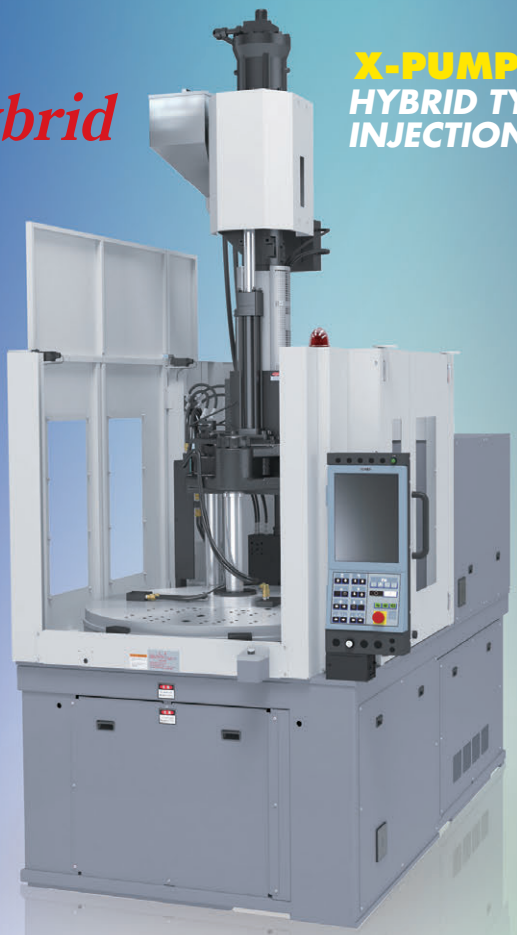
NISSEI®

CATALOG 2004

TNX-RⅢ

Intelligent Hybrid

X-PUMP® EQUIPPED
HYBRID TYPE VERTICAL INJECTION MOLDING MACHINES



TNX-RⅢ SERIES

TNX50RⅢ
TNX75RⅢ
TNX100RⅢ
TNX150RⅢ

Evolving NISSEI vertical injection molding machines...

TNX75RⅢ9V
Turntable type/center injection
(Equipped with options.
Injection mechanism saftiy cover is custom made.)

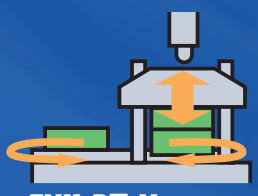
Electric Servo Drive Eco-Friendly Injection Molding Machine (Hybrid Type)

TNX-RⅢ Series

New!!

Lineup of hybrid type vertical injection molding machines

Center (vertical) injection
Turntable type



TNX-RⅢ-V

Clamping unit	Injection unit
TNX50RⅢ	5V/9V
TNX75RⅢ	9V/12V
TNX100RⅢ	12V/18V
TNX150RⅢ	18V/25V

Parting (horizontal) injection
Turntable type

TNX-RⅢ-A Made-to-order

Clamping unit	Injection unit
TNX50RⅢ	9A/12A
TNX75RⅢ	9A/12A
TNX100RⅢ	18A/25A
TNX150RⅢ	25A/36A

*Injection units written in blue indicate standard combination.
*For parting injection type (TNX-RⅢ-A), contact us for more details.

Offering a new line of well-balanced hybrid machines with further improved basic functions and excellent cost advantages!

Outstanding injection performance materialized by its simple & compact injection mechanism

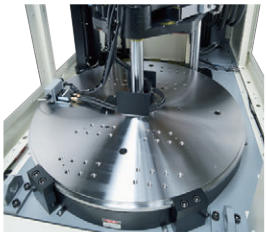
- Wide-ranging injection from ultra-low to high speed
- Outstanding controllability & stability in ultra-low speed range (below 1mm/s)
- Quick injection response
- "High-pressure & long-sustained" injection holding pressure performance
- High-quality molding materialized by the feedback control
- Newly designed simple & compact injection unit
- Optimal screw & nozzle selections for different molding purposes
- Capable for LSR (liquid silicone rubber) molding

Long-lasting stable operation by the direct pressure type clamping mechanism

- Mold-friendly direct pressure clamping
- Stable clamping force always corresponding to what is on the setting
- Simple mechanism that sustains machine precision for a long time
- Clean mechanism
- Easy mold change & excellent maintainability
- High-rigidity die plate...Optimized die plate shape & tie bar diameter designed through structural analysis

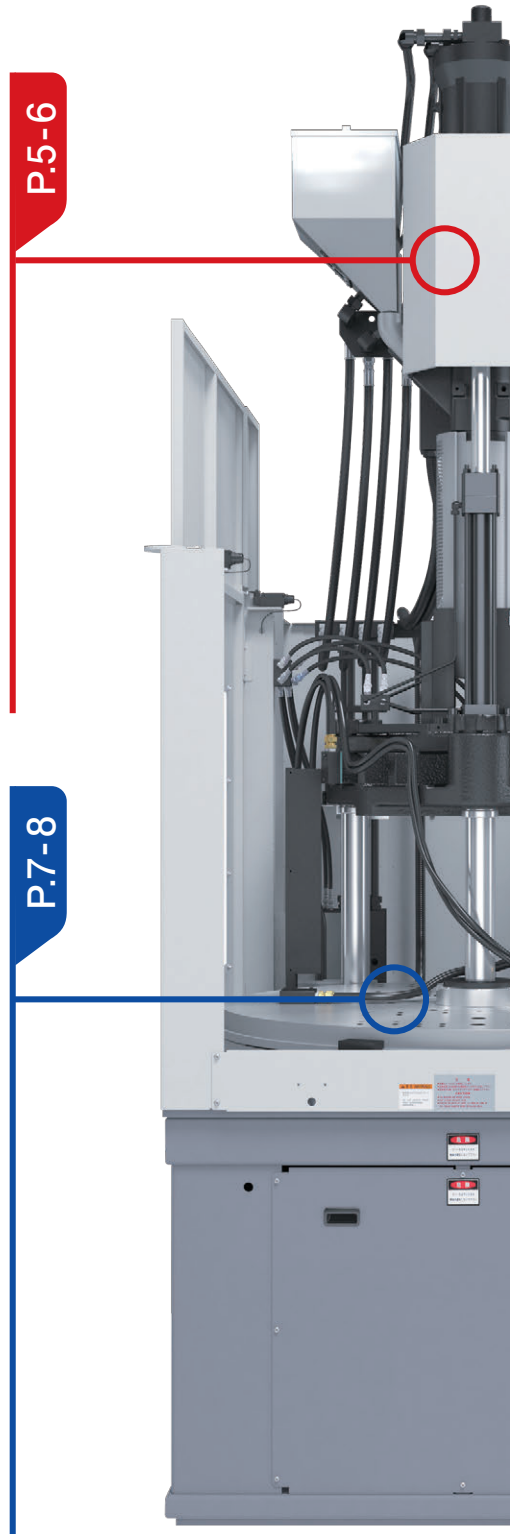
Wide turntable by "3-tie bar"

- Larger maximum mold size
- Improved workability for mold installation
- Larger work area & its automation capability
- Installing core pull and cooling pipes on the turntable possible
- Servomotor driven "smooth & fast-rotation" turntable



P.5-6

P.7-8



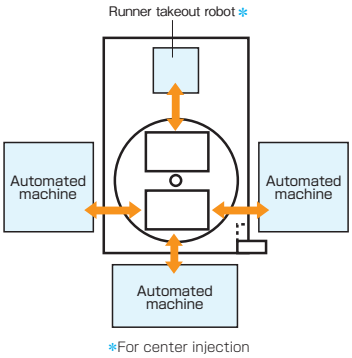
P.9-10

Multi-functional controller TACT® IV

- 90-degree swing type operation panel
- 15 inch color LCD touch panel screen
- 6-language display in Japanese, English, Chinese, Spanish, Korean, and Thai provided as standard.
- Enriched product quality management function
- Loaded with practical molding support software
- Ladder programming function open to the users (effective for interfacing with peripherals & robots)

Excellent workability & safety

- Front (operator side): phototube type safety device equipped as standard (full-open)
- Side safety cover: frameless full-open type...easy access to the mold & its automation capability
- Low-floor mold mounting face (turntable)...Lowering peripherals (automation robot) possible, improving maintainability



*For center injection

Compact design

- High-rigidity frame
- Compact bed without protruded object
- Arranging automated machines on three sides possible
- Entry of a runner takeout robot from non-operator side possible (a pedestal for takeout robot equipped as standard) *

P.4

Innovative hybrid pump system "X-PUMP®" equipped

- Outstanding injection performance
- Lower initial & running costs

The fusion of hydraulic control and servomotor drive technology

"X-PUMP®" Equipped Intelligent Hybrid

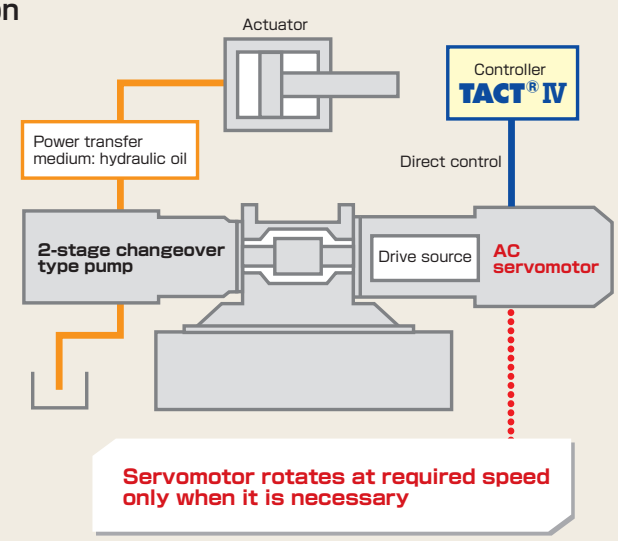
Illustration of "X-PUMP®" system

Hybrid pump system "X-PUMP®" is a combination of 2-stage type hydraulic pump and AC servomotor. The servomotor rotates at required speed only when it is necessary to control output volume and pressure of the hydraulic oil.

