T SERIES
5 AXIS UNIVERSAL MACHINING CENTERS

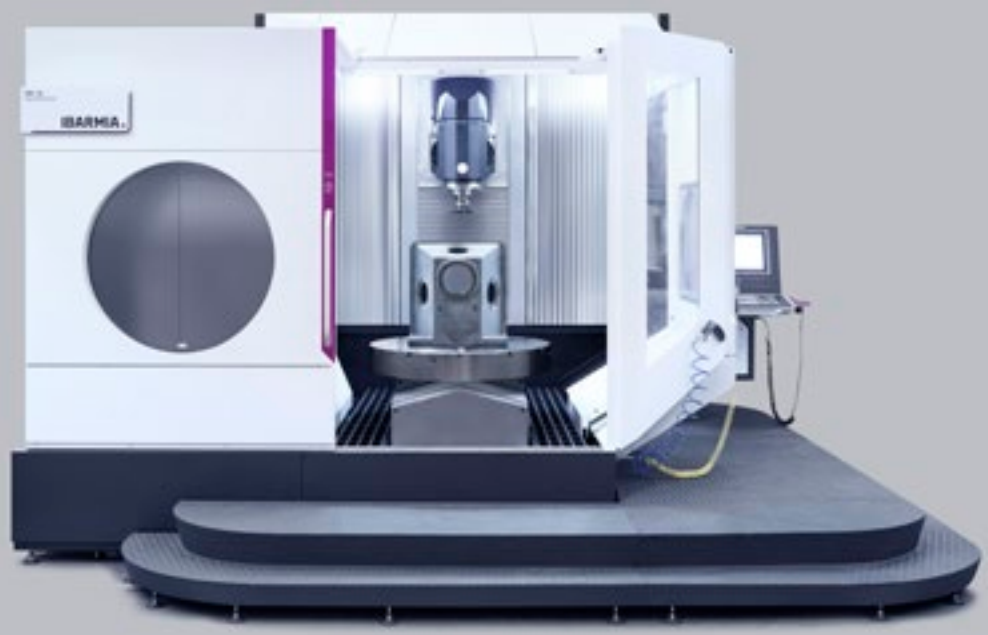
IBARMIA.
YOUR MACHINE TOOL POINT

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

T SERIES



www.ibarmia.com

T SERIES

T SERIES

YOUR MACHINE TOOL POINT

IBARMIA.

INTRO

Technology and Innovation. For those customers looking for big swing diameters or aiming to machine in a single set up, IBARMIA presents the T Series models, whose serial name refers to the bed shape and the configuration of X / Y axes, in combination with different head types and rotary tables. The entire range of machines is available with single table or multiple table solutions, and in MULTIPROCESS version (multitasking center) or in EXTREME version (milling center) increasing the versatility and flexibility of the machine.

1_ General view
2_ Aplication industries
3_ Advantages
4_ Characteristics
5_ Machine Configuration
6_ The range
7_ Technological integration
8_ Technical data

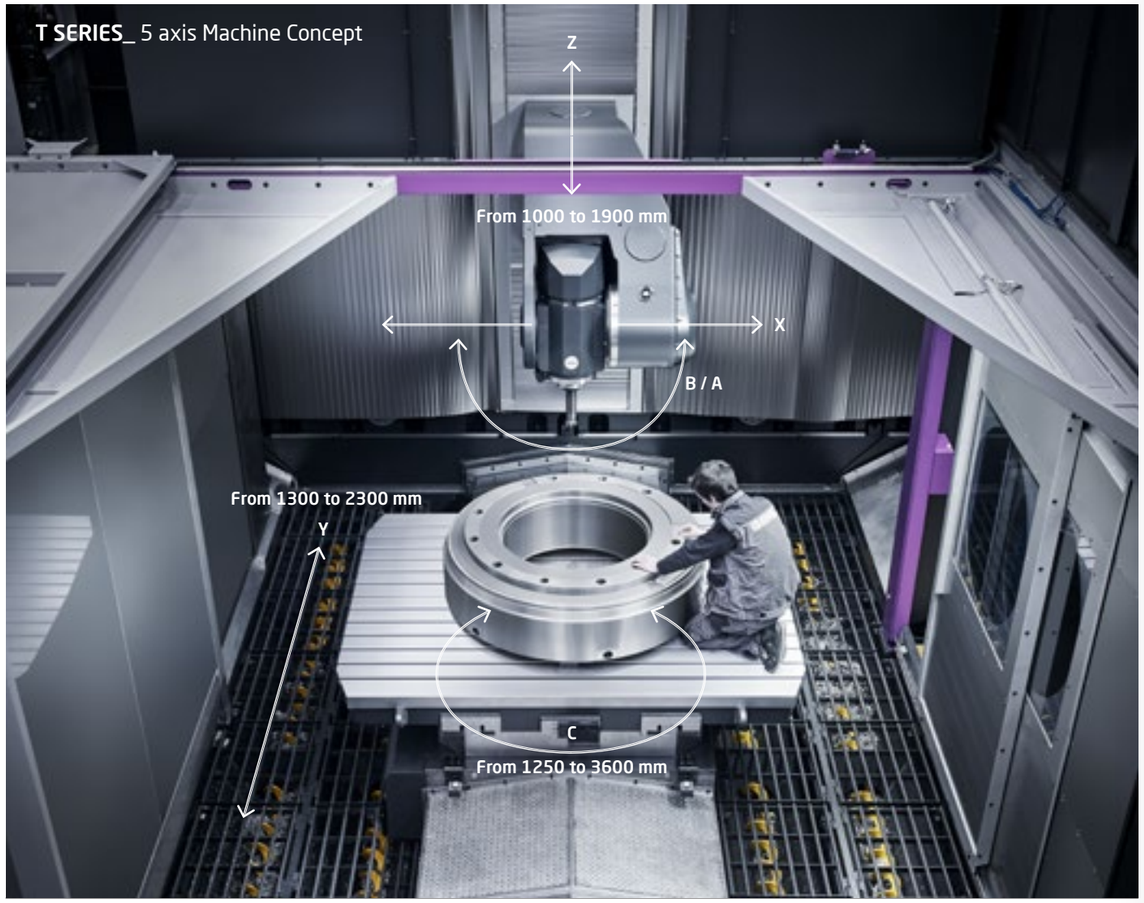
T SERIES

T SERIES

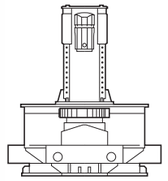
1_ GENERAL VIEW

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 anf grinding capacity, reducing the number of machines required to produce a wide range of pieces.

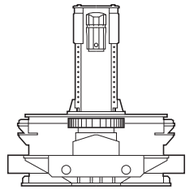


MACHINE SIZES



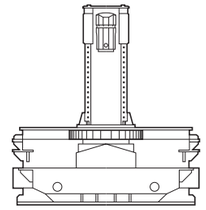
T12

Maximum swing diameter
ø 1250 mm
Maximum part height
h 1600 mm
Maximum load capacity
4500 Kg



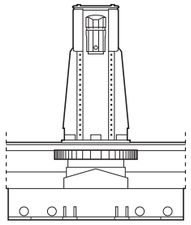
T16

Maximum swing diameter
ø 1600 mm
Maximum part height
h 1700 mm
Maximum load capacity
6000 Kg



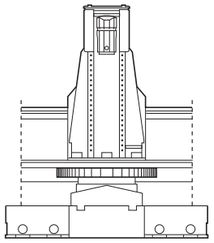
T22

Maximum swing diameter
ø 2200 mm
Maximum part height
h 1750 mm
Maximum load capacity
10.000 Kg



T30

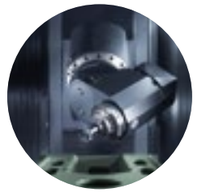
Maximum swing diameter
ø 3000 mm
Maximum part height
h 1950 mm
Maximum load capacity
20.000 Kg



T36

Maximum swing diameter
ø 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
-15º/+195º

THR_ **A axis** head
Fork type spindle head ideal for negative angles
-45º/+135º

ELECTROSPINDLES

High torque & high speed
Latest technology electrospindles

WORKING TABLES

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

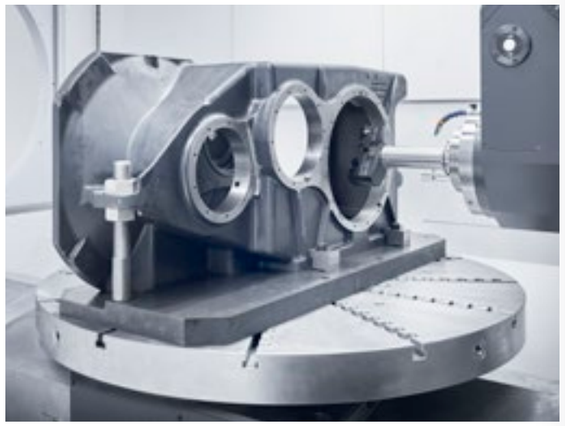
T EXTREME
Universal machining centers for 5-axis / 5-sided milling operations.
Housing: SK 50 / BT 50 / HSK A-100

1_ General view
2_ Aplication industries
3_ Advantages
4_ Characteristics
5_ Machine Configuration
6_ The range
7_ Technological integration
8_ Technical data

2_ APLICATION INDUTRIES

5 AXIS ADVANCED MACHINING

The T SERIES is the ideal solution for high production of medium and large size cubic pieces in a single set up, with power and accuracy. A generous workspace and the combination of linear and rotary axes, offer a wide range of solutions for advanced machining in 5 axes / 5 faces on parts up to ø3600 mm and h2150 mm in a wide range materials and the most complex geometries.

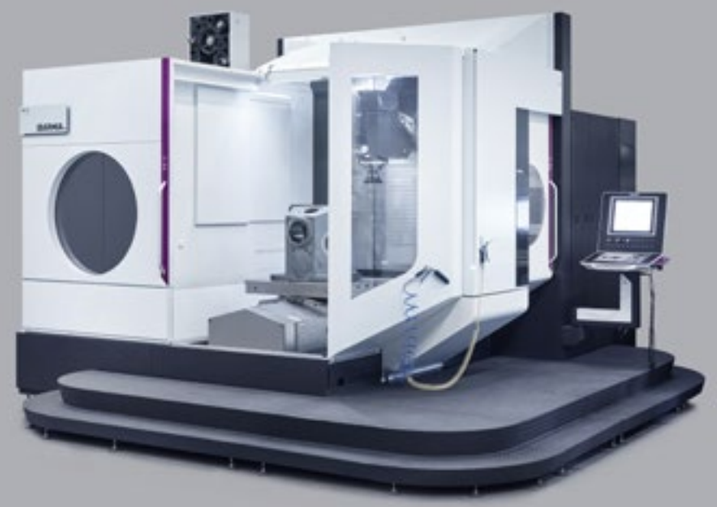


RANGE OF MACHINING

Extra long parts | Medium diameter parts | Big diameter tall parts

MULTI PROCESS TECHNOLOGY

5 AXIS



T SERIES

T SERIES

SAMPLE APPLICATIONS

Fluid end

Industrial mold

Compressor Cylinder

Turbocharger housing

Valve body

Engine block

Roller cage for bearings

Ram Bop

Aerospace engine housing

INDUSTRIES & MATERIALS

OIL & GAS | MOLD & DIE | AEROSPACE | AUTOMOTIVE | RAILWAY | MACHINERY | YELLOW GOODS

Low-Alloy Steel | Grey Cast Iron | Nickel based Super Alloy | Austenitic Stainless Steel | Aluminium based Alloy | Extra hard Steel

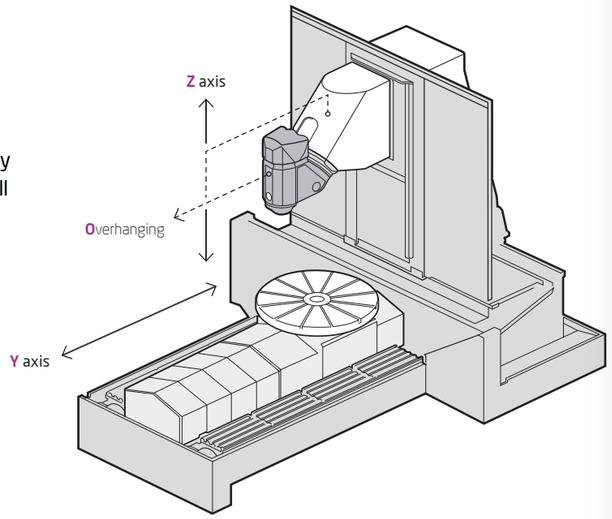
1_ General view
2_ Aplication industries
3_ Advantages
3.1_ Increase machine travels
4_ Characteristics
5_ Machine Configuration
6_ The range
7_ Technological integration
8_ Technical data

