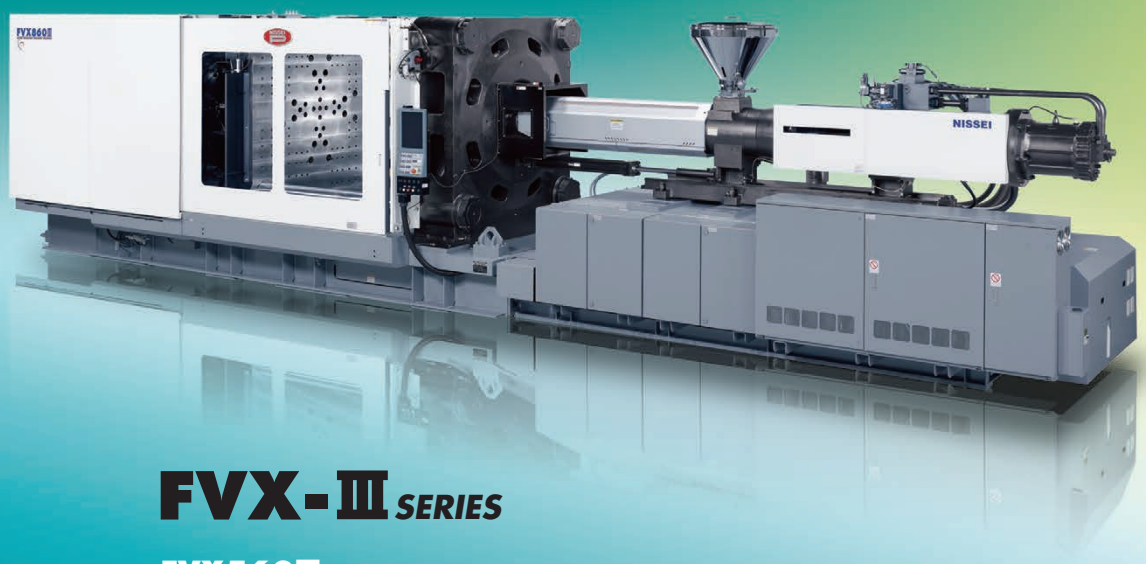
NISSEI®

CATALOG 2003

FVX-Ⅲ

X-PUMP® EQUIPPED
HYBRID TYPE LARGE-SIZED INJECTION MOLDING MACHINE



FVX-Ⅲ SERIES

FVX560Ⅲ

FVX660Ⅲ

FVX860Ⅲ

FVX1100Ⅲ

FVX1300Ⅲ

FVX-Ⅲ Series

New!!

Electric Servo Drive

(Hybrid Type)

FVX-Ⅲ Series inherits long-lasting operation stability and straight-hydraulic clamping advantages of the hydraulic injection molding machines while achieving significant energy-savings.
FVX-Ⅲ Series with NISSEI original hybrid "X-PUMP®" system offers well-balanced performance with its high-rigidity direct-pressure clamping system, excellent injection performance, long service life, easy maintainability, and electric type level of energy efficiency.
It redefines the concept of hydraulic injection molding systems.

Best Technology Award
(The Japan Society of Polymer Processing)
Energy-Conserving Machinery Award
(The Japan Machinery Federation)

FVX1300Ⅲ-700L
AC400V specification machine
(Equipped with options)
(Japanese specification)

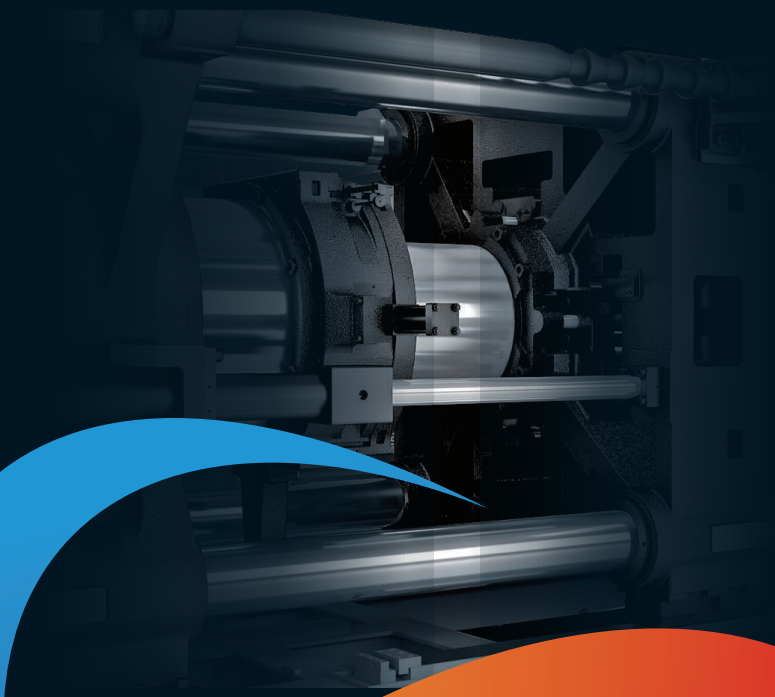
FVX860Ⅲ-400L
AC400V specification machine
(Equipped with options)
(Japanese specification)

FVX-Ⅲ Series Line up

Model	Clamping force (kN)	Injection unit	Screw diameter (mm)
FVX560Ⅲ	5500	210L	80, 90
FVX660Ⅲ	6390	310L	90, 100
FVX860Ⅲ	8410	400L	100, 112
FVX1100Ⅲ	10730	600L	112, 125
FVX1300Ⅲ	12800	700L	120,135
		1100L	125,140,150

Fusion of Hydraulic Controal and Servomotor Drive Techonologies

Intelligent Hybrid "X-PUMP® System"
with
"Direct Pressure Type" Clamping Unit



X-PUMP

Hybrid Type
High-Performance

The X-PUMP® System combines years of accumulated expertise in hydraulic and state-of-the-art servomotor drive technology. Since the servomotor rotates at the required speed only when necessary, the extremely efficient X-PUMP® achieves drastic energy-savings. Furthermore, with exceptional stability in injection repeatability and controllability in low velocity/pressure range, it makes possible the production of higher-precision and quality-molded products.

About X-PUMP® System

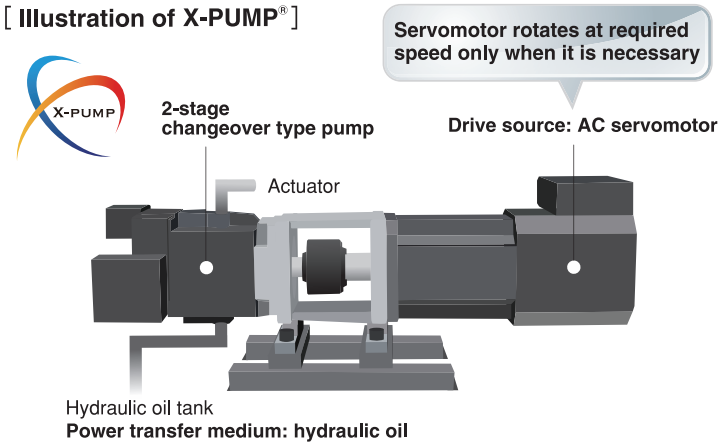
It is a revolution speed controlled pump driven by an AC servomotor

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

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

◎ Injection holding pressure control (pressure controlled state) can be sustained for a long period.

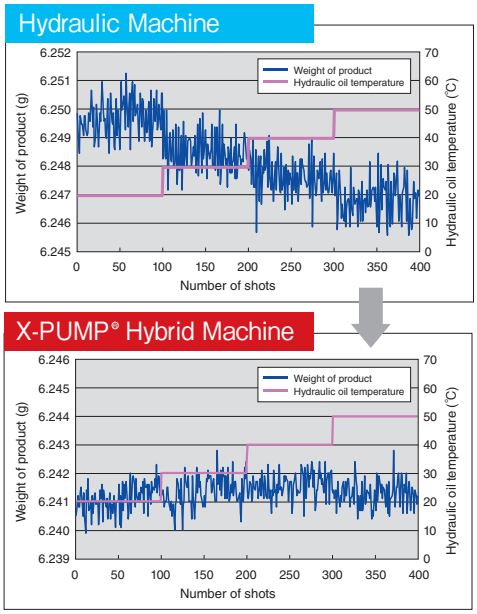
[**Illustration of X-PUMP®**]



High-Tolerance in Oil Temperature Fluctuation

X-PUMP® equipped machines have a high tolerance for hydraulic temperature change, and the product weight deviations are half compared to the hydraulic machines.

Hydraulic oil temperature and product weight
(oil temp: 20 → 50℃)
We purposely raised hydraulic oil temperature from 20℃ to 50℃ during continuous molding operation and measured fluctuation in product weight.



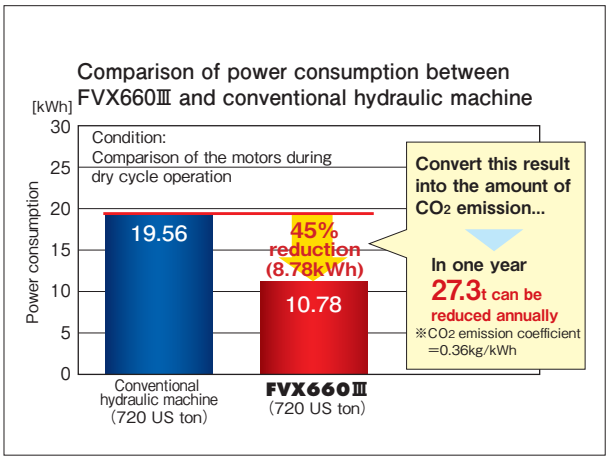
The Ultimate Level of Energy Saving

Since the servomotor in X-PUMP® system rotates at required speed only when it is necessary, it is extremely efficient. In comparison with the conventional hydraulic machines, its motor consumes approximately 45% less energy.

