

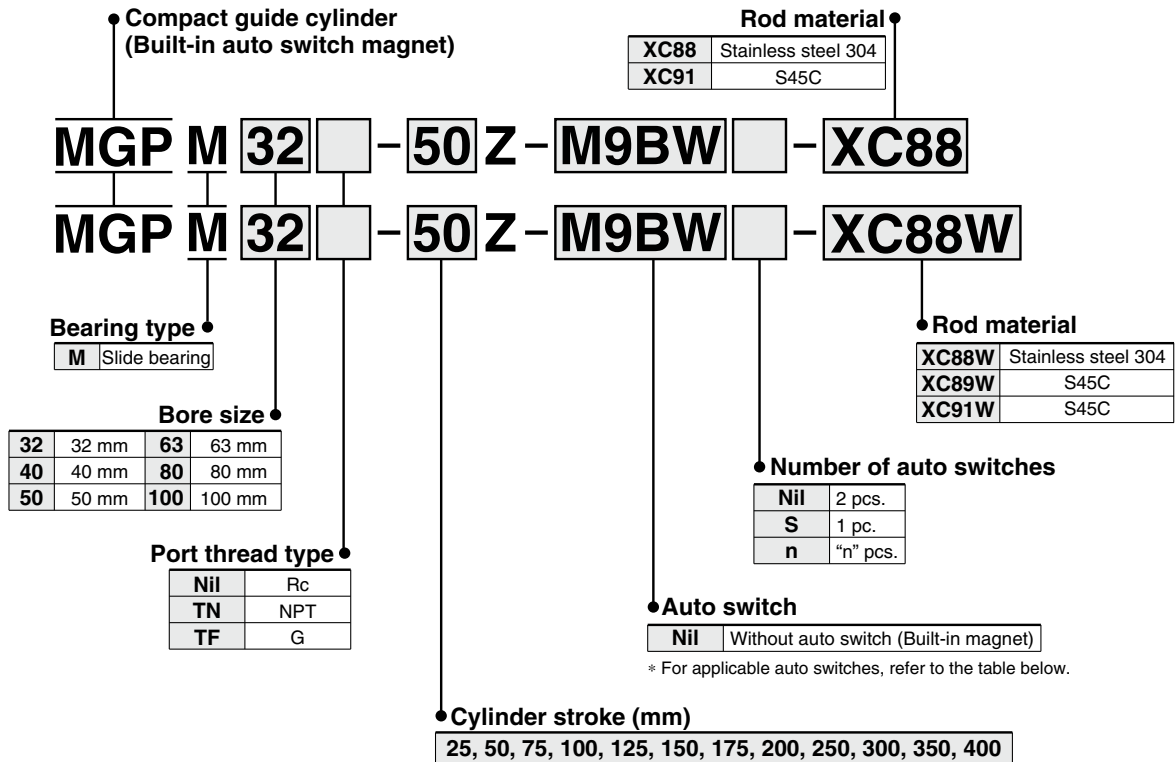
Spatter Resistant Cylinder for Arc Welding Compact Guide Cylinder

MGPM -XC88/XC91 -XC88W/XC89W/XC91W

ø32, ø40, ø50, ø63, ø80, ø100

RoHS

How to Order



Made to Order

Part no.	Piston rod/Guide rod material (Hard chrome plating)		Coil scraper		Lube-retainer		Grease for welding
	S45C	Stainless steel 304	Rod side	Head side	Rod side	Head side	
-XC88	—	●	●	—	●	—	●
-XC91	●	—	●	—	●	—	●
-XC88W	—	●	●	●	●	●	●
-XC89W	●	—	●	●	●	●	●
-XC91W	●	—	●	●	●	—	●

* The existing product MGP-XC89 is equivalent to -XC91.

Applicable Auto Switches/Refer to the WEB catalog or the Best Pneumatics No.3 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model		Lead wire length (m)				Pre-wired connector	Applicable load	
					DC		AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)			
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)		12 V		M9PV	M9P	●	●	●	○	○		
	2-wire			5 V, 12 V		M9BV		M9B	●	●	●	○	○	—		
	3-wire (NPN)			12 V		M9NWV		M9NW	●	●	●	○	○	IC circuit		
	3-wire (PNP)			—	M9PWV	M9PW	●	●	●	○	○	IC circuit				
	2-wire				M9BWV	M9BW	●	●	●	○	○					
	2-wire (Non-polar)				—	P3DWA	●	—	●	●	●	—				
	—				P4DW	—	—	●	●	●	—					
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	IC circuit	—
				2-wire	24 V	12 V	100 V	A93V	A93	●	—	●	●	—	—	—
			100 V or less			A90V	A90	●	—	●	—	—	—	IC circuit		

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

* Auto switches are shipped together, (but not assembled).

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

* Auto switches other than D-P3DWA/D-P4DW cannot be used under the magnetic field environment.

* Please contact SMC for auto switches, auto switch proper mounting positions and operating ranges other than the above.

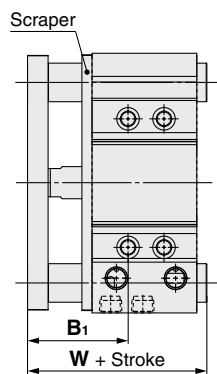


Specifications

Bore size	ø32	ø40	ø50	ø63	ø80	ø100
Action	Double acting					
Fluid	Air					
Proof pressure	1.5 MPa					
Maximum operating pressure	1.0 MPa					
Minimum operating pressure	XC88, XC91					
	XC88W, XC89W, XC91W					
Ambient and fluid temperature	-10°C to 60°C (No freezing)					
Cushion	Rubber bumper on both ends					
Lubrication	Not required (Non-lube)					
Stroke length tolerance	+1.5 0 mm					

Comparison of the Dimensions of Each Series

Single side scraper (-XC88, -XC91)

