

## Global Network



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## Double-shot

All-electric Double-shot Injection Molding Machine



# Double-shot

All-electric Double-shot Injection Molding Machine



## Lineup

- SE30DU2-CI (290kN)
- SE75DU2-CI (730kN)
- SE130DU2-CI (1270kN)
- SE230HS2-CI (2250kN)
- SE280HS2-CI (2740kN)
- SE400HS2-CI (4000kN)

The machines in this series have acquired JIS B 6711:2021 (equivalent to ISO 20430:2020) certification.

We support the enhancement of our customers' corporate value through providing high performance, high quality, and safe injection molding machines.

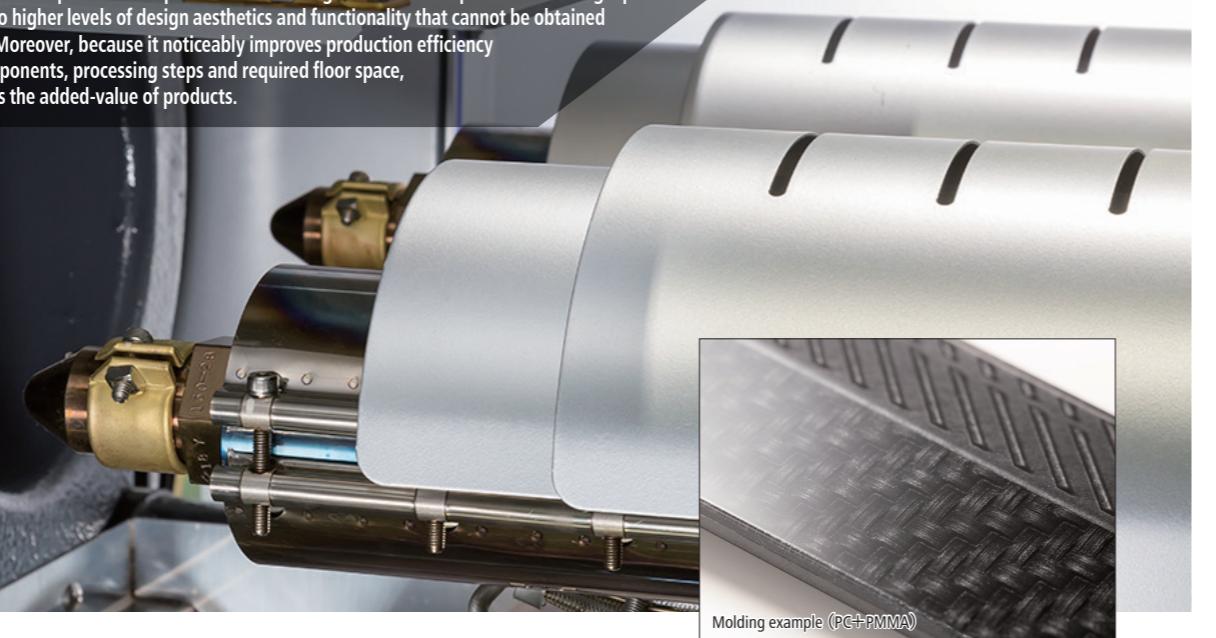
[www.shi.co.jp/plastics/](http://www.shi.co.jp/plastics/)



# Pursuing greater possibilities of parts with the Double-shot

## Enhancing product added-value by combining different materials

Two-material molding allows molded parts of multiple colors or differing materials to be produced in a single process. This approach opens the door to higher levels of design aesthetics and functionality that cannot be obtained from single-material molding. Moreover, because it noticeably improves production efficiency by reducing the number of components, processing steps and required floor space, two-material molding enhances the added-value of products.



Molding example (PC+PMMA)

## Molding performance and lineup matched to manufacturer needs

Specialized for two-material molding, our Double-shot series solves productivity, stability and maintainability issues by integrating a number of highly reliable proprietary technologies into an all-electric machine with an established reputation for precision and stability. With clamping forces ranging from 290 kN to the world's highest\* 4,000 kN class and a wide selection of modules to choose from, we have a solution for most any manufacturer's needs.

\* World's largest class of all-electric double-shot molding machines

### Manufacturer needs and solutions

High productivity	<ul style="list-style-type: none"><li>Toggle clamping system</li><li>Rotary ejector rod</li><li>Rotation speed</li><li>Rotation precision</li></ul>	Our highly reliable toggle technology accumulated over the years realizes fast, assured mold opening and closing.
Stable precision molding	<ul style="list-style-type: none"><li>Double Center Press Platens</li><li>SKII control</li><li>Direct drive</li><li>High-speed injection</li><li>Flash mode/control</li></ul>	The mold rotary unit uses a servomotor drive and mechanical stop to ensure no time is wasted while rotating. At the same time, it keeps molding stable over repetitive production cycles.
Filling for thin-wall parts	<ul style="list-style-type: none"><li>Wide platen</li><li>Proprietary temperature control piping</li></ul>	Tried-and-trusted components are on board. It is designed and built to answer the growing needs for thin-wall filling.
Mold support	<ul style="list-style-type: none"><li>Independently turning plasticizing units</li><li>Temperature control piping for rotary unit</li><li>N9 controller</li></ul>	The great freedom of mold design and mountable weight makes it possible to produce longer parts.
Ease of setup/maintenance	<ul style="list-style-type: none"><li>Independently turning plasticizing units</li><li>Temperature control piping for rotary unit</li><li>N9 controller</li></ul>	Features for temperature control piping for the rotary unit, screw cleaning and F/R single display are available.



SE30DU2-CI SE75DU2-CI SE130DU2-CI  
SE230HS2-CI SE280HS2-CI SE400HS2-CI

World's largest class of all-electric double-shot molding machines

## Solutions made possible by two-material molding

If you consider the vast range of material combinations available, the imaginable solutions offered by two-material molding are virtually endless. Our double-shot machines enable all kinds of molding possibilities and provide manufacturers the means to achieve high value-added production.

### Variety of applications

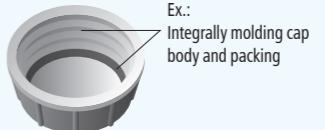
Combining different colors or grades of the same material or different materials entirely opens the door to new applications in molding.



Different colors and materials can be combined into a single part.

### Functionality

Molded parts can be given properties of resins with conflicting elements like improved sealing or resistance.



Ex.: Integrally molding cap body and packing

### Dimensional accuracy

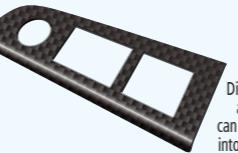
Since parts can be designed without consideration for downstream processing, dimensional variation caused by shrinkage is reduced. Moreover, improved dimensional stability can be expected in production of thinner-wall parts.



Even easily mismatching structures ... can be accurately molded.

### Design aesthetics

Parts with notable design features such as texture and color can be made.



Different colors and materials can be combined into a single part.

### Durability

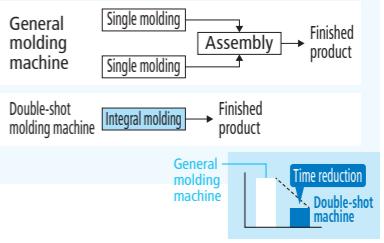
Strength and resistance to heat, weather and wear will be improved because the appropriate resin can be placed in the appropriate location.



Ex.: Tray  
Shock-absorbing material is used on the outside to enhance durability.

### Production efficiency

Two-material molding noticeably improves production efficiency by reducing the number of processing steps, components, manufacturing time and required floor space.



### Molded part examples

#### Elastomers

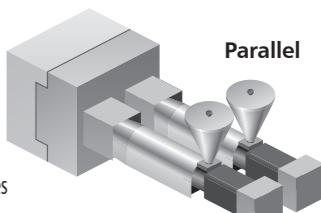


#### Translucent/Transparent resins



## Advantages of parallel type double-shot machine

Compared to vertically, horizontally and diagonally arranged layouts, there are many advantages to positioning injection units in parallel.



Parallel

### Space savings

Suited for wide variety, small lot production

Double-shot machine with injection units arranged in parallel requires less space than vertically arranged type machine, which needs the height for the second injection unit, or horizontally arranged (right-angle layout) type machine, which requires twice the floor space.

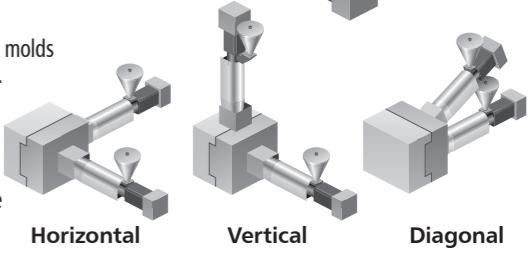
Because not only hot runners but cold runners can be used, double-shot machines make it easy to produce a wide variety of parts in small quantities.

### Easy setup

### Shorter cycle times

Use of integrated mold make it easy to align nozzles and molds so that injection units do not hamper maintenance work.

More effective features to shorten cycle time is incorporated into machines.