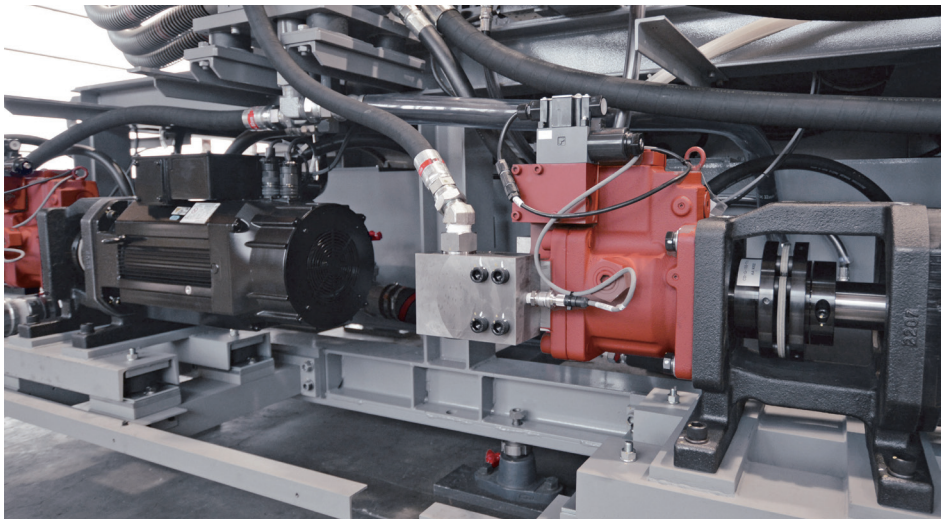
◆ CO_2 emission amount conversion table

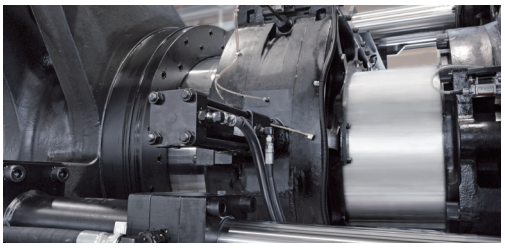
Unit : kg

	1 day	1 month	1 year	5 years
CO_2 emission of conventional hydraulic machine	169.0	5070.0	60839.4	304197.1
CO_2 emission of FVX660Ⅲ	93.1	2794.2	33530.1	167650.6
CO_2 reduction amount	75.9	2275.8	27309.3	136546.5



Advantages of X-PUMP® Hybrid Machines





Molding stability

Linearity materialized in all ranges; from ultra-low to high speed and low to high pressure

Response

High-response injection similar to that of electric machine

Injection holding pressure performance

Long-sustained and high injection holding pressure possible by switching to low-flow rate mode

Wide-ranging injection velocity

High-flow rate mode for high-velocity injection Low-flow rate mode for stable low velocity & low-pressure control

Low-cost

Reduction in initial cost and lifetime cost

Energy-savings

Cooling water amount reduced
⇒ relieves cooling device costs Better energy efficiency than conventional pump drive

Maintainability

Proven track record of its durability of the mechanical components and excellent maintainability

Low-noise

Electric machine level of low-noise operation

Easy molding condition setting

Easy-to-use direct pressure type clamping mechanism

High-sensitivity mold protection

Durable

Low maintenance

Low cost

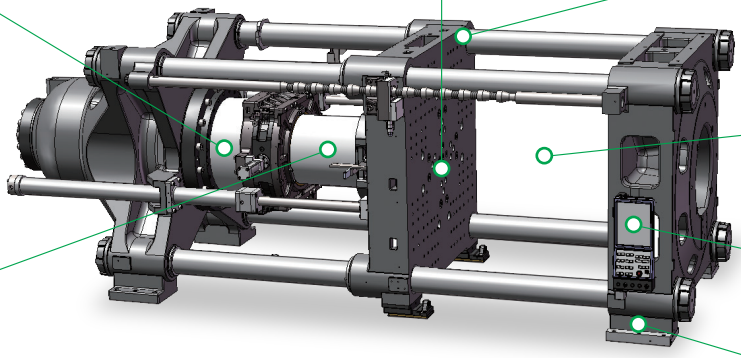
Long-Lasting Stable Operation of "Direct Pressure Type" Clamping Unit

★ The advantages of direct-pressure clamping mechanism:
Long stroke, stable clamping force, simple mechanism, high-performance low pressure clamping, easy optimum (low) clamping force setting, easy mold change, long service life (durable), low maintenance, etc.

Composite Clamping Type
It is a composite clamping type, and its motion is seamless from high speed clamping to high pressure clamping. Its smooth mold open/close motion materializes highly stable molding at high cycle.

Ejector
The simultaneous motion of "ejection during mold opening" is possible.(FVX560Ⅲ～860Ⅲ)

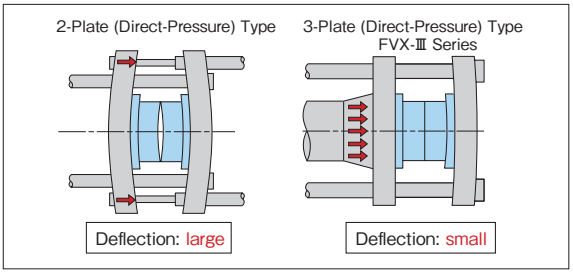
Mold open/close stop position
Mold open/close stop position accuracy has been significantly improved.
- About 50% less dispersed mold open stop position
  ⇒ Prevent takeout robot errors
- Improved stop position overrun prevention
  ⇒ Improve low-pressure mold clamping performance (mold protective function)
- Less dispersed mold open stop position after changing the opening speed



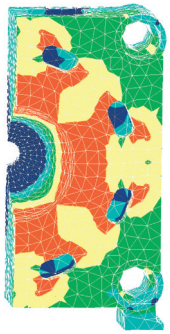
Mold
Wide platen and long clamping stroke make it effective for molding larger products and mounting thick molds(hot runner, deep cavity, and 3-plate molds).

Controller
It is easy to configure low (optimum) clamping force and is effective for conserving energy, prolonging the life of machine and mold, and taking countermeasures for defects, such as insufficient gas venting and short shot.

3-Plate(Direct-Pressure)Type
The mold clamping mechanism of 3-plate (direct pressure) type is simple and excels in rigidity and durability. Thus, the deflection of movable platen is small, and it maintains the parallelism for a long time.



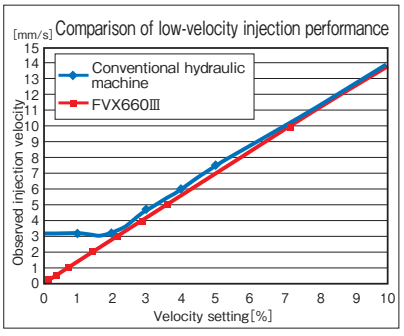
Platen
The structural analysis by finite element method was conducted when we designed the stationary and movable platens, and it maintains high machine precision and rigidity for a long time.



FVX860Ⅲ Stationary platen

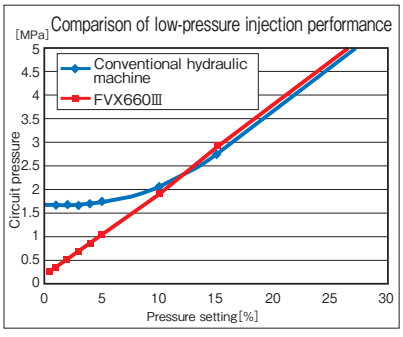
Injection Performance Improved by X-PUMP®

☐ In comparison with the conventional hydraulic machines, it achieves faster injection velocity and quicker injection response.
☐ "Excellent stability in ultra-low velocity/pressure range," which is difficult to achieve with the hydraulic machines, has been materialized.
☐ It achieves "high-pressure + long-sustained" injection holding pressure performance, which is difficult to achieve with the electric machines.



In comparison with the conventional hydraulic machines, it offers superior lowest operational velocity and higher resolution in low-velocity range.

【The lowest velocity】
Conventional hydraulic machine
3.2mm/s (0.13in/s)
Improved to approx. **1/6**
FVX660Ⅲ 0.5mm/s



In comparison with the conventional hydraulic machines, it offers superior lowest controllable pressure and higher control resolution in low-pressure range.

【The lowest pressure】
Conventional hydraulic machine
1.7MPa
Improved to approx. **1/5**
FVX660Ⅲ 0.3MPa

Control

TACT® Ⅳ

High-Performance & High-Functioning Controller TACT® Ⅳ

Evolution to a large vertical screen

- ○15-inch LCD (large vertical screen)
- ○Vertical dual window display
- ○Touch and slide display

High-performance controller: man-machine interface

- ○6-language display in Japanese, English, Chinese, Korean, Spanish, and Thai as a standard feature
- ○Setting entry with high-response and high-resolution touch panel

Newly added SET-UP mode

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

Newly added Maintenance screen

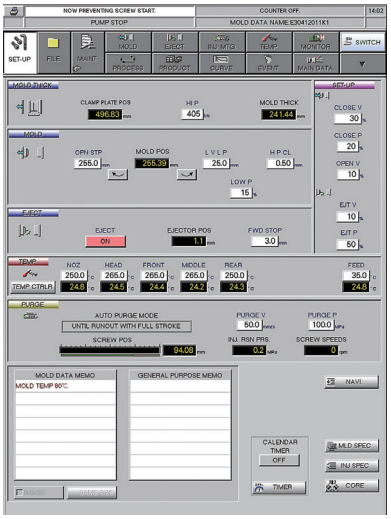
Scheduled maintenance and parts replacement period notifications

Flat operation panel

Flat sheet switch type operation panel

NEW SET-UP Mode/SET-UP Screen

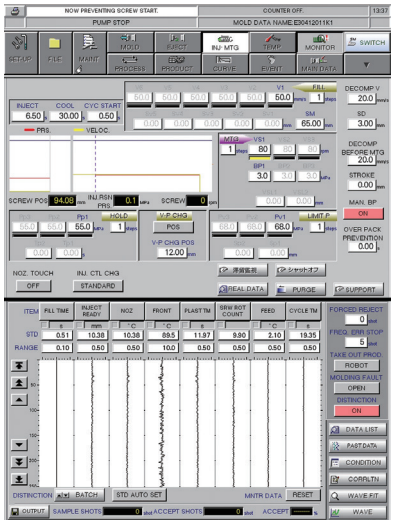
Troublesome screen switching during setup has been eliminated. Setting related to molding setup is consolidated onto one page. When SET-UP mode is selected, it automatically switches the screen.



△SET-UP screen

NEW Easier to Use

The combination of two windows can be selected, such as mold trend data and molding condition windows.
It meets the needs of the molding operators to minimize troublesome screen switching.

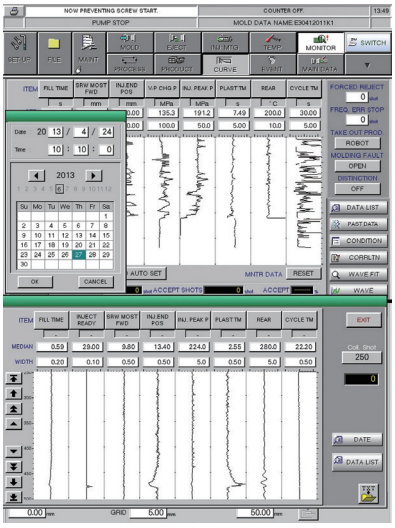


△Bright and easy-to-see vertical dual window display

NEW Traceability Support

Date specified event and monitor data display became possible.

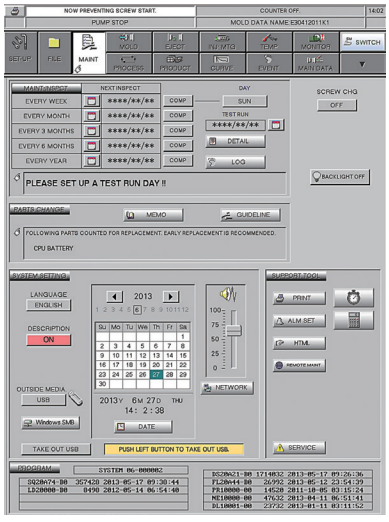
- ▶ Molding condition (max. 500 conditions)
  Saving waveform data and displaying image data are possible.
  Molding condition and an image of its product can be managed together as a set.
- ▶ Event/monitor data (max. 100,000 events)
  It is helpful for maintenance and quality control (operation mode 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.

