

# Cincom

## A20

Sliding Headstock Type CNC Automatic Lathe



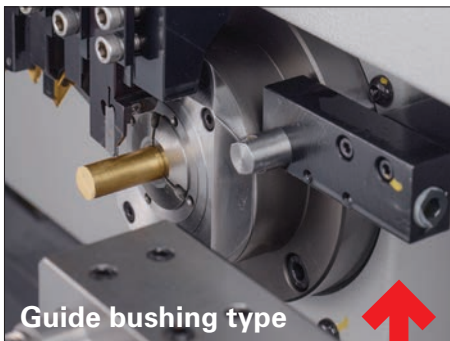
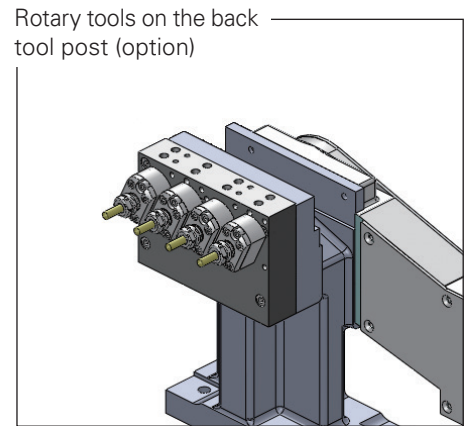
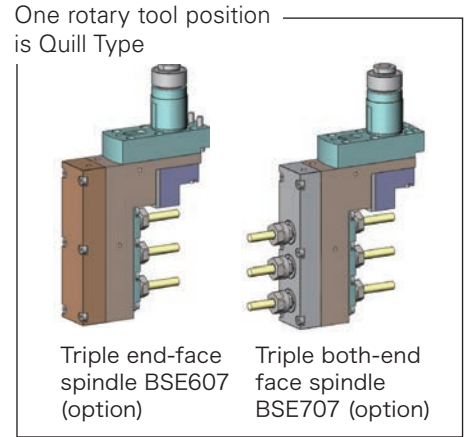
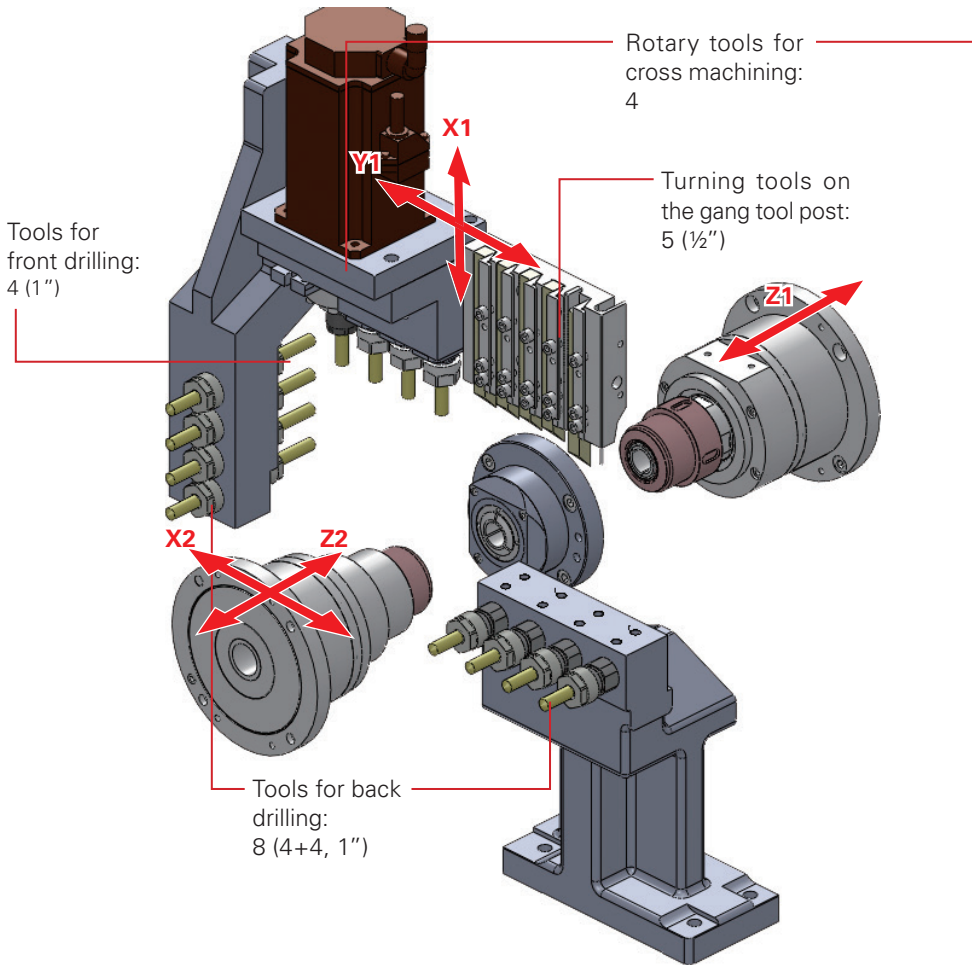
# Switch between guide bushing and non-guide bushing type



