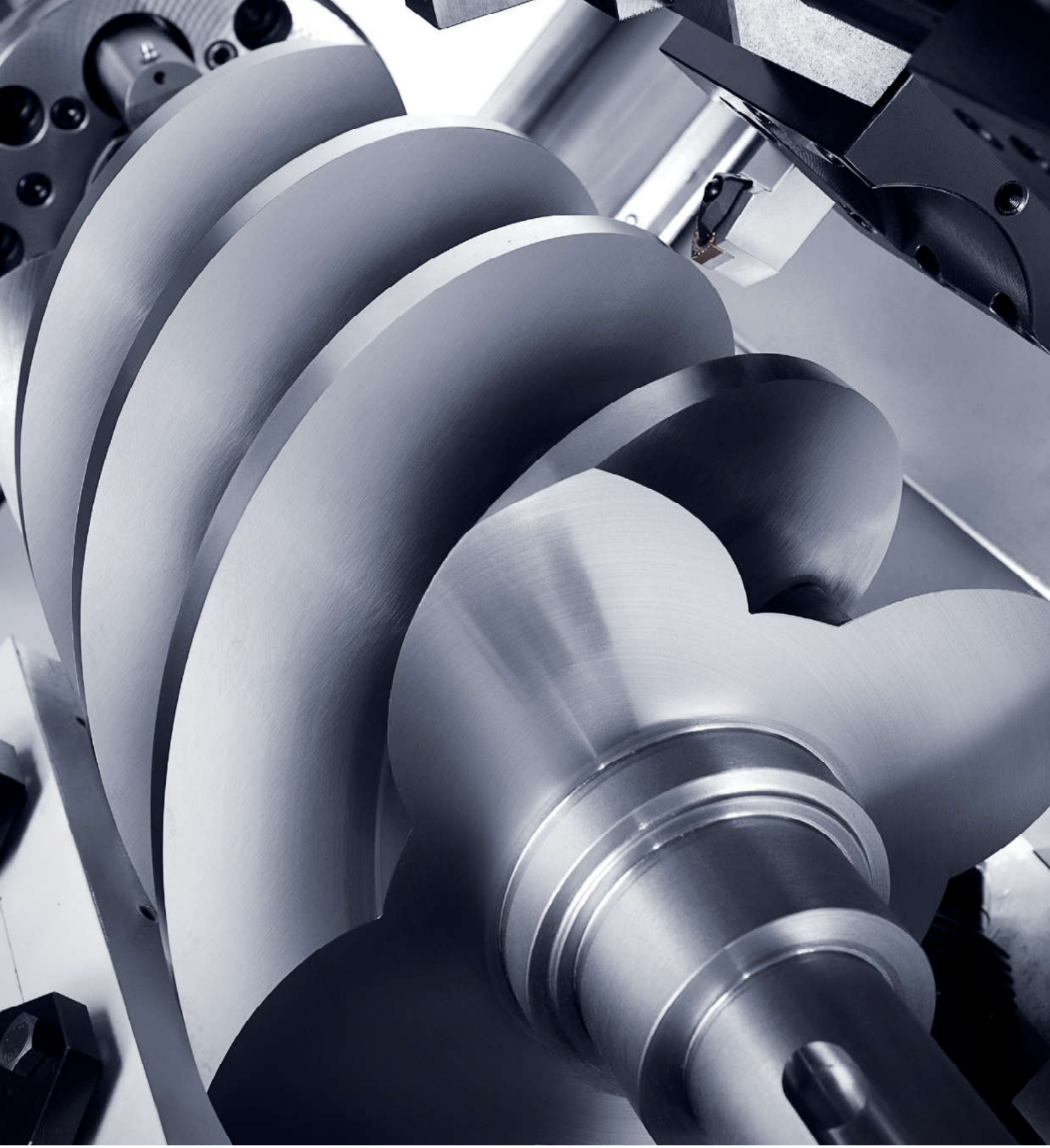
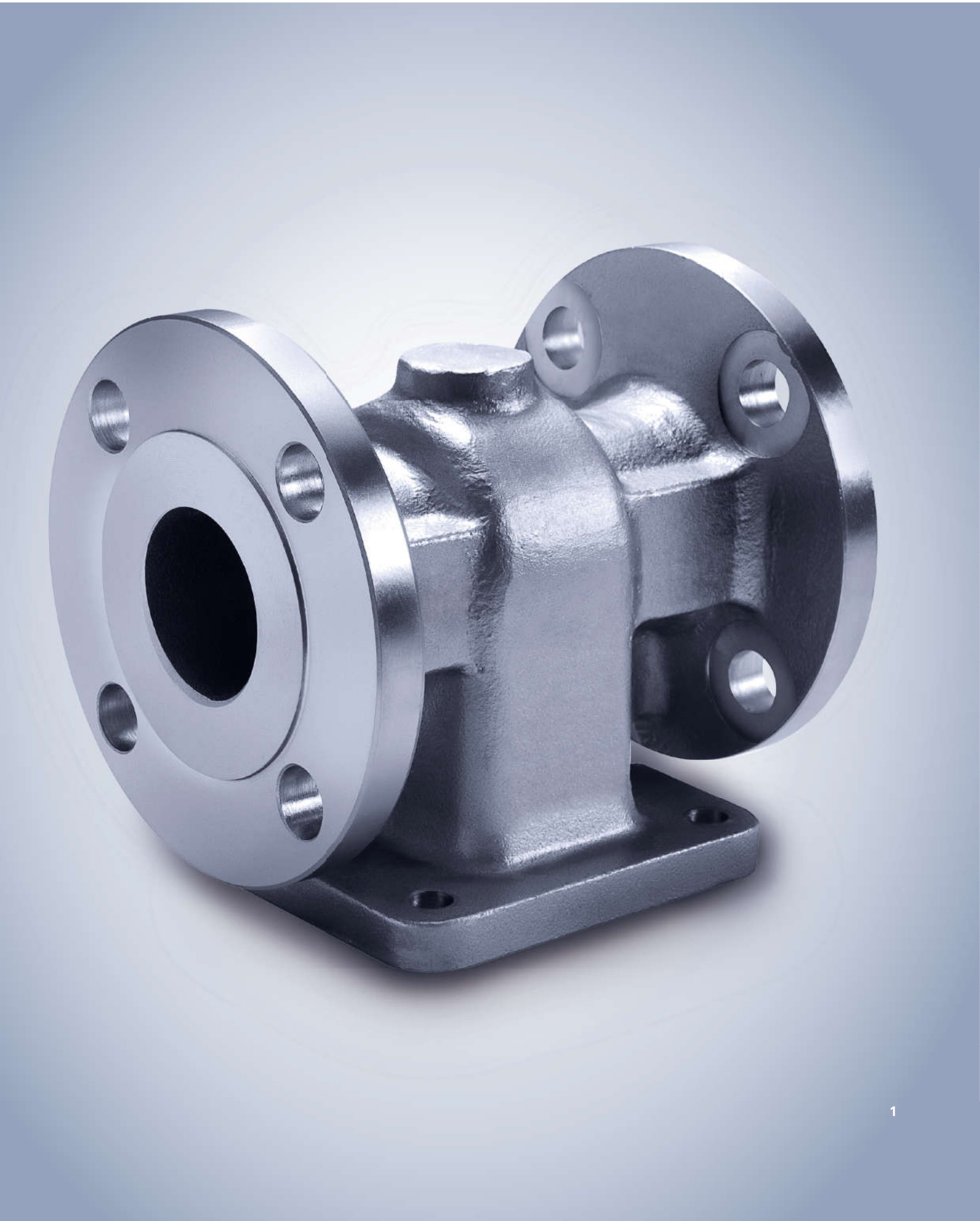


