

For detailed quotations please contact.

USA – CANADA – SOUTH AMERICA
USA OFFICE AND WAREHOUSE
Megabore Machinery Inc.
1048 N. 105th E. Ave
Tulsa Oklahoma 74116, USA
Email: sales@megaboremachinery.com
Cell: (580) 340 1049
Phone: (918) 836 5900
Fax: (918) 836 5928

MIDDLE EAST – AFRICA
MIDDLE EAST OFFICE AND STORE
ESP Megabore
Sharjah Airport International Free Zone Q4 – 127 United Arab Emirates
Email: uaeoffice@espmach.com.au
Phone: (971) 6548 9639
Fax: (971) 6548 9640

ASIA - PACIFIC - EUROPE
AUSTRALIA OFFICE
Megabore Oil Country Lathes Division,
ESP Machinery Australia
No 4 South Road Braybrook 3019 Melbourne Australia
Email: sales@espmach.com.au
Phone: (613) 9689 6044

Website: www.megaboremachinery.com



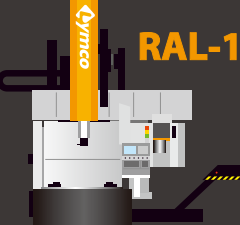
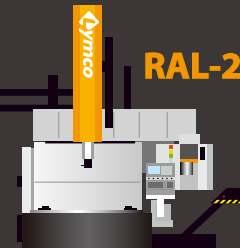
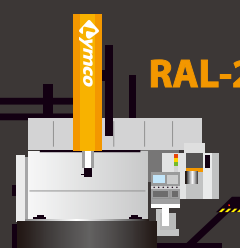
RAL
VERTICAL TURNING CENTER



One of a kind

It is commitment we offer, a commitment to provide superb engineering, continual improvement, refine service, and world class manufacturing. We are committed to present you the one of a kind Lymco experience.

The RAL line turning center is designed to satisfy general turning and machining purpose for everyday shops. With the RAL line of Vertical Turning Centers, we want to provide the shop owners a unique experience of owning a compact vertical turning center that allows massive payload and small floor space requirement. As a result, we have built the machine with our latest floating hydraulic technology for best loading and cutting capacities. Users will find an exceptional experience and productivity with this line of vertical turning centers.

	 Max Turning Diameter	 Max. Clearance (Crossrail at Highest)	 Max Table Speed	 Max Payload
 RAL-12	1500 mm (59 in.)	1500 mm (59 in.)	300 rpm	6000 kg (13224 lb.)
 RAL-16	1900 mm (78 in.)	1865 mm (73 in.)	250 rpm	10000 kg (22040 lb.)
 RAL-20	2400 mm (95 in.)	1875 mm (74 in.)	200 rpm	13000 kg (28652 lb.)
 RAL-25	2900 mm (114 in.)	1875 mm (74 in.)	160 rpm	18000 kg (39672 lb.)



