

## Clamping unit feature

- Reinforced platen in box structure design by FEA analysis to improve the platen strength and durability, and reduce the deformation.
- The internal 5 points toggle clamping system through advanced analysis, the structure of toggle is solid and reliability.
- Unique toggle pin and bush design reduce the toggle surface pressure. Superior bush cannellure layout spread out lubricants effectively.
- The design is without using bracket on the rear platen.
- Larger tie-bar diameter and pre-hardened steel to be used, with unique screw and nut design to reduce the inner-strength on tie bar thread. Avoid tie bar broken.
- Wide movable platen support and unique trail design optimum platen parallelism even the heavy mold.
- To minimize the toggle pressure and tie bar stress.
- Lower platen deformation and eccentric magnitude to prevent the stress concentration and increase the durability.
- Platen and toggle structure reinforce, enhance the reliability.
- Extra wide platen and tie bar space design.
- Optimum platen parallelism



## Injection unit

- Parallel and horizontal injection units, easy to operate and maintain, more space saving.
- Single injection cylinder design, power direct and stable RPM.
- High plasticizing capacity and stable injection pressure to ensure quality molding.
- Twin-rail injection seat drive former pulling cylinders \*2 to ensure the nozzle centrality.
- High-mixing screw ensure material well mixing.
- Injection close loop for high precision molding.
- Injection accumulator maximum speed to 900mm/second.
- Servo motor system, energy saving 35% ~ 80%.

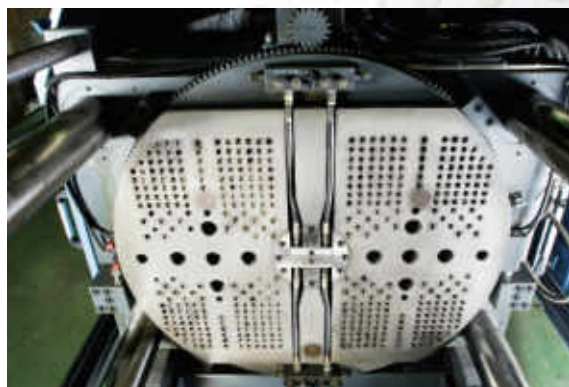


## Rotary Mechanism

- Vertical Rotary table system (standard)
- Rotary plate system (optional function)
- Rotary mechanism drives by hydraulic motor system, pressure and flow closed-loop
- 2 step pressure and speed control for rotary mechanism
- Mechanical safety position stopper
- Hydraulic safety position cylinder with limit switch
- Rotary speed is lower than 1 second. Based on table diameter 760mm in 180 degree index.

### Rotary Location precision: under $\pm 0.025\text{mm}$

- Core - Puller sliding 2 color system available (optional function).
- Cooling system distribute from the center of rotary table.



## Hydraulic system

Bosch high response P/Q system  
 Independent proportional back pressure control  
 Full time differential hydraulic system for reliable and fast mold open / close  
 All fixed pipe and fitting made without welding avoid leakage prevention  
 High quality oil seal strengthen the airtightness.  
 Unique low pressure mold protection feature  
 Hydraulic safety device on front / rear door for operator safety.  
 Fixed - displacement pumps  
 Mold Open / Close brake device  
 Hydraulic oil filter inside the oil tank for reflux oil  
 By-pass reflux filter enlarge hydraulic oil time limit  
 Injection pressure / flow closed-loop (Option)

## OPTION

The heat insulation device for movable / stationary platen  
 High-mixing screw  
 The screw is for engineering material application  
 Accumulator device for high speed injection  
 Glass type water distributor with on-off switch  
 RS232 & RS 422 card interface  
 Internet or Intranet connect interface and system  
 4 sets Core puller devices.

## Control system

Three liner transducers for clamping / injection / ejector position control  
 Individual and separated setting for injection / holding / charging parameter  
 Injection profile for pressure / speed  
 Screw RPM display  
 Cold start prevention function  
 Barrel temperature abnormal protection  
 Temperature weekly pre-setting function, can pre-set the preheat time daily.  
 Oil tank temperature and level monitoring  
 90 sets mold memories  
 Production quantity and cycle time monitoring  
 SPC quality control system  
 Multi-language selection  
 Alarm message display function  
 Trouble shooting record  
 LAN interface  
 USB interface  
 Multi-authorization security management system  
 10.4" LCD color display  
 Data and screen lock function



**Test condition**

Product: children spoon and forks combo

Material: PP

Mold: 4cav / 45gram shot weight

LXWXT: 100mm \*15mm\*3mm

**Molding setting**

	Mold close	Injection stage 1	Injection stage 2	Injection stage 3	Holding stage 1	Holding stage 2	Charging	Cooling	Mold open	Ejection
Pressure <sub>MPa</sub>	65	40	70	85	95	75	65	0	60	55
Speed <sub>%</sub>	55	35	55	55	35	20	40	0	45	40
Time <sub>sec</sub>	1.1	0.1	0.5	0.5	2.5	0.5	4.5	18	1.5	1.5

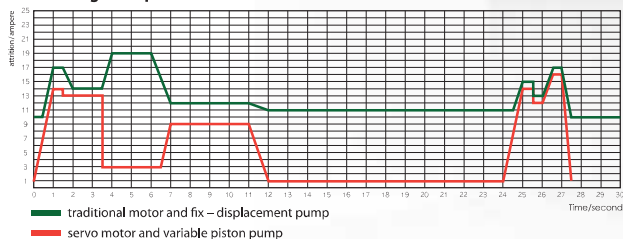
Cycle Time: 27.2sec

record by Watt-hour meter with one mold, 6hour non stopping production

	JW120SD induction motor and fix + displacement pump	JW120K-III servo motor and variable piston pump
Electric Power	15Kw	15Kw
Heating wattage	7Kw	7Kw
Current measurement	9A (Heating ready)	1.1A (Heating ready)
Total number of mold	773	785
Total power consumption	45Kw	19.56 Kw
Power consumption / per hour	7.5Kw/H	3.26 Kw/H
Power consumption / per month	4620Kw	2208Kw (22H/day ; 28 day/month)
Energy Saving	around 57%	

Remark:

- The calculation is base on 22hr/day ; 28days/month ; electricity CNY0.81/KwH.
- Power saving performance will varies by different molding requirements (ex:thickness for long cooling, holding time and pressure) : compare with solution of standard electric motor and fix displacement pump, saving performance should be within range of 25%~75%.
- The example of testing is base on same mold, same molding setting with robot system.

**Power usage comparison of servo motor and standard motor**

JONWAI Servo Motor System equipped with a rotary encoder and pressure sensor, the pressure flow state will be transmitted to the controller.

The controller command will be sent out to the synchronous servo motor to change the rotation and the torque accordingly.

The corresponding flow and pressure adjustment ensures the highest quality and precision of the plastic parts produced, with energy savings and fast response time.

**Quick response of servo motor** : 0.05s to reach the maximum power output.

**Unique Braking Device** : More precise to command the motor pause & continue.

**Precision tolerance Moulding** : Greatly improved parts tolerance compared with traditional fixed or variable pump.

**Lower inertia, Lower Sound Level, Lower Pulsation and high efficiency.**

**More Power Saving**: 35%~80% power saving compared with traditional one.

