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03 | 2024

DRILLING AND MILLING MACHINES



KF 10
KF 10 L
KF 10 HS
KF 20
KF 20 L
KF 20 Super
KF 20 L Super
KF 16 Vario
KF 16 L Vario
KF 18 Top
BF 22 L Vario



BF 22 LD Super
KF 25 D Vario
KF 25 L Vario
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BF 25 Super
BF 25 L Super
KF 28 Top
BF 28 L Vario
BF 28 LD Super
BF 28 BDC



BF 30 G
BF 30 N Super
BF 35 BDC
FM 40 HS
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FM 45 HS
FM 45 HSV
FM 50 HSV
FM 55 HSV
FM 55 HSV Vario
FM 55 HTC Vario



BF 40 HS
BF 45 HSV
BF 45 HSV Vario
KF 60
UWF 80 E
UWF 80 E Vario
UWF 90
UWF 90 V
UWF 95 N
MFM 230 Super
MFM 250 Super



UWF 110
UWF 150
UWF 110 Servo
UWF 130 Servo
UWF 150 Servo
UWF 150 V Servo
UWF 200 Servo
Variomill FU 1200
Variomill FU 1600
Variomill FU 2000
WFM 800

Drilling and milling machines

KF 10 KF 10 L

The compact construction of the KF 10 drilling and milling machine makes this model ideal for amateurs and craftsmen. The model KF 10 L feature a bigger worktable and longer table travel.

- Numerous application possibilities, such as face milling, slotting etc.
- Wide speed range (2 steps) from 100 – 2000 rpm
- Dovetail guiding in all axis, adjustable via gibs
- Handwheel with scale allows spindle fine feed
- Serial with right and left spindle rotation
- Precise bearings ensure high concentricity of spindle
- Electronic stepless drive for precise results
- Scale allows easy read of drill depth
- Solid and vibration-free grey cast-iron machine base

KF 10 tilted mill head - standard feature - increases application area



User-friendly arrangement of control elements on mill head.



Optionally available with keyless chuck 1 – 10 mm / B 12



Spindle with fine feed ensures precise results.



Surface treated cross table with 3 T-slots.

Standard accessories:

- Drill chuck 1 – 10 mm / B 12
- Drill chuck arbor MT 2 / B 12
- Drawbar M 10
- Height adjustable protective cover
- 4 T-nuts M 6
- Tools

Vario-Drive

| Technical data | KF 10 / KF 10 L |
|--|--|
| Drilling capacity in steel | 10 mm |
| Face mill capacity max. | 20 mm |
| End mill capacity max. | 10 mm |
| Distance spindle to column | 140 mm |
| Distance spindle to table | 80 - 260 mm |
| Spindle stroke | 30 mm |
| Spindle speed, stepless | L= 100 - 1000 rpm H= 100 - 2000 rpm |
| Spindle taper | MT 2 |
| Table size | 240 x 145 mm 400 x 145 mm |
| Travel (x / y) | 180 / 130 mm 330 / 170 mm |
| Height adjustment of mill head | 180 mm |
| Mill head tiltable | -45° to +45° |
| T-slot size | 8 mm |
| Motor power output S ₁ 100% | 0,15 kW / 0,25 kW |
| Motor power input S ₆ 40% | 0,25 kW / 0,35 kW |
| Voltage | 230 V |
| Machine dimension (W x D x H) | 420 x 343 x 720 mm |
| Weight approx. | 45 kg / 50 kg |
| KF 10 | 02-1005 |
| KF 10 L | 02-1006 |



KF 10 L

x-axis: 330 mm

y-axis: 170 mm

Left and right turning

Optional accessories:

| | Art. no. | excl. VAT |
|---|----------|-----------|
| Mill chuck set ER 16, MT 2, 3 - 10 mm, 7 pcs. | 26-1001 | |
| Collet set MT 2, 3 - 10 mm, 6 pcs. | 26-1015 | |
| Horizontal & vertical rotary table RT 3 | 27-1030 | |
| Clamping kit set 24 pcs., 8 mm, M 6 | 28-1012 | |
| Quick clamping vise SP 55 | 28-2045 | |
| 2 flute HSS end mill set, 3 - 10 mm, 6 pcs. | 42-1000 | |
| Indexable carbide end mill 16 mm, MT 2 | 42-1025 | |
| Stand | 56-1000 | |

Drilling and milling machine

KF 10 HS

The KF 10 HS drilling and milling machine features a brushless DC- motor, allowing smooth operation and a consistent spindle drive. The attractive price-benefit ratio makes this model ideal for model-makers and amateurs.

- Numerous application possibilities, such as face milling, slotting etc.
- Wide speed range from 100 – 5000 rpm
- Dovetail guiding in all axis, adjustable via gibs
- Handwheel with scale allows spindle fine feed
- Serial with right and left spindle rotation
- Precise bearings ensure high concentricity of spindle
- Electronic stepless drive for precise results
- Scale allows easy readout of drill depth
- Solid and vibration-free grey cast-iron machine base



Spindle feed alternatively by handle or fine feed by handwheel.



Electronic, stepless speed setting - easy readout via digital display.



Easy readout of the z-axis travel by scale.



Big dimensioned cross table with 3 T-slots

Standard accessories:

- Drill chuck 1 – 10 mm / B 12
- Drill chuck arbor MT 2 / B 12
- Drawbar M 10
- Digital speed indication
- Height adjustable protective cover
- 4 T-nuts M 6
- Tools

| Technical data | KF 10 HS |
|--|--------------------|
| Drilling capacity in steel | 10 mm |
| Face mill capacity max. | 20 mm |
| End mill capacity max. | 10 mm |
| Distance spindle to column | 140 mm |
| Distance spindle to table | 90 - 260 mm |
| Spindle stroke | 30 mm |
| Spindle speed, stepless | 100 - 5000 rpm |
| Spindle taper | MT 2 |
| Table size | 400 x 145 mm |
| Travel (x / y) | 330 / 170 mm |
| Height adjustment of mill head | 170 mm |
| T-slot size | 8 mm |
| Motor power output S ₁ 100% | 0,25 kW |
| Motor power input S ₆ 40% | 0,35 kW |
| Voltage | 230 V |
| Machine dimension (W x D x H) | 520 x 480 x 750 mm |
| Weight approx. | 50 kg |
| Art. no. | 02-1007 |



Vario-Drive

Max. speed
5000 rpm

Brushless direct
current motor

Optional accessories:

| | Art. no. | excl. VAT |
|---|----------|-----------|
| Mill chuck set ER 16, MT 2, 3 - 10 mm, 7 pcs. | 26-1001 | |
| Collet set MT 2, 3 - 10 mm, 6 pcs. | 26-1015 | |
| Horizontal & vertical rotary table RT 3 | 27-1030 | |
| Clamping kit set 24 pcs., 8 mm, M 6 | 28-1012 | |
| Quick clamping vise SP 55 | 28-2045 | |
| 2 flute HSS end mill set, 3 - 10 mm, 6 pcs. | 42-1000 | |
| Indexable carbide end mill 16 mm, MT 2 | 42-1025 | |
| Stand | 56-1000 | |

Milling machines

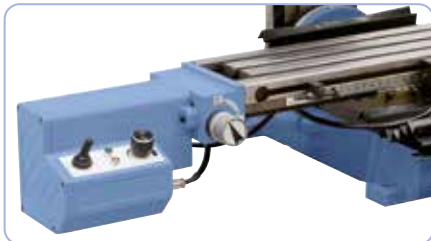
The KF 20 and KF 20 L are ideal for drilling, milling and countersinking of smaller workpieces. The compact construction provides vibration-free environment for model-makers with high demands.

KF 20 KF 20 L

- Guides can be clamped individually to guarantee optimal results
- Tilttable mill head increases application range (-45° to +45°)
- Electronic stepless drive
- Wide speed range (2 steps) from 0 - 2500 rpm
- Dovetail guiding in x-, y- and z-axis
- Scale allows easy read of drill depth
- Spindle with precise fine feed
- Handwheel allows spindle feed when milling
- Star handle allows spindle feed when drilling



Intermediate gear and electronically steplessly adjustable DC motor allow speed setting.



High-quality grey cast-iron cross table, power feed FTV 1 for mill table is optionally available (KF 20).



KF 20 with tilted mill head increases application area (standard).

KF 20 L

Table size
460 x 120 mm

Stepless speed adjustment

Standard accessories:

- Drill chuck 1 - 13 mm / B 16
- Drill chuck arbor MT 3 / B 16
- Height adjustable protective cover
- Drawbar M 12
- Tools

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Technical data

KF 20 / KF 20 L

| | |
|--|------------------------------------|
| Drilling capacity in steel | 13 mm |
| Face mill capacity max. | 30 mm |
| End mill capacity max. | 16 mm |
| Distance spindle to column | 165 mm |
| Distance spindle to table | 100 - 290 mm |
| Spindle speed, stepless | L= 0 - 1000 rpm H= 0 - 2500 rpm |
| Spindle taper | MT 3 |
| Table size KF 20 | 385 x 90 mm |
| Table size KF 20 L | 460 x 120 mm |
| Travel KF 20 (x / y) | 235 / 100 mm |
| Travel KF 20 L (x / y) | 300 / 130 mm |
| Mill head tilttable | -45° to +45° |
| Height adjustment of mill head | 190 mm |
| T-slot size | 12 mm |
| Motor power output S ₁ 100% | 0,35 kW / 230 V |
| Motor power input S ₆ 40% | 0,55 kW / 230 V |
| Machine dimension (W x D x H) | 510 x 550 x 760 mm |
| Weight approx. | 50 / 53 kg |
| KF 20 | 02-1010 |
| KF 20 L | 02-1011 |

Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Mill chuck set ER 25, MT 3, 4 - 16 mm, 8 pcs. | 26-1003 | |
| Collet set MT 3, 4 - 16 mm, 7 pcs. | 26-1016 | |
| Horizontal & vertical rotary table RT 3 | 27-1030 | |
| Deluxe clamping kit set 58 pcs., 12 mm, M 10 | 28-1000 | |
| 3-axis digital readout set for KF 20 / KF 20 Super | 37-3240 | |
| 3-axis digital readout set for KF 20 L / KF 20 L Super | 37-3241 | |
| Costs of assembly for 3-axis digital readout set | 37-3083 | |
| 2 flute HSS end mill set, 4 - 16 mm, 7 pcs. | 42-1005 | |
| Combi milling box, 3 - 12 mm, 12 pcs. | 42-1022 | |
| Auto feeder FTV 1 / 230 V (x-axis) f. KF 20 L | 53-1013 | |
| Auto feeder FTV 2 / 230 V (x-axis) f. KF 20 L | 53-1014 | |
| Stand BF 1 with chip tray | 56-1005 | |

Milling machines

The drilling and milling machines KF 20 Super and KF 20 L Super features a brushless DC- motor, allowing smooth operation and a consistent spindle drive over the entire speed range.

KF 20 Super KF 20 L Super

- Brushless direct current motor ensures optimal torque at low range
- Dovetail guiding in x-, y- and z-axis, adjustable via gibs
- Mill head tilts to both sides for drilling of angles, bevelling etc.
- Guides can be clamped individually to guarantees optimal results
- Hand grip allows spindle adjustment, handwheel allows fine feed
- Surface treated cross table features T-slots
- Maintenance-free 500 W motor ensures smooth run
- Stepless speed setting allows perfect adjustment to workpiece



Optionally available: digital speed display.



Large star handle allows easy spindle feed when drilling, handwheel allows fine adjustment when milling.



Brushless direct current motor

Picture with mill table feed FTV 2 and 3-axis-digital readout DT20



Smooth performance

KF 20 L Super
x-axis: 300 mm
y-axis: 130 mm

Technical data

KF 20 Super / KF 20 L Super

| | |
|--|--------------------|
| Drilling capacity in steel | 13 mm |
| Face mill capacity max. | 30 mm |
| End mill capacity max. | 16 mm |
| Distance spindle to column | 165 mm |
| Distance spindle to table | 95 - 285 mm |
| Spindle speed, stepless | 100 - 2500 rpm |
| Spindle taper | MT 3 |
| Table size KF 20 Super | 385 x 90 mm |
| Table size KF 20 L Super | 460 x 120 mm |
| Travel KF 20 Super (x / y) | 235 / 100 mm |
| Travel KF 20 L Super (x / y) | 300 / 130 mm |
| Mill head tiltable | -45° to +45° |
| Height adjustment of mill head | 190 mm |
| T-slot size | 12 mm |
| Motor power output S ₁ 100% | 0,50 kW / 230 V |
| Motor power input S _e 40% | 0,75 kW / 230 V |
| Machine dimension (W x D x H)* | 520 x 500 x 740 mm |
| Weight approx. | 50 / 60 kg |
| KF 20 Super | 02-1015 |
| KF 20 L Super | 02-1016 |

* KF 20 Super / without stand

Standard accessories:

- Drill chuck 1 - 13 mm / B 16
- Drill chuck arbor MT 3 / B 16
- Drawbar M 12
- Height adjustable protective cover
- Tools

Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Digital spindle speed readout | 03-1555 | |
| Mill chuck set ER 25, MT 3, 4 - 16 mm, 8 pcs. | 26-1003 | |
| Horizontal & vertical rotary table RT 3 | 27-1030 | |
| Quick clamping vise SP 80 | 28-2046 | |
| 3-axis digital readout set for KF 20 / KF 20 Super | 37-3240 | |
| 3-axis digital readout set for KF 20 L / KF 20 L Super | 37-3241 | |
| Costs of assembly for 3-axis digital readout set | 37-3083 | |
| 12 pcs. HSS TiN-coated end mills, 3 - 12 mm | 42-1019 | |
| Indexable carbide end mill 30 mm, MT 3 | 42-1026 | |
| Auto feeder FTV 1 / 230 V (x-axis) f. KF 20 L | 53-1013 | |
| Auto feeder FTV 2 / 230 V (x-axis) f. KF 20 L Super | 53-1014 | |
| Stand BF 1 with chip tray | 56-1005 | |

Drilling and milling machine

KF 16 Vario

The precise drilling and milling machine KF 16 Vario ideal for drilling, milling and countersinking of smaller workpieces. The compact construction provides vibration-free environment for hobbyists and do-it-yourselfers.

- Height adjustable protective cover with micro switch for increased safety
- Dovetail guiding in all axes, adjustable via gibs
- Numerous application possibilities, such as face milling, slotting etc.
- Large cross table with scale
- Electronic stepless drive for precise results
- Solid and vibration-free grey cast-iron machine base
- Precise bearings ensure high concentricity of spindle
- Mill head tilts to both sides (-90° to +90°)
- Wide speed range (2 steps) from 50 - 2250 rpm

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Clearly arranged control elements.



Surface treated cross table with 3 T-slots.

Standard accessories:

- 3-axis digital readout DT 40 (Art. no. 02-1019A)
- Drawbar M 10
- Drill chuck arbor MT 2 / B 16
- EMC filter according to CE standard
- Height adjustable protective cover
- Tools



Tilted mill head comes standard, stand BF 1 optional



Spindle taper MT 2

Best Price

Technical data

| Technical data | KF 16 Vario |
|--|----------------------------------|
| Drilling capacity in steel | 16 mm |
| Face mill capacity max. | 50 mm |
| End mill capacity max. | 20 mm |
| Distance spindle to column | 170 mm |
| Distance spindle to table max. | 275 mm |
| Spindle stroke | 50 mm |
| Spindle speed, stepless | 50 - 1125 / 100 - 2250 rpm |
| Spindle taper | MT 2 |
| Table size | 400 x 120 mm |
| Travel (x / y) | 230 / 140** mm |
| Mill head tiltable | -90° to +90° |
| Height adjustment of mill head | 200 mm |
| T-slot size | 10 mm |
| Motor power output S ₁ 100% | 0,50 kW / 230 V |
| Motor power input S ₆ 40% | 0,80 kW / 230 V |
| Machine dimension (W x D x H)* | 530 x 490 x 820 mm |
| Weight approx. | 60 kg |
| Art. no. | 02-1019 |
| | 02-1019A (incl. digital readout) |

* without stand

** 120 mm at model with 3-axis digital readout

Stepless speed adjustment
Vario-Drive

Optional accessories:

| Optional accessories: | Art. no. | excl. VAT |
|--|----------|-----------|
| Aut. reversible tapping chuck set SUPER M 2 - M 7 | 24-1095 | |
| Boring head combo package diam. 50 mm, incl. boring bars | 25-1014 | |
| Mill chuck set ER 16, MT 2, 3 - 10 mm, 7 pcs. | 26-1001 | |
| Mill chuck set ER 25, MT 2, 4 - 16 mm, 8 pcs. | 26-1002 | |
| Mill chuck set ER 32, MT 2, 3 - 20 mm, 13 pcs. | 26-1004B | |
| Horizontal & vertical rotary table RT 4 L | 27-1031 | |
| Deluxe clamping kit set 58 pcs., 10 mm, M 8 | 28-1004 | |
| Precision machine vise PS 75 | 28-2026 | |
| 2 flute HSS end mill set, 4 - 16 mm, 7 pcs. | 42-1005 | |
| 7 pcs. HSS roughing end mill set, 6 - 20 mm | 42-1010 | |
| 12 pcs. HSS TiN-coated end mills, 3 - 12 mm | 42-1019 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Carbide indexable face milling cutter diam. 50 mm / B 22 | 42-1057 | |
| Stand BF 0 with chip tray | 56-1004 | |
| Stand BF 1 with chip tray | 56-1005 | |

Drilling and milling machine **KF 16 L Vario**

The KF 16 L Vario is a small and compact drilling machine, featuring a digital speed and spindle stroke display. This model is widely used among precision mechanics and technically-minded model makers.

- Solid grey cast-iron machine base reduces vibrations
- Direct current motor ensures optimal torque at low speed range
- Adjustable dovetail guiding in x-, y- and z-axis
- Steplessly adjustable speed range (50 - 1125 / 100 - 2250 rpm)
- Mill head tilts to both sides (-90° to +90°)
- Polished gear wheels ensure smooth running
- Handwheel allows precise spindle feed when milling
- Wide range of applications, such as tapping, slot and end milling



Digital speed and spindle stroke indicator included as standard equipment



Tilted mill head comes standard, stand BF 1 optional

Standard accessories:

- 3-axis digital readout DT 40 (Art. no. 02-1021A)
- Drawbar M 10
- Digital display of spindle stroke
- Digital speed indication
- Drill chuck arbor MT 2 / B 16
- EMC filter according to CE standard
- Height adjustable protective cover
- Tools

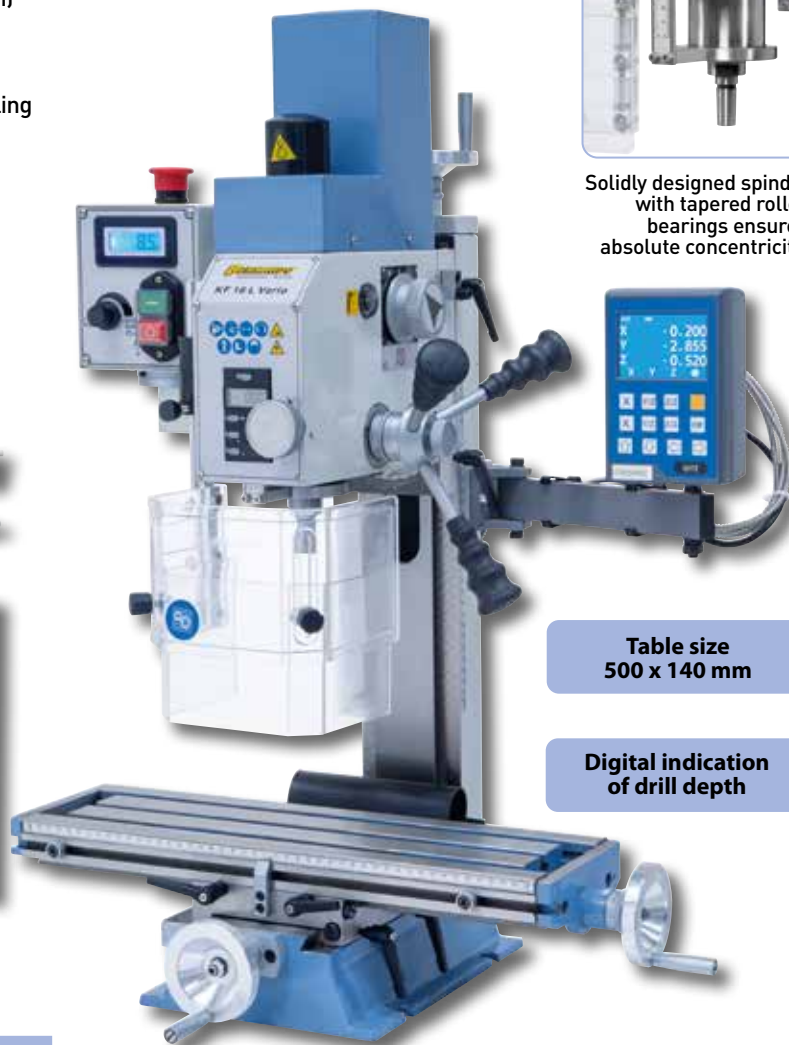
Stepless speed adjustment

| Technical data | KF 16 L Vario |
|--|----------------------------------|
| Drilling capacity in steel | 16 mm |
| Face mill capacity max. | 50 mm |
| End mill capacity max. | 20 mm |
| Distance spindle to column | 170 mm |
| Distance spindle to table max. | 275 mm |
| Spindle stroke | 50 mm |
| Spindle speed, stepless | 50 - 1125 / 100 - 2250 rpm |
| Spindle taper | MT 2 |
| Table size | 500 x 140 mm |
| Travel (x / y) | 365 / 140** mm |
| Mill head tiltable | -90° to +90° |
| Height adjustment of mill head | 200 mm |
| T-slot size | 10 mm |
| Motor power output S ₁ 100% | 0,50 kW / 230 V |
| Motor power input S ₆ 40% | 0,80 kW / 230 V |
| Machine dimension (W x D x H)* | 610 x 500 x 820 mm |
| Weight approx. | 65 kg |
| Art. no. | 02-1021 |
| | 02-1021A (incl. digital readout) |

Main spindle bearing in P5-quality



Solidly designed spindle with tapered roller bearings ensures absolute concentricity.



Digital indication of drill depth

Table size 500 x 140 mm

High concentricity ≤ 0.015 mm

Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Aut. reversible tapping chuck set SUPER M 2 - M 7 | 24-1095 | |
| Boring head combo package diam. 50 mm, incl. boring bars | 25-1014 | |
| Mill chuck set ER 16, MT 2, 3 - 10 mm, 7 pcs. | 26-1001 | |
| Mill chuck set ER 25, MT 2, 3- 16 mm, 10 pcs. | 26-1002A | |
| Mill chuck set ER 32, MT 2, 3 - 20 mm, 13 pcs. | 26-1004B | |
| Horizontal & vertical rotary table RT 4 S | 27-1034 | |
| Deluxe clamping kit set 58 pcs., 10 mm, M 8 | 28-1004 | |
| Precision machine vise PS 75 | 28-2026 | |
| 2-way precision tilting vise PTS 75 | 28-2032 | |
| 3-axis digital readout set DT 40 (self mounting) | 37-32445 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Carbide indexable face milling cutter diam. 50 mm / B 22 | 42-1057 | |
| Stand BF 0 with chip tray | 56-1004 | |
| Stand BF 1 with chip tray | 56-1005 | |

* without stand

** 120 mm at model with 3-axis digital readout

Drilling and milling machine

KF 18 Top

- High speed range from 50 - 3000 rpm, 2-step gear box ensures optimal transmission
- Variable speed adjustment, stepless speed change for ideal adjustment to the workpiece
- Model also available with 3-axis digital readout DT 40 (Art. No. 02-10221)
- Oversize cross table features T-slots, high grade surface finish
- Many possible applications, such as groove milling, face milling, re boring, etc.
- Direct current motor for ideal torque at lower speed
- Mill head tilts to both sides allowing angular boring, milling of bevels, etc.
- Incl. EMC filter, protect electrical equipment against electromagnetic interferences
- Left and right rotation for thread cutting comes standard
- Taper roller bearing guarantees high spindle concentricity ($\leq 0,015$ mm)
- Dovetail guiding in x-, y- and z-axis, adjustable via gibs
- Spindle adjustment via handle, fine feed via handwheel

**Best
Price**

Spindle taper
MT 2



Optionally available rotary table for many more applications.



The machine can optionally be equipped with a boring head.



Centering indicator for re boring



The machine can be equipped with a tapping chuck set M5 - M12 for thread cutting.



Milling with precision machine vise PS 75



Optional equipment: Edge finder with indicator lamps MT 2



Milling with carbide indexable face milling cutter (Art. no. 42-1057)



Optional available: Carbide indexable end mill

Technical data

KF 18 Top

| | |
|--|---|
| Drilling capacity in steel | 18 mm |
| Face mill capacity max. | 63 mm |
| End mill capacity max. | 20 mm |
| Distance spindle to column | 195 mm |
| Distance spindle to table min./max. | 110/280 mm |
| Spindle stroke | 52 mm |
| Spindle speed, stepless | 50 - 1500/100 - 3000 rpm |
| Spindle taper | MT 2 |
| Table size | 500 x 180 mm |
| Travel (x / y) | 285 / 160** mm |
| Mill head tiltable | -90° to +90° |
| Height adjustment of mill head | 170 mm |
| T-slot size | 12 mm |
| Motor power output S ₁ : 100% | 0,50 kW / 230 V |
| Motor power input S ₂ : 40% | 0,80 kW / 230 V |
| Machine dimension (W x D x H)* | 740 x 640 x 850 mm |
| Weight approx. | 95 kg |
| Art. no. | 02-1022 02-10221 (incl. digital readout) |

* without stand

** 135 mm at model with 3-axis digital readout

Digital
speed indication

Direct current motor
Input power 500 W

Digital indication
of drill depth

Standard accessories:

- 3-axis digital readout DT 40 (Art. no. 02-10221)
- Drill chuck 3 - 16 mm / B 16
- Drill chuck arbor MT 2 / B 16
- Drawbar M 10
- LED machine light
- Digital speed indicator
- Digital spindle stroke indicator
- EMC filter according to CE standard
- Height adjustable protective cover
- Energy chain
- Tools

Modern design

KF 18 Top

The KF 18 Top drilling and milling machine comes complete with a high quality direct current motor. Consequently, there are many advantages such as the high torque at low speed and the almost constant speed during processing. This model is predominantly used among professionals, in model-making as well as for training purposes.

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Inclusive EMC filter

Membrane keyboard makes adjustments extremely user-friendly.



Large star handle allows easy spindle feed when drilling, handwheel allows fine adjustment when milling.



Milling head is tiltable to both sides from -90° to +90°.



Dovetail guiding for the x-, y- and z-axis, adjustable by gibs



Max. speed 3000 rpm

Stepless speed adjustment

Main spindle bearing in P5-quality

Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Deluxe clamping kit set 58 pcs., 12 mm, M 10 | 28-1000 | |
| Horizontal & vertical rotary table RT 4 S | 27-1034 | |
| 7 pcs. HSS roughing end mill set, 6 - 20 mm | 42-1010 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| Carbide indexable face milling cutter diam. 50 mm / B 22 | 42-1057 | |
| Carbide indexable face milling cutter diam. 63 mm / B 22 | 42-1058 | |
| Mill chuck set ER 25, MT 2, 3- 16 mm, 10 pcs. | 26-1002A | |
| Mill chuck set ER 25, MT 2, 4 - 16 mm, 8 pcs. | 26-1002 | |
| Mill chuck set ER 32, MT 2, 3 - 20 mm, 13 pcs. | 26-1004B | |
| Precision machine vise PS 75 | 28-2026 | |
| Precision universal machine vise PGS 50 | 28-2041 | |
| Aut. reversible tapping chuck set SUPER M 5 - M 12 | 24-1096 | |
| Boring head combo package diam. 50 mm, incl. boring bars | 25-1014 | |
| Edge finder with indicator lamps MT 2 | 32-1062 | |
| Edge finder diam. 10 mm / 4 mm | 32-1066 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| Stand BF 2 with chip tray | 56-1010 | |
| Stand BF 2 Deluxe with chip tray | 56-1011 | |

Drilling and milling machines

BF 22 L Vario BF 22 LD Super

- Variable speed adjustment, stepless speed change for ideal adjustment to the workpiece
- Direct current motor for ideal torque at lower speed (BF 22 LD Super)
- Wide range of applications, such as thread cutting, groove milling, horizontal slotting etc.
- Serially with left and right turning and digital spindle stroke indication
- Dovetail guiding for the x-, y- and z-axis, adjustable by gibs
- Taper roll bearings guarantees high spindle concentricity (≤ 0.015 mm)
- Model BF 22 LD Super serially with thread cutting device
- Ergonomically arranged control elements
- Handwheel for precise spindle feed at milling
- Polished gear wheels ensure smooth running
- Wide speed range from 100 – 2000 rpm

NSK main spindle bearing



Large star handle allows easy spindle feed when drilling, handwheel allows fine adjustment when milling.



Solidly designed spindle with tapered roller bearings, serially with digital drill depth indication.

Digital indication of drill depth



Digital speed display as well as left and right turning as standard.



Tapping



| Technical data | BF 22 L Vario | BF 22 LD Super |
|--|--------------------|--------------------|
| Drilling capacity in steel | 20 mm | 20 mm |
| Face mill capacity max. | 50 mm | 50 mm |
| End mill capacity max. | 16 mm | 16 mm |
| Thread cutting device max. | M 12 | M 12 |
| Distance spindle to column | 160 mm | 160 mm |
| Distance spindle to table min./max. | 115 - 345 mm | 115 - 345 mm |
| Spindle stroke | 70 mm | 70 mm |
| Spindle speed, stepless | 100 - 2000 rpm | 100 - 2000 rpm |
| Spindle taper | MT 3 | MT 3 |
| Table size | 700 x 160 mm | 700 x 160 mm |
| Travel (x / y) | 500 / 165 mm | 500 / 150 mm |
| Height adjustment of mill head | 230 mm | 230 mm |
| T-slot size | 12 mm | 12 mm |
| Motor power output S ₁ 100% | 0,75 kW / 230 V | 0,75 kW / 230 V |
| Motor power input S ₆ 40% | 1,1 kW / 230 V | 1,1 kW / 230 V |
| Machine dimension (W x D x H)* | 890 x 620 x 860 mm | 890 x 620 x 860 mm |
| Weight approx. | 104 kg | 102 kg |
| Art. no. | 02-0996 | 02-0999 |

* without stand

Standard accessories:

- 3-axis digital readout (BF 22 LD Super)
- Drill chuck 1 - 13 mm / B 16
- Drill chuck arbor MT 3 / B 16
- Drawbar M 12
- Digital speed indicator
- Digital spindle stroke indicator
- Height adjustable protective cover
- Thread cutting device (BF 22 LD Super)
- Tools

The drilling and milling machines BF 22 L Vario and BF 22 LD Super come complete with a digital speed and spindle stroke display as a standard feature. Additionally, the BF 22 LD Super with brushless direct current motor for high torque is rounded off with an integrated 3-axis digital readout and a thread cutting device. These machines are very popular among both professionals and model-makers along with all areas of training.

BF 22 L Vario BF 22 LD Super



Digital speed display as well as thread cutting device as standard.



Serially: 3-axis digital readout



Surface treated cross table with 3 T-slots.



Optional with steplessly adjustable table feed for increased comfort FTV 8.



Best Price

Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Auto feeder FTV 8 / 230 V for x-axis | 53-1021 | |
| Mill chuck set ER 25, MT 3, 3 - 16 mm, 10-pcs. | 26-1003A | |
| Mill chuck set ER 40, MT 3, 3 - 25 mm, 16-pcs. | 26-1006 | |
| Deluxe clamping kit set 58 pcs., 12 mm, M 10 | 28-1000 | |
| Horizontal and vertical rotary table RT 5 | 27-1033 | |
| Horizontal & vertical rotary table RT 4 S | 27-1034 | |
| Tilttable angle table 230 x 120 mm | 27-1079 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Carbide indexable face milling cutter diam. 50 mm / B 22 | 42-1057 | |
| Precision machine vise PS 75 | 28-2026 | |
| 2-way precision tilting vise PTS 75 | 28-2032 | |
| Machine vise KV 100 | 28-2080 | |
| Aut. reversible tapping chuck set SUPER M 5 - M 12 | 24-1096 | |
| Boring head combo package diam. 50 mm, incl. boring bars | 25-1015 | |
| Edge finder diam. 10 mm / 4 mm | 32-1066 | |
| Stand Deluxe | 56-1031 | |



Integrated 3-axis digital readout

Drilling and milling machines

KF 25 D Vario

- Wide range of applications, such as thread cutting, groove milling, horizontal slotting etc.
- Left and right rotation for thread cutting comes standard
- Ergonomically arranged control elements
- Large cross table with longitudinal scale
- Stepless speed change for ideal adjustment to the workpiece
- 2-step gear unit for optimal power transmission
- Taper roll bearings guarantees high spindle concentricity (≤ 0.015 mm)
- Mill head tilts to both sides allowing angular boring, milling of bevels etc.
- Digital spindle stroke and speed display come standard
- Dovetail guiding in x-, y- and z-axis, adjustable via gibs
- Spindle adjustment via handle, fine feed via handwheel
- Incl. EMC filter; protect electrical equipment against electromagnetic interferences



Digital speed display as well as left and right turning as standard.



An available option for this model is a boring head.



Optional with steplessly adjustable table feed for increased comfort.

High concentricity
 ≤ 0.015 mm

Main spindle bearing
in P5-quality

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HOBBY



Vario-Drive

| Technical data | KF 25 D Vario | KF 25 L Vario |
|--|----------------------------|--------------------|
| Drilling capacity in steel | 20 mm | 20 mm |
| Face mill capacity max. | 63 mm | 63 mm |
| End mill capacity max. | 20 mm | 20 mm |
| Distance spindle to column | 170 mm | 170 mm |
| Distance spindle/table min./max. | 45/325 mm | 45/325 mm |
| Spindle stroke | 52 mm | 52 mm |
| Spindle speed, stepless | 50 - 1125 / 100 - 2250 rpm | |
| Spindle taper | MT 2 | MT 2 |
| Table size | 500 x 180 mm | 700 x 180 mm |
| Travel (x / y) | 305 / 150** mm | 490 / 150** mm |
| Mill head tiltable | -90° to +90° | -90° to +90° |
| Height adjustment of mill head | 275 mm | 275 mm |
| T-slot size | 12 mm | 12 mm |
| Motor power output S ₁ 100% | 0,60 kW / 230 V | 0,60 kW / 230 V |
| Motor power input S ₆ 40% | 0,90 kW / 230 V | 0,90 kW / 230 V |
| Machine dimension (W x D x H)* | 750 x 560 x 930 mm | 950 x 560 x 930 mm |
| Weight approx. | 110 kg | 120 kg |
| Art. no. | 02-1026 | 02-1028 |
| Art. no. with 3-axis digital readout | 02-1027C | 02-1029C |

* without stand

** 125 mm at model with 3-axis digital readout

The drilling and milling machines KF 25 D Vario and KF 25 L Vario come complete with a digital speed and spindle stroke display as a standard feature. Additionally, the KF 25 L Vario is rounded off with a 490 mm x-axis travel. These machines are very popular among both professionals and model-makers along with all areas of training.

KF 25 L Vario



Digital readout Bernardo DT 40 in x-, y- and z-axis comes standard (Art. no. 02-1027C / 02-1029C).

Now with 3-axis digital readout available



Optional equipment: edge finder Face milling



End milling The machine can be equipped with a tapping chuck set M5 - M12 for thread cutting.



KF 25 L Vario
table 700 x 180 mm



| Optional accessories: | Art. no. | excl. VAT |
|--|----------|-----------|
| Deluxe clamping kit set 58 pcs., 12 mm, M 10 | 28-1000 | |
| Horizontal & vertical rotary table RT 4 S | 27-1034 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| Carbide indexable face milling cutter diam. 63 mm / B 22 | 42-1058 | |
| Mill chuck set ER 25, MT 2, 4 - 16 mm, 8 pcs. | 26-1002 | |
| Mill chuck set ER 40, MT 2, 3 - 25 mm, 16 pcs. | 26-1005 | |
| Opening wider machine vise FJ 100 | 28-2085 | |
| Precision machine vise PS 100 | 28-2027 | |
| Precision universal machine vise PGS 50 | 28-2041 | |
| Aut. reversible tapping chuck set SUPER M 5 - M 12 | 24-1096 | |
| Boring head combo package diam. 50 mm, incl. boring bars | 25-1014 | |
| 1-axis digital readout system Positron P2 - 600 mm (self mounting) | 37-1050 | |
| 3-axis digital readout set DT 40 (D Vario, self mounting) | 37-32446 | |
| 3-axis digital readout set DT 40 (L Vario, self mounting) | 37-32447 | |
| Edge finder with indicator lamps MT 2 | 32-1062 | |
| Auto feeder FTV 6 / 230 V | 53-1018 | |
| Stand BF 2 with chip tray | 56-1010 | |
| Stand BF 2 Deluxe with chip tray | 56-1011 | |

- Standard accessories:**
- Drill chuck arbor MT 2 / B 16
 - Drawbar
 - Table length 700 mm (KF 25 L Vario)
 - Digital display of spindle stroke
 - Digital display of speed range
 - EMC filter according to CE standard
 - Height adjustable protective cover
 - Tools

Drilling and milling machine

KF 26 L Top

- High speed range from 60 - 2700 rpm, 2-step gear box ensures optimal transmission
- Variable speed adjustment, stepless speed change for ideal adjustment to the workpiece
- Model can optional be equipped with stepless table feed and 3-axis digital readout DT 40
- Oversize cross table features T-slots, high grade surface finish
- Many possible applications, such as groove milling, face milling, reboring, etc.
- Direct current motor for ideal torque at lower speed
- Mill head tilts to both sides allowing angular boring, milling of bevels, etc.
- Incl. EMC filter, protect electrical equipment against electromagnetic interferences
- Left and right rotation for thread cutting comes standard
- Taper roller bearing guarantees high spindle concentricity ($\leq 0,015$ mm)
- Dovetail guiding in x-, y- and z-axis, adjustable via gibs
- Spindle adjustment via handle, fine feed via handwheel

Stepless speed adjustment

Best Price



Membrane keyboard makes adjustments extremely user-friendly. Digital speed and spindle stroke indicator included as standard equipment



Milling with carbide indexable face milling cutter (Art. no. 42-1057)



Optionally available rotary table for many more applications.