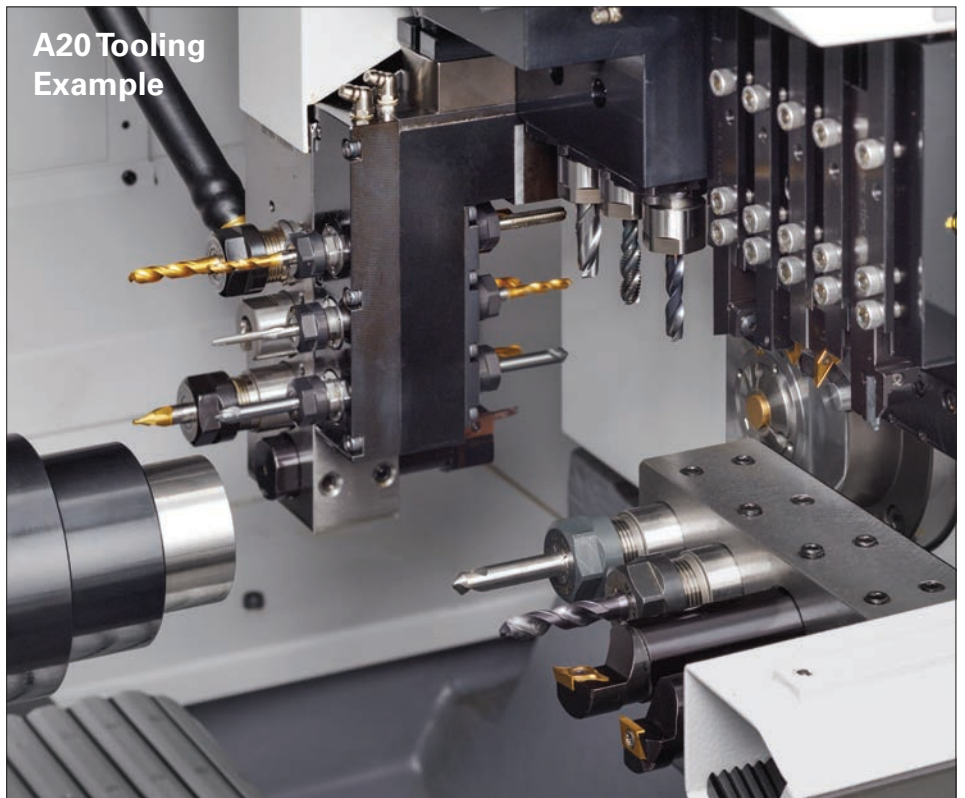
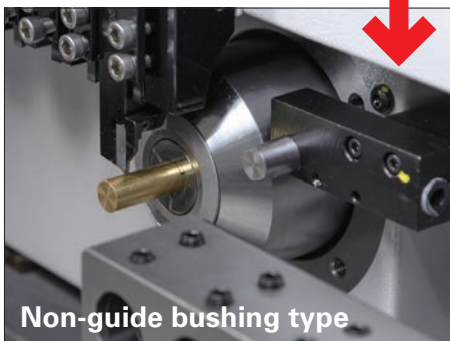
Acclaimed for its excellent cost to performance ratio, the A20 has evolved as a 5-axis machine for  $\varnothing 20$  mm applications with the advantage that it can be used with or without a guide bushing. Use as a regular guide bushing automatic lathe when machining long, slender workpieces or without a guide bushing for shorter parts with minimal bar end remnants. The guide bushing can be quickly and easily mounted and removed.

