RADAR

KINGFISHER

Accurate Precision Machining

RADAR RA series

R12/16/20

CNC VERTICAL LATHE

ISO 9001 CE

KINGFISHER

ABOUT **RADAR**

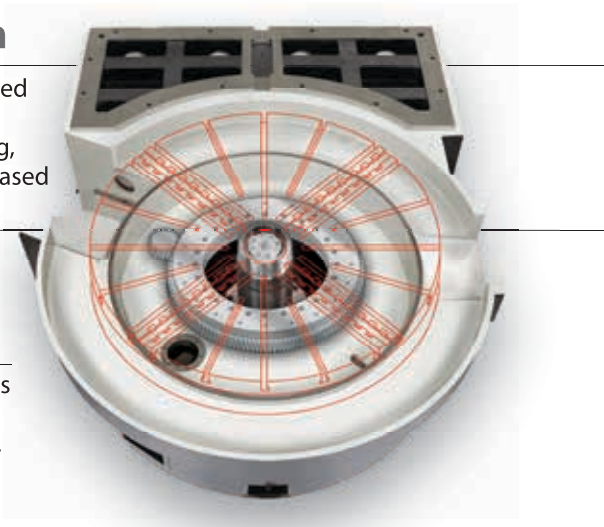
Radar Industrial Co., Ltd., established in 2007, has more than 50 years of experience in manufacturing professional machine tools and technologies. We manufacture with high accuracy, stability, and rigidity using the CNC Vertical Lathe for heavy cutting processes.

Our management team's energy and enthusiasm are strongly respected by our customers. To meet their satisfaction, we ensure precision quality at each step of our production line.

The products' ease of operation increases efficiency for our customers. The use of new and advanced design concepts has excellent precision machines tools, and can deliver a performance that is unique compared to our competitors. With a steady, practical and honest commitment to our business, we provide customers a complete "before and after" customer service. Our CNC vertical lathe gives our customers the fastest delivery at a very satisfactory price.

Unique Hydraulic Static Bearing Design

The floating hydraulic bearing is designed with a heavy duty roller bearing.
This sits in a rigid one piece base casting, provides the ideal combination of increased table load and precision machining.



Patent Octagon RAM Design

The unique structure of all Radar models provides excellent straightness with improved control of thermal expansion.
This special Octagon RAM provides superior damping characteristics and improved rigidity when compared with the traditional square RAM design.

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High Precision Quality Turning Center

The range of vertical lathe offers unrivalled levels of rigidity and accuracy due to the strong foundation of both structure and design gives a high level of performance and accuracy.

R12

CNC VERTICAL LATHE

R16/20

CNC VERTICAL LATHE

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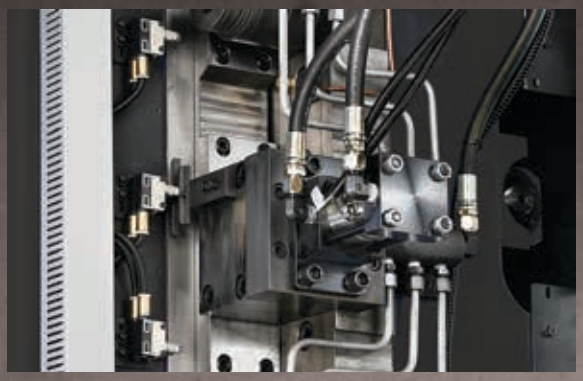
Structure of Saddle

The 15˚ slant bed design is used on both RAL-16 & RAL-20 models.