Dovetail guiding for the x-, y- and z-axis, adjustable by gibs

Direct current motor
Input power 600 W



Technical data

KF 26 L Top

| | |
|---|-------------------------|
| Drilling capacity in steel | 20 mm |
| Face mill capacity max. | 63 mm |
| End mill capacity max. | 20 mm |
| Distance spindle to column | 190 mm |
| Distance spindle/table min./max. | 95/270 mm |
| Spindle stroke | 54 mm |
| Spindle speed, stepless | 60 - 1400/90 - 2700 rpm |
| Spindle taper | MK 2 |
| Table size | 700 x 180 mm |
| Travel (x / y) | 490** / 160*** mm |
| Mill head tilttable | -90° to +90° |
| Height adjustment of mill head | 175 mm |
| T-slot size | 12 mm |
| Motor power output S ₁ 100% | 0,60 kW / 230 V |
| Motor power input S ₆ 40% | 0,90 kW / 230 V |
| Machine dimension (W x D x H)* | 940 x 660 x 840 mm |
| Weight approx. | 112 kg |
| KF 26 L Top | 02-1023 |
| KF 26 L Top with table feed | 02-10231 |
| KF 26 L Top with digital readout | 02-1024 |
| KF 26 L Top with table feed and digital readout | 02-10240 |

* without stand

** 435 mm at model with power feed

*** 130 mm at model with 3-axis digital readout

Standard accessories:

- 3-axis digital readout DT 40 (Art. no. 02-1024 / 02-10240)
- Drill chuck 3 - 16 mm / B 16
- Drill chuck arbor MT 2 / B 16
- Drawbar
- x-axis power feed (Art. no. 02-10231 / 02-10240)
- LED machine light
- Digital display of spindle stroke
- Digital display of speed range
- EMC filter according to CE standard
- Height adjustable protective cover
- Energy chain
- Tools

Modern design

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HOBBY

KF 26 L Top

The KF 26 L Top drilling and milling machine comes complete with a high quality direct current motor. Consequently, there are many advantages such as the high torque at low speed and the almost constant speed during processing. This model is predominantly used among professionals, in model-making as well as for training purposes.



Large star handle allows easy spindle feed when drilling, handwheel allows fine adjustment when milling.



Milling head is tiltable to both sides from -90° to +90°.

NEW

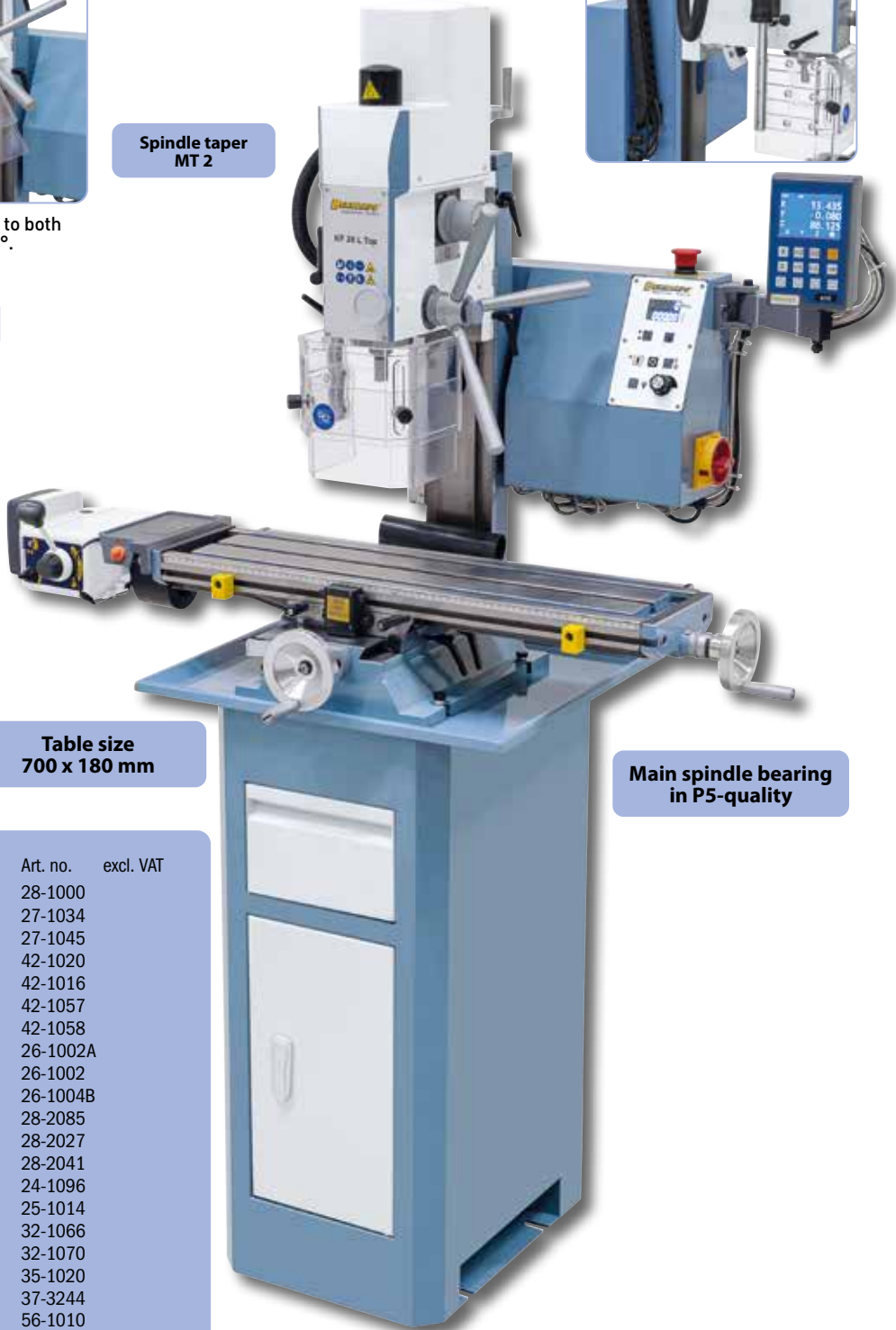
Digital speed indication

Spindle taper MT 2

Including cable guiding by energy chain



Serially with steplessly adjustable table feed for increased comfort (Art. no. 02-10231 / 02-10240).



**Table size
700 x 180 mm**

**Main spindle bearing
in P5-quality**

Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Deluxe clamping kit set 58 pcs., 12 mm, M 10 | 28-1000 | |
| Horizontal & vertical rotary table RT 4 S | 27-1034 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| Carbide indexable face milling cutter diam. 50 mm / B 22 | 42-1057 | |
| Carbide indexable face milling cutter diam. 63 mm / B 22 | 42-1058 | |
| Mill chuck set ER 25, MT 2, 3- 16 mm, 10 pcs. | 26-1002A | |
| Mill chuck set ER 25, MT 2, 4 - 16 mm, 8 pcs. | 26-1002 | |
| Mill chuck set ER 32, MT 2, 3 - 20 mm, 13 pcs. | 26-1004B | |
| Opening wider machine vise FJ 100 | 28-2085 | |
| Precision machine vise PS 100 | 28-2027 | |
| Precision universal machine vise PGS 50 | 28-2041 | |
| Aut. reversible tapping chuck set SUPER M 5 - M 12 | 24-1096 | |
| Boring head combo package diam. 50 mm, incl. boring bars | 25-1014 | |
| Edge finder diam. 10 mm / 4 mm | 32-1066 | |
| Centering indicator | 32-1070 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| 3-axis digital readout set DT 40 (self mounting) | 37-3244 | |
| Stand BF 2 with chip tray | 56-1010 | |
| Stand BF 2 Deluxe with chip tray | 56-1011 | |

Drilling and milling machine

KF 25 Pro



- High speed range from 50 - 3000 rpm, 2-step gear box ensures optimal transmission
- Variable speed adjustment, stepless speed change for ideal adjustment to the workpiece
- Model can optional be equipped with stepless table feed and 3-axis digital readout
- Oversize cross table features T-slots, high grade surface finish
- Many possible applications, such as groove milling, face milling, re boring, etc.
- Direct current motor for ideal torque at lower speed
- Mill head tilts to both sides allowing angular boring, milling of bevels, etc.
- Incl. EMC filter, protect electrical equipment against electromagnetic interferences
- Left and right rotation for thread cutting comes standard
- Taper roller bearing guarantees high spindle concentricity ($\leq 0,015$ mm)
- Dovetail guiding in x-, y- and z-axis, adjustable via gibs
- Spindle adjustment via handle, fine feed via handwheel



Semi-universal dividing head BS-0: ideal for machining of shafts.



The machine can optionally be equipped with a boring head.



Digital speed display as well as left and right turning as standard.

Stepless speed adjustment

Table size 700 x 180 mm

Best Price



| Technical data | KF 25 Pro |
|---|--------------------------|
| Drilling capacity in steel | 20 mm |
| Face mill capacity max. | 63 mm |
| End mill capacity max. | 20 mm |
| Distance spindle to column | 170 mm |
| Distance spindle/table min./max. | 45/325 mm |
| Spindle stroke | 52 mm |
| Spindle speed, stepless | 50 - 1500/100 - 3000 rpm |
| Spindle taper | MT 3 |
| Table size | 700 x 180 mm |
| Travel (x / y) | 490** / 150 mm |
| Mill head tiltable | -90° to +90° |
| Height adjustment of mill head | 275 mm |
| T-slot size | 12 mm |
| Motor power output S ₁ 100% | 0,90 kW / 230 V |
| Motor power input S ₆ 40% | 1,35 kW / 230 V |
| Machine dimension (W x D x H)* | 950 x 560 x 930 mm |
| Weight approx. | 135 kg |
| KF 25 Pro | 02-1031 |
| KF 25 Pro with table feed | 02-1032 |
| KF 25 Pro with table feed and digital readout | 02-1033B |

* without stand

** 470 mm at model with power feed

KF 25 Pro

The drilling and milling machine KF 25 Pro features a high speed range up to 3000 rpm, a powerful drive motor (900 W) and a MT 3 spindle taper making this model ideal for user with high expectations. For reducing the non-productive time, this model is also available with a 3-axis digital readout and a stepless adjustable table feed.



A digital readout Bernardo ES-12 V in x-, y- and z-axis comes standard (Art. no. 02-1033B).



Digital display for drill depth increases comfort.



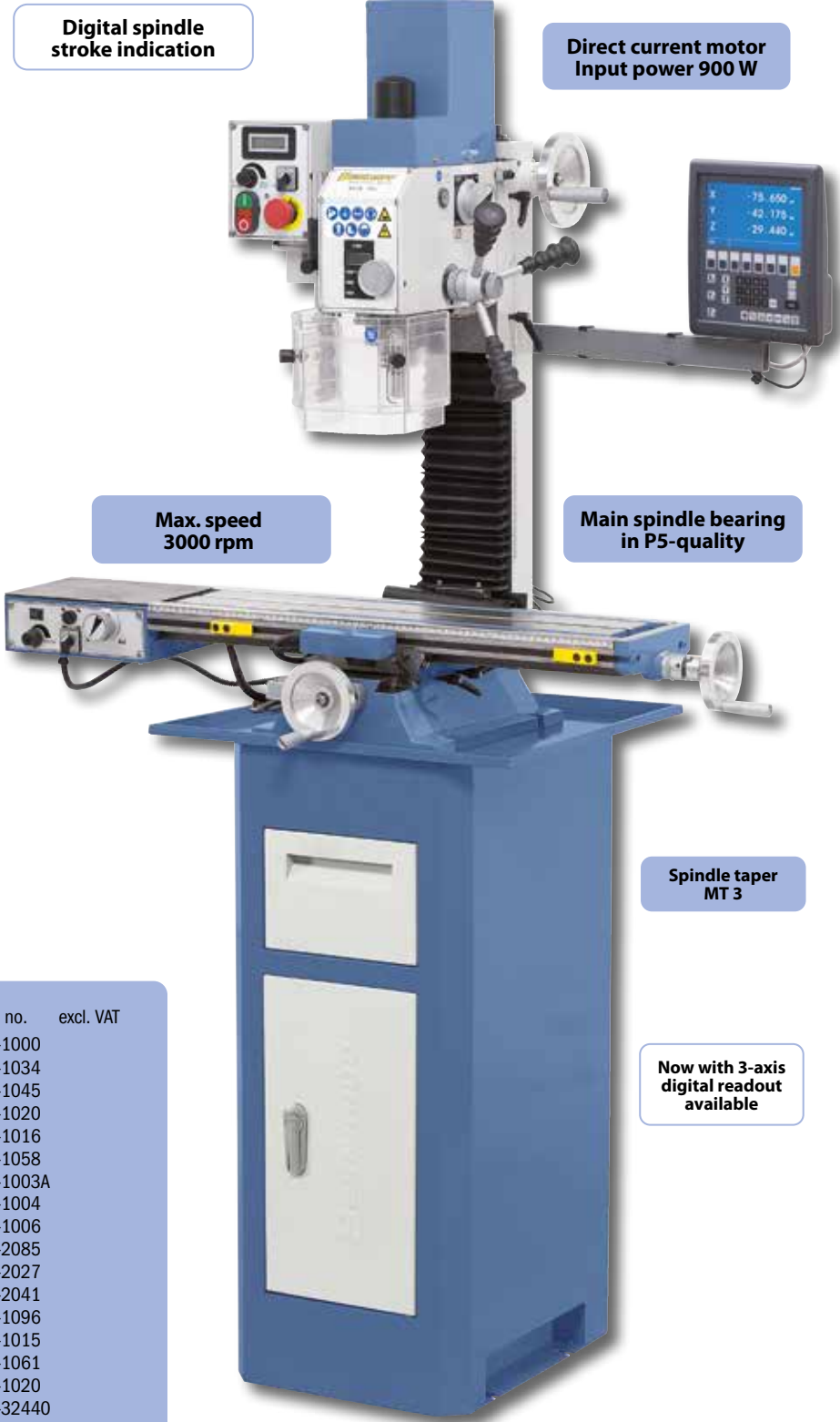
Serially with steplessly adjustable table feed for increased comfort FTV 6 (Art. no. 02-1032 / 02-1033B).

Standard accessories:

- 3-axis digital readout ES-12 V with LCD-display (Art. no. 02-1033B)
- Drill chuck arbor MT 3 / B 16
- Drawbar
- x-axis power feed FTV 6 (02-1032 / 02-1033B)
- Digital display of spindle stroke
- Digital display of speed range
- EMC filter according to CE standard
- Height adjustable protective cover
- Tools

Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Deluxe clamping kit set 58 pcs., 12 mm, M 10 | 28-1000 | |
| Horizontal & vertical rotary table RT 4 S | 27-1034 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| Carbide indexable face milling cutter diam. 63 mm / B 22 | 42-1058 | |
| Mill chuck set ER 25, MT 3, 3 - 16 mm, 10 pcs. | 26-1003A | |
| Mill chuck set ER 32, MT 3, 3 - 20 mm, 13 pcs. | 26-1004 | |
| Mill chuck set ER 40, MT 3, 3 - 25 mm, 16 pcs. | 26-1006 | |
| Opening wider machine vise FJ 100 | 28-2085 | |
| Precision machine vise PS 100 | 28-2027 | |
| Precision universal machine vise PGS 50 | 28-2041 | |
| Aut. reversible tapping chuck set SUPER M 5 - M 12 | 24-1096 | |
| Boring head combo package diam. 50 mm, incl. boring bars | 25-1015 | |
| Edge finder SOE 20 L with indicator lamps L 158 mm | 32-1061 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| 3-axis digital readout set ES-12 V (self mounting) | 37-32440 | |
| Auto feeder FTV 6 / 230 V | 53-1018 | |
| Stand BF 2 with chip tray | 56-1010 | |
| Stand BF 2 Deluxe with chip tray | 56-1011 | |



Digital spindle stroke indication

**Direct current motor
Input power 900 W**

**Max. speed
3000 rpm**

**Main spindle bearing
in P5-quality**

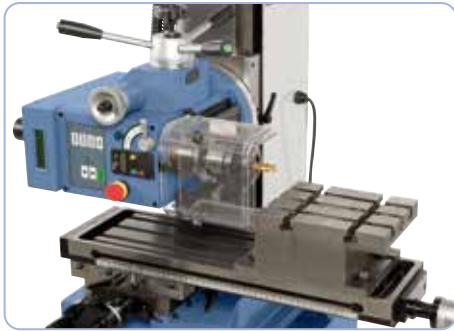
**Spindle taper
MT 3**

**Now with 3-axis
digital readout
available**

Drilling and milling machines

BF 25 Super BF 25 L Super

- Direct current motor for ideal torque at lower speed
- Digital display for speed and drilling depth as standard equipment
- Large cross table with T-slots, well processed
- Dovetail guiding for the x-, y- and z-axis, adjustable by gibs
- Membrane keyboard for stepless speed adjustment
- Mill head tiltable to both sides for angular boring, milling of bevels etc.
- Handwheel, located on the front of the machine, allows easy height adjustment of mill head
- Thread cutting device and left and right rotation comes standard
- Handwheel for precise spindle feed at milling
- Many possible applications such as face milling, thread cutting, horizontal slotting etc.



The tiltable mill head (90° R / 30° L) allows a variety of applications. The optionally available box table makes milling work in horizontal position easier.



Table power feed is adjustable steplessly for increased comfort (optional).

High concentricity
≤ 0.015 mm

Direct current drive

Mounted box table for horizontal milling works.



Standard accessories:

- Drill chuck 1 - 13 mm / B 16
- Drill chuck arbor MT 3 / B 16
- Drawbar M 12
- Digital speed indicator
- Digital spindle stroke indicator
- Height adjustable protective cover
- Tools

BF 25 L Super

Table size
700 x 160 mm

Technical data

BF 25 Super / BF 25 L Super

| | |
|--|--------------------|
| Drilling capacity in steel | 25 mm |
| Face mill capacity max. | 63 mm |
| End mill capacity max. | 25 mm |
| Thread cutting max. | M 12 |
| Distance spindle to column | 230 mm |
| Distance spindle to table | 25 - 415 mm |
| Spindle stroke | 70 mm |
| Spindle speed, stepless | 100 - 1750 rpm |
| Spindle taper | MT 3 |
| Table size BF 25 Super | 550 x 160 mm |
| Table size BF 25 L Super | 700 x 160 mm |
| Travel BF 25 Super (x / y) | 400 / 140 mm |
| Travel BF 25 L Super (x / y) | 550 / 140 mm |
| Mill head tiltable | 90° R / 30° L |
| Height adjustment of mill head | 390 mm |
| T-slot size | 12 mm |
| Motor power output S ₁ 100% | 1,0 kW / 230 V |
| Motor power input S ₆ 40% | 1,3 kW / 230 V |
| Machine dimension (W x D x H)* | 750 x 670 x 980 mm |
| Weight approx. | 165 / 200 kg |
| BF 25 Super | 02-1040 |
| BF 25 L Super | 02-1041 |

* without stand

The BF 25 Super drilling and milling machine features a high quality of processing and several interesting innovations, such as a direct current drive and a membrane keyboard. The machine is very popular among both professionals and model-makers along with all areas of training. The model BF 25 L Super feature a bigger work table and a longer table travel in x-axis.

BF 25 Super BF 25 L Super



Maintenance-free dovetail guiding adjustable via gibs.



Displays are easy to read and the membrane keyboard makes adjustments extremely user-friendly.

Digital speed indication

Digital indication of drill depth

Smooth performance



Milling with precision universal machine vise PGS 50.



Optionally available rotary table for many more applications.



Handwheel, located on the front of the machine, makes height adjustment of mill head very user-friendly.

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Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Auto feeder FTV 5 / 230 V for x-axis | 53-1017 | |
| Box table for horizontal milling | 27-1075 | |
| Mill chuck set ER 40, MT 3, 3 - 25 mm, 16 pcs. | 26-1006 | |
| Mill chuck set ER 32, MT 3, 3 - 20 mm, 13 pcs. | 26-1004 | |
| Deluxe clamping kit set 58 pcs., 12 mm, M 10 | 28-1000 | |
| Horizontal & vertical rotary table RT 4 | 27-1032 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Carbide indexable face milling cutter diam. 63 mm / B 22 | 42-1058 | |
| Precision machine vise PS 100 | 28-2027 | |
| Opening wider machine vise FJ 100 | 28-2085 | |
| Precision universal machine vise PGS 50 | 28-2041 | |
| Double roller tapping chuck set MT3, M 3 - M 12 | 24-1090 | |
| Boring head combo package diam. 50 mm, incl. boring bars | 25-1015 | |
| 1-axis digital readout system Positron P2-600 mm (self mounting) | 37-1050 | |
| Edge finder diam. 10 mm / 4 mm | 32-1066 | |
| Stand BF 4 | 56-1025 | |

Drilling and milling machines

KF 28 Top

- High speed range from 50 - 2600 rpm, 2-step gear box ensures optimal transmission
- Variable speed adjustment, stepless speed change for ideal adjustment to the workpiece
- Model can optional be equipped with stepless table feed and 3-axis digital readout
- Oversize cross table features T-slots, high grade surface finish
- Many possible applications, such as groove milling, face milling, reboring, etc.
- Direct current motor for ideal torque at lower speed
- Mill head tilts to both sides allowing angular boring, milling of bevels, etc.
- Incl. EMC filter, protect electrical equipment against electromagnetic interferences
- Left and right rotation for thread cutting comes standard
- Taper roller bearing guarantees high spindle concentricity ($\leq 0,015$ mm)
- Dovetail guiding in x-, y- and z-axis, adjustable via gibs
- Spindle adjustment via handle, fine feed via handwheel

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HOBBY

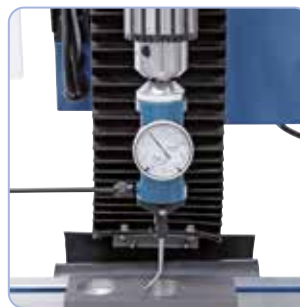
**Direct current motor
Input power 900 W**



Optionally available rotary table for many more applications.



The machine can optionally be equipped with a boring head.



Centering indicator for reboring



The machine can be equipped with a tapping chuck set M5 - M12 for thread cutting.



Milling with opening wider machine vise FJ 100



Optionally available: Edge finder



Milling with carbide indexable face milling cutter (Art. no. 42-1058)



Membrane keyboard makes adjustments extremely user-friendly.

Technical data

KF 28 Top

| | |
|---|--------------------------|
| Drilling capacity in steel | 25 mm |
| Face mill capacity max. | 63 mm |
| End mill capacity max. | 25 mm |
| Distance spindle to column | 170 mm |
| Distance spindle/table min./max. | 50/315 mm |
| Spindle stroke | 52 mm |
| Spindle speed, stepless | 50 - 1400/100 - 2600 rpm |
| Spindle taper | MT 3 |
| Table size | 700 x 180 mm |
| Travel (x / y) | 490** / 150 mm |
| Mill head tiltable | -90° to +90° |
| Height adjustment of mill head | 265 mm |
| T-slot size | 12 mm |
| Motor power output S ₁ 100% | 0,90 kW / 230 V |
| Motor power input S ₆ 40% | 1,35 kW / 230 V |
| Machine dimension (W x D x H)* | 940 x 650 x 930 mm |
| Weight approx. | 135 kg |
| KF 28 Top | 02-1034 |
| KF 28 Top with table feed | 02-10340 |
| KF 28 Top with table feed and digital readout | 02-10341 |

* without stand

** 430 mm at model with power feed

**Best
Price**

Standard accessories:

- 3-axis digital readout ES-12 V with LCD-display (Art. no. 02-10341)
- Drill chuck 3 - 16 mm / B 16
- Drill chuck arbor MT 3 / B 16
- Drawbar
- x-axis power feed (Art. no. 02-10340 / 02-10341)
- LED machine light
- Digital display of spindle stroke
- Digital display of speed range
- EMC filter according to CE standard
- Height adjustable protective cover
- Energy chain
- Tools

Modern design

KF 28 Top

The KF 28 Top drilling and milling machine comes complete with a high quality direct current motor. Consequently, there are many advantages such as the high torque at low speed and the almost constant speed during processing. This model is predominantly used among professionals, in model-making as well as for training purposes.



Large star handle allows easy spindle feed when drilling, handwheel allows fine adjustment when milling.



Milling head is tiltable to both sides from -90° to +90°.



Dovetail guiding for the x-, y- and z-axis, adjustable by gibs

**Table size
700 x 180 mm**

Stepless speed adjustment

Digital speed indication



**Main spindle bearing
in P5-quality**

**Spindle taper
MT 3**

| Optional accessories: | Art. no. | excl. VAT |
|--|----------|-----------|
| Deluxe clamping kit set 58 pcs., 12 mm, M 10 | 28-1000 | |
| Horizontal & vertical rotary table RT 4 S | 27-1034 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| Carbide indexable face milling cutter diam. 63 mm / B 22 | 42-1058 | |
| Mill chuck set ER 25, MT 3, 3 - 16 mm, 10 pcs. | 26-1003A | |
| Mill chuck set ER 32, MT 3, 3 - 20 mm, 13 pcs. | 26-1004 | |
| Mill chuck set ER 40, MT 3, 3 - 25 mm, 16 pcs. | 26-1006 | |
| Opening wider machine vise FJ 100 | 28-2085 | |
| Precision machine vise PS 100 | 28-2027 | |
| Precision universal machine vise PGS 50 | 28-2041 | |
| Aut. reversible tapping chuck set SUPER M 5 - M 12 | 24-1096 | |
| Boring head combo package diam. 50 mm, incl. boring bars | 25-1015 | |
| Edge finder diam. 10 mm / 4 mm | 32-1066 | |
| Centering indicator | 32-1070 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| Stand BF 2 with chip tray | 56-1010 | |
| Stand BF 2 Deluxe with chip tray | 56-1011 | |



Including cable guiding by energy chain

Drilling and milling machines

BF 28 L Vario

- Variable speed adjustment, stepless speed change for ideal adjustment to the workpiece
- Wide range of applications, such as thread cutting, groove milling, horizontal slotting etc.
- Serially with left and right turning and digital spindle stroke indication
- Dovetail guiding for the x-, y- and z-axis, adjustable by gibs
- Taper roll bearings guarantees high spindle concentricity (≤ 0.015 mm)
- Ergonomically arranged control elements
- Handwheel for precise spindle feed at milling
- Polished gear wheels ensure smooth running
- Wide speed range (2 steps) from 100 – 5000 rpm

Digital indication of drill depth



Large star handle allows easy spindle feed when drilling, handwheel allows fine adjustment when milling.



Digital speed display as well as left and right turning as standard.



Dovetail guiding for the x-, y- and z-axis, adjustable by gibs



Tapping

NSK main spindle bearing



Technical data

BF 28 L Vario

| | |
|--|-----------------------------|
| Drilling capacity in steel | 28 mm |
| Face mill capacity max. | 63 mm |
| End mill capacity max. | 20 mm |
| Thread cutting device max. | M 20 |
| Distance spindle to column | 210 mm |
| Distance spindle to table min./max. | 110 - 375 mm |
| Spindle stroke | 78 mm |
| Spindle speed, stepless | 100 - 1800 / 280 - 5000 rpm |
| Spindle taper | MT 3 |
| Table size | 740 x 180 mm |
| Travel (x / y) | 500 / 220 mm |
| Height adjustment of mill head | 265 mm |
| T-slot size | 12 mm |
| Motor power output S ₁ 100% | 1,1 kW / 230 V |
| Motor power input S _e 40% | 1,6 kW / 230 V |
| Machine dimension (W x D x H)* | 970 x 770 x 940 mm |
| Weight approx. | 143 kg |
| Art. no. | 02-1000 |

* without stand

Standard accessories:

- Drill chuck 1 - 13 mm / B 16
- Drill chuck arbor MT 3 / B 16
- Drawbar M 12
- Digital speed indicator
- Digital spindle stroke indicator
- Height adjustable protective cover
- Tools

The drilling and milling machine BF 28 L Vario come complete with a digital speed and spindle stroke display as a standard feature. This machine is very popular among both professionals and model-makers along with all areas of training.

BF 28 L Vario



Digital speed display as well as thread cutting device as standard.



Surface treated cross table with 3 T-slots.



Optional with steplessly adjustable table feed for increased comfort FTV 9.



Max. speed
5000 rpm

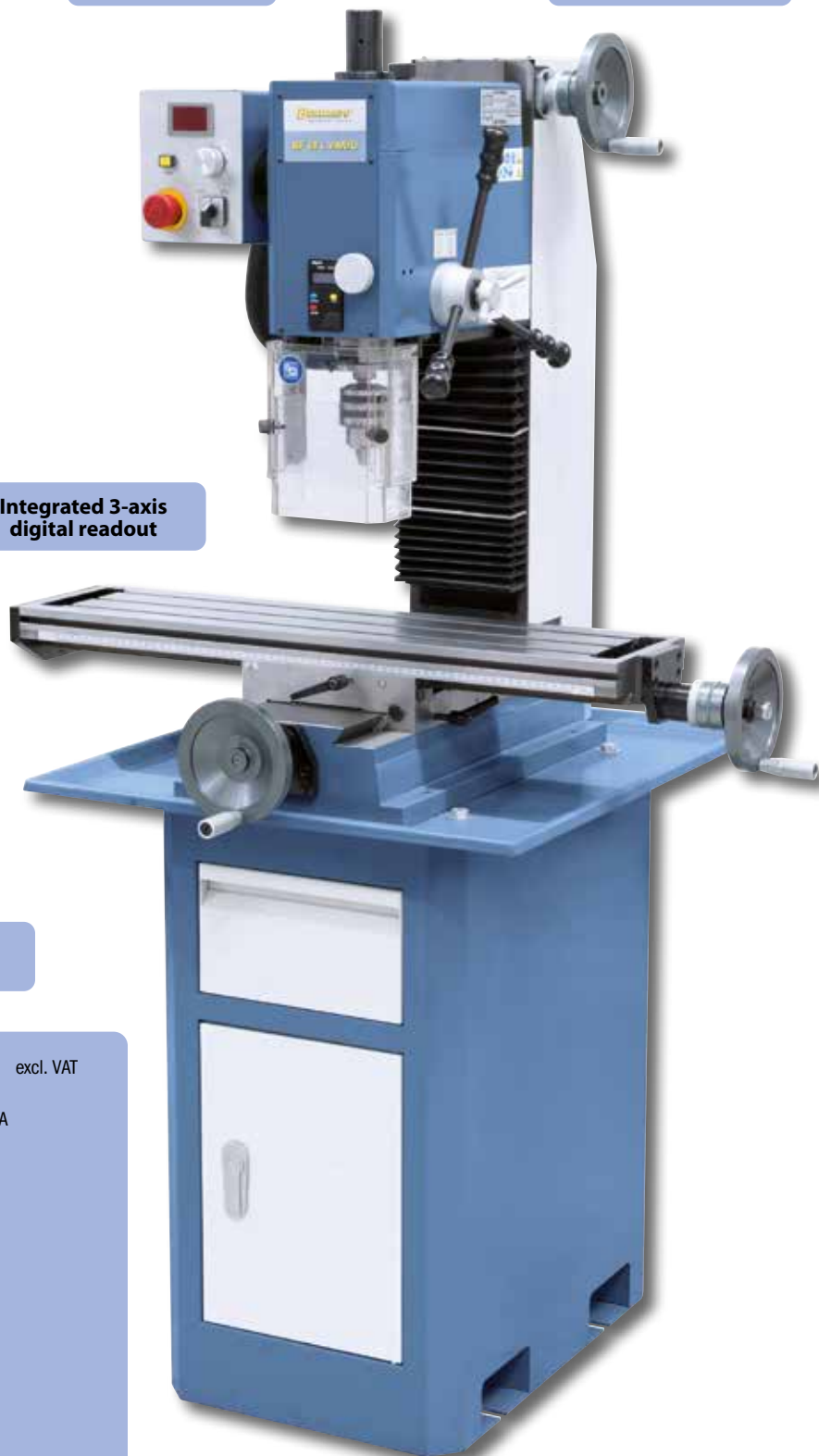
Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Auto feeder FTV 9 / 230 V for x-axis | 53-1022 | |
| Mill chuck set ER 25, MT 3, 3 - 16 mm, 10-pcs. | 26-1003A | |
| Mill chuck set ER 40, MT 3, 3 - 25 mm, 16-pcs. | 26-1006 | |
| Deluxe clamping kit set 58 pcs., 12 mm, M 10 | 28-1000 | |
| Horizontal and vertical rotary table RT 5 | 27-1033 | |
| Horizontal & vertical rotary table RT 4 S | 27-1034 | |
| Tilttable angle table 230 x 120 mm | 27-1079 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Carbide indexable face milling cutter diam. 63 mm / B 22 | 42-1058 | |
| Precision machine vise PS 75 | 28-2026 | |
| 2-way precision tilting vise PTS 75 | 28-2032 | |
| Machine vise KV 100 | 28-2080 | |
| Aut. reversible tapping chuck set SUPER M 5 - M 12 | 24-1096 | |
| Boring head combo package diam. 50 mm, incl. boring bars | 25-1015 | |
| Edge finder diam. 10 mm / 4 mm | 32-1066 | |
| Stand BF 5 Deluxe | 56-1018 | |

Brushless direct current motor

Digital speed indication

Integrated 3-axis digital readout



Drilling and milling machine

BF 28 BDC

- Variable speed adjustment, stepless speed change for ideal adjustment to the workpiece
- Many possible applications, such as groove milling, face milling, reboring, etc.
- Digital speed and spindle stroke indicator included as standard equipment
- Serially with foot pedal to change the running direction when tapping
- Direct current motor for ideal torque at lower speed
- Dovetail guiding for the x-, y- and z-axis, adjustable via gibs
- High-quality bearings guarantees high spindle concentricity (≤ 0.015 mm)
- Mill head tiltable to both sides for angular boring, milling of bevels etc.
- Large, surface treated cross table
- Handle for spindle adjustment, handwheel for fine feed



Balanced drive pulleys guarantees smooth running.



Digital speed and spindle stroke indicator included as standard equipment



Digital readout Bernardo ES-12 V in x- and y-axis comes standard (Art. no. 02-1113 / 02-1114).

Digital speed indication

Digital indication of drill depth

Brushless direct current motor

| Technical data | BF 28 BDC |
|--|-----------------------------|
| Drilling capacity in steel | 28 mm |
| Face mill capacity max. | 63 mm |
| End mill capacity max. | 20 mm |
| Thread cutting max. | M 12 |
| Distance spindle to column | 175 mm |
| Distance spindle to table min./max. | 75 - 365 mm |
| Spindle stroke | 67 mm |
| Spindle speed, stepless | 100 - 1500 / 200 - 3000 rpm |
| Spindle taper | MT 3 |
| Table size | 700 x 180 mm |
| Travel (x / y) | 500 / 215 mm |
| Mill head tiltable | -90° to +90° |
| Height adjustment of mill head | 290 mm |
| T-slot size | 12 mm |
| Motor power output S ₁ 100% | 0,75 kW / 230 V |
| Motor power input S ₆ 40% | 1,1 kW / 230 V |
| Machine dimension (W x D x H)* | 970 x 605 x 1040 mm |
| Weight approx. | 130 kg |
| BF 28 BDC | 02-1112 |
| BF 28 BDC with 3-axis digital readout | 02-1113 |
| BF 28 BDC with feed and 3-axis digital readout | 02-1114 |

* without stand



Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Mill chuck set ER 32, MT 3, 3 - 20 mm, 13 pcs. | 26-1004 | |
| Mill chuck set ER 40, MT 3, 3 - 25 mm, 16 pcs. | 26-1006 | |
| Deluxe clamping kit set 58 pcs., 12 mm, M 10 | 28-1000 | |
| Horizontal & vertical rotary table HV 6 | 27-1000 | |
| Horizontal and vertical rotary table RT 5 | 27-1033 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| 7 pcs. HSS roughing end mill set, 6 - 20 mm | 42-1010 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Carbide indexable face milling cutter diam. 50 mm / B 22 | 42-1057 | |
| Carbide indexable face milling cutter diam. 63 mm / B 22 | 42-1058 | |

BF 28 BDC

The BF 28 BDC drilling and milling machine comes complete with a high quality direct current motor. Consequently, there are many advantages such as the high torque at low speed and the almost constant speed during processing. This model is predominantly used among professionals, in model-making as well as for training purposes.



Large star handle allows easy spindle feed when drilling, handwheel allows fine adjustment when milling.



Milling head is tiltable to both sides from -90° to +90°.



Surface treated cross table with 3 T-slots.



