

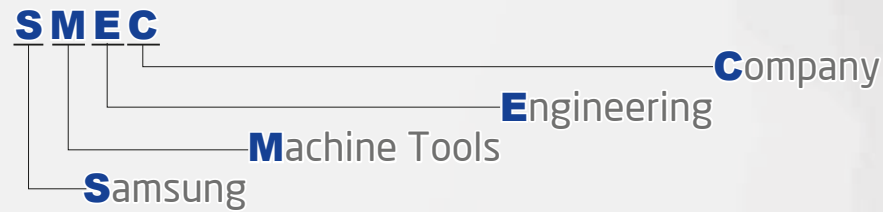
SMEC

SL 2000 series

6"- 8" HORIZONTAL TURNING CENTER



- 1988 - Started as Samsung Heavy Industries Machine Tools Business
- 1989 - Horizontal and vertical machining center technology partnership with OKK Japan
- 1991 - Turning center and vertical machining center technology partnership with Mori Seiki
- 1996 - 5-sided processing center technology partnership with Toshiba
- 1999 - Spun out from Samsung Aerospace Industries and established SMEC Co., Ltd



SL 2000 series (A Type: 6", B Type: 8")

SL 2000(A/B Type), SL 2000M(A/B Type)

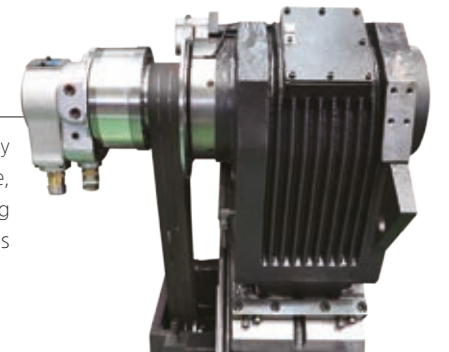
Strongest in class with superb structural design
Simultaneous heavy duty and precision turning

- 45 degree torque tube type bed to support heavy duty turning
- Significantly reduced non-cutting time and efficient turning
- SERVO TURRET for performance improvement
- Low-center of gravity reducing vibration, thermal deformation and improving rigidity

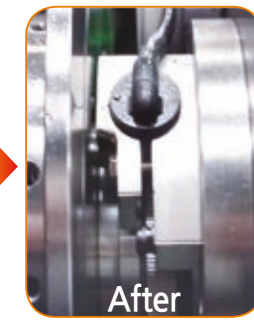
High Accuracy, High Rigidity Spindle

Head assembly with radiator fan to minimize thermal expansion

The radiator fan structure of head assembly minimizes thermal expansion of the spindle, preventing loss of precision due to increasing temperature. Also, thermal expansion is minimized with the symmetric design.



BZi sensor used to reduce field servicing needs

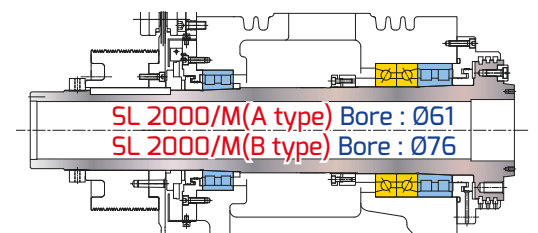


changing spindle orientation sensor from position encoder to Bzi sensor, there is no need for timing belt and we have realized high accuracy of rotation sensor, eliminating field service.

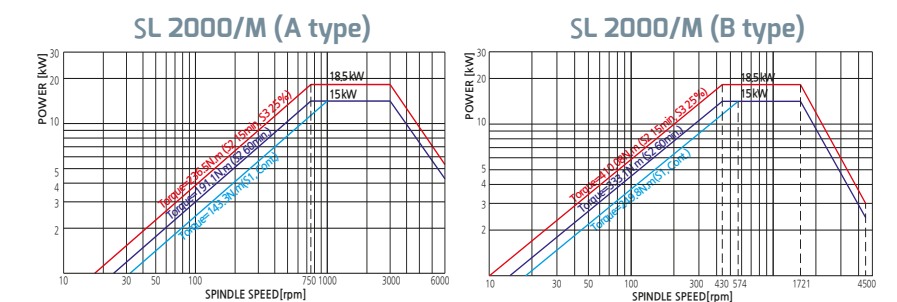
SPINDLE & HEADSTOCK

The Spindle and Headstock are machined in temperature controlled environment and assembled in a clean room.

Precision double row cylindrical roller bearings and angular contact ball bearings are located at the front of the spindle, and a double row of cylindrical roller bearings is located in the rear to ensure heavy cutting capabilities with precision.



Spindle Power & Torque Diagram



SL 2000 series is a heavy duty, ultra precision Turning Center, combined with SMEC's advanced technological features.

