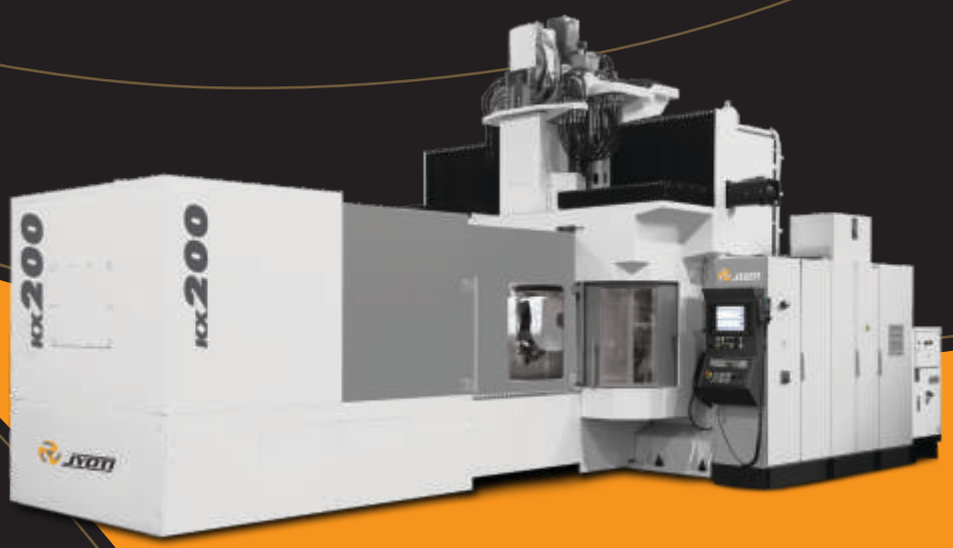
KX Large Series

5-Axis High Speed Double Column Vertical Machining Centers



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KX Large Series

5-Axis High Speed Double Column Vertical Machining Center

OVERVIEW

A range of very High Performance 5 axis double column Machining Centers for machining of complex parts.

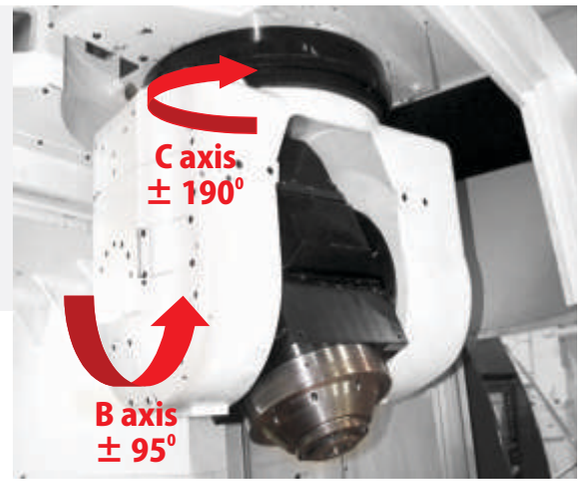
- The choice of portal architecture equipped with forked Milling Head with 2 Rotational Axis, rigidity of structure, dynamic of motors and drives, CNC algorithm of the numerical controller, allows high cutting speeds, high federates, high acceleration and jerk. Optical measuring scales contribute to reach high precision.
- High performances in roughing as well as in finishing.
- High accuracy performance in positioning and in 3D contouring.
- Excellent machines for tooling production areas (moulds & dies), aeronautical parts production and precision engineering components.

KX 50 M/L

ROTARY AXIS

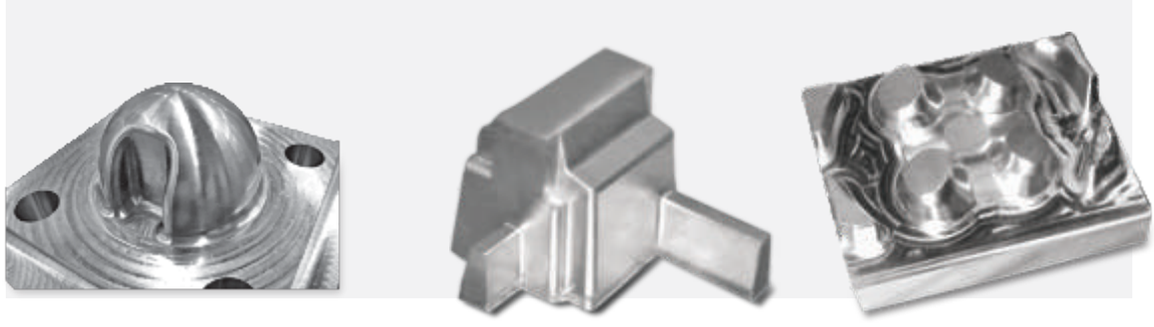
- For KX Large Series B & C Axis are equipped with angular encoder directly mounted and offer high positioning accuracy. Both the axis have direct driven high torque motors designed specially by Jyoti Huron to synchronize with all linear axis movements for overall excellent results.