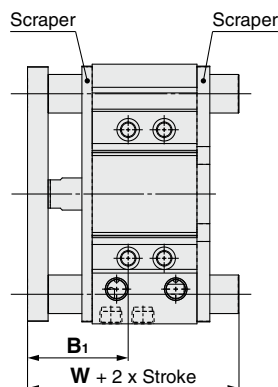


Bore size (mm)	XC88		XC91		XC35		Standard	
	B ₁	W Note)	B ₁	W Note)	B ₁	W Note)	B ₁	W Note)
32	53	85	53	85	53	85	43	75
40	54	85	54	85	54	85	44	75
50	62	98.5	62	98.5	62	98.5	52	88.5
63	62	98.5	62	98.5	62	98.5	52	88.5
80	78	114.5	78	114.5	78	114.5	68	104.5
100	71	136.5	71	136.5	71	136.5	61	126.5

* At 0 stroke

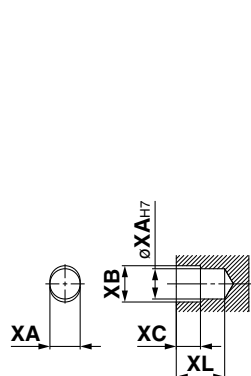
Note) W dimensions are for 50 stroke or less.

Both sides scraper (-XC88W, -XC89W, -XC91W)

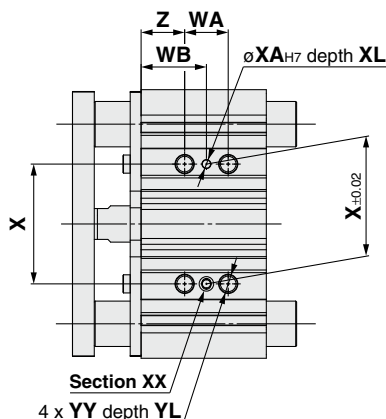


Bore size (mm)	XC88W XC89W		XC91W		XC35W	
	B ₁	W	B ₁	W	B ₁	W
32	53	82.5	53	82.5	53	82.5
40	54	89	54	89	54	89
50	62	95	62	95	62	95
63	62	100	62	100	62	100
80	78	120.5	78	120.5	78	120.5
100	71	143	71	143	71	143

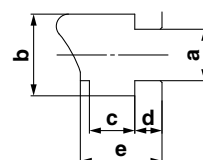
* At 0 stroke



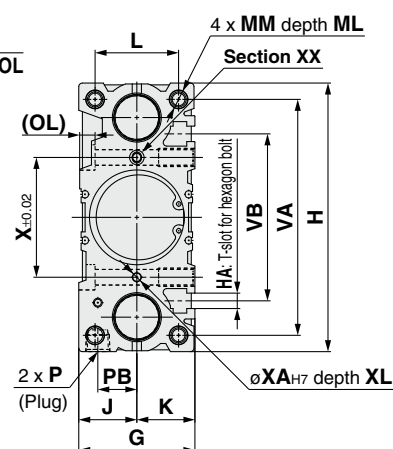
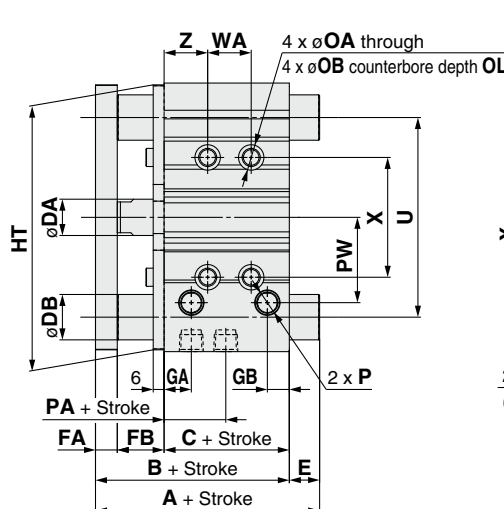
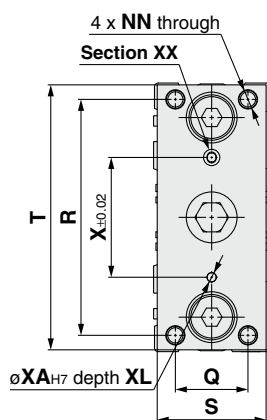
Detailed figure of section XX



Bottom view



T-slot dimensions



Bore size (mm)	Standard stroke	A			B	C	DA	DB	E			FA	FB	G	GA	GB	H
		50 st or less	Over 50 st 200 st or less	Over 200 st					50 st or less	Over 50 st 200 st or less	Over 200 st						
32	25, 50, 75, 100 125, 150, 175, 200 250, 300, 350, 400	85	103.5	139.5	69.5	37.5	14	20	15.5	34	70	10	22	48	12	9	112
40		85	103.5	139.5	76	44	14	20	9	27.5	63.5	10	22	54	15	12	120
50		98.5	119.5	160.5	82	44	20	25	16.5	37.5	78.5	12	26	64	15	12	148
63		98.5	119.5	160.5	87	49	20	25	11.5	32.5	73.5	12	26	78	15.5	13.5	162

(mm)

Bore size	HA	HT	J	K	L	MM	ML	NN	OA	OB	OL	P			PA	PB	PW	Q
												Nil	TN	TF				
32	M6	110	24	24	34	M8 x 1.25	20	M8 x 1.25	6.7	11	7.5	Rc1/8	NPT1/8	G1/8	6.5	16	35.5	30
40	M6	118	27	27	40	M8 x 1.25	20	M8 x 1.25	6.7	11	7.5	Rc1/8	NPT1/8	G1/8	13	18	39.5	30
50	M8	146	32	32	46	M10 x 1.5	22	M10 x 1.5	8.6	14	9	Rc1/4	NPT1/4	G1/4	9	21.5	47	40
63	M10	160	39	39	58	M10 x 1.5	22	M10 x 1.5	8.6	—	9	Rc1/4	NPT1/4	G1/4	13	28	58	50

