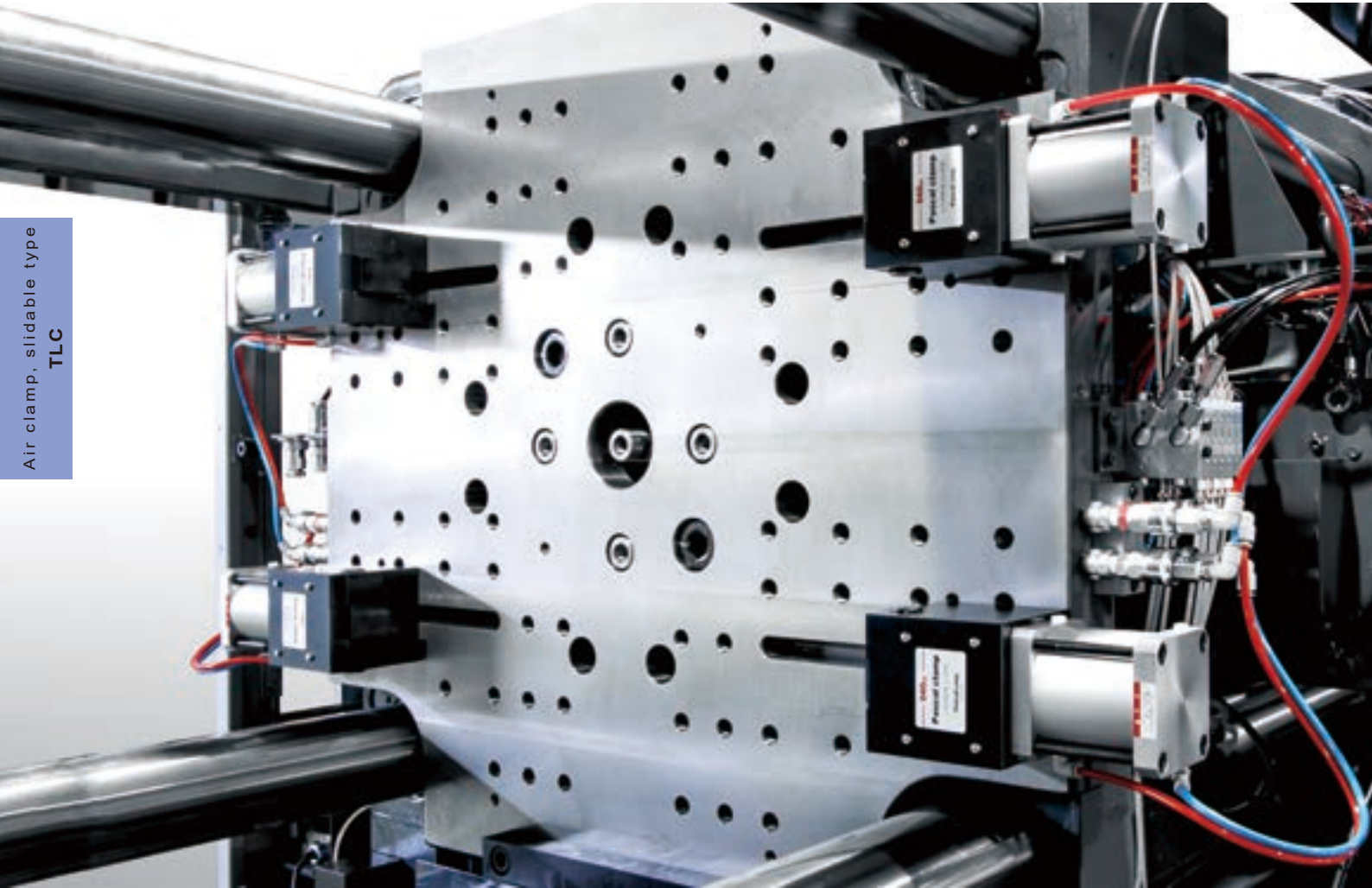


Air-driven T-slotted slidable clamp.

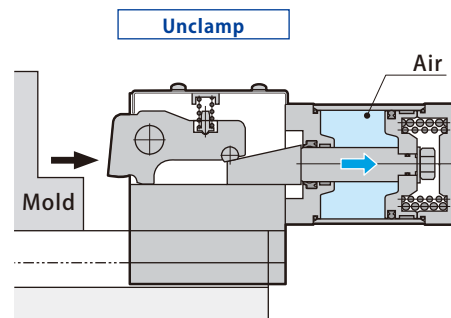
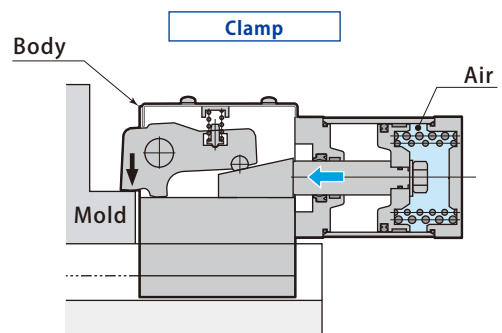
Air clamp, slidable type
TLC



2,200kN (220ton) IMM vertical loading Air clamp, slidable type TLC

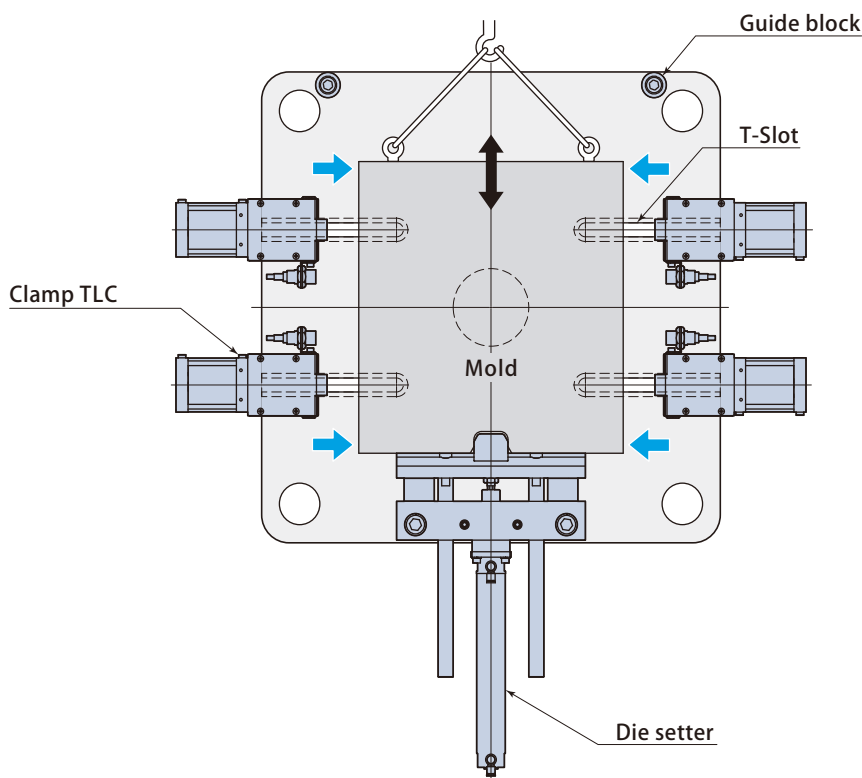


model TLC



It is mounted on the T-slot and slidable by hand. The clamp lever is **not retracted** back in the body at time of unclamping.

TLC & Die setter



■ Model designation

■ Option

TLC 100 — □

- 1 Holding force
- 4 Mold plate thickness h dimension (mm) **page → 54**

- E0 ~ E3** With mold detection proximity switch
- G** With handle
- S** Low distance clamp type
- V** Heat proof type

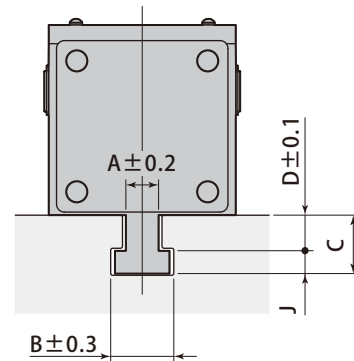
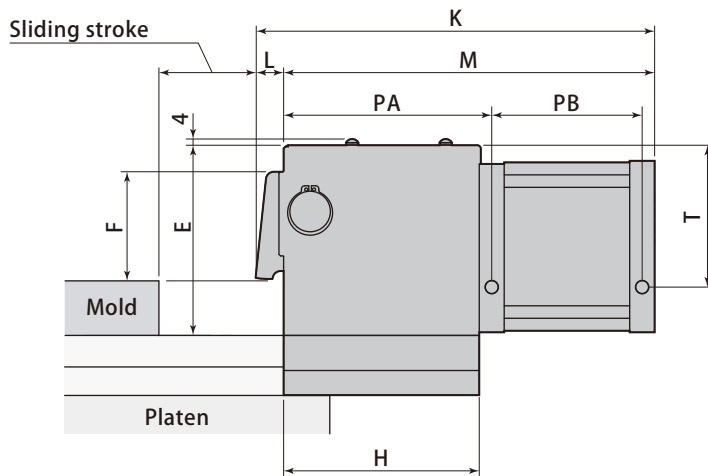
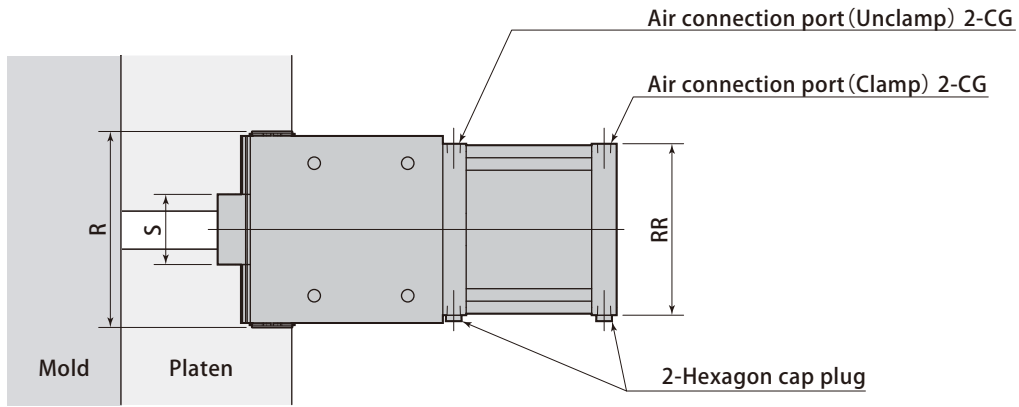
1 Specifications

