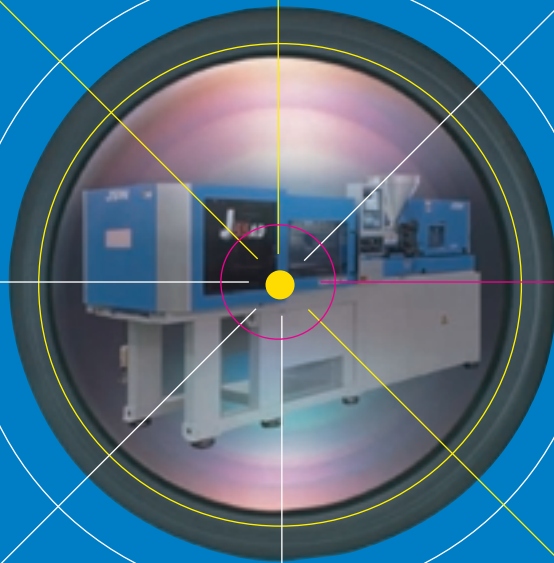


JAD SERIES

All Electric Servo Drive
Injection Molding Machine



Model
J35AD
J55AD
J85AD
J110AD
J140AD
J180AD



JSW Hiroshima Plant

JSW



JSW Injection Molding
Machinery Division

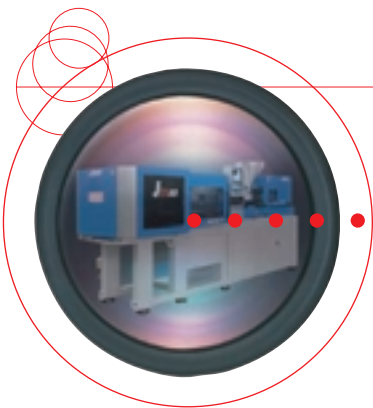
AD, the pinnacle of speed and precision

35TH MACHINE DESIGN AWARD

Winner
THE NIKKAN KOGYO SHIMBUN
2005



(Distinctive Merit Award)



JAD SERIES

"J-AD Series," this next generation of all electric servo drive injection molding machines from JSW continues to lead the injection molding machine industry.

The J-AD "ADvanced" Series of machines offers even greater high-speed performance and increased precision, made possible by the industry's highest-speed* servo control circuit.

This advanced technology, unique to JSW, has been accumulated over many years and results in injection molding expertise that is the envy of the industry.

Faster and more accurate, the J-AD Series achieves the highest levels of productivity and reliability.

*As of 2004



Complying with safety regulations
EU safety regulations (CE Marking)
Industrial machinery
industry safety rules (JIMS K1001)

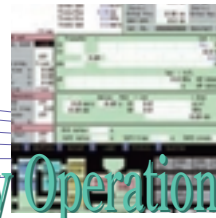


Promotion of product quality
(incorporating a servo control circuit
that boasts the industry's highest speed of 62 micro seconds)



Algorithm Technology

Remarkably improved operability and visibility
(large 15 inch LCD color monitor)



Innovative & Friendly Operation

Improvements made for stepped-up productivity with larger molds
(Faster-cycle molding with larger platens is realized
by the use of a robust clamping unit)



Faster Cycles

Faster Injection Speeds and quicker
Computer Response Time are coupled
with our Creative Control Package, which makes
Thin-walled/Precision molding more attainable



Quick Response

Adapted for diversified lines of products on application
(A wide selection of injection modules
and a wide array of equipment)



Wide Range of Injection Units

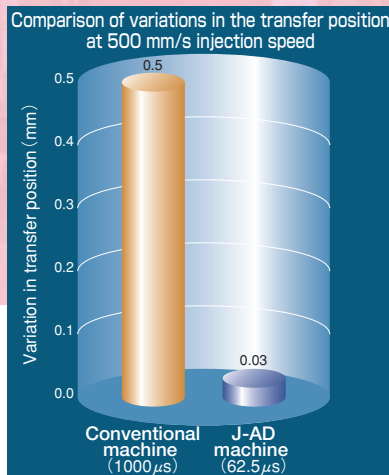




The industry's fastest 62 micro second servo control circuit provides the highest product quality

The marvelous 62 micro second high-speed servo control circuit attains a new high in accuracy and stable quality levels

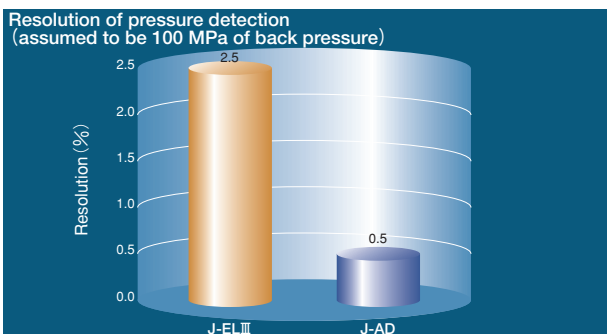
Use of a high-speed servo control circuit in the "J-AD Series" reduces scanning time to 1/16th of conventional controls and achieves an outstanding 62 micro seconds of scan time. It promotes product quality through a reduction in performance variation, such as holding transfer pressures.



JSW original high-speed servo control board

Highly upgraded resolution of the injection pressure detector

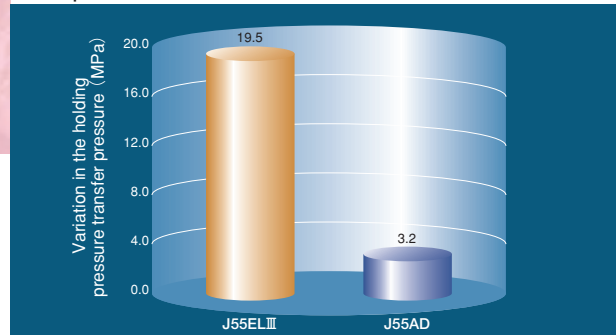
The resolution of the load cell amplifier for the injection pressure has been intensified five fold for more accurate back pressure control which helps insure stabilized precision molding.



