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VT ElektroPlast

ONE COMPANY – INFINITE POSSIBILITIES

TECHNOLOGY

DYNAMISM

PROGRESS

STABILITY

Plastic injection moulding

www.vtep.videoton.hu

HISTORY

- 13 PIM machines
- start of plastic consumption
- lighting products

1990-1995

1996-2000

- 32 PIM machines
- first household appliances (1998)

tampo printing
hot stamping
laser welding
ultrasonic welding

- ISO 14001 (2001)
- ISO TS 16949 (2002)
- 61 PIM machines
- first automotive products
- first personal care products
- fi-relays, respirators
- automatized assembly lines

2K moulding
insert moulding

2001-2005

2006-2010

- ISO 13485 (2008)
- ISO 9001 (2009)
- 87 PIM machines
- first floorcare products
- first premium products

- 91 PIM machines
- purchasing of new machines
- first skin care products
- first mother&childcare products
- sub-assembly

infrared welding
3D printing

2011-2015

2016-2019

- 104 PIM machines
- improving and rejuvenation of PIM machines
- on-line data collection system

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RAW MATERIALS

PPA PPS PSU PMMA PES

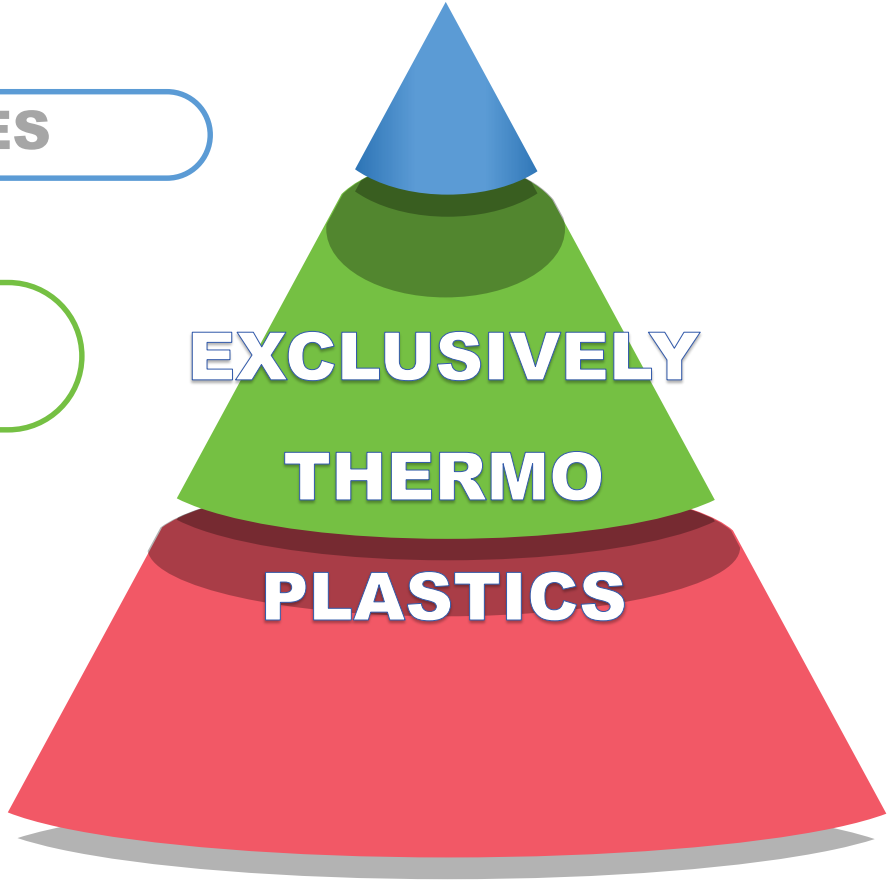
Top quality plastics

PC PA PBT POM PFA
PET TPE ASA+PC

Engineering plastics

ABS TPU PVC SAN PP
PPE + PS
HDPE LDPE

Industrial plastics



