QUICK MOLD CHANGE SYSTEMS

QMCS

AIR CLAMP QB/QE/QM

VALVE UNIT MV

OPERATION PANEL
CONTROL UNIT

AIR CLAMP SYSTEM

KOSMEK
Harmony in Innovation

QMCS
QUICK MOLD CHANGE SYSTEMS

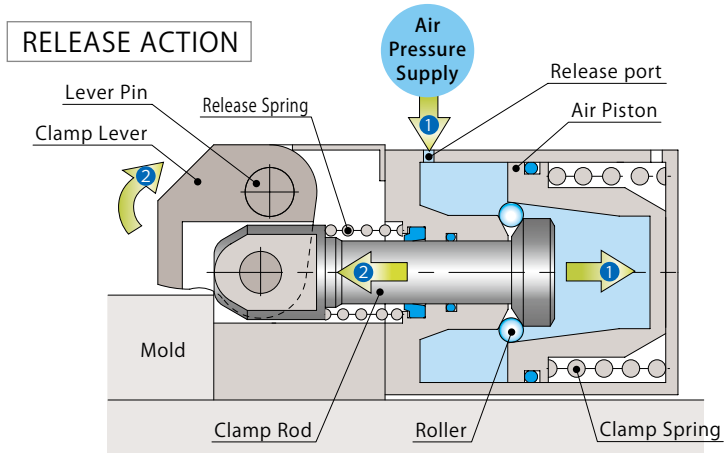
AIR CLAMP SYSTEM Q series

Pneumatically driven mold clamp of which size reduction is realized by using a power cylinder having a newly developed built-in booster.

- A series consisting of clamp capacity from 10kN(1ton) to 63kN(6.3ton) completed. The clamps can deal with the molding machines of up to 350ton class.
- The clamps satisfy the minimum mold thickness of almost all molding machines because of their small and compact design.
- They are most suitable for small size motor operated molding machines for producing semiconductors, food and medical components because of pneumatic drive.

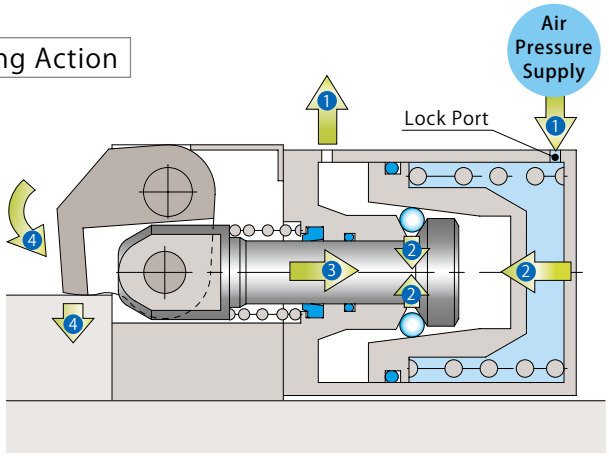
PERFORMANCE

RELEASE ACTION



1. Supply air pressure through the release port to move the air piston backward.
2. The air pressure for actuating the clamp rod and the release spring force move the clamp rod forward. The clamp lever rotates around the lever pin and to be kept in the release condition.

Locking Action



1. Release air pressure through the release port and supply air pressure through the lock port.
2. The air pressure and the clamp spring force move the air piston forward to push the roller in contact with the taper surface of the air piston toward the center of the clamp rod.
3. The force is increased by the booster to move the clamp rod backward.
4. The backward movement of the clamp rod provides the clamp lever with torque around the lever pin to lock the mold securely. (Lock finished)

COMPONENTS for Q series

QB clamp

QE clamp

QM clamp

MV9011
valve unit

YMB080
operation panel / control unit

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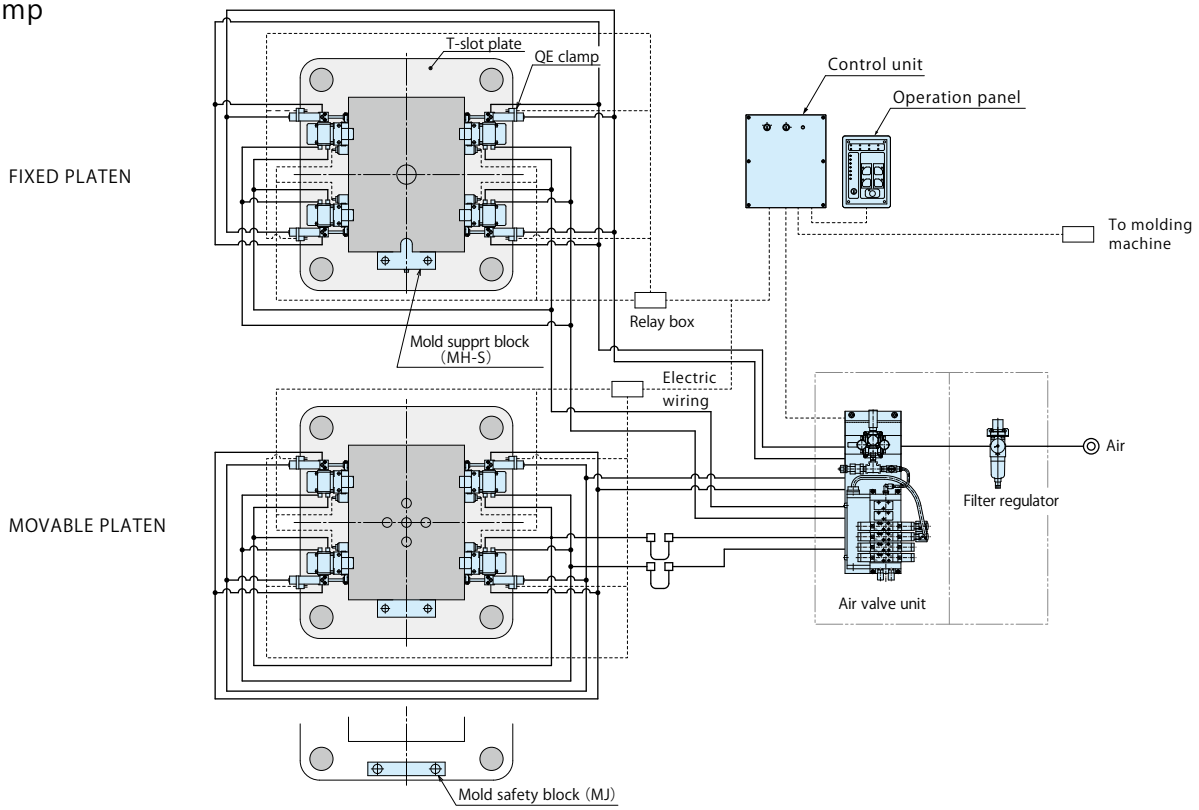
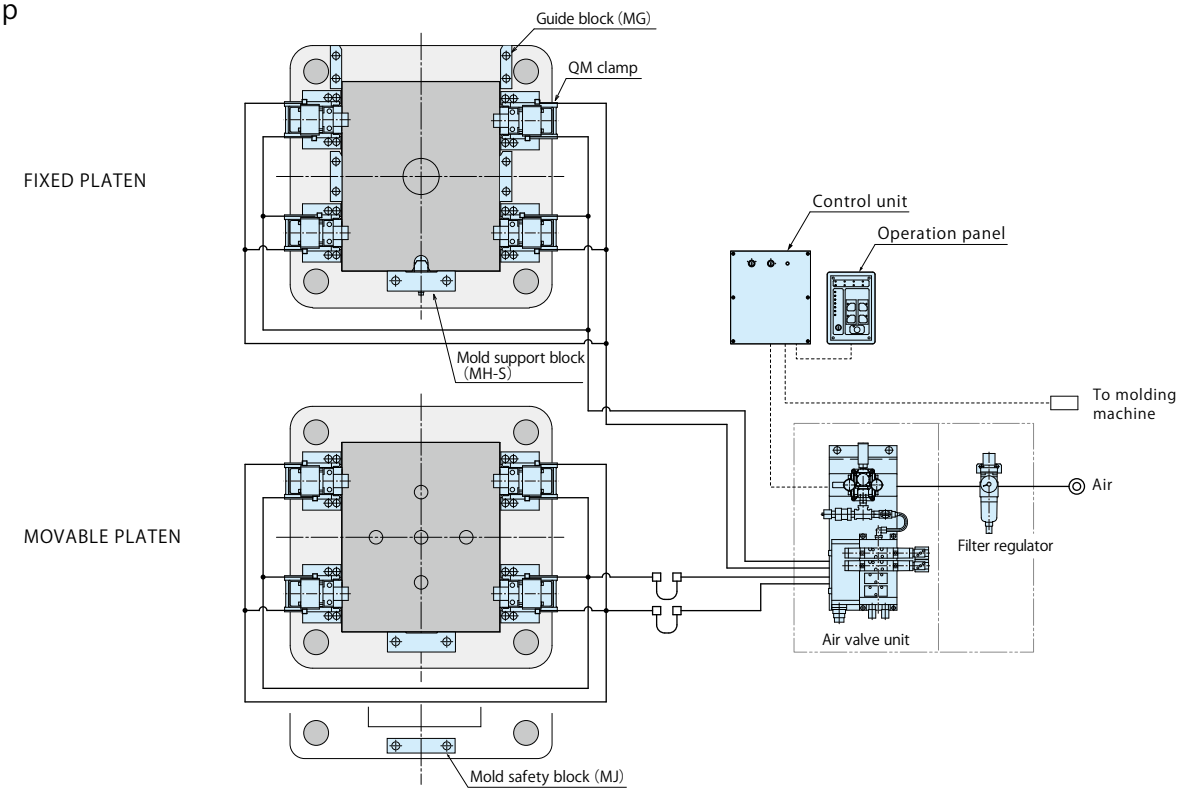
LAYOUT

