KALiMAT – The right setting for success
Manufacturing high quality parts economically is the key to business success. In the machining process successful manufacturing begins with the precise setting and control of the tools - with KELCH presetters. Additionally, where precision tools, metrology or workshop logistics are needed, we have the complete package. This comprehensive know-how pays off. All our products are perfectly synchronised and we can react extremely fast and flexibly to our customer’s special requests. Every product with the KELCH label on it includes quality and precision as standard. All this affordable technology to improve productivity and maximise your profits.

One for all
There are many manufacturers of tool presetters, precision tools, metrology and workshop logistics. But there is only one, who is competent in all these areas. KELCH - innovative solutions for every company size and for a wide variety of industries. When you need high productivity, process accuracy and system reliability, don’t compromise - talk to KELCH your guarantor of the highest production support.
All for one

The primary focus of our activity is always our customer. To guarantee your satisfaction, your competitiveness and your success long-term, we offer you the best possible technical solution for your operational requirements. At KELCH total customer care is assured: From the personal advice and competent support up to a quick, high-qualified service.

Our skilled and highly motivated employees develop and manufacture innovative products and solutions of the highest quality to boost your production efficiency.
The modern, ergonomically designed KALiMAT A series combines high operational comfort and reliability with outstanding precision. The modular design of this presetter family offers maximum flexibility. Several variants for different tasks, application areas and measuring ranges are available. An individual configuration is also possible without any difficulty. To benefit over many years from the precision and efficiency of your presetter, we use torsion-resistant box profiles of vibration-cushioned cast iron for all KALiMAT presetters – Adding weight for optimum long-term stability.

KALiMAT A: The integrated CNC measuring station for highest demands on the measuring task, the measuring result and with minimal operator involvement

Unique performance features:
- Stand-alone measuring device on a central column designed to resist vibration and, optimise legroom in the working area; also suitable for a seated workplace or for a disabled accessible workplace
- CNC drives in 3 axes with optional manual operation for quick measuring without nominal data
- Automatic slide adjustment through efficient stepping motors for fast and high-precision positioning of the axes
**KALiMA T A – The proven solution**

**phisticated measuring tasks made EASY**

- The ergonomic design provides a harmonized appearance combined with control functionality – ensuring high operator acceptance
- Space-optimized peripheral stand with height-adjustable monitor plate for operator-friendly working
- Compact storage of all accessories, such as monitor, printer, setting bars and adapters, eases the work of the operator
- In the spacious control cabinet the computer and the electronics can be accommodated properly and are easily accessible

**Design:**
- Integrated measuring station
- Supporting centre column for optimum ergonomics
- Thermally stable, cast box profiles
- High load capacity and stability

**Drive:**
- 3 CNC axes

**Cutting edge scanning:**
- CCD camera with telecentric objective and incident light
- Optional: Optical turning centre measuring device

**Measuring electronics:**
- PC measuring electronics with intelligent image processing system KELCH EasyVision
- 17” TFT colour monitor

**Measuring ranges:**
- \(X = -50 \text{ mm to } \Omega 400 / 530 / 830 / 1030 \text{ mm}\)
- \(Z = 400 / 600 / 800 / 1000 \text{ mm}\)

**Picture at the top:** One-hand operation – The selective option to quick adjustment of the axes at the press of a button has always been standard at KELCH. The pneumatic slide clamping is released easily and quickly for free manual movement to the measuring position

**Picture below:** Operator panel – Clear and functional operation with push buttons and electronic fine adjustment hand wheels

- Workshop-suitable and durable industrial PC measuring control for increased operational reliability
- Can be individually customized for all measuring tasks and data flows to further simplify the measuring operation
When measuring, checking and setting tools, precision plays the decisive role. Where tools have complex geometries or very large dimensions, “standard presetters” can encounter some limitations. Therefore, with the KALiMAT A/S and the KALiMAT A/K we offer you two designated specialist devices, with which you can break through these limits and venture into totally new setting dimensions.

KALiMAT A/S:
The simple solution for complex tasks

Tool geometries, which are not measurable in transmitted light, are measured with a second swivelling camera in incident light method. At a 50x magnification even minimal unevenness becomes visible, which is important especially for the inspection of tool geometry and edge finish. The camera can be swivelled from -90° to +90° and can thus collect additional parameters of the cutting edge geometry, which are necessary especially for grinding the tools on CNC machine tools.
K – For the smallest the largest tools

KALiMAT A/K:
Less down-times for higher production
In the crankshaft manufacturing multi-tooth side and face milling cutters are used. Assembling, measuring and setting can take several hours. With the KALiMAT A/K for left and right cutting crankshaft milling cutters you reduce setting and machine down-time to a minimum. For at the ergonomic seated workplace tool cutting edges can simply be mounted, set and measured quickly and comfortably in the presetter. A guard door protects the operator against potential injuries from the cutting edges.
The efficient measuring of multi-bladed tools, the integration of the presetter in automatic manufacturing processes and the setting of especially long and slim tools – these are three challenges, which you can now easily resolve. With specially modified variants of the KALiMAT A. Three clever solutions offer the best results – exclusively from KELCH.

