

Welcome to Trend Ltd.

Presentation



2014

TREND Tool, Special machine, Plastic-processing and Commercial Ltd. was founded in June of 1991 by two Hungarian owners in a rate of 50-50 % in Jaszbereny.

Number of employees

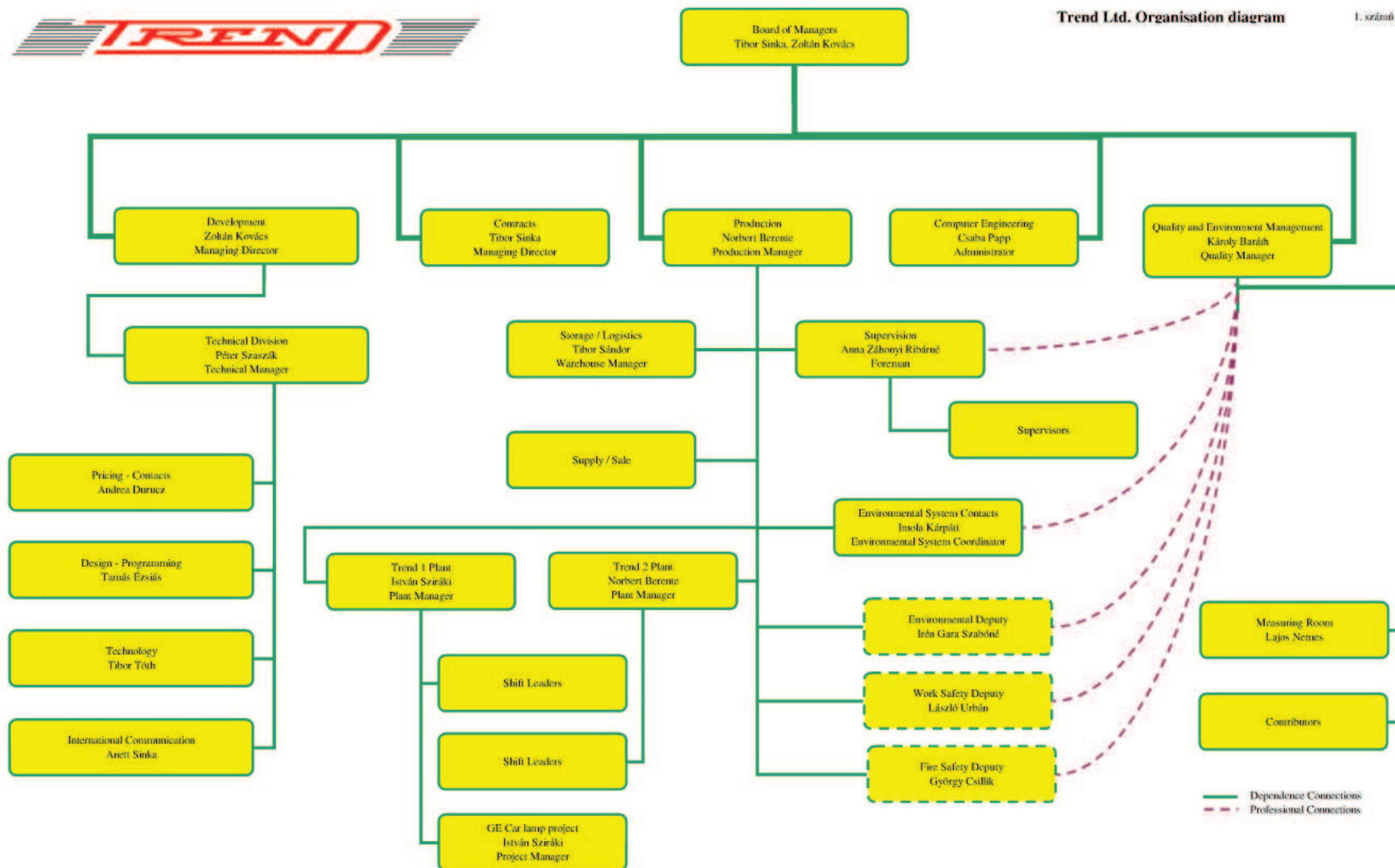
- Total: 310
- Production: 266
- Quality management: 4
- Development: 5
- Tooling: 35





Trend Ltd. Organisation diagram

I. számú melléklet



Jászberény, 19.01.2010.

Tibor Sinka
Managing Director

Organigr_100119.xls

100% hungarian ownership with 50-50% sharing

Supplied industry segments

- House hold appliances
- Electronic
- Automotive



Manufacturing area: 10000 m²

Total area: 70000 m²

Turnover (thousand EUR)

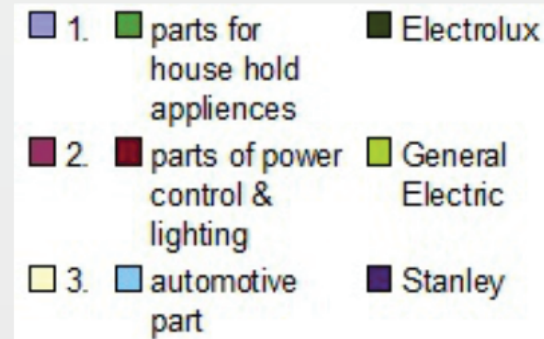
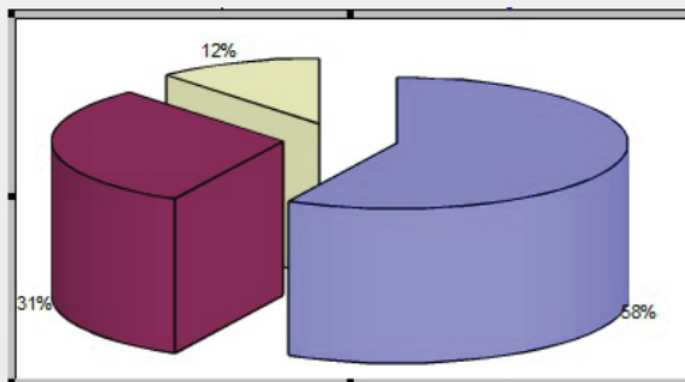


Year	Gross turnover (Tsd EUR)	Nr. of employees
2013	15 000	305
2012	14 500	300
2011	14 300	290
2010	13 000	310
2009	12 200	350
2008	17 850	373
2007	20 386	371