QB/QE clamp



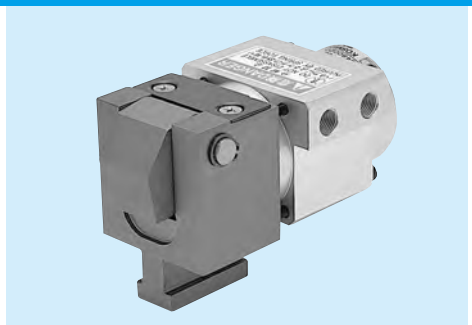
QM clamp



Standard system

Molding machine capacity (kN)	Clamp					Valve unit ( ) is for with slider	Mold support block	Mold safety block	Guide block
	QB clamp	QE clamp	QM clamp	Qty	Fixed/Movable clamp force (kN)				
～500	QB0100	QE0100	QM0100	8	40	MV9011-UU-5 (MV9011-UUTT-5)	MH03	MJ0010	MG
～750	QB0160	QE0160	QM0160	8	64				
～1500	QB0250	QE0250	QM0250	8	100		MH04	MJ0020	
～2500	QB0400	QE0400	QM0400	8	160				
～3500	QB0630	QE0630	QM0630	8	252				

QB AIR CLAMP



MODEL CODE

QB 025 0 – P – 5 L – T□□□

① Design No. ② ③ ④

This number represents the main specification of the clamp' s T-slot stem and the clamping height.
After the specification is confirmed, we will create a number.

① Clamp capacity (See specifications)

② Optional code

Blank : Standard
H : High type
(When the height is larger than max.h)
J : Low type
(When the height is lower than min.h)
P : With proximity switch for mold detection ※1
V : High temperature type (0～120℃)

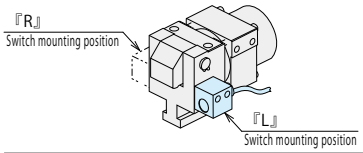
※1. Optional code on ③ (Switch load voltage) and ④ (Air cylinder mounting position) is required on choosing the optional code "P".

③ Switch load voltage (current)

1 : AC100V
2 : AC200V
5 : DC24V (5～40mA)

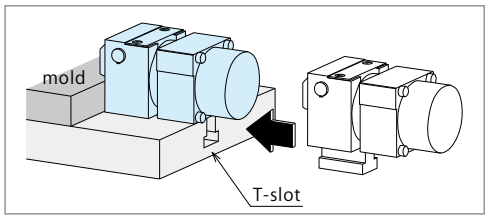
④ Switch mounting position

L : As illustrated
R : Reverse of illustration



Example : QB0250-V-T001
・Clamp capacity 25kN
・High temperature type (0～120℃)
・T001 ⇒ h=30、A=17、B=28、C=10.5、D=20.5

APPLICATION



SPECIFICATIONS

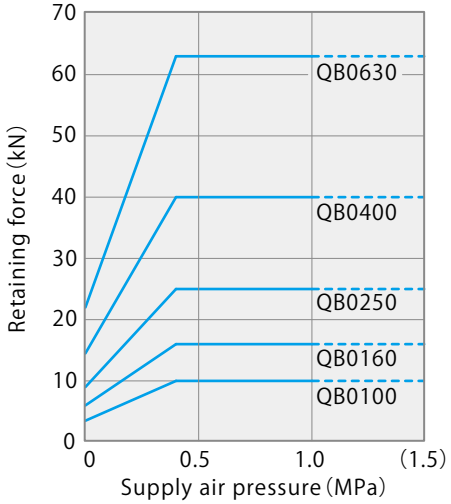
Model			QB0100	QB0160	QB0250	QB0400	QB0630
Clamp capacity		kN	10	16	25	40	63
Retaining force kN	Air pressure 0.4MPa		10	16	25	40	63
	Air pressure 0MPa		3.5	6	9	14.5	22
Clamp force kN	Air pressure 0.8MPa		2.9	4.5	7	11.5	17
	Air pressure 0.4MPa		1.6	2.6	4	6.5	10
	Air pressure 0MPa		0.4	0.6	1	1.5	2.3
Residual clamping force ※2		kN	1.6	2.6	4	6.5	10
Full stroke		mm	2.6	2.8	3.4	4.3	4.6
Clamp stroke		mm	0.6	0.6	0.6	0.6	0.8
Stroke margin		mm	2	2.2	2.8	3.7	3.8
Air cylinder capacity cm³	Lock side		23	42	77	162	265
	Release side		21	38	71	150	244
Max. operating pressure		MPa	1.0				
Min. operating pressure (Release side)		MPa	0.3				
Operating temperature			0～70℃ (-V type is available for 0～120℃)				
Working frequency			Max.20 times per day (If exceeding 20 times, contact us.)				

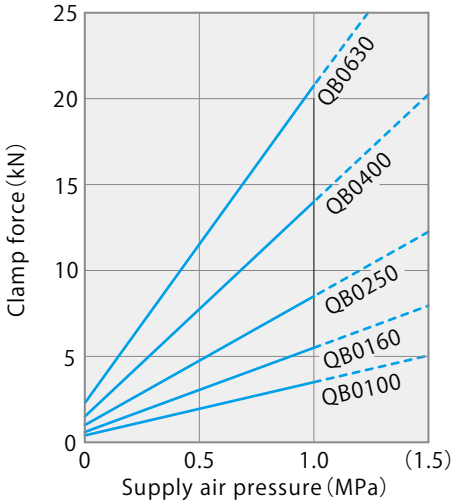
Caution

1. Please use less than clamp capacity.
2. Retaining force and clamp force may vary by ±10%.
3. Air supply at a pressure of 0.3MPa or higher is required to maintain the release condition.
4. The accuracy of the clamp part thickness of mold (dimension h) should be within ±0.2mm as for QB0100 to QB0250 and within ±0.3mm as for QB0400 and QB0630.
5. When the specifications other than the above are needed, contact us.

※2. The residual clamp force is force generated when an air pressure of 0.4MPa for the clamp is released to zero.

