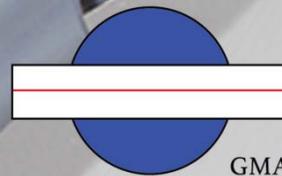




Extrusion Die

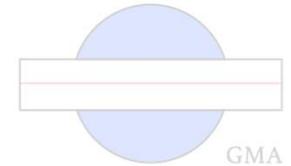
20170623

GMA



GMA MACHINERY
ENTERPRISE CO., LTD.

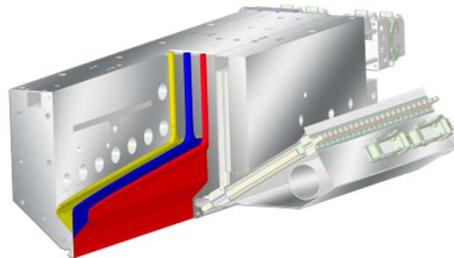
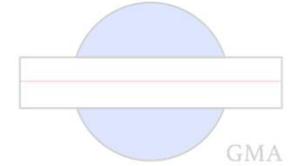
GMA



- Founded : 1989
- Capital : USD:2,600,000-
- Employee : 120
- Certificate : BUREAU VERITAS
ISO9001:2008



Key points of a Good Extrusion Die



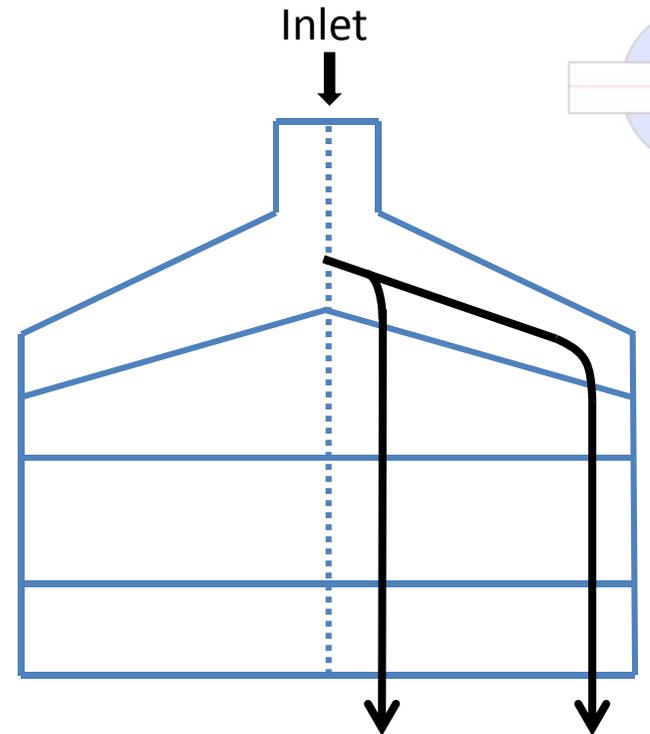
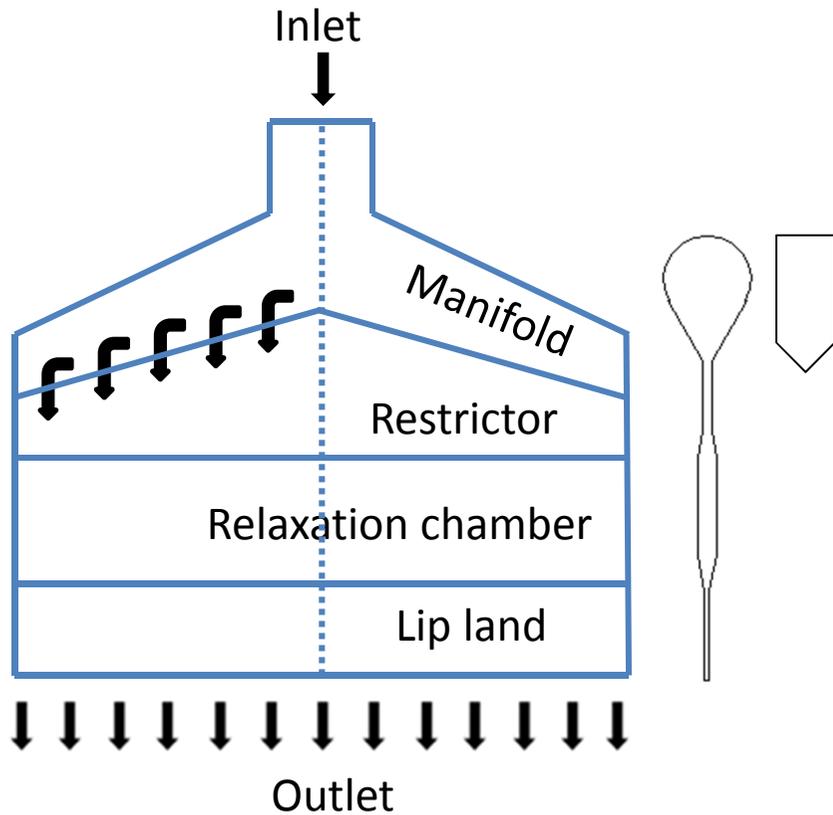
Uniform flow distribution

