

# State-of-the-art Five Axes Technologies

S  
W  
I  
F  
T  
N  
X



**Emerge to a New Dimension**  
Series: Nx5 | Nx8

## Simultaneous Five Axes High Accuracy Machining Center

Swift Nx series designed for high precision, complex machining requirements. Machines built with Robust FE optimized structure, High speed motorized spindle. Integrated cradle type Rotary table gives the precise indexing accuracy & high surface finish. Chain type tool magazine, isolated from the working zone helps for higher productivity and better ergonomics.

BFW State-of-the-art five axes platforms, innovative designs as an Import substitute to meet advanced manufacturing requirements.

Swift Nx is extensively applied to the industries of Aerospace, Automotive, Medical, Energy and further more...

### Best in class Features

- Five axes are equipped with scales for linear axes & absolute encoders for rotary axes as a standard to ensure precise complex 5-axis simultaneous machining on complex parts
- High Torque built-in spindle speed 12,000 to 15,000 RPM
- The Gantry structure of the machine features high rigidity
- Tandem control/ Gantry drive for tilting axis

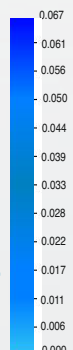
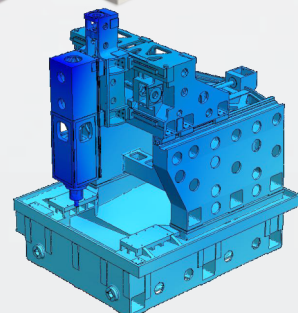
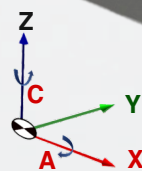
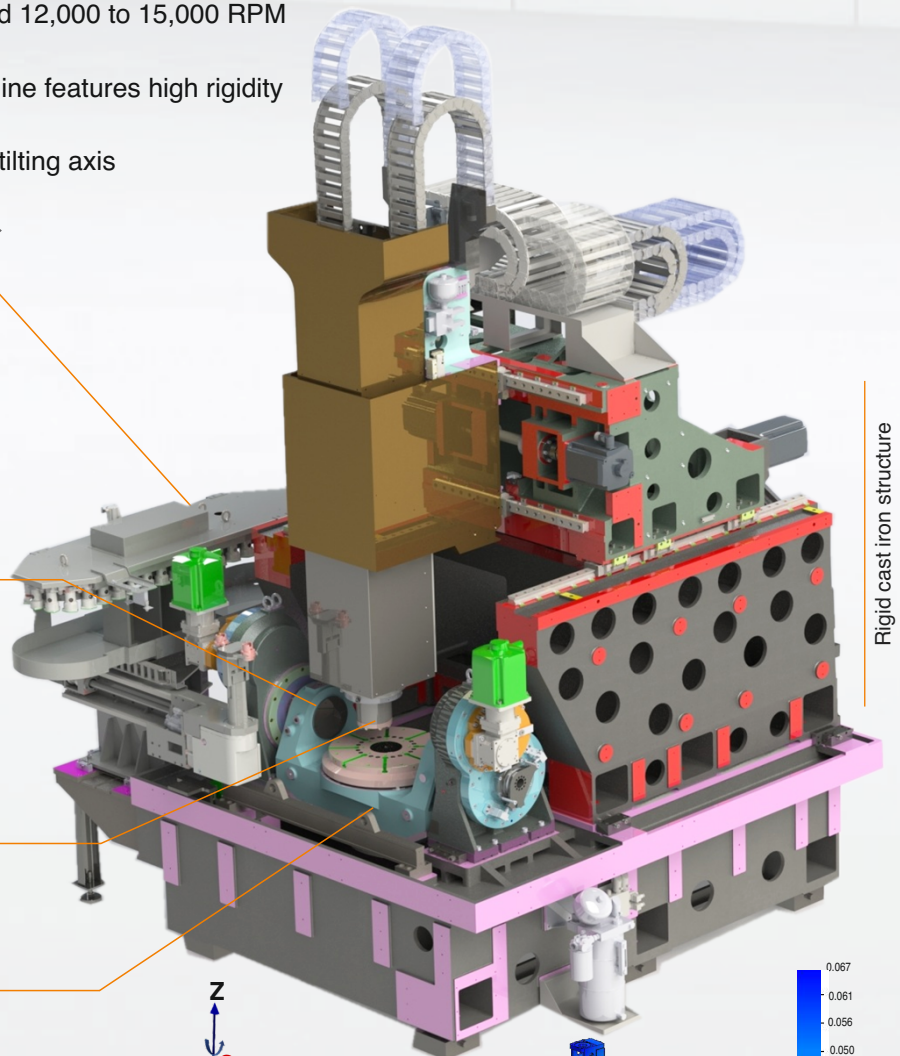
### Configuration >>>

Chain type tool magazine, direct tool pick up, isolated from the working zone easy maintenance access, easy Loading/ unloading & flexibility to increase the number of tools on ATC 32, 40 & 60.

