SMEC
LCV 6700
VERTICAL MACHINING CENTER
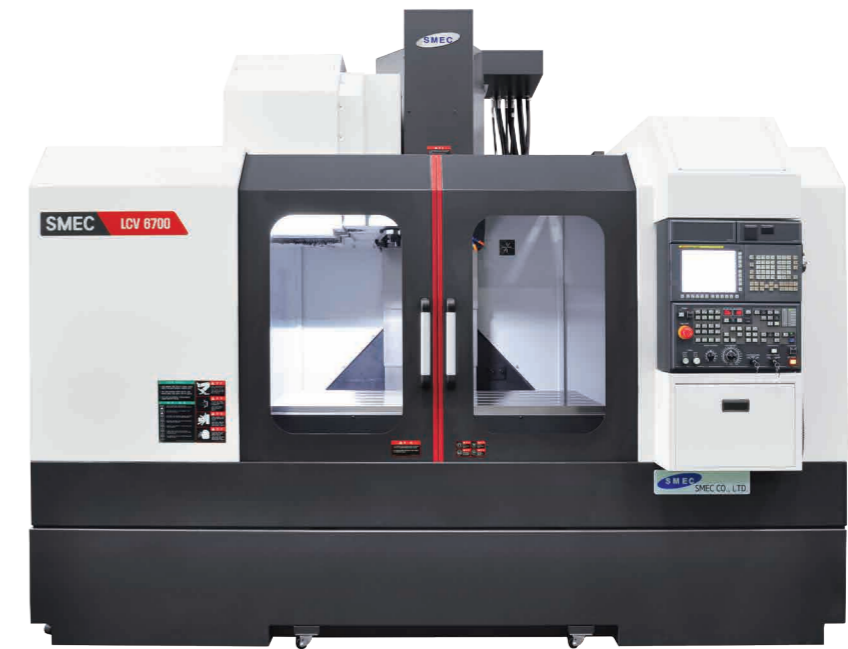
SMEC SMEC CO.,LTD.

SMEC CO.,LTD.
www.esmec.com

YouTube
https://www.youtube.com/c/smecmachinetools

SMEC
Smart One,
Global One

SMEC SMEC CO.,LTD.

❖ Design and specifications subject to change without notice.

SMEC
Smart One, Global One

- 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
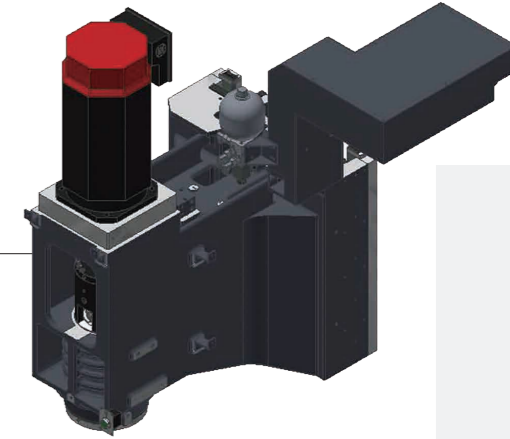- 1999 - Spun out from Samsung Aerospace Industries and established SMEC Co., Ltd

S M E C
Company
Engineering
Machine Tools
Samsung
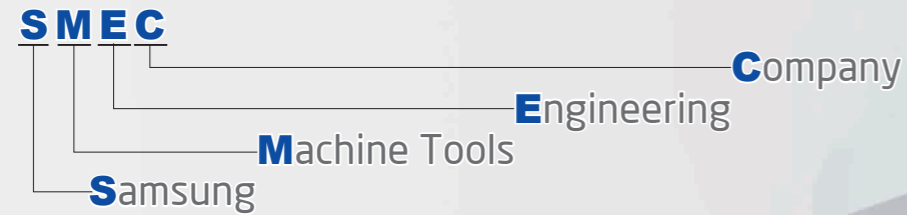
LCV 6700

Superb structural design offering best-in-class heavy duty and precision machining

- High rigidity spindle offering high speed and high precision
- Stable machine structure
- High productivity with short non-cutting time
- Lineup offering various spindle options

  - high speed, high precision direct motor type (8,000 / 12,000rpm)
 - gear motor type (6,000rpm) available with various options such as through spindle cooling

Std. BT50 6R, BT40 12R
Opt. BT50 8R

DIRECT HEAD TYPE
[BT50] [BT40]

The spindle is supported by four P4 class high precision angular ball bearings to minimize heat increment. Also belt head takes forced heat emission to minimize thermal expansion to provide high speed and ultra precision machining.

Spindle Speed	Spindle Motor	Spindle Torque
8,000 rpm	**11/15/18.5** kW	**143/236/286** N.m
12,000 rpm	**11/15/18.5/22.2** kW	**70/95.5/117.8/141.4** N.m

Spindle Power & Torque Diagram
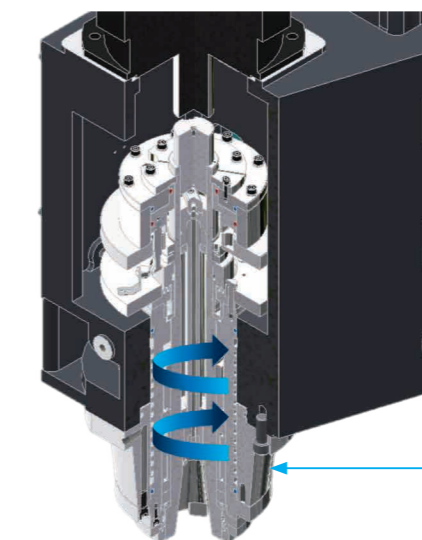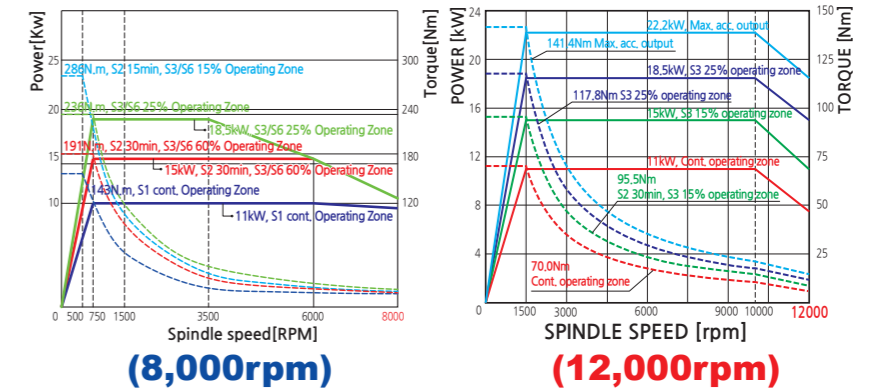
(8,000rpm)

