

ZE - F

Electric fast-cycling Solution
with integrated Hydraulics



ZHAFIR
PLASTICS MACHINERY

- Thinking electric since 20 years
- Foundation of Zhafir 2005
- Production start 2007

units

3500
3000
2500
2000
1500
1000
500
0

2007 2010 2012 2014 2016 2018 2019

0

371

793

1062

1893

3296

2540



230,000+
SQM
Production area
in China



600+
EXPERTS
available worldwide



20,000+
MACHINES
delivered to customers
until now

Zhafir Family



FROM 400 - 33,000 kN

INJECTION PERFORMANCE

- h up to 350 mm/s for thinwall parts
- hs up to 500 mm/s for extremely thin wall parts

APPLICATION PERFORMANCE

- F **ZERES**
Performance version for short cycles and high injection performance
- M For multi component precision parts

Applications



FMCG



Medical



IML



Thin-wall

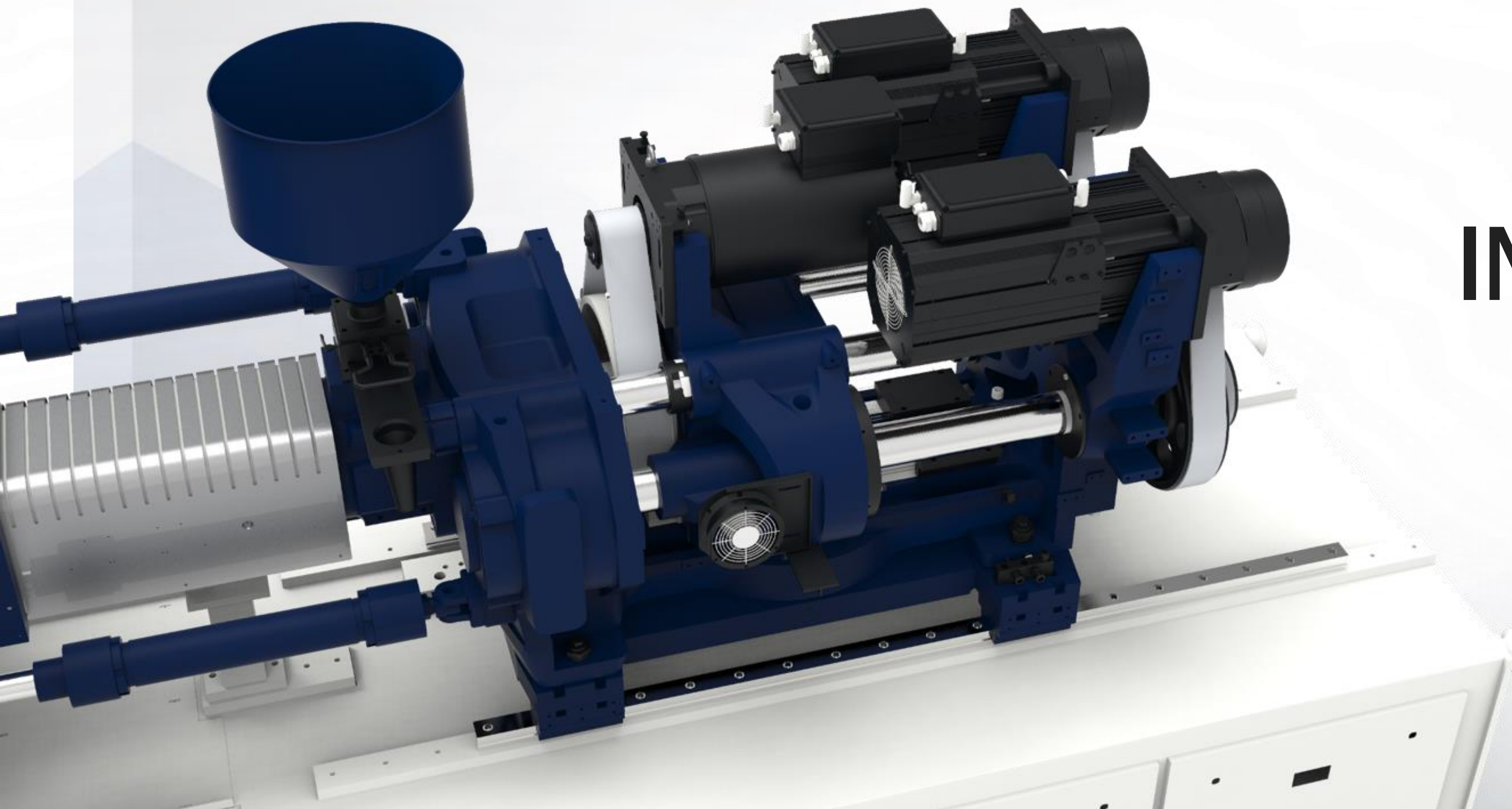


Closure system

Machine Range

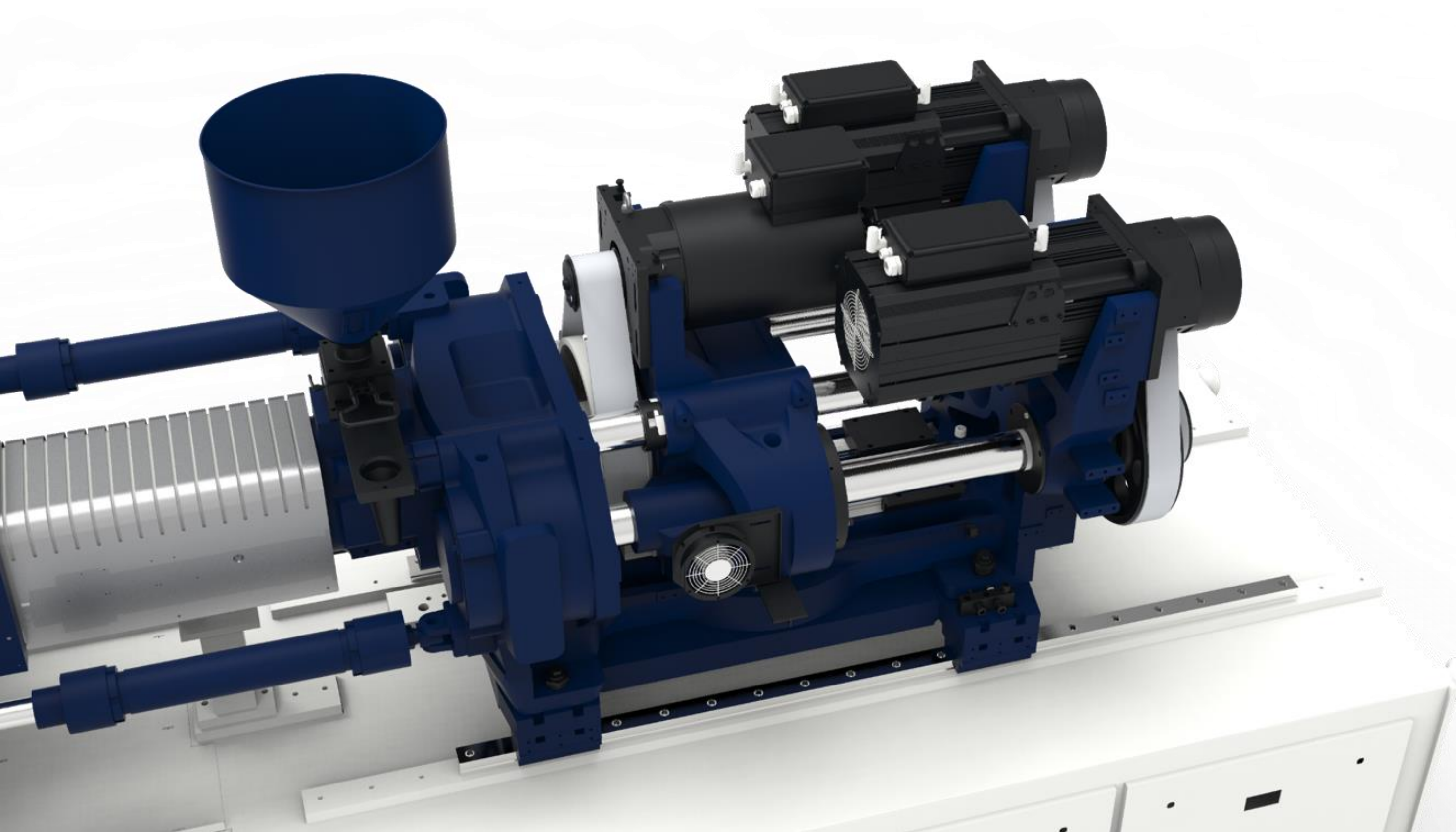


	Clamping	Injection					
Models	430	640	830	1100	1400	1700	
1500							
1900							
2300							
3000							
3800							
4500							



INJECTION UNIT

INJECTION UNIT



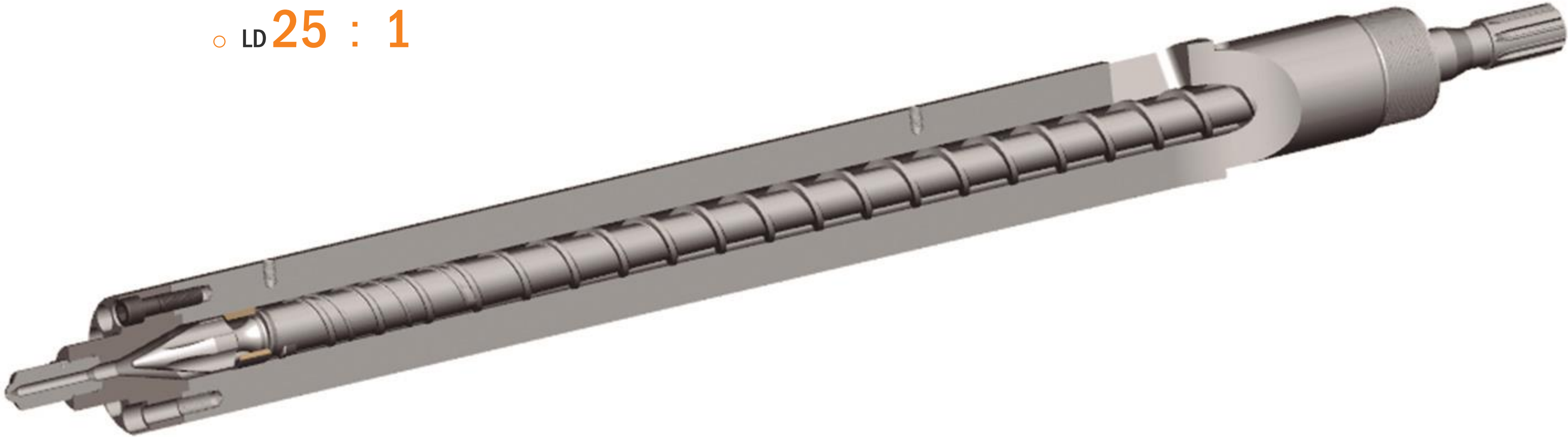
- Dedicated plasticizing components (L/D = 25), improve plasticizing capacity
- Injection speed up to 350 mm/s
- Constant injection speed and faster response
- Linear guides on the injection
- Optimized design of injection cooling system to enhance heat exchange efficiency
- Nozzle contact force
- Swiveling injection unit

More efficient plasticizing components (L / D = 25)

improve plasticizing capacity

- Screw special design

- LD **25 : 1**



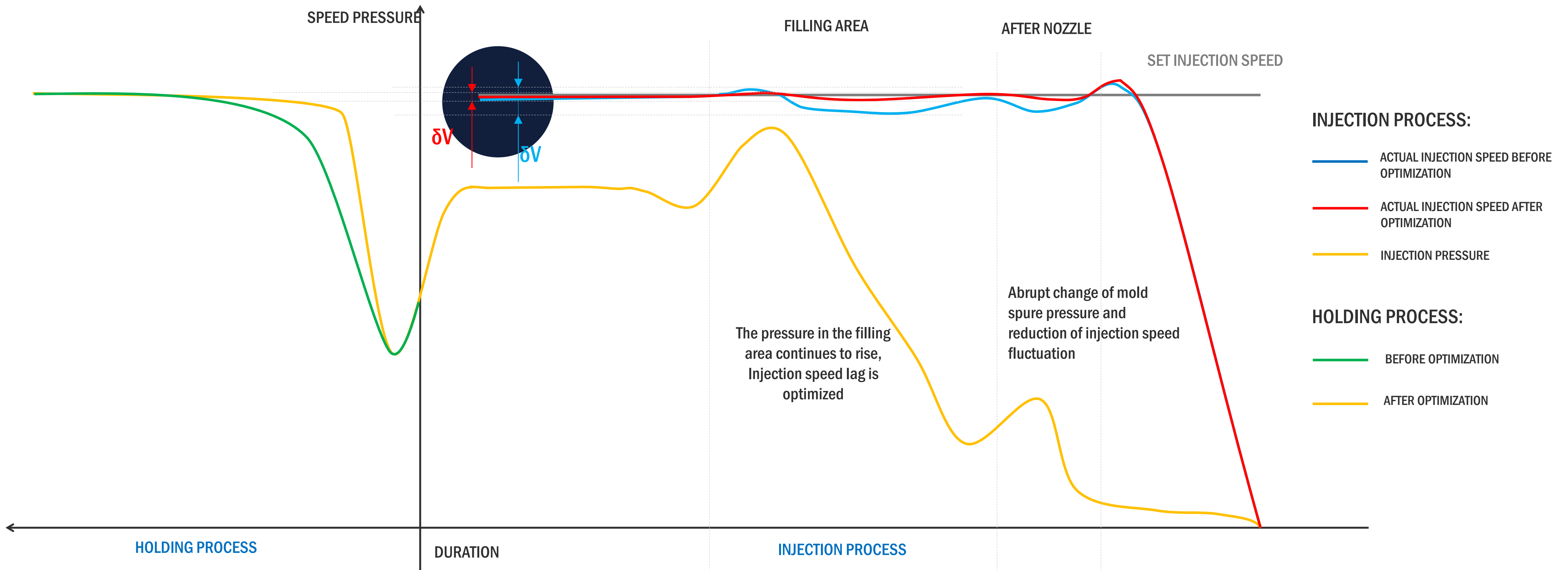
High injection speed promotion



- Fast injection speed in certain models
- Easy to deal with thin-wall products and low liquidity raw materials

VE P	Inj. speed (mm/s)	ZE F	Inj. speed (mm/s)
430p	300	430h	350
640p	300	640h	350
830p	300	830h	350
1100p	300	1100h	350
1400p	300	1400h	350
1700p	300	1700h	350

CONSTANT INJECTION SPEED & FASTER RESPONSE



- Faster response for pressure holding
- More effective control over size and surface of the molded parts

