

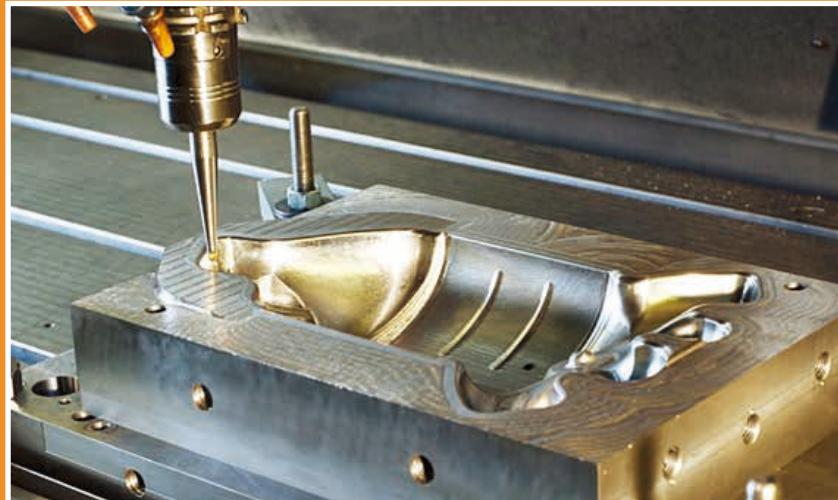
www.HLHPrototypes.com

PROTOTYPES HLH PROTOTOOL

info@HLHPrototypes.com



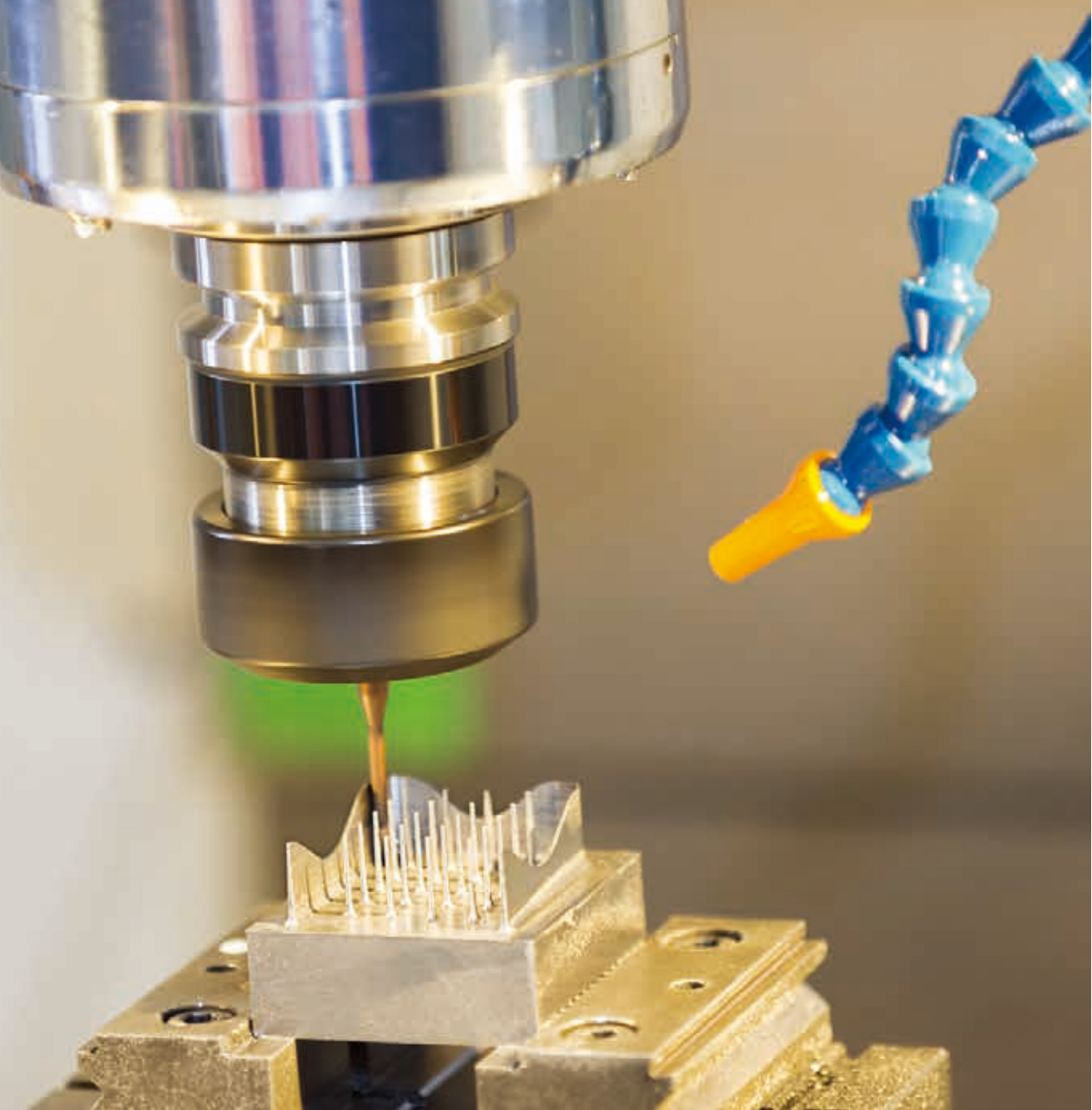
HLHPROTOTYPES
“HLH, we make things for you”