  This motorization offers the advantages of continuous high speed, high accelerations, high stiffness, no backlash and no wear. The strong clamping and working torque allows machining with high torque for roughing. It also allows machining at high speed into 4 & 5 simultaneous axis.



STRUCTURE

- Architecture, structure and the materials used are optimized to reach an excellent dynamic behaviour in order to be able to absorb the pulsed cutting forces and those induced by accelerations of moving bodies. We thus obtain a great stability and an excellent behaviour during the machining which results in an optimized cut, a great fidelity for the execution of contours and the forms on all types of materials also increasing cutting tool life.
- Modular machine which adapts with facility to the technical requirements of the customer for an increased productivity.
- Structure with fixed gantry attenuate the torsional stresses, comfortable dimensioning of the static parts and bases of machines. Dynamic parts are made out of spheroid cast iron.
- Temperature sensors (bench, bearings, spindle) make it possible to control and correct the thermal deformations.



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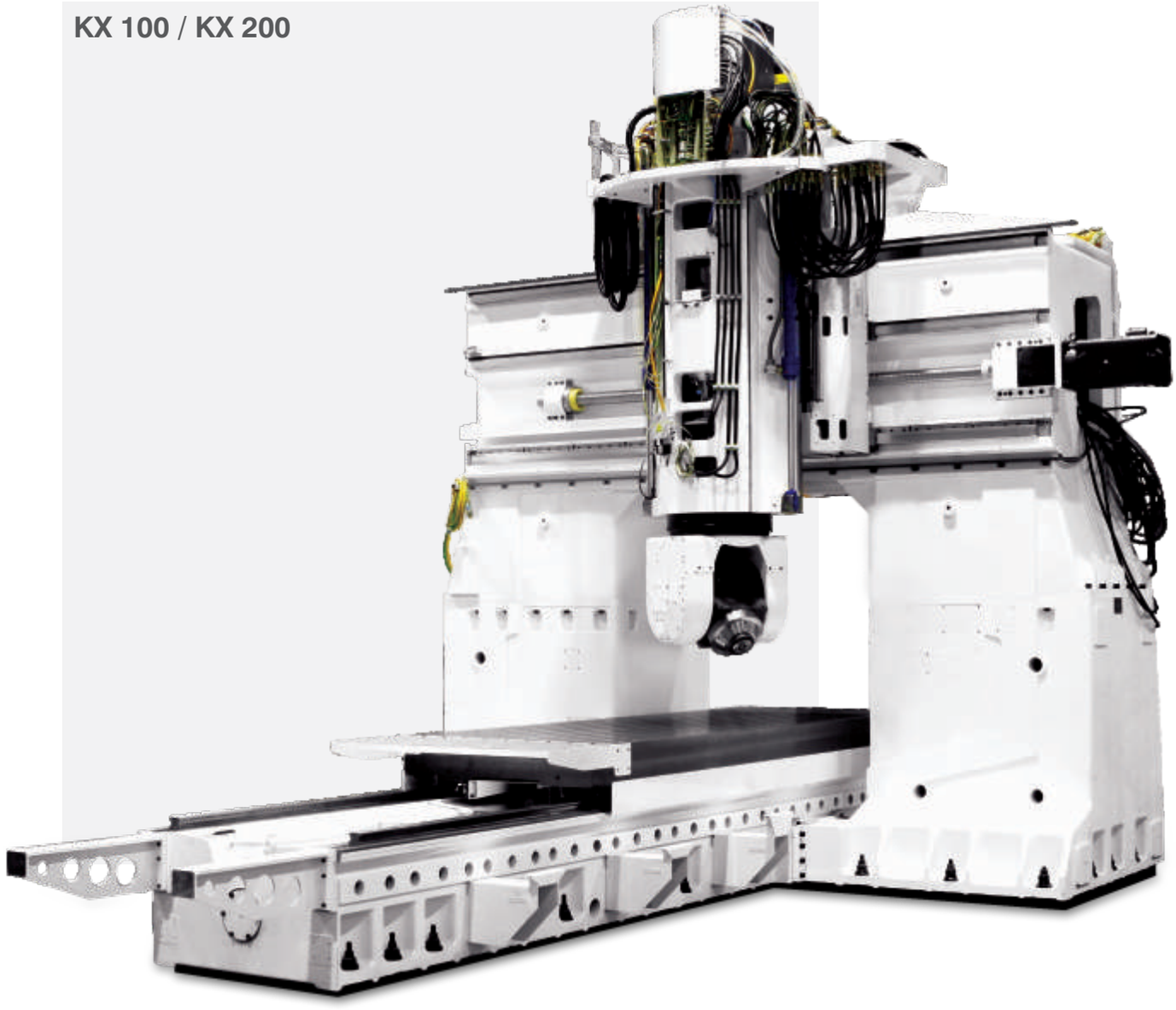
STANDARD ELECTRO SPINDLE