Dovetail guiding for the x-, y- and z-axis, adjustable by gibs



BERNARDO
SEMIPROFESSIONAL

Serially with foot pedal to change the running direction when tapping.



Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Precision machine vise PS 100 | 28-2027 | |
| Machine vise KV 100 | 28-2080 | |
| Opening wider machine vise FJ 100 | 28-2085 | |
| Boring head combo package diam. 50 mm, incl. boring bars | 25-1015 | |
| Edge finder diam. 10 mm / 4 mm | 32-1066 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| Coolant pump with plastic tank 10l - (self installed) ¹ | 54-1206 | |
| Universal coolant fluid MN 1103, 5 l canister | 53-1002 | |
| Power feed AL 280 D for x-axis | 56-1024 | |

Standard accessories:

- 3-axis digital readout ES-12 V with LCD-display (Art. no. 02-1113 / 02-1114)
- x-axis power feed AL 280 D (Art. no. 02-1114)
- Drill chuck 3 - 16 mm / B 16
- Drill chuck arbor MT 3 / B 16
- Drawbar M 12
- Digital speed indicator
- Digital spindle stroke indicator
- EMC filter according to CE standard
- Height adjustable protective cover
- Foot pedal
- Thread cutting device
- Tools

¹ Alternatively in 230 V (Art. no. 51-1003) or 400 V (Art. no. 51-1004)

Drilling and milling machine

BF 30 G

- Powerful 2-step drive motor allows for 12 different speed setting
- High-quality ball bearings allow for high concentricity
- Wide range of applications, such as drilling, milling, thread cutting etc.
- Polished gear wheels, in oil bath, ensure smooth running
- Right and left turning device for tapping
- Dovetail guiding in x-, y- and z-axis, adjustable by gibs
- Milling head tilts to both sides to allow angular boring, milling of bevels etc.
- Attractive price-to-performance ratio for price conscious users
- High-quality aluminium motor, designed for longer use
- Grey, cast iron table features T-slots and coolant groove

2-speed-motor



Gear selector switch allows for quick and easy speed change



Height adjustable chuck guard and micro switch guarantees high safety standards



Control elements are clearly arranged, serially with thread cutting device.

Best
Price

12 gear steps come standard



Large, surface-treated cross table



Technical data

BF 30 G

| | |
|--|-----------------------|
| Drilling capacity in steel | 30 mm |
| Face mill capacity max. | 63 mm |
| End mill capacity max. | 25 mm |
| Distance spindle to column | 170 mm |
| Distance spindle to table | 105 - 465 mm |
| Spindle stroke | 70 mm |
| Spindle speed | (12) 95 - 2840 rpm |
| Spindle taper | MT 3 |
| Table size | 700 x 190 mm |
| Travel (x / y) | 460 / 230** mm |
| Mill head tiltable | -45° to +45° |
| Height adjustment of mill head | 360 mm |
| T-slot size | 12 mm |
| Motor power output S ₁ 100% | 0,75 / 1,1 kW (400 V) |
| Motor power input S ₆ 40% | 1,1 / 1,6 kW (400 V) |
| Machine dimension (W x D x H)* | 1000 x 720 x 1300 mm |
| Weight approx. | 190 kg |
| BF 30 G | 02-1037 |
| BF 30 G with 3-axis digital readout | 02-1037B |

* without stand

** 210 mm at model with 3-axis digital readout

Standard accessories:

- 3-axis digital readout DT 40 (Art. no. 02-1037B)
- Drill chuck arbor MT 3 / B 16
- Drill chuck 3 - 16 mm / B 16
- Drawbar M 12
- Thread cutting device
- Height adjustable protective cover
- Longitudinal scale
- Tools

The BF 30 G is a reasonably priced drilling and milling machine. The dovetail guiding of the gear head guarantees best possible accuracy and stability. Most commonly it is used by amateurs.

BF 30 G



Adjustable drill depth stop, drill depth can be read on scale



Powerful 2-step motor with 0,75 / 1,1 kW input power.



Face milling



Ergonomically arranged handles allow for easy spindle feed when drilling. Handwheel with scale allows accurate feed when milling.



The machine can optionally be equipped with a boring head.

Left and right turning

Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Mill chuck set ER 32, MT 3, 3 - 20 mm, 13 pcs. | 26-1004 | |
| Mill chuck set ER 40, MT 3, 3 - 25 mm, 16 pcs. | 26-1006 | |
| Deluxe clamping kit set 58 pcs., 12 mm, M 10 | 28-1000 | |
| Horizontal & vertical rotary table HV 6 | 27-1000 | |
| Horizontal and vertical rotary table RT 5 | 27-1033 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Carbide indexable face milling cutter diam. 63 mm / B 22 | 42-1058 | |
| Precision machine vise PS 100 | 28-2027 | |
| Opening wider machine vise FJ 100 | 28-2085 | |
| Double roller tapping chuck set MT 3, M 3 - M 12 | 24-1090 | |
| Boring head combo package diam. 50 mm, incl. boring bars | 25-1015 | |
| Edge finder SOE 20 L with indicator lamps L 158 mm | 32-1061 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| 1-axis digital readout system Positron P2-600 mm (self mounting) | 37-1050 | |
| 3-axis digital readout set DT 40 (self mounting) | 37-32448 | |
| 3-axis digital readout set ES-12 V (self mounting) | 37-32461 | |
| Coolant pump with plastic tank 10l - (self installed) ¹ | | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |
| Stand BF 5 | 56-1026 | |
| Stand BF 5 Deluxe | 56-1018 | |

¹ Alternatively in 230 V (Art. no. 51-1003) or 400 V (Art. no. 51-1004)

Spindle taper
MT 3

NEW

Now with 3-axis
digital readout
available



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HOBBY

Drilling and milling machine with vario drive

BF 30 N Super

- Many possible applications, such as groove milling, face milling, reboring etc.
- Digital speed and spindle stroke indicator included as standard equipment
- 2-step gear unit for optimal power transmission
- Serially equipped with left and right turning, ideal for thread cutting
- Direct current motor for ideal torque at lower speed
- Dovetail guiding for the x-, y- and z-axis, adjustable via gibs
- High-quality bearings guarantees high spindle concentricity (≤ 0.015 mm)
- Mill head tiltable to both sides for angular boring, milling of bevels etc.
- Large, surface treated cross table
- Handle for spindle adjustment, handwheel for fine feed



Optionally available:
Edge finder



Tapping



Face milling

Digital indication
of drill depth

Inclusive
EMC filter

Spindle taper
MT 3

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HOBBY

NEW



Standard accessories:

- Keyless drill chuck 3 - 16 mm / B 16
- Drill chuck arbor MT 3 / B 16
- Drawbar M 12
- Digital speed indicator
- Digital spindle stroke indicator
- EMC filter according to CE standard
- Height adjustable protective cover
- Tools

Technical data

BF 30 N Super

| | |
|--|----------------------------|
| Drilling capacity in steel | 30 mm |
| Face mill capacity max. | 75 mm |
| End mill capacity max. | 25 mm |
| Distance spindle to column | 180 mm |
| Distance spindle to table | 115 - 465 mm |
| Spindle stroke | 70 mm |
| Spindle speed, stepless | 50 - 1100 / 150 - 3000 rpm |
| Spindle taper | MT 3 |
| Table size | 840 x 210 mm |
| Travel (x / y) | 585 / 225 mm |
| Mill head tiltable | -90° to +90° |
| Height adjustment of mill head | 350 mm |
| T-slot size | 14 mm |
| Motor power output S ₁ 100% | 1,1 kW / 230 V |
| Motor power input S ₆ 40% | 1,6 kW / 230 V |
| Machine dimension (W x D x H)* | 1350 x 710 x 1200 mm |
| Weight approx. | 208 kg |
| Art. no. | 02-10420 |

* without stand

BF 30 N Super

The model BF 30 Super is an upgrade of the approved classic KF 25 Vario. The spindle taper is now even bigger, the table is larger and it is serially equipped with two digital displays, showing speed and spindle stroke. In addition, this model features stepless speed adjustment as well as a tiltable mill head from -90° to +90°.



Semi-universal dividing head BS-0: ideal for machining of shafts.



The machine can optionally be equipped with a boring head.



Milling head is tiltable to both sides from -90° to +90°.

Main spindle bearing in P5-quality

Best Price

Digital speed indication



Stepless speed adjustment

Table size 840 x 210 mm

Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Mill chuck set ER 32, MT 3, 3 - 20 mm, 13 pcs. | 26-1004 | |
| Mill chuck set ER 40, MT 3, 3 - 25 mm, 16 pcs. | 26-1006 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| Horizontal & vertical rotary table HV 6 | 27-1000 | |
| Horizontal and vertical rotary table RT 5 | 27-1033 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Carbide indexable face milling cutter diam. 63 mm / B 22 | 42-1058 | |
| Precision machine vise PS 100 | 28-2027 | |
| Opening wider machine vise FJ 100 | 28-2085 | |
| Aut. reversible tapping chuck set SUPER M 5 - M 12 | 24-1096 | |
| Boring head combo package diam. 50 mm, incl. boring bars | 25-1015 | |
| Edge finder SOE 20 L with indicator lamps L 158 mm | 32-1061 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| 1-axis digital readout system Positron P2-600 mm (self mounting) | 37-1050 | |
| 3-axis digital readout set DT 40 | 37-32443 | |
| 3-axis digital readout set ES-12 V (self mounting) | 37-32462 | |
| Coolant pump with plastic tank 10l - (self installed) ¹ | | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |
| Power feed AL 350 D for x-axis | 53-1003 | |
| Stand BF 5 | 56-1026 | |
| Stand BF 5 Deluxe | 56-1018 | |

¹ Alternatively in 230 V (Art. no. 51-1003) or 400 V (Art. no. 51-1004)

Drilling and milling machine with vario drive

BF 30 N Super

- Many possible applications, such as groove milling, face milling, re boring etc.
- Digital speed and spindle stroke indicator included as standard equipment
- 2-step gear unit for optimal power transmission
- Serially equipped with left and right turning, ideal for thread cutting
- Direct current motor for ideal torque at lower speed
- Dovetail guiding for the x-, y- and z-axis, adjustable via gibs
- High-quality bearings guarantees high spindle concentricity (≤ 0.015 mm)
- Mill head tiltable to both sides for angular boring, milling of bevels etc.
- Large, surface treated cross table
- Handle for spindle adjustment, handwheel for fine feed



Optionally available:
Edge finder



Tapping



BF 30 N Super with feed and 3-axis digital readout ES-12 V with LCD-display (Art. no. 02-10440)

Available with
3-axis digital
readout

Spindle taper
MT 3

Max. speed
3000 rpm

BERNARDO
HOBBY

NEW



Technical data

BF 30 N Super

| | |
|--|----------------------------|
| Drilling capacity in steel | 30 mm |
| Face mill capacity max. | 75 mm |
| End mill capacity max. | 25 mm |
| Distance spindle to column | 180 mm |
| Distance spindle to table | 115 - 465 mm |
| Spindle stroke | 70 mm |
| Spindle speed, stepless | 50 - 1100 / 150 - 3000 rpm |
| Spindle taper | MT 3 |
| Table size | 840 x 210 mm |
| Travel (x / y) | 455 / 195 mm |
| Mill head tiltable | -90° to +90° |
| Height adjustment of mill head | 350 mm |
| T-slot size | 14 mm |
| Motor power output S ₁ 100% | 1,1 kW / 230 V |
| Motor power input S ₆ 40% | 1,6 kW / 230 V |
| Machine dimension (W x D x H)* | 1350 x 710 x 1200 mm |
| Weight approx. | 222 kg |
| BF 30 N Super with feed | 02-10430 |
| BF 30 N Super with feed and 3-axis digital readout | 02-10440 |

* without stand

Standard accessories:

- 3-axis digital readout ES-12 V with LCD-display (Art. no. 02-10440)
- x-axis power feed AL 350 D
- Keyless drill chuck 1 - 16 mm / B 16
- Drill chuck arbor MT 3 / B 16
- Drawbar M 12
- Digital speed indicator
- Digital spindle stroke indicator
- EMC filter according to CE standard
- Height adjustable protective cover
- Tools

The model BF 30 N Super is an upgrade of the approved classic KF 25 Vario. The spindle taper is now even bigger, the table is larger and it is serially equipped with two digital displays, showing speed (50 - 3000 rpm) and spindle stroke. In addition, this model features stepless speed adjustment as well as a tiltable mill head from -90° to +90°.

BF 30 N Super

Best Price



Semi-universal dividing head BS-0: ideal for machining of shafts.



The machine can optionally be equipped with a boring head.



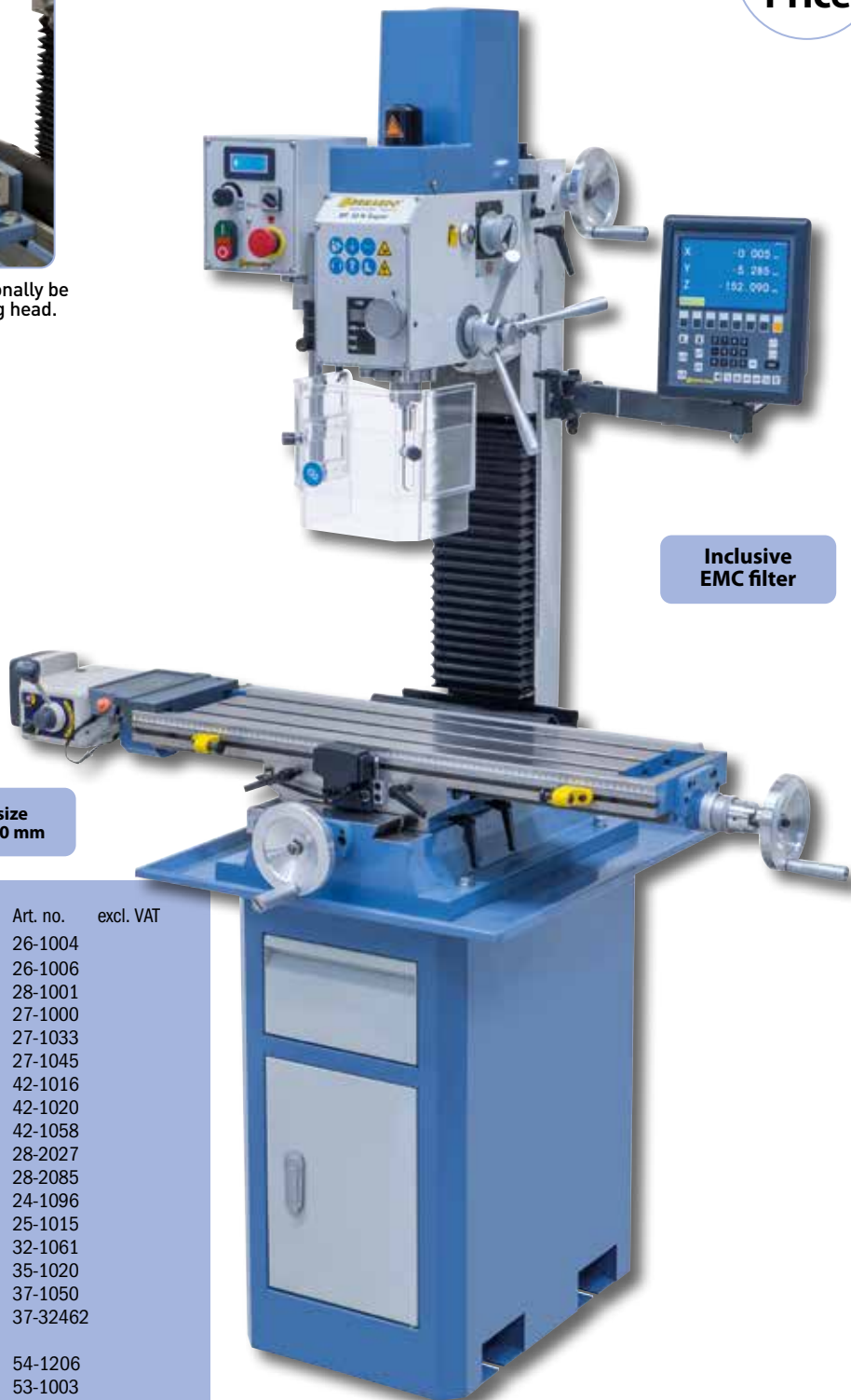
Milling head is tiltable to both sides from -90° to +90°.

Stepless speed adjustment

Table size 840 x 210 mm

Main spindle bearing in P5-quality

Inclusive EMC filter



Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Mill chuck set ER 32, MT 3, 3 - 20 mm, 13 pcs. | 26-1004 | |
| Mill chuck set ER 40, MT 3, 3 - 25 mm, 16 pcs. | 26-1006 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| Horizontal & vertical rotary table HV 6 | 27-1000 | |
| Horizontal and vertical rotary table RT 5 | 27-1033 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Carbide indexable face milling cutter diam. 63 mm / B 22 | 42-1058 | |
| Precision machine vise PS 100 | 28-2027 | |
| Opening wider machine vise FJ 100 | 28-2085 | |
| Aut. reversible tapping chuck set SUPER M 5 - M 12 | 24-1096 | |
| Boring head combo package diam. 50 mm, incl. boring bars | 25-1015 | |
| Edge finder SOE 20 L with indicator lamps L 158 mm | 32-1061 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| 1-axis digital readout system Positron P2-600 mm (self mounting) | 37-1050 | |
| 3-axis digital readout set ES-12 V (self mounting) | 37-32462 | |
| Coolant pump with plastic tank 10l - (self installed) ¹ | | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |
| Power feed AL 350 D for x-axis | 53-1003 | |
| Stand BF 5 | 56-1026 | |
| Stand BF 5 Deluxe | 56-1018 | |

¹ Alternatively in 230 V (Art. no. 51-1003) or 400 V (Art. no. 51-1004)

Drilling and milling machine

BF 35 BDC

- Model can optionally be equipped with stepless table feed and 3-axis digital display (Art. no. 02-1117)
- Variable speed adjustment, stepless speed change for ideal adjustment to the workpiece
- Many possible applications, such as groove milling, face milling, reboring etc.
- Digital speed and spindle stroke indicator included as standard equipment
- Serially equipped with left and right turning, ideal for thread cutting
- Direct current motor for ideal torque at lower speed
- Dovetail guiding for the x-, y- and z-axis, adjustable via gibs
- High-quality bearings guarantees high spindle concentricity (≤ 0.015 mm)
- Mill head tiltable to both sides for angular boring, milling of bevels etc.
- Large, surface treated cross table



Balanced drive pulleys guarantees smooth running.



Digital speed and spindle stroke indicator included as standard equipment



Digital readout Bernardo ES-12 V in x- and y-axis comes standard (Art. no. 02-1117).

Brushless direct current motor



Technical data

BF 35 BDC

| | |
|--|-----------------------------|
| Drilling capacity in steel | 35 mm |
| Face mill capacity max. | 75 mm |
| End mill capacity max. | 25 mm |
| Thread cutting max. | M 20 |
| Distance spindle to column | 190 mm |
| Distance spindle to table min./max. | 90 - 440 mm |
| Spindle stroke | 90 mm |
| Spindle speed, stepless | 100 - 1500 / 200 - 3000 rpm |
| Spindle taper | MT 3 |
| Table size | 840 x 210 mm |
| Travel (x / y) | 535 / 225 mm |
| Mill head tiltable | -90° to +90° |
| Height adjustment of mill head | 350 mm |
| T-slot size | 14 mm |
| Motor power output S ₁ 100% | 1,5 kW / 230 V |
| Motor power input S ₆ 40% | 2,2 kW / 230 V |
| Machine dimension (W x D x H)* | 1180 x 710 x 1220 mm |
| Weight approx. | 210 kg |
| BF 35 BDC | 02-1115 |
| BF 35 BDC with feed and 3-axis digital readout | 02-1117 |

* without stand

Standard accessories:

- 3-axis digital readout ES-12 V with LCD-display (Art. no. 02-1117)
- x-axis power feed AL 450 D (Art. no. 02-1117)
- Drill chuck 3 - 16 mm / B 16
- Drill chuck arbor MT 3 / B 16
- Drawbar M 12
- Digital speed indicator
- Digital spindle stroke indicator
- EMC filter according to CE standard
- Height adjustable protective cover
- Thread cutting device
- Tools

The drilling and milling machine BF 35 BDC features a high speed range up to 3000 rpm, a powerful drive motor (1,5 kW) and a MT 3 spindle taper making this model ideal for user with high expectations. For reducing the non-productive time, this model is also available with a 3-axis digital readout and a stepless adjustable table feed.

BF 35 BDC



Large star handle allows easy spindle feed when drilling, handwheel allows fine adjustment when milling.



Milling head is tiltable to both sides from -90° to +90°.

Digital indication of drill depth



Digital speed indication



Table power feed AL 450 D is adjustable steplessly for increased comfort (Art. no. 02-1117)

Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Mill chuck set ER 32, MT 3, 3 - 20 mm, 13 pcs. | 26-1004 | |
| Mill chuck set ER 40, MT 3, 3 - 25 mm, 16 pcs. | 26-1006 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| Horizontal & vertical rotary table HV 6 | 27-1000 | |
| Horizontal and vertical rotary table RT 5 | 27-1033 | |
| Horizontal and vertical rotary table RT 4 S | 27-1034 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| 9 pcs. T - slot cutter set, Tin-coated | 42-1023 | |
| 5 pcs. Dovetail cutter set, TiN-coated | 42-1024 | |
| 8 pcs. HSS 6 flute corner rounding end mill set, 2 - 12 mm | 42-1024A | |
| Carbide indexable face milling cutter diam. 63 mm / B 22 | 42-1058 | |
| Precision machine vise PS 100 | 28-2027 | |
| Machine vise KV 100 | 28-2080 | |
| Opening wider machine vise FJ 100 | 28-2085 | |
| Boring head combo package diam. 50 mm, incl. boring bars | 25-1015 | |
| Edge finder SOE 20 L with indicator lamps L 158 mm | 32-1061 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| Coolant pump with plastic tank 10l - (self installed) ¹ | 54-1206 | |
| Universal coolant fluid MN 1103, 5 l canister | 56-1026 | |
| Stand BF 5 | 56-1018 | |
| Stand BF 5 Deluxe | | |

¹ Alternatively in 230 V (Art. no. 51-1003) or 400 V (Art. no. 51-1004)

Drilling and milling machines

FM 40 HS FM 40 HSV

- Gear selector switch allows easy and quick speed change
- Serially equipped with 3 adjustable drill feeds (FM 40 HSV)
- Multiple application possibilities such as drilling, milling and thread cutting
- Large cross table, precisely processed surface
- Gibs adjustable at the table
- Polished gears, in oil bath, for smooth running
- Taper roller bearings guarantees high concentricity
- Right and left rotation allows thread cutting
- Gear head 180° tiltable, 360° rotatable and adjustable in height
- Powerful 2-step motor, speed range 75 - 3200 rpm
- Handle for spindle adjustment, handwheel for fine feed



Tapping



Drilling of coordinates



Face milling



Milling with 2-axis-vise

**Best
Price**



FM 40 HS

with tilted mill head for
angular drilling

**High concentricity
≤ 0.015 mm**

| Technical data | FM 40 HS | FM 40 HSV |
|--|----------------------|----------------------------|
| Drilling capacity in steel | 32 mm | 32 mm |
| Drilling capacity in cast iron | 40 mm | 40 mm |
| Milling head max. | 80 mm | 80 mm |
| Distance spindle to column | 255 mm | 255 mm |
| Spindle speeds | (12) 75 - 3200 rpm | (12) 75 - 3200 rpm |
| Spindle taper | MT 3 | MT 3 |
| Spindle stroke | 120 mm | 120 mm |
| Spindle feed | - | 0,10 / 0,18 / 0,26 mm/rev. |
| Table size / T-slot size | 730 x 210 mm / 14 mm | 730 x 210 mm / 14 mm |
| Travel (x / y) | 520 mm / 175 mm | 520 mm / 175 mm |
| Mill head tiltable | -90° to +90° | -90° to +90° |
| Distance spindle to table | 135 - 460 mm | 135 - 460 mm |
| Height adjustment of mill head | 325 mm | 325 mm |
| Column diameter | 115 mm | 115 mm |
| Motor power output S ₁ 100% | 1,1 / 1,5 kW (400 V) | 1,1 / 1,5 kW (400 V) |
| Motor power input S ₆ 40% | 1,5 / 2,2 kW (400 V) | 1,5 / 2,2 kW (400 V) |
| Machine dimension (W x D x H)* | 1100 x 830 x 1450 mm | 1100 x 830 x 1450 mm |
| Weight approx. | 260 kg | 270 kg |
| Art. no. | 02-1053 | 02-1054 |

* without stand

Standard accessories:

- Keyless drill chuck 3 - 16 mm / B 16
- Drill chuck arbor MT 3 / B 16
- Drawbar M 12
- Morse taper drill sleeve MT 3/2
- Taper shell end mill holder MT 3 / 27 mm
- Height adjustable protective cover
- Automatic spindle feed (FM 40 HSV)
- LED machine light
- Digital spindle stroke indication
- Thread cutting device
- Longitudinal scale
- Tools

FM 40 HS FM 40 HSV

The FM 40 HS and FM 40 HSV are suitable for drilling and milling in horizontal, vertical and inclined position. The FM 40 HSV features a solid construction, a serially spindle feed, a digital spindle stroke indication and extraordinary performance. This model is popular at model-makers, craftsmen and repair shops.



The tiltable gear head allows drilling and milling in horizontal, vertical and angular position.



The spindle feed can be set to 0.10 / 0.18 or 0.26 mm/rev.

With digital spindle stroke indication

Complete with spindle feed

2-speed-motor

Best Price



Large cross table with T-slots and coolant groove. Picture with optional available power feed AL 450 D.



| Optional accessories: | Art. no. | excl. VAT |
|--|----------|-----------|
| Double roller tapping chuck set MT 3, M 3 - M 12 | 24-1090 | |
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1019 | |
| Mill chuck set ER 40, MT3, 3 - 25 mm, 16 pcs. | 26-1006 | |
| Horizontal and vertical rotary table HV 6 | 27-1000 | |
| Horizontal and vertical rotary table RT 5 | 27-1033 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| 2 way precision tilting vise PTS 100 | 28-2033 | |
| Machine vise KV 125 | 28-2081 | |
| Opening wider machine vise FJ 125 | 28-2086 | |
| Edge finder SOE 20 L with indicator lamps L 158 mm | 32-1061 | |
| Centering indicator | 32-1070 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| Metric size taper shank drills MT 2/3, 9 pcs. - 14,5-30 mm, set B | 41-1051 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Combi milling box, 3 - 12 mm, 12 pcs. | 42-1022 | |
| Carbide indexable face milling cutter diam. 80 mm / B 27 | 42-1059 | |
| Coolant pump with plastic tank 10l - (self installed) ¹ | | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |
| Power feed AL 450 D for x-axis | 53-1004 | |
| Stand BF 3 with chip tray | 56-1015 | |
| Stand BF 3 Deluxe with chip tray | 56-1017 | |
| Stand BF 6 with coolant tray | 56-1016 | |

¹ Alternatively in 230 V (Art. no. 51-1003) or 400 V (Art. no. 51-1004)

Drilling and milling machine

FM 45 HS

- Gear selector switch allows for quick and easy speed change
- Wide range of applications, such as drilling, milling, thread cutting etc.
- Polished gear wheels, in oil bath, ensure smooth running
- Right and left turning device for tapping
- Handle allows spindle feed, handwheel allows fine feed
- Dovetail guiding in x-, y- and z-axis, adjustable by gibs
- Milling table tilts to both sides to allow angular boring, milling of bevels etc.
- Large, surface-treated cross table
- Attractive price-to-performance ratio for price conscious users



Gear selector switch allows for quick and easy speed change



Height adjustable chuck guard and micro switch guarantees high safety standards



Large cross table with T-slots and coolant groove. Picture with optional available power feed AL 450 D.

BERNARDO
SEMIPROFESSIONAL

Inclusive steel cover

Max. speed 3200 rpm



2-speed-motor

FM 45 HS
with tilted mill head for angular drilling

Technical data

FM 45 HS

| | |
|---|----------------------|
| Drilling capacity in steel | 32 mm |
| Drilling capacity in cast iron | 40 mm |
| Milling head max. | 80 mm |
| Distance spindle to column | 220 mm |
| Spindle speeds | (12) 75 - 3200 rpm |
| Spindle taper | MT 4 |
| Spindle stroke | 125 mm |
| Table size | 800 x 240 mm |
| Travel (x / y) | 555 / 225** mm |
| Mill head tiltable | -60° to +60° |
| Distance spindle to table | 60 - 485 mm |
| Height adjustment of mill head | 425 mm |
| T-slot size | 14 mm |
| Motor power output S ₁ 100% | 1,1 / 1,5 kW (400 V) |
| Motor power input S ₆ 40% | 1,5 / 2,2 kW (400 V) |
| Machine dimension (W x D x H)* | 1140 x 770 x 1500 mm |
| Weight approx. | 287 kg |
| FM 45 HS | 02-1062 |
| FM 45 HS (incl. 3-axis digital readout) | 02-1063 |

* without stand

** 205 mm at model with 3-axis digital readout

Standard accessories:

- 3-axis digital readout ES-12 V with LCD-display (Art. no. 02-1063)
- Keyless drill chuck 3 - 16 mm / B 16
- Drill chuck arbor MT 4 / B 16
- Drawbar M 16
- Morse taper drill sleeve MT 4 / 3
- Taper shell end mill holder MT4 / 27 mm
- Height adjustable protective cover
- Thread cutting device
- LED machine light
- Digital spindle stroke indication
- Steel cover
- Longitudinal scale
- Tools

Left and right turning

The FM 45 HS is a reasonably priced drilling and milling machine. The dovetail guiding of the gear head guarantees best possible accuracy and stability. Most commonly it is used by amateurs.

FM 45 HS



Powerful 2-step motor with 1,1 / 1,5 kW input power.



Clearly arranged control elements (tapping device, start / stop buttons etc.)



Ergonomically arranged handles allow for easy spindle feed when drilling. Handwheel with scale allows accurate feed when milling.



Big dimensioned spindle with 125 mm stroke, serially with digital spindle stroke indication.

Digital indication of drill depth



Best Price



Inclusive thread cutting device

Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Double roller tapping chuck set MT 4, M 3 - M 12 | 24-1091 | |
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1020 | |
| Mill chuck set ER 40, MT 4, 3 - 25 mm, 16 pcs. | 26-1007 | |
| Horizontal and vertical rotary table HV 6 | 27-1000 | |
| Horizontal and vertical rotary table RT 5 | 27-1033 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| 2 way precision tilting vise PTS 100 | 28-2033 | |
| Machine vise KV 125 | 28-2081 | |
| Opening wider machine vise FJ 125 | 28-2086 | |
| Edge finder SOE 20 L with indicator lamps L 158 mm | 32-1061 | |
| Centering indicator | 32-1070 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| Metric size taper shank drills MT 2/3, 9 pcs. - 14,5-30 mm, set B | 41-1051 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Combi milling box, 3 - 12 mm, 12 pcs. | 42-1022 | |
| Carbide indexable face milling cutter diam. 40 mm / B 16 | 42-1056 | |
| Carbide indexable face milling cutter diam. 80 mm / B 27 | 42-1059 | |
| Coolant pump with plastic tank 10l - (self installed) ¹ | | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |
| Power feed AL 450 D for x-axis | 53-1004 | |
| Stand BF 3 with chip tray | 56-1015 | |
| Stand BF 3 Deluxe with chip tray | 56-1017 | |
| Stand BF 6 with coolant tray | 56-1016 | |

¹ Alternatively in 230 V (Art. no. 51-1003) or 400 V (Art. no. 51-1004)

Drilling and milling machine with spindle feed

FM 45 HSV

- Powerful 2-step motor, speed range 75 - 3200 rpm
- Mill head tilts to both sides for angular boring, milling of bevels etc.
- Height adjustable protective cover with micro switch for increased safety
- Automatic spindle feed and thread cutting device come standard
- Dovetail guiding in x- and y-axis, adjustable by gibs
- Gear selector switch allows quick and easy speed change
- Digital display for spindle feed included
- Dovetail guiding of gear head maximizes stability
- Handle for spindle adjustment, handwheel for fine feed
- Solid cast-iron construction eliminates most vibrations



Spindle feed can be set to 0.10 / 0.18 or 0.26 mm/rev.



Ergonomically arranged control elements on the front of the machine.

Right-left turning

Inclusive steel cover



Large cross table with T-slots and coolant groove. Picture with optional available power feed AL 450 D.

BERNARDO
SEMIPROFESSIONAL

Max. speed
3200 rpm

Inclusive thread
cutting device

| Technical data | FM 45 HSV |
|--|--------------------------------|
| Drilling capacity in steel | 32 mm |
| Drilling capacity in cast iron | 40 mm |
| Milling head max. | 80 mm |
| Distance spindle to column | 220 mm |
| Spindle speeds | (12) 75 - 3200 rpm |
| Spindle taper | MT 4 |
| Spindle stroke | 120 mm |
| Spindle feed | (3) 0,10 / 0,18 / 0,26 mm/rev. |
| Table size | 800 x 240 mm |
| Travel (x / y) | 555 / 225** mm |
| Mill head tiltable | -60° to +60° |
| Distance spindle to table | 60 - 485 mm |
| Height adjustment of mill head | 425 mm |
| T-slot size | 14 mm |
| Motor power output S ₁ 100% | 1,1 / 1,5 kW (400 V) |
| Motor power input S ₆ 40% | 1,5 / 2,2 kW (400 V) |
| Machine dimension (W x D x H)* | 1140 x 770 x 1500 |
| Weight approx. | 308 kg |
| FM 45 HSV | 02-1087 |
| FM 45 HSV (incl. 3-axis digital readout) | 02-1088 |

* without stand

** 205 mm at model with 3-axis digital readout

Standard accessories:

- 3-axis digital readout ES-12 V with LCD-display (Art. no. 02-1088)
- Keyless drill chuck 3 - 16 mm / B 16
- Drill chuck arbor MT 4 / B 16
- Drawbar M 16
- Morse taper drill sleeve MT 4/3
- Taper shell end mill holder MT 4 / 27 mm
- Height adjustable protective cover
- Automatic spindle feed
- LED machine light
- Digital spindle stroke indication
- Thread cutting device
- Steel cover
- Longitudinal scale
- Tools

The model FM 45 HSV feature a high speed range (75 - 3200 rpm) as well as a large range of standard accessories (for instance automatic spindle feed, digital spindle stroke indication, LED working light etc.), making this machine ideal for mechanics, repair shops and and for training purposes.

FM 45 HSV



Drilling of coordinates



The 3-axis-position display ES-12 V with LCD-display features applications such as processing of bolt circles, pocket milling etc.



Tapping with rotary table



Face milling (Art. no. 42-1085)



Complete with spindle feed

Digital indication of drill depth

Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Double roller tapping chuck set MT 4, M 3 - M 12 | 24-1091 | |
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1020 | |
| Mill chuck set ER 40, MT 4, 3 - 25 mm, 16 pcs. | 26-1007 | |
| Horizontal and vertical rotary table HV 6 | 27-1000 | |
| Horizontal and vertical rotary table RT 5 | 27-1033 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| 2 way precision tilting vise PTS 100 | 28-2033 | |
| Machine vise KV 125 | 28-2081 | |
| Opening wider machine vise FJ 125 | 28-2086 | |
| Edge finder SOE 20 L with indicator lamps L 158 mm | 32-1061 | |
| Centering indicator | 32-1070 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| Metric size taper shank drills MT 2/3, 9 pcs. - 14,5-30 mm, set B | 41-1051 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Combi milling box, 3 - 12 mm, 12 pcs. | 42-1022 | |
| Carbide indexable face milling cutter diam. 40 mm / B 16 | 42-1056 | |
| Carbide indexable face milling cutter diam. 80 mm / B 27 | 42-1059 | |
| Coolant pump with plastic tank 10l - (self installed) ¹ | | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |
| Power feed AL 450 D for x-axis | 53-1004 | |
| Stand BF 3 with chip tray | 56-1015 | |
| Stand BF 3 Deluxe with chip tray | 56-1017 | |
| Stand BF 6 with coolant tray | 56-1016 | |

¹ Alternatively in 230 V (Art. no. 51-1003) or 400 V (Art. no. 51-1004)

Drilling and milling machine with spindle feed

FM 50 HSV

- Wide range of applications, such as slotting, face milling, circular milling etc.
- Automatic spindle feed and thread cutting device come standard
- Lifting motor allows convenient height adjustment of mill head
- Digital display for spindle feed included
- Dovetail guiding in x-, y- and z-axis, adjustable by gibs
- Polished gear wheels, in oil bath, ensure smooth running
- Mill head tilts to both sides for angular boring, groove milling and many more
- Dovetail guide of gear unit guarantees rigidity
- Handle allows for spindle adjustment, hand wheel allows for fine feed
- Powerful 2-step motor, speed range 75 - 3200 rpm
- Height adjustable protective cover with micro switch for increased safety



Lifting motor, as part of standard accessories, allows for convenient adjustment of mill head



The 3-axis-position display ES-12 V with LCD-display features applications such as processing of bolt circles, pocket milling etc.



Large cross table with T-slots and coolant groove. Picture with optional available power feed AL 450 D.



