



**HAITIAN**  
PLASTICS MACHINERY



**MARS SERIES**  
SERVO HYDRAULIC SOLUTION  
600 – 33,000 kN



# Development of Mars series

Initial Stage  
2006 - 2007

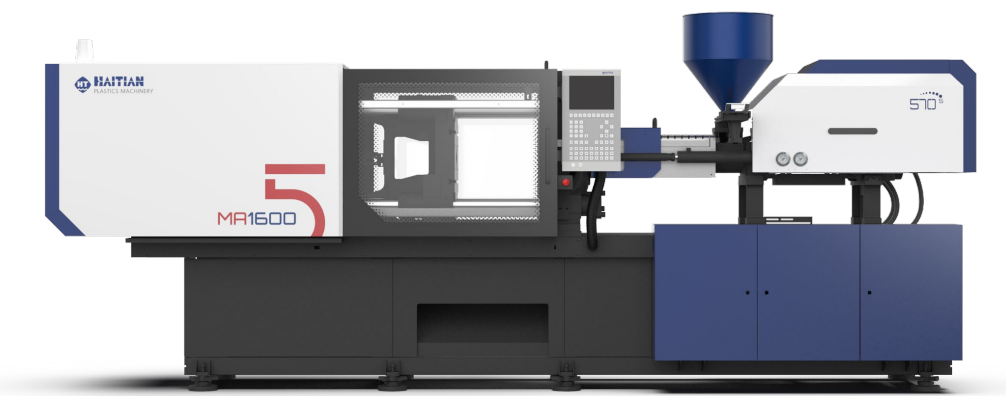
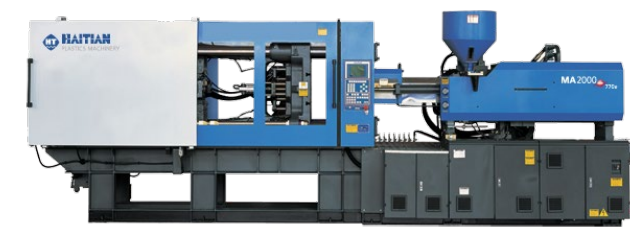
Marketization Generation I  
2007 - 2012

Generation II  
2013 - 2018

Generation II Enhanced  
2015 - 2018

Generation III  
2019

Generation V  
2023



Launch of HTF series  
MA servo technology

Introduction of servo  
energy saving technology

Servo technology  
upgrading

More precise

Smart+Dynamic+Interactive+

Smart. Flexible. Solutions

# Haitian MARS Series

## Machine Range & Combinations

Clamping Unit (kN) / Injection Unit

Standard / Combination range

	130	280	400	570	750	1000	1350	1700	2250	3200	4500	5000	6800	8400	10600	15800	19300	41000	52800	62000
600	Standard	Combination range																		
900	Combination range	Standard	Combination range																	
1200		Combination range	Standard	Combination range																
1600			Combination range	Standard	Combination range															
2000				Combination range	Standard	Combination range														
2500					Combination range	Standard	Combination range													
2800						Combination range	Standard	Combination range												
3200							Combination range	Standard	Combination range											
3800								Combination range	Standard	Combination range										
4700									Combination range	Standard	Combination range									
5300										Combination range	Standard	Combination range								
6000											Combination range	Standard	Combination range							
7000												Combination range	Standard	Combination range						
8000													Combination range	Standard	Combination range					
9000														Combination range	Standard	Combination range				
10000															Combination range	Standard	Combination range			
12000																Combination range	Standard	Combination range		
13000																	Combination range	Standard	Combination range	
14000																		Combination range	Standard	Combination range
16000																			Combination range	Standard
18500																				Combination range
21000																				Combination range
24000																				Combination range
28000																				Combination range
33000																				Combination range

# Highlights Overview of MA5

1

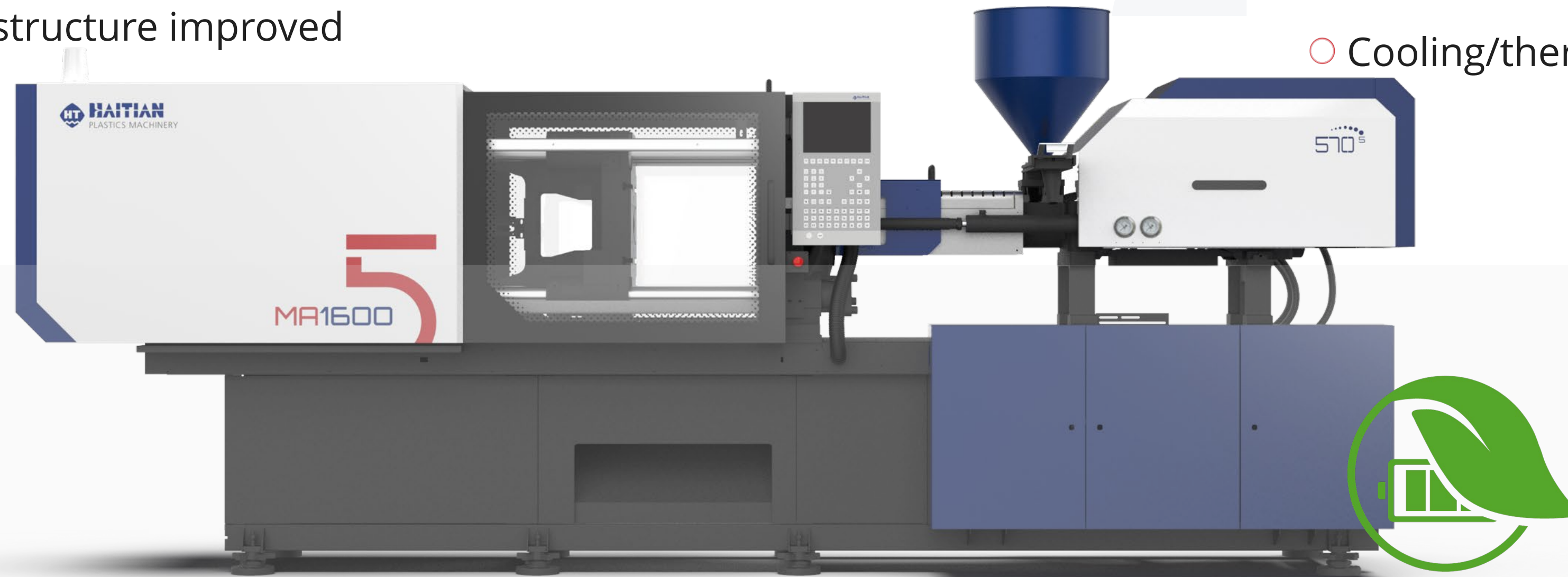
## Powerful

- Injection performance improved
- Optimized plastification unit
- Clamping unit structure improved

2

## Efficient

- Electrical charging as standard
- Energy saving facilities
- Cooling/thermal control optimization



3

## Smart Technology

- HT Clamp
- HT Lubricate
- HT Integration

4

## Hardware

- Electrical parts
- Hydraulic parts

# Haitian **MARS** Series

## Highlights at a Glance



**HT Clamp**  
The self-learning and self-correcting algorithm adjusts position tolerances and the positioning of the mold opening quickly and precisely

**High rigidity platen**  
Press center platen structure design reduces mold cavity size deformation and improves product molding accuracy

**HT Energy**  
Refined energy consumption monitoring and auxiliary management

**Upgraded plasticizing unit**  
The plasticizing performance has been greatly improved, and the wear resistance of plasticized parts has doubled

**Electrical charging**  
The plasticizing speed and quality are improved, while the energy efficiency of the entire machine is comprehensively improved (optional for models with an injection value of 10600 and above)

**HT Lubricate**  
Neural network algorithm and precise lubrication model, intelligent optimized lubrication control, self-optimizing lubrication parameters

**HT control**  
New large-screen control panel and new UI design make the interactive experience Intuitive

**High protection level distribution box**  
Extends the service life of components

**High-response servo system**  
Tailor-made servo power system, high-speed response, dynamic sensitivity, and surging power

- The electrical charging
- Double-layer linear guide support
- Full closed-loop injection control
- Upgraded Injection performance
- Upgrade Dosing Performance
- Overall upgrade of plasticizing components
- Energy saving heating device



# Injection Unit

# Energy Efficient

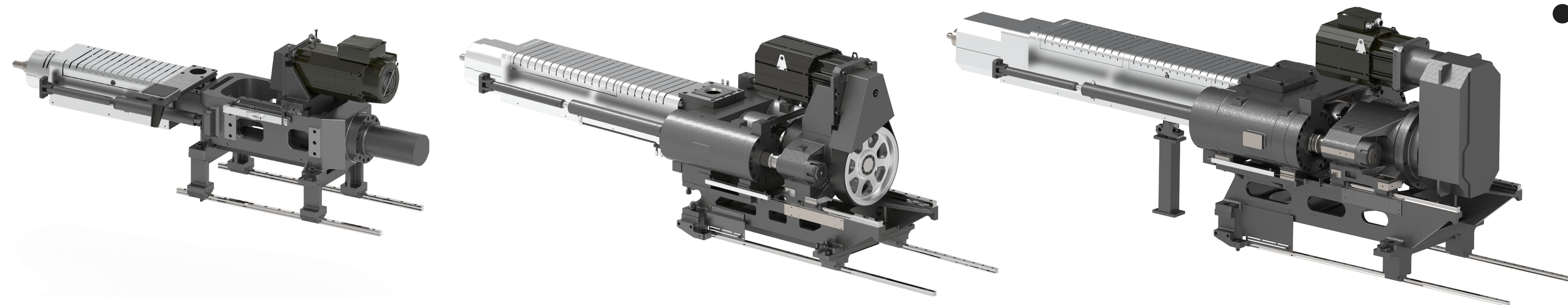
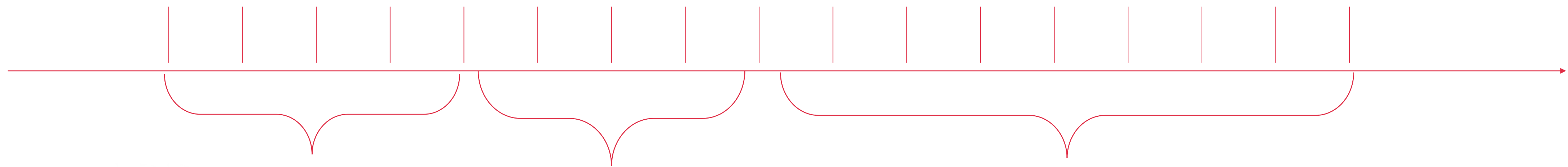
Electrical charging as standard



## Standard on 60T-1200T

- Lower Energy Consumption
- Production cycle times improve
- Higher charging precision

600/130   ●●●   2500/1000   ●●●   6000/4500   ●●●   12000/8400   ●●●   33000/62000   kN



● Optional above 8400 kN



# Energy Efficient

Electrical charging as standard

## Standard 60T-1200T



MA	G5	G3	Comparison
1600	0.3	0.369	-23%
2500	0.248	0.318	-28%
5300	0.254	0.31	-30.1%

# 20+%

Overall energy consumption reduction

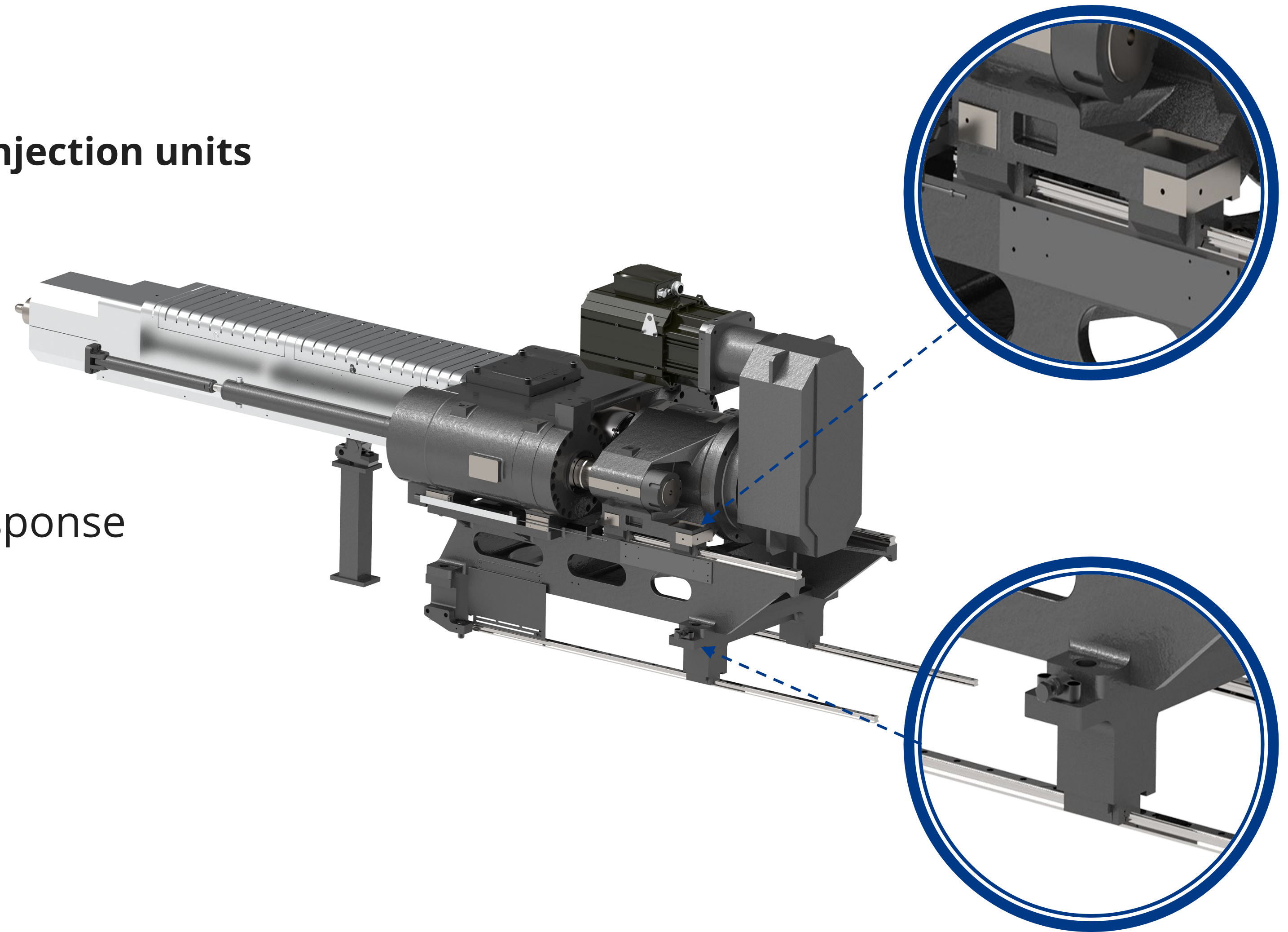
\*Testing according to national standard, Kwh/kg

