



KELCH

Tool presetters

High-performance, precise tool setting is essential when the highest degree of manufacturing precision and maximum efficiency of production resources are required.

We are convinced that you will find the most appropriate solution within our extensive range of **KENOVA set line** tool presetters. Tailored to every use and every budget.

KELCH can offer you the widest range of vertical tool presetters. The portfolio ranges from the simplest entry-level models through to machines with multiple CNC axes.

Are you looking for special applications? KELCH has them all. After all, it is precisely special solutions for out of the ordinary measuring tasks that differentiate a supplier of expertise.

For example, our patented module monitoring system MoDeTec automatically monitors whether the fitted insert module is the correct one for the adapter chosen in the control. It is now impossible to use an incorrect insert module! And as reference values are immediately available, there is instant assignment to adapters, machines and tools.



Table of Contents

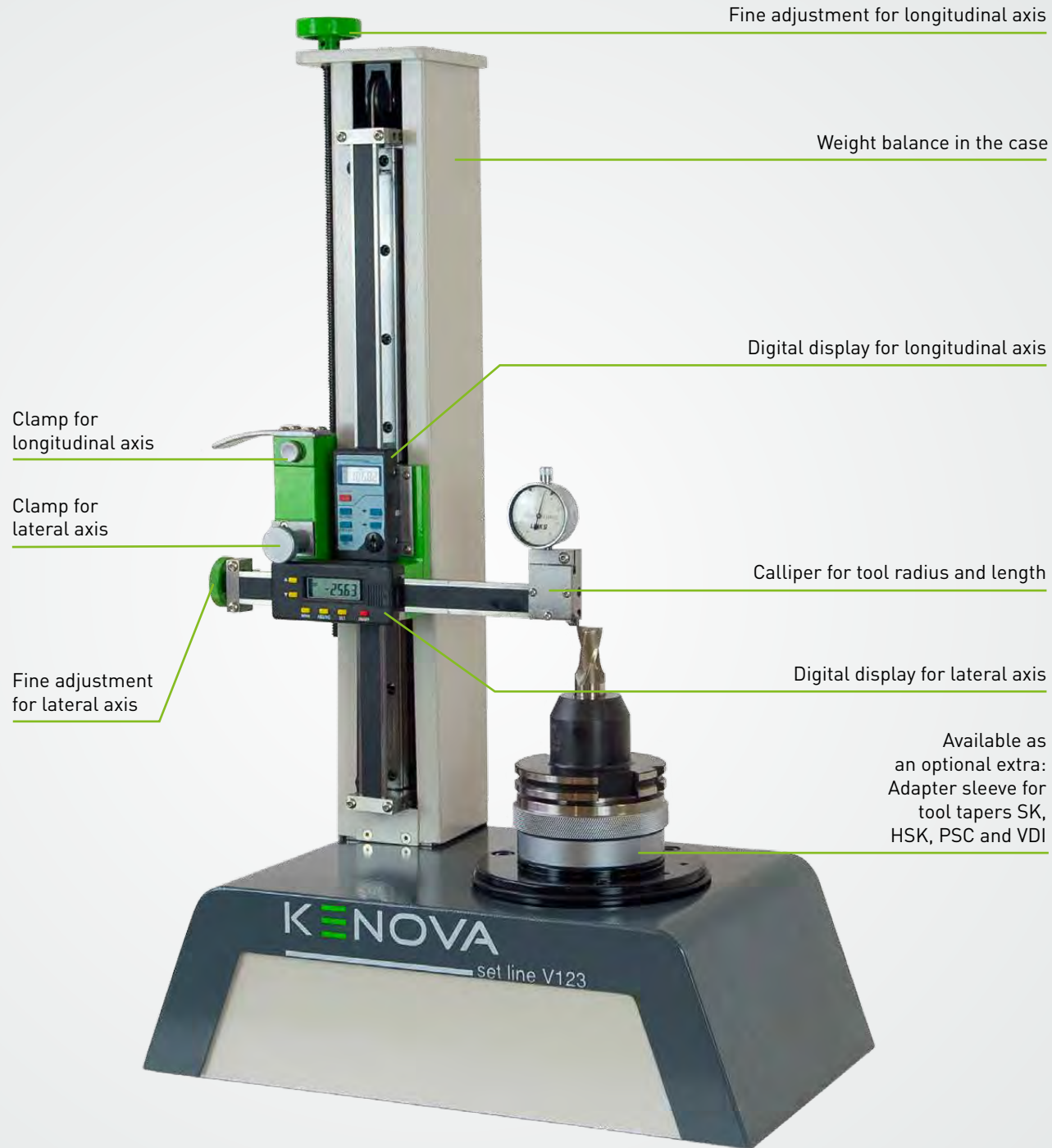
KENOVA set line V123	4	Rear clamping monitoring	35
KENOVA set line V224	6	Angle head tools	36
Accessories for the BASIC line ..	10	Length adjustment	36
KENOVA set line V366 C	12	Modular precision spindle	37
KENOVA set line V366 P	14	Monitor combinations	38
Accessories for the		Tailstock	38
INDUSTRIAL line	15	Accessories for the	
KENOVA set line H3	16	PREMIUM line	39
Accessories for the		Smart Pro	40
INDUSTRIAL line	18	KELCH CoVis	42
KENOVA set line V6xx	22	EASY	44
KENOVA set line V9xx/V9xx-S ..	24	KELCH EASY – Angle heads	47
Turning centre camera	32	3D wizard	47
Grinding camera	32	Contour Software	48
Tool identification	33	KELCH software interfaces	49
Laser pointer	33	Smart Factory Services	50
MoDeTec (ModuleDeTecton)	34	KELCH-Service	54

ON TOUR

**Exclusive Roadshow
TOUR directly at your
premises**

Selected products
presented by KELCH
live at your premises.

Arrange your individual
appointment by phone
or online at [roadshow.
kelch.de](http://roadshow.kelch.de)!





The KENOVA set line V123 is synonymous with testing, checking, measurement, adjustment and re-adjustment.



Rotatable tool holders, hardened and ground with a standard gauge for the longitudinal and transverse axis for zero point adoption.

KENOVA set line V123

The handy tabletop device for anyone wanting to measure quickly and easily.

The KENOVA set line V123 is the flexible tool presetter with a host of benefits. The unit is perfect for quick tool presetting directly at the machine or in the workshop. It is also an ideal additional unit for a central setting room. The V123 unit is the right choice when it comes to recording quick and reliable measurements.

Technical Data

- Measuring range:
Longitudinal axis: 300 mm, Diameter: 200 mm
- Digital measured value display: 0.01 mm
Repeat accuracy: 0.01 mm
- Mechanical cutting edge scanning
Precision dial gauge display: 0.01 mm
- Base with hardened and ground basic adaptor Ø 75 mm
- Stable measurement support column, precision-guided measuring slide
- Quick adjustment for measuring slide
- Fine adjustment using trapezoidal thread
- Rotating precision tool holder, hardened and ground
with standard gauges X and Z for zero point adoption /
different taper sizes of exchangeable adaptor sleeves
- Any zero point selection
- Colour:
Measurement support column: RAL 7035 Light grey
Base: RAL 7011 Iron grey
- Required space:
L x W x H = 424 x 270 x 692 mm
- Weight: 44 kg

Video

Simply scan the QR code with your smartphone and view the video.
<https://www.youtube.com/watch?v=vn-5HQm1wAbE>



CMOS camera

Available as an optional extra:
Adapter sleeve for tool tapers
SK, HSK, PSC and VDI

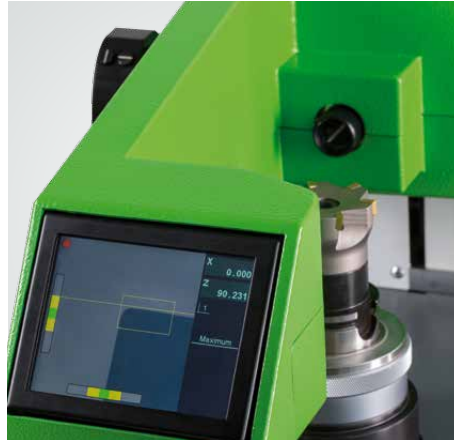
Clamp for lateral axis

Touch screen





Fine adjustment for the X and Z-axis.



Clamp for longitudinal and lateral axis.



Rotatable tool holders, hardened and ground with a standard gauge for the longitudinal and transverse axis for zero point adoption.

KENOVA set line V224

The handy tabletop unit with intelligent and intuitive software.

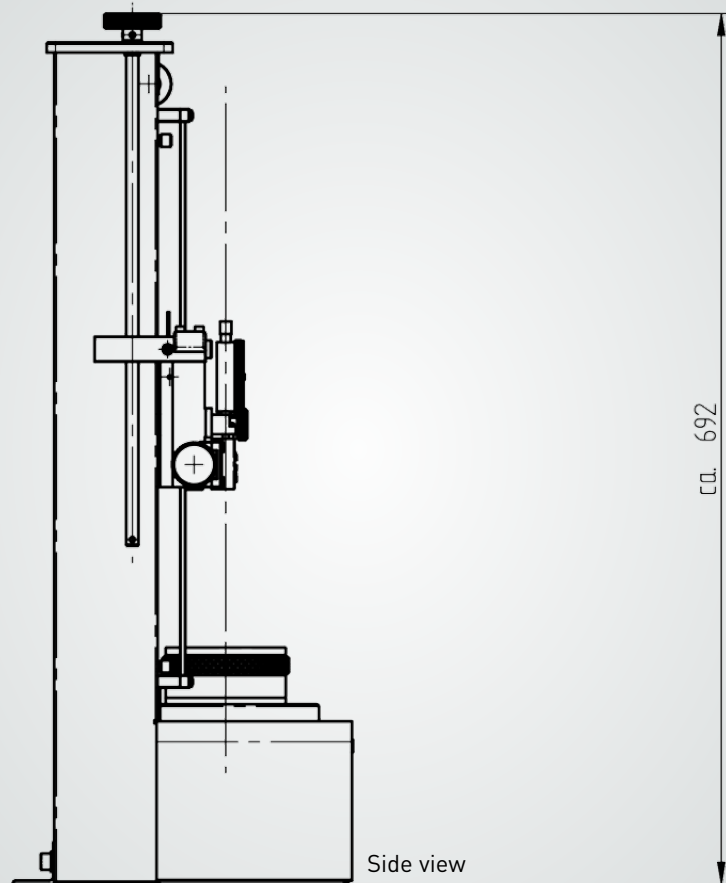
The KENOVA set line V224 represents the evolution from entry-level models to the BASIC line. Compact and unimposing, it can undertake a range of measuring tasks and also includes a CMOS camera and a printer interface. This unit is the perfect system to introduce you to non-contact tool measurement. The 5.7-inch touch screen guides operators intuitively through the measuring tasks, ensuring they quickly achieve the measuring result required. The fine adjustment for both axes enables operators to position the tool in the camera image securely and precisely. A wide range of different adaptor sleeves means that most tool holders can be set in the spindle.

Technical Data

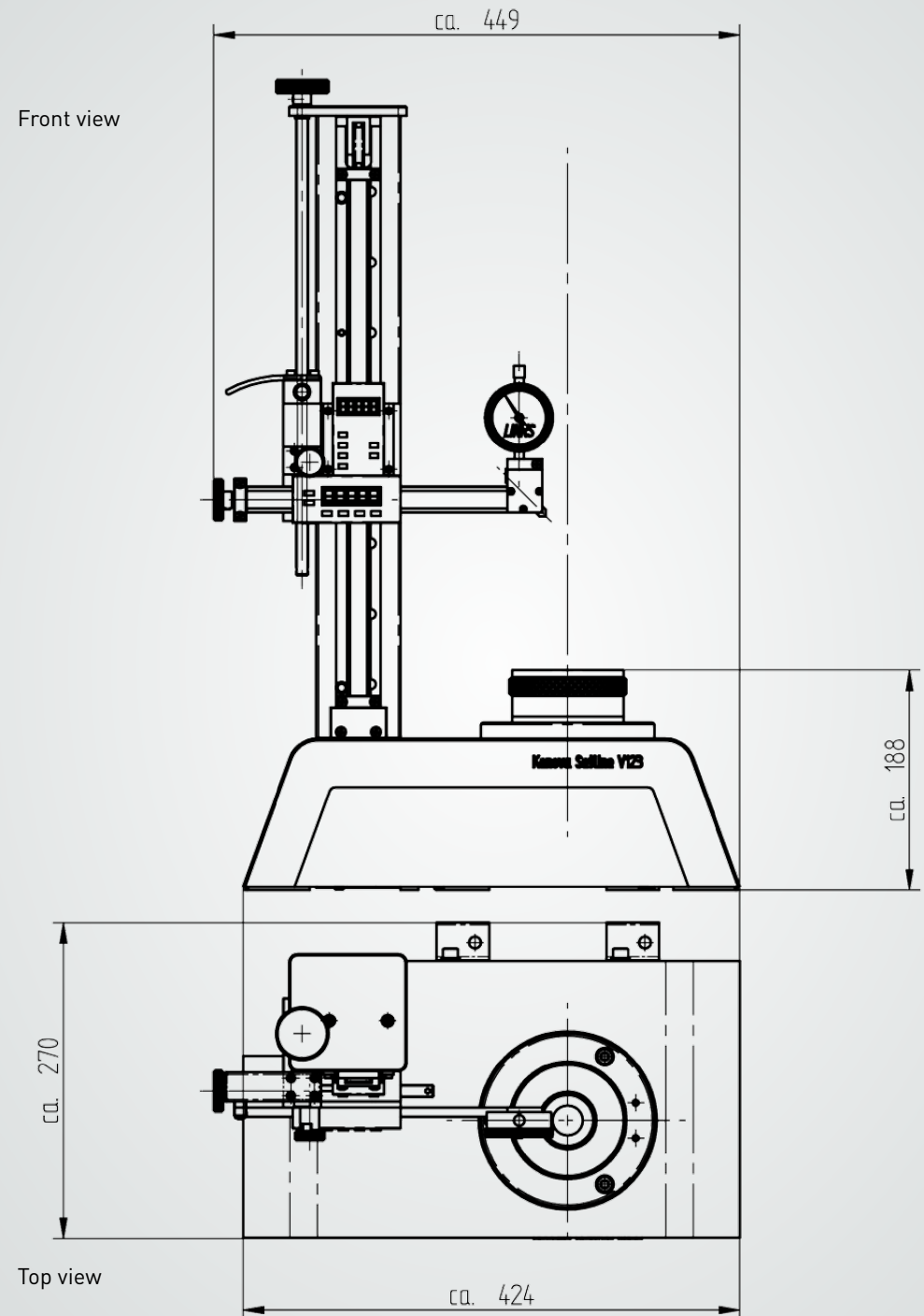
- Measuring range:
Longitudinal axis: 400 mm, Diameter: 250 mm
- Digital measured value display: 0.001 mm
Repeat accuracy: ± 0.005 mm
- Non-contact optical cutting edge detection
- Base with hardened and ground basic adaptor $\varnothing 75$ mm
- Stable measurement support column, precision-guided measuring slide
- Quick adjustment for measuring slide
- Fine adjustment using trapezoidal thread
- Rotating precision tool holder, hardened and ground
with standard gauges X and Z for zero point adoption /
different taper sizes of exchangeable adaptor sleeves
- Any zero point selection
- Colour:
Measurement support column: RAL 6018 Yellow-green
Base: RAL 7011 Iron grey
Tower: RAL 7035 Light grey
- Required space:
L x W x H = 413 x 728 x 808 mm
- Weight: 50 kg

KENOVA set line V123

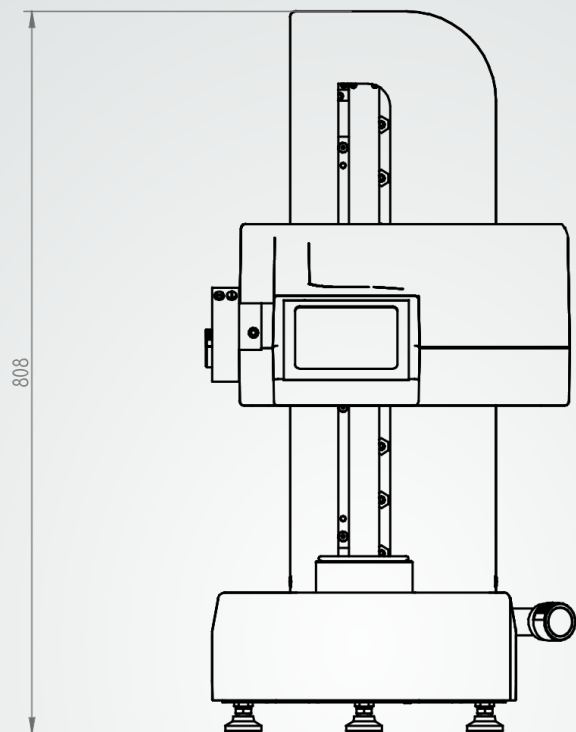
Layout plan



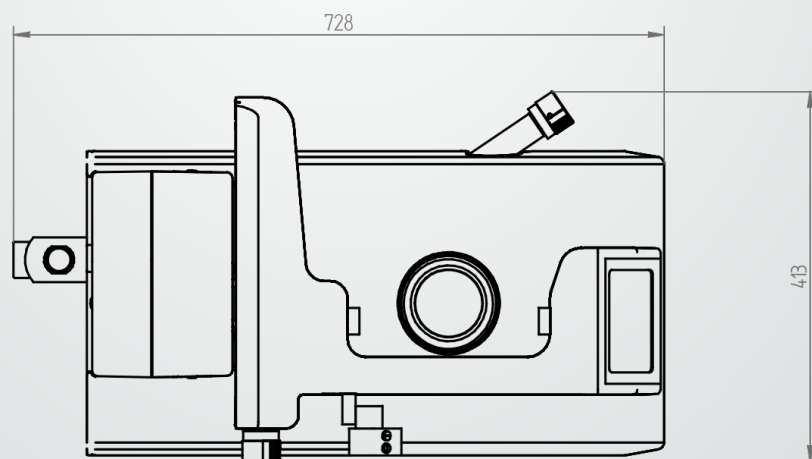
Front view



Front view

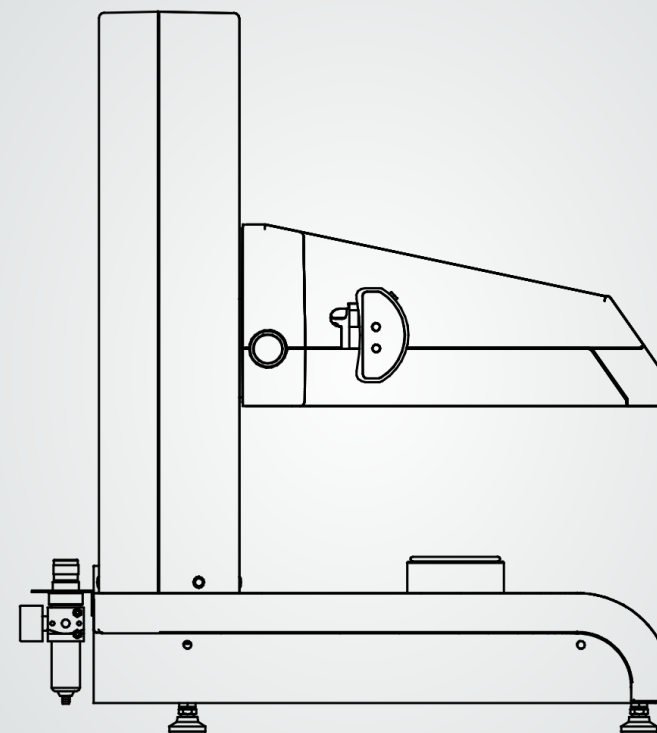


Top view



KENOVA set line V224

Layout plan



Side view

Accessories for the BASIC line

Add to your tool presetter to meet your needs and requirements and customise it with our accessories.



