



# The Tornado **TT** Series

CNC **Twin Turret** Turning Centres



The power of fresh thinking

## A new era of "single hit" machining

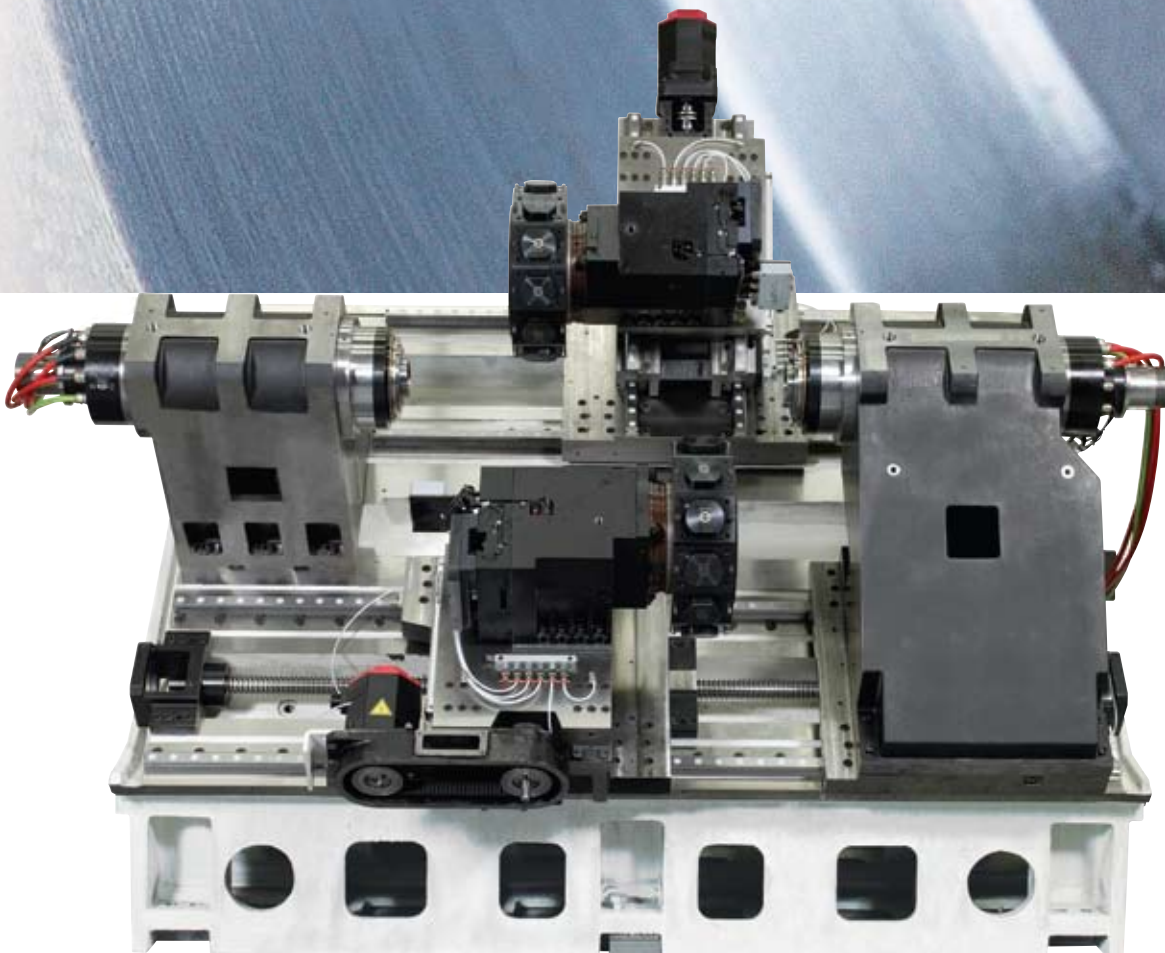
The new, 100% British designed and manufactured heavyweight Colchester-Harrison Tornado TT6 turn-mill centre, with eight-axes, twin 12 station turrets, two identical 15 kW integrated spindle units and a totally redesigned heavy duty bed casting weighing in at 7 tonnes and is the ideal platform for high performance turning and milling operations.