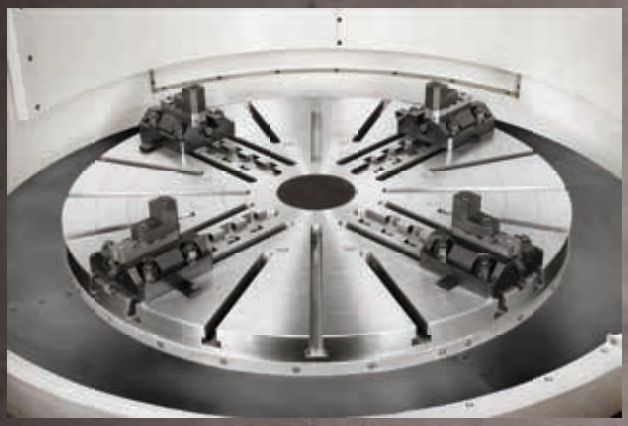
This reduces overhang problem and provides increased machine rigidity.



Massive Hydraulic Clamps Lock Crossrail

Each position is locked by 4 strong independent hydraulic cylinders in conjunction with large taper lock pins.

This design provides both of flexible and rigid crossrail that provides machine's versatile capacity, superior positioning and repeatability control.

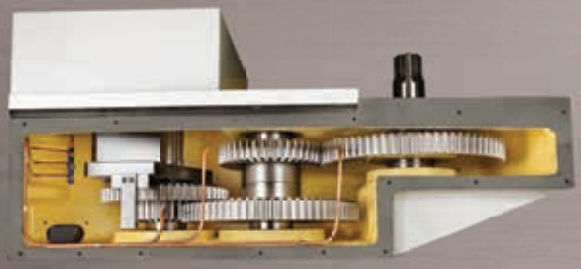


Work Table

High rigidity of work table with 4 jaw manual chuck.

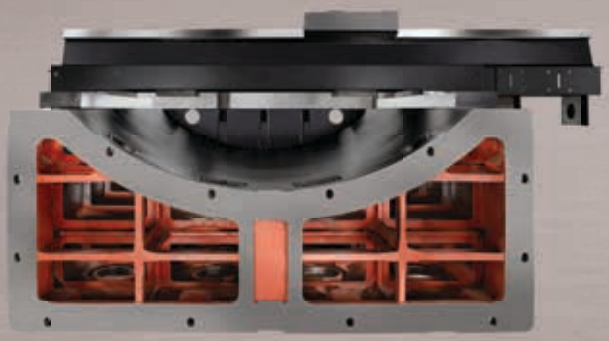
FANUC 0i-TD Controller

User friendly operation control panel.



Gear box

The high torque, 2 speed gearbox assembled by ourselves, incorporates a Fanuc spindle motor with a maximum torque of 23,270 N.m enable a cutting power to suit all types of material.



Multi-Ribbed Column

The one piece column made by Meehanite cast iron with wide span ribbed box structure provides strong stability and rigidity. It dramatically decrease vibration, thermal expansion, and deformation caused by cutting stress. The oversize box to Rockwell 55˚ and stress relieved.

RAL

MACHINE FRAME

The whole range of RAL models offers a heavy structure and provides the ideal combination of high rigidity and machining accuracy.