TUL Rack

- Table rack for KENOVA tool presetters
- Required space: L x W x H = 1020 x 620 x 800 mm
- Load-bearing capacity: 250 kg



TUL workbench with beech plywood worktop

- Complete with a sheet steel shelf (250 mm deep)
- Colour: RAL 7035 Light grey
- Required space: L x W x H = 1500 x 700 x 840 mm
- Load-bearing capacity: 1000 kg



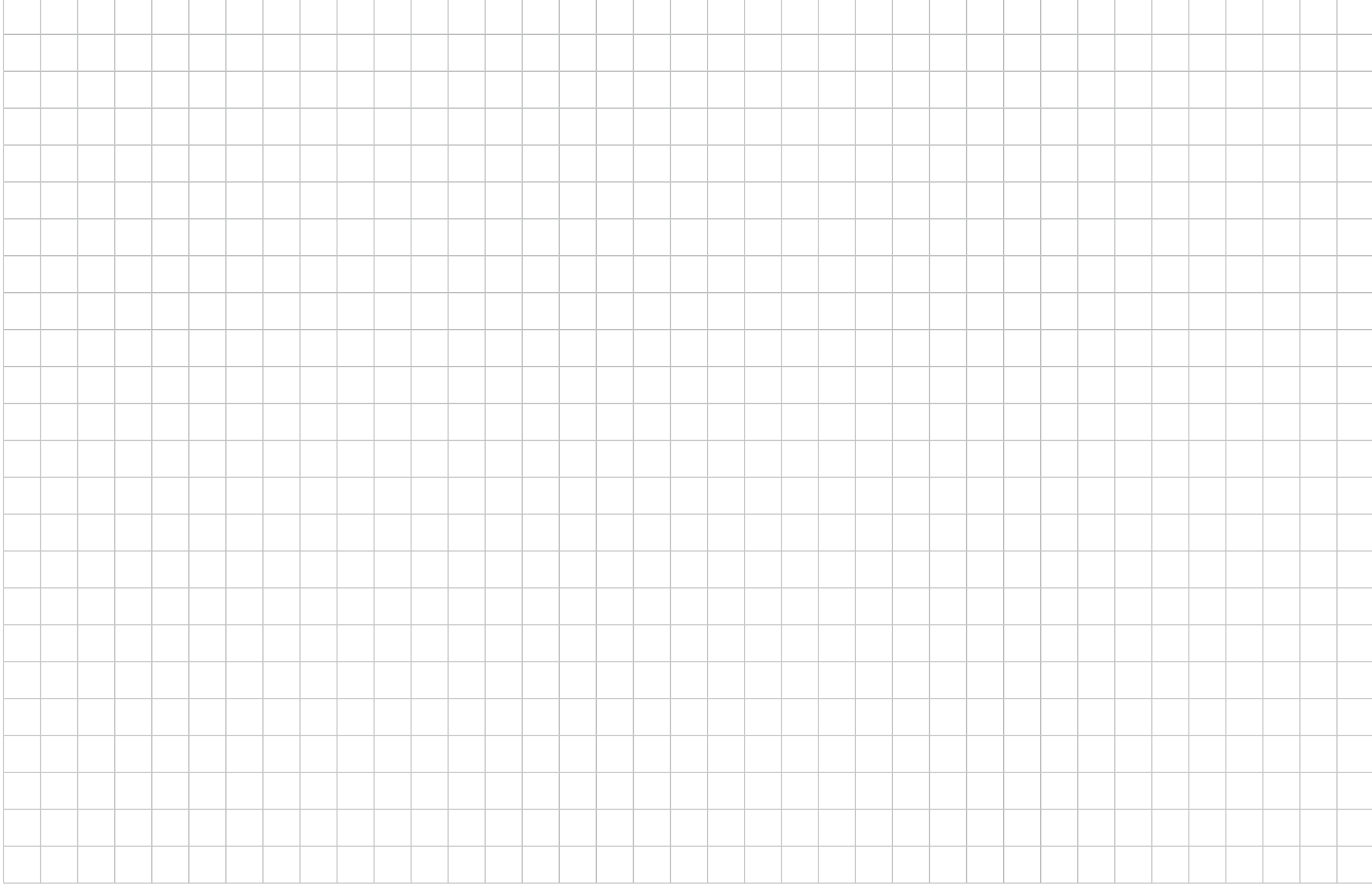
Label printer

- Thermo-label printer



Protective cover for V123 and V224 units

- Protects from dust and dirt







Camera: Digital camera with LED backlight and incident light illumination for precise measurements and high-contrast cutting edge inspection.



KENOVA set line

V366 C

The robust and precise mid-class device is perfect for inclusion in smart production processes.

KELCH offers the perfect solution to meet the growing demands from industry with its tool presettters from the INDUSTRIAL line. High quality coupled with the option of digital networking in the factory.

Technical Data

- A stable unit made of torsion-resistant steel profiles and two linear guides with linear ball bearings form the basis of both axes
- Rigid, highly-precise construction of the X and Z axis
- The endless fine adjustment on both axes enables micrometre-precise setting of the axes
- Pneumatic one-hand operation allows both axes to be quickly adjusted, individually or together if desired
- Highest level of measuring precision through precise brand-name glass scales on both axes
- Required space:
L x W x H = 1624 x 547 x 1211 mm
- Weight: 190 kg

	Measuring rangeØ	Measuring range length	Measuring system
V366 P	600 mm	600 mm	Projector
V366 C	600 mm	600 mm	Camera

KENOVA set line V366 P

Equipped with a high-contrast profile projector for optical cutting edge scanning.

KELCH has an attractive alternative to the camera-supported versions with the projector version of the KENOVA set line V366 from the INDUSTRIAL line. The stability and measuring precision of the tool presetter are impressive particularly when used in industry.

Technical Data

- A stable unit made of torsion-resistant steel profiles and two linear guides with linear ball bearings form the basis of both axes
- Rigid, highly-precise construction of the X and Z axis
- The endless fine adjustment on both axes enables micrometre-precise setting of the axes
- Pneumatic one-hand operation allows both axes to be quickly adjusted, individually or together if desired
- Highest level of measuring precision through precise brand-name glass scales on both axes

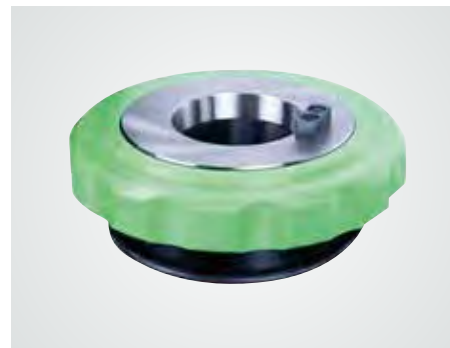
· Required space:

L x W x H = 1624 x 547 x 1211 mm

· Weight: 190 kg

- 110 mm focus screen diameter, 20x magnification and 15° incline
- Precise, problem-free measuring
- 100% workshop-compatible
- Resistant to dirt and other external influences
- Flexible, rotatable template to check angles and radii

The measured values can be displayed and evaluated with ease using EASY software.



Precision spindle

Anti-friction bearing precision spindle SK 50 with 0.002 mm concentricity including 4 x 90° indexing, vacuum clamping and spindle brake.



Projector

Optical high-quality, high-contrast projector for back light. 20x magnification. 110 mm diameter, 15° division



Panel PC

Control using EASY software



TUL Rack

- Table rack for KENOVA tool presetters
- Required space: L x W x H = 1020 x 620 x 800 mm
- Load-bearing capacity: 250 kg



Turning centre measuring equipment

- Quality dial gauge, which can be swivelled in and out, for measurement of the turning centre, measuring range ± 2.5 mm, resolution 1 / 100 mm.

Accessories for the INDUSTRIAL line

Add to your tool presetter to meet your needs and requirements and customise it with our accessories.



Reducers

- Adapters to hold different tool tapers or cylinders in the SK 50 tool holder spindle. Available for all common interfaces such as: SK/HSK/PSC/VDI.



Label printer

Thermo-label printer with or without dispenser.



Suggested
example

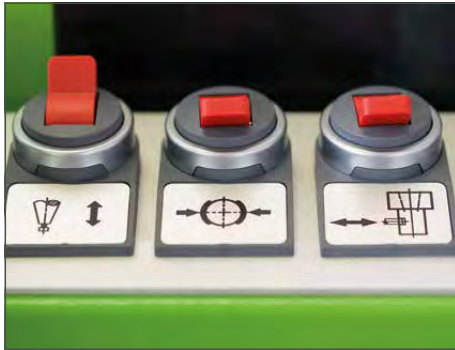
Protective cover for V366 / V366 P units

- Protects from dust and dirt

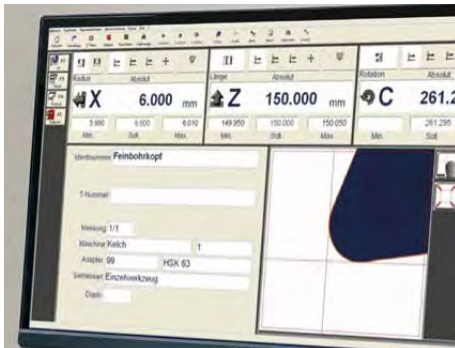




Fine adjustment in both axes
For µm-precise fine adjustment
in the X and Z direction



Operating panel for spindle function
Ergonomically ideal position and including
all spindle operating elements.



EASY software (optionally CoVis / kOne)



Table layout
Versatile table layouts with
tool holders and spindles.



Ergonomic handle
Quick adjustment of the axes
ensures ergonomic working



Optional optics carrier with
turning centre camera

KENOVA set line H3

The new compact entry-level tool presetter
for horizontal tool measurement.

Thanks to its compact design, the horizontal tool presetter is ideal for small and medium-sized businesses. Do you have a clear need for tool measurement and require a stable and precise measuring system? KELCH offers this option with the innovative development of the KENOVA set line H3. A further benefit includes possible connection to tool management systems. The unit is therefore suitable for use with Industry 4.0 applications.

Technical Data

Compact grey cast iron design for use in the most confined spaces.

- Required space:
L x W x H = 1115 x 735 x 878 mm
- Convenient positioning of the axes by pneumatically released quick adjustment mechanism and also endless fine adjustment.
- Measuring lengths:
X = 400 mm [Ø]
Z = 300 mm
- Versatile table layouts with tool holders with diverse interfaces (VDI, HSK, PSC, Index etc.), manual modular precision spindle, universal tool spindle and customised fixings.
- CCD camera with different control and analysis programs: CoVis, EASY and kOne.

Accessories for the INDUSTRIAL line

Add to your tool presetter to meet your needs and requirements and customise it with our accessories.

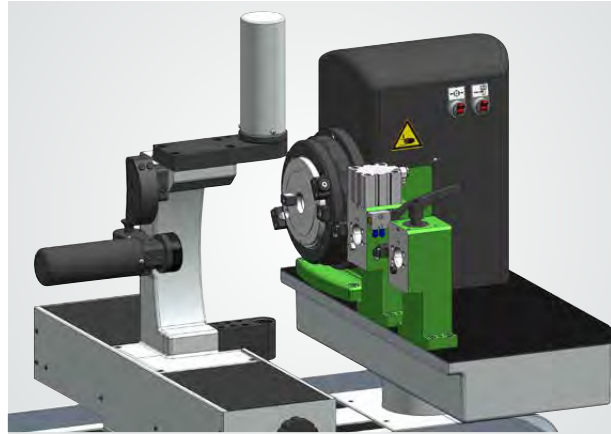


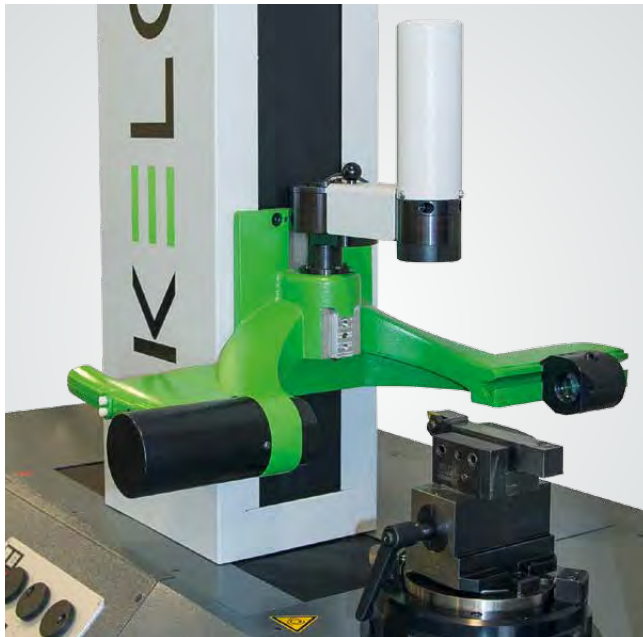
Table layout

- Example of a possible table layout



TUL Rack V, closed

- Stable base with 3 compartments
- For the storage of PC electronics, adapters and other accessories, like printer, tools etc.
- Required space: L x W x H = 1730 x 1158 x 1158 mm



Turning centre camera

- Convenient control and setting of the turning centre with adjustable tools



Label printer

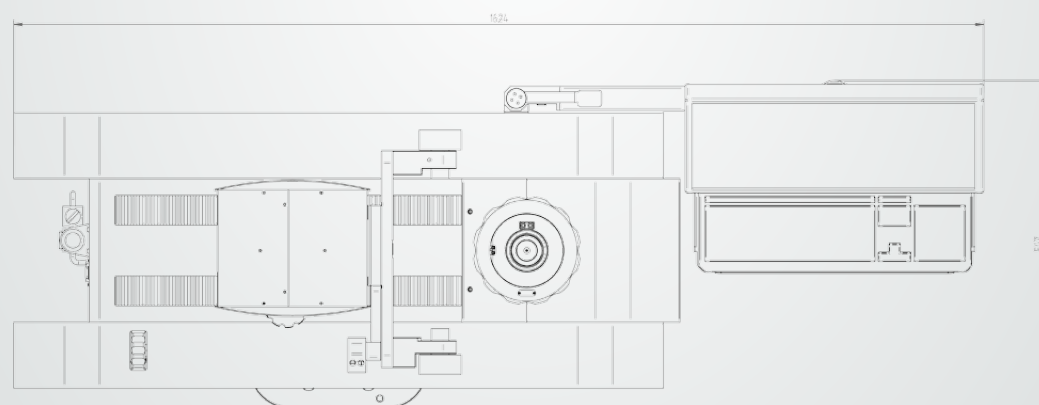
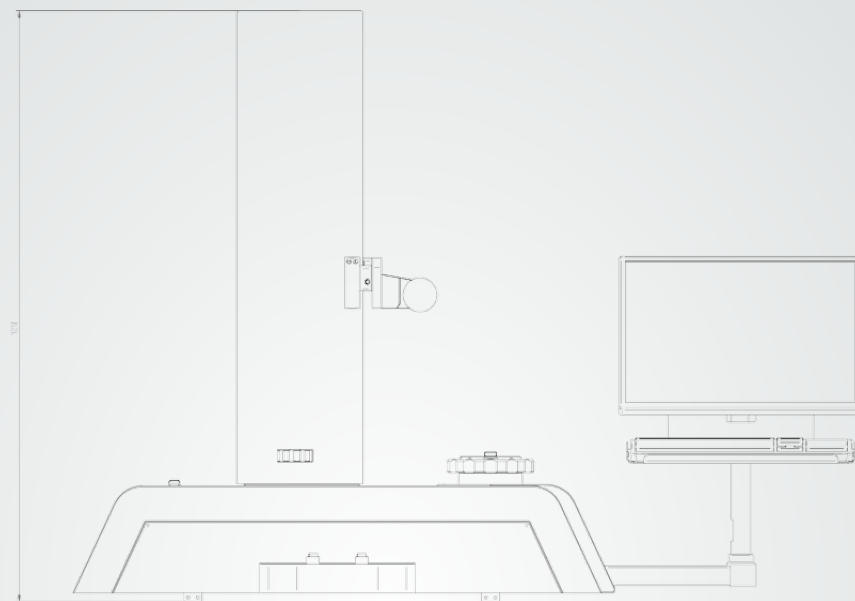
- Thermo-label printer



