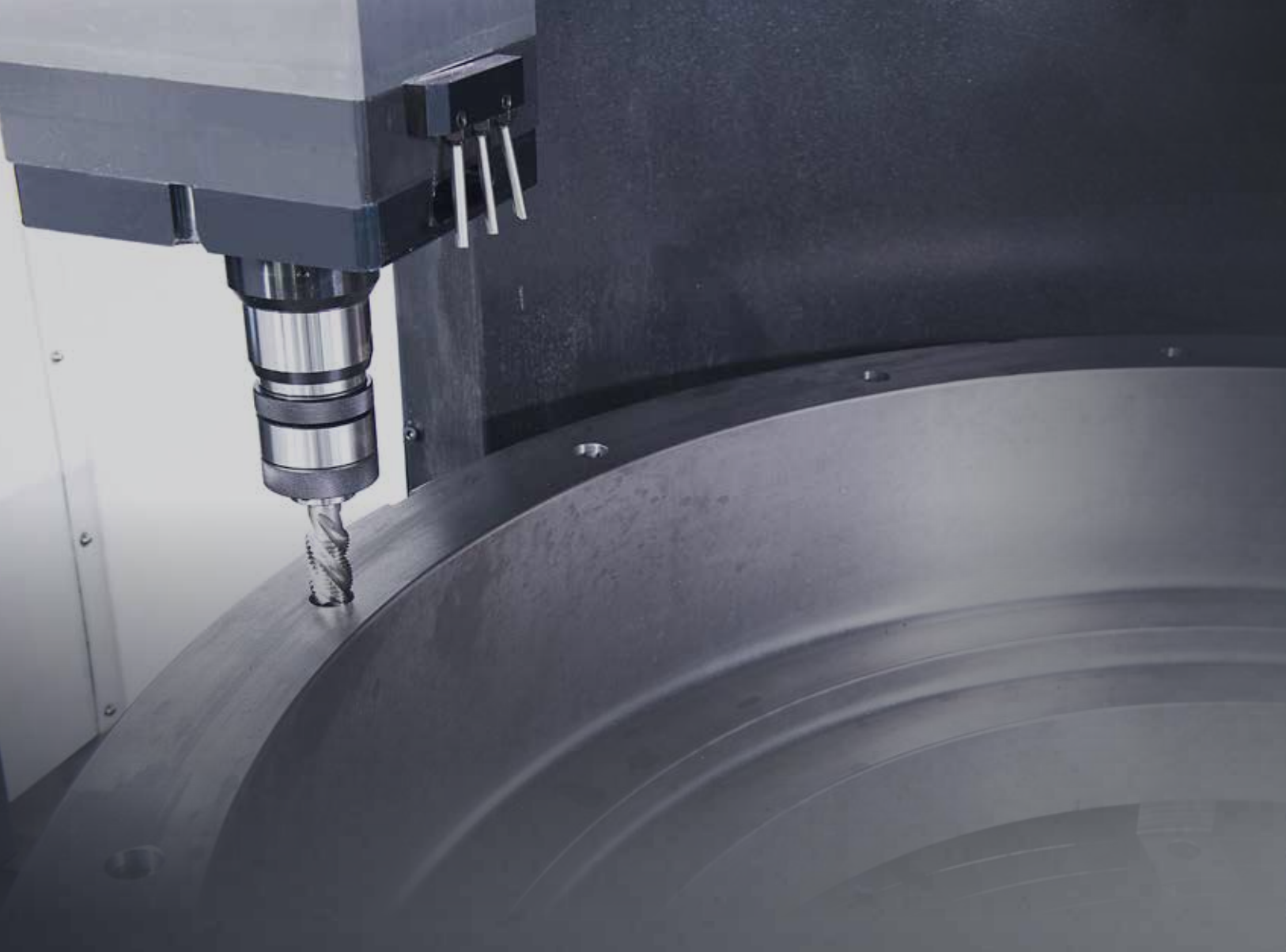
HYUNDAI
MOTOR GROUP

LV 1400/2000

LV1400 | LV2000MF/MM

HYUNDAI WIA Ram Type Vertical Turning Center

HYUNDAI WIA EXPERIENCE THE NEW TECHNOLOGY



Technical Leader

The CNC Turning Center LV1400/2000 Series, designed by Hyundai WIA with years of expertise and the latest technology, is designed to maximize productivity for machining large work.

		LV1400	LV2000MF/MM
Max. Swing	mm(in)	Ø1,450 (57.1″)	Ø2,040 (80.3″)
Max. Turning Dia.	mm(in)	Ø1,400 (55.1″)	Ø2,000 (78.7″)
Max. Turning Height	mm(in)	850 (33.5″)	950 (37.4″)/1,700 (66.9″)
Table Size	mm(in)	Ø1,000 (39.4″)	Ø1,600 (63″)
Max. Load Capacity	kg(lb)	4,400 (9,700)	10,000 (22,046)
Spindle Speed	r/min	492	258
Spindle Power	kW(HP)	37/30 (50/40)	37/30 (50/40) [45/37 (60/50)]
Ram Size	mm(in)	200×200 (7.9″×7.9″)	240×240 (9.4″×9.4″)
Travel (X/Z)	mm(in)	-50~+825 (-2″~+32.5″)/800 (31.5″)	-250~+1,180 (-9.8~+46.5″)/915 (36″)

