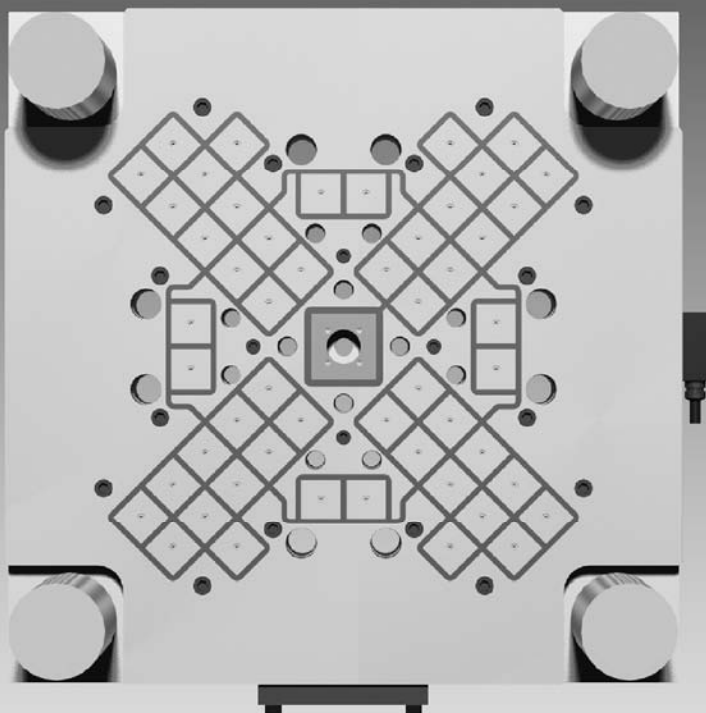


Pascal mag clamp

Magnetic mold clamp model **MGA**

DATA SHEET



Pascal
corporation

www.pascaleng.co.jp

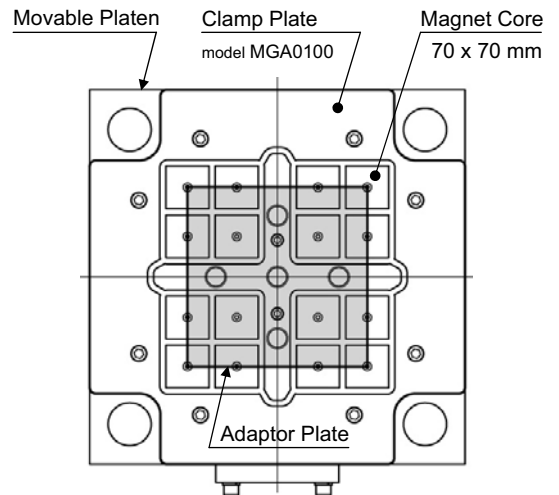
Calculation of Fixing Force

Calculation of Rated Fixing Force

The fixing force of MAG clamp (the adhering force of magnetic clamp) varies according to the area size (number of magnet core) where the adaptor plate and clamp plate contact. When loading a small mold of which adaptor plate does not contact all the magnet cores, you are requested to work out the rated fixing force by referring to below example.

EXAMPLE : Clamp Plate model MGA0100 (Movable side)

1. Magnet cores that the adaptor plate contacts with its entire area = 4 pcs
2. Magnet cores that the adaptor plate contacts with 1/2 of its area = 8 pcs
3. Magnet cores that the adaptor plate contacts with 1/4 of its area = 4 pcs
4. Total magnet cores that the adaptor plate contacts
= 4 pcs + 8 pcs X 1/2 + 4 pcs X 1/4 = 9 pcs
5. Fixing force per magnet core
= 7.35 kN/pcs (refer to the table on the next page)
6. Rated fixing force = 7.35 kN/pcs X 9 pcs = 66.15 kN



REMARK

- (1) If there is a hole or notch at the bottom of adaptor plate, reduce the respective area from the total contact area (number of magnet core).
- (2) The actual fixing force may be lower than the rated capacity according to the conditions of adaptor plate. Refer to Decline of Fixing Force at below. Prior to the actual operation, be sure to read the operation manual for further details

Decline of Fixing Force

According to the conditions of adaptor plate for the mold, the actual force may become lower than the rating. Before using MAG clamp, be certain to calculate and acknowledge the decline of fixing force according to the below tables and charts. And be sure to use in the strict condition that the actual fixing force is larger than the mold opening force of injection molding machine.

$$(\text{Actual Fixing Force}) = (\text{Rated Fixing Force} - \text{Reduced Force}) \geq (\text{Mold Opening Force of Injection Molding Machine})$$

If the actual fixing force is calculated as short, replace the adaptor plate with the larger one to enlarge the contact area.

Material of Adaptor Plate

Material	Fixing Force
SS400 S55C S45C-H	100% (Rated)
S45C	95%
SK3 SUJ	85%
SUS430 FCD250 FCD600	80%
SKH51 SKD11	70%

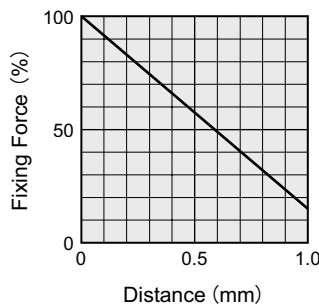
As shown above, type of material of adaptor plate significantly affects the fixing force.

Surface of Adaptor Plate

Surface Roughness	Fixing Force
▽▽▽ (Rz1.6~3.8)	100% (Rated)
▽▽ (Rz7.5~15.5)	Approx. 100%
▽ (Rz85~150)	Approx. 90%

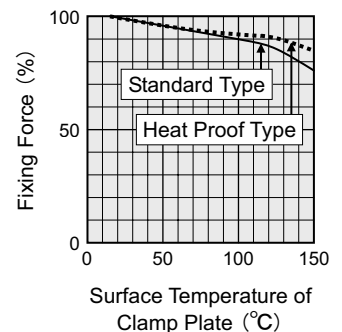
As shown above, surface roughness of adaptor plate decrease the fixing force.

Distance between two plates



A dent or deformation of the adaptor plate creates a distance to the clamp plate, which will decrease the fixing capacity significantly.

Temperature of Adaptor Plate



If the temperature of adaptor plate becomes too high, the fixing force significantly decreases. Be sure to use by keeping the temperature below 80 °C. (For details, refer to instruction manual)

Model and Specifications

Clamp Plate Model	Clamp Force of Injection Molding Machine	Fixing Force ※1		Thickness of Clamp Plate	Mass of Clamp Plate		Voltage Capacity ※2	Time Required for Energization ※3	
		Movable Side	Stationary Side		Movable Side	Stationary Side			
		kN	kN		kg	kg			kVA
MGA0020S	200	22	22	34	32	32	15	0.5	
MGA0030S	300 ~ 350	34	29		39	38	15	0.5	
MGA0050S	400 ~ 550	41	39		50	50	30	0.5	
MGA0055S	400 ~ 550	41	39		49	48	30	0.5	
MGA0060S	600	41	39		45	44	30	0.5	
MGA0080S	750 ~ 800	55	69		61	60	40	0.5	
MGA0100S	1000 ~ 1100	78	78		83	82	40	0.5	
MGA0130S	1200 ~ 1300	110	103		96	95	40	0.5	
MGA0150S	1400 ~ 1500	123	118		123	120	40	0.5	
MGA0050	500 ~ 600	59	59		50	72	69	15	0.5
MGA0080	750 ~ 850	88	88	91		88	15	0.5	
MGA0100	1000 ~ 1200	118	88	122		119	30	0.5	
MGA0130	1300	118	118	140		138	30	0.5	
MGA0140	1300	133	118	138		138	30	0.5	
MGA0150	1400 ~ 1600	147	147	177		179	30	0.5	
MGA0160	1400 ~ 1600	192	147	189		190	30	0.5	
MGA0180	1700 ~ 1800	176	176	201		197	30	0.5	
MGA0190	1700 ~ 1800	192	176	201		201	30	0.5	
MGA0230	2200 ~ 2300	221	206	236		238	40	0.5	
MGA0250	2500 ~ 2600	251	235	269		270	40	0.5	
MGA0280	2800 ~ 3000	251	265	292		294	40	0.5	
MGA0350	3500 ~ 3600	310	314	350		361	40	1.5	
MGA0450	4500	398	408	52		473	478	40	1.5
MGA0550	5500	427	439			535	540	40	1.5
MGA0650	6500	545	533		654	669	45	1.5	
MGA0850	8500	633	690		823	839	45	2.0	
MGA1050	10000 ~ 10500	809	815		1036	1049	45	2.0	
MGA1300	13000	927	1004		1155	1177	45	3.0	
MGA1600	14000 ~ 16000	1176	1160		1434	1428	80	2.0	
MGA2000	18000 ~ 20000	1264	1317		1964	1958	80	2.0	
MGA2500	22000 ~ 25000	1558	1505		1964	1958	100	3.0	
MGA3000	28000 ~ 30000	1793	1788		2262	2260	100	4.5	

※1 : Total fixing force per clamp plate with the condition that the adaptor plate is contacting all the magnet cores.

※2 : At AC200V/AC220V of primary power source. In case of AC380V, AC440V or AC480V, refer to the specification check sheet.

※3 : Time required to clamp or unclamp the mold for each side of clamp plate. Double energization for stationary and movable side can not be done at the same time.

Time required subject to vary according to voltage. In case of AC380V, AC440V or AC480V, refer to the specification check sheet.

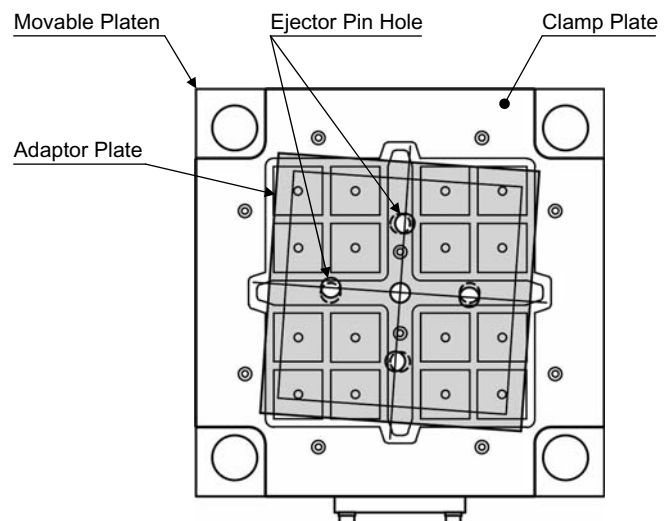
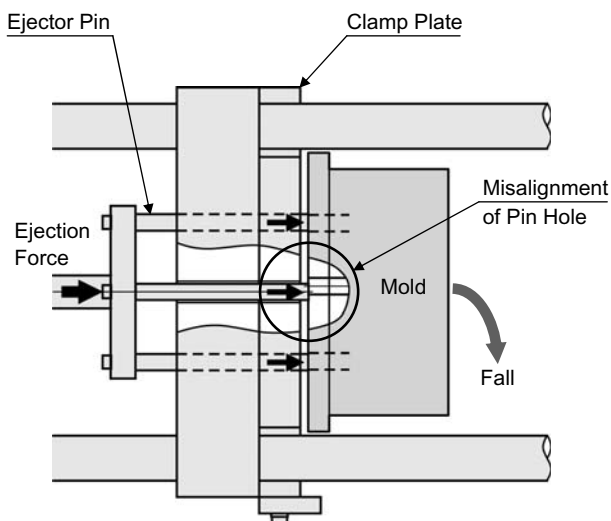
Fixing Force Per Magnet Core

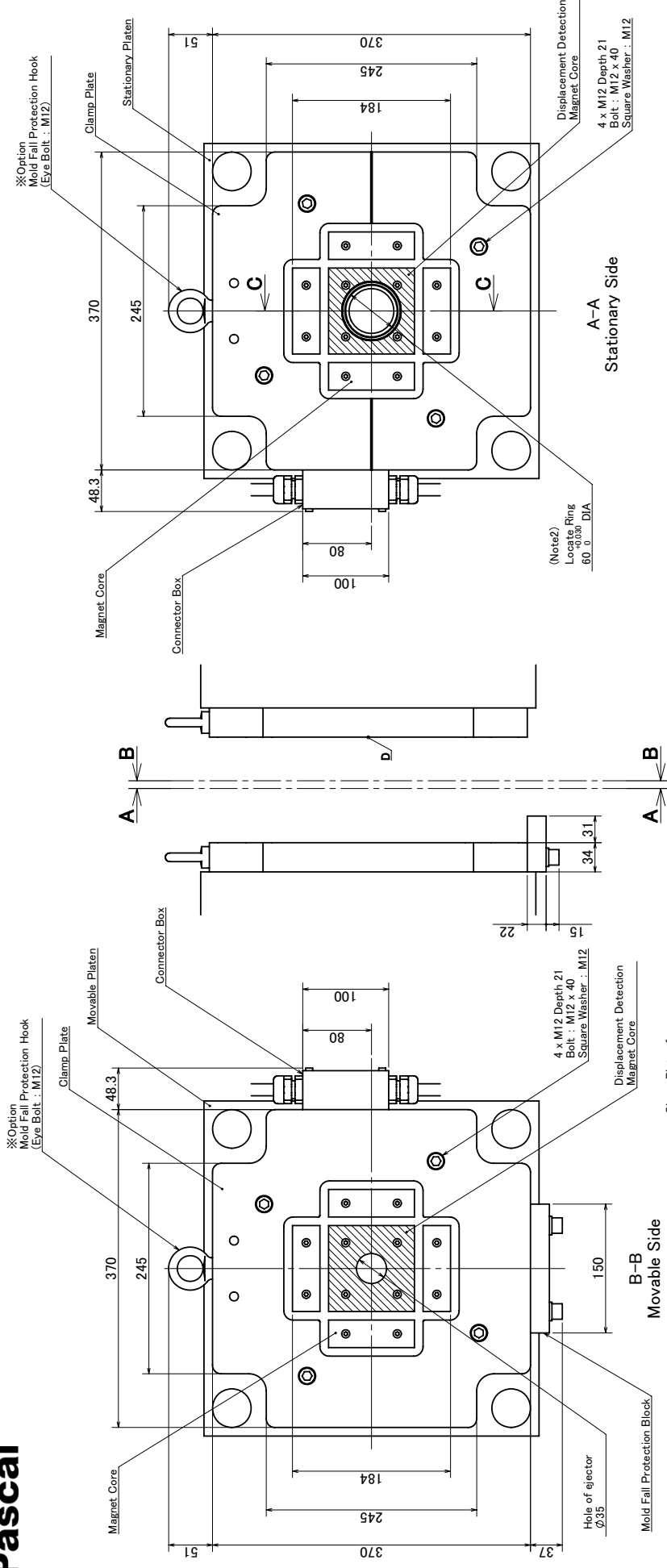
Size of Magnet Core	50 x 50 mm	32 x 100 mm	70 x 70 mm	75 x 75 mm	100 x 100 mm	115 x 115 mm
Fixing Force (Approx.)	2.45 kN	3.43 kN	7.35 kN	7.84 kN	7.84 kN	15.68 kN

As to the size and number of the magnet core used for each clamp plate model, refer to the following clamp plate drawings.

⚠ Caution in Use

- MAG Clamp generates a powerful magnetism. The person who is wearing a cardiac pacemaker is strictly prohibited to approach. Projecting height of magnetic flux above the clamp plate towards forward (to mold side) is just around 20 mm. However, be sure not to bring mobile phone, magnetic card or compact disc, etc. that are susceptible to magnetism close to the clamp plate to avoid a damage.
- Be sure to carry out a mold change work always under the condition that the mold is lifted with crane.
- Do not bring any magnetic substance such as ferrous metal close to the adherence surface when MAG clamp is magnetized (at clamping). Due to the power of magnet, it may be adhered to the clamp surface to cause injury to a finger or hand.
- The fixing force of MAG clamp (the adhering force of magnetic clamp) varies according to the area size (number of magnet core) where the adaptor plate and clamp plate contact. And the actual fixing force may be lower than the rated capacity according to the conditions of adaptor plate. Refer to Decline of Fixing Force separately shown for the details.
- Do not use a mold that is dented or deformed. If there is a gap between the adaptor plate and clamp plate, fixing force will decrease.
- Be sure to use MAG clamp by keeping the adherence surfaces of adaptor plate and clamp plate always clean. Water or oil would not cause a decrease of fixing capacity. However they will attract dusts or foreign substances, which may create a gap between the adaptor plate and clamp plate.
- Proof temperature of standard MAG clamp is up to 80°C. Do not use a mold of which contact surface becomes higher than that. If the mold becomes heated, cool it down immediately. Note that once the surface temperature of clamp plate exceeds 120°C, the fixing force will no longer be assured even at the normal temperature.
- Be sure to use an adaptor plate of which thickness is 25 mm or more. Although the projecting height of magnetic flux is around 20 mm, the following cautions should be considered when a adaptor plate is thinner than 25 mm.
 - (1) The fixing force may become decreased.
 - (2) The sensor which is easy to be influenced by magnetism has a possibility of malfunction.
 - (3) In case a moving parts is located within 25 mm above the mold displacement detection core, it may cause a malfunction of the mold displacement detection sensor.
- In the case of a mold which pushes out the molded parts with ejector pin, be sure to confirm that the length and hole position, etc. of ejector pin are correct. If wrong, the mold may be pushed out by ejector pin to fall. MAG clamp duly holds the mold even when the mold is declined. Set the mold with care so that the ejector pin and pin hole are well-aligned. For the confirmation of alignment, lift the mold and push and pull the ejector pin to check the smooth action.