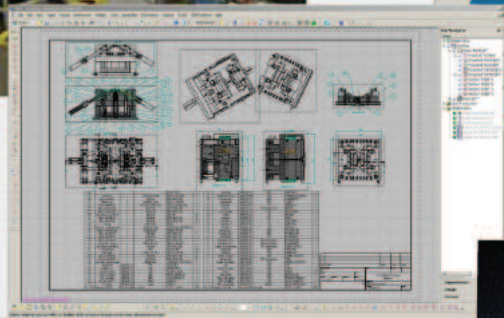
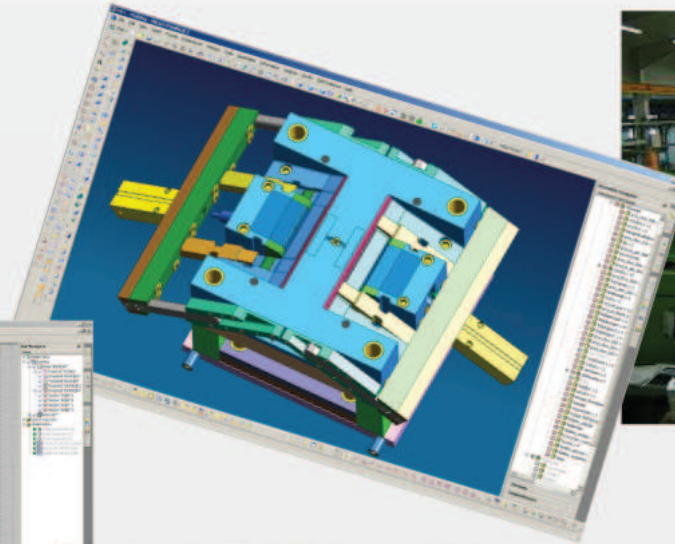


Market division

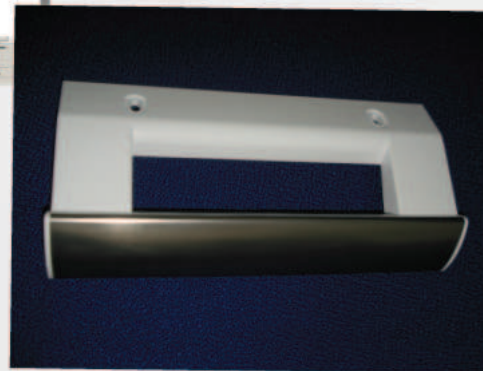
Main products	Name	Customer	Turnover/Y (Tsd EUR)
1.	parts for house, hold appliances	Electrolux	7500
2.	parts of power control & lighting	General Electric	4000
3.	automotive part	Stanley	1500



In-House full service from designing until maturation and after mass production.



Tool Manufacturing



Production of the Parts



Tool manufacturing

What we can do:

- Mold size;
from 0,1 tons up to 5 tons
- Plate size;
from 156*156 mm to 996*996 mm
- We prefer the optimum size; 596*596 mm



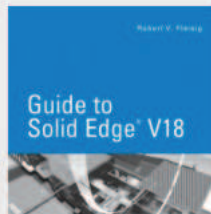
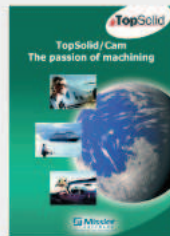
- Complete in-house design facility
- Small and high precision parts
- Molds for high aesthetic parts
- Complex moulds
- Molds for multi cavities
- Molds for over injection
- 5 tool making in paralell
- 20 - 30 medium sized new tools / year
- Tool test in house
- Mold / Tool main tenance and repaire

Designing

- 20 years experience in construction of tooling
- Reliable, precise mold construction
- Short lead time
- Communication in english and hungarian
- Young team
- Dedicated project engineer
- 3 engineers for CAD and 2 engineers for CAM

Plastic material references

PP, PE, TPE, PSHI, ABS, PC, PC-ABS, PMMA, PBT, PBTGF, PA6, PA6GF, PA6.6, PA6.6GF45, PEI, PET-PBT, etc.



Engineering system

- Unigraphics 7_5, SolidEdge, TopSolid for CAD
- Delcam Powermill 3D Cam
- Used standard parts: Hasco, EOC, DME etc.
- Mold Flow Analysis with cooperation partner (13 years)
- Manufacturing process analysis before steel cut
- Hot runner reference
 - Synventive
 - HASCO
 - DME
 - Mold Masters
 - ThermoPlay
 - etc.

Manufacturing & Process

- Every mould component are manufactured according to the 2D-3D mold part drawing with meeting tolerance requirement
- All produced element certified by measuring report
- We use the steel that suits the tool
 - Steels of frame and holder plates: 1.1730;1.2312
 - Steels of core and cavity 1.2083, 1.2738, 1.2367, 1.2358, 1.2510, and types of Uddeholm,
- Each manufacturing process are made according to own process design:
 - Rough milling
 - CNC milling
 - Electrode manufacture
 - Spark erosion
 - Grinding
 - Turning
 - Hardening
 - Surface finishing
 - In-House tool test
- Lead Time & Process Control

Facilities of tool shop

Machine	Type of Machine	Measurement of the table (mm)	driving speed (1/min)	Max. weight of the part (Kg)	Type of actuator.	Max. workable part in Z axe (mm)	Main application
CNC high speed milling	RODERS RFM 600 DS (5D)	diam.: 405	42000	300	RMS6 V3.15	300	shape milling of electrodes, and shape milling of hardened inserts
CNC milling	Deckel Maho DMU 100 T	1500 x 795	18000	900	TNC 426	710	rough and fine milling of core and cavity and plates
CNC milling	Deckel Maho DMU 50eV	800 x 480	18000	500	TNC 426	380	rough and fine milling of core and cavity and plates
Wire spark erosion	MITSUBISHI FA-20	780 x 630		800	MITSUBISHI	270	Wire spark erosion
Spark erosion	INGERSOLL GANTRY-500	730 x 630		1000	MITSUBISHI	320	Spark erosion
Spark erosion	SUNWIND M350	350 x 600		300		300	Spark erosion
Starthole spark erosion	CASTEK HK-24	260 x 450				200	starthole for wire spark erosion
Face grinder	BRH 50 B II.	500 x 1500					plane grinding
Face grinder	BRH 20.02	200 x 630					plane grinding
grinders 2pcs	BN 102 C	140 x 1000					plane grinding
Cylindrical grinder	KU 250-04	peak distance: 700 mm				Max. stone diameter Atm. 350	cylindrical grinding
NC lathe	GILDEMEISTER NEF 520K	peak distance: 1500 mm				Max. diameter above the boss: 500	turning
Lathe	TOS SUI 40	peak distance: 1000 mm				Max. diameter above the boss: 500	turning
Lathe	INTOS S32	peak distance: 750mm				Max. diameter above the boss: 320	turning
Horizon milling machine	UNION BFT 90/3-2	1400 x 1300	1600				rough milling
General milling m.	TOS FNGJ 32	600 x 400	2000				rough milling
Laser welding	MW-4 120 W	370 x 800		100 + options turnable head		320	repairing and maintenance
Ultrasonic polisher	ULTRAFORM UF-5600		24 KHz 45 W				surface polishing, and mirror polishing