Hi-TECH 450

Horizontal Turning Center
Box Way, Gear Box, 10”-15” Chuck

HYUNDAI WIA



HORIZONTAL TURNING CENTER BOX WAY, GEAR BOX, 10”-15” CHUCK

Box way, Gear Box, 10”-15” Chuck Horizontal Turning Center

From basic to multi axis turning, the Hi-TECH 450 is capable of performing a variety of most complex production processes. The optional available Y-axis allows even most complex process operations, the gear box for high torque is standard and provides high-speed as well as high-torque machining capability.

1 Valve Body / Plant Industry / CF8M **2** Flange / Automobile / SCM415
3 Cam Shaft / Automobile / Sintered Alloy **4** Valve Body / Plant Industry / SCW410

LARGE TASK
COMPACT MACHINE FOOTPRINT

Hi-TECH 450 is the pinnacle of Hwacheon technology. Its small footprint design will provide space efficiency to you, while offering the largest turning diameter as well as turning length among today's mid-size lathes. A variety of options, such as Y-axis, provide higher flexibility. Hi-TECH 450 can be configured to ensure the perfect setup for your production needs and requirements - whether you have to manufacture is a hydraulic valve, connectors, flanges or long shafts.

Hand-Scraped To Perfection

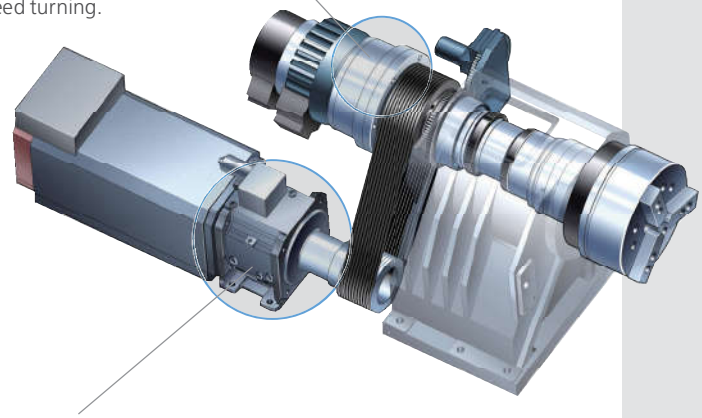
The guide-ways are hand-scraped and polished to the highest precision based on Hwacheon's 60 years craftmanship experience, this to reduce vibration and allows precision feed during heavy operations.

Box Way Design

All guide-ways are designed as sturdy box way to maintain durability and highest precision even during prolonged machining operation.

