A product digest

**QUICK MOLD CHANGE SYSTEMS**

- Hydraulic G series
- Hydraulic Unit
- Quick Ejector Rod
- Pneumatic H series
- Pneumatic Q series
- Magnetic Clamp

http://www.kosmek.co.jp

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FOR FURTHER INFORMATION ON UNLISTED SPECIFICATIONS AND SIZES, PLEASE CALL US.

SPECIFICATIONS ON THIS LEAFLET ARE SUBJECT TO CHANGE WITHOUT NOTICE.
Advantages of Automatic Clamping Systems

- **Shorter Mold Changing Time**

  1. With a manual clamping system, workers must loosen and tighten bolts one by one. However, with an automatic clamping system, a single operator can release the clamps holding the mold on both sides at once, reducing changing time.

  2. Reduction of mold changing time results in less time the crane spends waiting to put the mold in place, an important factor at plants where multiple molding machines are in operation.

  3. When there is an urgent need to repair a mold, the automatic clamping system can reduce down time by allowing faster dismounting and remounting of the mold.

  4. Reduction of mold changing time leads to an overall improvement in productivity.

- **Comparison of Mold Setting Times**

<table>
<thead>
<tr>
<th>Conventional System (Manual Tightening)</th>
<th>Automatic Clamping System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Mold in With Crane</td>
<td>Lower Mold in With Crane</td>
</tr>
<tr>
<td>Align With the Locator Ring</td>
<td>Rest Mold on the Support Block</td>
</tr>
<tr>
<td>Adjust Position and Close the Mold</td>
<td>Adjust Position and Close the Mold</td>
</tr>
<tr>
<td>Tighten the Operation Side</td>
<td>Turn on the Lock Switch for the Stationary Side</td>
</tr>
<tr>
<td>Open the Safety Door</td>
<td>Turn on the Lock Switch for the Moveable Side</td>
</tr>
<tr>
<td>Attach the Bolts/Fittings</td>
<td>Mold Setting Time</td>
</tr>
<tr>
<td></td>
<td>&lt;1 Minute and 59 Seconds!&gt;</td>
</tr>
<tr>
<td>4 Bolts</td>
<td></td>
</tr>
<tr>
<td>Go to the Non-Operation Side</td>
<td></td>
</tr>
<tr>
<td>Tighten the Non-Operation Side</td>
<td></td>
</tr>
<tr>
<td>Open the Safety Door</td>
<td></td>
</tr>
<tr>
<td>Attach the Bolts/Fittings</td>
<td></td>
</tr>
<tr>
<td>4 Bolts</td>
<td></td>
</tr>
<tr>
<td>Move to operation side</td>
<td></td>
</tr>
<tr>
<td>Mold Setting Time</td>
<td></td>
</tr>
<tr>
<td>&lt;4 Minutes and 1 Second&gt;</td>
<td></td>
</tr>
</tbody>
</table>

Remarks

※1. Actual recorded times for mold settings performed on a 180 ton Injection Molding Machine.

The Automatic Mold Clamping System used was a KOSMEK Magnetic Clamp.
Advantages of Automatic Clamping Systems

1. Shorter Mold Changing Time

Comparison of Mold Setting Times

Improvement of Work Environment and Work Efficiency

1. The mold change using bolts may be one of hard, dangerous, dirty works. Application of the automatic mold clamp allows everyone to change molds by button operation, to prevent backache and sweat-caused slip and to improve work environment.

2. Productivity can be improved because the work without any tool results in saving time for searching tool.

3. Stationary type clamp and auto slide type clamp eliminate the work at the non-operation side to reduce the work time and improve productivity. In addition, mold change by one person is also possible.

4. The application of the automatic mold clamp allows everyone to mount molds by the same clamping force which leads to work standardization.

Quality Improvement

1. It is difficult to tighten bolts equally because the workspace is sometimes too narrow to handle the tool depending on the position of the bolt. And it is not efficient to tighten the operation and non-operation sides bolts temporarily and then finally. Therefore the bolts are tightened one by one without temporary fastening. Since tightening condition of bolts cannot be visually recognized, sometimes final tightening may be forgotten. This means the mold cannot be installed equally by manual tightening. Therefore burrs may be produced on molded products due to mold deformation during molding, and product deformation may occur. Application of the automatic mold clamp enables to mount a mold in a condition close to molding action, leading to defective product decrease.

2. Some users say that they control the clamping force “using the torque wrench”. In that case, however, what they do is actually torque control but not clamping force control. The application of the automatic mold clamp allows the same mounting result without relating to individual workers.
Advantages of Automatic Clamping Systems

- Improvement of Safety

1. The automatic mold clamp system is designed to assure safety by applying a non-leak valve, a back-up pump unit, and the built-in mechanical locking system to prevent mold dropping accidents.

