



# MK6.6/C *Competence*

88 - 488 Ton



CHEN HSONG

📍 Unit 2001, 20TH Floor, Citicorp Centre, 18 Whitfield Road, Hong Kong

✉ marketing@chenhsong.com

📞 +852 2665 3222

[chenhsong.com](http://chenhsong.com)

202312



## About Chen Hsong

Chen Hsong, established in 1958, is one of the largest manufacturers of injection moulding machines in the world, with annual sales exceeding 20,000 sets.

For over 65 years, Chen Hsong sold to more than 85 countries across the globe, supplying injection moulding machines with clamping force from 20 tons to 6,500 tons. In 1991, Chen Hsong became listed on the Hong Kong Stock Exchange (stock code: 00057). Headquartered in Hong Kong, Chen Hsong operates numerous manufacturing and research facilities in China, including Shenzhen, Shunde, Ningbo and Taiwan, as well as in Japan.

Since 2011 when Chen Hsong and Mitsubishi Plastics Technology of Japan entered into a worldwide strategic partnership, Chen Hsong has been progressively upgrading its internal management, production and quality systems with industry best practices, including TPS (lean manufacturing), M-System (Mitsubishi quality system) and a Japanese “perfect quality” focus towards all R&D, procurement and production activities. For over a decade since then, and leveraging its superior supply chain and production capabilities, Chen Hsong also supplied Mitsubishi, as OEM, with world-renowned “MMX” large-tonnage two-platen injection moulding machines (up to 3,500 tons).

To provide customers with even better peace-of-mind, Chen Hsong insists on being the only fully vertically-integrated maker of injection moulding machines globally, starting from basic ductile iron casting to high-end fabrication and machining, and all major production steps until the completed assembly of each machine. Only through absolute control of each fine step of the manufacturing process would customers be best served with professionalism, quality and perfection.

**65** Years of Excellence  
Since 1958

**300+** Patented technologies

**20+** Software IP

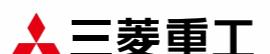
**20,000** Sets / year  
One of the largest producers of injection moulding machines in the world

**Operates 800,000m<sup>2</sup>**  
Production facilities with global presence

## Global Reach



中国一汽



三菱重工



福耀玻璃  
FUYAO GLASS



GREE



AEQUS®  
ecosystems of efficiency



beko



FOXCONN



DAIKIN



Donlim



TTI



TRAKATA

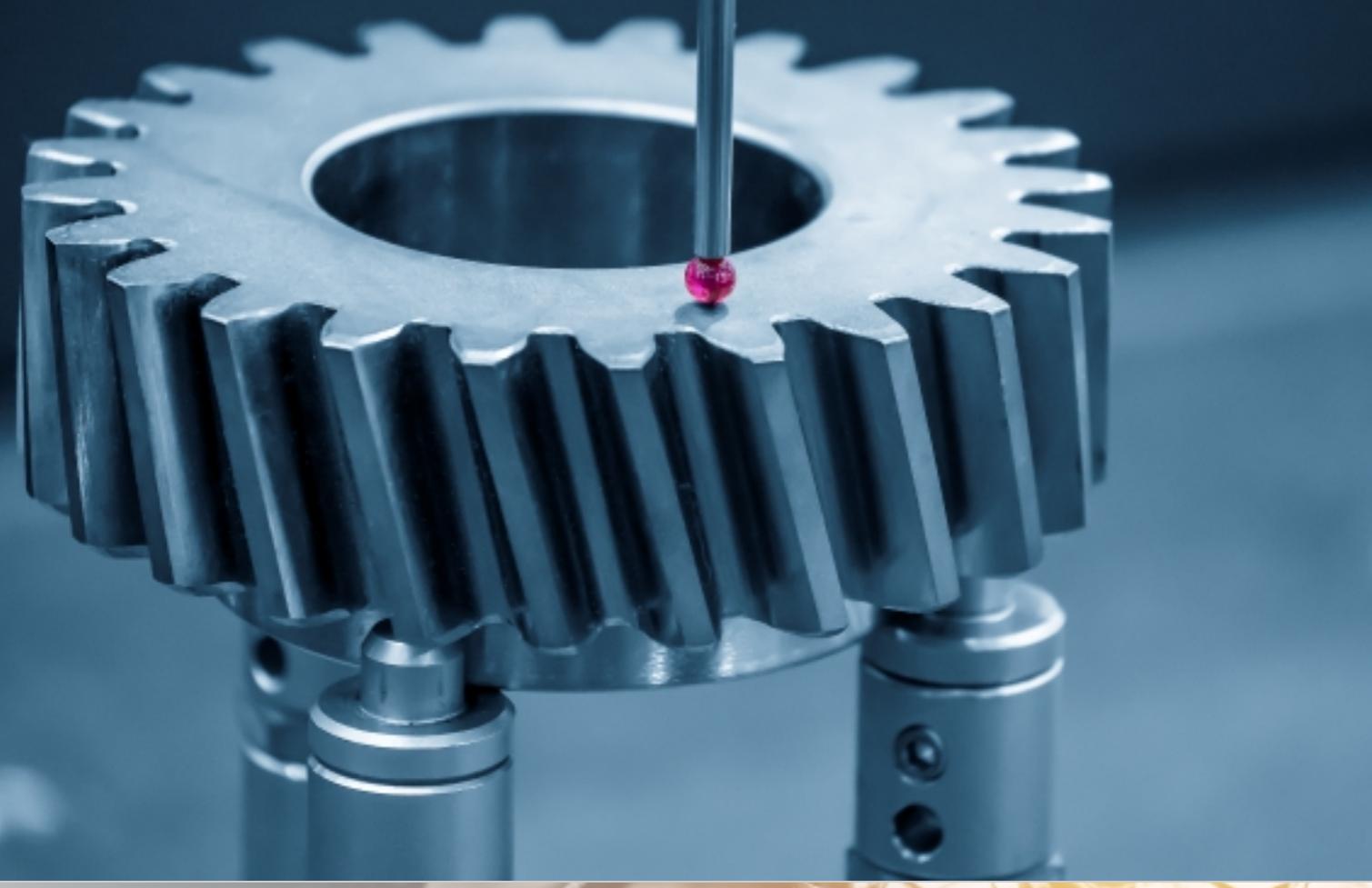


vtech



CHANGHONG

The above rankings are in no particular order



## Competence is Power

Competence cannot be acquired; it is only accumulated over decades of applications expertise and technological improvements with a relentless drive for perfection.