PERFORMANCE CURVE





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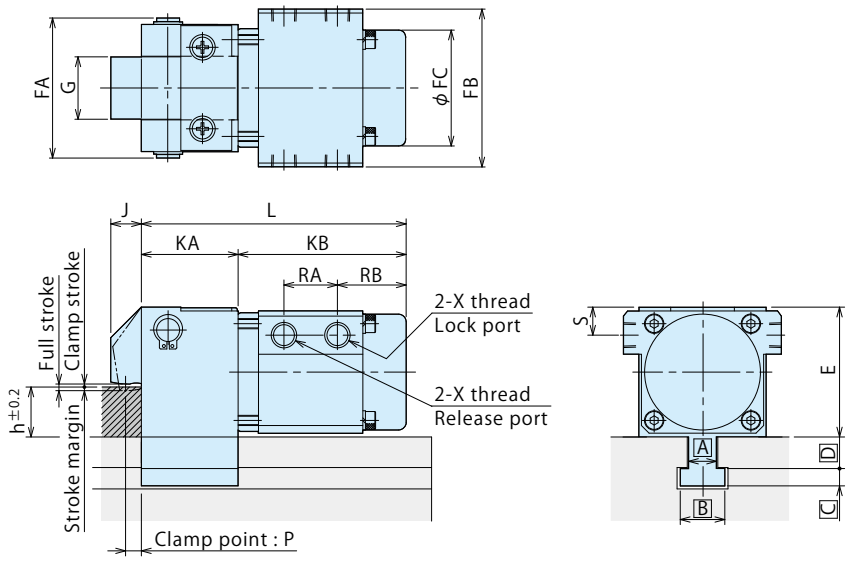
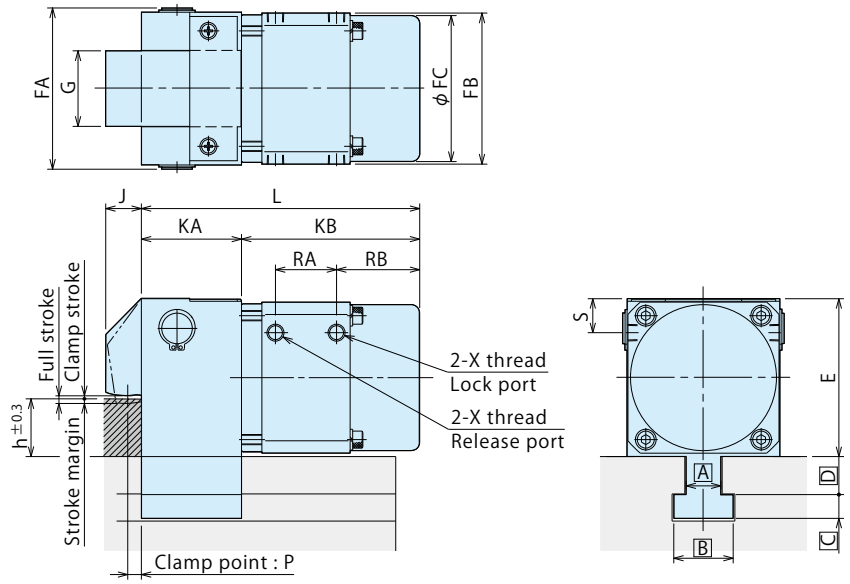
EXTERNAL DIMENSIONS

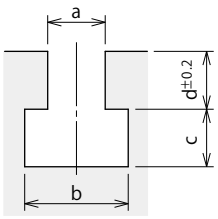
QB0100、QB0160、QB0250



QB0400、QB0630



T-slot dimensions



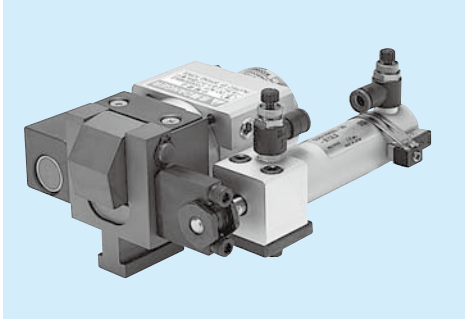
Cautions

1. A, B, C and D are determined based on T-slot dimension.
2. When placing an order, indicate T-slot dimensions a, b, c and d and clamp part thickness (dimension h) of mold in 0.1mm unit.
3. Keep tolerance of dimension d of T-slot within ±0.2mm.
4. The accuracy of the clamp part thickness of mold (dimension h) should be within ±0.2mm as for QB0100 to QB0250 and within ±0.3mm as for QB0400 and QB0630.

● External dimensions

Model	MIN.E	FA	FB	ϕFC	G	J	KA	KB	L	P	RA	RB	S	X	MIN.a	MIN.C	MIN.h	MAX.h
QB0100	51	55	62	45.5	24.5	12	38	66	104	6	21	27	11	Rc1/8	10	6.5	$15^{\pm0.2}$	$30^{\pm0.2}$
QB0160	61	65	68	55	29.5	14	42	73	115	6.5	22	32	13	Rc1/8	12	8	$15^{\pm0.2}$	$35^{\pm0.2}$
QB0250	73	77	73	67	35.5	16	49	85	134	7	25	42	15.5	Rc1/8	14	9.5	$20^{\pm0.2}$	$40^{\pm0.2}$
QB0400	93	95	89	86	44.5	21	59	105	164	8	36	49	20	Rc1/8	18	12	$25^{\pm0.3}$	$50^{\pm0.3}$
QB0630	115.5	117	110	108	55.5	24	71	121	192	9	42	57	24.5	Rc1/8	22	14	$30^{\pm0.3}$	$60^{\pm0.3}$

QE AIR CLAMP



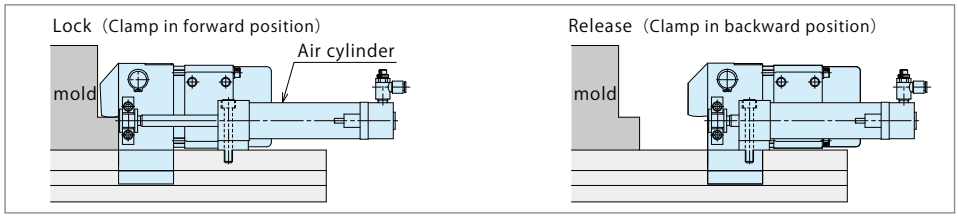
MODEL CODE

QE 010 0 - 25 - 5 L - H - T□□□

① Design No. ② ③ ④ ⑤

This number represents the main specification of the clamp's T-slot stem and the clamping height. After the specification is confirmed, we will create a number.

APPLICATION



SPECIFICATIONS

Model		QE0100	QE0160	QE0250	QE0400	QE0630
QB clamp model		QB0100	QB0160	QB0250	QB0400	QB0630
Clamp capacity	kN	10	16	25	40	63
Slide stroke ※1	mm	25～200	25～200	25～200	25～300	25～300
Clamp supply air pressure MPa	Normal (recommended)	0.4～0.8				
	Min.	0.39				
Drive cylinder supply air pressure	MPa	0.39～0.49				
Operating temperature		0～70℃ (-V type is available for 0～120℃)				
Operating frequency		Max.20 times per day (If exceeding 20 times, contact us.)				

SWITCH TYPE and OTHER ACCESSORIES

Model		QE0100	QE0160	QE0250	QE0400	QE0630
Speed controller (manufactured by SMC)		Model：AS2201F-01-06S (manufactured by SMC)				
Forward end confirmation switch	AC100V、AC200V	Model：FL7M-7T7HD (manufactured by azbil)				
	DC24V(5～40mA)	Model：FL7M-7J6HD (manufactured by azbil)				
Backward end confirmation switch	AC100V、AC200V	Model：D-B73L (manufactured by SMC)				
	DC24V(5～40mA)	Model：D-B73L (manufactured by SMC)				

① Clamp capacity (See specifications)

② Slide stroke (See external dimension)
75：Clamp moving distance 75mm
150：Clamp moving distance 150mm
※ Determine the moving distance considering moving margin.