Protective cover for H3 unit

- Protects from dust and dirt

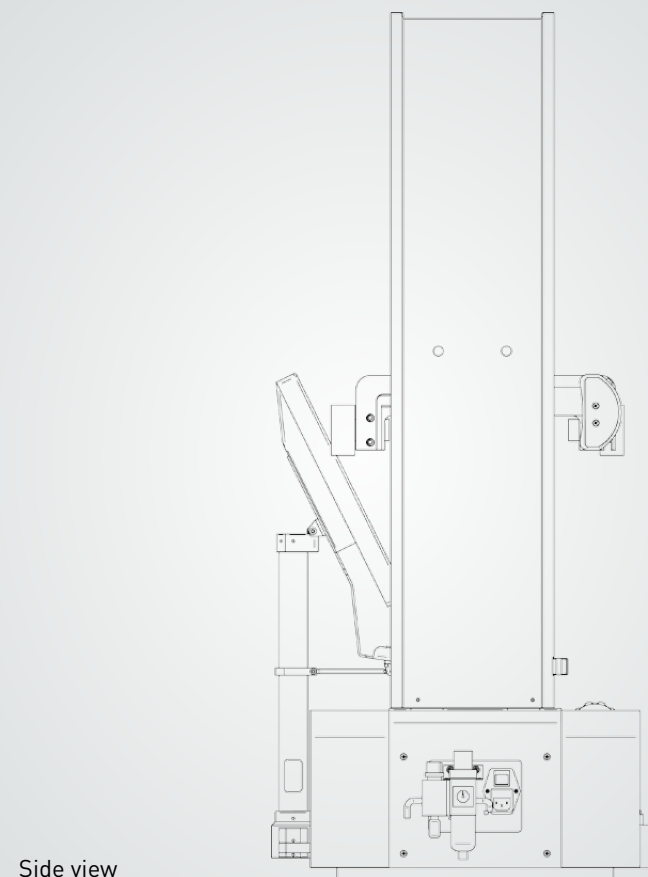
Front view



Top view

KENOVA set line V366 C

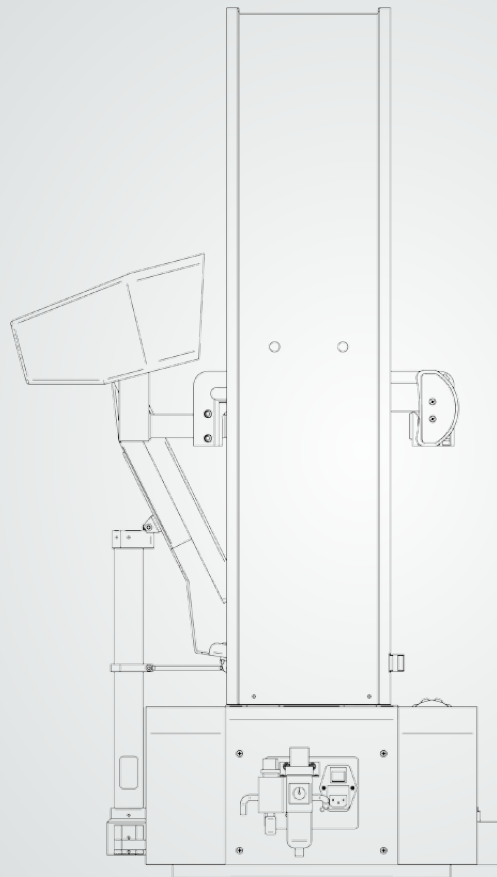
Layout plan



Side view

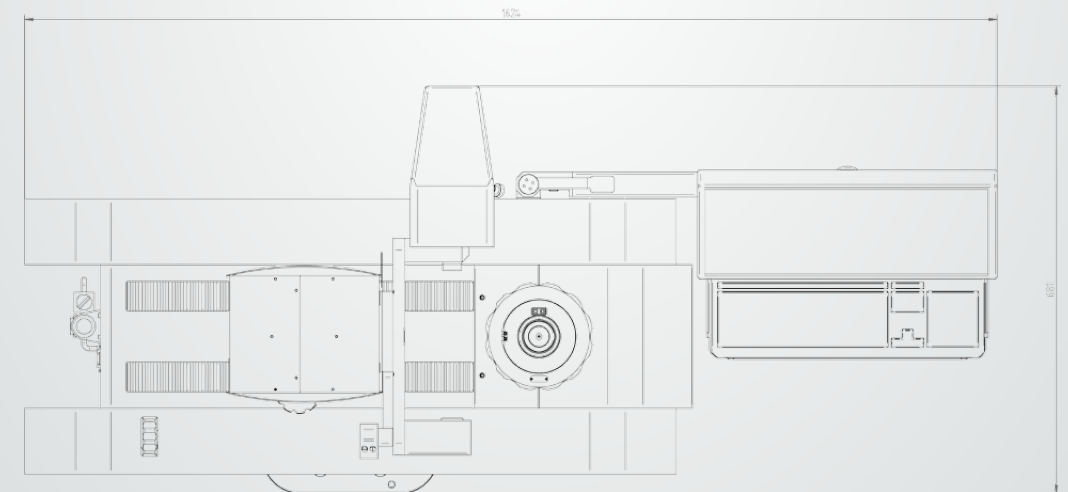
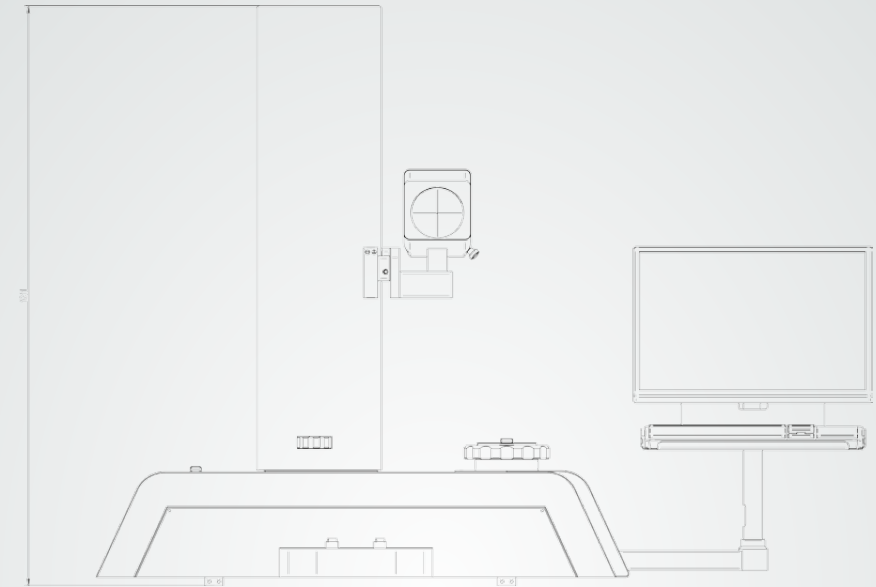
KENOVA set line V366 P

Layout plan



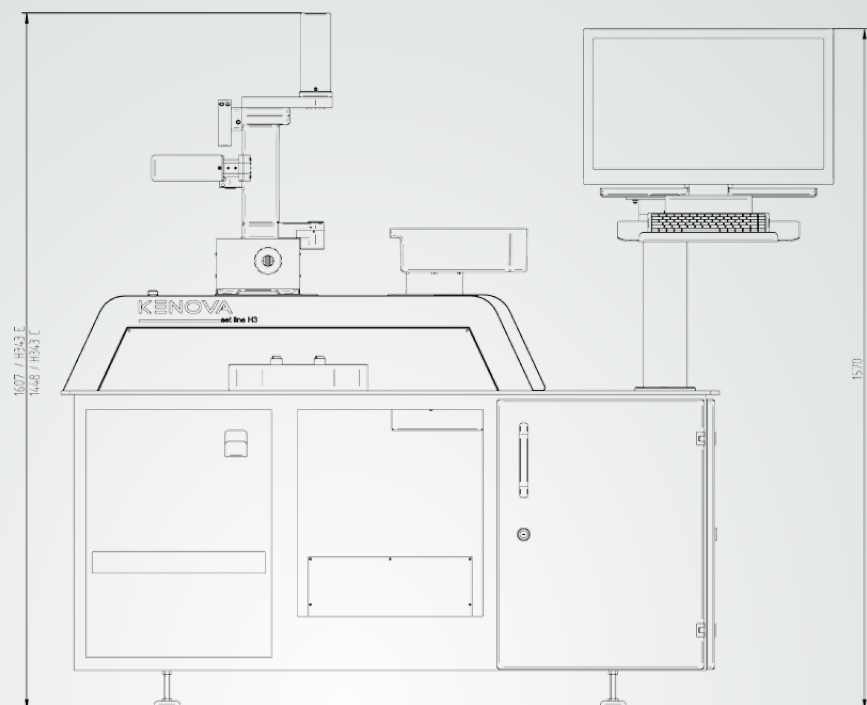
Side view

Front view

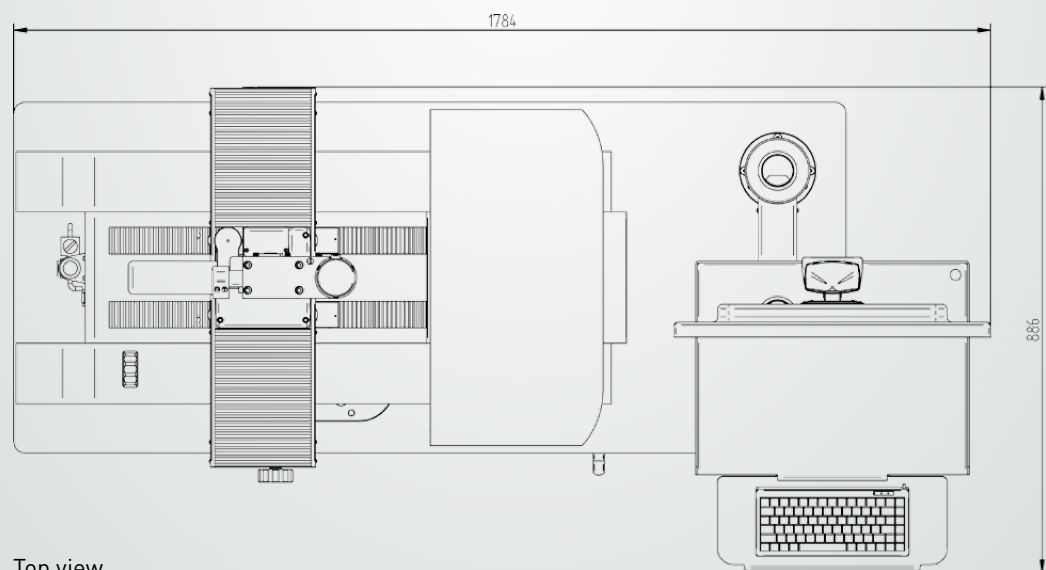


Top view

Front view



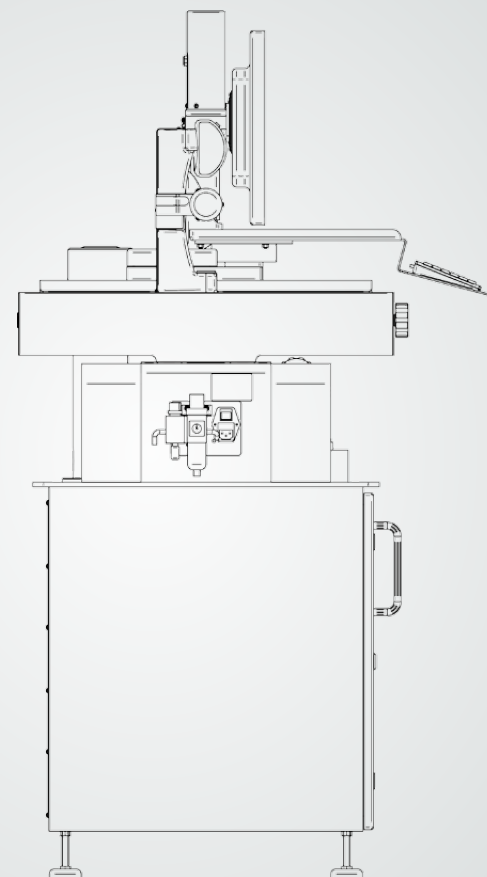
Top view



KENOVA set line H3

Layout plan

Side view



Video

Simply scan the QR code with your smartphone and view the video.

<https://youtu.be/uFqHAftjZzs>



ON TOUR

Exclusive Roadshow TOUR directly at your premises
Selected products presented by KELCH live at your premises.

Arrange your individual appointment by phone or online at roadshow.kelch.de!



NEW!



Modular precision spindle the most stable and precise tool holder spindle.



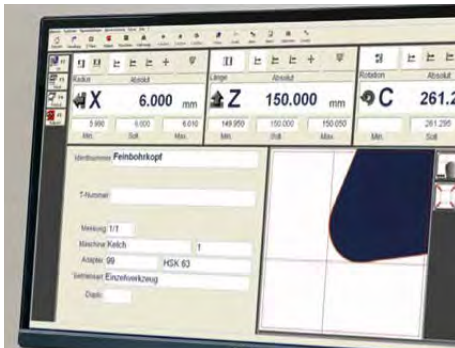
Control panel with joystick to move the CNC axes.



Optics carrier including CCD camera and pneumatic quick adjustment. Optional laser pointer for detection of the cutting edge.



MoDeTec
Optional patented MoDeTec module monitoring system.



EASY software intuitively operated.



Optional additional tool monitor.

KENOVA set line V6xx

The new compact premium tool presetter for maximum precision in the most compact spaces.

The KENOVA set line V6 series guarantees fast, easy and precise measurements coupled with maximum possible process reliability from patented systems. The compact PREMIUM line system can be integrated very easily into an ergonomic workplace design, leaving plenty of space for tools and materials.

Technical Data

- | | |
|-----------------------------------|---|
| Construction: | <ul style="list-style-type: none"> · Compact grey cast iron design for use in the most confined spaces. · WxDxH (mm): 1166 x 630 x 1419 (where Z = 600 mm) |
| Positioning: | <ul style="list-style-type: none"> · Convenient positioning of the axes by pneumatically released quick adjustment mechanism. Additional motorised joystick adjustment/fine adjustment of the 3 axes. · Available in three versions: Manual, Autofocus, Fully CNC |
| Tool holder: | <p>Modular precision spindle for holding various SK, HSK, PSC, VDI etc. inserts with mechanical clamping and braking to fix them in any position.</p> |
| Cutting edge scanning: | <ul style="list-style-type: none"> · CCD camera with telecentric lens and top light · Optional: optical turning centre measuring equipment · S-camera for tool grinders · Probe for cutting edges difficult to access · CCD camera with precise optics and lighting for repeatability of $\pm 2 \mu\text{m}$. |
| Electronic measurement equipment: | <ul style="list-style-type: none"> · PC electronics with intelligent image processing · 24" TFT monitor, 10" monitor on camera carrier (optional) |
| Measuring ranges: | <ul style="list-style-type: none"> · X = -50 mm bis 430 mm (\emptyset) · X = Extendible to -100 mm · Z = 600 / 800 / 1000 mm |



BLUECOMPETENCE

Alliance Member



One-hand operation

The selective quick adjustment of the axes has always been standard at KELCH. The slide clamp can be released quickly and easily and the cutting edge comes into focus.



Precise optics

Telecentric measuring lens for maximum precision. Optionally laser pointer integrated in the camera arm for visual determination of the cutting edge.



Control panel

All operating elements integrated: spindle clamp, tool clamping system and joystick to move the axes.

KENOVA set line V9xx / V9xx-S

The revolution in tool presetting.

Ease of use coupled with maximum precision. This range is modern, ergonomically designed and unique in its design. With its mineral cast base, cast in one piece from the guideway to the floor, KELCH is setting new benchmarks in the design of tool presetters. This design promises durable and consistent mechanical KELCH quality.

Product features of mineral cast:

- Environmentally-friendly manufacture thanks to cold casting process
- Sustainable recycling is possible
- Vibration-damping
- Insensitive to temperature fluctuations thanks to thermal inertia
- Precise measurement due to robust structure

Technical data for KENOVA set line V9xx

Construction:	<ul style="list-style-type: none"> · Fully-CNC tool presetter · Thermally stable and vibration-damped mineral cast composite base · Excellent load-bearing capacity and stability
Drive:	<ul style="list-style-type: none"> · 3 axes, CNC · Optional: 4th axis for automatic length adjustment
Cutting edge scanning:	<ul style="list-style-type: none"> · CCD camera with telecentric lens and top light · Optional: optical turning centre measuring equipment · S-camera for tool grinders · Probe for cutting edges difficult to access
Electronic measurement equipment:	<ul style="list-style-type: none"> · PC electronics with intelligent image processing · 24" TFT monitor, 10" monitor on camera carrier (optional)
Tool holder:	<ul style="list-style-type: none"> · Modular precision CNC spindle · Inserts for all common tool holders
Measuring ranges:	<ul style="list-style-type: none"> · X = -50 to 530 / 830 / 1030 mm (ø) · Z = 600 / 800 / 1000 / 1200 mm

KENOVA set line V9xx/V9xx-S

Precise shrinking and setting in one unit.

Shrink grip and shrink release, measurement and presetting – the KENOVA set line V9xx-S offers all this and more. A tool presetter combined with an inductive shrink fit device:

Dynamic and flexibility in one.

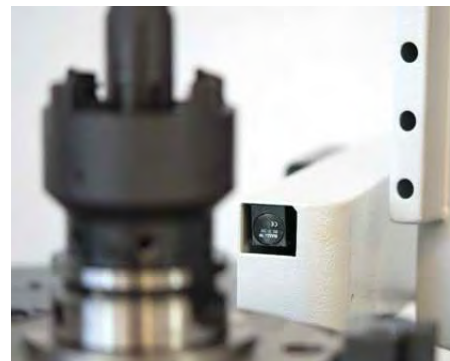
KENOVA set line V9xx-S combines the KENOVA set line V9xx tool presetter and the i-tec® XL shrink fit device to create an automatic station. The KENOVA set line V9xx-S enables tools to be perfectly measured, preset and simultaneously shrunk on one device. A unique feature of the dynamic shrink fit process is the fact that tools can be very quickly shrunk and adjusted to the required target dimension.

Dynamic presetting

In the phase in which the chuck is opened by warming, the tool is set exactly to its target length fully automatically. The benefits of this process include the short cycle times and the option of changing the tool in a single cycle. Naturally chucks from different “quality manufacturers” can also be used here.

Presetting

If measurements are necessary, which do not permit setting during the expansion phase of the chuck, the length of the shank tool is determined using setting adaptors prior to heating. The tool is finally shrunk to its target length using intelligent calculation and pre-positioning of the setting pins. This process is mainly designed for complex measuring tasks or for HSS tools.



