

SMEC

LCV 850/1060

VERTICAL MACHINING 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

SMEC

Company

Engineering

Machine Tools

Samsung

**SMEC Advanced Engineering
and Machine Design**

Large Scale Machining Center Ideal for Medium to Large Machining and Aircraft Part Machining

- 6 row support guide way (Y-axis): 4 row box + 2 row roller recirculating unit
- Optional precision polished high precision gear including spline spindle grooving
- Optional vibration dampened, high-speed built-in spindle (12,000rpm) for machining
- Largest in-class Z-axis stroke (950mm) for deep machining (LCV 1060 High Column Option)
- Highest in-class speed (7,000rpm) using oil-air lubricated high power gear box head
- One piece bed and radial rib to dampen vibration caused by high power cutting and force due to machining

Description	LCV 850	LCV 1060
Table Size	2,050 x 850mm	2,800 x 1,060mm
Travel(X/Y/Z)	2,000/850/800mm	2,500/1,060/900mm
Spindle RPM	7,000 (12,000)rpm	7,000 (12,000)rpm
Spindle Power	15/18.5 (25/30)kW	15/18.5 (25/30)kW
Max. Load	3,000kgf	5,000kgf
Rapid Traverse Rate(X/Y/Z)	20/20/16 m/min	16/16/16 m/min

Gear Box Spindle(Std.)	Through Type	Built-in Type
Spindle Speed 7,000 rpm	Spindle Speed 7,000 rpm	Spindle Speed 12,000 rpm
Spindle Motor 18.5/15 kW	Spindle Motor 18.5/15 kW	Spindle Motor 30/25 kW
Spindle Torque 768/614/498 Nm	Spindle Torque 768/614/498 Nm	Spindle Torque 421/238 Nm

One Piece Frame Design and High Rigidity Spindle
Guaranteeing High Power Machining and High Rigidity



Z-axis

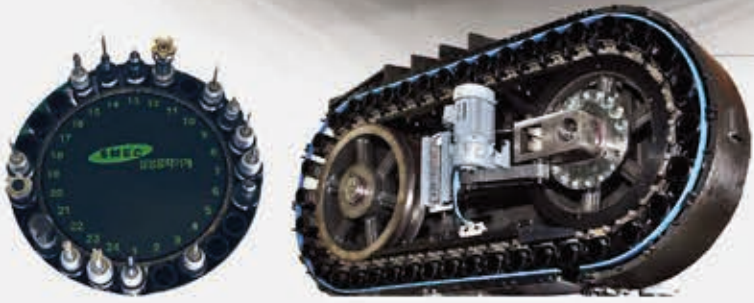
X-axis

Y-axis

Tool Magazine

Designed with the highest in-class tool capacity with the shortest travel distance, allowing the system to setup the next tool very quickly.

Tool Capacity(ea)
30 / 40_(Opt.)



◀ Saddle

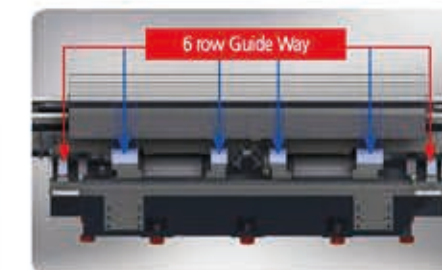
◀ Bed

Maintain high stability during high power machining with low vibration using rigid Box configuration for Bed and Saddle with properly arranged triangular truss Ribs.



Large Bore Ø63 Ball Screw Fixed End Pre-Tension Axis Traversal

Using pre-tensed fixed ended ball screws on all axes to minimize thermal expansion with P4 class high precision angular bearings on each end providing support and driven using large bore, high precision ball screws.

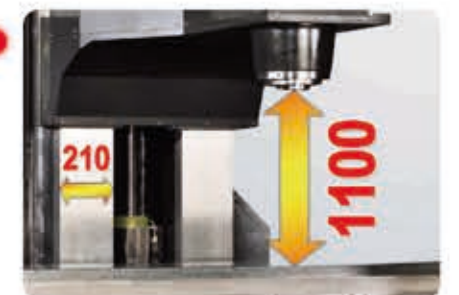


Using a stable Y-axis traversal configuration comprised of a 4 row Box Guide Way and 2 row Roller Recirculating Unit, prevent table position inaccuracies and provide stability during high power machining and heavy loads.