③ Switch load voltage (current)
1 ：AC100V
2 ：AC200V
5 ：DC24V (5～40mA)

④ Air cylinder mounting position
L ：Right side viewing from the back
R ：Left side viewing from the back

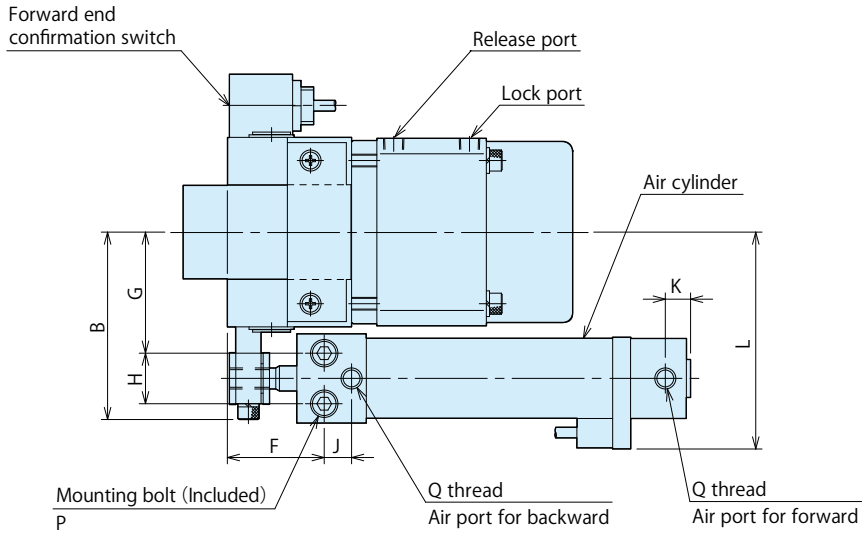
⑤ Optional code
Blank ：Standard
H ：High type lever (When higher than max.h)
J ：Low type lever (When lower than min.h)
Q ：Double cylinders
S ：Special spacer
V ：High temperature type (0～120℃)

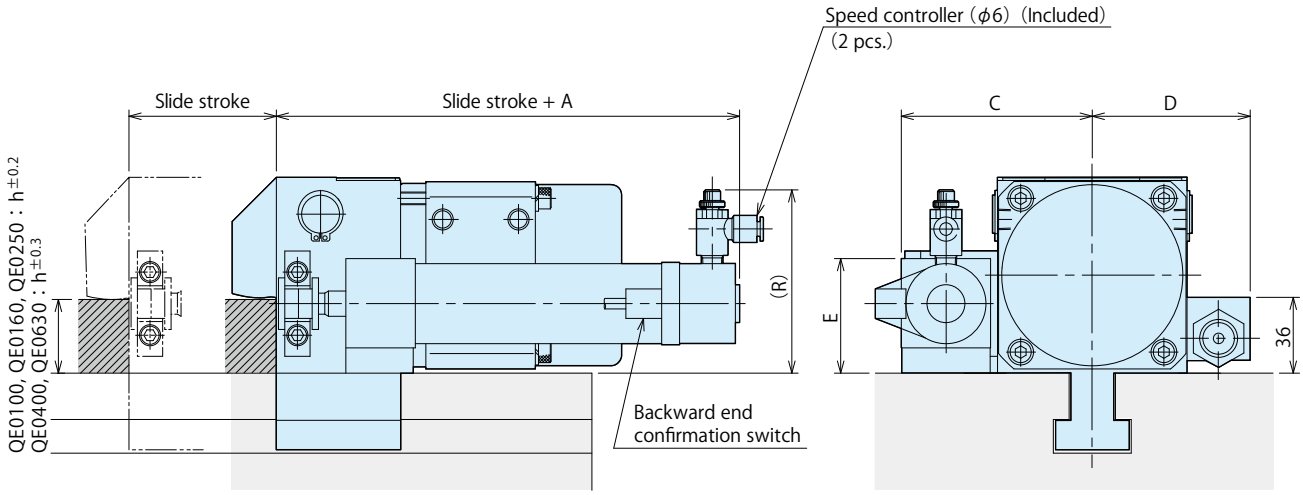
Example : QE0250-125-5L-H-T001
- Clamp capacity 25kN
- Slide distance 125mm
- DC24V
- Air cylinder located on the left viewing from the back
- High type lever
- T001 ⇒ h=30、A=17、B=28、C=10.5、D=20.5

Cautions
1. Refer to QB clamp (P3,P4) for the details of the clamp.
2. Select the slide stroke taking the stroke margin into account.
3. Supply air pressure lower than 0.39MPa may result in malfunction.
4. When tha specifications other than the above are needed, contact us.
5. Specifications and contents of this document are subject to change without notice to improve the products. Request technical specifications prior to actual application.

※1. External dimensional length of "A" and "K" is different when the slide stroke exceeds its standard limitation. (Referred on the external dimension table on the next page below.)

EXTERNAL DIMENSIONS





Cautions
1. The accuracy of the clamp part thickness of mold (dimension h) should be within ±0.2mm as for QE0100 to QE0250 and within ±0.3mm as for QE0400 and QE0630.

●Air cylinder model code

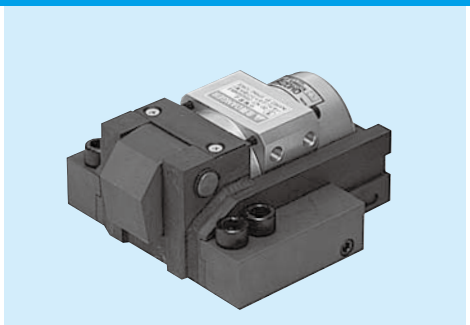
Model	Air cylinder model code
QE0100	CDG1RN20-□□-B73LS
QE0160	
QE0250	
QE0400	CDG1RN25-□□-B73LS
QE0630	CDG1RN32-□□-B73LS

●External dimensions

Model	A ※2	B	C	D	E	F	G	H	J	K ※2	L	P		Q	(R)
												Mounting bolt	Tapping		
QE0100	105 (113)	62.5	65.5	55	36.5	39	41	18	9	12(14)	77.5	M5×0.8×40	M5×0.8 depth 10	Rc1/8	(66)
QE0160	105 (113)	61.5	64.5	60	36.5	39	40	18	9	12(14)	76.5	M5×0.8×40	M5×0.8 depth 10	Rc1/8	(66)
QE0250	105 (113)	67.5	70.5	66	36.5	39	46	18	9	12(14)	82.5	M5×0.8×40	M5×0.8 depth 10	Rc1/8	(66)
QE0400	112 (120)	82.5	85.5	75	45.5	45	56	22	10	12(14)	97	M6×50	M6 depth 12	Rc1/8	(74.5)
QE0630	118 (126)	100	102	86	54.5	46	68.5	24	13	12(14)	114	M8×55	M8 depth 16	Rc1/8	(84)

※2. The numbers inside ( ) on "A" and "K" show the numbers of the length of the ones whose slide stroke exceeds its standard limitation.

QM AIR CLAMP



MODEL CODE

QM 025 0 – 30 – V

① ② ③

Design No.

① Clamp capacity (see specifications)

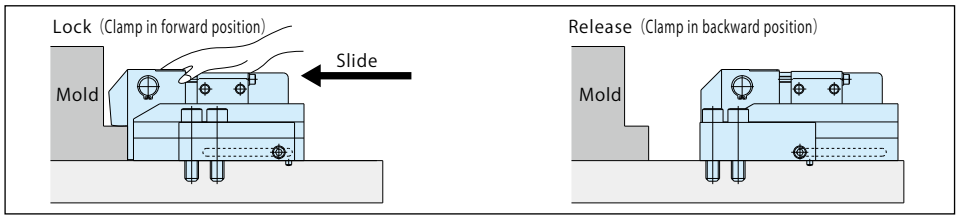
② Clamp position thickness (h dimensions)
20 : h dimension 20mm
30 : h dimension 30mm

※ External dimension table refers to the range of the length "h".