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INJECTION MOULDING MACHINES

- machines sizes according to their clamping force: 15-650t

ARBURG

ENGEL

Battenfeld
Injection Molding Technology

KraussMaffei

Chen Hsong

TMC

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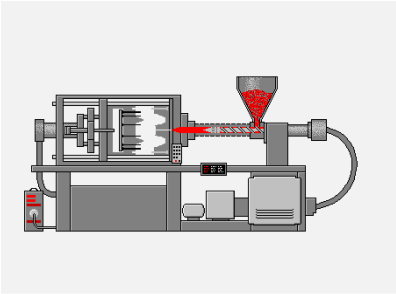
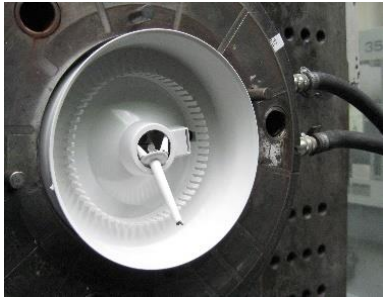
INJECTION MOULDING

- 270 sorts of resin and masterbatch, from 75 suppliers
- 2600 tons of resin processed per year
- 4,5 - 5 million plastic components produced per week
- 1100 active tools





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TECHNOLOGIES

Traditional 1 component injection moulding

Injection moulding of 2 components

- index plate moulding
- rotary plate moulding
- robot-assisted moulding

Injection moulding of 3 components

- 2 component plastic component + over moulding

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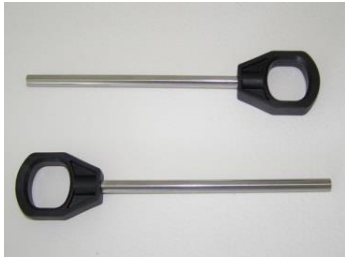
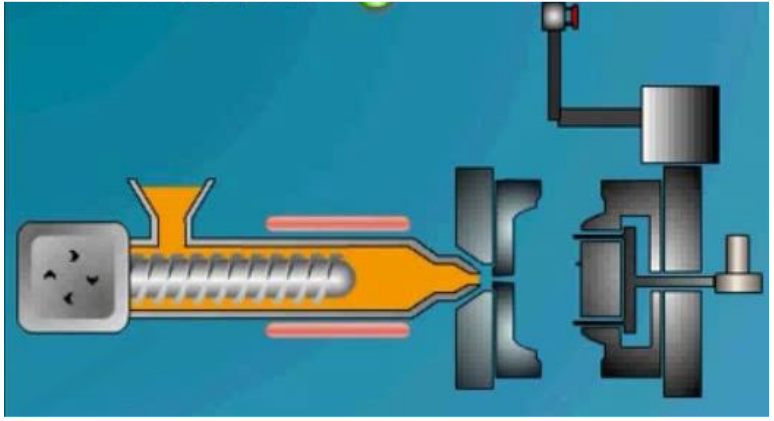
TECHNOLOGIES

Over moulding

- moulding onto metal
  - bearings, nuts
  - kneading
  - knife
  - rod
- moulding onto plastic
  - vacuum cleaner wheel
- on different surfaces





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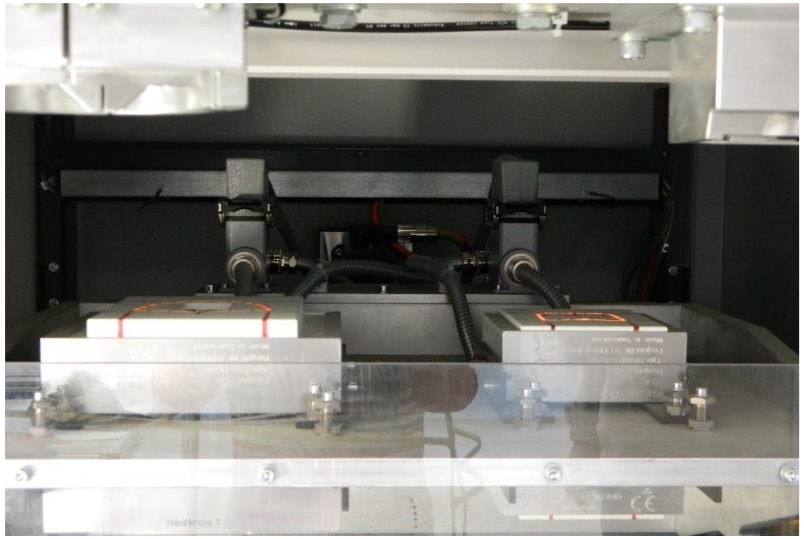
TECHNOLOGIES