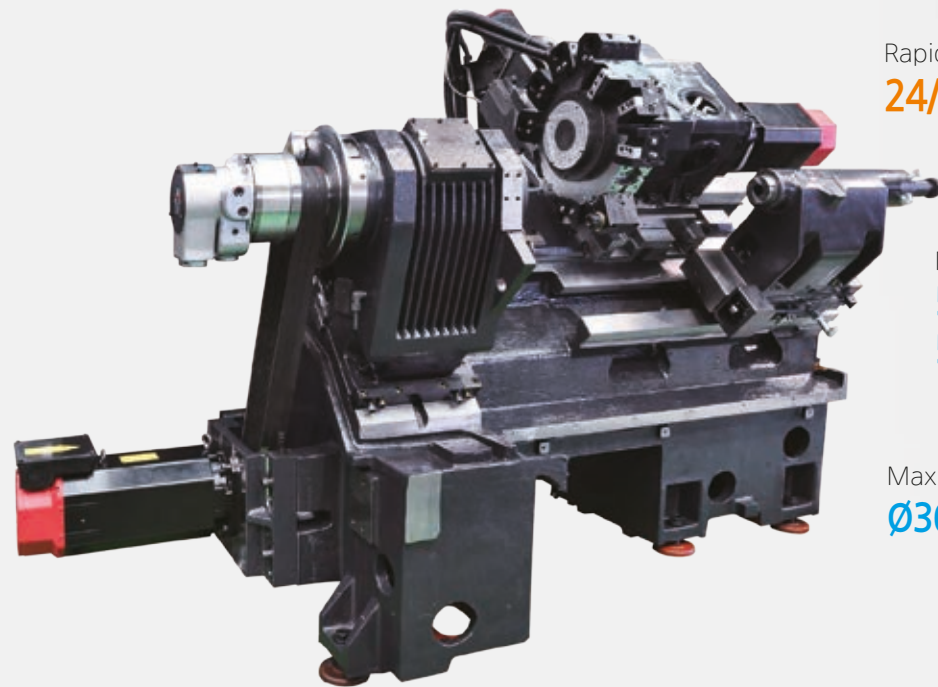
Spindle motor(Cont./Max)
15/18.5 kW

Spindle speed
6,000 rpm (A type)
4,500 rpm (B type)

Rapid traverse(X/Z)
24/30 m/min

Max. machining length
540 mm (A type)
520 mm (B type)

Max. machining diameter
Ø360 mm



Highly Reliable and Rigid Structural Design

- One piece Meehanite casting with heavily ribbed torque tube design
- Rigid bed supports for powerful cutting
- Excellent vibration dampening and thermal displacement design



SL 2000 High Speed, Servo Index Turret

Indexing Time

0.15sec (60Hz)

Number of tool positions

12stations

Non-Cutting Time Significantly Reduced with Installation of High Speed Turret with 0.15 Sec Indexing Time

A 0.15 second 1 station indexing time is made possible by employing the Nonstop Random Index method using the SMEC developed high-power Servo Index Motor. The Ø 160mm large diameter Curvic Coupling significantly improves the clamping power and indexing precision.



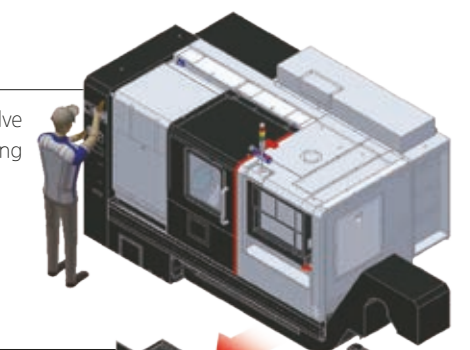
SL 2000M High Speed Servo Turret (Tool Holder BMT55)



SL 2000M is equipped with standard 12-station BMT55 turret capable of accepting rotary tools at any station, providing flexible machining thru various machining operations in just one set-up. Each BMT holder is securely tightened by 4 screws, allowing the turret to perform heavy-duty cutting, milling and drilling operations. Turret indexing is non-stop, bi-directional with a fast 0.20 second next station index time.

Easier HYD Valve Control

The gauge and control valve for HYD valve is raised to the operator's eye level making maintenance easier.



Easier Coolant Tank Cleaning

Cleaning the coolant tank is made easier with a coolant tank that can be removed while leaving the chip conveyor bolted to the machine.





Centralized Operation Panel

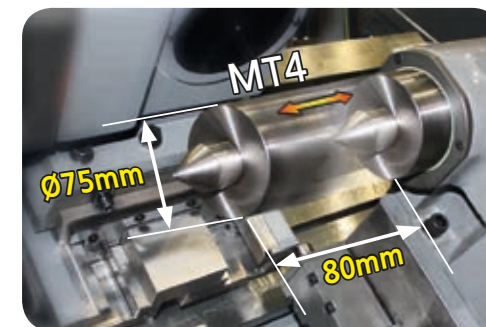
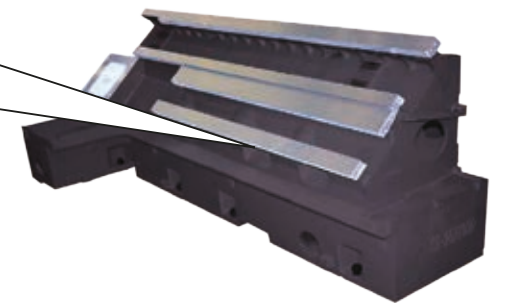
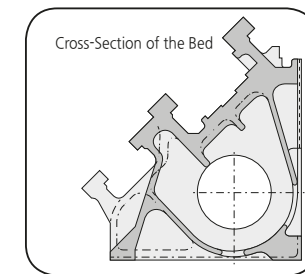
The centralized operation panel with its 10.4 inch color TFT LCD monitor [Opt.] is able to swivel 90 degrees, providing operators with easy access to the control panel while working on the machine.



Rigid 45 degree Slant Bed

45 degree slant torque tube design bed and wide guide slide way ensure long term rigidity and machining accuracy.

Also, Slant Bed type provides excellent chip disposal and user access to workpiece.

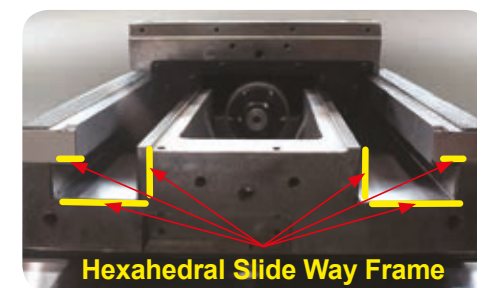


Programmable Tailstock

The tailstock that maintains superb high precision during heavy duty cutting can be manually traversed using the MPG handle. Also, With programmable tailstock(opt.), the tailstock and quill may be operated back and forth automatically using M-codes.

Pre-tensioned and Double Anchored Ballscrews

All axes ballscrews are pre-tensioned, heat treated and fixed by double anchors on both ends, providing ultimate rigidity and minimal thermal growth.

