

DUGARD

Machine Tools That Create Solutions Since 1939

DUGARD
CNC Lathes

Dugard i-42 Ultimate Multi Axis CNC Turning Centres

Twin spindle, twin turret and B axis options



Turning concept revolution

Feature

- Flexible gantry type tooling system
- Mitsubishi M700 high end controller
- Synchronous spindles
- 24 live tools with powerful motors
- Dual programmes for cycle time saving
- Continuous contouring B axis 360° allowing compound angle milling, drilling and tapping

Highlight

- Flexible DUO system simultaneous programming with full synchronisation
- Integrated spindle drives with 6000rpm for the main and sub spindles
- Giving cycle time savings of up to 45%
- Continuous contouring B axis – allowing compound angle milling, drilling and tapping
- 49 tools (max: 56 tools – option) to cover a large variety of applications

Twin Spindle Superimposed Simultaneous Machining

allowing two operations at once gives superb cycle time reduction

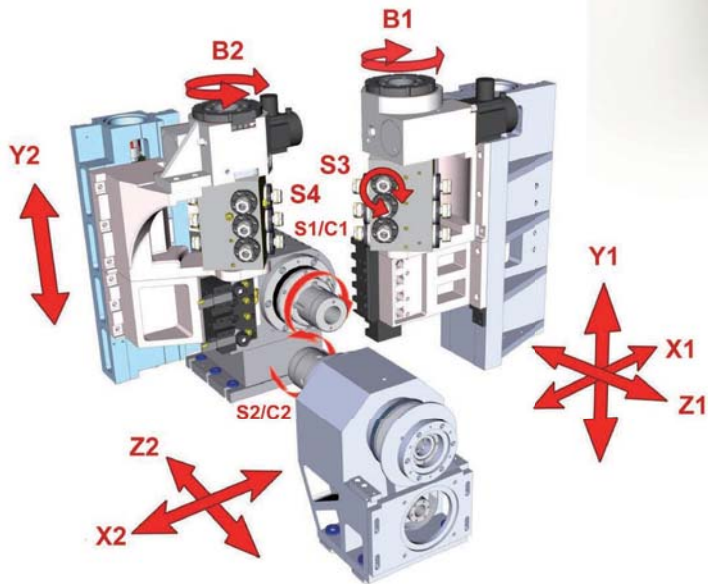


i-42 Ultimate

Flexible **duo** system simultaneous machining means that up to **45%** can be saved on the cycle time

2 programmes running simultaneously with flexible gantry tools for main and sub spindles, and C axis operations, so milling and turning applications can be carried out at the same time.

These machines are ideal for producing complicated or simple parts in large quantities



Enhanced creativity gives high performance with new generation technology

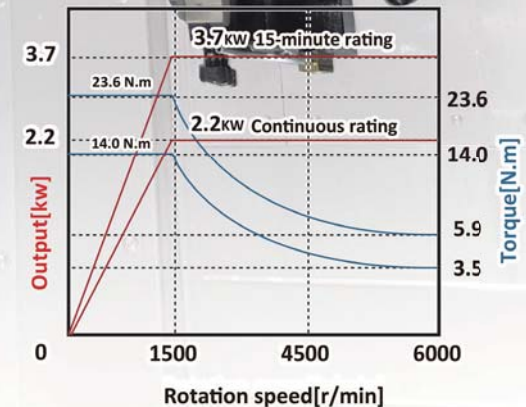
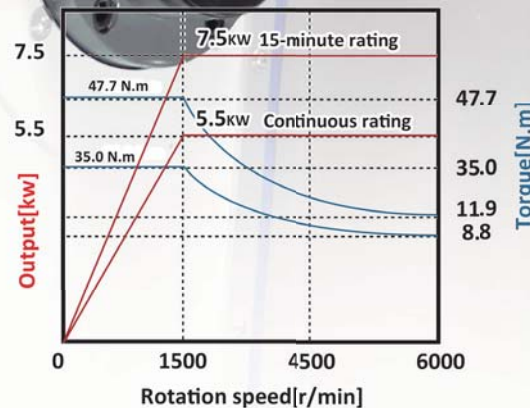
The cartridge type spindle runs on P4 high precision bearings giving high radial and axial stability allowing heavy duty cutting with precision. The spindles are assembled and tested in a temperature controlled clean room and sealed - requiring no further maintenance