◎Substantial energy-saving is possible since the motor is at rest during unloading.

◎Injection control mode changeover permits wide-ranging injection from ultra-low-speed to high-speed.

◎Injection holding pressure state can be sustained longer with higher pressure than that of electric machines.



Advantages of X-PUMP® Hybrid Machines

Easy Molding Conditioning	Easy-to-use Direct Pressure Type Clamping Mechanism	Durable & Low Maintenance	Low Cost	High-sensitivity Mold Protection

Cost Advantage

▷Reduction of initial cost
▷Reduction of life-cycle cost

Energy Efficiency

▷Low power consumption compared to the conventional pump drive
▷Less cooling water ⇒ reduce cooling equipment

Wide-ranging Injection Speed

▷High discharge volume mode ⇒ for high-speed injection
▷Low discharge volume mode ⇒ for stable control in low-speed & low-pressure range

Response

▷Quick injection response similar to that of electric type

Injection Holding Pressure Performance

▷Long-sustained high injection holding pressure achieved by switching to low discharge volume mode

Molding Stability

▷Linearity materialized in all range: low-speed to high-speed & low-pressure to high-pressure

Noise Level

▷Electric machine level of quietness

Maintenance

▷Durable components and time-tested maintainability

Promoting High-Precision Stable Molding

Wide-ranging injection

By switching the discharge volume of a hydraulic pump whenever necessary to correspond to the molding conditions, it materializes outstanding controllability in wide-range of injection speed and pressure.

- It requires no special hydraulic circuit, such as accumulator, and high-speed injection can be achieved with a standard system.
- It is up to 2.5 times faster than that of conventional machines

>>> Excellent for products with large fluidity length and thin-wall products.

Comparison of injection velocities: center injection

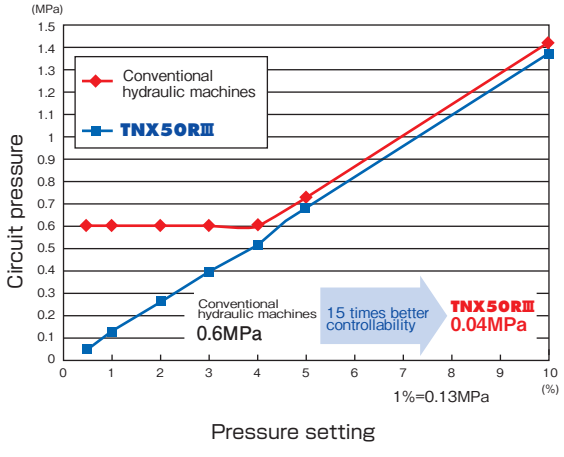
Injection type	Conventional hydraulic machine	TNX-RIII Series
5V	117mm/s	300mm/s
9V	107mm/s	200mm/s
12V	88mm/s	160mm/s
18V	99mm/s	160mm/s
25V	86mm/s	110mm/s

Outstanding stability in ultra-low speed and low pressure range

Its servomotor-driven pump permits low-flow volume control, and the feedback control is capable in 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.

>>> This is also ideal for thick-wall product and hot melt (low-pressure encapsulation) moldings.

Comparison of low pressure performance



Improved injection response

Twice as fast as conventional machines

Quicker injection response time (injection rise time to reach the maximum velocity) is materialized by the X-PUMP®.
Its mechanism possesses simplicity and compactness of hydraulic machines and achieves high response.

For TNX50RⅢ5V...

Max. injection velocity 300mm/s ⇒ Rise time 60ms

Long-sustainable injection pressure

X-PUMP® equipped machines can perform "holding of high injection pressure for a long time," which is difficult to achieve with the electric machines.

>>> Excellent for quality improvement of thick-wall products.

Reduction of Initial & Running Costs

●Reduction of power consumption

Since the X-PUMP®'s servomotor rotates at required speed only when it is necessary, it is extremely efficient. According to the comparison of dry cycle in power compartments, TNX50RⅢ achieves 70% of significant energy efficiency compared to the conventional hydraulic types.

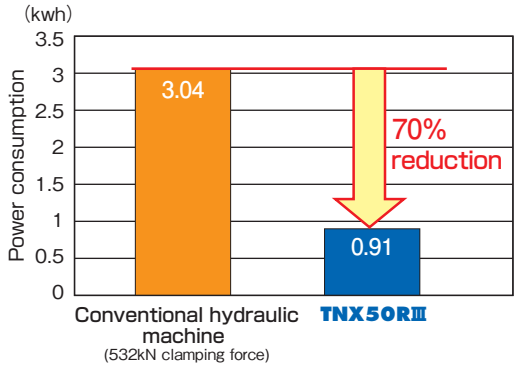
●Reduction of hydraulic oil and cooling water

For highly energy-efficient X-PUMP®, rise in oil temperature is minimum, and reducing amounts of cooling water for oil cooler and hydraulic oil are possible. The amount of hydraulic oil required is up to 25% less than that of conventional machines.

●Durable components

NISSEI has abundant experience in time-tested hydraulic machines.

Comparison of power consumption



※Power compartment only (excluding heater power) during dry cycle
= Pure mechanical motion during dry cycle

Long-Lasting Stable Operation of Direct Pressure Clamping

Long-lasting stable operation of "direct pressure type" clamping mechanism

Features

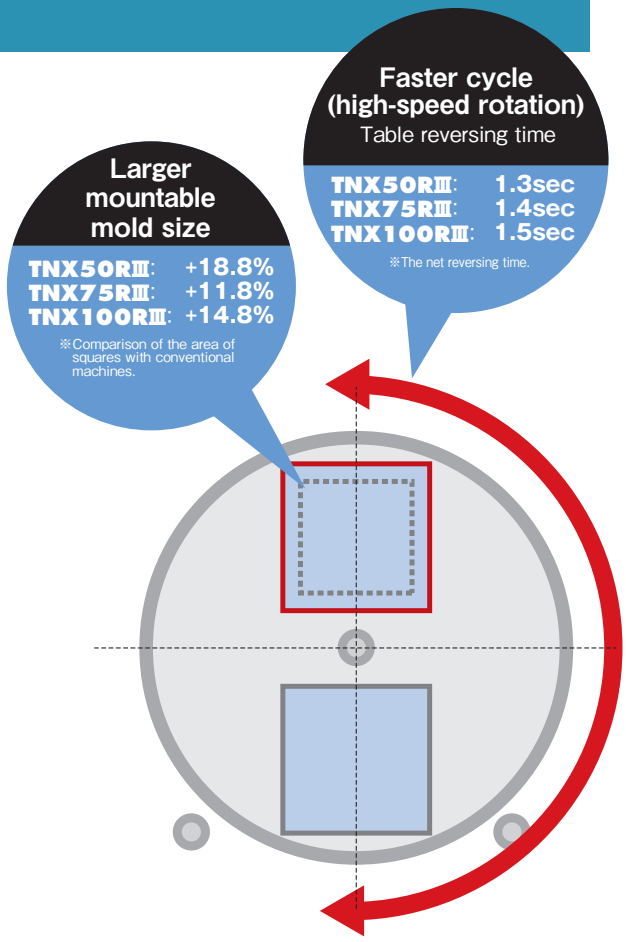
- Even distribution of clamping force to the mold.
- Resistant to temperature change of the mold and clamping mechanism, generating consistent clamping force according to the setting.
- Easy to set optimal (low) clamping force friendly to the mold & machine.
- Simple mechanism that maintains machine precision for a long time.
- Clean mechanism.
- Easy maintainability.
- Simple mold thickness adjustment and easy mold change.

Wide turntable by "3-Tie Bar"

- Mountable maximum mold dimensions became larger, accommodating larger mold due to intricate shape of the products or mold with a slide core.
  Please consider the possibility of using machine with one-class smaller clamping force, but be able to fit a larger mold.

- Wider work area around the turntable is secured.
  It excels in workability for mold setup/change and flexibly accommodates automated systems, such as a robot.

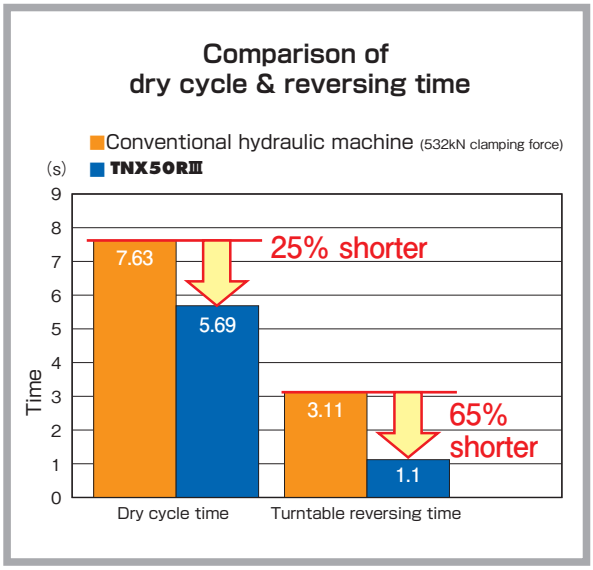
- Its low-height turntable (mold mounting face) offers better workability and operability. In addition, the installation height of automated devices will be lowered, permitting better maintainability.