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 m ng 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	T16	T22	T30	T36
Parts up to h 1600 mm / 4.500 Kg	Parts up to h 1700 mm / 6.000 Kg	Parts up to h 1750 mm / 10.000 Kg	Parts up to h 1950 mm / 20.000 Kg	Parts up to h 2150 mm / 25.000 Kg
Linear axes (mm) **X** 1200 **Y** 1300 **Z** 1000	Linear axes (mm) **X** 1600 **Y** 1600 **Z** 1200	Linear axes (mm) **X**2200 **Y** 1600 **Z** 1500	Linear axes (mm) **X** 3000 **Y** 2000 **Z** 1700	Linear axes (mm) X 3600 Y 2300 Z 1900
Axis can be increased **Z** +200	Axis can be increased **Z** +300	Axes can be increased **Y** +150 / 300 **Z** +200	Axes can be increased **Y** +150 / 300 **Z** +200	
Overhanging (mm) Can be increased up to 125 mm	Overhanging (mm) Can be increased up to 125 mm	Overhanging (mm) Can be increased up to 150 mm	Overhanging (mm) Can be increased up to 100 mm	

FEM optimized machine design and construction

SAME SWING, INCREASED VERTICAL TRAVEL

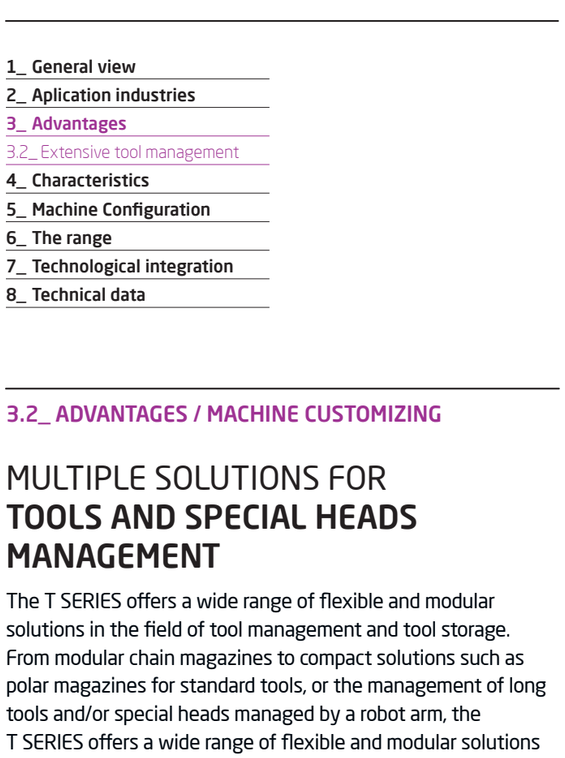
The possibility of increasing the vertical travel while maintaining the same swing diameter means that the whole assembly does not have to be oversized to obtain this gain, which is particularly advantageous for those companies who only require more vertical travel and do not need to opt for a larger model.

1_ General view
2_ Aplication industries
3_ Advantages
3.2_ Extensive tool management
4_ Characteristics
5_ Machine Configuration
6_ The range
7_ Technological integration
8_ Technical data

3.2_ ADVANTAGES / MACHINE CUSTOMIZING

MULTIPLE SOLUTIONS FOR **TOOLS AND SPECIAL HEADS MANAGEMENT**

The T SERIES offers a wide range of flexible and modular solutions in the field of tool management and tool storage. From modular chain magazines to compact solutions such as polar magazines for standard tools, or the management of long tools and/or special heads managed by a robot arm, the T SERIES offers a wide range of flexible and modular solutions in the field of tool management and storage by robot arm.


1_


2_


3_


4_


5_

ATC 60/360 TOOLS

ATC & AHC

Tailored to our customers

We offer intelligent tool management options such as tool reading on the tool, reducing set-up times and errors due to manual data input, as well as various devices for monitoring tool breakage and wear by means of probing, laser beam or spindle consumption measurement.

TOOL MANAGEMENT SOLUTIONS DESIGNED AND CUSTOMISED ACCORDING TO THE NEEDS OF OUR CUSTOMERS

The tool management unit is located outside the working area, separated from the main structure of the machine so that its movements are not transmitted to the machine, allowing a wide range of solutions:

1_ Servo-driven vertical chain magazines of 120-240-360 positions. Tool changes up to 7" (chip to chip) for tools up to 600 mm and 30 kg.

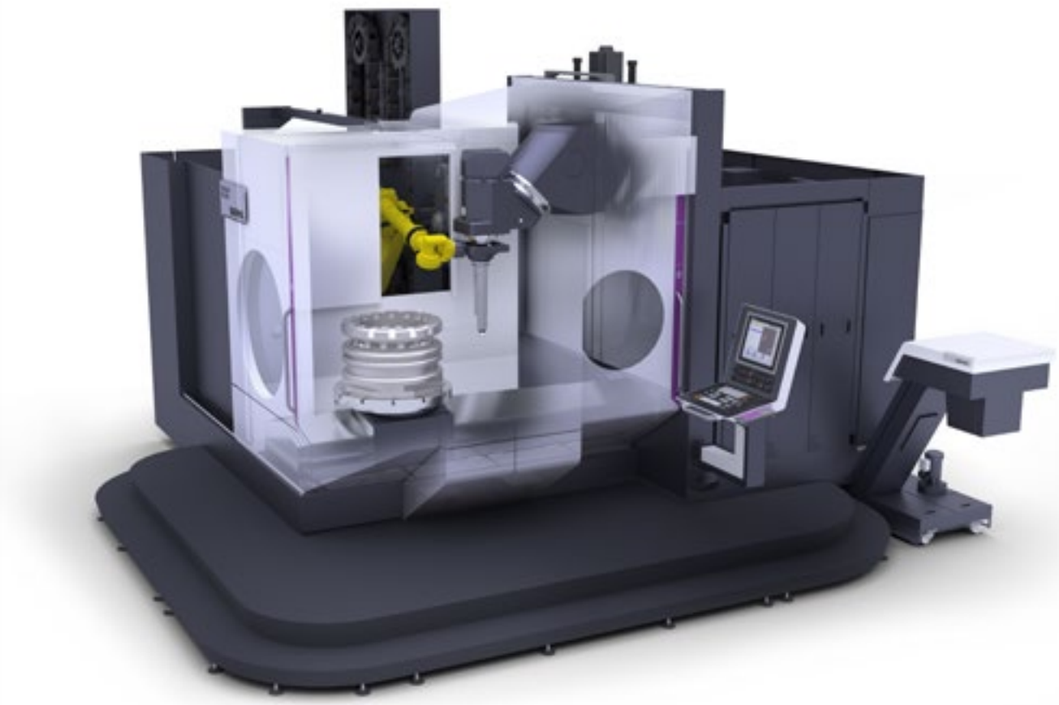
2_ Integrated pick ups, associated with double holder changeover for long and/or heavy tools.

3_ Compact solution in polar magazines with configurations for 134 and 255 tools.

4_ Loading stations located on the outside of the area for manual supply of tools to the magazine without interruptions.

5_ Polar magazines with up to 400 positions, managed by double holder robot arm, combining tool and special heads change. Configurations according to the weight of tools and heads: up to 40 Kg or up to 100 Kg.


5_



1_ General view
2_ Aplication 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 electrospindle and heat source isolation.

THC | **B AXIS** HEAD

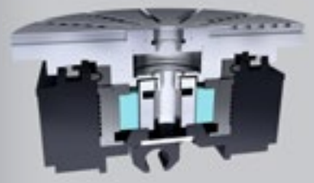
THR | **A AXIS** HEAD

T- HC HR
HEADSTOCKS

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

DIRECT DRIVE

PRE-CISION+ TECHNOLOGY

PRECISION PLUS
PERFORMANCE CONCEPT

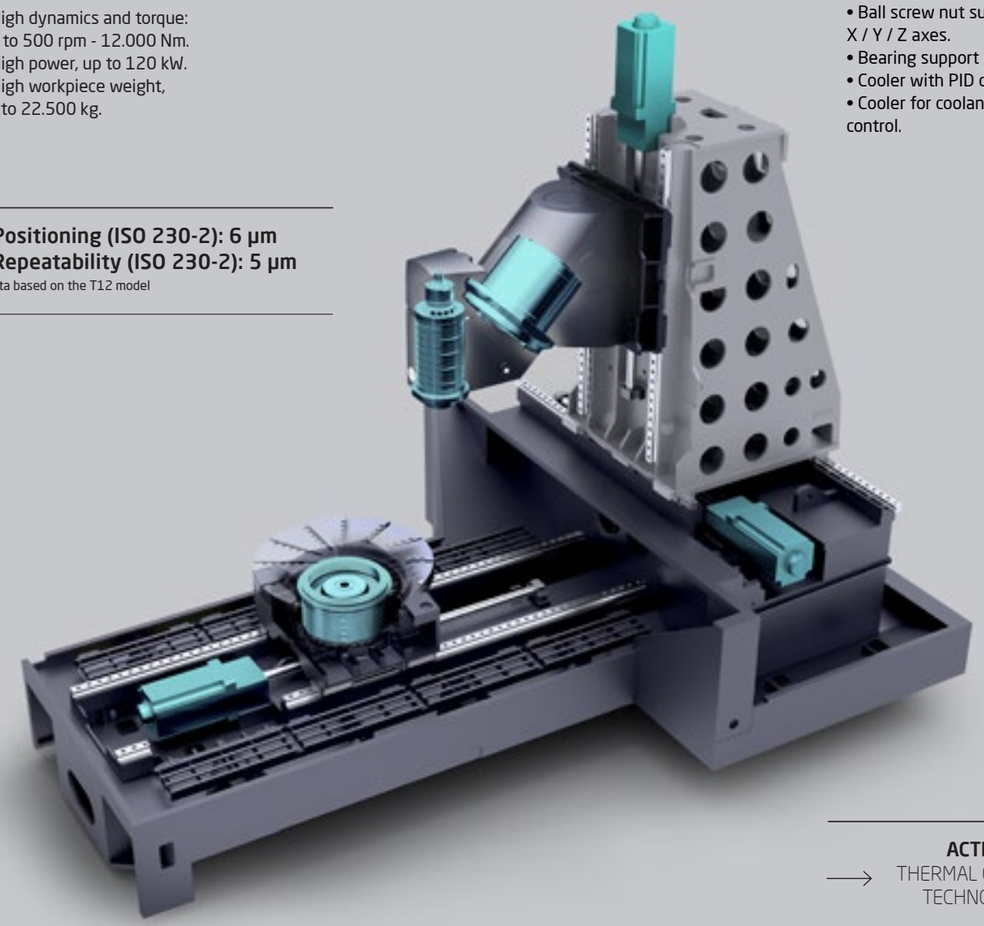
Optional machine manufacturing measures:
- Machine manufacturing in thermo stable assembly area.
- Structural finishing by hand scraping manufacturing.

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_ Aplication industries
3_ Advantages
4_ Characteristics
4.2_ Eco & Ergo Design
5_ Machine Configuration
6_ The range
7_ Technological integration
8_ Technical data

IBARMIA **ECO** DESIGN_

Design by means of FEM method, oriented to the structural optimisation of the machine, which integrates various systems to reduce energy consumption:

- MQL lubrication avoiding pumps and their consumption
- Grease lubrication
- LED lighting
- More efficient servomotors
- Self-regulation of consumption by means of intelligent functions for automatic switch-on and switch-off of the machine.
- Technological cycles for more efficient performance.

20%

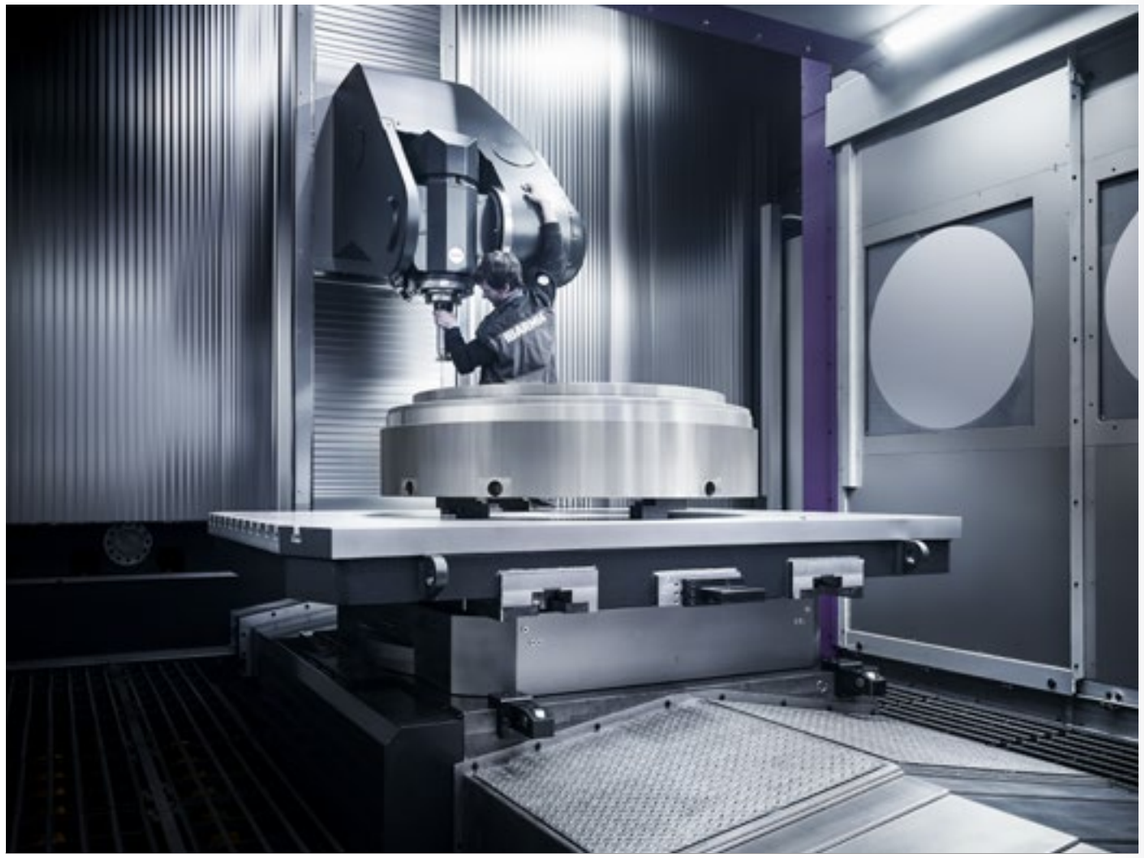
REDUCTION
In environmental Impact

4_ CHARACTERISTICS / EFFICIENCY

ECO & ERGO DESIGN

Machines designed with the aim of optimising energy consumption throughout their life cycle; machines conceived for the highest efficiency in the machine-user relationship, which translates into improved accessibility and usability.