### Cleanroom compatible

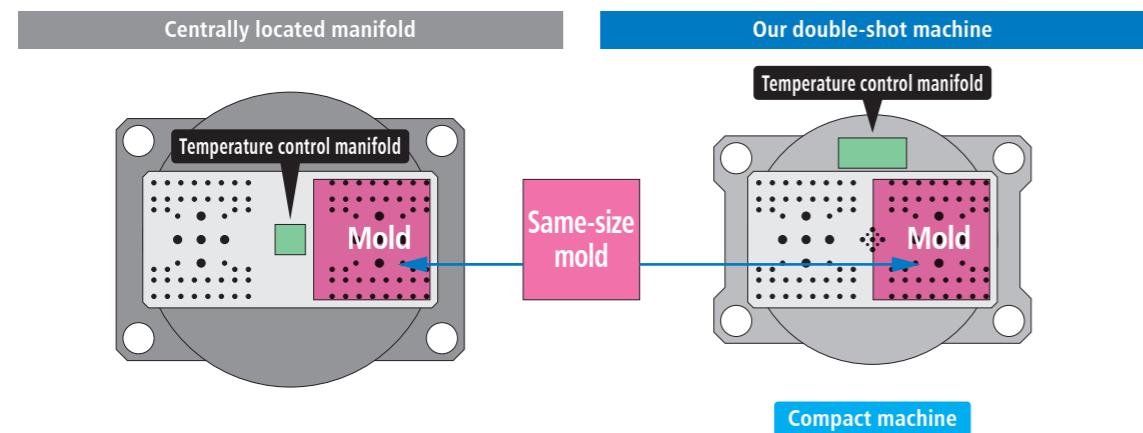
Safety door is hermetically sealed and gases can be easily recovered from the purging cover.

## Production efficiency spawned from the unique design



### Piping routed to support greater freedom of molds

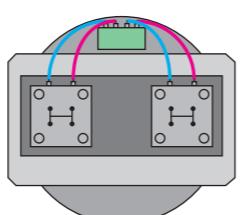
Since the manifold is not placed in the center of the rotary table, there will be no wasted space. This allows to mount the same size mold to smaller machines and leads to the achievement of "big jobs with a small machine" through an efficient mold use.



### Temperature control piping on movable side for mold rotation

Hoses are routed through the cableveyor that runs along the outer edges of the rotary table to supply cooling water, mold heater and core pull (pneumatic or hydraulic) to the movable side mold. This shortens mold cooling time, improves transcription with heater and allows use of molds with core pull. Moreover, it facilitates hose maintenance and replacement.

Sumitomo's unique temperature control manifold to not get in the way during production setup.



The cableveyor makes  
hose maintenance quick and easy.

Piping lines are selectable  
according to application.

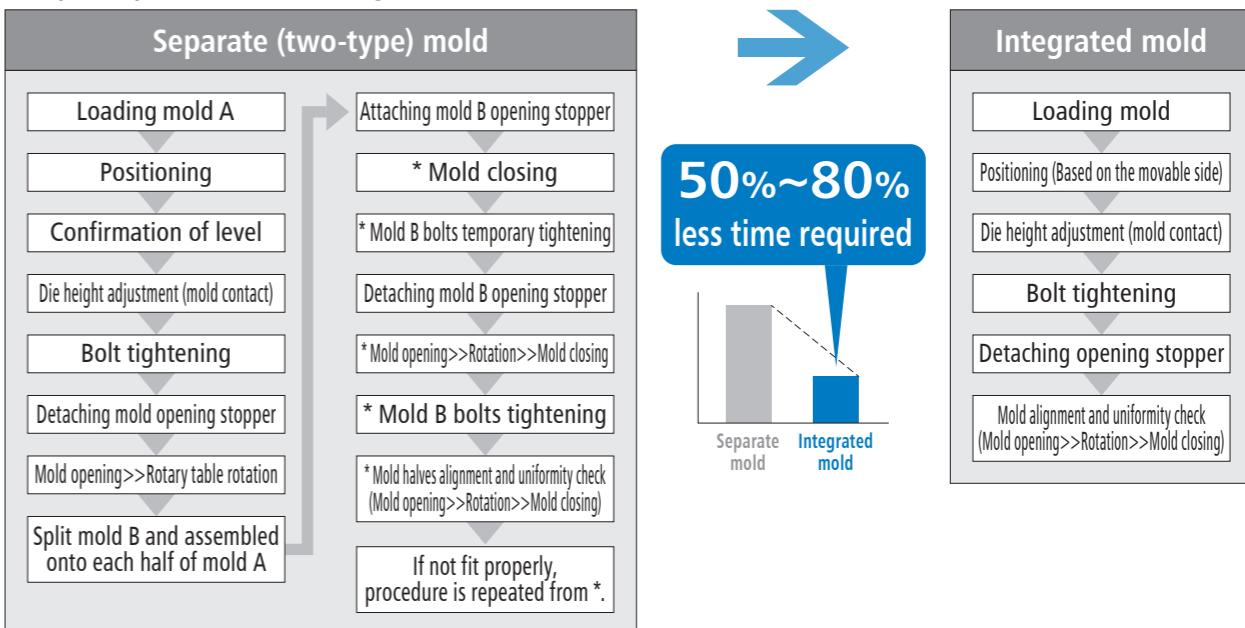
<b>SE30DU2-CI</b>	1 line
<b>SE75DU2-CI</b>	2 lines
<b>SE130DU2-CI</b>	2 lines
<b>SE230HS2-CI</b>	2&4 lines
<b>SE280HS2-CI</b>	*8 lines
<b>SE400HS2-CI</b>	2&4&6&8 lines

\* Available upon request

### Shorter setup time with integrated mold

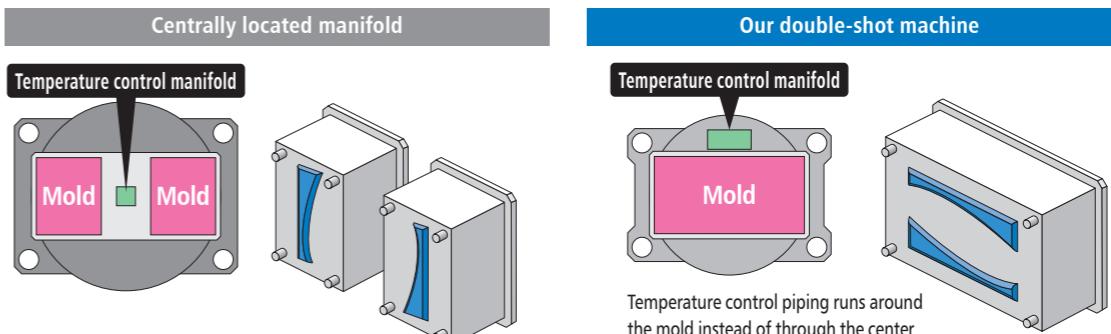
Thanks to an original design, our double-shot machine can easily mount large integrated mold. Compared to separate molds, integrated molds require considerably less time to set up, which translates into more efficient production operations.

#### Example comparison of mold mounting



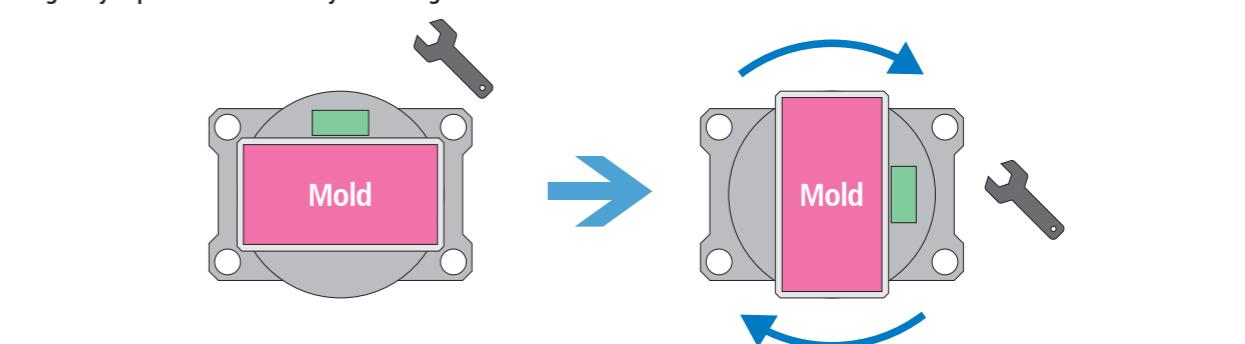
### Long parts available thanks to wider range of mountable molds

An original temperature control manifold and wider tie-bar clearance enable large mold to be mounted. It enables the molding of long parts, which was not possible with the separate (two-part) mold.

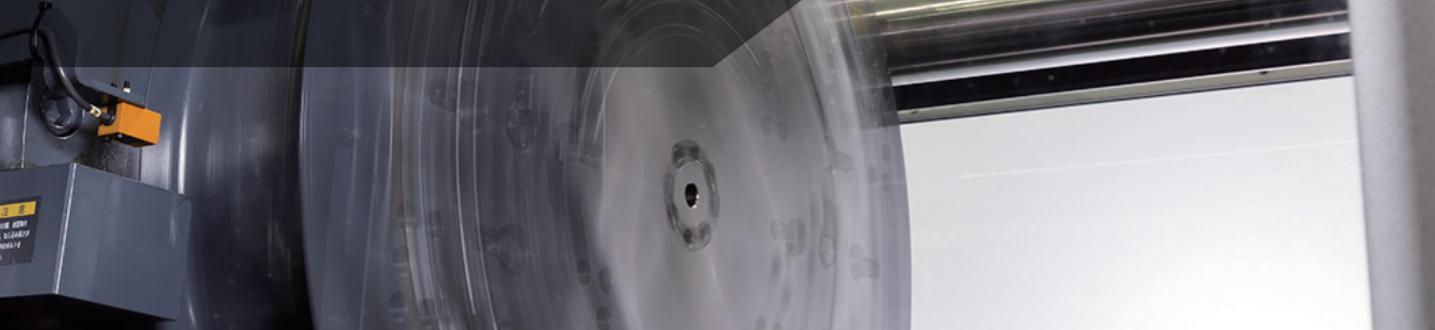


### 90° rotation stop feature greatly improves workability

The hard-to-reach top manifold faces the operator's side, making it easier to tighten bolts and perform other works. This greatly improves the workability on the large class machine SE400HS2-CI.



