



**z**-moulds<sup>®</sup>

INSPIRING PARTNER

*PETinar Series in Advance to DRINKTEC 2022*

**New challenges for the closure production require new mould solutions.**

August 31<sup>st</sup>, 2022



## A SHORT INTRODUCTION

# GENERAL COMPANY INFO



**z-werkzeugbau**<sup>®</sup>

KOMPETENT PROFESSIONELL BEGEISTERND

Dr.-Walter-Zumtobel-Str. 9

6850 Dornbirn / Austria

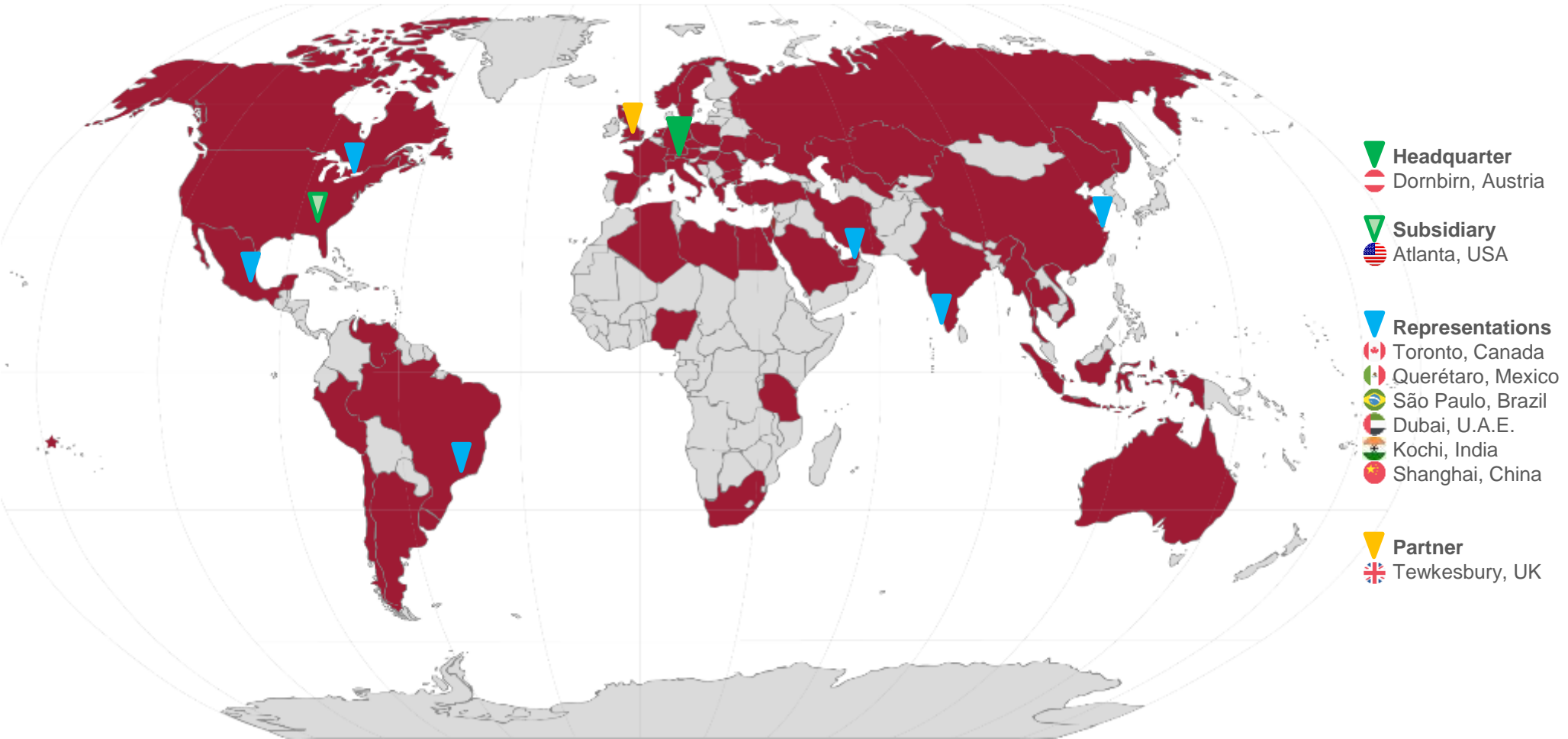
+43 5572 7272-0

[www.z-werkzeugbau.com](http://www.z-werkzeugbau.com)

- ✓ PRIVATE OWNED COMPANY WITH LEAN MANAGEMENT
  - ✓ SUSTAINABLE BUSINESS STRATEGY
  - ✓ TECHNOLOGY & INNOVATION LEADERS
  - ✓ FAST DECISION-MAKING PROCESSES
  - ✓ FLEXIBLE & HIGHLY MOTIVATED TEAM
  - ✓ EXPERT KNOWLEDGE FOR CLOSURES & MOULDS
- ... YOUR INSPIRING PARTNER !**



# OUR INTERNATIONAL PRESENCE



# CAP SPECIALIST



## WE UNDERSTAND YOUR BUSINESS

As a caps and closure specialist, we deliver complete solutions. Starting from new closure design ideas, the design of new products, develop and test them until your final approval and qualification.

## FULLY APPROVED LABORATORY

During testing and qualification our laboratory can carry out all kind of closure tests according to global standards.



CAPS & CLOSURE  
DESIGNS



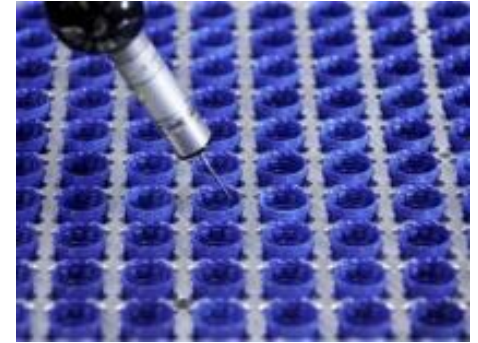
CAPS & CLOSURE  
DEVELOPMENT



CAPS & CLOSURE  
TESTING



CAPS AND  
CLOSURE LINE  
SUPPORT





COMPETENT - PROFESSIONAL - INSPIRING

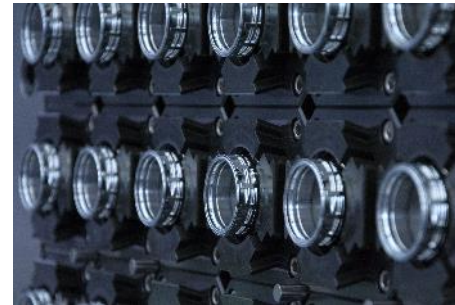


# LEADING TECHNOLOGIES



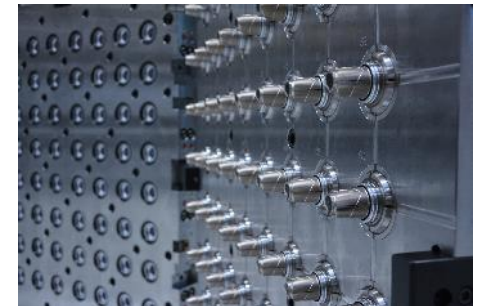
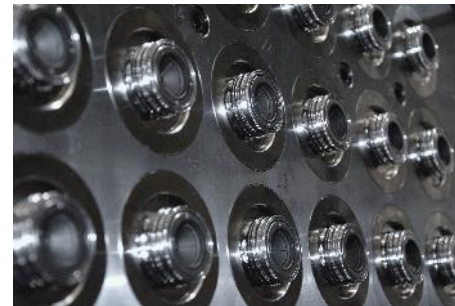
## ✓ PATENTED SYSTEMS

We have several patented technologies that enables our customers to produce at the highest efficiency rate.



## ✓ HIGHEST RELIABILITY

All our moulds are designed for non-stop operation on lowest possible maintenance effort.



## ✓ SINGLE- OR MULTI-COMPONENT

Doesn't matter if single component screw-cap or multi-component flip-top our mould expertise covers the full range of applications.





**WELL PROVEN SYSTEM TODAY,  
MORE ENHANCED TOMORROW.**



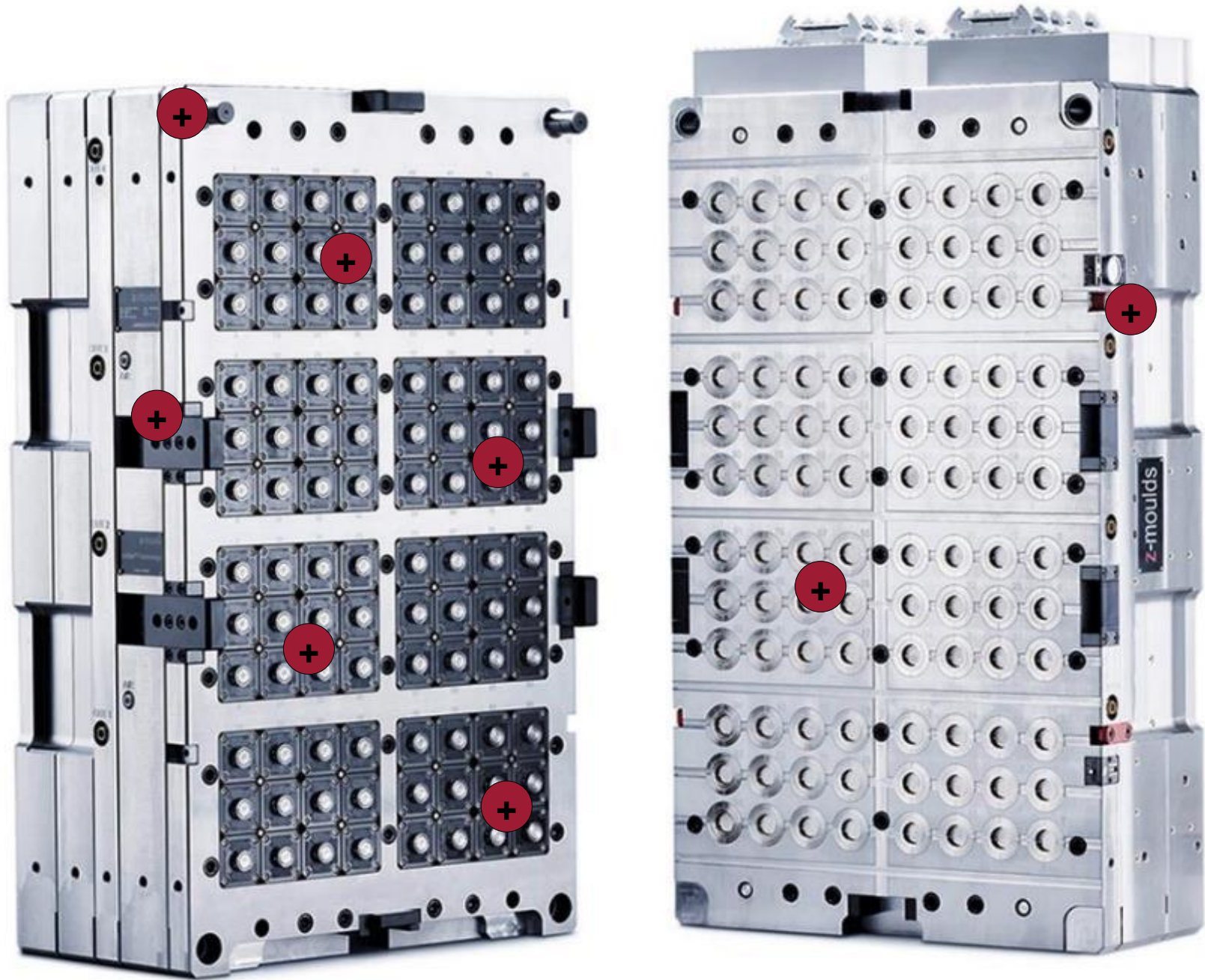
# A WELL PROVEN SYSTEM – THE PATENTED Z-SLIDES®



