

FIRST PLACE

REPORTS

TOOL PRE-SETTERS : A PRECISE GUIDE FOR BUYERS



Tool pre-setters

Whose tool pre-setters are the best... exactly?

All tool pre-setters are at the cutting edge - but which will perform the best for you?

FIRST PLACE REPORTS

In 2004 market-leading CNC rotary table and advanced tooling system supplier, Nikken, carried out a series of benchmark surveys across its range of products. These surveys, conducted separately on CNC rotary tables, tool holders, tooling and measuring equipment - compared and tested Nikken products against those of its main competitors in the market.

The primary objective behind the benchmarking surveys was to provide machine tool manufacturers and precision engineers with relevant, comparative and quantifiable data to help them in their future purchasing decisions.

The summaries of all of Nikken's benchmark surveys 'First Place Reports' will be made available during 2005. You can order individual reports or the full series from Nikken Kosakusho UK Ltd, Precision House, Barbot Hall Industrial Estate, Rotherham, South Yorkshire, England, S61 4RL T: +44 (0)1709 366306, F: +44 (0)1709 376683, info@nikken-world.com, www.nikken-world.com.

Tool pre-setters

In comparing and contrasting leading manufacturers tool pre-setters and their relative performance - the following benchmark criteria was used.

- Accuracy and repeatability
- Fit for purpose
- Value for money
- Technical back-up and after-sales support.

The contenders

- DMG ECO 210
- Kelch Seca EV
- Royal 460 Epro
- Zoller Smile V300
- Nikken E450

The results

ACCURACY AND REPEATABILITY

1) Construction and build

The construction and build quality of tool pre-setting equipment will affect their overall performance.

Nikken's Elbo Controlli units are made from granite - the standard construction material for all inspection and testing equipment. As such they are inherently accurate and maintain their precision over time - regardless of the working environment where they may be situated.

All other competitor's tool pre-setting equipment is made, or have components made, from cast iron, steel, aluminium and brass. As a result - thermal growth, less applicable with granite, is a factor that will affect the accuracy and repeatability of competitor products.



Nikken's Elbo Controlli is made from granite and is less affected by thermal growth than competitor products

In addition Nikken Elbo Controlli presetters do not need to be integrated with a PC unless the tool management facility is required. On some competitors machines this is not the case as their machines are fundamentally built around PC hardware/software.

This can cause some difficulties if the PC itself or the Windows operating system develops a fault or problem - and could impact on the pre-setters' alignments and accuracies which are controlled via software compensations on the PC. Should this occur it is likely that competitor presetters will become unuseable and will require a service visit and major re-alignment to rectify the situation.



Nikken's Elbo Controlli is equipped with an interchangeable spindle guaranteeing accuracy and repeatability

On Nikken Elbo Controlli machine the accuracies are a fundamental part of the construction - there is therefore no need to rely on software compensation.

2) Spindle interchangeability
Accuracy and repeatability are also affected by the tool pre-setters spindle

Tool pre-setters - features comparison

Features	The contenders				
	Nikken E450	DMG ECO 210	Kelch Seca EV	Royal 460 Epro	Zoller Smile V300
Granite column and base	Yes	Aluminium	Steel	Aluminium	Aluminium
Camera system	Elbo	Microvision	Telecamera	Telecamera	PC
Axis resolution - 0.001mm	Yes	Yes	Yes	Yes	Yes
Interchangeable spindle	Yes	No	No	No	No
Software with 60 posts	Yes	Extra	Extra	Extra	Extra
Measurement range X/Z	400/500	420/465	400/500	400/600	400/500
Clamping of tool	Vacuum	No	No	No	No

configuration. With the Nikken Elbo Controlli model - the spindle has a one-piece construction that is fully interchangeable to handle a multitude of different tool shank types - ISO/BT 30/40/50, VDI and HSK etc.

In comparison all other competitor models use one main 'fixed' spindle - (usually 50 taper). To handle different tool shank types - adaptors are inserted into the main spindle which can result in a reduction in accuracy and errors with any measurements taken.