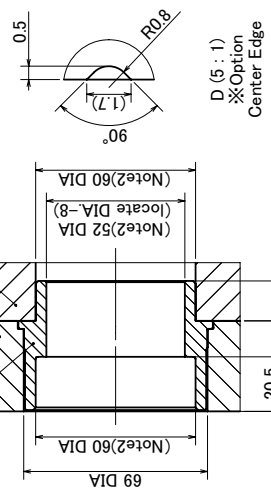


CLASS DEFINITION

MGA	0020	①	-	②	③	④	⑤	⑥	⑦	S	34		
①	Plate thickness (mm)	NIL: 50 (Exceed the size of MGA0450 becomes 52 mm)											
②	Diameter of Locate ring (mm)	1: 40	2: 60	9: Special (If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)									
③	Primary power source (V)	2: 200/220	3: 380	4: 440	5: 480								
④	Language on operation panel	J: Japanese E: English											
⑤	Working temperature range (°C)	NIL: 0~80 H: 0~150 U: 0~180											
⑥	Frost proof arrangement	NIL: not included N: Included											
⑦	Special specification	NIL: not included Drawing number: included											

[NOTE]

- Minimum daylight should be 105 mm.
- Locate ring can be corresponded with both hole size of mold and injection side to diameter 60 mm. Ring size shown in drawing is diameter 80 mm. In other case of ring size is used it should be changed to the dimension (Note2).
- Option (if any) should be specified on the confirmation sheet at the time of order.



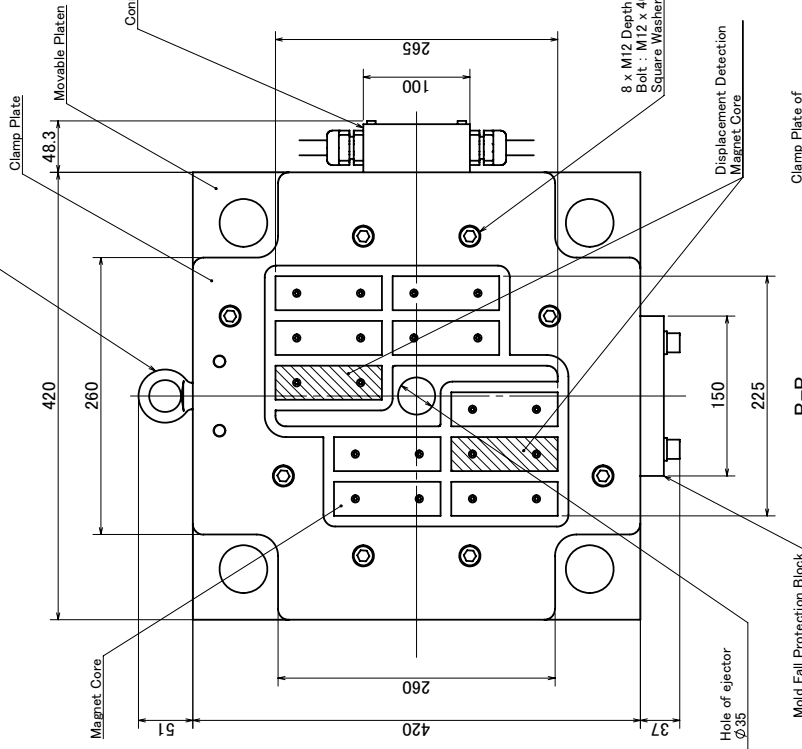
Details of locating

C-C (1: 2)

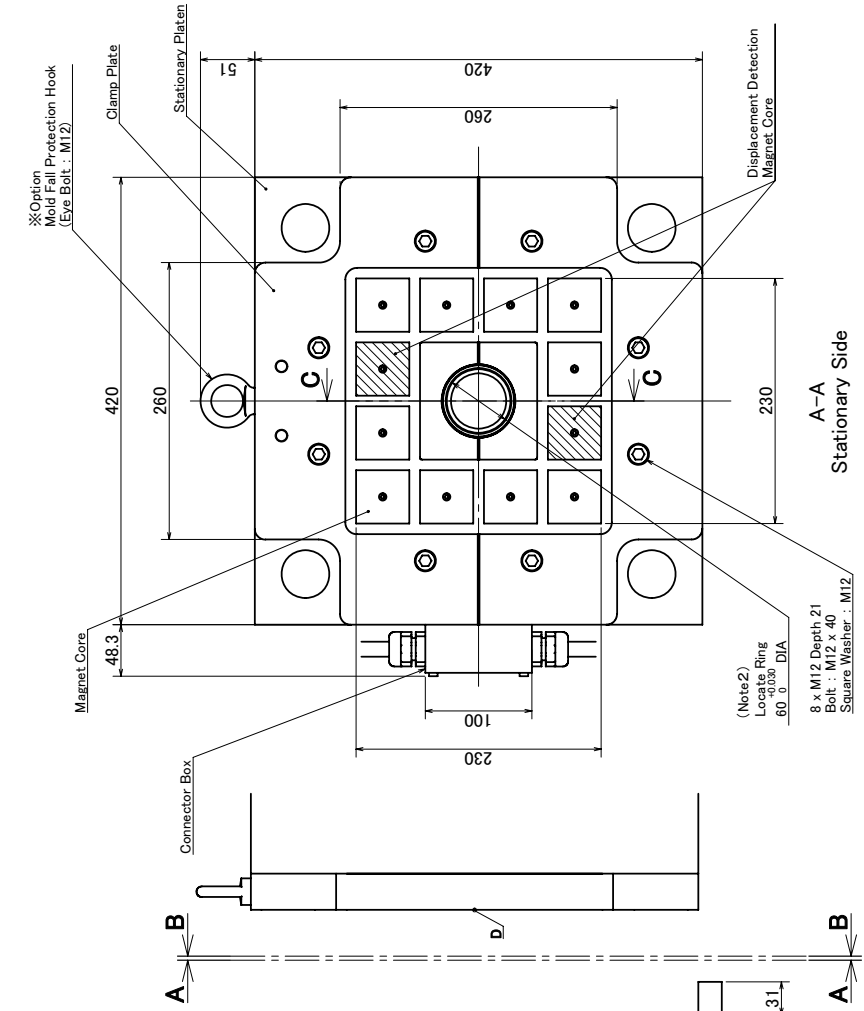
Type	Movable Side	Stationary Side
Number of Magnet Core	1	1
Maximum Clamping Force	4	4
Mass of Plate	22kN	22kN
Accessories	32kg	32kg
Mourning Bolt	M12x40	
Applied Mold Clamping Force	4	200kN

SCALE	1:5	DESIGNED BY	04118	MODEL	MGA0020S	NAME	Mag Clamp Layout	DWG.NO.	3MGAB43000	FILE.NO.	MGAB4300.sldrw
REVISION HISTORY											
STANDARD											

※Option
Mold Fall Protection Hook
(Eye Bolt : M12)



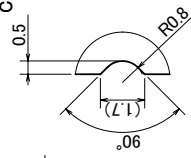
B-B
Movable Side



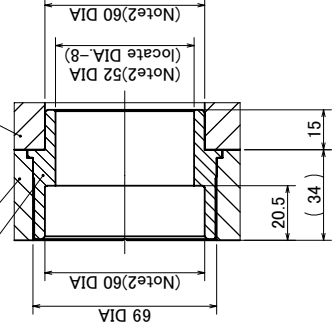
A-A
Stationary Side

CLASS DEFINITION

①	Plate thickness (mm)	NIL: 50 (Exceed the size of MGA0450 becomes 52 mm)	S: 34
②	Diameter of Locate ring (mm)	1: 40 2: 60 9: Special (If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)	
③	Primary power source (V)	2: 200/220 3: 380 4: 440 5: 480	
④	Language on operation panel	J: Japanese E: English	
⑤	Working temperature range (°C)	NIL: 0~80 H: 0~150 U: 0~180	
⑥	Rust proof arrangement	NIL: not included N: included	
⑦	Special specification	NIL: not included	Drawing number: included



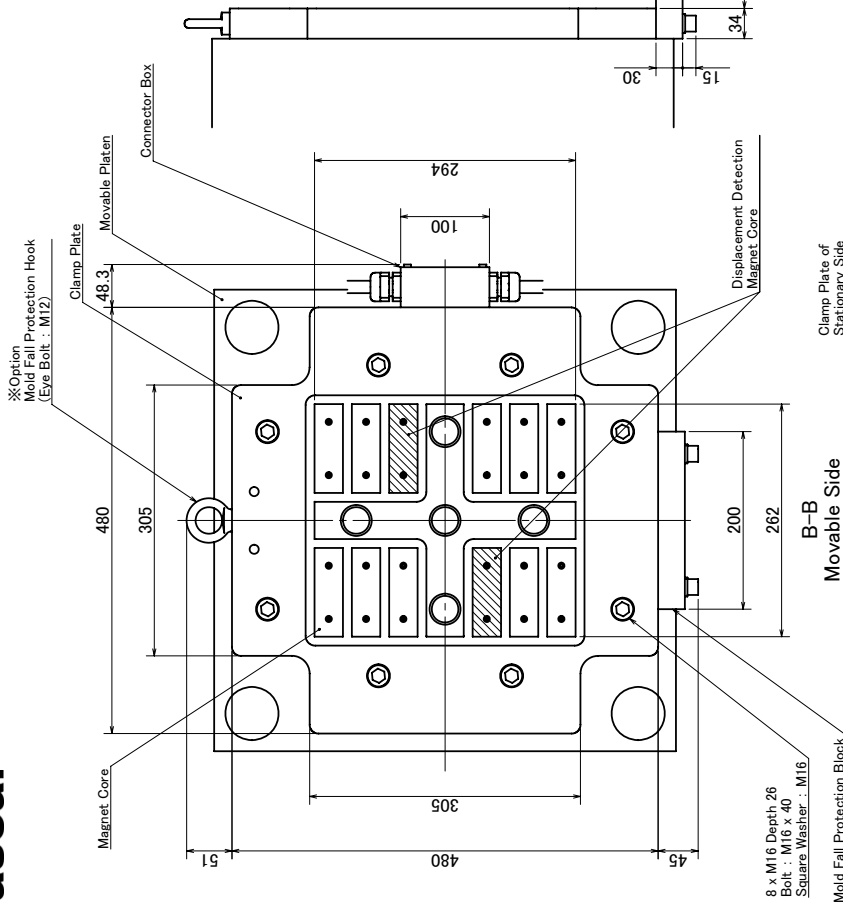
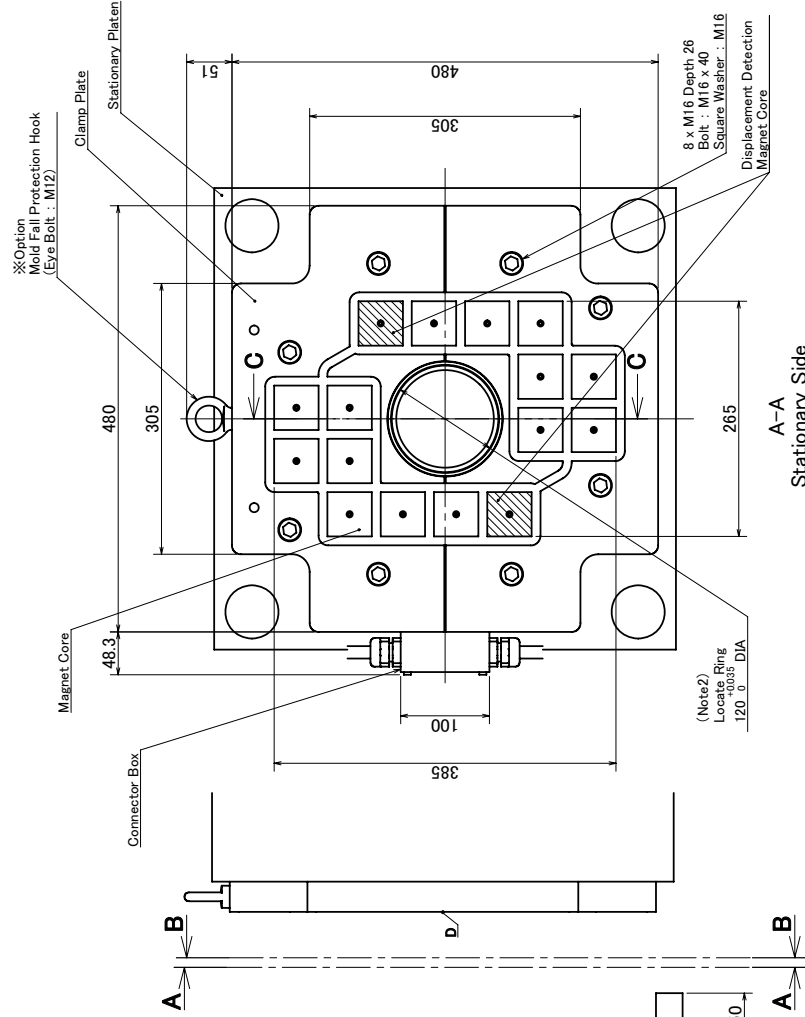
D (5 : 1)
※Option
Center Edge



C-C (1 : 2)
Details of locating

Type	Movable Side	Stationary Side
Number of Magnet Core	50 mm square 32mm x 100mm	12
Maximum Clamping Force	34kN	29kN
Mass of Plate	39kg	38kg
Accessories		
Mounting Bolt	M12x40	8
Applied Mold Clamping Force		300~350 kN

- [NOTE]
- Minimum daylight should be 105 mm.
 - Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 60 mm. Ring size shown in drawing is diameter 60 mm. In other case of ring size is used, it should be changed to the dimension (Note2).
 - Option (if any) should be specified on the confirmation sheet at the time of order.

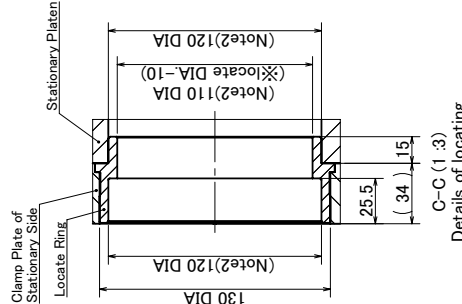
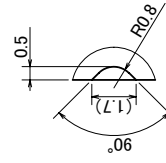


CLASS DEFINITION

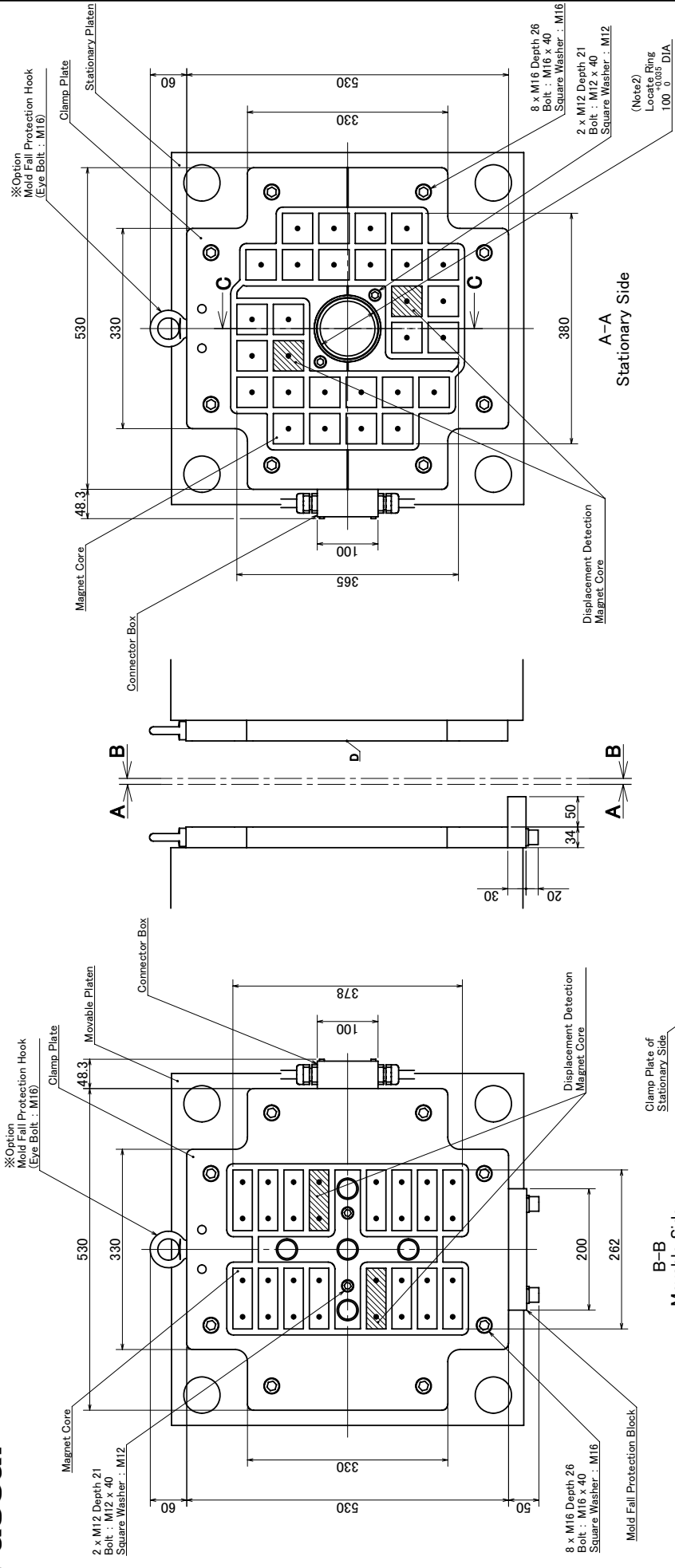
MGA	0060	①	②	③	④	⑤	⑥	⑦	S	34	
①	Plate thickness (mm)	NIL	50	(Exceed the size of MGA0450 becomes 52 mm)							
②	Diameter of Locate ring (mm)	1: 40	2: 60	3: 100	4: 120	9: Special (If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)					
③	Primary power source (V)	2: 200/220		3: 380	4: 440	5: 480					
④	Language on operation panel	J. Japanese		E. English							
⑤	Working temperature range (°C)	NIL: 0~80		H: 0~150	U: 0~180						
⑥	Rust proof arrangement	NIL: not included		N: included							
⑦	Special specification	NIL: not included		Drawing number: included							

[NOTE]

- Minimum daylight should be 125 mm.
- Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 120 mm. Ring size shown in drawing is diameter 120 mm. In other case of ring size is used, it should be changed to the dimension (Note2). Dimension (marked ※) at diameters 60 and 40 in drawing (see locate detail) are calculated to be locate DIA-8mm.
- Option (if any) should be specified on the confirmation sheet at the time of order.
- The hole position of ejector is according to JIS B 6701. The diameter is 35 mm. If the diameter differs, it should be specified on the confirmation sheet at the time of order.