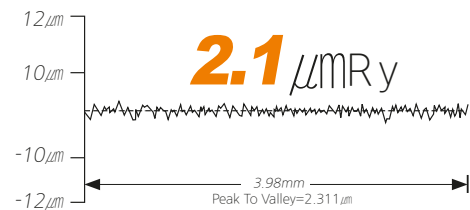


Hexahedral Slide Way Frame (X-axis)

Wide integral way is machined from the casting, induction hardened and precision ground to ensure long-term rigidity, machining accuracy and heavy-duty machining.

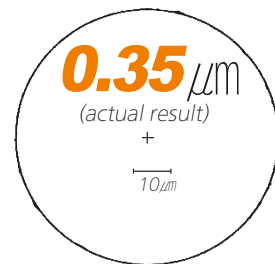
High Precision

Surface Roughness



Model : SL 2000

Roundness

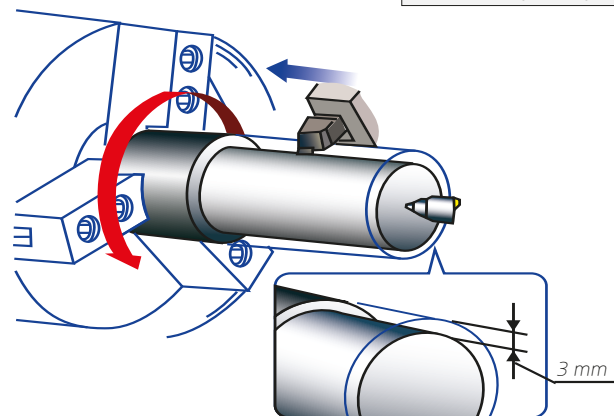


Cutting condition	
Tool	Diamond tool <nose radius 0.020 inch>
Material	AL150<Aluminum>
Cutting speed	230 m/min
Feedrate	0.05 mm/rev
Depth of cut	0.1 mm
Outer diameter	200 mm
Filter	1-50

Processing Speed

Turning Performance (material:SM45C) SL 2000

Heavy-duty cutting (O.D) <25mm×25mm qualified tool>



Spindle speed
847 rpm
Cutting speed
290m/min
Depth of cut
3 mm <Spindle Load 75%>
Feedrate
0.4 mm/rev

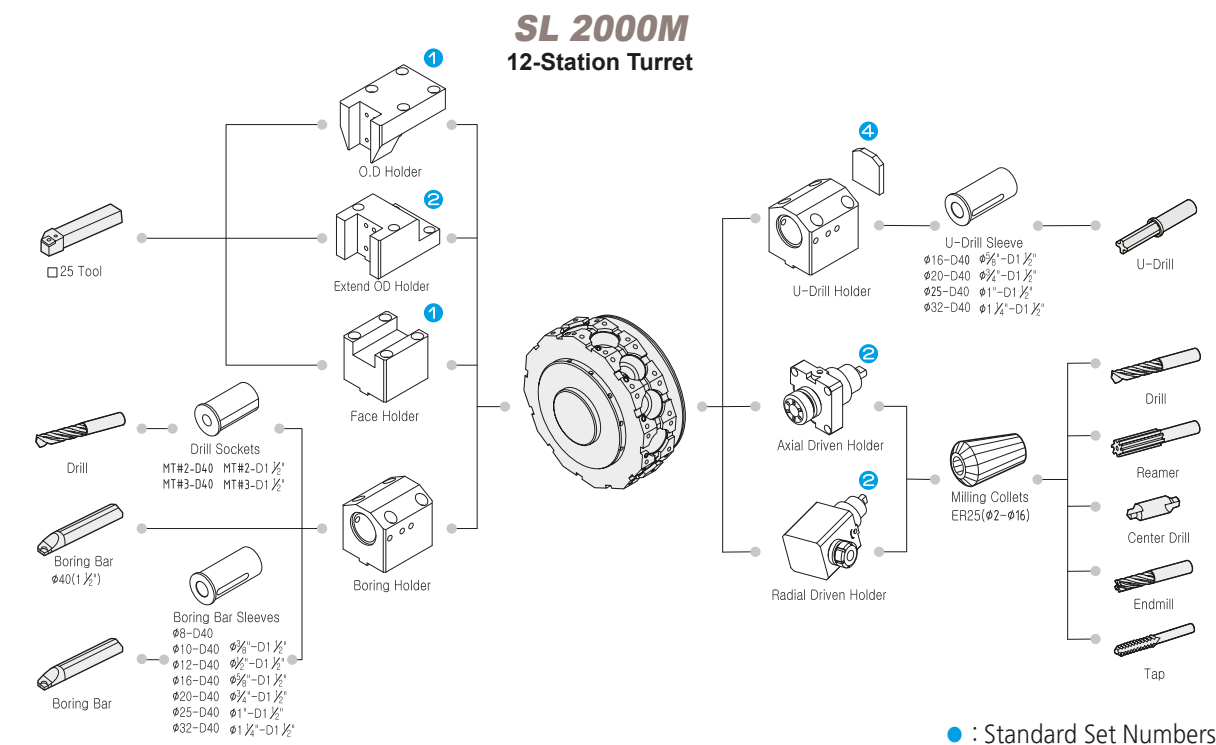
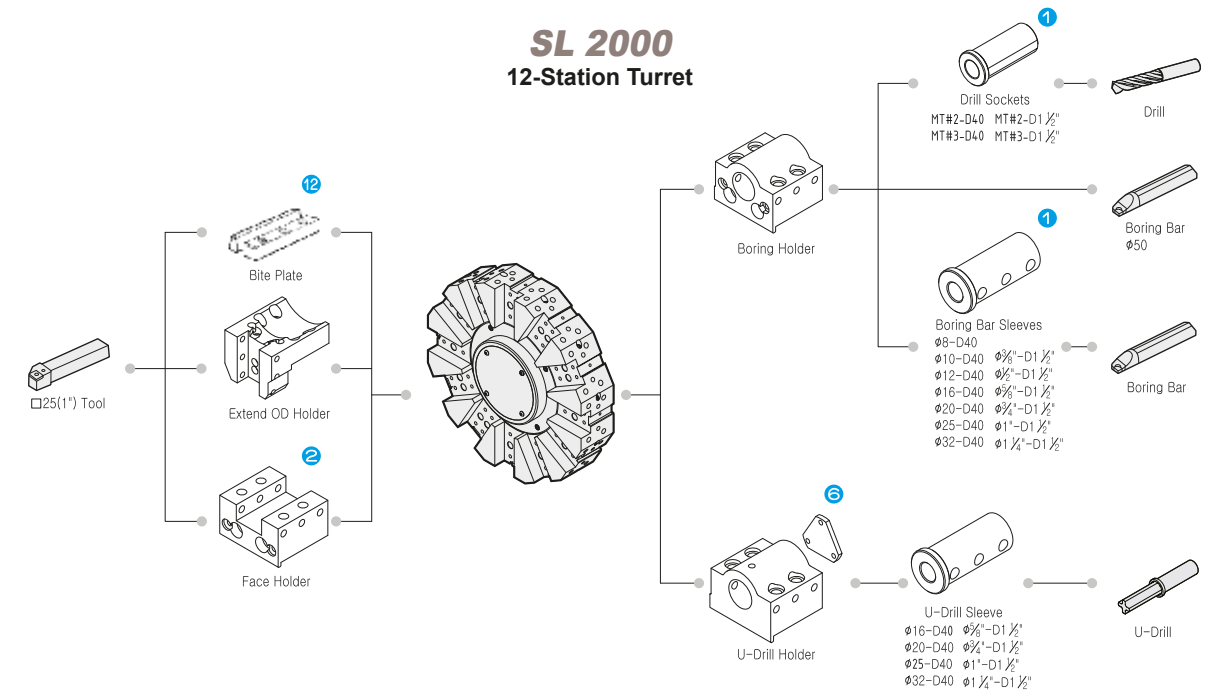
Standard Accessories