# Features designed for cycle time reduction

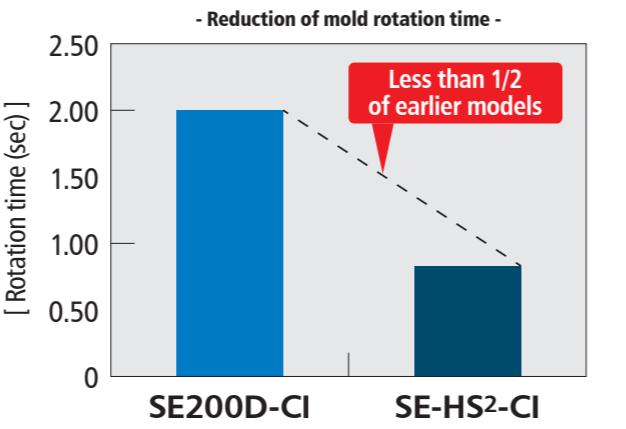


## Greatly shortened mold rotation time

Rotating time has been reduced to less than half of the earlier model SE200D-CI, leading to significant improvement in productivity.

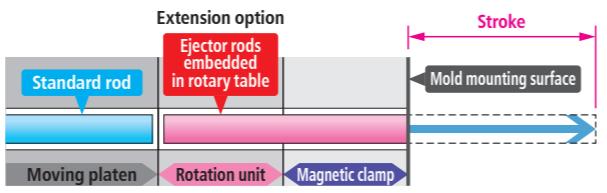
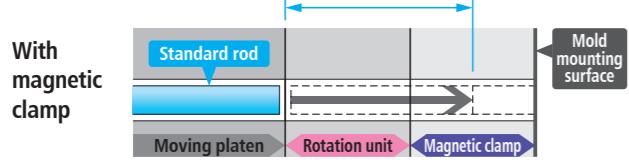
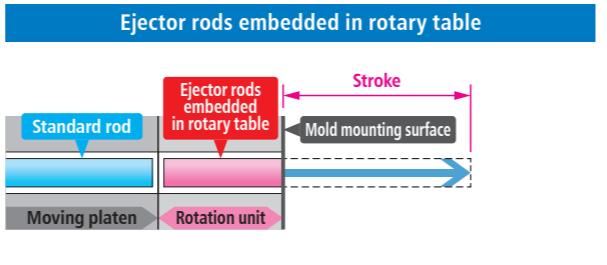
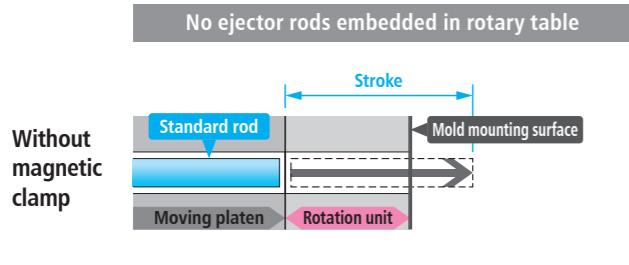
### - Mold rotation time -

<b>SE30DU2-CI</b>	<b>0.5sec</b>
<b>SE75DU2-CI</b>	<b>0.8sec</b>
<b>SE130DU2-CI</b>	<b>0.6sec</b>
<b>SE230HS2-CI</b>	<b>0.8sec</b>
<b>SE280HS2-CI</b>	<b>0.8sec</b>
<b>SE400HS2-CI</b>	<b>1.5sec</b>



## Ejector rods embedded in the rotary table

The ejection stroke can be effectively utilized to shorten the molding cycle.



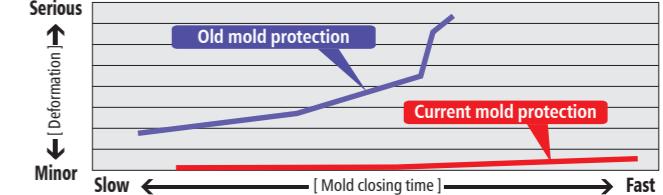
## Fine-tune individual control before/after mold rotation

Even with two perfectly identical two-material molds, there is actually a difference after rotating the mold. With our double-shot machine, molding inaccuracies of the sort have been improved by making it possible to individually control conditions before and after the rotation. Moreover, because torque is meticulously detected, molds are subjected to less stress, which relieves the worries of damaging expensive molds and allows to extend the maintenance interval.

Original      Our double-shot machine      Common mold protection

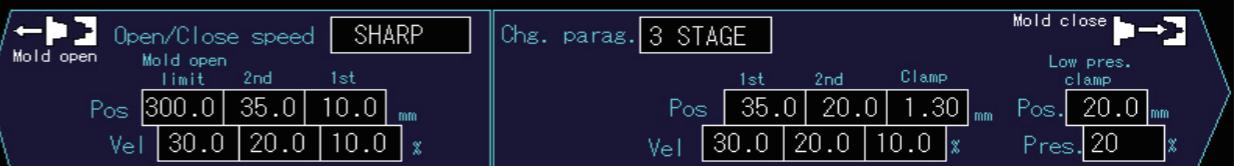


- Performance comparison between new and old mold protection -

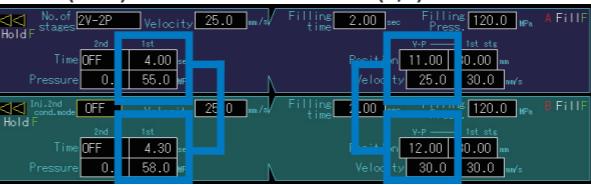


### Example of mold protection settings

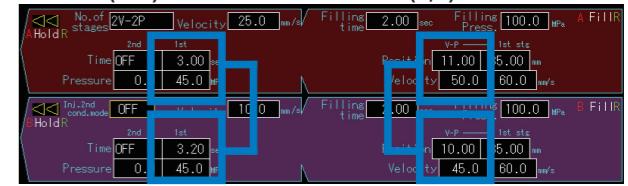
Mold open/ Close position [ 300.00 ] mm	Mold opening time [ 2.39 ] sec	Cycle time [ 29.0 ] sec
Ejector position [ 0.0 [ 0.0 ] mm	Mold closing time [ 2.34 ] sec	Total ejection time [ 1.29 ] sec
Turn table position [ 180.0 ] deg	Table turning time [ C.C.W ]	Clamp force [ 1.63 ] sec
Clamp force [ 830 ] kN		R [ 1.63 ] sec
		F [ 1.12 ] sec



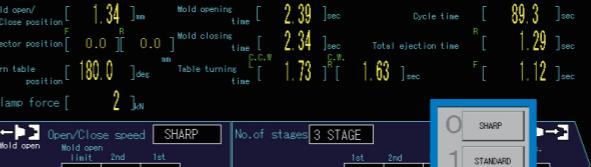
### 1st shot (front) conditions for each mold (A/B)



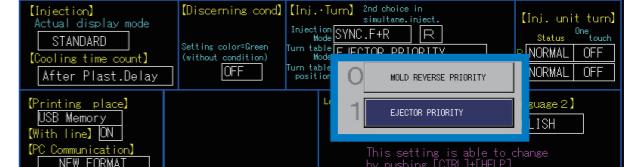
### 2nd shot (rear) conditions for each mold (A/B)



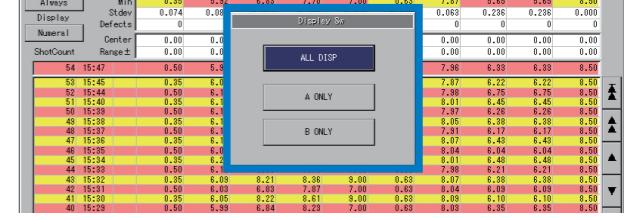
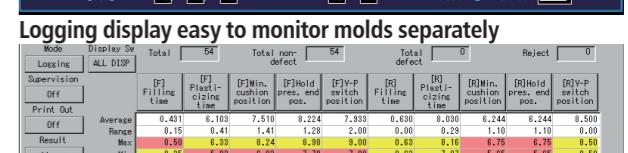
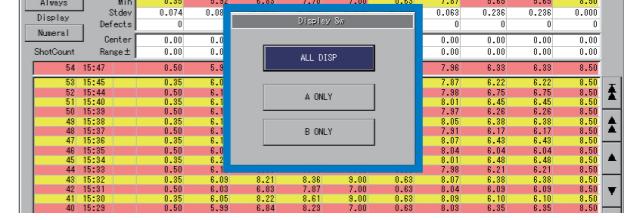
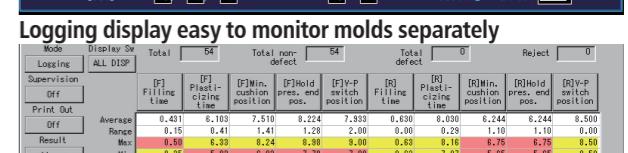
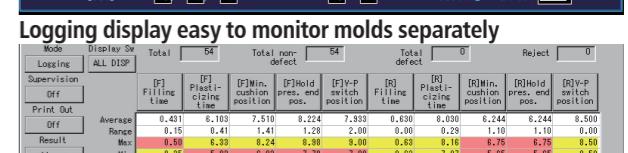
### Rotating mode setting