Optional highly rigid radial rib configuration, enabling high rigidity and vibration damping during machining (load balancing, vibration absorption)

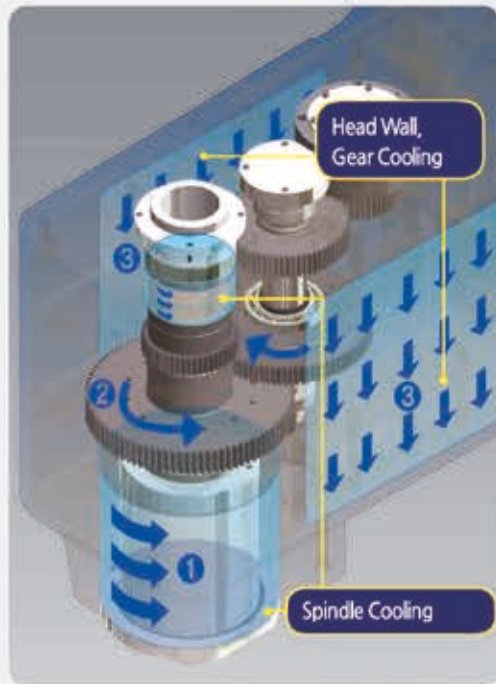
Able to offer deep machining with the largest in-class Z-axis traversal stroke of 900mm (Z axis for High Column: 950). With a wide guide way providing strong support, the spindle head can maintain high rigidity for extended periods of time (Image: LCV 1060).



Able to machine a variety of parts along its longest in-class 2,500mm X-axis (LCV 1060).



Gear Box Spindle 7,000RPM



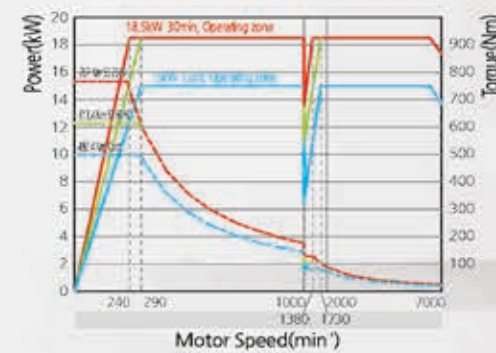
Optimized Thermal Expansion Prevention

High rigidity machining by minimizing thermal expansion using solid cooling systems like air-oil lubrication system, ① Spindle cooling, ② Gear cooling and ③ Head surface cooling.

High Output, Cutting, Low Noise Spindle

Low noise using polished spline bore grooving and precision gear in high power 2-speed gear box spindle.

Spindle Power and Torque Diagram



Built-in Type 12,000rpm

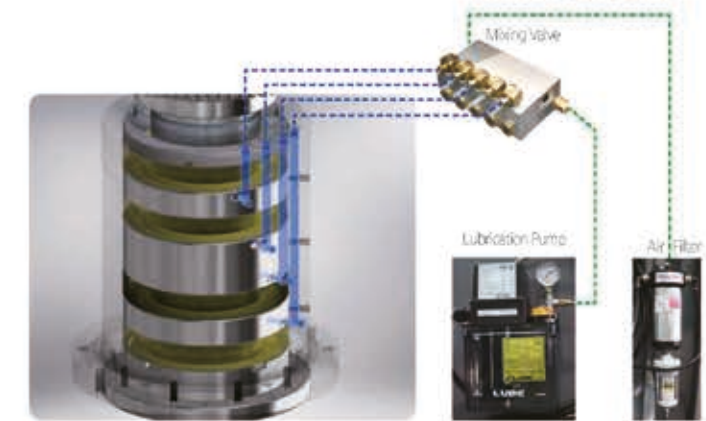
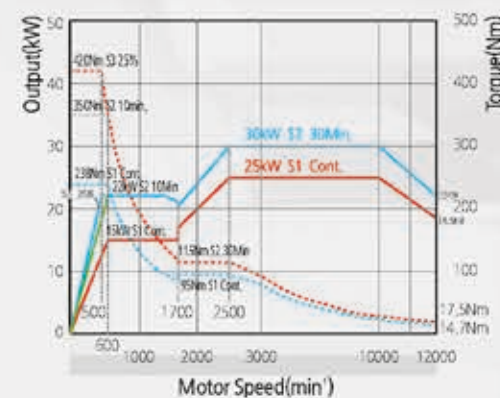
High Rigidity, High Precision Spindle

Guaranteeing high rigidity during long-term operation using highly rigid ceramic bearings and air-oil system.

Highest in-class Spindle Speed

Demonstrating highest in-class spindle speed and torque for optimized machining using vibration dampened built-in motor. The 2-sided Big Plus Spindle offers high rigidity and easy tool switching.

Spindle Power and Torque Diagram



Spindle Bearing Air-Oil Lubrication

Supplying clean/dry pressurized air lubrication to the bearing using highly reliable mixing valve and low heat-generating oil-mist lubrication system during high-speed revolution.

Twin Arm Type Tool Switch

Minimize non-machining time and errors during tool switching using Memory Random high-speed Twin Arm Swing Type Tool Switching.



Centralized Pneumatic Utility

Easily check the operation status of items such as lubrication, bearing fluid and air supply.