The critical issue here is that if additional adaptors are required - accuracy will be affected.

There is also the cost issue to consider. Additional adaptors cost money. Therefore to make competitors' models fully-functional will necessitate additional expenditure.

FIT FOR PURPOSE

1) Clamping of tool

To ensure consistently high levels of accuracy and repeatability the Elbo Controlli tool pre-setter is equipped with a vacuum clamping capability. This facility ensures the correct and exact positioning of the tool within the spindle prior to and during measurement. Competitor products are less rigid and less secure because they rely on the tool being held in position by gravity and the spindle taper.

2) Components

Elbo Controlli products are designed specifically for tool pre-setting. From the optical scales employed for the accurate measurement of X and Z co-ordinates through to the Twinvision-S digital camera system on the E450 - all Elbo Controlli components have been carefully developed, and integrated, to ensure optimum performance. Many competitor products use equipment and components that have not been specifically developed for tool pre-setting - therefore adopting a more 'off-the-shelf' approach.



3) Software with 60 posts

The Elbo Controlli E450 is equipped with 'Toolive' - a tool management system that enables tool co-ordinate measurement and offset values to be sorted into CNC machine tool code and quickly transferred to a machine's control. The tool management system on the E450 is sophisticated and its software is compatible with 60 leading machine tool control system manufacturers' products. This software is supplied as standard on the Elbo Controlli product.

In comparison - competitor products, whilst also having their own tool management systems, charge extra for control system compatibility. For manufacturing and

Nikken tool pre-setters - are in First Place

production environments displaying a variety of different machine tools and control systems - the costs associated with making a tool pre-setter compatible with different machine tool makes and models may become prohibitive.

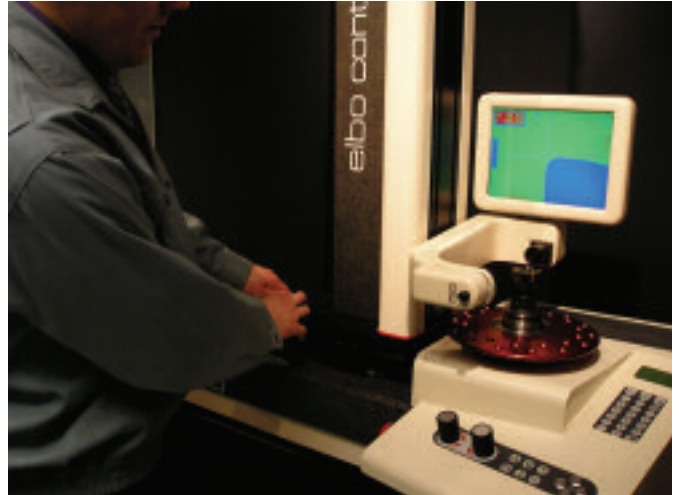
VALUE FOR MONEY

Unlike the Elbo Controlli - competitor models have a long list of options and extras that may need to be purchased to ensure optimum performance. These include - all software, installation and training. With Nikken's Elbo Controlli pre-setters all software, installation and training are included within the standard cost.

TECHNICAL BACK-UP AND AFTER-SALES SUPPORT

To maintain productivity and performance you will need to be confident that your tool pre-setting equipment is operating at its highest efficiency - day in... day out.

Nikken, through its UK Euro Centre operation and technical resources, can ensure that servicing and repair - when



Nikken's UK-based Euro Centre can be relied upon to provide immediate and expert back-up and after-sales support

needed - can be undertaken quickly thereby minimising any impact on customers' production.

All competitor products are serviced via Europe with often minimal UK representation.

First choice for performance

First choice for accuracy

First choice for reliability

First choice for value



For further information on Nikken's range of Elbo Controlli tool pre-setters call us on 01709 366306

Other First Place reports are available from Nikken on - rotary tables, tooling and toolholding. To find out more about our First Place reports - call us on 01709 366306

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