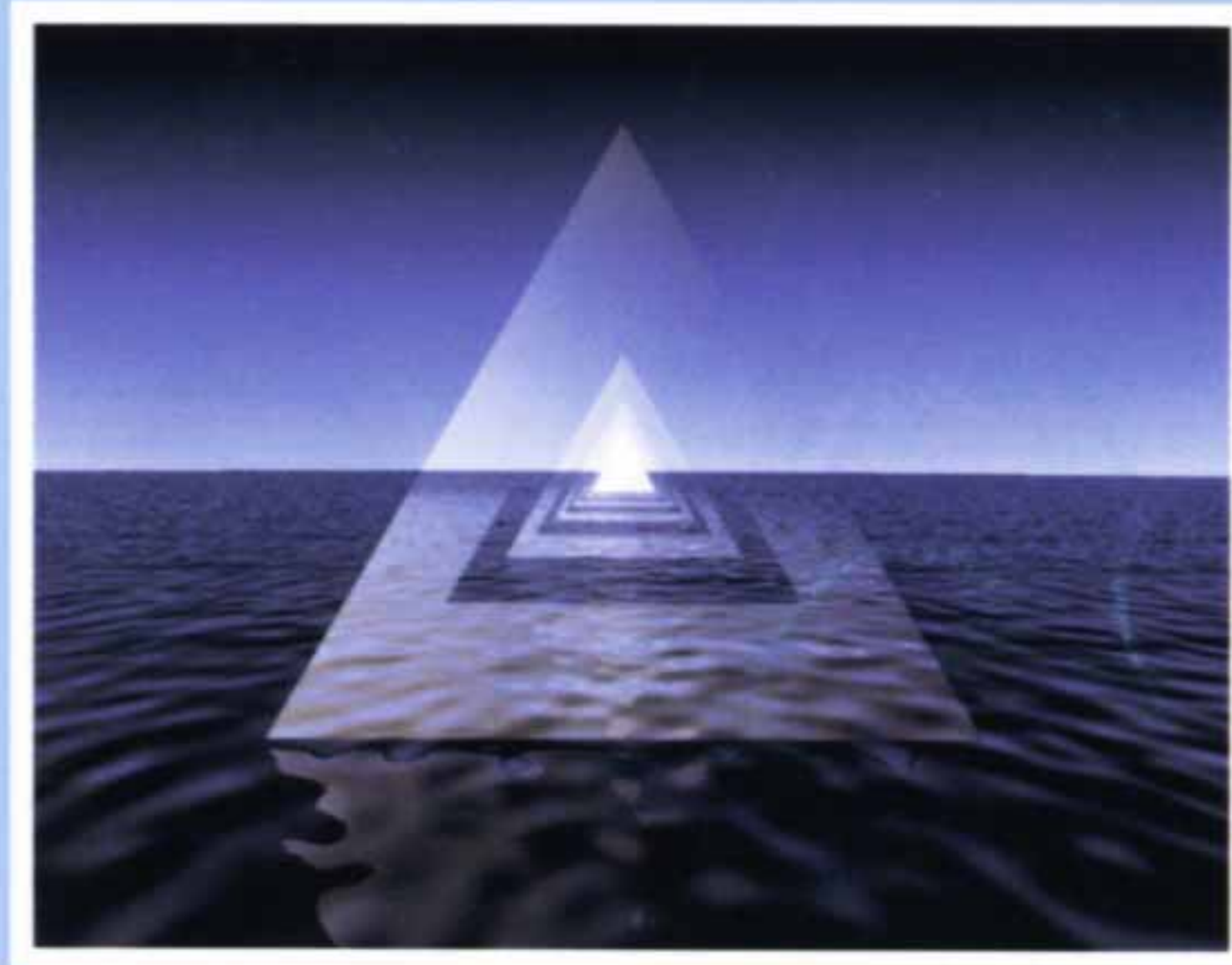


J-EII SERIES



Small & Medium Size
Injection Molding Machine



JSW Hiroshima Plant

JSW



JSW Hiroshima Plant



Let A Dream Come True and the Future in a Visible Form

Here! The Integration of JSW Know-how
and Advanced Injection Molding Techniques

In this high technology society, plastics keep finding an expanding range of applications toward the future of high technology industries, to name a few of them, electric appliances, automotive parts and electronics. The J-EIII Series injection molding machines built by JSW now come with new advanced functional and operational features achieved by adopting the latest technical expertise of satisfied needs based on the build-up of experiences and know-how. It is the prestige machine of JSW which, by utilizing new technologies developed one after another, transforms ever-expanding potentiality of plastics into a realistic form.



H I G H - G R A D E M A C H I N E

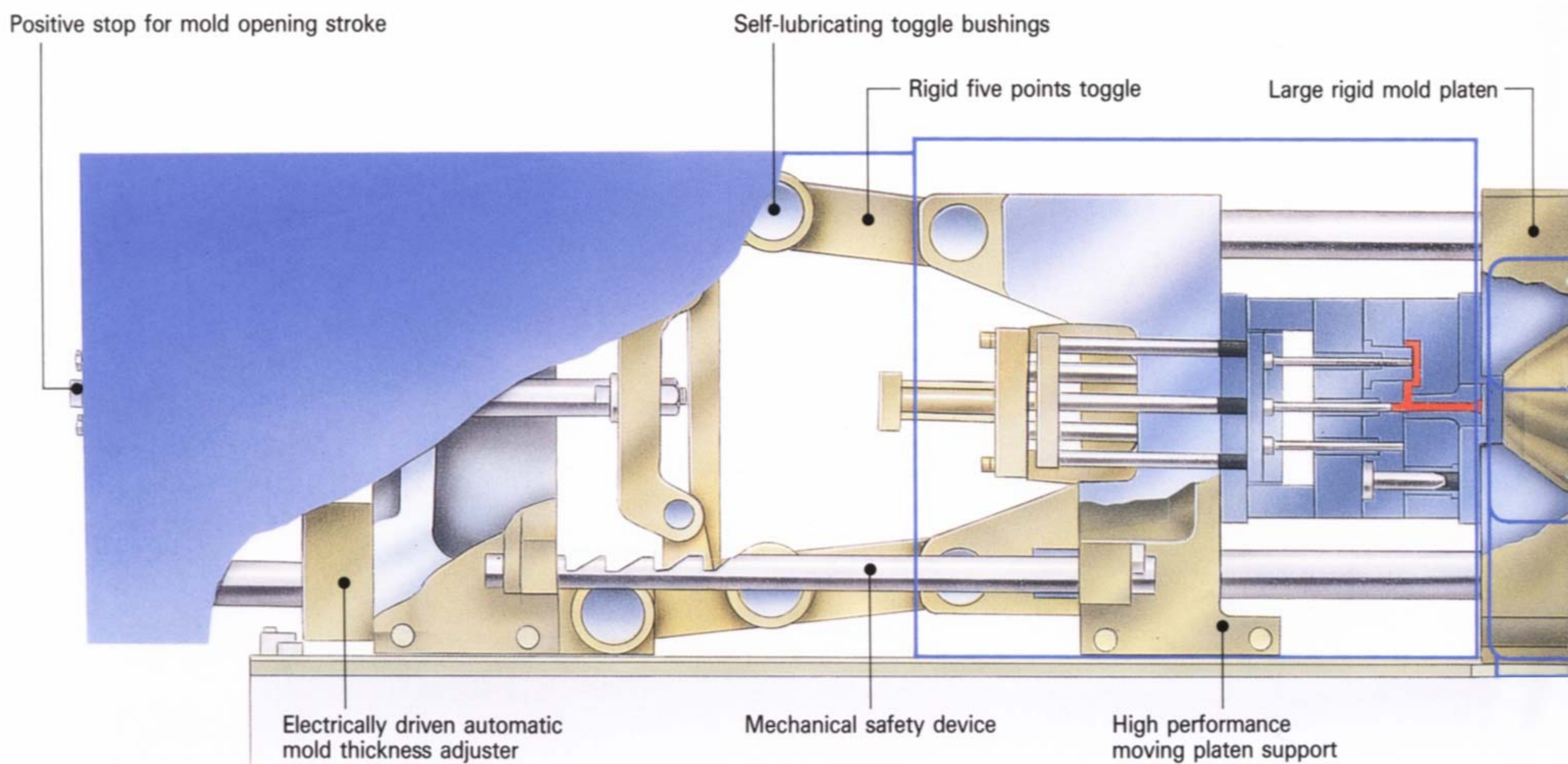
The J-EIII series is the machine which has come out of the fusing of thousands of user's requests and the most modern molding techniques, which JSW believes to be the best of all. Fast cycle molding that directly affects productivity, stable supporting mechanism built by high rigid mold platens and the molding support system which utilizes the sophisticated computer technology.

The machine shows improvements made not only in the basic functions which directly affects the molding operation but many other areas such as operational convenience, safety and environmental factors, for example, energy conservation and space saving. The greatest convenience to users was the basic design concept of the machine with flexibility and high precision.

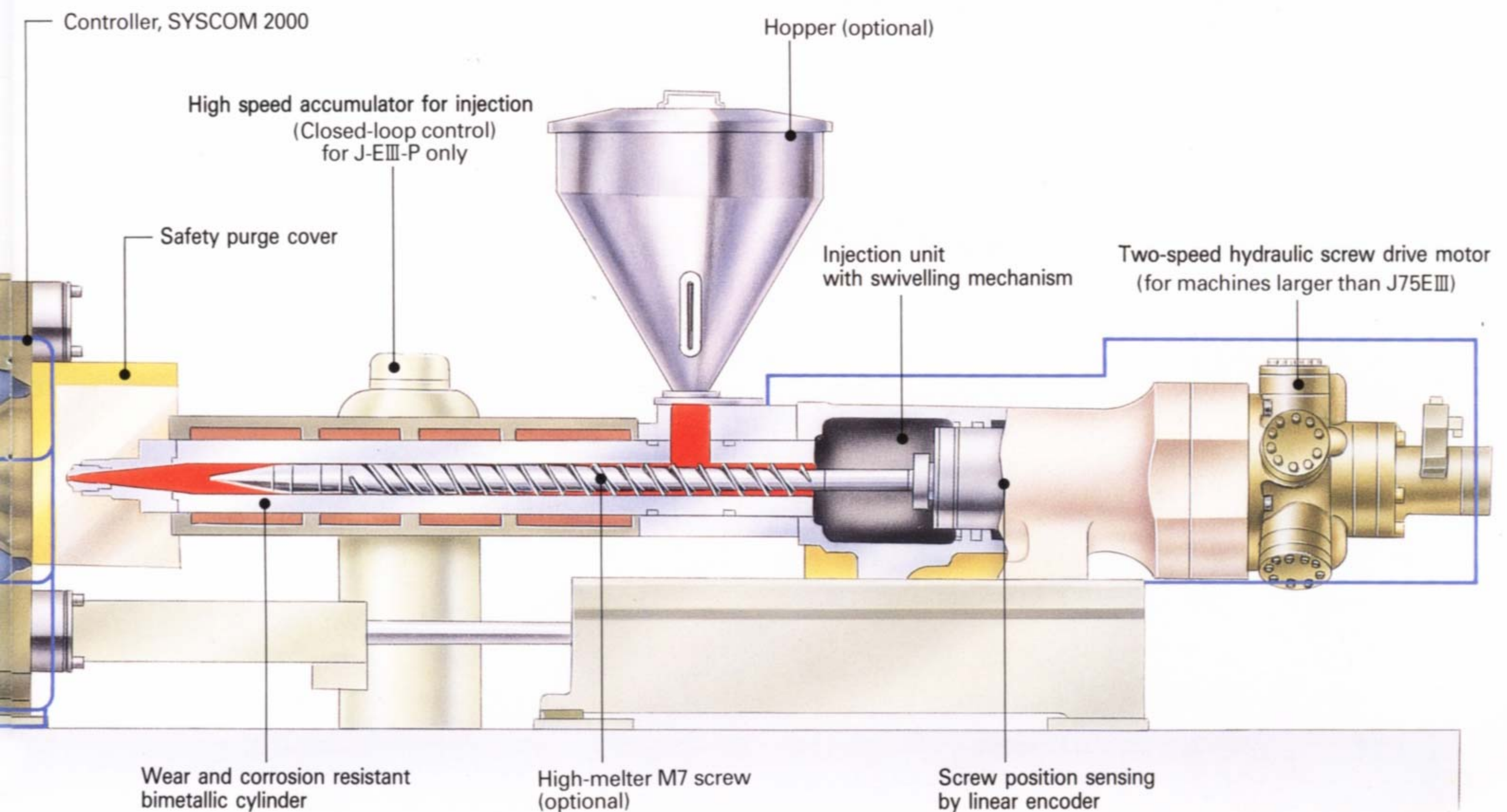
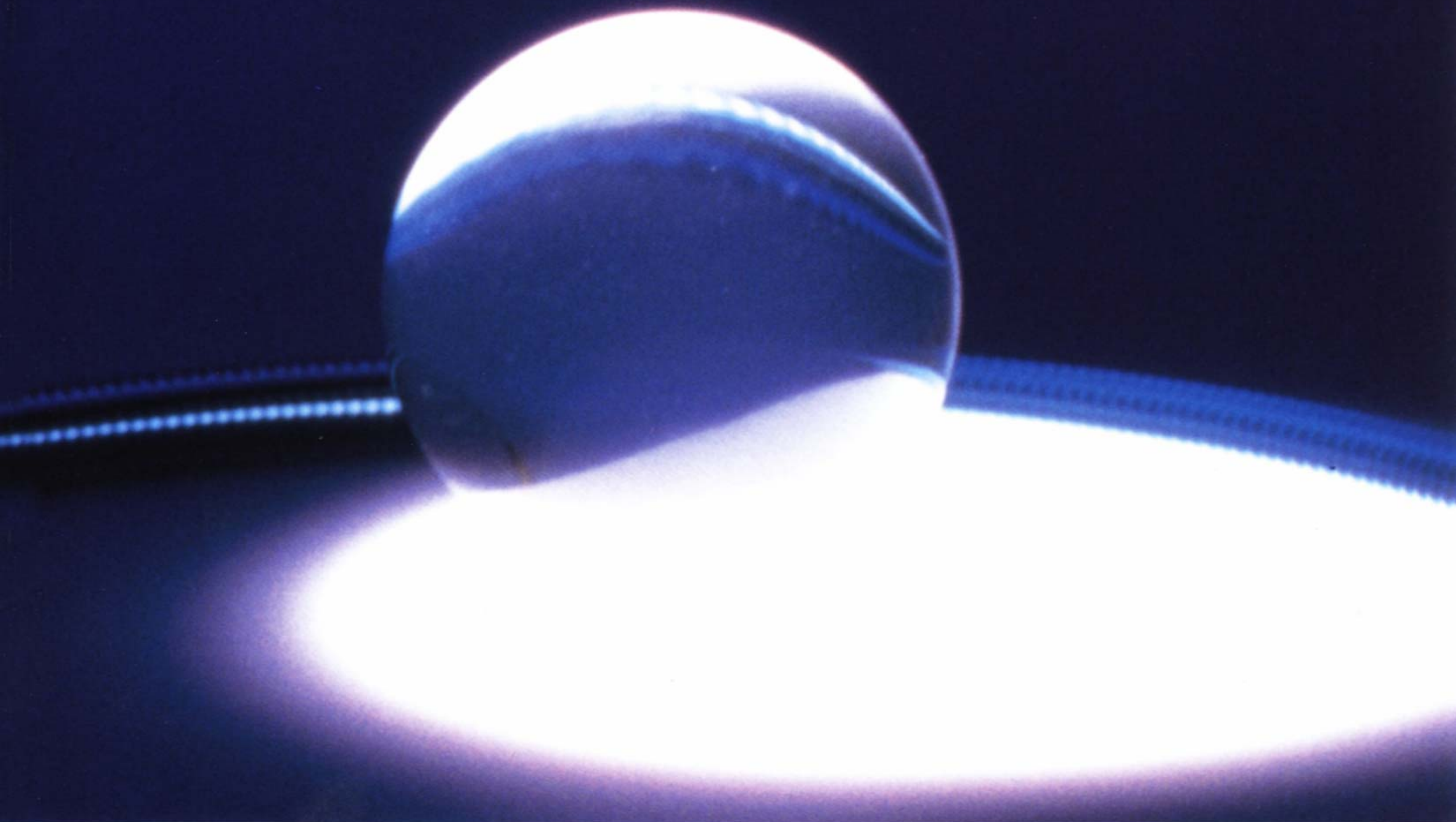
B A L A N C E A N D H I G H

An Ideal Form Presented by the Advanced Mechanism

JSW Believes That a Form may be Refined by "The Assured Technology and Experience".