Tool identification

Automated and error-free importing and exporting of tool data.



Shrink coil in action

Position of the shrink coil during shrinking.



Shrink fit equipment

The accessories are ergonomically positioned in front of the shrink fit equipment with the coil.



Side unit

Compact design with various storage options.



Worktop of side unit

Cooling sockets and inserts with tools and setting pins ergonomically arranged.

The integrated CNC-measuring station fulfils the most exacting demands placed on measuring tasks and measuring results.

Unique performance features:

- Solid measuring device on a single block mineral cast base; also available as a seated or accessible workstation
- CNC control in up to 4 axes, also manually operable for quick measuring, even without reference data
- Automatic axis process by powerful servo motors for high-precision positioning of the axes.
- Flexible installation of space-optimised peripheral equipment with height-adjustable monitor plate for a user-friendly working environment
- Compact storage of all accessories, such as monitor, keyboard, printer and adaptor, makes work easier
- The computer and electronics are tidily accommodated and easy to access in the spacious switch cabinet
- Workshop-compatible and durable with an industrial PC for measurement control
- Individually adaptable to all measuring tasks and data flows
- Drawer for storage of tools and other ancillary materials

High-end tool presetter with integrated induction coil for automatic shrinking with length adjustment.

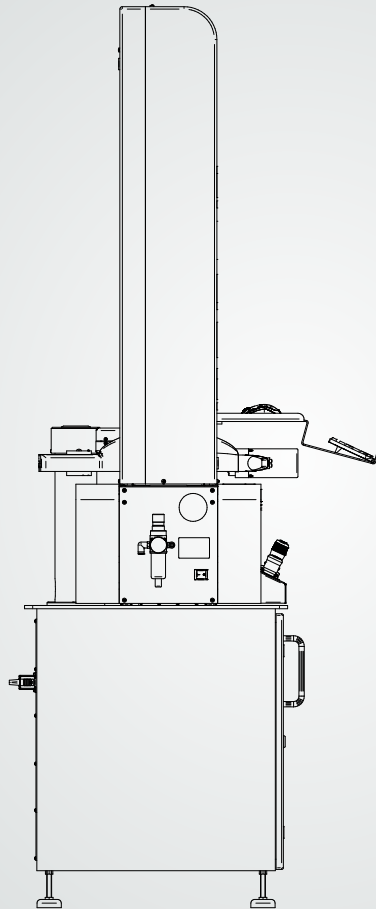
Technical Data – KENOVA set line V9xx-S

- | | |
|-----------------------------------|---|
| Construction: | <ul style="list-style-type: none"> · Fully-CNC tool presetter and shrink fit device · Thermally stable and vibration-dampening mineral cast composite base · Excellent load-bearing capacity and stability |
| Drive: | <ul style="list-style-type: none"> · 5 automatic axes, 4 of which designed as CNC axes |
| Cutting edge scanning: | <ul style="list-style-type: none"> · CCD camera with telecentric lens and top light · Optional: optical turning centre measuring equipment · S-camera for tool grinders · Probe for cutting edges difficult to access |
| Electronic measurement equipment: | <ul style="list-style-type: none"> · PC electronics with intelligent image processing · 24" TFT monitor · 10" TFT monitor on camera carrier (optional) |
| Tool holder: | <ul style="list-style-type: none"> · Modular precision CNC spindle · Inserts for all common tool holders |
| Measuring ranges: | <ul style="list-style-type: none"> · X = -50 to 420 mm [ø] · Z = 600 / 800 mm |
| Shrinking: | <ul style="list-style-type: none"> · Automatically movable induction coil · For HSS and carbide · Optional: Smoke removal extraction system |
| Cooling: | <ul style="list-style-type: none"> · Separate cooling station, completely decoupled from the thermally critical presetting part; simultaneous cooling of 3 shrink chucks · Contact with cooling adapters through which water flows and modular inserts · Cooling time about 60 seconds |

KENOVA set line

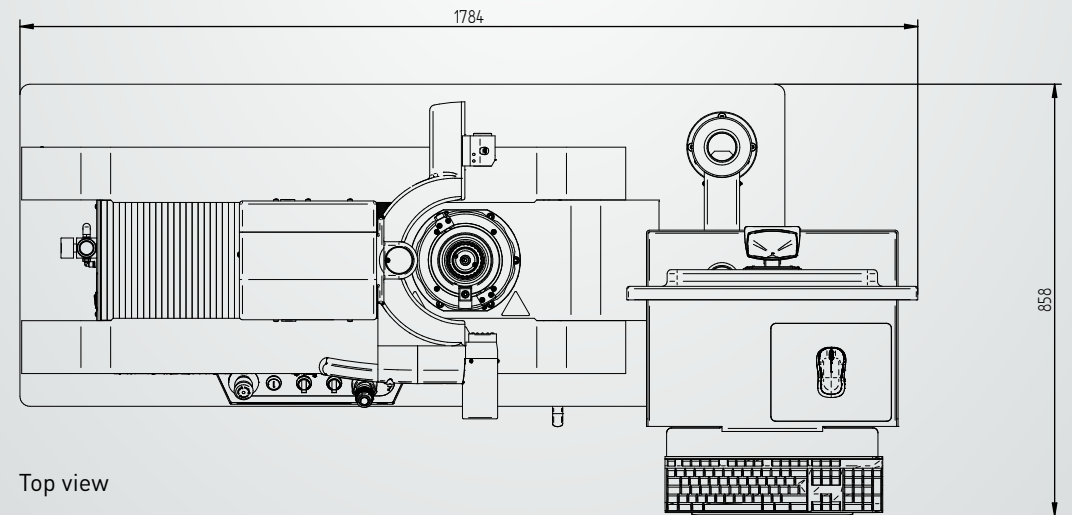
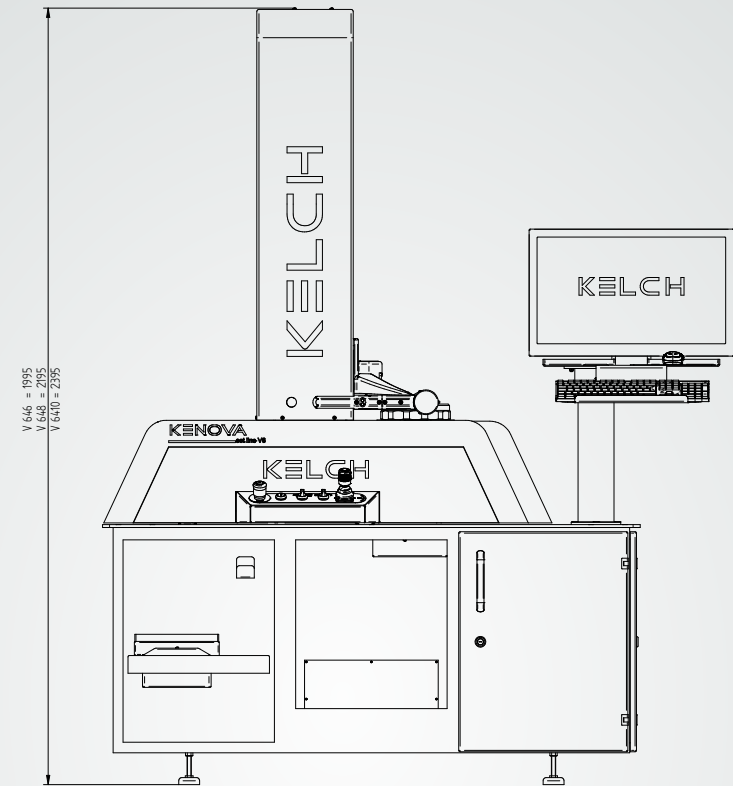
V6xx

Layout plan

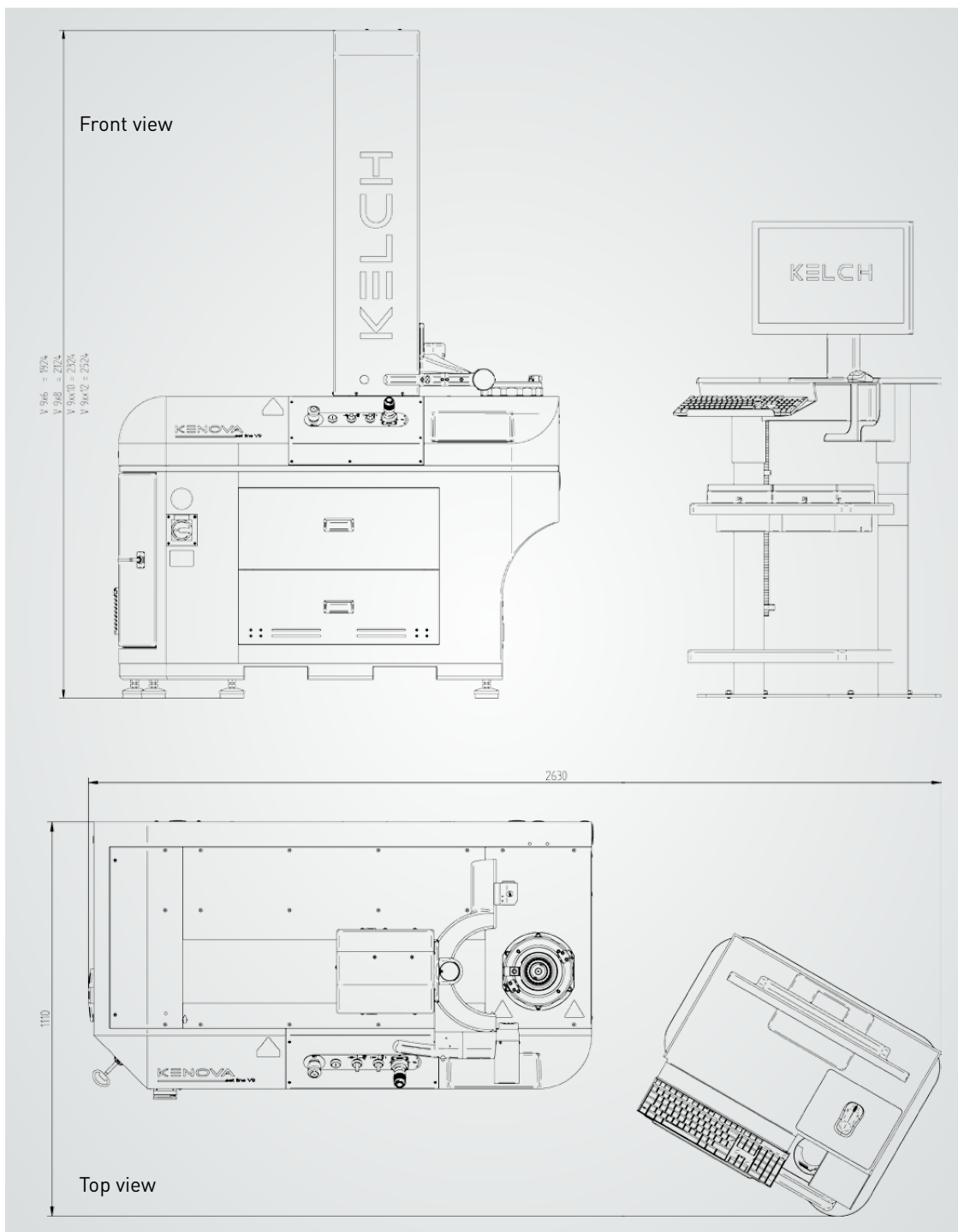


Side view

Front view



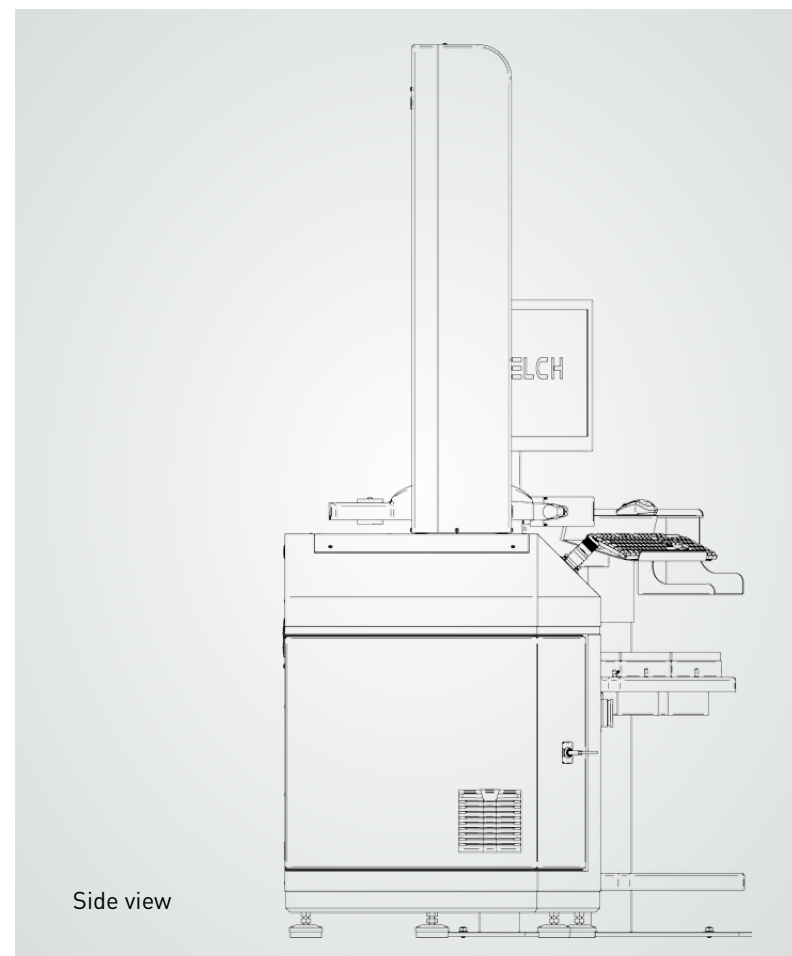
Top view



KENOVA set line

V9xx

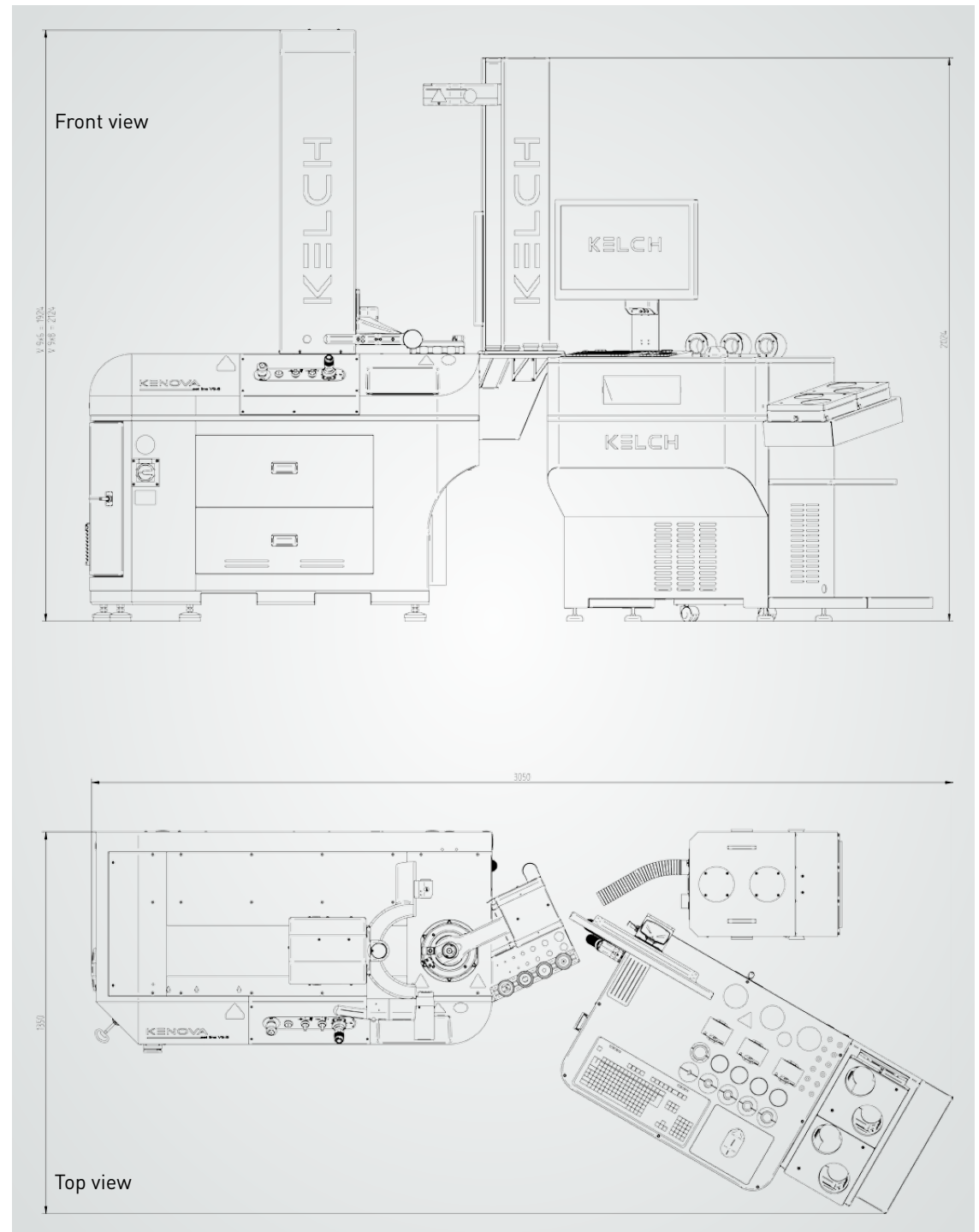
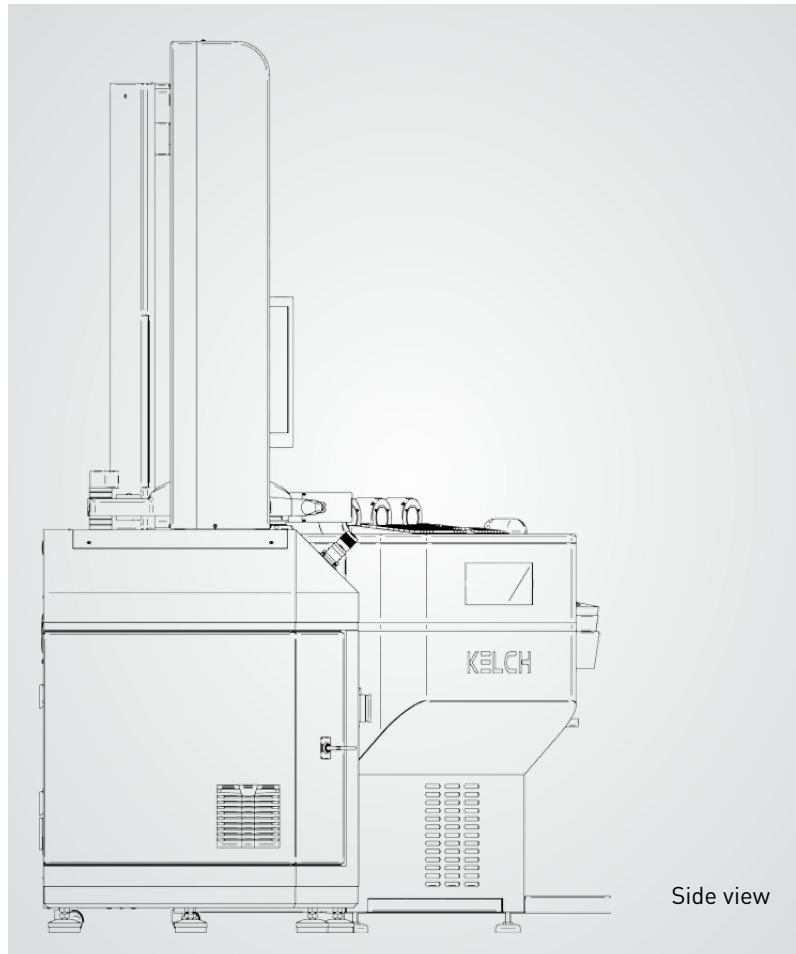
Layout plan



