



MultiTurn

CNC Combination Lathes



Advanced Turning Technology

MultiTurn

The highly versatile flat bed design handles a wide range of turning applications: long shafts, bar stock, castings and with the gap removed, large diameter face plate work. Engineered for precision and maximum CNC performance with features found only on high-end CNC lathes.

The Clausing MultiTurn is equipped with the latest generation **Fanuc Oi-T** control package with all digital control and drives or the **FAGOR 8055i T** CNC Control with Icon Key based conversational programming or Conventional ISO G-code programming. A wide choice of tooling options are available to further enhance the versatility of the machine. Gang tooling, quick-change tool posts and automatic indexing turrets are available to maximize output in most any situation. The heavy-duty cast iron machine is ideal for: CNC users looking for increased versatility at a very low capital outlay, first time CNC buyers looking for programming simplicity, job shops looking for increased output, low to high production runs and education and training facilities needing a real lathe with step-by-step simplicity

The perfect machine for many of today's CNC turning applications...



- Control panel rides on a rail, so the control can be positioned for maximum operator convenience
- Anti-friction PTFE material between saddle and bed greatly reduces friction and has superior dampening properties for improved surface finish. The low friction PTFE material minimizes bed wear and extends machine life
- Heavy-duty cast iron bed ways are induction hardened to 45Rc
- Triangulated web bed design provides a very high torsional stiffness, eliminating bed deflection even under heavy cutting conditions
- Extra wide bed maximizes support for saddle and cross slide assembly for smooth machining, even of large workpieces
- Variable AC spindle drive motor for exceptional range of spindle speeds
- Automatic three range headstock allows full horsepower at low rpm for more efficient machining of large components or hardened steels
- Superior headstock continuous pump lubrication system to ensure long spindle bearing and gear life
- Automatic oil system, with low oil alarm, to maintain proper lubrication of slide ways and ballscrews
- Digital AC servo drive system provides powerful and accurate axes positioning
- Fully enclosed, interlocking guarding to maintain a clean work environment (120" center machine has a single door interlocked to cross slide)
- The compact size of the MultiTurn design allows for efficient use of floor space
- Top rated ABEC9 GAMET high-precision spindle bearings
- Fast rapid traverse rates
- Fast, easy set-up: Quickest of any lathe on the market
- MPG handles, Feed joy stick, Spindle start lever, for easy manual operation

Machine Bed

Clausing MultiTurn's cutting-edge lathe design and construction quality begins with the unique bed design. MultiTurn beds use high quality cast iron, with a unique 'Warren' type design for maximum strength and optimum chip clearance.

In addition, the MultiTurn lathe bed is mounted on cast-iron bases, to provide a solid foundation. Slideways are hardened and specially ground to ensure high-precision, parallel operation of the lathe at all times.

Operators Console

The operator's console is located and designed for convenience and efficiency. The hand wheels are installed at the ideal ergonomic height for ease of use and have the MultiTurn popular "one-click-one-micron" rotational feel sensitivity.

The complete operator's control panel moves on its own independent carriage which allows it to be moved quickly and effortlessly to the side during loading and set up.



Shown with
Optional
8 Station Turret

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Drive Train

Into the design and development of all MultiTurn lathes goes the technical expertise of specialists from Clausing's partner companies. Their combined research programs ensure that all new MultiTurn lathes feature the most advanced developments in spindle bearing technology and chuck design. This provides the highest possible spindle speeds and optimum chuck performance for high accuracy turning with maximum load carrying capacity.

Headstock

Crucial to turning precision and quality is the design and capability of the headstock. These lathes have top rated spindle motors for extra power and more torque in all speed ranges. This means that 'bottom end' torque has been increased by over 75% giving excellent, extremely accurate metal-cutting performance at lower speeds. All Clausing MultiTurn lathes are equipped with three range headstocks enabling the correct range to be automatically selected from the lathe's control system. Headstock lube pump for continuous oil lubrication of bearings and gears.

MultiTurn XS Series



Fanuc Oi T Control

Clausing/MultiTurn XS Series:

The XS series features the Fanuc Oi-T control with Clausing/Colchester enhanced 'Manual Guide *i*' assisted programming allowing the operator to generate part programs quickly and efficiently through the use of easy-to-understand conversational style cycle prompts. The Fanuc Oi-T control package comes with an all digital control and drives offering exceptional value and reliability.