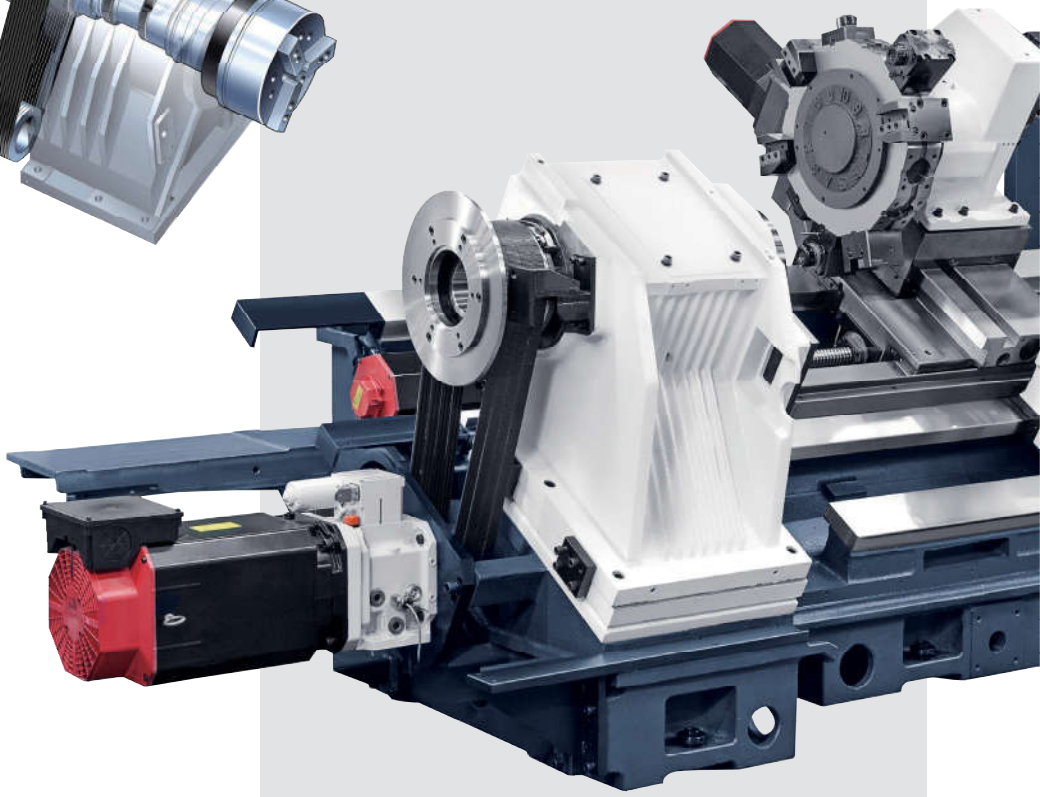
High-Speed, High-Power Spindle

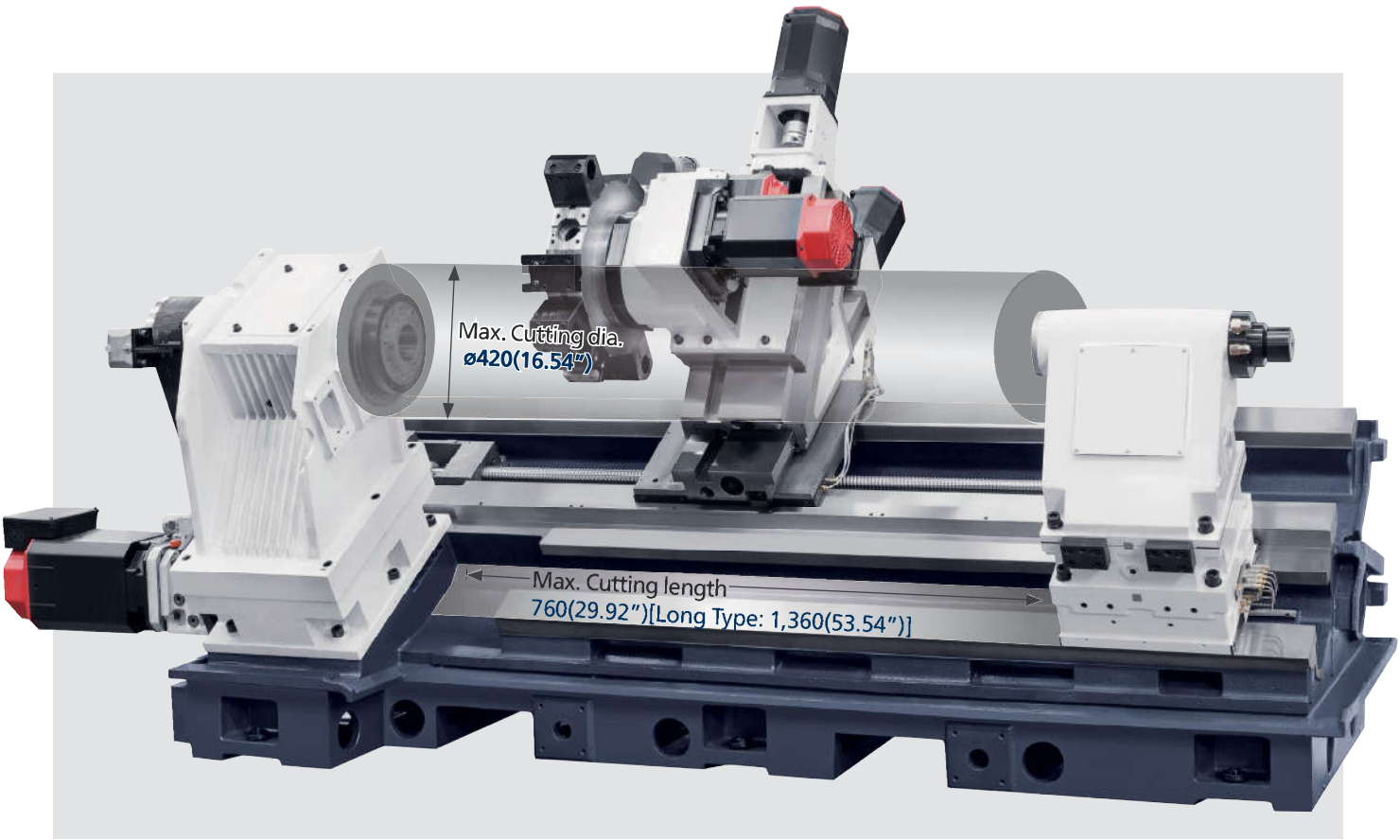
The high output spindle provides stable and precise machining at high speed turning.



Highly Efficient Transmission

The standard automatic gear box provides extra strength and power at lower speed while providing fast and efficient cutting at higher speeds. The transmission and the spindle motor are separated to minimize heat and vibration interference, to ensure each operation is as stable & consistent as possible.





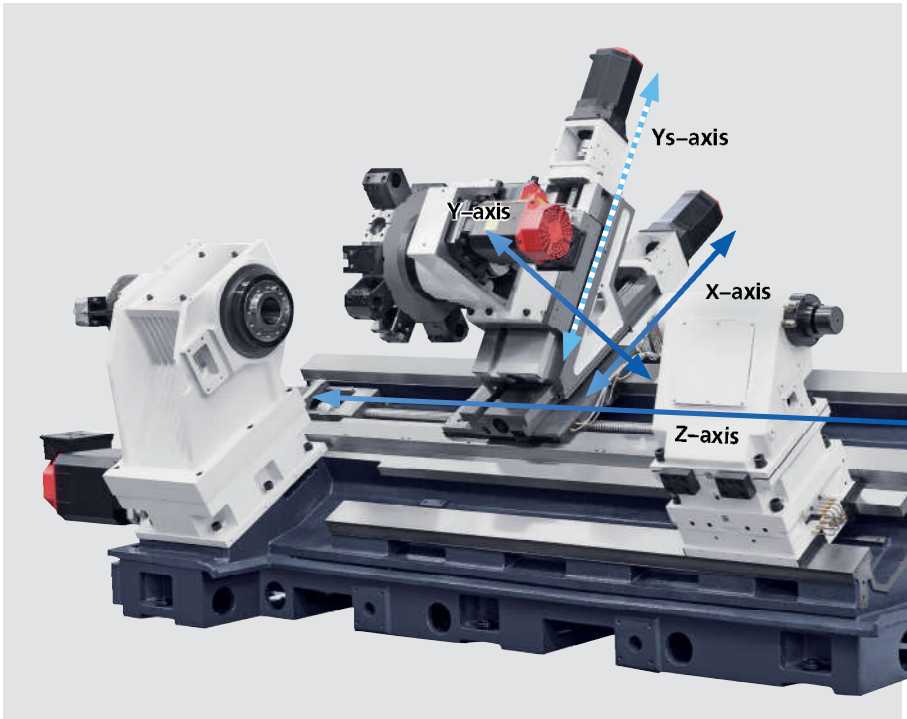
Rigid One Piece Frame Structure

The single-frame bed structure eliminates heat distortion, absorbs vibration, and provides quality surface roughness and highest precision at high speed operations.

Interference Free Cutting Diameter

Hi-TECH 450 ensures, that the work piece does not interfere with any moving part within the turning operation zone, for better trouble free results.

