

8. Application examples: medical implants

Balls of hip joint implants are processed with hydrostatic deep rolling tool with the goal of higher durability as well as raised wear resistance (Fig 8-1).

The inner contour of hip joint shells are treated also becomes with a hydrostatic tool ballpoint HG. Some components are manufactured with holes in the spherical area. In this case, not only the pressure is controlled according to chapter 2, also the tool motion has to be precisely the CNC-controlled. The burnishing element is continuously run short before its external stop. When crossing over of the holes, it only can expand gradually. The edge of the holes becomes slightly rounded and residual compressive stresses are generate at this corners as well. That reduces the notch effect of the holes.

The outer contour of bushings for spinal column implants is also deep rolled with the hydrostatic tool HG6. A considerable increase of the durability was proved in tests before starting production.

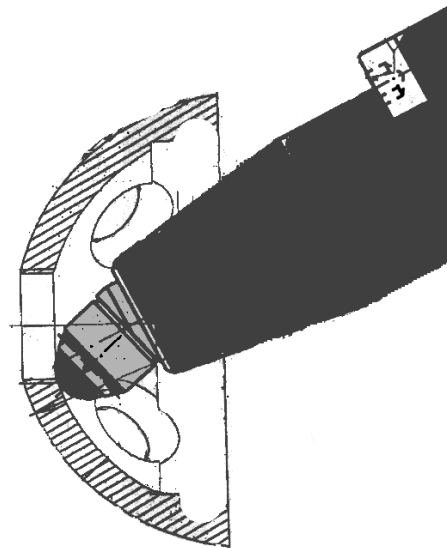


Fig.8-1: deep rolling of a hip joint shell

Remark: In addition to these applications, roller burnishing of sphere for hip joints with hydrostatic tools is already practiced. This is not further described in this document, as roller burnishing does not aim for increased fatigue strength.