③ Optional code
Blank : Standard
V : High temperature type (0~120℃)

Example QM0250-30-V
- Clamp capacity 25kN
- Clamp position thickness 30mm
- High temperature type (0~120℃)

APPLICATION



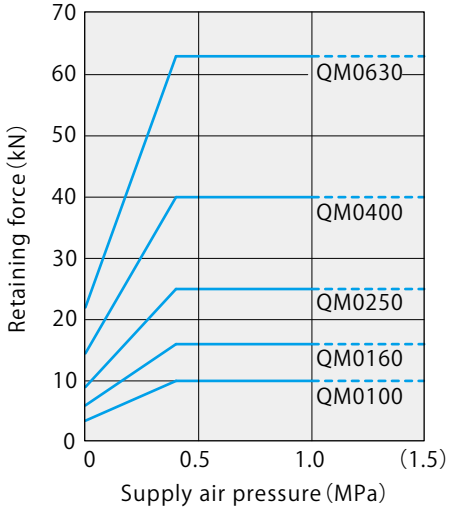
SPECIFICATIONS

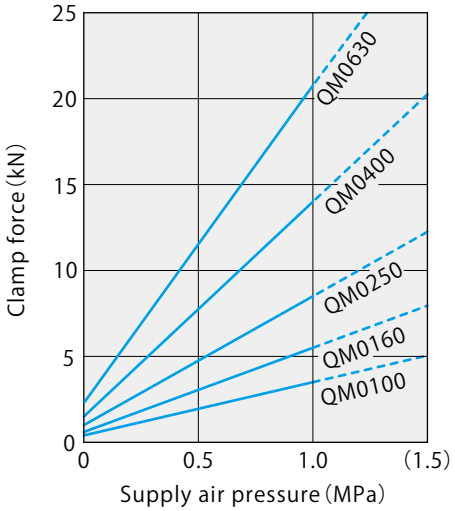
Model		QM0100	QM0160	QM0250	QM0400	QM0630
Clamp capacity kN		10	16	25	40	63
Retaining force kN	Air pressure 0.4MPa	10	16	25	40	63
	Air pressure 0MPa	3.5	6	9	14.5	22
Clamp force kN	Air pressure 0.8MPa	2.9	4.5	7	11.5	17
	Air pressure 0.4MPa	1.6	2.6	4	6.5	10
	Air pressure 0MPa	0.4	0.6	1	1.5	2.3
Residual clamping force ※1 kN		1.6	2.6	4	6.5	10
Full stroke mm		2.6	2.8	3.4	4.3	4.6
Clamp stroke mm		0.6	0.6	0.6	0.6	0.8
Stroke margin mm		2	2.2	2.8	3.7	3.8
Effective sliding stroke mm		35	40	50	60	75
Air cylinder volume cm^3	Lock side	23	42	77	162	265
	Release side	21	38	71	150	244
Max. operating pressure MPa		1.0				
Min. operating pressure (Release side) MPa		0.3				
Operating temperature		0~70℃ (-V type is available for 0~120℃)				
Operating frequency		Max.20 times per day (If exceeding 20 times, contact us.)				

Cautions
1. Please use less than clamp capacity.
2. Retaining force and clamp force may vary by ±10%.
3. In order to maintain the release condition, it is necessary to supply the release port with air at a pressure of 0.3MPa or more.
4. The accuracy of the clamp part thickness of mold (dimension h) should be within ±0.2mm.
5. When tha specifications other than the above are needed, contact us.
6. Specifications and contacts of this document are subject to change without notice to improve the products. Request technical specifications prior to actual application.

※1. The residual clamping force means the clamping force when air pressure is lowered to zero from the condition of clamping at an air pressure of 0.4MPa.

PERFORMANCE CURVE





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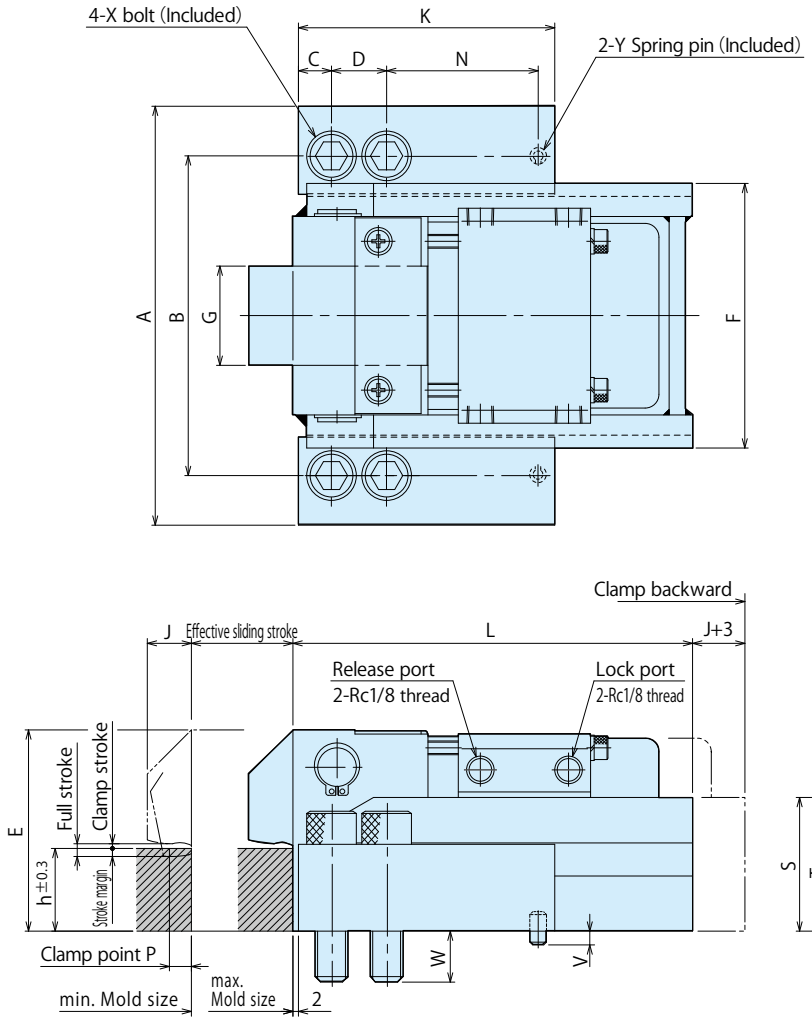
EXTERNAL DIMENSIONS



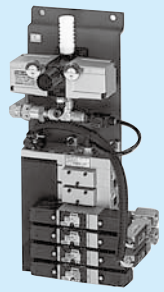
Cautions

1. This drawing shows the release condition.
2. Keep accuracy of clamp part thickness of mold(dimension h) at ±0.3mm or less.
3. When installing the clamp, do not allow the retainer plate (shown by the dimension K) to protrude from the platen surface.

●External dimensions

Model	A	B	C	D	E	F	G	J	K	L	N	P	S	T	V	W	X	Y	MIN.h	MAX.h
QM0100	106	83	8.5	15	51	68	24.5	12	77	114	49.5	6	30.5	28.5	3	14.5	M8×35	ϕ4×8	$15^{\pm0.3}$	$30^{\pm0.3}$
QM0160	129	98	10	18	61	80	29.5	14	85	127	53	6.5	38.5	35	3	15	M10×40	ϕ4×8	$15^{\pm0.3}$	$35^{\pm0.3}$
QM0250	152	116	12	20	73	96	35.5	16	94	146	57	7	48	43.5	4	18.5	M12×50	ϕ5×10	$20^{\pm0.3}$	$40^{\pm0.3}$
QM0400	192	145	13	26	93	122	44.5	21	118	180	73	8	58	53	5	21	M14×60	ϕ6×12	$25^{\pm0.3}$	$50^{\pm0.3}$
QM0630	243	190	18	36	115.5	156	55.5	24	136	213	72	9	72	68.5	8	31.5	M20×80	ϕ8×16	$30^{\pm0.3}$	$60^{\pm0.3}$

MV9011
VALVE UNIT



MODEL CODE

MV901 1 – UUTT – 5 – N

Design No.