(12,000rpm)

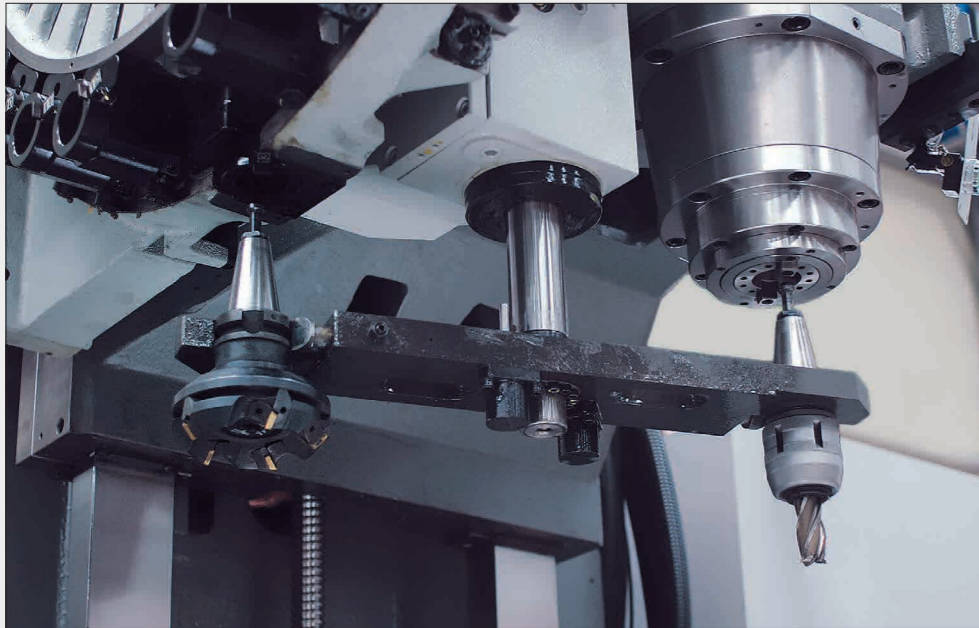### JACKET circulation cooling system

Adopting semipermanent Grease lubrication system on bearing, minimize thermal displacement by Jacket circulation cooling through Fan Cooler on bearing housing, showing stable performance to take longer spindle life time.
Minimize thermal displacement by standard spindle motor base cooling system
(OIL COOLING :
 STD : BT40 12R, OPT : BT50 8R)

LCV 6700

SMEC Machine Tools

High-speed tool changer being driven by enhanced technologies

Double Swing arm type auto tool changer

It is Double swing arm swing type by memory random method and has no error during tool changing and minimize idle time.

Tool to Tool : **BT 50 : 2.5sec**
BT 40 : 1.2sec

Tool Magazine

Highest tool storing capabilities in its class to be suitable wide machining area and adopting a cartridge type port for easy repair

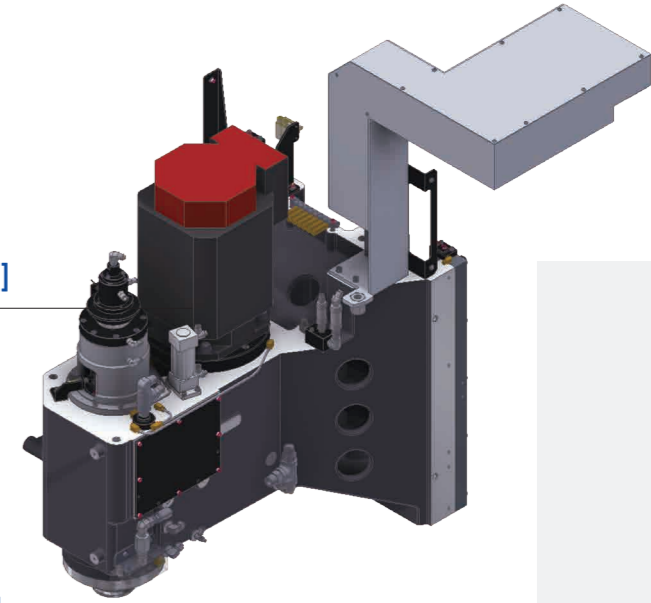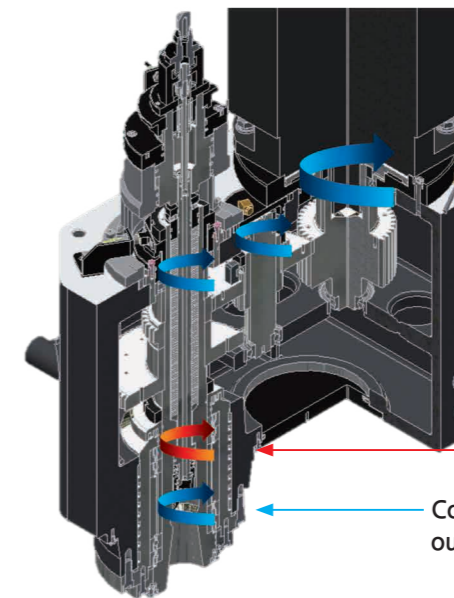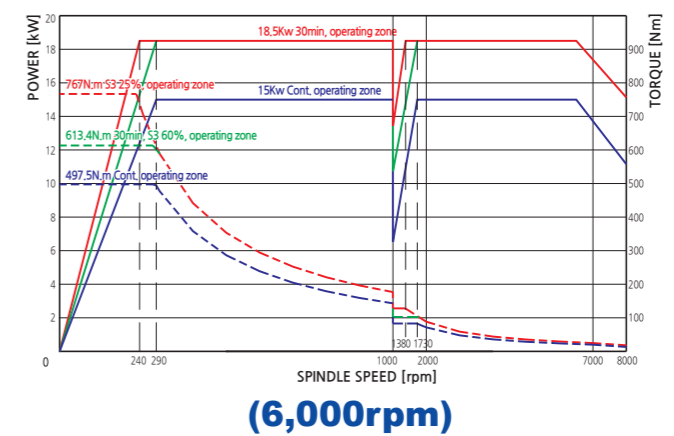Tool Magazine Capacity : **30ea**

