

KFU-D2/90

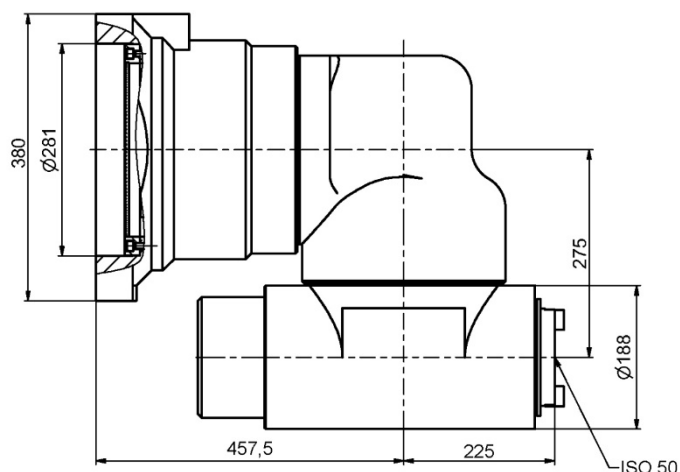
FEATURES

SEMPUCO KFU-D2/90 two-axis orthogonal automatic positioning milling head is designed for the RET10X, RET10P (RET100B in the machine version with ram) horizontal milling and boring machines as an optional technological accessory.

SEMPUCO KFU-D2/90 milling head can be used to mill and bore in any inclined plane.

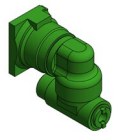
Milling head is mounted on the head stock automatically.

Milling head is positioned automatically.



MAIN PARAMETERS

Clamping taper	50	ISO
Tool shank	69871	DIN
Tool clamping force	18	kN
Max. tool diameter	160	mm
Max. tool length	350	mm
Max. tool weight	30	kg
Max. spindle speed	3 500	rpm
Max. transmitted power (from nominal speed)	20	kW
Max. torque on the spindle (to nominal speed)	600	Nm
Nominal speed	318	rpm
Speed transmission from machine spindle to milling head spindle	1:1	
Angle range of the rotary part – C axis	+/-180	deg
Angle range of the rotary part – A axis	+/-110	deg
Hirth serration division for A/C axis positioning – standard/optional	2,5/1	deg
Precision of Hirth serration division	+/-3	arcsec
Milling head positioning speed	30	rpm
Max. tangential load on Hirth serration	5 000	Nm
Max. feed force in the direction of the milling head spindle axis	8 400	N
Total milling head weight	ca. 400	kg



BRIEF TECHNICAL DESCRIPTION

Milling head consists of three compactly connected basic parts, which can be twisted against one another in order to achieve the required position of the milling head spindle.

A precise and repeatable mounting of the milling head on the headstock is ensured by a joint with Hirth serration.

The angle of rotation in the milling head intersection surface is set by entering the parameter into the control system. The milling head rotation is performed automatically. The milling head interior includes all the mechanisms for positioning in the A/X axes. The positioning is derived from the machine spindle rotation. A precise position determination and locking is ensured by the pneumatically/hydraulically controlled joint with Hirth serration.

SPINDLE

Milling head spindle is driven by the machine spindle and the direction of its rotation is identical with the direction of rotation of the machine spindle.

Milling head interior includes all the mechanisms for the milling head spindle drive (gear wheels) and bearing (in precise spindle bearings).

Tool is clamped in the milling head spindle mechanically using disc springs. Tool is unclamped hydromechanically with pressure oil supply from the machine.

Tool is inserted into and removed from conical cavity of the milling head manually or automatically (depending on the machine version).

Control of clamping/unclamping of a manually inserted tool is identical with the control of the machine clamping system.

LUBRICATION

Lubrication of the milling head spindle bearing and the bearings of the individual parts of its drive is a permanent grease lubrication.

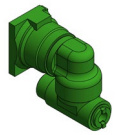
TOOL COOLING

By default, the milling head is adapted for tool cooling using cooling liquid supplied by external jets and/or through the spindle axis. In the version with both cooling circuits, it is not possible to use both functions at once. The circuit with supply through the spindle axis provides the option of blowing the spindle cavity with compressed air.

MOUNTING OF MILLING HEAD ON MACHINE

AUTOMATIC MILLING HEAD MOUNTING

An automatic milling head mounting is possible on the RET10X and RET10P machines. In this case, the machines have to be equipped with a device for automatic head changing (AHC) with a PICK-UP system, which particularly consists of a rack for technological accessories customized according to the specific purpose of use and a cover plate for the headstock front, which protects the elements for clamping and connecting a milling head against contamination and damage, while the milling head is deposited in the rack. The rack is permanently installed on the mobile auxiliary clamping pallet table (RET10X) or a clamping plate (RET10P).



Procedure of automatic milling head mounting on the machine:

- Automatic pallet table travel (RET10X) or column travel (RET10P) to the AHC position
- Automatic headstock travel and removal of the cover plate from the headstock front
- Automatic headstock travel and mounting of the milling head (clamping of the milling head and connecting of the electrical/hydraulic/pneumatic lines)

SEMIAUTOMATIC MILLING HEAD MOUNTING

A semiautomatic milling head mounting is possible on the RET10X, RET10P and RET100B (version with ram) machines. The rack for technological accessories is not permanently installed on the machine but deposited on the floor next to the machine. The rack can be moved by using lifting equipment.

Procedure of semiautomatic milling head mounting on the machine:

- Putting the rack with the milling head onto the worktable / clamping plate of the machine (touch probe required)
- Automatic machine travel to the semiautomatic head changing (SHC) position
- Automatic headstock travel and removal of the cover plate from the headstock front
- Automatic headstock travel and mounting of the milling head (clamping of the milling head and connecting of the electrical/hydraulic/pneumatic lines)

STANDARDLY DELIVERED ACCESSORIES

- Adapters for tool clamping - 5 pcs
- accompanying technical documentation including instructions for use