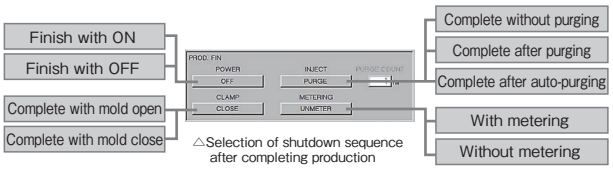


△Newly added MAINT screen

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

NEW Shutdown Sequence

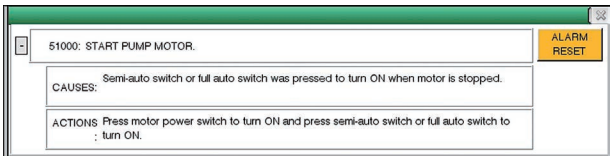
A variety of finishing states after completing production is available. Operating power state and shutdown sequence for each driving unit can be freely selected.



△Selection of shutdown sequence after completing production

NEW Descriptions of Errors

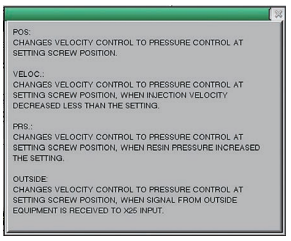
It displays the error messages and solutions.



△Error message and its solution (touch [Error message] to show details)

NEW Descriptions of Adjusters

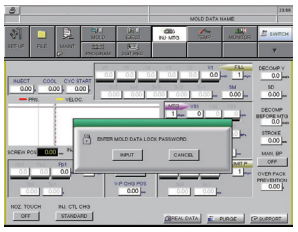
It displays easy-to-understand definitions of the technical terms used for the adjusters.



Description of changeover ▷

NEW Screen Lock and Adjuster Masking Functions OPTION

Adjusters that will be password protected can be selected.

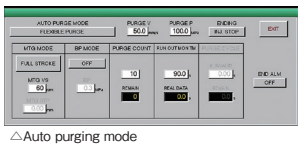


Password & masking screen ▷

External Connections

[USB port] It can be connected to an external storage device (USB memory stick).
[LAN port] Connections to quality & production management software PQ Manager, molding data recorder/analyzer, and PC are possible.

Flexible Purging Function



△Auto purging mode

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.

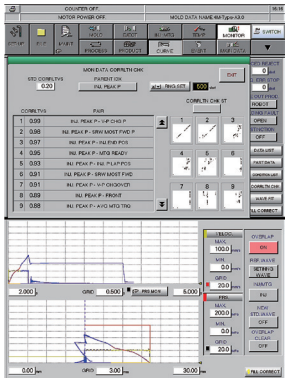
Reinforced Quality Control Function (Product Pass/Fail Judgment Function)

○It can be arbitrarily selected from each molding monitoring category.

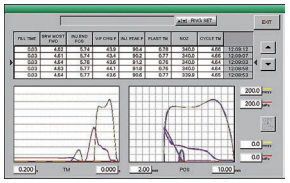
○Product pass/fail judgment by full-range monitoring of injection pressure waveform is materialized. It constantly monitors pressure during injection and compares it with a waveform of accepted shot, permitting pre force ejection of short shot and deformed products caused by pressure fluctuation, which 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.



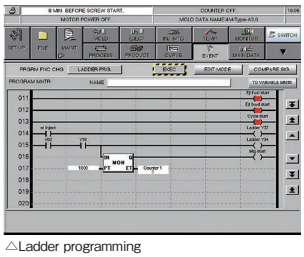
△Correlation check/injection pressure monitoring



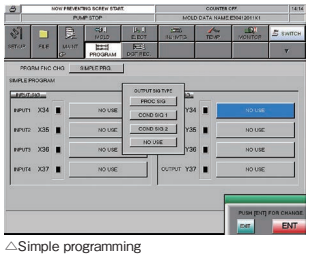
△Waveform comparison

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).



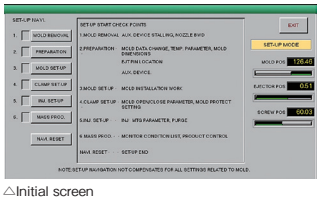
△Ladder programming



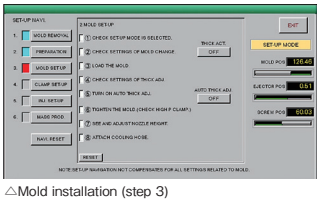
△Simple programming

Setup Support Software "SET-UP Navigation" OPTION

Operations from removing mold to mass production preparation are divided into six steps, and this support function will guide you through each steps. It educates inexperienced workers and reduces set-up time.



△Initial screen



△Mold installation (step 3)

FVX-Ⅲ SERIES | Performance Specifications

Model				FVX560Ⅲ				FVX660Ⅲ			
Specification item			Unit \ Injection type	210L		310L		310L		400L	
Injection	Screw diameter		inch (mm)	3.1 80	3.5 90	3.5 90	3.9 100	3.5 90	3.9 100	3.9 100	4.4 112
	Injection capacity		inch³/s (cm³) (oz)	129 2110 70.7	163 2670 89.5	194 3180 107	240 3930 132	194 3180 107	240 3930 132	244 4000 134	306 5020 168
	Max. shot weight	PS	g	2000	2500	3000	3700	3000	3700	3800	4800
		PP	g	1500	1900	2300	2900	2300	2900	2900	3700
	Plasticizing capacity [PS]		lbs/h (kg/h)	688 312	930 422	844 383	1120 508	844 383	1120 508	955 433	1274 578
	Injection pressure		psi (MPa) (kgf/cm²)	27020 186 1900	21330 147 1500	26560 183 1870	21480 148 1510	26560 183 1870	21480 148 1510	24230 167 1710	19340 133 1360
	Injection rate	Standard	inch³/s (cm³/s)	21.5 352	27.2 445	27.2 445	33.6 550	27.2 445	33.6 550	33.6 550	42.1 690
		High velocity	inch³/s (cm³/s)	43.0 704	54.4 891	54.4 891	67.1 1099	54.4 891	67.1 1099	67.1 1100	84.1 1379
	Injection velocity	Standard	inch/s (mm/s)	2.8 70	2.8 70	2.8 70	2.8 70	2.8 70	2.8 70	2.8 70	2.8 70
		High velocity	inch/s (mm/s)	5.5 140	5.5 140	5.5 140	5.5 140	5.5 140	5.5 140	5.5 140	5.5 140
	Screw speeds		rpm	0 ~ 175		0 ~ 160		0 ~ 160		0 ~ 125	
	Nozzle touch force		US ton (kN) (tf)	6.9 61 6.2		6.9 61 6.2		6.5 58 5.9		6.5 58 5.9	
	Hopper capacity [optional]		Gal (L)	23.8 90		23.8 90		23.8 90		23.8 90	
Clamping	**Clamping force**		**US ton (kN) (tf)**	**618 5500 561**		**618 5500 561**		**720 6390 653**		**720 6390 653**	
	Clamping stroke		inch (mm)	35.4 900		35.4 900		37.4 950		37.4 950	
	Mold thickness [min.-max.]		inch (mm)	15.7 ~ 35.4 400 ~ 900		15.7 ~ 35.4 400 ~ 900		17.7 ~ 37.4 450 ~ 950		17.7 ~ 37.4 450 ~ 950	
	Max. daylight opening		inch (mm)	71.3 1810		71.3 1810		75.2 1910		75.2 1910	
	Tie bar clearance [H×V]		inch (mm)	38.2 × 38.2 970 × 970		38.2 × 38.2 970 × 970		43.3 × 43.3 1100 × 1100		43.3 × 43.3 1100 × 1100	
	Die plate dimensions [H×V]		inch (mm)	53.5 × 53.5 1360 × 1360		53.5 × 53.5 1360 × 1360		60.6 × 60.6 1540 × 1540		60.6 × 60.6 1540 × 1540	
	Min. mold dimensions [H×V]		inch (mm)	25.2 × 25.2 640 × 640		25.2 × 25.2 640 × 640		28.7 × 28.7 730 × 730		28.7 × 28.7 730 × 730	
	Locating ring diameter		inch (mm)	4.0 101.6		4.0 101.6		4.0 101.6		4.0 101.6	
	Ejecter force		US ton (kN) (tf)	18.3 163 16.6		18.3 163 16.6		21.8 194 19.8		21.8 194 19.8	
	Ejector stroke		inch (mm)	7.1 180		7.1 180		7.9 200		7.9 200	
Others	Pump motor		kW	30kW × 3 + 4.5kW		30kW × 3 + 4.5kW		30kW × 3 + 4.5kW		30kW × 3 + 4.5kW	
	Heater band capacity		kW	35.62		39.82		39.82		45.86	
	Hydraulic oil quantity		Gal (L)	343 1300		343 1300		370 1400		370 1400	
	Machine dimensions [L×W×H]		inch (m)	393.7 × 87.4 × 88.6 10.0 × 2.22 × 2.25		393.7 × 87.4 × 88.6 10.0 × 2.22 × 2.25		405.5 × 90.9 × 93.3 10.30 × 2.31 × 2.37		410.2 × 90.9 × 93.3 10.42 × 2.31 × 2.37	
	Floor dimensions [L×W]		inch (m)	361.6 × 57.5 9.19 × 1.46		361.6 × 57.5 9.19 × 1.46		374.0 × 62.6 9.50 × 1.59		374.0 × 62.6 9.50 × 1.59	
	Machine weight		lbs (t)	61950 28.1		63273 28.7		75618 34.3		77603 35.2	
	Power supply		V	3-phase AC400V (380 ~ 480)		3-phase AC400V (380 ~ 480)		3-phase AC400V (380 ~ 480)		3-phase AC400V (380 ~ 480)	

★ The power supply voltages of FVX-III machines in this brochure are 3-phase 400V (380V~480V).
3-phase 200V (200V~230V) can be selected; however, longer lead time is expected. Contact us for more details.