Carousel

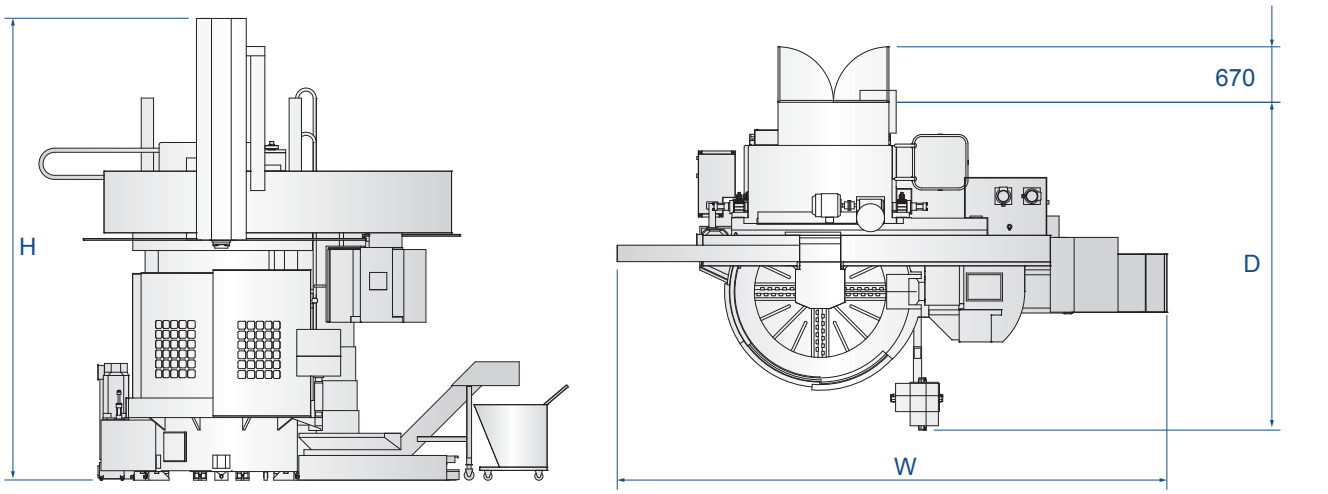
Tool magazine is driven by servo motor to make sure the fast and precise positioning of ATC.

ATC

Standard models equipped with 12 tools. M type models equipped with 18 tools, adopt compound tool magazine with 9 powered tools and 9 non-powered tools.

Machinery Dimension

unit: mm

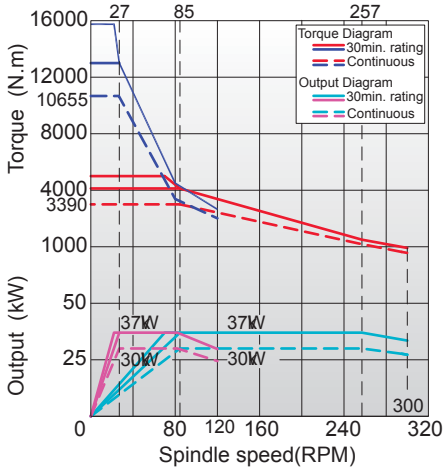


RAL-12/12M **W** 5,900 **D** 3,130 **H** 5,020/5,360 **RAL-16/16M** **W** 6,500 **D** 3,930 **H** 5,690/5,880 **RAL-20/20M** **W** 7,800 **D** 4,430 **H** 5,740/5,930

