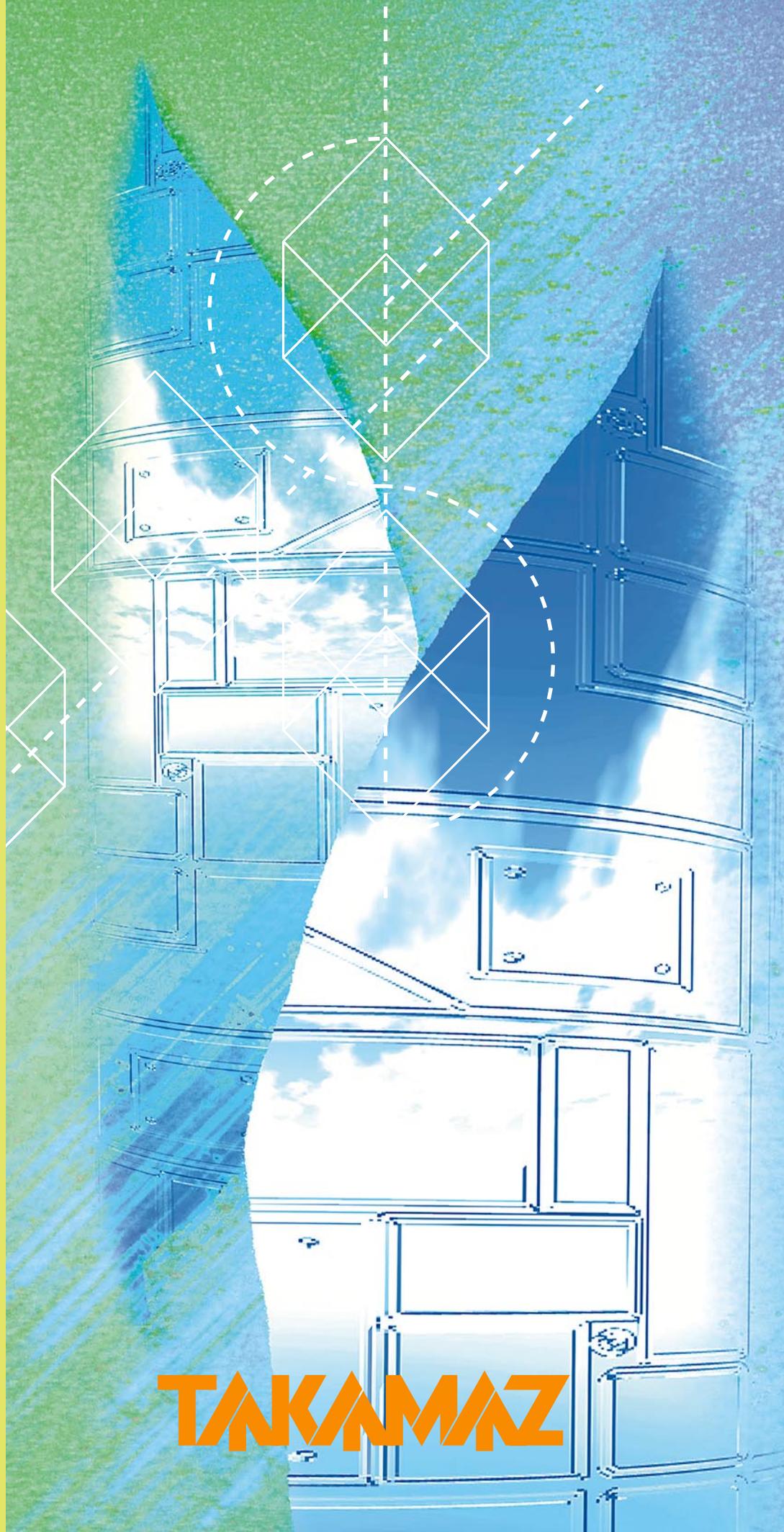


HD series



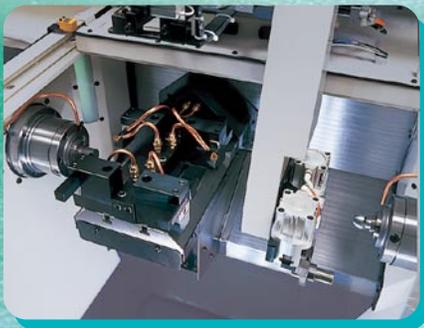
TAKMAZ

Doubling productivity while halving the floorspace requirement **TAKAMAZ** has called on knowledge built up over many years as a pioneer in the field of automated part turning to come up with the most efficient machine configuration for "near net shape operation." The result is the XD series. The series represents a new concept premised on keeping the non-cutting time during turning operations (loading, idle time) to the absolute minimum. With a unique construction featuring two spindles and one slide, the series is set to be the world standard from now on.

