

**Kashifuji**

# **KL1000** CNC HOBBER



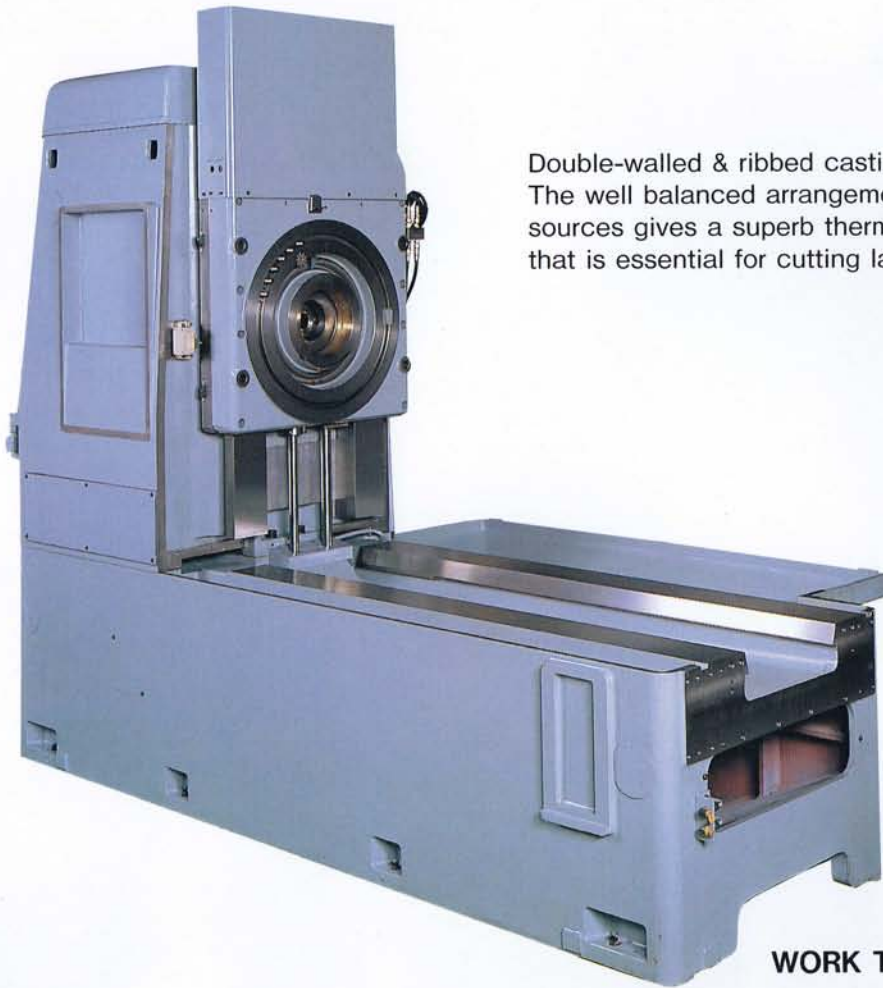
**6 AXIS FULL CNC HOBGING  
MACHINE FOR LARGE GEARS  
AT AN AFFORDABLE PRICE**



**THE WORLD KNOWS THE  
EASE OF OPERATION OF  
KASHIFUJI CNC HOBBERS**

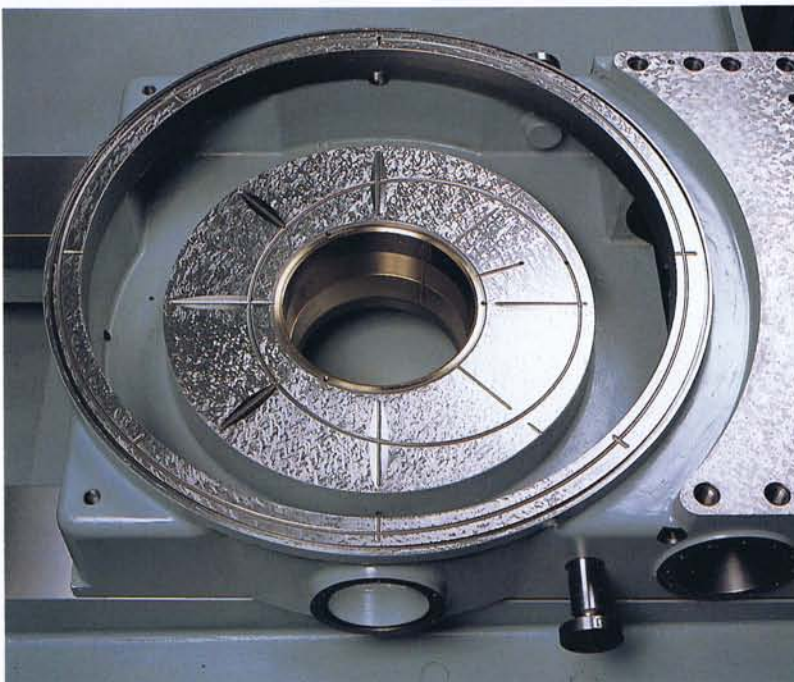
# BED AND COLUMN

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Double-walled & ribbed castings for the bed. The well balanced arrangement of it's heat sources gives a superb thermal stability that is essential for cutting large gears.

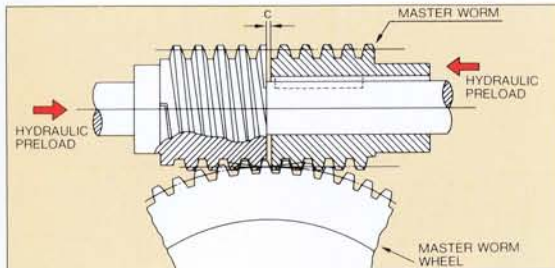
**WORK TABLE**



KASHIFUJI quality goes in before the name goes on.

The work table is hand scraped and fit to allow the best possible alignment and accuracy.

## TABLE BACKLASH ELIMINATOR



The split master index worm is hydraulically preloaded to work as an adjustable backlash eliminator. This simple mechanical composition of the split worms provide accurate hobbing especially when skiving or when hobbing with unlike hand (reverse leads) between hob and workpiece.

