NISSEI®

CATALOG 2202

TWX-RⅢ

X-PUMP® EQUIPPED

HYBRID TYPE VERTICAL INJECTION MOLDING MACHINE

TWX-RⅢ SERIES

TWX220RⅢ

TWX300RⅢ

Super Low-Floor Type Vertical Injection Molding Machine with a Long-Lasting Operation Stability of the Direct Pressure Clamping Mechanism

TWX220RⅢ25V

Turntable type/center injection
Clamping force : 220t (2156kN)
(Equipped with options.)

TWX300RⅢ36V

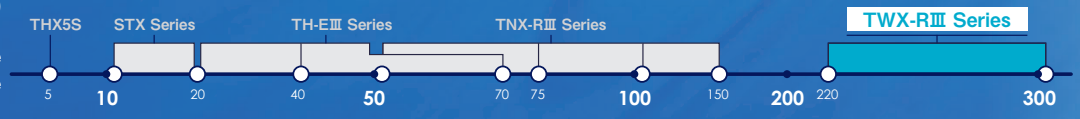
Turntable type/center injection
Clamping force : 300t (2942kN)
(Equipped with options.)

X-PUMP® EQUIPPED

HYBRID TYPE VERTICAL INJECTION MOLDING MACHINE

TWX-RⅢ

Line-up

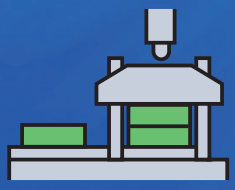


Variation

TWX-RⅢ-V

Center (Vertical) Injection Turntable Type

Clamping unit	Injection unit
TWX220RⅢ	25V
TWX300RⅢ	36V



TWX-RⅢ-A

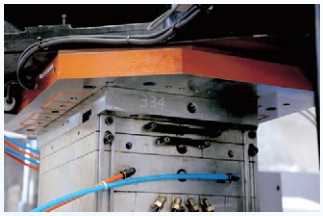
Parting (Horizontal) Injection Turntable Type

Custom specifications

※Mold mounting height may vary.
Please contact us for more details.

DEVELOPMENT CONCEPT

Mold, Operator, and Robot Friendly Vertical Machine

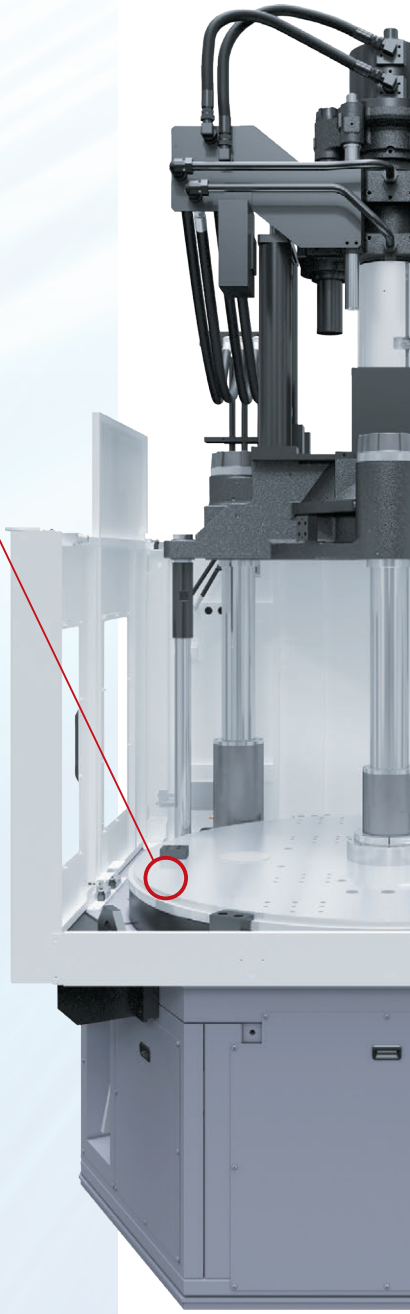


TWX-R Ⅲ Series is equipped with a new compound type clamping mechanism. It allows the series to have significantly lower height while retaining the advantages of the direct pressure type clamping mechanism that evenly transmits clamping force.

Additional equipment costs for the large vertical injection molding machines (e.g., work platform) can be reduced, thanks to its lower machine height, and the amount of hydraulic oil can also be reduced. It offers higher safety and improved workability. A variety of robots can easily be incorporated, contributing to the automation of molding factories.

Point

Direct Clamping Mechanism & Low Floor



New Compound Type Clamping Mechanism

It consists of a high-speed cylinder, high-pressure clamping cylinder, and half-nut mechanism, which replace a conventional-type cylinder that controls both high-speed clamping and high-pressure clamping with one clamping cylinder. Compact clamping mechanism design and low-floor structure have been materialized.

Keyword

“Higher Safety”

“Improved Workability”

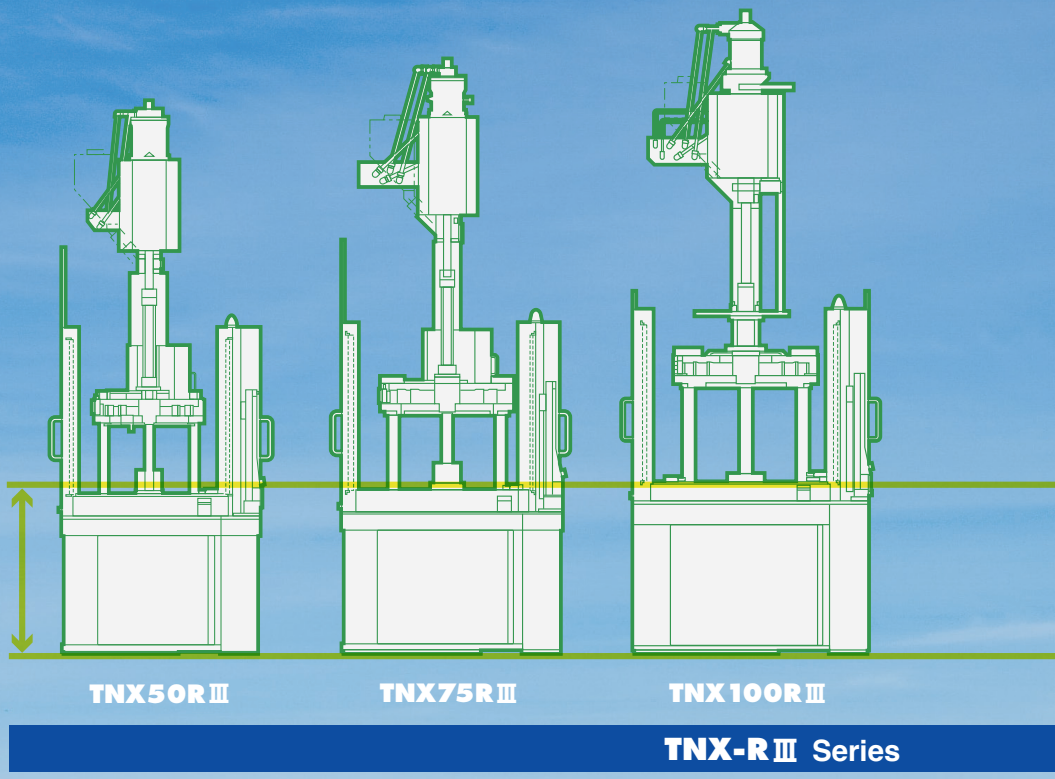
“Automating & Streamlining”

