



≡ METALFINISH ≡

**ISOTROPIC
SUPERFINISHING**

ISOTROPIC SUPERFINISHING

ISF® and REM®

The Isotropic Superfinish process (or simply ISF®) is used on those components that require enhanced performance and output. The process gives the component an isotropic finish, that is, a non-directional, uniform surface finish with a low Ra obtained by lowering the roughness and increasing the compressions so as to enhance the performance of these components. The process is achieved with the use of high density vibratory finishing media and chemical accelerants selected based on the user's requirements. We use twin-bowl vibratory finishing machines for components that can be processed in large batches, as well as vibratory machines for a single piece which can be secured. (mv vibratory machine)

BENEFITS:

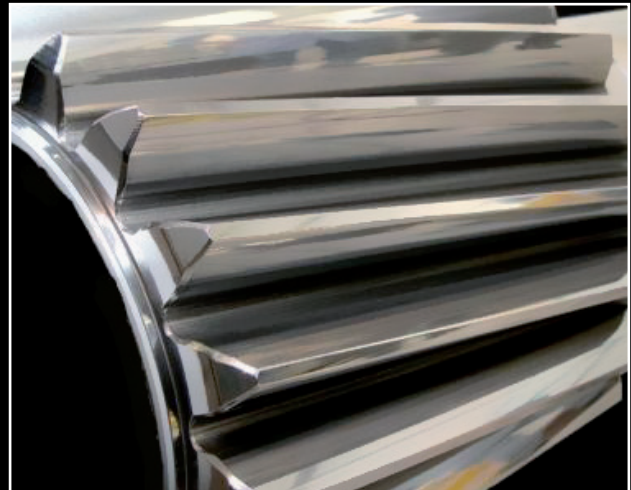
1. Very low roughness (0.02 Ra) and consequently reduced friction, noise, operating temperatures.
2. No surface stress or tension resulting from upstream processes.
3. No pitting on gear surface.
4. Increased surface microhardness.
5. Improved fatigue strength.
6. Dimensional integrity remains intact.
7. Improved lubrication.
8. Extended life of the part.
9. Longer times between maintenance.
10. Lower operating costs.

SUITABLE COMPONENTS FOR THIS TREATMENT:

Gears, motor shafts, turbine vanes, impellers for compressors, power transmissions, blades for aeronautics, toothed joints, punches for dies, aerospace turbine blades.

Industries:

Energy, automotive, motorsports, aerospace, military, earthmoving machinery, hydraulics, pneumatics, etc...