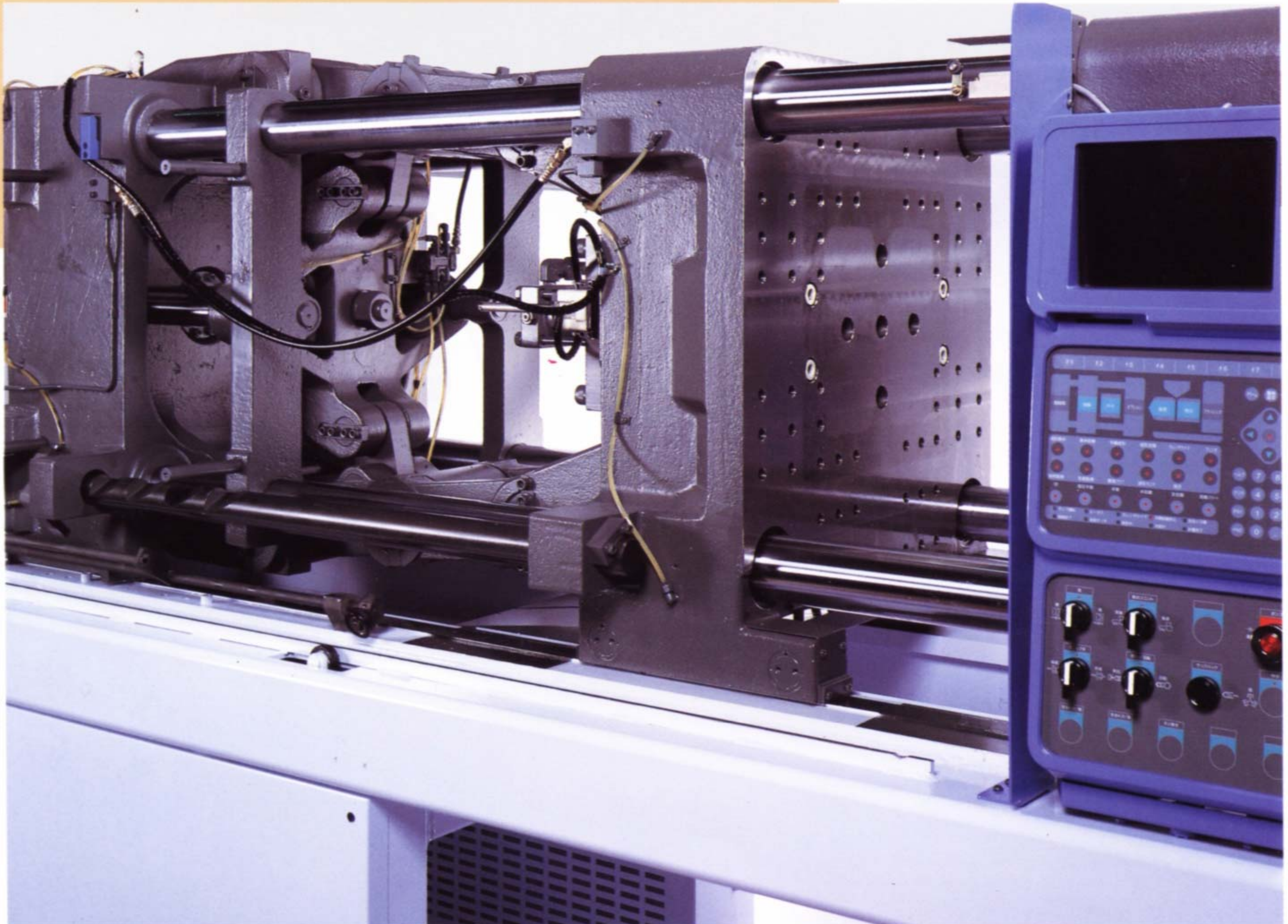
H - P O W E R M A C H I N E



● On J280EIII, J350EIII and J450EIII, the cylinder for injection unit retraction is located in the swivelling unit.

Mold Clamping Mechanism Finely Designed in the Pursuit of High Precision and Operational Convenience

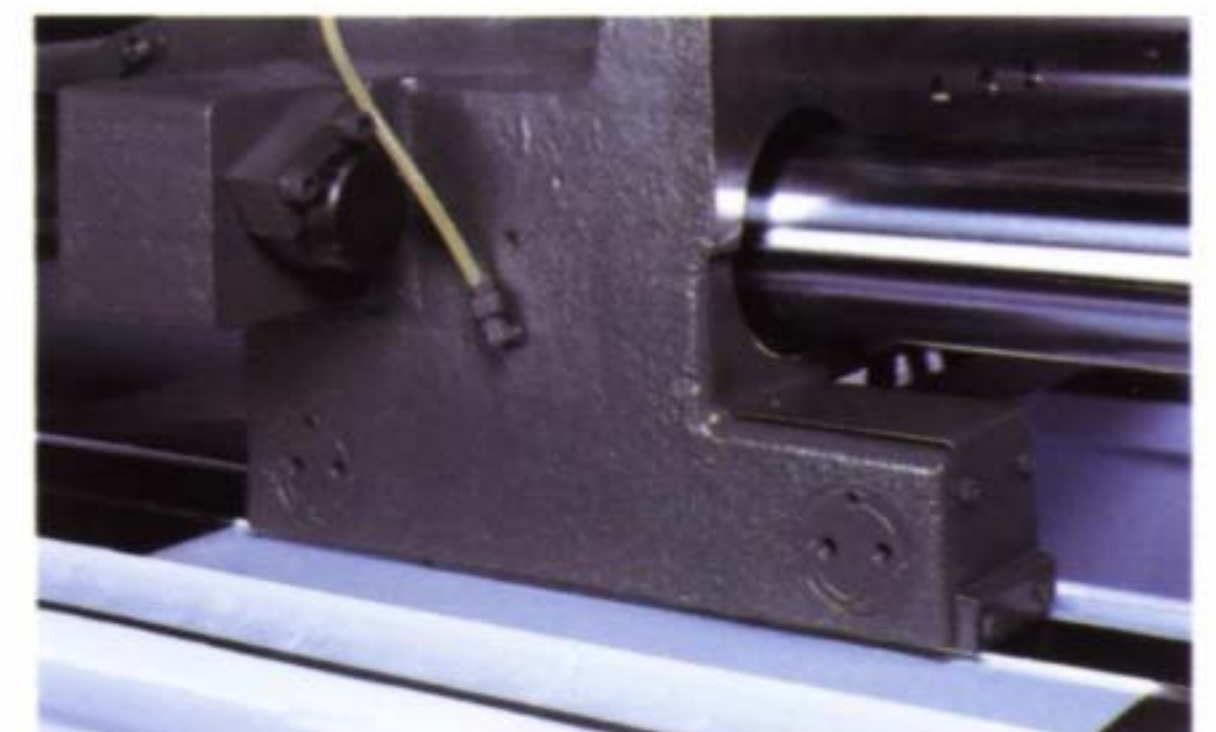
All Remote Setting for Stable Molding Operation to Suit a "Factory Automation" System.



E X C E L L E N T

■ Rigid Mold Platen

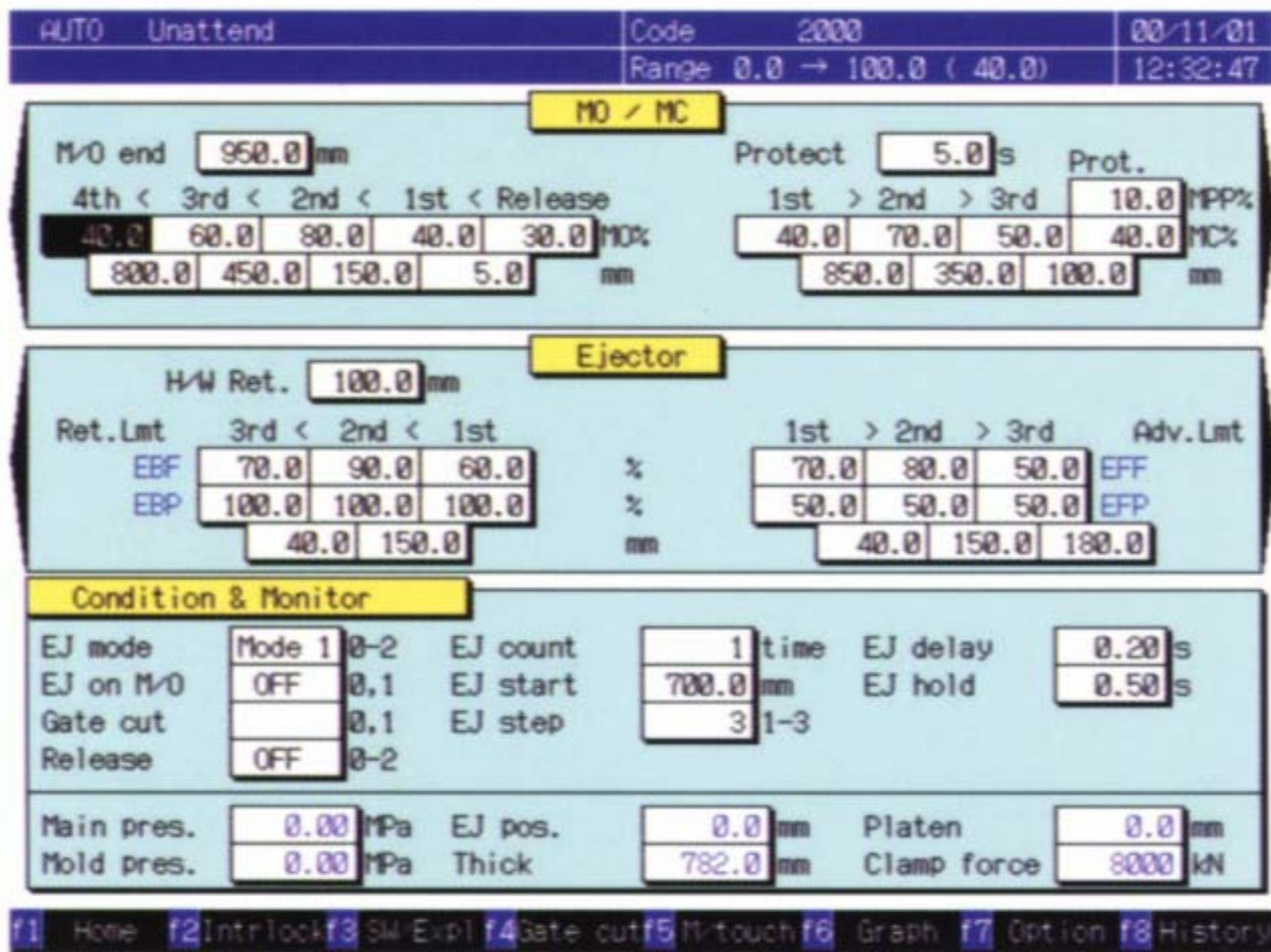
The computer analyzed mold platens have optimum rigidity that matches current needs in precision molding, which minimizes mold deflection caused by clamping force and cavity pressure.



■ Moving Platen Support

(Two Roller System)

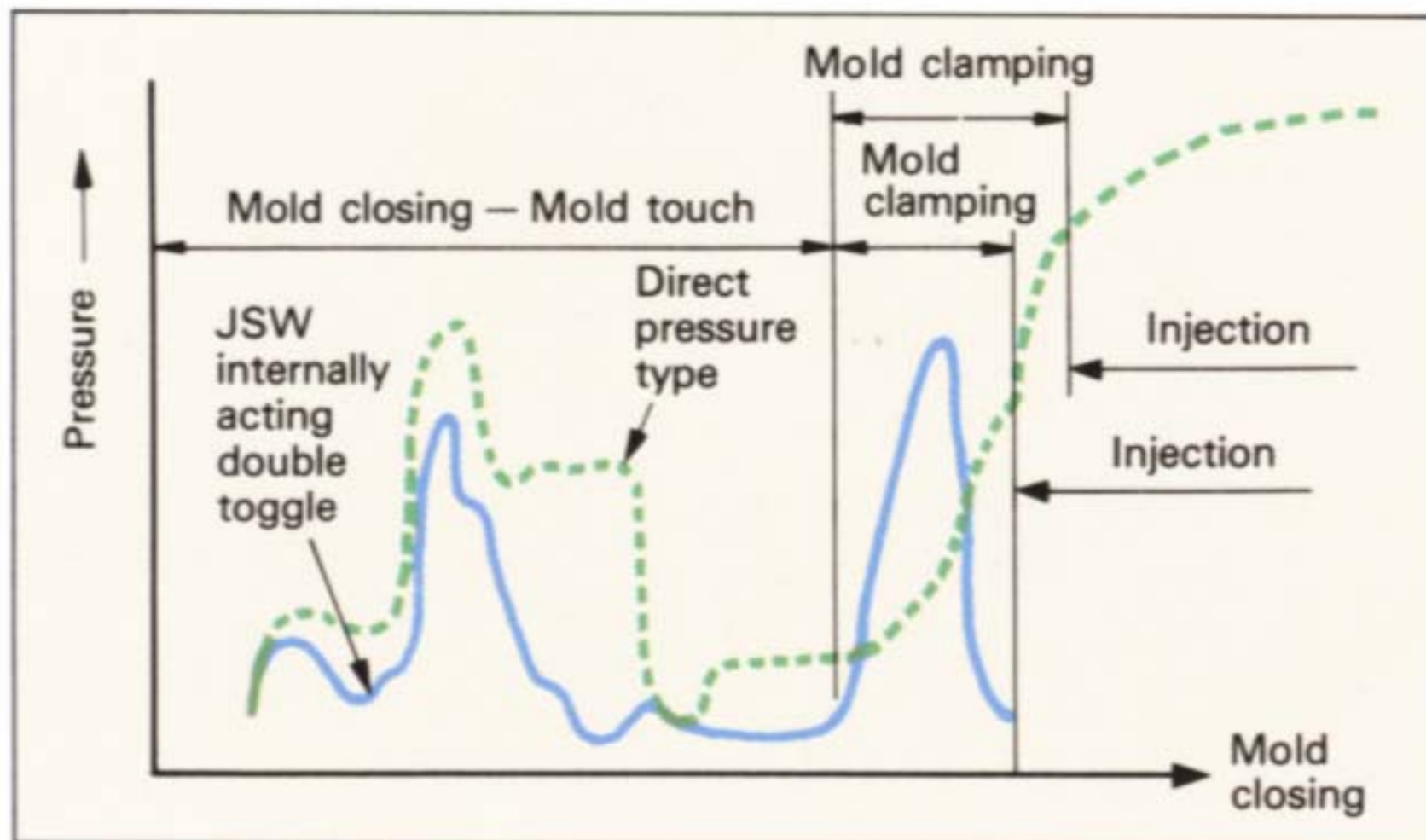
Moving platen tie-bar guide and maintenance-free mold platen support system ensure high parallel accuracy of mold platens and durability, even when heavy molds are mounted.



