

T SERIES

5 AXIS UNIVERSAL MACHINING CENTERS

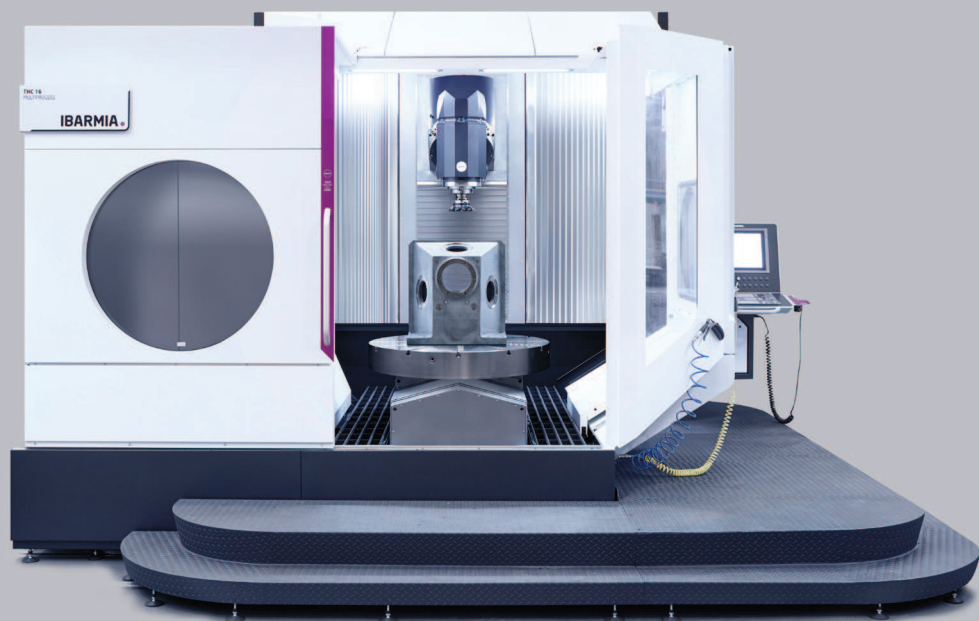
IBARMIA.
YOUR MACHINE TOOL POINT

T12 / T16 / T22 / T30 / T36 MODELS

Universal machining centers for 5 axis machining of big diameter parts, focused on high productivity by integrating multitasking technology and automation systems.