## RE-LOCATING THE TAIL STOCK BASE



For workpieces over 750 mm dia. the tailstock base can be easily offset by the tailstock base ball screw.

## HINGED TAIL STOCK



The hinged tailstock arrangement allows simple loading and unloading by overhead crane of heavy workpieces or fixtures.

## WORK PROGRAM for 2 cut crowning

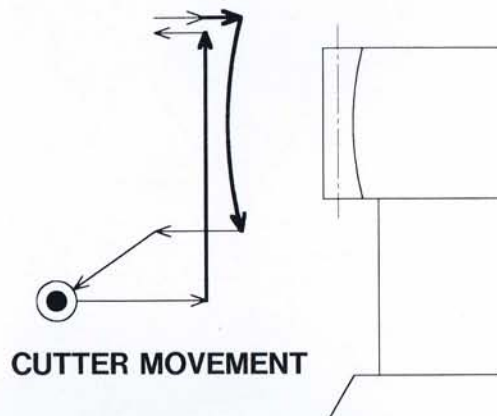


## HOB PROGRAM



Symbol	Item
O	Program No.
G100	G code, macro call
Q	Work No.
M	± module
Z	Number of teeth
D	Gear O. D. (mm)
I	± cutting depth modification (mm)
B	± helix angle (degree or minute, second)
W	Total face width (mm)
R	Hob revolution, 1st cycle (rpm)
V	Hob revolution, 2nd cycle (rpm)
S	Feed multiplication at hobbing start
F	± Feed rate, 1st cycle (mm/rev)
E	± Feed rate, 2nd cycle (mm/rev)
U	Additional infeed depth, 2nd cycle (mm)
H	Workpiece height (mm)
T	Hob number
J	Selecting crowning cycle
Y	Crowning center
X	Crowning amount
K	Hob shift constant
M30	End of main program