- Good surface treatment

- Mechanism design

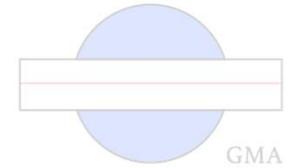


Flow channel design

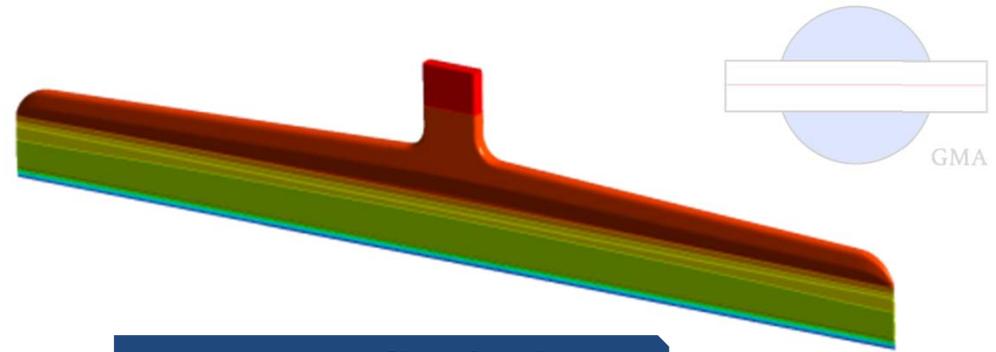


Uniform flow distribution →

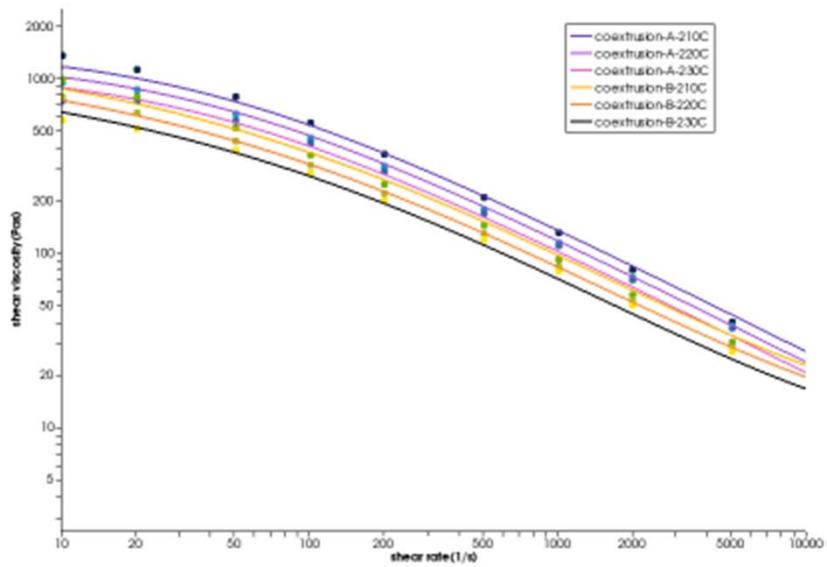
$$\Delta P1 = \Delta P2$$
$$\Delta Q1 = \Delta Q2$$