Welding of plastics

- ultrasonic welding
- friction welding
- mirror welding
  - infrared heating
  - electric heating



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TECHNOLOGIES

Tampo printing (logos, symbols, texts, images)

- standard & unique tampo printing machines – round table, integrated to moulding machines
- complete tampon printing lines
- single and multicolour printing
- open and closed system
- on different raw materials (PP, ABS, PBT, SAN)
- on flat and curved surface
- pre-treatment – flaming, crowning
- fixture fabrication

TECHNOLOGIES

Hot stamping

- manufacturing metal plates for the process
- foil exfoliating by heat and pressure
- colours and metal-like surface also available
- logos, symbols, texts, images

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INDUSTRY 4.0 – OUR DEVELOPMENTS

On-line terminals usage

- work instruction / training materials
- technologies
- reporting number of products (good and scrap)
- status code updates of injection moulding machines

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INDUSTRY 4.0 – OUR DEVELOPMENTS

Data analyze system

- complex information about existing data of production
- comparisons, data analysis, optimization of efficiency, downtime etc.
- production featured KPIs based on extracted data

QlikView

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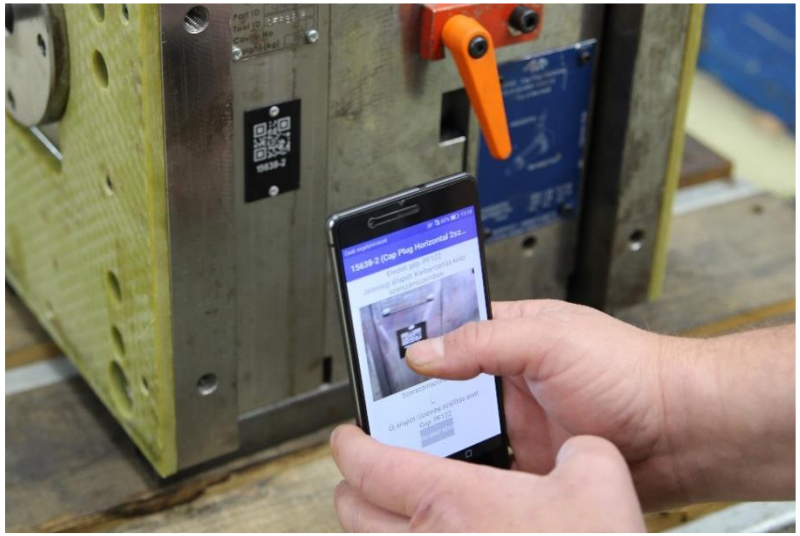
INDUSTRY 4.0 – OUR DEVELOPMENTS

Tool positioning tracking system

- mobile application
- proper on-line information about the state and the physical place of tools
- barcode identification of tool
- tool repair / maintenance prioritization options evaluation system (efficiency improvement)
- downtime optimization



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INDUSTRY 4.0 – OUR DEVELOPMENTS

Collection of data in real-time

- direct (real-time) data from injection moulding machines and peripheries
- monitoring parameter changes
- on-line tracking of run status of moulding machines
- quick and efficient warning system
- immediate response
- optimized material flow