T SERIES



www.ibarmia.com

1_ General view

2_ Application industries

3_ Advantages

4_ Characteristics

5_ Machine Configuration

6_ The range

7_ Technological integration

8_ Technical data



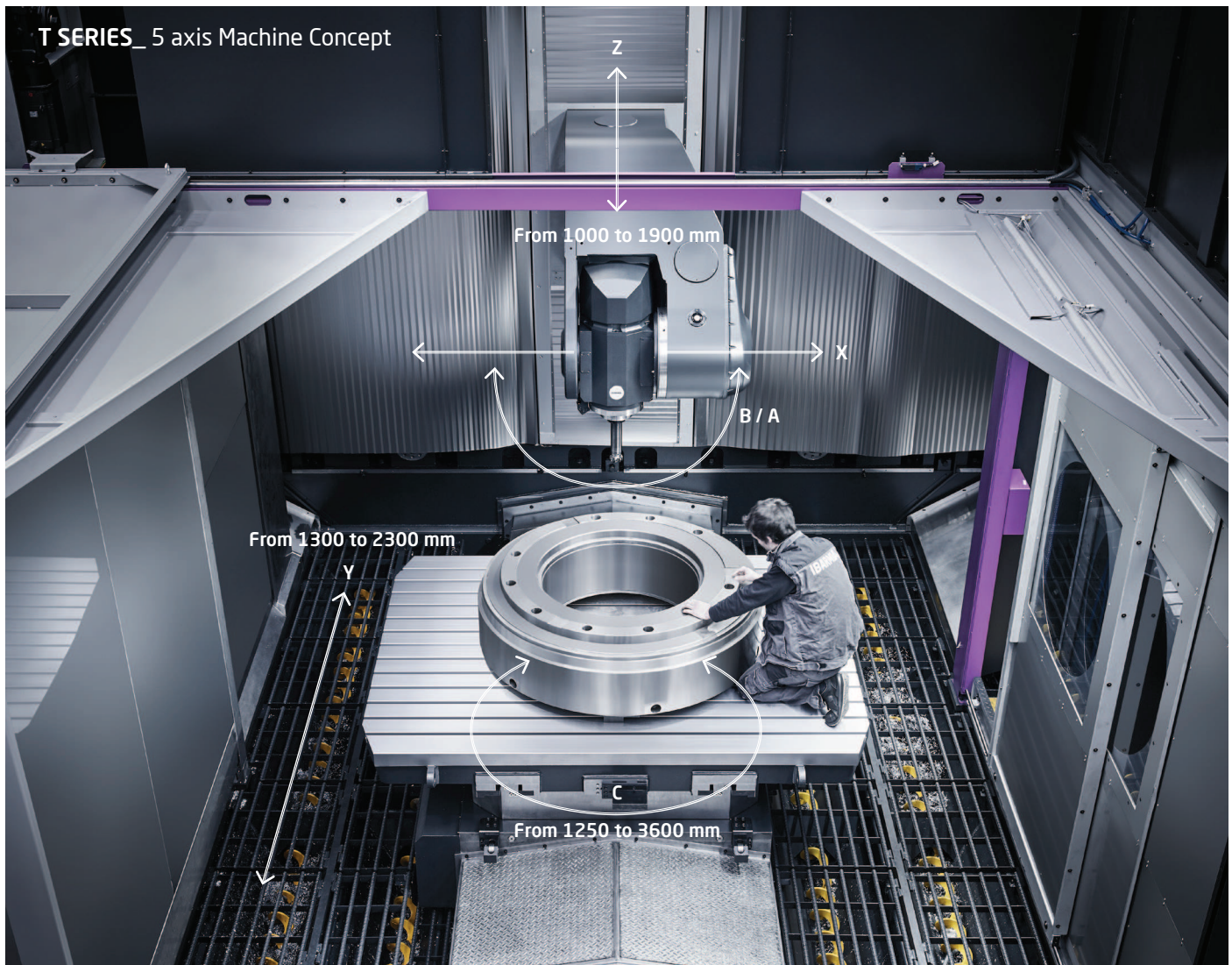
T SERIES

1_ GENERAL VIEW

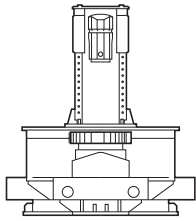
HIGH PRODUCTIVITY MACHINES

The T SERIES is designed for high productivity of heavy pieces thanks to its high load capacity rotary tables and powerful spindles. Its award-winning tilting heads provide the speed, accuracy and reliability required for the most complex jobs. The most advanced automation solutions for automatic pallet

changing and special head changing operations, make the T SERIES the ideal solution for the most demanding production requirements. The MULTIPROCESS models integrate milling, turning and grinding capacity, reducing the number of machines required to produce a wide range of pieces.

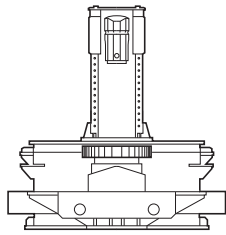


MACHINE SIZES



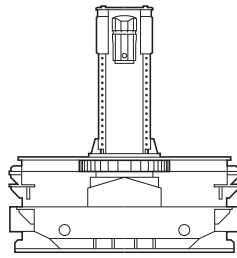
T12

Maximum swing diameter
 $\varnothing$ 1250 mm
 Maximum part height
 h 1600 mm
 Maximum load capacity
 4500 Kg



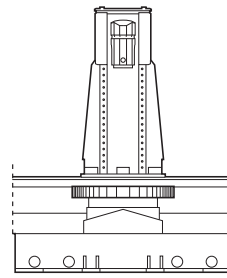
T16

Maximum swing diameter
 $\varnothing$ 1600 mm
 Maximum part height
 h 1700 mm
 Maximum load capacity
 6000 Kg



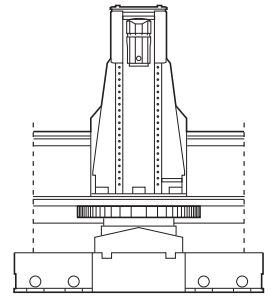
T22

Maximum swing diameter
 $\varnothing$ 2200 mm
 Maximum part height
 h 1750 mm
 Maximum load capacity
 10.000 Kg



T30

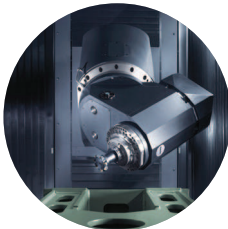
Maximum swing diameter
 $\varnothing$ 3000 mm
 Maximum part height
 h 1950 mm
 Maximum load capacity
 20.000 Kg



T36

Maximum swing diameter
 $\varnothing$ 3600 mm
 Maximum part height
 h 2150 mm
 Maximum load capacity
 25.000 Kg

SPINDLE HEADS



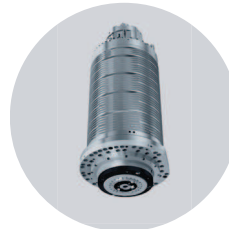
THC_ B axis head

Maintain the same tool center point
 across the full range
 $-15^{\circ}/+195^{\circ}$



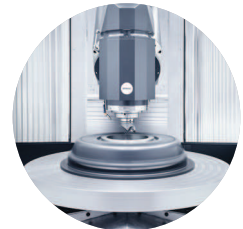
THR_ A axis head

Fork type spindle head ideal for
 negative angles
 $-45^{\circ}/+135^{\circ}$



High torque & high speed

Latest technology
 electrospindles

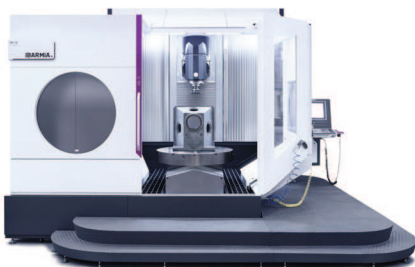


Direct Drive Technology

Torque motor transmission
 working tables

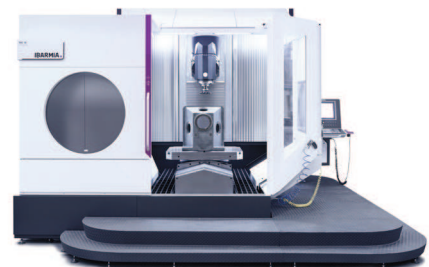
DIRECT
DRIVE

PERFORMANCE LEVELS



T MULTIPROCESS

Universal machining centers for 5-axis
 vertical milling and turning operations.
 Housing: HSK A-100 / Capto C8