• Mold close & open set screen

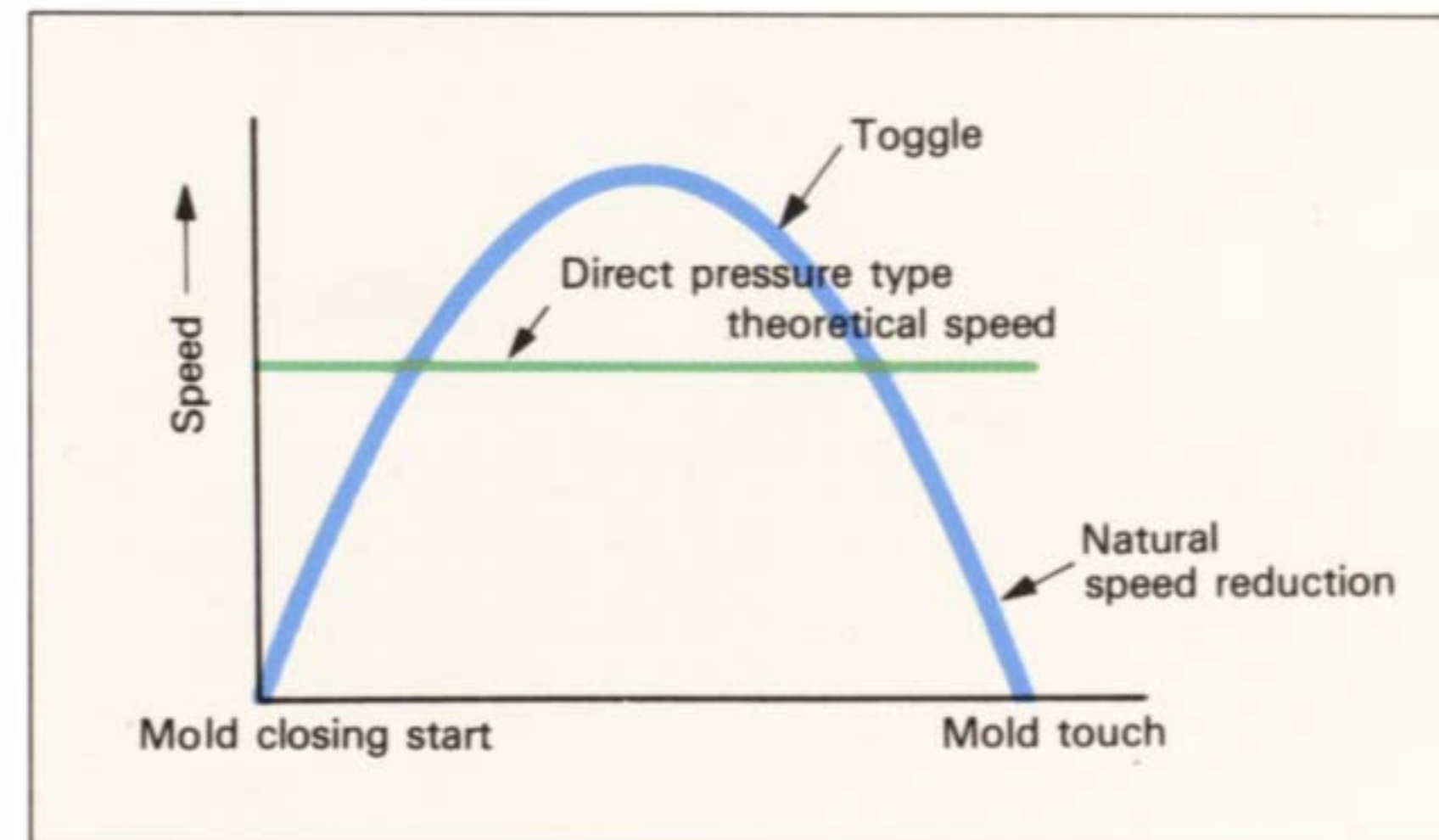
Fast Cycle and Energy Saving

JSW toggle machines have fast mold opening and closing speeds, by using a low load clamping cylinder that results in fast cycle molding and energy saving on power consumption.



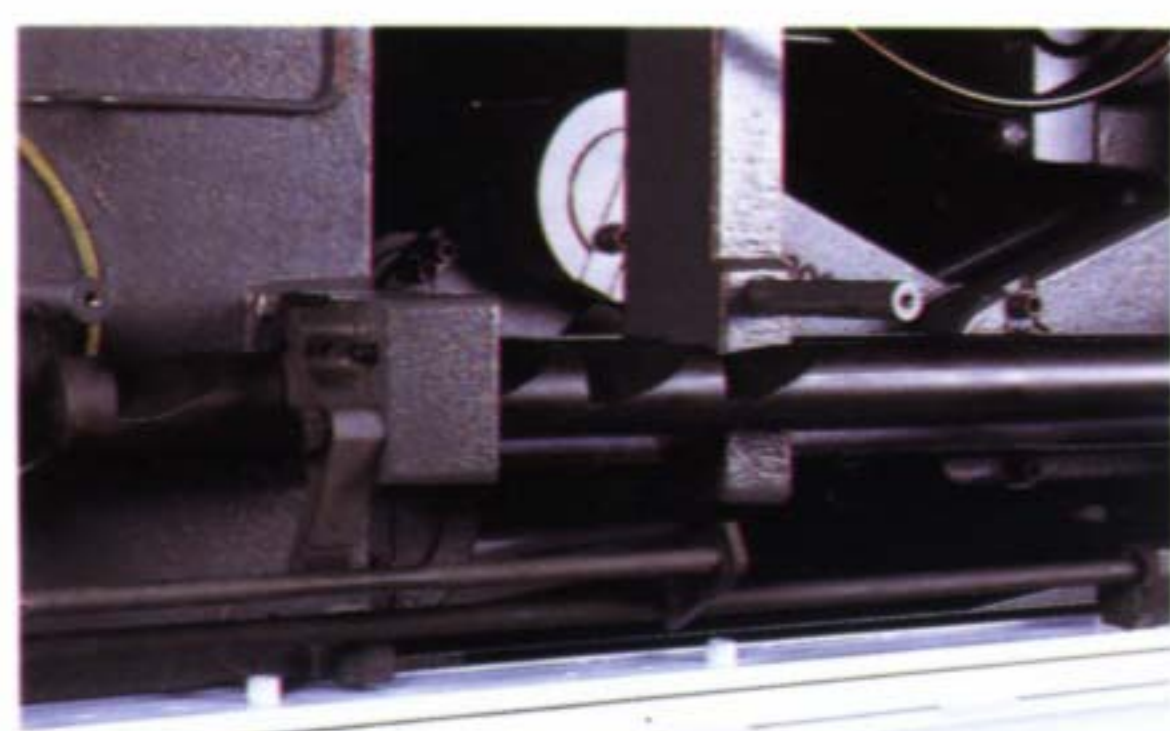
All Remote Setting of Mold Height and Movable Platen

Mold opening and closing speeds, ejector speed and position, mold height adjusting position are all remotely set. Further, by the unique JSW automatic mold clamping force setting function, personal errors in setting are eliminated, moreover repeatability and operational convenience are improved. Full remote setting is possible to adapt the machine for integration into a FA system.



By the natural deceleration of the toggle mechanism, the mold closing speed is automatically reduced before mold touch to avoid any shock and to protect the mold.

C L A M P



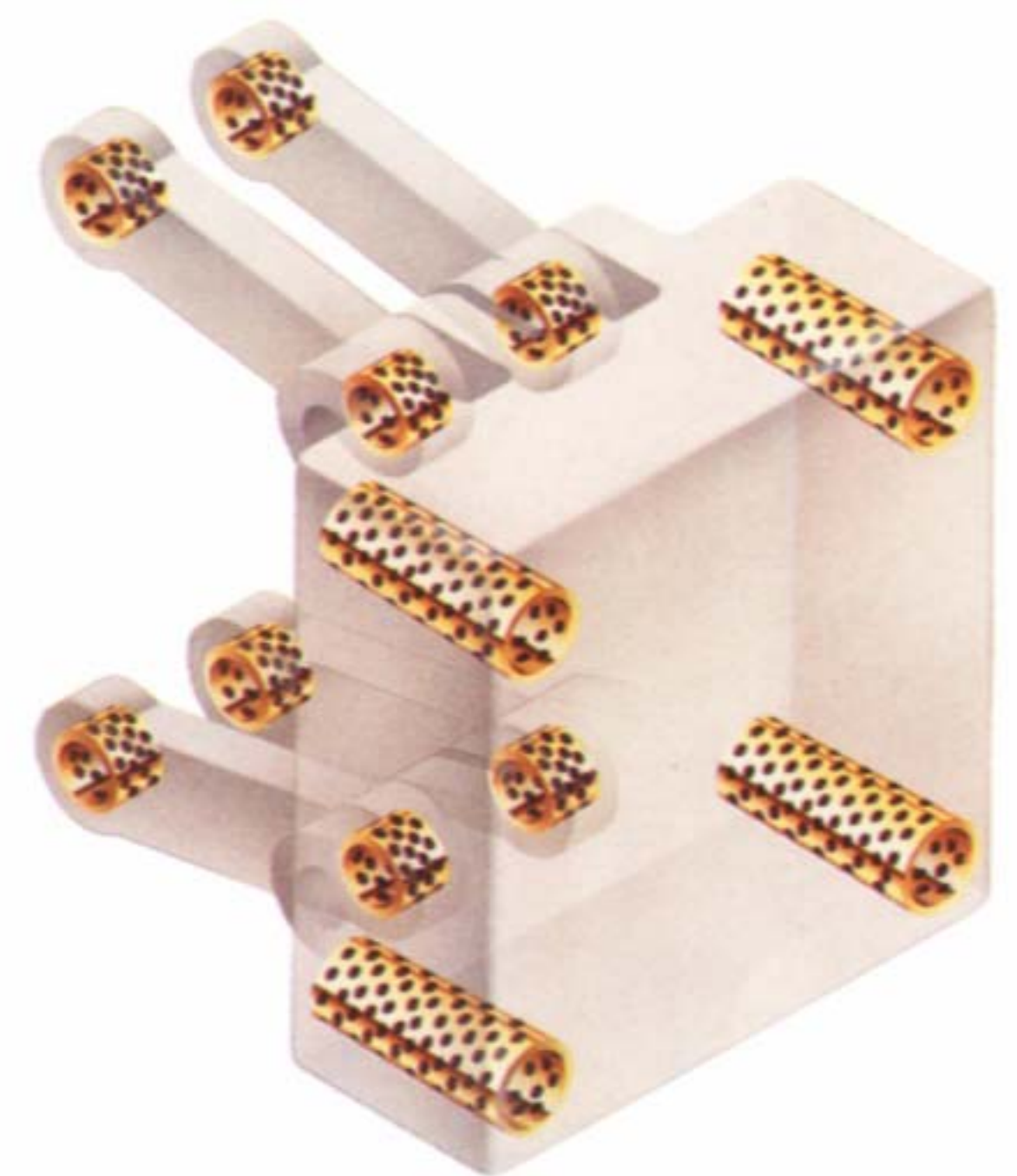
Safety Devices

Machine is equipped with electric, hydraulic and mechanical safety devices. (Patent pending)



Automatic Greasing

Automatic greasing is adopted for the mold clamping unit (of toggle section, movable mold platen, mold height adjusting section). If the grease level lowers in the grease tank or in case of any trouble in the piping, an alarm is sounded for convenience of maintenance service.

