

Weber Manufacturing Technologies

High Pressure Molds

aerospace

automotive

home & building



WEBER

High Performance Molds for High Performance Composites



Overview

Founded in 1962, Weber Manufacturing Technologies Inc. is a leading manufacturer of precision tooling for Automotive, Aerospace, and Home/Building Products.

Located in **Midland, Ontario**, Weber is a privately held Canadian company. Weber offers high quality tooling in steel, invar and aluminum, and precision CNC machined aluminum parts.

Over the last 15 years, Weber has developed nickel shell tooling using the Nickel Vapor Deposition (NVD) process. This process is also used for capturing fine surface detail, such as leather and wood grains, and authentically replicating them into hard tools.

200 employees, 135,000 sq. ft. facility

On-site CAD Design capable (UGS, CATIA)

Certified ISO 9001:2008

Canadian Controlled Goods Program registered

Modern simultaneous **5-Axis CNC** machining centers

Full complement of CNC contour mills, gun-drills, vertical mills, and EDM machines

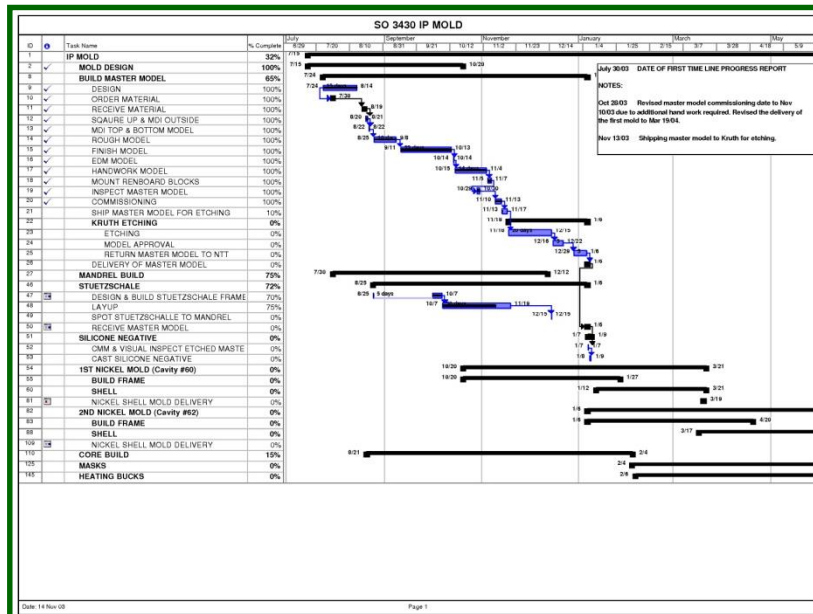


Company History

- 1962 Established Weber Manufacturing (Windsor) Limited
- 1967 Relocated to a new building in Midland, Ontario
Established the Weber Tool & Mold Division
- 1989 Established the Nickel Tooling Technology (NTT) Division
- 1991 Sold our first Nickel Shell
- 1998 Built and tested NVD Pilot Plant
- 1999 Designed and Built Large Scale NVD Plant
- 2000 Commissioned the NVD Nickel Division
- 2001 Produced our first Nickel Shell in February
- 2004 Company purchased by American Capital Strategies and TMB Industries
- 2007 Company purchased by Zynik Capital Corporation
- 2008 Launched MasterGrain fiberglass residential entry doors
- 2011 Introduced Nickel Coated Graphite

PROGRAM MANAGEMENT

- On Time deliveries are paramount at Weber.
- Manufacturing schedules reviews conducted weekly.
- Progress reports are sent to customers bi-weekly.
- In House transportation within North America.
- Global customs expertise - We handle international exports and imports daily.

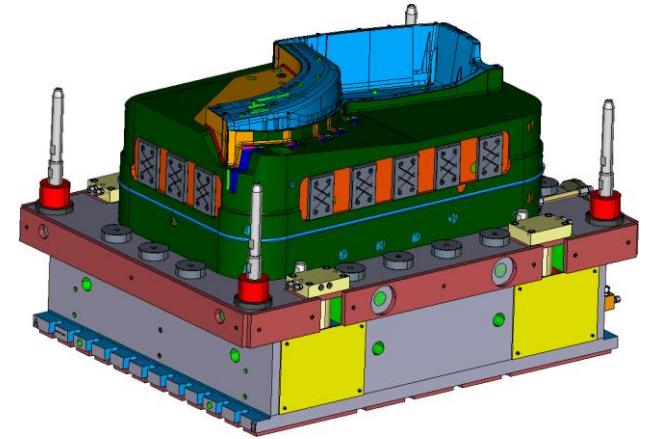


ENGINEERING

- Extensive CAD/CAM capabilities
 - 10 seats UGNX
 - 2 seats Catia V5
- Innovative designers are working with customers to contribute to processes and provide tooling solutions.
- Our engineering team manages all information and supports the machining, assembly and CMM teams.
- Strict revision control on all documents and designs.
- Part of the Weber focus is building relationships and responding to customer needs.

CAD DATA TRANSFER:

1. PARASOLID, STEP, IGES (BI-DIRECTIONAL)
2. CATIA V5R25 (NATIVE)
3. UNIGRAPHICS NX9, NX10 and NX11 (NATIVE)
4. SOLID-EDGE ST7 (NATIVE)



Manufacturing and Mold Making Departments

Weber has a large number of Machining, Fabrication and Assembly bays to suit all the shapes and sizes of our customer tooling



• Large multi tool programs

• Fabrication

• Large Machining bays



• Assembly and Tool Tryout Bay



In House Handwork

Weber's Handwork and Polishing Department can handle all types of mold finishes including Class A and High Diamond Polish



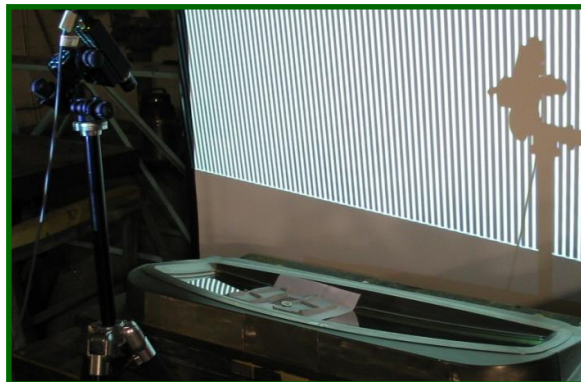
Handwork Department Typically Deals With
Steel, Aluminum, Nickel, & Invar Molds

In House Handwork

- Capable of Producing a Class A High Gloss Finish

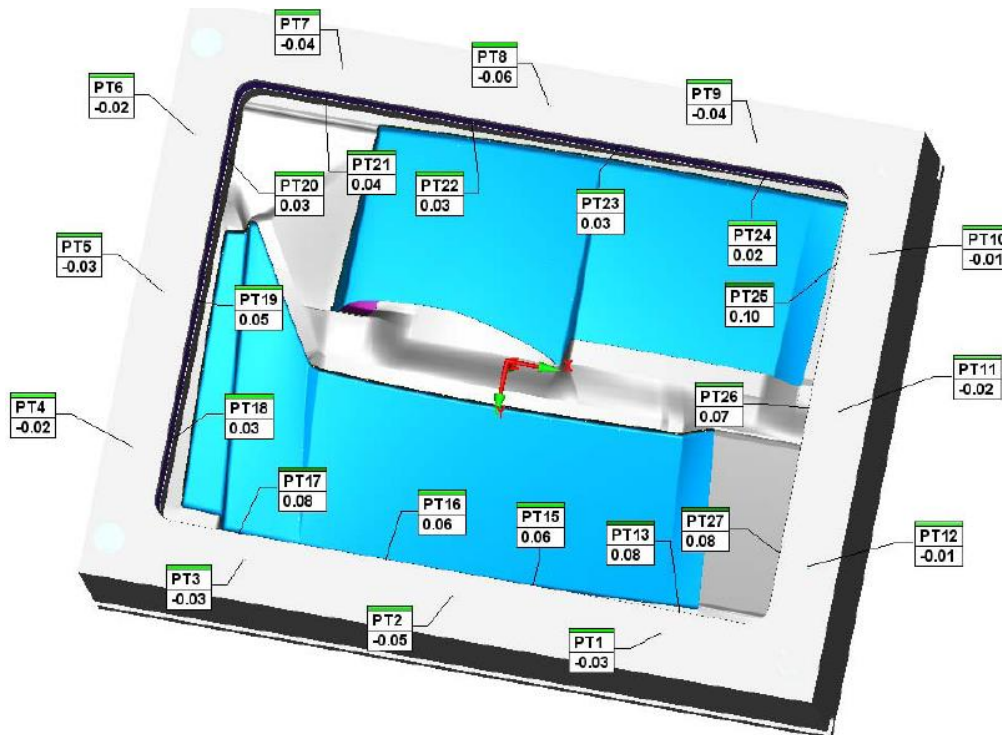


“Ondulo” Deflectometry
System brought in to
characterize the surface



QUALITY ASSURANCE

- 2 Computer Controlled CMMs
- Certification of Models, Tooling Aids, Molds, Steel & Finished Parts to Math Data
- Diffracto Class-A Surface Quality Verification
- Certificate of Conformance
- Detailed Inspection Reports sent to Customer



CMM Inspection Report

Date:..... January 18, 2011

Job #:..... so5584 Fixture Inspection Serial # 0001 PO# SP168221

Program:..... Z2156-CUFEX CURE FIXTURE

Customer:..... HITCO

Temperature:..... 24 °C Humidity 15 %

Units:..... Inches

Tolerance:..... Variable

Data:..... Customer

Revision:..... 000

Co-ord. System:..... Measured in Global. Reported to Global.

Scale Values:..... Measured with 1.000 applied. Reported with 1.000 applied.

Inspection Machine: DEA Delta CMM

Inspector(s):.....James Cox

Comments:

Nominal values created by CMM department from math data.

Inspector Signature: *John Doe*

Approved By: *A. Paul*



QUALITY ASSURANCE

DEA Mitutoyo & Delta - Coordinate Measuring Machines

- Table capacity - 4,400 to 40,000 pounds.
- Software- PCDMIS



AUTOMOTIVE EXTERIORS



SMC PROCESS - STEEL TOOLS

DAIMLERCHRYSLER



PEGUFORM



Mercedes-Benz



DELPHI
Automotive Systems



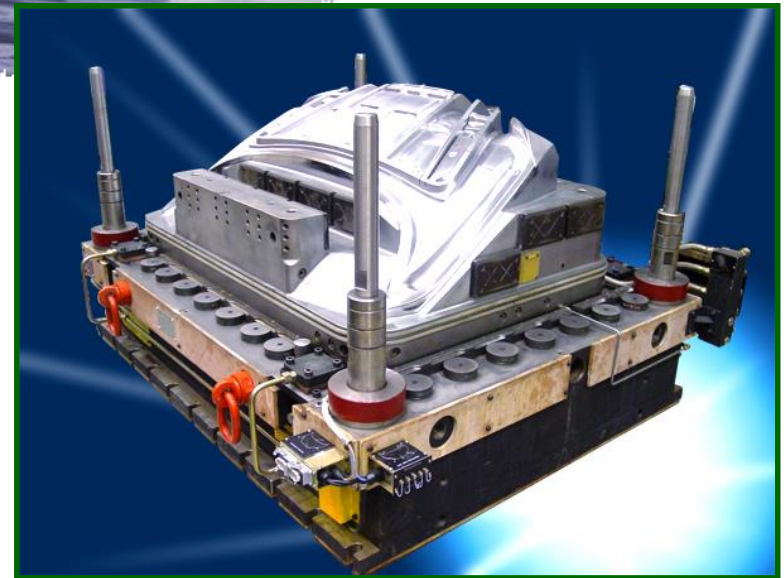
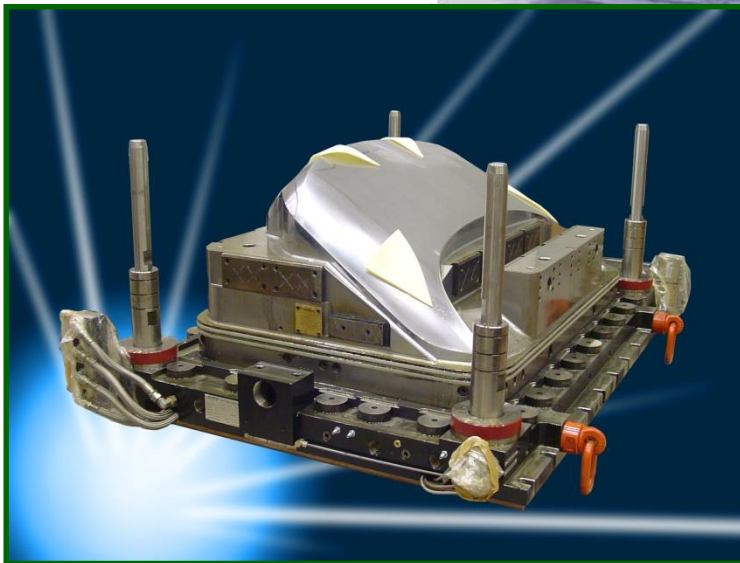
THERMA TRU
DOORS



