DUGARD

Machine Tools Since 1939

The Dugard Range of High Quality Machines

See our website with full brochures, specifications and demonstration videos

www.dugard.com

DUGARD

Since 1939

The late Charles Dugard established C Dugard Ltd in 1939. The company was principally involved in sub-contract manufacturing and the sale of used machine tools. The company has grown and is today involved with the sales and backup of new quality machines from around the world, in addition to being a major player in the supply of second hand machine tools and is still a family concern under the control of the directors – Bob and Eric Dugard.

In 1978 after many successful years of involvement in the sales of new and used standard machine tools, the company entered the market of new CNC machine distribution. The Dugard brand supports a huge range of machinery including VMCs, CNC Lathes, Multi Function CNC Lathes, CNC Machining Centres and Borers as well as Bridge Type Machining Centres.

Quality Through Outstanding Technology

Dugard CNC machines are sold throughout Europe, Russia, the Middle East and the Far East through a network of dealers who are able to supply machines on a quick delivery due to the stocking power of Dugard. For over 30 years Dugard has been one of the largest importers of CNC machines into the UK and we have a large sales force to sell directly in the UK and Eire. This experience in sourcing machine tools of high quality as well as value for money has allowed Dugard to set up a strong agency network with some of Europe's most respected machine tool dealers who can provide local sales and service backup.

Up to £5million of machines in stock so we can always meet customers' requirements

Technical Support

Much of the company's success stems from Dugard's reputation of providing a first class after sales support and service. Our extensive team covers machine service, spare parts and programming assistance.

Service Department

With factory trained service engineers to install and commission all the new machines sold in addition to making service visits, we have a dedicated team working all areas of the country. We aim to have an engineer on site with a customer within 24 hours of a reported fault.

Spares Department

Our Head Office in Hove has 2,000 square feet of dedicated spare parts storage. We keep extensive stock of new spares for Dugard, Yang, Hyundai, Kia and Chevalier Grinders in our warehouse at all times. We also stock accessories including Tanshing 4th axis and through spindle coolant systems (Centrifuge and Filter) for Dugard VMCs.

Applications Department

Our team of applications engineers are available before and after a machine is installed at a customer's site. Their main objective is to offer programme training and advice on our full range of machines, anything from programming and tooling advice to control communications. There are regular training courses available and direct access telephone support for continued programming assistance.

Ball Bar Testing

The test is carried out using a precision test bar which outputs micron changes in length. The bar is fixed to the spindle and table. The machine is then put through a series of circular moves in the X/Y plane, and 1/2 circle moves in the X/Z and Y/Z planes. Encoder data from the bar is fed into a computer, which outputs a chart of machine accuracy. Any deviations in squareness or length show up as distorted circles that are very easy for a technician to spot and correct. This chart assures that the machine is accurate and properly aligned.

Laser Calibration

After assembly, all machines are inspected using state of the art laser equipment. This process of inspection ensures all axes are verified and calibrated to provide the best possible accuracy and repeatability.

Quality Assurance CE

Dugard are committed to providing the best possible CNC machines to their customers that will serve them with dependable performace year after year. Before shipment, each machine is tested for machine accuracy and operational performance. Advanced inspection instruments such as laser equipment and a ball bar tester are also applied to inspect the mechanical error and geometric alignment, ensuring the best possible acccuracy and repeatability. From machine design, manufacturing and quality inspection to service support, rigorous quality control is conducted at each stage, every machine complies fully to CE conformity.

Dugard - worldwide

Austria / MJ Tradserv GmbH
Belarus / Unimatic
Belgium / Vraets, Mondialle
Bulgaria / Polymeta
Czech Republic / CNC Inaxes S.r.o
Denmark / Abene Denmark
Finland / Makrum Oy
France / BLI Machine Tools
Germany (N) / WEMCO
Germany (S) / Weco
Germany / CNC-WAHAB
Greece / Metallica Gizelis
Holland / Dijkink Machinery
Hungary / GO 98
India / MAC Machine Tools
Italy / Alpha Synergy
Kazakhstan / Arinstein
Latvia / Robur International
Poland / MTI Ltd
Portugal / A borges do Amaral SA
Russia / Dugard Rus
Slovakia / Profika S.r.o
Slovenia / GiTeh
Sweden / Abene
Ukraine / Unimatic

Kuwait, Qatar, Saudi Arabia and UAE all covered by Dugard Middle East and supported by Euro Gulf Machine Tools

State of the Art Controls

Choice of various controls to meet your requirements, each one features user-friendly operation, powerful functions and maximum dependability

Standard Control

Fanuc 0iTD/MD
with 8.4" TFT LCD colour screen

F

Other available controls

Heidenhain TNC530i/620
15"TFT LCD colour screen

H

Siemens 828/840D
10.4" TFT LCD colour screen and "ShopMill" software

S

PC **based**
Fanuc compatible, 64 bit superfast massive solid state memory

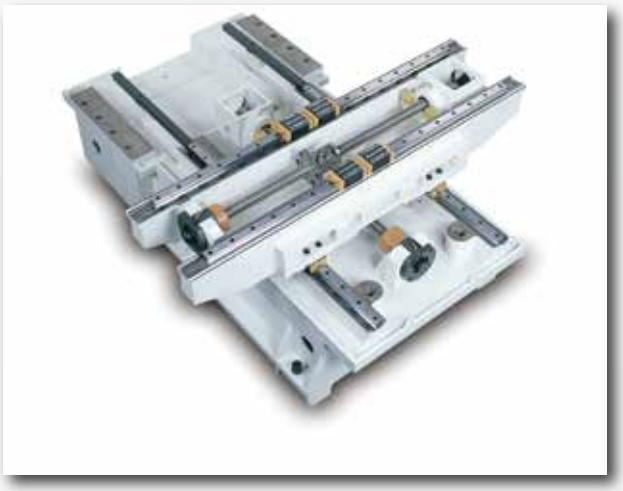
S

Mitsubishi M720L
64 bit processor, 10.4" LCD monitor, 700M/L memory

Fagor 8055iA
10.4" TFT LCD colour screen

Speed and rigidity means high production with accuracy

High speed and rigid linear ways on X/Y/Z axes or heavy duty box ways to suit customer's requirements



High precision pre-tensioned ballscrews on 3 axes

High accuracy spindle design

The fine craftsmanship of our spindles maximises the quality of your machining

Machine Index

Dugard Agencies

As well as supplying the Dugard range throughout Europe, Russia and the Middle East, Dugard are also the official UK dealers for various other exceptional manufacturers:

CHEVALIER

With the standard and CNC grinding machines available at Dugard, Taiwan's No 1 manufacturer doesn't fail to impress

EDEL

The 3 and 5 axis travelling gantry machines from Germany are aimed at both the Aerospace and Mould and Die industries and, as with all the machines available at Dugard, they are excellent value

HEDELIUS

This selection of 3 axis, 5 axis and tilting spindle CNC machining centres direct from Germany is most deffinitely a quality investment.

MTE machine tool engineering, s.a.

This young Spanish company (founded in 1994) have already built up an impressive reputation on the continent for their CNC bed and travelling column milling and boring machines - a reputation which is set to extend into the UK.

SAMSUNG

Based in Korea, Samsung are one of the world's biggest corporations and we're proud to be able to offer their extensive range of CNC turning centres at Dugard.

VARNSDORF TOS

These Czech manufacturers really do deliver on their promises of high performance, progressive design and reliability with their ranges of CNC manual boring machines and floor borers.

YOU JI

These CNC vertical turning centres with ATC options, C axis options and driven tool capability exceed all our customer's needs and expectations.