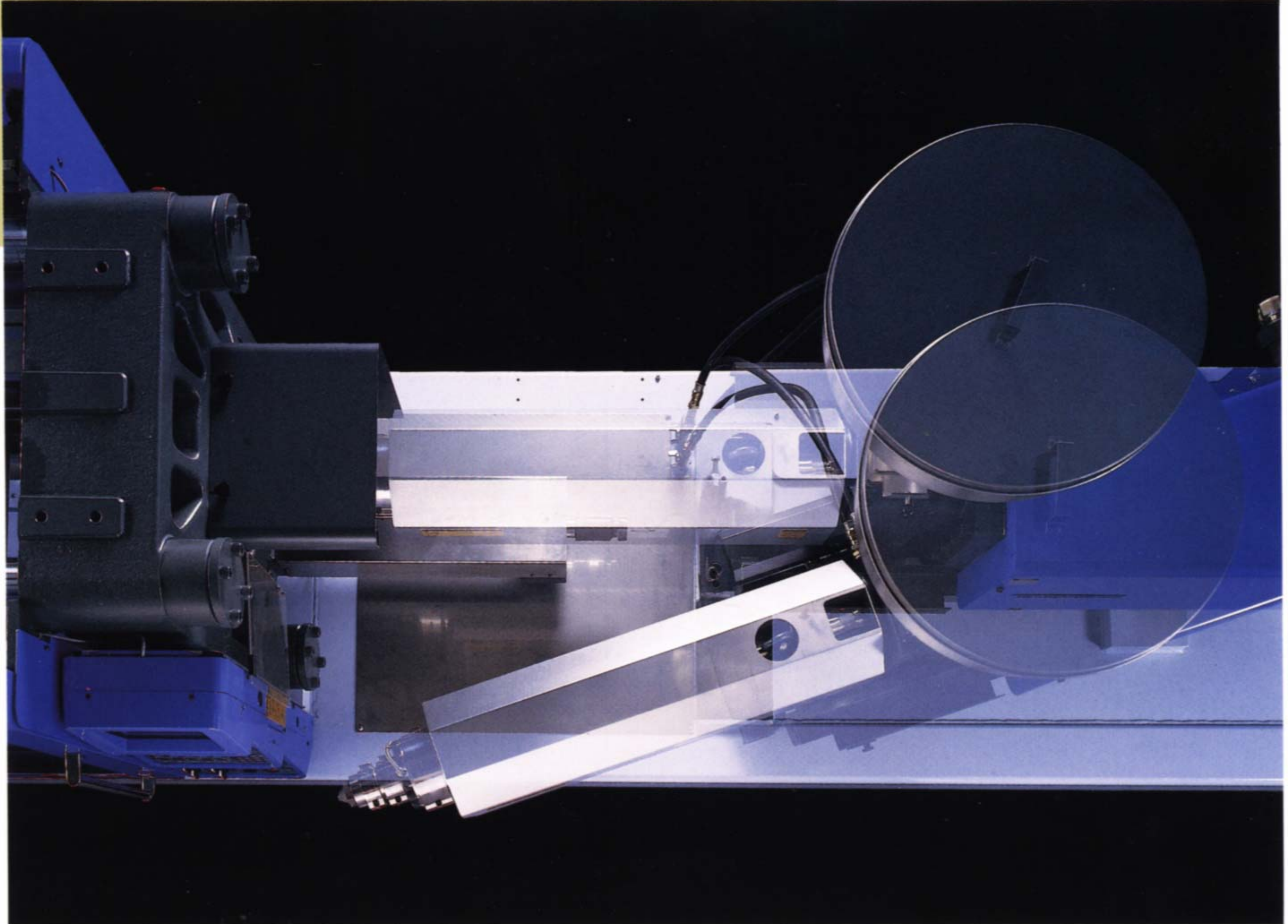


Self-lubricating Bushings with Greasing Time Alarm

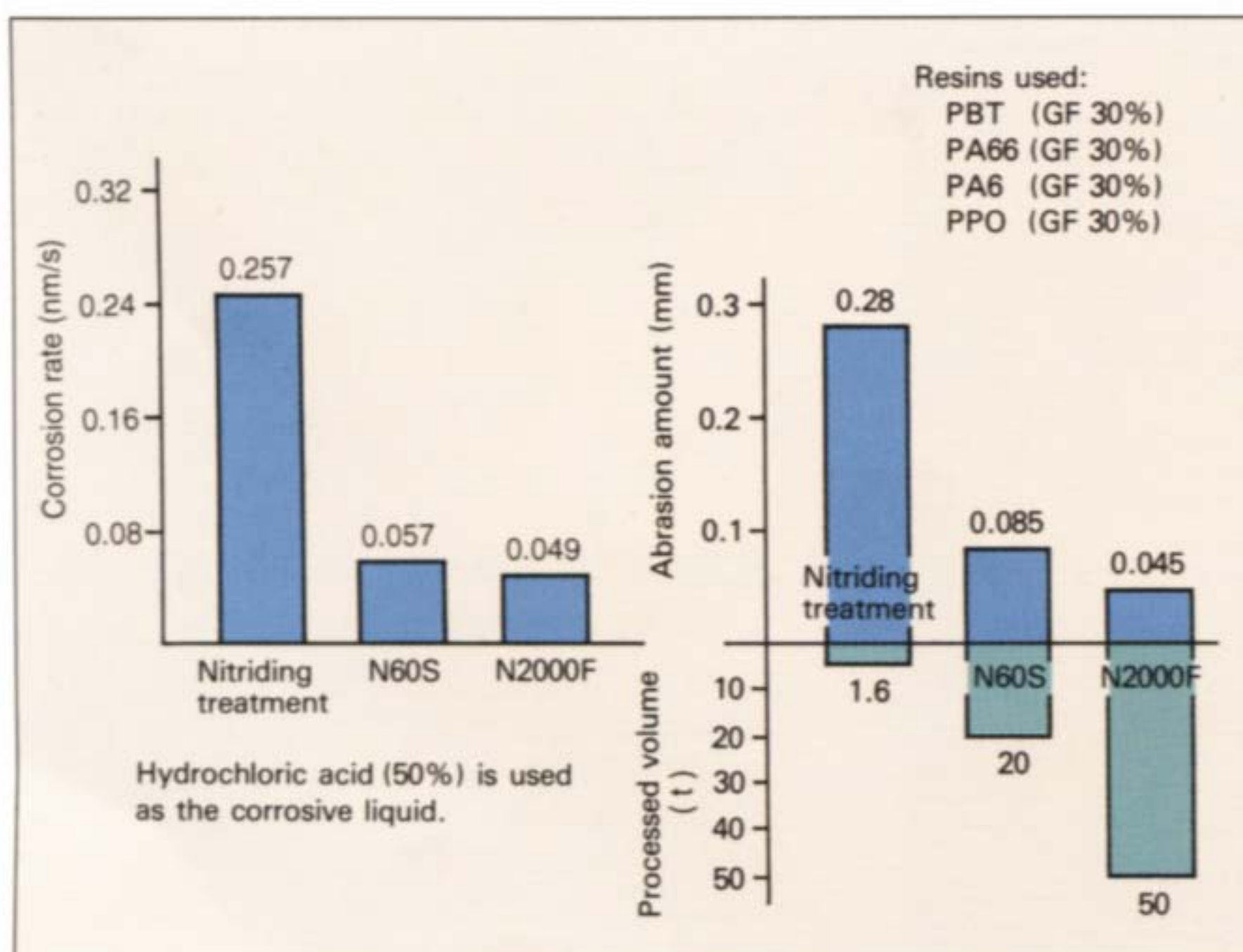
Special self-lubricating bushings are used for the toggle bushing and tie-bar bushing. The toggle mechanism that maintains high precision by periodically supplying grease will result in a cleaner factory and lubrication cost saving.

Injection System to Achieve Low Temperature Uniform Kneading and Fast Cycle Molding

New Design Concepts are Adopted in Many Places, for Example the M7 Screw and a Newly Developed N2000F Cylinder.



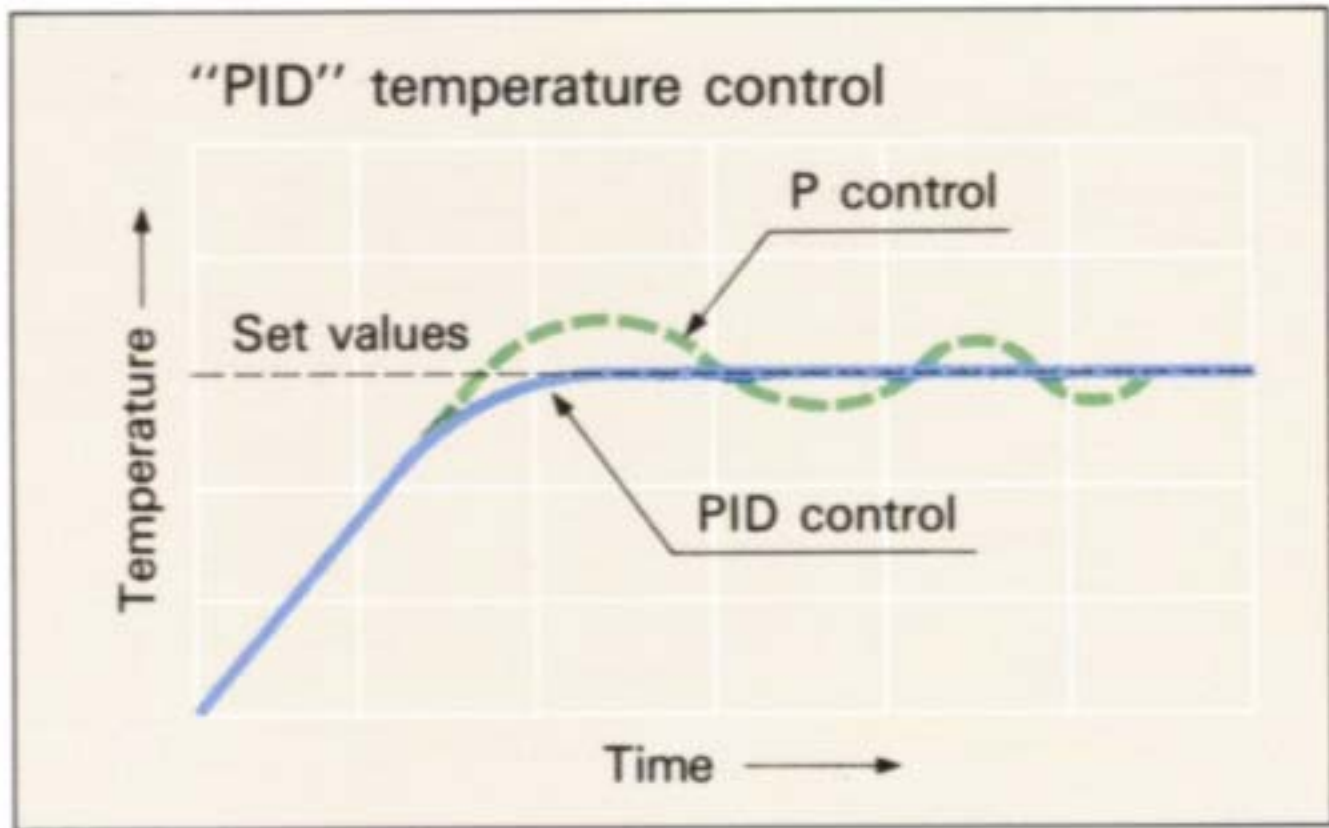
E X C E L L E N T



■ N2000F Cylinder (standard specification)

Newly developed high wear and corrosion resistant bimetallic cylinder N-ally 2000F is a lining material which is based on high nickel content alloy containing hard tungsten carbide through dispersion. As compared with the conventional N-ally 60S, it has higher resistance to abrasion and affords stable injection molding of glass fiber filled, flame retardant filled plastics and super engineering plastics, moreover extends the service life of the cylinder.



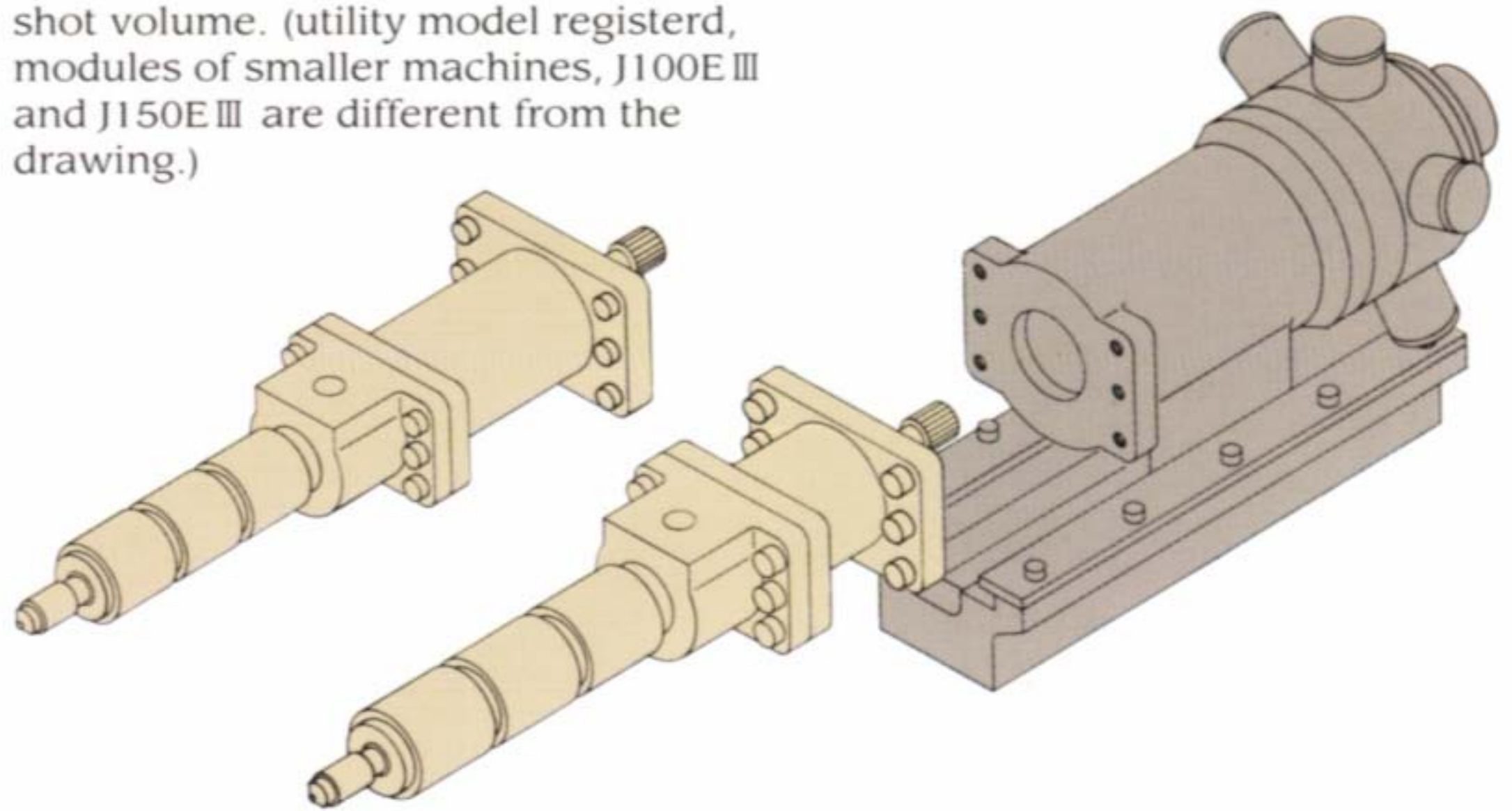


■ PID Temperature Control/Nozzle Temperature Control (SSR)

By the quick response to temperature changes, overshooting is reduced to ensure precise temperature control. As a SSR (Solid State Relay) is adopted for the nozzle section, deviations of actual temperatures from the setting are eliminated to provide stable temperatures at all time.

■ Cylinder Module System (optional)

Two machine sizes smaller screw cylinder can be mounted for small shot volume. (utility model registered, modules of smaller machines, J100E III and J150E III are different from the drawing.)



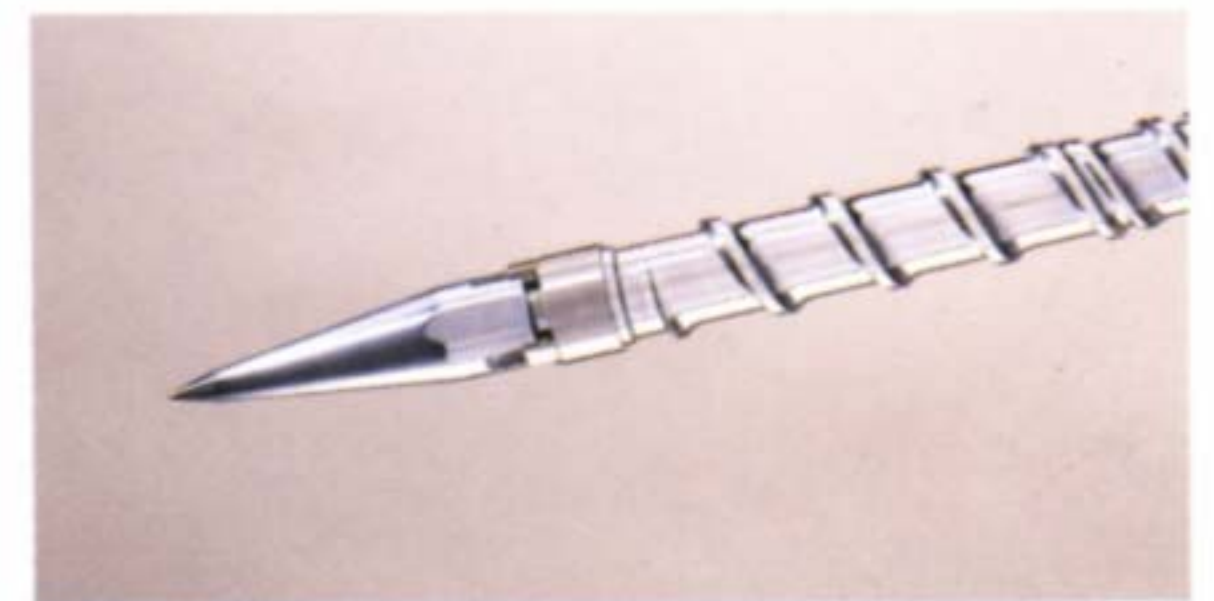
■ GP2 Screw (standard specification)

The newly equipped GP2 screw is an improved version of the full-flighted GP screw of JSW original and features improved kneading performance.