Cutting Power



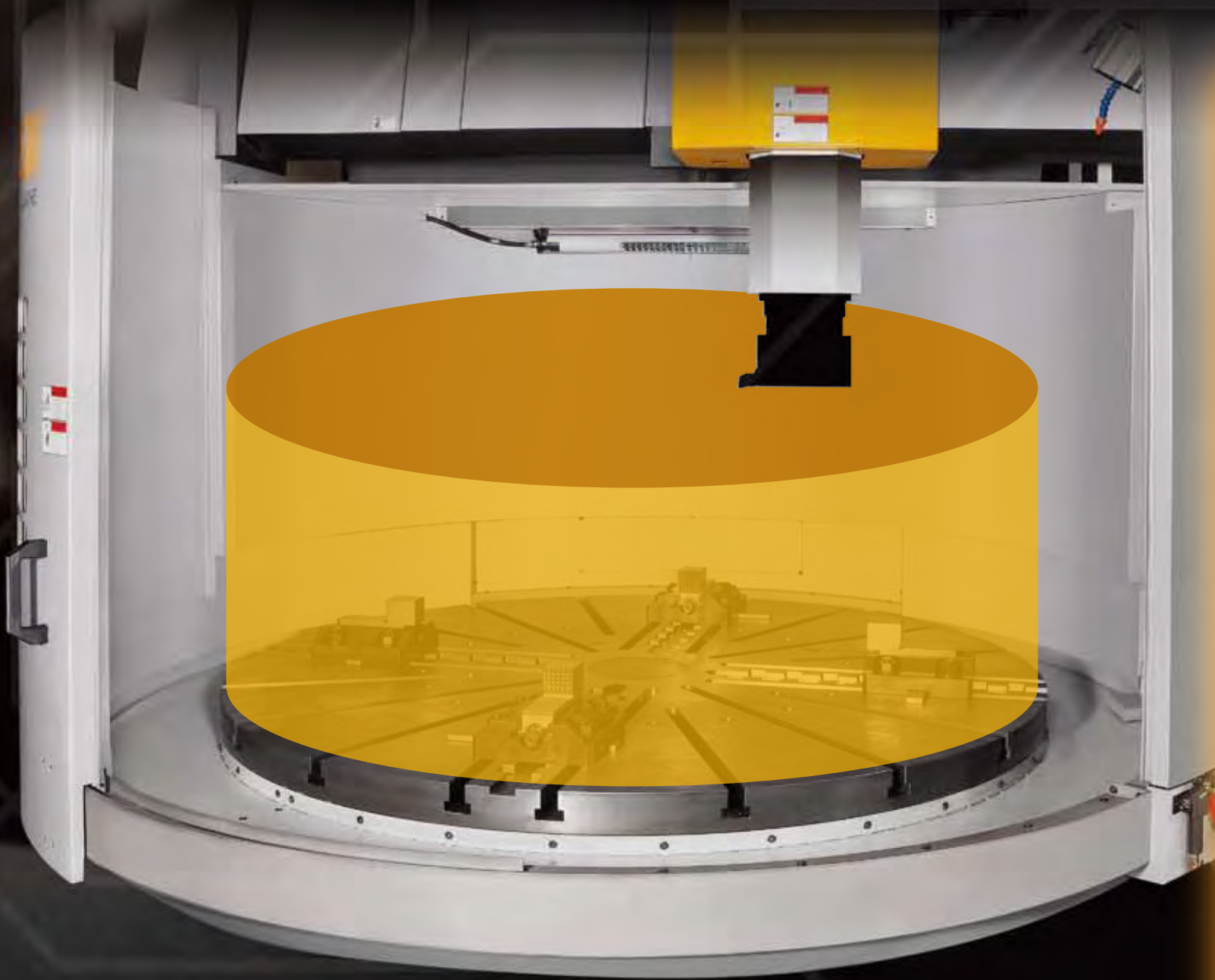
User Friendliness



Structural Strength



Thermal Stability





Maximum payload

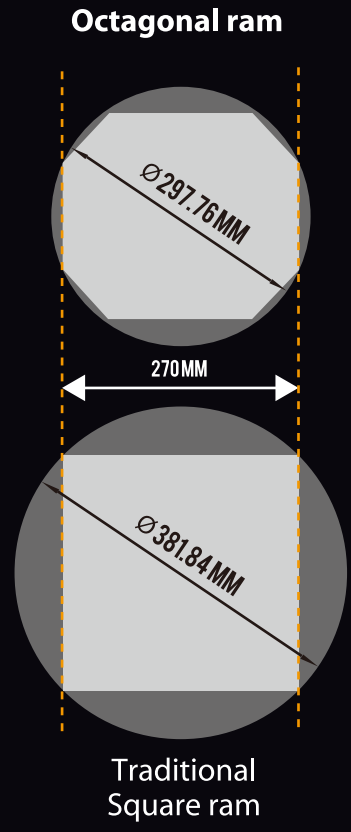
The RAL table is supported by a dual system of floating hydraulic and taper rollers for axial and radial cutting force. The dual system generates superior performance to resist heat expansion, asymmetrical loading, and heavy cutting. Machine servicing life are prolonged and stable results are generated. The transmission system are built by gears of hardened alloy to generate a enormous torque of 23270Nm. This massive output allows the machine to glide through all kinds of heavy cutting jobs while leaving a brilliant finishing surface.