ECOLOGY AND ECONOMY CAN GO HAND-IN-HAND INTEGRATING "GREEN" PARAMETERS INTO THE MACHINE DESIGN PHASE AND IT'S FUTURE PERFORMANCE



IBARMIA **ERGO** DESIGN_

A machine designed for an optimum interaction with the operator.

- Motorised door opening to avoid physical efforts.
- Full and inmediate access to a working area with folding slats in all the inside of the machine.
- Easy part loading-unloading and preparation. The operator can move around the table, making the access and cleaning of the endless screw area easier.
- Ergonomic working height optimized table height avoiding uncomfortable postures for the operator.
- An easy top access for loading / unloading parts by crane.
- Total closing of the workin area to reduce the acoustic and environmental contamination.
- Easy to identify and accessible control functions, to minimise mental fatigue of the operator.
- Light and moving control panel.

FULL ACCESS TO THE MACHINE BOTH IN MACHINING AS VERIFICATION AND MAINTENANCE OPERATIONS

1_ General view
2_ Aplication 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

T12
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

T16
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

T22
Parts up to
h 1750 mm / 10.000 Kg
Linear axes (mm)
X2200 **Y** 1600 **Z** 1500
Axis can be increased up to
Z +200

T30
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

T36
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

DIRECT DRIVE

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

DIRECT DRIVE

EXTREME
Milling rotary table
Direct Drive transmission

EXTREME
Milling rotary table

4_ TOOL & HEAD MANAGEMENT

Chain Linear ATC
Modullar 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.

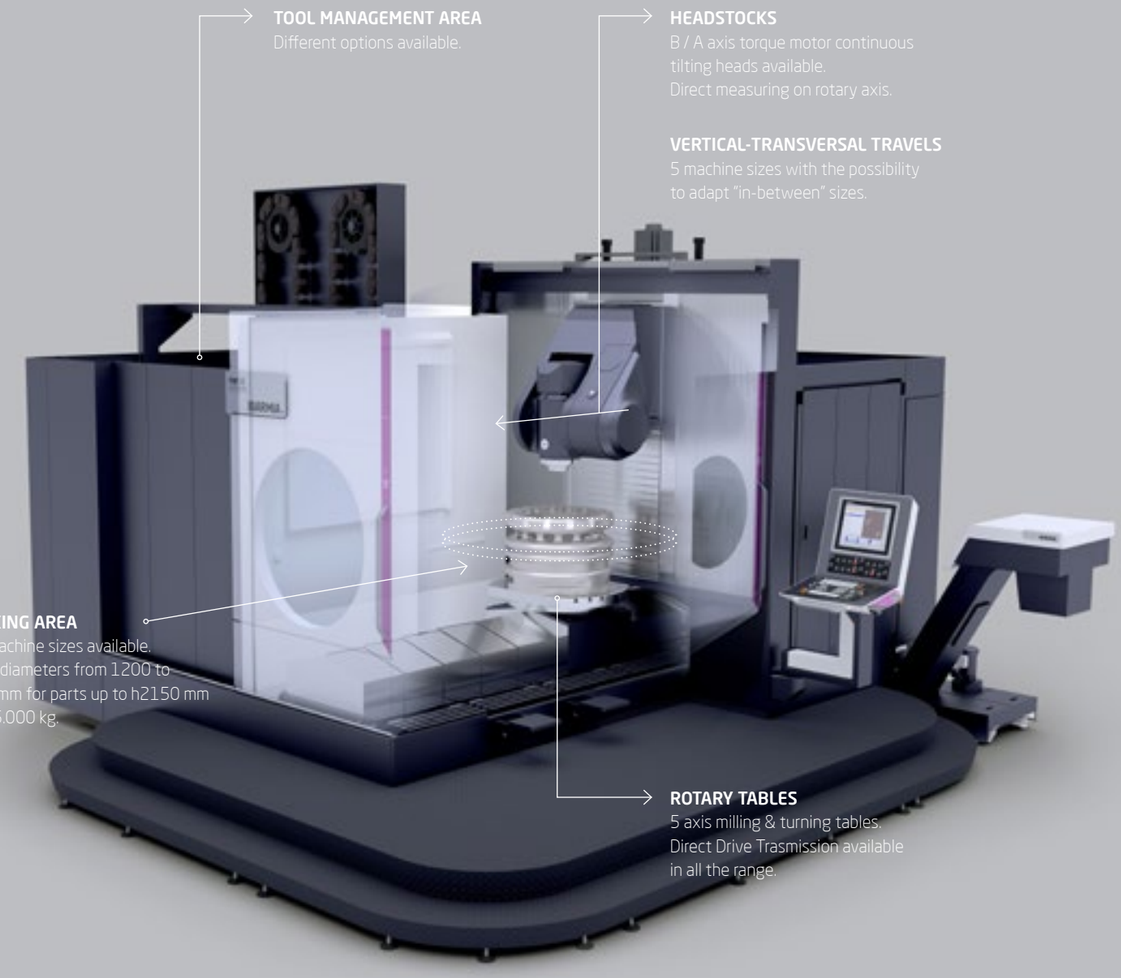
T SERIES

T SERIES

TOOL MANAGEMENT AREA
Different options available.

HEADSTOCKS
B / A axis torque motor continuous tilting heads available.
Direct measuring on rotary axis.

VERTICAL-TRANSVERSAL TRAVELS
5 machine sizes with the possibility to adapt "in-between" sizes.



WORKING AREA
Five machine sizes available.
Swing diameters from 1200 to 3600 mm for parts up to h2150 mm and 25.000 kg.

ROTARY TABLES
5 axis milling & turning tables.
Direct Drive Trasmission available in all the range.

T MACHINES BASIC STRUCTURE
(IN THE PICTURE THR 12 MODEL)

1_ General view
2_ Aplication industries
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4_ Characteristics
5_ Machine Configuration
5.2_ Machine with pallet changing
6_ The range
7_ Technological integration
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APC SYSTEMS

5.2_ MACHINE WITH PALLET CHANGING

AUTOMATIC PALLET CHANGER CONFIGURATION

Starting from the basic configuration of the machine, IBARMIA offers different pallet changing solutions to increase productivity and minimise production and market response times.

THE FLEXIBLE MANUFACTURING SYSTEMS RESPOND TO SINGLE UNIT AND LARGE SERIES MANUFACTURING, MAKING THEM ATTRACTIVE TO COMPANIES OF EVERY SIZE AND SECTOR

T SERIES

T SERIES

Automation is one of the big drivers of the current industry, due to the capacity to answer the challenge of making the machines work for as many hours as possible, or even unattended.

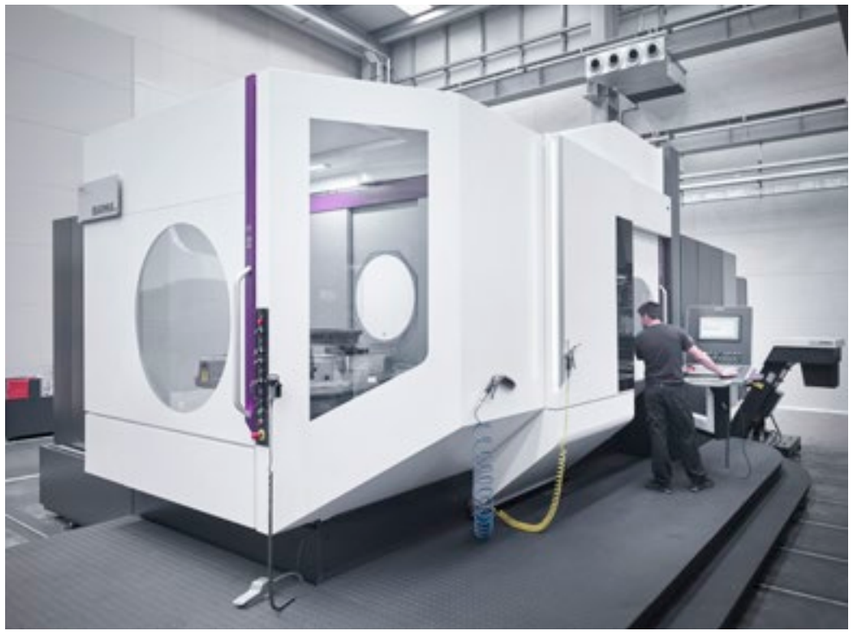
SYSTEM 1

ROTOPALLET_

T12 / T16 MODELS

Quick pallet changing executed by a doube fork located in the machine front.

The rotopallet is a system focused to increase the machine autonomy and productivity minimizing the floor space. The operator prepares the next job during the machining process. Optionally the loading / unloading position can turn manually 4x90º for a better access to the workpiece.



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APC SYSTEMS

SYSTEM 2

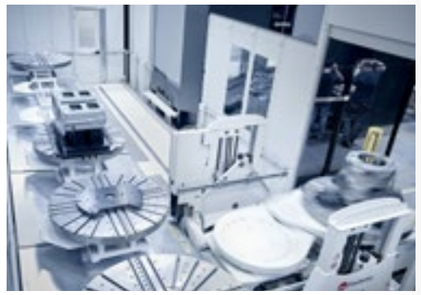
PALLET POOL_

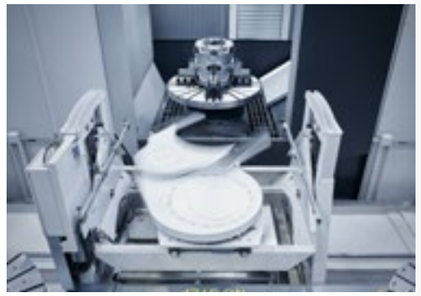
T12 / T16 MODELS

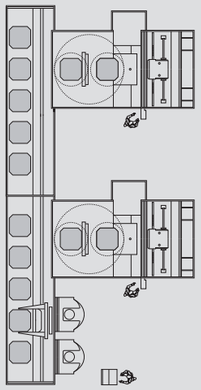
Standarized and competitive solutions cooperating with leaders in the sector.

Integrating a flexible pallet warehouse in combination with one or more T12 or T16 machining centers, these facilities offer a great storage capacity with the minimum floor space. The basic installation can be extended with additional pallets. To add flexibility to the proposal, IBARMIA offers various solutions:

- 4 x 90º Manual indexing loading/ unloading station.
- Automatic indexing loading/ unloading station.
- Additional stations for piece inspection, turn-over, welding etc...







T SERIES

T SERIES

Therefore, the focus on improving productivity is permanent, minimising the production times and response to the market.

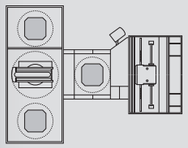
SYSTEM 3

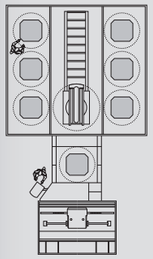
PALLET POOL_

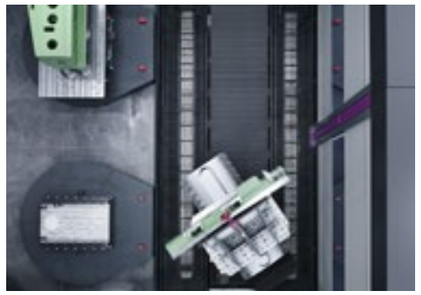
T22 / T30 / T36 MODELS

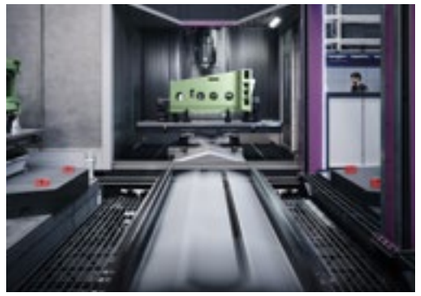
Due to heavier loads and bigger swing diameters, the automation system in the T22, T30 and T36 models requires different solutions than the T12 and T16 models.