■ HT Screw Head (optional)

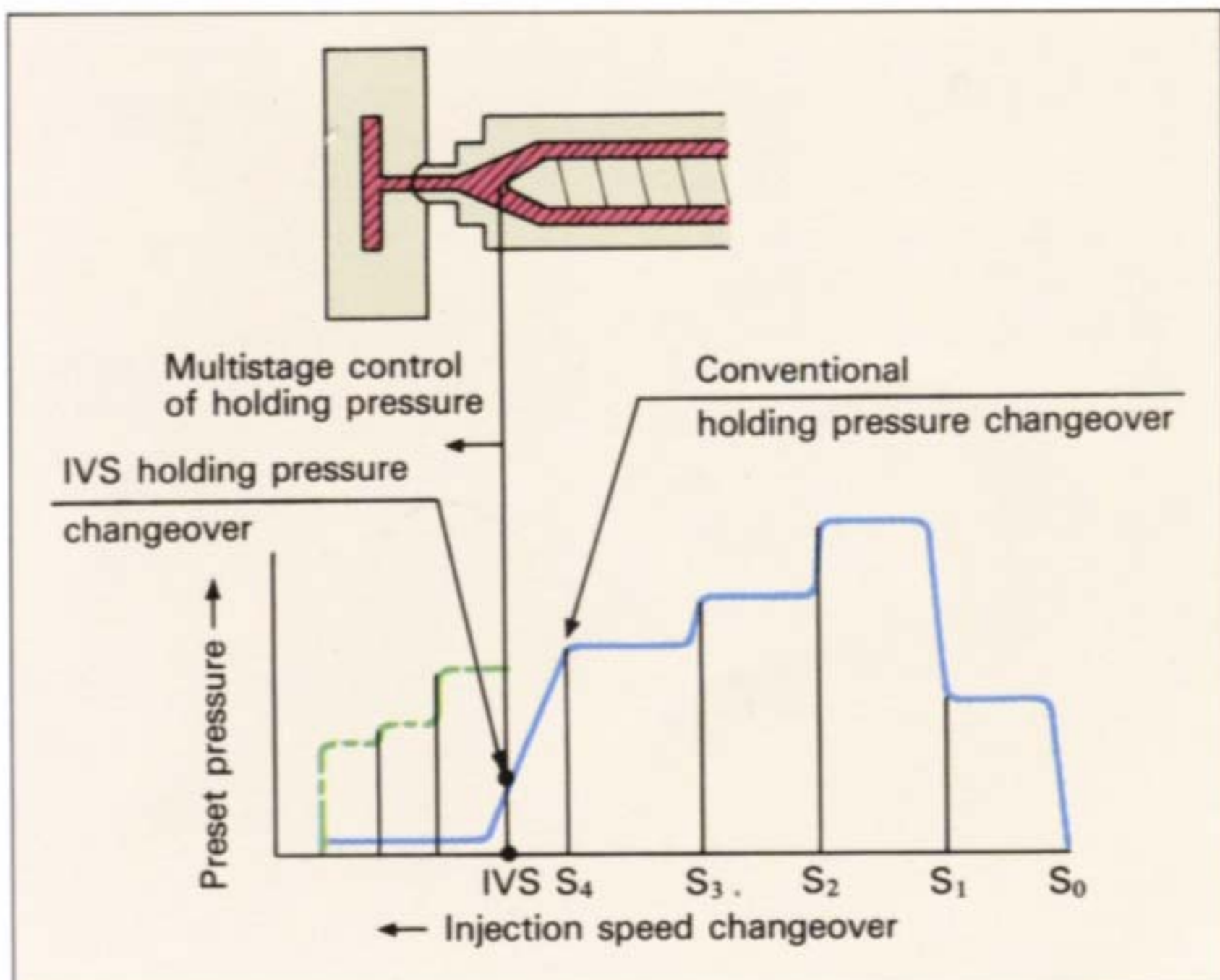
This HT screw head is useful for precision and stable molding. As compared with the conventional screw heads, the clearance between the cylinder and non-return ring is decreased to the minimum, so that the back flowing resin is decreased to the minimum during injection filling to keep the cushion very accurate.



■ M7 Screw (recommended optional)

The M7 screw, as compared with the conventional MII screw, offers improved uniform kneading and plasticizing capacity at lower temperatures. It is best suited for ultrahigh precision and fast cycle molding.

M E L T



■ "IVS Control" Holding Pressure Changeover

Changeover to holding pressure is done by sensing the screw speed slowdown immediately before cavity filling. As compared with the conventional methods, fluctuations of shot weight are reduced by half, making the system quite suitable for precision molding.

• Comparison of Parts Weight Deviation Between IVS Changeover and Standard System

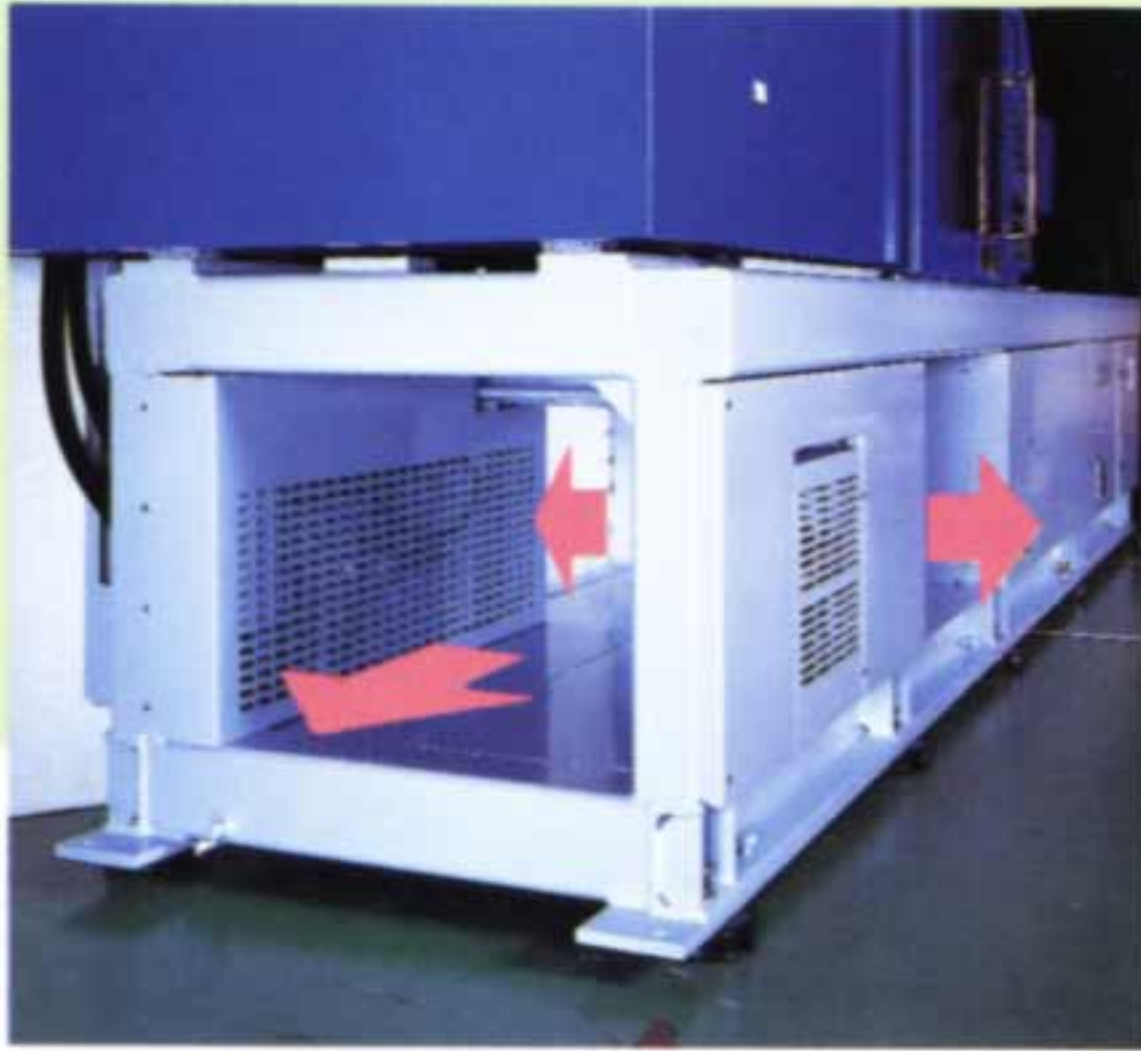
Holding pressure Transfer Method	IVS	Standard
Parts Weight (g)	$\bar{X} = 120.851$ $R = 0.09$ $3\sigma = 0.067$	$\bar{X} = 120.887$ $R = 0.190$ $3\sigma = 0.111$

Machine: J150E III
 Product: Visiting card case
 Material: ABS resin

Space Saving and Energy Conservation Realized by Unique Designing with Environmental Protection Consciousness

Cost Performance and Safety Improved and Plus Much More.

Space Saving Design



● Tri-directional product take-out
(two-directional take-out for machines of J350E III and J450E III)



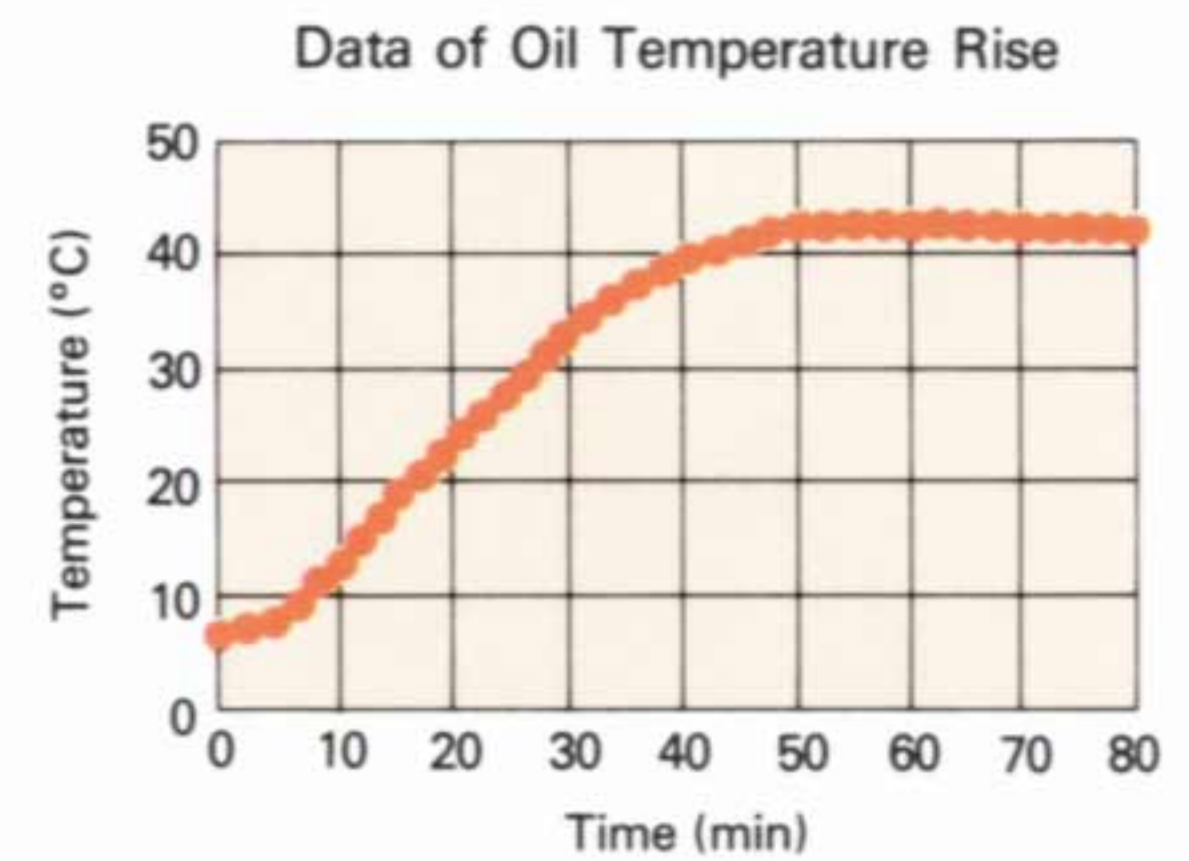
● Fitting of a temperature controller
(Mold temperature controllers are optional)



● Fitting of a molded parts conveyer
(Conveyor is optional)

Hydraulic Oil Preheating Circuit

When the machine is started, temperature of oil is forcibly raised to reduce the time that is required before the operation becomes stable. An automatic cut-off circuit is provided to unload the pumps automatically when the oil temperature reaches the set point.

