

**IBARMIA.**

# ZVH EXTREME

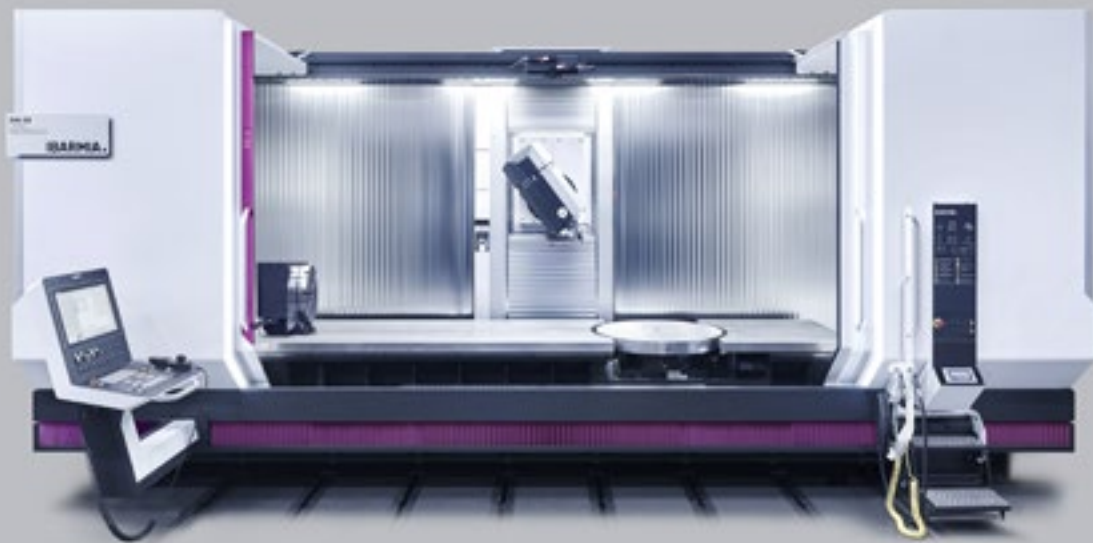
60 - 58 / 55 / 50 - 48 / 45 / 40

## 5 AXIS MOVING COLUMN MACHINING CENTERS

Combine 5 axis vertical and/or horizontal machining capacity with a fixed table so you can be ready for any job at the shortest notice.



**Z SERIES**



[www.ibarmia.com](http://www.ibarmia.com)

Z SERIES AND THE 5 AXIS MACHINING



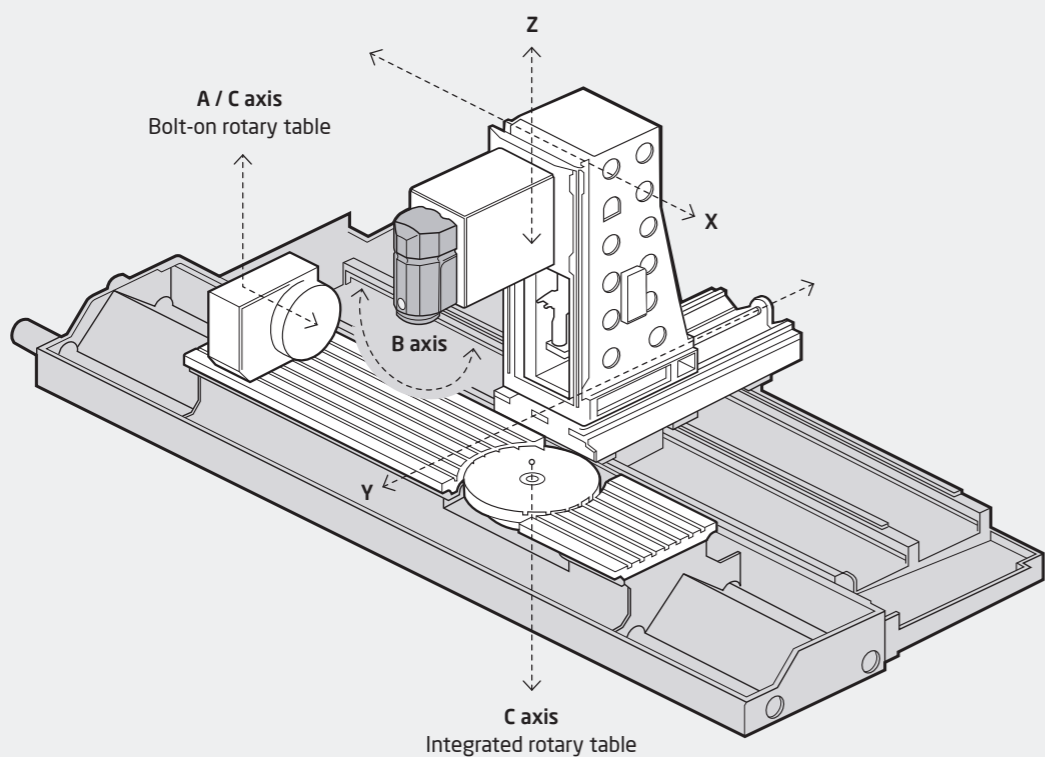
**ZVH SPINDLE HEAD**  
**B axis, 4th movement.**  
 Continuous tilting head / Torque motor. +/-105°