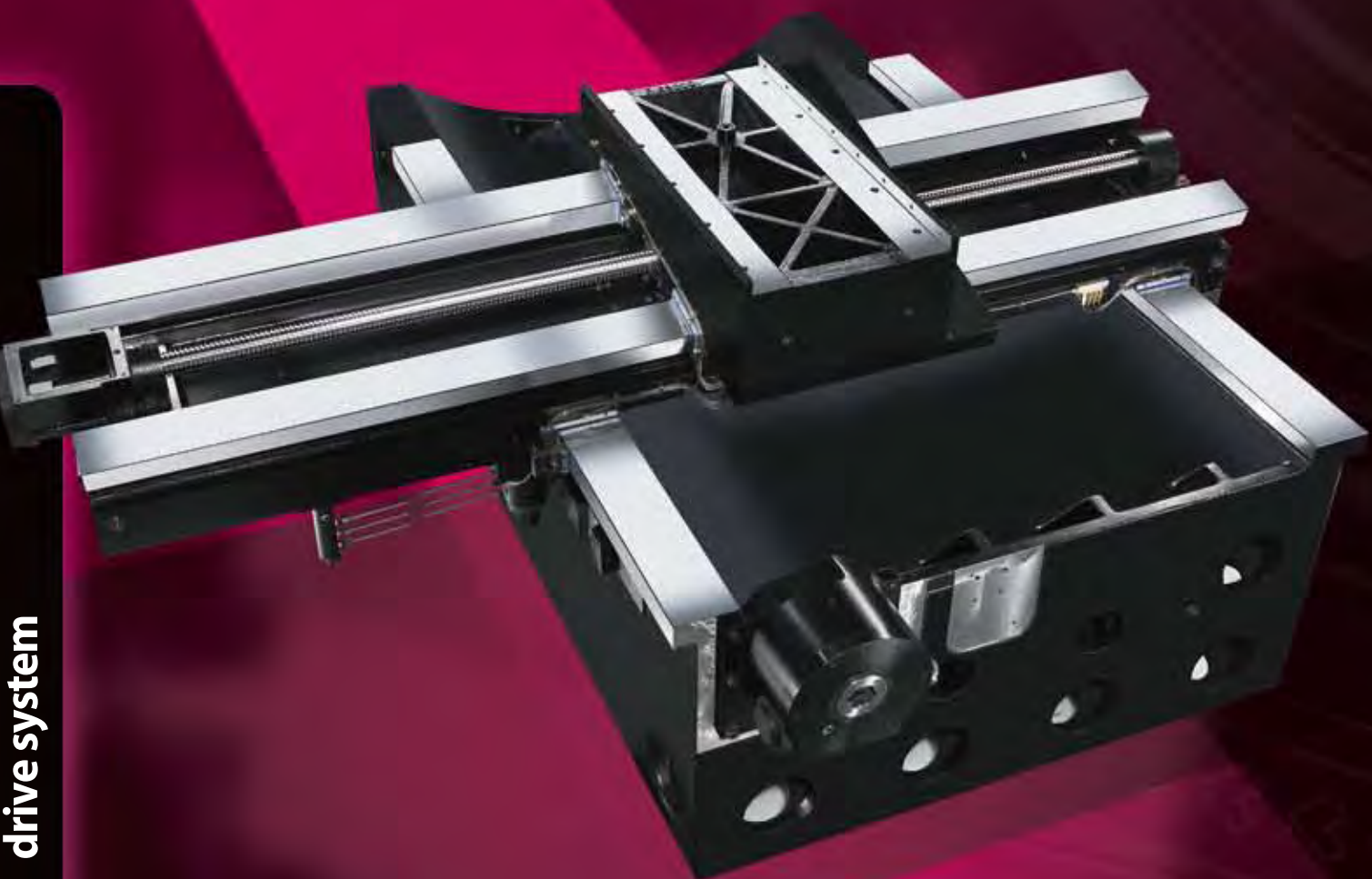


Eight is better than four

High quality finishing surface and accuracy is achieved for turning and boring jobs thanks to the octagonal ram design. The octagonal ram design provides 23% more clearance than a traditional square ram. Unique octagonal ram records outstanding performance in terms of thermal expansion control and excellent straightness. This feature also demonstrates superior through-hole capacity to allow better deep hole boring clearance.

