

# BHE

## High Torque Bridge Type Milling Machines



**FIDIA**   
Giving shape to design



# BHE



The **BHE** Bridge type machines are designed for use in general machining and tooling, but also for the aviation industry.

The structures, extremely rigid, allow both the use of heads with very high torque and 3 axis high speed milling technology.

The accuracy and the dynamics of the machine guarantees excellent results in conventional machining but also in high-performance machining.

High performance and efficiency are characteristics of this machine line, aimed at customers looking for reliable and durable technology.

### Configurable Z axis Travel

Z vertical axis may have travels with 700/900/1100/1300 mm with a RAM structure measuring 380x380mm or 420x420mm.

### Large capacity & easy access

- Tables from 2x1.7m to 6x3.1m, with a load capacity from 8,000 kg to 28000 kg.
- X from 2200 to 6200 mm stroke
- Y travels from 1700 to 3600 mm
- Opening the front door allows easy access for loading and unloading of parts.



### Wide range of Spindles and milling heads

- 3 axis spindle from 6000rpm to 15000 rpm
- Universal heads with BT#50 or ISO50 3500 rpm.

### Automatic Tool Changer

Automatic Tool changer up to 180 positions.





# BHE

## STRUCTURE

BHE machines are manufactured entirely in cast iron parts: base, columns, traverse and RAM (Z axis) of size 380x380mm, are designed with FEM system.



### X axis with 4 linear guides (models with Y > 1700mm)

4 linear guides are mounted in the machine bed to grant excellent dynamics and max payload on the table:

- 2 Roller guides
- 2 Linear guides

### Y axis with the exclusive solution of 3 roller guides

The movement of the Y drive is accomplished through 3 linear roller guides to ensure maximum rigidity and accuracy even in movements at high speed:

- 2 Roller guides mounted on the top of the traverse
- 1 Roller guide mounted on the front of the traverse

RAM designed with **Box-type** technology and made of special casting with dimensions 380x380mm, for Z axis travel 700 and 900mm.

The axis movement is supported by 4 Box ways treated with anti-friction "ROLON" material and 8 points of contact.

To increase stiffness in models with Z 1100mm and 1300 mm Z travel, RAM has dimension 420x420mm.

For higher dynamics 4 linear roller guides can be installed optionally.

### Digital drives & Linear scales

For maximum precision and to avoid problems due to thermal expansion, on all axes are mounted digital pressurized scales. The Fidia digital drives technology and the use of high resolution optical scales allow to optimize the machine tool dynamics and to achieve the maximum machining resolution and accuracy, even in high speed.





## Spindle designed to meet all the machining requirements

As standard a compact and robust system with direct coupling and 1:4 ZF box to avoid gaps, noise and thermal deformation is provided:

6000 rpm BT # 50/ISO50 with motor 17/25kW 162/239 Nm and ZF 1:4 gear with 956 Nm of maximum torque.

"Long nose" design to allows greater penetration into the cavities.

The whole line of spindles are oil cooled.



### Optionals Spindles:

- 6000 rpm BT#50/ISO50 - 28/43kW (S1/S6) - 134/205Nm (S1/S6) + ZF 2K250 1:5.5 Max Torque 1129 Nm (S6)
- 6000 rpm Built-in BT#50/ISO50 63.5kW 1243 Nm (S1)
- 8000 rpm Built-in BT#50/ISO50 36kW 340 Nm (S1)
- 15000 rpm Built-in HSK-A100 20kW 290 Nm (S1)

## INDEXED MILLING HEADS



Several options of heads with hydraulic tool clamping are available as optionals.

### Indexed universal manual head

3500 rpm 17/25kW 648/956 Nm BT#50/ISO50

The head can be manually removed and thus allowing the use of the vertical spindle with maximum speed (6,000 rpm).

This feature is available with 6000 standard spindle only.

### Automatic indexed Universal Head VH 1.

- 3500 rpm 17/25kW 648/956 Nm BT#50/ISO50
- B pitch 1°/360 positions
- C pitch 1°/360 positions

### Automatic indexed Universal Head VH 2.5

- 3500 rpm 17/25kW 648/956 Nm BT#50/ISO50
- B pitch 2.5°/144 positions
- C pitch 2.5°/144 positions



## nC19 FIDIA NUMERICAL CONTROL

### Simple and reliable machining

Fidia controls have always been appreciated for their high-level performance and comprehensive range of features supplied.

The nC19 Numerical Control features a double CPU PC-based architecture, to grant the best performances in both axis management and on-board programming.