HLHPROTOTOOL
“real tools, real parts, real fast”



HLHPRODUCTION
“HLH, delivering tomorrow today”



HLH Rapid Project Solutions

HLHPROTOTYPES
"HLH, we make things for you"

Engineering
CNC Machining & Turning
3D Printing (SLA, SLS, DMLS, SLM)
Vacuum Casting
Sheet Metal Work

HLHPROTOTOOL
"real tools, real parts, real fast"

Engineering
Rapid Tooling
Production Tooling
Composite Tooling
Export Tooling

HLHPRODUCTION
"HLH, delivering tomorrow today"

Engineering
CNC Machining & Turning
Injection Molding
Composites
RIM & Die Casting

Why Choose HLH?

Established in 2001
Western Managed - Technological Diversity
Internationally Recognised - Highly Experienced Engineers
Secure Facilities & Processes - QA/QC < 1% Reject Rate
ISO Certified Quality - Competitive Pricing
Honesty & Integrity - Massive Capacity
HLH Respect Intellectual Property

HLH Are **FAST!**

"At HLH, we make things for you"



“2016 welcomes the opening of our new, high tech, 6 storey, 12,000 sqm facility.”

HLH Vision - together we can accomplish anything.

To grow and continue to be a trusted partner and solution provider for our clients. To treat our customers and employees with the utmost respect and understanding. To be the leader in our industry globally.

“Customers and employees, take care of both and everything else takes care of itself.”

HLH Mission - enable our customers to be leaders in their industries.

To deliver project success to our customers with each and every project. Fuse western business values of honesty, integrity and trust with Chinese values of family, industry and hard work. Continue to invest in infrastructure, technology and people.

“HLH’s daily goal is exceed customers expectation with flexible, value for money manufacturing solutions.





“Quality control is a team effort at HLH. Each process and part is inspected several times throughout its journey to ensure you get the quality parts your project deserves.”

HLH QA/QC - Quality paired with excellent on time delivery.

- **QUALITY** - In 2015 97.2% of the parts we produced and shipped were to spec or better.
- **LEAD TIME** - Of the thousands of jobs we ran during 2015, 97% of them shipped on time or early.
- **IP PROTECTION** - We use the latest biometric security to help protect your IP, including access to each floor and each room, plus 24 hour security guards.
- **NDA** - We respect Intellectual Property, ask us for an NDA.



“Price means nothing without quality and reliability. HLH delivers the balance you need.”

HLH PROTOTYPES

“At HLH, we make things for you”

CNC Machining - Milling and Turning

- High speed and high precision CNC.
- Fast, accurate and competitively priced.
- Massive range of materials in metal and plastic.
- Prototypes and production

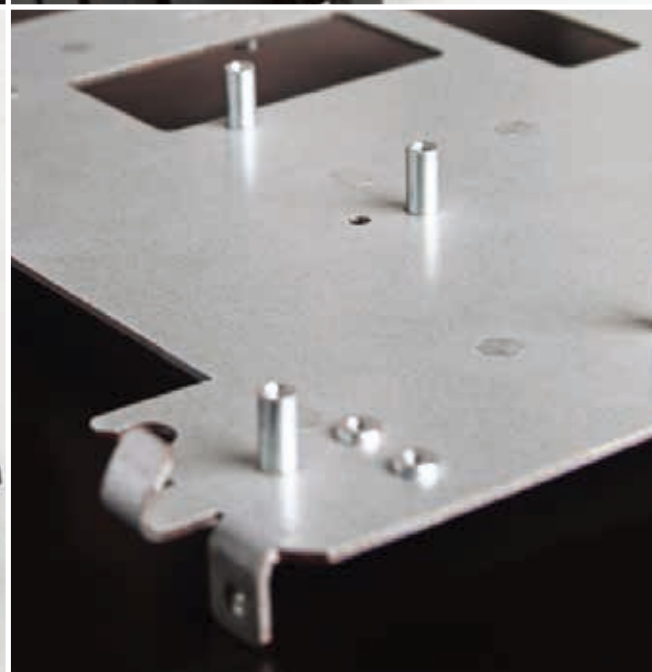


3D Printing - Plastic (SLS, SLA) - Metal (DMLS, SLM)

- Our 3D Printing history goes back to 2005 with our first SLA printer.
- As the 3D printing industry has evolved so has HLH's investment in plastic and metal 3D printing technology.
- Different parts require a different 3D printing technology, trust in HLH to help guide you to the correct solution.