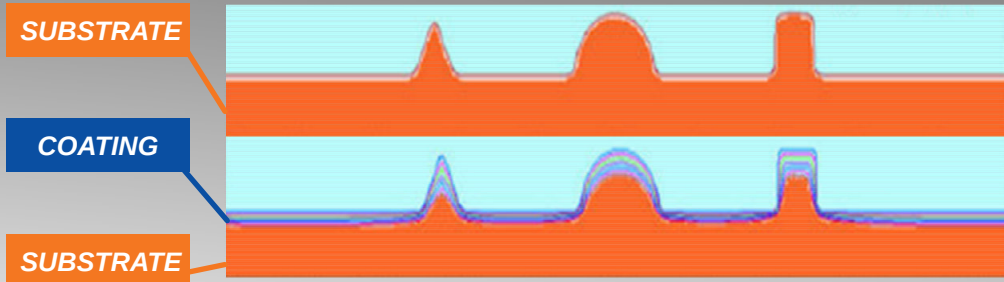
SUPERPOLISHING OF MECHANICAL COMPONENTS

Example of benefit for punches and matrices



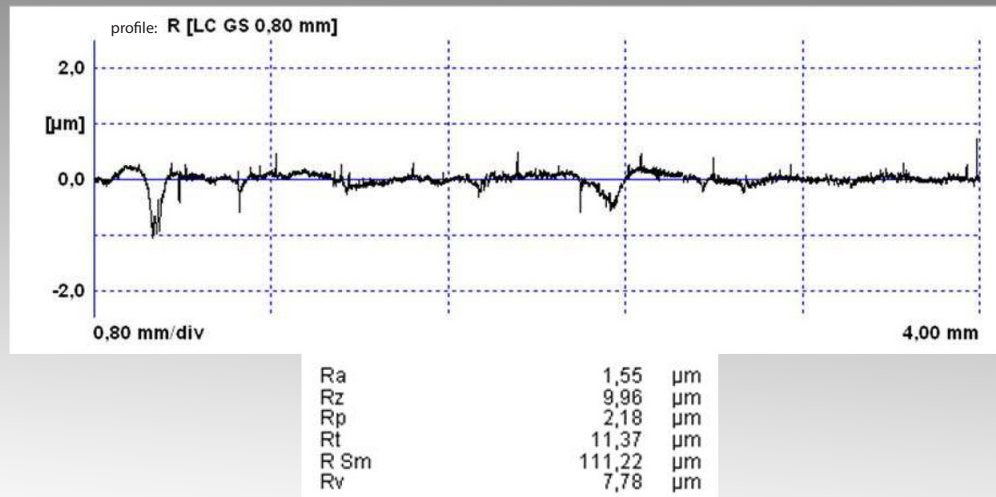
THEY PRESENT FAIRLY IRREGULAR SURFACES, WITH PARTIAL POLISHING ONLY IN THE AREAS THAT COME INTO CONTACT WITH THE COIL.

THE PVD COATING WHICH IS APPLIED TO THE SUBSTRATE IS OF VARIABLE ROUGHNESS, LACKING HOMOGENEITY



**CHIPPING
DETACHMENT OF THE PVD
COATING PUNCH BREAKS**

UNTREATED COATED PUNCH SURFACE



SUCH PROBLEMS CAN BE PREVENTED BY APPROPRIATELY TREATING THE SURFACE OF THE PUNCH BEFORE COATING



KERAMOFINISH®

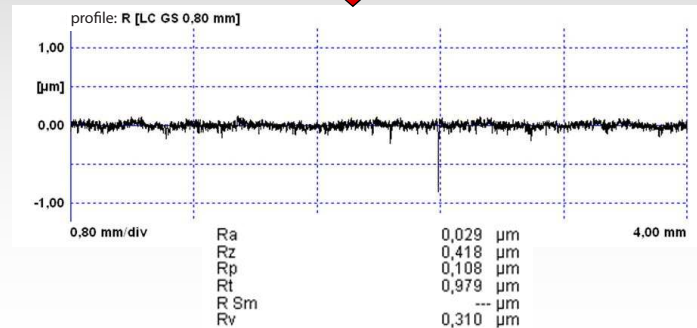
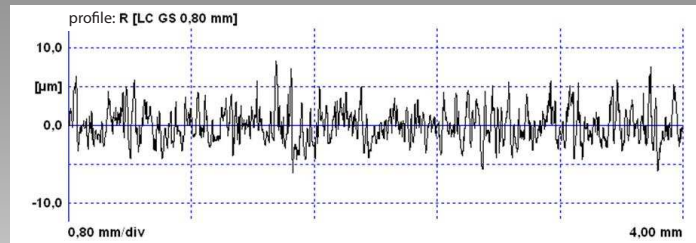
RISF® **REM**®