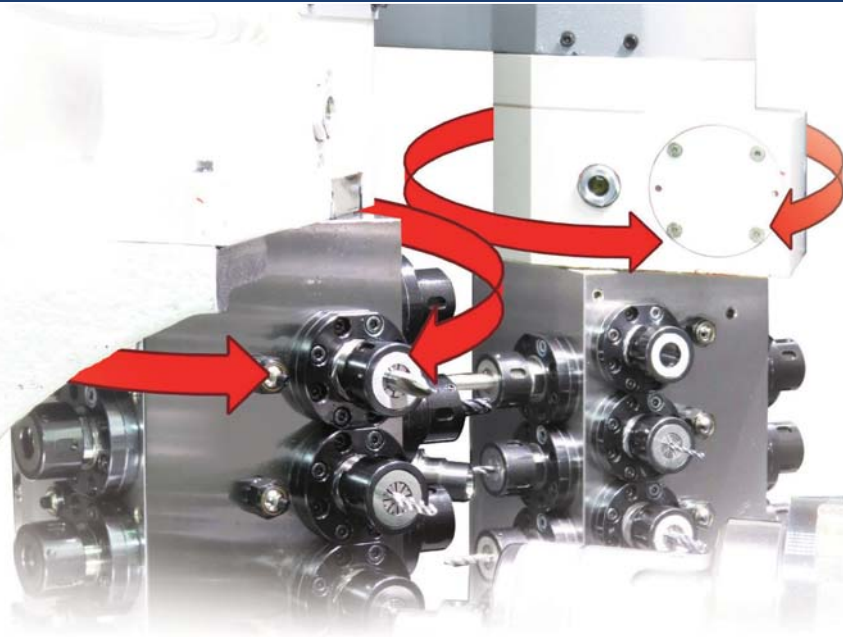
The spindle housing is robust and symmetrically ribbed to allow efficient heat dissipation and thermal stability



Mitsubishi AC Servo 3.7kW
A2-5 sub spindle with 32mm bore

Mitsubishi AC Servo 7.5kW
A2-6 spindle with 44mm bore

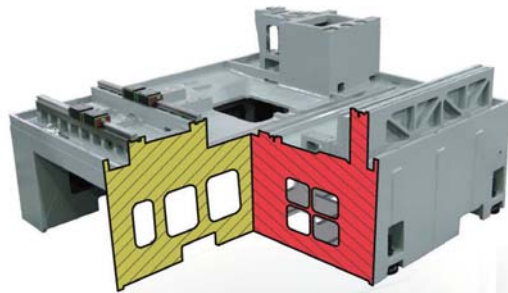
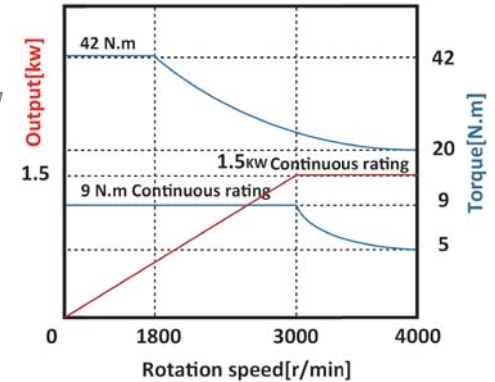




B Axis continuous contouring motion allows full compound angle positioning for milling, drilling and tapping

24 live tools with 1.5kW

The milling head has 24 motorised tools with 360° continuous motion giving great flexibility to tool arrangement and significantly improves productivity for all batch sizes



Robust FC35 Meehanite castings

Case hardened to over HRB190 and tempered to relieve stresses for maximum stability



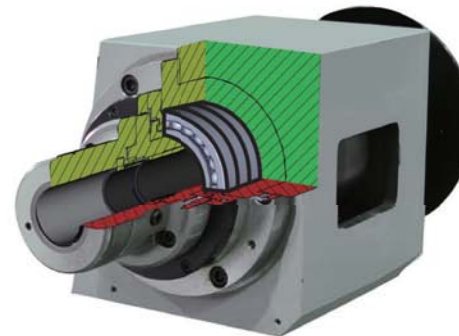
HIWIN 35mm guideways with C3 class ballscrews

C3 class hardened and precise ground ballscrews ensure the highest precision and speed of operation



