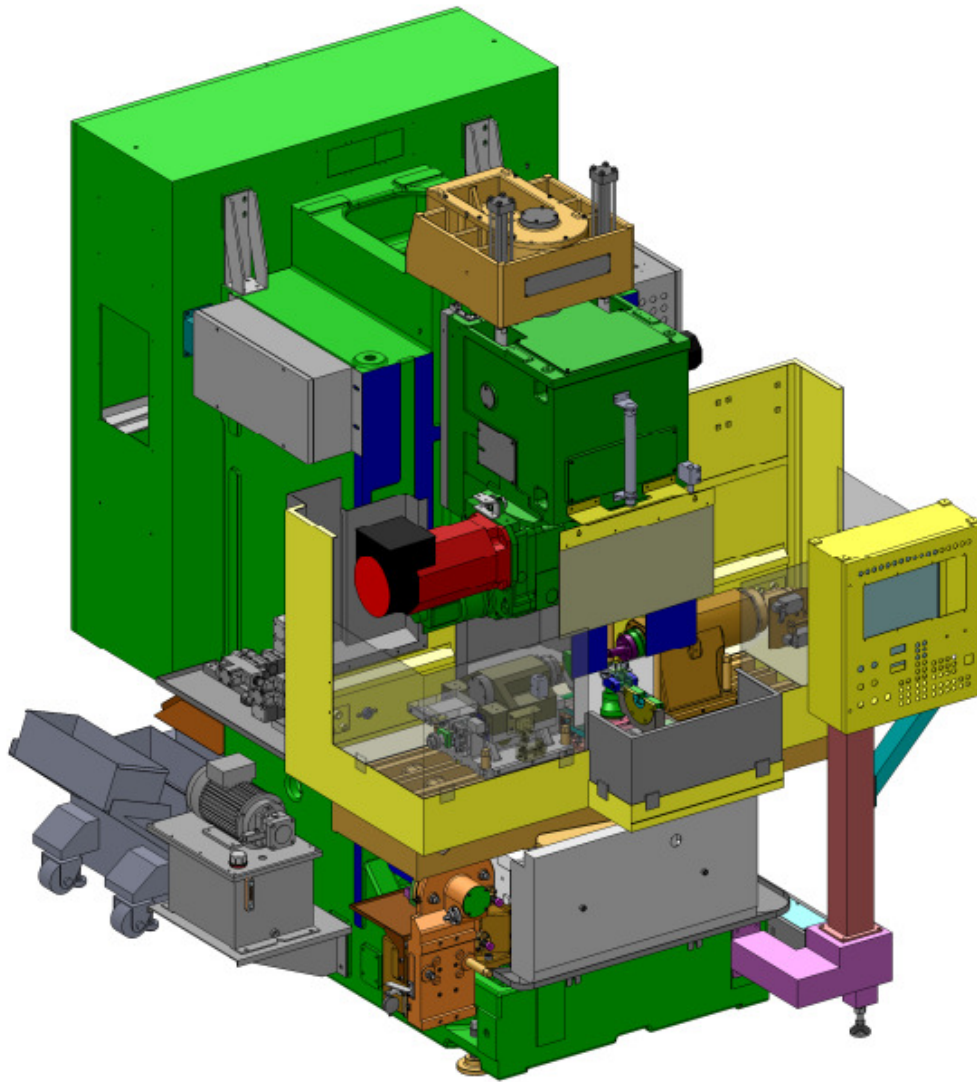


HGS 4H NC5 CNC GEAR SHAVING MACHINE



和大工業股份有限公司
HOTA GROUP-Machinery Division

台中市大雅區 42881 科雅路 16 號

No.16, Keya Rd., Daya Township, Taichung County 42881, Taiwan

TEL: +886-4-25609580 / +886-4-25604141 FAX: +886-4-25609581

www.hartech.com.tw

E-MAIL: sales-MC@hota.com.tw

Specification

ARTICLE		Unit	MODEL NO.
			HGS 4H-NC5
Work gear	Outer diameter	mm	25-400
	Maximum tooth width	mm	150
	Module	--	1-8
Worktable X- AXIS	Maximum stroke length	mm	±75
	Feeding speed	mm/min	1-550
	Center distance between L&R tailstocks	mm	700
	Stroke setting unit	mm	0.001
Worktable C- AXIS	Maximum stroke length	mm	±6
	Feeding speed	mm/min	1-500
	Stroke setting unit	mm	0.001
Worktable(B-AXIS)	Taper amount	mm	±20
Cutter head	Shaving cutter maximum diameter	mm	265
	Spindle diameter	mm	63.5
	Cutter quantity	pcs	1
	Spindle speed	rpm	50-400
	Cutter head swivel angle	deg	±20
	Angle increment	deg	0.001
Infeed Z-AXIS	Micro-feeding speed	mm/min	0.1-3.0
	Maximum feeding stroke	mm	180 MAX.
	Rapid feeding speed	mm/min	2000
	Stroke setting unit	mm	0.001
Motors	Spindle Motor	KW/AC	5.5
	Feeding motor(Z-AXIS)	KW/AC	3
	Feeding motor(X-AXIS)	KW/AC	1.6
	Feeding motor(C-AXIS)	KW/AC	1.6
	Swivel motor(Y-AXIS)	KW/AC	1.4
	Feeding motor(B-AXIS)	KW/AC	1.4
Controller			FANUC
Weight		KG	7000
Dimension (W x L x H)		mm	2412 x 2037 x 2851
Monitor Operated Interface		<ul style="list-style-type: none"> ▪ Dialog function ▪ Variable input system (Option) 	
