



SX Series

High Speed Vertical Machining Centres

Performance
Technology
Power
Accuracy





SX Series

Overview

Years of experience in High Speed Machining has helped the firm to develop a machine totally dedicated for fast milling suitable for small components. The SX Series machines are with compact foot print equipped with integral work piece changer, a fast auto tool changer and a high speed electro spindle. The moving mass of the axes being out of table area, a constant machining accuracy is achieved even at higher speeds. These column moving fast milling machines are ideally suitable for continuous production lines that require precision component output in mass.

Structure

The concept of base and column structure with all the moving axes mass on the column helps very high dynamics while maintaining the machining accuracy. To maintain the rigidity at high dynamics all the axes are having roller type linear motion guides. The base front which accommodates the integral work piece changer is having enough slant side walls to





Integral Work Piece Changer

One of the features of the SX Series is its integral work piece changer for fast change of work piece. This work piece changer is hydraulically actuated one with Hirth coupling mechanism for precise positioning and clamping. The changing of work piece could take place in 4 sec. for a model like SX 4, thus reducing the job load/unloading time. In order to incorporate extra hydraulic job clamping systems without interference, this work piece changer has integral hydraulic connection points.

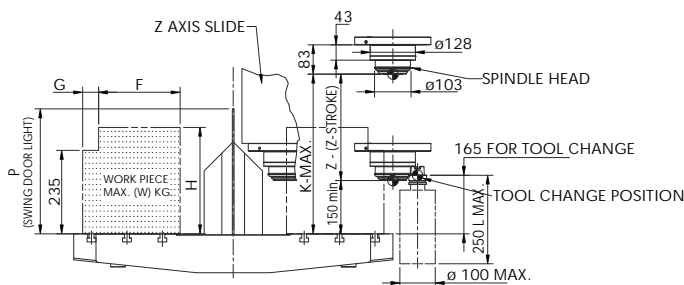
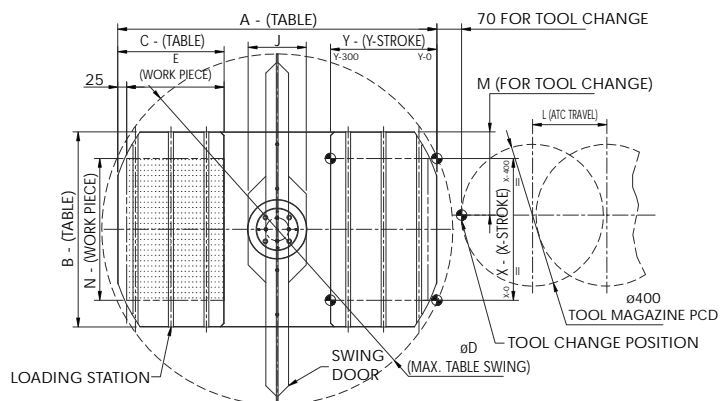
High Speed Tool Changer

SX Series machines are equipped with very high speed servo driven disc type tool changer. Standard machines are provided with 16 stations tool changer with extremely fast tool changing time of 1,5 second.

High Speed Electro Spindle

The HSK A 50 taper high speed electro spindle at a standard speed 12.000 rpm is the heart of SX machines. The thermal stability of the spindle is maintained by using a special temperature controlled liquid chiller. These high speed spindles have an acceleration rate of 1,1 second to reach the maximum rpm specially designed to meet the requirement of small component machining

Machining range diagram for SX Series



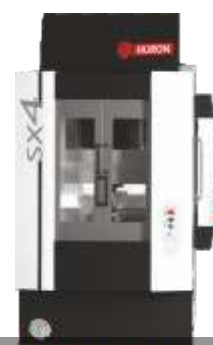
All dimensions in mm

	A	B	C	D	E	F	G	H	J	K	L	M	N	P	W	X	Y	Z
SX 4	900	550	300	ø 990	275	230	45	300	165	450	220	235	400	125	125	400	300	300
SX 6	1.200	650	400	ø1.250	375	325	50	450	180	550	260	325	500	300	300	500	400	400



Continuous Production Automation Solution

A combination of SX Series vertical machining centre, vertical turning machine (AT 160) & Robot-interface solution in product line / machining cell



Compact Foot Print



Integral Work Piece Changer



High Speed Tool Changer



High Speed Electro Spindle

Technical Specifications

ISO : 9001



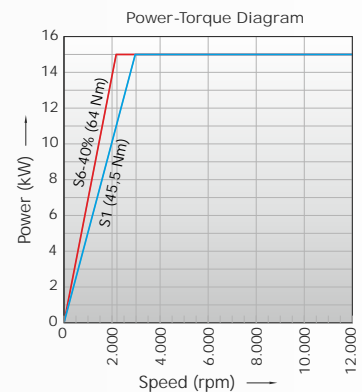
		SX 4	SX 6
Capacity			
X-axis travel	mm	400	500
Y-axis travel	mm	300	400
Z-axis travel	mm	300	400
Distance from spindle face to table top	mm	150-450	150-550
Integral Workpiece Changer			
Table size	mm	550 x 300	650 x 400
Table slot dim.	mm	3x14x100	4x14x100
Max. load on table	kg	125 x 2	300 x 2
Distance from floor to table top	mm	900	900
Pallet change time	sec	4	5
Electrospindle			
Spindle nose		HSK A 50	HSK A 50
Max. spindle speed	rpm	12.000	12.000
0 to 12.000 rpm	sec	1,1	1,1
Spindle power	kW	15	15
Feed			
Rapid traverse (X / Y / Z)	m/min	50	50
Cutting feed	m/min	20	20
Automatic Tool Changer			
No of tools		16	16
Max. tool diameter	mm	80	80
Max. tool diameter (Adj. pocket)	mm	100	100
Tool selection		Random	Random
Max. tool length	mm	250	250
Max. tool weight	kg	3	3
Accuracy (As per VDI / DGQ 3441)			
Positioning Uncertainty (P)	mm	0,010	0,010
Repeatability (Ps medium)	mm	0,005	0,005
Other Datas			
Weight	kg	4.400	5.500
Dimensions	Length	mm	3.000
	Width	mm	1.200

Standard features

- High speed electro spindle
- Integral work piece changer
- High speed servo auto tool changer
- Linear motion roller guide ways
- Auto & manual coolant system
- Centralized & programmable lubrication
- Laser calibrated axis for precise positioning accuracy
- Rear chip conveyor
- Electrical cabinet with controlled temperature
- Optimized outer guarding for compact footprint

Possible options

- Electro spindle 15.000 rpm
- Tool changer 24 or 40 pockets
- Coolant through spindle



Note : All above informations are subject to change arising out of continuous product improvement. The standard description, accessories and technical datas conforms to our pricelist, not to the photo of machines shown in the catalogue.



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