- More constant injection speed
- Better quality of the molded parts

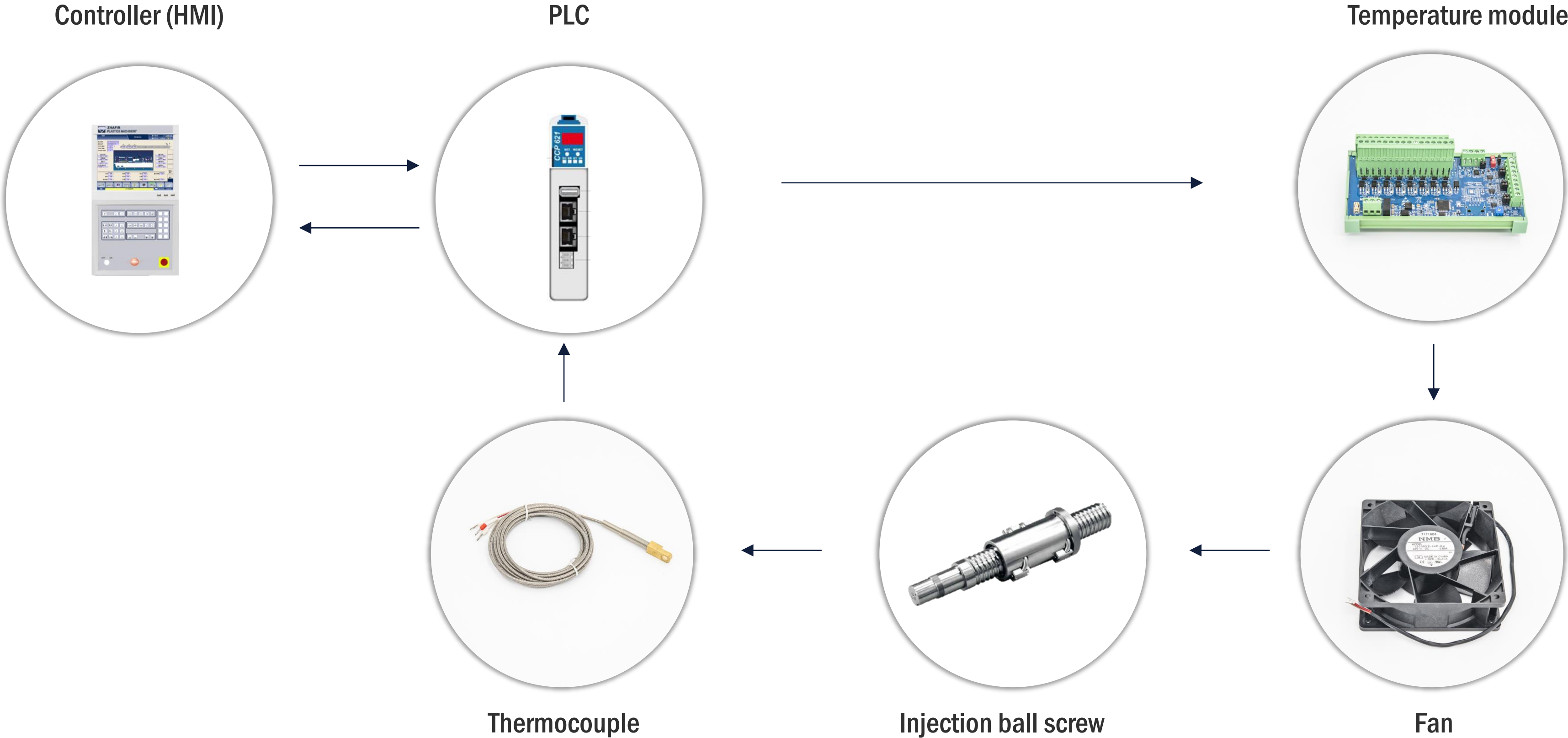
Linear Guides



- Low friction, fast response
- High loading capacity
- Clean operation

Optimized design of injection cooling system

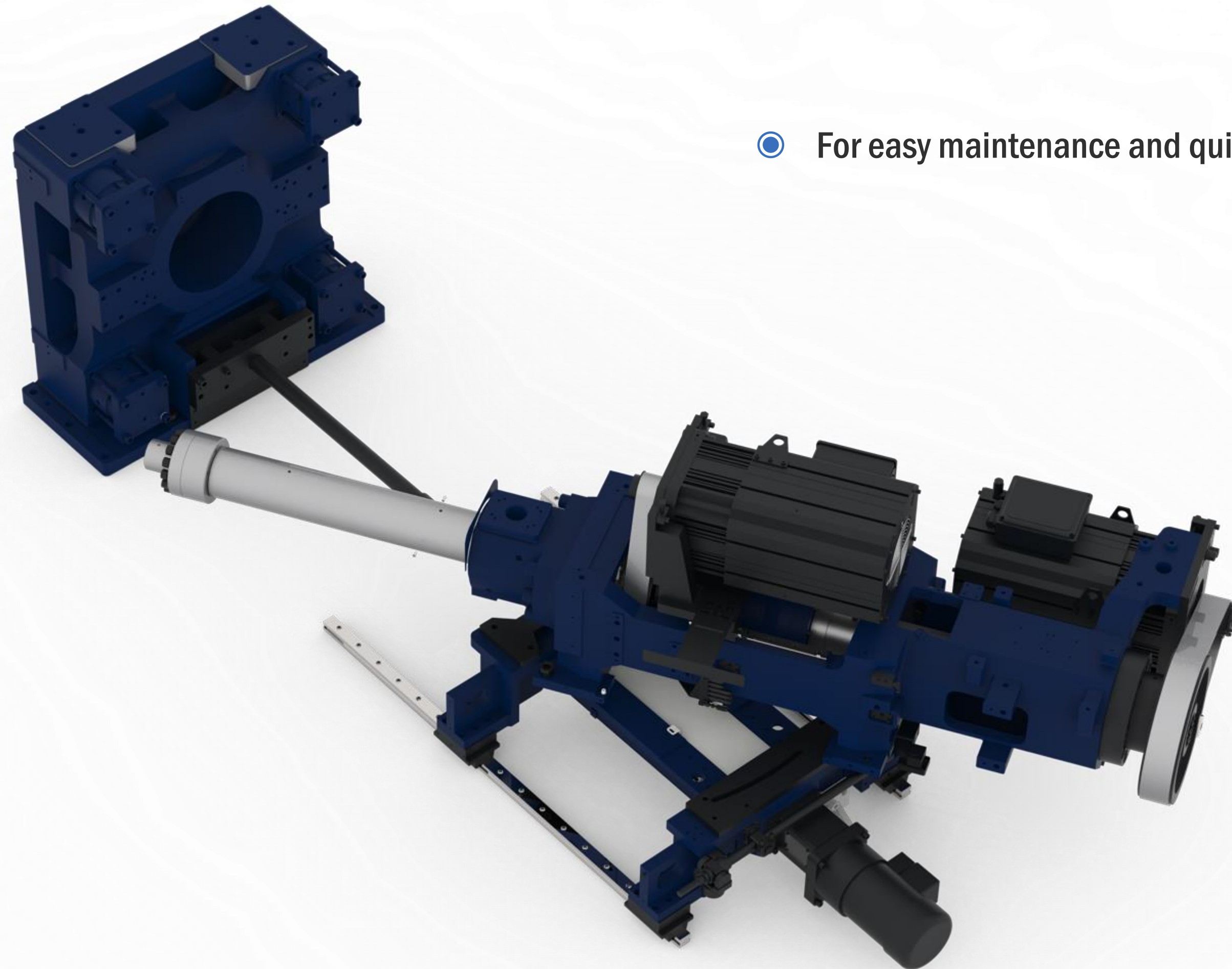
- Temperature closed-loop control of injection ball screw
- Fan locked rotor alarm system



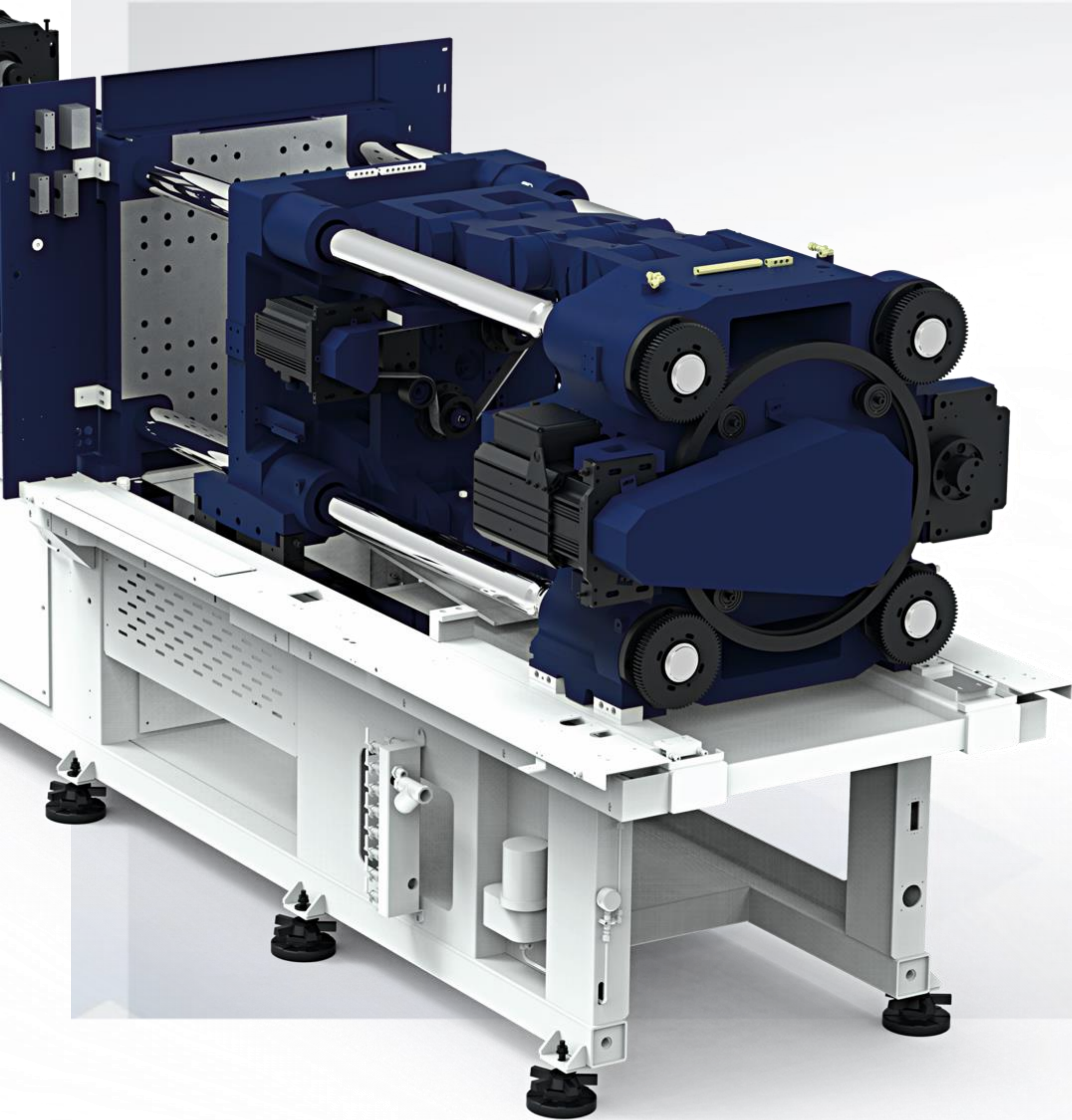
Nozzle contact force increases

VE p		ZE F	
Injection unit	Contact force (kN)	Injection unit	Contact force (kN)
430	29.4	430	63.7
640	39.2	640	63.7
830	54.0	830	88.2
1100	54.0	1100	88.2
1400	54.0	1400	88.2
1700	54.0	1700	88.2