The Fanuc Oi-T is one of the most user-friendly controls in the industry today and is loaded with many standard features to increase your productivity...

- Multi-repetitive Cycles G70-G76 for automatic finishing, roughing, drilling, threading and grooving cycles
- Toolpath Graphics for verification of part profile
- 10.4" Color LCD Display
- Inch/metric data input
- Absolute/incremental programming in the same block
- Thread cutting leads range from 0.00001" to 1.0"
- Threading retract
- Variable lead threading
- Multiple and continuous threading
- Rigid tapping
- 2 axes linear and circular interpolation
- Constant surface speed/direct rpm programming
- Menu programming format with operator prompts
- Sequence number search
- Sequence number comparison and stop
- 128K part program memory
- Background editing
- Extended part program edit
- 64 sets of tool offsets
- Optional stop/block delete
- Run hour part counter
- Tool nose radius compensation
- Tool geometry/wear offsets
- Tool life management
- Work coordinate system G52-G59
- Automatic reference zero return G28
- Reference position return check G27
- Spindle orientation
- Machine alarm diagnostic
- Absolute encoders
- Manual pulse generator
- RS232, USB, PCMCIA Flash interface ports
- Mirror image
- Dynamic graphic display
- Pattern data input
- Manual intervention and return
- Chuck/tailstock barrier
- Latest Fanuc Beta *i* series spindle and Beta *i* axis motor

Clausing/Colchester Enhanced Manual Guide *i* for XS Series

CNC Turning

The real strength of Manual Guide *i* is the CNC Graphical User Interface. While working in Manual Guide *i*, the Fanuc control system is creating a CNC program in the background. The conversion from conversational mode to CNC mode is instant. The programmer can work in either CNC or conversational mode or even both at the same time. Furthermore, industry standard CNC programs can be loaded into and out of the control at any time.

Simulation and Animation

Manual Guide *i* has a more powerful graphics package than many commercial CAD/CAM systems. After a program has been created, a simulated component can be viewed in any direction, or as a 3D model that can be cut, sectioned or magnified to see detail.

This simulated component can then be animated to show the cutting process, toolpath, metal removal and the finished component checked for accuracy.

Alpha System XS Series

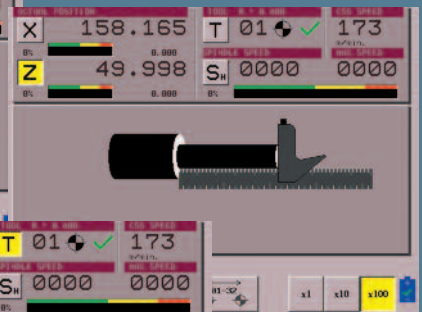
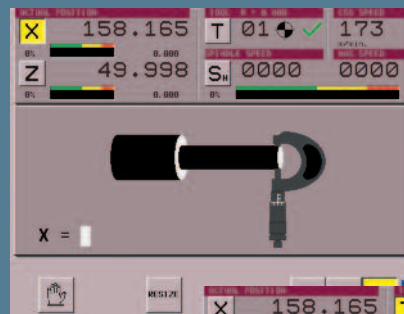
Unique control software developed by Colchester/Harrison to enable you to double, triple or even quadruple your productivity compared with other turning methods. The reason our Alpha System is so simple, practical and shop floor friendly is that our engineers are lathe specialists.

The Alpha System uses easily recognizable screen graphics along with simple question and answer prompts to guide you. It is also the reason that the Alpha System uses a touch screen, so you can work directly on screen rather than hunt for the right button to press.

Manual Turning

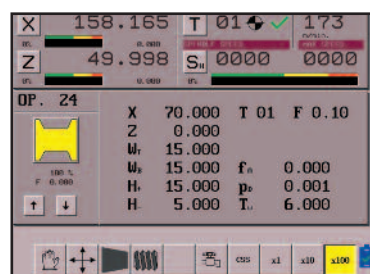
Turn the switch to the Alpha side of the control and you are turning manually. It's as simple as that! The manual screen display shows X and Z positions just like a DRO plus spindle speed, tool number and feed rate.

Even if you haven't used a lathe since your schooldays you could walk up to a MultiTurn now and cut metal.



Tool Setting

On many lathes tool setting can be a difficult and tedious process. No lathe control has a simpler tool setting procedure than the Alpha. Just follow the instructions on three screens and the job is done, with the machine automatically calculating offsets and workshifts for you. (These offsets will carry over to the manual guide *i* side).