“You think it....HLH makes it!”



Vacuum Casting

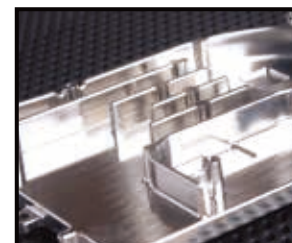
- Gain speed to market with quick part turnaround times, allowing for more design iterations, which help to reduce project time lines.
- Wide selection of polyurethane materials and post process finishes available.



“Whether your needs are a few prototypes or low to mid volume production runs at HLH we have you covered.”

HLH Metal Work - Sheet Metal, Extrusion, Fabrication

- Variety of tooled and manual manufacturing techniques and processes.
- Highly complex parts possible without expensive tooling.
- Bending, laser, wire cutting, CNC punching, CNC folding and more.
- HLH has a team of highly experienced craftsmen with diverse backgrounds.





HLH PROTOTool

“real tools, real parts, real fast”

HLH ProtoTool - Rapid Tooling

- Rapid turnaround, low cost, pre-series and prototype tooling.
- ProtoTool solutions bridge the gap between prototype and production parts.



The ProtoTool Advantage

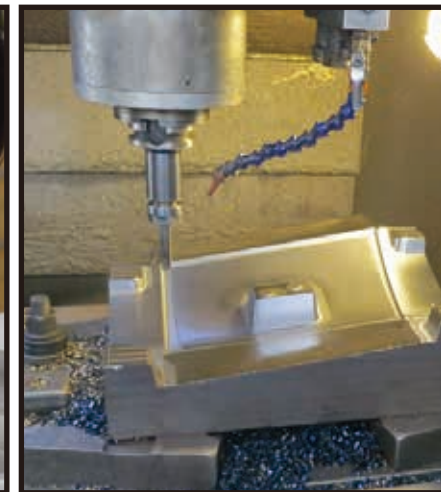
1. Real parts from real production material.
2. Low to mid volume production runs possible.
3. Production parts in days.
4. Fulfill interim part needs while your full production tool is being built.
5. Quick, inexpensive way to get parts in front of clients and management.
6. Good option for specialty low volume, but high value parts or products.
7. Test multiple resins to determine best resin choice for full production run.





Export Tooling

- We manufacture tools for export built to globally recognized international standards and quality.
- Before we ship we check and can trial your tool here in our China facility.
- We guarantee tools to run in your facility and have trouble shooting partners (if needed) around the world to back up that guarantee.



“Our tools are 100% guaranteed to run in your facility.”

Composite Tooling

- HLH provides a range of engineering, manufacturing and tooling service to assist your composite part needs.
- From robotics to super cars we work with some of the most exciting companies around the world.
- Tooling options include wood, RMT, steel and aluminium.



HLH PRODUCTION

“HLH, delivering tomorrow today”