Rough milling



Union BFT 90/3-2 Horizon



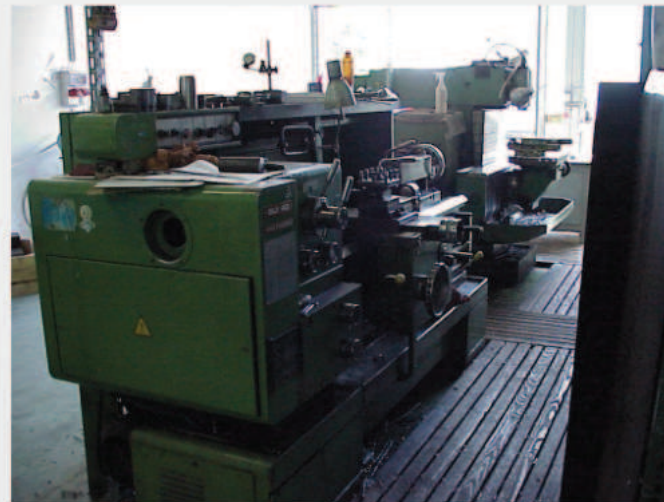
TOS FNGJ 32



Cutting



MAS bar-rigged drifter



TOS SUI 40 lathe

Union BFT 90/3-2 Horizon



Machine for rough milling of large plates

Movement controlled with digital measuring

Precision 0,1 mm

Machine	Type of Machine	Measurement of the table (mm)	driving speed (1/min)	Max. weight of the part (Kg)	Type of actuator.	Max. workable part in Z axe (mm)	Main application
Horizon milling machine	UNION BFT 90/3-2	1400 x 1300	1600				rough milling

TOS FNGJ 32

Machine for general milling



- General milling of small inserts
- Rough milling of inserts
- Precision 0,05 mm
- Digital controlled movement

Machine	Type of Machine	Measurement of the table (mm)	driving speed (1/min)	Max. weight of the part (Kg)	Type of actuator.	Max. workable part in Z axe (mm)	Main application
General milling m.	TOS FNGJ 32	600 x 400	2000				rough milling

MAS bar-rigged drifter



Drifter machine for making cooling channels

CNC fine processes



RODERS RFM600DS



five axis working



DECKEL MAHO CNC-working spots



DMU 100T



DMU 50eV



Gantry-500



Mitsubishi FA-20

RODERS RFM600DS



This is a milling machine for making graphite electrodes in a continuously exhausted closed system with using five axis and HSC-technology. Besides of this it can be used for making inserts and form plates with using hard milling technology.

Machine	Type of Machine	Measurement of the table (mm)	driving speed (1/min)	Max. weight of the part (Kg)	Type of actuator.	Max. workable part in Z axe (mm)	Main application
CNC high speed milling	RODERS RFM 600 DS (5D)	diam.: 405	42000	300	RMS6 V3.15	300	shape milling of electrodes, and shape milling of hardened inserts

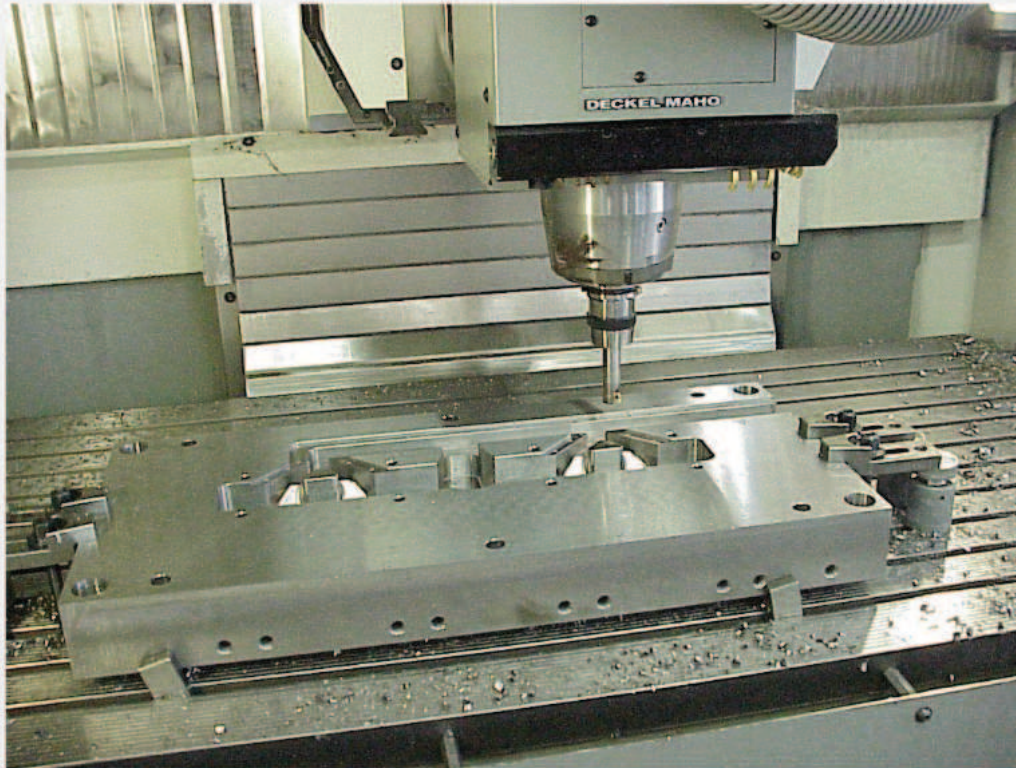
DECKEL MAHO CNC - working spots



We use these Deckel Maho CNC finishing machines for making form plates.