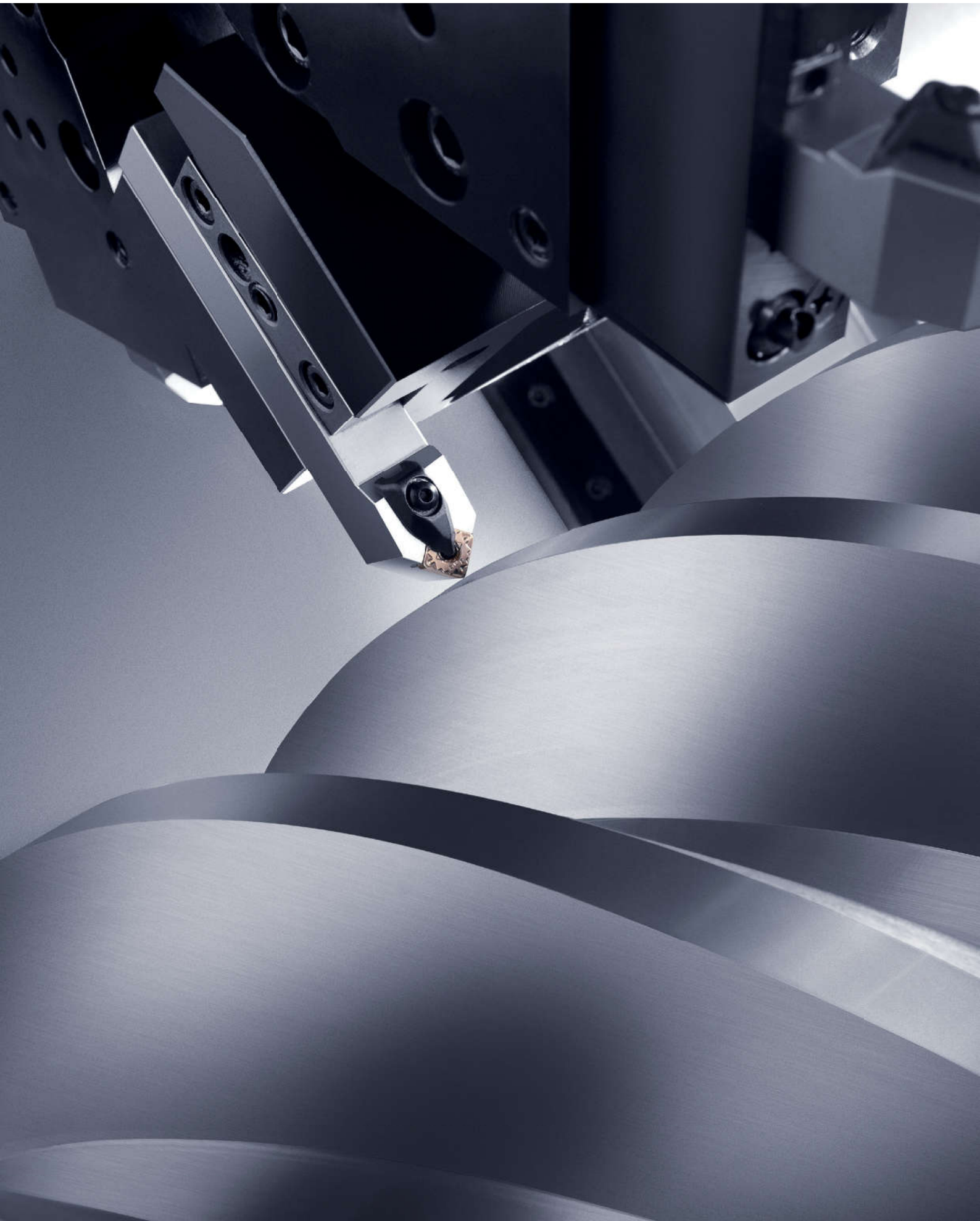
Max. Cutting Dia. : ø420 mm
Max. Cutting Length : 760 mm(L: 1,360mm)



Multi-Process Milling with Y-axis (YMC)

At customer's request, a Y-axis can be added to achieve complete process operations on even complex work pieces.From turning to milling, with a single setting. This saves not only time but more additional set-ups making your work more efficient it's like having two machines in one.

· Spindle indexing: by 0.001 degrees
· Y-axis stroke: 120(4.72")[±60(±2.36")]

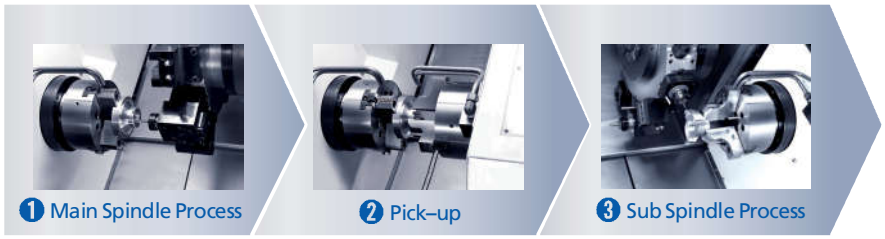


USER FRIENDLY DESIGN, A WIDE RANGE OF OPTIONAL FEATURES

Hi-TECH 450 is designed with the end-user in mind. Its user-friendly design and a variety of supplementary features and options make it powerful, faster and more precise. For highest machining performance.

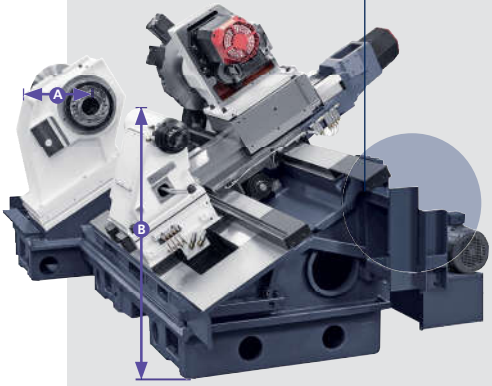
Any Forms and Shapes

Control multiple axes simultaneously using the turn-mill function and the C-axis spindle.



Sub Spindle (SMC , YSMC)

With the addition of the sub spindle, the main and the sub spindles work in sync to complete the first and second operation of your process, to ensure your work is highly productive.



The distance between the operator and the center of the spindle is kept short at the Hi-TECH 450, to ensure loading and unloading are made easy. For a environment-friendly operation, the Z-axis has a complete oil-and-coolant separation design.

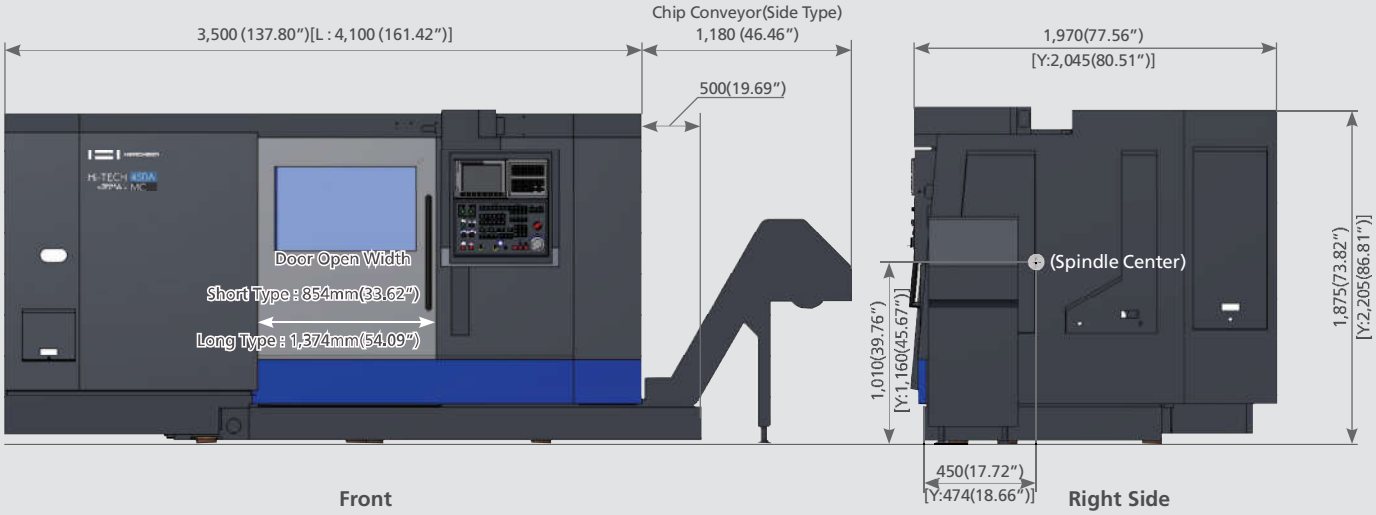
L-HTLD: Hwacheon Lathe Tool Load Detect System (Option)

The Hwacheon Lathe Tool Load Detect System constantly detects and diagnoses the tool load under a process to prevent tool wear and damage, and to keep your machine and tools in optimal shape.

