



TOS KUŘIM
ALTA GROUP

MACHINES FOR BALL JOINTS MACHINING

TOS KUŘIM – OS, a.s. produces and supplies two types of special machines for the technological lines for production of ball joints with diameters from 19 to 35 (alternatively from 32 to 100) mm. The supply may also include a system for inter-operational transport of workpieces between machines including a blank's magazine.

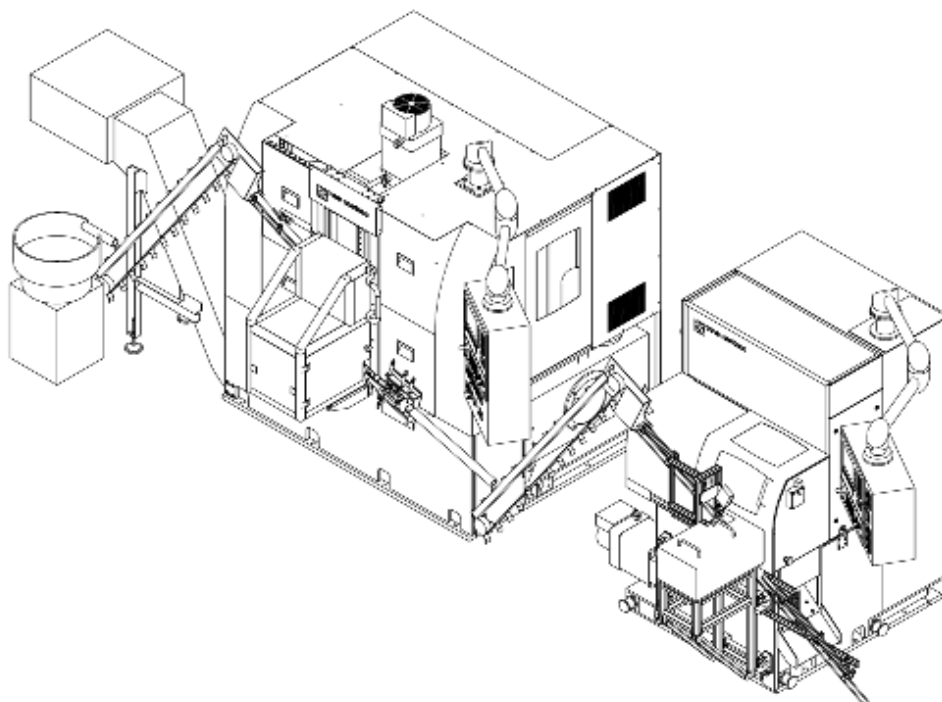
A photo of a technological line



Workpiece: ball joints



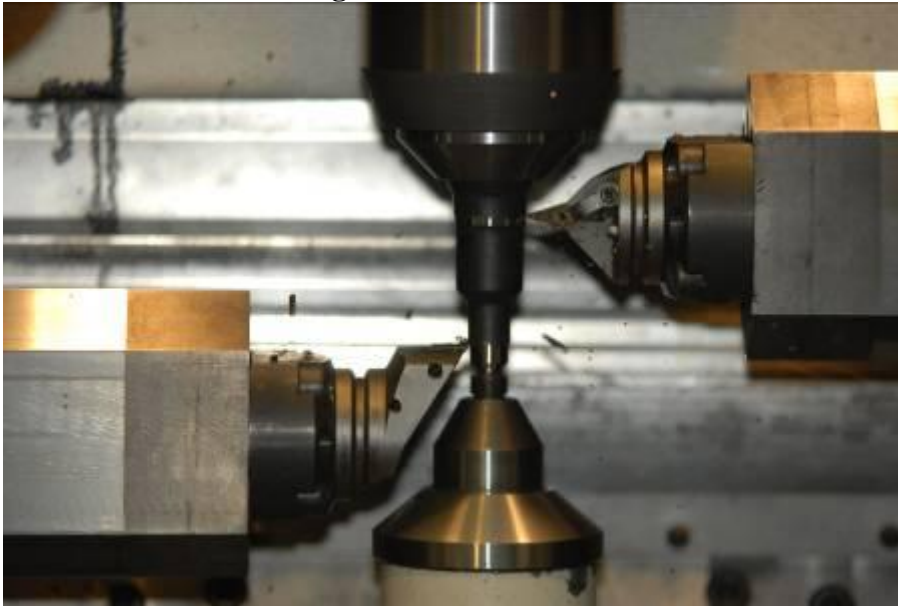
A sketch of a technological line



- *The detailed data is not binding with respect to ongoing development; the basic version can be adapted according to customer requirements.*

Special vertical lathe for profile turning of a ball joint shank, D = 19 to 35 mm

A detail of shank turning



Workpiece:	ball joint
Workpiece material:	forging
Operations:	ball joint shank turning
Machine cycle:	approx. 12 - 15 s including handling in dependence upon joint type and size
Production:	approx. 1,620 to 2,025 pcs/7.5 hr at 90% machine utilization in dependence upon joint type and size

Machine specification

The machine is designated for dry machining without cutting coolant.

Maximum speed of the headstock with hydraulic clamp jig is 6,000 rpm.

The tailstock is adjustable manually within the range of 300 mm and its hydraulic extension is 50 mm.