① Circuit
U : Circuit for clamp (with pressure switch)
T : Circuit for slider (without pressure switch)

② Control voltage
1 : AC100V
5 : DC 24V

③ Optional code
Blank : Standard (Rc port)
N : NPT port ※1

※1. When "N" is selected from the optional code each dimension is described in "inch" in the specifications and the other documents.

Example MV9011-UU-5
・For QB / QM clamp
・Clamp circuit in tandem
・Control voltage DC24V

SPECIFICATIONS

Model	MV9011
Type	Metallic seal / 5-port pilot
Position and number of solenoid	2-position and double
Piping size	Rc1/4
Effective section area	15mm²
Working fluid	Air
Clamp operating pressure (Max.)	0.8MPa
Primary supply air pressure	0.4MPa or more
Working fluid temperature	-10 ～ +60℃
Oil supply	No oil supply
Protection	Dust-proof

CIRCUIT SYMBOLS

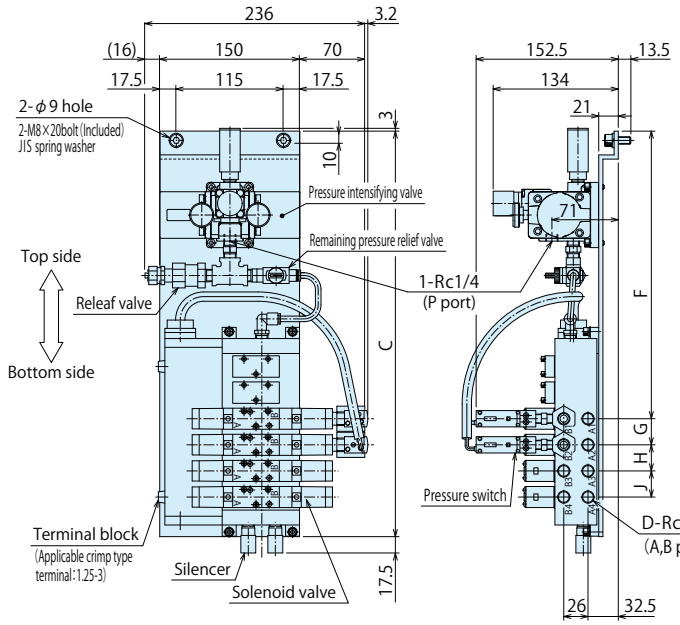
Circuit symbol	Contents	Applied clamp : Example
U	Clamp circuit × 1	Typical clamp application only the upper die of a vertical molding machine simultaneous operation of stationary and movable platens of a horizontal molding machine
UU	Clamp circuit × 2	Fixed and movable platens for horizontal molding machine
UUU	Clamp circuit × 3	One circuit of upper mold and two circuits of lower mold for vertical molding machine
UUTT	Clamp circuit × 2 Slider circuit × 2	Fixed and movable platens for horizontal molding machine

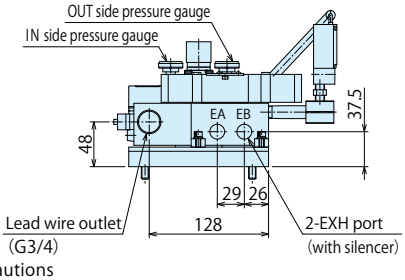
NOTES FOR USE

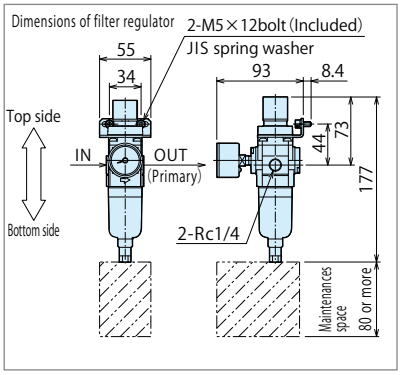
1. Supply dry air.
2. Apply stainless steel pipes, nylon tubes and so on to air piping for rust prevention.
3. Before shipping, the pressures are set as follows : 0.4MPa / secondary pressure : 0.8MPa pressure switch : Inc. 0.5MPa / Relief valve : 0.8MPa Notes that turning the handle of the pressure intensifying valve results in a change of the above setting value.
4. When relieving the secondary pressure for maintenance, use a remaining pressure relief valve. (During clamping, use the residual pressure discharge valve in the closed condition.)

EXTERNAL DIMENSIONS

※本図は、MV9011-UUTT-□を示します。

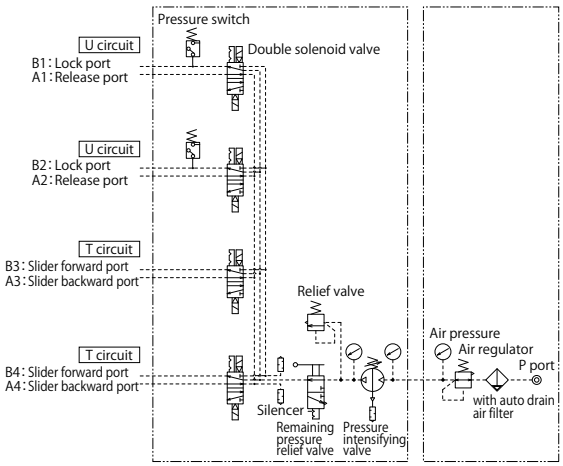






Cautions
1. Filter regulator cannot be installed upside down. (See the chart beside)
2. Joint parts (that connect pressure intensifying value and filter regulator) are not included in the standard equipment.

●Circuit symbols



●Outline dimensions

Circuit symbol	C	D	F	G	H	J
U	323	2	280.5	-	-	-
UU	379	4	308.5	28	-	-
UUU	435	6	336.5	28	28	-
UUTT	435	8	308.5	28	28	28

●Comprising as follows

Model name	Model	Maker
Filter regulator	AW20-02BCG	SMC
Pressure intensifying valve	VBA10A-02GN	SMC
Relief valve	NSV-302K10	TACO
Remaining pressure relief valve	HV02-6	PISCO
Solenoid valve	VFS2200	SMC
Silencer	AN203-02	SMC
Pressure switch	APS-6D-W	CKD

YMB080
OPERATION PANEL / CONTROL UNIT

The many models available ensure compability with a wide variety of applications. The separate Operation panel and Control unit allow for more flexibility and variation in mounting and use.

MODEL CODE

YMB08 [0] - [V] [HC] [10] - [ ]
1 2 3 4 5

1 Design No.

※ Indicates unit version

2 Mold change system

V : Vertical Loading (Horizontal IMM)
H : Side Loading (Horizontal IMM)
R : Vertical IMM ※1

※1. Please contact us for details about vertical press (IMM) systems.re.

3 Applicable clamp model

※ Refer to the specification tables below.

