

MACHINERY

Manufacturing

All machining processes in-house, from the sliding-head turning centre to the air-conditioned inspection centre.

■ Turning

11- and 13-axis CNC sliding-head turning centres up to Ø 32 x 450 (TRAUB TNL 12/7, TNL 26, TNL 26K, TNL 32-7, TNL 32-11). 4- and 8-axis CNC sliding-head turning centres up to Ø 16 x 350 (CITIZEN). 4- and 8-axis CNC fixed-headstock turning centres up to Ø 65 (TRAUB TNX 65). CNC chucking lathes up to Ø 200 x 500 (BENZINGER, MONFORTS, some with driven tools). CNC cycle-controlled lathes (SCHAUBLIN). CNC high-precision lathes for hard machining (BENZINGER, some with handling robots, MONFORTS). CNC turning centre Doosan Lynx 2100.

■ Milling

4- and 5-axis CNC machining centres (HERMLE C600U, C32) with a working range of 600 x 450 x 450. Universal milling machines, some with multi-spindle heads (HERMLE). Thread cutting machines. Häberle Fanuc machining centre.

■ Grinding

CNC external cylindrical grinding machines up to Ø 60 x 500 (STUDER S20, S21, S31 with StuderFormHSM and internal grinding attachment). Centreless external cylindrical grinding machines from Ø 1 to Ø 32 (HERMINGHAUSEN, SCHUMACHER). CNC surface grinding machines with a working range of 650 x 400 (JUNG, ABA). Straightening machines.

■ Fine machining

CNC horizontal honing machines up to Ø 60 x 250 (SUNNEN KG-5000, ML-5000, SH-5000). Single-disc lapping machine (JOISTEN & KETTENBAUM). Vibratory finishing systems. Centrifugal disc finishing system. Blasting systems.

■ Heat treatment

Chamber furnace. Air circulation furnace.

■ Tool making and prototyping

Universal machine tools. Tool grinding machines (DECKEL). Precision jig boring machines (FEHLMANN). CNC machining centre Picomax 56 Top (FEHLMANN).

■ Assembly

Universal assembly workstations, riveting machines, assembly benches, soldering stations, hydraulic test rigs.

■ Parts cleaning and cleanroom packaging

Program-controlled washing system (HÖSEL) with combined aqueous and organic cleaning in a low-particle design. Multi-stage ultrasonic immersion system with hot-air drying, individual ultrasonic baths, packaging in an ISO class 7 cleanroom.

■ Air-conditioned inspection centre

Optical and tactile 3D measuring machines (ZEISS, TESA, SCHNEIDER). CNC form measuring systems (REMOG-FAG FMS 4210, Hommel Etamic Roundscan 555 HR). Contour measuring instrument (MAHR, T&S,

ACCRETECH). Digital microscope (KEYENCE VHX-500FD). Laser length measuring devices (ZYGO, KEYENCE). Measuring microscopes (LEITZ, ZEISS). Profile projectors. Stereo microscopes. Endoscopes. Hardness testers for Rockwell, Vickers, Brinell and Shore. Surface roughness testers (HOMMEL, MAHR). Coating thickness gauges. Pneumatic internal and external measuring devices. Incremental probes (HEIDENHAIN). X-ray fluorescence analyser.