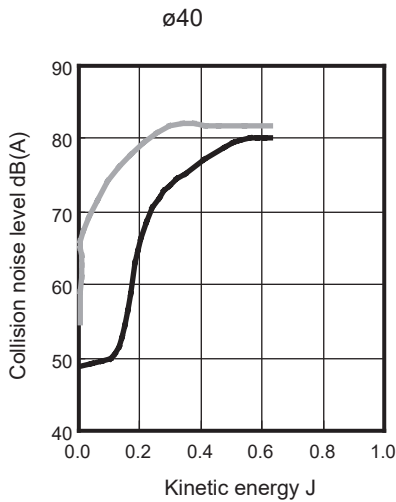
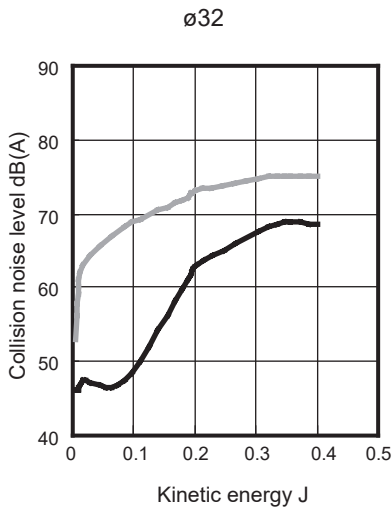
Cylinder : STS/L

Mounting direction of cylinder : Vertical with rod upward

Cylinder supply pressure : 0.5 MPa

Position of sound level meter : 1 m from sample

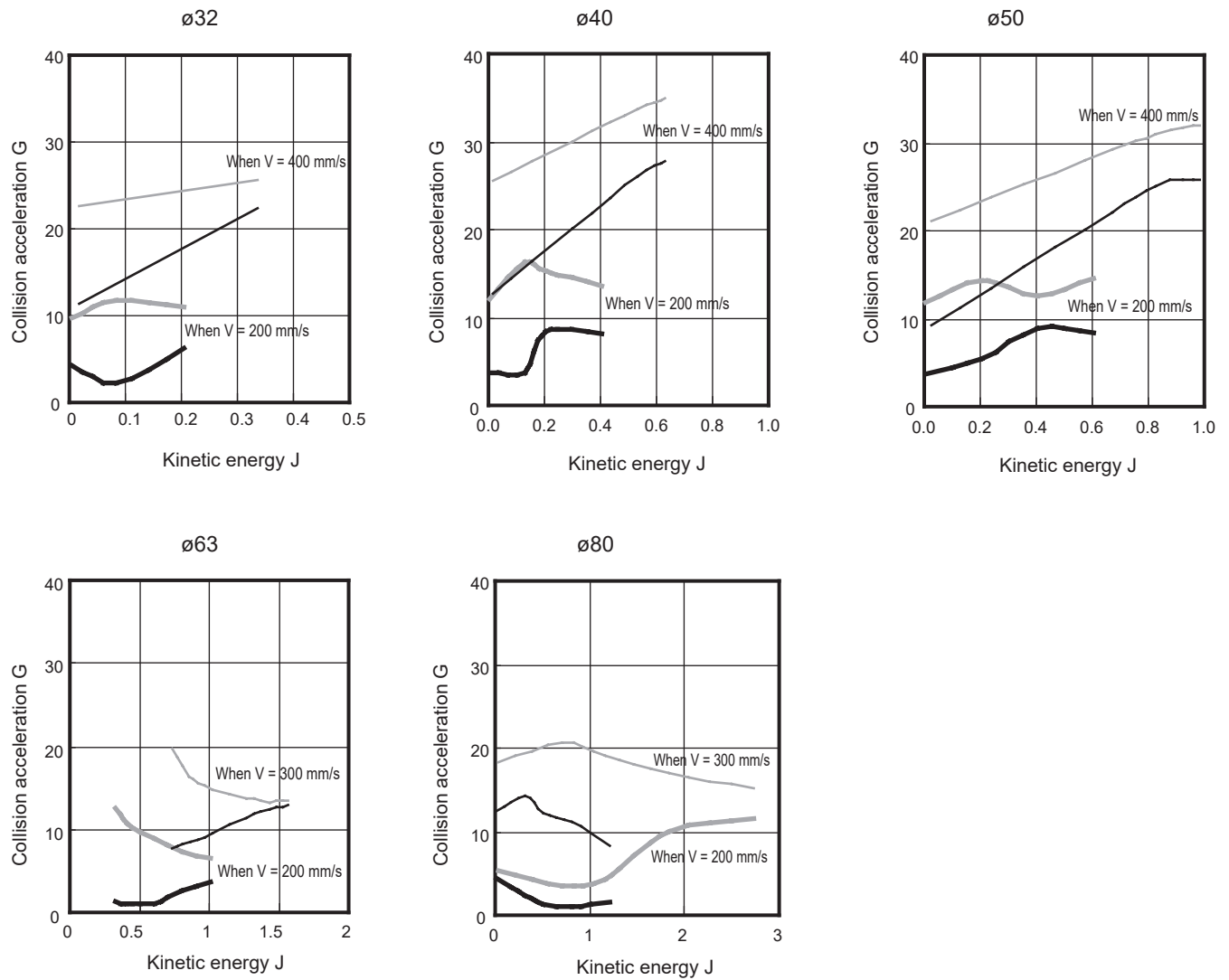
Standard rubber cushion: 
 Rubber-air cushion : 



Technical data

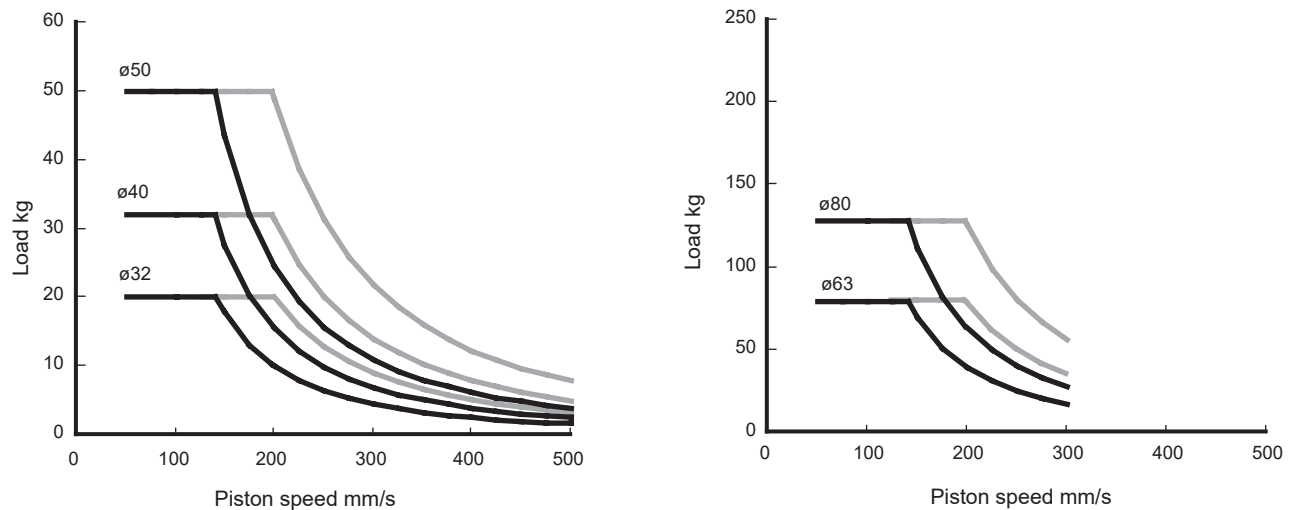
[Comparison of collision acceleration]

Standard rubber cushion:
 Rubber-air cushion:



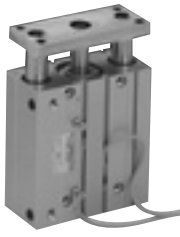
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

[Allowable energy value]



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

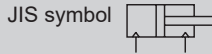
Although it can be used in the range marked with , the use within the range marked with solid line is recommended to maximize the noise reduction effect.



Guided cylinder, double acting/air cushioned

STS/STL-^M_BC Series

● Bore size: $\varnothing 25/\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80$



- LCM
- LCR
- LCG
- LCW
- L CX
- STM
- STG
- STS/STL**
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

Specifications

1 MPa = 10 bar

Item	STS-MC/BC, STL-MC/BC						
	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	
Bore size mm	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	
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 $^{\circ}\text{C}$	-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 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

· Short stroke STS

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm) Note	Min. stroke with switch (mm) Note
$\varnothing 25$	25, 50	50	15	15 With one or two switches
$\varnothing 32$				
$\varnothing 40$				
$\varnothing 50$				
$\varnothing 63$				
$\varnothing 80$	25, 50, 75, 100	100		

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

· Long stroke STL

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Min. stroke with switch (mm)
$\varnothing 25$	50, 75, 100, 125, 150 175, 200, 225, 250 275, 300, 325, 350 375, 400	400	30	30 With one or two switches
$\varnothing 32$				
$\varnothing 40$				
$\varnothing 50$				
$\varnothing 63$				
$\varnothing 80$	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 is available in 1 mm increments. (Made to order)

Switch specifications

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

Item	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	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V			T2YD(*4) T2YDT			
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 100mA		5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50mA	7 to 20mA	50 mA or less	20 mA or less	5 to 50mA	7 to 20mA	7 to 10mA	5 to 20mA
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)		No indicator lamp		LED (Lit when ON)			Red/green LED (Lit when ON)	
Leakage current	1 mA or less with 100 VAC, 2 mA or less with 200 VAC		1 mA or less			10 µA or less				0mA						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 detailed switch specifications and dimensions.

*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

*3: The 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)

*4: AC magnetic field proof switch (T2YD/T2YDT) cannot be used in DC magnetic fields.

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
ø25	Push	-	73.6	98.2	1.47 x 10 ²	1.96 x 10 ²	2.45 x 10 ²	2.95 x 10 ²	3.44 x 10 ²	3.93 x 10 ²	4.42 x 10 ²	4.91 x 10 ²
	Pull	-	56.7	75.6	1.13 x 10 ²	1.51 x 10 ²	1.89 x 10 ²	2.27 x 10 ²	2.64 x 10 ²	3.02 x 10 ²	3.40 x 10 ²	3.78 x 10 ²
ø32	Push	80.4	1.21 x 10 ²	1.61 x 10 ²	2.41 x 10 ²	3.22 x 10 ²	4.02 x 10 ²	4.83 x 10 ²	5.63 x 10 ²	6.43 x 10 ²	7.24 x 10 ²	8.04 x 10 ²
	Pull	60.3	90.5	1.21 x 10 ²	1.81 x 10 ²	2.41 x 10 ²	3.02 x 10 ²	3.62 x 10 ²	4.22 x 10 ²	4.83 x 10 ²	5.43 x 10 ²	6.03 x 10 ²
ø40	Push	1.26 x 10 ²	1.88 x 10 ²	2.51 x 10 ²	3.77 x 10 ²	5.03 x 10 ²	6.28 x 10 ²	7.54 x 10 ²	8.80 x 10 ²	1.01 x 10 ³	1.13 x 10 ³	1.26 x 10 ³
	Pull	1.06 x 10 ²	1.58 x 10 ²	2.11 x 10 ²	3.17 x 10 ²	4.22 x 10 ²	5.28 x 10 ²	6.33 x 10 ²	7.39 x 10 ²	8.44 x 10 ²	9.50 x 10 ²	1.06 x 10 ³
ø50	Push	1.96 x 10 ²	2.95 x 10 ²	3.93 x 10 ²	5.89 x 10 ²	7.85 x 10 ²	9.82 x 10 ²	1.18 x 10 ³	1.37 x 10 ³	1.57 x 10 ³	1.77 x 10 ³	1.96 x 10 ³
	Pull	1.65 x 10 ²	2.47 x 10 ²	3.30 x 10 ²	4.95 x 10 ²	6.60 x 10 ²	8.25 x 10 ²	9.90 x 10 ²	1.15 x 10 ³	1.32 x 10 ³	1.48 x 10 ³	1.65 x 10 ³
ø63	Push	3.12 x 10 ²	4.68 x 10 ²	6.23 x 10 ²	9.35 x 10 ²	1.25 x 10 ³	1.56 x 10 ³	1.87 x 10 ³	2.18 x 10 ³	2.49 x 10 ³	2.81 x 10 ³	3.12 x 10 ³
	Pull	2.80 x 10 ²	4.20 x 10 ²	5.61 x 10 ²	8.41 x 10 ²	1.12 x 10 ³	1.40 x 10 ³	1.68 x 10 ³	1.96 x 10 ³	2.24 x 10 ³	2.52 x 10 ³	2.80 x 10 ³
ø80	Push	5.03 x 10 ²	7.54 x 10 ²	1.01 x 10 ³	1.51 x 10 ³	2.01 x 10 ³	2.51 x 10 ³	3.02 x 10 ³	3.52 x 10 ³	4.02 x 10 ³	4.52 x 10 ³	5.03 x 10 ³
	Pull	4.54 x 10 ²	6.80 x 10 ²	9.07 x 10 ²	1.36 x 10 ³	1.81 x 10 ³	2.27 x 10 ³	2.72 x 10 ³	3.17 x 10 ³	3.63 x 10 ³	4.08 x 10 ³	4.54 x 10 ³

For cylinder weight, refer to pages 558 to 561.

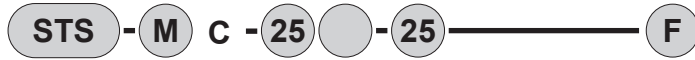
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS/STL-M^BC Series

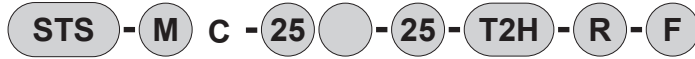
How to order

● Short stroke

Without switch (built-in magnet for switch)

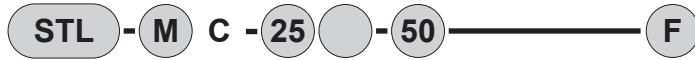


With switch (built-in magnet for switch)

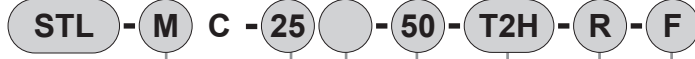


● Long stroke

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



A Bearing

B Bore size

C Port thread

D Stroke

E Switch model No.
*1, *5

For the 2-color LED, T1H/V, T8H/V and AC magnetic field proof switches for ø40 and over, insert "L1" with "-" between **A** and **E**.

(Example) STS-MC-L1-63-50-T2YH3-D-F
For ø80, the 2-color LED, 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-MC-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. (Made-to-order product)
Refer to Ending Page 1 for details.
- *2 : Refer to pages 444 to 447 for combinations of variations/options.
- *3 : Refer to page 458 for material details.
- *4 : ø25 with ball bearing B is 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-MC-25-50-T0H-R-F

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

- A** Bearing : Metal bush bearing
- B** Bore size : ø25 mm
- C** Port thread : M5
- D** Stroke : 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	Description
A Bearing	
M	Metal bush bearing
B	Ball bearing

B Bore size (mm)	
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80

C Port thread	
Blank	M5(ø25)
	Rc thread (ø32 to ø80)
NN	NPT thread (ø32 and over) made-to-order product
GN	G thread (ø32 and over) made-to-order product

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

E Switch model No.						
Straight Lead wire	L-shaped Lead wire	Contact	Voltage		Indicator	Lead Line
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*		●	●		
T2H*	T2V*	Proximity		●	2-color LED	2-wire
T3H*	T3V*			●		
T3PH*	T3PV*			●	1-color LED	3-wire
T2WH*	T2WV*			●	2-color LED	2-wire
T2YH*	T2YV*			●		
T3WH*	T3WV*			●	3-wire	3-wire
T3YH*	T3YV*			●		
T2JH*	T2JV*			●	1-color LED off-delay	2-wire
T2YD*	—		●	2-color LED	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	*3 Corrosion proof (piston rod, guide rod material: SUS) (made-to-order product)
M1	*3 Corrosion proof (piston rod, guide rod, end plate material: SUS) (made-to-order product)
P6	*4 Copper and PTFE free specification (made to order)

D Stroke

Series	Stroke (mm)	Applicable bore size						
		ø25	ø32	ø40	ø50	ø63	ø80	
STS	Standard stroke	25	●	●	●	●	●	●
		50	●	●	●	●	●	●
		75						●
		100						●
	Min. stroke	15						
STL	Standard stroke	50	●	●	●	●	●	
		75	●	●	●	●	●	●
		100	●	●	●	●	●	●
		125	●	●	●	●	●	●
		150	●	●	●	●	●	●
		175	●	●	●	●	●	●
		200	●	●	●	●	●	●
		225	●	●	●	●	●	●
		250	●	●	●	●	●	●
		275	●	●	●	●	●	●
		300	●	●	●	●	●	●
		325	●	●	●	●	●	●
		350	●	●	●	●	●	●
		375	●	●	●	●	●	●
		400	●	●	●	●	●	
	Min. stroke	30				55		

Note: Custom stroke is available as made to order.

How to order switch

SW - T0V

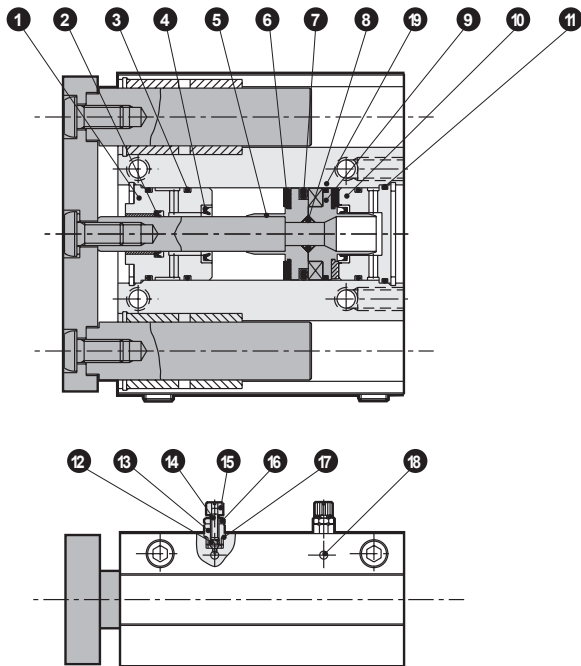
Switch model No.
(Item (E) on page 494)

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

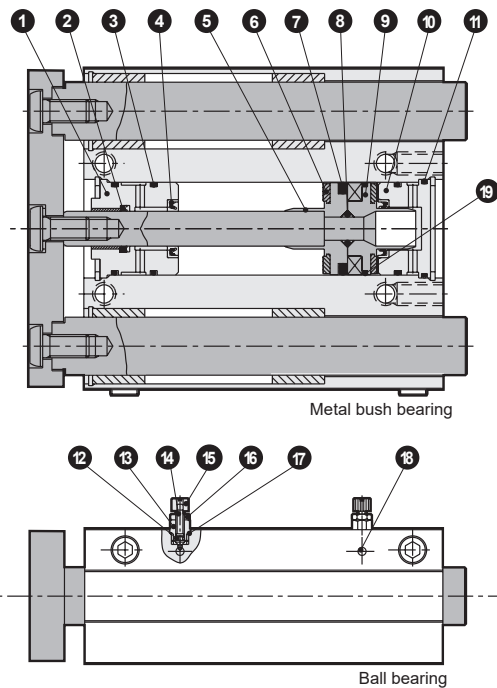
STS/STL-^MBC Series

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 453 to 457.)

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	Steel	
				19	Wear ring	Acetal resin	

Repair parts list

● STS-^M_BC (air-cushioned)

Bore size (mm)	Kit No.	Repair parts No.
ø25	STS-C-25K	
ø32	STS-C-32K	
ø40	STS-C-40K	2 3 4 6
ø50	STS-C-50K	7 11 19
ø63	STS-C-63K	
ø80	STS-C-80K	

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

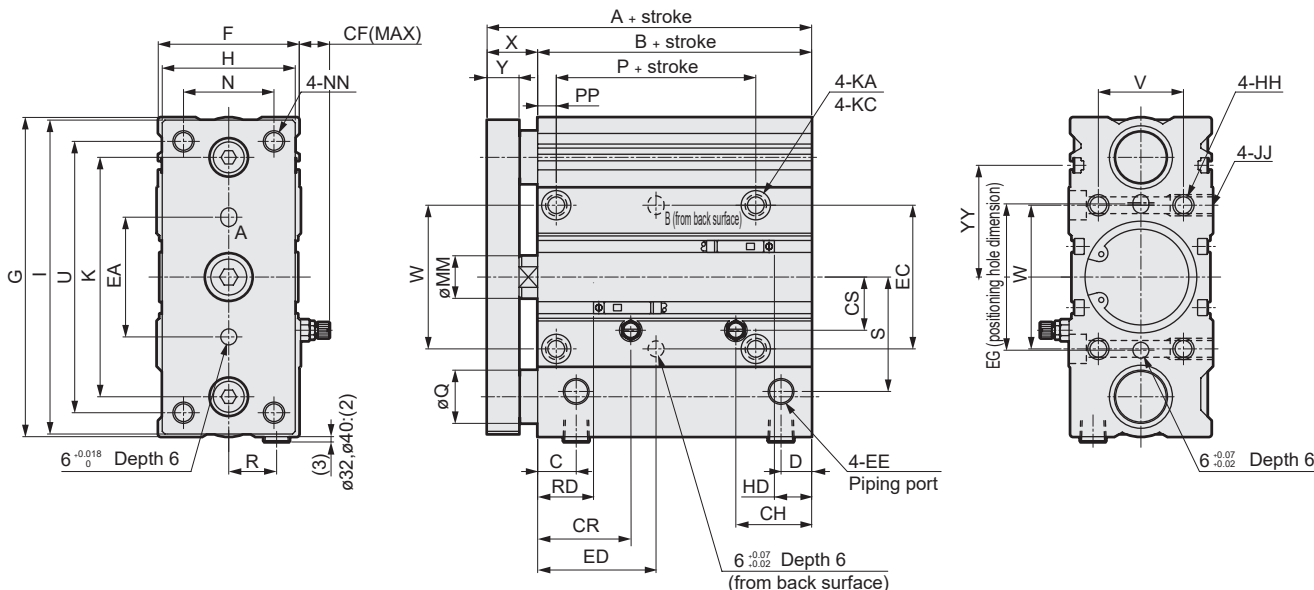
Dimensions



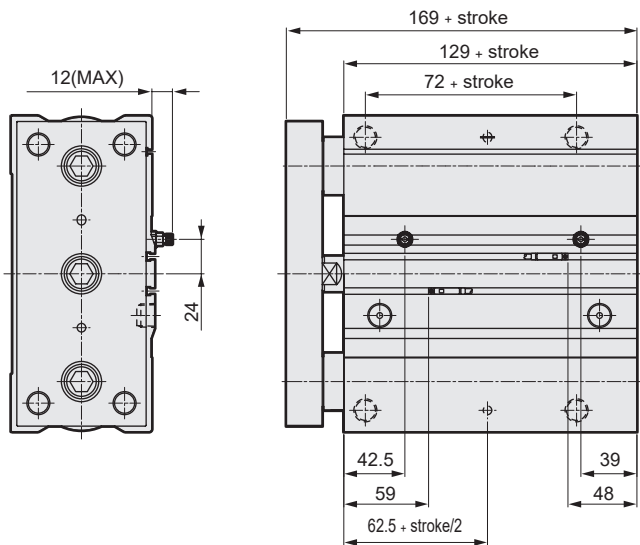
- With air cushion

STS-M_BC (Dimensions not listed below are the same as those of the double acting/standard single rod.)