Swiveling Injection Unit



- For easy maintenance and quick screw change



CLAMPING UNIT

CLAMPING UNIT



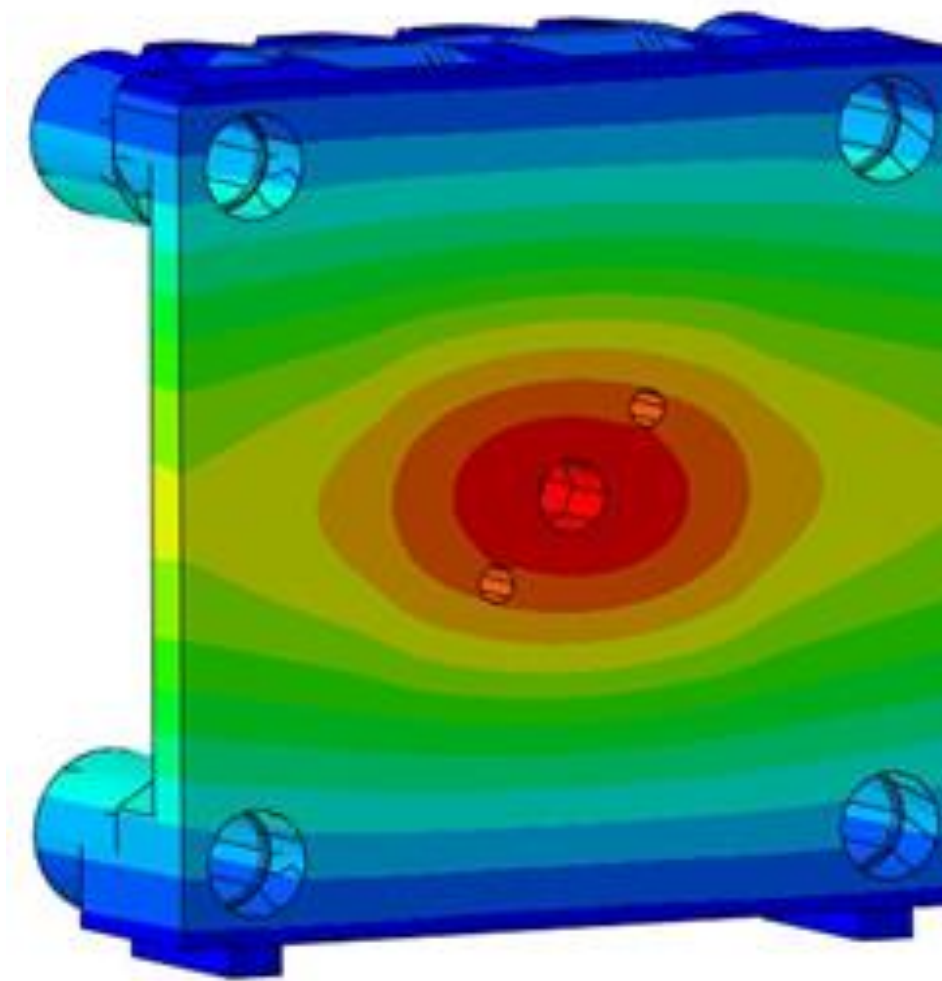
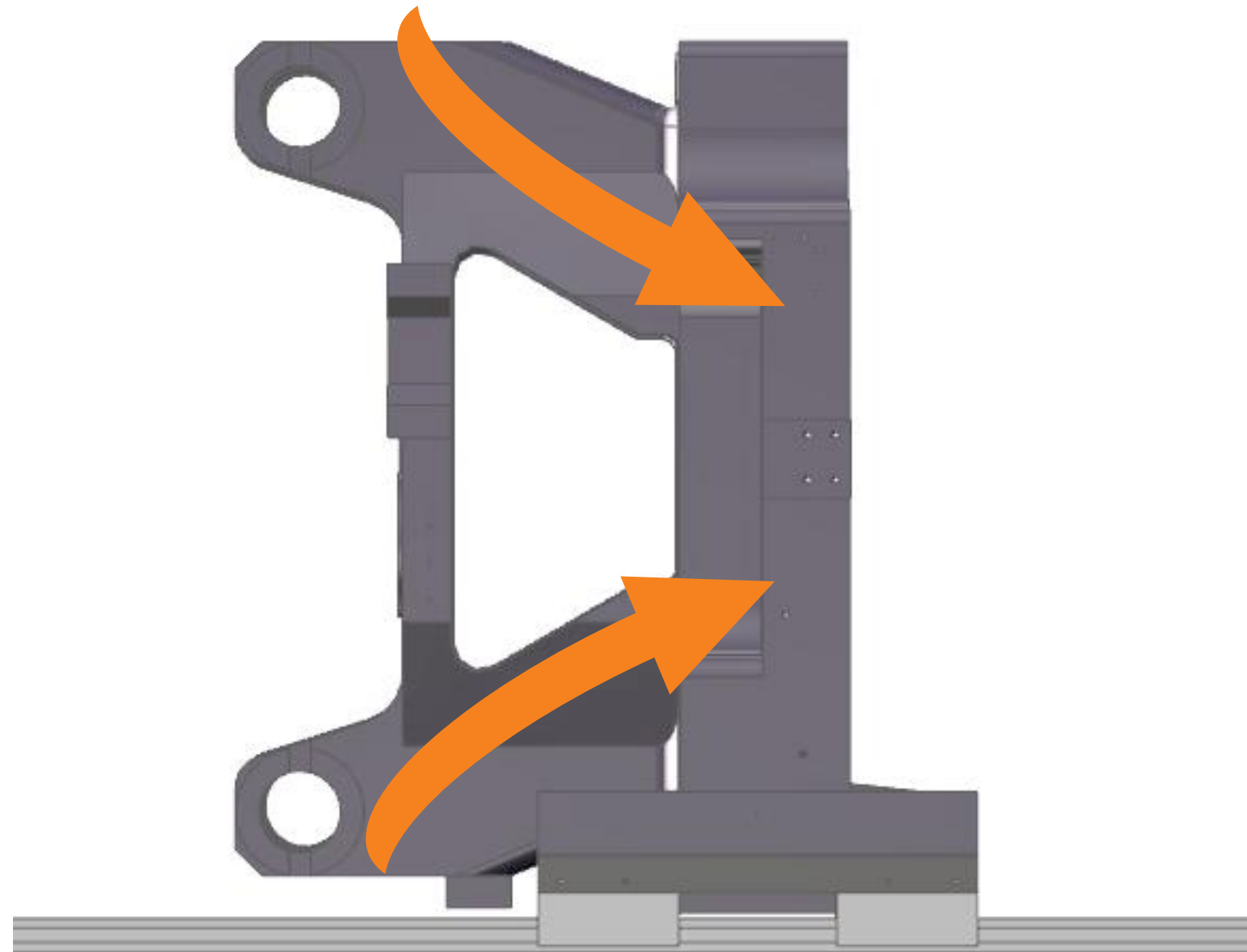
- Exterior design
- Rigid platen design
- Toggle structure
- Tie bar distance
- Dry cycle time
- S-Curve platen motion control
- Mold protection
- Moving platen support
- Linear guide for mold open/close (option)

Removable Structure Design



- Reserved space for robot movement above the non-operation side (removable structure design)

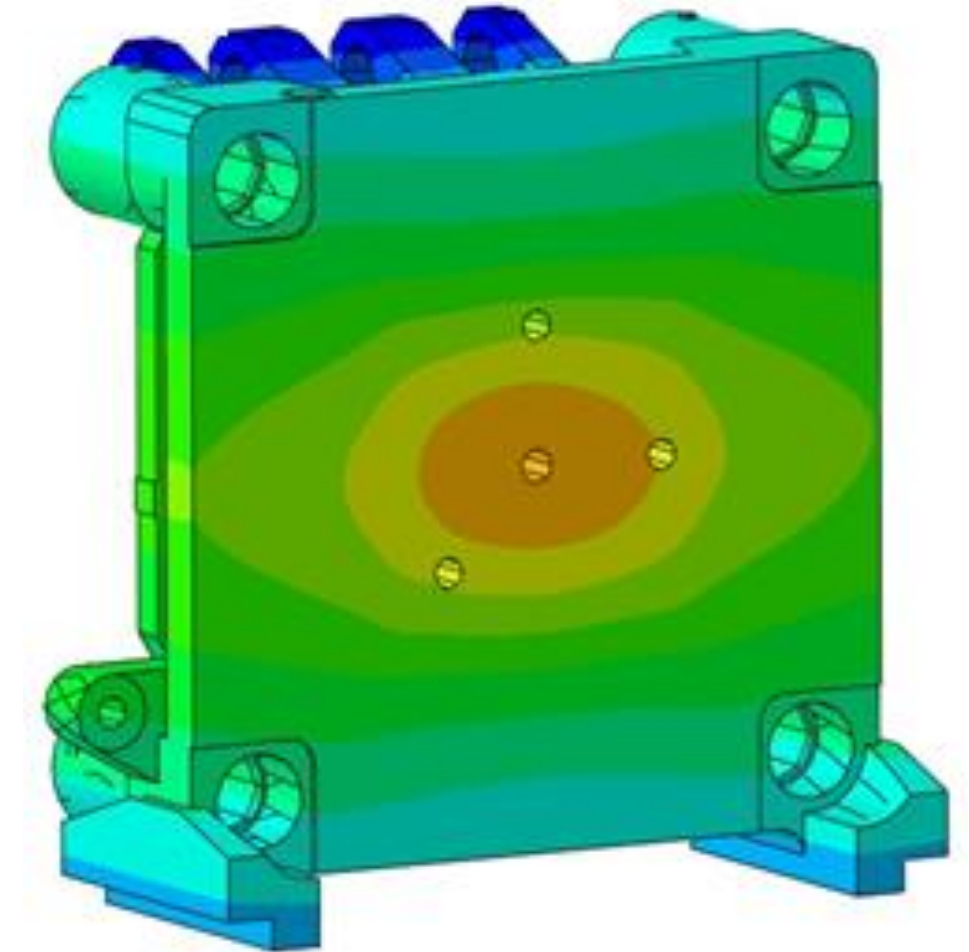
Centralized Force Transmission on Platen



VE5500II

Deformation near center hole reduced by

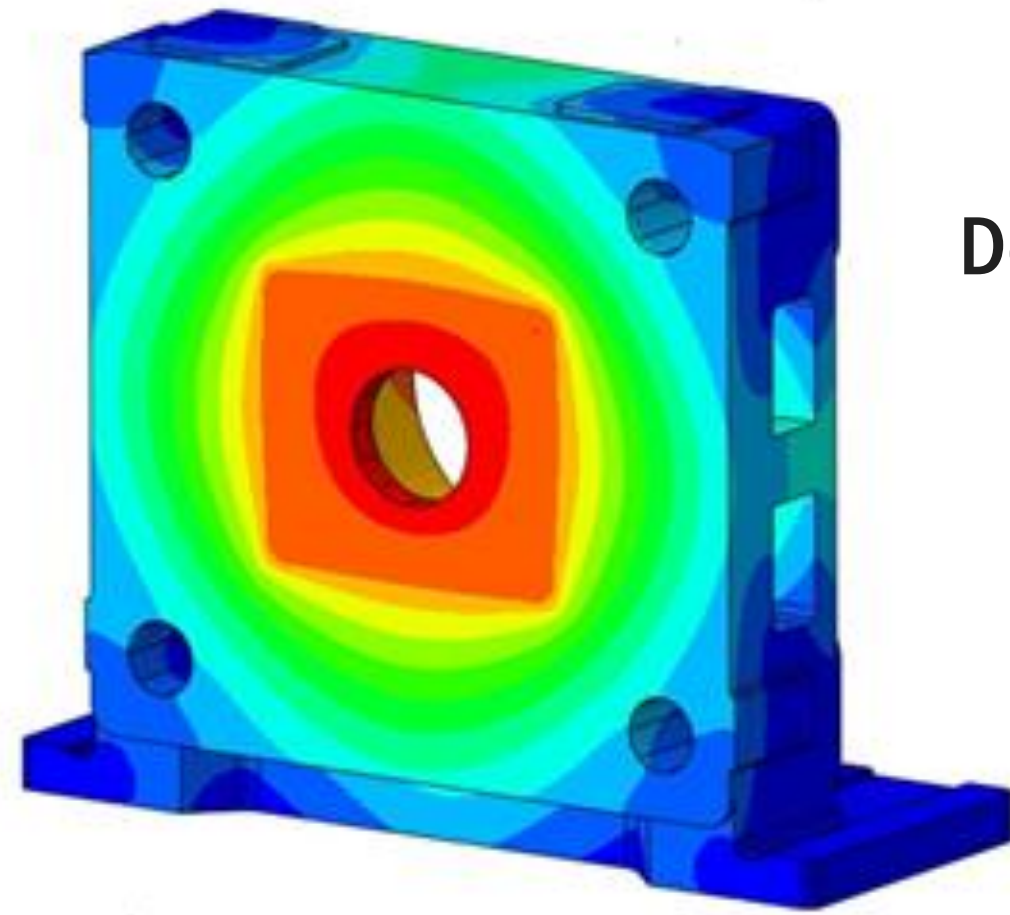
24%



VE5500III

- Highly Rigid Platen Design
- Surface pressure distribution in equality
- Structural design optimization ensures that stress is concentrated in the center of platen