- 6" hollow 3 jaws chuck (A Type)
- 8" hollow 3 jaws chuck (B Type)
- Chuck clamp confirmation
- Chuck clamp foot switch
- Chuck pressure switch
- Coolant system
- Door interlock
- Full splash guard with coolant tank
- Jaw (soft 3set, hard 1set)
- Leveling unit
- Manual/Part list (1set)
- Patrol lamp (3colors)
- Safety precaution name plate
- Spindle orientation
- Tailstock (programmable)
- Tool box
- Tool holders
- Work light (LED lamp)

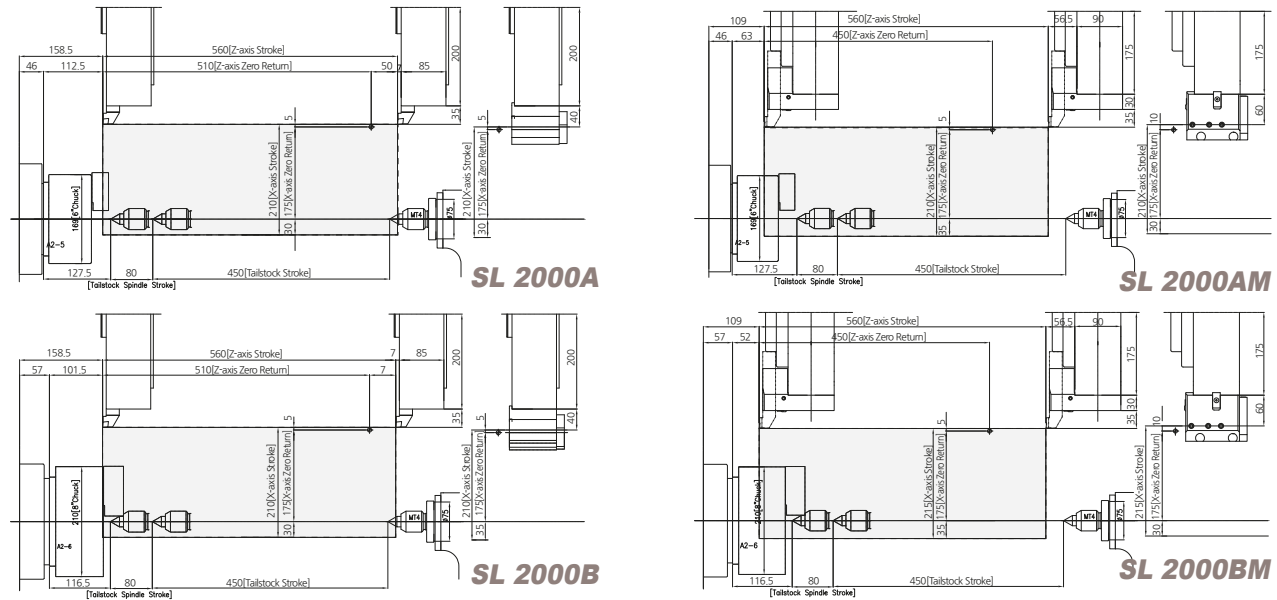
Optional Accessories

- Air blower
- Air conditioners (electric cabinet)
- Air gun
- Auto door
- Auto shutter (top)
- Bar Feeder Interface
- Chip bucket
- Chip conveyor (side, rear)
- Coolant blower
- Coolant chiller
- Coolant gun
- Coolant level switch
- Counter (total, multi, tool, work)
- Dual pressure chucking
- Oil mist collector
- Oil skimmer
- Part catcher
- Robot interface
- Special chuck
- Steady rest
- Tool presetter (manual/auto)
- Transformer