[ ] : Option

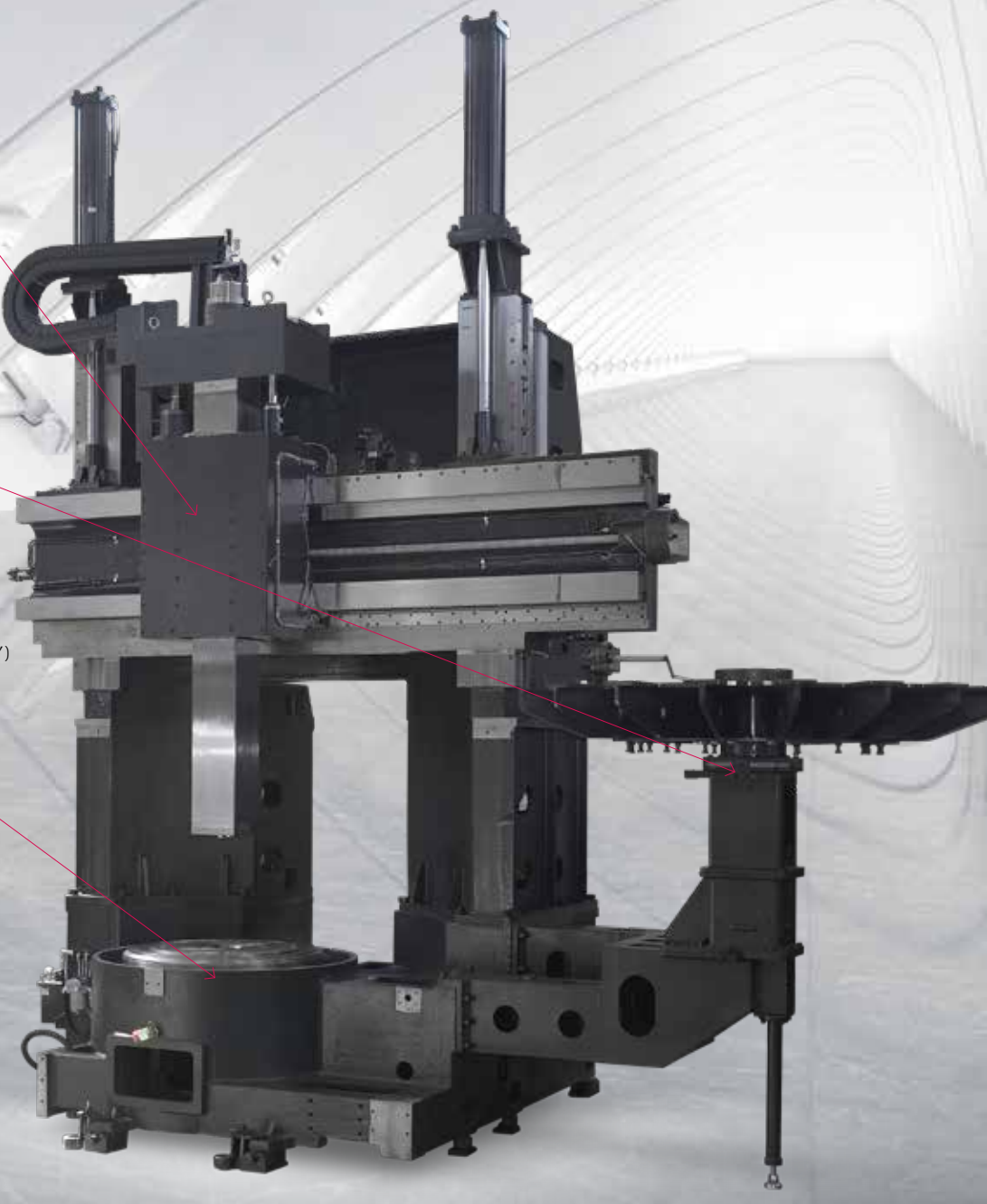
LV 1400/2000

Heavy Duty, Large Work Capacity, Vertical Turning Center

- Strengthened heavy duty cutting ability with 2 step gear driven spindle(table)
- Main spindle with cross roller bearings and box guideway for high rigidity
- Rigid table structure for processing heavy loads
- 3 step hydraulic cylinder type crossrail(LV2000MM)
- Various Machining : Turning, tapping, milling, grinding etc.(LV2000MF/2000MM)
- Linear scale on all axes as standard (LV2000MF/2000MM)

01 BASIC **STRUCTURE**

Highly Rigid Bed Structure for Heavy Duty Cutting Ram Type Vertical Turning Center



Ram Head

- Ram Size
  LV1400 : 200×200mm (7.9″×7.9″)
  LV2000MF/MM : 240×240mm (9.4″x9.4″)
- LV2000MM : 3 Step Crossrail

ATC

- No. of Tools
  LV1400 : 12 [16] EA
  LV2000MF/MM : 18 [16] EA
- Tool Size (O.D/I.D)
  LV1400 : □32/□22mm (□1.3″/0.9″)
  LV2000MF/MM : □32/□25mm (□1.3″/1″)

Spindle & Table

- Spindle Speed
  LV1400 : 492r/min
  LV2000MF/MM : 258r/min
- Table Size
  LV1400 : Ø1,000mm (Ø39.4″)
  LV2000MF/MM : Ø1,600mm (Ø63″)

STRUCTURE FOR HEAVY CUTTING AND HIGH PRECISION

HIGH-PRECISION STRUCTURE

Highly Stable Bed Structure

LV1400/2000 is optimized for heavy duty cutting. Separate Bed Saddle structure made of cast iron minimizes vibration and thermal displacement

Floor Space (L×W)

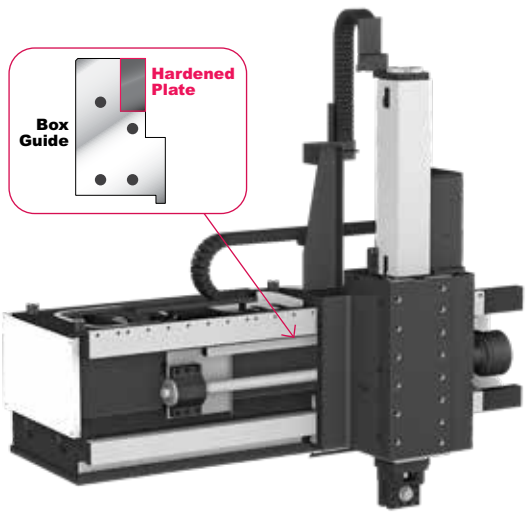
LV1400	LV2000MF	LV2000MM
3,685×3,276 mm	5,683×3,879 mm	5,683×3,937 mm
(145.1″×129″)	(223.7″×152.7″)	(223.7″×155″)

GUIDEWAY

Hardened Plate Box Guideway

Highly rigid **hardened plate** attached box guideway increases rigidity and reduces vibration.
Also, **linear scales** on all axes provided as standard enable precise machining. (LV1400 : Option)

Rigidity **10% UP** compared to standard box guideway



3 Step Crossrail (LV2000MM)

3 step hydraulic cylinder crossrail(250mm (9.8″x3) enables minimization of vibration and load by extending the length of the ram depending on the machining area. This unique design allows high performance in heavy duty operations.

Travel (X/Z)

LV1400	LV2000MF/MM
−50~+825/800 mm	−250~+1,180/915 mm
(−2″~+32.5″/31.5″)	(−9.8~+46.5″/36″)

02 HEAVY DUTY CUTTING

Heavy Duty, Large Work Capacity, Ram Type Vertical Turning Center

HIGHLY RIGID TABLE

The maximum working height of 1,700mm (66.9″) – LV2000MM enables various workpiece machining.