Dugard 446 Academy Lathe

A compact teaching and production lathe, perfect for industry as well as education

Available Controls

Standard Features

- Siemens industry standard conversational CNC control system
- Optional 8 station production turret
- Installation and training package included
- Gap bed construction
- Ideal for individual or light production runs

User friendly conversational CNC control with versatile programming features. Perfect for manual, CNC and automatic operation

A2-5 type spindle nose for quick release chuck removal. All Meehanite casting for main components

The tailstock is designed to support the work piece with minimal interference and maximum rigidity

Manual tool post as standard. Optional hydraulic 8 station turret with 20 x 20mm clamping

		Academy 446
Swing over bed		446mm
Swing in gap		546mm
Swing over cross slide		240mm
Maximum turn length	Quick change toolpost	650mm (std)
	Hydraulic turret	600mm (opt)
X axis travel		250mm
Z axis travel		760mm
Spindle nose		A2-5
Chuck size		8"
Spindle bore diameter		52mm
Speed range		3000rpm
Spindle taper		6MT
Motor power		7-8kW
X axis rapid traverse		15 m/min
Z axis rapid traverse		15 m/min
Jog feed		3 m/min
Positioning		± 0.005mm
Repeatability		0.005mm
Bed width		300mm
Cross slide guide width		215mm
X axis power		6Nm
Z axis power		6Nm
X axis ballscrew		25 x 5mm P x C3
Z axis ballscrew		40 x 5mm P x C3
Quill stroke		165mm
Quill diameter		65mm
Quill inside taper		4MT
Coolant pump motor		270 ~ 350w
Coolant pump capacity		20 L/min
Lubrication pump motor		12w
Lubrication pump capacity		130 cc/min
Weight		2100kg
Length x width x height		2230 x 1560 x 1790mm

Featuring conventional manual hand wheels combined with a user friendly CNC control the 446 Academy lathe is powerful yet simple to use, making it the perfect machine for both students and industry

High Speed - CNC Machining Centres

64 bit high speed control solid state memory, reduces production costs, perfect for high volume batches

Available Controls

Standard Features

- 96 m/min rapid rates
- Auto rotary type pallet changer
- 0.7 sec tool change time
- Chip conveyor

Model shown - RMV 700 APC

Model shown - 760XP

Standard Features

- Pneumatic counter balanced head
- Chip flushing
- 24 automatic tool changer

	760XP	PC 460/700	RMV 500T	RMV 500 APC	RMV 700 APC
X axis traverse	762mm	460/700mm	500mm	500mm	700mm
Y axis traverse	410mm	320mm	300mm	300mm	400mm
Z axis traverse	460mm	300mm	280mm	280mm	400mm
Twin pallet (revolving table type)	-			180° - 2 secs	
Table size	910 x 380mm	520/760 x 320mm	600 x 300mm	2 x 500 x 300mm	700 x 400mm
Max table load/table	400kg	250kg	100kg	100kg	160kg
Spindle to table	75~535mm	180~480mm	150~430mm	150~430mm	200~600mm
Spindle taper	BT40	HSK40A (opt BT30)			HSK63A or BT40
Spindle speed range	20~11,000rpm	12,000rpm	150~15,000rpm	15,000rpm	12,000rpm
Spindle power	11kW	5.2kW	7.5kW	7.5kW	15kW
Rapid traverse X	36m/min	60m/min	60m/min	60m/min	48m/min
Rapid traverse Y	36m/min	60m/min	60m/min	60m/min	60m/min
Rapid traverse Z	30m/min	60m/min	96m/min	96m/min	96m/min
Feed rate	1~12,000 mm/min	1~10,000 mm/min			
Acceleration "G"	1.0 / 1.0 / 1.2	1.2 / 1.2 / 1.0	1.2 / 1.2 / 1.6	1.2 / 1.2 / 1.6	1.0 / 1.0 / 1.2
Tool storage capacity twin arm	20 station	14 station (opt 21)	24 station		
Max tool diameter	75mm	50mm			75mm
Max tool weight	7kg	3kg	2.5kg	2.5kg	4.5kg
Max tool length	250mm	160mm	175mm	175mm	200mm
Tool to tool change	2.2 secs	1.4 secs	0.7sec	0.7sec	
Power capacity	20kVA	10kVA	11kVA	11kVA	25kVA
Floor space (W x L)	1900 x 1935mm	1200 x 2300mm	1600 x 2940mm	1500 x 2700mm	1900 x 3760mm
Machine weight	3650kg	2000kg	3000kg	4200kg	5600kg

Superior value in capacity and dependability

Available Controls FHS

Standard Features

- Fine grain Meehanite cast iron offers high tensile strength, as well as long term wear resistance
- Heavy duty box ways on all the axes
- Large fully ground table with 4 T-slots
- Fully enclosed with removable side doors
- 16~20 station carousel type ATC
- ISO 40 spindle taper
- Spindle speed 8,000rpm (standard)
- Fanuc 0i control

Model shown - Dugard ECO 760

Options Include

- Z axis telescopic way cover
- Fully enclosed top guard (for through spindle coolant use)
- Through spindle coolant with high pressure pump
- 4th axis

Model shown - Dugard ECO 1000

Maximise productivity and profits

Cost Efficient VMCs

	ECO 760	ECO 1000	ECO 1500	ECO 2000
X traverse	760mm	1000mm	1500mm	2000mm
Y traverse	430mm	600mm	740mm	889mm
Z traverse	460mm	600mm	670mm	710mm
Table size	900 x 406mm	1300 x 600mm	1950 x 610mm	2336 x 762mm
Max table load	350kg	800kg	1500kg	1800kg
Spindle nose line to table surface	102~562mm	110~710mm	120~800mm	100~810mm
Spindle centre line to column	480mm	530mm	775mm	889mm
Max feed rate	10m/min			
Rapid traverse rates X/Y/Z (Fanuc)	24m/min			20m/min
Speed range	80~8000rpm			
Spindle power	7.5kW Fanuc	11/15kW Fanuc		
Spindle taper	BT40 (opt CAT flange)			
Bi-directional drum type ATC	16 station	20 station		
Maximum tool diameter	80mm			
Maximum tool length	250mm			
Maximum tool weight	6kg	8kg	6.5kg	8kg
Tool change time chip to chip	6 seconds	8 seconds	8 seconds	8 seconds
Machine weight	3500kg	4760kg	6360kg	8000kg

Model shown - Dugard ECO 2000

The Dugard ECO VMC Series offers big cutting capacity at a competitive price

Dugard 660 / 850 - Vertical Machining Centres

Superior value in capacity, precision and efficiency

Available Controls FHS

Model shown - Dugard 660

Standard Features

- **High precision, roller linear guide ways on X, Y, Z axes**
- **24 station twin arm type ATC**
- **10,000rpm spindle speed standard**
- Compact construction for reduced footprint
- Superior positioning and repeatability
- 12,000/15,000rpm spindle speed option
- Choice of spindle taper BT40, CT40 or DIN 40
- Fully enclosed splash guard
- Spindle oil chiller

	660	850
X traverse	660mm	850mm
Y traverse	520mm	
Z traverse	510mm	
Table size	810 x 510mm	1000 x 510mm
Maximum table load	500kg	
Spindle nose line to table surface	150~660mm	
Spindle centre line to column	585mm	
Max feed rate	See control info	
Rapid traverse X/Y (Fanuc)	30m/min	
Rapid traverse Z (Fanuc)	24m/min	
Speed range (refrigeration unit)	80~10,000rpm	
Spindle power	11/15kW Fanuc	15kW
Spinde taper	BT40 (Big Plus)	
Bi-directional twin arm ATC	24 station	
Max tool diameter/length/weight	76mm/250mm/7kg	
Tool change time tool to tool	1.5 seconds	
Machine weight	5000kg	5500kg

Options Include

- Chip conveyor and bin
- 4th axis rotary table & motor
- Through spindle coolant device
- Automatic tool length measurement
- 32 station chain type tool magazine
- Dual screw type chip conveyor

Model shown - Dugard 850

Dugard 1000Y Plus - Vertical Machining Centres

Designed and built for high production, lifetime accuracy, and trouble free service with low maintenance

Available Controls FHS

Standard Features

- **Roller linear guideways on X, Y, Z axes**
- **10,000rpm spindle speed standard**
- **24 station twin arm ATC**
- 610mm Y travel
- Fanuc 0iM control with 8.4" LCD screen
- Fully enclosed splash guard
- Rear chip flush system

	1000Y Plus
X traverse	1020mm
Y traverse	610mm
Z traverse carousel	510mm
Table size	1220 x 600mm
Maximum table load	600kg
Spindle nose to table surface	150~660mm
Spindle centre line to column	665mm
Max feed rate Fanuc	10m/min
Max feed rate Siemens/Heidenhain	12m/min
Rapid traverse X/Y/Z	30/30/30 m/min
Speed range (refrigeration unit)	80~10,000rpm
Spindle taper	BT40 (Big Plus)
Bi-directional twin arm ATC	24 station
Max tool diameter/length/weight	76mm/250mm/7kg
Tool change time tool to tool	1.5 seconds
Machine weight	7000kg