menzolit



AUTOMOTIVE EXTERIOR VOLKSWAGON EOS

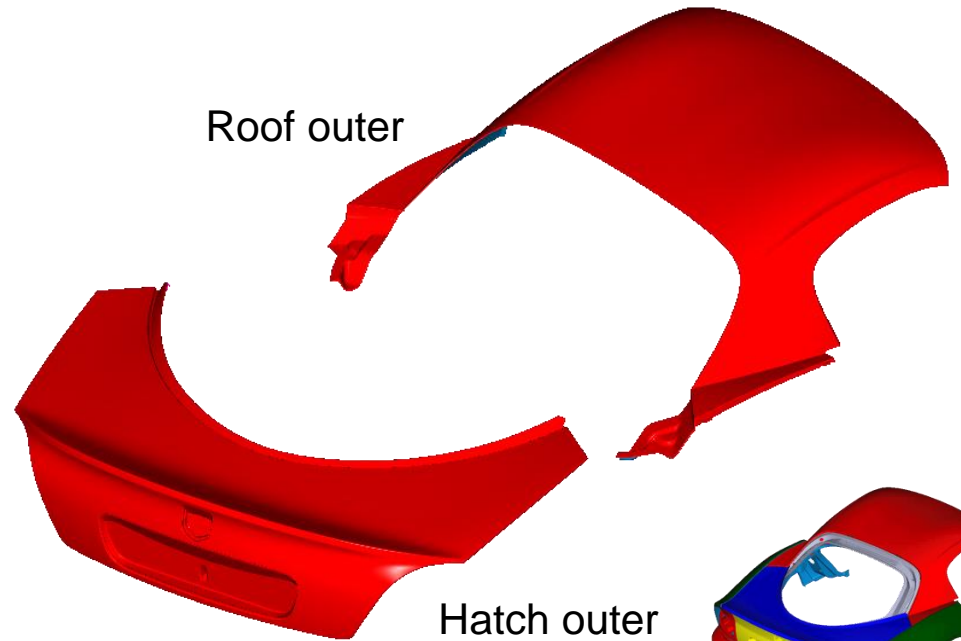


Decklid Inner and Outer SMC Compression Tools

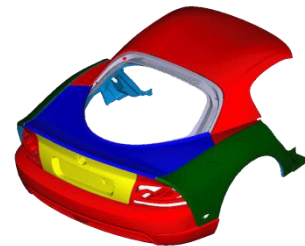
AUTOMOTIVE EXTERIOR DODGE VIPER



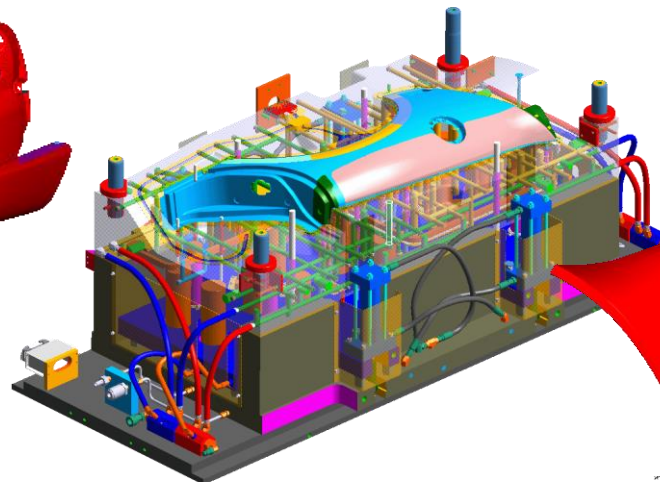
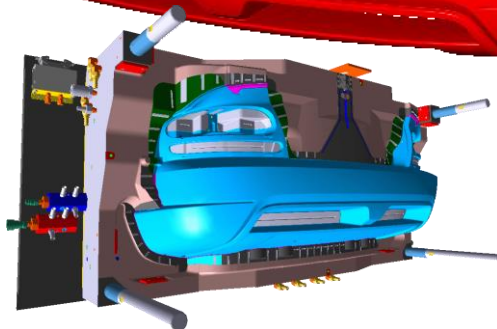
Roof outer



Hatch outer

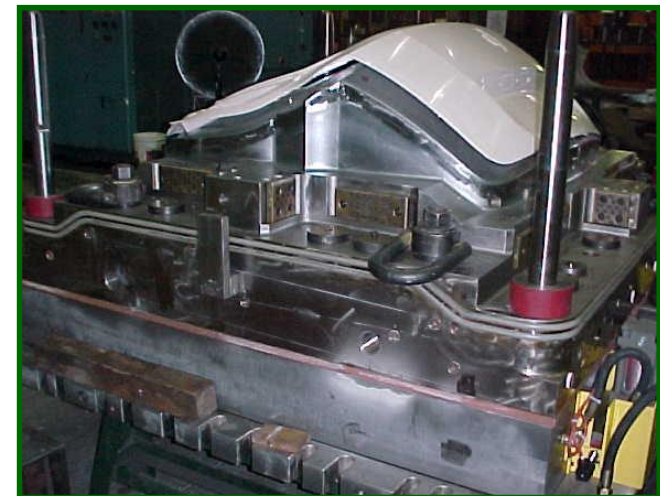
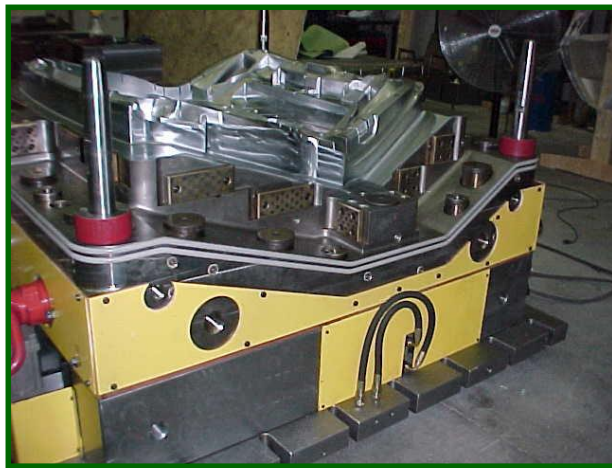


Rear Fascia



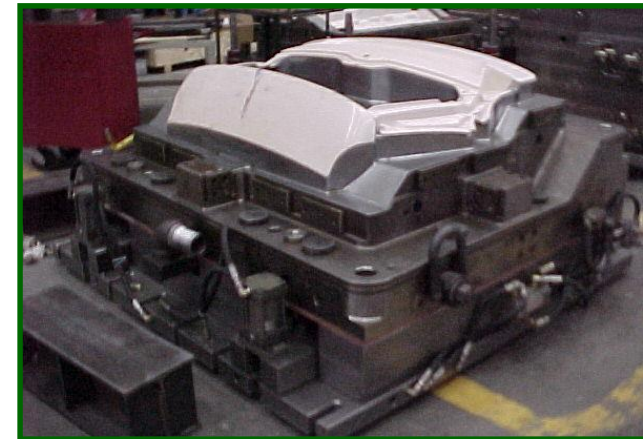
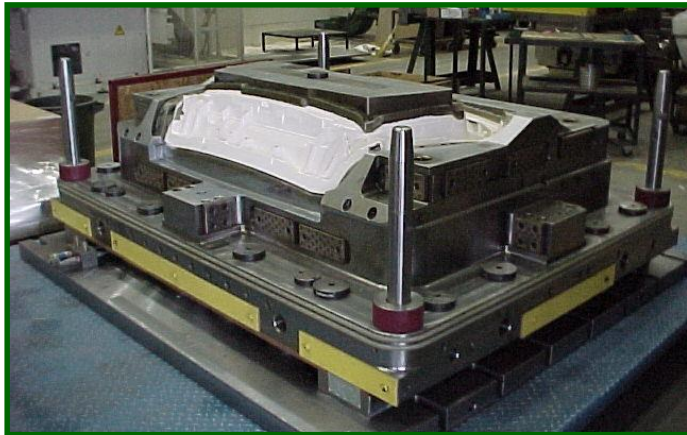
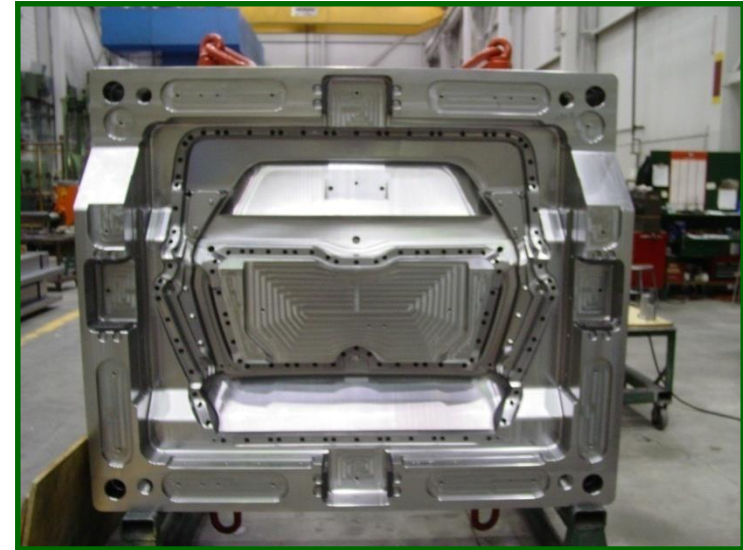
Rear Quarter
panel

AUTOMOTIVE EXTERIOR RENAULT LAGUNA SPORT TOURER



K91
Liftgate Outer (LAROU), Liftgate Outer (LARNOU),
Liftgate Inner (LAROU/LARNOU)