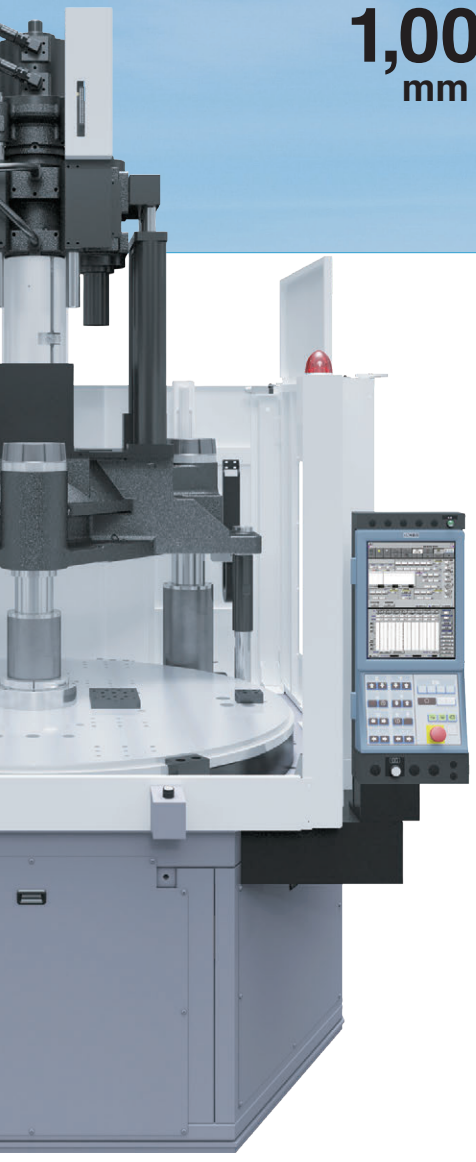
Easy to Use Throughout the Lineup

Low-Floor Advantage

Equipment Cost Reduction

Mold Mounting Height
1,000 mm

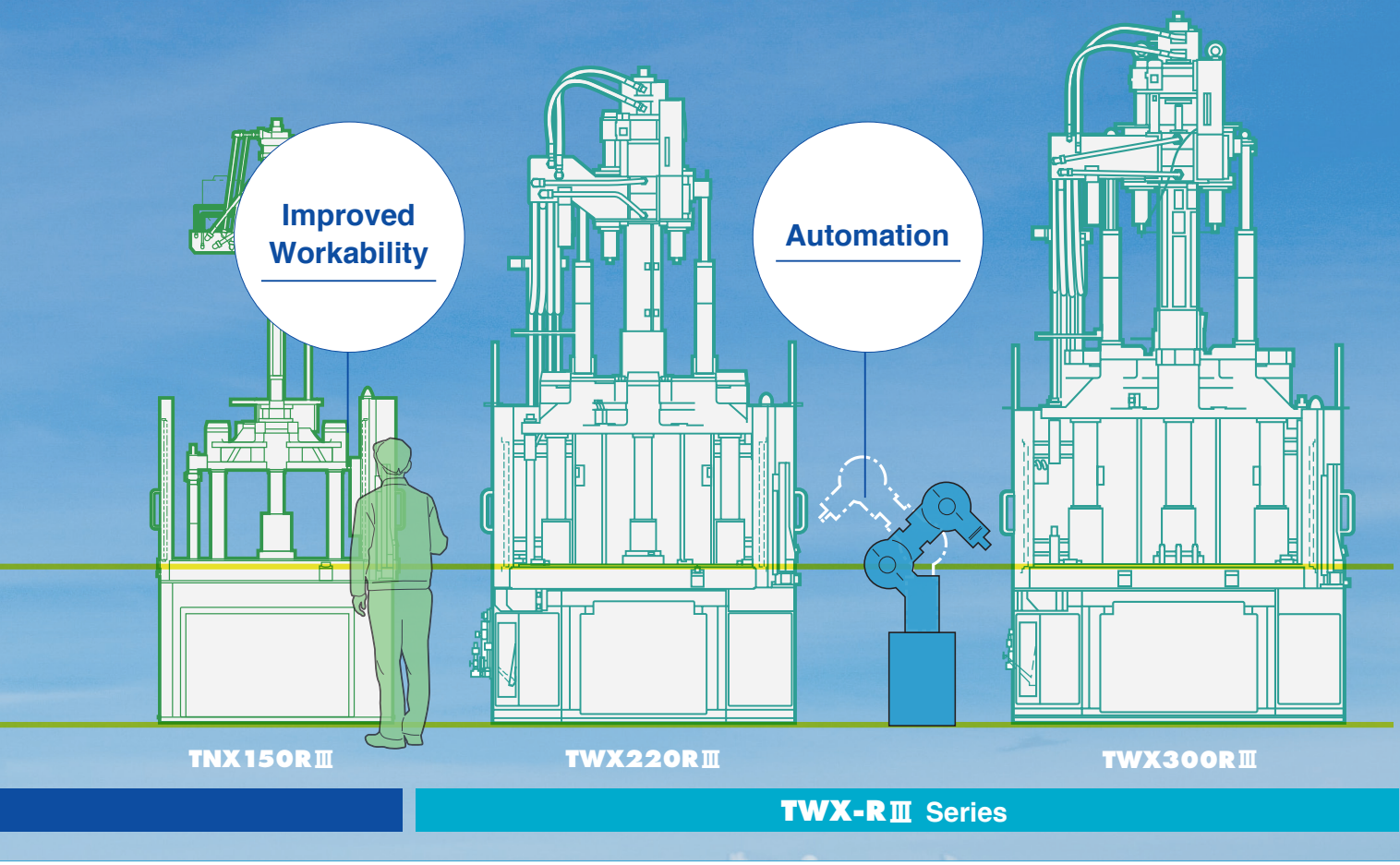




NEW HYBRID TYPE VERTICAL INJECTION MOLDING MACHINE

TWX-RⅢ Series

- Mold mounting height: **1,000mm**
- Direct-pressure type clamping mechanism: **even clamping force transmission**
- Optimized bed structure: **flexible** robot layout
- Servomotor drive: **high-speed** turntable & ejector motion
- High rotation stop precision: **preventing insert workpiece misalignment**
- Low-pressure clamping performance & foreign object detection: **high-sensitivity mold protection**
- 3-tie bar & wide daylight: accommodating more **complex and larger molds**



TWX-RⅢ Series

Environmental Footprints

In addition to saving energy by the X-PUMP® system, the new clamping mechanism uses significantly less hydraulic oil than the conventional types. It saves initial costs and resources, reducing environmental footprints.

Compact Design

TWX-RⅢ Series was designed to be installed in factories with limited ceiling clearances where conventional large vertical injection molding machines normally would not fit.

There are actual cases that cleared height requirements.

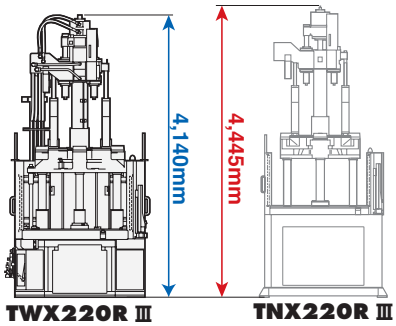
Energy Saving

X-PUMP **Idling Stop**

Less Hydraulic Oil

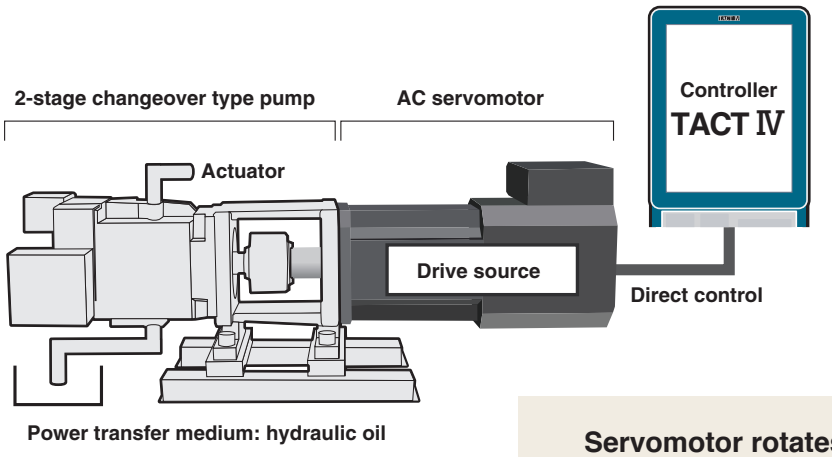
〈 Old model 〉

About 10% Lower Overall Height



〈 Old model 〉

Fusion of Hydraulic Control &Servomotor Drive Technology ! Intelligent Hybrid “X-PUMP®” System



Servomotor rotates at required speed on demand

Hybrid Pump System

The hybrid “X-PUMP®” system consists of a 2-stage changeover type hydraulic pump and servomotor. The servomotor rotates at required speed on demand to control the output volume and pressure of the hydraulic oil.

