NISSEI®

CATALOG 1816

DCX-Ⅲ

X-PUMP EQUIPPED

HYBRID TYPE TWO-COLOR/DISSIMILAR MATERIAL INJECTION MOLDING MACHINE

DCX-Ⅲ SERIES

DCX120Ⅲ
DCX200Ⅲ
DCX400Ⅲ
DCX600Ⅲ
DCX800Ⅲ

DCE-Ⅲ

ELJECT

ELECTRIC TYPE TWO-COLOR/DISSIMILAR MATERIAL INJECTION MOLDING MACHINE

DCE-Ⅲ SERIES

DCE140Ⅲ
DCE250Ⅲ

Exploring the Potential of 2-Color/Dissimilar Material Molding

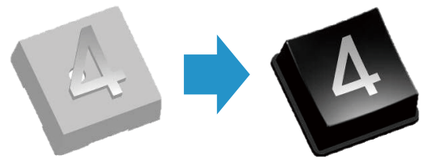
2-color/dissimilar material molded products have been widely used for automotive interior/exterior, industrial parts, and household goods. NISSEI double-injection molding machines can mold high designability and functionality products in one process cycle. Inner mold assembly (integrated molding) can reduce assembly processes, number of components, and cycle time as well as saving mold costs and floor space. NISSEI double-injection molding machines remarkably rationalize production processes while adding high-values to the products.

DoubleInjection
NISSEI DOUBLE INJECTION MOLDING MACHINE

"Double Injection" 2-Color/Dissimilar Material Injection Molding Machine

■2-Color/Dissimilar Material Injection Molding

It is an integrated molding method to form products using two different colors or two different types of materials. Molding two types of resin by integrated molding method can eliminate secondary processing (such as adhering), increase production speed, improve efficiency, and create high designability and functionality products.

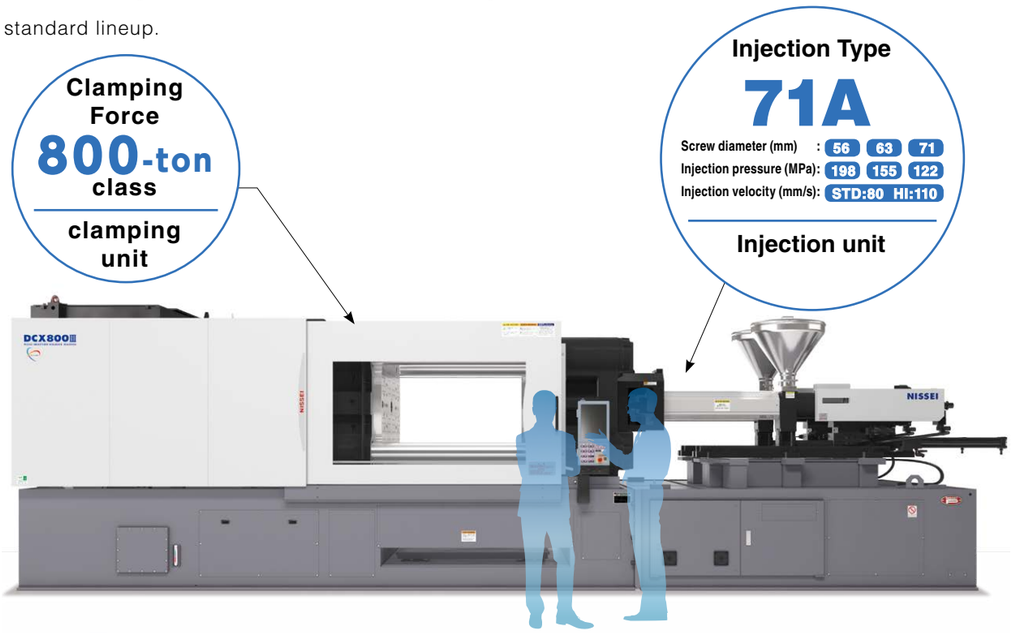


①Primary molding ②Secondary molding

NISSEI's Large 2-Color Dissimilar Injection Molding Machines Now Available

Since developing a 2-color machine in 1964, NISSEI has gained abundant experience from their field-proven 2-color/dissimilar material molding machines.

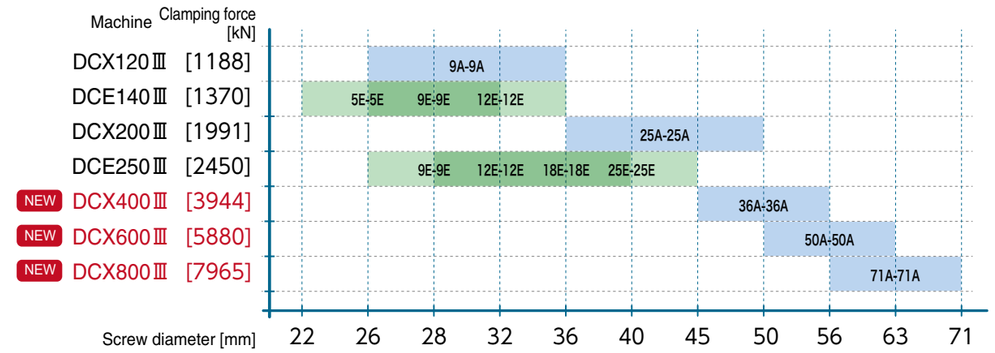
To be a pioneer in meeting the increasing needs for molding large and intricate products, NISSEI now offers large 2-color/dissimilar material molding machines above 500-ton clamping force in their standard lineup.



DCX800Ⅲ-71A
(Equipped with options)

Wide-Ranging Capability in Molding: from Micro Precision Components to Large Products to Intricate Shaped Products

■DCX-Ⅲ(Hybrid Type) / DCE-Ⅲ(Electric Type)Series Line-Up.



NISSEI
Double Injection's Capabilities

Standard lineups of 2-color/dissimilar material molding machine series (DCX-Ⅲ and DCE-Ⅲ) include a wide range of machines in different camping force tonnages, from small 120t class to large 800t class, offering ideal selections according to the applications and molding methods.
These can also be customized for special molding methods, such as mixed color, multi-layer, and sandwich moldings.

Office communication equipment
Front panels
IC chips
Smart phone components
Water-tight packings
etc...

Appliances
Covers
Switches
Keycaps
Cameras
Brand logos
etc...

General goods
Kitchen utensils
Toothbrushes
Toys
Penholders
etc...

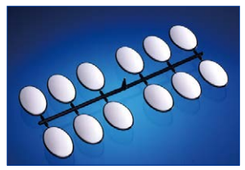
Containers
Caps
Trays/Cups
Cosmetic containers
etc...

Medical
Medical devices
Disposable items
etc...

Automotive parts
Exteriors
Headlights
Instrument panels
Taillights
Interior parts
Ventilators
Air bags
etc...

Clamping force (tf)	50	100	200	400	600	800
Machine	DCE60 (Special order)	DCX120Ⅲ	DCE140Ⅲ	DCX200Ⅲ	DCE250Ⅲ	DCX400Ⅲ	DCX600Ⅲ	DCX800Ⅲ

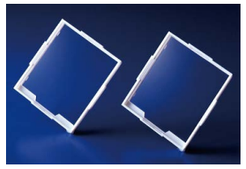
▲Swimming goggle, coaster, cup, tray, case, selector switch, keycap, ventilator, and cap with a lid.



▲Toy parts

▲Small article cases

▲Thick-wall containers (mixed color/double molding)



▲Front panels of mobile phones

*Images on this page are for illustration purpose and are not actual products.

Category		Purpose	Molding example
Same material molding	Same/different colors	○Better external appearance ○Improving the durability of decorative parts (words) ○High bond strength	Keycap Switch Speedometer needle
	Special grade	○Secondary process, such as coating	Mobile device Camera Brand logo
Dissimilar material molding	Compatible	Improve functionality that cannot be attained by single shot ○Touch comfort ○Improving watertightness and airtightness ○Improving flexibility and shock resistance ○Decoration	Toothbrush Penholder Cap Printer ink Air bag
	Non-compatible	○Shortening the process of molding sliding components by integrated molding	Ventilator
	Special molding	○Double molding (Protecting marks and letters) (Protecting insert workpiece)	Over-molded IC chip (module)

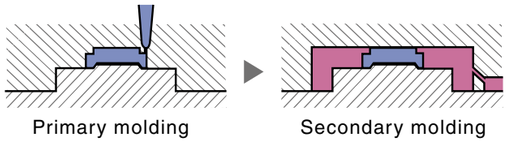
We have abundant experience and expertise in variety of molding methods, including 2-color molding molds.
Please feel free to contact us.

2-Color Molding by Core Rotation Method

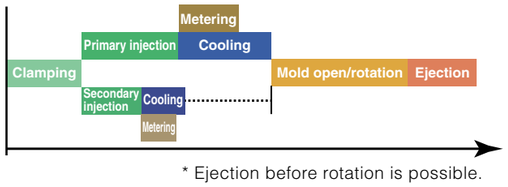
The movable platen is equipped with a rotation mechanism. After molding the primary part, it rotates the mold to the secondary side and fills resin into the space between the primary molded part and cavity. Since it swaps the primary and secondary cavities completely, it has less shape restrictions than that of core-back types, making molding of intricate shaped products possible. Since the gate mark from the primary side can be covered with the secondary side resin, it is ideal for products with complicating design and letters on flat surface, such as keycaps, as well as products with patterns on the side or sliding sections.