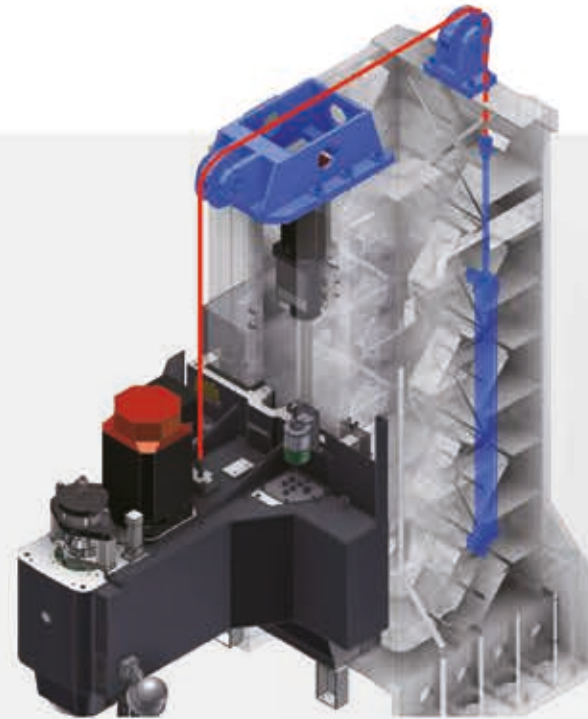
Lubrication Circulation System

For the lubrication pump, the highly reliable LUBE line of products were selected to supply the right amount of lubricant to the guide ways through the metering valve. Waste lubricant is collected, increasing the life span of the lubricant and prevent decomposition of the cutting oil.



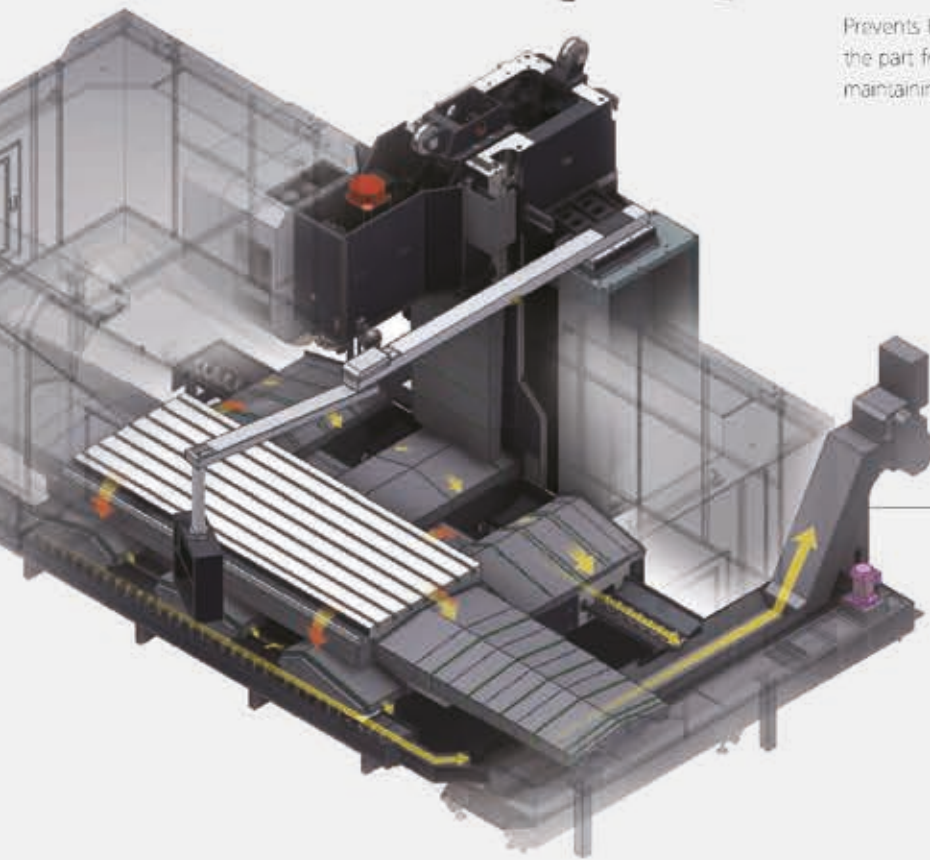
High Efficiency Spindle Oil Cooler Unit to Maintain the Highest Spindle Accuracy

The Oil Cooler Unit keeps the oil at room temperature and forces the cooled oil to the heated areas of the spindle, maintaining constant temperature and suppressing heating so that high accuracy machining is possible, even in high speed operations.



Oil Pressure Balance Cylinder

Prevents Ball Screw overload due to Head weight and protects the part from a tool fall caused by a momentary power loss while maintaining long-term rigidity by preventing Head Slide Way wear.



Complete and Rapid Chip Disposal

Using a chip conveyor to easily move the chips on top and below, in front and behind, and on the left and right of the table out of the workspace and into the chip pan.