The new Tornado TT6 is a true, twin upper and lower driven tool turret machine, giving the added flexibility of two totally independent but simultaneous toolpaths with higher productivity capability of providing overlapped or twin turning tool sequences.

To ensure maximum stability and absorb the cutting forces and vibration a single three tonne, 45° slant bed casting has been designed and uses a Y-axis wedge-angle configuration for superior strength and rigidity.

To guarantee performance only leading European and Japanese suppliers are used for cartridge spindles, all-driven tool turrets, linear guideways with roller bearings and hydraulic systems. The top of the range servo motors and drives are supplied by Fanuc-GE who also supply the latest, superb 31i-A CNC control with a 10.4 inch LCD screen and high speed low power CNC processor with unique and simple programme prompts and aids.

# TORNADO



**MACHINING AUTOMATION**

The Tornado TT6 gives you the ability to machine even the most complex work pieces simply, accurately and without setup changes which will save you time and money whilst guaranteeing accuracy and repeatability, time after time.

- Reduces component floor to floor cycle time
- Eliminates waiting time between processes
- Reduces set up time by up to 25%
- Shortens lead times
- Reduces operator time
- Cuts production costs immediately

**SAVING YOU TIME AND MONEY**  
- EVERY HOUR EVERY DAY

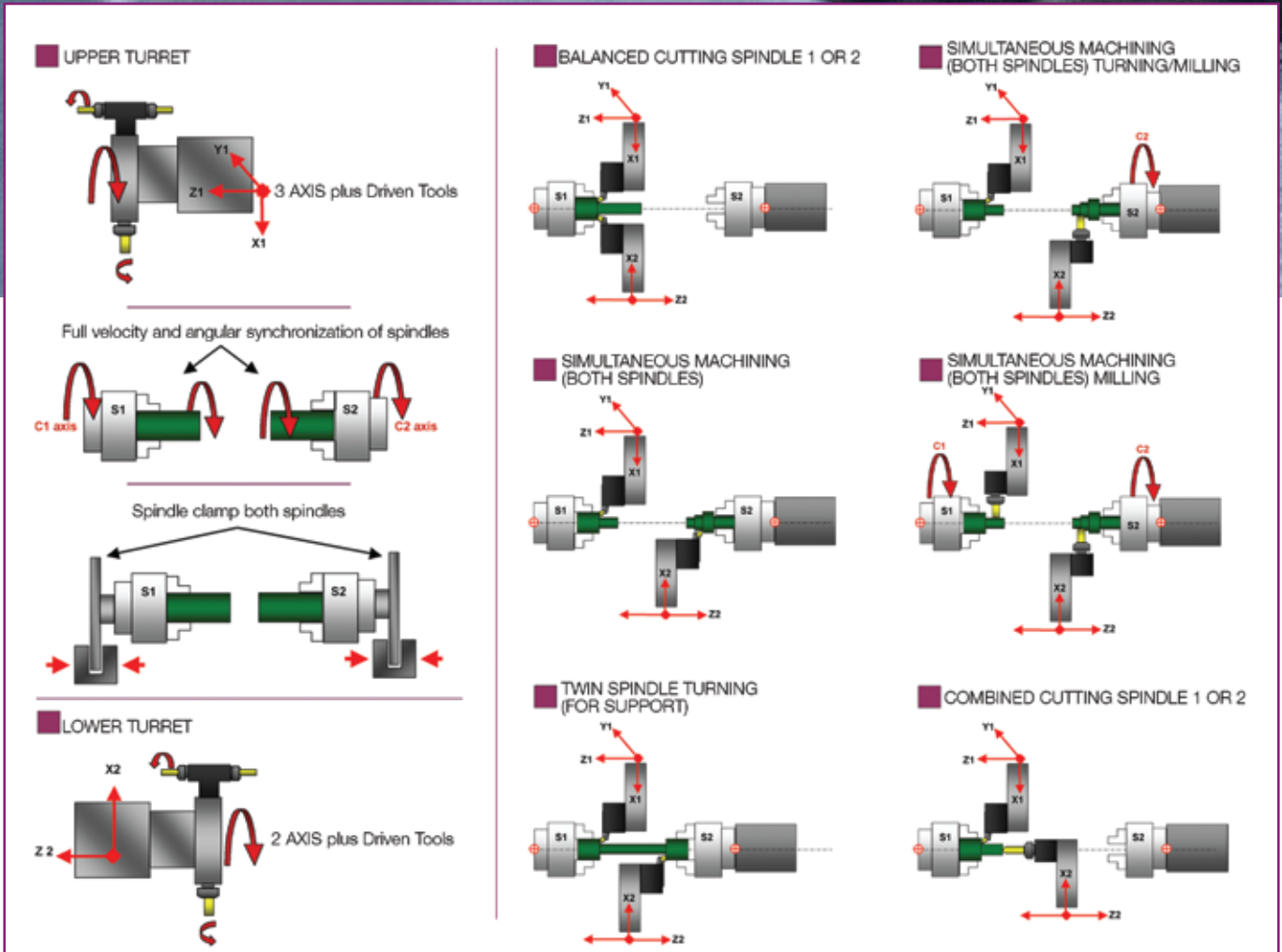


# TORNADO *TT6*

*Twin Turret*

## Advanced Lathe Technology

TORNADO *TT*