MOVING COLUMN DESIGN

The IBARMIA moving column platform is ideal for flexible manufacturing of a wide range of pieces thanks to its heavy load capacity fixed table provided with standard side windows for extra-long parts (ZV EXTREME). The integration of a powerful and accurate B axis head allows machining complex parts in fewer setups by using rotary tables (ZVH EXTREME).



MANUFACTURING TECHNOLOGY



Z SERIES\_ BODY SIZES FOR SK 40 & SK 50

SIZE 4\_ 40 / 45 / 48 models



Y-Z travels  
**Y 600 / 800 / 1000 mm - Z 900 mm**  
 Tool holder (ZVH EXTREME)  
**SK 40 • BT 40 • HSK A-63**

SIZE 5\_ 50 / 55 / 58 models



Y-Z travels  
**Y 600 / 800 / 1000 mm - Z 1100 mm**  
 Tool holder (ZVH EXTREME)  
**SK 50 • BT 50 • HSK A-100**

SIZE 6\_ 60 model



Y-Z travels  
**Y 1100 mm - Z 1100 mm (Option 1300 mm)**  
 Tool holder (ZVH EXTREME)  
**SK 50 • BT 50 • HSK A-100**



**#40 Electrospindle**  
 Power in S1 (100%); S6 (40%)  
**30 kW / 50 kW**  
 Total available power from  
**2000 rpm**  
 Torque in S1 (100%); S6 (40%)  
**130 Nm / 200 Nm**  
 Maximal rotation speed  
**12.000 rpm**

**2 guideways structure**  
 IBARMIA adapts the machine structure to each electrospindle type. By this way, in the #40 machines the column carriage travels over two guideways.



**#50 Electrospindle**  
 Power in S1 (100%); S6 (40%)  
**74 kW / 84 kW**  
 Total available power from  
**4000 rpm**  
 Torque in S1 (100%); S6 (40%)  
**300 Nm / 452 Nm**  
 Maximal rotation speed  
**12.000 rpm**

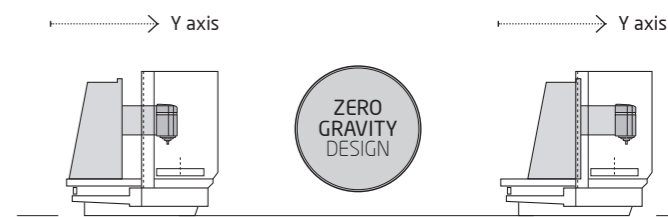
**3 guideways structure**  
 By the same way IBARMIA introduces a bigger three guideways structure for #50 spindles, to endure the forces applied when machining hard materials with high power.

Z SERIES\_ UP TO 12.000 mm IN X AXIS



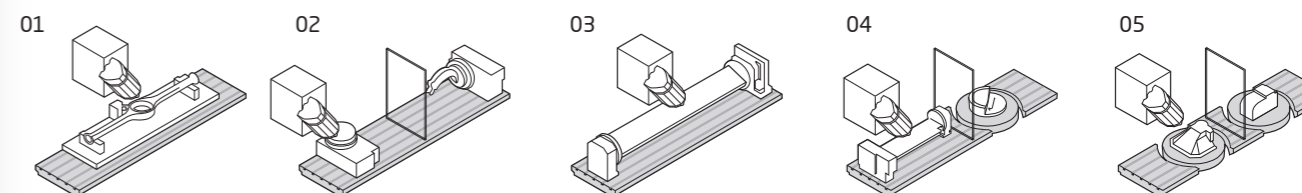
**A wide range of lengths available**  
 1600 / 2200 / 3000 / 4000 / 5000 / 6000 / 7000 /  
 8000 / 9000 / 10.000 / 11.000 / 12.000 mm

Z SERIES\_ Y AXIS ZERO GRAVITY DESIGN



**Constant cutting conditions on Y axis**  
 Fixed distance monoblock column design: accuracy, power and rigidity on the full travel of the Y axis.