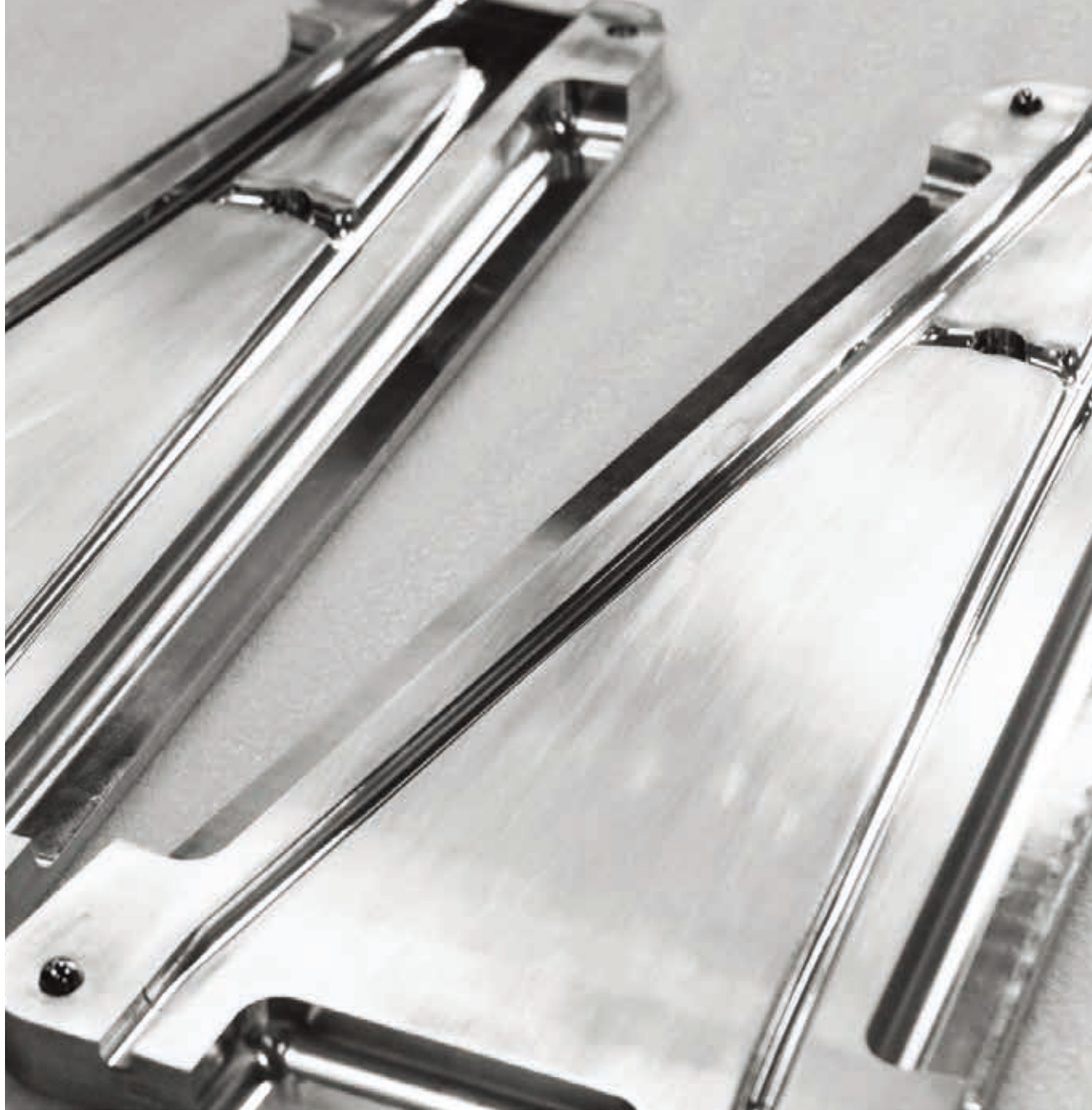
Injection Molding - HLH Production

- Quality control starts with incoming material through to the final product.
- HLH injection mold capabilities range from 7 to 1500 tons.
- Capacity to handle large volume orders and multiple jobs simultaneously.



“At HLH, you can trust in our experience and commitment to delivering quality injection molded parts.”





Composites - HLH Production

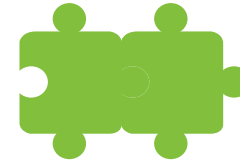
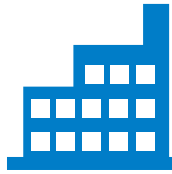
- HLH offers a massive range of composite materials including carbon fiber (UD, 3k, 12k), kevlar, glass fibers and hybrids.
- In-and-out-of-autoclave cured solutions.
- Compression molding.
- Wet layup of high and low temperature systems.
- Infusion and prepreg laminates.



“Complete composite part fabrication solutions to match and exceed your project requirements.”

Start your free project review today with HLH.

FreeQuote@HLHPrototypes.com



Engineering > Rapid Prototype > Rapid Tooling > Injection Molding > Production Tooling > Rapid Production

HLHPROTOTYPES
“HLH, we make things for you”