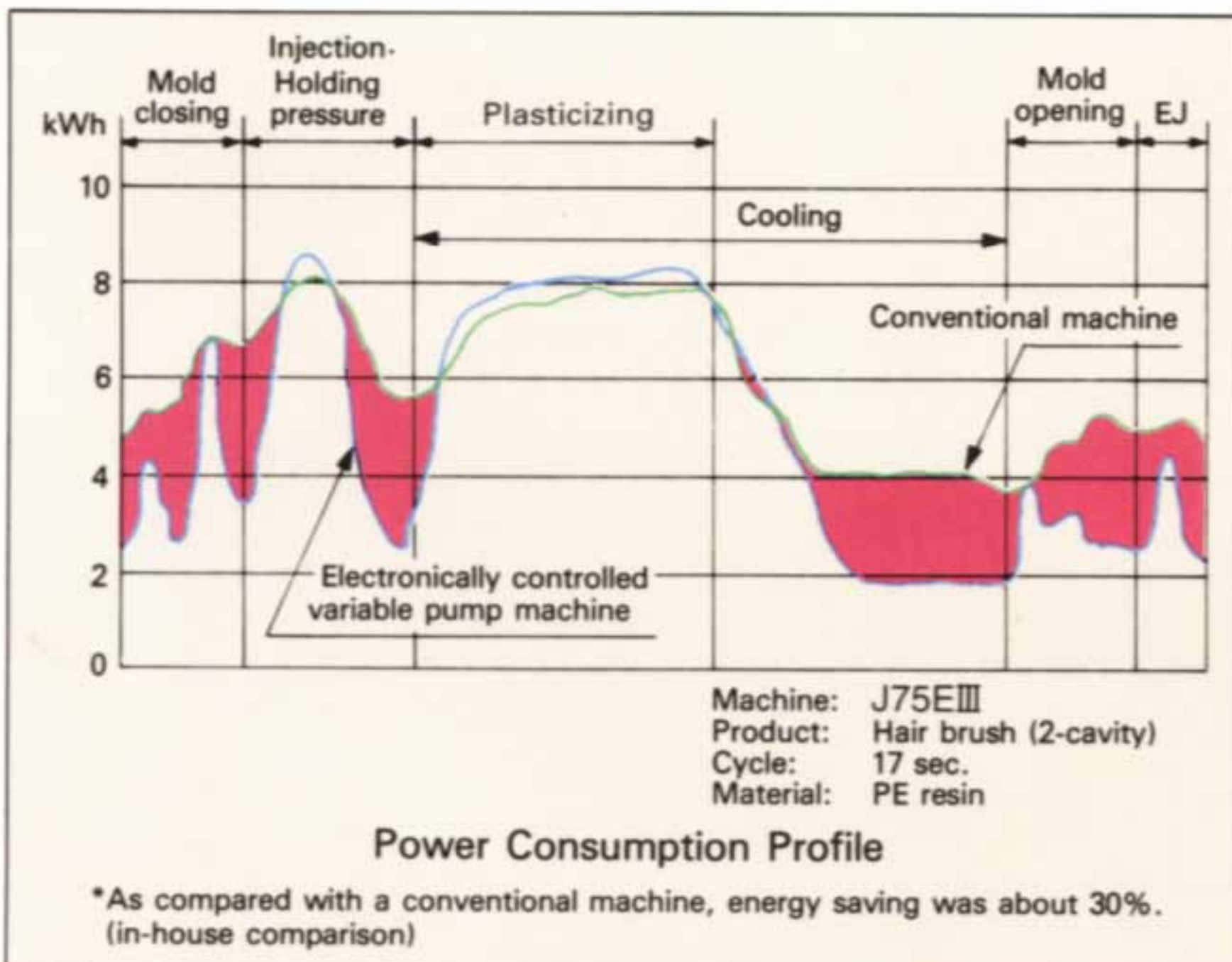
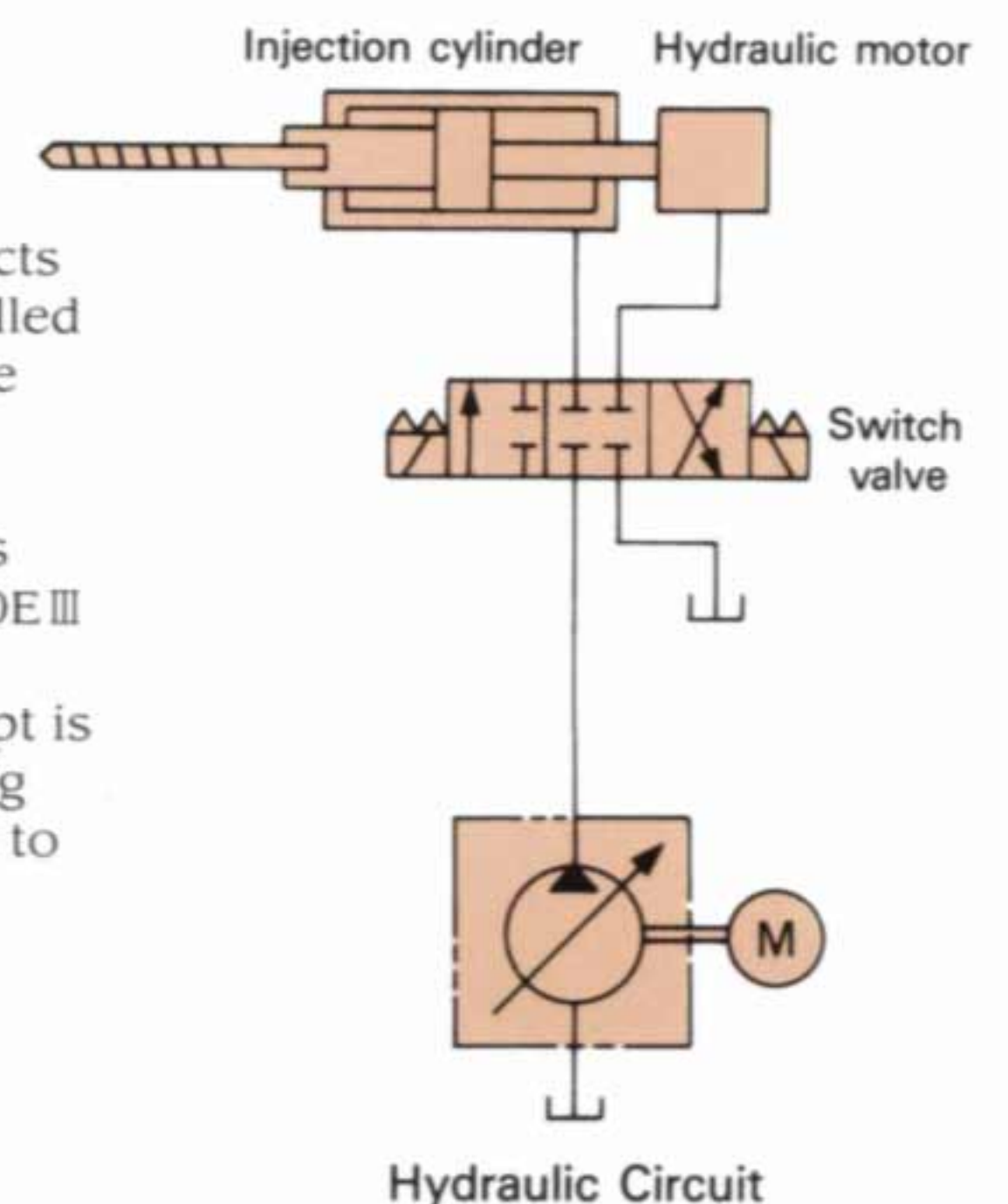


E X C E L L E N T

JSW Energy Saving Pumping Systems

(for J100E III and smaller)

By the minor feedback effects of the electronically controlled variable pump, the pressure and speed stability is improved, moreover the energy conservation effects are also increased. (on J150E III and larger, an energy conservation design concept is adopted as before by adding the pump unloading circuit to the multipump selection.)



A Highly Reliable Controller Able To Meet The Molding Needs of One and All

To Support High-performance Molding Ease of Operation, SYSCOM2000



■ SYSCOM 2000

■ TFT Color LCD with Touch Panel

A big TFT color LCD screen (10.4 inch) has been added. This provides a clear picture for operator-friendly viewing. The dialog-type operation means that conditions can be set easily, simply by touching the location that requires setting.

■ Easy touch panel uses a pictorial display

Molding machine for easy process parameter settings. User friendly design facilitates learning, and daily operation. (Memorize 40 mold with internal memory and a data card.)

■ Built-in Controller

Mounted on the stationary platen, the SYSCOM 2000 controller uses a large color liquid crystal display and operation keyboard eliminating unnecessary wasted space around the machine, giving the operator easy access to all functions.

■ Language Switching Function

In response to globalized needs, the screen can be switched from Japanese to English. Also, other languages are available as options.

Notes: Some languages are not available

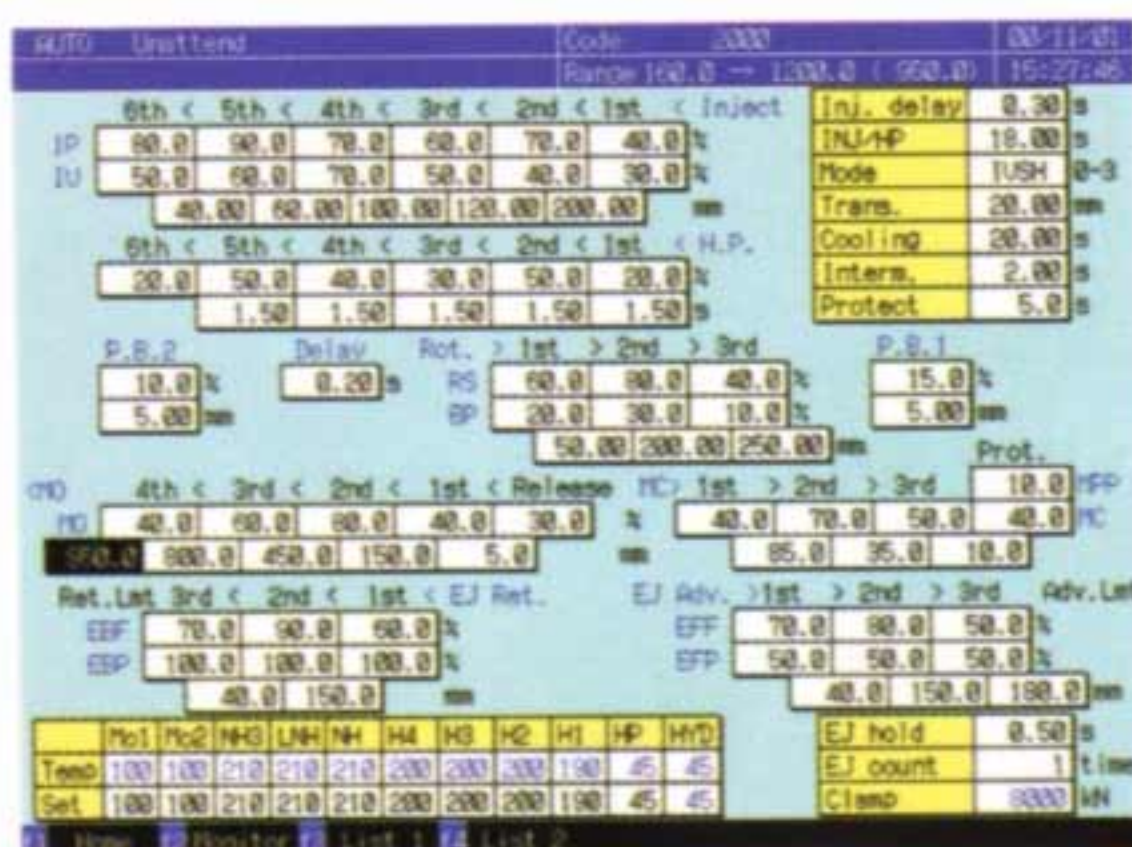
■ Print-out

With a printer connection, it is possible to keep records of molding conditions, measured data of various sorts and injection wave form.

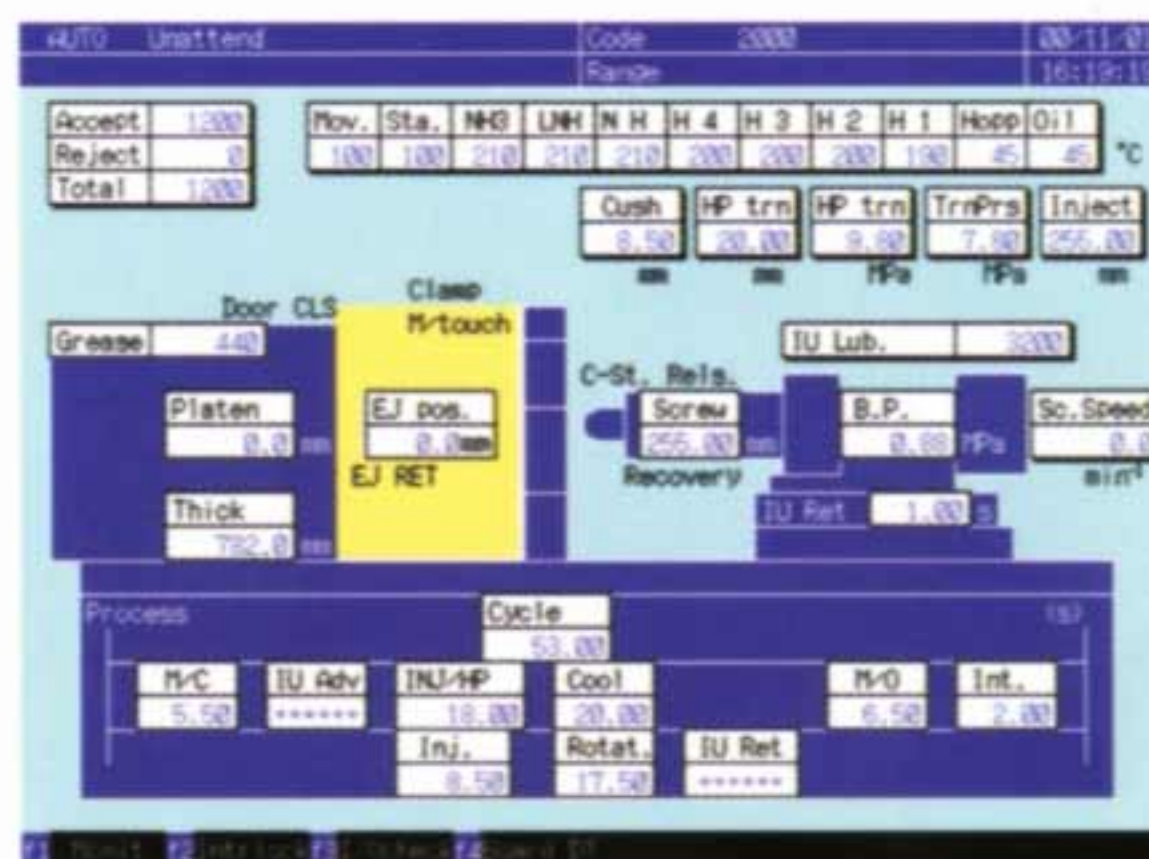
■ Centralized Control System (option)

A network may be built with a host computer.

