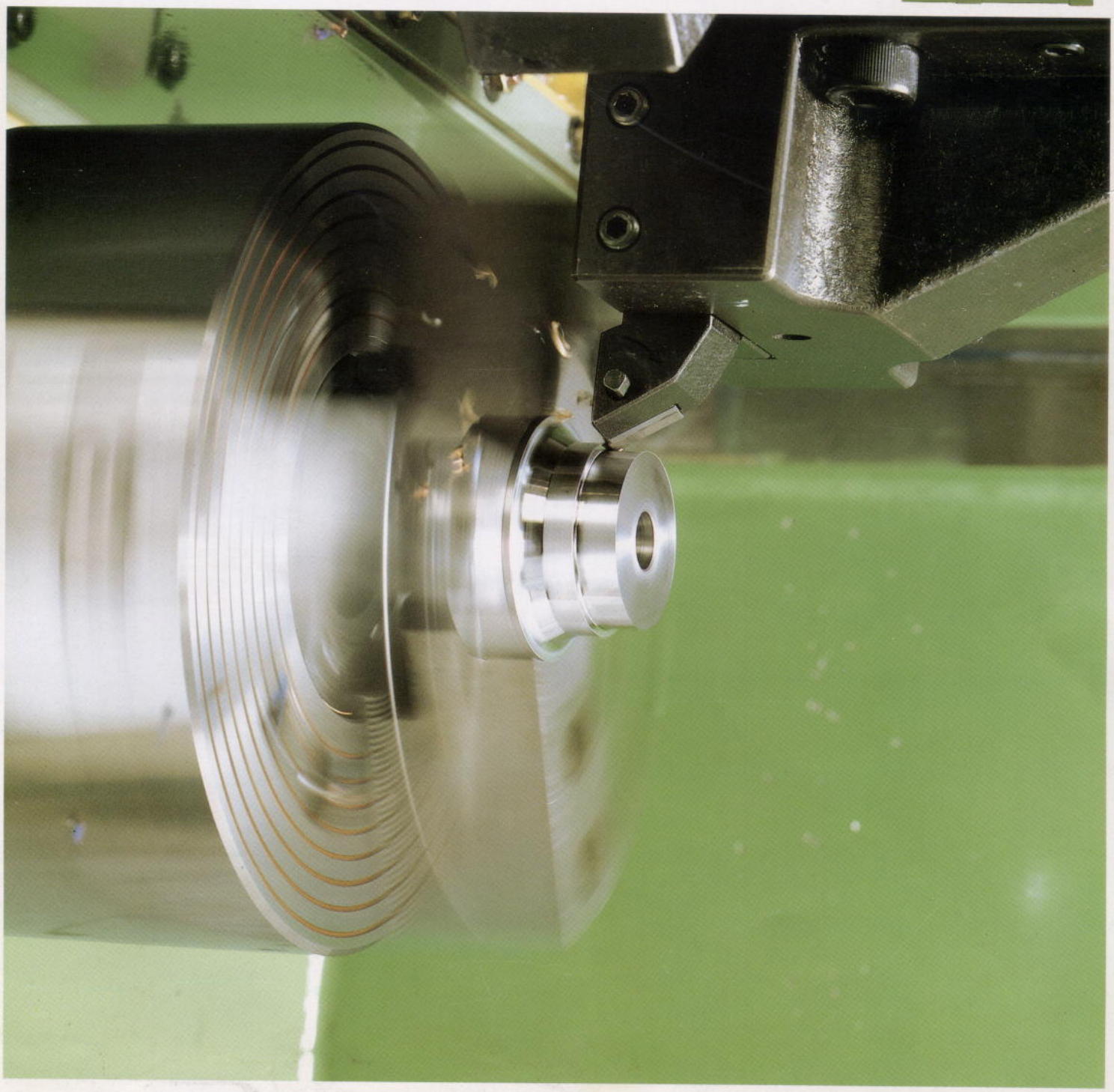
CNC LATHE

SL-00

MORI SEIKI




MORI SEIKI
MORI SEIKI SL-66

Cost-Efficient, Space-Efficient CNC Lathe

New Compact SL-00 Offers High Productivity of High-Precision Parts

High-level technology is advancing at dazzling speeds. We are now virtually on the threshold of the full-scale robot control that is expected to be the hallmark of 21st century production. In the business and manufacturing worlds, astonishing headway is being made in automation and computerization. Even at the level of the individual consumer, the penetration of such sophisticated data processing and transmission equipment as personal computers and facsimile machines has been incredible. The demand for the precision components needed to back up this burgeoning technology is becoming insatiable.

Mori Seiki has been a dedicated contributor to this vital area of the world's technology. We have been committed to the development of state-of-the-art CNC lathes. Our CNC lathes are designed specifically to be integrated into advanced-technology production lines for the machining of small and medium size precision components.

As demands for even greater precision are being heard throughout our industry, we have taken up the challenge of developing a better lathe: one that is even faster, more reliable, with extraordinary accuracy. The result of this is Mori Seiki's new SL-00. We had two main objectives in designing the SL-00: (1) a significant breakthrough in reliability, and (2) major reductions in both non-machining time and indexing time. Mori Seiki's new lathe represents the very best of today's advanced technology. The SL-00 uses a super-fast turret, for example, with a single-station tool-indexing time of only 0.4 seconds; 4-station tool indexing is an astonishing 0.9 seconds.

The SL-00 is an ideal candidate for use in a self-contained machining cell. The array of sophisticated advanced technology functions incorporated into the SL-00 is particularly surprising in view of its compact space-saving design. Even more incredible is that this small-sized lathe is an out-and-out performer when it comes to heavy-duty machining. We have given it a design so strong and so rigid that it will stand up to the roughest punishment you can dish out.

If what you need is an edge on the competition to handle tomorrow's hi-tech precision components, the SL-00 may be the only machine you need at all.