The octagonal ram keeps balanced cutting power for cutting both internal and external diameter with two sets of clamping gibs to support cutting stress from both directions.





The Drive System

Heavily ribbed base is the backbone of the Lymco vertical lathe. Every single guide ways are ground and hardened for best vibration suppression attribute. Guide ways are all laser verified and coated with Moglice to bring perfect alignment and friction free movement. Long term accuracy is maintained with the exceptional wear resisting feature of Moglice for best life-long performance.



15° Slant Bed Crossrail

RAL-16, RAL-20 and RAL-25 are equipped with a 15 slant bed crossrail design for warp resisting and rigidity promoting features. 5 positions is implemented over the 800mm W-axis range for flexible parts handling and tooling. Every position is locked by independent hydraulic clamping cylinders plus large taper lock pins to ensure maximum cutting safety. Each of the engaging position is designed to take crossrail rigidity to the next level, strengthening RAL's side cutting capacity while promoting repeatability and eliminating overhang problems of tool ram.



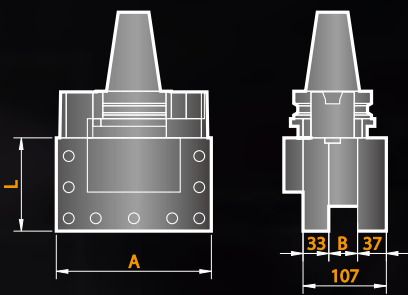
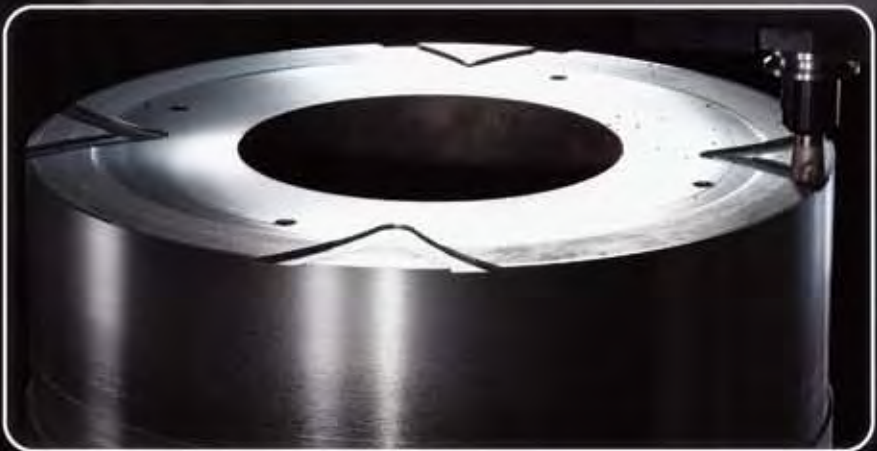
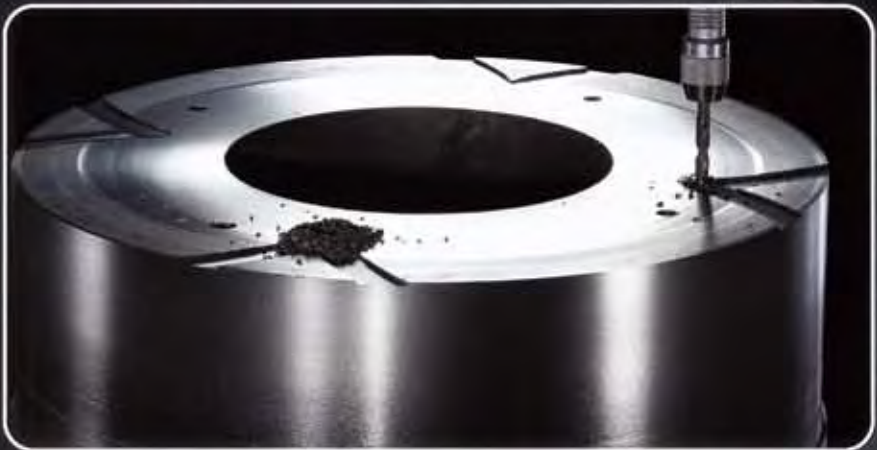
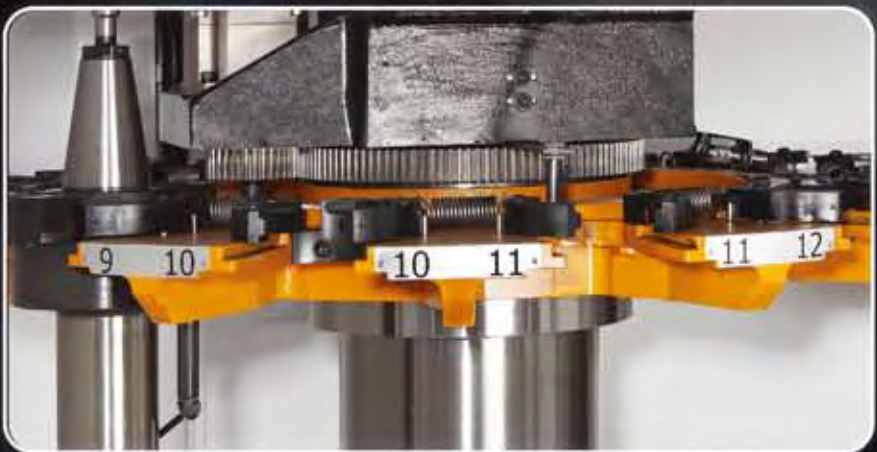
15°