**z-slides**®  
PATENTED  
TECHNOLOGY



**z-slides**<sup>®</sup>  
PATENTED  
TECHNOLOGY



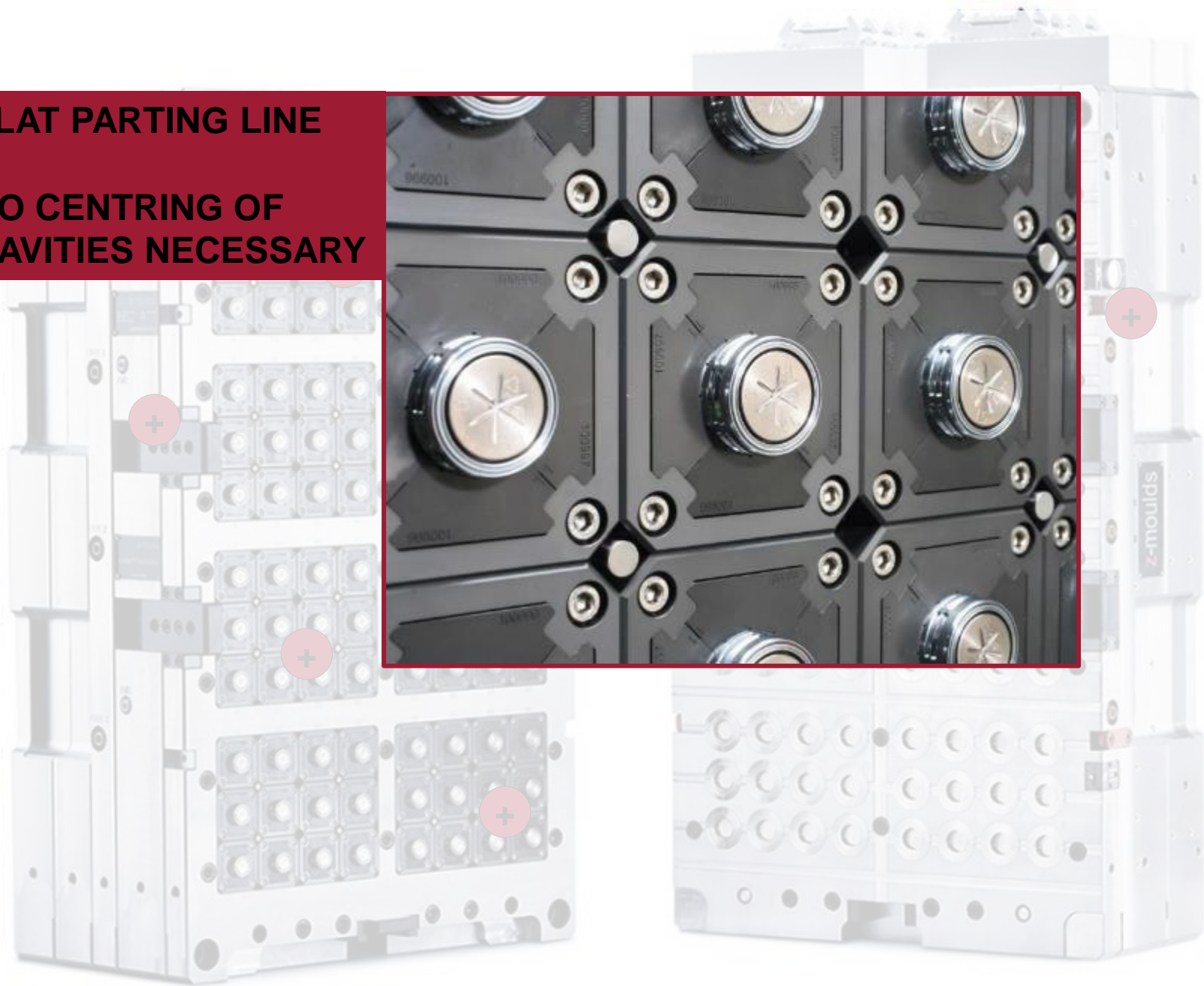


**FLAT PARTING LINE**

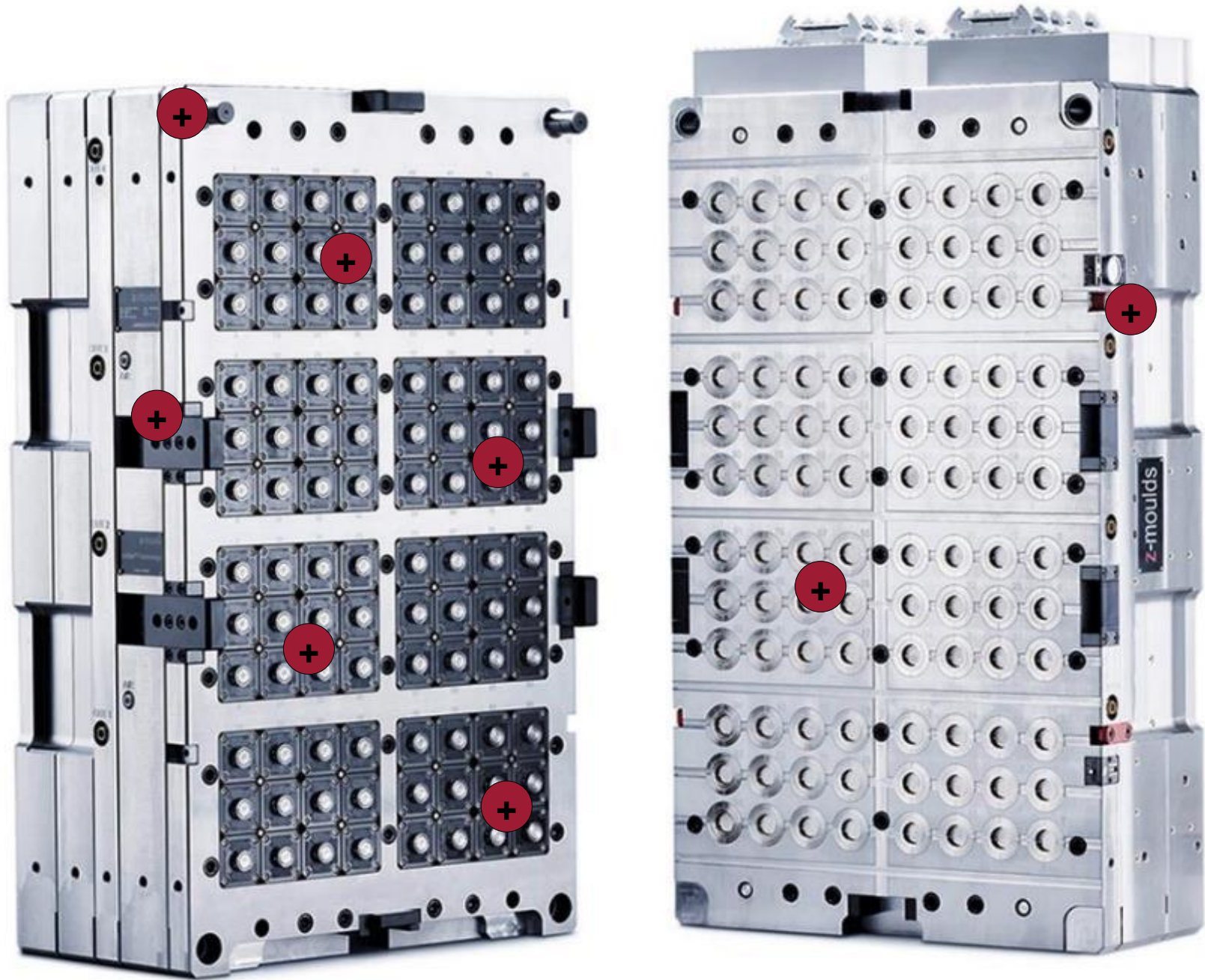
**NO CENTRING OF  
CAVITIES NECESSARY**



**z-slides**®  
PATENTED  
TECHNOLOGY



**z-slides**<sup>®</sup>  
PATENTED  
TECHNOLOGY

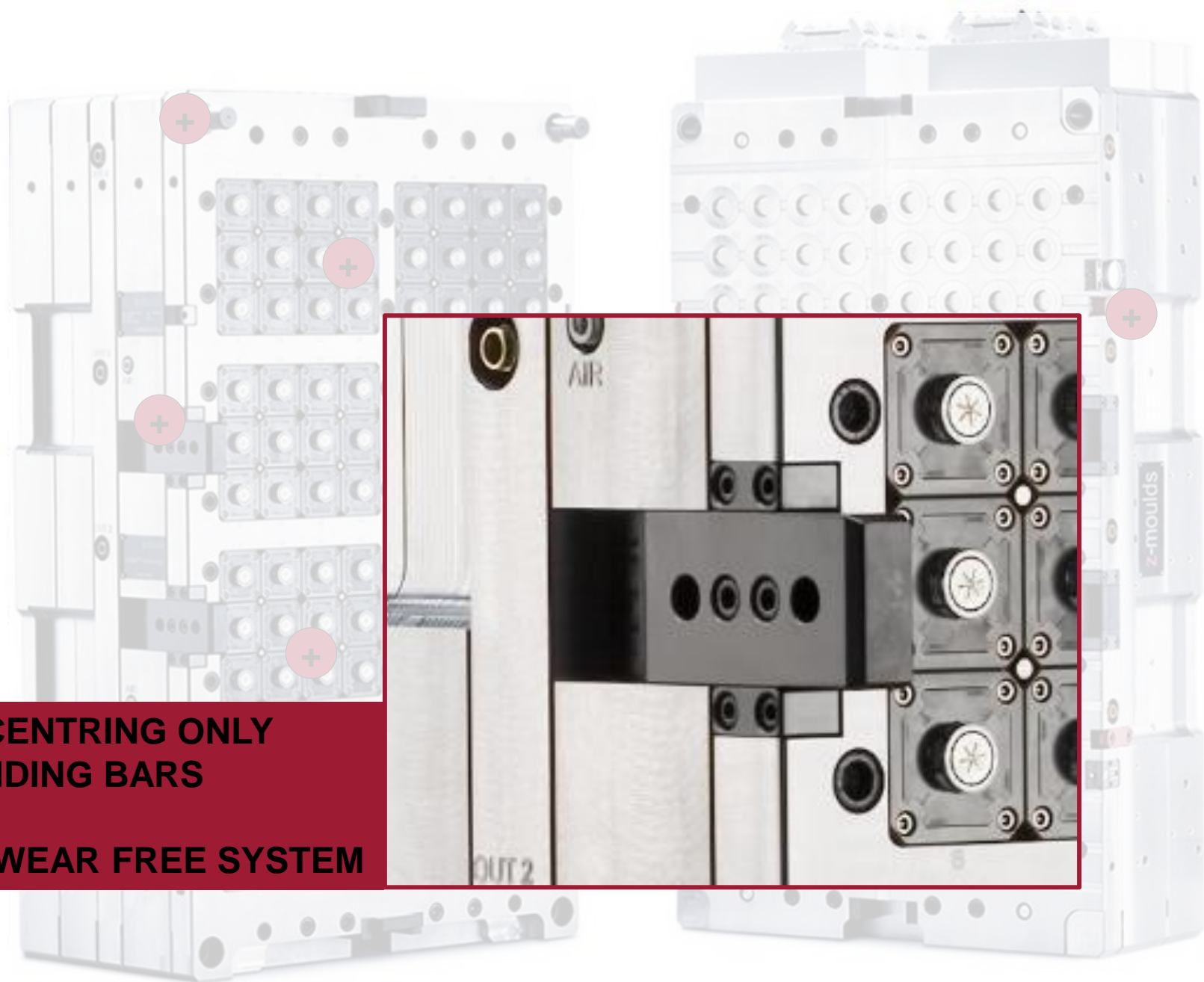




**z-slides**®  
PATENTED  
TECHNOLOGY

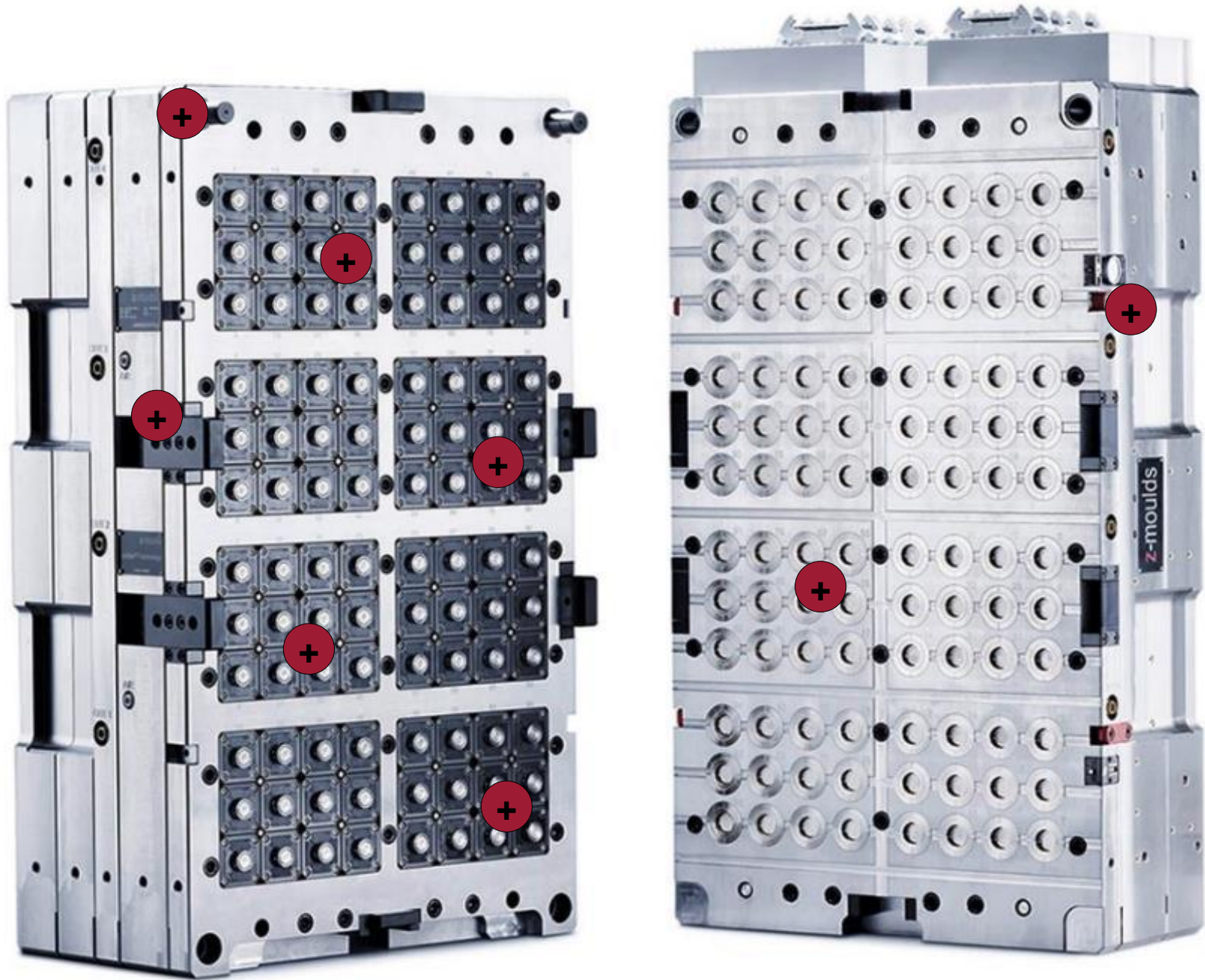
**MOULD CENTRING ONLY  
WITH GUIDING BARS**