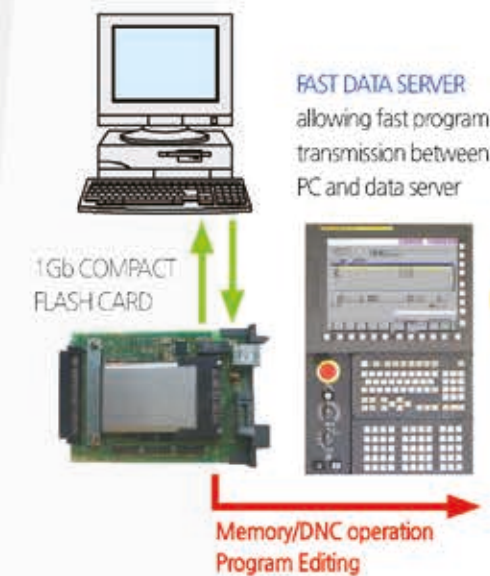
Centralized Control Panel

- 10.4 inch color LCD
- Semi-permanent LED LAMP
- Easy to operate and access Pendant Arm and mobile MPG

Fuse Box Made with Highly Reliable Components



SMEC Package2 (FAST DATA SERVER + AICC II)

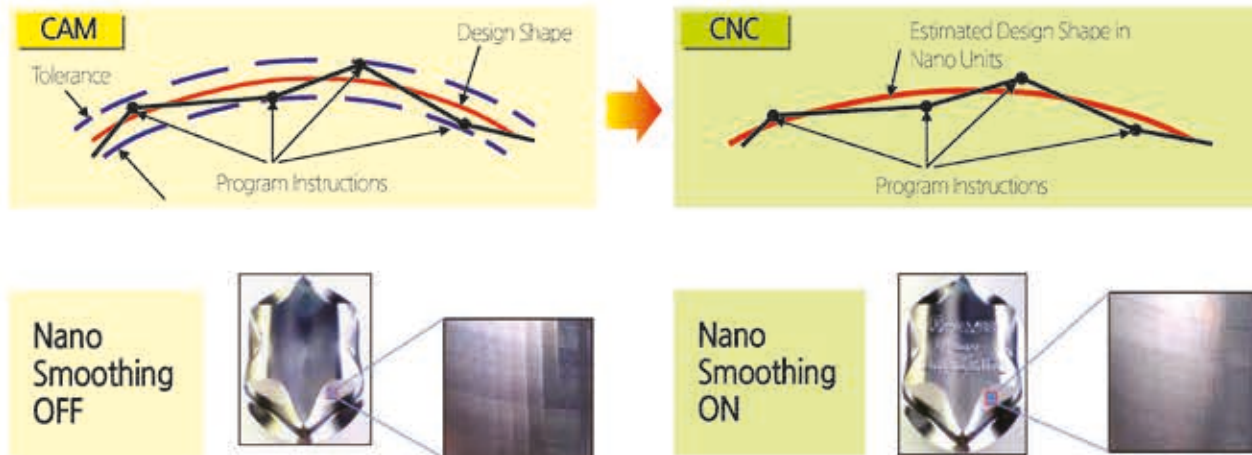


High Precision, High Speed AICC II

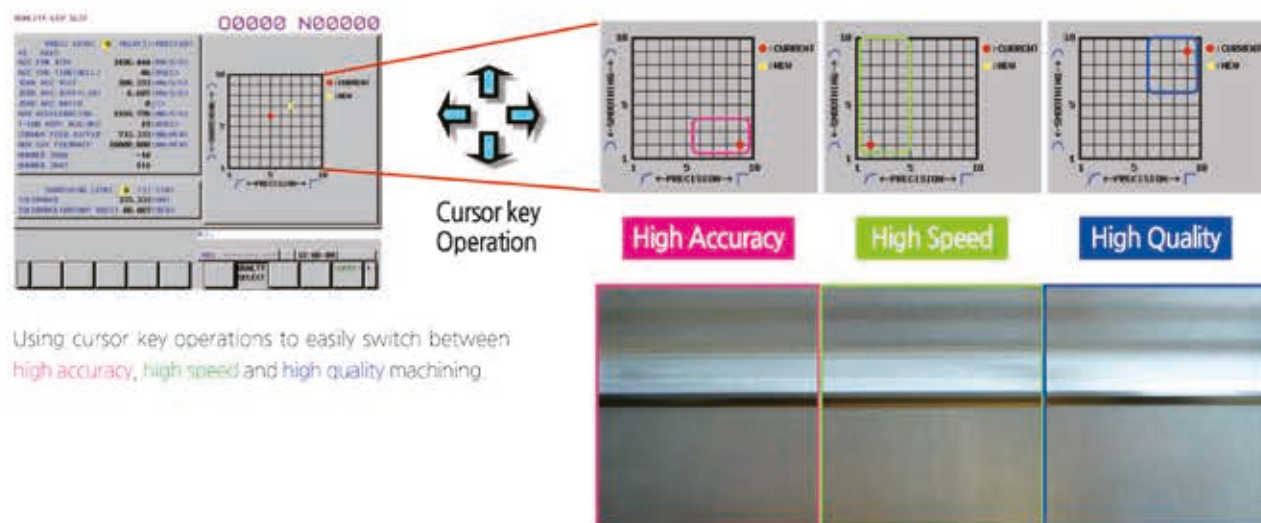
CNC MODEL	FOi-MF
Block Look Ahead	200
Nano Interpolation	X
Decel Before Interpolation	Linear
Acceleration Setting for Each Axis	○
Automatic Corner Deceleration	○
Radial Speed Clamp	○
Deceleration Speed Clamp	○