Double the productivity, half the footprint

XD series

Precision lathe with two spindles and one slide

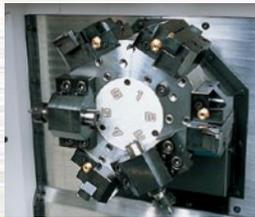
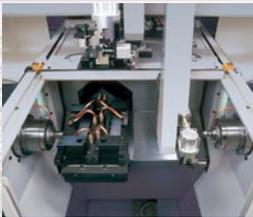


Loading at one spindle while operation is in progress at the other...

XD-8 PLUS **XD-8T PLUS**

Select either a linear or drum turret according to requirements!

- Compact design with integral loader for high-efficiency operation.
- Eco-friendly specifications for a cleaner production environment.
- Either a linear or 6-station turret can be selected depending on the requirements. ※Specification cannot be changed after delivery.



XD-10i

8-inch chuck specification also available
Workpieces one class bigger
can now be machined!

- High-speed servo turret substantially cuts idle time.
- Excellent access and fast, simple setup changes.
- Compact design with integral loader.
- Low total costs achieved by use of common parts.



XD-8 PLUS XD-8T PLUS

Use of a linear turret substantially reduces idle time

To answer the requirements imposed by severe operation time restrictions, the machine is equipped with a linear turret that doesn't need to be indexed. The machine has also been given a simpler construction, which improves its rigidity and so allows more accurate machining.

※The XD-8 PLUS can also be equipped with a 6-station drum turret.

High turret rapid traverse rate

A maximum rapid traverse rate of 18m/min. has been achieved for both X- and Z-axis.

※For the XD-8 PLUS, the Z-axis maximum rapid traverse rate is 24m/min.



Standard pull-type collet chuck

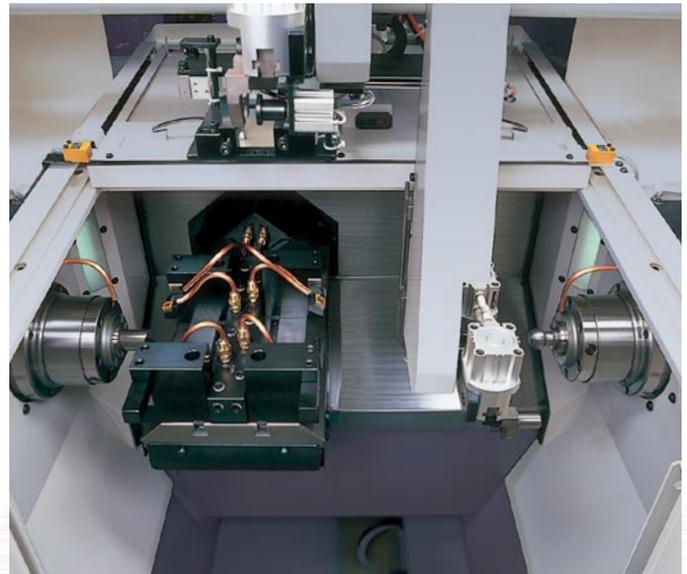
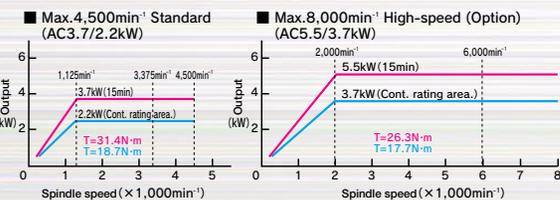


Power chuck (Option)

※XD-8 PLUS only.

XD-8 PLUS

Spindle output characteristics



Newly developed high-speed air-driven precision chucking system

To answer requirements for faster cutting, a highly rigid spindle construction with a $\phi 65$ mm bearing internal bore and maximum speed of 8,000min⁻¹ (Option) is adopted.

In the standard specification, a pull-type collet chuck made by TAKAMAZ is fitted. However, chucks such as the T850 type outward-opening chuck that has been used previously can also be used, or alternatively a 5-inch power chuck could be fitted.

※Power chucks can be used with XD-8 PLUS/XD-8T PLUS only.