Model		TLC010	TLC016	TLC025	TLC040	TLC063	TLC100	TLC160	
Holding force	At air pressure 0.49 MPa	kN	9.8	15.6	24.5	39.2	61.7	98	157
	At air pressure 0.39 MPa	kN	9.8	15.6	24.5	39.2	61.7	98	157
	At no air pressure (0MPa)	kN	3.92	6.17	9.8	15.6	24.5	39.2	61.7
Clamping force	At air pressure 0.49 MPa	kN	3.92	6.17	9.8	15.6	24.5	39.2	61.7
Residual clamping force	At no air pressure (0MPa)	kN	2.94	4.9	7.84	11.7	19.6	31.3	49
Full stroke		mm	3	3	3	3.8	3.8	4.2	5
Clamping stroke		mm	1	1	1	1.2	1.2	1.2	1.2
Safety stroke		mm	2	2	2	2.6	2.6	3.0	3.8
Operating air pressure		MPa	0.39 ~ 0.49						
Proof pressure		MPa	0.68						
Operating temperature		°C	0 ~ 70 (5 ~ 120 by heat proof type *)						
Weight		kg	2.4	3.3	4.4	8.2	13.6	25.9	55

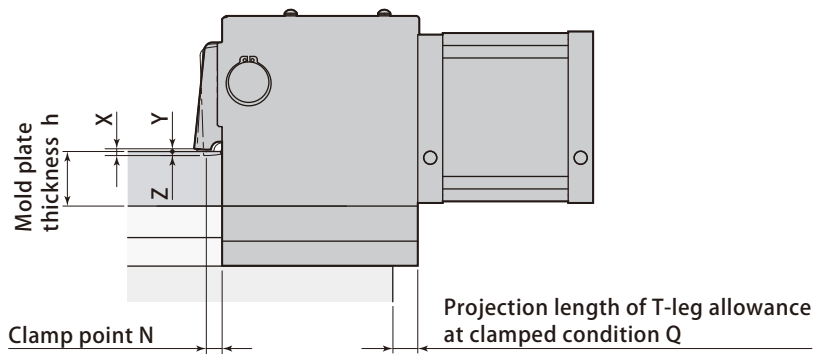
- Weight varies according to the dimension of clamp T-leg and mold plate thickness h.
- Refer to **page → 67** for the details of cutout dimensions on mold.
- Residual clamping force : the clamping force when air pressure drops to zero after clamp is clamped the mold at air pressure 0.49MPa.
- * Proximity switch and auto switch will not become a heat proof type.

Dimensions

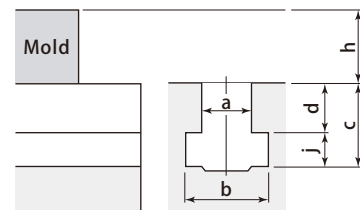
Unclamp



Clamp



T-slot dimension and mold plate thickness



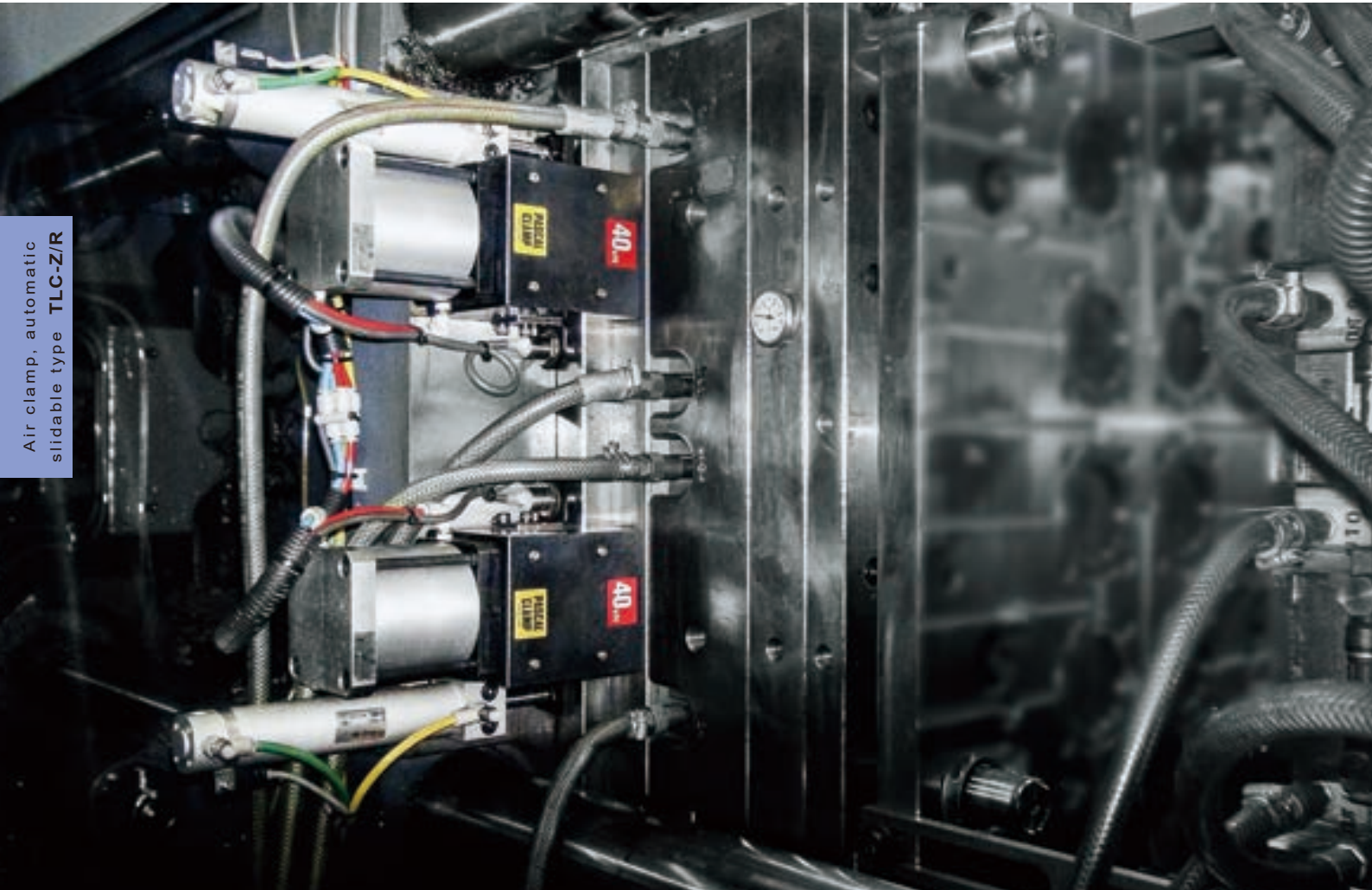
- Specify T-slot dimensions (a, b, c, d, j) and mold plate thickness (h).
- For "d" dimension of T-slot
For retrofit : Specify to 0.1 mm
For new machine : Machining tolerance shall be ±0.2 mm
- Dimensions (A, B, C, D, J) shall be determined according to T-slot dimensions.

mm

Model	TLC010	TLC016	TLC025	TLC040	TLC063	TLC100	TLC160
Air connection port CG	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/4
Min. E	64	69	79	102	122	147	182
Standard F	28	30.5	36	55.5	70	87	115
H	78	81	91	110.5	125.5	150	181
K	178	186	200	233	256	302	368
L	12	12	13	16	18	22	27
M	166	174	187	217	238	280	341
N	7	7	7.5	9	10	11.5	14
PA	86	89	99	118.5	133.5	159	192
PB	72	77	80	90.5	96.5	113	138
Projection length of T-leg allowance at clamped condition Q	13	13	18	27.5	33.5	38	50
R	59.3	73.3	85.3	105.7	125.7	152.3	178.8
RR	50	60	70	90	110	136	171
S	16	22	27	35	45	55	65
T	46	49	58	71	91	103	135
Full stroke X	3	3	3	3.8	3.8	4.2	5
Clamping stroke Y	1	1	1	1.2	1.2	1.2	1.2
Safety stroke Z	2	2	2	2.6	2.6	3	3.8
Min. a	10	12	14	16	20	23	28
Min. A	9	11	13	15	18.5	21.5	26.5
Min. j	8	9	11	13	15	17	20
4 Min. h	20	25	30	30	35	40	40

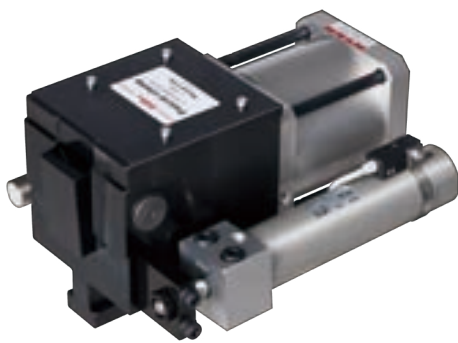
- When newly machining T-slot, it is recommended to apply the dimensions specified on **page → 67**.
- The tolerance of mold plate thickness h shall be $\pm 0.3\text{mm}$.
- Hex socket cap plug to be provided for air connection ports. (2 pcs)
- A flow control valve is not necessary in the air circuit.