Integrated cradle type Rotary table, and it delivers high performance for all type of machining processes that demands precision indexing accuracy & high surface finish

High-speed motorised spindle

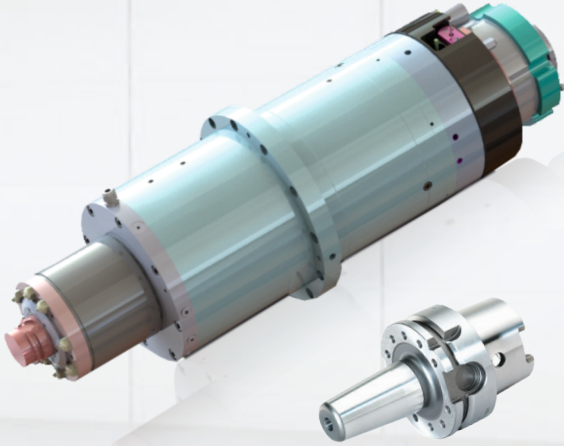
Totally isolated working zone for better chip and coolant management system



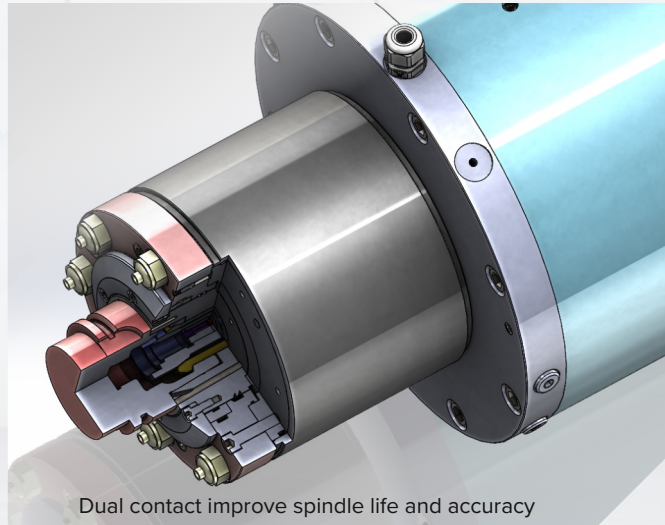
### FE Optimized Structure

# Motorized Spindle

- Swift series are having Best-in-class dynamically balanced high speed spindles. Spindles are designed & developed to withstand thermal conditions owing to high Rotational speeds.

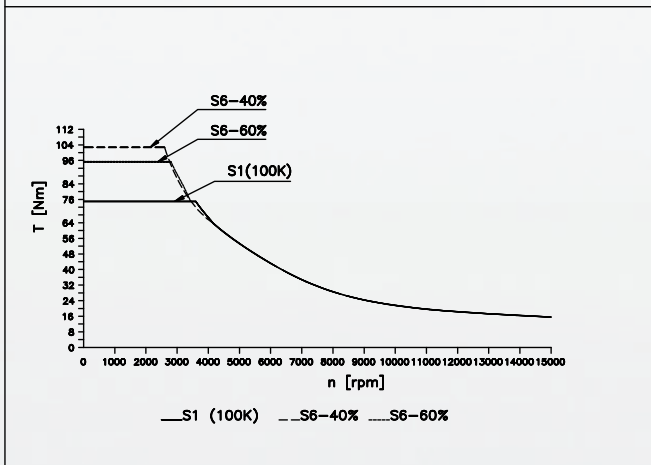
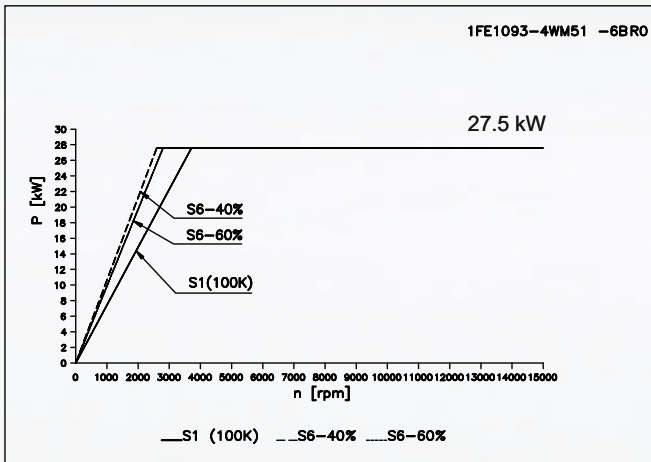