Table Size

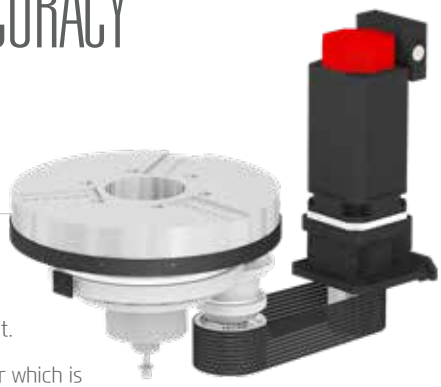
LV1400	LV2000MF/MM
Ø1,000 mm (39.4″)	Ø1,600 mm (63″)

Max. Turning Height

LV1400	LV2000MF	LV2000MM
850 mm (33.5″)	950 mm (37.4″)	1,700 mm (66.9″)

HEAVY DUTY CUTTING & HIGH ACCURACY

SPINDLE



Spindle for Heavy Cutting

A highly rigid cross roller bearing structure is utilized for heavy duty operations as it minimizes vibration and thermal displacement.

LV2000MF/MM includes C-axis control with ring gear and ring sensor which is superior in noise control and precision indexing than other gear box applied machines.

2 Step Gear Driven Table	2 step gear driven table provides excellent performance in all speed ranges, especially in low speed.

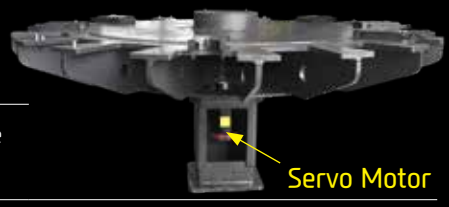
RAM HEAD

Various types of machining are possible with ram head; milling with rotary tool, turning, tapping, drilling, grinding and etc.

Improved Machining Capacity : Tapping **40% UP**

- Live Tool Speed : **2,400** rpm
- Max. Torque : **769** N·m (567.2 lbf·ft)

ATC MAGAZINE



ATC is driven by a servo motor which provides faster tool change time and easier maintenance.

Number of Tools

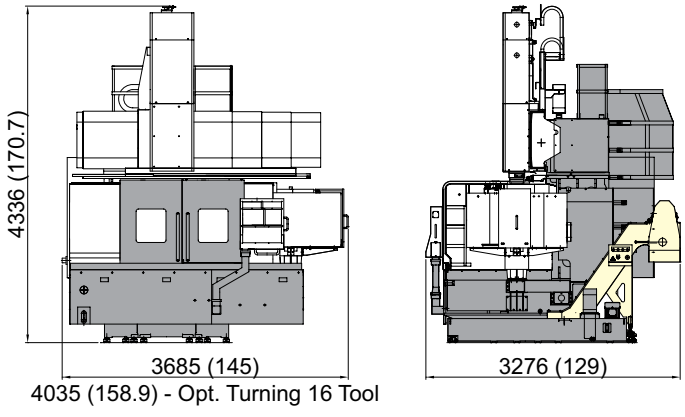
LV1400	LV2000MF/MM
Std. : 12EA (Turing 12)	Std. : 18EA (Turning 10 + Milling 7 + Dummy 1)
Opt. : 16 EA (Turning 16)	Opt. : 16EA (Turning 16)

SPECIFICATIONS

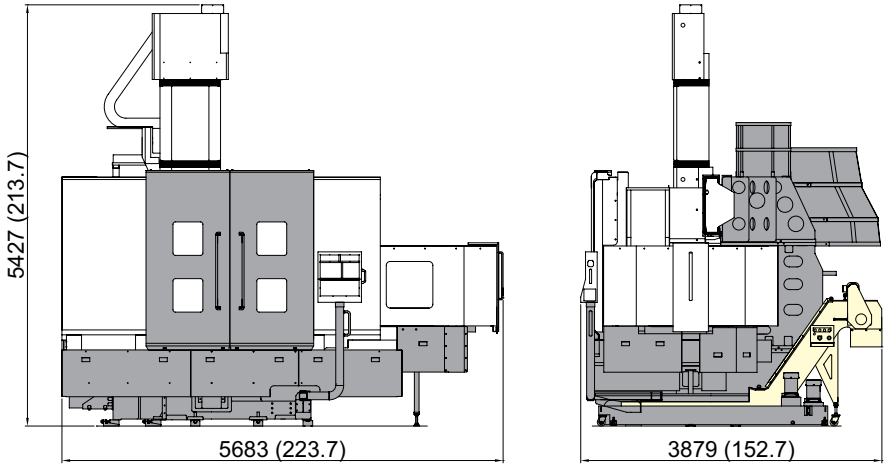
External Dimensions

unit : mm(in)

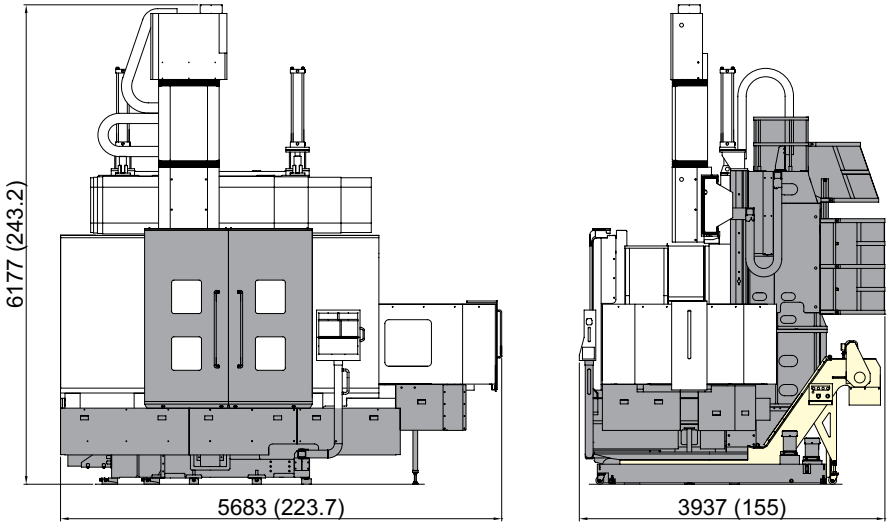
LV1400



LV2000MF



LV2000MM



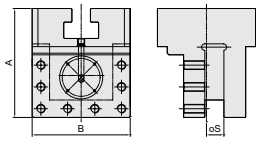
SPECIFICATIONS

Tooling System

unit : mm(in)

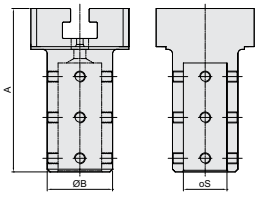
LV1400

FACE HOLDER A



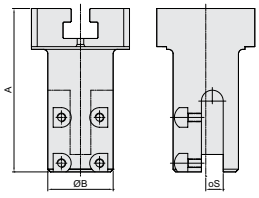
Model	A	B	S	
1084-40-203	200 (7.9)	180 (7.1)	32 (1.3)	STD.