Ultra-rigid, rock-solid bed means flawless accuracy in the toughest cutting jobs

Generous slideway travel (Z-axis: 13" (330 mm); X-axis: 9.8" (250 mm)).
Square leading-frame type construction for long-term stability and precision.

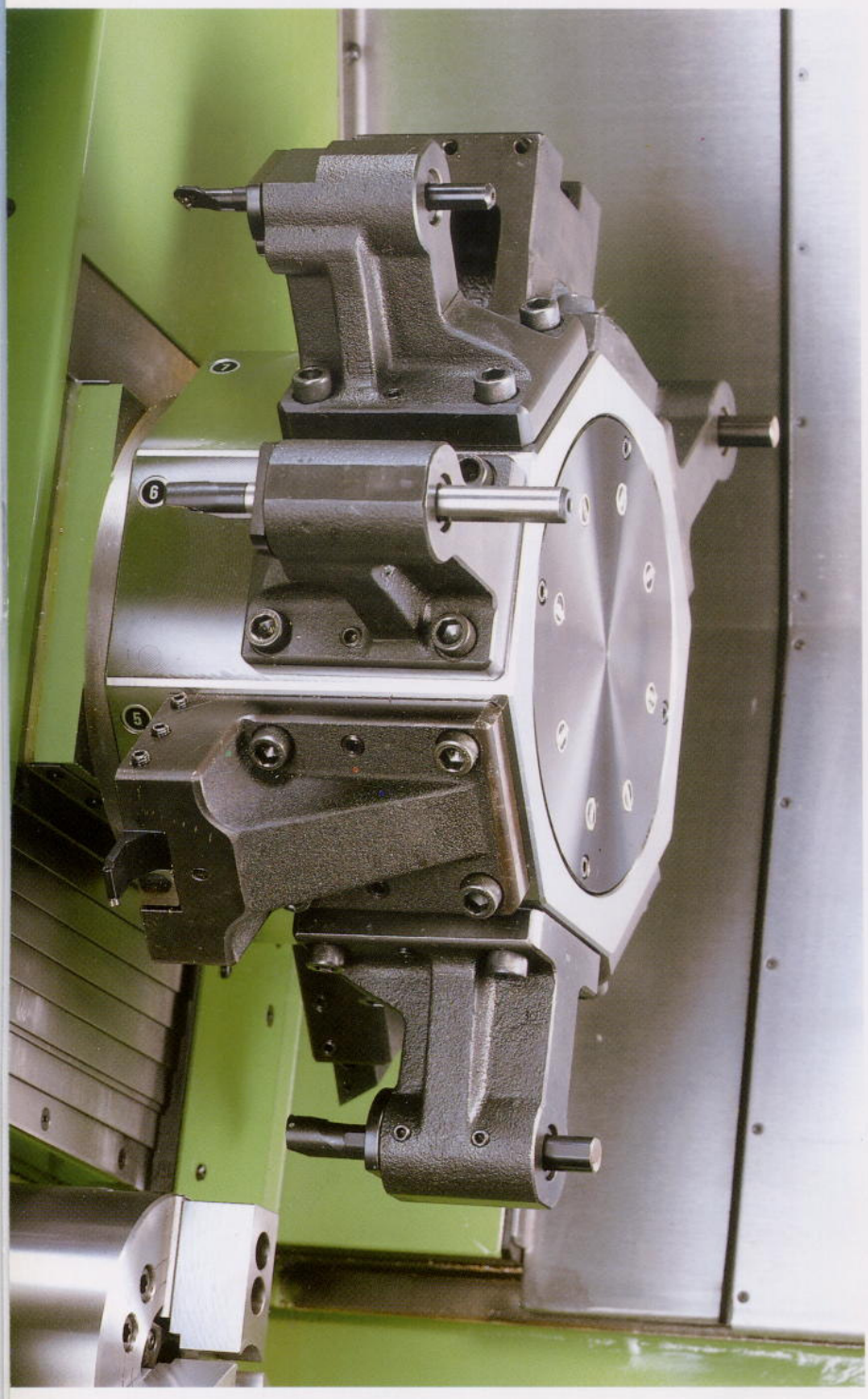
Incredibly efficient operation means less time wasted.

Super-fast turret head. Single-station tool-indexing time: 0.4 seconds; 4-station: 0.9 seconds.

Near-perfect anti-vibration and anti-thermal displacement design.

No gears are used in either the main drive system or in the feed drive system.
This reduces unwanted vibration and heat to the low levels critical for sustained machining accuracy.

A compact performer that sets new machining standards. The SL-00 is the lathe you need to rejuvenate your production line.



Cut back on your idle time with the SL-00's high-speed turret indexing. Single-station: only 0.4 seconds.

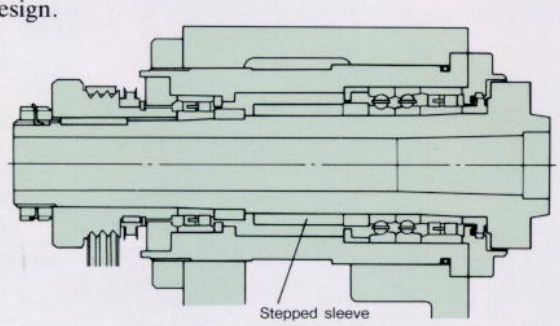
The SL-00 uses our unique non-stop random indexing system to index the turret head. At the heart of this is our own indexing motor, developed and manufactured exclusively by Mori Seiki. The super-fast turret on the SL-00 gives you a single-station tool-indexing time of only 0.4 seconds; 4-station tool indexing is an astonishing 0.9 seconds. This spectacular speed cuts way back on your overall idle time.

Slant-type bed is tough and rigid. The SL-00 stays as stable as a rock through the heaviest machining.

