DX Series

CNC Turning Centers

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OVERVIEW

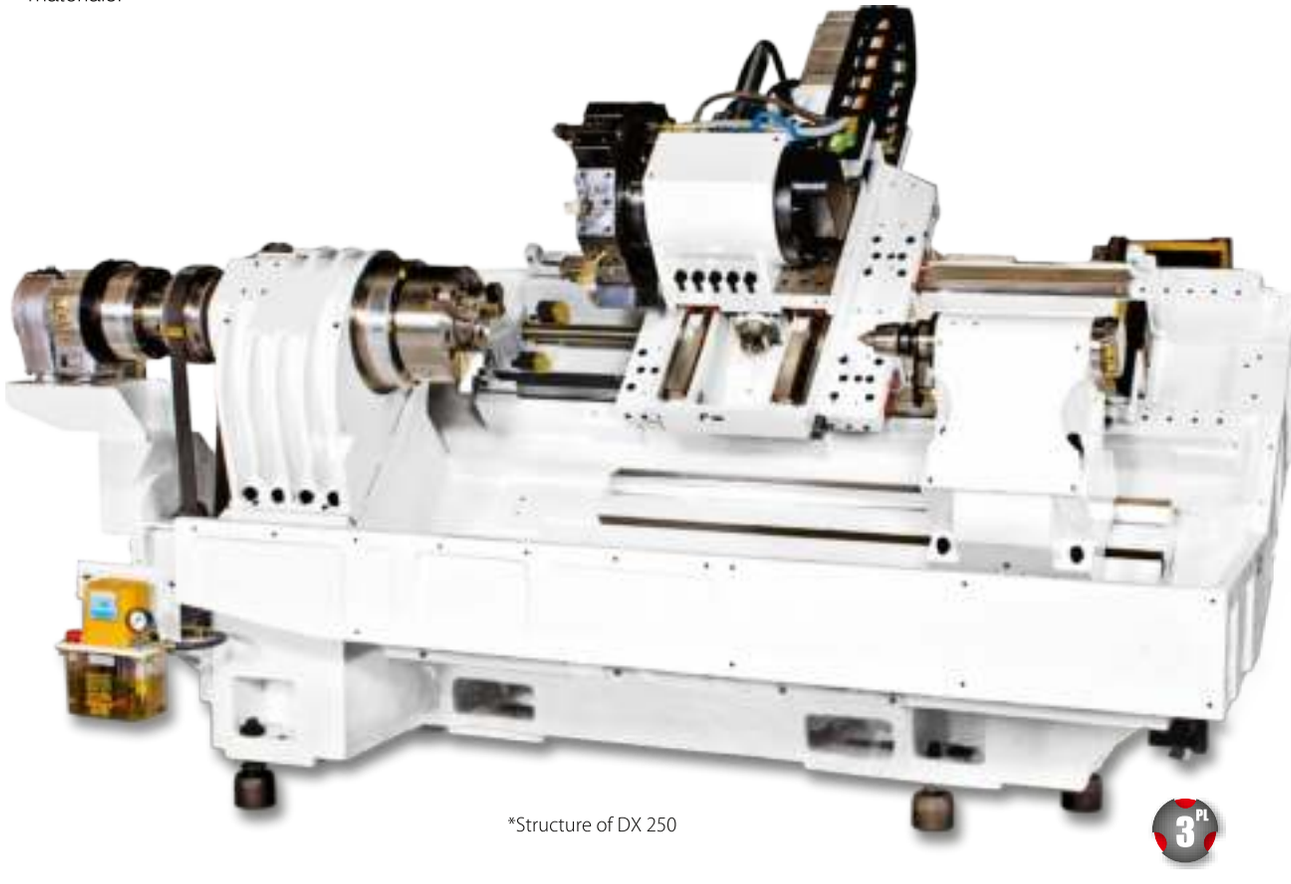
Jyoti introduces, DX Series for revolution in turning center technology. With this we build a world class machine that delivers exceptional performance even in Hard Part Machining. DX Series machines with Monoblock 45° slant bed structure offers advanced rigidity and durability which proves to be a value for money. This series is a benchmark in terms of power, torque, precision and accuracy, being fully capable to work with higher load carrying capacity. A design is flexible enough to blend with many forms of productivity improvement options. This series can also entertain complex jobs with cost effective solutions offering better tool life.

MONOBLOCK STRUCTURE

The rigid single piece 45° slant bed is made out of high grade cast iron for better rigidity, ability to take heavier cuts and faster production. With virtually no vibration, even at higher diameter enables superior surface finish even on hard materials.