Options Include

- Chip conveyor
- 12,000rpm belt drive spindle
- 12,000/15,000rpm directly coupled spindle
- 4th axis rotary table & motor
- Automatic tool length measurement
- 32 station chain type tool magazine
- ZF gearbox

Dugard 1500 - Heavy Duty Vertical Machining Centre

Big capacity, powerful and superior specification

Available Controls FHS

Standard Features

- **High speed, rigid roller linear guide ways on X, Y, Z axes**
- **10,000rpm spindle speed standard**
- **24 station twin arm ATC**
- High quality FC-30 casting for structural parts
- X, Y, Z axes rapids 30 m/min
- Fanuc, Siemens or Heidenhain control
- Fully enclosed splash guard
- Spindle oil chiller

	1500
X traverse	1525mm
Y traverse	635mm
Z traverse carousel	635mm
Table size	1650 x 570mm
Maximum table load	1200kg
Spindle nose to table surface	125~760mm
Spindle centre line to column	685mm
Max feed rate Fanuc	10m/min
Max feed rate Siemens/Heidenhain	12m/min
Rapid traverse X/Y/Z	30/30/30 m/min
Speed range (refrigeration unit)	80~10,000rpm
Spindle taper	BT40 (Big Plus)
Bi-directional twin arm ATC	24 station
Max tool diameter/length/weight	89mm/250mm/7kg
Tool change time tool to tool	1.5 seconds
Machine weight	8500kg

Options Include

- Chip conveyor and bin
- 4th axis rotary table and interface
- Spindle probing
- Tool setting device
- Through spindle coolant
- 12,000rpm spindle speed

Dugard HD Range - Heavy Duty

The unique configuration offers a fully supported table across the fu

Available Controls FHS

Standard Features

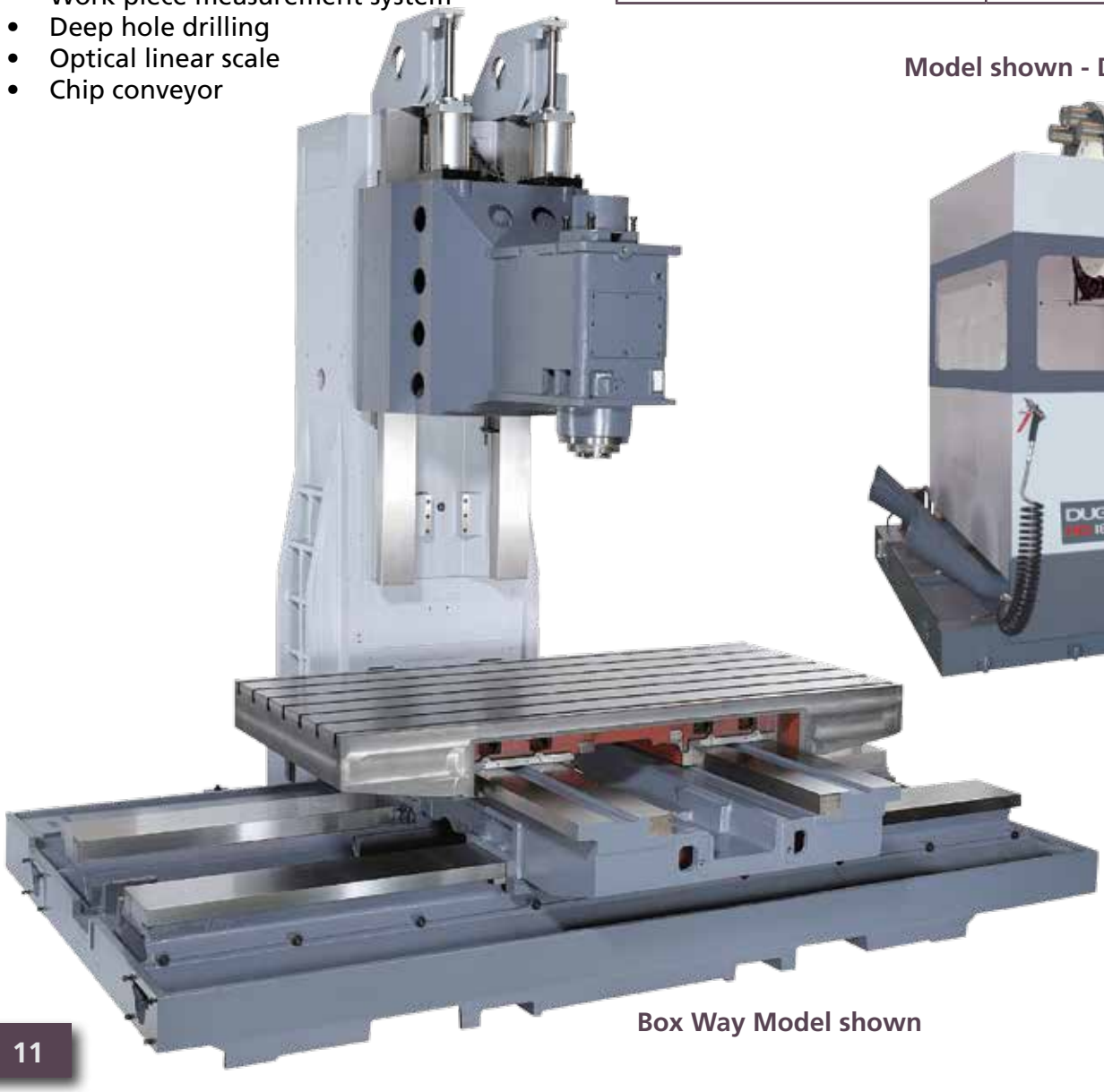
- Refrigerated ballscrews on X/Y/Z axes
- X travels from 1300~2200mm
- 24 station bi-directional twin arm type tool changer
- The full range of machines all use wide roller linear ways
- Heavy box (B), or roller linear (L) ways
- High metal removal rates and accuracy over the lifetime of the machine

Options Include

- 4th axis rotary table
- Tool length measurement system
- Work piece measurement system
- Deep hole drilling
- Optical linear scale
- Chip conveyor

	HD 1363L	HD 1363B
X traverse	1300mm	
Y traverse	630mm	
Z traverse carousel	600mm	
Table size	1450 x 600mm	
Maximum table load	1200kg	
Spindle nose to table surface	140~740mm	100~700mm
Spindle centre line to column	710mm	690mm
X axis rapid traverse X axis/Y/Z	32m/min	24m/min
Y axis rapid traverse Y axis	32m/min	24m/min
Z axis rapid traverse	30m/min	20m/min
Spindle speed	8000rpm belt	4000/6000rpm gear
Spindle taper		
Bi-directional arm ATC		
Max tool diameter/length/weight		
Machine weight	9300kg	12,500kg
Footprint	**3400 x 2700mm**	

Model shown - Dugard 1886L



Box Way Model shown

Vertical Machining Centres

ll X axis movement, eliminating table overhang and X axis distortion.