HSK A 63

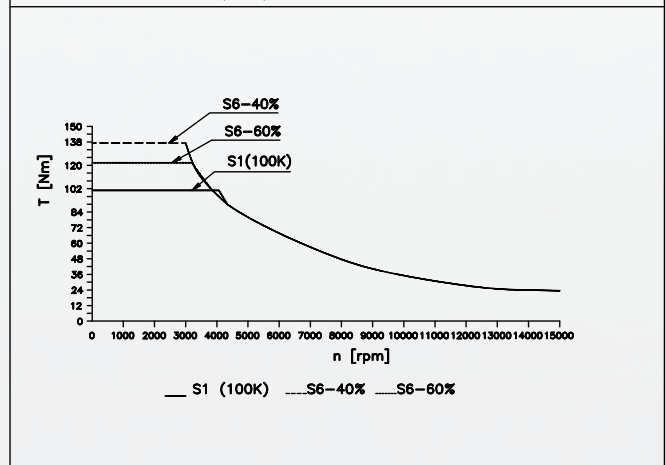
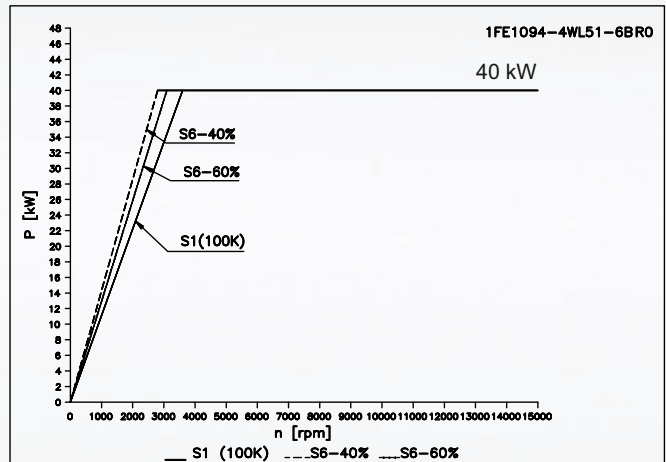


Dual contact improve spindle life and accuracy

## NX5



## NX8



**RPM**  
12000 (Cont.)  
15000 (Int.)  
(25 % ED  
Cycle time 10 mins)



**POWER**  
27.5kw - Nx 5  
40kw - Nx 8



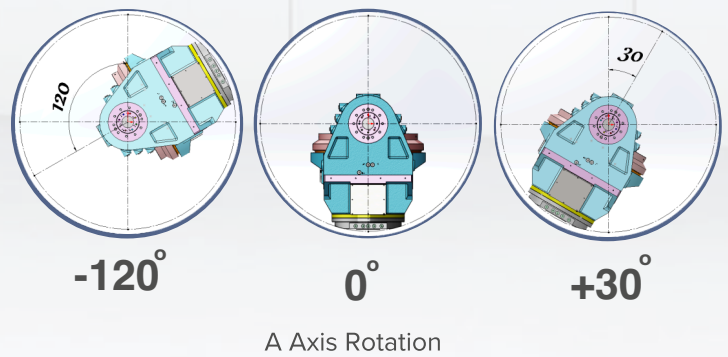
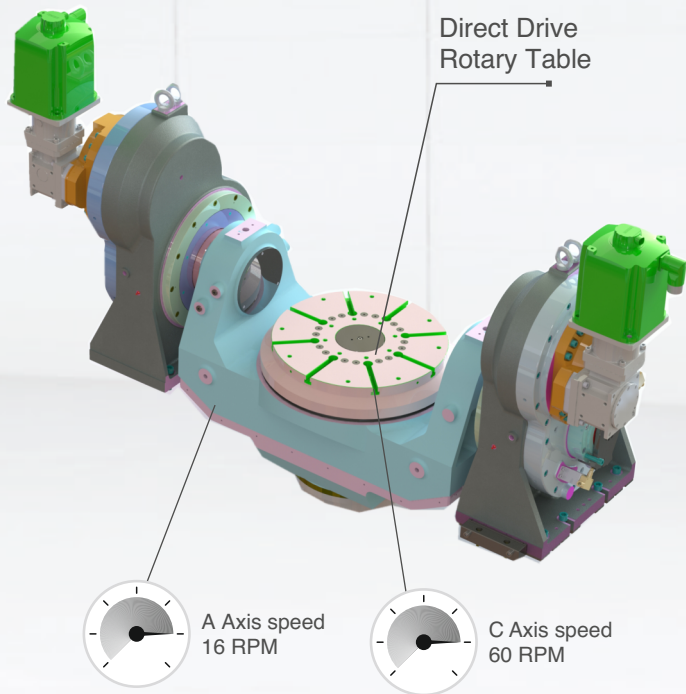
**TORQUE**  
75/102NM - Nx 5  
100/136NM - Nx 8