The MK6.6/C bears the Competence moniker, which means that it is the most capable solution to all your needs and demands. Generous power pack, precision components and impeccable workmanship come together to bring you a machine that is truly worthy of its name.

## Wide Adaptability – A Machine for All Seasons

Perfect for all applications in diverse industries, meets all needs



Automotive



Electronics



Medical Consumables



Optics



Toys



Home Appliances



# MK6.6/C Competence

Competence is Power

Patented high-strength platens  
have low deformation

New CPC6.6 professional controller – power  
and ergonomics perfected

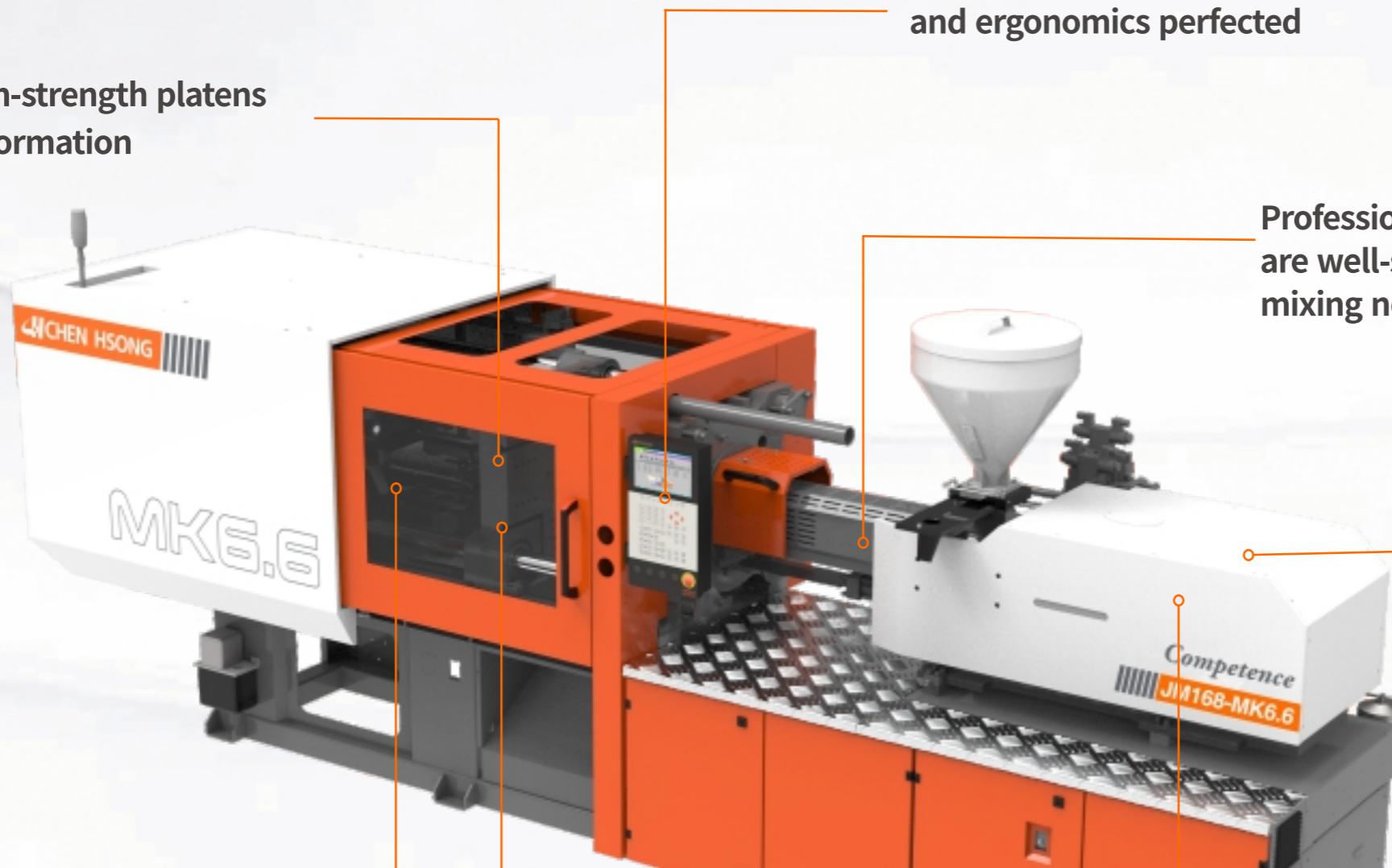
Professional Japanese screw designs  
are well-suited for most resins and  
mixing needs

Enhanced reliability and  
repeatability you can  
count on

Optimised motion control profile  
guarantees high speed with high  
stability

T-slots + mounting holes on platens  
for ultimate convenience

Enlarged power pack for extra speed  
applicability and productivity



Photos are for reference only

## Power for Speed

Enlarged power pack drives higher injection speed, faster motions, shorter cycle time, wider applicability and higher productivity.