Semi-Automatic Turning

With the Colchester-Harrison Alpha System, a wealth of semi-automatic turning operations can be performed. These include parallel turning to stop positions, chamfers and radii, tapers, threads, grooves, box cycles and even contour shapes. These can be easily selected to produce even the most complex of components quickly and efficiently. What's more, the easy to understand shop floor language coupled with touch screen simplicity means that an operator can learn to machine parts quickly.

Most operators will learn to use the Alpha System in less than half a day!

One of the advantages of the Alpha System is that you are always in control of the machine and you can manually override machining at any time to gain confidence or to hit the optimum tool performance.

MultiTurn MR Series



Fagor 8055i T Control

Clustering/MultiTurn MR Series:

The FAGOR 8055i T CNC Control is a user-friendly control offering both Icon Key based conversational programming or Conventional ISO G-code programming. The extensive use of graphics at the display means that even complex machining tasks are accomplished and set-up time is minimized for both experienced and beginner operators.

Fagor 8055i T user friendly conversational CNC controls offer powerful and versatile Control features

- Conversational™ Programming
- Direct Dimension Programming
- Multi Repetitive Cycles for automatic finishing, roughing, drilling, threading and grooving cycles
- Toolpath graphics
- 10.4" Color LCD Display
- Programmable increments: 0.0001" min., 999.9999" max.
- Thread cutting leads: 0.00001" min., 1.0" max.
- Thread repair cycle
- Multiple part program storage
- 4mb Memory
- Constant Surface Speed/Direct rpm programming
- Menu programming format with operator prompts
- Two axes linear and circular interpolation
- Tool inspection
- Inch/metric data input
- Rigid Tapping
- Solid Graphics
- Text Search
- Full Alpha/Numeric Keyboard
- Background Editing
- Decimal Point Programming
- Optional Stop and Block Skip
- USB and Ethernet communication

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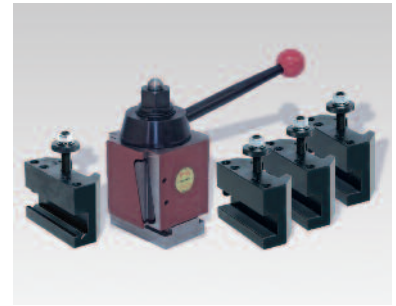
Fagor 8055i T Control for MR-Series

Fagor user-friendly conversational CNC controls offer powerful and versatile programming features that minimizes set-up time for both experienced and beginner operators. The extensive use of graphics at the control panel means that even complex machining tasks are easily dealt with. Only the minimum amount of data is required. Fagor controls permit editing a program while executing another one. They have a profile editor with graphic support to draw contours by entering known measurements right from the blueprint. Constant monitoring of position, velocity, accelerations and potential interference prevents undesired machining and help achieve unmatched part-finish and maximum performance of the machine. The tool inspection feature makes the operator's job easier by allowing him to interrupt the program, check the tool condition, replace it if necessary, reposition the axes and then resume the execution of the program.

Tooling Systems for MultiTurn XS/MR

High Accuracy Quick Change Tool Post

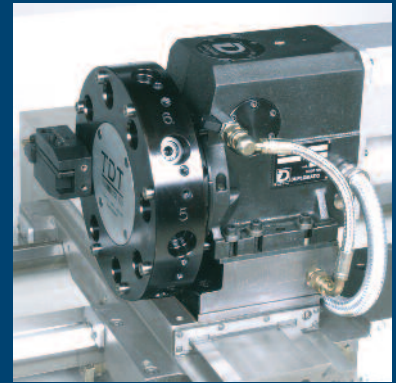
	Part #	Tool Section	Max. Boring Bar Dia.
CNC1000XS/MR	13IDX-BXA	3/4"	3/4"
CNC2000XS/MR	15IDX-CA	1"	1"
CNC3000XS/MR	18IDX-CA	1"	1"
CNC4000XS/MR	21IDX-CA	1-1/4"	1-1/4"