Specifications	Movable Side	Stationary Side
Type	50 mm square	16
Number of Magnet Core	32mm x 100mm	—
Maximum Clamping Force	41kN	39kN
Mass of Plate	45kg	44kg
Accessories		
Mounting Bolt	M16x40	8
Applied Mold Clamping Force	8	600 kN



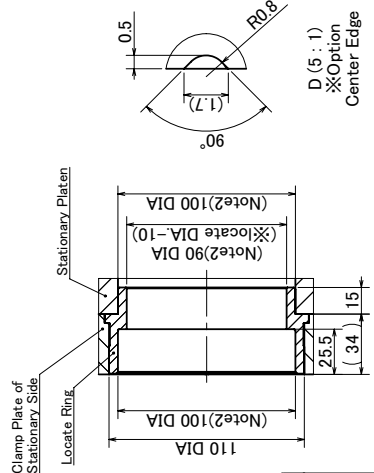
CLASS DEFINITION

MGA	0080	①	-	②	③	④	⑤	⑥	⑦	S
①	Plate thickness (mm)	NIL: 50	(Exceed the size of MGA0450 becomes 52 mm)	S: 34						
②	Diameter of Locate ring (mm)	1: 40	2: 60	3: 100	9: Special	(If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)				
③	Primary power source (V)	2: 200/220	3: 380	4: 440	5: 480					
④	Language on operation panel	J: Japanese	E: English							
⑤	Working temperature range (°C)	NIL: 0~80								
⑥	Rust proof arrangement	NIL: not included								
⑦	Special specification	NIL: not included								

[NOTE]

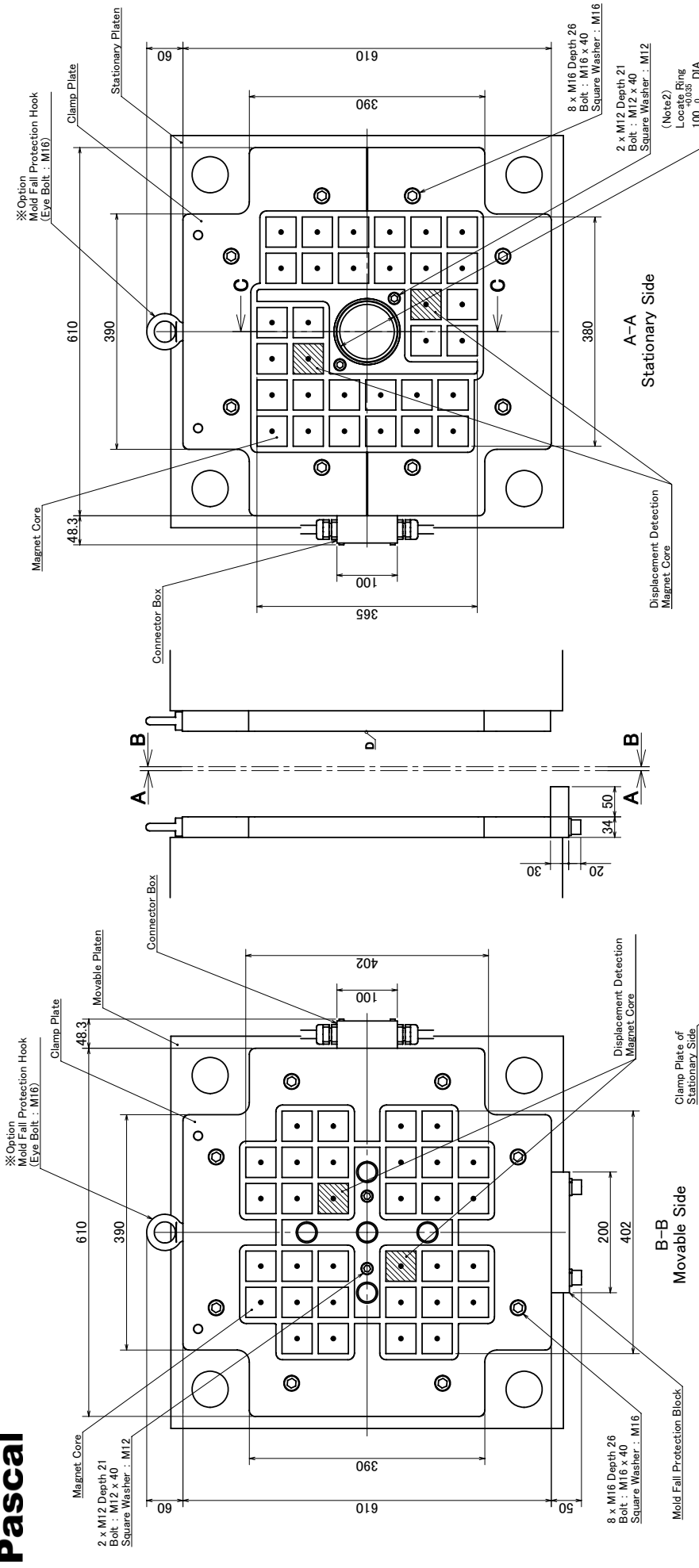
- Minimum daylight should be 125 mm.
- Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 100 mm. Ring size shown in drawing is diameter 100 mm. In other case of ring size is used, it should be changed to the dimension (Note2).
- Dimension (marked ※) at diameters 60 and 40 in drawing (see locate detail) are calculated to be locate DIA-6mm.
- Option (if any) should be specified on the confirmation sheet at the time of order. The hole position of ejector is according to JIS B 6701. The diameter is 35 mm. If the diameter differs, it should be specified on the confirmation sheet at the time of order.

C-C (1:3) Details of locating



Specifications	Movable Side	Stationary Side
Type	50 mm square	28
Number of Magnet Core	16	—
Maximum Clamping Force	55kN	69kN
Mass of Plate	61kg	60kg
Accessories		
Mounting Bolt	M16x40	8
Applied Mold Clamping Force	M12x40	2
		750~800 kN

SCALE	1:7	REVISION HISTORY	STANDARD	DESIGNED BY	04118	DATE	2006/12/15	MODEL	MGA0080S	NAME	Mag Clamp Layout	DWG.NO.	3MGAB43500	FILE.NO.	MGAB4350.sldrw
-------	-----	------------------	----------	-------------	-------	------	------------	-------	----------	------	------------------	---------	------------	----------	----------------

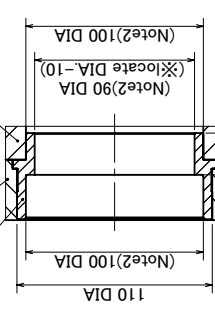
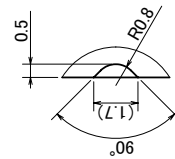


CLASS DEFINITION

MGA 0100 ① - ② ③ ④ ⑤ ⑥ ⑦	NIL: 50 (Exceed the size of MGA0450 becomes 52 mm) S: 34
① Plate thickness (mm)	NIL: 40 2: 60 3: 100
② Diameter of Locate ring (mm)	9: Special (If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)
③ Primary power source (V)	2: 200/220 3: 380 4: 440 5: 480
④ Language on operation panel	J: Japanese E: English
⑤ Working temperature range (°C)	NIL: 0~80 U: 0~180
⑥ Rust proof arrangement	NIL: not included
⑦ Special specification	NIL: not included

[NOTE]

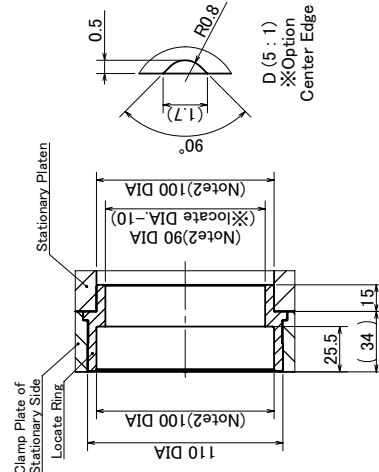
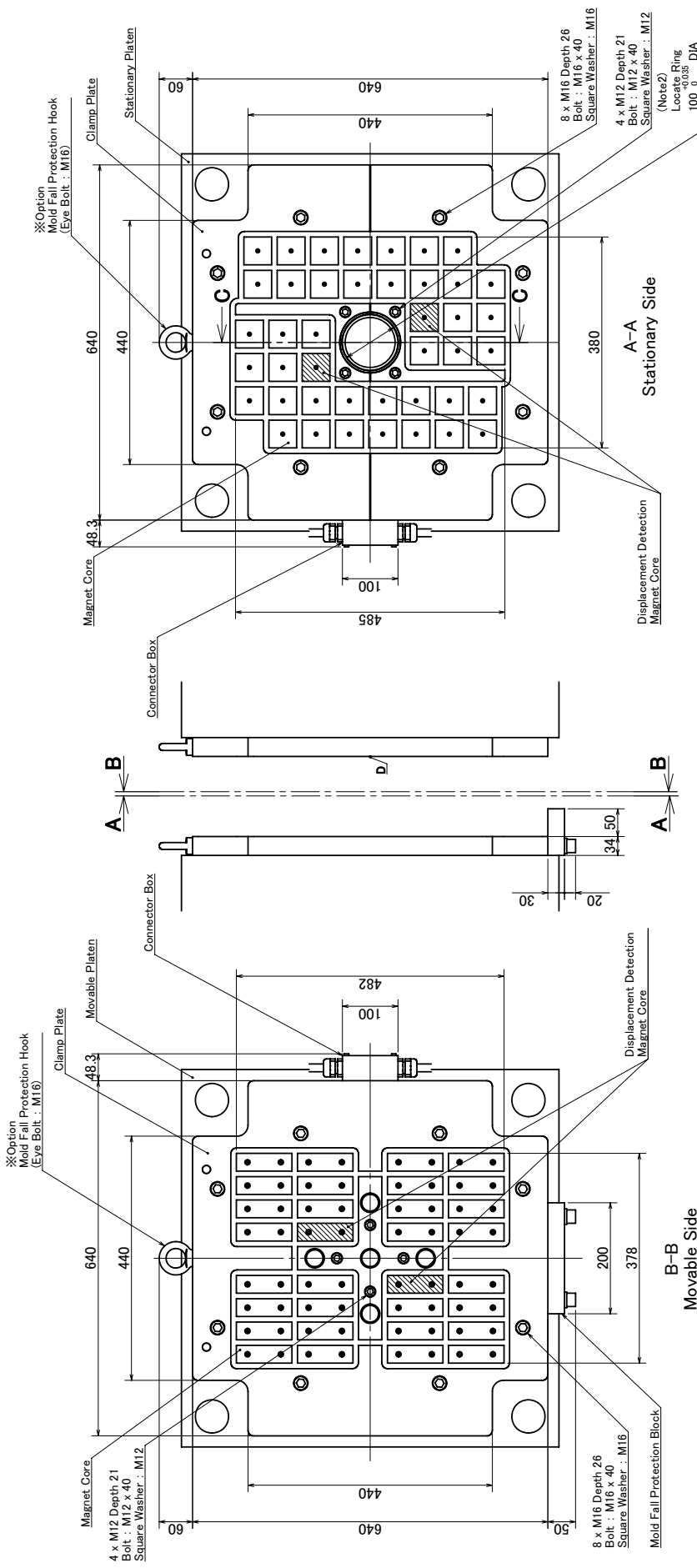
- Minimum daylight should be 125 mm.
- Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 100 mm. Ring size shown in drawing is diameter 100 mm. In other case of ring size is used, it should be changed to the dimension (Note2). Dimension (marked ※) at diameters 60 and 40 in drawing (see locate detail) are calculated to be locate DIA-8mm.
- Option (if any) should be specified on the confirmation sheet at the time of order.
- The hole position of ejector is according to JIS B 6701. The diameter is 36 mm. If the diameter differs, it should be specified on the confirmation sheet at the time of order.



Specifications	Movable Side	Stationary Side
Type	50 mm square	32
Number of Magnet Core	32mm x 100mm	78kN
Maximum Clamping Force	83kN	82kg
Mass of Plate	M16x40	8
Accessories	M12x40	2
Mounting Bolt		1000~1100 kN

C-C (1 : 3)
Details of locating

SCALE	1:7	REVISION HISTORY	STANDARD	MODEL	MGA0100S	DESIGNED BY	04118	DATE	2006/12/15	NAME	Mag Clamp Layout	DWG.NO.	3MGAB43600	FILE.NO.	MGAB4360.sldrw
-------	-----	------------------	----------	-------	----------	-------------	-------	------	------------	------	------------------	---------	------------	----------	----------------



CLASS DEFINITION

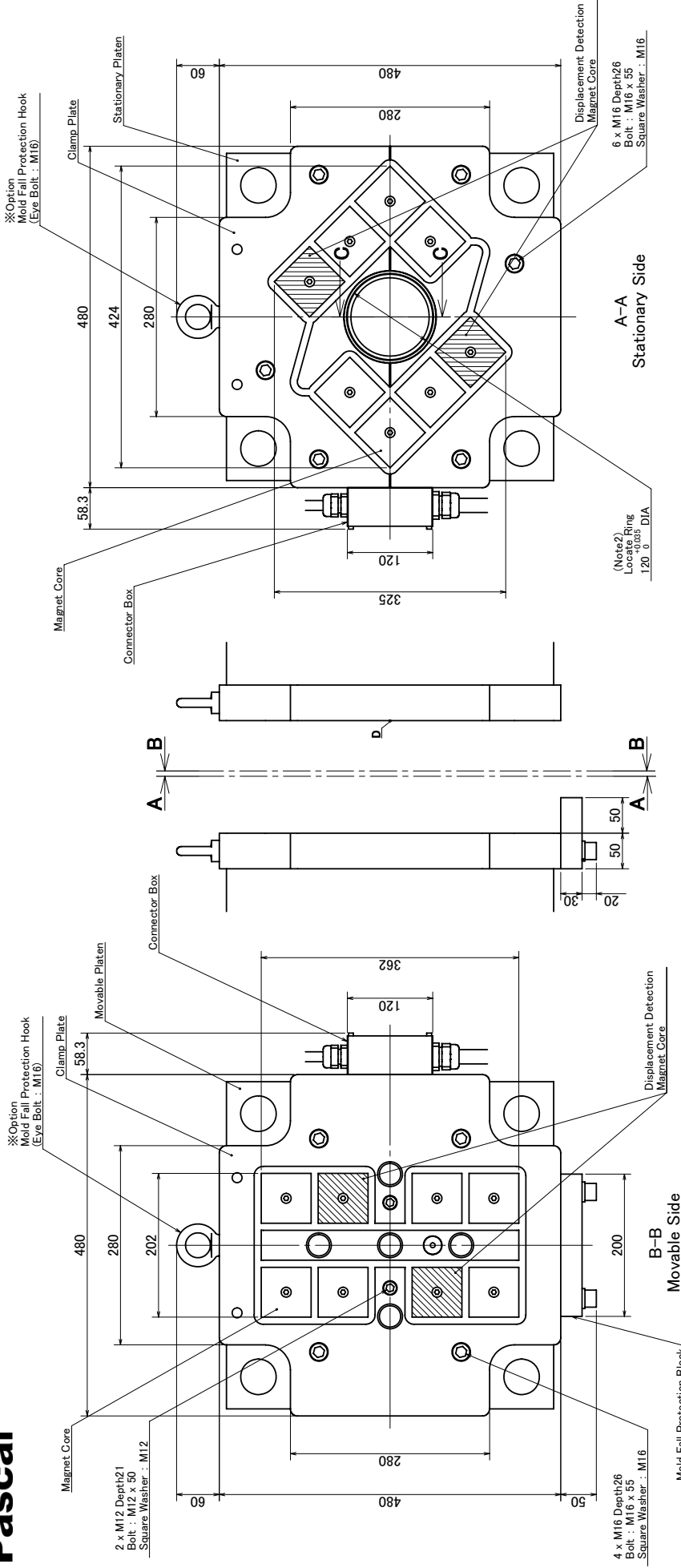
①	②	③	④	⑤	⑥	⑦
① Plate thickness (mm)	NIL: 50 (Exceed the size of MGA0450 becomes 52 mm) S: 34					
② Diameter of Locate ring (mm)	1: 40	2: 60	3: 100	9: Special (If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)		
③ Primary power source (V)	2: 200/220	3: 380	4: 440	5: 480	J: Japanese E: English	
④ Language on operation panel	NIL: 0~80 H: 0~150 U: 0~180					
⑤ Working temperature range (°C)	NIL: not included N: included					
⑥ Rust proof arrangement	NIL: not included Drawing number: included					
⑦ Special specification	NIL: not included					

[NOTE]

- Minimum daylight should be 125 mm.
 - Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 100 mm. Ring size shown in drawing is diameter 100 mm. In other case of ring size is used, it should be changed to the dimension (Note2). Dimension (marked ※) at diameters 60 and 40 in drawing (see locate detail) are calculated to be locate DIA-6mm.
 - Option (if any) should be specified on the confirmation sheet at the time of order.
 - The hole position of ejector is according to JIS B 6701. The diameter is 35 mm.
- If the diameter differs, it should be specified on the confirmation sheet at the time of order.