BORING BAR HOLDER



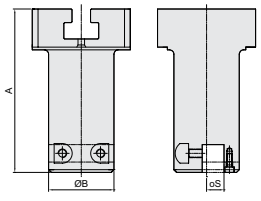
Model	A	B	S	
1084-40-204	300 (11.8)	120 (4.7)	80 (3.1)	STD.

FACE HOLDER B



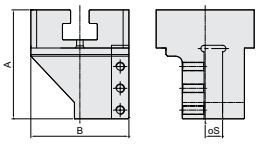
Model	A	B	S	
1084-40-205	300 (11.8)	120 (4.7)	32 (1.3)	STD.

FACE HOLDER C



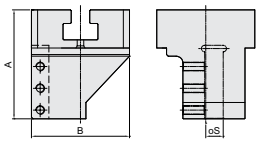
Model	A	B	S	
1084-40-206	300 (11.8)	120 (4.7)	32 (1.3)	STD.

FACE HOLDER R



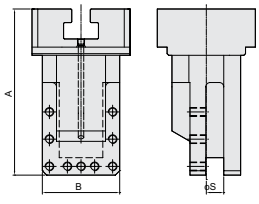
Model	A	B	S	
1084-40-210	200 (7.9)	180 (7.1)	32 (1.3)	OPT.

FACE HOLDER L



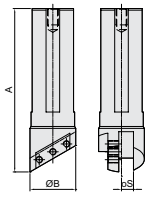
Model	A	B	S	
1084-40-211	200 (7.9)	180 (7.1)	32 (1.3)	OPT.

FACE HOLDER



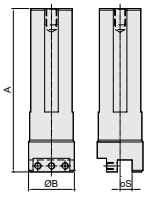
Model	A	B	S	
1084-40-212	305 (12)	142 (5.6)	32 (1.3)	OPT.

BORING BAR



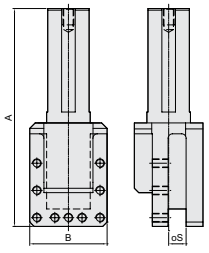
Model	A	B	S	
1084-40-207	300 (11.8)	84 (3.3)	22 (0.9)	STD.
1084-40-213	200 (7.9)	84 (3.3)	22 (0.9)	OPT.

BORING BAR



Model	A	B	S	
1084-40-208	300 (11.8)	84 (3.3)	22 (0.9)	STD.
1084-40-214	400 (15.7)	84 (3.3)	22 (0.9)	OPT.

EXTENSION BAR



Model	A	B	S	
1084-40-209	400 (15.7)	142 (5.6)	32 (1.3)	OPT.

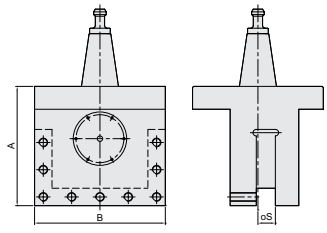
SPECIFICATIONS

Tooling System

unit : mm(in)

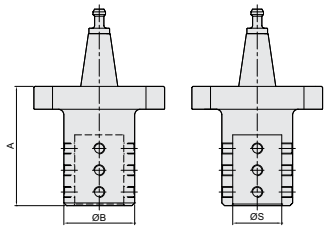
LV2000MF/MM

FACE HOLDER-A



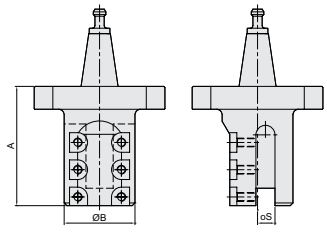
Model	A	B	S	
1085-40-201	219 (8.6)	240 (9.4)	32 (1.3)	STD.

BORING BAR HOLDER



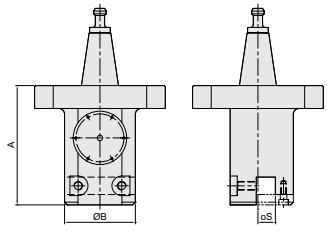
Model	A	B	S	
1085-40-204	219 (8.6)	130 (5.1)	90 (3.5)	STD.

FACE HOLDER-B



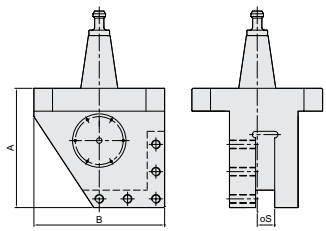
Model	A	B	S	
1085-40-202	219 (8.6)	130 (5.1)	32 (1.3)	OPT.

FACE HOLDER-C



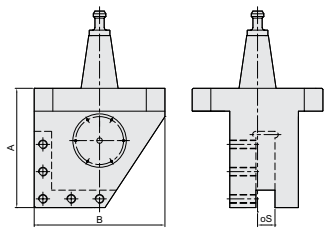
Model	A	B	S	
1085-40-203	219 (8.6)	130 (5.1)	32 (1.3)	OPT.

FACE HOLDER-R



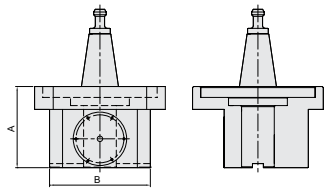
Model	A	B	S	
1085-40-206	219 (8.6)	240 (9.4)	32 (1.3)	OPT.

FACE HOLDER-L



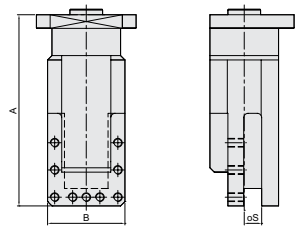
Model	A	B	S	
1085-40-205	219 (8.6)	240 (9.4)	32 (1.3)	OPT.