2-speed-motor

Lifting motor comes standard

Technical data

FM 50 HSV

| | |
|--|--------------------------------|
| Drilling capacity in steel | 32 mm |
| Drilling capacity in cast iron | 40 mm |
| Milling head max. | 80 mm |
| Distance spindle to column | 220 mm |
| Spindle speeds | (12) 75 - 3200 rpm |
| Spindle taper | MT 4 |
| Spindle stroke | 120 mm |
| Spindle feed | (3) 0,10 / 0,18 / 0,26 mm/rev. |
| Table size | 800 x 240 mm |
| Travel (x / y) | 555 / 225** mm |
| Mill head tiltable | -60° to +60° |
| Distance spindle to table | 95 - 485 mm |
| Height adjustment of mill head | 390 mm |
| T-slot size | 14 mm |
| Lifting motor | 90 W |
| Motor power output S ₁ 100% | 1,1 / 1,5 kW (400 V) |
| Motor power input S ₆ 40% | 1,5 / 2,2 kW (400 V) |
| Machine dimension (W x D x H)* | 1140 x 970 x 1460 mm |
| Weight approx. | 322 kg |
| FM 50 HSV | 02-1095 |
| FM 50 HSV (incl. 3-axis digital readout) | 02-1096 |

* without stand

** 205 mm at model with 3-axis digital readout

Standard accessories:

- 3-axis digital readout ES-12 V with LCD-display (Art. no. 02-1096)
- Keyless drill chuck 3 - 16 mm / B 16
- Morse taper drill sleeve MT 4 / B 16
- Drawbar M 16
- Morse taper drill sleeve MT 4 / 3
- Taper shell end mill holder MT 4 / 27 mm
- Height adjustable protective cover
- Automatic spindle feed
- Lifting motor for mill head
- LED machine light
- Digital spindle stroke indication
- Thread cutting device
- Steel cover
- Longitudinal scale
- Tools

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SEMIPROFESSIONAL

Left and right turning

FM 50 HSV

The FM 50 HSV drilling and milling machine offer through the motorized height adjustment of mill head, the digital spindle stroke display and the automatic spindle feed a high usability. The compact construction and wide range of performance makes this model ideal for model-makers, craftsmen and repair shops.



Milling head is tiltable to both sides from -60° to +60°.



Gear selector switch allows for quick and easy speed change



Tiltable control panel features ergonomically arranged switches



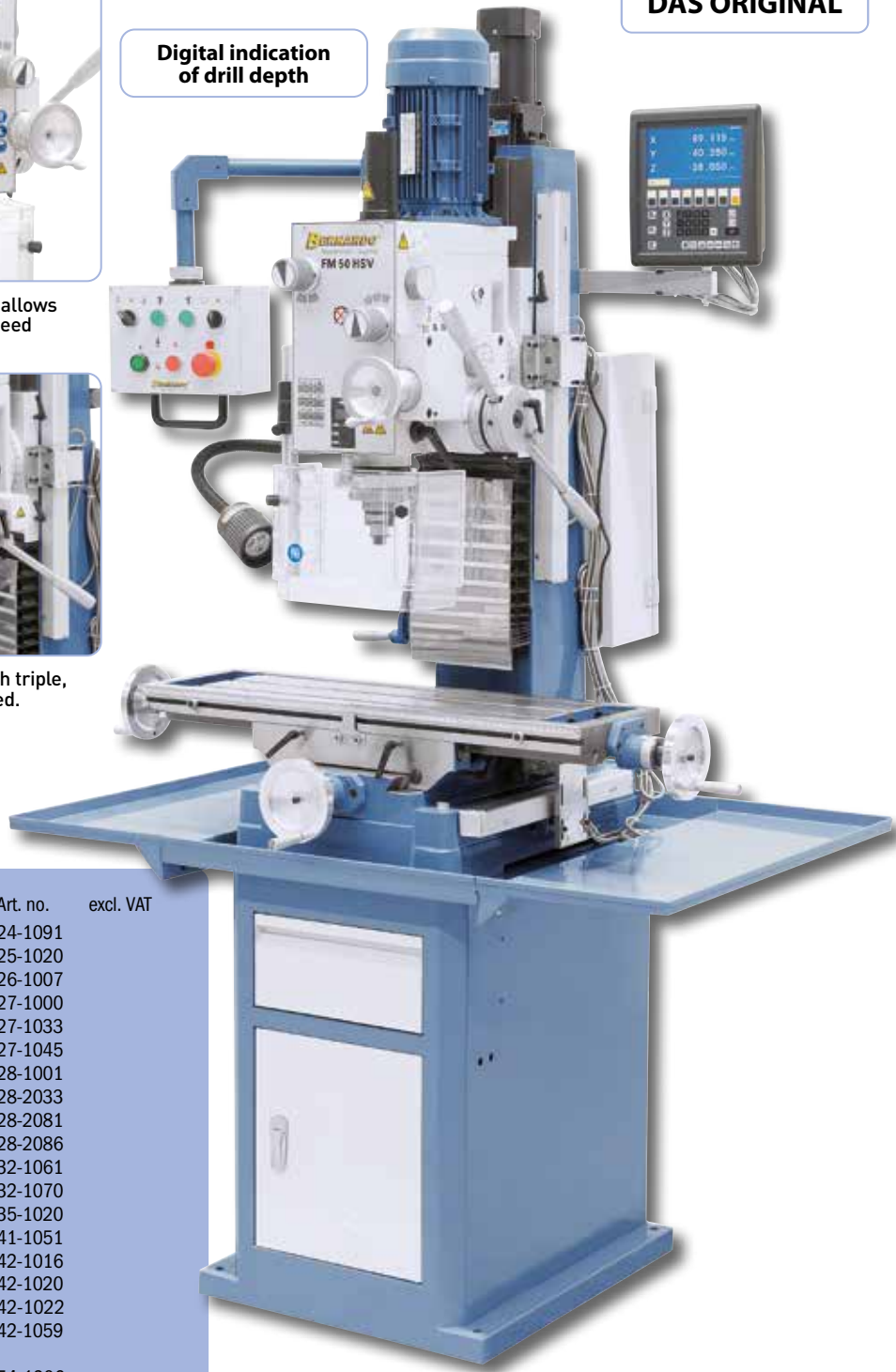
Serially equipped with triple, automatic spindle feed.

Complete with spindle feed

Inclusive steel cover

Digital indication of drill depth

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DAS ORIGINAL



Inclusive thread cutting device

Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Double roller tapping chuck set MT 4, M 3 - M 12 | 24-1091 | |
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1020 | |
| Mill chuck set ER 40, MT 4, 3 - 25 mm, 16 pcs. | 26-1007 | |
| Horizontal and vertical rotary table HV 6 | 27-1000 | |
| Horizontal and vertical rotary table RT 5 | 27-1033 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| 2 way precision tilting vise PTS 100 | 28-2033 | |
| Machine vise KV 125 | 28-2081 | |
| Opening wider machine vise FJ 125 | 28-2086 | |
| Edge finder SOE 20 L with indicator lamps L 158 mm | 32-1061 | |
| Centering indicator | 32-1070 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| Metric size taper shank drills MT 2/3, 9 pcs. - 14,5-30 mm, set B | 41-1051 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Combi milling box, 3 - 12 mm, 12 pcs. | 42-1022 | |
| Carbide indexable face milling cutter diam. 80 mm / B 27 | 42-1059 | |
| Coolant pump with plastic tank 10l - (self installed) ¹ | | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |
| Power feed AL 450 D for x-axis | 53-1004 | |
| Stand BF 3 Deluxe with chip tray | 56-1017 | |
| Stand BF 6 with coolant tray | 56-1016 | |
| Stand BF 6 Deluxe with coolant tray | 56-1019 | |

¹ Alternatively in 230 V (Art. no. 51-1003) or 400 V (Art. no. 51-1004)

Drilling an milling machine with digital readout

FM 55 HSV

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DAS ORIGINAL

- Serially equipped with automatic spindle feed and thread cutting device
- Automatic table feed with rapid feed allows quick table adjustment in x-axis
- Solid, grey cast-iron machine stand eliminates vibrations
- Complete with digital readout in all three axis to increase productivity
- 2-speed-motor with 12 speed settings (75 - 3200 rpm)
- Wide range of applications, such as horizontal slotting, face milling, reboring
- Mill head tilts to both sides for angular boring, milling of bevels etc.
- Lifting motor allows convenient height adjustment of mill head
- Dovetail guiding in x-, y- and z-axis, adjustable by gibs
- Dovetail guiding of gear head maximizes stability
- Manual central lubrication for all guide ways



Lift motor for height adjustment of mill head comes included.



The digital readout in all three axis allows an increase in productivity of up to 50%.



Stepless table feed in x-axis with rapid feed comes standard.

Best Price

Digital indication of drill depth



Including coolant pump

Inclusive x-axis power feed

Solid cast iron stand

Technical data

FM 55 HSV

| | |
|--|--------------------------------|
| Drilling capacity in steel | 32 mm |
| Drilling capacity in cast iron | 40 mm |
| Milling head max. | 80 mm |
| Distance spindle to column | 220 mm |
| Spindle speeds | (12) 75 - 3200 rpm |
| Spindle taper | MT 4 |
| Spindle stroke | 120 mm |
| Spindle feed | (3) 0,10 / 0,18 / 0,26 mm/rev. |
| Table size | 800 x 240 mm |
| Travel (x / y) | 420 / 200 mm |
| Mill head tiltable | -60° to +60° |
| Distance spindle to table | 95 - 485 mm |
| Height adjustment of mill head | 390 mm |
| T-slot size | 14 mm |
| Lifting motor | 90 W |
| Motor power output S ₁ 100% | 1,1 / 1,5 kW (400 V) |
| Motor power input S ₆ 40% | 1,5 / 2,2 kW (400 V) |
| Machine dimension (W x D x H) | 1270 x 960 x 2120 mm |
| Weight approx. | 447 kg |
| Art. no. | 02-1097 |

Standard accessories:

- 3-axis digital readout ES-12 V with LCD-display
- Keyless drill chuck 3 - 16 mm / B 16
- Drill chuck arbor MK 4 - B 16
- Drawbar M 16
- Morse taper drill sleeve MT 4 / 3
- Taper shell end mill holder MT 4 / 27 mm
- Automatic spindle feed
- Height adjustable protective cover
- Lifting motor for mill head
- Central lubrication
- x-axis power feed AL 450 D
- LED machine light
- Digital spindle stroke indication
- Thread cutting device
- Steel cover
- Coolant device
- Longitudinal scale
- Cast iron stand with coolant groove
- Tools

Complete with spindle feed

Left and right turning

The drilling and milling machine FM 55 HSV feature a solid construction and practicality. Making this model truly versatile is the standard equipment which comprises all major accessories such as 3-axis position readout, table feed, lifting motor, central lubrication, coolant device, LED working light, cast iron stand with coolant groove and safety precautions in accordance with CE-standards.

FM 55 HSV



Face milling (Art. no. 42-1085)



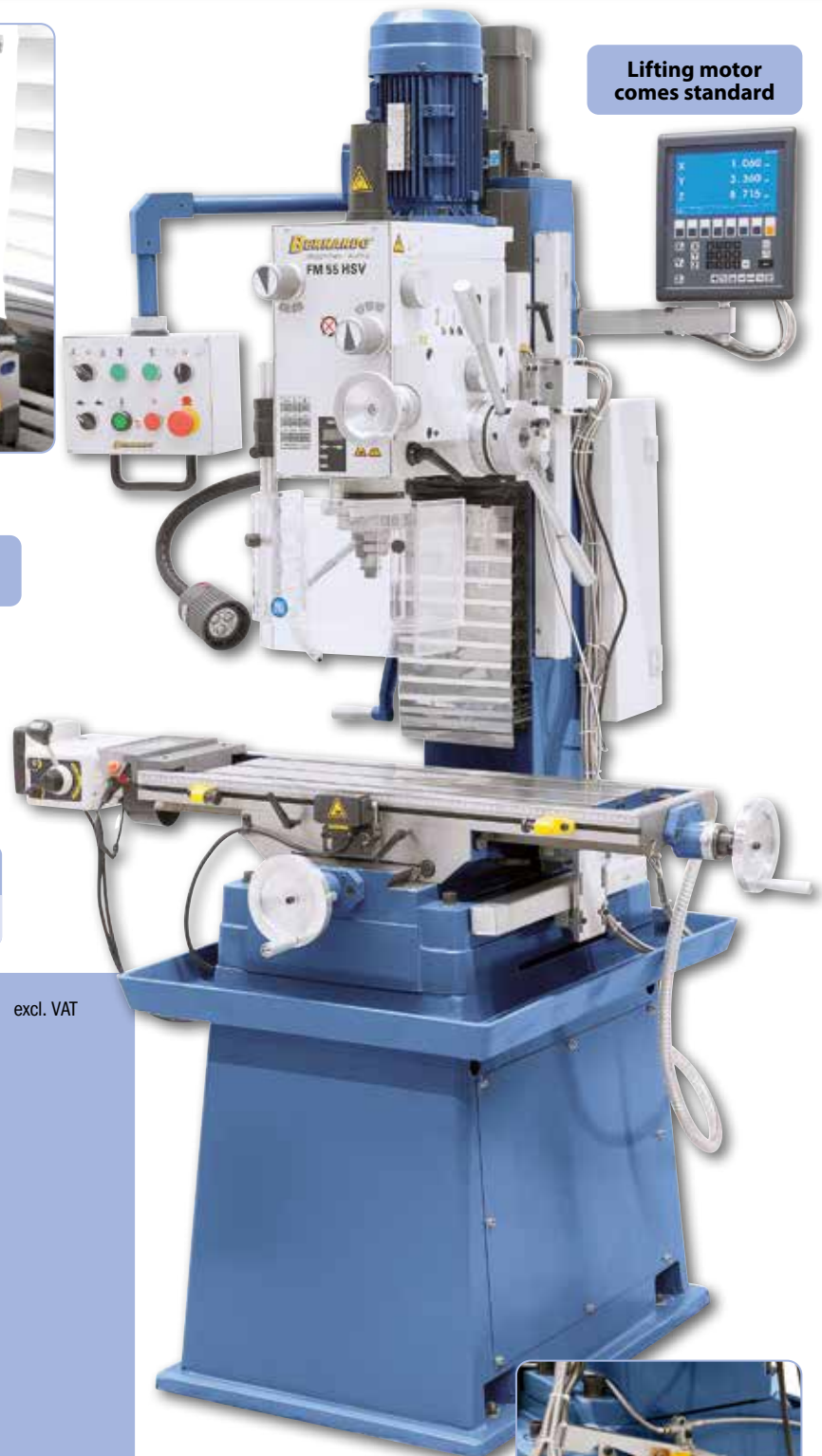
Drilling of coordinates



Reborring

**Max. speed
3200 rpm**

**Including 3-axis
digital readout with
LCD-display**



**Lifting motor
comes standard**

**Inclusive thread
cutting device**



Central lubrication for all
guideways come standard.

| Optional accessories: | Art. no. | excl. VAT |
|---|----------|-----------|
| Double roller tapping chuck set MT 4, M 3 - M 12 | 24-1091 | |
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1020 | |
| Mill chuck set ER 40, MT 4, 3 - 25 mm, 16 pcs. | 26-1007 | |
| Horizontal and vertical rotary table HV 6 | 27-1000 | |
| Horizontal and vertical rotary table RT 5 | 27-1033 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| 2 way precision tilting vise PTS 100 | 28-2033 | |
| Machine vise KV 125 | 28-2081 | |
| Opening wider machine vise FJ 125 | 28-2086 | |
| Edge finder SOE 20 L with indicator lamps L 158 mm | 32-1061 | |
| Centering indicator | 32-1070 | |
| Zero setting device NEG 50 | 32-1086 | |
| 10 pcs. precision angle block set | 35-1000 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| Adjustable angle gauge 0 - 60° | 35-1016 | |
| Wavy parallel set 18 pcs. | 35-1025 | |
| Metric size taper shank drills MT 2/3, 9 pcs. - 14,5-30 mm, set B | 41-1051 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Combi milling box, 3 - 12 mm, 12 pcs. | 42-1022 | |
| Carbide indexable face milling cutter diam. 50 mm / B 22 | 42-1057 | |
| Carbide indexable face milling cutter diam. 80 mm / B 27 | 42-1059 | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |

Drilling and milling machine with stepless speed

FM 55 HSV Vario

- Delta- frequency inverter ensures variable speed adjustment with optimal torque
- Wide range of applications, such as slotting, face milling, circular milling etc.
- Automatic table feed with rapid feed allows quick table adjustment in x-axis
- Automatic spindle feed and thread cutting device come standard
- Dovetail guiding in x-, y- and z-axis, adjustable by gibs
- Mill head tilts to both sides for angular boring, groove milling and many more
- Digital display for speed and spindle stroke comes standard
- Solid, grey cast-iron machine stand eliminates vibrations
- Powerful coolant device included in machine base

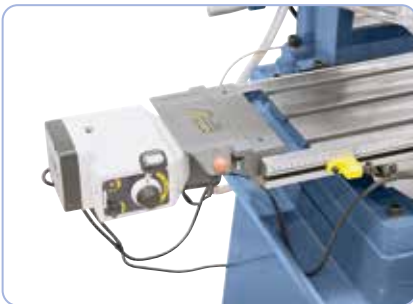
Lifting motor for mill head



Spindle feed can be set to 0.10 / 0.18 or 0.26 mm.



Central lubrication for all guideways come standard.



Complete with spindle feed

Large cross table features T-slots and coolant groove. Picture shows serially milling table power feed AL 450 D.



Technical data

FM 55 HSV Vario

| | |
|--|--------------------------------|
| Drilling capacity in steel | 32 mm |
| Drilling capacity in cast iron | 40 mm |
| Milling head max. | 80 mm |
| Distance spindle to column | 220 mm |
| Spindle speed, stepless | 75 - 480 / 425 - 2750 rpm |
| Spindle taper | MT 4 |
| Spindle stroke | 125 mm |
| Spindle feed | (3) 0,10 / 0,18 / 0,26 mm/rev. |
| Table size | 800 x 240 mm |
| Travel (x / y) | 420 / 200 mm |
| Mill head tiltable | -60° to +60° |
| Distance spindle to table | 95 - 485 mm |
| Height adjustment of mill head | 390 mm |
| T-slot size | 14 mm |
| Lifting motor | 90 W |
| Motor power output S ₁ 100% | 1,5 kW (400 V) |
| Motor power input S ₆ 40% | 2,2 kW (400 V) |
| Machine dimension (W x D x H) | 1270 x 960 x 2120 mm |
| Weight approx. | 445 kg |
| Art. no. | 02-1101 |

Standard accessories:

- 3-axis digital readout ES-12 V with LCD-Display
- Keyless drill chuck 3 - 16 mm / B 16
- Morse taper drill sleeve MT 4 - B 16
- Drawbar M 16
- Morse taper drill sleeve MT 4 / 3
- Taper shell end mill holder MT 4 / 27 mm
- Automatic spindle feed
- Height adjustable protective cover
- Lifting motor for mill head
- Central lubrication
- x-axis power feed AL 450 D
- Frequency inverter Delta VFD-E
- LED machine light
- Digital speed indication
- Digital spindle stroke indication
- Thread cutting device
- Steel cover
- Coolant device
- Longitudinal scale
- Cast iron stand with coolant groove
- Tools

Left and right turning

FM 55 HSV Vario

The FM 55 HSV Vario drilling and milling machine features a motorised height adjustment of the mill head and an automatic spindle feed. However, the stepless speed adjustment makes this model truly unique. Making this model truly versatile is the standard equipment which comprises all major accessories such as 3-axis position readout, table feed, lifting motor, central lubrication, coolant device, LED working light, cast iron stand with coolant groove and safety precautions in accordance with CE-standards.



Easy pre-selection of the speed step by gear selector switch, speed adjustment by potentiometer.



Lifting motor, as part of standard accessories, allows for convenient adjustment of mill head



Frequency inverter allows for stepless adjustment of spindle speed

Including 3-axis digital readout with LCD-display

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Vario-Drive

Digital speed indication



Inclusive thread cutting device

Inclusive steel cover

| Optional accessories: | Art. no. | excl. VAT |
|---|----------|-----------|
| Double roller tapping chuck set MT 4, M 3 - M 12 | 24-1091 | |
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1020 | |
| Mill chuck set ER 40, MT 4, 3 - 25 mm, 16 pcs. | 26-1007 | |
| Horizontal and vertical rotary table HV 6 | 27-1000 | |
| Horizontal and vertical rotary table RT 5 | 27-1033 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| 2 way precision tilting vise PTS 100 | 28-2033 | |
| Machine vise KV 125 | 28-2081 | |
| Opening wider machine vise FJ 125 | 28-2086 | |
| Edge finder SOE 20 L with indicator lamps L 158 mm | 32-1061 | |
| Centering indicator | 32-1070 | |
| Zero setting device NEG 50 | 32-1086 | |
| 10 pcs. precision angle block set | 35-1000 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| Adjustable angle gauge 0 - 60° | 35-1016 | |
| Wavy parallel set 18 pcs. | 35-1025 | |
| Metric size taper shank drills MT 2/3, 9 pcs. - 14,5-30 mm, set B | 41-1051 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Combi milling box, 3 - 12 mm, 12 pcs. | 42-1022 | |
| Carbide indexable face milling cutter diam. 50 mm / B 22 | 42-1057 | |
| Carbide indexable face milling cutter diam. 80 mm / B 27 | 42-1059 | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |

Solid cast iron stand

Drilling and milling machine with pneum. tool clamping **FM 55 HTC Vario**

- Pneumatic tool clamping device shortens conversion times significantly
- Automatic spindle feed and thread cutting device come standard
- Delta frequency inverter ensures variable speed adjustment with optimal torque
- Many possible applications, such as groove milling, face milling, re boring etc.
- Lifting motor ensures convenient height adjustment of milling head
- Dovetail guide of gear unit guarantees rigidity
- Digital display for speed and spindle stroke comes standard
- Manual central lubrication for all guide ways



Face milling
(Art. no. 42-1085)



Drilling of coordinates

Standard accessories:

- 3-axis digital readout ES-12 V with LCD-display
- Keyless drill chuck 3 - 16 mm / B 16
- Drill chuck arbor ISO 30 - B 16
- Drawbar M 16
- Adapter ISO 30 / MT 2
- Taper shell end mill holder ISO 30 / 27 mm
- Automatic spindle feed
- Pneumatic tool clamp
- Height adjustable protective cover
- Lifting motor for mill head
- Central lubrication
- x-axis power feed AL 450 D
- Frequency inverter Delta VFD-E
- LED machine light
- Digital speed indication
- Digital spindle stroke indication
- Thread cutting device
- Steel cover
- Coolant device
- Longitudinal scale
- Cast iron stand with coolant groove

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**Pneumatic
tool clamp**



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Technical data

FM 55 HTC Vario

| | |
|--------------------------------|--------------------------------|
| Drilling capacity in steel | 32 mm |
| Drilling capacity in cast iron | 40 mm |
| Milling head max. | 80 mm |
| Distance spindle to column | 220 mm |
| Spindle speed, stepless | 75 - 480 / 425 - 2750 rpm |
| Spindle taper | ISO 30 |
| Spindle stroke | 125 mm |
| Spindle feed | (3) 0,10 / 0,18 / 0,26 mm/rev. |
| Table size | 800 x 240 mm / 14 mm |
| Travel (x / y) | 420 / 200 mm |
| Mill head tiltable | -60° to +60° |
| Distance spindle to table | 95 - 485 mm |
| Height adjustment of mill head | 390 mm |
| Lifting motor | 90 W |
| Motor power | 1,5 kW (400 V) |
| Machine dimension (W x D x H) | 1270 x 960 x 2120 mm |
| Weight approx. | 455 kg |
| Art. no. | 02-1102 |

Drilling and milling machine

BF 40 HS

The BF 40 HS is suitable for drilling, milling and countersinking. The high versatility – gear head tilts and rotates – make this machine very popular for repair shops and training workshops.

- Numerous application possibilities, such as drilling, milling, thread cutting, ...
- Surface treated machine base to mount particularly large workpieces
- 2-speed-motor with 12 speed settings
- Left and right turning for thread cutting
- Gear selector switch makes speed change quick and easy
- Gear head 180° tiltable, 360° rotatable and adjustable in height
- Polished gear wheels, in oil bath, allow smooth running
- Star handle allows spindle adjustment, handwheel allows fine feed

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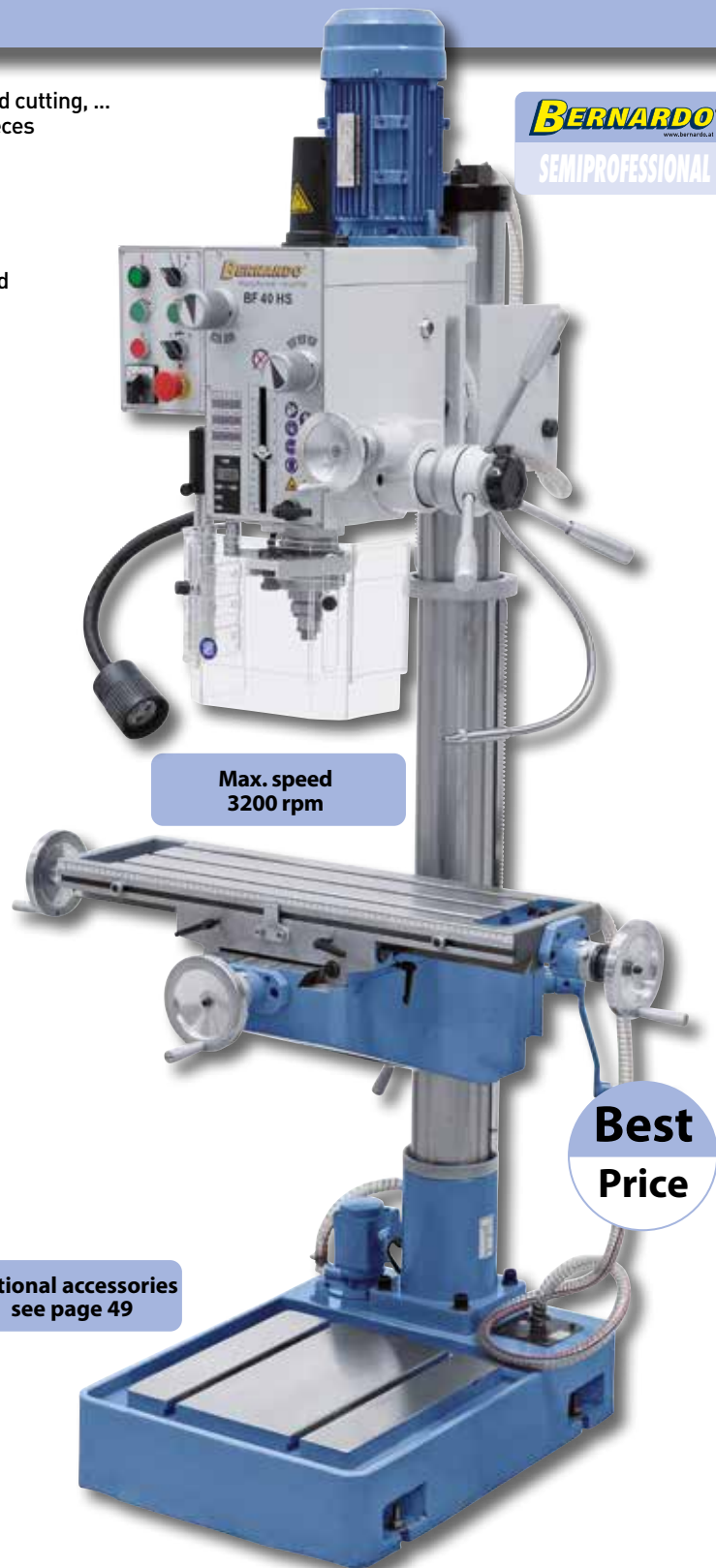
Large cross table with T-slots and coolant groove. Picture with optional available power feed AL 450 D.



Ergonomically arranged control elements on the front of the machine.



Powerful coolant pump comes standard.



**Max. speed
3200 rpm**

**Best
Price**

**Optional accessories
see page 49**

| Technical data | BF 40 HS |
|--|----------------------|
| Drilling capacity in steel | 32 mm |
| Drilling capacity in cast iron | 40 mm |
| Milling head max. | 80 mm |
| Distance spindle to column | 280 mm |
| Spindle speeds | (12) 75 - 3200 rpm |
| Spindle taper | MT 4 |
| Spindle stroke | 120 mm |
| Table size | 730 x 210 mm |
| T-slot size | 14 mm |
| Distance spindle to table max. | 640 mm |
| Distance spindle to base plate max. | 1185 mm |
| Travel (x / y) | 480 / 210 mm |
| Mill head tiltable | -90° to +90° |
| Height adjustment of mill head | 265 mm |
| Column diameter | 115 mm |
| Base plate | 365 x 375 mm |
| Motor power output S ₁ 100% | 1,1 / 1,5 kW (400 V) |
| Motor power input S ₆ 40% | 1,5 / 2,2 kW (400 V) |
| Machine dimension (W x D x H) | 1070 x 800 x 2060 mm |
| Weight approx. | 360 kg |
| Art. no. | 02-1098 |

Standard accessories:

- Keyless drill chuck 1 - 16 mm / B 16
- Drill chuck arbor MT 4 / B 16
- Drawbar M 16
- Morse taper drill sleeve MT 4 / 3
- Taper shell end mill holder MT 4 / 27 mm
- Height adjustable protective cover
- Digital spindle stroke indication
- Thread cutting device
- Coolant device
- LED machine light
- Longitudinal scale
- Tools

Drilling and milling machine with spindle feed

BF 45 HSV

- Powerful 2-step motor, speed range 75 - 3200 rpm
- Solid, polished steel column suitable for heavy workload
- Digital display for spindle stroke and LED-lamp comes standard
- Serially equipped with automatic spindle feed and thread cutting device
- Lever allows quick and easy speed change
- Gear head is height adjustable, tilts 180° and rotates 360°
- Polished gear wheels, in oil bath, guarantees smooth running
- Clutch allows change from manual to fine feed
- High-quality ball bearings allow for high concentricity
- Height adjustable protective cover with micro switch for increased safety



Ergonomically arranged control elements on the front of the machine.



Digital display for drill depth increases comfort.



Powerful coolant pump comes standard.



Height adjustable chuck guard and micro switch guarantees high safety standards

Max. speed
3200 rpm



Tiltable gear head for universal use

Technical data

BF 45 HSV

| | |
|--|--------------------------------|
| Drilling capacity in steel | 32 mm |
| Drilling capacity in cast iron | 40 mm |
| Milling head max. | 80 mm |
| Distance spindle to column | 280 mm |
| Spindle speeds | (12) 75 - 3200 rpm |
| Spindle taper | MT 4 |
| Spindle stroke | 120 mm |
| Spindle feed | (3) 0,10 / 0,18 / 0,26 mm/rev. |
| Table size | 730 x 210 mm |
| T-slot size | 14 mm |
| Distance spindle to table max. | 640 mm |
| Distance spindle to base plate max. | 1190 mm |
| Travel (x / y) | 495* / 200 mm |
| Mill head tiltable | -90° to +90° |
| Height adjustment of mill head | 260 mm |
| Column diameter | 115 mm |
| Base plate | 365 x 375 mm |
| Motor power output S ₁ 100% | 1,1 / 1,5 kW (400 V) |
| Motor power input S ₆ 40% | 1,5 / 2,2 kW (400 V) |
| Machine dimension (W x D x H) | 1070 x 800 x 2060 mm |
| Weight approx. | 362 kg |
| BF 45 HSV | 02-1106 |
| BF 45 HSV (with x-axis power feed) | 02-1111 |

* 380 mm at model with x-axis power feed

Standard accessories:

- x-axis power feed AL 450 D (Art. no. 02-1111)
- Keyless drill chuck 3 - 16 mm / B 16
- Drill chuck arbor MT 4 / B 16
- Drawbar M 16
- Morse taper drill sleeve MT 4 / 3
- Taper shell end mill holder MT 4 / 27 mm
- Automatic spindle feed
- Height adjustable protective cover
- Digital spindle stroke indication
- Thread cutting device
- Coolant device
- LED machine light
- Longitudinal scale
- Tools

Left and right turning

Drilling and milling machine with spindle and table feed

BF 45 HSV



Ergonomically arranged handles allow for easy spindle feed when drilling. Handwheel with scale allows accurate feed when milling.



Powerful 2-step motor with 1,1 / 1,5 kW input power.

**Best
Price**

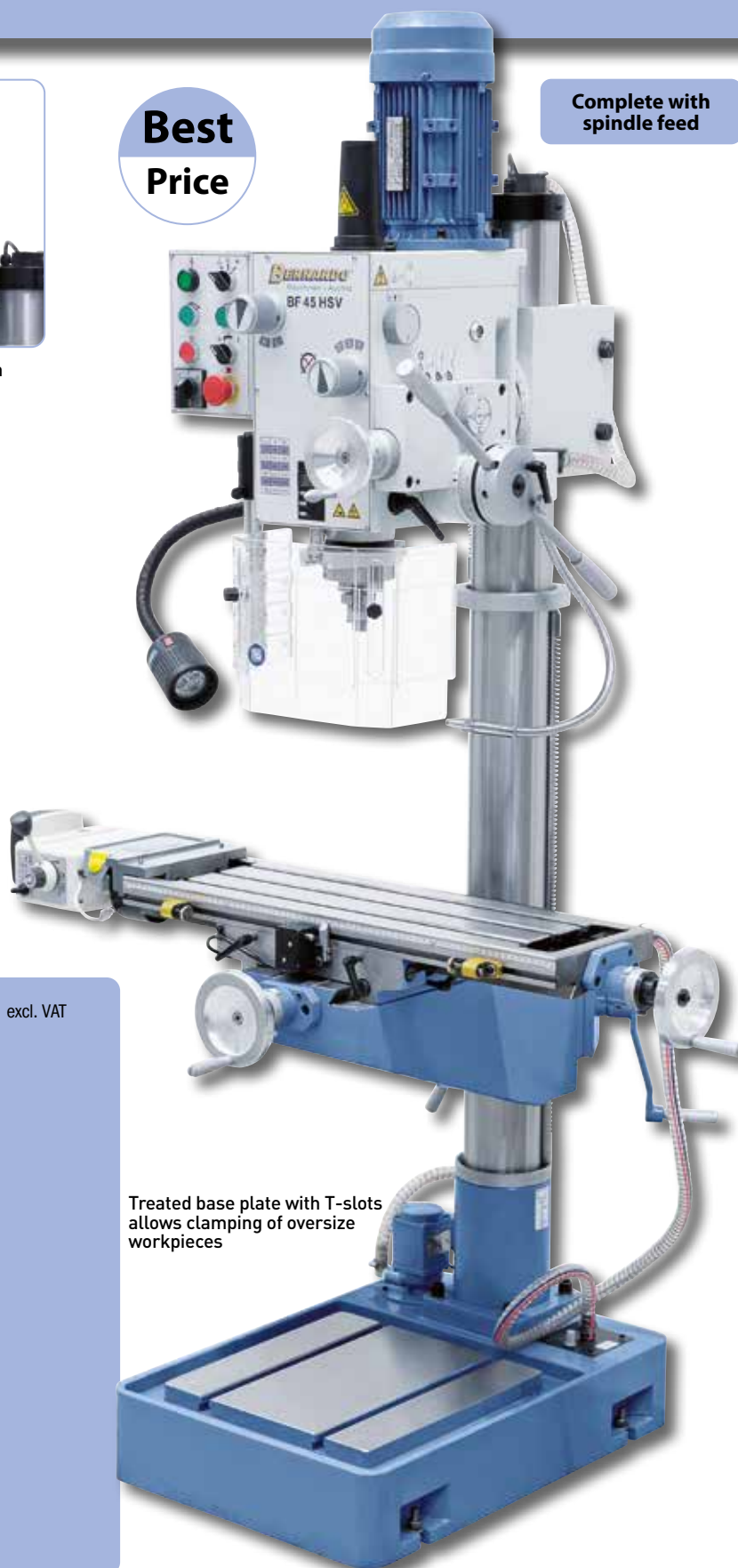
**Complete with
spindle feed**

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**Tiltable drillhead
from -90° to +90°**



Stepless table feed in x-axis with rapid feed comes standard (Art. no. 02-1111)



Treated base plate with T-slots allows clamping of oversized workpieces

Optional accessories:

| | Art. no. | excl. VAT |
|---|----------|-----------|
| Double roller tapping chuck set MT 4, M 3 - M 12 | 24-1091 | |
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1020 | |
| Mill chuck set ER 40, MT 4, 3 - 25 mm, 16 pcs. | 26-1007 | |
| Horizontal and vertical rotary table HV 6 | 27-1000 | |
| Horizontal and vertical rotary table RT 5 | 27-1033 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| 2 way precision tilting vise PTS 100 | 28-2033 | |
| Machine vise KV 125 | 28-2081 | |
| Opening wider machine vise FJ 125 | 28-2086 | |
| Edge finder SOE 20 L with indicator lamps L 158 mm | 32-1061 | |
| Centering indicator | 32-1070 | |
| Zero setting device NEG 50 | 32-1086 | |
| 10 pcs. precision angle block set | 35-1000 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| Adjustable angle gauge 0 - 60° | 35-1016 | |
| Wavy parallel set 18 pcs. | 35-1025 | |
| Metric size taper shank drills MT 2/3, 9 pcs. - 14,5-30 mm, set B | 41-1051 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Combi milling box, 3 - 12 mm, 12 pcs. | 42-1022 | |
| Carbide indexable face milling cutter diam. 50 mm / B 22 | 42-1057 | |
| Carbide indexable face milling cutter diam. 80 mm / B 27 | 42-1059 | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |

Drilling and milling machine with spindle feed and vario drive

BF 45 HSV Vario

- Delta-frequency inverter ensures variable speed adjustment with optimal torque
- Height adjustable protective cover in accordance to CE standards for increased safety
- Many possible applications, such as groove milling, face milling, re boring etc.
- Large cross table with T-slots and coolant groove
- Polished gear wheels, in oil bath, allow smooth running
- Digital display for speed and spindle stroke comes standard
- Mill head tilts to both sides for angular boring, groove milling and many more
- Dovetail guiding in x- and z-axis, adjustable by gibs
- Solid, polished steel column in heavy-duty design
- Comes complete with automatic spindle feed
- Left and right turning for thread cutting



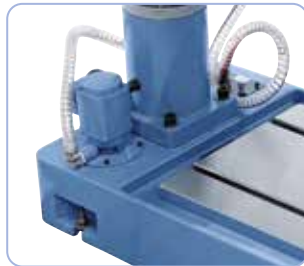
Spindle feed can be set to 0,10 / 0,18 or 0,26 mm/rev.