## Tornado TT Series Control

### FANUC-GE 31i-A CNC CONTROL

The latest, advanced Fanuc-GE series 31i-A CNC control console is mounted on the right and pivots through 90° for simple, ergonomic operation to suit all operators.

The development by Colchester-Harrison of unique HMI screen's, with their own menu structure incorporates lights-out production software, simple graphics for tool setting with options for cut/measure or auto-probing and also online help, enhanced diagnostics with identifiable service intervals reminder and auto switch-off when the programmed batch cycle is completed. These unique features make the TT6 control the simplest, yet most powerful control available.



**Operators console** - devices are grouped by function in a simple, ergonomic layout which makes it intuitive and remarkably easy to use and understand.

Load meters dedicated to all main spindles and tool spindles for constant cycle cutting performance monitoring.

### COLCAM

The unique Colchester-Harrison off-line programming package is offered as part of the machine specification to further improve your productivity.



### MANUAL GUIDE *i*

Simple to use yet powerful software use it to create complex programs and components at the machine easily and simply.



### MANUAL GUIDE *i* CUSTOMISATION

Developed by Colchester-Harrison engineers, the manual guide *i* customised screens and cycles ensures that knowledge of ISO language is not needed to master this 100% conversational aided programming system.



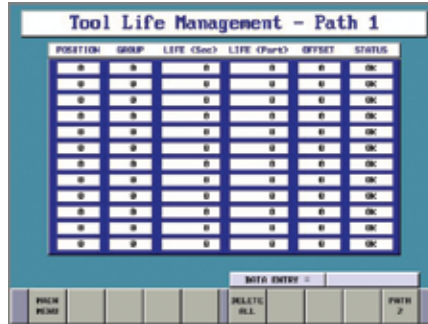
# RNAD TORNADO TT6 Twin Turret

## UNIQUE OPERATOR MENU SYSTEM

Tornado operators menu screen gives you immediate access to advanced screens and functions for enhanced set-up, programming and maintenance functions.