· $\phi 25/\phi 32/\phi 40/\phi 50/\phi 63$



· $\phi 80$



- STS-M/BC($\phi 25$ to $\phi 63$)

Code	A	B	C	D	EE	EA	EC	EG	ED	F	G	H	HH	I	JJ	K	KA	KC
$\phi 25$	79	66	12	9	M5 \times 0.8	32	35	37	27+ $\frac{\text{Stroke}}{2}$	42	86	38	M6 depth 12	84	M6 depth 12	63	5.2 through	9.5 spot face depth 5.4
$\phi 32$	93	74	14	10.5	Rc1/8	42	45	46	30+ $\frac{\text{Stroke}}{2}$	47	111	45	M8 depth 16	109	M8 depth 16	81	6.3 through	11 spot face depth 6.5
$\phi 40$	97	78	14.5	11.5	Rc1/8	45	54	55	32+ $\frac{\text{Stroke}}{2}$	54	120	50	M8 depth 16	118	M8 depth 16	90	6.3 through	11 spot face depth 6.5
$\phi 50$	102	80	16	12.5	Rc1/4	55	66	69	32+ $\frac{\text{Stroke}}{2}$	66	147	64	M10 depth 20	145	M10 depth 20	110	8.6 through	14 spot face depth 8.6
$\phi 63$	108	86	12.5	17.5	Rc1/4	62	79	82	35+ $\frac{\text{Stroke}}{2}$	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	
Bore size (mm)						STS-M	STS-B													HD	RD	HD	RD
$\phi 25$	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
$\phi 32$	16	29	M8 through	47	7	20	16	16	39	93	25	45	19 $\frac{0}{-2}$	12	39	14	28	33	34	21.5	34.5	36	22
$\phi 40$	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
$\phi 50$	20	44	M10 through	51	8	25	20	22	49	125	38	66	22 $\frac{0}{-2}$	16	45	17	29	36	23	24.5	38.5	40	24.5
$\phi 63$	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

*1 : The custom stroke is available in 1 mm increments. (Made to order)

*2 : Refer to pages 552 and 553 for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

*3 : Port plug of $\phi 25$ is hexagonal.

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

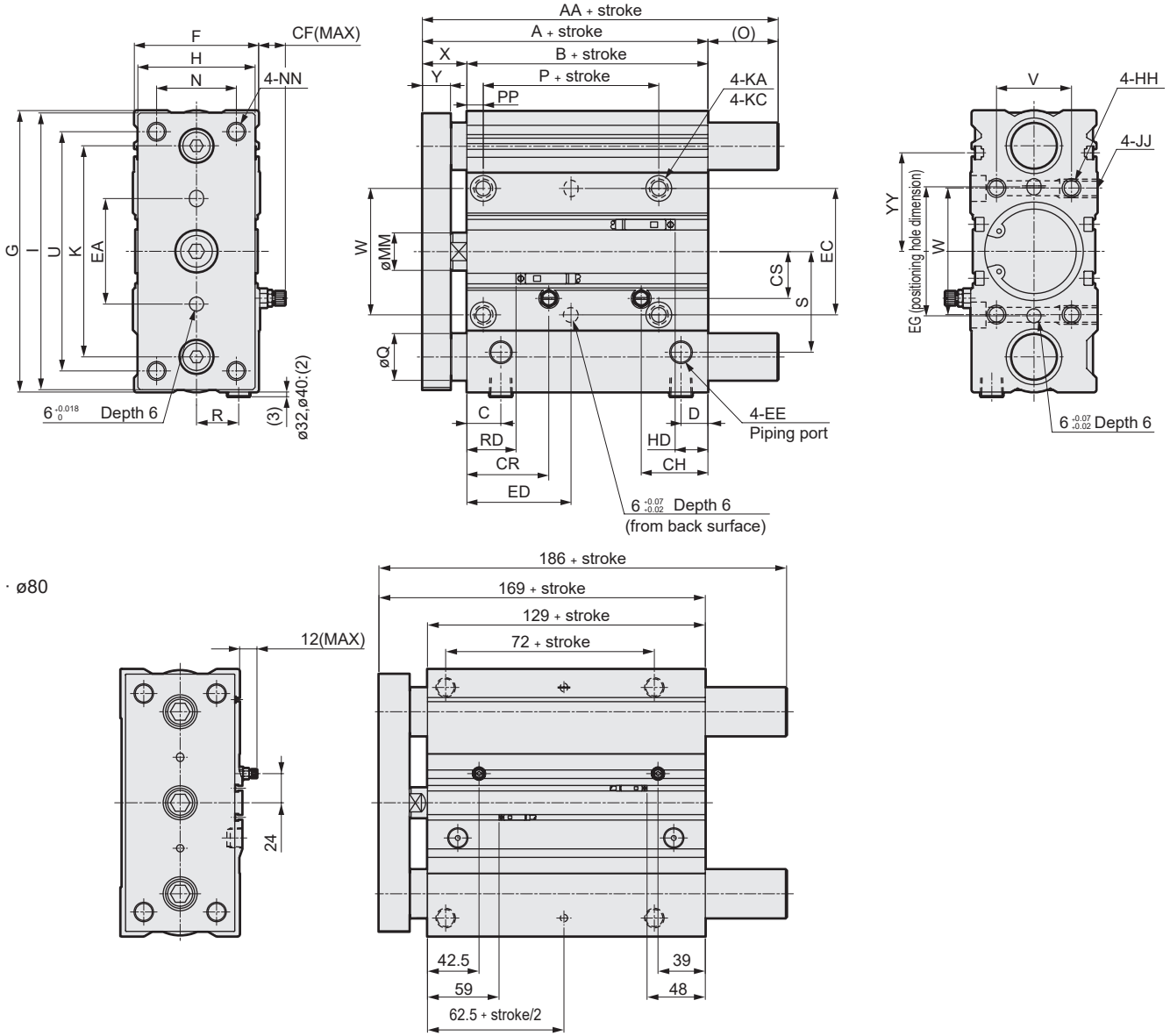


Dimensions

Air cushion

STL-M_BC (Dimensions not listed below are the same as those of the double acting/standard single rod.)

· $\phi 25/\phi 32/\phi 40/\phi 50/\phi 63$



STL-M/BC($\phi 25$ to $\phi 63$)

Code	A	AA	B	C	D	EE	EA	EC	EG	ED	F	G	H	HH	I	JJ	K	KA	KC					
$\phi 25$	79	79	66	12	9	M5×0.8	32	35	37	27+ $\frac{\text{Stroke}}{2}$	42	86	38	M6 depth 12	84	M6 depth 12	63	5.2 through	9.5 spot face depth 5.4					
$\phi 32$	93	102	74	14	10.5	Rc1/8	42	45	46	30+ $\frac{\text{Stroke}}{2}$	47	111	45	M8 depth 16	109	M8 depth 16	81	6.3 through	11 spot face depth 6.5					
$\phi 40$	97	102	78	14.5	11.5	Rc1/8	45	54	55	32+ $\frac{\text{Stroke}}{2}$	54	120	50	M8 depth 16	118	M8 depth 16	90	6.3 through	11 spot face depth 6.5					
$\phi 50$	102	125	80	16	12.5	Rc1/4	55	66	69	32+ $\frac{\text{Stroke}}{2}$	66	147	64	M10 depth 20	145	M10 depth 20	110	8.6 through	14 spot face depth 8.6					
$\phi 63$	108	125	86	12.5	17.5	Rc1/4	62	79	82	35+ $\frac{\text{Stroke}}{2}$	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	
Bore size (mm)							STL-M	STL-B													HD	RD	HD	RD
$\phi 25$	12	26	M6 through	0	45	6	14	12	14	26	72	24	35	13 $_{-0.2}^{0}$	9	27	15	24.5	27	25	19	28	29.5	21
$\phi 32$	16	29	M8 through	9	47	7	20	16	16	39	93	25	45	19 $_{-0.2}^{0}$	12	39	14	28	33	34	21.5	34.5	36	22
$\phi 40$	16	34	M8 through	5	50	7	20	16	18	43	102	32	54	19 $_{-0.2}^{0}$	12	42	14	29	35	20	22	38	40	24
$\phi 50$	20	44	M10 through	23	51	8	25	20	22	49	125	38	66	22 $_{-0.2}^{0}$	16	45	17	29	36	23	24.5	38.5	40	24.5
$\phi 63$	20	55	M10 through	17	51	8	25	20	26	56	140	50	79	22 $_{-0.2}^{0}$	16	52	17	29	41.5	25	26	44	45.5	27.5

*1 : The custom stroke is available in 1 mm increments. (Made to order)

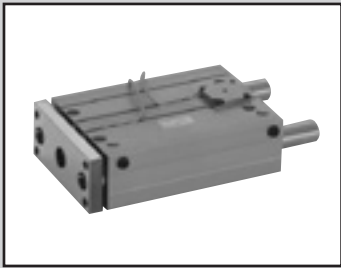
*2 : Refer to pages 552 and 553 for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

*3 : Port plug of $\phi 25$ is hexagonal.

MEMO

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

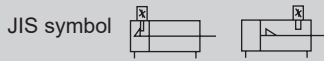
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Guided cylinder, double acting/position locking

STS/STL-M_B Q Series

● Bore size: $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80$



Specifications

Item	STS-MQ/BQ, STL-MQ/BQ							
Bore size mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	
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 $^{\circ}\text{C}$	-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							
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

· Short stroke STS

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Min. stroke with switch (mm)
$\varnothing 20$	25, 50	50	5	5 With one or two switches
$\varnothing 25$				
$\varnothing 32$				
$\varnothing 40$				
$\varnothing 50$				
$\varnothing 63$	25, 50, 75, 100	100		
$\varnothing 80$				

· Long stroke STL

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Min. stroke with switch (mm)
$\varnothing 20$	50, 75, 100, 125, 150, 175	400	30	30 With one or two switches
$\varnothing 25$	200, 225, 250, 275, 300			
$\varnothing 32$	325, 350, 375, 400			
$\varnothing 40$	50, 75, 100, 125, 150, 175	375	30	30 With one or two switches
$\varnothing 50$	200, 225, 250, 275, 300			
$\varnothing 63$	325, 350, 375	350	55	55 With one or two switches
$\varnothing 80$	75, 100, 125, 150, 175 200, 225, 250, 275, 300 325, 350			

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

▲ Be sure to read the “Safety precautions” Position locking on pages 570 to 573 before use.

Switch specifications

● 1-color/2-color LED/exchangeMagnetic fieldfor

Item	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	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V			T2YD(*4) T2YDT			
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	5~100mA		5 to 20 mA (*3)			100 mA or less		50 mA or less		5~50mA	7~20mA	50 mA or less	20 mA or less	5~50mA	7~20mA	7~10mA	5 to 20mA
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)		No indicator lamp		LED (Lit when ON)			Red/green LED (Lit when ON)	
Leakage current	1 mA or less with 100 VAC, 2 mA or less with 200 VAC		1 mA or less			10 µA or less				0mA						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 detailed switch specifications and dimensions.

*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

*3: The 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)

*4: AC magnetic field proof switch (T2YD/T2YDT) cannot be used in DC magnetic fields.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	-	62.8	94.2	1.26 x 10 ²	1.57 x 10 ²	1.88 x 10 ²	2.20 x 10 ²	2.51 x 10 ²	2.83 x 10 ²	3.14 x 10 ²
	Pull	-	47.1	70.7	94.2	1.18 x 10 ²	1.41 x 10 ²	1.65 x 10 ²	1.88 x 10 ²	2.12 x 10 ²	2.36 x 10 ²
ø25	Push	-	98.2	1.47 x 10 ²	1.96 x 10 ²	2.45 x 10 ²	2.95 x 10 ²	3.44 x 10 ²	3.93 x 10 ²	4.42 x 10 ²	4.91 x 10 ²
	Pull	-	75.6	1.13 x 10 ²	1.51 x 10 ²	1.89 x 10 ²	2.27 x 10 ²	2.64 x 10 ²	3.02 x 10 ²	3.40 x 10 ²	3.78 x 10 ²
ø32	Push	1.21 x 10 ²	1.61 x 10 ²	2.41 x 10 ²	3.22 x 10 ²	4.02 x 10 ²	4.83 x 10 ²	5.63 x 10 ²	6.43 x 10 ²	7.24 x 10 ²	8.04 x 10 ²
	Pull	90.5	1.21 x 10 ²	1.81 x 10 ²	2.41 x 10 ²	3.02 x 10 ²	3.62 x 10 ²	4.22 x 10 ²	4.83 x 10 ²	5.43 x 10 ²	6.03 x 10 ²
ø40	Push	1.88 x 10 ²	2.51 x 10 ²	3.77 x 10 ²	5.03 x 10 ²	6.28 x 10 ²	7.54 x 10 ²	8.80 x 10 ²	1.01 x 10 ³	1.13 x 10 ³	1.26 x 10 ³
	Pull	1.58 x 10 ²	2.11 x 10 ²	3.17 x 10 ²	4.22 x 10 ²	5.28 x 10 ²	6.33 x 10 ²	7.39 x 10 ²	8.44 x 10 ²	9.50 x 10 ²	1.06 x 10 ³
ø50	Push	2.95 x 10 ²	3.93 x 10 ²	5.89 x 10 ²	7.85 x 10 ²	9.82 x 10 ²	1.18 x 10 ³	1.37 x 10 ³	1.57 x 10 ³	1.77 x 10 ³	1.96 x 10 ³
	Pull	2.47 x 10 ²	3.30 x 10 ²	4.95 x 10 ²	6.60 x 10 ²	8.25 x 10 ²	9.90 x 10 ²	1.15 x 10 ³	1.32 x 10 ³	1.48 x 10 ³	1.65 x 10 ³
ø63	Push	4.68 x 10 ²	6.23 x 10 ²	9.35 x 10 ²	1.25 x 10 ³	1.56 x 10 ³	1.87 x 10 ³	2.18 x 10 ³	2.49 x 10 ³	2.81 x 10 ³	3.12 x 10 ³
	Pull	4.20 x 10 ²	5.61 x 10 ²	8.41 x 10 ²	1.12 x 10 ³	1.40 x 10 ³	1.68 x 10 ³	1.96 x 10 ³	2.24 x 10 ³	2.52 x 10 ³	2.80 x 10 ³
ø80	Push	7.54 x 10 ²	1.01 x 10 ³	1.51 x 10 ³	2.01 x 10 ³	2.51 x 10 ³	3.02 x 10 ³	3.52 x 10 ³	4.02 x 10 ³	4.52 x 10 ³	5.03 x 10 ³
	Pull	6.80 x 10 ²	9.07 x 10 ²	1.36 x 10 ³	1.81 x 10 ³	2.27 x 10 ³	2.72 x 10 ³	3.17 x 10 ³	3.63 x 10 ³	4.08 x 10 ³	4.54 x 10 ³

For cylinder weight, refer to pages 558 to 561.

- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand
- Chuk
- MechHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

STS/STL-M^BQ Series

How to order

● Short stroke

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



● Long stroke

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



A Bearing

B Bore size

C Port thread

D Stroke

E Position locking mechanism

F Switch model No.

*1
*3
*4

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

⚠ Precautions for model No. selection

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

*2 : Refer to pages 444 to 447 for combinations of variations/options.

*3 : In some cases, a switch cannot be inserted from the rod side of the head side position locking of 25 mm stroke 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.

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

*5 : Refer to page 458 for material details.

*6 : ø20 and ø25 with ball bearing B are copper and PTFE free as standard.

For the 2-color LED, T1H/V and AC magnetic field proof switches for ø40 and over, insert "L1" with "-" between Items **A** and **E**.

(Example) STS-MQ-L1-63-50-T2YH3-D-F
For ø80, the 2-color LED, 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, position locking

- A** Bearing : Metal bush bearing
- B** Bore size : ø20 mm
- C** Port thread : M5
- D** Stroke : 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

Code	Description
A Bearing	
M	Metal bush bearing
B	Ball bearing

B Bore size (mm)	
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80

C Port thread	
Blank	M5 (ø20, ø25)
	Rc thread (ø32 to ø80)
NN	NPT thread (ø32 and over) made-to-order product
GN	G thread (ø32 and over) made-to-order product

D Stroke (mm)	
Refer to the stroke 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.					
Straight lead wire	L-shaped lead wire	Contact	Voltage ACDC	Indicator	Lead wire
T0H*	T0V*	●	●	1-color LED	2-wire
T5H*	T5V*	●	●	no indicator lamp	2-wire
T1H*	T1V*	●	●	1-color LED	2-wire
T2H*	T2V*	●	●		2-wire
T3H*	T3V*	●	●	LED	3-wire
T3PH*	T3PV*	●	●	1-color LED	3-wire
T2WH*	T2WV*	●	●	2-color LED	2-wire
T2YH*	T2YV*	●	●		2-wire
T3WH*	T3WV*	●	●	LED	3-wire
T3YH*	T3YV*	●	●		3-wire
T2JH*	T2JV*	●	●	1-color LED off-delay	2-wire
T2YD*	-	●	●	2-color LED (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 *5	Corrosion proof (Piston rod and guide rod material: SUS) (made-to-order product)
M1 *5	Corrosion proof (Piston rod, guide rod and end plate material: SUS) (made to order)
P6 *6	Copper/PTFE free specs (made to order)

G Switch quantity

H Option

D Stroke

Series	Stroke (mm)	Applicable bore size							
		ø20	ø25	ø32	ø40	ø50	ø63	ø80	
STS	Standard stroke	25	●	●	●	●	●	●	●
		50	●	●	●	●	●	●	●
		75							●
		100							●
	Min. stroke *1	5							
Custom stroke *1, 2	In 5 mm increments								
STL	Standard stroke	50	●	●	●	●	●	●	
		75	●	●	●	●	●	●	●
		100	●	●	●	●	●	●	●
		125	●	●	●	●	●	●	●
		150	●	●	●	●	●	●	●
		175	●	●	●	●	●	●	●
		200	●	●	●	●	●	●	●
		225	●	●	●	●	●	●	●
		250	●	●	●	●	●	●	●
		275	●	●	●	●	●	●	●
		300	●	●	●	●	●	●	●
		325	●	●	●	●	●	●	●
		350	●	●	●	●	●	●	●
		375	●	●	●	●	●	●	
		400	●	●	●				
Min. stroke *1	30						55		
Custom stroke *1, 2	In 5 mm increments								

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

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

How to order switch

SW - T0V

Switch model No.
(Item ⑤ on page 502)

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

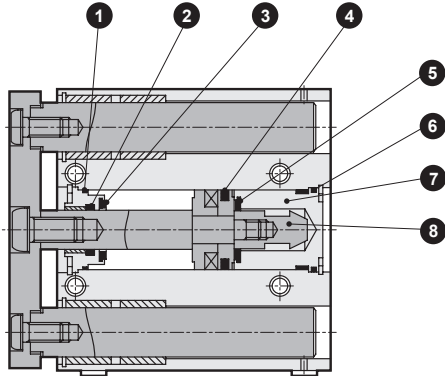
STS/STL-^M_BQ Series

Internal structure and parts list

LCM
LCR
LCG
LCW
LX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

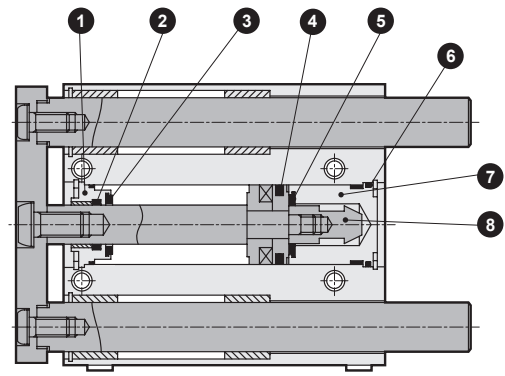
● Position locking/head side

STS-^M_BQ-H

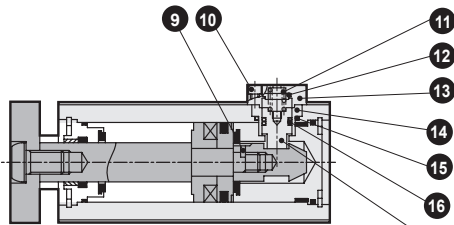


Metal bush bearing

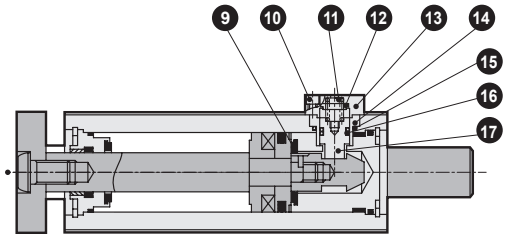
STL-^M_BQ-H



Metal bush bearing



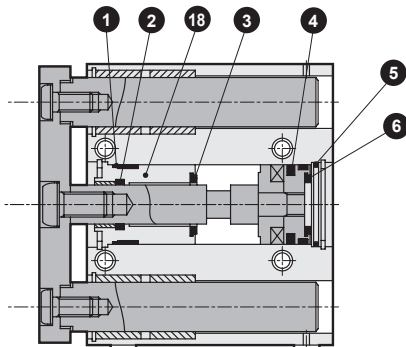
Ball bearing



Ball bearing

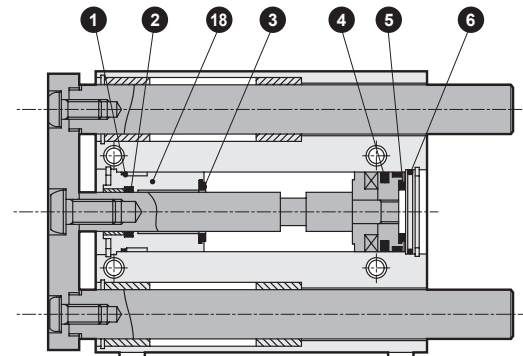
● Position locking/rod side

STS-^M_BQ-R

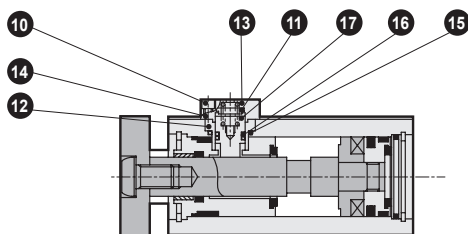


Metal bush bearing

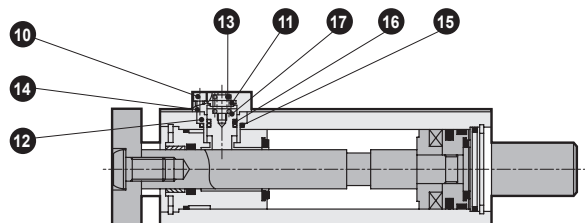
STL-^M_BQ-R



Metal bush bearing



Ball bearing



Ball bearing

Parts list (Parts not listed below are the same as those of the double acting/standard single rod. Refer to pages 453 to 457.)

