Multi-injection Technology is Eco-Moulding

The challenge of the plastic industry:

Higher productivity with reduced physical and environmental footprint.

Plasdan

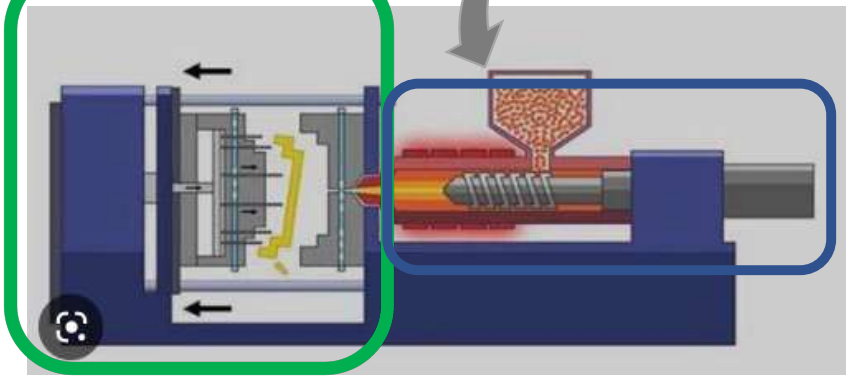
Multi-Injection Technology Eco-Moulding

The efficiency problem

The solution with Add-on Systems

32%
Press function

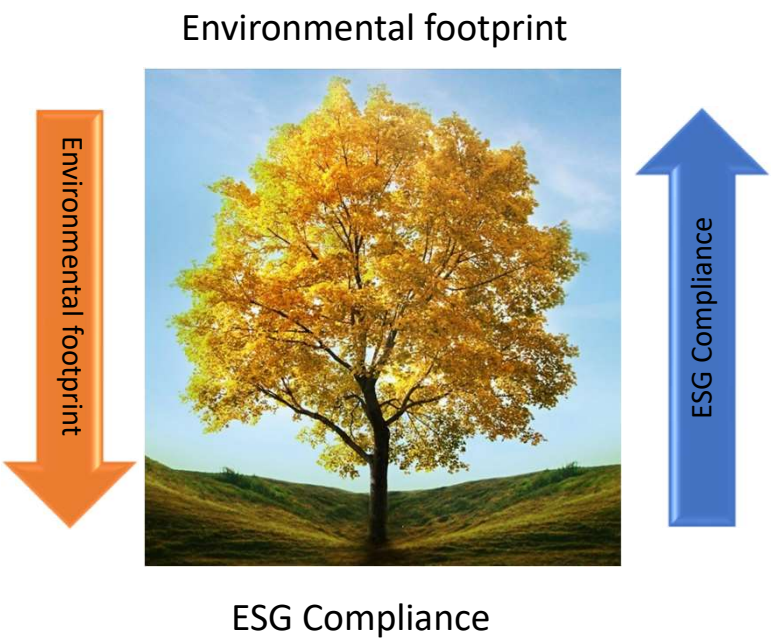
68%
All the rest



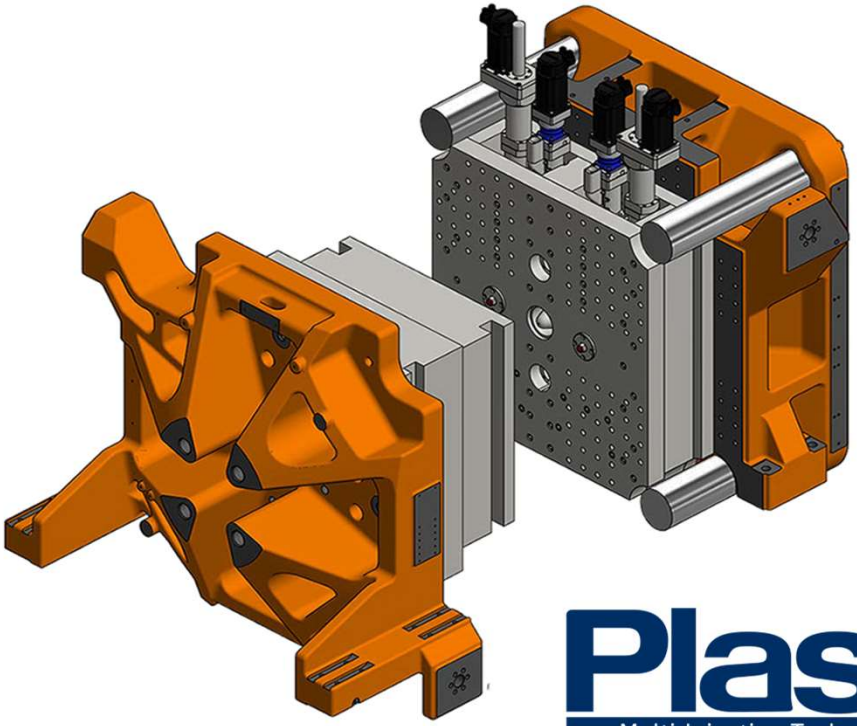
The philosophy

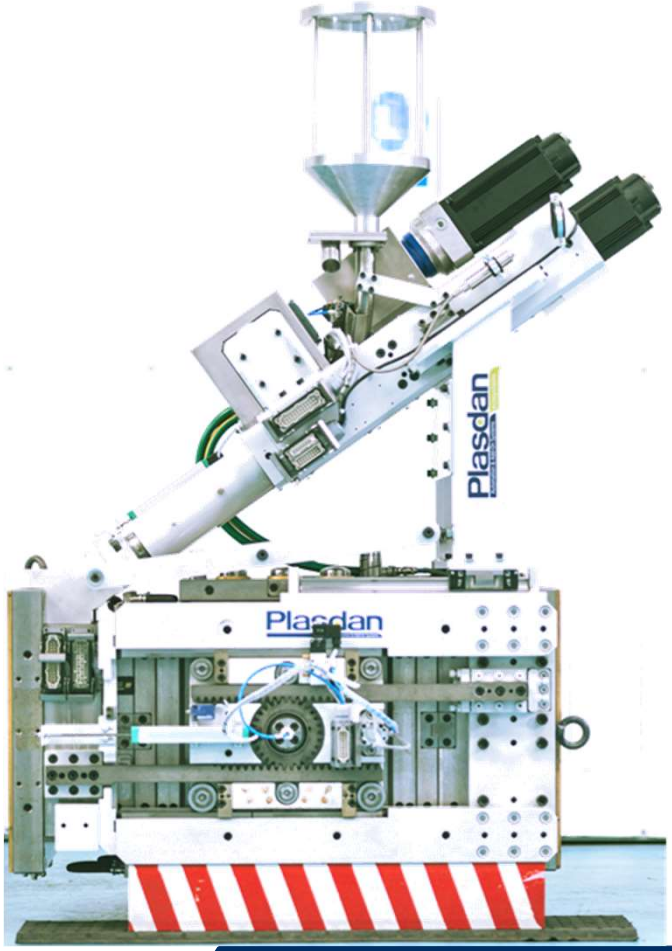