"DC Type" 2-Color Molding by Core Rotation Method

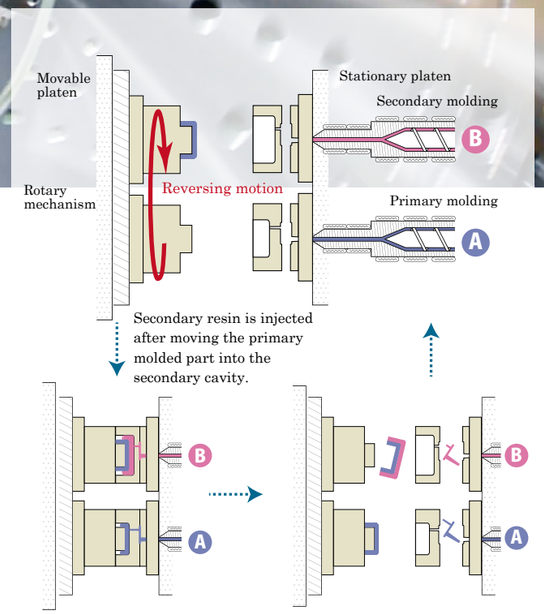
Molding process



Molding Cycle



* Ejection before rotation is possible.



Primary and secondary cavities are swapped completely.

Gate mark on the primary molded part can be covered by the secondary resin.

High-Speed & Shock-Less Rotation

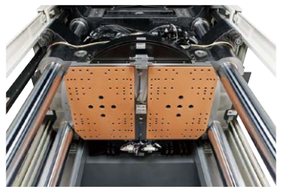
DCE-Ⅲ and DCX-Ⅲ Series achieve high-speed and shockless rotation motion. Rotation during mold open ("rotation to ejection" sequence) is possible, contributing to shorten the cycle time. Speeding up the ejector's movement within the rotary table is also possible to make cycle time faster.

High-Precision Clean Non-Contact Rotation & Pull Mechanism

The rotary mechanism uses non-contact rotation & pull system, which pushes the rotary table before rotation and pulls it back after rotation. It sustains the precision of the rotary table for a long time and prolongs the lives of the molds. The rotary mechanism does not require a large amount of grease and is very clean.

High-temperature control hose and core pull piping can be run through the center of the rotary table.

◀**DCE-Ⅲ** Series
(Electric Type
/Standard Equipment)



◀**DCX-Ⅲ** Series
(Hybrid Type
/Optional Equipment)

Optional equipment example:
DCX400Ⅲ-36A (Euro Specs)
1. Insulation plate A & B
2. 2 core pull circuits
3. Additional mold mounting holes

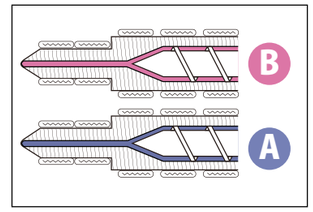
Machine Variations

A Wide-Variety of Selections

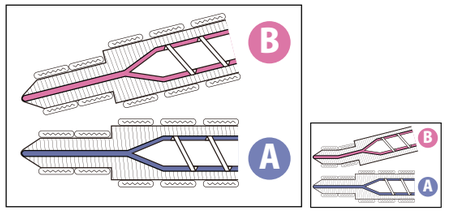
To meet diverse needs in 2-color/dissimilar material molding, a wide-variety of injection units and two types of driving sources (hybrid and electric) are offered in the lineup.
For mixed color molding and molding with core-back type mold, special machines customized from the standard machines can be made.

Molded products — 2-color/dissimilar material molded products

Injection units



It consists of two horizontally aligned or one horizontally and one vertically placed injection units and a clamping unit with rotary mechanism.



It consists of two horizontally placed injection units or injection units placed at an angle to form a V shape. It can mold products that use two different types of materials or two colors in a single mold simulteneously. It is used for core-back type molds, which contain hydraulic cylinders inside to control slide core's forward/backward movement.

"DC Type" Core Rotation

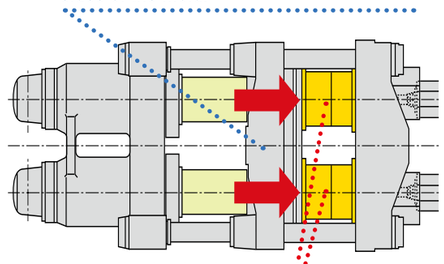
Special Machines

Special machines based on standard machines

Machine type

Hybrid Type 2-Color / Dissimilar Material Injection Molding Machine DCX-Ⅲ Series

It distributes clamping force ideally to both sides of the mold.

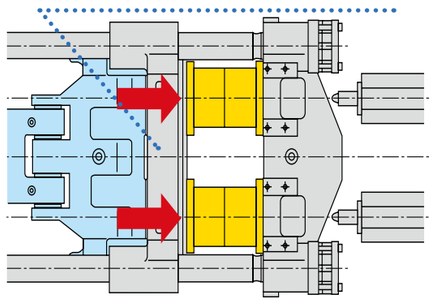


It is very effective for the molded products with unbalanced projected areas.

2-Piston direct pressure type clamping mechanism with hybrid X-PUMP system
1. Superior direct-pressure type clamping unit
2. Low equipment and maintenance costs
3. Durable
4. Compact
5. High injection load performance

Electric Type 2-Color / Dissimilar Material Injection Molding Machine DCE-Ⅲ Series

It distributes clamping force evenly to both sides of the mold.



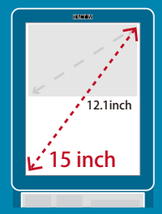
Double Flat Clamp: high-rigidity linear pressure toggle clamping mechanism
1. High cycle
2. High stop position precision
3. High filling ability and response
4. Special and simultaneous motions

High-Performance &
High-Functioning Controller

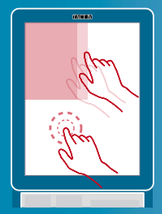
TACT Ⅳ

New controller that pursues better operability and workability

Large screen, newly designed operation panel, and convenient & user-friendly premium software are equipped to improve workability and operability. Quality and production management functions also have been improved, taking its user-friendliness to the next level.



▲Bright and easy-to-see 15-inch LCD display

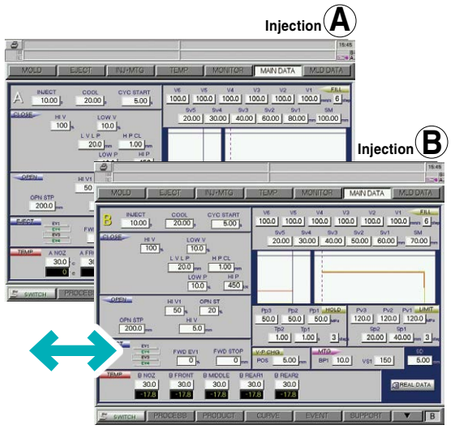


▲Easier operation with a high-response high-resolution touch & slide display

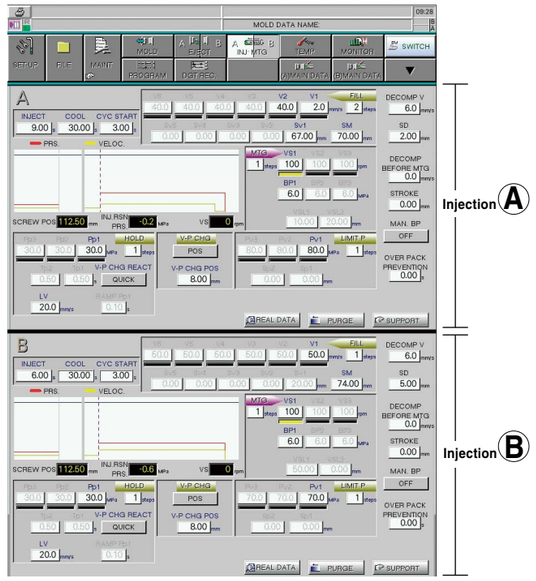
▲6-language display that comes standard

Easy control of two injection units in one screen

Large 15-inch vertically long display can show main conditions, injection metering, and ejector A/B windows in one screen. The display offers superior usability for 2-color/dissimilar material molding machines, which normally require frequent screen switching.



Older controller screen

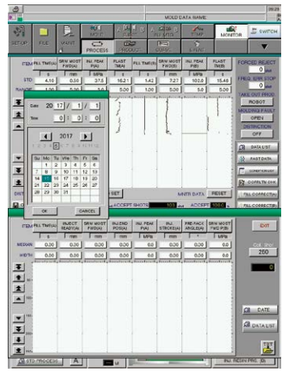


* The controller screen images used in this pages are from DCE-Ⅲ.

Materialize molding you desire...

The new controller that pursues better operability and workability

Traceability Support



▲Calendar

Date specified event and monitor data display made possible.

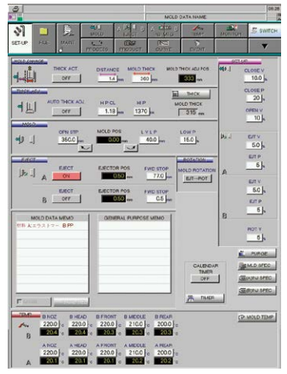
▶ Molding condition (max. 500 conditions)

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.)