Automatic slidable clamp with air cylinder. It enables to shorten the mold change time.

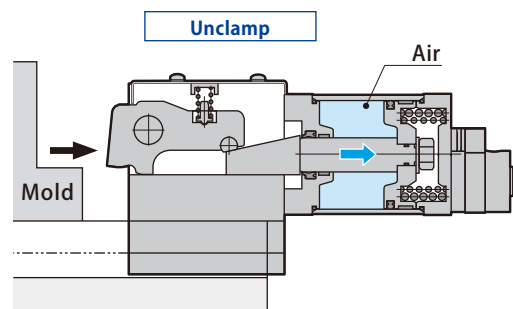
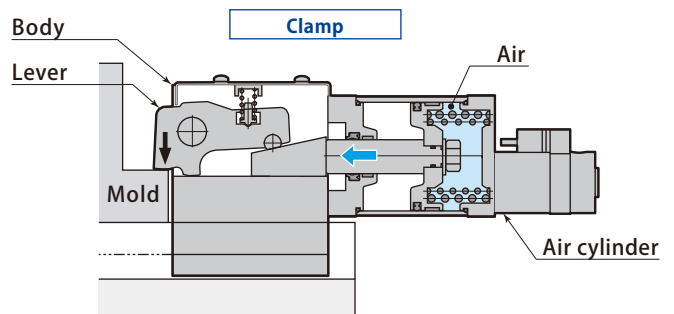


Air clamp, automatic slidable type TLC-Z/R

1,100kN(110ton) IMM vertical loading Air clamp, automatic slidable type TLC-Z

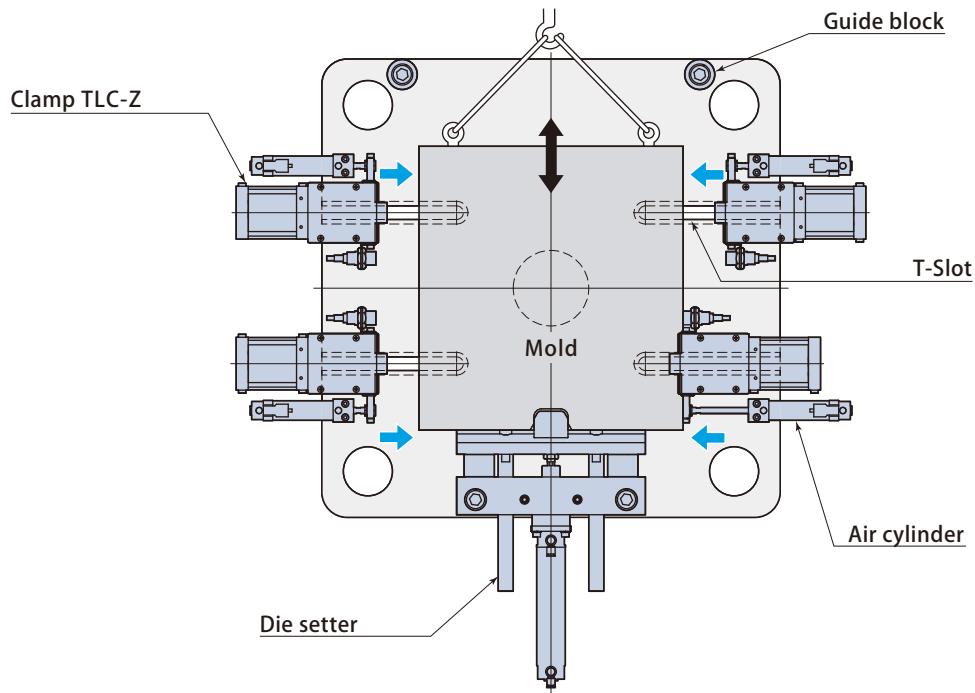


model **TLC-Z/R**



It slides automatically with air cylinder.
The clamp lever is **not retracted** back in the body at time of unclamping.

TLC-Z & Die setter

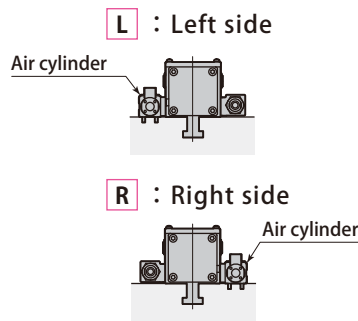


Air clamp, automatic slidable type TLC-Z/R

Model designation **TLC 025R 0 L - 075**

- 1 Holding force
- 6 Slide direction
Z : Horizontal R : Vertical
- 2 Proximity switch symbol
 page → 58
- 3 Air cylinder position
- 4 Mold plate thickness h dimension (mm)
 page → 58
- 5 Sliding stroke (mm) * Indicated in 3 digits

3 Air cylinder position



Option

- S Low distance clamp type
- V Heat proof type

1 5 Specifications

Model		TLC010Z	TLC016Z	TLC025Z	TLC040Z	TLC063Z	TLC100Z	TLC160Z	
		TLC010R	TLC016R	TLC025R	TLC040R	TLC063R	TLC100R	TLC160R	
Holding force	At air pressure 0.49 MPa	kN	9.8	15.6	24.5	39.2	61.7	98	157
	At air pressure 0.39 MPa	kN	9.8	15.6	24.5	39.2	61.7	98	157
	At no air pressure (0MPa)	kN	3.92	6.17	9.8	15.6	24.5	39.2	61.7
Clamping force	At air pressure 0.49 MPa	kN	3.92	6.17	9.8	15.6	24.5	39.2	61.7
Residual clamping force	At no air pressure (0MPa)	kN	2.94	4.9	7.84	11.7	19.6	31.3	49
Full stroke		mm	3	3	3	3.8	3.8	4.2	5
Clamping stroke		mm	1	1	1	1.2	1.2	1.2	1.2
Safety stroke		mm	2	2	2	2.6	2.6	3	3.8
Standard sliding stroke *1		mm	50, 75, 100, 125, 150			50, 75, 100, 125, 150, 200		50, 75, 100, 125, 150, 200, 250, 300	
Slide velocity		mm/s	30 ~ 80 (Adjusted by a flow control valve)						
Cylinder capacity	Clamp	cm ³	43	70	115	219	350	607	1116
	Unclamp	cm ³	39	63	104	197	318	560	1046
Operating air pressure		MPa	0.39 ~ 0.49						
Proof pressure		MPa	0.68						
Operating temperature		°C	0 ~ 70 (5 ~ 120 by heat proof type *2)						
Weight		kg	2.6	3.5	5.5	12.0	18.0	28	58