- One Press / multiple “Injection machines”.

- Share the press and save:
  - Energy
  - Material costs
  - floor space
  - logistics
  - Operator costs
  - Automation costs
  - The Planet



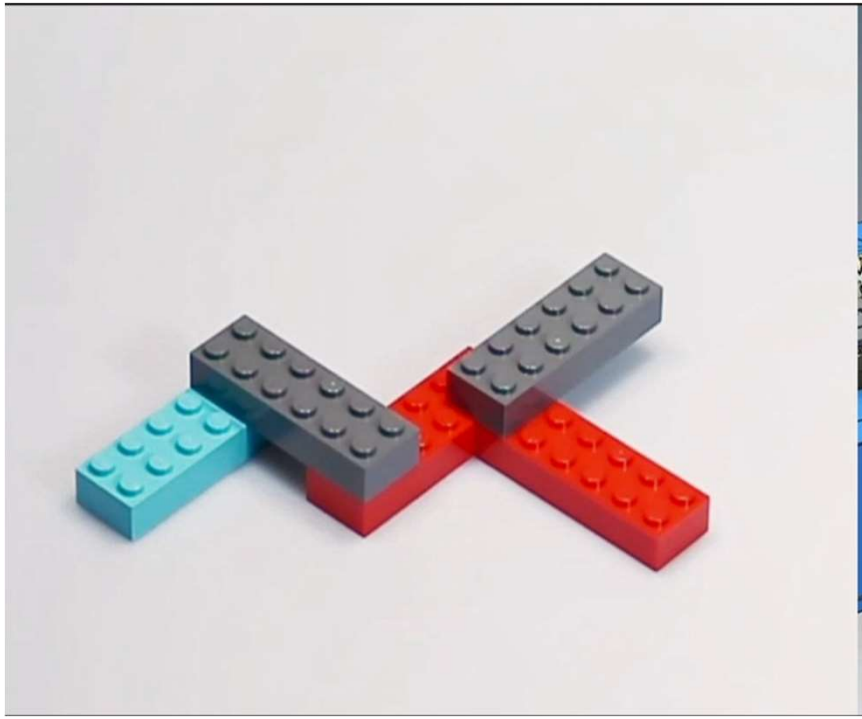
FULL ELECTRIC INJECTION UNITS MOUNTING OPTIONS

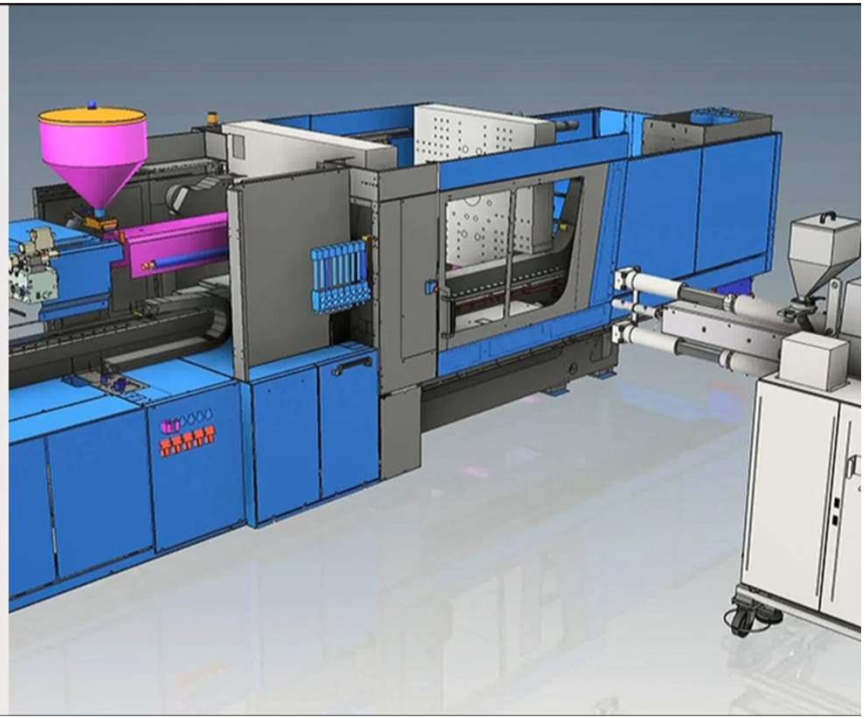




INJECTION UNITS ARE ADDONS WITH NUMEROUS POSSIBILITIES.

The key to an effective option is to have the unit always engaged.
Plasdan's engineering makes application as easy as the toy.