The key factors to determine the number of pallets are the average cycle time of the pieces and the length of unattended use of the machine. IBARMIA offers simple modular solutions of 2 and 4 positions for the T22 / T30 / T36 models. Projects requiring a larger number of pallets can have linear storage with capacity for future growth, either for station units and/or machining units.









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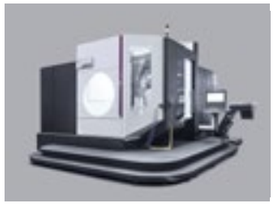
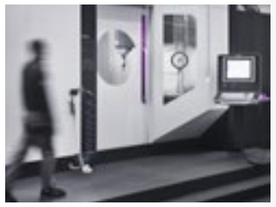
5.3_ MACHINE EQUIPMENT SUMMARY

THE STANDARD MACHINE
MAIN CHARACTERISTICS

A high level of standard equipment makes these models focused on high productivity in advanced manufacturing a reference in terms of ergonomics and performance.



Stairs for an easy access to the working area.



Totally encapsulated working area and safety windows.

Illuminated working area. Working area without horizontal planes and smooth top.

Standard convertible roof facilitating the loading/unloading of pieces by crane.

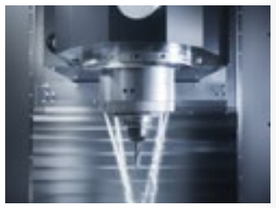
Moving control panel with 19" touch screen.

60 positions chain driven tool magazine with servomotors.

Station for agile manual feeding of tools to the magazine.

Chip conveyor with integrated coolant tank.

Climatized electric cabinet with easy access, isolated from heat-sources.

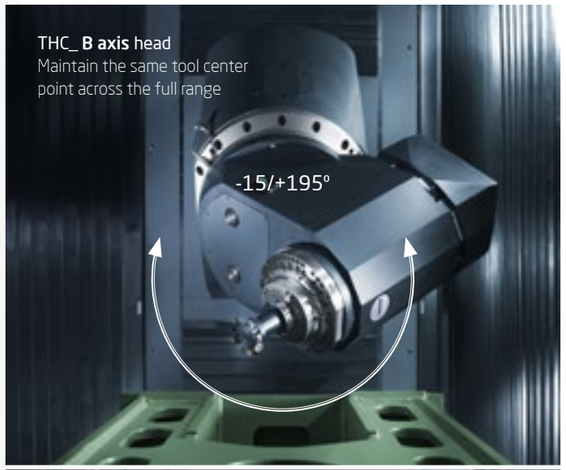


External coolant system around the spindle.

T SERIES

T SERIES

Other standard items
- Travelling on lineal guides and ball screws.
- Direct measuring on X / Y / Z axes.
- Measuring by rotary scale on B axis and C axis.
- Hydraulic counterweight for the head.
- Servomotors with braking system for the axes.
- Longitudinal endless screws for chip evacuation.

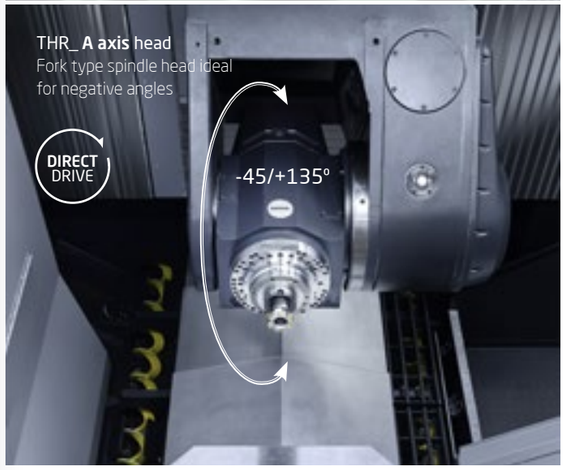


MULTIPLE CNC CONTROL PLATFORM IN ALL MODELS_

Latest generations of CNC controls of the most prestigious manufacturers. Freedom to choose among these user platforms.

→

HEIDENHAIN
FANUC
SIEMENS



DIRECT DRIVE TRANSMISSION B or A AXIS HEADS_
- TORQUE MOTOR technology.
- Fast continuous and accurate movements.
- Measured by rotary scale.
- Backlash free.
- Extraordinary precision.
- Maintenance reduction.

- Positioning accuracy: 10"
- Turning torque S1: 1210 Nm
- Turning torque peak value: 2120 Nm
- Clamping force: 7000 Nm

DIRECT DRIVE TRANSMISSION WORKING ROTARY TABLES_
- TORQUE MOTOR technology.
- Maximum dynamics in turning operations and positioning accuracy in milling operations, without the need for additional mechanical devices or the use of position locking.

- Max speed up to 500 rpm
- Nominal torque up to 12.000 Nm
- Max power up to 120 kW
- Max load up to 22.500 kg

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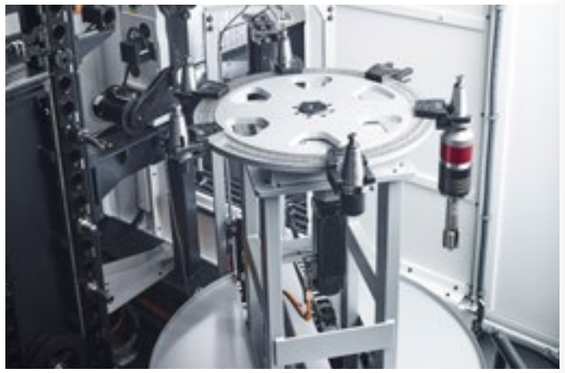
5.3_ MACHINE EQUIPMENT SUMMARY

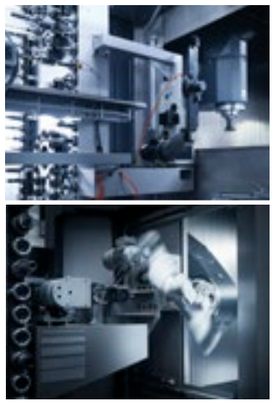
OPTIONAL ITEMS SUMMARY
TO COMPLETE THE RANGE VIEW

The FLEXIBILITY of T SERIES machines is supported by 450 Standard options. However, Special options are developed ad-hoc for the specific needs of our costumers.



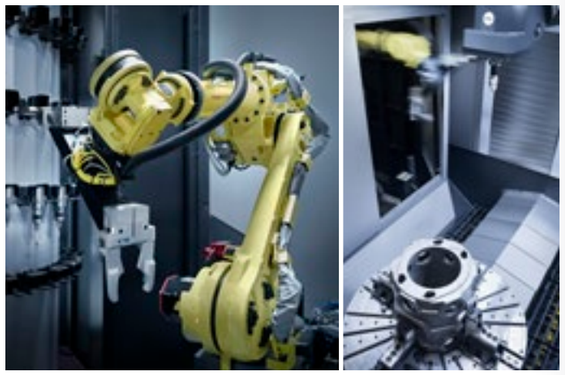
INTEGRATED PICK UPS

For the management of long and/ or heavy tools, which offer an ergonomic and simple compact solution to expand the range of available tools.



120-240-360 positions chain driven tool magazine with servomotors.

134 or 255 positions compact polar tool magazines.



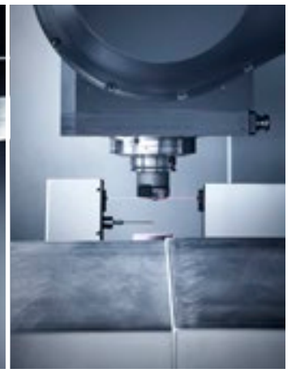
LARGE CAPACITY POLAR TOOL MAGAZINES

Managed by arm robot, combining tool changing with special tools and heads changing.

T SERIES

T SERIES

Other optional items
- Coolant through spindle.
- Steam and mist aspiration system.
- "Illumination" pack with LED lights with acoustic signal indicating the state of the machine, integrated into the machine fairing.
- Lights with acoustic signal indicating the machine status.
- Camera settings and display mode.
- Control with touch screen up to 24"."

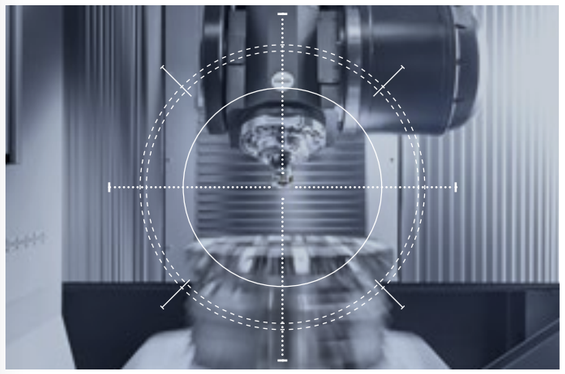


MACHINE PRESETTING DEVICES

The program offers the possibility of add a wide range of tool measuring and touch systems integrated in the machine.

VARIOUS AUTOMATIC PALLET CHANGING SYSTEMS AVAILABLE

IBARMIA offers different degrees of automatic pallet changers for a perfect adaptation to specific production requirements.



PRECISION PLUS PERFORMANCE CONCEPT

Optional machine manufacturing measures. / Integral cooling measures for improving the machine thermal behaviour.

MACHINE THERMAL
BEHAVIOUR IMPROVING

A WIDE RANGE OF ELECTROSPINDLES AVAILABLE

The program offers a large variety of spindles available, to cover from high dynamics machinings to works on the hardest materials by high torque spindles.

DIGITAL TECHNOLOGY
ELECTROSPINDLES

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AT THE FOREFRONT OF TECHNOLOGY, MULTIPROCESS MACHINES REDUCE TIME AND ERRORS WHILE INCREASING PRODUCTIVITY CONSIDERABLY

6.1_ T MULTIPROCESS MACHINES

T MULTIPROCESS
5 AXIS UNIVERSAL MULTITASKING MACHINING CENTERS

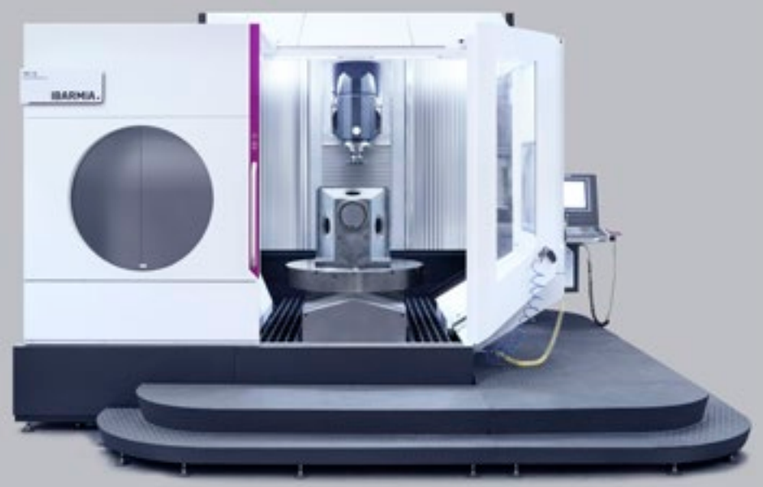
The MULTIPROCESS concept improves the quality of the parts by using fewer machines and therefore fewer set-ups, reducing the initial investment cost by requiring fewer machines with a smaller footprint, and simplifying industrial management by eliminating the transit of parts between machines.

- 5 Axis Milling
- Turning
- Mill-turning
- Drilling
- Threading
- Boring
- U axis boring
- Grinding
- Gear power skiving
- Gear hobbing

				1				2			3	
CLASSIC Machining	Turning	Position changing	Turning	Preparation	Milling Drilling Tapping	Position changing	Milling Drilling Tapping	Preparation	Precision turning	Disassembly		
MULTI-PROCESS Machining	Milling Turning Drilling Tapping	Position changing	Milling Turning Drilling Tapping	1 Disassembly								

The classic machining process requires 3 machines and 10 machining steps, while using MULTIPROCESS technology reduces the process to a single machine and 4 machining steps, resulting in a 300% increase in productivity.