KALiMAT A/L: Specifically designed for long and slim tools

With its massive tailstock this device is perfect for measuring and especially for setting long, slim tools. The tailstock centres the tool and prevents unwanted tool movements when setting. Only at the KALiMAT A/L the tailstock is not supported on the main body, but directly to the bottom plate of the presetter. This again gives stability and precision in the well proven KELCH tradition.
KALiMAT A/M: Decisive advantages for multi-bladed tools

Multi-bladed tools, such as face milling cutters or edge milling cutters are measured quickly and accurately with this device. At the ergonomically designed seated workplace with optimum accessibility to the tool cutting edge, the cutting edges can additionally be mounted or set.

KALiMAT A/MR: High efficiency through robot support

The ideal solution for the integration of partly or fully automatic insert assembly processes. The robotics provide additional efficiency. Thus the cutting inserts at milling tools can be changed fully automatic. Cutting edge for cutting edge is automatically measured. The exchange of cutting inserts, which are damaged or outside the tolerance range, is taken over by the assembly robot. Afterwards the exchanged cutting insert is measured automatically again. In addition the individual insert seats can be inspected and corrected automatically via a master plate during the production of expensive milling cutters. The initial assembly of the tools with cutting inserts is also executed fully automatic and operator independent saving time.
KALi-tec is the revolutionary solution for shrinking in and out tools as well as for measuring and setting with one device. Unique for the user is the fact that there are two methods available for setting the tools. Also, the cooling station is completely detached from the thermo-critical setting device so as not to compromise accuracy. One device – without any ifs and buts.

Dynamical setting

In this phase the chuck is opened by the inducting heating and the tool is set fully automatic exactly to nominal length. The advantages of this method are short cycle times as well as the opportunity to change the tool in only one cycle. For this it is of course possible to use chucks of different “quality manufacturers”.

KALi-tec – Shrinking with one device
Presetting
If measurements are necessary which would not allow setting during the open phase of the chuck, the length of the shank tool is determined with the help of setting adapters before heating. Through intelligent calculation and pre-positioning of the setting pin, the tool is finally shrunk to nominal length. This method is designed specially for complex measuring tasks or tools made of HSS or steel.

Design:
• Fully functional presetter with integrated induction coil for automatic shrinking with length setting

Drive:
• 5 automatic axes

Cutting edge scanning:
• CCD camera with telecentric objective and ring light

Measuring electronics:
• PC measuring electronics with intelligent image processing system KELCH EasyVision
• 17" TFT colour monitor

Tool holding:
• Modular CNC precision spindle
• Inserts for all popular tool holders

Measuring ranges:
• X = -50 to Ø 400 / 530
• Z = 400 / 600 / 800 / 1000
• Shrinking length: 600 mm

Shrinking:
• Automatic induction coil
• With or without length setting
• For HSS/steel and carbide
• Optional: Vacuum unit

Cooling:
• Separate cooling station, completely detached from the thermocritical setting device, for cooling 3 shrink fits chucks at the same time
• Contacting, with water-flowed cooling adapters and exchangeable inserts
• Cooling time approx. 60 seconds
KALiMAT E

Drive:
- 2 manual axes
- 3rd axis manual or automatic

Cutting edge scanning:
- CCD camera with telecentric objective and ring light
- Optional: Optical turning centre measuring device

Measuring electronics:
- PC measuring electronics with intelligent image processing system KELCH EasyVision
- 17" TFT colour monitor

Measuring ranges:
- X = -50 to Ø 530 / 830 / 1030 mm
- Z = 600 / 800 / 1000 mm

KALiMAT E:
Robust and precise – Perfect for your workshop

Robust mechanics combined with a large measuring range and precise measuring systems make the KALiMAT E an ideal device for any workshop. Through its stable design – reduced dependency on electronics and drives – the device is very durable with low maintenance. It is available either as stand-alone device on a central column or with the specially designed TULRACK with a swivel arm for the input and output units as a stand. The selective one-hand operation, the fine adjustment over the whole measuring range free from backlash as well as easy to operate toggle switches on the operator panel provide an easy and comfortable operation.
KALiMAT C: The solid bench top device for the manufacturing cell

The most popular mid range solution for precise measuring and setting in the modern manufacturing cell. The manual device stands out with its advanced technology usually found on the larger more expensive devices – with compact dimensions and medium measuring ranges. Well-placed handwheels operate the fine adjustment free from backlash over the whole measuring range and are especially user-friendly. The pneumatic one-hand operation – optionally in either one or both axes – is easy to use. All types of universal precision spindles can be mounted, even with patented pneumatic rear clamping, which makes the KALiMAT C extremely versatile. Through the manual operation the KALiMAT C needs little maintenance and thus reduces the running costs at a high operational efficiency.