The performance of the machine has been improved too. The high speed 10,000 rpm spindle enables optimized machining operations on smaller diameter bar material. The machining length per chucking is now extended to 200 mm enabling the number of re-chuckings and therefore cycle times to be reduced when machining long workpieces. As an option, bar material of up to  $\varnothing 25$  mm can also be machined extending the range of workpieces.

# Tooling System



**Switchable**



# More speed, more stroke, more capacity

- The A20 features a new capability to switch between guide bushing and non-guide bushing operating modes.
- The machine's performance, including spindle speed and machining length per chucking, has been increased.
- It is designed for ease of use and convenience with good chip clearance for fast set-ups.

## Maximum spindle speed of 10,000 rpm

The maximum speed of the front spindle is high at 10,000 rpm enabling optimized machining conditions on small diameter bar material or using small diameter cutting tools.

## 200 mm/1 chucking

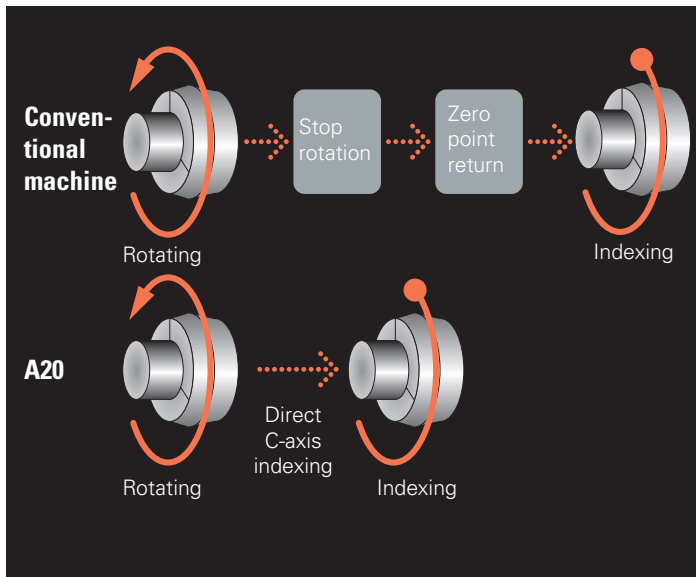
A longer 200 mm machining stroke reduces the need for re-chucking workpieces, which in turn, reduces cycle time.

## Support for stock material up to $\varnothing 25$ mm (option)

With its spindle through hole diameter of 26 mm, the A20 is capable of machining bar stock up to  $\varnothing 25$  mm by installing the optional 25 mm size chuck device — enabling a wider range of workpieces to be produced over the standard 20 mm machine.

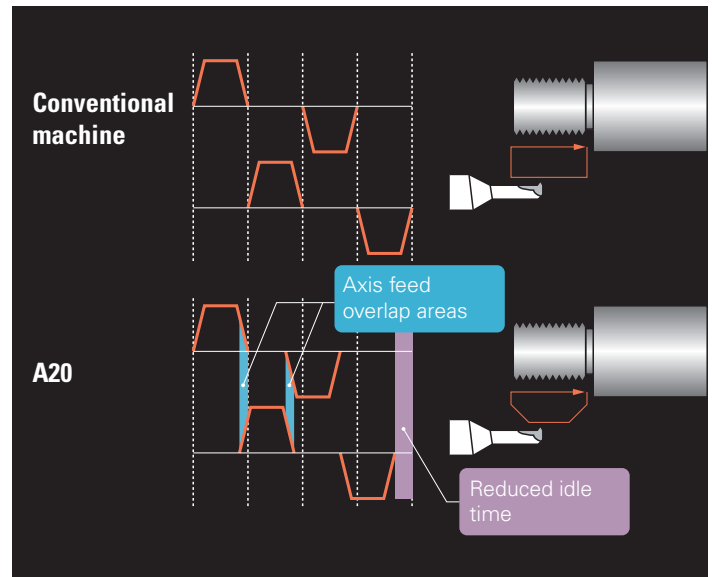
## Productivity Improvements

Idle time is slashed using the preprocessing function the Cincom Control that analyses the machining program before it is run to minimize processing and calculation times.