Symbol	Item
O	Program No.
G65	Macro call
P9000	Macro No.
M	± module
A	Pressure angle (degree or minute, second)
J	± Number of hob starts
D	Hob O. D. (mm)
C	± Lead angle (degree or minute, second)
H	Cutting depth (mm)
U	Start of hob shift (mm)
V	End of hob shift (mm)
W	± Hob shift amount (mm)
M9	Sub program end



Part programming is extremely simple.  
No previous CNC programming is necessary.

Programming is by parameter. . . . . simply  
enter the gear and hob information to  
create a cutting or tool program.

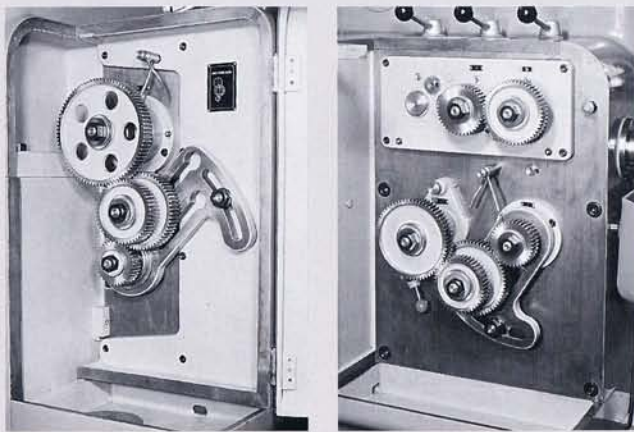
A program can be written and entered  
into the KL1000 in minutes!

# REDUCED SET-UP TIME

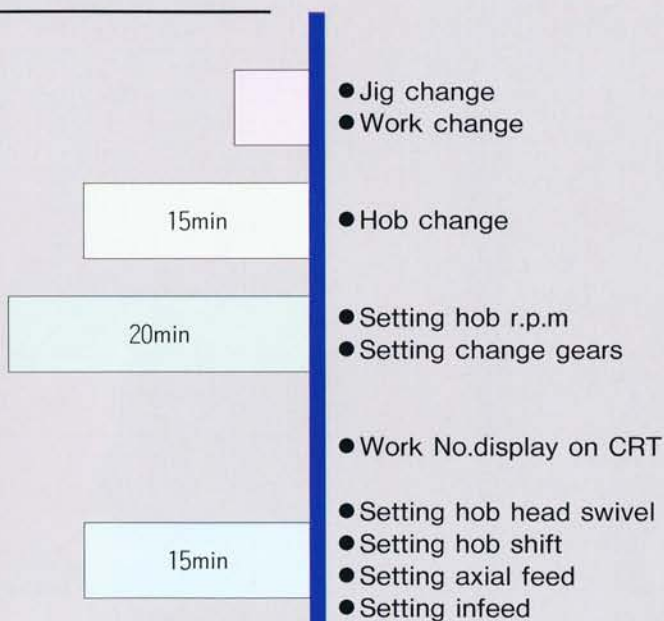
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Your CNC programming eliminates : calculating  
change gear combinations, locating and installing change  
gears, setting the hob head swivel angle and setting various  
trip dogs.

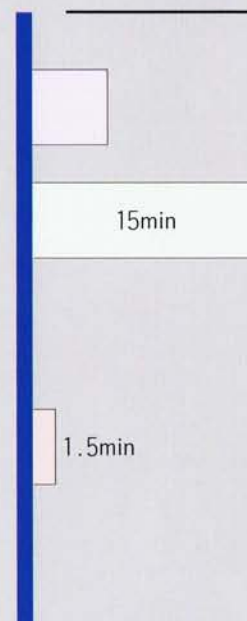
## EASY AND FAST CHANGEOVERS!



