

9. Oil field equipment

The austenitic non-magnetic materials tend stress corrosive tracking under the influence of aggressive environment, for example Chloride containing liquids. The center bore of these components, used for petroleum and natural gas deep drilling is especially concerned. High residual tension stresses remain from prior production process. The prefabricated parts are several meters long, the drilling of range from 50 to 90 mm.

The deep rolling of the holes can take place on deep hole boring machines and also on lathes, however. The tool is suitable for all occurring drilling lengths. It is equipped, with two about oppositely arranged hydrostatically balls (Fig. 9-1) and is driven and pushed forward by the boring bar. Following parameters are recommended:

Circumferential speed	until 100 m/min	
Feed rate	0,3 - 0,5 mm/rev	
Hydraulic pressure	100 - 700 bar 1450 to 10500 PSI	with $p > 400$ bar (5800 PSI) only with oil,



Tiefe / Depth [μm]

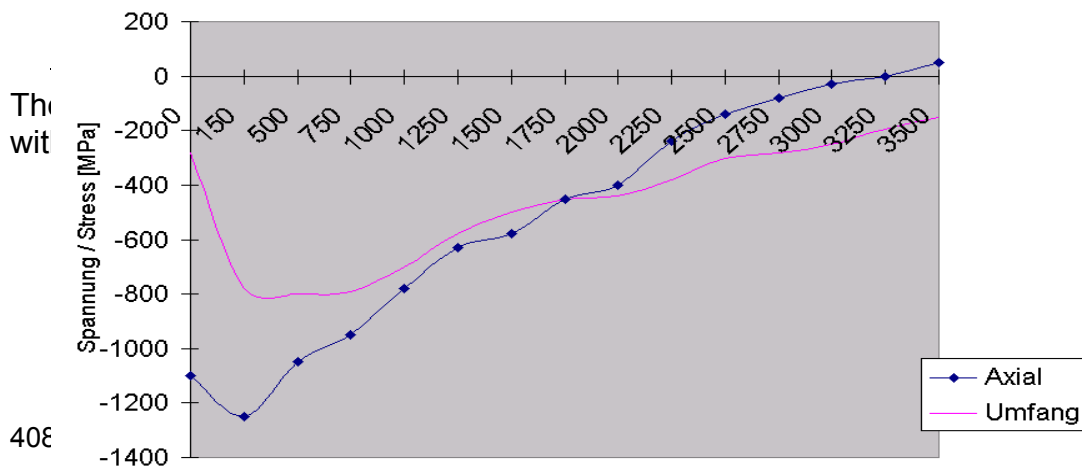


Fig. 9-2: deep rolling of holes dia. 76 mm HG13-4, $v=90$ m/min; $f=0,44$ mm/rev; $p=430$ bar