### Rotation timing priority Trigger selectable between rotating action or ejector action



### Applicable to various filling patterns



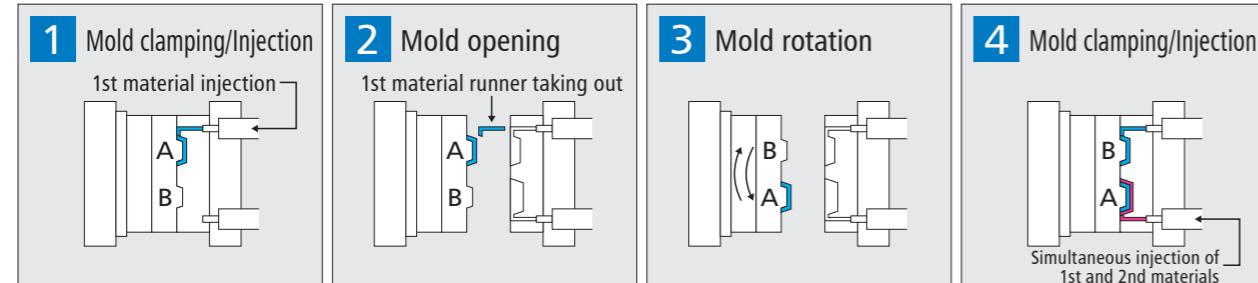
# Capability for a wide range of molding processes and special resins



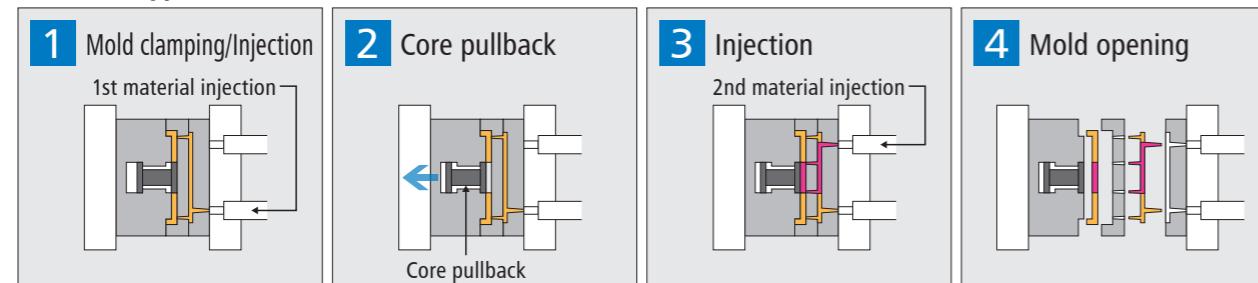
## Diverse molding processes support molding complex shaped parts

The double-shot machine easily handles complex shaped parts by rotary type, core back type and rotary + core back type injection molding. Besides the two-material molding, the series can also be applied for laminate and insert molding.

### Rotary type

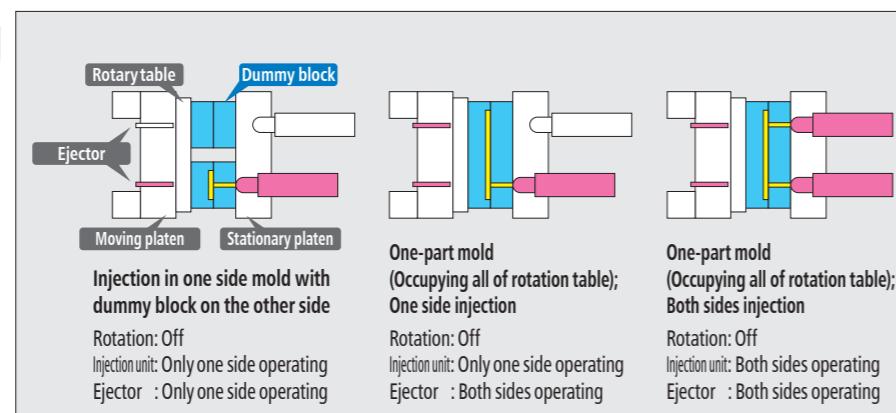


### Core back type



### Single-color molding

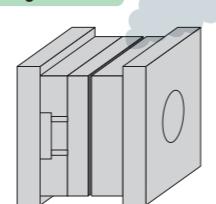
The double-shot machine can be used as a single-color molding machine without rotating molds.



## Multi-toggle

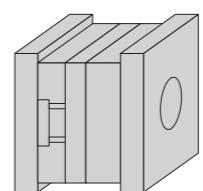
Multi-toggle is a mechanism that applies a low clamp force at the start of filling and then increases pressure as filling progresses. It improves gas release, prevents burrs from forming and lessens the frequency of mold cleaning. These benefits are especially appreciated in two-material molding where elastomers are often used.

Improved gas release



A low clamping force is applied at the start of filling to improve gas release.

Prevention of burr



Clamp force is increased as filling progresses to prevent burrs.



Particularly effective measure against elastomer gas

## SL Screw

Optional

A new plasticizing system with a screw as the core, which was designed after visually analyzing the resin melting behavior against temperature and pressure with previous screws. It prevents melt resin stagnation and subsequent carbonization, and releases gas and moisture to realize stable plasticization.

Defects improved or solved by SL Screw



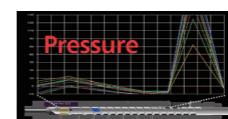
Black spot, burning and discoloring  
Increased appearance defects/screw maintenance



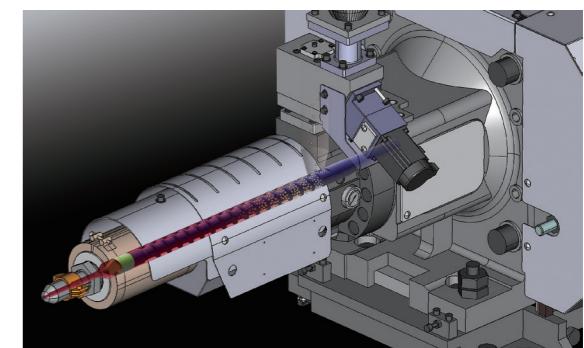
Gas generation and moisture contamination  
Increased appearance defects/mold maintenance



Screw, tip or cylinder wear  
Increased cylinder maintenance



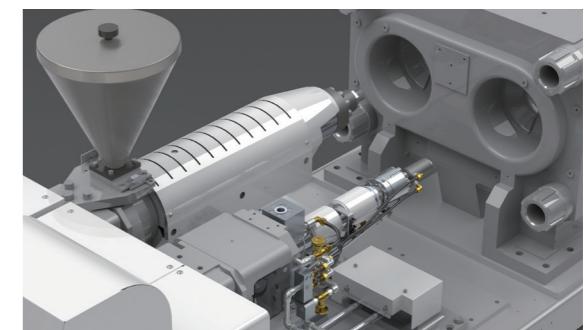
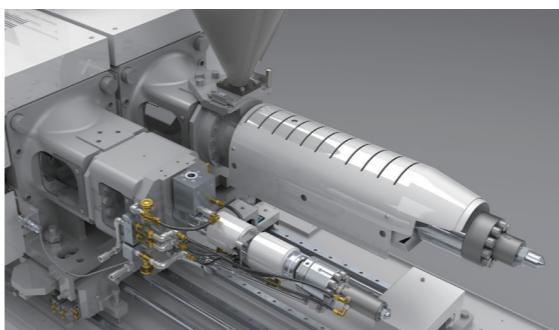
Pressure  
Unstable plasticization  
Inconsistent product precision/productivity



## LSR molding supported

Optional

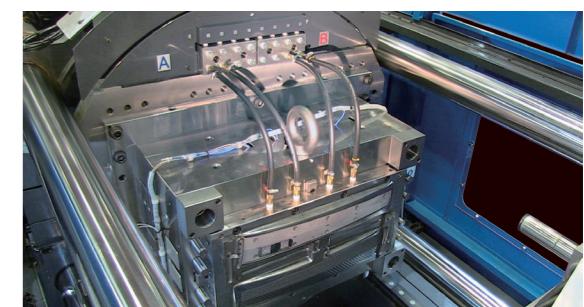
Liquid Silicone Rubber (LSR) is often used in two-material molding. Our LSR screw assembly uses a rotating sealing method that realizes small-capacity precision metering and low-speed filling. Highly stable LSR molding without burrs will be achieved.



## Tie-bar plating

Optional

Prevents rust formation due to condensation, gases, etc.  
Prevents contamination caused by rust.