### 01 Higher Speed

For clamping, injection and plasticising

### 02 Higher Productivity

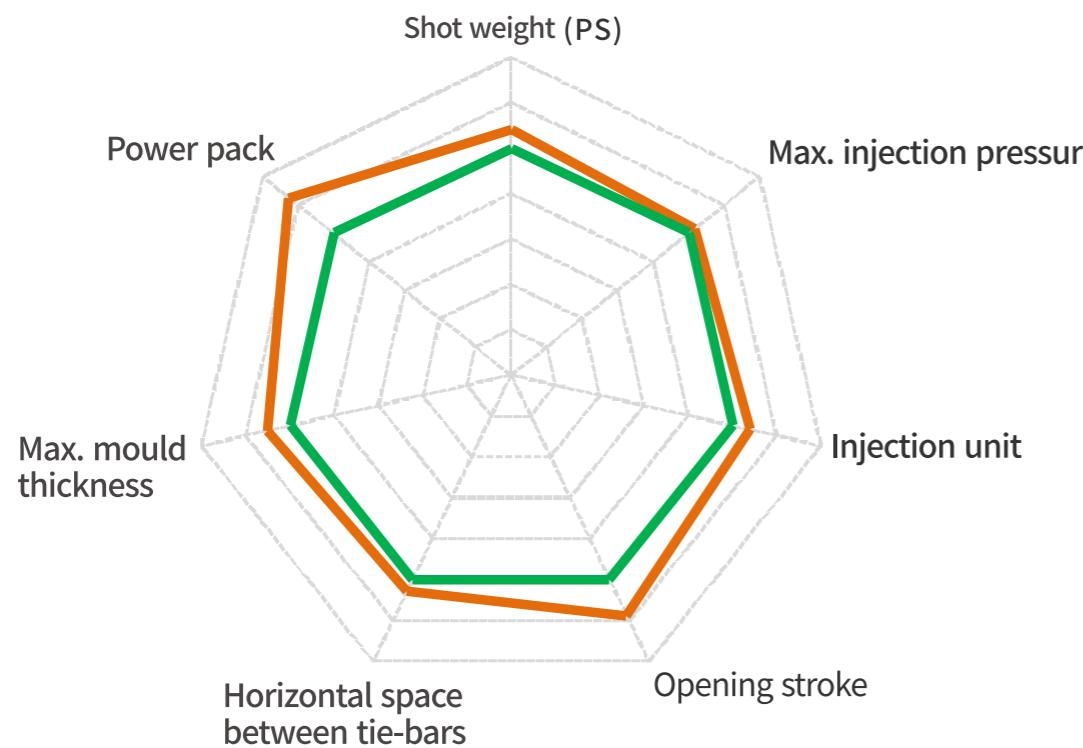
Due to shorter cycle time

### 03 Higher Applicability

For a wider range of parts (e.g. flat and thin-walled)

## One of the Largest Power Packs in the Market

— JM-MK6.6/C  
— Competition



## Brain of the Machine – Superiority Guaranteed

New CPC6.6 professional controller – power and ergonomics perfected



1. High-clarity 10" LCD panel with wide colour range
2. Precision Hydraulics™ technology enables industrial-grade mould protection – detection of obstacles less than 0.1mm in thickness (or a single sheet of A4 paper)
3. High-accuracy PID barrel temperature control
4. Advanced motion-control algorithms are finely coupled to the hydraulic circuit, ensuring silky-smooth mechanical movements
5. Designed and developed in Japan
6. Complies with JIS and IEC testing standards
7. LED backlight with high brightness and long usage life
8. Advanced SMT technology with highest stability and reliability
9. Full suite of networking/data features for Industrie 4.0

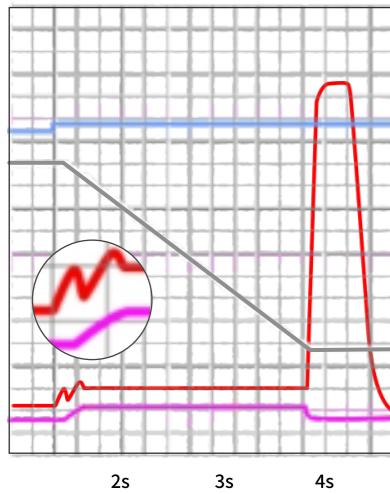
The CPC6.6 runs, at its core, the ITRON industrial-grade hard-real-time operating system, widely used in high-end Japanese machine tools, which provides extremely high repeatability and short reaction times.

## Precision Hydraulics™

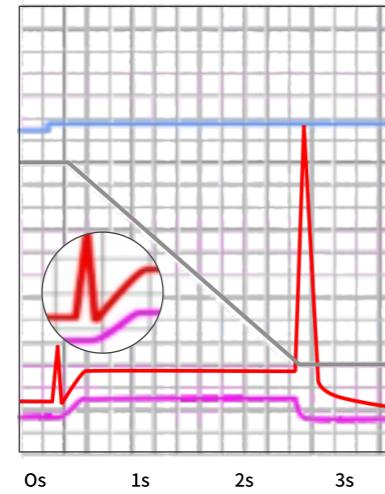
A team of Japanese and European technical experts took the time-tested hydraulic circuits in our machinery and relentlessly fine-tuned/optimised them to perfection, aided by the latest fluid dynamics simulation software.

The result? Hydraulics so smooth, reliable and snappy that must be seen to believe.

### Smooth as Silk



Precision Hydraulics™



Others

#### Tuned and Optimised:

Unnecessary pressure drops are all but eliminated through multiple rounds of optimisations by Japanese experts.