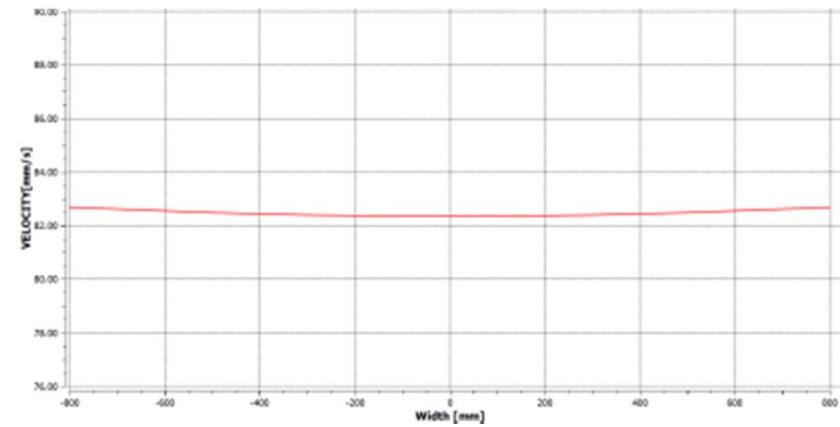
CAE simulation



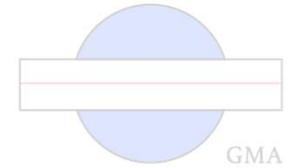
Pressure distribution



Rheology data

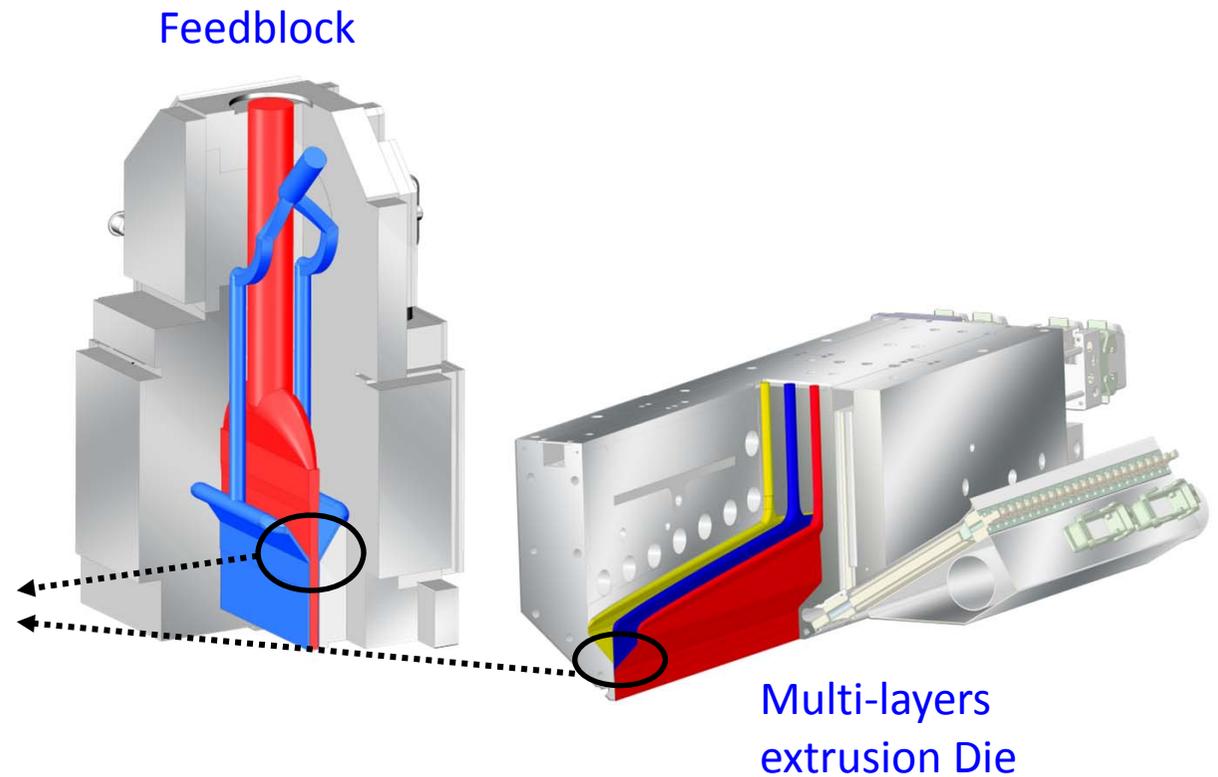
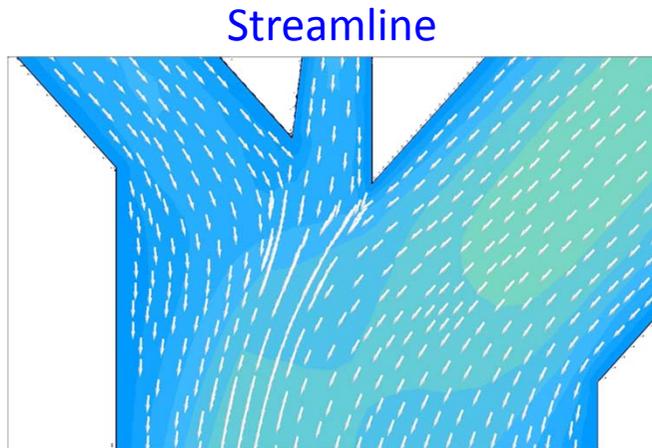