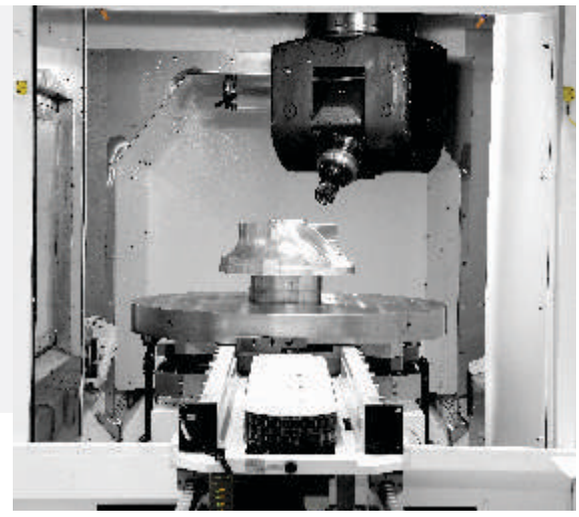
KX Large series machine are equipped with High Speed 20000 rpm for KX 50, 18000 rpm for KX 100 and KX 200 and high power Electro Spindle as standard. Such a configuration along with synchronization with dynamic parameter capability of machine enables perfect high speed cutting parameters even for complex shaped components with deep cavity workpieces.

Machine can be equipped with several types of spindle in adequacy with the type of application. They offer all a good compromise between power and torque. Accurate HSK attachment is adapted perfectly to the HSM. Positioning and axial / radial stiffness of the tool are guaranteed whatever the efforts on the tool. Machining will be done in full safety condition thanks to the vibration monitoring.

KX 100 / KX 200



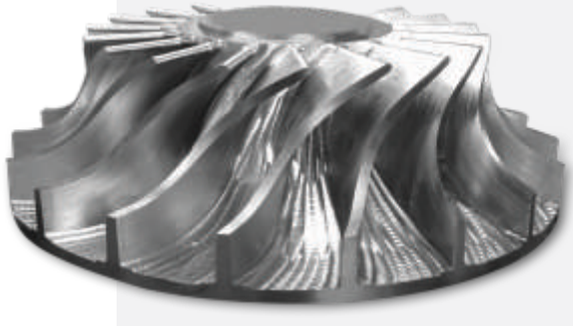
LINEAR AXIS



- Milling center with numerical controller, in 5 axis, with fixed gantry
- X axis : It is as a moving table with wider spacing around both columns for giving a wider working envelope permitting lager parts to be machined and a wider range of tool lengths to be used in same set-up.
- Y axis : It is mounted on a traverse supporting the moving saddle.
- Z axis : equipped with orientable milling head with 2 orthogonal rotation axes and an electro spindle. The state-of-art design of Z-Axis enables the cutting tool to work on higher parameters of machining even with harder materials with High Speed machining
- Moving elements : slide, saddle, bed and table in cast iron
- Linear guideways with recirculating roller bearings enable feedrates up to 40 m/mn
- Servo-systems : the linear axis are driven by AC motors directly coupled on the end of the precision-ballscrew.

OTHER SALIENT FEATURES

- Chip removal by flush coolant.
- ATC is placed out of working area and is thus protected from clogging due to dust of machining. The tools can be loaded during machining.
- Integral guarding with a large accessibility by the roof and the side allowing an easy positioning of the workpiece. Large opening of door for loading with crane.