# Injection Unit

Double-layer linear guide support

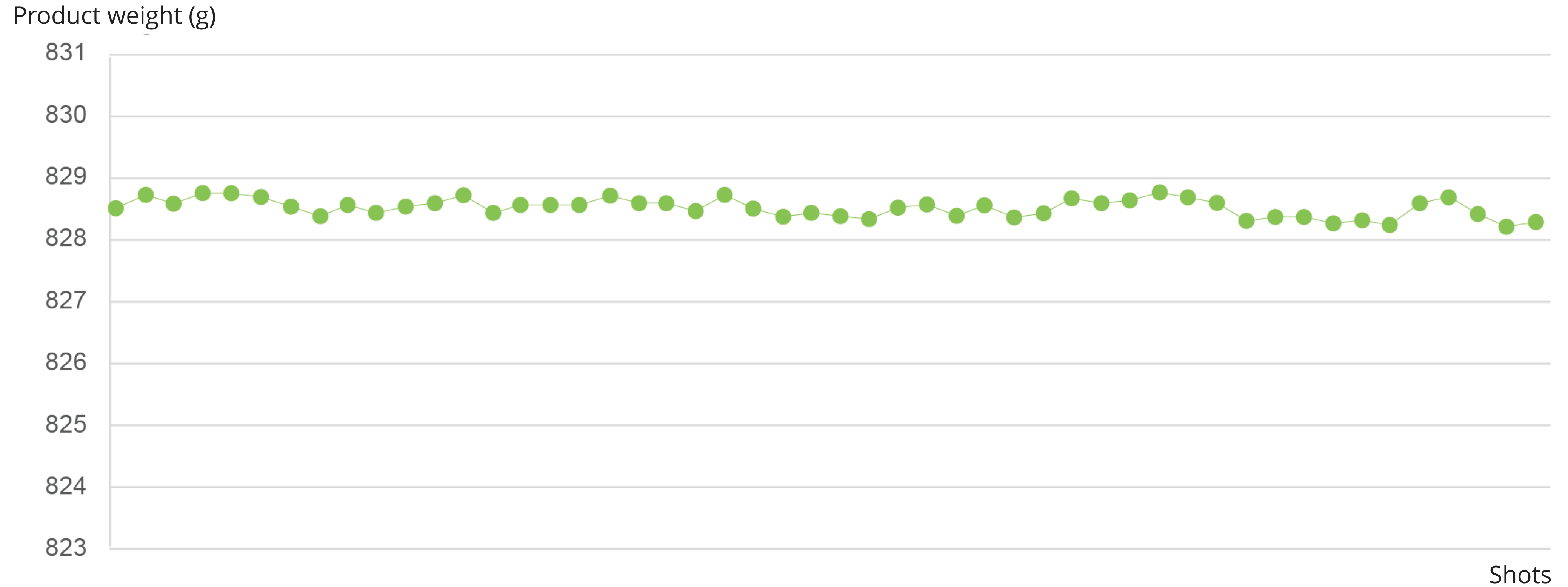
## Linear guide support for the carriage and injection units

- Low friction coefficient
- Low injection inertia
- High injection precision
- High acceleration and deceleration response
- Precise back pressure control



# Injection Unit

Full closed loop injection control



- For precise injection movement, fast response, repeatability in injection, good low speed stability and good product consistency. It improves the performance of the equipment and the adaptability of the process.

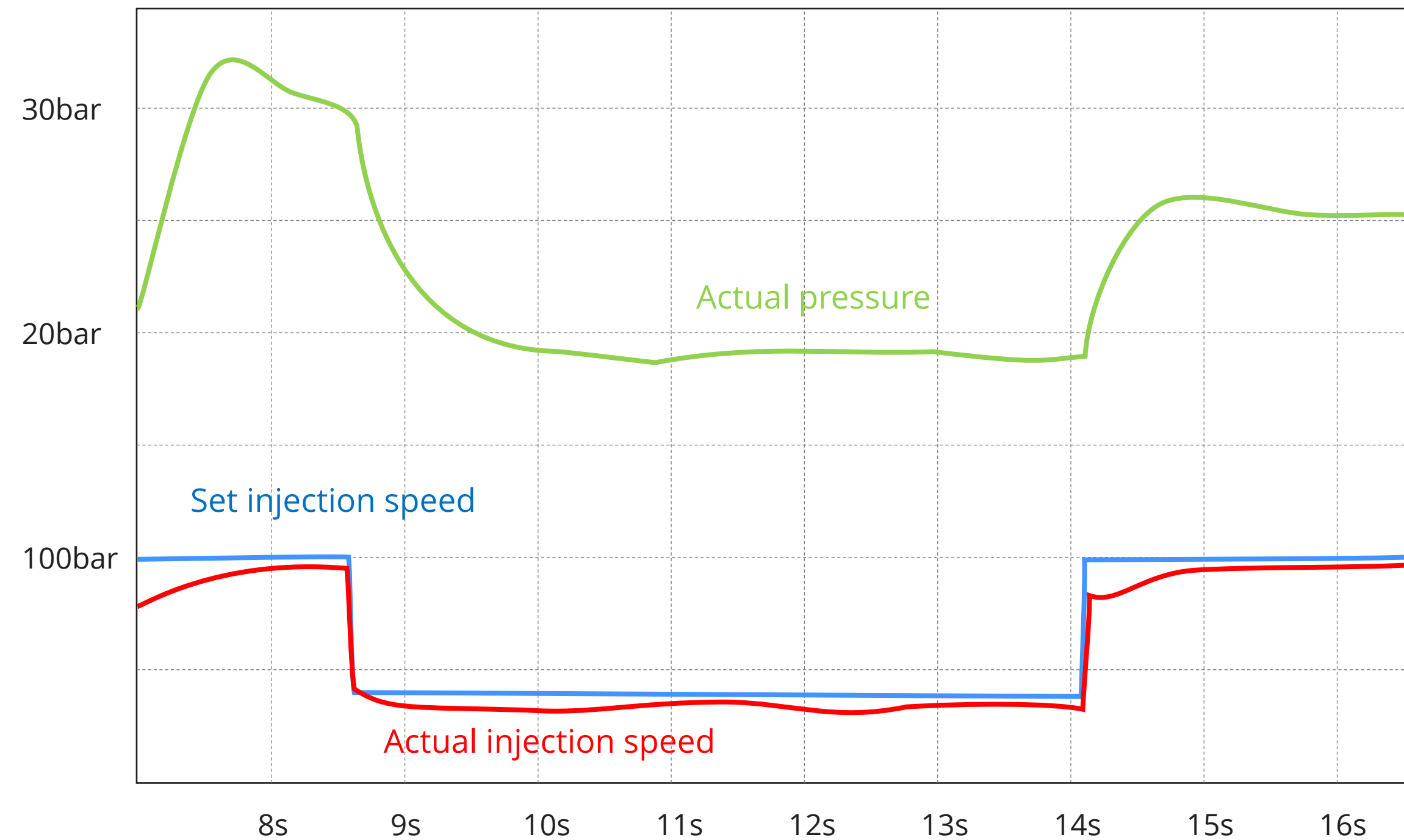
# Injection Unit

Full closed loop injection control

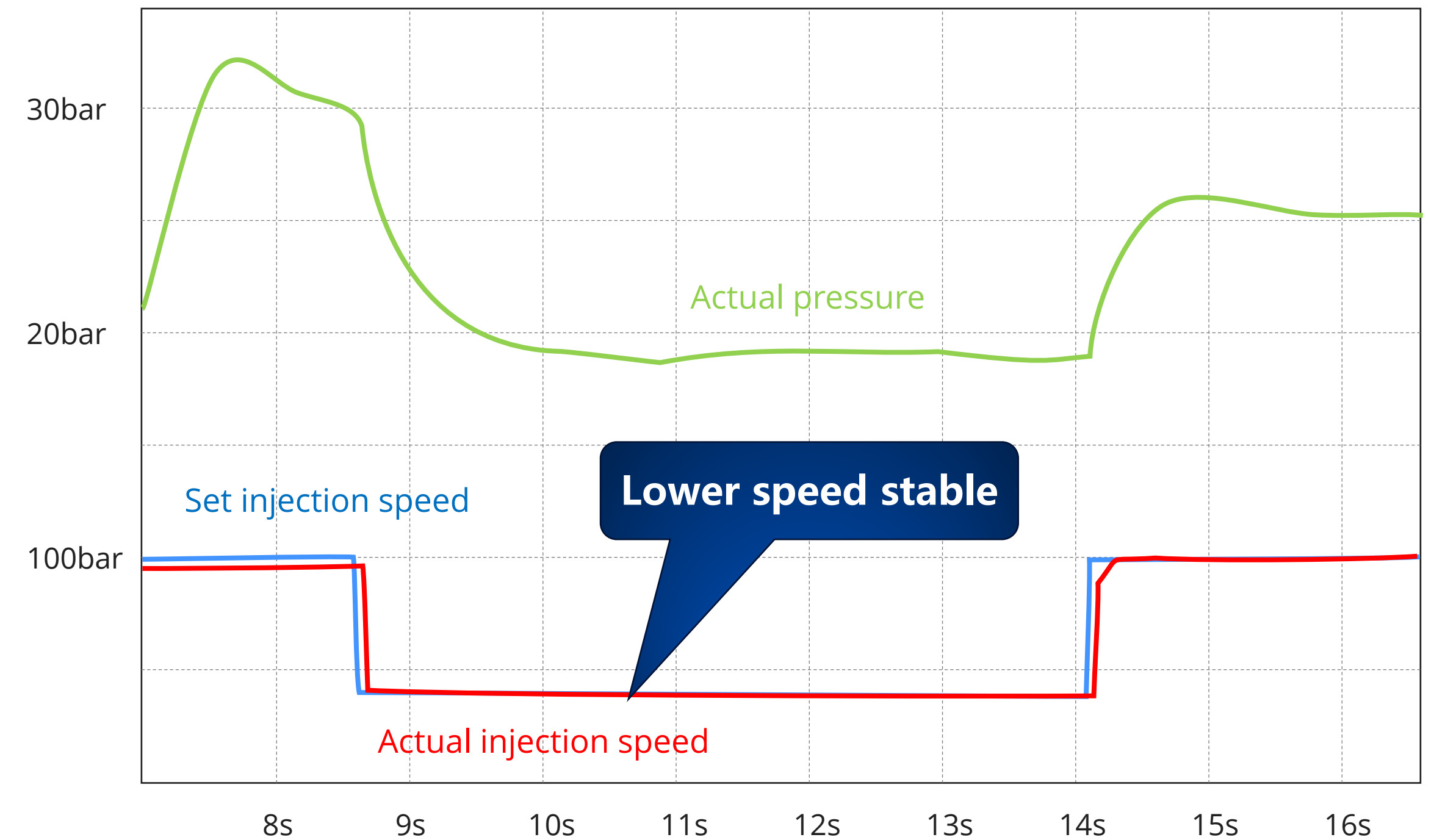
Part: acrylic cosmetic box

Machine: MA3200

### Diagram under standard mode

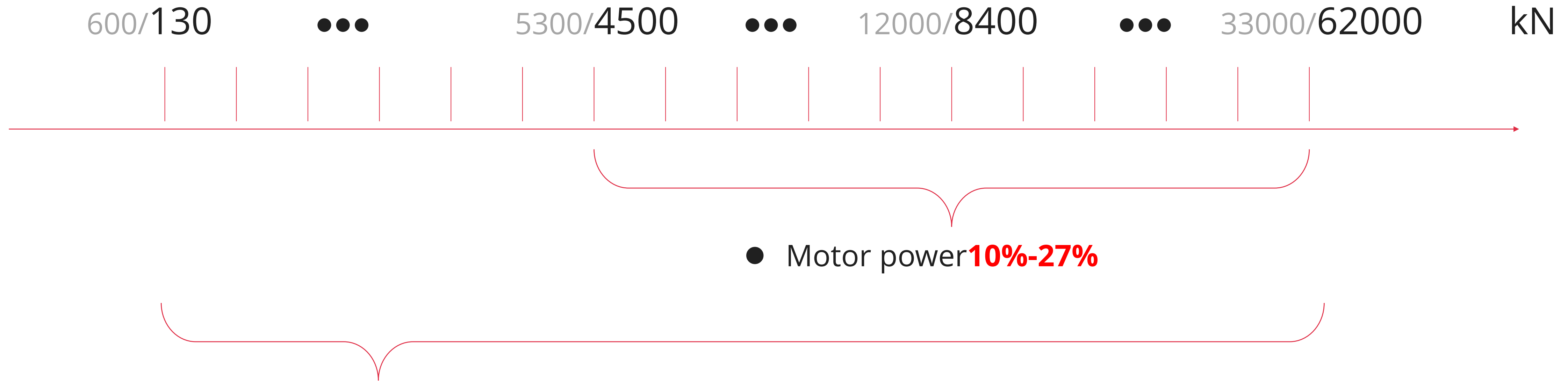


### Diagram under full closed-loop mode



# Injection Unit

Injection Performance



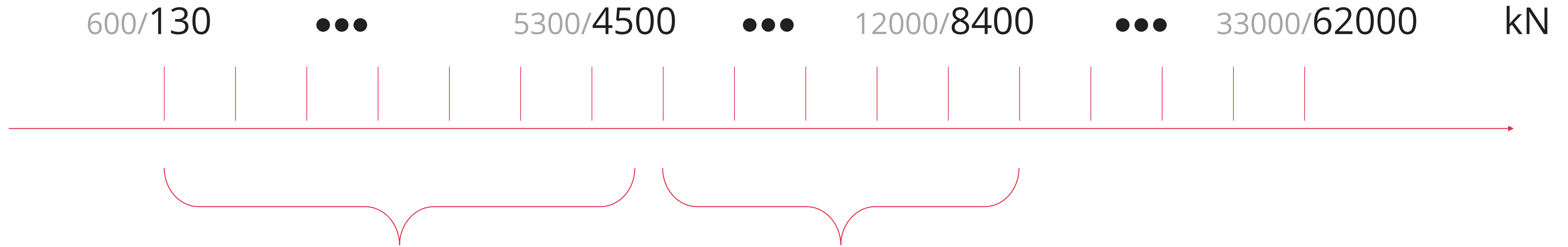
- Injection Pressure **5%-8%**
- System pressure improvement
- System pressure improved from 17.5mpa to **18.5mpa**

## Increased injection speed & pressure

- Improved injection molding capability
- Easier production of parts
- Improved process range and process molding capacity

# Injection Unit

Plastification Performance



- Screws rotation speed **5%-23%**
- Screws rotation speed **25%-35%**
- Plastification capacity **2%-17%**
- Plastification capacity **18%-24%**

## Stronger plastification performance

- More efficient
- Shorter cycle time

# Injection Unit

Overall upgrade of plasticizing components

- New screws and barrel material
- Further improved plasticizing efficiency
- Full hard screw as standard for 250T A screw and 250T below
- Bi-metal screw as standard for 250T B/C screw and 250T and above models
- Alloy barrel for 2100T and below
- Substantially improved wear resistance