300%
Productivity improve

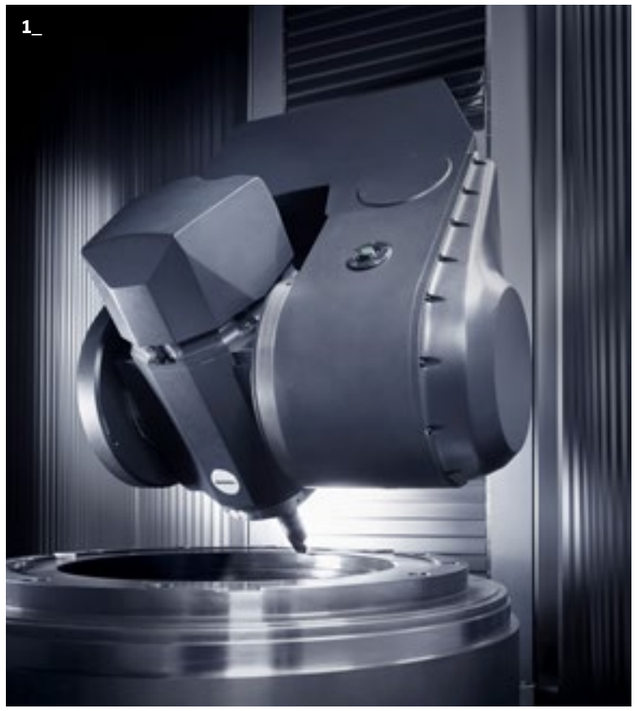


MULTI PROCESS TECHNOLOGY

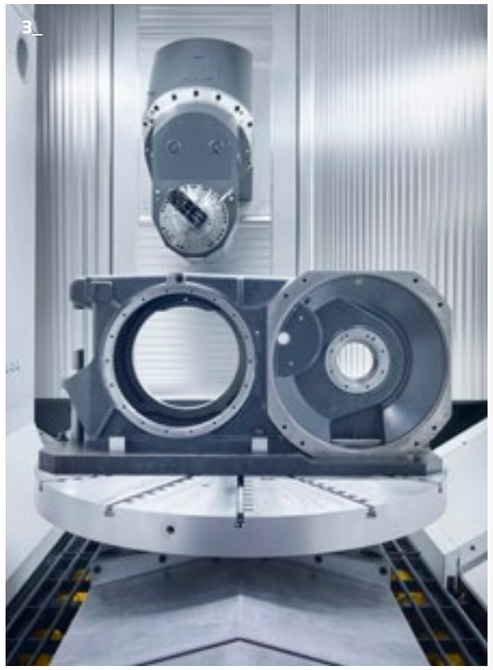
MANUFACTURING TECHNOLOGY

T12	T16	T22	T30	T36
Table diameter ø1000 mm	Table diameter ø1200 mm	Table diameter ø1600 mm	Table diameter ø1800 mm	Table diameter ø2000 mm
Maximum turning speed 500 rpm	Maximum turning speed 500 rpm	Maximum turning speed 400 rpm	Maximum turning speed 200 rpm	Maximum turning speed 150 rpm
Maximum load capacity* 2250 kg / 4500 Kg	Maximum load capacity* 3000 kg / 6000 Kg	Maximum load capacity* 6000 kg / 10.000 Kg	Maximum load capacity* 14.000 kg / 20.000 Kg	Maximum load capacity* 16.000 kg / 22.500 Kg

* Turning / Milling

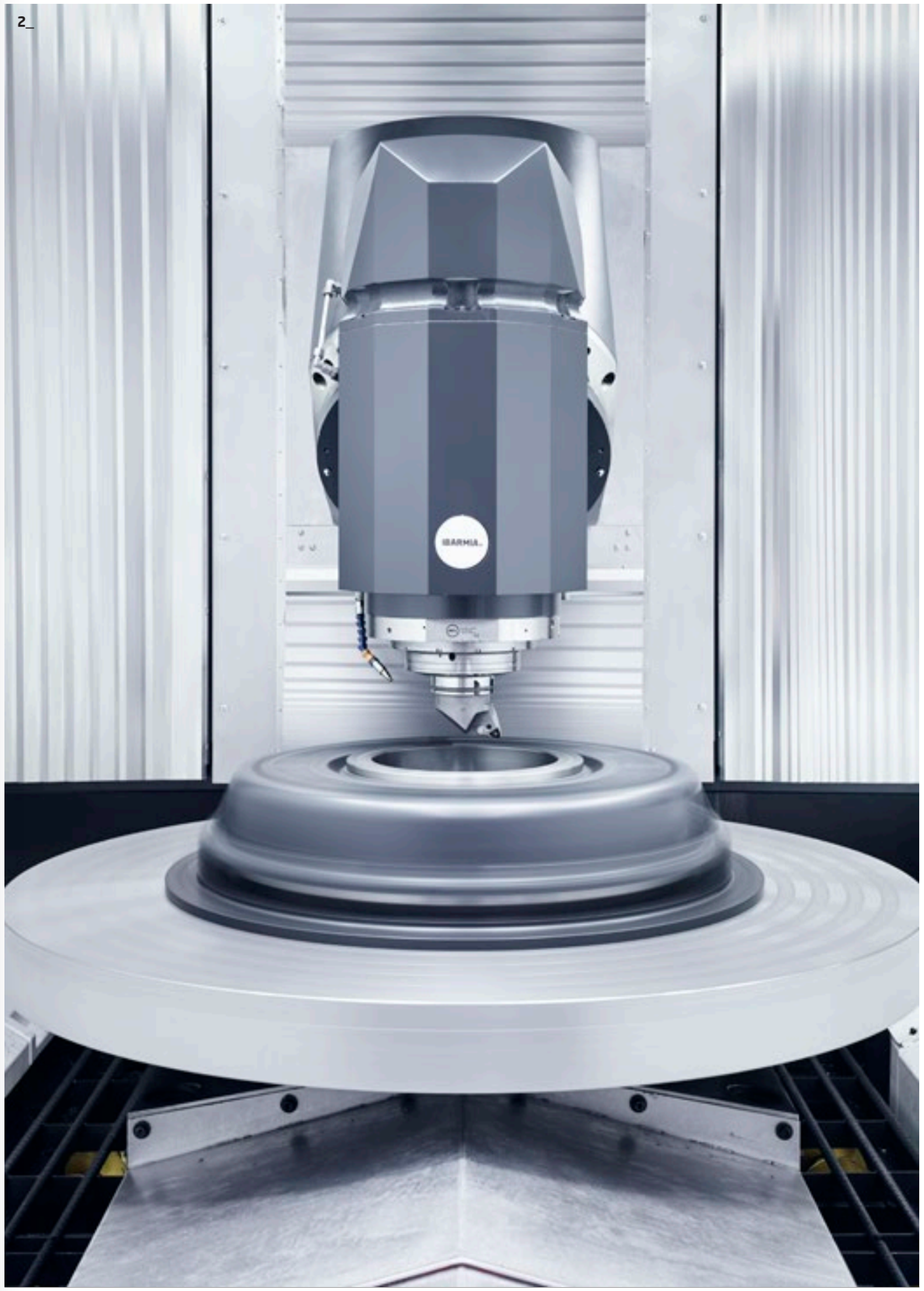


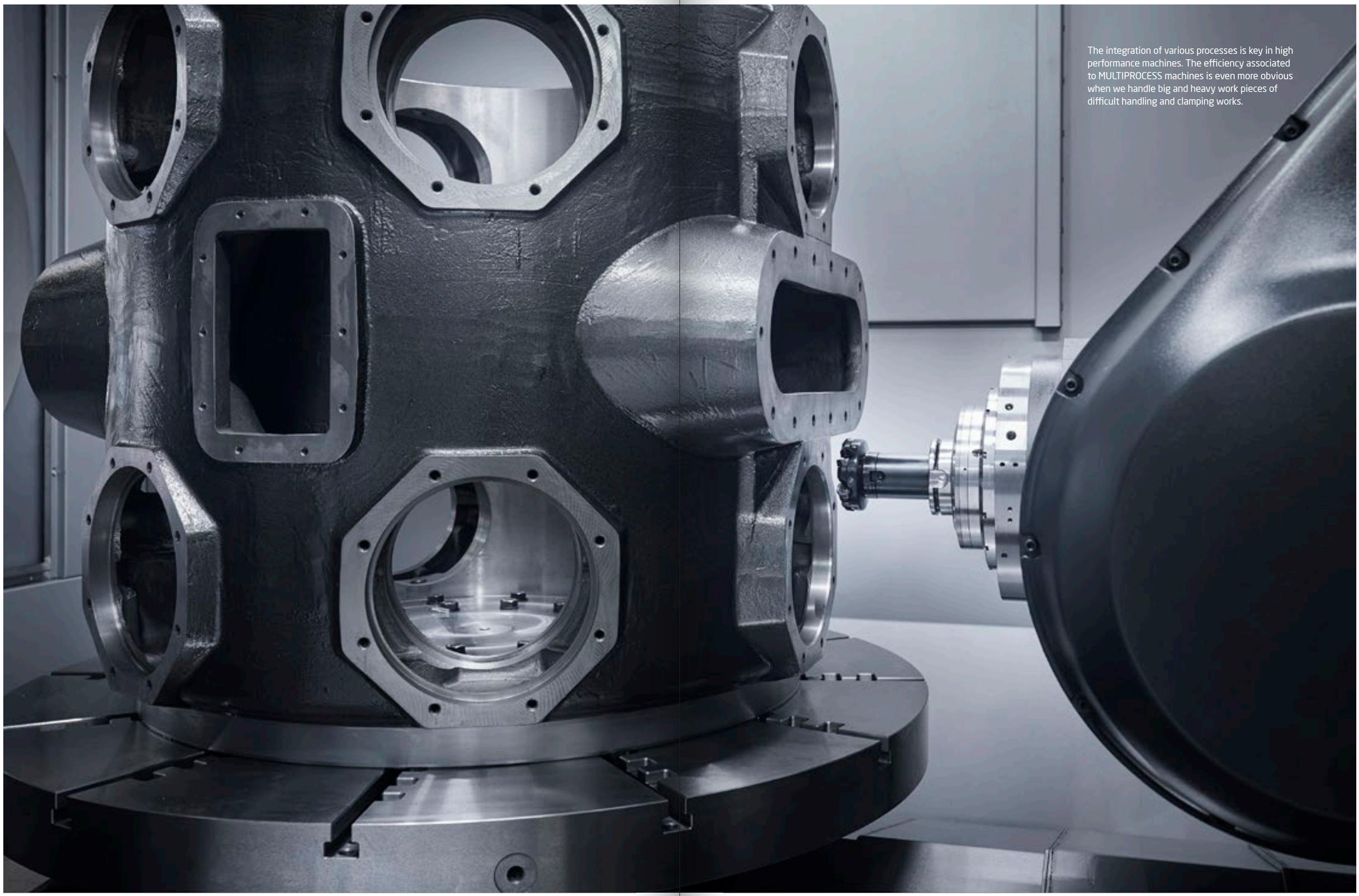
1_ THR 30 MULTIPROCESS: Model equipped with an A-axis THR spindle for machining negative angles (+45º / -135ª). With a maximum turning diameter of 3000 mm, it allows turning operations at a maximum of 200 rpm on workpieces up to 14t.



2-3_ THC 16 MULTIPROCESS with universal B-axis head (-15º/+195ª). This multitasking machining centre has been adapted to the customer's needs, having increased the vertical travel by 300 mm, and is intended for the manufacture of different parts for the automotive sector.

4_ THR 12 MULTIPROCESS equipped with Rotopallet for the maintenance of metro-train wheels Top of the range among models with pallet changing (see page 19), this system increases the production and autonomy of the machine while minimising its occupation in plant.





The integration of various processes is key in high performance machines. The efficiency associated to MULTIPROCESS machines is even more obvious when we handle big and heavy work pieces of difficult handling and clamping works.

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THE PERFECT SOLUTION FOR ADVANCED MACHINING OF MEDIUM TO LARGE WORKPIECES IN ONE SET UP

6.2_ T EXTREME MACHINES

T EXTREME
5 AXIS UNIVERSAL MACHINING CENTERS

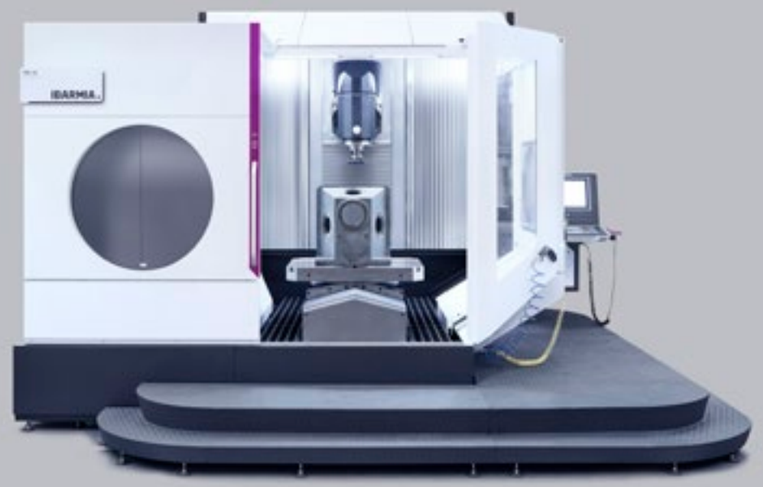
The efficiency associated with the multi-axis models is of great importance in the T Series machining centres, as they allow machining in a single set-up on 5 faces and inclined planes, large volume parts whose handling and clamping are very demanding, thus avoiding unproductive set-ups to the benefit of the final precision and quality of the workpieces.

- 5 Axis Milling
- Drilling
- Threading
- Boring
- U axis boring
- Grinding
- Gear hobbing

- **Max feed on X, Y, Z axes, up to 60 m/min**
- **Accelerations up to 5 m/s²**
- **Tool change time "chip to chip" up to 7s***

*Data based on the T12 model

The ability to tackle a wide range of machining operations in a single set-up, combined with the high dynamics of the linear axes of these models, leads to a significant reduction in manufacturing times, a vital aspect in many secto here the every-second saving provided by the high speed of vacuum movements is a key competitive factor.