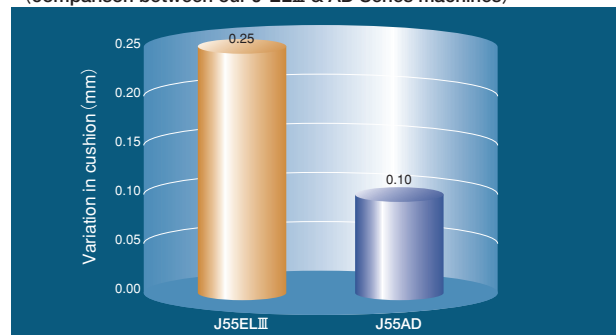
Injection molding machine : J55EL III vs J55AD
 Product : 2.4 inch light guide panel for mobile phone
 (2-cavity mold, t = 0.6 mm)
 Resin : PC



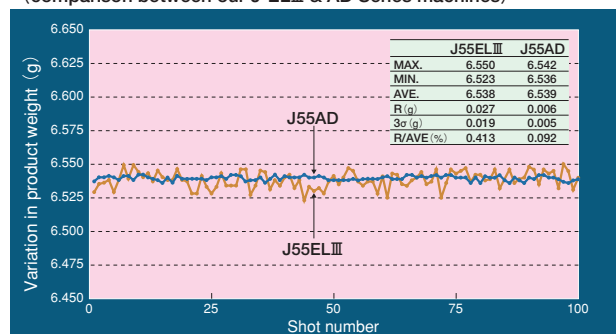
■ Variation in the holding pressure transfer pressure (comparison between our J-EL III & AD Series machines)



■ Variation in cushion (comparison between our J-EL III & AD Series machines)



■ Variation in product weight (comparison between our J-EL III & AD Series machines)



Large 15 inch LCD color monitor Upgraded operability and increased visibility

Upgraded SYSCOM3000

- A vertically arranged large 15 inch TFT color LCD screen. The controller rotates to provide the operator with a clear view of molding parameters.
- An illustration of the machine, in conjunction with operation mode keys and a touch screen, insures easy operation.
- Languages are selectable from English, Chinese and Japanese. Other languages (Korean, Spanish and French) are optional.
- Storage of molding conditions: 120 conditions can be stored in internal memory and 1,000 conditions stored in external USB memory.



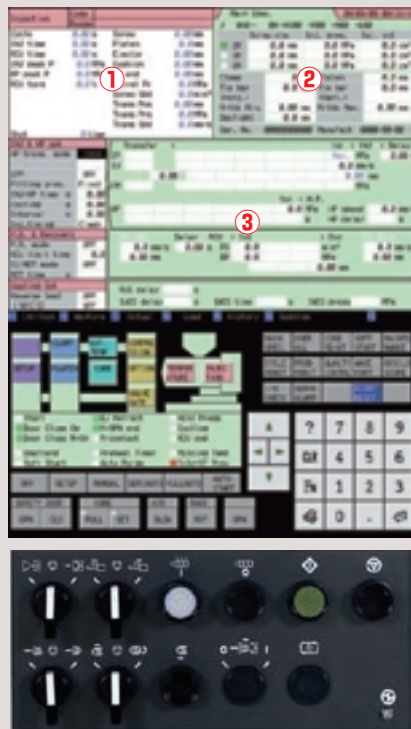
SYSCOM3000 screen

Operation includes the condition setting screen, the touch panel screen, and the selector switches.

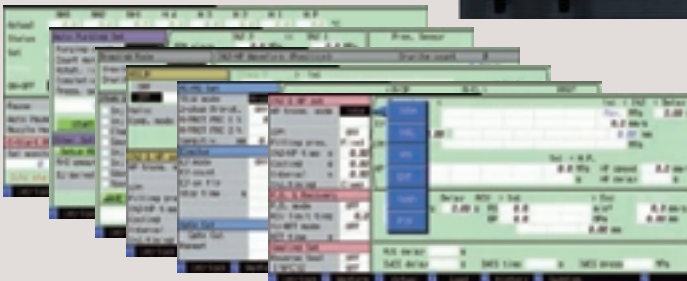
Condition setting screen

Touch panel screen

Selector switch



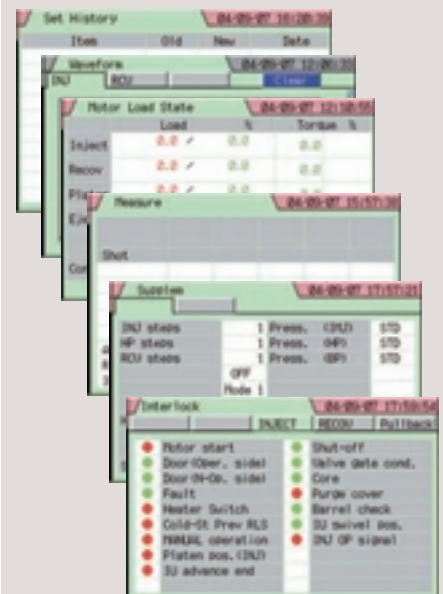
③ Condition setting screens



① Cycle monitor screen

Injection	Code	Range		
Cycle	0.00 s		Screw	0.00 mm
INJ time	0.00 s		Platen	0.0 mm
RCU time	0.00 s		Ejector	0.00 mm
INJ peak P	0.0 MPa		Cushion	0.00 mm
BP peak P	0.0 MPa		HP end	0.00 mm
RCU torque	0.0 %		Barrel Pr	0.0 MPa
			Screw Spd	0.0 min ¹
			Trans Pos	0.00 mm
			Trans Prs	0.0 MPa
			Trans Sod	0.0 mm/s
Shot	0 time			

② Convenient monitoring screens





Faster Cycles

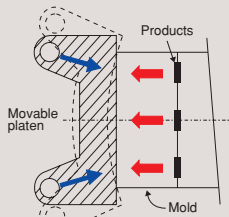
A more robust clamping unit promotes

The robust clamping unit ensures fast-cycle molding

- The high-rigidity clamping unit enables the use of wider platens and achieves high-precision stabilized molding.
- Platen Parallelism and mold positioning accuracy is achieved by using a high efficiency platen support mechanism, with extra long platen guides.
- JSW's original 5-joint, internally folding toggle mechanism attains improved faster cycle molding.
- The stationary platen and the movable platen, consist of a box construction with reduced weight and increased rigidity, exerts a clamping force evenly distributed over the mold surface.
- The pre-tensioned tie bars promote durability and decrease vibration during the mold open/close action.
- The flat press platen structure enables minimizing of wall-thickness fluctuation of molded products.

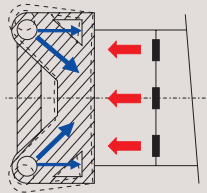
Flat Press Platens Mechanism

The weight of the product processed in the central section of mold increases due to the deformation of platen in the center.