**Tool set-up** screens for Cutting / Probing can save you 25% on tool set-up time



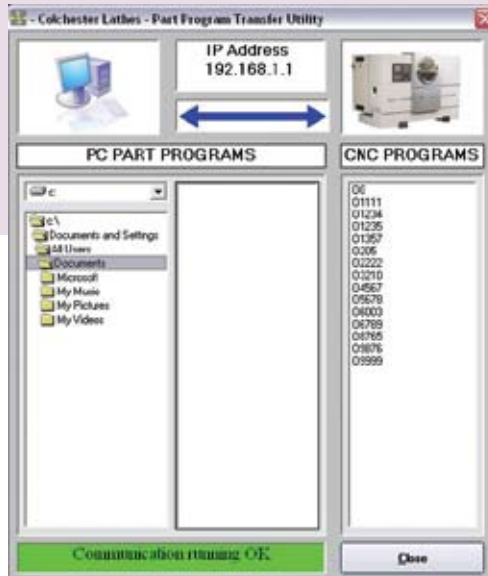
**Lights-out** screen assists you to monitor tool life & sister tooling.



**M-code & G-code** help screens are a quick reference guide when programming at the machine which means you do not have to waste time referring to the manual.

Un-manned 24/7 machining guarantees increased productivity and efficiency.

## PART PROGRAM TRANSFER SOFTWARE FOR ETHERNET



PC front end software for high speed Part Programme transfer over ETHERNET



**Periodic maintenance schedule** screens tell the operator when the machine is due for service which helps maintain the machine and prolongs machine life.

- X & Y axes linear scales as standard.
- Increased thermal stability of machine.
- Z axes absolute position encoders with no referencing required at power up.
- Standard software - manual guide & custom cycles, CAD/CAM software (ColCAM) and part programme transfer software for Ethernet.
- PC style file management and editing.

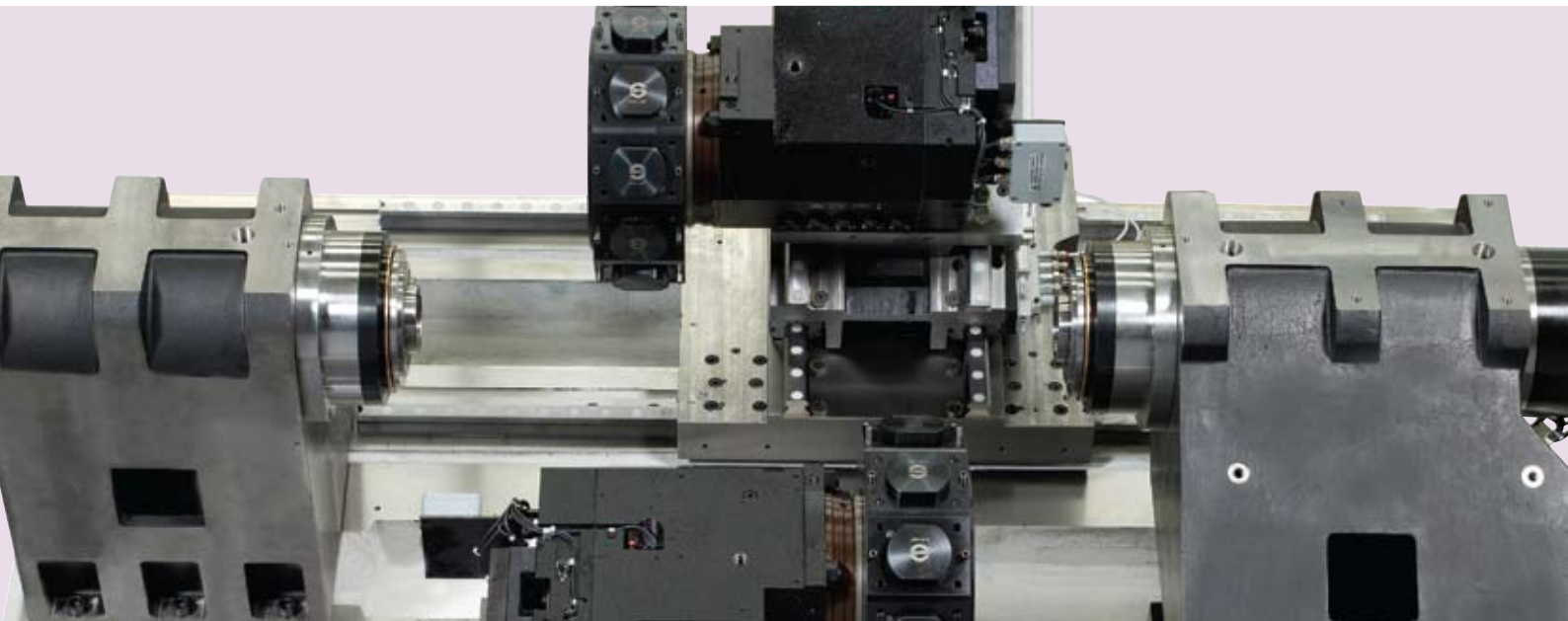
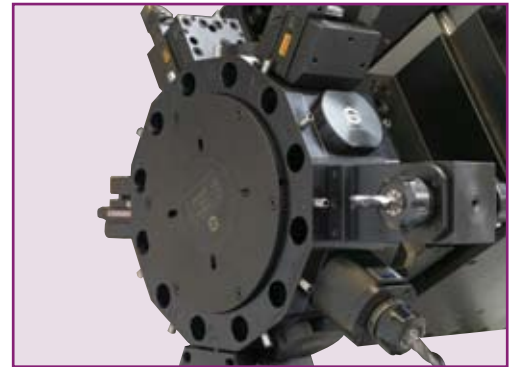
- Machine message help screens.
- Enhanced diagnostics - Simple to understand graphics representation.
- MBF1000 screens for ease of set-up.
- Production planning screens allow batch production of several different components.
- Tool setup screen aids.
- Maintenance scheduling.
- Help files.
- Tool life/sister tooling.
- Simple set-up for hex bar transfers.