HD 1680L	HD 1680B	HD 1886L	HD 1886B	HD 2200L	HD 2200B
1600mm		1800mm		2200mm	
800mm		860mm		1000mm	
700mm		700mm		900mm	
1600 x 700mm		1800 x 860mm		2200 x 1000mm	
2000kg				3000kg	
170~870mm		200~900mm		160~1060mm	170~1070mm
822mm	800mm	952mm	930mm	1070mm	1060mm
20m/min	18m/min	20m/min	18m/min	16m/min	12m/min
20m/min	18m/min	20m/min	18m/min	16m/min	12m/min
20m/min	15m/min	20m/min	15m/min	12m/min	12m/min
8000rpm belt	4000/6000rpm gear	8000rpm belt	4000/6000rpm gear	8000rpm belt	4000/6000rpm gear
BBT50					
24 station					
110mm/300mm/15kg					
12,500kg	13,000kg	13,500kg	14,000kg	16,500kg	
4000 x 2980mm		**4500 x 3150mm**		**5300 x 3700mm**	

Heavy duty boxways (B) available on all models - 6000rpm gearbox, BBT50 direct drive spindle

High speed linear rollerways (L) available on all models - 10,000rpm, BBT50 direct drive spindle

Model shown - Dugard 2210B

Dugard HSM600 - 5 Axis Vertical Machining Centre

High Speed 5 Axis VMC

Available Controls HS

Standard Features

- Full splash guard without roof
- 12,000rpm motor spindle with water cooling
- Programmable coolant 6 bar
- 32 station twin arm ATC
- 255mm rotary table, 3 jaw chuck and manual tail stock (600A), 610mm rotary table (600C)
- Chain type chip conveyor and bin

Options Include

- 20 bar TSC with roof cover
- 3 axis linear scales and 2 axis rotary encoders
- 24,000rpm HSK-A63 spindle
- 320mm rotary table
- 40 station ATC
- Work piece probe
- Z axis thermo compensation device

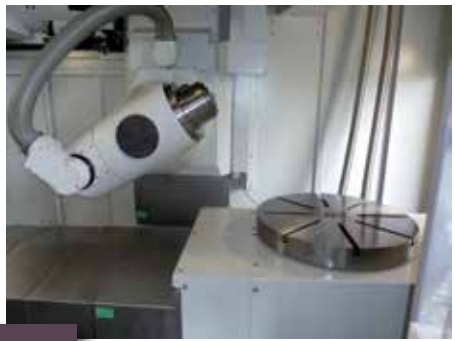
	HSM600
Heidenhain TNC530i control	
X traverse	1020mm
Y traverse	610mm
Z traverse	610mm
Table diameter	610mm
Max table load	500kg
C axis rotation (torque motor)	360°
Max speed C axis	10rpm
B axis tilt from vertical (torque motor)	±120°
Maximum speed B axis	15rpm
Spindle nose line to table surface	105~715mm
Spindle centre line to rotary table centre line	0~715mm
Max feed rate	0~10m/min
Rapid traverse rates X/Y/Z	30/30/24 m/min
Speed range	12,000rpm
Spindle power (built in)	22kW
Spindle taper	BT40/HSK63
Bi-directional twin arm ATC	32 station
Max tool diameter/length/weight	80mm/160mm/7kg
Tool change time tool to tool	2.8 seconds
Machine weight	7800kg

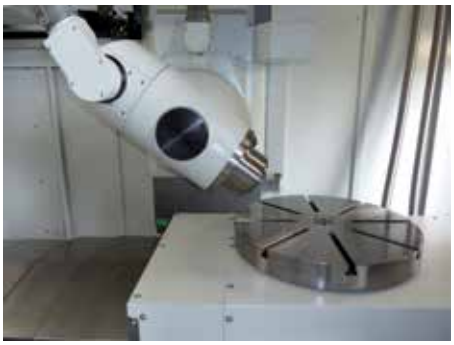
Dugard's newest 5 axis simultaneous machining centre. The HSM600 is available with a standard B axis swivel milling head and either an add on type A axis rotary table and tailstock (HSM600-A) or a built in integrated C axis rotary table (HSM600-C).

It provides state-of-the-art and efficient machining for traditional universal operations, tool and mould making with inclined tools, complete machining with 5 sided/5 axis machining, or wherever negative angles (±120°) are required

B Axis Swivel Milling Head

B axis - torque driven swivel head with ±120° movement. The built in torque motor has the advantage of no mechanical parts, offering greater accuracy, exceptional stiffness and shorter cutting distances.





Dugard V20/5 - 5 Axis Vertical Machining Centre

High Speed 5 Axis VMC

Available Controls HS

Options Include

- Heidenhain/Siemens controls
- 32 tool ATC
- Linear scales
- 20 bar through spindle coolant

	V20/5
Table diameter	320mm
Max table load	100kg
C axis rotation	360°
A axis tilt	-120°/+30°
Max speed A axis	25rpm
Max speed C axis	25rpm
X traverse	400mm
Y traverse	560mm
Z traverse	400mm
Spindle nose to table surface	100~500mm
Max feed rate	12m/min
Rapid traverse rates X/Y/Z	48m/min
Speed range - direct drive	12,000rpm
Spindle power	11/15kW
Spindle taper	BT40 (opt CAT/HSK)
Bi-directional twin arm ATC	24 station
Max tool diameter	80mm
Max tool length	160mm
Max tool weight	7kg
Tool change time tool to tool	2.8 seconds
Machine weight	5000kg
Floor space	2254 x 3050 x 3000mm

Dugard RM 160/250 RT - 4+1 Axis Vertical Machining Centres

High Speed 4+1 Axis VMC

Available Controls F

Standard Equipment

- Mitsubishi M720VS/Fanuc 0iMD controls
- Heavy duty high quality cast iron frame
- Servo driven tool magazine
- Spindle taper air blast

	RM160RT	RM250RT
X traverse	380mm	500mm
Y traverse	160mm	250mm
Z traverse	380mm	400mm
Table diameter	160mm	250mm
Max table load	30/66kg	60/132kg
C axis rotation	360°	
B axis swing	+30°/-120°	
Spindle nose to table surface	100~480mm	125~525mm
Rapid traverse rates X/Y/Z	60/60/96 m/min	48/60/96 m/min
Axial acceleration X/Y/Z	1.2/1.2/1.6 G	1.2/1.0/1.2 G
Spindle speed	15,000rpm	12,000rpm
Spindle motor output	10HP	15HP
Spindle taper	HSK-40A/BT30	HSK-63A/BT40
Tool storage capacity	24+1	
Max tool diameter	50mm	75mm
Max length	175mm	200mm
Max weight	2.5kg	4.5kg
Power requirement	12KVA	26KVA
Floor space (W x L)	1600 x 2322mm	1900 x 2677mm
Machine weight	4000kg	5000kg

Samsung Machine Tools
one of the world's biggest corporations

Dugard are now the exclusive sales and service agents for Samsung in the UK and throughout Europe, Russia, CIS and the MIddle East

Featuring an extensive range of Turning centres

Model shown - Samsung PL25A

Featuring:
- 6" ~ 24" chuck
- Up to 3.2m between centres
- Mill/drill capacity
- Sub spindle
- C & Y axes available

Samsung are renowned for:
- Superb technology
- High quality machines
- Competitive prices

Model shown - Samsung PL45

Milling combined with C and Y axes spindle control gives you rigidity, flexibility and the precision to handle complex shapes.

SAMSUNG

"A company building a better future and dreams"

Dugard 32 & 52 - Sliding Head CNC Lathes

With ID and OD turning, drilling and tapping in one operation production is much faster

Model shown - Dugard 32 Sub Spindle

Available Control S

Dugard 32 Standard Features

- Linear guideways on X, Y, Z axes providing high speed traverses and rigidity
- Spindle equipped with TRB-32 collet chuck
- Syntec PC based control, with 15" TFT colour screen, graphics and Mitsubishi drives and motors
- Spindle features a C axis function for contour capability

Options Include

- Sub-spindle (C axis)
- Radial milling attachment
- Axial milling attachment
- Full length hydrostatic magazine bar feed

	32	32 Sub Spindle	52 Twin Spindle
Syntec PC based control			
Max turned length	150mm		165mm
X axis travel	190mm	185mm	210mm
Y axis travel	490mm		460mm
Z axis travel	165mm		250mm
Max component length (via parts catcher)	140mm		
Spindle incorporating full C axis			
Bar capacity	32mm		52mm
Collet system	TRB32mm		TRB 52mm
Spindle speeds range	100~6000rpm		
Spindle power Fanuc drive	7kW AC		7.5kW AC
Tool Shank	12mm²		20mm²
Boring bar size	25mm		
Rapid traverse speed on all axes	30m/min		
Mill/drill heads	ER20 collet		
Mill/drill head speeds	0~6000rpm		
Machine weight	2500kg	3800kg	4500kg

Dugard 52 Twin Spindle

The new Dugard 52 twin spindle CNC lathe will dramatically cut your machining costs and boost productivity

Available Control S

Dugard 52 Standard Features

- Built-in motors on main and 2nd spindles
- Double Y axes
- Totally 18 driven tools
- 52mm bar capacity
- Max 600rpm in main and 2nd spindles
- 30m/min axis rapid speed
- Servo control B axis allowing angular drilling, tapping and milling

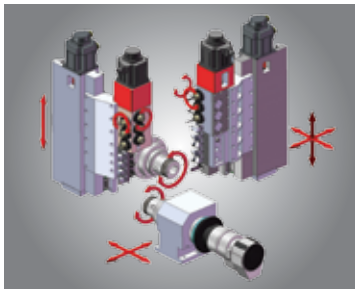
Model shown - Dugard 52 Twin Spindle

Dugard 42mm Range - Multi

Dugard 42 TT

12 (8 + 2 + 2) axis CNC dual turning and milling complex lathe

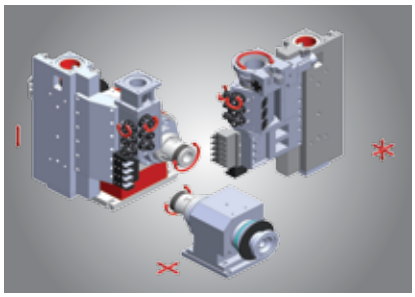
8 axis and 2 spindles which includes a sub-spindle with both X and Z positioning.