Live tooling system RAL-M

For best productivity, a turning center is always preferred than a pure vertical lathe. Being able to mill, drill, and tap in a single setup greatly reduce the second machining process. For best cutting result, optical scales for the C-axis are a standard equipment for all RAL-M turning centers.

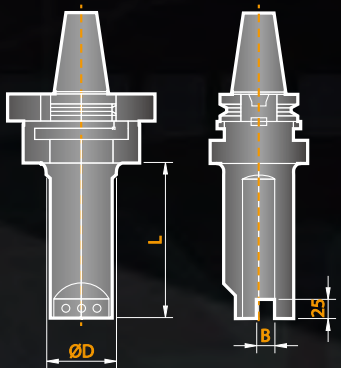
- ATC capacity 12/18 pcs
- Cut-to-cut 40 sec.
- Tool to tool 4 sec.



OD Tool Holder

unit: mm

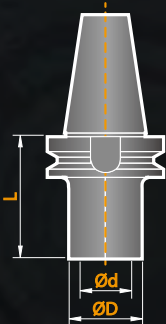
TYPE	L	A	B	TOOL
ODF32-200-120	120	200	37	32x32
ODF32-230-140	140	230	37	32x32



ID Tool Holder

unit: mm

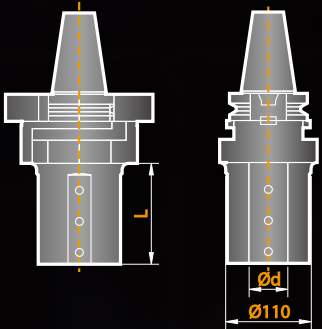
TYPE	L	D	B	TOOL
IDF20-80-200	200	80	23	20x20
IDF20-80-250	250	80	23	20x20
IDF20-90-300	300	90	23	20x20
IDF25-100-400	400	100	28	20x20



Taper Holder

unit: mm

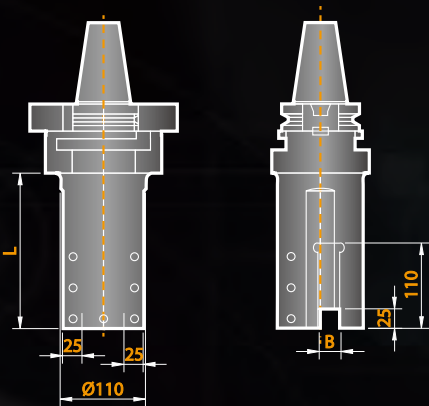
TYPE	L	D	d	TOOL
DRI2-32-60	60	32	17.78	MT#2
DRI3-40-65	65	40	23.825	MT#3
DRI4-48-95	65	48	31.267	MT#4
DRI5-63-105	105	63	44.399	MT#5



