

DUGARD

Machine Tools That Create Solutions Since 1939

DUGARD
5 Axis

GTX-620

5 Axis Simultaneous Machining Centre

Designed for high precision, high efficiency machining



DUGARD

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Rotary Tilt Table

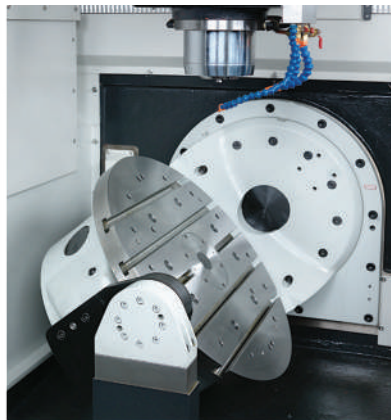
The precision rotary tilt table allows for either 4+1 or 5 axis simultaneous machining.

- Optical encoders available for B and C axes (optional)
- Table tilt angle (B axis): $-40^{\circ} \sim +110^{\circ}$
- Table rotary angle (C axis): 360° continuous rotation
- B and C axes are servo motor driven

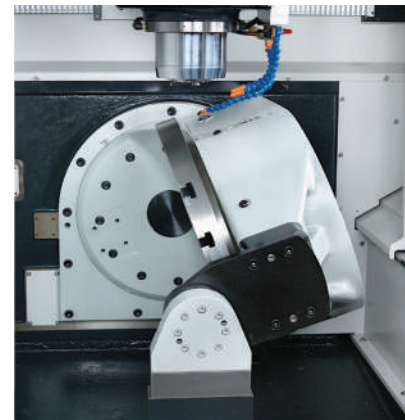
Roller Cam System for B and C Axes



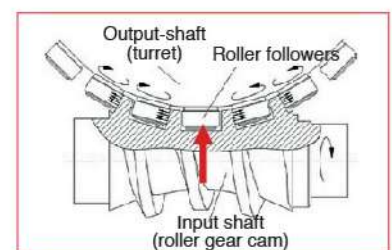
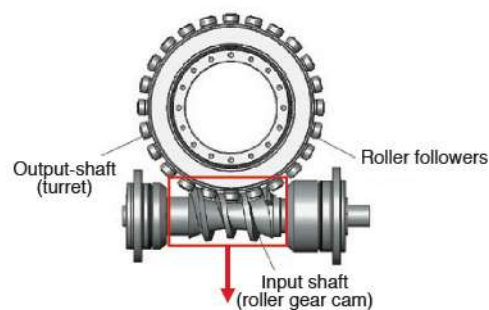
B axis at 0°



B axis at -40°



B axis at 110°



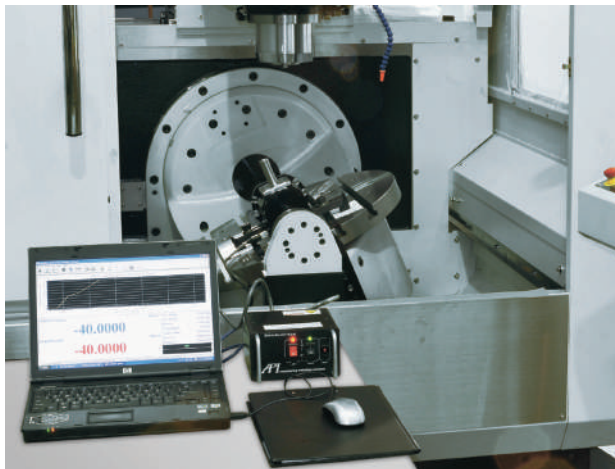
Zero-Backlash Technology Deliverys Unsurpassed Motion

High Precision... High Efficiency...