**NEARLY WEAR FREE SYSTEM**





**z-slides**<sup>®</sup>  
PATENTED  
TECHNOLOGY

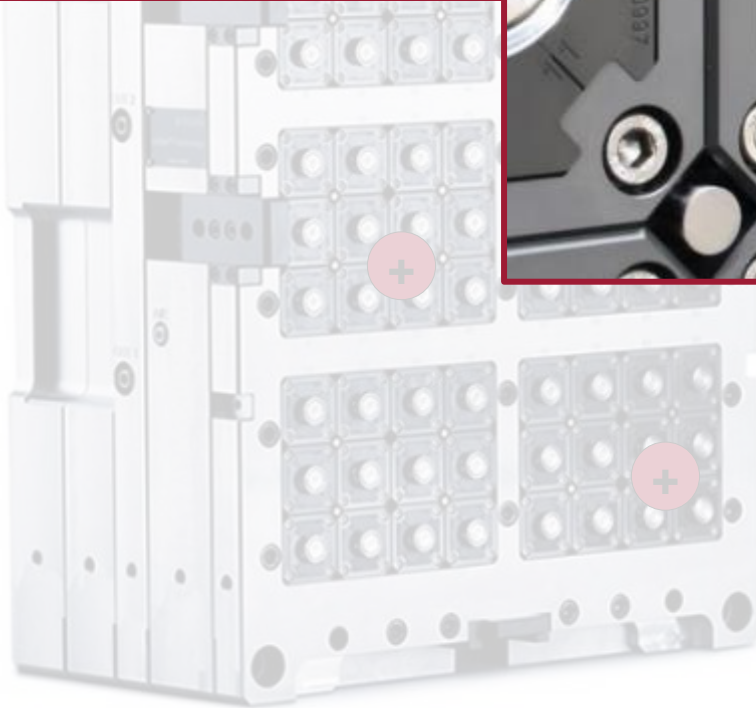


**z-slides**®  
PATENTED  
TECHNOLOGY

**SINGLE CAVITIES**

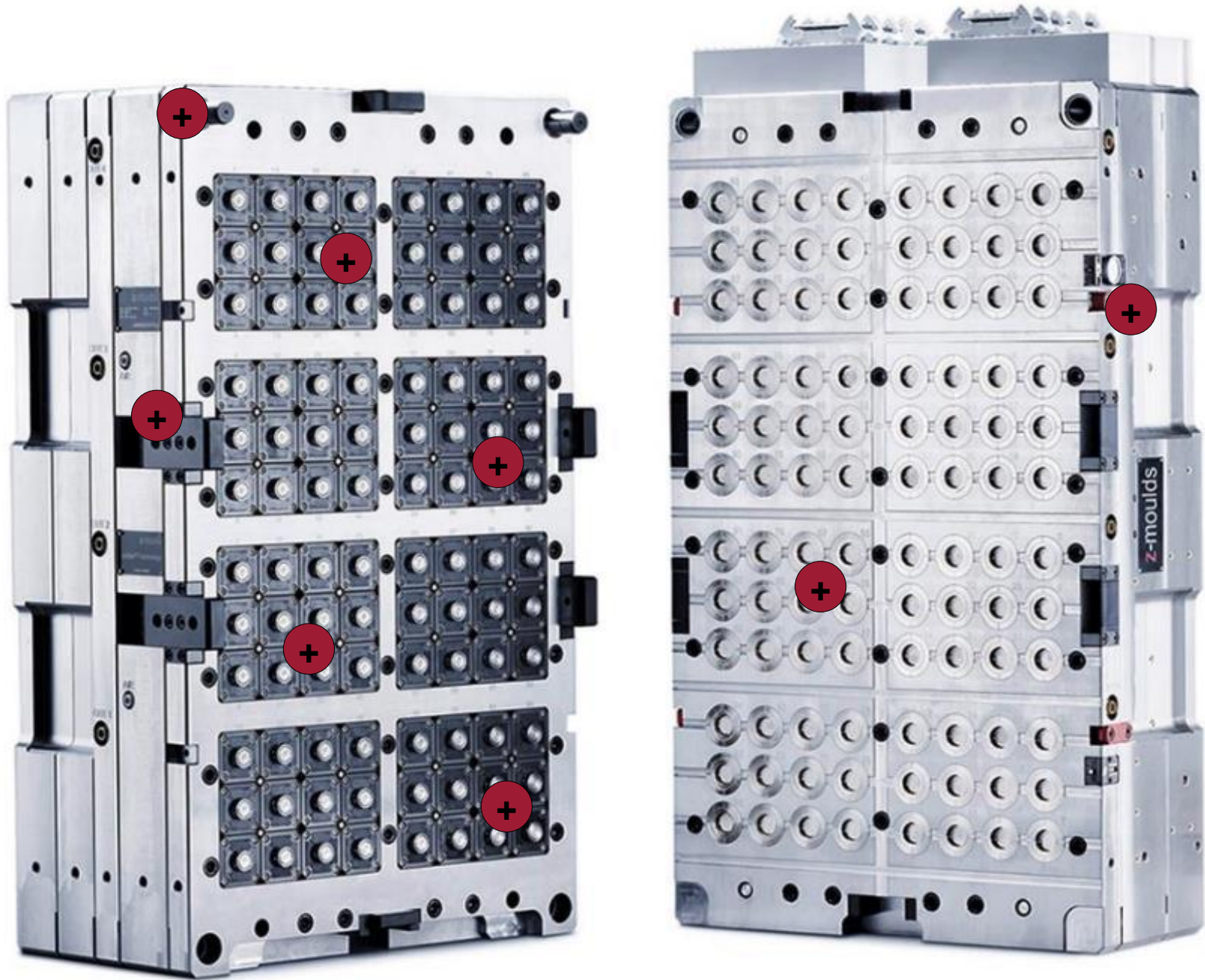
**ACCESSIBLE FROM  
THE FRONT**

**SAME PITCH SIZE  
FOR FULL RANGE  
OF CLOSURES**

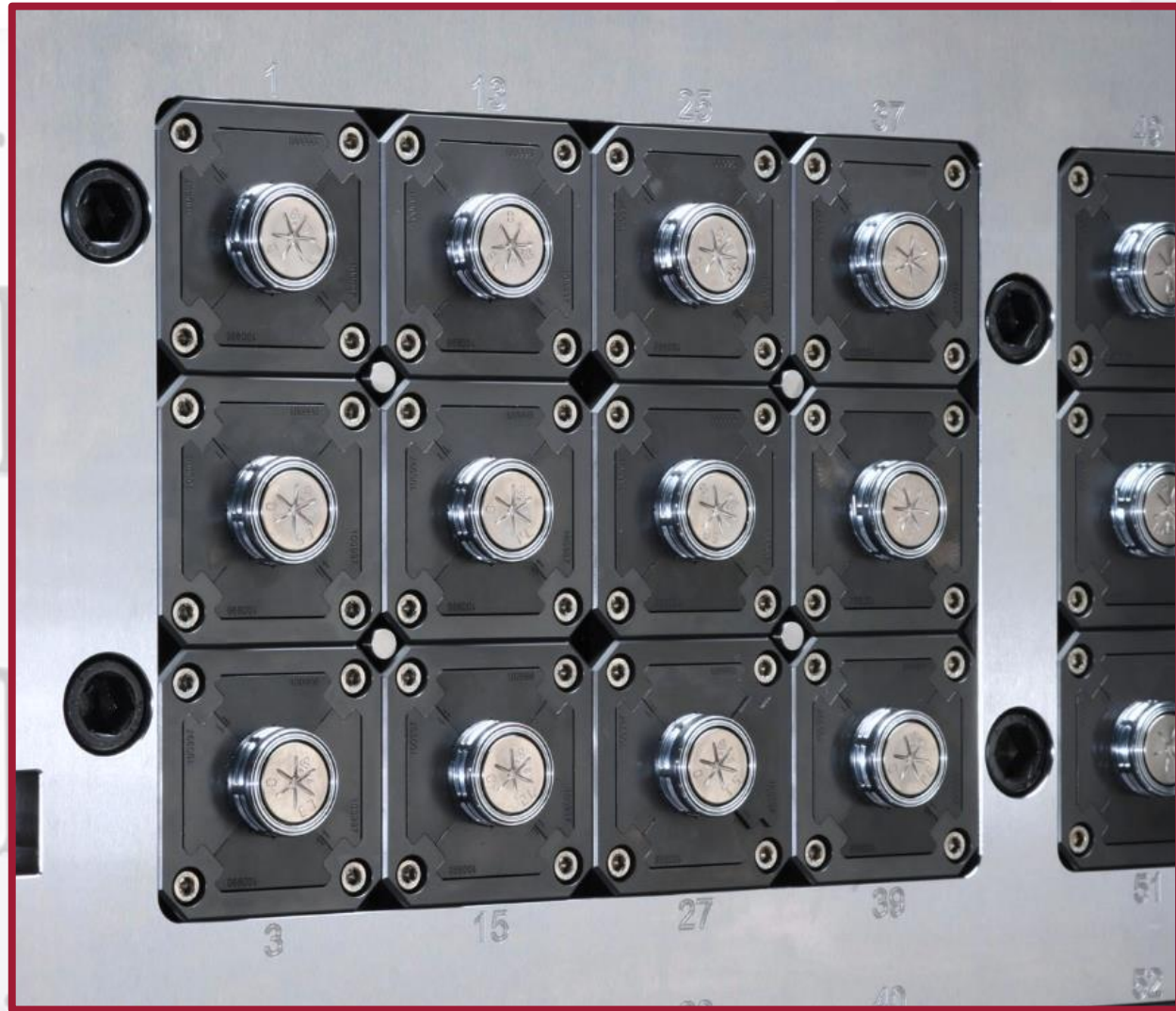




**z-slides**<sup>®</sup>  
PATENTED  
TECHNOLOGY



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z-moulds



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TECHNOLOGY



z-moulds

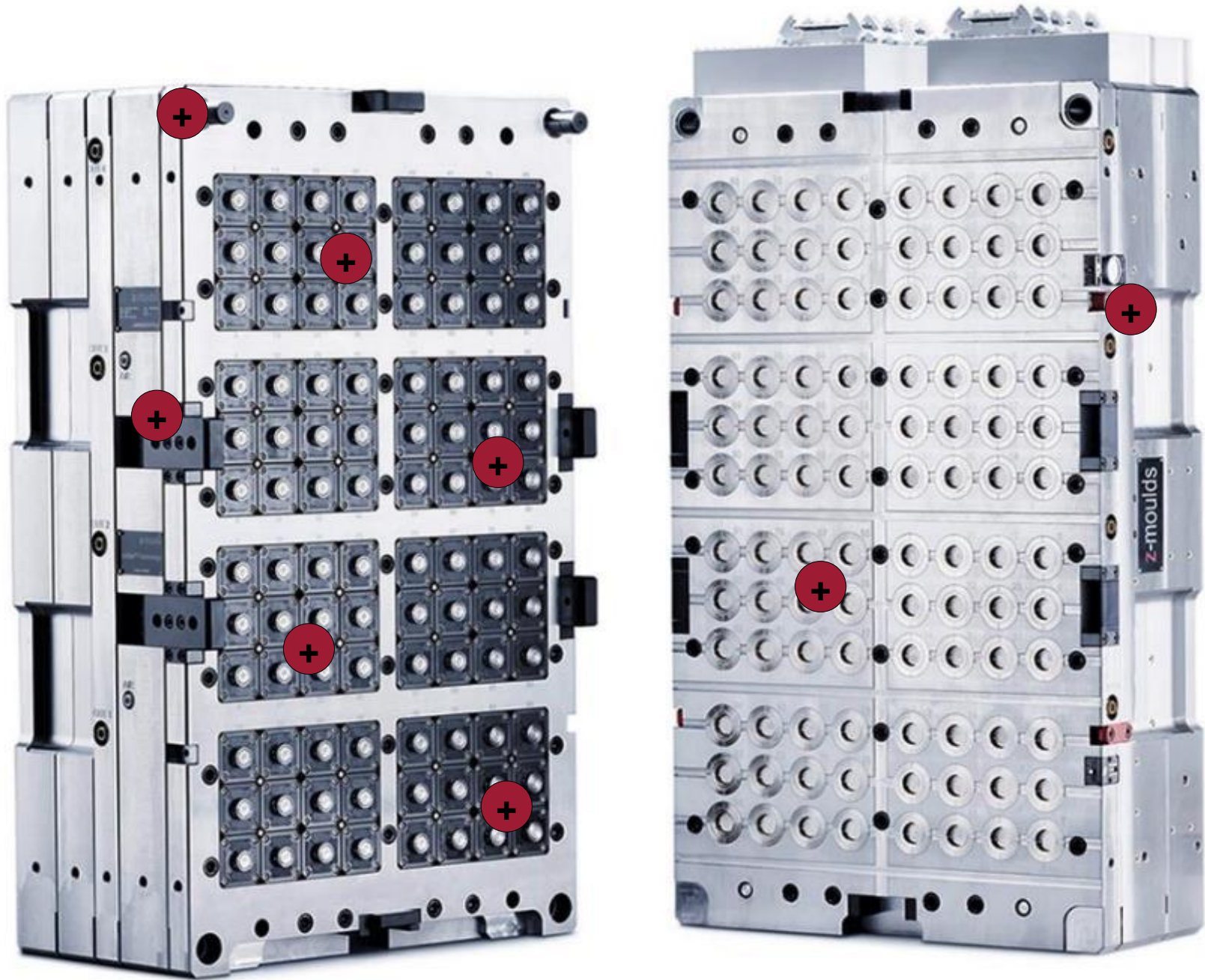


**z-slides**®  
PATENTED  
TECHNOLOGY



z-moulds

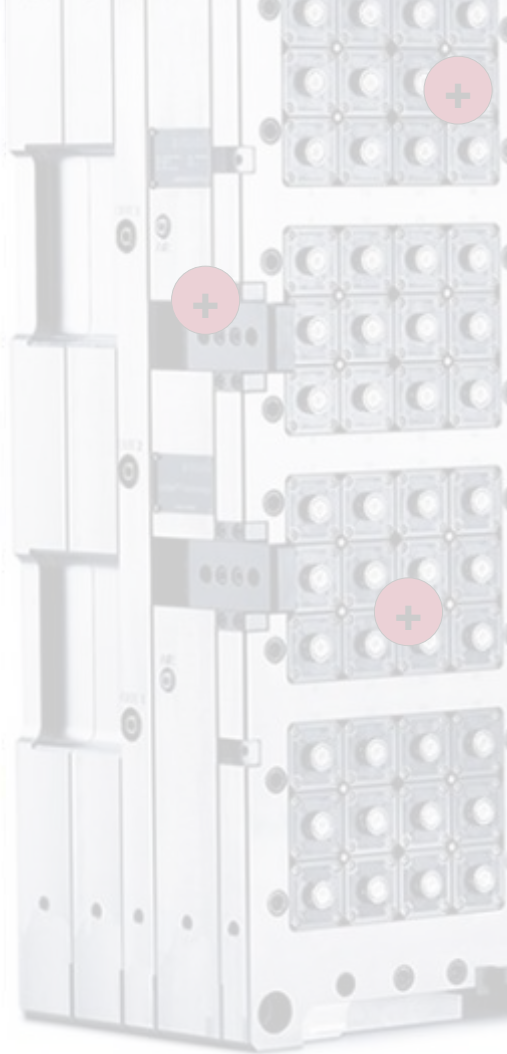
**z-slides**<sup>®</sup>  
PATENTED  
TECHNOLOGY