ZVH EXTREME\_ MACHINE IT ALL



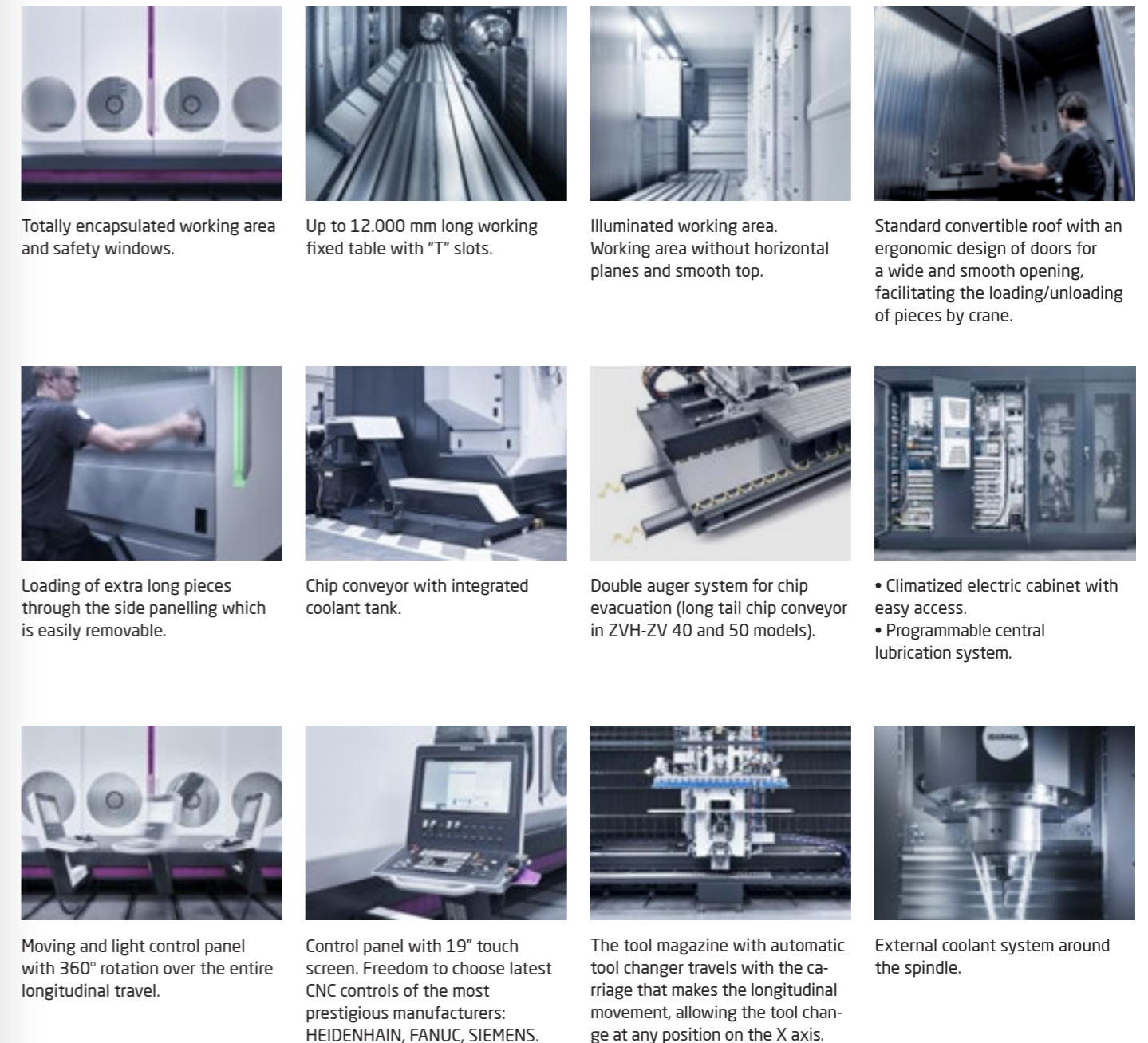
**Create your own machine**  
 The high configurability and the combination of axes and rotary tables provide an unlimited field of work which ensures an efficient return on the investment.