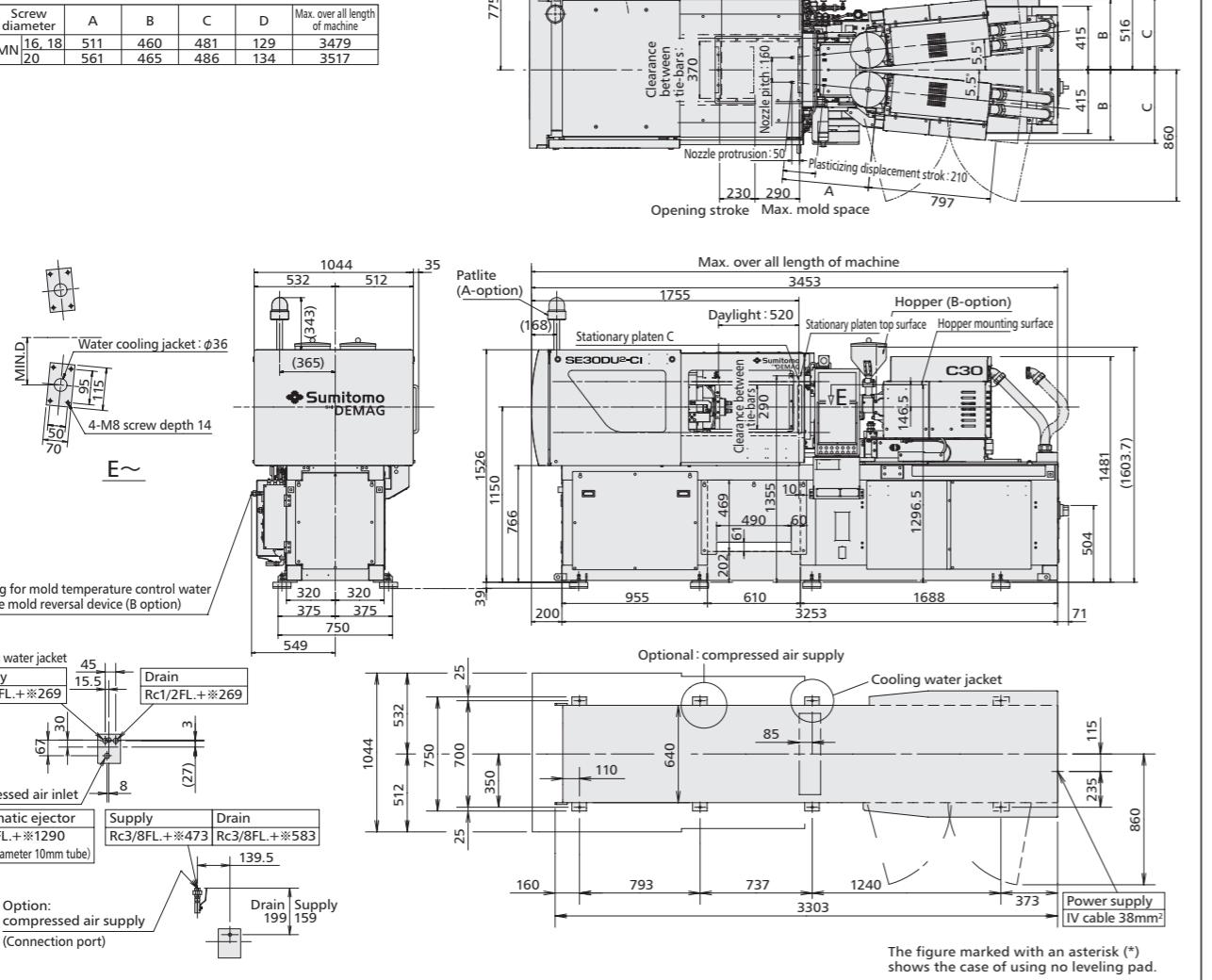


# SE30DU2-CI

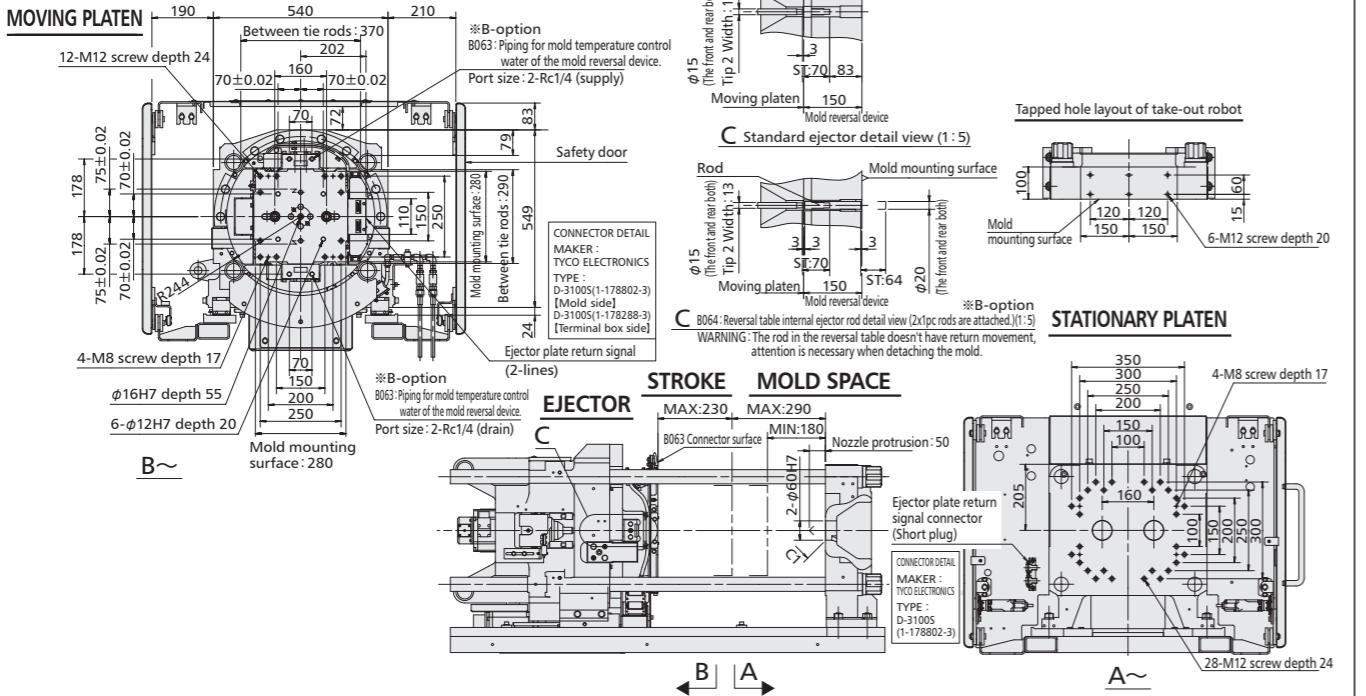
## Dimension & Foundation Plan

The following drawing's dimensions are Japanese specification.

Injection unit	Screw diameter	A	B	C	D	Max. over all length of machine
C30	MN16, 18 20	511 561	460 465	481 486	129 134	3479 3517



## Mold Mounting Diagram (Mold Mounting Diagrams comply with JIS B 6701.)

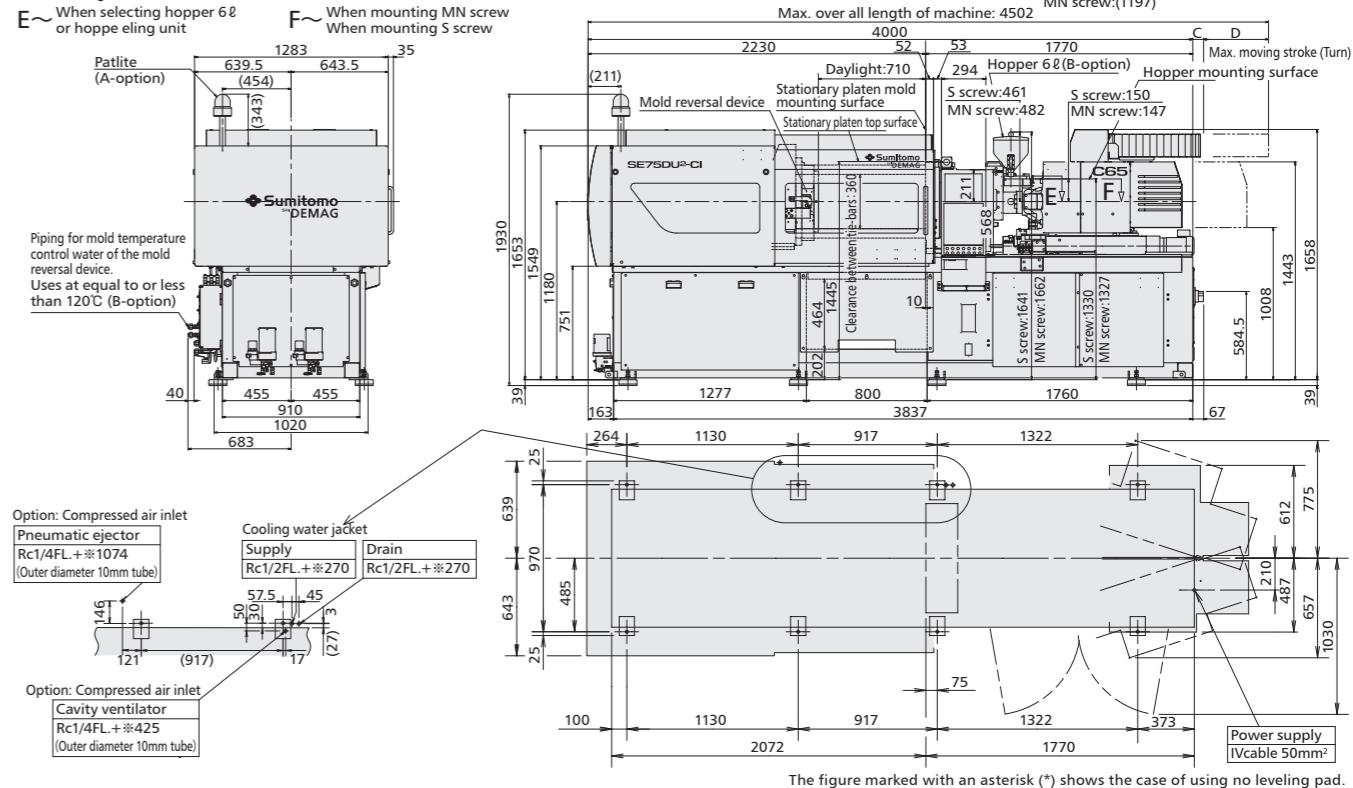
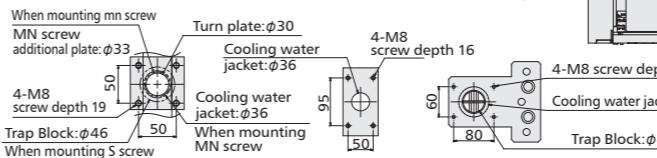