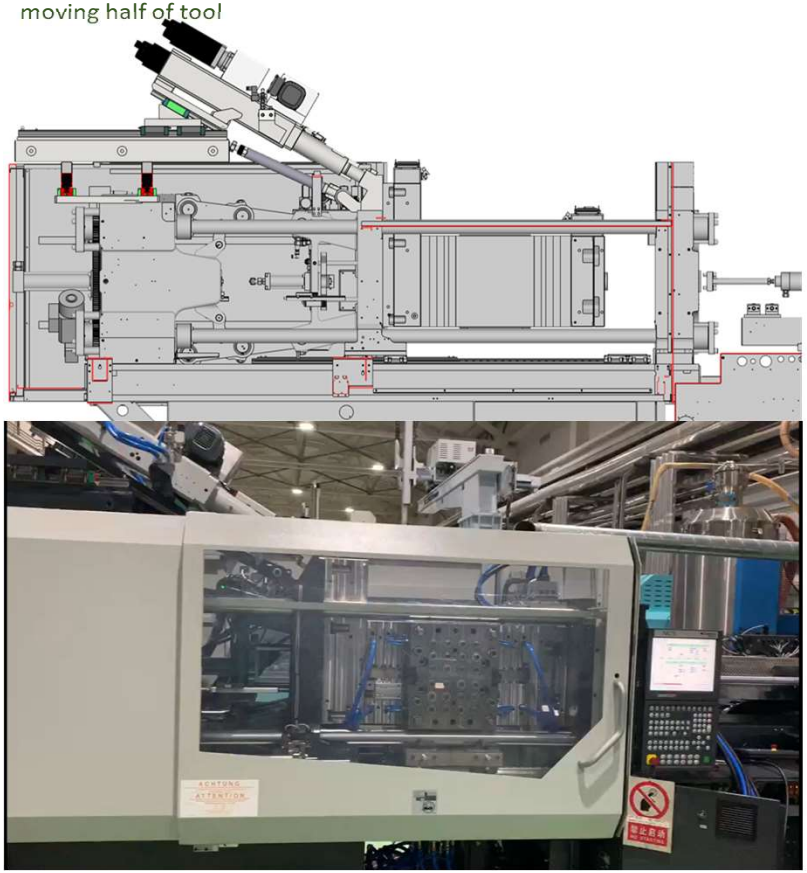


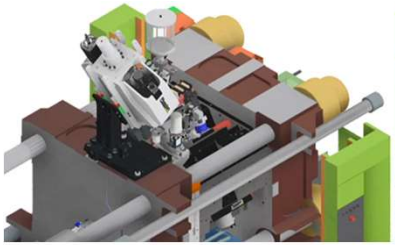


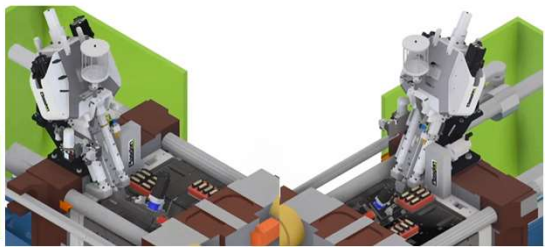
Giving normal IMM machines a new lease on life and evolution with multiple K capacity

Angular mounted injection units on moving half of IMM.

Mounted on back plate of toggle IMM and attached to moving half of tool

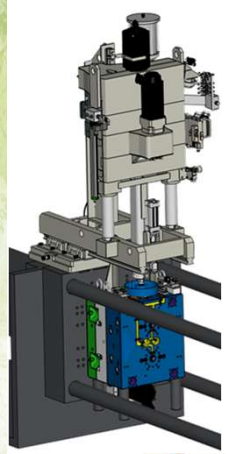




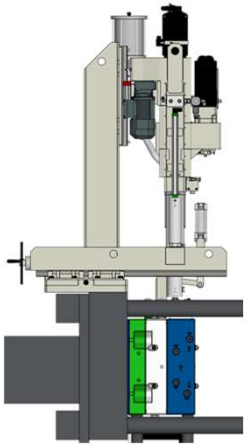


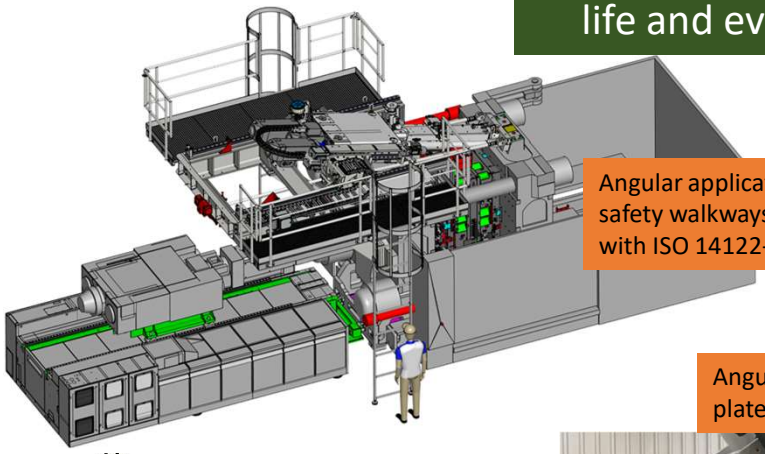
Mounting injection units on fixed half of IMM.

Giving normal IMM machines a new lease on life and evolution with multiple K capacity.