Live tooling on both main and sub-spindle tooling blocks. There are 12 live tools for axial and radial milling, drilling and tapping operations giving a total of 31 tools for complex machining.

Dugard 42 TTS

13 (8 + 2 + 2 + 1) axis CNC dual turning and milling complex lathe with B axis



9 axis and 2 spindles which includes a sub-spindle with both X and Z positioning.

The B axis reaches +45° to -130° continuous. This allows for more flexible tool applications and efficient mass production.

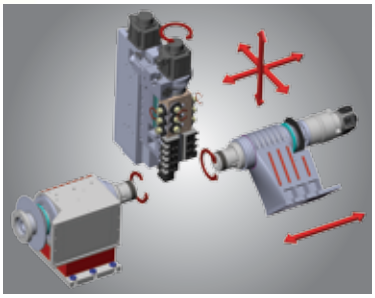
		42 TT	42 TTS	42 XTS	42 iT/S	42 iT/S Robo
Max bar capacity		42/60mm	42mm	42mm	42/60mm	
Max turning length		230mm	150mm	350mm	230mm	
Spindle nose		A2-5/A2-6				
Spindle bore		43/62mm	44/62mm		43/62mm	
Spindle speed		4000/3000rpm (6000/4000rpm opt)				
Spindle motor		Mitsubishi AC spindle 7.5kW (11kW opt)				
Sub Spindle	Max bar capacity	42mm			-	-
	Max turning length	100mm		155mm	-	-
	Spindle nose	A2-5			-	-
	Spindle bore	30mm			-	-
	Spindle speed	4000rpm (6000rpm opt)			-	-
	Spindle motor	Mitsubishi AC spindle 3.7kW			-	-
B axis		-	+45° to -130° continuous	-45° to +45° continuous	+45° to -130° continuous (S model option)	
X/Y/Z axis travel		140/410/230mm		250/380/350mm	140/410/230mm	
X-1/Y-1/Z-1 axis travel		410/410/360mm		470mm (Z-1)	-	-
Number of tools (ATC)		OD 6 tools, ID 4 tools				
Tool shank size		20mm				
Boring bar		ER-20/20mm				
Length x width x height		2500 x 1700 x 1900mm		2800 x 1600 x 2100mm	2000 x 1500 x 1900mm	
Machine weight		4200kg		3800kg	2750kg	2850kg

Available Control

Axis CNC Turning Centres

Dugard 42 XTS

CNC twin spindle lathe with B axis

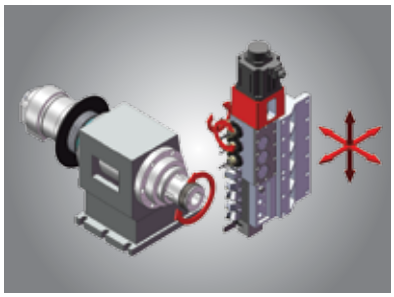


25 tools for complex work piece production as well as driven tools and a powerful B axis.

Fast and flexible tool arrangement with a large work area combines to make the XTS an outstanding all purpose machine

Dugard 42 iT

6 (4 + 2) axis CNC turning centre with milling function with B axis option



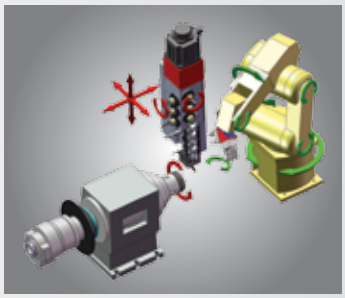
6 turning, 4 boring and 6 live milling tools giving a capacity of 16 tools.

Its unique design allows for rapid chip to chip times, which will generally out perform turret type machines, enabling a reduction in cycle times.

Dugard 42 iT (S) Robo

6 + 6 axis CNC robot turning centre with milling function and B axis option

4 axis lathe with C-axis and live tooling with the advantage of robotic loading for unmanned chucking operations.



Robot Arm		42 iT Robo
Mitsubishi S series		6 axis articulated
Drive system		AC servo motor (brake provided on all axes)
Position detection method		Absolute encoder
Load	Max	6kg
	Rating	5kg
Position repeatability		± 0.02mm
Air supply pressure		0.49 ±10% M Pa

A modified version of the iT-42 with internal integration of a Mitsubishi 6 axis articulated robot. This requires no additional floor space, and is positioned so it will not hinder the machine operator while setting the machine, or obstruct the Mitsubishi M70 control.

42mm Range Standard Features

- 42mm hydrostatic magazine barfeed including interface x 3m length
- 42mm collet chuck main spindle
- 42mm collet chuck secondary spindle
- Automatic parts catcher & conveyor
- Swarf conveyor and bin
- Coolant tank and pumps

Dugard 52 TTSY - CNC Lathe

With twin spindles, twin turrets and Y axis, this is a highly versatile CNC lathe - perfectly suited for machining complex parts

Available Control

Standard Features

- Two 16 station servo turrets (main and 2nd spindle)
- 16 station live tooling
- Turret rotation and indexing are driven by a servo motor on both spindles
- 2nd spindle and lower turret allows for back machining on a part as well as access to both spindles - enabling cutting time balance between spindles and optimising cycle time
- Built-in main and 2nd spindle

Options Include

- Boring bar holder
- Boring bar bushes
- Facing tool holder
- U drill holder
- Axial and radial driven tool holders
- Choice of collet chucks
- 6000rpm spindle speed on main and 2nd spindle

	52 TTSY	
Mitsubishi multi axis control system - M720L 64 bit processor		
Max cutting diameter	190mm	
Max cutting length	400mm	
Distance between centres	920mm	
Maximum bar capacity	51mm	
	Main spindle	2nd spindle
Chuck size	210mm	
Spindle nose	A2-5	
Spindle hole diameter	60.5mm	
Spindle speed	4000rpm (opt 6000)	
C axis rapid traverse	1~600m/min	
Minimum programmable increment	0.001°	
Spindle motor (cont/30min)	7.5/11kW	
	Uppet turret	2nd turret
Servo bi-directional driven tool turret BMT65	16 station	
Turret index time	0.4 secs	
Spindle speed	60~6000rpm	
Drive motor	3.7/5.5kW	
Tool shank	25 x 25mm	
Boring bar size	25mm dia	
Driven tool collet size	ER-32	
X - 1 axis travel	150mm	
X - 2 axis travel	230mm	
Z - 1/Z - 2 axis travel	440mm	
Y axis travel	± 35mm	
B axis travel (2nd spindle travel)	650mm	
X - 1/X - 2 axis rapid traverse	16m/min	
Z - 1/Z - 2 axis rapid traverse	40m/min	
Y axis rapid traverse	6m/min	
B axis rapid traverse	40m/min	
Machine weight	10,200kg	

Dugard 100 - Slant Bed High Precision CNC Lathe

High precision and maximum reliability 30 m/min rapids assures top quality machining year after year

Standard Features

- 45° heavy duty slant bed
- X and Z axes linear guide ways
- 30 m/min rapids
- 62mm spindle bore
- 12 tool high speed hydraulic turret

Available Controls F S

- 6" hydraulic power chuck with foot pedal control
- Choice of Fanuc or Siemens control
- Hyraulic tailstock
- Manual tool setting probe