**FLEXIBLE FOR CHANGEOVERS  
TO ANY CLOSURE DESIGN**

**z-slides®**  
PATENTED  
TECHNOLOGY



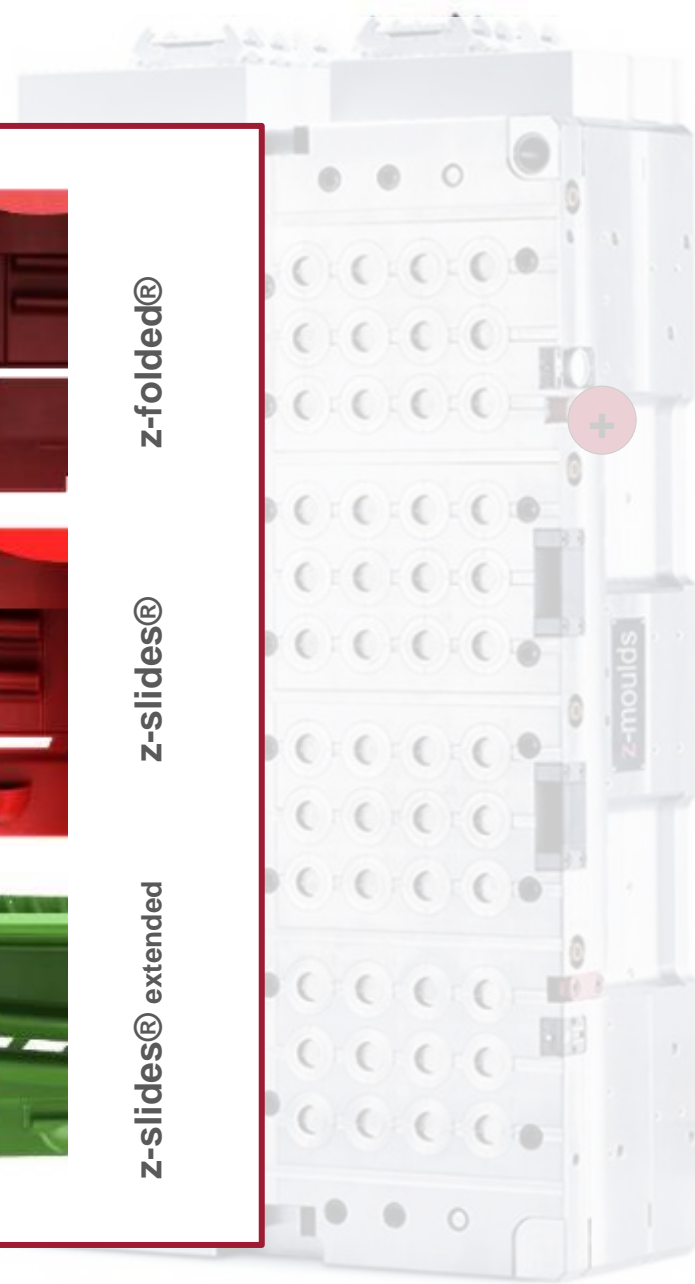
**z-slides® extended**



**z-slides®**



**z-folded®**

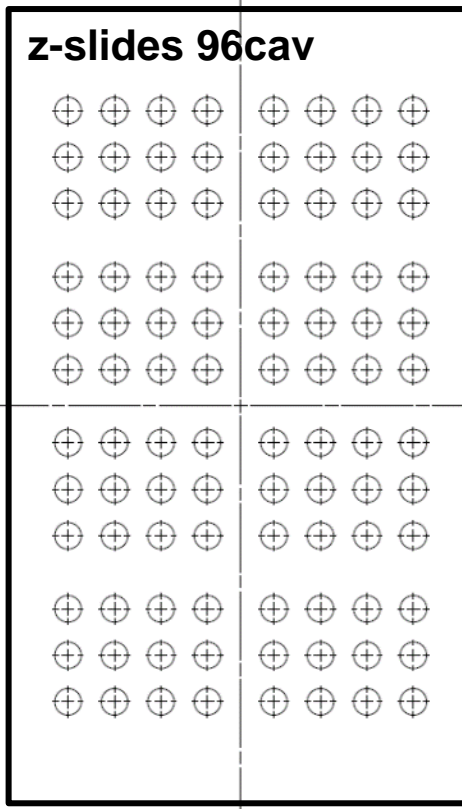




**WHAT TO ENHANCE FOR TOMORROW?**



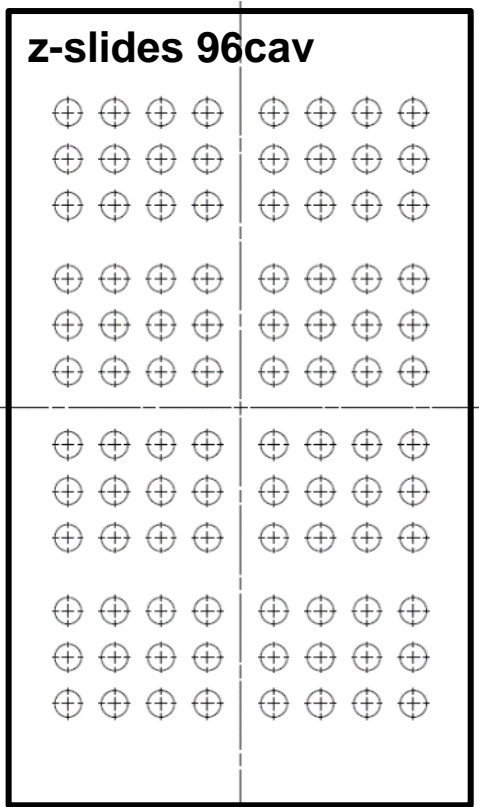
## Competition 96cav



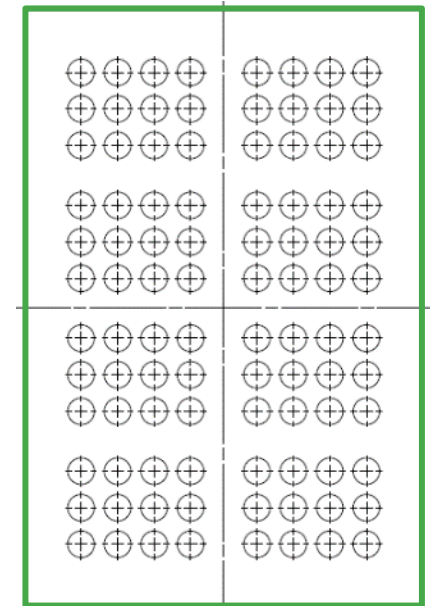




**Competition 96cav**



**FUTURE?**





**DOES SIZE MATTERS?**



## **CASE STUDY 1**

128-CAV HIGH VOLUME PRODUCTION SYSTEM

# CASE STUDY: 128-CAV HIGH VOLUME PRODUCTION SYSTEM

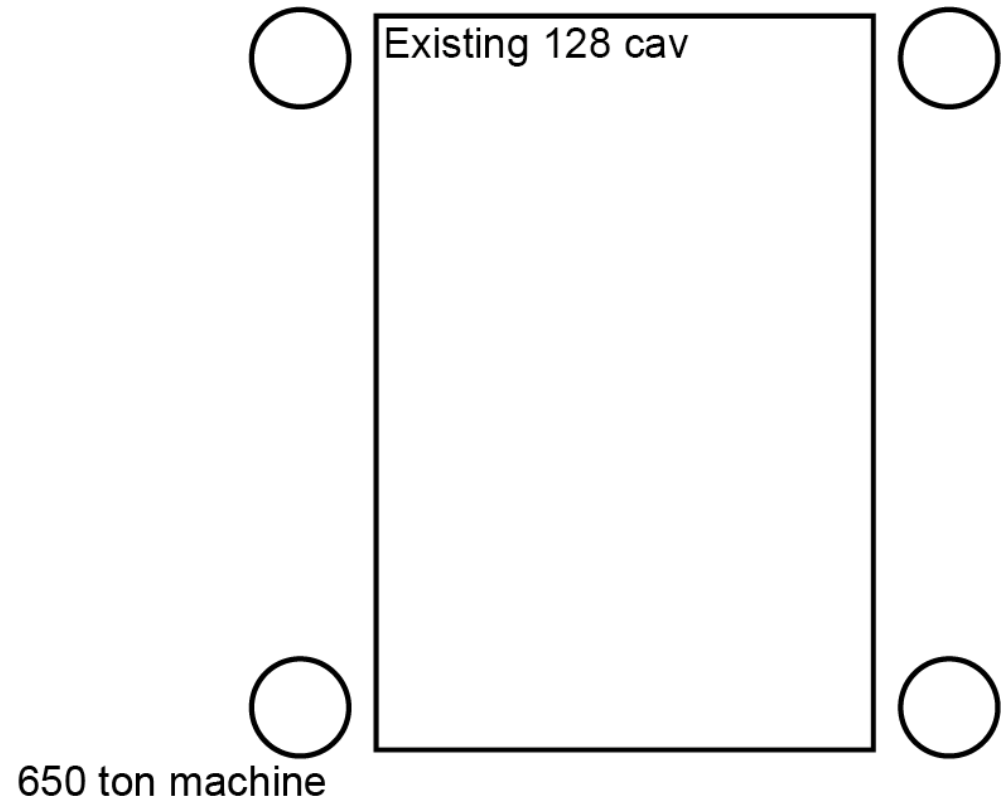


## Project target

26mm light weight closure  
128-cav systems  
Cycle time < 2.0 sec.

## Existing solutions

26mm light weight closure  
128-cav systems  
Cycle time 2.5 sec.



# CASE STUDY: 128-CAV HIGH VOLUME PRODUCTION SYSTEM



420 ton would be enough clamping force, but mould is too big to fit.

## Project target

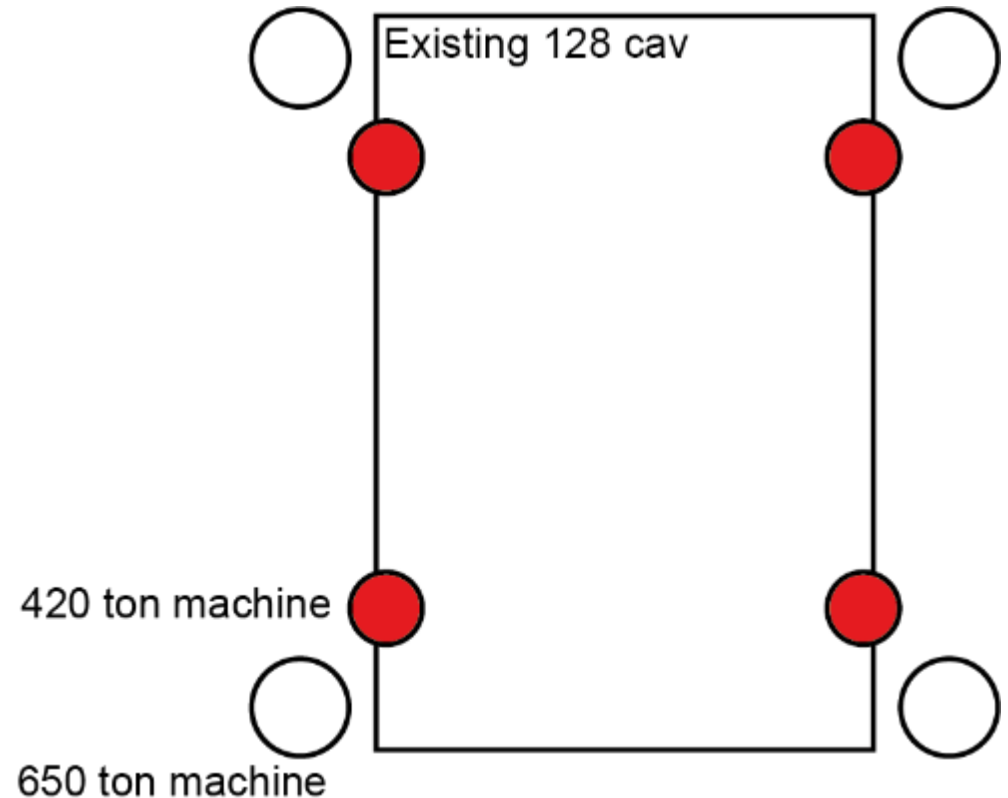
26mm light weight closure  
128-cav systems  
Cycle time < 2.0 sec.