GLOBAL MACHINE DYNAMIC IMPROVEMENT IN X, Y, Z, LINEAR AXES IN T12 & T16 MODELS

60%

Average increase in **Acceleration and Speeds**

5 AXIS

MANUFACTURING TECHNOLOGY

T12	T16	T22	T30	T36
Table size	Table size	Table size	Table size	Table size
800 x 800 mm	1000 x 1000 mm	1250 x 1250 mm	1250 x 1600 mm	1.600 x 1.600 mm
Maximum load capacity	Maximum load capacity	Maximum load capacity	Maximum load capacity	Maximum load capacity
4000 Kg	6000 Kg	10.000 Kg	20.000 Kg	25.000 Kg
Maximum turning speed	Maximum turning speed			
50 rpm	40 rpm			

HIGH PRODUCTIVITY OF **MEDIUM DIAMETER PARTS**

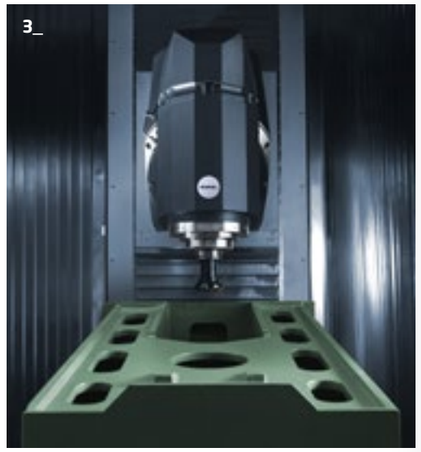
HIGH PRODUCTIVITY OF **BIG DIAMETER PARTS**

High Dynamics T12 & T16 EXTREME Models

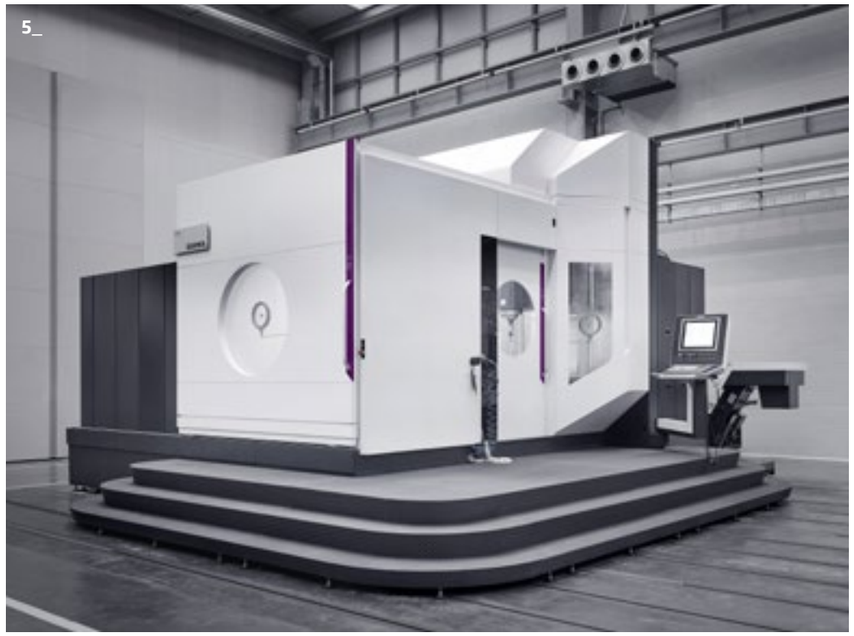
IBARMIA's T12 and T16 models combine high linear axis dynamics with the integration of DIRECT DRIVE technology on the positioning tables.

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

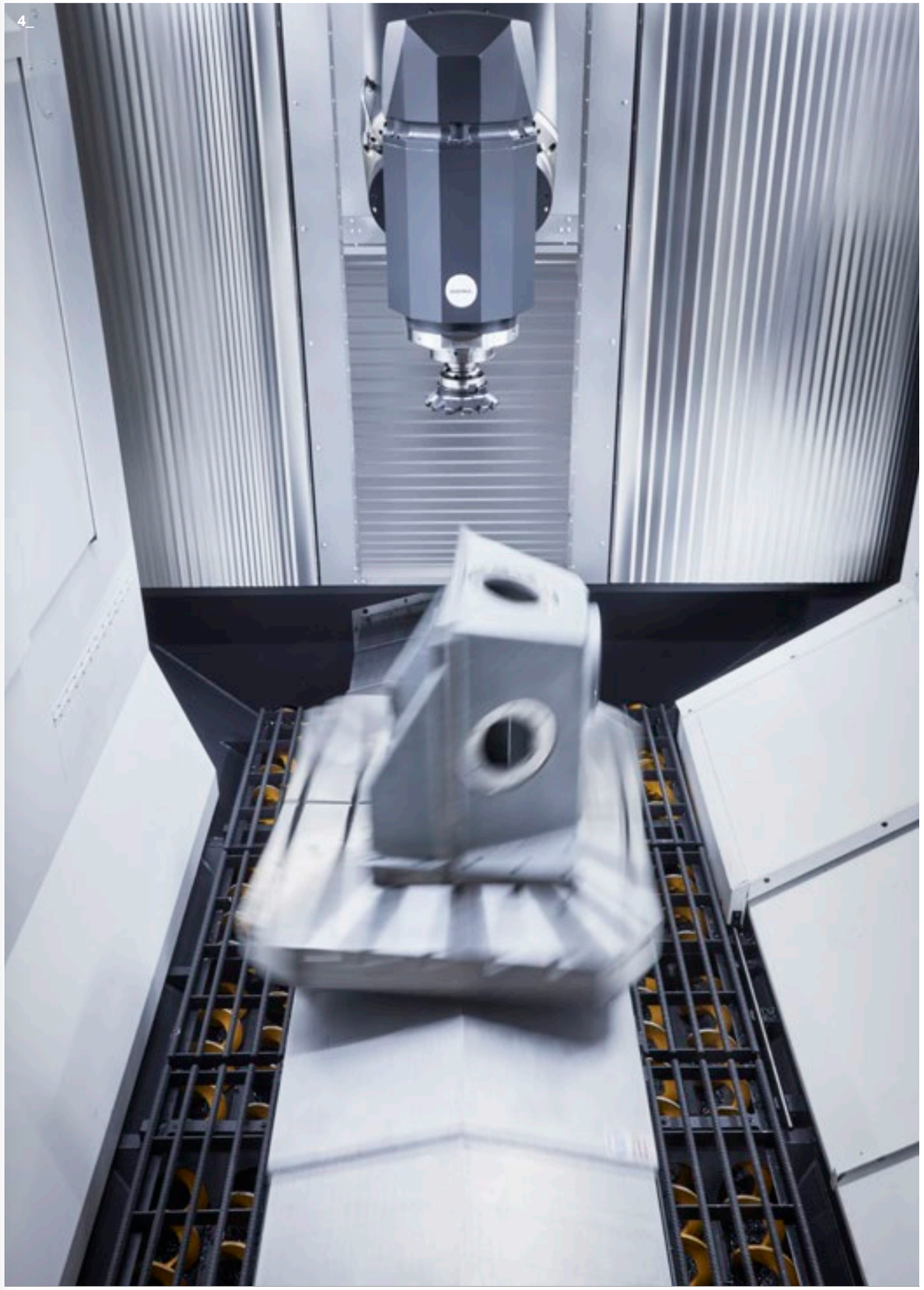
1_ Above, pallet pool with four stations on a THC 30 EXTREME (model with up to ø3000 mm turning capacity on parts up to h1950 mm and 20t). These rotary stations for loading and unloading parts while the machine is working (2 and 3) eliminate the downtime caused by complex preparations on this type of large-volume parts (see page 21).



4_ Working area of a THC 16 EXTREME showing the movement of the table combining the transversal movement of the Y-axis with the C-axis rotation of the table. The double endless screw system for chip evacuation on each side of the table can be seen through a slat system that allows the operator to move freely around the table.



5_ THC 22 EXTREME with the working area completely encapsulated and accessible from the front and lateral sides of the machine. The stepped platform, which is standard for the 12, 16 and 22 models, allows convenient and immediate access to the machine. The T16 and T22 centres offer the option of plastering the machine, while in the case of the T30 and T36 the machine must be plastered without the access platform.



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TECH CYCLES
APP PACK

7_ TECHNOLOGICAL INTEGRATION

ACTIVE ASSISTANCE
TO THE MACHINING PROCESS

IBARMIA range of applications for active support in the manufacturing process, through connected machines equipped with the latest technology for the most demanding production needs.

CONTROL CYCLES

ELECTROSPINDLE PROTECTION

T MULTIPROCESS / T EXTREME

This smart equipment has been designed to detect, at a very early stage, abnormal situations and disturbances that may affect the lifetime of the main spindles, especially imbalanced tools, excessive vibration during machining and collisions among spindles and machined parts.

- Monitoring of spindle unbalance during idle conditions.
- Automatic stop of spindle feed axis in case of abnormal vibrations.
- Continuous diagnosis of spindle bearings condition for preventive maintenance purposes.

Y-C AXIS AUTOTUNING

T MULTIPROCESS / T EXTREME

This applications are aimed to maximise the position loop bandwidth for variable moving masses placed on mobing tables (Y axis) and rotary tables (C axis).

Main features **Y axis** autotuning:

- Automatic measurement of axis weight for every remarkable change in the mass on moving tables (Y) / Automatic measurement of axis inertia for every remarkable change in the mass on rotary tables (C).
- Automatic adjustment of speed and position control gains to maximise position loop bandwidth according to the specific values of mass, inertia ratios and natural frequencies in the feed drive.

Main features **C axis** autotuning:

- Automatic measurement of the axis inertia for every noticeable change in mass on rotary tables.
- Automatic calculation of natural frequencies and inertia ratios by means of motor consumption signals.
- Automatic limitation of maximun rotational speed of the rotary table depending on the workpiece weight, for axis protecion.

RESIDUAL UMBALANCE CHECK

T MULTIPROCESS

Unbalance reduces the life of bearings and other components, produces noise and may be a safety risk; the Rotary Axes Unbalance Compensation (RAUC) increases the life and the safety of your machine.

- Static, coupled and dynamic unbalance detection.
- Mass distribution detection.
- Balancing mases weight and location suggestion for rotary tables.

T SERIES

T SERIES

OPERATIONAL CYCLES

MILLING-TURNING

T MULTIPROCESS

High productivity thanks to complete machining on one machine in a single set-up.

- Cutting, undercutting, cutting chips, threading, etc.
- Unbalance calculation, control and monitorization.
- Storage, emission and transmission of measurement data.
- Turning of long tools in the workpiece.
- Use of multi-cutting tools.

T/M

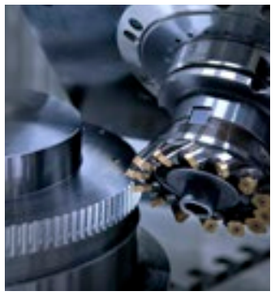
GEAR SKIVING

T MULTIPROCESS

Synchronized rotation of tool and workpiece to be machined. Innovative manufacturing process for gears with straight or oblique gearing.

- For internal and external gearing.
- Shorter machining times.
- Fewer tools.

Achievable gear quality:
-Straight gear DIN 9 (roughing). (Depending on the gear module and diameter).
-Straight gear DIN 7 (finishing). (Depending on the gear module and diameter).



SK

RECTIFICADO

T MULTIPROCESS / T EXTREME

Grinding cycles for T SERIES machines.

- MULTIPROCESS models_
-External cylindrical.
-Internal cylindrical.
-Flat surfaces with flat grinding wheel (tangential contact).
- EXTREME models_
-Flat surfaces with flat grinding wheel (tangential contact).

Achievable tolerances:
-Surface quality down to 0.8 µm. Depending on the process.

GR

GEAR HOBBING

T MULTIPROCESS / T EXTREME

Maximum flexibility through production with standard tools on standard machines.

- Free modification of profiles, flanks and contact pattern.
- Flexible for different gears.
- Soft and hard machining on one machine.

Achievable gear quality:
-Straight gear DIN 9 (roughing). (Depending on the gear module and diameter).
-Straight gear DIN 7 (finishing). (Depending on the gear module and diameter).

HB

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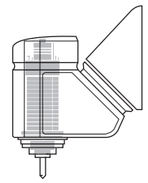
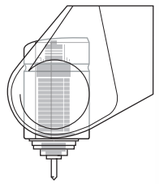
8.1_ DIGITAL TECHNOLOGY SPINDLES

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.