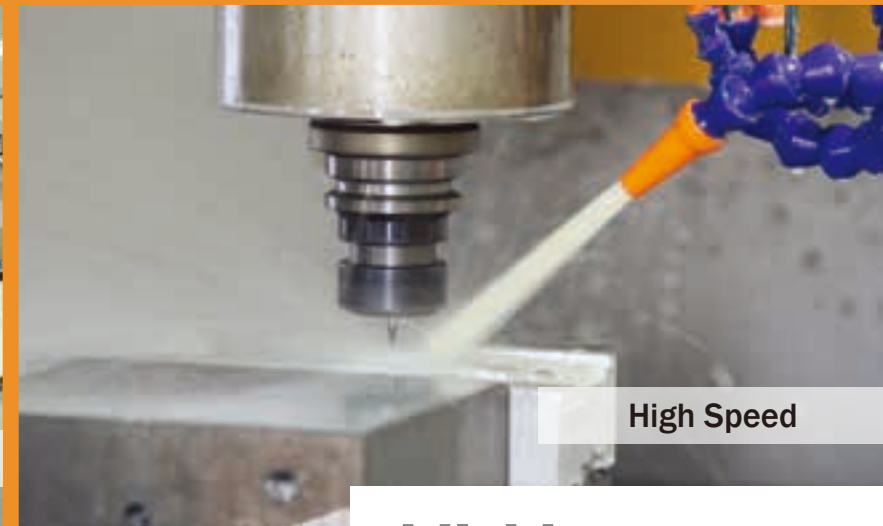
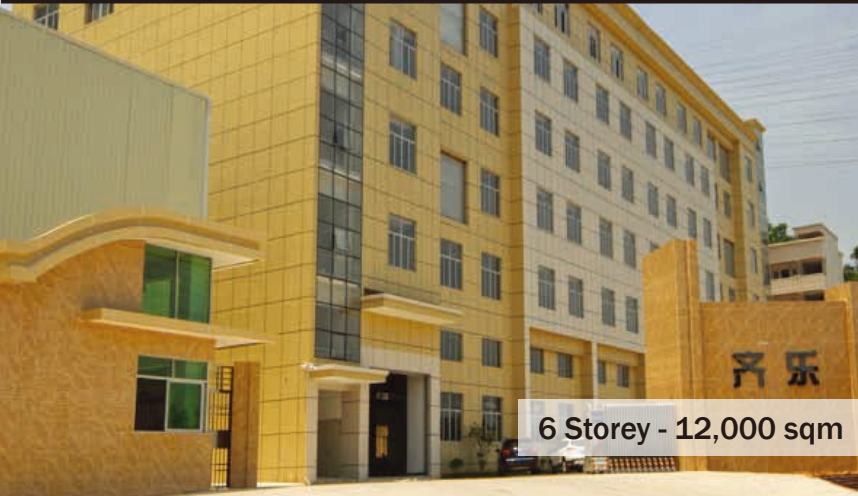
HLHPROTOTOOOL
“real tools, real parts, real fast”

HLHPRODUCTION
“HLH, delivering tomorrow today”

For further case study and photo examples see below.

NEW HLH Factory

**Expanded Capability
Expanded Capacity**



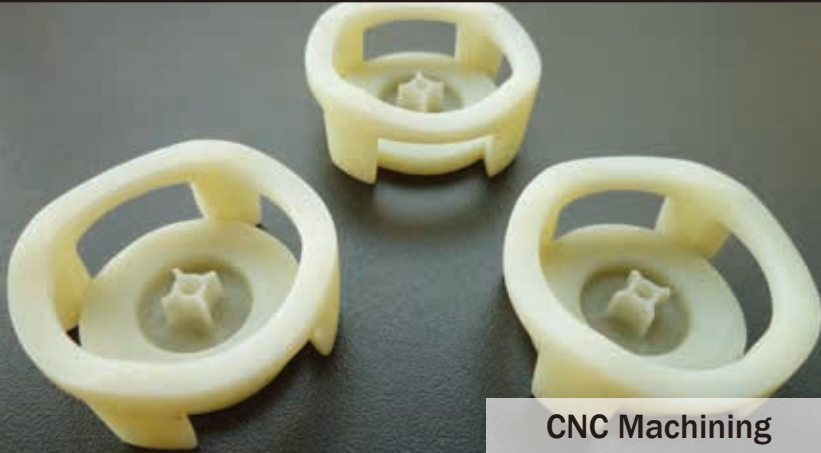
FreeQuote@HLHPrototypes.com

Continued investment in technology & infrastructure to match our steady growth.

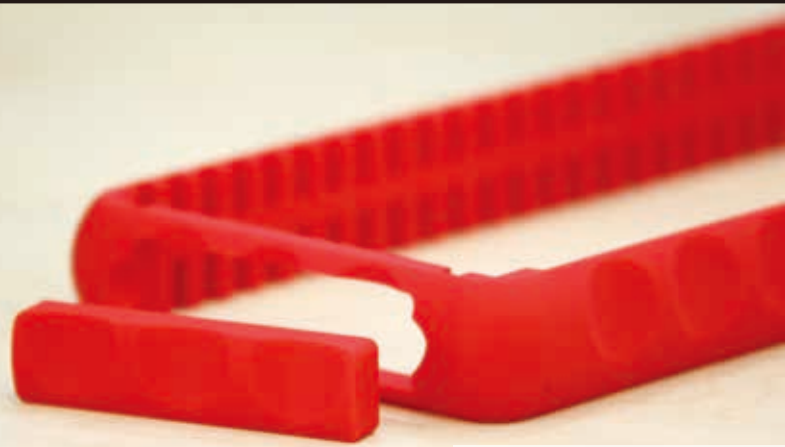
HLHPROTOTYPES
"HLH, we make things for you"