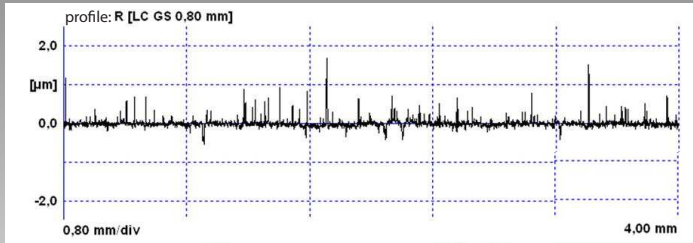
Isotropic Surface Finishing



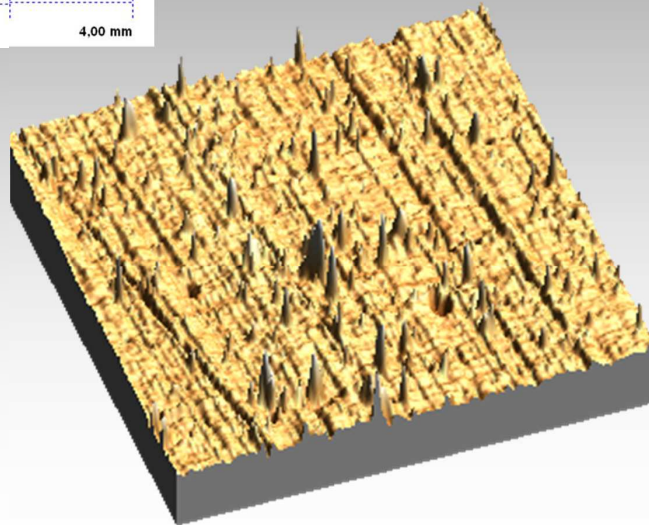
PREPARATION OF THE SURFACE FOR COATING



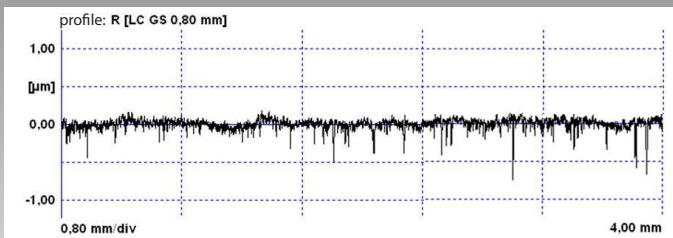
SURFACE AFTER COATING WITH Ra 0.05/0.06 μm



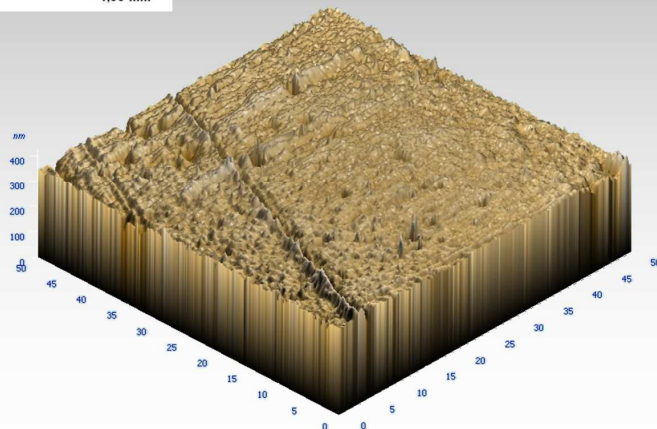
Ra	0,06 μm
Rz	1,58 μm
Rp	1,22 μm
Rt	2,24 μm
R Sm	--- μm
Rv	0,36 μm



SUPERFINISHING OF THE PUNCH AFTER COATING MAKES IT POSSIBLE TO REDUCE FRICTION



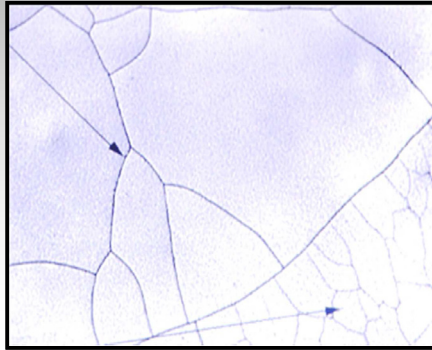
Ra	0,046 μm
Rz	0,682 μm
Rp	0,148 μm
Rt	0,936 μm
R Sm	--- μm
Rv	0,534 μm



**SUPERPOLISHING CAN MAKE THE SURFACE HOMOGENEOUS
WITH VERY LOW ROUGHNESS VALUES (Ra 0.02/0.03 μm)**



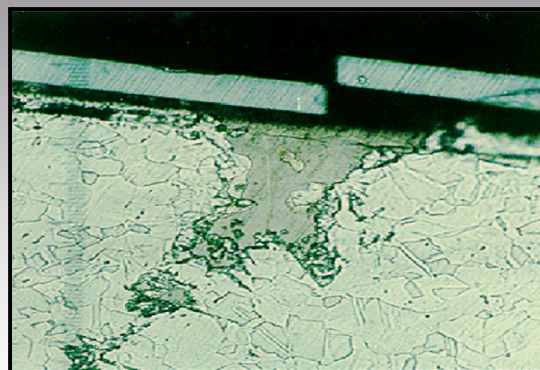
ELIMINATION OF MICROCRACKS



**SIGNIFICANT REDUCTION IN CHIPPING
LONGER TOOL LIFE AND BETTER PUNCHING RESULTS
E-USE OF TOOLS BY GRINDING**



**PREVENT MISCELLANEOUS COATING
DETACHMENTS**



OUR CERTIFICATIONS

Metal Finish srl is certified to UNI EN ISO 9001:2015.
For us, certification is both a goal and a starting point for optimising company procedures in order to guarantee the quality of our work.
Now we also use the 6S method.



METALFINISH

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