



## Coordinate-System KOSY<sub>HE</sub>

Our HighEnd system for high demands.

**Construction principles** - Stability through mineral cast, use of linear profiles with carriage, ground ball screws ... for high precision under high load.

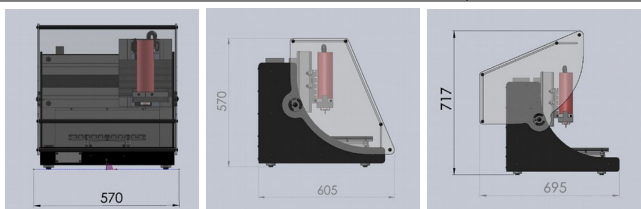
**Progress** - Attractive design, electronics placed in the back for easy access, protection hood with replacable panes, a flexible equipment with additional axes, precise machining units - with or without tool changer - make the product absolutely fit for industrial use.

**1 size, 1 version** - A4 (KSHE4x), Travel comparable to paper format A4.

Picture: KOSY<sub>HE</sub> without equipment. Y-table can be delivered as plate or with T-slots.  
Detail pictures on page 2.

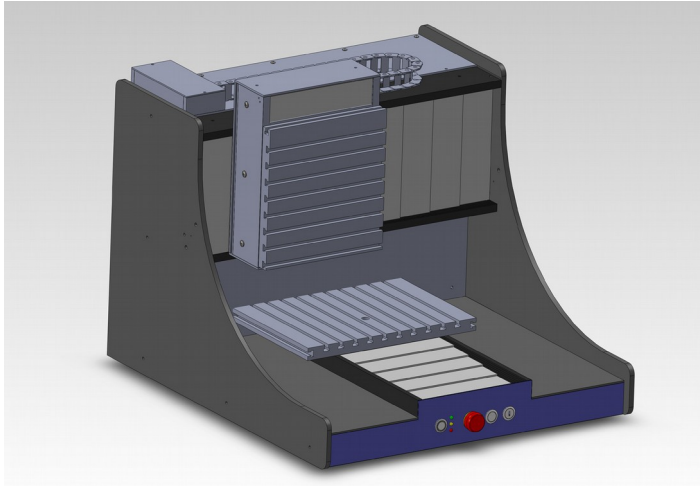
### Technical data

<b>Coordinate table</b>	
Construction	Cast socle with gantry type arrangement, all linear-modules with guide rails and 4 double carriages, drives with playfree ball screws, Y-/Z-table with T-slot profile 20mm, brushed Alu-surfaces, sides out of plastic material, protection hood out of polycarbonate with safety contact, integrated control unit.
Type	Drive with stepper or servo motor, high precision linear system for high load, claw coupling, anodized aluminum parts.
Travel of the 3 basic axes XxYxZ	Size A4 (KSHE4x): approx. 300 x 210 x 100 mm – corresponds to paperformat DIN A4
Passage height	A4-version: approx. 100 mm, suitable for big turning unit.
Linear drives	X/Y/Z: Ball screw 16x5 mm – Endswitch in all axes
Step resolution	X/Y/Z: 0.0015625 mm = 1,5625 µm, microstepping
Repeat accuracy	< 0.01 mm, with test protocol
Position accuracy	< 0.01 mm / 100 mm, with test protocols for X/Y and Z (surface Y-table)
Feed fast mode/attack max.	X/Y: 100/80 mm/sec , Z: 80/60 mm/sec reducible
Weight load Y/Z-table	max. 10 kg
<b>Control unit</b>	
Type	Assembled as separate service-block in the back of the X-linear profile MultiController control unit MCS
Axis controller	3 basic axes X/Y/Z + C-axis (extruder or machining unit BAE50) + U-axis
Connecting sockets for ... ... with software-support	Extruder (3D-Print), C-Axis (milling spindle), U-axis (turning unit), 230V-user (max. 800W), handwheel box, tool-length-measurer, 3D-scanner.
Power	230V / 50-60Hz, approx. 300 W
Port to PC	MCS: RS 232, USB via adapter, USB direct on demand
Software	Part of delivery: <b>nccad9a</b> CAD/CAM/CNC-Software, current version. Other SW-versions on demand
<b>General data</b>	
Noise level axes movements	< 45 dB (A) - with milling application depending on chosen machining unit
Surrounding	5-40°C, 35-80% rel.humidity (no condensation)
Weight Machine / Control unit	approx. 65 kg
Guarantee	Max. 2000 hours acc. to operating hours counter (travel times of axes only) or 2 years
Accessories	230V-power cord, communication cable to PC



Dimensions KOSY<sub>HE</sub> A4, approx.