The next generation of machines has to

We believe that as a manufacturer we must develop machines that in addition to being "productive" also have the most limited effects on the environment. One example of our efforts is the high performance ball screws and linear guides with a self-lubricating function that are featured on the XD-8 PLUS. Apart from making the conventional daily oil check unnecessary, this function has the additional advantages that it stops lubricating oil contaminating and degrading coolant, substantially cuts the time required for maintenance, and keeps the working environment cleaner.

Focusing on the environment

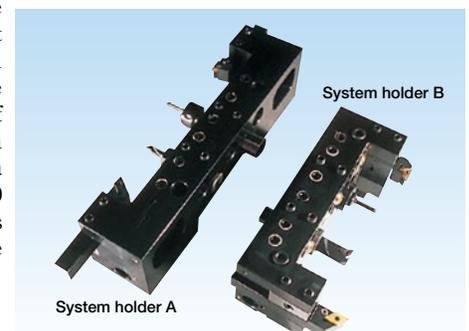
A machine like this goes through a great deal of spindle acceleration/deceleration and repeated turret motions in both directions, so the reverse electromotive force generated during motor deceleration is not consumed by conversion to heat as in previous machine models. Instead there is a power recycling system whereby the generated energy is circulated back to the power supply, giving durability in continuous operation, and energy savings.

Integral tool holders for simple setup (XD-8 PLUS: linear turret)

Integral tool holders has been adopted to improve rigidity, speed up setup changes, and save space. Due to the integral construction, chips are no longer trapped against the holder, and accidents that result from the trapping of chips are also prevented.

External setup for increased speed

Coolant is dispensed directly to the cutting point from a discharge port at the top of the turret; the construction of this system ensures that the coolant is delivered only to the tip of the tool currently engaged in machining (patent pending). With a powerful discharge rate of up to 100 liters/minute, this system extends tool life and promotes more stable dimensional accuracy.



※ Holders can be used in conjunction at left and right.

XD-10i

Servo turret offering top class speed is adopted

※Patent pending

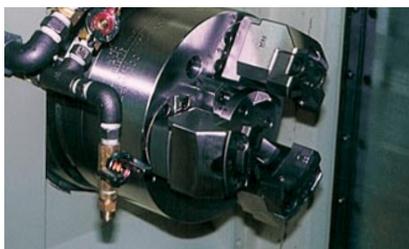
The rigidity of the 10-station drum turret used on the machine has increased through a uniform, balanced design, making it capable of continuous full operation. The turret rotation speed of 0.2 seconds per index is one of the fastest available.



New 8-inch chuck specification

An 8-inch chuck has now been designed to complement the existing 6-inch specifications. This allows a response to more diverse needs.

※The machine has a different construction from that for 6-inch specifications. Please note that a machine that already has 6-inch specifications cannot be given 8-inch specifications.



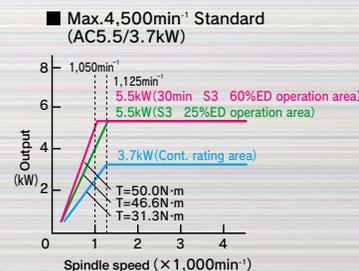
Example of two-way jaws for 6-inch chuck
Example of 8-inch specifications

The addition of rotary tools permits process integration

The machine can be equipped with simple rotary tools capable of boring and milling on side faces.

XD-10i

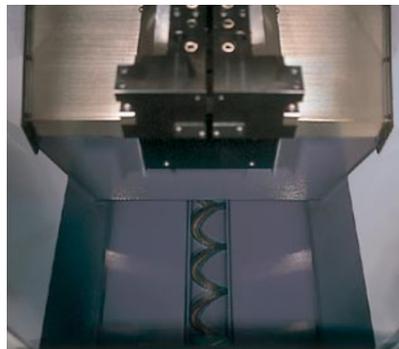
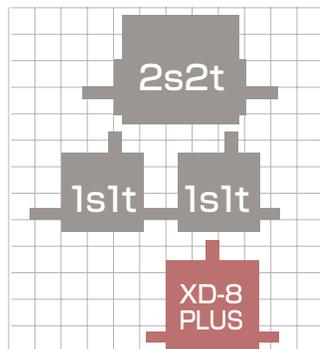
Spindle output characteristics



consider people and the environment.

Footprint of only 2.5m² (XD-8 PLUS)

These machines offer space savings of approximately 30% in comparison with conventional 2-spindle, 2-turret lathes, and in a line comprising two single lathes in sequence, this gives a dramatic space saving of 50%, so the operation rate per unit of floor space is greatly improved. (Comparisons are with other TAKAMAZ machines).