# SE75DU2-CI

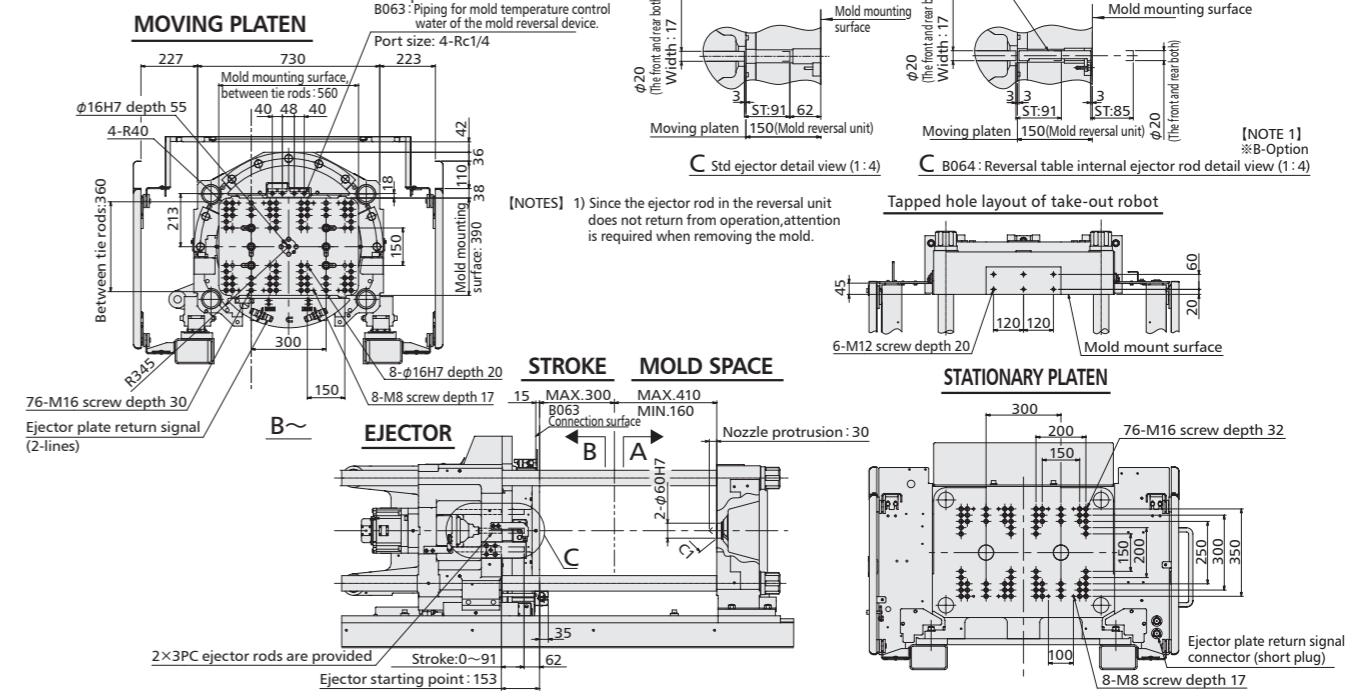
## Dimension & Foundation Plan

The following drawing's dimensions are Japanese specification.

Injection unit	Screw diameter/Type	OA	OR	NR	A	B	C	D
C65	TSMN 20	476	320	17	485			
	22	540	320	17	485			
	22	595	320	72	430			
	22	650	320	127	375			
	22	705	265	182	320			



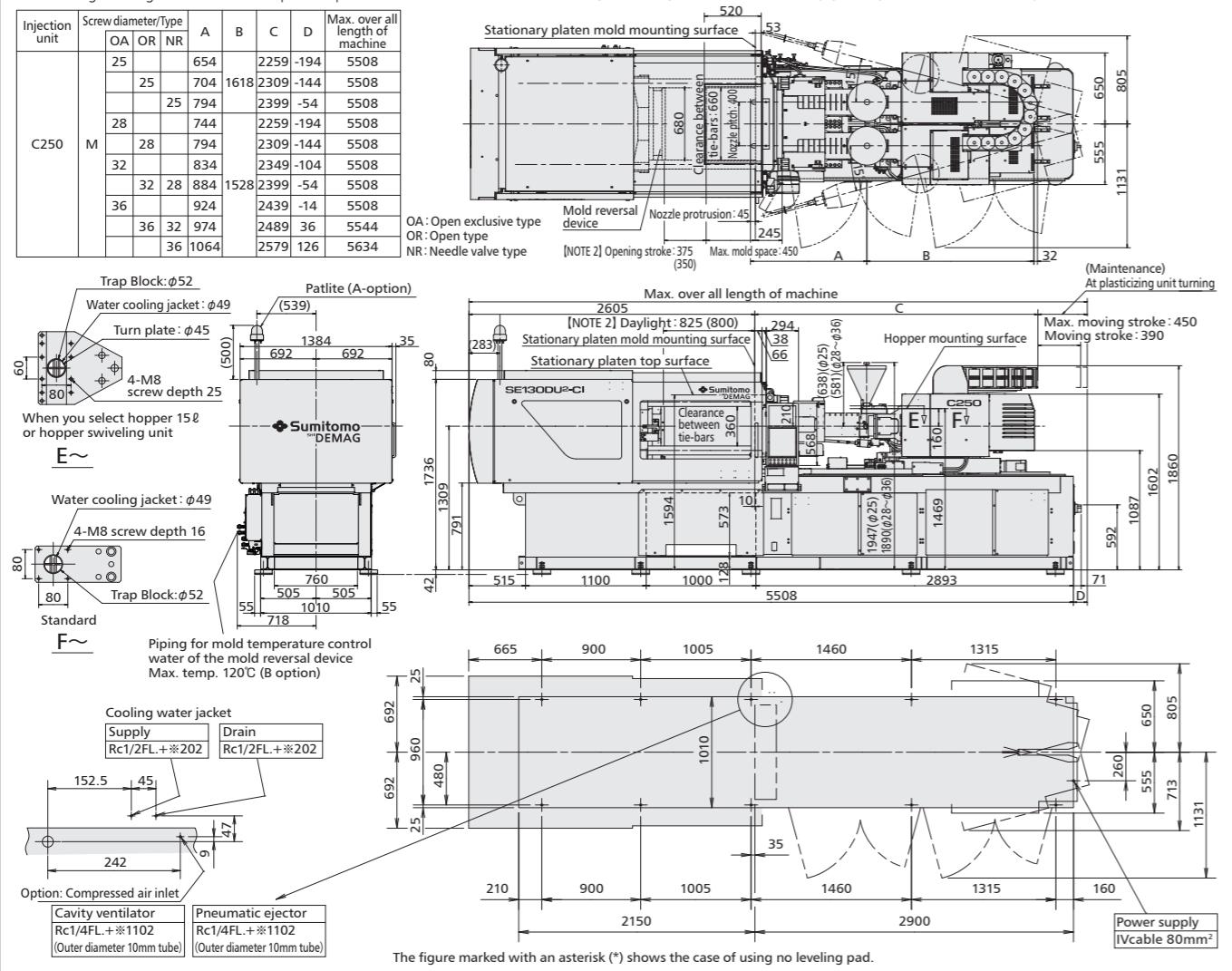
## Mold Mounting Diagram (Mold Mounting Diagrams comply with JIS B 6701.)



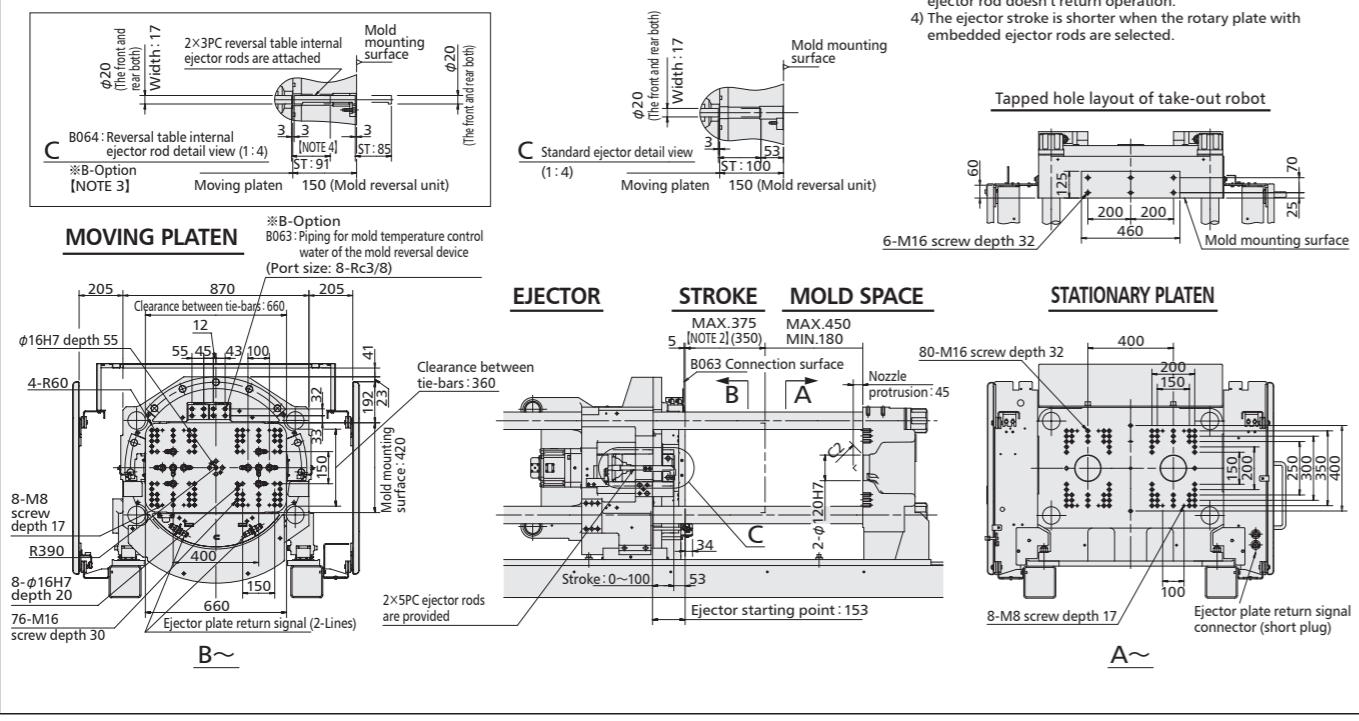
# SE130DU2-CI

## Dimension & Foundation Plan

The following drawing's dimensions are Japanese specification.