Load Detection Limit 1	Load Detection Limit 2
Alarm + Feed Hold	Alarm + Machine Stop
> When the LIMIT 1 Alarm sounds, the system holds the feed and the machine goes into standby.	> When the LIMIT 2 Alarm sounds, the system stops the machine, and must be reset to operate it.

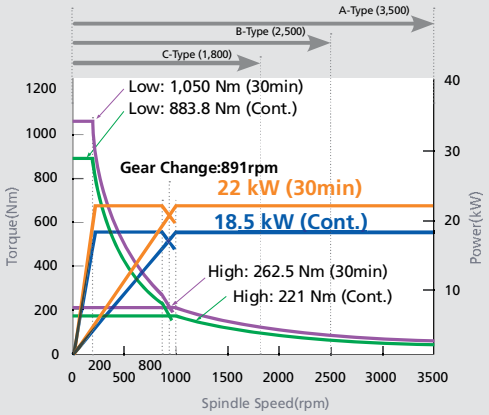
Product Data

* Unit: mm(inch)

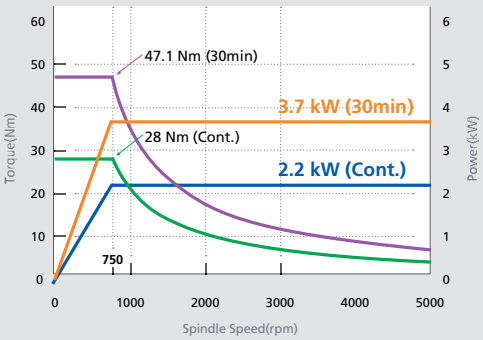


Spindle Power-Torque Diagram

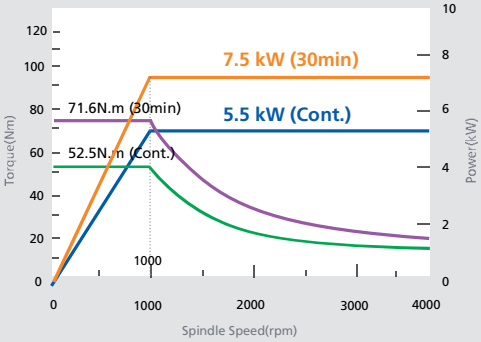
Main Spindle



Turnmill (MC)



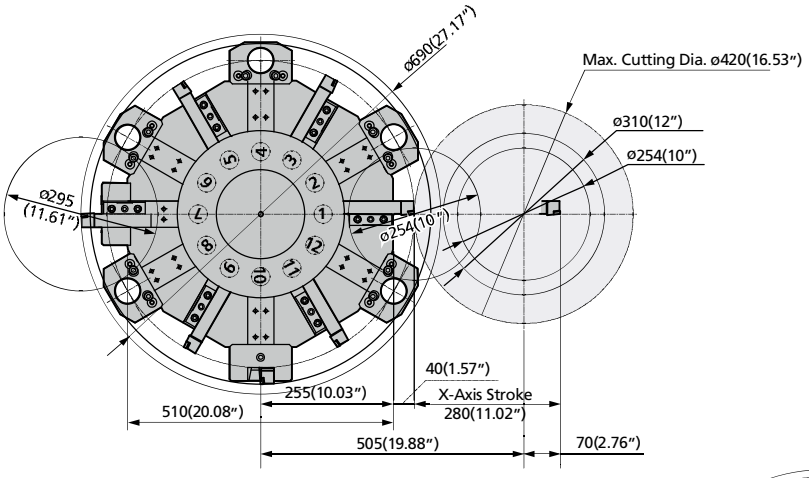
Sub (SMC / YSMC)



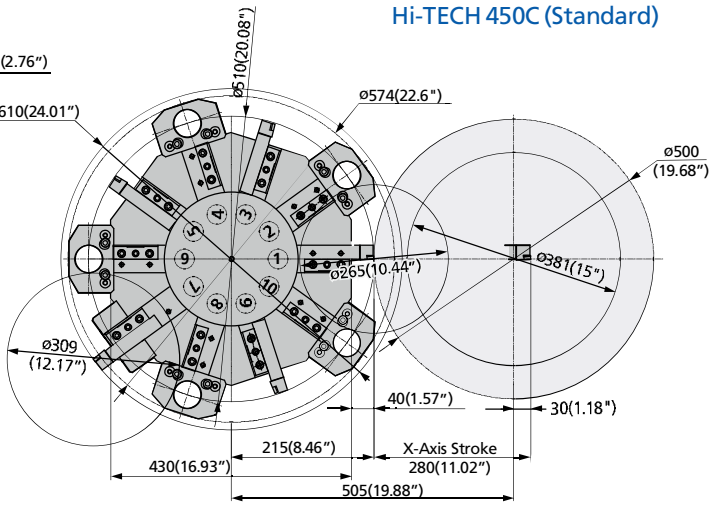
Tool Interference Diagram

※Unit : mm(inch)

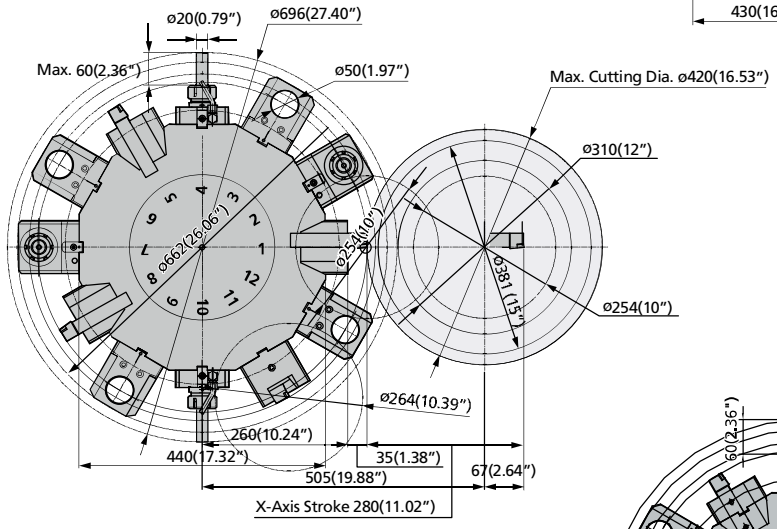
Hi-TECH 450A/B (Standard)



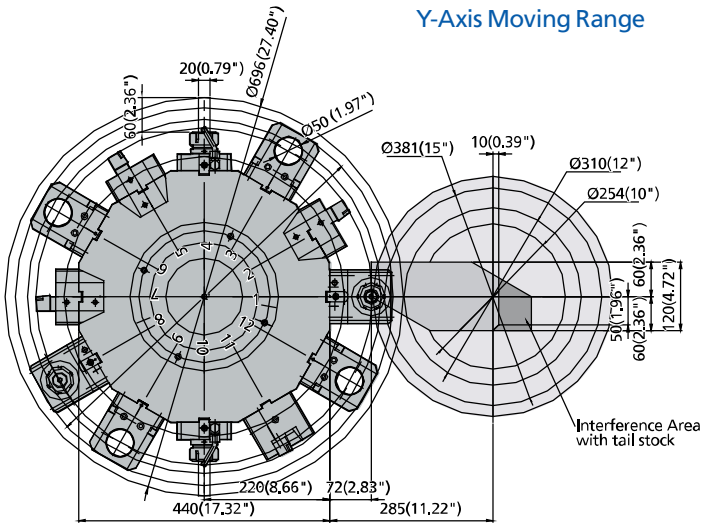
Hi-TECH 450C (Standard)



