

Production

Turning

11- and 13-axis CNC long turning centres up to diam. 32 x 450 (TRAUB TNL 12/7, TNL 26, TNL 26K). CNC long lathes up to diam. 16 x 350 (TORNOS). 4- and 8-axis CNC turning centres for complete processing up to diam. 65 (TRAUB TNS 30/42, TNC 65). CNC chuck lathes up to diam. 200 x 500 (WEISSER, BENZINGER, MONFORT). CNC cycle lathes (SCHAUBLIN). CNC-high-precision turning centres for hard machining. Thread-rolling machine (ABELE).

Milling

4- and 5-axis CNC milling centres (HERMLE U600) with operational range 600 x 450 x 450. Vertical processing centres (H&K, EMCO) with operational range 600 x 300 x 300. CNC milling machines (DECKEL). Universal milling machines, in some cases with multi-spindle heads (DECKEL, THIEL, HERMLE). NC thread cutting machines.

Grinding

CNC external cylindrical grinding machines up to diam. 60 x 500 (STUDER S20, S21). 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). 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 (dry and suspension).

Heat treatment

Chamber furnace. Recirculating furnace.

Toolmaking, prototyping

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

Assembly

Clean-room workstation. Riveters. Assembly workstations with air screwdrivers. Soldering stations.

Component cleaning

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

Climate-controlled test centre

Optical and tactile 3D measuring machines (TESA, MAHR). CNC form measurement system (REMOG-FAG FMS 4210). Contourograph (MAHR). Digital-Microscope (KEYENCE VHX-500FD). Laser micrometer (ZYGO). Measuring microscope (LEITZ, ZEISS). Profile projectors. Stereomicroscopes. Endoscopes. Hardness testing units for Rockwell, Vickers, Brinell and Shore. Surface roughness measuring devices (PERTHEN, HOMMEL, MAHR). Coating thickness measuring devices. Pneumatic internal and external measuring devices. Incremental calliper (HEIDENHAIN).