Faster cycle by the servomotor drive

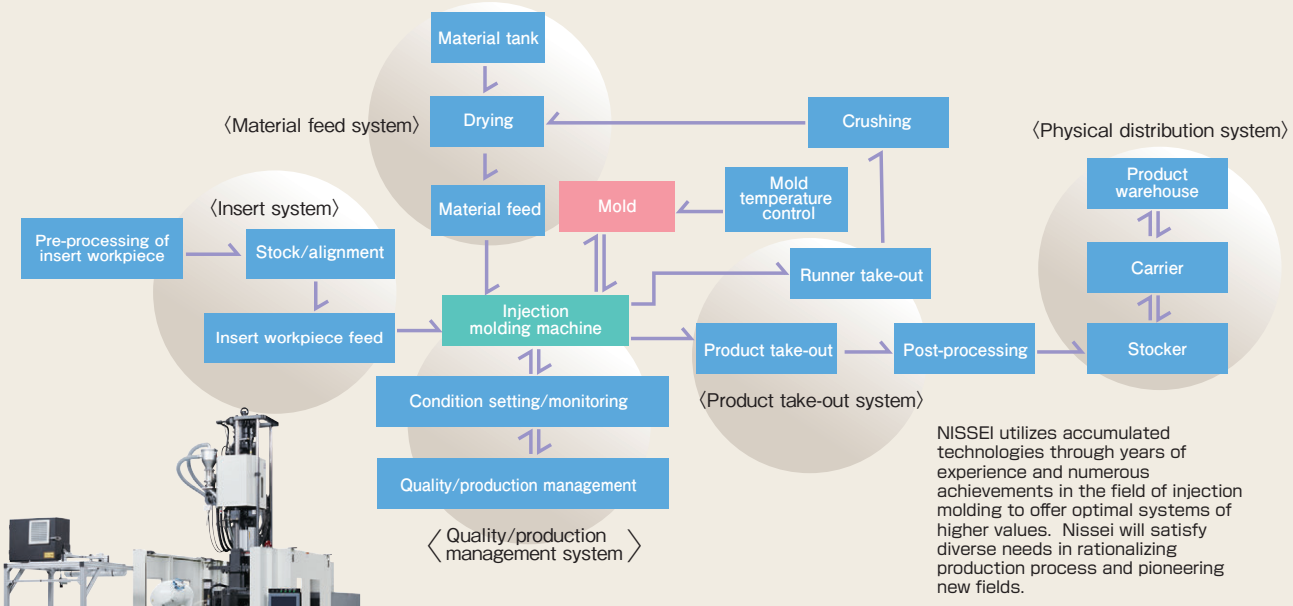
●Turntable rotation and ejector motion are driven by servomotor. Faster-yet-smooth (low-vibration) rotation and simultaneous motion of injection/ metering & ejection are possible, achieving faster cycle.

●High-precision rotational positioning mechanism is equipped. Insert positioning error by a robot and product takeout error can be solved.



Suggesting Optimization of Vertical Injection Molding System

≪Automated systems surrounding an injection molding machine≫



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

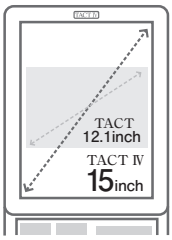
Example of automated molding system
TNX100RⅢ18V

≪Capability in liquid silicone rubber molding≫

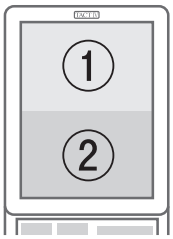
It is possible to install liquid silicone rubber (LSR) injection unit on to TNX-RⅢ machines. TNX-RⅢ Series, which excels in low-velocity & low-pressure injection control, demonstrates its power in a variety of LSR moldings. Please contact us for more details.

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.

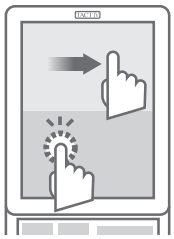


15-inch LCD
(large vertical screen)



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

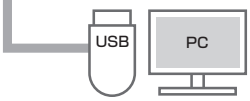
Flat sheet switch type operation panel that materializes easy and reliable operation

Newly added Maintenance screen

Scheduled maintenance and parts replacement period notifications

Newly added SET-UP mode

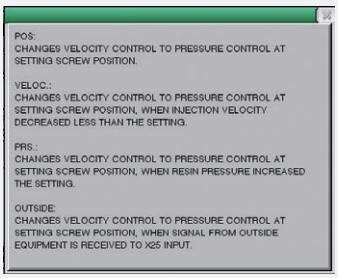
- Molding condition setting consolidated into one screen
- SET-UP mode added to the operation mode



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, molding data recorder/analyzer, and PC are possible.

Description of V-P change over▷



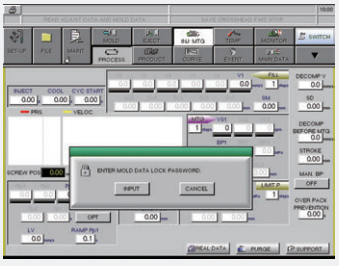
NEW Shutdown Sequence

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

NEW Descriptions of Adjusters

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

Password and masking screen▷



NEW Descriptions of Errors

It displays the error messages and solutions.

NEW Screen Lock and Adjuster Masking Functions OPTION

Adjusters that will be password protected can be selected.

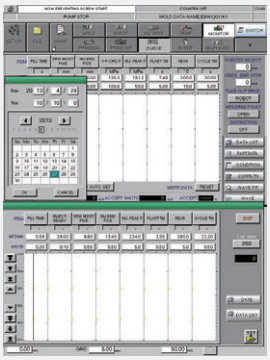
Materialize molding you desire…
the new controller that pursues better operability and workability

NEW Traceability Support

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▷

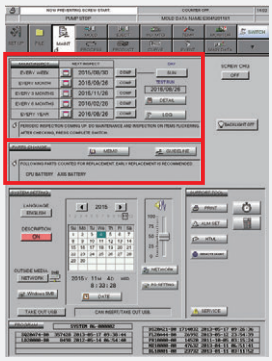


NEW Enriched Maintenance Functions

TACT® IV can notify when recommended scheduled maintenance and consumable parts replacement time arrive, and its related notes can be entered.
It can notify arbitrary messages, such as for mold, screw, lubrication, maintenance period, etc. on specified dates or shots.

①Maintenance schedule
②Consumable parts replacement time

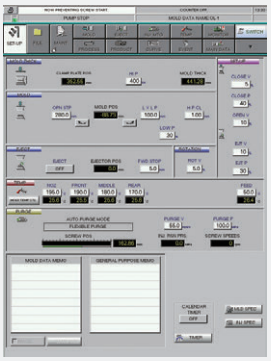
Newly added MAINT screen▷



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▷



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.

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).

Models			TNX50RIII						TNX75RIII		
Specification item		Unit	5V			9V			9V		
Injection	Screw diameter	inch(mm)	0.87(22)	1.02(26)	1.18(30)	1.10(28)	1.26(32)	1.42(36)	1.10(28)	1.26(32)	1.42(36)
	Injection capacity	inch³ (cm³)(oz)	2.1 (35) (1.2)	3.0 (49) (1.6)	4.0 (65) (2.2)	4.2 (69) (2.3)	5.5 (90) (3.0)	7.0 (114) (3.8)	4.2 (69) (2.3)	5.5 (90) (3.0)	7.0 (114) (3.8)
	Plasticizing capacity [PS]	lbs/h(kg/h)	30.9(14)	44.1(20)	66.1(30)	39.7(18)	59.5(27)	79.4(36)	39.7(18)	59.5(27)	79.4(36)
	Injection pressure	psi (MPa)(kgf/cm²)	37120 (256) (2610)	26590 (183) (1870)	19980 (138) (1405)	35410 (244) (2490)	27020 (187) (1900)	21330 (147) (1500)	35410 (244) (2490)	27020 (187) (1900)	21330 (147) (1500)
	Injection rate	inch³/s(cm³/s)	7.0(114)	9.7(159)	12.9(212)	7.5(123)	9.8(161)	12.4(203)	7.5(123)	9.8(161)	12.4(203)
	Injection velocity	inch/s(mm/s)	11.8(300)			7.9(200)			7.9(200)		
	Screw speeds	rpm	0~300			0~200			0~200		
	Nozzle touch force	US tons(kN)(tf)	2.0(18) (1.8)			2.7(24) (2.4)			2.7(24) (2.4)		
	Hopper capacity [optional]	Gal(L)	2.6(10)			4.0(15)			4.0(15)		
Clamping	**Clamping force**	**US tons(kN)(tf)**	**59(523) (53)**			**59(523) (53)**			**85(754) (77)**		
	Clamping stroke	inch(mm)	9.8(250)			9.8(250)			9.8(250)		
	Min. mold thickness	inch(mm)	6.7(170)			6.7(170)			7.9(200)		
	Max. daylight opening	inch(mm)	16.5(420)			16.5(420)			17.7(450)		
	Die plate dimensions [H × V]	inch(mm)	21.7×15.7(550×400)			21.7×15.7(550×400)			23.6×18.1(600×460)		
	Min. mold dimensions [H × V]	inch(mm)	9.3×9.3(235×235)			9.3×9.3(235×235)			11.0×11.0(280×280)		
	Max. mold dimensions [H × V]	inch(mm)	14.3×14.3(364×364)			14.3×14.3(364×364)			16.7×16.7(423×423)		
	Ejector stroke	inch(mm)	2.0(50)			2.0(50)			2.0(50)		
	Ejector force	US tons(kN)(tf)	2.2(20) (2.0)			2.2(20) (2.0)			2.2(20) (2.0)		
	Turntable diameter	inch(mm)	40.6(1030)			40.6(1030)			47.6(1210)		
	Max. mold weight [bottom mold]	lbs(kg)	551×2(250×2) (2 mold halves)			551×2(250×2) (2 mold halves)			551×2(250×2) (2 mold halves)		
Electrical & others	Pump motor	kW	11			15			15		
	Heater band capacity	kW	3.77	4.22		6.23			6.23		
	Main breaker capacity	A	60			60			60		
	Hydraulic oil quantity	Gal(L)	40(150)			40(150)			50(170)		
	Machine dimensions [L × W × H]	inch(m)	112×58.3×117 (2.85×1.48×2.96)	112×58.3×119 (2.85×1.48×3.01)		112×58.3×134 (2.85×1.48×3.41)			116×62.2×136 (2.95×1.58×3.46)		
	Floor dimensions [L × W]	inch(m)	97.6×48.8(2.48×1.24)			97.6×48.8(2.48×1.24)			102×52.8(2.58×1.34)		
	Machine weight	lbs(t)	8818(4.0)			9259(4.2)			10141(4.6)		