# Injection Unit

Energy saving heating



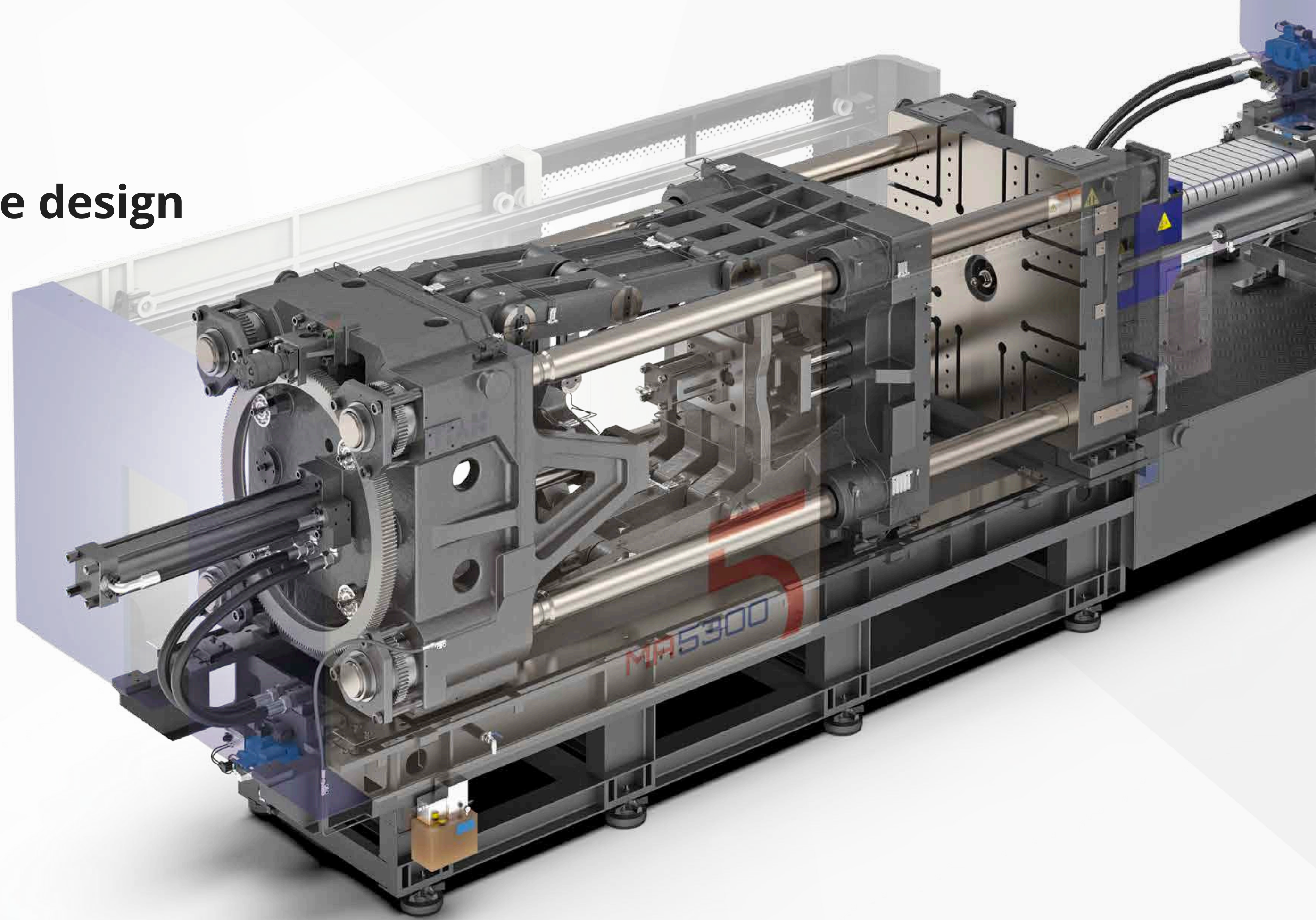
## Energy saving insulation device

- Better energy saving result
- Better insulation result
- Easy to dismantle
- Feeding leakage prevention





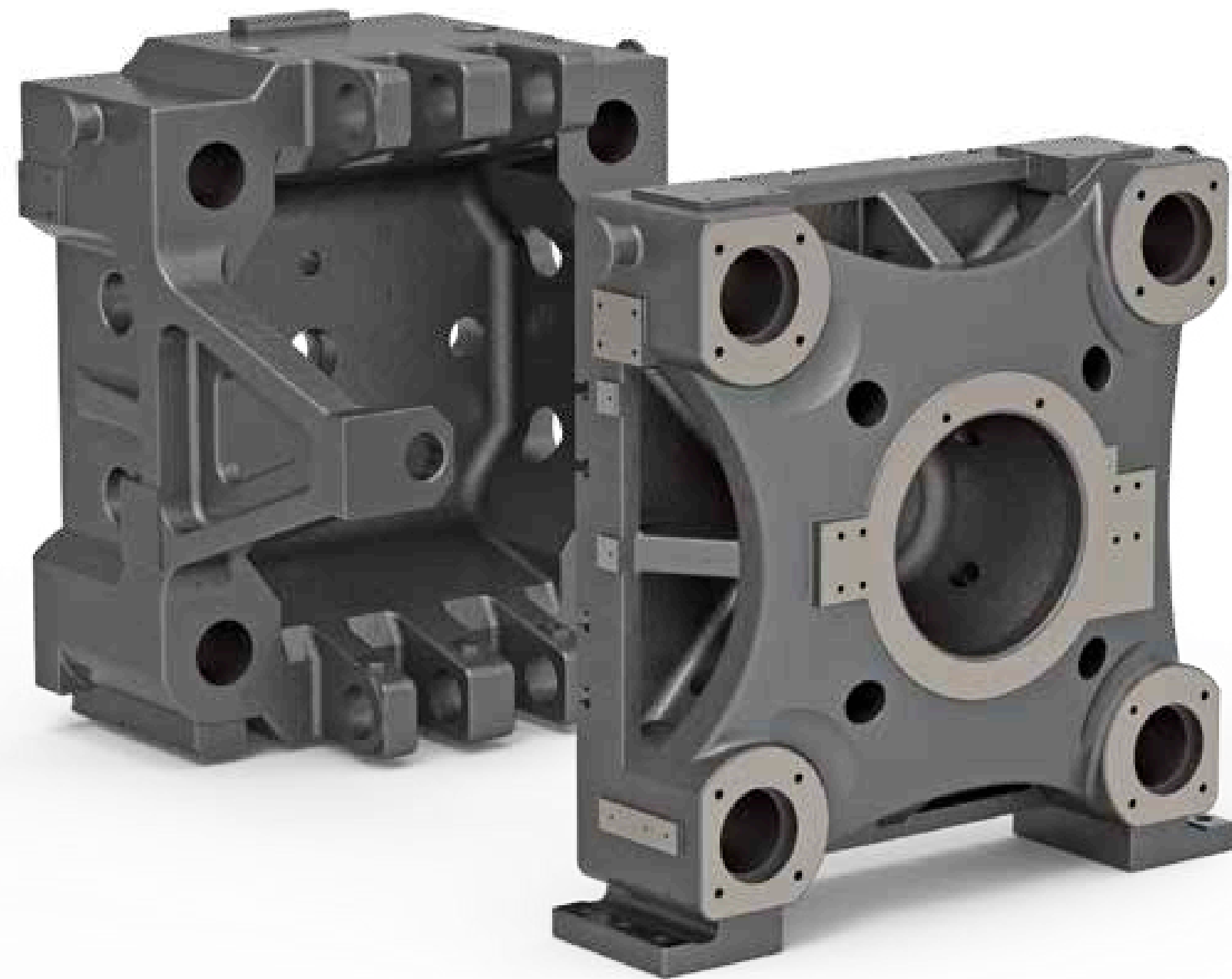
- **High-rigid platen and movement structure design**
- **Accurate mold opening and positioning**
- **High repeatability precision**
- **Optimized lubrication**



# Clamping Unit

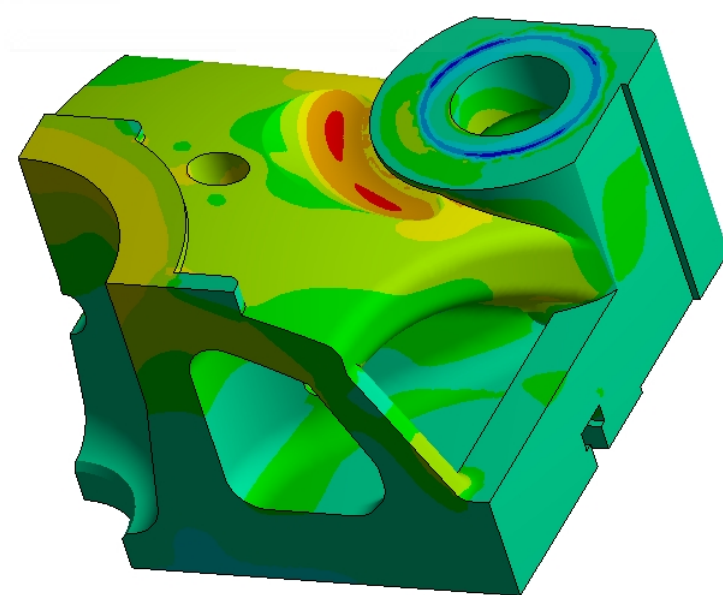
# Clamping Unit

Highly rigid mold platen design



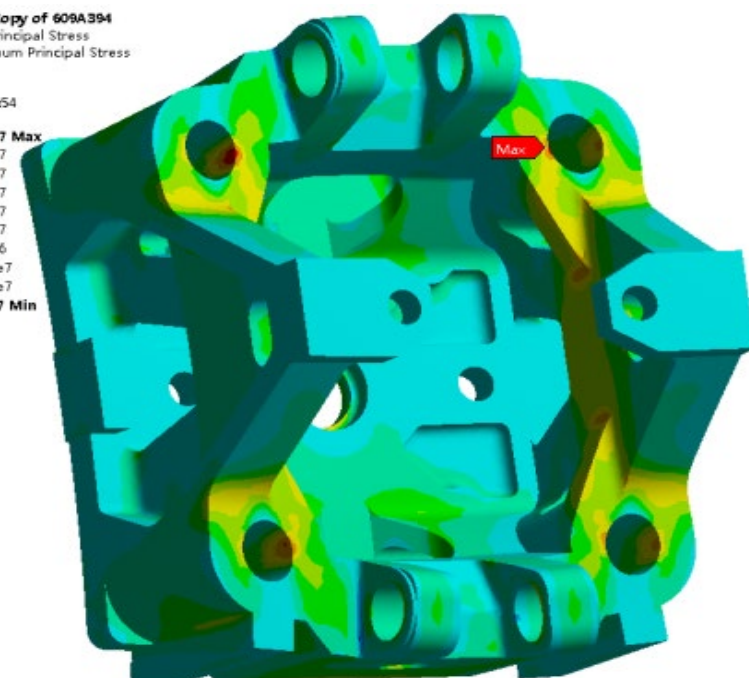
D: Copy of Copy of Copy of Static Structural  
Maximum Principal Stress  
Type: Maximum Principal Stress  
Units: Pa  
Times: 1  
2021/12/31 13:47

1.090e8	Max
8.9627e7	
Automatic	
5.0702e7	
3.124e7	
1.1777e7	
-7.6852e6	
-2.7148e7	
-4.661e7	
-6.6072e7	Min



J: Copy of Copy of 60A394  
Maximum Principal Stress  
Type: Maximum Principal Stress  
Units: Pa  
Times: 1  
2021/8/2 19:54

8.3747e7	Max
7.0321e7	
5.6894e7	
4.3468e7	
3.0042e7	
1.6616e7	
3.1892e6	
-1.0237e7	
-2.2863e7	
-3.709e7	Min



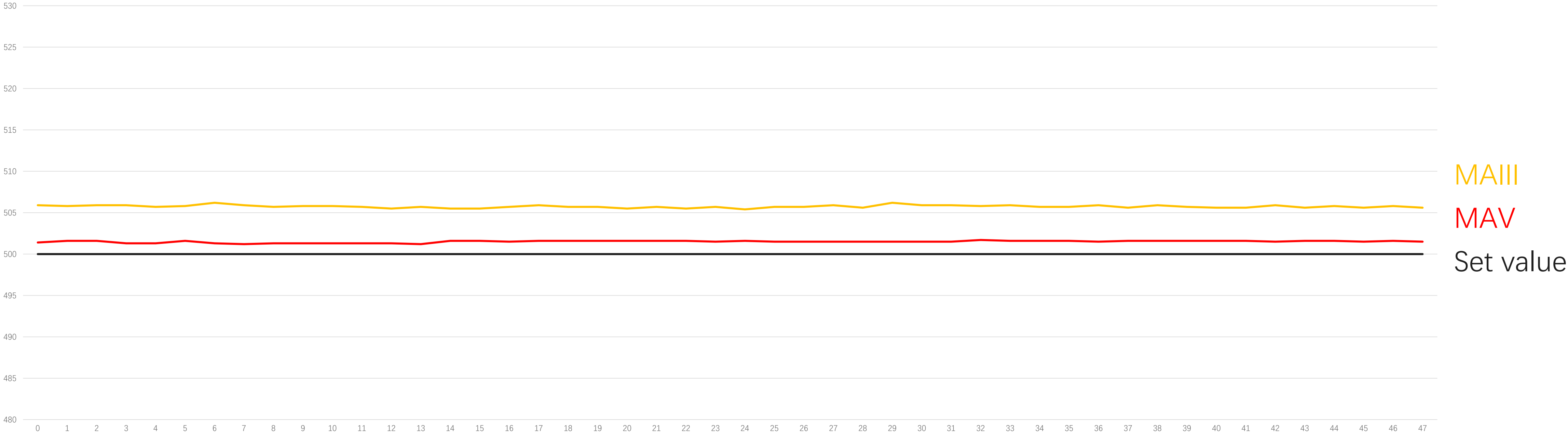
- Press center platen design
- High rigidity
- Even distribution of force
- Excellent moving platen support for mold protection