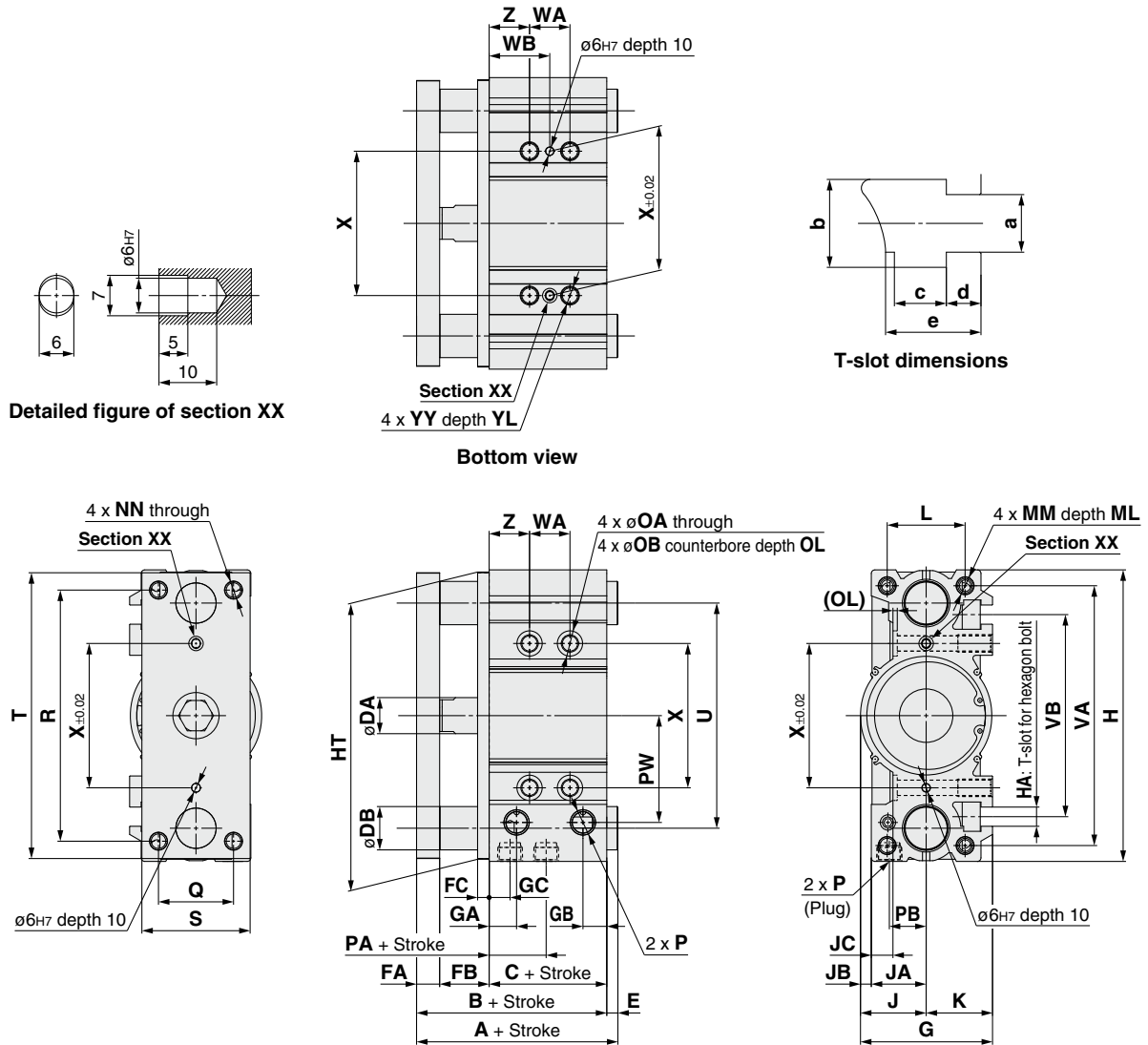
Bore size	R	S	T	U	VA	VB	WA					WB					X	XA	XB
							25 st or less	Over 25 st 100 st or less	Over 100 st 200 st or less	Over 200 st 300 st or less	Over 300 st	25 st or less	Over 25 st 100 st or less	Over 100 st 200 st or less	Over 200 st 300 st or less	Over 300 st			
32	96	44	110	78	98	63	24	48	124	200	300	33	45	83	121	171	42	4	4.5
40	104	44	118	86	106	72	24	48	124	200	300	34	46	84	122	172	50	4	4.5
50	130	60	146	110	130	92	24	48	124	200	300	36	48	86	124	174	66	5	6
63	130	70	158	124	142	110	28	52	128	200	300	38	50	88	124	174	80	5	6

Bore size	XC	XL	YY	YL	Z	a	b	c	d	e
32	3	6	M8 x 1.25	16	21	6.5	10.5	5.5	3.5	9.5
40	3	6	M8 x 1.25	16	22	6.5	10.5	5.5	4	11
50	4	8	M10 x 1.5	20	24	8.5	13.5	7.5	4.5	13.5
63	4	8	M10 x 1.5	20	24	11	17.8	10	7	18.5

Bore Size

ø80, ø100

MGPM-XC88
MGPM-XC91



Bore size	Standard stroke	A			B	C	DA	DB	E			FA	FB	FC	G
		50 st or less	Over 50 st 200 st or less	Over 200 st					50 st or less	Over 50 st 200 st or less	Over 200 st				
80	25, 50, 75, 100, 125, 150, 175,	114.5	141.5	190.5	106.5	56.5	25	30	8	35	84	16	34	8	91.5
100	200, 250, 300, 350, 400	136.5	161.5	200.5	126	66	30	36	10.5	35.5	74.5	19	41	9	111.5

Bore size	GA	GB	GC	H	HA	HT	J	JA	JB	JC	K	L	MM	ML	NN	OA	OB	OL
80	19	16.5	14.5	202	M12	199	45.5	38	7.5	15	46	54	M12 x 1.75	25	M12 x 1.75	10.6	17.5	3
100	22.5	20.5	18	240	M14	236	55.5	45	10.5	10	56	62	M14 x 2	31	M14 x 2	12.5	20	8

Bore size	P			PA	PB	PW	Q	R	S	T	U	VA	VB	WA				
	Nil	TN	TF											25 st or less	Over 25 st 100 st or less	Over 100 st 200 st or less	Over 200 st 300 st or less	Over 300 st
80	Rc3/8	NPT3/8	G3/8	14.5	25.5	74	52	174	75	198	156	180	140	28	52	128	200	300
100	Rc3/8	NPT3/8	G3/8	17.5	32.5	89	64	210	90	236	188	210	166	48	72	148	220	320