AUTOMOTIVE EXTERIOR VOLVO V70

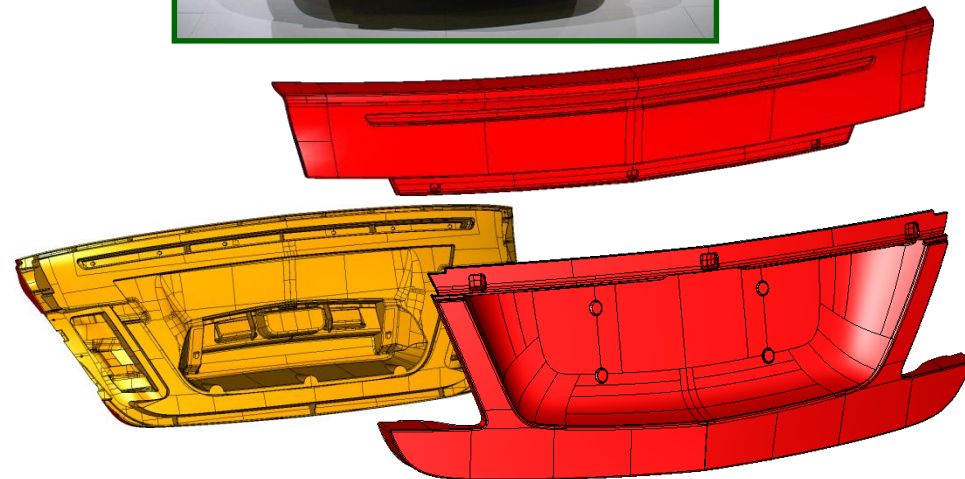


Y285
Tailgate Outer Upper & Lower
Tailgate Inner SMC Version

AUTOMOTIVE EXTERIOR MERCEDES C-KLASSE SPORTCOUPE

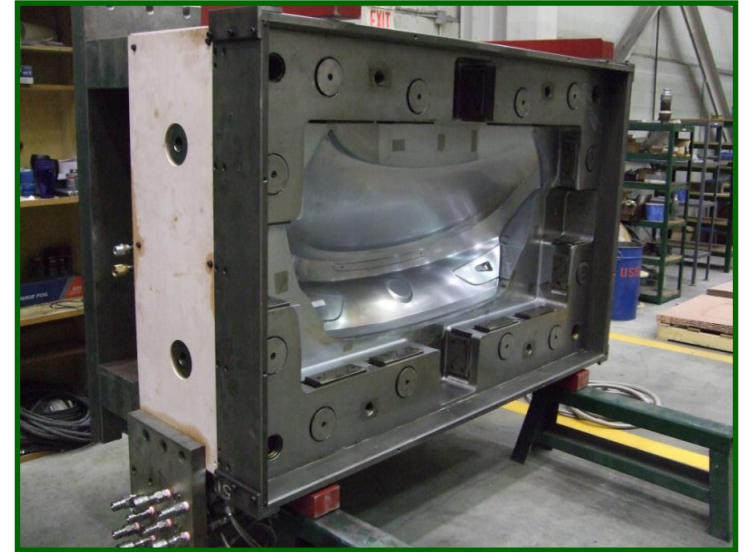
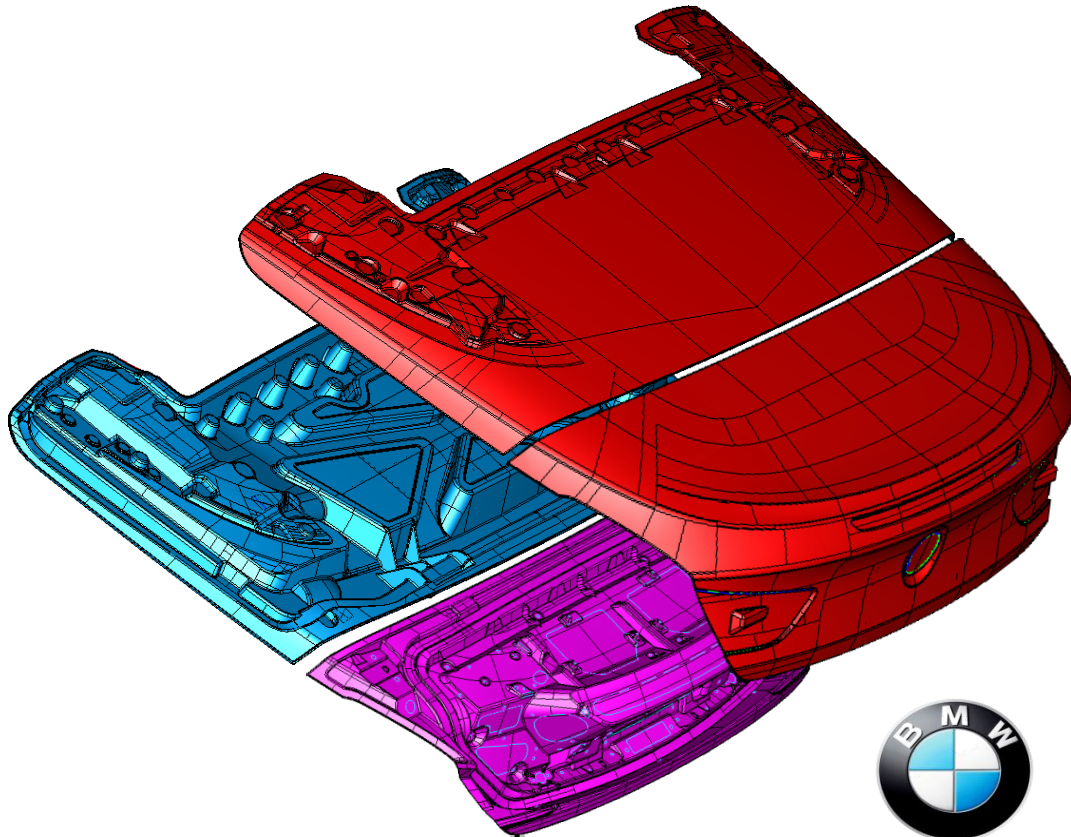


CL203 Mercedes Decklid



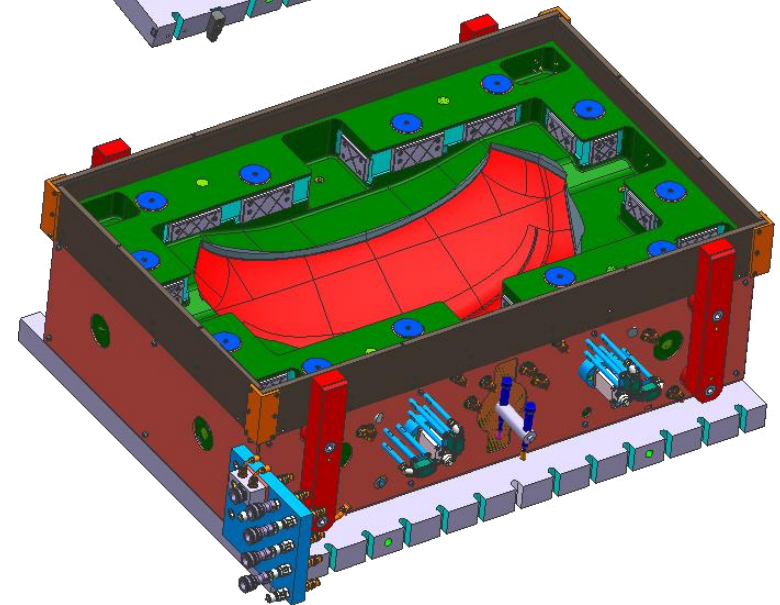
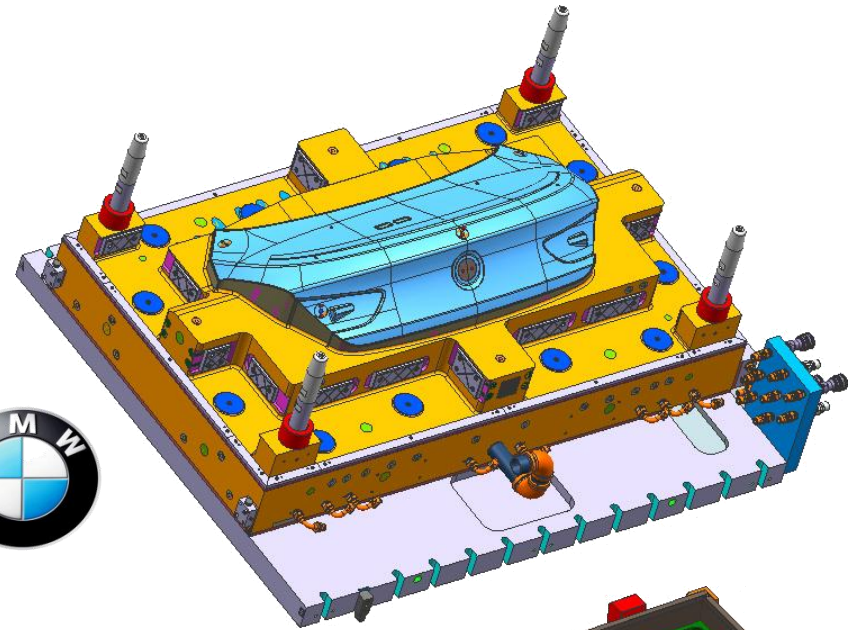
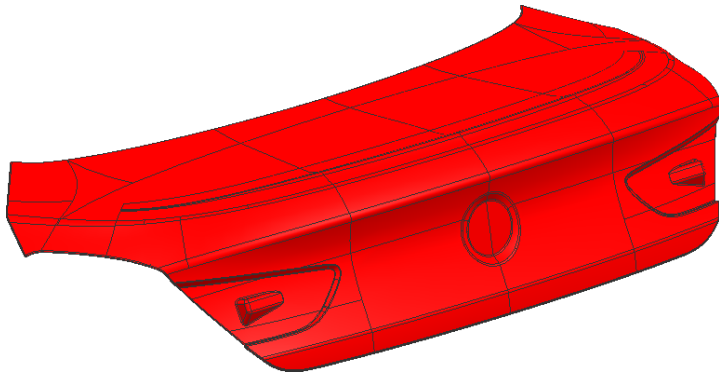
CLC 180 Mercedes Decklid

AUTOMOTIVE EXTERIOR BMW 6 SERIES CONVERTIBLE



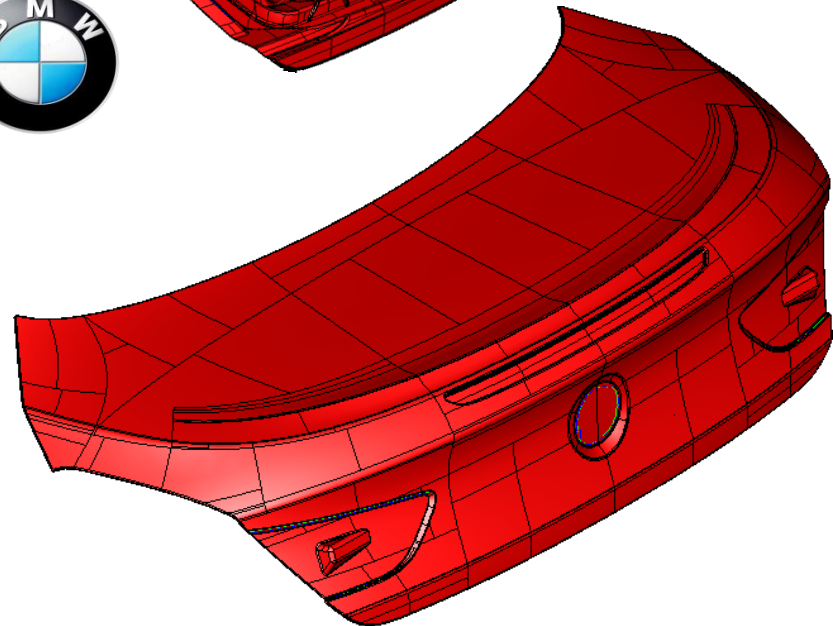
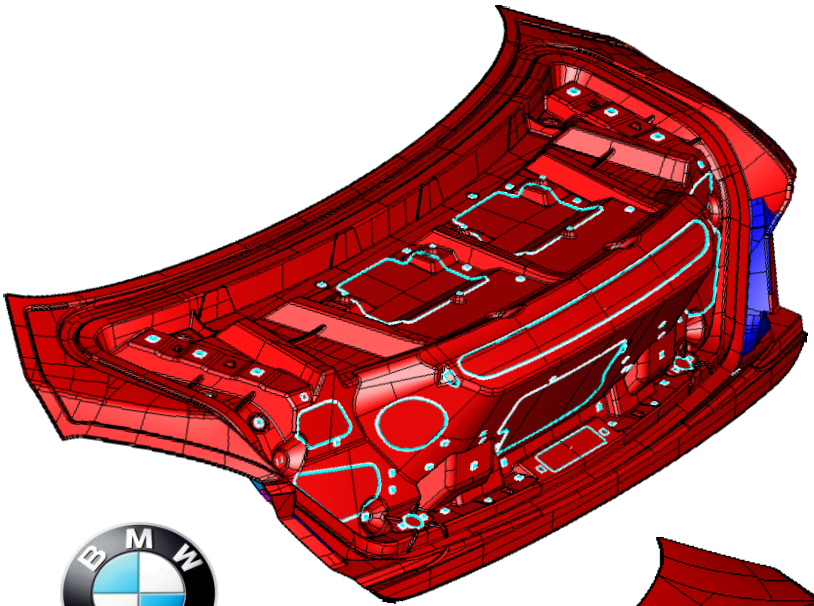
BMW F12 Decklid & Verdeckklappe Inner & Outer