Specifications	Movable Side	Stationary Side
Type	50 mm square	42
Number of Magnet Core	32	—
Maximum Clamping Force	110kN	103kN
Mass of Plate	96kg	95kg
Accessories		
Mounting Bolt	M16x40	8
Applied Mold Clamping Force	M12x40	4
		1200~1300 kN

Details of locating
C-C (1:3)

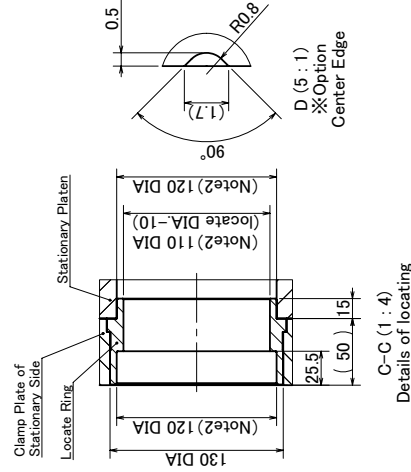


CLASS DEFINITION

MGA	0050	①	②	③	④	⑤	⑥	⑦
①	Plate thickness (mm)	NIL: 50 (Exceed the size of MGA0450 becomes 52 mm) S: 34						
②	Diameter of Locate ring (mm)	1: 40 2: 60 3: 100 4: 120 9: Special (if the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)						
③	Primary power source (V)	2: 200/220 3: 380 4: 440 5: 480						
④	Language on operation panel	J: Japanese E: English						
⑤	Working temperature range (°C)	NIL: 0~80 H: 0~150 U: 0~180						
⑥	Rust proof arrangement	NIL: not included N: included						
⑦	Special specification	NIL: not included Drawing number: included						

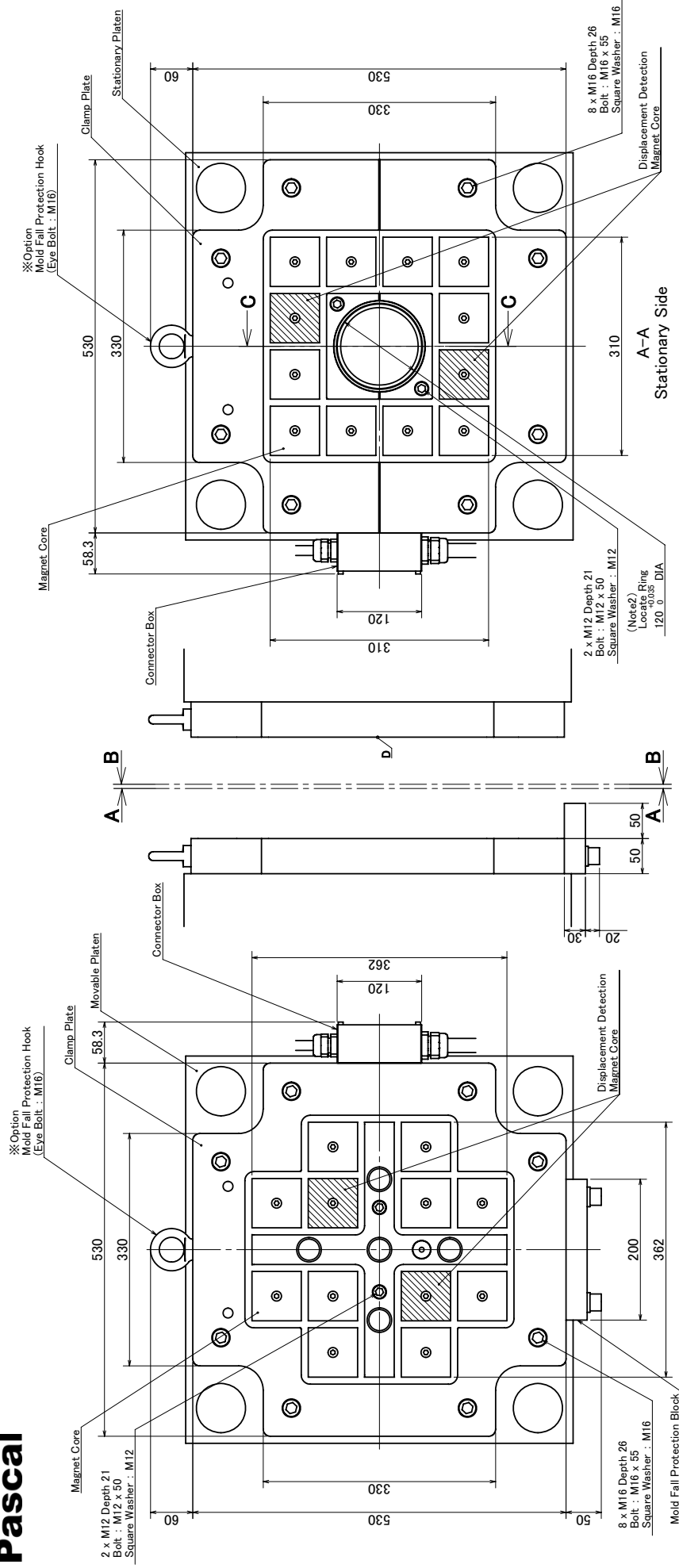
[NOTE]

- Minimum daylight should be 155 mm.
- Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 120 mm. Ring size shown in drawing is diameter 120 mm. In other case of ring size is used, it should be changed to the dimension (Note2).
- Option (if any) should be specified on the confirmation sheet at the time of order.
- The hole position of ejector is according to JIS B 6701. The diameter is 35 mm. If the diameter differs, it should be specified on the confirmation sheet at the time of order.



C-C (1:4)
Details of locating

Specifications Type	Movable Side		Stationary Side	
		75 mm square	—	—
Number of Magnet Core	70 mm square	8	8	8
Maximum Clamping Force	115 mm square	—	—	—
		59kN	59kN	59kN
Mass of Plate		72kg		69kg
Accessories				
	Mounting Bolt	M16x55	4	6
Applied Mold Clamping Force	M12x50	2	2	500~800kN

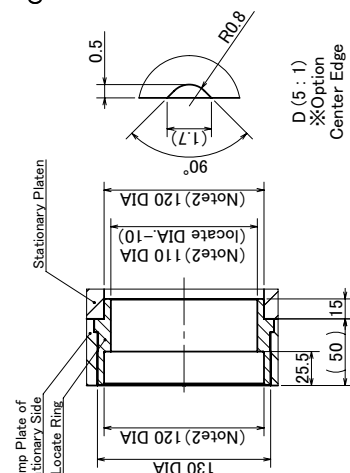


CLASS DEFINITION

MGA	0080	①	②	③	④	⑤	⑥	⑦
①	Plate thickness (mm)	NIL: 50 (Exceed the size of MGA0450 becomes 52 mm) S: 34						
②	Diameter of Locate ring (mm)	1: 40 2: 60 3: 100 4: 120 9: Special (If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)						
③	Primary power source (V)	2: 200/220 3: 380 4: 440 5: 480						
④	Language on operation panel	J: Japanese E: English						
⑤	Working temperature range (°C)	NIL: 0~80 U: 0~180						
⑥	Rust proof arrangement	NIL: not included N: included						
⑦	Special specification	NIL: not included Drawing number: included						

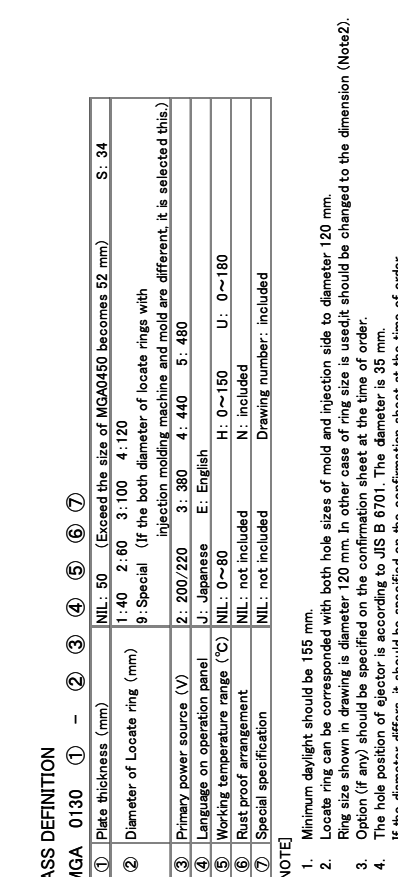
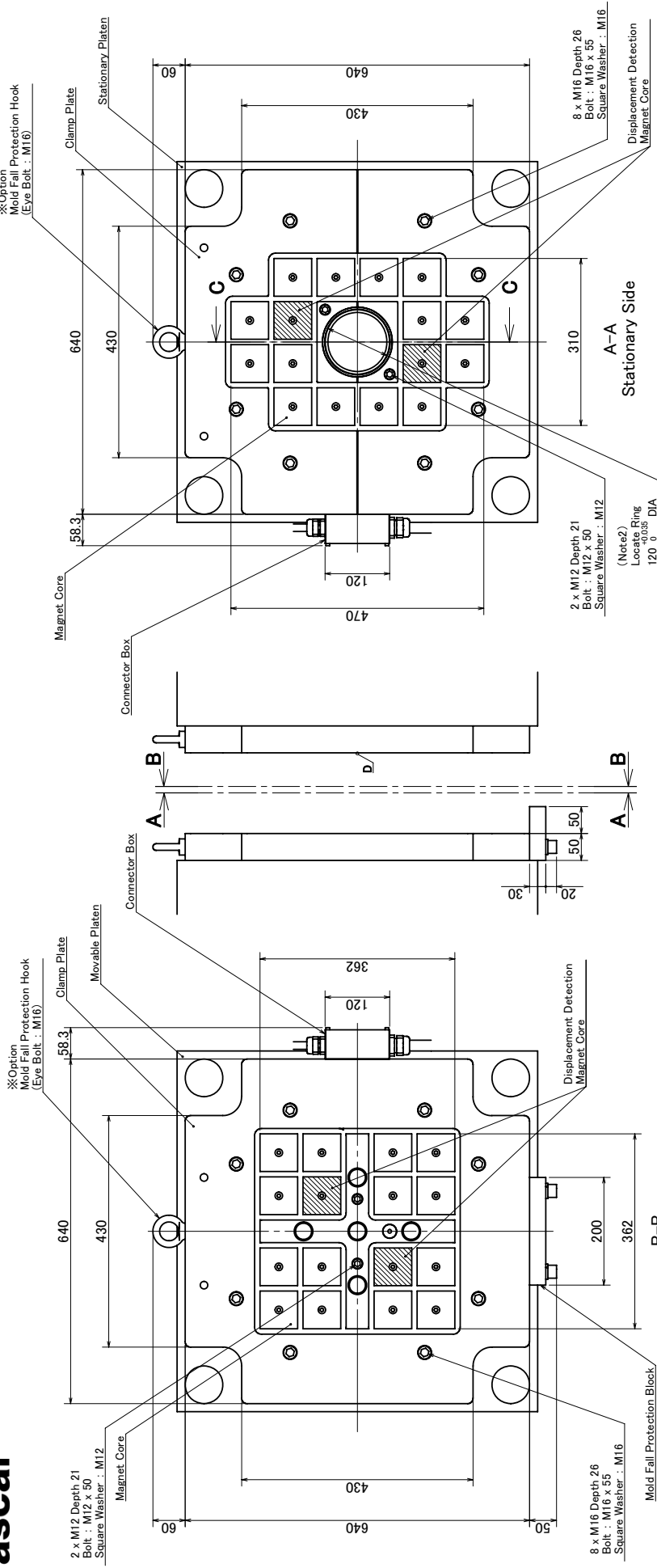
[REMARKS]

- Minimum daylight should be 155 mm.
Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 120 mm.
- Ring size shown in drawing is diameter 120 mm. In other case of ring size is used, it should be changed to the dimension (Note 2).
- Option (if any) should be specified on the confirmation sheet at the time of order.
- The hole position of ejector is according to JIS B 6701. The diameter is 35 mm.
If the diameter differs, it should be specified on the confirmation sheet at the time of order.



Specifications	Movable Side	Stationary Side
Type	75 mm square	—
Number of Magnet Core	12	12
Maximum Clamping Force	88kN	88kN
Mass of Plate	91kg	88kg
Accessories	—	—
Mounting Bolt	M16x55	8
Applied Mold Clamping Force	M12x50	2
		750~850kN

SCALE	1:6	REVISION HISTORY	STANDARD	DESIGNED BY	DATE	MODEL	NAME	FILE NO.
		XXX9A-034-3	03006	2003/11/03	MGA0080	Mag Clamp Layout	3MGA016830	MGA01683.slddrw



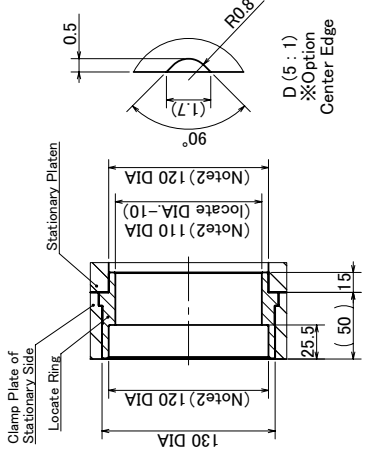
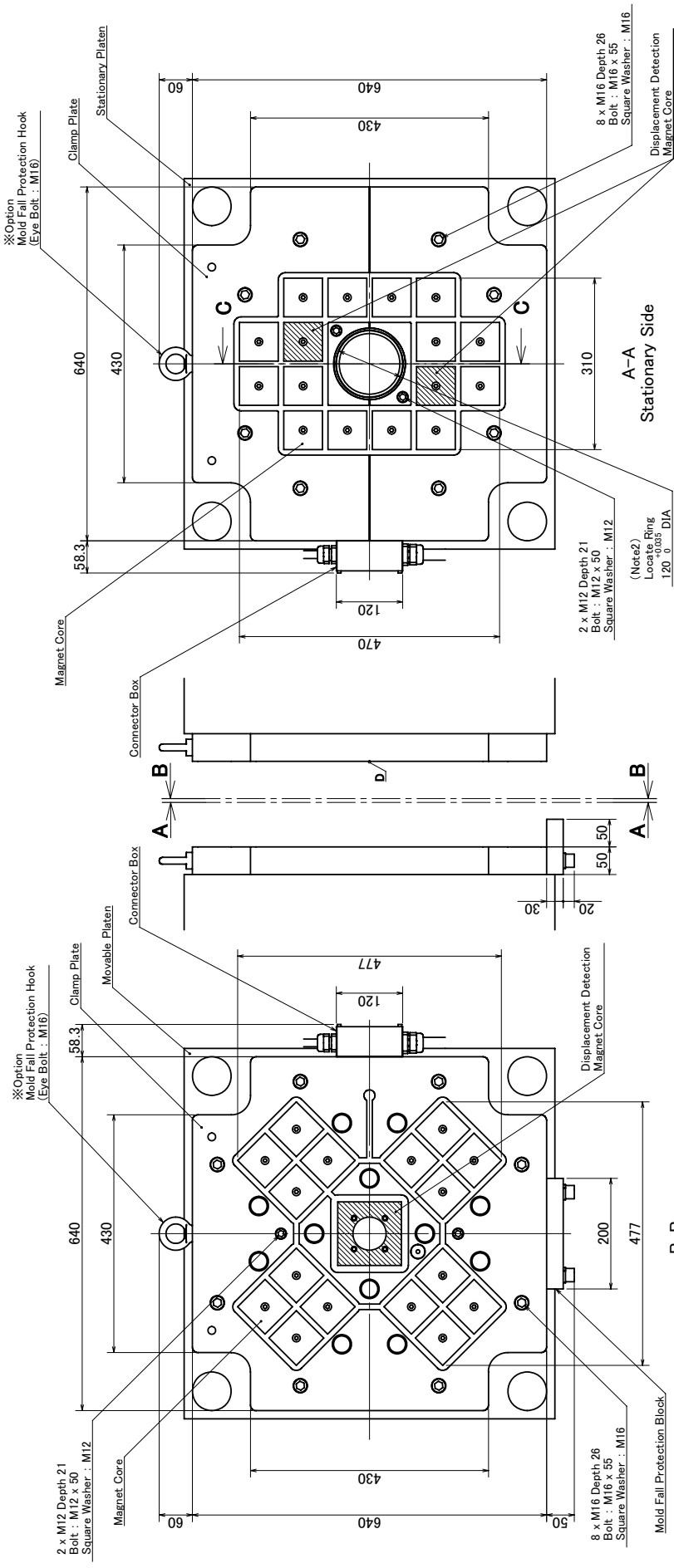
CLASS DEFINITION