## Details in Bild und Text

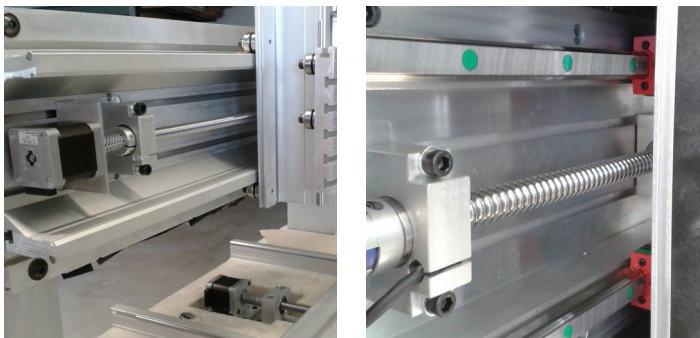


### Construction

The machine is designed like KOSY4, but all linear modules are a closed unit.  
The operation elements are arranged at the front for easy access or externally (picture page 1 on top), acc. to application and surrounding.  
All control components are on the back.

Specific adaptations are possible:

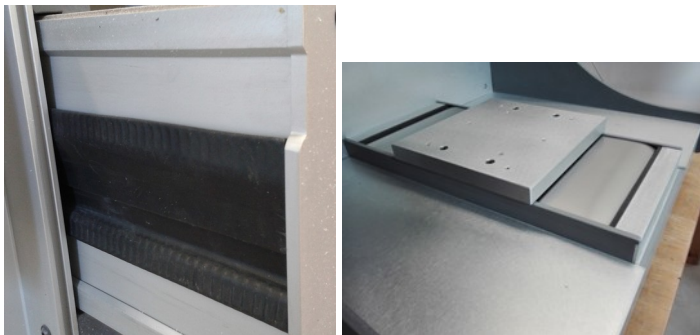
- Type of Y- and Z-table (e.g. without T-slots)
- Arrangement of switch elements (e.g. integrated or separate)
- Type of axis controller (e.g. A-axis, ConstantShot-dispensing)
- Type of hood (e.g. with guard control, sealed...)



### Linear guide

Difference in 2 pictures:

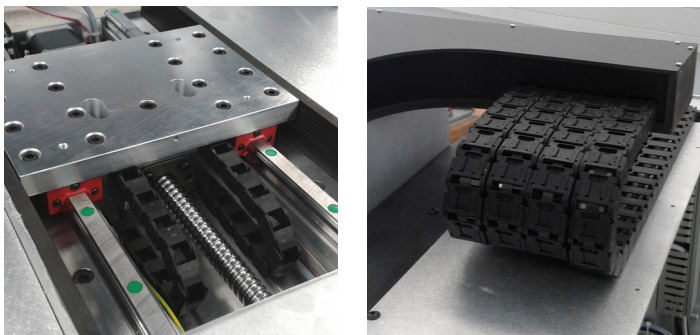
- Left  
KOSY3 or KOSY4 with simple coupling, simple pulleys and ball screw with 12 mm diameter.
- Right  
KOSYHE with claw coupling, guide rail, carriage and ball screw with 16 mm diameter. Guide rail and carriage can bear a load of tons. This dimensioning is a guarantee for accuracy, stability and a perfect milling.



### Cover

Difference in 2 pictures:

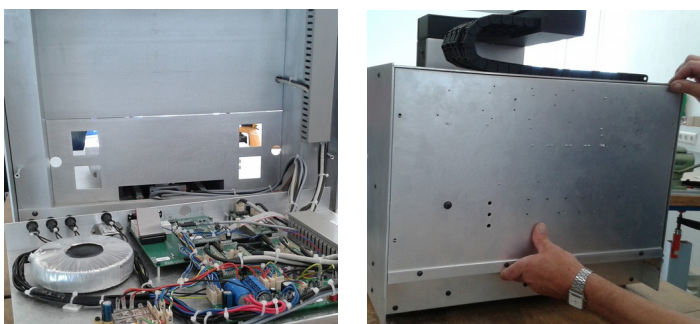
- Left  
KOSY3 or KOSY4 with clamping profile protecting drive and ball screw only, but not the pulleys. They have to be covered separately (special version)
- Right  
KOSYHE with telescopic slats out of metal. All components of the linear module are covered, also protected against hot chips and liquids.  
X- and Z-module are covered by lamellae.  
A drain tray is set in under the machine.