Simple visual monitoring

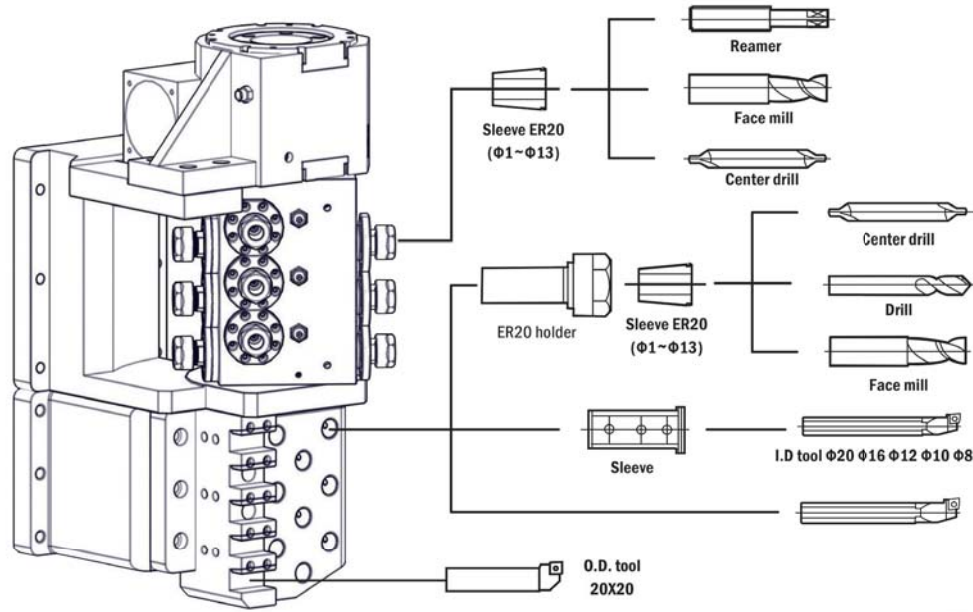
Transparent inspection panels for lubrication and solenoid status checking