## Existing solutions

26mm light weight closure  
128-cav systems  
Cycle time 2.5 sec.

## Challenges / Issues

- Mould Size → Machine Size





# CASE STUDY: 128-CAV HIGH VOLUME PRODUCTION SYSTEM



## Project target

26mm light weight closure  
128-cav systems  
Cycle time < 2.0 sec.

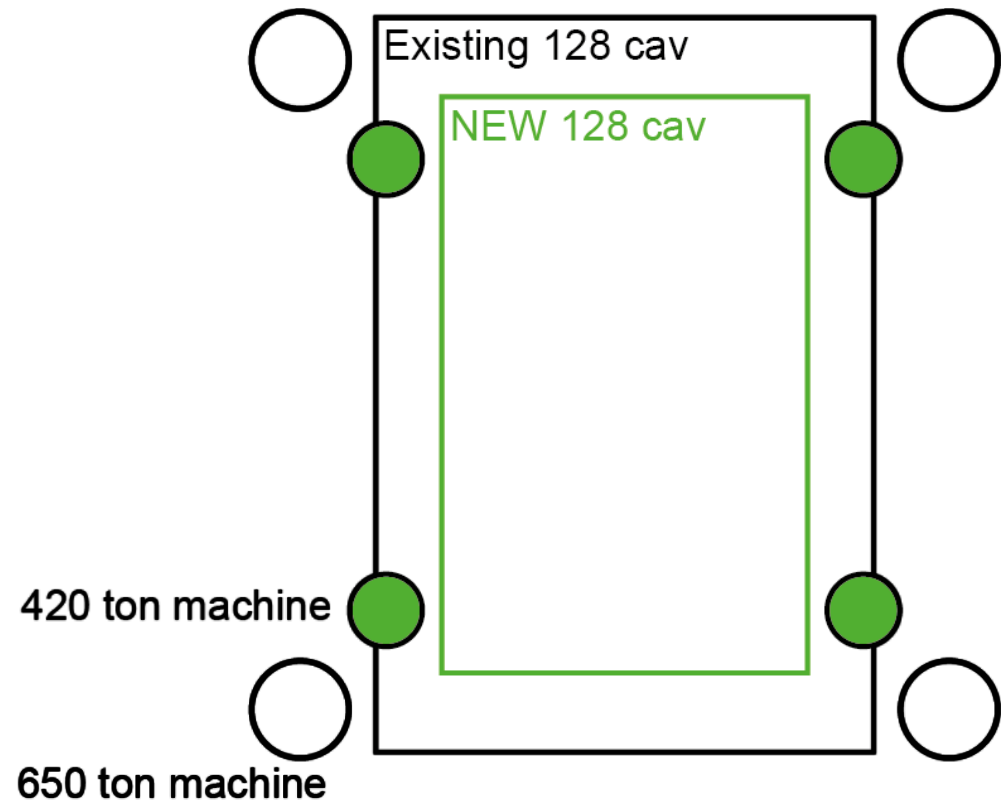
## Existing solutions

26mm light weight closure  
128-cav systems  
Cycle time 2.5 sec.

## Challenges / Issues

- Mould Size → Machine Size

The new 55mm pitch fits with 128-cavities into Standard 420 ton cap machines. This common machine size range allows faster cycles. The dry cycle is about 0,4 - 0,6 sec. difference.



# CASE STUDY: 128-CAV HIGH VOLUME PRODUCTION SYSTEM



The open/close times on injection moulding machines depend on the weight of the mould to be moved. The existing cold halves had over 4 tons.

## Project target

26mm light weight closure

128-cav systems

Cycle time < 2.0 sec.

## Existing solutions

26mm light weight closure

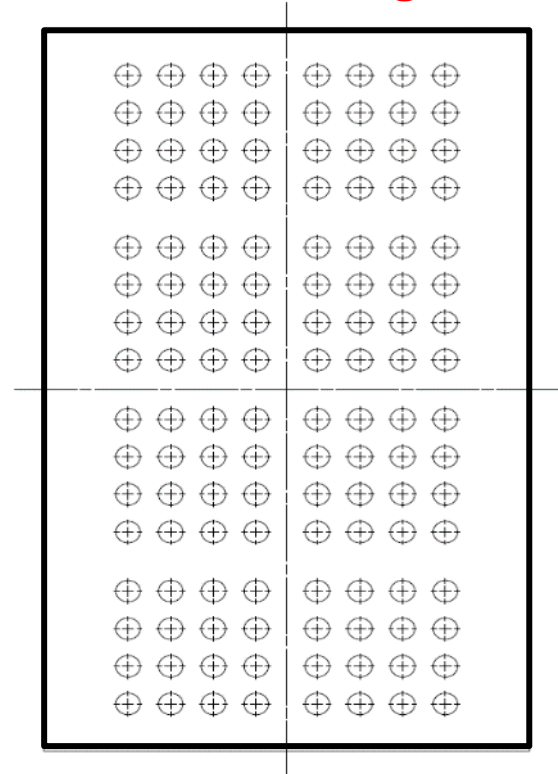
128-cav systems

Cycle time 2.5 sec.

