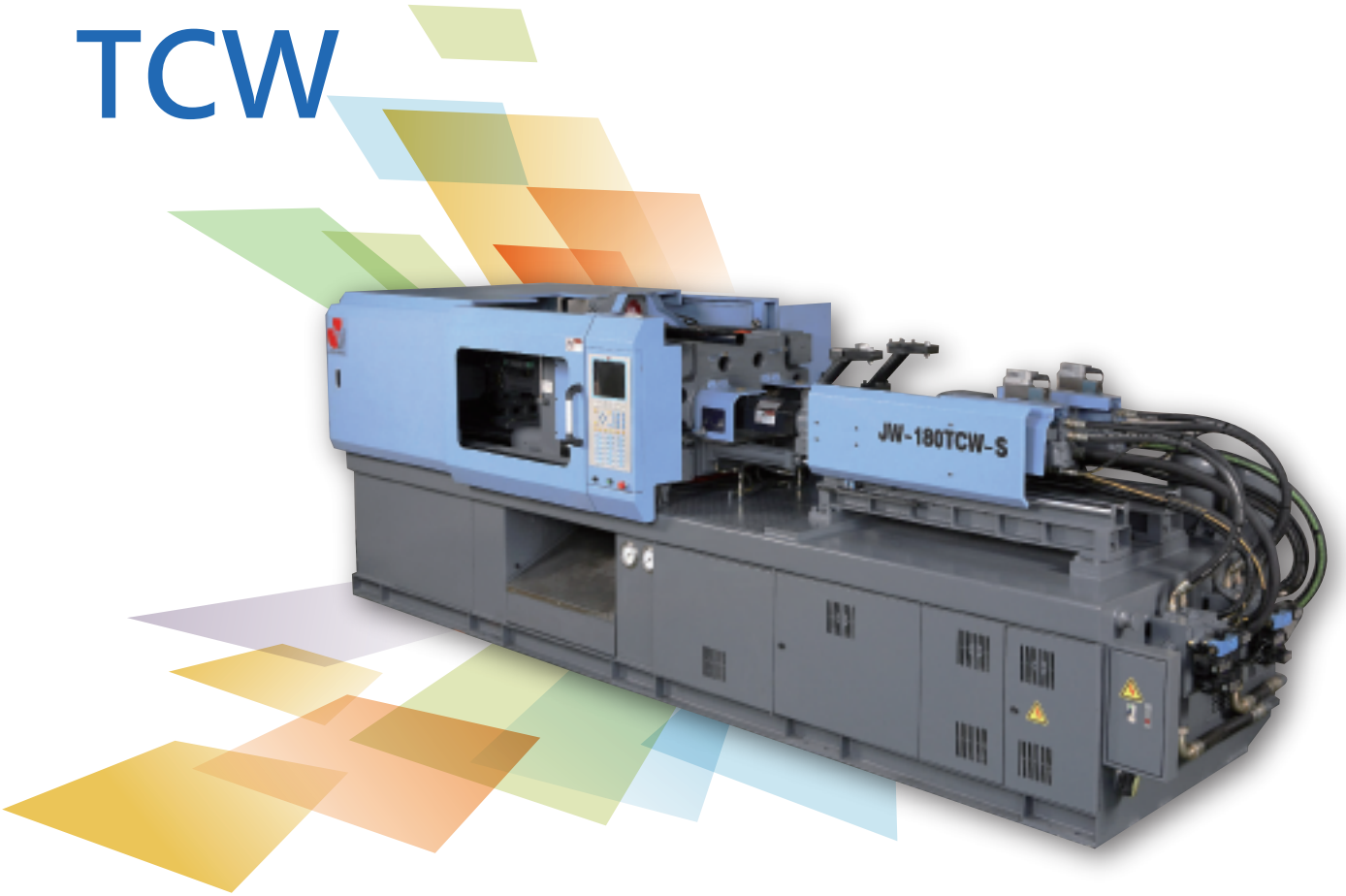
JONWAI

Multi-Resin

2 Colors Injection Molding Machine

series

TCW



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JONWAI

JONWAI – 30 years of Leading Experience in Multi-Resin Molding Technology

In 1982 , JONWAI introduce the 1st 2-color injection molding machine in Taiwan, Through decades of R&D in multi-resin injection technology , JONWAI have successfully developed several methods of multi-component injection .