### Direct C-axis indexing function

Direct C-axis indexing enables deceleration of direct to chosen index position eliminating the wasted time of performing zero return.



### Axis feed overlap function

The next axis feed motion starts without waiting for completion of the current motion of another axis. This cuts out wasteful idle time and also suppresses unwanted vibration.



# Upgraded machine performance and usability



## Work Light

Low energy illumination is provided as standard in the machining area giving an environment that is bright with ideal visibility.



## USB/PC card slot

NC programs can be input and output using the USB slot or PC card slot on the front face of the control panel.



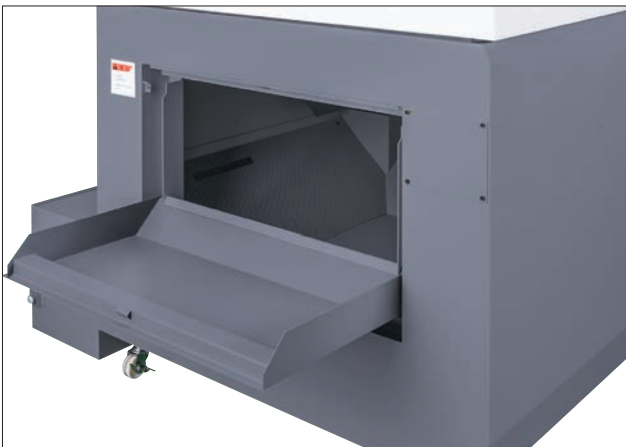
## Coolant nozzle

Coolant nozzles are provided at the appropriate locations to ensure that sufficient coolant can be supplied to the point of machining.



## Parts collection

The large collection box reduces the frequency of emptying. The optional workpiece conveyor discharges to the left front of the machine.



## Coolant tank/chip collection box

A 150-litre coolant tank is standard, enabling extended periods of operation. The chip outlet port has been increased to improve chip removal. Optional chip conveyors are available to suit the type of chip material.



## Adjustable operation panel

The pivoting operation panel enables easy operation while simultaneously viewing the machining process.

## Screen Display is Easy to View and Read



CHECK									
[MCH POS]	I	\$1 [WORK POS]	[REMNANT]	I	\$2 [WORK POS]	[REMNANT]	I	[B. SKIP]	
X1	0.000	X1	0.000	0.000	X2	0.000	0.000	1	2
Z1	0.000	Z1	0.000	0.000	Z2	0.000	0.000	4	5
Y1	20.000	Y1	20.000	0.000				7	8
C1	0.000	C1	0.000	0.000	C2	0.000	0.000		
X2	0.000	F:	0(	0)	F:	0(	0)		
Z2	0.000								
C2	0.000	GANG	T: 1	S1:	0(	4)			
		BACK	T:31	S2:	0(	4)			
				S3:	0(	0)			

\$1	\$2
G50 Z13.6 ;	G99 M23 S2=2500 ;
M9 ;	G660 ;
M6 U0.2 ;	M2125 T5100(CENTER3+90) ;
M51 ;	G0 Z-1.0 ;

MEM \*\*\*\*\* 16:02:51 \$1 OVR100%

HANDLE 1CYCLE 1BLOCK SKIP1 +

### On-machine program check function

Using manual hand feed, operations can be run in the forward or reverse directions, can be paused to edit the program, and restart.