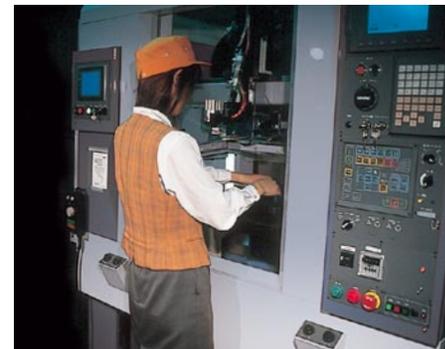


Free chip flow eases the problems associated with chip disposal

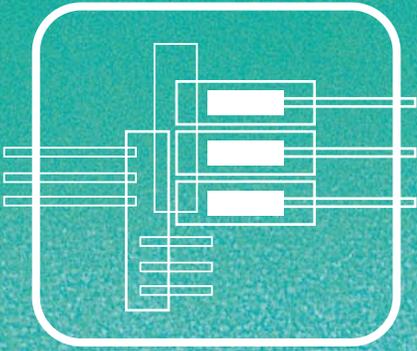
The disposal of chips in the tooling space, which previously caused problems with linear turrets, is no problem at all with these machines. And the XD-10i (which has a drum turret) has a chip duct space immediately beneath the chuck and turret, and this in combination with a chip conveyor prevents the accumulation and entangling of chips.

Excellent accessibility for working convenience

The door and shutter can be fully opened, making it very easy to work, and lightening the workload on the operator.



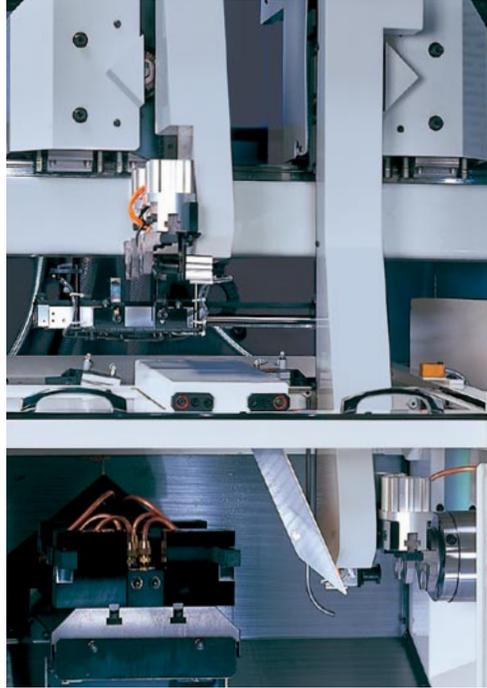
SERVO LOADER



MD-50 ΣD-80



"Zero loss time" servo loader



The loader has a high-speed loading time of 5 seconds per loading. The exceptional total balance that has been achieved by integrating the loader with the machine has led not only to high productivity but also a broad range of other benefits including space savings and joint maintenance during after service.

- ◆ Machine equipped with a dedicated controller that enables even a novice to complete setup reliably and simply.
- ◆ Switching to servomotor drive rather than the air cylinder drive normally used in loaders reduces running costs due to the smaller number of consumable parts.
- ◆ Since the loader is installed on the machine itself, no additional space is used (space savings).
- ◆ A new type of linear guide that does not require lubrication is used, cutting running costs because it is maintenance free.

Excellent productivity

1-spindle 1-turret
(Single lathe)

※ Comparison is with other TAKAMAZ machines



2-spindle 1-slide
(XDseries)



Intermediate turnover unit

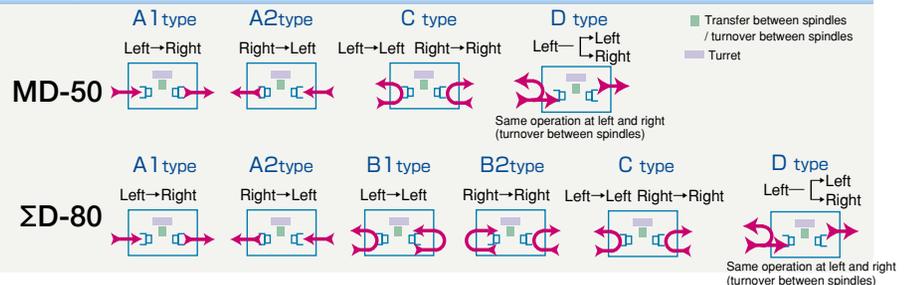


Touch panel

	Units	MD-50 XD-8 PLUS	ΣD-80 XD-10i
Number of controlled axes		2 axes × 2 units	
Maximum bearable diameter	mm	φ50	φ80
Maximum bearable length	mm	60	70
Maximum bearable mass (One side)	kg	0.5	1.0
Finger stroke (One side)	mm	15	16

	Units	MD-50 XD-8 PLUS	ΣD-80 XD-10i	
Traverse axis	Stroke	mm	600	850
	Rapid traverse rate	m/min	75	90
Vertical axis	Stroke	mm	540	500
	Rapid traverse rate	m/min	75	90
Conveyor length	IN	mm	800	1200
	OUT	mm	600	800

Loading variations



OPTIONAL PARTS

Quality / Environment control unit



● **External measurement**
Dimensional error is fed back to the machine to maintain high-quality dimensional accuracy.