## Rotary Table

- A axis Tandem/ Gantry Control with Dual Drive for High Accuracy Profile Machining

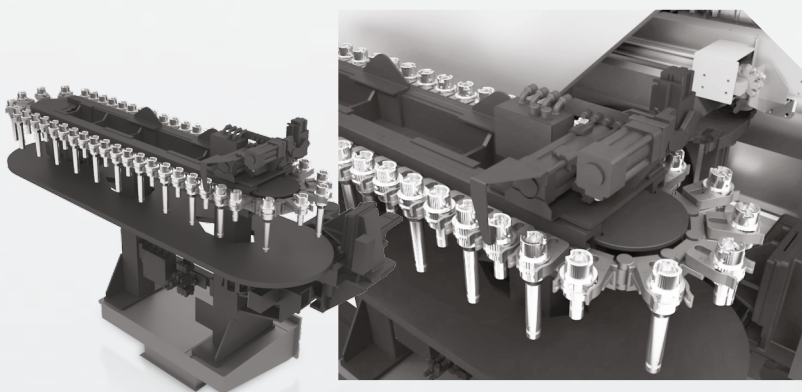
Hydraulic Routings are provided for Fixturing



## Tool Magazine

- Arm-type tool changing system with chain magazine

Chain type tool magazine, isolated from the working zone, easy maintenance access, easy Loading/unloading & flexibility to increase the number of tools on ATC 32, 40, 60 etc.



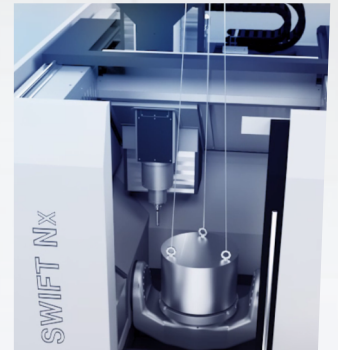


## Swift Nx Advantages

- Precise & Complex 5 axes geometries
- High rapid feed rates
- Productivity through cycle time reduction
- Advanced manufacturing & eliminates extra setups