Models			TNX75RIII			TNX100RIII					
Specification item		Unit	12V			12V			18V		
Injection	Screw diameter	inch(mm)	1.26(32)	1.42(36)	1.57(40)	1.26(32)	1.42(36)	1.57(40)	1.42(36)	1.57(40)	1.77(45)
	Injection capacity	inch³ (cm³)(oz)	6.1 (100) (3.4)	7.7 (127) (4.3)	9.6 (157) (5.3)	6.1 (100) (3.4)	7.7 (127) (4.3)	9.6 (157) (5.3)	9.0 (147) (4.9)	11.1 (182) (6.1)	14.1 (231) (7.7)
	Plasticizing capacity [PS]	lbs/h(kg/h)	50.7(23)	70.5(32)	97.0(44)	50.7(23)	70.5(32)	97.0(44)	94.8(43)	130(59)	176(80)
	Injection pressure	psi (MPa)(kgf/cm²)	32850 (226) (2310)	25950 (179) (1825)	21050 (145) (1480)	32850 (226) (2310)	25950 (179) (1825)	21050 (145) (1480)	32280 (222) (2270)	26170 (180) (1840)	20610 (142) (1450)
	Injection rate	inch³/s(cm³/s)	7.9(129)	9.9(163)	12.3(201)	7.9(129)	9.9(163)	12.3(201)	9.9(163)	12.3(201)	15.5(254)
	Injection velocity	inch/s(mm/s)	6.3(160)			6.3(160)			6.3(160)		
	Screw speeds	rpm	0~170			0~170			0~240		
	Nozzle touch force	US tons(kN)(tf)	2.7(24) (2.4)			2.7(24) (2.4)			4.3(38) (3.9)		
	Hopper capacity [optional]	Gal(L)	4.0(15)			4.0(15)			4.0(15)		
Clamping	**Clamping force**	**US tons(kN)(tf)**	**85(754) (77)**			**115(1026) (105)**			**115(1026) (105)**		
	Clamping stroke	inch(mm)	9.8(250)			9.8(250)			9.8(250)		
	Min. mold thickness	inch(mm)	7.9(200)			11.8(300)			11.8(300)		
	Max. daylight opening	inch(mm)	17.7(450)			21.7(550)			21.7(550)		
	Die plate dimensions [H × V]	inch(mm)	23.6×18.1(600×460)			27.6×20.1(700×510)			27.6×20.1(700×510)		
	Min. mold dimensions [H × V]	inch(mm)	11.0×11.0(280×280)			12.0×12.0(305×305)			12.0×12.0(305×305)		
	Max. mold dimensions [H × V]	inch(mm)	16.7×16.7(423×423)			18.3×18.3(465×465)			18.3×18.3(465×465)		
	Ejector stroke	inch(mm)	2.0(50)			2.0(50)			2.0(50)		
	Ejector force	US tons(kN)(tf)	2.2(20) (2.0)			2.2(20) (2.0)			2.2(20) (2.0)		
	Turntable diameter	inch(mm)	47.6(1210)			52.0(1320)			52.0(1320)		
	Max. mold weight [bottom mold]	lbs(kg)	551×2(250×2) (2 mold halves)			882×2(400×2) (2 mold halves)			882×2(400×2) (2 mold halves)		
Electrical & others	Pump motor	kW	15			15			15		
	Heater band capacity	kW	7.43			7.43			8.78		
	Main breaker capacity	A	60			75			75		
	Hydraulic oil quantity	Gal(L)	50(170)			53(200)			53(200)		
	Machine dimensions [L × W × H]	inch(m)	116×62.2×142 (2.95×1.58×3.61)			122×65.7×148 (3.1×1.67×3.76)			122×65.7×157 (3.1×1.67×4)		
	Floor dimensions [L × W]	inch(m)	102×52.8(2.58×1.34)			107×56.3(2.73×1.43)			107×56.3(2.73×1.43)		
	Machine weight	lbs(t)	10362(4.7)			12566(5.7)			13228(6.0)		

- Weight per shot is 95% of theoretical value. (GPPS)
- Actual plasticization capacity may vary, depending on material used and molding conditions.
- Main breaker capacity includes standard extra electrical outlet (20A).
- 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.
- Specifications are subject to change without notice due to performance upgrade.
- For parting injection type (TNX-R-A), contact us for details.

※ 1MPa = 10.2kgf/cm² ≒ 10kgf/cm², 1kN = 0.102tf ≒ 0.1tf

TNX-RIII SERIES | Specifications [TNX-RIII-V Turntable type/Center injection]

Models			TNX150RIII					
Specification item		Unit	18V			25V		
Injection	Screw diameter	inch(mm)	1.42(36)	1.57(40)	1.77(45)	1.57(40)	1.77(45)	1.97(50)
	Injection capacity	inch³ (cm³)(oz)	9.0 (147) (4.9)	11.1 (182) (6.1)	14.1 (231) (7.7)	12.3 (201) (6.7)	15.5 (254) (8.5)	19.2 (314) (10.5)
	Plasticizing capacity [PS]	lbs/h(kg/h)	94.8(43)	130(59)	176(80)	97.0(44)	132(60)	176(80)
	Injection pressure	psi (MPa)(kgf/cm²)	32280 (222) (2270)	26170 (180) (1840)	20610 (142) (1450)	32280 (222) (2270)	25390 (175) (1790)	21610 (142) (1450)
	Injection rate	inch³/s(cm³/s)	9.9(163)	12.3(201)	15.5(254)	8.4(138)	10.7(175)	13.2(216)
	Injection velocity	inch/s(mm/s)	6.3(160)			4.3(110)		
	Screw speeds	rpm	0~240			0~170		
	Nozzle touch force	US tons(kN)(tf)	4.3(38) (3.9)			2.7(24) (2.4)		
	Hopper capacity [optional]	Gal(L)	4.0(15)			5.3(20)		
Clamping	**Clamping force**	**US tons(kN)(tf)**	**165(1469) (150)**			**165(1469) (150)**		
	Clamping stroke	inch(mm)	9.8(250)			9.8(250)		
	Min. mold thickness	inch(mm)	13.8(350)			13.8(350)		
	Max. daylight opening	inch(mm)	23.6(600)			23.6(600)		
	Die plate dimensions [H × V]	inch(mm)	30.7×23.6(780×600)			30.7×23.6(780×600)		
	Min. mold dimensions [H × V]	inch(mm)	13.4×13.4(340×340)			13.4×13.4(340×340)		
	Max. mold dimensions [H × V]	inch(mm)	19.2×19.2(488×488)			19.2×19.2(488×488)		
	Ejector stroke	inch(mm)	3.1(80)			3.1(80)		
	Ejector force	US tons(kN)(tf)	2.2(20) (2.0)			2.2(20) (2.0)		
	Turntable diameter	inch(mm)	59.1(1500)			59.1(1500)		
	Max. mold weight [bottom mold]	lbs(kg)	992×2(450×2) (2 mold halves)			992×2(450×2) (2 mold halves)		
Electrical & others	Pump motor	kW	20			20		
	Heater band capacity	kW	8.78			11.3		
	Main breaker capacity	A	100			100		
	Hydraulic oil quantity	Gal(L)	63(240)			63(240)		
	Machine dimensions [L × W × H]	inch(m)	139×76.4×160 (3.52×1.94×4.07)			139×76.4×158 (3.52×1.94×4.02)		
	Floor dimensions [L × W]	inch(m)	126×63(3.19×1.60)			126×63(3.19×1.60)		
	Machine weight	lbs(t)	16535(7.5)			17857(8.1)		

TNX-RIII SERIES | Utility List

*The values in the table may differ, depending on the molding conditions, ancillary equipments, and other environmental factors.