CODE									
CODE		20	COMMENT	DEMO					
G53	MACHINE COORDINATE COMMAND								
G70	FINISHING CYCLE								
G71	STOCK REMOVAL IN TURNING								
G72	STOCK REMOVAL IN FACING								
G73	PATTERN REPEATING								
G74	END FACE PECK DRILL CYCLE								
G75	O/I DIAMETER DRILLING CYCLE								
G76	MULTIPLE THREADING CYCLE								
G80	HOLE DRILLING CYCLE OFF								
G83	DEEP HOLE DRILL CYCLE 1 (Z AXIS)								
G84	SYNC. FACE TAPPING								
G85	BORING CYCLE (Z-AXIS)								
G87	DEEP HOLE DRILL CYCLE 1(X-AXIS)								
G88	SYNC. CROSS TAPPING								
G89	BORING CYCLE (X-AXIS)								
G90	O/I DIAMETER CUTTING CYCLE								
G92	THREAD CUTTING CANNED CYCLE								
G94	FACE TURNING CANNED CYCLE								
G96	CONSTANT SURFACE SPEED CONTROL ON								
G97	CONSTANT SURFACE SPEED CTRL. OFF								
G98	MILLIMETERS PER MINUTE FEED								
G99	MILLIMETERS PER REVOLUTION FEED								

DETAIL
G76 MULTIPLE THREADING CYCLE
P NUMBER OF CUTTING PASSES FOR FINISHING
Q CHAMFERING AMOUNT
R TOOL NOSE ANGLE
Q MINIMUM CUT AMOUNT
R FINISHING ALLOWANCE
X THREAD END POSITION OF X AXIS(ABSOLUTE)
U THREAD END POSITION OF X AXIS(INCREMENTAL)
Z THREAD END POSITION OF Z AXIS(ABSOLUTE)
W THREAD END POSITION OF Z AXIS(INCREMENTAL)
R TAPER HEIGHT
P THREAD HEIGHT
Q CUT AMOUNT OF THE FIRST CUT
F THREAD LEAD

EDIT \*\*\*\*\* 13:53:33 OVR100%

( M CODE G CODE T CODE +

### Display of code list

The function displays the list of G, M, and T codes including explanations - a useful aid to programming.

EDIT			
O	804	INSERT	
O	804 (A320N NETSU-P	)	
\$1		\$2	
G0 X1.0 ;		M15 ;	
G50 Z-0.1 ;		;	
M53 ;			
G113 ;			
M52 ;			
M9 ;			
M6 ;			
G0 X13.0 Z-2.0 ;			
G600 ;		G600 ;	
		T3000 ;	