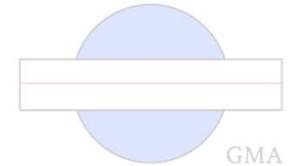
Uniformity at Die exit



Simulation of co-extrusion process

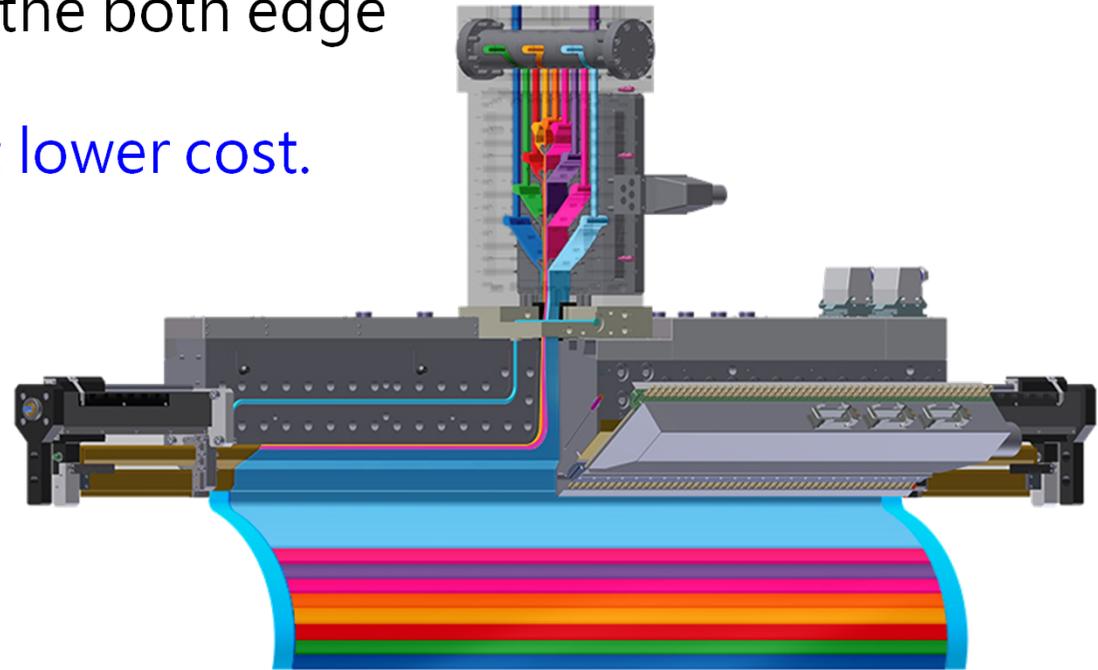
Through the visual flow analysis, to understand the flow situation at the junction.



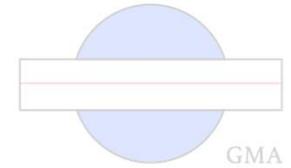
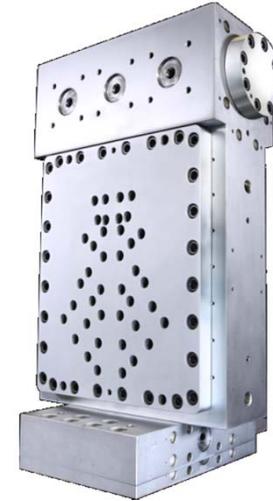
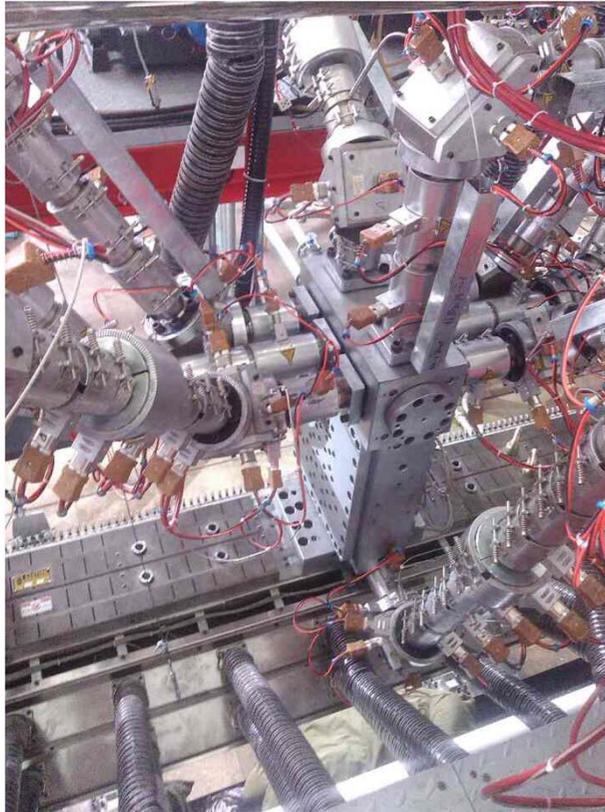


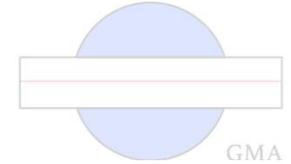
9 extruders for [9+2] layers

- PE-[PA/Tie/PE/Tie/PA/EVOH/PA/Tie/PE]-PE
- Encapsulate structure at the both edge
- Feedblock of 9 layers
- Pros : Edge is recyclable; lower cost.