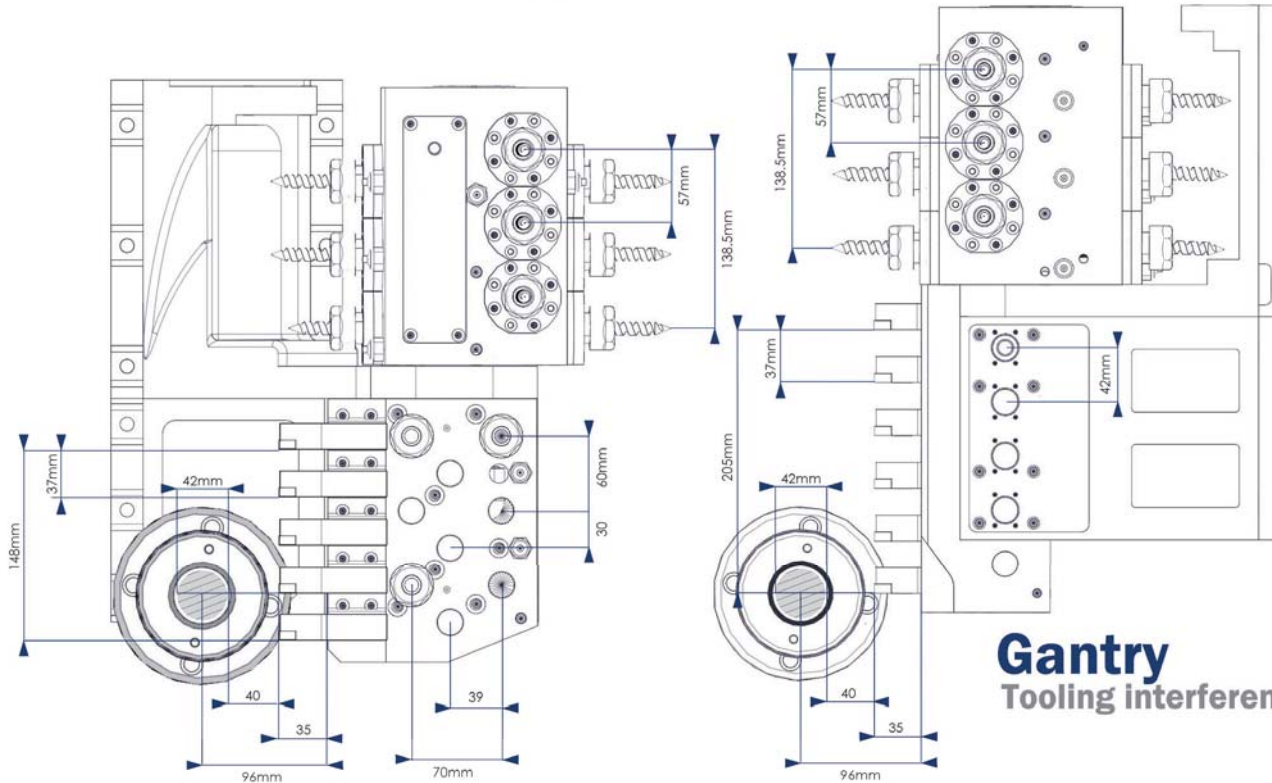
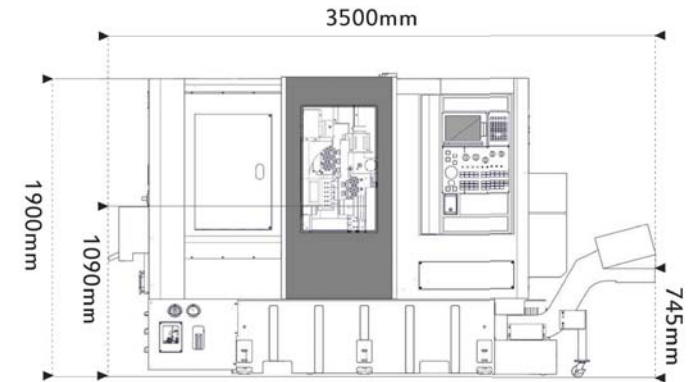
P4 class preload spindle bearings