		Language: English, Japanese and Mandarin	
Shaving methods		Conventional / diagonal / under-pass / plunge	

Machine Description

Basic Machine

General Accessories

Option Accessories

Machine Layout

Axis Description

Machine Features

Basic Machine

1	CNC Gear shaving machine HGS 4H-NC5 With 4 servo motor drive 5 axis (C, X, Y, Z) Processing: Plunge, Conventional, diagonal, under-pass Input Power (220V / 60Hz)	1	set
2	Controller FANUC 0i MD	1	set
3	Temperature compensation module	1	set
4	Electrical cabinet cooler (500Kcal / h)	1	set
5	Auto door(Air power)	1	set
6	Cutter quick change device (Hydraulic power), bore of cutter 63.5mm	1	set
7	Lubrication device (Tank 60L)	1	set
8	Standard hydraulic unit (1.5KW)	1	set
9	Cutter flange (12.3mm) for cutter T =25.4mm	1	set
10	Signal towel (3 color - red / orange / green)	1	Set
11	Work light	1	set
10	Tools box	1	set
12	Dialogue operating function (English)	1	set
13	FANUC 2 years warranty	1	set
14	Operation Instruction	2	set

General Accessories

15	Magnetic chip separator, Chip Separator, Tank (100L), Pump x 2(1/2 HPx2)	1	set
16	Right tailstock (Quill type, Hydraulic power)	1	set
17	Left tailstock (Slide type, hydraulic power)	1	set
18	Jig set (For disk type gear) Arbor solid type (Mounted on tailstock)	1	set
19	Automation device- W CARRIER TYPE(Drive by hydraulic power)	1	set
19.1	Work change device (work diameter \leq 100mm)		
19.2	Work holder of W CARRIER		
20	Additional operating box (cycle start & emergence stop)	1	set
21	Counter	1	set