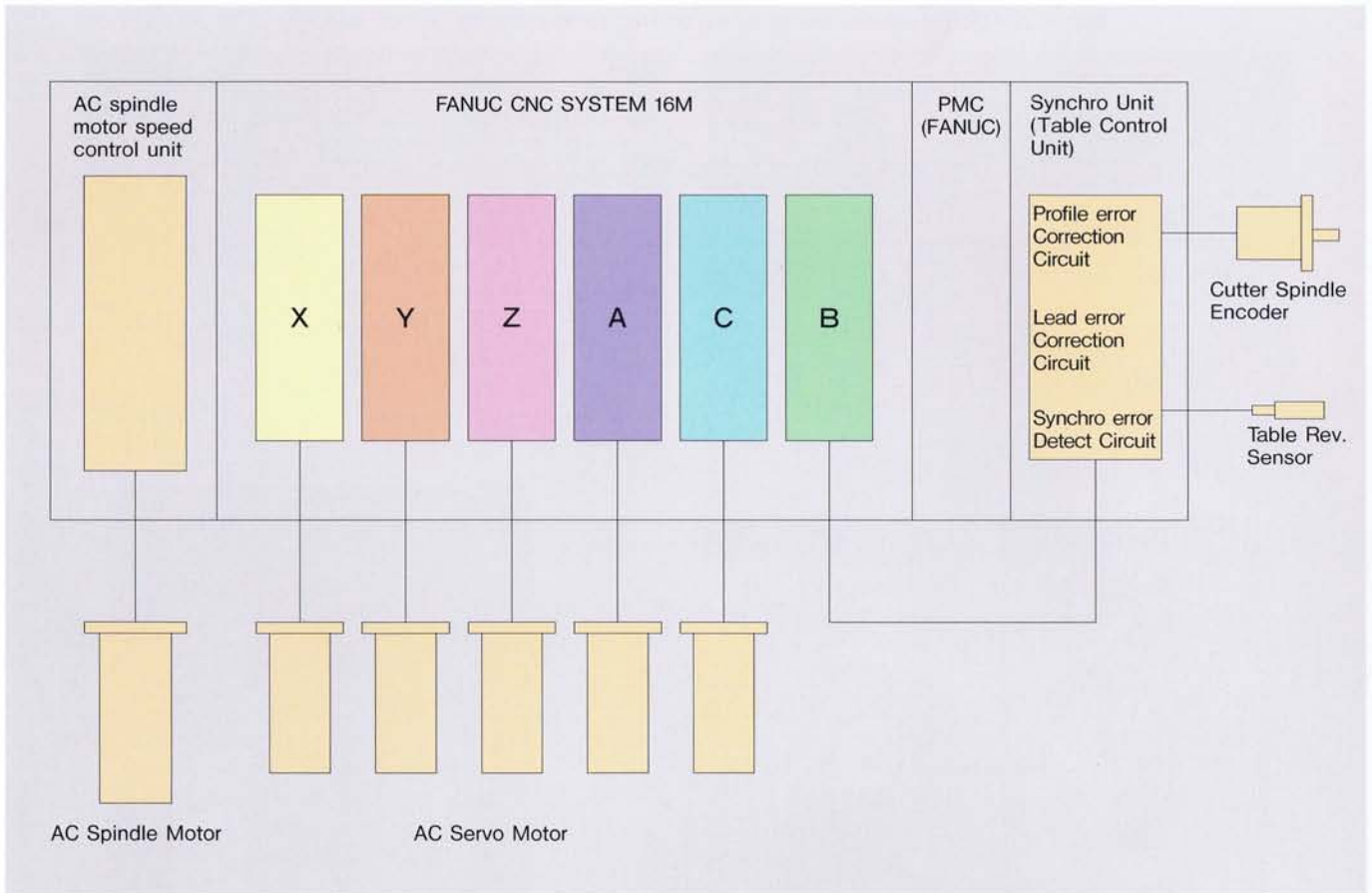
### CONVENTIONAL



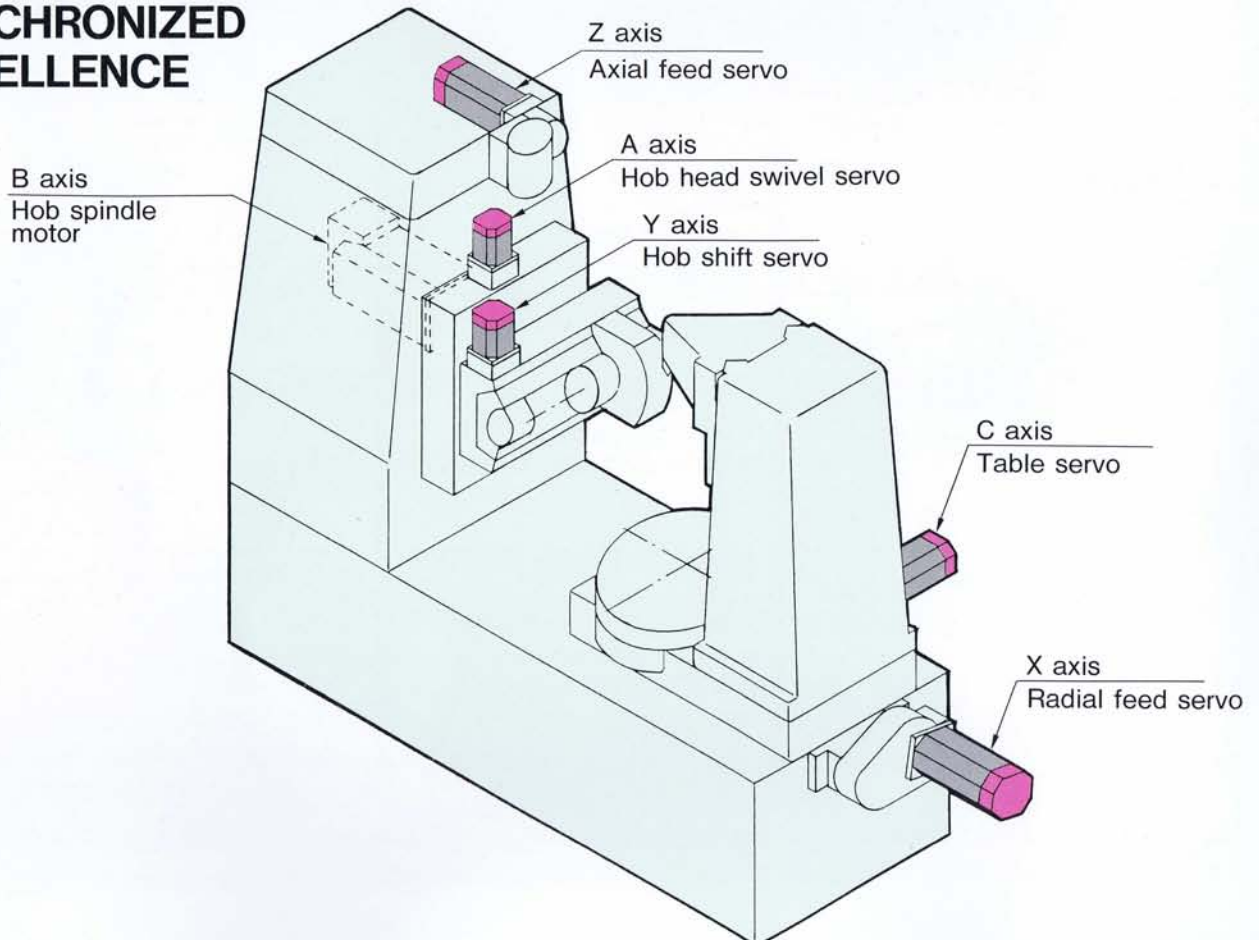