- The injection-holding pressure state can be sustained at high pressure longer than the all-electric types.
- Substantial energy saving is possible since the motor is at rest during unloading.
- Injection mode changeover permits wide-ranging injection speed from ultra-low to high.

X-PUMP® Advantages

- Easy-to-Use Direct Pressure Type Clamping Mechanism
- High-Sensitivity Mold Protection
- Easy Molding Condition Optimization
- Low Cost
- Durable & Low Maintenance

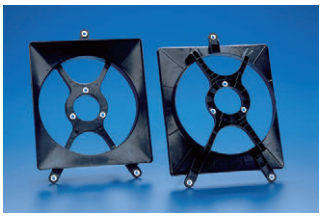
INJECTION UNIT

Injection Performance

Wide-Ranging Injection

By switching and controlling the pump's output volume according to the molding conditions, it offers supreme controllability in a wide range of injection velocities and pressures. The standard system achieves high-speed injection without using an accumulator and special hydraulic circuits.

Excellent for products with large flow lengths and thin-walls.



Speed Control

High Stability in Low Speed and Pressure Range

Its servomotor-driven pump permits low-flow volume control, and the feedback control is capable of precisely controlling the velocity setting below 1mm/s, which is impossible to achieve with the conventional hydraulic machines. In addition, controllability in ultra low pressure range has been improved significantly.

Injection Holding Pressure

Long Holding Time

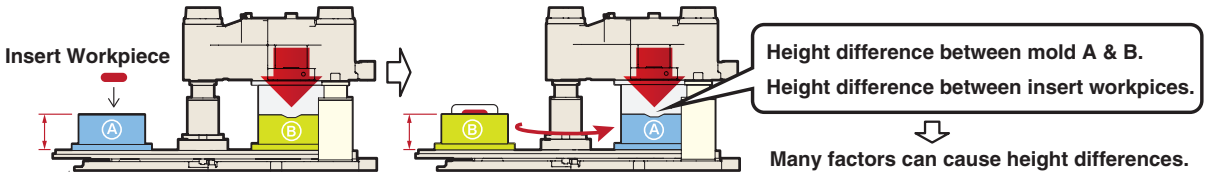
X-PUMP® equipped machines can hold high injection pressure for a long time, which is difficult to achieve with the all-electric machines. It works wonders in improving the quality of thick-walled products.

Ideal for thick-walled products and hotmelt (low-pressure sealing) molding.

CLAMPING UNIT

Long-Lasting Stable Operation of Direct Pressure Clamping Mechanism

TWX-R Ⅲ Series is equipped with a direct-pressure type clamping mechanism that constantly transmits the clamping force evenly to the mold according to the setting, even though it is a turntable type that mounts two molds on the lower die. Its performance is not affected by the temperature change in the mold or clamping unit.



Even clamping force transmission according to the settings regardless of the dimensional differences between mold A & B

Direct Clamping Advantages

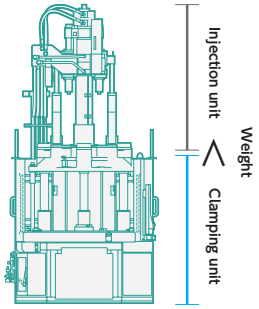
Even Clamping Force Distribution to the Mold

- Temperature Change Resistant Clamping Force
- Mold Friendly
- Simple & Clean Mechanism
- Optimum (Low) Clamping Force Setting

Low Center of Gravity

Maintaining the Center of Gravity

TWX-R Ⅲ Series offers low-floor design and stable balance while keeping the heavy clamping unit inside of the bed like its predecessors.

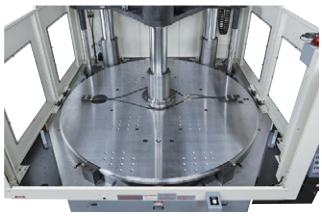


Low vibration and extending the lives of its mechanisms & molds

Complex & Larger Molds

Wide Mold Mounting Space

TWX-RⅢ Series offers wide mold mounting space to accommodate larger molds for the products with intricate shapes or molds with a slide core. Please consider the possibility of using the machine with one-class smaller clamping force if the mold fits.



Core Pull & Cooling Pipe | **Easier Mold Setup** | **Wider Work Area**

Faster Cycle

Servo Driven Rotation & Ejector

Turntable rotation and ejector motion are driven by servomotor, achieving faster cycle and smooth (low-vibration) rotation. Simultaneous motion of injection, metering, and ejector is possible to speed up the cycle time.

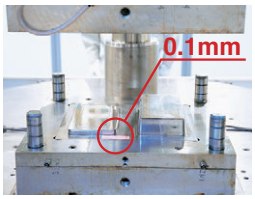
	Rotation time	Simultaneous motion
TWX220R Ⅲ	2.69 sec	○
TWX300R Ⅲ	2.80 sec	○

※ Table reversing time (180°)

Low-Pressure Clamping

Detection of Misaligned Workpiece & Foreign Object

TWX-RⅢ Series offers superior low-pressure clamping performance and can detect foreign objects with only 0.1mm thickness. It stops clamping before breaking the mold, displays the error on the TACT Controller screen, and opens the mold upon detection.



△ Detection test

△ Detection display

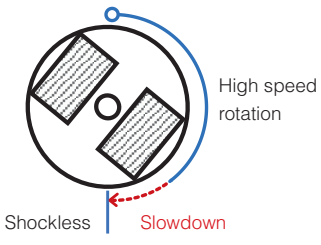
Detecting a 0.1mm object

Rotation Stop Precision

Preventing Mold Damage from Misaligned Insert Workpiece

TWX-RⅢ Series is equipped with a servo driven high-precision rotation positioning mechanism. It eliminates insert and product take-out errors in automated insert molding systems.

Smooth acceleration & deceleration

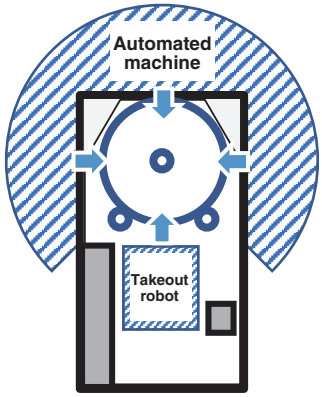


APPLICATION

Optimized Structure

Flexible Layout for Robots

Its optimized bed structure permits flexible robot layout. It can easily be adapted into automated systems with takeout robot, articulated robot, and two-arm robot according to molded products and molding processes.