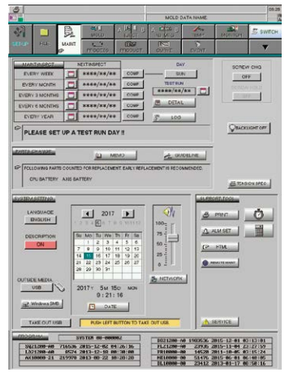
SET-UP Mode/SET-UP Screen



▲SET-UP screen

Burdensome screen switching during setup has been eliminated. Settings related to mold setup, such as mold installation and purging, are consolidated into one page. When SET-UP mode is selected, it automatically switches the screen.

Fully-Loaded Maintenance Function

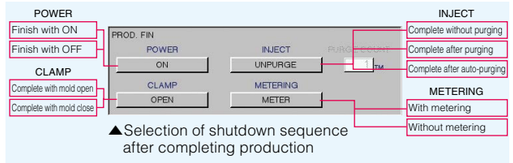


▲Newly added MAINT screen

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. Remote control of TACT screen from a PC via LAN is also possible.

Shutdown Sequence

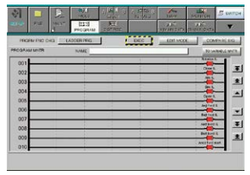
A variety of finishing states after completing production is available. Operating power state and shutdown sequence for each driving unit can be freely selected.



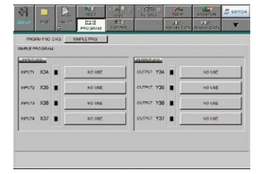
▲Selection of shutdown sequence after completing production

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).



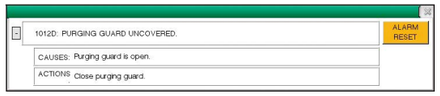
▲Ladder programming



▲Simple programming

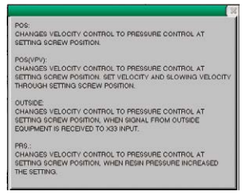
Descriptions of Errors

It displays error messages and solutions.



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

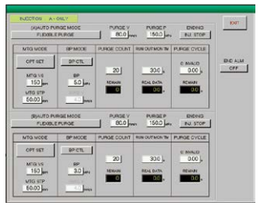
Descriptions of Adjusters



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

◀Description of changeover

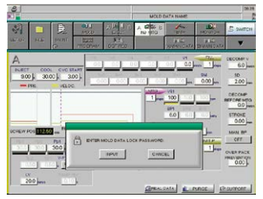
Flexible Purging Function



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

◀Auto purging mode

Screen Lock and Adjuster Masking Function



Adjusters that need to be password protected can be arbitrarily selected.

OPTION

◀Password & masking screen

X-PUMP Equipped
Hybrid Type 2-Color / Dissimilar Material
Injection Molding Machine
DCX-Ⅲ Series

DCX-Ⅲ Series, consisting of hybrid type 2-color/dissimilar material injection molding machines, is equipped with NISSEI original hybrid "X-PUMP" system and high performance/functioning "TACT IV" controller. It materializes higher precision and quality for a wide variety of molded products from precision to large products, optimizing the advantages of the super energy-efficient hybrid pump system.

ELJECT
Electric Type 2-Color / Dissimilar Material
Injection Molding Machine
DCE-Ⅲ Series

The DCE-Ⅲ Series, consisting of all-electric type 2-color/dissimilar material injection molding machines, has the mold-friendly high-rigidity "Double Flat Clamp" clamping mechanism and high performance/functioning "TACT IV" controller. "Double Flat Clamp" mechanism was created by utilizing the NEX Series' "Flat Clamp" (linear-pressure toggle mechanism) and idea of direct-pressure "2-Piston" type clamping mechanisms. It demonstrate superb performance in high-grade molding and achieves significant energy-saving.

DCX-Ⅲ SERIES | Performance Specifications

models			DCX120Ⅲ				DCX200Ⅲ			
Specification item		Injection type / Unit	Ⓐ9A + Ⓑ9A				Ⓐ25A + Ⓑ25A			
Injection	Screw diameter	mm	26	28	32	36	36	40	45	50
	Injection capacity	cm^3	59	69	90	114	163	201	254	314
	Plasticization capacity (PS)	kg/h	19	28	40	54	48	66	90	121
	Injection pressure	MPa	265	244	187	147	255	219	173	140
	Injection rate Standard	cm^3/s	80	92	121	153	102	126	159	196
	Injection rate High velocity	cm^3/s	159	185	241	305	183	226	286	353
	Injection velocity Standard	mm/s	150				100			
	Injection velocity High velocity	mm/s	300				180			
	Screw speeds	rpm	0 ~ 310				0 ~ 265			
	Nozzle touch force	kN	30				34			
	Hopper capacity (optional)	L	12.5				25			
Clamping	**Clamping force**	**kN**	**1190**				**1990**			
	Clamping stroke	mm	450				520			
	Mold thickness (min.)	mm	170				250			
	Max. daylight opening	mm	620				770			
	Tie bar clearance (H×V)	mm	660 × 250				925 × 305			
	Die plate dimensions (H×V)	mm	800 × 480				1070 × 570			
	Min. mold dimensions (H×V)	mm	235 × 235				270 × 270			
	Ejector force	kN	22 × 2				43 × 2			
	Ejector stroke	mm	100				100			
	Max. mold weight (movable side)	kg	200 × 2				370 × 2			
Electrical & others	Heater band capacity	kW	7.22×2	8.36×2	9.26 × 2		10.54×2	13.01 × 2		
	Hydraulic oil quantity	L	400				650			
	Machine dimensions (L×W×H)	m	5.14 × 1.36 × 1.73				5.95 × 1.65 × 1.95	5.98 × 1.65 × 1.95		
	Floor dimensions (L×W)	m	5.00 × 1.17				5.81 × 1.46			
	Machine weight	t	7.05				–			

models			DCX400Ⅲ			DCX600Ⅲ			DCX800Ⅲ		
Specification item		Injection type / Unit	Ⓐ36A + Ⓑ36A			Ⓐ50A + Ⓑ50A			Ⓐ71A + Ⓑ71A		
Injection	Screw diameter	mm	45	50	56	50	56	63	56	63	71
	Injection capacity	cm^3	286	353	443	402	505	639	554	701	891
	Plasticization capacity (PS)	kg/h	82	110	150	101	137	184	125	167	235
	Injection pressure	MPa	207	168	134	198	158	125	196	155	122
	Injection rate Standard	cm^3/s	159	196	246	196	246	312	197	249	317
	Injection rate High velocity	cm^3/s	238	294	369	275	345	436	271	343	435
	Injection velocity Standard	mm/s	100			100			80		
	Injection velocity High velocity	mm/s	150			140			110		
	Screw speeds	rpm	0 ~ 240			0 ~ 220			0 ~ 200		
	Nozzle touch force	kN	34			47			55		
	Hopper capacity (optional)	L	45			90			90		
Clamping	**Clamping force**	**kN**	**3970**			**5880**			**7965**		
	Clamping stroke	mm	750			850			1025		
	Mold thickness (min.)	mm	300			450			450		
	Max. daylight opening	mm	1050			1300			1475		
	Tie bar clearance (H×V)	mm	1120 × 420			1515 × 565			1870 × 710		
	Die plate dimensions (H×V)	mm	1360 × 810			1830 × 1030			2170 × 1200		
	Min. mold dimensions (H×V)	mm	325 × 325			415 × 415			520 × 520		
	Ejector force	kN	69 × 2			87 × 2			108 × 2		
	Ejector stroke	mm	120			180			200		
	Max. mold weight (movable side)	kg	950 × 2			1500 × 2			2800 × 2		
Electrical & others	Heater band capacity	kW	15.65 × 2			18.57 × 2			21.98 × 2		
	Hydraulic oil quantity	L	1100			1700			2700		
	Machine dimensions (L×W×H)	m	7.19 × 1.97 × 2.22			8.15 × 2.49 × 2.40			9.21 × 2.99 × 2.66		
	Floor dimensions (L×W)	m	6.95 × 1.81			7.86 × 2.31			8.56 × 2.81		
	Machine weight	t	23.38			–			–		

- Injection unit : Operation side = Ⓐ ; Non-operation side = Ⓑ
- Actual plasticizing capacities may vary, depending on the molding conditions and materials.
- Maximum injection pressures are the highest values that can be set on the machines. These values may be limited, depending on the molding conditions.
- Maximum injection rates in the tables are the estimated values that were derived from a formula, and these are not guaranteed values at the maximum injection pressures.
- 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.
- Clamping forces may be lower than the values in the tables if molds smaller than indicated minimum mold sizes are used.
- Specifications are subject to change without notice due to continuous performance improvement.
- 1MPa = 10.2kgf/㎠ ≒ 10kgf/㎠、1kN = 0.102tf ≒ 0.1tf

DCX-Ⅲ SERIES | Main Equipment List

★:Added or changed for DCX-Ⅲ　※:Longer lead time　○:Pupular options

[Standard Equipment]

Clamping unit/mold

	1	Mold protection (low-pressure clamping time monitor)
	2	Mold protection error reconfirmation circuit
	3	Mold clamping halfway slowdown (three-plate & angular pin mold possible)
	4	Clamping force independent adjustment
	5	Clamping pressure full closed control
	6	High-pressure clamping force display
	7	Mold opening velocity: 4-speed
	8	Mold opening pause
★	9	Mold position reading function
	10	Mold open/close prediction control
	11	Multi-functional ejector (continuous operation, start timer, pause, halfway change of velocity, 2-speed forward velocity, and variable forward/backward stroke)
	12	Ejector plate return confirmation (standard 2 circuits: mold A/B up to terminal)
	13	Process inside mold: MIP0 (2 circuits: mold A/B & sequential operation)
	14	High-speed ejector motion in rotary table
	15	Mold rotation mechanism (driven by servomotor)
	16	Simultaneous mold open & rotation (for "rotation → ejection")
	17	Ejector selection (mold A/B) / ejector start timing selection (before or after rotation)
	18	Ejector sequence (before or after rotation)