# Clamping Unit

Accurate mold opening and positioning

## HT Clamp

- Self-learning
- Self-correction algorithm



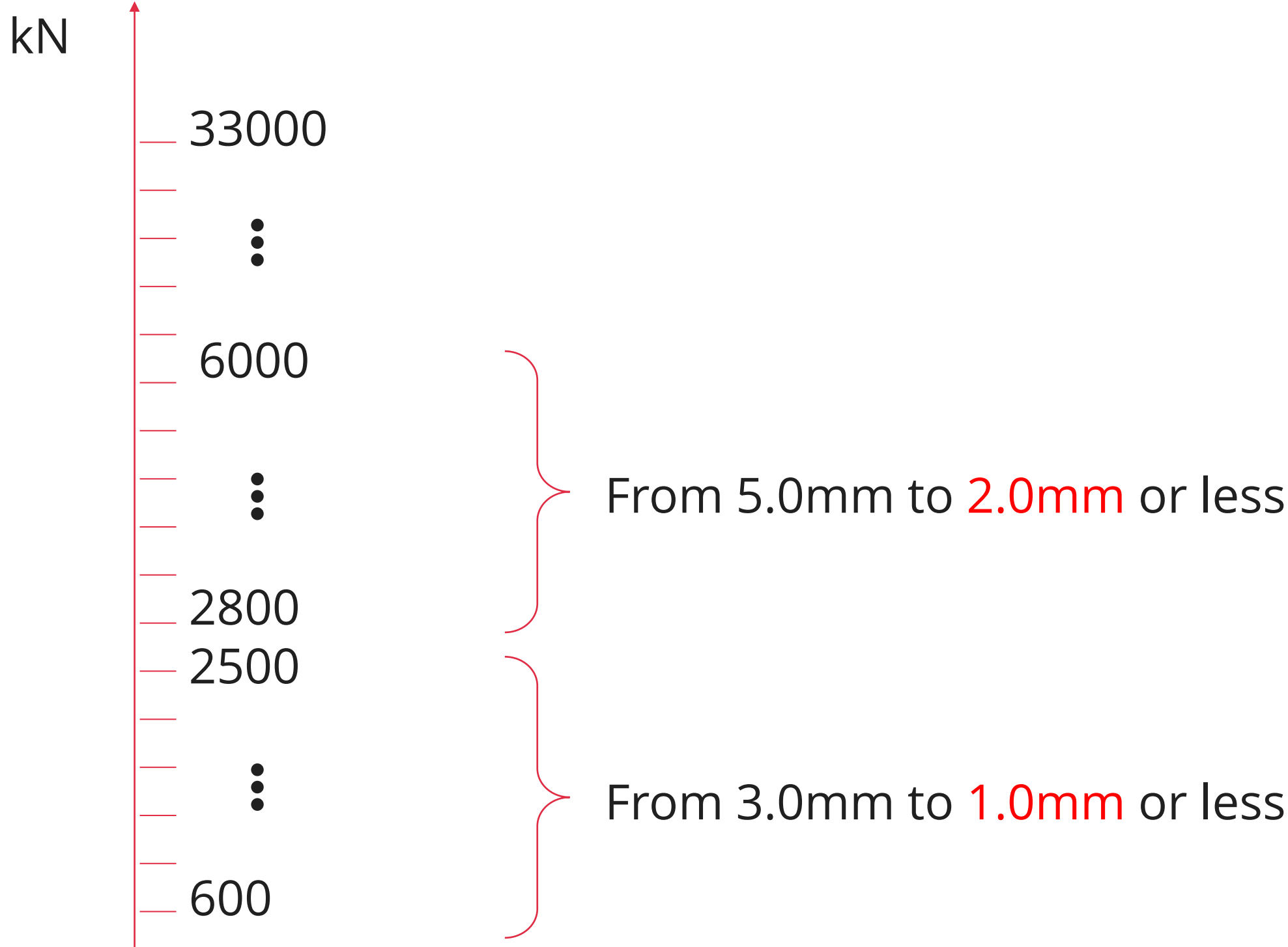
Improved mold open and "positioning" accuracy

# Clamping Unit

Accurate mold opening and positioning

- Improved mold opening and closing repeatability through further optimization of the overall structure, oil circuit and program

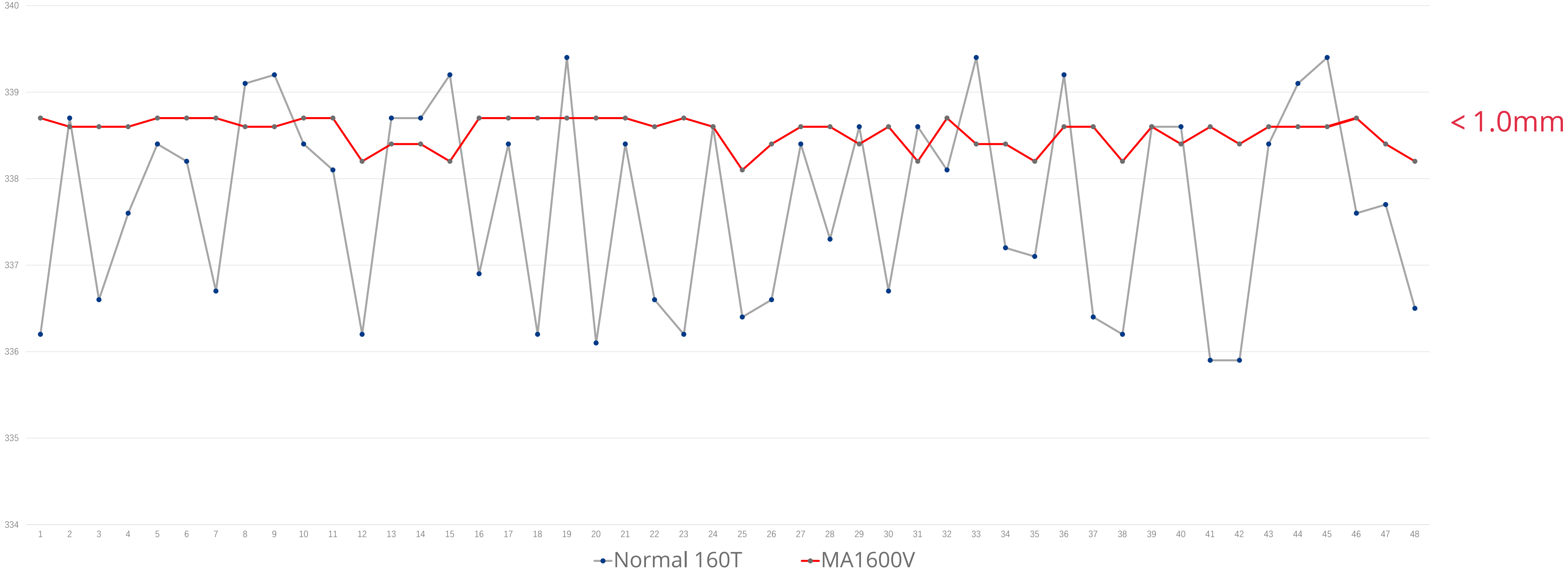
## HT Clamp



# Clamping Unit

Accurate mold opening and positioning

### Repeatability Accuracy of Mold Opening and Closing



○ Self-learning self-correcting algorithm, correcting position deviation, accurate mold positioning, stable and fast action

# New Servo Drive System

- The 5<sup>th</sup> generation dedicated servo power system for injection molding machine
- High performance servo drive system
- Japan SUMITOMO latest high speed gear pump
- Efficient, energy saving, quite and stable operation
- Ultra-high dynamic response of 100ms
- System pressure increased to 185bar



5<sup>th</sup> generation injection molding machine dedicated tailor made servo motor



5<sup>th</sup> generation dedicated servo drive



GREEN VANTAGE



SPEED VANTAGE



Latest high speed gear pump from SUMITOMO Japan



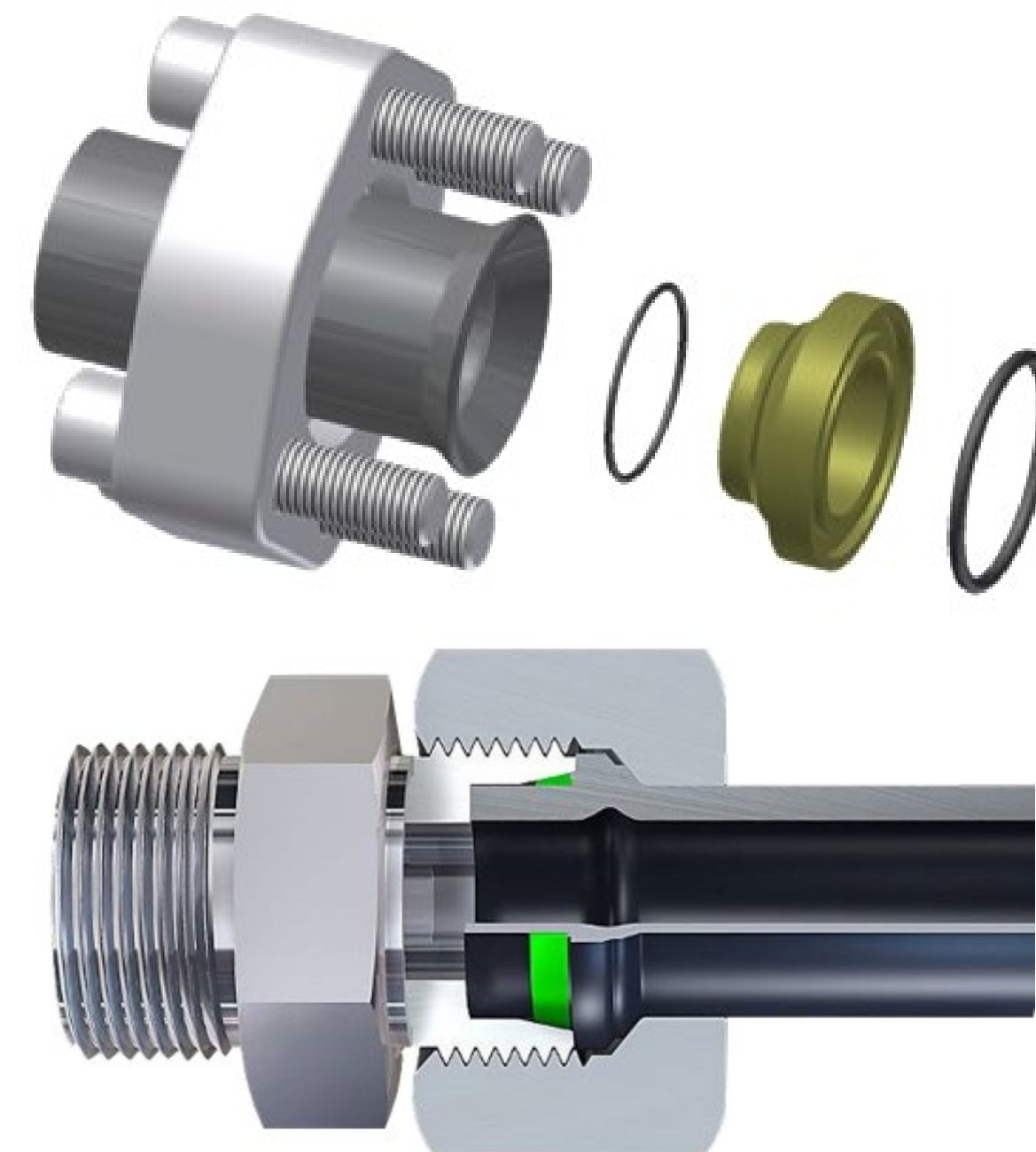
185 bar  
System pressure

# New Servo Drive System

Non-welding power pipelines



- Non-welding process for power pipeline
- More clean and less oil leakage risk



# Energy Efficient

Efficient oil temperature control

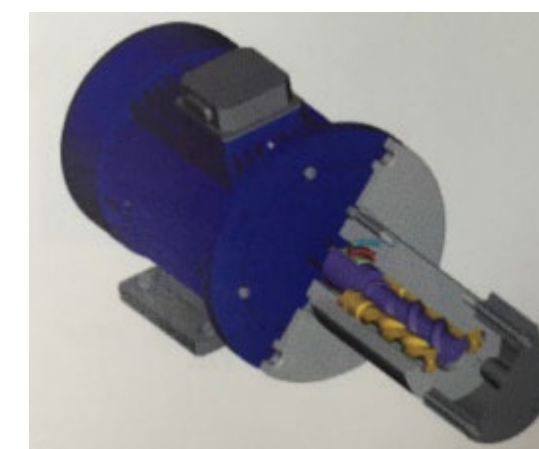
## Independent cooling filter system

- More precision of oil control
- Additional control valve for oil temperature cooling
- More stable performance and clean operation
- Individual filter system added for 280T and above