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
ST^S_L^MQ-H (position locking/head side)				ST^S_L^MQ-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^MQ (position locking)

Bore size (mm)	Kit No.	Repair parts No.
ø20	STS-Q-H-20K STS-Q-R-20K	
ø25	STS-Q-H-25K STS-Q-R-25K	1 2 3
ø32	STS-Q-32K	4 5 6
ø40	STS-Q-40K	12 15 16
ø50	STS-Q-50K	
ø63	STS-Q-63K	
ø80	STS-Q-80K	

Note: Specify the kit No. when placing an order.
The kit No. of ø20 and ø25 differs depending on the side of position locking.

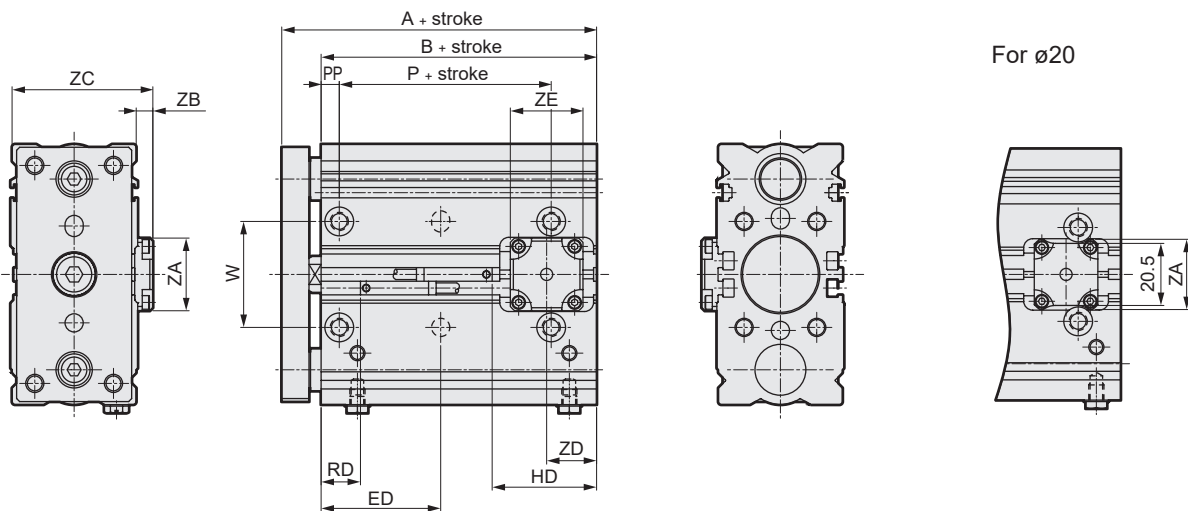
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
JLK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Dimensions: ø20, ø25



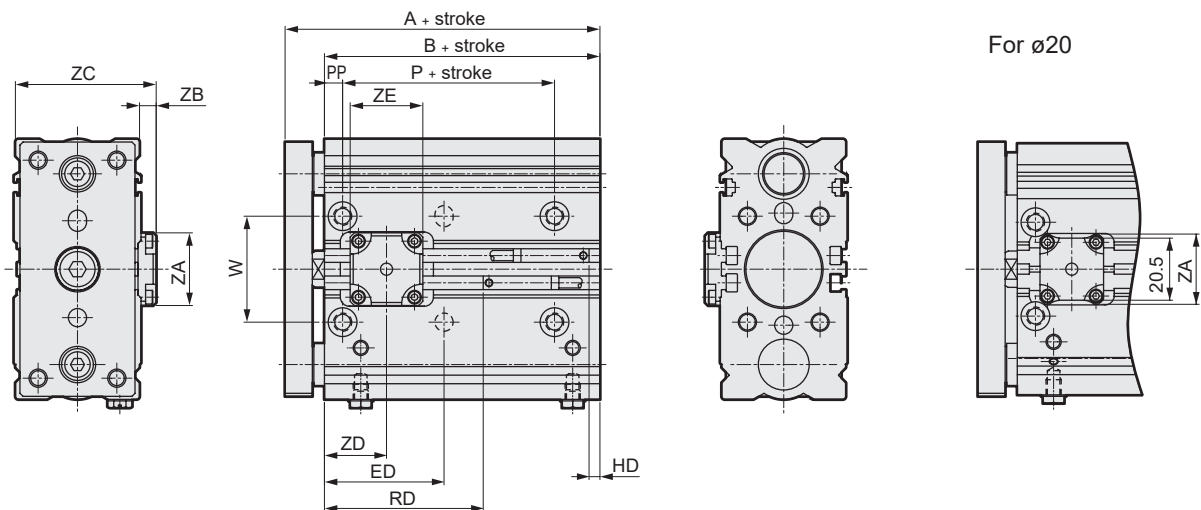
- Position locking/head side (Dimensions not listed below are the same as those of the double acting/single rod)

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	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		
ø20	78	65	30	31	33	26.5+ $\frac{\text{Stroke}}{2}$	45	6	31	23.2	6	44	21	18	12	34.5	12.5	37.5	20	37	9.5	37.5	12.5
ø25	79	66	32	35	37	27+ $\frac{\text{Stroke}}{2}$	45	6	35	24	5	47	24	16.5	13	34	14.5	36	20.5	38	9	39.5	11

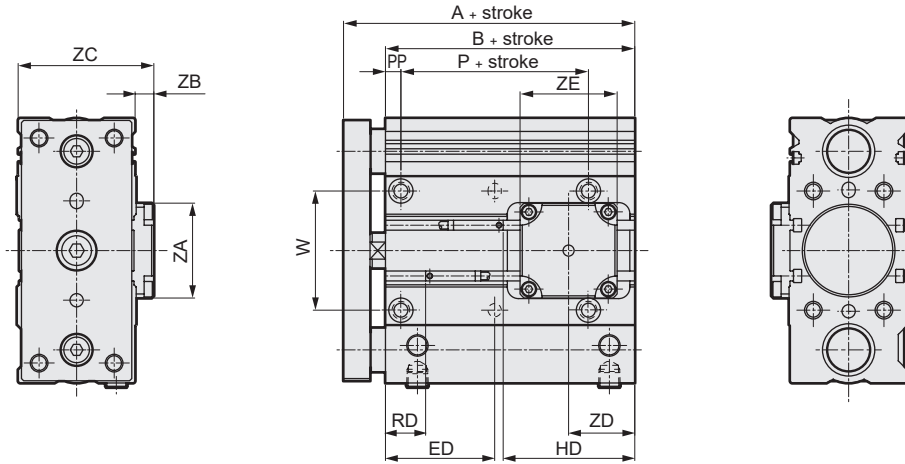
*1 : When using a custom stroke, the dimensions are the same as the longer standard stroke.

*2 : Refer to pages 552 and 553 for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

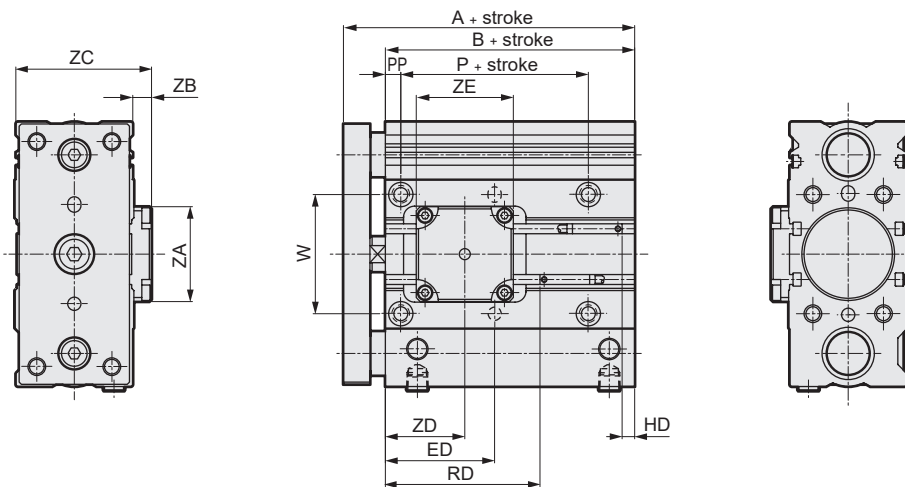
Dimensions: ø32/ø40/ø50/ø63



- 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




LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/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
ø32	93	74	42	45	46	30 + Stroke 2	47	7	45	32	6.5	53.5	24	21	17.5	38.5	19	40	25	42.5	13.5	44	15
ø40	122	103	45	54	55	44.5 + Stroke 2	75	7	54	43	8	62	44	30	21	64	22.5	66	36	71	14	72.5	16
ø50	127	105	55	66	69	44.5 + Stroke 2	76	8	66	43	7.5	73.5	44	33	22	66	23.5	66.5	40	72	16	73.5	16.5
ø63	133	111	62	79	82	47.5 + Stroke 2	76	8	79	47	7.5	86.5	47	35	20	73	21.5	74.5	40	70	23	71.5	24.5

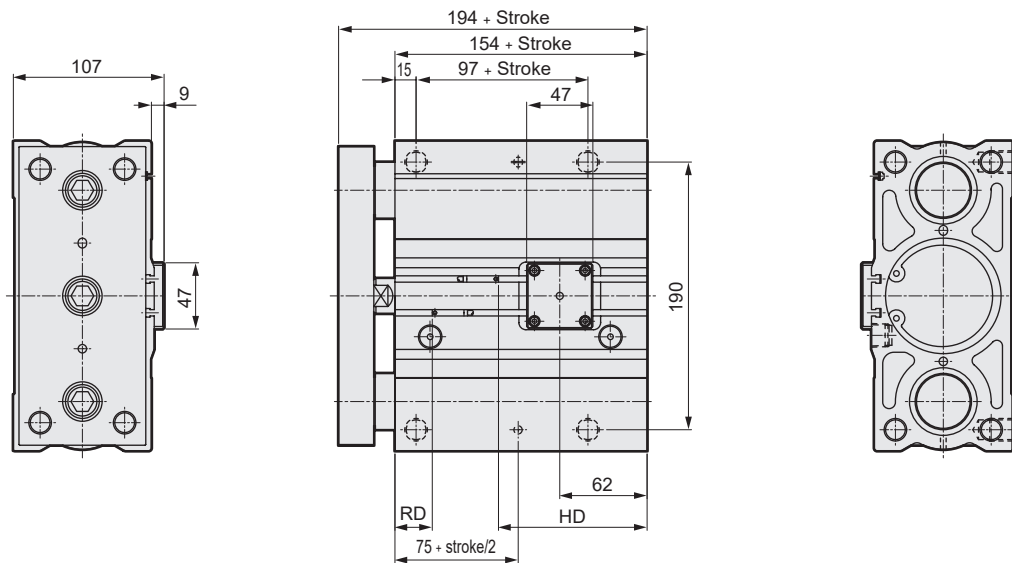
*1 : When using a custom stroke, the dimensions are the same as the longer standard stroke.

*2 : Refer to pages 552 and 553 for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

Dimensions: $\varnothing 80$ 

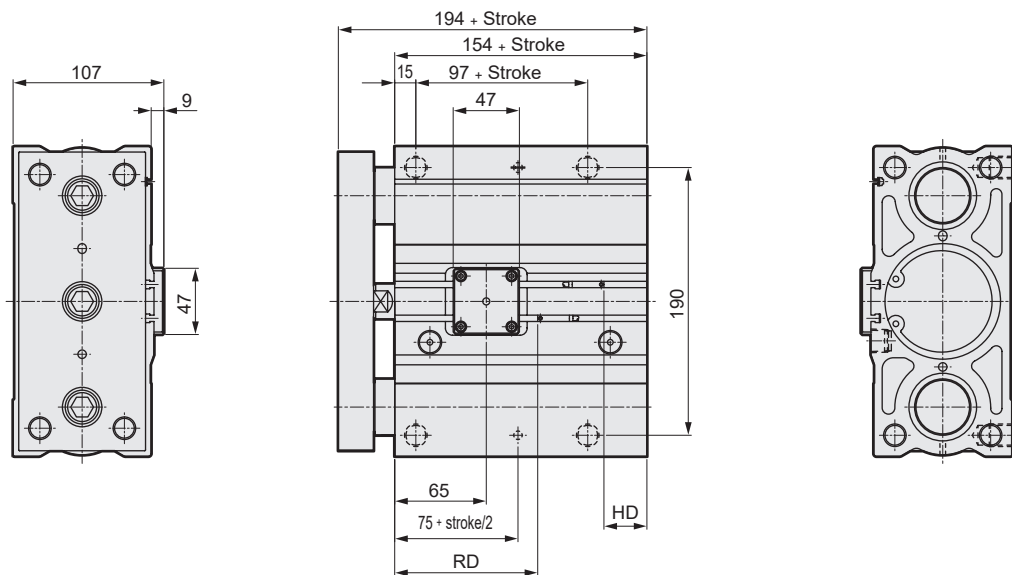
- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand
- Chuk
- MecHnd/Chuk
- 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

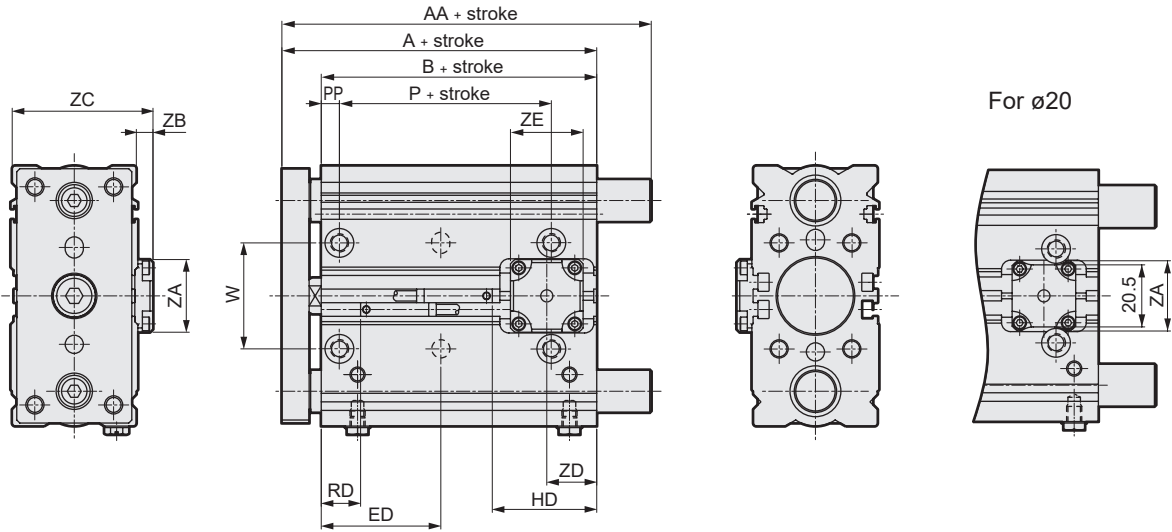
*1 : When using a custom stroke, the dimensions are the same as the longer standard stroke.

*2 : Refer to pages 552 and 553 for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

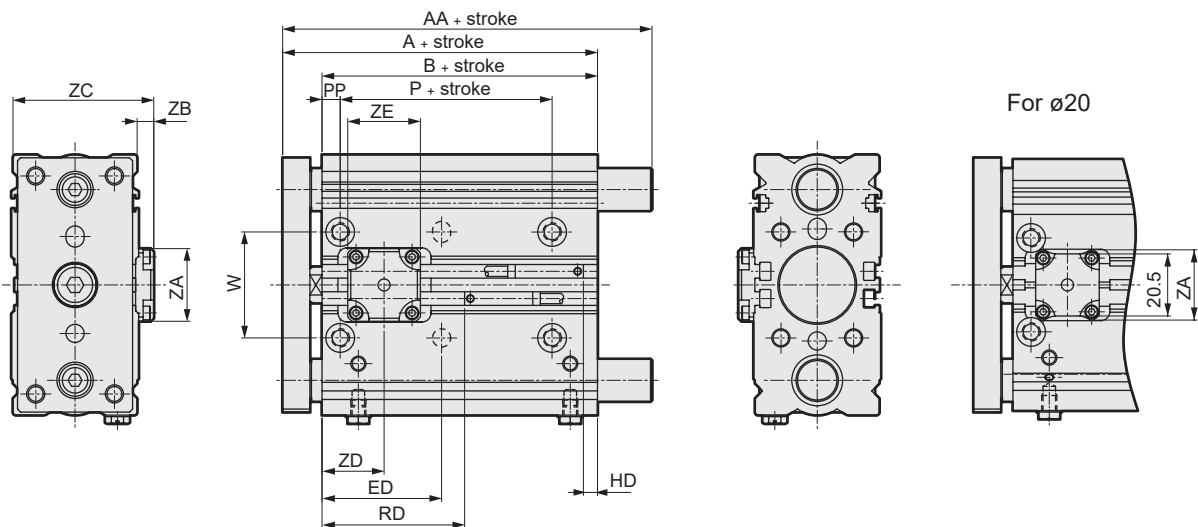
Dimensions: $\varnothing 20/\varnothing 25$



- 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



LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Code Bore size (mm)	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
$\varnothing 20$	78	97	30	31	33	26.5+ $\frac{\text{Stroke}}{2}$	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
$\varnothing 25$	79	97	32	35	37	27+ $\frac{\text{Stroke}}{2}$	66	45	6	35	24	5	47	24	16.5	13	34	39.5	11	20.5	38	9	14.5	36

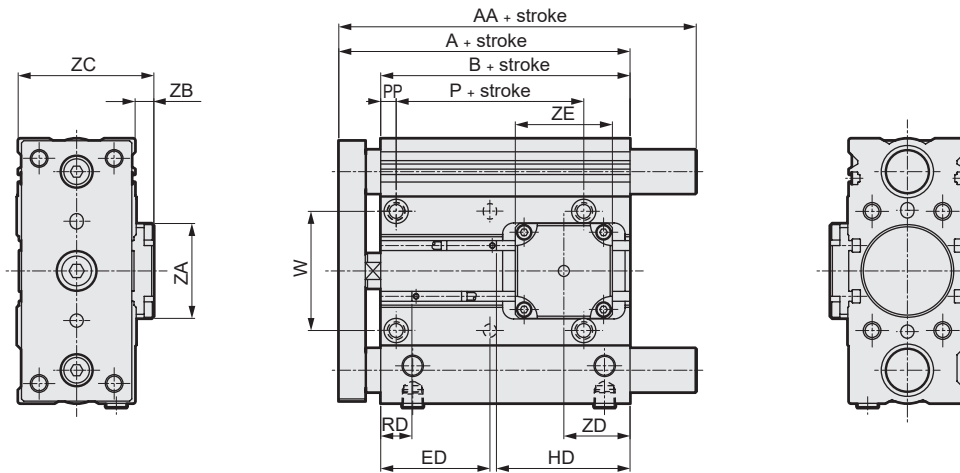
*1 : When using a custom stroke, the dimensions are the same as the longer standard stroke.

*2 : Refer to pages 552 and 553 for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

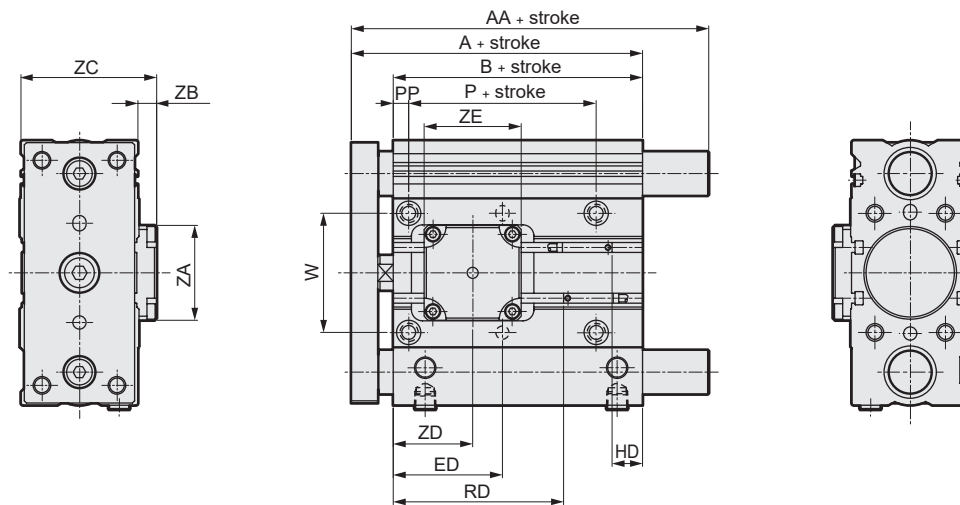
Dimensions: $\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63$



- 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	Bore size (mm)	A	AA	EA	EC	EG	ED	B	P	PP	W	ZA	ZB	ZC	ZE	ZD	STL-M _B Q-H				STL-M _B Q-R				
																	T0/T5/T2/T3		T2W/T3W		ZD	T0/T5/T2/T3		T2W/T3W	
																	RD	HD	RD	HD		RD	HD	RD	HD
ø32	93	127	42	45	46	30	$+\frac{\text{Stroke}}{2}$	74	47	7	45	32	6.5	53.5	24	21	17.5	38.5	44	15	25	42.5	13.5	19	40
ø40	122	152	45	54	55	44.5	$+\frac{\text{Stroke}}{2}$	103	75	7	54	43	8	62	44	30	21	64	72.5	16	36	71	14	22.5	66
ø50	127	175	55	66	69	44.5	$+\frac{\text{Stroke}}{2}$	105	76	8	66	43	7.5	73.5	44	33	22	66	73.5	16.5	40	72	16	23.5	66.5
ø63	133	175	62	79	82	47.5	$+\frac{\text{Stroke}}{2}$	111	76	8	79	47	7.5	86.5	47	35	20	73	71.5	24.5	40	70	23	21.5	74.5

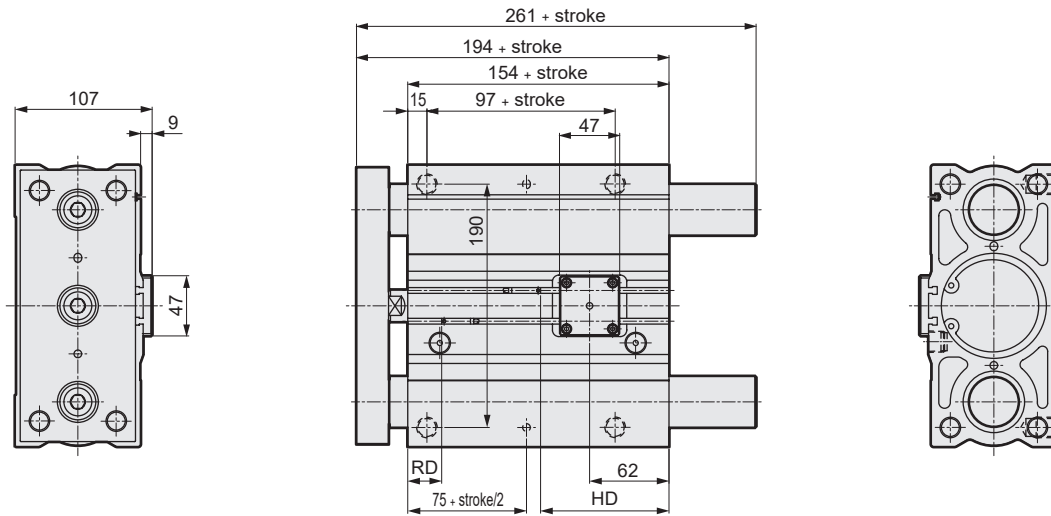
*1 : When using a custom stroke, the dimensions are the same as the longer standard stroke.