The user interface environment allows operating with the maximum flexibility in any machining condition: programs coming from CAM systems, mechanical machining such as slots, threads and pullers programmed directly on board of the machine by using ISOGRAPH™.

### nC19 FIDIA - Industrial PC-based Architecture:

- **WINDOWS 7** 32 Bit Professional
- CPU PC Intel i3, 4 GB RAM, SDD 128 Gb HD
- 19" TFT Touch Screen graphic monitor
- High performance integrated graphic interface
- 3 Ethernet Gigabit Lan (RJ45)
- USB 2.0 (+ 3.0 on back panel) and RS-232 Serial Interface
- **CPU7 FIDIA** with Power PC 64 Bits floating point axis control processor

### nC19 FIDIA - Standard Software:

- Look-Ahead "VELOCITY 5™" with new "Dyna" parameter (machine dynamic advanced control)
- Interactive on-line Help (10 languages available)
- Log File: the log file records all events (messages, commands, etc.) sequentially to facilitate diagnostics, including remote diagnostics via Tele-Service.
- **TCPPOS**, automatic compensation of the tool length for indexed heads

### X Power FIDIA Digital Drives:

- Full digital with 32 bit DSP processing
- 90 Mbit/s FFB proprietary bus

### 2 2½D ISOGRAPH CAD/CAM software

- On-board programming: pocket milling, flattening, profiling, drilling, boring and so on.
- Define geometric profiles
- Manage ISO files
- Import geometric elements written in DWG/DXF formats
- Import files written in IGES format (optional)
- Employ a powerful programming language
- Generate contouring of both opened and closed profiles
- Generate paths for re-machining of residual material
- Generate fixed drilling, tapping and boring cycles
- Machine pockets with a rectangular, circular or general profile





## BHE BRIDGE DOUBLE COLUMN TECHNICAL CHARACTERISTICS

MODEL	BHE 17**/2200	BHE 17**/3200	BHE 22**/2200	BHE 22**/3200	BHE 26**/3200	BHE 22**/4200	BHE 26**/4200
<b>TRAVEL</b>							
X Axis (mm)	2200	3200	2200	3200		4200	
Y Axis (mm)	1700		2200		2600	2200	2600
Z Axis (mm)	700 (optional 900/1100/1300)		900 (optional 700/1100/1300)				
<b>DISTANCES</b>							
Between columns (mm)	1750		2130		2530	2130	2530
Spindle to table top (mm)	130 - 830 with 700 mm Z travel		130 - 1030 with 900 mm Z travel				
Table top to floor (mm)	895		915				
<b>TABLE</b>							
Overall size (mm)	2000 x 1600	3000 x 1600	2000 x 1700	3000 x 1700	3000 x 2100	4000 x 1700	4000 x 2100
T Slots (mm)	22 x 7 x 100						
Maximum Loading (kg)	8000	10000	8000	11000	14000	13000	16000
<b>SPINDLE &amp; RAM</b>							
Transmission	Direct Coupling						
Taper	BT#50 or ISO50						
Speed (rpm)	40 – 6000						
Motor (kW/Nm)	17 / 25 kW - 162/239 Nm + ZF 1:4 Gear change with max torque 956 Nm						
RAM Travel (mm)	700 (Optional 900/1100/1300)		900 (Optional 700/1100/1300)				
RAM Section (mm)	Box-type 380 x 380mm (420 x 420mm with Z 1100/1300 travel)						
RAM Guiding-System	8 sides contact box ways Rolon Type (Optional 4 Roller guides with Z 1100/1300 travel)						
<b>X / Y / Z</b>							
Rapid feedrate X / Y / Z	15/15/10 (15 Optional) m/min					10/15/10 (15 Optional) m/min	
No. Guides/type X	2 Roller type		2 Roller type + 2 Linear type				
No. Guides / type Y	3 Roller type (2 on top, 1 front side)						
Ballscrews X (mm)	Ø 63					Ø 80	
Ballscrews Y (mm)	Ø 63						
Ballscrews Z (mm)	Ø 50 ( Ø 63 with Z 1300mm)						
<b>TOOL CHANGER OPTION</b>							
Number of ATC Pos.	24 (Optional 40/60)						
Max. tool size (mm)	Ø110, Ø200/350L						
Max. tool weight (kg)	15						
Tool to Tool sec.	8						
<b>ACCURACY</b>							
Positioning ISO 230-2 (mm)	0.02					0.025	
Repeatability ISO 230-2 (mm)	0.015					0.02	
<b>MISCELLANEOUS</b>							
Power required (KVA)	60						
Pneumatic required (kg/cm <sup>2</sup> )	5						
Machine net weight (kg)	22000	26000	24000	28000	30000	35000	38000
<b>OPTIONALS SPINDLES</b>							
6000 rpm BT #50 or ISO50	28/43kW - 134/205Nm (S1/S6) + ZF 2K250 1:5.5 Max Torque 1129 Nm (S6)						
6000 rpm BT #50 or ISO50	Built-in 63.5kW/1243Nm						
8000 rpm BT #50 or ISO50	Built-in 36kW/340Nm						
15000 rpm HSK A-100	Built-in 20kW/290 Nm						

