

Components produced by Precision Rotary Swaging:
Steering Column, Lower Part, Hollow



89 1734/M

Workpiece:

Material: St 52 (standard steel with low carbon content)

Blank: tube O.D. 20 mm and wall thickness 2.8 mm

Manufacturing requirement:

Forming the complete steering column component out of a tube cut to length.

Previous technique:

Part made up of two pieces welded together (left end hollow, right end with DD flat and square)

Operation sequence:

- 1+2 Infeed swaging over a mandrel for subsequent forming of the DD flat
- 3. Facing the workpiece end
- 4+5 Infeed swaging the DD flat over a mandrel

- 6. Recess swaging to form the square
- 7. Recess swaging for recalibrating the square and forming the groove at the end of the workpiece
- 8. Milling the flutes, turning round workpiece
- 9. Recess swaging over a mandrel
- 10. Facing the workpiece end
- 11. Pressing the spline
- 12. Milling the transverse grooves
- 13. Deburring the spline

Advantages:

- Considerable weight and cost savings resulting from the use of tubing and from the one-piece conception
- Excellent surface finish
- Operations completed on one transfer line
- Upper section produced in one pass
- Weight saving approx. 38 %.

Machine description:

Automatic transfer line consisting of:

- 1 feed magazine for approx. 500 blanks
- 7 swaging stations
- 1 horizontal press
- 2 milling stations
- 2 turning stations
- 1 deburring station

Production rate:

Cycle time: 10 sec
 (= 6 pieces/min.)

Machine:

Model: HA 32-13 VUE

Required floor space including sound enclosure: (L x W x H)
 approx. 14000 x 7000 x 2600 mm

Weight: approx. 45,000 kg

Required power: approx. 100 kW