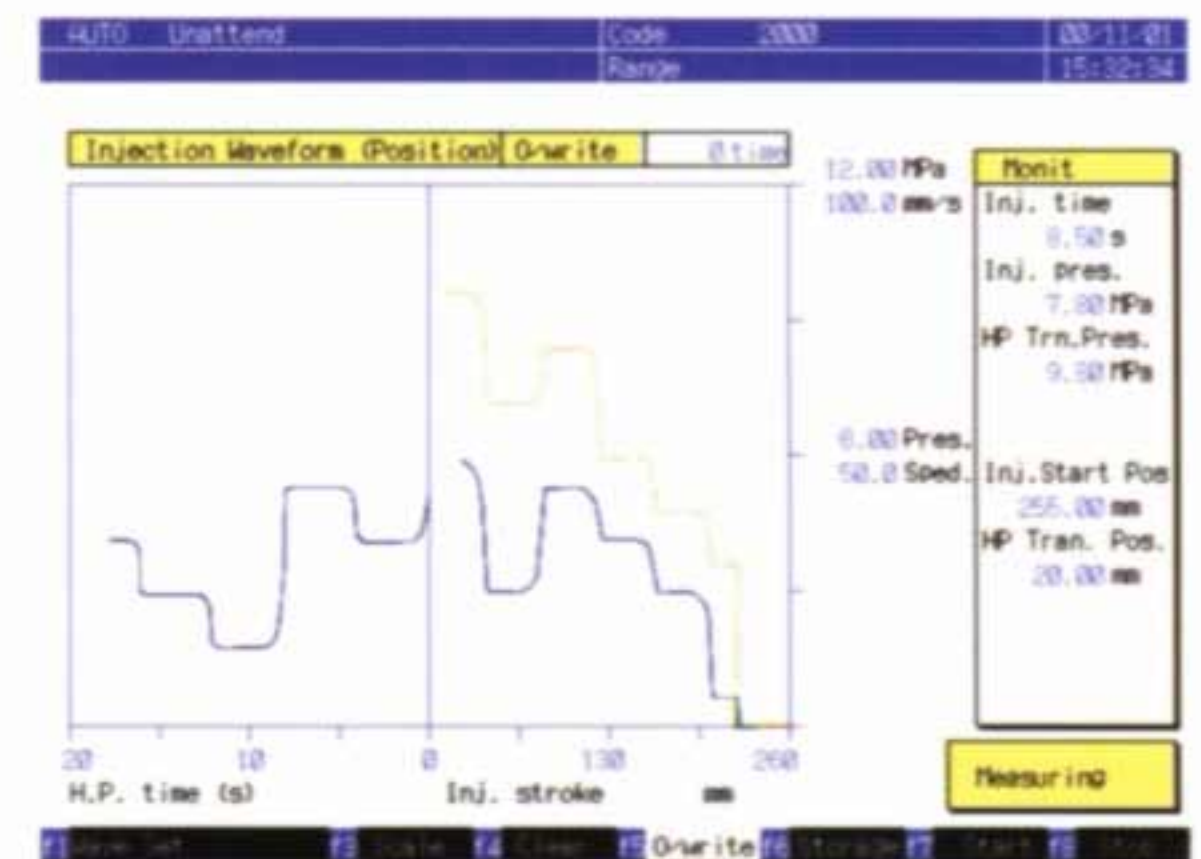
H Y D R A U L I C



• Overall set up



• Action monitor



• Wave form monitor

High Response Control To Meet Demands of Molding at Optimum Pressure, J-EIII-P

Adoption of the Soft Pack Servo System Has Realized Stable Molding at Optimum Pressure.



High Speed Accumulator and Servo Injection

An accumulator injection circuit unique to JSW and the closed-loop control by the high performance servo valve have realized high speed, high response and high stable operation. This satisfied the needs of increased filling rate in the molding with multi cavity and thin-wall molding (machines of J50EIII-P to J220EIII-P are available).

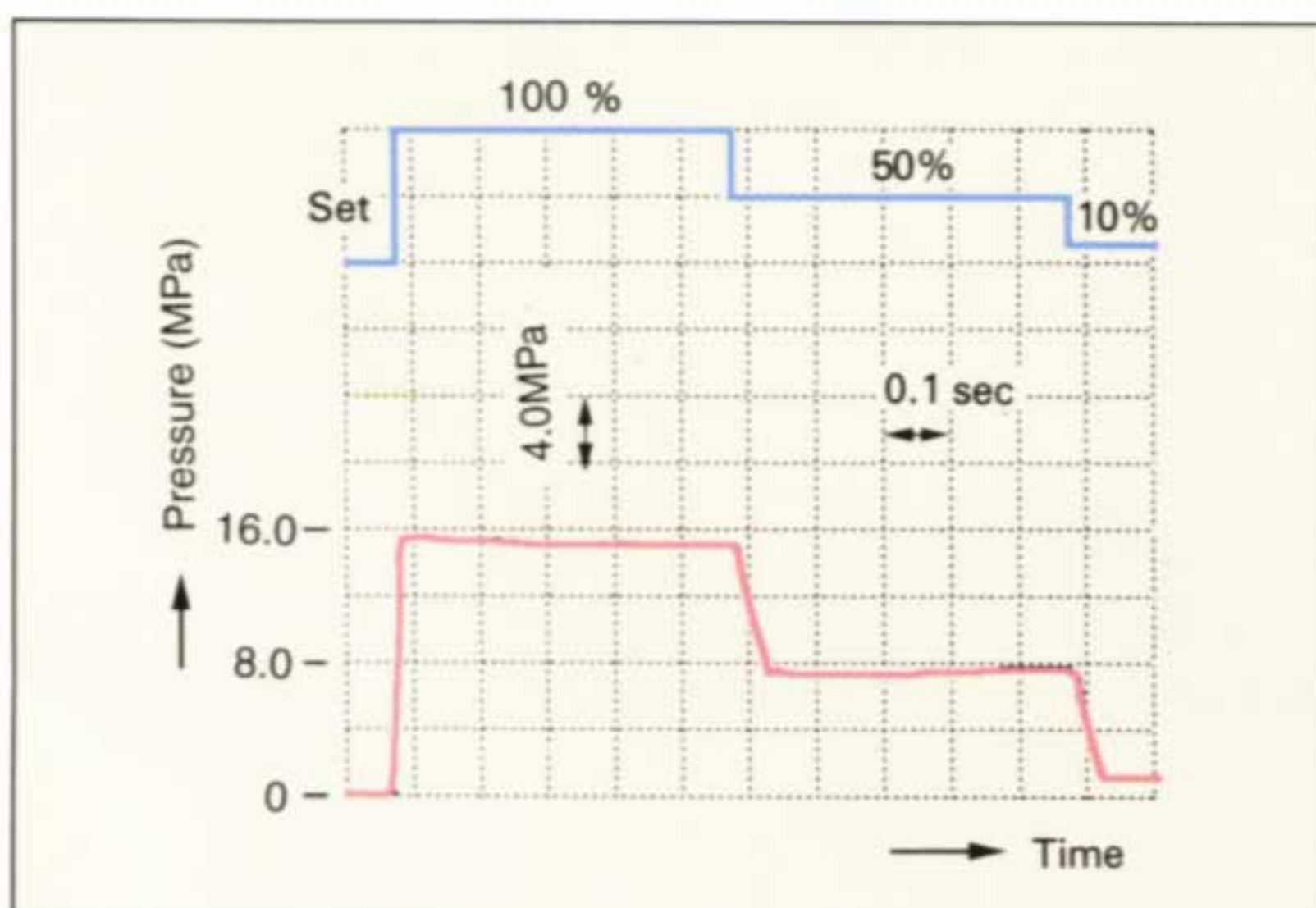
Items of Closed-loop Control

Injection speed	Program in 6 steps
Holding pressure	Program in 6 steps
Screw speed	Program in 3 steps
Screw back-pressure	Program in 3 steps

By the feedback effects of the high speed closed-loop control which always has the set values and actual values coincided with temperature fluctuations of oil, molding material and mold, the molding operation is stable at all time.

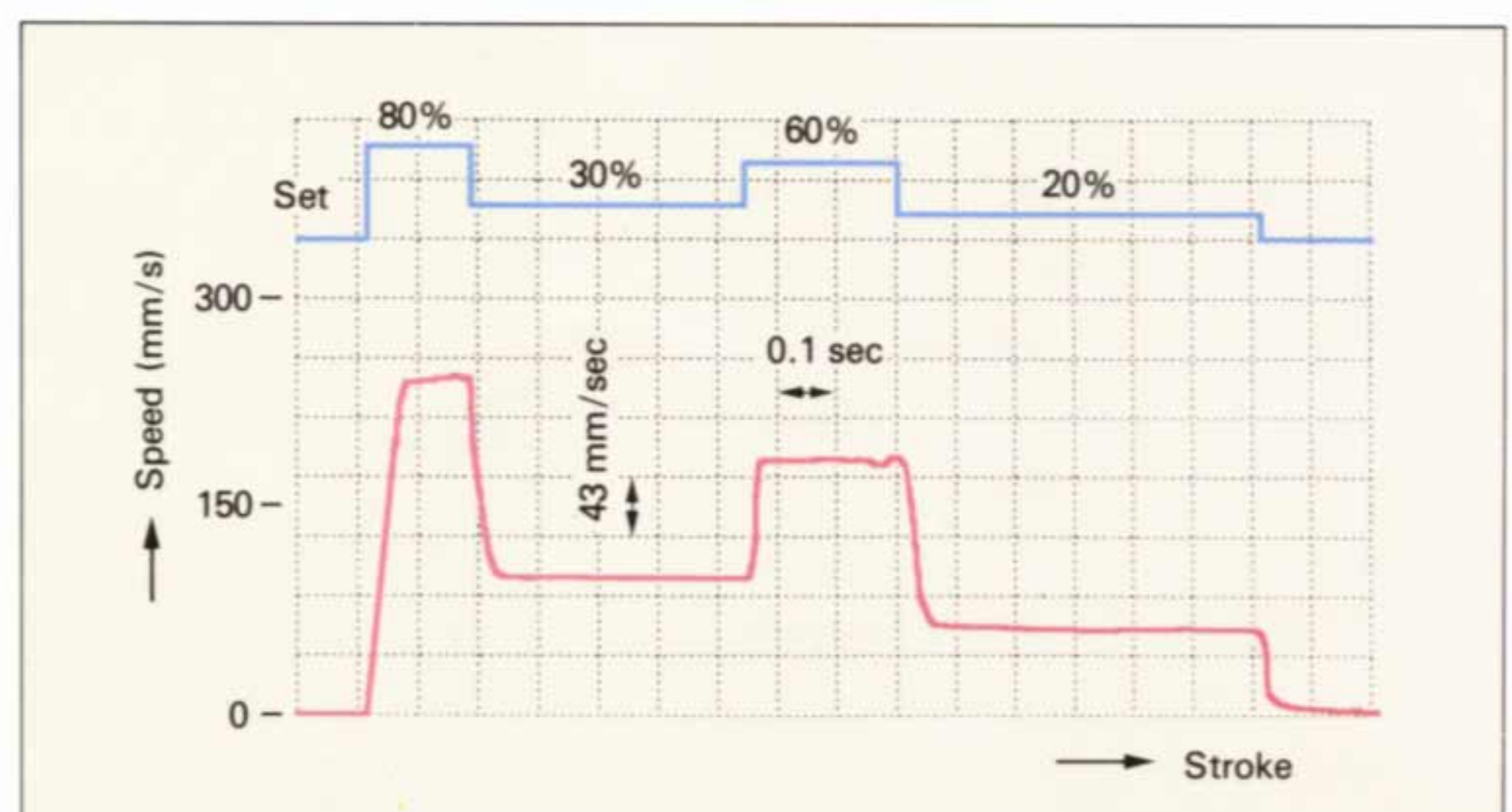
E X C E L L E N T

Holding Pressure Characteristics



High speed accumulator servo mechanism has realized a high response.