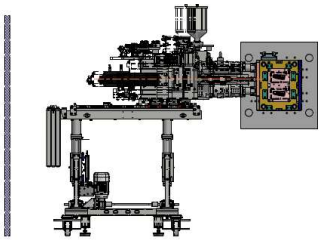
Vertical application with long reach



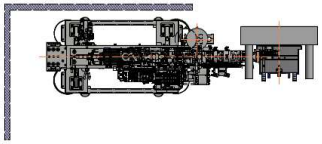


Angular application with added safety walkways in compliance with ISO 14122-1

Angular application direct on tool and fixed plate face together with handling robot

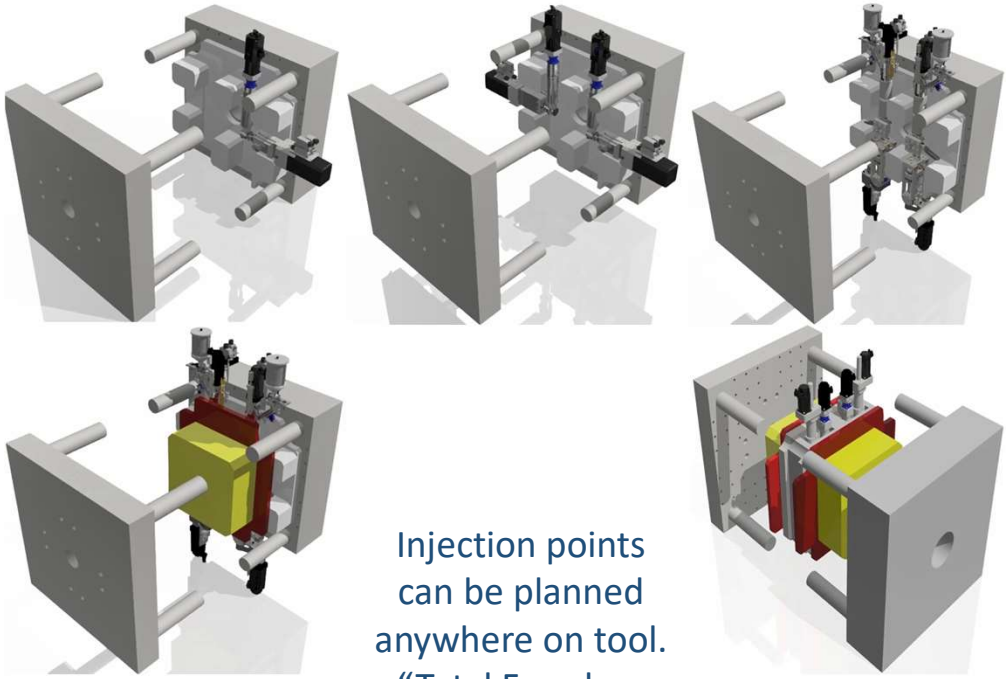


Horizontal application with long reach



E-PLATE VERSION INJECTION UNITS ARE INCORPORATED WITHIN THE CLAMPING AREA.

Just a few examples of “N” number of configurations.



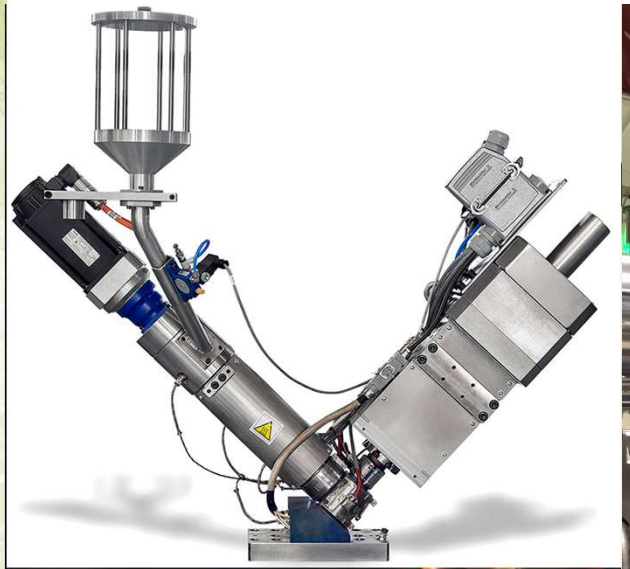
Injection points can be planned anywhere on tool. “Total Freedom for tool design.”

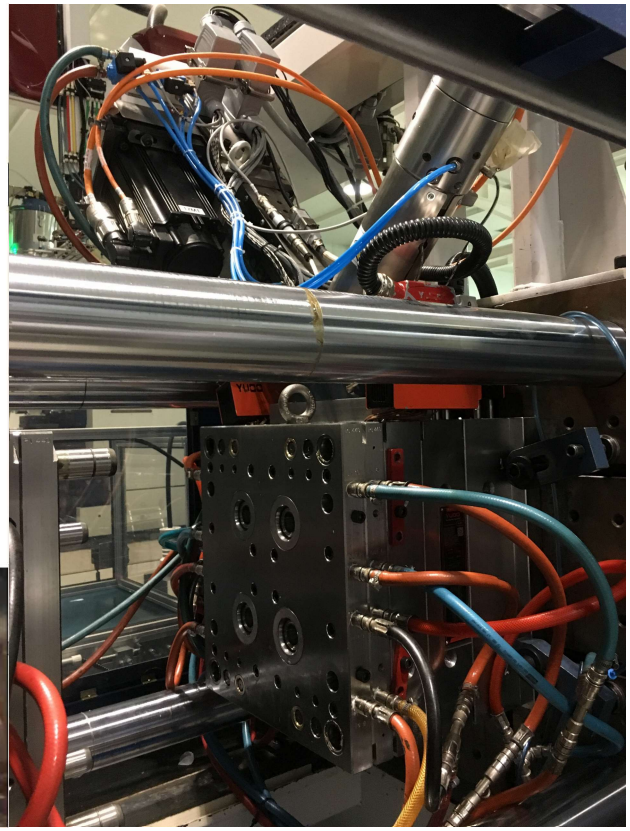
This type of construction allows for:

- Compact design.
- Micro shot weight with excellent accuracy.
- Multiple units on same plate.
- Permits sliding movement.
- On stacked tools it can be applied on the centre block to great advantage.
- 3 or more K products are possible on normal IMMs.

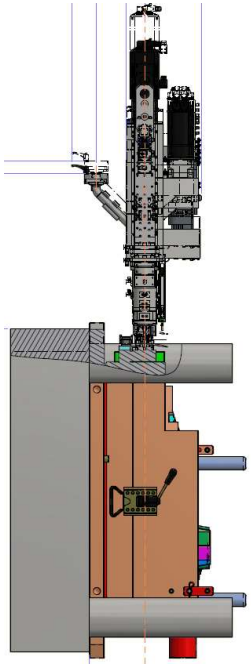
Directly mounted on the tool.