※ Actual plasticizing capacity may vary, depending on the molding conditions and materials used.
※ The shot weignt may vary depending on resin grade and molding conditions. Please contact us when using close to the maximum shot weight.
※ Weight per shot is 95% of theoretical value. (GPPS)
※ The maximum injection pressure is the highest value that can be set on a machine. The value may be limited, depending on the molding conditions.
※ The injection rate is the estimated value that was derived from a formula, and it is not a guaranteed value at the maximum injection pressure.
※ The specifications are subject to change without notice due to performance upgrades.
※ Machine dimensions, floor dimensions, and machine weights are approximate values. The listed machine weights do not include the weights of optional equipment and hydraulic oils.
※ 1MPa = 10.2kgf/cm² ≒ 10kgf/cm², 1kN = 0.102 tf ≒ 0.1tf

Model				FVX860Ⅲ				FVX1100Ⅲ	
Specification item			Unit \ Injection type	400L		600L		600L	
Injection	Screw diameter		inch (mm)	3.9 100	4.4 112	4.4 112	4.9 125	4.4 112	4.9 125
	Injection capacity		inch³/s (cm³) (oz)	244 4000 134	306 5020 168	367 6010 201	456 7480 251	367 6010 201	456 7480 251
	Max. shot weight	PS	g	3800	4800	5700	7100	5700	7100
		PP	g	2900	3700	4400	5500	4400	5500
	Plasticizing capacity [PS]		lbs/h (kg/h)	955 433	1274 578	1279 580	1730 785	1279 580	1730 785
	Injection pressure		psi (MPa) (kgf/cm²)	24320 167 1710	19340 133 1360	24890 171 1750	20050 138 1410	24890 171 1750	20050 138 1410
	Injection rate	Standard	inch³/s (cm³/s)	33.6 550	42.1 690	36.0 591	44.9 736	36.0 591	44.9 736
		High velocity	inch³/s (cm³/s)	67.1 1100	84.1 1379	72.1 1182	89.9 1473	72.1 1182	89.9 1473
	Injection velocity	Standard	inch/s (mm/s)	2.8 70	2.8 70	2.4 60	2.4 60	2.4 60	2.4 60
		High velocity	inch/s (mm/s)	5.5 140	5.5 140	4.7 120	4.7 120	4.7 120	4.7 120
	Screw speeds		rpm	0 ~ 125		0 ~ 120		0 ~ 120	
	Nozzle touch force		US ton (kN) (tf)	6.5 58 5.9		10.2 91 9.3		10.3 92 9.4	
	Hopper capacity [optional]		Gal (L)	23.8 90		23.8 90		23.8 90	
Clamping	**Clamping force**		**US ton (kN) (tf)**	**946 8410 858**		**946 8410 858**		**1207 10730 1095**	
	Clamping stroke		inch (mm)	46.3 1175		46.3 1175		49.2 1250	
	Mold thickness [min.-max.]		inch (mm)	19.7 ~ 42.3 500 ~ 1075		19.7 ~ 42.3 500 ~ 1075		23.6 ~ 45.3 600 ~ 1150	
	Max. daylight opening		inch (mm)	89.0 2260		89.0 2260		94.9 2410	
	Tie bar clearance [H×V]		inch (mm)	52.4 × 52.4 1330 × 1330		52.4 × 52.4 1330 × 1330		55.1 × 55.1 1400 × 1400	
	Die plate dimensions [H×V]		inch (mm)	70.9 × 70.9 1800 × 1800		70.9 × 70.9 1800 × 1800		78.0 × 78.0 1980 × 1980	
	Min. mold dimensions [H×V]		inch (mm)	34.6 × 34.6 880 × 880		34.6 × 34.6 880 × 880		36.6 × 36.6 930 × 930	
	Locating ring diameter		inch (mm)	4.0 101.6		4.0 101.6		4.0 101.6	
	Ejecter force		US ton (kN) (tf)	27.6 245 25		27.6 245 25		27.6 245 25	
	Ejector stroke		inch (mm)	7.9 200		7.9 200		7.9 200	
Others	Pump motor		kW	30kW × 3 + 4.5kW		37kW × 3 + 4.5kW		37kW × 3 + 4.5kW	
	Heater band capacity		kW	45.86		57.26		57.26	
	Hydraulic oil quantity		Gal (L)	423 1600		462 1750		515 1950	
	Machine dimensions [L×W×H]		inch (m)	440.9 × 102.8 × 100.4 11.20 × 2.61 × 2.55		463.0 × 102.8 × 100.4 11.76 × 2.61 × 2.55		485.0 × 112.2 × 108.7 12.32 × 2.85 × 2.76	
	Floor dimensions [L×W]		inch (m)	401.0 × 72.8 10.19 × 1.85		450.0 × 72.0 11.43 × 1.83		472.0 × 80.7 11.99 × 2.05	
	Machine weight		lbs (t)	102956 46.7		105160 47.7		138230 62.7	
	Power supply		V	3-phase AC400V (380 ~ 480)		3-phase AC400V (380 ~ 480)		3-phase AC400V (380 ~ 480)	

FVX-Ⅲ SERIES | Performance Specifications

Model				FVX1300Ⅲ				
Specification item			Unit \ Injection type	700L		1100L		
Injection	Screw diameter		inch (mm)	4.7 120	5.3 135	4.9 125	5.5 140	5.9 150
	Injection capacity		inch³/s (cm³) (oz)	428 7010 235	541 8870 297	535 8774 294	672 11006 369	771 12635 423
	Max. shot weight	PS	g	6700	8400	8300	10500	12000
		PP	g	5100	6500	6400	8000	9200
	Plasticizing capacity [PS]		lbs/h (kg/h)	1402 636	1900 862	930 422	1360 617	1673 759
	Injection pressure		psi (MPa) (kgf/cm²)	24460 168 1720	19340 133 1360	29150 201 2050	23180 160 1630	20340 140 1430
	Injection rate	Standard	inch³/s (cm³/s)	36.3 595	46.1 755	32.2 527	40.3 661	46.3 759
		High velocity	inch³/s (cm³/s)	72.6 1190	92.1 1510	64.4 1055	80.7 1323	92.7 1519
	Injection velocity	Standard	inch/s (mm/s)	2.0 52	2.0 52	1.7 43	1.7 43	1.7 43
		High velocity	inch/s (mm/s)	4.1 105	4.1 105	3.4 86	3.4 86	3.4 86
	Screw speeds		rpm	0 ~ 110		0 ~ 100		
	Nozzle touch force		US ton (kN) (tf)	12.8 114 11.6		12.8 114 11.6		
	Hopper capacity [optional]		Gal (L)	23.8 90		23.8 90		
Clamping	**Clamping force**		**US ton (kN) (tf)**	**1439 12800 1306**		**1439 12800 1306**		
	Clamping stroke		inch (mm)	51.2 1300		51.2 1300		
	Mold thickness [min.-max.]		inch (mm)	27.6 ~ 49.2 700 ~ 1250		27.6 ~ 49.2 700 ~ 1250		
	Max. daylight opening		inch (mm)	100.8 2560		100.8 2560		
	Tie bar clearance [H×V]		inch (mm)	57.1 × 57.1 1450 × 1450		57.1 × 57.1 1450 × 1450		
	Die plate dimensions [H×V]		inch (mm)	79.5 × 79.5 2020 × 2020		79.5 × 79.5 2020 × 2020		
	Min. mold dimensions [H×V]		inch (mm)	37.8 × 37.8 960 × 960		37.8 × 37.8 960 × 960		
	Locating ring diameter		inch (mm)	4.0 101.6		4.0 101.6		
	Ejecter force		US ton (kN) (tf)	34.1 303 30.9		34.1 303 30.9		
	Ejector stroke		inch (mm)	11.0 280		11.0 280		
Others	Pump motor		kW	37kW × 3 + 4.5kW		37kW × 4 + 4.5kW		
	Heater band capacity		kW	66.56		112.38	-	
	Hydraulic oil quantity		Gal (L)	581 2200		621 2350		
	Machine dimensions [L×W×H]		inch (m)	501.6 × 115.0 × 113.4 12.74 × 2.92 × 2.88		563.4 × 116.9 × 117.3 14.31 × 2.97 × 2.98		
	Floor dimensions [L×W]		inch (m)	458.7 × 73.6 11.65 × 1.87		513.8 × 110.2 130.5 × 2.80		
	Machine weight		lbs (t)	170638 77.4		-		
	Power supply		V	3-phase AC400V (380 ~ 480)		3-phase AC400V (380 ~ 480)		

★ The power supply voltages of FVX-III machines in this brochure are 3-phase 400V (380V~480V).
3-phase 200V (200V~230V) can be selected; however, longer lead time is expected. Contact us for more details.

※ Actual plasticizing capacity may vary, depending on the molding conditions and materials used.
※ The shot weignt may vary depending on resin grade and molding conditions. Please contact us when using close to the maximum shot weight.
※ Weight per shot is 95% of theoretical value. (GPPS)
※ The maximum injection pressure is the highest value that can be set on a machine. The value may be limited, depending on the molding conditions.
※ The injection rate is the estimated value that was derived from a formula, and it is not a guaranteed value at the maximum injection pressure.
※ The specifications are subject to change without notice due to performance upgrades.
※ Machine dimensions, floor dimensions, and machine weights are approximate values. The listed machine weights do not include the weights of optional equipment and hydraulic oils.
※ 1MPa = 10.2kgf/cm² ≒ 10kgf/cm², 1kN = 0.102 tf ≒ 0.1tf

[Standard Specifications]

▼ Clamping unit/mold

1	Locate ring assembly (fixed type)
2	Mold protection (low-pressure clamping time monitor)
3	4-speed mold closing velocity (three-stage high-velocity mold closing and low-velocity/low-pressure mold closing)
4	5-speed mold opening velocity (high-force mold opening, initial mold opening, two-stage high-velocity mold opening, and final mold opening)
5	Mold opening pause
6	Clamping compression molding: CPN3
7	High-pressure clamping force setting unit: kN / tf / %
8	Multi-functional ejector (ejection start timer, pause, 2-speed forward velocity, halfway change of forward velocity, and variable forward/backward stroke)
9	Ejector plate return confirmation (circuit only)
10	Process inside mold: MIPO (sequential operation)
11	Ejection during mold opening (simultaneous motion)(FVX560Ⅲ～860Ⅲ)
12	Clamping pressure full-closed control
13	Mold position reading function

▼ Injection unit

1	Injection process control: 6-speed, 3-pressure, and 3-limit pressure
2	4-mode V-P changeover(position, injection velocity, injection pressure, and external input signals)
3	3-speed holding pressure response changeover (fast/middle/slow)
4	Over packing prevention circuit
5	Decompression/decompression before metering
6	Injection pressure full-closed control
7	Back pressure and metering velocity: 3-stage
8	Nozzle backward start timer/metering start timer/injection start timer
9	Injection position setting unit: mm / inch / cm^3
10	Injection velocity setting unit: mm/s / % / cm^3/s / inch/s
11	Injection pressure and back pressure setting unit: MPa / kgf/cm^2 / psi / %
12	Metering velocity setting unit: rpm / % / g/s
13	Temperature setting unit: °C / °F
14	Automatic purge circuit
15	Purging guard (with interlock)
16	Screw cold-start prevention (all-zone sequential type)
17	Nozzle/barrel temperature upper limit alarm
18	Nozzle/barrel temperature PID control
19	Simultaneous heat-up of nozzle and barrel temperature
10	Nozzle heater circuit SSR
21	Barrel heat retention circuit (forced and emergency retention)
22	Injection control changeover (control mode: standard and high-velocity)