Boring Holder

unit: mm

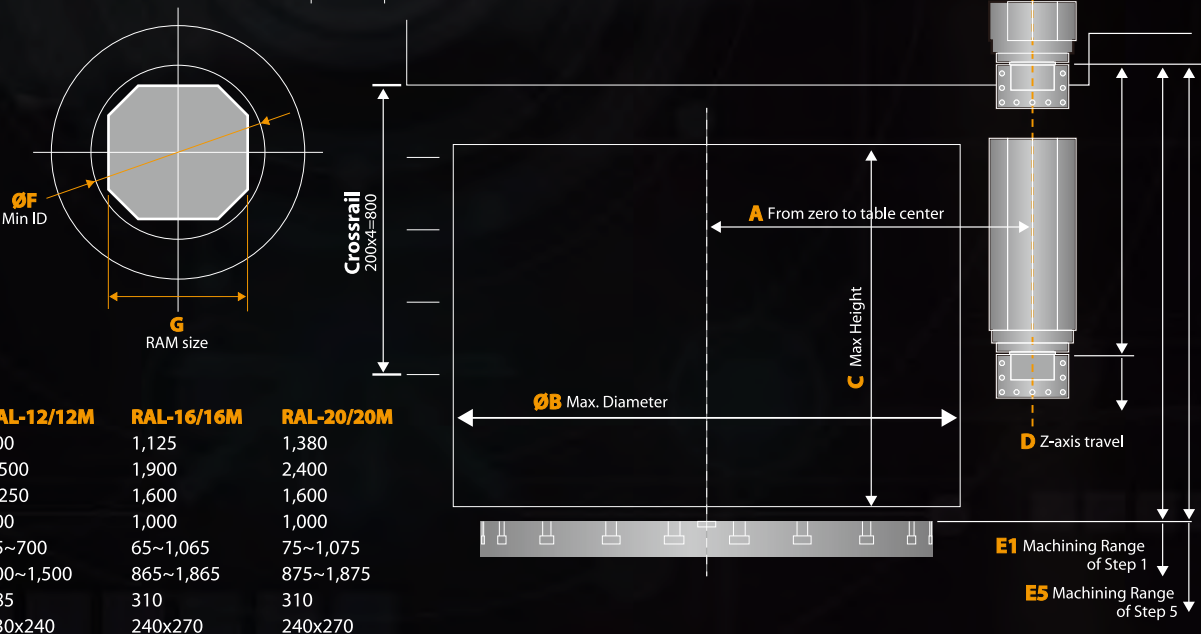
TYPE	L	d	TOOL
BOB50-110-130	130	50	50
BOB50-110-130	130	63	63
BOB50-110-130	230	50	50
BOB50-110-130	230	63	63



Socket Holder

unit: mm

TYPE	L	B	TOOL
ISF25-110-200	200	28	25x25
ISF25-110-300	300	28	25x25



	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

E1 Machining Range of Step 1
E5 Machining Range of Step 5

Standard Accessories

- Fanuc 0iTD color
- 12 tools automatic tool changer / 18 tools for M model
- Splash guard
- Hydraulic unit
- Manual 4 jaws chuck
- Automatic lubrication system
- Working light
- Three color alarm
- Table lubrication unit
- Air condition for electrical cabinet
- Chip conveyor
- Chip trolley
- Oil water separator
- 3 bar high pressure pump
- Tool holders Two pieces ONE x facing, ONE x boring
- Anchor bolt and tools and tool box
- CE certificated

