

**FE Series**



The Passionate Pursuit of Perfection

[www.bole-machinery.com](http://www.bole-machinery.com)

**BOLE Customer Service Center**

**BOLE MACHINERY**

ADD: No.99 Weisan Road, Xiaogang, Ningbo, China

PC: 315821

TEL: +86-574-86188007

FAX: +86-574-86188008

E-mail: [bole-sales@bole-machinery.com](mailto:bole-sales@bole-machinery.com)

THIS CATALOGUE ARE PROTECT BY LAW OF COPY RIGHT.  
ANY USE WITHOUT THE EXPRESS PERMISSION OF THE LAW OF COPY RIGHT,  
MUST GET APPROVAL OF BOLE IN ADVANCE.

THIS VERSION WAS PRINTED IN JUNE 2019,  
ANY DIFFERENCE SPECIFICATION FROM OLD VERSION SHOULD BE SUBLICT TO THIS VERSION.

**FE Series**  
**Electrical Injection**  
**Moulding Machine**



**BOLE**  
Injection Moulding Machine

# Advantage Of Full Electrical Injection Moulding Machine

Compared to the traditional hydraulic injection moulding machine



## Energy Saving

Efficient energy conversion,  
Reduce power consumption.  
No need water for hydraulic  
oil cooling.

## Efficient

Synchronous machine  
movement is possible to  
achieve a short cycle time

## Precise

Up to 0.01 mm high position  
control accuracy, ensure  
product quality

## Clean

No pressure hydraulic oil, keep  
a clean production environment

## High Speed

High-speed & smart movement  
control for mold and injection,  
fulfill different application

## Quiet

Low noise level, create  
comfortable environment

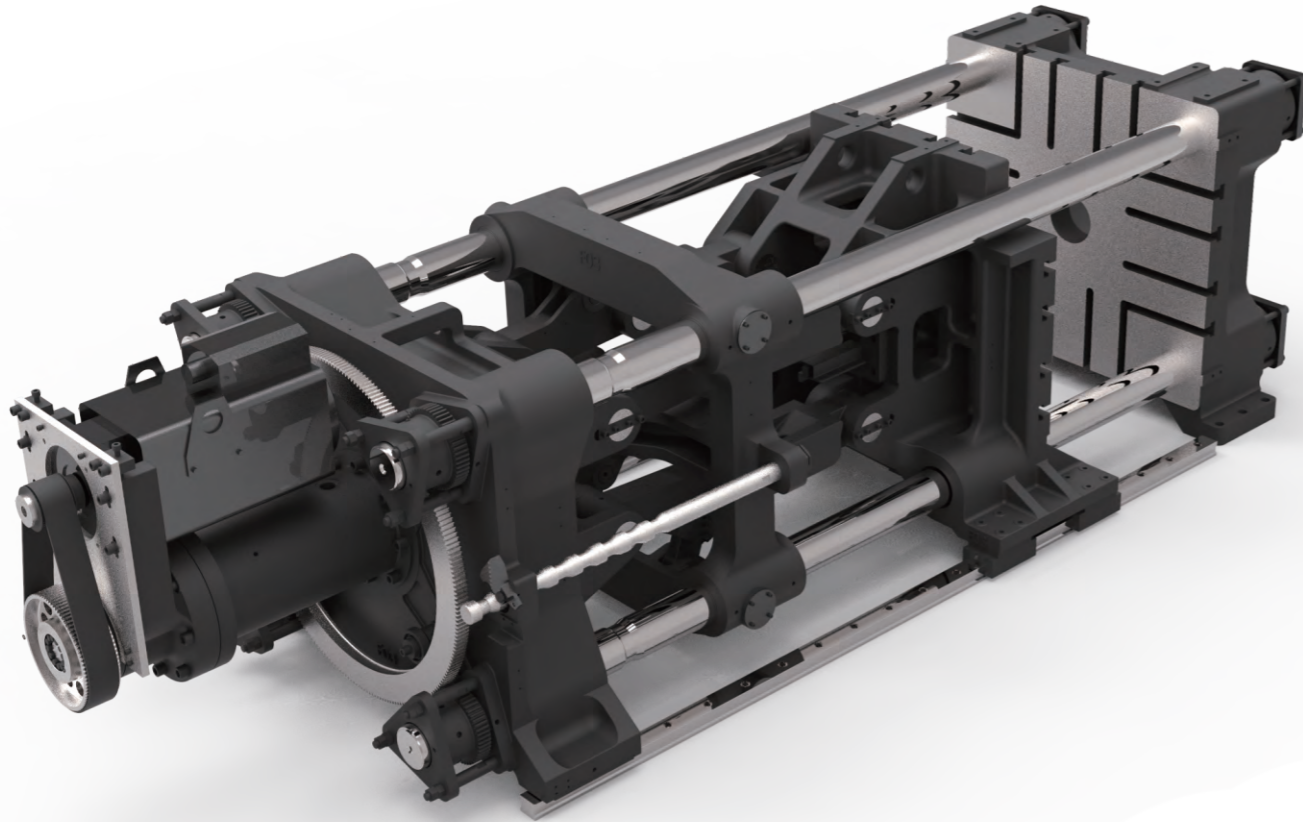
# BOLE Electrical Injection Moulding Machine