GEARED HEAD TYPE [BT50]

Spindle Speed
6,000 rpm

Spindle Motor
15/18.5 kW

Spindle Torque
497.5/613.5/767 N.m

Sub-Spindle Power & Torque Diagram

POWER [kW] / TORQUE [Nm]

18.5Kw 30min, operating zone
767N.m 53 25%, operating zone
15Kw Cont. operating zone
613.4N.m 30min, S3 60%, operating zone
497.5N.m Cont. operating zone

SPINDLE SPEED [rpm]
240 290 380 1730 1000 2000 7000 8000

(6,000rpm)

JACKET circulation cooling system

Adopting semipermanent Grease lubrication system on bearing, minimize thermal displacement by Jacket circulation cooling through Fan Cooler on bearing housing, showing stable performance to take longer spindle life time.
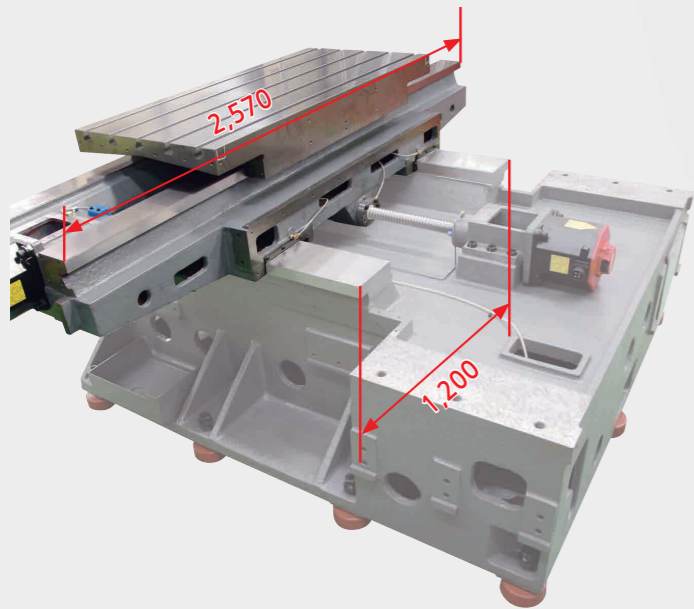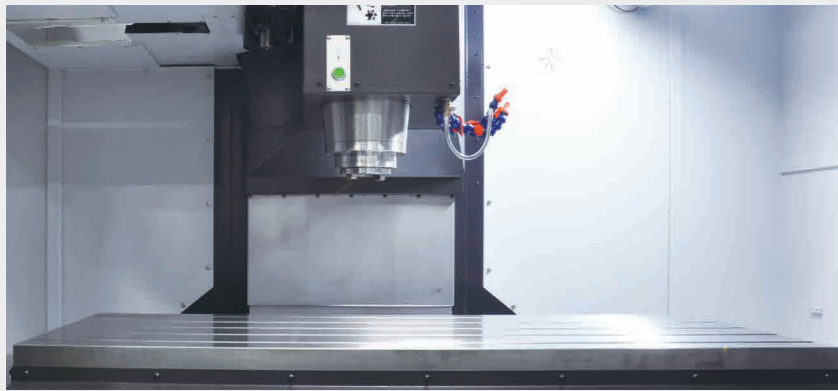Minimize thermal displacement by standard spindle motor base cooling system.
Highly effective cooling via supply of cooling oil to the gears.

Gear and bearing cooling

Coolant circulation inside and outside of spindle housing

Description		LCV 6700
Table Size	mm	1,550×670
Travel(X/Y/Z)	mm	1,350/670/650
MAX. Load	kg	1,000
Rapid Traverse Rate(X/Y/Z)	m/min	30/30/24

2,570

1,200

Bed

Wide Box guideways provide excellent support for the saddle to prevent table overhang, and a rigid triangular rib body structure ensures minimal machine vibration and structural deformation even during heavy machining.

Saddle : Bed Guide
2,570 : 1,200mm

Pendant arm / Operation panel

Pendant/panel design by considering user space and convenience improve working environment

High efficiency Spindle Head Cooling System
STD. BT50 6R, BT40 12R
OTP. BT50 8R

For long-term continuous high-speed operation, a coolant system may be installed to maintain room temperature. The coolant system circulates coolant oil around the spindle bearings to prevent thermal expansion due to the spindle temperature, ensuring high precision machining.

Centralized utility check

With the centralized utility check layout, operators can easily check operation status of lubrication, bearing fluid, air supply. Etc

Dual Contact Spindle(BBT50/BBT40)

Dual contact system to contact both main spindle surface and taper surface dually by measuring elastic deformation of spindle surface that occurs when main spindle is clamped.
- Simultaneous contact to both main spindle surface and taper increases rigidity and reduces vibration.
- Increases machining capacity and surface roughness even under harsh condition.
- 100% compatible with existing tools.(BT50/BT40)

Taper Contact

Face Contact
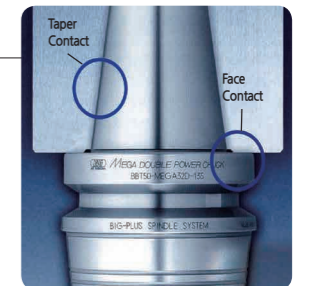
(Simultaneous Dual Contact)

### Automatic Lubrication Dispenser

Automatic lubrication dispenser that reliably dispenses the required amount of lubrication to the required travel axes. Lubrication is only dispensed when the travel axes is in operation, reducing the amount of lubrication that is consumed. When there is problem on lubrication line it shows warning message on a screen and stop the machine for users safety operation.