### ○ Additional control valve



### ○ Independent cooling filter system



Individual Valve



Filter



Cooler



# HT Smart Ecosystem

Supported by overall upgrade of the digital platform

Algorithm ●

Sensor  
Technology ●

Communication  
Technology ●

Control  
Technology ●

Hardware  
Design ●

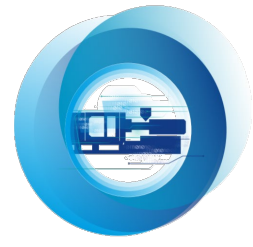
HT-EXTEND



# HT Smart Ecosystem

More intelligent than ever before





# Smart Technology

## New UI design

Integrated display of machine status



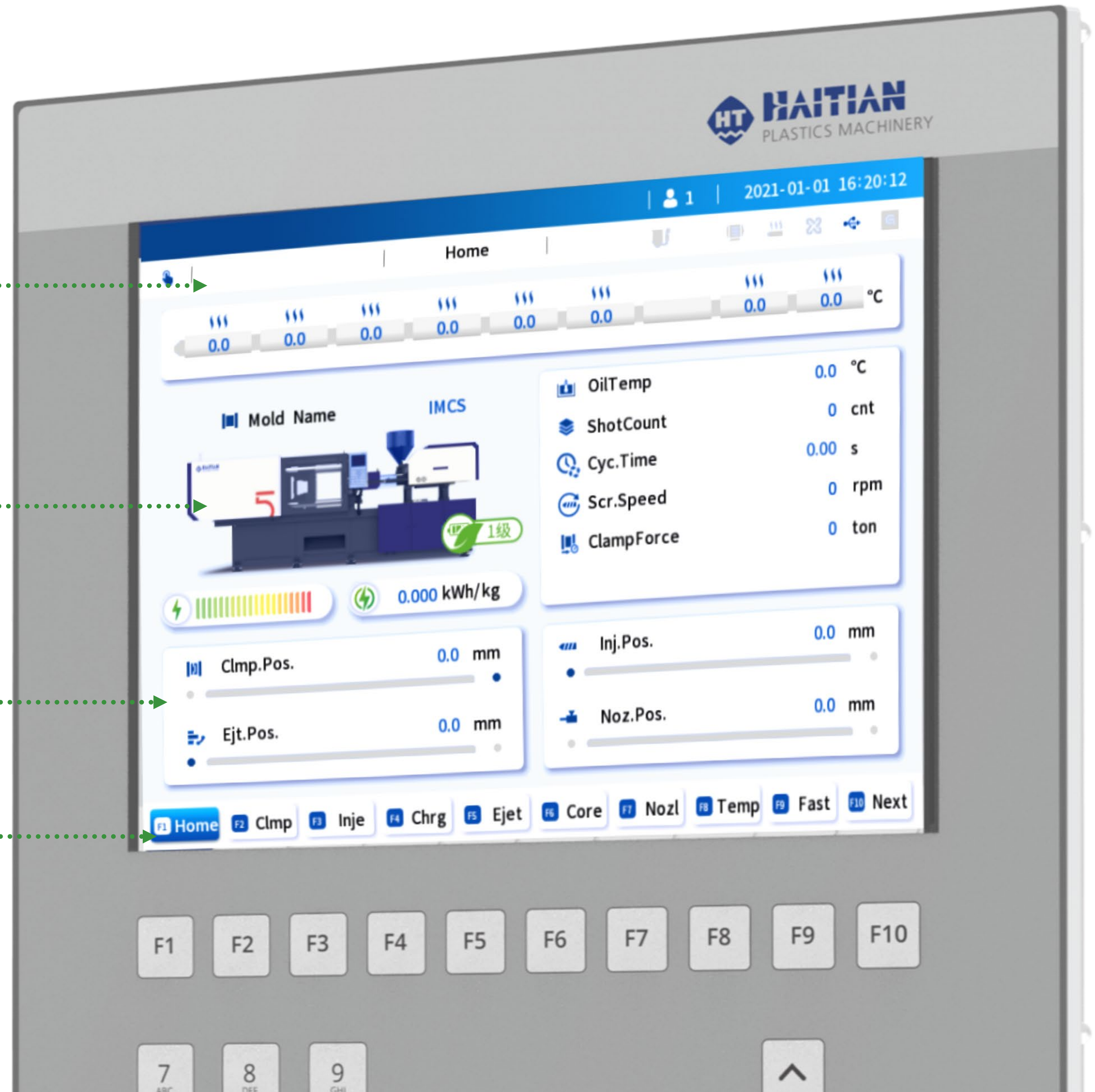
Animated effect



Key production figures



New menu





# Smart Technology

## Control panel upgrade

○ **60T-600T**

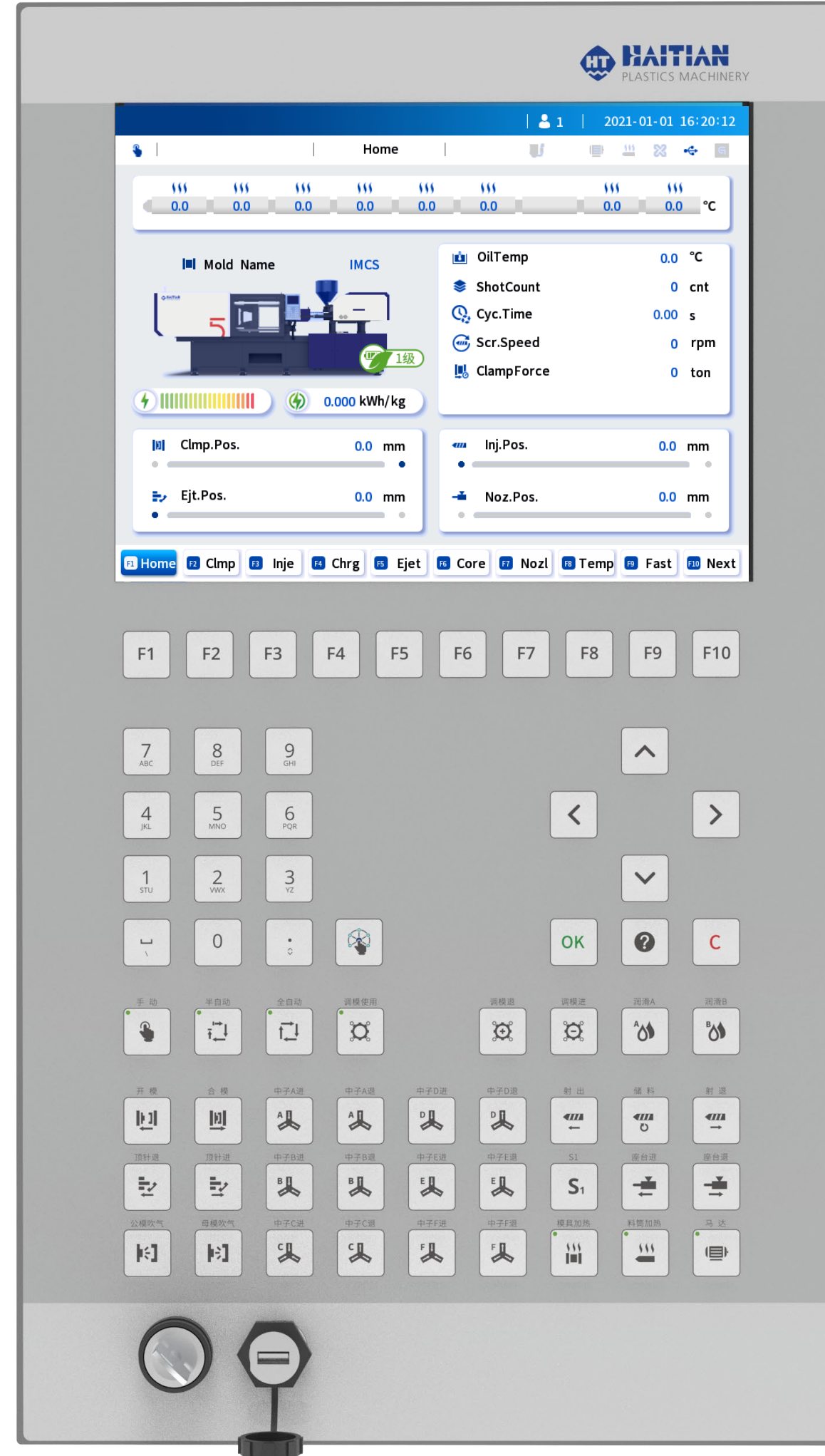
Techmation controller + 12 inches Panel

○ **700T-3300T**

KEBA controller + 15 inches Panel

### New UI design

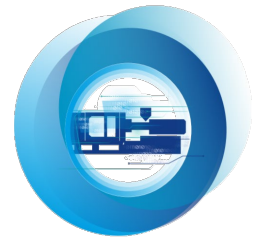
○ New large-screen control panel and new UI design make the interactive experience even more user-friendly



MAV 12 inches Panel



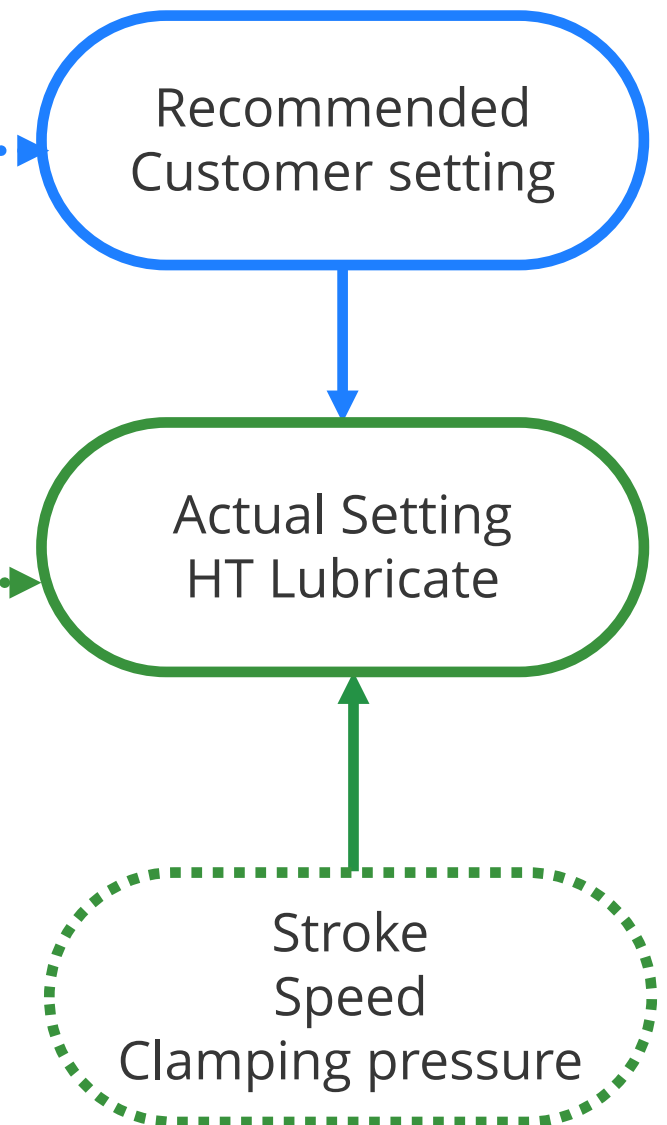
MAV 15 inches Panel



# Smart Technology

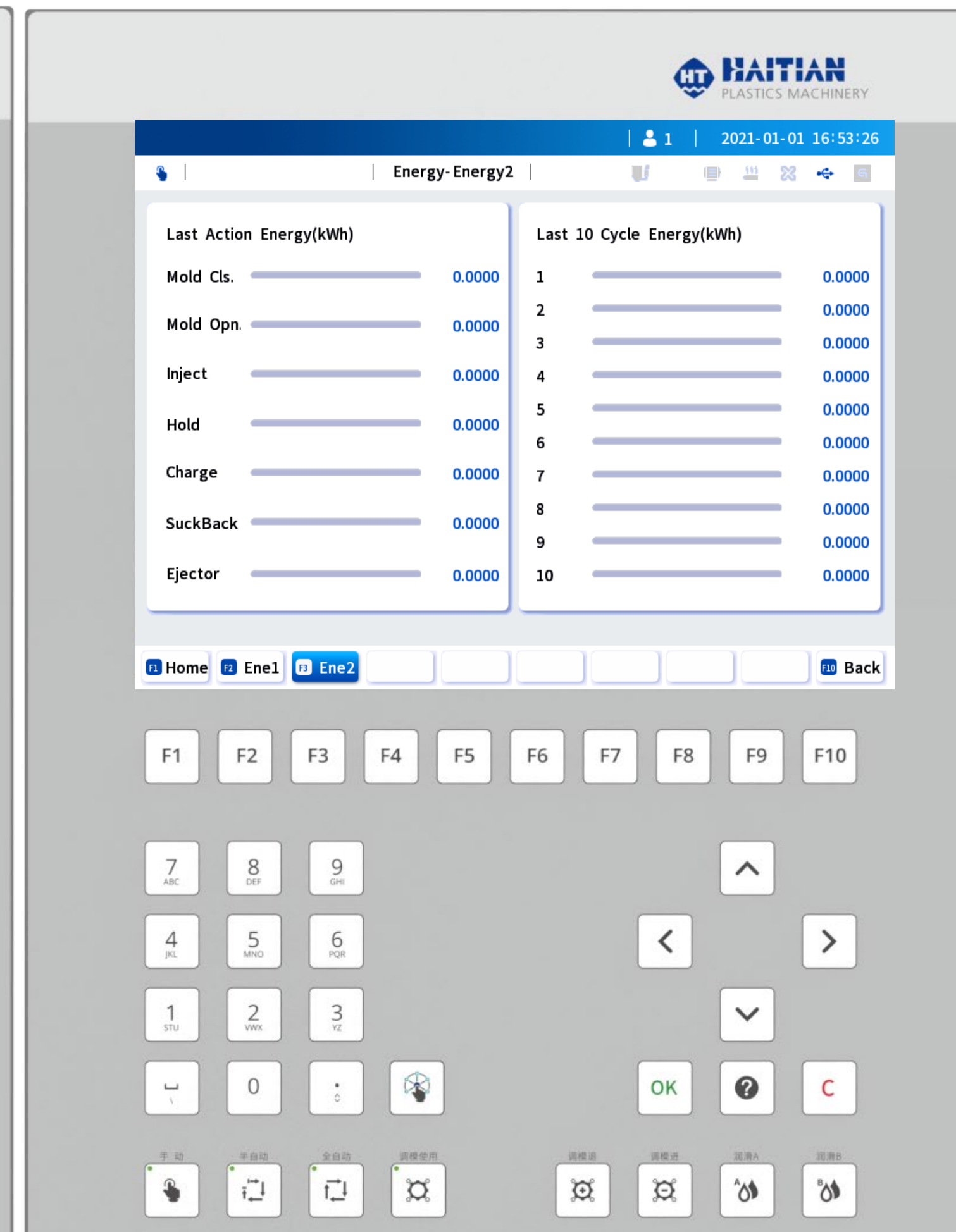
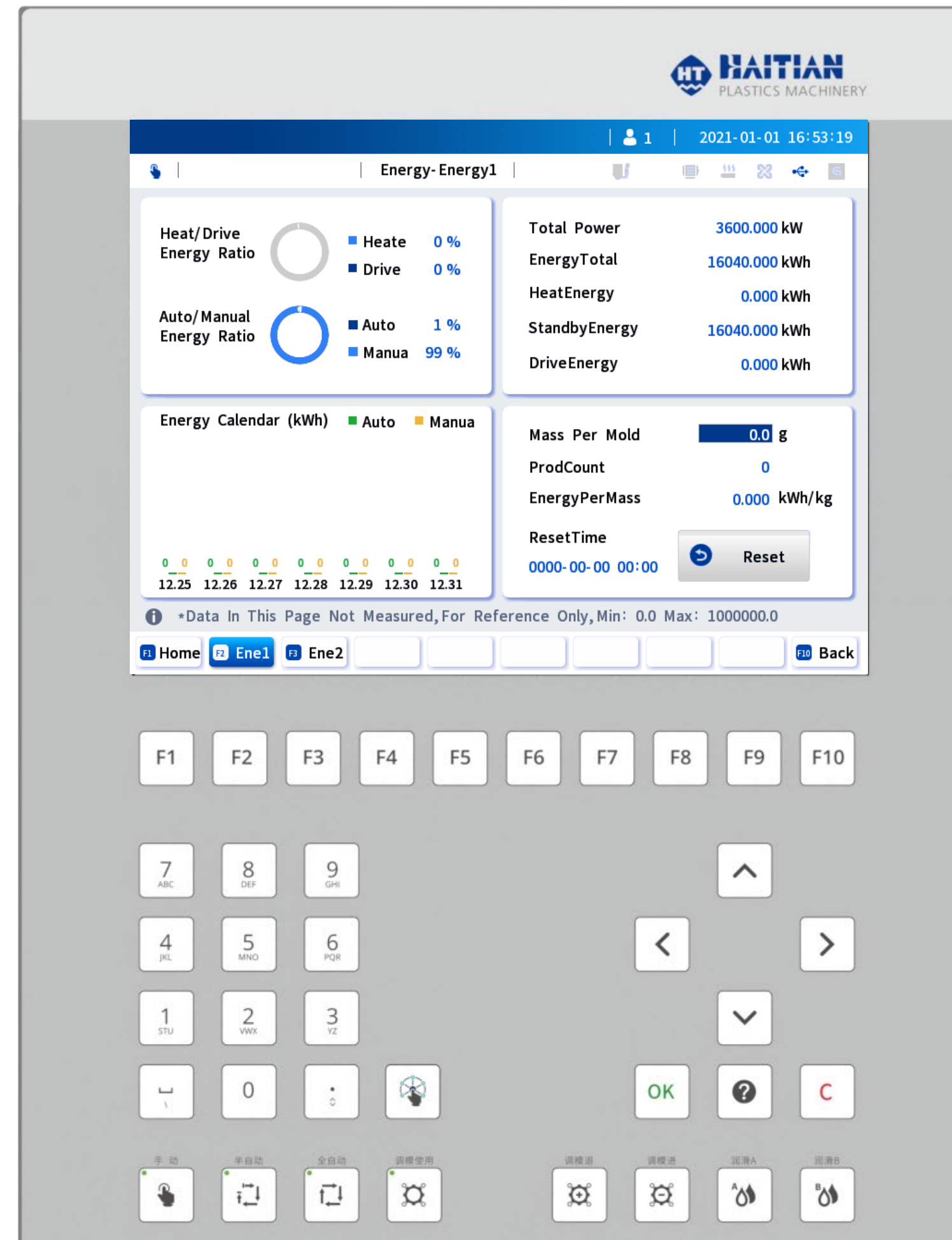
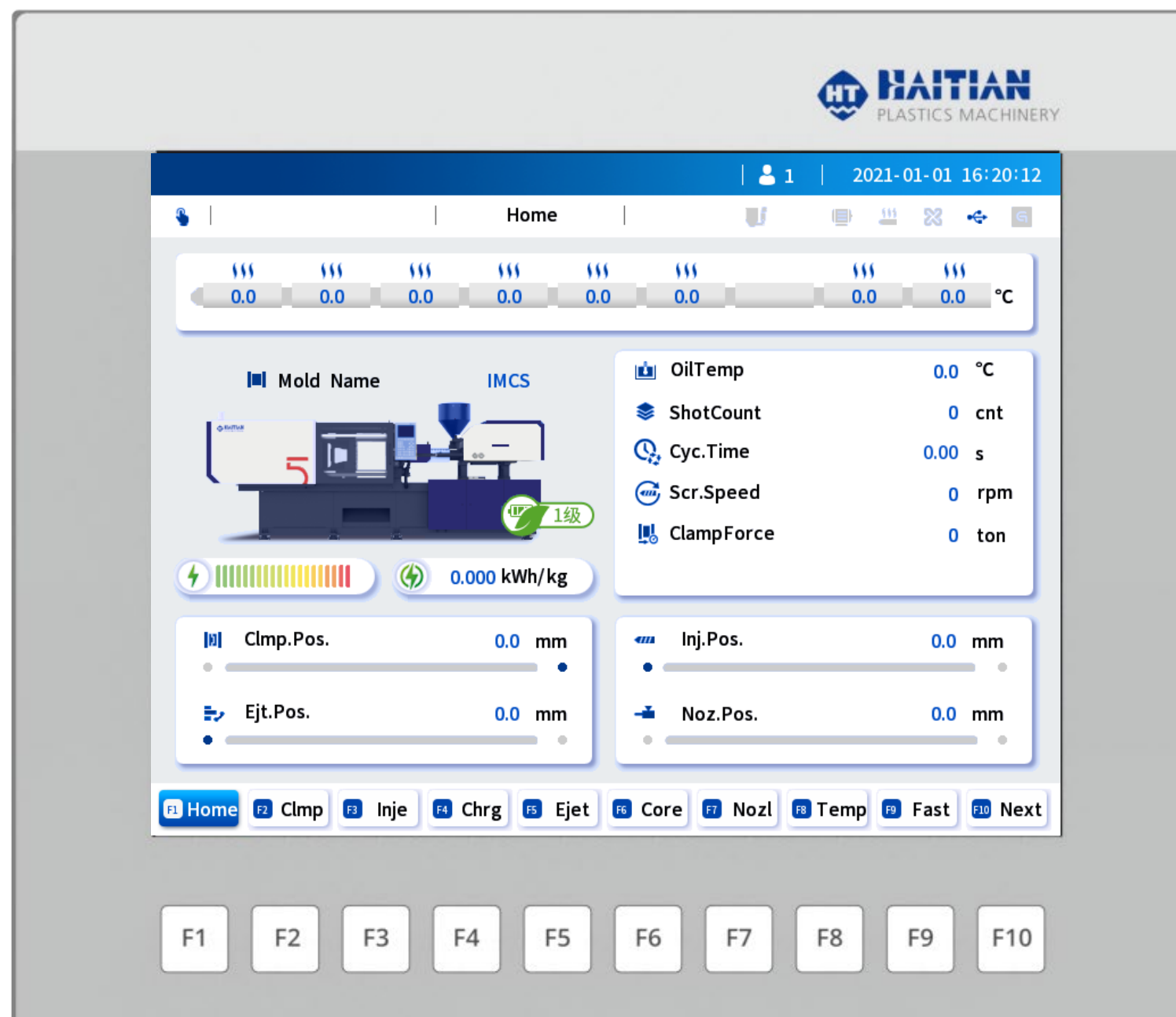
## HT Lubricate