Precise High-speed Common Reliable

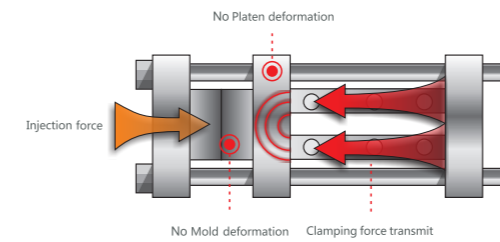


# E-version Of Central Clamping Toggle System

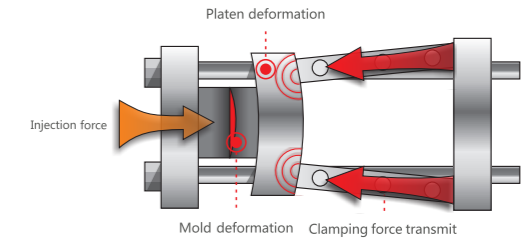
Central locking toggle, inventional patent in China  
(Patent No.: ZL2011 10250342.5)



## Toggle System Comparison



**BOLE**



**Others**

### BOLE centre clamping structure

- **100%**  
Clamping force efficiency
- **2-5%**  
Material saving
- Reduces mold wear, platen deflection
- Less possibility of flash, save flash trim work

### Tradition Toggle system

- **80-85%**  
Clamping force efficiency
- Moving platen with obvious deformation, cause flashes, waste of material and labor of trim the flashes.

- **Saving**

- Save material
- Save electricity
- Save nr. of machine
- Save maintenance

- **Precise**

- Precise position
- Precise speed
- Reliable mold protection
- Precise parallelism