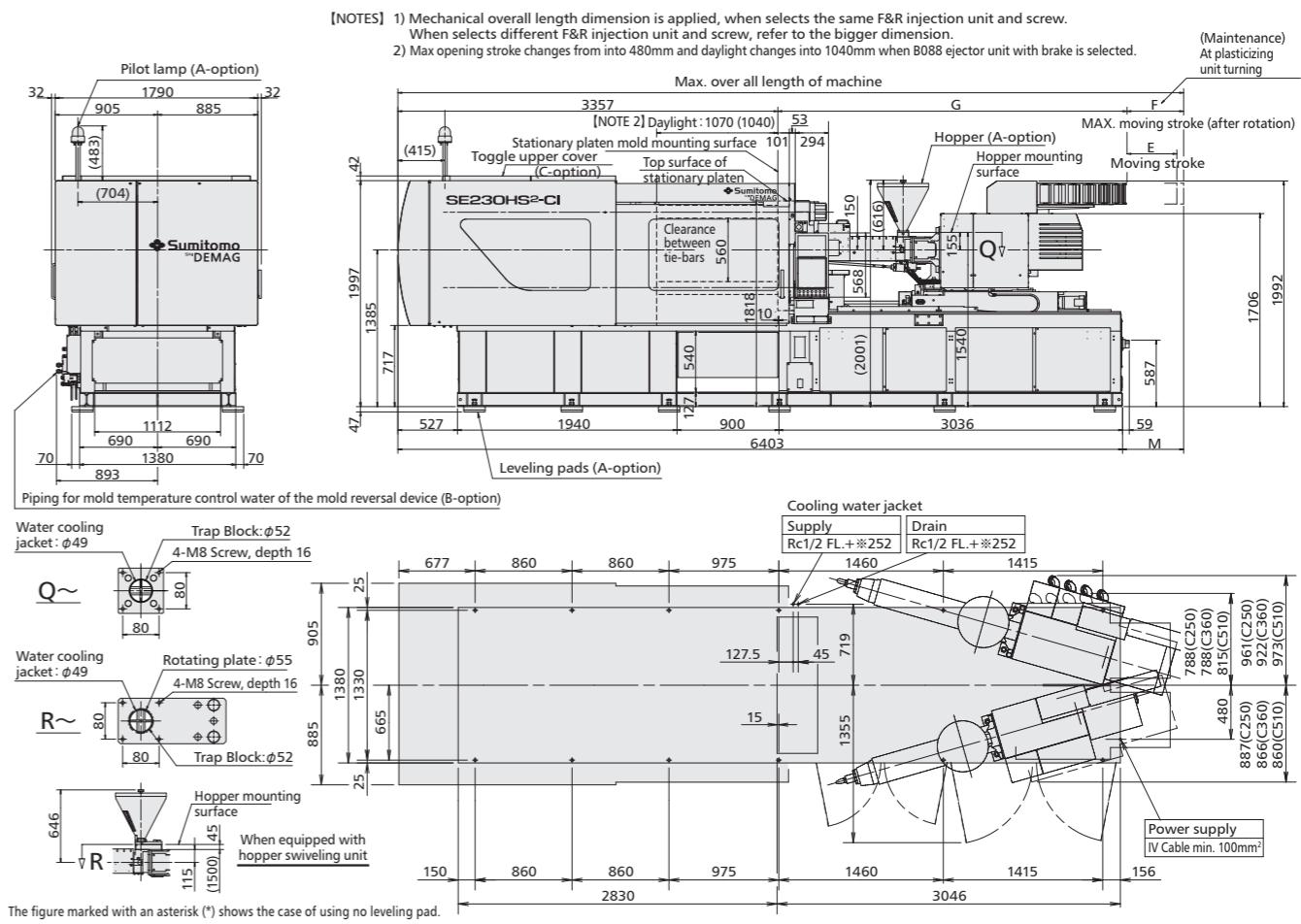
## Mold Mounting Diagram (Mold Mounting Diagrams comply with JIS B 6701.)



# SE230HS2-CI

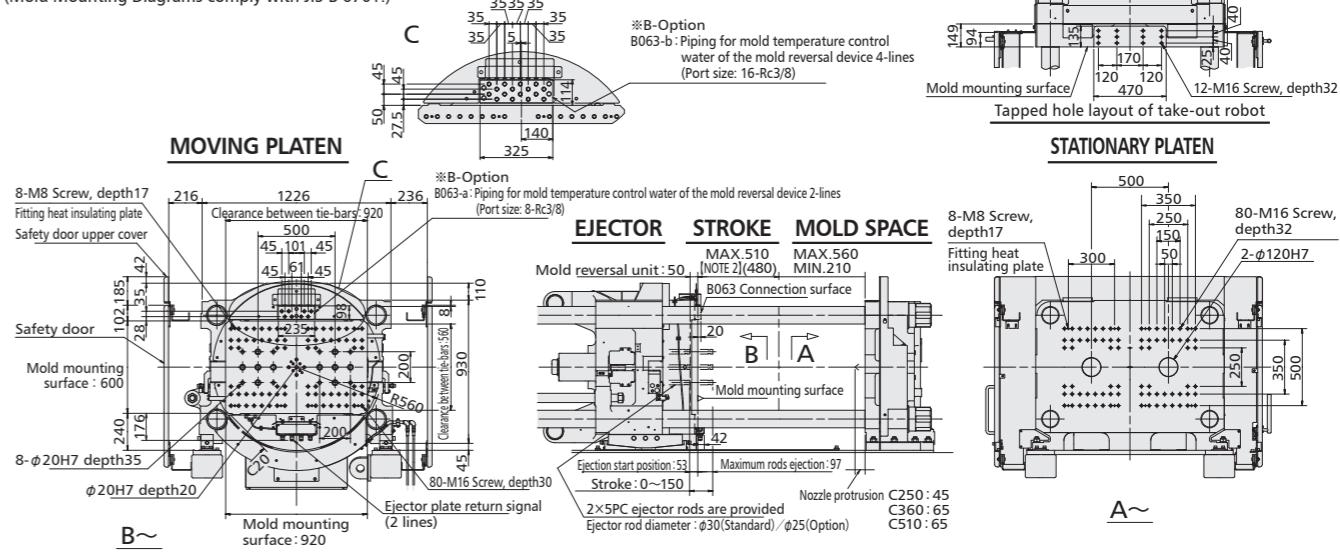
## Dimension & Foundation Plan

The following drawing's dimensions are Japanese specification.



## Mold Mounting Diagram

(Mold Mounting Diagrams comply with JIS B 6701.)



# SE280HS2-CI

Injection unit	Screw/type	E	F	G	M	Max. over all length of machine
C250 M	OA OR NR	28	2527 -69	6403		
		28	2537 -59	6424		
		32	2617 21	6424		
	32 28	390	450	31	6434	
	36	2627	111	6514		
	36 32	2717	121	6524		
	36	2807	211	6614		

Injection unit	Screw/type	E	F	G	M	Max. over all length of machine
C360 M	OA OR NR	32	655	2772		6784
		32	645	2782		
		36	655	2772	381	6784
	36	645	2782			
	40	500	2962	416		6819
	40	500	2962	416		

Injection unit	Screw/type	E	F	G	M	Max. over all length of machine
C510 M	OA OR NR	40	2927	381	6784	
		40	2937	391	6794	
		45	3017	471	6874	
	45 40	440	500	3027	481	6884
	50			3107	561	6964
	50			3117	571	6974