Easy pre-selection of the speed step by gear selector switch, speed adjustment by potentiometer.



High-quality frequency inverter comes standard.



Powerful coolant pump comes standard.

Tiltable gear head for universal use

Complete with spindle feed

With digital spindle stroke indication

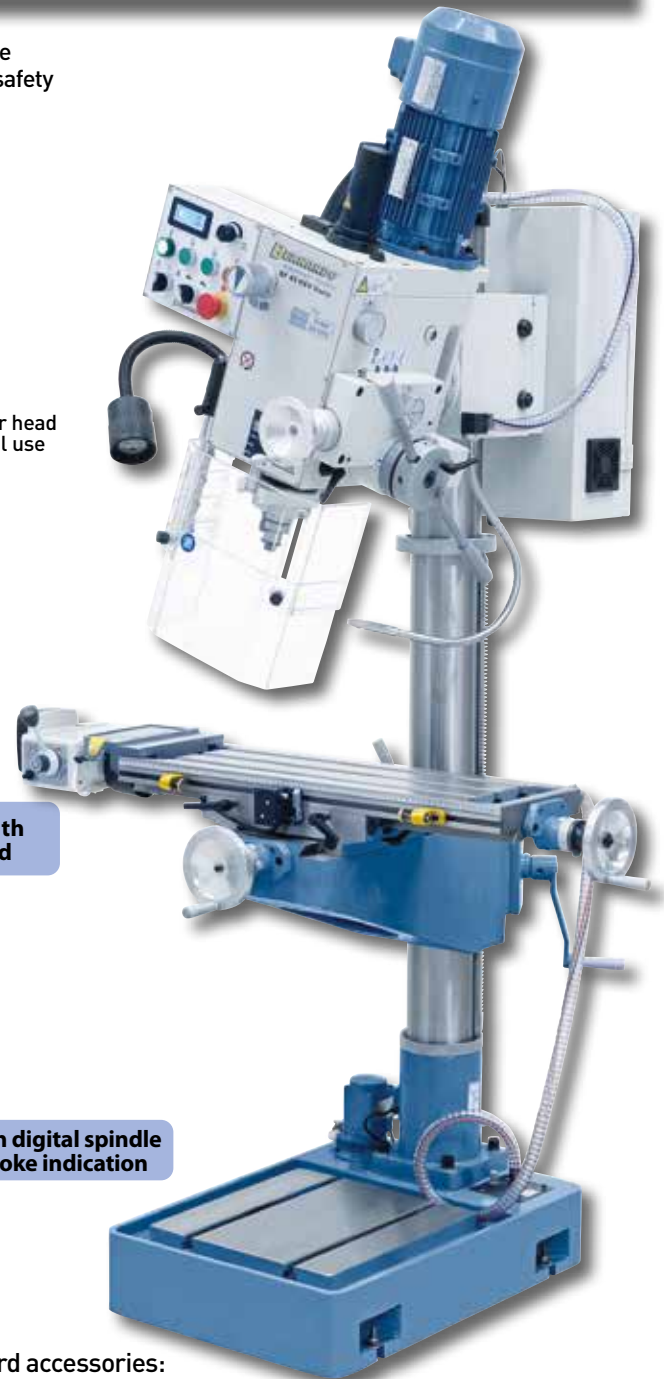
Standard accessories:

- x-axis power feed AL 450 D (Art. no. 02-11080)
- Keyless drill chuck 1 - 16 mm / B 16
- Drill chuck arbor MT 4 / B 16
- Drawbar M 16
- Morse taper drill sleeve MT 4 / 3
- Taper shell end mill holder MT 4 / 27 mm
- Automatic spindle feed
- Height adjustable protective cover
- Digital spindle stroke indication
- Digital speed indication
- Frequency inverter
- Thread cutting device
- Coolant device
- LED machine light
- Longitudinal scale
- Tools

Technical data

BF 45 HSV Vario

| | |
|--|-----------------------------|
| Drilling capacity in steel | 32 mm |
| Drilling capacity in cast iron | 40 mm |
| Milling head max. | 80 mm |
| Distance spindle to column | 280 mm |
| Spindle speed, stepless | 75 - 2750 rpm |
| Spindle taper | MT 4 |
| Spindle stroke | 120 mm |
| Spindle feed | (3) 0,10 / 0,18 / 0,26 mm/r |
| Table size | 730 x 210 mm |
| T-slot size | 14 mm |
| Distance spindle to table max. | 640 mm |
| Distance spindle to base plate max. | 1190 mm |
| Travel (x / y) | 495 / 200 mm |
| Mill head tiltable | -90° to +90° |
| Height adjustment of mill head | 260 mm |
| Column diameter | 115 mm |
| Base plate | 365 x 375 mm |
| Motor power output S ₁ 100% | 1,5 kW (400 V) |
| Motor power input S ₆ 40% | 2,2 kW (400 V) |
| Machine dimension (W x D x H) | 1070 x 800 x 2060 mm |
| Weight approx. | 362 kg |
| BF 45 HSV Vario | 02-1108 |
| BF 45 HSV Vario (with x-axis power feed) | 02-11080 |



The drilling and milling machine BF 45 HSV Vario is suitable for drilling and milling in horizontal, vertical and inclined position. Due to the solid construction, serially spindle feed, digital spindle stroke indication and the stepless speed adjustment, this model is popular at model-makers, craftsmen and repair shops.

BF 45 HSV Vario



Reboring



Milling operation with 2-way vice.

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Best Price



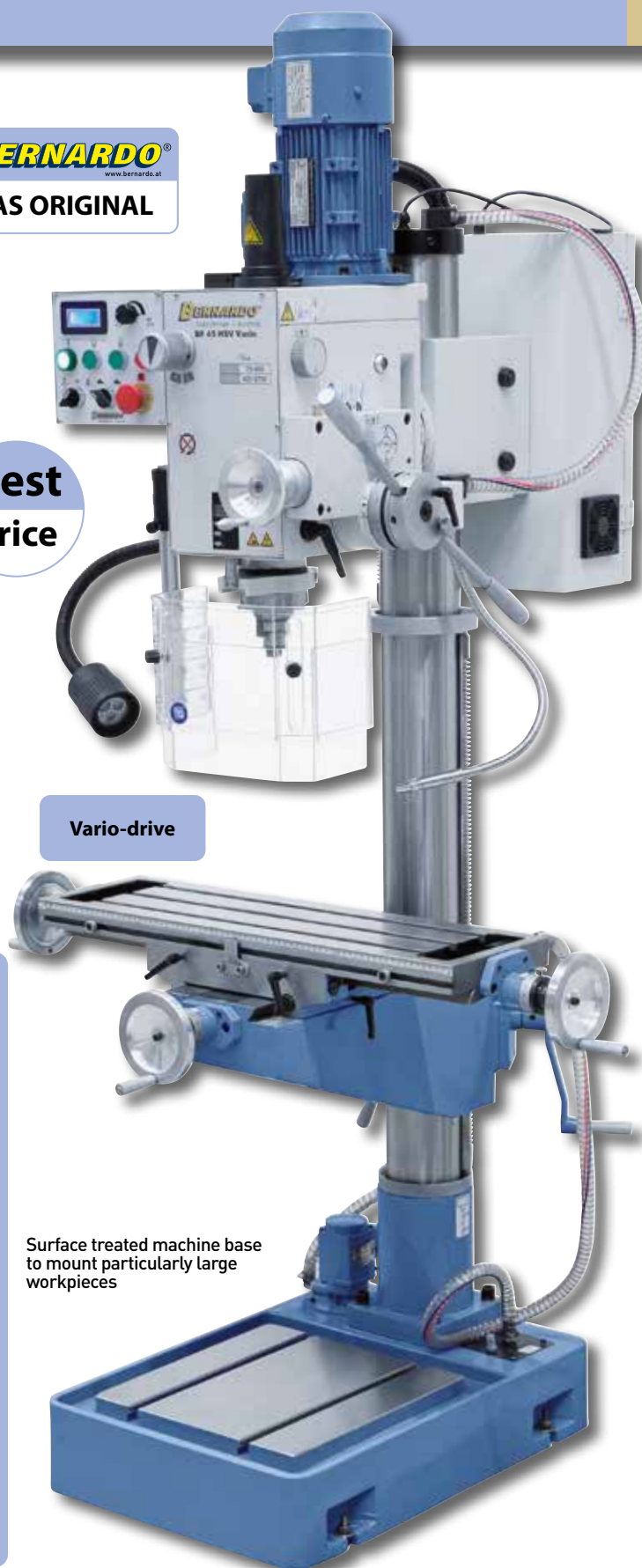
Large cross table with T-slots and coolant groove. Picture with power feed AL 450 D (Art. no. 02-1108).

Tiltable drillhead from -90° to +90°

Left and right turning

Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| Double roller tapping chuck set MT 4, M 3 - M 12 | 24-1091 | |
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1020 | |
| Mill chuck set ER 40, MT 4, 3 - 25 mm, 16 pcs. | 26-1007 | |
| Horizontal and vertical rotary table HV 6 | 27-1000 | |
| Horizontal and vertical rotary table RT 5 | 27-1033 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| 2 way precision tilting vise PTS 100 | 28-2033 | |
| Machine vise KV 125 | 28-2081 | |
| Opening wider machine vise FJ 125 | 28-2086 | |
| Edge finder SOE 20 L with indicator lamps L 158 mm | 32-1061 | |
| Centering indicator | 32-1070 | |
| Zero setting device NEG 50 | 32-1086 | |
| 10 pcs. precision angle block set | 35-1000 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| Adjustable angle gauge 0 - 60° | 35-1016 | |
| Wavy parallel set 18 pcs. | 35-1025 | |
| Metric size taper shank drills MT2/3, 9 pcs. - 14,5-30 mm, set B | 41-1051 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Combi milling box, 3 - 12 mm, 12 pcs. | 42-1022 | |
| Carbide indexable face milling cutter diam. 50 mm / B 22 | 42-1057 | |
| Carbide indexable face milling cutter diam. 80 mm / B 27 | 42-1059 | |
| Power feed AL 450 D for x-axis | 53-1004 | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |



Vario-drive

Surface treated machine base to mount particularly large workpieces

Drilling and milling machine with digital readout

KF 60

- Automatic table feed with rapid feed allows for convenient table adjustment in x- and y-axis
- Large variety of applications, such as slotting, faces milling, reboring etc.
- Tiltable milling table -45° to $+45^{\circ}$ increases range of applications significantly
- Complete with position display in all 3 axis raises productivity
- Polished gear wheels, in oil bath, ensure smooth running
- Milling head tilts to both sides for angular boring, milling of chamfers etc.
- Clutch allows easy adjustment from manual to fine feed
- Precision bearings ensure high concentricity of spindle (0.015 mm)
- Large, surface treated, solid cross table
- Extensive range of accessories comes standard

| Travel |
|------------------|
| x: 590 mm |
| y: 180 mm |
| z: 320 mm |

2-speed-motor



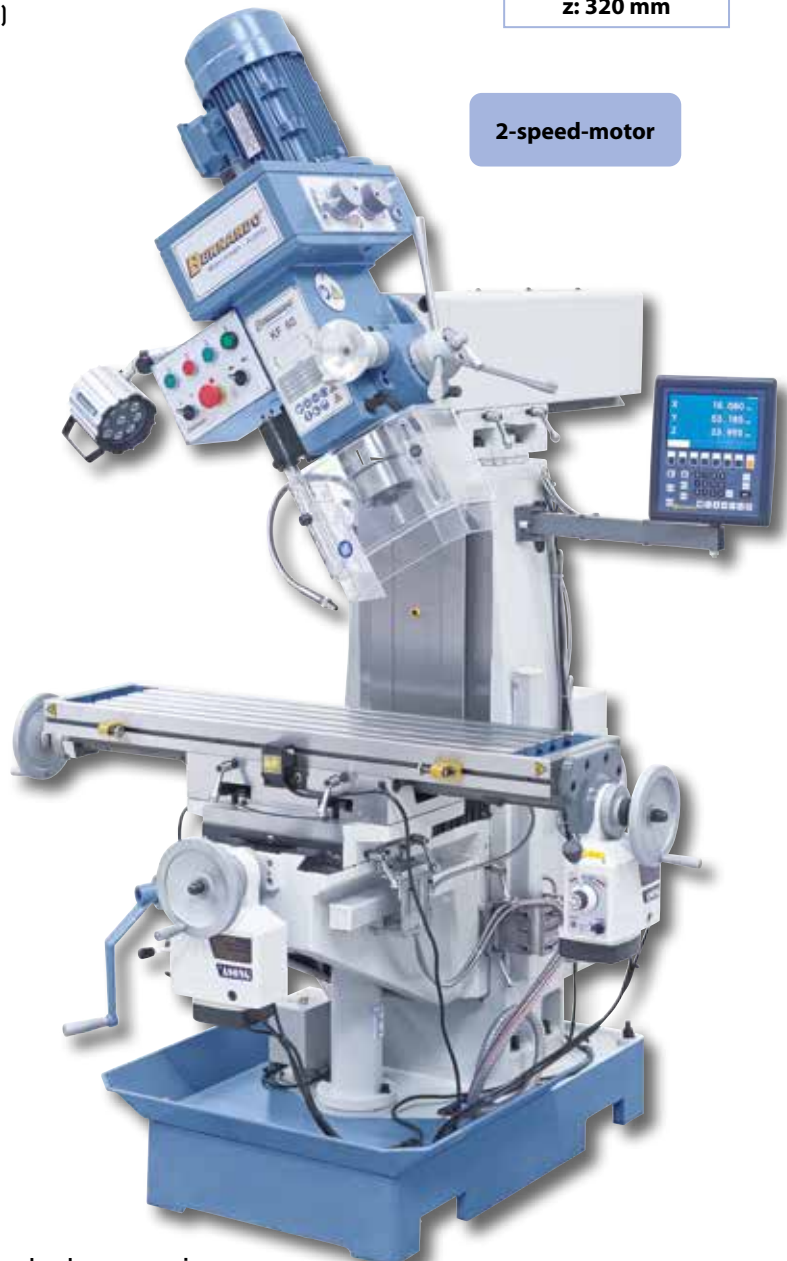
Height adjustable chuck guard and micro switch guarantees high safety standards.



Clearly arranged, accessible control elements allow easy speed change.



Serially equipped with automatic table feed for x and y-axis



| Technical data | KF 60 |
|--------------------------------|--------------------------------|
| Drilling capacity in steel | 35 mm |
| Drilling capacity in cast iron | 40 mm |
| Thread cutting max. | M 16 |
| Distance spindle to column | 210 - 550 mm |
| Head tilting range | 90° |
| Spindle speeds | (8) 115 - 1750 rpm |
| Spindle taper | ISO 40 |
| Spindle stroke | 125 mm |
| Table size | 1000 x 240 mm |
| T-slot size | 14 mm |
| Table tiltable | -45° to $+45^{\circ}$ |
| Distance spindle to table | 120 - 375 mm |
| Travel longitudinal (x) | 590 mm |
| Travel cross (y) | 180 mm |
| Travel vertical (z) | 320 mm |
| Motor power output S_1 100% | 0,85 / 1,5 kW |
| Motor power input S_6 40% | 1,1 / 2,2 kW |
| Machine dimension (W x D x H) | 1300 x 1400 x 2100 mm |
| Weight approx. | 750 kg |
| Art. no. | 02-1161XL |

Standard accessories:

- 3-axis digital readout ES-12 V with LCD-display
- Drawbar M 16
- LED machine light
- Coolant system
- Adapter ISO 40 / MT 3
- Adapter ISO 40 / B18
- Morse taper drill sleeve MT 3/2
- Height adjustable protective cover
- Automatic table feed in x-axis
- Automatic table feed in y-axis



KF 60

The KF 60 drilling and milling machine is serially equipped with an x- and y-axis feed. The adjustable, tiltable arm, making this model ideal for a wide range of applications and is the ideal model for model maker, amateurs and repair shops.



The powerful motor guarantees satisfactory results for any kind of work. Gearshift allows speed adjustment.



Serially equipped with a digital readout for each of the three axis.

Best Price

Including 3-axis digital readout with LCD-display



User-friendly adjustment of control elements on the mill head.

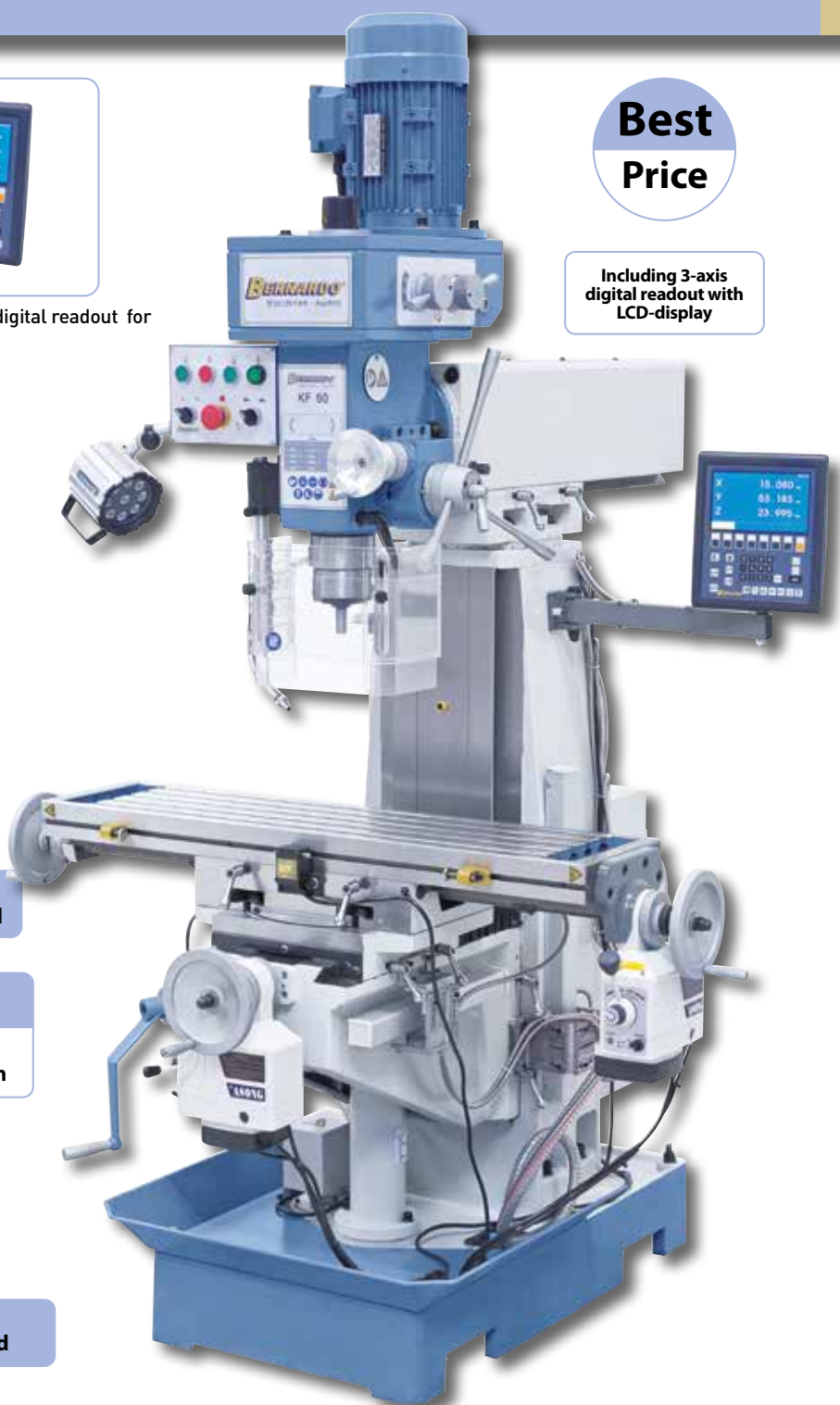


Large star handle for easy spindle infeed at drilling, handwheel with scale for exact infeed at milling

Table tiltable comes standard

NEW
Table size 1000 x 240 mm

Automatic table feed in x- and y-axis comes standard



| Optional accessories: | Art. no. | excl. VAT |
|--|----------|-----------|
| Horizontal and vertical rotary table HV 8 | 27-1001 | |
| Mill chuck set ER 40, ISO 40, 3 - 25 mm, 16 pcs. | 26-1011 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| Semi-universal dividing head BS-1 | 27-1046 | |
| Hydro machine vise VH 125 with swivel base | 28-2089 | |
| Machine vise KV 150 | 28-2082 | |
| Opening wider machine vise FJ 125 | 28-2086 | |

| Optional accessories: | Art. no. | excl. VAT |
|--|----------|-----------|
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| Boring head shank ISO 40 | 25-1011 | |
| Carbide indexable face milling cutter diam. 80 mm / B 27 | 42-1059 | |
| Machine mount NE 120 | 53-2011 | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |

Universal milling machine

UWF 80 E

- Horizontal and vertical spindle extend the variety of applications
- Mill table tilts 45° left and right
- Ball bearings guarantees high concentricity (≤ 0.015 mm) and accuracy
- Convenient spindle speed adjustment
- Mill head tilts from -90° to +90°
- Large clamp area 1000 x 240 mm
- Automatic table feed in x and y-axis, including rapid feed
- Handwheel allows spindle feed when milling
- Star handle allows spindle feed when drilling
- Clutch allows easy adjustment from manual to fine feed
- Left and right rotation for thread cutting
- Dovetail guiding of gear head
- Surface treated cross table features T-slots



The digital readout in all three axis allows an increase in productivity of up to 50%.



Serially equipped with counter bearing and milling arbor for horizontal milling.



Optionally available: boring head diameter 75 mm and opening wider machine vise FJ 125



User-friendly, clearly arranged control elements for easy speed adjustment.



Horizontal spindle largely increases the range of applications.



Complete with longitudinal table feed including rapid feed function.



Serially equipped with stepless power feed for the y-axis.

Technical data

UWF 80 E

| | |
|-------------------------------|-----------------------|
| Table size | 1000 x 240 mm |
| Spindle taper | ISO 40 |
| Spindle speed vertical | (8) 115 - 1750 rpm |
| Spindle speed horizontal | (9) 60 - 1350 rpm |
| Spindle stroke | 125 mm |
| Travel longitudinal (x) | 590 mm |
| Travel cross (y) | 180 mm |
| Travel vertical (z) | 320 mm |
| Distance spindle to table | 0 - 375 mm |
| Distance spindle to column | 230 - 685 mm |
| Table tiltable | -45° to +45° |
| Spindle head tilting range | -90° to +90° |
| Feed range, longitudinal | (8) 32 - 700 mm/min |
| T-slot size | 14 mm |
| Motor power vertical | 0,85 / 1,5 kW |
| Motor power horizontal | 1,5 kW |
| Machine dimension (W x D x H) | 1500 x 1430 x 2100 mm |
| Weight approx. | 980 kg |
| Art. no. | 02-1211BXL |

Optional accessories:

| | Art. no. | excl. VAT |
|---|----------|-----------|
| Hydro machine vise VH 125 with swivel base | 28-2089 | |
| Opening wider machine vise FJ 125 | 28-2086 | |
| Mill chuck set ER 40, ISO 40, 3 - 25 mm, 16 pcs. | 26-1011 | |
| Semi-universal dividing head BS-1 | 27-1046 | |
| Horizontal and vertical rotary table HV 8 | 27-1001 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| Metric size taper shank drills MT 2/3, 9 pcs. - 14,5-30 mm, set B | 41-1051 | |
| Machine mount NE 160 | 53-2012 | |
| Carbide indexable face milling cutter diam. 80 mm / B 27 | 42-1059 | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |

The UWF 80 E, a solid universal milling machine, is ideal for single and small series due to the combination of horizontal and vertical spindle. The large table clamping area of 1000 x 240 mm makes even clamping of large workpieces easy.

UWF 80 E



The powerful motor guarantees satisfactory results for any kind of work. Gearshift allows speed adjustment.

Best Price



User-friendly arranged control elements on the control panel.



Including 3-axis digital readout with LCD-display

Automatic table feed in x- and y-axis comes standard

Electronic components from Schneider Electric

Table tiltable comes standard

Table 1000 x 240 mm

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Drawbar M 16
- LED machine light
- Coolant device
- Power feed for the x-axis
- Power feed for the y-axis
- Adapter ISO 40 / MT 3
- Adapter ISO 40 / B 18
- Morse taper drill sleeve MT 3/2
- Long milling arbor ISO 40 / 27 mm
- Adjustable protective device
- Protective cover for horizontal milling
- Horizontal counter bearing



Ergonomically arranged handles for easy spindle feed

Universal milling machine with vario drive

UWF 80 E Vario

- Variable speed setting (vertical spindle) via Delta-Frequency inverter with ideal torque
- Automatic table feed with rapid feed allows for quick table adjustment in x- and y-axis
- Wide range of applications, such as slotting, face milling, reboring
- Tilttable milling table -45° to $+45^{\circ}$ increases range of applications significantly
- Complete with digital readout in all 3 axis raises productivity
- Precision bearings ensure high concentricity of spindle (0.015 mm)
- Milling head tilts to both sides for angular boring, milling of chamfers etc.
- Smooth running, powerful drive motor with frequency inverter
- Oversize cross table (1000 x 240 mm) features T-slots



Tilttable gear head allows for drilling and milling in horizontal, vertical and inclined position.



Milling table tilts from -45° to $+45^{\circ}$.

**Best
price**



**Table tiltable
from -45° to $+45^{\circ}$**

**Electronic components
from Schneider Electric**

Technical data

UWF 80 E Vario

| | |
|----------------------------------|--------------------------------|
| Table size | 1000 x 240 mm |
| Spindle taper | ISO 40 |
| Spindle speed vertical, stepless | 75 - 600 / 250 - 2000 rpm |
| Spindle speed horizontal | (9) 60 - 1350 rpm |
| Spindle stroke | 125 mm |
| Travel longitudinal (x) | 590 mm |
| Travel cross (y) | 175 mm |
| Travel vertical (z) | 320 mm |
| Distance spindle to table | 55 - 375 mm |
| Distance spindle to column | 225 - 650 mm |
| Table tiltable | -45° to $+45^{\circ}$ |
| Spindle head tilting range | -90° to $+90^{\circ}$ |
| Feed range, longitudinal | (8) 32 - 700 mm/min |
| T-slot size | 14 mm |
| Motor power vertical | 2,2 kW |
| Motor power horizontal | 1,5 kW |
| Machine dimension (W x D x H) | 1600 x 1500 x 2100 mm |
| Weight approx. | 1010 kg |
| Art. no. | 02-1212BXL |

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Drawbar M 16
- LED machine light
- Coolant device
- Frequency inverter
- Power feed for x-axis
- Power feed for y-axis
- Adapter ISO 40 / MT 3
- Adapter ISO 40 / B 18
- Morse taper drill sleeve MT 3/2
- Long milling arbor ISO 40 / 27 mm
- Adjustable protective device
- Protective cover for horizontal milling
- Counter bearing



Comes complete with automatic table feed in y-axis.

UWF 80 E Vario

The UWF 80 E Vario universal milling machine comes equipped with variable speed setting of the vertical spindle for optimal adjustment of the cutting speed. The high user-friendliness makes this model particularly suitable for professionals, in repair shops and for training purposes.



Reduction gearing allows for convenient pre-selection of gears, speed adjustment via potentiometer.



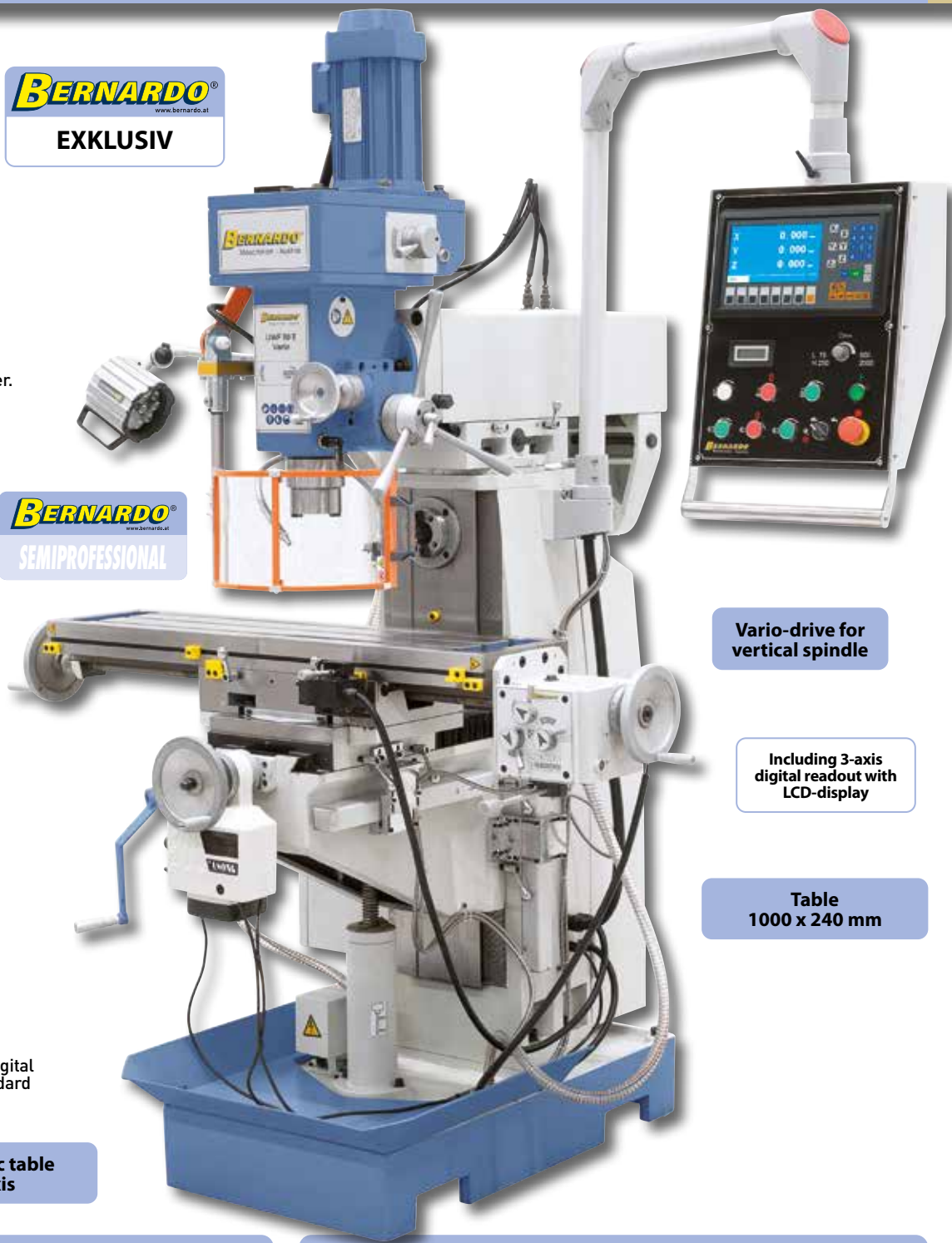
Handle allows spindle adjustment, handwheel allows fine feed.



Clearly arranged hanging panel. Digital position readout is part of the standard equipment.

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Vario-drive for vertical spindle

Including 3-axis digital readout with LCD-display

Table 1000 x 240 mm

Serially with automatic table feed in x- and y-axis

| Optional accessories: | Art. no. | excl. VAT |
|--|----------|-----------|
| Hydro machine vise VH 125 with swivel base | 28-2089 | |
| Opening wider machine vise FJ 125 | 28-2086 | |
| Mill chuck set ER 40, ISO 40, 3 - 25 mm, 16 pcs. | 26-1011 | |
| Semi-universal dividing head BS-1 | 27-1046 | |
| Horizontal and vertical rotary table HV 8 | 27-1001 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| 28 pcs. standard steel parallel set | 35-1020 | |

| Optional accessories: | Art. no. | excl. VAT |
|---|----------|-----------|
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| Metric size taper shank drills MT 2/3, 9 pcs. - 14,5-30 mm, set B | 41-1051 | |
| Machine mount NE 160 | 53-2012 | |
| Carbide indexable face milling cutter diam. 80 mm / B 27 | 42-1059 | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |

Universal milling machine with digital readout

UWF 90

- Complete with automatic table feed in x- and y-axis including rapid feed
- Surface treated, large table includes T-slots
- Heavy cast-iron machine stand eliminates vibrations
- Dovetail guiding in all three axis – adjustable by gibs
- Positioning motor for z-axis comes standard
- Wide speed and feed range
- Ideal for single and small-series production
- Tapered roller bearings ensure high concentricity
- Left and right rotation allows thread cutting



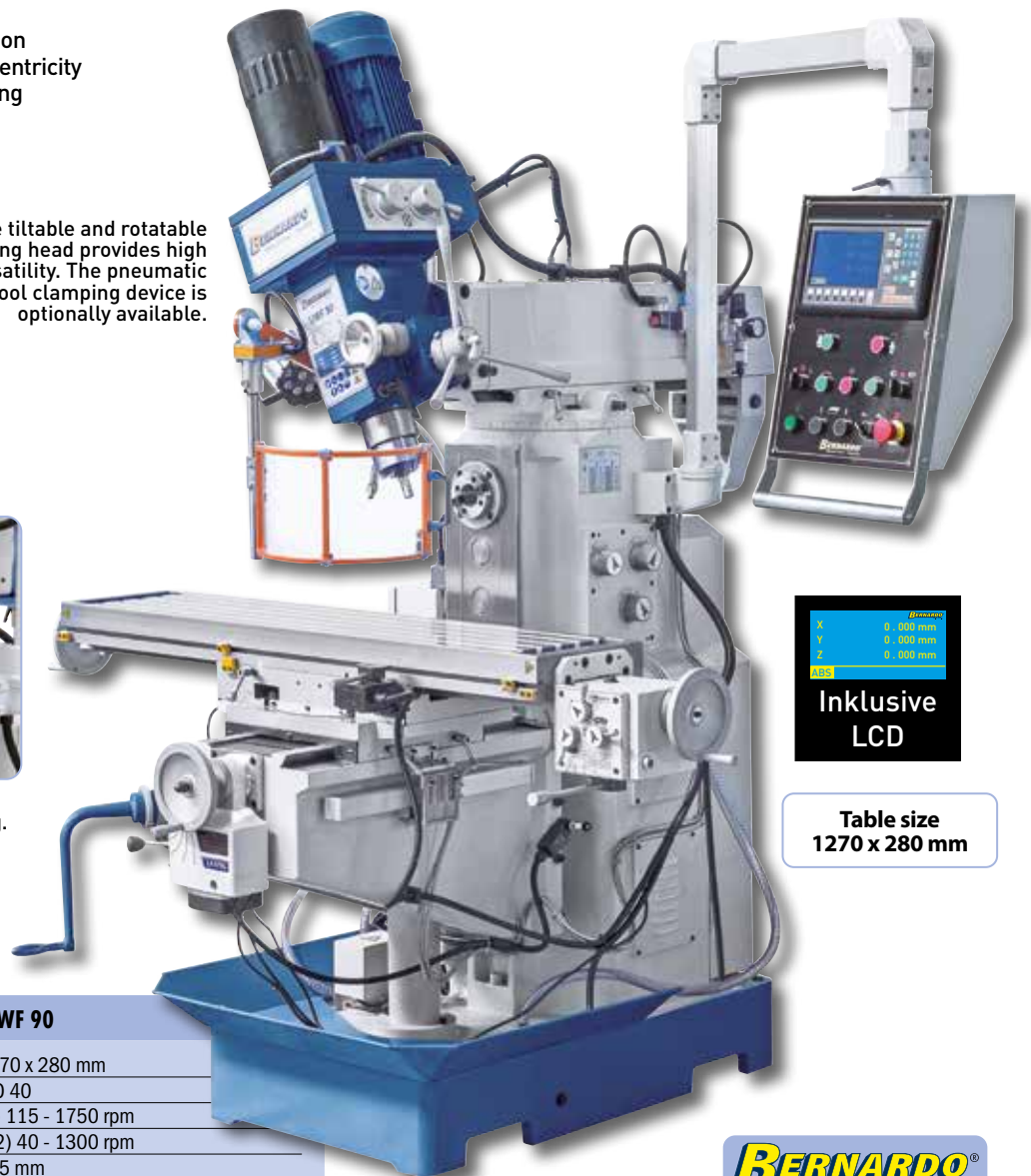
User-friendly, clearly arranged control elements for speed change.



Serially equipped with counter bearing and long milling arbour, allowing horizontal milling.

Table tiltable comes standard

The tiltable and rotatable milling head provides high versatility. The pneumatic tool clamping device is optionally available.