- The neural network algorithm and precise lubrication model can dynamically match the optimal lubrication quantity and optimize the lubrication parameters
- The lubrication control is intelligently optimized through multi-data algorithms such as lubrication control, cycle, mold opening stroke and mold clamping pressure
- Automatically calculates lubricating oil consumption and displays the remaining proportion
- Standard on MA5



**No need to match an electric meter, and easily enables refined energy consumption monitoring and analysis**

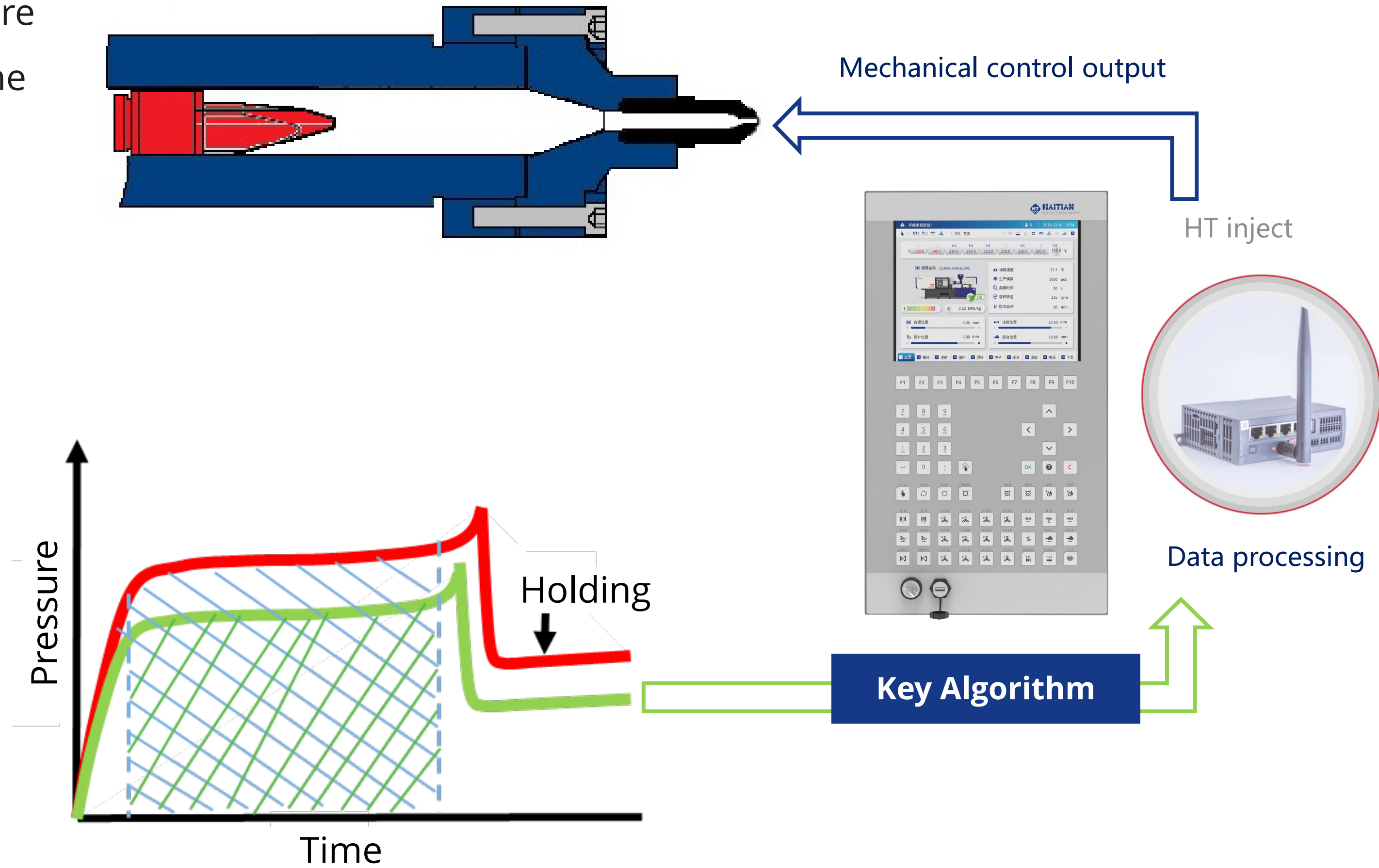
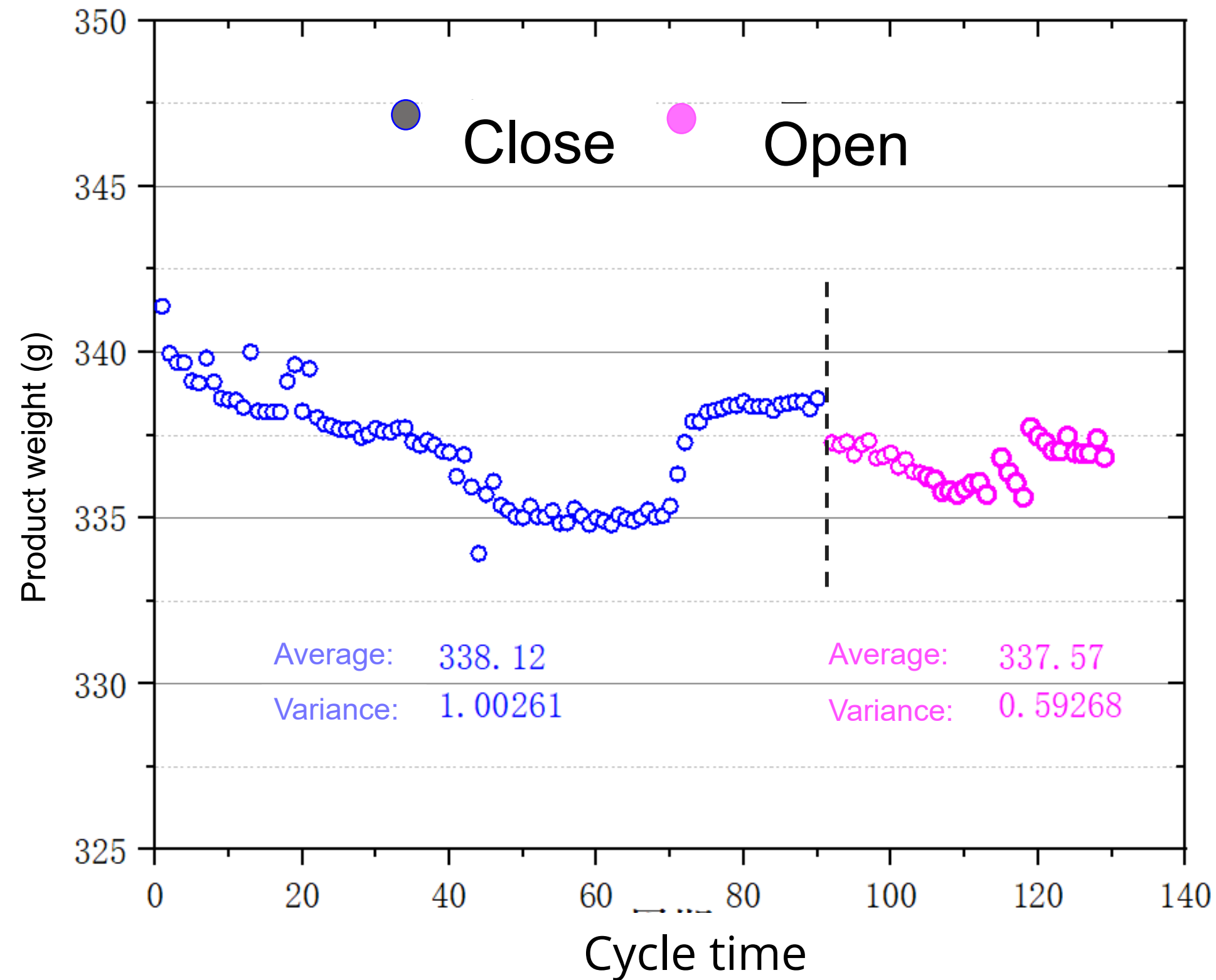
- Detailed energy information display
- Better energy utilization efficiency
- Reduced energy consumption and waste
- Standard function

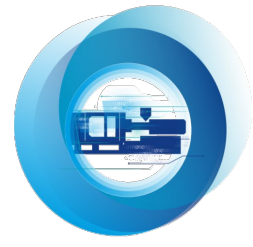




# Smart Technology HT Inject

- Improved weight stability of molded parts
- Some disturbance factors in the injection filling process are controlled in real time to achieve the weight stability of the molded parts