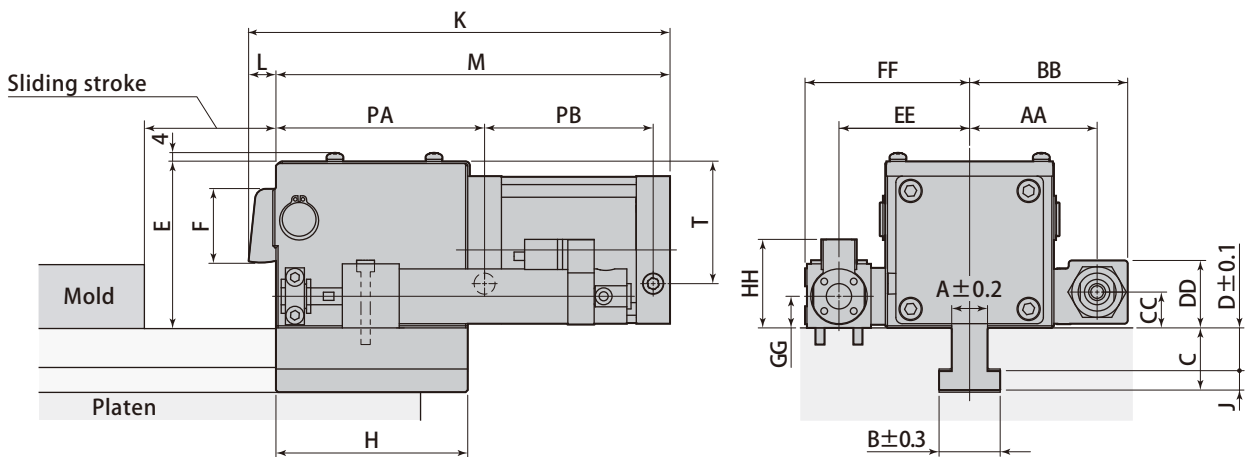
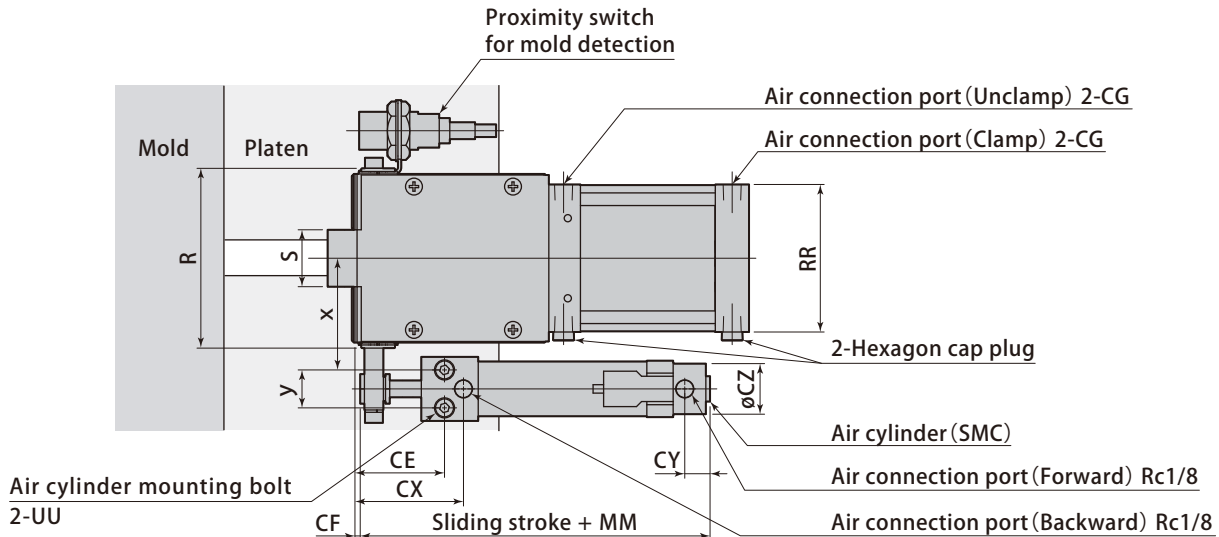
● Weight varies according to the sliding stroke and dimension of clamp T-leg. ● Residual clamping force : the clamping force when air pressure drops to zero after clamp is clamped the mold at air pressure 0.49MPa.
 ● Refer to page → 67 for the details of cutout dimensions on mold. *1 Contact Pascal for the sliding stroke which is not mentioned above. *2 Proximity switch and auto switch will not become a heat proof type.

Dimensions

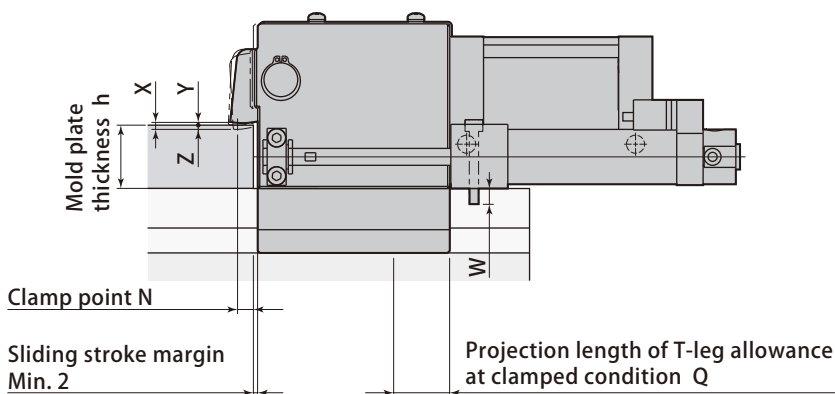
● The drawings indicate : air cylinder position **L** (Left).

Air clamp, automatic slidable type TLC-Z/R

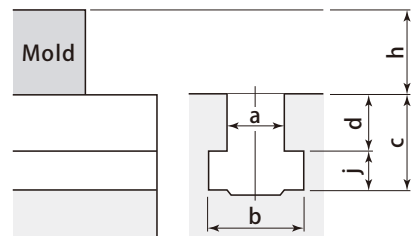
Unclamp



Clamp



T-slot dimension and mold plate thickness



- Specify T-slot dimensions (a, b, c, d, j) and mold plate thickness (h).
- For "d" dimension of T-slot
For retrofit : Specify to 0.1 mm
For new machine : Machining tolerance shall be ± 0.2 mm
- Dimensions (A, B, C, D, J) shall be determined according to T-slot dimensions.

mm

Model	TLC010Z	TLC016Z	TLC025Z	TLC040Z	TLC063Z	TLC100Z	TLC160Z
	TLC010R	TLC016R	TLC025R	TLC040R	TLC063R	TLC100R	TLC160R
AA	47.5	54.5	60.5	70.5	80.5	98	110.5
BB	62	69	75	85	95	113	125.5
CC	17	17	17	21	21	32	32
CE	42.5	42.5	42.5	47	47	71	73
CF	2.5	2.5	2.5	2	2	9	9
Air connection port CG	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/4
CX	51.5	51.5	51.5	60	60	87	93
CY	12	12	12	12	12	14	14
CZ	26	26	26	38	38	58	72
DD	32	32	32	38.5	38.5	63	69
Min. E	64	69	79	102	122	147	182
EE	49	56	62	76	86	115.5	134
F	28	30.5	36	55.5	70	87	115
FF	65.1	72.1	78.6	97.2	107.2	152.5	172.3
GG	15	15	15	21	21	32	38
H	78	81	91	110.5	125.5	150	181
HH	42	42	42	54	54	74	87
K	178	186	200	233	256	302	368
L	12	12	13	16	18	22	27
M	166	174	187	217	238	280	341
Standard sliding stroke	50, 75, 100, 125, 150			50, 75, 100, 125, 150, 200		50, 75, 100, 125, 150, 200, 250, 300	
MM	108.5	108.5	108.5	119	119	164	170
N	7	7	7.5	9	10	11.5	14
PA	86	89	99	118.5	133.5	159	192
PB	72	77	80	90.5	96.5	112	138
Projection length of T-leg allowance at clamped condition Q	13	13	18	27.5	33.5	38	50
R	59.3	73.3	85.3	105.7	125.7	152.3	178.8
RR	50	60	70	90	110	136	171
S	16	22	27	35	45	55	65
T	46	49	58	71	91	103	135
UU	M5	M5	M5	M8	M8	M12	M16
W	9.5	9.5	9.5	9.6	9.6	17	17.9
x	40	47	53	64	74	95	111
y	18	18	18	24	24	41	46
Full stroke X	3	3	3	3.8	3.8	4.2	5
Clamping stroke Y	1	1	1	1.2	1.2	1.2	1.2
Safety stroke Z	2	2	2	2.6	2.6	3	3.8
Min. a	10	12	14	16	20	23	28
Min. A	9	11	13	15	18.5	21.5	26.5
Min. j	8	9	11	13	15	17	20
4 Min. h	20	25	30	30	35	40	40

Air clamp, automatic slidable type TLC-Z/R

- In case of newly machining T-slot, refer to **page → 67**.
- Height of lever F varies according to the dimension of h.
- In case of smaller than the minimum h dimension, it is **Clamp lever low distance type**.
- The tolerance of mold plate thickness h shall be ±0.3mm.
- Hex socket cap plug to be provided for air connectoin ports. (2 pcs)
- A flow control valve is not necessary in the air circuit.
- Contact Pascal for the sliding stroke which is not mentioned above.

2 Proximity switch (OMRON)

Proximity switch symbol	0	1	2	3
Switch model	2-Wire DC E2E-X7D1-N	3-Wire DC E2E-X5E1	2-Wire AC E2E-X5Y1	3-Wire DC E2E-X5F1
Supply voltage V	DC10 ~ 30	DC10 ~ 40	AC20 ~ 264	DC10 ~ 40
Leakage current mA	0.8 and under	No	1.7 and under	No
Current consumption mA	No	13 and under	No	13 and under
Control output (Switching capacity) mA	3 ~ 100	200	5 ~ 300	200

- Operating temperature : 0 ~ 70°C
- Insulation vinyl cable length : 5m (Oil proof type, 0.5mm²)
- When using Pascal control box, 3-wire DC type (1) shall be delivered.

Auto switch (SMC)

Switch model	D-B54L		
Load voltage V	DC24	AC100	AC200
Range of load current mA	5 ~ 50	5 ~ 25	5 ~ 12.5

- Operating temperature : 0 ~ 70°C
- Insulation vinyl cable length : 3m (Oil proof type, 0.3mm²)

It enables the clamp to slide it manually even if machine platens do not have T-slots.