KENOVA set line

V9xx-S

Layout plan

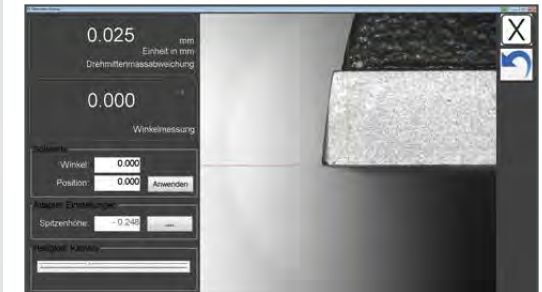
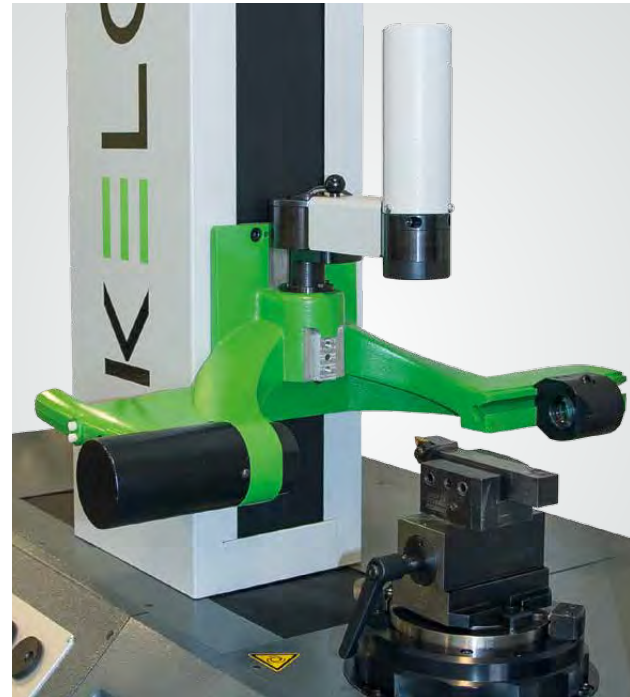




Turning centre camera

Features

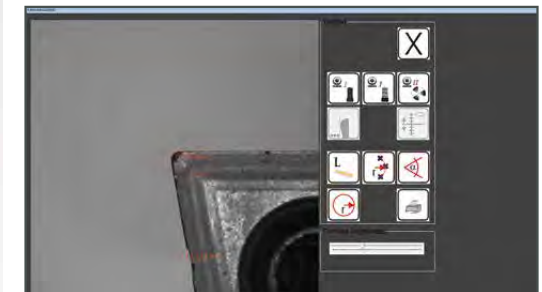
- Additional CCD camera with telecentric lens and LED ring light
- Convenient control and setting of the turning centre with adjustable tools
- Adjustable tool inspection of the face geometry
- Swivels in and out



Grinding camera

Features

- Additional CCD camera with telecentric lens and LED ring light
- Convenient control and setting of the turning centre with adjustable tools
- Swivels from -90° ... $+90^{\circ}$
- Additional tool inspection of the face and circumferential geometry
- Ideal for tool cutters to monitor the chamfer cut on the face and circumference
- Additional software options for manual reflected light measurement of radii, lengths and angles





Tool identification

Features

- Hardware and software for reading and writing RFID chips
- Manual or automatic
- Up to 2 read-write heads can be connected
- For RFID chips on the tool collar and in the pull stud
- Chip formats can be created to meet customer requirements
- Compatible for many systems:
Balluff, Pepperl+Fuchs, Siemens, Euchner (Mazak) and other systems are possible
- Tool data can be imported using various scanners
- Tool data can be imported and exported using various codes – barcode, data matrix code and QR-code

Laser pointer

Features

- Optics carrier including CCD camera and pneumatic quick adjustment mechanism
- Optional laser pointer for detection of the cutting edge
- Activation by pressing axis quick adjustment mechanism
- Laser corresponds to laser class 1

MoDeTec (ModuleDeTection)

Problem

The right spindle insert must be selected before measuring the tools when using different spindle inserts (e.g. SC 50, HSC 63, PSC 50 etc.), as the zero point of the tool presetter is dependent on this. If you wish to measure an SK 50 tool but have forgotten to change from HSK 63 to SK 50 in the software, the system assumes a different zero point. This leads to incorrect measured values and thus to poor results on the workpiece. There is also the possible threat of collisions and damage in the machine.

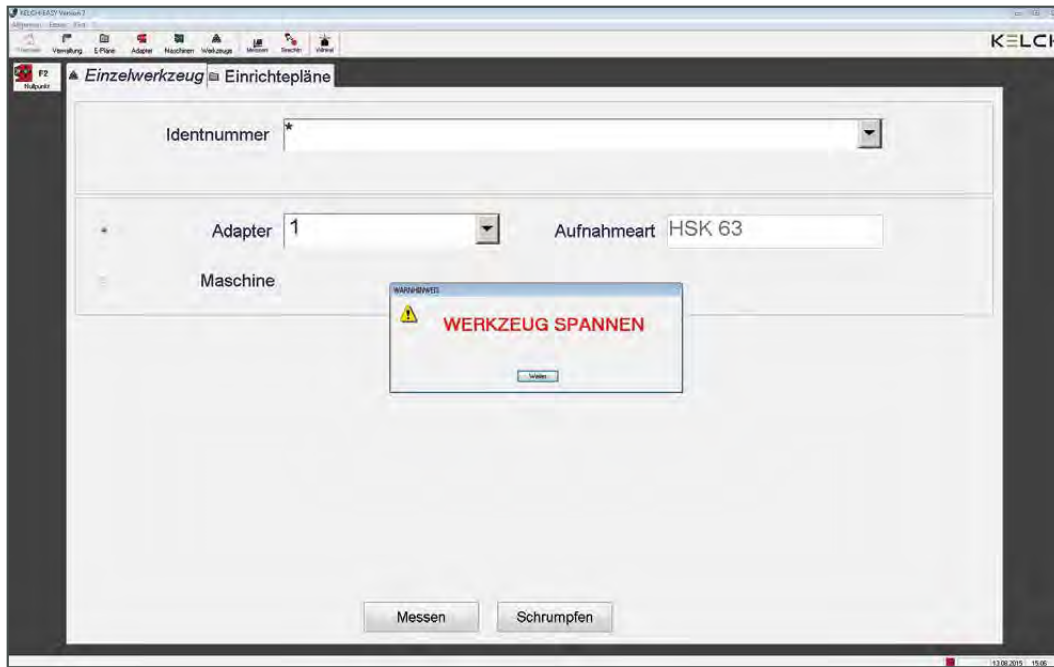
Solution

The solution to this problem is provided by KELCH MoDeTec. This patented system offers maximum process reliability, as the spindle insert communicates directly with the spindle and the software. As soon as the spindle insert is positioned in the basic spindle, the system detects the insert used and automatically selects the right insert in the software. Operating errors are thus a thing of the past.



Available for all equipment with modular precision spindle.





Rear clamping monitoring

Problem

If you forget to clamp the tool in the spindle before measuring, an incorrect measured value will be recorded and possible damage caused to the workpiece or poor machining results produced.

Solution

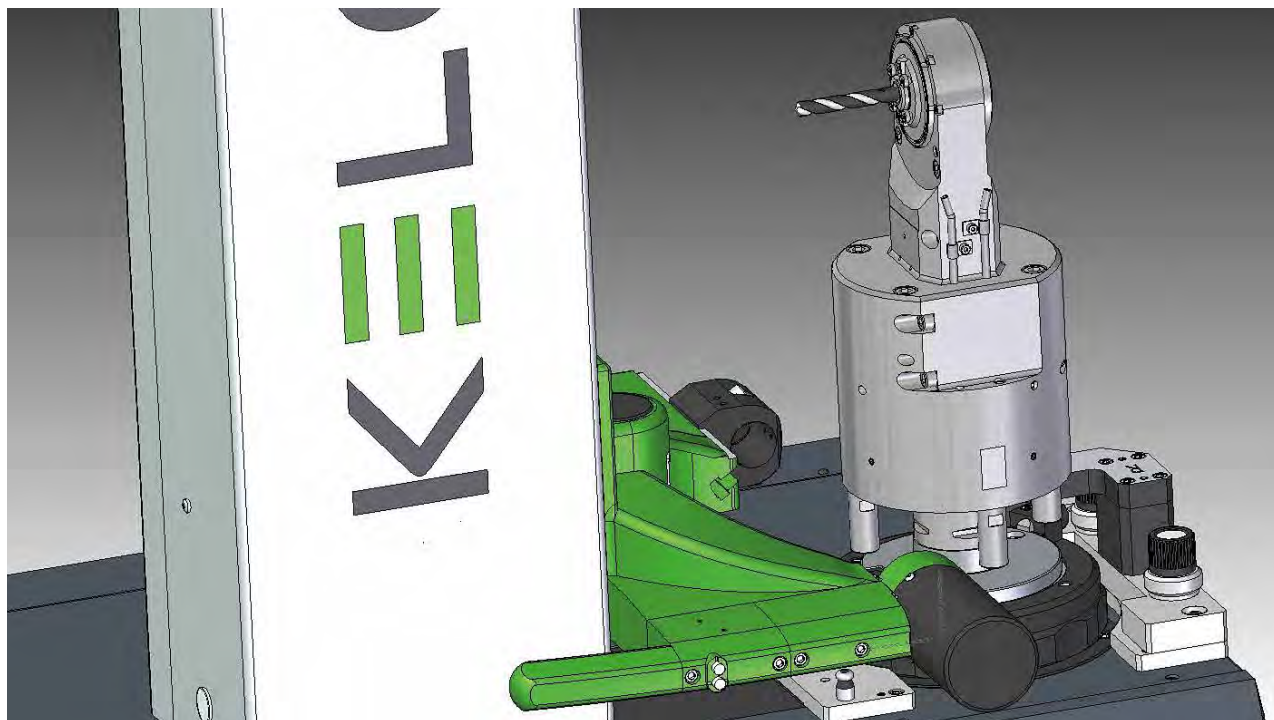
The solution to this problem is rear clamping monitoring. This combination of hardware and software controls the pneumatic clamp on the spindle at all times. The EASY software only permits the measuring process to start once the tool has been properly clamped. This option is also indispensable for reliable setting within the process.

Release mechanism

for angle head tools

Features

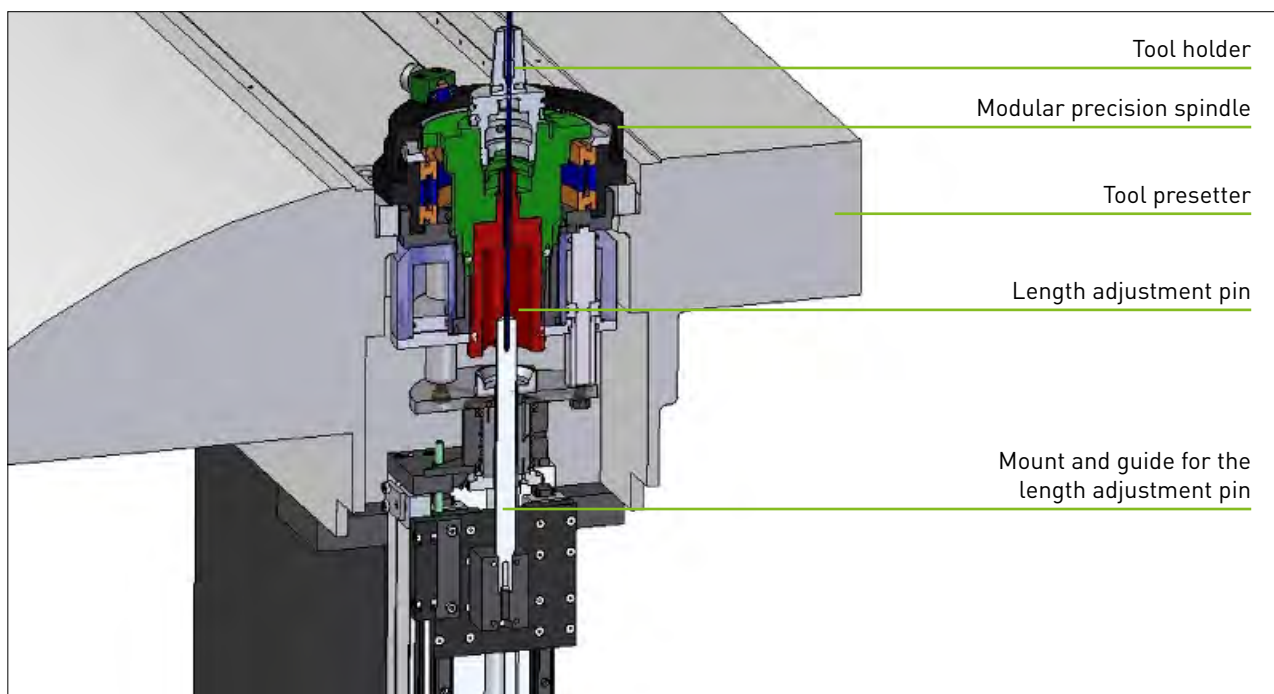
- Release mechanisms for all common SK, PSC, HSK and VDI adapters
- Release mechanisms for driven and non-driven tools
- Customised solutions also possible



Length adjustment

Features

- Hardware and software for automatic adjustment of tools to their target length^{*1}
- Adjustment of hydraulic expansion chucks, collect chucks, Weldon and Whistle Notch

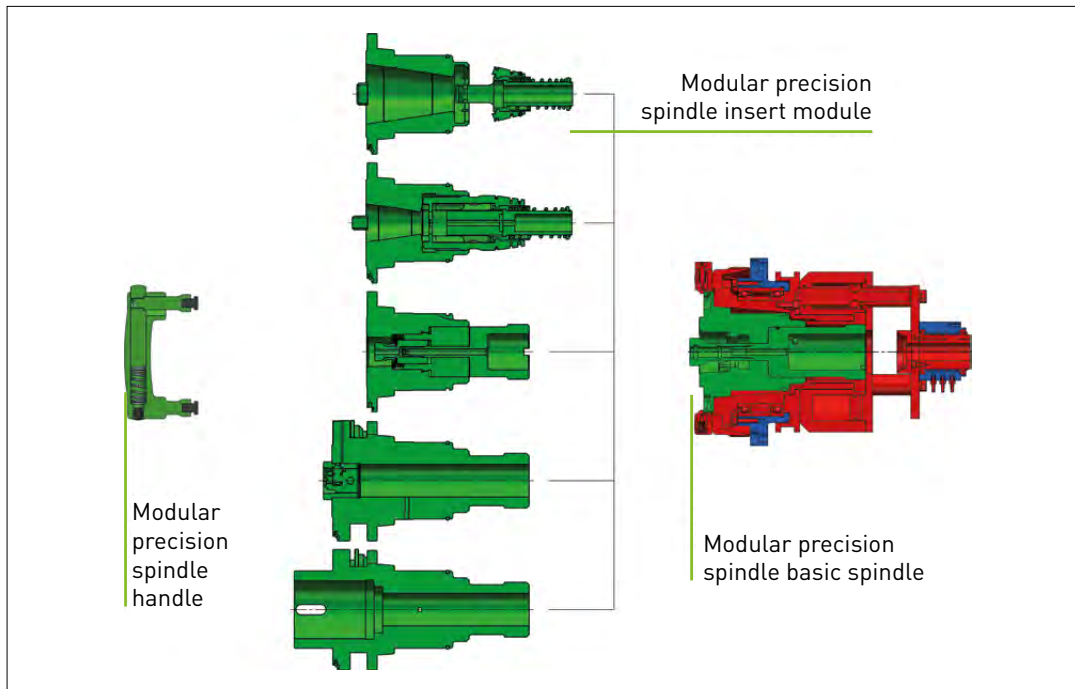


^{*1} Only for the KENOVA set line V9xx and V9xx-S ranges.



Inserts for the modular precision spindle

The contact face and the short taper ensure maximum repeatability when changing the insert modules, available for all standard HSK, PSC, VDI, KM and SK tool holders. Clamping for all tools is similar to the machine tool, with steep taper holders using retention knobs centrally from behind and HSK holders using original clamping units expanded from the inside.