- 01\_
  - Thermo-symmetrical and thermostable structure design.
- 02\_
  - Maximum stability in the monoblock design of the machine bed. Structural bodies of maximum rigidity for an optimum performance throughout the machine's life cycle.
- 03\_
  - Rectified ball screws of high precision with preloaded double nuts for the longitudinal axis movement in machines up to 6000 mm long.
  - Machines from 3000 mm long are provided with ball screw supports to prevent bending and vibrations in rapid movements.
- 04\_
  - Rack and pinion system on the longitudinal axis in machines from 7000 mm long.
  - Movement on X / Y / Z axis over linear guides with preloaded rolling shoes with two rows of circulating rollers.
- Standard measuring device on X, Y, Z axes in our machining centres: glass scales.
- 04\_
  - Geometric check and volumetric calibration of the machine by laser interferometer on request, according to ISO 230- 2, -4 and -6.

**Z SERIES\_ CONSTRUCTION FEATURES**



**Z SERIES\_ STANDARD CHARACTERISTICS**



Subject to change without prior motive. Informative contents are not binding.

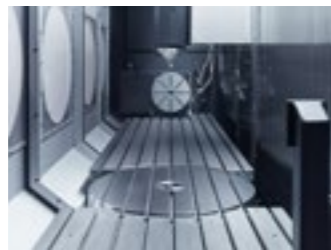


MOVING COLUMN MACHINING CENTERS

## ZVH MODELS\_ MAIN CONFIGURATION OPTIONS



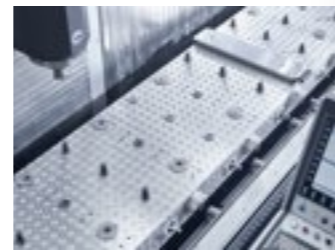
Non stop machining option that includes a central division wall, independent blocking of front doors, and pendulum cycle work area management software.



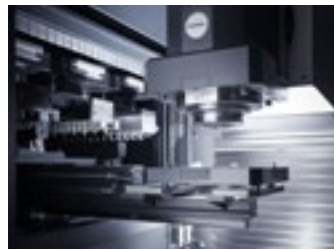
Integrated rotary tables covering the Y axis, up to ø1500 mm swing, for turning and/or 5 axis machining operations.



Bolt on rotary tables to be used either in horizontal or vertical axis for up to 5 axis continuous machining operations.



Integration of different clamping systems on the fixed table, such as ZERO points, vacuum systems etc.



Pick up stations integrated in the machine to hold special tools, angular heads etc.



Specific solutions for customers that need to manage a high number of tools: fixed magazines, rack type configurations etc.



Tool magazines to load special tools and large angle heads which can be operated by robot.

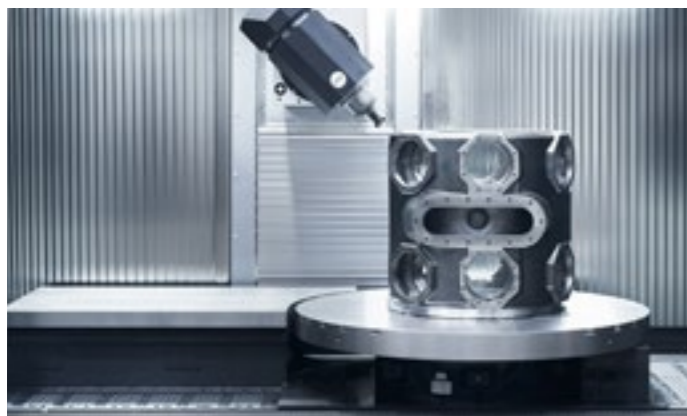


Grinding capability with different cycles depending on the machine model (Extreme / Multiprocess).

**Another optional items**

- Coolant through spindle.
- Tool measuring and touch systems.
- Steam and mist aspiration system.
- Air and water guns.
- "Comfort" pack: Sliding access stairway along the longitudinal travel with supports for air and water guns.
- "Illumination" pack: LED lights with acoustic signal indicating the state of the machine, integrated into the sides.
- Lights with acoustic signal indicating the machine status.
- Camera settings and display mode.
- Control with touch screen up to 24".

## ZVH MODELS\_ BIG DIAMETER ROTARY TABLES



All the advantages of the moving column design adapted to bigger diameters and heavier loads.