Options Include

- Parts catcher
- Bar feed
- Auto tool setting probe
- Chip conveyor / chip bucket (rear or side exit)
- VDI Turret

	100
Max swing over bed	470mm
Max turned diameter	260mm
Max recommended diameter	210mm
Max turned length	290mm
Max X axis travel	150mm
Max Z axis travel	320mm
Spindle nose	ASA A2-5
Spindle speed	45~6000rpm
Spindle power (Fanuc drive)	7kW AC
Spindle power (Siemens drive)	7.5kW AC
Chuck size	152mm
Bar capacity	52mm
X / Z axes rapid traverse	30 / 30 m/min
Servo bi-directional turret	12 station
Turret index time	0.3 secs
Tool shank	20 x 20mm
Boring bar size	32mm
Tailstock with programmable quill MT-4 taper	
Tailstock body travel	250mm
Quill travel (programmable)	80mm
Quill diameter	70mm
Machine weight	2800kg

Dugard 200 - Slant Bed High Precision CNC Lathe

Dugard 200HT has all the features to increase the efficiency of parts turning

Standard Features

- Standard 12 tool hydraulic turret
- Hydraulic tailstock
- 30 m/min rapids
- X, Z axes linear guide ways

Available Controls F S

- Manual tool setting probe
- Chip conveyor and bin
- Choice of Fanuc or Siemens control
- 8" chuck

Options Include

- Live tooling (C axis) tailstock body
- Parts catcher
- Bar feed
- Auto tool setting probe
- 10" chuck
- Programmable

	200HT	200MC
Max swing diameter	470mm	
Max turned diameter	300mm	196mm
Max turned length	479mm	445mm
X axis travel	176mm	161mm
Z axis travel	520mm	
Spindle nose	ASA A2-6	
Spindle speed	45~4500rpm	
Spindle power	15kW AC	
Chuck size	210mm	
Bar capacity	65mm	
X / Z axes rapid traverse	30 / 30 m/min	
Servo bi-directional turret	12 station	
Turret index time	0.3 secs	
Driven tool motor	n/a	2.3kW
Driven tool spindle speed	n/a	4000rpm
Tool shank	25 x 25mm	
Boring bar size	40mm dia	
Tailstock with programmable quill MT-4 taper		
Tailstock body travel	450mm	
Quill travel (programmable)	100mm	
Quill diameter	75mm	
Machine weight	3900kg	3950kg

Dugard 300 - Slant Bed High Precision CNC Lathes

45° slant bed combined with rugged construction throughout allows for heavy duty cutting with ease

Standard Features

- Auto sensing device to control quill pressure
- Hydraulic tailstock with programmable quill or manual control by push buttons
- Powerful 22kW spindle motor
- 10" chuck
- High precision C axis spindle indexing (300MC)

Available Controls F S

Options Include

- Chip conveyor and bin
- Bar feed
- Parts catcher
- 315mm 3 jaw hydraulic chuck
- High pressure coolant pump
- Auto tool setting probe
- 12" chuck

	300P/MC	350G
Max swing	600mm	762mm
Max turned diameter / length	450 / 762mm	560 / 750mm
X / Z axis travel	240 / 762mm	290 / 762mm
Spindle nose	ASA A2-8	
Spindle speed	30~2500rpm	
Spindle power with high torque	15/18.5kW alpha 30i drive	22kW
Full C axis (MC only)	0.001 indexing	-
Chuck size	252mm	304mm
Bar capacity	77mm	76mm
X / Z axes rapid traverse	20 / 24 m/min	20 m/min
Bi-directional turret	12 station	10 station
Turret index time	0.7 secs	0.3 secs
Tool shank	25 x 25mm	
Driven tool motor	3.7/5.5kW	-
Driven tool spindle speed	3500rpm	-
Boring bar size	40mm dia	50mm dia
Tailstock with programmable quill MT-4 taper		
Tailstock body travel	627mm	550mm
Quill travel (programmable)	120mm	130mm
Quill diameter	85mm	90mm
Machine weight	5700kg	6400kg

Dugard 400 - Slant Bed High Precision CNC Lathe

A heavy duty CNC lathe with hardened slideways ideal for extra heavy duty cutting on large diameter workpieces at low speed

Standard Features

- Extra large 105mm spindle bore
- Spindle is driven through a ZF two speed maintenance free gear box
- High rigidity box ways
- 45° slant bed

Available Controls F S

- Hydraulic turret
- Manual tool setting probe
- Programmable tailstock available with a rotating quill for increased loading capacity
- 12" chuck

Options Include

- Bar feed
- Chip conveyor and bin
- Through bore 450mm hydraulic power chuck
- Auto tool setting probe
- VDI turret and VDI tool holders
- Hydraulic steady rest
- 15" chuck

	400
Max swing	770mm
Max turned diameter	550mm
Max turned length	820mm
X axis travel	240mm
Z axis travel	820mm
Distance between centres	1020mm
Spindle nose	ASA A2-8
Spindle speed with 2 speed programmable gearbox	30~2500rpm
Spindle power Fanuc drive	26kW AC
Chuck size	315mm
Bar capacity	91mm
X / Z axis rapid traverse	12 / 15 m/min
Bi-directional turret	10 station
Turret index time	0.7 secs
Tool shank	32 x 32mm
Boring bar size	50mm dia
Tailstock with programmable quill MT-5 taper (tow along type)	
Tailstock body travel	820mm
Quill travel (programmable)	120mm
Quill diameter	110mm
Machine weight	8500kg

Dugard NL200Y, NL300Y - CNC Lathes

Combines all the functions of a machining centre with a CNC lathe to greatly improve downtime, thereby improving productivity

Model shown - Dugard NL200Y

	NL200Y	NL300Y
Max swing over bed	600mm	
Max swing over cross slide	350mm	600mm
Max cutting dia	280mm	460mm
Max cutting length	558mm	548mm
Max bar capacity	65mm	77mm
Chuck size	8"	10"
Spindle nose	A2-6	A2-8
Spindle hole dia	77mm	88mm
Spindle speed	4500rpm	4000rpm
Spindle motor (cont/30min)	11/15kW (P22i)	
Full C axis	0.001 indexing	
Servo bi-directional driven tool turret BMT60	12 station	
Turret index time	0.2 secs	
Spindle speed	4000rpm	6000rpm
Drive motor	2.7kW	
Tool shank	25 x 25mm	
Boring bar size	40mm dia	
Position accuracy	0.005°/0.015°	
X axis travel	260mm	310mm
Z axis travel	600mm	620mm
Y axis travel	± 55mm	
X axis rapid traverse	24m/min	24m/min
Z axis rapid traverse	30m/min	20m/min
Y axis rapid traverse	10m/min	30m/min
Programmable tailstock travel	650mm	
Tailstock rapid traverse	7m/min	
Tailstock taper	MT 4-5	
Machine weight	5700kg	6500kg

Available Controls FS

Standard Features

- Perfect structural design to guarantee machining stability and accuracy
- With the use of C axis and Y axis the machine can perform face milling, helical milling, drilling and tapping functions
- The high torque output feature ensures maximum stability when the C axis is performing dynamic milling functions

Options Include

- Parts catcher
- Manual tool setting probe
- Auto tool setting probe
- Hydraulic chuck - 250mm
- Oil skimmer
- Radial power tooling holder
- Axial power tooling holder
- Sub spindle
- Manual Guide i

Dugard 400L/500L/600L/700L - Slant Bed CNC Lathes

A large bore, long working length, heavy load range of slant bed lathes

Model shown - Dugard 700L

Standard Features

Available Controls F S

- Solid guide ways and 45° slant bed
- Double roller bearings and ball bearing fitted on the spindle
- Powerful 4 stage spindle gear box provides 45kW horsepower (700L)
- Two speed ZF gear box gives high torque and optimum cutting performance (400/500/600L)
- Castings are internally reinforced with heavy ribs to resist flex and damp vibrations

