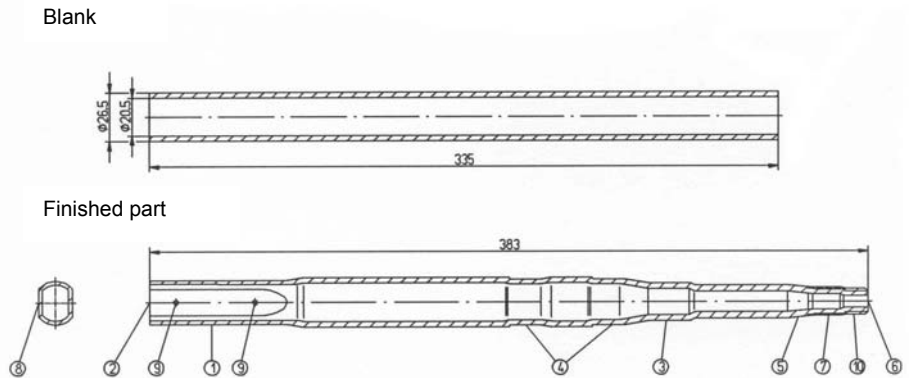


Components produced by Precision Rotary Swaging:  
**Steering Column, Upper Part**



93 1333/M

**Workpiece:**

Material: St 52-3

Blank: Ø 26.5 x 3 mm  
335 mm long

**Manufacturing requirement:**

Complete manufacture of the workpiece from the tube section

**Previous technique:**

Drawing followed by metal cutting; sleeve with milled slots shrunk onto steering column lock zone

**Operation sequence:**

1. Initial reduction of diameter on a mandrel for the DD flat
2. Turning of end face and chamfering

3. First reduction on second side (feed swaging)
4. Recess swaging of two grooves for steering column lock
5. Complete reduction of second side (recess swaging)
6. Turning of end face and chamfering
7. Forming of spline
8. Feed swaging of DD flat
9. Piercing of four holes
10. Rolling of thread

**Advantages:**

- Good dimensional accuracy
- Excellent surface finish
- Considerable material and weight savings
- Minimal chip production
- Favourable grain structure
- Work hardening of material
- Manufacture of part in only one machine pass

**Machine description:**

Fully automatic rotary swaging and machining transfer line with 10 work stations

**Production rate:**

Cycle time: approx. 10 sec.

**Machine:**

Model: HA 40-12 VUE

Required floor space without sound enclosure: (L x W x H)  
approx. 17000 x 8000 x 3800 mm

Weight: approx. 54,000 kg

Required power: approx. 150 kW