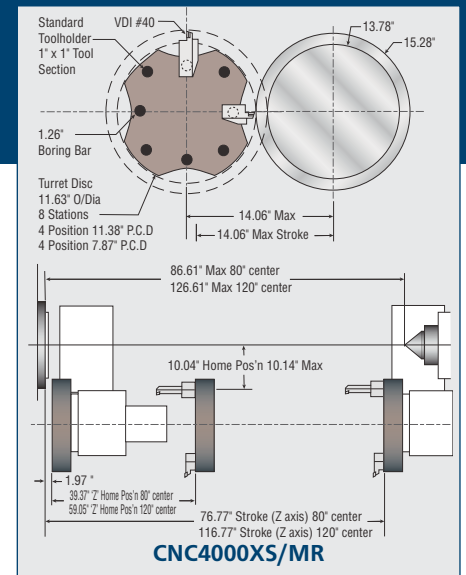
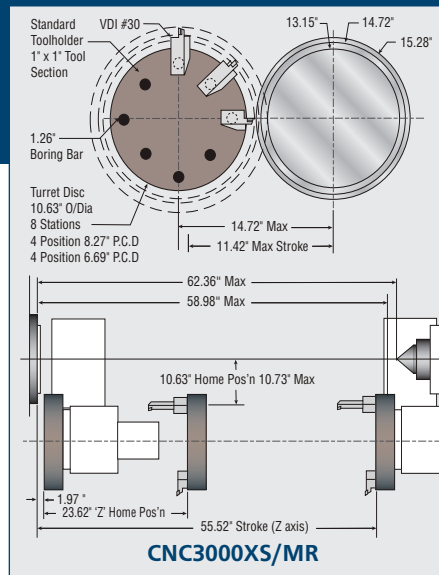
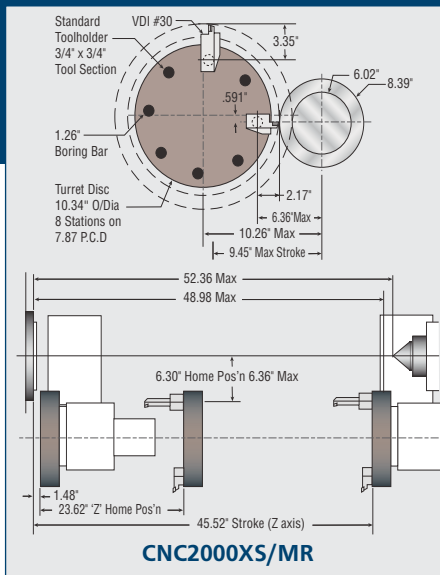
Increase Your Productivity with the Optional 8-Station Automatic Turret with .45 sec. Index Time

Multi station VDI auto power turret mounted on the front of the cross slide.

	TOOLHOLDER SIZE	TOOL SECTION	MAX. BORING BAR DIA.	NO. OF STATIONS
CNC1000XS/MR	VDI 30	3/4" (20mm)	1.26" (32mm)	8
CNC2000XS/MR	VDI 30	3/4" (20mm)	1.26" (32mm)	8
CNC3000XS/MR	VDI 30	3/4" (20mm)	1.26" (32mm)	8
CNC4000XS/MR	VDI 40	1" (25mm)	1.57" (40mm)	8



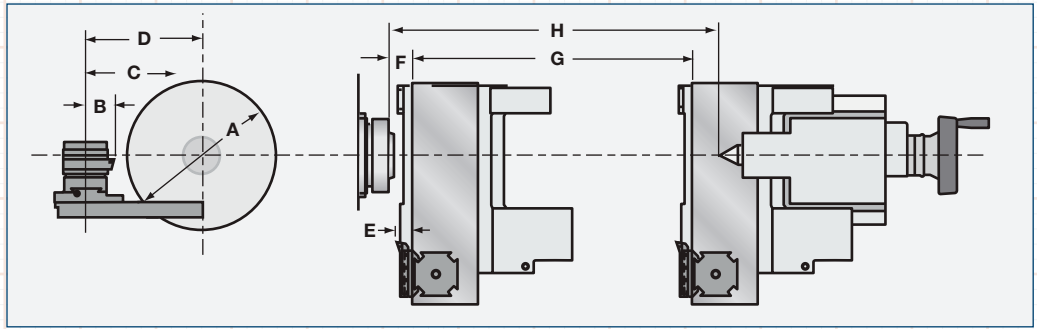
Turret, Tooling Stroke and Traverse Dimensions



