

Components produced by Precision Rotary Swaging:
Assembling Pinion and Connecting Piece

89 1035/M



Workpiece:

Material: Spur wheel:
 20 MoCrS; hardened
 Connecting piece:
 CK 45, soft

Blank: Machined by metal cutting techniques

Manufacturing requirement:

2 machined workpieces are fixed together in one operation.

Previous technique:

none, new design

Operation sequence:

1. The two workpieces are fitted together and checked for play-free contact.
2. The two parts are firmly fixed together by recess swaging.
3. The assembled parts are checked.

Advantages:

- No reliable alternative method could be found that would ensure safe, long lasting fixing together of the two parts, namely the conventionally made, hardened spur wheel and the turned connecting piece which is not hardened.
- The checking system ensures that the contact faces of the spur wheel rest firmly against the corresponding faces on the connecting piece. A gap in this area, which could be caused by a particle of chip or a burr will be recognized and results in a separate ejection of the faulty workpiece.
- Manufacture of the component in two parts is more economical.
- The workpiece is shorter and lighter as the splining can be manufactured without a run-out zone.

Machine description:

Automatic transfer line consisting of:

Conveyors for loading and unloading the workpiece.

- 1 rotating Recess Swaging Station and equipment for checking the workpieces before and after the swaging process in which the two parts are fixed together

Production rate:

Cycle time: approx. 12 sec.
 (= 5 pieces/min.)

Machine:

Model: HA 40-1 VUE

Required floor space without sound enclosure: (L x W x H)
 approx. 4900 x 4600 x 2500 mm

Weight: approx. 8,000 kg

Required power: approx. 25 kW