



UNIVERSAL GRINDING MACHINE
FSM-CNC

Kaindl[®]
SCHLEIFTECHNIK

MADE IN GERMANY

THE 4-AXIS- MULTITALENT...

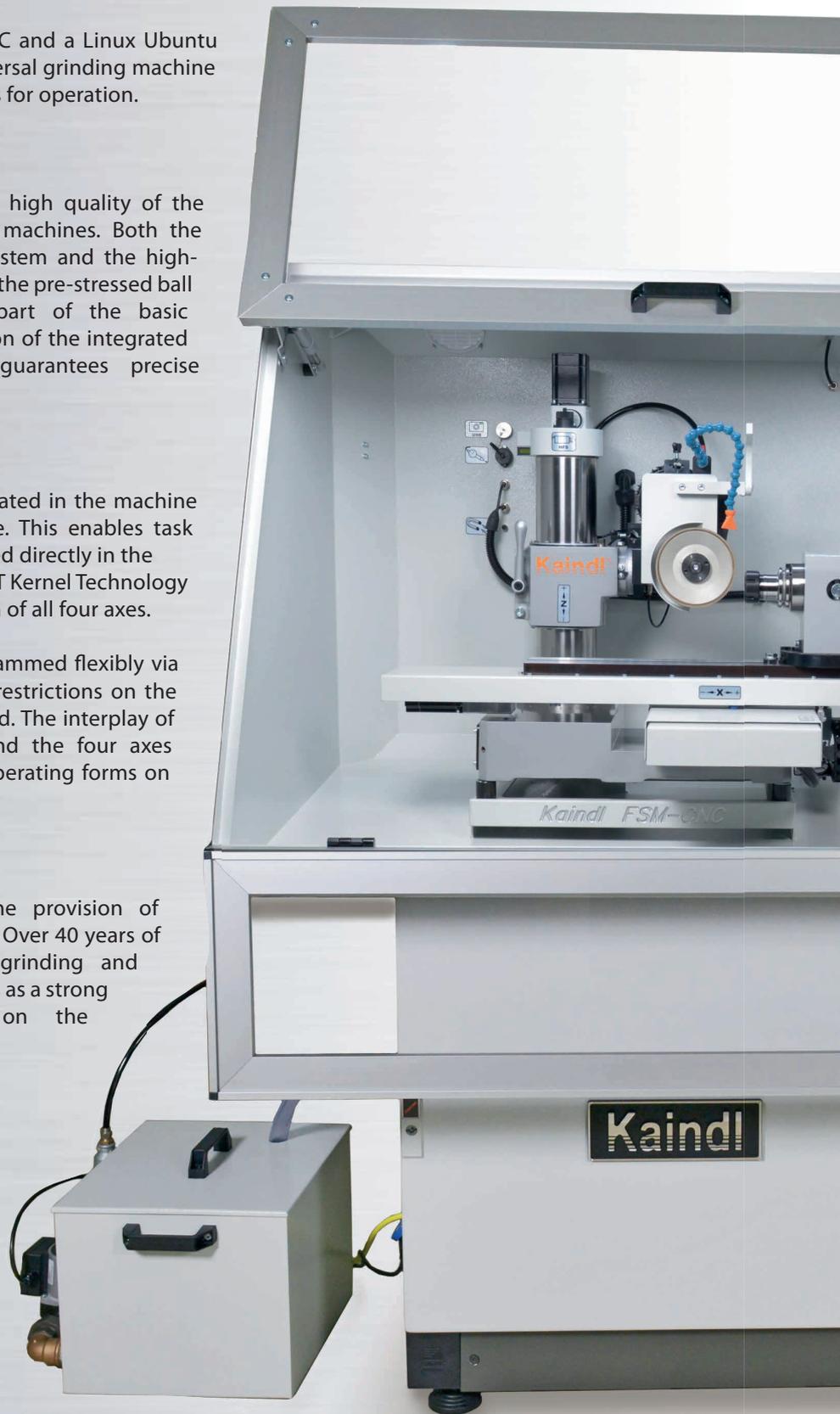
... The robust industrial touchscreen PC and a Linux Ubuntu operating system of the FSM-CNC Universal grinding machine provides a stable and user-friendly basis for operation.

We place especial importance on the high quality of the mechanical components used in our machines. Both the massive cast body with a damping system and the high-quality linear guidance system - such as the pre-stressed ball caster guides and spindles - are part of the basic concept of the FSM-CNC. The interaction of the integrated and reliably-installed components guarantees precise machining results.