These unique technology afford our customers more diversify either production pattern or product designs .

JONWAI sincerely hope these update multi-resin injection technology could assist our customers

Higher Products Added Value , Increasing Production Efficiency and Reduce the Production Cost.

TCW SERIES ▸

1 Vertical Rotary Table System (standard)
2 Rotary Plate System (option)
3 Core-Puller Sliding System (option)
4 Parallelized Injectio (option)

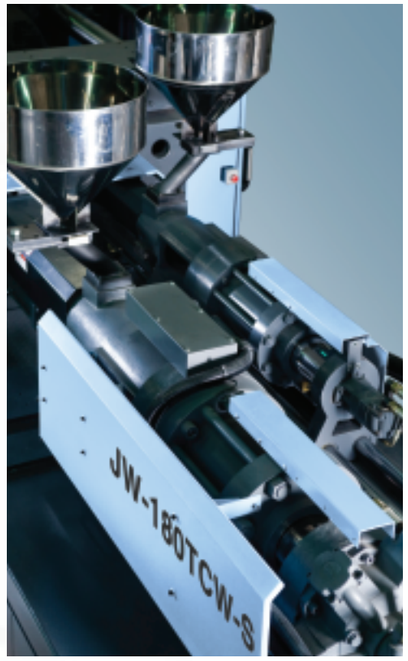
Horizontal Rotary Table System
TCW series

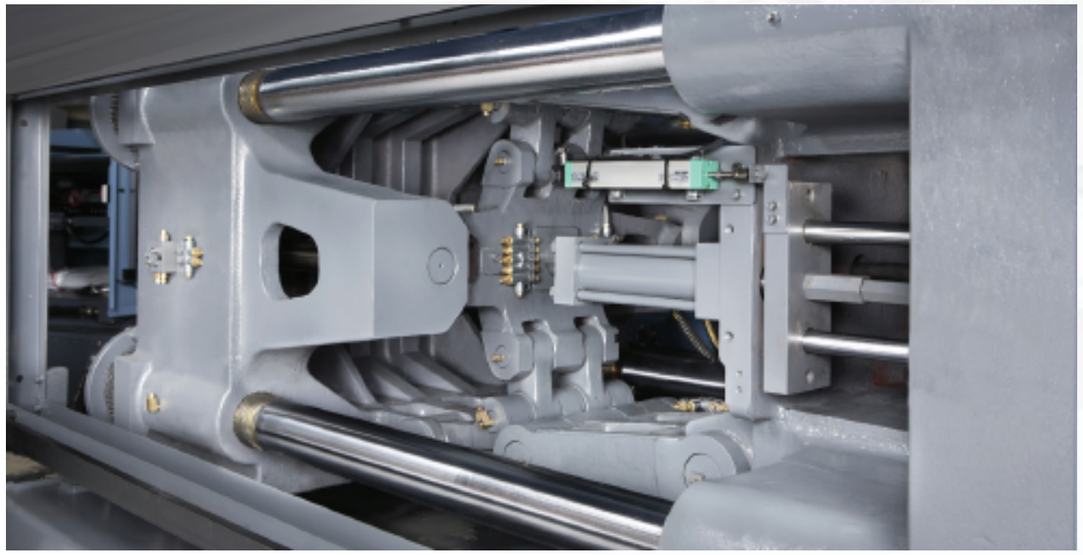
Clamping unit feature

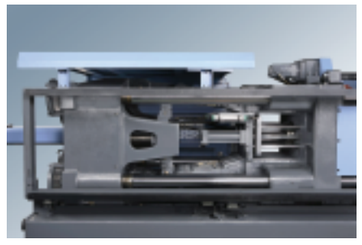
- Reinforced plat`en in box structure design by FEA analysis to improve the platen strength and durability, and reduce the deformation.
- The internal 5 points toggle clamping system through advanced analysis, the structure of toggle is solid and reliability.
- Unique toggle pin and bush design reduce the toggle surface pressure. Superior bush cannelure 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

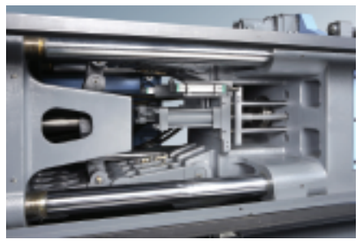
Injection unit

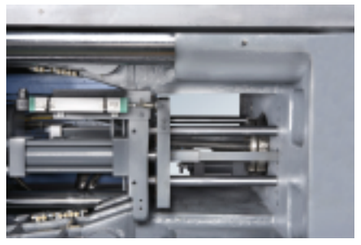
- Parallel and horizontal injection units, easy to operate and maintain, more space saving.
- Single injection cylinder design, power direct and stable RPM.
- High plasticizing capacity and stable injection pressure to ensure quality molding.
- Twin – rail injection seat drive former pulling cylinders *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%.