Nano Smoothing (F0i-MF : Option)

Produce smoother machined surfaces using NURBS curves created through nano interpolation



Adjust quality of machined surface using Nano Smoothing(F0i-MF : Option)



High Precision

Conditions	
Machine	LCV 1060
Material	A 1050P
Tool	Ø25×4T
Spindle Speed	1,500RPM
Depth of Cut	0.1mm
Work Size	Ø180
Cutting Feedrate	300m/min



BROKEN TOOL LASER DETECTION SYS

Accessories (Option)



Automatic Tool Length Measurement Unit



Coolant Gun (With Tank Opt.)



Oil Skimmer (With Tank Opt.)



Additional 1-axis



Additional 2-axis



Lift Up Chip Conveyor



Thru Spindle Coolant



Linear Scale Feed Back System

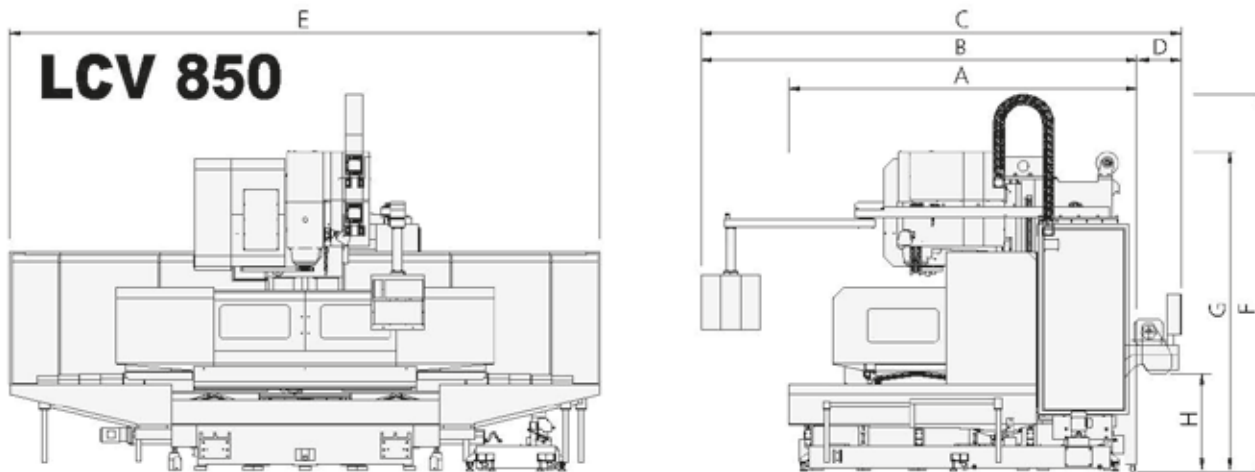


Full Splash Guard(LCV 850)

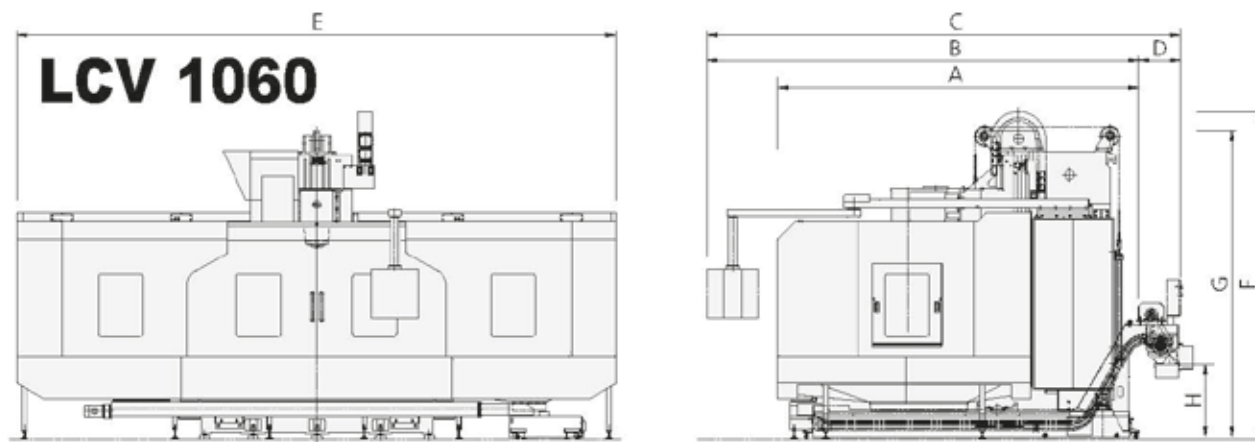
A (width)	B (with controller box)	C (max. width)	D (with chip conveyor)	E (length)	F (height)	G (shipping height)	H (discharge)
2,095	2,452	3,592	3,635	2,977	2,778	2,940	876