CONNECTION HOLDER



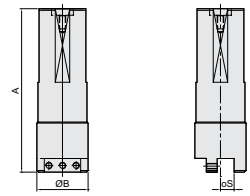
Model	A	B	S	
1085-40-209	149 (5.9)	185 (7.3)	-	OPT.

EXTENSION HOLDER



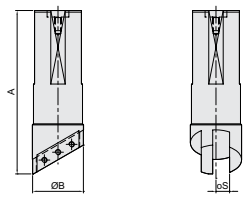
Model	A	B	S	
1085-40-208	351 (13.8)	142 (5.6)	32 (1.3)	OPT.

BORING BAR



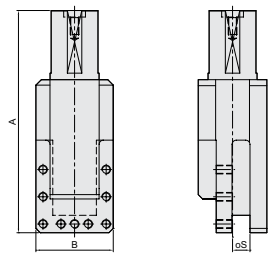
Model	A	B	S	
1085-40-305	300 (11.8)	94 (3.7)	25 (1)	STD.
1085-40-307	400 (15.7)	94 (3.7)	25 (1)	OPT.

BORING BAR



Model	A	B	S	
1085-40-306	300 (11.8)	94 (3.7)	25 (1)	STD.
1085-40-308	400 (15.7)	94 (3.7)	25 (1)	OPT.

EXTENSION BAR



Model	A	B	S	
1085-40-207	408 (16.1)	142 (5.6)	32 (1.3)	OPT.

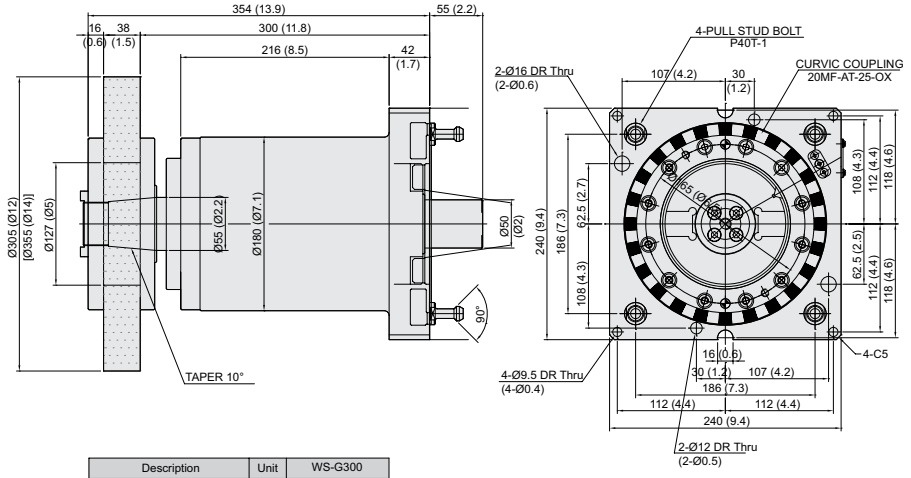
Tooling System

unit : mm(in)

LV2000MF/MM

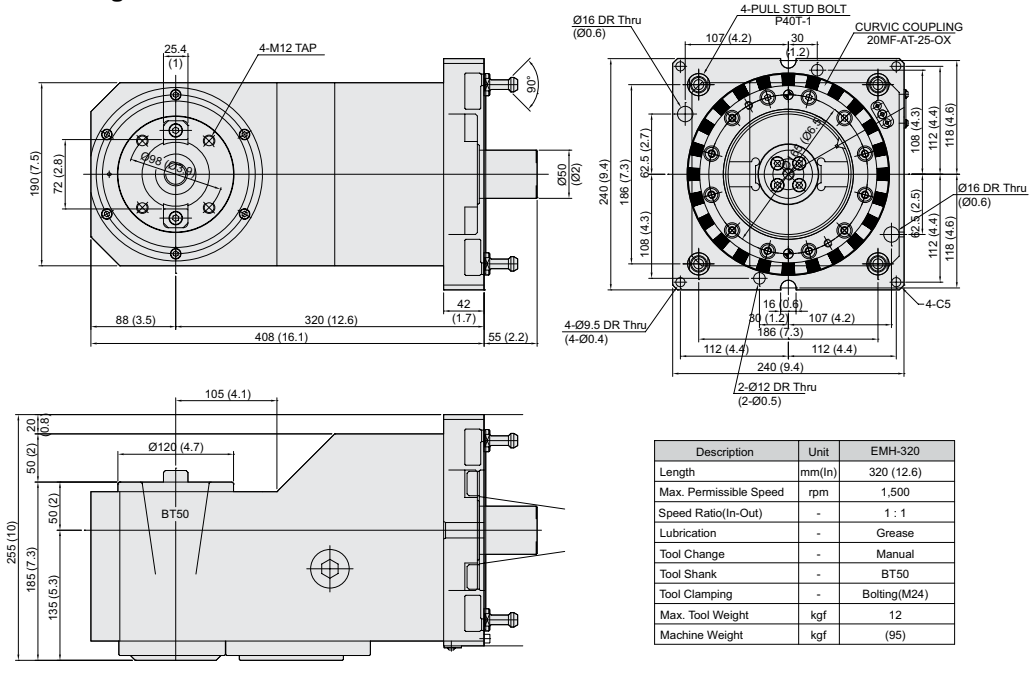
OPTION

Grinding Head



Description	Unit	WS-G300
Length	mm(in)	300 (11.8)
Max. Permissible Speed	rpm	1800
Speed Ratio(In-Out)	-	1 : 1
Lubrication	-	Grease

Angle Head



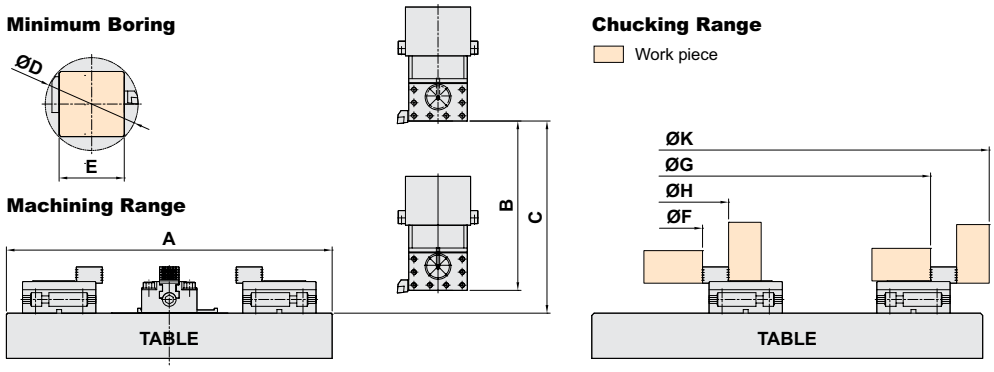
Description	Unit	EMH-320
Length	mm(In)	320 (12.6)
Max. Permissible Speed	rpm	1,500
Speed Ratio(In-Out)	-	1 : 1
Lubrication	-	Grease
Tool Change	-	Manual
Tool Shank	-	BT50
Tool Clamping	-	Bolting(M24)
Max. Tool Weight	kgf	12
Machine Weight	kgf	(95)

❖ These attachments are only applicable in mm unit.