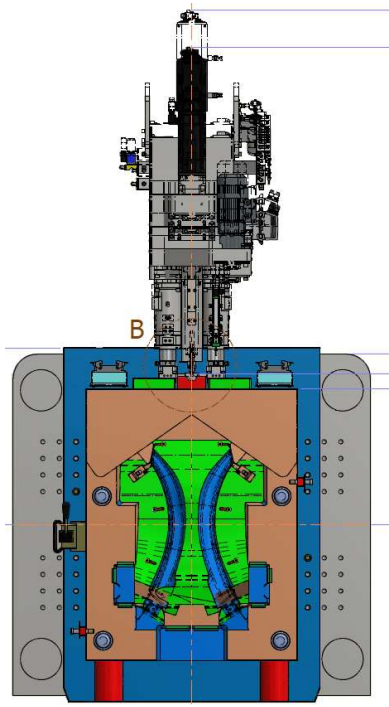
V-shaped shot pot unit





Vertical mounting directly on tool



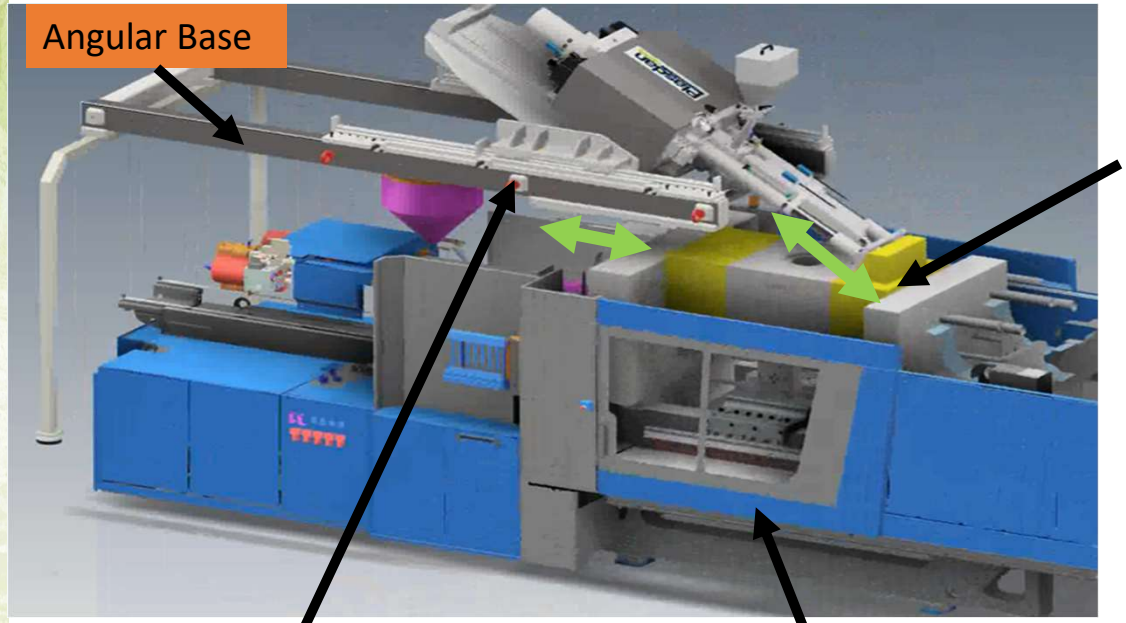


Different options with the multi-Injection Technology

- Over-moulding(2,3,4K/ rotary or cube)
- Co-injection(PCR, Gas, Chemical foaming or Engineering requirements)
- Multi-parts (different parts with different materials in the same mould)
- Injection welding
- In-mould assembly
- Off-mould assembly

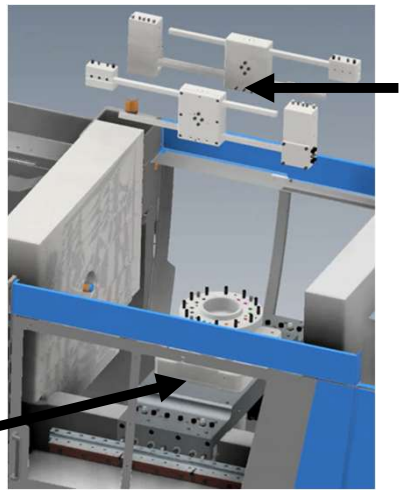
Multi-injection Rotary table vs Cube

Set-up



Machine Engel 1500 extended version

IU-1520-65 always engaged and will accompany mould opening.