#### Rock-Solid Stable:

Stable and precise pressure control (especially during holding) is paramount for ensuring high yields in demanding applications

## Fast-Response Dynamic Control System

HRD (Highly Responsive Dynamics) is a unique technology seeking to address the numerous instabilities that arises during typical mechanical motion, including (but not limited to) signal line noise, hydraulic shocks, temperature drifts, time-lags, overshoots, harmonics and fluctuations.

A smooth and stable motion profile is critical for preventing undue wear on mechanical parts. Instabilities such as pressure overshoots, hydraulic shocks and harmonic oscillations are dynamically compensated and adjusted for, at runtime in lightning speed, by advanced AI-based learning algorithms.

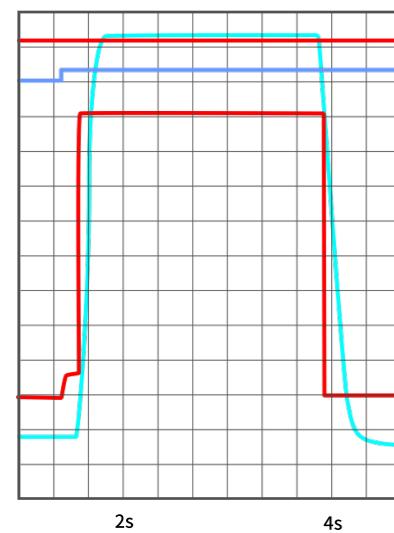
**HRD**  
Highly Responsive  
Dynamic

## AIR Buffer™

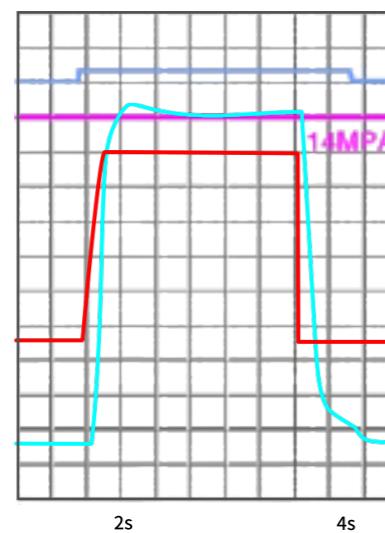
“Air-bag” system for your injection moulding machine! “AIR Buffer” stands for Algorithmic Interlocked Response — a superior mould-protection technology with such supreme sensitivity that it consistently detects and protects against even a single sheet of A4 paper (0.1mm thick) during top-speed clamp closing — a truly amazing feat of engineering made possible by the interlocking dynamics of very high hydraulics precision™, optimised mechanical design and advanced patented control algorithms!

Put a sheet of normal A4 paper between the mould of a machine (in this example a JM168-MK6) running at top speed (100%) and pressure (100%) settings, then watch the mould protection feature at work!

The piece of A4 paper is not even punctured through! Now THAT'S real mould protection!



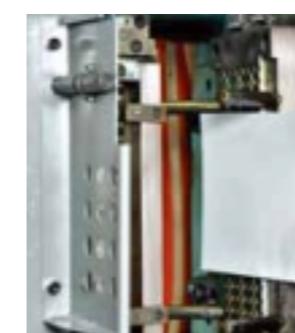
Precision Hydraulics™



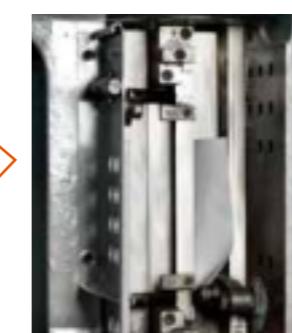
Others

#### No Overshoots:

Normal hydraulic circuits are subject to overshoots and fluctuations, which get worse with faster response times. Precision Hydraulics™ eliminates these instabilities even at high speeds.



Before mould close, put in a sheet of standard A4 paper



Almost closing detecting paper



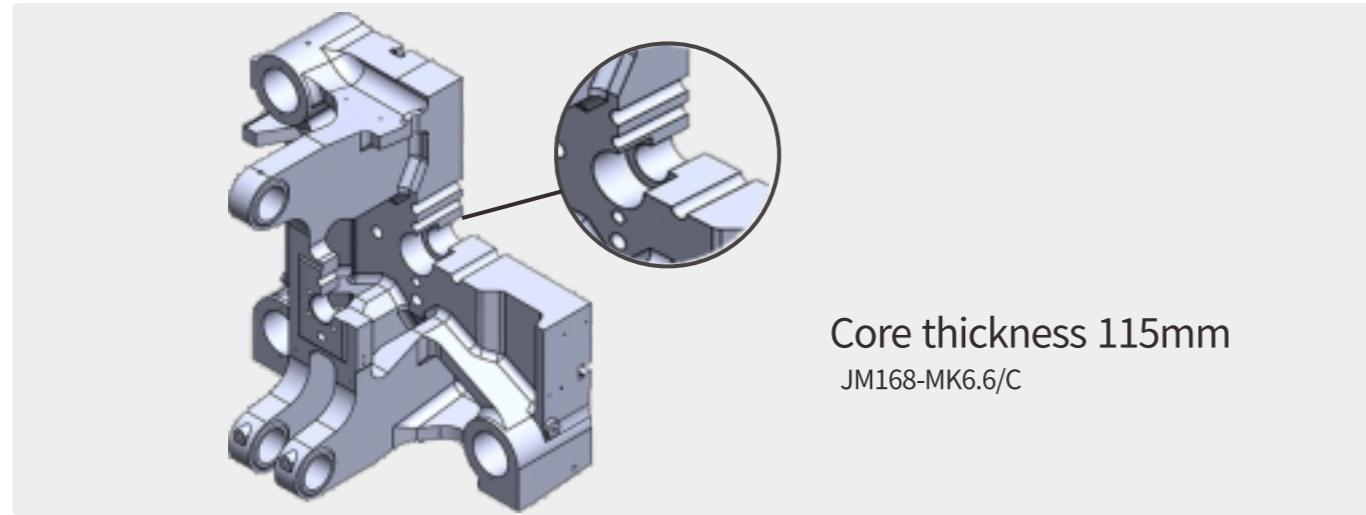
Low-pressure mould protection causes clamp to open