Table Torque Diagram

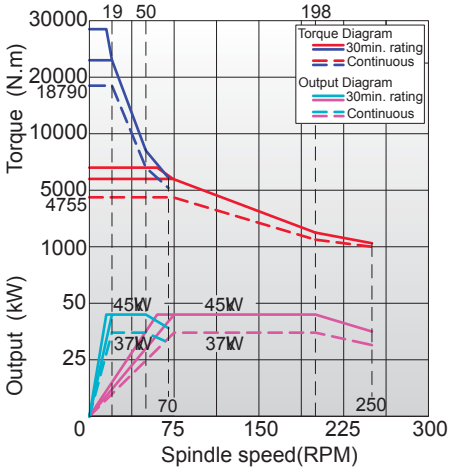
RAL-12/12M

Spindle Motor:FANUC αi30/6000



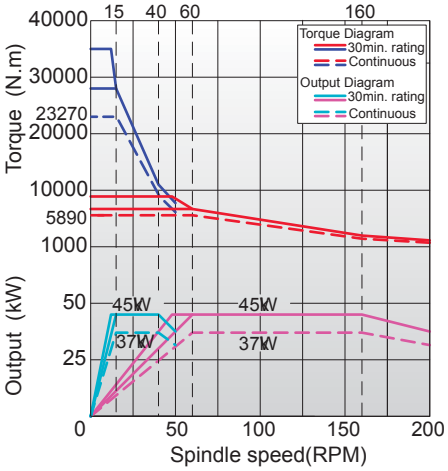
RAL-16/16M

Spindle Motor:FANUC αi40/6000



RAL-20/20M

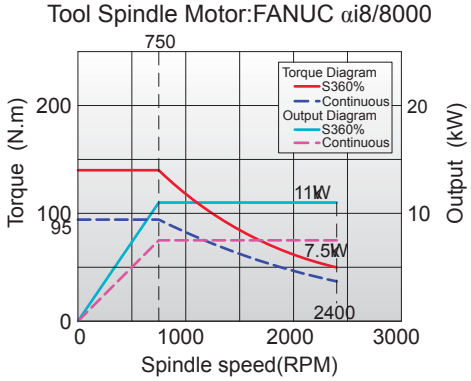
Spindle Motor:FANUC αi40/6000



Live Spindle Torque Diagram

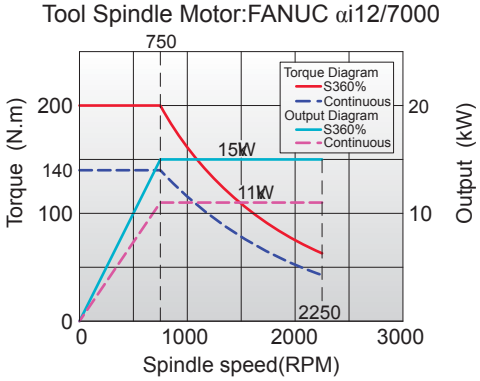
RAL-12M

Tool Spindle Motor:FANUC αi8/8000



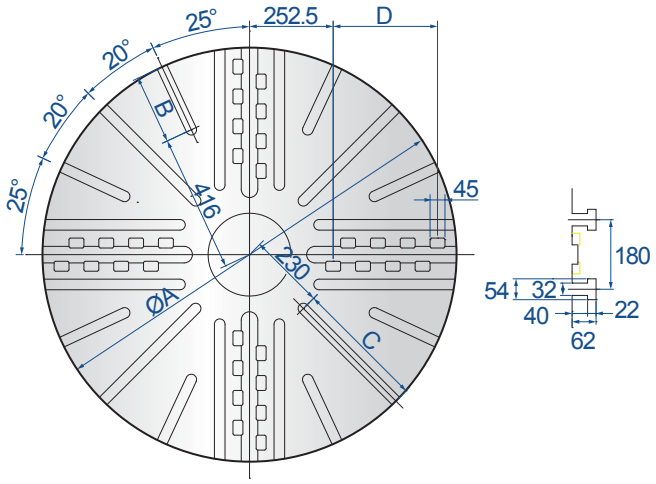
RAL-16M / RAL-20M

Tool Spindle Motor:FANUC αi12/7000



Work Table

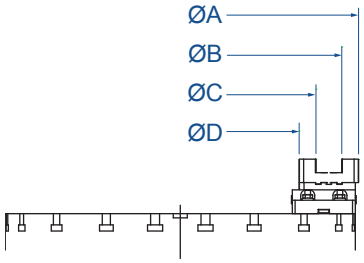
Standard Work Table



unit: mm

	RAL-12/12M	RAL-16/16M	RAL-20/20M
A	1,250	1,600	2,000
B	209	384	584
C	395	570	770
D	7x45=315	11x45=495	15x45=675