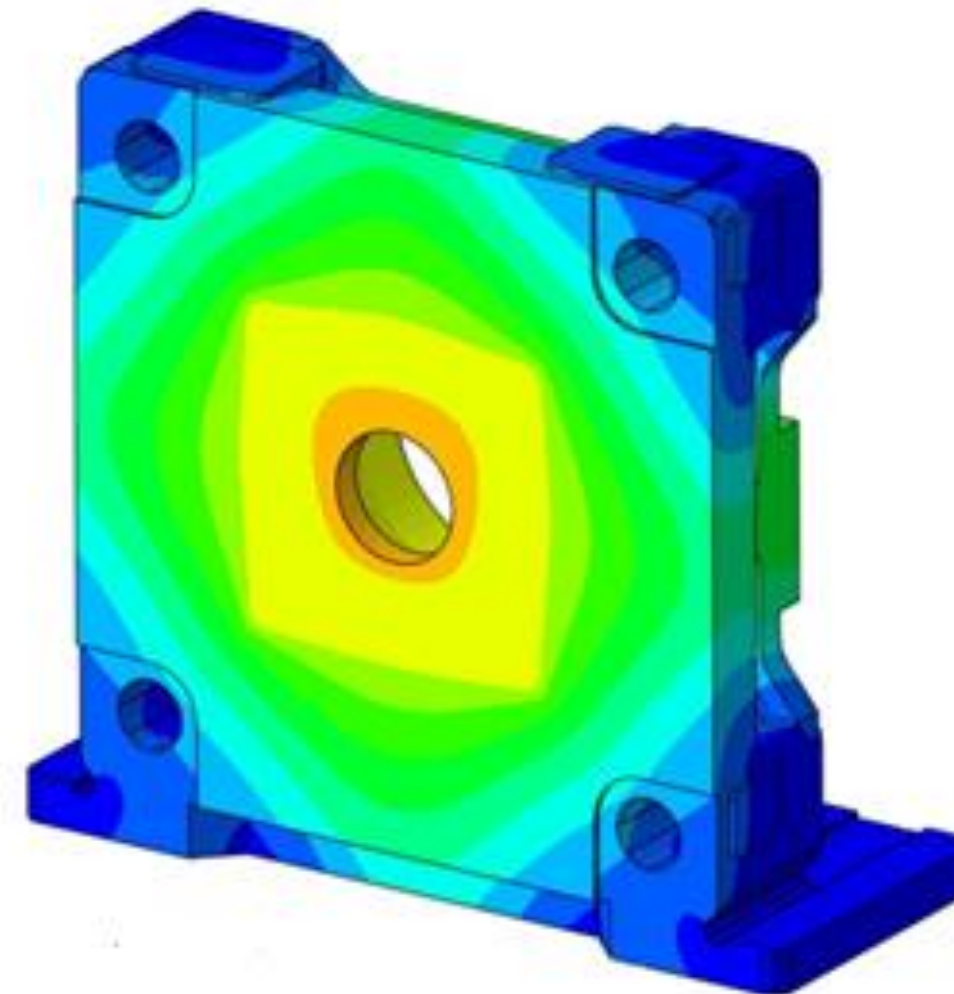
Improved Fixed Platen Design



VE5500II

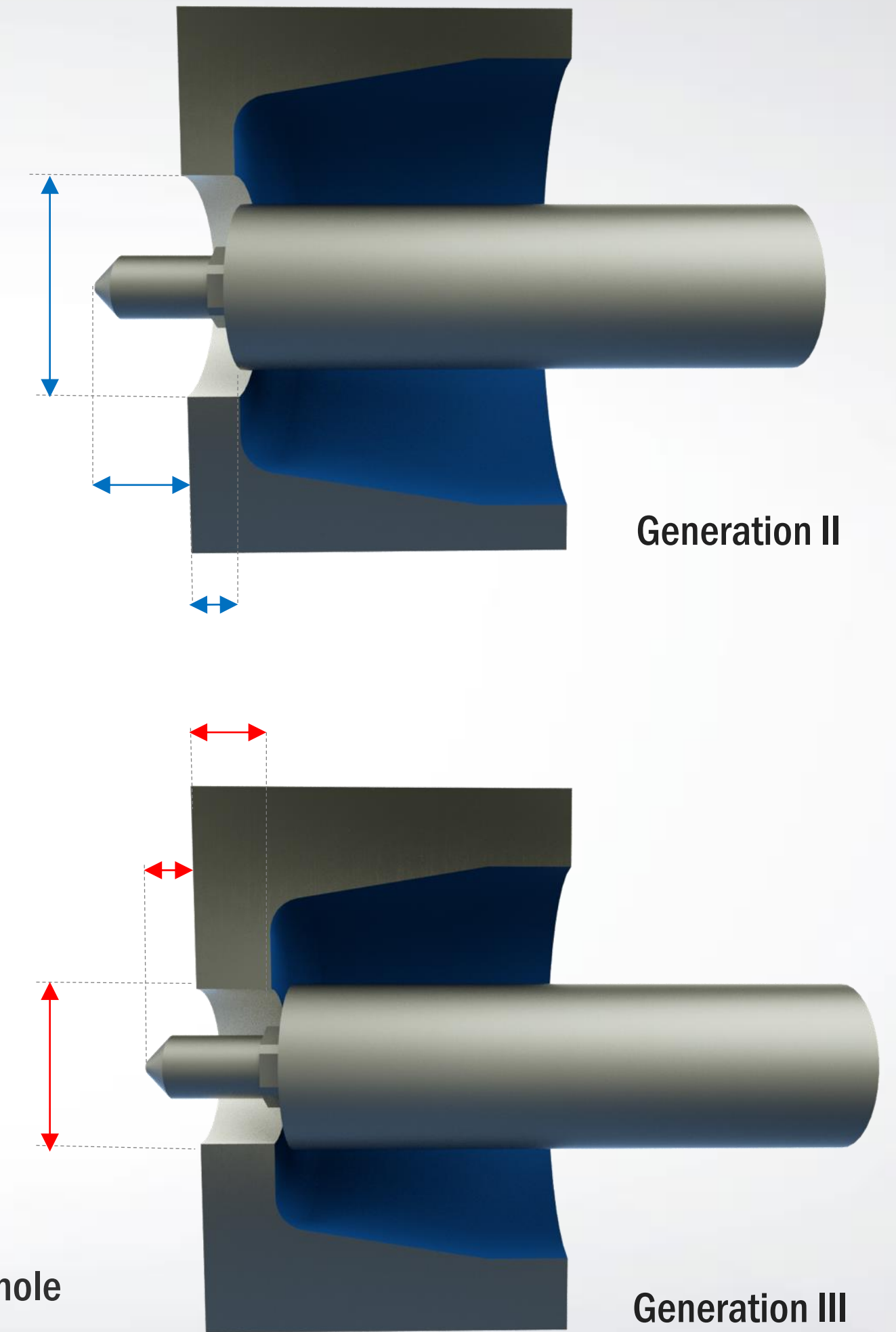
Deformation near center hole reduced by

14%



VE5500III

- More rigid and much more adaptable for high-cavity mold
- Ensure distribution in equality for products

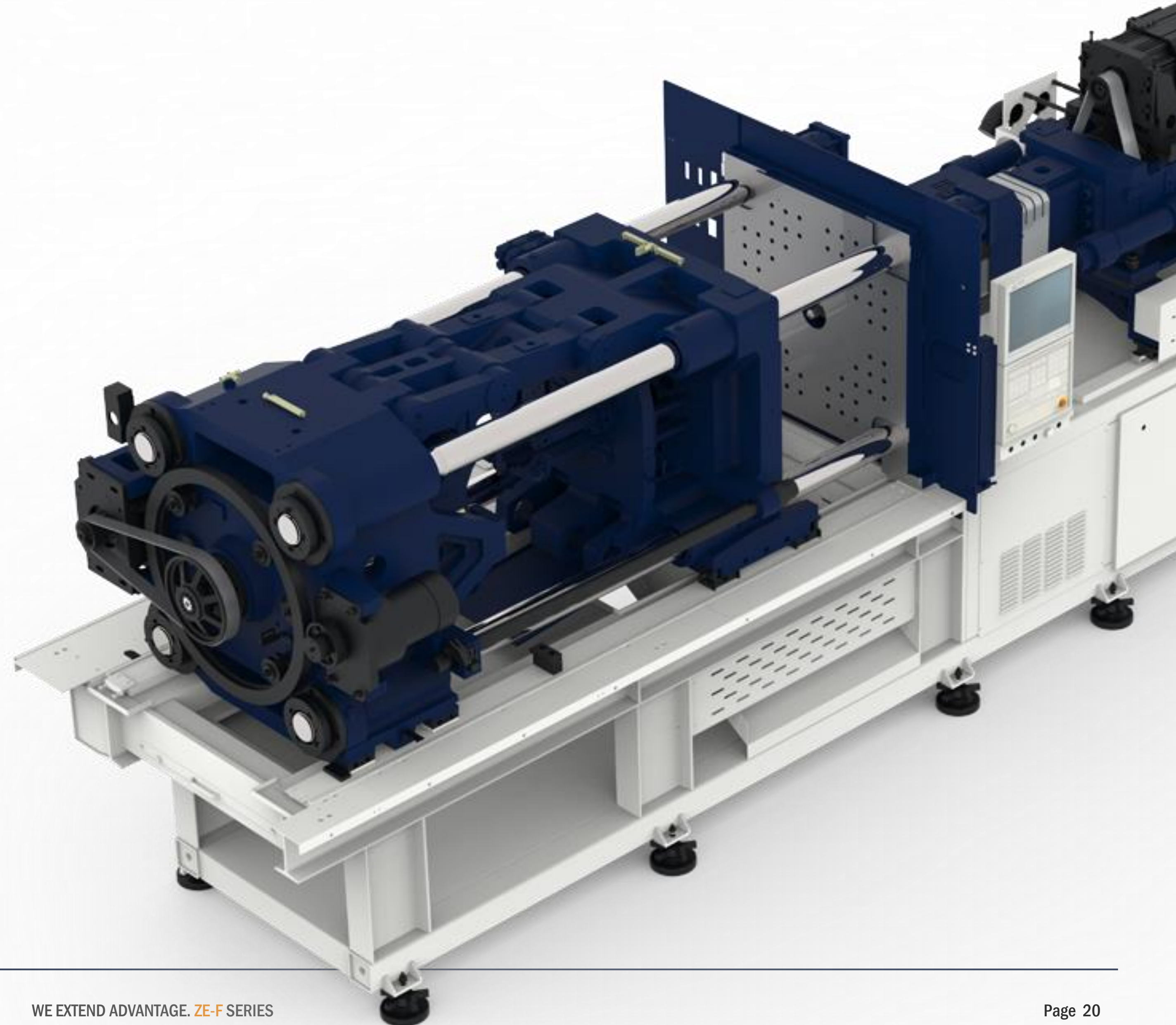


- More rigid support for center hole
- Reduced nozzle extension from 50mm to 30mm
- Smaller center hole

COMPACT TOGGLE SYSTEM

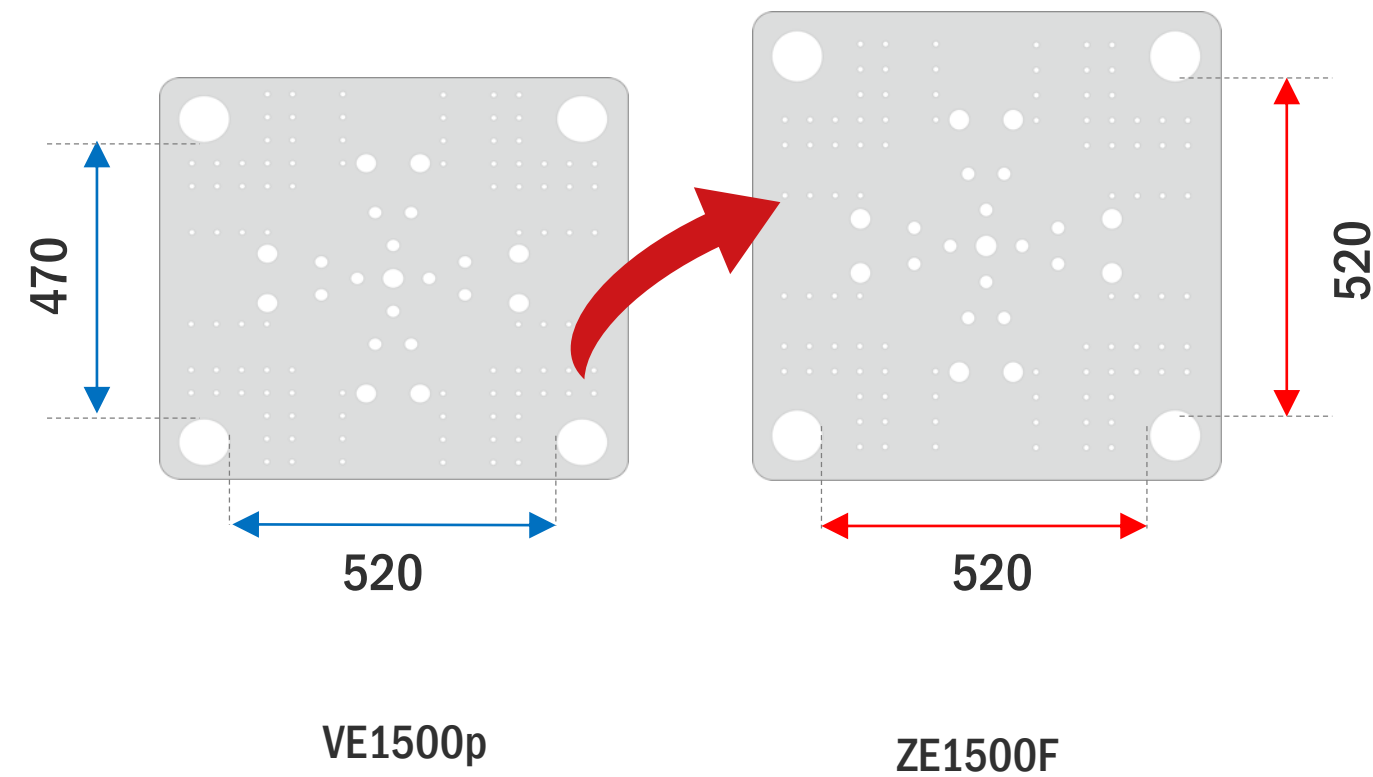


- Redesigned, compact structure of the toggle system
- High rigidity and optimum platen parallelism
- Fast dry cycle time
- T Slot is optional



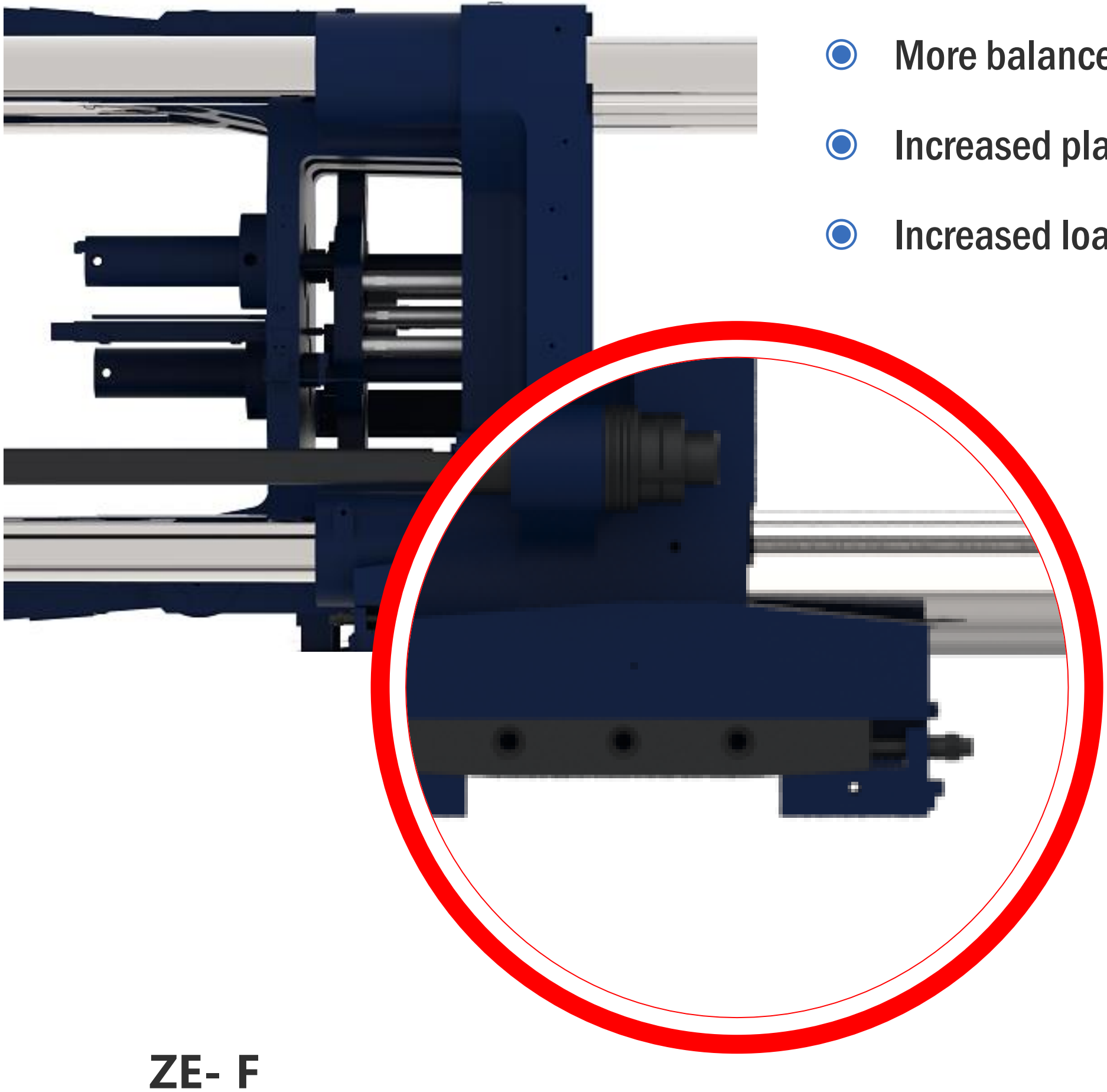
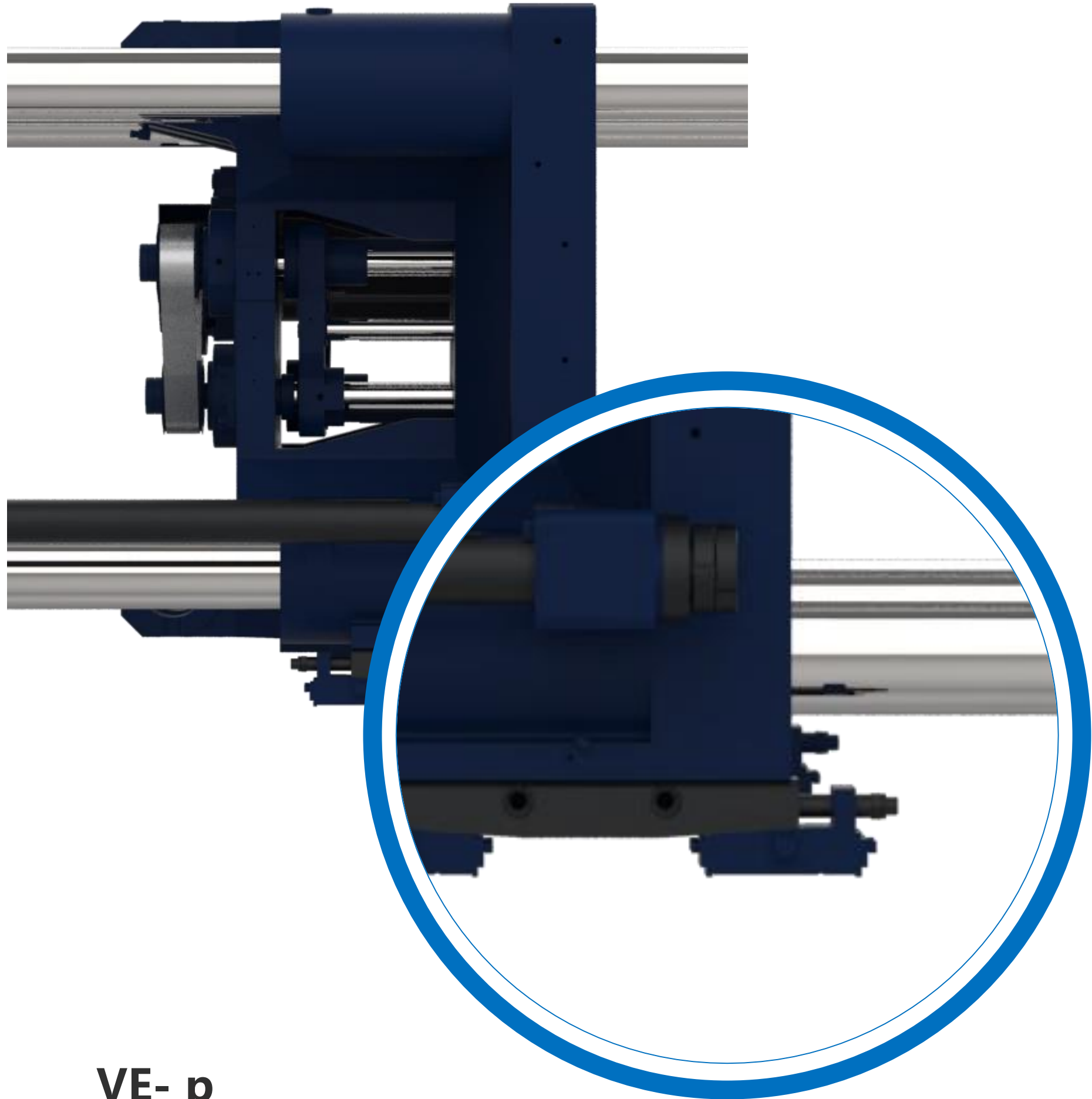
SQUARE PLATEN DESIGN