KALiMAT C

Design:
- Bench top device optional on a closed or open TULRACK

Drive:
- 2 manual axes
- 3rd axes manual or automatic

Cutting edge scanning:
- CCD camera with telecentric objective and ring light
- Optional: Optical turning centre measuring device

Measuring electronics:
- PC measuring electronics with intelligent image processing system KELCH EasyVision
- 17” TFT colour monitor
- Optional: Digital, efficient measuring electronics KELCH MicroVision and 10” TFT colour monitor

Measuring ranges:
- X = -50 to ∅ 400 mm
- Z = 400 / 600 mm
KALiMAT represents the best quality and highest precision. This is valid for all devices: From the small entry-level model up to the high-end version with all technical refinements.

The materials: Guarantors for highest stability

Excellent materials are the basis for the outstanding quality of the KALiMAT series. The device body made of grey cast iron and guides made of steel create the thermally optimized material combination. With the use of these materials the critical bi-metal effect is eliminated and the device is thermally stable – a safe basis for precise measuring results. The box profiles used with a high geometrical moment of inertia distinguish through an extreme bending and torsional stiffness guaranteeing a constant high accuracy at varying loads.
The construction method: A guarantee for precision when driving and measuring

The sophisticated axis layout provides precise movements. The spindle and the guide rails are ground in one plane without unseating. This procedure eliminates position tolerances. Each axis has two precision linear guides on an extremely wide guide basis to minimize the yawing and galloping of the column and the optical carrier. This arrangement allows the positioning of the scales and the drive directly in the centre of the axes and minimizes errors of measurement. The Heidenhain glass scales provide additional precision.

The technology: Uncompromisingly practice-oriented

Every detail meets the highest requirements concerning functionality and ergonomics. Even in standard execution every KALIMAT presetter is able to drive and measure over the centre axis of the tool holder. Thus tools of up to 100 mm diameter can be measured in snap gauge principle – without any loss in measuring and driving range.

All KALIMAT devices can also be operated manually – quick and easy without nominal tool data. In addition the KALIMAT A is equipped with CNC axes. All these details are the result of our many years of experience and have been proven successful in daily use.
The unique competence and experience of KELCH does not only make its appearance in the KALiMAT and KALi-tec devices. With our accessories program we set new standards as well. Standards concerning the flexibility, the precision and the safety in the machining production. Decide in favour of our trendsetting innovations – and experience how easy it is to manufacture constant high quality economically and safely.

**KELCH accessories – precision and**

**Modular precision spindle:**
Provides additional advantages

The first truly modular precision spindle in the world guarantees highest accuracy and repeatability as well as maximum versatility and durability for holding various tool holder types. The basic spindle module, which is available for manual as well as for CNC operation, is a rigidly mounted bearing housing in the presetter. The contact face and the short taper guarantees maximum repeatability when changing the insert modules, which are available for all popular HSK, Capto, KM and ISO tool holders. Changeover of the inserts takes a few seconds and benefits include:

- for all tools clamping is similar to the machine tool spindle
- each insert has face and taper contact for high level repeatability
- universal electro/pneumatic clamping action for each tool type

Optionally: Manual or automatic tool length setting
MoDetec: Giving added security for the operator

The patented module monitoring process eliminates a frequent source of errors when exchanging insert modules for different tool holder forms. The modern transponder technology used transfers the module’s calibration data operator-independent directly to the presetter control – where it is adjusted automatically. This process guarantees an absolute compatibility between the adapter selected and the corresponding insert module in the spindle. Safety, which pays off. Because every error takes up time and adds cost.

Eliminating confusions: Reliable tool identification

As different as the characteristics of tools are, as similar is often their appearance. A safe method to avoid confusions are data chips in the tools, which can be read and written manually or automatically.
KELCH combines precision and operator friendliness in an innovative way. For the best technology is of no use, if the user cannot operate it. No matter whether the "hardware", that means our presetters or the corresponding software, is concerned – we make it easy for the customer to fully tap into the huge potential of our products. Thus we give you the safety, that you need for your success in the production. Everything easy – thanks KELCH!

Measuring with KEL to an exact

EASY Vision: Precision to the point

The intelligent image processing system KELCH EasyVision with telecentric objective measures micron precise in the whole measuring window. The approaching of the crosshairs is not necessary, the measuring process is operator-independent, quick and repeatable.

A second camera from the top is mainly used for checking the cutting tool geometry. Among others angles, radii and distances can also be measured in incident light.

Cutting edge inspection with telecentric objective and ring light

Picture at the top: Cutting edge inspection from the top with a second camera

Picture below: Dial indicator for measuring in the Y axis for a manual, simple determination of the turning centre
EASY WebSet: Safe measuring quick and easy

With this software precise measuring is very easy. Previous experience is not necessary. The operator surface integrated in an Internet browser format makes the software very user-friendly. Via easy to understand input dialogues, supported by practice-oriented graphs, the user is guided safely through the program – and in only five steps you reach your target: the precise measuring result.

1. Definition of the measuring task
2. Selection of the processing method
3. Definition of the tool group
4. Data input
5. Measuring
Technical and design modifications are subject to change without notice.