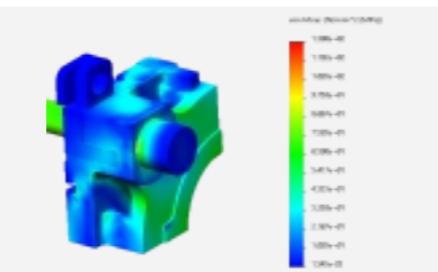
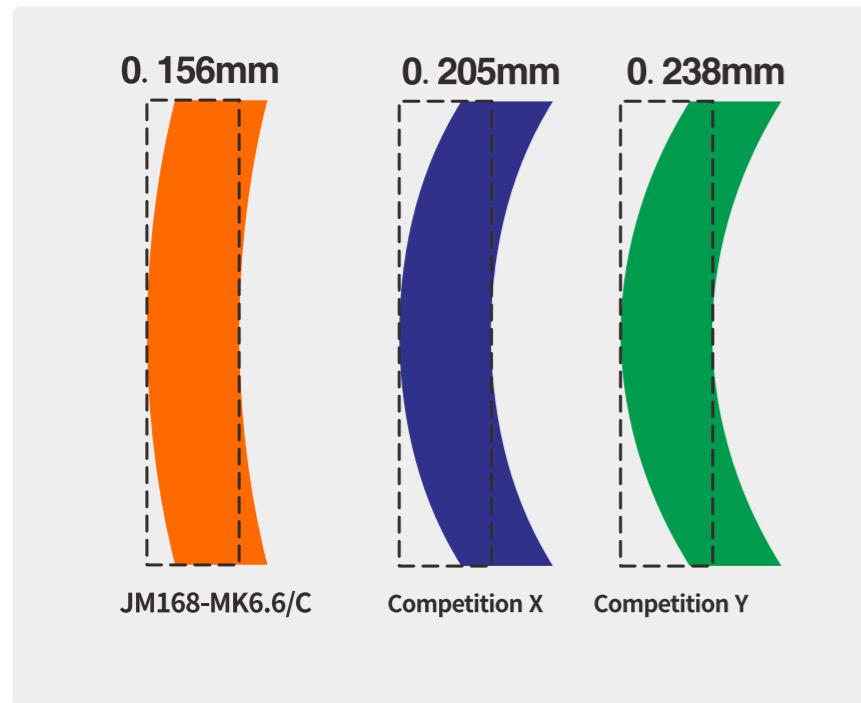
A4 paper is not even punctured through!

## Strong Platens for High Quality Parts

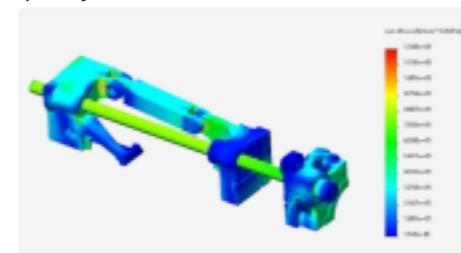
Patented high-strength platens with low deformation



The centre of both platens is thickened to achieve lower deformation, and thus more uniform clamping force on the mould, than most competitive offerings.



Optimised platen design has superior stress distribution, ensuring perfect part quality



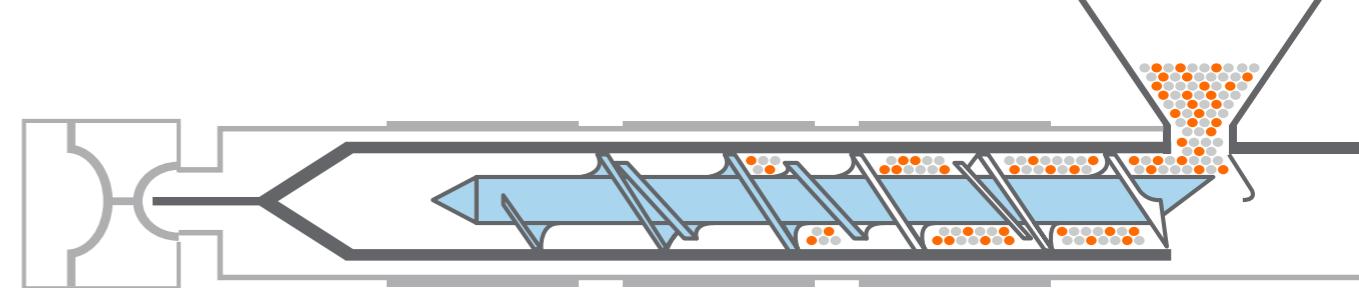
High-tensile tie-bars

**Low platen deformation ensures high part quality and superior mould protection**

## Professional Mixing Screw for Professional Results

State-of-the-art Japanese screw designs are well suited for most resins and mixing requirements

High performance guaranteed by Japanese screw experts



Nitrided mixing screw (standard)

Ideal for wide range of applications



Chrome-plated, corrosion-resistant with optional mirror surface finish for PVC (optional)

PVC



Chrome-plated, optionally bimetallic for engineering resins (optional)

Professional screw for engineering resins, common for household applications and automotive applications



### The Perfect Mix

Regular mixing screw (optional)

Wide applicability for most mixing needs



High mixing screw (optional)

For extremely demanding mixing application



### Bimetallic Screws

Bimetallic Screws (optional)