Injection unit

	1	Injection process control: 6-speed, 3-pressure, and 3-limit pressure
	2	V-P changeover: 4 modes (position, injection velocity, injection pressure, and external input signals)
	3	Over packing prevention circuit
	4	Injection control changeover (control mode: standard/high-speed)
	5	Injection full-closed control
	6	Holding pressure response changeover: 3 modes (fast/middle/slow)
	7	Decompression / decompression before metering
	8	3-step backpressure and 3-step metering speed
	9	Metering rotation speed full-closed control
	10	Back pressure full-closed control
	11	Injection start timer / nozzle backward start timer / metering start timer
	12	High-precision metering control "Pre Comp" (resin density stabilizer)
	13	Automatic purge circuit (with flexible purge function)
	14	Purging cover (with interlock)
	15	Screw cold start prevention (all-zone sequential type)
	16	Nozzle and barrel temperature upper limit alarm / nozzle and barrel temperature PID control
	17	Simultaneous heating of nozzle and barrel
	18	Nozzle heater circuit SSR
	19	Barrel heater circuit SSR (2A~3A)
	20	Barrel temperature holding control (forced TEMP holding and TEMP holding when an error occurs)
	21	Barrel heat radiation prevention cover
★	22	Nozzle and barrel heater simple disconnection alarm
	23	Hopper throat temperature control (~DCX200Ⅲ)
	24	Screen display of hopper throat temperature (DCX400Ⅲ~)
	25	Screw forward safety circuit
	26	Material retention timer

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) / cause-classified defect counter
	4	Monitor data display / statistic processing function / scatter diagram display / waveform analysis
	5	Product pass/fail monitor / batch entry of acceptance level conditions
	6	Product take-out robot interface (SPI robot signal to terminal)
	7	Calendar timer (hydraulic oil and barrel heating)
	8	Molding condition and image data set management (jpeg or bmp)
★	9	Molding condition internal storage (up to 500 conditions) / operation history display (100,000 items)
	10	Built-in LAN connector (10/100BASE-TX) / connection to PC
	11	USB port (x1) / data saving in an external storage (USB memory) / data output via USB
	12	Display of injection velocity and pressure waveforms
	13	Molding support message
	14	Multilingual display capability (English, Japanese, Chinese, Spanish, Korean, and Thai)
	15	Hour meter (molding machine total operation time display) / clock function (stopwatch and kitchen timer) / calculator
	16	Ladder programming function (4 I/O signals programmable)
	17	Signal I/O allocation (error processing input and various output signals can be assigned to four of the I/O terminals)
	18	Signal recorder (analysis of motor signal or I/O signal waveforms and data collection function)
	19	Alarm (informing) function (effective for mold & screw maintenances)
	20	Display or errors (directions for alarm reset function) / emergency power shut off (with delay timer) / cycle alarm
★	21	Selection of production complete state (selection of mold, injection, metering, and operation power states when production is completed)
	22	Remote maintenance function (remote control of TACT screen from PC possible)
	23	Setting unit change (injection pressure, injection velocity, injection position, metering speed, temperature, and clamping force)
★	24	Descriptions of adjusters (when some of the adjusters are touched, descriptions will be displayed)
★	25	Setup mode (mold open/close & ejection by setup speed and injection & metering by purging speed)
★	26	Idling stop function (it stops the servomotor after 5 minutes of inactivity)

Cooling/hydraulic oil

	1	Cooling water manifold: hopper throat x2, mold cooling x4, and oil cooler x1
	2	Display of hydraulic oil temperature
	3	Hydraulic oil temperature riser
	4	Hydraulic oil upper/lower limit alarm / low oil level alarm
	5	Oil temperature stabilizer
	6	Hydraulic oil purifier (DCX600Ⅲ & 800Ⅲ)

Operation safety

	1	Alarm lamp / alarm buzzer
	2	Emergency stop button (operator & non-operator side)
	3	Mold clamping safety device
	4	Safety door upper cover
★	5	Transparent safety door cover (non-operator side)
★	6	Safety door lock

Power

	1	AC outlet

Maintenance, installation, and others

	1	Lubrication to clamping slide (DCX120Ⅲ~200Ⅲ)
	2	Manual centralized greasing unit (DCX400Ⅲ~800Ⅲ)
	3	Manual centralized lubrication unit (DCX400Ⅲ~800Ⅲ)
★	4	Periodic inspection support function (display of scheduled inspection date)
★	5	Parts replacement support function (display of recommended parts replacement period)

[Optional Equipment]

Clamping unit/mold

	①	Insulation plate (mold A/B)
	2	Additional mold mounting bolt hole ※
	3	Mold close pause
	④	Ejector plate return confirmation (metal interface box on mold A/B)
	5	Mold temperature indicator (display on the screen) or mold temperature control
	6	Mold temperature upper & lower limit alarm
	7	Mold heater disconnection alarm
	8	Daylight extension ※
	9	Locating ring attachment (non-fixed type) or locating ring assembly (fixed type)
	10	Locating ring diameter change ※
	11	Mold clamps (SAT Clamp and Easy Clamp)
	12	Quick mold change system (hydraulic/pneumatic/magnetic) ※
	13	Mold dowel pin and block

Injection unit

	1	Nozzle & barrel heater disconnection alarm
	2	2-point nozzle temperature control
	3	Barrel insulation cover
	4	Abrasion & corrosion proof barrel and screw
	5	High-temperature resistant barrel ※
	6	Special-purpose nozzle, screw, screw tip, barrel, and barrel HD ※
	7	Hopper / hopper extension with band / hopper slider
	8	Hopper magnet
	⑨	Hopper throat temperature control (DCX400Ⅲ~)
	⑩	Screen display of hopper throat temperature (~DCX200Ⅲ)

Molding system control/production management

	1	Unscrewing ※
	②	Air blow circuit
	3	Hydraulic core pull circuits x2 (hydraulic/air) ※
	4	Fixed chute or swing chute
	5	AC outlet with automatic activation by calendar timer
	6	USB flash drive
	7	SPC: Statistical Process Control function (molding machine process management by statistical method)
	8	Water cut alarm / air cut alarm

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	Water temperature gauge
	6	Hydraulic oil purifier (DCX120Ⅲ~400Ⅲ)
	7	Anti-dew cooling hose

Operation safety

	1	Alarm bell
	2	Rotating beacon (Patlite) or layered indicator lamp (signal tower)
	3	Password protection function (screen lock and adjuster masking)
	4	Alarm lamp with a stand
	5	Non-operator side safety door lock (mechanical type) ※
	6	Automatic safety door open/close (DCX400Ⅲ~800Ⅲ) ※
	7	Primary power indicator lamp

Power

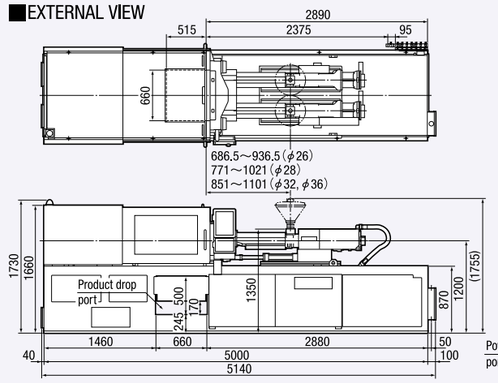
	①	Main power breaker or main power leakage breaker
	②	Additional AC outlet
	3	Fire alarm
	4	Outlet circuit power shutdown

Maintenance, installation, and others

	1	Manual centralized lubricating unit (DCX120Ⅲ and 200Ⅲ)
	②	Mounting pad
	3	Automatic centralized greasing unit
	4	Automatic centralized lubricating unit for clamping slide (~DCX200Ⅲ) and for stationary platen slide (DCX400Ⅲ~)
	5	Custom color paint
	6	Tools

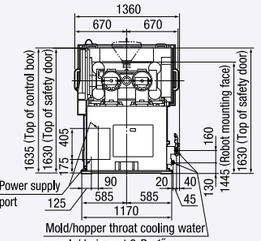
DCX-Ⅲ SERIES | DCX120Ⅲ Injection type : 9A [Screw diameter : φ26／φ28／φ32／φ36]

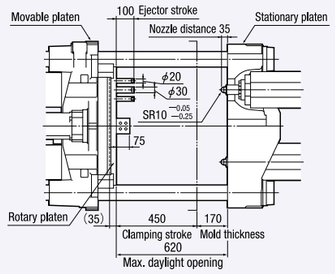
■EXTERNAL VIEW



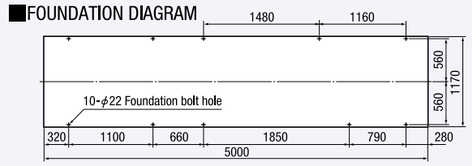
■MOLD ATTACHMENT DIAGRAM

*The minimum mold dimensions of 235 mm (H) × 235 mm (V) are required in order to achieve the maximum clamping force.
*The maximum weight of mold (movable side) that can be mounted is 200 kg × 2 mold halves.