Machine Dimensions

Unit : mm



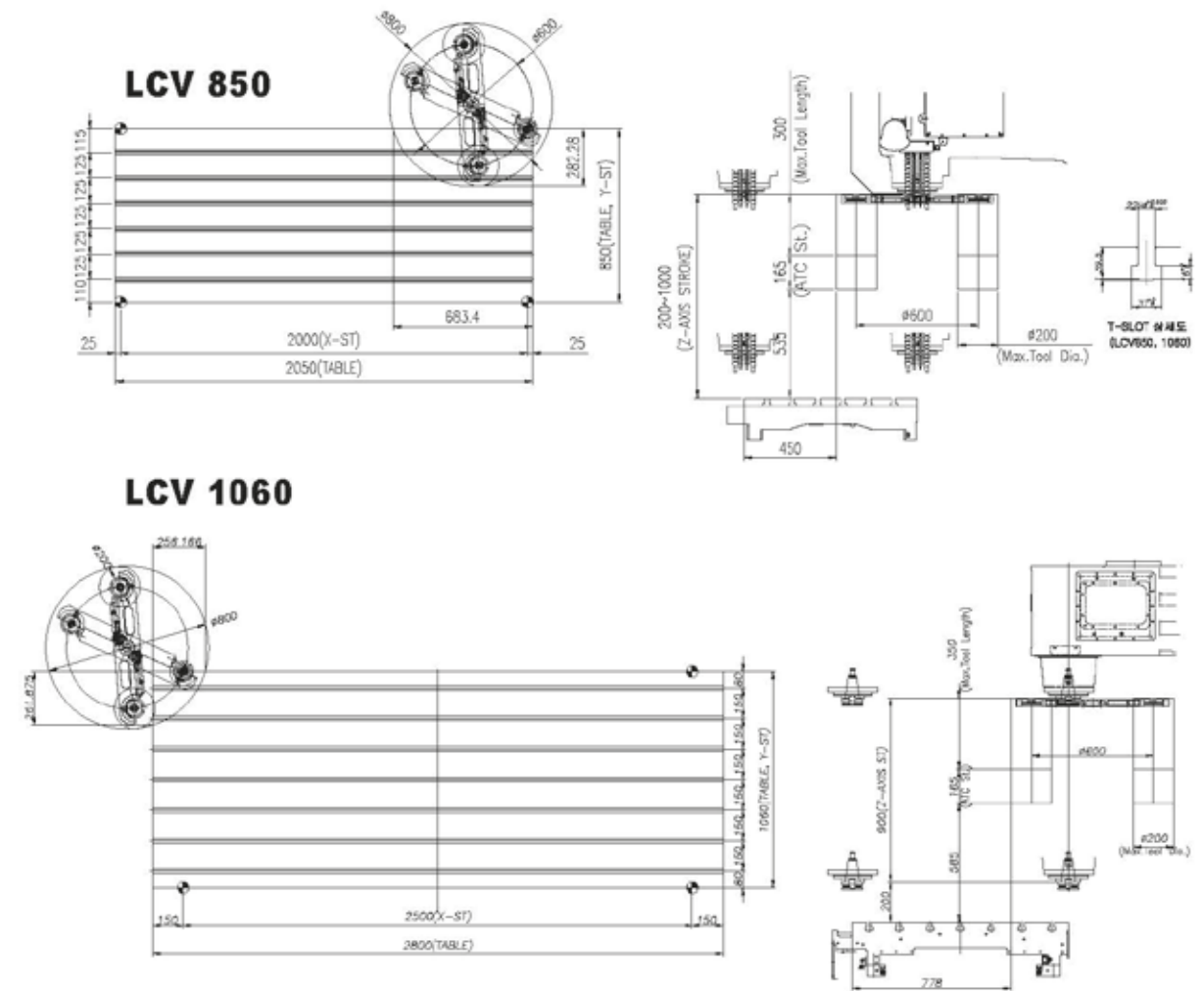
DESCRIPTION	A (width)	B (with controller box)	C (max. width)	D (with chip conveyor)	E (length)	F (height)	G (shipping height)	H (discharge)
30/40 MG Full cover	3,576	4,359	4,789	485	5,500	3,756	3,132	833
30/40 MG Half cover	3,486	4,339	4,789	485	5,902	3,756	3,123	833