Feed axes operation : direct coupling to servo motors

- Power conversion via direct coupling
- Minimized backlash during axis feed
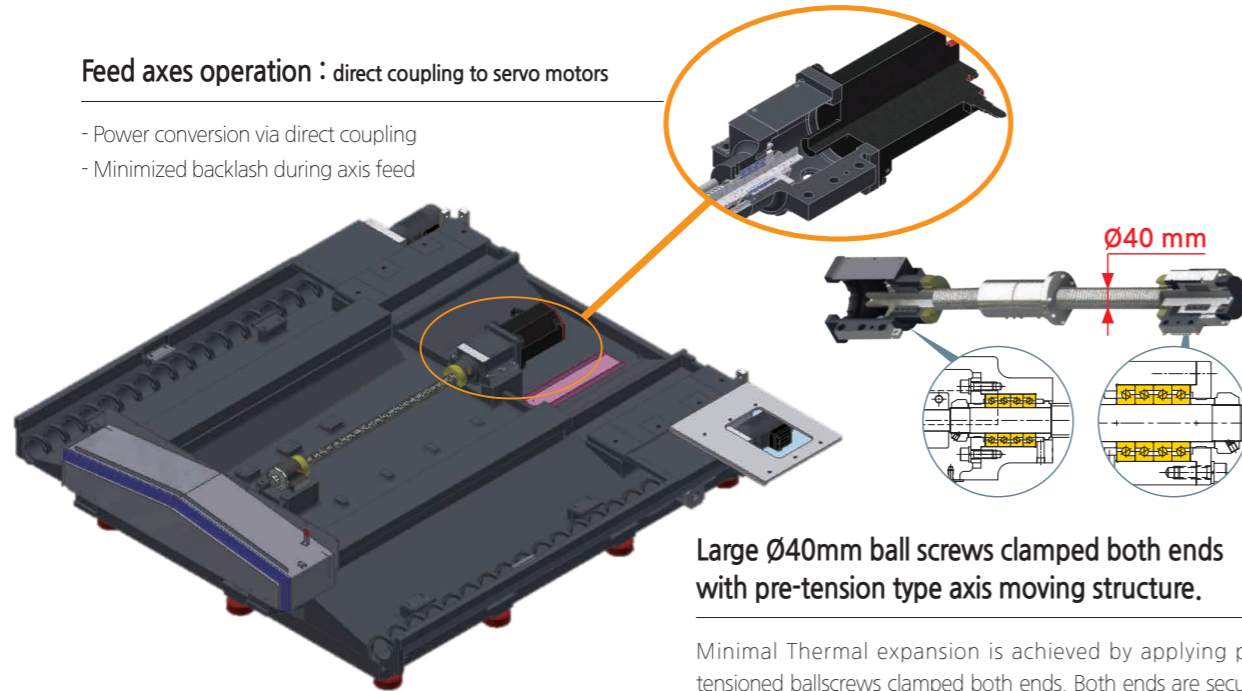
Ø40 mm

Large Ø40mm ball screws clamped both ends with pre-tension type axis moving structure.

Minimal Thermal expansion is achieved by applying pre-tensioned ballscrews clamped both ends. Both ends are secured by four P4 class high precision thrust angular bearings and the bearings are lubricated by forced lubrication system to provide extended life of the bearings.

Designed for superb chip discharge

- Inclined surface on all SLIDE COVERS and BASE COVERS.
- Standard inclined chute installed where chips fall so they are discharged to the coolant tank on the left-side
- Coil mounting part attached on BED part instead of S / GUARD prevents noise and S / GUARD damage during operation