On these machine use the Sandvik tool system

DMU 100T

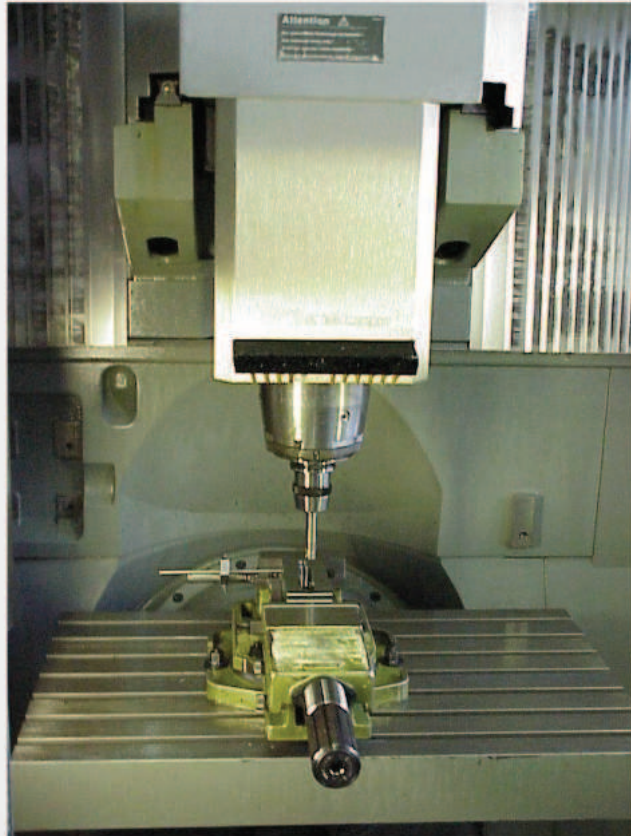


The movement dimensions of DMU100T is the dominate milling machine for making core and cavity

- Precision 0,01 mm
- Programable tool holder with 32

Machine	Type of Machine	Measurement of the table (mm)	driving speed (1/min)	Max. weight of the part (Kg)	Type of actuator.	Max. workable part in Z axe (mm)	Main application
CNC milling	Deckel Maho DMU 100 T	1500 x 795	18000	900	TNC 426	710	rough and fine milling of core and cavity and plates

DMU 50eV



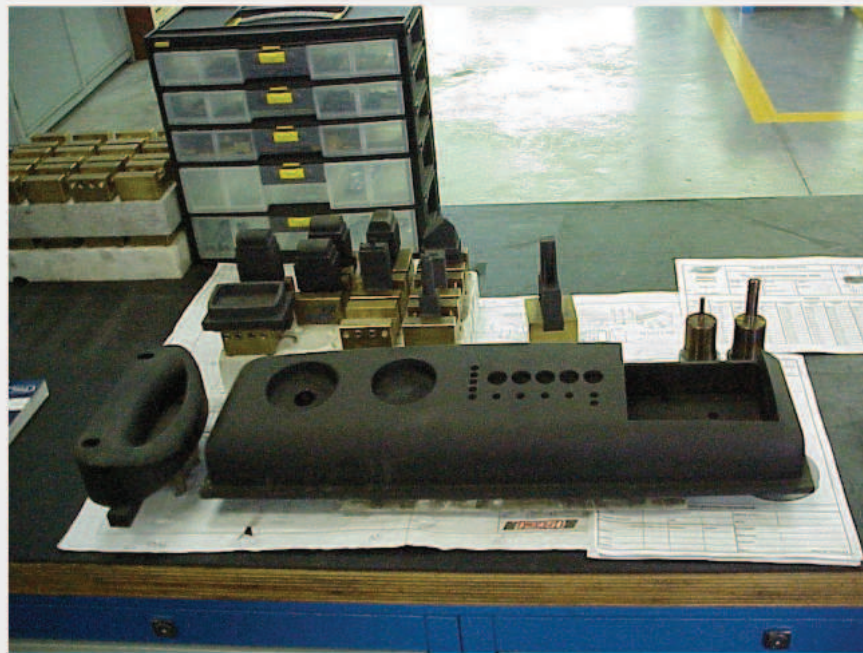
The DMU 50eV machine is used for making smaller plates, inserts and other complementary parts.

- Programmable tool holder with 32 stations
- Precision 0,01 mm

Machine	Type of Machine	Measurement of the table (mm)	driving speed (1/min)	Max. weight of the part (Kg)	Type of actuator.	Max. workable part in Z axe (mm)	Main application
CNC milling	Deckel Maho DMU 50eV	800 x 480	18000	500	TNC 426	380	rough and fine milling of core and cavity and plates

Spark erosion

On this section we have CNC spark erosion machine, CNC wire spark erosion machine, starthole spark erosion machine and traditional spark erosion machine.



The electrodes usually made from graphite and for clamping/positioning we use EROWA system. In smaller quantity we also produce copper electrodes.

CASTEK HK-24

Start hole maker

SUNWIND M350

General spark erosion machine



Machine	Type of Machine	Measurement of the table (mm)	driving speed (1/min)	Max. weight of the part (Kg)	Type of actuator.	Max. workable part in Z axe (mm)	Main application
Spark erosion	SUNWIND M350	350 x 600		300		300	Spark erosion
Starthole spark erosion	CASTEK HK-24	260 x 450				200	starthole for wire spark erosion

Gantry-500



CNC spark erosion machine with EROWA system

- Well-equipped
- Precision 0,01 mm
- 19 programable electrode holding station
- Dominant size for core and cavity eroding

Machine	Type of Machine	Measurement of the table (mm)	driving speed (1/min)	Max. weight of the part (Kg)	Type of actuator.	Max. workable part in Z axe (mm)	Main application
Spark erosion	INGERSOLL GANTRY-500	730 x 630		1000	MITSUBISHI	320	Spark erosion

Mitsubishi FA-20

CNC wire spark erosion



- Precision 0,015 mm
- Wire diameter 0,25 mm
- Max. cutting height: 200 mm with tolerance of 0,015

Machine	Type of Machine	Measurement of the table (mm)	driving speed (1/min)	Max. weight of the part (Kg)	Type of actuator.	Max. workable part in Z axe (mm)	Main application
Wire spark erosion	MITSUBISHI FA-20	780 x 630		800	MITSUBISHI	270	Wire spark erosion

Grinding

The face-grinders and the mould-grinders are mostly used for dressing the form plates and forming the final measurements of the inserts and other adapter parts.