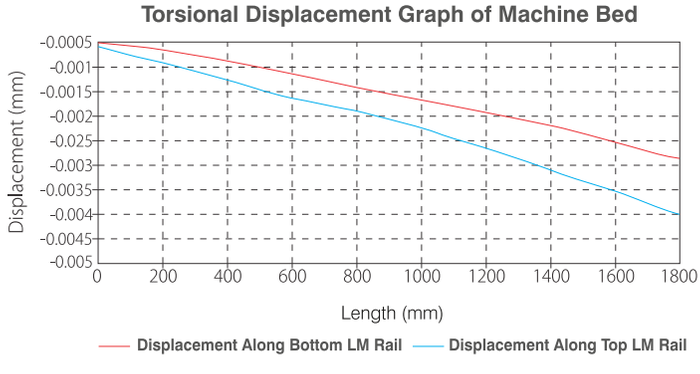
HEAD STOCK

Taking into consideration ability to sustain the heavy cutting loads, head stock is made out of closed grain FG 300 grade casting. Fins are provided with better surface area for proper heat dissipation enabling better spindle life.



*Structure of DX 250

BED TORSION RIGIDITY



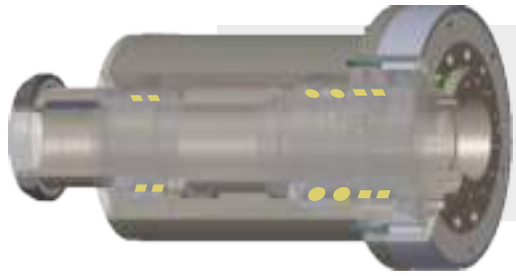
3 - POINT LEVELING

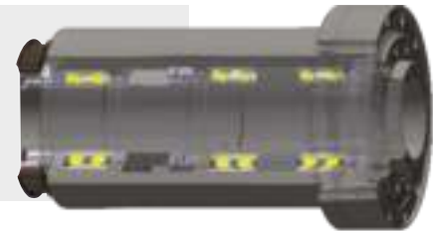
Twisting effect of bed can be eliminated due to 3-point leveling. Quick installation and relocation made easy with this feature.

POWERFUL SPINDLE

Machine spindle is manufactured in-house with the help of world class precision mother machineries and assembled in a dust free temperature controlled environment.

Spindle is housed with super precision 4 angular contact bearings in the front and 2 angular contact bearings at the rear end for $A_2$8 spindle. In $A_2$11 Spindle the design is with 1 cylindrical roller bearings + 2 angular contact bearings at the front and 1 cylindrical roller bearing at the rear for efficient working. This arrangement takes care of radial as well as axial loads. Powerful spindle with High Torque Motor allow high material removal rate.





LINEAR AXIS

Machines are fully capable to take higher cutting parameters even with hard turning materials thanks to wide Linear Motion (Roller type) Guideways, Preloaded direct coupled ball-screws and Monoblock Structure.

RIGID SERVO TURRET

DX Series machines are equipped with high speed and high precision Bi-directional Servo Turret with hydraulic clamping system achieved by 3-piece hirth coupling.

TAIL STOCK

A manually movable tailstock with hydraulically actuated quill is a standard feature of the machine. Programmable tailstock with hydraulic movement is offered as an option.

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ERGONOMIC DESIGN

The newly designed Easy-to-Operate operating panel of the machine is made considering the human comfort and the operator friendliness.

EFFICIENT CHIP DISPOSAL

Ergonomically designed concept of DX Series enables to give efficient chip disposal system via chip tray. In case of applications with higher material removal rates or applications requiring long un-interrupted cutting, chip conveyor can be opted for better productivity.

TURN MILL CENTER (OPTIONAL)

LIVE TOOL TURRET

VDI or BMT Standard servo driven 12 station live tool turret on Turn Mill Centers allows mix and match of the static or powered tools. Turret movement is controlled by servo motor for various milling applications.

HEAD STOCK WITH C-AXIS

TMC Available with hydraulically operated disc brake for C-Axis which is helpful for milling operations like PCD Drilling and Tapping, OD & ID profiles with Radial and Axial Live tools.

PRODUCTIVITY IMPROVING OPTIONS

HYDRAULIC STEADY REST

Machine can be equipped with hydraulic steady rest for smooth machining operation for over-hang work pieces as per required applications.