2. Although loose bolts are hard to find visually, the automatic mold clamp system is provided with various types of interlocking between the clamp and molding machine to provide safety measures such as shutting down the molding machine, thus assuring safety even if a trouble such as pressure drop occurs.

3. Operation and control panel manufactured by KOSMEK is designed considering prevention of wrong operation by workers as well as the interlocking with the molding machine.

- Cost Reduction

1. Improvement in operational ease and productivity by reducing the mold change time leads to total cost reduction.

2. Reliable mold mounting will reduce wear rate of a mold guide bush, failure of an ejector pin and so on, contributing to the mold repair cost reduction.

3. Reduction of the mold change time and the improvement of productivity give the workers time to do value added work, leading to reduction of total labor cost.

4. Standardized work leads to a stable molding process which by turn helps to reduce defective products, thus resulting in the total cost reduction.
Enhancement of Total Business Power

Achievement of the above items enables to correspond to multi-item small lot production and short delivery time, and to create stable quality products at a low price.

And the improvement of work environment contributes to attracting able employees and keeping them committed and to the improvement of their work level, leading to enhancement of total power of the enterprise.

Quick Mold Change Systems

In the technique that put improvement on the experience that the quick mold change system of KOSMEK cultivated with many results from that in response to the many kinds and small quantity, stock reply production of the visitor the die exchange of the injection molding airplane "is fast security realize, "single making arrangements" surely".
**What is Vertical Loading?**

“Vertical loading” is the system where the mold is set from the top of the molding machine by crane. The mold will be secured in the I.M.M. by hydraulic clamp. Kosmek’s molding change system enables to select the most suitable system structure by the condition of molds and I.M.M.

**Clamp Variation**

- **Hydraulic Clamping Systems**
  - GB
  - GE / GLA
  - GM
  - GWA

- **Pneumatic Clamping Systems**
  - HB / QB
  - HE / QE
  - QM
  - HC

- **Magnetic Clamping Systems**
  - MEK

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*Note: Not every product is shown here. Please contact us for detailed specifications.*
● **Vertical Mold Loading Systems**

Please refer to the chart below and select a clamping system for the most suitable manufacturing system from a variety of Kosmek product.

*Not every product is shown here. Please contact us for detailed specifications.*

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**Magnetic Clamping Systems**  
**MEK**

**Free Method**

- Power Unit
- Remote Operation Unit
- Electricity

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**Hydraulic Clamping Systems**  
**GWA**

**Pneumatic Clamping Systems**  
**HC**

**Stationary Method**

- GWA Clamp
- HC Clamp
- MH Support Block or MJ Safety Block
- MG Guide Block
- Operation Control Panel
- Valve Unit (For HC Clamp)
- Air Valve Unit
- Hydraulic Unit (GWA Using I.M.M. hydraulic source)
- Electricity
- Pneumatic

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**Magnetic Clamping Systems**  
**MEK**

**Hydraulic Clamping Systems**  
**GM**

**Pneumatic Clamping Systems**  
**QB**

**Manual Sliding Method**

- GM Clamp
- QB Clamp
- MH Support Block or MJ Safety Block
- MG Guide Block
- Operation Control Panel
- Air Valve Unit (For QB Clamp)
- Electricity
- Pneumatic

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**Hydraulic Clamping Systems**  
**GB**

**Pneumatic Clamping Systems**  
**HB/QB**

**Automatic Sliding Method**

- GB Clamp
- HB/QB Clamp
- MH Support Block or MJ Safety Block
- Operation Control Panel
- Air Valve Unit
- Air Valve Unit for Slider
- Hydraulic Unit (For GB Clamp)
- Electricity
- Pneumatic

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**Hydraulic Clamping Systems**  
**GE/GLA**

**Pneumatic Clamping Systems**  
**HE/QE**

**Manual Sliding Method**

- GE/CLA Clamp
- HE/QE Clamp
- MH Support Block or MJ Safety Block
- Operation Control Panel
- Air Valve Unit
- Air Valve Unit for Slider
- Hydraulic Unit (GE/GLA only)
- Electricity
- Pneumatic

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The thickness of mold back-plate is standardized.  
Y

The dimension of mold width is not standardized.  
N

Injection mold machine has T slots.  
Y

The operator can go around and operate on non-operator side.  
Y

**MEK**  
**GWA**  
**GM**  
**GE/GLA**  
**GB**  
**HC**  
**QM**  
**HE/QE**  
**HB/QB**
What is Horizontal Loading?

“Horizontal Loading” is the system where by the mold is set from either operation side or non-operation side using cart or table. You may choose the most suitable arrangement according to the frequency of change of mold and layout of the factory.