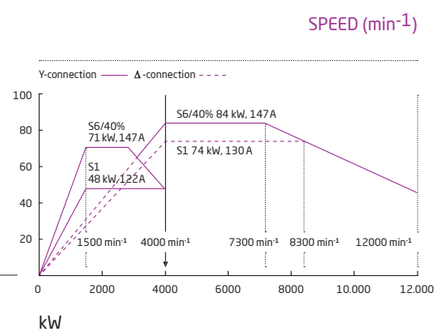
THC_ **B axis** head

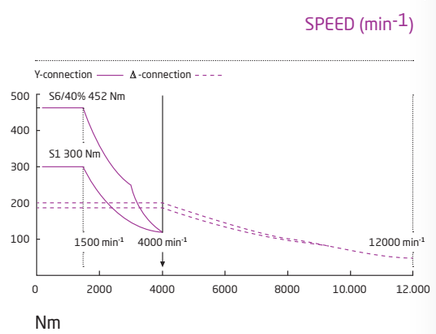


THR_ **A axis** head

1_ STANDARD

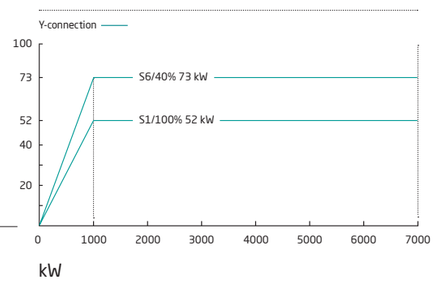
Power and dynamics_
Up to 12.000 rpm.
74 / 84 kW (S1 / S6).
300 / 452 Nm (S1 / S6)

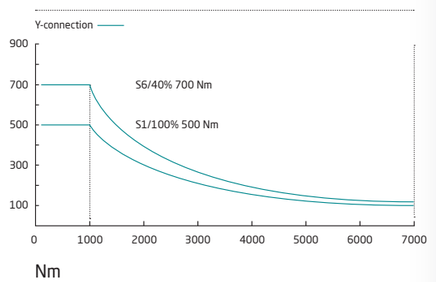




2_ OPTIONAL

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 SERIES

8.2_ MACHINING CAPACITY TEST

MILLING

BY USING THE STANDARD ELECTROSPINDLE*
IN Ck45 STEEL

Available power: 48 kW

- Material Removal rate: 1484 cm³ / min
- Working tool: High feed mill ø66 mm (Z4)
- Spindle speed: 2115 rpm (Vc= 438 m / min)
- Working feed: 21.000 mm / min (Fz= 2,48 mm)
- Depth / Width of cut: ap= 1,5 mm / ae= 47 mm

* High performance Milling

BY USING THE OPTIONAL ELECTROSPINDLE*
IN HARDOX 500

Available power:18 kW

- Material Removal rate: 158 cm³ / min
- Working tool: Long edge square shoulder milling ø80 mm (Z4)
- Spindle speed: 350 rpm (Vc= 88 m / min)
- Working feed: 350 mm / min (Fz= 0,25 mm)
- Depth / Width of cut: ap= 45 mm / ae= 10 mm

* Side Milling

VERTICAL DRILLING

BY USING THE STANDARD ELECTROSPINDLE
IN Ck45 STEEL

Available power: 25 kW

- Material Removal rate: 560 cm³ / min
- Working tool: Modular drill ø80 mm
- Spindle speed: 796 rpm (Vc= 200 m / min)
- Working feed: 111 mm / min (Fn= 0,14 mm)

BY USING THE OPTIONAL ELECTROSPINDLE
IN HARDOX 500

Available power: 26 kW

- Material Removal rate: 560 cm³ / min
- Working tool: Modular drill ø35 mm
- Spindle speed: 510 rpm (Vc= 56 m / min)
- Working feed: 165 mm / min (Fn= 0,33 mm)

VERTICAL TAPPING

BY USING THE STANDARD ELECTROSPINDLE
IN Ck45 STEEL

Available power: 2,7 kW

- Working tool: Tap M45x4,5
- Spindle speed: 85 rpm (Vc= 12 m / min)
- Working feed: 385,5 mm / min (Fn= 4,5 mm)

BY USING THE OPTIONAL ELECTROSPINDLE
42CrMo4

Available power: 4,4 kW

- Working tool: Tap M60x5,5
- Spindle speed: 40 rpm (Vc= 8 m / min)
- Working feed: 220 mm / min (Fn= 5,5 mm)

MILLING OF NICKEL BASED SUPER ALLOY

BY USING THE STANDARD ELECTROSPINDLE
IN INCONEL 625

Available power: 74 kW

- Material Removal rate: 930 cm³ / min
- Working tool: Mill ø50 mm (Z6)
- Spindle speed: 4500 rpm (Vc= 700 m / min)
- Working feed: 8100 mm / min (Fz= 0,3 mm)
- Depth / Width of cut: ap= 3 mm / ae= 37 mm

BY USING THE OPTIONAL ELECTROSPINDLE
IN INCONEL 625

Available power: 52 kW

- Material Removal rate: 930 cm³ / min
- Working tool: Mill ø50 mm (Z6)
- Spindle speed: 4500 rpm (Vc= 700 m / min)
- Working feed: 8100 mm / min (Fz= 0,3 mm)
- Depth / Width of cut: ap= 3 mm / ae= 37 mm

1_ General view
2_ Aplication industries
3_ Advantages
4_ Characteristics
5_ Machine Configuration
6_ The range
7_ Technological integration
8_ Technical data

8.3_ MACHINE DIMENSIONS

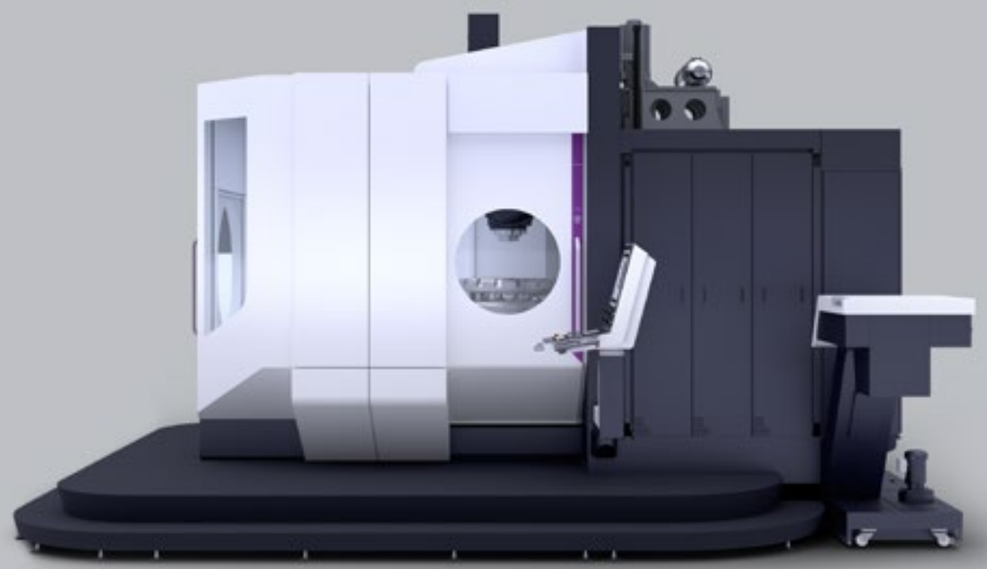
MACHINES EXTERNAL DIMENSIONS

Representative views of standard T12, T16 and T22 models, with access platform and adjacent modules or systems.

T-HC HR MACHINES

MULTI PROCESS TECHNOLOGY

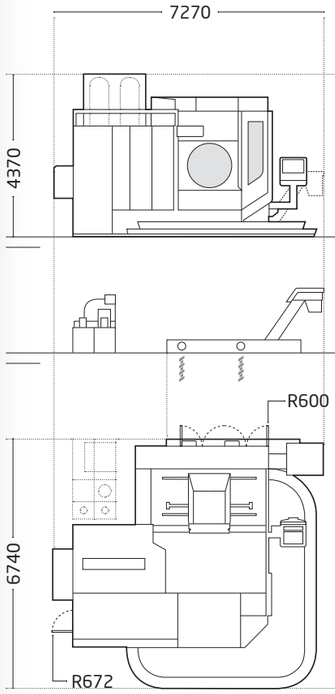
5 AXIS



T SERIES

T SERIES

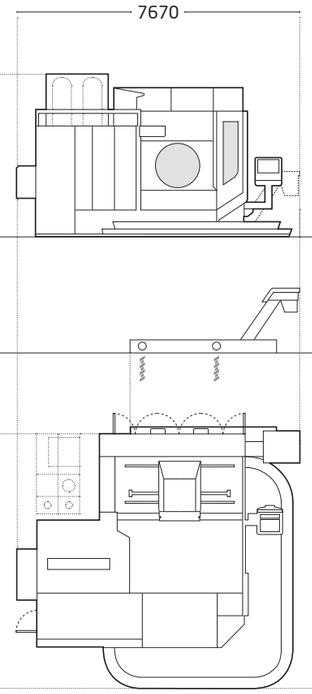
THC / THR 12



HIGH PRODUCTIVITY OF **MEDIUM DIAMETER PARTS**

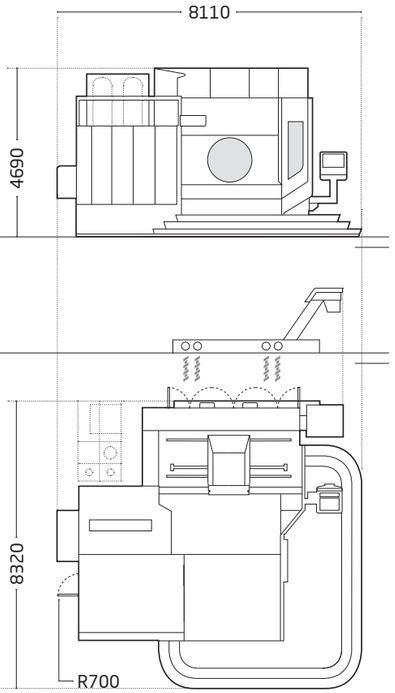
Maximum swing diameter
ø 1250 mm
Maximum part height
h 1600 mm
Maximum load capacity
4500 Kg

THC / THR 16



Maximum swing diameter
ø 1600 mm
Maximum part height
h 1700 mm
Maximum load capacity
6000 Kg

THC / THR 22



HIGH PRODUCTIVITY OF **BIG DIAMETER PARTS**

Maximum swing diameter
ø 2200 mm
Maximum part height
h 1750 mm
Maximum load capacity
10.000 Kg

T MULTIPROCESS
TECHNICAL DATA

	T 36	T 30	T 22	T 16	T 12
TRAVELS					
-X axis travel (length)	3600 mm	3000 mm	2200 mm	1600 mm	1200 mm
-Y axis travel (cross)	2300 mm	2000 mm	1600 mm	1600 mm	1300 mm
-Z axis travel (vertical)	1900 mm	1700 mm	1500 mm	1200 mm	1000 mm
-B - A axis heads tilting range	B: -15° / +195° - A: -45° / +135°				
-Maximum swing diameter	3600 mm	3000 mm	2200 mm	1600 mm	1250 mm
-Piece maximum height	2150 mm	1950 mm	1750 mm	1700 mm	1600 mm
-Distance spindle nose-table. Vertical (B axis)	100 / 2000 mm	100 / 1800 mm	100 / 1800 mm	100 / 1300 mm	100 / 1100 mm
-Distance spindle nose-table. Horizontal (B axis)	100 / 2000 mm	100 / 1800 mm	100 / 1800 mm	100 / 1300 mm	100 / 1100 mm
-Distance spindle nose-table. Vertical (A axis)	-115 / 1785 mm	-115 / 1585 mm	-115 / 1385 mm	-115 / 1085 mm	-115 / 885 mm
-Distance spindle nose-table. Horizontal (A axis)	260 / 2160 mm	260 / 1960 mm	260 / 1760 mm	260 / 1460 mm	260 / 1265 mm
TABLE*	*More table options on request				
-Table dimensions	ø 2000 mm	ø 1800 mm	ø 1600 mm	ø 1200 mm	ø 1000 mm
-Maximum table load capacity (*turning)	22.500 - *16.000 kg	20.000 - *14.000 kg	10.000 - *6000 kg	6000 - *3000 kg	4500 - *2250 kg
-Nominal speed	90 rpm	88 rpm	189 rpm	258 rpm	300 rpm
-Maximum speed	150 rpm	200 rpm	400 rpm	500 rpm	500 rpm
-Nominal torque	12.000 Nm	10.000 Nm	4000 Nm	3000 Nm	1850 Nm
TILTING HEAD					
-Turning torque	1210 Nm				
-Position clamping force	7000 Nm				
MAIN SPINDLE					
-Tool holder	Standard: HSK A 100 - Option: Capto C8				
-Maximum speed	Standard: 12.000 rpm - Option: 7000 rpm				
-Maximum power	Standard: 84 kW - Option: 75 kW				
-Maximum torque	Standard: 452 Nm - Option: 871 Nm				
FEED					
Maximum working feed X-Y-Z axes	30 m/min			50 m/min	60 m/min
-Rapid feed for positioning X-Z axes	40 m/min			50 m/min	60 m/min
-Rapid feed for positioning Y axis	30 m/min			50 m/min	60 m/min
-X-Y-Z axes acceleration	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
-Rapid feed for positioning in B-A axes	50 rpm				
ACCURACY VDI / DGQ3441	*Under certain conditions				
-Positioning Tp X-Y-Z (1000 mm)*	12 µm		10 µm	7 µm	6 µm
-Repeatability	7 µm			5 µm	
-Measuring system on B - A axes	Rotary scale				
-Positioning accuracy B - A aexs	+/-5 s				
-Positioning accuracy C axis	+/-4 s				
CAPACITIES					
-Milling capacity in steel St 60	1100 cm³/min				
-Drilling capacity in steel St 60	ø 70 mm				
-Tapping capacity in steel St 60	M 45 mm				
TOOL MAGAZINE	*Under certain conditions				
-Number of tools	Standard: 60. Option: 120, 240, 360				
-Maximum tool length	600 mm				
-Maximum tool weight	30 kg				
-Maximum tool diameter with full magazine	125 mm				
-Maximum tool diameter with free spaces	250 mm				
-Tool changing time*	6 s				
-Chip to chip time	16 s	14 s	12 s	8 s	7 s
CNC CONTROL					
-Available digital controls	Fanuc / Heidenhain / Siemens				