## Tornado TT Series

### SAUTER DISC TYPE TURRET

The RED LINE turret series is the flagship of the Sauter disc type turret range and features an exceptionally rugged housing, ultra high speed indexing and an extended neck for back turning tools. This turret with single motor technology for indexing and tool drive is an outstanding performer in terms of capability as well as economy and will give you that competitive edge.

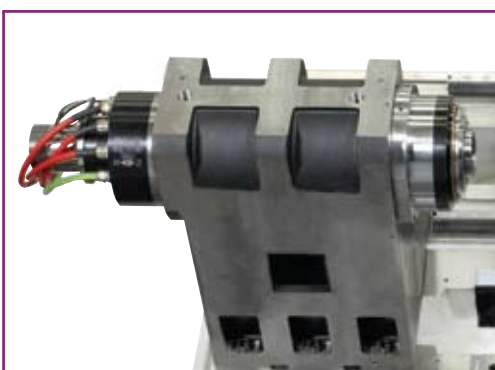
- High performance turret with AC spindle drive
- Tool drive with spindle orientation
- Tools individually driven
- Radial tool mounting



### SPINDLE

Using the unique Kessler Gamfior synchronous, high torque, dynamic and compact motor spindle throughout the range to give you the best spindle performance figures.

This superb motor spindle uses high energy density permanent magnets in the spindle shaft which makes a huge contribution to the superb acceleration and power/weight ratio performance.



### PARTS HANDLING OPTIONS

**Gantry system.** Gantry system for feeding, unloading and storing bulk components.

**Robot Loader.** Fanuc articulated robot (model depends on application) for auto loading chucking applications.

**Parts catcher.** New high capacity parts catcher supplied with removable container.

**Parts conveyor.** For the safe and accurate discharge of parts.

**Generic bar feeder interfaces.** Suitable for all popular makes of bar feeders. e.g. Iemca, LNS, Hydrafeed, FMB.

# RNADO **TORNADO TT6** Twin Turret

## Tornado TT Series Specifications

### • CONSTRUCTION

- Cast iron bed @ 45° inclination
- Wedge angle type Y-Axis
- All axes linear guides (35mm/1.4" Roller)
- All axes 30mm/min rapid power traverse

### • CAPACITIES

- Machine turn diameter = Ø175mm/6.9"
- Z1 axis travel (max. turned length) 563mm/22.2" (500mm/19.7")
- Y1 axis travel = 80mm (±40mm)