Work Bigger

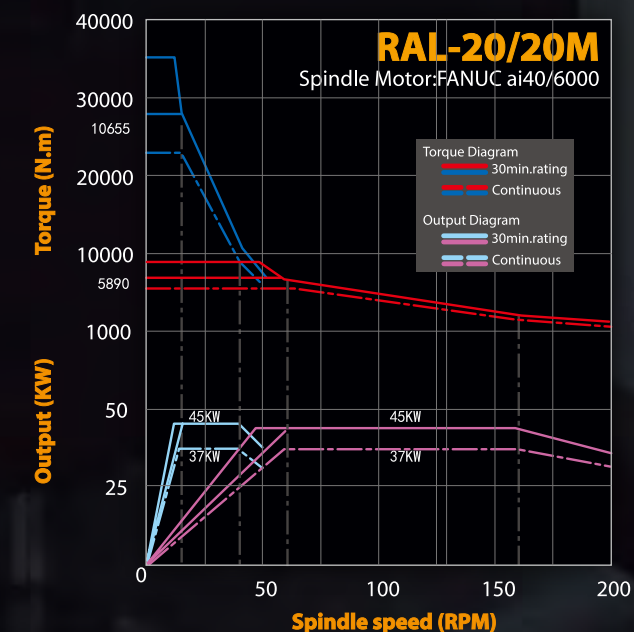
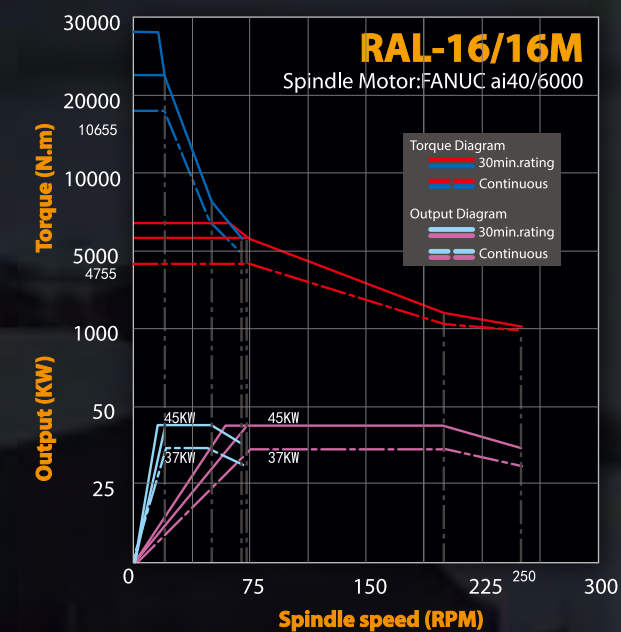
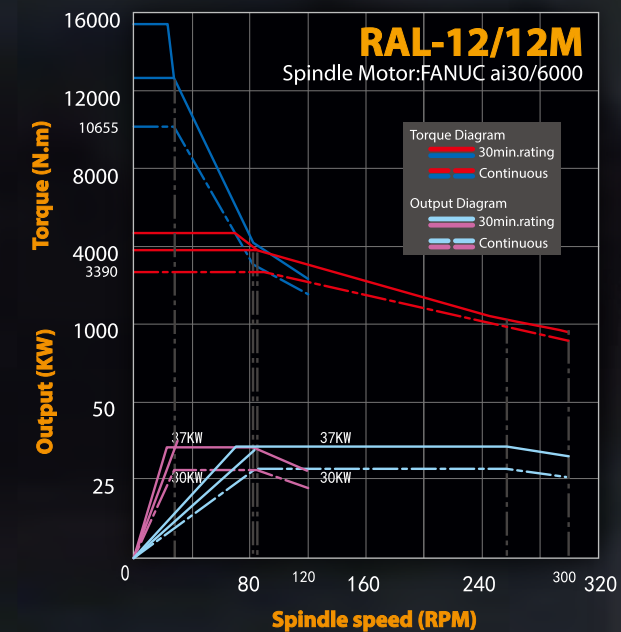
- + 300 mm
- + Stopping point (7 points)
- + Splash guard height

Do More

- Grinding
- CF axis live tool
- Motor upgrade
- More tool holders
- Radial tooling mill drill tap
- Coolant through spindle
- 24 tools automatic tool changer