## Challenges / Issues

- Mould Size → Machine Size
- **Mould Weight → Open/Close times**

**ES 4.120 kg**



# CASE STUDY: 128-CAV HIGH VOLUME PRODUCTION SYSTEM



The new 55mm pitch mould has less than 2 tons. Only the moving times for open/close could therefore be reduced by 0,1 sec. Also energy saving is huge by moving less than half of the weight.

## Project target

- 26mm light weight closure
- 128-cav systems
- Cycle time < 2.0 sec.

## Existing solutions

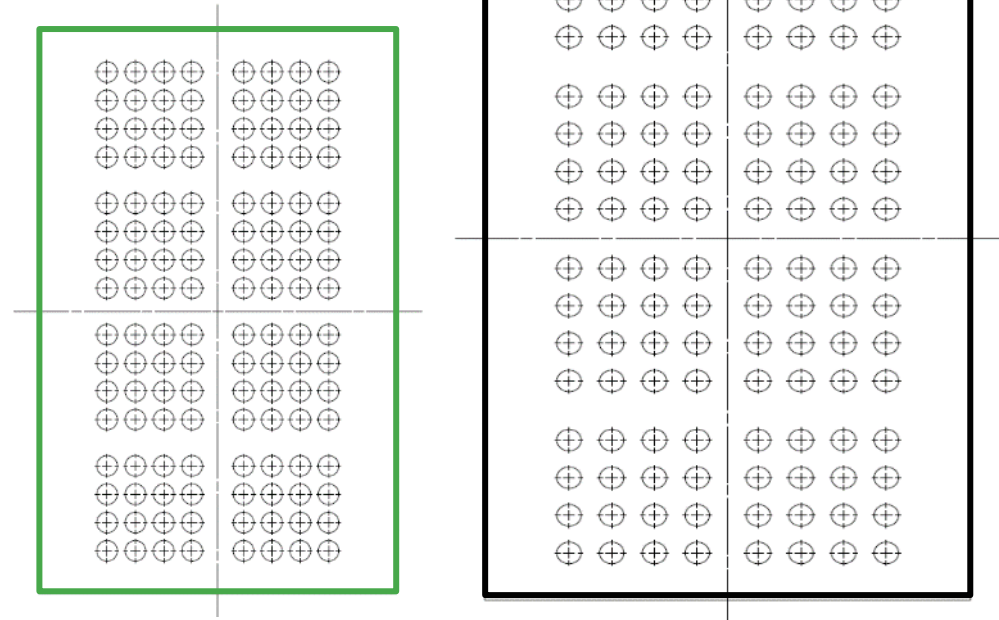
- 26mm light weight closure
- 128-cav systems
- Cycle time 2.5 sec.

## Challenges / Issues

- Mould Size → Machine Size
- Mould Weight → Open/Close times

**ES 4.120 kg**

**ES 1.960 kg**  
**- 52%**



# CASE STUDY: 128-CAV HIGH VOLUME PRODUCTION SYSTEM



The cap falling height with the existing mould design was about 1.100mm.

## Project target

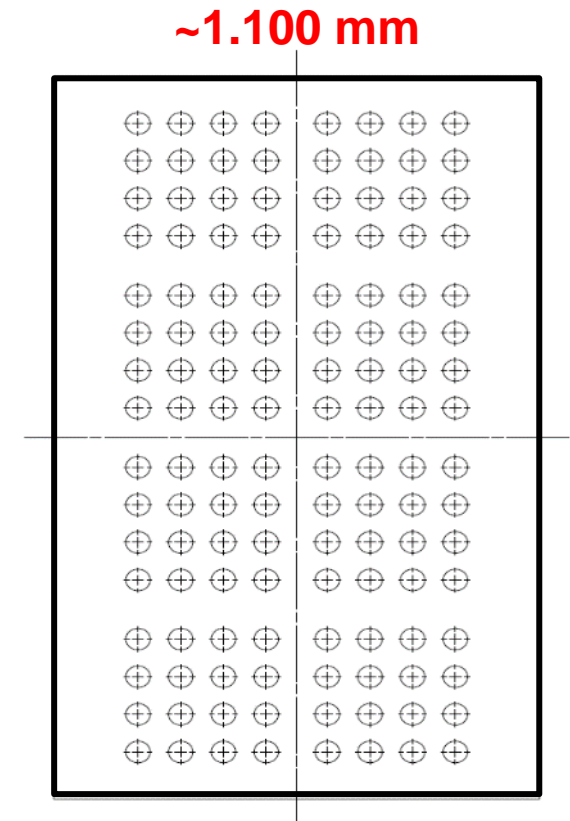
- 26mm light weight closure
- 128-cav systems
- Cycle time < 2.0 sec.

## Existing solutions

- 26mm light weight closure
- 128-cav systems
- Cycle time 2.5 sec.

## Challenges / Issues

- Mould Size → Machine Size
- Mould Weight → Open/Close times
- **Mould Height → Closure falling time**





# CASE STUDY: 128-CAV HIGH VOLUME PRODUCTION SYSTEM



The new 55mm pitch mould has 300mm less falling distance this results in a saving of 0,07 sec. falling time per shot.

## Project target

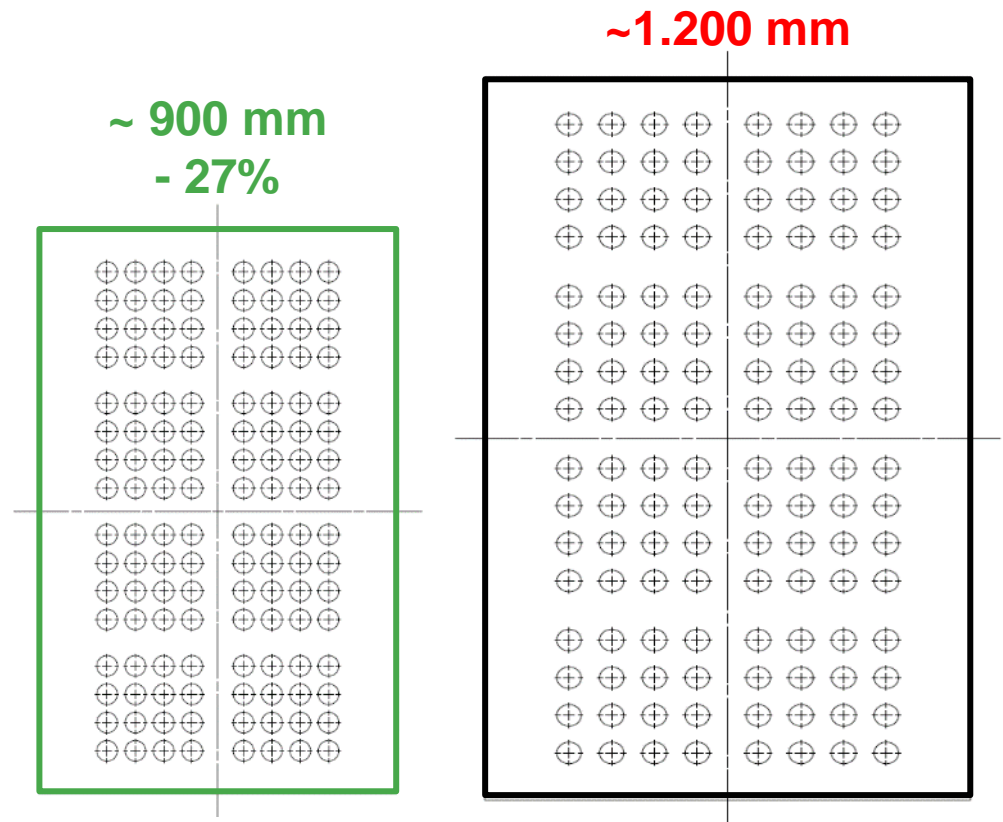
- 26mm light weight closure
- 128-cav systems
- Cycle time < 2.0 sec.

## Existing solutions

- 26mm light weight closure
- 128-cav systems
- Cycle time 2.5 sec.

## Challenges / Issues

- Mould Size → Machine Size
- Mould Weight → Open/Close times
- Mould Height → Closure falling time



# CASE STUDY: 128-CAV HIGH VOLUME PRODUCTION SYSTEM



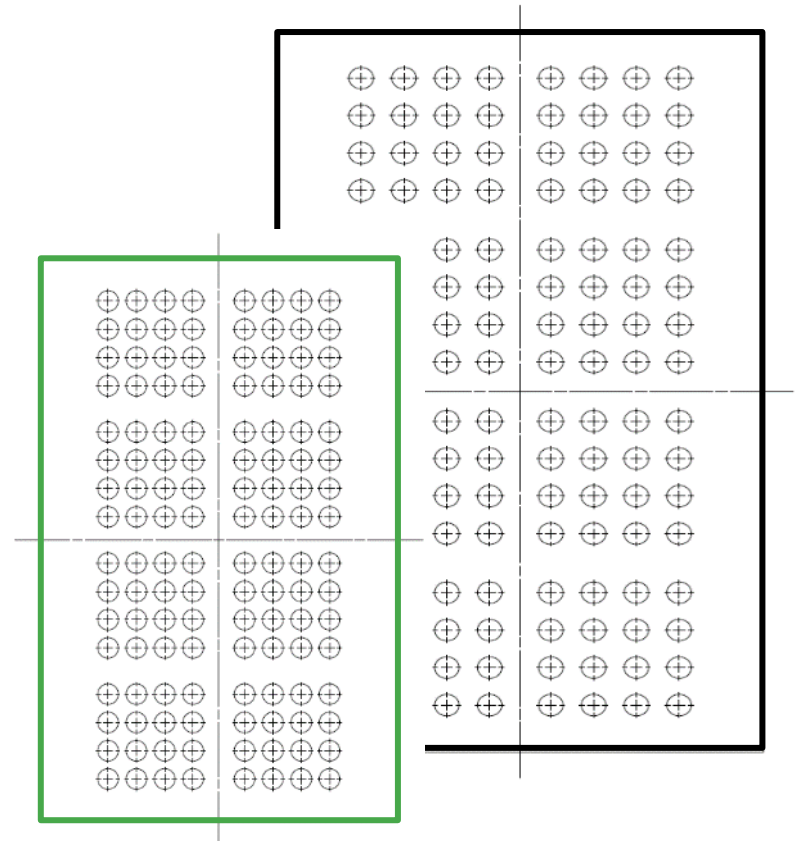
## New 55mm Pitch z-slides

Size: 696 x 1.096 x 700mm

Weight: ES 1.960 kg / NS 2.340 kg

Cycle time: < 1.9 sec.