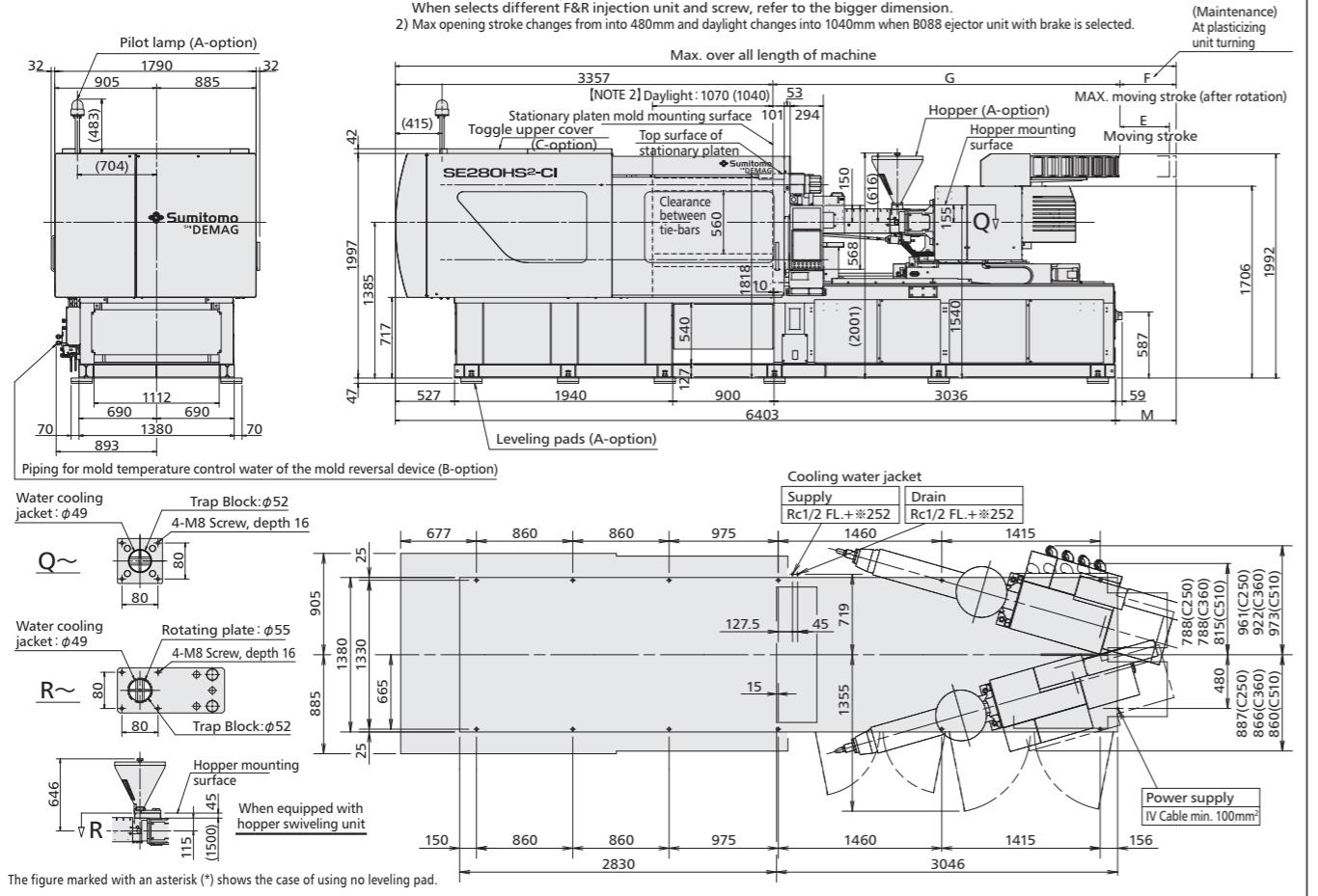
OA: Open exclusive type

OR: Open type

NR: Needle valve changeable type

## Dimension & Foundation Plan

The following drawing's dimensions are Japanese specification.



The figure marked with an asterisk (\*) shows the case of using no leveling pad.

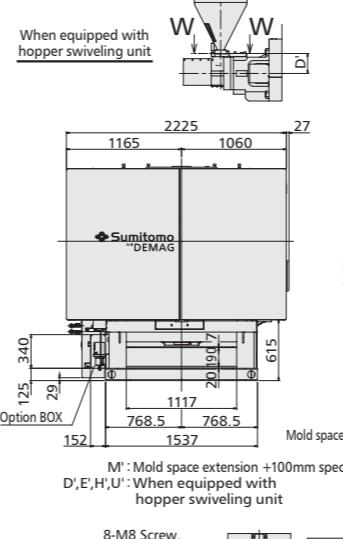
# SE400HS2-CI

Injection unit	Screw diameter	A	B	C	D	D'	E	E'	F	G	H	H'	J	K	M	M'	Q	R	T	U	U'
C250	28 OR NR	729	28	462												2315					
	32	819	32	552	155	140	711	696	1701	1978	2121	2106	-703	470	7533	7633	2425				
	36	689	32	692	1459											2405					
	40	999	36	992												2549					
	45	1092	45	842												2605					
	50	1279	50	870	155	140	711	696	1746	1977	2121	2106	-242	470	7533	7633	2777				
C560	45 40	1089	50	912	2212	189	202	745	777	1758	1977	2155	2187	717	470	7800	7900	3575			
	50	1289	50	1022												8080	8190	3702			
	56	1327	50	1040												8250	8350	4025			
	56 50	1457	56	1260	1320																
	56	1587	56	1320																	

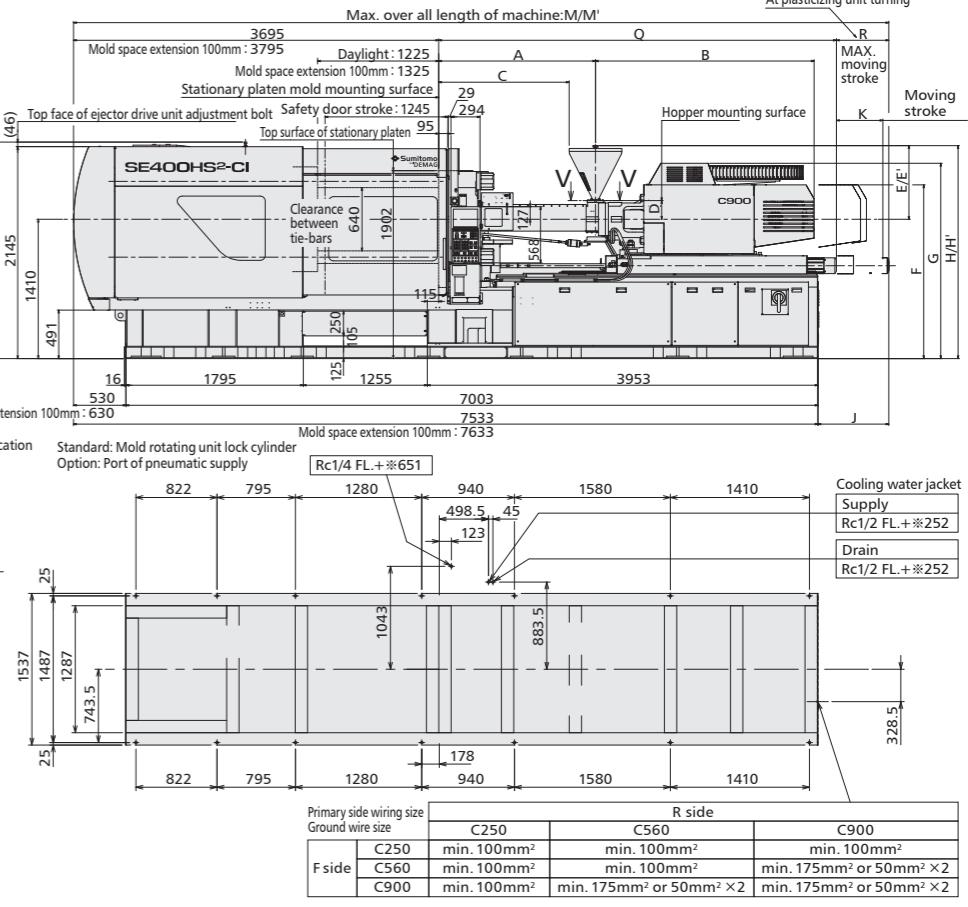
OR: Open type  
NR: Needle valve changeable type

## Dimension & Foundation Plan

The following drawing's dimensions are Japanese specification.



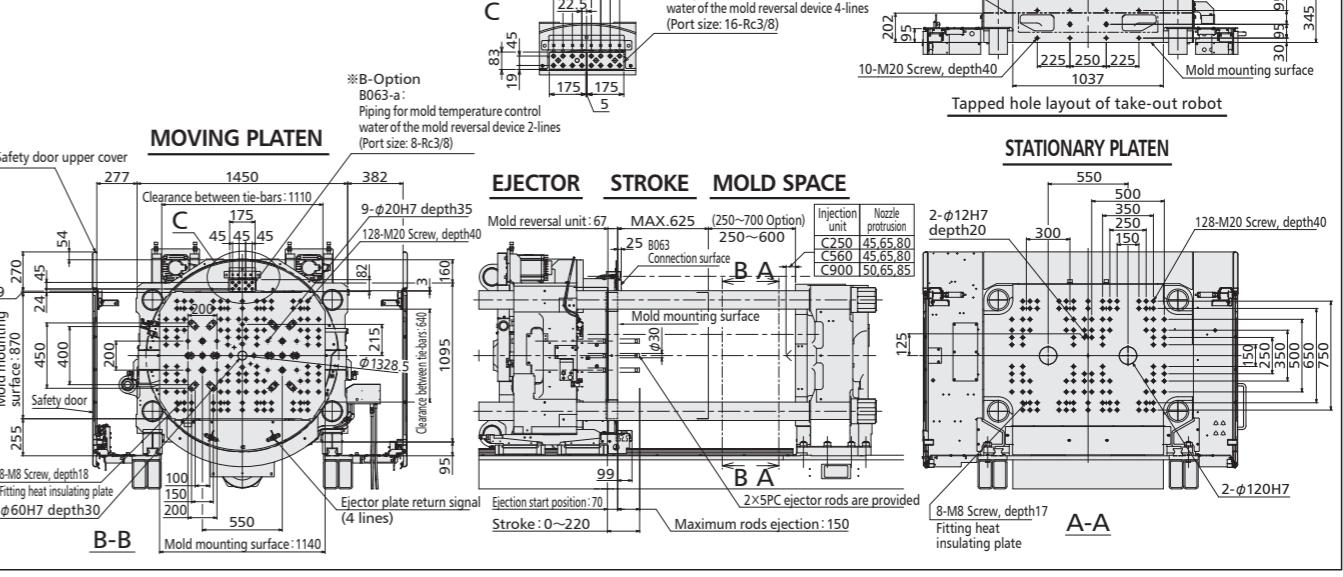
M: Mold space extension +100mm specification  
D', E', H', U': When equipped with hopper swiveling unit  
Standard: Mold rotating unit lock cylinder  
Option: Port of pneumatic supply  
Rc1/4 FL.+※651



The figure marked with an asterisk (\*) shows the case of using no leveling pad.

## Mold Mounting Diagram

(Mold Mounting Diagrams comply with JIS B 6701.)



## Mold Mounting Diagram

(Mold Mounting Diagrams comply with JIS B 6701.)