### Cable guides

2 pictures for different axes:

- Left: Y-axis without T-slot table  
Inside the module cables or hoses for automation solutions can be led to the Y-table.
- Right: Z-axis with big connection box  
One or more drag chains can be installed. Enough place for cable and hoses to the Z-drive and machining units (spindle with electric motor and pneumatic-functions, dispensing units, automation).



### Control components

2 pictures of different assembling stages:

- Left: Open  
The MultiController control unit MCS is arranged on a mounting plate.  
Between the pillars is room for more components like servo regulator, frequency changer, pneumatical elements and others.
- Right: Closed  
The mounting plate is fixed and serves as back of the machine. The connection sockets/plugs are accessible at the bottom.

## Hardware-Options

### Universal motor – Milling spindle (BAE10k)

Type /Producer	Kress 800 FME
Speed min./max.	approx. 10.000/28.000 rpm
Power supply	230V/approx. 800W by delivered power pack
Programming	On/Off via mains socket at the machine (Relay 6)
Collet	1.x ..... 3.0 mm

### HighPower C-axis (BAE55)

Speed min./max.	approx. 25* / 12.000 rpm
Collet	ER 16, 3 mm
Programming	Speed, turning direction, angle pos. $n \times 360^\circ - 0,25^\circ/\text{step}$ .
Options	Clamps 1/8", 6 mm; special clamp for thread cutting, autom. tool changer

### HF-Spindle – High frequency spindle for precision work (BAE2x), different types

Speed min./max.	approx. 500 / 50.000 rpm, power approx. 170 W to approx. 1kW
Collet	3 mm with 170W, up to 8 mm with 1 kW
Programming	Speed
Concentricity	< 5 $\mu\text{m}$ (depending on clamp and spindle)
Options	Clamp 1/8", automatic tool changer (max. 6 tools).

### Microjet dispensing – Cooling and lubrication, esp. with machining of metal (KSZM12)

System	1l-pressure tank, twin hose (capillary and air)
Connection	at socket <i>Zusatzfunktionen (additional functions)</i>
Particularities	programmable, constant and intervall

### TMRa - DepthMeasuringRegulator analog, regulation of immersion, autom. test series and probing data.

Control accuracy	< 0.02 mm
Control range	10 mm, shiftable sensor positions.
Feed	max. 40 mm/sec (F400)
Programming	Depth of immersion
Options	Different sensors and probes

### Handwheel box – elegant BOX for manual operation (MCSZ111)

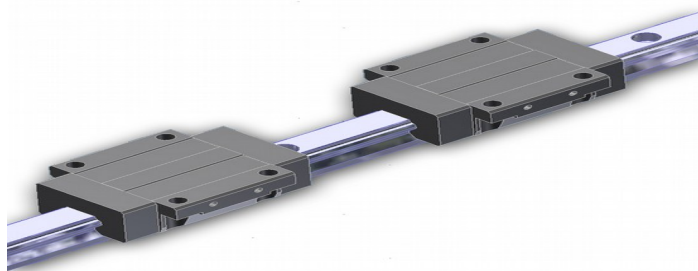
Pulse generator	rough / fine -switch
Axes assignment	via switch X, Y, Z
Programming	Step resolution rough/fine, programmable.
Special functions	Feed -Override, customer specific solutions

### WZL - Tool-length-measurer for easier handling (KSZW3)

Arrangement	free positioning in milling range
Accuracy	< 0,02 mm
Measuring process	after manual tool changing
Options	can be changed according to specifications of the customer

### Turning unit – The 4th axis, extension for turning and milling with large software support

Equipment	3-or 4 jaw chuck, holder of collet chuck with 3 collets ER25, tailstock
Drive	Stepper or servo motor with maximum speed 600 or 5.000 rpm
Data of turning	Center height approx. 35mm, distance between centers with tailstock approx. 200mm, bar capacity 15mm



The linear guides are the crucial element of KOSYHE.

Ordering code:

**KOSYHE** in 1size:

• A4

**KSHE** x x ... type key

| |

| - 1 = Stepper motor-, 2 = Servo motor

--- 4 = A4

E.g.: **KSHE42** = KOSYHE A4 with servo motors