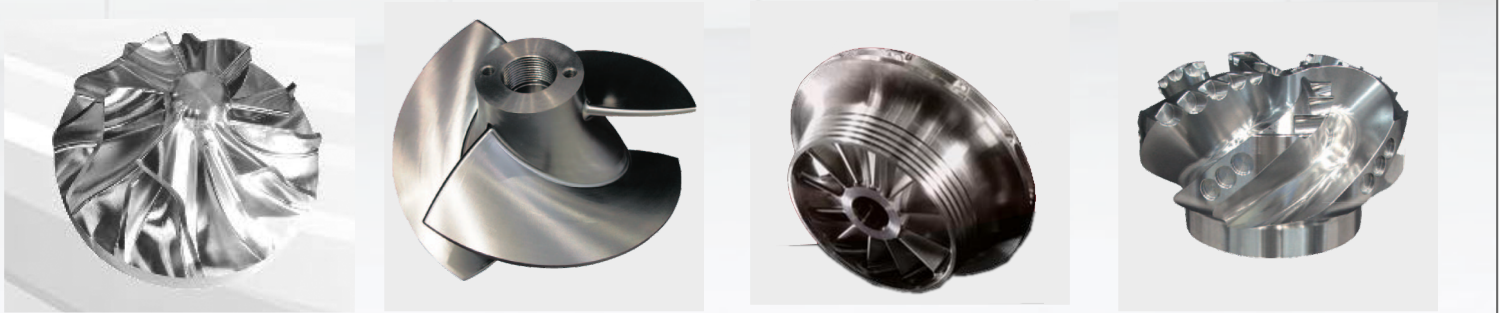


Wide Machining Area



Gantry Loading

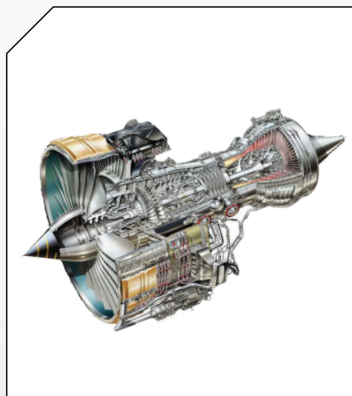
## Applications



Many more ....

## Sectors

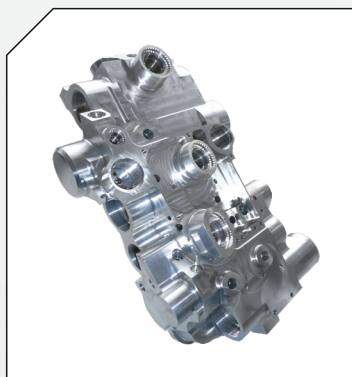
Aerospace



Automobile



Energy



Tooling



Medical



Mould Making

## New generation operator panels for high-end applications

- Robust and durable capacitive touchscreen operator panels
- 40% energy savings compared to conventional neon lamps
- Liquid and dust resistant, ideal for harsh conditions also features an alphanumeric keypad on the right that can be operated via touch control.

### Siemens Sinumerik One

- High performance S7 1500 PLC
- 15" multi touch display with high resolution
- Advanced surface
- Spline interpolation
- Automatic measuring cycles
- Measure kinematics
- Simultaneous recording of 3D simulation
- Shop mill machining STEP programming
- Residual material detection
- CNC memory 10 MB Standard can be increased upto 6GB in NC
- Customized screen for CNC alarms/ parameters help
- Excellent Dynamic 5-axes transformation for different machine kinematics
- User friendly graphical programming through various extensive cycles
- Powerful Sinumerik NC based tool management

### Other Productivity Features

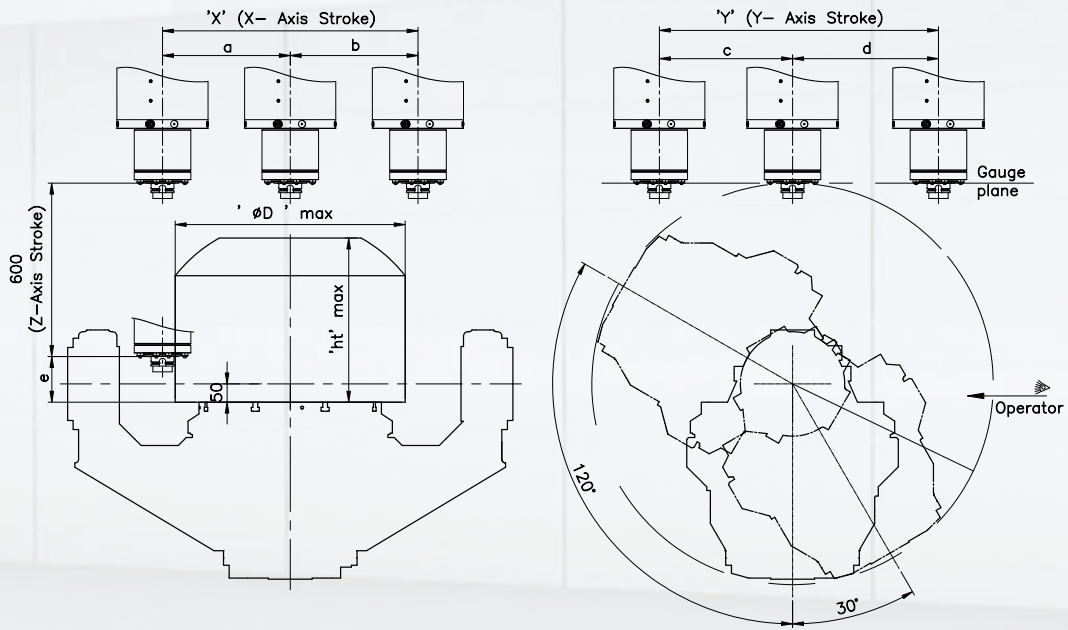
- Coolant thru spindle
- Thermal stabilization package
- Part Probing
- Tool probing
- Plug and Play
- Automation & SMED compatible
- CNC full QWERTY keyboard for convenient operation
- Hassle free program transfer through USB, ETHERNET
- Intuitive service & Maintenance screen for easy diagnosis