AUTOMOTIVE EXTERIOR BMW 6 SERIES COUPE



BMW F06 Decklid Outer S/O 5437

AUTOMOTIVE EXTERIOR BMW 6 SERIES COUPE

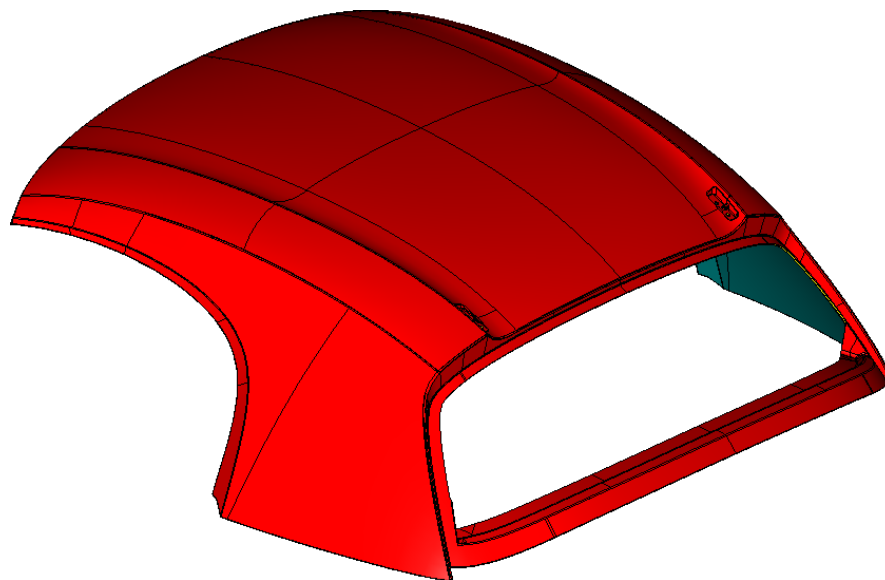


BMW F13 Decklid Inner & Outer

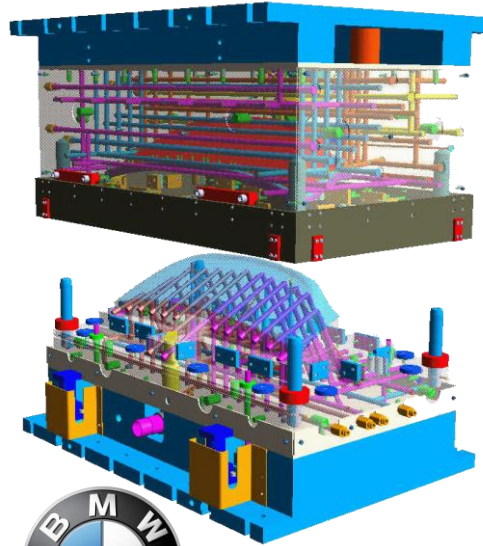
AUTOMOTIVE EXTERIOR BMW Z4



BMW E85 Hardtop Roof Inner & Outer

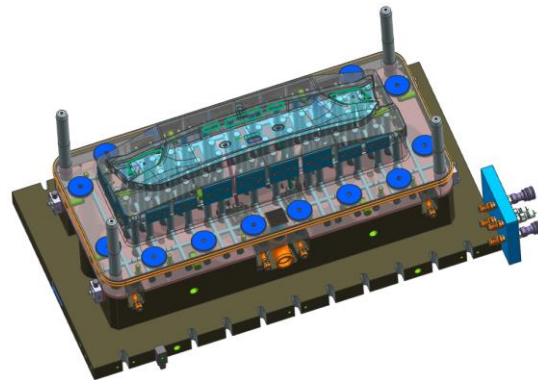
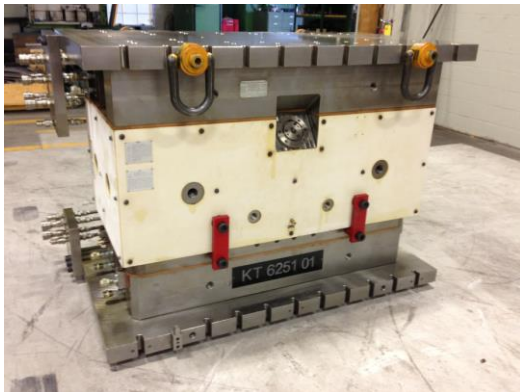
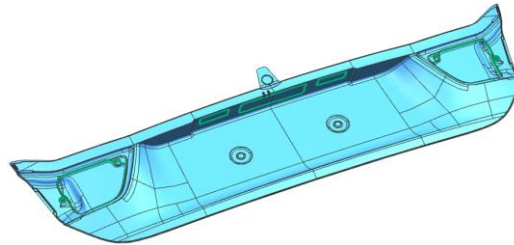
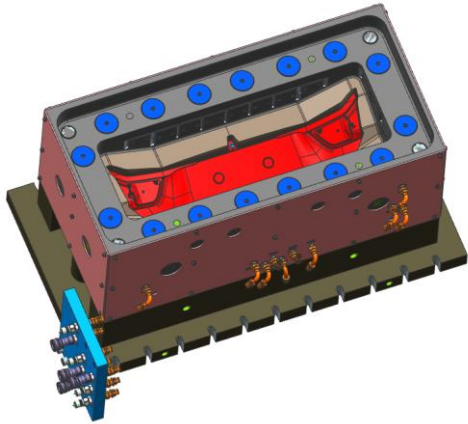


AUTOMOTIVE EXTERIOR BMW 645Ci



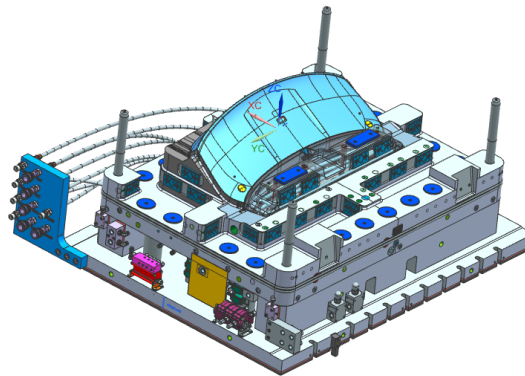
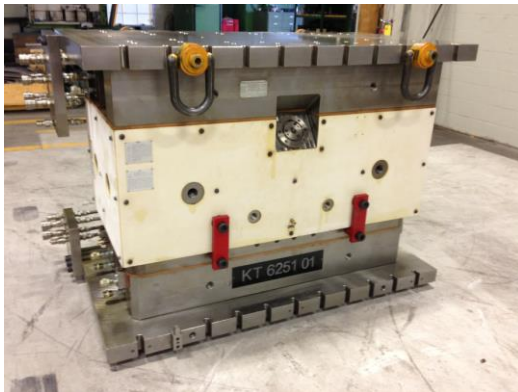
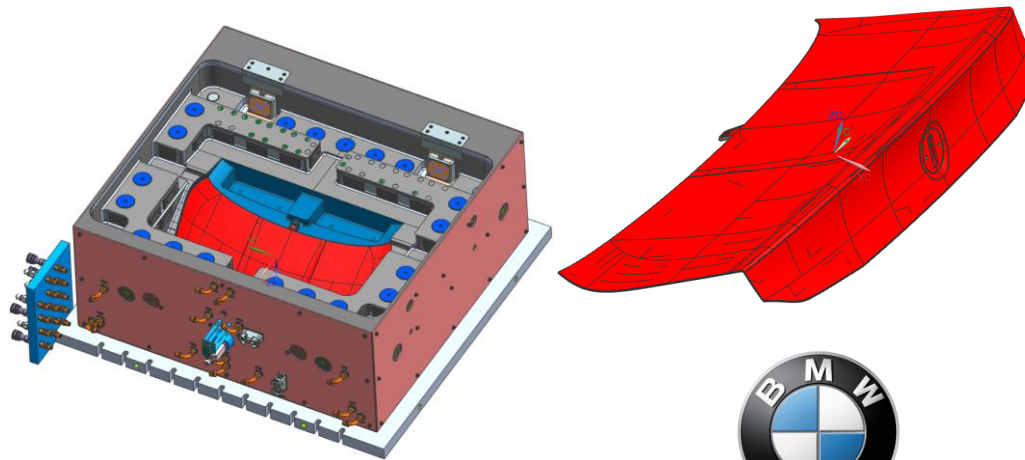
Decklid Inner & Outer

AUTOMOTIVE EXTERIOR BMW M4 DECKLID OUTER LOWER



Decklid F82 Outer Lower

AUTOMOTIVE EXTERIOR BMW M4 DECKLID OUTER UPPER



Decklid F82 Outer Upper

ROLLS ROYCE PHANTOM



Rolls Royce Phantom RR1 Front Fender LH & RH

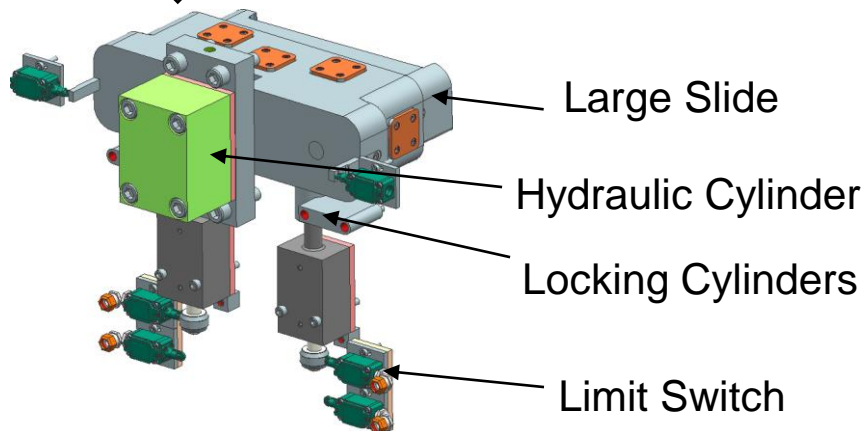
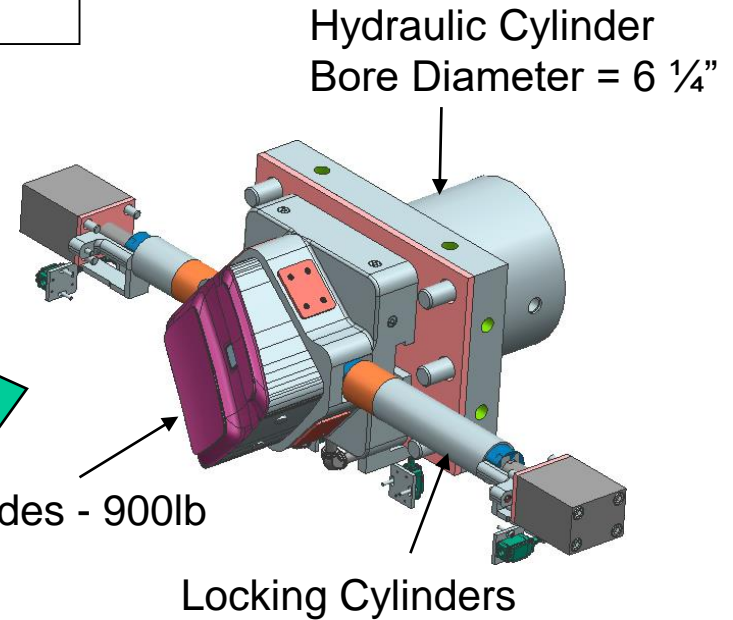
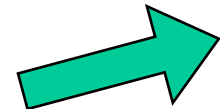
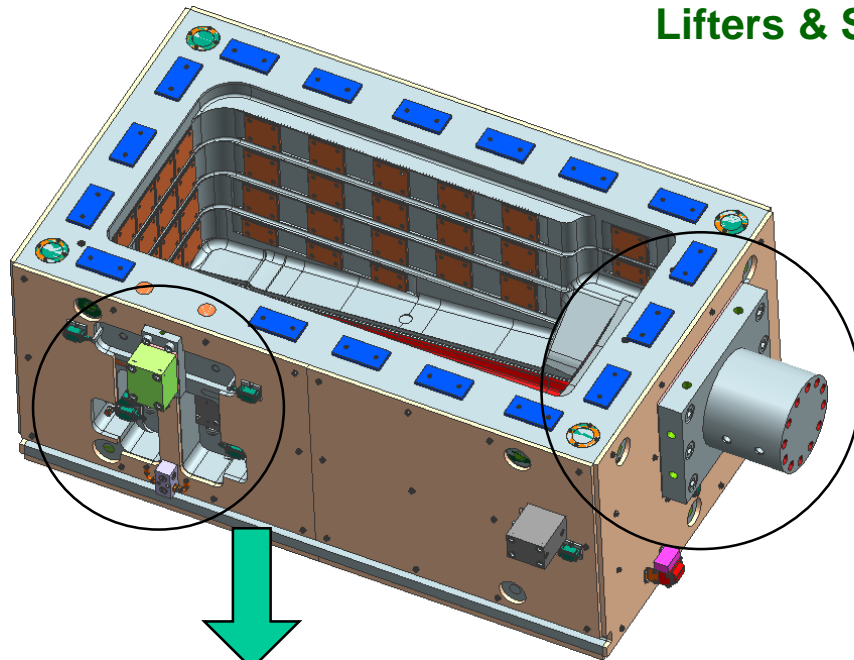
AUTOMOTIVE EXTERIOR ROLLS ROYCE



Rolls Royce Phantom RR1 Front Fender LH & RH

Rolls Royce Phantom Cavity Mold Actions

Lifters & Sliders

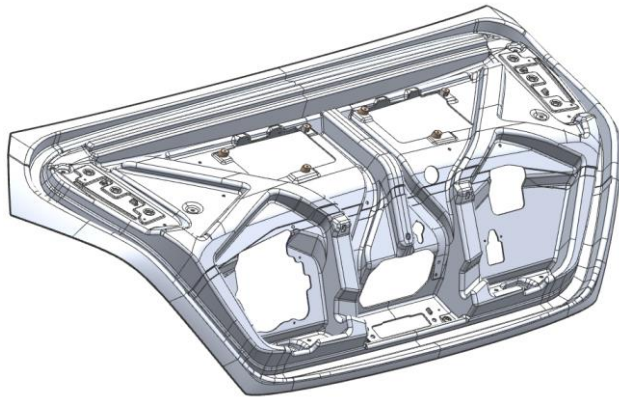
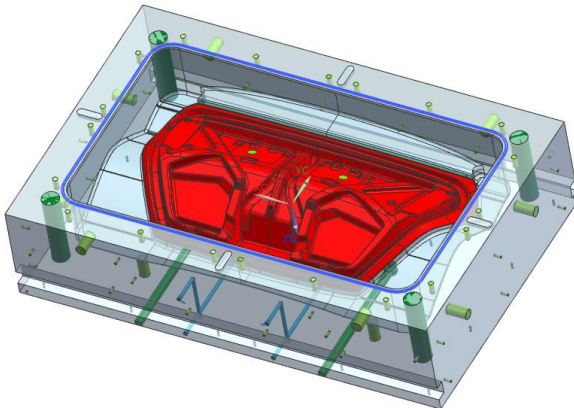