Option Accessories

22	Coolant cooler (2000Kcal / h)	1	set
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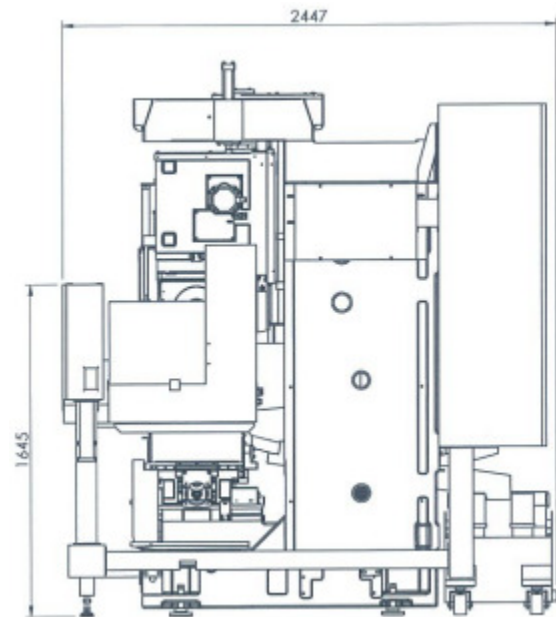
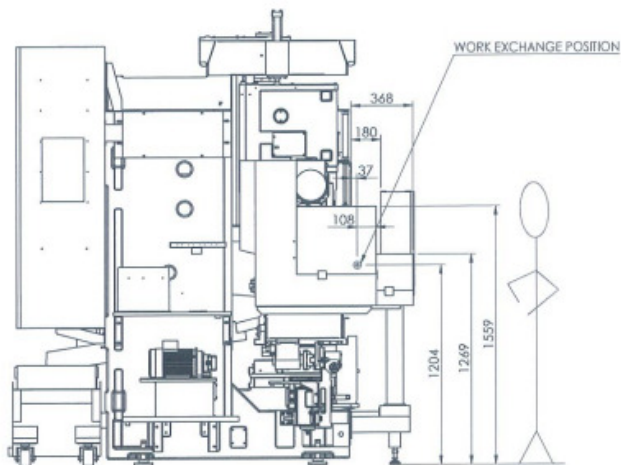
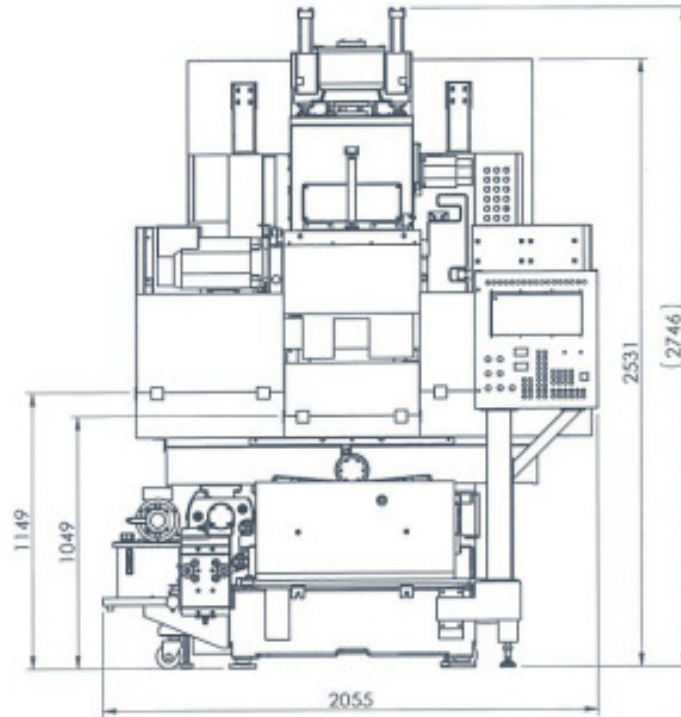
Machine Inspection

23	Machine inspection before shipment (One type work)	1	set
24	Cutting test (work support by customer)	1	set
25	CP test	1	set