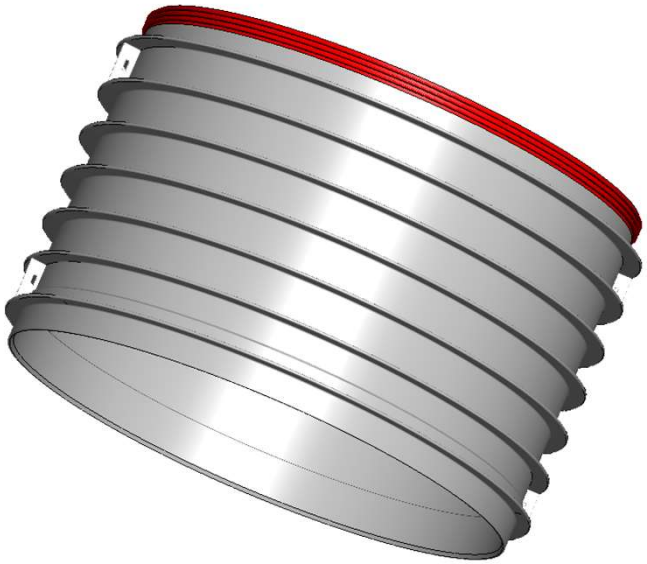


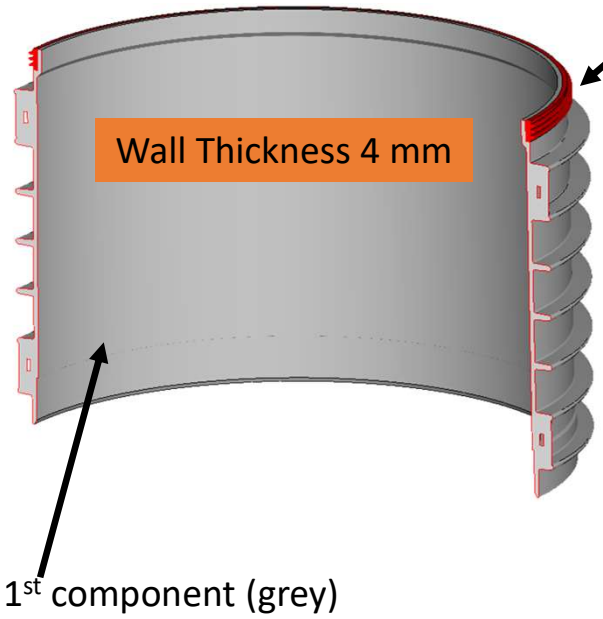
Rack & pinion mechanism

Horizontal Rotary table capacity upgraded 15T. PRH 0150 2 face.
Assembled on special base fixed to the IMM bed.

Multi-injection Rotary table vs Cube

Case study 2: Pipe fitting 2K

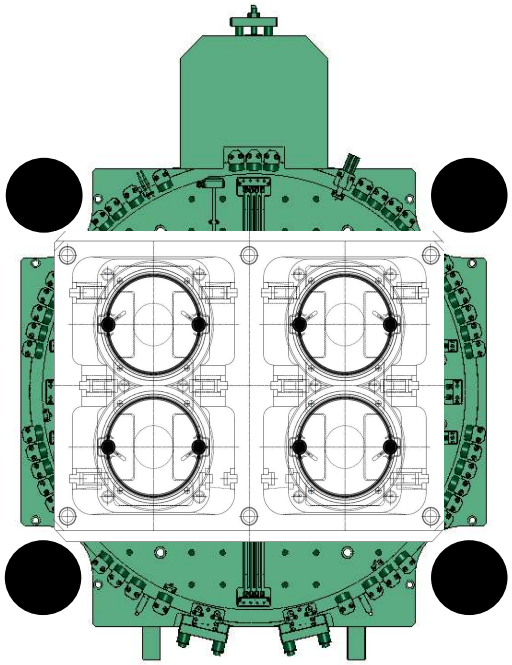




Customer requested quotation for a 2+2 cavity tool. 2 different sizes with interchangeable inserts. Required volume 600K of each size.

Overall product dimension
Ø512 x 323mm.
1st comp. PP 2597 cm^3
2nd comp. TPE 133 cm^3

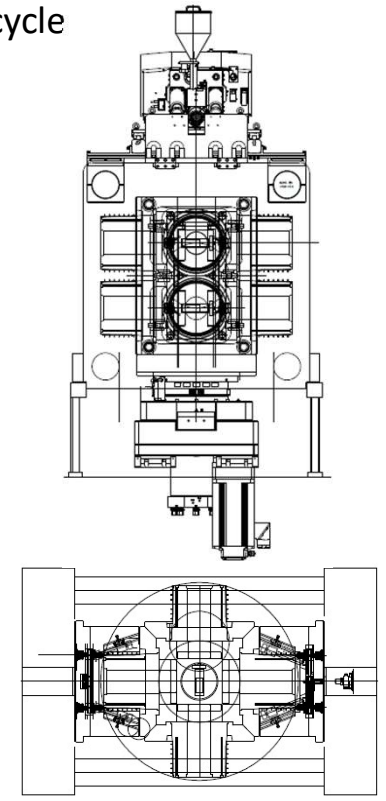
Multi-injection Rotary table vs Cube



Rotary table Ø 2400mm

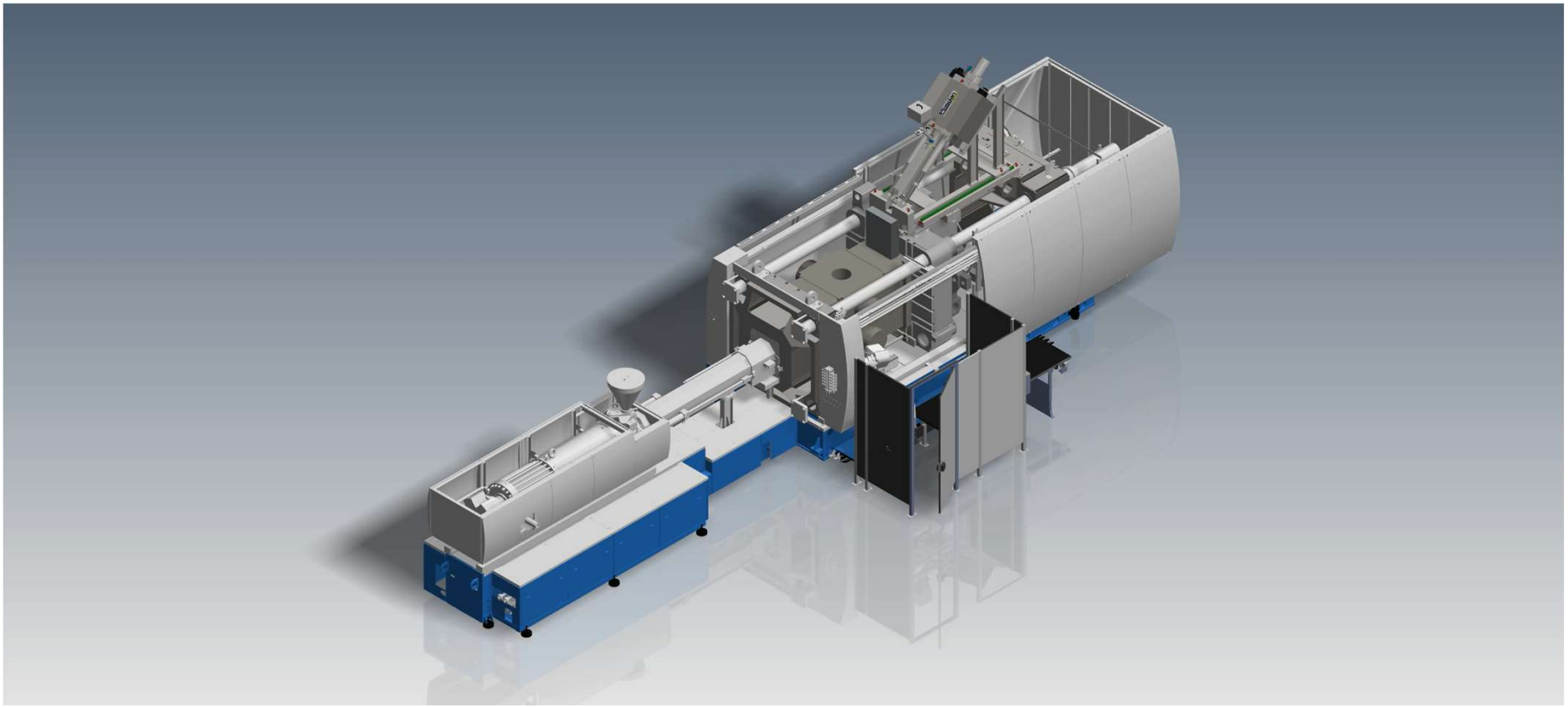
Cooling of 1st comp 3½ cycles. Ejection on fourth station during inj. cycle