The rigid 70° slant bed makes handling chips and cutting a breeze compared with conventional designs. Large usable slideway dimensions (Z-axis: 13″ (330 mm); X-axis: 9.8″ (250 mm)) plus our square leading-frame type construction are a guarantee for long-term stability and precision.

Headstock anti-thermal displacement is super-efficient. No loss in precision even on the longest runs.

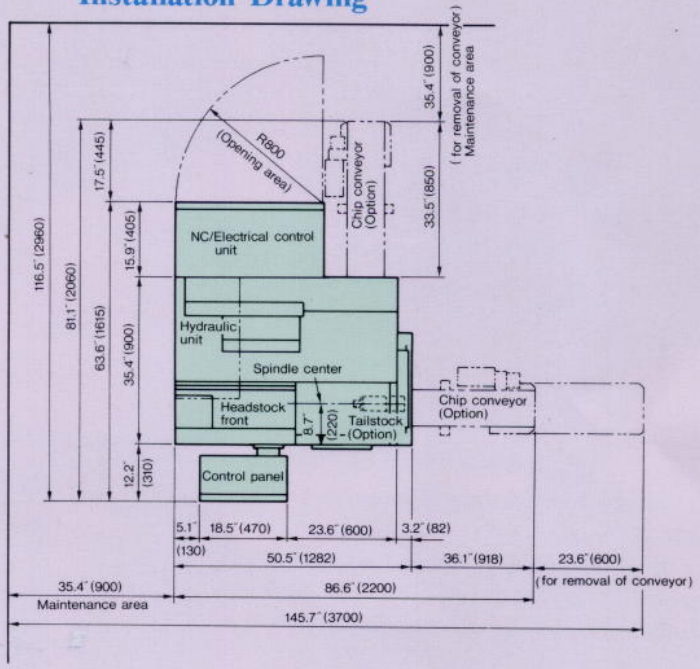
The headstock , like the carriage and the cross slide, is mounted perpendicular to the bed. This means that even though the spindle temperature is raised, there will be no radial thermal displacement. Not only that, but the spindle bearings are grease-lubricated and the headstock design and construction is fine-tuned to dissipate heat. Maximum temperature rise is constantly kept to only 9°C in excess of ambient temperature. This is a remarkable achievement in heat-dissipation design.



The SL-00's small footprint takes up a minimum of valuable floor space. Installation is never a problem. Perfect for integration into your production line.

The length of the typical conventional CNC lathe is usually 2.5 meters greater than its center-to-center dimension. The length of the SL-00 has been shortened down to an incredible 1 meter over the center-to-center dimension. Not only the length, but the entire SL-00 unit is a remarkably compact design. It takes up only about 40% of the floor space of conventional machines.

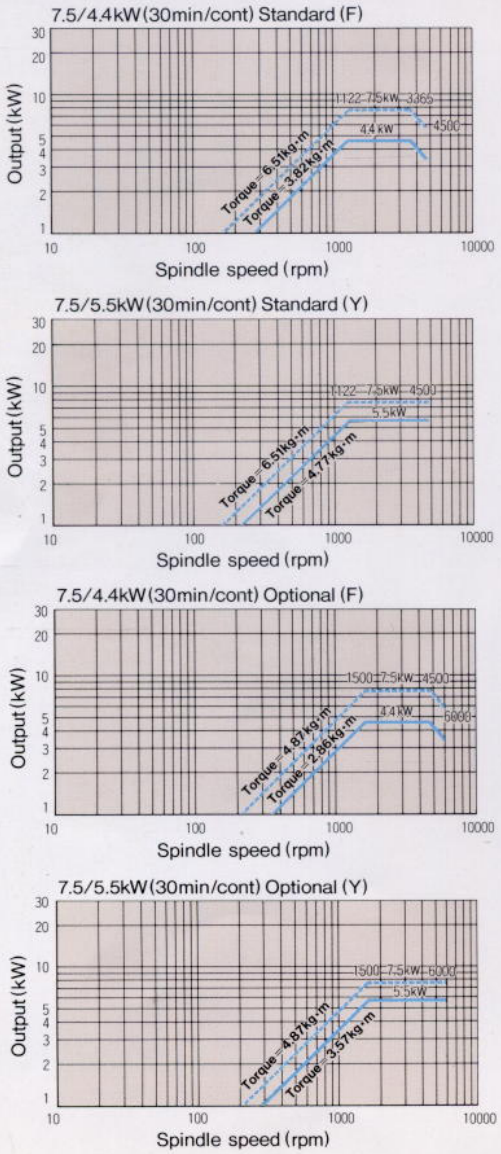
Installation Drawing



The SL-00 has a new high-output drive motor This gives you enough spindle speed for really powerful cutting.

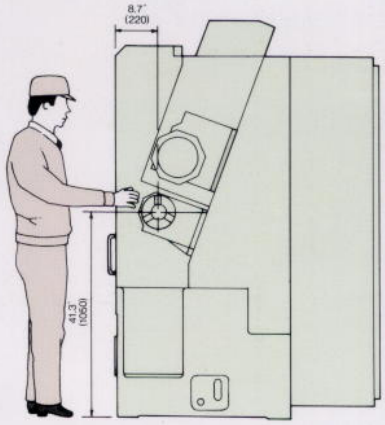
The spindle is powered by a rugged 7.5 kW (AC/30 min. rating) motor driven through "scrum-type" V-belts. The spindle drive motor constantly operates at optimum speed for maximum torque at the spindle — no matter whether you are cutting at low RPMs or at top speed.

Output-Speed Performance Diagram



You will be impressed by the careful design features. All new approach with productivity in mind.

All routine daily checkpoints on the SL-00 can be handled right at the front of the lathe. This includes checking the hydraulic pressure on the chuck and tailstock and topping up lubricating oil. You will appreciate how this design takes the frustration out of day-to-day inspections and makes work go much more smoothly. The spindle center line is a convenient 1050 mm from the floor level and is within easy reach at only 220 mm away from the normal operating position. This careful design means that chucking and removing the workpiece is reliable operation. All controls are conveniently grouped at the central control panel so that every stage of the operation, from programming to final machining, can be carried out from one position on the SL-00.