Model	TNX50RIII		TNX75RIII		TNX100RIII	
	5V	9V	9V	12V	12V	18V
Power supply	3-phase AC230V 60Hz		3-phase AC230V 60Hz		3-phase AC230V 60Hz	
Main power breaker capacity	60A		60A		60A	
Size of primary-side power cable	14mm²		14mm²		14mm²	
Size of primary-side power terminal screw	M8		M8		M8	
Size of grounding cable	22mm² or more		22mm² or more		22mm² or more	
Size of grounding terminal screw	M8		M8		M8	
Heater band capacity	3.77kW(φ 22) 4.22kW(φ 26・30)	6.23kW	6.23kW	7.43kW	7.43kW	8.78kW
Required amount of cooling water for hopper throat	0.8L/min	1.2L/min	1.2L/min		1.2L/min	1.8L/min
Required amount of cooling water for hydraulic oil	10L/min		15L/min		15L/min	
Standard amount of cooling water for mold	5L/min	10L/min	10L/min		10L/min	
Air consumption	0.5 × number of shots per minutes L/min(ANR)		0.5 × number of shots per minutes L/min(ANR)		0.5 × number of shots per minutes L/min(ANR)	

Model	TNX150RIII	
	18V	25V
Power supply	3-phase AC230V 60Hz	
Main power breaker capacity	75A	100A
Size of primary-side power cable	22mm²	38mm²
Size of primary-side power terminal screw	M8	
Size of grounding cable	22mm² or more	
Size of grounding terminal screw	M8	
Heater band capacity	8.78kW	11.3kW
Required amount of cooling water for hopper throat	1.8L/min	
Required amount of cooling water for hydraulic oil	15L/min	
Standard amount of cooling water for mold	10L/min	
Air consumption	0.5 × number of shots per minutes L/min(ANR)	

※ Power breaker and powere supply size are for standard specifications, including extra AC200V outlet. It is based on the allowable current when triple core cable or electrical conduit is used in the ambient temperature of 30℃ .

※ Supply pressure for cooling water should be 0.2 ~ 1.0MPa.

※ Amount of cooling water for mold is a standard value and may vary depending on the usage and mold temperature.

※ Air is for a mechanical type clamping safety device. Please supply the pressure of 0.5MPa. ANR of consumption amount indicates the standard atmospheric condition (temperature 20℃ , absolute pressure 0.1MPa, relative humidity 65%).

[Standard Equipment]

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

▼ Clamping unit/mold

1 High-sensitivity mold protection (monitoring of low-pressure clamping time)
2 Mold close halfway slowdown (three-plate & angular pin mold possible)
3 Clamping pressure full-closed control
4 Mold open/close prediction control (for improving precision of mold open stop & low-pressure mold close changeover positions)
★5 Mold position reading functions
6 High-pressure clamping force setting unit: kN (display in tonf and % optionally available)
7 Ejector plate return confirmation (terminal output of bottom mold 1 & 2 input signals)
8 Multi-functional ejector (continuous operation, start timer, pause, halfway change of velocity, 2-stage forward speed,and variable forward/backward stroke)
⑨ Switching of one-piece mold and two-piece mold molding (selection of the bottom mold type: one-piece or two-piece bottom mold)
⑩ 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 °F optionally available)
16 Automatic purge unit
17 Purging cover (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 Screen display of hopper throat temperature
22 Nozzle & barrel heater circuit: SSR control (barrels up to 36A and 36V provided as standard)
23 Nozzle & barrel heat retention circuit (forced and emergency heating)
★24 Nozzle/barrel heater simple disconnection alarm
25 High-precision metering control "Pre-Comp" (resin density stabilizer)
26 Screw change mode / screw forward safety circuit

▼ 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
7 Calendar timer (hydraulic oil and barrel heating)
★8 Molding condition internal memory (up to 300 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 Display of injection velocity & pressure waveform
★12 Operation history display: 100,000 items
13 Molding support message
14 Six-language multilingual display: Japanese, English, Chinese, Spanish, Korean, and Thai
15 Hour meter / clock function / calculator
16 Ladder programming function / I/O function assignment
17 Alert (informing) function (effective for mold & screw maintenances)
18 Signal recorder / servomotor load monitor
19 Error display function / emergency power shut off / cycle alarm
★20 Selection of production complete state (selection of injection, metering, and operation power states when production is completed)
21 Material accumulation prevention function
22 Remote maintenance
★23 Description of adjusters (when some of the adjusters are touched, descriptions and tips will be displayed)
★24 Setup mode (mold open/close & ejection by setup speed and injection & metering by purging speed)
★25 Idling stop

▼ Cooling/hydraulic oil

1 Cooling water manifold
2 Oil temperature stabilizer
3 Hydraulic oil heating
4 Hydraulic oil temperature upper & lower limit alarm / low oil level alarm

▼ Operation safety

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

▼ Power

1. Main power breaker

▼ Maintenance, installation, and miscellaneous

1 Manual centralized lubricating unit (for clamping slide) / manual centralized greasing unit (rotating parts and ejector ball screw)
★2 Periodic inspection support function (display of scheduled inspection date)
★3 Parts replacement support function (display of recommended parts replacement period)
4. Tools

[Optional Specifications]

▼ Clamping unit/mold

① Daylight extension※
2 Locating ring attachment (non-fixed type) or locating ring assembly (fixed type)※ (center injection only)
3 Locating ring diameter change※ (center injection only)
④ Insulation plate
⑤ Additional mold mounting bolt hole※
6 Mold close pause
7 Mold close pause
⑧ Downward ejector (installed on both sides of the top of movable platen for upper mold)
⑨ Ejector plate return confirmation (for metal interface box)
⑩ Mold temperature control or mold temperature indicator (display on the screen)
11 Mold temperature upper & lower limit alarm
12 Mold heater disconnection alarm
13 Mold installation assist (SAT Clamp and Easy Clamp)
14 Automatic mold clamp※
⑮ Mold positioning pin & block※
⑯ Mold insertion base

▼ Injection unit

1 Nozzle & barrel heater disconnection alarm
2 Hopper throat temperature control
③ 2-point nozzle temperature control
4 Barrel insulation cover
5 High-temperature resistant barrel (pre-arrangement necessary)※
⑥ Abrasion & corrosion proof barrel and screw※
7 Special-purpose barrel and screw※
8 Hydraulic shut off nozzle※ or spring shut off nozzle※
⑨ Extended nozzle (length to be specified)
⑩ Heat retaining nozzle
11 Hopper
12 Hopper magnet

▼ Molding system control/production management

1 Air blow
2 Hydraulic core pull
③ I/O signal for automated machine
4 Calendar timer (additional electrical outlet activation)
5 USB memory
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 Cooling water filter
2 Additional cooling water circuit
3 Cooling water circuit (with a return stop valve)
4 Cooling water circuit (with a flow checker)
5 Temperature control hosing for high temperature mold
6 Water temperature gauge
7 Hydraulic oil purifier

▼ Operation safety

1 Alarm bell
2 Alarm lamp with a stand
③ Rotating beacon (Patlite) or layered indicator lamp (signal tower)
④ Both-hand push start button switch
5 Password protected molding data

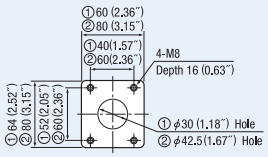
▼ Power

1 Main power leakage breaker
② Additional built-in electrical outlet
3 Outlet circuit power shut-down

▼ Maintenance, installation, and miscellaneous

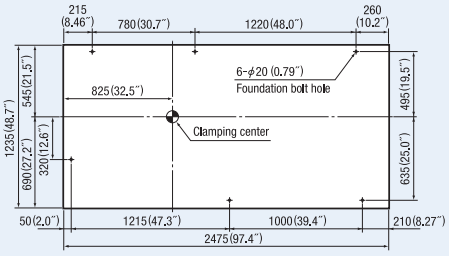
1 Automatic centralized lubricating unit (for clamping slide) / automatic centralized greasing unit (rotating parts and ejector ball screw)
2 Custom color paint (contact us for the painting area)※
3 Mounting pad

EXTERNAL VIEW

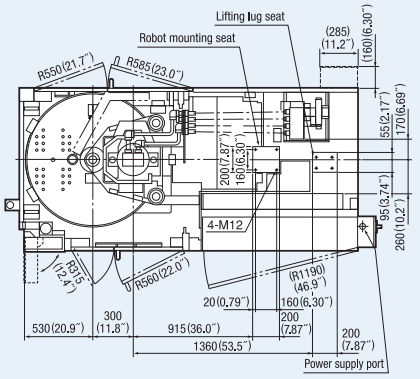


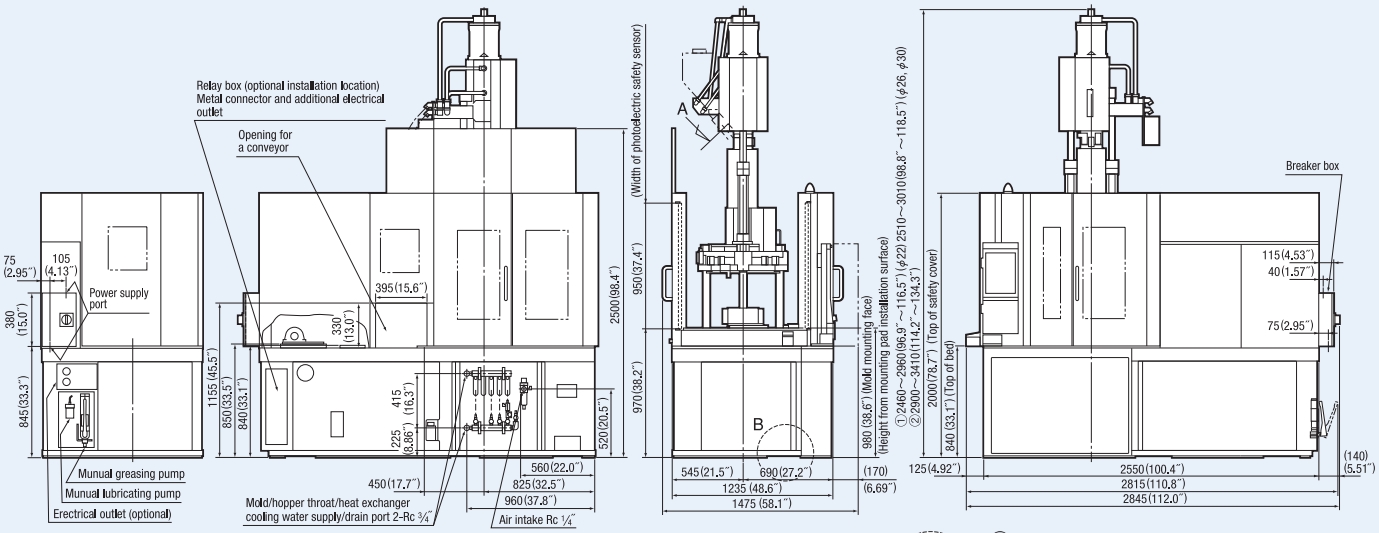
Hopper fixation diagram (View A)

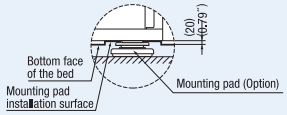
＊In order to prevent material clogging and ensure stable plasticization, please use the shortest possible pipe to the hopper mounting section when a glass tube hopper (auxiliary equipment) is being used.