● **Oil mist collector**
Collection of oil mist helps to keep the environment clean.



● **Auto. Extinguisher**
Automatically discharges a fire-extinguishing agent if fire breaks out in the machine during operation.

Workpiece stocker / Conveyor unit



● **Convenient stocker**
Reasonably priced and allows control of workpiece transport in bucket units.

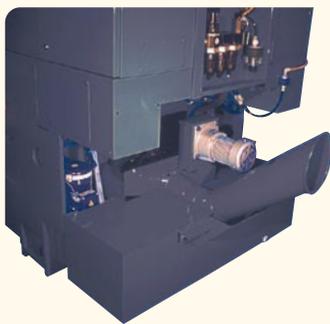


● **Station stocker**
Multi-level stocker that allows a flexible response to changes in workpiece diameter.



● **Parts feeder**
This is a bucket type stocker suited to small workpieces that do not take up much space. The part feeder can be directly linked to a conveyor.

Cutting efficiency / Chip processing



● **Chip conveyor (Spiral type)**
Enables semi-automated chip disposal in the minimum space. A floor type conveyor is also available.



● **High-pressure coolant**
This is a unit for discharging, at high pressure, coolant that is always cooled. It can extend tool life to a surprising extent.



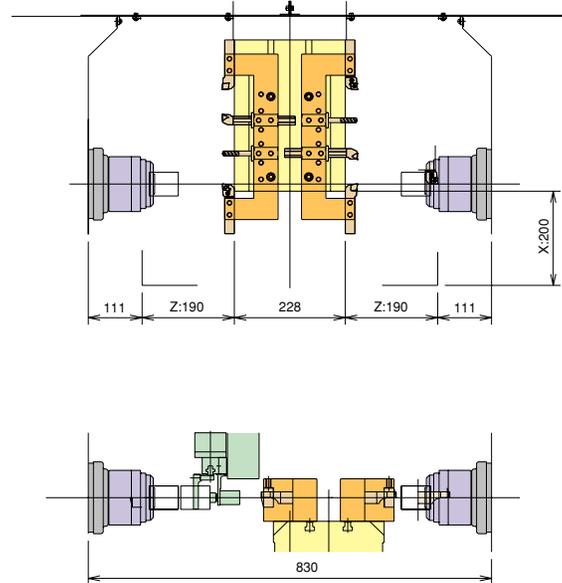
● **Semi dry machining**
Extremely small quantities of vegetable oil coolant with excellent lubricating properties are applied very locally to the tool tip for machining that is close to dry.

STROKE & TURRET



XD-8 PLUS

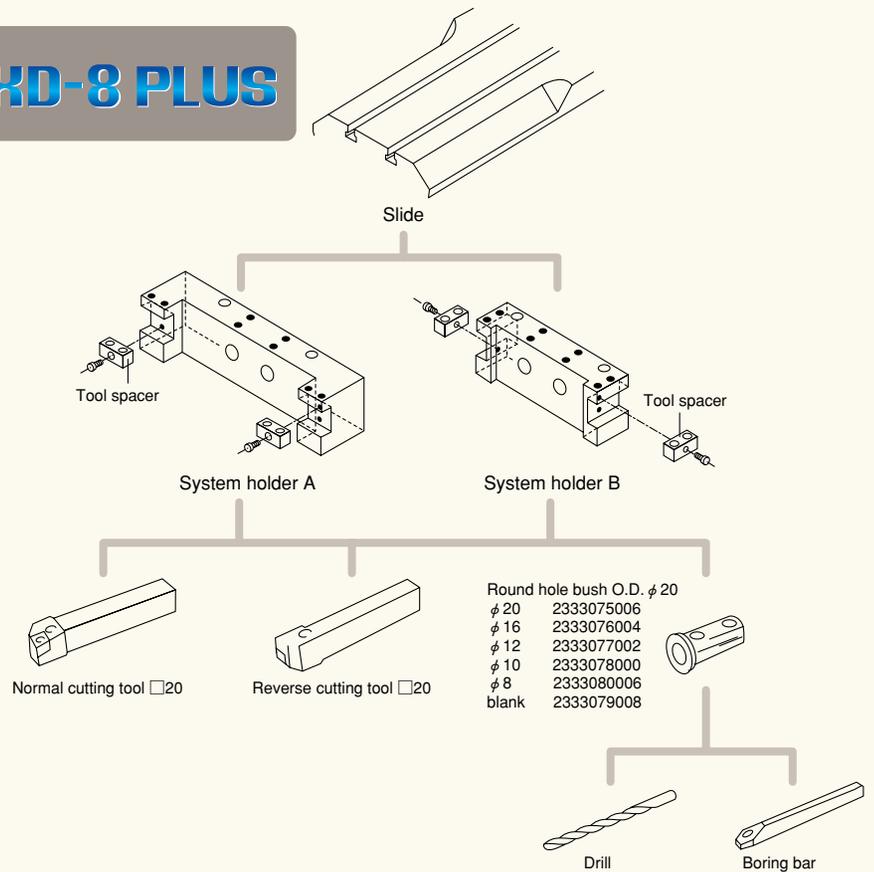
Stroke Diagram (Linear Turret)