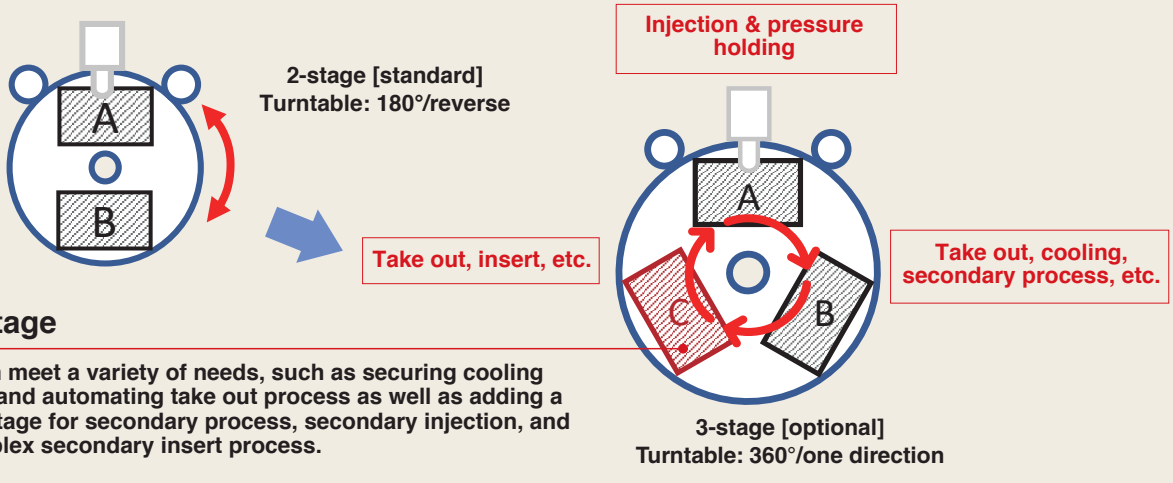


Improved Productivity

Improving Productivity Freely

TWX-R Ⅲ Series offers 3-stage configuration as an option. A user can improve productivity with a variety of ways.

Suggesting Multi-Stage Molding



C-stage

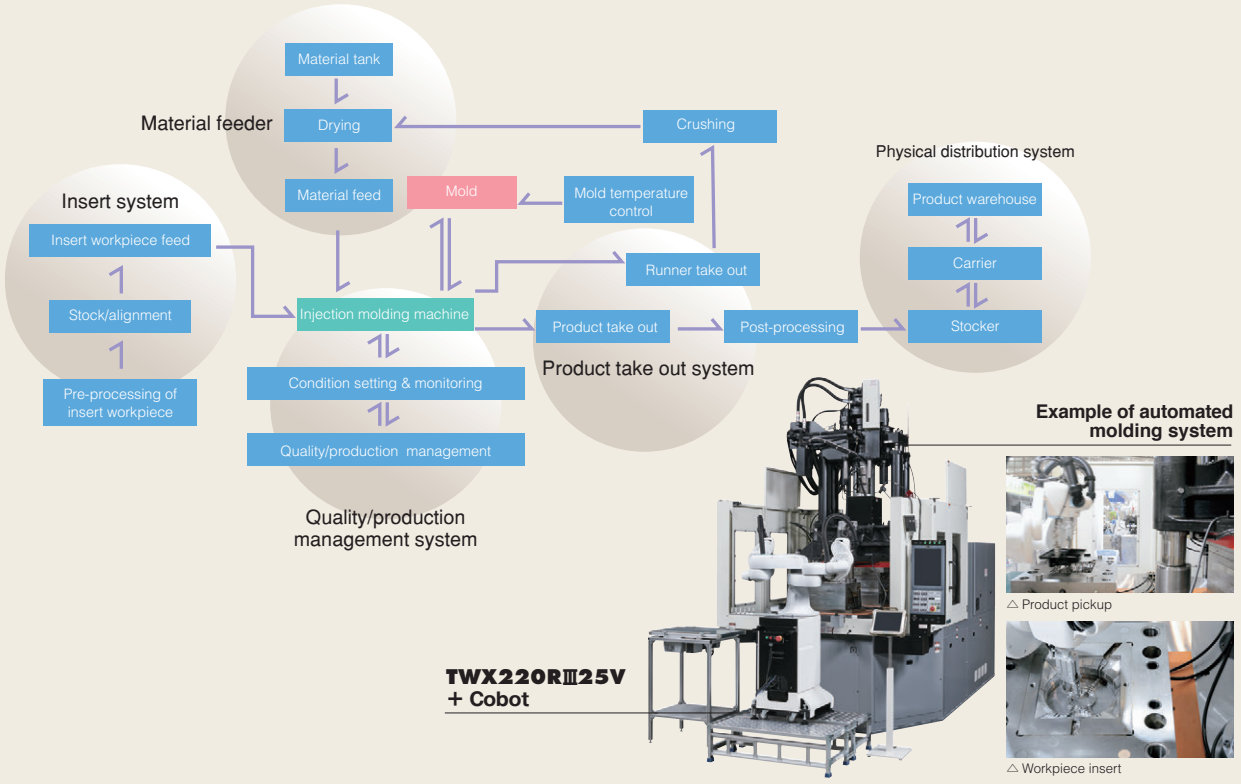
It can meet a variety of needs, such as securing cooling time and automating take out process as well as adding a substage for secondary process, secondary injection, and complex secondary insert process.

Automation

Suggesting Optimization of Vertical Injection Molding Systems

Nissei utilizes injection molding technologies accumulated through years of experience in the field to offer optimal systems of higher values. Nissei can meet diverse needs in rationalizing the production process and pioneering new fields.

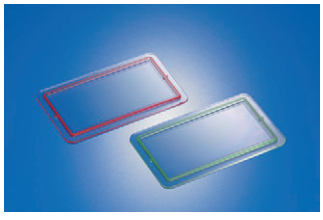
Automated Systems Surrounding an Injection Molding Machine



Special-Purpose Machines

Capability in LSR Molding

It is possible to install liquid silicone rubber (LSR) injection unit on to TWX-RⅢ Series machines. The TWX-RⅢ Series, which excels in low-velocity & low-pressure injection control, demonstrates its power in a variety of LIM moldings. Please contact us for more details.



△ LSR molded products

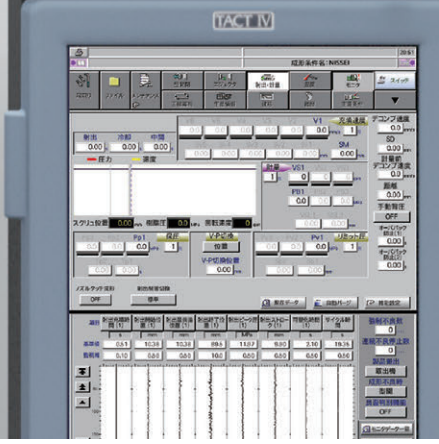
Clean Room Capability

Excellent Clean Performance

X-PUMP® hybrid machines do not create a mess from grease and liquefied grease's oil mist. In a Class 10,000 clean room, these machines are operating under Class 3,000 ～ 4000 conditions during normal production in some cases.

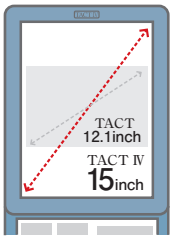
High-Performance & High-Functioning Controller

TACT® Ⅳ

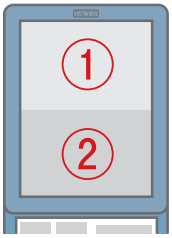


Easy-to-Use 15-Inch Large Vertically Long Display

A combination of two screens, such as molding trend data and molding condition or main data and process monitoring, can be freely selected. It responds to the needs of operators to minimize complicated screen switching. Its high-response high-resolution touch panel materializes smooth setting entry, improving its user-friendliness further.