▼ Molding system control/production control

1	TACT®Ⅳ (15-inch vertical display and dual window display)
2	Shot counter/free shot counter
3	Production control counter/production lot control counter (signal output optional)/defective category counter
4	Monitor display
5	Statistical processing function/scatter diagram/wave data analysis
6	Product pass/fail judgment function/batch entry of acceptance level conditions
7.	Air blow (1 circuit)
8.	Hydraulic core pull (1 circuit)
9	Product take-out robot interface (8 respective points for input and output)
10	Calendar timer (hydraulic oil and barrel heart-up)
11	Visualized control of molding conditions
12	Molding condition internal memory (up to 500 conditions)
13	Built-in LAN port (10/100BASE-TX)/USB output
14	Saving data to an external memory (USB flash drive)
15	Connection to PC
16	Display of injection velocity/pressure waveform
17	Operation history display: 100,000 items
18	Molding support message
19	6-language display (English, Japanese, Spanish, Chinese, Korean, and Thai)
20	Hour meter/clock function/calculator
21	Ladder programming function/input output function quota
22	Signal recorder
23	Alarm (informing) function
24	Error display function/emergency power shutdown/cycle alarm
25	Remote maintenance
26	Selection of production complete state (selection of mold, injection, metering, and operation power states when production is completed)
27	Selection of unit setting
28	Descriptions of adjusters
29	Setup mode
30	Idling stop

▼ Cooling/hydraulic oil

1	Cooling water manifold (10 circuits)
2.	Cooling water circuit (with return stop valve and flow checker)
3	Hydraulic oil heat-up
4	Oil temperature stabilizer
5	Oil temperature upper/lower limit alarm
6	Low oil level alarm
7	Hydraulic oil purifier

▼ Operation safety

1.	Rotating beacon (Patlite)
2.	Alarm lamp/alarm bell
3	Emergency stop button (operator side)
4	Mold clamping safety device (mechanical, electric, and hydraulic types)
5	Emergency stop button (non-operator side)
6.	Automatic open/close safety door
7.	Password protection of molding data

▼ Power

1.	Main power breaker

▼ Maintenance, installation, and miscellaneous

1	Lubrication to clamping slide (oil cup)
2	Manual centralized lubricating unit (to clamping slide and injection)
3	Manual centralized greasing unit (to clamping slide)
4.	Tool kit

[Optional Specifications]

▼ Clamping unit/mold

1	Daylight extension ※
2	Locate ring accessory (non-fixed type) or locate ring diameter change ※
3	Insulation plate
4	Additional mold mounting bolt hole ※
5	T-slot machining on a die plate ※
6	Mold clamping pause
7	Mold temperature control or screen display of mold temperature
8	Mold temperature upper/lower limit alarm
9	Mold heater disconnection alarm
10	Automatic mold clamp ※
11	Mold installation assist (Easy Clamp)
12	Mold positioning pin and block ※

▼ Injection unit

1	Nozzle/barrel heater disconnection alarm
2	Hopper throat temperature control or screen display of hopper throat temperature
3	2-point nozzle temperature control
4	Barrel heater circuit SSR
5	High-temperature resistant barrel (consultation required) ※
6	Wear and corrosion resistant barrel and screw ※
7	Special-purpose screw and barrel ※
8	Hydraulic shut-off nozzle or spring shut-off nozzle ※
9	Extended nozzle (length to be specified)
10	Hopper

▼ Molding system control/production control

1	Unscrewing
2	Calendar timer (additional electrical outlet activation)
3	USB memory
5	Water alarm/air alarm

▼ Cooling

1	Cooling water filter
2	Additional cooling water circuit

▼ Operation safety

1	Layered indicator lamp (signal tower)
2	Safety door transparent cover (non-operator side)

Power

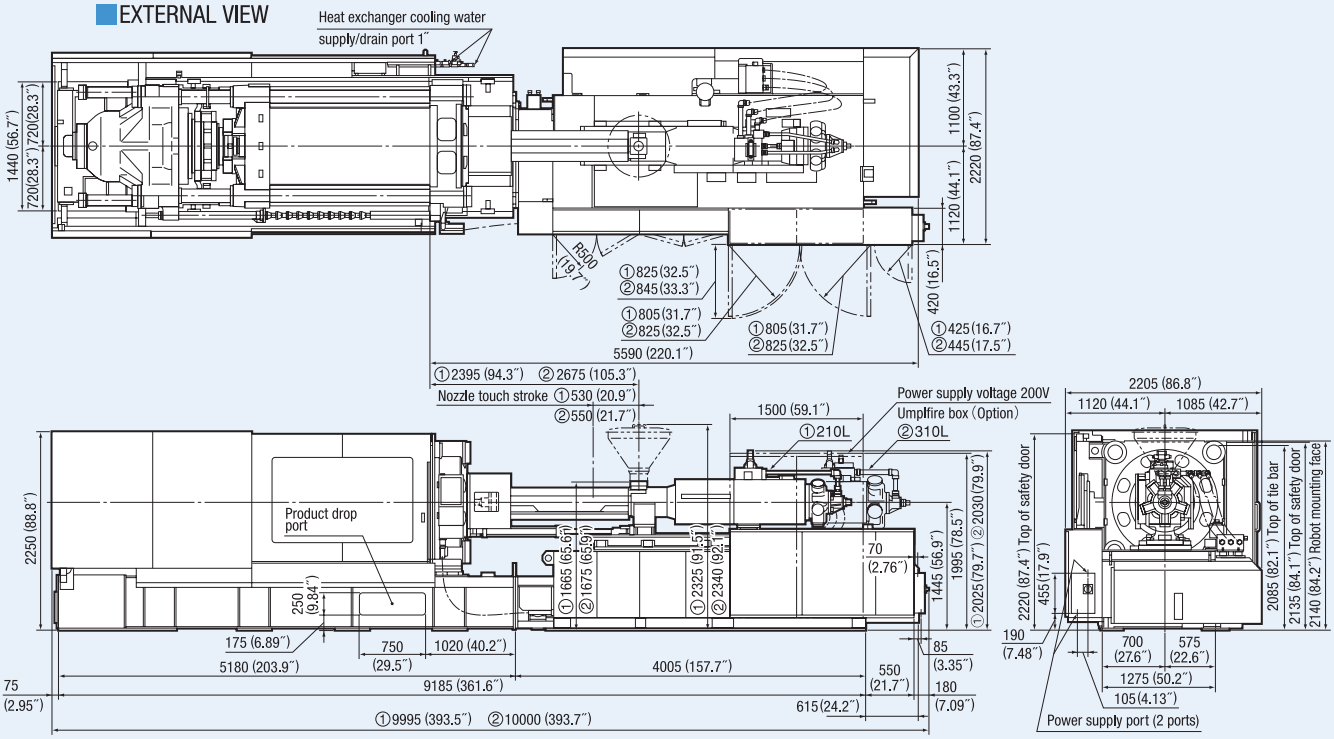
1	Main power leakage breaker
2	Additional built-in electrical outlet
3	Outlet circuit power shutdown

▼ Maintenance, installation, and miscellaneous

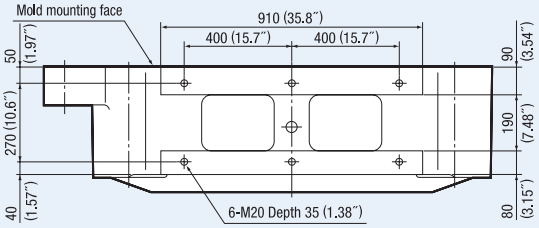
1	Automatic centralized lubricating unit (to clamping slide)
2	Custom color paint (contact us for the painting area) ※
3	Mounting pad
4	Installation foundation kit

The delivery time for ※ specifications may take longer. Contact us for more details.

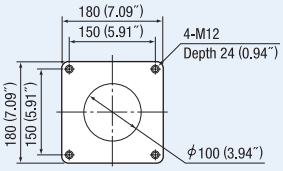
EXTERNAL VIEW



ROBOT FIXATION DIAGRAM

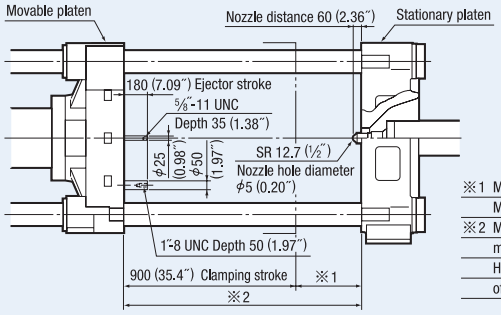


HOPPER FIXATION DIAGRAM

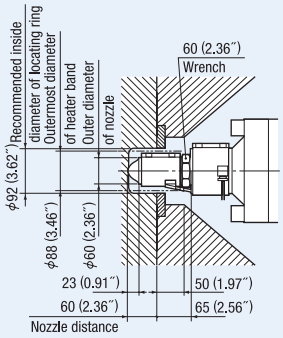


MOLD ATTACHMENT DIAGRAM

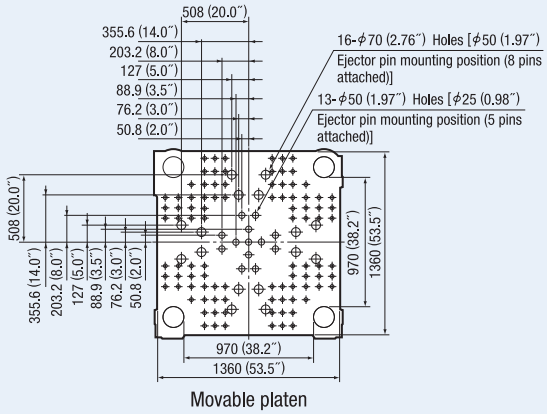
*The minimum mold dimensions of 640 (25.2″) × 640 (25.2″) are required in order to achieve the maximum clamping force.



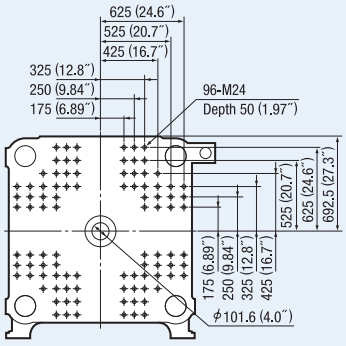
※1 Min. mold thickness 400 (15.7″)
Max. mold thickness 900 (35.4″)
※2 Max. daylight opening 1810 (71.3″) (For time of max. mold thickness)
High pressure mold opening stroke is 10 (0.39″) in case of max. mold thickness.