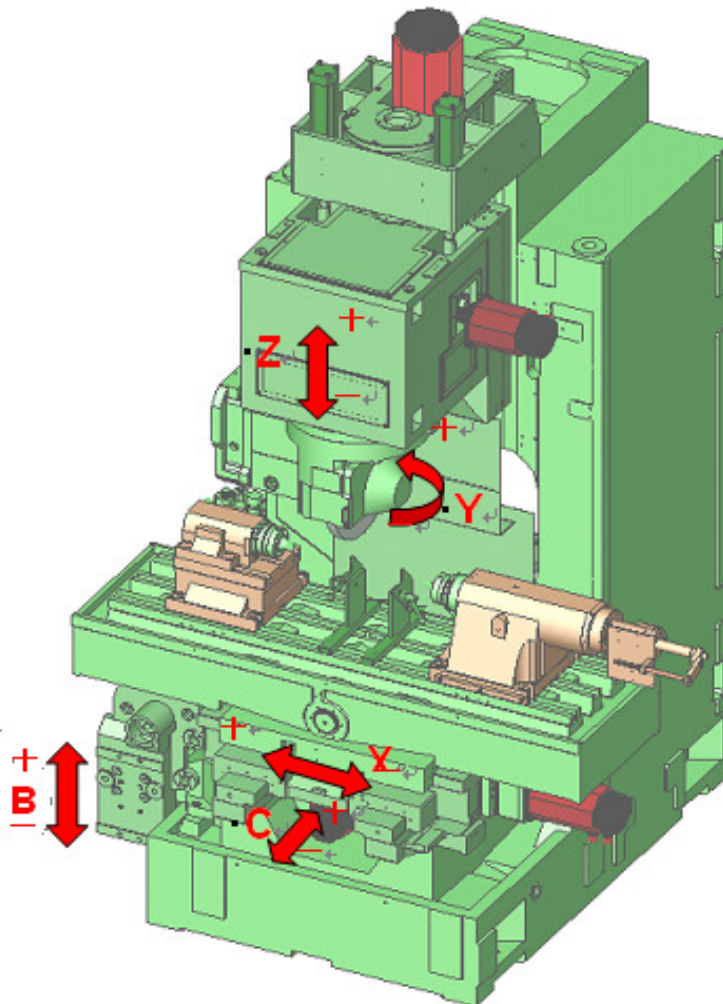
Machine Installation

26	Installation (4 days) (1 engineer)	1	set
27	Leveling	1	set
28	Cutting setting before operation	1	set
29	Cutting test (work support by customer, one type work)	1	set
30	Accuracy approval	1	set
31	Training program (1 days, one engineer)	1	set

Machine Layout



Axis Description



Axis	Description	Power
X	Work table motion	Servo motor
C	Work table motion	Servo motor
Z	Cutter feeding motion	Servo motor
Y	Cutter head swivel angle	Servo motor
B	Crowing and taper motion	Servo motor

Machine Feature

(1). High efficiency cutting

Through applying highly efficient motor, quickly cut pieces removing device and sufficient cutting oil to remove the heat from cutting process. The machine performance will promote in high efficiency.

(2). High flexibility for production

HARTECH gear shaving machines are equipped with CNC servo control for multi-axes feeding. Operators can change machining methods via dialog operating program to fit different cutting requirement.

(3). High rigidity structure

The machine structure is based on column and based block which are cast in one column. The column is designed as a high rigidity structure has bisymmetrical characteristic and uniform ribs inside. The feeding axles are hard guideway design. FEA analysis is applied for whole assembly structure to reach ultimate integral performance.

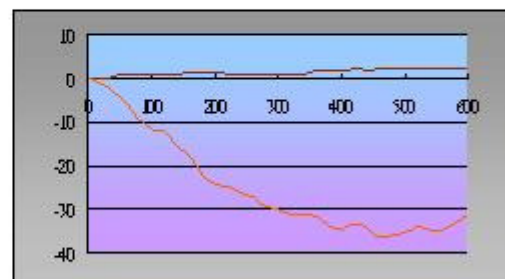
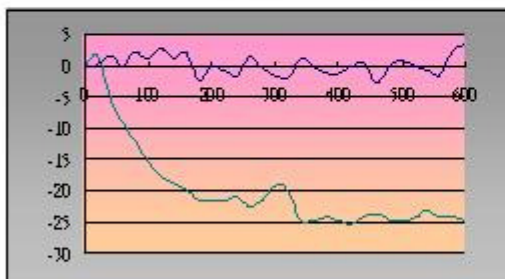
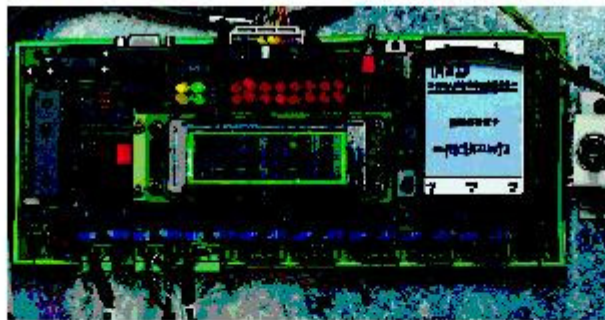
(4). Thermal compensation module

Thermal compensation module with multi- temp. detecting position is capable of regulating thermal deformation's tolerance within 4 μ m.

Giving superior accuracy and stable machining ability during the machining period through the design of high rigidity structure, hard guideways and applied thermal compensation module.. The accuracy after machining can be reached to DIN grade 5~7.

(5) Thermal compensation system

Thermal compensation system will forecast the thermal deformation of the main axle through multi temp. positions measuring and will achieve the compensation of thermal deformation through the function of original drift from CNC control unit. When machining, the system will compensate effectually the thermal deformation caused by temperature fluctuating. In period of cold star, thermal compensation system will play an important role to make sure the accuracy of machining.