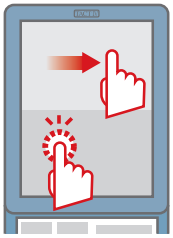


15-inch LCD
(large vertical screen)



Vertical dual window display

6-language display in Japanese, English, Chinese, Korean, Spanish, and Thai as a standard feature



Touch and slide display

Flat Operation Panel

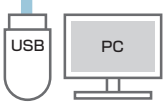
Flat sheet switch type operation panel that materializes easy and reliable operation

Newly Added Maintenance Screen

Scheduled maintenance and parts replacement period notifications

Newly Added SET-UP Mode

- ○ Molding condition setting consolidated into one screen
- ○ SET-UP mode added to the operation mode



External Connections

[USB port] It can be connected to an external storage device (USB memory).

[LAN port] Connections to quality & production management software PQ Manager and molding data recorder/analyzer are possible.

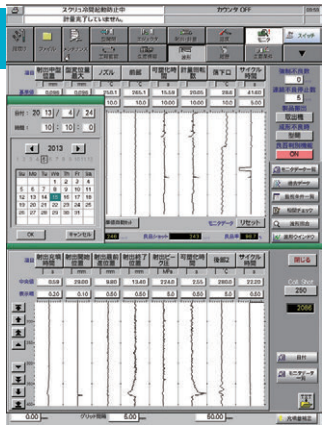
Materialize molding you desire…
the new controller that pursues better operability and workability

NEW Special-Purpose Machines

Date specified event and monitor data display became possible.

▶ **Molding condition (max. 300 conditions)**
Saving waveform data and displaying image data are possible. Molding condition and an image of its product can be managed together as a set.

▶ **Event/monitor data (max. 100,000 events)**
It is helpful for maintenance and quality control (operation mode change, condition change, error, etc.).

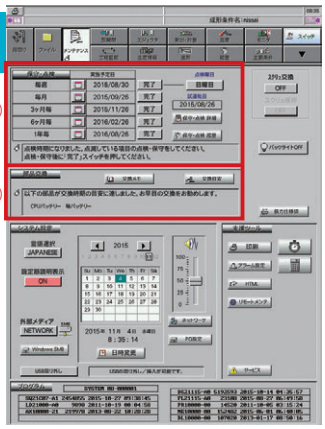


△ Calendar

NEW Enriched Maintenance Functions

When recommended scheduled maintenance and consumable parts replacements are due, TACT® IV can display notifications, and its relevant notes can be entered and recorded upon completion.
It can also display user-defined messages for mold, screw, lubrication, and maintenance at specific dates or shots.

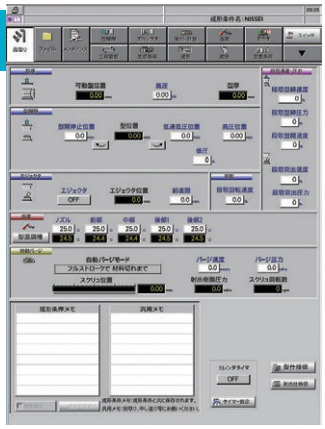
① Maintenance schedule
② Consumable parts replacement time



△ Newly added MAINT screen

NEW SET-UP Mode/SET-UP Screen

Troublesome screen switching during setup has been eliminated. Setting related to molding setup is consolidated into one page. When SET-UP mode is selected, it automatically switches the screen.



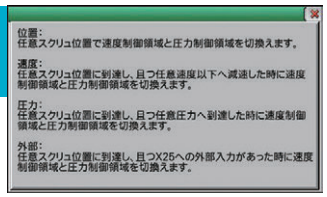
△ SET-UP screen

NEW Shutdown Sequence

Operating power state and shutdown sequence for each driving unit can be freely selected after completing production is available.

NEW Descriptions of Parameters

It displays easy-to-understand definitions of the technical terms used for the parameters.



△ Description of V-P changeover

NEW Descriptions of Errors

It displays the error messages and solutions.

NEW Screen Lock and Parameter Masking Functions

Parameter that will be password protected can be selected. OPTION

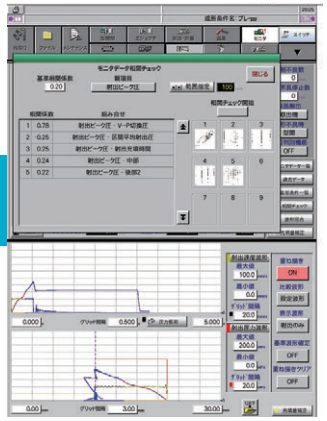
△ Password protected screen

Flexible Purging Function

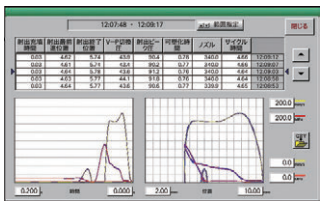
This makes troublesome material and color change more efficient. It materializes flexible purging operations, such as purging with a fixed cycle, purging with added back pressure, and force retreat purging.

Reinforced Quality Control Function (Product Pass/Fail Judgment Function)

- ○ It can be arbitrarily selected from each molding monitoring category.
- ○ Product pass/fail judgment by full-range monitoring of injection pressure waveform is materialized. It constantly monitors pressure during injection and compares it with a waveform of accepted shot, permitting pre force ejection of short shot and deformed products caused by pressure fluctuation, which could not be detected by injection peak pressure monitoring alone.
- ○ The statistics of mold monitoring data can be applied to the product quality judgment function.
- ○ The automatic scatter diagram analysis and waveform analysis support the digitalization of molding data.



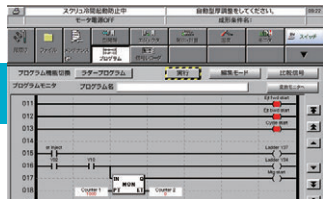
△ Interpolation check/injection pressure monitoring



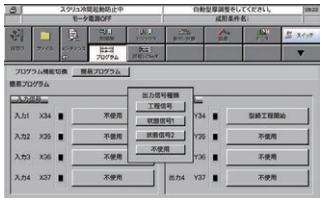
△ Waveform collation

Enriched Programming Function

Simple interface programs with auxiliary devices can freely be created on the screen. The program can be saved together with the molding data (ladder programming function).
Various error input and signal output functions can be assigned to the four of input/output terminals (simple programming function).