High precision angular contact preloaded bearings are used for maximum performance and accuracy

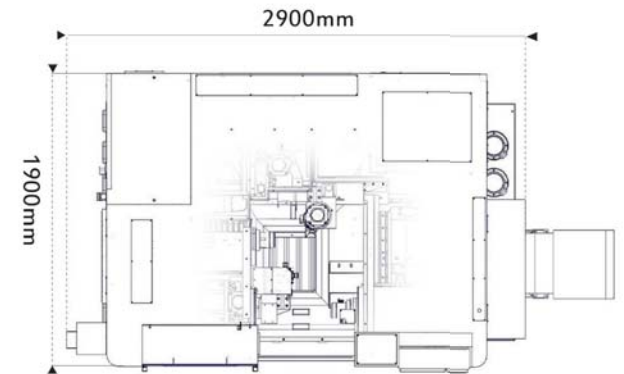
Gantry Tooling system



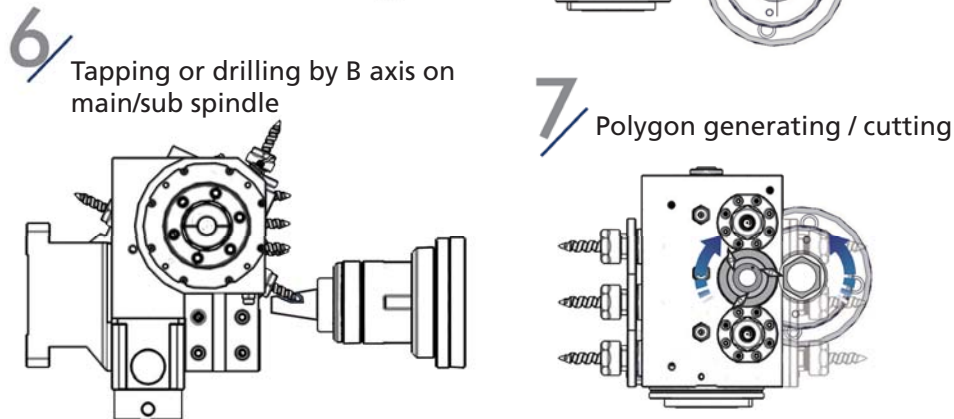
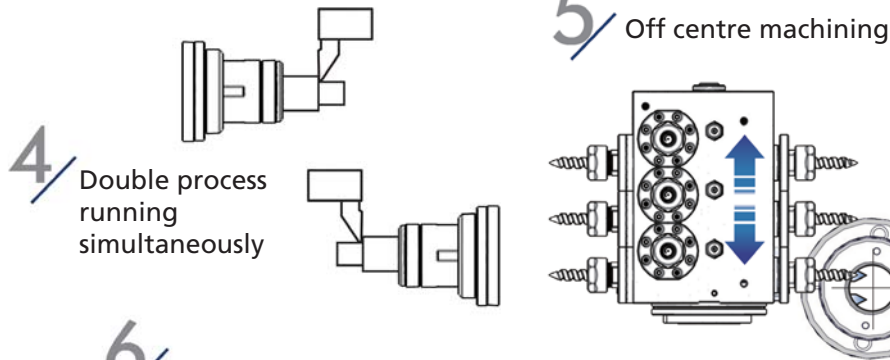
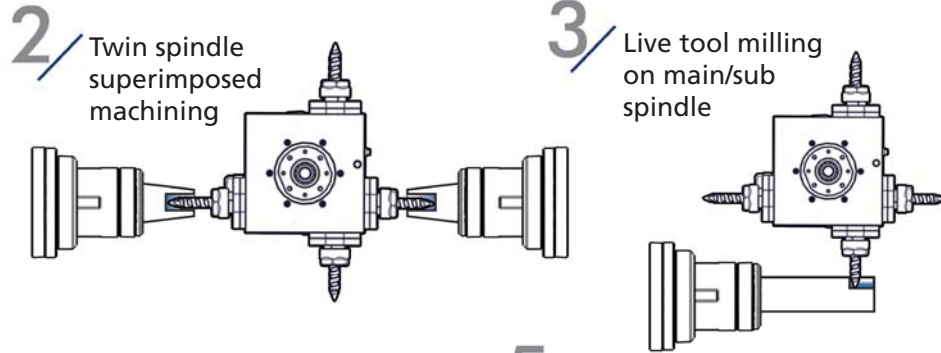
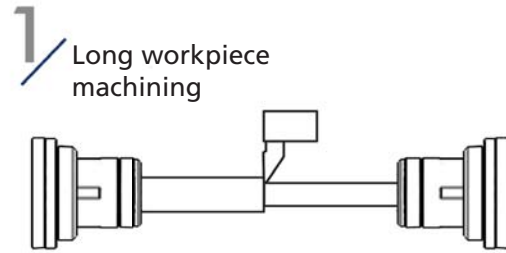
External view