Hi-TECH 450A/B/C (MC)



Y-Axis Moving Range



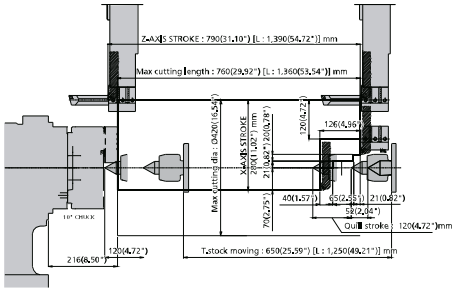
Moving Range

※Unit : mm(inch)

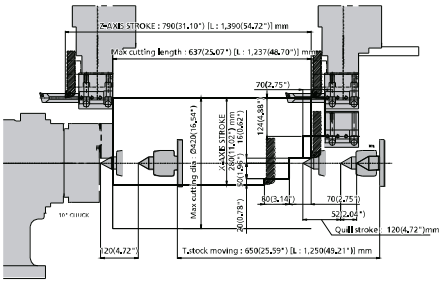
L: Long Type

Hi-TECH 450A(10" CHUCK)

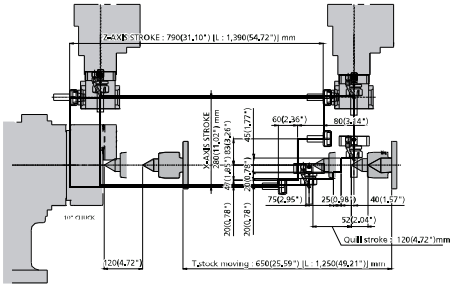
STD / O.D & I.D Holder



MC / O.D & I.D Holder

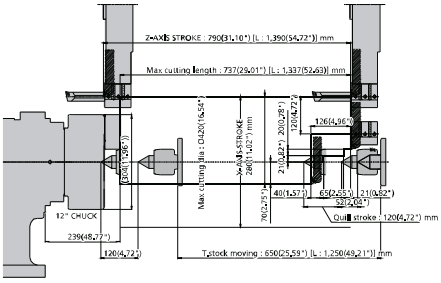


MC / Axial & Radial Turnmill Holder

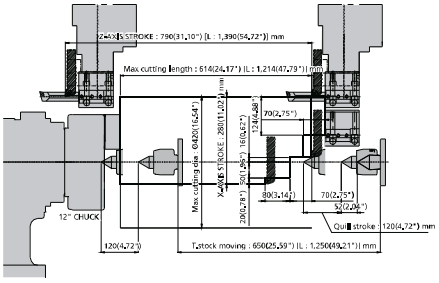


Hi-TECH 450B(12" CHUCK)

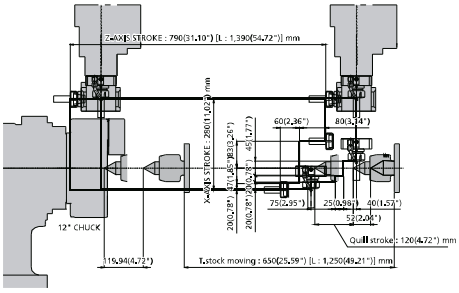
STD / O.D & I.D Holder



MC / O.D & I.D Holder

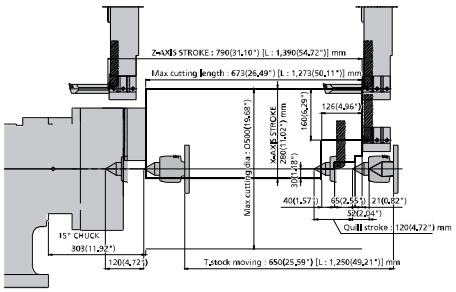


MC / Axial & Radial Turnmill Holder

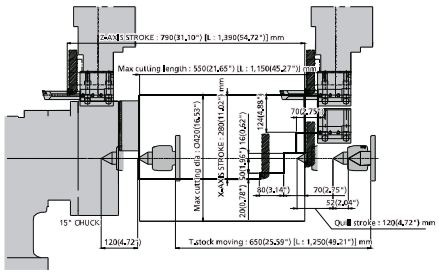


Hi-TECH 450C(15" CHUCK)

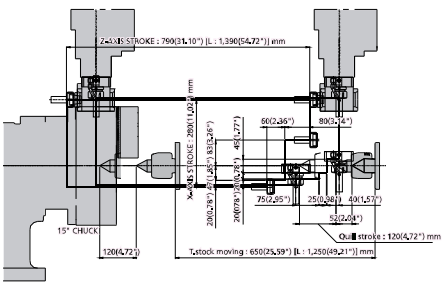
STD / O.D & I.D Holder



MC / O.D & I.D Holder



MC / Axial & Radial Turnmill Holder



Product Configuration

Each product can be configured to fit your application.

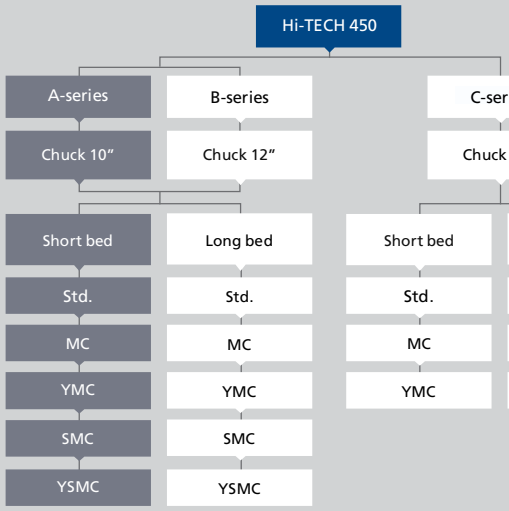
Ref.

1) L : Long Type
2) MC : Turnmill Function [C-Axis(0.001°)]
3) SMC : Sub Spindle
4) YMC : Y-Axis Function
5) YSMC : Sub Spindle and Y-Axis Function

※C-Type: (Y)SMC Not available

Hi-TECH

450A	450B
450A/MC	450B/MC
450A/YMC	450B/YMC
450A/SMC	450B/SMC
450A/YSMC	450B/YSMC
450AL	450BL
450AL/MC	450BL/MC
450AL/YMC	450BL/YMC
450AL/SMC	450BL/SMC
450AL/YSMC	450BL/YSMC