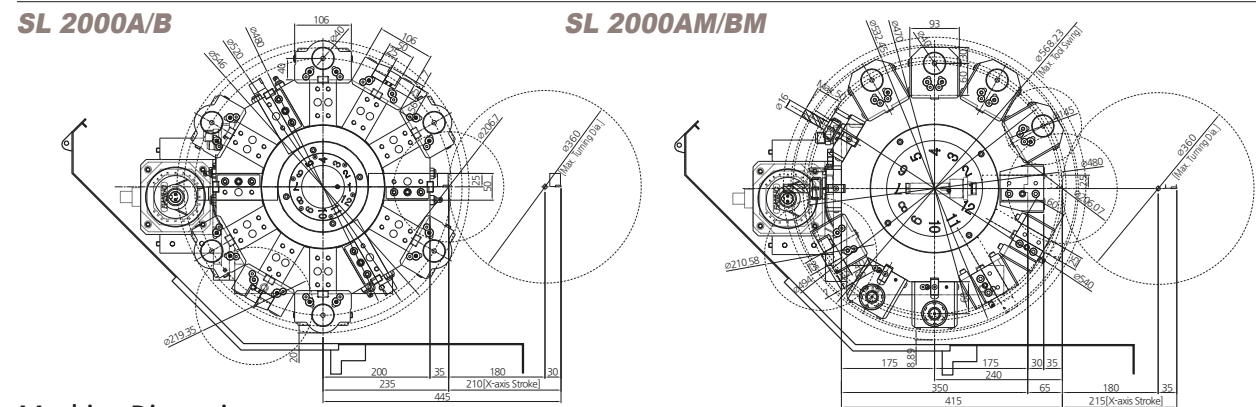
Tooling System



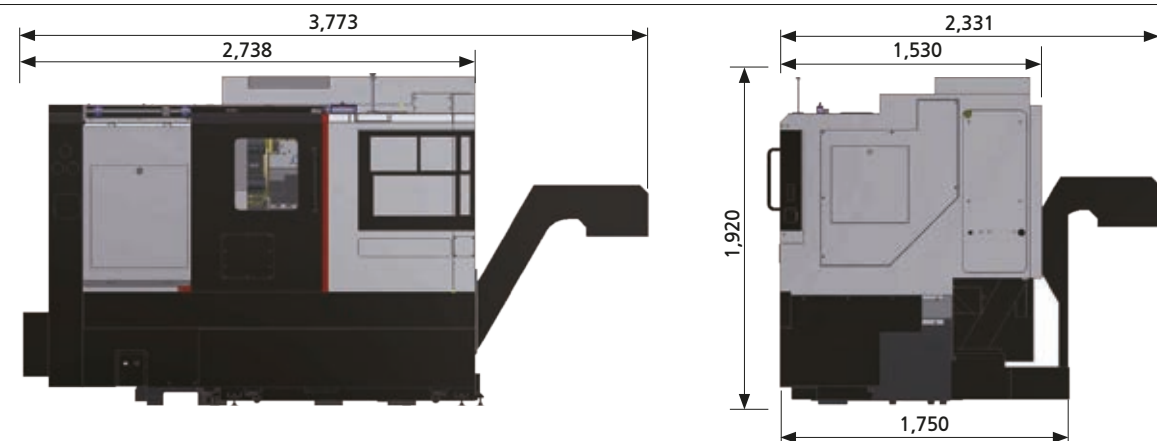
Unit : mm



Unit : mm



Unit : mm



Major Specifications

DESCRIPTION			SL 2000		SL 2000M	
			A type	B type	A type	B type
Chuck	Chuck size	inch	6"	8"	6"	8"
Capacity	Swing over bed	mm	570	570	570	570
	Swing over cross slide	mm	460	460	460	460
	Max. turning diameter	mm	360	360	360	360
	Max. milling diameter	mm	-	-	372	372
	Max. machining length	mm	540	540	520	520
Spindle	Spindle speed	rpm	6,000	4,500	6,000	4,500
	Spindle nose	ASA	A2-5	A2-6	A2-5	A2-6
	Draw tube ID	mm	52	68	52	68
	Spindle bore diameter	mm	61	76	61	76
	Motor (Cont./Max)	kW	15/18.5	15/18.5	15/18.5	15/18.5
Travels	X-axis travel	mm	210	210	215	215
	Z-axis travel	mm	560	560	560	560
	X-axis Rapid travers rate	m/min	24	24	24	24
	Z-axis Rapid travers rate	m/min	30	30	30	30
Turret	Number of tool stations	ea	12	12	12[24] (BMT55)	12[24] (BMT55)
	Turning tool shank size	mm	25	25	25	25
	Boring bar diameter	mm	40	40	40	40
	Turret index time(next station swivel time)	sec	0.15	0.15	0.20	0.20
	Rotary tool speed	rpm	-	-	5,000	5,000
	Rotary tool motor (Cont./Max)	kW	-	-	3.7/5.5	3.7/5.5
Tailstock	Quill diameter	mm	75	75	75	75
	Quill stroke	mm	80	80	80	80
	Spindle taper	MT	MT4	MT4	MT4	MT4
Machine	Size (with Side Chip conveyor) L×W×H	mm	2,738(3,733) × 1,530 × 1,920		2,738(3,733) × 1,530 × 1,920	
	Size (with Rear Chip conveyor) L×W×H	mm	2,738 × 1,750(2,331) × 1,920		2,738 × 1,750(2,331) × 1,920	
	weight	kg	3,700	3,900	3,800	4,000
	Coolant tank capacity	Liter	200	200	200	200
ELECTRIC POWER SUPPLY		kVA/V	31/220	31/220	31/220	31/220
CONTROLLER			FANUC, SIEMENS			

※ Design and specifications subject to change without notice.



Fanuc Manual Guide i

Erstellen Sie Ihre Teileprogramme
in nur wenigen Schritten

Reduzieren Sie den Zeitaufwand bei der Überführung Ihrer Zeichnungen in die Produktion:

Mit dem FANUC MANUAL GUIDE i lassen sich sowohl einfache als auch hoch komplizierte Maschinenzyklen inklusive Dreh-, Fräs-, Bohr- und Messzyklen schnell und einfach umsetzen. Dabei unterstützt die Software Sie durch intuitive interaktive Benutzerführung sowie spezielle Funktionen zur einfachen Teileprogrammierung und Simulation.