Nozzle section

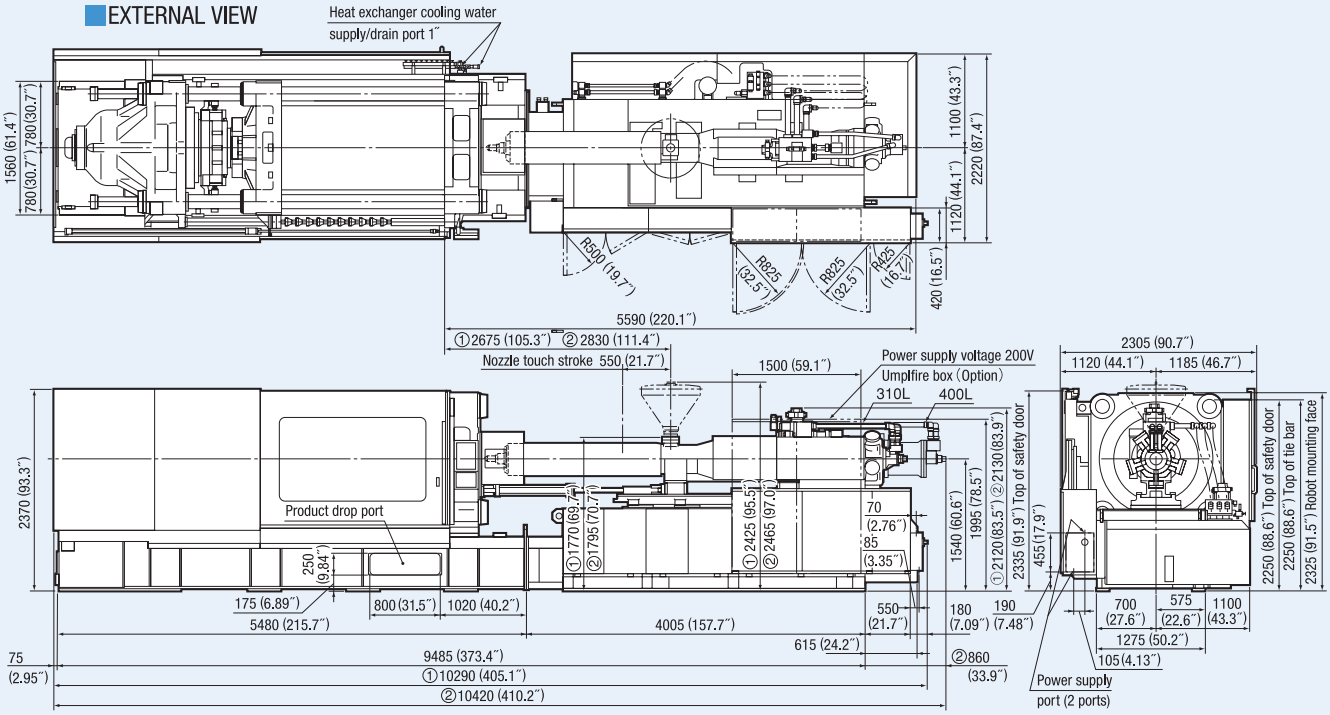


Movable platen

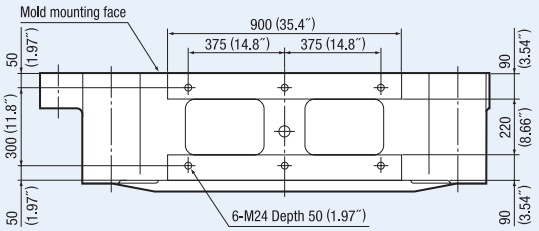


Stationary platen

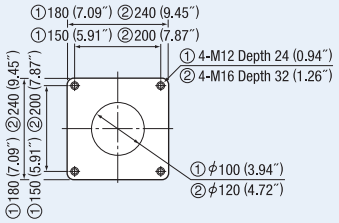
EXTERNAL VIEW



ROBOT FIXATION DIAGRAM

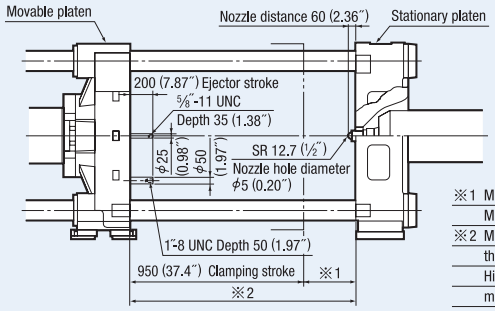


HOPPER FIXATION DIAGRAM

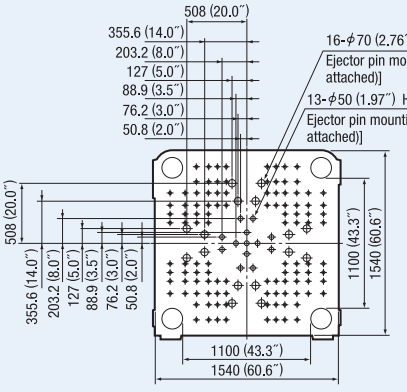


MOLD ATTACHMENT DIAGRAM

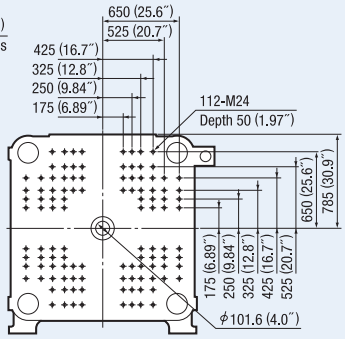
*The minimum mold dimensions of 730 (28.7″) × 730 (28.7″) are required in order to achieve the maximum clamping force.



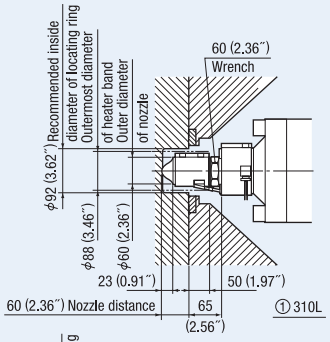
※1 Min. mold thickness 450 (17.7″)
Max. mold thickness 950 (37.4″)
※2 Max. daylight opening 1910 (75.2″) (For time of max.mold thickness)
High pressure mold opening stroke is 10 (0.39″) in case of max. mold thickness.

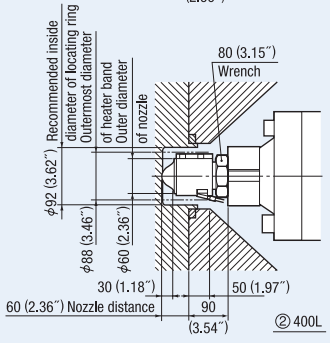


Movable platen



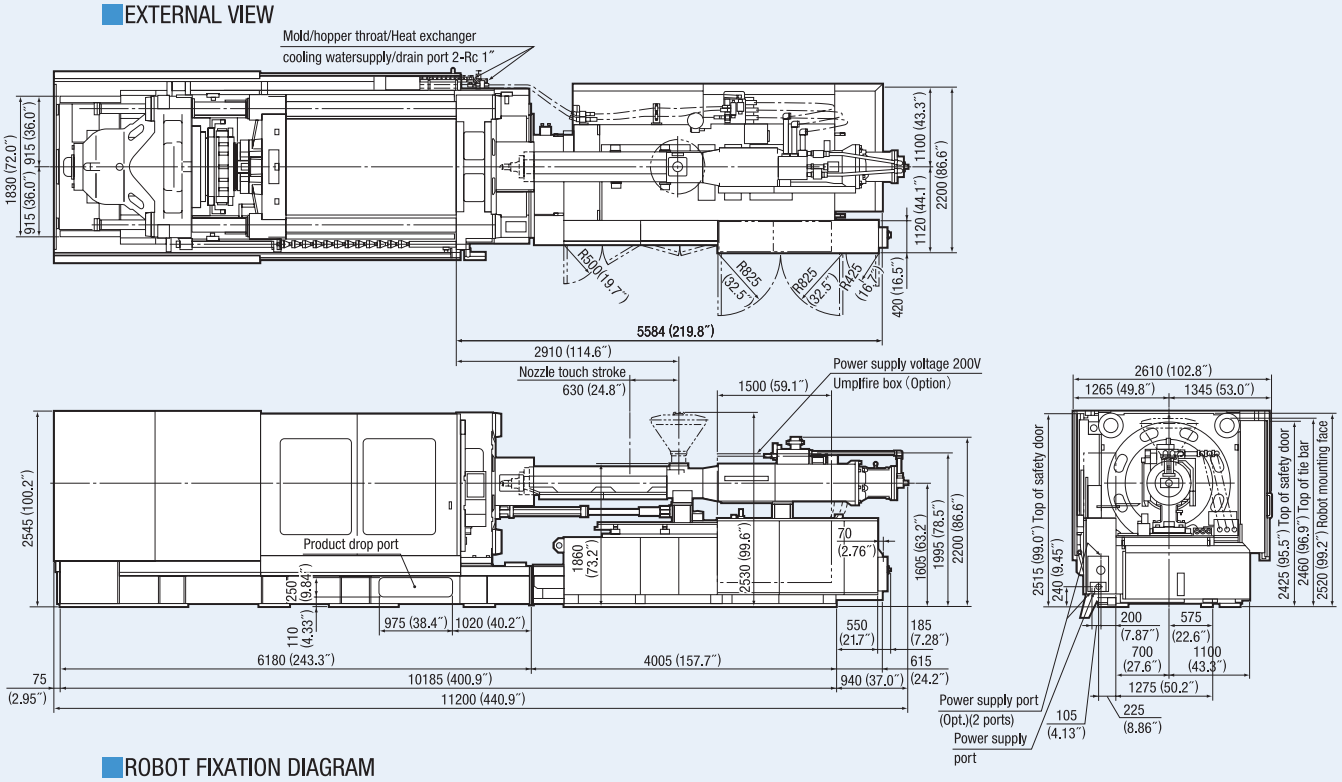
Stationary platen



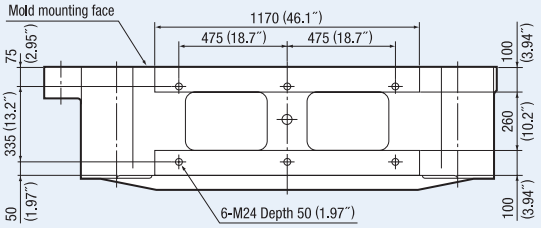


Nozzle section

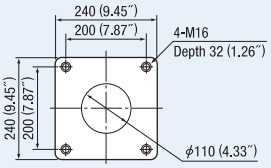
EXTERNAL VIEW



ROBOT FIXATION DIAGRAM

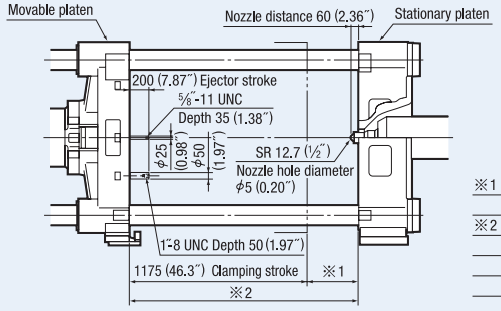


HOPPER FIXATION DIAGRAM

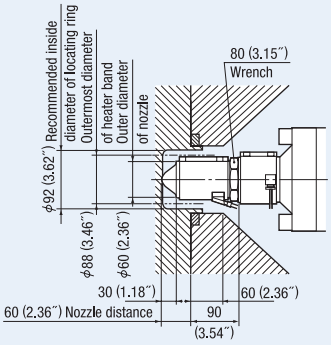


MOLD ATTACHMENT DIAGRAM

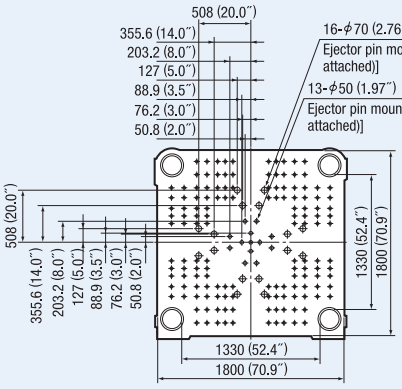
*The minimum mold dimensions of 880 (34.6″) × 880 (34.6″) are required in order to achieve the maximum clamping force.