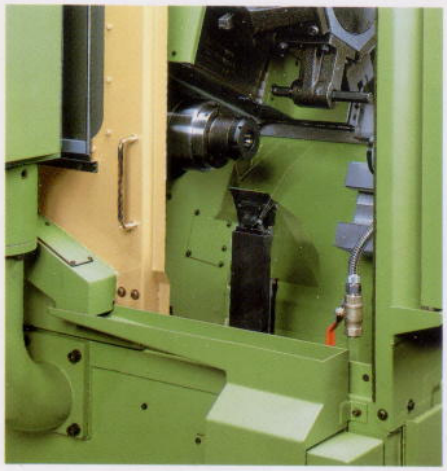
Quickly alerts you to oil leaks or other possible malfunction. Slideway lubrication system has a built-in pressure detector.

Slideway lubricant is effectively controlled by a constant-volume concentrated lubrication system. This advanced system will detect insufficient oil flow and inject lubricant as needed. The sophisticated detection device constantly monitors the system and will warn you should any malfunction be detected, such as leakage in the piping. Just another advanced feature that makes the SL-00 so reliable.

The SL-00 has full complement of peripheral equipment to integrate into your FA setup.

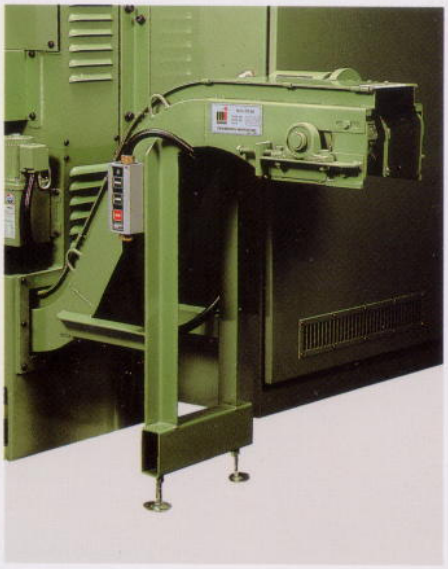
Bar Feeder & Parts Catcher

You no longer have to keep stopping operations when doing bar work. Put the SL-00's bar feeder and parts catcher to work and you can keep machining continuously.
* Handles bar stock up 33mm in diameter.



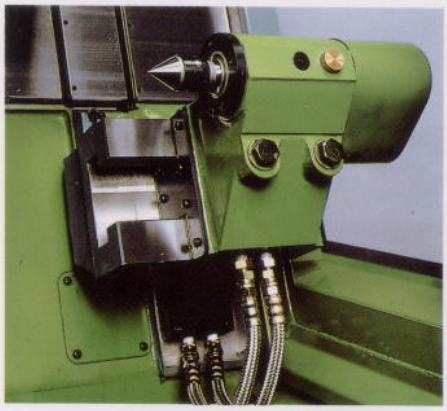
Chip Conveyor

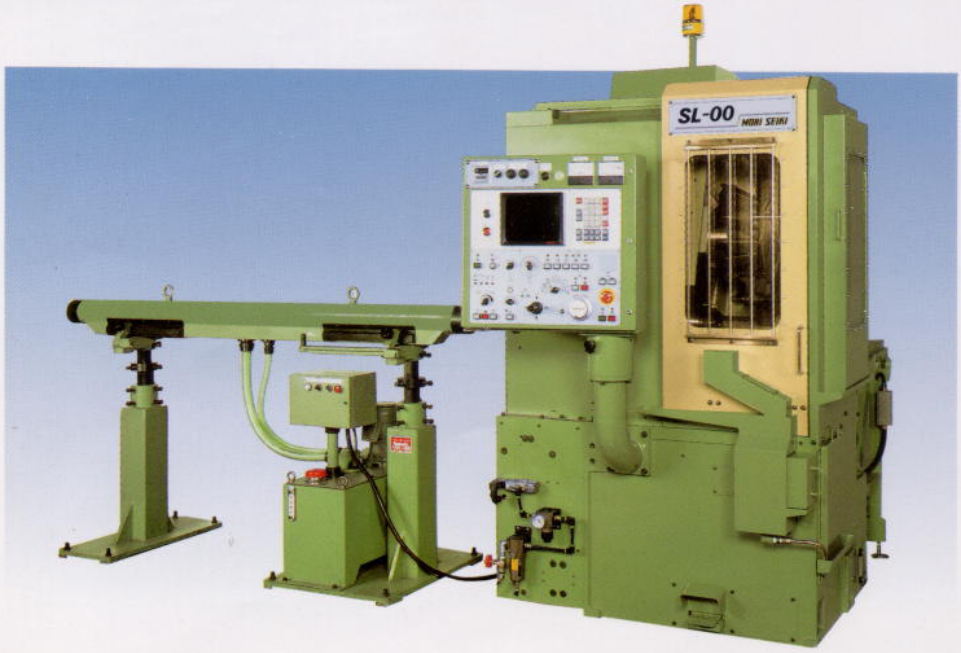
The SL-00's well-designed chip conveyor carries cutting chips away smoothly from the work area. No more worried about shutting down to clean up; just keep on machining as long as you wish.