TOOLING SYSTEM



XD-8 PLUS



※ The holders at right and left are interchangeable.
 ※ Tools can be adapted for use at the left or right by changing the tool spacer.

Machine Specifications

Item		Unit	XD-8 PLUS	XD-8T PLUS	XD-10i
Capacity	Chuck type	inch	Collet, (5)×2		Collet, (6·8)×2
	Optimum turning diameter	mm	φ50		φ80
	Optimum turning length	mm	60		70
Spindle	Spindle nose	JIS	Flat type		A ₂ -5
	Spindle bearing I.D.	mm	φ65		φ75
	Spindle speed	min ⁻¹	Max.4,500 (*8,000)		Max.4,500 (6,000)
Tool post	Type		Horizontal linear	6-station	10-station
	Square cutting tool	mm	□ 20		□ 20
	Boring holder I.D.	mm	φ25		φ25
	Max. stroke	mm	X:200 Z:380 (±190)	X:140 Z:380 (±190)	X:120 Z:520
	Rapid traverse	m/min	X:18 Z:24		X:18 Z:24
Motors	Spindle motor	kW	AC3.7/2.2 (*5.5/3.7)×2		AC5.5/3.7 (7.5/5.5)×2
	Feed motor	kW	X:AC1.0 Z:AC1.0		X:AC1.0 Z:AC1.4
	Hydraulic motor	kW	(AC0.75)	AC0.75	AC1.5
	Coolant motor	kW	AC0.39×2		AC0.25×2
Size	Spindle center height	mm	1,100		965
	L×W×H	mm	1,580×1,550×1,935		2,310×1,695×1,950
	Machine weight	kg	3,200	3,300	4,100
Total electric capacity		KVA	19 (24:AC 5.5/3.7)	20 (25:AC 5.5/3.7)	29 (34:AC 5.5/3.7)

※For the 8,000 min⁻¹ spindle, a spindle motor of AC5.5/3.7kW is mounted.
():Option

Standard Accessories

Item	XD-8 PLUS	XD-8T PLUS	XD-10i
<input type="checkbox"/> System holder A	2 pcs.	—	—
<input type="checkbox"/> Boring holder	—	Option	2 pcs.
<input type="checkbox"/> O.D. holder	—	2 pcs.	4 pcs.
<input type="checkbox"/> Collet flange	2 sets (Pull type)		2 pcs.
<input type="checkbox"/> Collet chuck (TAKAMAZ standard)	2 pcs.		2 pcs.
<input type="checkbox"/> Air chucking cylinder (Both spindles)	2 sets		—
<input type="checkbox"/> TAKAMAZ loader (2 sets)	1 set		1 set
<input type="checkbox"/> Auto shutter	1 set		1 set

Item	XD-8 PLUS	XD-8T PLUS	XD-10i
<input type="checkbox"/> Coolant unit	1 set (150 lit.)		1 set (190 lit.)
<input type="checkbox"/> Splash guard	1 set		1 set
<input type="checkbox"/> Tool kit	1 set		1 set
<input type="checkbox"/> Instruction manual	1 set		1 set
<input type="checkbox"/> Hydraulic unit	Option	1 set	1 set
<input type="checkbox"/> Cycle end signal light	1 set		Option