Inside and Outside Clamping for Chuck



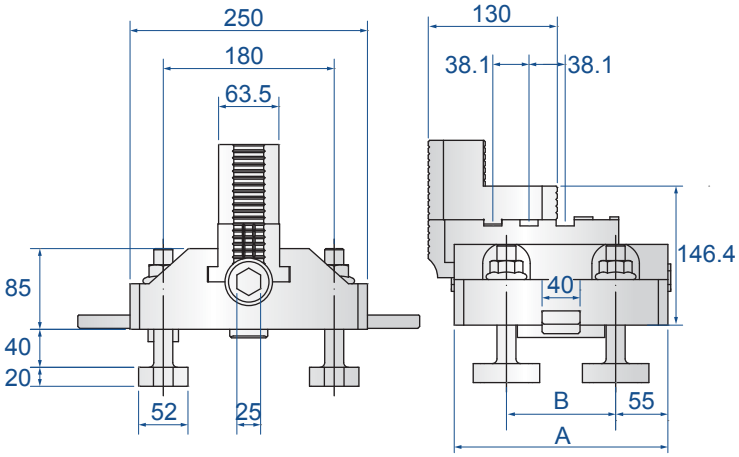
unit: mm

	RAL-12/12M	RAL-16/16M	RAL-20/20M
A	745~1,295	715~1,685	715~2,000
B	630~1,180	600~1,570	600~1,885
C	440~990	410~1,380	410~1,695
D	325~875	295~1,260	295~1,580

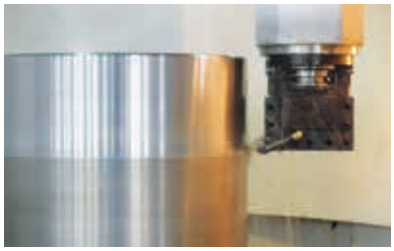
4 Jaw Manual Chuck

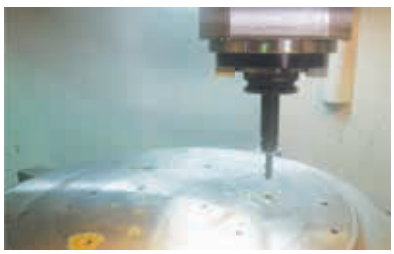
unit: mm

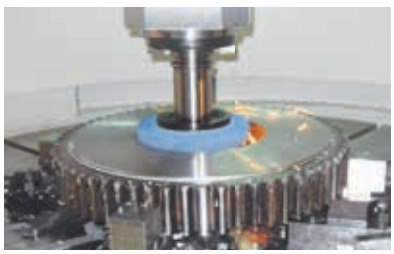
	RAL-12/12M	RAL-16/16M	RAL-20/20M
A	225	255	255
B	115	145	145

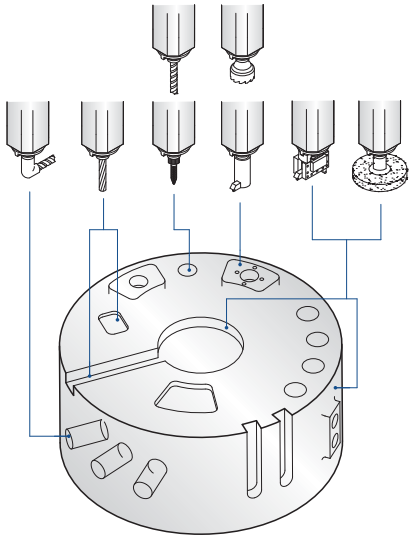


Tooling System



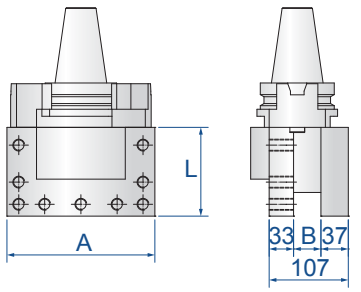






Dimension of Tool Holder

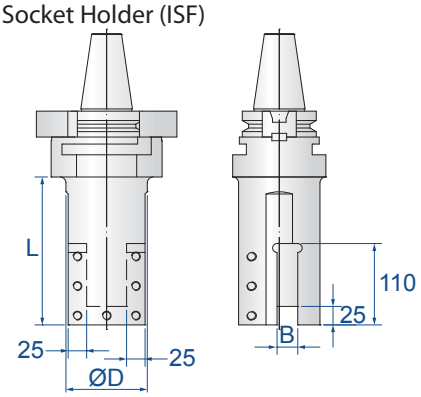
OD Tool Holder (ODF)