### 5 Axis Controller Features

- Machining package five axes (> 4axes interpolation)
- 3D Tool radius Compensation
- Measure kinematics (Cycle 996)
- Shop turn/ shop mill
- DXF reader integrated in Sinumerik operate
- Residual material detection and machining for contour pockets & Stock removal
- 3D simulation 1 (Finished part)
- Simultaneous recording real time simulation of current machining operation
- Advanced surface motion control
- Top surface
- Top speed Plus
- TRANSMIT / cylinder surface transformation

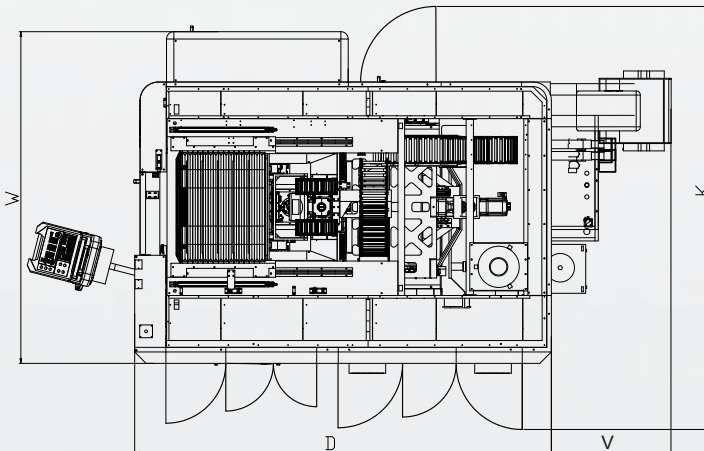
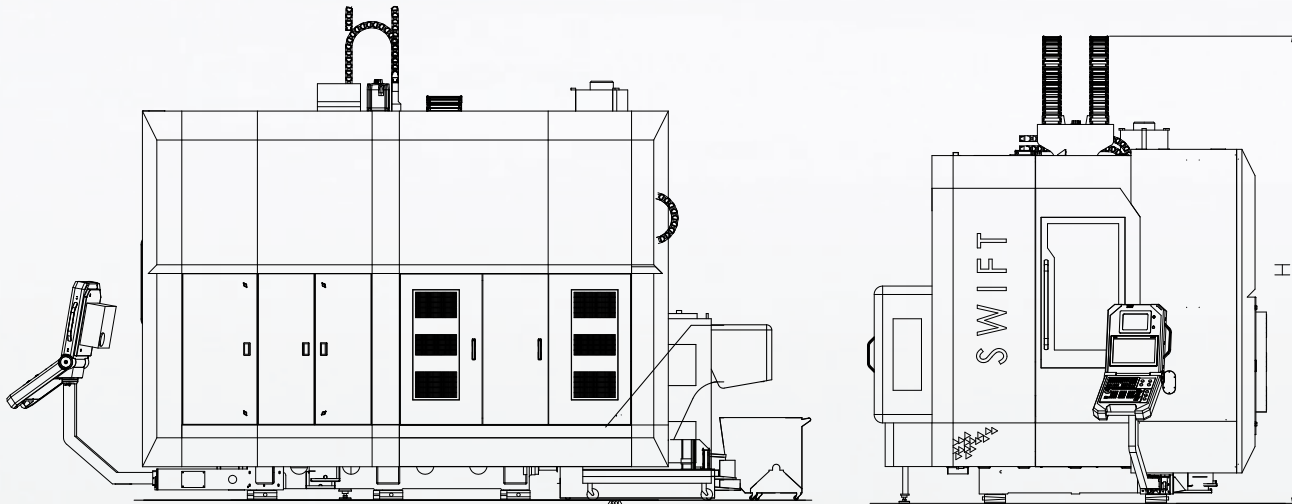