Face-grinders



Mould-grinders

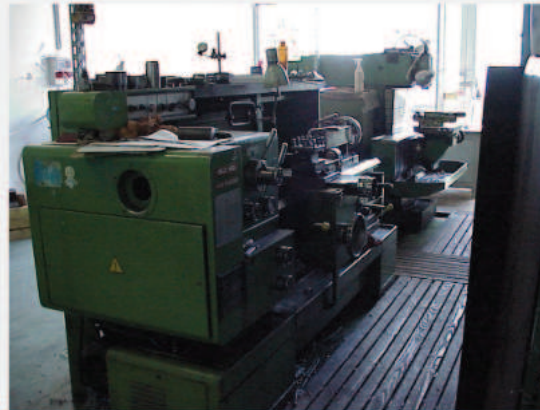
Machine	Type of Machine	Measurement of the table (mm)	driving speed (1/min)	Max. weight of the part (Kg)	Type of actuator.	Max. workable part in Z axe (mm)	Main application
Face grinder	BRH 50 B II.	500 x 1500					plane grining
Face grinder	BRH 20.02	200 x 630					plane grining
grinders 2pcs	BN 102 C	140 x 1000					plane grining
Cylindrical grinder	KU 250-04	peak distance: 700 mm				Max. stone diameter Ätm. 350	cylindrical grinding

Turning

Lathe work machines for manufacturing revolved parts.



Gildemeister NEF 520K



TOS SUI 40 lathe



Intos S32

Machine	Type of Machine	Measurement of the table (mm)	driving speed (1/min)	Max. weight of the part (Kg)	Type of actuator.	Max. workable part in Z axe (mm)	Main application
NC lathe	GILDEMEISTER NEF 520K	peak distance: 1500 mm				Max. diameter above the boss: 500	turning
Lathe	TOS SUI 40	peak distance: 1000 mm				Max. diameter above the boss: 500	turning
Lathe	INTOS S32	peak distance: 750mm				Max. diameter above the boss: 320	turning

Hardening



Out-house process at  **BÖHLER**
KERESKEDELMİ KFT.

Vacuum Heat Treatment (600 x 600 x 900 mm)

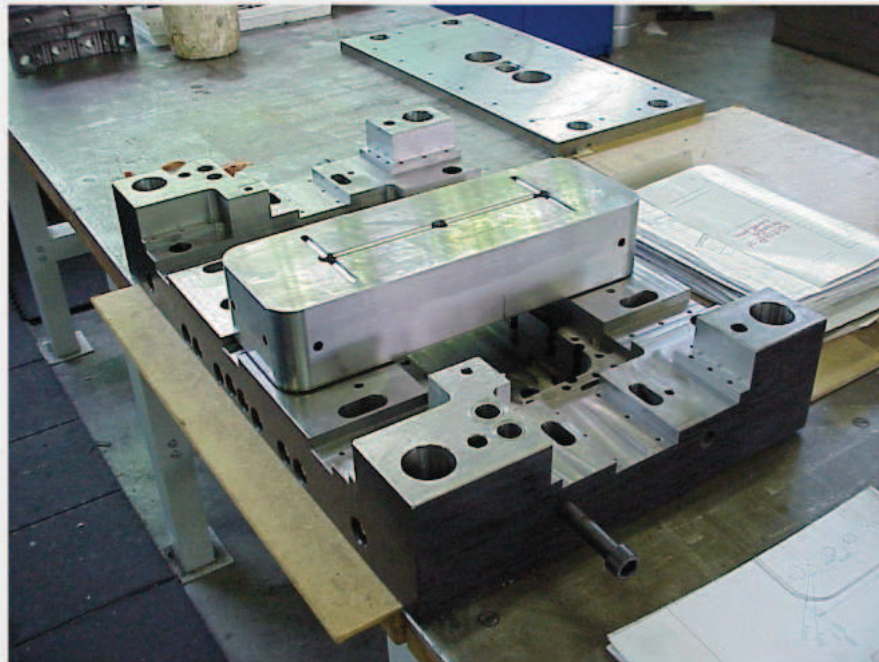
Plasma nitridation on 470 - 530 Celsius with
minimum plate deformation

In house hardness testing

Tool mechanics

10 mould mechanics

Manufacturing experience
over one thousand moulds



Assembling

Maintenance

Repairing

Surface finishing

In-house polishing



Laser welding



Important welding process to

- eliminate breakings and chips of core and cavity or other elements of tool
- fabrication of a new part or surface
- for parts affected by engineering changes
- repairing of water leaks
- eliminate damage from equipment malfunction
- eliminate an occasional metallurgical defect.

Option: Turnable head

Machine	Type of Machine	Measurement of the table (mm)	driving speed (1/min)	Max. weight of the part (Kg)	Type of actuator.	Max. workable part in Z axe (mm)	Main application
Laser welding	MW-4 120 W	370 x 800		100 + options turnable head		320	repairing and maintenance

Surface treatment

In-House Polishing

In-House Mirror finishing

Own specialist for this process



Machine	Type of Machine	Measurement of the table (mm)	driving speed (1/min)	Max. weight of the part (Kg)	Type of actuator.	Max. workable part in Z axe (mm)	Main application
Ultrasonic polisher	ULTRAFORM UF-5600		24 KHz 45 W				surface polishing, and mirror polishing

We are familiar with surface finishing standard

Mold-Tech standard

VDI standard

Eumig standard



Mould testing

- In house mould testing on the best suitable machine from 59
- First trial dimension report provided
- Sample parts provided
- 4 - 8 hours running test as customer request



Lead Time

Mould manufacturing lead time reference

General molds

Mould Tonnage	Projekt Finished Time
0-1 tons	6-8 weeks
1-3 tons	8-10 weeks
3-5 tons	12-14 weeks

Complex molds

Mould Tonnage	Projekt Finished Time
0-1 tons	8-10 weeks
1-3 tons	10-14 weeks
3-5 tons	14-16 weeks

Process Control

- One project manager in charge of your project
- Weekly progress updates for mold manufacturing
- Daily management review meeting
- Support to customers in English and Hungarian