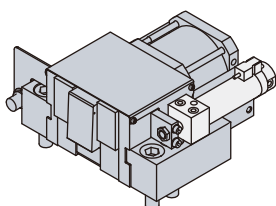
Air clamp, T-slot-less
slidable type **TLA-M**



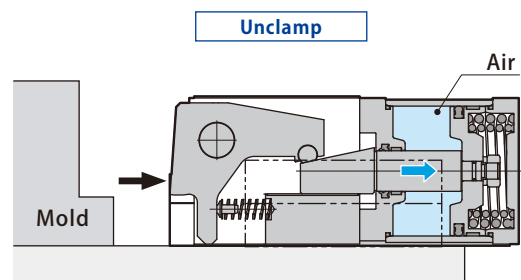
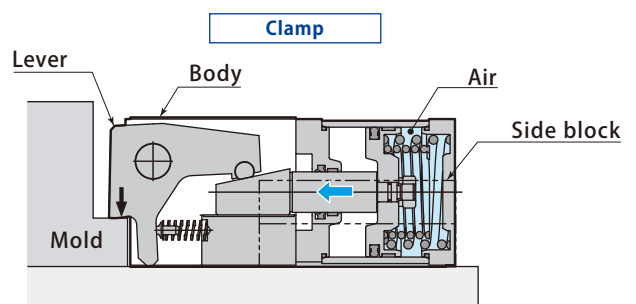
400kN (40ton) Vertical IMM Air clamp, T-slot-less slidable type TLA-M



model **TLA-M**



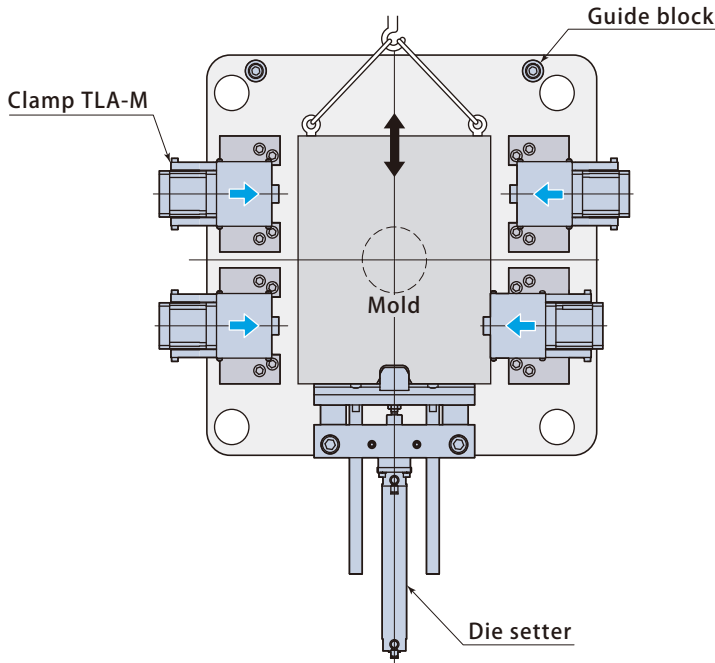
There is also an automatic slidable model with an air cylinder.
Please contact Pascal for the details.



The clamp lever is **not retracted** back in the body at time of unclamping.
Forward and backward of the clamp itself is manual.

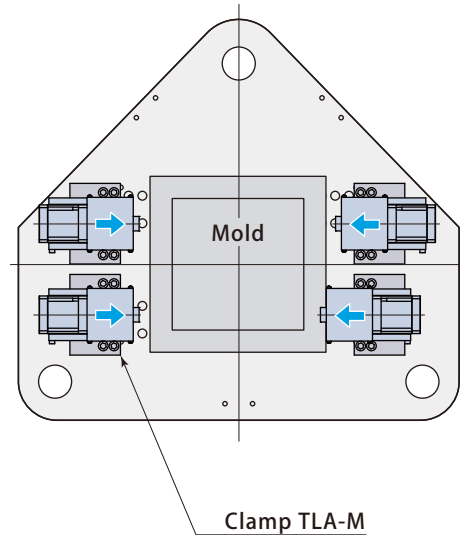
TLA-M & Die setter

IMM vertical loading



TLA-M

Vertical IMM



Air clamp, T-slot-less slidable type **TLA-M**

■ Model designation

■ Option

TLA 025 M — □

- 1 Holding force
- 4 Mold plate thickness h dimension (mm) **page → 62**

E0 ~ E3 With mold detection proximity switch

S Low distance clamp type

V Heat proof type

1 Specifications

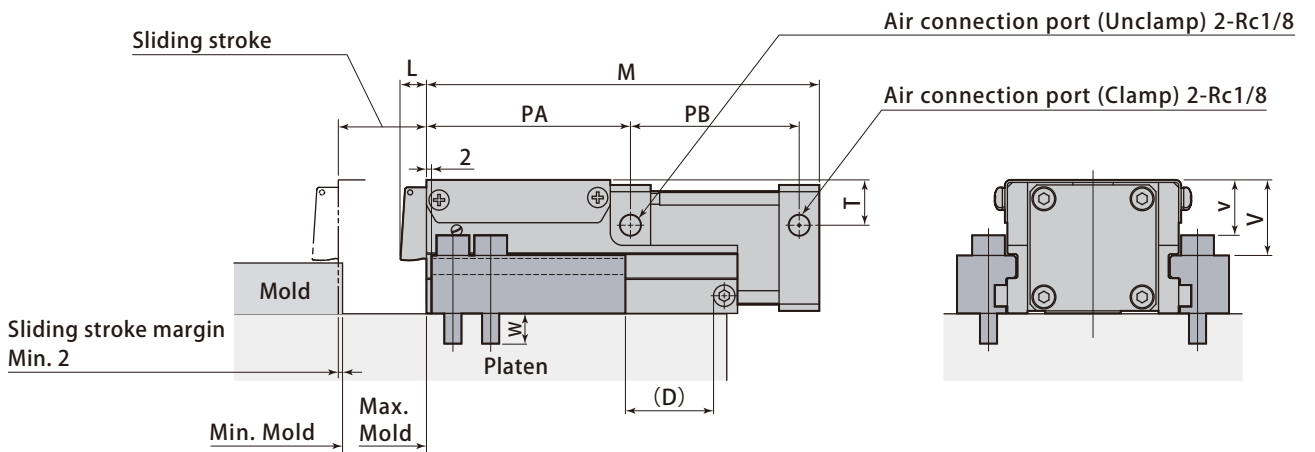
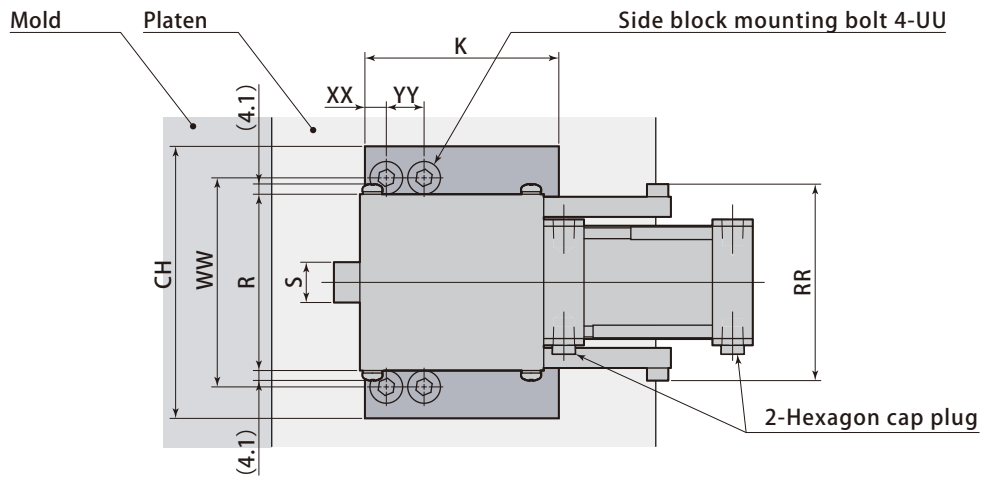
Model		TLA010M	TLA016M	TLA025M	TLA040M	TLA063M
Holding force	At air pressure 0.49 MPa	kN 9.8	15.6	24.5	39.2	61.7
	At air pressure 0.39 MPa	kN 9.8	15.6	24.5	39.2	61.7
	At no air pressure (0MPa)	kN 3.92	6.17	9.8	15.6	24.5
Clamping force	At air pressure 0.49 MPa	kN 3.92	6.17	9.8	15.6	24.5
Residual clamping force	At no air pressure (0MPa)	kN 2.94	4.9	7.84	11.7	19.6
Full stroke		mm 2.7	2.7	2.8	3.2	3.2
Clamping stroke		mm 1	1	1	1.2	1.2
Safety stroke		mm 1.7	1.7	1.8	2.0	2.0
Standard sliding stroke		mm 35	40	50	60	75
Cylinder capacity	Clamp	cm ³ 27	46	79	148	234
	Unclamp	cm ³ 34	52	85	160	258
Operating air pressure	MPa	0.39 ~ 0.49				
Proof pressure	MPa	0.68				
Operating temperature	°C	0 ~ 70 (5 ~ 120 by heat proof type)				
Weight	kg	3.1	4.8	7.4	14.3	25.4

● Residual clamping force : the clamping force when air pressure drops to zero after clamp is clamped the mold at air pressure 0.49MPa.

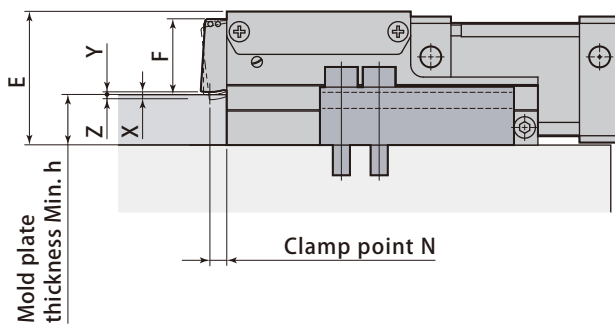
● Refer to **page → 67** for the details of cutout dimensions on mold.