*2 : Refer to pages 552 and 553 for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

Dimensions: $\varnothing 80$

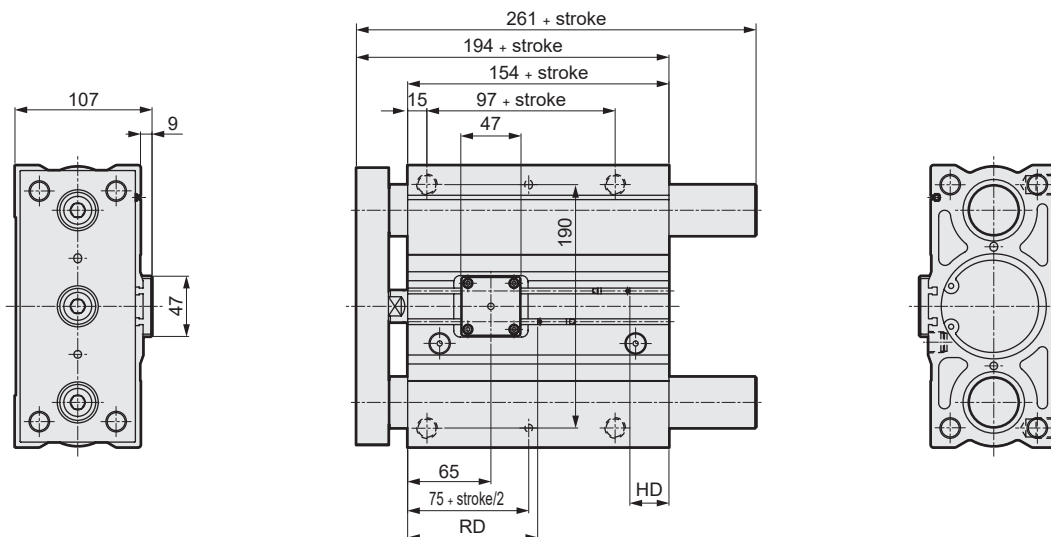


- Position locking/head side (Dimensions not listed below are the same as those of the double acting/single rod)
STL-MQ-H



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-MQ-R



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

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


*2 : Refer to pages 552 and 553 for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Guided cylinder/fine speed

STS/STL-MF Series

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

JIS symbol 



Specifications

Item	STS-MF, STS-BF (short stroke)/STL-MF, STL-BF (long stroke)										
Bore size	mm	$\varnothing 8$	$\varnothing 12$	$\varnothing 16$	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$
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 449 for theoretical thrust table.

Stroke

Model No.	Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
STS-MF	$\varnothing 8$, $\varnothing 12$, $\varnothing 16$	10, 20, 30, 40, 50	50	5
	$\varnothing 20$, $\varnothing 25$, $\varnothing 32$, $\varnothing 40$, $\varnothing 50$, $\varnothing 63$	25, 50		
STS-BF	$\varnothing 80$	25, 50, 75, 100	100	
STL-MF	$\varnothing 8$, $\varnothing 12$, $\varnothing 16$	50, 75, 100, 125, 150, 175, 200	200	50
	$\varnothing 20$, $\varnothing 25$, $\varnothing 32$, $\varnothing 40$, $\varnothing 50$, $\varnothing 63$	50, 75, 100, 125, 150, 175, 200		30
STL-BF	$\varnothing 80$	75, 100, 125, 150, 175, 200		55

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

Switch specifications

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

Item	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	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V		T8H/T8V		T2YD(*4) T2YDT			
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				-		-		-		
Pwr. supp. V.	-		10 to 28 VDC				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 (*3)		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	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)	No 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:61 3 m:166 5 m:272			

*1: Refer to Ending Page 1 for detailed switch specifications and dimensions.

*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

*3: The max. load current is 20 mA at 25 $^{\circ}\text{C}$. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25 $^{\circ}\text{C}$. (5 to 10 mA at 60 $^{\circ}\text{C}$)

*4: AC magnetic field proof switch (T2YD/T2YDT) cannot be used in DC magnetic fields.

For cylinder weight, refer to pages 558 to 561.

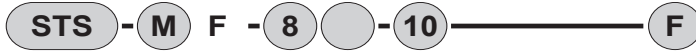
Technical data

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

How to order

● Short stroke

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



● Long stroke

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



Model No.

● A Bearing ● B Bore size

● C Port thread

● D Stroke

● E Switch model No. *3 *4

⚠ Precautions for model No. selection

- *1: Refer to pages 444 to 447 for combinations of variations/options.
- *2: Refer to page 458 for material details.

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

[Example of model No.]

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

Model: Guided cylinder, long stroke, fine speed

- A Bearing : Metal bush bearing
- B Bore size : ø8 mm
- C Port thread : M5
- D Stroke : 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

● D Stroke

Series	Stroke (mm)	Applicable bore size										
		ø8	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	
STS	Standard stroke	10	●	●	●							
		20	●	●	●							
		25	●	●	●	●	●	●	●	●	●	●
		30	●	●	●	●	●	●	●	●	●	●
		40	●	●	●	●	●	●	●	●	●	●
		50	●	●	●	●	●	●	●	●	●	●
		75	●	●	●	●	●	●	●	●	●	●
100	●	●	●	●	●	●	●	●	●	●		
	Min. stroke *1	5										
	Custom stroke *1,2	In 5 mm increments										
STL	Standard stroke	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.
- *2 : Special total length for custom stroke can be provided when a custom stroke is used. (Made to order)
- *3 : T8H/V switch cannot be installed on ø8 to ø16.
- *4 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

Dimensions

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

STS Series : Page 459 (ø8 to ø16), page 460 (ø20 and ø25), page 461 (ø32 to ø63) and page 462 (ø80)
 STL Series : Page 464 (ø8 to ø16), page 465 (ø20 and ø25), page 466 (ø32 to ø63) and page 467 (ø80)

Code	Description
A Bearing	
M	Metal bush bearing
B	Ball bearing
B Bore size (mm)	
8	ø8
12	ø12
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
C Port thread	
Blank	M5 (ø8 to ø25) Rc thread (ø32 to ø80)
NN	NPT thread (ø32 and over) made-to-order product
GN	G thread (ø32 and over) made-to-order product

D Stroke (mm)	
Refer to the stroke table below.	

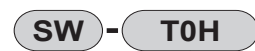
E Switch model No.						
Straight lead wire	L-shaped lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*	Reed	●	●	no indicator lamp	2-wire
T8H*	T8V*	Proximity	●	●	1-color LED	2-wire
T1H*	T1V*	Proximity	●	●		
T2H*	T2V*	Proximity	●	●		
T3H*	T3V*	Proximity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

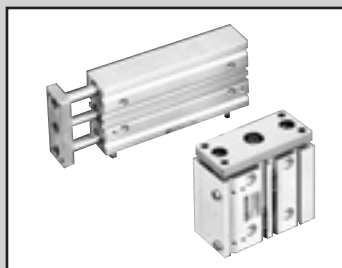
G Option	
F	End plate material (steel)
M *2	Corrosion proof (Piston rod and guide rod material: SUS) (made-to-order product)
M1 *2	Corrosion proof (Piston rod, guide rod and end plate material: SUS) (made-to-order product)

How to order switch



Switch model No. (Item E above)

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Guided cylinder Double acting/low speed

STS/STL-^M_BO Series

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

JIS symbol



Specifications

Item	STS-MO/BO, STL-MO/BO											
	Bore size	mm	$\varnothing 8$	$\varnothing 12$	$\varnothing 16$	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$
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

· Short stroke STS

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

· Long stroke STL

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

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

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Switch specifications

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

Item	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	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V			T2YD(*4) T2YDT		
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 100mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50mA	7 to 20mA	50 mA or less	20 mA or less	5 to 50mA	7 to 20mA	7 to 10mA	5 to 20mA
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)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)	
Leakage current	1 mA or less with 100 VAC, 2 mA or less with 200 VAC	1 mA or less			10 µA or less				0mA						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 detailed switch specifications and dimensions.

*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

*3: The 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)

*4: AC magnetic field proof switch (T2YD/T2YDT) cannot be used in DC magnetic fields.

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
ø8	Push	-	7.54	10.1	15.1	20.1	25.1	30.2	35.2	40.2	45.2	50.3
	Pull	-	5.65	7.54	11.3	15.1	18.8	22.6	26.4	30.2	33.9	37.7
ø12	Push	-	17.0	22.6	33.9	45.2	56.5	67.9	79.2	90.5	1.02 x 10 ²	1.13 x 10 ²
	Pull	-	12.7	17.0	25.4	33.9	42.4	50.9	59.4	67.9	76.3	84.8
ø16	Push	-	30.2	40.2	60.3	80.4	1.01 x 10 ²	1.21 x 10 ²	1.41 x 10 ²	1.61 x 10 ²	1.81 x 10 ²	2.01 x 10 ²
	Pull	-	22.6	30.2	45.2	60.3	75.4	90.5	1.06 x 10 ²	1.21 x 10 ²	1.36 x 10 ²	1.51 x 10 ²
ø20	Push	-	47.1	62.8	94.2	1.26 x 10 ²	1.57 x 10 ²	1.88 x 10 ²	2.20 x 10 ²	2.51 x 10 ²	2.83 x 10 ²	3.14 x 10 ²
	Pull	-	35.3	47.1	70.7	94.2	1.18 x 10 ²	1.41 x 10 ²	1.65 x 10 ²	1.88 x 10 ²	2.12 x 10 ²	2.36 x 10 ²
ø25	Push	-	73.6	98.2	1.47 x 10 ²	1.96 x 10 ²	2.45 x 10 ²	2.95 x 10 ²	3.44 x 10 ²	3.93 x 10 ²	4.42 x 10 ²	4.91 x 10 ²
	Pull	-	56.7	75.6	1.13 x 10 ²	1.51 x 10 ²	1.89 x 10 ²	2.27 x 10 ²	2.64 x 10 ²	3.02 x 10 ²	3.40 x 10 ²	3.78 x 10 ²
ø32	Push	80.4	1.21 x 10 ²	1.61 x 10 ²	2.41 x 10 ²	3.22 x 10 ²	4.02 x 10 ²	4.83 x 10 ²	5.63 x 10 ²	6.43 x 10 ²	7.24 x 10 ²	8.04 x 10 ²
	Pull	60.3	90.5	1.21 x 10 ²	1.81 x 10 ²	2.41 x 10 ²	3.02 x 10 ²	3.62 x 10 ²	4.22 x 10 ²	4.83 x 10 ²	5.43 x 10 ²	6.03 x 10 ²
ø40	Push	1.26 x 10 ²	1.88 x 10 ²	2.51 x 10 ²	3.77 x 10 ²	5.03 x 10 ²	6.28 x 10 ²	7.54 x 10 ²	8.80 x 10 ²	1.01 x 10 ³	1.13 x 10 ³	1.26 x 10 ³
	Pull	1.06 x 10 ²	1.58 x 10 ²	2.11 x 10 ²	3.17 x 10 ²	4.22 x 10 ²	5.28 x 10 ²	6.33 x 10 ²	7.39 x 10 ²	8.44 x 10 ²	9.50 x 10 ²	1.06 x 10 ³
ø50	Push	1.96 x 10 ²	2.95 x 10 ²	3.93 x 10 ²	5.89 x 10 ²	7.85 x 10 ²	9.82 x 10 ²	1.18 x 10 ³	1.37 x 10 ³	1.57 x 10 ³	1.77 x 10 ³	1.96 x 10 ³
	Pull	1.65 x 10 ²	2.47 x 10 ²	3.30 x 10 ²	4.95 x 10 ²	6.60 x 10 ²	8.25 x 10 ²	9.90 x 10 ²	1.15 x 10 ³	1.32 x 10 ³	1.48 x 10 ³	1.65 x 10 ³
ø63	Push	3.12 x 10 ²	4.68 x 10 ²	6.23 x 10 ²	9.35 x 10 ²	1.25 x 10 ³	1.56 x 10 ³	1.87 x 10 ³	2.18 x 10 ³	2.49 x 10 ³	2.81 x 10 ³	3.12 x 10 ³
	Pull	2.80 x 10 ²	4.20 x 10 ²	5.61 x 10 ²	8.41 x 10 ²	1.12 x 10 ³	1.40 x 10 ³	1.68 x 10 ³	1.96 x 10 ³	2.24 x 10 ³	2.52 x 10 ³	2.80 x 10 ³
ø80	Push	5.03 x 10 ²	7.54 x 10 ²	1.01 x 10 ³	1.51 x 10 ³	2.01 x 10 ³	2.51 x 10 ³	3.02 x 10 ³	3.52 x 10 ³	4.02 x 10 ³	4.52 x 10 ³	5.03 x 10 ³
	Pull	4.54 x 10 ²	6.80 x 10 ²	9.07 x 10 ²	1.36 x 10 ³	1.81 x 10 ³	2.27 x 10 ³	2.72 x 10 ³	3.17 x 10 ³	3.63 x 10 ³	4.08 x 10 ³	4.54 x 10 ³

For cylinder weight, refer to pages 558 to 561.

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

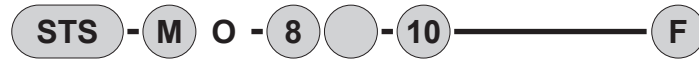
STS/STL-MO Series

- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand
- Chuk
- MechHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

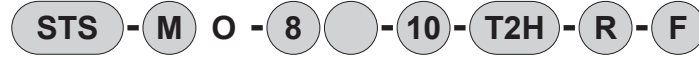
How to order

● Short stroke

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)

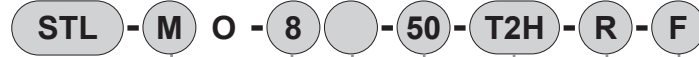


● Long stroke

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



A Bearing

B Bore size

C Port thread

D Stroke

■ Custom stroke

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

E Switch model No.

*1, *3, *4

For the 2-color LED, T1H/V, T8H/V and AC magnetic field proof switches for $\phi 40$ and over, insert "L1" with "-" between **A** and **B**.

(Example) STS-MO-L1-63-50-T2YH3-D-F
For $\phi 80$, the 2-color LED, 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-MO-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. (Made-to-order product)
Refer to Ending Page 1 for details.
- *2 : Refer to pages 444 to 447 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.
- *5 : Refer to page 458 for material details.

[Example of model No.]

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

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

- A** Bearing : Metal bush bearing
- B** Bore size : $\phi 8$ mm
- C** Port thread : M5
- D** Stroke : 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	Description
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	M5 ($\phi 8$ to $\phi 25$)
	Rc thread ($\phi 32$ to $\phi 80$)
NN	NPT thread ($\phi 32$ and over) made-to-order product
GN	G thread ($\phi 32$ and over) made-to-order product

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

E Switch model No.						
Straight lead wire	L-shaped lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	no indicator lamp	
T8H*	T8V*		●	●	1-color LED	2-wire
T1H*	T1V*		●	●		
T2H*	T2V*	●	●			
T3H*	T3V*	Proximity	●	●	1-color LED	3-wire
T3PH*	T3PV*		●	●		
T2WH*	T2WV*		●	●	2-color LED	2-wire
T2YH*	T2YV*		●	●		
T3WH*	T3WV*		●	●		
T3YH*	T3YV*		●	●	1-color LED off-delay	2-wire
T2JH*	T2JV*		●	●		
T2YD*	-		●	●	2-color LED (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)
M	*5 Corrosion proof (Piston rod and guide rod material: SUS) (made-to-order product)
M1	*5 Corrosion proof (Piston rod, guide rod and end plate material: SUS) (made-to-order product)

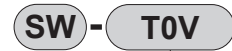
D Stroke

Series	Stroke (mm)	Applicable bore size											
		ø8	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80		
STS	Standard stroke	10	●	●	●								
		20	●	●	●								
		25				●	●	●	●	●	●	●	
		30	●	●	●								
		40	●	●	●								
		50	●	●	●	●	●	●	●	●	●	●	
		75										●	
		100										●	
		Min. stroke *1		5									
		Custom stroke *1, 2		In 5 mm increments									
STL	Standard stroke	50	●	●	●	●	●	●	●	●	●	●	
		75	●	●	●	●	●	●	●	●	●	●	
		100	●	●	●	●	●	●	●	●	●	●	
		125	●	●	●	●	●	●	●	●	●	●	
		150	●	●	●	●	●	●	●	●	●	●	
		175				●	●	●	●	●	●	●	
		200				●	●	●	●	●	●	●	
		225				●	●	●	●	●	●	●	
		250				●	●	●	●	●	●	●	
		275				●	●	●	●	●	●	●	
300				●	●	●	●	●	●	●			
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.

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

How to order switch



Switch model No.
(Item (E) on page 516)

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Internal structure and parts list

Same as double acting/single rod. Refer to pages 453 to 457.

Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
	STS-M _B O	
ø8	STS-O-8K	7 9 10 13 16
ø12	STS-O-12K	7 9 10 13 16 32
ø16	STS-O-16K	
ø20	STS-O-20K	
ø25	STS-O-25K	
ø32	STS-O-32K	7 9 10 13
ø40	STS-O-40K	
ø50	STS-O-50K	16 17 32
ø63	STS-O-63K	
ø80	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 459 (ø8 to ø16), page 460 (ø20 and ø25), page 461 (ø32 to ø63) and page 462 (ø80)

STL Series : Page 464 (ø8 to ø16), page 465 (ø20 and ø25), page 466 (ø32 to ø63) and page 467 (ø80)

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Guided cylinder Double acting/rubber scraper

STS/STL-M_BG Series

Double acting/coil scraper

STS/STL-M_BG1 Series

● Bore size: ø20/ø25/ø32/ø40/ø50/ø63/ø80

JIS symbol



Specifications

Item	STS-MG/BG, STS-MG1/BG1, STL-MG/BG, STL-MG1/BG1							
Bore size mm	ø20	ø25	ø32	ø40	ø50	ø63	ø80	
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

· Short stroke STS

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Min. stroke with switch (mm)
ø20	25, 50	50	5	5 With one or two switches
ø25				
ø32				
ø40				
ø50				
ø63	25, 50, 75, 100	100		
ø80				

· Long stroke STL

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Min. stroke with switch (mm)
ø20	50, 75, 100, 125, 150 175, 200, 225, 250 275, 300, 325, 350 375, 400 75, 100, 125, 150, 175 200, 225, 250, 275, 300 325, 350, 375, 400	400	30	30 With one or two switches
ø25				
ø32				
ø40				
ø50				
ø63			55	55 With one or two switches
ø80				

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

Switch specifications

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

Item	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	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V		T8H/T8V			T2YD(*4) T2YDT	
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 100mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50mA	7 to 20mA	50 mA or less	20 mA or less	5 to 50mA	7 to 20mA	7 to 10mA	5 to 20mA
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)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)	
Leakage current	1 mA or less with 100 VAC, 2 mA or less with 200 VAC	1 mA or less			10 µA or less				0mA						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 detailed switch specifications and dimensions.

*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

*3: The 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)

*4: AC magnetic field proof switch (T2YD/T2YDT) cannot be used in DC magnetic fields.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	-	62.8	94.2	1.26 x 10 ²	1.57 x 10 ²	1.88 x 10 ²	2.20 x 10 ²	2.51 x 10 ²	2.83 x 10 ²	3.14 x 10 ²
	Pull	-	47.1	70.7	94.2	1.18 x 10 ²	1.41 x 10 ²	1.65 x 10 ²	1.88 x 10 ²	2.12 x 10 ²	2.36 x 10 ²
ø25	Push	-	98.2	1.47 x 10 ²	1.96 x 10 ²	2.45 x 10 ²	2.95 x 10 ²	3.44 x 10 ²	3.93 x 10 ²	4.42 x 10 ²	4.91 x 10 ²
	Pull	-	75.6	1.13 x 10 ²	1.51 x 10 ²	1.89 x 10 ²	2.27 x 10 ²	2.64 x 10 ²	3.02 x 10 ²	3.40 x 10 ²	3.78 x 10 ²
ø32	Push	1.21 x 10 ²	1.61 x 10 ²	2.41 x 10 ²	3.22 x 10 ²	4.02 x 10 ²	4.83 x 10 ²	5.63 x 10 ²	6.43 x 10 ²	7.24 x 10 ²	8.04 x 10 ²
	Pull	90.5	1.21 x 10 ²	1.81 x 10 ²	2.41 x 10 ²	3.02 x 10 ²	3.62 x 10 ²	4.22 x 10 ²	4.83 x 10 ²	5.43 x 10 ²	6.03 x 10 ²
ø40	Push	1.88 x 10 ²	2.51 x 10 ²	3.77 x 10 ²	5.03 x 10 ²	6.28 x 10 ²	7.54 x 10 ²	8.80 x 10 ²	1.01 x 10 ³	1.13 x 10 ³	1.26 x 10 ³
	Pull	1.58 x 10 ²	2.11 x 10 ²	3.17 x 10 ²	4.22 x 10 ²	5.28 x 10 ²	6.33 x 10 ²	7.39 x 10 ²	8.44 x 10 ²	9.50 x 10 ²	1.06 x 10 ³
ø50	Push	2.95 x 10 ²	3.93 x 10 ²	5.89 x 10 ²	7.85 x 10 ²	9.82 x 10 ²	1.18 x 10 ³	1.37 x 10 ³	1.57 x 10 ³	1.77 x 10 ³	1.96 x 10 ³
	Pull	2.47 x 10 ²	3.30 x 10 ²	4.95 x 10 ²	6.60 x 10 ²	8.25 x 10 ²	9.90 x 10 ²	1.15 x 10 ³	1.32 x 10 ³	1.48 x 10 ³	1.65 x 10 ³
ø63	Push	4.68 x 10 ²	6.23 x 10 ²	9.35 x 10 ²	1.25 x 10 ³	1.56 x 10 ³	1.87 x 10 ³	2.18 x 10 ³	2.49 x 10 ³	2.81 x 10 ³	3.12 x 10 ³
	Pull	4.20 x 10 ²	5.61 x 10 ²	8.41 x 10 ²	1.12 x 10 ³	1.40 x 10 ³	1.68 x 10 ³	1.96 x 10 ³	2.24 x 10 ³	2.52 x 10 ³	2.80 x 10 ³
ø80	Push	7.54 x 10 ²	1.01 x 10 ³	1.51 x 10 ³	2.01 x 10 ³	2.51 x 10 ³	3.02 x 10 ³	3.52 x 10 ³	4.02 x 10 ³	4.52 x 10 ³	5.03 x 10 ³
	Pull	6.80 x 10 ²	9.07 x 10 ²	1.36 x 10 ³	1.81 x 10 ³	2.27 x 10 ³	2.72 x 10 ³	3.17 x 10 ³	3.63 x 10 ³	4.08 x 10 ³	4.54 x 10 ³

For cylinder weight, refer to pages 558 to 561.