Tighten Tolerance

- Linear scales
- Renishaw or Blum tool & parts measurement



capacity

Table Diameter	mm (inch)	1250 (49.2)
Max. Swing	mm (inch)	1600 (63)
Max. Turning Diameter	mm (inch)	1500 (59.1)
Distance from ram to Table	mm (inch)	700~1500 (27.6~59.1)
Max. Turning Height	mm (inch)	1250 (49.2)
Max. Workpiece Weight	kg (lb)	6000 (13228)
Ram Size	mm (inch)	230x240 (9.1x9.4)
Min. ID Interference of Ram	mm (inch)	285 (11.2)

spindle

Table Speed (2 steps)	rpm	1-120, 1-300
Max. Torque of Table	N.m (kgf-m)	10655 (7859)
Live Spindle Speed	rpm	24-2400

travel / feedrate

X-axis Travel	mm (inch)	-200~+1900 (-7.8~+ 37.4)
Z-axis Travel	mm (inch)	900 (35.4)
Crossrail Travel	mm (inch)	800 (31.5)
Crossrail Step	mmxstep	200x5 (7.9x5)
X-axis Rapid Traverse	m/min (ipm)	12 (472.4)
Z-axis Rapid Traverse	m/min (ipm)	10 (393.7)

ATC magazine

ATC Capacity	pcs	12 (18)
Max. Tool Length	mm (inch)	400 (15.7)
Max. Weight of Tool Holder	kg (lb)	50 (110.2)
Max. Weight of Magazine	kg (lb)	550 (1212.5)
Type of Tool Shank	taper	BT50
Tool Shank Size	mm (inch)	25/32 (0.98/1.26)

motor

Table Drive Motor	kW (HP)	30/37 (40/49.6)
Total Power Capacity	kva	50
X/Z-axis Servo Motor	kW (HP)	6 (8)
Live Spindle Motor	kW (HP)	7.5/11 (10/14.7)
CF-axis Servo Motor	kW (HP)	7 (9.4)

machine size

Floor Space (LxW)	mm (inch)	5900x3800 (232.2x149.6)
Machine Height (H)	mm (inch)	5360 (211)
Machine Weight	kg (lb)	20500 (45194)

RAL-12 (M)

RAL-16 (M)

RAL-20 (M)

RAL-25 (M)

1,600 (63)	2000 (78.7)	2500 (98.4)
2000 (78.7)	2500 (98.4)	3000 (118.1)
1900 (74.8)	2400 (94.5)	2900 (114.2)
1065~1865(41.9~73.4)	1075~1875 (42.3~73.8)	-
1600 (63)	1600 (63)	1800 (70.9)
10000 (22046)	13000 (28660)	18000 (39683)
240x270 (9.4x10.6)	240x270 (9.4x10.6)	240x270 (9.4x10.6)
310 (12.2)	310 (12.2)	310 (12.2)

1-70, 1-250	1~50, 1~200	1~160
18790 (13859)	23270 (17163)	-
50-2250	50-2250	50-2250

-200~+1125 (-7.8~+ 44.3)	-250~+1380 (-9.8~+ 54.3)	-250~+1650 (-9.8~+65)
1000 (39.4)	1000 (39.4)	1200 (47.2)
800 (31.5)	800 (31.5)	800 (31.5)
200x5 (7.9x5)	200x5 (7.9x5)	200x5 (7.9x5)
12 (472.4)	12 (472.4)	10 (393.7)
10 (393.7)	10 (393.7)	10 (393.7)

12 (18)	12 (18)	12 (18)
400 (15.7)	400 (15.7)	400 (15.7)
50 (110.2)	50 (110.2)	50 (110.2)
550 (1212.5)	550 (1212.2)	550 (1212.5)
BT50	BT50	BT50
25/32 (0.98/1.26)	25/32 (0.98/1.26)	25/32 (0.98/1.26)

37/45 (49.6/60.3)	37/45 (49.6/60.3)	60/75
60	60	60
6 (8)	6 (8)	6 (8)
7.5/11 (10/14.7)	7.5/11 (10/14.7)	15/18.5
7 (9.4)	7 (9.4)	7 (9.4)

6500x4600 (255.9x181.1)	7800x5100 (307.1x200.8)	-
5880 (231.5)	5930 (233.5)	-
28500 (62831)	42500 (93696)	60000(132276)