



## PSF rapid tooling process

### Problem

Many mass-produced parts ranging from cell phone shells to automotive components are made by using metal moulds or dies through such processes as die casting, stamping, die forging, extrusion, injection or compression moulding, or blow moulding.

Manufacturers are always searching for ways to cut down the great costs and long lead times in preparing and changing the tools.

### Invention

Precision Sprayforming of Die Inserts (PSF) is a promising process that can simultaneously improve the major tooling requirements:

- Longer lifetime, shorter lead times, and lower costs.
- A unique ceramic moulding process and a new series of hot work steels have been developed, so that they can be spray formed to net shape with the best microstructures and properties.
- Together with special spray deposition management, they are proven to be reliable to make die inserts of high soundness, good dimensional accuracy and surface quality.

### Solution

Comparing to conventional tooling processes, PSF process shortens the lead times for making a die or mould from months to weeks, in many cases even to a few days. The costs may be reduced by 30-50%. Lifetime of the tools is to be extended because of the metallurgical benefits of the sprayforming process (extremely high solidification rates) as well as new steel grades developed in the process.

VTT is looking for an industrial partner to commercialize the invention.



### Why partner with VTT?

#### 10 reasons for technology partnering with VTT

1. Key factor in Finland's success story with a track record to prove it
2. Licensing and co-venturing opportunities
3. Portfolio of more than 1,000 patents and inventions
4. New business and product concepts based on strong IP and world class research
5. Combined experience of more than 2,000 motivated researchers in eight focused areas of technology
6. Active member in hundreds of scientific & business communities
7. Excellent track record as coordinator and partner in EU projects
8. Collaboration with TOP 50 R&D companies in Finland
9. Global R&D partnership with 50 Fortune 500 companies
10. Market driven multi-disciplinary solutions

### Additional information

VTT Technical Research Centre of Finland  
 Inka Orko, Business Development Manager  
 Tel: +358 20 722 6630  
 inka.orko@vtt.fi  
 P.O. Box 1000, FI-02044 VTT, Finland