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS/STL-M^BG/G1 Series

How to order

● Short stroke

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



● Long stroke

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



A Bearing

B Model No.

C Bore size

D Port thread

E Stroke

■ Custom stroke

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

F Switch model No.

*1, *3

⚠ Precautions for model No. selection

- *1 : Switches other than **F** Switch model No. are also available. (Made-to-order product) Refer to Ending Page 1 for details.
- *2 : Refer to pages 444 to 447 for combinations of variations/options.
- *3 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.
- *4 : Refer to page 458 for material details.
- *5 : $\phi 20$ and $\phi 25$ with ball bearing B are copper and PTFE free as standard. Not available for coil scraper G1.

For the 2-color LED, T1H/V, T8H/V and AC magnetic field proof switches for $\phi 40$ and over, insert "L1" with "." between **D** and **C**.
(Example) STS-MG-L1-63-50-T2YH3-D-F
For $\phi 80$, the 2-color LED, 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 **D** 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

- A** Bearing : Metal bush bearing
- B** Model No. : Rubber scraper
- C** Bore size : $\phi 20$ mm
- D** Port thread : M5
- E** Stroke : 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	Description
A Bearing	
M	Metal bush bearing
B	Ball bearing

B Model No.	
G	Rubber scraper
G1	Coil scraper

C Bore size (mm)	
20	$\phi 20$
25	$\phi 25$
32	$\phi 32$
40	$\phi 40$
50	$\phi 50$
63	$\phi 63$
80	$\phi 80$

D Port thread	
Blank	M5 ($\phi 20$, $\phi 25$) Rc thread ($\phi 32$ to $\phi 80$)
NN	NPT thread ($\phi 32$ and over) made-to-order product.
GN	G thread ($\phi 32$ and over) made-to-order product.

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

F Switch model No.					
Straight lead wire	L-shaped lead wire	Contact	Voltage AC/DC	Indicator	Lead wire
T0H*	T0V*	●	●	1-color LED	2-wire
T5H*	T5V*	●	●	no indicator lamp	
T8H*	T8V*	●	●	1-color LED	2-wire
T1H*	T1V*	●	●		
T2H*	T2V*		●	3-wire	3-wire
T3H*	T3V*		●		
T3PH*	T3PV*		●	1-color LED	3-wire
T2WH*	T2WV*		●		
T2YH*	T2YV*		●	2-color LED	2-wire
T3WH*	T3WV*		●		
T3YH*	T3YV*		●	1-color LED off-delay	2-wire
T2JH*	T2JV*		●		
T2YD*	-		●	2-color LED (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	*4 Corrosion proof (Piston rod and guide rod material: SUS) (made-to-order product)
M1	*4 Corrosion proof (Piston rod, guide rod and end plate material: SUS) (made-to-order product)
P6	*5 Copper/PTFE free specs (made to order) (N/A for G1 coil scraper)

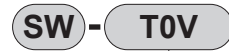
Stroke

Series	Stroke (mm)	Applicable bore size							
		ø20	ø25	ø32	ø40	ø50	ø63	ø80	
STS	Standard stroke	25	●	●	●	●	●	●	●
		50	●	●	●	●	●	●	●
		75							●
		100							●
	Min. stroke *1	5							
	Custom stroke *1, 2	In 5 mm increments							
STL	Standard stroke	50	●	●	●	●	●	●	●
		75	●	●	●	●	●	●	●
		100	●	●	●	●	●	●	●
		125	●	●	●	●	●	●	●
		150	●	●	●	●	●	●	●
		175	●	●	●	●	●	●	●
		200	●	●	●	●	●	●	●
		225	●	●	●	●	●	●	●
		250	●	●	●	●	●	●	●
		275	●	●	●	●	●	●	●
		300	●	●	●	●	●	●	●
		325	●	●	●	●	●	●	●
		350	●	●	●	●	●	●	●
		375	●	●	●	●	●	●	●
		400	●	●	●	●	●	●	●
		Min. stroke *1	30						55
			Custom stroke *1, 2	In 5 mm increments					

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

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

How to order switch



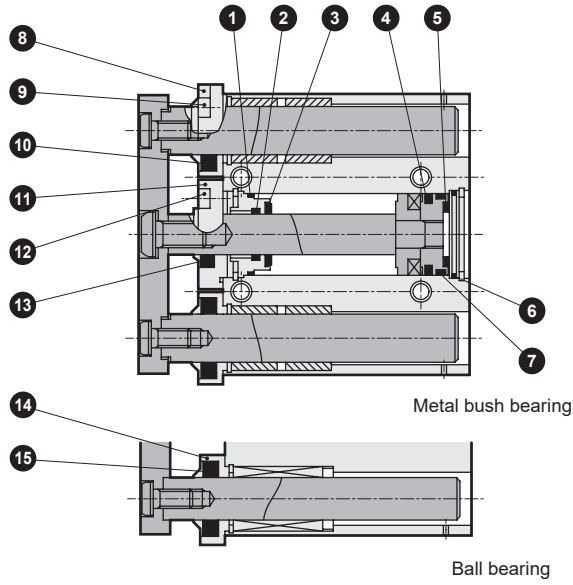
Switch model No.
(Item ⑥ on page 520)

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

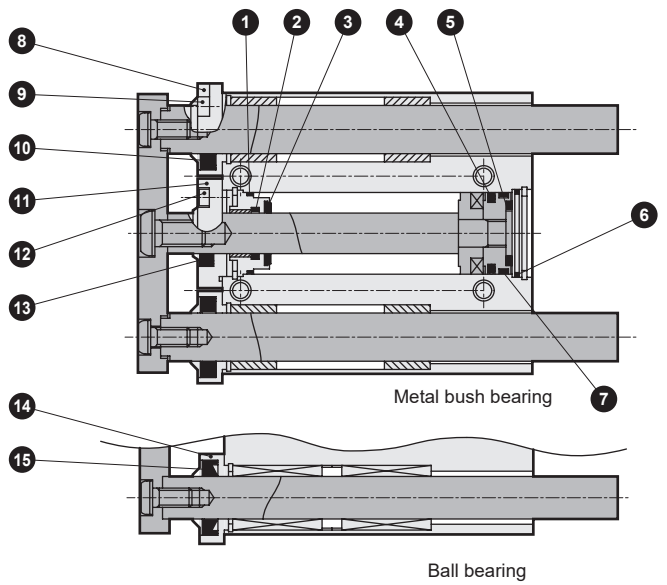
STS/STL-^M_BG/G1 Series

Internal structure and parts list

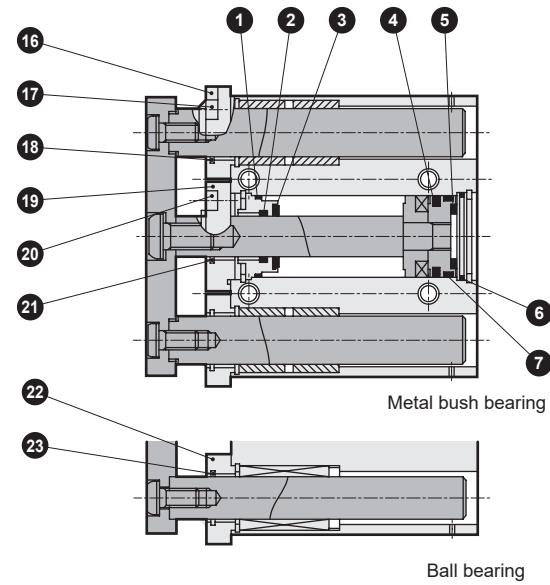
● Rubber scraper
STS-^M_BG



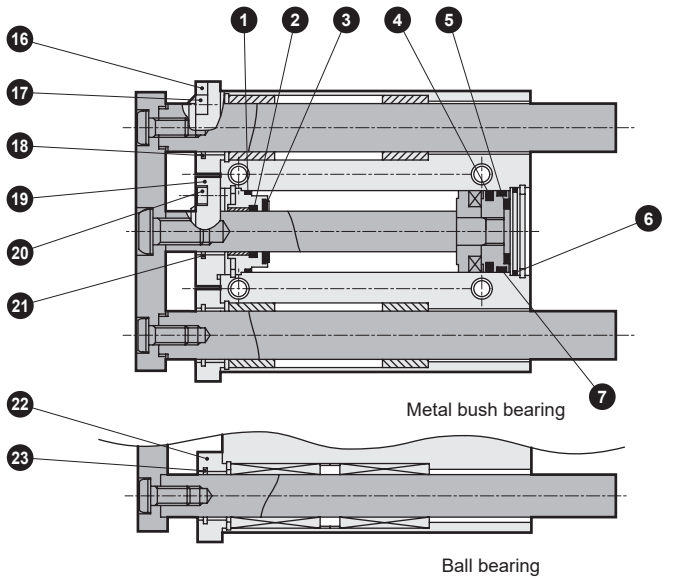
STL-^M_BG



● Coil scraper
STS-^M_BG1



STL-^M_BG1



LCM
LCR
LCG
LCW
L CX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Parts list (Parts not listed below are the same as those of the double acting/standard single rod. Refer to pages 453 to 457.)

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
ST_L^S-M_B-G (Rubber scraper)				ST_L^S-M_B-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.
ø20	STS-MG-20K	
ø25	STS-MG-25K	
ø32	STS-MG-32K	1 2 3
ø40	STS-MG-40K	4 5 6
ø50	STS-MG-50K	7 10 13
ø63	STS-MG-63K	
ø80	STS-MG-80K	

● STS-BG/STL-BG (Rubber scraper)

Bore size (mm)	Kit No.	Repair parts No.
ø20	STS-BG-20K	
ø25	STS-BG-25K	
ø32	STS-BG-32K	1 2 3
ø40	STS-BG-40K	4 5 6
ø50	STS-BG-50K	7 13 15
ø63	STS-BG-63K	
ø80	STS-BG-80K	

● STS-MG1/STL-MG1 (Coil scraper)

Bore size (mm)	Kit No.	Repair parts No.
ø20	STS-MG1-20K	
ø25	STS-MG1-25K	
ø32	STS-MG1-32K	1 2 3
ø40	STS-MG1-40K	4 5 6
ø50	STS-MG1-50K	7 18 21
ø63	STS-MG1-63K	
ø80	STS-MG1-80K	

● STS-BG1/STL-BG1 (Coil scraper)

Bore size (mm)	Kit No.	Repair parts No.
ø20	STS-BG1-20K	
ø25	STS-BG1-25K	
ø32	STS-BG1-32K	1 2 3
ø40	STS-BG1-40K	4 5 6
ø50	STS-BG1-50K	7 21 23
ø63	STS-BG1-63K	
ø80	STS-BG1-80K	

LCM
LCR
LCG
LCW
LCX
LTX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS-M-B-G/G1 Series



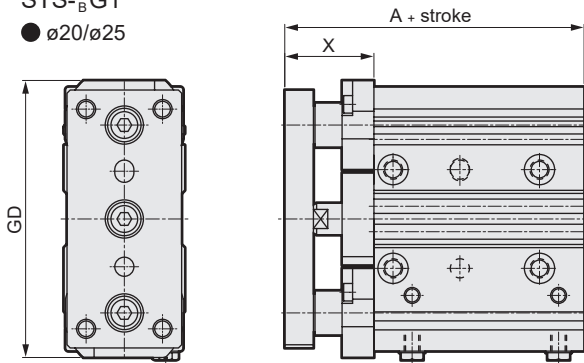
Dimensions

● Coil scraper (Dimensions not listed below are the same as those of the double acting/single rod on pages 459 to 462.)

● Rubber scraper (Dimensions not listed below are the same as those of the double acting/single rod on pages 459 to 462.)

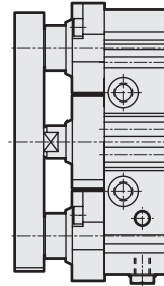
STS-M-B-G1

● $\varnothing 20/\varnothing 25$



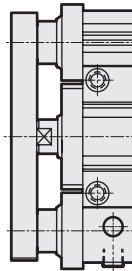
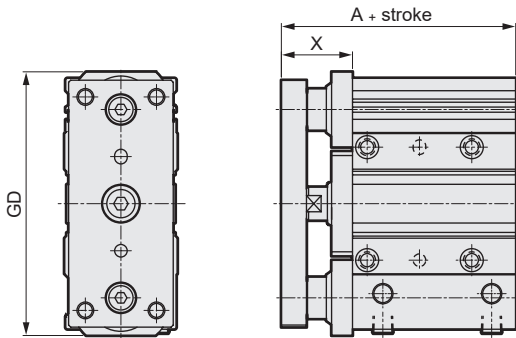
STS-M-B-G

● $\varnothing 20/\varnothing 25$



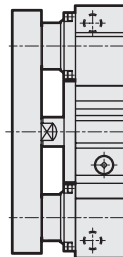
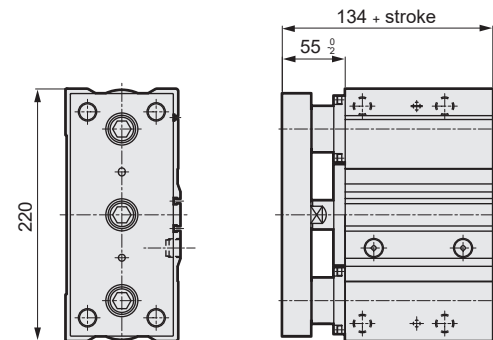
● $\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63$

● $\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63$



● $\varnothing 80$

● $\varnothing 80$



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

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

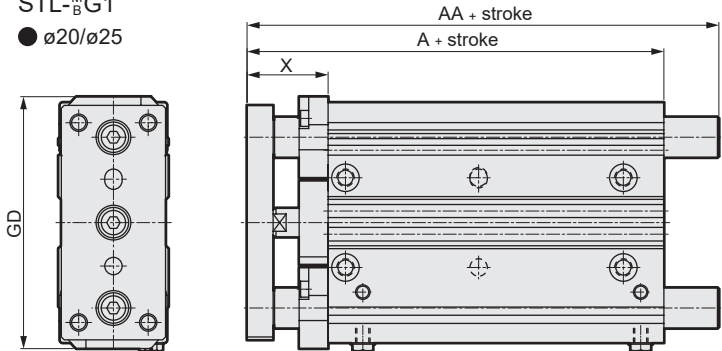
- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

Dimensions

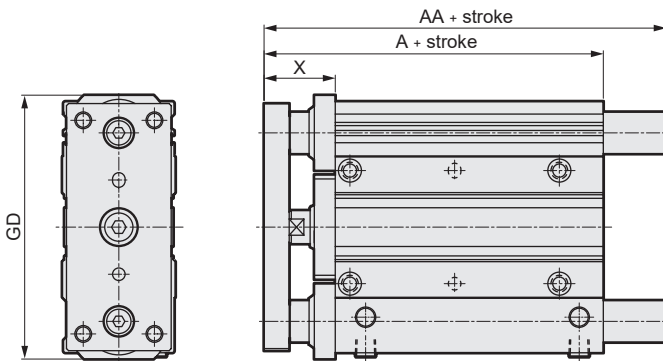
- Coil scraper
(Dimensions not listed below are the same as those of double acting/single rod on pages 464 to 467.)

STL-M_BG1

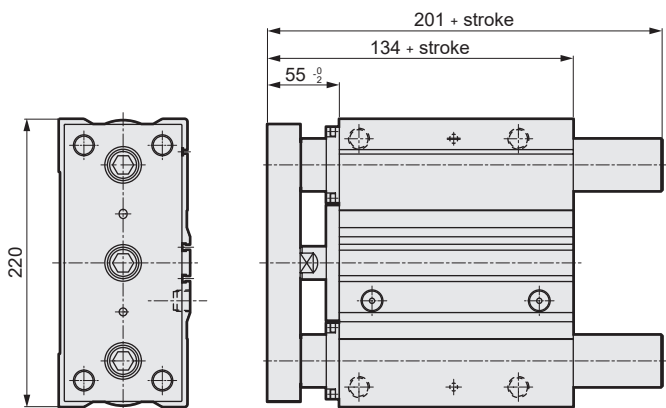
- $\phi 20/\phi 25$



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



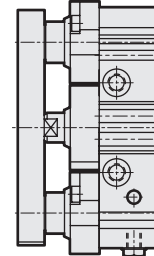
- $\phi 80$



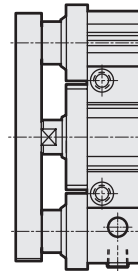
- Rubber scraper
(Dimensions not listed below are the same as those of double acting/single rod on pages 464 to 467.)

STL-M_BG

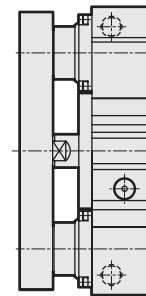
- $\phi 20/\phi 25$



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



- $\phi 80$



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 ± 0.2	117
$\phi 40$	87	117	34 ± 0.2	126
$\phi 50$	92	140	37 ± 0.2	152
$\phi 63$	98	140	37 ± 0.2	166
$\phi 80$	134	201	55 ± 0.2	220

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

- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand
- Chuk
- MechHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Guided cylinder Double acting/coolant proof

STS/STL-M G₃² Series

● Bore size: ø20/ø25/ø32/ø40/ø50/ø63/ø80

JIS symbol



Specifications

Item	STS/STL-M G ₃ ²								
	mm	ø20	ø25	ø32	ø40	ø50	ø63	ø80	
Bore size	mm	ø20	ø25	ø32	ø40	ø50	ø63	ø80	
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)
ø20	25, 50	50	5	5 With one or two switches
ø25				
ø32				
ø40				
ø50				
ø63	25, 50, 75, 100	100		
ø80				

· Long stroke length STL

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke with switch (mm)
ø20	50, 75, 100, 125, 150 175, 200, 225, 250 275, 300, 325, 350 375, 400	400	30	30 With one or two switches
ø25				
ø32				
ø40				
ø50			75, 100, 125, 150, 175 200, 225, 250, 275, 300 325, 350, 375, 400	
ø63				
ø80				

*1 : 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.

*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. Item	Proximity switch specifications	
	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 *3	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	g 1 m:33 3 m:87 5 m:142	

*1 : Refer to Ending Page 1 for detailed switch specifications and dimensions.

*2 : Switches with connectors are also available. Refer to Ending Page 28.

*3 : The 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									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	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
ø25	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
ø32	Push	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	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
ø40	Push	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	1.58 × 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
ø50	Push	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	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
ø63	Push	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	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
ø80	Push	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	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 558 to 561.

LCM
LCR
LCC
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

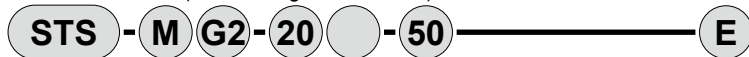
STS/STL-M^BG2/G3 Series

- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- 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 444 to 447 for combinations of variations/options.
- *2 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.
- *3 : Refer to page 458 for material details.