Dimensions

Unclamp



Clamp

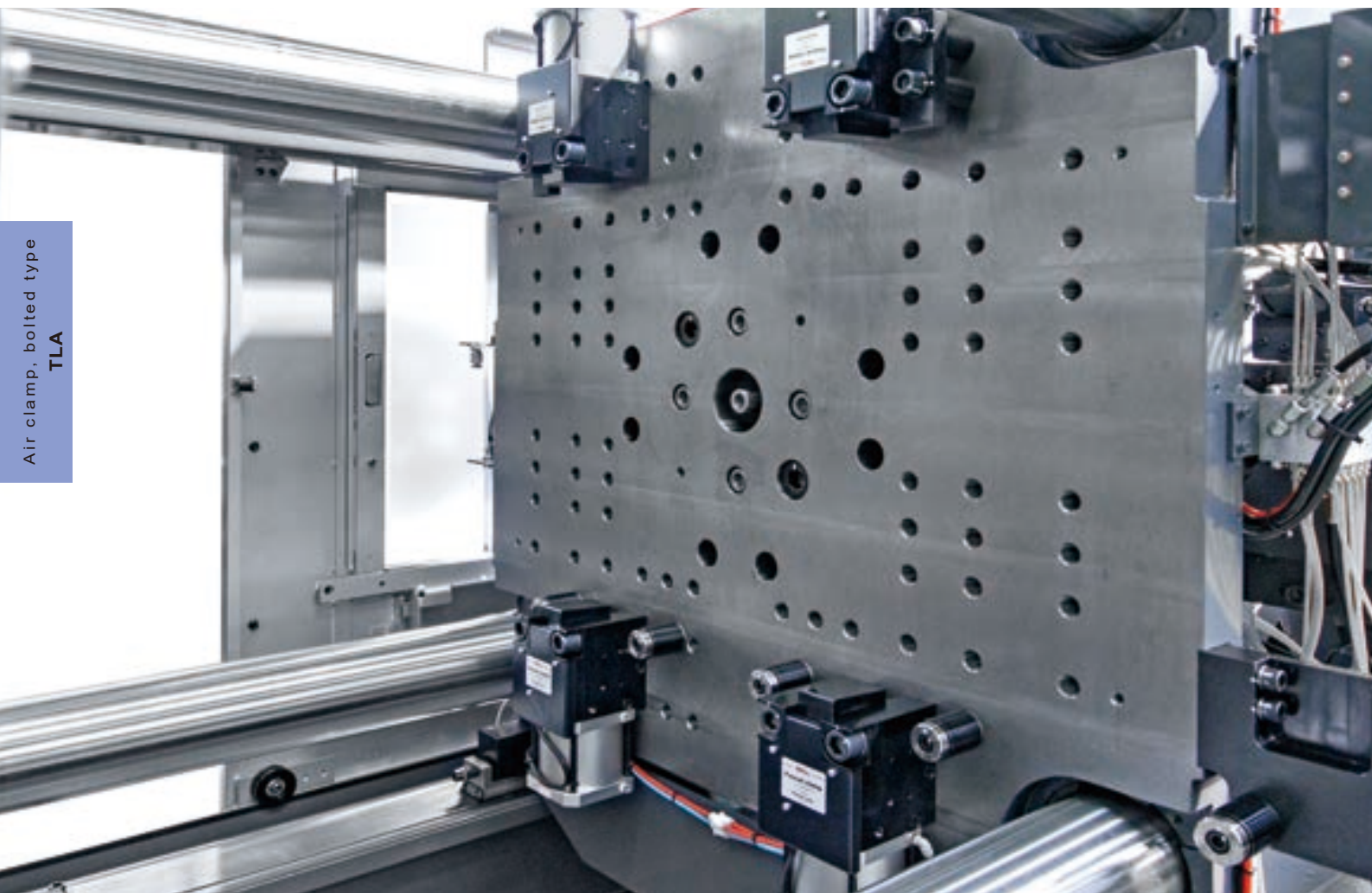


Air clamp, T-slot-less slidable type **TLA-M**

mm					
Model	TLA010M	TLA016M	TLA025M	TLA040M	TLA063M
CH	100	128	150	172	237
Min. E	53	62	72	92	112
F	30	33	38	58	73
K	77	85	94	118	136
L	10	11	11	15	16
M	156	161	175	200	227.5
N	7	7	7.5	10	10.7
PA	81	83	94	110	124.5
PB	67	70	73	82	87.5
R	70	82	98	124	154
RR	78	90	108	138	168
S	16	22	27	35	45
T	18	19	20	30	30
UU	M8	M10	M12	M14	M20
V	30	35.5	38.5	48	54
v	22	25.5	26.5	34	34
W	12	13.5	16.5	21	27
WW	83	98	116	145	190
XX	8.5	10	12	13	18
YY	15	18	20	26	36
Full stroke X	2.7	2.7	2.8	3.2	3.2
Clamping stroke Y	1	1	1	1.2	1.2
Safety stroke Z	1.7	1.7	1.8	2	2
4 Min. h	20	25	30	30	35

- Hex socket cap plug to be provided for air connection ports. (2 pcs)
- A flow control valve is not necessary in the air circuit.
- WW, XX, YY varies according to the installed position of clamp.
- The dimensions varies in case the clamp with **mold detection prox.switch** and **automatic slidable type**. Please contact Pascal later.

It is the clamp with safety and high reliability, which does not lose holding force because of the strong spring and special wedge mechanism even at time of zero air pressure.

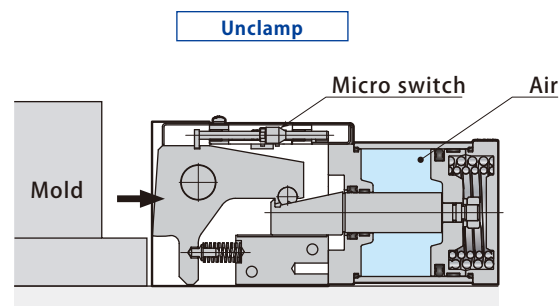
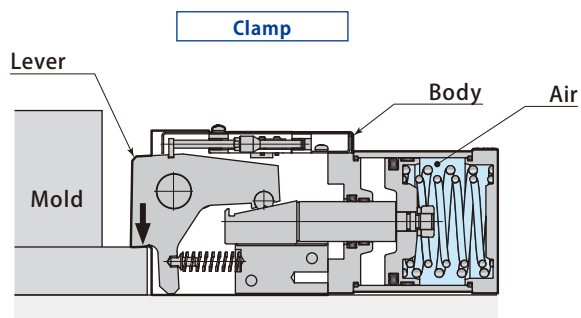


Air clamp, bolted type
TLA

3,500kN (350ton) IMM horizontal loading Air clamp, bolted type TLA



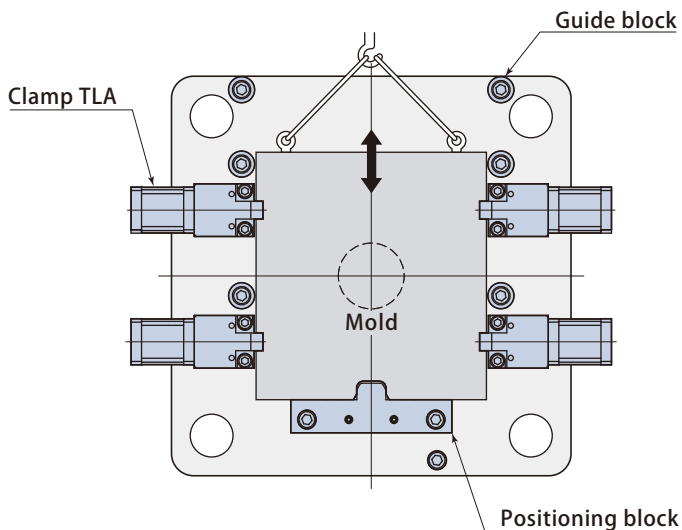
model TLA



At time of unclamping, the lever is retracted back in the body and it does not interfere in loading/unloading the mold.