Perfect for highly corrosive or abrasive engineering resins (e.g. glass or carbon filled)

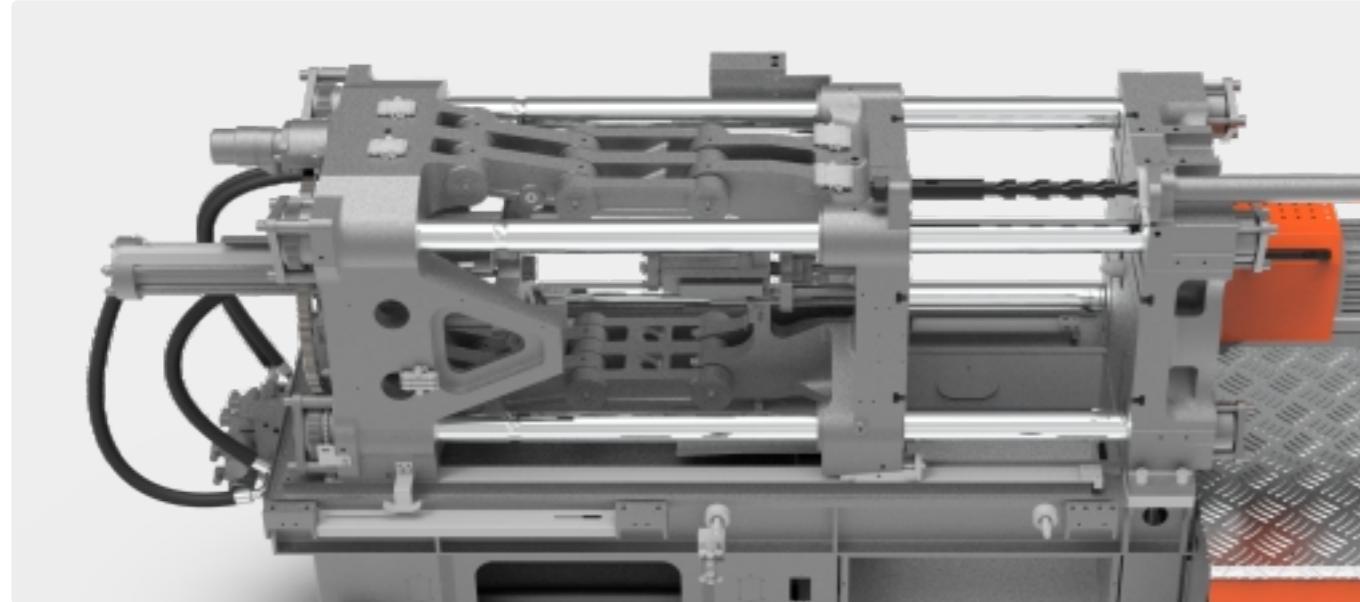


1.5-2mm bimetallic coating ensures long consistent usage life in corrosive or abrasive applications

## Quality Demands No Compromises

Toggle design from decades of experience

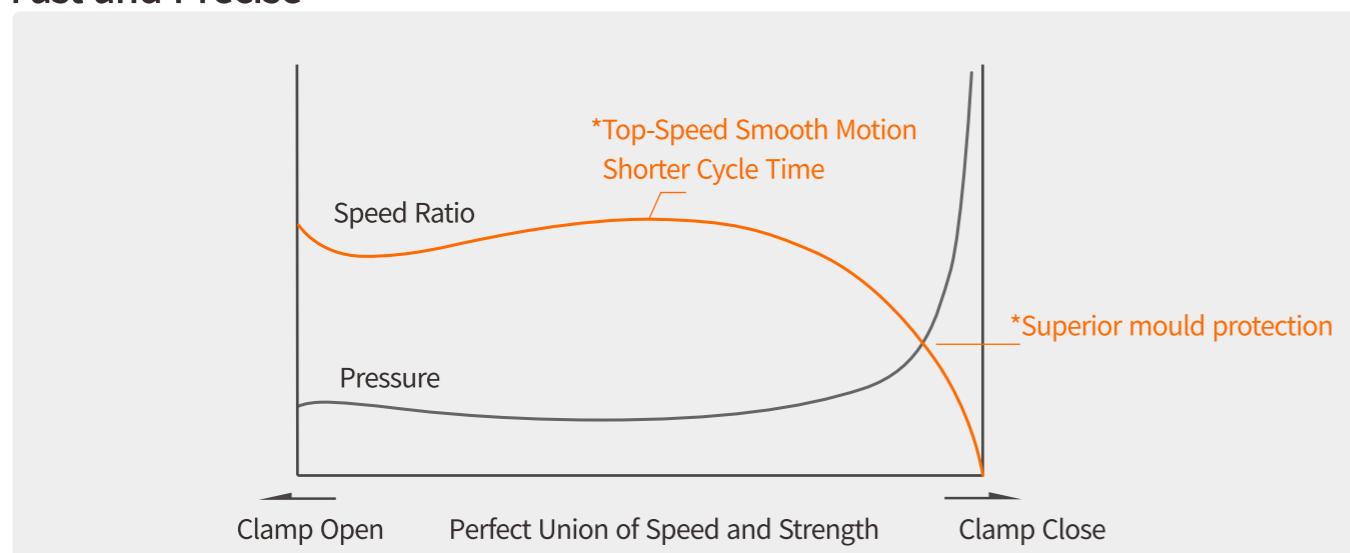
Optimised motion control profile guarantees high speed with high stability



Professional Japanese mechanical experts took the latest and newest in toggle design and hand-fitted a motion control profile based on large amounts of software simulation and real-life verification. This combination largely avoids unnecessary friction and shocks among mechanical components, distributes tension uniformly to all tie-bars, and ensures high degree of parallelism, in order to prevent flashes on parts and reduce toggle wear. The result is a toggle system that moves snappily, silky-smooth and with no vibrations, improving power efficiency and usage life while protecting against mould damages and unscheduled downtime.