△ Ladder programming



△ Simple programming

Models				TWX220RⅢ			TWX300RⅢ		
Specification item			Injection type / Unit	25V			36V		
Injection	Screw diameter		inch mm	1.57 40	1.77 45	1.97 50	1.77 45	1.97 50	2.20 56
	Injection capacity		$inch^3$ cm^3 oz	12.3 201 6.7	15.5 254 8.5	19.2 314 10.5	17.5 286 9.6	21.5 353 11.8	27.0 443 14.8
	Plasticization capacity（PS）		lbs/h kg/h	97 44	132 60	176 80	181 82	243 110	331 150
	Max. injection pressure		psi MPa kgf/cm^2	32210 222 2270	25390 175 1790	20610 142 1450	32360 223 2280	26270 181 1850	20900 144 1470
	Injection rate	High-veloity	$inch^3/s$ cm^3/s	8.4 138	10.7 175	13.2 216	10.7 175	13.1 216	16.5 271
		Standard	$inch^3/s$ cm^3/s	4.2 69	5.3 87	6.6 108	5.3 87	6.6 108	8.2 135
	Injection velocity	High-veloity	inch/s mm/s	4.3 110			4.3 110		
		Standard	inch/s mm/s	2.2 55			2.2 55		
	Screw speeds		rpm	0 ～ 170			0 ～ 170		
	Nozzle touch force		US tons kN (tf)	2.7 24 (2.4)			2.7 24 (2.4)		
	Hopper capacity (optional)		Gal L	5.3 20			5.3 20		
Clamping	**Clamping force**		**US tons kN (tf)**	**242 2156 (220)**			**330 2942 (300)**		
	Clamping stroke		inch mm	12.6 ～ 18.5 320 ～ 470			11.8 ～ 18.5 300 ～ 470		
	Min. mold thickness		inch mm	13.8 ～ 19.7 350 ～ 500			17.7 ～ 24.4 450 ～ 620		
	Max. daylight opening		inch mm	32.3 820			36.2 920		
	Die plate dimensions (H×V)		inch mm	35.4 × 26.4 900 × 670			40.6 × 30.2 1030 × 768		
	Min. mold dimensions (H×V)		inch mm	15.4 × 15.4 390 × 390			16.5 × 16.5 420 × 420		
	Ejector stroke		inch mm	3.1 80			4.9 125		
	Ejector force		US tons kN (tf)	3.9 35(3.6)			6.2 55(5.6)		
	Turntable diamiter		inch mm	63.0 1600			70.9 1800		
	Max mold weight bottom mold		lbs kg	1764 × 2 800 × 2			2205 × 2 1000 × 2		
Electrical & others	Pumo motor		kW	20			30		
	Heater band capacity		kW	11.30			13.46		
	Hydraulic oil quantity		Gal L	63 240			63 240		
	Machine dimensions [L×W×H]		inch m	152.4 × 85.8 × 163.0 3.87 × 2.18 × 4.14			164.6 × 91.3 × 178.0 4.18 × 2.32 × 4.52		
	Floor dimensions[L×W]		inch m	137.4 × 74.8 3.49 × 1.90			149.6 × 82.7 3.80 × 2.10		
	Machine weight		lbs t	22046 10.0			28660 13.0		

- Actual plasticization capacity may vary, depending on the molding conditions and materials.
- Injection pressures indicate the maximum outputs of the injection units, not the resin pressures.
- Injection pressures are the highest values that can be set on the machines. These values may be limited, depending on the molding conditions.
- Injection rates in the tables are the estimated values that were derived from a formula, and these are not guaranteed values when the maximum injection pressures are reached.
- Clamping forces may be reduced if molds smaller than indicated minimum mold sizes are used.
- Machine dimensions, floor dimensions, and machine weights are approximate values. The listed machine weights do not include the weights of optional equipments and hydraulic oils.
- Be sure to follow the instruction manual during installation, operation, and maintenance. Failure to follow the instructions can damage the machine and adversely affect the operator and the surrounding environment.
- Specifications are subject to change without notice due to continuous performance improvement.
- 1MPa = $10.2kgf/cm^2$ ≒ $10kgf/cm^2$, 1kN = 0.102tf ≒ 0.1tf

[Standard Specifications]

▼ Clamping unit/mold

1.	Locating ring assembly (fixed type): 4"
2	High-sensitivity mold protection (monitoring of low-pressure clamping time)
3	Mold close halfway slowdown (three-plate & angular pin mold possible)
4	Clamping pressure full-closed control
5	Clamping pressure independent adjustment
6	Mold open/close prediction control (for improving precision of mold open stop & low-pressure mold close changeover positions)
7	Mold position reading functions
8	High-pressure clamping force setting unit: kN (display in tonf and % optionally available)
9	Mold opening speed: 4-step
10	Ejector plate return confirmation (terminal output of bottom mold 1 & 2 input signals)
11	Multi-functional ejector (continuous operation, start timer, pause, halfway change of velocity, 2-stage forward speed, and variable forward/backward stroke)
12	Switching of one-piece mold and two-piece mold molding (selection of the bottom mold type: one-piece or two-piece bottom mold)
13	Simultaneous mold close & ejection (simultaneous motion of mold close & ejection for two-piece mold)

▼ Injection unit

1	Injection process control: 6-speed, 3-pressure, and 3-limit pressure
2	V-P changeover: 4 modes (position, injection pressure, injection velocity, and external input signals)
3	Injection start timer (hot runner capable)
4	Injection/metering full-closed control (injection velocity, pressure, metering rotation speed, and back pressure)
5	Injection control changeover (control mode: standard & high-speed)
6	Holding pressure response changeover: 3 modes (fast, normal, and slow)
7	Over packing prevention circuit
8	Decompression / decompression before metering
9	Back pressure & metering speed: 3-pressure/3-speed
10	Nozzle backward start timer / metering start timer
11	Injection position setting unit: mm (display in inch and cm^3 optionally available)
12	Injection velocity setting unit: mm/s (display in %, cm^3/s, and inch/s optionally available)
13	Injection pressure and back pressure setting unit: MPa (display in kgf/cm^2, psi, and % optionally available)
14	Metering velocity setting unit: rpm (display in % and g/s optionally available)
15	Temperature setting unit: ℃ (display in ℉ optionally available)
16	Automatic purge unit / hot runner purge circuit
17	Purging guard (with interlock)
18	Screw cold-start prevention (time difference system in all zones)
19	Nozzle & barrel temperature upper/lower limit alarm
20	Nozzle & barrel temperature PID control / nozzle and barrel simultaneous heating
21.	Hopper throat temperature control
22	Nozzle & barrel heater circuit: SSR control
23	Nozzle & barrel heat retention circuit (forced and emergency heating)
24	Barrel heat radiation/burn prevention cover
25.	Barrel insulation cover
26	Nozzle/barrel heater simple disconnection alarm
27	High-precision metering control "Pre-Comp" (resin density stabilizer)
28	Screw change mode / screw forward safety circuit
29	Material accumulation prevention function

▼ Molding system control/production management

1	TACT IV (15-inch LCD, dual window display, and sheet switch type operation panel)
2	Shot counter / free shot counter
3	Production management counter / production lot management counter (signal output optional) / defective category counter
4	Monitor display / statistical processing function / scatter diagram display / waveform analysis
5	Product discrimination function / batch entry of acceptance level conditions
6.	Product take-out robot interface (Euromap 67.1)
7	Calendar timer (hydraulic oil and barrel heating)
8	Molding condition internal memory (up to 500 conditions) / image file management of molding conditions
9	Built-in LAN port (10/100BASE-TX) / connection to PC
10	USB port / date saving in an external memory (USB drive)
11.	USB memory
12	Display of injection velocity & pressure waveform
13	Operation history display: 100,000 items
14	Molding support message
15	Six-language multilingual display: Japanese, English, Chinese, Spanish, Korean, and Thai
16	Hour meter / clock function / calculator
17	Ladder programming function / I/O function assignment
18.	SPC function (molding machine process management by statistical method)
19	Alert (informing) function (effective for mold & screw maintenances)
20	Signal recorder
21	Error display function / emergency power shutoff / cycle alarm
22	Shutdown sequence (Selection of production complete state)
23	Remote maintenance
24	Description of parameters (when some of the adjusters are touched, descriptions and tips will be displayed)
25	Setup mode (mold open/close & ejection by setup speed and injection & metering by purging speed)
26	Idling stop

▼ Cooling/hydraulic oil

1	Cooling water manifold
2.	Cooling water filter
3.	Cooling water circuit (with a return stop valve)
4.	Cooling water circuit (with a flow checker)
5	Oil temperature stabilizer
6	Hydraulic oil heating
7	Hydraulic oil temperature upper & lower limit alarm / low oil level alarm

▼ Operation safety

1.	Alarm bell
2	Alarm lamp / alarm buzzer / clamping alarm buzzer
3	Emergency stop button
4	Mold clamping safety device (mechanical & electric types)
5	Safety light curtain
6	Side door type safety cover (with interlock)
7	Next cycle activation circuit
8	Mold area access permission lamp