Machine Options

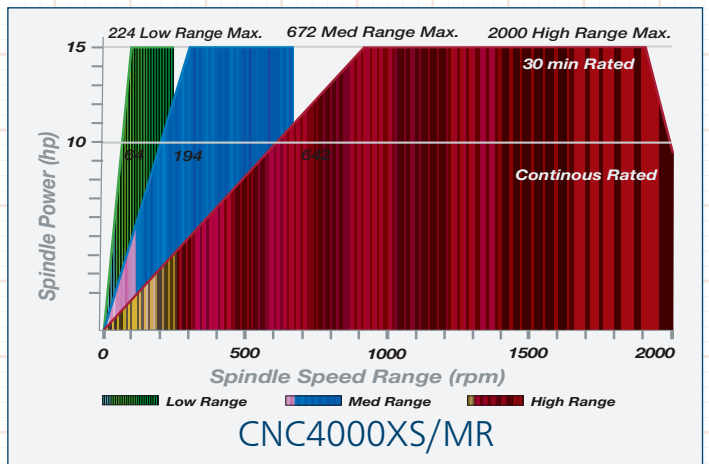
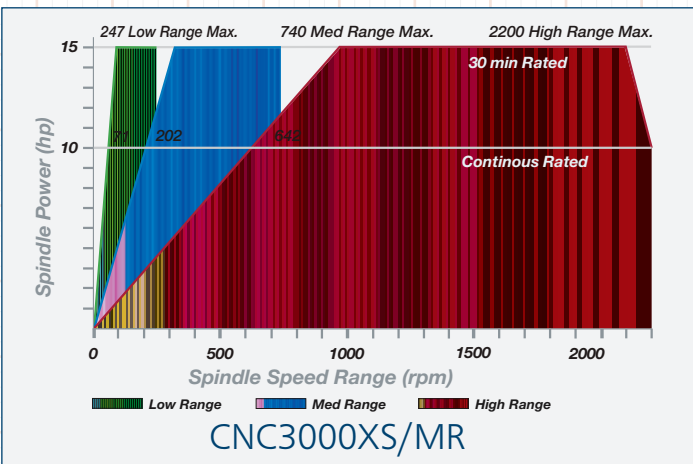
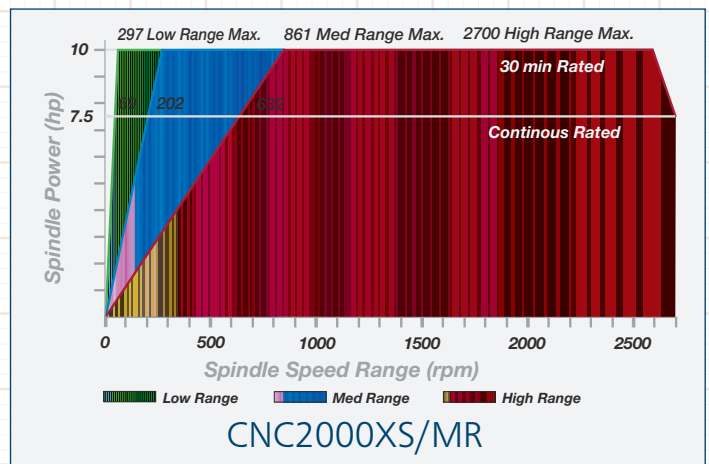
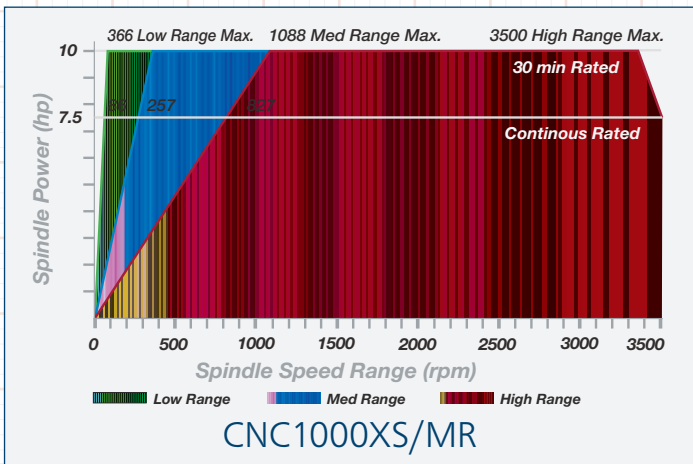
- Superior precision manual 3 & 4 jaw chucks and hydraulically operated 3 jaw chucks
- Range of 5C collet chucks and collets
- Range of fixed and travelling steadies
- Rotating centers
- Workholding faceplate with guard
- Driveplates
- Choice of manual or automatic tooling systems