Gantry Tooling interference



Machining applications



i-42 Ultimate Specification

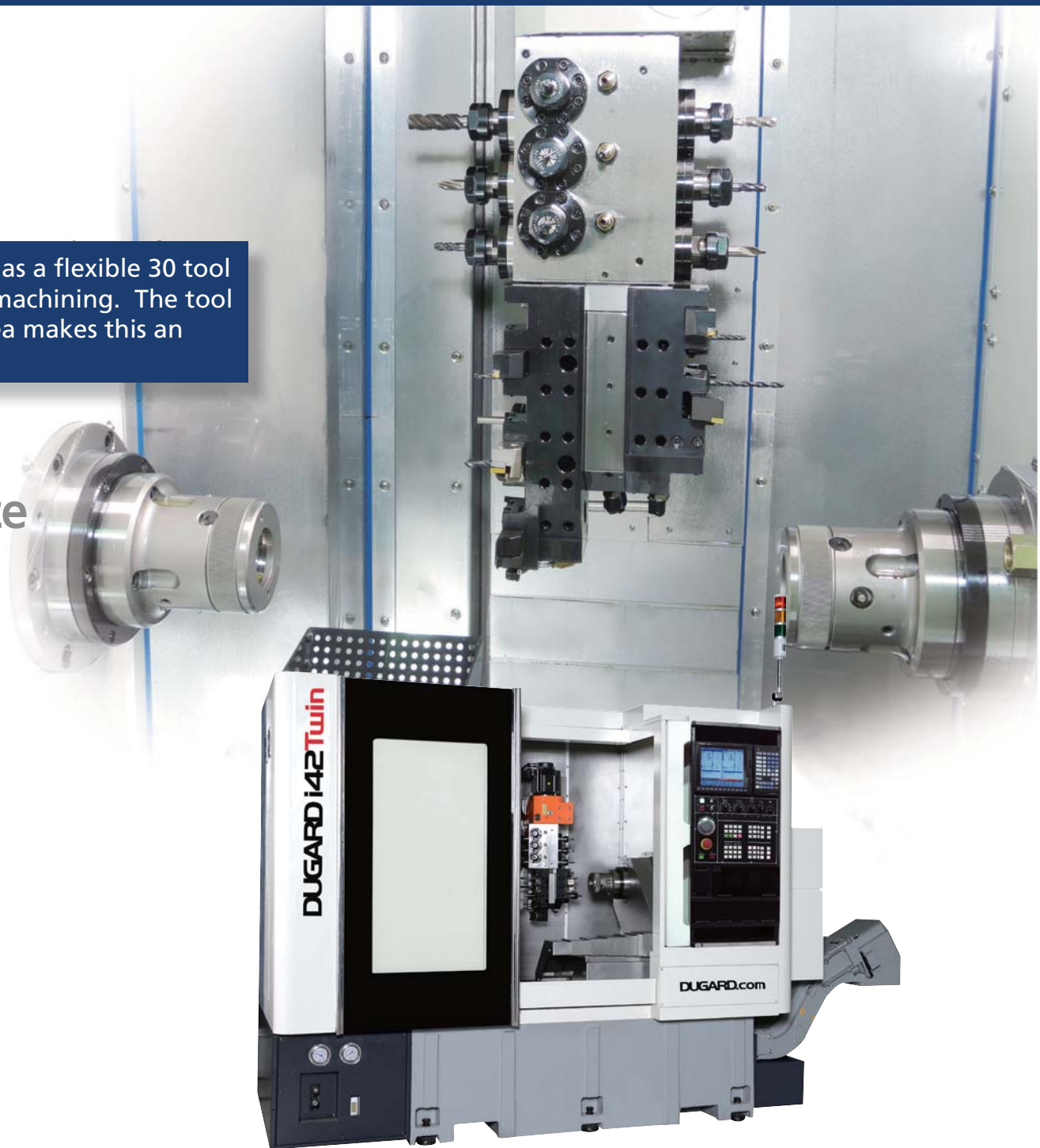
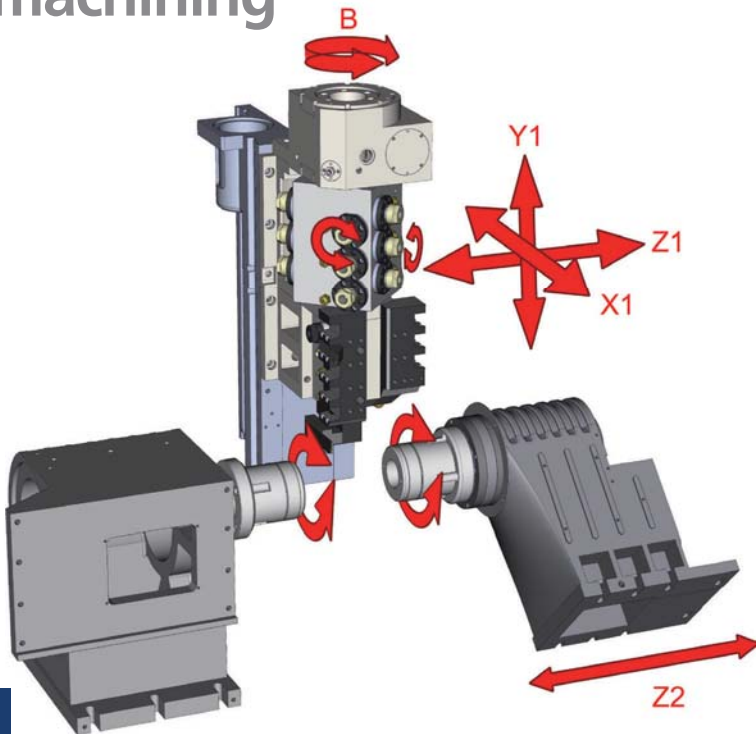
CNC multi-tasking turning center with sub spindle & B axis