Optional Accessories

Item	XD-8 PLUS	XD-8T PLUS	XD-10i
<input type="checkbox"/> System holder B	○	—	—
<input type="checkbox"/> Collet chucks	○ (Internal clamp)		○
<input type="checkbox"/> TAKAMAZ collet system			
850 collet flange	○	—	○
Oversize collet	○	—	○
2A collet flange	—	—	○
<input type="checkbox"/> Power chuck	Air / Hydraulic		Hydraulic
<input type="checkbox"/> Hydraulic chucks	○		○
<input type="checkbox"/> Hydraulic chuck jaws	○		○
<input type="checkbox"/> Formed jaws	○		○
<input type="checkbox"/> Chip cover	○		○
<input type="checkbox"/> Chuck adapter	○		○
<input type="checkbox"/> Draw bar joint	○		○
<input type="checkbox"/> Collet joint	—		○
<input type="checkbox"/> Hollow chucking cylinder	—		○
<input type="checkbox"/> Stocker	Parts feeder	○	○
	Station stocker	○	○
	Rotary stocker	○	○
	Tray changer	○	○
<input type="checkbox"/> Push rod	○		○
<input type="checkbox"/> Special spindle speed	8,000		6,000
<input type="checkbox"/> Work set detector	○		○
<input type="checkbox"/> Spindle orientation (Electric/Mechanical)	○		○
<input type="checkbox"/> Hydraulic chucking cylinder	○*	Standard	Standard
<input type="checkbox"/> Hydraulic pump unit	○*	Standard	Standard

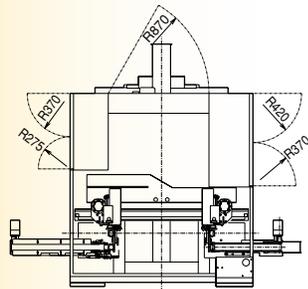
※For the 8,000min⁻¹ spindle, some chucks and cylinders may not be used. Consult our sales representative.

Item	XD-8 PLUS	XD-8T PLUS	XD-10i
<input type="checkbox"/> Thread cutting device (With constant surface speed control)	○		○
<input type="checkbox"/> Boring holder (φ25)	—	○	○
<input type="checkbox"/> Turning holder	—	○	○
<input type="checkbox"/> U-drill holder	—	○	○
<input type="checkbox"/> 2-hole boring holder (φ25)	—	○	○
<input type="checkbox"/> Round hole bush (φ8, φ10, φ12, φ16, φ20)	○		○
<input type="checkbox"/> Drill chuck arbor (JT1, JT2, JT2 1/2)	—		○
<input type="checkbox"/> Drill sleeve (MT1×MT2)	—		○
<input type="checkbox"/> Drill socket (MT2×25)	—		○
<input type="checkbox"/> Chip conveyor (Rear) (Floor type/Spiral type)	○		○
<input type="checkbox"/> Chip bucket	○		○
<input type="checkbox"/> Front air blow	Standard		○
<input type="checkbox"/> Rear air blow	○		○
<input type="checkbox"/> Rear coolant	○		○
<input type="checkbox"/> Signal light (1-color/2-color/3-color)	Standard (3-light)		○
<input type="checkbox"/> Auto fire extinguisher	○		○
<input type="checkbox"/> Auto power-off unit	○		○
<input type="checkbox"/> Parts counter (Total/Preset/Multi)	○		○
<input type="checkbox"/> Special color	○		○
<input type="checkbox"/> Others	※		※

※If you have any request, please consult our sales representative.