- Square platen design for whole series
- Bigger mold space
- The mold has better operability in all directions
- More even distribution of force on the platen



Clamping ton (kN)	VE p tie-bar distance H×V (mm)	ZE F tie-bar distance H×V (mm)
1500	520×470	520×520
1900	570×520	570×570
2300	620×570	620×620
3000	670×620	670×670
3800	770×770	770×770
4500	820×820	820×820

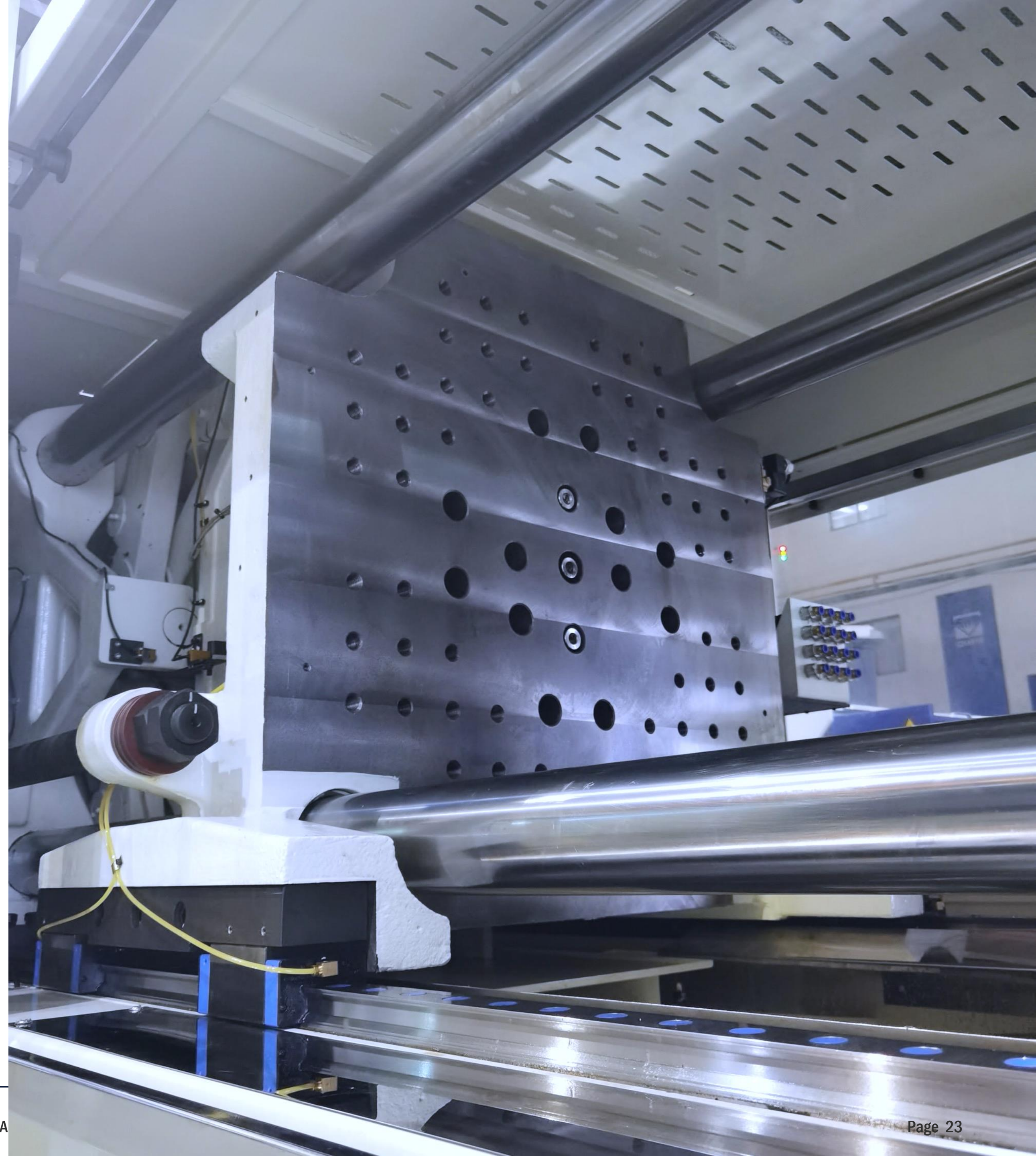
RIGID MOVABLE PLATEN SUPPORT



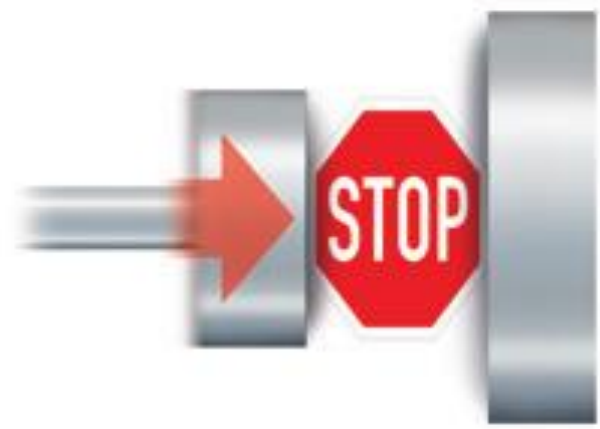
- More balanced supporting structure
- Increased platen parallelism
- Increased loading capacity

LINEAR GUIDE FOR MOLD OPEN/CLOSE (OPTION)

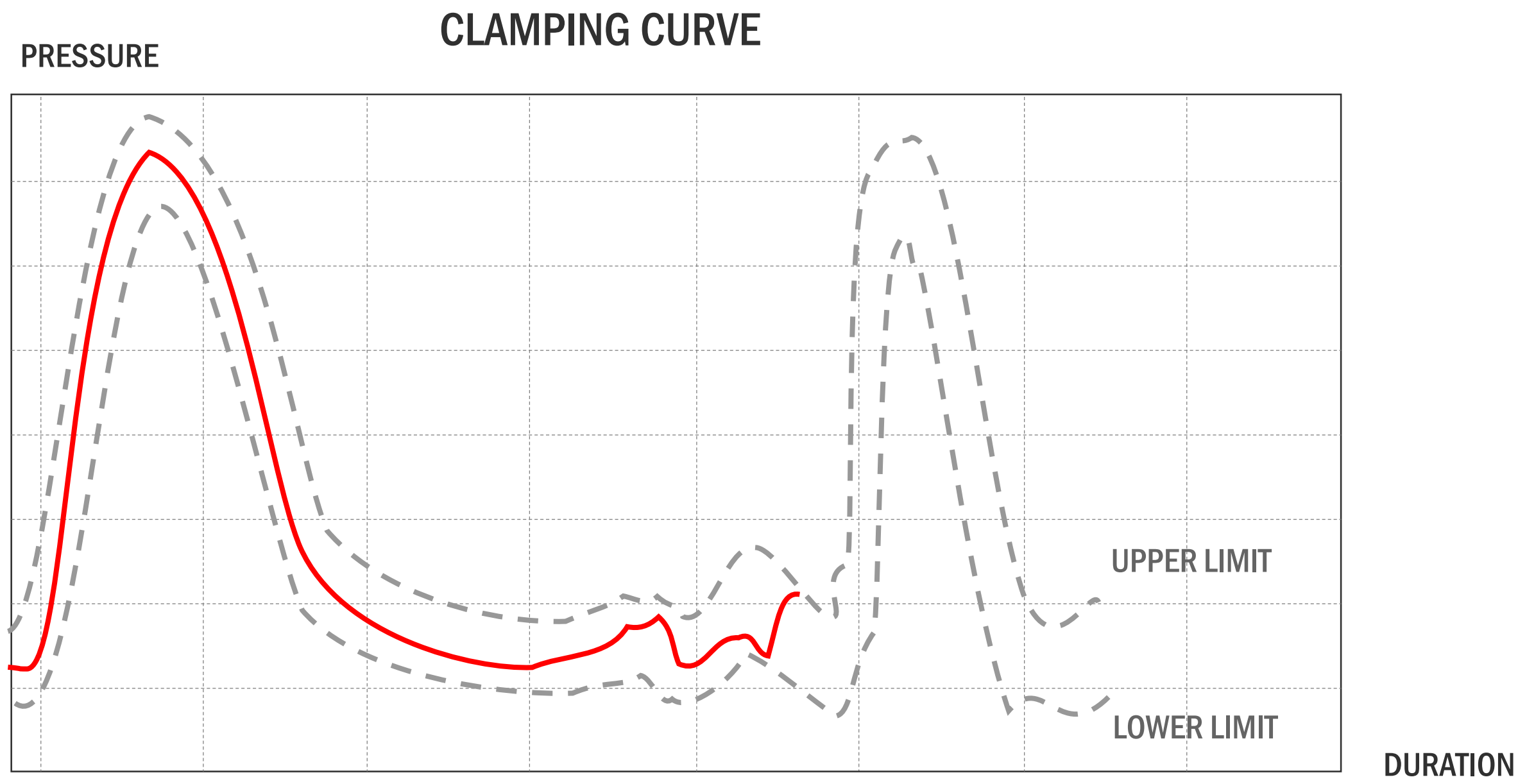
- Non-contact tie bar design
- More clean and much higher parallelism of the platen
- To effectively prevent mold from tilting, extending the service life of the mold and ensure higher precision



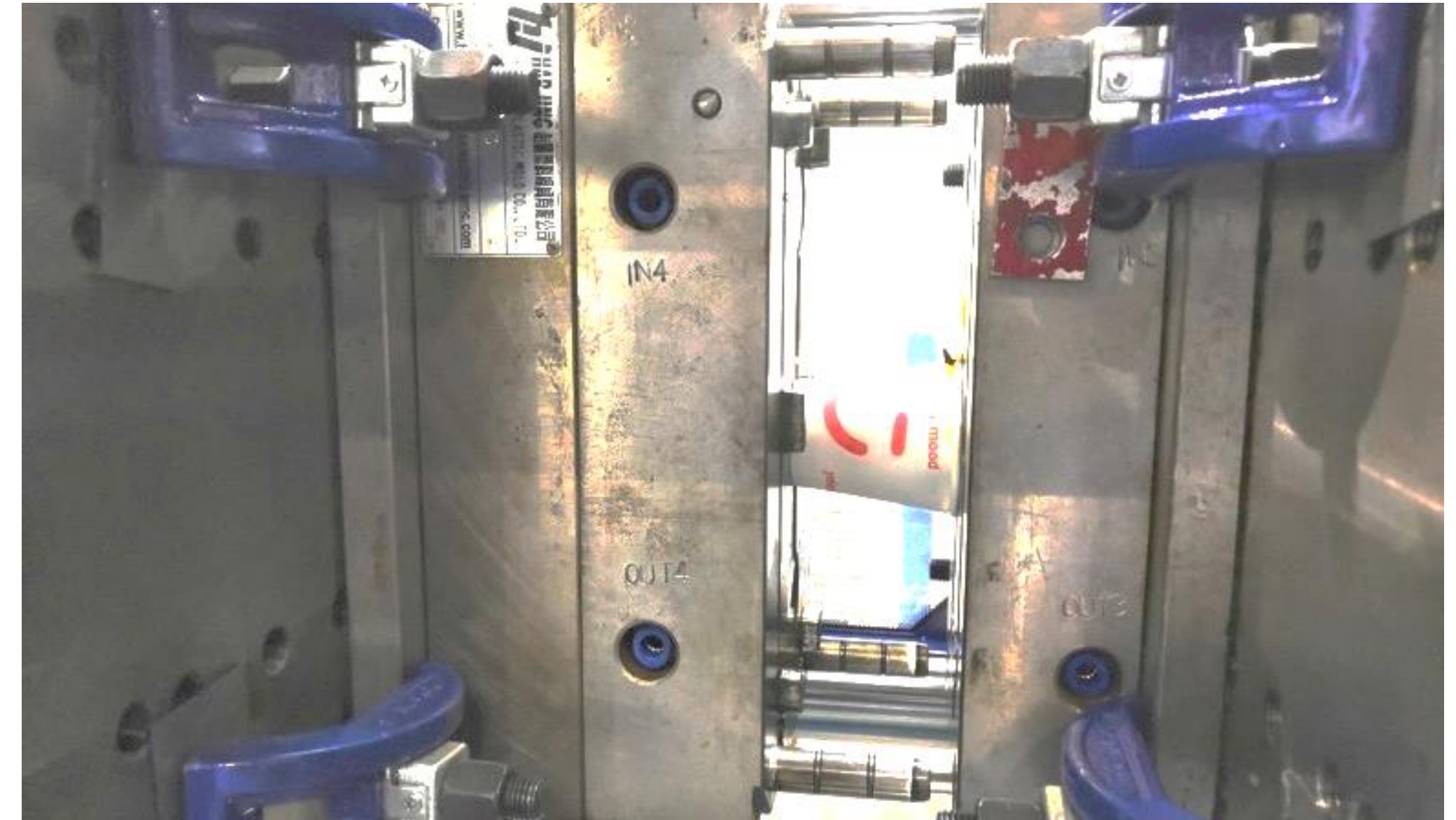
MOLD PROTECTION



- Intelligent algorithms ensure highly reactive and precise mold protection
- Mold protection throughout the entire clamping stroke