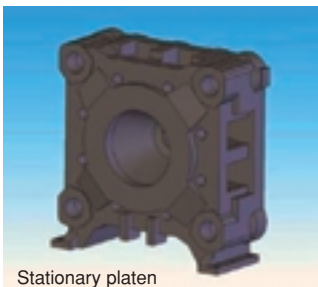
Conventional type platen

Mold clamp force is uniformly distributed to the entire surface of the platen.

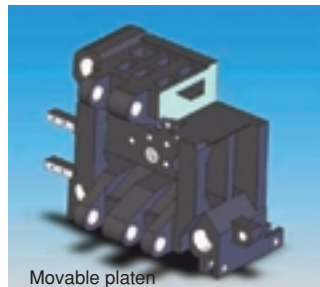


Flat press platen

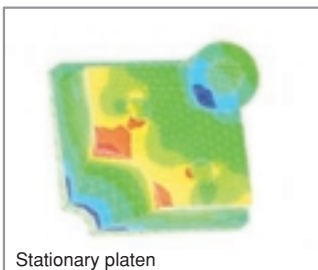
FEM analysis of lightweight but high-rigidity platens



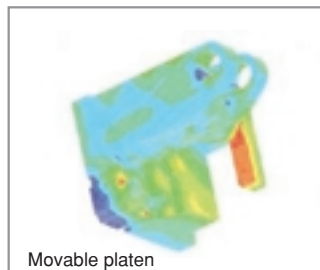
Stationary platen



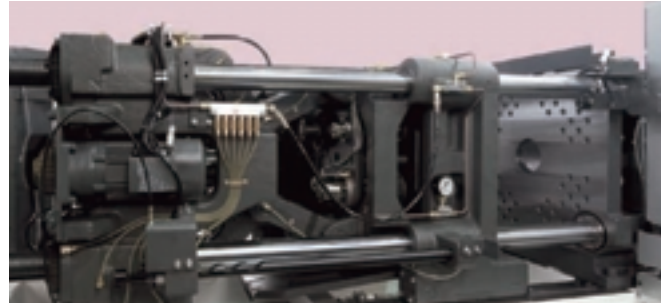
Movable platen



Stationary platen



Movable platen



Clamping unit



Tie bar pre-tensioning mechanism



Moment free nozzle contact device



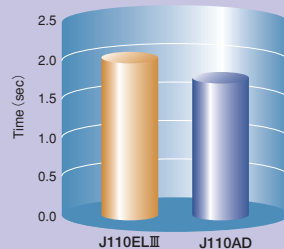
Wide platen

The horizontal tie bar distances are extended further than conventional machines to allow for wider molds.

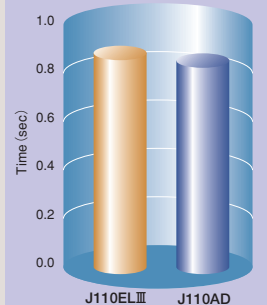
Ultimate mold open/close speeds

- Reduces dry cycle as the result of the fast-cycle toggle mechanism.
- The high-accuracy platens eliminate part removal errors, of the product takeout robot, and promotes greater productivity.

Comparison of mold open/close time (stroke:350mm)



Comparison of ejection time (stroke:80mm)



High-speed ejector

Ejector Tie-down Accessibility to Clamp area has been Opened Up

The opening is made larger to allow the stripper mechanism in the mold to be easily linked to the knockout plate on the machine.

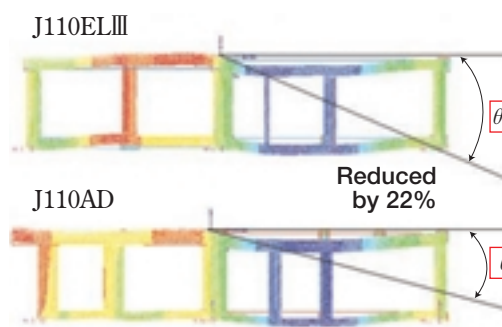
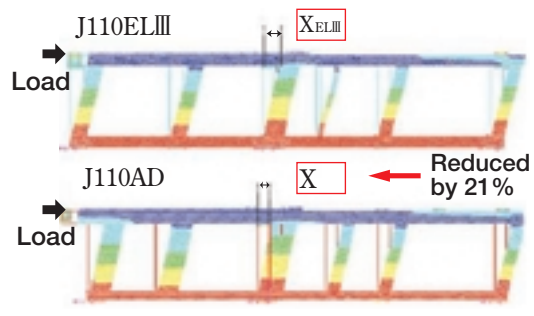


productivity and allows for larger molds

The rock solid foundation ensures platen rigidity

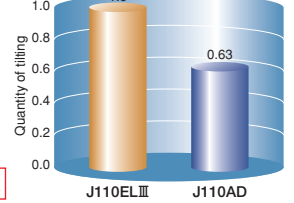
The horizontal distortion has been reduced by 21%

The distortion of the seat surface of the stationary platen: reduced by 22%

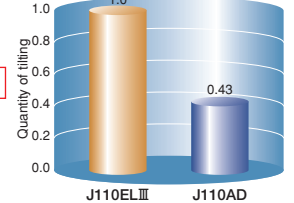


Distortion of the bed during fast speed mold open/close

Tilting of the stationary platen at the initial stage of mold close start



Tilting of the stationary platen when it is decelerated before the mold is closed

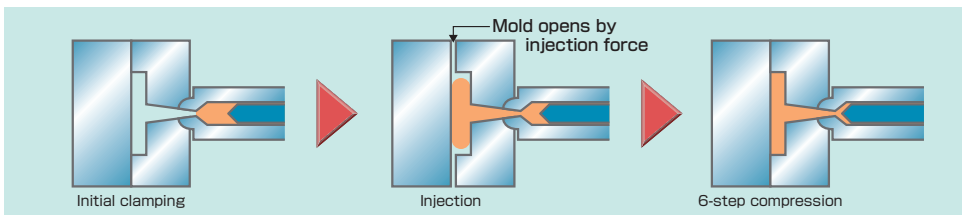


*Suppose J110ELIII is "1."