- Travelling column structure
- X, Y, Z axes are built using heavy duty roller type linear guideways
- All structural parts of the machine are manufactured from high quality Meehanite cast iron
- Rotary tilt table
- 12,000rpm direct drive spindle
- #40 spindle taper (DIN, BT, CAT)
- 24 station tool magazine



Laser Calibration



X, Y, Z, A, B axes are laser calibrated for linear positioning and angular accuracy



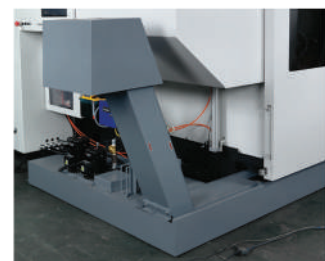
Control panel



Spindle oil cooler



Stainless steel waterproof way cover

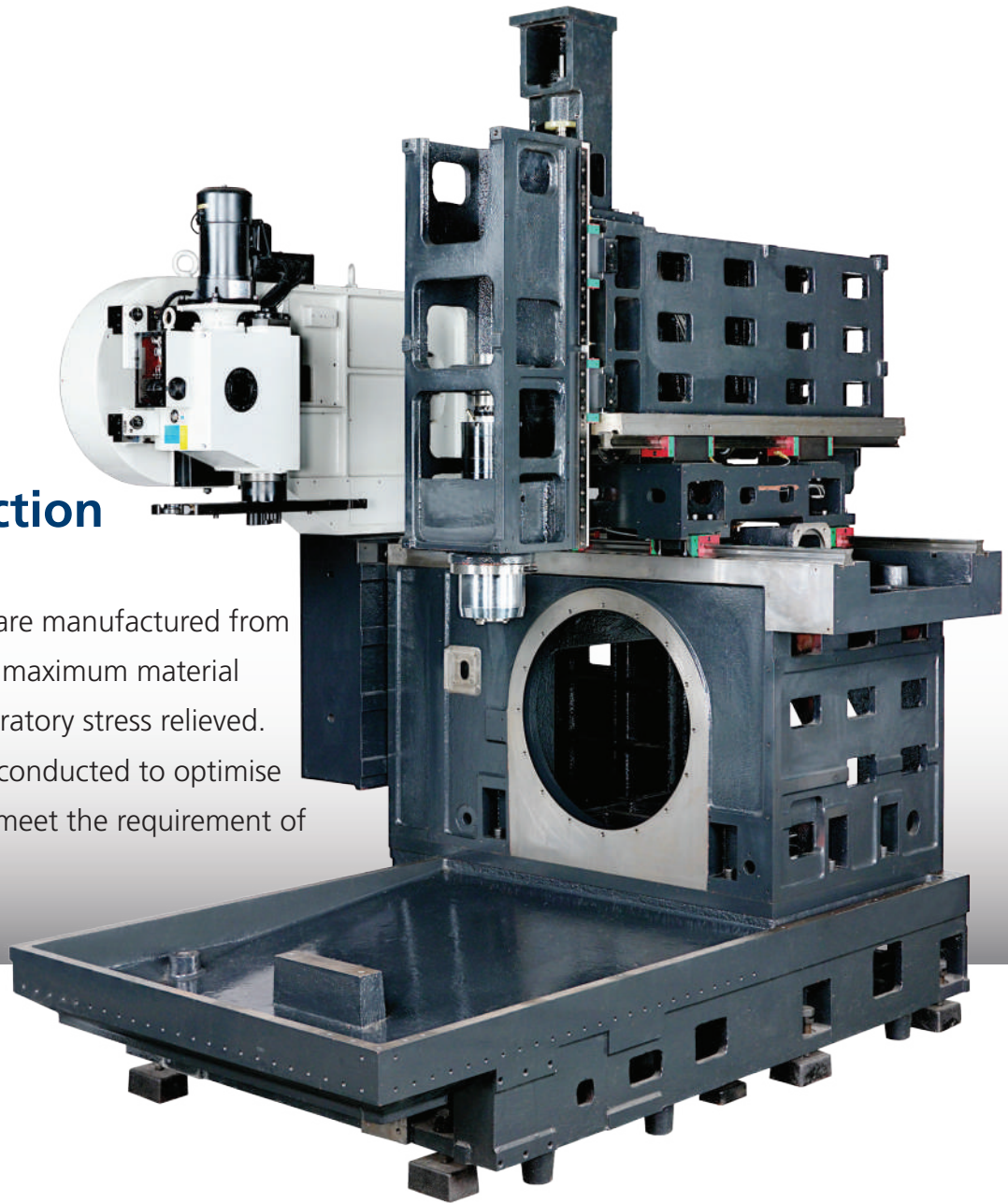


Chip removing system

There are two funnel shapes formed between the base and table combined with two chip augers and Y axis guard to achieve outstanding chip removal

Rigid Construction

All major structural parts are manufactured from Meehanite case iron with maximum material stability, annealed and vibratory stress relieved. Finite Element Analysis is conducted to optimise the machine structure to meet the requirement of 5 axis machining.