MGA	0130	①	②	③	④	⑤	⑥	⑦
①	Plate thickness (mm)	NIL: 50	(Exceed the size of MGA0450 becomes 52 mm)	1: 40	2: 60	3: 100	4: 120	S: 34
②	Diameter of Locate ring (mm)	9: Special	(If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)	1: 40	2: 60	3: 100	4: 120	
③	Primary power source (V)	2: 200/220		3: 380	4: 440	5: 480		
④	Language on operation panel	J: Japanese		E: English				
⑤	Working temperature range (°C)	NIL: 0~80					H: 0~150	U: 0~180
⑥	Rust proof arrangement	NIL: not included					N: included	
⑦	Special specification	NIL: not included					Drawing number: included	

[NOTE]

- Minimum daylight should be 155 mm.
- Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 120 mm. Ring size shown in drawing is diameter 120 mm. In other case of ring size is used, it should be changed to the dimension (Notes2).
- Option (if any) should be specified on the confirmation sheet at the time of order.
- The hole position of ejector is according to JIS B 6701. The diameter is 35 mm. If the diameter differs, it should be specified on the confirmation sheet at the time of order.

Specifications	Movable Side	Stationary Side
Type	75 mm square	—
Number of Magnet Core	16	16
Maximum Clamping Force	118kN	118kN
Mass of Plate	140kg	138kg
Accessories	M16x55	8
Mounting Bolt	M12x50	2
Applied Mold Clamping Force	2	1300kN



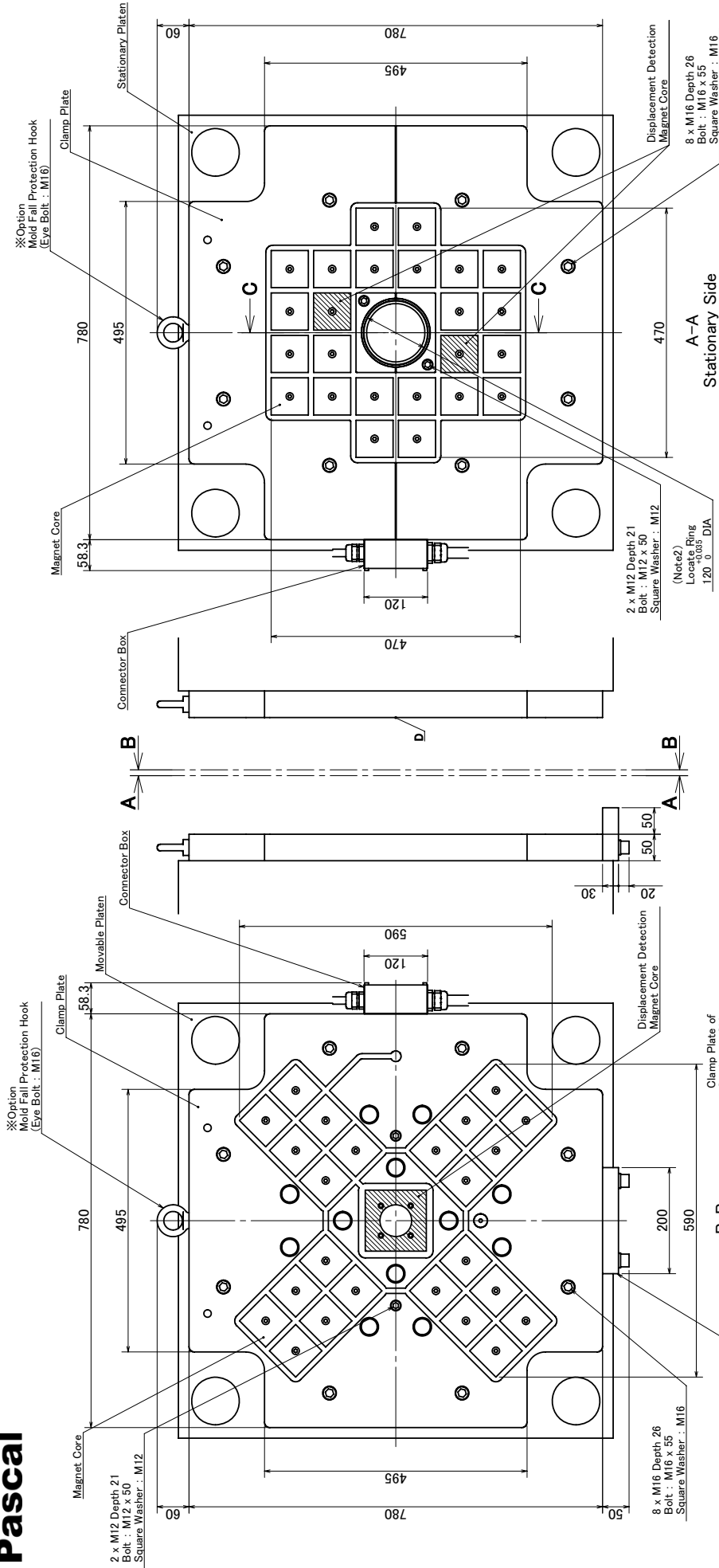
CLASS DEFINITION

MGA 0140	①	②	③	④	⑤	⑥	⑦
① Plate thickness (mm)	NIL: 50 (Exceed the size of MGA0450 becomes 52 mm) S: 34						
② Diameter of Locate ring (mm)	1: 40 2: 60 3: 100 4: 120 9: Special (If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)						
③ Primary power source (V)	2: 200/220 3: 380 4: 440 5: 480						
④ Language on operation panel	J: Japanese E: English						
⑤ Working temperature range (°C)	NIL: 0~80 H: 0~150 U: 0~180						
⑥ Rust proof arrangement	NIL: not included N: included						
⑦ Special specification	NIL: not included Drawing number: included						

[REMARKS]

- Minimum daylight should be 155 mm.
- Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 120 mm. Ring size shown in drawing is diameter 120 mm. In other case of ring size is used it should be changed to the dimension (Note2).
- Option (if any) should be specified on the confirmation sheet at the time of order.
- The hole position of ejector is according to JIS B 6701. The diameter of center hole is 60 mm. The ones of other holes are 35 mm. If the diameter differs, it should be specified on the confirmation sheet at the time of order.

Specifications Type	Stationary Side	
	Movable Side	Stationary Side
Number of Magnet Core	16	16
Maximum Clamping Force	133kN	118kN
Mass of Plate	138kg	138kg
Accessories		
Mounting Bolt	M16x65	8
Applied Mold Clamping Force	M12x50	2
		1300kN

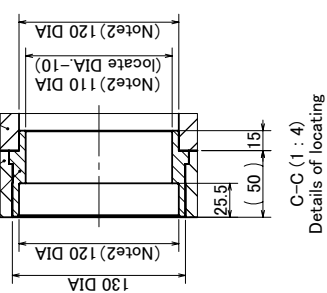
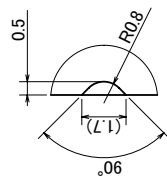


CLASS DEFINITION

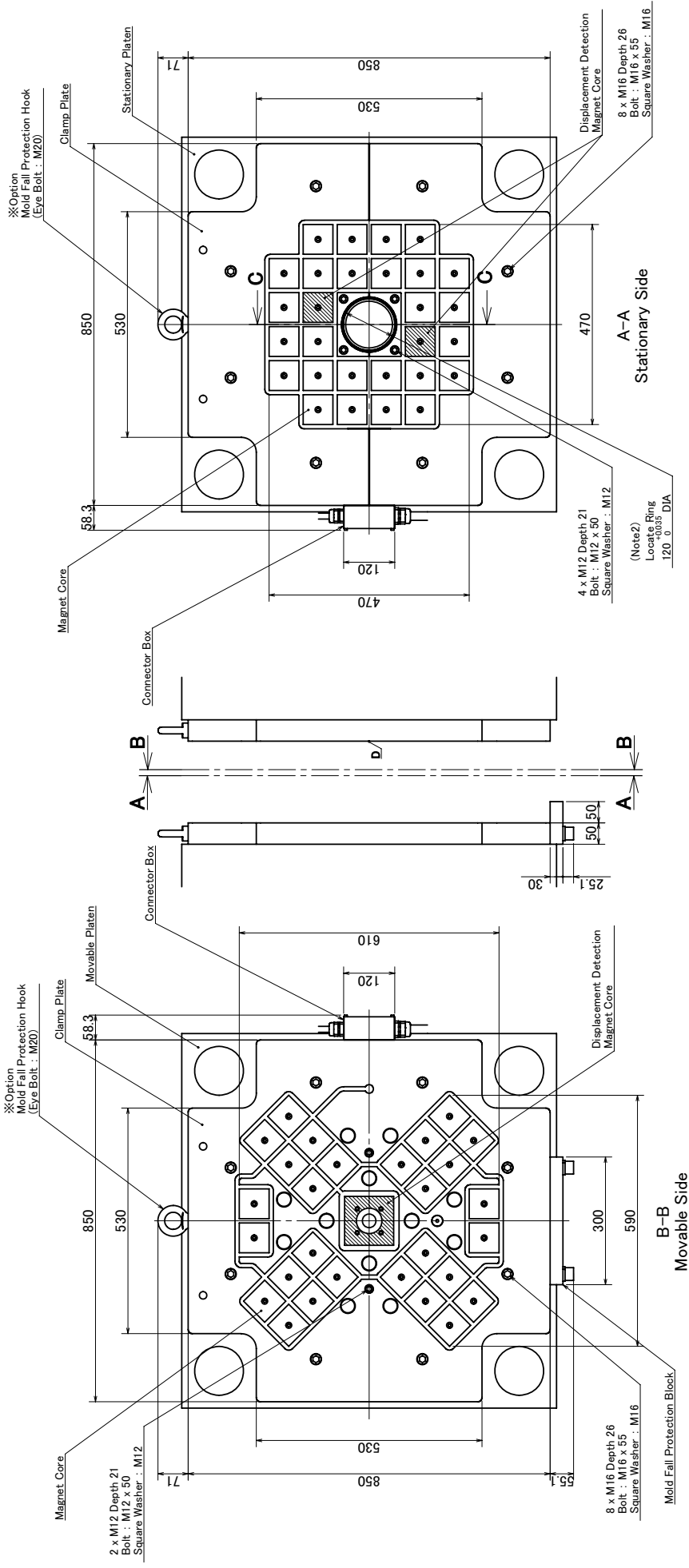
MG A	0190	①	②	③	④	⑤	⑥	⑦
①	Plate thickness (mm)	NIL: 50	(Exceed the size of MGA0450 becomes 52 mm)	S: 34				
②	Diameter of Locate ring (mm)	1: 40	2: 60	3: 100	4: 120	9: Special	(If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)	
③	Primary power source (V)	2: 200/220	3: 380	4: 440	5: 480	J: Japanese	E: English	
④	Language on operation panel							
⑤	Working temperature range (°C)	NIL: 0~80						
⑥	Rust proof arrangement	NIL: not included						
⑦	Special specification	NIL: not included						

[REMARKS]

- Minimum daylight should be 155 mm.
- Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 120 mm. Ring size shown in drawing is diameter 120 mm. In other case of ring size is used, it should be changed to the dimension (Note 2).
- Option (if any) should be specified on the confirmation sheet at the time of order.
- The hole position of ejector is according to JIS B 6701. The diameter of center hole is 60 mm. The ones of other holes are 35 mm. If the diameter differs, it should be specified on the confirmation sheet at the time of order.



Specifications Type	Stationary Side	
	Movable Side	Stationary Side
Number of Magnet Core	24	24
Maximum Clamping Force	192kN 201kg	176kN 201kg
Mass of Plate	115 mm square	75 mm square
Accessories	M16: 65	M12: 60
Mounting Bolt	8	8
Applied Mold Clamping Force	2	2
	1700~1800kN	



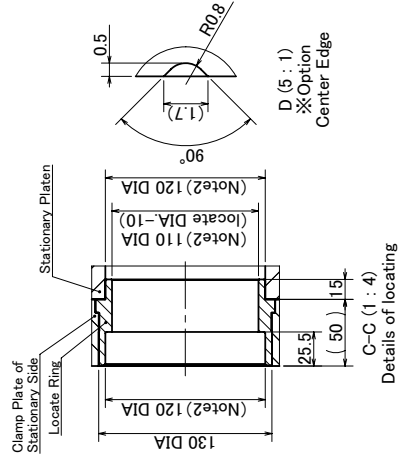
CLASS DEFINITION

MGA 0230 ① - ② ③ ④ ⑤ ⑥ ⑦

① Plate thickness (mm)	NIL: 50 (Exceed the size of MGA0450 becomes 52 mm)	S: 34
② Diameter of Locate ring (mm)	1: 40 2: 60 3: 100 4: 120 9: Special (If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)	
③ Primary power source (V)	2: 200/220 3: 380 4: 440 5: 480	
④ Language on operation panel	J: Japanese E: English	
⑤ Working temperature range (°C)	NIL: 0~80 H: 0~150 U: 0~180	
⑥ Rust proof arrangement	NIL: not included N: included	
⑦ Special specification	NIL: not included Drawing number: included	

[REMARKS]

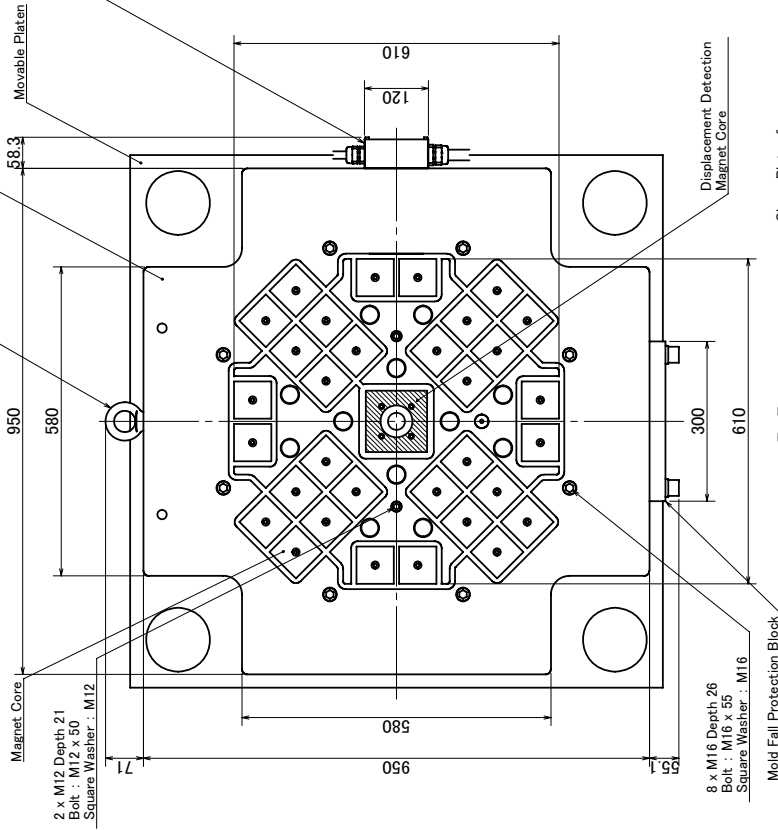
- Minimum daylight should be 155 mm.
- Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 120 mm. Ring size shown in drawing is diameter 120 mm. In other case of ring size is used, it should be changed to the dimension (Note2).
- Option (if any) should be specified on the confirmation sheet at the time of order.
- The hole position of ejector is according to JIS B 6701. The diameter of center hole is 60 mm. The ones of other holes are 35 mm. If the diameter differs, it should be specified on the confirmation sheet at the time of order.