Rapid Prototypes

**Rapid Prototype Parts
Fast...Really FAST!**



CNC Machining



Vacuum Casting



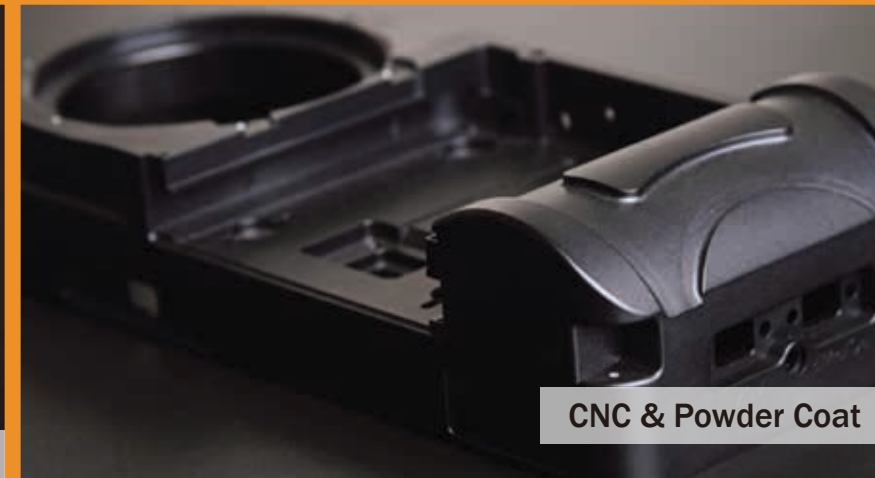
3D Print SLA



CNC & Vacuum Cast



Sheet Metal Work



CNC & Powder Coat

FreeQuote@HLHPrototypes.com

We have a wide range of rapid prototyping services to match your project needs.

HLHPROTOTYPES
"HLH, we make things for you"

ProtoTool & RIM

**Realise Parts Fast @
HLH With ProtoTool
Project Solutions**



RIM Door Panel



ProtoTool Panel



RIM Door & Leather



ProtoTool Grill



RIM Bumper



ProtoTool & Plating

FreeQuote@HLHPrototypes.com

ProtoTool & RIM are great a great option for large scale, low volume parts.

HLHPROTOTOOOL
"real tools, real parts, real fast"

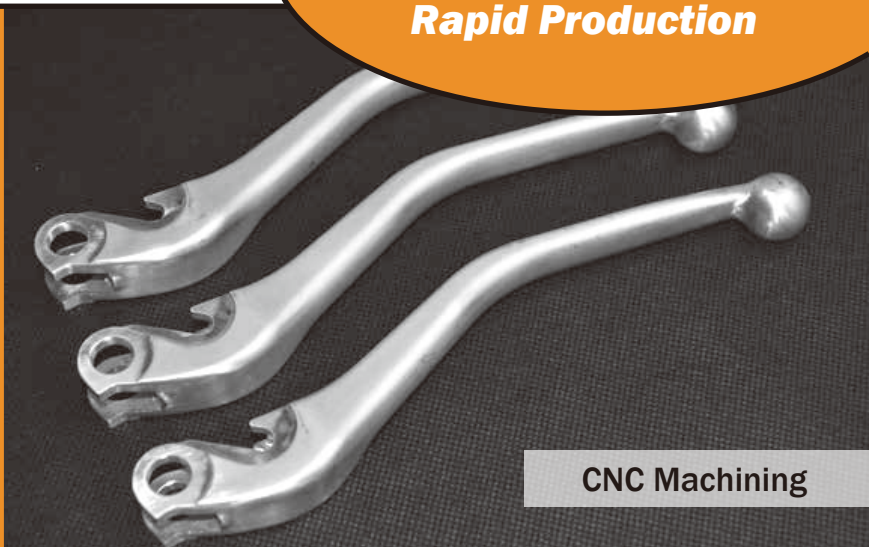
Low Volume Production



RIM Bumpers



Rapid ProtoTool



CNC Machining



Injection Molding



CNC Machining



ProtoTool & Injection

**Realize Parts Fast With
Rapid Production**

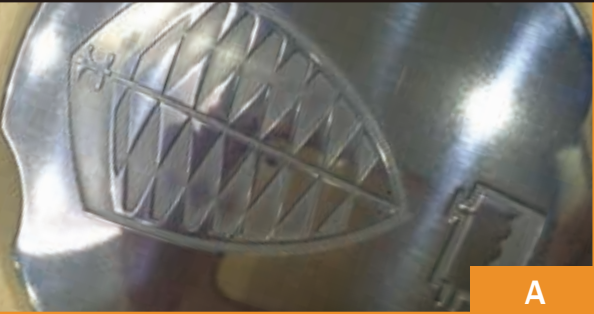
FreeQuote@HLHPrototypes.com

We specialise in low to mid volume production for metal and plastic parts.