**ZVH D\_ SWING Ø INCREASES****SK 50**

- ZVH 60: ø1500 to ø2200 mm
- ZVH 58: ø1400 to ø2000 mm
- ZVH 55: ø1200 to ø1600 mm

**SK 40**

- ZVH 48: ø1300 to ø2000 mm
- ZVH 45: ø1100 to ø1600 mm



MANUFACTURING TECHNOLOGY

## ZVH EXTREME\_ MAIN CONFIGURATION OPTIONS



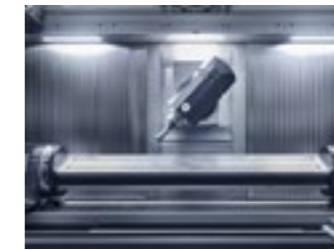
**Integrated rotary tables a la carte:** tables covering the Y axis (up to ø1500 mm) and /or bigger diameter tables up to ø2200 mm for larger and heavier loads (ZVH D on previous page).



If high production is required, IBARMIA can fit ZERO points on these integrated rotary tables.



**Bolt on rotary tables:** A wide range of bolt-on rotary tables up to ø800 mm and ø1500 mm swing.

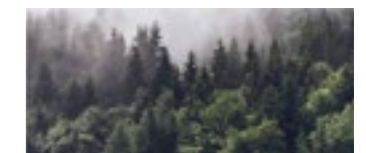


**Trunnion fixtures** over the fixed table using A-C axis bolt on rotary tables and supporting plates.



**Customized working areas:** sliding platforms on guideways replacing the fixed table, that can be quickly re-positioned for machining parts with different lengths.

## IBARMIA ECO DESIGN



Machines designed considering the environmental impact during all their useful life cycle.



**Customized working areas:** Trunnion fixtures replacing the fixed table and facilitating the fall of chips to the endless screws.



**Clamping systems:** It is also possible to integrate ZERO points in both trunnion fixtures and sliding tables.



### ZVH EXTREME

# THE MACHINE FOR ALMOST EVERYTHING

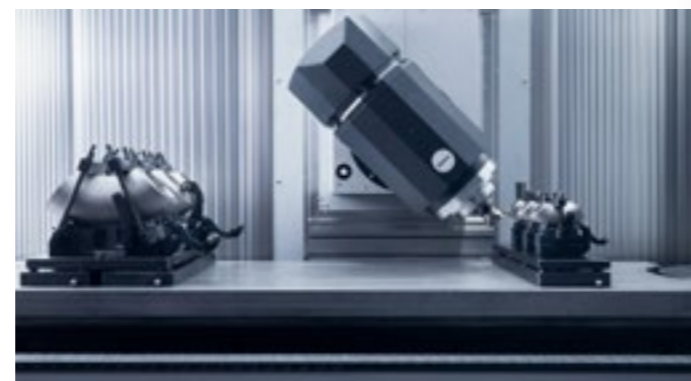
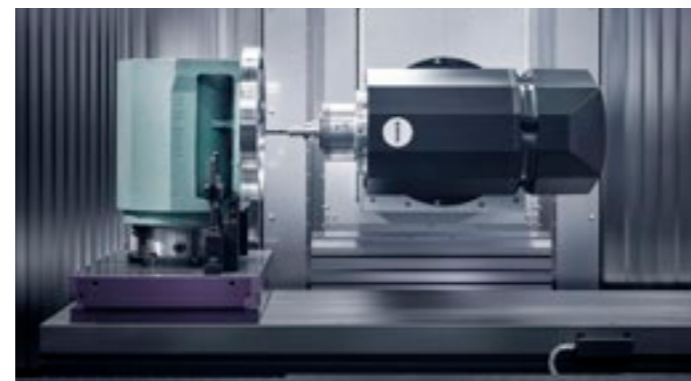
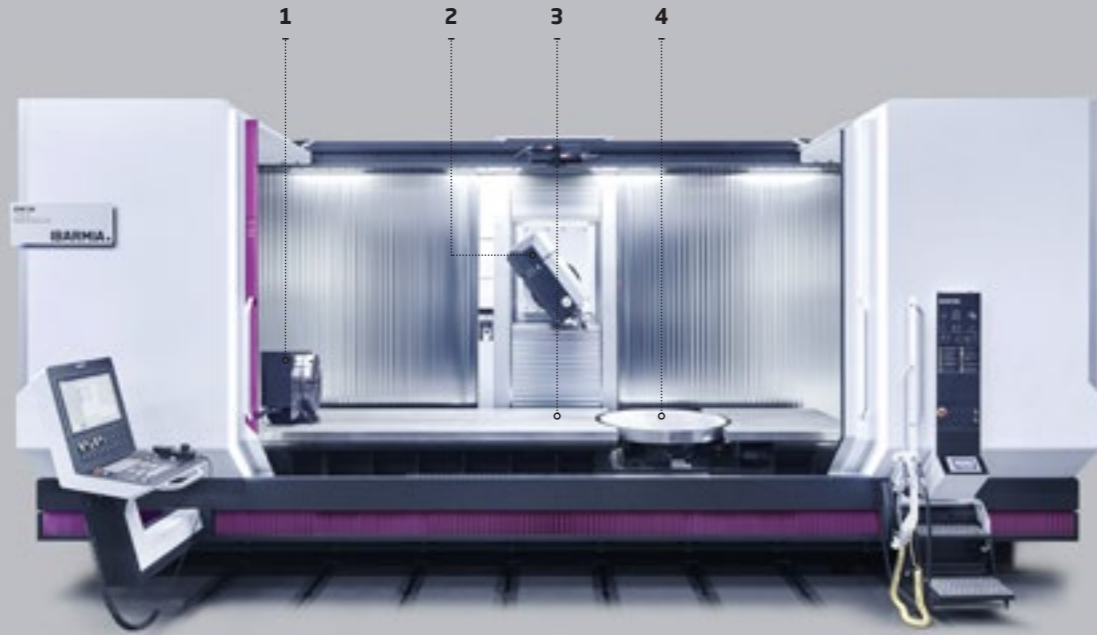
Combine the high dynamics tilting head with the wide range of rotary tables and fixture devices available.