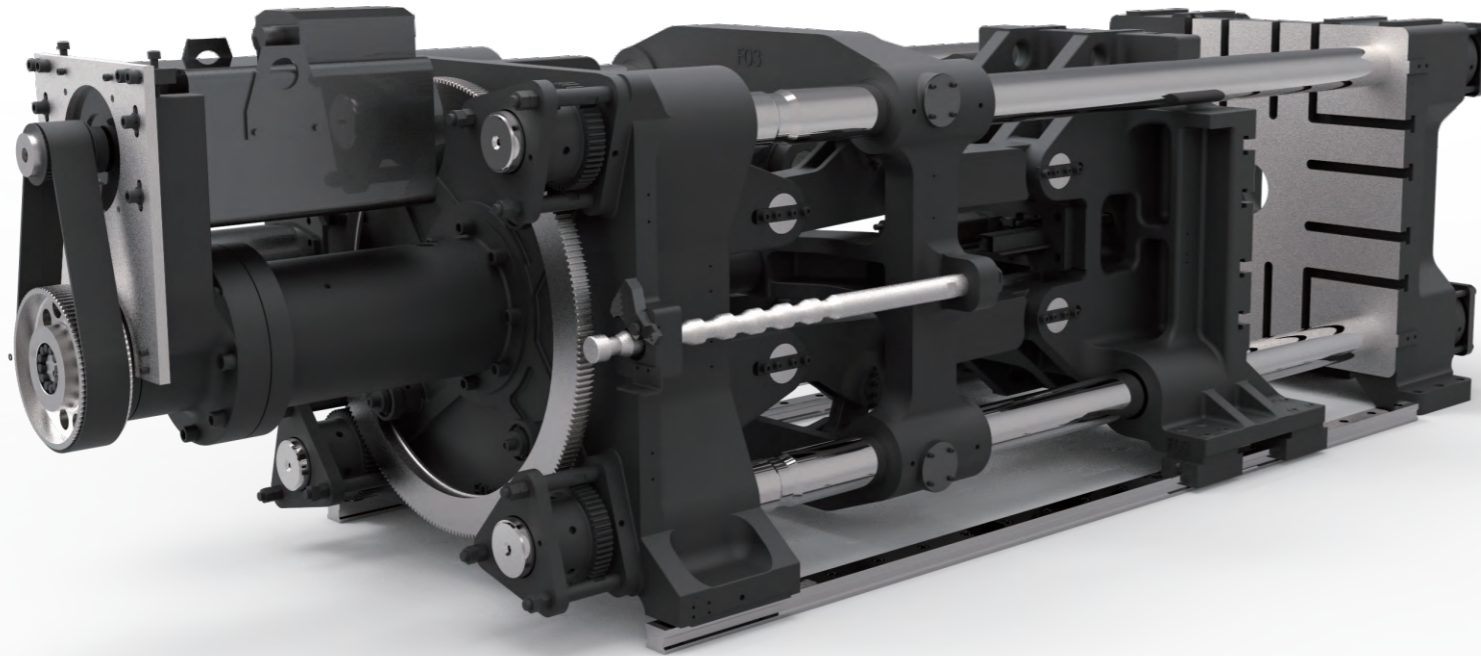
- **Large**

- Large space between tie-bars
- Large open stroke

- **Clean**

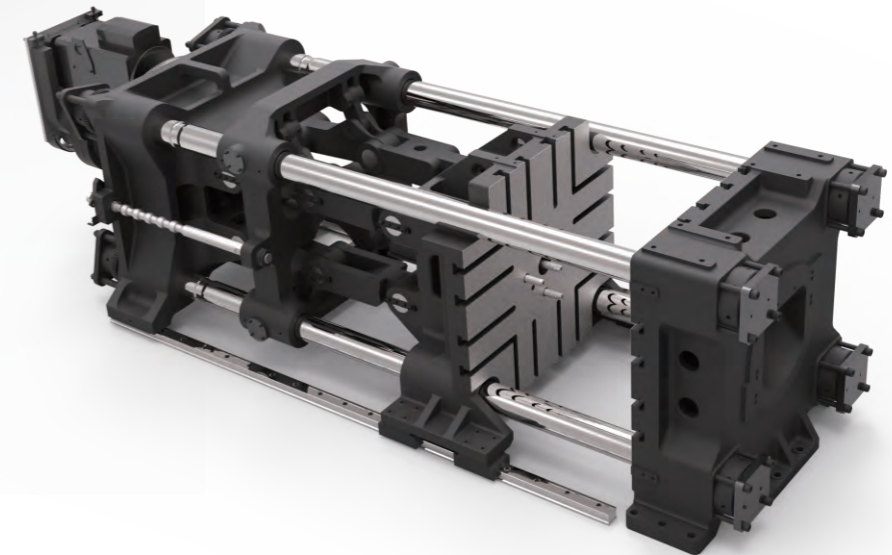
- The product area is free of oil

# Central Clamping Toggle System Driven By Servo Motor & Ball Screw



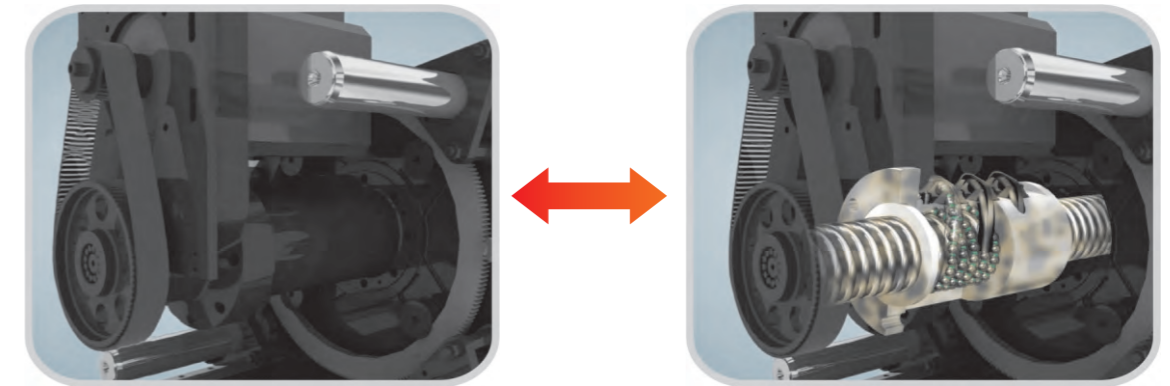
- Precise control for mold movement, repeatability up to 0.01 mm, fit for IML or automation.
- Flexible control curve, fast and smooth mold movement
- Sensitive mold pretention function
- Tie bar no touch with moving platen, no lubrication, ensure the mold area clean.

## Platen Supported By Linear Guide



- High platen parallelism
- No lubrication on movable platen
- Keep clean around Part-drop-area

# Patented Encapsulated Ball Screw Structure



## Tradition



Traditional design of ball screw structure is open to the air, dust will stick on the ball screw surface



Friction will increase ball screw temperature



Lubrication condition become worse

## Breakthrough



Encapsulated ballscrew, reduce the requirement of workshop environment



The heat created by friction is taken by oil bath, Ballscrew is well kept cool.