Mitsubishi Controller		M720
Spindle Capacity	Max. Bar Working Dia	42.0mm (60.0mm)
	Spindle Max. Turning Length.	250.0mm
	Spindle Collet Chuck Type	KK5-173E42B (KK6-185E60B)
	Spindle Nose	ISO(DIN) A2-5 / A2-6
	Spindle Bore	44.0 (62.0mm)
Sub-Spindle Capacity	Max. Bar Working Dia	42.0mm
	Max. Turning Length.	100.0mm
	Collet Chuck Type	KK5-173E42B
	Nose	ISO(DIN) A2-5
	Bore	32.0mm
C Axis	Speed Range	4000rpm / (6000rpm)
	Positioning Accuracy	0.001°
Travel & Feed	X1 / Y1 / Z1 axis Travel	150.0 / 385.0 / 250.0mm
	X2 / Y2 / Z2axis Travel	450.0 / 385.0 / 300.0mm
A.T.C System	OD / ID Tools Main Spindle (1st)	6 / 5
	OD / ID Tools Sub Spindle (2nd)	5 / 9
	Tool Shank Size	20.0mm
Motorized Tool	Boring Bar (main)	ER-20 / 20.0mm
	Boring Bar (sub)	ER-20 / 20.0mm
	Index Time	0.3sec(one) / 0.6(full)
	Number of motorized tools	First rack 12 tools / Second rack 12 tools
	B axis	360°
	Speed	4000rpm(Max.)
	Size	ER-20
Mitsubishi Motor	Max. Drilling Dia.	12.0mm
	Max. Tapping capacity	M10xP1.5
Hydraulic System	Main-spindle	AC Spindle 7.5kw (11.0kw)
	Sub-spindle	AC Spindle 3.7kw
	X1 / Y1 / Z1 / X2 / Y2 / Z2 axis	AC Servo 1.5kw
Lubrication	Motorized Tool	AC Servo 1.5kw
	Hydraulic Motor / Tank Capacity	1HP / 75L
Coolant System	Max. Pressure	50kg / cm ²
	Lubricant Motor / Tank Capacity	25W / 2 Liter
Machine Size	Max. Pressure	15kg / cm ²
	Coolant Motor Type	max.pressure : 5bar flow : 75L / min
	Hydraulic Motor Type	max.pressure : 25bar flow : 30L / min
Machine Size	Coolant Tank Capacity	240L
	Length / Width / Height	3500(2900) / 1900 / 1900mm
	Weight	4200kg

i-42 Twin

Integrated driven tools and a powerful B axis as well as a flexible 30 tool tooling system gives you simultaneous and efficient machining. The tool arrangement combined with a generous working area makes this an outstanding all purpose machine

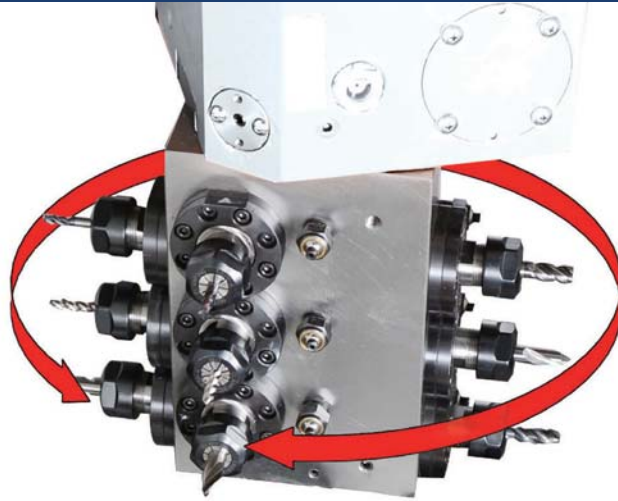
Cost effective and highly productive complex workpiece machining



Continuous Motion Motorised Tools

B Axis

This milling head has 12 motorised tools with 360° continuous motion to give even greater flexibility. The innovative tool arrangement significantly increases productivity for small and medium lot sizes



Tooling System

The flexible tooling system comes with 9 external tools, 9 internal tools and 12 live tools. The unique tooling system can be changed easily, saving time during set up and tool change for tool wear adjustments. This gives superb versatility and allows complex components to be finished completely in one operation



Roller Guideways

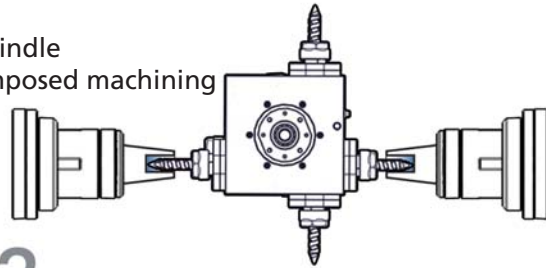
The machine is equipped with high precision HIWIN roller guideways. 35mm rails are used throughout the machine to increase stability and accuracy, allowing heavier cuts to be achieved with reduced vibration. All axes are equipped with digital drives that deliver feed velocities of 30m/min



Machining applications

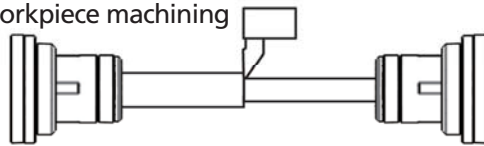
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Twin spindle superimposed machining