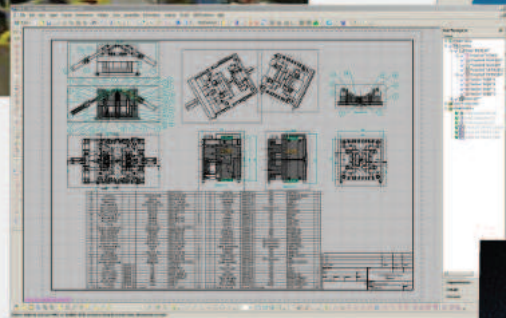
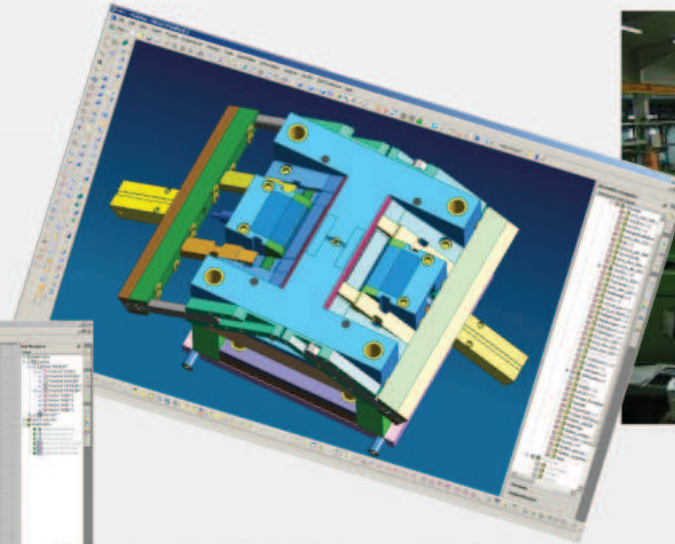
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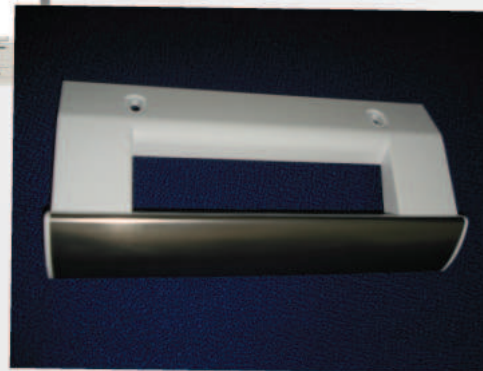


- 10 % in 30 days after the reception of order
- 30 % in 30 days after acceptation of design
- 40 % in 30 days after successful T1 trail
- 20 % in 30 days after acceptation of samples
(based on costumer requirement)

In-House full service from designing until maturation and after mass production.



Tool Manufacturing

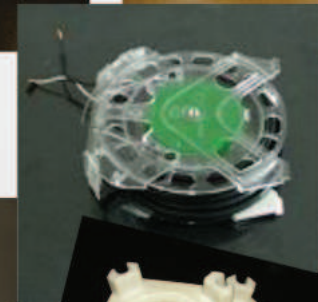
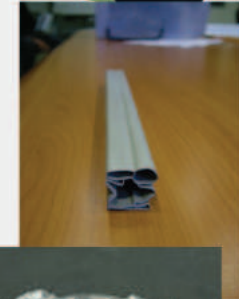


Production of the Parts



Capabilities / Technologies in mass production

- Injection Moulding,
- Extrusion,
- Foaming,
- Blow Moulding,
- Finishing Technologies
(pad printing, embossing, screen printing),
- Assembling



Injection Moulding

We have 59 pcs. Engel injection machines, from 20 up to 800 Tons.

Production of high aesthetical parts for:

- House hold appliances (Electrolux, Dometic, etc.)
- Automotive industry (Stanley, Shinwa, GE)
- Electrical area (GE)
- Lighting (GE, Artemide, Thorn)

Production of high precision parts for

- Electrical and Lighting area (GE, Electrolux)
- Automotive industry (GE, Stanley,)
- House hold appliances (Electrolux cordwinder)

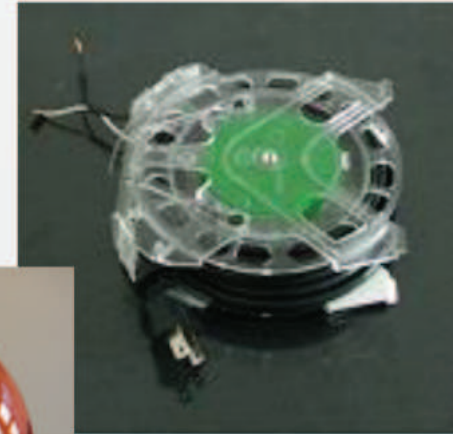
We have experience with plastic:

PP, PE, TPE, PSHI, ABS, PC, PC-ABS, PMMA, PBT, PBTGF, PA6, PA6GF, PA6.6, PA6.6GF45, PEI, PET-PBT, etc.



House hold appliances

- Aesthetical products
- Many colour variations
- Small and large parts
- High precision parts

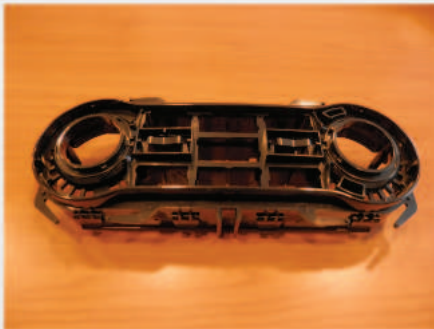


Automotive industry

High-quality parts of lamps for cars

- Experience for high aesthetical parts
- Experience for high precision parts

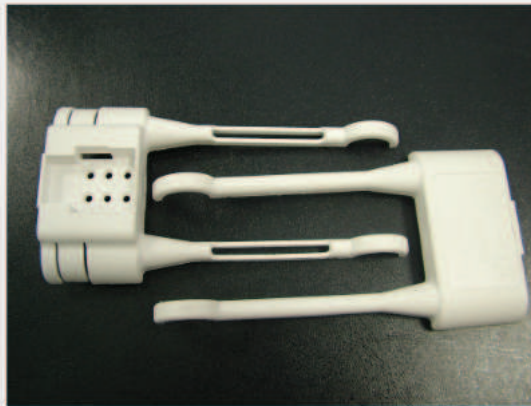
Over injection on metal inserts



Electrical and Lighting area

- High-quality parts of Lighting
- High precision parts, strong tolerances
- Over injection on metal inserts
- Engineering plastics:

PC, PBT, PA6, PA6.6, and glass fiber types



Machine Type	Machine size	Extra	Machine number
Engel	ES 80/20 HLS		1
Engel	ES 80/25 HLS		1
Engel	ES 80/25 HLS		2
Engel	ES 200/40 HLS		3
Engel	ES 200/45 HLS		1
Engel	ES 200/45 HL-V		3
Engel	ES 200/50 HL		1
Engel	ES 330/75 HL-V		3
Engel	ES 330/80 HLS	Gasmelt	3
Engel	Victory 330/80 Phoenix		2
Engel	ES 500/100 HLS		1
Engel	ES 500/110 HL-V	Gasmelt	6
Engel	Victory 500/120 Phoenix		2
Engel	Victory 330/130 Power	ERC Robot	3
Engel	1050/150 Tech	Gasmelt and ERC Robot	2
Engel	ES 650/175 HL	ERC Robot	2
Engel	EL 1050/175 HLST		1
Engel	ES 1000/225 ST		1
Engel	ES 1350/250 HL		1
Engel	ES 1800/275 HLST		1
Engel	ES 1800/300 HLST		5
Engel	ES 1800/300 HL-V	HLI Robot	6
Engel	ES 2550/400 HL	ERC Robot	4
Engel	DUO 4550/650	ERC Robot	2
Engel	DUO 5550/800	ERC Robot	1