EMC / CE / ISO / NR12 CERTIFIED

MODEL	BHE 31**/4200	BHE 36**/4200	BHE 26*/5200	BHE 31*/5200	BHE 36**/5200	BHE 31**/6200	BHE 36**/6200
<b>TRAVEL</b>							
X Axis (mm)	4200		5200			6200	
Y Axis (mm)	3100	3600	2600	2100	3600	3100	3600
Z Axis (mm)	900 (optional 700/1100/1300)						
<b>DISTANCES</b>							
Between columns (mm)	3130	3530	2530	3130	3530	3130	3530
Spindle to table top (mm)	130 - 1030 with 900 mm Z travel						
Table top to floor (mm)	915						
<b>TABLE</b>							
Overall size (mm)	4000 x 2600	4000 x 3100	5000 x 2100	5000 x 2600	5000 x 3100	6000 x 2600	6000 x 3100
T Slots (mm)	22 x 7 x 100						
Maximum Loading (kg)	20000	24000	18000	26000	25000	23000	28000
<b>SPINDLE &amp; RAM</b>							
Transmission	Direct Coupling						
Taper	BT-50 (DIN, 69817) (CAT-50)						
Speed (rpm)	40 – 6000						
Motor (kW/Nm)	17 / 25 kW - 162/239 Nm + ZF 1:4 Gear change with max torque 956 Nm						
RAM Travel (mm)	900 (Optional 700/1100/1300)						
RAM Section (mm)	380 x 380 (420 x 420 with optional Z 1100/1300 travel)						
RAM Guiding-System	8 sides contact box ways Rolon Type (4 Roller guides with optional Z 1100/1300 travel)						
<b>X / Y / Z</b>							
Rapid feedrate X / Y / Z	10/10/10 (Optional 12/12/12-15)						
No. Guides/type X	2 Roller type + 2 Linear type						
No. Guides / type Y	3 Roller type (2 on top, 1 front side)						
Ballscrews X (mm)	Ø 80		Ø 100				
Ballscrews Y (mm)	Ø 63						
Ballscrews Z (mm)	Ø 50 (Ø 63 with Z 1300mm)						
<b>TOOL CHANGER OPTION</b>							
Number of ATC Pos.	24 (Optional 40/60)						
Max. tool size (mm)	Ø110, Ø200/350L						
Max. tool weight (kg)	15						
Tool to Tool sec.	8						
<b>ACCURACY</b>							
Positioning ISO 230-2 (mm)	0.025						
Repeatability ISO 230-2 (mm)	0.02						
<b>MISCELLANEOUS</b>							
Power required (KVA)	60						
Pneumatic required (kg/cm <sup>2</sup> )	5						
Machine net weight (kg)	42000	44000	49000	53000	56000	70000	75000
<b>OPTIONALS SPINDLES</b>							
6000 rpm BT #50 or ISO50	28/43kW - 134/205Nm (S1/S6) + ZF 2K250 1:5.5 Max Torque 1129 Nm (S6)						
6000 rpm BT #50 or ISO50	Built-in 63.5kW/1243Nm (S1)						
8000 rpm BT #50 or ISO50	Built-in 36kW/340Nm (S1)						
15000 rpm HSK A-100	Built-in 20kW/290 Nm (S1)						

EMC / CE / ISO / NR12 CERTIFIED

**FIDIA S.p.A.**

Corso Lombardia, 11  
10099 San Mauro Torinese - TO - ITALY  
Tel. +39 011 2227111  
Fax +39 011 2238202  
info@fidia.it  
www.fidia.com

**FIDIA GmbH**

Robert-Bosch-Strasse 18  
63303 Dreieich-Sprendlingen - GERMANY  
Tel. +49 6103 4858700  
Fax +49 6103 4858777  
info@fidia.de

