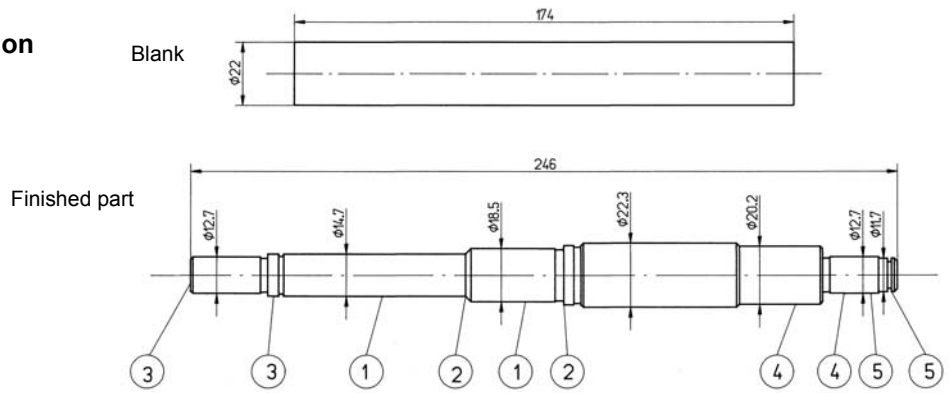


Components produced by Precision Rotary Swaging:
Starter Shaft



89 1698/M

Workpiece:

Material: Steel C 45 or similar

Blank: bar section
O.D. 22.3 mm and
length 174 mm

Manufacturing requirement:

Forming of starter shaft to near
net shape for grinding operation

Previous technique:

Turning

Operation sequence:

1. Feed swaging
2. Turning of grooves and shoulders
3. Turning of grooves and plane surfaces
4. Recess Swaging
5. Turning of dia. 12.7 mm, groove and plane surface

Advantages:

- Good dimensional accuracy
- Excellent surface finish
- Considerable material savings
- Minimal chip production / reduced costs for chip removal
- Favourable grain structure
- Work hardening of material
- Complete manufacture of part in only one machine pass

Machine description:

Automatic transfer line
consisting of:

- 1 stacking magazine with steeply inclined conveyer
- 2 swaging stations
- 3 turning stations

Production rate:

Cycle time: 15 sec.
(= 4 pieces/min.)

Machine:

Model: HA 40-5 VUE

Required floor space including
sound enclosure: (L x W x H)
approx. 7500 x 6200 x 3800 mm

Weight: approx. 20,000 kg

Required power: approx. 62 kW