OPT. ChipConveyor

STD. Coil conveyor 2st.
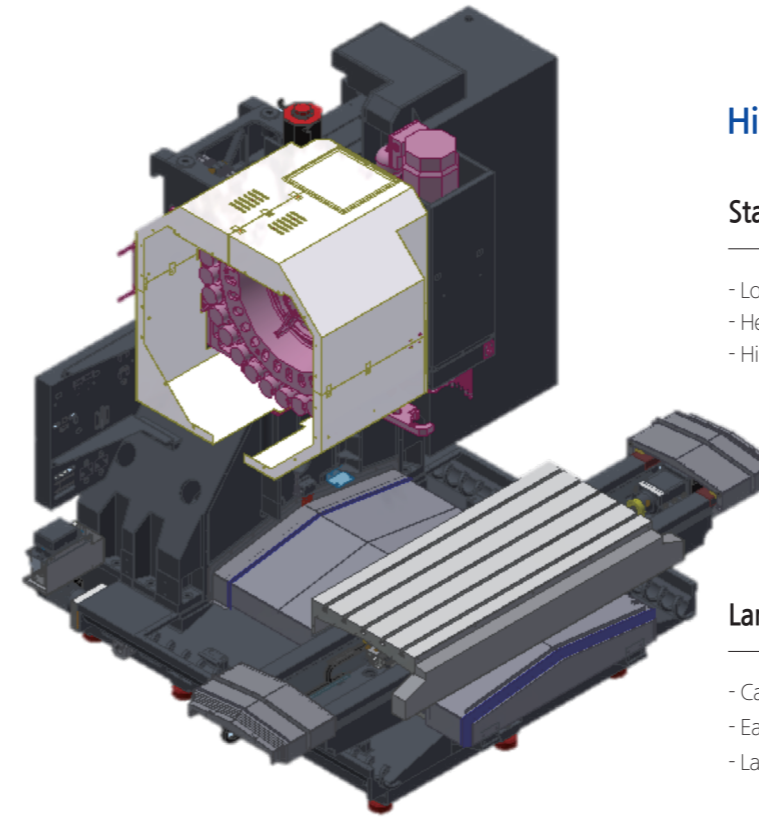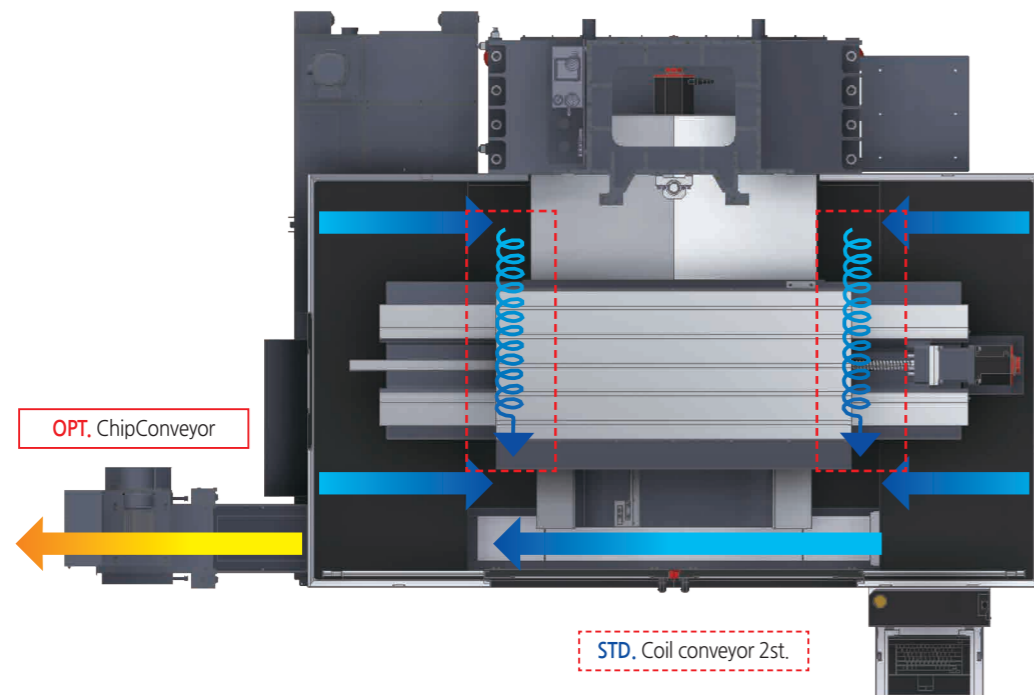
High rigidity & performance travel system

Stable Machine Structure

- Low center of gravity design and stable wide bed surface
- Heat treated and polished slideways
- High rigidity box-type body with triangular rib structure

Largest-in-Class Internal Area

- Can fit up to Ø320 large rotary table
- Easy to wire/pipe for automation
- Largest-in-class work space
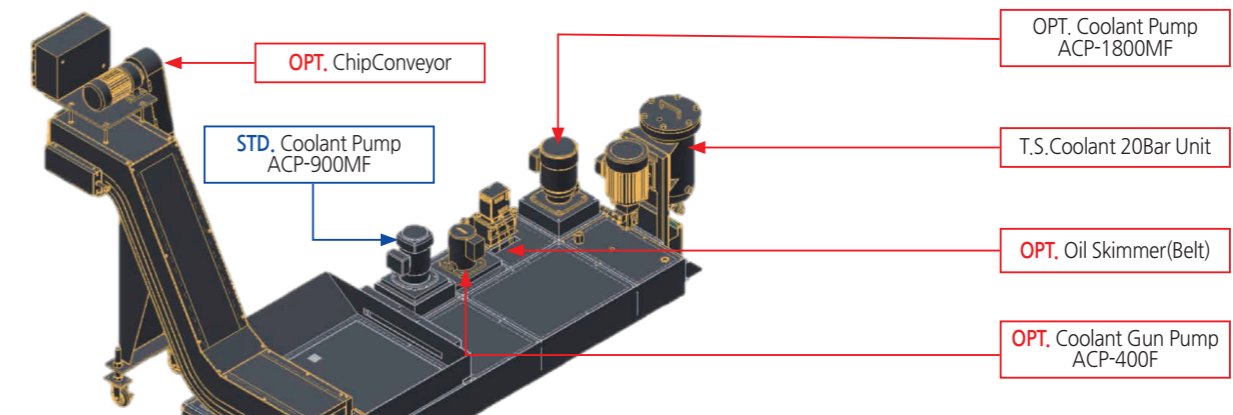
LCV 6700

Stroke :1350x670x650mm(Table:1550x670)

Automatic Lubrication Dispenser

Removable coolant tank

Put coolant tank on left side of the machine for easy coolant exchange and cleaning as well as pump maintenance.

OPT. ChipConveyor

STD. Coolant Pump ACP-900MF

OPT. Coolant Pump ACP-1800MF

T.S.Coolant 20Bar Unit

OPT. Oil Skimmer(Belt)

OPT. Coolant Gun Pump ACP-400F

User friendly centralized control panel.

1 CRT : 10.4 inch color LCD

2 Bigger BEZEL switch size :
50% larger than the conventional
switch size

3 Addition of MG stand-by tool No

4 Addition of MG change button

5 Addition of 4th and 5th axis switch

6 Spindle Overide
50~120% (15 step)
→ 50~150% (20 step change)
Feed Overide
0~1260 (16 step)
→ 0~5000 (21 step change)

7 Addition of spare buttons for fixtures

Std. SMEC Package 2 (FAST DATA SERVER + AICC II)