Modular precision spindle

The world's best spindle for
PREMIUM line tool presetters:
KENOVA set line V6xx, V9xx and H3

- Basic spindle concentricity ≤ 0.001 mm
- Change precision of insert modules ≤ 0.001 mm
- No loss of measuring path in the Z axis
- Tool weight of up to 100 kg (KENOVA set line V6xx) / 150 kg (KENOVA set line V9xx)

Features

KELCH's own modular precision spindle is the most stable and precise tool holder spindle you can find. Decades of experience teamed with outstanding engineering knowledge and expertise are behind this ultra-precise spindle. The modular system enables spindle inserts to be swapped within less than five seconds while maintaining excellent precision. Maximum concentricity of $1 \mu\text{m}$ on the flat surface and $< 3 \mu\text{m}$ at a height of 300 mm and a tool weight of up to 150 kg speak for themselves.

Monitor combinations

Features

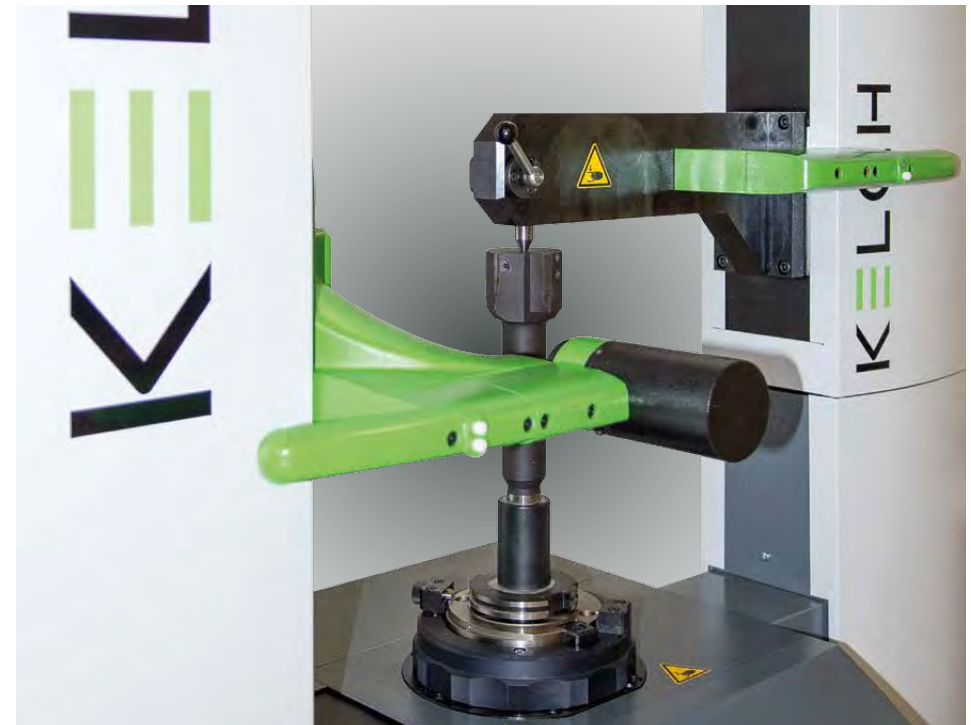
- Optional combination of 2x 24" monitors above each other
- Additional 10" tool monitor that travels with the camera
- Additional 17" tool monitor fixed upstream of the spindle on the base



Tailstock

Features

- Additional tower parallel to the measuring tower
- For clamping long tools
- Up to 1200 mm
- Minimises wobbling of long tools, such as long reamers





Suggested example

Protective cover for V6 and V9xx / V9xx S units

- Protects from dust and dirt



Suggested example

A4 printer

- List printer for logging

Accessories for the PREMIUM line

Add to your tool presetter to meet your needs and requirements and customise it with our accessories.



TUL mounting plates

- Basic element of the TUL system
- Available in different designs (e.g. for holding tools, inserts for modular precision spindles or other tools, see the TUL range)
- Required space: L x W x H = 240 x 120 x 130 mm



Label printer

Thermo-label printer with or without dispenser.



Inserts for the modular precision spindle

- Insert modules which can be supplied for all common HSK, PSC, VDI, KM and SK tool holders.

Intelligent and intuitive software

Quickly achieves the required measuring result

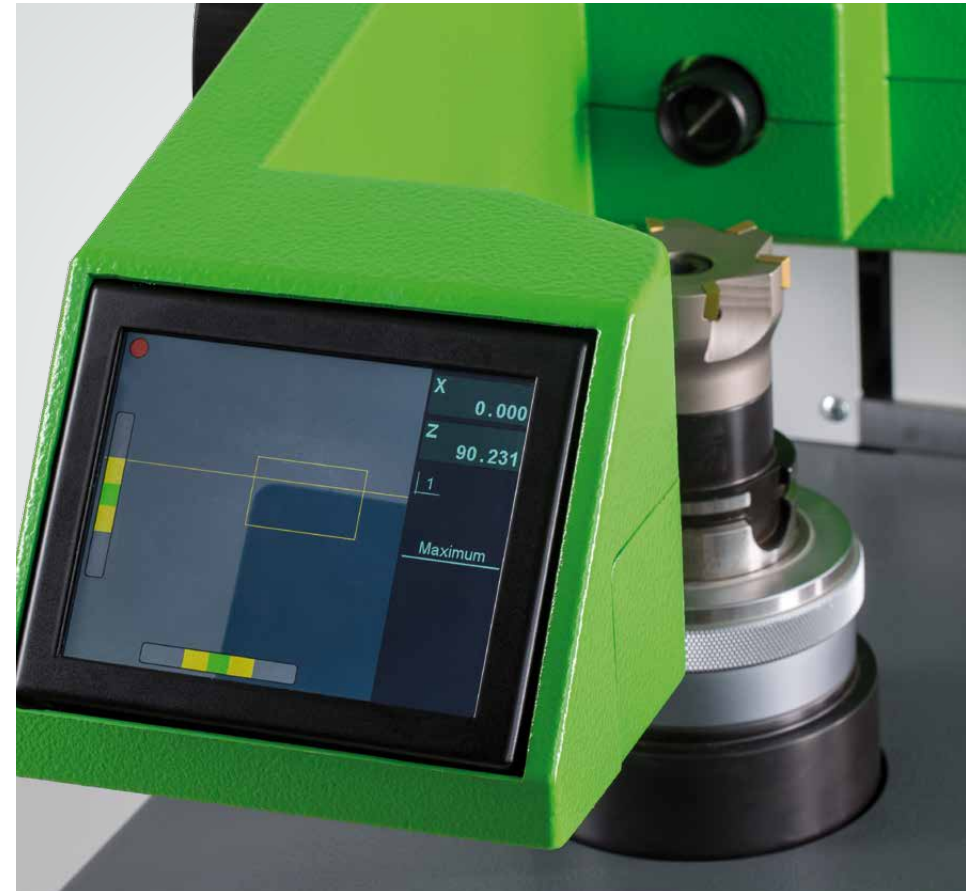
The 5.7-inch touch screen guides operators intuitively through the measuring tasks, ensuring they quickly achieve the measuring result required. The fine adjustment for both axes enables operators to position the tool in the camera image securely and precisely. A wide range of different adaptor sleeves means that most tool holders can be inserted into the spindle.

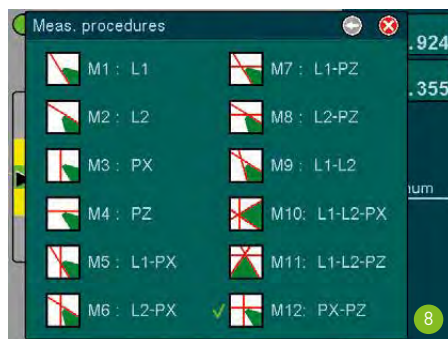
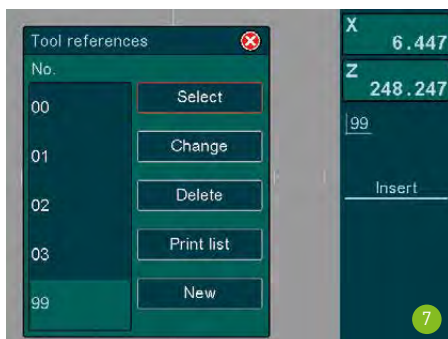
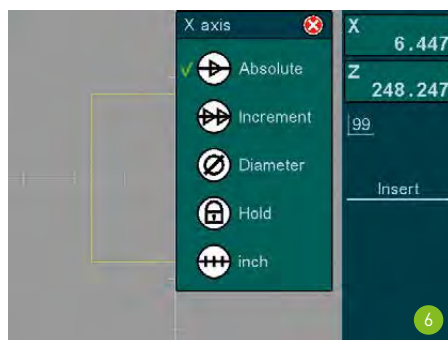
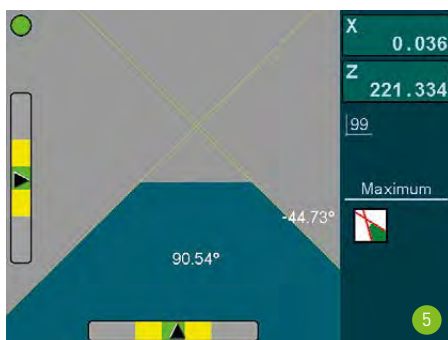
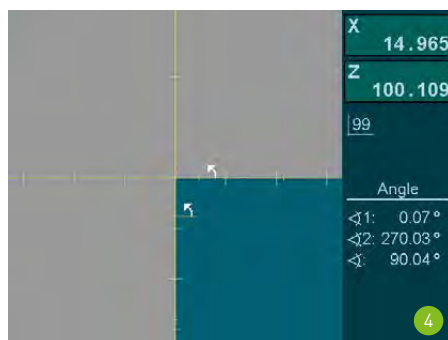
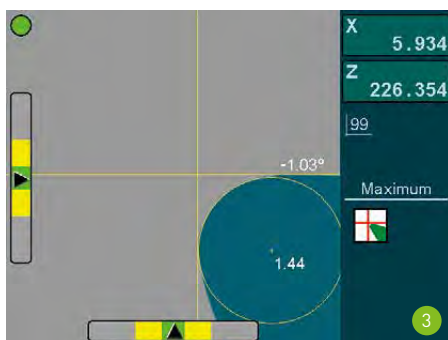
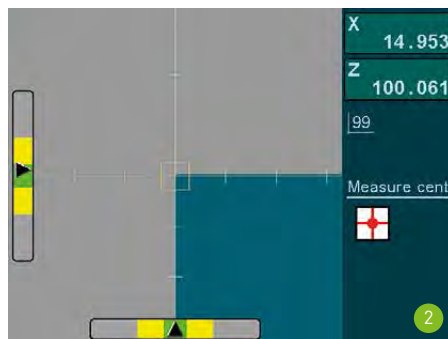
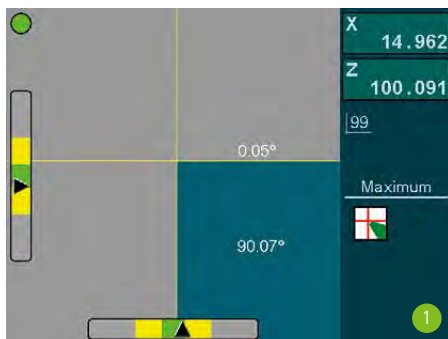
More information on pages 6-7.

Smart Pro

KELCH Smart Pro are high-capacity electronic measuring devices that have been specifically designed for use with tool presetters.

The Smart Pro control offers outstanding convenience for entry-level tool presetters. Thanks to a 5.7-inch touch monitor, operators are faced with a clear and intuitively operated user interface, with which they can quickly and accurately measure tools. There are also informative function modules and descriptions available on the user interface, which permit operators to perform all essential tool measurements, such as diameter, radius, angle, length and chain dimensions. The label printer then prints out the measured values. Additional display functions aid operators in setting up image processing, such as camera and light settings.





Smart Pro

The intelligent all-in-one image processing system for entry-level tool presetting and measurement.

- 1 Measurement of dynamic cross-hairs:** For operator-independent and fast measurement of the maximum values of different geometries. The cross-hair automatically finds the cutting edge and remembers the maximum values until the measurement can be restarted, enabling the individual cutting edges of multiple cutting-edge tools to be compared.
- 2 Measurement of fixed cross-hairs:** The fixed cross-hair acts like a projector, with the cutting edge having to be manually positioned on the cross-hair. The colour-coded adjustment bar displays to the operator how well the cutting edge is positioned for measurement, thereby providing for maximum possible repeatability.
- 3 Measurement of radii:** Radii are measured automatically as soon as a suitable radius has been detected in the image. The points can also be positioned manually if radii have to be recorded and measured at very specific points.
- 4 Measurement of angles:** Angles are measured automatically as soon as the cutting edge has been detected in the image. The system generally records the included cutting angle and the angle to the horizontal. If specific angles are to be recorded, they can also be defined manually. Up to 3 angles can be measured and displayed simultaneously.
- 5 Theoretical points:** Theoretical geometries can equally be recorded and measured automatically and operator-managed. This can involve the theoretical point with counterbores, the theoretical length or the radius on the edge of the drill.
- 6 Axis functions:** Axes can be displayed in mm or inches, as an absolute value or as a chain dimension, and by their diameter or radius. An axis holding function is also integrated for measuring over-sized cutting edges.
- 7 Adapter menu:** Clearly arranged menu for setting up, deleting and selecting adapters. Up to 99 adapters can be stored.
- 8 Measuring process:** Apart from the standard measuring processes, there are a further 11 measuring processes for measuring specific geometries, enabling almost all measuring tasks to be solved.

Intelligent software communicates with machines

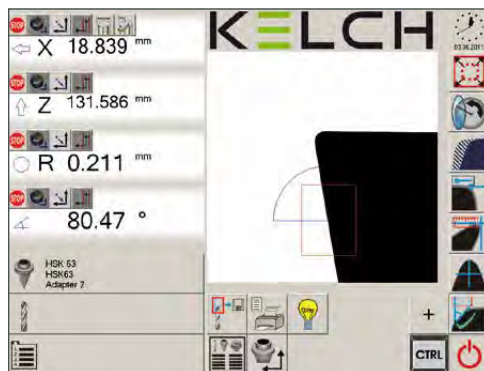
The simplest way to get a precise result.

Fast, reliable and easy to use without the need of extensive training – these are the requirements that users place today on small control units in order to master the everyday measuring and presetting tasks. The display and operator dialog are shown on a clearly designed touch screen. Logical measuring tasks, such as angle calculations, circle diameter and theoretical points can be activated easily by using your finger tip on self-explanatory module icons. The easy management of the adaptors, holders, tools and tooling sheets enables permanent access to the results in terms of the workflow.

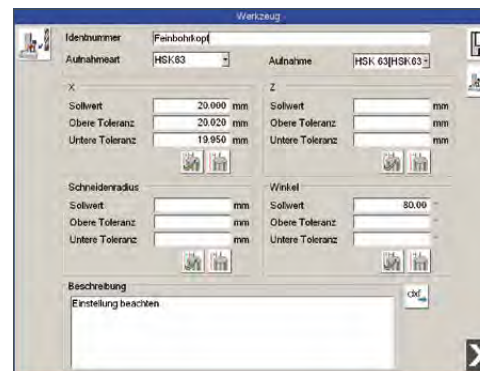


KELCH CoVis

- Operated via a 15" touch screen
- Camera with a 5 x 5 mm measuring window
- 28x magnification of the camera image 28 x
- Cutting-edge inspection with LED illumination and zoom function
- Total image function for fast measuring
- Database for adapter, zero point, tool and tooling sheets
- Additional measurements: radius / circle sections, cutting angles and general angles and centre of radius / circles sections
- Data output via printer or network



Measured image



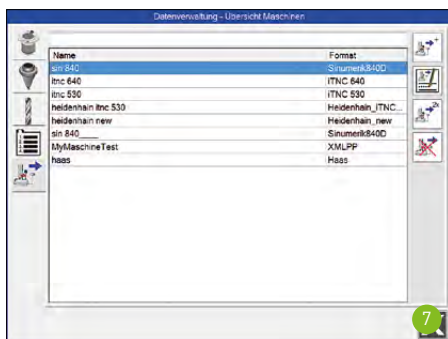
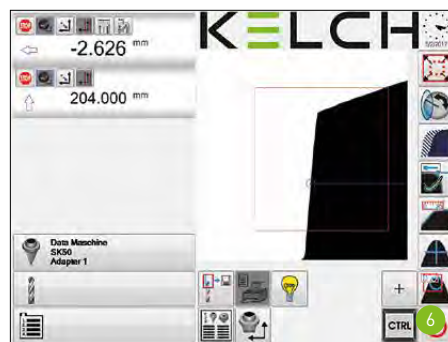
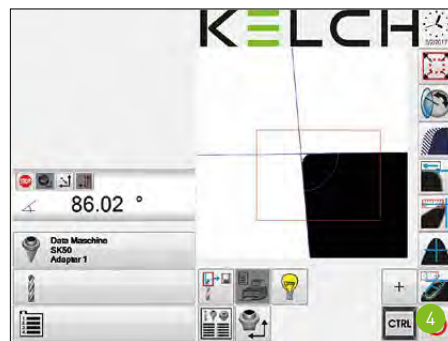
Tool data screen



Cutting edge inspection



Data communication



KELCH CoVis

The intelligent software – the heart of the INDUSTRIAL line for tool adjustment and measurement.

- 1 Measurement of dynamic cross-hairs:** For operator-independent and fast measurement of the maximum values of different geometries. The cross-hair automatically finds the cutting edge and remembers the maximum values once the total image has been activated until the measurement can be restarted, enabling the individual cutting edges of multiple cutting-edge tools to be compared.
- 2 Measurement of fixed cross-hairs:** The fixed cross-hair acts like a projector, with the cutting edge having to be manually positioned on the cross-hair. Previously press the Focus key to adjust maximum focus.
- 3 Measurement of radii:** Radii are measured automatically as soon as a suitable radius has been detected in the image. Measured on the basis of the best-fit process; free choice of ROI
- 4 Measurement of angles:** Angles are measured automatically as soon as the cutting edge has been detected in the image. There are several angle measuring options (supplementary angle, enclosed angle etc.)
- 5 Theoretical points:** Theoretical geometries can equally be recorded and measured automatically and operator-managed. This can involve the theoretical point with counterbores, the theoretical length or the radius on the edge of the drill.
- 6 Search beam:** The complementary value at the intersection of the search beam is measured with the contour of the tool by fixed specification of either the X or Z coordinates
- 7 Data management;** It includes an adapter menu for specification of any number of adapters and machine management system, tool management system and set-up plans. Complete set-up plans can be produced and transmitted to the machines by post-processors. The machine menu is used to define different controls.
- 8 Cutting edge inspection** Top light control using different lighting intensities for the visual inspection of tools.