Tailstock

Depending on the tailstock specifications you select, you can do O.D. work on overlength workpieces up to 180 mm long. Center work makes use of the center of rotation. The tailstock quill is operated hydraulically and can be controlled by the computer program.
Tailstock quill diameter: 40 mm
Tailstock spindle taper: MT-3
Tailstock quill stroke: 45 mm
Tailstock stroke: 70 mm

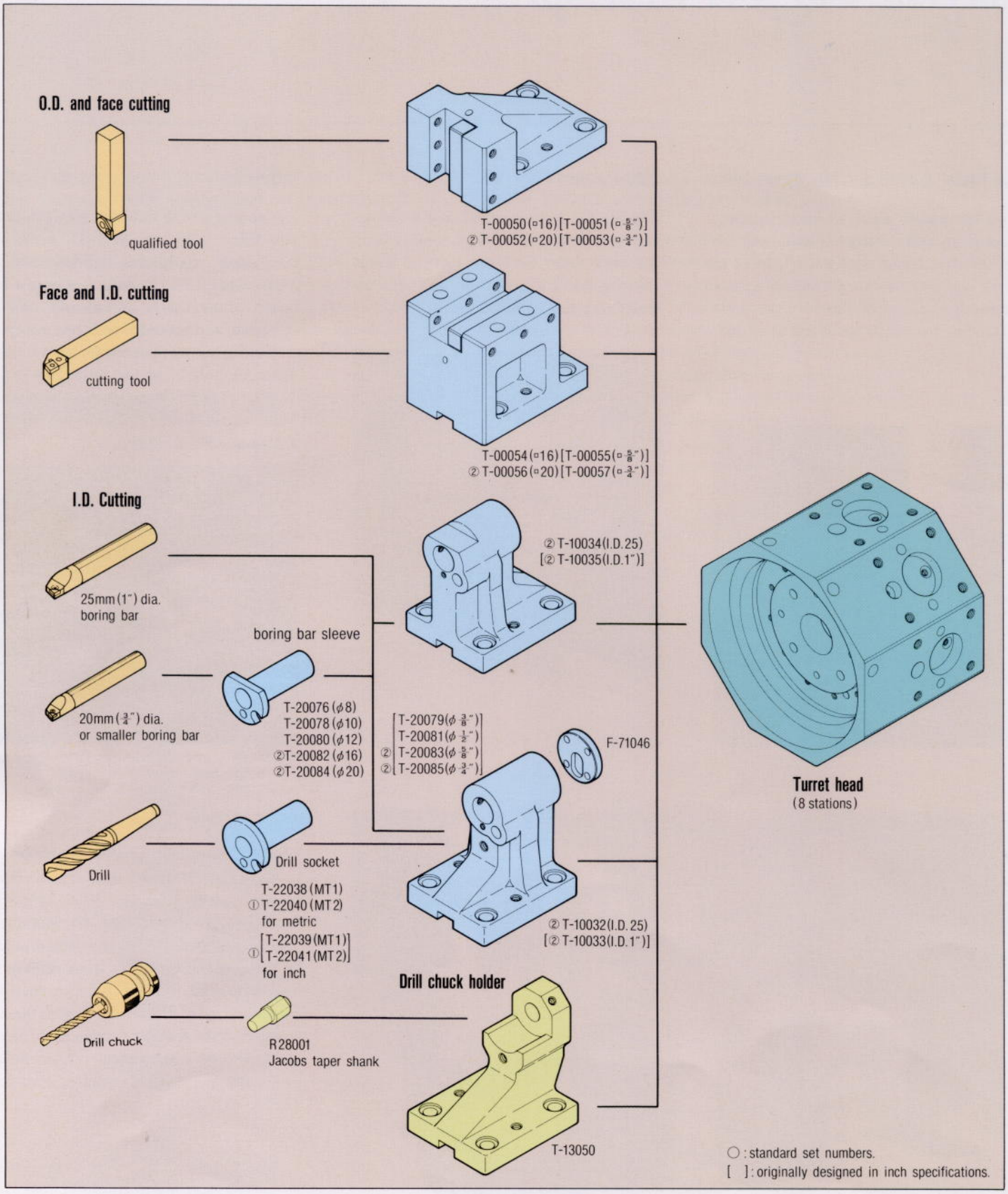




Loader/unloader

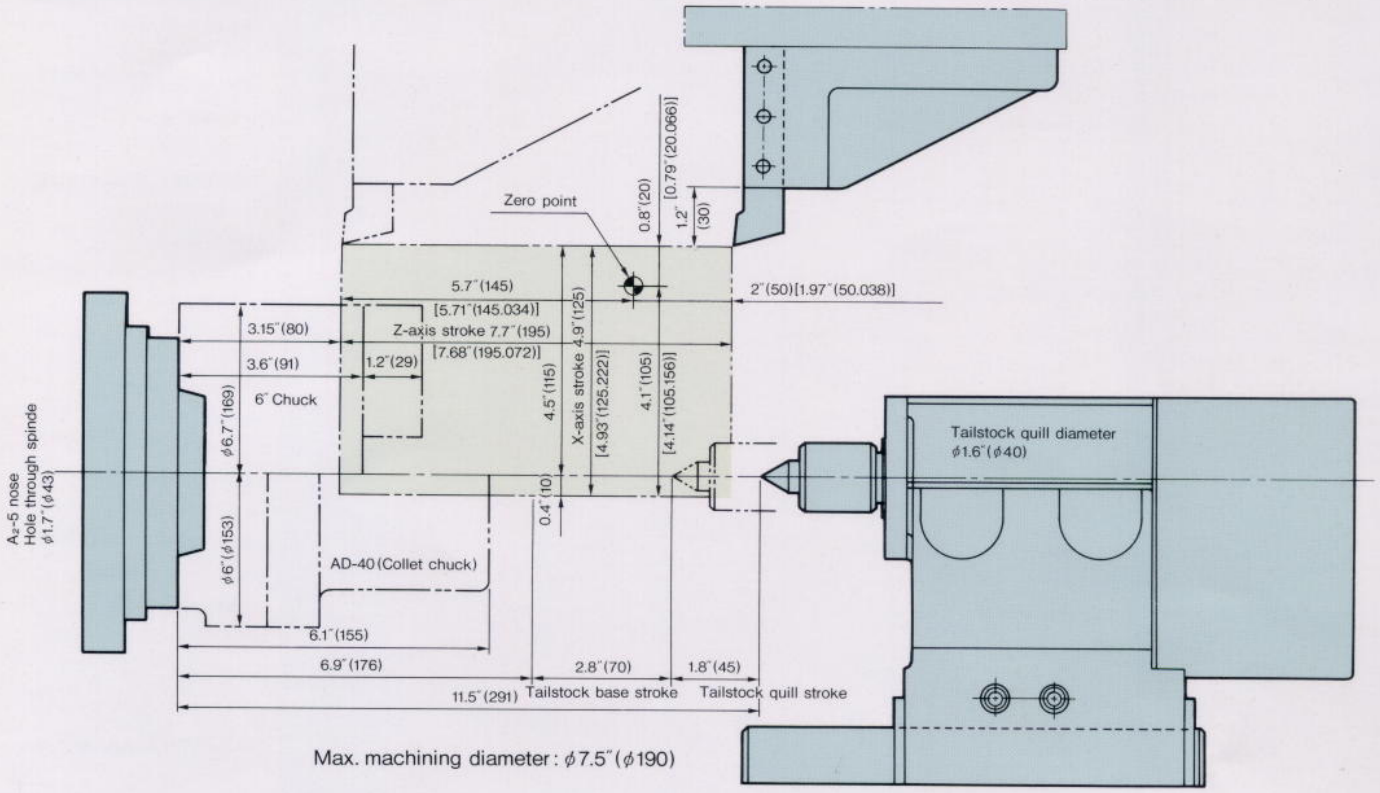
Uses the simple single-arm, double-hand configuration for best results. The loader-traverse design gives you plenty of space in setup operations. The SL-00 loader/unloader can be used with any combination of lathes in parallel or serial lines. Whatever you need to make your production line work more efficiently — auto measuring devices, reversing equipment, ejector unit, and much more — Mori Seiki has a whole range of useful options for the SL-00.