Specifications Type	Movable Side	Stationary Side
Number of Magnet Core	75 mm square: 28 70 mm square: 1 115 mm square: 238kg	28
Maximum Clamping Force	221kN	206kN
Mass of Plate	238kg	238kg
Accessories	M16x55: 8 M12x50: 2	8
Applied Mold Clamping Force	2200~2300kN	4

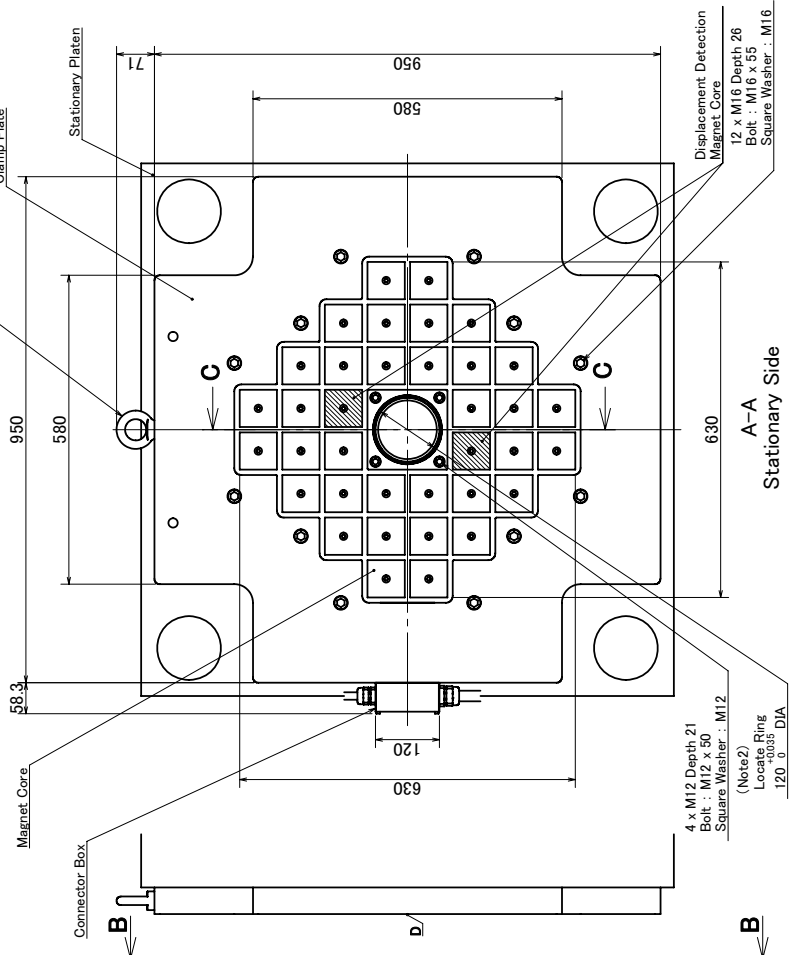
SCALE: 1:10	REVISION HISTORY	DESIGNED BY: 04118	MODEL: MGA0230	NAME: Mag Clamp Layout	FILE NO.: MGAB2480.sldrw
STANDARD		DATE: 2006/12/14	DWG. NO.: 3MGAB24800		

※Option
Mold Fall Protection Hook
(Eye Bolt : M20)



B-B
Movable Side

※Option
Mold Fall Protection Hook
(Eye Bolt : M20)



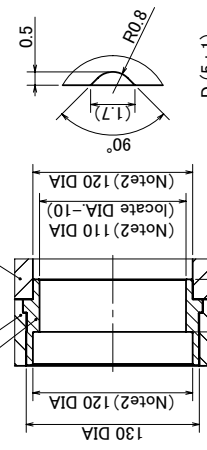
A-A
Stationary Side

CLASS DEFINITION

MGA	0280	①	-	②	③	④	⑤	⑥	⑦
①	Plate thickness (mm)	NIL: 50	(Exceed the size of MGA0450 becomes 52 mm)	S: 34	1: 40	2: 60	3: 100	4: 120	
②	Diameter of Locate ring (mm)	9: Special (If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)							
③	Primary power source (V)	2: 200/220 3: 380 4: 440 5: 480							
④	Language on operation panel	J: Japanese E: English							
⑤	Working temperature range (°C)	NIL: 0~80 H: 0~150 U: 0~180							
⑥	Rust proof arrangement	NIL: not included N: included							
⑦	Special specification	NIL: not included Drawing number: included							

[REMARKS]

- Minimum daylight should be 155 mm.
- Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 120 mm. Ring size shown in drawing is diameter 120 mm. In other case of ring size is used it should be changed to the dimension (Note2).
- Option (if any) should be specified on the confirmation sheet at the time of order.
- The hole position of ejector is according to JIS B 6701. The diameter of center hole is 60 mm. The ones of other holes are 35 mm. If the diameter differs, it should be specified on the confirmation sheet at the time of order.



C-C (1 : 4)
Details of locating

Specifications	Movable Side	Stationary Side
Type	75 mm square	—
Number of Magnet Core	32	36
Maximum Clamping Force	251kN	265kN
Mass of Plate	292kg	294kg
Accessories	8	12
Mounting Bolt	M16x55	M12x50
Applied Mold Clamping Force	2800~3000kN	4

SCALE
1:10

REVISION HISTORY
STANDARD

DATE
2006/12/14

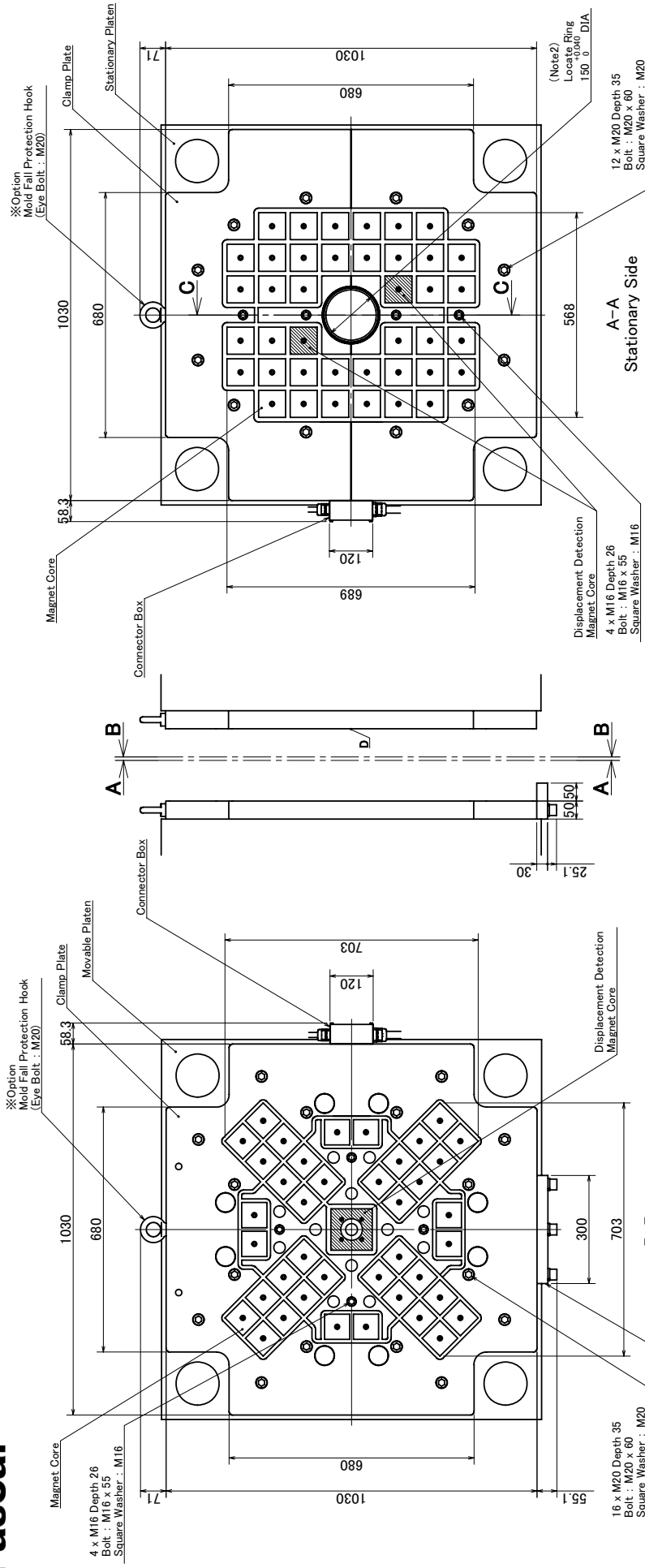
DESIGNED BY
04118

MODEL
MGA0280

NAME
Mag Clamp Layout

DWG.NO.
3MGAB24900

FILE.NO.
MGAB2490.sldrw

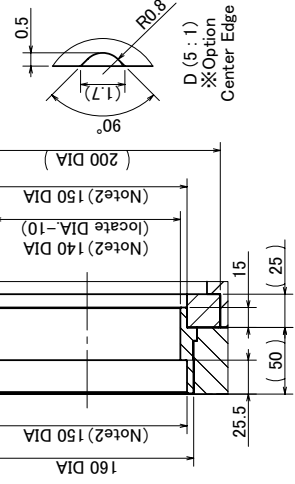


CLASS DEFINITION

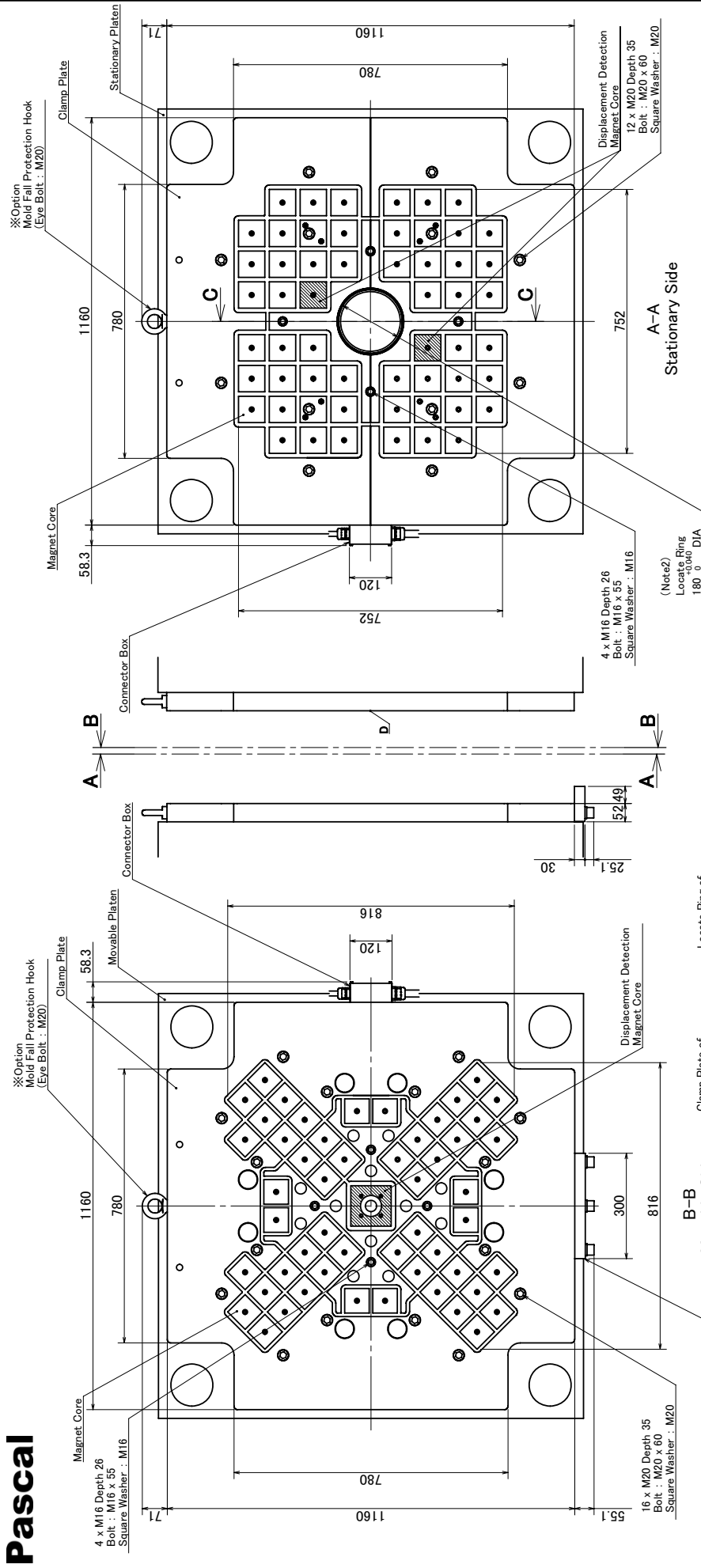
MGA 0350 ① - ② ③ ④ ⑤ ⑥ ⑦	① Plate thickness (mm) NIL: 50 (Exceed the size of MGA0450 becomes 52 mm) 1: 40 2: 60 3: 100 4: 120 5: 150	S: 34
② Diameter of Locate ring (mm)	9: Special (If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.) 2: 200/220 3: 380 4: 440 5: 480	
③ Primary power source (V)	J: Japanese E: English	
④ Language on operation panel	H: 0~150 U: 0~180	
⑤ Working temperature range (°C)	NIL: not included N: included	
⑥ Rust proof arrangement	NIL: not included	
⑦ Special specification	NIL: not included	

REMARKS

- Minimum daylight should be 155 mm.
- Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 150 mm. Ring size shown in drawing is diameter 150 mm. In other case of ring size is used, it should be changed to the dimension (Notes2).
- Option (if any) should be specified on the confirmation sheet at the time of order.
- The hole position of ejector is according to JIS B 6701. The diameter of center hole is 60 mm. The ones of inner 12 holes and other holes are 35mm and 55mm respectively. If the diameter differs, it should be specified on the confirmation sheet at the time of order.



Specifications	Movable Side	Stationary Side
Type	75 mm square	40
Number of Magnet Core	70 mm square	—
	115 mm square	—
Maximum Clamping Force	310kN	314kN
Mass of Plate	350kg	361kg
Accessories	M20x60	16
	M16x55	4
Applied Mold Clamping Force	3500~3800kN	



CLASS DEFINITION

MGA	0450	①	②	③	④	⑤	⑥	⑦	
①	Plate thickness (mm)	NIL: 50 (Exceed the size of MGA0450 becomes 52 mm)							S: 34
②	Diameter of Locate ring (mm)	1: 40 2: 60 3: 100 4: 120 5: 150 6: 180 9: Special (If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)							
③	Primary power source (V)	2: 200/220 3: 380 4: 440 5: 480							
④	Language on operation panel	J: Japanese E: English							
⑤	Working temperature range (°C)	NIL: 0~80							H: 0~150 U: 0~180
⑥	Rust proof arrangement	NIL: not included							N: included
⑦	Special specification	NIL: not included							Drawing number: included

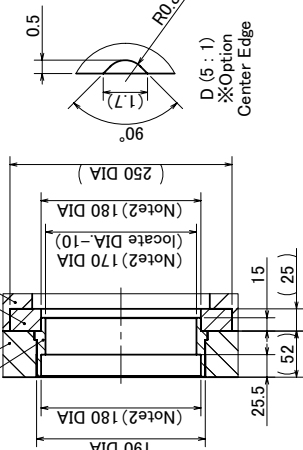
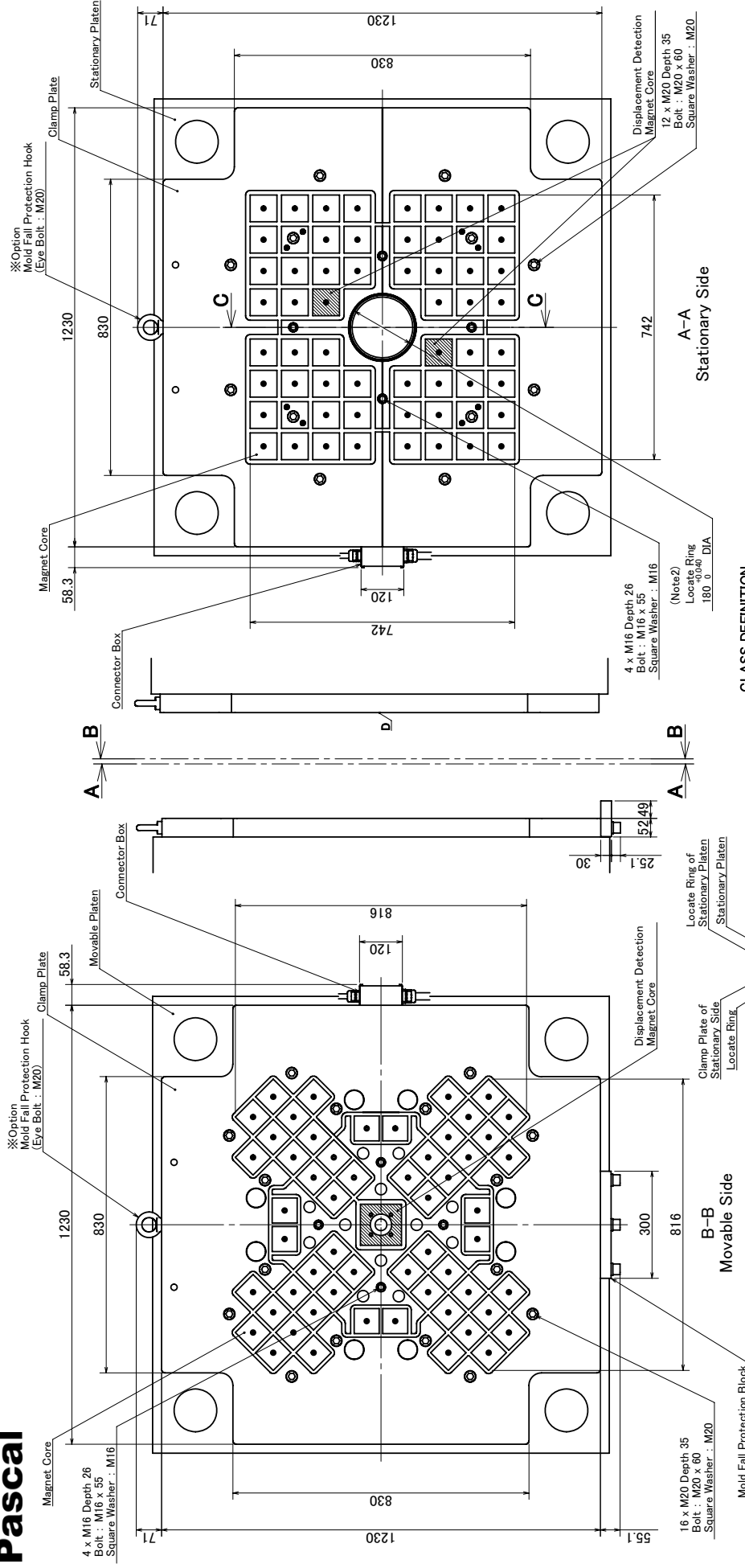
[REMARKS]