T EXTREME

Universal machining centers for 5-axis /
 5-sided milling operations.
 Housing: SK 50 / BT 50 / HSK A-100

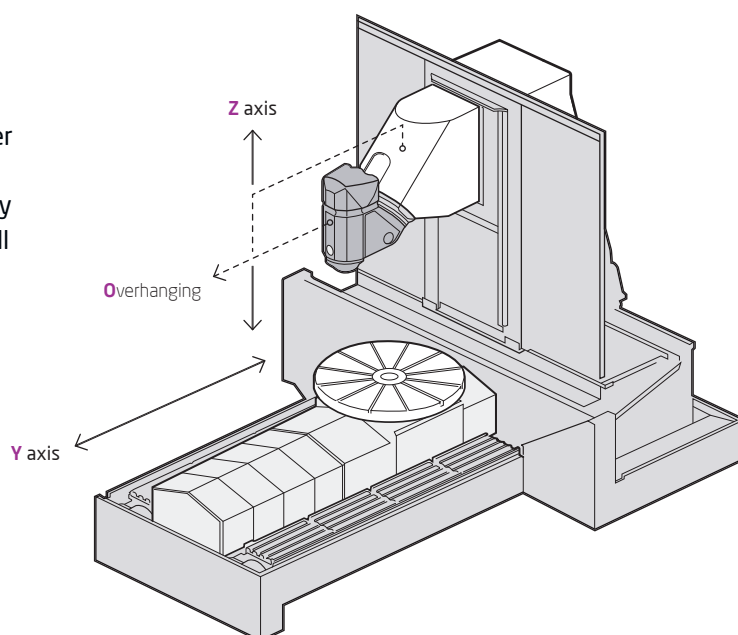
1_ General view
2_ Application industries
3_ Advantages
3.1_ Increase machine travels
4_ Characteristics
5_ Machine Configuration
6_ The range
7_ Technological integration
8_ Technical data

CREATE YOUR OWN MACHINE WITH
THE IBARMIA T SERIES; AN UNRIVALLED
PROPOSAL IN TERMS OF MACHINE
CONFIGURATION POSSIBILITIES

3.1_ ADVANTAGES / MACHINE CUSTOMIZING

INCREASE MACHINE TRAVELS

The T SERIES offers a balanced range of construction sizes, designed to meet the needs of advanced machining on a wide range of part sizes. However, given IBARMIA's customer orientation and the varied market requirements, the programme also offers a higher flexibility with the possibility of increasing both the vertical and transversal travels as well as the overhanging of the spindle neck.



"ADAPT MACHINE TRAVELS TO
YOUR PRODUCTION REQUIREMENTS,
MAINTAINING THE SAME ACCURACY,
RIGIDITY AND DURABILITY"*

TRAVEL INCREASES BY MACHINE SIZES

T12

Parts up to
h 1600 mm / 4.500 Kg
Linear axes (mm)
X 1250 Y 1300 Z 1000
Axis can be increased
Z +200
Overhanging (mm)
Can be increased up to
125 mm

T16

Parts up to
h 1700 mm / 6.000 Kg
Linear axes (mm)
X 1600 Y 1600 Z 1200
Axis can be increased
Z +300
Overhanging (mm)
Can be increased up to
125 mm

T22

Parts up to
h 1750 mm / 10.000 Kg
Linear axes (mm)
X 2200 Y 1600 Z 1500
Axes can be increased
Y +150 / 300 Z +200
Overhanging (mm)
Can be increased up to
150 mm

T30

Parts up to
h 1950 mm / 20.000 Kg
Linear axes (mm)
X 3000 Y 2000 Z 1700
Axes can be increased
Y +150 / 300 Z +200
Overhanging (mm)
Can be increased up to
100 mm

T36

Parts up to
h 2150 mm / 25.000 Kg
Linear axes (mm)
X 3600 Y 2300 Z 1900

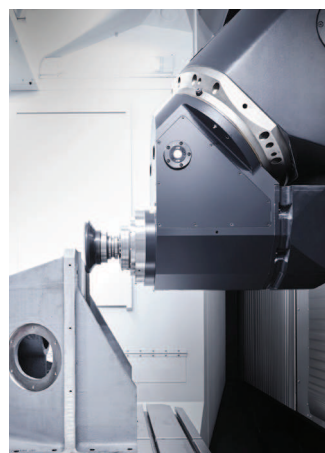
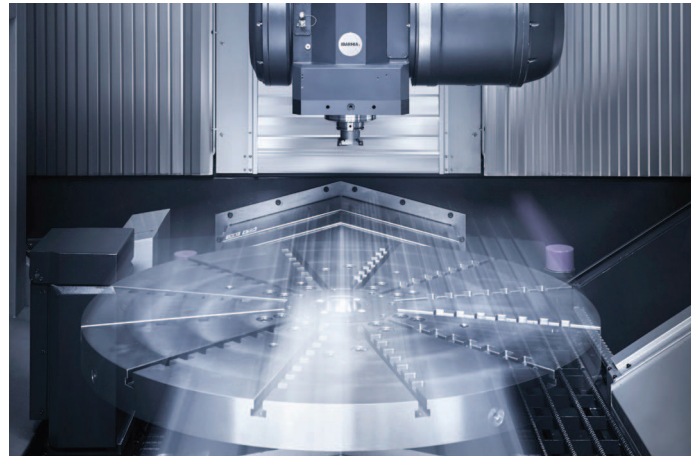
1_ General view
2_ Application industries
3_ Advantages
4_ Characteristics
4.1_ Dynamics, Power & Accuracy
5_ Machine Configuration
6_ The range
7_ Technological integration
8_ Technical data

4.1_ CHARACTERISTICS / PERFORMANCE

DYNAMICS, POWER & ACCURACY

Structural bodies of maximum rigidity optimised by finite elements (FEM). X / Y / Z axes over linear guides with preloaded rolling shoes with two rows of circulating rollers. Rectified ball screws of high precision with preloaded double nuts for the longitudinal axis movement. Geometric verification with direct measurement systems on the 5 machining axes (linear and rotary).