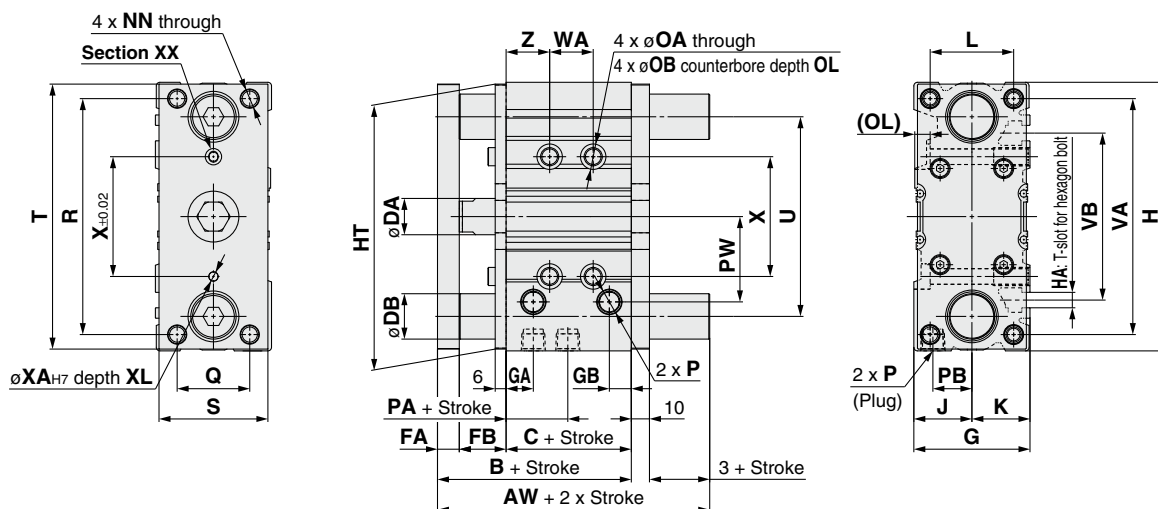
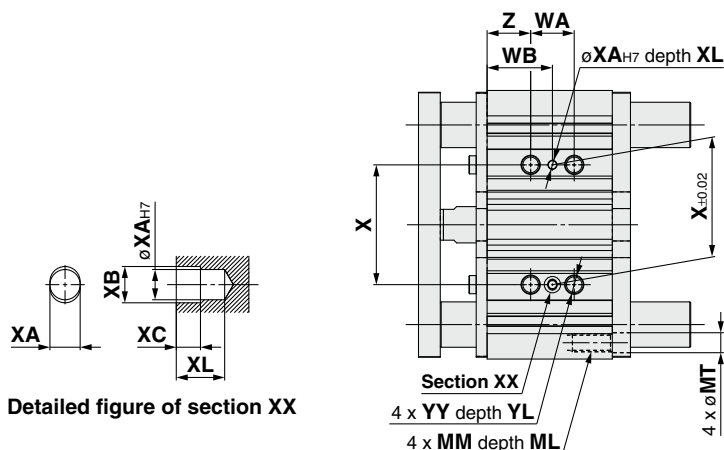
Bore size	WB					X	YY	YL	Z	a	b	c	d	e
	25 st or less	Over 25 st 100 st or less	Over 100 st 200 st or less	Over 200 st 300 st or less	Over 300 st									
80	42	54	92	128	178	100	M12 x 1.75	24	28	13.3	20.3	12	8	22.5
100	35	47	85	121	171	124	M14 x 2	28	11	15.3	23.3	13.5	10	30

MGPM-XC88W MGPM-XC89W

Bore Size

ø32 to ø63

MGPM-XC88W
MGPM-XC89W



(mm)

Bore size	Standard stroke	AW	B	C	DA	DB	FA	FB	G	GA	GB	H	HA	HT	J	K	L
32	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400	82.5	69.5	37.5	14	20	10	22	48	12	9	112	M6	110	24	24	34
40		89	76	44	14	20	10	22	54	15	12	120	M6	118	27	27	40
50		95	82	44	20	25	12	26	64	15	12	148	M8	146	32	32	46
63		100	87	49	20	25	12	26	78	15.5	13.5	162	M10	160	39	39	58

Bore size	MM	ML	MT	NN	OA	OB	OL	P			PA	PB	PW	Q	R	S	T	U
								Nil	TN	TF								
32	M8 x 1.25	20	9	M8 x 1.25	6.7	11	7.5	Rc1/8	NPT1/8	G1/8	6.5	16	35.5	30	96	44	110	78
40	M8 x 1.25	20	8.5	M8 x 1.25	6.7	11	7.5	Rc1/8	NPT1/8	G1/8	13	18	39.5	30	104	44	118	86
50	M10 x 1.5	22	11	M10 x 1.5	8.6	14	9	Rc1/4	NPT1/4	G1/4	9	21.5	47	40	130	60	146	110
63	M10 x 1.5	22	11	M10 x 1.5	8.6	—	9	Rc1/4	NPT1/4	G1/4	13	28	58	50	130	70	158	124