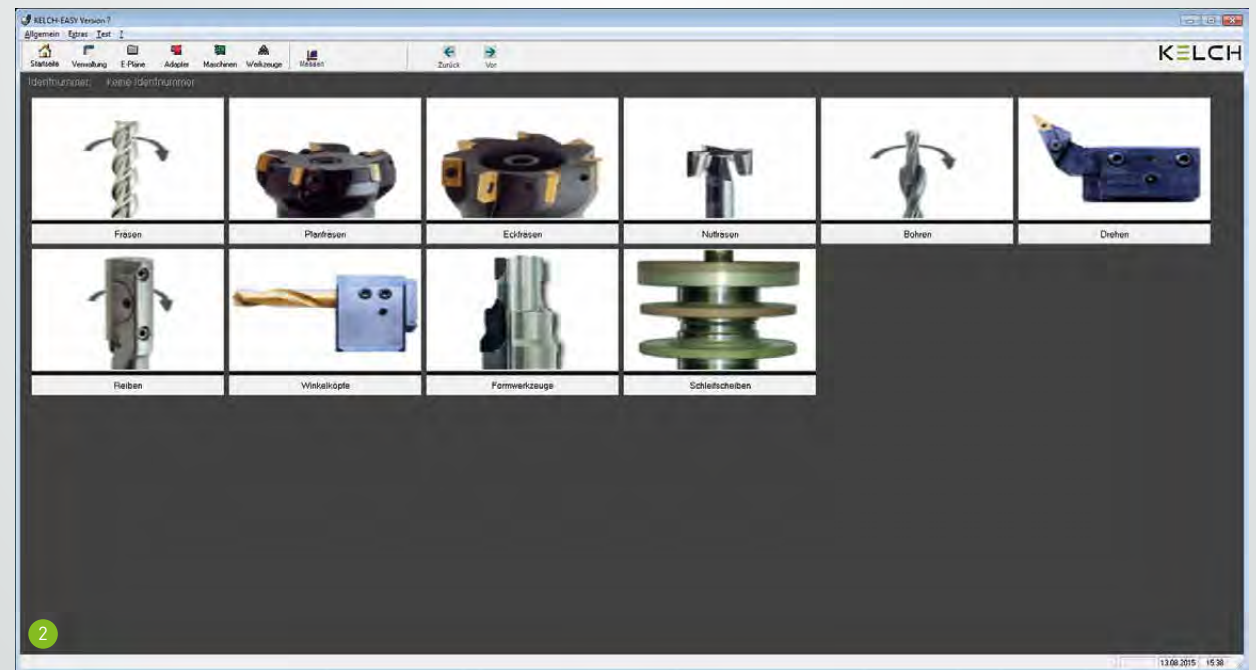
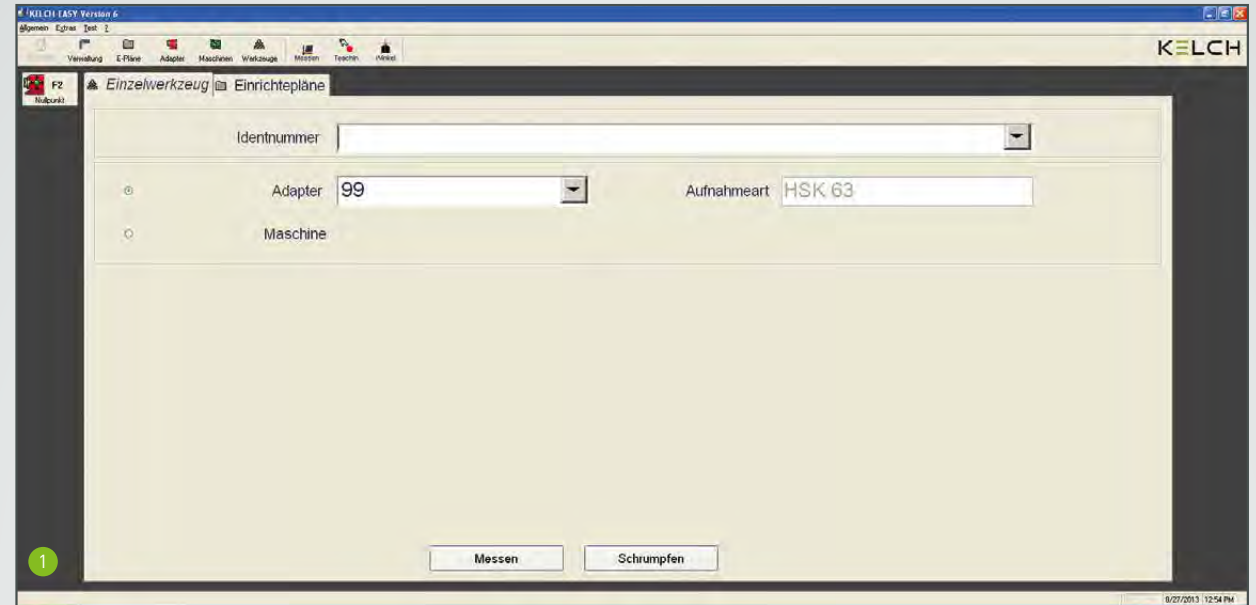
EASY

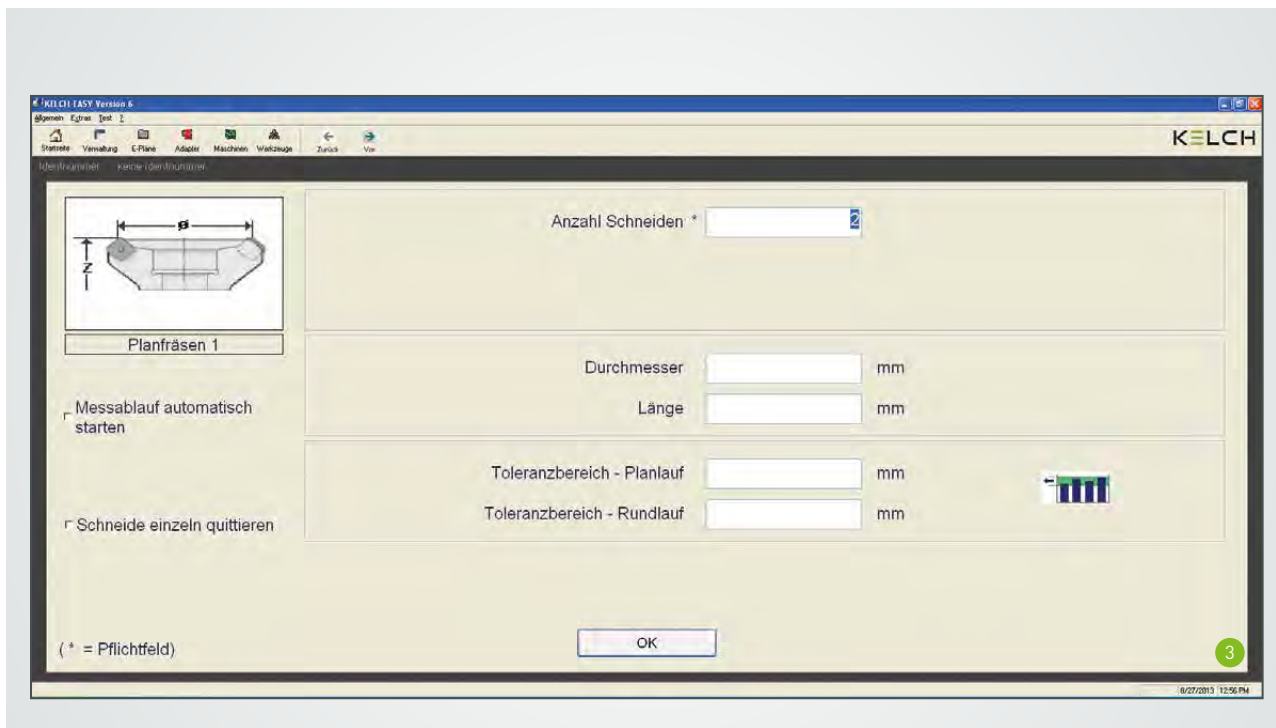
Measuring made easy.

Measuring simply could not be easier with this software – and no special knowledge is needed. The clearly arranged user interface enables users to immediately navigate around the system using familiar forward/backward movements.

A simple clear homepage is the direct entry to each measuring task. Other input screens, such as Picture Start, guide users step by step to the correct measuring result and also to the automatic measuring program.

Adapters, machines, original tool forms, tooling plans and measuring processes are saved in the integrated database. The standard configuration includes bidirectional data communication (DNC) via a network card or serial interfaces in the KELCH data standard.





EASY leads each user securely through the program with Picture Start using concise, easily understandable input dialogs. Practical pictures and graphics help with navigation and orientation.

Step 1: Input the measurement of individual tools or entire tooling sheets on the homepage. Then select the appropriate adapter on the tool presetter. If one of the tools entered has already been saved, the system calls it up by its identification number and immediately begins the measuring process.

Step 2: Select a tool using Picture Start. The selected tool then performs the measurement. Picture Start is KELCH's own in-house developed selection menu. Define the tool group you require using the different graphics. Simply click on the right graphic depending on the tool type and cutting geometry.

Step 3: Use ParaDirect (PaD) for inputting data. This is a concise, easy-to-understand input dialog into which you enter the target dimensions and tolerances. Simply complete the mandatory fields for the measuring process. The corresponding measuring process begins when you have confirmed by pressing Enter. The data is entered from the PaD and the required measurement results are instantly available. Any actions required are clearly visible on the monitor.

EASY

Measuring made easy.

Complex tools can be measured fully automatically for the first time with the Teach-in software option. Fully automatic measurement guarantees precise measuring results and enables tool presetters to be operated regardless of the operator's knowledge and expertise. All measuring steps are retained and can be saved as a complete measuring program with the tool.

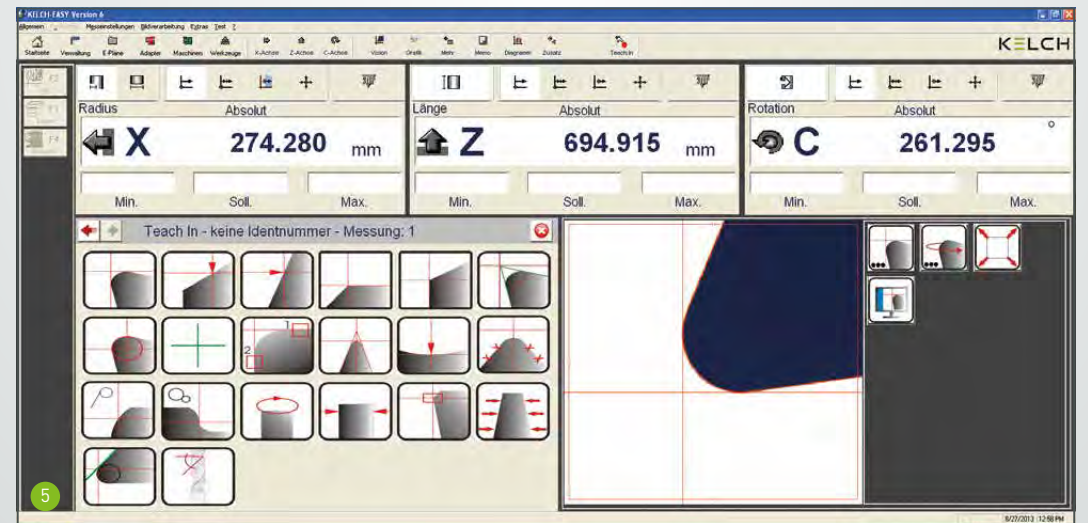
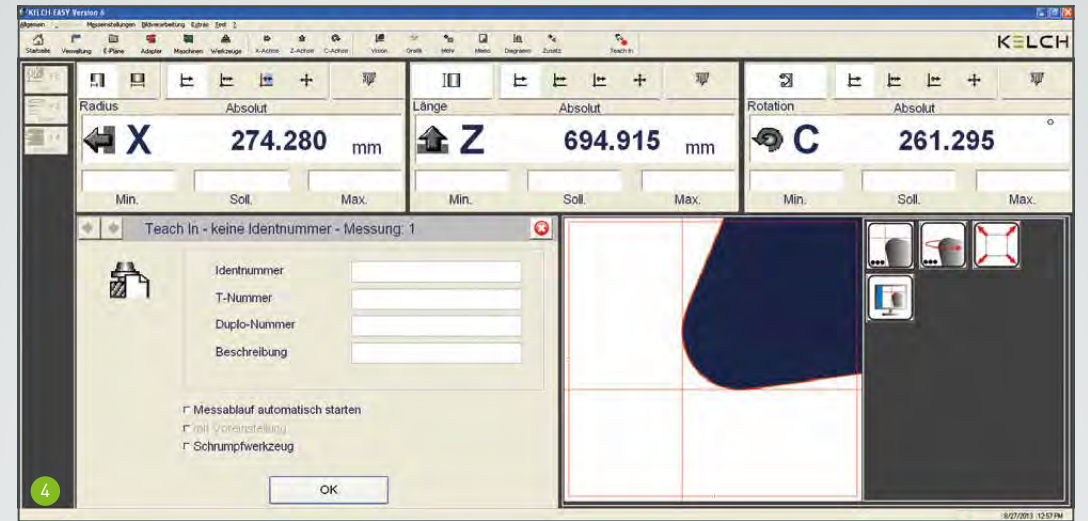
EASY

PREMIUM line

45

Performance features at a glance

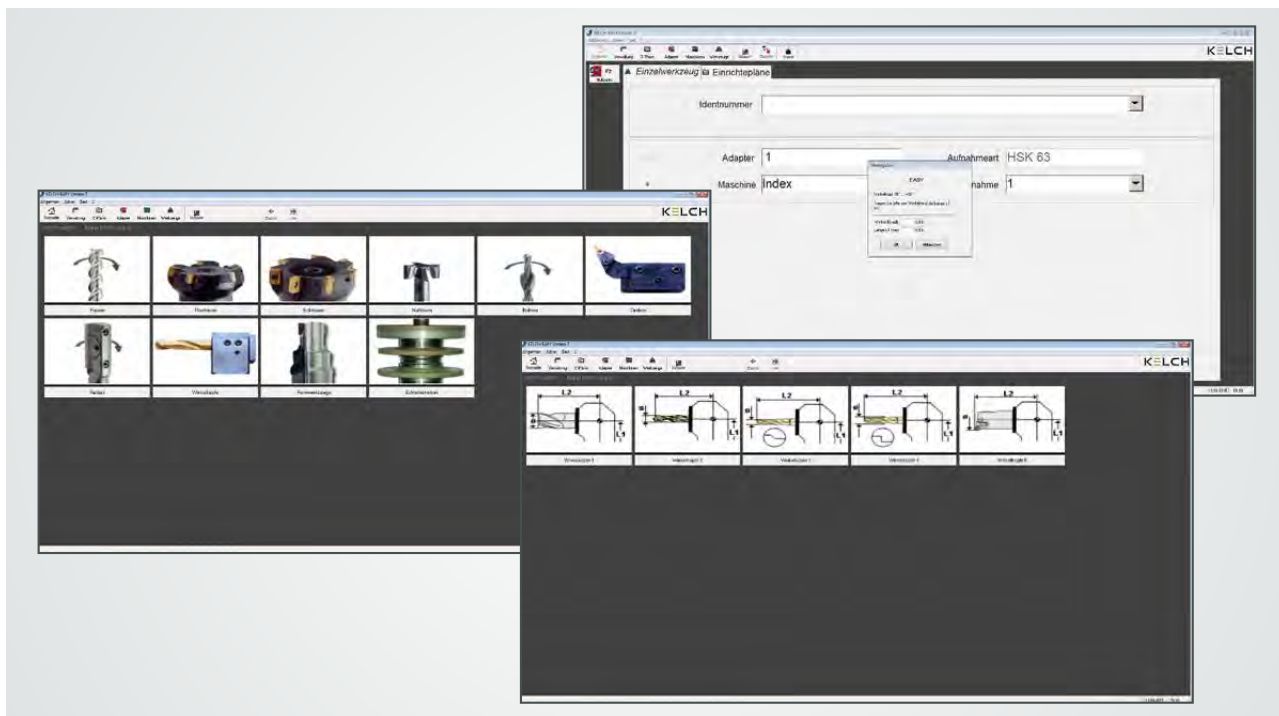
Operator guidance	Simple input screens lead the user step-by-step to the right measuring result.
Automax®	Automatic, time-saving measurement of cutting edges without focusing.
Full-screen view	Tool cutting edge possible in full-screen view
Graphics protocol	Graphic print output to log tools measured.
Online help	Integrated online help in Windows format.
Picture Start	Simple retrieval of automatic measuring processes via easy-to-understand tool images.
ParaDirect	Direct parameter input for the automatic measurement of new or unknown tools.
Contour measurement	Every form of cutting tool is simply scanned in.
Module recognition	Patented solution for maximum security.
Tool Tips	Context-sensitive help when starting up elements shows the user what activity is being called up.
Teach-in	Software option for individual setting and programming of measuring processes - easy, interactive and supported graphically.
Total image	Patented procedure to generate the envelope and measure the cut created.
DXF comparison	Target/actual contour alignment of tools by saving a template.
Reports	The relevant measuring results can be output in different protocol formats.
RFID	Tool identification by means of the RFID chip, which can be read and written.
Inspection	Tool inspection in the top light process to monitor the cutting process.
Tool Management	Connection to external systems, such as TDM, Coscom, Fastems etc.
3D module	Creation of precise 3D models of the rotational and symmetrical tool.



Step 4 + 5: The measuring process begins as soon as the identification number has been entered on the homepage (step 1). It starts automatically if a measuring run has already been entered.

It couldn't be EASIER.