Optional Accessories



Heidenhain TT740+KHH100 (250) infrared probe for automatic kinematic measurement and calibration of 5 axis positioning



30 bar coolant through spindle system

40 Station Tool Changer
Optional: 54 / 120 station



12,000rpm direct-drive spindle

Optional 15,000rpm
#40 spindle taper (DIN, BT, CAT)

Optional HSK63
20,000rpm built-in type



Heidenhain TT140
tool measuring system



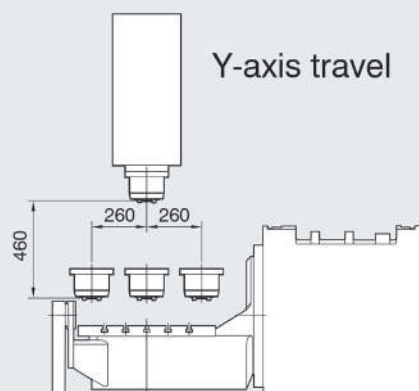
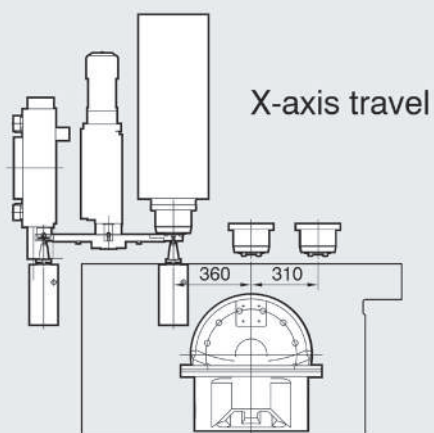
Optical Linear Scale
X, Y, Z Heidenhain optical
linear scales



Heidenhain optical encoder

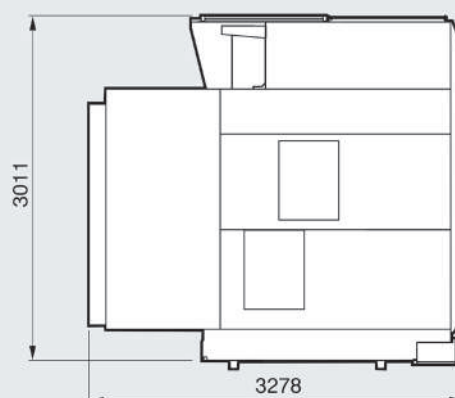
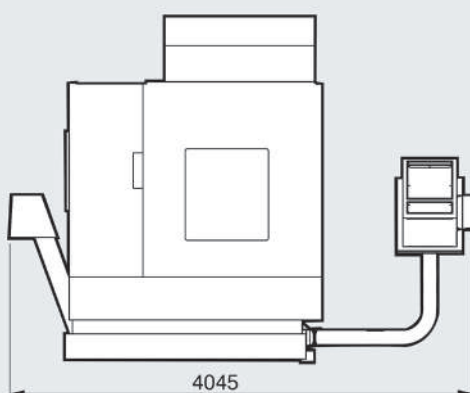
X,Y AXIS TRAVELS

