Connecting rods made forged steel

Stable, reliable process for machining lightweight connecting rods

Connecting rods are engine parts subjected to high dynamic loads. Current trends in engine manufacture, for instance downsizing or the reduction of the CO₂ emissions with the same or even higher engine power output, also require new approaches during the development and manufacture of connecting rods. By using higher strength, innovative materials as well as new manufacturing processes, today it is possible to manufacture ever lighter connecting rods.

In particular for the latest lightweight connecting rods MAPAL offers tool solutions for complete bore machining that reliably and cost-effectively meet all the requirements placed.

To machine special part geometries, for instance the blind hole in the trapezoid form on the gudgeon pin bore, MAPAL has developed a hybrid tool that combines the advantages of ISO indexable inserts and MAPAL guide pad technology.

In this way the blind hole is reliably produced in IT7 quality.

Tool highlights for connecting rod machining

1. Drilling from the solid and chamfering the small pin bore
   Solid drilling tool of reinforced design for heavily interrupted cuts. Additional chamfer machining in bore entrance and exit.

2. Hybrid tool for fine machining the blind hole at the small pin bore
   Combination of ISO indexable inserts and guide pad technology machines the trapezoid shape in IT7 quality.

3. Combination tool for small and large pin bore
   Combination tool with solid drilling, boring and chamfering stage for machining the small and large pin bore with minimal tool changes.

4. Solid carbide step drill for screw holes
   The tool combines the two bore diameters in the connecting rod and cap as well as the chamfer machining.

Advantages:
- Stable, reliable process
- Combination tools reduce tool changes