9 extruders for [9+2] layers

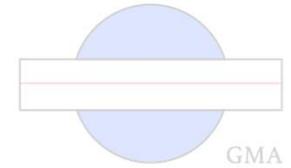




Surface Treatment Chrome-plating

- Technology from Japan
- Thickness : 30~50um
- Lip radius: 30um
- Roughness: Ra.0.008um

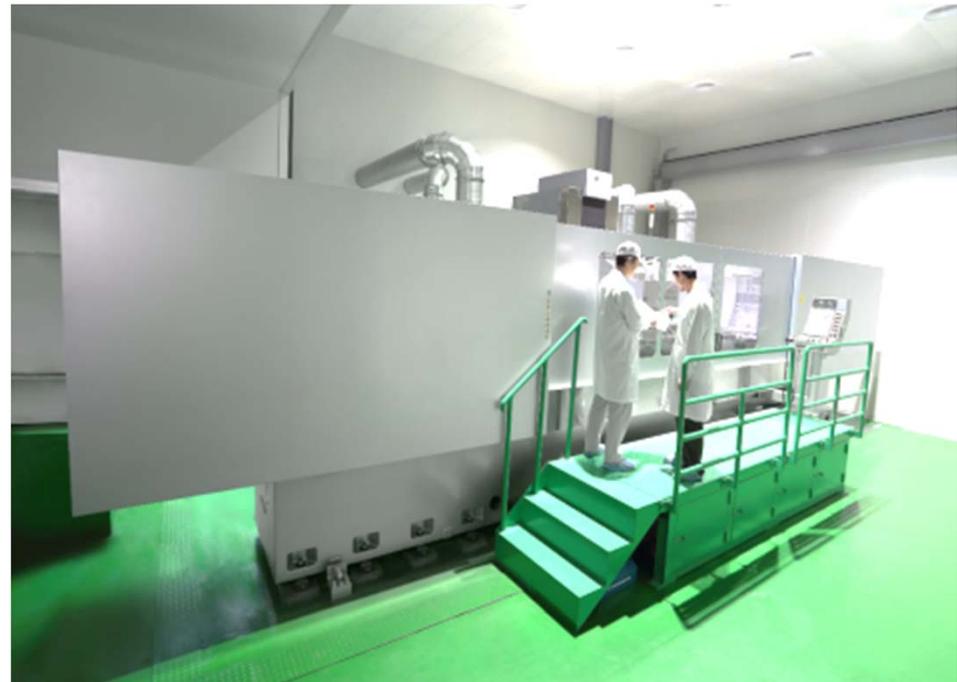




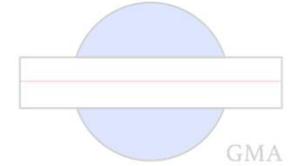
High Precision Grinding Machine

Straightness and Flatness

- Extrusion Die : $\pm 5\mu\text{m}$
- Slot Die : $\pm 2\mu\text{m}$



Comprehensive Inspection



Straightness/ Flatness



Roughness



Thickness of chrome plating



Lip radius





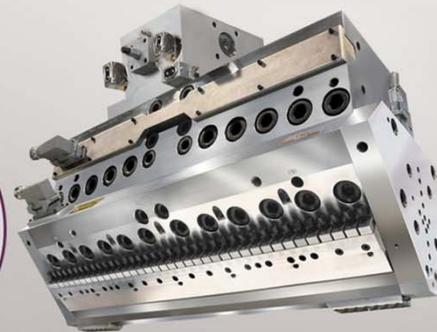
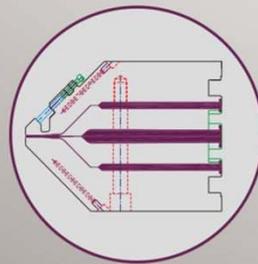
Sheet Die