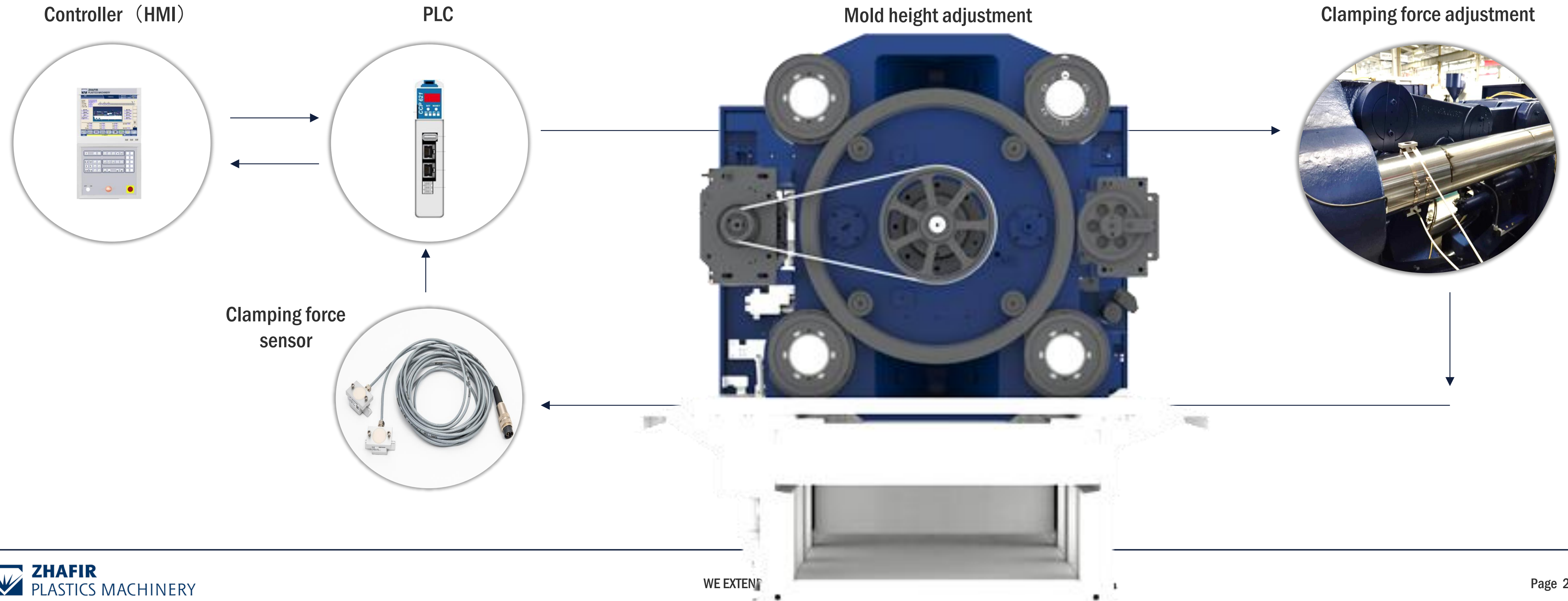


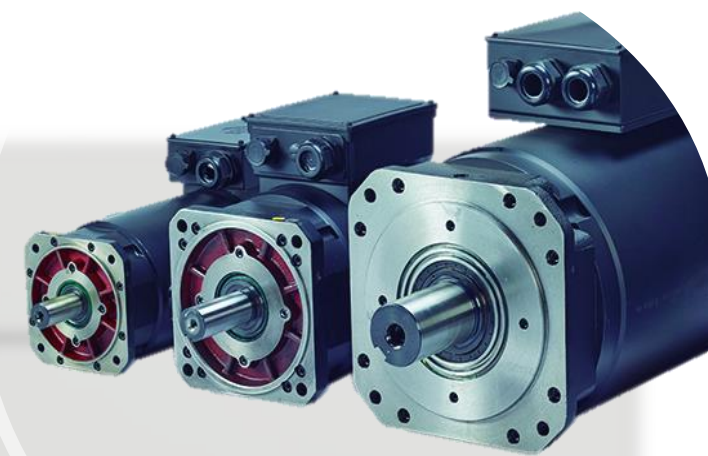
Testing examples :



Clamping force closed-loop control

- High precision mode-adjusting positioning encoder can realize fast mode-adjusting and locking force according to software algorithm
- Low pressure mold installation mode to prevent damage during mold installation
- Closed-loop sensor of clamping force is selected to achieve extremely high clamping force.





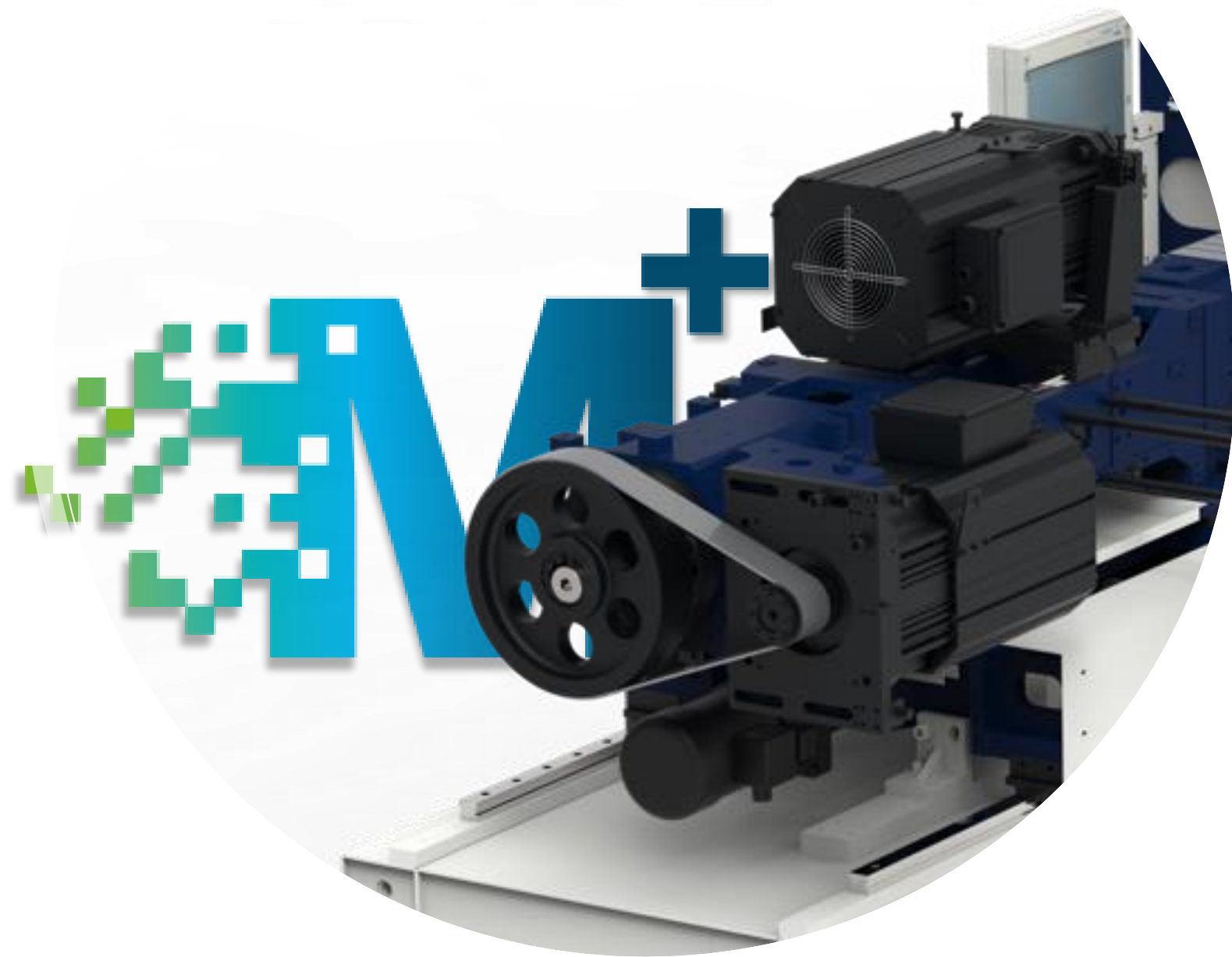
DRIVE TECHNOLOGY

DRIVE TECHNOLOGY



- Servo drive system
- Optimizations
- Increased System Pressure
- Reduced Tank Volume

SERVO DRIVE SYSTEM



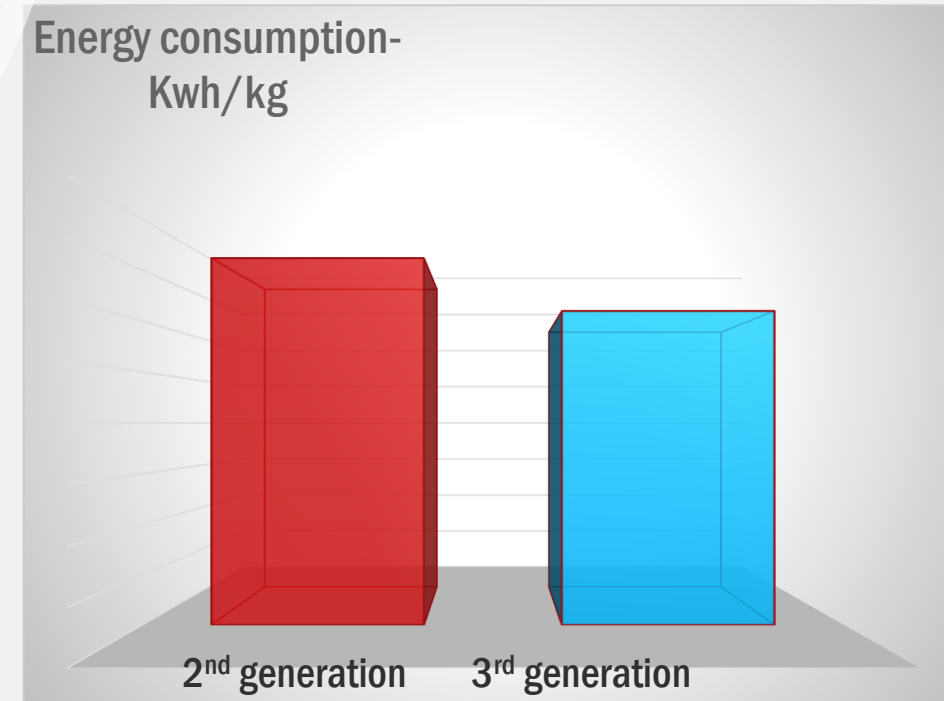
- Based on Motion Plus platform
- New servo drive system offers performance versions of injection units from low speed high holding pressure to high speed
- Constant injection speed
- Highly energy saving
- Highly responsive holding control

SERVO DRIVE SYSTEM OPTIMIZATION



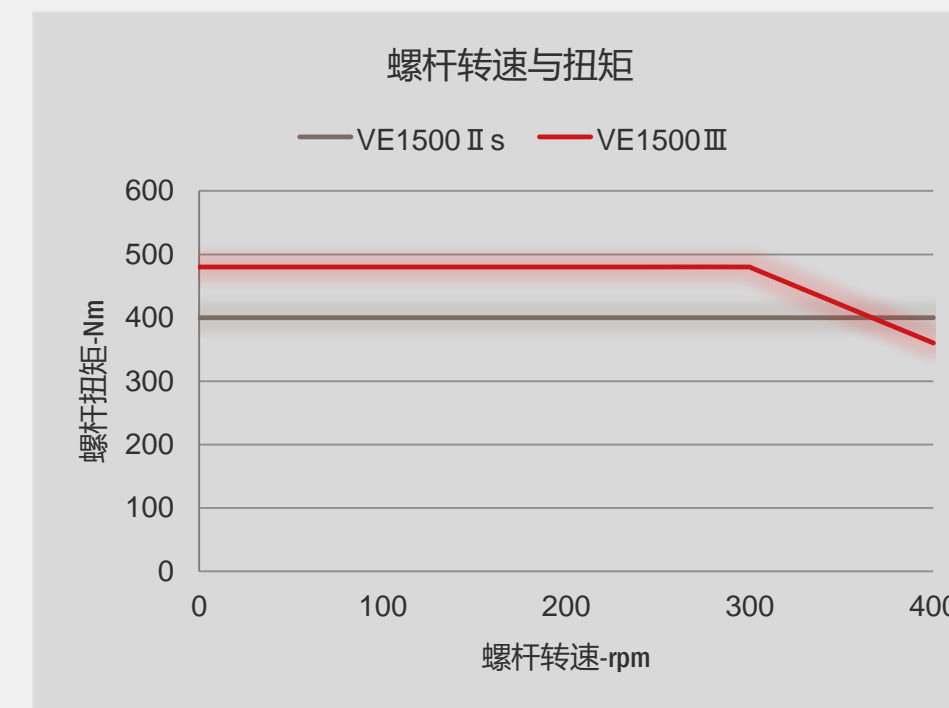
Shorter dry cycle

Due to design and control optimization, dry cycle time can be shortened up to 10%



Lower energy consumption

- Compared with the original, 3rd technology greatly reduces the energy consumption, and ZE-F reaches the 1st level of China standard



Stronger charging ability

- Up to 20% torque increase at low and medium speeds;
- More suitable for the actual application of raw materials



Stronger injection ability

- Higher Injection response is up to 10%
- More constant injection speed and higher repeatability accuracy of the parts
- Higher energy efficiency, lower temperature rise, and pressure retention capacity increased by up to 20%



SOFTWARE & CONTROL

SOFTWARE & CONTROL



- Control technology
- Features
- PAD production management
- Built-in hot runner function
- Input/output programmable
- In-mold pressure control(Optional)
- OPC UA & EU77 interface (Optional)

OPTIMIZED CONTROL SYSTEM



SIGMATEK



KEB

The latest servo control technology



注射



预塑



合模



顶出

ZERES

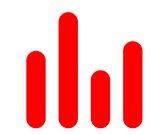
Servo drive system
(Carriage, ejector, Core, sequence valve, etc.)

