



Hot Stamping Experience

and Tech Tour



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PRODUCED BY



History of Hot Stamping

- The Swedish company Plannja developed and patented hot stamping in 1977 by using the technology primarily to produce saw blades and lawnmower blades. In 1984, Saab Automotive AB became the first in the automotive industry to use hot stamping when they made a hardened boron steel component for their Saab 9000. In the decades since, more automakers have switched over to hot stamping to improve vehicle weight and fuel efficiency.

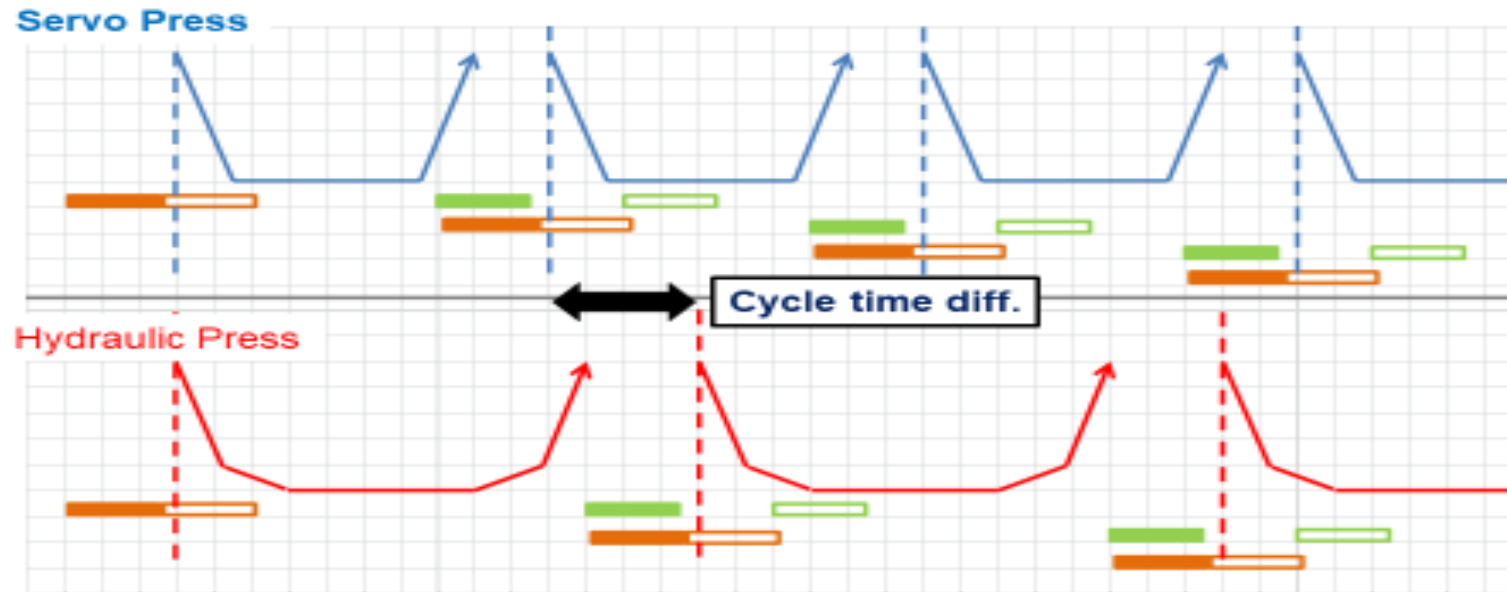
Advantages :

- Shorter Cycle Times (The free motion of servo press allows the stroke to be linked with the unloading/loading for the most optimal timing)
- Complete Controllability (The ability to set slide speed throughout the stroke)
- Programmability (Synchronized with external devices i.e., coil handling, ovens, robots, pick-n-place, conveyors, etc.)
- Minimal maintenance requirements vs Hydraulics
- Reduced noise levels vs Hydraulics
- Reduced running cost vs Hydraulics

Disadvantage :

- Process requires more space; ovens, cooling conveyors, electrical cabinets, etc.
- Technicians required with programming background. Advanced automation skills for initial setup necessary
- Production bottleneck is the speed of the heating furnaces and the cooling time of the product