[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 : $\varnothing 20$ mm
- D** Port thread : M5
- E** Stroke length : 50 mm
- F** Switch model No. : Proximity switch T2YLH, lead wire 1 m
- G** Switch quantity : 1 on rod side

Code	Description				
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	$\varnothing 20$				
25	$\varnothing 25$				
32	$\varnothing 32$				
40	$\varnothing 40$				
50	$\varnothing 50$				
63	$\varnothing 63$				
80	$\varnothing 80$				
D Port thread					
Blank	M5 ($\varnothing 20, \varnothing 25$)				
	Rc thread ($\varnothing 32$ to $\varnothing 80$)				
NN	NPT thread ($\varnothing 32$ and over) made-to-order product				
GN	G thread ($\varnothing 32$ and over) made-to-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	*3	Corrosion proof (Piston rod, guide rod and end plate material: SUS) (made-to-order product)			

E Stroke length

Series	Stroke length (mm)	Applicable bore size							
		ø20	ø25	ø32	ø40	ø50	ø63	ø80	
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. (Made to order)

How to order switch

SW - T2YLH

Switch model No.
(Item E on page 528)

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS-M_BG2/G3 Series

Internal structure and parts list

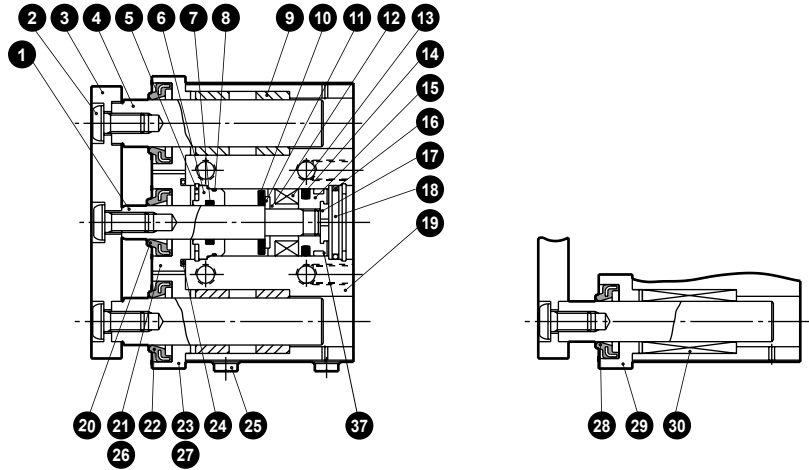
LCM
LCR
LCG
LCW
L CX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

● Degree of protection: Packing NBR/FKM

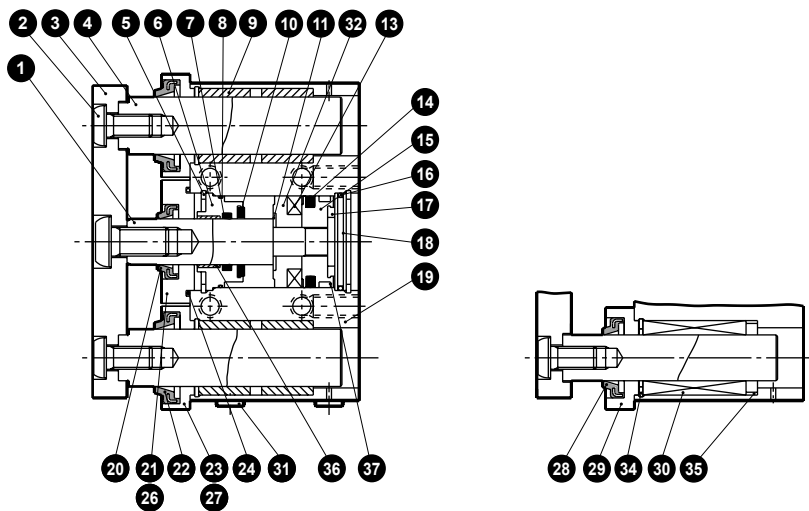
STS-M_BG2

STS-M_BG3

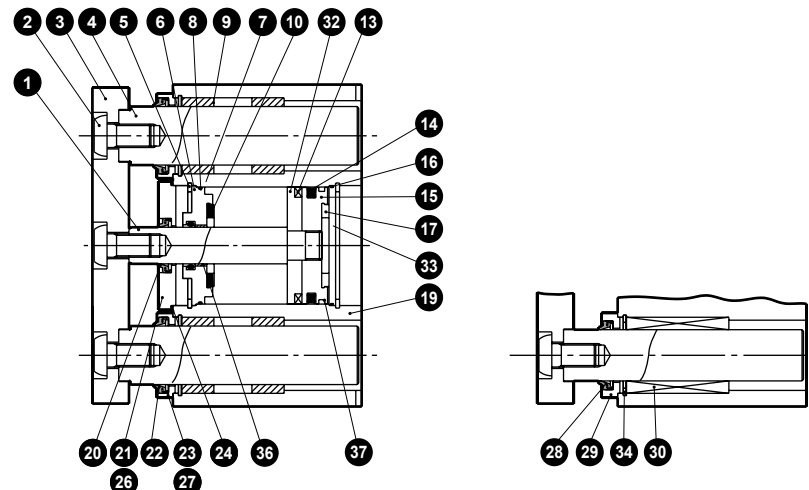
● $\varnothing 20/\varnothing 25$



● $\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63$



● $\varnothing 80$



Parts list

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Stainless steel	Industrial chrome plating	20	Scraper	G2 Nitrile rubber	
2	Hexagon socket button head bolt	Stainless steel				G3 Fluoro rubber	
3	End plate	Aluminum alloy	Alumite	21	Adaptor A	Aluminum alloy	Alumite
4	Guide rod	Stainless steel	Industrial chrome plating	22	Scraper	G2 Nitrile rubber	
5	C type snap ring for hole	Stainless steel				G3 Fluoro rubber	
6	Rod metal	Special aluminum	Alumite	23	Adaptor B	Aluminum alloy	Alumite
7	Rod packing	G2	Nitrile rubber	24	O-ring	G2	Nitrile rubber
		G3	Fluoro rubber			G3	Fluoro rubber
8	Metal gasket	G2	Nitrile rubber	25	Plug	Copper alloy	Nickeling
		G3	Fluoro rubber	26	Hexagon socket head cap screw	Stainless steel	
9	Metal	Oil impregnated bearing alloy		27	Hexagon socket head cap screw	Stainless steel	
10	Cushion rubber (R)	Urethane rubber		28	Scraper	G2 Nitrile rubber	
11	Spacer washer	Stainless steel	ø20 to ø50			G3 Fluoro rubber	
12	Spacer	Polyamide	ø20 to ø50	29	Adaptor C	Aluminum alloy	Alumite
13	Magnet			30	Bearing	Stainless steel	
14	Piston packing	G2	Nitrile rubber	31	Hexagon socket flush plug	Stainless steel	ø32 to ø63
		G3	Fluoro rubber	32	Spacer	Aluminum alloy	ø63.ø80
15	Piston	Aluminum alloy	Chromate	33	Base plate	Steel	Zinc chromate ø80
16	O-ring	G2	Nitrile rubber	34	C type snap ring for hole	Stainless steel	ø32 to ø80
		G3	Fluoro rubber	35	Collar	Aluminum alloy	ø32 to ø63
17	Cushion rubber (H)	Urethane rubber		36	Bush	Oiles drymet	ø32 to ø80
18	Base plate	Aluminum alloy	ø20 to ø63	37	Wear ring	Acetal resin	
19	Tube body	Aluminum alloy	Hard alumite				

Repair parts list

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

Bore size (mm)	Kit No.	Repair parts No.
ø20	STS-MG2-20K	7 8 10
ø25	STS-MG2-25K	14 16 17
ø32	STS-MG2-32K	20 22 24
ø40	STS-MG2-40K	37
ø50	STS-MG2-50K	
ø63	STS-MG2-63K	
ø80	STS-MG2-80K	

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

Bore size (mm)	Kit No.	Repair parts No.
ø20	STS-BG2-20K	7 8 10
ø25	STS-BG2-25K	14 16 17
ø32	STS-BG2-32K	20 24 28
ø40	STS-BG2-40K	37
ø50	STS-BG2-50K	
ø63	STS-BG2-63K	
ø80	STS-BG2-80K	

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

Bore size (mm)	Kit No.	Repair parts No.
ø20	STS-MG3-20K	7 8 10
ø25	STS-MG3-25K	14 16 17
ø32	STS-MG3-32K	20 22 24
ø40	STS-MG3-40K	37
ø50	STS-MG3-50K	
ø63	STS-MG3-63K	
ø80	STS-MG3-80K	

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

Bore size (mm)	Kit No.	Repair parts No.
ø20	STS-BG3-20K	7 8 10
ø25	STS-BG3-25K	14 16 17
ø32	STS-BG3-32K	20 24 28
ø40	STS-BG3-40K	37
ø50	STS-BG3-50K	
ø63	STS-BG3-63K	
ø80	STS-BG3-80K	

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

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STL-M_BG2/G3 Series

Internal structure and parts list

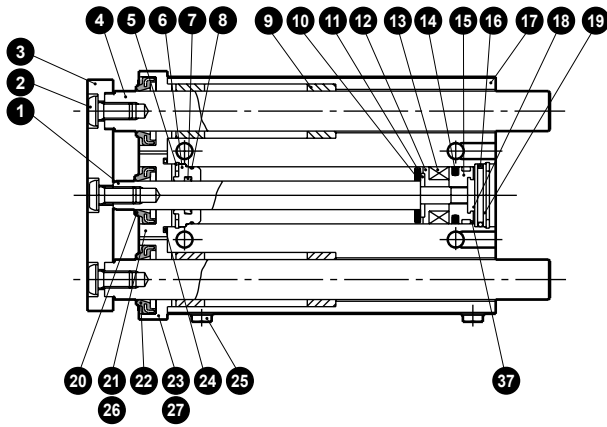
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

● Degree of protection: Packing NBR/FKM

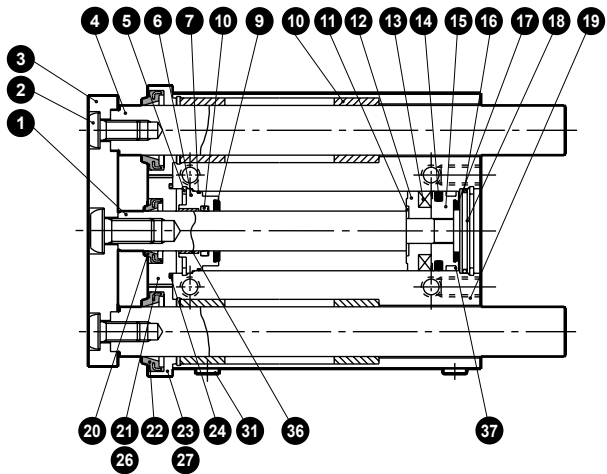
STL-M_BG2

STL-M_BG3

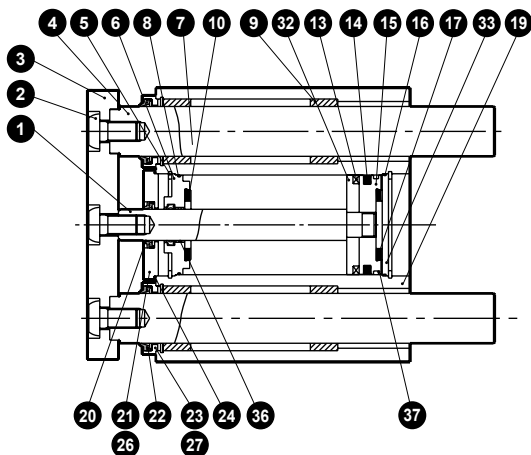
● $\varnothing 20/\varnothing 25$



● $\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63$



● $\varnothing 80$



Parts list

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Stainless steel	Industrial chrome plating	20	Scraper	G2 Nitrile rubber	
2	Hexagon socket button head bolt	Stainless steel				G3 Fluoro rubber	
3	End plate	Aluminum alloy	Alumite	21	Adaptor A	Aluminum alloy	Alumite
4	Guide rod	Stainless steel	Industrial chrome plating	22	Scraper	G2 Nitrile rubber	
5	C type snap ring for hole	Stainless steel				G3 Fluoro rubber	
6	Rod metal	Special aluminum	Alumite	23	Adaptor B	Aluminum alloy	Alumite
7	Rod packing	G2	Nitrile rubber	24	O-ring	G2	Nitrile rubber
		G3	Fluoro rubber			G3	Fluoro rubber
8	Metal gasket	G2	Nitrile rubber	25	Plug	Copper alloy	Nickeling
		G3	Fluoro rubber	26	Hexagon socket head cap screw	Stainless steel	
9	Metal	Oil impregnated bearing alloy		27	Hexagon socket head cap screw	Stainless steel	
10	Cushion rubber (R)	Urethane rubber		28	Scraper	G2	Nitrile rubber
11	Spacer washer	Stainless steel	ø20 to ø50			G3	Fluoro rubber
12	Spacer	Polyamide	ø20 to ø50	29	Adaptor C	Aluminum alloy	Alumite
13	Magnet			30	Bearing	Stainless steel	
14	Piston packing	G2	Nitrile rubber	31	Hexagon socket flush plug	Stainless steel	ø32 to ø63
		G3	Fluoro rubber	32	Spacer	Aluminum alloy	ø63.ø80
15	Piston	Aluminum alloy	Chromate	33	Base plate	Steel	Zinc chromate ø80
16	O-ring	G2	Nitrile rubber	34	C type snap ring for hole	Stainless steel	ø32 to ø80
		G3	Fluoro rubber	35	Collar	Aluminum alloy	ø32 to ø63
17	Cushion rubber (H)	Urethane rubber		36	Bush	Oiles drymet	ø32 to ø80
18	Base plate	Aluminum alloy	ø20 to ø63	37	Wear ring	Acetal resin	
19	Tube body	Aluminum alloy	Hard alumite				

Repair parts list

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

Bore size (mm)	Kit No.	Repair parts No.
ø20	STS-MG2-20K	7 8 10
ø25	STS-MG2-25K	14 16 17
ø32	STS-MG2-32K	20 22 24
ø40	STS-MG2-40K	37
ø50	STS-MG2-50K	
ø63	STS-MG2-63K	
ø80	STS-MG2-80K	

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

Bore size (mm)	Kit No.	Repair parts No.
ø20	STS-BG2-20K	7 8 10
ø25	STS-BG2-25K	14 16 17
ø32	STS-BG2-32K	20 24 28
ø40	STS-BG2-40K	37
ø50	STS-BG2-50K	
ø63	STS-BG2-63K	
ø80	STS-BG2-80K	

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

Bore size (mm)	Kit No.	Repair parts No.
ø20	STS-MG3-20K	7 8 10
ø25	STS-MG3-25K	14 16 17
ø32	STS-MG3-32K	20 22 24
ø40	STS-MG3-40K	37
ø50	STS-MG3-50K	
ø63	STS-MG3-63K	
ø80	STS-MG3-80K	

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

Bore size (mm)	Kit No.	Repair parts No.
ø20	STS-BG3-20K	7 8 10
ø25	STS-BG3-25K	14 16 17
ø32	STS-BG3-32K	20 24 28
ø40	STS-BG3-40K	37
ø50	STS-BG3-50K	
ø63	STS-BG3-63K	
ø80	STS-BG3-80K	

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

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr

Ending

STS-M_BG2/G3 Series

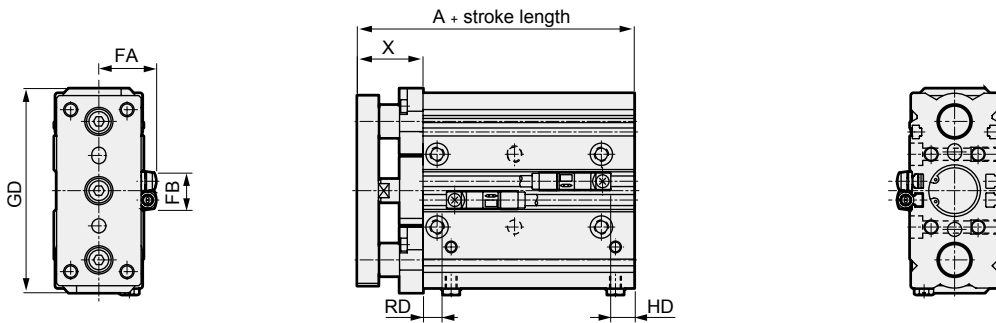
Dimensions



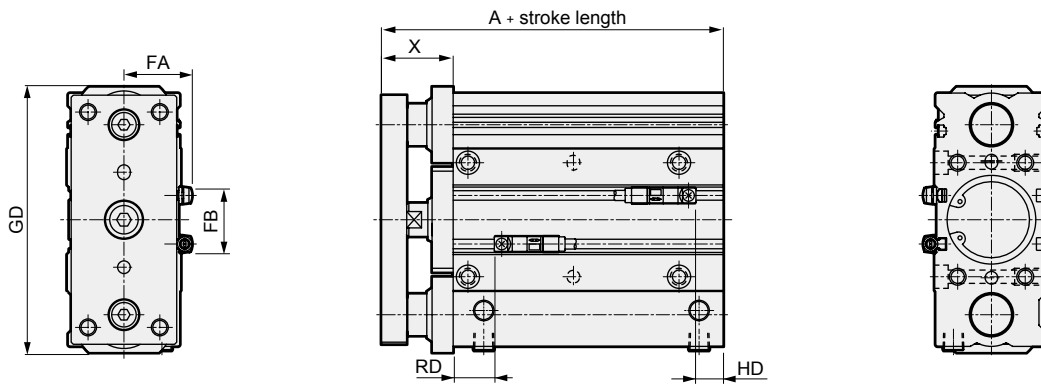
● Coolant proof (Dimensions not listed below are the same as those of the double acting/single rod.)

STS-M_BG2/G3

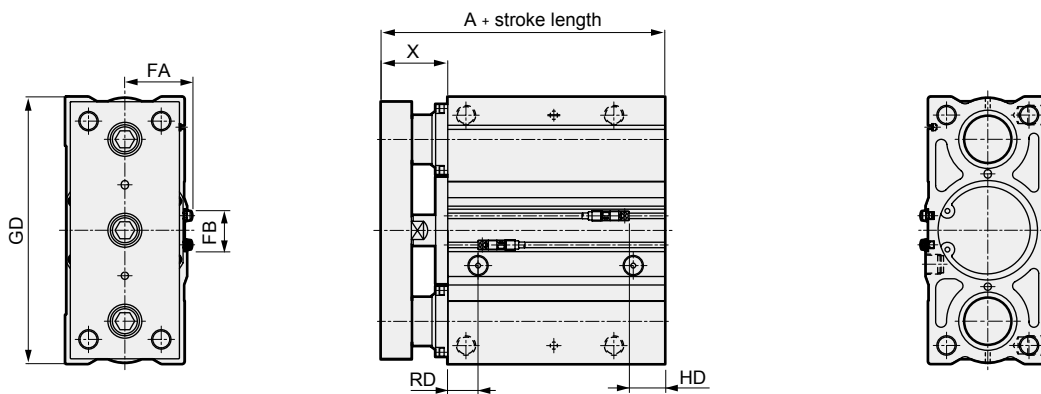
● $\varnothing 20/\varnothing 25$



● $\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63$



● $\varnothing 80$



Code	A	GD	X	RD	HD	FA	FB
$\varnothing 20$	68	87	$28 \frac{0}{2}$	9.5	8	24.3	16
$\varnothing 25$	69	91	$28 \frac{0}{2}$	11.5	7.5	26.3	17
$\varnothing 32$	83	117	$34 \frac{0}{2}$	16	12	28.8	24
$\varnothing 40$	87	126	$34 \frac{0}{2}$	19.5	13	32.3	31
$\varnothing 50$	92	152	$37 \frac{0}{2}$	21.5	13.5	38.3	32
$\varnothing 63$	98	166	$37 \frac{0}{2}$	18.5	21.5	44.8	32
$\varnothing 80$	134	220	$55 \frac{0}{2}$	25	33	55.3	32

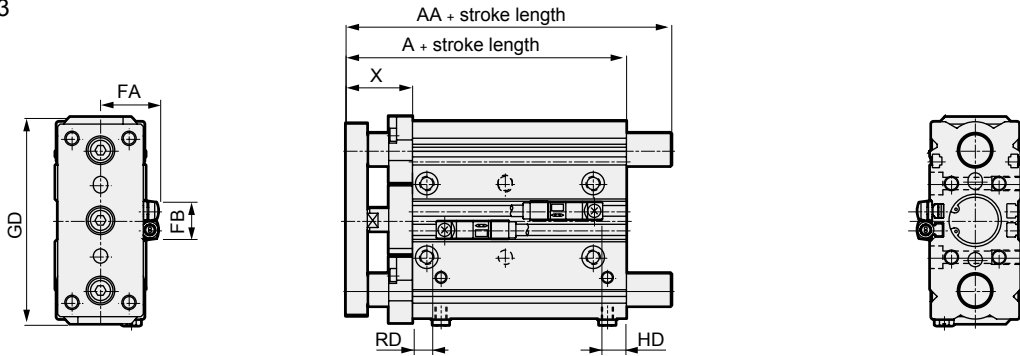
*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

- LCM
- LCR
- LCG
- LCW
- LX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

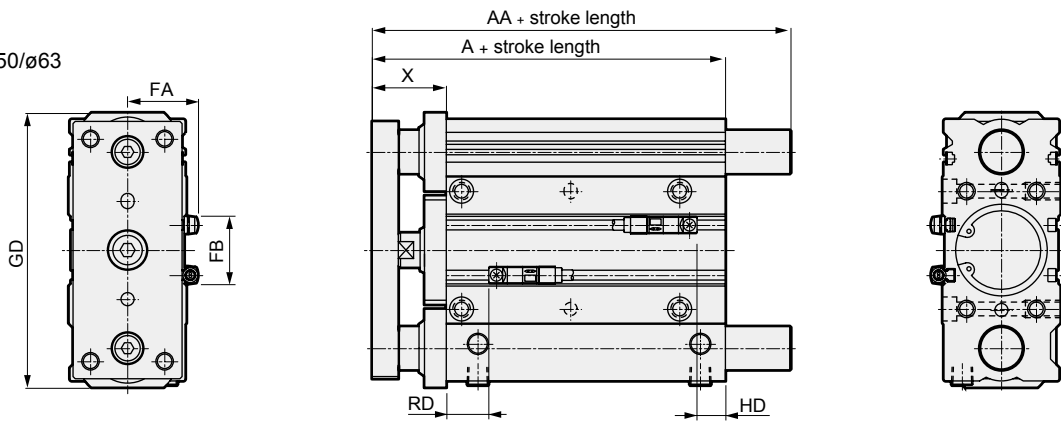
Dimensions

- Coolant proof (Dimensions not listed below are the same as those of the double acting/single rod.)
- STL-M G2/G3

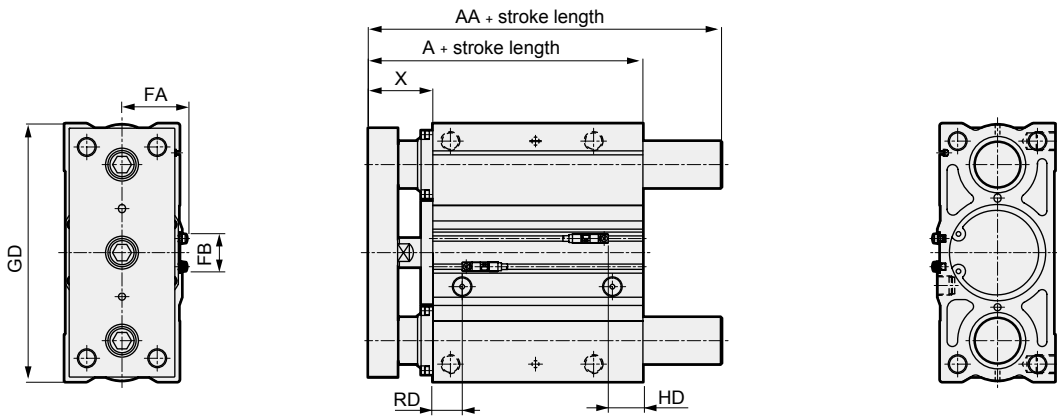
● $\varnothing 20/\varnothing 25$



● $\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63$



● $\varnothing 80$



Code	A	AA	GD	X	RD	HD	FA	FB
Bore size (mm)								
$\varnothing 20$	68	87	87	28^{0}_{-2}	9.5	8	24.3	16
$\varnothing 25$	69	87	91	28^{0}_{-2}	11.5	7.5	26.3	17
$\varnothing 32$	83	117	117	34^{0}_{-2}	16	12	28.8	24
$\varnothing 40$	87	117	126	34^{0}_{-2}	19.5	13	32.3	31
$\varnothing 50$	92	140	152	37^{0}_{-2}	21.5	13.5	38.3	32
$\varnothing 63$	98	140	166	37^{0}_{-2}	18.5	21.5	44.8	32
$\varnothing 80$	134	201	220	55^{0}_{-2}	25	33	55.3	32

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

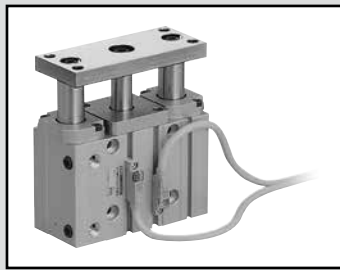
- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand
- Chuk
- MechHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

Guided cylinder Anti-spatter adherence

STS/STL-G4 Series

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

JIS symbol ● Double acting



Specifications

Item	STS/STL-G4			
Bore size mm	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$
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)			
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	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)
$\phi 40$	25, 50	50	5	5 With one switch or two switches.
$\phi 50$				
$\phi 63$				
$\phi 80$	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)
$\phi 40$	50, 75, 100, 125, 150	400	30	30 With one or two switches
$\phi 50$	175, 200, 225, 250, 275,			
$\phi 63$	300, 325, 350, 375, 400			
$\phi 80$	75, 100, 125, 150, 175 200, 225, 250, 275, 300 325, 350, 375, 400		55	55 With one or two switches

*1: 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

Item	Proximity 2-wire	
	T2YD/T2YDT	
Applications	Dedicated for programmable controller	
Indicator lamp	Red/green LED (Lit when ON)	
Load voltage	24 VDC $\pm 10\%$	
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 detailed switch specifications and dimensions.