Injection compression molding

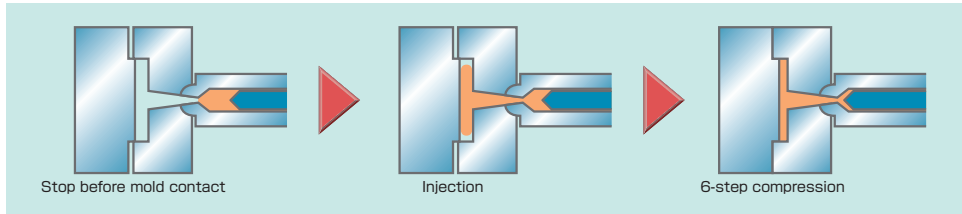
A-mode (A1 - A6, A7<option>)

JSW's original injection compression function equipped as standard (Pat. # 1744469)

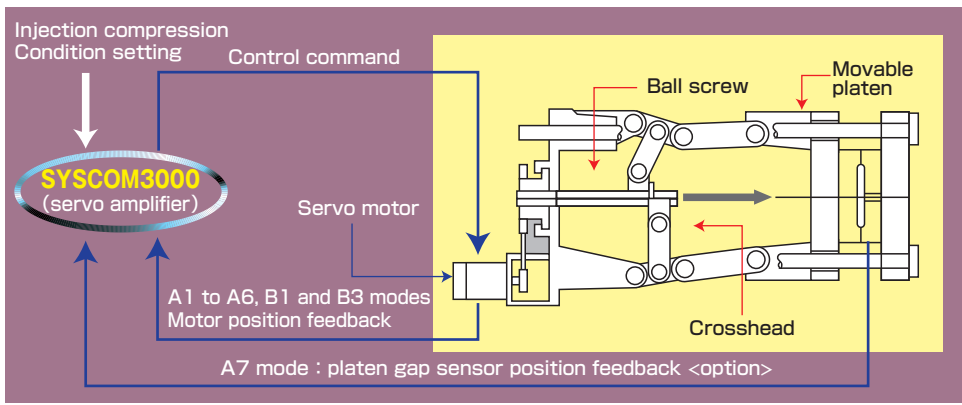


The JSW injection compression molding feature enables the mold position to be controlled to accuracies over 10 times that of direct-pressure molding.

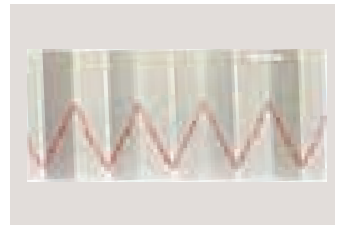
B-mode (B1 and B3)



Control mechanism (A & B modes)



Light guide panel fine prism transfer



Lamination molding





Quick Response

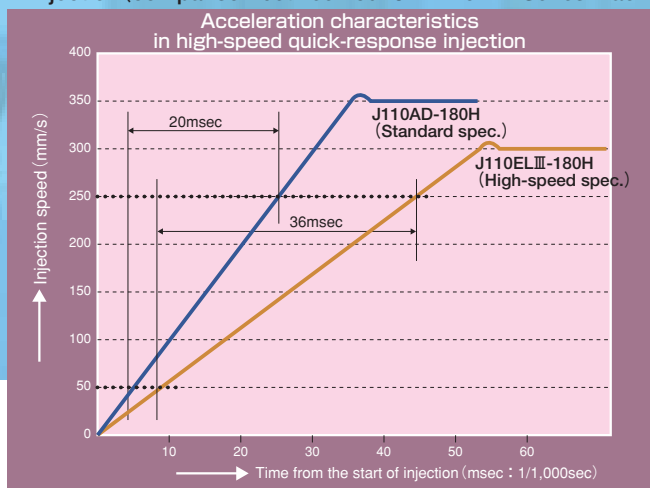
High-speed quick-response injection high-speed, high-pressure thin-walled

A JSW's original quick servo control circuit combined with a servo drive unit has achieved high-speed quick-response performance.

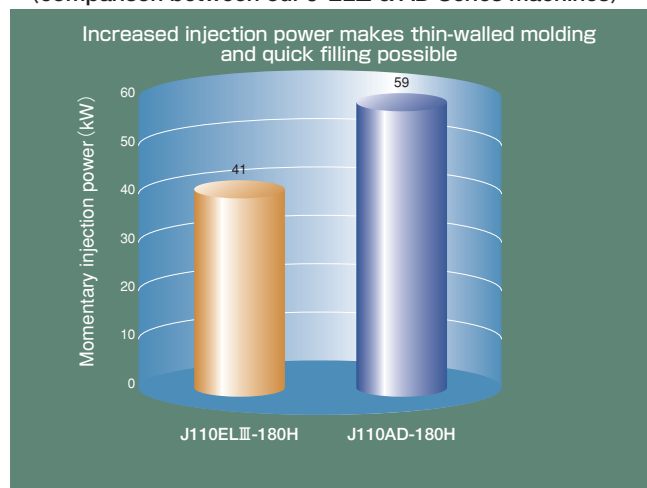


High-speed quick-response injection with increased injection power

● Acceleration characteristics in high-speed quick-response injection (comparison between our J-ELIII & AD Series machines)



● High injection power (comparison between our J-ELIII & AD Series machines)

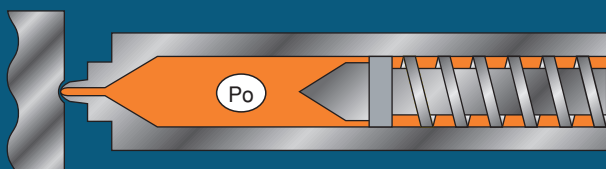


JSW's original injection control

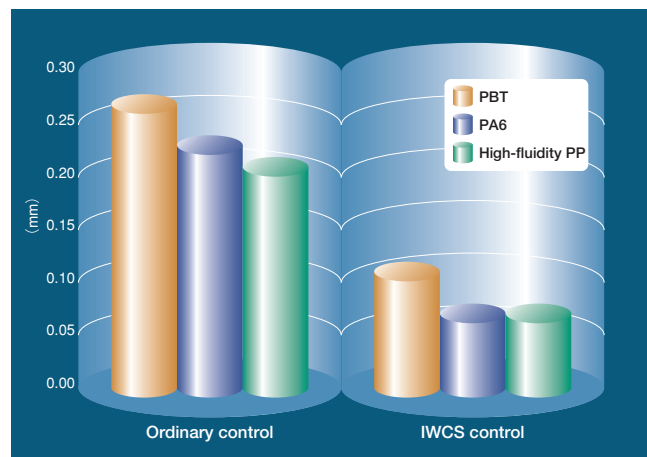
● IWCS control (Injection Weight and Cushion Stability)

A patented control that stabilizes the density of the molten resin stored at the tip of the screw on every shot. This technology can minimize the variance in product weight. (Pat. # 3529771)

This is the control method to re-stabilize the measured density of melted resin of each shot after plasticizing which is prepared at screw head section. This is the unique control technology of JSW that exerts great effect to correct unbalance between product mass and cushion.