	400L	500L	600L	700L
Max swing	720mm	800mm	900mm	1050mm
Max swing over crosslide	720mm	800mm	900mm	800mm
Max turned dia	600mm	680mm	720mm	940mm
Max turned length	2000 / 3000mm	2000 / 3000 / 4000mm	2000mm	2000mm
X axis travel	350 + 40mm		360 - 40mm	410mm
Z axis travel	2020 / 3020mm	2120 / 3120 / 4120mm	2020 / 3020 / 4020mm	2100 / 3100 / 4100mm
Distance between centres	2120 / 3120mm	2120 / 3120 / 4120mm	2020 / 3020 / 4020mm	2000mm
Spindle nose	ASA A2-8	ASA A2-11	ASA A2-15	ISO A2-15
Spindle speed	25~2000rpm (2 speed programmable gearbox)	25~1500rpm (2 speed programmable gearbox)	1~300rpm / 300~1200rpm (2 speed programmable gearbox)	10~1000rpm
Spindle power	30/37kW Ac (Fanuc)	37/45kW AC		45kW/60hp (Alpha 40/6000)
Chuck size	381mm	457mm	609mm	457mm
Bar capacity	90mm	115mm	152mm	160mm
X / Z axes rapid traverse	12 / 16 m/min		16 / 20 m/min	10 / 12 m/min
Bi-directional turret	10 station		12 station	
Tool shank	32 x 32mm			
Boring bar size	50mm dia			80mm dia
Tailstock with programmable quill MT-5 taper (tow along type)				
Tailstock body travel	1725/2725mm	1725 / 2725 / 3725mm		
Quill travel (programmable)	100mm			
Quill diameter	112mm	145mm		
Machine weight	11,000~17,500kg	14,000~18,000kg	21,000 / 22,000 / 23,000kg	23,000kg

Model shown - Dugard 600L

Options Include

- Automatic bar feeder
- Bar feeder interface
- Work piece sizing device
- Parts catcher
- VDI power turret
- Hydraulic steady rest

Dugard SA Series - Mega Slant Lathes

Available Control F

Standard Features

- 60° slant bed construction ensures maximum stability and convenient chip disposal
- Fast tool change - less than one second
- High precision ball screw
- Bed slideways protected by telescopic guard
- Bed slideways are hardened, precision ground and coated with Turcite-B
- Independant coolant system for spindle stock

Options Include

- C axis / Mill Drill
- Double turret
- Tool presetter
- Sub spindle
- Hydraulic steady rest
- 3 jaw chuck
- Power chuck
- Finger chuck
- Tool holder

	SA-35	SA-40	SA-45
Swing over bed	890mm	1020mm	1145mm
Swing over cross-slide	740mm	870mm	995mm
Max cutting diameter	890mm	1020mm	1145mm
Spindle nose	A2-20	A2-28	A2-32
Spindle speed	12~400rpm	10~350rpm	8~300rpm
Spindle step	Auto 4 step		
Spindle bore	125 / 153 / 230 / 255 / 318 / 360 / 410 / 510 / 610mm		
Rapid traverse (X & Z)	8/10m/min	8/10 m/min	8/10 m/min
Distance between centres	700~5200mm		
No of tool stations	12		
Quill diameter	235mm		
Control	Fanuc 18iT (std)		

Dugard CN Series - Mega Turn Lathes

Featuring 4 bedway design allowing tailstock body to pass saddle

Available Control F

Standard Features

- Designed for heavy duty turning operations
- High quality casting construction assures optimum rigidity and stability
- Tailstock movement is independant from cross-slide
- Head incorporates integral 4 speed gearbox

Options Include

- Double turret
- Steady rest (manual or hydraulic)
- Follow rest
- C axis / Mill Drill
- Double chuck
- Linear scales

	CN-35	CN-40	CN-45	CN-50
Centre height	440mm	505mm	573mm	638mm
Swing over bed	880mm	1010mm	1145mm	1275mm
Swing over cross-slide	400mm	530mm	665mm	795mm
Spindle nose	A2-20	A2-20	A2-28	A2-28
Spindle speed	10~350rpm		8~300rpm	
Spindle bore	125 / 153 / 230 / 255 / 318 / 360 / 410 / 510 / 610mm			
Rapid traverse (X & Z)	6/8 m/min			
Distance between centres	1500~12,000mm			
No of tool stations	12			
Quill diameter	235mm			

Dugard BN Series - Mega Turn Lathes

Available Control

F

Standard Features

- Designed for heavy duty turning operations
- High quality casting construction assures optimum rigidity and stability
- Head incorporates integral 4 speed gearbox

Options Include

- Double turret
- Steady rest (manual or hydraulic)
- Follow rest
- C axis / Mill Drill
- Double chuck
- Linear scales

	BN-45	BN-50	BN-60	BN-70
Centre height	568mm	638mm	764mm	895mm
Swing over bed	1135mm	1275mm	1527mm	1790mm
Swing over cross-slide	710mm	850mm	1102mm	1365mm
Spindle nose	A2-15		A2-20	
Spindle speed	13~600rpm		12~400rpm	
Spindle bore	125 / 153 / 230 / 255 / 318 / 360 / 410 / 510 / 610mm			
Rapid traverse (X & Z)	6/8 m/min			
Distance between centres	1500~12,000mm			
No of tool stations	12			
Quill diameter	235mm			

Dugard LC Series - Mega Turn Lathes

	LC-35	LC-40	LC-45	LC-50
Centre height	440mm	505mm	568mm	638mm
Swing over bed	880mm	1010mm	1135mm	1275mm
Swing over cross-slide	510mm	640mm	765mm	905mm
Spindle nose	A2-11		A2-15	
Spindle speed	18~1000rpm		16~700rpm	
Spindle bore	125 / 153 / 230 / 255 / 318 / 360 / 410 / 510 / 610mm			
Rapid traverse (X & Z)	6/8 m/min			
Distance between centres	1500~12,000mm			
No of tool stations	12			
Quill diameter	235mm			

Available Control

F

Standard Features

- Designed for heavy duty turning operations
- High quality casting construction assures optimum rigidity and stability

Options Include

- Double turret
- Steady rest (manual or hydraulic)
- Follow rest
- C axis / Mill Drill
- Double chuck
- Linear scales

Dugard BNC Range - Multi Function CNC Lathes

Combine the easy to use functions of a manual lathe with the advantages of full CNC production and enjoy the benefits of a relatively low initial outlay

Model shown - Dugard BNC 1860

Standard Features

- Rear mounted 8 station tool turret for automatic tool selection during machining of complex components
- Rigidly designed headstock, balanced for high speed running, incorporating an automatic speed change system
- The large rigid tailstock is idea for supporting heavy components and has no interference issues
- Fully guarded ball screws, extra wide double box way bed design for high rapid traverse and the capability to carry heavier work loads.
- Machine is equipped with an extra front mounted manual quick change tool post for accurate location of turning tools

	1800 Series	2200 Series	2600 Series	3000 Series	3500 Series	4000 Series
Max swing over bed	475mm	550mm	650mm	760mm	890mm	1025mm
Max swing over cross-slide	240mm	310mm	410mm	420mm	550mm	676mm
Max swing in gap	710mm	790mm	890mm	1020mm	1150mm	1276mm
X axis travel	260mm	300mm		455mm		535mm
Z axis travel	1150/1650mm	1150/1650/2150/3150/4150mm		1200~6200mm		
Spindle nose	D1-6	A2-8		A1-11		
Spindle bore	65mm	82mm		106mm (std)		
Chuck size	200mm	254mm		305~406mm		
Spindle speeds	10~4500rpm	80~2500rpm		15~1480rpm (106/153mm bore), 10~650rpm (250mm bore), 10~500rpm (355mm bore)		
Spindle power	7.5/11kW	11/15.5kW AC		22/33kW		
X / Z axes rapid traverse	15/15 m/min			10 / 12 m/min		
Front tool post	Quick change					
Rear mounted bi-directional turret	8 station					
Tool shank	25 x 25mm					
Boring bar size	40mm dia					
Net weight	2550~3150kg	4900kg		9000~14,000kg	9500~14,500kg	10,000~15,000kg

The big bore option provides larger bar capacity, especially suitable for the oil industry

Available Controls FS

Options Include

- Steady rest
- Follow rest
- Renishaw tool setting probe
- 3 jaw chuck (hydraulic or manual)
- Electronic 4-way tool post
- Auto VDI turret
- Hydraulic tailstock
- C axis and power turret
- Boring bar/drill holder block
- Chip conveyor and wash down device
- Portable MPG