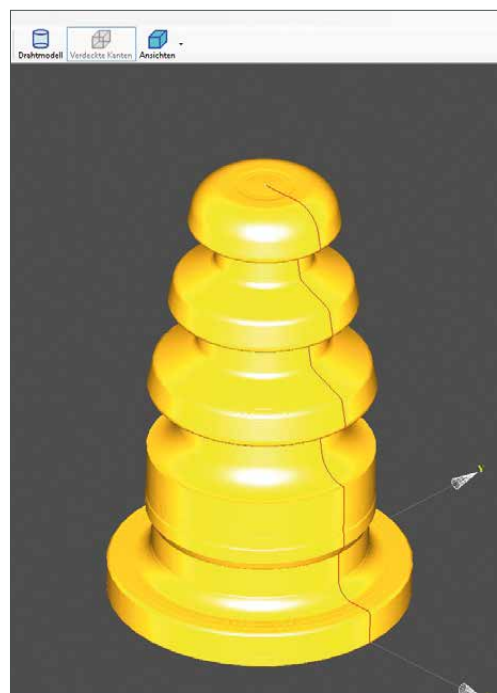
The new user interface for the tool presetter's software delivers the most precise measuring results and is easy to use and understand. The familiar Home-Forward-Back navigation is similar to the method used in most browsers, meaning that you can return to the starting point by pressing just a single button. EASY software also comes with online Help, which is also easy to understand and structured in a similar way to Windows.



KELCH EASY – Angle heads

Features

- Simple and fast measuring of angle head tools
- Variable angle setting from -90° ... $+90^{\circ}$
- Diverse customised solutions can be achieved



3D wizard

A fully functional 3D model in three steps

The 3D wizard lets you create a 3D model of the entire tool in a few steps, allowing you to use it for collision observation.

The EASY software records a point scan of a rotationally symmetrical tool with a contour scan, generates a 2D model, which can still be processed to close the contour gaps, and then extrapolates it into a 3D model. Issuing the file in .igs, .stp and .stl format enables the model to be used by the majority of simulation tools.

Contour Software

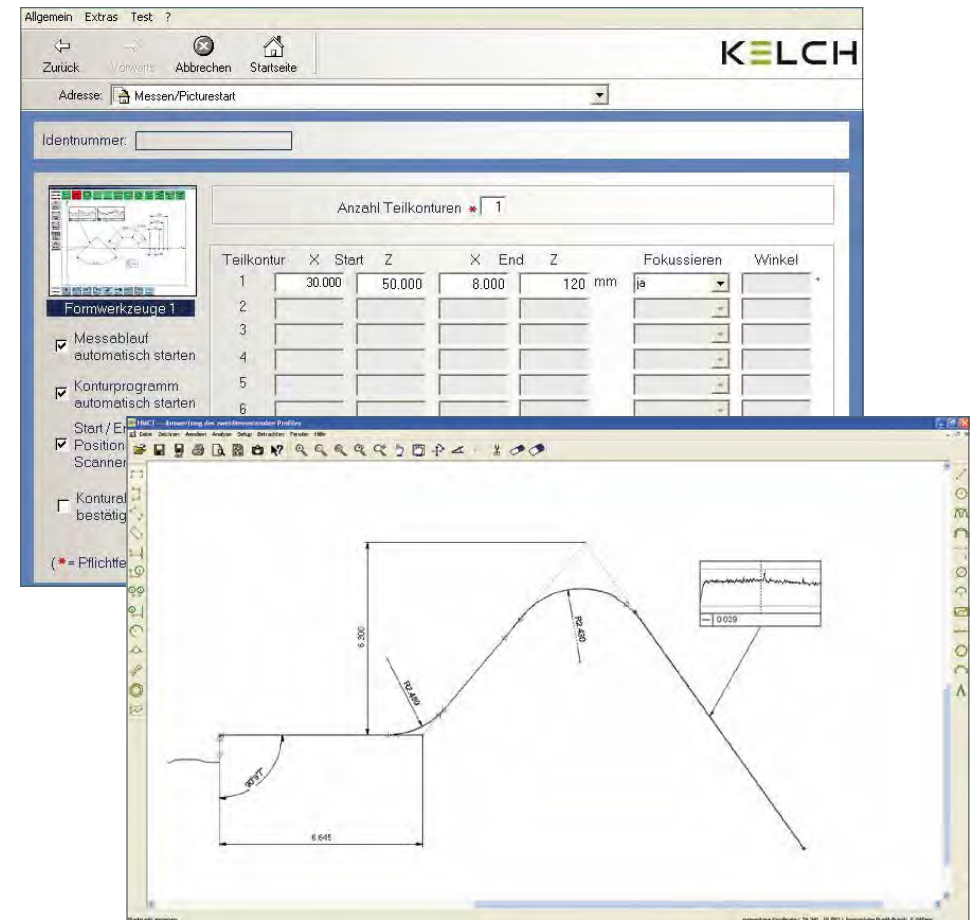
The intelligent solution.

KELCH Contour Software is ideal for the automatic checking of tool contours for straight or spiral-grooved mould tools. Once the start and end points have been defined, the contour is scanned in one or several sub-contours. The recorded point coordinates are interpreted in an analysis programme and converted into a polygon. All geometrical elements can be extracted and dimensioned from the calculated, graphically displayed contour and also compared with the target contour. The geometrical comparison can be undertaken using specific data, such as target radius, angle or distance, or deviating from a predetermined optimum contour which is imported in DXF format, for example. Irregularities in individual elements can be displayed particularly clearly. The measurements determined and learnt in this way are saved as a reference file and are then available for the next measurement. The complete process therefore runs automatically from scanning to logging.

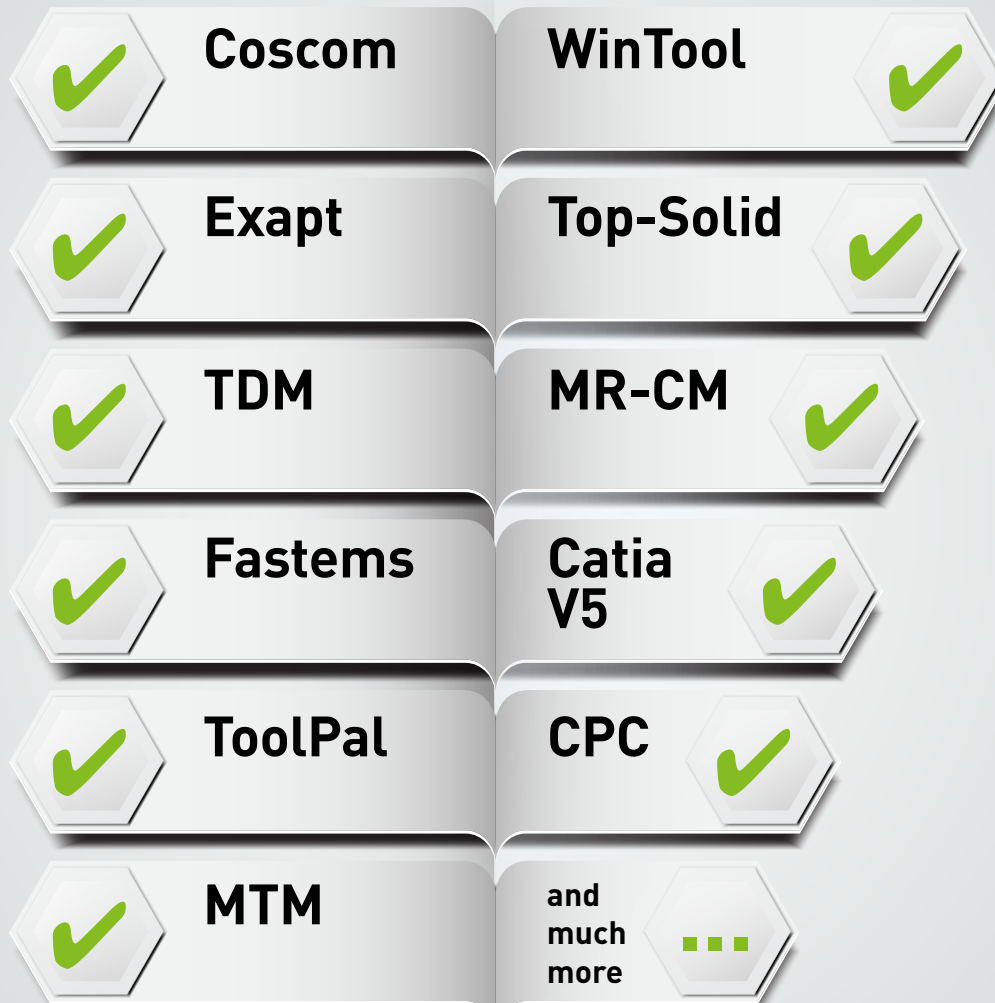
The Contour Software package offers the following:

Technology:

- Simple contour comparison using DXF files
- Measurement of any geometric elements to the quality of surface and shape
- Straight and circular shapes can be formed from segments
- Extensive analysis is also possible using auxiliary elements
- Measurement of straight-grooved or spiral-toothed forming tools
- Contour scanning with 3-axis CNC equipment
- Synchronised switching
- Intuitive graphic interface
- Measurement of any distances, angles and radii
- Comparison with the target contour
- Tolerance observations
- Clear logging



Regardless of whether you opt to use CoVis or EASY, KELCH helps you to conveniently transmit tool-based data by data transfer to the right place.



KELCH software interfaces

Everything at a glance!

KELCH measuring software ensures that you can always save tool-based data and transmit it to the right place. It does not matter whether the data comes from machine controls, tool management programs, CAD/CAM systems or other manufacturing systems. Now you always have the same consistent data throughout the entire system – missing data is now a thing of the past. This also prevents simple errors, such as can be caused by transposed digits, thereby improving process reliability and also efficiency within your company.

Smart Factory Services

Industry 4.0 Technology transfer
in practice

Engineering Services

The definition

Within modern tool management, KELCH Engineering Services looks after status analysis, planning and project management, system integration and process implementation, as well as the digitalisation of all processing work in production. This involves defining a technically and economically optimum process chain, as well as optimising NC programs and tool plans within work scheduling.

The aim

The aim of the Engineering process is to identify the actual cost drivers in the process. Significant savings can generally be achieved by optimising existing tools. Specially developed multilingual software tools support this systematic approach, enabling a comparative analysis



of the different situations. The results reveal hidden potential for economies, which the majority of customers can then often translate into real money.

Tool Services

The definition

KELCH Tool Services deals with the everyday cost pressures on manufacturing companies. KELCH directs companies along a more efficient and effective route to becoming more streamlined and successful, focussing on their core competences. There is also indirect potential for cost economies, above all with main regional suppliers.

The aim

The right tool at the right place at the right time! We look after every last detail – from procurement and storage to tool assembly and management.

Financial Services

Leasing Partner

Our leasing partner is an expert in financial solutions geared to small to mid-sized businesses and enables us to offer our customers the freedom and flexibility they need to conduct their businesses: with one-to-one advice and demand-led financing. For your KELCH Smart Factory Services.

Operate Leasing / Finance Leasing

The lessee purchases the temporary right to use a capital asset that can generally be cancelled at any time. The lease contract is essentially the equivalent of a civil lease contract. Unlike medium- and long-term financing, Operate Leasing focuses on the short-term use of the capital asset, enabling customers to overcome bottlenecks in production or in sales.

A key feature of Operate Leasing contracts is that the lessor's financing costs are not generally amortised within the term of the contract. Full amortisation can only be achieved by the lessor leasing the asset several times and ultimately selling it.



Situation Analysis

Situation Analysis

- Determine the customer's current situation: number of machines, tools and workpieces, and record the manufacturing structure
- Highlight potential areas for improvement: value stream mapping, lean manufacturing



Planning & Project Management

Planning & Project Management

- Define and/or optimise the production layout
- Optimise machine equipment: initial equipment packages/retrofitting packages, integrated optical measuring systems
- Tool Room Concept: layout and equipment
- Tool Logistics Concept



System Integration & Process Implementation

System Integration and Process Implementation

- Networking and interfaces: machines/tool presetters/measuring systems, CAD/CAM, MES, ERP, tool management, tool issuing systems, PLM
- Commissioning and production go-live
- Integration of optical measuring systems



Digitalisation

Digitalisation

- Data processing and recording: cataloguing components / processing existing data logs
- Creation of a database: DIN 4000/ISO 13399-compliant tools, test and measuring equipment, machines, storage locations/ systems, workpieces (products), NC programs



Procurement & Storage

Procurement and Storage

- Local purchasing: system providers/procurement service providers
- Storage: consignment store, storage in issuing cabinets at the customer's premises, monthly billing
- Logistics: prompt provision where needed



Tool Assembly & Management

Tool Assembly & Management

- Provision of tool systems as a service: assembly, adjustment and measurement, recycling, dismantling and disposal



Optimisation & Data Administration

Optimisation and Data Administration

- Preparation of existing data sets
- Optimisation of tool data: in tool management systems, tool issuing systems, reducing the range, stock and costs, among other things
- Adaptation of technological data: optimising NC programs, use of state-of-the-art technologies at all times



Technical Support & Servicing

Technical Support & Servicing

- Maintenance contracts, repair service, hire and rental equipment, extended warranties, data recovery, software support, 24-hour services, retrofitting, calibration and certification, remote maintenance, responsibility for total maintenance



Leasing of Capital Equipment

Leasing of Capital Equipment

- Avoidance of high initial expenditure
- Use of attractive financing models
- Pre-emptive right to purchase at the end of the flexible leasing model



Flexible Accounting Models

Flexible Accounting Models

- Billing on a time and labour basis: e.g. with short-term services
- Monthly billing: precisely based on goods consumed

Features of Operate Leasing:

- Contract period: relatively short contract periods. When a contract is concluded for an indefinite period, there is a right to cancel within the agreed periods. The service life of the asset exceeds the service life specified in the contract.
- Economic risk/Asset risk: borne by the lessor. In this context, economic risk/asset risk is understood as meaning the risk of technical obsolescence of the leased asset, theft, technical faults or damage.
- Maintenance: is the responsibility of the lessor. As the leased assets are often leased to several lessees in turn, it is in the interest of the lessor to maintain the asset in good condition.

Features of finance leasing:

- Contract period: long contract terms with basic lease periods that cannot be cancelled. The basic lease period is approximately the operational service life of the leased asset.
- Asset risk: is borne by the lessee. This also includes payment for incidental repairs and the arrangement of insurance.
- Maintenance: As the lessee has generally initiated the procurement and/or production of the leased capital equipment, he is also responsible for taking measures to retain its value.



KELCH Service

Good service begins prior to the sale and not just after the sale. KELCH provides service before, during and after the sale – without any ifs and buts.

KELCH is well-known in the industry for its excellent advice and its service is in no way inferior to this. The only slight difference is that we also like to call our service "Support". This is due to the fact that we look after our customers from the very outset – from purchase through to service and maintenance.

For our customers this means that they are in good hands at all times because we know how important good service is.



Applies only to Industrial line and Premium line units	Basics	Individual maintenance	Maintenance contract	Calibration contract Precision tools
Spare parts service	✓			
Spare parts service at preferential prices		✓	✓	
Repair service	✓	✓	✓	✓
Lease and rental devices	✓	✓	✓	
Extended warranty for new equipment			✓	
Data recovery (if possible)			✓	
Software support		✓	✓	
24-hour service		✓	✓	
Retrofit, update, upgrade	✓	✓	✓	
Retrofit, update, upgrade at preferential prices			✓	
Calibration / certification of force sensing bars, measuring gauges and test arbors	✓			
Calibration / certification of force sensing bars, measuring gauges and test arbors at preferential prices				✓

The KELCH seal guarantees greater reliability with all KELCH equipment. This seal assures you at all times that you are receiving the best, most professional service for all your KELCH equipment. We guarantee absolute quality and offer maintenance contracts combined with interesting bonus programs and discounts. Benefit from KELCH service and only put your trust in the original.

Basics

We keep all common spare parts from the latest series in stock at fairly calculated prices exclusively for our customers and authorised representatives. In most cases we are able to quickly deliver spare parts or offer suitable alternatives even for systems up to 15 years old.

Maintenance contract

One-off cost for the maintenance of an initial system including travel costs.

Repair service

We offer you the option of having your units or components (e.g. your PC) repaired quickly in-house by KELCH. You save on travel costs or dual journeys, if the fault cannot be resolved at the first attempt. We can also organise collection and also return delivery.

Lease and rental devices

We would be pleased to supply you from our pool of lease and rental units (if available) for the duration of the repair of your components at KELCH. Our maintenance contract customers have privileged access to this service and, of course, at special rates.

Extended warranty

If you conclude a maintenance contract and if the first service is carried out within twelve months after the purchase of a new unit, then the warranty is automatically extended to 24 months.

Data recovery

It can happen quickly. Following a power failure or other unforeseeable events, the database has become unstable and the last backup is already too old to restore – important data is lost. We offer our maintenance contract customers a data recovery option at KELCH. Invoicing is on a cost-basis.

Software support

We offer our maintenance contract customers priority support for software issues. Support is invoiced for every half-hour started.

24-hour service

We offer our maintenance contract customers a guaranteed response time of 24 hours (Monday to Friday from 8:00 to 17:00, except on public holidays).

Retrofit upgrade

Only we offer you the opportunity to update your unit to the state-of-the-art. It is crucial to stay up to date especially with fast-moving control technology. The progressive discount rate based on spare parts service and the benefits of a maintenance contract naturally also apply here.

Calibration and certification of KELCH measuring equipment

We calibrate and certify your KELCH measuring equipment in-house, such as measuring gauges, test arbors and force sensing bars.

Optional: If you do not wish to deal with this yourself, we can take responsibility for it with a calibration contract.



www.kelch.de

KELCH



Germany

KELCH GmbH

Werkstraße 30
71384 Weinstadt

Phone: +49 (0) 71 51 / 205 22 - 0
Fax: +49 (0) 71 51 / 205 22 - 11

info@kelchgmbh.de
www.kelch.de

China

Harbin Measuring &
Cutting Tool Group Co., Ltd.

44 Heping Road
Harbin 150040

Phone: +86 451 82 64 1836
Fax: +86 451 82 62 3555

links@links-china.com
www.links-china.com

USA

KELCH Inc.

600 Albion Avenue
Schaumburg, IL 60193

Phone: +1 847 459-96 00
Fax: +1 847 459-96 29

info@kelch-inc.com
www.kelch-inc.com

No responsibility is accepted for the accuracy of this information. Subject to engineering and design changes.