AUTOMATIC TOOL SETTING

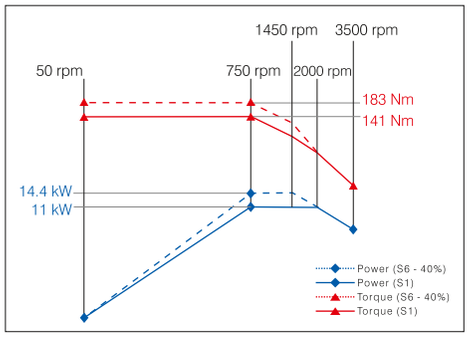
Automatic Tool Setting Probes and Job Probe can be incorporated with control feedback to set accurate tool data and even detect in-process tool wear or breakages.

GEARBOX

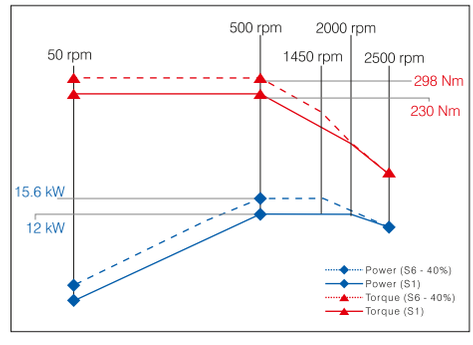
Auto Shifting 2-Speed Gearbox can be chosen for applications requiring high cutting force for hard material or high cutting speed for softer materials providing high cutting torque at lower rpm.

POWER TORQUE DIAGRAM

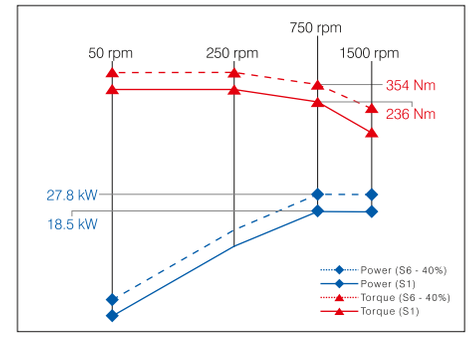
14.4 / 11 kW (Siemens)



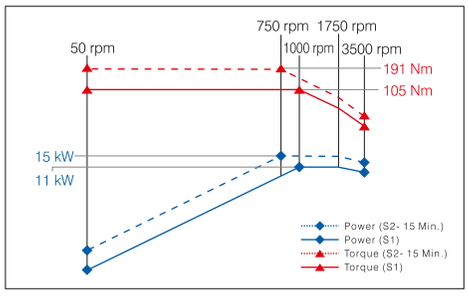
15.6 / 12 kW (Siemens)



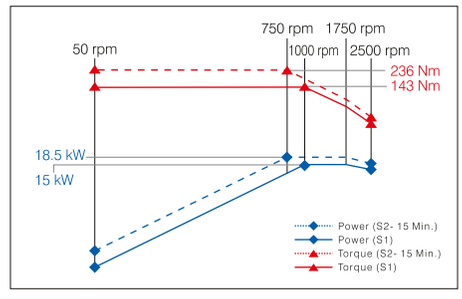
27.8 / 18.5 kW (Siemens)



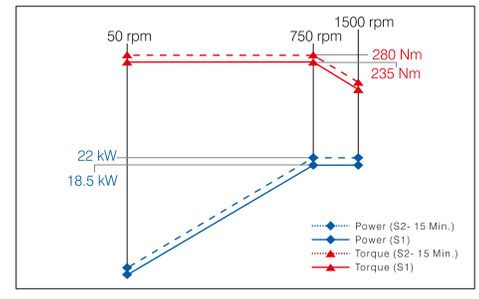
15 / 11 kW (Fanuc)



18.5 / 15 kW (Fanuc)



22 / 18.5 kW (Fanuc)