ROLLS ROYCE RR5 WRAITH

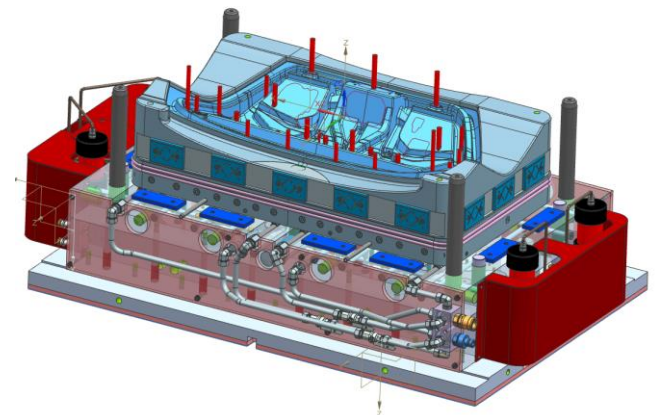


Rolls Royce RR5 Decklid Inner

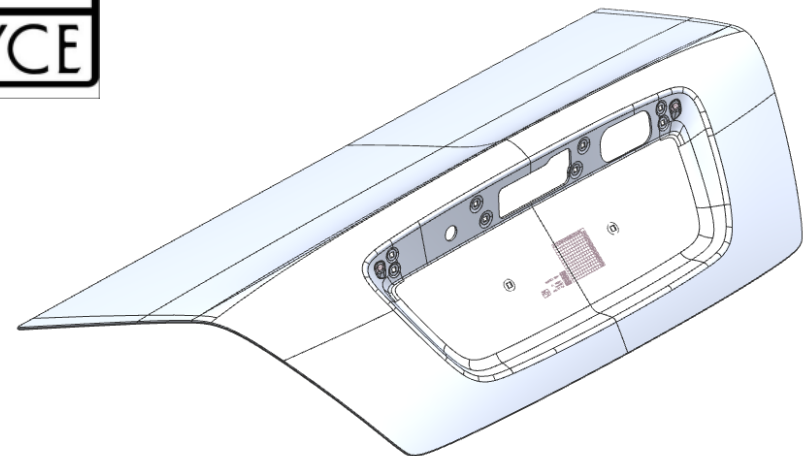
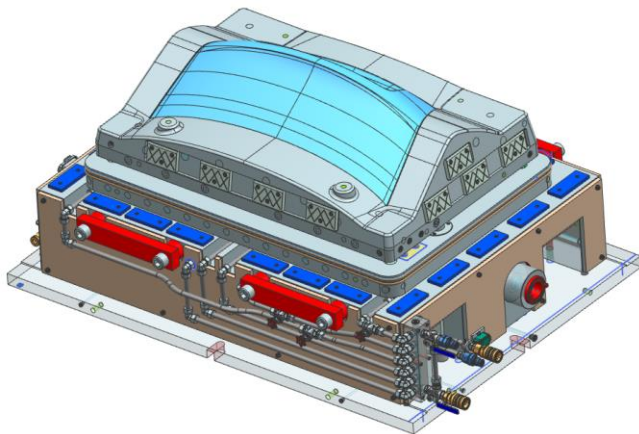
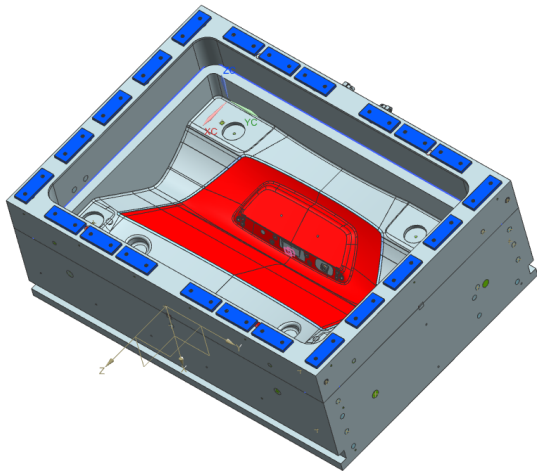
ROLLS ROYCE RR5 WRAITH



Rolls Royce RR5 Decklid Inner

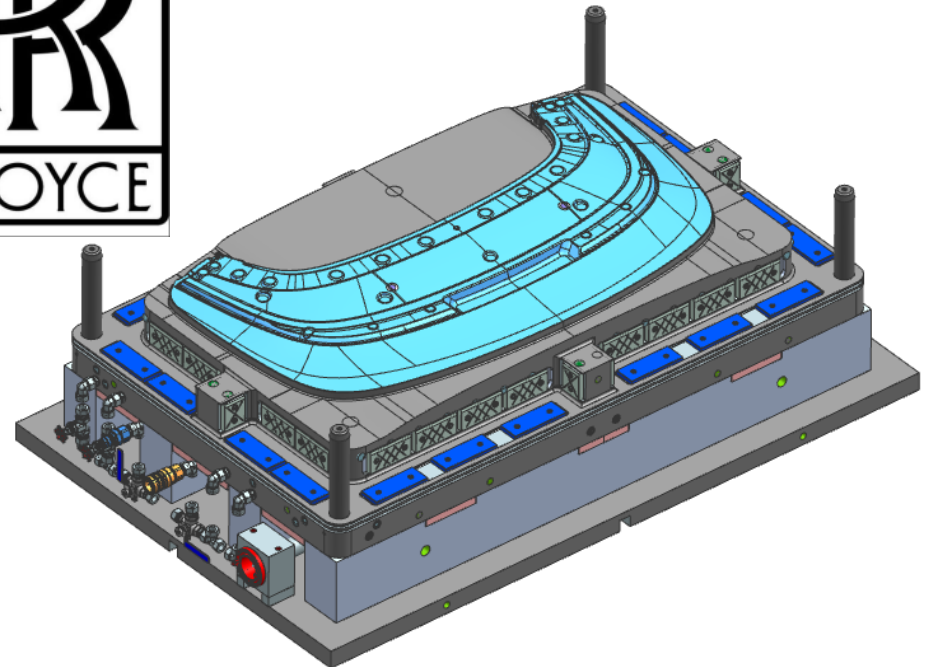
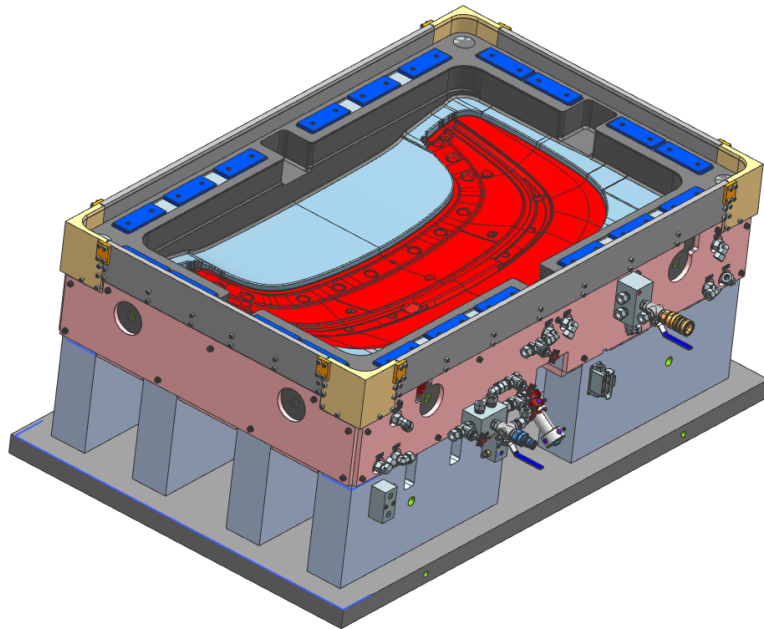


ROLLS ROYCE RR6



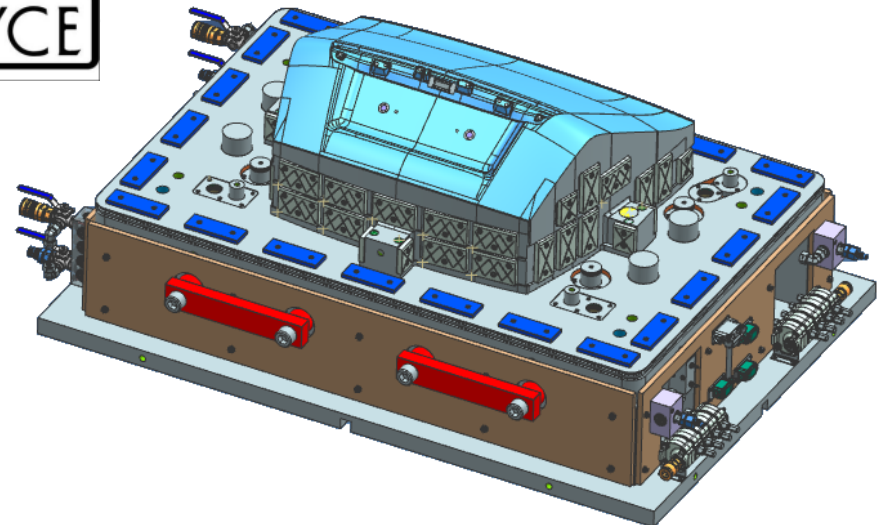
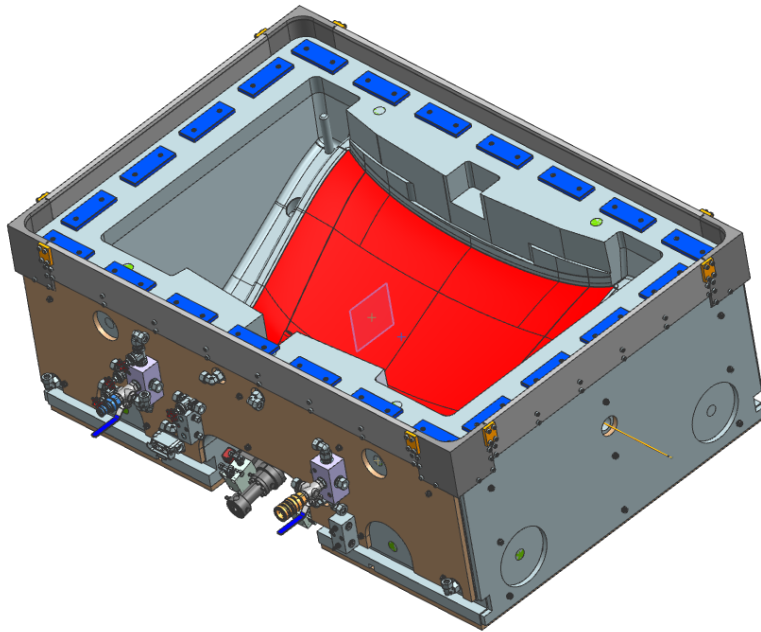
Rolls Royce RR6 Decklid Outer

ROLLS ROYCE RR6



Rolls Royce RR6 Verdeckklappe Outer

ROLLS ROYCE RR11



Rolls Royce RR11 Decklid Outer

FULL TRYOUT CAPABILITIES

Wemhoner 3250 ton.

Macrodyne 2000 ton.

Ott 500 ton.

- Fully programmable press & auxiliaries
- Steam, Oil & High Pressure Water Heating capability
- Full vacuum system for molding Class "A" SMC panels
- IMC injection
- Slitter tables



In Mold Coating (IMC)
IMC Metering Systems/Platen Mounted

IMC Metering Systems/Platen Mounted

General Description:

IMC brings new levels of precision performance to In-Mold Coating with this dedicated system designed to give you a "Scale 4" finish with a minimum of scrap, maintenance and hassle. The convenient platen-mounted panel is designed to connect quickly and easily with your press controls and features fully adjustable shot sizes and flow rate. The complete water cooled system, including drums (or parts) and hoses, incorporates a resin redistribution system that will save money in materials and man hours.