Clamp Variation

- **Hydraulic Clamping Systems**: GWA
- **Pneumatic Clamping Systems**: HC
- **Magnetic Clamping Systems**: MEK

**HORIZONTAL LOADING**
**Horizontal Mold Loading Systems**

Please refer to the chart below and select a clamping system for the most suitable manufacturing system from a variety of Kosmek products.

*Not every product is shown here. Please contact us for detailed specifications.*
GB
T-Slot Manual-Slide Clamp (Single-Action)

GB Clamp is a common type of clamp with T-Slots, which can be used with molds of various widths.

**[Specification]**
- Operating Pressure MPa: 24.5

**[Option]**
- With Handle
- Reinforced Body
- Wide Lever
- Long Stroke
- NPT Port
- Low Lever
- With Proximity Switch for Mold Detection
- High Temperature
- Rear Port
- With Check Valve

GE
T-Slot Automatic-Slide Clamp (Single-Action)

GE Clamp has the ability to slide and lock molds of different sizes by remote control.

**[Specification]**
- Clamping Force kN: 24.5, 39.2, 61.7, 98, 157, 245
- Operating Pressure MPa: 24.5
- Driving Pneumatic Pressure for Air Cylinder MPa: 0.39 ~ 0.49

**[Option]**
- Reinforced Body
- Low Lever
- Rear Port
- Wide Lever
- NPT Port
- Double Cylinder
- Special Spacer
- High Temperature

GWA
Stationary Clamp (Double-Action)

GWA Clamp adopting a mechanical locking system, is a highly reliable clamp which maintains its clamping power when the hydraulic pressure for locking drops to “0”.

**[Specification]**
- Operating Pressure MPa: 13.7

**[Option]**
- High Temperature

GLA
T-Slot Automatic-Slide Clamp (Double-Action)

GLA Clamp developed from the GWA Clamp, is capable of sliding and locking variable width molds by remote control.

**[Specification]**
- Clamping Force kN: 157, 245, 392, 490
- Operating Pressure MPa: 13.7
- Driving Pneumatic Pressure for Air Cylinder MPa: 0.39 ~ 0.49

**[Option]**
- Double Cylinder
- High Temperature
Please refer to a catalog for the detail of each product.

**GM**
Block Type Manual-Slide Clamp (Single-Action)

Hydraulic 24.5MPa

GM Clamp is suitable for I.M.M. without T-slot. It can be used with molds of various widths and allows for the variation of “h” dimension up to 5mm.

[Specification]
- Clamping Force kN (at 24.5MPa): 24.5 39.2 61.7 98
- Operating Pressure MPa: 24.5

[Option]
- NPT Port
- High Temperature
- With Proximity Switch for Mold Detection
- With Slider

**CP / CR / CS**
Hydraulic Unit

Hydraulic 13.7MPa/24.5MPa

There are compact hydraulic unit consisting of pump, valves, pressure relief valve and pressure switch. Corresponds to wide range of I.M.M. size.

[Correspondence Clamping Force (Aim)]
- CP Unit kN: 9.8 15.7 24.5 39.2
- CR Unit kN: 61.7 98
- CS Unit kN: 98 157

**MV00**
Hydraulic Valve Unit

Hydraulic 13.7MPa

MV00 unit is used when the hydraulic source is the I.M.M. The lock circuit of the GWA Clamp, GLA Clamp is equipped with a pressure relief valve.

[Specification]
- Operating Pressure MPa: 13.7
- Control Voltage: AC100V / AC110V / AC200V / AC220V / DC24V

[Option]
- NPT Port

**MV30**
Pneumatic Valve Unit

Pneumatic 0.39 ~ 0.49MPa

MV30 Pneumatic Valve Unit controls the movement of clamps.

[Specification]
- Operating Pressure MPa: 0.39 ~ 0.49
- Control Voltage: AC100V / AC200V / DC24V

[Option]
- NPT Port
H series’ clamp is the compact clamp which has strong power with output powered only by pneumatic pressure. Holding / clamping force remain even when pressure falls to zero.

<table>
<thead>
<tr>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clamping Force (at 0.49MPa)</td>
</tr>
<tr>
<td>Operating Air Pressure</td>
</tr>
<tr>
<td>Min. Operating Air Pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>• With Handle • High Type • Low Type</td>
</tr>
<tr>
<td>• High Temperature • With Proximity Switch for Mold Detection</td>
</tr>
</tbody>
</table>

HE clamp has the ability to slide and lock molds of different sizes by remote control.