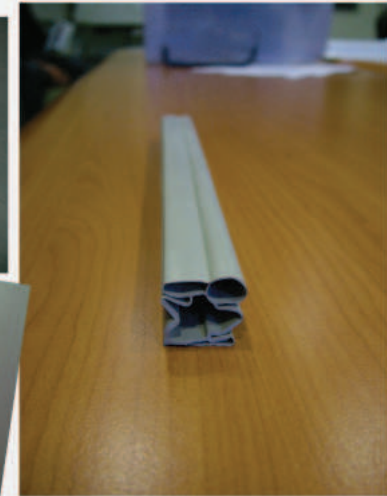
note portable GAS control unit from 100 to 800 tons

Extrusion

Four extruders with fifty mm screw diameter

Profiles, Sealings, Tubes (Electrolux)

Materials: PP, PE, ABS, PSHI, TPE



Foaming

Foaming of PUR for House Hold Appl.,

Isolation tubes (Electrolux)

Motor sealing of vacuum cleaner



Blow Molding

Experience in stadium chair production (Wembley stadion, etc.)

Experience in production of tank, water tank, etc.



Confectioning

- Tampon painting with 10 printers
- Size of table 20 - 500 mm
- Hot printing with 4 printers
- Max. size of graphic 170*90 mm
- Ultrasonic welding



Assembling

- Simple and complex assembly
- Assembled part in many different version



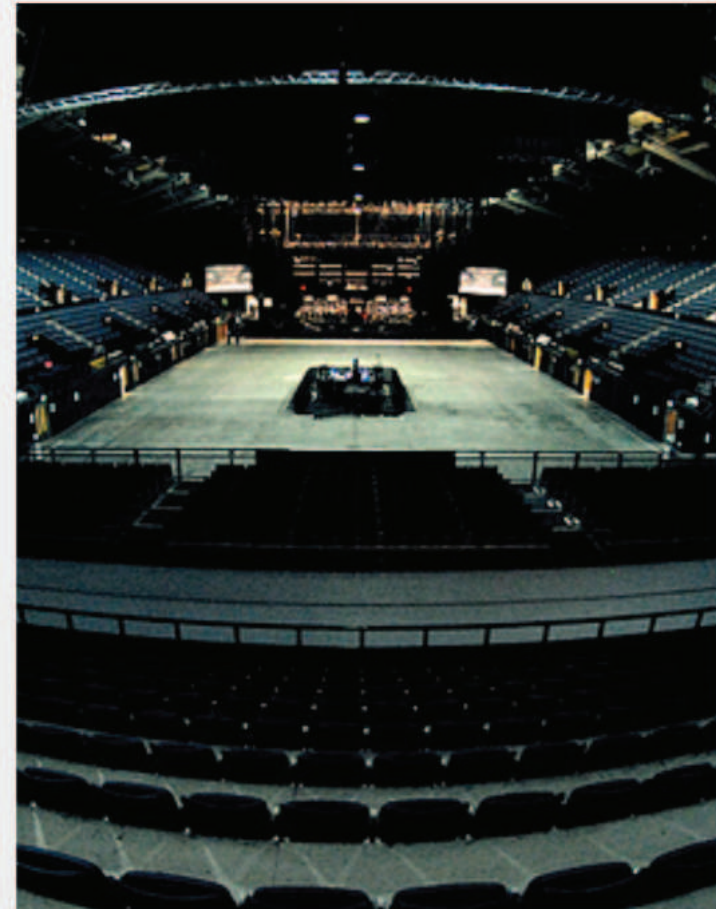
Stadium Seats

Our company has high grade experience in stadium and other kind outdoor seats designing and producing. In the last few year we were in business relationship with a lot of hungarian and foreign companies to design and manufacture this kind of product.



References

One of our big partner is Audiance System. We had designed and manufactured blow molded stadium seats to them what have been integrated in the Wembley-Arena, but it has been also exported to Egypt and Katar.



With the tools what we've got from STOL Grosssraumbestuhlungen and from the Papai Asztalos Kft. we manufactured solid molded seats backrests. Most of it was exported to German stadiums like Dortmund, Düsseldorf, Nürnberg, Hockenheim, etc...; it was also delivered to Győr, Pépa, and to Székesfehérvár.



Our own designed and manufactured double wall stadium seats were exported in the whole region of Europe like the Polish Newstyle. We still delivering to Germany and to many smaller stadium (Consolit Kft., Kemotechnick Kft., P á pai Asztalos Kft (ZTE stadium), Szatm á ri Kft., etc...

For individual need there is the possibility to design, tooling and to be manufactured blowed and molded seats. The seats are ergonomically tested and we design it to be comfortable and to be individual.



Vacuum Cleaner Hose Extrusion

We can produce two types of tube profiles. Silent, and the standard profiles, with an integrated full automatic production line:

- Extrusion
- Cutting
- Robotic assembling -
gluing processes
- Inspection &
Packaging



Vacuum Cleaner Hose

current details and properties



Tube outer diameter: 44 mm

Tube weight: 180 - 220 g

Tube length: 1700 - 2600 mm

Tube colours: grey & black

We are able to produce from dia 32 mm up to 44 mm, with variable length, and wide range of colours.

Quality Assurance

ISO9001:2008

ISO14001:2004

Certificate of Registration

nqa

This is to certify that the Quality Management System of

TREND Szerszám, Célgép, Műanyagipari és Kereskedelmi Kft.
H-5100 Jászberény, Horváth Péter utca 14. Hungary
H-5101 Jászberény, Alsómuszály utca 26. Hungary

applicable to

Design and manufacturing of plastic shaping tools. Normal and gas-melt die-casting, extrusion, bottle blowing, polyurethane foaming

has been assessed and registered by NQA against the provisions of

BS EN ISO 9001 : 2008

This registration is subject to the company maintaining a quality management system, to the above standard, which will be monitored by NQA.