Optical purpose Extrusion Die



Extrusion Die
With internal and
external deckle system



Multi-layers Extrusion Die

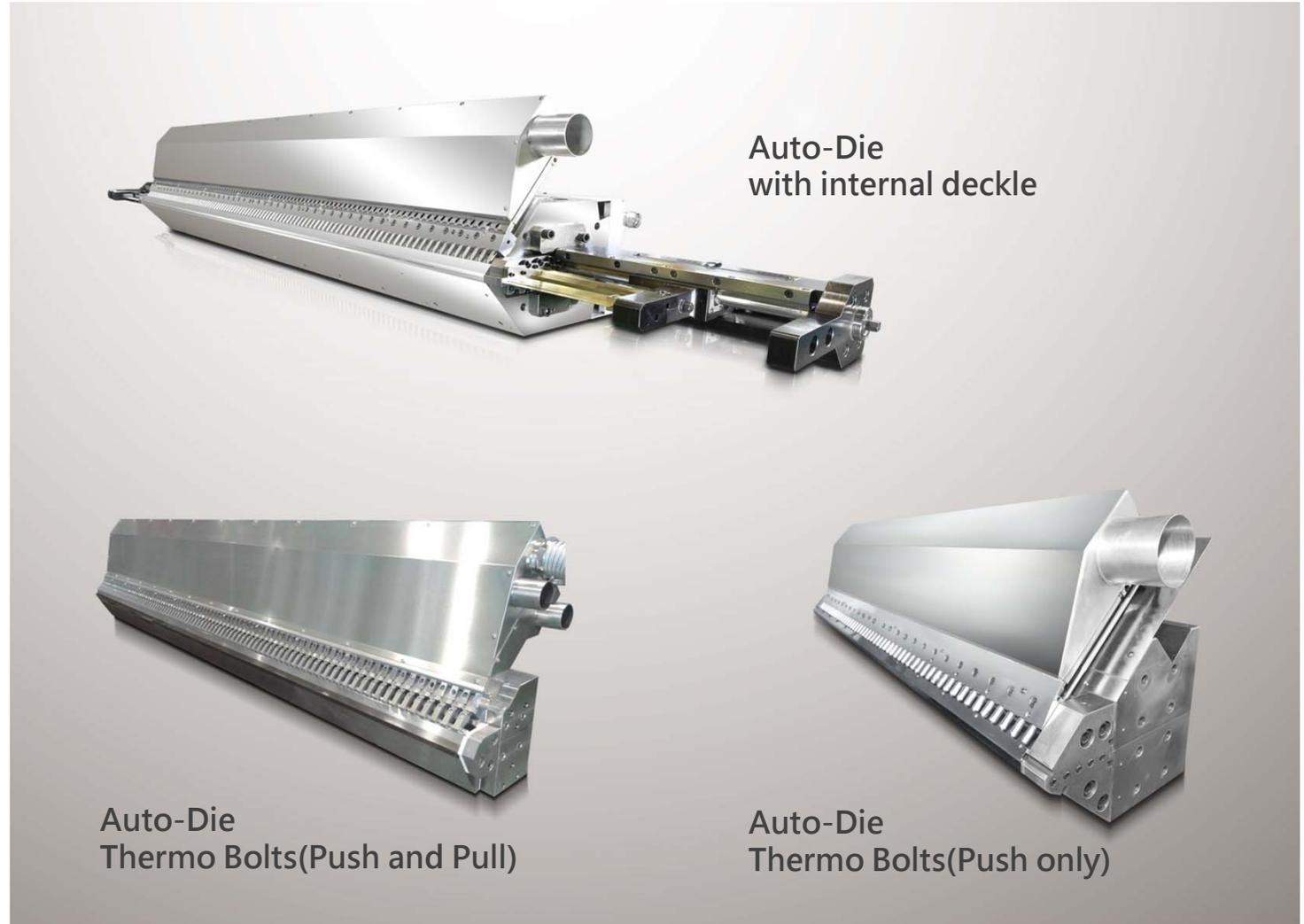


Extrusion Die
With external deckle system



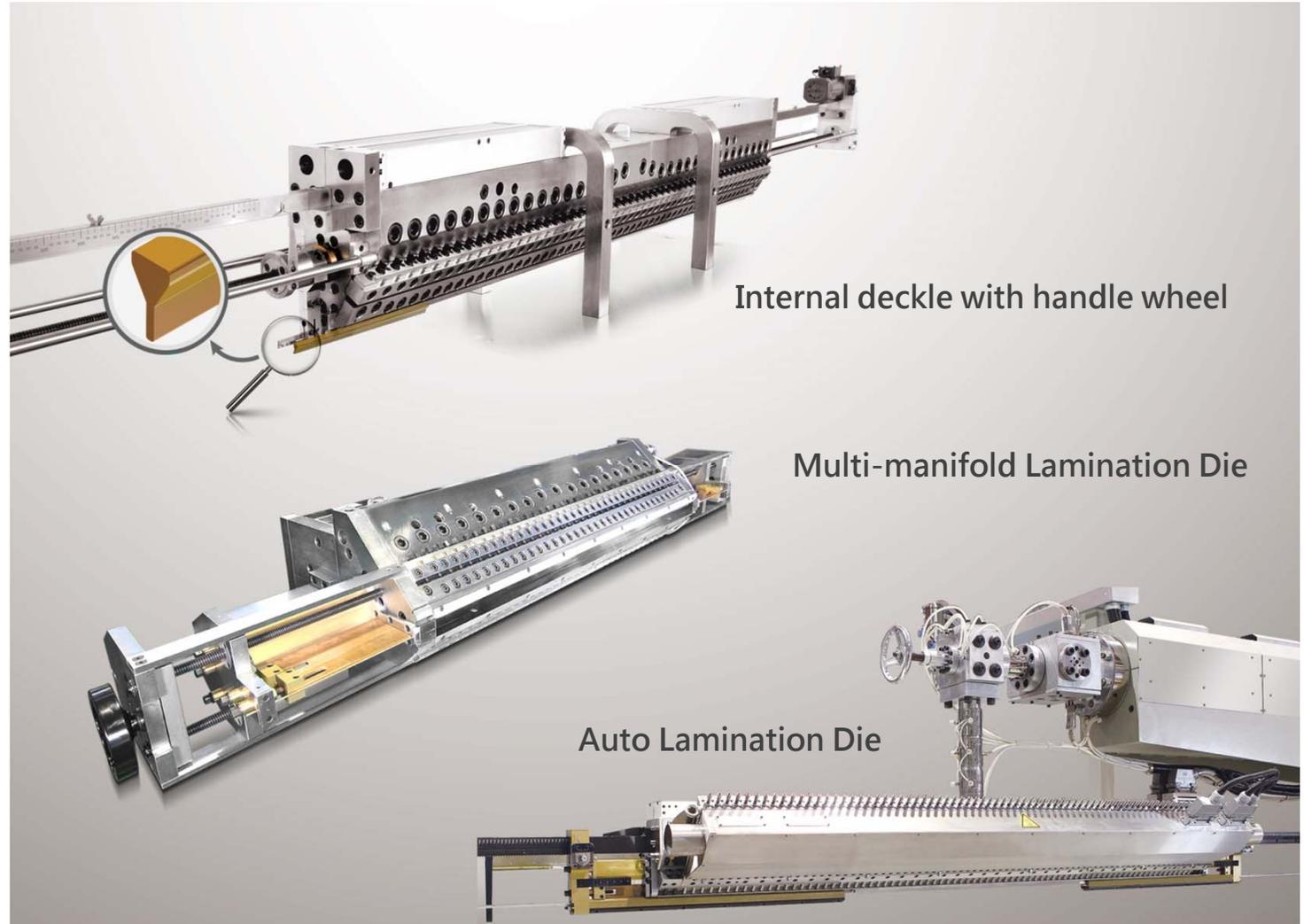


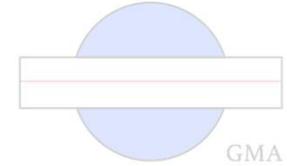
Film Die



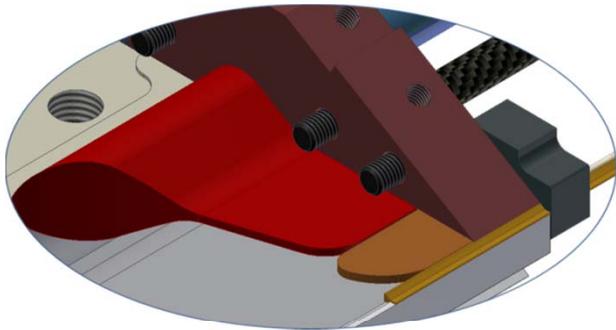


Casting Lamination Die

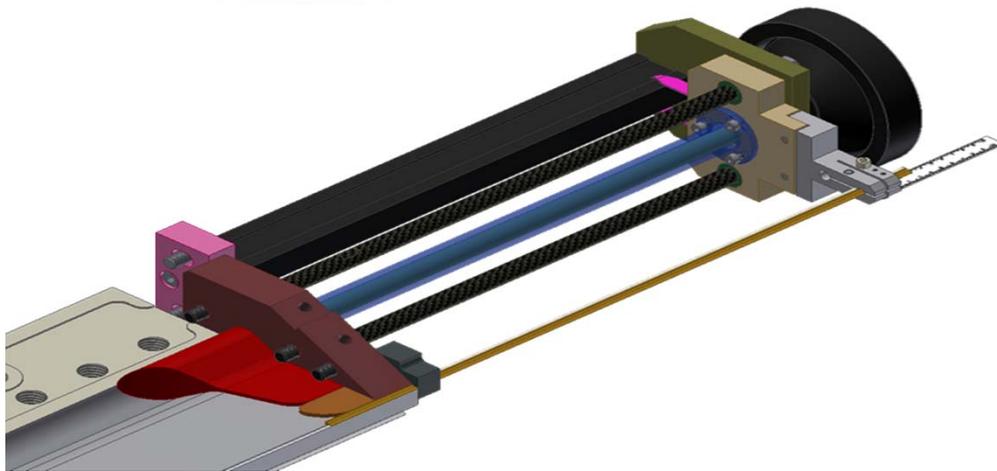




Lamination Die- Deckle Y bar



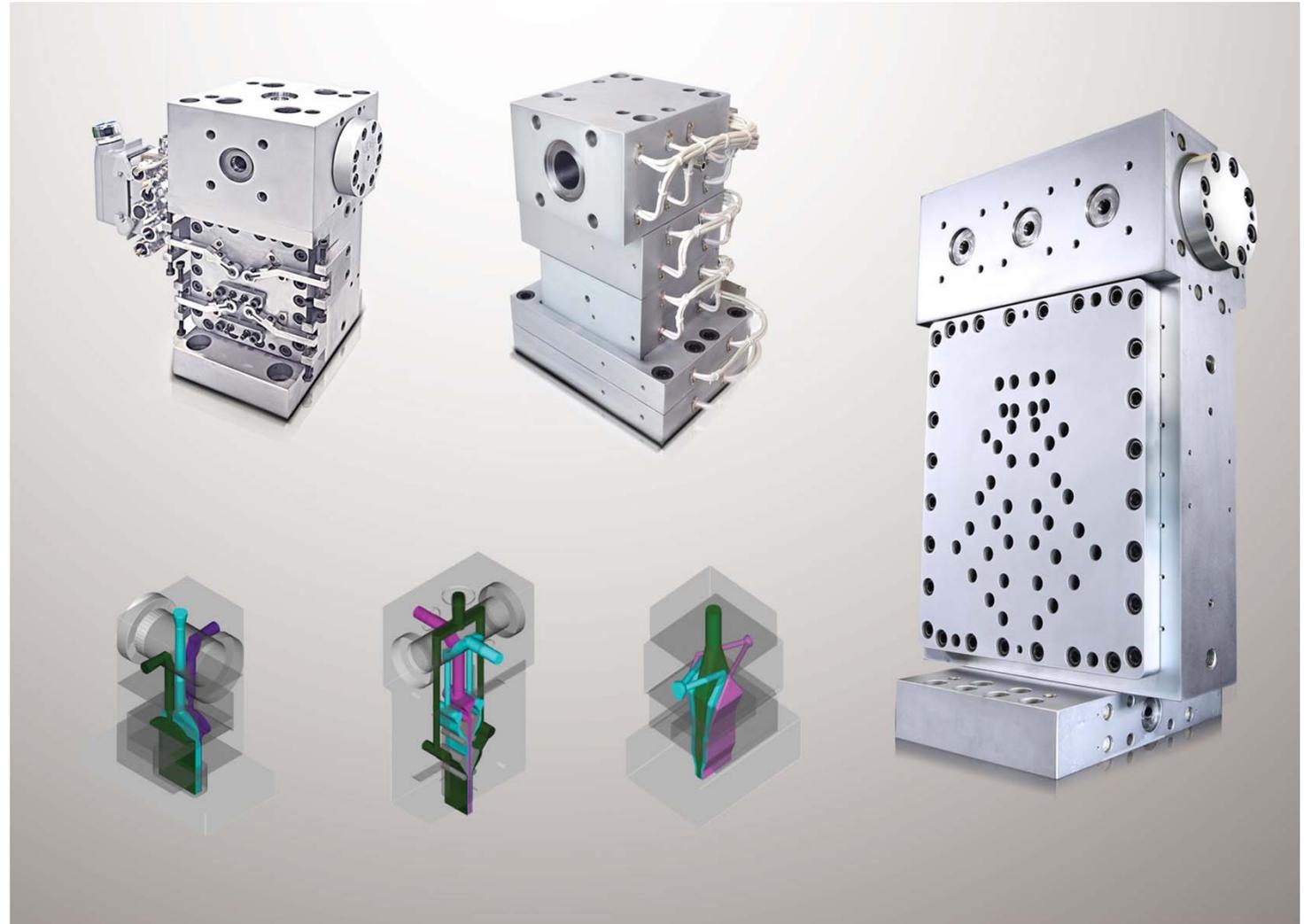
"Y" bar Deckle