unit: mm

MODEL	L	A	B	Tool
ODF32-200-120	120	200	37	32x32
ODF32-230-140	140	230	37	32x32

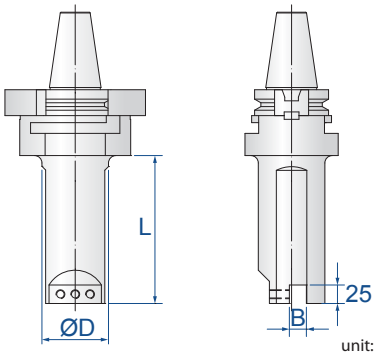
Socket Holder (ISF)



unit: mm

MODEL	L	ØD	B	Tool
ISF25-110-200	200	110	28	25x25
ISF25-110-300	300	110	28	25x25

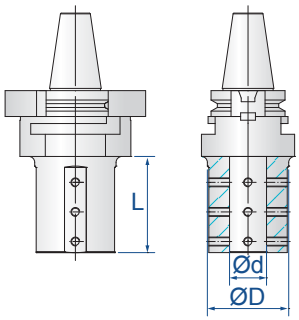
ID Tool Holder (IDF)



unit: mm

MODEL	L	ØD	B	Tool
IDF20-80-200	200	80	23	20x20
IDF20-80-250	250	80	23	20x20
IDF20-90-300	300	90	23	20x20
IDF25-100-400	400	100	28	25x25

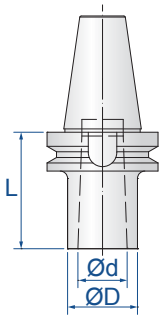
Boring Holder (BOB)



unit: mm

MODEL	L	ØD	Ød	Tool
BOB50-110-130	130	110	50	Ø50
BOB63-110-130	130	110	63	Ø63
BOB50-110-230	230	110	50	Ø50
BOB63-110-230	230	110	63	Ø63

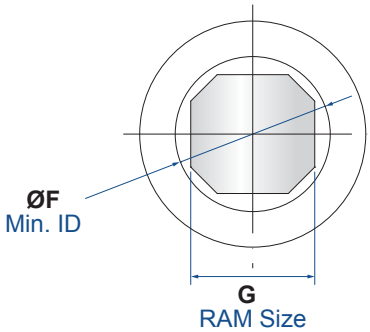
Taper Holder (DRI)

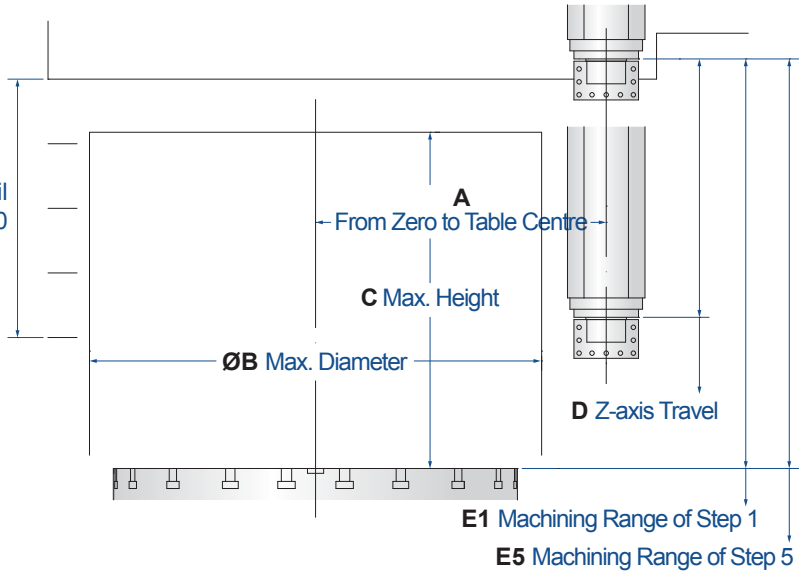


unit: mm

MODEL	L	ØD	Ød	Tool
DRI2-32-60	60	32	17.78	MT#2
DRI3-40-65	65	40	23.825	MT#3
DRI4-48-95	95	48	31.267	MT#4
DRI5-63-105	105	63	44.399	MT#5

