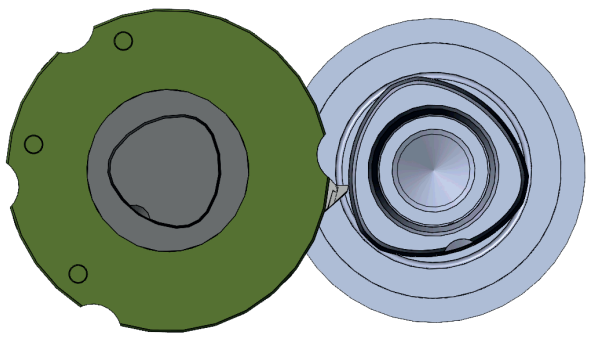
POLYGONAL HAMMERING
SPECIAL APPLICATION OF POLYGON TURNING

AREAS OF APPLICATION AND USE

A characteristic feature of polygonal hammering is the setting of a speed transmission ratio between the tool and the workpiece. Both rotate in such a way that counter-rotation is generated at the cutting edge engagement point. However, synchronisation is also possible, with other cutting conditions, some of which are less favourable, but other shapes can also be produced. If the transmission ratio is chosen appropriately, polygons with any number of corners can be created. In addition to the transmission ratio, other influencing factors are the tool radius and the minimum diameter to be produced, which affect the size and shape of the polygon.

The application areas of the process are, for example, convex polygons (counter-rotation) or notched (mating) gears (synchronization).

By choosing a suitable transmission ratio, several cutting edges can be placed on the tool, which increases productivity in terms of the tooth feed to be used. The tools required for the process are not available on the market, as the tools offered are designed for the production of spanner flats and thus have an insufficient clearance angle reserve. From the contour to be produced, the necessary tools can be derived at the NSH Group, which are ideally matched to the process and the material.



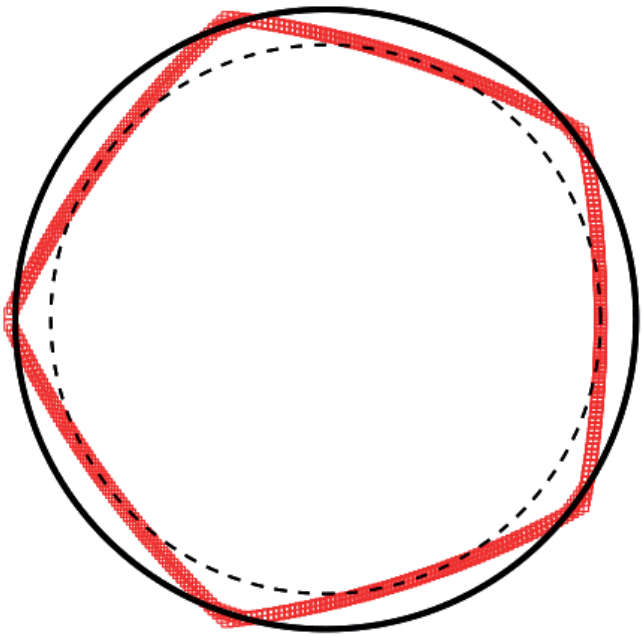
ADDED VALUE

- Productivity through the use of special tools (short production time with high chip volume)
- Production of polygons on shafts and axially variable polygonal contours (gripper grooves on tool blanks)
- Manufacture of plug-in gears, polygons for superimposing force and form fit (seat for sheet metal packages of motor shafts)
- Special tools are adapted to the contour to be produced.
- Use of cost-effective standard indexable inserts in the tools
- Creation of a complete technology package possible, consisting of tool design, tool production, process design, and technology trial
- Integration of polygonal hammering without additional machine expenditure = integration in a standard lathe with driven tools possible and in a turning-milling machining center

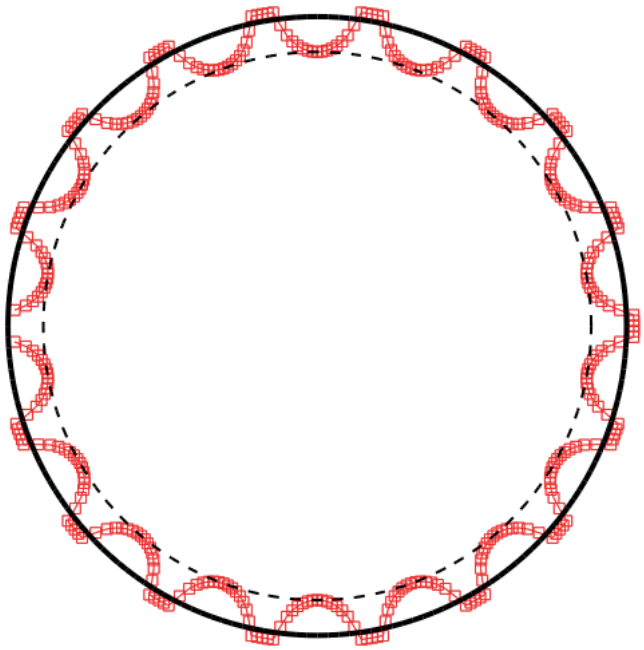
FUNCTIONAL INSTRUCTIONS

- With polygonal beating, cutting speeds of >250m/min can be achieved with a high feed rate of usually fz=0.1mm/rev.
- The linear axes of the machine tool can be used to map polygonal features such as undercuts, chamfers, and tapers.

Multi-edge hammering in counter-rotation



Multi-edge hammering in synchronisation



NSH TECHNOLOGY GmbH | Dr. Moritz Halle | Zwickauer Str. 355 | 09117 Chemnitz | m.halle@nshgroup.com | +49 371 · 802 410