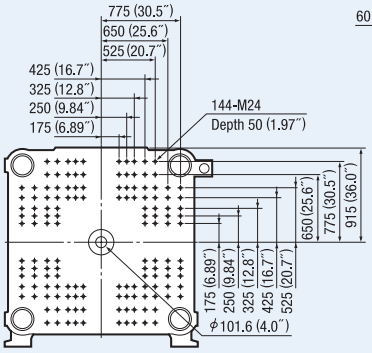
※1 Min. mold thickness 500 (19.7″)
Max. mold thickness 1075 (42.3″)
※2 Max. daylight opening 2260 (89.0″) (For time of max. mold thickness)
High pressure mold opening stroke is 10 (0.39″) in case of max. mold thickness.



Nozzle section

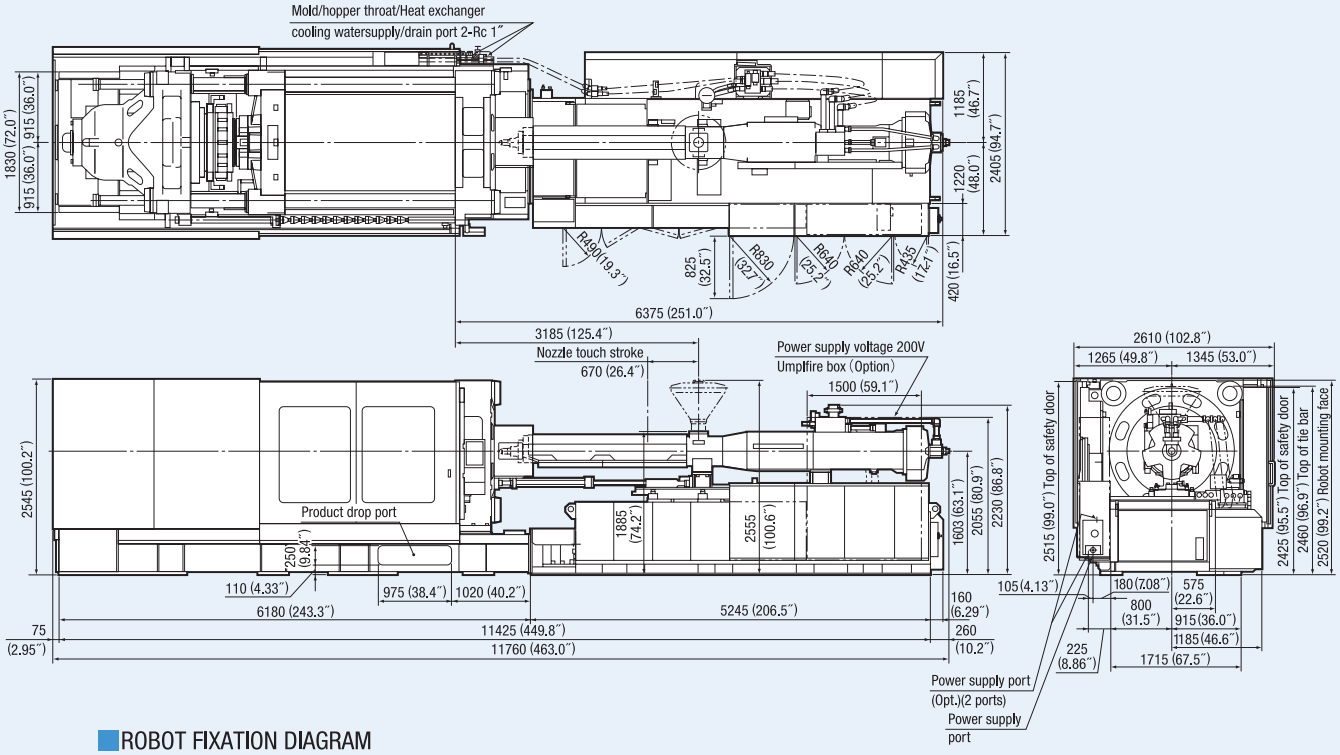


Movable platen

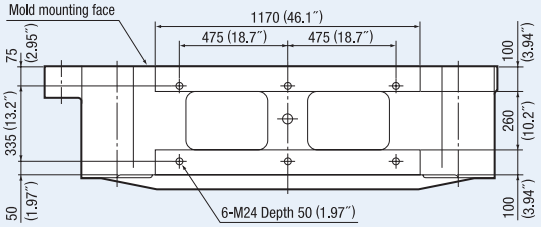


Stationary platen

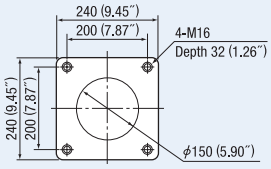
EXTERNAL VIEW



ROBOT FIXATION DIAGRAM

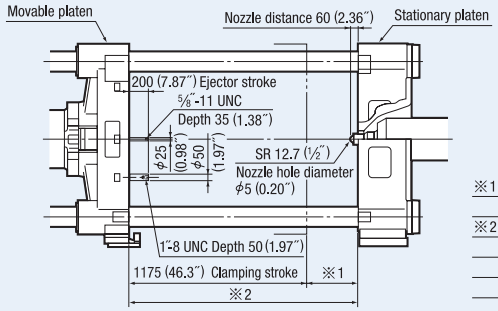


HOPPER FIXATION DIAGRAM

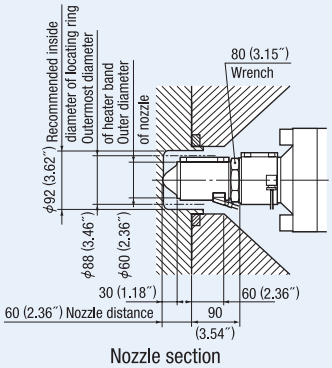


MOLD ATTACHMENT DIAGRAM

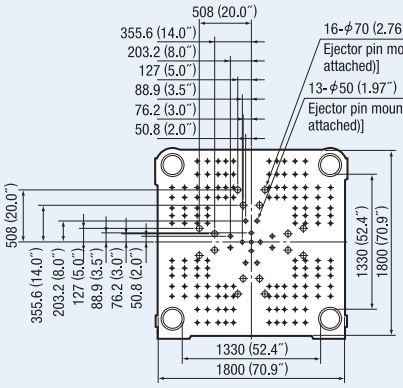
*The minimum mold dimensions of 880 (34.6″) × 880 (34.6″) are required in order to achieve the maximum clamping force.



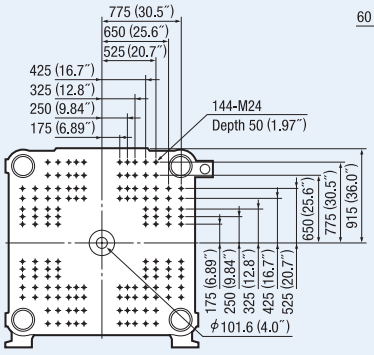
※1 Min. mold thickness 500 (19.7″)
Max. mold thickness 1075 (42.3″)
※2 Max. daylight opening 2260 (89.0″) (For time of max. mold thickness)
High pressure mold opening stroke is 10 (0.39″) in case of max. mold thickness.