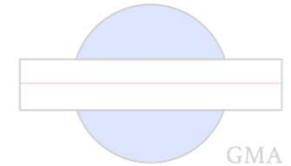


- "Y" bar deckle for easy assembling and operation.
- Full range surface contact keeps no leakage.
- 3 adjustable components design for no edge-bead product.
- T type manifold for easy and fast color change and maintenance.

Feedback

- Fix Geometry
- Variable Geometry



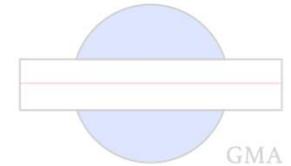


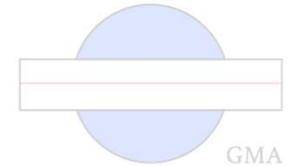
References

- OEM for Japanese companies.
- T-Die for PET Thermo-forming with linear rail deckle sold to GROUP GUILLIN.
- T-Die for Diffusion/Light-guide sheet to Taiwan manufacture.
- Casting lamination Die for Uflex group, APP group.

— Core Values

- Integrity
- Determination
- Innovation
- Excellence





Thanks!

Any questions?

政鈺機械股份有限公司 | GMA MACHINERY ENTERPRISE CO.,LTD.

D +886 4-2630 3228 | **F** +886 4 2630 3208

W www.gmatw.com | **E** gma@gma.com.tw

Sheet DIE | Foam DIE | Film DIE | Hollow sheet DIE | Lamination DIE

Coating Equipment | Feedblock | Screen Changer | Gear Pump | Air knife/ Vacuum Box | Static Mixer