FAST DATA SERVER
allowing fast program
transmission between PC
and data server

1Gb COMPACT
FLASH CARD

Memory/DNC operation
Program Editing
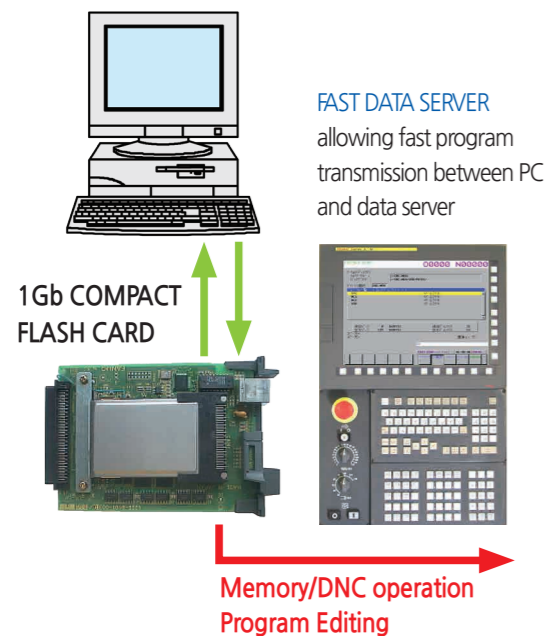
High Precision, High Speed AICC II

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

Cutting Capacity (BT50 11/15KW)

Face mill Carbon Steel (SM45C)
Ø125mm Face mill (6Z)
Cutting amount
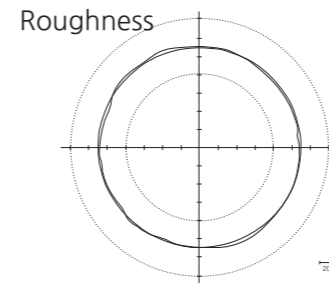288 cm³/min
Spindle speed
600 r/min
Feedrate
450 mm/min
8.0 mm 80 mm

Face mill Alumium (AL6061)
Ø125mm Face mill (6Z)
Cutting amount
507 cm³/min
Spindle speed
800 r/min
Feedrate
1,060 mm/min
6.0 mm 80 mm

Drill Carbon Steel (SM45C)
Ø60 Drill
Cutting amount
226 cm³/min
Spindle speed
720 r/min
Feedrate
80 mm/min

High Precision

Roughness

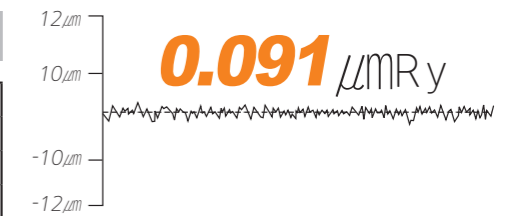**6.75 ㎛**

Roundness	
Machine	LCV 6700
Material	A 1050P
Tool	Ø25×4T
Spindle Speed	1,500RPM

Surface Roughness <O.D. cutting>

12㎛
10㎛

0.091 ㎛R y

-10㎛
-12㎛

Optional Accessories

Automatic Tool Length Measurement Unit

Coolant Gun (With Tank Opt.)

BROKEN TOOL LASER DETECTION SYS.

Additional 1-axis

Additional 2-axis

Oil Skimmer (With Tank Opt.)

Thru Spindle Coolant

Linear Scale Feed Back System

Lift Up Chip Conveyor

Machine Dimensions

Unit : mm
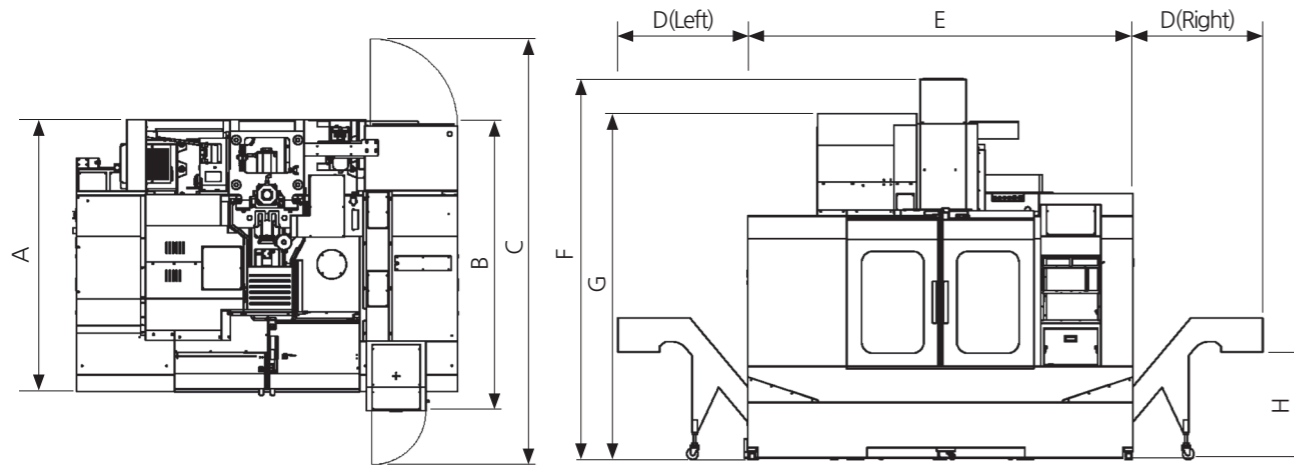
구 분	A (장비길이)	B (조작반 포함길이)	C (최대 장비길이)	D (측면 칩 컨베이어 설치시)	E (장비 폭)	F (장비 최대 높이)	G (장비 장입 높이)	H (칩컨베이어 출구 높이)
BT 50/30	2,430	2,600	3,800	1,146	3,400	3,160	3,054	950
BT 40/30	2,430	2,600	3,800	1,146	3,400	3,055	2,950	950

ATC Interference

Unit : mm

Table & T-Slot

Unit : mm

Detail T-Slot (S,3/1)