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AUTOMATION

Development of professional manufacturing cells

Example cell No.1

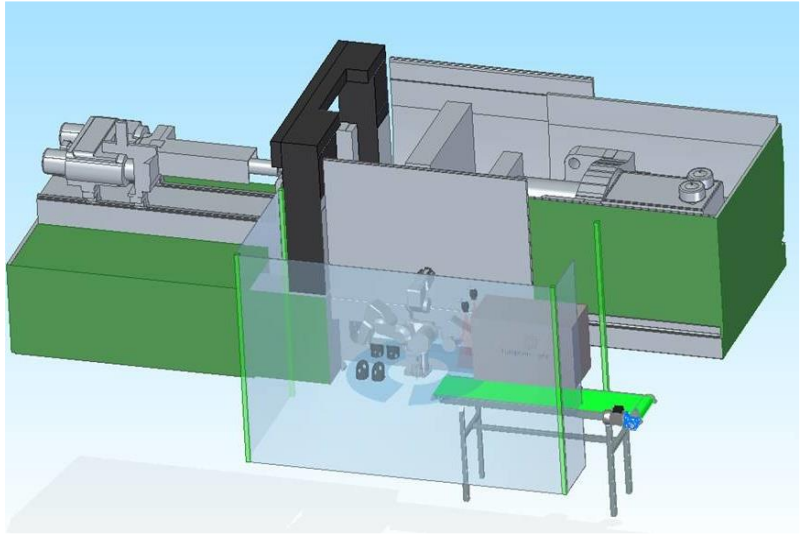
- injection moulding
- tampo printing
- labelling

In a cycle

Example cell No.2

- camera quality control
- automatic scrap selection
- semi-automated packaging system

In a cycle



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AUTOMATION

Robotisation

Usage of 6 axis robots

- caption
- quality control (with camera sensors)
- prepare packaging

- semi-automated packaging systems (box exchanger)

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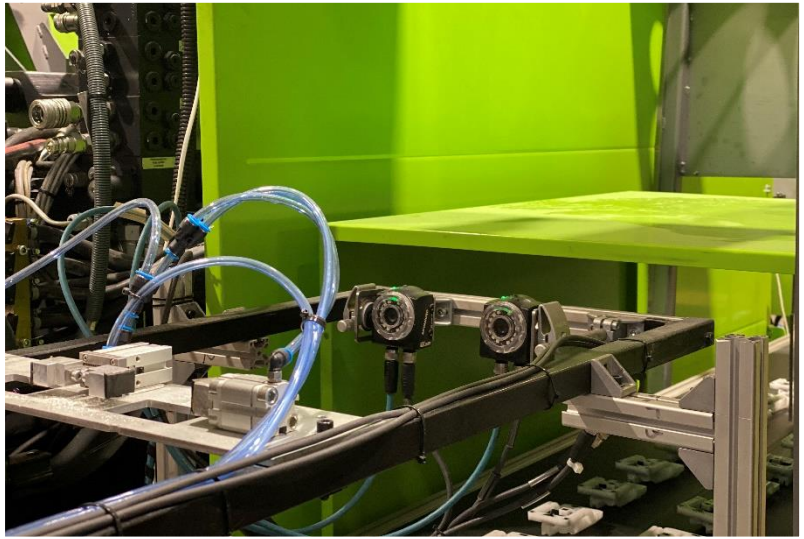
QUALITY IMPROVEMENT AND CONTROL SYSTEM

- 2 sensors in each production cells
- universal camera sensors
- instead of visual checking
- control probe pins



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TESTS, MEASUREMENTS

- MFI tests
- 3D touch and optical
- colour
- hardness
- roughness
- torque
- dimensional accuracy
- solidity and material tests
- 3D scanner

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QUALITY ASSURANCE

- analyzing root causes, corrective actions
- preparing, maintaining, improving quality documentation (PPAP, checking instruction, work instruction, measuring instructions, failure card)
- tool and raw material trials, first sample tests
- machine capacity and process capacity tests
- R&R tests
- mid-production controls in every two hours – measurements, assembly trials, function tests, SPC tests

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THANK YOU FOR YOUR KIND ATTENTION!

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