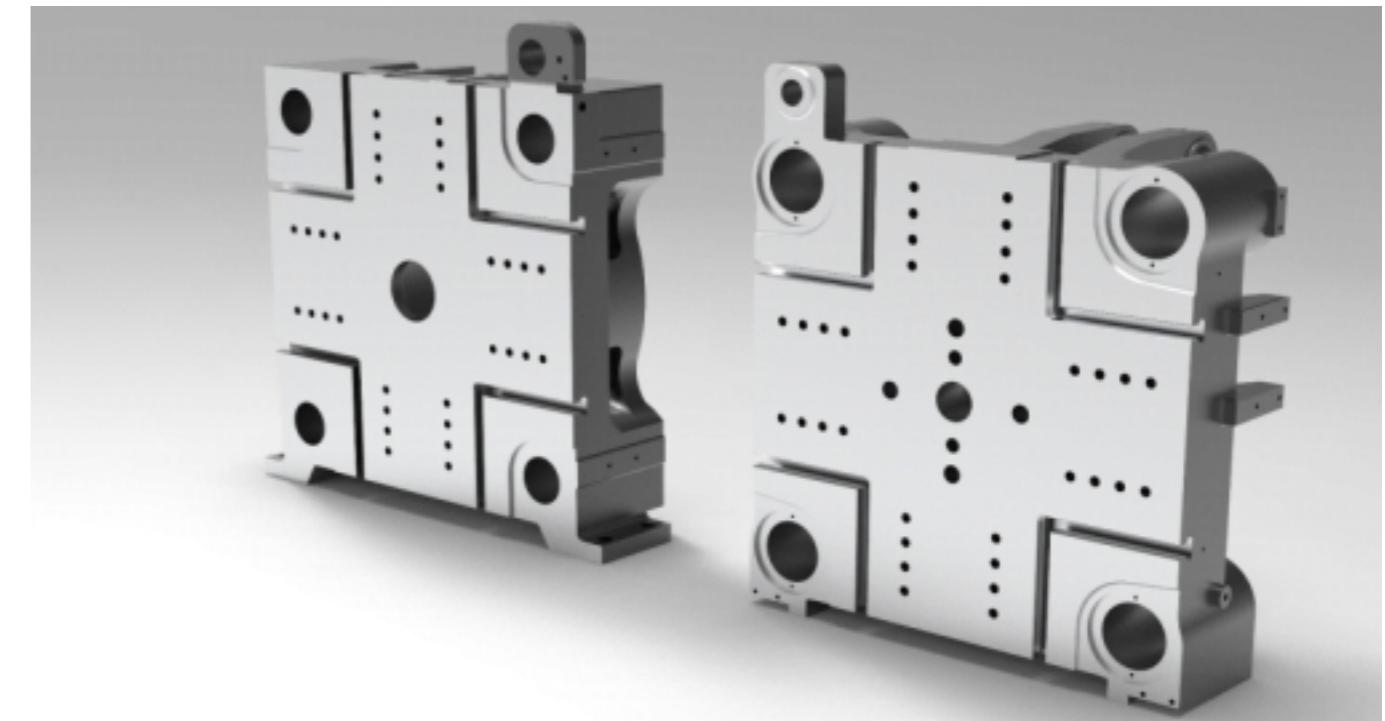
## Perfect Union of Toggle Design and Hydraulics

Fast and Precise



## T-slots + Mounting Holes on Platens

Easy and quick mould changes



## Hydraulic Oil Temperature Control



### Power Saving:

Oil temperature regulated by controller for higher stability and lower power consumption

### Quality:

Improve yields and eliminate rejects through maintaining the stability of the hydraulics circuit at all times

### Longer Life:

Extend usage life of hydraulic components by always keeping to optimal operating temperature

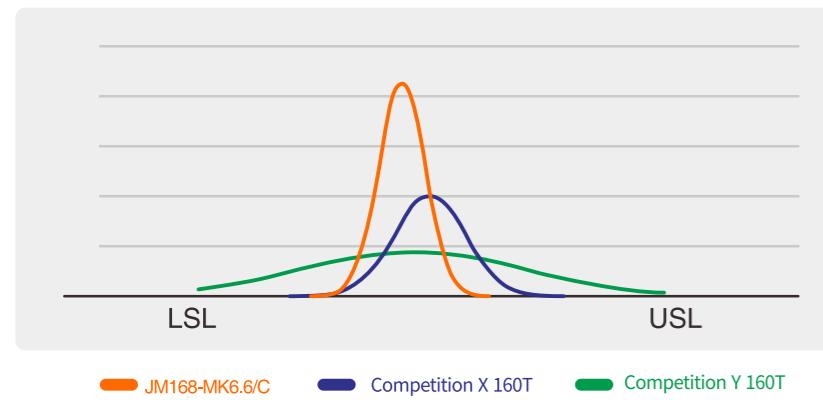
## Stability and Repeatability You Can Count On