**1\_** Up to ø800mm diameter A-C axis bolt-on rotary tables.

**2\_** B axis torque motor milling head. Up to 84 kW / 12.000 rpm.

**3\_** Two working areas. "Non stop machining" pendulum system.

**4\_** C axis integrated rotary tables. Swings up to ø1500 mm. Up to 6000 kg.



### ZVH EXTREME



MOVING COLUMN MACHINING CENTERS

### ZVH EXTREME\_ SAMPLE APPLICATIONS



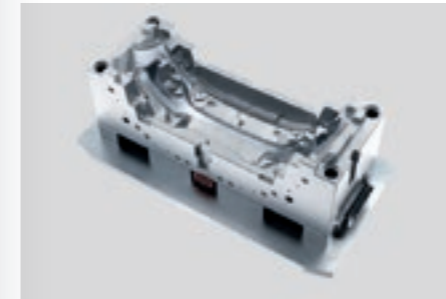
Directional drilling tool



Impeller



Coupling piece



Industrial mold



Aircraft structural part



Engine block



Automatic engine piece



Turbine blade



Quick coupler



OIL & GAS



AEROSPACE



MACHINERY



MOLD & DIE



AUTOMOTIVE



OFFSHORE



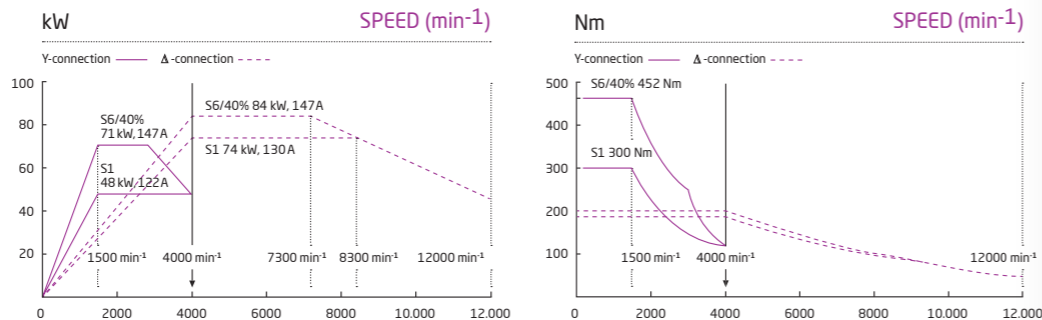
YELLOW GOODS

**Z SERIES**  
LARGE SELECTION  
OF ELECTROSPINDLES\*

**SK 50 BODY SIZES**

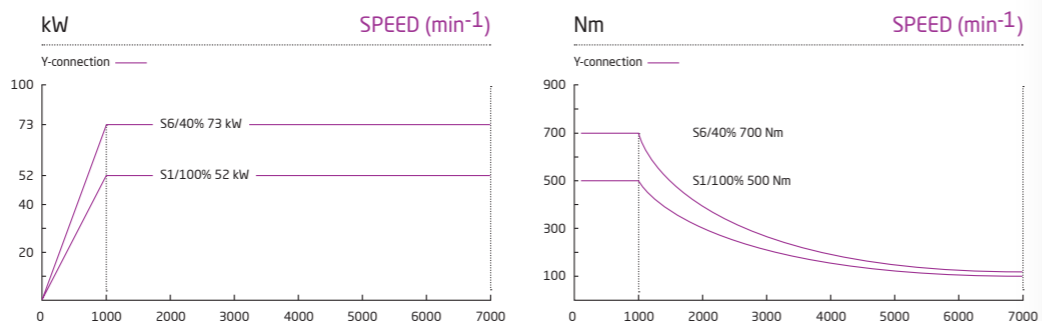
**1\_ STANDARD**

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



**2\_ OPTIONAL**

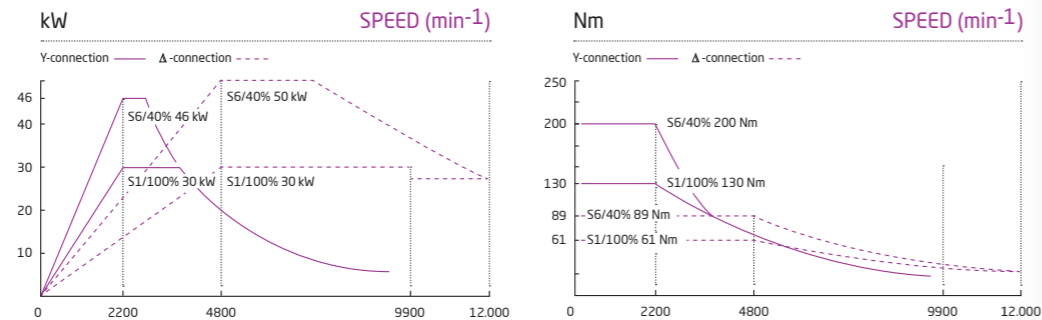
High torque for the hardest materials\_  
Up to 7000 rpm.  
52/73 kW (S1/S6).  
500/700 Nm (S1/S6)



**SK 40 BODY SIZES**

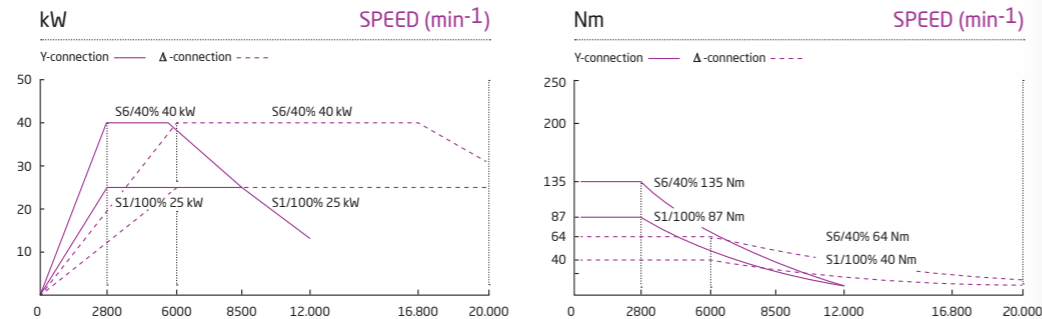
**1\_ STANDARD**

Dynamics and high revolutions\_  
Up to 12.000 rpm.  