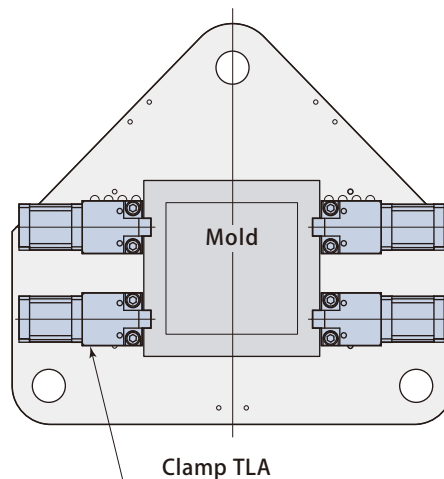
TLA & Positioning block

IMM vertical loading



TLA

Vertical IMM



Air clamp, bolted type
TLA

■ Model designation

TLA 040 — □

- 1 Holding force
- 4 Mold plate thickness h dimension (mm) **page → 66**

■ Option

- S** Low distance clamp type
- V** Heat proof type

1 Specifications

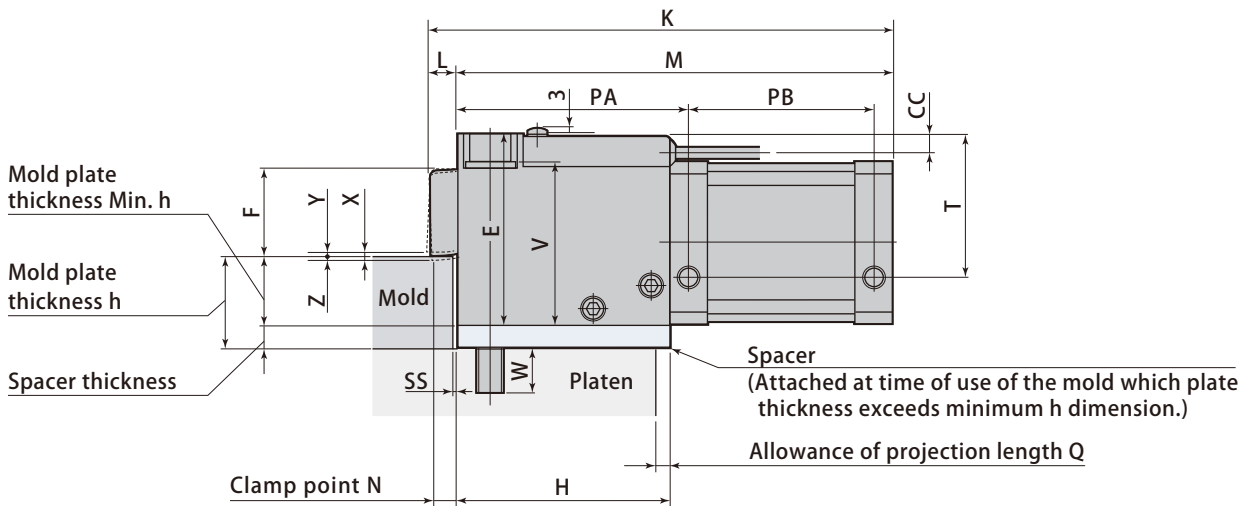
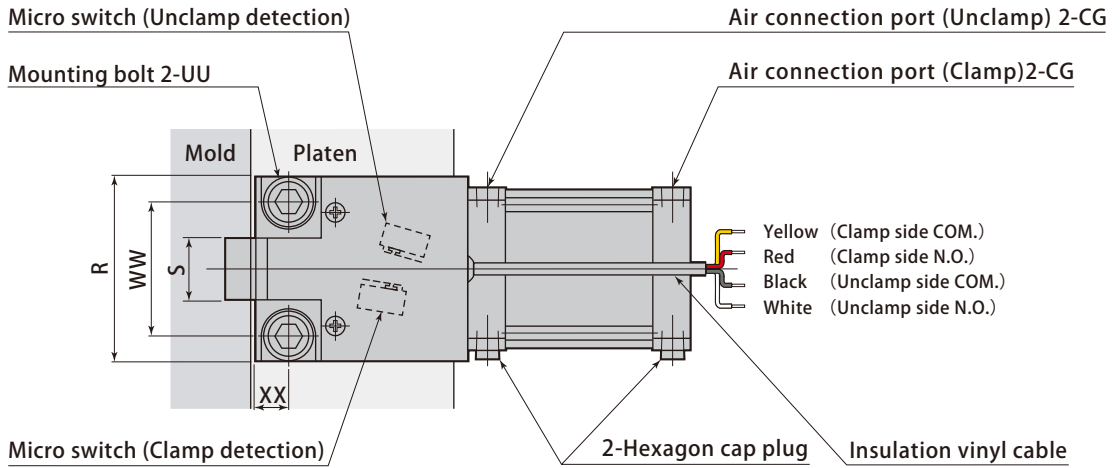
Model		TLA010	TLA016	TLA025	TLA040	TLA063	TLA100	TLA160	TLA250	
Holding force	At air pressure 0.49 MPa	kN	9.8	15.6	24.5	39.2	61.7	98	156	245
	At air pressure 0.39 MPa	kN	9.8	15.6	24.5	39.2	61.7	98	156	245
	At no air pressure (0MPa)	kN	3.92	6.17	9.8	15.6	24.5	39.2	61.7	98
Clamping force	At air pressure 0.49 MPa	kN	3.92	6.17	9.8	15.6	24.5	39.2	61.7	98
Residual clamping force	At no air pressure (0MPa)	kN	2.94	4.9	7.84	11.7	19.6	31.3	49.0	78.4
Full stroke		mm	2.2	2.2	2.2	2.6	2.6	2.8	3.0	3.4
Clamping stroke		mm	1	1	1	1.2	1.2	1.2	1.2	1.4
Safety stroke		mm	1.2	1.2	1.2	1.4	1.4	1.6	1.8	2
Cylinder capacity	Clamp	cm ³	43	70	115	219	350	607	1116	1993
	Unclamp	cm ³	39	63	104	197	318	560	1046	1869
Operating air pressure	MPa	0.39 ~ 0.49								
Proof pressure	MPa	0.68								
Operating temperature	°C	0 ~ 70 (5 ~ 120 by heat proof type)							0 ~ 70	
Weight	kg	2.3	3.2	4.2	7.8	13	25	43	85	

- Residual clamping force : the clamping force when air pressure drops to zero after clamp is clamped the mold at air pressure 0.49MPa.
- Refer to **page → 67** for the details of cutout dimensions on mold.

Dimensions

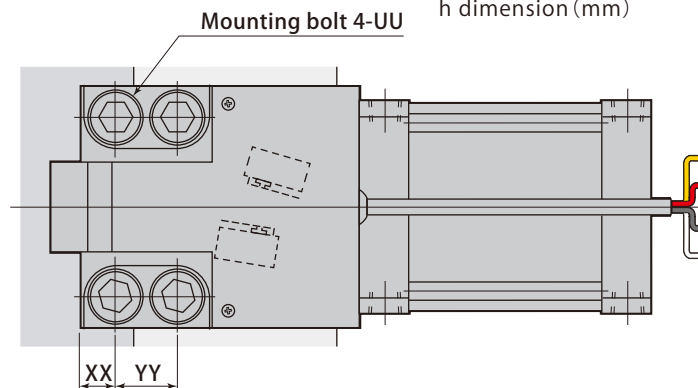
TLA 010 ~ 100-□

Mold plate thickness
h dimension (mm)



TLA 160 / 250-□

Mold plate thickness
h dimension (mm)



Air clamp, bolted type
TLA

	mm							
Model	TLA010	TLA016	TLA025	TLA040	TLA063	TLA100	TLA160	TLA250
Air connection port CG	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/4	Rc1/4
CC	8	8	8	8	8	8	8	8.5
Min. E	65	73	83	103	123	148	184	224
F	30	32	38	57	72	93	102	129
H	78	81	91	110.5	125.5	150	181	221
K	176.3	186	200	232	254	298.4	361.7	435.2
L	10.3	12	13	15	16	18.4	21.7	25.2
M	166	174	187	217	238	280	340	410
N	7	8	9	10	11	12	14	16
PA	86	89	99	118.5	133.5	159	191	235
PB	72	77	80	90.5	96.5	113	138	160
Allowance of projection length Q	28	13	1	36.5	39.5	20	1	1
R	54	68	80	100	120	146	170	210
S	16	22	27	35	45	55	65	75
SS	2	2	3	3	3	3	3	3
T	48	54	62	73	93	105	137	167
UU	M8	M10	M12	M16	M20	M24	M24	M30
V	57	63	71	87	103	124	160	194
W	13 ~ 18	17 ~ 22	19 ~ 24	23 ~ 28	32 ~ 37	36 ~ 41	40 ~ 45	46 ~ 51
WW	33	50	58	72	86	105	128	158
XX	8	12	14	18	21	25	25	31
YY	-	-	-	-	-	-	45	55
Full stroke X	2.2	2.2	2.2	2.6	2.6	2.8	3	3.4
Clamping stroke Y	1	1	1	1.2	1.2	1.2	1.2	1.4
Safety stroke Z	1.2	1.2	1.2	1.4	1.4	1.6	1.8	2
4 Min. h	20	25	30	30	35	40	40	50

- The tolerance of mold plate thickness h shall be ± 0.3 mm.
- Use the mounting bolts from the following strength classification.
TLA010 ~ 063 : 12.9
TLA100 ~ 250 : 10.9
- Hex socket cap plug to be provided for air connection ports. (2 pcs)
- A flow control valve is not necessary in the air circuit.
- The dimension W varies according to dimension h and length of mounting bolt.

Micro switch specifications (AZBIL)

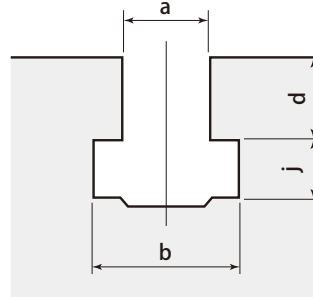
Micro switch model	SSM33A1	
Rated voltage	V	AC250 DC30
Rated energizing current (Resistive load)	A	2 2

- Insulation vinyl cable length : 3m (Oil proof type, 0.5mm²)

T-slot, Cutout details and Clamp area details

- Process with the below dimension in case of machining T-slot newly.