**FIDIA Co.**

3098 Research Drive  
Rochester Hills MI 48309 - USA  
Tel. +1 248 6800700  
Fax +1 248 6800135  
info@fidia.com

**FIDIA Sarl**

47 bis, Avenue de l'Europe  
B.P. 3 - Emerainville  
77313 Marne La Vallée Cedex 2 - FRANCE  
Tel. +33 1 64616824  
Fax +33 1 64616794  
info@fidia.fr

**FIDIA Iberica S.A.**

Parque Tecnológico  
Laida Bidea, Edificio 208  
48170 Zamudio - Bizkaia - SPAIN  
Tel. +34 94 4209820  
Fax +34 94 4209825  
info@fidia.es

**FIDIA DO BRASIL LTDA**

Av. Salim Farah Maluf, 4.236 - 3º andar  
Móoca - SÃO PAULO - Cep 03194-010 - BRAZIL  
Tel. +55 11 29657600  
Fax +55 11 20212718  
info@fidia.com.br

**FIDIA JVE**

Beijing Fidia Machinery & Electronics Co., Ltd  
Room 1509, 15/F Tower A. TYG Center Mansion  
C2 North Road East Third Ring Road,  
Chaoyang District  
100027 BEIJING - P.R. CHINA  
Tel. +86 10 64605813/4/5  
Fax +86 10 64605812  
info@fidia.com.cn

**FIDIA JVE**

Shanghai Office  
28/D, No.1076, Jiangning Road  
Putuo District  
Shanghai 200060 - CHINA  
Tel. +86 21 52521635  
Fax +86 21 62760873  
shanghai@fidia.com.cn

**OOO FIDIA**

c/o Promvost  
Sushovskiy Val, Dom 5, Str. 2, Office 411  
127018 Moscow - RUSSIA  
Tel.: +7 499 9730461  
Mobile: +7 9035242669  
sales.ru@fidia.it  
service.ru@fidia.it

**Service centres:****FIDIA GmbH - SERVICE CZ**

CZ- 74706 Opava  
Tel/Fax +420 553 654 402  
sales.cz@fidia.it

**FIDIA S.p.A. - SALES & SERVICE UK**

32 Riverside, Riverside Place  
Cambridge - Cambridgeshire  
CB5 8JF - United Kingdom  
Mobile: +44 - (0)7425 838162  
sales.uk@fidia.it

**3H MAKINA**

Atasehir Bulvari, Ata 2/3  
Plaza, Kat: 9 No: 80  
Atasehir - Istanbul - TURKEY  
Tel.: +90 216 456 10 43  
Fax: +90 216 456 75 23  
sales.tr@fidia.it  
service.tr@fidia.it

**AXIS SYSTEMS**

# T8 ~ T9 ~ T20, "INSPIRIA"  
Old Mumbai - Pune Highway,  
Pune - 411044, India  
Cell : +91 9881245460  
service.in@fidia.it

**P.V. ELECTRONIC SERVICES C.C.**

P.O. Box 96  
Hunters Retreat 6017  
Port Elisabeth SOUTH AFRICA  
Tel. +27 41 3715143  
Fax +27 41 3715143  
sales.za@fidia.it

**SHIYAN FIDIA SERVICE CENTRE**

N.84 Dong Yue Road,  
Shiyan, Hubei - CHINA  
Tel. +86 719 8225781  
Fax +86 719 8228241

**CHENGDU FIDIA SERVICE CENTRE**

Huang Tian Ba  
Chengdu, Sichuan - CHINA  
Tel. +86 28 87406091  
Fax +86 28 87406091

**IE-MAT s.r.l.**

Bv. De Los Calabreses 3706  
Barrio: Boulevares.  
Córdoba - ARGENTINA  
CP: X5022EWW  
Tel. +54 351 5891717  
sales.ar@fidia.it

**Manufacturing plants:****FIDIA S.p.A.**

Via Valpellice, 67/A  
10060 San Secondo di Pinerolo  
TO - ITALY  
Tel. +39 0121 500676  
Fax +39 0121 501273

**FIDIA S.p.A.**

Via Balzella, 76  
47100 Forlì  
ITALY  
Tel. +39 0543 770511  
Fax +39 0543 795573  
info@fidia.it

**SHENYANG FIDIA NC & MACHINE CO., LTD.**

No. 1 17 Jia Kaifa Rd.  
Shenyang Economic & Technological Development Zone  
110141 Shenyang - P.R. CHINA  
Tel. +86 24 25191218/9  
Fax +86 24 25191217  
info@fidia.com.cn

**Research centres:****FIDIA S.p.A.**

c/o Tecnopolis  
Str. Provinciale per Casamassima Km 3,  
70010 Valenzano  
Bari - ITALY  
Tel. +39 080 4673862