Max. Machining Range





unit: mm

	RAL-12/12M	RAL-16/16M	RAL-20/20M
A	900	1,125	1,380
ØB	1,500	1,900	2,400
C	1,250	1,600	1,600
D	900	1,000	1,000
E1	25~700	65~1,065	75~1,075
E5	600~1,500	865~1,865	875~1,875
ØF	285	310	310
G	230x240	240x270	240x270

DISCRIPTION	UNIT	RAL-12	RAL-12M	RAL-16	RAL-16M	RAL-20	RAL-20M
Capacity							
Table Diameter	mm	1,250		1,600		2,000	
Max. Swing	mm	1,600		2,000		2,500	
Max. Turning Diameter	mm	1,500		1,900		2,400	
Distance from RAM to table	mm	700 ~ 1,500		1,065 ~ 1,865		1,075 ~ 1,875	
Max. Turning Height	mm	1,250		1,600			
Max. Workpiece weight	kg	6,000		10,000		13,000	
RAM Size	mm	230x240		240x270			
Min. ID for RAM Pass	mm	285		310			
Spindle							
Table Speed (2 steps)	rpm	1 ~ 120 , 1 ~ 300		1 ~ 70 , 1 ~ 250		1 ~ 50 , 1 ~ 200	
Max. Torque of table	N.m	10,655		18,790		2,3270	
Live Spindle Speed	rpm	-	24 ~ 2,400	-	50 ~ 2,250	-	50 ~ 2,250
Travel / Rapid Traverse							
X-axis Travel	mm	-200 ~ +950		-200 ~ +1,125		-250 ~ +1,380	
Z-axis Travel	mm	900		1,000			
Crossrail Travel	mm	800					
Crossrail Step	mm x step	200 x 5					
X-axis Rapid Traverse	m/min	12					
Z-axis Rapid Traverse	m/min	10					
ATC							
ATC Capacity	-	12	18	12	18	12	18
Max. Tool Length	mm	400					
Max. Weight of Tool Holder	kg	50					
Max. Weight of magazine	kg	450	550	450	550	450	550
Type of Tool Shank	-	BT50					
Tool shank size	mm	25 or 32					
Motor							
Spindle Motor	kW	AC 30/37		AC 37/45			
Total Power Capacity	kVA	50		60			
X/Z-axis Servo Motor	kW	6					
Live Spindle Motor	kW	-	AC 7.5 / 11	-	AC 11 / 15	-	AC 11 / 15
CF-axis Servo Motor	kW	-	7	-	7	-	7
Machine Dimension							
Floor Space (LxW)	mm	5,900 x 3,800		6,500 x 4,600		7,800 x 5,100	
Machine Height (H)	mm	5,020	5,360	5,690	5,880	5,740	5,930
Machine Weight	kg	20,000	20,500	28,000	28,500	42,000	42,500

All the specifications in the catalog are subject to change without notice.