SPECIFICATIONS

Tooling Travel Range

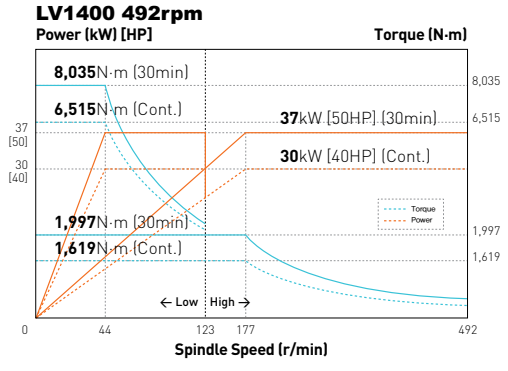
unit : mm(in)

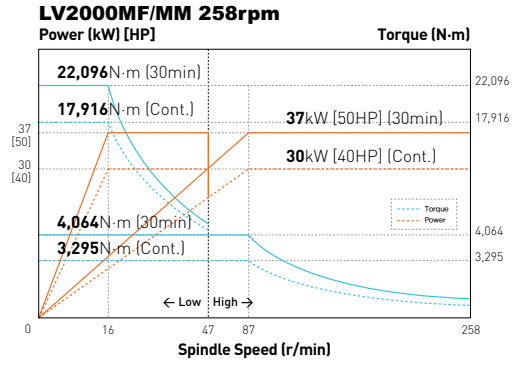


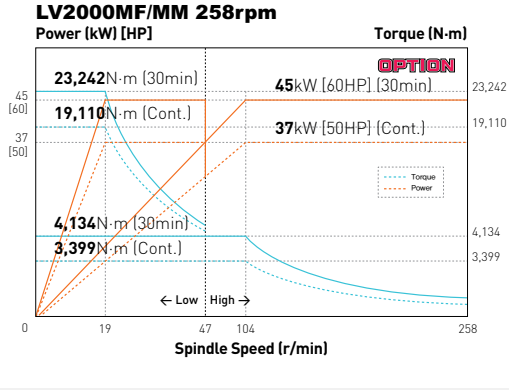
Model	A	B	C	D	E	F	G	H	K	
LV1400	1000 (39.4)	800 (31.5)	850 (33.5)	285 (11.2)	200 (7.9)	319 (12.6)	*	*	1052 (41.4)	Hydraulic Chuck (STD.)
	1000 (39.4)	800 (31.5)	850 (33.5)	285 (11.2)	200 (7.9)	220 (8.7)	890 (35)	360 (14.2)	1000 (39.4)	Independent Chuck (OPT.)
LV2000MF	1600 (63)	915 (36)	950 (37.4)	335 (13.2)	240 (9.4)	291 (11.5)	1501 (59.1)	451 (17.8)	1661 (65.4)	Independent Chuck (STD.)
LV2000MM	1600 (63)	915 (36)	MAX.1700 (MAX.67) MIN.950 (MIN.37.4)	335 (13.2)	240 (9.4)	291 (11.5)	1501 (59.1)	451 (17.8)	1661 (65.4)	Independent Chuck (STD.)

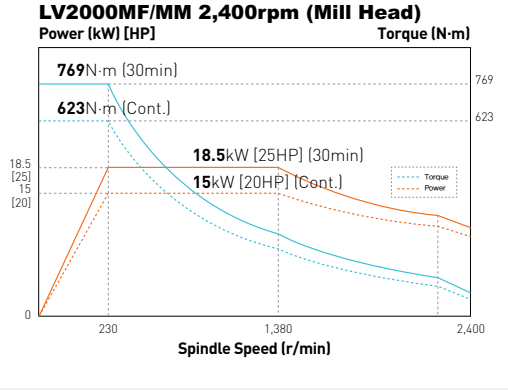
* : The shape of soft jaw changes chucking area.

Spindle Output/Torque Diagram









SPECIFICATIONS

Specifications

[ ] : Option

ITEM			LV1400	LV2000MF	LV2000MM
CAPACITY	Max. Swing	mm(in)	Ø1,450 (Ø57.1″)	Ø2,040 (Ø80.3″)	
	Max. Turning Dia.	mm(in)	Ø1,400 (Ø55.1″)	Ø2,000 (Ø78.7″)	
	Max. Turning Height	mm(in)	850 (33.5″)	950 (37.4″)	1,700 (66.9″)
	Max. Load Capacity	Kg(lb)	4,400 (9,700)	10,000 (22,046)	
FEED	X-Axis	mm(in)	-50 ~ +825 (-2″~+32.5″)	-250 ~ +1,180 (-9.8″~+46.5″)	
	Z-Axis	mm(in)	800 (31.5″)	915 (36″)	
	C-Axis	deg	-	360	
	W-Axis	mm(in)	-		250 (9.8″)×3 Steps
RAPID TRAVERSE RATE	X/Z-Axis	m/min(ipm)	12/12 (472/472)		
	C-Axis	deg/min	-	750	
RAM HEAD	Ram Size	mm(in)	200 (7.9″)	Turning 240 (9.4″) (Milling BT50)	
	Live Tool Speed	r/min	-	2,400	
	Live Tool Power (Max./Cont.)	kW(HP)	-	18.5/15 (25/20.1) [High Torque Motor]	
	Live Tool Torque	N·m (lbf·ft)	-	769 (567.2)	
TABLE	Table Size	mm(in)	Ø1,000 (Ø39.4″)	Ø1,600 (Ø63″)	
	Table Speed	r/min	492	258 [258]	
	Table Max. Torque	N·m (lbf·ft)	8,035 (5,926.3)	22,096 (16,297.2) [23,242 (17,142.4)]	
	Tabel Power (Max./Cont.)	kW(HP)	37/30 (50/40)	37/30 (50/40) [45/37 (60/450)]	
ATC	Number of Tools	EA	12 [16] (Turing 12 [16])	18 (Turning 10 + Milling 7 + Dummy 1) [16 (Turning 16)]	
	Tool Size	OD./ID. mm(in)	□32 (□1.3″)/□22 (□0.9″)	□32 (□1.3″)/□25 (□1″)	
POWER	Electric Power Supply	kVA	45	65	
MACHINE	Floor Space (L×W)	mm(in)	3,685×3,276 (145.1″×129″)	5,683×3,879 (223.7″×152.7″)	5,683×3,937 (223.7″×155″)
	Height	mm(in)	4,336 (170.7″)	5,427 (213.7″)	6,177 (243.2″)
	Weight	kg(lb)	14,500 (31,967)	25,000 (55,116)	29,000 (63,934)
NC	Controller	-	FANUC 32i-A		

※ Prior consultation is required when applying spindle contouring control for gear driven spindle.