Certification Director

UKAS

Certificate No: 28764
Date: 12 November 2010
Reissued: 08 November 2013
Valid Until: 08 November 2016
EAC code: 14

The use of the UKAS Accreditation Mark indicates accreditation in respect of those activities covered by the accreditation certificate number 010 held by NQA.
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N005/2 09/08

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UKAS

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N005/2 09/08

Images

Precision parts



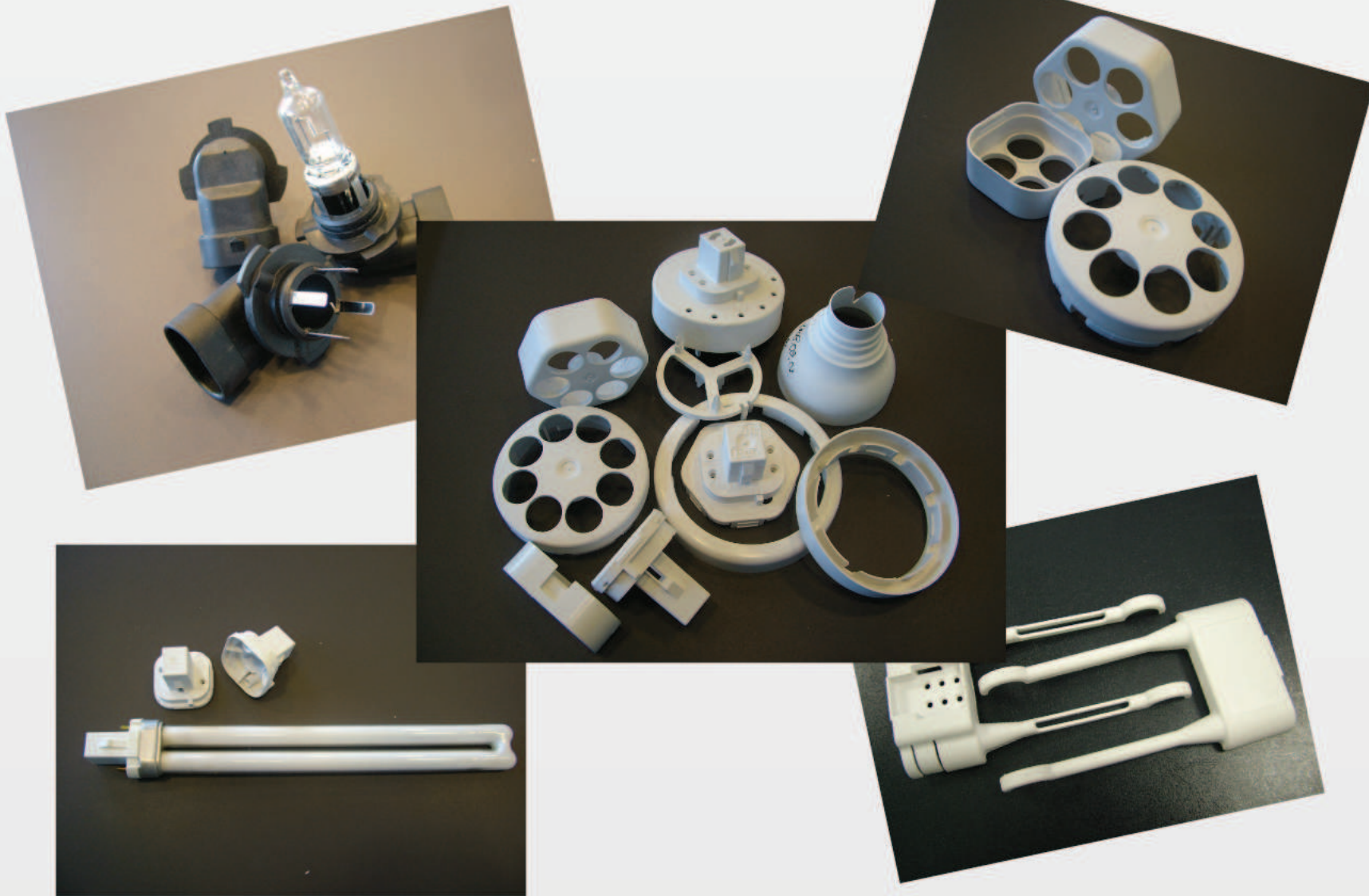
Lighting & Automotive parts



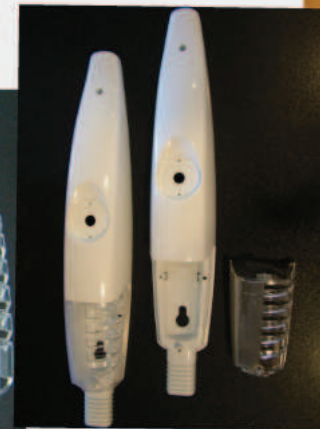
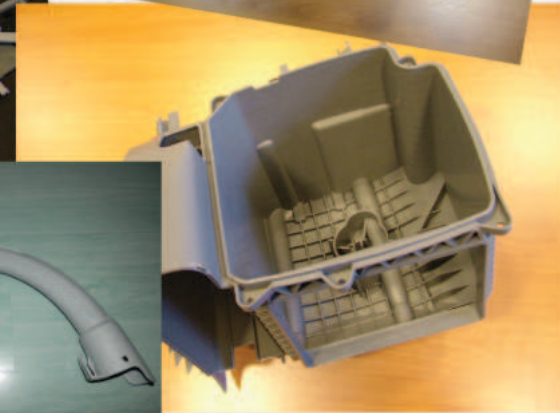
House hold appliances



Precision parts



House hold appliances



Lighting & Automotive parts



14. Horvath Peter str. Jászberény 5100



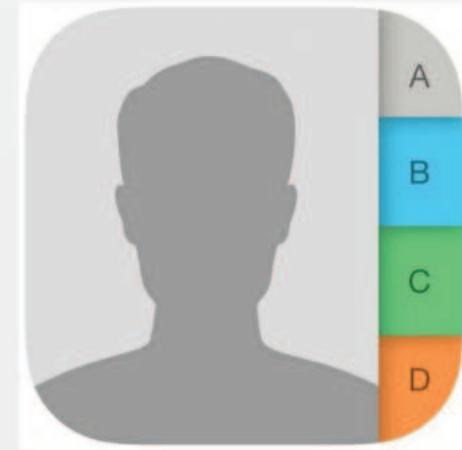
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Contacts



Thank you for your attention!



Trend Ltd. Hungary