### KL1000 CNC



# CNC BLOCK DIAGRAM



## SYNCHRONIZED EXCELLENCE

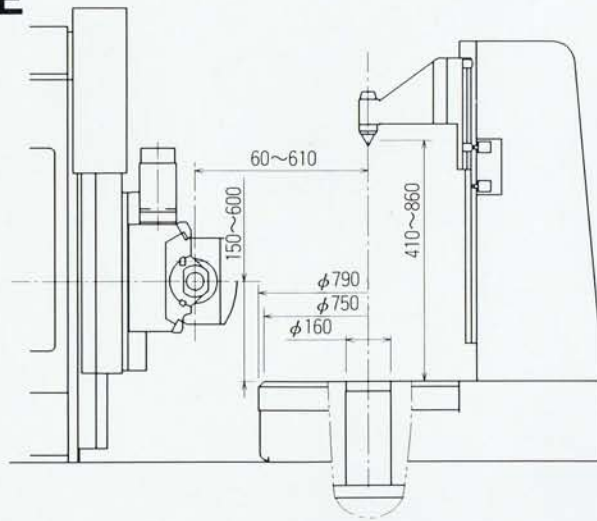




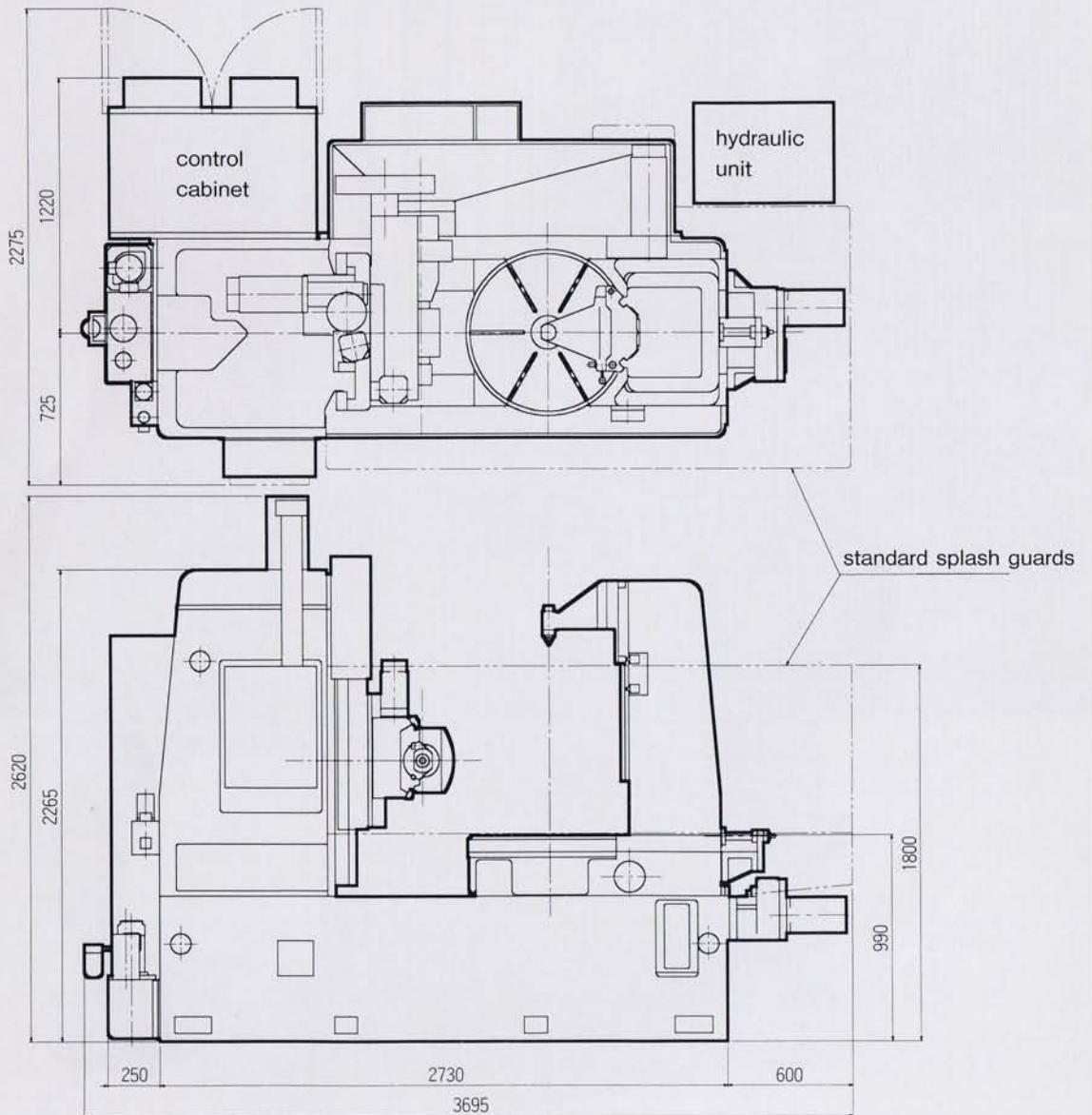
KL1000 shown  
with full sheet  
metal enclosure