Model shown - Dugard BNC 4040

Dugard HBM-110T / HBM-130T - Horizontal Borers

Stable and rigid structure with cutting edge technology

Model shown - Dugard HBM-130T

Available Controls FHS

Standard Features

- Superbly designed large machine column with extra large slideways (1200mm) offering optimum structural rigidity
- Stress relieved Meehanite casting ensures a deformation free structure
- Hardened and ground box guideways for optimum support and accuracy and the best damping effect
- Box structure strengthened with inner ribs so axes travel for the entire machine is fully supported, eliminating overhang and distortion

Options Include

- Rotary encoder
- Automatic pallet changer
- Work piece probe
- Tool presetter
- Manual 90° milling head
- Manual extension milling head
- Manual universal milling head
- Manual 90° extension milling head
- 40/60/80/120 tool magazine

	HBM-110T	HBM-130T
X axis travel	2000mm (2500/3000mm opt)	2500mm (3000~5500mm opt)
Y axis travel	1500mm (1800mm opt)	1800mm (2200~3400mm opt)
Z axis travel	1250mm	1250mm (1600/2000mm opt)
W axis travel	500mm	700mm
Distance between spindle centre to table centre	min 0 ~ max Y travel	Y axis travel
Distance between spindle nose to table centre	min 100 ~ max W + Z travel	
Working area of table	1200 x 1400mm	1800 x 1800mm
Max table loading weight	5000kg	15,000kg (20,000kg opt)
Table index (std)	0.001°	Continuous 0.001°
Spindle taper	ISO 50	
Spindle speed	35~3000rpm	3000rpm
Spindle motor (cont/30min)	22/26kW	37/45kW
Spindle step	2 steps (auto)	
Qill dia (W axis)	110mm	130mm
Spindle bearing I/D	150/226mm	170/260mm
X / Y / Z axes rapid feed	10,000mm/min	16,000mm/min
X / Y / Z / W cutting feed rates	1~4000 mm/min	
Optional ATC	60 station (80/120 opt)	
Max tool dia	125/250mm	
Max tool length	400mm	
Max tool weight	25kg	
Machine weight	22,500kg	40,000kg

Dugard MH500 / MH630 / MH800 Horizontal Machining Centres

A new level of performance and productivity

Available Control F

Standard Features

- The structural parts are manufactured from Meehanite cast iron
- One piece constructed base and saddle giving exceptional rigidity and stabilty
- Heavy duty linear ways on all 3 axes
- Standard 60 tool chain type magazine, servo driven for high speed tool selection and precise tool positioning

Model shown - Dugard MH500

	MH500	MH630	MH800
X axis traverse	610mm	1000mm	1000mm
Y axis traverse	510mm	800mm	800mm
Z axis traverse	610mm	750mm	750mm
Twin pallet system			
Pallet size	500 x 500mm	630 x 630mm	800 x 800mm
Table indexing	1°		
Max pallet load	450kg	1200kg	
Pallet change time	7~8 secs	18 secs	
Index repeatability	± 4"		
Spindle speed range	80~10,000rpm	45~4500rpm	
Spindle power	15kW (Fanuc)	15/18kW (Fanuc)	
3 speed gearbox			
Spindle nose to table centre	30~540mm	200~950mm	
Spindle centre line to table surface	140~750mm	50~850mm	
Spindle taper	BT40 (opt CAT flange)	BT50 (opt CAT flange)	
Max feed rate	1~8000mm/min	1~5000mm/min	
X / Y / Z raped traverse rates	32m/min	20m/min	
Bi-directional auto tool changer	60 station		
Max tool dia	76mm	140mm	
Max tool length	300mm	450mm	
Max tool weight	8kg	20kg	
Tool change time chip to chip	3 secs	8 secs	
Positioning	± 0.004		
Repeatability	± 0.003		
Machine weight	9230kg	17,200kg	19,410kg

Model shown - Dugard MH800

Options Include

- 80 tool magazine capacity (MH630/800)
- Fanuc 18i-MB
- Oil hole tool holder
- Rotary table 0.001° (MH630/800)
- Automatic tool length measurement
- Automatic workpiece measurement

Dugard 3 Axis Bridge Type Machining Centres

Large capacity and ease of operation with powerful cutting capacity

Model shown - Dugard 2011

Available Controls FHS

Standard Features

- X travel from 1,600 to 6,200mm
- Y travel from 1,100 to 3,900mm
- Linear or boxway configuration
- Heavy duty or high speed spindles
- Fanuc, Siemens or Heidenhain controls
- Fully enclosed splash guard
- Screw type chip conveyor
- M code air blower
- Manual pulse generator
- RS232 interface
- Full coolant specification

	Dugard Bridge Mills
X axis travel	1600~5200mm
Y axis travel	1100~2900mm
Z axis travel	760~1000mm
Table sizes	up to 5000 x 2700mm
Table load capacity	up to 20,000kg
ATC	16~60 station
Max tool weight	18/20kg
Tool change time (T-T)	approx 8 (4.5) sec
Spindle power	25, 30 or 35HP
Spindle speeds	4, 6, 8, 10,000rpm
Machine size	up to 13,800 x 6700mm
Machine weight	up to 4830kg

Options Include

- Auxilary table
- Nc (rotary table, index table)
- 16, 20, 32, 40, 60 ATC magazine capacity
- Tool presetter
- Auto tool length diameter measurement
- Auto touch probe system
- Linear scale feedback
- Coolant through spindle system
- Coolant nozzle angle remote control
- Manual 45°, 90° angle head, universal head, extension head
- Spindle thermal compensation
- Available with different spindle spec and rpm

Dugard XP Series High Speed Bridge Type Machining Centres

The perfect machines for all mult-axis contouring applications

Model shown - Dugard XP1600

Available Controls FH

Standard Features

- The structural parts of the machines are designed with Finite Element Analysis and reinforced rib construction, all castings are stress relieved
- The 3 axes are driven by absolute encoder positioning motors (XP700~XP1600)
- All 3 axes employ heavy duty roller type linear ways. This features higher rigidity and lower wear, resulting in dynamic machining accuracy and increased machine durability

	XP700	XP1000	XP1300	XP1600
X axis travel	700mm	1020mm	900mm	1600mm
Y axis travel	600mm	700mm	1300mm	1300mm
Z axis travel	500mm	500mm	700mm	700mm
Spindle nose to table	150~650mm	180~680mm	200~900mm	200~900mm
Table size	810 x 620mm	1050 x 700mm	1400 x 900mm	1900 x 1300mm
Load capacity	500kg	800kg	3500kg	8000kg
Spindle speed	16,000~36,000rpm (built in)/ 6000~10,000rpm (direct)		10,000~24,000prm	6000~15,000rpm
Rapid traverse (X/Y/Z)	32 m/min		30 m/min	
ATC capacity	12~30		20, 30, 48	20, 32
Machine size	2200 x 2800 x 2650mm	2700 x 3000 x 2960mm	3500 x 3500 x 3700mm	3500 x 4300 x 3700mm
Machine weight	7000kg	9100kg	18,000kg	22,000kg

- T-shaped base with maximum rigidity assures outstanding machine stability when performing heavy cutting (XP200~XP3200)
- Optional 90 tool chain type magazine (XP2200~XP3200) driven by a servo motor for high speed tool selection and precise tool positioning

Model shown - Dugard XP3200

	XP2200S	XP2200T	XP3200T	XP3200T
X axis travel	2200mm	2200mm	3200mm	3200mm
Y axis travel	1650mm	2250mm	1650mm	2250mm
Z axis travel	800mm	800mm	800mm	800mm
Spindle nose to table	250~1050mm	250~1050mm	250~1050mm	250~1050mm
Table size	2400 x 1600mm	2400 x 2100mm	3320 x 1600mm	3320 x 2100mm
Load capacity	10,000kg		12,000kg	
Spindle speed	16,000~24,000rpm (built in) / 6000~15,000rpm (direct) / 6000/8000rpm (gear)			
Rapid traverse (X/Y/Z)	20/20/20 m/min	20/16/20 m/min	20/16/20 m/min	16/16/20 m/min
ATC capcity	20~120			
Machine size	4000 x 6000 x 3900mm	4600 x 6000 x 3900mm	4000 x 8000 x 3900mm	4600 x 8000 x 3900mm
Machine weight	27,000kg	31,000kg	33,000kg	37,000kg

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V9 - 2012