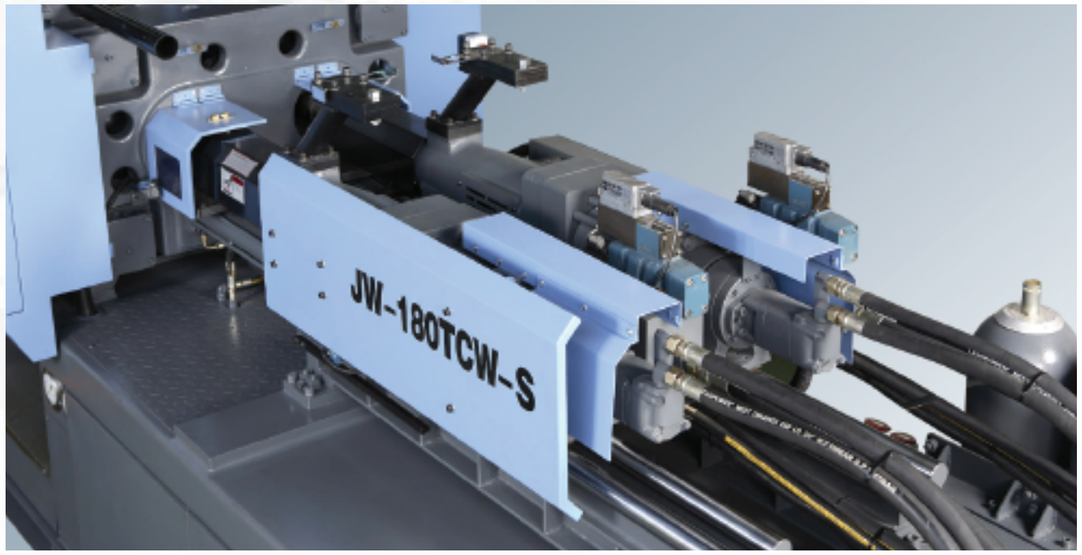


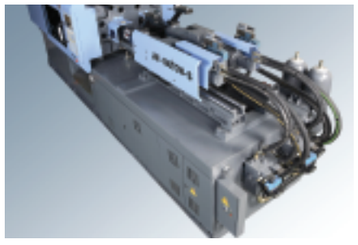










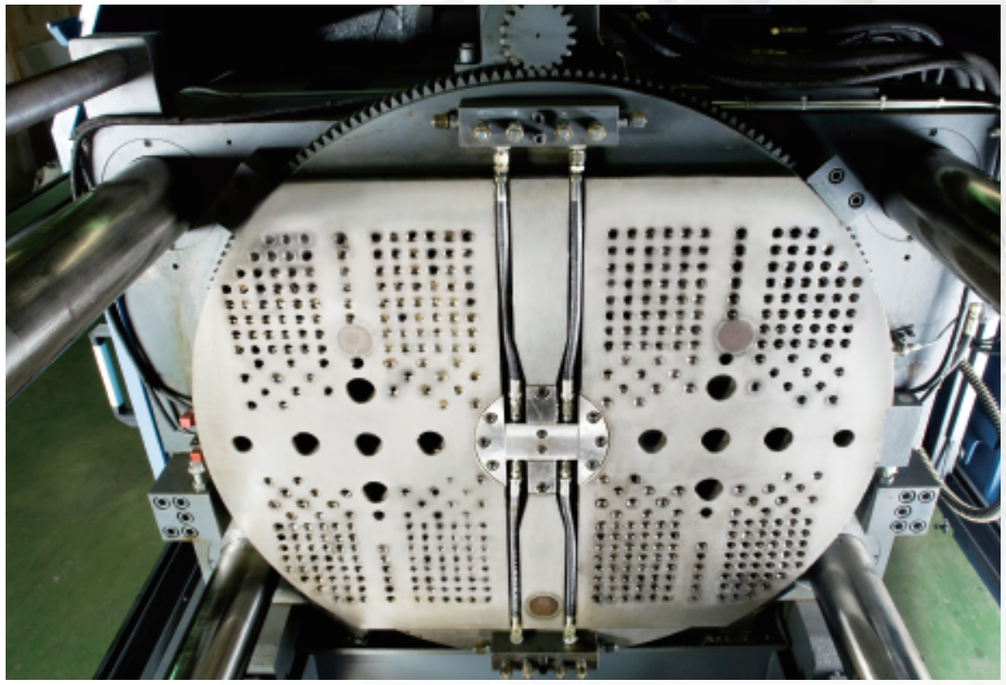


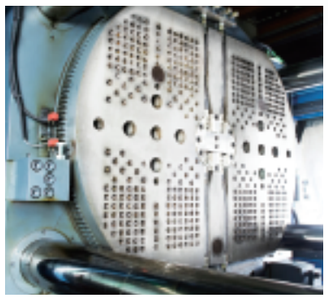
Rotary Mechanism

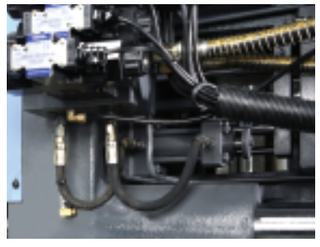
- Vertical Rotary table system (standard)
- Rotary plate system (optional function)
- Rotary mechanism drives by hydraulic motor system, pressure and flow closed –loop
- 2 step pressure and speed control for rotary mechanism
- Mechanical safety position stopper
- Hydraulic safety position cylinder with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

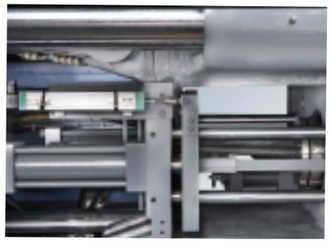
Rotary Location precision:under +/-0.025mm

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









Horizontal Rotary Table System
TCW series

Hydraulic system

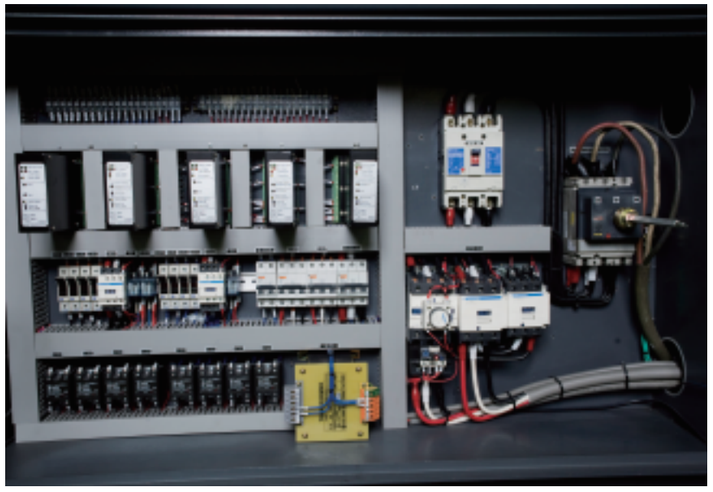
Bosch high response P/Q system
Independent proportional back pressure control
Full time differential hydraulic system for
reliable and fast mold open / close
All fixed pipe and fitting made without welding
avoid leakage prevention
High quality oil seal strengthen the airtightness.
Unique low pressure 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 distributer 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 pr-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 shoting record
LAN interface
USB interface
Multi- authorize security management system
10.4" LCD color display
Data and screen lock function



Production Testing

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 /kg	65	40	70	85	95	75	65	0	60	55
Speed /%	55	35	55	55	35	20	40	0	45	40
Time /sec	1.1	0.1	0.5	0.5	2.5	0.5	4.5	18	1.5	1.5