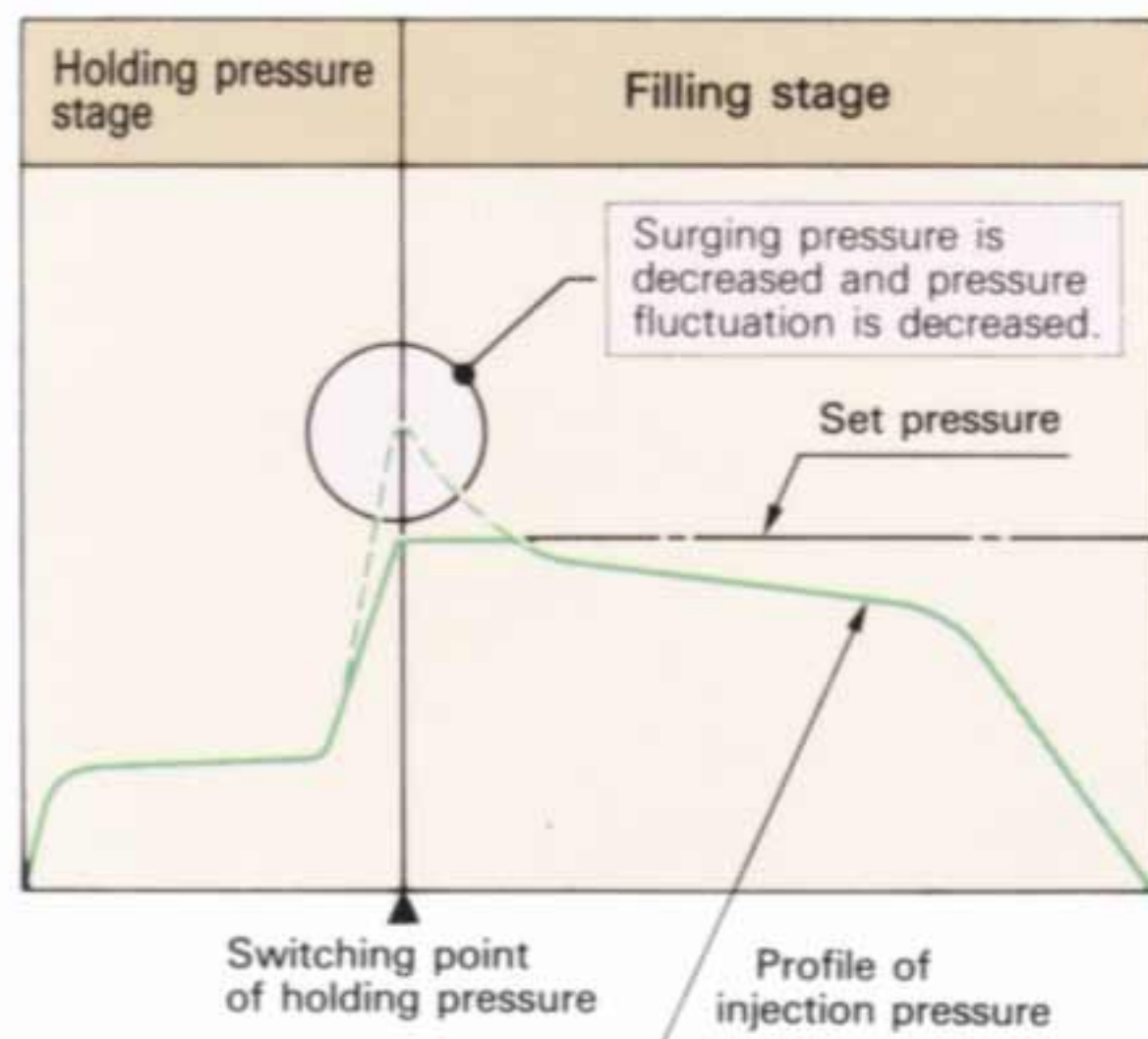
Injection Speed Characteristics



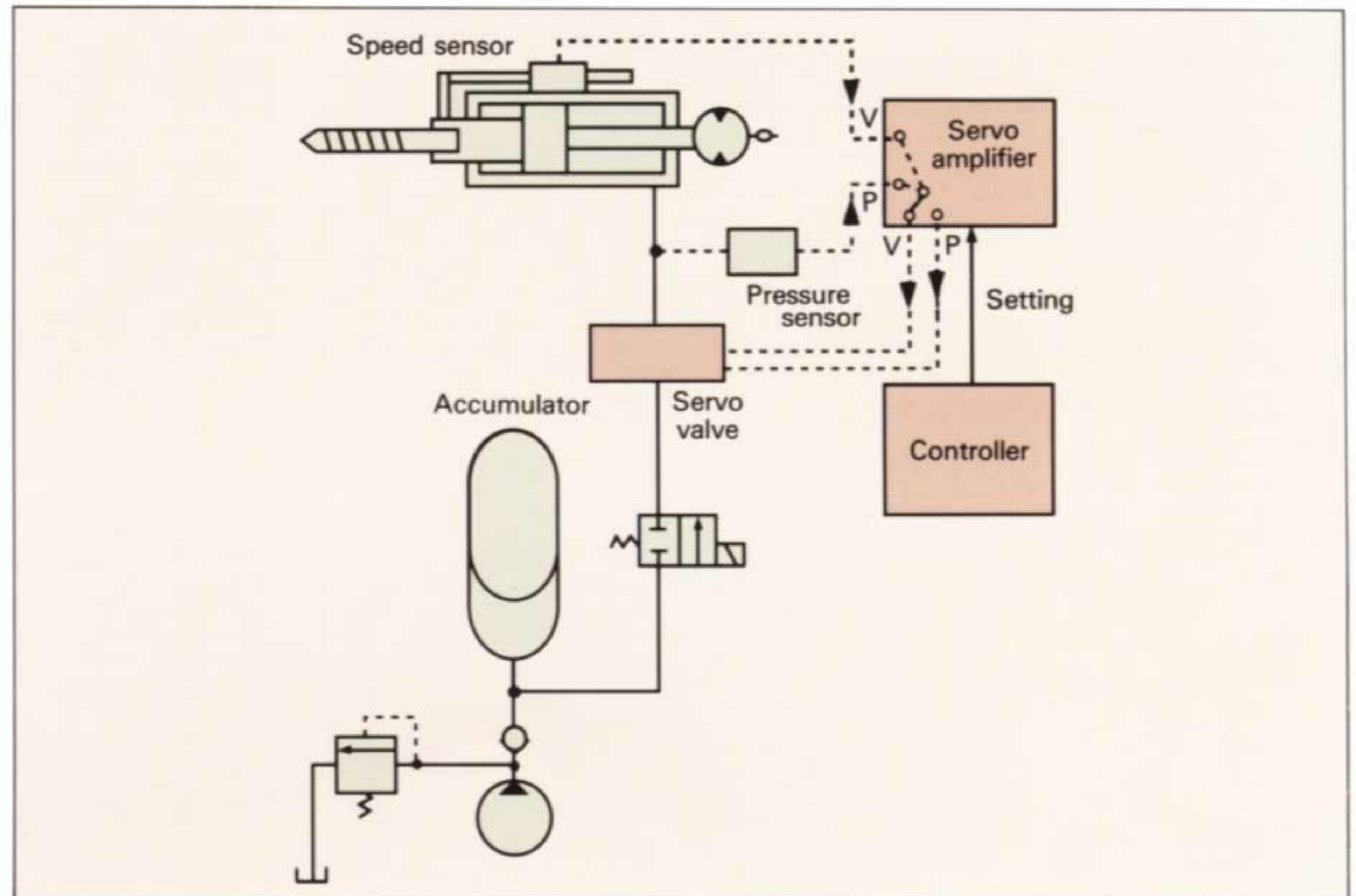
■ Optimum Pressure Molding

(Soft Pack Servo System)

Injection pressure can be set widely, for example the high speed low pressure molding or conventional high speed high pressure molding. By the function change-over switch, it is possible to select either the soft pack servo (variable) or standard servo (fixed) system.



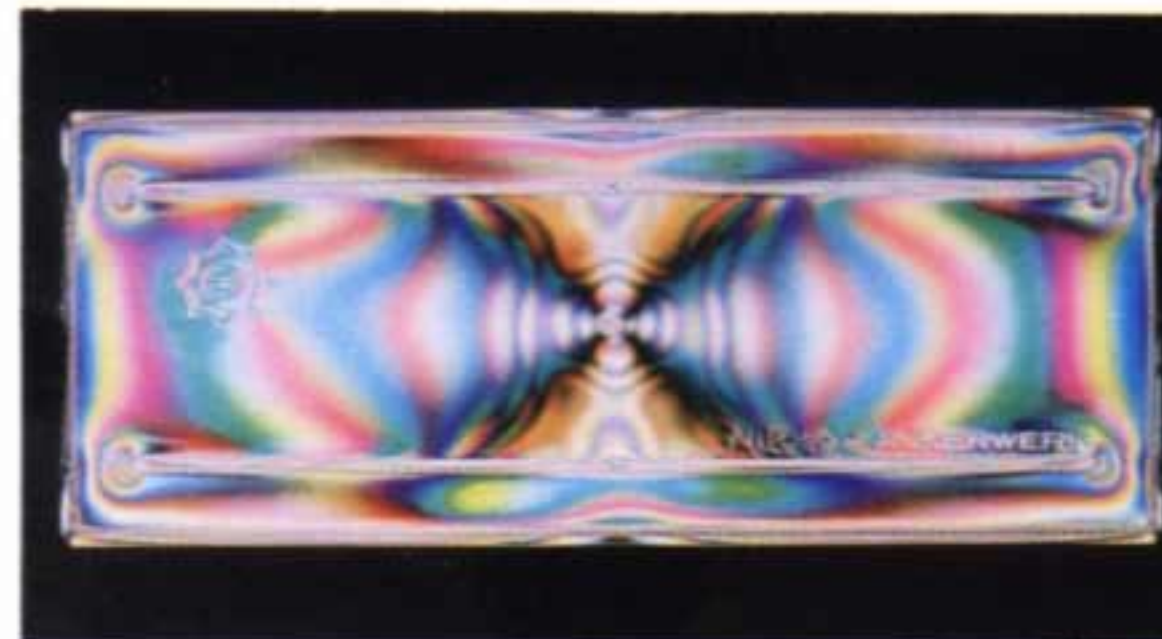
■ Construction of System



■ Is Flash or Stress a Problem?

The injection pressure can be set, so the surging pressure before switching to the holding pressure is reduced. Also as it is kept constantly, flash is eliminated to decrease irregularity of product dimensions and weight to improve quality stability. Furthermore, the high speed low pressure molding helps greatly to reduce stress.

● Elimination of Stress Comparison of Internal Stress by Deflection Photograph



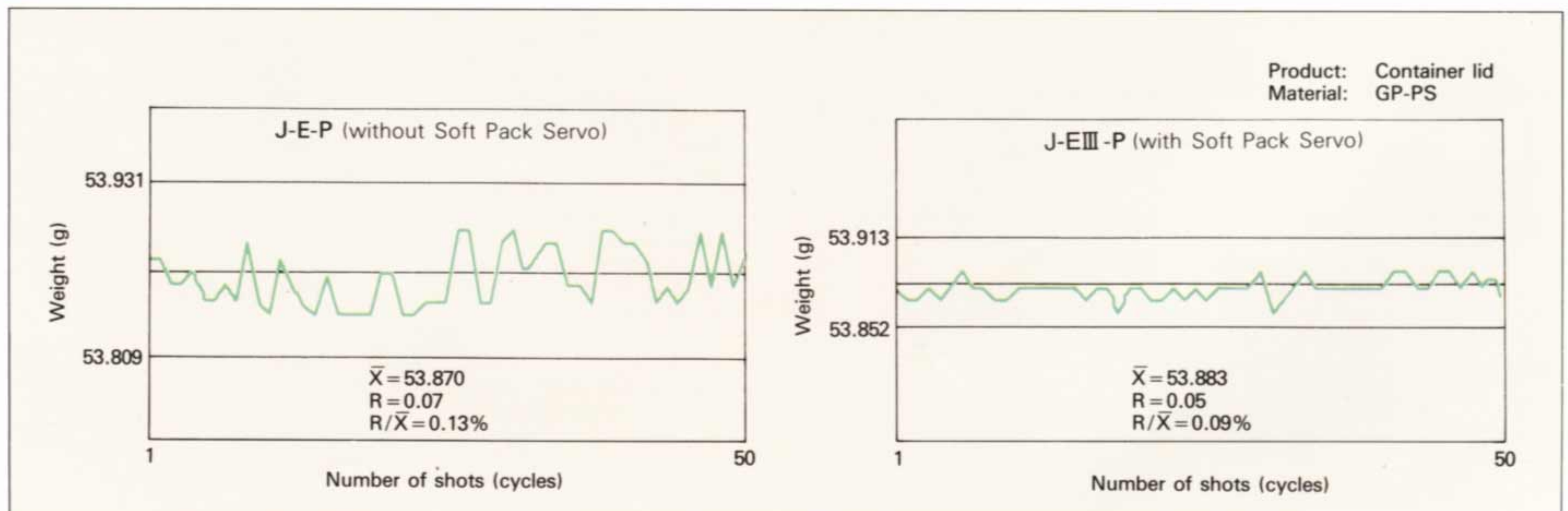
J-E-P (without Soft Pack Servo)



J-E III-P (with Soft Pack Servo)

P R O G R E S S

■ Weight Irregularity Comparison between J-E-P and Soft Pack Servo



High Performance Standard Specification for J-EIII

Standard Equipments

Model		J-EIII	J-EIII-P
Controller		SYSCOM 2000	SYSCOM 2000
Equipment			
Injection and Plasticizing Unit			
Open nozzle (tip type)		○	○
N2000F cylinder ¹⁾		○	○
Screw torque changeover ²⁾		○	○
Swivel for injection unit		○	○
Purge cover (with LS)		○	○
Cold screw start-up prevention		○	○
Mold-Pause changeover function		○	○
Automatic purging circuit		○	○
Sprue break timing selection		○	○
Suck back timing select		○	○
Injection and recovering program control	Injection speed	1-6 steps (adjust.)	
	Injection pressure	1-6 steps (adjust.)	
	Holding pressure	1-6 steps (adjust.)	
	Screw speed	1-3 steps (adjust.)	
	Screw back pressure	1-3 steps (adjust.)	
	Suck back	○	○
Transfer to holding pressure by sensing injection speed (IVS Control)		○	○
Shift injection profile★		○	○
Cylinder temperature remote setting (PID control)		○	○
Nozzle temperature control (SSR)		○	○
Closed-loop control by accumulator		×	○ ³⁾
Soft Pack Servo		×	○ ³⁾
Mold Clamping Unit			
Self-lubricating toggle bushings		○	○
Automatic greasing		○	○
High-performance mold platen support		○	○
Remote setting of mold open-close speed		○	○
Remote setting of moving platen position		○	○
Automatic mold height adjuster		○	○
Remote setting of mold height		○	○
Remote setting of ejector speed		○	○
Remote setting of ejector position		○	○
Automatic mold clamping force setting		○	○
Mechanical stop of mold opening stroke		○	○
Mold protection device		○	○
Safety devices (hydraulic, electric and mechanical)		○	○
Take-out robot mounting holes		○	○

○ : standard × : not available for option. ★ : Patent registered

- Notes:**
- 1) Any one set of A, B or C is standard specification (screw is metal plated). * K * size is optional.
 - 2) Available for machines larger than J75E III. (one speed for J50E III machine.)
 - 3) Optional for machines of J280E III, J350E III and J450E III.
 - 4) A variable pump is equipped for machines with J100E III and smaller.
 - 5) Available for oil cooler circuit only.
 - 6) The printer, printer cable and receptacle are optional.
 - 7) The Japanese/English switching function is standard equipment.

Model		J-EIII	J-EIII-P
Controller		SYSCOM 2000	SYSCOM 2000
Equipment			
Hydraulic Unit and Related Equipment			
Energy saving hydraulic circuit by multi pump selection ⁴⁾		○	○
Energy saving circuit for screw rotation ⁴⁾		○	○
Oil temperature stabilizer		○	○
Oil preheating circuit		○	○
Oil filter		○	○
Oil low level alarm		○	○
Oil temperature alarm / Upper and lower limits		○	○
Mold cooling water closed circuit (with flow indicator)		○	○
Y strainer of cooling water ⁵⁾		○	○
Controller			
TFT color LCD controller with SYSCOM touch panel		Color LCD	Color LCD
Memory of molding conditions		Int.	Int.
Data card		○ (one)	○ (one)
Soft touch start-up function		○	○
Printer output terminal ⁶⁾		○	○
Self-diagnostic function		○	○
Overall set screen		○	○
Molding operation aid function (Basic system)		○	○
Time clock		○	○
Non attend operation switch		○	○
Robot interface		○	○
Switching function of Japanese-English. ⁷⁾		○	○
Monitor			
Cylinder temperature monitoring function		○	○
Heater circuit break		○	○
Injection pressure monitor (IPM)		○	○
Injection wave form monitor		○	○
Injection wave form memory		○	○
Statistical analysis function (SPC)		○	○
Table display		○	○
Display of mold temperature ⁸⁾		○	○
Link and busing greasing alarm		○	○
Abnormal alarm buzzer		○	○
Production monitoring ⁹⁾		○	○
Cycle monitor display		○	○
Action monitor		○	○
Alarm set screen (SQC) ¹⁰⁾		○	○
Maintenance service ¹¹⁾		○	○
History of alarm		○	○
Set Value history		○	○

- 8) Sensor and cable are not included.
- 9) Setting of production quantity and advance notice are possible and completion time is displayed.
- 10) Monitoring functions of the following particulars are equipped as standard. (Cycle time, injection time, recovery time, cushion, injection start position, changeover position to holding pressure, injection pressure, changeover pressure to holding, mold opening-closing time, screw back pressure).
- 11) Maintenance service time and areas are displayed.

Optional Equipments

1	Long nozzle (tip type)
2	SVN shut-off nozzle (spring type)
3	K size screw cylinder ¹⁾
4	High temperature molding device for super engineering plastics
5	Wear and corrosion-resistant screw
6	High-melter M7 screw
7	Cylinder heat insulating cover
8	Cylinder cooling unit (with blower)
9	Cylinder module system
10	Shut-off nozzle (hydraulic)
11	HT screw head ²⁾
12	Hopper
13	Daylight extention
14	Manual central greasing (injection unit)
15	T-grooved plate
16	Air jet
17	In-mold ejector circuit
18	Automatic safety door opening unit
19	Unscrewing motor control circuit (electric motor)
20	Hydraulic core puller circuit
21	Pneumatic core puller circuit
22	Dual function (ejection during mold opening) ³⁾
23	Dual function (screw rotation during mold opening and closing) ⁴⁾
24	Valve gate circuit (hydraulic)
25	Cooling water open circuit
26	Photocell type product chute confirmation ⁵⁾
27	Product drop confirmation signal connection circuit
28	Chute
29	Reject discriminating chute
30	Mold mounting preparation unit
31	Calendar timer
32	Display of mold temperature
33	Spear output signal circuit
34	Ejector plate return confirmation circuit
35	Ejecting operating alteration
36	Warning light
37	Mold temperature controller
38	Spare plug receptacle
39	Printer (with printer cables)
40	Printer cables (IBM compatible)
41	Data card (40 sets of mold / card)
42	Language switching function ⁶⁾
43	Communication function with host computer

- Notes:
- 1) Not applicable for J280E III, J350E III and J450E III.
 - 2) Available for machines of J50E III to J220E III.
 - 3) A pump is added to machines smaller than J100E III.
 - 4) Not available for machines smaller than J100E III.
 - 5) Chute is equipped for machines smaller than J100E III.
 - 6) One more language can be added, in addition to Japanese and English.
- Optional at makes when receiving the order for machines with specifications for rigid PVC molding, low temperature molding of PP and PE, flow molding and machines with a counter-pressure unit or a barrel with vent hole.

- Due to technical reasons, printed colors are not always the same as those of actual paints.
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