4 Pressure switch

10 : Standard model with pressure switch in the clamp circuit
00 : Special model without pressure switch in the clamp circuit

5 Optional code

Blank : Standard (Operation panel in Japanese)
E : With Proximity switchs to ensure proper clamp placement
H : With 6~8 proximity switches per platen
N : Operation panel in English
C : Operation panel in Chinese

SPECIFICATIONS

Model		YMB080-□□□10	YMB080-□□□00
Operation unit power		DC24V (Supplied by control unit)	
Control unit power supply	Voltage	AC100 ~ 240V (50/60Hz)	
	Capacity	30W	100W

Model	②System		③Clamp model	④Options
YMB080-VHB10	V	Vertical loading	QB QM	E / H / N / C
YMB080-VHE10			QE	H / N / C

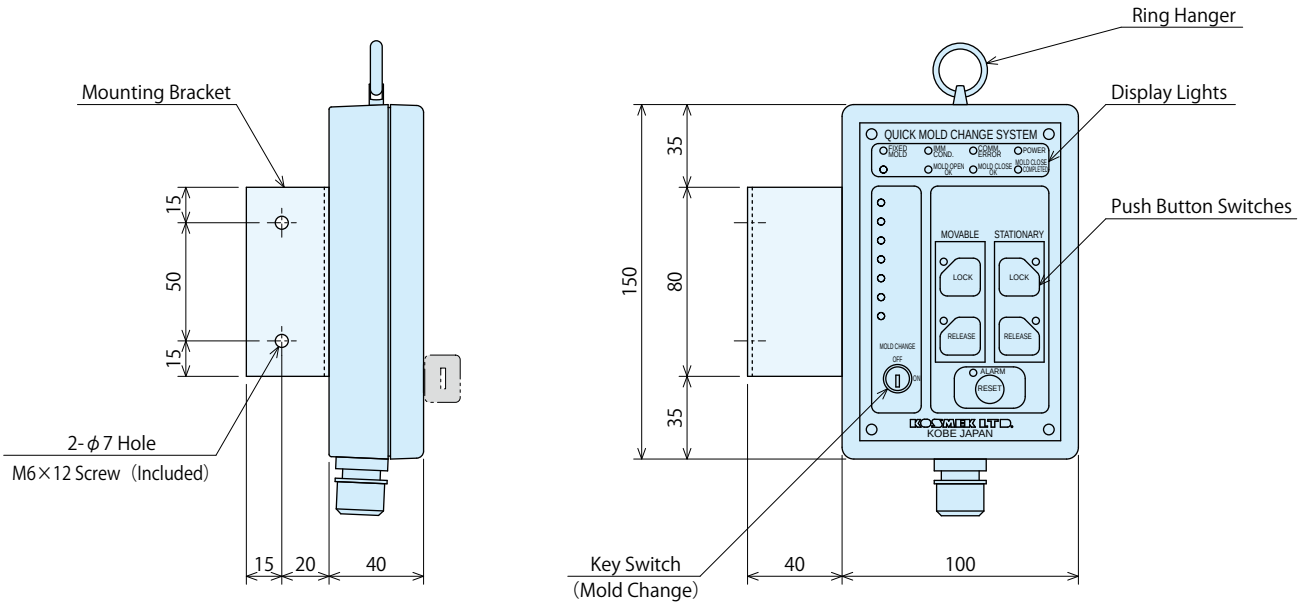
Cautions

1. For special applications not mentioned here, please contact us.
2. Signals should be sent and recieved via dry contacts.
3. The molding machine output should be DC24V 10mA.
4. The Operating Panel / Control Unit output contact is DC24V / 0.5A.
5. Please contact us for information about the Operation Panel / Control Unit for magnetic clamping systems.

YMB080
OPERATION PANEL / CONTROL UNIT

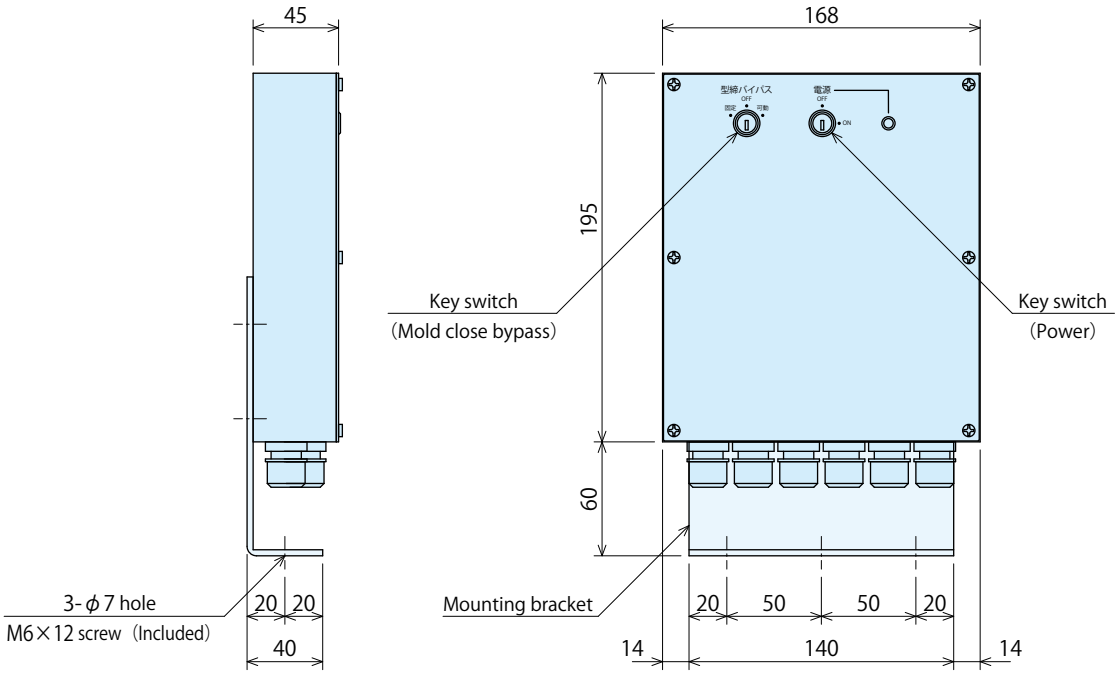
EXTERNAL DIMENSIONS : Operation panel

※ The bracket can be mounted in any direction.
The bracket is shipped mounted as in the dimensions below.



EXTERNAL DIMENSIONS :

※ The bracket can be mounted in any direction.
The bracket is shipped mounted as in the dimensions below.



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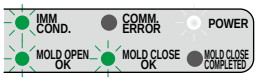
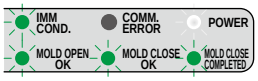
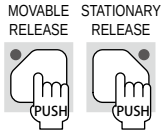
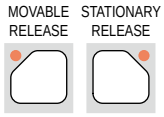
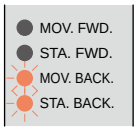
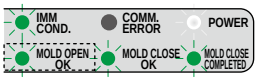
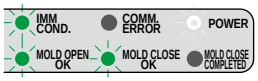
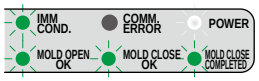
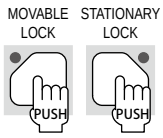
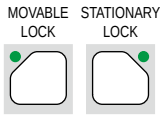
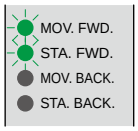
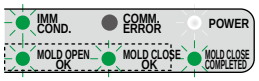
EXAMPLE OF OPERATING PROCEDURES : YMB080-VQE10

※ Please contact us for operating procedures for other models.

Unloading a mold

IMM	OPERATION	OPERATION PANEL
Finish Production	1. Support the mold using the crane.	"IMM COND." lamp illuminates.
Mold Change Mode	2. Set the IMM to "Mold Change Mode" .	
Nozzle Back	3. Ensure the IMM is in "Nozzle Back" mode.	
	4. Turn the "Mold Change Key Switch" on the operation panel to "ON" .	MOLD CHANGE OFF 
Mold Close	5. Close the IMM platens.	Ensure the "MOLD CLOSE COMPLETED" lamp is illuminated. 
	6. Confirm that the mold is supported by the crane.	
	7. Press the "STATIONARY (Platen) RELEASE" button. Press the "MOVABLE (Platen) RELEASE" button.	 "RELEASE" lamps illuminate.  STA. BACK and MOV. BACK (Stationary / Movable Platen Fully Retracted) illuminate.  Ensure "MOLD OPEN OK" lamp is illuminated. 
Push the platen open button on the IMM	8. Open the platens	
	9. Remove the mold.	