Effect of reduced cushion variation

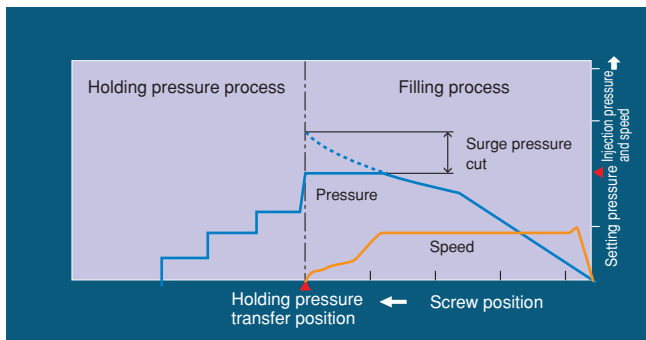


with versatile control modes enables molding with increased precision

● Electric-driven Soft Pack Servo Control

The JSW patented control technology enables filling under optimum pressure while suppressing pressure peaks before holding pressure transfer during the injection process.

This will prevent over-packing in thin-walled molding. (Pat. #. 1755568)

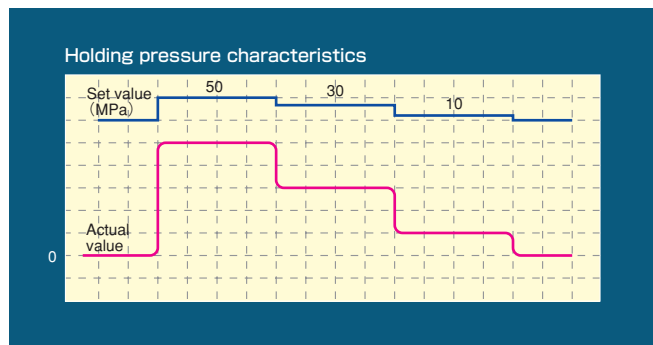
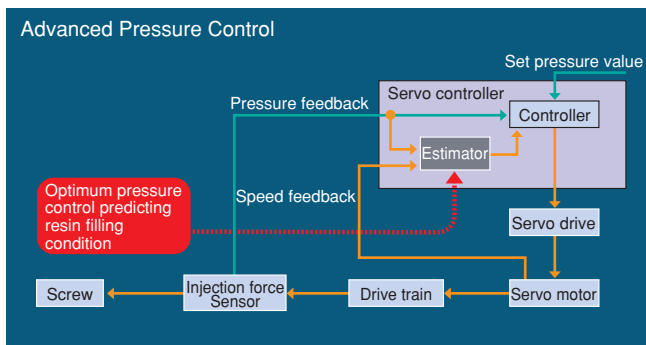


Effect of Soft Pack Servo Control

- Reduction of stress in molding
- Elimination of flashes
- Lessening variation in product weight
- Lowering the clamping force (low-pressure molding)
- Prevent mold damage

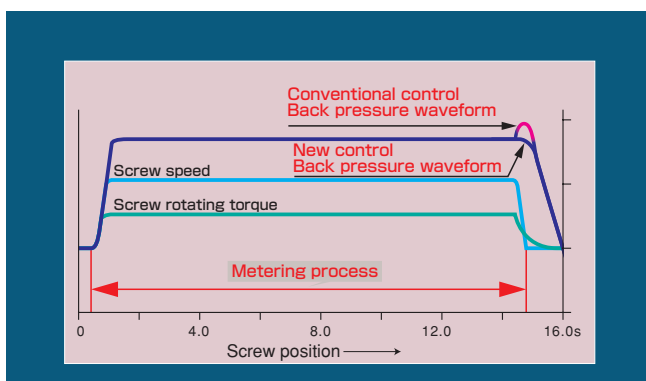
● APC (Advanced Pressure Control)

The JSW patented control technology that holds down both over and under shooting in pressure control, during the injection process, enables higher-dimensional follow-up and response to the set pressure. (Pat. # 3168289)



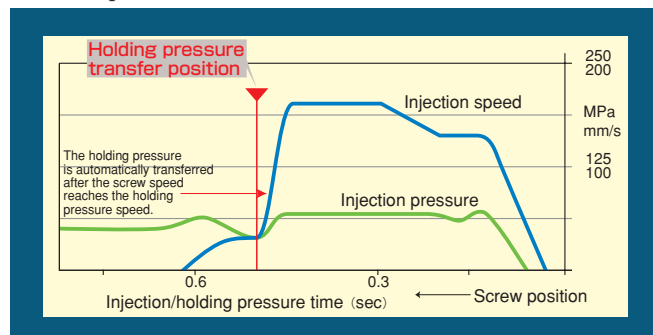
● Predicted control of metering

A control that smoothly stops the screw rotation and the back pressure, during the metering process, by predicting the metering beforehand. It decelerates the screw speed to an optimum value and decreases the screw back pressure smoothly.



● Before-holding pressure deceleration control

A control that decelerates the injection speed to optimum by predicting the holding pressure transfer position beforehand. During injection the inertial force the internal force is held down which is unique to electric servo drive injection molding machines. The control promotes stability of the holding pressure transfer pressure.



Wide Range of Injection Units

Adapted for diversified products with

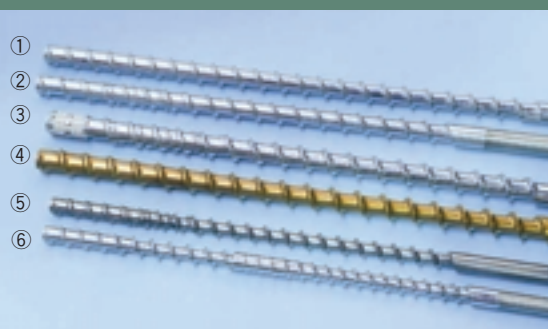
A wide selection of injection modules and screws

	Injection unit type	Screw dia. (mm)	Max. injection pressure (MPa)	Max. injection speed of standard injection unit (mm/s)	Max. injection speed of high-speed unit (mm/s)	Max. injection speed of ultra-speed unit (mm/s)
J35AD	15H	16	276	350	550	800
		18	218			
		20	177			
J55AD	30H	20	270	350	550	800
		22	223			
		25	172			
J85AD	60H	25	270	350	500	800
		28	215			
		32	165			
J110AD	110H	32	270	350		
		35	225			
		40	172			
J140AD	180H	35	260	350		
		40	199			
		45	157			
J180AD	300H	40	250	240	330	
		46	189			
		51	154			

A wide selection of screws

Meeting versatile user needs, based upon the technology and provisions that JSW has accumulated over many years in the manufacture of plastic extruders that boast an impressive share of the world market.