## WORKING RANGE



## MACHINE LAYOUT



# SPECIFICATIONS

Machine capacity	
Max. workpiece diameter with tailstock	750 mm
Max. workpiece diameter without tailstock	1000 mm
Max. pitch	module 12
Axial feed travel	450 mm
Max. hob head swivel	± 40°
No. of teeth	4 ~ 5000
Master worm wheel dia.	697 mm
Table RPM	0.1 ~ 15 rpm
Working range	
Center distance between hob & table	60 ~ 610 mm
Table top diameter	750 mm
Table bore	160 mm
Distance form table top to support center	410 ~ 860 mm
Hob	
Max. hob size diameter × length	180 × 220 mm
Taper of spindle nose	NT45
Max. hob shift travel	170 mm
Hob speed and feed	
Hob speed (B)	37 ~ 300 rpm
Radial feed (X)	0.1 ~ 10 mm/T.rev (infinitely variable)
Axial feed (Z)	0.1 ~ 10 mm/T.rev (infinitely variable)
Radial rapid feed (X)	3000 mm/min
Hob shift (Y)	1000 mm/min
Axial rapid feed (Z)	3000 mm/min
Hob head swivel (A)	600 deg/min
Electrical specifications	
Total power	40 kVA
Main motor, AC spindle motor	11 kW (continuous rating)
Floor space and weight	
Floor space, L X W	3695 × 2275 mm
Machine height	2620 mm
Weight (includes hydraulics & electrics)	10500 kgf

## Standard accessories

- Table control system (tooth profile error correction circuit, lead error correction circuit & synchro error detect circuit)
- Auto cycle (1, 2 cut cycle, crowning cycle taper cycle & radial cutting cycle)
- 6 axis CNC control
- Each servo motor is equipped with an absolute encoder (No axis zeroing required)
- Hob head auto clamp
- Hydraulic unit
- Coolant system
- FANUC 16M system
- 80 meter memory capacity
- Part program storage : 100 programs
- 1 set of hob arbor with spacers
- 1 set of hand tools
- Work arbor & mandrel
- Splash guard

## Optional equipment

- Auto loader
- Extended tailstock
- Jig fixture
- Hydraulic work clamping cylinder
- Deburring attachment
- Steady rest
- Rough work piece locator
- Oil mist collector
- Full machine cover
- Auto splash door
- Chip conveyor
- Part program storage 400 programs
- Memory capacity up to 640 m
- Hob protection system at power failure (cutter head retract by battery back up)
- Software for special cutting programs and hob tool shifts
- Hoist for part handling
- Counter bearing holder
- Table backlash eliminator
- Meshing system for skiving tool alignment
- Hob head for  $\phi$ 220 dia cutter

 ***KASHIFUJI WORKS, LTD.***

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