CONTROL TECHNOLOGY



- 15 inch color TFT screen
- 3 USB interface
- 200 set mold datum store
- Production assistance device
- Friendly HMI
- Aplenty software function
- LED action indicator
- Keyboard layout, Simple and Clear
- Shortcut keys are clearly identified
- Multi-language
- RFID to meet authority management

PAD PRODUCTION MANAGEMENT



Production Statistics



Production Order Management



Product Testing



Defective Product Screening

The screenshot displays the PAD PRODUCTION MANAGEMENT software interface. At the top, there are tabs for 'Manual' and 'Produce Data', along with 'Cycle Mold: 32' and 'Cycle Time: 3.19 s'. Below this, there are control buttons for 'Produce Monitor' (On), 'Part Number' (Clear), 'Box Statistics' (Clear), and 'Cycle Mold Counter' (Clear). The main area is divided into several sections:

- Production Information:**
 - Production Description: fggfhh
 - Material Type: gg9
 - Single product weight: 30.00 gr
 - Total Part Number: 100000
 - Cavity Number: 1
 - Total Mold Number: 32
- Production statistics:**
 - Production Per Hour: 0
 - Average Cycle Time: 0.00 s
 - Cycle Time Set: 10.0 s
 - Passed Ratio: 43.7 %
 - Efficiency: 0.0 %
 - Material Remaining: 2999.58 Kg
 - Time Remaining: 277 H 44 M 20 S
- Produce State:**
 - Total Part Number: 100000
 - Part Number: 14, Mold Number: 14
 - Rejected Pieces: 18, Mold Number: 18
 - Remaining Pieces: 99986, Mold Number: 99986
 - Completion: 0.0 %
 - User Selection: User 1
- Management:**
 - Box Manager:
 - Parts Per Box: 1
 - Parts Quantity Of Present Box: 0
 - Box Quantity: 0
 - Alarm Time For Box Full: 0.00 s
 - Produce Monitor Alarm:
 - Stop When Box Is Full:
 - Order Completed:
 - Eject:
 - Consecutive Rejected Mold Number: 3

At the bottom, there is a toolbar with icons for Setup, Heating, Clamp, Inject, Product, Mold Info, Overview, Alarm, and Parameter. The status bar at the very bottom shows 'Alarm' and the time '14:06:16'.

BUILT-IN HOT RUNNER FUNCTION

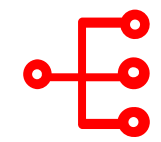
手动		热流道加热												循环模数	175	登陆等级									
														循环计时	0.00 S	5									
总览	热流道1-12				热流道13-24				热流道25-36				热流道37-48				热流道49-60				功能				
c	一段	二段	三段	四段	五段	六段	七段	八段	九段	十段	十一段	十二段													参数
当前值	230.2	230.2	230.3	231.8	230.2	230.5	229.8	200.3	210.2	229.7	229.4	229.8													自整定
设定值	Σ 230.0	230.0	230.0	230.0	230.0	230.0	230.0	200.0	210.0	230.0	230.0	230.0													热流道
c	十三段	十四段	十五段	十六段	十七段	十八段	十九段	二十段	二十一段	二十二段	二十三段	二十四段					参数								
当前值	230.1	229.8	230.2	229.5	225.4	200.1	210.0	230.0	230.1	229.9	230.0	229.7					自整定								
设定值	Σ 230.0	230.0	230.0	230.0	225.0	200.0	210.0	230.0	230.0	230.0	230.0	230.0					加热								
c	二十五段 二十六段 二十七段 二十八段 二十九段 三十段 三十一段 三十二段 三十三段 三十四段 三十五段 三十六段																预热								
当前值	220.9	230.2	229.0	221.0	215.6	220.4	226.3	219.6	230.0	230.1	229.9	226.2													
设定值	Σ 230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0													
c	三十七段 三十八段																								
当前值	228.3	229.8																							
设定值	Σ 230.0	230.0																							
c																									
当前值																									
设定值																									



INPUT/OUTPUT PROGRAMMABLE



Custom Digital IO



Logic Editing Function



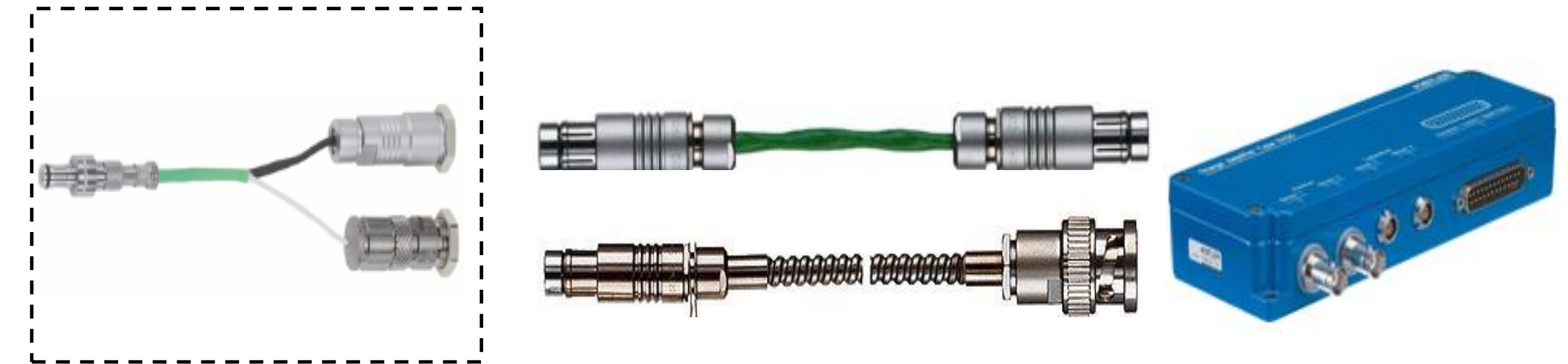
Support Multiple Loops

The screenshot displays two main configuration windows for the machine's programmable I/O. The top window, titled '可编程输入' (Programmable Input), shows settings for four output points (1-4) for various actions like '循环启动' (Cycle Start), '合模' (Mold Closing), and '开模' (Mold Opening). The bottom window, titled '可编程输出' (Programmable Output), shows settings for four output points (1-4) for actions like '开始注射' (Start Injection) and '合模开始' (Mold Closing Start). Both windows include fields for '启动条件' (Start Condition), '延时' (Delay), '启动位置' (Start Position), '产品数' (Product Count), '停止条件' (Stop Condition), '延时' (Delay), and '停止位置' (Stop Position). The interface also features a '手动' (Manual) mode selector, '循环模数' (Cycle Count) set to 6, '登陆等级' (Login Level) set to 5, and '循环计时' (Cycle Timing) set to 0.00 s. A bottom toolbar contains icons for '准备' (Prepare), '加热' (Heat), '移模' (Move Mold), '注射' (Injection), '产品' (Product), '模具资料' (Mold Data), '状态' (Status), '报警' (Alarm), and '参数' (Parameters).

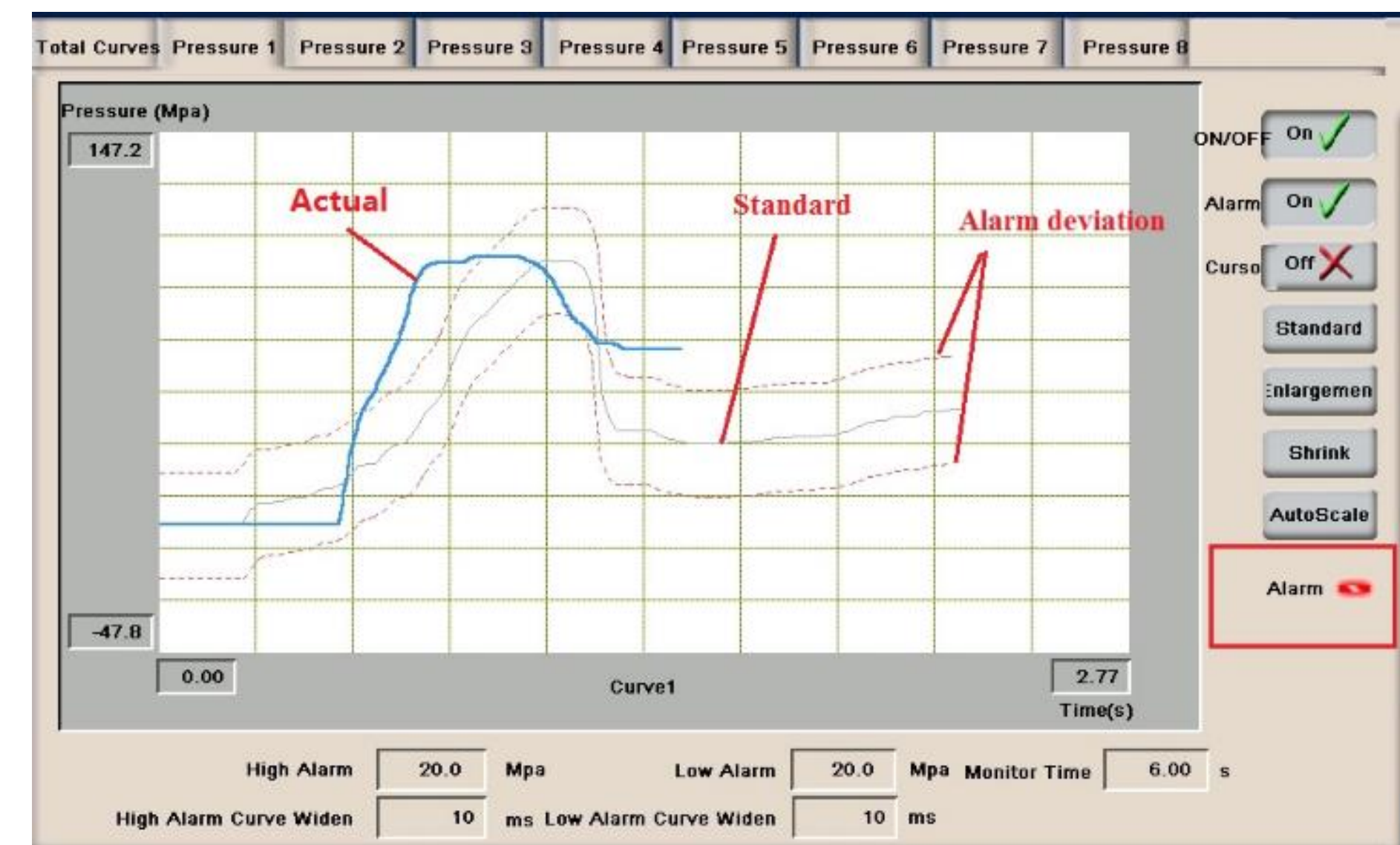
IN-MOLD PRESSURE CONTROL OPTIONAL



- Accessible up to 8 groups of cavity pressure channels
- Visualization of filling process
- Optimizing injection process parameters
- Optimizing cycle time
- Real-time monitoring of product quality
- Record and save product quality data in production



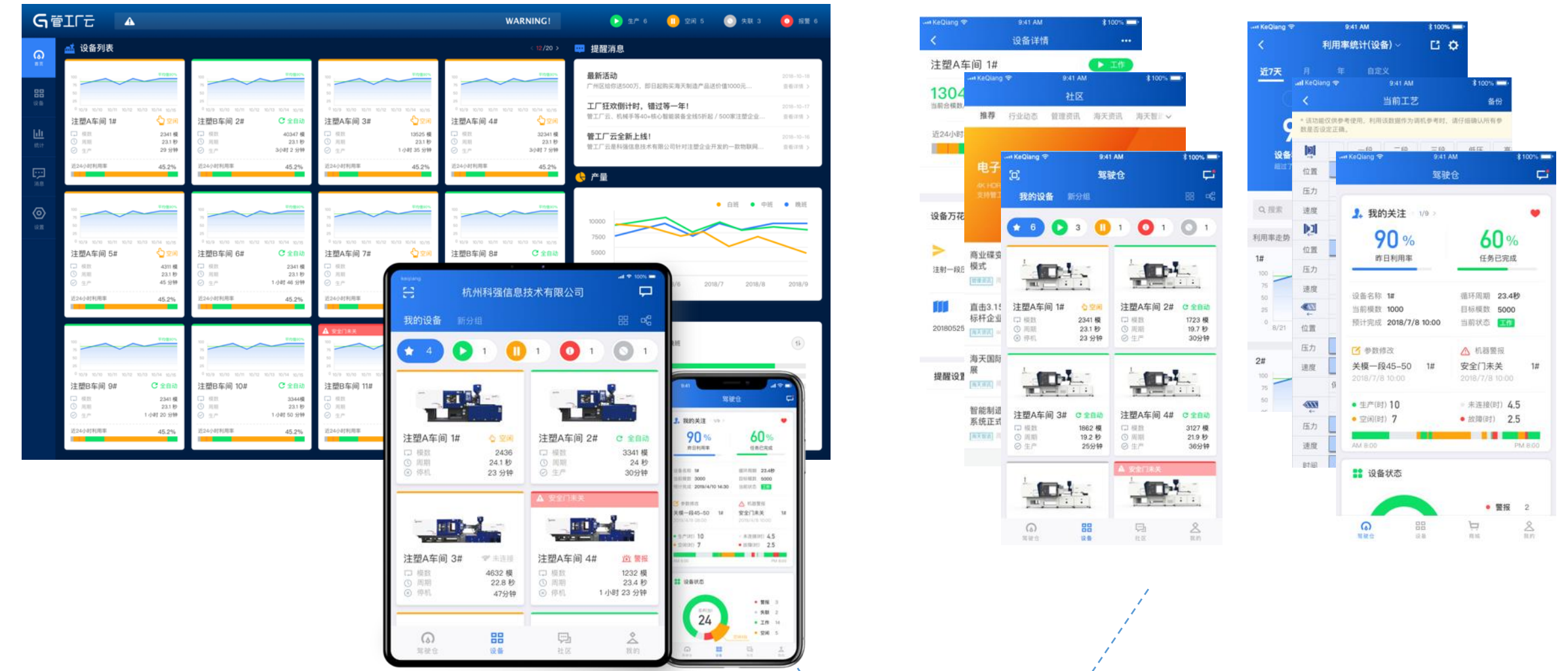
Visualization of filling process



OPC UA & EUROMAP77 INTERFACE (Option)