Unit:mm



DIMENSIONS

Unit:mm



B AXIS TILT TRAVEL

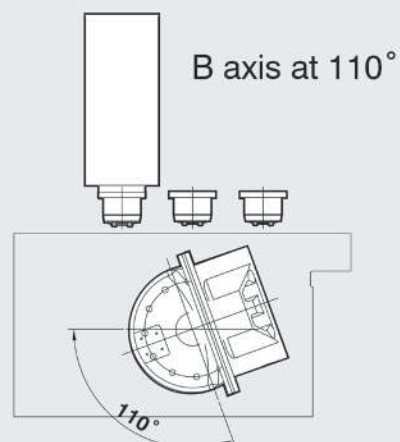
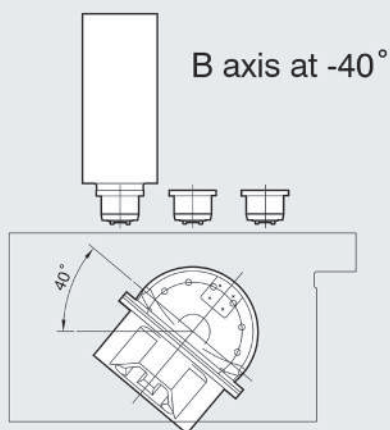
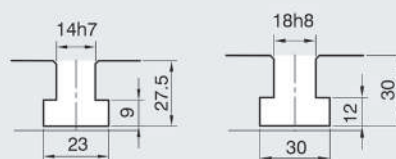
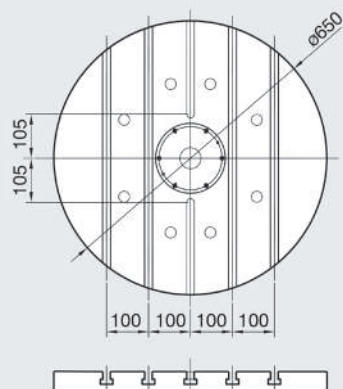


TABLE DIMENSION

Unit:mm



T-slot

Specification	Dugard GTX-620
X / Y / Z axis	620 / 520 / 460mm
B / C axis rapid feedrate	25rpm
Max workpiece size	620 x 330L
Rapid traverse rates X / Y / Z	48 m/min
Spindle nose to work table surface	140~600mm
Work table diameter	650mm
Centre bore diameter	50H7 x 30mm
Distance between spindle nose and table	140~600mm
Max tool length	250mm
Max tool diameter	76mm
Without adjacent tool	127mm
Max tool weight	7kgf
Tool to tool change time	2 seconds (60HZ)
Chip to chip change time	5 seconds (60HZ)
Spindle taper	40 (DIN, BT, CAT, HSK)
Spindle motor (cont/30 min)	15kW
Width of T-Slot	14H7mm x 5 (18mm)
Servo motor type (Siemens)	Rotary: 1FK7083-5AF71-1AG3 / 3.3kW / 16Nm Tilt: 1FK7105-5AC71-1AG3 / 7.75kW / 48Nm
Servo motor type (Heidenhain)	Rotary: 155C / 4.5kW, Tilt: 190D / 9.0kW
Transmission ratio	Rotary: 1:120, Tilt: 1:120
Indexing resolution	0.001°
Tilt angle range	-40° ~ 110°
Max rotation speed	25rpm
Max load	In horizontal 300kg, In tilt (0-90°) 300kg
Permissible cutting force	40 kg-m
Drive pressure / method	30kg/cm ² /hydraulic
Brake torque	Rotary: 250kg-m, Tilt: 450kg-m
Indexing accuracy	Rotary: 20"/sec, Tilt: 20"/sec
Repeatability	Rotary: 4"/sec, Tilt: 4"/sec
Air supply required	6kg/cm ²
Power supply required	45KVA/380V
Machine weight	6500~8500kg
Machine dimension	4210 x 2580 x 2910mm

Standard Equipment

- 12,000rpm spindle speed
- Spindle oil chiller
- Spindle bearing purge
- Automatic tool changer
- Spindle taper #40 (DIN, BN, CAT)
- Coolant through spindle
- 24 station tool magazine
- Roller linear guideways
- Z axis motor with brake system
- Programmable cutting air blast system
- Chain type chip conveyor
- Coolant gun
- Air gun
- Work lamp
- Fully enclosed machining area
- Large table size - 650mm
- M30 power off
- Heat exchanger for electrical cabinet
- Tailstock for tilt table
- Interlock front/side door
- Mechanical oil/coolant separator
- Transformer
- CE conformity specification

Machine Options

- Air supply for clamping fixture
- Programmable cutting coolant nozzle
- Coolant cooling system
- Round metal plate type oil skimmer
- X, Y, Z optical linear scale
- B/C axis optical encoder
- Chip flushing system
- Air conditioner for electrical cabinet
- Laser tool length measurement system TL Micro 200
- Contact type tool length measurement system TT140
- HSK63 20,000rpm spindle (built-in type)
- 15,000rpm direct drive spindle
- Workpiece measurement kinematic system TT740+KHH100 (250)
- Software for crash protection

DUGARD

75 Old Shoreham Road
Hove
East Sussex
BN3 7BX
www.dugard.com
sales@dugard.com
01273 732286



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