Conventional Milling Machines

Servomill® FPK 600

SKU : 302354

This versatile tool and milling machine has become indispensable in the mechanical manufacturing of tools and molds. Its compact design offers a great deal of flexibility while being very easy to operate. This has proven highly effective and is given a modern interpretation here. Equipped with electronic stops, electronic handwheels and additional milling functions, the Servomill makes the advantages of CNC large-scale technology accessible even without programming. The machines are mainly used in toolmaking, production and training.

- Servo feed technology with electronic handwheels
- Ball screws in all axes
- 3-fold electronic stop
- Large vertical console and work table
- Vertical and horizontal spindle
- Infinitely variable spindle speed

TECHNICAL SPECS

WORKING AREA

Table dimensions	850 mm x 450 mm
Vertical table	1190 mm x 250 mm
Table load capacity (max.)	300 kg
Number of T-slots	7 positions
T-slot (width x spacing)	14 mm x 63 mm
T-slots, vertical table (number)	3 positions
T-slots, vertical table (width x spacing)	14 mm x 63 mm

TRAVELS

Travel X-axis	600 mm
Travel Y-axis	450 mm
Travel Z-axis	450 mm

MILLING HEAD

Speed range, low	40 1/min - 440 1/min
Speed range, high	440 1/min - 2000 1/min
Spindle speed	40 1/min - 2000 1/min
Spindle mount	SK 40 DIN 2080
Swivel angle	90 deg
Travel pinole	60 mm
Spindle nose-to-table distance	50 mm - 500 mm
Spindle nose-to-column distance	170 mm - 620 mm

RAPID FEED

Rapid feed X-axis	1200 mm/min
Rapid feed Y-axis	1200 mm/min
Rapid feed Z-axis	1200 mm/min

HORIZONTAL MILLING SPINDLE

Spindle mount	SK 40 DIN 2080
Spindle center-to-table distance	170 mm - 620 mm

FEED

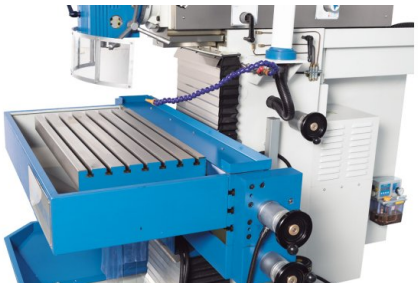
Work feed X-axis	10 mm/min - 1000 mm/min
Work feed Y-axis	10 mm/min - 1000 mm/min
Work feed Z-axis	10 mm/min - 1000 mm/min

DRIVE CAPACITY

Motor rating main drive	5.5 kW
Motor rating coolant pump	0.13 kW
Feed X-axis	10 Nm
Feed Y-axis	10 Nm
Feed Z-axis	15 Nm

MEASURES AND WEIGHTS

Overall dimensions (length x width x height)	1.6 m x 1.8 m x 2 m
Weight	1750 kg



The large work table and long travels provide maximum versatility

Practical layout of control elements allows streamlined and intuitive operation

Equipped with electronic hand-wheels and extended milling functions the Servomill offers the advantages of modern CNC technology in conventional machining

Continuous precision lubrication minimizes friction and wear of movable parts and increases the machine life

PRODUCT DETAILS

Integrated electronics allow for easier, more precise and more efficient conventional milling

- The Servomill machines represent a new generation of conventional milling machines
- All Servomill series are characterised by ease of operation, significantly increased precision and enhanced cutting performance
- The high reliability of all components used and their long service life significantly reduce maintenance costs and thus ensure increased availability

Design and Construction

- The design of the FPK series is the modern interpretation of the classic universal tool milling machine, which is used in many workshops and production environments
- The machine stand in console design is a modern construction made of high-quality grey cast iron, designed for precision and durability
- As a proven design feature, all operating elements are concentrated on the right-hand side of the machine, giving the operator perfect control over the entire machining process
- The box guides are highly resilient thanks to their large contact surface and guide the console and upper beam with maximum dimensional stability and load-bearing capacity