New thermo-symmetrical and thermostable structure design complemented with digital thermal twin models. Thermal compensation system on the electros spindle and heat source isolation.



THC | B AXIS HEAD



THR | A AXIS HEAD

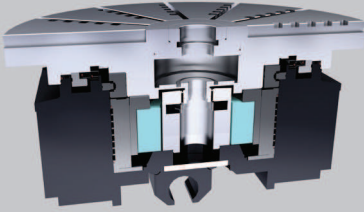


SUPERIOR TECHNOLOGY B or A AXIS HEADS_

- TORQUE MOTOR technology.
- Fast, continuous and accurate movements.
- Measured by rotary scale.
- Turning torque S1: 1210 Nm
- Clamping force: 7000 Nm
- Cast iron turning body housing.

DIRECT DRIVE TECHNOLOGY

NC ROTARY TABLES



Available in all the range_

Maximum dynamics in turning operations and positioning accuracy in milling operations, without the need for additional mechanical devices or the use of position locking.

- High dynamics and torque: Up to 500 rpm - 12.000 Nm.
- High power, up to 120 kW.
- High workpiece weight, up to 22.500 kg.

- Positioning (ISO 230-2): 6 μm
- Repeatability (ISO 230-2): 5 μm

*Data based on the T12 model



PRECISION PLUS

PERFORMANCE CONCEPT

Optional machine manufacturing measures:

- Machine manufacturing in thermo stable assembly area.
- Structural finishing by hand scraping manufacturing.

Integral cooling measures to improve the thermal behaviour of the machine:

1_ Spindle head

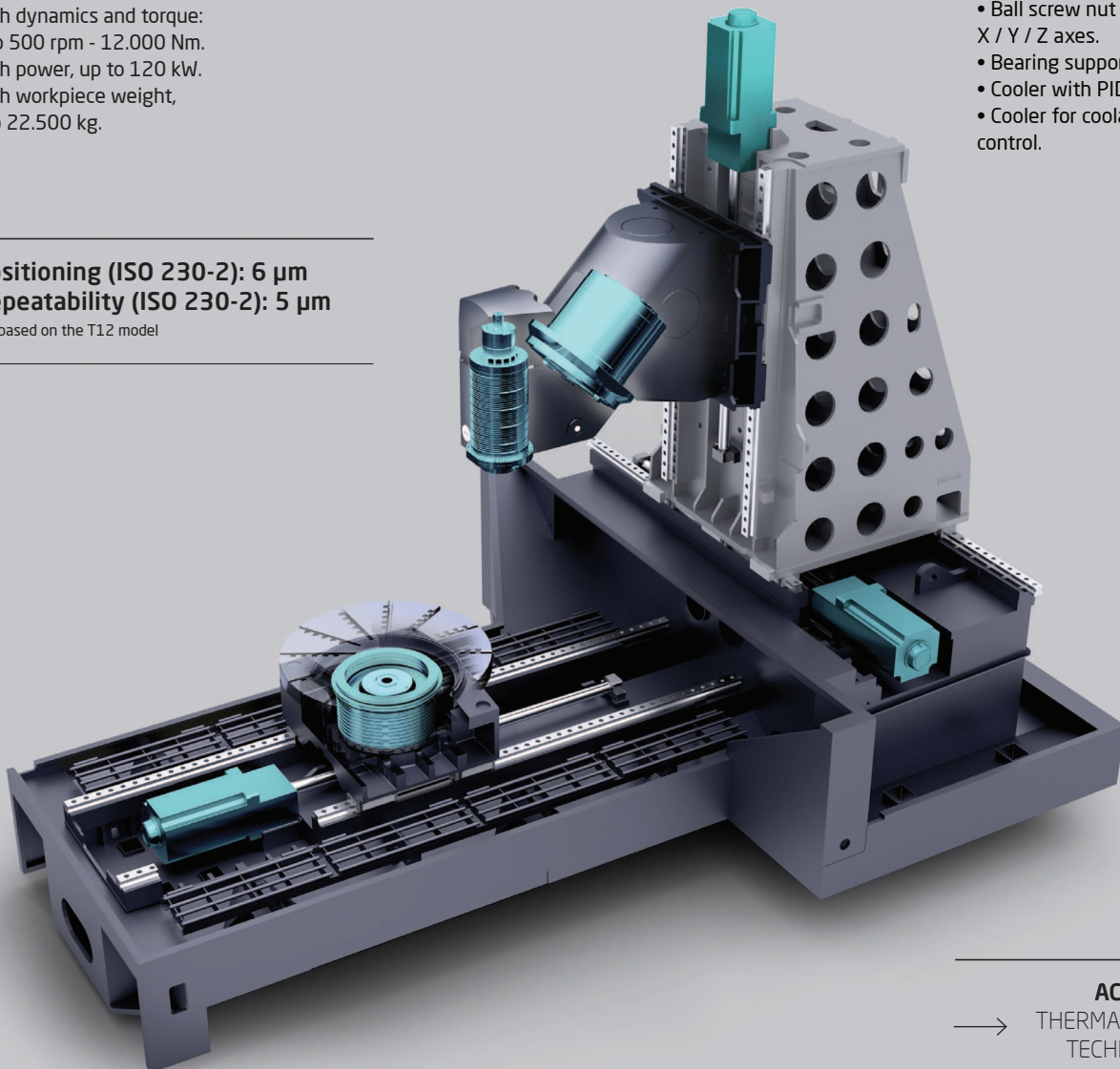
- Motorised electrospindle.
- Direct Drive torque motor B axis.
- Direct Drive torque motor A axis.