Features:

- Production proven since 1985
- Simple design, easy maintenance, easy hook-up to press controls
- 8" x 10" junction box for all electrical connections
- Central bulkhead for all hoses and utilities
- Uniform press hydraulics and controls to save cost
- Ream-pressure return assures repeatable shot sizes
- Platen-mounted meter saves floor space
- 100% adjustable shot size and flow rate
- Resin recirculation eliminates need for frequent solvent purge
- Limit switches for "meter full" and "meter empty"
- Refill/drain float drain cooler makes easy cleanup
- Drum cooler mounted on casters for full mobility
- System can also operate with 5 gallon pails

Specifications:

- Dispensing Rate up to 5 cubic inch/second
- Maximum shot size: 7, 16, 24, 30, 44 or 66 cubic inch (standard)
- Material Pressure: up to 6000 PSI
- Platen Mountable: 30" x 30"

Options:

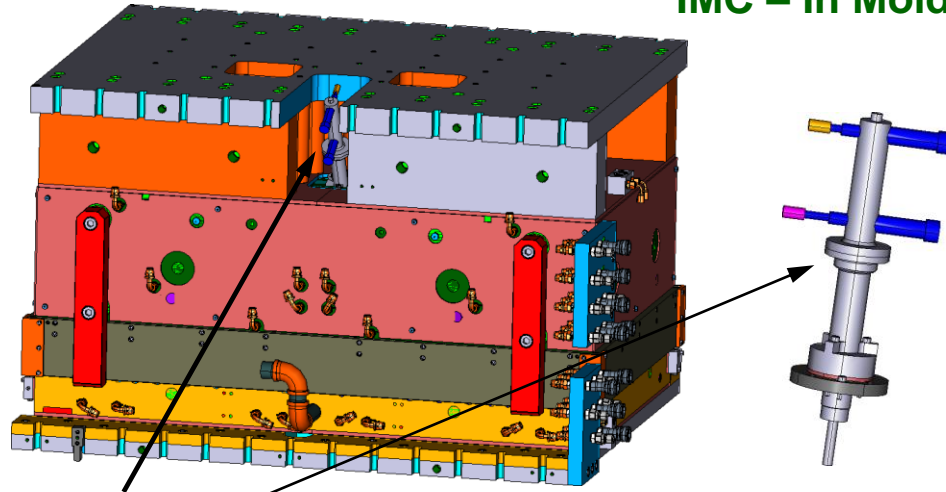
- Custom Meter sizes
- Electronic Motor position indicators
- Control systems
- Hydraulic supply systems
- Floor mount frames

dispensing
DEFINED
METER, MIX, DISPENSE SINCE 1977
WWW.EMCSQUARED.COM
6855 19 MILE RD. STERLING HEIGHTS, MI 48314 588.254.1525

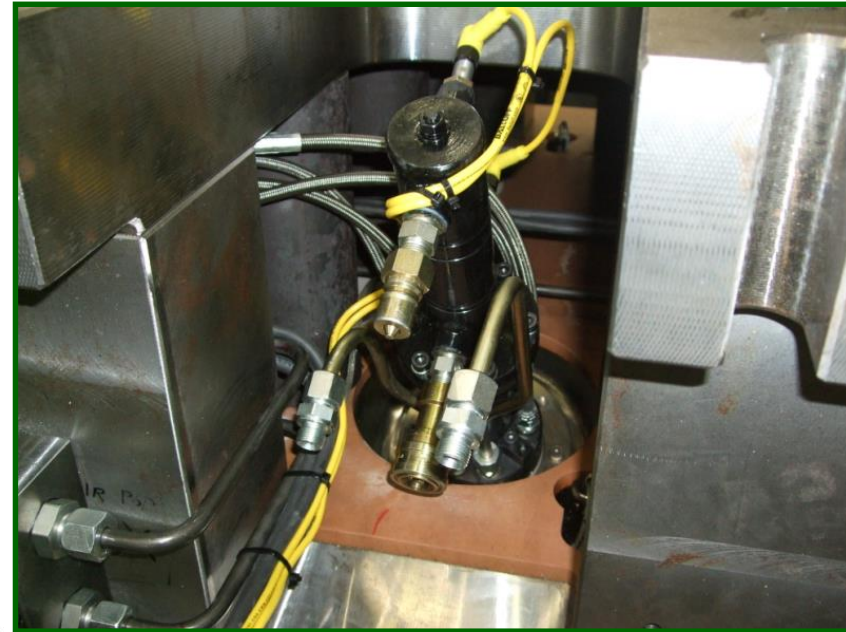
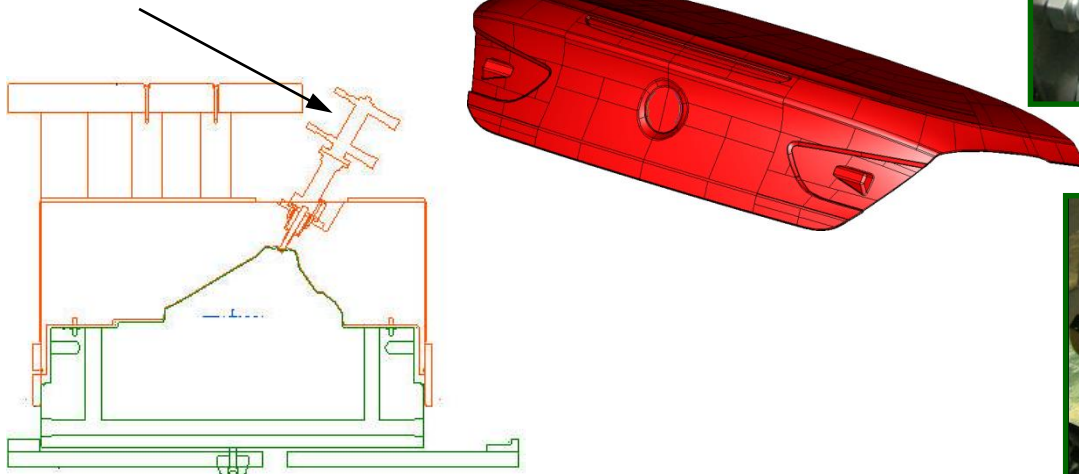
EMC²
INTEGRATED

Engineering Capabilities

IMC – In Mold Coatings

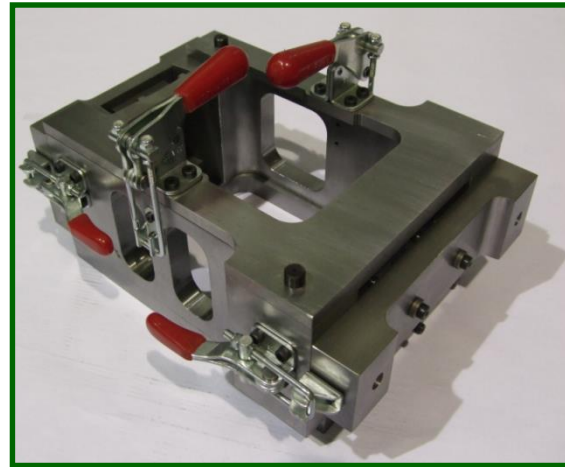
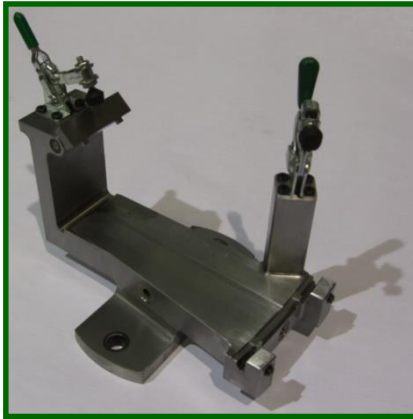


IMC Nozzle



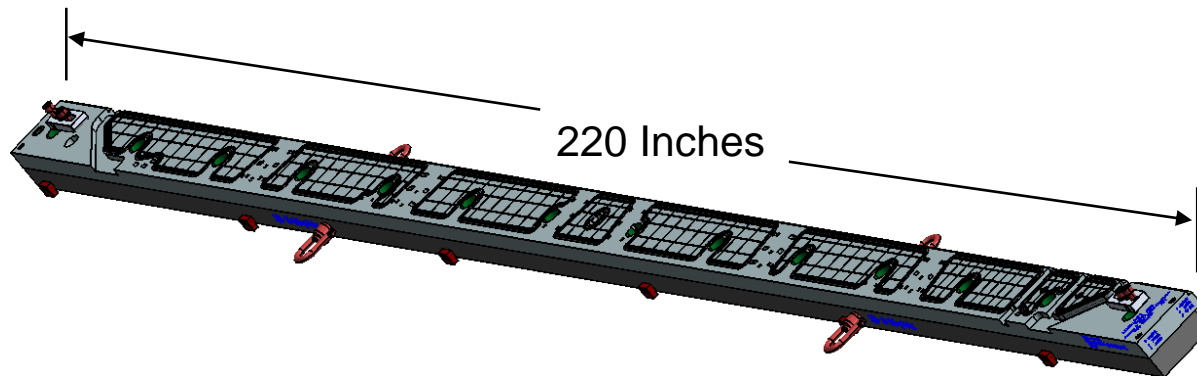
Machining Fixtures

A2C2 Double Vein
Machine Fixture



A2C2 Doublet Bond
Fixture

A2C2 Single Vein
Machine Fixture



Aerospace Machining Fixture With
Vacuum Holding

Weber Machining Centers & Equipment Highlights



Equipment Highlights

Five 5-Axis Deckel Maho Machining Centers

- State of the art machining.
- Hypermill 5- Axis software.
- 590 in/min max cutting speed with 8,000-10,000 RPM.
- Machining aerospace parts



Equipment Highlights

Ingersoll Master Mill

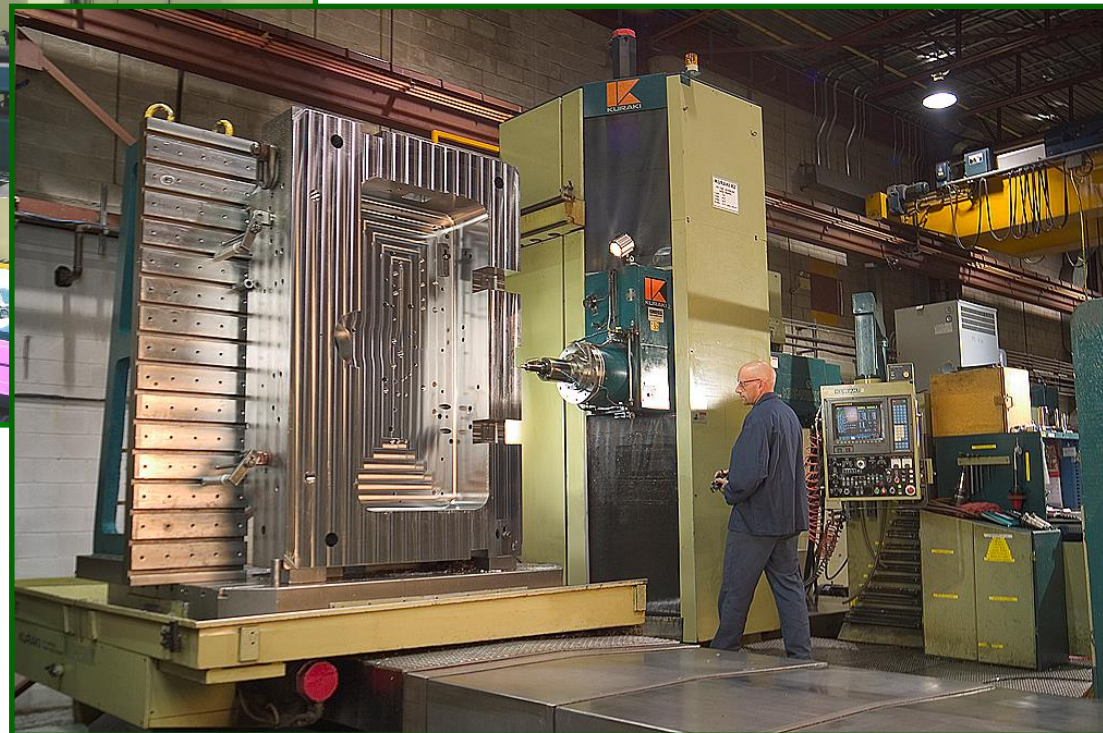
- 5-Axis simultaneous capable.
- 5 different cutting head attachments. 4,000 -10,000 RPM. All automatically loaded and unloaded.
- Large work envelope
 - X-236 inches
 - Y-137 inches
 - Z-40 inches
- Table capable of taking 88,000 pound block.
- Utilizes HyperMill/PowerMill Machining Software.