Merkmale:

- Bedienerfreundliche Programmierumgebung
- Erweiterte Zyklusbearbeitung (Drehen und Schleifen)
- Leistungsstarke Profilberechnung
- Nahtloser Umgebungswechsel
- Werkzeugverwaltungsfunktion
- Messzyklen
- Restschnitt
- Bearbeitungssimulationen

Die benutzerfreundliche Software MANUAL GUIDE i zur Fertigungsprogrammierung vereinfacht den Betrieb Ihrer Maschine. Die innovative Programmierung ermöglicht die Entwicklung von der Zeichnung zum Werkstück in kürzester Zeit. Dank MANUAL GUIDE i die CNC-Maschinen von FANUC schnell und einfach für Dreh-, Schleif- und Verbundbearbeitungsprozesse programmiert werden.

Selbsterklärende Menüs und grafische Simulationen führen den Benutzer durch die Programmierung, was selbst bei komplexen Bearbeitungsvorgängen zu hocheffizienten Ergebnissen führt.



Siemens Sinumerik 828D

Mehr Produktivität mit SINUMERIK 828D
– Smart Operation

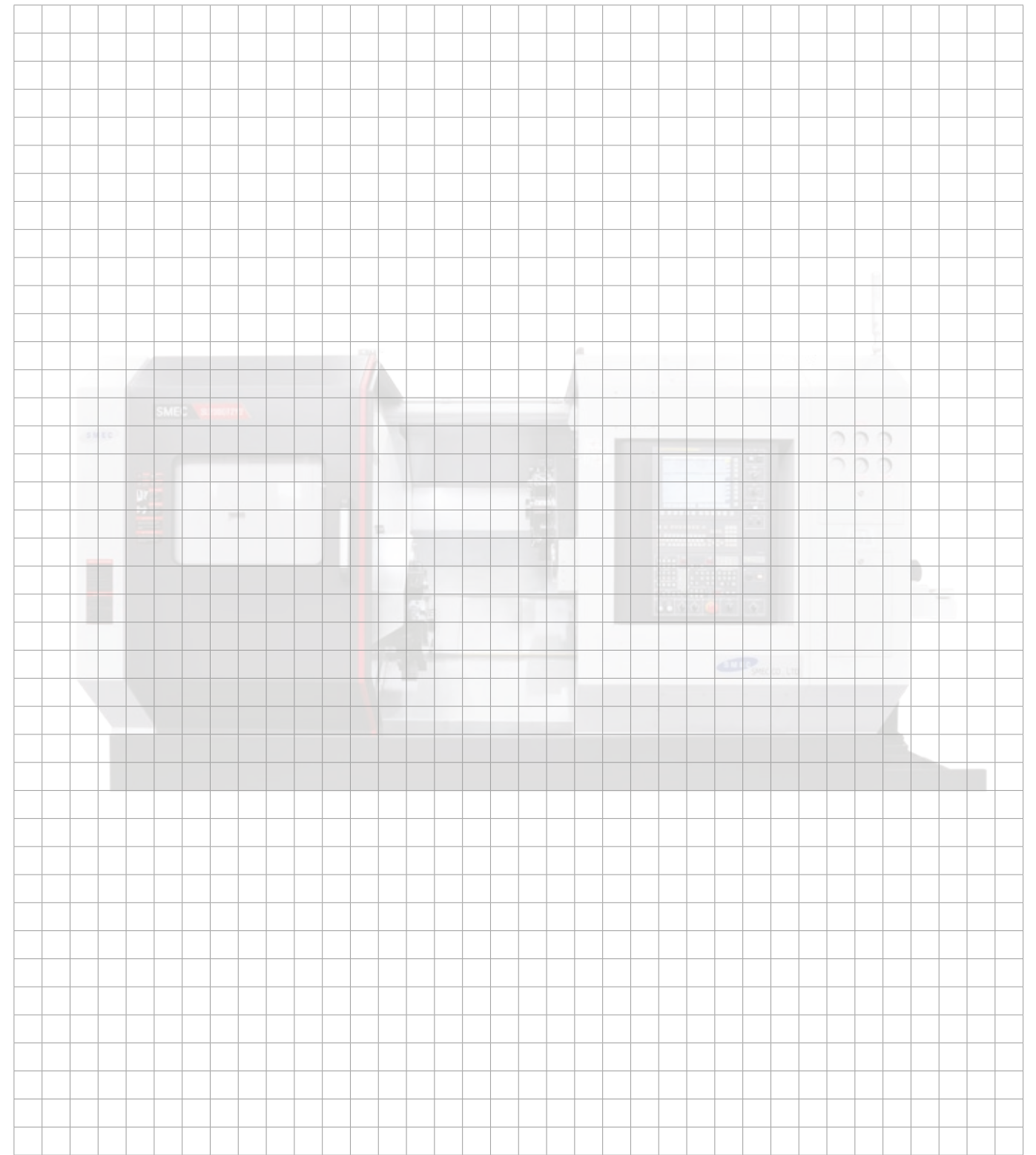
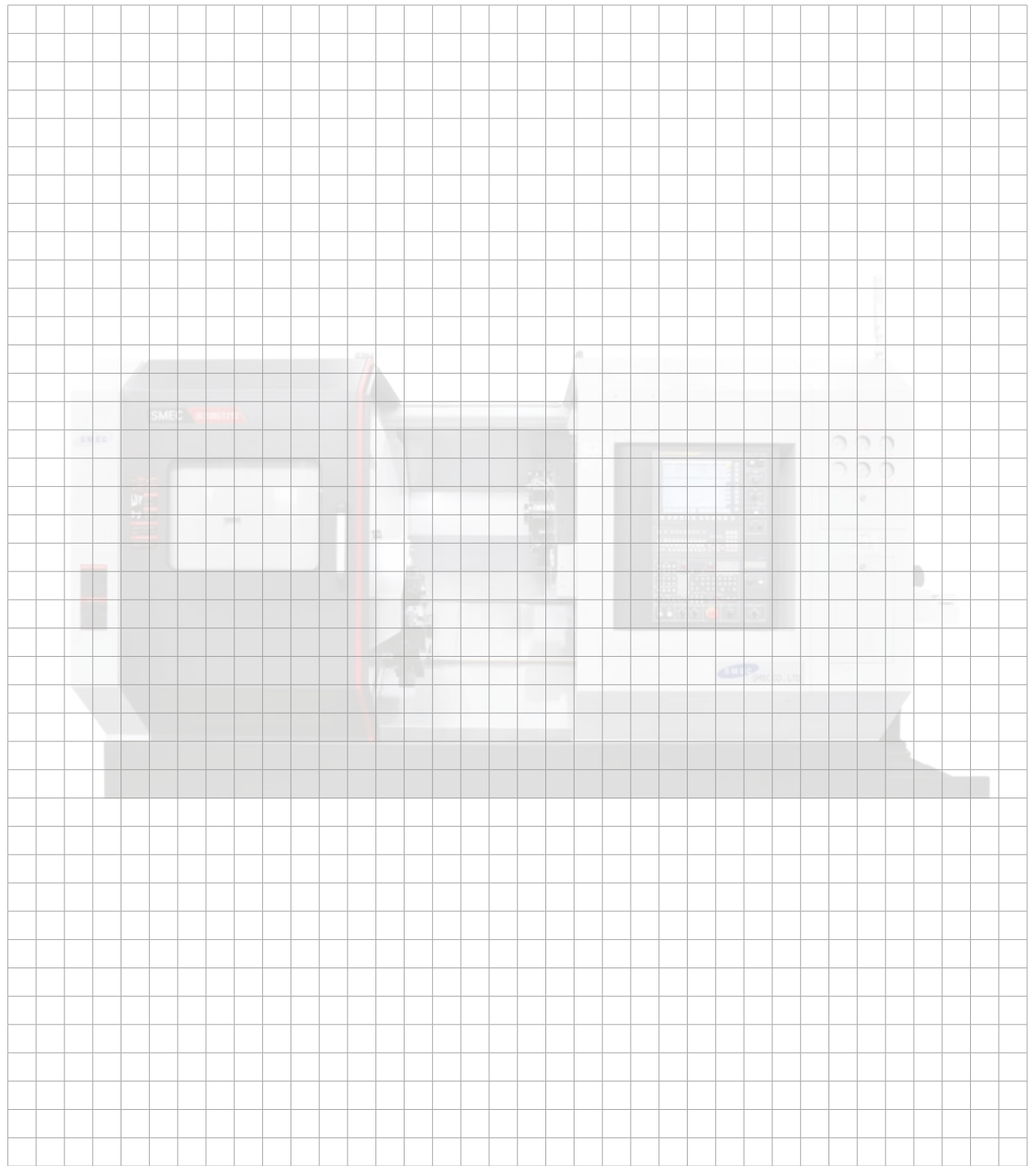
Robuste MultiTouch-Bedienung
kombiniert mit SideScreen