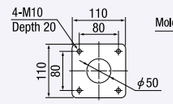




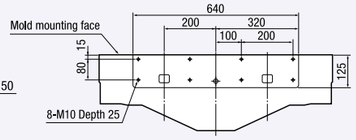
■FOUNDATION DIAGRAM

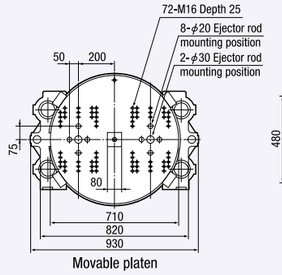


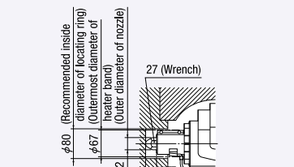
■HOPPER FIXATION DIAGRAM

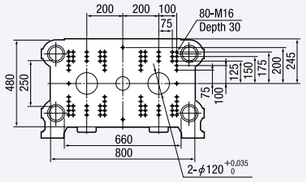


■ROBOT FIXATION DIAGRAM



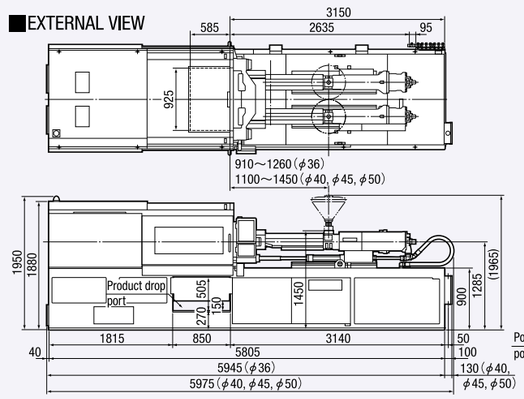






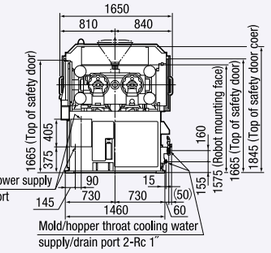
DCX-Ⅲ SERIES | DCX200Ⅲ Injection type : 25A [Screw diameter : φ36／φ40／φ45／φ50]

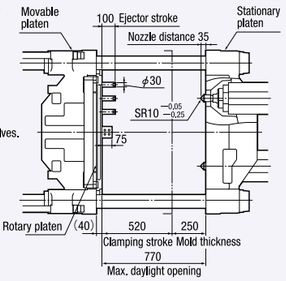
■EXTERNAL VIEW



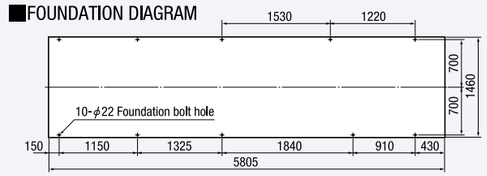
■MOLD ATTACHMENT DIAGRAM

*The minimum mold dimensions of 270 mm (H) × 270 mm (V) are required in order to achieve the maximum clamping force.
*The maximum weight of mold (movable side) that can be mounted is 370 kg × 2 mold halves.

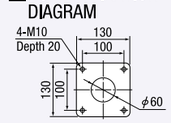




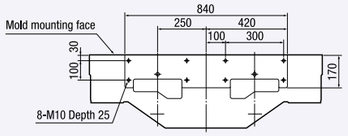
■FOUNDATION DIAGRAM

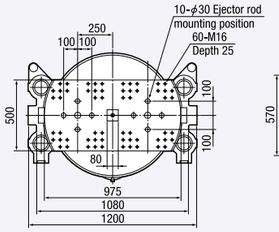


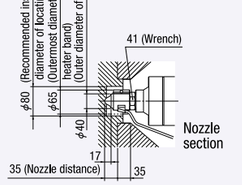
■HOPPER FIXATION DIAGRAM

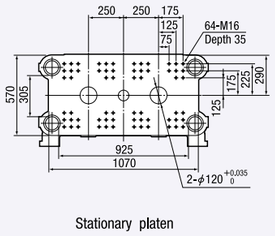


■ROBOT FIXATION DIAGRAM



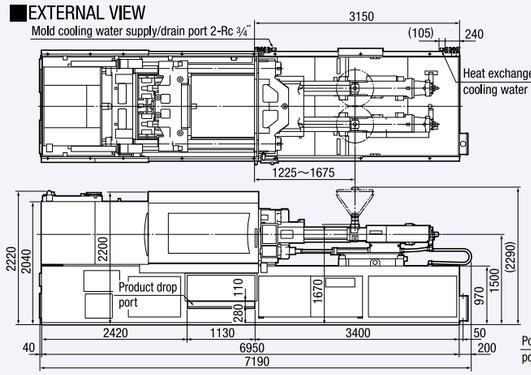






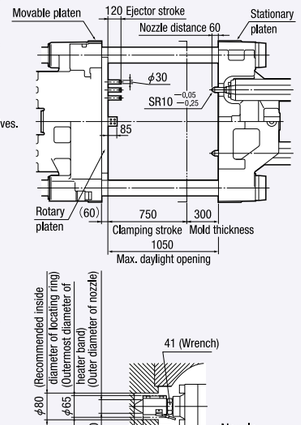
DCX-Ⅲ SERIES DCX400Ⅲ Injection type : 36A [Screw diameter : φ45／φ50／φ56]

■EXTERNAL VIEW

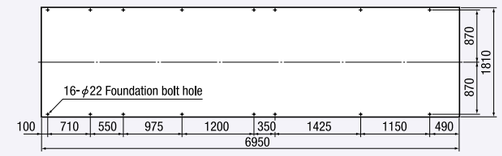


■MOLD ATTACHMENT DIAGRAM

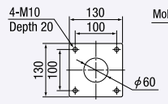
*The minimum mold dimensions of 415 mm (H) × 415 mm (V) are required in order to achieve the maximum clamping force.
*The maximum weight of mold (movable side) that can be mounted is 950 kg × 2 mold halves.



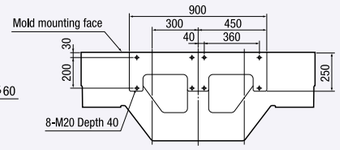
■FOUNDATION DIAGRAM

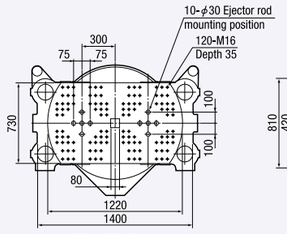


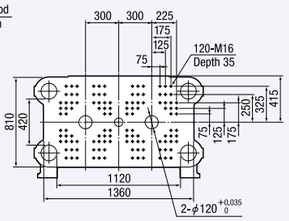
■HOPPER FIXATION DIAGRAM



■ROBOT FIXATION DIAGRAM

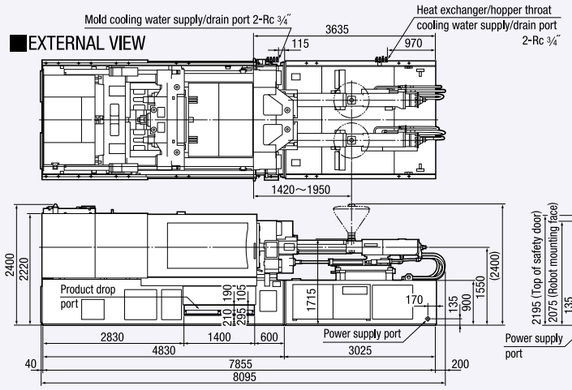






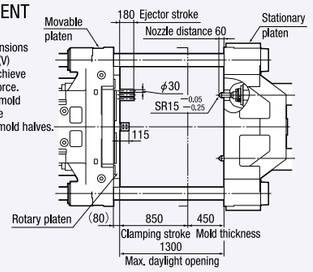
DCX-Ⅲ SERIES DCX600Ⅲ Injection type : 50A [Screw diameter : φ50／φ56／φ63]

■EXTERNAL VIEW

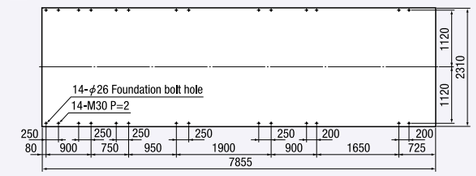


■MOLD ATTACHMENT DIAGRAM

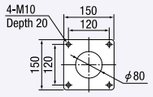
*The minimum mold dimensions of 415 mm (H) × 415 mm (V) are required in order to achieve the maximum clamping force.
*The maximum weight of mold (movable side) that can be mounted is 1500 kg × 2 mold halves.