- ✓ **SMALLER MACHINE RANGE**  
→ Fits into common high-end IMM
- ✓ **EASIER MOULD HANDLING**  
→ Compact mould size is easier to handle
- ✓ **LESS CYCLE TIME**  
→ because of **52% less weight to move**  
→ because of **27% less closure fall height**
- ✓ **LESS ENERGY CONSUMPTION**  
→ because of **52% less weight to move**





## **CASE STUDY 2**

96-CAV PRODUCTION SYSTEM ON 250ton MACHINE

# CASE STUDY: 96-CAV PRODUCTION SYSTEM ON 250ton MACHINE

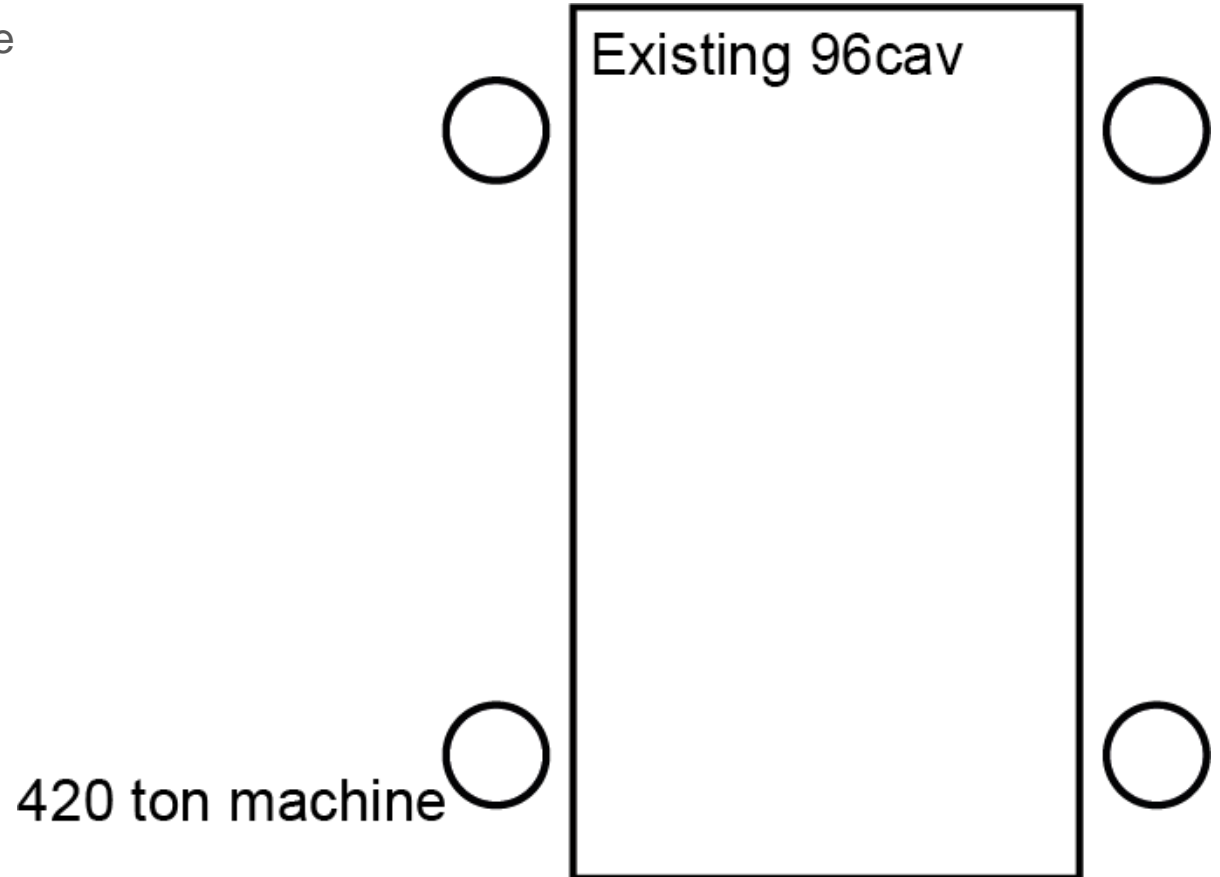


## Project target

Usage of smallest possible machine for 26mm 96-cavities mould

## Existing solutions

Most existing 96-cavity moulds run on 420ton machines





# CASE STUDY: 96-CAV PRODUCTION SYSTEM ON 250ton MACHINE



## Project target

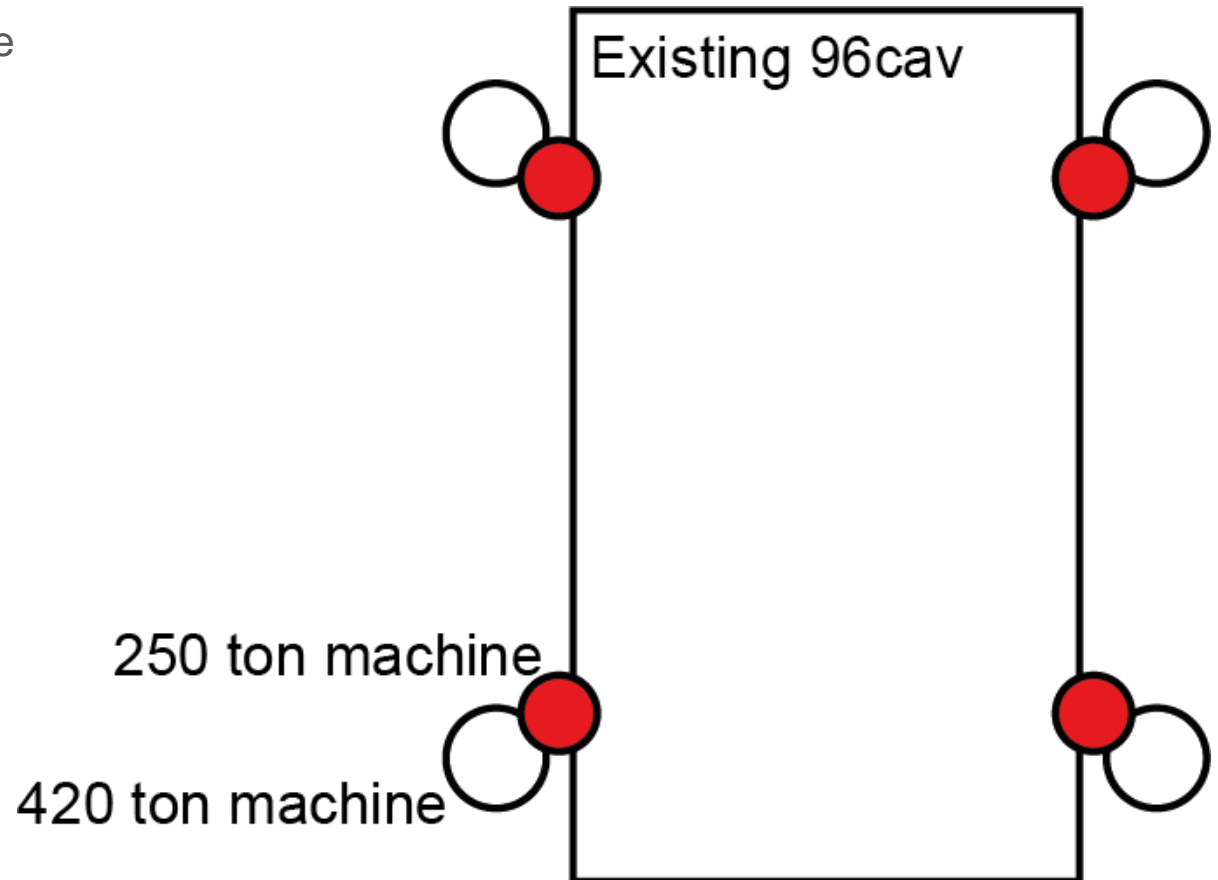
Usage of smallest possible machine for 25mm 96-cavities mould

## Existing solutions

Most existing 96-cavity moulds run on 420ton machines

## Challenges / Issues

- Mould Size → Machine Size



# CASE STUDY: 96-CAV PRODUCTION SYSTEM ON 250ton MACHINE



## Project target

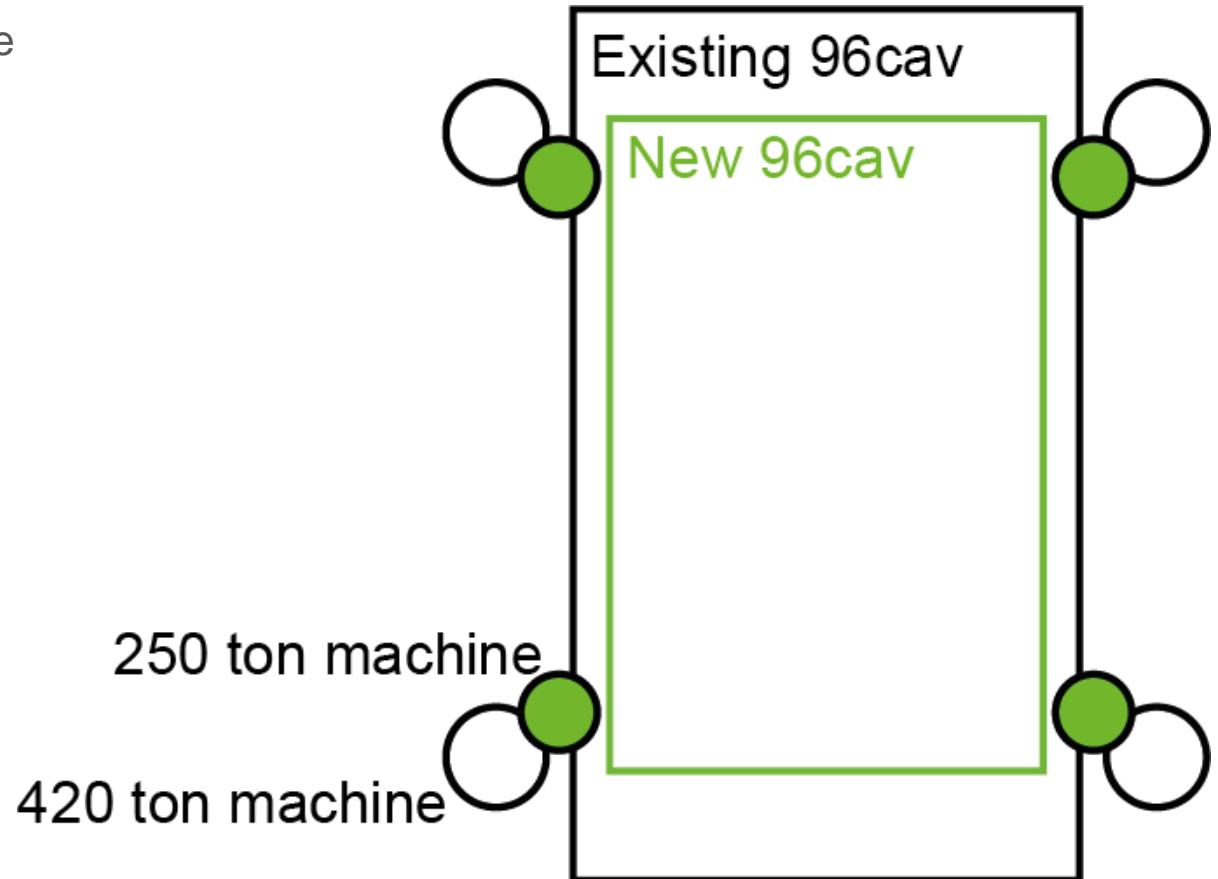
Usage of smallest possible machine for 26mm 96-cavities mould