Inklusive LCD

Table size
1270 x 280 mm

Technical data

| | UWF 90 |
|---------------------------------------|----------------------------|
| Table size | 1270 x 280 mm |
| Spindle taper | ISO 40 |
| Spindle speed vertical | (8) 115 - 1750 rpm |
| Spindle speed horizontal | (12) 40 - 1300 rpm |
| Spindle stroke | 125 mm |
| Travel (x / y / z) | 750 mm * / 230 mm / 300 mm |
| Distance spindle to table | 35 - 350 mm |
| Distance spindle to column | 170 - 750 mm |
| Table tiltable | -45° to +45° |
| Spindle head tilting range | -90° to +90° |
| Feed range longitudinal | (8) 32 - 700 mm/min |
| Rapid feed z-axis | 660 mm/min |
| T-slot size | 14 mm |
| Motor power vertical | 0,85 / 1,5 kW |
| Motor power horizontal | 2,2 kW |
| Machine dimension (W x D x H) | 1750 x 1500 x 2200 mm |
| Weight approx. | 1300 kg |
| UWF 90 | 02-1227XLO |
| UWF 90 (with pneumatic tool clamping) | 02-1228XLO |

* manual

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Drawbar M 16
- LED machine light
- Coolant device
- Automatic table feed in x- and y-axis
- Positioning motor for z-axis
- Adapter ISO 40 / B 18, ISO 40 / MT 3
- Morse taper drill sleeve MT 3/2
- Long milling arbor 27 mm
- Horizontal counter bearing
- Adjustable protective device
- Protective cover for horizontal milling
- Tools

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UWF 90

The UWF 90 universal milling machine is serially equipped with an x- and y-axis feed. The table height (z-axis) is easily adjusted by the positioning motor. Due to the various areas of application and the comprehensive standard accessories, the machine is ideal for mechanical workshops, repair shops, engine construction etc.



Hanging panel with integrated digital readout.

Electronic components from Siemens



User-friendly gear controls for horizontal spindle come standard



Positioning motor for table height adjustment (z-axis).



Stepless feed for y-axis included.



Optional
Pneumatic tool clamp

| Travel |
|-----------|
| x: 750 mm |
| y: 230 mm |
| z: 300 mm |

Including 3-axis digital readout with LCD-display

Stepless frequency converter for z-axis is optionally available

| Optional accessories: | Art. no. | excl. VAT |
|--|----------|-----------|
| Hydro machine vise VH 125 with swivel base | 28-2089 | |
| Opening wider machine vise FJ 125 | 28-2086 | |
| Semi-universal dividing head BS-1 | 27-1046 | |
| Horizontal and vertical rotary table HV 10 | 27-1002 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |

| Optional accessories: | Art. no. | excl. VAT |
|---|----------|-----------|
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| Mill chuck set ER 40, ISO 40, 3 - 25 mm, 16 pcs. | 26-1011 | |
| Metric size taper shank drills MT 2/3, 9 pcs. - 14,5-30 mm, set B | 41-1051 | |
| Carbide indexable face milling cutter diam. 80 mm / B 27 | 42-1059 | |
| Frequency inverter for stepless z-axis feed* | 53-1020 | |
| Machine mount NE 160 | 53-2012 | |

Universal milling machine with spindle feed

UWF 90 V

- Pneumatic tool clamping device allows for convenient tool change (art. no. 02-1231XL)
- Wide range of applications in general machine engineering, manufacturing, production of single parts
- Complete with automatic table feed in x- and y-axis including rapid feed
- Positioning motor for z-axis comes standard
- Automatic spindle feed (0,08 - 0,25 mm) comes standard
- Heavy cast-iron machine stand eliminates vibrations
- Complete with 3-axis digital readout for maximum productivity
- Polished gear wheels, in oil bath, ensure smooth running
- Ideal for single and small-series production

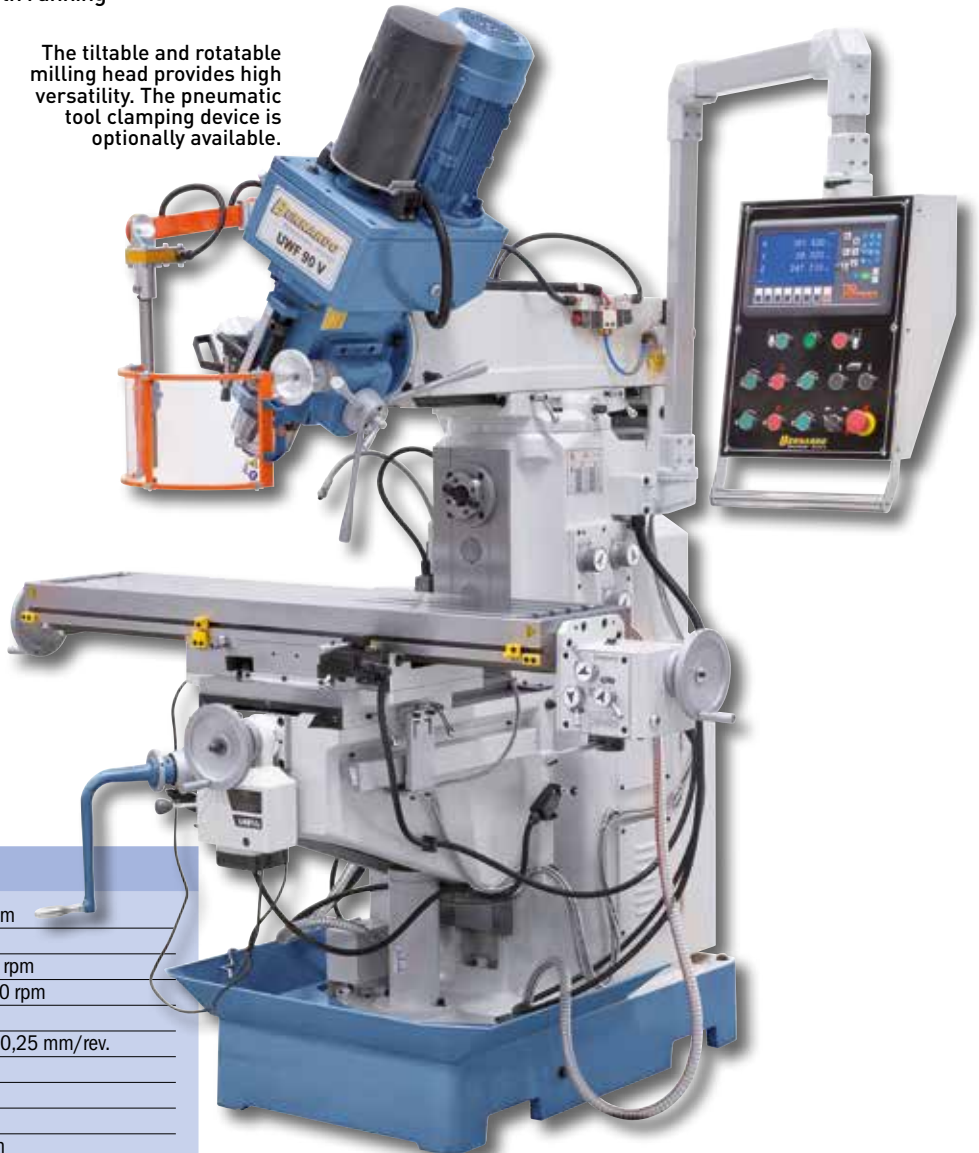


Serially equipped with counter bearing and milling arbor for horizontal milling.



Milling table tilts from -45° to +45°.

The tiltable and rotatable milling head provides high versatility. The pneumatic tool clamping device is optionally available.



Complete with
spindle feed

Technical data

UWF 90 V

| | |
|------------------------------------|----------------------------|
| Table size | 1270 x 280 mm |
| Spindle taper | ISO 40 |
| Spindle speed vertical | (8) 90 - 2000 rpm |
| Spindle speed horizontal | (12) 40 - 1300 rpm |
| Spindle stroke | 120 mm |
| Spindle feed | 0,08 / 0,15 / 0,25 mm/rev. |
| Travel longitudinal (x) | 750 mm* |
| Travel cross (y) | 230 mm |
| Travel vertical (z) | 300 mm |
| Distance spindle to column | 240 - 740 mm |
| Table tiltable | -45° to +45° |
| Spindle head tilting range | -90° to +90° |
| Distance spindle to table | 125 - 425 mm |
| Feed range longitudinal | (8) 32 - 700 mm/min |
| Rapid feed z-axis | 660 mm/min |
| T-slot size | 14 mm |
| Motor power vertical | 2,2 kW |
| Motor power horizontal | 2,2 kW |
| Machine dimension (W x D x H) | 1750 x 1500 x 2200 mm |
| Weight approx. | 1310 kg |
| UWF 90 V | 02-1230XL |
| UWF 90 V with pneum. tool clamping | 02-1231XL |

* manuell

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Pneumatic tool clamping (DIN 2080) (art. no. 02-1231XL)
- Drawbar M 16
- Horizontal counter bearing
- Adjustable protective device
- Protective cover for horizontal milling
- Adapter ISO 40 / B18, ISO 40/MT 3
- Morse taper drill sleeve MT 3 / 2
- Long milling arbor ISO 40/27 mm, ISO 40/32 mm
- Coolant device
- LED machine light
- Tools

UWF 90 V

The UWF 90 V universal milling machine was designed for economical production of individual parts and small series with high accuracy. The outstanding user-friendliness makes this model particularly attractive for machinery and plant engineering, manufacturing and production of single parts. Furthermore, this model comes complete with an automatic spindle feed.

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Table tiltable from -45° to +45°

Tiltable gear head allows for drilling and milling in horizontal, vertical and inclined position.



The machine is serially equipped with an automatic spindle feed (0.08 / 0.15 / 0.25 mm/rev.)



Position motor for milling table in the z-axis included.



Optional accessories:

| | | |
|--|----------|-----------|
| Hydro machine vise VH 125 with swivel base | Art. no. | excl. VAT |
| Opening wider machine vise FJ 125 | 28-2089 | |
| Semi-universal dividing head BS-1 | 28-2086 | |
| Horizontal and vertical rotary table HV 10 | 27-1046 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 27-1002 | |
| 28 pcs. standard steel parallel set | 28-1001 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 35-1020 | |
| | 42-1020 | |

Optional accessories:

| | | |
|---|----------|-----------|
| Boring head combo package diam. 75 mm, incl. boring bars | Art. no. | excl. VAT |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 25-1020 | |
| Mill chuck set ER 40, ISO 40, 3 - 25 mm, 16 pcs. | 42-1016 | |
| Metric size taper shank drills MT 2/3, 9 pcs. - 14,5-30 mm, set B | 26-1011 | |
| Carbide indexable face milling cutter diam. 80 mm / B 27 | 41-1051 | |
| Frequency inverter for stepless z-axis feed* | 42-1059 | |
| Machine mount NE 160 | 53-1020 | |
| | 53-2012 | |

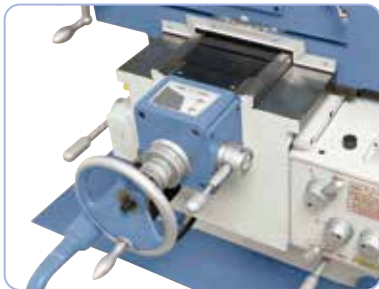
Universal milling machine with digital readout

UWF 95 N

- Automatic table feed (8 steps) in all axis
- Large table (1600 x 360 mm) includes T-slots
- Complete with 3-axis digital readout for maximum productivity
- Additional horizontal spindle extends application area
- Automatic spindle feed (0,08 - 0,25 mm) comes standard
- Wide range of accessories as standard
- Polished gear wheels, in oil bath, ensure smooth running
- Large rectangular guide at y- and z-axis
- Solid, grey cast-iron machine stand eliminates vibrations
- Left and right rotation allows thread cutting



Complete with counter bearing and long milling arbor for milling in horizontal position.



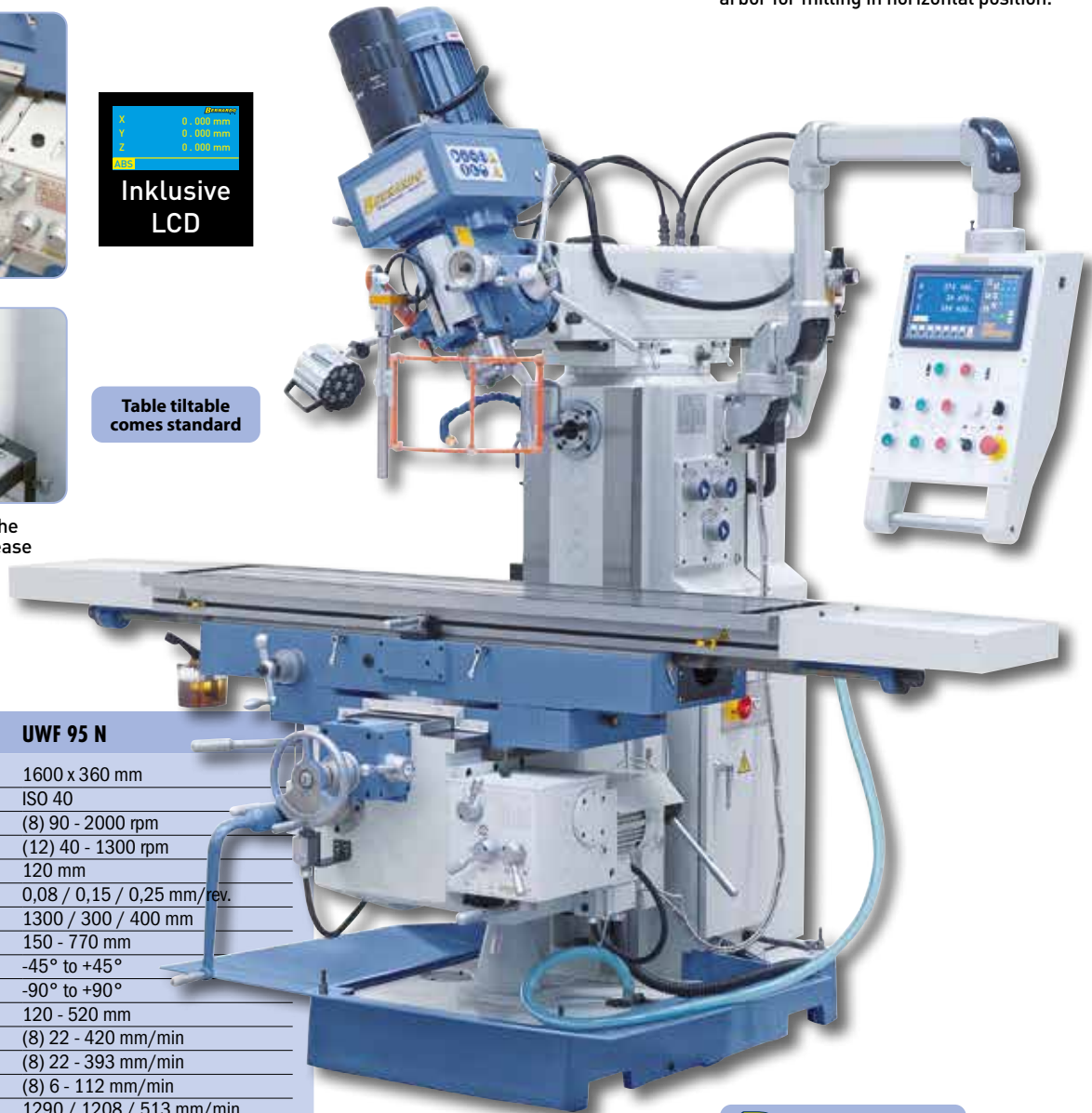
Inklusive
LCD



Table tiltable
comes standard

The large rectangular guides at the y- and z-axis guarantees an increase in stability.

Table feed and rapid
feed in x-, y- and z-axis



Technical data

UWF 95 N

| | |
|-------------------------------|----------------------------|
| Table size | 1600 x 360 mm |
| Spindle taper | ISO 40 |
| Spindle speed vertical | (8) 90 - 2000 rpm |
| Spindle speed horizontal | (12) 40 - 1300 rpm |
| Spindle stroke | 120 mm |
| Spindle feed | 0,08 / 0,15 / 0,25 mm/rev. |
| Travel (x / y / z) | 1300 / 300 / 400 mm |
| Distance spindle to column | 150 - 770 mm |
| Table tiltable | -45° to +45° |
| Spindle head tilting range | -90° to +90° |
| Distance spindle to table | 120 - 520 mm |
| Feed range longitudinal | (8) 22 - 420 mm/min |
| Feed range cross | (8) 22 - 393 mm/min |
| Feed range vertical | (8) 6 - 112 mm/min |
| Rapid feed x-, y- and z-axis | 1290 / 1208 / 513 mm/min |
| T-slot size | 14 mm |
| Motor power vertical | 2,2 kW |
| Motor power horizontal | 2,2 kW |
| Machine dimension (W x D x H) | 2300 x 1960 x 2400 mm |
| Weight approx. | 2200 kg |
| Art. no. | 02-1246XL |

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DAS ORIGINAL

UWF 95 N

The UWF 95 N is an upgrade of the approved classic UWF 90, featuring an enhanced table size to extend the application area. Users enjoy high comfort levels achieved in part by the automatic drill feed. Additionally, this machine features an x-axis travel of 1300 mm as well as a pneumatic tool clamp device.



Clearly arranged hanging panel. The digital readout comes standard.



Complete with table feed featuring rapid feed in all axis, reducing down-time significantly.

Inclusive
Pneumatic tool clamp

NEW
Table size
1600 x 360 mm



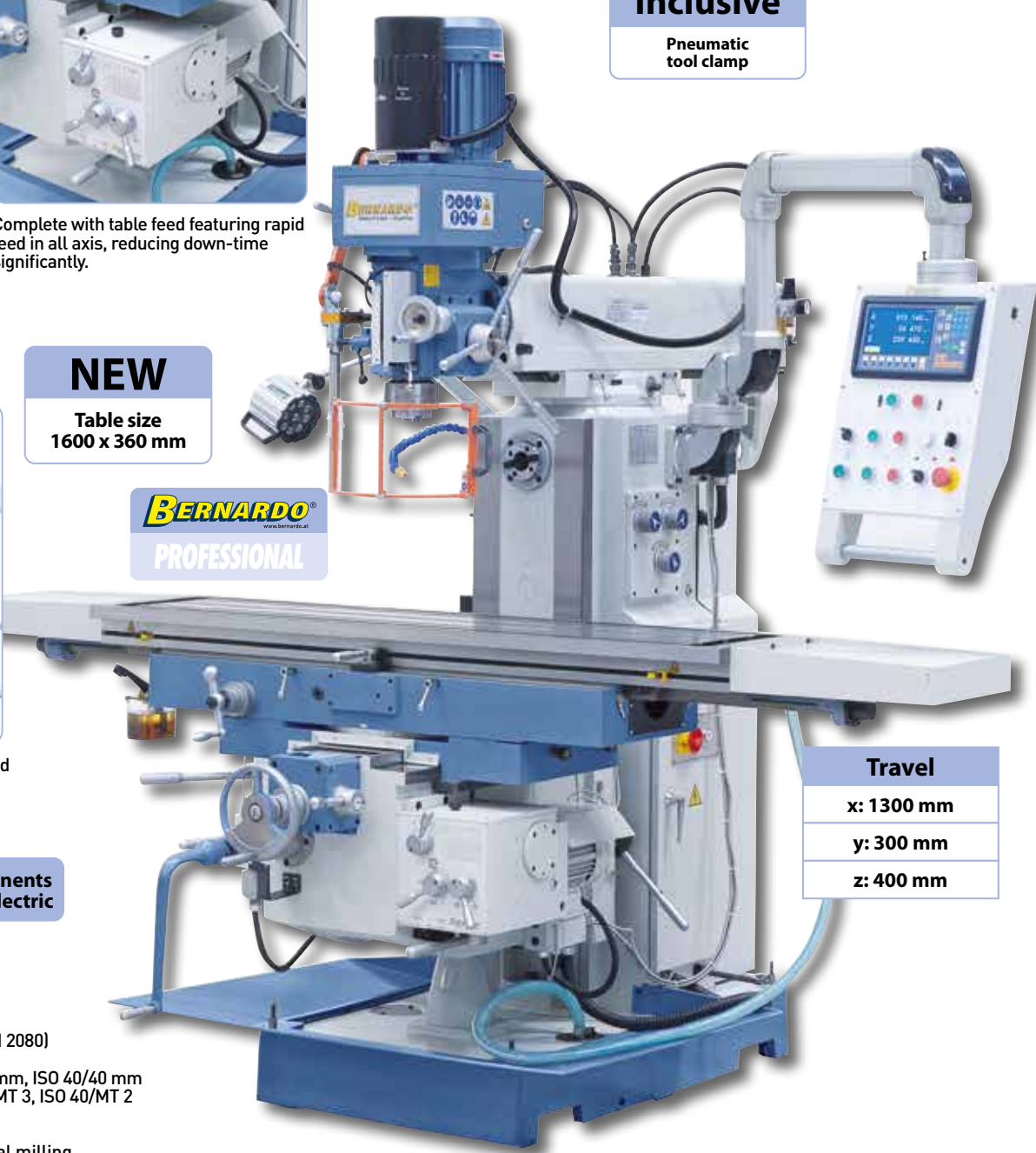
The machine is serially equipped with an automatic spindle feed (0.08 / 0.15 / 0.25 mm/rev.)

Electronic components from Schneider Electric

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Drawbar M 16
- Pneumatic tool clamping (DIN 2080)
- Horizontal counter bearing
- Long milling arbor ISO 40/27mm, ISO 40/40 mm
- Adapter ISO 40/MT 4, ISO 40/MT 3, ISO 40/MT 2
- Coolant device
- Adjustable protective device
- Protective cover for horizontal milling
- LED machine light

| Travel | |
|--------|---------|
| x: | 1300 mm |
| y: | 300 mm |
| z: | 400 mm |



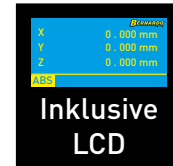
| Optional accessories: | Art. no. | excl. VAT |
|---|----------|-----------|
| Hydro machine vise VH 125 with swivel base | 28-2089 | |
| Opening wider machine vise FJ 125 | 28-2086 | |
| Opening wider machine vise FJ 150 | 28-2087 | |
| Hydraulic machine vise with swivel base PHV 160 | 28-2121 | |
| Semi-universal dividing head BS-1 | 27-1046 | |
| Horizontal and vertical rotary table HV 10 | 27-1002 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |

| Optional accessories: | Art. no. | excl. VAT |
|---|----------|-----------|
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| Metric size tapershank drills MT2/3, 9 pcs. - 14,5-30 mm, set B | 41-1051 | |
| Carbide indexable face milling cutter diam. 100 mm / B 32 | 42-1060 | |
| Machine mount NE 160 | 53-2012 | |
| Mill chuck set ER 40, ISO 40, 3 - 25 mm, 16 pcs. | 26-1011 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |

Multi-purpose milling machines with digital readout

MFM-Super

- Work table features large clamping area, surface hardened and polished
- Steplessly adjustable spindle speed with mechanic spindle brake
- Universal mill head can be turned, tilted and swivelled
- Hardened and polished guideways in all axis
- 3 automatic spindle feeds come standard
- Spindle is chromium plated and features micrometer depth stop
- Powerful coolant device included in machine base



Complete with stepless feed in x-, y- and z-axis.

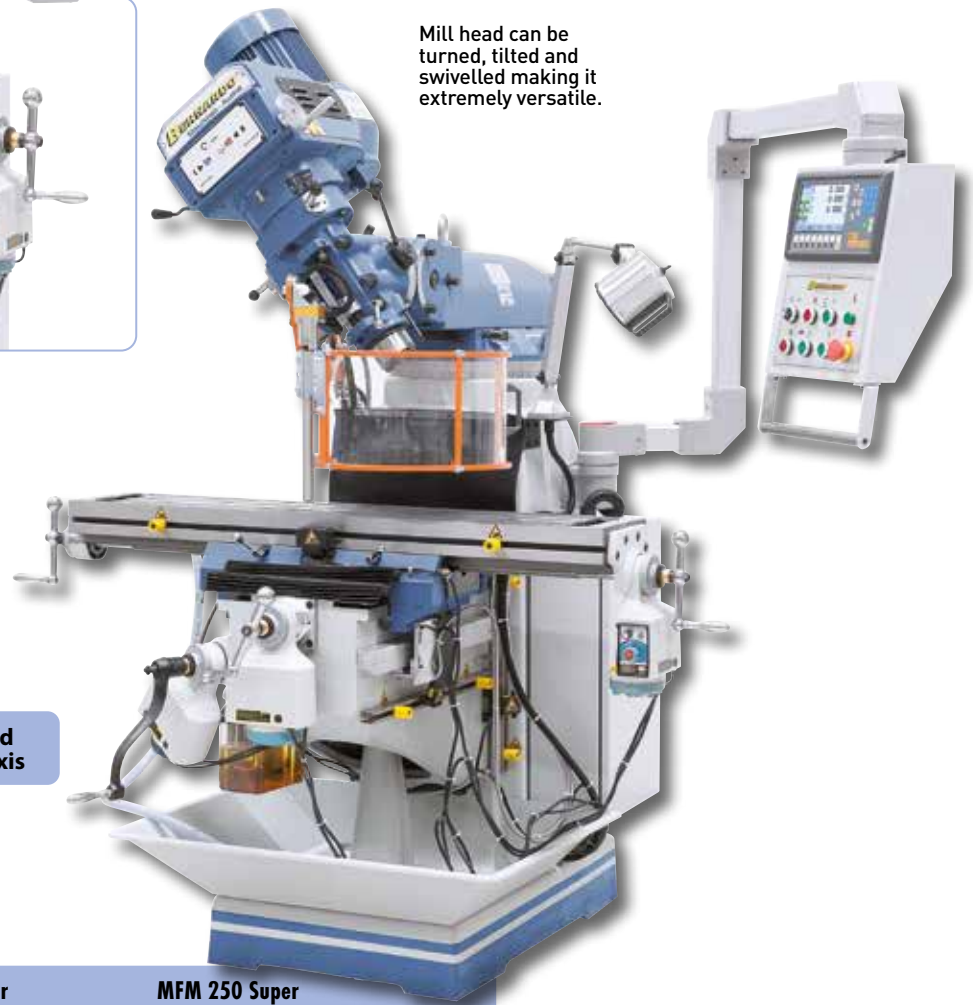


Rectangular guide in y-axis

Table feed and rapid feed in x-, y- and z-axis

Optional

Pneumatic tool clamp



| Technical data | MFM 230 Super | MFM 250 Super |
|-------------------------------|-------------------------------|-------------------------------|
| Table size | 1245 x 230 mm | 1370 x 254 mm |
| Spindle taper | ISO 40 | ISO 40 |
| Spindle speed, stepless | 60 - 4200 rpm | 60 - 4200 rpm |
| Spindle feed | 0,038 / 0,076 / 0,152 mm/rev. | 0,038 / 0,076 / 0,152 mm/rev. |
| Spindle stroke | 125 mm | 125 mm |
| Travel longitudinal (x) | 690 mm | 800 mm |
| Travel cross (y) | 315 mm | 410 mm |
| Travel vertical (z) | 310 mm | 330 mm |
| Distance spindle to column | 135 - 485 mm | 70 - 540 mm |
| Head tilting range | -90° to +90° | -90° to +90° |
| Mill head swivel range | -45° to +45° | -45° to +45° |
| Distance spindle to table | 45 - 355 mm | 80 - 360 mm |
| T-slot size | 16 mm | 16 mm |
| Motor power | 2,2 kW | 2,2 kW |
| Machine dimension (W x D x H) | 1700 x 1750 x 2120 mm | 1800 x 2000 x 2240 mm |
| Weight approx. | 1023 kg | 1255 kg |
| Art. no. | 02-1291XL | 02-1292XL |

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Drawbar M 16
- Coolant device
- LED machine light
- Power feed for x-, y- and z-axis
- Central lubrication
- Adjustable protective device
- Coolant tray

The large number of mill head adjustments makes these robust and stable universal milling machines ideal for drilling and milling simple to difficult workpieces in single part production, repair work, training etc.

MFM-Super



Tiltable spindle head from -90° to $+90^{\circ}$ allows for various operations.

Vario-drive

The digital position readout display raises productivity up to 50%



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Electronic central lubrication comes standard

Optional accessories:

Deluxe clamping kit set 58 pcs., 16 mm, M 14
Hydro machine vise VH 125 with swivel base
Opening wider machine vise FJ 150
Pneumatic tool clamping device PD 150
28 pcs. standard steel parallel set

| | |
|----------|-----------|
| Art. no. | excl. VAT |
| 28-1002 | |
| 28-2089 | |
| 28-2087 | |
| 53-1000A | |
| 35-1020 | |

Optional accessories:

Horizontal and vertical rotary table HV 10
Semi-universal BS-1
20 pcs. HSS TiN-coated end mills, 3 - 20 mm
Machine mount NE 160
Universal coolant fluid MN 1103, 5 l canister

| | |
|----------|-----------|
| Art. no. | excl. VAT |
| 27-1002 | |
| 27-1046 | |
| 42-1020 | |
| 53-2012 | |
| 54-1206 | |

Universal milling machine with digital readout

UWF 110

- Universal mill head can be set to various angles
- Ergonomically mounted switches on swivelling control panel
- Solid, grey cast-iron machine construction eliminates vibrations
- Dovetail guiding with adjustable gibs in all three axis
- Polished gears, in oil bath, guarantees smooth running
- Complete with positioning motor for z-axis
- Automatic table feed in x- and y-axis comes standard
- Surface treated table features T-slots
- Digital readout for x-, y- and z-axis come standard

Movable arm
travel 550 mm



User-friendly control elements allow easy and quick speed change.

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Electronic components
from Schneider Electric



Complete with counter bearing and long milling arbor for milling in horizontal position.

Technical data

UWF 110

| | |
|---------------------------------|-----------------------|
| Table size | 1120 x 260 mm |
| T-slot size | 14 mm |
| Spindle taper | ISO 40 |
| Spindle speeds | 45 - 1660 rpm |
| Steps | 11 |
| Mill head tiltable | 360° |
| Travel longitudinal (x) | 600 mm |
| Travel cross (y) | 250 mm |
| Travel vertical (z) | 400 mm |
| Distance spindle to table | 175 - 520 mm |
| Distance spindle to column | 0 - 550 mm |
| Feed range longitudinal / cross | (9) 24 - 402 mm/min |
| Rapid feed z-axis | 660 mm/min |
| Motor power | 2,2 kW |
| Machine dimension (W x D x H) | 1570 x 1470 x 1660 mm |
| Weight approx. | 1380 kg |
| Art. no. | 02-1267XL |

Standard accessories:

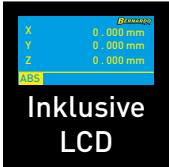
- 3-axis digital readout ES-12 H with LCD-display
- LED machine light
- Coolant device
- Central lubrication
- Counter bearing
- Long milling arbor 32 mm
- Power feed for x- and y-axis
- Positioning motor for z-axis
- Coolant tray
- Adjustable protective cover
- Tools



Feed in the x- and y-axis with 9 settings comes standard.

UWF 110

The UWF 110 universal milling machine is designed for light to medium-heavy milling work. This machine, with its high variety and the ability to easily refit, is for small and medium-sized series in workshops.



Inklusive LCD

| Travel | |
|-----------|---------------|
| x: | 600 mm |
| y: | 250 mm |
| z: | 400 mm |



Digital readout in all three axis to shorten production times.



Universal mill head adjustable to various angles.

Optional accessories:

- Hydraulic machine vise with swivel base PHV 130
- Opening wider machine vise FJ 150
- Mill chuck set ER 40, ISO 40, 3 - 25 mm, 16 pcs.
- Semi-universal dividing head BS-1
- Horizontal and vertical rotary table HV 10
- Deluxe clamping kit set 58 pcs., 14 mm, M 12
- 28 pcs. standard steel parallel set
- 20 pcs. HSS TiN-coated end mills, 3 - 20 mm
- Boring head combo package diam. 75 mm, incl. boring bars
- 10 pcs. HSS TiN-coated roughing end mills, 6 - 25 mm
- Metric size taper shank drills MT 2/3, 9 pcs. - 14,5-30 mm, set B
- Carbide indexable face milling cutter diam. 100 mm / B 32
- Machine mount NE 160
- Frequency inverter for stepless z-axis feed*
- Universal coolant fluid MN 1103, 5 l canister

- | | |
|----------|-----------|
| Art. no. | excl. VAT |
| 28-2120 | |
| 28-2087 | |
| 26-1011 | |
| 27-1046 | |
| 27-1002 | |
| 28-1001 | |
| 35-1020 | |
| 42-1020 | |
| 25-1020 | |
| 42-1016 | |
| 41-1051 | |
| 42-1060 | |
| 53-2012 | |
| 53-1020 | |
| 54-1206 | |

Optional

Frequency inverter for stepless z-feed



Position motor for milling table in the z-axis included.

Universal milling machine with digital readout

UWF 150

- Complete with 8 automatic feeds in all three axis
- Horizontal spindle extends range of applications
- Clearly arranged switches on swivelling control panel
- x-axis table adjustment is made from front of machine
- Polished gears, in oil bath, guaranteed smooth running
- Surface treated, large table featuring T-slots
- 3-axis digital readout comes standard
- Solid cast iron construction of machine stand eliminates vibrations
- Rectangular guiding in y- and z-axis increases stability



Logical, clearly arranged gearshift for speed change.



Complete with table feed and rapid feed in all 3 axis to clearly reduce down time.

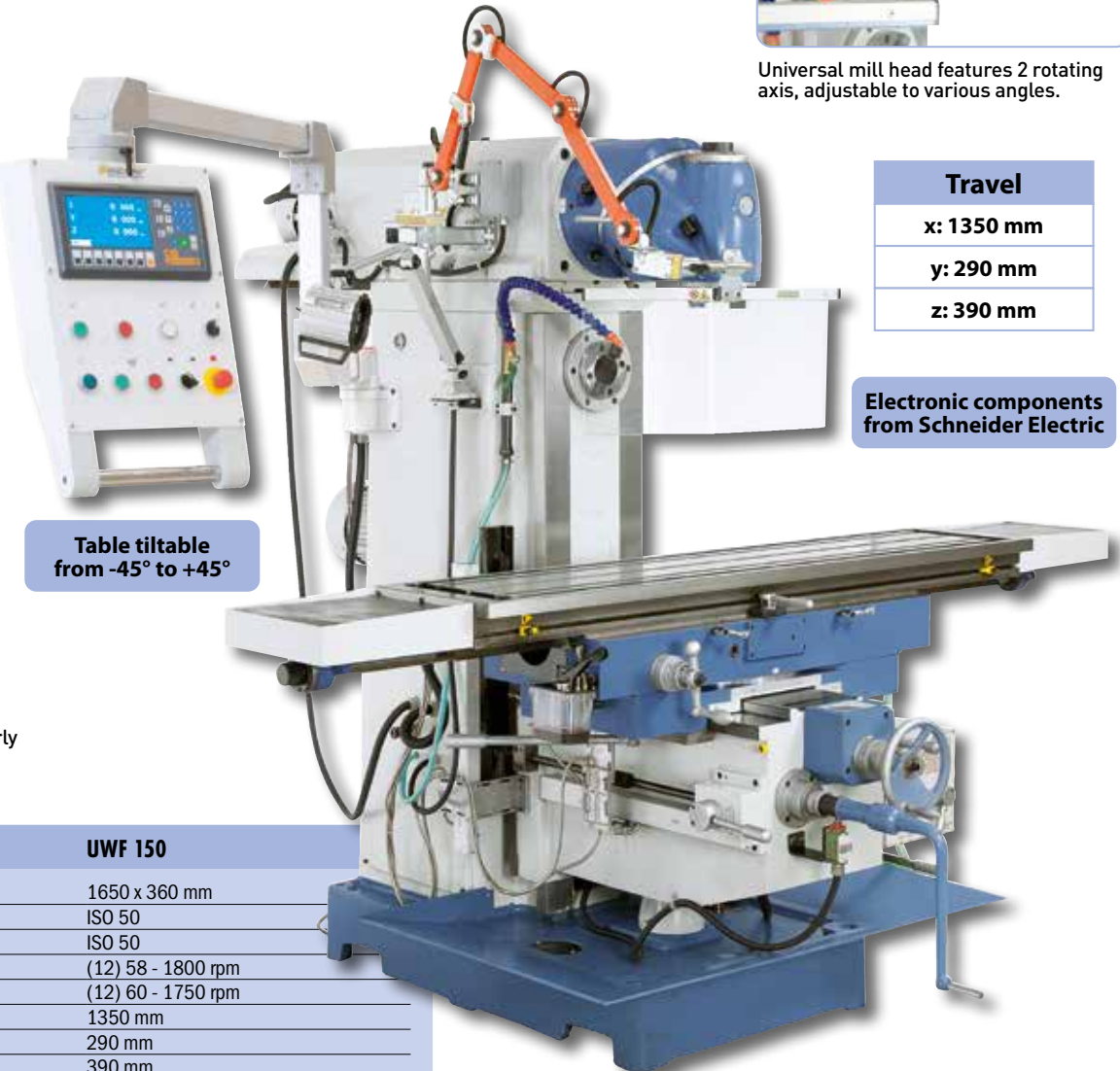


Table tiltable from -45° to +45°



Universal mill head features 2 rotating axis, adjustable to various angles.