The trend of replacing hydraulic presses with servo presses for the purpose of increasing production capacity is underway



Lightweighting of the ICE vehicle has been initiated by CAFÉ standards and more recently by the EV markers

Customer Success

Servo Press Vs Hydraulic Presses

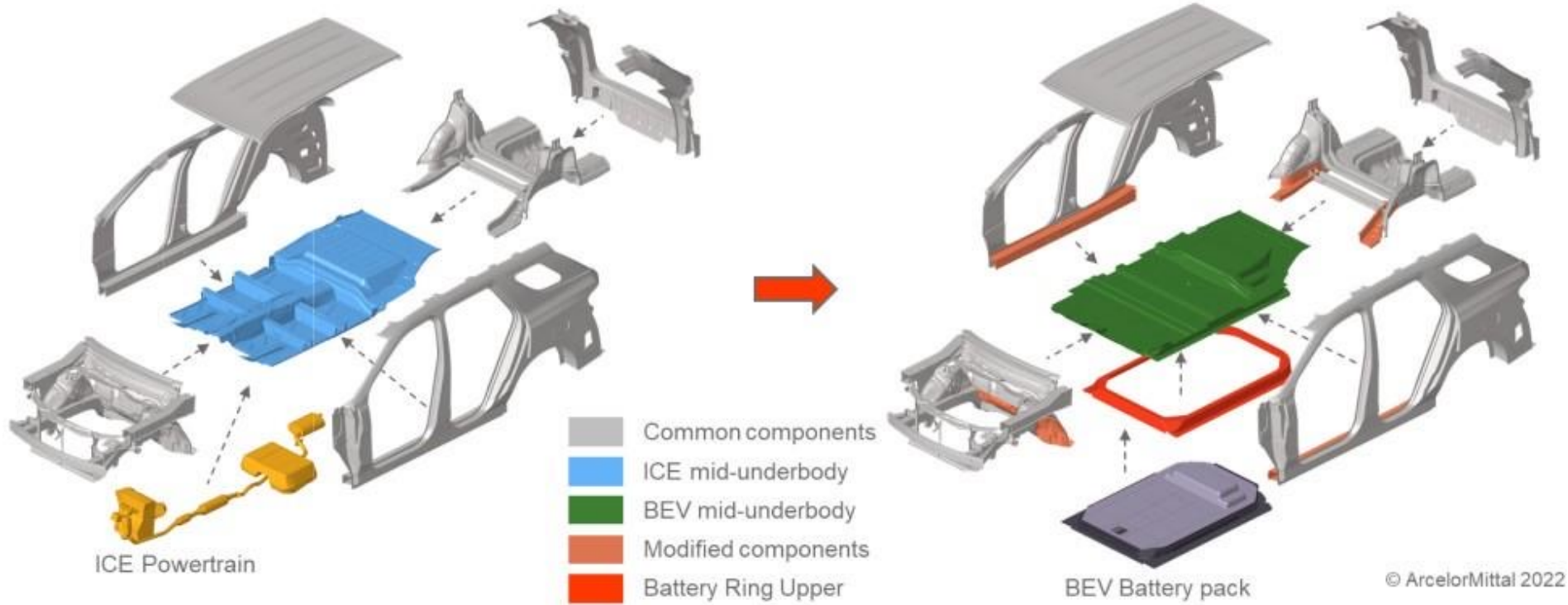
- Achieved faster cycle times; production speed: 6 SPM.
 - ✂ 4 cavities per die, Press hold time @ B.D.C. position for 6 seconds.
- TOPRE group has 8 hot stamping lines, mass-producing about 200 hot stamping parts now.