①	GP21 screw (standard type)	This full flight screw has well-balanced general versatility, abrasion resistance, plasticizing capacity and color changeability, providing excellent cost/performance ratio.
②	M7 screw (high plasticization type)	This double flight screw is highly compatible with kneading capability and plasticizing capacity for all thermoplastic resins.
③	HP screw (high dispersion type)	This high kneading mixing screw aims to improve the dispersion of master batch and dry color, and also has general-purpose properties for low and medium viscosity materials.
④ ⑤	Coating screw (high abrasion resistance type)	This screw is for small and medium size machines is coated with high-strength film: It reduces contamination and burning, and enhances resistance to corrosion and abrasion.
⑥	Vent screw	This screw, with a vented barrel, requires no pre-drying for all thermoplastic resins, and will improve the quality of molded products.



a wide selection of injection modules



●Media parts

Recommended equipment

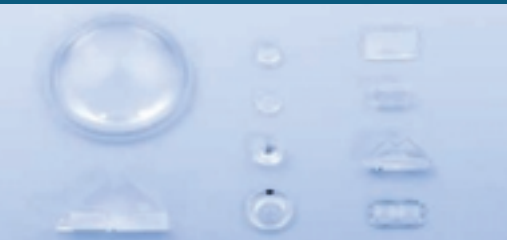
1. High-speed injection units
2. Barrel for high injection pressure
3. Various single-purpose screws



●Light guide panel

Recommended equipment

1. Special screws (highly polished + plating + various coatings)
2. Special barrel (N2000F + highly polished)
3. Special screw head etc. (highly polished + Cr plated)
4. Hopper throat (Cr plated)
5. Special-design clamping and injection units



●Lens

Recommended equipment

1. Special screws (highly polished + plating + various coatings)
2. Special barrel (N2000F + highly polished)
3. Special screw head, etc. (highly polished + Cr plated)
4. Hopper throat (Cr plated)
5. Special-design clamping and injection units



●Containers

Recommended equipment

1. M7 screw
2. High-speed clamping unit
3. High-speed injection unit



●Rigid PVC

Recommended equipment

1. Special-design double flight screw (MIK + Cr plated)
2. Special-design single flight screw (GP21 + Cr plated)
3. Screw head with a check ring
4. Screw head without a check ring
5. Special barrel/screw for vent molding



●Fluorine molding

Recommended equipment

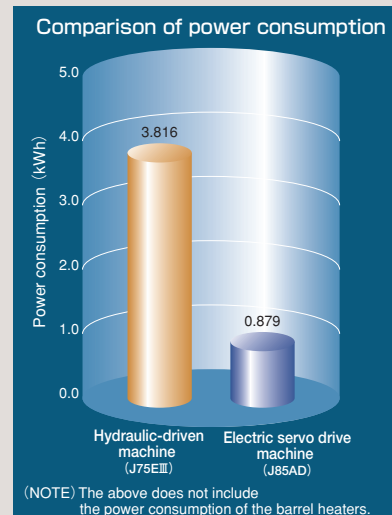
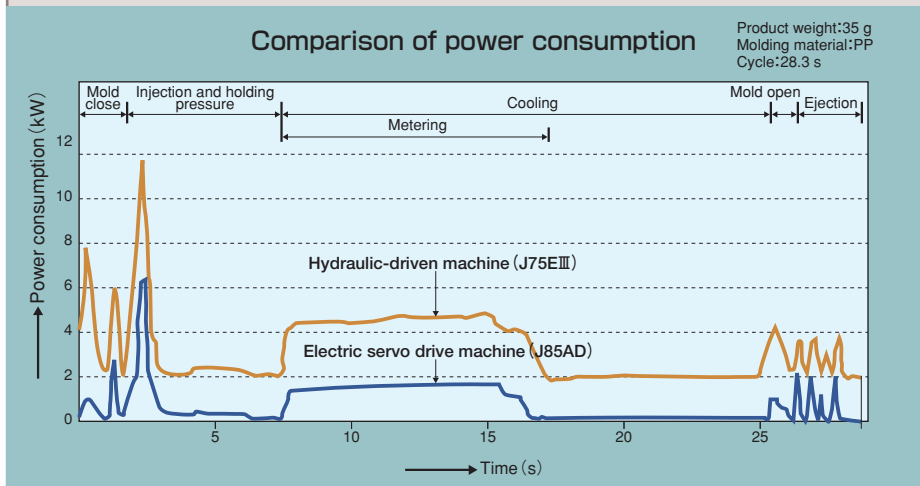
1. Corrosion-resistant barrel (S5 bi-metallic)
2. Corrosion-resistant screw (Plasthard)
3. Corrosion-resistant barrel head (S5 bi-metallic)
4. Corrosion-resistant nozzle (Plasthard)
5. Hopper throat (Corrosion-resistant treatment)

Energy Saving

JAD SERIES

The outstanding energy saving feature substantially reduces power consumption

- Power consumption: 1/3 to 1/4 of hydraulic-driven machines
- Cooling water consumption: less than 1/5 of hydraulic-driven machines



Easy Maintenance

Promotion of maintainability

- Polycarbonate safety cover
A large see-through polycarbonate safety cover is employed. (Available in steel - (optional))
It allows the operator to easily see the clamping unit and facilitates maintenance.



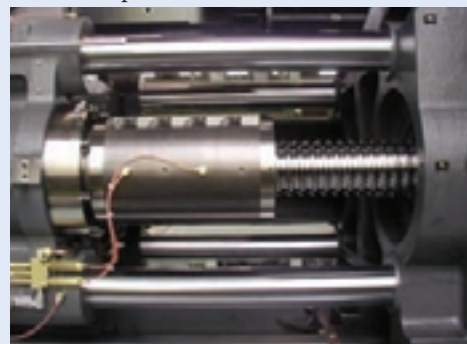
- Lube oil level gauge
It allows the operator to easily check that sufficient oil is flowing to the bearings and other areas, and that the oil is not contaminated.



- Automatic lubricator
It automatically lubricates the injection unit and the clamping unit to prevent problems from occurring due to poor lubrication.



- Highly durable ball screws are used
Ball screws that excel in durability and can maintain high levels of accuracy for an extended period of time.