EDIT \*\*\*\*\* 15:21:14 OVR100%

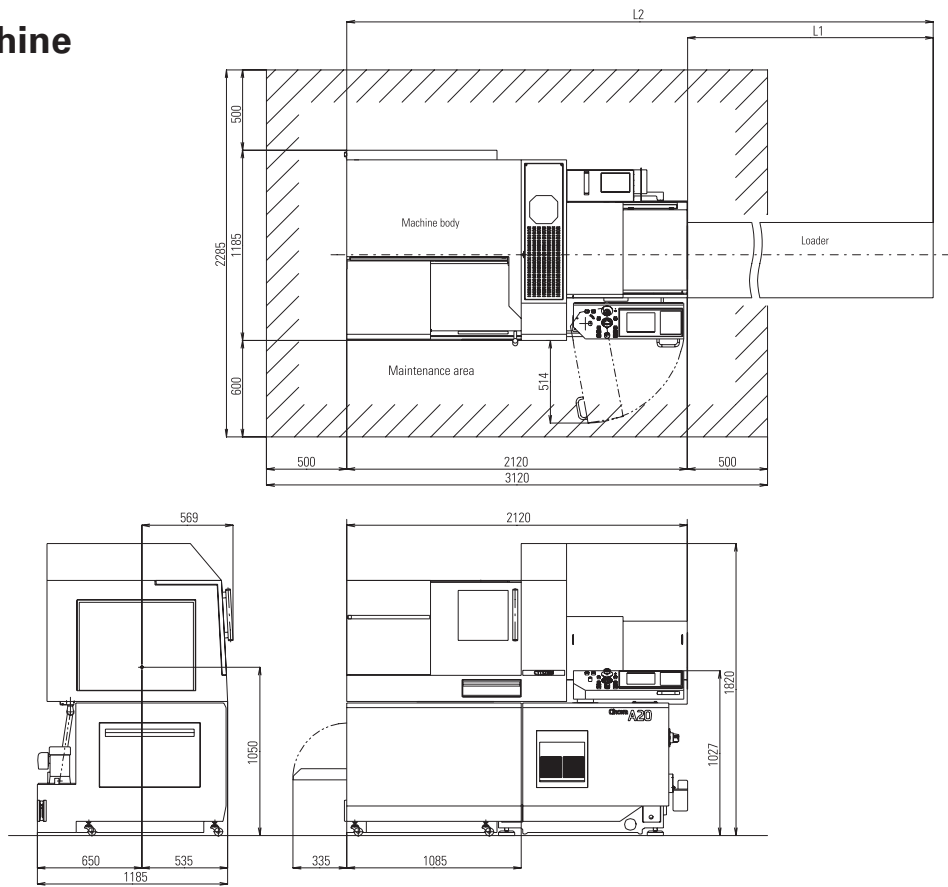
( 1 SYS 2 SYS SYNCH M. DATA \$ SEL +

### Easy viewing with text size change

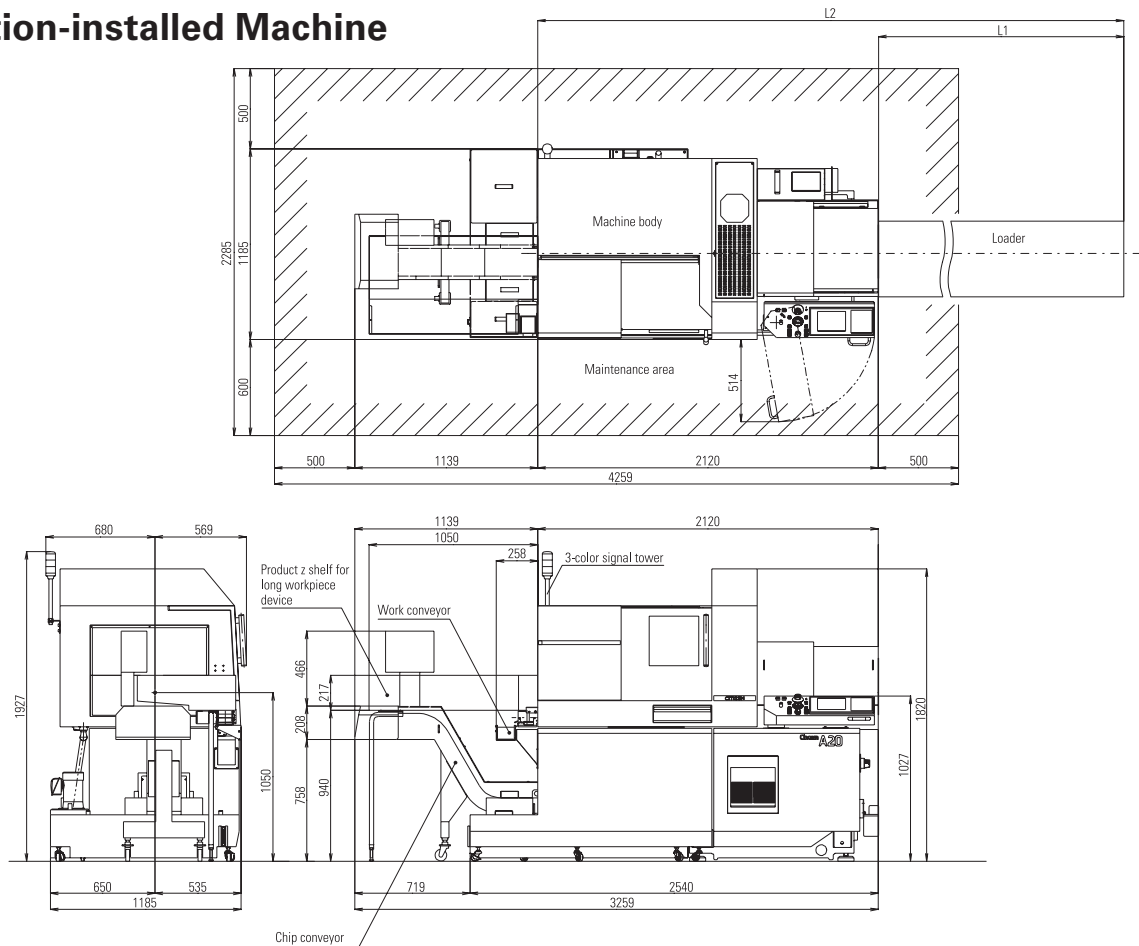
Two text size settings can be applied to each screen (large text display illustrated).