Foundation diagram

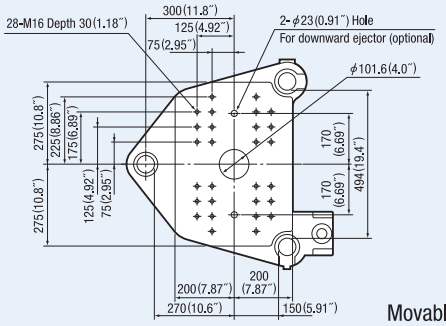




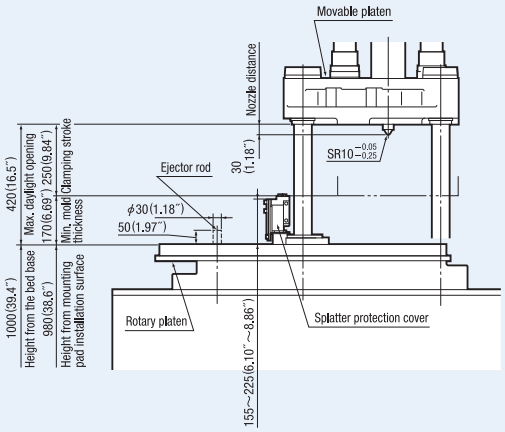


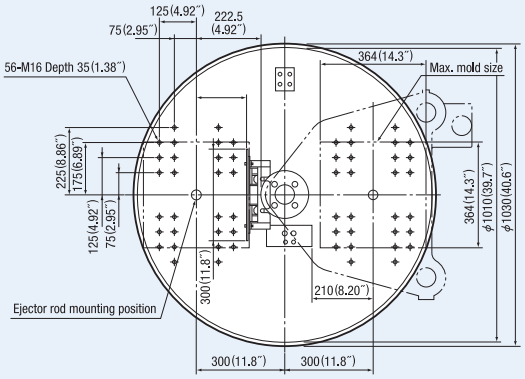
Mounting pad installation diagram (B)

MOLD ATTACHMENT DIAGRAM



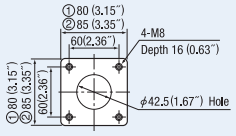
Movable platen





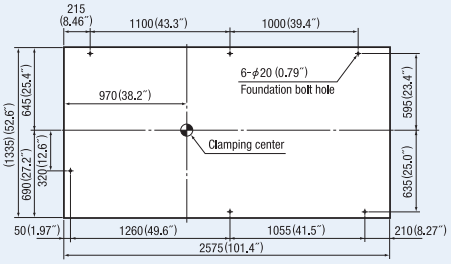
Rotary platen

EXTERNAL VIEW

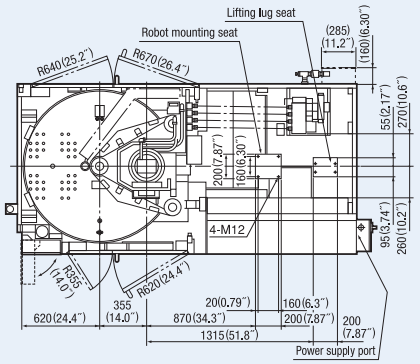


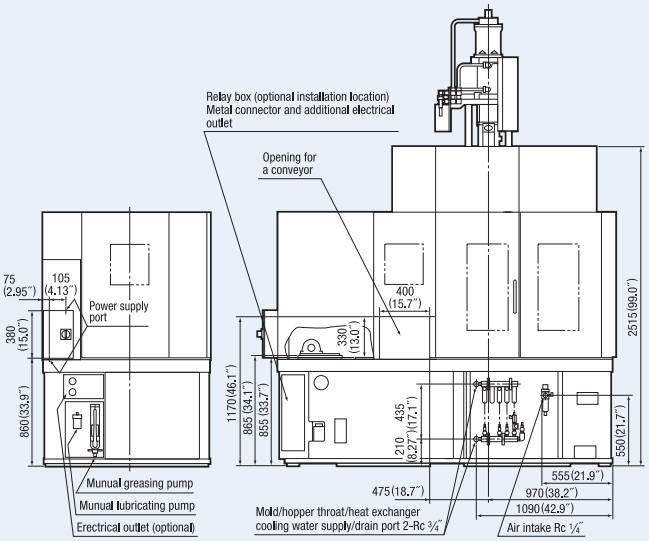
Hopper fixation diagram (View A)

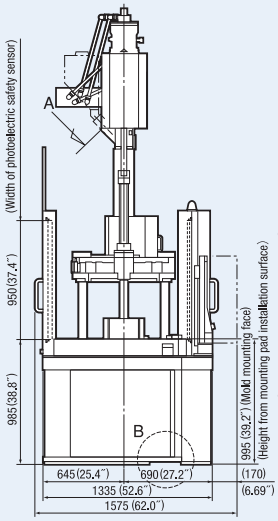
*In order to prevent material clogging and ensure stable plasticization, please use the shortest possible pipe to the hopper mounting section when a glass tube hopper (auxiliary equipment) is being used.

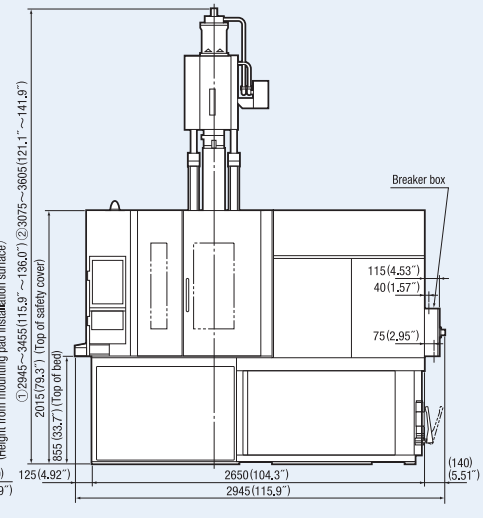


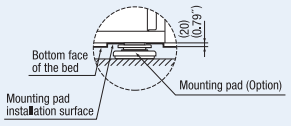
Foundation diagram





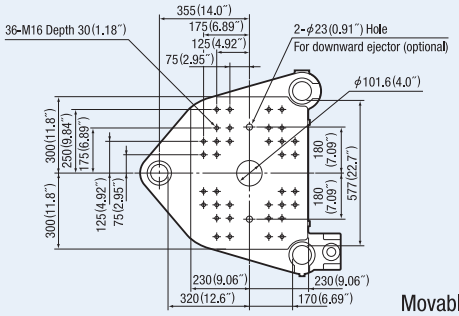




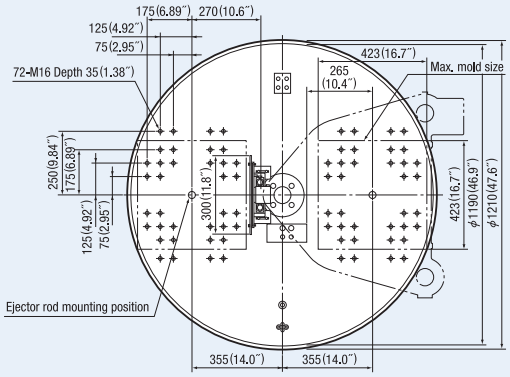


Mounting pad installation diagram (B)