Nozzle section

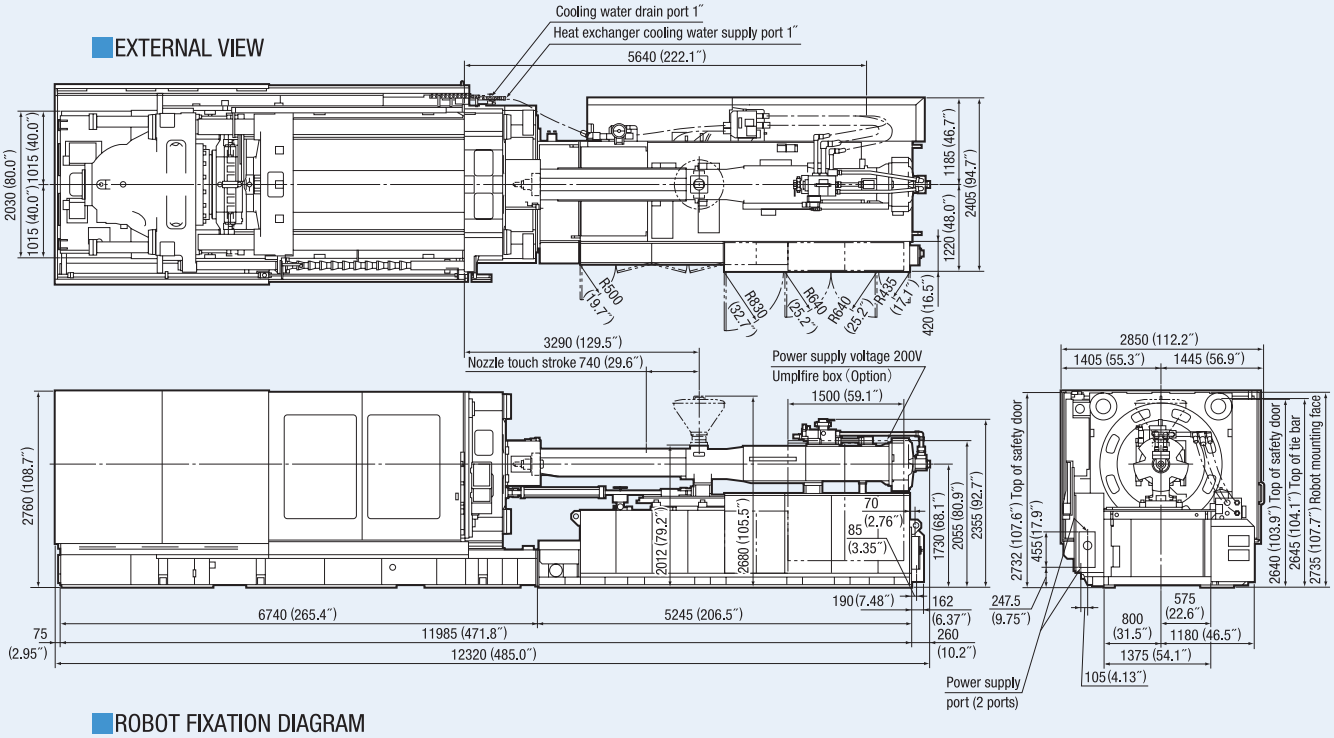


Movable platen

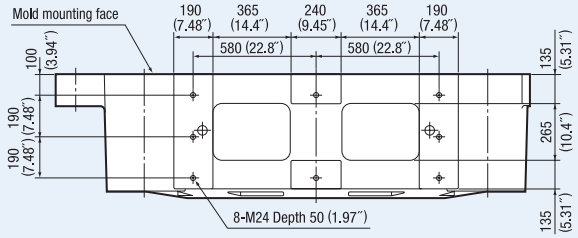


Stationary platen

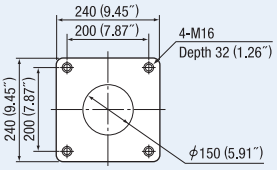
EXTERNAL VIEW



ROBOT FIXATION DIAGRAM

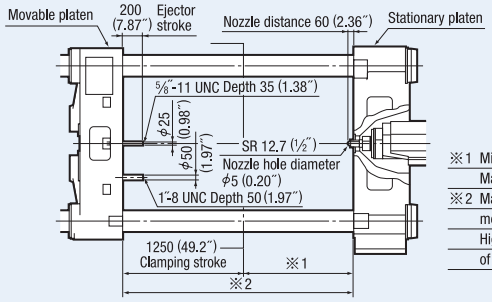


HOPPER FIXATION DIAGRAM

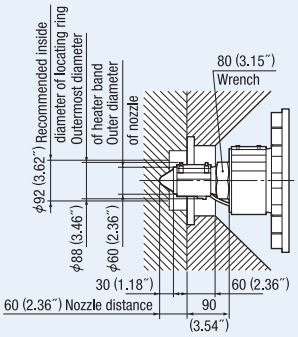


MOLD ATTACHMENT DIAGRAM

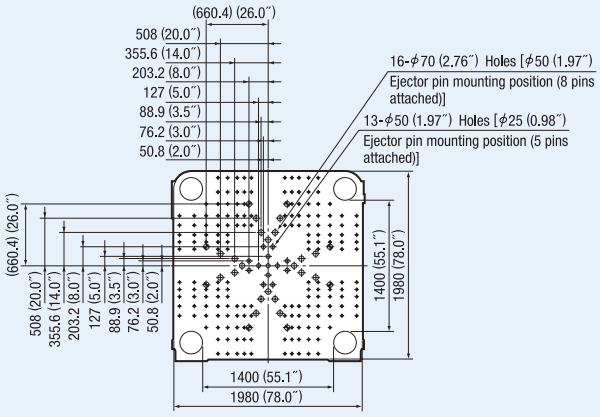
*The minimum mold dimensions of 930 (36.6″) × 930 (36.6″) are required in order to achieve the maximum clamping force.



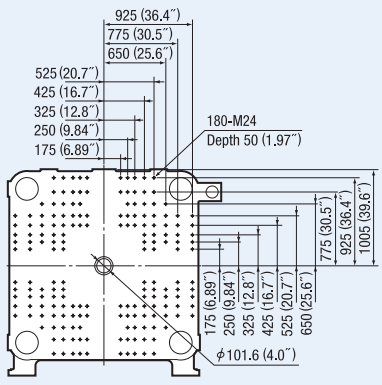
※1 Min. mold thickness 600 (23.6″)
Max. mold thickness 1150 (45.3″)
※2 Max. daylight opening 2410 (94.9″) (For time of max. mold thickness)
High pressure mold opening stroke is 10 (0.39″) in case of max. mold thickness.



Nozzle section

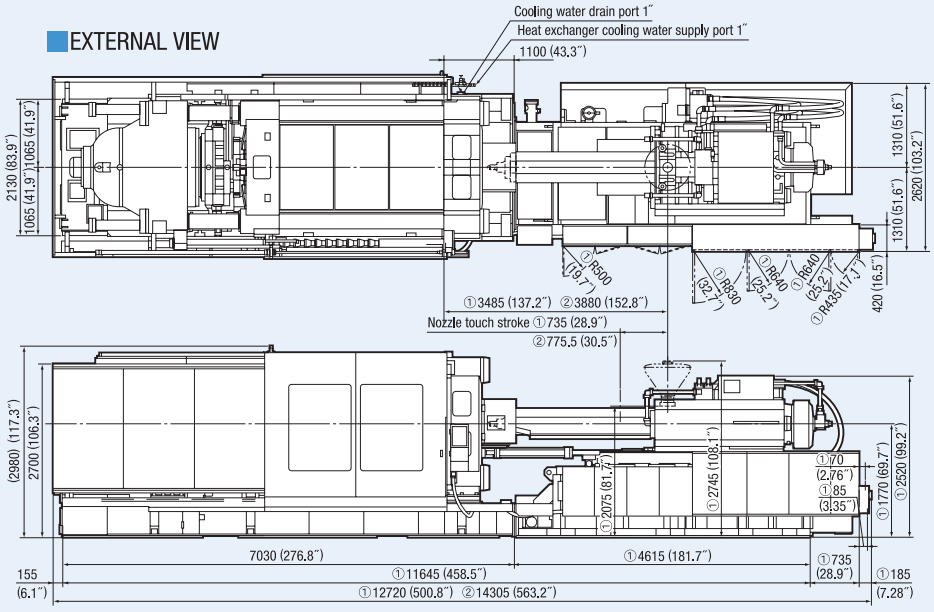


Movable platen

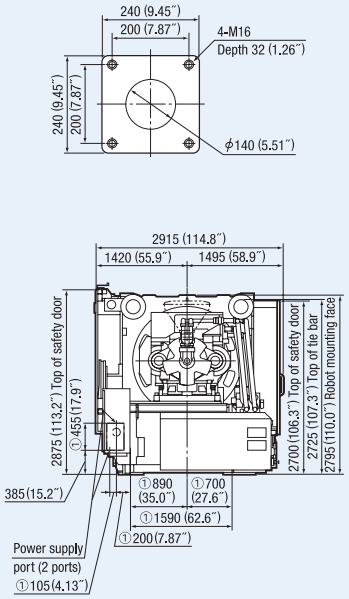


Stationary platen

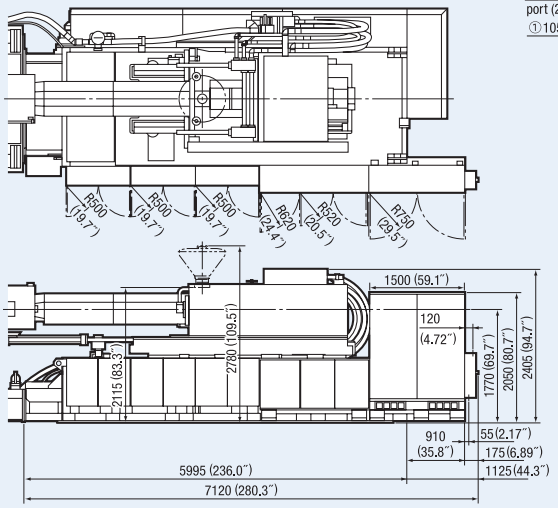
EXTERNAL VIEW

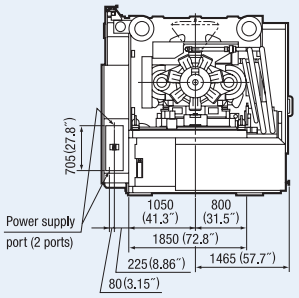


HOPPER FIXATION DIAGRAM



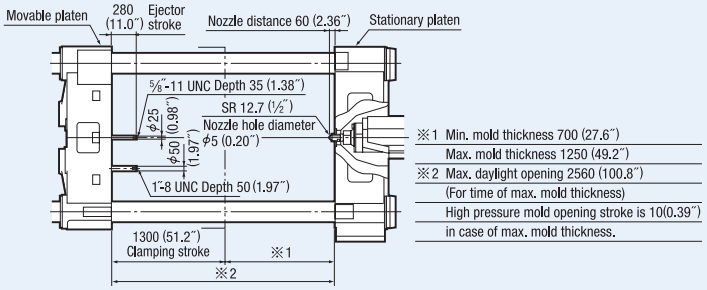
EXTERNAL VIEW : ②1100L





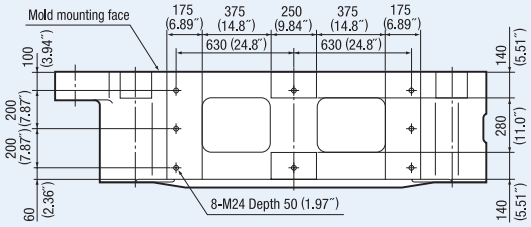
MOLD ATTACHMENT DIAGRAM

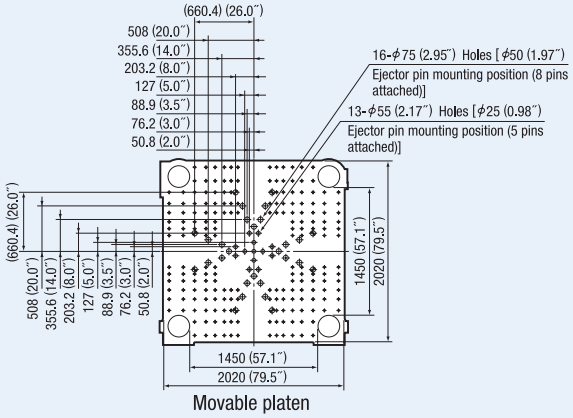
*The minimum mold dimensions of 960 (37.8″) × 960 (37.8″) are required in order to achieve the maximum clamping force.



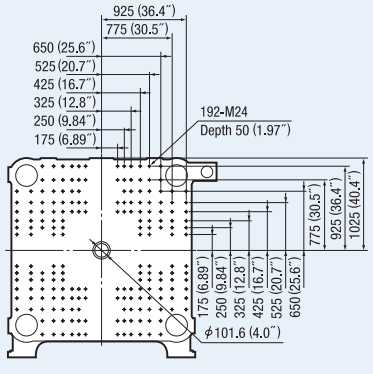
※1 Min. mold thickness 700 (27.6″)
Max. mold thickness 1250 (49.2″)
※2 Max. daylight opening 2560 (100.8″)
(For time of max. mold thickness)
High pressure mold opening stroke is 10(0.39″) in case of max. mold thickness.

ROBOT FIXATION DIAGRAM

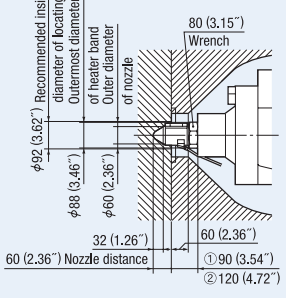




Movable platen



Stationary platen



Nozzle section

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VEGETABLE OIL INK

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