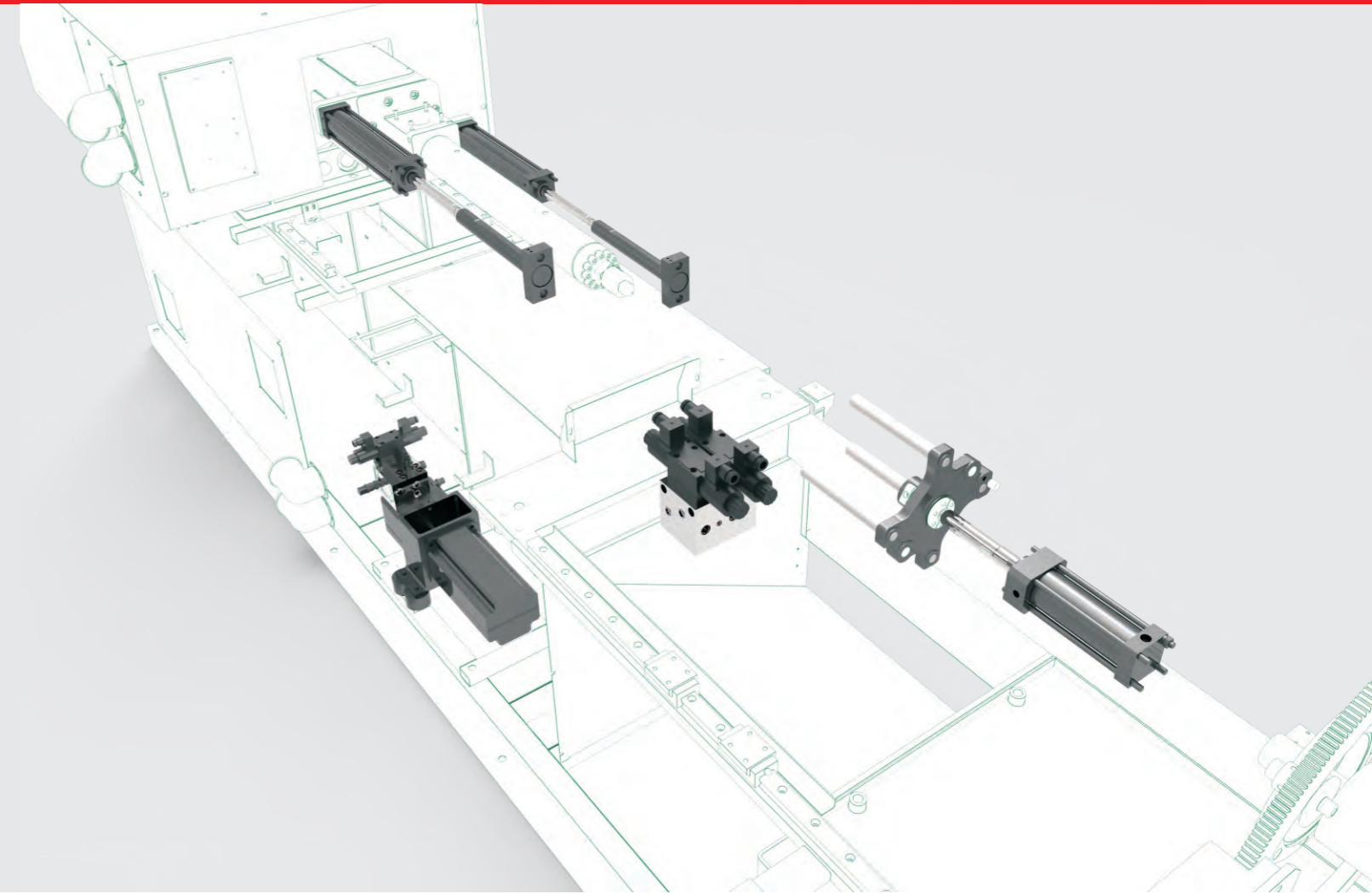


Lubrication is kept on the friction surface by oil bath

- Take away friction heat rapidly, reduce ball screw temperature and abrasion.
- Obstruct dust pollution, request of using environment is low.
- Expensive and imported ball screw lubrication grease is unnecessary.
- More easy for maintenance, no need to clean fatlute.
- Special design of enclosed electric clamping cylinder which is anti-dust immersion type good lubrication. It will improve the ball screw lifetime.

# Control System

- 12 Inches
- I/O Module
- PC Port
- 4.0 Germany
- XFC Control
- 0.01 Precision



- KEBA controller as standard with 12 inch touchscreen, user friendly interface
- EtherCAT fieldbus control system, utilize superspeed I/O module with real time function.
- PC-based control platform, windows®system, easy operation, easy to be extended.
- Germany industry 4.0 standard, intelligent manufacturing technology which is easy to implement.
- Unique XFC topspeed control technology, can reduce the materials consumption properly, improve the product quality.

## Embedded Servo Hydraulic Pump Station

- Symmetrical cylinder arrangement for injection carriage, offer reliable and balance nozzle contact
- Hydraulic ejector and core puller flexible to meet different mold requirement
- Servo drive hydraulic pump station, power saving and efficient
- Option for Full-electrical version: without hydraulic pump station and corepull, electrical drive for carrier movement and ejector.



## German Designed Plasticizing System

- Excellent plasticizing efficiency
- Options for different application



## Various Application

- Adopt low inertia&high response structure for injection, quiet conveyor, meet various condition
- Higher injection precision repeatability, stabilize in product
- Meet various condition, thin wall packing and wall thick lens can be applied
- Injection position repeatability  $\pm 0.01$  mm