DESCRIPTION	A (width)	B (with controller box)	C (max. width)	D (with chip conveyor)	E (length)	F (height)	G (shipping height)	H (discharge)
30/40 MG	4,051	4,651	5,300	460	6,700	3,660	3,385	833

Table & T-Slot

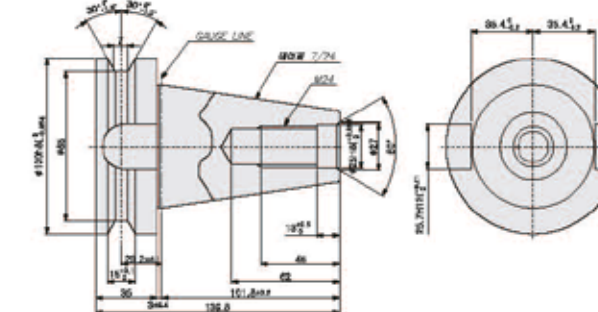
Unit : mm



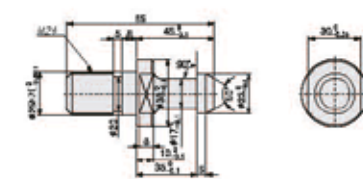
Tool Shank

Unit : mm

BT50(BBT50)



PULL STUD





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

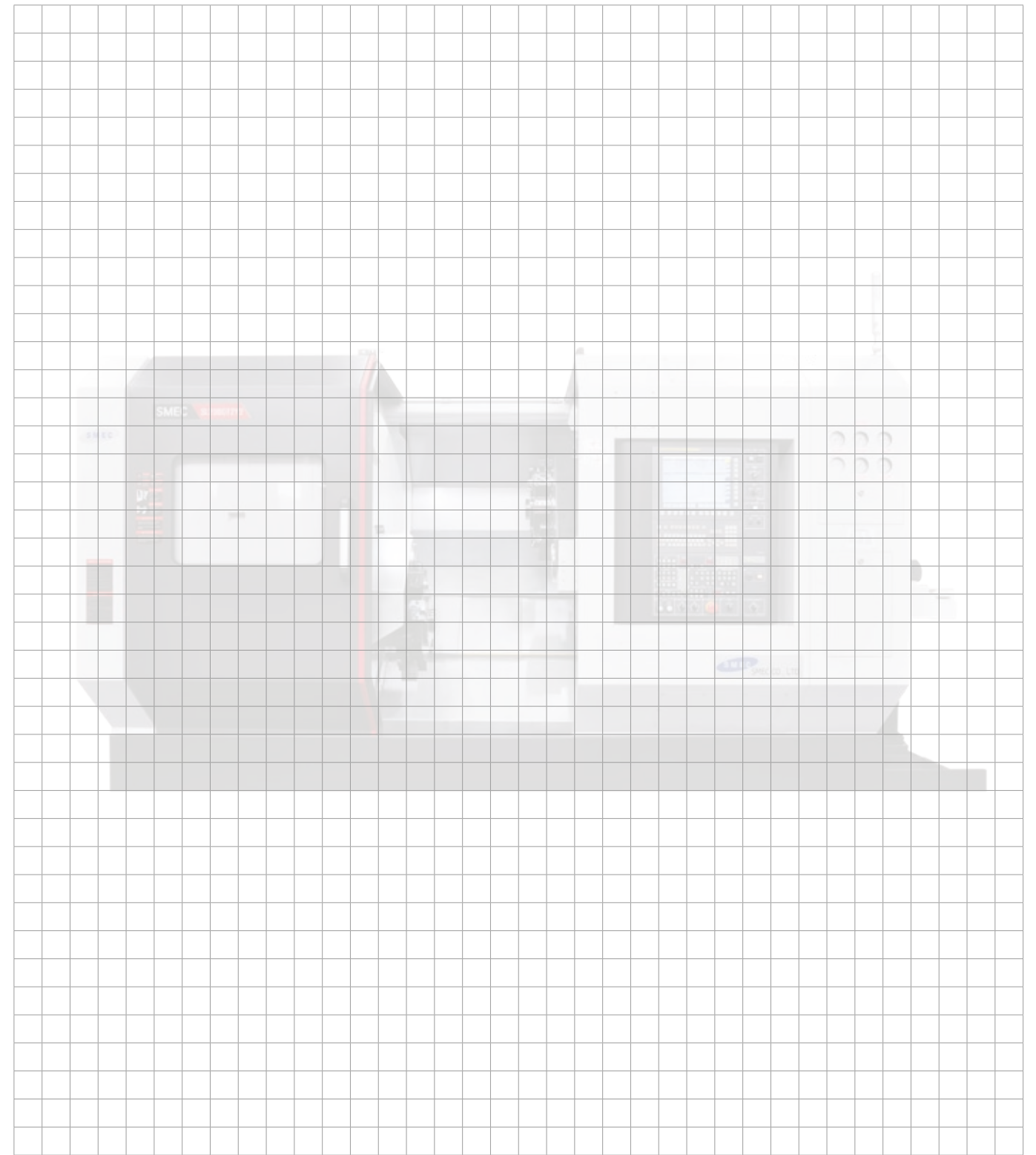
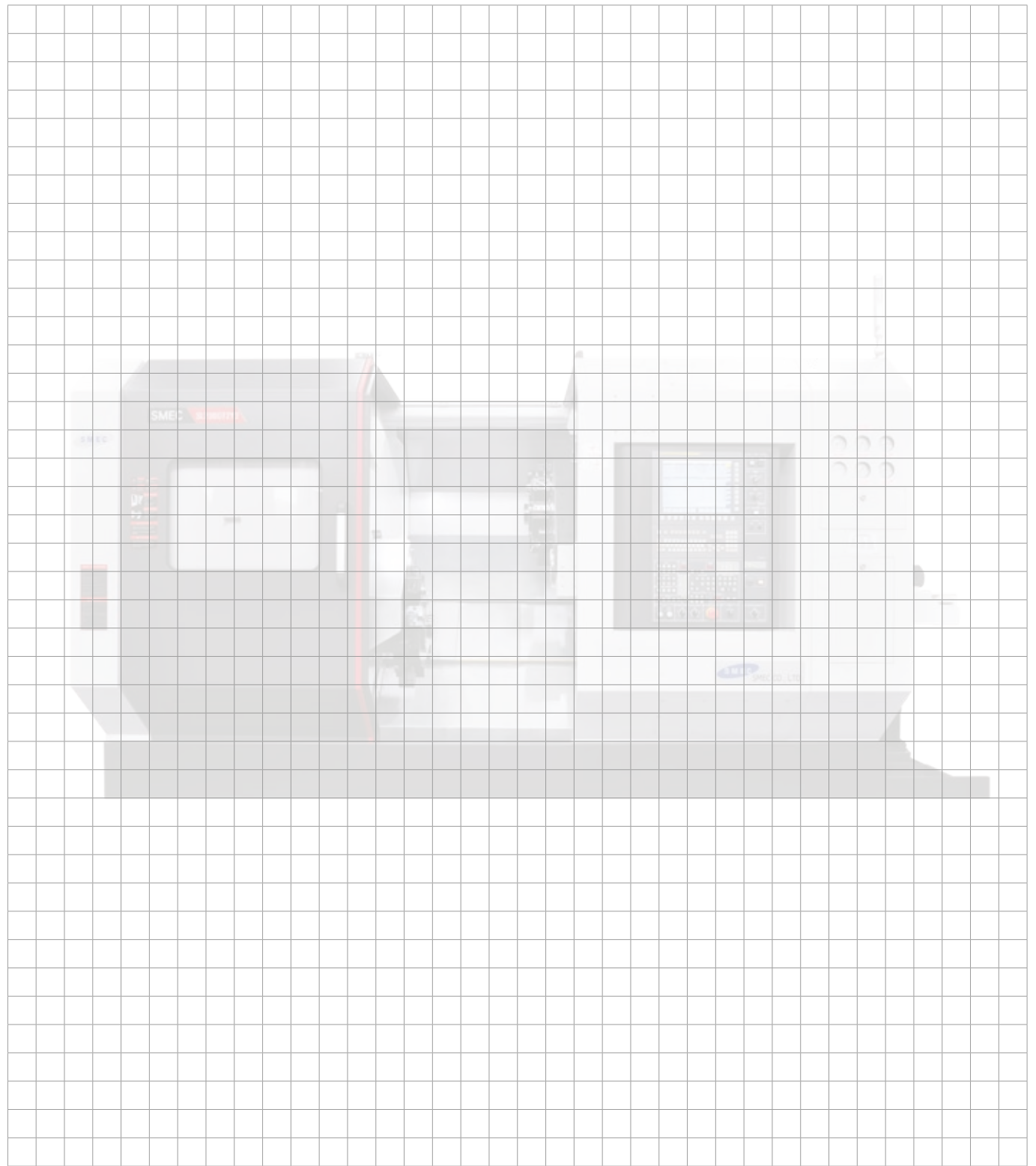
Robuste MultiTouch-Bedienung
kombiniert mit SideScreen

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.



Gleich einspeichern und
ANGEBOT sichern!

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& Österreich**



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