### • FANUC-GE 31i-A CNC CONTROL

- Screen size = 10.4" colour screen (15" option)
- Operating modes - Fanuc CNC ISO/Manual Guide *i*
- Ethernet communication - standard
- Unique Tornado menu system

### • SPINDLE (LH & RH)

- Bore = Ø64mm/2.5"
- Nose = A2-5
- Std chuck size = Ø175mm/6.9"
- Drawtube capacity = Ø56mm/2.2"
- Max speed = 6000r.p.m.
- Max spindle torque = 100Nm
- Base speed = 1000r.p.m.
- Power = 11kW S1 (15kW S3-15%)
- Type = Kessler Gamfior integrated built-in cartridge
- Standard power chuck = 175mm/6.9" Dia. 3 jaw chuck
- Collet chuck = QC54/60

### • TURRET (UPPER & LOWER)

- Type = Sauter Red Line Series
- Stations = 12 (All driven tool capability)
- Tooling type = 30 VDI
- Turning tool shank size = 20x20mm/0.8"x0.8"
- Driven tool max speed = 5000r.p.m.
- Driven tool base speed = 1500r.p.m.
- Driven tool power = 1.5kW S1 (3.7kW S6-60%)
- Max boring bar = 32mm/1.3"

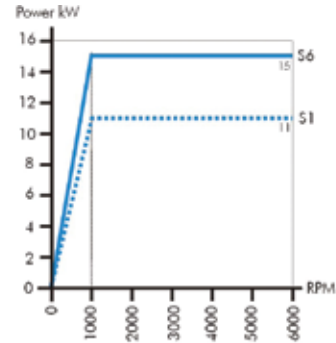
### • STANDARD FEATURES

- Spindle lubrication = grease (maintenance free)
- Slideway/ball screw lubrication = auto electric oil pump
- Air blast spindle = 1 and 2
- Swarf conveyor

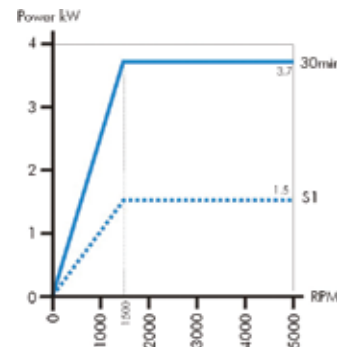
### • MISCELLANEOUS

- Machine dimensions = L3m x D2m x H2m(118"x79"x79")
- Machine weight = 7 tonnes

### POWER & TORQUE

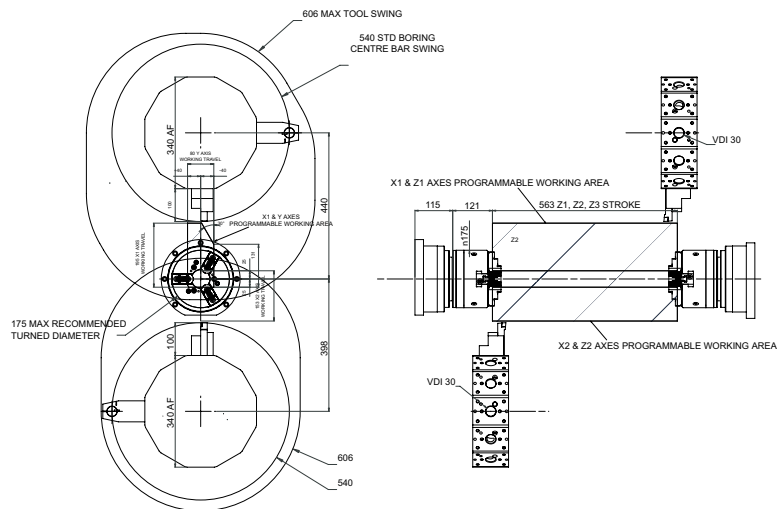


### TT6 - left and right hand spindles



### TT6 - live tooling

### TOOLING DIMENSIONS





## The Tornado TT Series | Advanced Lathe Technology

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