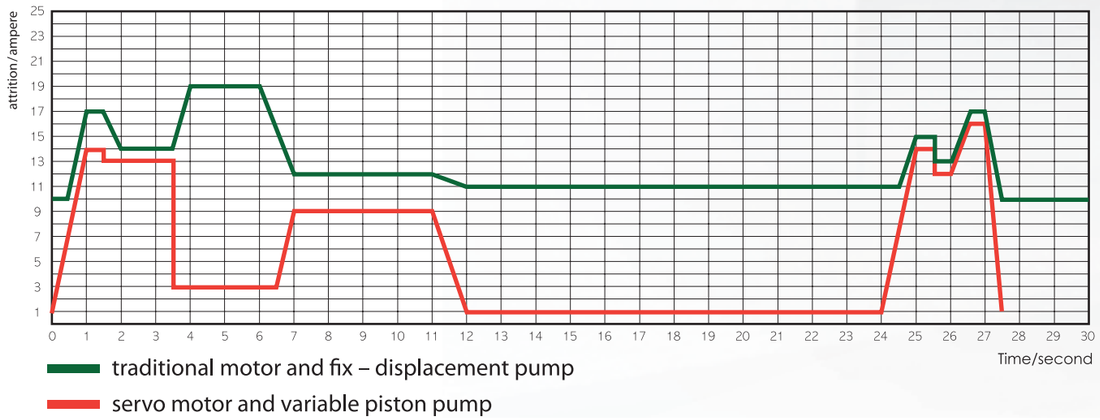
Cycle Time : 27.2sec
record by Watt-hour meter with one mold, 6hour non stopping production

	JW120SD induction motor and fix + displacement pump	JW120KHIII 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 ; 28day/month)
Energy Saving	around 57%	

Remark :

- The calcuation is base on 22hr/day ; 28days/month ; electricity CNY0.81/KwH.
- Power saving performance will varies by different molding requirements (ex:thickenss 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.

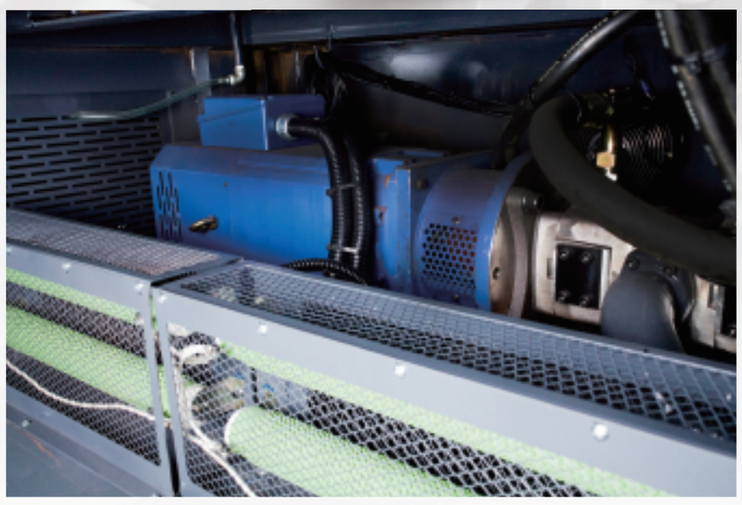
Quick response of servo motor : 0.05s to reach the maximum power output.

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.



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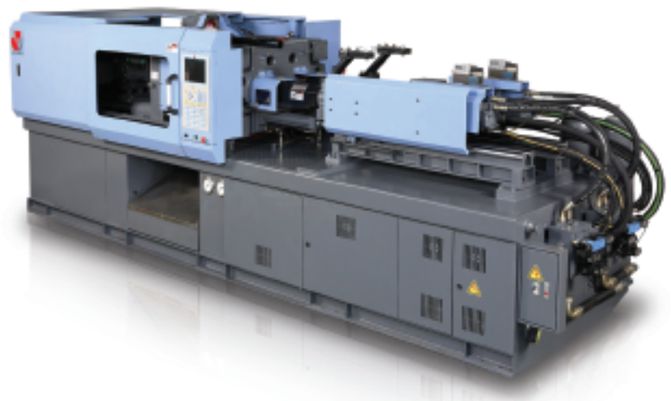
TCS SERIES ▸

1 Sandwich Co-injection (standard)
2 Marble Effects Co-Injection (option)

TCP SERIES ▸

Horizontal Rotary Table System

1 2-Station indexing with 180 Degree Reversing (standard)
2 4-Station Indexing with 360 Degree Full Rotation (option need inquired)



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