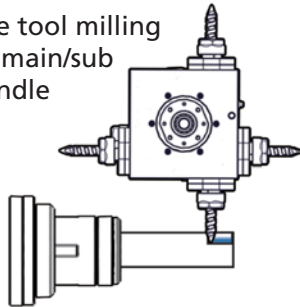
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Long workpiece machining



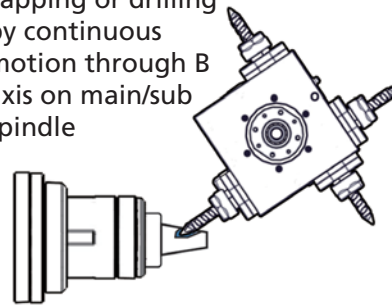
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Live tool milling on main/sub spindle



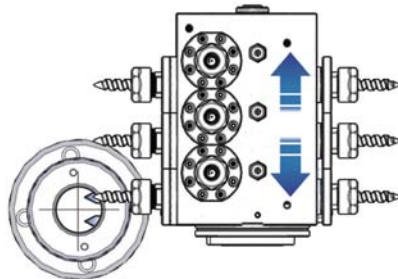
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Tapping or drilling by continuous motion through B axis on main/sub spindle



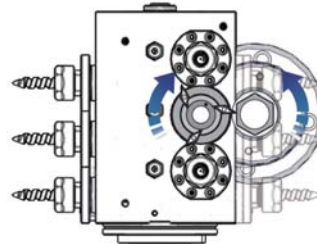
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Off centre machining



6/

Polygon generating / cutting



i-42 Twin Specification

CNC multi-tasking turning center with sub spindle & B axis

Mitsubishi Controller		M70	
Spindle Capacity	Max. Bar Working Dia	42.0mm (60.0mm)	
	Spindle Max. Turning Length.	300.0mm	
	Spindle Collet Chuck Type	KK5-173E42B(KK6-185E60B)	
	Spindle Nose	ISO(DIN) A2-5 / A2-6	
	Spindle Bore	44.0(62.0mm)	
Sub-Spindle Capacity	Spindle Speed Range	4000rpm (6000rpm)	
	Max. Turning Dia.	100.0mm	
	Max. Bar Working Dia	42.0mm	
	Max. Turning Length.	155.0mm	
	Collet Chuck Type	KK5-173E42B	
C Axis	Nose	ISO(DIN) A2-5	
	Bore	32.0mm	
	Speed Range	4000rpm (6000rpm)	
Travel & Feed	Positioning Accuracy	0.001°	
	X1 / Y1 / Z1 axis Travel	150.0 / 415.0 / 300.0mm	
	Z2 axis Travel	450.0mm	
A.T.C System	OD / ID Tools Main Spindle (1st)	6 / 5	
	OD / ID Tools Sub Spindle (2nd)	3 / 4	
	Tool Shank Size	20.0mm	
	Boring Bar (main)	ER-20 / 20.0mm	
Motorized Tool	Boring Bar (sub)	ER-20 / 20.0mm	
	Index Time	0.3sec(one) / 0.6(full)	
	Number of motorized tools	12 tools	
	B axis	360°	
	Speed	4000rpm(Max.)	
	Size	ER-20	
	Max. Drilling Dia.	12.0mm	
	Max. Tapping capacity	M10xP1.5	
	Mitsubishi Motor	Main-spindle	AC Spindle 7.5kw(11.0kw)
		Sub-spindle	AC Spindle 3.7kw
X1 / Y1 / Z1 axis spindle		AC Servo 1.5kw	
Z2 axis		AC Servo 1.5kw	
Hydraulic System	Motorized Tool	AC Servo 1.5kw	
	Hydraulic Motor / Tank Capacity	1HP / 50L	
Lubrication	Max. Pressure	50kg / cm ²	
	Lubricant Motor / Tank Capacity	25W / 2 Liter	
Coolant System	Max. Pressure	15kg / cm ²	
	Coolant Motor Type	max.pressure : 5bar flow : 75L / min	
	Hydraulic Motor Type	max.pressure : 25bar flow : 30L / min	
Machine Size	Coolant Tank Capacity	240L	
	Length / Width / Height	3500(2900) / 1800 / 1900mm	
	Weight	3800kg	

DUGARD Machine Tools

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