HLHPRODUCTION
"HLH, delivering tomorrow today"

HLH Surface Treatments

*Many Finishing Options
For Your Rapid Parts*



A



B



C



D



E



F

- A. Finish: **Polish** | Part Material: SS304
Total Project Time: 5 Days | Size: 80 x 80 x 17mm
- B. Finish: **Water Transfer Print** | Part Material: ABS
Total Project Time: 4 Days | Size: 40 x 100 x 60mm
- C. Finish: **Painting** | Part Material: ABS
Total Project Time: 5 Days | Size: 100 x 80 x 35mm
- D. Finish: **Silk Printing** | Part Material: ABS
Total Project Time: 4 Days | Size: 40 x 100 x 60mm
- E. Finish: **Brushing & Scouring** | Material: Stainless Steel
Total Project Time: 3 Days | Size: 70 x 70 x 95mm
- F. Finish: **Sand Blasting** | Material: PMMA
Total Project Time: 4 Days | Size: 200 x 200 x 24mm
- G. Finish: **Anodizing** | Part Material: Aluminium
Total Project Time: 4 Days | Size: 30 x 30 x 125mm
- H. Finish: **Electroplating** | Material: ABS
Total Project Time: 5 Days | Size: 1300 x 500 x 650mm
- I. Finish: **Custom Stitching** | Material: Leather
Total Project Time: 4 Days | Size: 1250 x 125 x 800mm



G



H



I

FreeQuote@HLHPrototypes.com

At HLH we have the experience and expertise to make your product shine.

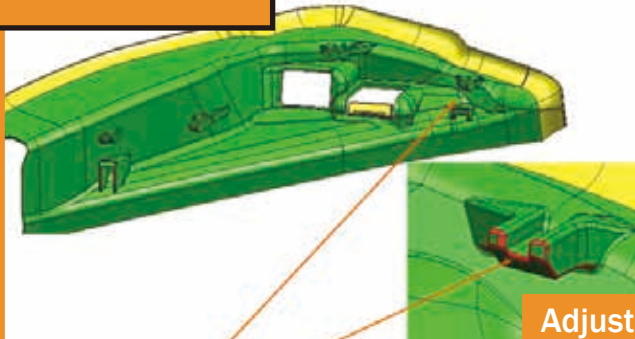
HLHPROTOTYPES
HLH, we make things for you™

ProtoTool Case Study

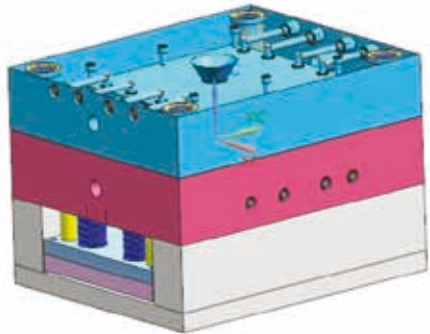
**Automotive Parts
Really FAST! @ HLH**



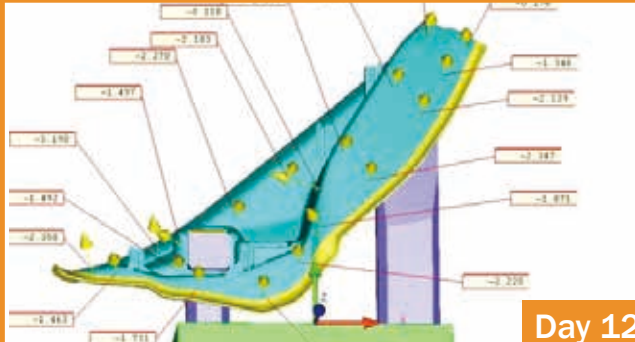
RFQ



Adjust



Day 1



Day 12



Day 12



Arrived

PROJECT TIME LINE

- RFQ**
- Received RFQ with part drawings.
 - Material: PP/GF30+SEBS (55 Shore A).
 - Material Brand: PP/GF30–Fibremod™ GD302HP; SEBS–KRATON™G2705.
- Quote (1 Day)**
- HLH quotes 50,000 life P20 **ProtoTool** and 5,000 life aluminium **ProtoTool**.
 - P20 for part tool recommended due to very high tolerances of part design.
 - Aluminium recommended for overmold tool to save time and money.
- Adjust (1 Day)**
- Customer confirms order and HLH makes same day recommendations on:
 - Radius adjustments needed to make movable inserts.
 - Part injection points on mold.
- Confirm**
- Customer confirms design adjustments | HLH delivers 3D mold drawings.
- DAY 1**
- Customer confirms mold drawings | MOLD FABRICATION STARTS
- Day 12 (Shipped)**
- P20 and Aluminium **ProtoTool** molds completed in 11 days.
 - Parts made and 3D scanned at customer request to confirm tolerance.
 - Parts shipped to customer for testing & confirmation.
- Arrived**
- Test parts received. Customer tests confirms part quality beats expectations.
 - Customer submits additional order.