(Option 15.000 rpm)  
30/50 kW (S1/S6).  
130/200 Nm (S1/S6)



**2\_ OPTIONAL**

Higher speed and dynamics\_  
Up to 20.000 rpm.  
25/40 kW (S1/S6).  
87/135 Nm (S1/S6)



\*More spindles on request

**ZVH EXTREME**  
TECHNICAL DATA

**TRAVELS**

- X axis travel (length)
- Y axis travel (cross)
- Z axis travel (vertical) (\*optional)
- B axis head tilting range
- C axis rotary table maximum swing diameter
- Piece maximum height
- Distance spindle nose-table. Head in V position
- Distance spindle nose-table. Head in H position

**WORKING AREA**

- Fixed table dimensions
- Maximum table load capacity
- Number of "T" slots
- "T" slots size
- Distance between "T" slots
- Fixed table height
- C axis rotary tables

**TILTING HEAD**

- Turning torque
- Position clamping force

**MAIN SPINDLE**

- Tool holder
- Maximum speed
- Maximum power
- Maximum torque (Nm)

**FEED**

- Feed thrust X-Y-Z 100%
- Rapid feed for positioning X-Y-Z
- Maximum working feed X-Y-Z
- Rapid feed for positioning in B axis

**ACCURACY VDI / DGQ3441**

- Positioning Tp X-Y-Z (1000 mm)
- Repeatability
- Measuring system on B axis
- Positioning accuracy B axis
- 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