Tool System


O.D. and face cutting
qualified tool
T-00050(□16)[T-00051(□5/8")]
② T-00052(□20)[T-00053(□3/4")]
Face and I.D. cutting
cutting tool
T-00054(□16)[T-00055(□5/8")]
② T-00056(□20)[T-00057(□3/4")]
I.D. Cutting
② T-10034(I.D.25)
[② T-10035(I.D.1")]
25mm(1") dia.
boring bar
boring bar sleeve
20mm(3/4") dia.
or smaller boring bar
T-20076(φ8)
T-20078(φ10)
T-20080(φ12)
②T-20082(φ16)
②T-20084(φ20)
[T-20079(φ3/8")]
[T-20081(φ1/2")]
② [T-20083(φ5/8")]
② [T-20085(φ3/4")]
F-71046
Turret head
(8 stations)
Drill
Drill socket
T-22038(MT1)
① T-22040(MT2)
for metric
① [T-22039(MT1)]
[T-22041(MT2)]
for inch
② T-10032(I.D.25)
[② T-10033(I.D.1")]
Drill chuck holder
Drill chuck
R28001
Jacobs taper shank
T-13050
○ : standard set numbers.
[ ] : originally designed in inch specifications.

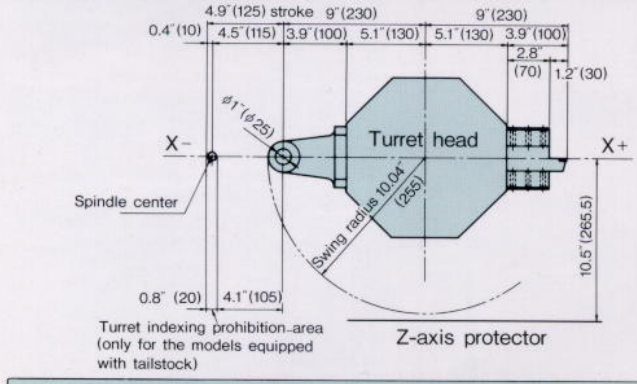
Travel inches (mm)

[ ] Originally designed in inch specifications.

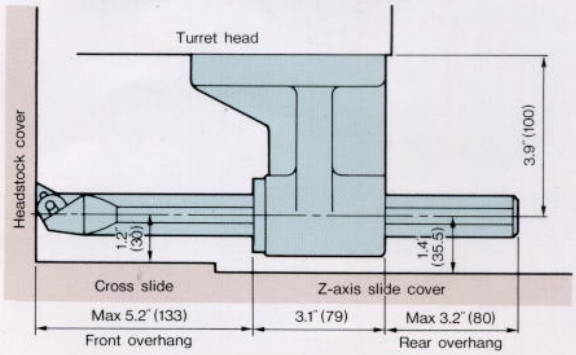


Max. machining diameter : φ7.5"(φ190)

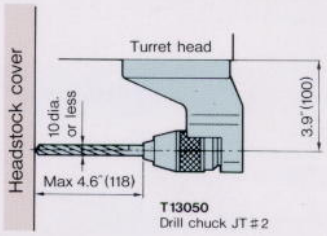
Turret Head Interference



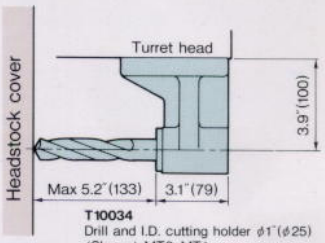
Limitation of front-rear overhang



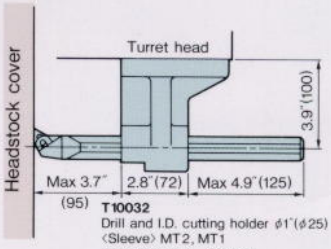
Tool Interference



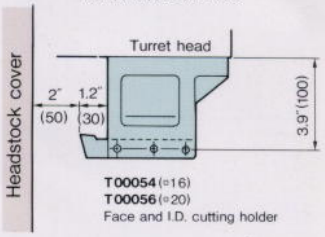
T13050
Drill chuck JT#2



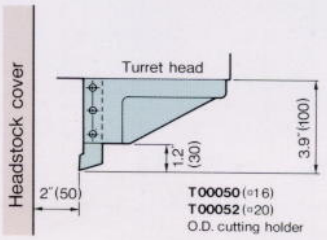
T10034
Drill and I.D. cutting holder φ1"(φ25)
〈Sleeve〉 MT2, MT1
φ20 , φ16 , φ12 , φ10 , φ8



