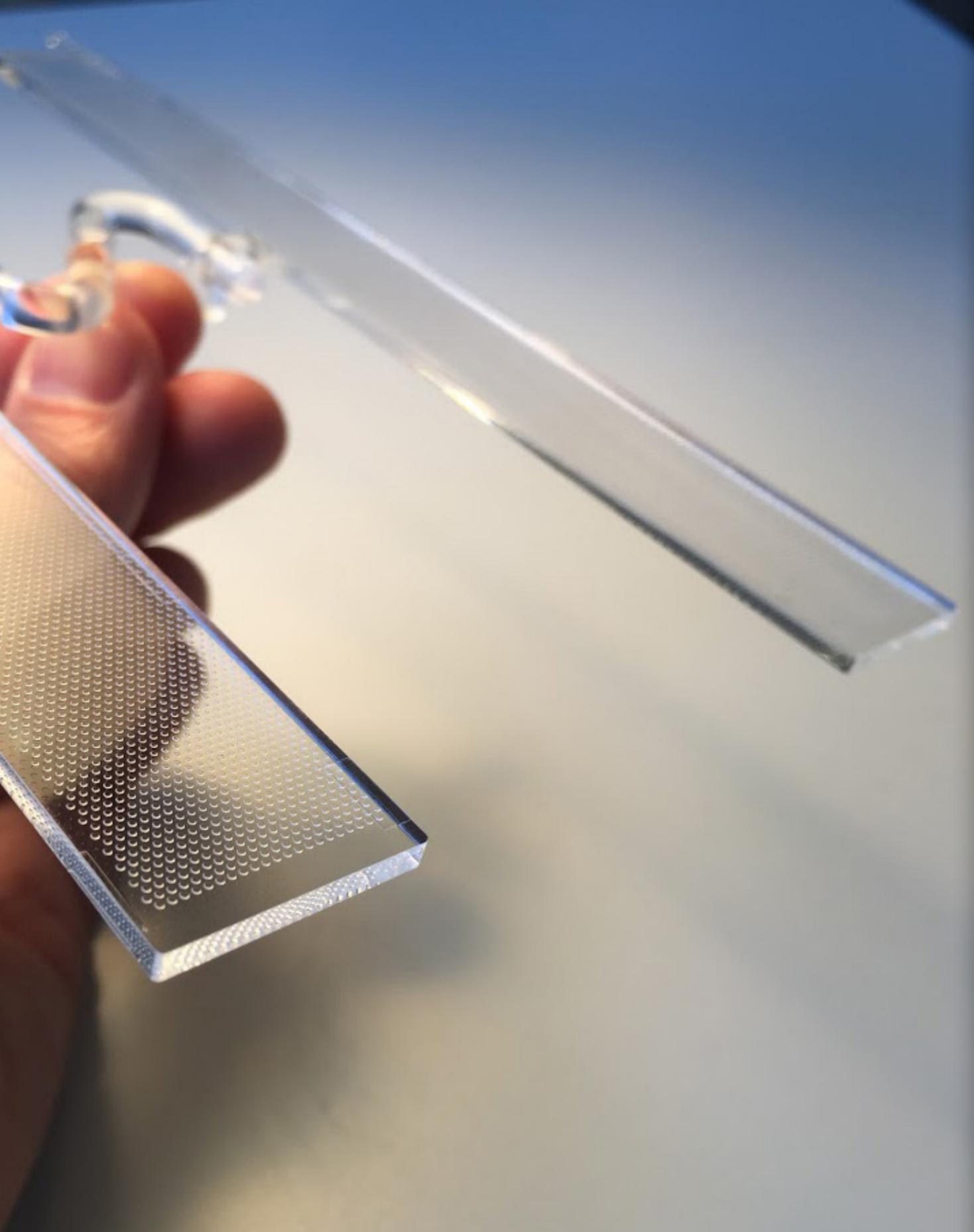




# THE TOOL HUB

LIGHTGUIDE

V1



At The Tool Hub we have built hundreds of very cost efficient and well constructed tools.

Below we describe the challenges that we solved during a recent project where we made a lightguide tool for Jaguar Land Rover.

## Optical clarity

Getting to the desired surface quality takes time, patience and know how.

It should be noted that the surface finish of the end product is not only determined by the tool steel and the applied surface preparation process, but also the application process itself has a big impact on the result.

### Polishing technique

Our polishing follows our 11 predefined steps that can be seen in the graph to the right.

### Steel Choice

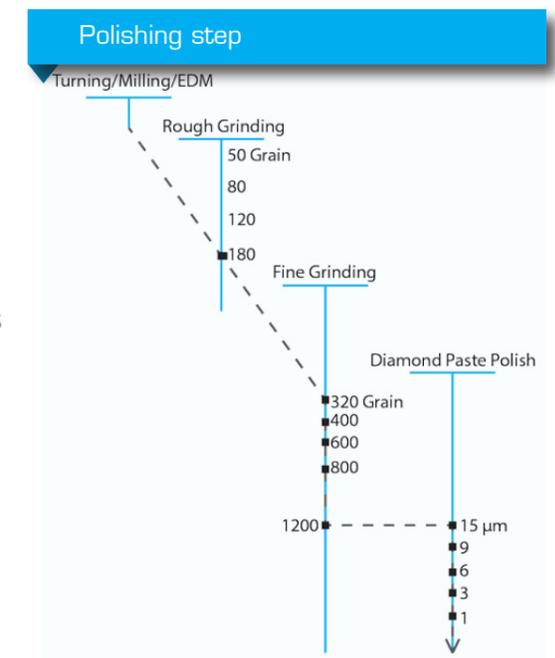
To produce highly reflective and glossy surfaces ESR-remelted or PM steels are to be used.

Analyses of different micro structures and steel manufacturing processes clearly prove that the amount of carbides and non-metallic inclusions have a decisive effect on the quality of the polished surface.

Therefore steel should only be sourced from sources that are known to take this in to consideration.

Selected steel for this project:

DAIDO S-Star-A  
SUS420J2 Modified  
ESR Steel  
(53HRC)



## PiP Pattern

To make a Pip Pattern with diameters from 0.8 down to 0.12 mm can be a real challenge.

In this project, as we needed to have Pips that are optically clear we combined two manufacturing methods.

**Laser micro machining** for Pips under 0.26mm in diameter and high speed **CNC machining** with specially made cutters for the bigger ones. This resulted in a highly accurate pattern, that more than satisfied our customers need.



Laser Micromachining system

One of our highly efficient Jaguar Lightguide tools with clear PiP Pattern

UK

NL

SE

SZ

HK

Customer Service Centres  
UK, NL, SE

Production Centres  
Shenzhen, Hong Kong

GLOBAL REACH  
LOCAL PRESENCE



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