Comparison between Cube and Rotary		
2 station Rotary		4 station Cube
1996 x 1430	Tool Size mm	1100 x 1430
1127	Mould height mm	2265
2300T	IMM	1500T extended
55	Cycle time s (including handling)	35
Y €	Cost of tooling	1,3 x Y €
same	Cost of Rotary system	same
917,5k at 80%	Production /annum	1,441k at 80%



In this case with a 4 station cube tool we can achieve required production volume on only one IMM. With a very large saving overall.

Multi-injection Rotary table vs Cube



Multi-injection off-mould assembly

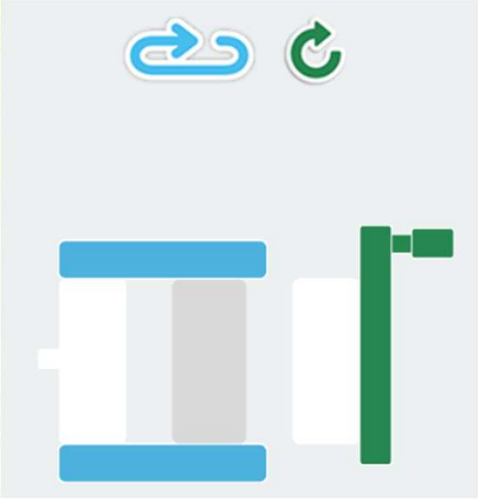
Plasdan
Multi-Injection Technology Eco-Moulding

Rethink Your Productivity

Save on external assembly and labour costs.

Use Off-Mould assembly with a precision transfer tool for a perfect assembly inside the time of the injection cycle. More it can relocated to any compatible IMM exhibiting the “Nomad Concept”.

In-mould assembly. Combining C-frame + Rotary table.

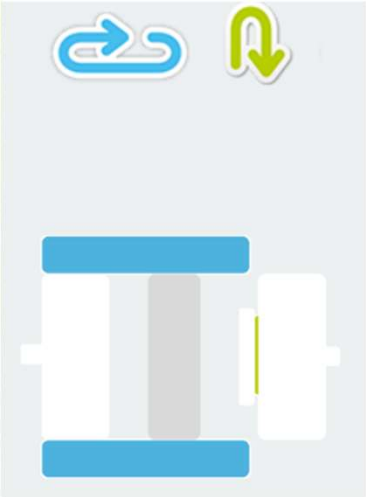


E-MOULDS
IN-MOULD ASSEMBLY
C-FRAME + ROTARY TABLE

An Example of a 4K Product.
Tool consists of additional:

- Rotary table
- C-frame
- 3 horizontal injection units
- Pump mechanism Insert

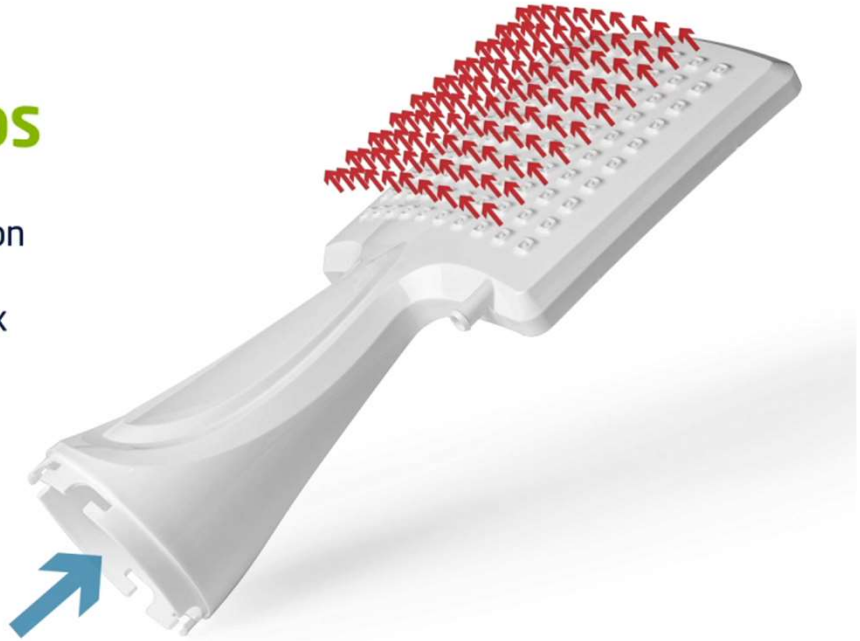
In-mould assembly. Combining C-frame + Lift and Turn (Index).