T10032
Drill and I.D. cutting holder φ1"(φ25)
〈Sleeve〉 MT2, MT1
φ20 , φ16 , φ12 , φ10 , φ8



T00054 (□16)
T00056 (□20)
Face and I.D. cutting holder



T00050 (□16)
T00052 (□20)
O.D. cutting holder

Figures in inches are converted from metric measurements.
Design and specifications subject to change without notice.

Machine Specifications

			SL-00
Capacity	Max. swing	inch(mm)	7.5"(190)
	Between centers (option)	inch(mm)	8.3"(210)
	Max. machining diameter	inch(mm)	7.5"(190)
	Max. machining length	inch(mm)	7.1"(180)
Travel	X axis	inch(mm)	4.9"(125)
	Z axis	inch(mm)	7.7"(195)
Spindle	Spindle speed		90~4500(F) 120~6000(F) Optional 30~4500(Y) 40~6000(Y) Optional
	Spindle nose		JIS A_2-5
	Hole through spindle	inch(mm)	1.7"(43)
	Front bearing ID	inch(mm)	3.2"(80)
Turret	Number of tools		8
	Shank height for square tool	inch(mm)	0.8"(20)
	Shank diameter for boring bar	inch(mm)	Max. 1"(25)
	Turret index time	sec	0.4
Feed	Rapid traverse rate	inch(mm)/min	X axis: 157.5"(4000) Z axis: 315"(8000)
	Cutting feed rate	inch(mm)/rev	X axis: 0.00001~40 Z axis: 0.00001~80 (F) X axis: 0.00001~85 Z axis: 0.00001~170 (Y)
	Jog traverse rate	inch(mm)/min	X, Z axes: 49.6"(1260)
Tailstock (Option)	Tailstock stroke	inch(mm)	2.8"(70)
	Tailstock quill diameter	inch(mm)	1.6"(40)
	Tailstock spindle taper		MT 3 (Live center)
	Tailstock quill stroke	inch(mm)	1.8"(45)
Motor	Main motor (30min/cont)	kW	7.5/4.4(F) 7.5/5.5(Y)
	Axis drive motor	kW	X axis: (F) AC0.9 (Y) AC0.85 Z axis: AC1.8
Others	Power consumption	kVA	18
	Coolant tank capacity	ℓ	60
	Required floor space	inch(mm)	50.5" × 63.6"(1282 × 1615)
	Machine weight	lbs(kg)	5060(2300)

Figures in inches are converted from metric measurements.
Design and specifications subject to change without notice.

(F): FANUC (Y): YASNAC

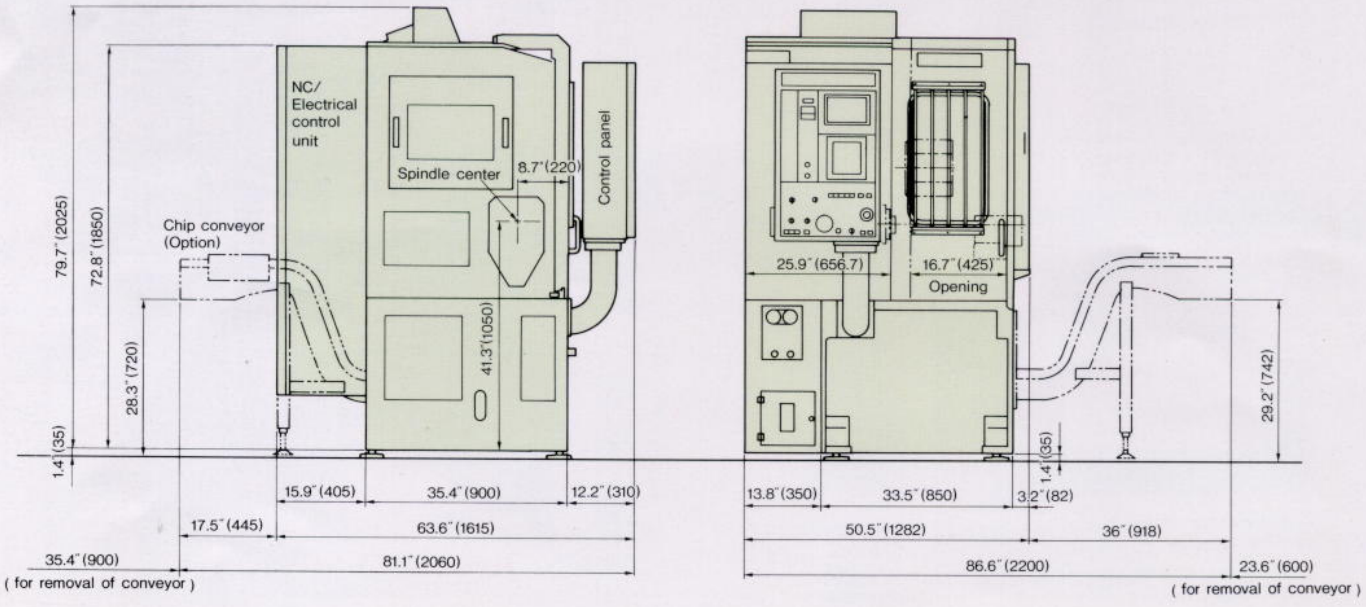
Standard accessories

- Coolant system
- Splash guard
- Tool holder
- Hand tools

Optional accessories

- Chip conveyor
- Tailstock
- Collet chuck
- Hydraulic chuck (6" solid)
- Soft jaw
- Parts catcher
- Automatic door
- Bar feeder
- Work counter
- Tape reader
- Air blow
- Built-in worklight
- Chuck pedal