JAD SERIES

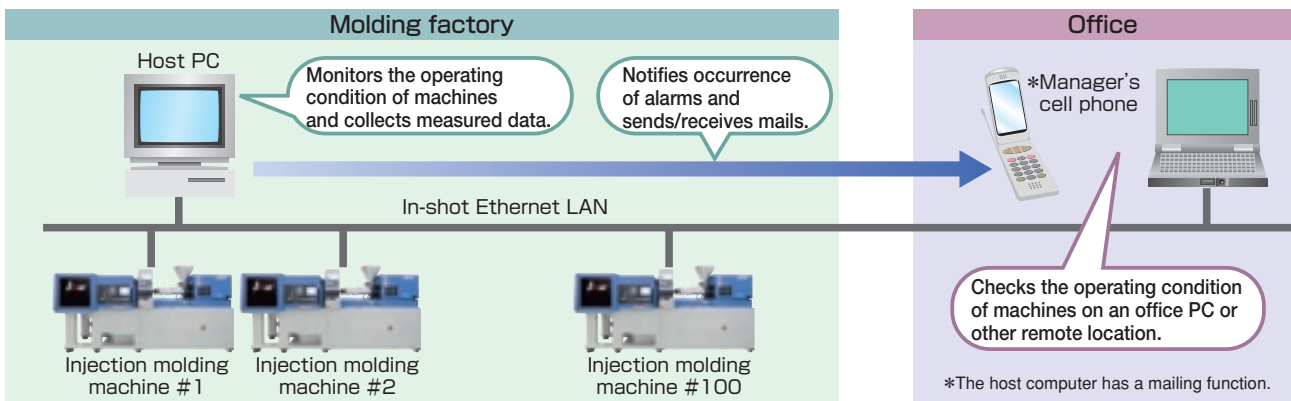


An advanced centralized monitoring system and a remote management system

NET100 system and LINK10 system

JSW network systems perform quality control and production control of injection molding machines and enables data to be exchanged with machines that are connected with in-shop LAN network.

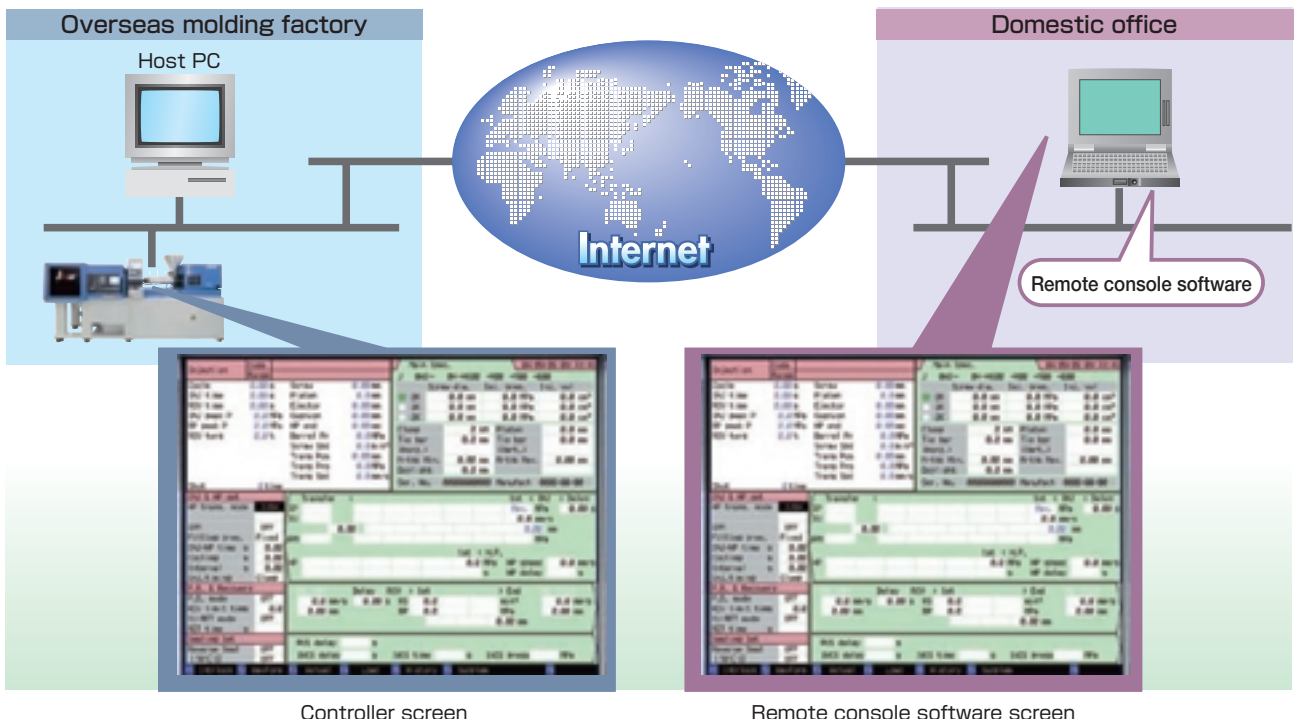
Up to 100 machines can be linked together on the NET100 system and up to 10 machines on the LINK10 system. *Option



Remote management system

If you are in an Internet environment, you can monitor the machine condition, display the controller screens and change the controller settings from anywhere in the world via the NET100 system or

the LINK10 system. Machines in a faraway overseas factory can be monitored over the Internet, which helps promote business efficiency. *Option



Controller screen

Remote console software screen

Specifications

Maintaining the standard of high quality and reliable production

Standard equipment

Standard equipment list

Item		
Injection unit	KC nozzle (Injection units up to 180H) (Note 1)	
	N2000F barrel (Note 2)	
	Corrosion and abrasion-resistant screw (Injection units up to 180H)	
	Cr-plated screw (Injection unit 300H)	
	Screw pull-back	
	Purge cover (with a limit switch)	
	Injection unit swiveling device (with a limit switch)	
	Screw cold start prevention	
	Molding/Pause temperature select	
	Auto purging circuit	
	Nozzle retract select	
	Pull-back select	
	Auto grease lubrication	
	Injection/Metering programmed control	Injection/Holding pressure: 1 to 6 steps (Variable) Metering/Back pressure: 1 to 3 steps (Variable)
	Holding pressure transfer by speed detection (IVS control)	
	Barrel temperature remote setting	
	Barrel temperature control (SSR)	
	Soft Pack Servo control	
	Hopper flange temperature control	
	IWCS control	
Clamping unit	Reverse seal control	
	Holding pressure control select	
	Synchronous temperature rise control	
	Grease-free toggle bushing	
	Auto grease lubrication	
	High-performance platen support	
	Wider platens	
	Flat press platen mechanism (Stationary side/Movable side)	
	Tie bar pre-tensioning mechanism	
	Mold open/close and ejection programmed control	Mold open/close: 4 steps (Fixed) Ejection: 1 to 3 steps (Variable)
	Electric-driven mold thickness adjusting device	
	Mold thickness remote setting	
	Auto clamping force setting	
	Toggle type injection compression function	A-mode B-mode Compression: 1 to 6 steps (Variable)
	Mold protection function	
Clamping safety device (electrical/mechanical)		
Robot mounting holes		