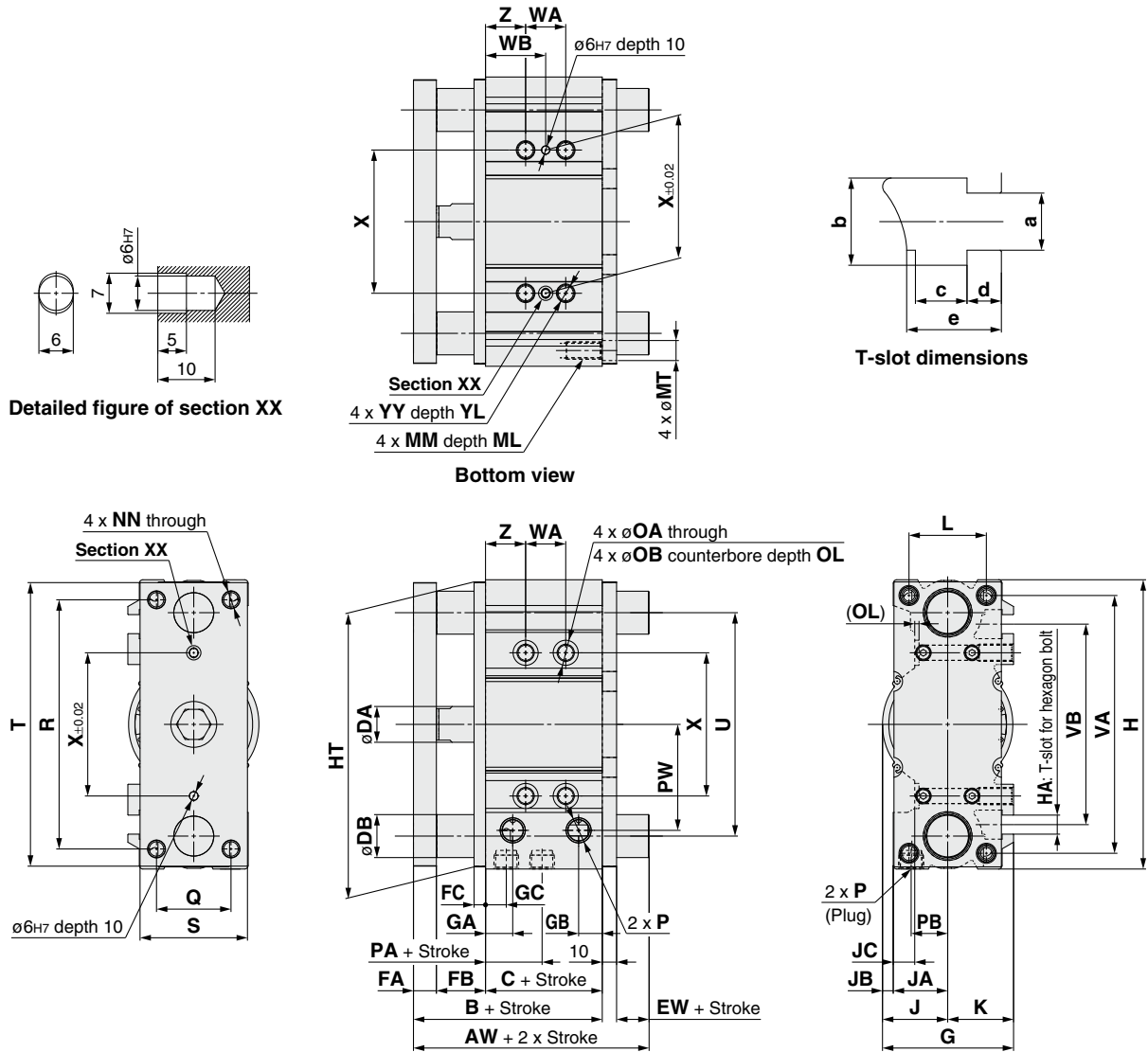
Bore size	VA	VB	WA					WB					X	XA	XB	XC	XL
			25 st or less	Over 25 st 100 st or less	Over 100 st 200 st or less	Over 200 st 300 st or less	Over 300 st	25 st or less	Over 25 st 100 st or less	Over 100 st 200 st or less	Over 200 st 300 st or less	Over 300 st					
32	98	63	24	48	124	200	300	33	45	83	121	171	42	4	4.5	3	6
40	106	72	24	48	124	200	300	34	46	84	122	172	50	4	4.5	3	6
50	130	92	24	48	124	200	300	36	48	86	124	174	66	5	6	4	8
63	142	110	28	52	128	200	300	38	50	88	124	174	80	5	6	4	8

Bore size	YY	YL	Z	a	b	c	d	e
32	M8 x 1.25	16	21	6.5	10.5	5.5	3.5	9.5
40	M8 x 1.25	16	22	6.5	10.5	5.5	4	11
50	M10 x 1.5	20	24	8.5	13.5	7.5	4.5	13.5
63	M10 x 1.5	20	24	11	17.8	10	7	18.5

Bore Size

ø80, ø100

MGPM-XC88W
MGPM-XC89W



Bore size	Standard stroke	AW	B	C	DA	DB	EW	FA	FB	FC	G	GA	GB	GC	H	HA
80	25, 50, 75, 100, 125, 150, 175	120.5	106.5	56.5	25	30	4	16	34	8	91.5	19	16.5	14.5	202	M12
100	200, 250, 300, 350, 400	143	126	66	30	36	7	19	41	9	111.5	22.5	20.5	18	240	M14

Bore size	HT	J	JA	JB	JC	K	L	MM	ML	MT	NN	OA	OB	OL	P			PA
															Nil	TN	TF	
80	199	45.5	38	7.5	15	46	54	M12 x 1.75	25	14	M12 x 1.75	10.6	17.5	3	Rc3/8	NPT3/8	G3/8	14.5
100	236	55.5	45	10.5	10	56	62	M14 x 2	31	16	M14 x 2	12.5	20	8	Rc3/8	NPT3/8	G3/8	17.5

Bore size	PB	PW	Q	R	S	T	U	VA	VB	WA				
										25 st or less	Over 25 st or less	Over 100 st or less	Over 200 st or less	Over 300 st
80	25.5	74	52	174	75	198	156	180	140	28	52	128	200	300
100	32.5	89	64	210	90	236	188	210	166	48	72	148	220	320

