

5.4 Roughness measurement of surface

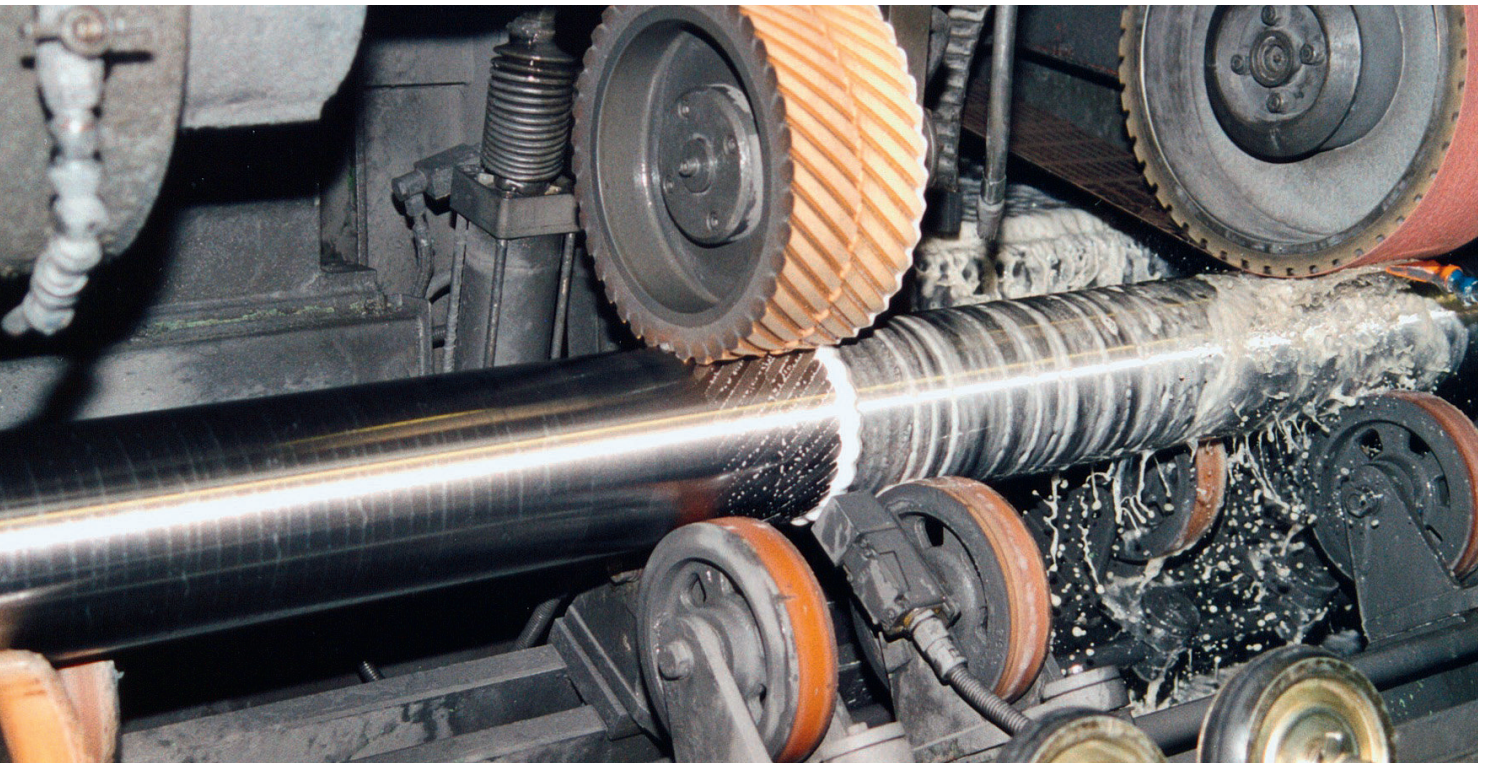


Fig. 5.4_1: Radial grinding of outside surface

Comparison of roughness measurement acc. to DIN EN ISO 4288



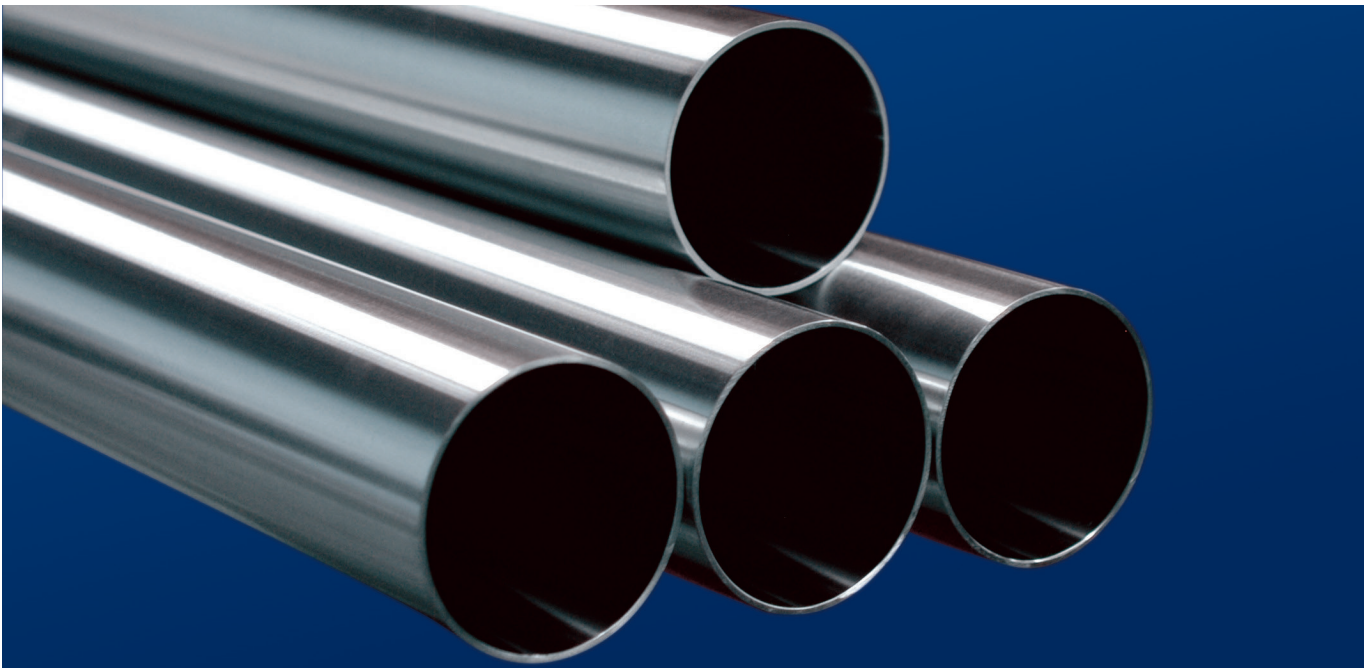


Fig. 5.4_3: Inside ground pipes

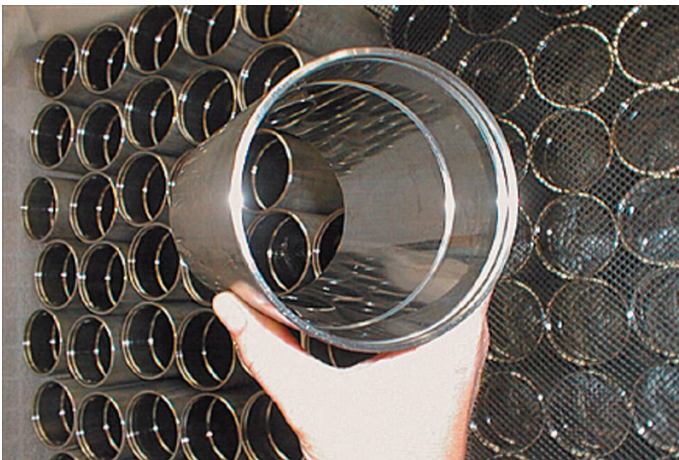


Fig. 5.4_4: Roller-burnished cylinders



Fig. 5.4_5: Pump shell body, outside surface ground

Table 5.4_6: Inside and outside surface conditions acc. to DIN 11866 (extract as per January 2008) – stainless steel pipes for chemical and pharmaceutical industry

Hygiene class	Surface condition (μm)		
	R_a Inside surface (axially and radially)	R_a Inside weld (axially and radially)	Outside
H1	< 1.60	< 3.20	Pickled or bright annealed, without special requirements of roughness or ground R_a < 1.0 μm (axially)
H2	< 0.80	< 3.20	
H3	< 0.80	< 0.80	
H4	< 0.40	< 0.40	
H5	< 0.25	< 0.25	

No guarantee for correctness

Table 5.4_7: Surface conditions after radial external grinding

Grit	Industrial grinding average roughness R_a (μm)	Special requirements average roughness R_a (μm)
180 – 240	≤ 1.3	≤ 0.9
320 – 400	≤ 0.9	≤ 0.5
320 – 400 / poliert	≤ 0.5	≤ 0.3

Basic stainless steel pipes made from cold rolled raw materials, axial R_a -measurement

No guarantee for correctness