Main spindle and drives

- The main spindle gearbox is integrated in the upper beam for efficient power transmission and quiet, low-vibration operation
- The robust 2-stage gearbox with hardened and ground gears offers a wide, infinitely variable speed range, high load capacity and smooth running
- The vertical milling head can be swivelled on both sides and the quill can be moved manually
- The vertical milling head can be dismantled in a few simple steps to reveal the horizontal spindle holder
- A counter-holder can be fitted as standard for machining with long milling arbours

Feed

- Powerful servomotors enable infinitely variable feed speeds and rapid traverse in all axes
- Preloaded ball screws in all axes guarantee precise, smooth and low-wear positioning without backlash and a long service life

Equipment

- The machines come with an extensive range of accessories as standard, such as a powerful coolant system, LED work lighting and a comprehensive tool package with long arbours and collets

Servomill - Highlights

- Electronics developed and built in Germany
- Positioning control for traveling pre-selected paths on all axes
- Zero backlash preloaded ball screws
- Servo-motors on all axes, infinitely variable feed, rapid feed, and speed control
- Electronic spindle load indicator
- Electronic hand-wheels on all axes
- X, Y and Z axis movement via joystick technology
- Integrated position indicator with precision glass scale
- Feed can be synchronized with the spindle speed
- Powerful servo motors allow infinitely variable feed speeds and rapid feeds on all axes

Position indicator X.pos 3.2

- The new generation of displays is more powerful, robust, and reliable
- For additional information, see manuals included with the standard equipment

Your Advantages

- Easy to use: intuitive operation - practical layout of control elements and streamlined function
- Automatic feed on all axes and infinitely variable rapid feed with speeds up to 5000 mm/min
- Set limit stops on any axis with the push of a button - 3 stop positions per axis can be stored
- More precise: operated via electronic hand-wheels - axes are powered by high-quality servo drives that translate your hand movements with the precision and dynamics of modern CNC machines
- More reliable: drives, spindles, and measuring systems are totally enclosed or mounted

in protective enclosures and virtually maintenance-free
- More capacity: this machine only uses premium drive components that are designed for continuous operation
- Maintenance-free: no regular maintenance needed for the entire feed drive

Advanced feed drive technologie
- The axes are moved by high-quality servo drives that implement your handwheel movements with the precision and dynamics of modern CNC machines
- Reliable, maintenance-free high-volume technology
- High rapid traverse speed reduces non-productive times

Ballscrews in all Axis
- Considerably less errors due to loseness (backlash), resulting in significantly higher precision
- Significantly reduced friction, no stick-slip effect, reduced heat buildup, minimal wear

Electronic hand-wheels
- Micro-control via electronic hand-wheels offering the same handling and postioning as with a conventional machine, just smoother and more precise

Joystick Operation
- Maximum operator comfort for axis movements
- Easy handling during sequential processing

Electronic Bedstops
- Set 2 limit stops at 3 positions on each axis by the push of a button - these buttons are grouped around the feed switch for intuitive control
- This ensures high repeatability during coordinate drilling or pocket cutting, and siginificantly more positions can be set up than on conventional machines

Electronic Spindle Load Display
- Assists the operator in the most efficient utilization of machine and tool capacities
- Reliable indicator helps avoid damages caused by overloads

STANDARD EQUIPMENT

Control panel with X.Pos 3.2 and extended functions
Ball screw drives and servo direct drives in all axes
Automatic feed with electric limit switches in all axes
Electronic handwheels
Milling accessories
Automatic central lubrication
Heat exchanger for electrical control cabinet
Protection shield
Coolant system
LED worklight
Operator instructions

OPTIONAL EQUIPMENT

- Universal swivel table, SKU : 254275
- Universal swivel table for FPK 4.3/ FPK 6.3, SKU : 253721

KNUTH on YouTube
Information to the point

On our YouTube channel you can find videos for nearly all machines from our program. We show the machines from current deliveries and you get an impression of the handling, the processing quality and the machining performance.

Are you interested in a machine for which you cannot find a current video?
Please feel free to contact us!