Loading capacity : 1,000kgf
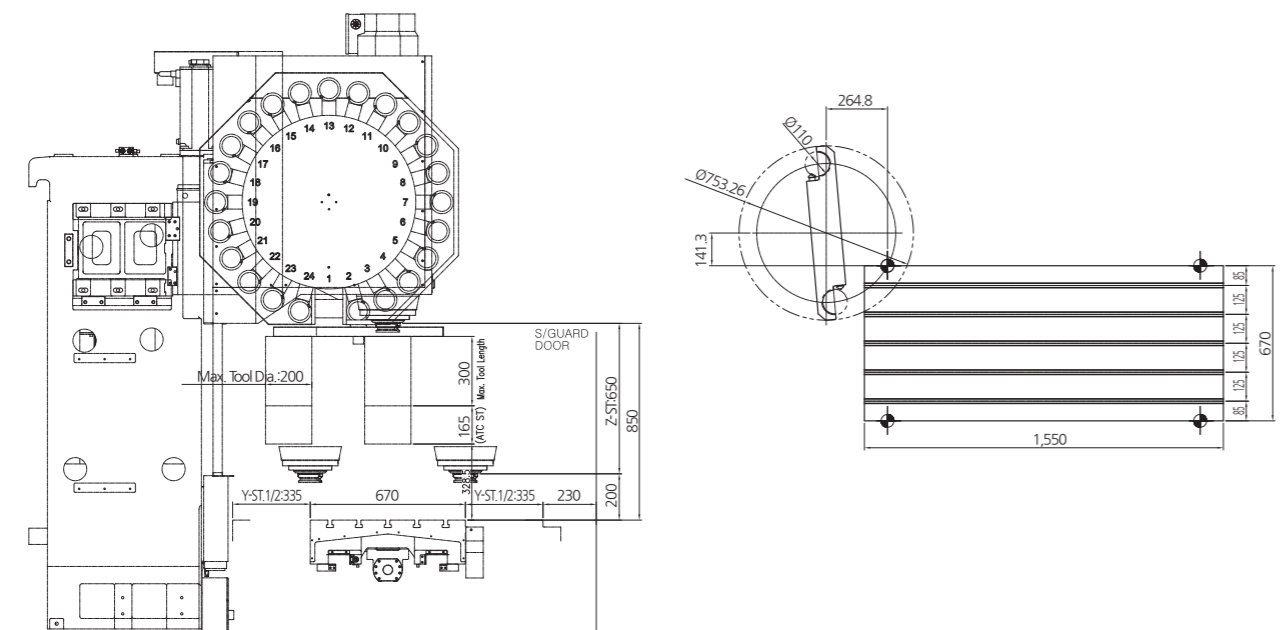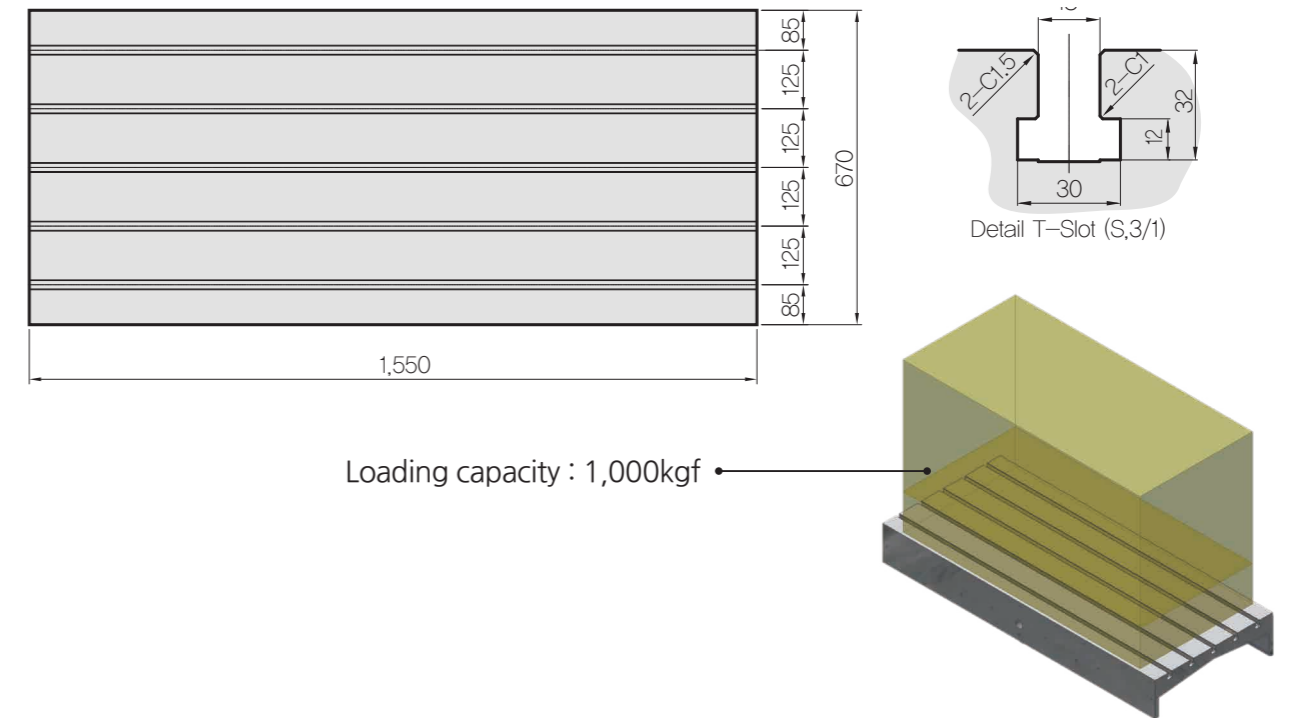
Tool Shank