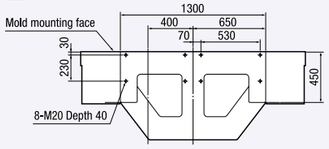
■FOUNDATION DIAGRAM

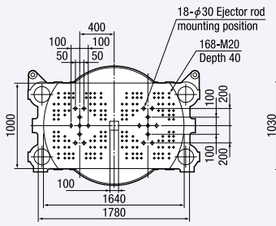


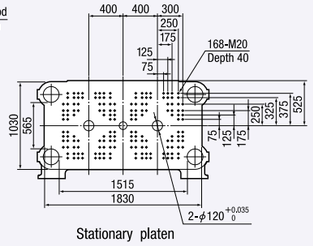
■HOPPER FIXATION DIAGRAM



■ROBOT FIXATION DIAGRAM

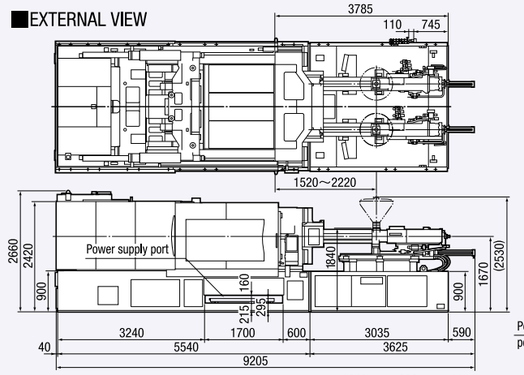






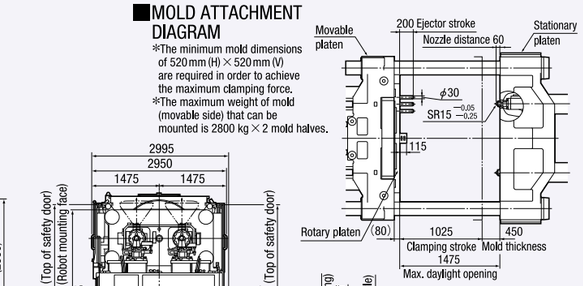
DCX-Ⅲ SERIES DCX800Ⅲ Injection type : 71A [Screw diameter : φ56／φ63／φ71]

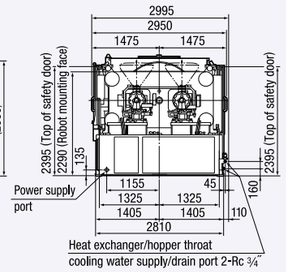
■EXTERNAL VIEW

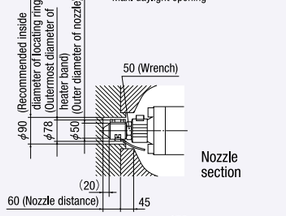


■MOLD ATTACHMENT DIAGRAM

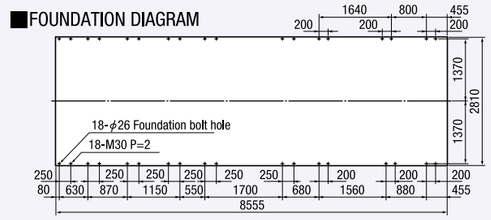
*The minimum mold dimensions of 520 mm (H) × 520 mm (V) are required in order to achieve the maximum clamping force.
*The maximum weight of mold (movable side) that can be mounted is 2800 kg × 2 mold halves.



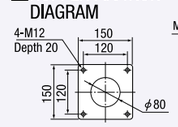




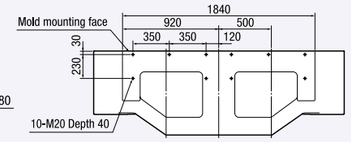
■FOUNDATION DIAGRAM

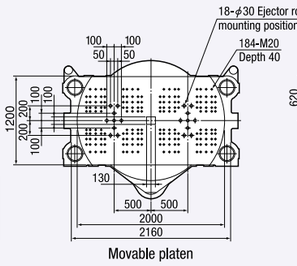


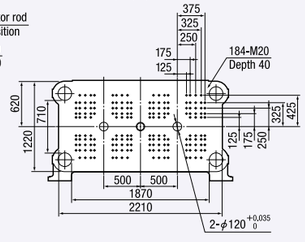
■HOPPER FIXATION DIAGRAM



■ROBOT FIXATION DIAGRAM

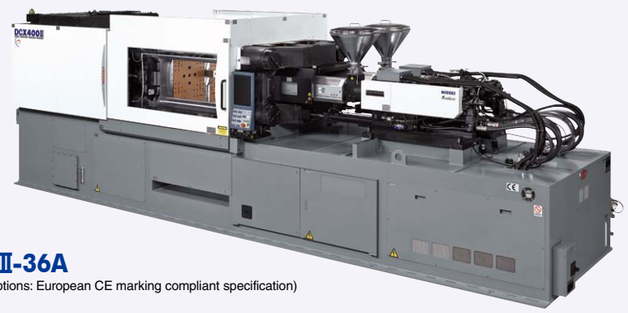






DCX-Ⅲ SERIES Line-Up

DCX800Ⅲ-71A
(Equipped with options)



DCX400Ⅲ-36A
(Equipped with options: European CE marking compliant specification)

DCE-Ⅲ SERIES | Performance Specifications

models			DCE140Ⅲ								
Specification item		Injection type / Unit	Ⓐ 5E+ Ⓑ 5E (Special order)			Ⓐ9E +Ⓑ9E			Ⓐ12E +Ⓑ12E		
Injection	Screw diameter	mm	22	26	28	26	28	32	28	32	36
	Injection capacity	cm^3	35	49	57	59	69	90	77	101	127
	Plasticization capacity (PS)	kg/h	16	23	32	19	28	40	28	40	54
	Injection pressure	MPa	280	196	169	280	243	186	280	223	177
	Injection rate – Standard	cm^3/s	190	265	308	159	185	241	166	217	275
	Injection rate – High velocity	cm^3/s	190	265	308	265	308	402	246	322	407
	Injection rate – High load	cm^3/s	133	186	216	159	185	241	148	193	244
	Injection velocity – Standard	mm/s	500			300			270		
	Injection velocity – High velocity	mm/s	500			500			400		
	Injection velocity – High load	mm/s	350			300			240		
	Screw speeds	rpm	0~350			0~300			0~300		
	Nozzle touch force	kN	13			13			13		
	Hopper capacity (optional)	L	12.5			12.5			12.5		
Clamping	**Clamping force**	**kN**	**1370**								
	Clamping stroke	mm	400								
	Mold thickness (min.)	mm	170~450								
	Max. daylight opening	mm	850								
	Tie bar clearance (H×V)	mm	660×360								
	Die plate dimensions (H×V)	mm	860×550								
	Min. mold dimensions (H×V)	mm	235×235								
	Ejector force	kN	24×2								
	Ejector stroke	mm	100								
	Max. mold weight (movable side)	kg	250×2								
Electrical & others	Heater band capacity	kW	5.11×2	5.73×2	6.16×2	7.22×2	8.36×2	9.26×2	7.98×2	9.13×2	
	Air consumption (when 0.5MPa)	NL/shot	3.5			3.5			3.5		
	Machine dimensions L	m	5.06			5.03		5.07	5.07	5.10	
	Machine dimensions W	m	1.58			1.58		1.58	1.58	1.58	
	Machine dimensions H	m	1.89			1.89		1.89	1.89	1.89	
	Floor dimensions (L×W)	m	4.27×1.19			4.27×1.19			4.27×1.19		
	Machine weight	t	8.4			8.4			8.4		

models			DCE250Ⅲ											
Specification item		Injection type / Unit	Ⓐ9E + Ⓑ9E (Special order)			Ⓐ12E + Ⓑ12E (Special order)			Ⓐ18E+ Ⓑ18E			Ⓐ25E+ Ⓑ25E		
Injection	Screw diameter	mm	26	28	32	28	32	36	32	36	40	36	40	45
	Injection capacity	cm^3	59	69	90	77	101	127	117	148	182	163	201	254
	Plasticization capacity (PS)	kg/h	19	28	40	28	40	54	40	54	75	54	75	102
	Injection pressure	MPa	280	243	186	280	223	177	276	218	177	261	211	167
	Injection rate – Standard	cm^3/s	159	185	241	166	217	275	161	204	251	183	226	286
	Injection rate – High velocity	cm^3/s	265	308	402	246	322	407	241	305	377	275	339	429
	Injection rate – High load	cm^3/s	159	185	241	148	193	244	161	204	251	183	226	286
	Injection velocity – Standard	mm/s	300			270			200			180		
	Injection velocity – High velocity	mm/s	500			400			300			270		
	Injection velocity – High load	mm/s	300			240			200			180		
	Screw speeds	rpm	0~300			0~300			0~300			0~300		
	Nozzle touch force	kN	13			13			23			23		
	Hopper capacity (optional)	L	12.5			12.5			25			25		
Clamping	**Clamping force**	**kN**	**2450**											
	Clamping stroke	mm	560											
	Mold thickness (min.)	mm	250~560											
	Max. daylight opening	mm	1120											
	Tie bar clearance (H×V)	mm	960×520											
	Die plate dimensions (H×V)	mm	1230×780											
	Min. mold dimensions (H×V)	mm	325×325											
	Ejector force	kN	39×2											
	Ejector stroke	mm	100											
	Max. mold weight (movable side)	kg	500×2											
Electrical & others	Heater band capacity	kW	7.54×2	8.36×2	9.26×2	8.09×2	9.13×2		9.00×2	10.57×2		10.54×2	13.01×2	
	Air consumption (when 0.5MPa)	NL/shot	4.0			4.0			4.0			4.0		
	Machine dimensions L	m	5.83			5.83			6.05	6.12		6.10	6.19	
	Machine dimensions W	m	1.87			1.87			1.87	1.87		1.87	1.87	
	Machine dimensions H	m	2.20			2.20			2.20	2.20		2.20	2.20	
	Floor dimensions (L×W)	m	5.40×1.44			5.40×1.44			5.40×1.44			5.40×1.44		
	Machine weight	t	17.1			17.1			17.1			17.3		