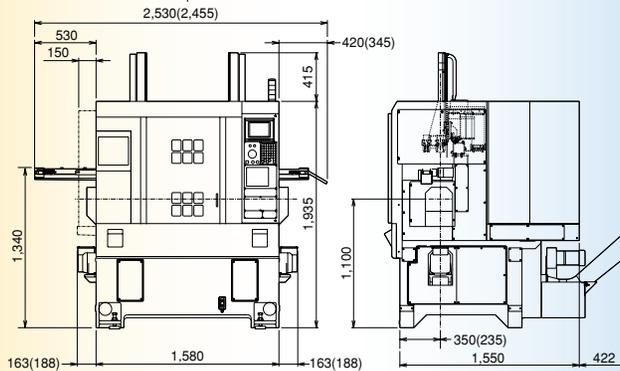
Controller Specifications

Item	XD-8 PLUS	XD-8T PLUS	XD-10i
Machine model	TAKAMAZ&FANUC 0i-TD		
Controlled axes	2 axes (X,Z)		
Simultaneously controllable axes	Simultaneous 2 axes X2		
Least input increment	0.001mm (X in diameter)		
Least command increment	X:0.0005mm Z:0.001mm		
Auxiliary function	M-code 3 digit		
Spindle function	S-code 4 digit		
Tool function	T-code 2 digit	T-code 4 digit	
Tape code	EIA (RS232C)/ISO (840) automatic recognition		
Cutting feedrate	1~5,000mm/min		
Command system	Incremental/Absolute		
Linear interpolation	G01		
Circular interpolation	G02,G03		
Cutting feedrate override	0~150%		
Rapid traverse override	F0,100%		
Program number	4 digits		
Backlash compensation	0~9999 μ m		
Program memory capacity	512kbyte (1,280m)		
Tool offsets	64 sets		
Registered programs	400 pcs.		
Tool geometry/Wear offset	Standard		
Canned cycle	G90,G92,G94		
Radius designation on arc	Standard		
Tool offset measurement input	Standard		
Background editing	Standard		
Direct drawing dimension programming	Standard		
Custom macro	Standard		
Additional custom macro common variables	#100~#199,#500~#999		
Pattern data input	Standard		
Nose R compensation	G40,G41,G42		
Inch/Metric conversion	G20/G21		
Programmable data input	G10		
Run hour/Parts count display	Standard		
Extended part program editing	Standard		
Multiple repetitive cycle	G70~G76		
Multiple repetitive cycle II	Pocket-shaped		
Clock function	Standard		
Help function	Standard		
Alarm history display	50 pcs.		
Self-diagnosis function	Standard		
Sub-program call	Up to 10 loops		
Decimal point input	Standard		
2nd reference point return	G30		
Work coordinate system setting	G50,G54~G59		
Stored stroke check 1	Standard		
Stored stroke check 2,3	Standard		
Input/Output interface	RS232C,Memory card,Ethernet		
Alarm message	Standard		
Graphic display	Standard		
Abnormal load detection	Standard		
TAKAMAZ maintenance function	Standard		—
Conversational programming with graphic function	Standard		
Spindle orientation	(Option)		
Constant surface speed control	(Included in the thread cutting unit G96,G97 : Option)		
Tool life management	(Option)		
Multiple M codes in one block	(Max.3 : Option)		
Continuous thread cutting	(Included in the thread cutting unit G32 : Option)		
Variable lead thread cutting	(Included in the thread cutting unit G34 : Option)		
Thread cutting retract	(Included in the thread cutting unit : Option)		
Dynamic graphic display	(Option)		
TAKAMAZ option functions	(Work/Tool counter,Tool load monitor,Other : Option)		—



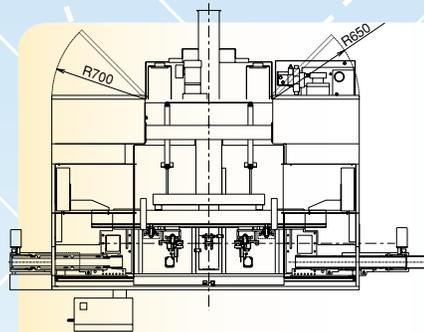
XD-8 PLUS

() : Machines equipped with a turret.

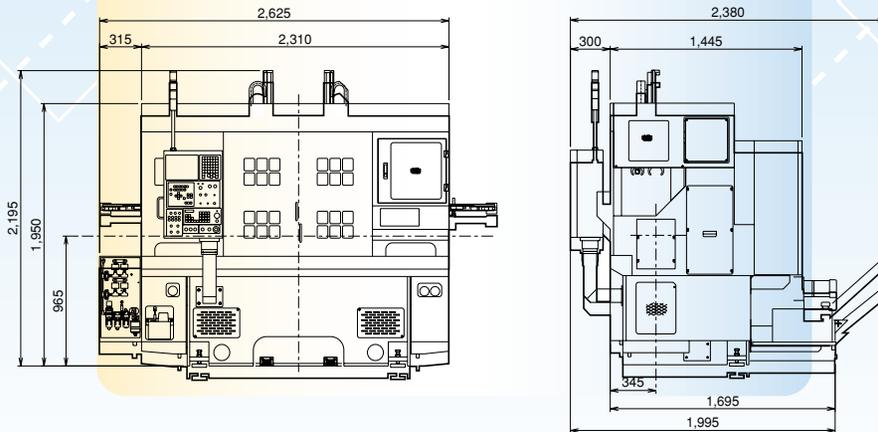


※When a turret is used, the hydraulic unit is the free-standing type.

XD series



XD-10i



Units (mm)

TAKAMAZ

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