▼ Power

1.	Main power breaker

▼ Maintenance, installation, and miscellaneous

1	Manual grease pump unit (clamping slide and rotating parts)
2	Periodic inspection support function (display of scheduled inspection date)
3	Parts replacement support function (display of recommended parts replacement period)
4.	Tools

○ Please check encircled numbers since these are peculiar to vertical molding machines.
※ May take longer

[Optional Specifications]

▼ Clamping unit/mold

①	Daylight extension ※
2	Locating ring attachment (non-fixed type) ※
3	Locating ring diameter change ※
④	Insulation plate
⑤	Additional mold mounting bolt hole ※
6	Mold open pause
7	Downward ejector
⑧	Ejector plate return confirmation (for metal interface box)
⑨	Mold temperature control or mold temperature indicator (display on the screen)
⑩	Mold temperature upper & lower limit alarm
11	Mold heater disconnection alarm
12	T-slot plate
13	3-stage compatibility (contact us for details) ※
14	Automatic mold clamp ※
15	Mold installation assist (SAT Clamp and Easy Clamp)
⑯	Mold positioning pin & block ※
⑰	Mold insertion base
⑱	EJT pattern 3.5" from the center ※

▼ Injection unit

1	Nozzle & barrel heater disconnection alarm
②	2-point nozzle temperature control
3	High-temperature resistant barrel (pre-arrangement necessary) ※
④	Abrasion & corrosion proof barrel and screw ※
5	Special-purpose barrel and screw ※
6	Hydraulic shutoff nozzle ※ or spring shutoff nozzle ※
⑦	Extended nozzle (length to be specified)
8	Hopper / hopper slider / hopper magnet

▼ Molding system control/production management

1	Unscrewing circuit (contact us for details)
2	Air blow
3	Hydraulic core pull / air core pull ※
④	I/O signal for automated machine
5	Calendar timer (additional electrical outlet activation)
6	Water alarm / air alarm
⑦	Two injection condition capability (low-pressure clamping (position & pressure), VP changeover position, injection holding pressure/individual setting of injection conditions for mold 1 & 2 possible)

▼ Cooling/hydraulic oil

1	Additional cooling water circuit ※
2	Temperature control hosing for high temperature mold
3	Water temperature gauge
4	Hydraulic oil purifier
5	Anti-condensation cooling hose

▼ Operation safety

1	Alarm lamp with a stand
②	Rotating beacon (Patlite) or stack alarm light (signal tower)
3	Screen lock and parameter maskingfunctions (password protected molding data)
④	Both-hand push start button switch
5	Primary power indicator lamp

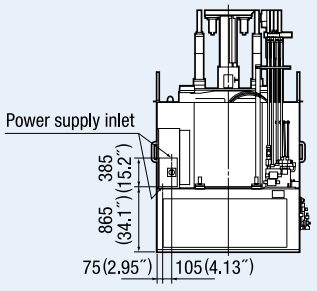
▼ Power

1	Main power leakage breaker
②	Additional electrical receptacle
3	Fire alarm
4	Outlet circuit power shutdown

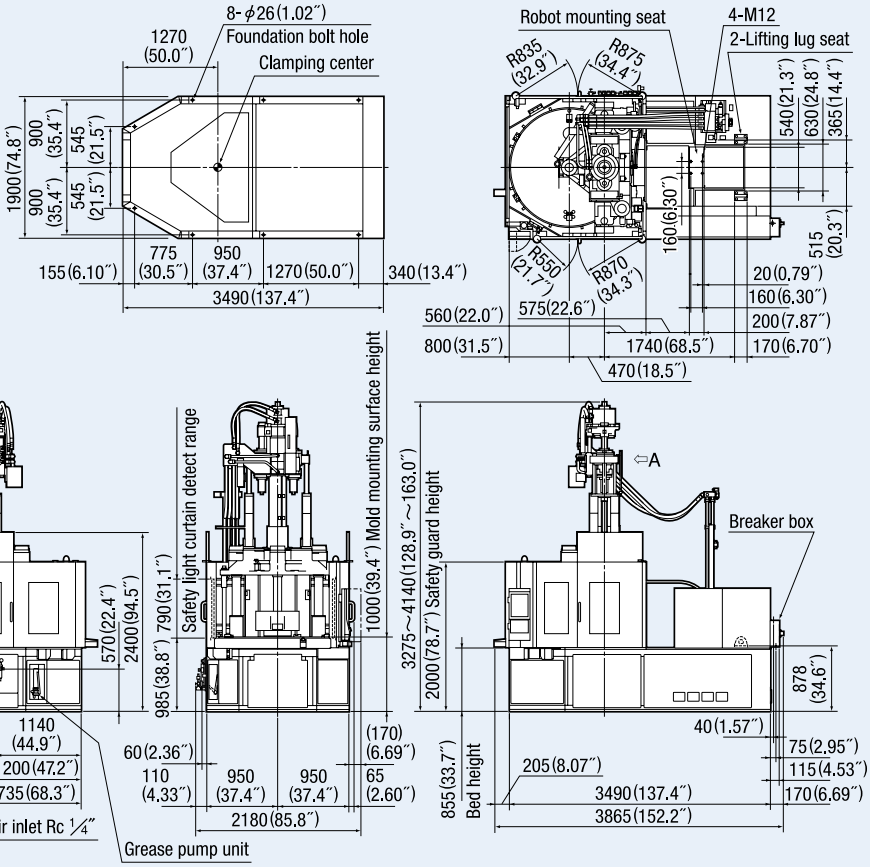
▼ Maintenance, installation, and miscellaneous

1	Automatic grease pump unit (clamping slide and rotating parts)
2	Custom color paint (contact us for the painting area) ※
3	Mounting pad

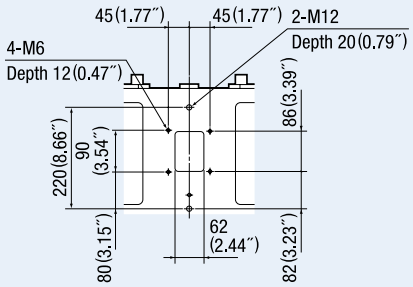
■EXTERNAL VIEW



■FOUNDATION DRAWING



■A : HOPPER MOUNTING DRAWING



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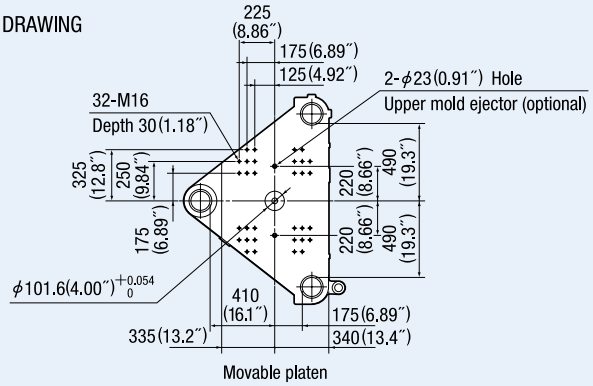