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TECHNICAL SPECIFICATION

Capacity		**DX 250 - 500**	**DX 250 - 700**	**DX 250 - 1000**	**DX 350 - 700 A**	**DX 350 - 700 B**	**DX 350 - 1000 A**	**DX 350 - 1000 B**	**DX 350 - 1500 A**	**DX 350 - 1500 B**	**DX 350 - 2000 A**	**DX 350 - 2000 B**
Swing Over Bed	mm	500	600	600	740	740	740	740	740	740	680	680
Std. Turning Dia.	mm	300	300	300	415	415	415	415	415	415	415	415
Max. Turning Dia.*	mm	490	480	480	600	600	600	600	600	600	600	600
Max. Turning Length*	mm	500	700	1000	700	700	1000	1000	1500	1500	2000	2000
Slides												
X-Axis Travel (Cross)	mm	250	250	250	310	310	310	310	310	310	310	310
Z-Axis Travel (Longitudinal)	mm	520	700	1000	700	700	1000	1000	1700	1700	2000	2000
Rapid Feed (X & Z Axis)	m/min	24	24	24	24	24	24	24	24	24	24	24
Main spindle												
Spindle Motor Power - Siemens	kW	14.4 / 11	15.6 / 12	15.6 / 12	15.6 / 12	27.8 / 18.5	15.6 / 12	27.8 / 18.5	15.6 / 12	27.8 / 18.5	15.6 / 12	27.8 / 18.5
Spindle Motor Power - Fanuc	kW	15 / 11	15 / 11	15 / 11	18.5 / 15	22 / 18.5	18.5 / 15	22 / 18.5	18.5 / 15	22 / 18.5	18.5 / 15	22 / 18.5
Spindle Speed Range	rpm	50-3500	50-2500	50-2500	50-2500	50-1500	50-2500	50-1500	50-2500	50-1500	50-2500	50-1500
Spindle Bore	mm	90	80	80	80	110	80	110	80	110	80	110
Spindle Nose		$A_2$8	$A_2$8	$A_2$8	$A_2$8	$A_2$11	$A_2$8	$A_2$11	$A_2$8	$A_2$11	$A_2$8	$A_2$11
Max. Bar Capacity**	mm	75	65	65	65	90	65	90	65	90	65	90
Turret												
No. of Tool Station		8	8	8	8	8	8	8	8	12	8	12
Max. Boring Bar Dia.	mm	40	40	40	40	50	40	50	50	50	50	50
Tool Size (Cross Sectional)	mm	25 X 25	25 X 25	25 X 25	25 X 25	32 X 32	25 X 25	32 X 32	32 X 32	32 X 32	32 X 32	32 X 32
Tailstock												
Quill Dia.	mm	85	100	100	100	100	100	100	130	130	130	130
Quill Stroke	mm	120	120	120	120	120	120	120	150	150	150	150
Max. Thrust	kgf	500	500	500	500	500	500	500	1000	1000	1000	1000
Accuracy (as per VDI/DGQ 3441)												
Positioning Uncertainty (P)	mm	0.007	0.01	0.01	0.01	0.01	0.01	0.01	0.015	0.015	0.015	0.015
Repeatability (Ps Medium)	mm	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.007	0.007	0.007	0.007
Other Data												
Machine Weight #(Approx.)	kg	4000	5750	6000	6500	6500	6750	6750	10000	10000	10200	10200
Machine Dimension #(Approx.)												
Length	mm	2400	3030	3500	3030	3030	3560	3560	4970	4970	5630	5630
Width	mm	1520	1870	1870	1970	1970	1970	1970	2700	2700	3050	3050
Height	mm	1750	1900	1900	2025	2025	2025	2025	2260	2320	2480	2480

* Depends upon clamping arrangement, Tooling and Job. # Refer Machine Detailed Layout for overall machine dimensions & space requirements. - Step-up structure for DX 250/500

** Bar Capacity - Depends on appropriate clamping between chuck and cylinder as well as make of chuck

CONTROL SYSTEM

The CNC System offered with the DX Series machine is the latest digital control from FANUC 0i TF Plus and SIEMEN S 828D

STANDARD FEATURES

- AC Spindle Drive
- AC SERVO Digital Drive
- Monoblock Structure
- 8-Station Bi-Directional Servo Turret
- L. M. Guideways (Roller Type)
- Hyd. Chucking
- Auto & Manual Coolant System
- Centralised & Programmable Lubrication
- Laser Calibrated Axis for Highly Precise Positioning Accuracy and Repeatability
- Electricals with Quality Devices & Panel with A. C.
- Tailstock with Hyd. Quill

PRODUCTIVITY IMPROVING OPTIONS

- Industry 4.0 Complied with 7th Sense
- Chip Conveyor
- Two Speed Gear Box
- Beta P-Series Motor for Fanuc
- Large Spindle Bore
- Programmable Tailstock
- Digital Tailstock
- 12 Station Turret
- Steady Rest
- Bar Feeder
- Auto Door
- Bar Puller
- Part Catcher
- Live Quill (Built-in Revolving Center)
- High Pressure Coolant Through Turret
- Gantry / Robot Interfacing
- Hydraulic Collet Chuck
- Manual Guide 0i (Fanuc)
- Shop Turn (Siemens)
- Easy SMS System (Siemens)
- Fully Tooled up Solution to Meet Customer Needs