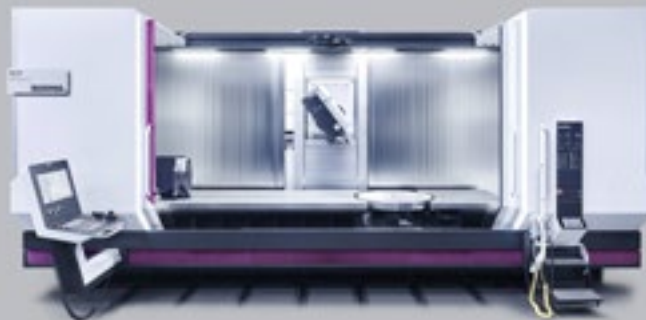
SK 50 BODY SIZES				SK 40 BODY SIZES		
ZVH 60	ZVH 58	ZVH 55	ZVH 50	ZVH 48	ZVH 45	ZVH 40
-X axis travel (length)						
1600 - 12.000 mm						
-Y axis travel (cross)						
1100 mm	1000 mm	800 mm	600 mm	1000 mm	800 mm	600 mm
-Z axis travel (vertical) (*optional)						
1100 mm (1300*)						
-B axis head tilting range						
+/- 105°						
-C axis rotary table maximum swing diameter						
ø 1500 mm	ø 1400 mm	ø 1200 mm	ø 1000 mm	ø 1300 mm	ø 1100 mm	ø 900 mm
-Piece maximum height						
1100 mm						
-Distance spindle nose-table. Head in V position						
0---1100 mm						
-Distance spindle nose-table. Head in H position						
375---1475 mm						
360---1260 mm						
-Fixed table dimensions						
L1600-2200: X +400 mm; ≥ L3000: X+600 mm & Y +50 mm						
-Maximum table load capacity						
2000 Kg/m²						
1500 Kg/m²						
-Number of "T" slots						
9	7	5	7	5		
-"T" slots size						
18 H7 mm						
-Distance between "T" slots						
125 mm						
-Fixed table height						
1075 mm						
1050 mm						
-C axis rotary tables						
Various models available (see on pages 6-7)						
-Turning torque						
800 Nm						
782 Nm						
-Position clamping force						
6000 Nm						
-Tool holder						
Standard: SK 50 - Option: BT 50 / HSK A-100						
Standard: SK 40 - Option: BT 40 / HSK A-63						
-Maximum speed						
Standard: 12.000 rpm - Option: 7000 rpm						
Standard: 12.000 rpm - Option: 20.000 rpm						
-Maximum power						
Standard: 84 kW - Option: 75 kW						
Standard: 50 kW - Option: 40 kW						
-Maximum torque (Nm)						
Standard: 452 Nm - Option: 700 Nm						
Standard: 200 Nm - Option: 135 Nm						
-Feed thrust X-Y-Z 100%						
X: 15.021 N / Y: 12.154 N / Z: 10.649 N						
X: 11.992 N / Y: 8521 N / Z: 7669 N						
-Rapid feed for positioning X-Y-Z						
45 m/min						
45-48-48 m/min						
-Maximum working feed X-Y-Z						
30 m/min						
-Rapid feed for positioning in B axis						
50 rpm						
-Positioning Tp X-Y-Z (1000 mm)						
10 µm						
-Repeatability						
5 µm						
-Measuring system on B axis						
Rotary scale						
-Positioning accuracy B axis						
+/- 5 s						
-Positioning accuracy C axis						
+/- 4 s						
-Milling capacity in steel St 60						
1100 cm³/min						
900 cm³/min						
-Drilling capacity in steel St 60						
ø 70 mm						
ø 50 mm						
-Tapping capacity in steel St 60						
M 45 mm						
M 33 mm						
-Number of tools						
30. Optional: 40, 60, 80 and more available on request.						
24. Optional: 40, 60, 80 and more available on request.						
-Maximum tool length						
400 mm						
350 mm						
-Maximum tool weight						
20 kg						
10 kg						
-Maximum tool diameter with full magazine						
ø 125 mm (ø 100 mm with 60-80 ATC)						
ø 90 mm (ø 80 mm with 60-80 ATC)						
-Maximum tool diameter with free spaces						
200 mm						
150 mm						
-Tool changing time						
10 s						
8 s						
-Chip to chip time						
12 s						
10 s						
-Available digital controls						
Fanuc / Heidenhain / Siemens						

# IBARMIA.



## YOUR MACHINE TOOL POINT

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