<table>
<thead>
<tr>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clamping Force (at 0.49MPa)</td>
</tr>
<tr>
<td>Operating Air Pressure</td>
</tr>
<tr>
<td>Min. Operating Air Pressure</td>
</tr>
<tr>
<td>Driving Pneumatic Pressure for Air Cylinder</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>• High Type • Low Type • Double Cylinder</td>
</tr>
<tr>
<td>• Special Spacer • High Temperature</td>
</tr>
</tbody>
</table>

It is suitable for various usages of vertical / horizontal mold change system of vertical mold loading and horizontal mold loading. The lock / release confirmation switch is standard equipment.

<table>
<thead>
<tr>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clamping Force (at 0.49MPa)</td>
</tr>
<tr>
<td>Operating Air Pressure</td>
</tr>
<tr>
<td>Min. Operating Air Pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Extremely Small Load Switch Type • High Temperature</td>
</tr>
</tbody>
</table>

The pneumatic valve unit controls lock / release of clamp and it is able to confirm pressure rising of clamp circuit by pressure switch.

<table>
<thead>
<tr>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Air Pressure</td>
</tr>
<tr>
<td>Control Voltage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NPT Port</td>
</tr>
</tbody>
</table>
QB
T-Slot Manual-Slide Clamp (Double-Action)

The power cylinder with powered output enables “compact” and “high power” at the same time.

[Specification]
- Clamping Force (at 0.4 MPa) kN: 10 16 25 40 63
- Max. Operating Air Pressure MPa: 1.0
- Min. Operating Air Pressure (Release) MPa: 0.3

[Option]
- High Type
- Low Type
- With Proximity Switch for Mold Detection
- High Temperature

QE
T-Slot Automatic-Slide Clamp (Double-Action)

QE clamp has the ability to slide and lock molds of different sizes by remote control.

[Specification]
- Clamping Force (at 0.4 MPa) kN: 10 16 25 40 63
- Operating Air Pressure MPa: 0.4 ~ 0.8
- Min. Operating Air Pressure MPa: 0.39
- Driving Pneumatic Pressure for Air Cylinder MPa: 0.39 ~ 0.49

[Option]
- High Type
- Low Type
- Double Cylinder
- Special Spacer
- High Temperature

QM
Block Type Manual-Slide Clamp (Double-Action)

It is suitable for I.M.M. without T-slot, and also for molds of different sizes.

[Specification]
- Clamping Force (at 0.4 MPa) kN: 10 16 25 40 63
- Max. Operating Air Pressure MPa: 1.0
- Min. Operating Air Pressure (Release) MPa: 0.3

[Option]
- High Temperature

MV9011
Pneumatic Valve Unit

The pneumatic valve unit controls lock / release of clamp and it is able to confirm pressure rising of clamp circuit by pressure switch. It also solves an insufficiency of supply pneumatic pressure by a boosting valve.

[Specification]
- Incoming supply pneumatic pressure MPa: 0.4 or more
- Control Voltage: AC100V / DC24V

[Option]
- NPT Port

Please refer to a catalog for the detail of each product.
We have developed the new magnetic clamp which combines safety, quickness and ecology.

[Specification]
Control Voltage : 200V / 230V / 400V / 460 V ~ 480V (50 / 60Hz)

The compact power source unit which does not take the setting space.

The palm-sized remote-control unit is highly operable which enables to check the adsorption force at hand.

Preparing for mold falling by any chance, the mold support fitting improves safety.

[Specification]
Operating Load(Dead Load) kN : 12.5 20 32 50 80 125
Chain Length : per 100mm
The operational panel and control unit are separated which allows control methods more free. Only a little space needed for mounting due to the compact design.

[Specification]
- PS Voltage : AC100V ~ AC240V (50 / 60Hz)
- PS Capacity : 30W / 100W
- Operating Voltage of YMB080 : DC24V

[Option]
- Available to the proximity switch for mold detection
- Available to the proximity switch for mold detection (When using 6 to 8 on one side)

Kosmek’s original quick connect ejector rod enables to exchange ejector pins in a single operation.

The joint for mold temperature control which enables automation of mold change systems.

[Specification]
- Body Size : 1/4” 3/8” 1/2” 3/4” 1”

[Option]
- NPT port

In addition, we offer various products.
Product lineup

We manufacture a wide range of clamping systems and components. Feel free to contact us.

■ QUICK DIE CHANGE SYSTEMS

This clamp system enables single minute die change. Used on all sizes and types of stamping presses.

■ DIECAST CLAMPING SYSTEMS

Safe and stable clamp system for diecast machines under severe conditions such as high temperature and sticky release agent etc.

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