Travel

x: 1350 mm

y: 290 mm

z: 390 mm

Electronic components from Schneider Electric

Technical data

UWF 150

| | |
|---------------------------------|------------------------------------|
| Table size | 1650 x 360 mm |
| Spindle taper horizontal | ISO 50 |
| Spindle taper vertical | ISO 50 |
| Spindle speed horizontal | (12) 58 - 1800 rpm |
| Spindle speed vertical | (12) 60 - 1750 rpm |
| Travel longitudinal (x) | 1350 mm |
| Travel cross (y) | 290 mm |
| Travel vertical (z) | 390 mm |
| Distance spindle to table | 160 - 550 mm |
| Distance spindle to column | 230 - 900 mm |
| Table tiltable | -45° to +45° |
| Feed range longitudinal / cross | (8) 22 - 420 / (8) 22 - 393 mm/min |
| Feed range vertical | (8) 10 - 168 mm/min |
| Rapid feed x-, y- and z-axis | 1290 / 1208 / 513 mm/min |
| T-slot size | 14 mm |
| Motor power vertical | 4,0 kW |
| Motor power horizontal | 4,0 kW |
| Machine dimension (W x D x H) | 2250 x 2000 x 1995 mm |
| Weight approx. | 2250 kg |
| Art. no. | 02-1280XL |

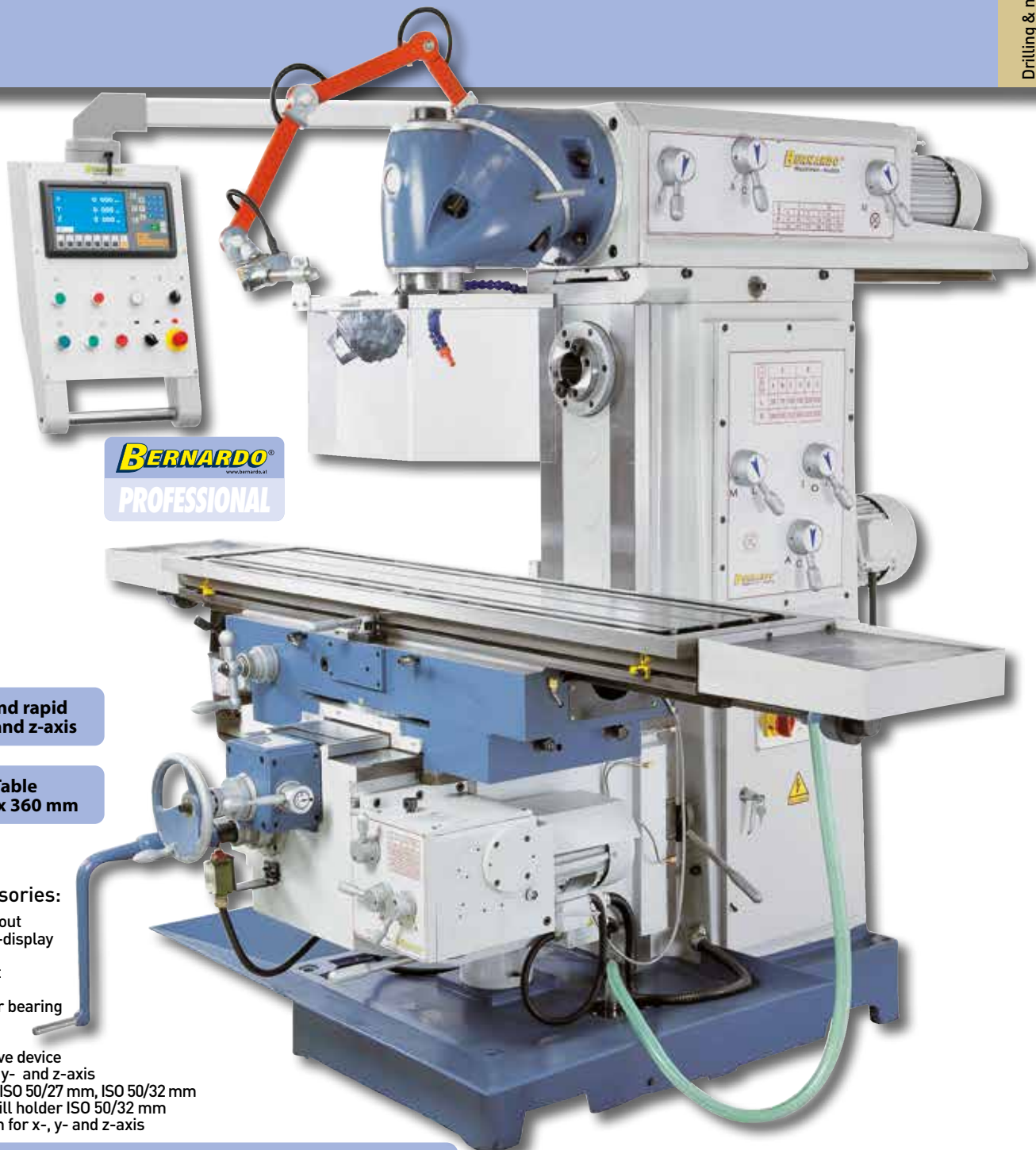
Including 3-axis digital readout with LCD-display

Oversize flat guides guarantees stability even at heavy milling. Mill table tilts from -45° to +45°.



The UWF 150 is a solidly constructed universal milling machine featuring a moveable arm and big clamping area. The big dimensioned guidings in all axis guarantees absolute precision and stability.

UWF 150



BERNARDO
PROFESSIONAL

Table feed and rapid feed in x-, y- and z-axis

Table
1650 x 360 mm

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Drawbar M 24
- LED machine light
- Coolant device
- Horizontal counter bearing
- Coolant tray
- Tools
- Universal protective device
- Power feed for x-, y- and z-axis
- Long milling arbor ISO 50/27 mm, ISO 50/32 mm
- Taper shell end mill holder ISO 50/32 mm
- Central lubrication for x-, y- and z-axis

Optional accessories:

- Opening wider machine vise FJ 150
- Hydro machine vise VH 150 with swivel base
- Hydraulic machine vise with swivel base PHV 160
- Mill chuck set ER 40, ISO 50, 3 - 25 mm, 16 pcs.
- Semi-universal dividing head BS-1
- Horizontal & vertical rotary table HV 10
- Deluxe clamping kit set 58 pcs., 14 mm, M 12
- 28 pcs. standard steel parallel set
- 10 pcs. TiN-coated roughing end mills, 6 - 25 mm
- Carbide indexable face milling cutter diam. 100 mm / B 32
- Boring head combo package diam. 75 mm, incl. boring bars
- Machine mount NE 160
- Universal coolant fluid MN 1103, 5 l canister

| Art. no. | excl. VAT |
|----------|-----------|
| 28-2087 | |
| 28-2090 | |
| 28-2121 | |
| 26-1012 | |
| 27-1046 | |
| 27-1002 | |
| 28-1001 | |
| 35-1020 | |
| 42-1016 | |
| 42-1060 | |
| 25-1020 | |
| 53-2012 | |
| 54-1206 | |



Complete with counter bearing and long milling arbor for horizontal milling.

Inklusive LCD

Universal milling machine with digital readout

UWF 110 Servo

- Large rectangular guide in the y- and z-axis guarantees an increase in stability
- 8 automatic table feeds and rapid feed in all axis, driven by servomotor
- Universal mill head system „Huron“ adjusts to various angles
- Ergonomically mounted switches on swivelling control panel
- Solid, grey cast iron machine construction eliminates vibrations
- Polished gears, in oil bath, guarantees smooth running
- Clearly arranged spindle speed control unit on machine arm
- Digital readout for x-, y- and z-axis come standard
- Surface treated table features T-slots

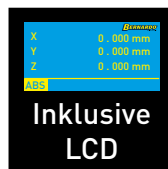
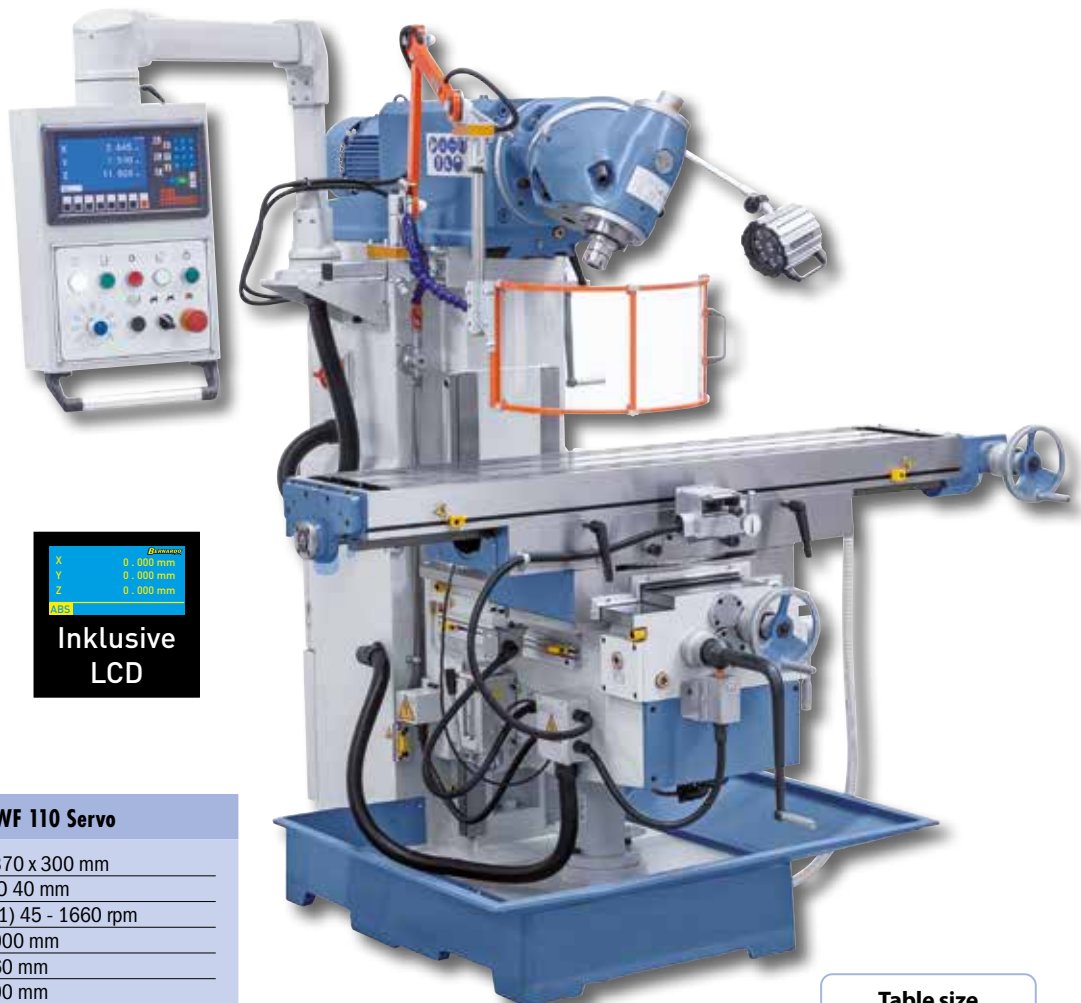
**Movable arm
travel 480 mm**



Complete with counter bearing and long milling arbor for milling in horizontal position.



User-friendly control elements allow easy and quick speed change.



**Inklusive
LCD**

**Table size
1370 x 300 mm**

Technical data

UWF 110 Servo

| | |
|--------------------------------------|--------------------------|
| Table size | 1370 x 300 mm |
| Spindle taper | ISO 40 mm |
| Spindle speed | (11) 45 - 1660 rpm |
| Travel longitudinal (x) | 1000 mm |
| Travel cross (y) | 360 mm |
| Travel vertical (z) | 400 mm |
| Distance spindle to table | 60 - 460 mm |
| Distance spindle to column | 95 - 575 mm |
| Table tiltable | -45° to + 45° |
| Max. workpiece weight | 250 kg |
| Feed range longitudinal / cross | (8) 30 - 830 mm/min |
| Feed range vertical | (8) 23 - 625 mm/min |
| Rapid feed x-, y- and z-axis | 1000 / 1000 / 750 mm/min |
| T-slot (Quantity / Width / Distance) | 3 / 14 mm / 80 mm |
| Main motor | 3,0 kW |
| Servomotor (Torque / Output) | 10 Nm / 1,5 kW |
| Coolant pump output | 60 W |
| Coolant pump flow rate | 12 l/min |
| Machine dimension (W x D x H) | 1740 x 1860 x 1900 mm |
| Weight approx. | 1505 kg |
| Art. no. | 02-1282XL0 |

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Drawbar M16
- LED machine light
- Power feed for x-, y- and z-axis
- Coolant device
- Counter bearing
- Long milling arbor ISO 40 / 27 mm
- Taper shell end mill holder ISO 40 / 27 mm
- Coolant tray
- Adjustable protective cover
- Central lubrication for x-, y- and z-axis
- Tools

**Electronic components
from Schneider Electric**

**Table feed and rapid feed
in x-, y- and z-axis**

UWF 110 Servo

The UWF 110 Servo universal milling machine is designed for light to medium-heavy milling work. This machine, with its high variety and the ability to easily refit, is for small and medium-sized series in workshops. Especial features of this machine are the tiltable work table, the rectangular guiding in y- and z-axis and the servo drive for feeds and rapid feed in all axis.



Universal mill head adjustable to various angles.



Quick and easy setting of the required feed speed directly at the control panel.



Oversize flat guides guarantee stability at high milling load, mill table tilts from -45° to +45°.



Table tiltable from -45° to +45°

Optional accessories:

- Hydraulic machine vise with swivel base PHV 130
- Opening wider machine vise FJ 150
- Mill chuck set ER 40, ISO 40, 3 - 25 mm, 16 pcs.
- Semi-universal dividing head BS-1
- Horizontal and vertical rotary table HV 10
- Deluxe clamping kit set 58 pcs., 14 mm, M 12
- 28 pcs. standard steel parallel set
- 20 pcs. HSS TiN-coated end mills, 3 - 20 mm
- Boring head combo package diam. 75 mm, incl. boring bars
- 10 pcs. HSS TiN-coated roughing end mills, 6 - 25 mm
- Metric size taper shank drills MT 2/3, 9 pcs. - 14,5-30 mm, set B
- Carbide indexable face milling cutter diam. 100 mm / B 32
- Machine mount NE 160
- Universal coolant fluid MN 1103, 5 l canister

| Art. no. | excl. VAT |
|----------|-----------|
| 28-2120 | |
| 28-2087 | |
| 26-1011 | |
| 27-1046 | |
| 27-1002 | |
| 28-1001 | |
| 35-1020 | |
| 42-1020 | |
| 25-1020 | |
| 42-1016 | |
| 41-1051 | |
| 42-1060 | |
| 53-2012 | |
| 54-1206 | |

Travel

x: 1000 mm

y: 360 mm

z: 400 mm



Central lubrication for x-, y- and z-axis comes standard.

Universal milling machine with digital readout

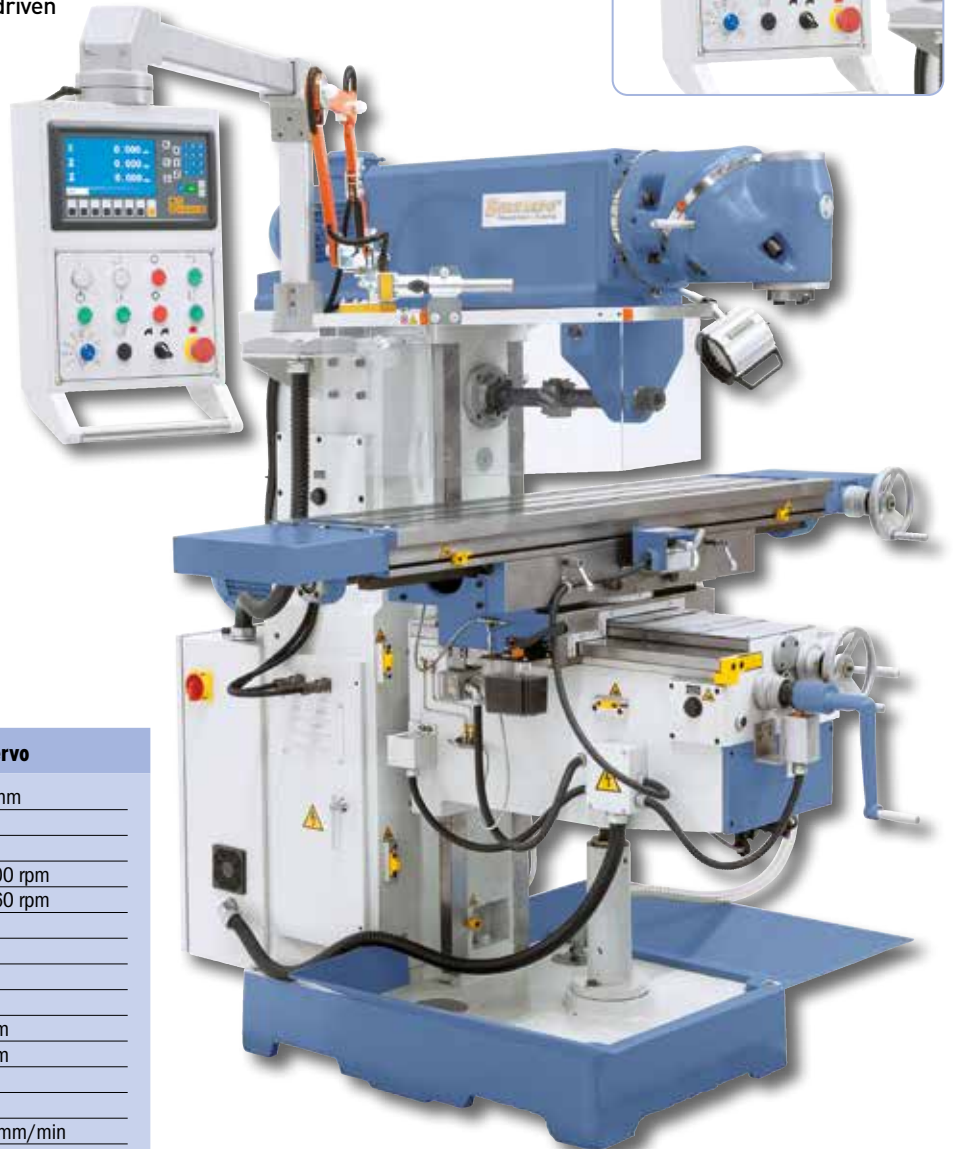
UWF 130 Servo

- A servomotor for feeds and rapid feed in x-, y- and z-axis comes standard
- Table adjustment in the x-axis is made from the front of the machine
- User-friendly arranged switches on swivelling control panel
- Polished gears, in oil bath, allows smooth running
- High versatility due to horizontal spindle
- Machine body in heavy construction for vibration-free working
- Large cross table with T-slots, treated surface
- Rectangular guide at the y- and z-axis increases stability
- Central lubrication for the guideways comes standard
- Horizontal spindle and universal mill head are driven by 2 independent motors

User-friendly and clearly arranged panel, serially equipped with digital readout.



Horizontal spindle widens the range of applications significantly, gear unit allows for speed adjustment.



| Travel | |
|--------|---------|
| x: | 1000 mm |
| y: | 360 mm |
| z: | 400 mm |

| Technical data | UWF 130 Servo |
|--------------------------------------|--------------------------|
| Table size | 1370 x 320 mm |
| Spindle taper horizontal | ISO 40 |
| Spindle taper vertical | ISO 40 |
| Spindle speed horizontal | (12) 35 - 1500 rpm |
| Spindle speed vertical | (11) 45 - 1660 rpm |
| Travel longitudinal (x) | 1000 mm |
| Travel cross (y) | 360 mm |
| Travel vertical (z) | 400 mm |
| Distance spindle to table horizontal | 30 - 430 mm |
| Distance spindle to table vertical | 210 - 610 mm |
| Distance spindle to column | 305 - 805 mm |
| Table tiltable | -45° to +45° |
| Max. workpiece weight | 300 kg |
| Feed range longitudinal / cross | (8) 30 - 830 mm/min |
| Feed range vertical | (8) 23 - 625 mm/min |
| Rapid feed x-, y- and z-axis | 1000 / 1000 / 750 mm/min |
| T-slot (Quantity / Width / Depth) | 3 / 14 mm / 80 mm |
| Motor power horizontal | 3,0 kW |
| Motor power vertical | 3,0 kW |
| Servomotor (Torque / Output) | 10 Nm / 1,5 kW |
| Coolant pump output | 90 W |
| Coolant pump flow rate | 25 l/min |
| Machine dimension (W x D x H) | 1840 x 1830 x 2050 mm |
| Weight approx. | 1540 kg |
| Art. no. | 02-1283XL |

Including 3-axis digital readout with LCD-display



Tiltable milling table -45° to +45° increases range of applications significantly.

UWF 130 Servo

The UWF 130 Servo universal milling machine with moveable arm is an enhanced version of the established UWF 130. This machine comes with multifunctional use, including a fully adjustable mill head allowing the use of all angles and positions as well as a x-axis travel of 1000 mm. Especial feature of this machine is the rapid feed and 8 feeds in all axis, driven by servomotor.



Universal mill head features 2 rotating axis, adjustable to various angles.



The large rectangular guides at the y- and z-axis guarantees an increase in stability.



Table
1370 x 320 mm

Table tiltable
from -45° to +45°

Electronic components
from Schneider Electric



Optional accessories:

- 2 pcs. milling vise MS 160
- Opening wider machine vise FJ 150
- Hydro machine vise VH 150 with swivel base
- Hydraulic machine vise with swivel base PHV 160
- Mill chuck set ER 40, ISO 40, 3 - 25 mm, 16 pcs.
- Semi-universal dividing head BS-1
- Horizontal and vertical rotary table HV 10
- Deluxe clamping kit set 58 pcs., 14 mm, M 12
- 28 pcs. standard steel parallel set
- 20 pcs. HSS TiN-coated end mills, 3 - 20 mm
- Boring head combo package diam. 75 mm, incl. boring bars
- Carbide indexable face milling cutter diam. 125 mm / B 40
- Machine mount NE 160
- Universal coolant fluid MN 1103, 5 l canister

| Art. no. | excl. VAT |
|----------|-----------|
| 28-1020 | |
| 28-2087 | |
| 28-2090 | |
| 28-2121 | |
| 26-1011 | |
| 27-1046 | |
| 27-1002 | |
| 28-1001 | |
| 35-1020 | |
| 42-1020 | |
| 25-1020 | |
| 42-1061 | |
| 53-2012 | |
| 54-1206 | |

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Drawbar M 16
- LED machine light
- Power feed for x-, y- and z-axis
- Coolant device
- Horizontal counter bearing
- Long milling arbor ISO 40/27 mm, ISO 40/40 mm
- Taper shell end mill holder ISO 40/32 mm
- Morse taper drill sleeve ISO 40/MT 4, ISO 40/MT 3, ISO 40/MT 2
- Coolant tray
- Universal protective cover
- Central lubrication for x-, y- and z-axis
- Tools

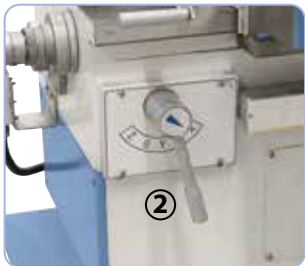
Universal milling machine with digital readout

UWF 150 Servo

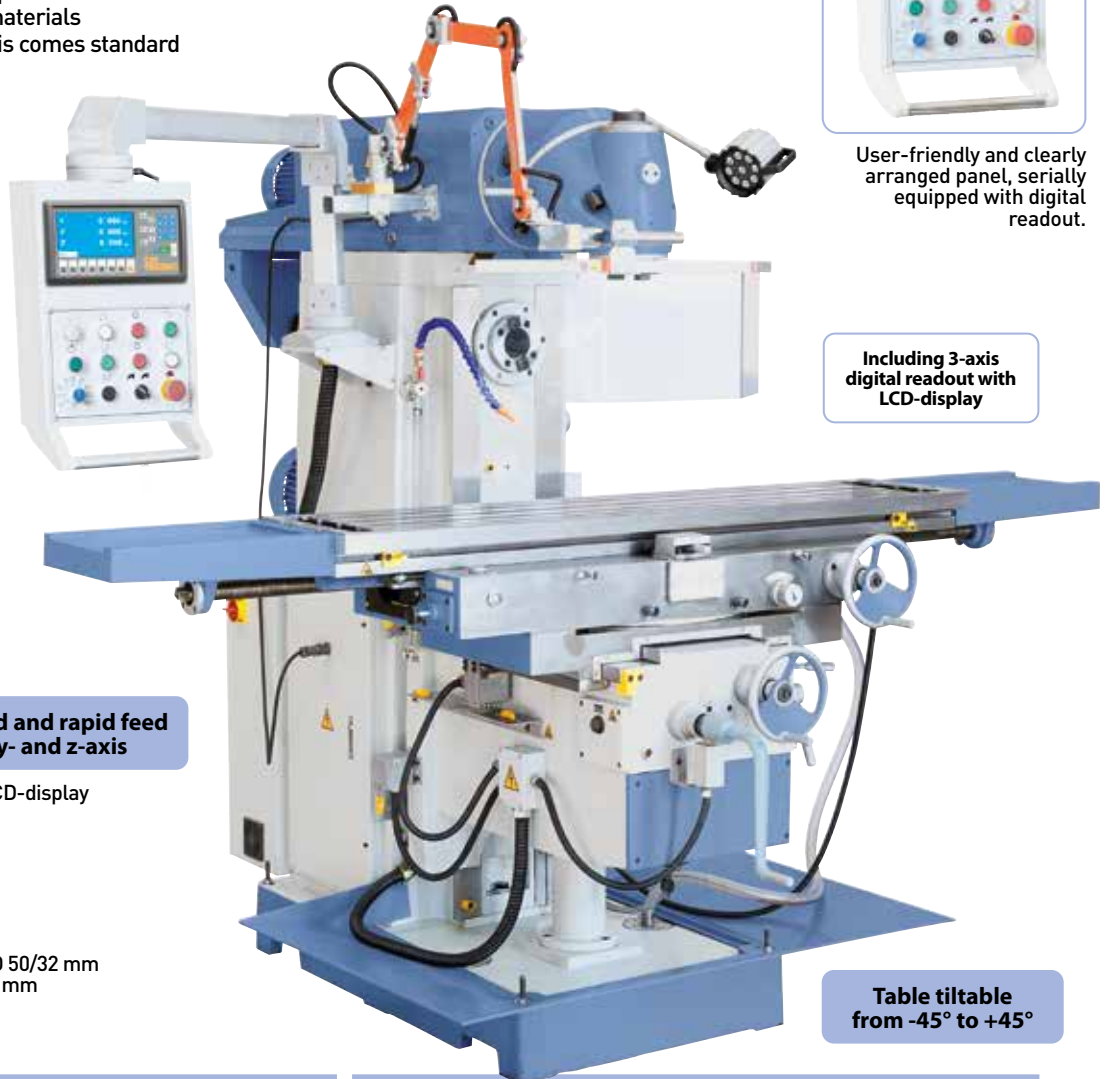
- Logical, clearly arranged gearshift for speed change
- Hardened and polished guideways guarantees top accuracy
- Setting of the required feed speed by potentiometer on the contro panel
- Digital readout for x-, y- and z-axis come standard
- Finely graduated feeds in all axis, driven by servomotor
- Universal mill head system „Huron“ adjusts to various angles
- Complete with rapid feed in x-, y- and z-axis to reduce downtime
- Optimal adjustments of spindle speed and feed allow for economic machining of various materials
- Central lubrication in x- and y-axis comes standard



User-friendly and clearly arranged panel, serially equipped with digital readout.



1: Selector lever for feed direction
2: Selector lever for feed axis



Including 3-axis digital readout with LCD-display

Table tiltable from -45° to +45°

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Drawbar M 24
- LED machine light
- Coolant device
- Horizontal counter bearing
- Coolant tray
- Power feed for x-, y- and z-axis
- Universal protective cover
- Long milling arbor ISO 50/27 mm, ISO 50/32 mm
- Taper shell end mill holder ISO 50/32 mm
- Morse taper drill sleeve ISO 50 / MT 4
- Central lubrication for x- and y-axis
- Tools

Table feed and rapid feed in x-, y- and z-axis

| Technical data | UWF 150 Servo |
|--------------------------------------|--------------------|
| Table size | 1600 x 360 mm |
| Spindle taper horizontal | ISO 50 |
| Spindle taper vertical | ISO 50 |
| Spindle speed horizontal | (12) 60 - 1800 rpm |
| Spindle speed vertical | (12) 60 - 1750 rpm |
| Travel longitudinal (x) | 1300 mm |
| Travel cross (y) | 300 mm |
| Travel vertical (z) | 400 mm |
| Distance spindle to table horizontal | 15 - 415 mm |
| Distance spindle to table vertical | 185 - 585 mm |
| Distance spindle to column | 215 - 840 mm |
| Table tiltable | -45° to +45° |
| Max. workpiece weight | 300 kg |

| Technical data | UWF 150 Servo |
|--------------------------------------|-------------------------|
| Feed range longitudinal | (8) 30 - 830 mm/min |
| Feed range cross | (8) 30 - 830 mm/min |
| Feed range vertical | (8) 23 - 625 mm/min |
| Rapid feed x-, y- and z-axis | 1200 / 800 / 600 mm/min |
| T-slot (Quantity / Width / Distance) | 3 / 18 mm / 80 mm |
| Motor power horizontal | 5,5 kW |
| Motor power vertical | 4,0 kW |
| Servomotor (Torque / Output) | 10 Nm / 1,5 kW |
| Coolant pump output | 90 W |
| Coolant pump flow rate | 25 l/min |
| Machine dimension (W x D x H) | 2530 x 2200 x 2300 mm |
| Weight approx. | 2650 kg |
| Art. no. | 02-1289XL |

UWF 150 Servo

The UWF 150 Servo is a solidly constructed universal milling machine featuring a moveable arm and big clamping area. The big dimensioned guidings in all axis guarantees absolute precision and stability. Especial features of this machine are the tiltable work table, the rectangular guiding in y- and z-axis and the servo drive for feeds and rapid feed in all axis.



Universal mill head adjustable to various angles.

Electronic components from Schneider Electric

Optional accessories:

| | | |
|---|----------|-----------|
| Opening wider machine vise FJ 150 | Art. no. | excl. VAT |
| Hydro machine vise VH 150 with swivel base | 28-2087 | |
| Hydraulic machine vise with swivel base PHV 160 | 28-2090 | |
| Mill chuck set ER 40, ISO 50, 3 - 25 mm, 16 pcs. | 28-2121 | |
| Semi-universal dividing head BS-1 | 26-1012 | |
| Horizontal & vertical rotary table HV 10 | 27-1046 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 27-1002 | |
| 28 pcs. standard steel parallel set | 28-1003 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 35-1020 | |
| Carbide indexable face milling cutter diam. 125 mm / B 40 | 42-1016 | |
| Boring head combo package diam. 75 mm, incl. boring bars | 42-1061 | |
| Machine mount NE 160 | 25-1020 | |
| Universal coolant fluid MN 1103, 5 l canister | 53-2012 | |
| | 54-1206 | |

Table
1600 x 360 mm

Travel
x: 1300 mm
y: 300 mm
z: 400 mm

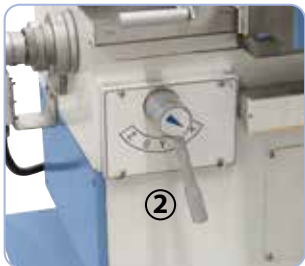


User-friendly control elements allow easy and quick speed change.

Universal milling machine with digital readout

UWF 150 V Servo

- Variable speed adjustment (vertical spindle) via Delta frequency inverter with optimal torque and almost constant speed at heavy workloads
- Hardened and polished guideways guarantees top accuracy
- Clear design of speed and feed controls
- Finely graduated feeds in all axis, driven by servomotor
- Complete with rapid feed in x-, y- and z-axis to reduce downtime
- Universal mill head system „Huron“ adjusts to various angles
- Optimal adjustments of spindle speed and feed allow for economic machining of various materials
- Central lubrication in x- and y-axis comes standard



- 1: Selector lever for feed direction
2: Selector lever for feed axis

Electronic components
from Schneider Electric



Stepless speed adjustment of
the vertical spindle
via frequency
inverter.

Table tiltable
from -45° to +45°

Table
1600 x 360 mm

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Drawbar M 24
- LED machine light
- Coolant device
- Horizontal counter bearing
- Coolant tray
- Power feed for x-, y- and z-axis
- Universal protective cover
- Long milling arbor ISO 50/27 mm, ISO 50/32 mm
- Taper shell end mill holder ISO 50/32 mm
- Morse taper drill sleeve ISO 50 / MT 4
- Central lubrication for x- and y-axis
- Tools

| Technical data | UWF 150 V Servo |
|--------------------------------------|-------------------------------|
| Table size | 1600 x 360 mm |
| Spindle taper horizontal | ISO 50 |
| Spindle taper vertical | ISO 50 |
| Spindle speed horizontal | (12) 60 - 1800 rpm |
| Spindle speed vertical | (2) 60 - 350 / 350 - 1750 rpm |
| Travel longitudinal (x) | 1300 mm |
| Travel cross (y) | 300 mm |
| Travel vertical (z) | 400 mm |
| Distance spindle to table horizontal | 15 - 415 mm |
| Distance spindle to table vertical | 185 - 585 mm |
| Distance spindle to column | 215 - 840 mm |
| Table tiltable | -45° to +45° |
| Max. workpiece weight | 300 kg |

| Technical data | UWF 150 V Servo |
|--------------------------------------|-------------------------|
| Feed range longitudinal | (8) 30 - 750 mm/min |
| Feed range cross | (8) 20 - 500 mm/min |
| Feed range vertical | (8) 15 - 375 mm/min |
| Rapid feed x-, y- and z-axis | 1200 / 800 / 600 mm/min |
| T-slot (Quantity / Width / Distance) | 3 / 18 mm / 80 mm |
| Motor power horizontal | 5,5 kW |
| Motor power vertical | 5,5 kW |
| Servomotor (Torque / Output) | 10 Nm / 1,5 kW |
| Coolant pump output | 90 W |
| Coolant pump flow rate | 25 l/min |
| Machine dimension (W x D x H) | 2530 x 2200 x 2300 mm |
| Weight approx. | 2695 kg |
| Art. no. | 02-1284XL |

UWF 150 V Servo

This model is a solidly constructed universal milling machine featuring a moveable arm and big clamping area. The big dimensioned guidings in all axis guarantees absolute precision and stability. This model is equipped with a stepless speed adjustment for the vertical spindle.

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EXKLUSIV

Vertical spindle with vario drive



Including 3-axis digital readout with LCD-display



Logical, clearly arranged gearshift for speed change.

| Optional accessories: | Art. no. | excl. VAT |
|---|----------|-----------|
| Opening wider machine vise FJ 150 | 28-2087 | |
| Hydro machine vise VH 150 with swivel base | 28-2090 | |
| Hydraulic machine vise with swivel base PHV 160 | 28-2121 | |
| Mill chuck set ER 40, ISO 50, 3 - 25 mm, 16 pcs. | 26-1012 | |
| Semi-universal dividing head BS-1 | 27-1046 | |
| Horizontal & vertical rotary table HV 10 | 27-1002 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1003 | |
| 28 pcs. standard steel parallel set | 35-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| Carbide indexable face milling cutter diam. 125 mm / B 40 | 42-1061 | |
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1020 | |
| Machine mount NE 160 | 53-2012 | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |

BERNARDO
www.bernardo.at
PROFESSIONAL

| Travel |
|-------------------|
| x: 1300 mm |
| y: 300 mm |
| z: 400 mm |



Increased comfort due to table adjustment in x-axis via handwheel on the front side.