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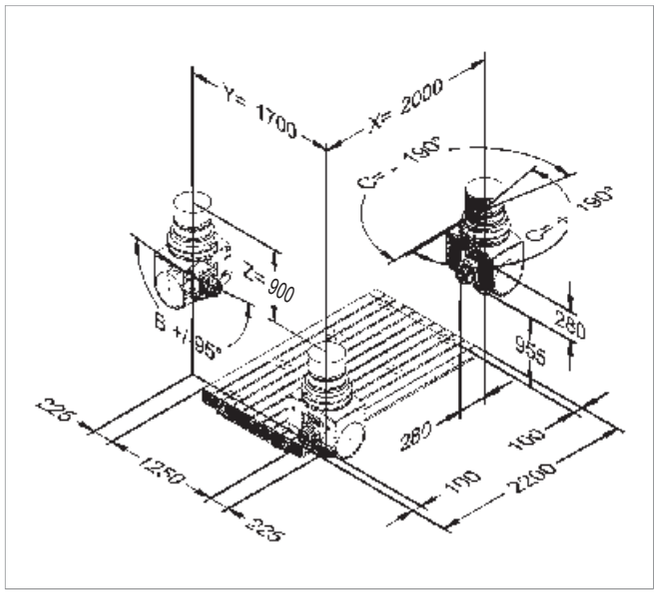
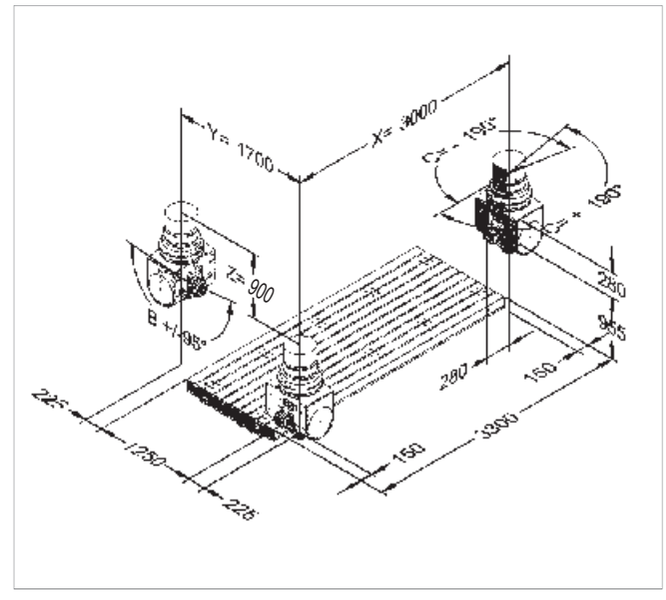
INTERFERENCE DIAGRAM