CNC1000XS/MR
 CNC2000XS/MR
 CNC3000XS/MR
 CNC4000XS/MR



Model	Center	Spindle	A	B	C Stroke	D	E	F Min	G Stroke	H
CNC1000XS/MR	25" (650mm)	D1-4	13.78" (350mm)	3.22" (82mm)	9.44" (240mm)	11.43" (290.5mm)	2.24" (57mm)	3.81" (97mm)	21.93" (557mm)	28.00" (711mm)
CNC2000XS/MR	50" (1250mm)	D1-6	15.75" (400mm)	3.22" (82mm)	9.44" (240mm)	11.43" (290.5mm)	2.24" (57mm)	3.81" (97mm)	45.41" (1156mm)	50.47" (1282mm)
CNC3000XS/MR	60" (1500mm)	D1-8	18.11" (450mm)	3.54" (90mm)	11.41" (290mm)	14.44" (367mm)	1.69" (43mm)	2.79" (71mm)	59.44" (1510mm)	66.06" (1678mm)
CNC4000XS/MR	80" (2000mm)	D1-11	21.81" (554mm)	3.54" (90mm)	11.41" (290mm)	14.44" (367mm)	1.69" (43mm)	2.44" (62mm)	79.13" (2010mm)	85.39" (2169mm)
CNC4000XS/MR	120" (3000mm)	D1-11	21.81" (554mm)	3.54" (90mm)	11.41" (290mm)	14.44" (367mm)	1.69" (43mm)	2.44" (62mm)	118.5" (3010mm)	124.76" (3169mm)

Power Diagrams



Model	CNC1000XS/MR	CNC2000XS/MR	CNC3000XS/MR	CNC4000/80XS/MR CNC4000/120XS/MR
Capacity				
Swing over bed	13.7" (350mm)	15.7" (400mm)	18.1" (460mm)	21.8" (554mm)
Swing over cross slide	7.7" (196mm)	9.7" (246mm)	10.6" (270mm)	14.5" (370mm)
Swing in gap	21" (535mm)	23" (585mm)	28.7" (730mm)	32.7" (830mm)
Gap width in front of faceplate	6.5" (165mm)	6.5" (165mm)	8.5" (400mm)	8.5" (400mm)
Spindle center height from floor	42.7" (1080mm)	42.7" (1080mm)	45" (1143mm)	47" (1194mm)
Construction				
Width of cross slide	7" (178mm)	7" (178mm)	8" (208mm)	8" (208mm)
Type of cross slide ways	Dovetail	Dovetail	Dovetail	Dovetail
Bed width	12.5" (320mm)	12.5" (320mm)	15.7" (400mm)	15.7" (400mm)
Depth of bed	15" (380mm)	15" (380mm)	18" (400mm)	18" (400mm)
Type of bed ways	V and flat ways	V and flat ways	V and flat ways	V and flat ways
Coolant tank capacity	20 gallons (75 liters)	20 gallons (75 liters)	25 gallons (95 liters)	25 gallons (95 liters)
Guarding	Full guarding	Full guarding	Full guarding	80" Full guarding 120" Single door*
Spindle				
Spindle nose	D1-4	D1-6	D1-8	D1-11
Spindle front bearing I.D.	2.756" (70mm)	3.685" (94mm)	5.25" (133mm)	5.905" (150mm)
Spindle taper	4MT	4MT	5MT	5MT
Spindle bore	1.63" (42mm)	2.16" (55mm)	3.07" (78mm)	4.09" (104mm)
Speed ranges automatically selected	3	3	3	3
Spindle speed - low range	1-366 rpm	1-297 rpm	1-247 rpm	1-224 rpm
Spindle speed - medium range	1-1088 rpm	1-861 rpm	1-740 rpm	1-672 rpm
Spindle speed - high range	1-3500 rpm	1-2700 rpm	1-2200 rpm	1-2000 rpm
Spindle drive	Variable AC	Variable AC	Variable AC	Variable AC
Spindle motor (Continuous/30 min)	7.5/10 hp (5/7.5kW)	7.5/10 hp (5/7.5kW)	10/15 hp (7.5/11kW)	10/15 hp (7.5/11kW)
Minimum spindle speed for full power	56 rpm	69 rpm	71 rpm	64 rpm
Power consumption				
	22 KVA	22 KVA	26 KVA	26 KVA
Axis				
Cross slide travel (X axis)	9.65" (245mm)	9.65" (245mm)	11.7" (310mm)	11.7" (310mm)
X-axis rapid traverse	315"/min (8m/min)	315"/min (8m/min)	315"/min (8m/min)	315"/min (8m/min)
X and Z-axis feed rate (inch)	.0012"-236"/rev.	.0012"-236"/rev.	.0012"-236"/rev.	.0012"-236"/rev.
X and Z-axis feed rate (mm)	.03"-60"/rev.	.03"-60"/rev.	.03"-60"/rev.	.03"-60"/rev.
X-axis thrust (continuous)	915 lbs. (415kg)	915 lbs. (415kg)	1,464 lbs. (664kg)	1,464 lbs. (664kg)
Z-axis ballscrew	20 x 4 mm	20 x 4 mm	25 x 4 mm	25 x 4 mm
Saddle travel (Z axis)	21.9" (557mm)	45.5" (1156mm)	55.0" (1510mm)	79.1"/118.5" (2010/3010mm)
Z-axis rapid traverse	394"/min (10m/min)	394"/min (10m/min)	394"/min (10m/min)	394"/min (10m/min)
Z-axis thrust (continuous)	2,064 lbs. (936kg)	2,064 lbs. (936kg)	2,196 lbs. (996kg)	2196 lbs. (996kg)
Z-axis ballscrew	32 x 6 mm	32 x 6 mm	40 x 8 mm	40 x 8 mm
Positioning accuracy	±0.0002" (.005mm)	±0.0002" (.005mm)	±0.0002" (.005mm)	±0.0002" (.005mm)
Repeatability	±0.0001" (.0025mm)	±0.0001" (.0025mm)	±0.0001" (.0025mm)	±0.0001" (.0025mm)
Tailstock				
Tailstock taper	4MT	5MT	6MT	6MT
Tailstock quill diameter	2.48" (63mm)	2.87" (73mm)	3.74" (95mm)	3.74" (95mm)
Tailstock quill travel	5.51" (140mm)	5.51" (140mm)	5.70" (145mm)	5.70" (145mm)