2_ Rotary table

- Bearing.
- Direct Drive torque motor.

3_ Basic structure

- X / Y / Z axis motors.
- Support motors X / Y / Z axes.
- Ball screw nut support X / Y / Z axes.
- Bearing support combined Z axis.
- Cooler with PID control.
- Cooler for coolant with PID control.



ACTIVE

→ THERMAL CONTROL TECHNOLOGY

1_ General view
2_ Application industries
3_ Advantages
4_ Characteristics
5_ Machine Configuration
5.1_ Single table machine
6_ The range
7_ Technological integration
8_ Technical data

THE FLEXIBILITY OF THE T SERIES IS SUPPORTED BY 450 STANDARD OPTIONS. HOWEVER, SPECIAL OPTIONS ARE DEVELOPED ADHOC FOR THE SPECIFIC NEEDS OF CUSTOMERS

5.1_ SINGLE TABLE MACHINE

SINGLE TABLE MACHINE CONFIGURATION

1_ WORKING AREA



Parts up to
h 1600 mm / 4.500 Kg
Linear axes (mm)
X 1200 Y 1300 Z 1000
Axes can be increased up to
Y +150 / 300 Z +200



Parts up to
h 1700 mm / 6.000 Kg
Linear axes (mm)
X 1600 Y 1600 Z 1200
Axes can be increased up to
Y +150 / 300 Z +300



Parts up to
h 1750 mm / 10.000 Kg
Linear axes (mm)
X 2200 Y 1600 Z 1500
Axis can be increased up to
Z +200



Parts up to
h 1950 mm / 20.000 Kg
Linear axes (mm)
X 3000 Y 2000 Z 1700
Axis can be increased up to
Z +200



Parts up to
h 2150 mm / 25.000 Kg
Linear axes (mm)
X 3600 Y 2300 Z 1900

2_ TILTING HEADS

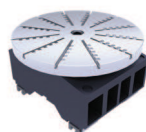


THC_ B axis head
-15°/+195°
Overhanging can be in-
creased up to 125 mm



THR_ A axis head
-45°/+135°
Overhanging can be in-
creased up to 125 mm

3_ ROTARY TABLES



MULTIPROCESS
Milling-Turnin rotary table
Direct Drive transmission



EXTREME
Milling rotary table
Direct Drive transmission



EXTREME
Milling rotary table

4_ TOOL & HEAD MANAGEMENT



Chain Linear ATC
Modular increasing.
From 60 to 360 tools.
Up to 600 mm / 30 kg.



Integrated Pick ups
For special tools and heads.
Configurable layout.



Compact Polar ATC
Configurable layout.
134 or 255 tools.



Large capacity Polar ATC
Managed by arm robot.
Configurable layout.
Up to 400 tools.



Arm robots
Two configurations for
40 and 100 kg.



MANUFACTURING TECHNOLOGY

T12

Table diameter
ø1000 mm
Maximum turning speed
500 rpm
Maximum load capacity*
2250 kg / 4500 Kg

T16

Table diameter
ø1200 mm
Maximum turning speed
500 rpm
Maximum load capacity*
3000 kg / 6000 Kg

T22

Table diameter
ø1600 mm
Maximum turning speed
400 rpm
Maximum load capacity*
6000 kg / 10.000 Kg

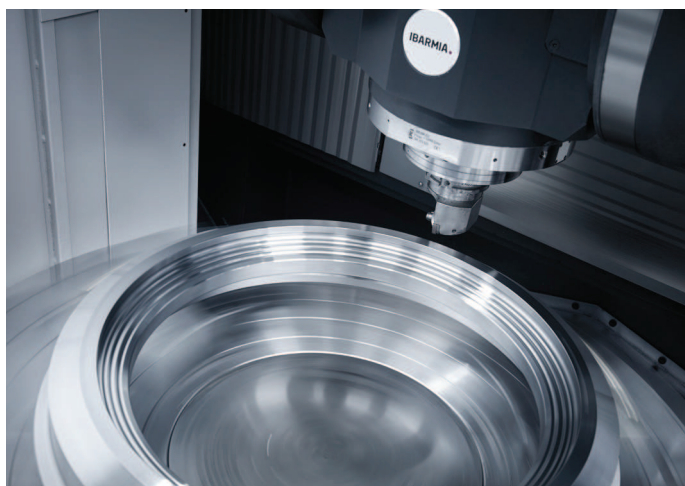
T30

Table diameter
ø1800 mm
Maximum turning speed
200 rpm
Maximum load capacity*
14.000 kg / 20.000 Kg