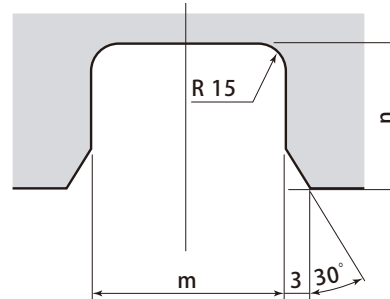
Recommended T-slot dimension



IMM	Mold clamping force	kN	~500	~1000	~1500	~2000	~3500	~5500	~6500	~8500	~13000	~30000	~35000
	Mold opening force	kN	40	80	100	160	250	400	640(400)	640	1000	1600	2000
T-slot dimension	a	mm	18 ^{+0.5} ₀		22 ^{+0.5} ₀		28 ^{+0.5} ₀		32 ^{+0.5} ₀				—
	b	mm	30 ⁺² ₀		37 ⁺³ ₀		46 ⁺⁴ ₀		53 ⁺⁴ ₀				—
	d	mm	18 ^{±0.2}		22 ^{±0.2}		28 ^{±0.2}		28 ^{±0.2}				—
	j	mm	12 ⁺² ₀		16 ⁺² ₀		20 ⁺² ₀		24 ⁺² ₀				—

- Mold plate should be machined referring to the dimensions shown below in case the mold is positioned by the block.

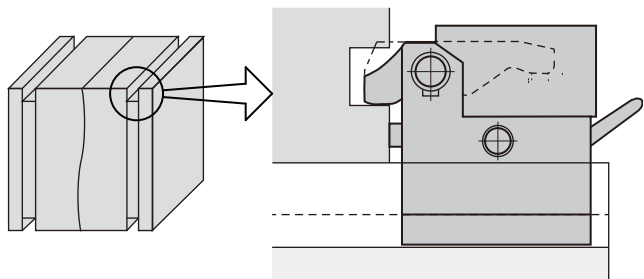
Cutout details



IMM	Mold clamping force	kN	~500	~1000	~1500	~2000	~3500	~5500	~6500	~8500	~13000	~30000	~35000
	Mold opening force	kN	40	80	100	160	250	400	640(400)	640	1000	1600	2000
Cutout details	m	mm		30 ^{+0.10} ₀		45 ^{+0.10} ₀	60 ^{+0.12} ₀	100 ^{+0.14} ₀				140 ^{+0.16} ₀	
	n	mm		30		30	35	40				45	

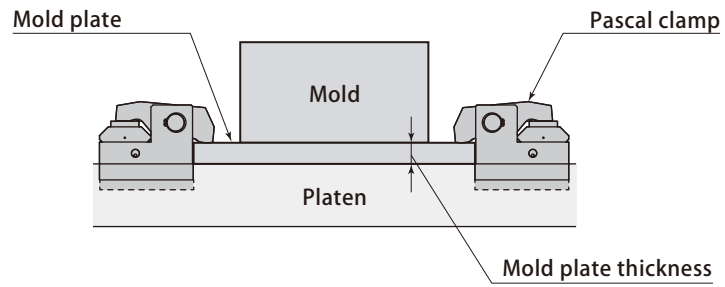
- To accommodate the clamp to the die as shown on the right, Pascal can provide a special designed clamp lever with the clamp. Contact Pascal for the details.

Clamp area details

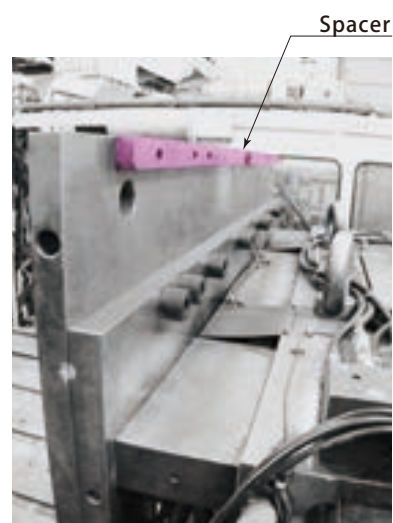
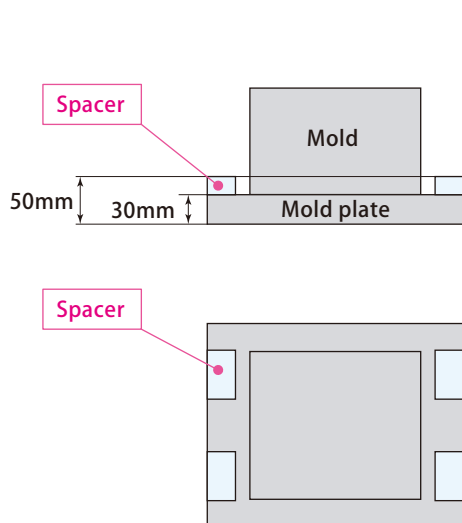
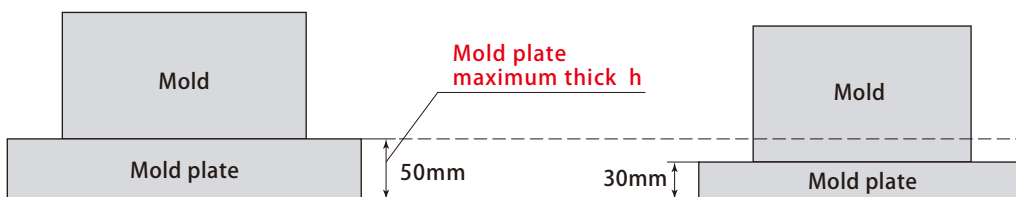


Unification of thickness of mold plate

The introduction of hydraulic and air clamp requires unification of thickness of mold plate.



In case that the thickness of mold plate is not unified, standardize **the maximum thick dimension h** and add the **spacer** at the clamp point.

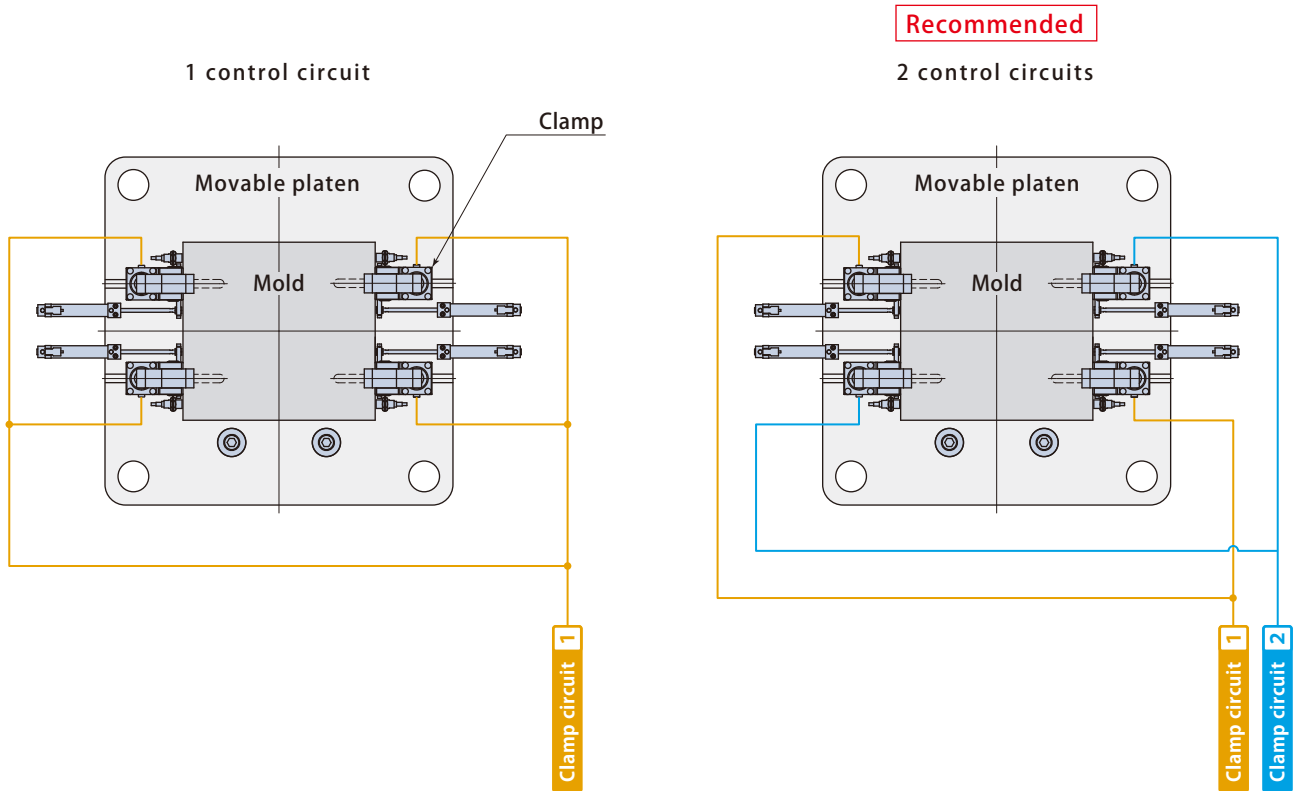


● Please contact for the details.

Addition of the hydraulic circuit

2 control circuits are recommended for clamp circuit on the movable platen.

The mold fall can be prevented with 2 control circuits, even if the pressure decreases in either one of 2 circuits.



Use of the block for mold fall protection (Vertical loading)

Use of the block for mold fall protection is recommended on the movable side.

The mold fall to the underside can be prevented with the block, even if the pressure decreases and clamping force is loosened.