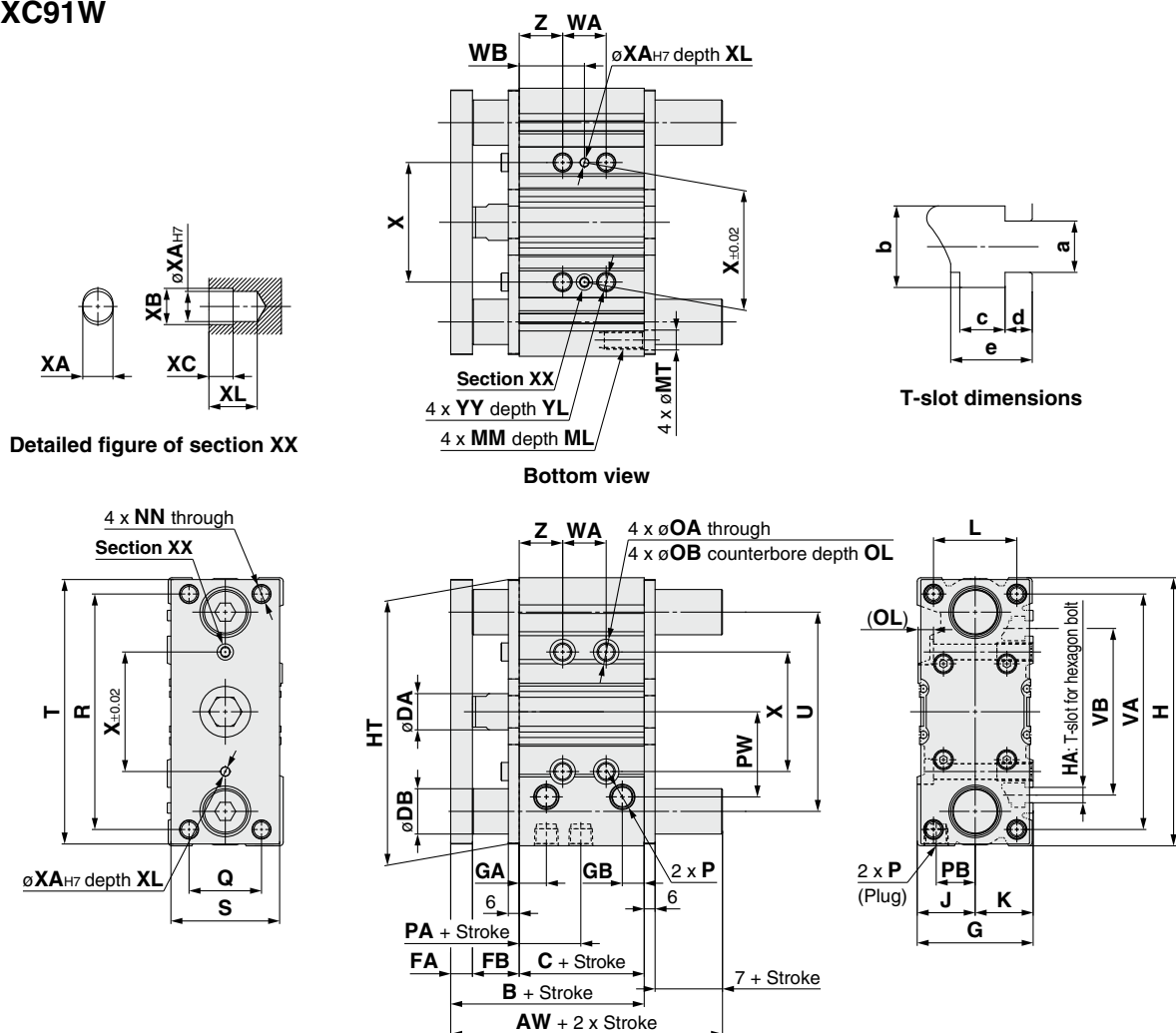
Bore size	WB					X	YY	YL	Z	a	b	c	d	e
	25 st or less	Over 25 st or less	Over 100 st or less	Over 200 st or less	Over 300 st									
80	42	54	92	128	178	100	M12 x 1.75	24	28	13.3	20.3	12	8	22.5
100	35	47	85	121	171	124	M14 x 2	28	11	15.3	23.3	13.5	10	30

MGPM-XC91W

Bore Size

ø32 to ø63

MGPM-XC91W



(mm)

Bore size	Standard stroke	AW	B	C	DA	DB	FA	FB	G	GA	GB	H	HA	HT	J	K	L
32	25,50,75,100,125,150,175 200,250,300,350,400	82.5	69.5	37.5	14	20	10	22	48	12	9	112	M6	110	24	24	34
40		89	76	44	14	20	10	22	54	15	12	120	M6	118	27	27	40
50		95	82	44	20	25	12	26	64	15	12	148	M8	146	32	32	46
63		100	87	49	20	25	12	26	78	15.5	13.5	162	M10	160	39	39	58

Bore size	MM	ML	MT	NN	OA	OB	OL	P			PA	PB	PW	Q	R	S	T	U
								Nil	TN	TF								
32	M8 x 1.25	20	9	M8 x 1.25	6.7	11	7.5	Rc1/8	NPT1/8	G1/8	6.5	16	35.5	30	96	44	110	78
40	M8 x 1.25	20	8.5	M8 x 1.25	6.7	11	7.5	Rc1/8	NPT1/8	G1/8	13	18	39.5	30	104	44	118	86
50	M10 x 1.5	22	11	M10 x 1.5	8.6	14	9	Rc1/4	NPT1/4	G1/4	9	21.5	47	40	130	60	146	110
63	M10 x 1.5	22	11	M10 x 1.5	8.6	—	9	Rc1/4	NPT1/4	G1/4	13	28	58	50	130	70	158	124