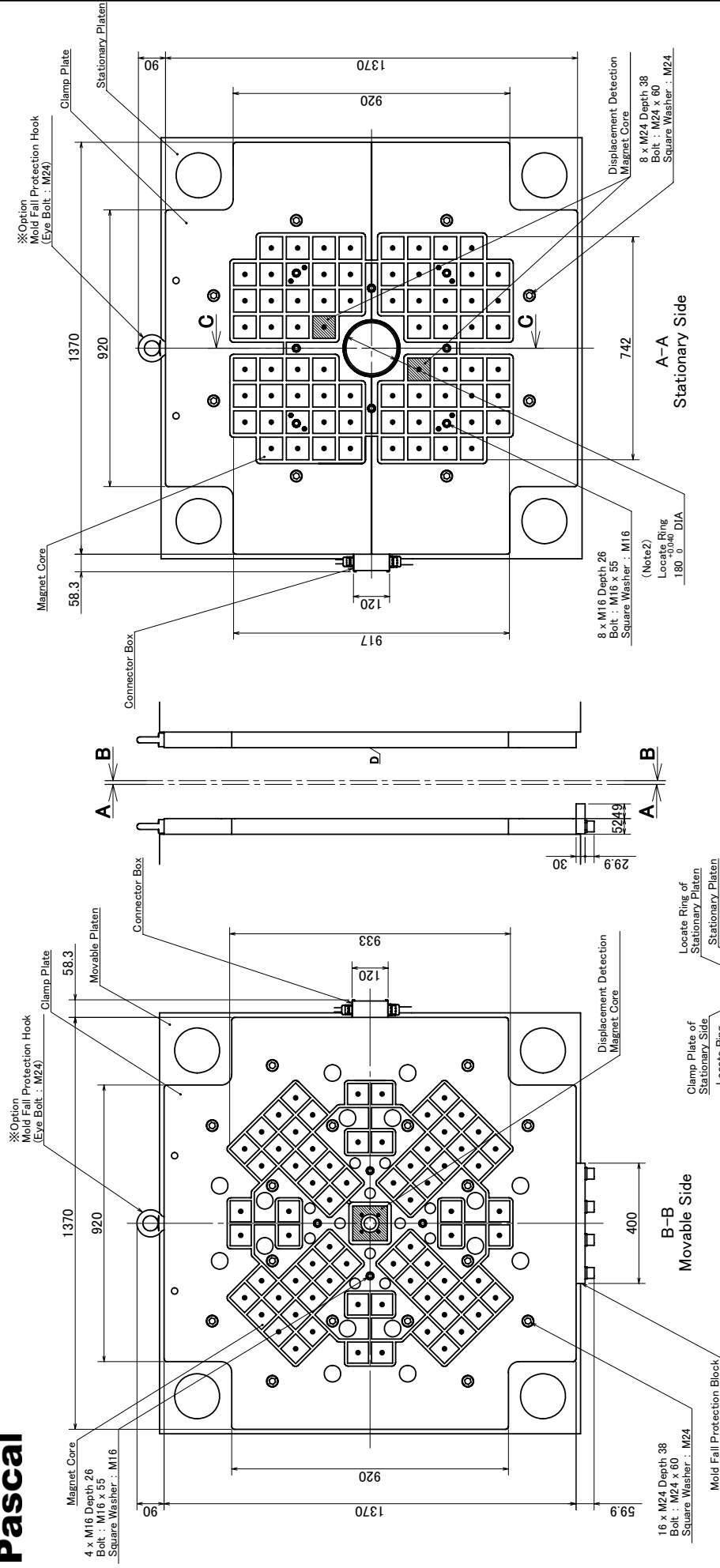
- Minimum daylight should be 155 mm.
- Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 180 mm. Ring size shown in drawing is diameter 180 mm. In other case of ring size is used it should be changed to the dimension (Note2).
- Option (if any) should be specified on the confirmation sheet at the time of order.
- The hole position of ejector is according to JIS B 6701. The diameter of center hole is 60 mm. The ones of inner 12 holes and other holes are 35mm and 55mm respectively. If the diameter differs, it should be specified on the confirmation sheet at the time of order.

Specifications

Type	Movable Side	Stationary Side
Number of Magnet Core	52	52
Maximum Clamping Force	398kN	408kN
Mass of Plate	473kg	478kg
Accessories	16	12
Mounting Bolt	M20x60	M16x55
Applied Mold Clamping Force	4	4
	4500kN	

SCALE	1:12	REVISION HISTORY	STANDARD XXX9A-034-3 S-30300-002	DESIGNED BY	03006	MODEL	MGA0450	NAME	Mag Clamp Layout	DWG.NO.	3MGAA17320	FILE.NO.	MGAA1732.sldrw
-------	------	------------------	----------------------------------	-------------	-------	-------	---------	------	------------------	---------	------------	----------	----------------



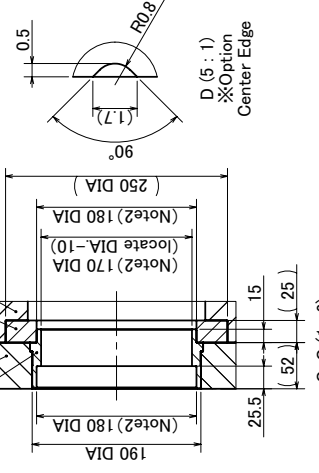


CLASS DEFINITION

MGA 0650	①	②	③	④	⑤	⑥	⑦
① Plate thickness (mm)	NIL: 50 (Exceed the size of MGA0450 becomes 52 mm) S: 34						
② Diameter of Locate ring (mm)	1: 40	2: 60	3: 100	4: 120	5: 150	6: 180	9: Special (If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)
③ Primary power source (V)	2: 200/220 3: 380 4: 440 5: 480						
④ Language on operation panel	J: Japanese E: English						
⑤ Working temperature range (°C)	NIL: 0~80 N: included						
⑥ Rust proof arrangement	NIL: not included						
⑦ Special specification	NIL: not included Drawing number: included						

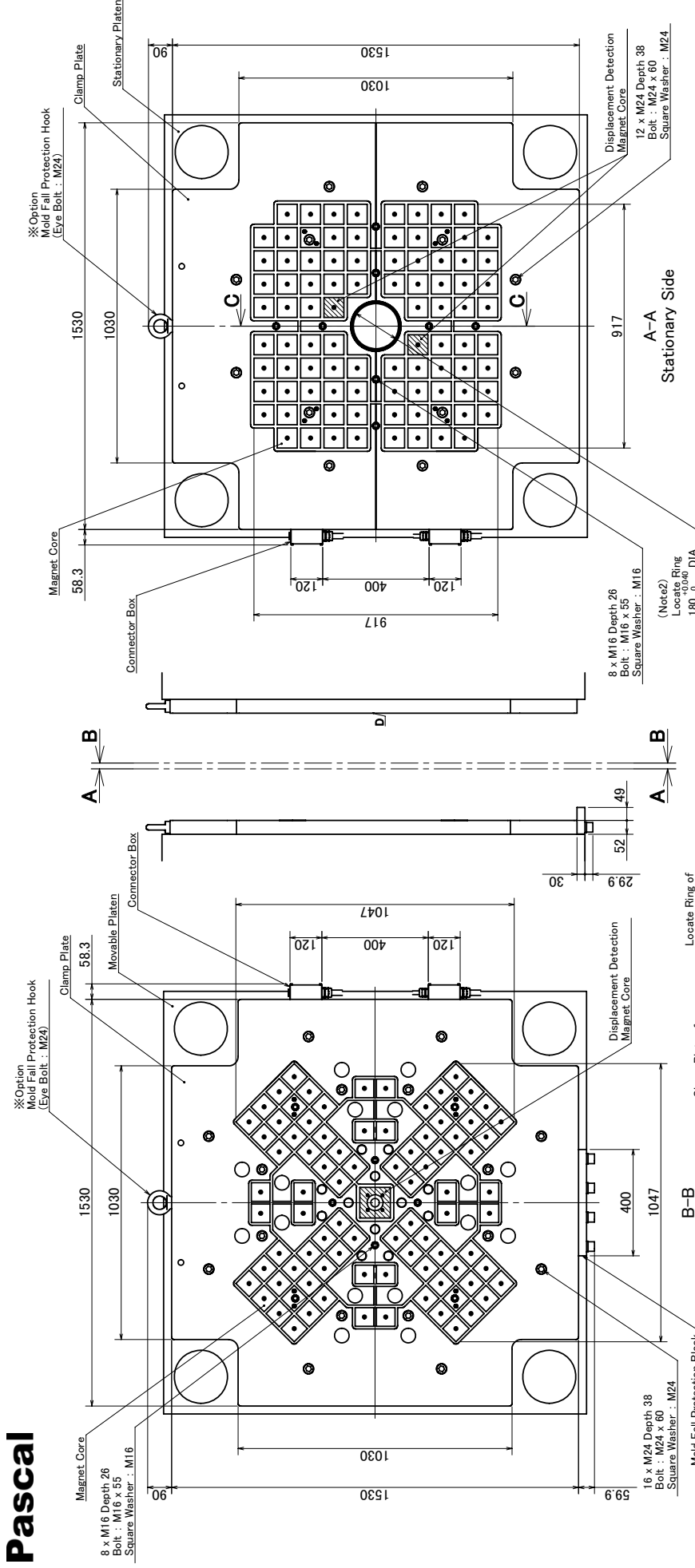
REMARKS

- Minimum daylight should be 155 mm.
- Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 180 mm. Ring size shown in drawing is diameter 180 mm. In other case of ring size is used it should be changed to the dimension (Note2).
- Option (if any) should be specified on the confirmation sheet at the time of order.
- The hole position of spcator is according to JIS B 6701. The diameter of center hole is 60 mm. The ones of inner 12 holes and other holes are 35mm and 55mm respectively. If the diameter differs, it should be specified on the confirmation sheet at the time of order.



Specifications	Movable Side	Stationary Side
Type	75 mm square	68
Number of Magnet Core	72	1
Maximum Clamping Force	545kN	533kN
Mass of Plate	654kg	689kg
Accessories	M24x60	16
Mounting Bolt	M16x55	4
Applied Mold Clamping Force		6500kN

SCALE	REVISION HISTORY	DATE	DESIGNED BY	MODEL	NAME	DWG.NO.	FILE.NO.
1:14	STANDARD XXX9A-034-3 S-30300-002	2003/11/03	03006	MGA0650	Mag Clamp Layout	3MGA017530	MGA01753.sldrw

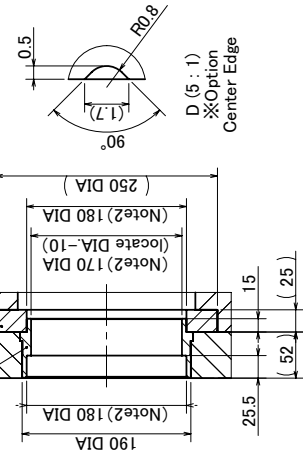


CLASS DEFINITION

①	②	③	④	⑤	⑥	⑦
Plate thickness (mm)	NIL: 50 (Exceed the size of MGA0450 becomes 52 mm) S: 34					
Diameter of Locate ring (mm)	1: 40 2: 60 3: 100 4: 120 5: 150 6: 180 9: Special (If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)					
Primary power source (V)	2: 200/220 3: 380 4: 440 5: 480					
Language on operation panel	J: Japanese E: English					
Working temperature range (°C)	NIL: 0~80					
Rust proof arrangement	NIL: not included					
Special specification	NIL: not included Drawing number: included					

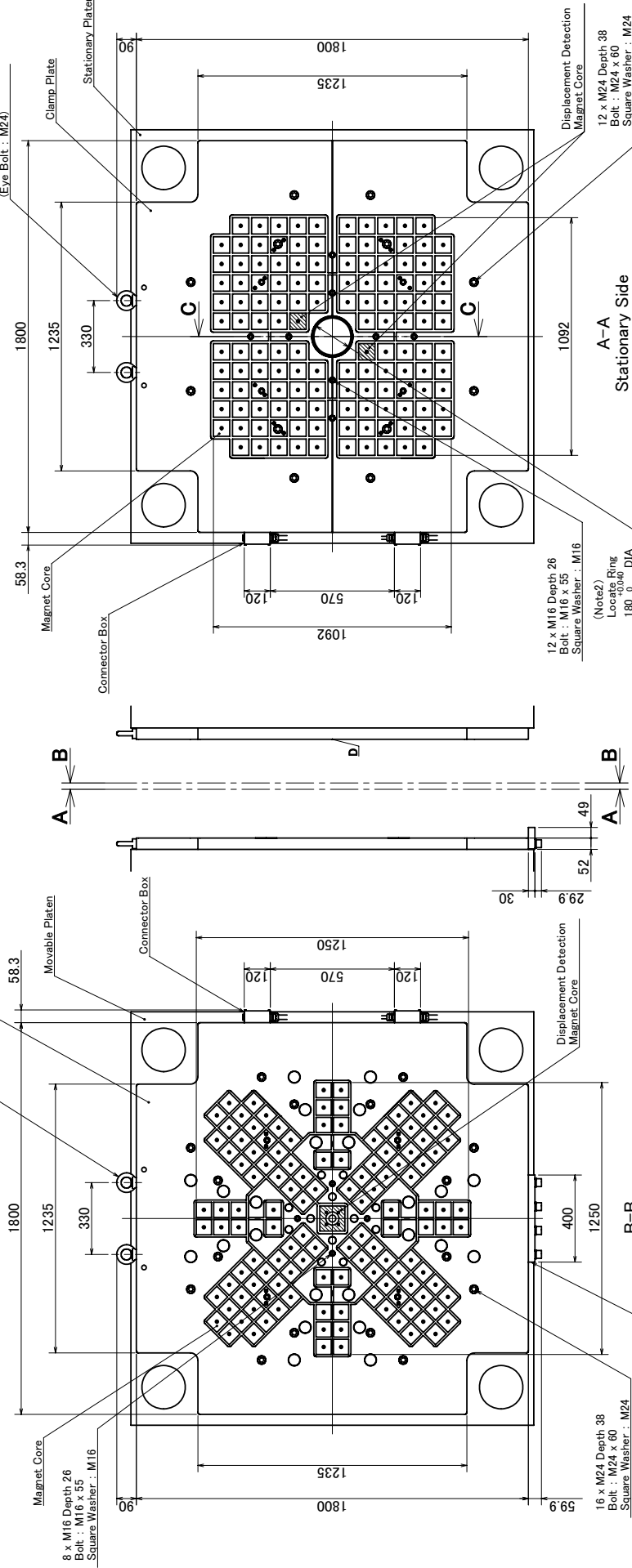
REMARKS

- Minimum daylight should be 155 mm.
- Locate ring can be corresponded with both hole sizes of mold and injection side to diameter, 180 mm. Ring size shown in drawing is diameter, 180 mm. In other case of ring size is used it should be changed to the dimension (Note2).
- Option (if any) should be specified on the confirmation sheet at the time of order.
- The hole position of ejector is according to JIS B 6701. The diameter of center hole is 60 mm. The ones of inner 12 holes and other holes are 35mm and 55mm respectively. If the diameter differs, it should be specified on the confirmation sheet at the time of order.