The real-time Kernel Technology integrated in the machine permits high-performance in real time. This enables task processes to be processed and outputted directly in the system. The operating system and the RT Kernel Technology ensures reliable simultaneous operation of all four axes.

The workpiece geometry can be programmed flexibly via G-code. This means that there are no restrictions on the exceptional forms that can be processed. The interplay of the operating system, the G-code and the four axes enables the realization of a range of operating forms on the FSM-CNC.

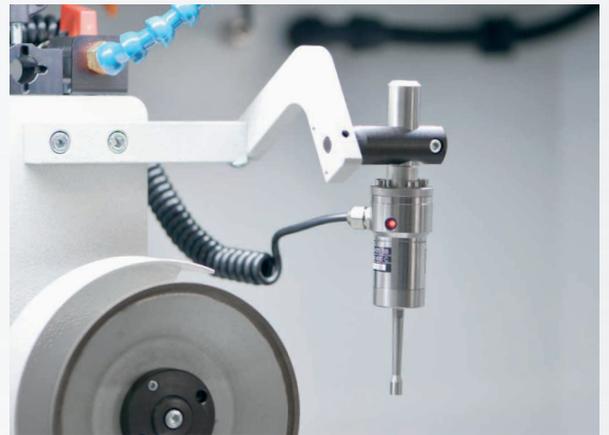
Expertize and innovation permits the provision of complex forms for a range of solutions. Over 40 years of experience in the construction of grinding and sharpening machines has established us as a strong and reliable partner operating on the international stage.



ITEM-NO. 16636



HIGH-FREQUENCY SPINDLE



ELECTRONIC 3D SENSOR KT 130



5 MPiX CAMERA SYSTEM

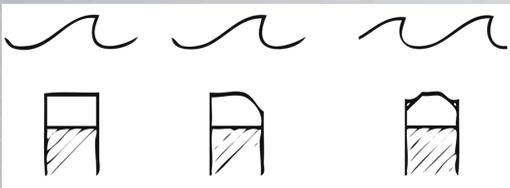


PKD EXTRACTOR

DISCOVER EFFICIENT EXTENSION CAPABILITIES IN PLUG & PLAY.

Module: Horizontal table

ITEM-NO. 18051



B

BW

C

ITEM-NO. 19188

Module: Circular grinding



Module: Horizontal table

The basic configuration of this module contains the CNC programme (dialogue programme) for the grinding of circular knives and HM saw blades, Ø 100 - 450 mm, 2 chucking flanges, reducing rings, a D76 diamond grinding disc, a ER32 bracket and an electromagnet.

The vertical A-axis provides countless methods of sharpening circular knives, form knives etc. and also for the grinding of HSS and HM saw blades.

Saw blades fitted with hard metal pieces can be ground in standard forms such as alternating teeth, trapeze teeth, tooth backs and tooth breasts. The tooth distribution is effected via the indexing of the A axis and not via a tooth transport. This ensures precise tooth distribution and coherent geometries.

The horizontal table module can be extended by addition of the HSS metal saw blade Programme package module (art. no. 18782) to enable the processing of HSS metal saws. The programme package contains 48 CNC grinding programmes (dialogue programmes) with the subdivisions T3 to T18 (DIN 1838) and the tooth forms B; BW; and C.

Module: HF spindles (S. 5) enable repair grinds on saw teeth, as the hard metal teeth can also be ground on the flank. The HF spindle can also be used for grinding hollow teeth on the tooth breast.

The Circular grinding module with its speed range of 100 - 600 U/min permits classic internal and external circular grinding.



Module: Electronic 3D sensor KT130

ITEM-NO. 18440

Module: Electronic 3D sensor KT130

This module provides a number of functions which facilitate work with the FSM-CNC.

This 3D edge finder enables the automation of measurement functions. Measurement programmes can be generated in G codes which e.g. measure workpieces, determine the cutting alignment and incorporate this together with the zero-point offset in calculations.

Module: High-frequency spindle

ITEM-NO. 18305

Module: High-frequency spindle

Fitted with a ER11 bracket, the air-cooled HF spindle has an output of 0.8 kW in a speed range of 6000 to 24000 U/min.

The specially-developed spindle bracket enables vertical and horizontal application of the HF spindle. This flexible application provides a range of opportunities for grinding. Interior and exterior circular grinding, engraving, milling or hollow tooth grinding are only a few of the possible operating areas.