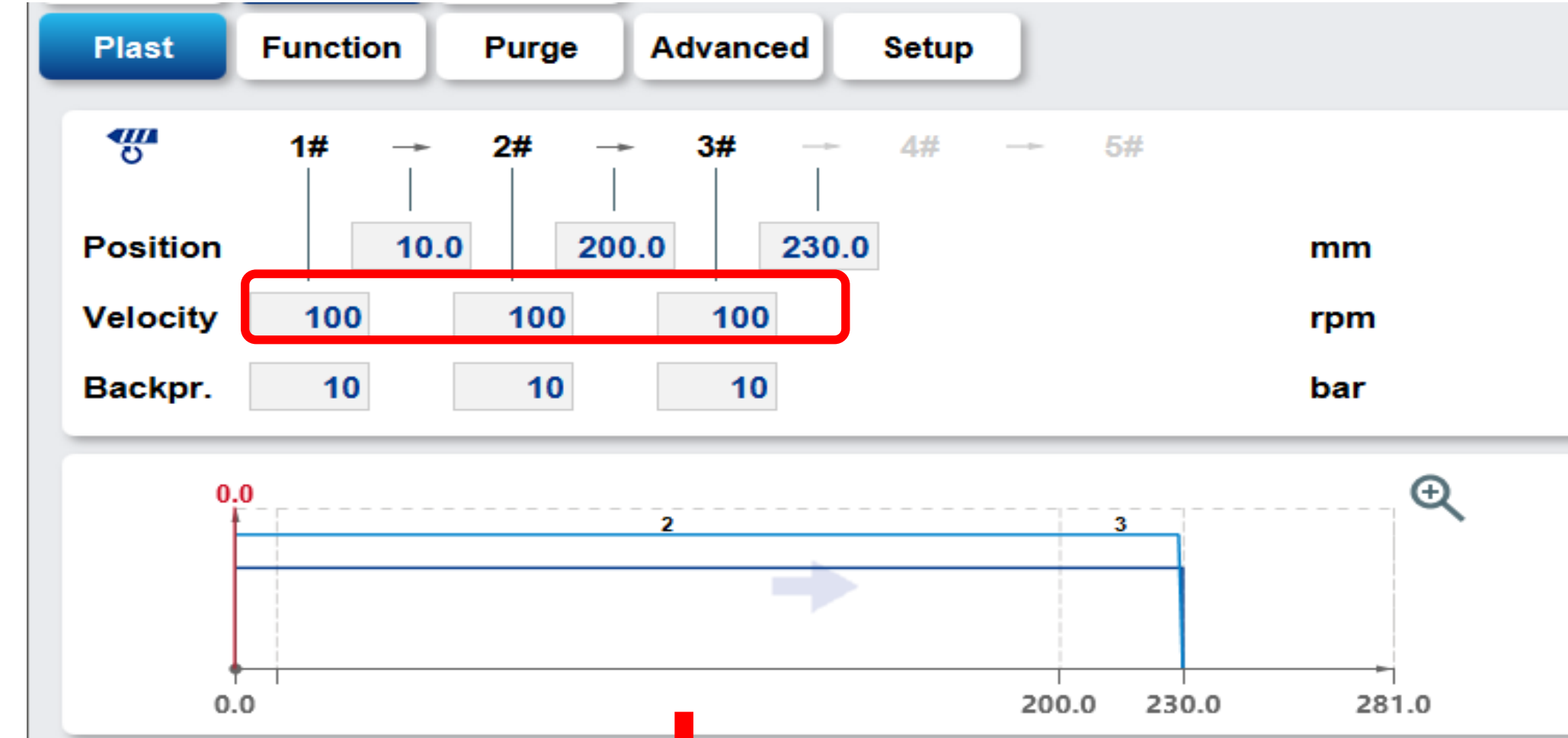


# Smart Technology

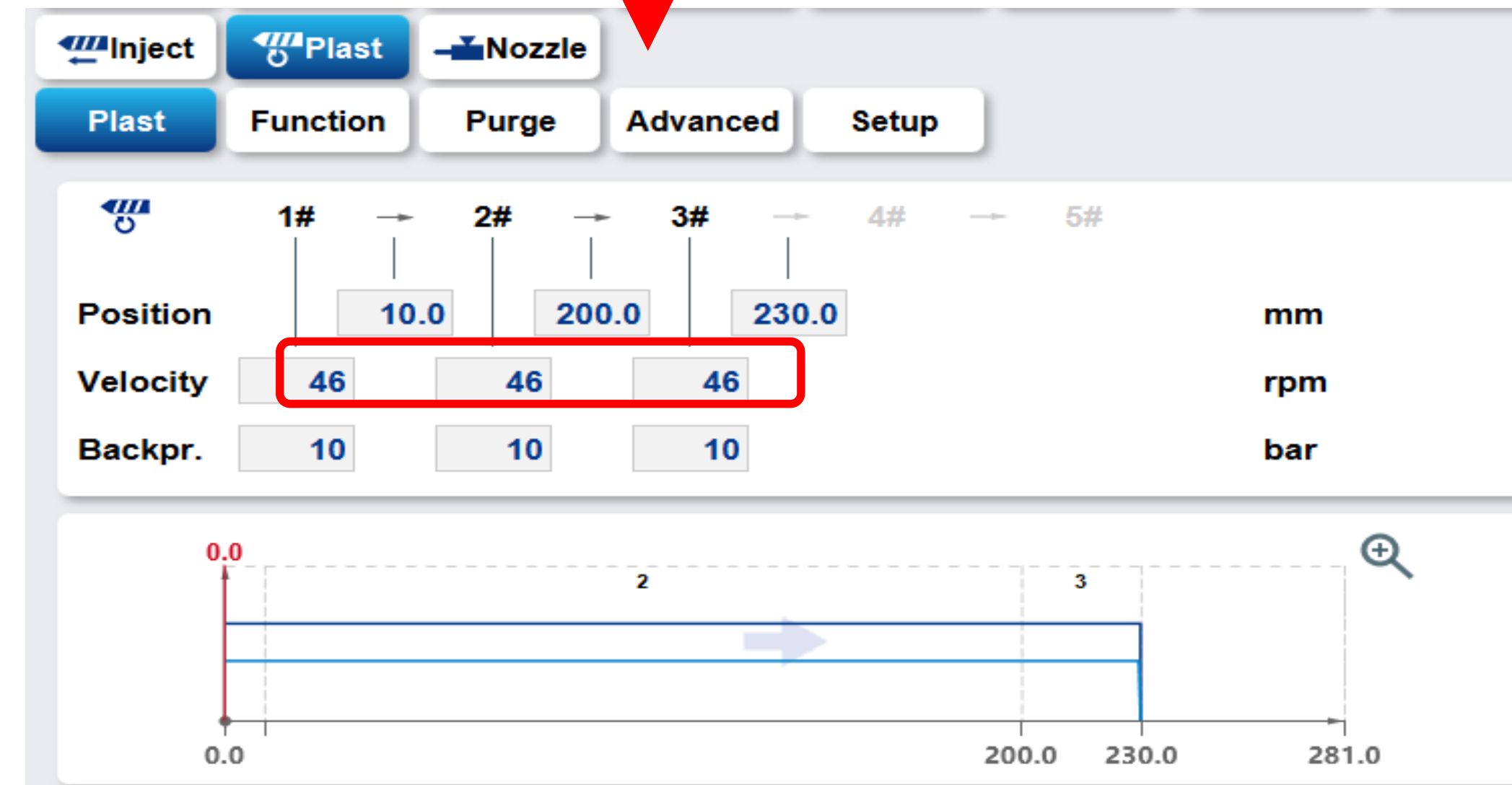
## HT Dosing

- Lower energy consumption
- Less wear and tear for screw and barrel

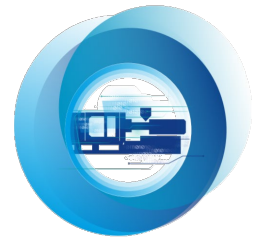
Before optimization



After optimization





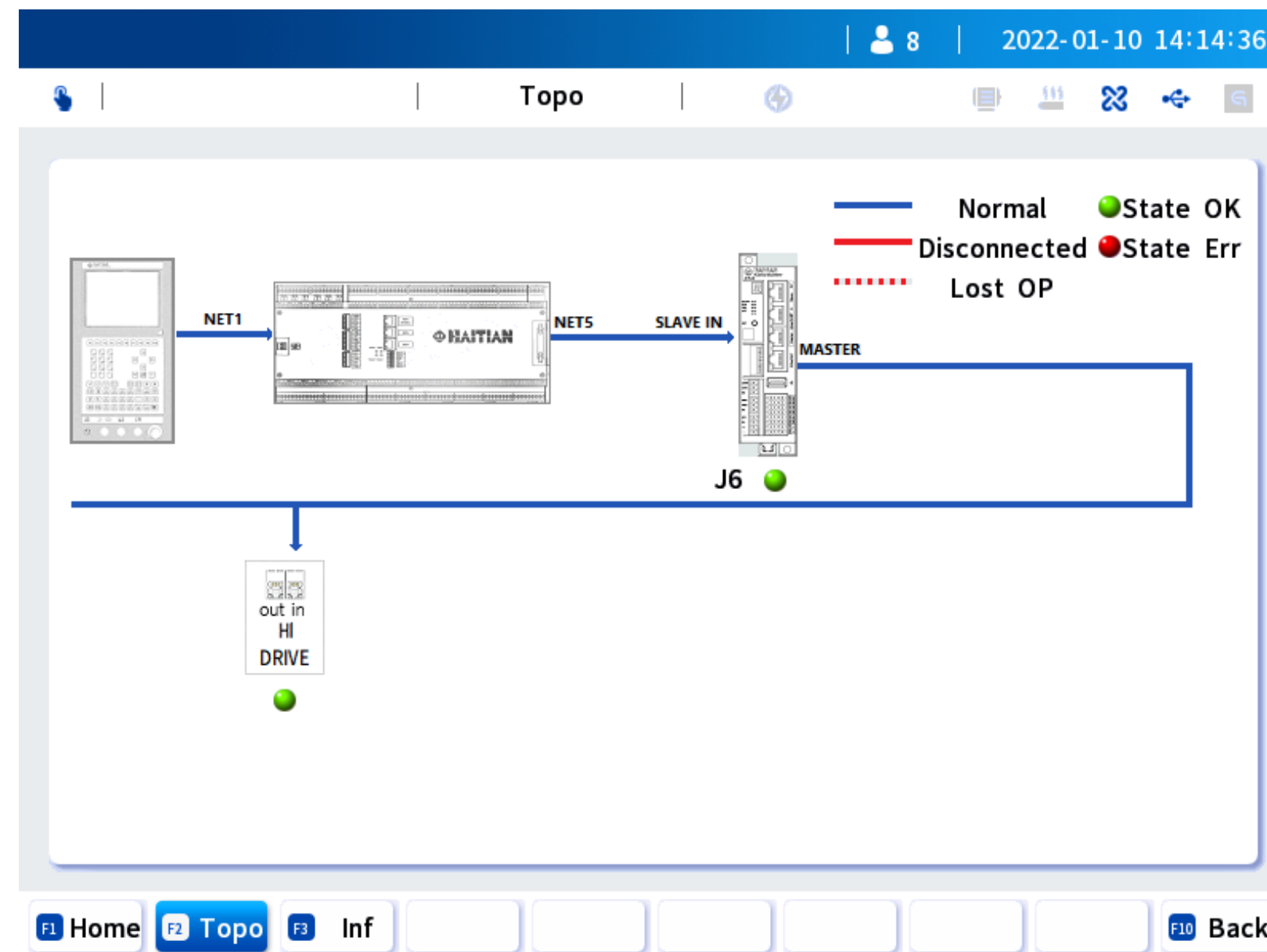


# Smart Technology

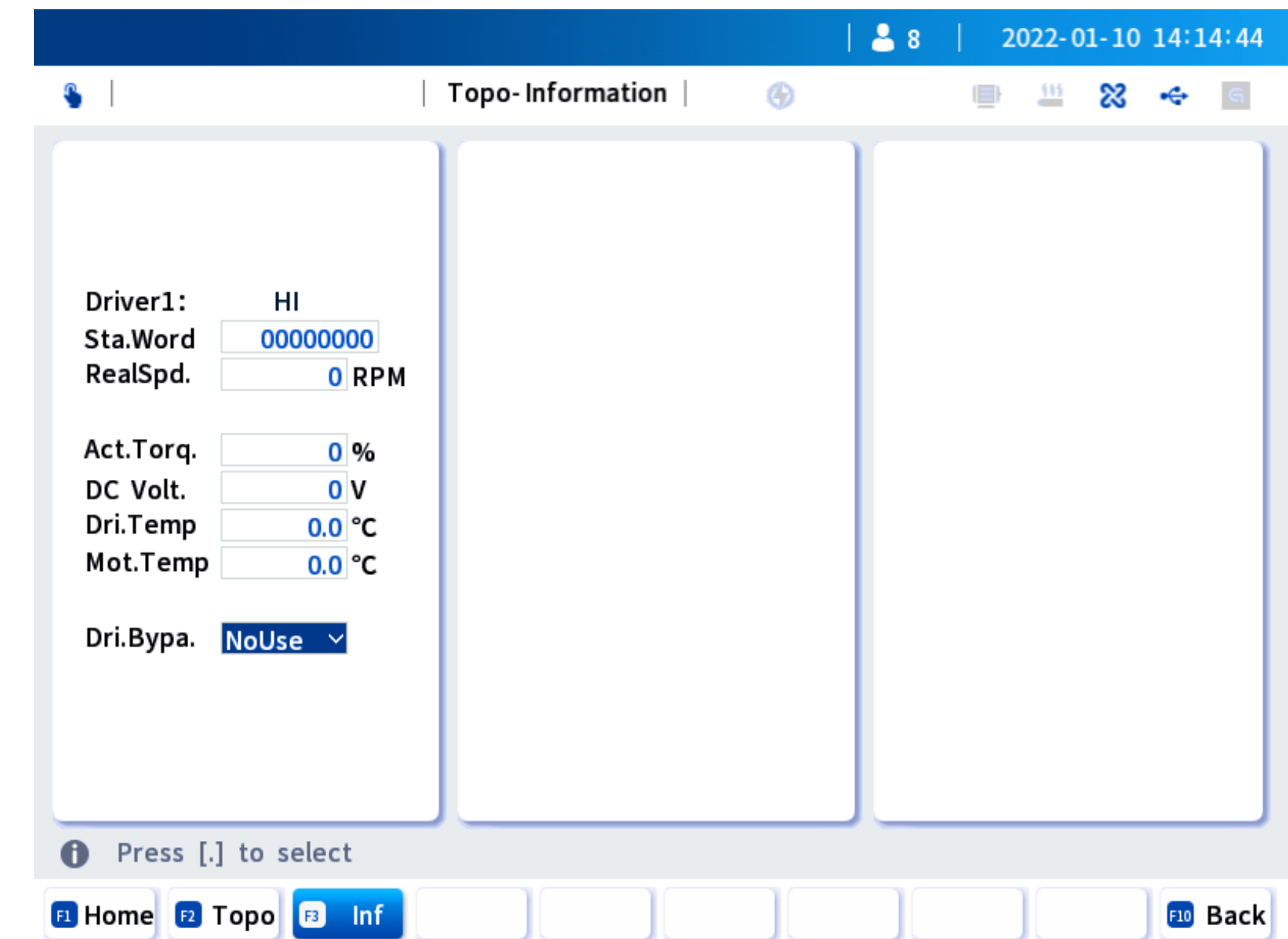
## HT Diagnose

- Topological structure direct display on the control, operator can detect the error very fast and identify the corresponding module.
- Monitoring sites including: controller /J6 card/drive/transducer

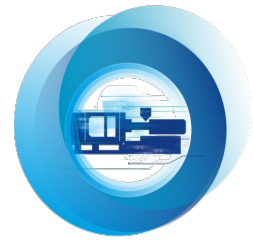
### Smart Diagnose through bus



V1.0



V2.0



# Smart Technology

## HT Diagnosis and Help

- Online solutions for errors
- Maintenance tips
- Warning with QR code support

Maintain | 2022-01-10 14:27:58

Project	Maint. Countdown	Fatigue
Maint. Project I Every 7 Days	7 Day	0%
Maint Project II Every 500 Hours	483 Hour	3%
Maint ProjectIII Every 3000 Hours	2983 Hour	1%
Maint ProjectIV Every 6000 Hours	5983 Hour	0%
Maint Project V Every 12000 Hours	11983 Hour	0%
Maint ProjectVI Every 36000 Hours	35983 Hour	0%

Press [OK] key to select

F1 Home F2 MT1 F3 MT2 F10 Back

Maintain | 2021-01-02 10:30:22

Type I maintenance items

- Equipment cleaning
- Safety device inspection
  - Check emergency stop
  - Check front door and rear door
  - Check safe plate
  - Check purge guard
  - Check rear protect door
  - Hydraulic clamping safety device

Please use GoFactory APP  
Scan QR code to open

Ignore Reset Exit

Press [OK] key to select

F1 Home F2 MT1 F3 MT2 F10 Back

Alarm-History | 2021-01-02 10:13:37

Display Start No. 1 Total Error Count 10

No.	Code	ShotCnt	Alarm Description	Start Time	ResetTime
1	1D	4	Lubrication Fail	01/02/21 10:12:42	10:13:03
2	2C	4	Hydraulic Safe Error	01/02/21 10:11:52	10:12:05
3	1	1	Please Close Door	01/02/21 10:10:48	10:10:50
4	C	1	Mold Open End Error	01/02/21 10:10:15	10:10:16
5	144	1	Emg Stop Feedback Error	01/02/21 10:10:10	10:10:12
6	3	1	Off Man./Emerg. Key	01/02/21 10:09:10	10:09:19
7	BB	1	Purge Guard Safe Circuit Error	01/02/21 10:08:38	10:08:44
8	1	1	Please Close Door	01/02/21 10:08:21	10:08:23
9	3E	1	Door 2 Not Close	01/02/21 10:08:17	10:08:18
10	C	1	Mold Open End Error	01/02/21 10:08:04	10:08:05

Input number, Min: 1 Max: 10

F1 Home F2 Now F3 HIS F10 Back

Alarm-History | 2021-01-02 10:14:57

Hydraulic Safe Error

Alarm resolution

Reason The hydraulic safety valve core is not opened or closed in time, and the controller detects the reset state of the hydraulic safety valve core after the safety door is opened. The opening state of the hydraulic safety valve core is detected when the mold is closed.