Hi-TECH

450C
450C/MC
450C/YMC
450CL
450CL/MC
450CL/YMC

Machine Specifications

ITEM		Hi-TECH 450 SERIES					
		450A[YSMC]	450B[YSMC]	450C[YMC]	450AL[YSMC]	450BL[YSMC]	450CL[YMC]
Capacity							
Swing over Bed	mm (inch)	Ø700 (27.56")					
Swing over Saddle	mm (inch)	Ø550 (21.65")					
Max. Cutting Diameter	mm (inch)	Ø420 (16.54")		Ø500 (19.69") [MC Ø420 (16.54")]	Ø420 (16.54")		Ø500 (19.69") [MC Ø420 (16.54")]
Standard Cutting Diameter	mm (inch)	Ø295 (11.61") [MC : Ø254 (10")]		Ø308 (12.13") [MC : Ø254 (10")]	Ø295 (11.61") [MC : Ø254 (10")]		Ø308 (12.13") [MC : Ø254 (10")]
Max. Turning Length	mm (inch)	760 (29.92") [MC : 637 (25.08")]	737 (29.02") [MC : 614 (24.17")]	673 (26.49") [MC : 550 (21.65")]	1,360 (53.54") [MC : 1,237 (48.7")]	1,337 (52.64") [MC : 1,214 (47.8")]	1,273 (50.11") [MC : 1,150 (45.27")]
Chuck Size	inch	10"(sub : 8")	12 (sub : 8")	15"	10"(sub : 8")	12"(sub : 8")	15"
Spindle							
Type of Spindle Nose	ASA	A2 - 8 (sub : A2 - 6)		A2 - 11	A2 - 8 (sub : A2 - 6)		A2 - 11
Max. Spindle Speed	rpm	3,500 (sub : 4,000)	2,500 (sub : 4,000)	1,800	3,500 (sub : 4,000)	2,500 (sub : 4,000)	1,800
Through Spindle Hole Diameter	mm (inch)	Ø90 (3.54") [sub : Ø62 (2.44")]	Ø105 (4.13") [sub : Ø62 (2.44")]	Ø132 (5.20")	Ø90 (3.54") [sub : Ø62 (2.44")]	Ø105 (4.13") [sub : Ø62 (2.44")]	Ø132 (5.20")
Max. Bar Size	mm (inch)	Ø76 (2.99") [sub Ø51 (2.01")]	Ø89 (3.50") [sub Ø51 (2.01")]	Ø116 (4.57")	Ø76 (2.99") [sub Ø51 (2.01")]	Ø89 (3.50") [sub Ø51 (2.01")]	Ø116 (4.57")
Spindle Bearing Inner Diameter	mm (inch)	Ø140 (5.51") [sub:Ø100 (3.94")]	Ø160 (6.30") [sub:Ø100 (3.94")]	Ø180(7.09")	Ø140 (5.51") [sub:Ø100 (3.94")]	Ø160 (6.30") [sub:Ø100 (3.94")]	Ø180(7.09")
Spindle Motor (30min/cont)	kW(HP)	22 / 18.5 (30 / 25)[Sub : 7.5 / 5.5(10 / 7.5)]		22 / 18.5 (30 / 25)	22 / 18.5 (30 / 25)[Sub : 7.5 / 5.5(10 / 7.5)]		22 / 18.5 (30 / 25)
Turret							
Number of Tool Station	ea	12		10 (MC : 12)	12		10 (MC : 12)
Tool Size (OD x ID)	mm (inch)	□25 x Ø50 (□1" x Ø1.97")					
Turret Indexing Time	sec/step	0.25					
Axes							
Rapid Speed (X / Z / Y / B)	m/min (ipm)	20 / 24 / 10 / 16 (787.4 / 944.8 / 393.7 / 629.92)		20 / 24 / 10 / - (787.4 / 944.8 / 393.7 / -)	20 / 24 / 10 / 16 (787.4 / 944.8 / 393.7 / 629.92)		20 / 24 / 10 / - (787.4 / 944.8 / 393.7 / -)
Max. Stroke (X / Z / Y / B)	mm (inch)	280 / 790 / 120 (±60) / A:690 , B:670 (11.02" / 31.1" / 4.72" /A:27.1" , B:26.3")		280 / 790 / 120 (±60) / - (11.02" / 31.1" / 4.72 "/ -)	280 / 1,390 / 120 (±60) / A:1,290 , B:1,270 (11.02 "/ 54.72" / 4.72" / A:50.7" , B:50")		280 / 1,390 / 120 (±60) / - (11.02" / 54.72" / 4.72 "/ -)
Feed Motor (X / Z / Y / B)	kW(HP)	4.0(5.4) / 4.0(5.4) / 4.0(5.4) / 1.6(2.2)		4.0 (5.4)/ 4.0(5.4) / 4.0(5.4) / -	4.0(5.4) / 4.0(5.4) / 4.0(5.4) / 1.6(2.2)		4.0 (5.4)/ 4.0(5.4) / 4.0(5.4) / -
Tailstock							
Tailstock Travel	mm (inch)	650 (25.59")			1,250 (49.21")		
Quill Dia.	mm (inch)	Ø100 (3.94")					
Taper Hole	MT	MT # 5 (Live Center)					
Quill Stroke	mm (inch)	120 (4.72")					
Turnmill							
Rotary Tool Spindle Motor	kW	3.7 / 2.2					
Max. Rotary Tool Speed	rpm	5,000					
Max. Drill / Tap Size	mm (inch)	Ø20 (0.79") / M16					
Min. Spindle Indexing Angle	°(deg)	0.001° (sub : 0.001°)					
Tank Capacity							
Lubrication	ℓ (gal)	12(3.17)					
Hydraulic	ℓ (gal)	50(13.21)					
Coolant	ℓ (gal)	190 (50.19)			240 (63.4)		
Power Source							
Electrical Power Supply	kVA	STD, MC, YMC: 50 / SMC, YSMC: 55					
Dimension							
Height	mm (inch)	1,875(Y:2,205) [73.82"(Y:86.81")]					
Floor Space (L x W)	mm (inch)	3,500 x 1,970(Y: 2,045)[137.80" x 77.56"(Y: 80.51")]			4,100 x 1,970(Y: 2,045)[161.42" x 77.56"(Y: 80.51")]		
Weight	$kg_f(lb_f)$	STD: 5,500(12,125) / MC: 6,000(13,228) / YMC: 6,500(14,330) / YSMC: 7,500(16,535)			STD: 6,800(14,991) / MC: 7,300(16,094) / YMC: 7,800(17,196) / YSMC: 8,800(19,401)		
NC Controller		Fanuc 0i-TF					

Standard and Optional product components

Standard Accessories		Optional Accessories	
• Door Interlock	• Tailstock (MT#5)	• Air Gun	• NC Cooler
• Foot Switch	- Tailstock Body Program	• Air Blower	• Parts Catcher (A,B Type)
• High Pressure Coolant Pump 6Bar	- Tailstock Quill Program	• Auto Door (Short Type)	• Signal Lamp with 3 Colors (R, G, Y)
• Hydraulic Chuck & Cylinder	• Tool Kit & Box	• Bar Feeder Interface	• Steady Rest (except SMC)
(A: 10", B: 12", C: 15")	• Tooling System	• Chip Conveyor & Box (Side Type)	• Steady Rest Base (except SMC)
• Hydraulic Unit 40 kg_f/cm^2	• Turret	• Chuck Dual Pressure System	• Tool & Work Counter,
• Leveling Bolt & Plate	• Work Light	• Chuck Pressure Check Switch	External / Internal
• Lubrication Unit	• 10.4" Color LCD	• Chuck Pressure Compensation	• Tool Presetter (Automatic)
• Manual Guide i		• Coolant Gun	• Tool Life Management
• Manual & Parts List		• Function of Y-axis (±60mm)	• Transformer
• Signal Lamp with 2 Colors (R, G)		• Hard Jaw	• Turnmill Function Including
• Set of Soft Jaws		• High Pressure Coolant Pump 15bar	C-axis (0.001°)
		• L-HTLD	• Turnmill Holder (Axial / Radial)
		(Lathe-Hwacheon Tool Load Detect)	• Turnmill Motor (5.5/3.7)
		• Linear Scale (X, Z-Axis)	• U-Drill Holder
			• 15" Color LCD (only FANUC)