- Injection unit : Operation side = Ⓐ ; Non-operation side = Ⓑ
- Actual plasticizing capacities may vary, depending on the molding conditions and materials.
- Maximum injection pressures are the highest values that can be set on the machines. These values may be limited, depending on the molding conditions.
- Maximum injection rates in the tables are the estimated values that were derived from a formula, and these are not guaranteed values at the maximum injection pressures.
- Machine dimensions, floor dimensions, and machine weights are approximate values. The listed machine weights do not include the weights of optional equipment.
- Clamping forces may be lower than the values in the tables if molds smaller than indicated minimum mold sizes are used.
- Specifications are subject to change without notice due to continuous performance improvement.
- 1MPa = 10.2kgf/㎠ ≒ 10kgf/㎠、1kN = 0.102tf ≒ 0.1tf

DCE-Ⅲ SERIES | Main Equipment List

★:Added or changed for DCE-Ⅲ ※:Longer lead time ○:Pupular options

[Standard Equipment]

Clamping unit/mold

1. Mold protection (low-pressure clamping time monitor) and high-sensitivity mold protection (torque monitor)
2. Mold protection error reconfirmation circuit (motion selection when an error occurs)
3. Mold clamping halfway slowdown (three-plate & angular pin mold possible)
4. Mold opening velocity: 4-speed / mold opening pause
★ 5. Mold position reading function (set-up support function)
★ 6. Mold thickness device preparatory movement function (set-up support function)
7. Automatic mold thickness adjustment
8. Multi-functional ejector (continuous operation, start timer, initial 2-speed forward velocity, pause, and variable forward/backward stroke)
9. Ejector plate return confirmation (2 circuits: mold A/B up to terminal)
10. Selection of ejector sequence (mold A/B and before/after rotation)
11. Simultaneous mold open & rotation (for "rotation → ejection")
12. Simultaneous mold open & ejection (for "ejection → rotation")
13. Process inside mold: MIP0 (2 circuits: mold A/B & simultaneous operation)

Injection unit

1. Injection process control: 6-speed, 3-pressure, and 3-limit pressure / 3-step backpressure and 3-step metering speed
2. V-P changeover: 4 modes (position, injection velocity, injection pressure, and external input signals)
3. V-P changeover response: 3 modes (optional/slow/high response)
4. Holding pressure control: 4 modes (pressure/positioning/pressure → positioning/positioning → pressure)
5. Injection during mold clamping (IDMC) / nozzle forward during mold clamping
6. Injection volume compensation control
7. Injection start timer / metering start timer / nozzle backward start timer
8. Over packing prevention circuit
9. Decompression / decompression before metering
10. Simultaneous metering operation (shutoff nozzle is optional)
11. High-precision metering control (pre-pack/precision metering)
12. Automatic purge circuit (with flexible purge function)
13. Purging cover (with interlock)
14. Screw cold start prevention (all-zone sequential type)
15. Nozzle and barrel temperature upper limit alarm / nozzle and barrel temperature PID control
16. Simultaneous heating of nozzle and barrel
17. Nozzle heater circuit SSR / barrel heater circuit SSR (5E~25E)
18. Barrel temperature holding control (forced TEMP holding and TEMP holding when an error occurs)
19. Barrel heat radiation/burn prevention cover
★ 20. Nozzle/barrel heater simple disconnection alarm (detection by thermometers)
21. Material retention timer
22. Screen display of hopper throat temperature
23. Hopper throat temperature PID control

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) / cause-classified defect counter
4. Monitor data display / statistic processing function / scatter diagram display
5. Monitor data pass/fail judgment function (batch condition entry)
6. Product take-out robot interface (SPI robot signal to terminal)
7. Barrel heat-up (calendar timer)
8. Molding condition and image data set management (jpeg or bmp)
★ 9. Molding condition internal storage (up to 500 conditions) / operation history display (100,000 items)
10. Built-in LAN connector (10/100BASE-TX) / connection to PC
11. USB port (x1) / data saving in an external storage (USB memory) / data output via USB
12. Display of injection velocity and pressure waveforms
13. Molding support message
14. Multilingual display capability (English, Japanese, Chinese, Spanish, Korean, and Thai)
15. Hour meter (molding machine total operation time display) / clock function (stopwatch and kitchen timer) / calculator
16. Servomotor load monitor
17. Ladder programming function (4 I/O signals programmable) (cannot be used with signal I/O allocation function)
18. Signal I/O allocation (error processing input and various output signals can be assigned to four of the I/O terminals) (cannot be used with ladder programming function)
19. Signal recorder (analysis of motor signal or I/O signal waveforms and data collection function)
20. Alarm function (maintenance alert function that displays arbitrary message at specific time or shot)
21. Display or errors / Emergency power shut off (shut off the heater and motor power when a critical error occurs) (emergency power shut off delay timer) / Cycle alarm
★ 22. Selection of production complete state (selection of mold, injection, metering, and operation power states when production is completed)
23. Remote maintenance function (remote control of TACT screen from PC possible)
24. Setting unit change (injection pressure, injection velocity, injection position, metering speed, temperature, and clamping force)
★ 25. Descriptions of adjusters (when some of the adjusters are touched, descriptions will be displayed)
★ 26. Setup mode (mold open/close & ejection by setup speed and injection & metering by purging speed)
27. Setup simultaneous motion (simultaneous motion of injection forward/backward, metering, and auto purge during automatic mold thickness adjustment is possible)

Cooling

1. Cooling water manifold

Operation safety

1. Alarm lamp / alarm buzzer
2. Emergency stop button (operator & non-operator side)
3. Mold clamping safety device (mechanical/electrical)
4. Safety door upper cover (DCE140Ⅲ: with interlock)
5. Safety door lock (spring catch type)
6. Non-operator side safety door with clear acrylic cover

Power

1. AC outlet

Maintenance, installation, and others

1. Automatic centralized greasing unit (for toggle slide, tie bar bush, and injection slide)
2. Manual centralized lubricating unit (for clamping slide)
★ 3. Periodic inspection support function (display of scheduled inspection date)
★ 4. Parts replacement support function (display of recommended parts replacement period)

[Optional Equipment]

Clamping unit/mold

① Insulation plate (mold A/B)
② Additional mold mounting bolt hole ※
3. Mold close pause
④ Ejector plate return confirmation (2 circuits: mold A/B and metal interface box)
5. CPN3 (displays details of motions and compression load) ※
6. Mold temperature indicator (display on the screen) or mold temperature control
7. Mold temperature upper & lower limit alarm
8. Mold heater disconnection alarm
⑨ Daylight extension ※
10. Locating ring attachment (non-fixed type) or locating ring assembly (fixed type)
11. Locating ring diameter change ※
12. Mold clamps (SAT Clamp and Easy Clamp)
⑬ Quick mold change system: hydraulic (stationary side only. Hydraulic source for clamp needed), magnetic, or pneumatic (consultation required for ejector stroke extension) ※
14. Mold dowel pin and block

Injection unit

1. Nozzle & barrel heater disconnection alarm
2. 2-point nozzle temperature control
3. Barrel insulation cover
4. Abrasion & corrosion proof barrel and screw (details need to be specified) ※
5. Shut off nozzle ※
6. Extended nozzle ※
7. High-velocity injection unit (9E: 500mm/s, 12E: 400mm/s, 18E: 300mm/s, 25E: 270mm/s)
8. High-load injection unit (5E: 350mm/s, 9E: 300mm/s, 12E: 240mm/s, 18E: 200mm/s, 25E: 180mm/s)
9. Hopper / hopper slider / hopper extension with band
⑩ High-temperature resistant barrel (details need to be specified) ※
11. Special-purpose nozzle and barrel (details need to be specified) ※
12. Temperature holding nozzle
13. Connector or other special-purpose nozzle (details need to be specified)
14. Hopper magnet
15. Low-pressure molding system "K-SAPLI™"

Molding system control/production management

1. Unscrewing
2. Air blow circuit
3. Hydraulic core pull circuit (hydraulic unit needed. Piping block cannot be installed on the rotary table) ※
4. Pneumatic core pull circuit
5. Fixed chute or swing chute (interlocked with product pass/fail judgment function)
6. AC outlet with automatic activation by calendar timer
7. USB flash drive
8. SPC: Statistical Process Control function (molding machine process management by statistical method)
9. Water cut alarm / air cut alarm

Cooling

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. Water temperature gauge
6. Anti-dew cooling hose
⑦ Movable side high-temperature spec mold temperature controller circuit (temperature controller hosing for high-temperature medium) (consultation required) ※

Operation safety

1. Alarm bell
2. Rotating beacon (Patlite) or layered indicator lamp (signal tower)
3. Password protection function (screen lock and adjuster masking)
4. Alarm lamp with a stand
5. Non-operator side safety door lock (mechanical type) ※
6. Primary power indicator lamp

Power

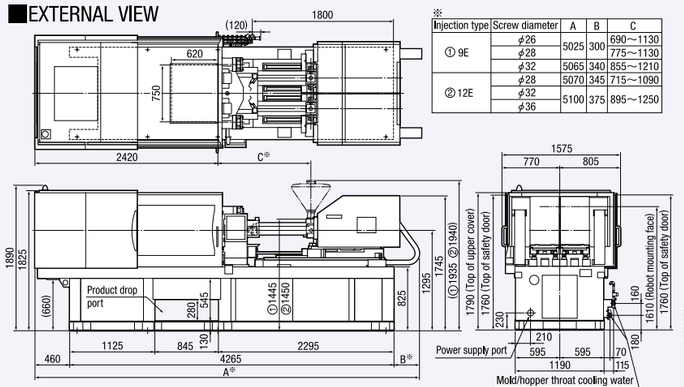
① Main power breaker or main power leakage breaker
② Additional AC outlet
3. Fire alarm
4. Outlet circuit power shutdown
5. Additional outlet for different voltage