Unit : mm
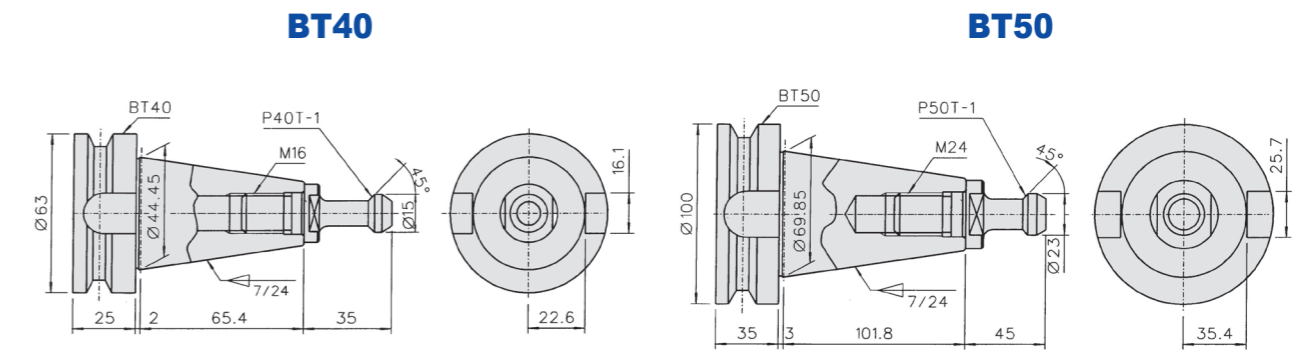
BT40

BT50

※Gear Type의 Pull Stud 형식은 MAS P50T-1F(90°)가 표준임

LCV 6700

SMEC *Smart One, Global One*

Major Specifications

	DESCRIPTION		LCV 6700(BT50)	LCV 6700(BT40)
Travel	X axis	mm	1,350	1,350
	Y axis	mm	670	670
	Z axis	mm	650	650
	Distance from table surface to spindle nose	mm	200~850	200~850
Table	Table size	mm	1,550×670×P125	1,550×670×P125
	Loading capacity	kgf	1,000	1,000
Spindle	Spindle speed	rpm	Direct : 8,000 | Gear : 6,000	Direct : 12,000
	Torque (Max./Cont.)	N.m	Direct : 143/286 | Gear : 497.5/767	Direct : 70/141.4
	Spindle motor(Cont./15min.)	kW	Direct : 11/18.5 | Gear : 15/18.5	Direct : 11/22.2
Feedrate	Rapid traverse(X/Y/Z)	m/min	30/30/24	30/30/24
	Cutting feedrate(X/Y/Z)	mm/min	12,000	12,000
ATC	Tool shank	-	BBT50	BBT, DIN 40
	Tooling changing method	-	Double Arm Swing	Double Arm Swing
	Tool changing time (T-T)	sec	2.5	1.2
	Magazine capacity	ea	30	30
	Tool Selection	-	Memory Random	Memory Random
	Max. tool dia. [adjacent empty]	mm	Ø100[Ø200]	Ø100[Ø200]
	Max. tool length / weight	mm/kgf	300/15	300/15
	Pull stud type	-	Direct : MAS P50T-1 | Gear : MAS P50T-1F	Direct : MAS P40T-1
Power supply		kVA	32	30
Floor space (L×W×H)		mm	3,400×2,430×3,160	3,400×2,430×3,055
Machine weight		kgf	11,000	11,000
CNC system			Fanuc 0i-MF	

※Design and specifications subject to change without notice.

Standard Accessories

- Full splash guard
- Coolant system
- Leveling parts (Level plate, bolt, etc.)
- Standard tools and tool box
- Lubrication system
- Work light
- 3 step patrol lamp
- Rigid tapping
- Spindle override
- Spindle tachometer
- Door inter lock
- Hydraulic unit
- MPG handle
- Manual and parts list
- 10.4" LCD OP Screen

Optional Accessories

- Air gun
- Air blow
- Coolant gun
- Rotary table
- Oil skimmer
- Coolant level gauge
- Through spindle coolant (TSC 20Bar)
- MPG handle(3ea)
- Air conditioner for electric cabinet
- Tool measuring system
- Lift-up chip conveyor (HINGE TYPE / SCRAPPER TYPE)
- OIL COOLER

NC Specifications / FANUC 0i-MF

	Item	Specification	F 0i-MF
Controlled axis	Controlled axes		X,Y,Z,(A,B)
	Max. controlled axes		4(6) AXIS
	Max. simultaneously controlled axes		4
	Least input increment	0.001mm / 0.0001"	○
Operation functions	Manual handle feed	X1, X10, X100	○
	Feed per minute	G94	○
	Feed per revolution	G95	○
Interpolation functions	Linear interpolation	G01	○
	Circular interpolation	G02, G03	○
	Dwell	G04	○
	Cylindrical interpolation	G70.1	○
	Reference position return	G28	○
	Reference position return check	G27	○
Feed function	Rapid traverse feedrate override	F0, 25%, 50%, 100%	○
	Feedrate override		0~200%
Spindle function	Spindle override		○
	Rigid tapping		○
Tool functions	Tool function	T4-Digt / T2-Digt	T2-Digt
	Tool nose radius compensation	G40 ~ G42	
	Tool offset pairs		400
	Tool geometry / wear offset	GEOMETRY & WEAR DATA	○
	Tool life management		○
	Tool path graphic display		○
	Automatic tool compensation		○
Program input	Absolute / incremental programming		○
	Multiple repetitive cycle	G70 ~ G76	○
	Canned cycle	G90, G92, G94	○
	Inch / metric conversion	G20 / G21	○
	Program restart		○
	Retraction for rigid tapping		○
	Max. programmable dimension	±99999.999mm/±9999.9999"	○
	M function	M3 digit	○
	Custom macro		○
	Canned cycle for drilling		○
	Direct drawing dimension programming		○
	Programmable data input	G10	○
	Optional block skip		○
	Workpiece coordinate system	G52 ~ G59	○
	Number of registerable programs		400EA
Setting and display	Help function	ALARM & OPERATION DISPLAY	○
	Run hour / parts count display	RUNNING TIME & PART NO. DISPLAY	○
	Spindle & servo load display	SPINDLE & SERVO LOAD DISPLAY	○
	Self-diagnosis function		○
	Extended part program editing	COPY,MOVE, CHANGE OF NC PROGRAM	○
	Display screen		10.4" color
Data input/output	Memory card input / output		○
	USB memory input / output		○
Editing operation	Part program storage size	512Kbyte, 256Kbyte	512Kbyte
Manual guide i	Manual Guide I		Opt.