*4 : Switches with connectors are also available. Refer to Ending Page 28.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
$\phi 40$	Push	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	1.58×10^2	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	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	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	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	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	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	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)

STS - **M** **G4** - **L1** - **40** - **50** - **F**

With switch (built-in magnet for switch)

STS - **M** **G4** - **L1** - **40** - **50** - **T2YD** - **R** - **F**

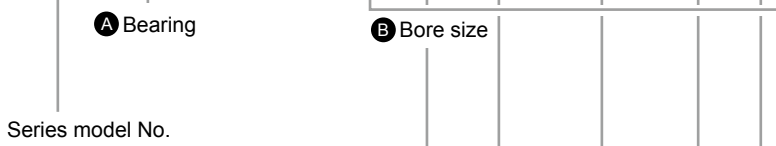
● Long stroke length

Without switch (built-in magnet for switch)

STL - **M** **G4** - **L1** - **40** - **100** - **F**

With switch (built-in magnet for switch)

STL - **M** **G4** - **L1** - **40** - **100** - **T2YD** - **D** - **F**



■ 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 444 to 447 for combinations of variations/options.

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

*3 : Refer to page 458 for material details.

● Stroke length

Series	Stroke length (mm)	Applicable bore size				
		ø40	ø50	ø63	ø80	
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. (Made to order)

* For cylinder weight, refer to pages 558 to 561.

Code	Remarks				
A Bearing					
M	Metal bush bearing				
B	Ball bearing				
B Bore size (mm)					
40	ø40				
50	ø50				
63	ø63				
80	ø80				
C Port thread					
Blank	Rc thread				
NN	NPT thread made-to-order product				
GN	G thread made-to-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 *3	Corrosion proof (Piston rod and guide rod material: SUS) (made-to-order product)				
M1 *3	Corrosion proof (Piston rod, guide rod and end plate material: SUS) (made-to-order product)				

F Switch quantity

G Option

How to order switch

SW - **T2YD**

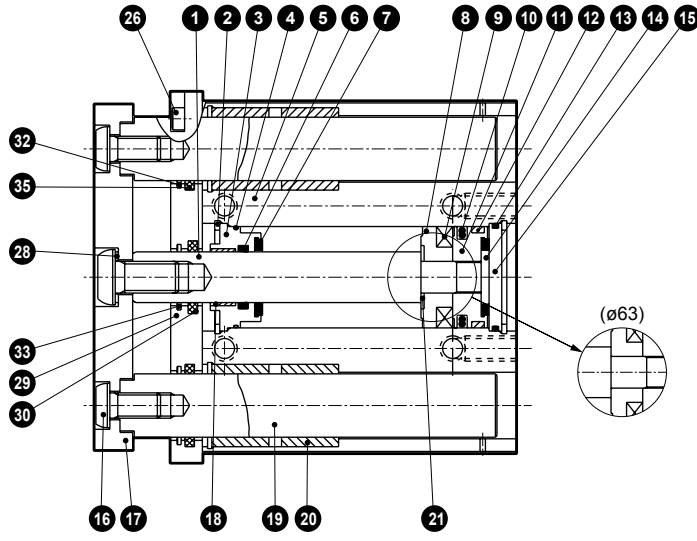
Switch model No. (Item E above)

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

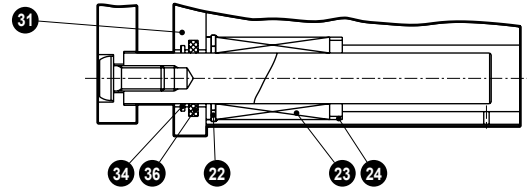
STS-G4 Series

Internal structure and parts list

● Double acting/standard $\phi 40/\phi 50/\phi 63$
single rod STS-M_BG4

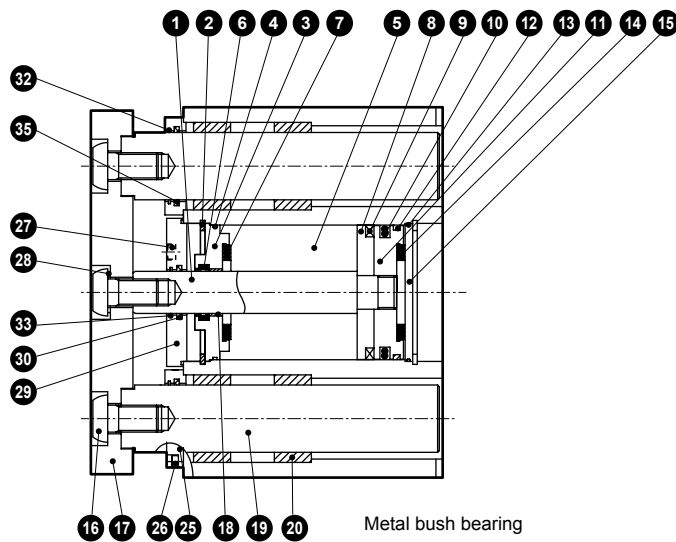


Metal bush bearing

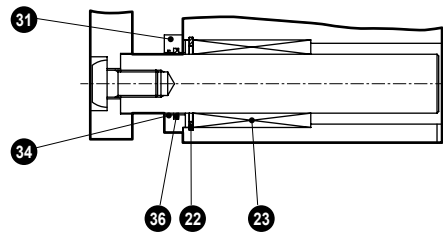


Ball bearing

$\phi 80$



Metal bush bearing

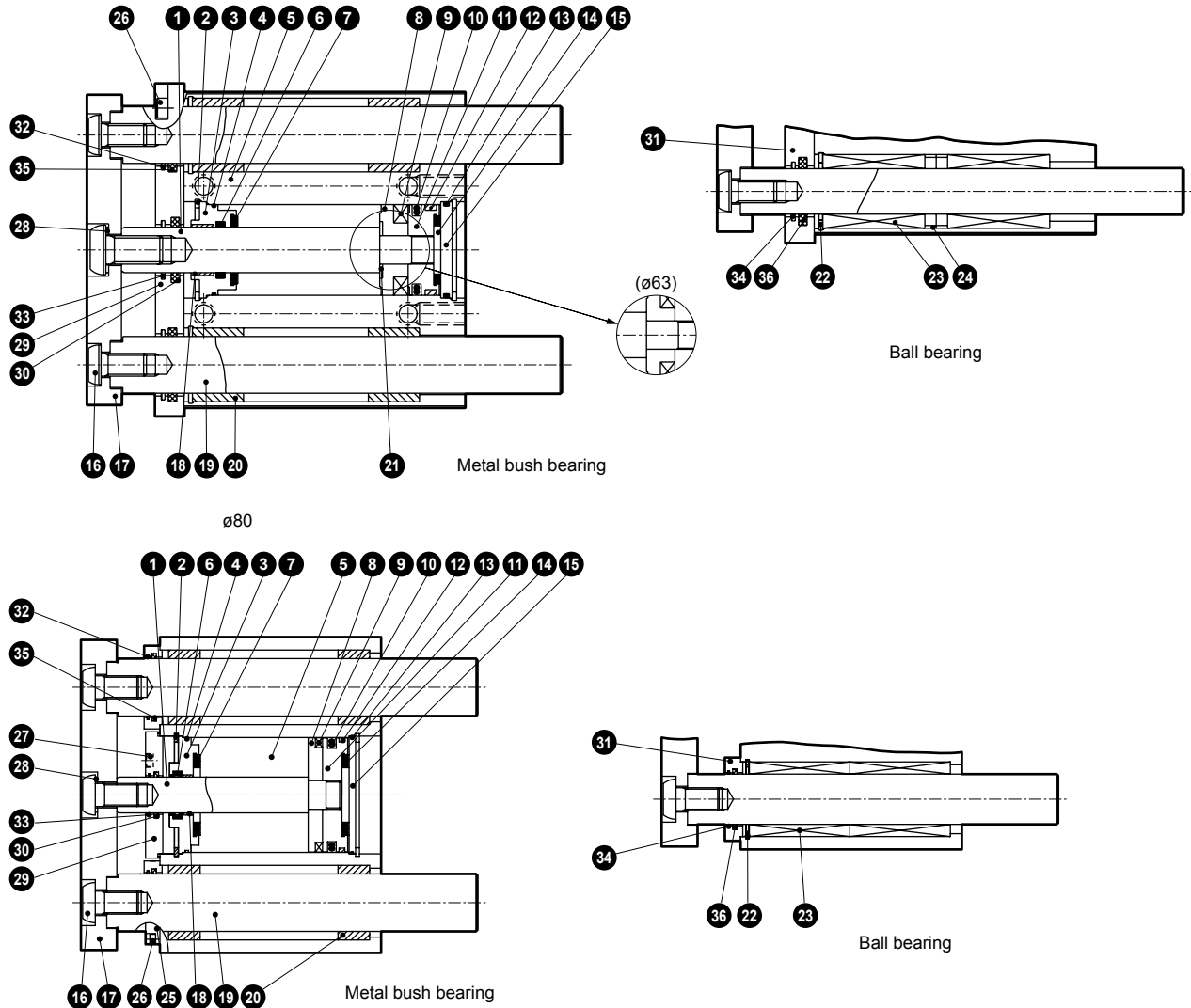


Ball bearing

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Steel	Industrial chrome plating	18	Bush	Oiles drymet	
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			26	Hexagon socket head cap screw	Steel	Zinc chromate
10	Piston packing	Nitrile rubber		27	Hexagon socket head cap screw	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-M₂G4



LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

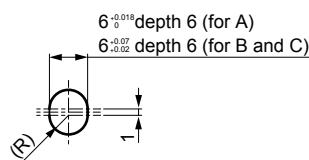
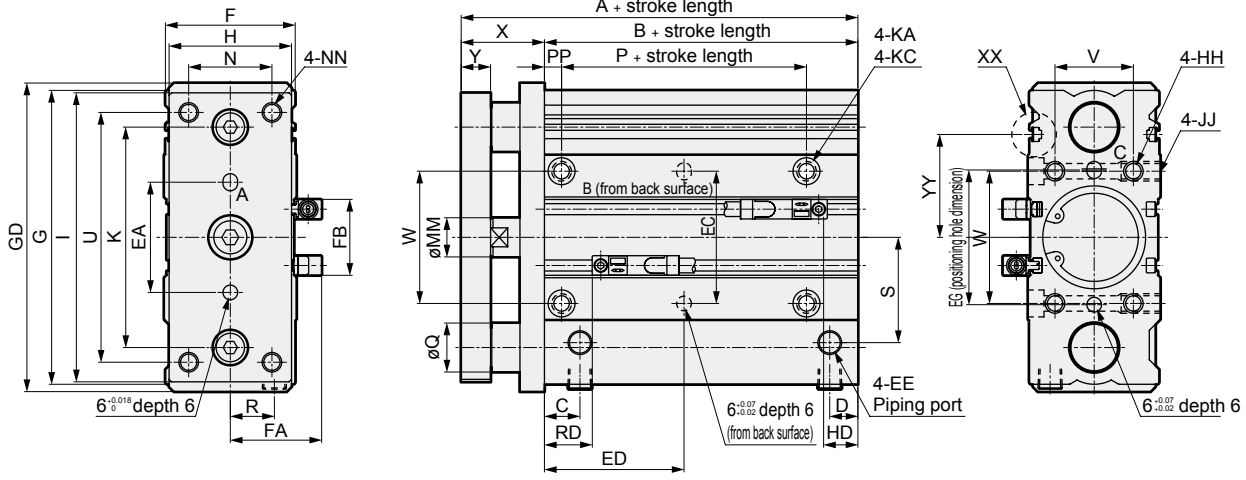
No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Steel	Industrial chrome plating	18	Bush	Oiles drymet	
2	C type snap ring	Steel	Zinc phosphate	19	Guide rod	Steel	Industrial chrome plating
3	Rod metal	Special aluminum alloy	Alumite	20	Metal	Oil impregnated bearing alloy	
4	Metal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

STS-G4 Series

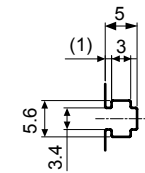


Dimensions: $\varnothing 40/\varnothing 50/\varnothing 63$

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



Slot dimensions for A, B and C



XX section details

STS- $\frac{M}{B}$ -G4																			
Code	A	B	C	D	E	EE	EA	EC	EG	ED	F	G	GD	H	HH	I	JJ	K	KA
$\varnothing 40$	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
$\varnothing 50$	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
$\varnothing 63$	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

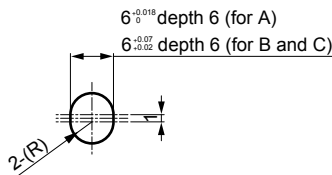
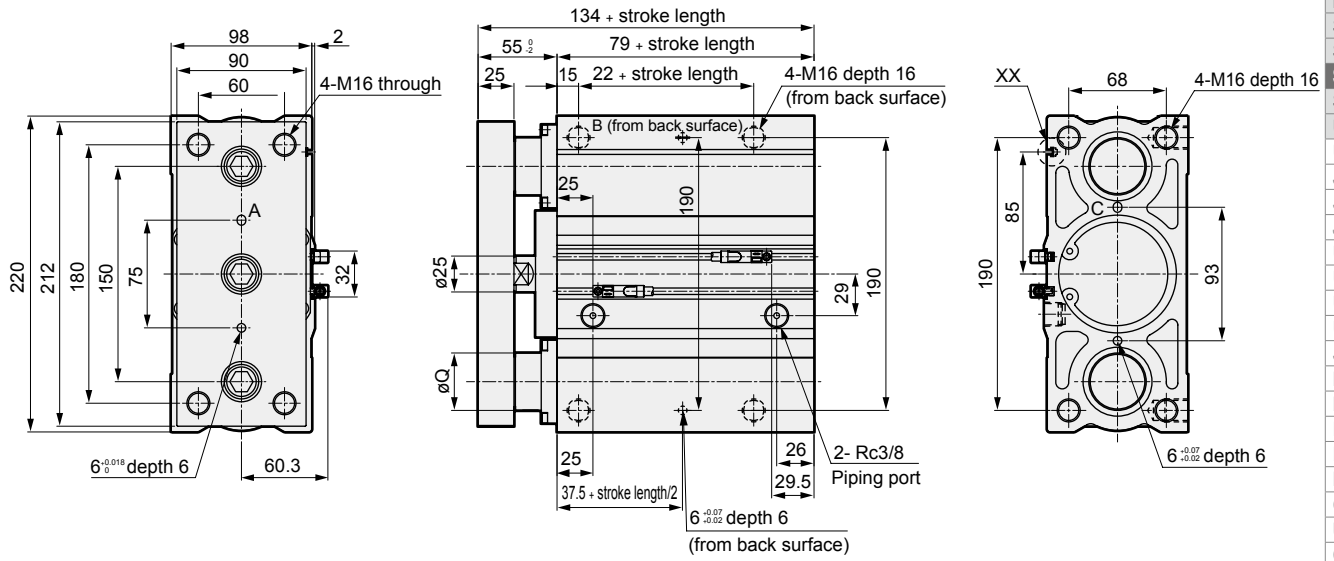
STS- $\frac{M}{B}$ -G4																							
Code	KC	L	M	MM	N	NN	P	PP	Q	R	S	T	U	V	W	X	Y	YY	Z	RD	HD	FA	FB
$\varnothing 40$	11 spot face depth 6.5	1	3.4	16	34	M8 through	25	7	20	18	43	5	102	32	54	34 $_{-0.2}^0$	12	42	3	19.5	12.5	32.3	31
$\varnothing 50$	14 spot face depth 8.6	1	3.4	20	44	M10 through	26	8	25	22	49	5	125	38	66	37 $_{-0.2}^0$	16	45	3	21.5	13.5	38.3	32
$\varnothing 63$	14 spot face depth 8.6	1	3.4	20	55	M10 through	26	8	25	26	56	5	140	50	79	37 $_{-0.2}^0$	16	52	3	18.5	21.5	44.8	32

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

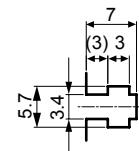
Dimensions: $\varnothing 80$



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



Slot dimensions for A, B and C



XX section details

Dimension Q is $\varnothing 40$ for M (metal bush bearing) and $\varnothing 35$ 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 $\varnothing 80$ are 25, 50, 75 and 100 mm.

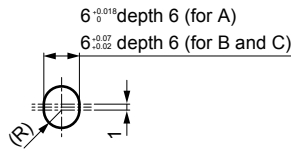
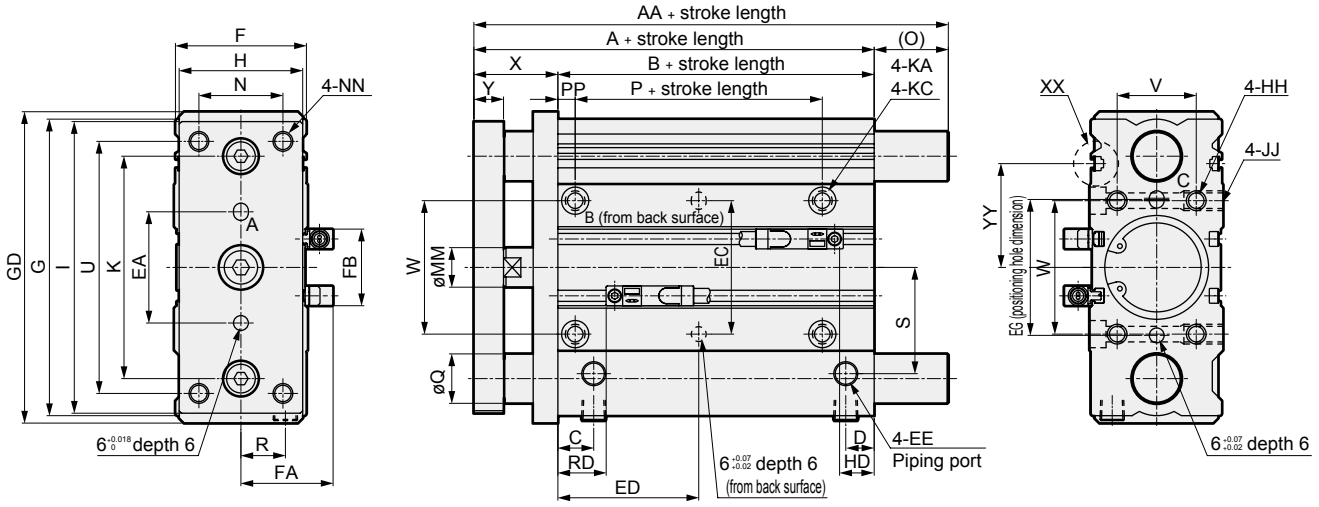
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STL-G4 Series

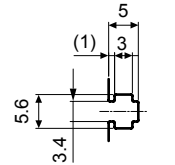


Dimensions: $\varnothing 40/\varnothing 50/\varnothing 63$

- Double acting/standard single rod STL-^M_BG4



Slot dimensions for A, B and C



XX section details

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)																				
$\varnothing 40$	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
$\varnothing 50$	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
$\varnothing 63$	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

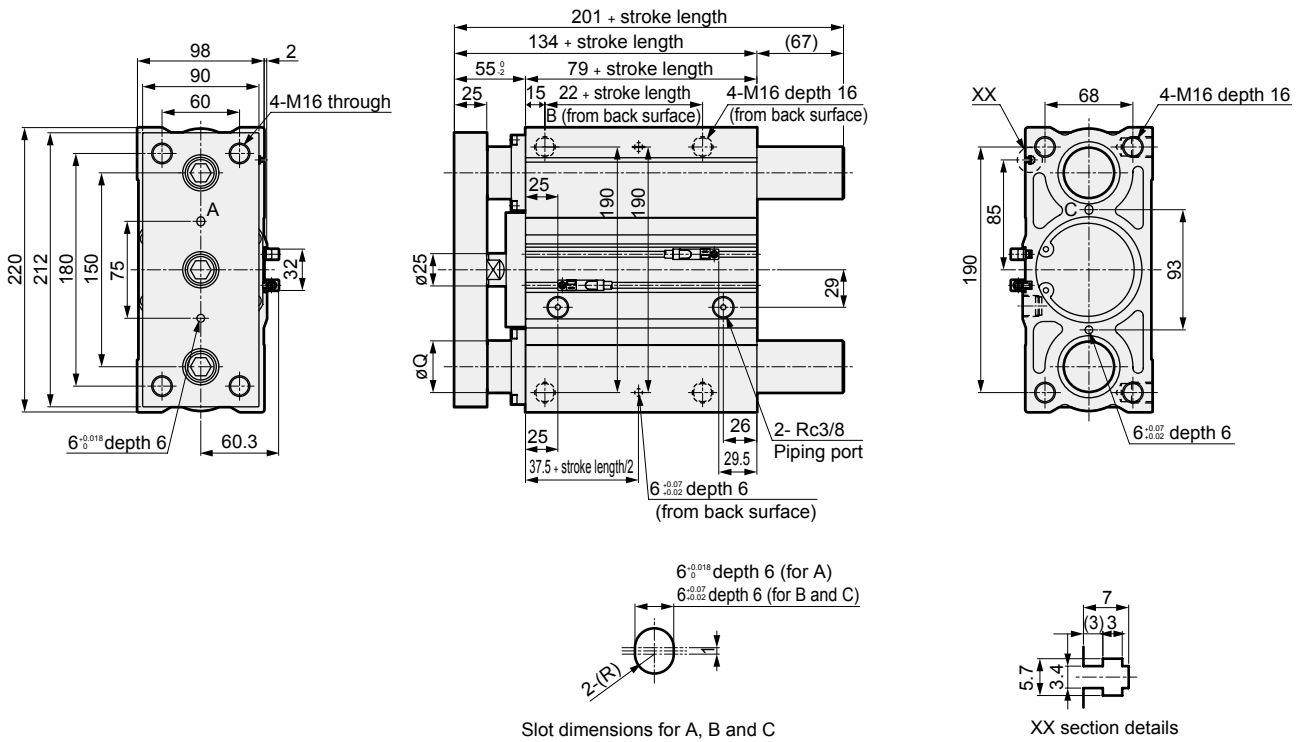
STL- ^M _B -G4																								
Code	KC	L	M	MM	N	NN	O	P	PP	Q	R	S	T	U	V	W	X	Y	YY	Z	RD	HD	FA	FB
Bore size (mm)																								
$\varnothing 40$	11 spot face depth 6.5	1	3.4	16	34	M8 through	30	25	7	20	18	43	5	102	32	54	$34^{+0.2}$	12	42	3	19.5	12.5	32.3	31
$\varnothing 50$	14 spot face depth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

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

Dimensions: $\varnothing 80$



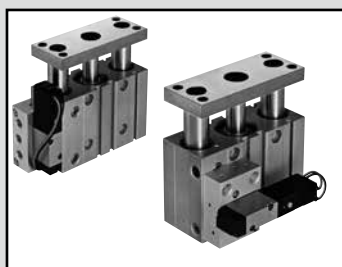
- Double acting/standard single rod STL- $\frac{M}{B}$ G4



Dimension Q is $\varnothing 40$ for M (metal bush bearing) and $\varnothing 35$ 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 $\varnothing 80$ can be selected from 75 to 400 mm in 25 mm increments.

