

# Flexible machining for the modern Toolroom

Presented by:

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The National Tooling Initiative (NTI) is a public-private partnership between the Tooling Industry represented by the Toolmaking Association of South Africa (TASA) and Government represented by the Department of Trade and Industries established for the purpose rehabilitating and growing the South African Tool Die & Mouldmaking (TDM) industry for the benefit of the Manufacturing sector



**Intsimbi** is the brand name of the NTI Programme.

Toolmaking Association of South Africa (**TASA**)

National Tooling Initiative Programmes (Pty) Ltd (**NTIP**) is the industry owned management and delivery agency for the **NTI**



- There is no such thing as manufacture without tooling
- Up to 60% of the cost of manufacture of any product is directly linked to the selection of the tooling used in the manufacturing process

The majority of small in-house and stand alone toolrooms require the flexibility of a new generation of toolroom specific computer supported machine tools across milling, turning and grinding operations



Toolroom CNC Milling Machine



Toolroom CNC Surface Grinding Machine

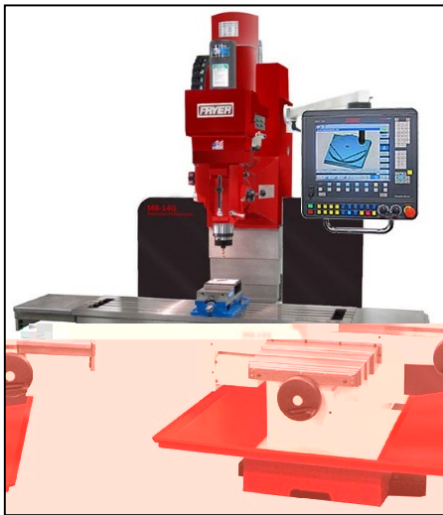


Toolroom CNC Lathe

- Toolroom or Combination Machines represent a bridge between manual and CNC operations
- Providing flexibility of programming on-line or off-line

- Preservation of handwheels for manual operation with the capacity to operate the machines automatically via CNC or a combination of manual and CNC
- Standard toolmaking practices can be pre-programmed into the control
- The machines can emulate manual operations and when in teach program mode can capture the movements into the control ready for automatic operations helping with the pressures of delivery, quality and throughput.
- Personnel with varying skill levels can operate the machines

# Toolroom CNC Milling



## Toolroom Bed Mill – Manual Quill

Equipped with a manual quill and manual handwheels, providing flexibility in manual, semi-CNC or full CNC modes. The conversational control makes programming easy, enabling one off parts to be produced quickly and efficiently

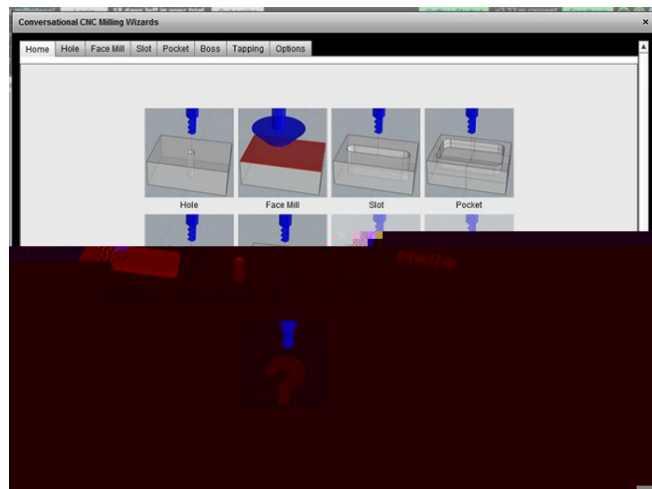
## Toolroom Bed Mill – Rigid Spindle

Equipped with a rigid spindle and optional toolchanger, providing a capability for single or multi-part production. Full conversational control.





- The operation of combination milling machines is designed to be easy and flexible in order to accommodate different levels of skills found in the modern toolroom.
- Conversational CNC controls are a quick way to do simple jobs without CAD drawings or using CAM program



Typical Conversational CNC graphical menu

# Toolroom CNC Turning



## Toolroom Turning

Easier to use than a conventional lathe offering the productivity of a CNC

## CNC Toolroom Lathe Intuitive Programming System



- Manuel Machinists transition quickly and easily into full CNC
- Intuitive programming systems are easy to learn and operate – without knowing or understanding G codes



Intuitive Programming System are the optional screens that allow you to write and execute programs without dealing with G-code.

Some manufacturers integrate walk-through instructions into the control

# Toolroom CNC Grinding

**Toolroom CNC surface grinding machines**  
Touchscreen icon based software and electronic hand wheels The 'Self-Teach' feature enables increased productivity.



**Toolroom CNC cylindrical grinding machine**  
Self-teach programming software for applications in low, medium or volume production.

- Self-Teach surface grinders enable inexperienced or experienced operators alike to be immediately more productive
- Fast-to-set 'Easy graphical software for more productivity
- Automatic dressing and grinding cycles enable quicker set up and unmanned operation



Many will agree that Controls are the heart and brain of the toolroom machine.

Easy to program operating systems, integrated CAD/CAM features, trig functionality, three, four and five axis machining, plus full networking readiness may all sound like the stuff of full blown CNC machining or turning centers.

The truth is, this CNC functionality and more is found on many combination machines priced at a fraction of machining and turning centers well suited for the toolroom.

It's out there, do your research carefully.....**Thank You**