# Stroke Diagram



	X- Axis stroke			Y- Axis stroke			e	ØD	ht
	X	a	b	Y	c	d			
NX5	700	350	350	795	313	482	100	630	400
NX8	1100	550	550	1100	550	550	125	1000	500

# Machine Dimensions



All dimensions in mm

Model	Nx5	Nx8
W	mm ~ 3620	mm ~ 4070
D	mm ~ 5060	mm ~ 5510
H	mm ~ 4550	mm ~ 5100
K	mm ~ 4300	mm ~ 4475
V	mm ~ 1100	mm ~ 1400



## **Standard Features**

- Roller type guide-ways for all linear axes
- Precise ball-screws for all linear axes
- Electronic counter-balance for the vertical axis
- Automatic centralised grease lubrication system
- AC servo drives for all axes
- Air blast for spindle taper cleaning
- Basic coolant system - Dual Conveyor with bed wash & flood coolant
- AC unit for electrical cabinet
- Spindle taper HSK A63
- Motorized spindle
- Tool magazine - 32 tools (Chain type)
- Absolute encoder for all axes
- 15" color Multi Touch display
- Backlash & pitch error compensation
- Rigid tapping & retract function
- Simultaneous 5 axes
- Linear, circular & helical interpolation
- Tool life management
- Machine alarm diagnostics
- Energy saving function
- 3-tier signal tower lamp
- Machine lamp
- Coolant gun
- Siemens Sinumerik One with M dynamics
- Linear Glass scales
- Operator door safety interlock