Maintenance, installation, and others

1. Manual greasing set
2. Tools
③ Mounting pad
4. Custom color paint ※

DCE-Ⅲ SERIES | DCE140Ⅲ Injection type : ①9E [Screw diameter : φ26／φ28／φ32] ②12E [Screw diameter : φ28／φ32／φ36]

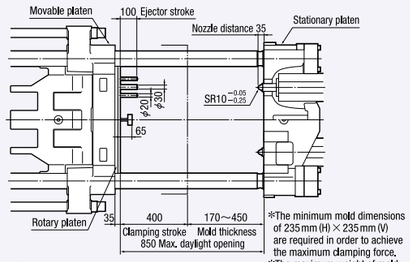
■EXTERNAL VIEW



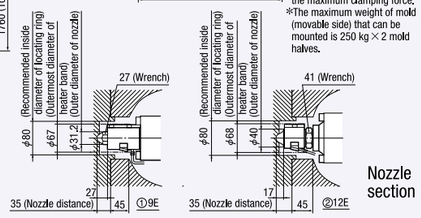
※

Injection type	Screw diameter	A	B	C
① 9E	φ26	5025	300	690～1130
	φ28			775～1130
	φ32	5065	340	855～1210
②12E	φ28	5070	345	715～1090
	φ32	5100	375	895～1250
	φ36			

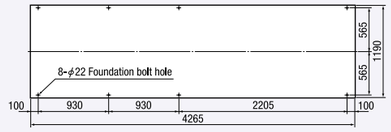
■MOLD ATTACHMENT DIAGRAM



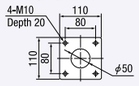
※The minimum mold dimensions of 235 mm (H) × 235 mm (V) are required in order to achieve the maximum clamping force.
※The maximum weight of mold (movable side) that can be mounted is 250 kg × 2 mold halves.



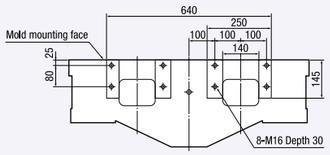
■FOUNDATION DIAGRAM

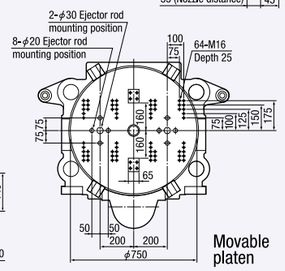


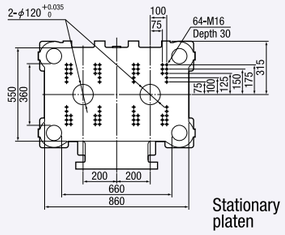
■HOPPER FIXATION DIAGRAM



■ROBOT FIXATION DIAGRAM

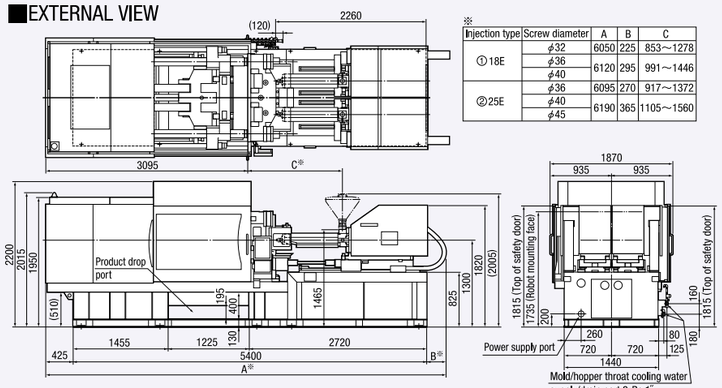






DCE-Ⅲ SERIES | DCE250Ⅲ Injection type : ①18E [Screw diameter : φ32／φ36／φ40] ②25E [Screw diameter : φ36／φ40／φ45]

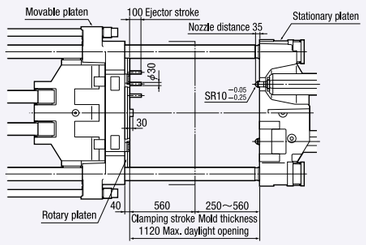
■EXTERNAL VIEW



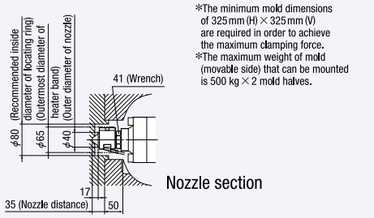
※

Injection type	Screw diameter	A	B	C
①18E	φ32	6050	225	853～1278
	φ36	6120	295	991～1446
	φ40			
②25E	φ36	6095	270	917～1372
	φ40	6190	365	1105～1560
	φ45			

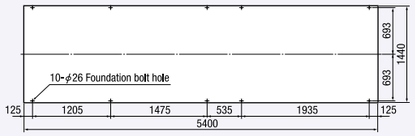
■MOLD ATTACHMENT DIAGRAM



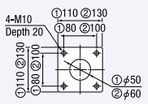
※The minimum mold dimensions of 325 mm (H) × 325 mm (V) are required in order to achieve the maximum clamping force.
※The maximum weight of mold (movable side) that can be mounted is 500 kg × 2 mold halves.



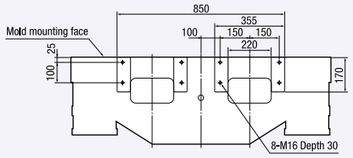
■FOUNDATION DIAGRAM

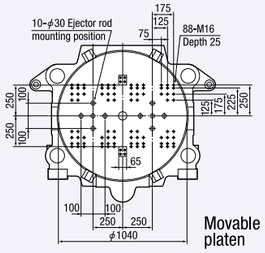


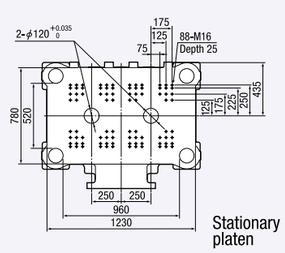
■HOPPER FIXATION DIAGRAM



■ROBOT FIXATION DIAGRAM





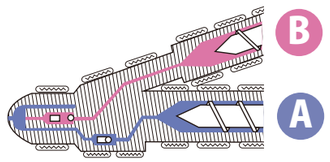


Special Double Injection Machines that Meet a Variety of Molding Needs

Mixed Color Injection Molding Machine

▲Mixed color cosmetic containers

Beautiful two mixed-colored products (marbled, sandwich, tortoise-shell pattern, striped, flower pattern, etc.) can be created with an exiting mold by utilizing NISSEI's mixed color injection molding machine's injection units, nozzles, and special molding conditions.

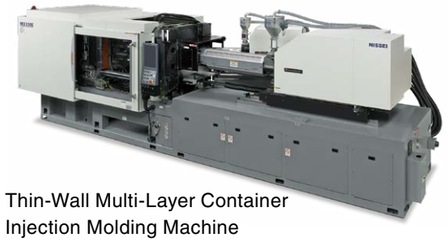


Patterns can be created by using two horizontally placed or V-shaped injection units that share one nozzle and head. Different-colored materials are injected to a mold from the injection units simultaneously or continuously. It can form a variety of patterns depending on the injection timing, nozzle structures, and molding conditions.

Thin-Wall Multi-Layer Container Injection Molding Machine

▲Thin triple-layer + IML system cups

These are two-material triple-layer thin-wall containers. The middle layer possesses gas barrier property, preventing oxidation of the content and permitting long-term preservation.



Thin-Wall Multi-Layer Container Injection Molding Machine

NEX220Ⅲ -50ETN

(Customized and equipped with options)

* Japanese specification (as of 2016)

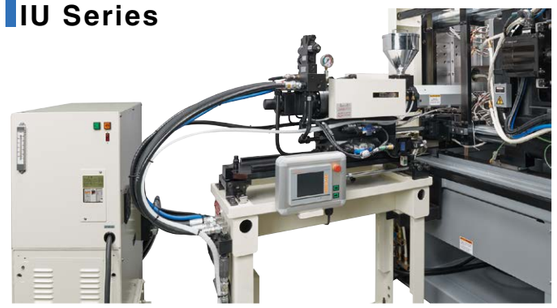
Portable Injection Unit

2-color/dissimilar material products can be molded by adding the portable injection unit to a general-purpose injection molding machine. In addition, it can be added on to a 2-color/dissimilar material injection molding machine to produce multi-color/multi-material products.

Specifications	Unit	IU5A	
Screw diameter	mm	22	26
Injection capacity	cm³	35	49
Plasticization capacity	Kg/h	15	22
Injection rate	cm³/s	50	71
Injection velocity	mm/s	133	133

Portable Injection Unit

IU Series



Please contact us for more details about the portable injection unit.

▲Triple color coaster
(DCE140Ⅲ + portable injection unit)

Examples on this pages are actual custom machines. Specifications may vary depending on the countries or regions and may not be available in some areas. Please contact us for more details.

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NISSEI Overseas Network

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Thailand	: Bangkok
China	: Hong Kong, Dongguan, Zhong Shan, Shanghai, Dalian, Wuhan
Taiwan	: Taipei
Korea	: Seoul
Vietnam	: Ho Chi Minh City, Hanoi
India	: Gurgaon

•Due to continuous performance improvement, specifications and designs are subject to change without notice.

VEGETABLE OIL INK

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