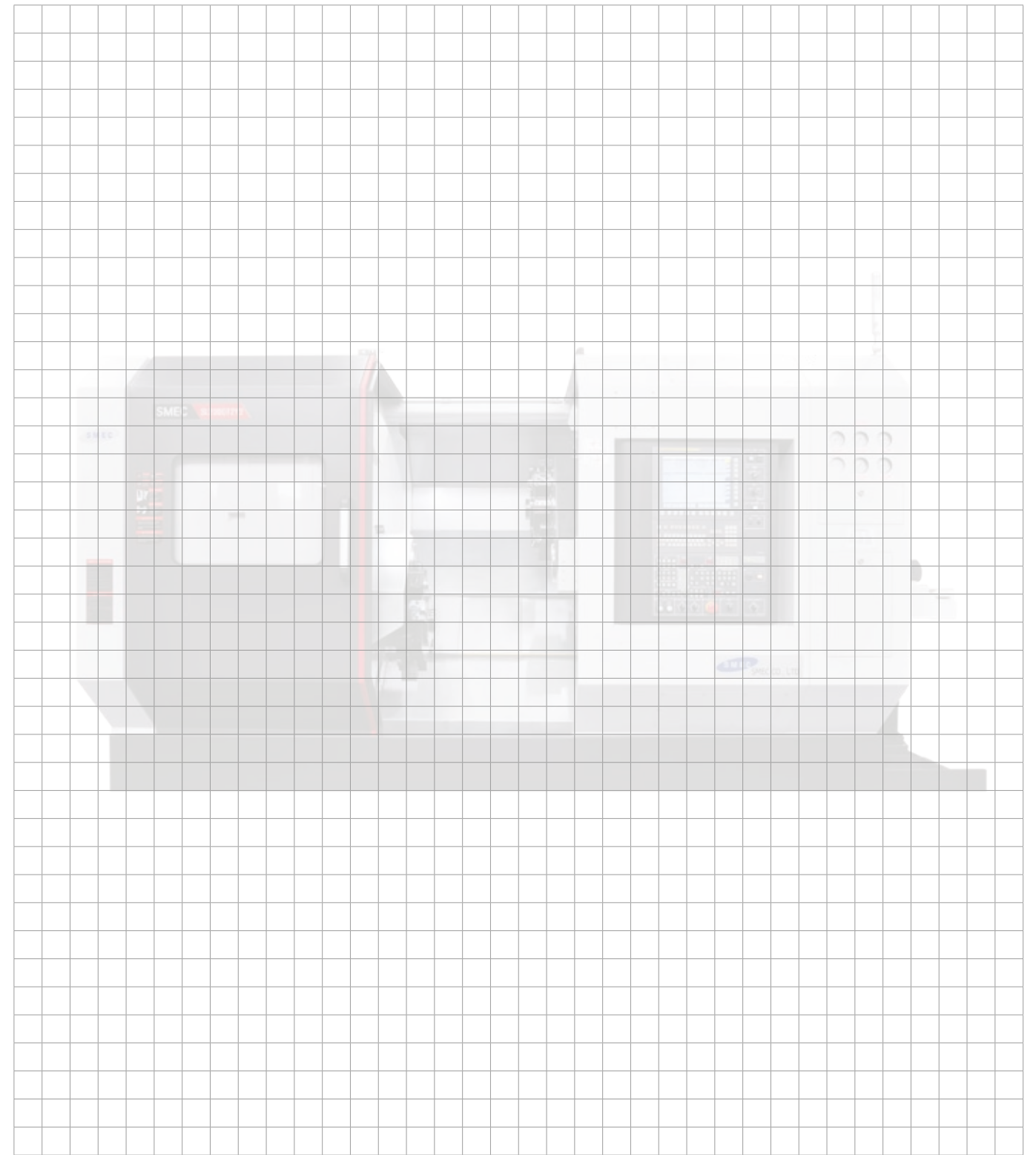
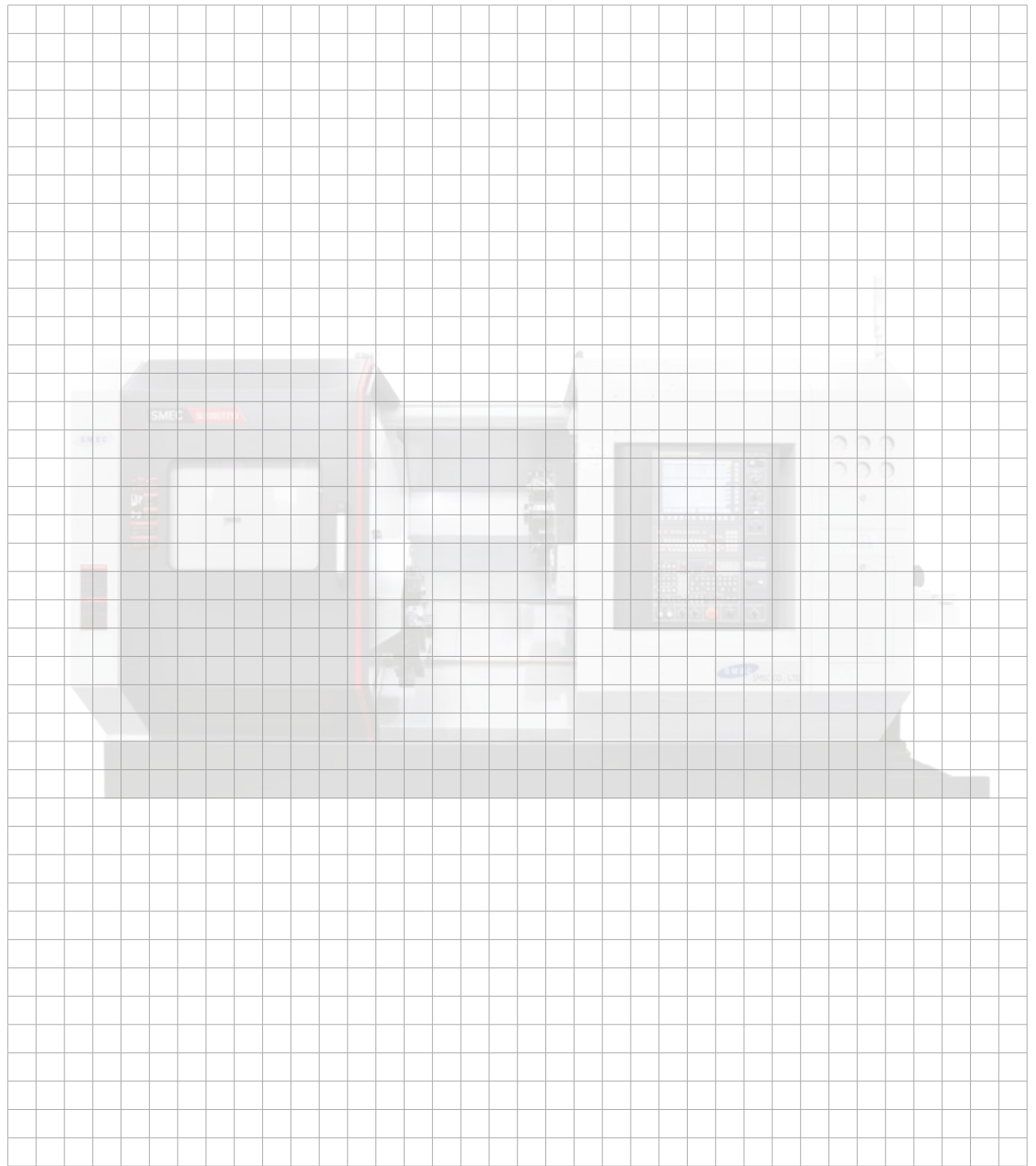
Für Werkstatt, Lohnfertigung und Großserienfertigung sind hochproduktive Automatisierungslösungen gefragt, die den Weg in die Digitalisierung begleiten.

Ob Einzelteil- oder Massenfertigung, einfache oder komplexe Werkstücke – die SINUMERIK CNC-Lösungen bieten Werkzeugmaschinenbetreibern immer die passende Lösung für ihre Anforderungen.

Durch die tägliche Nutzung von mobilen Geräten wie Smartphones, Tablets oder Computern haben wir eine bestimmte Art der Interaktion mit Maschinen entwickelt. Werkzeugmaschinen bilden hier keine Ausnahme mehr.

- Der Trend zu größeren Bildschirmen eröffnet die Möglichkeit, zusätzliche anpassbare Fenster in das HMI einzubinden.
- Änderung des Bildseitenverhältnis von 4:3 in 16:9.
- Zugleich stehen Lösungen bereit, mit denen die Benutzeroberfläche individuell an die Anforderungen der Kunden angepasst werden kann.
- So kann der Maschinenbediener wesentlich mehr Informationen parallel betrachten.





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