FreeQuote@HLHPrototypes.com

RESULT: Mold fabricated & first parts delivered in 11 DAYS beating expectations.

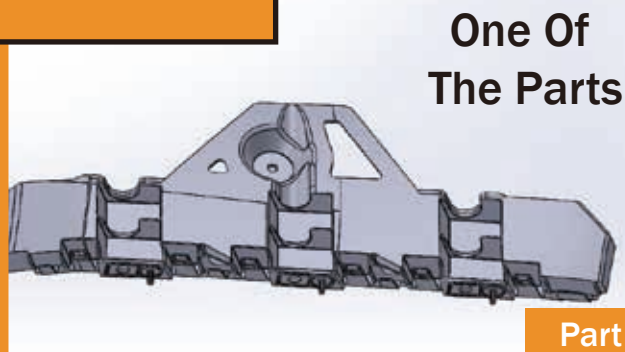
HLH PROTOTOOOL
“real tools real parts real fast”

ProtoTool Case Study

**Fast Low Volume
Production @ HLH**



Tool



One Of
The Parts

Part



Tool



Tool



Test



Final

PROJECT TIME LINE

- Scope**
- Deliver 200 complete sets of front and rear bumpers.
 - Requires 23 sets of rapid ProtoTools to complete.
 - Deadline of 10 weeks to deliver to customer.
- Quote (1 Day)**
- HLH quotes 23 low volume **ProtoTools** to match project requirements.
 - Tool Material - Steel 45
 - Tool Life Varies For Each Tool
- Adjust (2 Days)**
- Customer sends files and HLH makes same day recommendations on:
 - Radius adjustments needed to make movable inserts.
 - Part injection points on mold.
- Week 1** - Customer confirms mold drawings | MOLD FABRICATION STARTS
- Week 8**
- All 23 tools have been completed.
 - Test parts made and shipped to customer.
 - Customer receives parts, tests and confirms 200 piece order.
- Week 9**
- 200 complete sets of front and rear bumper shipped to customer.
 - Customer receives before agreed upon deadline.

FreeQuote@HLHPrototypes.com

RESULT: 23 ProtoTools made & parts delivered early to delight of customer.

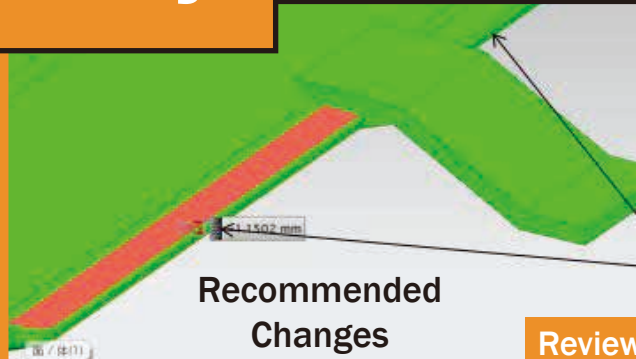
HLH PROTOTOOOL
"real tools, real parts, real fast"

ProtoTool Case Study

**Quick Turnaround Is
No Problem @ HLH**



CAD



Recommended
Changes

Review



Tool



Tool



Test



Final

PROJECT TIME LINE

- Scope**
- Deliver a **ProtoTool** (Rapid Tool) and 50 production parts.
 - 3 weeks to complete the order.
 - Part is for a car instrument panel.
- Quote (1 Day)**
- HLH quotes 1 low volume **ProtoTool** to match project requirements.
 - Tool Life 10,000 shots.
 - Part Material - PP
- Report (2 Days)**
- HLH produce a tooling feasibility report, customer reviews and accepts:
 - Wall thickness recommended increasing to at least 2mm.
 - Client accepts quote and confirms order.
- Week 1** - Customer confirms mold drawings | MOLD FABRICATION STARTS
- Week 2**
- **ProtoTool** completed.
 - Test parts made and shipped to customer.
 - Customer receives parts, tests and confirms 50 piece order.
- Week 3**
- 50 sets of instrument panel shipped to customer.
 - Customer receives before agreed upon deadline.

FreeQuote@HLHPrototypes.com

RESULT - Tool & parts delivered on spec & ahead of time, beating expectations.

HLH PROTOTOOOL
"real tools, real parts, real fast"