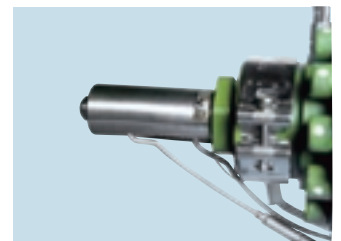
(Note)

- Nozzle of injection unit 300H, tip type nozzle is equipped as standard.
- One set of K, A or B type is equipped as standard.
- The external memory is capable of storing conditions for 1000 molds. Prepare commercial USB data storage media.
- The printer and the printer cables are options.
- Temperature sensors and electric wiring are not included.

Item	
Controller	Touch panel 15" TFT color LCD controller
	120 mold conditions storage (Internal memory) (Note 3)
	Soft start molding
	USB printer port (Note 4)
	Self diagnostics function
	Overall setting screen
	Help function
	Pop-up display
	Pre-heat timer
	Compound action
Monitor	Clock
	Attended/unattended operation select
	Product takeout robot circuit
	Multi-language select (English, Chinese, Japanese)
	Injection pressure overshoot alarm
	Grease lubrication fault alarm
	Servo fault alarm
	Fault alarm buzzer
	Statistical graph
	Actual value display
	Mold temperature display (Note 5)
	Cumulative operating hour display
	Barrel temperature monitor
	Injection pressure monitor (IPM)
	Oscillograph waveform monitor
Injection/Metering waveform monitor	
Production monitor	
Cycle monitor	
Molding condition upper/lower limit monitor (Note 6)	
Injection/Metering waveform storage	
Heater system fault	
Inspection and maintenance (Note 7)	
Alarm history	
Set value history	
Others	Cooling water closed circuit (with a flow indicator)
	Accessories (Maintenance tools and Ejector rods)

- A maximum of 8 items and alarms can be selected out of the following monitor items.
① Cycle time ② Injection time ③ Metering time ④ Cushion position ⑤ Holding pressure end position
⑥ Injection pressure ⑦ Holding pressure transfer pressure ⑧ Screw back pressure
⑨ Metering end position ⑩ Injection start position ⑪ Holding pressure transfer position ⑫ Mold open time
⑬ Mold close time ⑭ Metering torque ⑮ Holding pressure transfer speed ⑯ Mold inner pressure <option>
- Indicates inspection times and items.

KC nozzle



N2000F Barrel



Corrosion and abrasion-resistant screw LSP-2



Screw head



Options list

Options list

Item	
Injection unit	Long nozzle
	Various shut-off nozzles (Note 1)
	KC nozzle (Injection unit 300H)
	M7 screw (High plasticization type) (Note 2)
	HP screw (High dispersion type) (Note 2)
	Corrosion and abrasion-resistant screw (Injection unit 300H)
	Cr-plated screw (Injection units up to 180H)
	One set of screws and barrels for molding optical products
	Special screw (Note 3)
	HT screw head
	One set of screws and barrels for high temperature molding of super engineered plastics
	Barrel insulation cover
	Barrel blower cooling unit
	Hopper (Option for all the region)
	Hopper swiveling device
	Ultra speed injection (Excl. injection units 110H, 180H and 300H) (Note 4)
High-speed injection (Excl. injection units 110H and 180H) (Note 5)	
High holding pressure molding (for long-time holding pressure molding) (Note 6)	
Vented barrel	
Clamping unit	Daylight extension
	Thermal insulation plate for platens (Note 7)
	Various locating rings
	Air jet
	Core pull devices (Pneumatic type and Hydraulic type) (Note 8)
	Unscrewing motor circuit
	Ejector gate cutting device
	Ejector plate return confirmation circuit
	Valve gate device (Pneumatic type and Hydraulic type) (Note 8)
	Product drop detector (Photoelectric)
	Chute
	Rejecting product detecting chute
	Mold setup device
	T-groove plate (Note 7)
Magnet mold clamper (Note 7)	
Mold clamper	

Item	
Electrical instrumentation and control	Other language select (Korean, Spanish and French)
	Simple centralized monitor system LINK10 (Note 9)
	Centralized control system NET100 (Note 10)
	Heater burnout alarm
	Mold temperature display (with mold temperature upper/lower limit alarms)
	Mold temperature control device (with mold temperature upper/lower limit alarms)
Other	Printer (with a printer cable)
	Cooling water open circuit device
	Cooling water failure warning
	Leveling pad for installation
	Rotary warning light
	Export specification (Note 11)
	Designated color (Note 12)

(Note)

9. The LINK10 has actual data collection, molding condition control and remote control functions.
10. The NET100 has quality control and production control functions in addition to the functions that the LINK10 has.
11. Regarding the export specifications, separate discussion is needed in some cases, depending upon the export destination.
12. Designate colors, referring to color samples or Munsell codes.

Examples of optional equipment



(Note)

1. A spring type SVN shutoff nozzle, a pneumatic shut-off nozzle and a hydraulic shut-off nozzle can be mounted. For the hydraulic type, a separate hydraulic unit is needed. For injection units 180H or smaller, a pneumatic shut-off device is provided as a standard option. Regarding the hydraulic shut-off device, discussion is needed separately.
2. Regarding the M7 screw and the HP screw for the injection units 15H and 30H, discussion is needed separately.
3. Regarding special screws, contact us separately.
4. The ultra-speed injection specification applies to the injection units 15H, 30H and 60H.
5. The high-speed injection specification applies to the injection units 15H, 30H, 60H and 300H. The injection speed differs depending on injection unit.
6. The motor is prevented from being overloaded in a long holding time and high holding pressure molding condition.
7. When applied, extended nozzle is required. Note that the usable mold thickness range will change.
8. For the hydraulic type, a separate hydraulic unit is needed.

- The appearance and the specifications of the machine may be altered for improvement without notice.
- Unauthorized reprint from this leaflet is prohibited.
- The photographs in this leaflet include options.