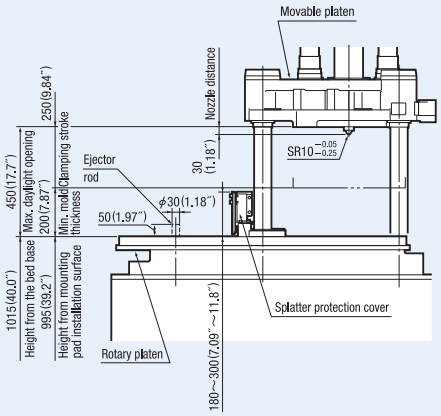
MOLD ATTACHMENT DIAGRAM



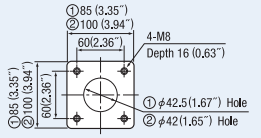
Movable platen



Rotary platen

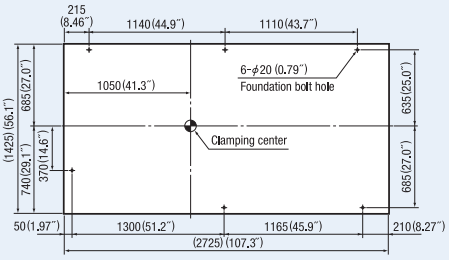


EXTERNAL VIEW

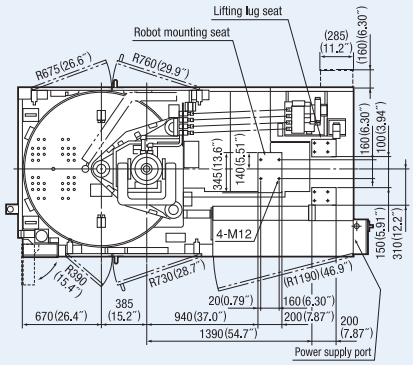


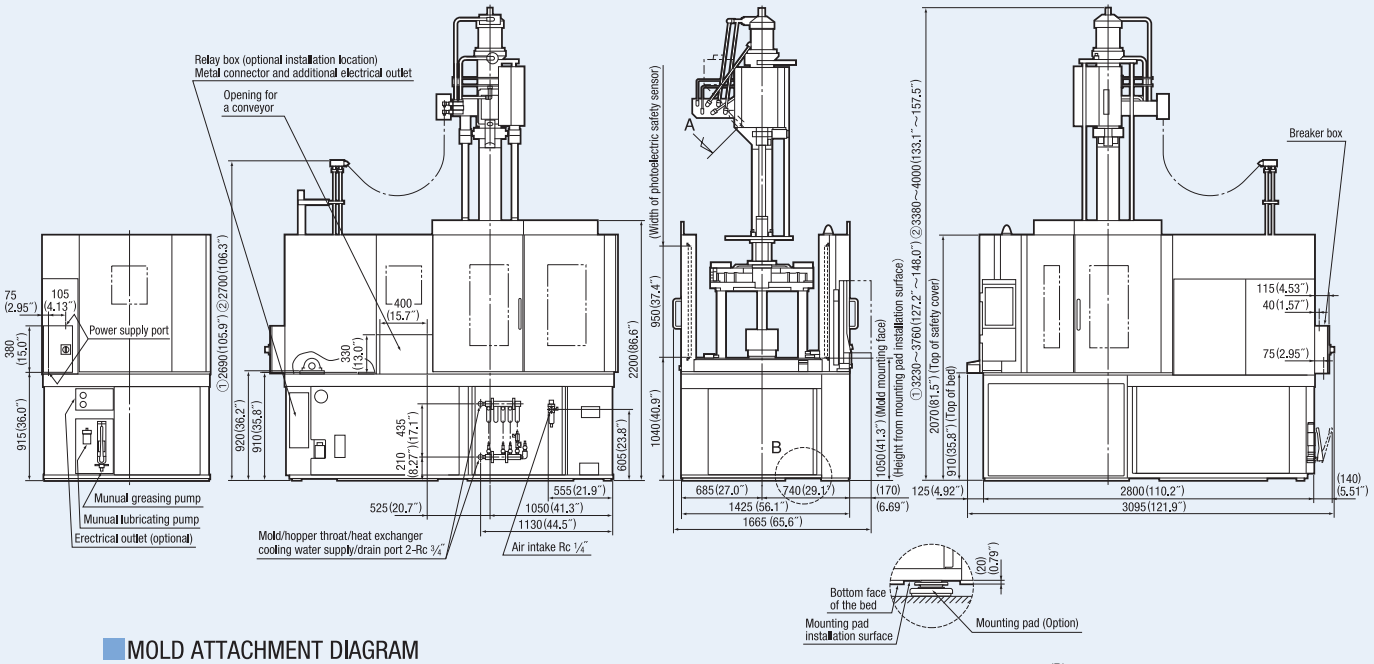
Hopper fixation diagram (View A)

* In order to prevent material clogging and ensure stable plasticization, please use the shortest possible pipe to the hopper mounting section when a glass tube hopper (auxiliary equipment) is being used.



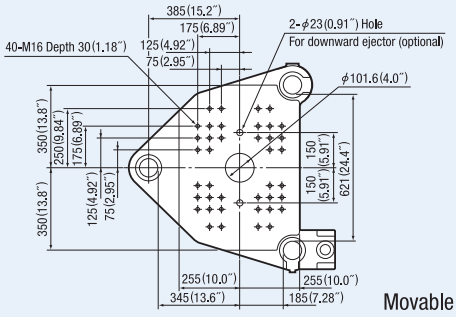
Foundation diagram



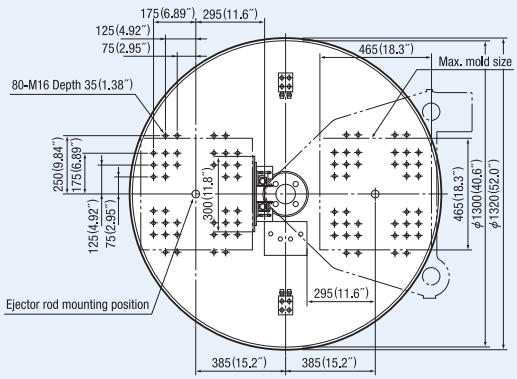


Mounting pad installation diagram (B)

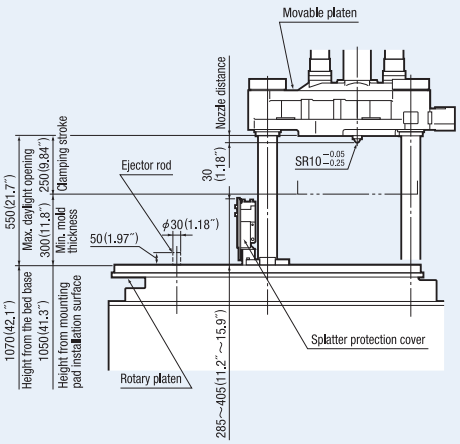
MOLD ATTACHMENT DIAGRAM



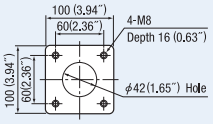
Movable platen



Rotary platen

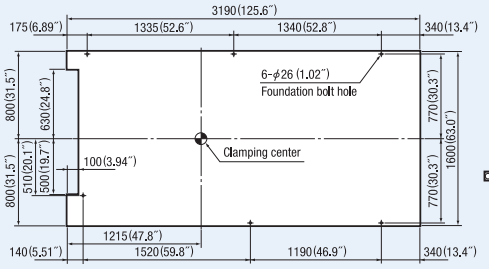


EXTERNAL VIEW

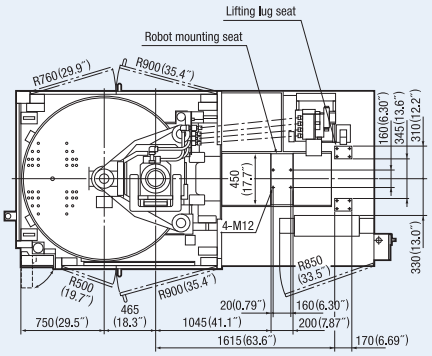


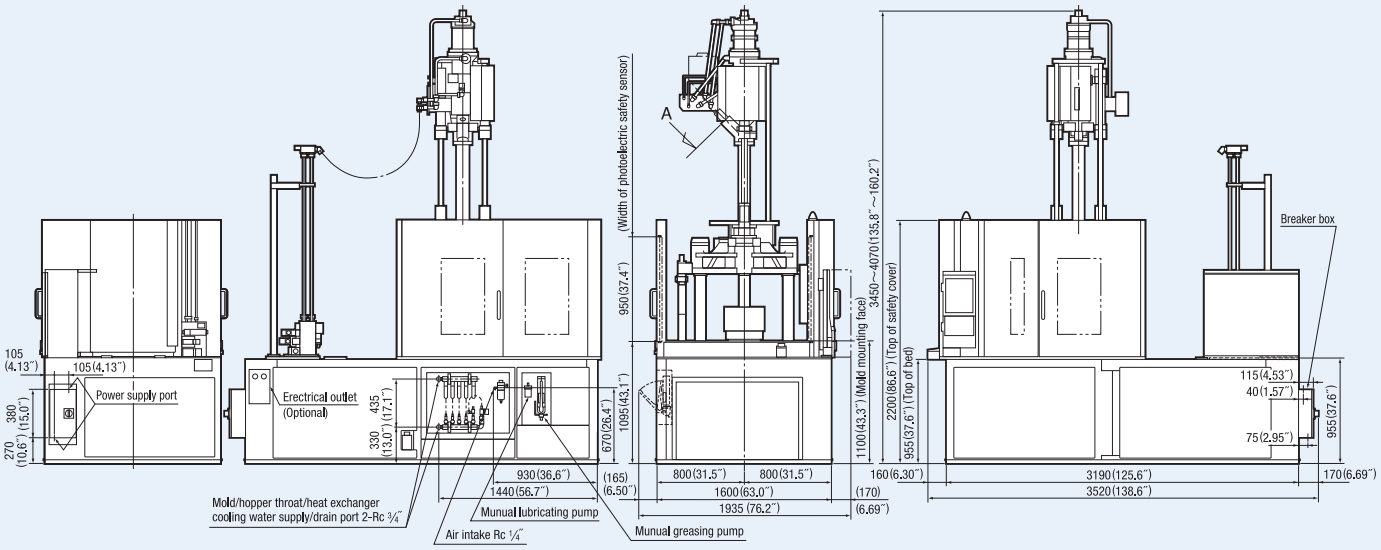
Hopper fixation diagram (View A)

* In order to prevent material clogging and ensure stable plasticization, please use the shortest possible pipe to the hopper mounting section when a glass tube hopper (auxiliary equipment) is being used.