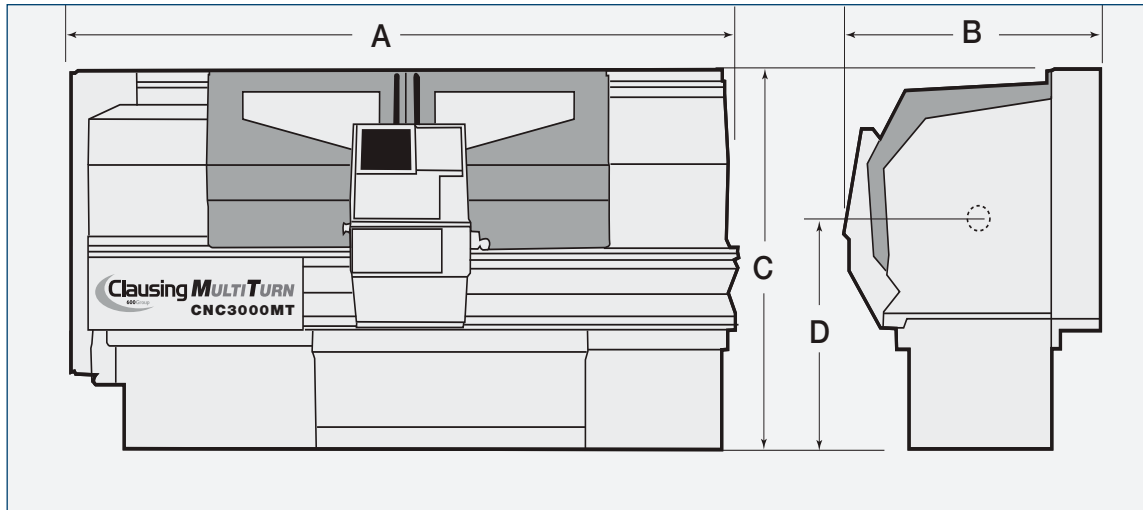
Illustrations and specifications are not binding in detail. The designs are subject to modification and improvement without notice.

Workpiece capacity and machinable lengths and diameters will vary and may be reduced below maximum depending on workholding and tooling used.

Not all the features described in the brochure are relevant to all machines in the range.