T EXTREME
TECHNICAL DATA

	T 36	T 30	T 22	T 16	T 12
TRAVELS					
-X axis travel (length)	3600 mm	3000 mm	2200 mm	1600 mm	1200 mm
-Y axis travel (cross)	2300 mm	2000 mm	1600 mm	1600 mm	1300 mm
-Z axis travel (vertical)	1900 mm	1700 mm	1500 mm	1200 mm	1000 mm
-B - A axis heads tilting range	B: -15° / +195° - A: -45° / +135°				
-Maximum swing diameter	3600 mm	3000 mm	2200 mm	1600 mm	1250 mm
-Piece maximum height	2150 mm	1950 mm	1750 mm	1700 mm	1600 mm
-Distance spindle nose-table. Vertical (B axis)	100 / 2000 mm	100 / 1800 mm	100 / 1800 mm	100 / 1300 mm	100 / 1100 mm
-Distance spindle nose-table. Horizontal (B axis)	100 / 2000 mm	100 / 1800 mm	100 / 1800 mm	100 / 1300 mm	100 / 1100 mm
-Distance spindle nose-table. Vertical (A axis)	-115 / 1785 mm	-115 / 1585 mm	-115 / 1385 mm	-115 / 1085 mm	-115 / 885 mm
-Distance spindle nose-table. Horizontal (A axis)	260 / 2160 mm	260 / 1960 mm	260 / 1760 mm	260 / 1460 mm	260 / 1265 mm
TABLE*	*More table options on request				
-Table dimensions	1600 x 1600 mm	1250 x 1600 mm	1250 x 1250 mm	1000 x 1000 mm	800 x 800 mm
-Maximum table load capacity	25.000 kg	20.000 kg	10.000 kg	3000 kg - Op. 6000 kg	2000 kg - Op. 4000 kg
-Nominal speed		1,5 rpm		30 rpm	35 rpm
-Maximum speed		5 rpm		40 rpm	50 rpm
-Nominal torque	18.000 Nm	13.000 Nm	6000 Nm	3100 Nm	2100 Nm
TILTING HEAD					
-Turning torque	1210 Nm				
-Position clamping force	7000 Nm				
MAIN SPINDLE					
-Tool holder	Standard: SK 50 - Option: BT 50 / HSK A-100 / Capto C8				
-Maximum speed	Standard: 12.000 rpm - Option: 7000 rpm				
-Maximum power	Standard: 84 kW - Option: 75 kW				
-Maximum torque	Standard: 452 Nm - Option: 871 Nm				
FEED					
Maximum working feed X-Y-Z axes	30 m/min			50 m/min	60 m/min
-Rapid feed for positioning X-Z axes	40 m/min			50 m/min	60 m/min
-Rapid feed for positioning Y axis	30 m/min			50 m/min	60 m/min
-X-Y-Z axes acceleration	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
-Rapid feed for positioning in B-A axes	50 rpm				
ACCURACY VDI / DGQ3441	*Under certain conditions				
-Positioning Tp X-Y-Z (1000 mm)*	12 µm		10 µm	7 µm	6 µm
-Repeatability	7 µm			5 µm	
-Measuring system on B - A axes	Rotary scale				
-Positioning accuracy B - A axes	+/-5 s				
-Positioning accuracy C axis	+/-4 s				
CAPACITIES					
-Milling capacity in steel St 60	1100 cm³/min				
-Drilling capacity in steel St 60	ø 70 mm				
-Tapping capacity in steel St 60	M 45 mm				
TOOL MAGAZINE	*Under certain conditions				
-Number of tools	Standard: 60. Option: 120, 240, 360				
-Maximum tool length	600 mm				
-Maximum tool weight	30 kg				
-Maximum tool diameter with full magazine	125 mm				
-Maximum tool diameter with free spaces	250 mm				
-Tool changing time*	6 s				
-Chip to chip time	16 s	14 s	12 s	8 s	7 s
CNC CONTROL					
-Available digital controls	Fanuc / Heidenhain / Siemens				

YOUR SERVICE POINT

IBARMIA SERVICE

YOUR SERVICE **POINT**

When a customer becomes part of the IBARMIA family, that special link makes us work together throughout the machine's lifetime. Our service-point guides all technical and human resources to satisfy the customer's needs from the moment the machine enters its facilities.

WE BELIEVE IN SERVICE AND WE ARE COMMITTED TO THE PROFITABILITY AND RELIABILITY OF YOUR MACHINE;
A PROVEN EFFICIENT SERVICE THAT IS VALUED BY OUR CUSTOMERS.

TELEPHONE SUPPORT SERVICE BY EXPERT MULTILINGUAL STAFF

REACTION AND SOLUTION TIMES ADEQUATE TO THE CUSTOMER'S NEEDS

HIGHLY QUALIFIED TECHNICIANS

GLOBAL SERVIVE VOCATION

MACHINE RECALIBRATION

The accumulation of working hours and other factors might affect the machine's adjustment. At servicepoint we offer the possibility of readjusting the machines, leaving them almost as brand new.

PERIODIC PREVENTION MAINTENANCE

Servicepoint staff regularly checks and tunes up the machine, ensuring optimum machine availability.

CRITICAL COMPONENTS HIRE

Our machines have a high level of technology reflected on key elements of high value, and sometimes long delivery times. Following our commitment to reduce the machine break down times to a minimum, we stock those key elements for hire.

CUSTOMIZED MAINTENANCE CONTRACTS

Various levels of maintenance contracts adjustable to each customer.

SPARE PART MANAGEMENT

We are well aware of the importance of ensuring that the parts replaced in our machines maintain the same quality as the originals. Our spare part management service takes care of this.

ASSISTANCE AND LOCAL SERVICE

Our objective is to respond to our customers quickly, efficiently and at a reasonable cost. We are creating a global service network to ensure we respond to our clients in the shortest possible time.

REMOTE AND ONLINE MONITORING AND DIAGNOSE

It allows knowing the machine status from the distance to ensure an intelligent diagnose of the key elements.

smart. SOFTWARE

IBARMIA SERVICE

ADVANCED DATA MANAGEMET: ONLINE MONITORING AND DIAGNOSIS

SMART POINT SOFTWARE

Thanks to our SMART POINT cloud monitoring system, we have real-time information about the status of your machine, and we are able to make an intelligent diagnosis of the critical components.
SMART POINT allows us to record and process the data collected on your machine, thus generating valuable information about the optimal use, the life cycle of the parts or the manufacturing process itself.

- Monitor your machines activity in real time from anywhere in the world
- Anticipate machine breakdowns and maximize its availability. Discover the root of the errors so you can correct them, as well as consumable exchange dates and component health status.

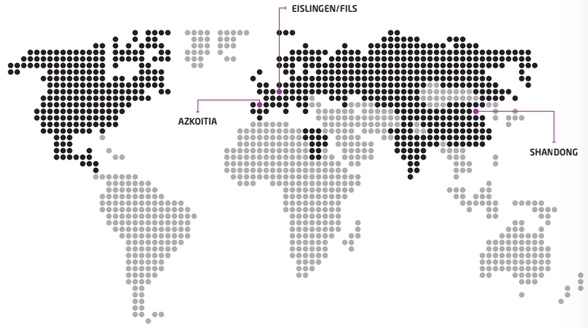
THE POINT

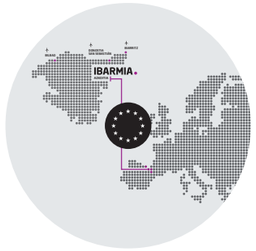
IBARMIA.

IBARMIA

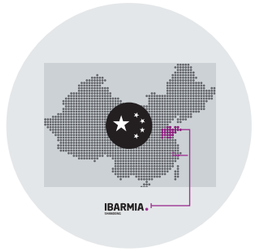
GOING BIGGER, GETTING CLOSER

The last few years at IBARMIA have been intense in growth for the company. Determined to stay close to customers, the company has kept deepening the roots in the biggest markets of the world. This tendency will be kept in the future, with further development of these two areas of the world and others to come.





IBARMIA Azkoitia
PRODUCTION CENTER
(Gipuzkoa) Spain



IBARMIA Qingdao
PRODUCTION CENTER
IBARMIA Shanghai
SALES OFFICE
(Shandong-Shanghai) P.R. of China)

IBARMIA Eislingen/Fils
SALES & SERVICE OFFICE
(Baden-Württenberg) Germany

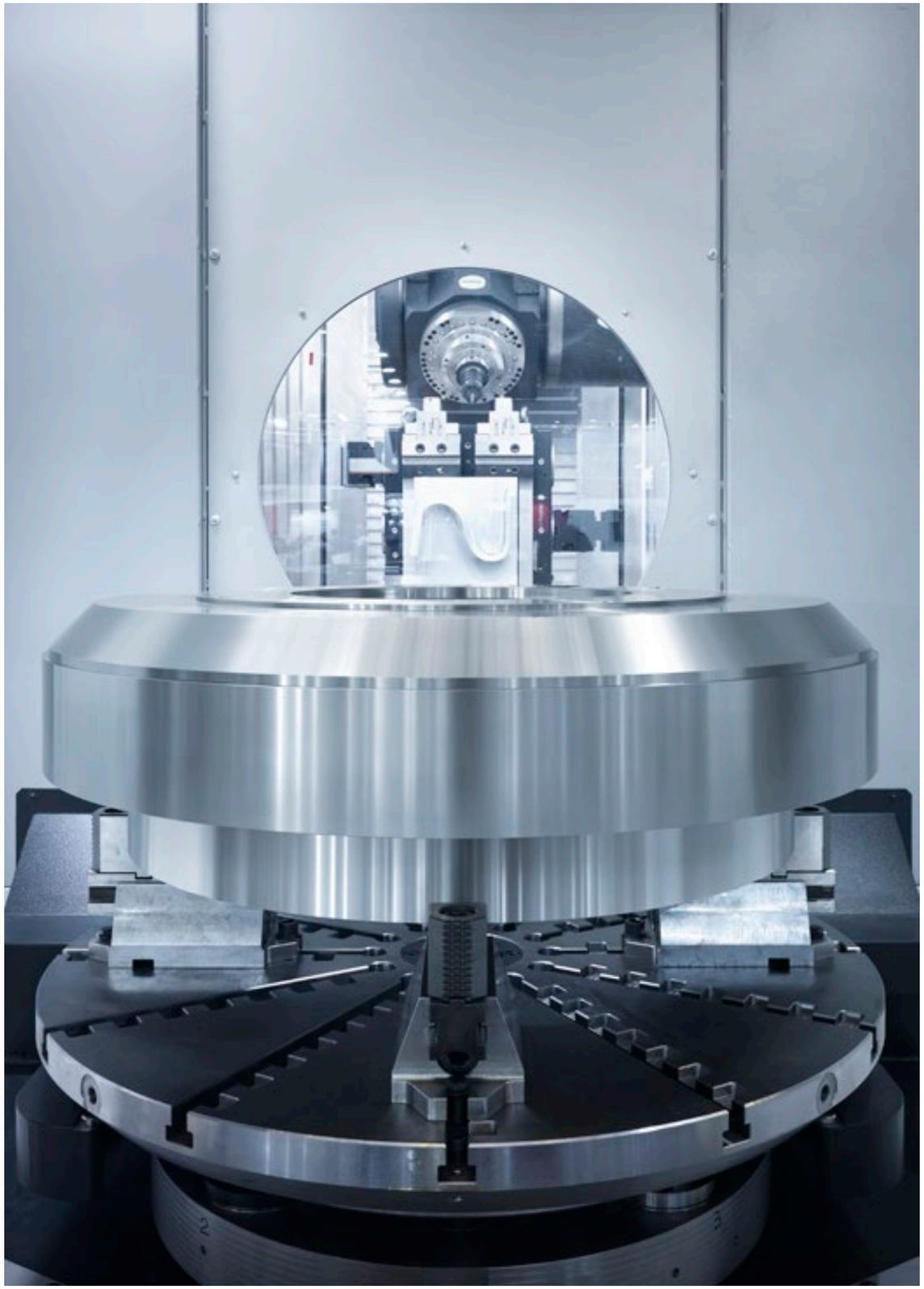
70 IBARMIA. YEARS EST.1953

90% EXPORT
COMPETING IN THE GLOBAL MARKET

QUALIFIED YOUNG TEAM
A YOUNG TEAM WITH HIGH FORMATION

IN INTEGRATED
INTEGRATED MANUFACTURING

TOTAL FLEXIBILITY



YOUR MACHINE TOOL POINT

EST. 1953

T SERIES
5 AXIS UNIVERSAL MACHINING CENTERS

STG 06/23

IBARMIA is an advanced technology manufacturer of high added-value solutions adapted to customers' needs by highly customized machining centers.

IBARMIA.

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ibarmia@ibarmia.com

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