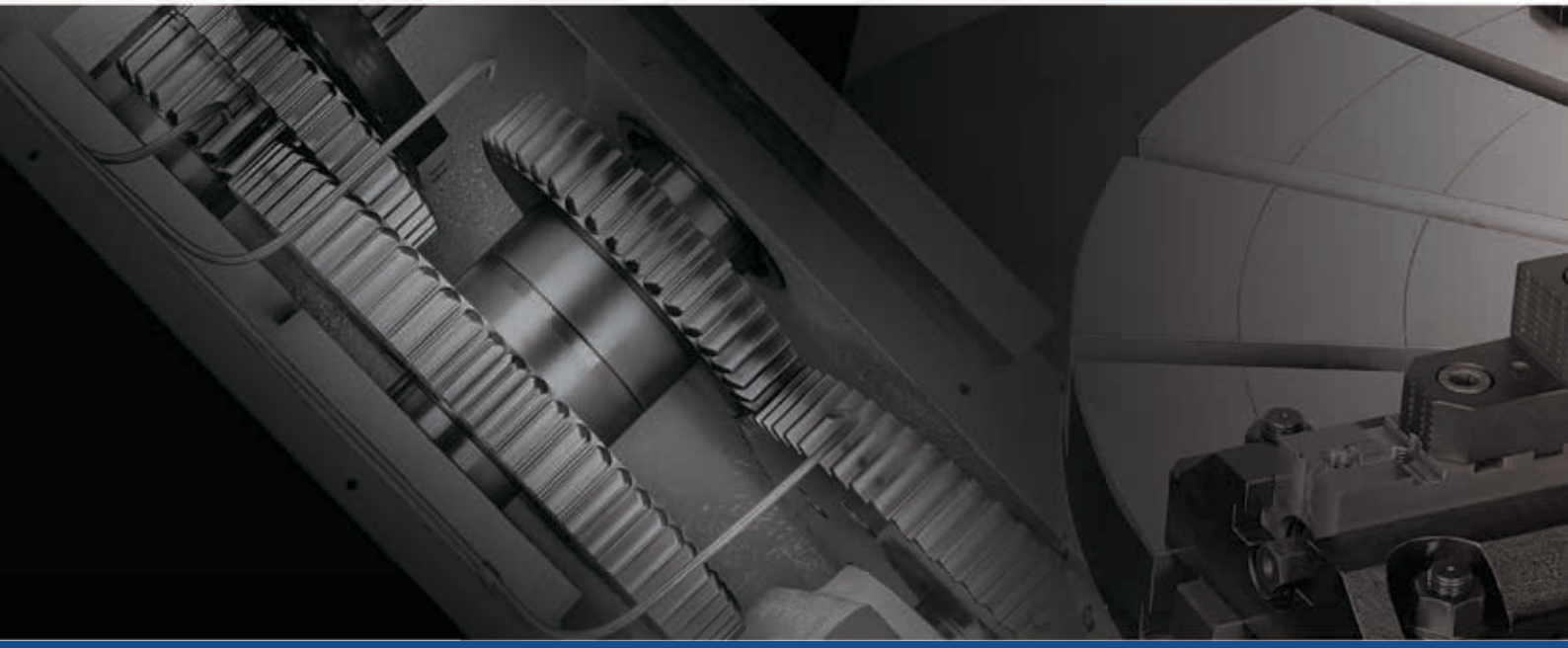
Standard Accessories

- FANUC 0i-TD Controller
- Independent 4 Jaw Manual Chuck
- 12 Tools of ATC for RAL series
- 18 Tools of ATC for RAL(M) series
- Machine Cover (Semi-Opened)
- Oil / Water Separator
- Auto Lubrication System
- Tool Holder BT-50 (O.D. + I.D.) x 1 pcs
- Chip Conveyor
- Heat Exchanger For Electrical Cabinet
- Work Light and Signal Tower Light
- High Pressure Pump (3 Bar)
- Tools and Tool Box
- Hydraulic Unit
- Table Lubricant Oil Cooling Unit
- Anchor Bolt and Pad
- Operation Manual

Optional Accessories

- Air Conditioner For Electrical Cabinet
- Transformer for Power Source
- Additional Tool Holders
- Coolant Through Spindle
- X / Z-axis Linear Scale
- Tool Probe
- Parts Probe
- 3 Jaw Power Chuck
- High Pressure Pump (6 Bar)
- High Pressure Pump (10 Bar)
- CF-axis
- CAT Tool Magazine

RADAR



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