T36

Table diameter
ø2000 mm
Maximum turning speed
150 rpm
Maximum load capacity*
16.000 kg / 22.500 Kg

*Turning / Milling





MANUFACTURING TECHNOLOGY



Table size
800 x 800 mm
Maximum load capacity
4000 Kg
Maximum turning speed
50 rpm



Table size
1000 x 1000 mm
Maximum load capacity
6000 Kg
Maximum turning speed
40 rpm



Table size
1250 x 1250 mm
Maximum load capacity
10.000 Kg



Table size
1250 x 1600 mm
Maximum load capacity
20.000 Kg



Table size
1.600 x 1.600 mm
Maximum load capacity
25.000 Kg

HIGH PRODUCTIVITY OF **MEDIUM DIAMETER PARTS**

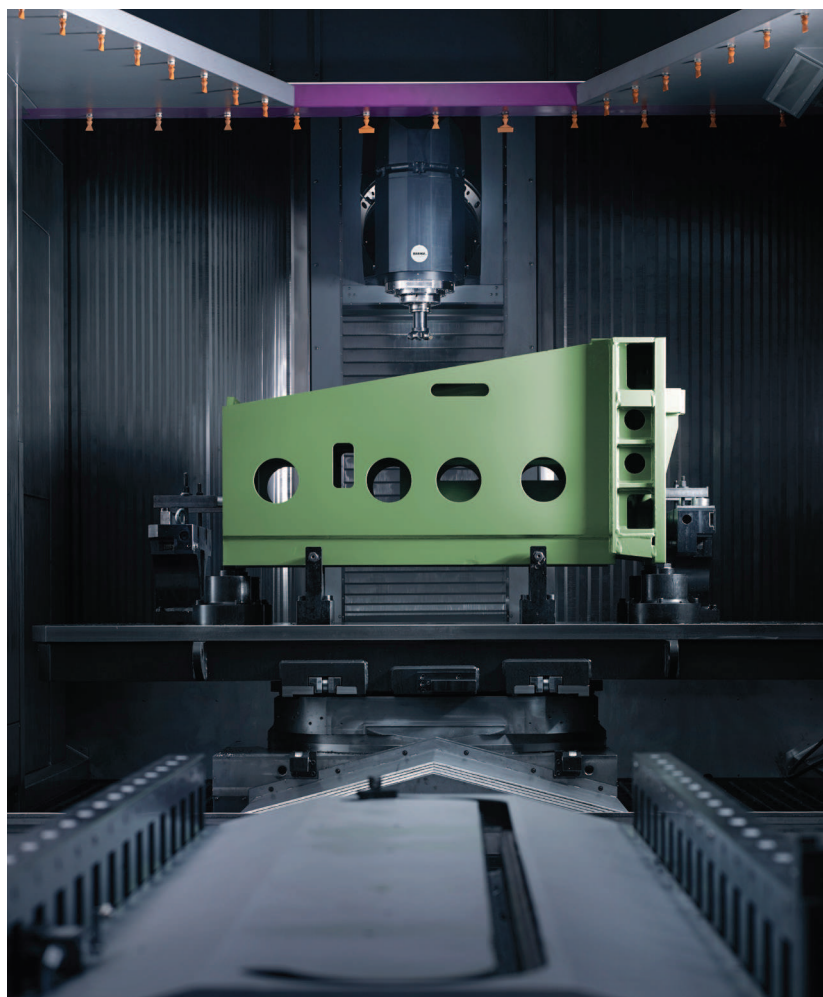
HIGH PRODUCTIVITY OF **BIG DIAMETER PARTS**



High Dynamics T12 & T16 EXTREME Models

IBARMIA's T12 and T16 models combine high linear axis dynamics with the integration of DIRECT DRIVE technology on the positioning tables.

- Torque motor DIRECT DRIVE transmission positioning working tables.
- HIGH DYNAMICS technology.

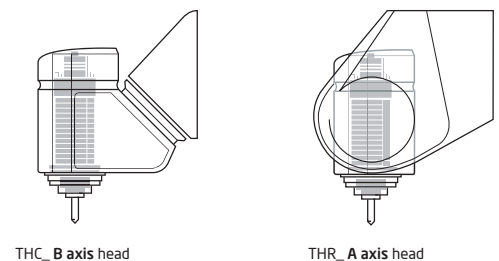


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8.1_ DIGITAL TECHNOLOGY SPINDLES

ELECTROSPINDLES_ POWER DIAGRAMS

A range of electrospindles to cover all machining needs;
Dynamics and high revolutions, and high torque from very
low turns for the hardest materials.



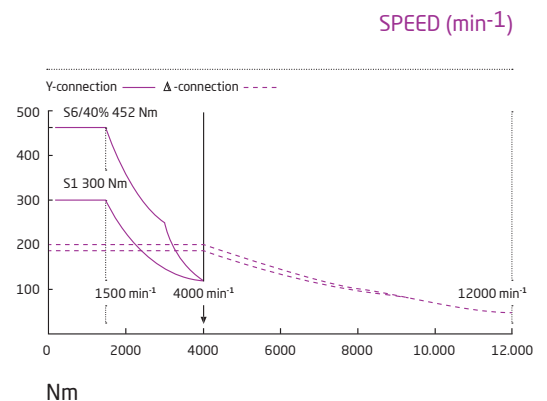
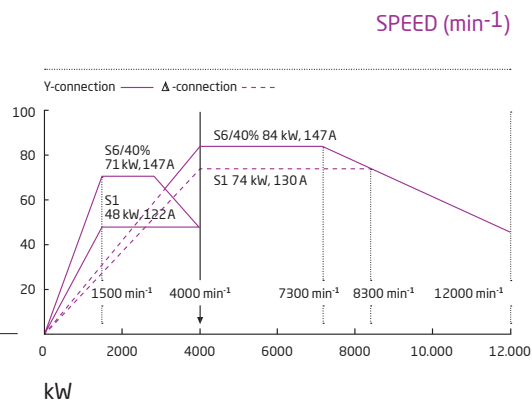
1_ STANDARD

Power and dynamics_

Up to 12.000 rpm.