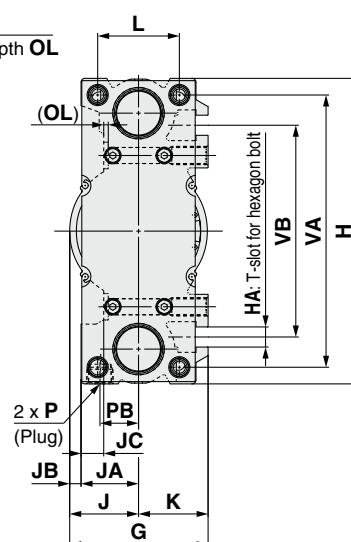
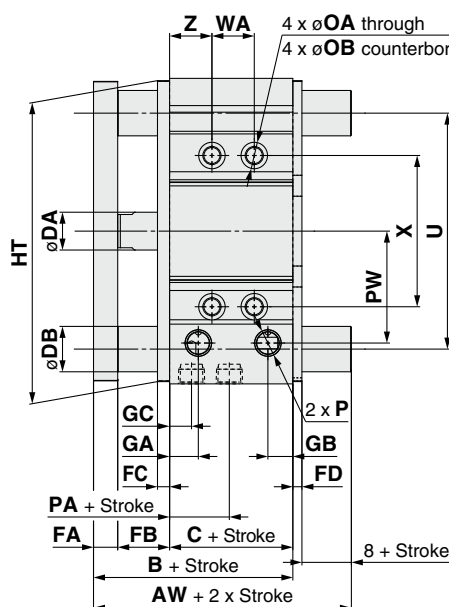
Bore size	VA	VB	WA					WB					X	XA	XB	XC	XL
			25 st or less	Over 25 st 100 st or less	Over 100 st 200 st or less	Over 200 st 300 st or less	Over 300 st	25 st or less	Over 25 st 100 st or less	Over 100 st 200 st or less	Over 200 st 300 st or less	Over 300 st					
32	98	63	24	48	124	200	300	33	45	83	121	171	42	4	4.5	3	6
40	106	72	24	48	124	200	300	34	46	84	122	172	50	4	4.5	3	6
50	130	92	24	48	124	200	300	36	48	86	124	174	66	5	6	4	8
63	142	110	28	52	128	200	300	38	50	88	124	174	80	5	6	4	8

Bore size	YY	YL	Z	a	b	c	d	e
32	M8 x 1.25	16	21	6.5	10.5	5.5	3.5	9.5
40	M8 x 1.25	16	22	6.5	10.5	5.5	4	11
50	M10 x 1.5	20	24	8.5	13.5	7.5	4.5	13.5
63	M10 x 1.5	20	24	11	17.8	10	7	18.5

MGPM-XC91W

Ø80, Ø100

MGPM-XC91W



																	(mm)
Bore size	Standard stroke	AW	B	C	DA	DB	FA	FB	FC	FD	G	GA	GB	GC	H	HA	HT
80	25,50,75,100,125,150,175	120.5	106.5	56.5	25	30	16	34	8	6	91.5	19	16.5	14.5	202	M12	199
100	200,250,300,350,400	143	126	66	30	36	19	41	9	9	111.5	22.5	20.5	18	240	M14	236

Bore size	J	JA	JB	JC	K	L	MM	ML	MT	NN	OA	OB	OL	P			PA	PB
														Nil	TN	TF		
80	45.5	38	7.5	15	46	54	M12 x 1.75	25	14	M12 x 1.75	10.6	17.5	3	Rc3/8	NPT3/8	G3/8	14.5	25.5
100	55.5	45	10.5	10	56	62	M14 x 2	31	16	M14 x 2	12.5	20	8	Rc3/8	NPT3/8	G3/8	17.5	32.5

Bore size	PW	Q	R	S	T	U	VA	VB	WA					WB				
									25 st or less	Over 25 st 100 st or less	Over 100 st 200 st or less	Over 200 st 300 st or less	Over 300 st	25 st or less	Over 25 st 100 st or less	Over 100 st 200 st or less	Over 200 st 300 st or less	Over 300 st
80	74	52	174	75	198	156	180	140	28	52	128	200	300	42	54	92	128	178
100	89	64	210	90	236	188	210	166	48	72	148	220	320	35	47	85	121	171

Bore size	X	YY	YL	Z	a	b	c	d	e
80	100	M12 x 1.75	24	28	13.3	20.3	12	8	22.5
100	124	M14 x 2	28	11	15.3	23.3	13.5	10	30

MGPM -XC88/XC91
-XC88W/XC89W/XC91W

Auto Switch Mounting

Auto Switch Proper Mounting Position (Detection at Stroke End) and Its Mounting Height

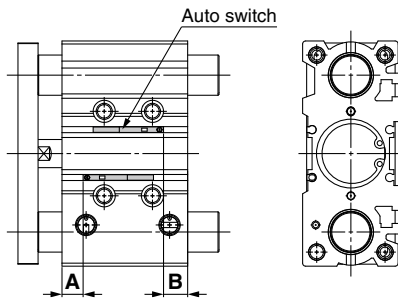
D-M9□/M9□V

D-M9□W/M9□WV

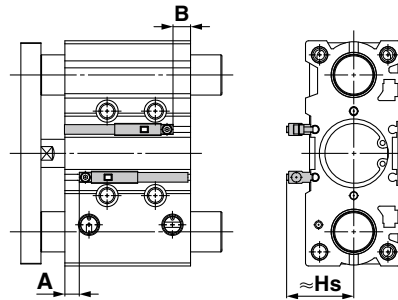
D-A9□/A9□V

D-P3DWA

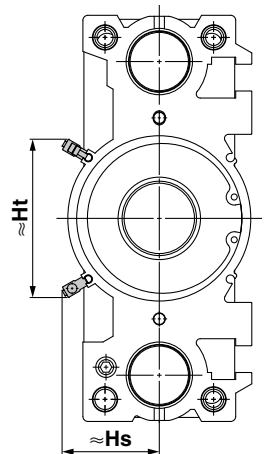
ø32 to ø100



ø32 to ø63

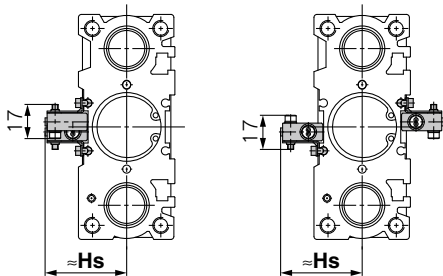


ø80, ø100

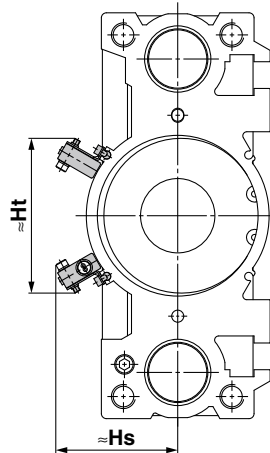


D-P4DW

ø32 to ø63



ø80, ø100



Less than 25 to 75 strokes

* For bore sizes ø40 through 63 with two auto switches, one switch is mounted on each side.