*HEAVY DUTY SINGLE GUARD INTERLOCKED TO THE SADDLE, OPTIONAL FULL GUARDING AVAILABLE

Dimension & Weights



Model	Center	A	B	C	D	Weight
CNC1000XS	25" (600mm)	95" (2400mm)	67" (1700mm)	59" (1500mm)	42.7" (1080mm)	3968 lbs (1800kg)
CNC2000XS	50" (1250mm)	114" (2900mm)	67" (1700mm)	59" (1500mm)	42.7" (1080mm)	4850 lbs (2200kg)
CNC3000XS	60" (1500mm)	142" (3600mm)	79" (2000mm)	69" (1750mm)	45" (1143mm)	7054 lbs (3200kg)
CNC4000/80XS	80" (2000mm)	162" (4100mm)	79" (2000mm)	69" (1750mm)	47" (1194mm)	7937 lbs (3600kg)
CNC4000/120XS	120" (3000mm)	201" (5100mm)	79" (2000mm)	69" (1750mm)	47" (1194mm)	8818 lbs (4000kg)
CNC1000MR	25" (600mm)	95" (2400mm)	67" (1700mm)	59" (1500mm)	42.7" (1080mm)	3968 lbs (1800kg)
CNC2000MR	50" (1250mm)	114" (2900mm)	67" (1700mm)	59" (1500mm)	42.7" (1080mm)	4850 lbs (2200kg)
CNC3000MR	60" (1500mm)	142" (3600mm)	79" (2000mm)	69" (1750mm)	45" (1143mm)	7054 lbs (3200kg)
CNC4000/80MR	80" (2000mm)	162" (4100mm)	79" (2000mm)	69" (1750mm)	47" (1194mm)	7937 lbs (3600kg)
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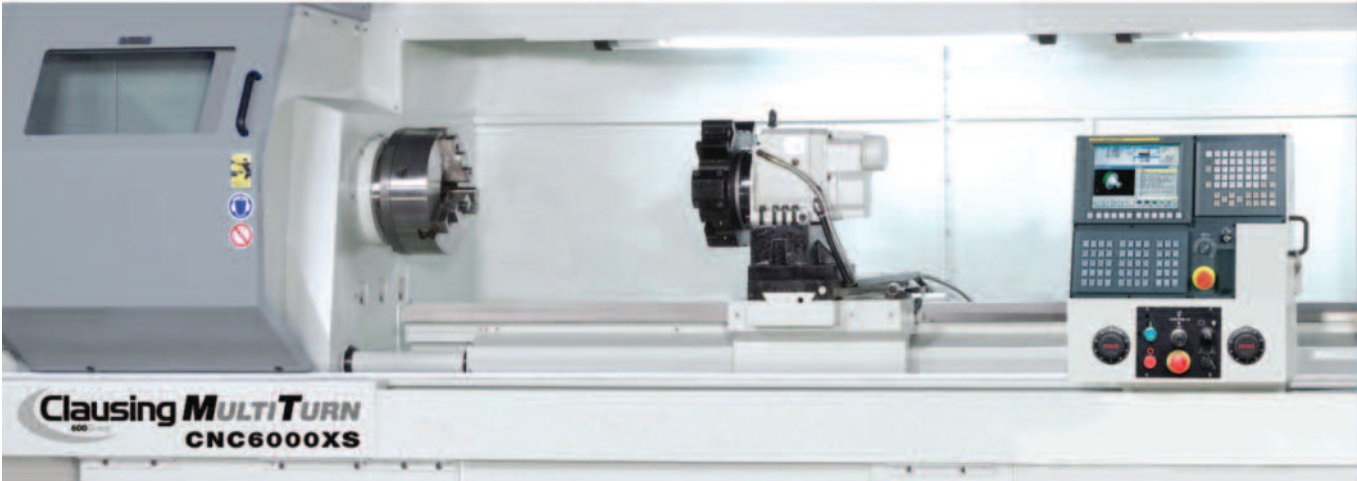


FOR LARGER SERIES MACHINES SEE OUR LARGE
CAPACITY BROCHURE 26" to 40" SWINGS
UP TO 240" BETWEEN CENTERS

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Large Capacity
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Distributed By:



Clausing Industrial, Inc.
Kalamazoo, Michigan
Phone: 269-345-7155
Fax: 269-345-5945
Information: info@clausing-industrial.com

Call Toll Free: 800-323-0972
or visit our website
www.clausing-industrial.com