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

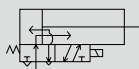


Guided cylinder/valve equipped

STS/STL-V_B^M Series

● Bore size: $\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63$

JIS symbol



Specifications

Item	STS-MV, STS-BV (short stroke length)/STL-MV/STL-BV (long stroke length)							
Bore size	mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	
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	$^{\circ}\text{C}$	-5 (23 $^{\circ}\text{F}$) to 50 (122 $^{\circ}\text{F}$) (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 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-023SA)" for details on valves.

Stroke length

Bore size (mm)	Standard stroke length (mm)		Max. stroke length (mm)	Min. stroke length (mm)
$\phi 20/\phi 25/\phi 32$	STS	25/50	100	5
$\phi 40/\phi 50/\phi 63$	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

Item	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	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD(*4) T2YDT				
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 (*3)				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	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:49	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142			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:80	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142			5 m:272		

*1 : Refer to Ending Page 1 for detailed switch specifications and dimensions.

*2 : Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

*3 : The max. load current is 20 mA at 25 $^{\circ}\text{C}$. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25 $^{\circ}\text{C}$. (5 to 10 mA at 60 $^{\circ}\text{C}$)

*4 : AC magnetic field proof switch (T2YD/T2YDT) cannot be used in DC magnetic fields.

Valve specifications

Item	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						
		0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø20	Push	47.1	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²
	Pull	35.3	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²
ø25	Push	73.6	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²
	Pull	56.7	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²
ø32	Push	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
	Pull	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
ø40	Push	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
	Pull	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
ø50	Push	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
	Pull	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
ø63	Push	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
	Pull	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

For cylinder weight, refer to pages 558 to 561.

- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand
- Chuk
- MechHnd/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

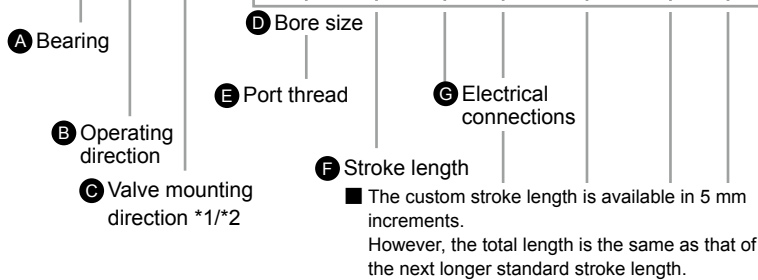
● Long stroke length

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 444 and 447 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 : $\varnothing 20$ 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 $\varnothing 40$ 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	Description
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	$\varnothing 20$
25	$\varnothing 25$
32	$\varnothing 32$
40	$\varnothing 40$
50	$\varnothing 50$
63	$\varnothing 63$

E Port thread	
Blank	Rc thread
NN	NPT thread ($\varnothing 32$ and over) made-to-order product
GN	G thread ($\varnothing 32$ and over) made-to-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*	T0V*	Reed	●	●	1-color display Without indicator lamp	2-wire
T5H*	T5V*		●	●		
T8H*	T8V*		●	●		
T1H*	T1V*		●	●	1-color display	
T2H*	T2V*		●			
T3H*	T3V*		●		3-wire	
T3PH*	T3PV*	Proximity	●	●	1-color display	3-wire
T2WH*	T2WV*			●		
T2YH*	T2YV*			●	2-color display	2-wire
T3WH*	T3WV*			●		
T3YH*	T3YV*			●	2-color display	3-wire
T2JH*	T2JV*			●		
T2YD*	-			●	1-color display off-delay 2-color display for AC magnetic field	2-wire
T2YDT*	-			●		

* 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					
			ø20	ø25	ø32	ø40	ø50	ø63
STS	Standard	25	●	●	●	●	●	●
	stroke length:	50	●	●	●	●	●	●
	Min. stroke length *1	5						
	Custom stroke *1, 2	In 5 mm increments						
STL	Standard	50	●	●	●	●	●	●
	stroke length:	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.

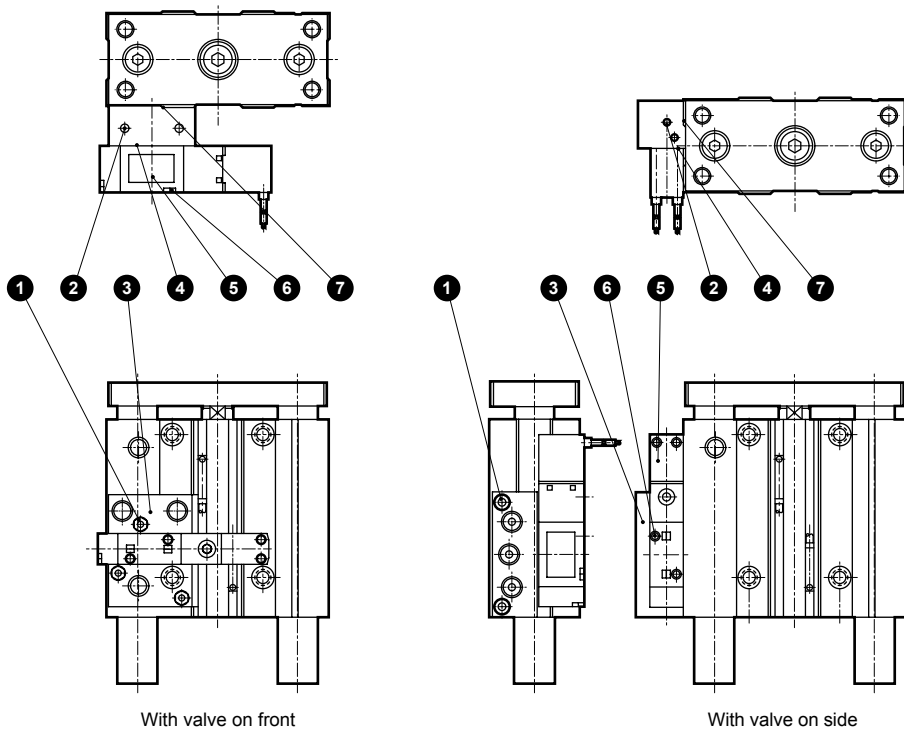
*2: Special total length for custom stroke length can be provided when a custom stroke length is used. (Made to order)

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			
ø20	●	●	●	●	●	4KB1 Series	2-position single	4(0.22)
ø25	●	●	●	●	●			
ø32	●	●	●	●	●			
ø40	●	●	●	●	●	4KB2 Series	2-position single	14(0.76)
ø50	●	●	●	●	●			
ø63	●	●	●	●	●			

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/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 453 for STS Series and page 456 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)	ø20	STS-V1-20	STS-M/B-V1S (With valve on side Pushed out when energized)	ø20	STS-V1S-20
	ø25	STS-V1-32		ø25	STS-V1S-32
	ø32	STS-V1-40		ø32	STS-V1S-40
	ø40	STS-V1-50		ø40	STS-V1S-50
	ø50			ø50	
	ø63			ø63	
		1 2 3 7			1 2 3 7
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)	ø20	STS-V2-20	STS-M/B-V2S (With valve on front Retracted in when energized)	ø20	STS-V2S-20
	ø25	STS-V2-32		ø25	STS-V2S-32
	ø32	STS-V2-40		ø32	STS-V2S-40
	ø40	STS-V2-50		ø40	STS-V2S-50
	ø50			ø50	
	ø63			ø63	
		1 2 3 7			1 2 3 7

MEMO

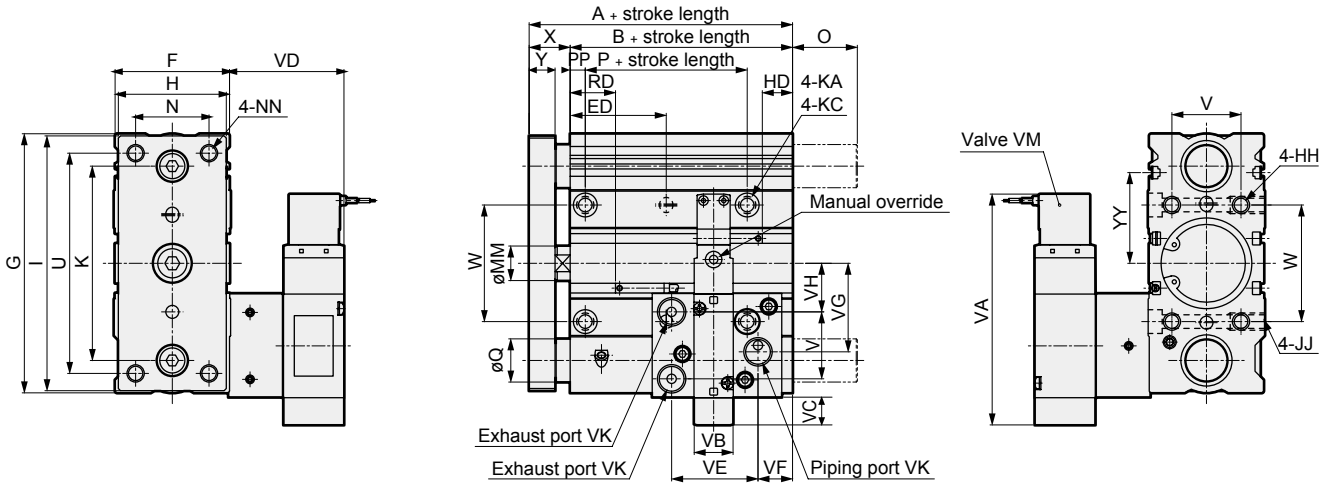
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

STS/STL-BV Series

Dimensions



● With valve on front



Code	A	B	ED	F	G	H	HH	I	JJ	K	KA	KC	MM	N	NN	O		P
																STS	STL	
Bores size (mm)																		
ø20	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
ø25	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
ø32	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
ø40	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
ø50	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
ø63	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

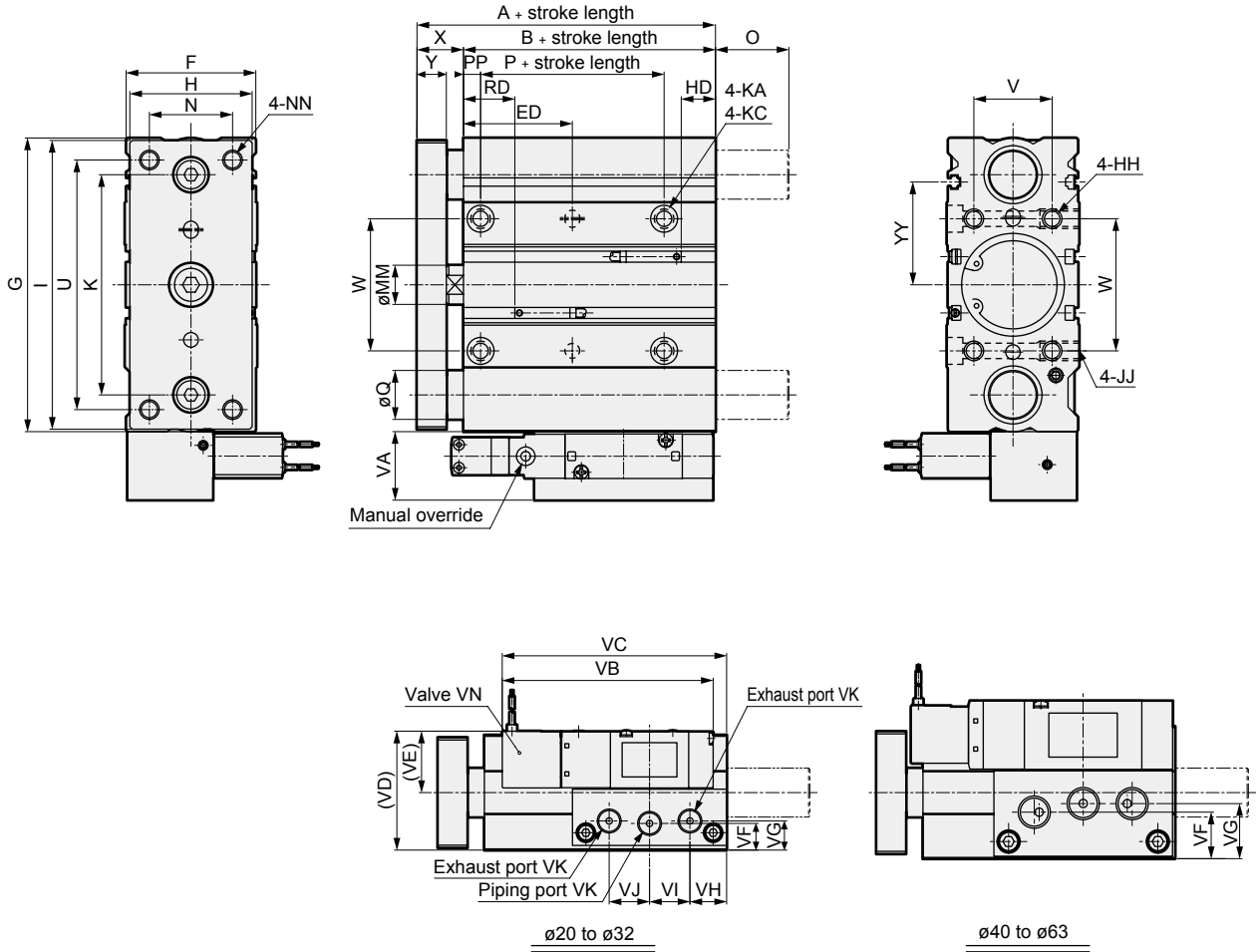
Code	PP	Q		U	V	W	X	Y	YY	VA	VB	VC	VD	VE	VF	VG	VH	VI	VK	VM	T0/T5/T2/T3		T2W/T3W	
		M type	B type																		RD	HD	RD	HD
ø20	6	14	12	69	20	31	13 $\frac{0}{-2}$	9	25	86	15	8.5	42.5	35.5	9.5	29.5	13	22	Rc1/8	4KB1 Series	12	9	12.5	12.5
ø25	6	14	12	72	24	35	13 $\frac{0}{-2}$	9	27	86	15	8	42.5	35.5	10.5	30.5	14	22	Rc1/8	4KB1 Series	13	9	14.5	11
ø32	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
ø40	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
ø50	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
ø63	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

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

*2: Refer to pages 552 and 553 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

● With valve on side



- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand
- Chuk
- MechMod/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

Code Bore size (mm)	A	B	ED	F	G	H	HH	I	JJ	K	KA	KC	MM	N	NN	O		P
																STS	STL	
ø20	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
ø25	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
ø32	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
ø40	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
ø50	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
ø63	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 Bore size (mm)	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	
ø20	6	14	12	69	20	31	13 $\frac{0}{-2}$	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	
ø25	6	14	12	72	24	35	13 $\frac{0}{-2}$	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	
ø32	7	20	16	93	25	45	19 $\frac{0}{-2}$	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	
ø40	7	20	16	102	32	54	19 $\frac{0}{-2}$	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	
ø50	8	25	20	125	38	66	22 $\frac{0}{-2}$	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	
ø63	8	25	20	140	50	79	22 $\frac{0}{-2}$	16	52	28	107	108	68	28.5	22.5	26	17	20	20	Rc1/4	4KB2 Series	20	23	21.5	24.5	

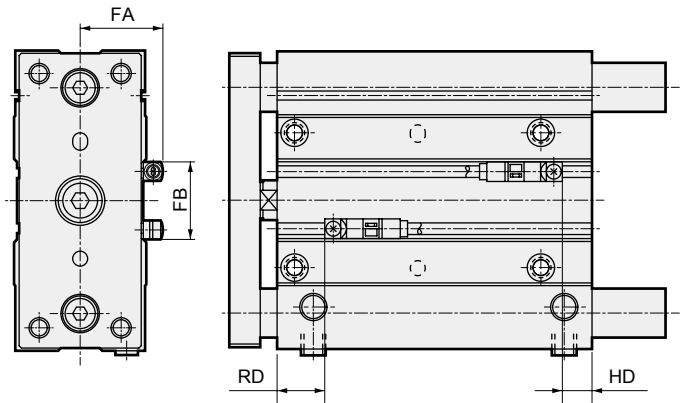
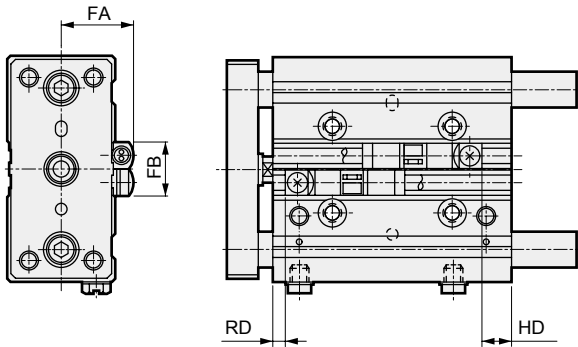
*1: When using a custom stroke length, the dimensions are the same as the longer standard stroke length.
 *2: Refer to pages 552 and 553 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

STS/STL Series

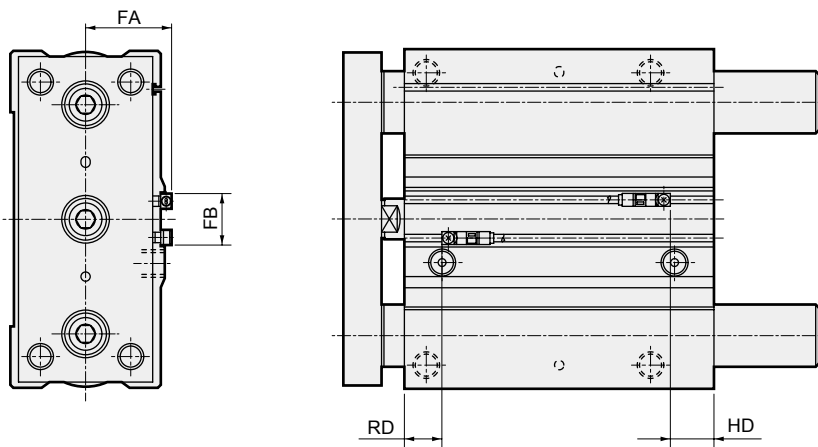
STS/STL Series common/dimensions: 2-color display, off-delay, T8H/V switch mounting method

● Bore size: $\varnothing 8$ to $\varnothing 16$

● Bore size: $\varnothing 20$ to $\varnothing 63$



● Bore size: $\varnothing 80$



STS/STL (standard)

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

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

Code Bore size (mm)	FA	FB	RD	HD
$\varnothing 20$	24.3	16	34.5	8
$\varnothing 25$	26.3	17	36.5	7.5
$\varnothing 32$	28.8	24	41	12
$\varnothing 40$	32.3	31	69.5	13
$\varnothing 50$	38.3	32	71.5	13.5
$\varnothing 63$	44.8	32	68.5	21.5
$\varnothing 80$	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
$\varnothing 20$	24.3	16	9.5	33
$\varnothing 25$	26.3	17	11.5	32.5
$\varnothing 32$	28.8	24	16	37
$\varnothing 40$	32.3	31	19.5	63
$\varnothing 50$	38.3	32	21.5	63.5
$\varnothing 63$	44.8	32	18.5	71.5
$\varnothing 80$	55.3	32	25	108

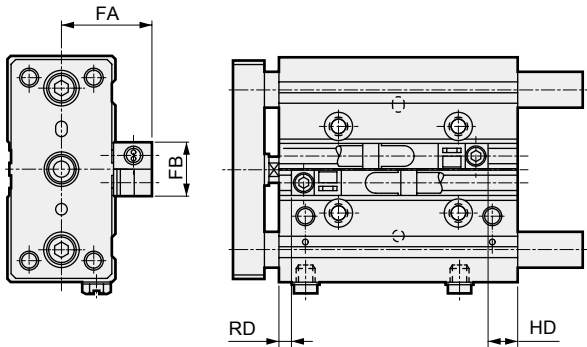
*1: T8H/V switch cannot be installed.

STS/STL-C (air-cushioned)

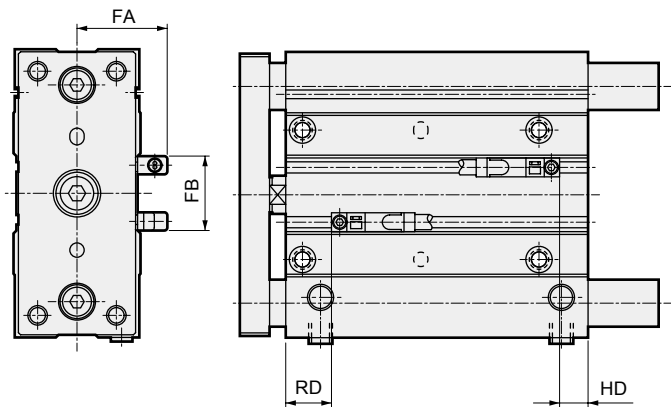
Code Bore size (mm)	FA	FB	T*YH/V, T2JH/V		T8H/V	
			RD	HD	RD	HD
$\varnothing 25$	26.3	17	26.5	17.5	20.5	11.5
$\varnothing 32$	28.8	24	33	20	27	14
$\varnothing 40$	32.3	31	36.5	21	30.5	15
$\varnothing 50$	38.3	32	37	22	31	16
$\varnothing 63$	44.8	32	42.5	24.5	36.5	18.5
$\varnothing 80$	55.3	32	59	49	53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

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

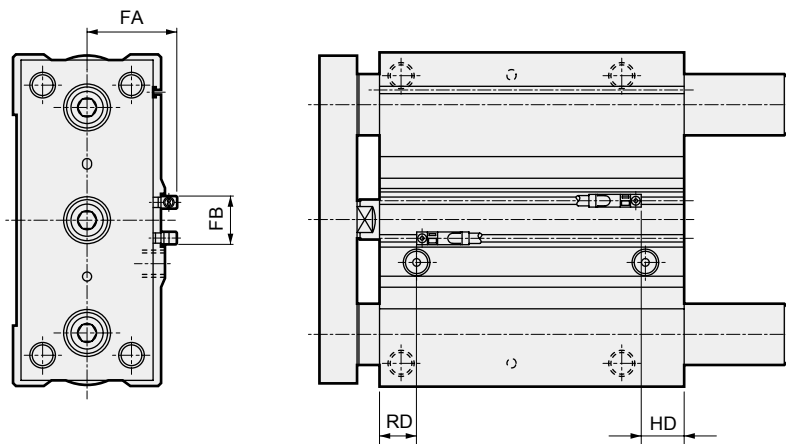
● Bore size: $\phi 8$ to $\phi 16$



● 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

- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand
- Chuk
- MechHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending