

## **New processing concept in the SF stream finishing machine for gear wheels: Deburring, rounding of edges, smoothing of tooth flanks**

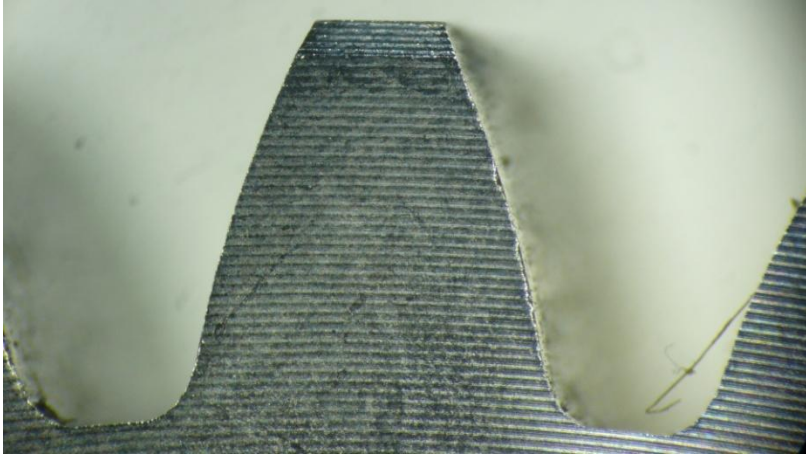
With the new processing concept of the SF stream finishing machine it is possible to process workpieces, e.g. gear wheels, in a very short processing time. This new technique allows process times of less than 2 minutes. Due to the fact that five workpieces can be processed at the same time and can be loaded and unloaded with a robot, the process time of each workpiece is reduced to 24 seconds.

Specific processing for gear wheels (at best ground or/and shaped,  $\varnothing$  20-300 mm):

- The workpieces are e.g. clamped in a three jaw chuck with a diagonally arranged holder (see pic. 1). You can see the unsmoothed edges of the tooth flanks on picture 2.
- The workpieces are immersed in the flowing media (see pic.3). The media which is used here is e.g. QZ 1-3 (fused aluminium oxide with grain size 1-3 mm). Water and compound (e.g. SC 15) are added to the process.
- During the process the workpieces rotate totally program controlled around their own axis. In this example: 30 seconds to the right and 30 seconds to the left.
- During the process the container with the media rotates one minute clockwise and then one minute counter clockwise.
- After 2 minutes the result is achieved (see pic. 4). The roughness on the tooth flanks is minimised from Ra 0.92 to 0.51.



Picture 1: Clamped workpieces



Picture 2: Tooth flanks before processing



Picture 3: Workpieces during processing



Picture 4: Tooth flank after processing