❖ LV2000MF/MM : Only Turning Type

Standard & Optional

LV1400	
Standard	40″ 3 Jaw Hydraulic Chuck I Soft Jaw(1set) I Chuck Clamp Foot Switch I Chuck Open/Close Confirmation Device I Standard Tool Holder Standard Coolant (Nozzle) I Bed Flushing I Coolant Tank I Front Door Inter-Lock I 3 Color Call Light I Work Light I Leveling block I Foundation Bolt & Nut
Option	50″ 4 Jaw I Independent Chuck I 50″ 4 Jaw Hydraulic Chuck I Gun Coolant I Chip Conveyor (Hinge) I Chip disposal : Rear, Right I Chip Wagon (Standard 180 ℓ [47.5 gal] Swing 200 ℓ [52.8 gal] Large Size 330 ℓ [87.2 gal]) I Q-setter I Air Conditioner I Oil Skimmer I 3 Color Call Light & Buzzer I Transformer I Auto Power Off I X, Z Axis Linear Scale I High Column 200mm (7.9″) I Air Gun
LV2000MF/MM	
Standard	63″ Manual Table I Chuck JAW 4set I Standard Tool Holder I Standard Coolant (Nozzle) I SP. Thru Coolant (10bar [145 psi]) I Air Gun I Coolant Tank I Front Door Inter-Lock I 3 Color Call Light I Work Light I Leveling block I Foundation Bolt & Nut I X,Z Axis Linear Scale I Bed Flushing
Option	SP. Thru Coolant (20bar [290 psi]) I Gun Coolant I Chip Conveyor (Hinge) I Chip disposal : Rear, Right I Chip Wagon (Standard 180 ℓ [47.5 gal] Swing 200 ℓ [52.8 gal] Large Size 330 ℓ [87.2 gal]) I Q-setter I Air Conditioner I Oil Skimmer I 3 Color Call Light & Buzzer I Transformer I Auto Power Off I Mill Removal

Standard Tool Holder

LV1400	1084-40-203: FACE HOLDER A(2EA)	1084-40-204: BORING BAR HOLDER (2EA)
	1084-40-205: FACE HOLDER B(1EA)	1084-40-206: FACE HOLDER C(1EA)
	1084-40-207: BORING BAR(1EA)	1084-40-208: BORING BAR(1EA)
LV2000MF/MM	1085-40-201: FACE HOLDER A(2EA)	1085-40-204: BORING BAR HOLDER (2EA)
	1085-40-305: BORING BAR (1EA)	1085-40-306: BORING BAR (1EA)

Specifications are subject to change without notice for improvement.

CONTROLLER

FANUC 32i-A

Axis control / Display unit	
Controlled axes	Max. 4 axes are available
	X, Z axes
	X, Z, C axes (M type machine)
	X, Z, Y, C axes (Y type machine)
	X, Z, B, C axes (MS type machine)
Simultaneous controllable axes	2axes / Linear and circular (Max. 4axes)
Least input increment	X, Z, Y, B axes : 0.001 mm (0.0001")
	C axis : 0.001 deg
Least command increment	X, Z, Y, B axes : 0.001 mm (0.0001")
	C axis : 0.001 deg
High speed HRV control	
Inch / Metric conversion	G20 / G21
Interlock	Each axis / All axes
Machine lock	All axes
Emergency stop	
Stored stroke check 1	Over-travel
Stored stroke check 2	
Stored stroke check 3	
Follow-up	
Servo-off	
Backlash compensation	+/- 0~9999 pulses (Rapid traverse & cutting feed)
Position switch	
Unexpected disturbance torque detection	Back-spin torque limiter (BST)
High resolution transfer control (HRM)	
LCD / MDI	10.4" Color LCD
Operation	
Automatic operation (memory)	
MDI operation	
Search function	Sequence, program
Program restart	
Wrong operation prevention	
Buffer register	
Program check function	Dry run., program check
Single block	
Feed functions	
Manual jog feed	Rapid, jog, handle
Manual handle feedrate	x1, x10, x100
Feed command	F code feedrate direct command
Feedrate override	0~200 % (10% units)
Jog override	0~2,000 mm/min[79 ipm]
Rapid traverse override	F1, F5, F25/F50, F100%
Override cancel	
Feed per minute / rotation	
Program input & interpolation functions	
Nano interpolation	Positioning / Linear / Circular (G00 / G01 / G02, G03)
Dwell	G04, 0~9999.9999 sec
Thread retract	
Variable lead threading	
1st reference point return	G28, manual
Reference point return check	G27
2nd reference point return	G30
Program stop / End	M00, M01 / M02, M30
Tape code	EIA / ISO
Optional block skip	1 ea
Maximum programmable dimensions	+/- 9999.9999"
Program number	O+4 digits
Absolute and incremental programming	
Decimal point input	
Plane selection	G17, G18, G19
Work coordinate system selection	G52 to G59
Manual absolute	"ON" Fixed
G code system	A
Programmable data input	G10
Sub program call	10 folds nested
Custom macro B	