A number of customer-specific special-purpose solutions as explicitly based on the application of this HF spindle.



! The FSM-CNC is pre-configured ex-works and can be extended with these modules via "plug and play".

THE DEVELOPMENT OF BESPOKE SOLUTIONS

The majority of contemporary tools require specific adaptations to the machine, tool fittings and software. To this end, we develop and produce special chucking tools, translate complex cutting geometries into programme codes and even develop bespoke form grinding wheels. As such, in addition to the “naked” machine hardware, we also provide bespoke turn-key solutions designed to meet your special requirements - all from a single source.

We have already implemented numerous customer-specific projects.

Here are a few examples:

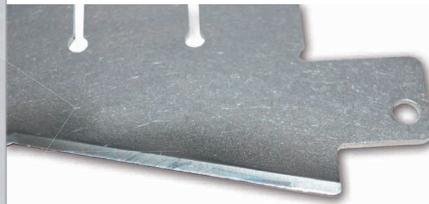
Video



ROBOTIC ROUGHING BLADE



DICER



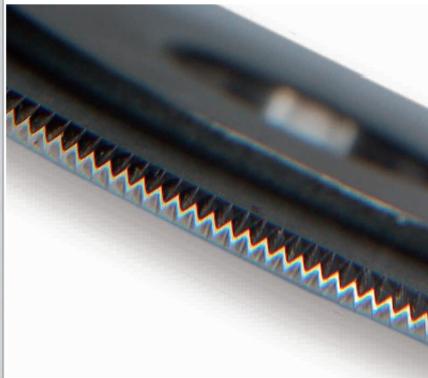
FACE-MILLING CUTTER FOR WOOD PROCESSING



PIN DRILL



ZIGZAG BLADE



INDUSTRIAL POULTRY BLADE



ULTRASONIC PLOTTER BLADE



V-BLADE



LATHE BLADE



TECHNICAL DATA

BASIC EQUIPMENT

- ✓ Touchscreen control
- ✓ Electronic hand wheel
- ✓ Vertical dividing head with SK40 bracket + Ø 10 mm ER collet chuck
- ✓ 5 Mpix camera system with bracket and software package for Windows and Mac
- ✓ Comprehensive CNC programme library
- ✓ Pump cooling
- ✓ Cup wheel, wither CBN or diamond Ø 125 mm B76 or D76
- ✓ Extractor
- ✓ Central lubrication

Traversing range in X: 300 mm
Traversing range in Y: 135 mm
Traversing range in Z: 192 mm
Grinding motor controllable: 3~230V/100 Hz, 0.75 KW, 1330-6600 rpm
Grinding wheels: Ø 75 – 125 mm, locating bore Ø 20 mm
(Infinitely variable 10-50 m/s with Ø 125 mm)

HF spindle controllable (optional): 3~230V/400 Hz, 0.8 KW, 6000-24000 rpm
Circular grinding (optional): 3~400V/50 Hz, 0.18 kW, 100-600 rpm
Connection value machine
with control: 1~230V/50-60 Hz, 2.5 KW max.
number of the numerical axes: 4 (X; Y; Z; A)
Ventilation hood connection: prepared with housing bore Ø 100 mm
Dimensions L x W x H: 1200 x 880 x 1700 mm
Net machine weight: 352 Kg
Measured sound pressure level: < 70 dB/A
Electrical connection: Cable with safety plug
CEE 7/7 (1~230V/50 Hz)

Control: IPC control with 15' touchscreen
Intel i5 processor; 4GB RAM;
160GB Sata hard disc; 2x Gbit LAN; USB 3.0
Operating system: Ubuntu 12.04.5 LTS i386 "Precise Pangolin"
with RT Kernel ; network-compatible ;
suitable for telemaintenance

CNC-Software: LinuxCNC Version 2.7.4
Net weight control: 37 Kg

Coolant pump
Motor: 1~230V/50 Hz
Output stage 1: 0.028 KW
Output stage 2: 0.045 KW
Output stage 3: 0.063 KW
Protection type: IP65
Delivery rate: 16 – 35 l/min

Subject to technical alterations

FSM-CNC IN ACTION



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www.kaindl.de

**Kaindl Schleiftechnik
Reiling GmbH**

Remchinger Str. 4
75203 Königsbach-Stein
Germany

fon: +49 (0) 72 32 40 01-0
fax: +49 (0) 72 32 40 01-30
e-mail: info@kaindl.de

Kaindl®
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