74/84 kW (S1/S6).

300/452 Nm (S1/S6)



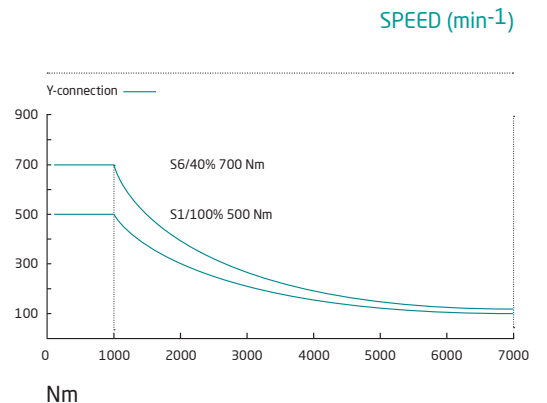
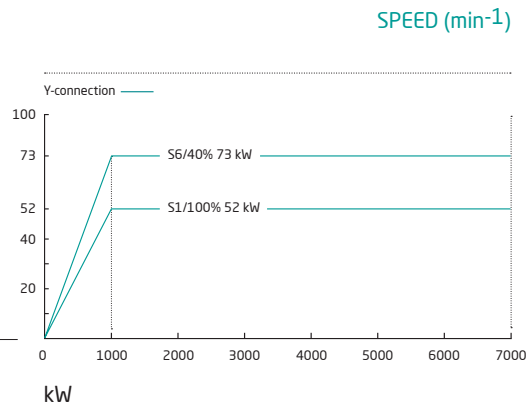
2_ OPTIONAL

High torque for the hardest
materials_

Up to 7000 rpm.

52/73 kW (S1/S6).

500/700 Nm (S1/S6)



*More spindles on request

T MULTIPROCESS

TECHNICAL DATA

TRAVELS

-X axis travel (length)
-Y axis travel (cross)
-Z axis travel (vertical)
-B - A axis heads tilting range
-Maximum swing diameter
-Piece maximum height
-Distance spindle nose-table. Vertical (B axis)
-Distance spindle nose-table. Horizontal (B axis)
-Distance spindle nose-table. Vertical (A axis)
-Distance spindle nose-table. Horizontal (A axis)

TABLE*

-Table dimensions
-Maximum table load capacity (*turning)
-Nominal speed
-Maximum speed
-Nominal torque

TILTING HEAD

-Turning torque
-Position clamping force

MAIN SPINDLE

-Tool holder
-Maximum speed
-Maximum power
-Maximum torque

FEED

Maximum working feed X-Y-Z axes
-Rapid feed for positioning X-Z axes
-Rapid feed for positioning Y axis
-X-Y-Z axes acceleration
-Rapid feed for positioning in B-A axes

ACCURACY VDI / DGQ3441

-Positioning Tp X-Y-Z*
-Repeatability
-Measuring system on B - A axes
-Positioning accuracy B - A axes
-Positioning accuracy C axis

CAPACITIES

-Milling capacity in steel St 60
-Drilling capacity in steel St 60
-Tapping capacity in steel St 60

TOOL MAGAZINE

-Number of tools
-Maximum tool length
-Maximum tool weight
-Maximum tool diameter with full magazine
-Maximum tool diameter with free spaces
-Tool changing time*
-Chip to chip time

CNC CONTROL

-Available digital controls

T 36	T 30	T 22	T 16	T 12
3600 mm	3000 mm	2200 mm	1600 mm	1250 mm
2300 mm	2000 mm	1600 mm	1600 mm	1300 mm
1900 mm	1700 mm	1500 mm	1200 mm	1000 mm
B: -15° / +195° - A: -45° / +135°				
3600 mm	3000 mm	2200 mm	1600 mm	1250 mm
2150 mm	1950 mm	1750 mm	1700 mm	1600 mm
100 / 2000 mm	100 / 1800 mm	100 / 1600 mm	100 / 1300 mm	100 / 1100 mm
100 / 2000 mm	100 / 1800 mm	100 / 1600 mm	100 / 1300 mm	100 / 1100 mm
-115 / 1785 mm	-115 / 1585 mm	-115 / 1385 mm	-115 / 1085 mm	-115 / 885 mm
260 / 2160 mm	260 / 1960 mm	260 / 1760 mm	260 / 1460 mm	260 / 1260 mm

*More table options on request

ø 2000 mm	ø 1800 mm	ø 1600 mm	ø 1200 mm	ø 1000 mm
22.500 - *16.000 kg	20.000 - *14.000 kg	10.000 - *6000 kg	6000 - *3000 kg	4500 - *2250 kg
90 rpm	88 rpm	189 rpm	258 rpm	300 rpm
150 rpm	200 rpm	400 rpm	500 rpm	500 rpm
12.000 Nm	10.000 Nm	4000 Nm	3000 Nm	1850 Nm