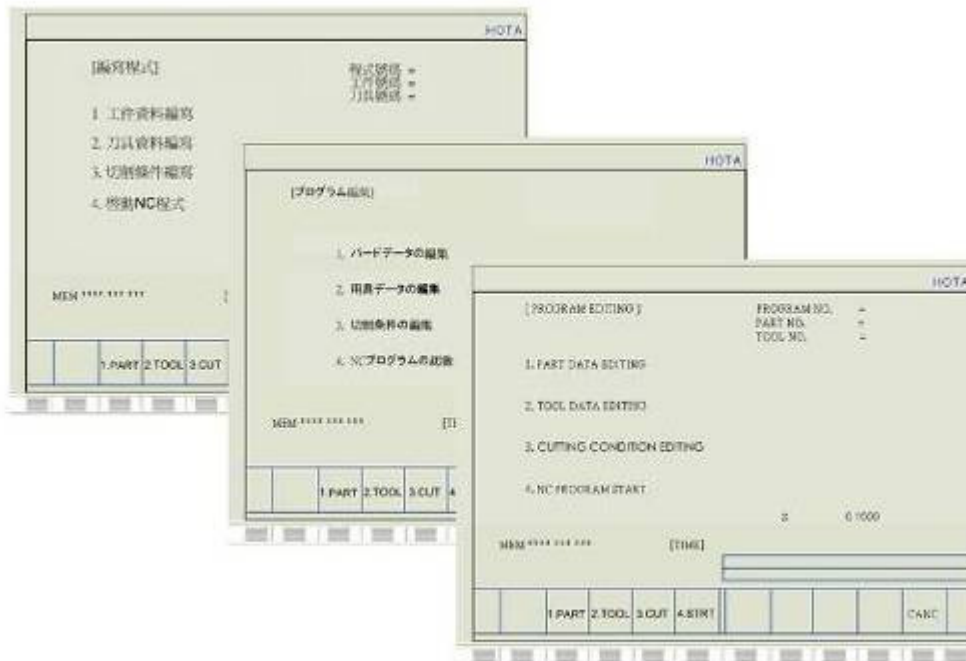


— The error after compensation(120rpm)
— The error before compensation(120rpm)

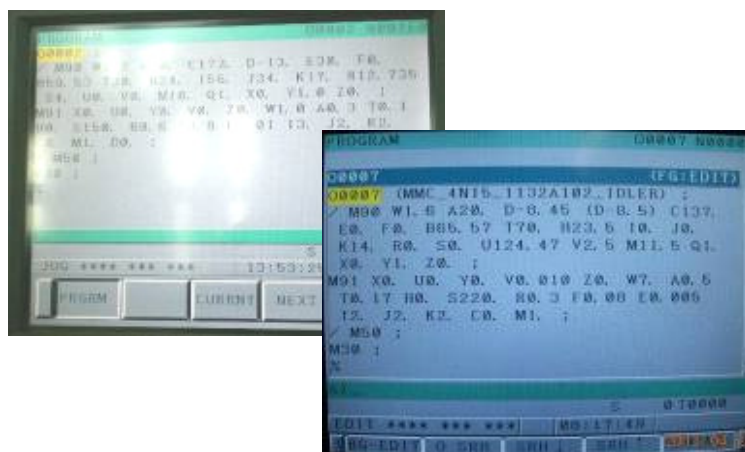
— The error after compensation(200rpm)
— The error before compensation(200rpm)

(6) DIALOG FUNCTION PROGRAM AND CONTROL

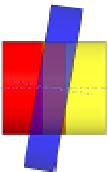
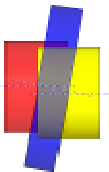
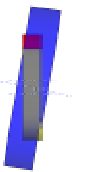
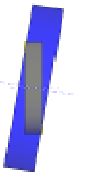
This machine has been installed automatic edition program. Operator can follow the input hint on monitor and key in data step by step. The custom program will calculate the parameters automatically and output parameters for processing (cutting depth, path of cutter and feeding speed etc.). That will improve the machining quality, shorten the processing time and increase the productivity. The dialog function can be edited in Mandarin, English or Japanese.

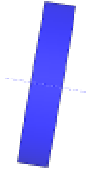


There has the data base for cutting parameter in NC system and can save 99 set of cutting parameters.



(7) INSTRUCTION OF CUTTING METHODS

			
Conventional	Diagonal	Under-pass	Plunge



Shaving Cutter



Position before gear

shaving



Position after gear

shaving