Equipment Highlights

Horizontal CNC Boring Mills

Also various:
vertical mills
gun drills
EDM



Equipment Highlights

HEAVY DUTY DROOP & REIN CNC MACHINES



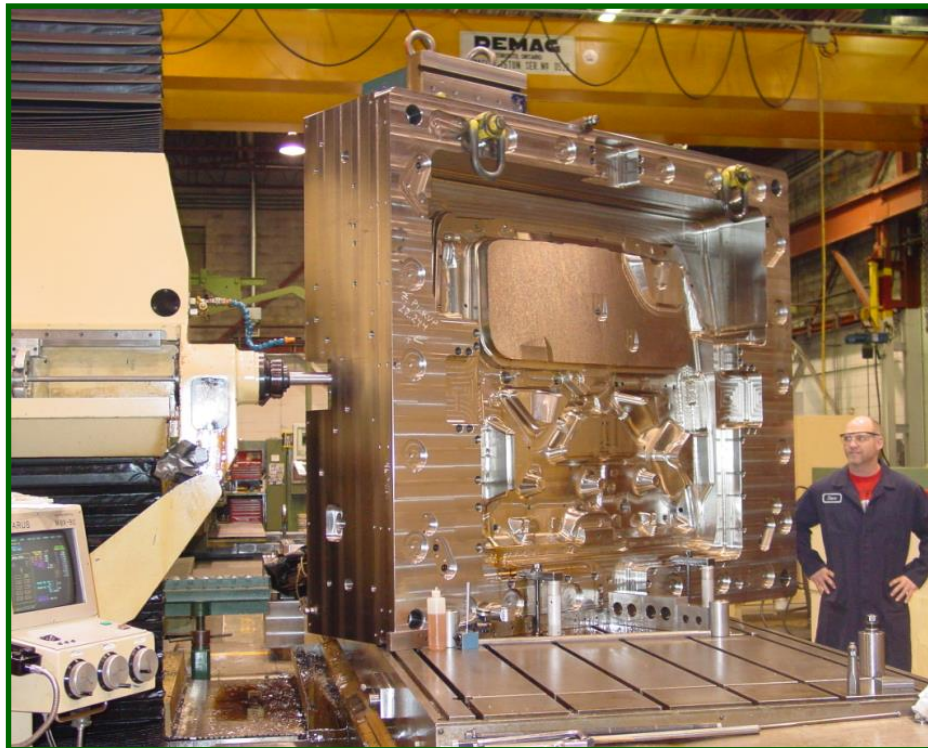
Equipment Highlights

Droop & Rein Copy Mill

- Large load capability - 66,000 pounds.
- Twin Spindle – simultaneous mirror image machining capability. Excellent for roughing.
- Large machining envelope
 - X- 138 Inches
 - Y- 117 Inches
 - Z- 33 Inches
- Cutting Software – Powermill.



Equipment Highlights



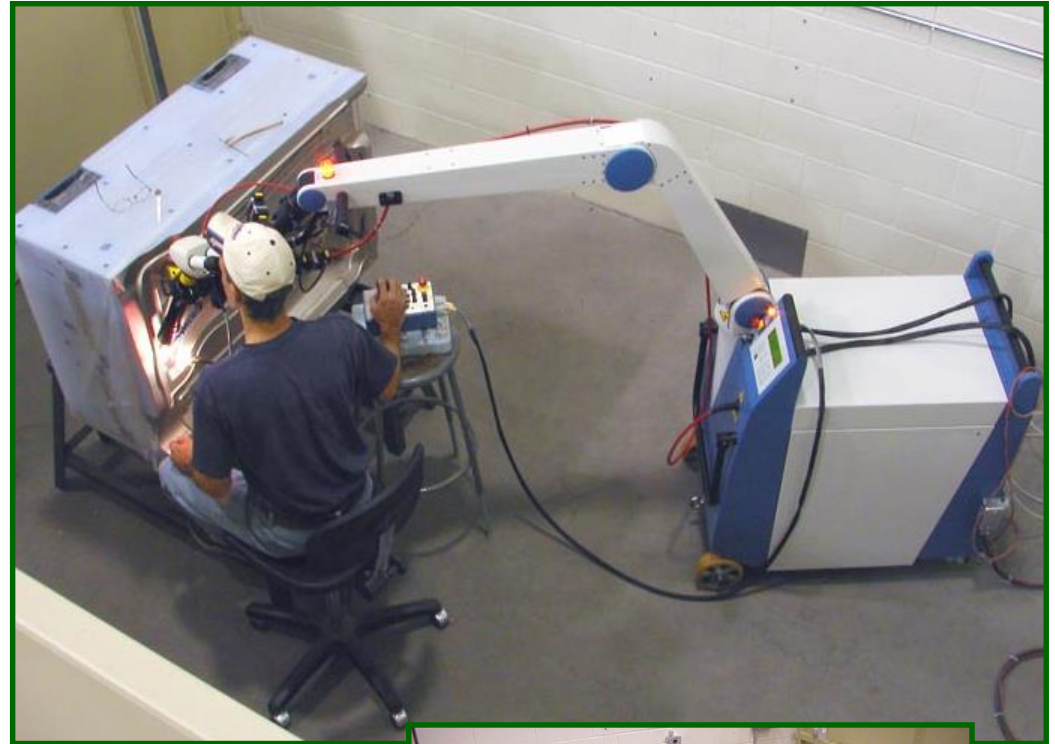
CNC GUNDRILLS



Equipment Highlights

Laser Welding

- This unit was purchased in 2006
- Ability to weld detail down to 0.005"
- Ability to repair intricate textured mold areas in nickel or steel.



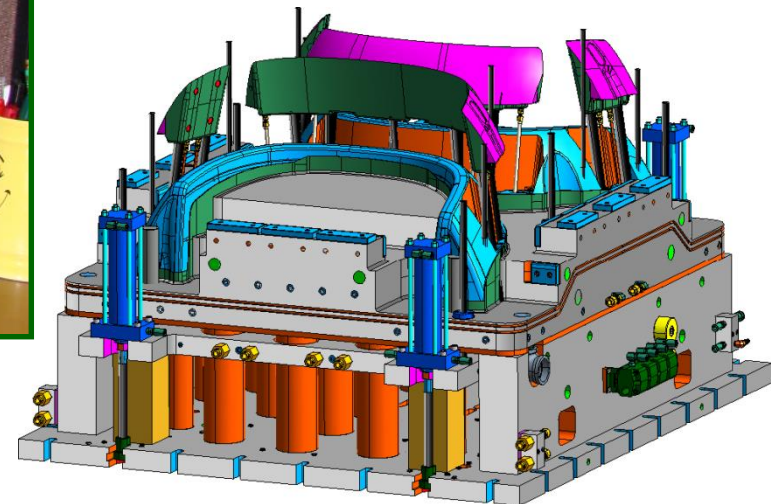
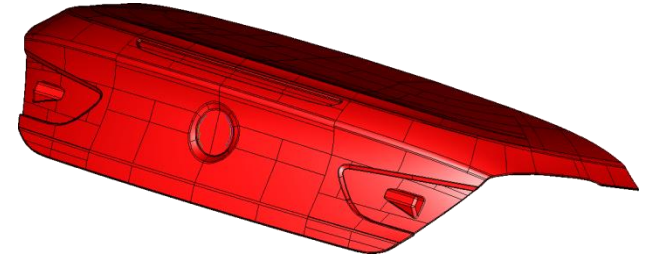
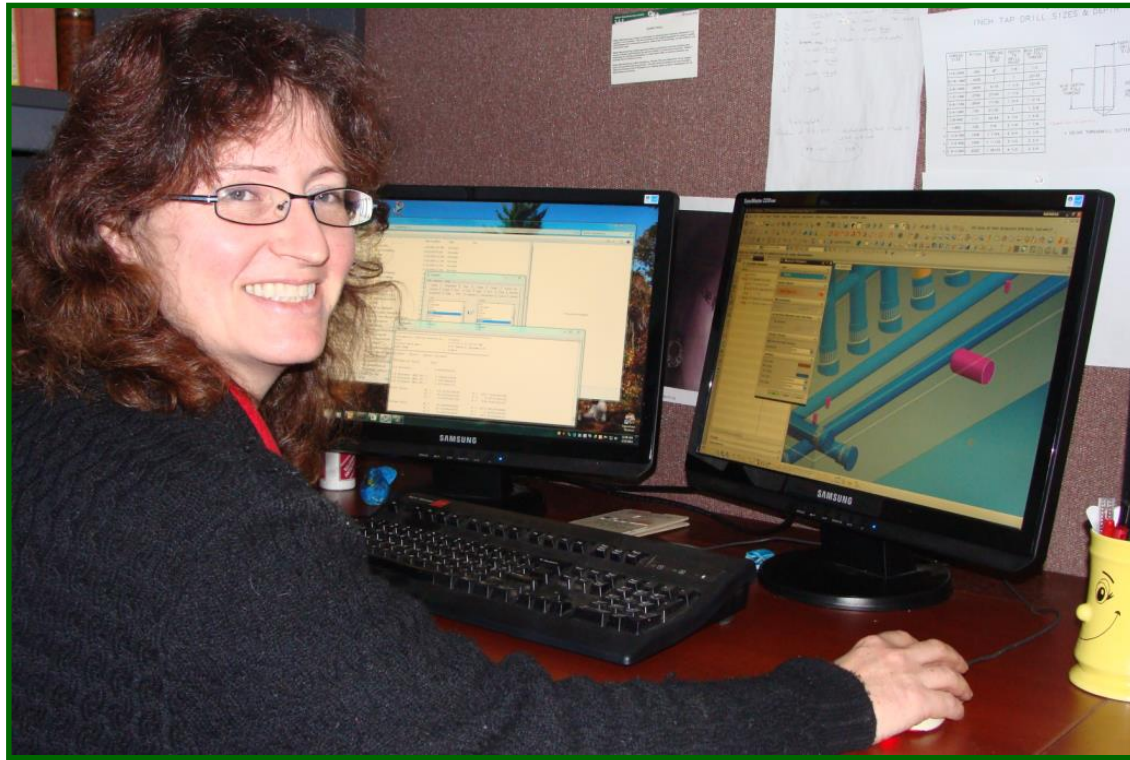
Equipment Highlights

NVD NICKEL PRODUCTION FACILITY

- World's largest Nickel Vapor Deposition facility
- Modern, computer controlled plant, built in 2000
- 4 Production chambers, 1 R&D
- 24 X 7 operation
- 400,000 lbs Ni deposition capacity
- 5.7' X 9.8' shell size capacity

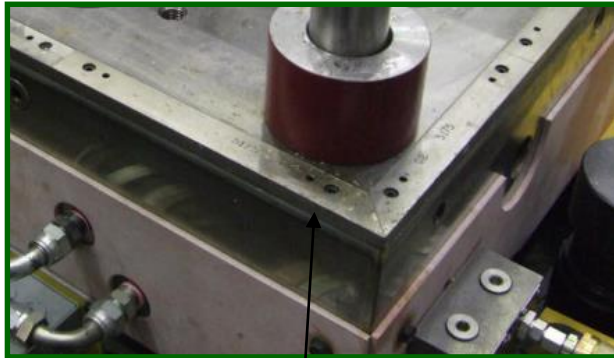


Engineering Capabilities



Engineering Capabilities

Vacuum – Internal and External



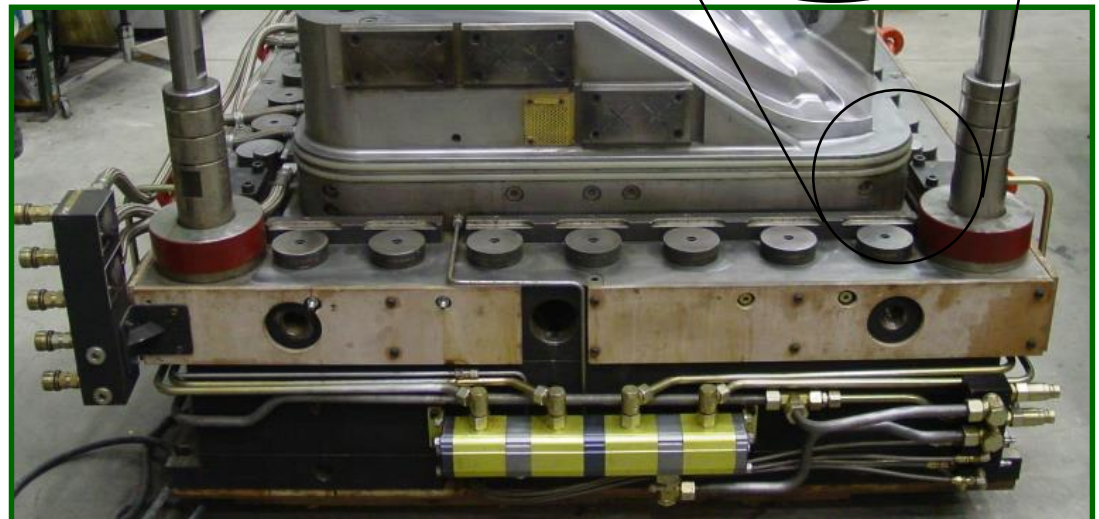
Square Corner External
Vacuum Seal with Removable
Vacuum Seal Cap