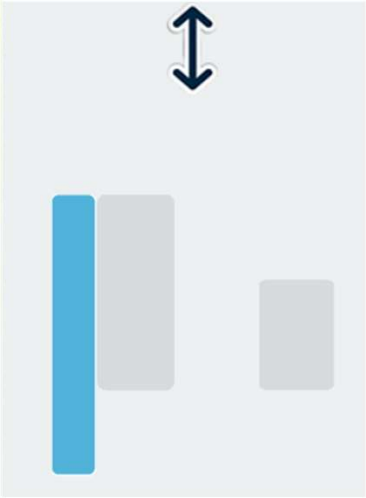
SAVE ON EXTERNAL ASSEMBLY AND WELDS

Use in mould Assembly with injection welding and mould closed ejection save time and produce very complex and complete parts.

Plasdan's innovative rotary equipments(Lift&Turn + C-Frame) and addon Injection Units permit just that.



In-mould assembly. Sliding table.

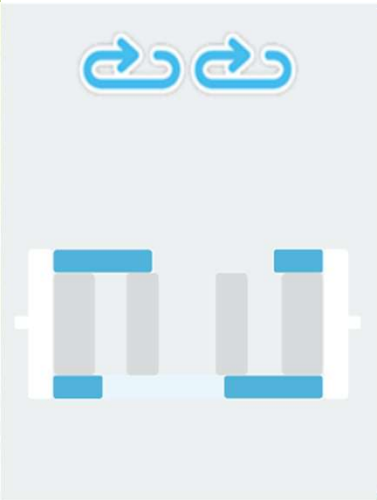


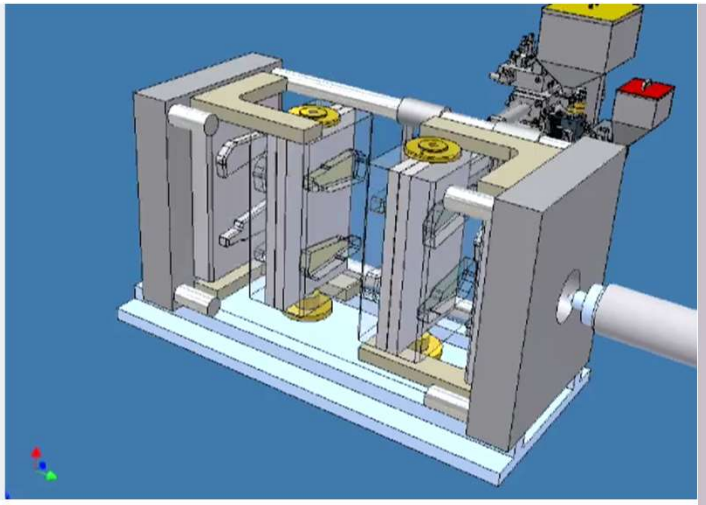
SAVE ON EXTERNAL ASSEMBLY AND WELDS

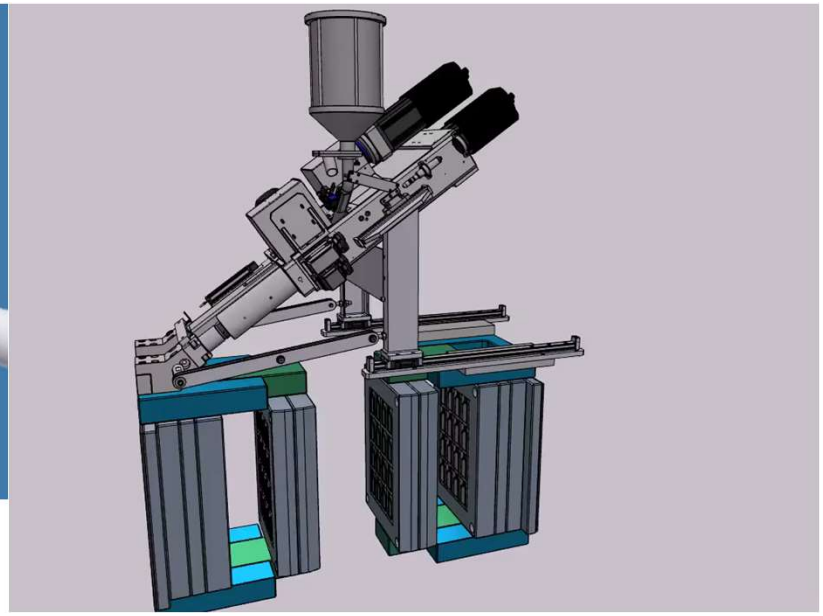
Use in mould Assembly with injection welding to produce very complex and complete parts.

Plasdan's innovative mechanisms (sliding plates) and Patented Addon E-plates permit just that.

In-mould assembly. Double C-frame.







For real

Bucket + Lid

Multi prod + stack

- 2 IMM
- 60 m^2
- 2 logistics lines

→ 1 IMM
32 m^2
1 logistic line

Nut Box

Multi prod + assembling

- 3 IMM
- 54 m^2
- 4 Logistics lines

→ 1 IMM
18 m^2
1 logistic line

Shower head

Multi prod + inj welding

- 2 IMM
- 1 Welding station
- 55 m^2
- 3 logistics lines

→ 1 IMM
32 m^2
1 logistic line

The multi-shot vs conventional

Case	Gains against conventional solution				
	Investment	Energy consumption	Floor space	Logistics	Labor
Bucket + Lid	↓	↓ 1x30%	↓	↓	→
Nut box	↓	↓	↓	3 ↓	↓
Shower head	↓	↓	↓	↓	↓

Multi- Injection technology is Eco-moulding