



Production

■ Turning

11- and 13-axis CNC long turning centres up to diam. 32 x 450 (TRAUB TNL 12/7, TNL 26, TNL 26K, TNL32-7, TNL32-11). 4- and 8-axis CNC-long lathes up to diam. 16 x 350 (CITIZEN, TORNOS). 4- and 8-axis CNC short turning centres up to diam. 65 (TRAUB TNS 30/42, TNC 65, TNX 65). CNC chuck lathes up to diam. 200 x 500 (WEISSER, BENZINGER, MONFORT in some cases with driven tools). CNC cycle lathes (SCHAUBLIN). CNC-high-precision turning centres for hard machining (BENZINGER, in some cases with handling robotic MONFORTS).

■ Milling

4- and 5-axis CNC milling centres (HERMLE C600U, C32) with operational range 600 x 450 x 450. CNC milling machines (DECKEL). Universal milling machines, in some cases with multi-spindle heads (DECKEL, HERMLE). Thread cutting machines.

■ Grinding

CNC external cylindrical grinding machines up to diam. 60 x 500 (STUDER S20, S21, S31). External cylindrical profile grinding machines with measurement control up to diam. 60 x 500 (SCHAUDT, MSO, STUDER). Centreless external cylindrical grinding machines up to diam. 60 (HERMINGHAUSEN, SCHUMACHER). Internal cylindrical grinding machines up to diam. 40 (JUNG). Surface grinding machines, operational range 650 x 400 (JUNG, ABA). Levelling machines.

■ Surface finishing

CNC horizontal honing machines up to diam. 60 x 250 (SUNNEN). Single-disc flat lapping machine (JOISTEN & KETTENBAUM). Vibratory grinding machines. Centrifugal grinding machines. Spraying machines.

■ Heat treatment

Chamber furnace. Recirculating furnace.

■ Toolmaking, prototyping

Universal tool machines. Tool grinding machines (DECKEL). Precision coordinate drilling machine (FEHLMANN).

■ Assembly

Universal assembly workstations. Riveters. Assembly workstations. Soldering stations. Hydraulic testing rigs.

■ Component cleaning / Packing in a clean room

Program-controlled cleaning plant (HÖSEL), with combined cleaning system (hydrous and organic) in a low particle design. Multistage ultrasonic dip tank with hot air drying, individual ultrasonic tanks, packing in a clean room ISO class 7.

■ Climate-controlled test centre

Optical and tactile 3D measuring machines (ZEISS, TESA, SCHNEIDER). CNC form measurement systems (REMOG-FAG FMS 4210, Hommel Etamic Roundscan 555 HR). Conturograph (MAHR; T&S). Digital-Microscope (KEYENCE VHX-500FD). Laser micrometer (ZYGO, KEYENCE). Measuring microscope (LEITZ, ZEISS). Profile projectors. Stereomicroscopes. Endoscopes. Hardness testing units for Rockwell, Vickers, Brinell and Shore. Surface roughness measuring devices (HOMMEL, MAHR). Coating thickness measuring devices. Pneumatic internal and external measuring devices. Incremental calliper (HEIDENHAIN), X-ray fluorescence spectroscopy.