# Machine Layout

## A20 Standard Machine



## A20 Option-installed Machine



# Machine Specifications

Item	A20VII (A20-3F7)
Max. machining diameter (D)	ø20 mm (ø25 option)
Max. machining length (L)	GB:200 mm/1chucking (188 mm: ø25 spec.) NGB: 2.5D
Spindle through-hole diameter	ø26 mm
Main spindle speed	Max.10,000 rpm
Spindle speed of the gang rotary tool	Max. 6,000 rpm (Rating 4,500 rpm)
Max. chuck diameter of back spindle	ø20 mm (ø25 option)
Max. protrusion length of back spindle workpiece	50 mm
Max. protrusion length	100 mm
Back spindle speed	Max. 8,000 rpm
Number of tools to be mounted	21
Tool size	
Tool (gang tool post)	□ 1/2"
Sleeve	1"
Chuck and bushing	
Main spindle collet chuck	TF25 (TF30: ø25 mm)
Back spindle collet chuck	TF25 (TF30: ø25 mm)
Rotary tool collet chuck	ER11, ER16
Chuck for drill sleeves	ER11, ER16
Guide bushing	TD25NS (CD25: ø25 mm)
Rapid feed rate	
All axes (except X1)	32 m/min
X1 axis	18 m/min
Motors	
Spindle drive	2.2 / 3.7 kW
Tool spindle drive	0.75 kW
Back spindle drive	1.1 / 1.5 kW
Coolant oil	0.4 kW
Lubricating oil	0.003 kW
Center height	1,050 mm
Rated power consumption	7.1 kVA
Full-load current	20.2A
Main breaker capacity	30A
Air pressure & air flow rate for pneumatic devices	0.5 MPa • 47NL
Weight	4,851 lbs

## Standard accessories

- Main spindle chucking device
- Back spindle chucking device
- Rotary guide bushing device
- Cut-off tool breakage detection
- Lighting
- Workpiece separator
- Coolant unit with level detector
- Lubricating oil supply unit with level detector
- Door lock
- Pneumatic device for air sealing
- Machine relocation detector

## Optional accessories

- Fixed guide bushing device
- Knock-out jig for through-hole workpiece
- Callback chute
- Long workpiece unit
- Workpiece conveyor
- Chip conveyor
- Coolant flow rate detector
- Signal lamp
- 3-color signal tower

## Standard NC functions

NC unit dedicated to the A20  
 8.4 inch color LCD  
 On-machine program check function  
 Operating time display function  
 Preparation function  
 Spindle speed change detector  
 Nose radius compensation  
 Constant surface speed control function  
 Program storage capacity: 80m (approx. 32KB)  
 Product counter indication (up to 8 digits)  
 Automatic power-off function  
 Continuous thread cutting function  
 Pre-processing function  
 Tool offset pairs: 49  
 Sub micron commands  
 Spindle synchronized function  
 High speed rigid tapping function  
 Chamfering, corner R  
 Canned cycle drilling  
 Drawing dimension direct input  
 Multiple repetitive cycle for turning  
 User macros  
 Y-axis offset  
 Front/Back spindle C-axis function  
 Tool life management I  
 Tool life management II  
 Network I/O function  
 Inch command  
 Sub/inch command

## Optional NC functions

Program storage capacity 2560m (approx. 1MB)  
 Hob/polygon function B  
 Optional block skip (9 sets)  
 External memory program driving

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