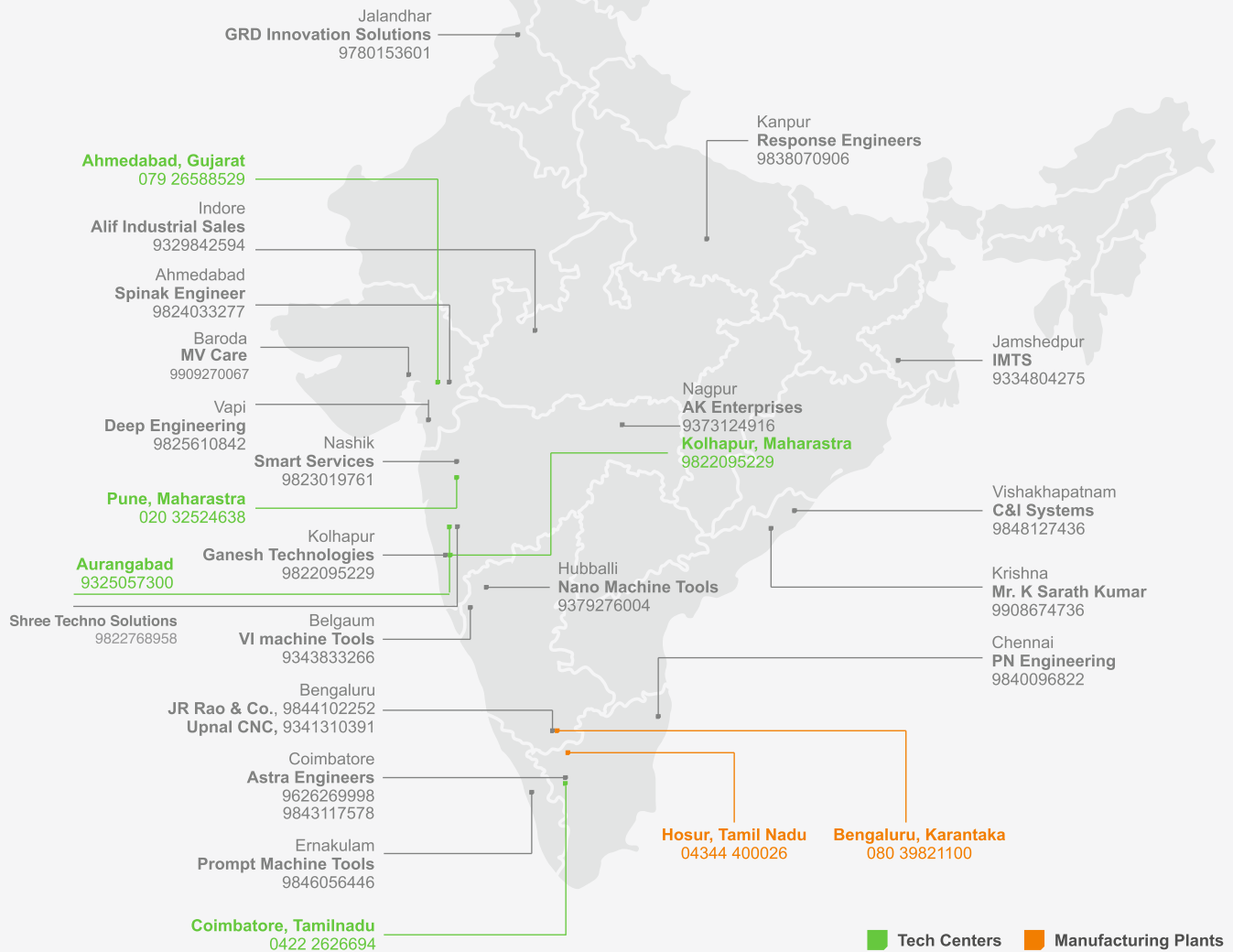
## **Optional Features**

- High pressure coolant thru spindle system
- (16/ 40 bar) with Paper band filtration system
- Isolation transformer
- High speed spindle 16000 Rpm with air oil lubrication
- Chiller for clean coolant system
- Mist collector
- Machine color as per customer requirement
- Hydraulic connections for fixture through rotary table (2+2 lines)
- Standard tool holders
- Laser system to measure tool offset & tool breakage NC 4
- Spindle probe
- Cad model post processor
- Voltage stabiliser
- Protect my machine to avoid collision
- VCS - Volumetric Compensation System

# Technical Specifications

Specifications	Unit	Nx5	Nx8
<b>Table</b>			
Table size	mm	Ø 500	Ø 800
Job size (Max) Dia x Ht	mm x mm	Ø 630 x 400	Ø 1000 x 500
Max safe load on the table	kg	400	1000
Distance from table top to Spindle face	mm	100 - 700	125 - 725
Distance from Table top to floor	mm	1100	1110
<b>Traverse</b>			
X/Y/Z axes	mm	700/ 795/ 600	1100/ 1100/ 600
Feed rate	mm/ min	1 - 20000	1 - 20000
Rapid traverse X/ Y/ Z axes	m/ min	50	40
Acceleration	m/s <sup>2</sup>	0.5	0.5
A axis	rpm	16	16
C axis	rpm	60	60
<b>Spindle</b>			
Type		Motorised	Motorised
Power - Cont.	kW	27.5 (40)	40
Max Torque - Cont./ Int.	Nm	75/ 103 (100/ 140)	100/ 140
Max speed - Cont./ Int.	rpm	12000/ 15000	12000/ 15000
Tool Interface		HSK A63	HSK A63
<b>Automatic Tool Changer</b>			
No of Tools - Std (Option1, Option 2)	No	32 (40, 60)	32 (40, 60)
Max tool dia with all pockets full	mm	75	75
Max tool dia with adjacent pockets empty	mm	125	125
Maximum tool length	mm	300	300
Tool weight	kg	8	8
Chip to chip time (mm) as per ISO 10791- 9	sec	7.5	8
<b>Accuracy as per ISO 230 - 2</b>			
<b>Linear axes</b>			
Positioning A	mm	0.006	0.006
Repeatability R	mm	0.004	0.004
<b>A axis - Tilting Table</b>			
Positioning A	arc sec	10	10
Repeatability R	arc sec	8	8
<b>C axis - Rotary Table</b>			
Positioning A	arc sec	10	10
Repeatability R	arc sec	8	8
<b>CNC System</b>		Siemens Sinumerik One	Siemens Sinumerik One
<b>Installation Data</b>			
Basic weight of machine	kg	~ 16,000	~ 18,000
Floor Area for Std. Machine W x D x H	mm	3260 x 4550 x 4300	4070 x 5100 x 4480
Total connected load	kVA	~ 60	~ 75
Compressed air	bar	6	6
Power supply		415 V ± 10 % AC, 50 ± 2 % Hz, 3 phase	

# Network



## International Network

- Bangladesh • Bahrain • China • France • Germany • Iran • Kuwait • Netherlands • Oman • Poland
- Qatar • Russia • Saudi Arabia • Sri Lanka • South Africa • Thailand • Turkey • UAE



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