

Components produced by Precision
Rotary Swaging:
Fountain Pen Cap



93-1695/M

Workpiece:

Material: brass
precious metals
(silver, gold)

Blank: tube dia. 9.3 to 12.5 mm
wall thickness 0.4 and
0.3 mm
length 55 to 85 mm

Manufacturing requirement:

Complete manufacture of various
writing implement shells in one
machine pass

Previous technique:

Deep-drawing

Operation sequence:

1. Forming workpiece profile over mandrel
2. Trimming workpiece ends and flange if required
- 2a. Turning workpiece by 180° if required
3. Milling or boring locating slot for further processing or for the clip recess
4. Brushing and deburring station

Advantages:

- Good dimensional accuracy
- Excellent surface quality ($R_a = 0.2$ to $0.3 \mu\text{m}$)
- Low tooling costs
- Short changeover time (approx. 30 min.)
- Finish grinding eliminated
- Complete manufacture on one transfer line

Machine description:

Automatic transfer line consisting of:

- 1 swaging station
- 1 cut-to-length and flanging station
- 1 milling and boring station
- 1 brushing and deburring station

Production rate:

Cycle time: approx. 6 pieces/min.

Machine:

Model: HA 16-4 SO

Required floor space without sound enclosure: (L x W x H)
approx. 4600 x 2350 x 1800 mm

Weight: approx. 4,000 kg

Required power: approx. 17 kW