The machine is provided with two independently controlled slide rests with cutting tool holders. Longitudinal and cross stroke of the slide rests is 200 mm and 100 mm respectively which allows machining of joints with long neck. Maximum turning diameter is 60 mm. The machine includes also a device for monitoring of potential presence of a chip wound on the joint. Such joint is removed from the interstage transport system automatically. The machine can also be delivered together with a pneumatic manipulator for workpiece automatic loading/unloading.

The machine including workpiece handling and transport can be readjusted for machining another ball joint easily and quickly.

The machine is provided with a cabin guard, hydraulic and lubrication units, a working area illumination, a chip conveyor, an electric cabinet and a control panel.

The machine is provided with Siemens control system and drives. Compact design of the machine allows its transport without disassembly.

The lathe can be used also for profile turning of other shaft-type components.

- *The detailed data is not binding with respect to ongoing development; the basic version can be adapted according to customer requirements.*

Special machine for turning and rolling balls of ball joints, D = 19 mm to 35 mm



Workpiece:	ball joint
Workpiece material:	forging
Operations:	ball turning ball rolling potentially also deburring
Machine cycle:	approx. 12 s (+ 3 s for deburring) including handling in dependence upon ball size (the mentioned value applies to a joint with diameter of 19 mm)
Production:	approx. 2,025 pcs/7.5 hr at 90% machine utilization (the mentioned value applies to a joint with diameter of 19 mm without deburring)

Machine specification

The machine is designated for dry machining without cutting coolant. Constant cutting speed is maintained during machining.

Maximum speed of the headstock with hydraulic clamp jig is 6,000 rpm.

The rotary slide rest with tool holder and rolling system is adjustable longitudinally.

The machine can be provided with an auxiliary slide rest for edge chamfering or necking down.

The machine can also be delivered together with a pneumatic manipulator for workpiece automatic loading/unloading.

The machine including workpiece handling and transport can be readjusted for machining another ball joint easily and quickly.

The machine is provided with a cabin guard, hydraulic and lubrication units, a working area illumination, a chip conveyor, an electric cabinet and a control panel.

- *The detailed data is not binding with respect to ongoing development; the basic version can be adapted according to customer requirements.*

The machine is provided with Siemens control system and drives. Compact design of the machine allows its transport without disassembly.

MACHINES FOR MACHINING CONTROL COMPONENTS

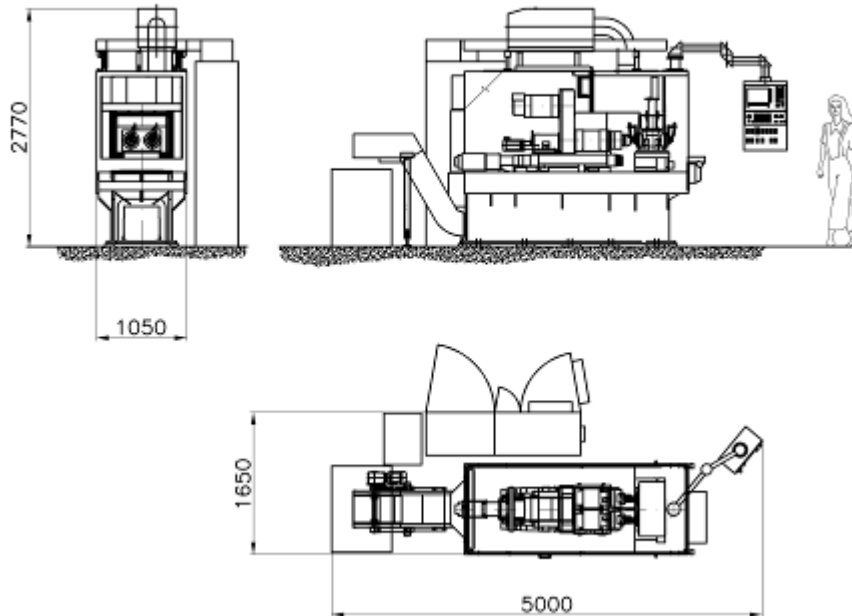
TOS KUŘIM – OS, a.s. produces and supplies special machines for technological lines for production of control components.

Special machine for machining a slot for collar



- *The detailed data is not binding with respect to ongoing development; the basic version can be adapted according to customer requirements.*

Machine layout



Workpiece: control external joint



Workpiece:	control external joint
Workpiece material:	forging, strength 600 to 950 MPa
Carried out operations:	collar slot turning
Machine cycle:	12 s
Production:	approx. 4,050 pcs/7.5 hr at 90% machine utilization in dependence upon joint type and size

- *The detailed data is not binding with respect to ongoing development; the basic version can be adapted according to customer requirements.*

Machine specification

The machine is designated for dry machining without cutting coolant.

Machine with two-position rotary table, two-spindle type, with two planning heads.

Two workpieces are produced simultaneously. Hydraulic workpiece clamping system.

The machine is provided with a cabin guard, hydraulic and lubrication units, a working area illumination, a chip conveyor, an electric cabinet and a control panel.

The machine is provided with Siemens control system and drives. Compact design of the machine allows its transport without disassembly.

- *The detailed data is not binding with respect to ongoing development; the basic version can be adapted according to customer requirements.*