Application Cases of MK6.6/C

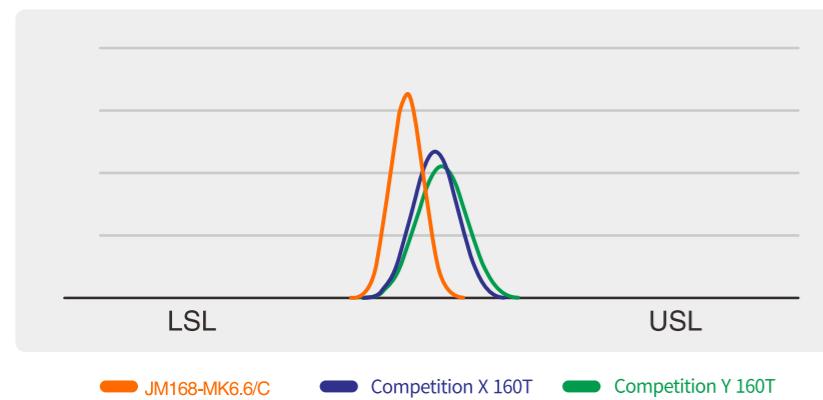


### Production data for LED lighting part

#### Product Weight Distribution



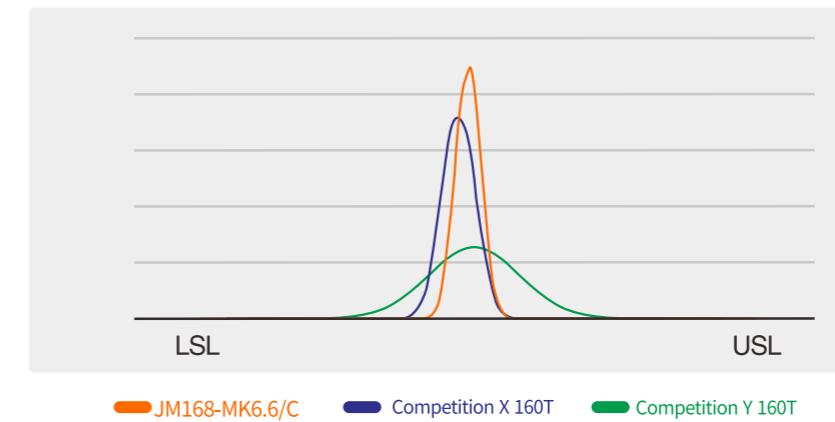
#### Product Weight CPK Comparison



CPK (Process Capability Index) – higher is better, indicating higher stability and quality

## Breaks No Sweat – Sustainable Productivity

#### Clamp Open Position Distribution



Clamp Open Position CMK Comparison	
JM168-MK6.6/C	3.8x
Competition X 160T	2.6x
Competition Y 160T	

CMK (Machine Capability Index) – higher is better, indicating higher repeatability and better control

## Show Me The Numbers

#### Dry Cycle Comparison

Average (s)	Clamp Close (s)	Clamp Open (s)	Total Cycle (s)	Stroke (mm)
JM168-MK6.6/C	1.10	1.02	2.12	300
Competition X 160T	1.26	1.19	2.45	300
Competition Y 160T	1.33	1.25	2.58	300



**15% Faster Dry Cycle    18% More Speed**

## Productivity Always in Your Hands

### The Economics of Production

#### Power consumption comparison (against industry average for 160T)

Application Case Example: LED lighting part

Model	Cycle Time (s)	Production Time (h)	Power Consumption (kW · h)	Total Number of Cycles	Total Product Weight (g)	Average Power Consumption per Kg (kW · h/kg)	Average Power Consumption per Cycle (kW · h/Cycle)
JM168-MK6.6/C	30.6	8	52.8	941	113882	0.464	0.0561
Industry average for 160T	35.7	8	57.6	807	98420	0.585	0.0714

## Show Me The Numbers

### Production Simulation

**11 M**

11 months of production per year

**21 H**

21 hours of production per day

**\$0.1**

\$0.1047/kWh

**10 Y**

10 years of primary usage

### Faster is always better

A JM168-MK6.6/C produces more shots than Same tonnage machine in 10 years

(941-807) x3x21/24x30x11x10=

**1,164,706 more shots**

### Efficiency is the name of the game

A JM168-MK6.6/C produces 8 million shots in 10 years, Saving \$12,900 in energy costs

(0.0714-0.0561) \*8,000,000\*\$0.1047=

**\$12,815,28**

**14% higher production volume**

## Standard Features

### Clamping Unit

1. Automatic toggle lubrication
2. Adjustment-free mechanical safety lock
3. Automatic mould thickness and clamping force adjustment
4. High-tensile chrome-plated tie-bars
5. Safety door with mechanical and electrical safety interlock protection
6. Differential boost for high-speed clamping
7. EUROMAP ejector
8. T-slots

### Injection Unit

1. Nitrided screw and barrel
2. Automatic PID temperature control (including nozzle)
3. Screw RPM display
4. Digital back pressure control
5. Nozzle guard
6. Cold start prevention
7. Broken thermocouple detection alarm
8. Blocked nozzle and overflow detection
9. Barrel safety cover
10. Movable hopper

### Power Pack

1. Oil temperature control
2. Speed and pressure control via servodrive
3. Low-noise internal gear pump
4. AC servomotor
5. High efficiency oil cooler
6. Suction and return line filter

### Electricals

1. 3-Phase Sockets
2. Tri-colour status indicator
3. Robot interface

## Optional Features

### Clamping Unit

1. Core pulls
2. EUROMAP 12 or EUROMAP 67 robot interface with connectors
3. EUROMAP/SPI holes pattern
4. Air blows
5. Ejection-on-fly / core-pull-on-fly
6. Longer ejector stroke
7. Larger maximum mould thickness

### Injection Unit

1. Reduced / enlarged injection unit
2. Shut-off nozzle
3. Specialised injection units for PVC or UPVC
4. Valve gates

### Power Pack

1. Oil level alarm
2. Hydraulic unscrew
3. Enlarged plasticising motor
4. Enlarged power pack
5. Hydraulic oil pre-heat

### Electricals

1. Multi-zone hot-runners control