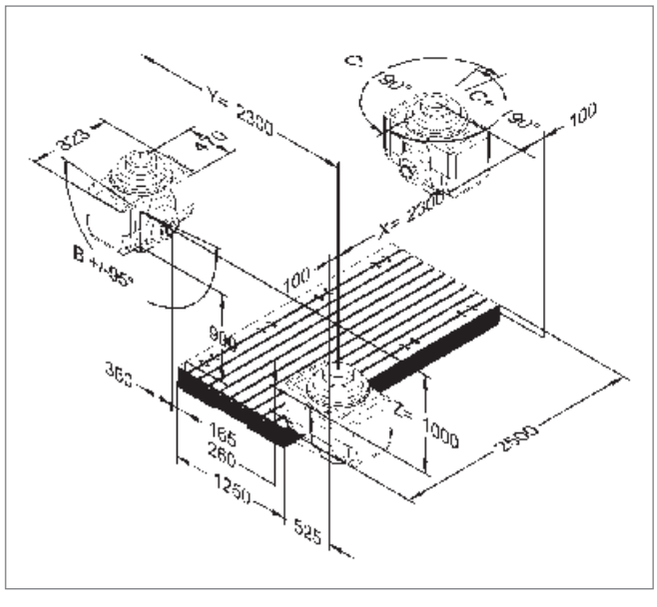
KX 50 M



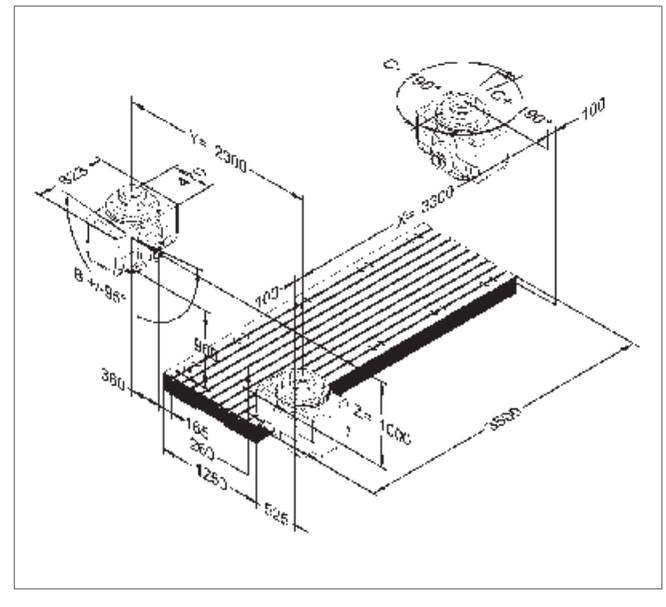
KX 50L



KX 100



KX 200



TECHNICAL FEATURES

Linear Axis X / Y / Z		KX 50 M	KX 50 L	KX 100	KX 200	KX 300
Travels	mm	2000 / 1700 / 900	3000 / 1700 / 900	2300 / 2300 / 1000	3300 / 2300 / 1000	5000 / 3100 / 1500
Rapid Feedrates X / Y / Z	m/min	40	40	40	X = 25 - Y/Z = 40	20
Acceleration on Axis X Y Z	m/s^2	4	4 4 (* : Weight on table limited) 2.4 (**)	4	4	1.9 2 2
Vectorial Acceleration	m/s^2	7	7/6.2(**)	7	7	3.5
Head / Rotating Axis B – C						
B Axis	Deg.	$\pm 95^0$	$\pm 95^0$	$\pm 95^0$	$\pm 95^0$	$\pm 95^0$
C Axis	Deg.	$\pm 190^0$	$\pm 190^0$	$\pm 190^0$	$\pm 190^0$	$\pm 190^0$
Rotation	rpm	100	100	30	30	30
Acceleration on Axis	rd/s^2	12	12	6	6	6
Table						
Dimension : Lenght x Width	mm	2200 x 1250	3300 x 1250	2500 x 1250	3500 x 1250	5200 x 2000
Admissible Load	kg	4000	2500 (*) 6000 (** : Acceleration limited)	6000	9000	13000
Quantity of Slots		9	9	9	9	15
Slot : Reference / Others	mm	18H7 / 18H12	18H7 / 18H12	22H8 / 22H12	22H8 / 22H12	22H8 / 22H12
Distance Between Slots	mm	125	125	125	125	125
Spindle						
Speed	rpm	20000	20000	18000	18000	18000
Taper		HSK 63A	HSK 63A	HSK 63A	HSK 63A	HSK 63A
Power S6 / S1	kW	75 / 60	75 / 60	30 / 20	30 / 20	30 / 20
Torque S6 / S1	Nm	75 / 60	75 / 60	240 / 160	240 / 160	240 / 160
Characteristic Speed	rpm	9950	9950	1200	1200	1200
Tool Magazine						
Housings		30	30	40	40	40
Tool Length	mm	300	300	300	300	300
Tool Weight	kg	8	8	8	8	8
Weight in the Magazine	kg	120	120	160	160	160
Tool Diameter	mm	Ø 90	Ø 90	Ø 100	Ø 100	Ø 100
Tool Changing Time : Tool / Tool – Chip / Chip	sec	9 - 18	9 - 18	6 - 20	6 - 20	6 - 20
Accuracy						
Linear Axis (X / Y / Z)						
Positioning Uncertainty (P)	mm	0.007	0.007	0.007	0.007	0.010
Repeatability (Ps Medium)	mm	0.004	0.004	0.004	0.004	0.005
Rotating Axis (B - C)						
Positioning Uncertainty (P)	sec	10	10	10	10	10
Repeatability (Ps Medium)	sec	5	5	5	5	5
Coolant						
Flow	l/min	10	10	30	30	30
Pressure	bar	3	3	5	5	5
Tank	litres	375	375	1000	1000	1000

OPTIONAL EQUIPMENTS

- Different Spindle Options
- Tool Changer with 40/60/100 pockets
- Coolant 50 Bar
- Coolant by Micro Spraying
- Air Blast
- Part Probe / Tool Probe
- Electrical Cabinet Climatization
- Oil Extraction System
- Oil Separator
- Sight Glass
- Graphite Dust Removal System
- Pressurization of Measuring Scales

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Note: Specified information are subject to change arising out of continuous product improvement without notice. The description standard accessories/feature conforms to its list; not the photo of machine show in the catalogue. Other controller will have different configuration. Machine images are shown with option.

ISO 9001 : 2008