## Existing solutions

Most existing 96-cavity moulds run on 420ton machines

## Challenges / Issues

- Mould Size → Machine Size



# CASE STUDY: 96-CAV PRODUCTION SYSTEM ON 250ton MACHINE



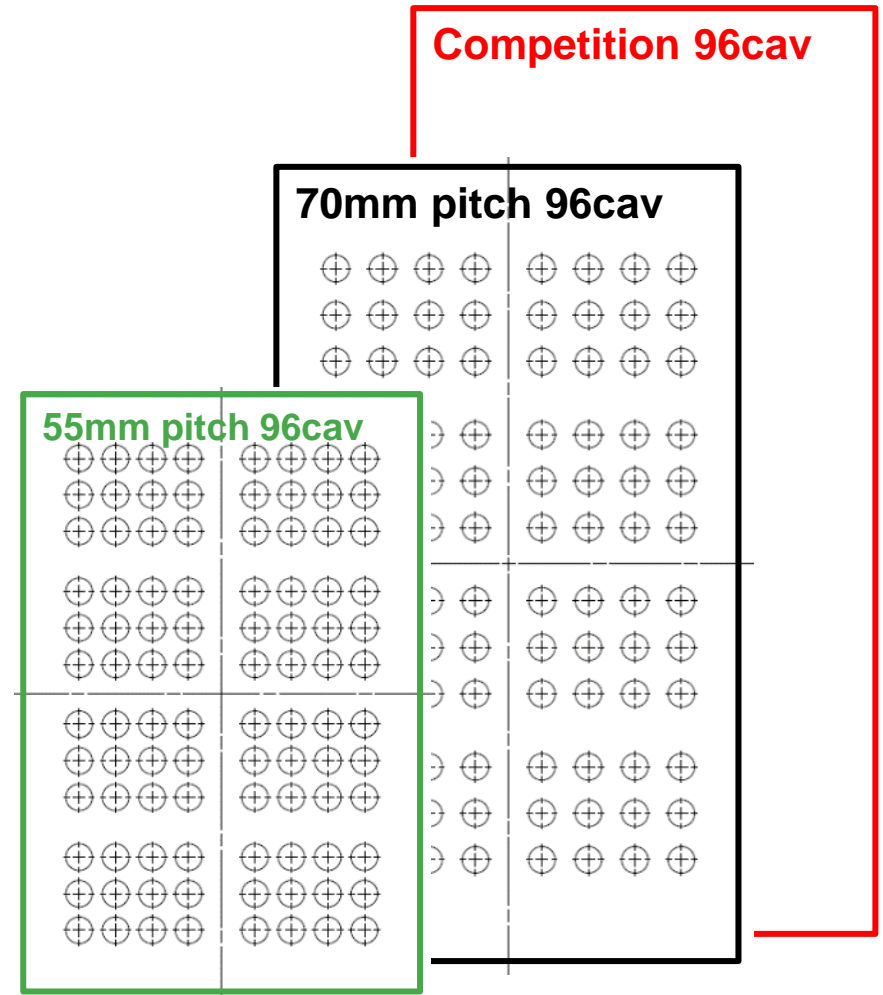
## New 55mm Pitch z-slides

Size: 596 x 896 x 650mm

Weight: ES 1.480 kg / NS 1.290 kg

FALL HEIGHT	FALLING TIME
1.200 mm	0,495 sec.
1.000 mm	0,452 sec.
700 mm	0,378 sec.
<b>TOTAL SAVING OF FALLING TIME</b>	<b>0,117 sec.</b>

ES WEIGHT	OPEN/CLOSE TIME
2.690 kg	0,84 sec.
2.300 kg	0,81 sec.
1.480 kg	0,76 sec.
<b>TOTAL SAVING OF OPEN/CLOSE TIME</b>	<b>0,08 sec.</b>



# CASE STUDY: 96-CAV PRODUCTION SYSTEM ON 250ton MACHINE

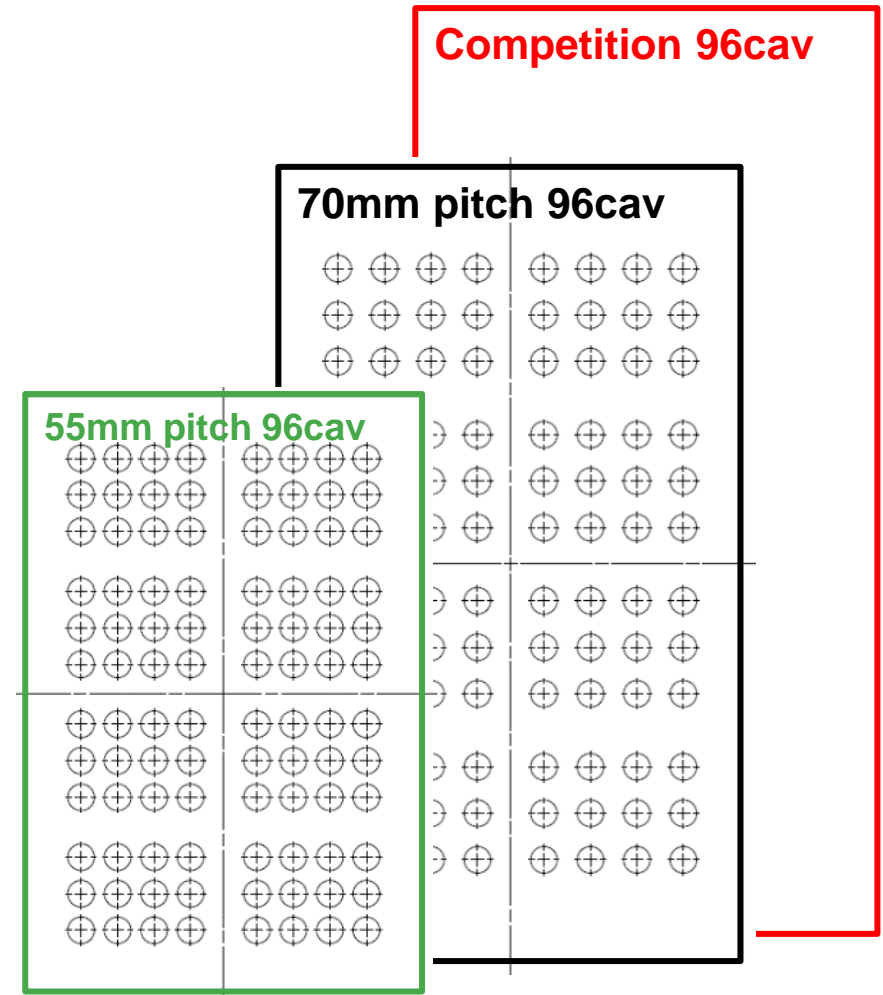


## New 55mm Pitch z-slides

Size: 596 x 896 x 650mm

Weight: ES 1.480 kg / NS 1.290 kg

- ✓ **SMALLER MACHINE RANGE**  
→ Fits into 250 ton high-end IMM
- ✓ **EASIER MOULD HANDLING**  
→ Compact mould size is easier to handle
- ✓ **LESS CYCLE TIME**  
→ because of 45% less weight to move  
→ because of 40% less closure fall height
- ✓ **LESS ENERGY CONSUMPTION**  
→ because of 45% less weight to move



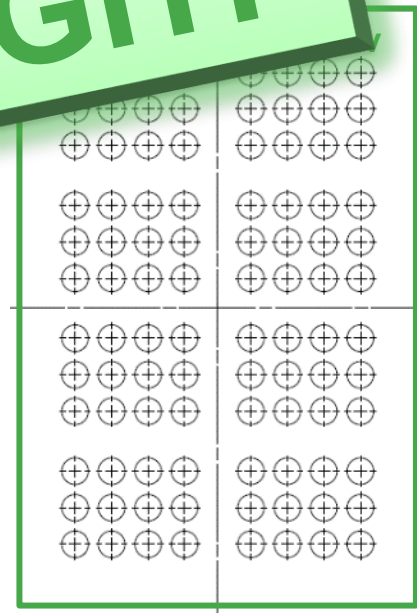
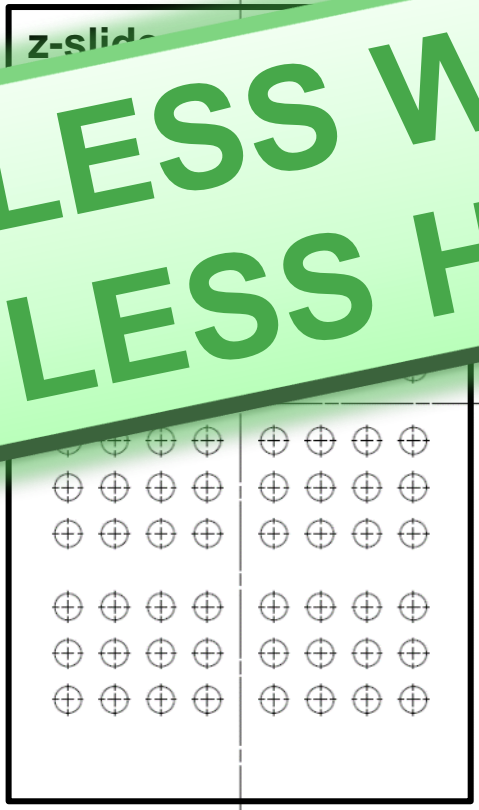




## **SUMMARY – DOES SIZE MATTERS?**

Competition 96cav

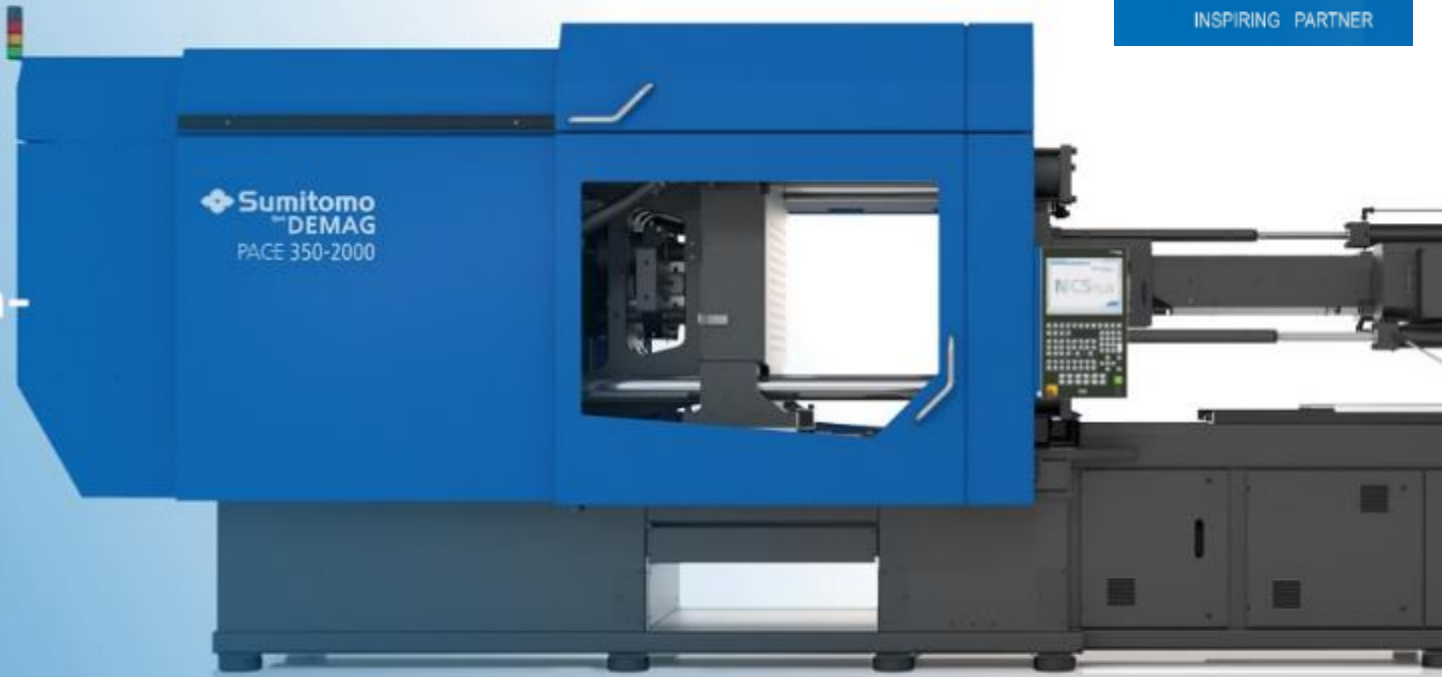
**35-55% LESS WEIGHT**  
**25-45% LESS HEIGHT**



# PAC-E

The new all-electric high-speed benchmark

Meet our experts at Drinktec



Developed to be the best all-electric fast-runner

See a patented z-slides® mould running in

## Hall C5 / Booth 319

<https://hub.sumitomo-shi-demag.eu/pac-e#contact>



2-moulds  
Moulding Solutions

2-moulds  
Moulding Solutions

Cap & Closure expert knowledge  
Building a mould performance  
competent, professional, happy

Specialized in...  
...of...

**THANK YOU.**

Meet us, to find out more.  
**Hall C5 Booth 207**

**drinktec**  
September 12-16, 2022  
Messe München, Germany