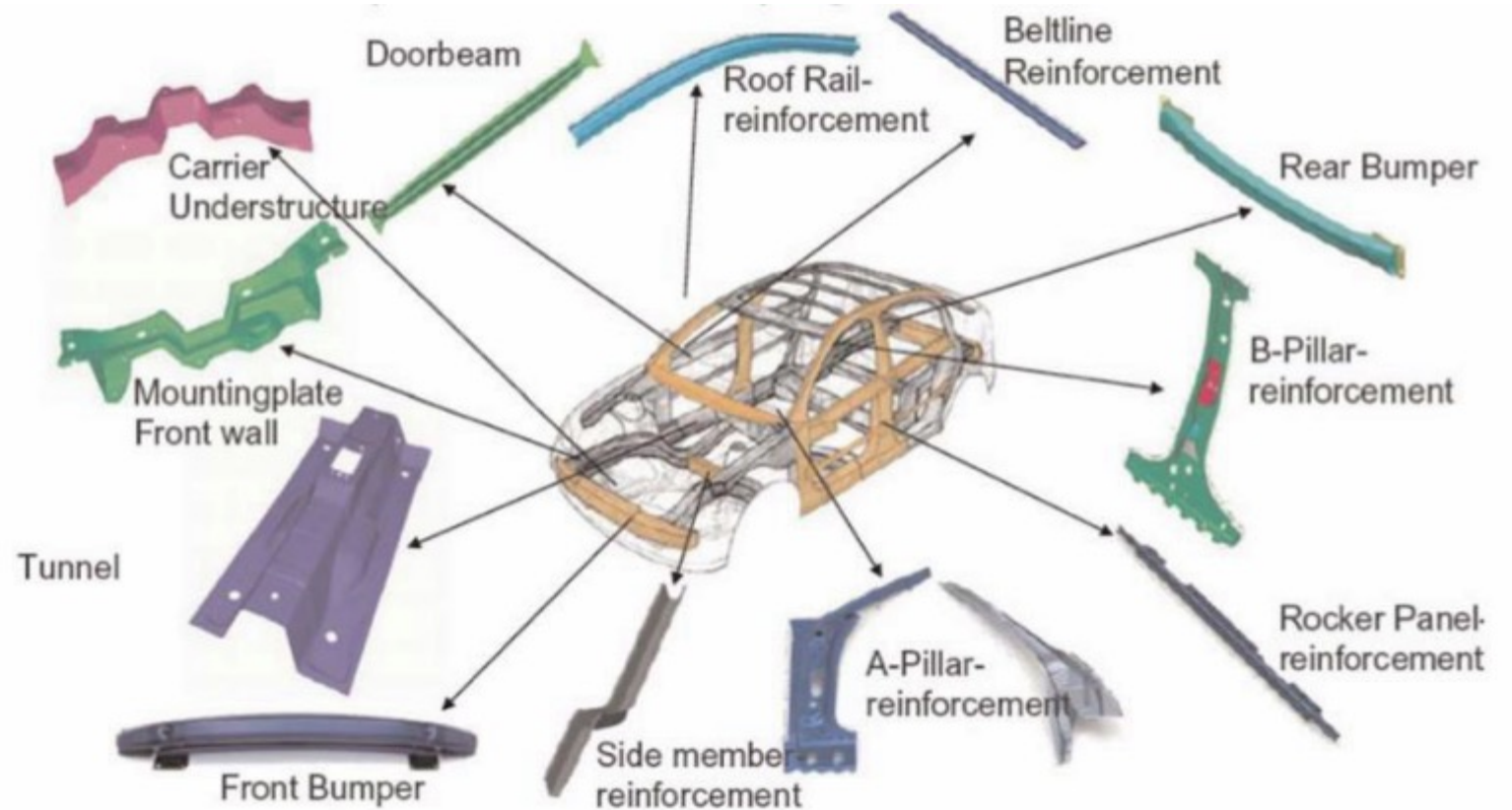
Powerful servo motors allow the slide to dwell at Bottom Dead Center for an extended amount of time so the heated blank can be formed perfectly and preventing the cracking or wrinkling of material. As seen in the comparison table below, using a Servo press instead of a hydraulic press increases the parts per minute from 5 to 7.5 units, resulting in a significant increase in profit for the manufacturer.

12000kN Press	SEYI Servo Press	Hydraulic Press
Cycle Times (s)	8	12
Parts/min	7.5	5
Parts/hour	450	300
Parts/year	2,527,200	1,684,800
Profit/year	\$ 2,527,200	\$ 1,684,800
Additional Profit/year	\$ 842,400	



Hot Stamped Materials & Parts - EV & ICE Production

- Up to 2,000 MPa next-gen steel
- Traditional Steels
- Aluminum
- Aluminum Extrusions
- Magnesium
- Titanium
- Copper Nickel



Thank you!