Round Corner External
Vacuum Seal



Internal Vacuum Seal



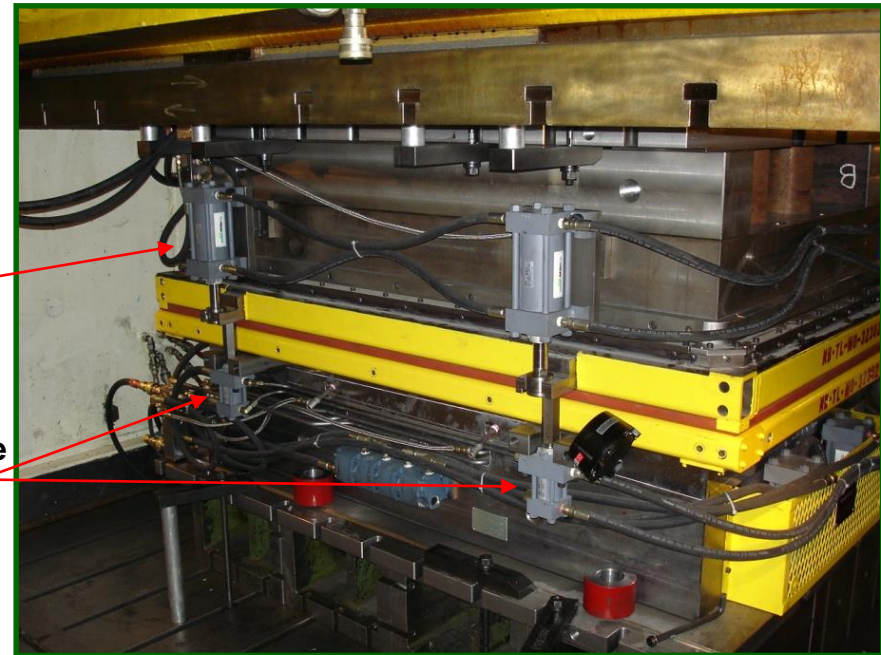
Engineering Capabilities

Vacuum – Specialty Vacuum System



Vacuum Seal

Hydraulic Cylinders Release Vacuum Seal



Vacuum Plate

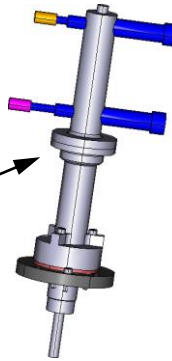
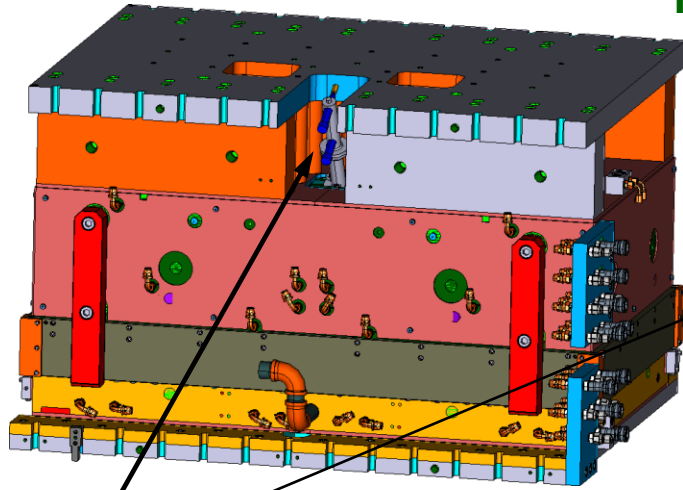
Vacuum Port



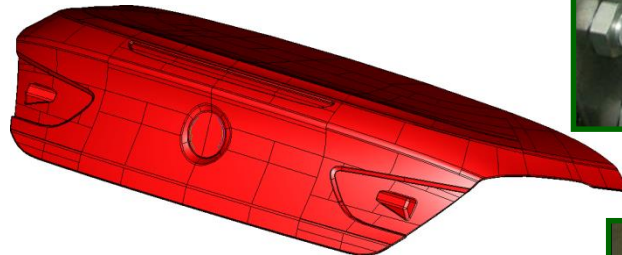
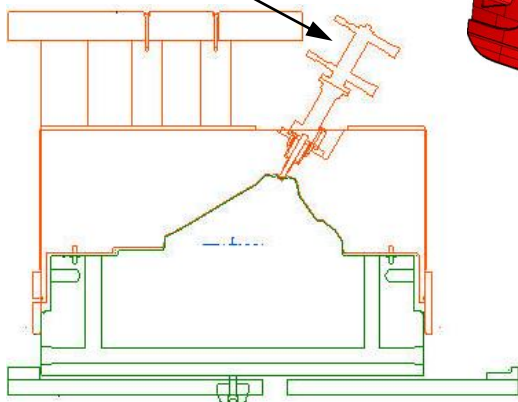
- Pneumatic cylinders are at full extension until the press closes
- Vacuum seal engages vacuum plate before press is fully closed
- The press compresses the pneumatic cylinders creating a tight vacuum seal between the cavity and core
- Hydraulic cylinders force the vacuum seal open once the part has cured

Engineering Capabilities

IMC – In Mold Coatings

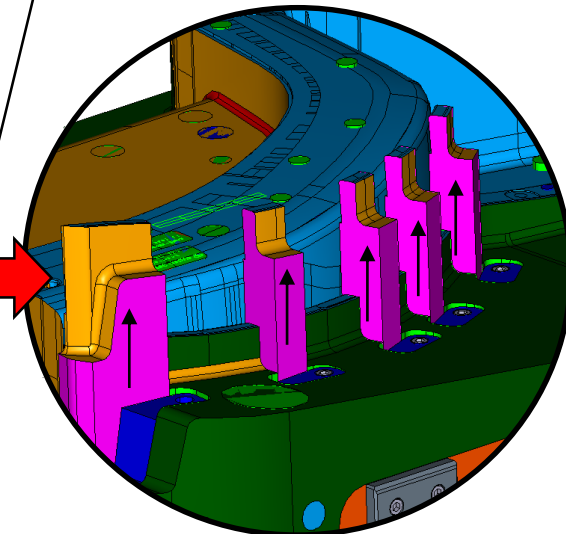
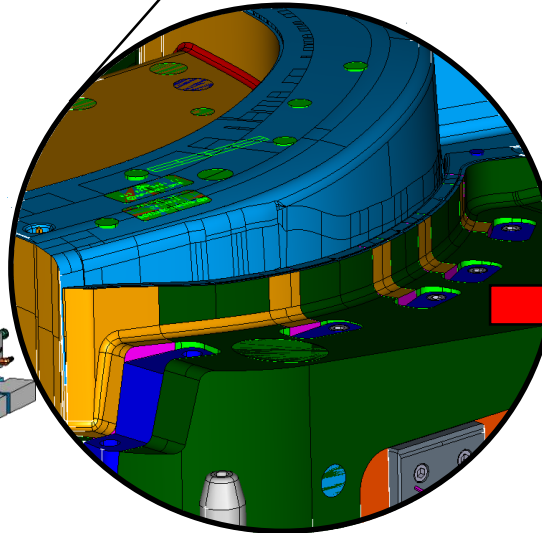
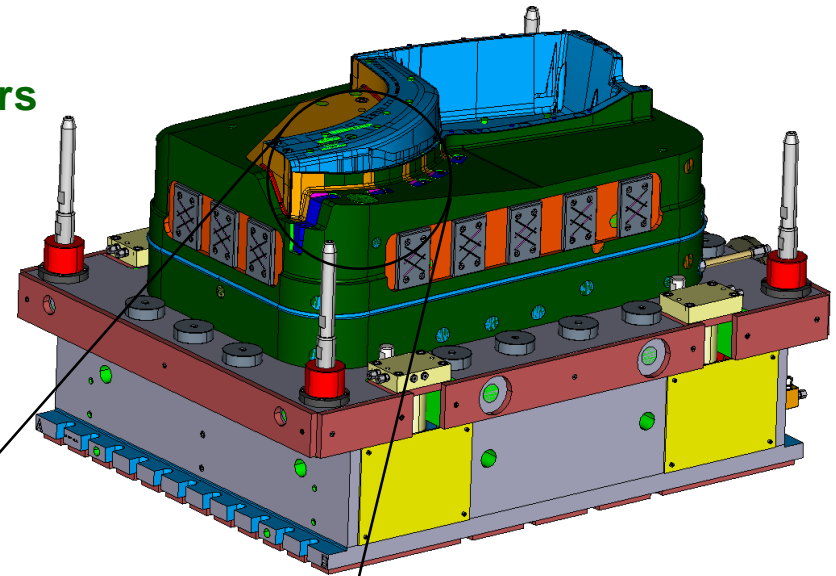


IMC Nozzle



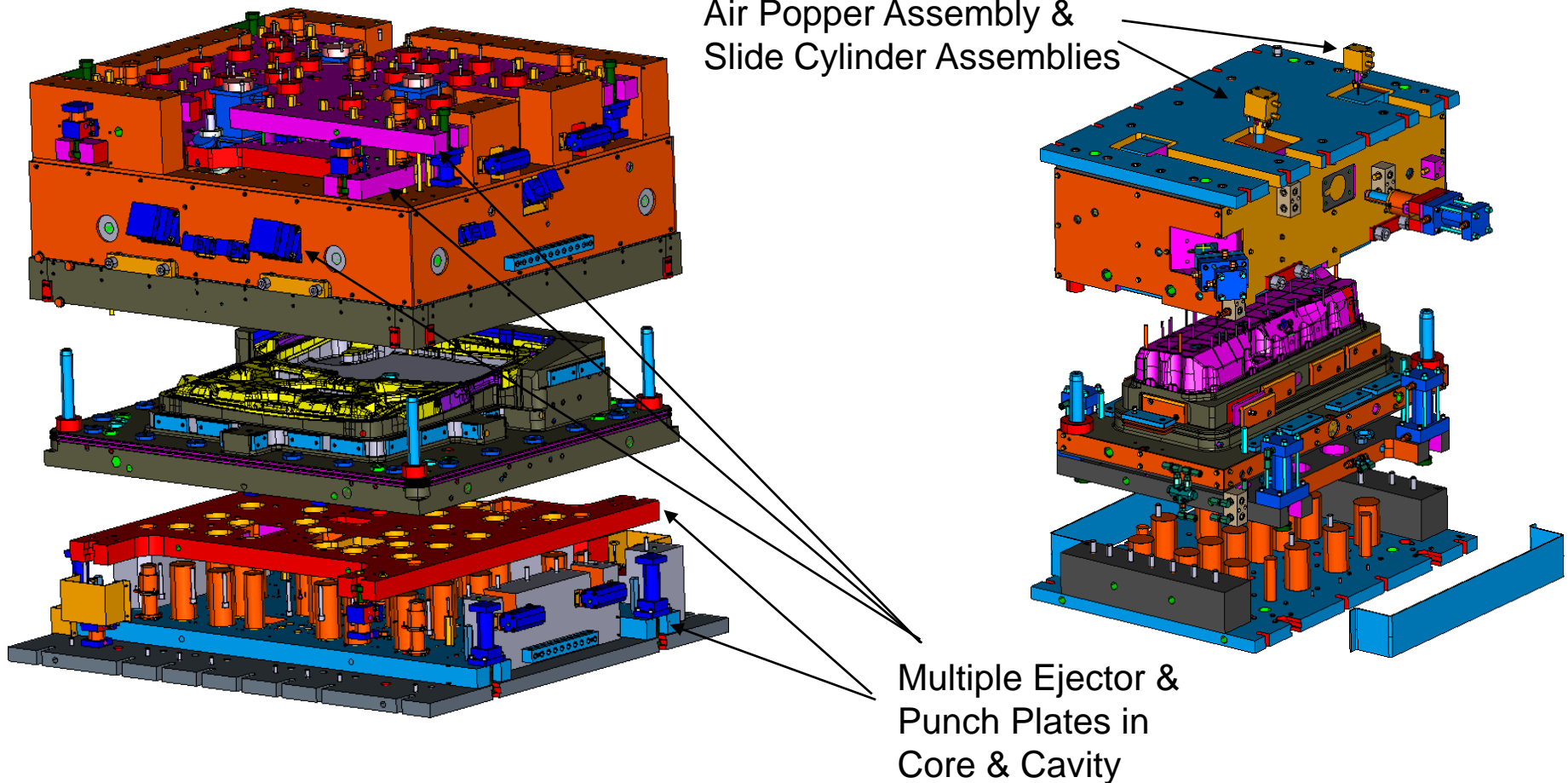
Engineering Capabilities

Lifters & Sliders



Engineering Capabilities

Ejection



CERTIFICATIONS

ISO 9001:2008 certified

- Registered with Canadian Controlled Goods Program - Registration No. 22921
- Satisfies ITAR requirements



CERTIFICATIONS

Weber is Certified to CSA Standard W47.1 by The Canadian Welding Bureau



- Approved for participation in the Canadian Wood Products Certification Program (CWPCP)

- Registration Number: CA-00047

- D6-56202 – Approved Boeing Northwest Provisioner Tooling Supplier



Customers from around the world choose Weber to take advantage of our:

1. **EXPERIENCE** - Over 45 years of mold-making experience producing large, class A, custom mold solutions in P20 steel, NVD Nickel, Invar and Aluminum.
2. **INNOVATION** – Design knowledge gained from experience in various competitive markets is continually applied for new engineering developments.
3. **CAPACITY & CAPABILITY** – Large, fully integrated Mold Design and Manufacturing Shop can handle large tools, and manage large, multiple tool programs efficiently, and professionally.
4. **NVD NICKEL SHELLS** – A unique mold making material, NVD nickel shell tooling provides an alternative for rapid, accurate, high quality composite production. Class A surfaces and conformal heating & cooling designs support shorter cycle times and uniform mold face temperatures.