1210 Nm
7000 Nm

Standard: HSK A 100 - Option: Capto C8
Standard: 12.000 rpm - Option: 7000 rpm
Standard: 84 kW - Option: 75 kW
Standard: 452 Nm - Option: 871 Nm

30 m/min	50 m/min	60 m/min
40 m/min	50 m/min	60 m/min
30 m/min	50 m/min	60 m/min
1,5 / 1,5 / 2 m/s²	2,5 / 2,3 / 4 m/s²	2,7 / 3,2 / 4,8 m/s²
4 / 4 / 5 m/s²	4 / 5 / 5 m/s²	
50 rpm		

*Under certain conditions

12 µm	10 µm	7 µm	6 µm
7 µm		5 µm	
Rotary scale			
+/-5 s			
+/-4 s			

1100 cm³/min
ø 70 mm
M 45 mm

*Under certain conditions

Standard: 60. Option: 120, 240, 360				
600 mm				
30 kg				
125 mm				
250 mm				
6 s				
16 s	14 s	12 s	8 s	7 s

Fanuc / Heidenhain / Siemens

T EXTREME TECHNICAL DATA

TRAVELS

-X axis travel (length)
-Y axis travel (cross)
-Z axis travel (vertical)
-B - A axis heads tilting range
-Maximum swing diameter
-Piece maximum height
-Distance spindle nose-table. Vertical (B axis)
-Distance spindle nose-table. Horizontal (B axis)
-Distance spindle nose-table. Vertical (A axis)
-Distance spindle nose-table. Horizontal (A axis)

TABLE*

-Table dimensions
-Maximum table load capacity
-Nominal speed
-Maximum speed
-Nominal torque

TILTING HEAD

-Turning torque
-Position clamping force

MAIN SPINDLE

-Tool holder
-Maximum speed
-Maximum power
-Maximum torque

FEED

Maximum working feed X-Y-Z axes
-Rapid feed for positioning X-Z axes
-Rapid feed for positioning Y axis
-X-Y-Z axes acceleration
-Rapid feed for positioning in B-A axes

ACCURACY VDI / DGQ3441

-Positioning Tp X-Y-Z*
-Repeatability
-Measuring system on B - A axes
-Positioning accuracy B - A axes
-Positioning accuracy C axis

CAPACITIES

-Milling capacity in steel St 60
-Drilling capacity in steel St 60
-Tapping capacity in steel St 60

TOOL MAGAZINE

-Number of tools
-Maximum tool length
-Maximum tool weight
-Maximum tool diameter with full magazine
-Maximum tool diameter with free spaces
-Tool changing time*
-Chip to chip time

CNC CONTROL

-Available digital controls

T 36	T 30	T 22	T 16	T 12
3600 mm	3000 mm	2200 mm	1600 mm	1250 mm
2300 mm	2000 mm	1600 mm	1600 mm	1300 mm
1900 mm	1700 mm	1500 mm	1200 mm	1000 mm
B: -15° / +195° - A: -45° / +135°				
3600 mm	3000 mm	2200 mm	1600 mm	1250 mm
2150 mm	1950 mm	1750 mm	1700 mm	1600 mm
100 / 2000 mm	100 / 1800 mm	100 / 1600 mm	100 / 1300 mm	100 / 1100 mm
100 / 2000 mm	100 / 1800 mm	100 / 1600 mm	100 / 1300 mm	100 / 1100 mm
-115 / 1785 mm	-115 / 1585 mm	-115 / 1385 mm	-115 / 1085 mm	-115 / 885 mm
260 / 2160 mm	260 / 1960 mm	260 / 1760 mm	260 / 1460 mm	260 / 1260 mm

*More table options on request

1600 x 1600 mm	1250 x 1600 mm	1250 x 1250 mm	1000 x 1000 mm	800 x 800 mm
25.000 kg	20.000 kg	10.000 kg	3000 kg - Op. 6000 kg	2000 kg - Op. 4000 kg
	1,5 rpm		30 rpm	35 rpm
	5 rpm		40 rpm	50 rpm
18.000 Nm	13.000 Nm	6000 Nm	3100 Nm	2100 Nm

1210 Nm
7000 Nm

Standard: SK 50 - Option: BT 50 / HSK A-100 / Capto C8
Standard: 12.000 rpm - Option: 7000 rpm
Standard: 84 kW - Option: 75 kW
Standard: 452 Nm - Option: 871 Nm

30 m/min	50 m/min	60 m/min
40 m/min	50 m/min	60 m/min
30 m/min	50 m/min	60 m/min
1,5 / 1,5 / 2 m/s²	2,5 / 2,3 / 4 m/s²	2,7 / 3,2 / 4,8 m/s²
4 / 4 / 5 m/s²	4 / 5 / 5 m/s²	
50 rpm		

*Under certain conditions

12 µm	10 µm	7 µm	6 µm
7 µm		5 µm	
Rotary scale			
+/-5 s			
+/-4 s			

1100 cm³/min
ø 70 mm
M 45 mm

*Under certain conditions

Standard: 60. Option: 120, 240, 360				
600 mm				
30 kg				
125 mm				
250 mm				
6 s				
16 s	14 s	12 s	8 s	7 s

Fanuc / Heidenhain / Siemens