Auto Switch Proper Mounting Position Applicable Cylinder Series: MGP

(mm)

Auto switch model Bore size	D-M9□ D-M9□V D-M9□W D-M9□WV		D-A9□ D-A9□V		D-P3DWA		D-P4DW□	
	A	B	A	B	A	B	A	B
32	12.5	13	8.5	9	8	8.5	5.5	6
40	15.5	16.5	11.5	12.5	11	12	8.5	9.5
50	14.5	17	10.5	13	10	12.5	7.5	10
63	16.5	20	12.5	16	12	15.5	9.5	13
80	18	26	14	22	13.5	21.5	11	19
100	21.5	32.5	17.5	28.5	17	28	14.5	25

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

Auto Switch Proper Mounting Height

(mm)

Auto switch model Bore size	D-M9□V D-M9□WV		D-A9□V		D-P3DWA		D-P4DW□	
	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht
32	29	—	26.5	—	35	—	41.5	—
40	33	—	30.5	—	39	—	44.5	—
50	38.5	—	36	—	44.5	—	50	—
63	45.5	—	43	—	59.5	—	57	—
80	45	74	43	71.5	48.5	84	61	84.5
100	55	85.5	53	83	58.5	95	71	96.5

Minimum Stroke for Auto Switch Mounting

		(mm)					
Auto switch model	Number of auto switches	ø32	ø40	ø50	ø63	ø80	ø100
D-M9□V	With 1 pc.	5					
	With 2 pcs.	5					
D-M9□	With 1 pc.	5					
	With 2 pcs.	10					
D-M9□W	With 1 pc.	5 Note 2)					
	With 2 pcs.	10					
D-M9□WV	With 1 pc.	5 Note 2)					
	With 2 pcs.	10					
D-A9□	With 1 pc.	5					
	With 2 pcs.	10					
D-A9□V	With 1 pc.	5					
	With 2 pcs.	10					
D-P3DWA	With 1 pc.	15					
	With 2 pcs.	15					
D-P4DW□	With 1 pc.	5 Note 2) 3)					
	With 2 pcs., Different surfaces	10 Note 2) 3)					
	With 2 pcs., Same surface	75				10	

Note 1) Confirm that it is possible to secure the minimum bending radius of 10 mm of the auto switch lead wire before use.

Note 2) Confirm that it is possible to securely set the auto switch(es) within the range of indicator green light ON range before use.

For in-line entry type, also consider Note 1) shown above.

Note 3) The minimum bending radius of the D-P4DW□ is 25 mm.

Operating Range

		(mm)					
Auto switch model		Bore size					
		32	40	50	63	80	100
D-M9□/M9□V D-M9□W/M9□WV		6	6	6	6.5	6	7
D-A9□/A9□V		9.5	9.5	9.5	11	10.5	10.5
D-P3DWA		6	6	6	6	6	7
D-P4DW□		5	5	5	5.5	6	6.5

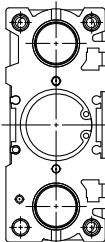
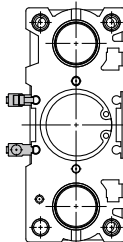
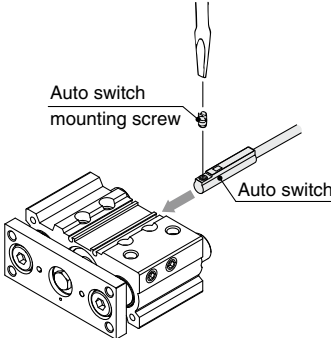
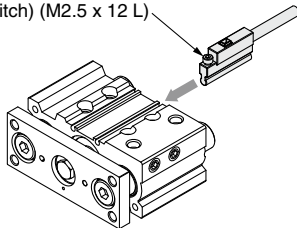
* Values which include hysteresis are for guideline purposes only, they are not a guarantee (assuming approximately ±30% dispersion) and may change substantially depending on the ambient environment.

Auto Switch Mounting Brackets/Part No.

Auto switch model	Bore size
	ø32 to ø100
D-P4DW□	BMG7-032

Auto Switch Mounting Brackets/Part No.

Applicable Cylinder Series: MGPM-XC88(W), -XC89W, -XC91(W)

Applicable auto switches	D-M9□/M9□V D-M9□W/M9□WV D-A9□/A9□V	D-P3DWA					
Bore size (mm)	ø32 to ø100	ø32 to ø100					
Auto switch mounting surfaces	Surfaces with auto switch mounting slot	Surfaces with auto switch mounting slot					
							
Mounting of auto switch	 When tightening the auto switch mounting screw, use a watchmakers' screwdriver with a handle 5 to 6 mm in diameter. Tightening Torque for Auto Switch Mounting Screw (N·m) <table><tr><th>Auto switch model</th><th>Tightening torque</th></tr><tr><td>D-M9□(V) D-M9□W(V)</td><td>0.05 to 0.15</td></tr><tr><td>D-A9□(V)</td><td>0.10 to 0.20</td></tr></table> ① Insert the mounting bracket into the mating groove of the cylinder tube. ② Check the detecting position of the auto switch and fix the auto switch firmly with the hexagon socket head cap screw (M2.5 x 12 L).* ③ If the detecting position is changed, go back to step ①. Note 1) Ensure that the auto switch is covered with the mating groove to protect the auto switch. Note 2) The tightening torque for the hexagon socket head cap screw (M2.5 x 12 L) is 0.2 to 0.3 N·m. Hexagon socket head cap screw (Included with auto switch) (M2.5 x 12 L) 	Auto switch model	Tightening torque	D-M9□(V) D-M9□W(V)	0.05 to 0.15	D-A9□(V)	0.10 to 0.20
Auto switch model	Tightening torque						
D-M9□(V) D-M9□W(V)	0.05 to 0.15						
D-A9□(V)	0.10 to 0.20						

Note) Auto switch mounting brackets and auto switches are enclosed with the cylinder for shipment.