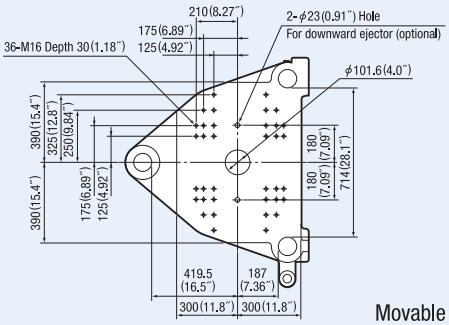


Foundation diagram

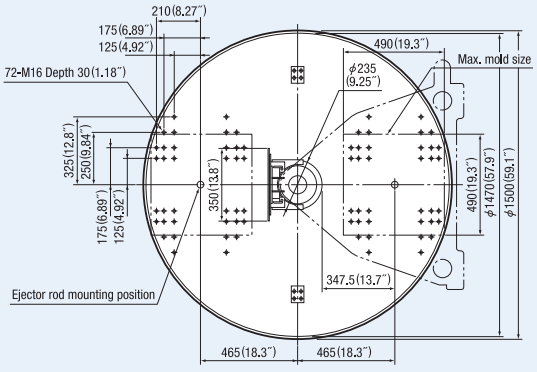




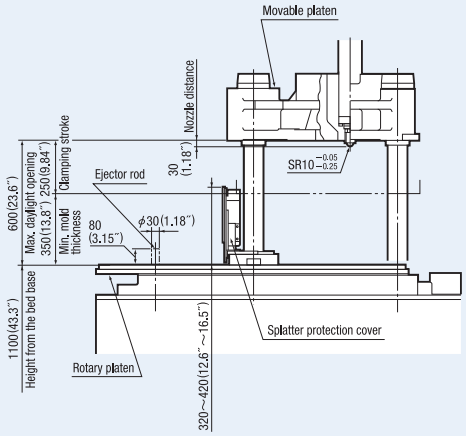
MOLD ATTACHMENT DIAGRAM



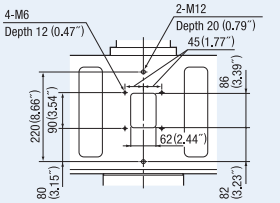
Movable platen



Rotary platen

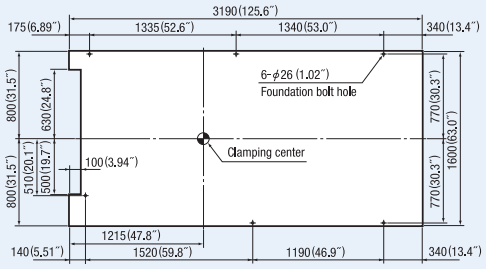


EXTERNAL VIEW

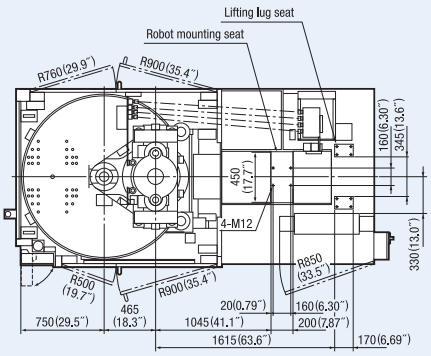


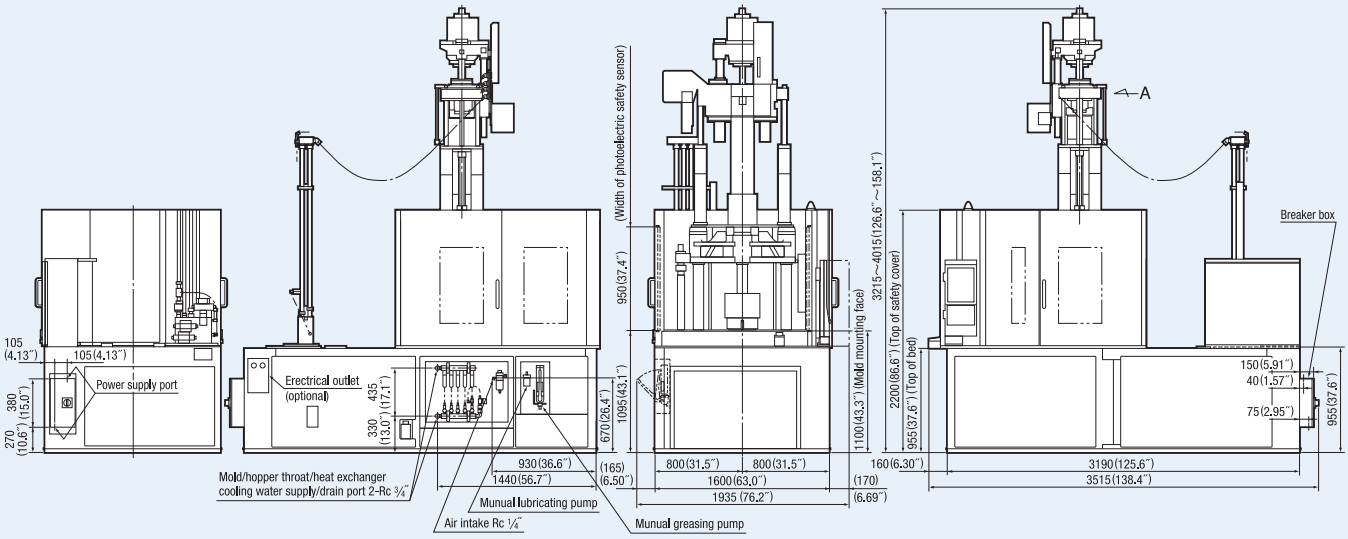
Hopper fixation diagram (View A)

＊In order to prevent material clogging and ensure stable plasticization, please use the shortest possible pipe to the hopper mounting section when a glass tube hopper (auxiliary equipment) is being used.

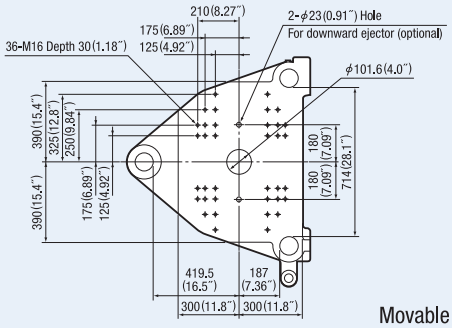


Foundation diagram

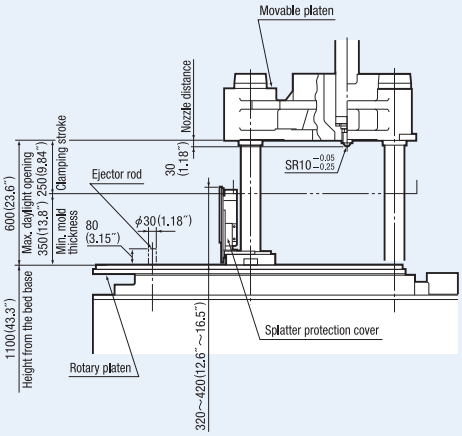


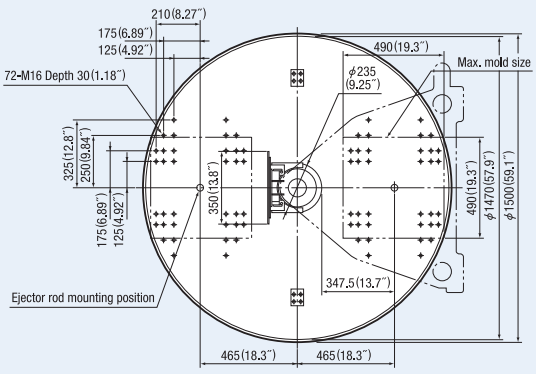


MOLD ATTACHMENT DIAGRAM



Movable platen





Rotary platen

NISSEI

NISSEI AMERICA, INC.

CORPORATE HEADQUARTERS

LOS ANGELES / CALIFORNIA
ADD: 1480 North Hancock Street,
Anaheim, CA 92807
TEL: (714)693-3000 FAX: (714)693-7787
E-mail: info@nisseiamerica.com

CHICAGO OFFICE

CHICAGO / ILLINOIS
ADD: 721 Landmeier Road,
Elk Grove Village, IL 60007
TEL: (847)228-5000 FAX: (847)228-6700

NEW JERSEY OFFICE

JAMESBURG / NEW JERSEY
ADD: 1085 Cranbury South River Road,
Suite 7, Jamesburg, NJ 08831
TEL: (732)271-4885

ATLANTA OFFICE

ATLANTA / GEORGIA
ADD: 200 Cobb Parkway North., Suite 314,
Marietta, GA 30062
TEL: (770)421-0700

NEW ENGLAND TECHNICAL CENTER

AUBURN / MASSACHUSETTS
ADD: 4 Washington Street, Auburn MA 01501
TEL: (508)754-5600

FLORIDA OFFICE

TAMPA / FLORIDA
ADD: 13575 58th Street North #155 ,
Clearwater, FL 33760
TEL: (727)773-8773

PENNSYLVANIA OFFICE

ERIE / PENNSYLVANIA
ADD: 2451 Palermo Circle, Erie, PA 16506
TEL: (814)616-4913

Manufactured by
NISSEI PLASTIC INDUSTRIAL CO., LTD.
HEAD OFFICE & FACTORY
2110 Minamijo, Sakaki-machi, Hanishina-gun,
Nagano-ken 389-0693, Japan

VEGETABLE OIL INK

* This catalog is for USA only.

Printed in Japan 31 MAR 2020-01-No.2A-308