NC Specifications [Fanuc0i-TF]

※ – : Not available S : Standard O : Option

ITEM	SPECIFICATION	STD	MC	SMC	YSMC
Controlled axis					
Controlled axis (Cs axis)	2-Axes	2-Axes	3-Axes	5-Axes	6-Axes
Simultaneously controlled axes	2-Axes	2-Axes	3-Axes	4-Axes	4-Axes
Least input increment	0.001 mm, 0.001 deg, 0.0001 inch	S	S	S	S
Least input increment 1/10	0.0001 mm, 0.0001 deg, 0.00001 inch	O	O	O	O
inch/metric conversion	G20, G21	S	S	S	S
Stored stroke check 1, 2, 3		S	S	S	S
Chamfering on / off		S	S	S	S
Backlash compensation		S	S	S	S
Operation					
Automatic & MDI operation		S	S	S	S
Program number search		S	S	S	S
Sequence number search		S	S	S	S
Dry run, single block		S	S	S	S
Manual handle feed	1Unit	S	S	S	S
Manual handle feed rate	x1, x10, x100	S	S	S	S
Interpolation function					
Positioning	G00	S	S	S	S
Linear interpolation	G01	S	S	S	S
Circular interpolation	G02, G03	S	S	S	S
Dwell (Per seconds)	G04	S	S	S	S
Polar coordinate interpolation	G12.1 / G13.1	-	S	S	S
Cylindrical interpolation	G7.1	-	S	S	S
Threading / Multiple threading	G32 / -	S	S	S	S
Threading retract / Continuous threading		S	S	S	S
Continuous threading		S	S	S	S
Variable lead threading	G34	S	S	S	S
Reference position return 1st	G28	S	S	S	S
Reference position return check	G27	S	S	S	S
2,3,4th reference position return	G30	S	S	S	S
Feed function					
Rapid traverse override	F0, F25, F50, F100	S	S	S	S
Feed per minute (mm/min)	G98	S	S	S	S
Feed per revolution (mm/rev)	G99	S	S	S	S
Rapid traverse bell-shaped acceleration / Deceleration		S	S	S	S
Feedrate override	0-150%	S	S	S	S
Jog feed override	0-1,260 mm/min	S	S	S	S
Tool function / Compensation					
Tool function	T4-digits	S	S	S	S
Tool offset pairs	128 pairs	S	S	S	S
Tool nose radius compensation		S	S	S	S
Tool geometry / Wear compensation		S	S	S	S
Tool life management		O	O	O	O
Automatic tool offset	Tool presetter option is required	O	O	O	O
Direct input tool offset value measured B	Tool presetter option is required	O	O	O	O
Others					
Display unit	10.4" Color LCD	S	S	S	S

ITEM	SPECIFICATION	STD	MC	SMC	YSMC
Program input					
Tape code	EIA / ISO	S	S	S	S
Optional block skip	9 ea	S	S	S	S
Program number	O4-Digits	S	S	S	S
Sequence number	N8-Digits	S	S	S	S
Decimal point programming		S	S	S	S
Coordinate system setting	G50	S	S	S	S
Coordinate system shift		S	S	S	S
Workpiece coordinate system	G54-G59	S	S	S	S
Workpiece coordinate system preset	G92.1	S	S	S	S
Direct drawing dimension programming		S	S	S	S
G code system	A	S	S	S	S
Programmable data input	G10	S	S	S	S
Sub program call	10 folds nested	S	S	S	S
Custom macro B / Canned cycles		S	S	S	S
Addition of custom macro -common variables	#100-#199, #500-#999	S	S	S	S
Multiple repetitive cycle		S	S	S	S
Multiple repetitive cycle II		S	S	S	S
Canned cycles for drilling		S	S	S	S
Manual Guide i		S	S	S	S
Spindle speed function					
Constant surface speed control	G96 / G97	S	S	S	S
Spindle override	50-120 %	S	S	S	S
Spindle orientation		S	S	S	S
Rigid tapping		O	S	S	S
Spindle synchronous control		-	-	S	S
Editing operation					
Part program storage length	1,280m (512 kB)	S	S	S	S
Number of register able programs	400 ea	S	S	S	S
Background editing		S	S	S	S
Extended part program editing		S	S	S	S
Play back		S	S	S	S
Operation / Display					
Clock function		S	S	S	S
Self-diagnosis function / Alarm history display		S	S	S	S
Help function / Graphic function		S	S	S	S
Run hour and parts count display		S	S	S	S
Graphic function		S	S	S	S
Dynamic graphic display		O	O	O	O
Multi-language display	Korean, English, German, French, Italian, Chinese, Spanish, Portuguese, Polish, Hungarian, Swedish, Russian	S	S	S	S
Data input / Output					
Reader / Puncher interface CH1, 2	RS232C	S	S	S	S
Ethernet interface		S	S	S	S
Memory card interface		S	S	S	S
USB card interface		S	S	S	S

Hwacheon Global Network

Hwacheon Headquarter Hwacheon America Hwacheon Europe Hwacheon Asia

Please call us for product inquiries.

www.hwacheon.com

The product design and specifications may change without prior notice.
Read the operation manual carefully and thoroughly before operating the product,
and always follow the safety instructions and warnings labels attached on the surfaces of the machines.

HEAD OFFICE
HWACHEON MACHINE TOOL CO., LTD.
123-17, HANAMSANDAN 4BEON-RO, GWANGSAN-GU, GWANGJU, KOREA
TEL: +82-62-951-5111 FAX: +82-62-951-0086

SEOUL OFFICE
46, BANGBAE-RO, SEOCHO-GU, SEOUL, KOREA
TEL: +82-2-523-7766 FAX: +82-2-523-2867

USA
HWACHEON MACHINERY AMERICA, INC.
555 BOND STREET, LINCOLNSHIRE, ILLINOIS, 60069, USA
TEL: +1-847-573-0100 FAX: +1-847-573-9900

SINGAPORE
HWACHEON ASIA PACIFIC PTE. LTD.
21 BUKIT BATOK CRESCENT, #08-79 WCEGA TOWER, SINGAPORE 658065
TEL: +65-6515-4357 FAX: +65-6515-4358

GERMANY
HWACHEON MACHINERY EUROPE GMBH
JOSEF-BAUMANN STR. 25, 44805, BOCHUM, GERMANY
TEL: +49-234-912-816-0 FAX: +49-234-912-816-60

HC-T131-R3.5-201509