Installation Diagram



NC Unit Specifications

Controllable axes	Simultaneous controllable axes	2 axes (X and Z)
Input command	Minimum input	0.0001" (0.001mm) Designate the X-axis in diameter.
	Minimum output	0.0001" (0.001mm)
	Absolute/incremental command	XZ and UW commands are possible.
	Decimal point input	Values can be input using decimal point.
	Inch/metric conversion	G20, G21
Interpolation	Positioning	G00
	Linear interpolation	G01
	Circular interpolation	G02, G03: CW, CCW
Feed	Dwell	G04
	Feed per minute/feed per revolution	G98/G99
	Manual handle feed	0.0001"/0.001" (0.001/0.01 mm)
	Rapid traverse override	F0, 25, 50, 100%
	Cutting feed override	0–150% per 10%
	Manual jog traverse	Selected axis can be moved at the speed set by the rotary switch. (0–1260mm/min, 16 steps)
Program storage, editing	Program storage capacity	Capacity equivalent to tape length: 20m
	Stored program number	Number of programs stored in memory: 63
	Program editing	Delection, insertion, alteration
	Program number search	O number search
	Sequence number search	N number search
	Background editing	Editing during automatic operation
Operation, display	Control panel	9" CRT with function keys
	Display language	English
I/O function	Input/output interface	RS-232C
S.T.M. function	Spindle function	S4 digits designation
	Constant surface speed control	G96, G97
	Tool function	T4 digits designation
	M function	M2 digits designation
Tool compensation	Tool nose R compensation	G40, G41, G42
	Number of tool compensations	Memory for tool compensation: 16 sets
	Tool compensation memory B	±6-digit. Wear, and geometry offset are separated.
Coordinate system	Automatic reference point return	G28
	Return check at reference point	G27
	Coordinate system setting	G50
Operation support functions	Auxiliary function switch	Single block, optional stop, optional block skip
Program support functions	Circular radius R designation	Circular arc is designated by radius R instead of I and K.
	Chamfering corner R	Chamfer and corner roundness can be machined.
	Single fixed cycle	G90, G92, G94
	Multiple repetitive cycle	G70, G71, G72, G73, G74, G75, G76
	Thread cutting cycle retract	Thread cutting is temporarily stopped, chamfering is executed, and tool returns to starting point.
Safety/maintenance	Stored stroke limit	Software-programmed overtravel
Servo, spindle system	Servo motor	AC servo (with ABS encoder)
	Spindle motor	AC digital
Options	Variable lead threading	Both the lead at start point in long axis direction and increase and decrease of lead per spindle rotation can be designated with this command.
	Additional program memory capacity	40, 80, 120, 320m
	Additional tool compensation memory	32 sets
	Handle interruption	
	Running time display	Runing time under automatic operation is displayed.
	Custom macro	Program with variables can be created by the user. 3-format macro (G65HXX)
	Skip function	G31

Design and specifications subject to change without notice.

MORI SEIKI

Iga Plant

MORI SEIKI CO., LTD.

Head Office: 362 Idono-cho, Yamato Koriyama-city, Nara 639-11, Japan
Phone: (07435) 3-1121 Telex: 72-5522-785 Fax.: (07435) 2-8713
Nara Plant: 362 Idono-cho, Yamato Koriyama-city, Nara 639-11, Japan
Phone: (07435) 3-1121
Iga Plant: 201 Midai, Iga-cho, Ayama-gun, Mie 519-14, Japan
Phone: (059545) 4151
R&D Center: 106 Kita Koriyama, Yamato Koriyama-city, Nara, 639-11, Japan
Phone: (07435) 3-1125

MORI SEIKI U.S.A., INC.

Head Office: 9145 Currency Street, Irving, Texas, 75063
Phone: 214-929-8321 Fax.: 214-929-8226
Los Angeles Office: 115 West Victoria Street, Long Beach, California, 90805
Phone: 213-537-0711 Fax.: 213-537-4543
Chicago Office: 5 E. Messner Dr. Wheeling, Illinois, 60090
Phone: 312-520-2600 Fax.: 312-520-0948
Detroit Office: 12200 13 Mile Road, Warren, Michigan, 48093
Phone: 313-573-8200 Fax.: 313-573-8831
Boston Office: 1455 Concord Street, Framingham, Massachusetts, 01701
Phone: 508-788-0044 Fax.: 508-872-1327
New Jersey Office: 600-E Corporate Court, So. Plainfield, New Jersey, 07080
Phone: 201-757-2900 Fax.: 201-757-2730

MORI SEIKI G.m.b.H.

Head Office: Siemens-Ring 19, 4156 Willich 1, F. R. Germany
Phone: 02154-427035 Telex: 8531908 MORI D Fax.: 02154-40935
Stuttgart Office: Schurwaldstr 15, 7303 Neuhausen Filder, F. R. Germany
Phone: 07158-6645 Telex: 722887 Fax.: 07158-9110

MORI SEIKI (UK) LTD.

Head Office: Michigan Dr., Tongwell, Milton Keynes MK 15 8HQ,
United Kingdom
Phone: 0908-618040 Telex: 825176 MORI UK Fax.: 0908-618033

Overseas Offices:
North America: Chicago, Detroit, Cleveland, Boston, New Jersey, Charlotte, Orlando, Dallas, Los Angeles, San Francisco, Seattle
Europe: Dusseldorf, Stuttgart, Milton Keynes, Paris, Milan
Other: Sydney, Melbourne, Singapore, Taipei, Mexico City

DAES08901C05