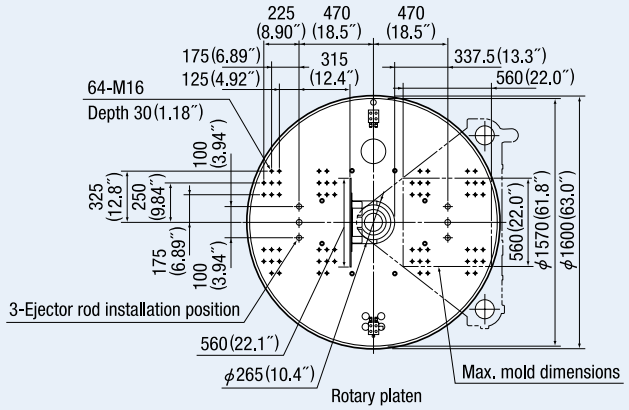

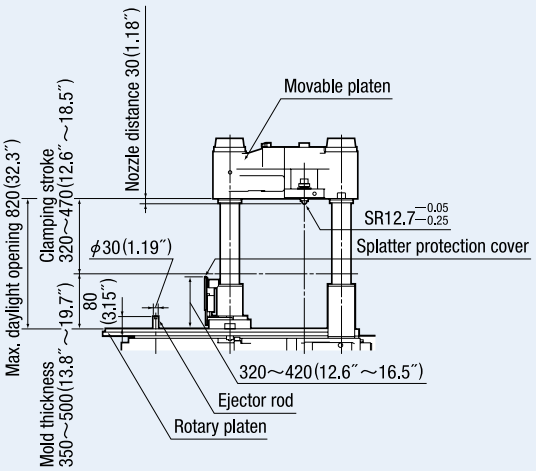

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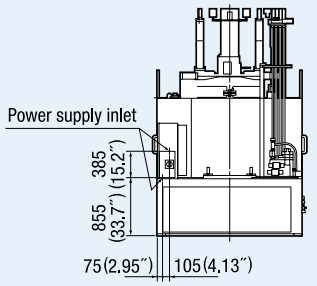

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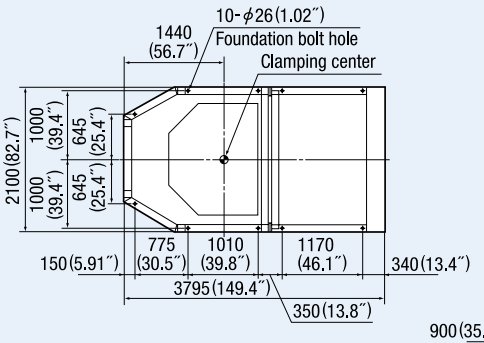

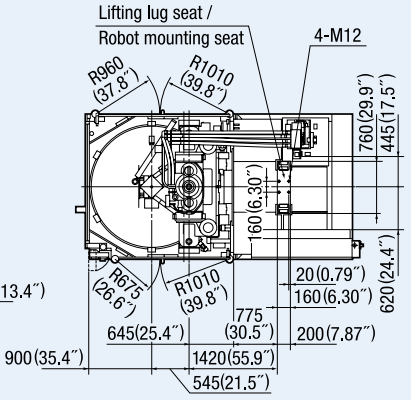

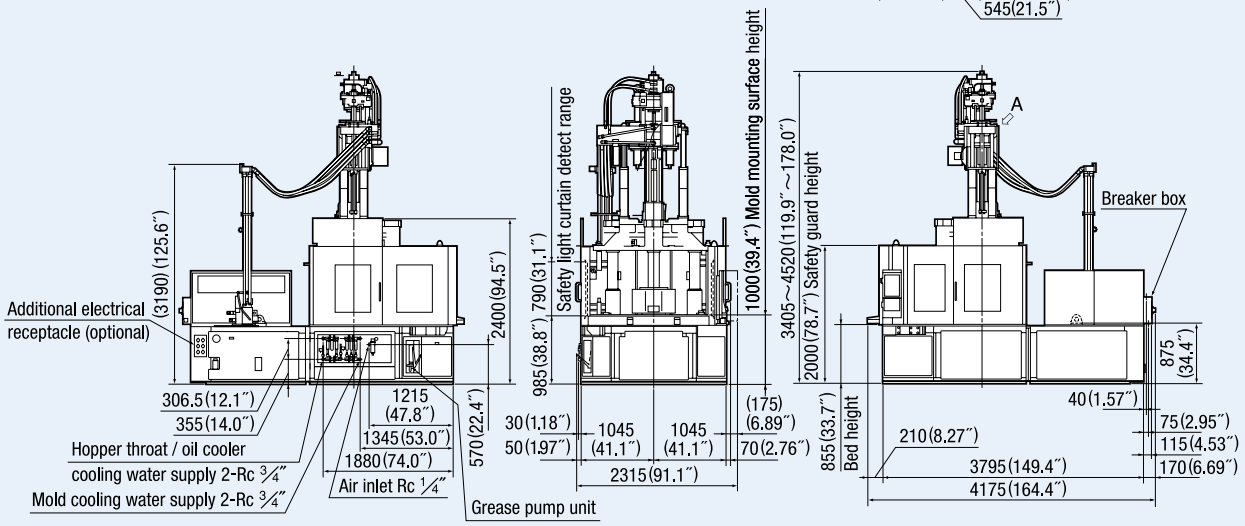

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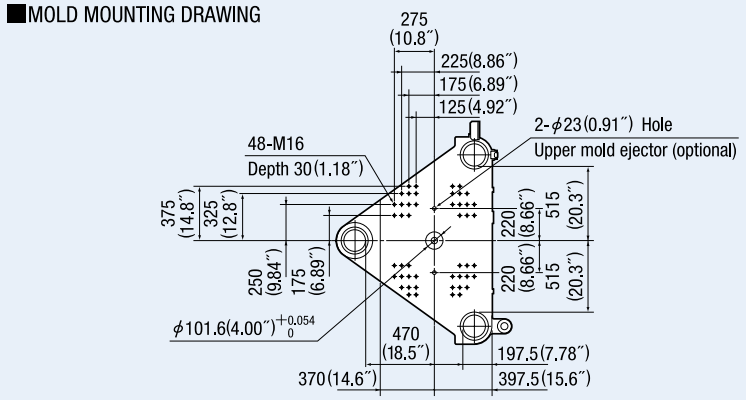

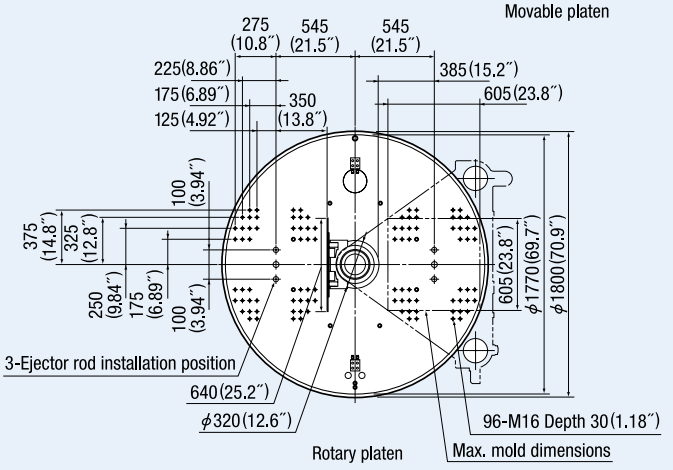

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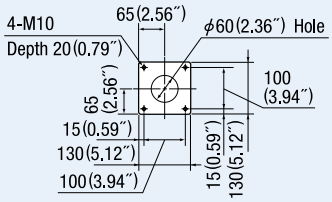

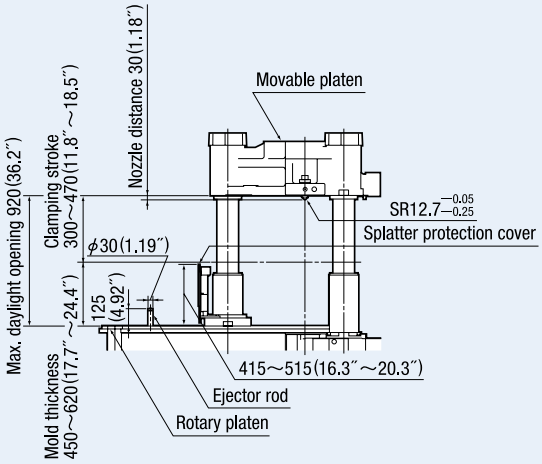

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