Loading a mold

IMM	OPERATION	OPERATION PANEL
Molding Idle	1. Check the mold thickness and insert the mold.	
	2. Position the mold.	
Mold Close	3. Close the Safety Door of the IMM and press the "Mold Close" button on the IMM.	Ensure the "MOLD CLOSE COMPLETED" lamp is illuminated. 
	4. Press the "Stationary Platen Lock" button. Press the "Movable Platen Lock" button.	 "LOCK" lamps illuminate.  STA. FWD. and MOV. FWD. (Stationary / Movable Platen Mold Detect) lamps illuminate. 
	5. Turn the Mold Change Key Switch to "OFF" .	MOLD CHANGE OFF  "MOLD OPEN OK" and "MOLD CLOSE OK" lamps illuminate. 
	6. Detach mold from crane to complete set-up.	

INTERLOCK INPUT AND OUTPUT

※ Please contact us for information about Input / Output signals not listed below. (Special Order Unit)

IMM OUTPUT	CONTENT
Mold Change Mode	A signal that ensures the IMM is in low-speed Mold Change Mode.
Mold Closed (Pressurized)	A signal that ensures the mold is completely closed. Required for clamp lock / release to prevent the mold from dropping.
Nozzle Back	A signal that ensures the nozzle / injection unit is fully back to prevent damage to the nozzle / injection unit when changing molds.
Ejectors Back	A signal that ensures the ejector plate is in the back position to prevent damage to the ejector rods during mold removal.

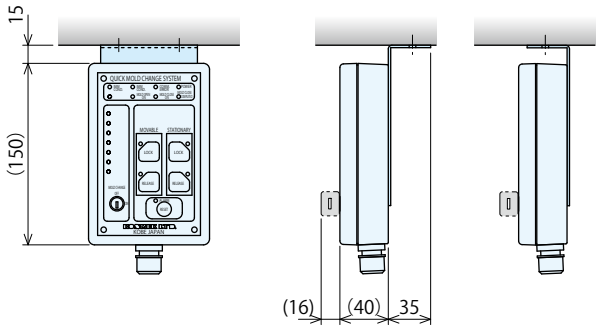
IMM INPUT	CONTENT
Mold Open OK	A signal that indicates the clamping system is ready for mold opening.
Mold Close OK	A signal that indicates the clamping system is ready for mold closing.
Mold Change "ON"	A signal that indicates the clamp system is in "Mold Change Mode" .
Clamp Error	When an error in the clamp circuit occurs, this signal is sent to make an emergency stop of the machine.
Pressure Request	This signal requests additional hydraulic pressure when necessary to lock or release the clamps in Mold Change Mode.

YMB080
OPERATION PANEL / CONTROL UNIT

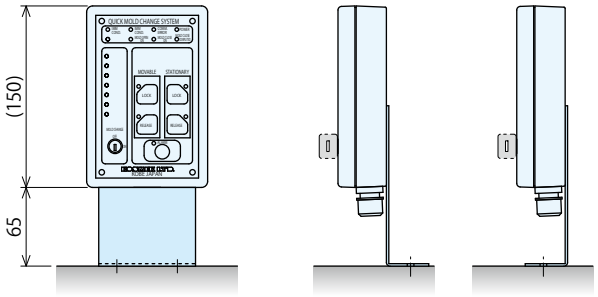
MOUNTING INSTRUCTIONS : OPERATION PANEL

※For detailed dimensions of the Operation panel, please refer to page 2.

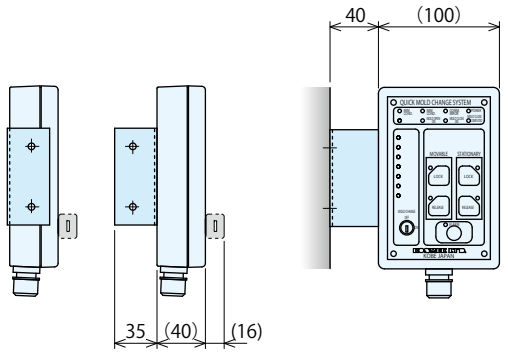
Top mounted



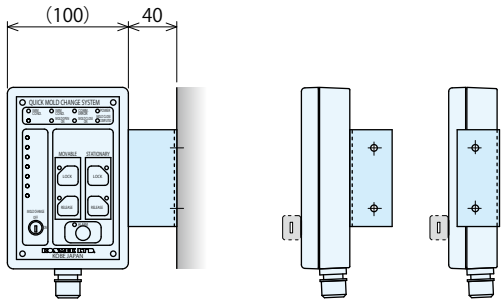
Bottom mounted



Left mounted



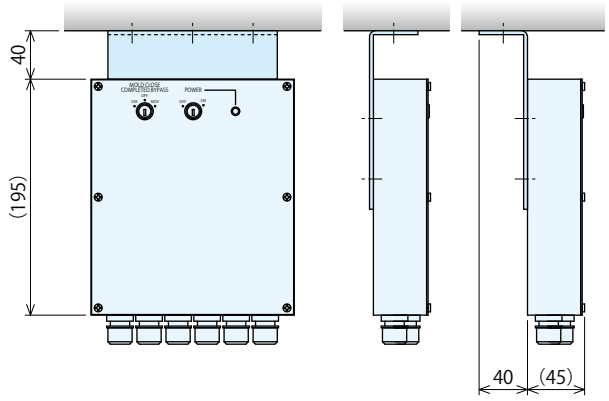
Right mounted



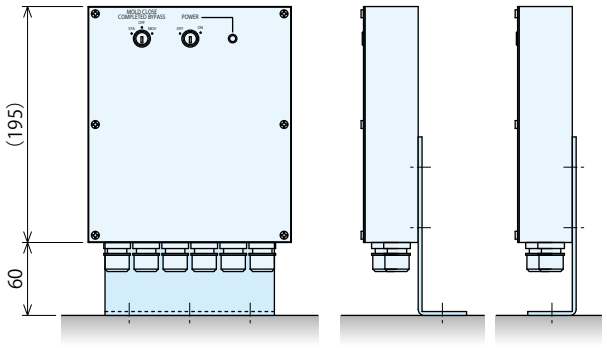
MOUNTING INSTRUCTIONS : CONTROL UNIT

※For detailed dimensions of the Control unit, please refer to page 2.

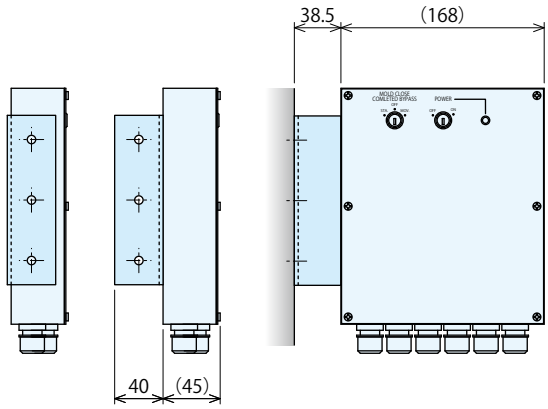
Top mounted



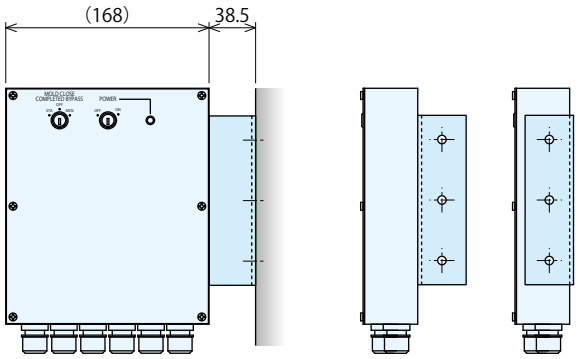
Bottom mounted



Left mounted



Right mounted



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- FOR FURTHER INFORMATION ON UNLISTED SPECIFICATIONS AND SIZES, PLEASE CALL US.
- SPECIFICATIONS IN THIS LEAFLET ARE SUBJECT TO CHANGE WITHOUT NOTICE.

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