Program input & interpolation functions	
Addition of custom macro common variable	#100 to #199, #500 to #999
Multiple repetitive cycles	
Multiple repetitive cycles II	
Canned cycles for turning	
Manual guide i	Conversational programming
Sub / Main spindle function	
M-Code function	M 4 digits
M-Code function lock	
Lock sp. speed command	S 4 digits, binary output
Main sp. constant control	G96, G97
Spindle speed override	50% to 150% (10% units)
Spindle position decision	
Rigid tapping	
Tool function / Tool compensation	
Tool function	T2 + 2
Tool offset pairs	64 pairs
Tool offset	
Tool nose radius compensation	G40, G41, G42
Direct input of measured tool	
compensation value B	
Tool life management	
Data in/output & editing functions	
Reader / Puncher interface	RS232C
Memory card input/output	
Part program storage length	256 Kbyte
Number of registrable programs expansion	Max. 500 programs
Memory lock	
Background editing	
Extended part program edition	Copy, move, change of NC program
Display, diagnosis & setting functions	
Self-diagnosis function	
History display	Alarm & operation display
Help function	
External message	
Run hour / Parts count display	
Display of actual spindle speed and T code	
Actual cutting feedrate display	
Operating monitor screen	Rod meter light
Graphic display	
Spindle / Servo setting screen	
Selection of 5 optional language	
LCD screen display	Screen saver
Automatic data backup	
Functions according to machine specification	
Cs contouring control	Turn mill
Stored pitch error compensation	Turn mill
Polar coordinate interpolation	Turn mill
Cylindrical interpolation	Turn mill
Canned cycles for drilling	Turn mill
spindle orientation expansion	Turn mill, Sub spindle
Spindle synchronous control	Sub spindle
Torque control	Sub spindle
Y axis offset	Y type machine
Angular axis control	Y type machine

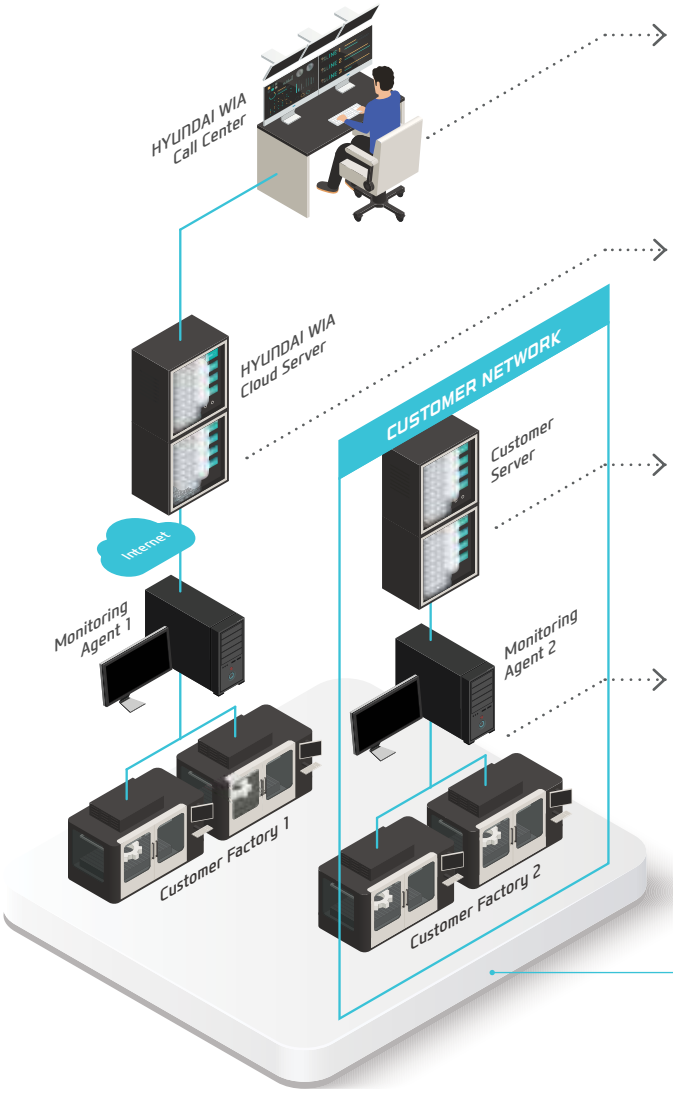
Option	
High speed Ethernet	100 Mbps (Option board is required)
Optional block skip	9 ea
3rd & 4th reference point return	
G code system	B / C
Part program storage length	512 Kbyte
Polygon turning	
Helical interpolation	
Dynamic graphic display	
Protection of data at 8 levels	
Direct drawing dimension programming	Included chamfering / Corner R`

Figures in inch are converted from metric values.
The FANUC controller specifications are subject to change based on the policy of company CNC supplying.

HW-MMS

HYUNDAI WIA Machine Monitoring System

A manufacturing machine self-developed by Hyundai Wia, HW-MMS is a unique software capable of monitoring the operation status of manufacturing machines in factories, a smart solution to improve manufacturing conditions of customers



HW-MMS Remote

Hyundai Wia Call Center's remote diagnosis service provides a HMI/video diagnostic function.

HW-MMS Cloud

A cloud server-based equipment monitoring system for collecting and analyzing facility operation data.

HW-MMS Edge

A client server-based tool monitoring system for collection/analysis of facility operation data. (Compatible with client MES / ERP interface)

HW-MMS Edge Plus

This is a facility big data-based smart factory solution that collects and analyzes spindle/feed data, tool lifespan, NC processing files, etc. in real time

HYUNDAI WIA
Smart Factory Solution

LV1400
Movie

LV2000MM
Movie

HYUNDAI WIA

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HEADQUARTER

Changwon Technical Center/R&D Center/Factory 153, Jeongdong-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do, Korea **TEL** : +82 55 280 9114 **FAX** : +82 55 282 9114

Overseas Sales Team /R&D Center 37, Cheoldobangmulgwan-ro, Uiwang-si, Gyeonggi-do, Korea **TEL** : +82 31 8090 2539

OVERSEAS OFFICES

HYUNDAI WIA Machine America corp. 450 Commerce Blvd, Carlstadt, NJ 07072, USA **TEL** : +1-201-987-7298

HYUNDAI WIA Europe GmbH Alexander-Fleming-Ring 57, 65428 Rüsselsheim Germany **TEL** : +49-0-6142-9256-0

HYUNDAI WIA Machine Tools China 2-3F, Bldg6, No.1535 Hongmei Road, Xuhui District, Shanghai, China **TEL** : +86-21-6427-9885

India Branch Office #4/169, 1st Floor, LOTTE BLDG, Rajiv Gandhi Salai, (OMR), Kandanchavadi, Chennai - 600096, Tamilnadu, India **TEL** : +91-76-0490-3348

Vietnam Branch Office Flat number 05, Service and Trade Center of Viet Huong Industrial Zone, Highway 13, Thuan Giao , Thuan An, Binh Duong, Vietnam **TEL** : +84-3-5399-5099

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