Influence Alarm light on, limit any action.

Resetting When the safety door is opened, there is a hydraulic safety error alarm, check the controller input screen signal; Check the hydraulic safety detection relay; Check the hydraulic safety valve line.

Please scan QR code for help

OK

F1 Home F2 Now F3 HIS F10 Back



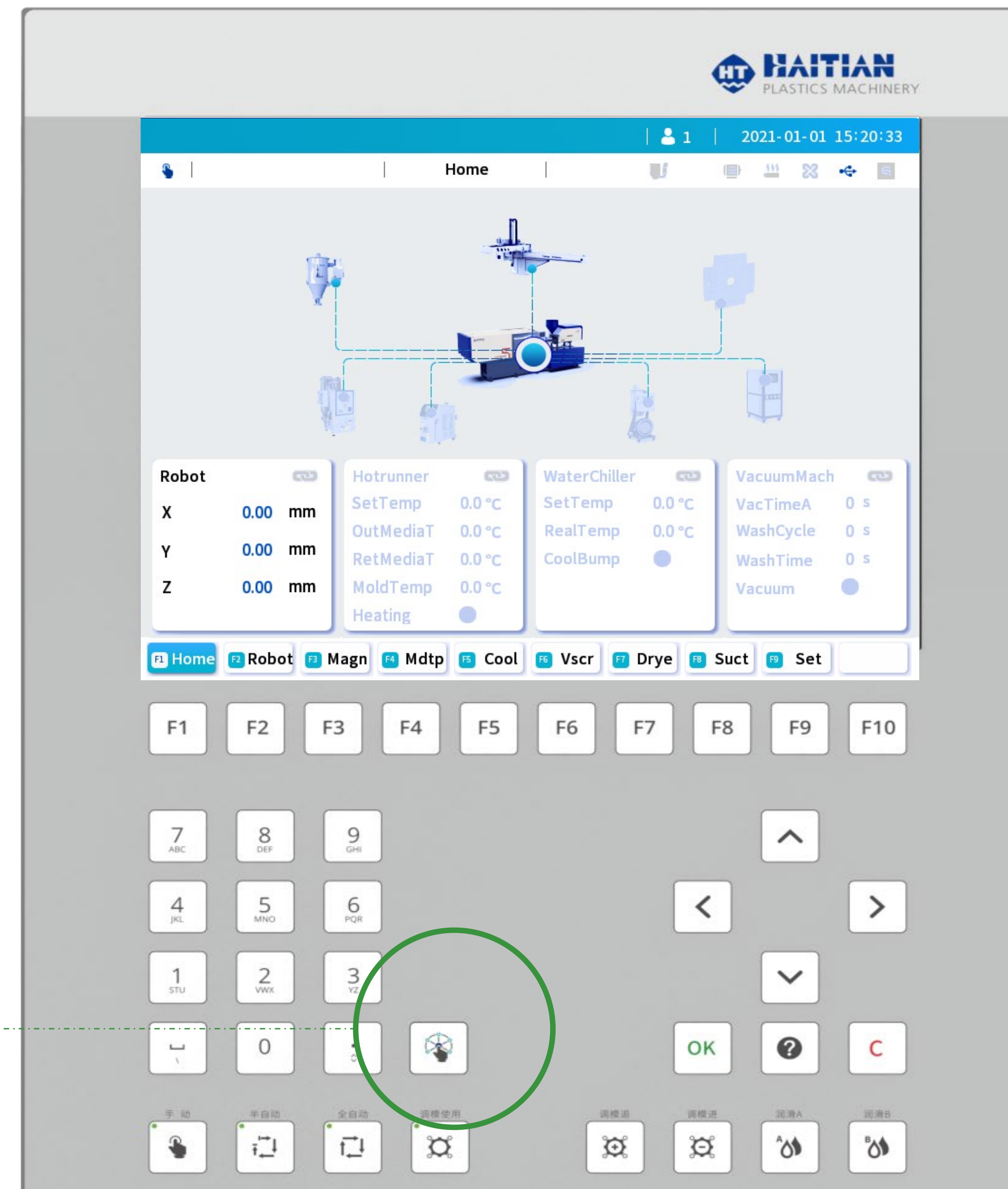


# Flexible Integration

Highly efficient integration with peripherals

- Smart peripherals can be highly efficiently integrated into the injection molding machine
- The status of the peripherals can be monitored and controlled on the same control panel with a short cut button
- Production process and figures is more clear

Shortcut for peripherals





# Flexible Integration

Highly efficient integration with peripherals

## Drying hopper integrated control (optional)

- After determining the type of raw materials, the corresponding drying temperature and drying time are intelligently recommended
- After setting drying time, countdown reminder
- Timing switch function
- Fan and electric heating working status display

1 | 2021-01-02 14:04:50

DryerHeat

CurrentDryTemp 0.0 °C

SetDryTemp 25.0 °C

DryHiTempWar 200.0 °C

Material Group PA

Material Type PA6  
Suggest83°C, 3Hour

Dry Time 300 minute

Time On NoUse 0:0

Time Off NoUse 0:0

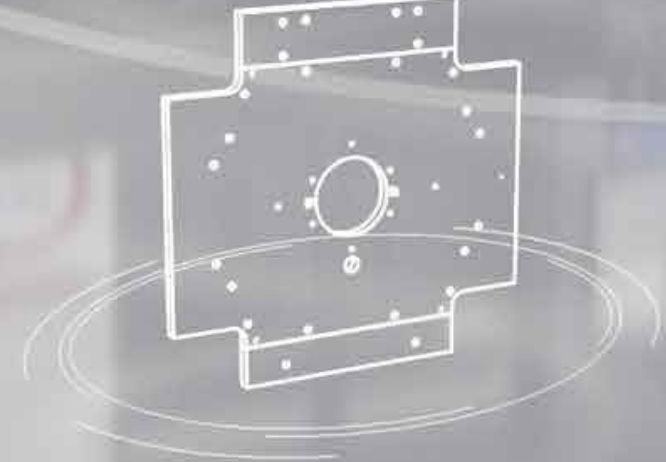
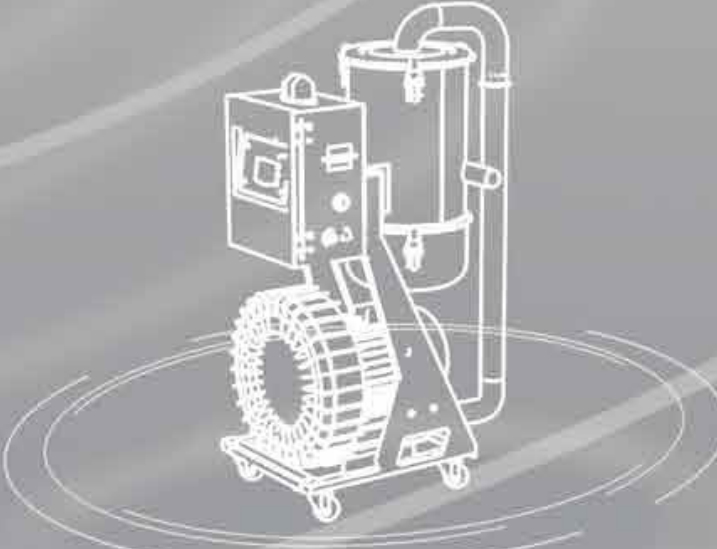
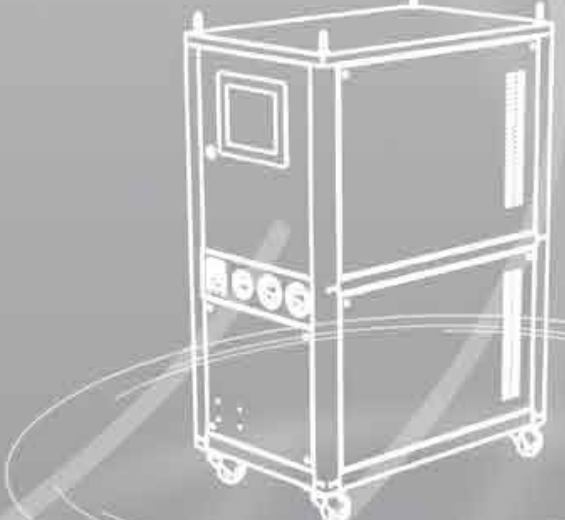
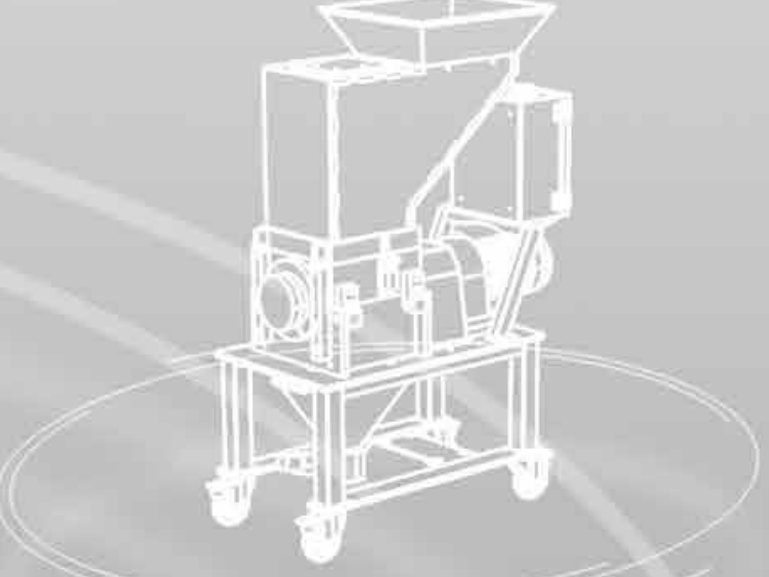
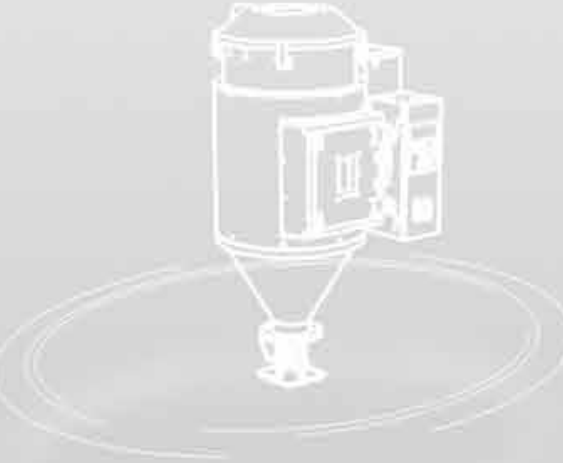
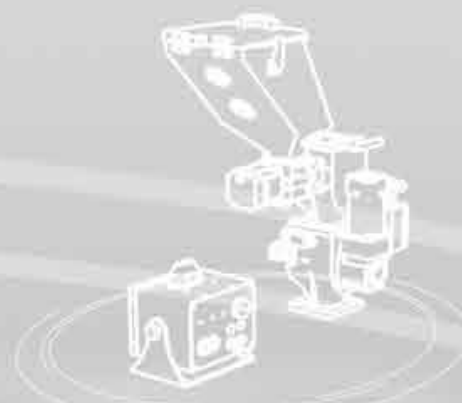
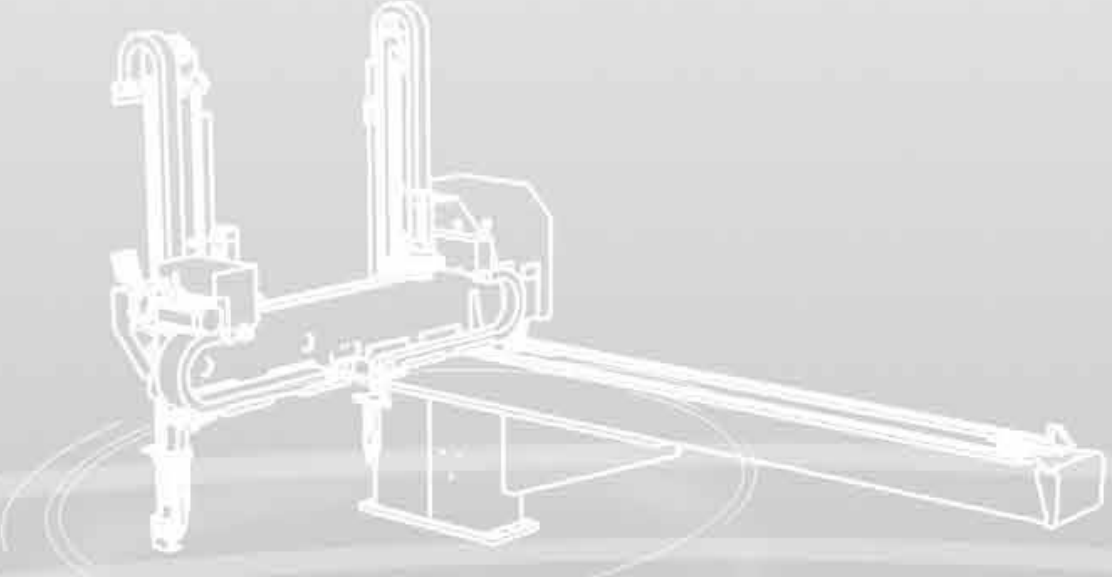
ON OFF DryCou.Dn. 0:0:0

Press [OK] key to select

F1 Home F2 Drye F3 PID F4 Ener F10 Back

# Flexible Integration

International interface OPC UA, EUROMAP





# Flexible Integration



# Industry Application



## Automobile Industry

---

The automotive sector is versatile and the industry is growing rapidly.

Our approach: cost-efficient system solutions for flexible and fully automated smart production lines.

## Consumer electronics industry

---

Our everyday life is rich in technical systems such as cell phones, tablets, computers or memory cards and connectors.

New slim designs, new surfaces and innovative functions and short product cycles requires competitive solutions.

## Appliance Industry

---

The consumer goods market is the mass market for plastic products par excellence and is more competitive than any other.

Standard applications in production – albeit with sometimes high quality requirements.

## Daily necessities industry

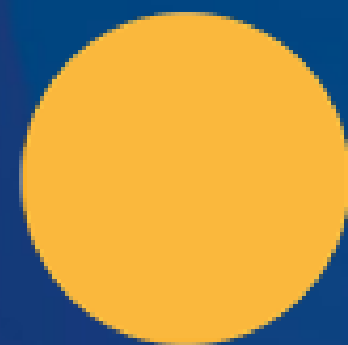
---

The large dimensions and volumes of the parts quickly shift the focus to material consumption and processing.

This requires well thought-out, cost efficient manufacturing solutions if you want to survive in the face of tough competition.



THANK YOU !



WE CREATE AND EXTEND ADVANTAGE.

[www.haitianinter.com](http://www.haitianinter.com)