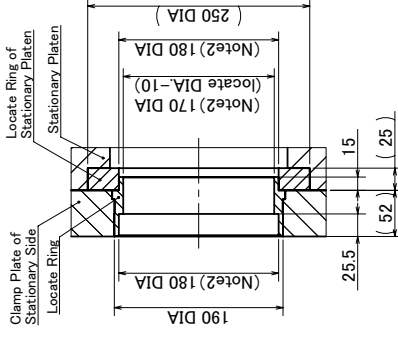
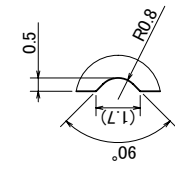
Specifications	Movable Side	Stationary Side
Type	75 mm square	88
Number of Magnet Core	84	—
Maximum Clamping Force	633kN	690kN
Mass of Plate	823kg	839kg
Accessories		
Mounting Bolt	M24x60	16
Applied Mold Clamping Force	M16x55	8
		8500kN

※Option
Mold Fall Protection Hook
(Eye Bolt : M24)



Magnet Core
8 x M16 Depth 26
Bolt : M16 x 55
Square Washer : M16

Mold Fall Protection Block
16 x M24 Depth 38
Bolt : M24 x 60
Square Washer : M24



C-C (1 : 6)
Details of locating

Type	Movable Side	Stationary Side
Number of Magnet Core	75 mm square 70 mm square 115 mm square	128 — —
Maximum Clamping Force	927kN 1155kg	1004kN 1177kg
Accessories	M24x60 M16x55	12 12
Applied Mold Clamping Force	8	13000kN

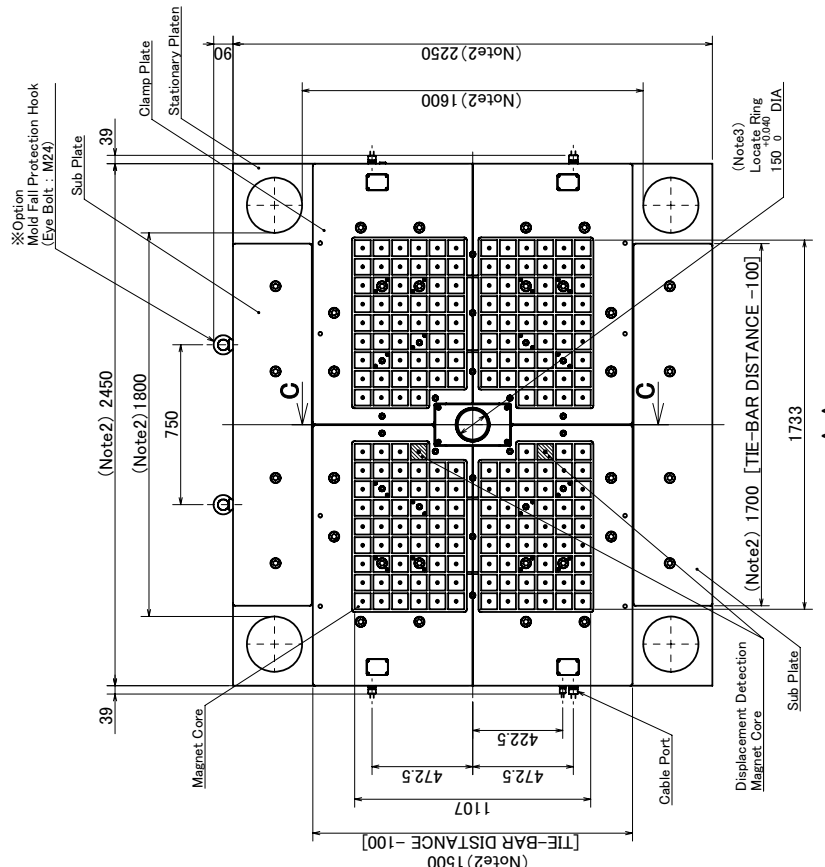
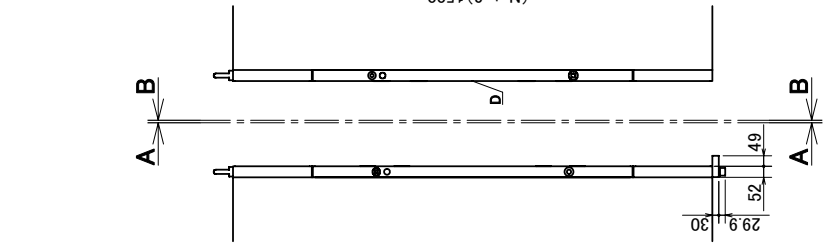
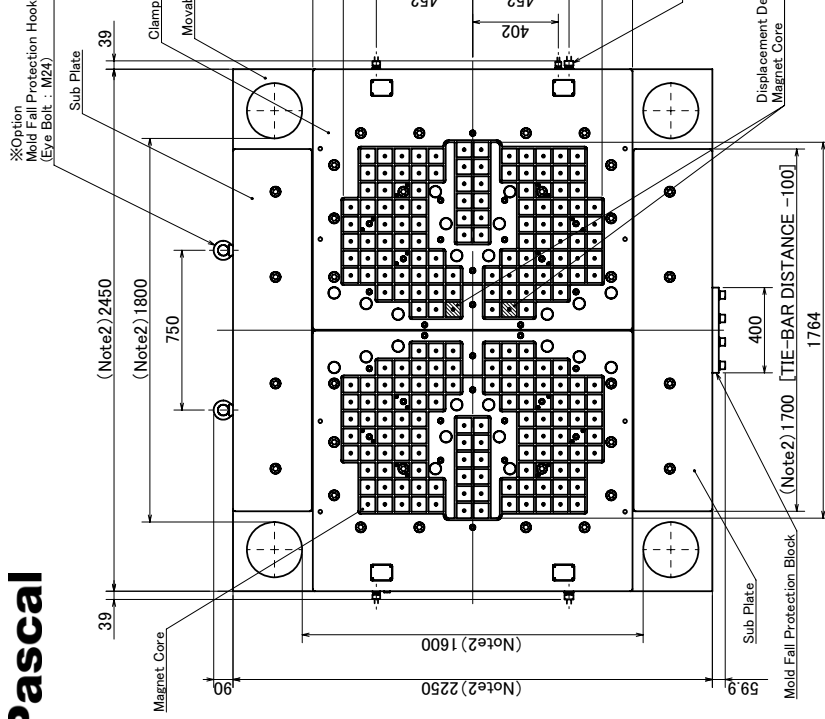
CLASS DEFINITION

MGA 1300	①	②	③	④	⑤	⑥	⑦	S : 34
① Plate thickness (mm)	NIL: 50	(Exceed the size of MGA0450 becomes 52 mm)						
② Diameter of Locate ring (mm)	1: 40	2: 60	3: 100	4: 120	5: 150	6: 180	9: Special (If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)	
③ Primary power source (V)	2: 200/220	3: 380	4: 440	5: 480				
④ Language on operation panel	J: Japanese	E: English						
⑤ Working temperature range (°C)	NIL: 0~80							
⑥ Rust proof arrangement	NIL: not included							
⑦ Special specification	NIL: not included							

[REMARKS]

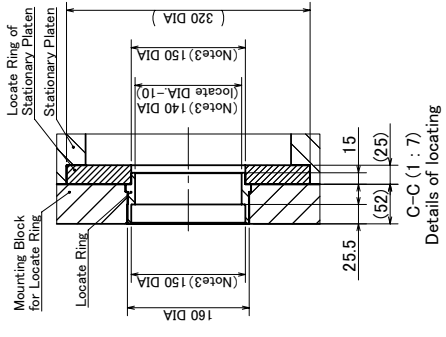
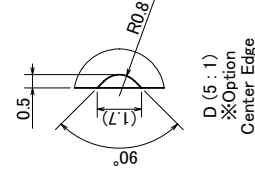
- Minimum daylight should be 155 mm.
Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 180 mm.
Ring size shown in drawing is diameter 180 mm. In other case of ring size is used, it should be changed to the dimension (Not Option (if any) should be specified on the confirmation sheet at the time of order.)
- The hole position of ejector is according to JIS B 6701. The diameter of center hole is 80 mm.
The ones of inner 12 holes and other holes are 35mm and 55mm respectively.
If the diameter differs, it should be specified on the confirmation sheet at the time of order.

SCALE	1:20	REVISION HISTORY	STANDARD XXX9A-034-3 S-30300-002	DESIGNED BY	03006	MODEL	MGA1300	NAME	Mag Clamp Layout	DWG.NO.	3MGA17820	FILE NO.	MGA1782.slddrw
-------	------	------------------	--	-------------	-------	-------	---------	------	------------------	---------	-----------	----------	----------------



B-B Movable Side

A-A Stationary Side



Details of locating

CLASS DEFINITION

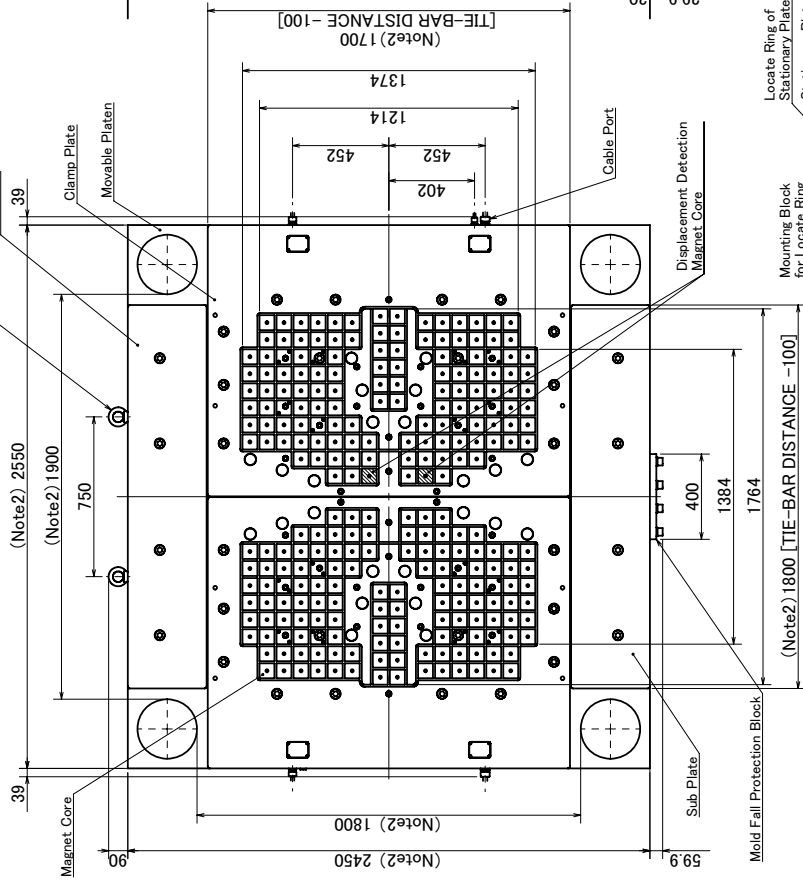
① Plate thickness (mm)	Nil: 50 (Exceed the size of MGA450 becomes 52 mm)	S: 34
② Diameter of locate ring (mm)	1: 40 2: 60 3: 100 4: 120 5: 150 g: Special (If the both diameter of locate rings with injection molding machine and mold are different, it is selected this.)	
③ Primary power source (V)	2: 200/220 3: 380 4: 440 5: 480	
④ Language on operation panel	J: Japanese E: English	
⑤ Working temperature range (°C)	Nil: 0~80 H: 0~150 U: 0~180	
⑥ Rust proof arrangement	Nil: not included N: included	
⑦ Special specification	Nil: not included Drawing number: included	

- (NOTE)**
- Minimum daylight should be 155 mm.
 - Dimensions of platens and tie-bars shown above are reference only.
 - Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 150 mm. Ring size shown in drawing is diameter 130 mm. In other case of ring size is used, it should be changed to the dimension (Note2).
 - Option (if any) should be specified on the confirmation sheet at the time of order.
 - The hole position of ejector is according to JIS B 6701. The diameter is 35 mm.
- If the diameter differs, it should be specified on the confirmation sheet at the time of order.

Specifications

Type	Movable Side	Stationary Side
Number of Magnet Core	75 mm square: 212 70 mm square: - 115 mm square: -	192
Maximum Clamping Force	1558kN 1964kg	1505kN 1958kg
Accessories	M30x65: 32 M16x55: 30 M12x55: -	32 22 4
Applied Mold Clamping Force	22000~25000kN	

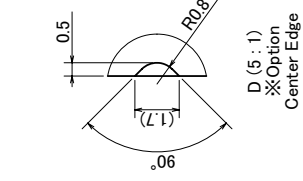
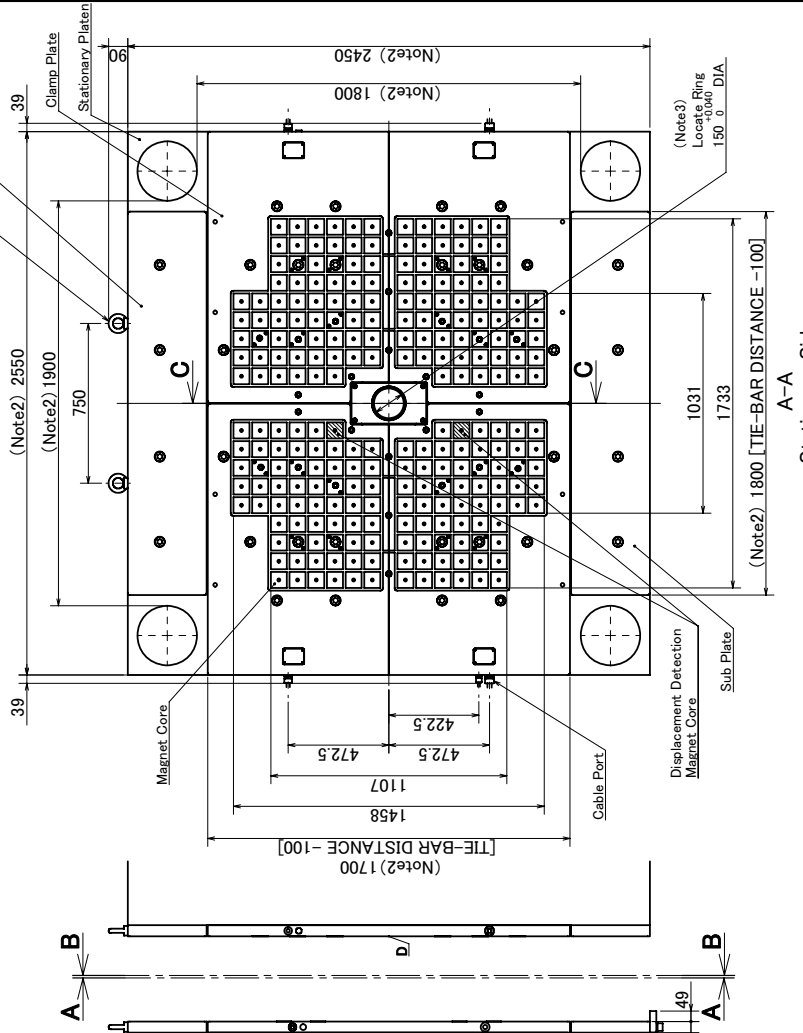
※Option
Mold Fail Protection Hook
(Eye Bolt : M24)



B-B
Movable Side

A-A
Stationary Side

※Option
Mold Fail Protection Hook
(Eye Bolt : M24)



D (5 : 1)
※Option
Center Edge

C-C (1 : 7)
Details of locating

CLASS DEFINITION

MGA 3000	①	②	③	④	⑤	⑥	⑦
① Plate thickness (mm)	NIL: 50	(Exceed the size of MGA450 becomes 52 mm)	S: 34				
② Diameter of Locate ring (mm)	1: 40	2: 60	3: 100	4: 120	5: 150		
③ Primary power source (V)	2: 200/220	3: 380	4: 440	5: 480			
④ Language on operation panel	J: Japanese	E: English					
⑤ Working temperature range (°C)	NIL: 0~80						
⑥ Rust proof arrangement	NIL: not included						
⑦ Special specification	NIL: not included						

- (NOTE)
- Minimum daylight should be 155 mm.
 - Dimensions of platens and tie-bars shown above are reference only.
 - Locate ring can be corresponded with both hole sizes of mold and injection side to diameter 150 mm. Ring size shown in drawing is diameter 150 mm. In other case of ring size is used it should be changed to the dimension (Note2).
 - Option (if any) should be specified on the confirmation sheet at the time of order.
 - The hole position of ejector is according to JIS B 0701. The diameter is 65 mm. If the diameter differs, it should be specified on the confirmation sheet at the time of order.

Specifications	Movable Side	Stationary Side
Type	75 mm square	228
Number of Magnet Core	70 mm square	244
Maximum Clamping Force	115 mm square	1788kN
Mass of Plate	M30x65	32
Accessories	M16x65	26
Mounting Bolt	M12x65	4
Applied Mold Clamping Force		28000~30000kN