- Faster, highly compatible and flexible (operative in both Windows and Linux system)
- Euromap 83 and 77 based on OPC UA supports MES system



THANK YOU.

www.zhafir.com



ZHAFIR
PLASTICS MACHINERY

INTRODUCTION & HIGHLIGHTS

HEADQUARTER OF ZHAFIR IN CHINA



- Chunxiao, Ningbo
- Manufacturing site with 226,000 sqm
- Application center for mold testing

ZHAFIR IN GERMANY



- Zhafir Germany, Ebermannsdorf
- Manufacturing site with 12,000 sqm
- Sales and service for German market
- Training and technical support for customers and distributors in 18 countries

LABEL DESCRIPTION

Model abbreviation

High performance character 'F'

Injection character 'h'

Clamping ton (kN)

Injection capacity

ZE 3800F

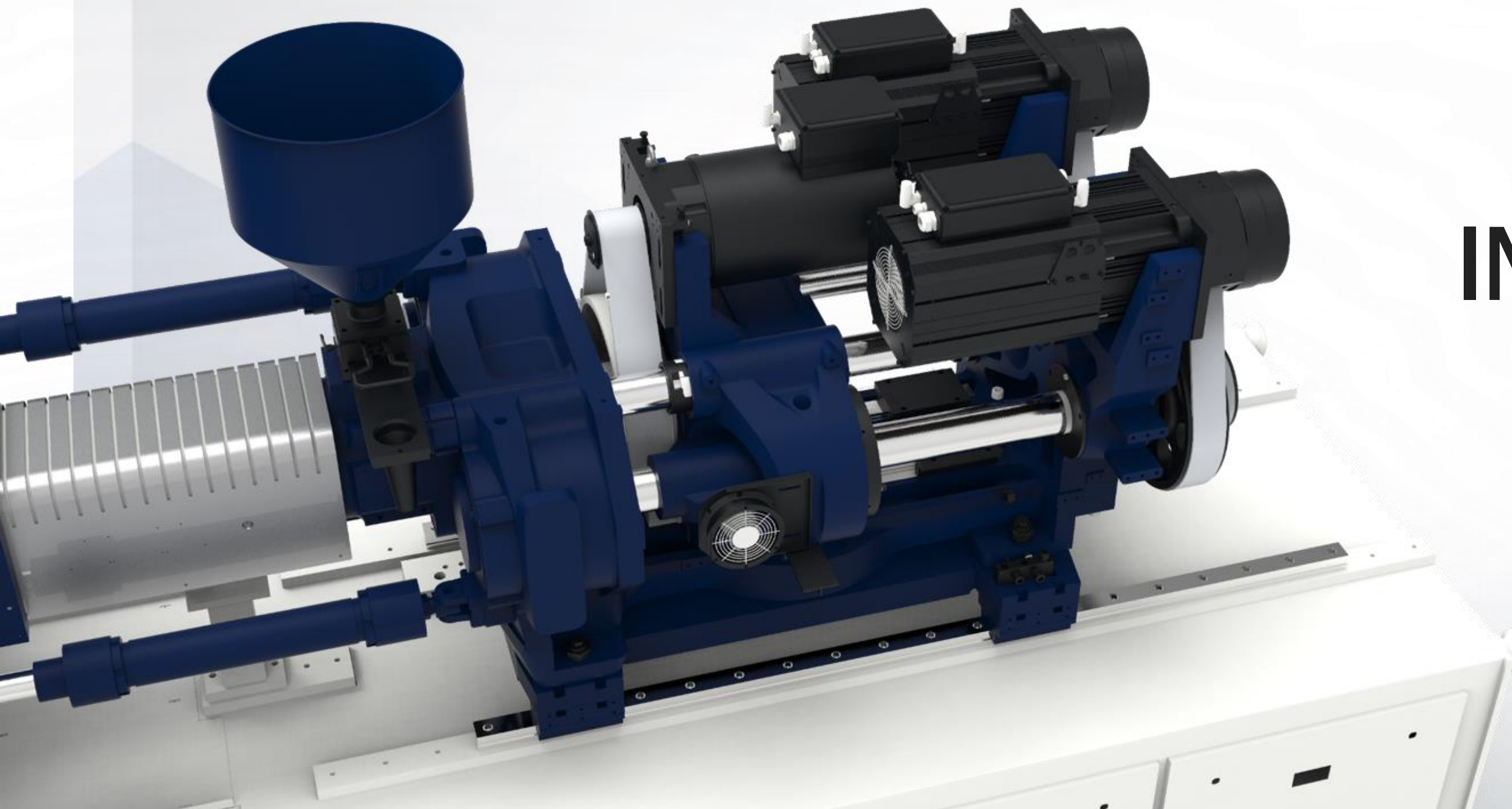
1700h

Clamping unit labels

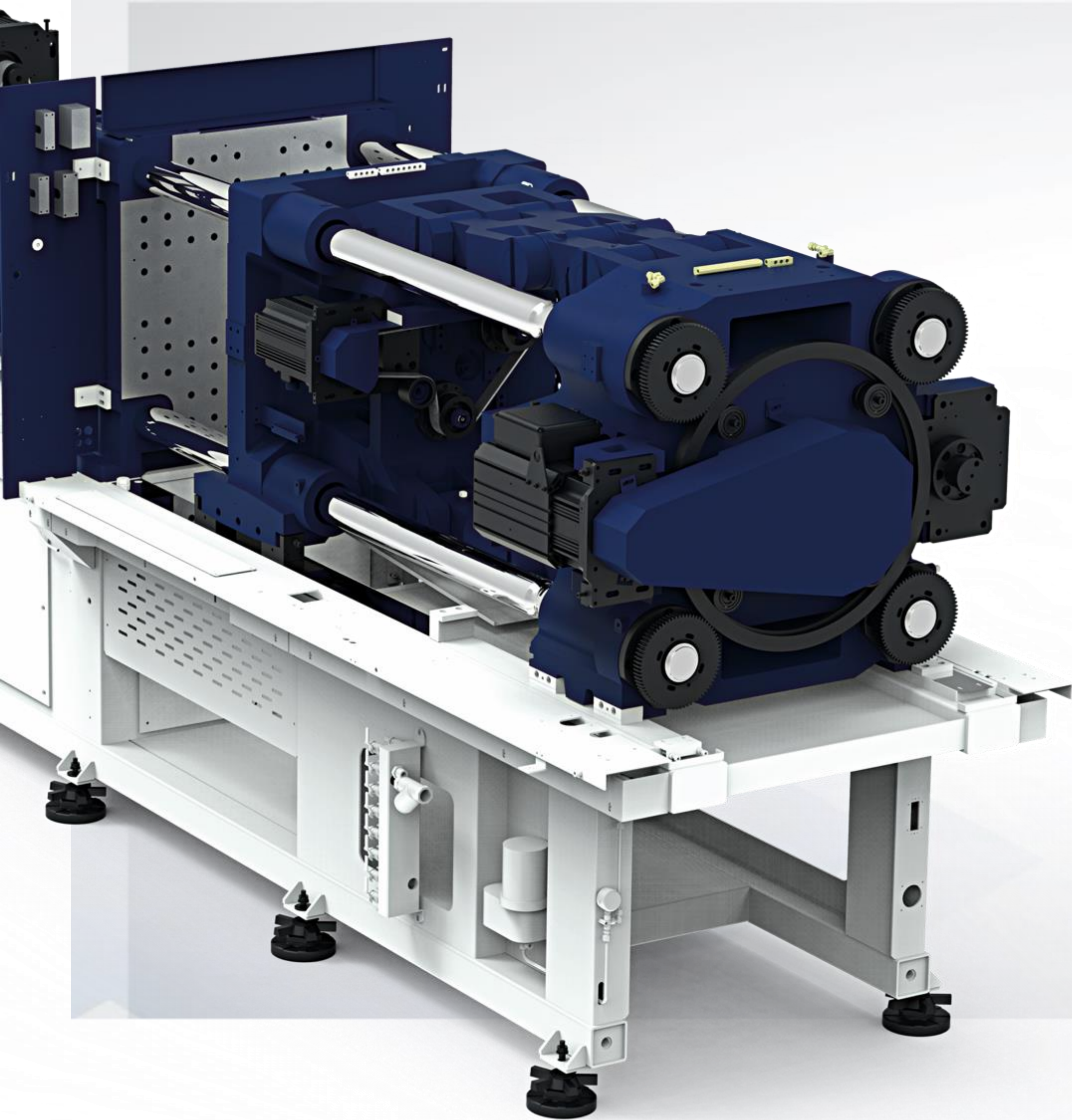
Injection unit labels



Metal grey + ZHAFIR blue + model
CI Representative color

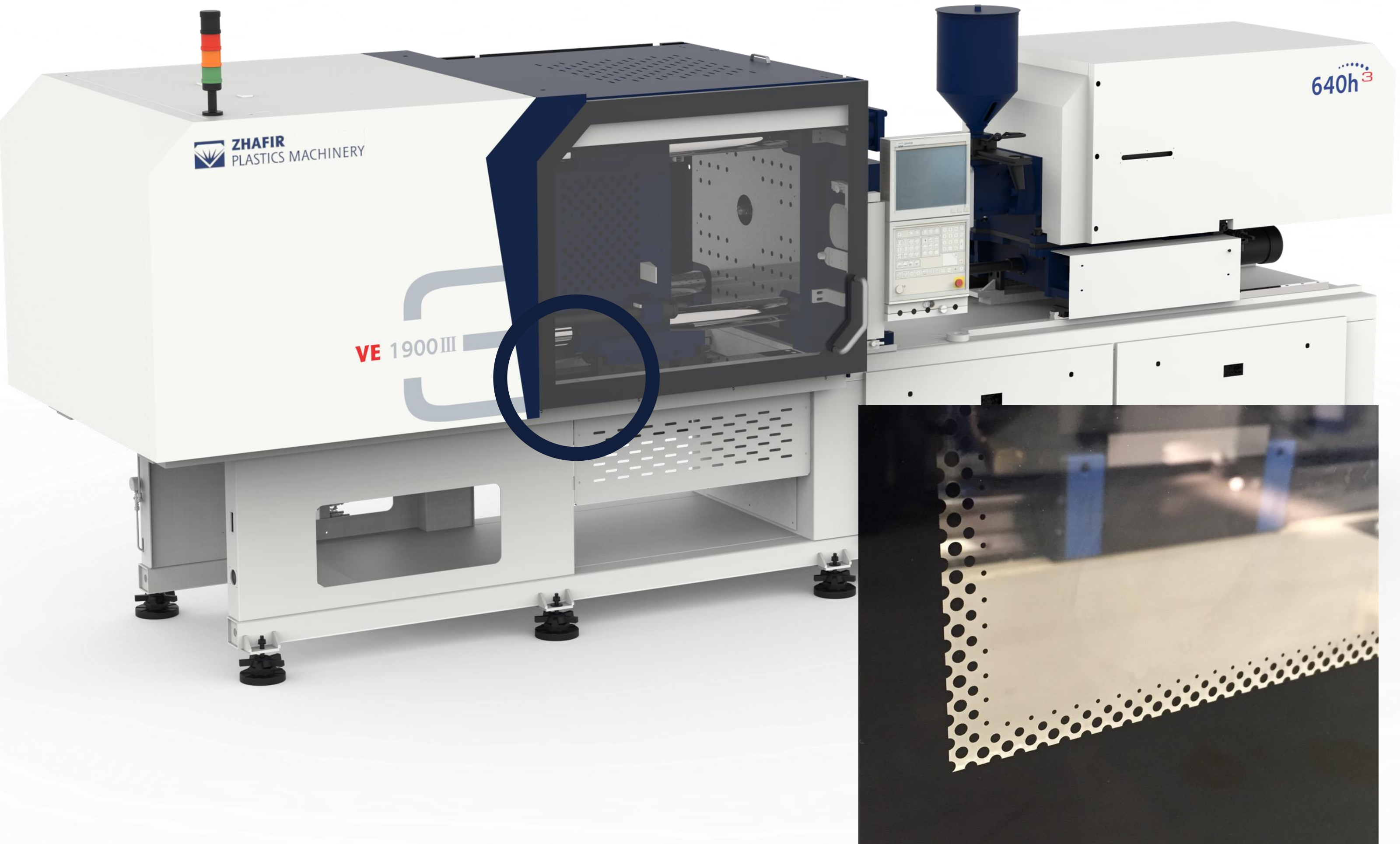


INJECTION UNIT

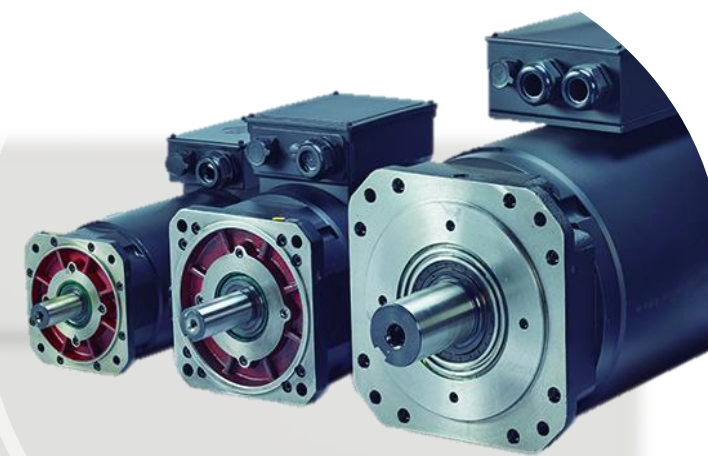


CLAMPING UNIT

New Exterior Design



- Movable door
- Wider window
- More clean and elegant looking
- Compact Design



DRIVE TECHNOLOGY



SOFTWARE & CONTROL