Universal milling machine with servo drive

UWF 200 Servo

- Stepless feed settings and rapid feed in all axis, driven by servo motors
- Ball screws in all three axis minimize play
- Variable speed adjustment of horizontal and vertical spindle with optimal torque
- Hardened and polished guideways guarantees top accuracy
- 3 electronic handwheels for manual travel in all axis come standard
- Large cross table with T-slots, treated surface
- Central lubrication for the guideways comes standard
- Setting of the required feed speed by potentiometer on the control panel
- Complete with rapid feed in x-, y- and z-axis to reduce downtime
- Large rectangular guiding in y-axis, dovetail guiding in x- and z-axis guarantees stability

**High
table load**

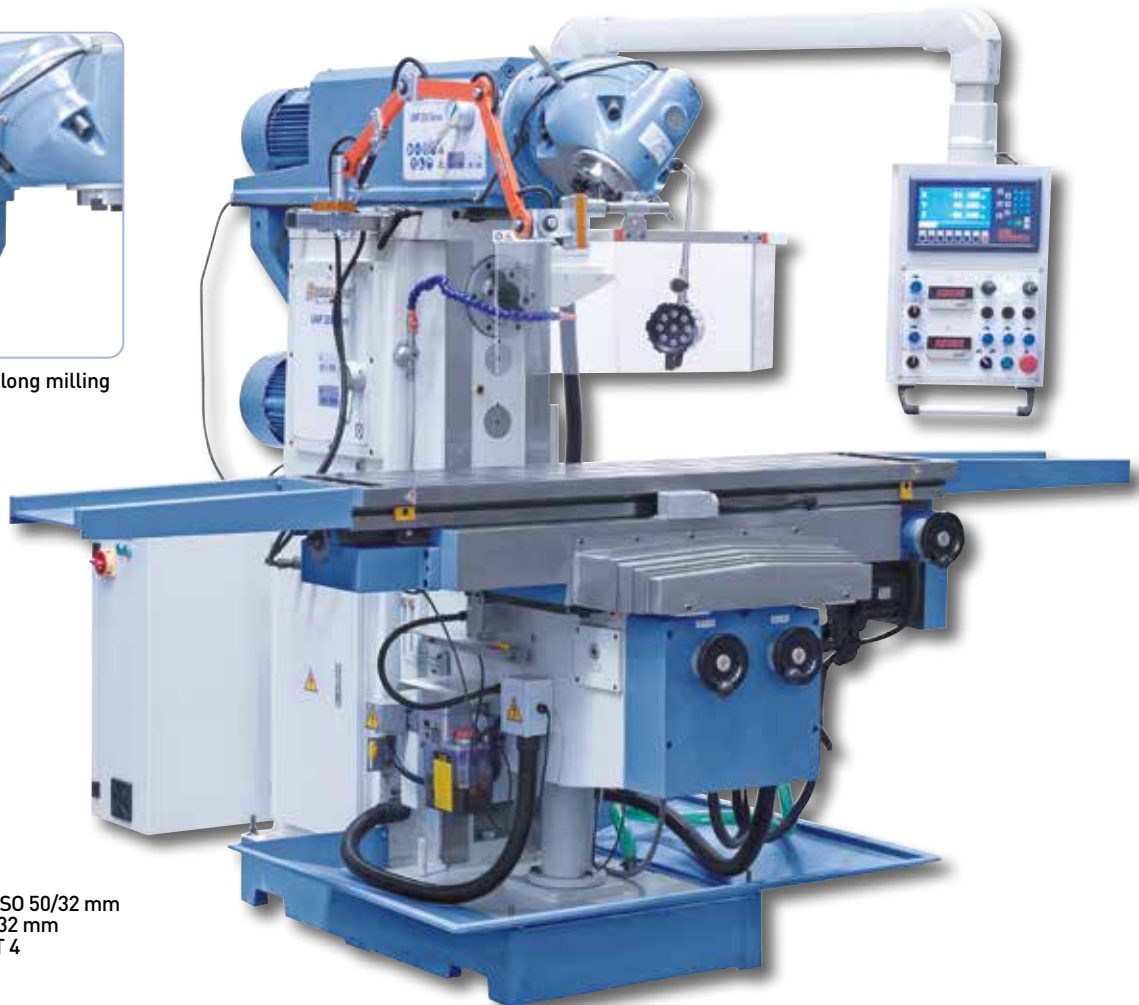


Complete with counter bearing and long milling arbor for horizontal milling.

BERNARDO
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PROFESSIONAL

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Electronic handwheels
- Stepless feed in all axis
- Drawbar M 24
- LED machine light
- Coolant device
- Horizontal counter bearing
- Coolant tray
- Universal protective cover
- Long milling arbor ISO 50/27 mm, ISO 50/32 mm
- Taper shell end mill holder ISO 50/32 mm
- Morse taper drill sleeve ISO 50 / MT 4
- Automatic central lubrication
- Tools



Technical data

UWF 200 Servo

| | |
|--------------------------------------|-------------------------------|
| Table size | 1600 x 360 mm |
| Spindle taper horizontal | ISO 50 |
| Spindle taper vertical | ISO 50 |
| Spindle speed horizontal | (2) 60 - 360 / 360 - 1800 rpm |
| Spindle speed vertical | (2) 65 - 350 / 350 - 1750 rpm |
| Travel longitudinal (x) | 1300 mm |
| Travel cross (y) | 300 mm |
| Travel vertical (z) | 400 mm |
| Distance spindle to table horizontal | 15 - 350 mm |
| Distance spindle to table vertical | 180 - 610 mm |
| Distance spindle to column | 250 - 980 mm |
| Max. workpiece weight | 300 kg |
| T-slot (Quantity / Width / Distance) | 3 / 18 / 80 mm |

Technical data

UWF 200 Servo

| | |
|-------------------------------|-----------------------|
| Feed range longitudinal | 10 - 1000 mm/min |
| Feed range cross | 10 - 1000 mm/min |
| Feed range vertical | 10 - 500 mm/min |
| Rapid feed x- and y-axis | 10 - 3000 mm/min |
| Rapid feed z-axis | 10 - 750 mm/min |
| Motor power horizontal | 7,5 kW |
| Motor power vertical | 5,5 kW |
| Servomotor (Torque / Output) | 10 Nm / 1,5 kW |
| Coolant pump output | 90 W |
| Coolant pump flow rate | 25 l / min |
| Machine dimension (W x D x H) | 2790 x 2200 x 2200 mm |
| Weight approx. | 2850 kg |
| Art. no. | 02-1293XL |

UWF 200 Servo

The UWF 200 Servo universal milling machine milling machine is designed for processing workpieces of up to 300 kg. The solid, sturdy grey cast-iron construction and rigidity meet all the requirements for top accuracy. Features of this machine include servo drive with electronic handwheels in all axis and the stepless speed adjustment.



The adjustment of the 90° and 45° level allows the universal mill head to be set to various different angles.

Stepless feed and rapid feed in x-, y- and z-axis



Quick and easy setting of the required feed speed directly at the control panel.

Vario-drive

Incl. electronic handwheels

Optional accessories:

- Opening wider machine vise FJ 150
- Hydro machine vise VH 150 with swivel base
- Hydraulic machine vise with swivel base PHV 160
- Mill chuck set ER 40, ISO 50, 3 - 25 mm, 16 pcs.
- Semi-universal dividing head BS-1
- Horizontal & vertical rotary table HV 10
- Deluxe clamping kit set 58 pcs., 14 mm, M 12
- 28 pcs. standard steel parallel set
- Planfräser 75° - diam. 125 mm / B 40
- Carbide indexable face milling cutter diam. 125 mm / B 40
- Boring head combo package diam. 75 mm, incl. boring bars
- Machine mount NE 160
- Universal coolant fluid MN 1103, 5 l canister

| Art. no. | excl. VAT |
|----------|-----------|
| 28-2087 | |
| 28-2090 | |
| 28-2121 | |
| 26-1012 | |
| 27-1046 | |
| 27-1002 | |
| 28-1003 | |
| 35-1020 | |
| 42-1087 | |
| 42-1061 | |
| 25-1020 | |
| 53-2012 | |
| 54-1206 | |



Electronic hand wheels for manual travel and 3 powerful servo motors in x-, y- and z-axis come standard.

Universal Variomill FU E Servo Serie milling machine with servo drive

- Stepless feed settings and rapid feed in all axis, driven by servo motors
- Turcite-B coating in x-axis reduces slip-stick effect
- Clearly arranged spindle speed control unit on machine arm
- Ball screws in all three axis minimize play
- Hardened, nitrated, polished gear wheels in oil bath
- Machine body in heavy construction for vibration-free run
- Large cross table with T-slots, treated surface
- Central lubrication for the guideways comes standard
- Optimal adjustment of spindle speed and feed allow for economic machining of various materials
- Large dovetail guidings in x-axis, rectangular guiding in y- and z-axis (FU 1200 E Servo only z-axis) guarantees stability



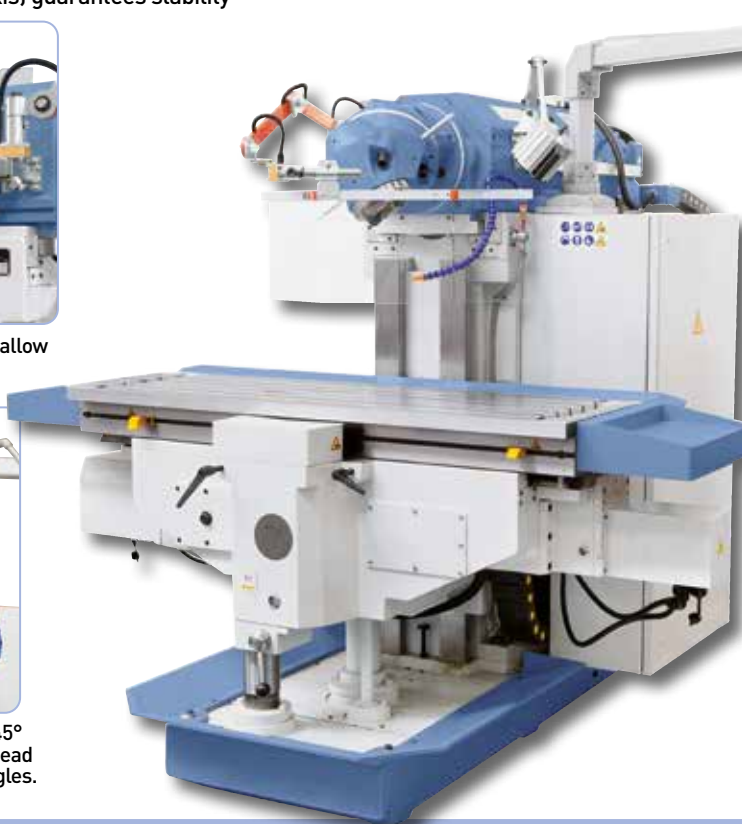
Clearly arranged panel with integrated digital readout and electronic handwheels.



User-friendly control elements allow easy and quick speed change.



The adjustment of the 90° and 45° level allows the universal mill head to be set to various different angles.



Large rectangular guides at the y- and z-axis guarantees an increase in stability (FU 1600 / FU 2000).

| Technical data | FU 1200 E Servo | FU 1600 E Servo | FU 2000 E Servo |
|--------------------------------------|-----------------------|-----------------------|-----------------------|
| Table size | 1235 x 460 mm | 1600 x 500 mm | 2000 x 500 mm |
| Spindle taper | ISO 40 | ISO 50 | ISO 50 |
| Spindle speed | (27) 30 - 2050 rpm | (27) 30 - 2050 rpm | (27) 30 - 2050 rpm |
| Travel longitudinal (x) | 900 mm | 1200 mm | 1400 mm |
| Travel cross (y) | 650 mm | 700 mm | 700 mm |
| Travel vertical (z) | 450 mm | 500 mm | 500 mm |
| Distance spindle to table | 35 - 485 mm | 50 - 550 mm | 50 - 550 mm |
| Distance spindle to column | 20 - 670 mm | 28 - 728 mm | 28 - 728 mm |
| Feed range longitudinal (stepless) | 10 - 1000 mm/min | 10 - 1000 mm/min | 10 - 1000 mm/min |
| Feed range cross (stepless) | 10 - 1000 mm/min | 10 - 1000 mm/min | 10 - 1000 mm/min |
| Feed range vertical (stepless) | 5 - 500 mm/min | 5 - 500 mm/min | 5 - 500 mm/min |
| Rapid feed x- and y-axis | 2500 mm/min | 2200 mm/min | 2200 mm/min |
| Rapid feed z-axis | 1500 mm/min | 1100 mm/min | 1100 mm/min |
| Table load | 800 kg | 1800 kg | 1800 kg |
| T-slot (Width / Distance / Quantity) | 5 / 18 mm / 80 mm | 5 / 18 mm / 80 mm | 5 / 18 mm / 80 mm |
| Main motor | 5,5 kW | 7,5 kW | 7,5 kW |
| Machine dimension (W x D x H) | 1835 x 2285 x 2100 mm | 2200 x 2285 x 2100 mm | 2600 x 2285 x 2100 mm |
| Weight approx. | 4000 kg | 4500 kg | 5000 kg |
| Art. no. | 02-1285XL | 02-1286XL | 02-1287XL |

Stepless feed and rapid feed in x-, y- and z-axis

Electronic components from Schneider Electric

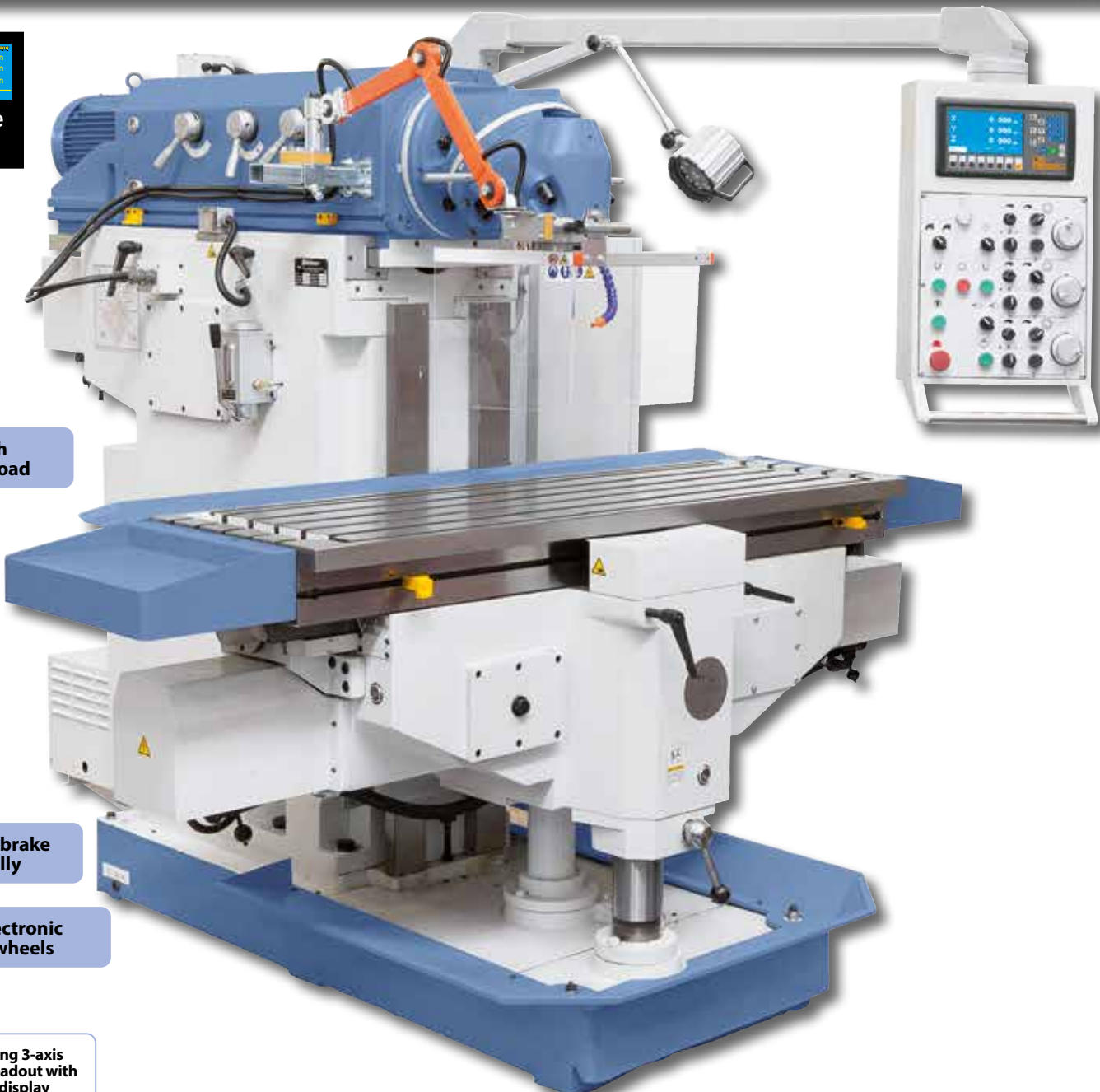
Standard accessories:

- 3-axis digital ES-12 H with LCD-display
- Electronic handwheels
- Drawbar
- Coolant device
- Coolant tray
- LED machine light
- Universal mill head
- Universal protective cover
- Spindle brake
- Ball screws in all axis
- Automatic central lubrication
- Taper shell end mill holder
- Tools

The universal milling machines of the FU E Servo series feature a solid, heavy grey cast iron construction, making these models ideal for heavy machining of oversize workpieces. Features of this series include servo drive in all axis, a large work table and large travel.

Variomill FU E Servo Serie

Inklusive LCD



High table load

Spindle brake serially

Incl. electronic handwheels

Including 3-axis digital readout with LCD-display

| Optional accessories: | Art. no. | excl. VAT |
|---|----------|-----------|
| Mill chuck set ER 40, ISO 40, 3 - 25 mm, 16-pcs. | 26-1011 | |
| Mill chuck set ER 40, ISO 50, 3 - 25 mm, 16-pcs. | 26-1012 | |
| Adapter ISO 40 / MT 4 | 26-1069 | |
| Horizontal & vertical rotary table HV 12 | 27-1003 | |
| Deluxe clamping kit set 58-pcs., 18 mm, M 16 | 28-1003 | |
| Hydro machine vise VH 200 with swivel base | 28-2091 | |
| Hydraulic machine vise with swivel base PHV 200 | 28-2122 | |
| Carbide indexable face milling cutter diam. 125 mm / B 40 | 42-1061 | |
| Machine mount NE 160 | 53-2012 | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |



3 powerful servo motors in x-, y- and z-axis comes standard.



Manual clamping of z-axis for heightened stability.

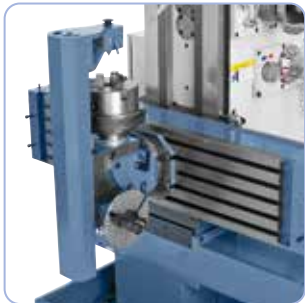
Toolroom milling machine with digital readout

WFM 800

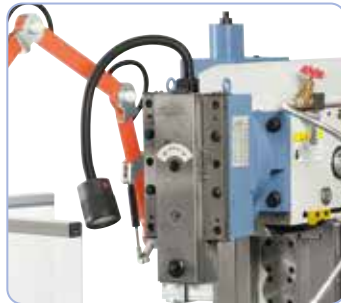
- Handwheel guarantees simple and precise feed settings
- Complete with manual, automatic and rapid feed in all three axis
- Central lubrication in guideways comes standard
- Clear design of speed and feed controls
- Vertical clamping area with 5 T-slots allows clamping of work table, universal tilting table and oversize workpieces
- Optimal adjustments of spindle speed and feed allow for economic machining of various materials
- Solid grey cast-iron machine base guarantees precision and minimizes vibrations
- Ultimate machine for tool and mould construction, training, industry, model making and prototyping etc.
- Hardened and polished guideways guarantees top accuracy
- Tilttable vertical milling head with spindle adjustment and three automatic drill feeds



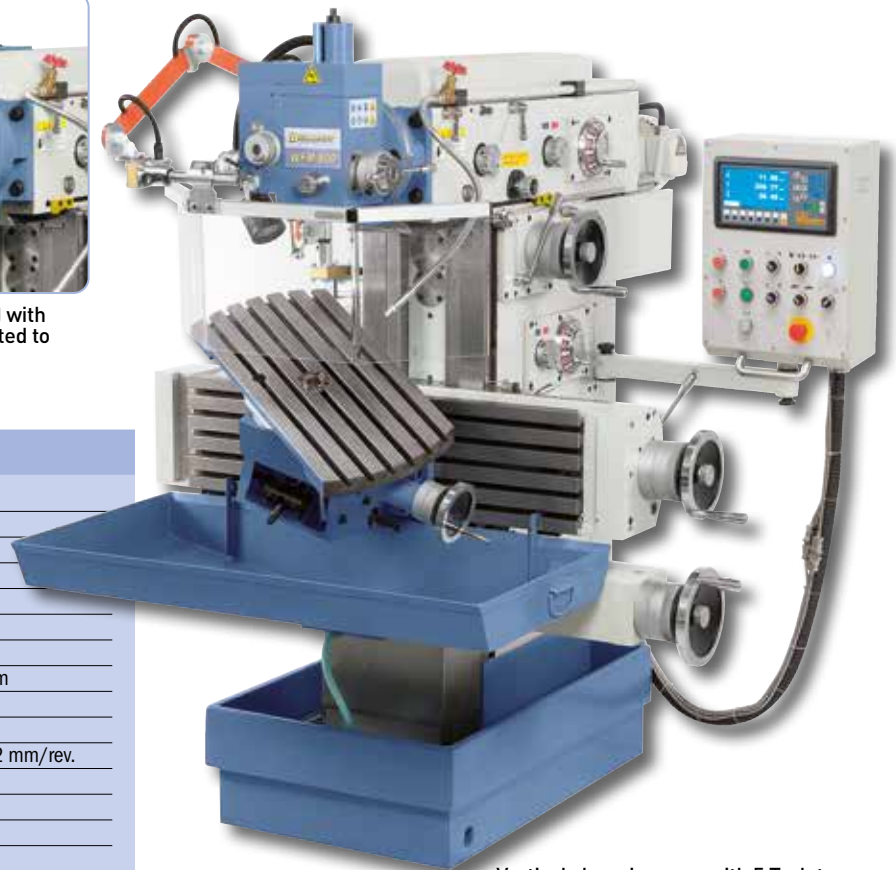
Swivelling vertical milling head features 60 mm spindle stroke and three automatic drill feeds.



The dividing head (optional) can be used horizontal and vertical.



The slotting head (optional) with adjustable stroke can be tilted to left or right.



Vertical clamping area with 5 T-slots for individual clamping of the optionally available universal tilting table or the standard worktable.

Technical data

WFM 800

| | |
|---|----------------------------|
| Table size | 800 x 400 mm |
| Vertical clamping surface | 950 x 250 mm |
| Travel longitudinal (x) | 500 mm |
| Travel cross (y) | 350 mm |
| Travel vertical (z) | 400 mm |
| Table load | 300 kg |
| Vertical milling head | |
| Spindle speeds | (18) 40 - 2000 rpm |
| Spindle taper | ISO 40 |
| Spindle stroke | 60 mm |
| Spindle feed | 0,03 / 0,06 / 0,12 mm/rev. |
| Distance spindle to column max. | 520 mm |
| Distance spindle / table | 5 - 405 mm |
| Spindle head tilting range | -90° to +90° |
| Horizontal milling head | |
| Spindle speeds | (18) 40 - 2000 rpm |
| Spindle taper | ISO 40 |
| Distance spindle / table | 35 - 435 mm |
| Feeding speeds | |
| x-axis | (18) 10 - 500 mm/min |
| y-axis | (18) 10 - 500 mm/min |
| z-axis | (18) 10 - 500 mm/min |
| Rapid feed (x / y / z) | 1200 mm/min |
| T-slot (quantity / width / distance) | 8 / 14 mm / 45 mm |
| T-slot vertical table (quantity / width / distance) | 5 / 14 mm / 45 mm |
| Feeding motor | 1,5 kW |
| Main motor | 3,0 kW |
| Machine dimension (W x D x H) | 1460 x 2080 x 1720 mm |
| Weight approx. | 2200 kg |
| Art. no. | 02-1304XL |

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Drawbar M16
- LED machine light
- Coolant device
- Power feed for x-, y- and z-axis
- Horizontal counter bearing
- Long milling arbor ISO 40/22 mm
- Long milling arbor ISO 40/27 mm
- Taper shell end mill holder ISO 40 / 22 mm, ISO 40 / 27 mm
- Adapter ISO 40 / MT 1, ISO 40 / MT 2, ISO 40 / MT 3
- Collet chuck with collets 4 - 16 mm
- Universal protective device
- Chip tray
- Tools

Left and right turning

Approved quality

WFM 800

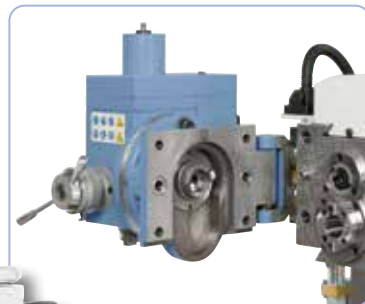
The WFM 800 conventional universal tool milling machine is designed for processing workpieces of up to 300 kg. The solid, sturdy grey cast-iron construction and rigidity meet all the requirements for top accuracy. Main application areas include tool and mould construction as well as modelmaking and prototyping.



Horizontal milling with counter bearing.



Short conversion time from vertical to horizontal milling.



Vertical mill head with 3 automatic feeds

High table load

| | |
|---|----------|
| X | 0.001 mm |
| Y | 0.001 mm |
| Z | 0.001 mm |

Inklusive LCD

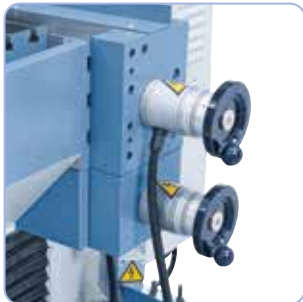
| Optional accessories: | Art. no. | excl. VAT |
|--|----------|-----------|
| Universal tilting table 630 x 300 mm | 02-1305 | |
| Dividing head | 02-1306 | |
| Slotting head | 02-1307 | |
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1020 | |
| Mill chuck ER 40 set, ISO 40, 3-25 mm, 16 pcs. | 26-1011 | |
| Horizontal & vertical rotary table HV 10 - 250 mm | 27-1002 | |
| Semi-universal dividing head BS-1 | 27-1046 | |

| Optional accessories: | Art. no. | excl. VAT |
|--|----------|-----------|
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| Hydro machine vise VH 125 with swivel base | 28-2089 | |
| Hydraulic machine vise PHV 160 | 28-2121 | |
| 28 pcs. Standard steel parallel set | 35-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| Machine mount NE 120 | 53-2011 | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |

Toolroom milling machine with servo drive

WFM 750 Servo

- Stepless feed settings and rapid feed in all axis, driven by servo motors
- Ball screws in all three axis minimize play
- Optimal adjustments of spindle speed and feed allow for economic machining of various materials
- Variable speed adjustment via frequency inverter with optimal torque and almost constant speed at heavy workloads
- 3 electronic handwheels for manual travel in all axis come standard
- Machine body in heavy construction for vibration-free run
- Electrical central lubrication for the guideways comes standard
- Swiveling mill head for horizontal milling
- Gear wheels saturated in oil ensure smooth operation



Electronic hand wheels for manual travel in x-, y- and z-axis come standard.



Ball screw in
x-, y- and z-axis

Stepless feed and rapid feed in
x-, y- and z-axis

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- LED machine light
- Coolant device
- Electronic handwheels
- Horizontal counter bearing
- Ball screw in all 3 axis
- Drawbar M 16
- Electrical central lubrication
- Steel cover
- Long milling arbor ISO 40/16 mm, ISO 40/22 mm, ISO 40/27 mm, ISO 40/32 mm
- Adapter ISO 40 / MT 3, ISO 40 / MT 2, ISO 40 / MT 1
- Machine feet
- Universal protective device
- Tools

| Technical data | WFM 750 Servo |
|---------------------------------|---------------------------|
| Table size | 755 x 320 mm |
| Vertical clamping surface | 890 x 225 mm |
| Travel longitudinal (x) | 405 mm |
| Travel cross (y) | 315 mm |
| Travel vertical (z) | 405 mm |
| Table load | 200 kg |
| Vertical milling head | |
| Spindle speed, stepless | 40 - 260 / 260 - 2000 rpm |
| Spindle taper | ISO 40 |
| Spindle stroke | 65 mm |
| Distance spindle to column max. | 460 mm |
| Distance spindle / table | 45 - 445 mm |
| Spindle head tilting range | -90° to +90° |
| Horizontal milling head | |
| Spindle speed | 40 - 260 / 260 - 2000 rpm |
| Spindle taper | ISO 40 |
| Distance spindle / table | 120 - 530 mm |



Quick and easy setting of the required feed speed directly at the control panel.



Vario-drive

| Technical data | WFM 750 Servo |
|---|-----------------------|
| Feeding speeds | |
| x-axis / y-axis / z-axis | 10 - 1000 mm/min |
| Rapid feed (x / y / z) | 1200 mm/min |
| T-slot (quantity / width / distance) | 5 / 14 mm / 63 mm |
| T-slot vertical table (quantity / width / distance) | 3 / 14 mm / 63 mm |
| Feeding motor | 1,5 kW |
| Main motor | 3,7 kW |
| Machine dimension (B x T x H) | 1560 x 1780 x 1930 mm |
| Weight approx. | 1452 kg |
| Art. no. | 02-1331XL |

WFM 750 Servo

The WFM 750 Servo toolroom milling machine is designed for processing workpieces of up to 200 kg. The solid, sturdy grey cast-iron construction and rigidity meet all the requirements for top accuracy. Features of this machine include servo drive with electronic handwheels in all axis and the a stepless speed adjustment



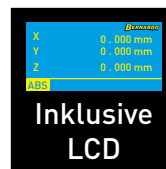
Large spindle (Ø 90 mm) guarantees high stability.



Solidly designed, powerful motor guarantees ideal transmission



Serially equipped with counter bearing and long milling arbour, allowing horizontal milling.



Adjustable protective cover, useable for vertical and horizontal milling works



Electronic central lubrication comes standard



Incl. electronic handwheels

| Optional accessories: | Art. no. | excl. VAT |
|--|----------|-----------|
| Horizontal & vertical rotary table HV 8 | 27-1001 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| Hydro machine vise VH 125 with swivel base | 28-2089 | |

| Optional accessories: | Art. no. | excl. VAT |
|--|----------|-----------|
| Hydraulic machine vise PHV 130 with swivel base | 28-2120 | |
| 28 pcs. Standard steel parallel set | 35-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |

Toolroom milling machine with servo drive

WFM 800 Servo

- Stepless feed settings and rapid feed in all axis, driven by servo motors
- Ball screws in all three axis minimize play
- Optimal adjustments of spindle speed and feed allow for economic machining of various materials
- Variable speed adjustment via frequency inverter with optimal torque and almost constant speed at heavy workloads
- 3 electronic handwheels for manual travel in all axis come standard
- Machine body in heavy construction for vibration-free run
- Electrical central lubrication for the guideways comes standard
- Swiveling mill head for horizontal milling
- Gear wheels saturated in oil ensure smooth operation



Quick and easy setting of the required feed speed directly at the control panel.



Electronic hand wheels for manual travel in x-, y- and z-axis come standard.



Ball screw in x-, y- and z-axis

Stepless feed and rapid feed in x-, y- and z-axis

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- LED machine light
- Coolant device
- Electronic handwheels
- Horizontal counter bearing
- Ball screw in all 3 axis
- Drawbar M 16
- Electrical central lubrication
- Steel cover
- Long milling arbor ISO 40/16 mm, ISO 40/22 mm, ISO 40/27 mm, ISO 40/32 mm
- Adapter ISO 40 / MT 3, ISO 40 / MT 2, ISO 40 / MT 1
- Collet chuck ISO 40 with collets 4 - 20 mm (8 pcs.)
- Machine feet
- Universal protective device
- Tools



Vario-drive

| Technical data | WFM 800 Servo |
|---------------------------------|---------------------------|
| Table size | 800 x 400 mm |
| Vertical clamping surface | 1020 x 225 mm |
| Travel longitudinal (x) | 500 mm |
| Travel cross (y) | 400 mm |
| Travel vertical (z) | 400 mm |
| Table load | 200 kg |
| Vertical milling head | |
| Spindle speed, stepless | 40 - 260 / 260 - 2000 rpm |
| Spindle taper | ISO 40 |
| Spindle stroke | 65 mm |
| Distance spindle to column max. | 530 mm |
| Distance spindle / table | 50 - 450 mm |
| Spindle head tilting range | -90° to +90° |
| Horizontal milling head | |
| Spindle speed | 40 - 260 / 260 - 2000 rpm |
| Spindle taper | ISO 40 |
| Distance spindle / table | 120 - 530 mm |

| Technical data | WFM 800 Servo |
|---|-----------------------|
| Feeding speeds | |
| x-axis / y-axis / z-axis | 10 - 1000 mm/min |
| Rapid feed (x / y / z) | 1200 mm/min |
| T-slot (quantity / width / distance) | 6 / 14 mm / 63 mm |
| T-slot vertical table (quantity / width / distance) | 3 / 14 mm / 63 mm |
| Feeding motor | 1,5 kW |
| Main motor | 3,7 kW |
| Machine dimension (B x T x H) | 1660 x 1780 x 1850 mm |
| Weight approx. | 1500 kg |
| Art. no. | 02-1332XL |

WFM 800 Servo

The WFM 800 Servo toolroom milling machine is designed for processing workpieces of up to 200 kg. The solid, sturdy grey cast-iron construction and rigidity meet all the requirements for top accuracy. Features of this machine include servo drive with electronic handwheels in all axis and the a stepless speed adjustment



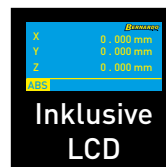
Large spindle (Ø 90 mm) guarantees high stability.



Solidly designed, powerful motor guarantees ideal transmission



Serially equipped with counter bearing and long milling arbour, allowing horizontal milling.



Adjustable protective cover, useable for vertical and horizontal milling works



Electronic central lubrication comes standard



Technical data for WFM 850 Servo see www.bernardo.at

Incl. electronic handwheels

| Optional accessories: | Art. no. | excl. VAT |
|--|----------|-----------|
| Horizontal & vertical rotary table HV 8 | 27-1001 | |
| Semi-universal dividing head BS-0 | 27-1045 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| Hydro machine vise VH 125 with swivel base | 28-2089 | |

| Optional accessories: | Art. no. | excl. VAT |
|--|----------|-----------|
| Hydraulic machine vise PHV 130 with swivel base | 28-2120 | |
| 28 pcs. Standard steel parallel set | 35-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |

Toolroom milling machine with digital readout

TRM 750

- Ball screws in all three axis minimize play
- Electrical central lubrication for the guideways comes standard
- Complete with manual, automatic and rapid feed in all three axis
- Vertical clamping area with 2 T-slots allows clamping of work table, universal tilting table and oversize workpieces
- Large dovetail guiding in x-, y- and z-axis
- Feeding speed adjustable by frequency inverter
- Solid grey cast-iron machine base guarantees precision and minimizes vibrations
- Optimal adjustments of spindle speed and feed allow for economic machining of various materials
- Ultimate machine for tool and mould construction, training, industry, model making and prototyping etc.



Clearly arranged control elements at the tiltable control panel, serially with 3-axis digital readout with LCD-display.



Tiltable vertical mill head with manual movable spindle.



Selector lever for feed axis (picture for x- and z-axis), adjustment of the feed speed by potentiometer at the control panel.

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- LED machine light
- Coolant device
- Power feed for x-, y- and z-axis
- Horizontal counter bearing
- Table housing
- Ball screw in all 3 axis
- Pneumatic tool clamping
- Electrical central lubrication
- Frequency inverter Delta for power feeds
- Steel cover
- Long milling arbor ISO 40/27 mm
- Adapter ISO 40 / MT 3
- Morse taper drill sleeve MT 3 / 2
- Morse taper drill sleeve MT 3 / 1
- Collet chuck ISO 40 with collets 5 - 25 mm (7 pcs.)
- Tools



Ball screw in x-, y- and z-axis

Technical data

TRM 750

| | |
|---------------------------------|--------------------|
| Table size | 750 x 320 mm |
| Vertical clamping surface | 825 x 225 mm |
| Travel longitudinal (x) | 310 (350*) mm |
| Travel cross (y) | 160 (200*) mm |
| Travel vertical (z) | 295 (335*) mm |
| Table load | 280 kg |
| Vertical milling head | |
| Spindle speed | (12) 50 - 2000 rpm |
| Spindle taper | ISO 40 |
| Spindle stroke | 120 mm |
| Distance spindle to column max. | 485 mm |
| Distance spindle / table | 65 - 405 mm |
| Spindle head tilting range | -90° to +90° |
| Horizontal milling head | |
| Spindle speed | (12) 50 - 2000 rpm |
| Spindle taper | ISO 40 |
| Distance spindle / table | 35 - 370 mm |

* manual

Technical data

TRM 750

Feeding speeds

| | |
|---|-----------------------|
| x-axis | 8 - 450 mm/min |
| y-axis | 8 - 450 mm/min |
| z-axis | 8 - 450 mm/min |
| Rapid feed (x / y / z) | 720 mm/min |
| T-slot (quantity / width / distance) | 5 / 14 mm / 63 mm |
| T-slot vertical table (quantity / width / distance) | 2 / 14 mm / 126 mm |
| Feeding motor | 0,375 kW |
| Main motor | 2,2 kW |
| Machine dimension (B x T x H) | 1450 x 1230 x 1920 mm |
| Weight approx. | 1280 kg |
| Art. no. | 02-1326XL |
| Price excl. VAT | on request |

The TRM 750 universal milling machine is suitable for milling works ranging from a low to a medium level of difficulty. The standard equipment of this model allows for horizontal, vertical and inclined milling works. This machine is mainly used in tool and mould construction, in model making and for training purposes.

TRM 750



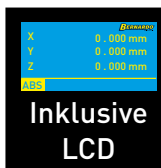
Serially with user-friendly gear shaft



Complete with counter bearing and long milling arbor for milling in horizontal position.



NSK / SKF main spindle bearing



Inklusive LCD



Electrical central lubrication for all guide rails and spindles

High table load

Optional accessories:

- Universal tilting table 620 x 320 mm
- Hydraulic tool clamping
- Horizontal & vertical rotary table HV 8
- Semi-universal dividing head BS-0
- Deluxe clamping kit set 58 pcs., 14 mm, M 12

- | Art. no. | excl. VAT |
|----------|-----------|
| 02-1328 | |
| 02-1330 | |
| 27-1001 | |
| 27-1045 | |
| 28-1001 | |

Optional accessories:

- Hydro machine vise VH 125 with swivel base
- Hydraulic machine vise 130 with swivel base
- 10 pcs. TiN-coated roughing end mills, 6 - 25 mm
- Machine mount NE 120
- Universal coolant fluid MN 1103, 5 l canister

- | Art. no. | excl. VAT |
|----------|-----------|
| 28-2089 | |
| 28-2120 | |
| 42-1016 | |
| 53-2011 | |
| 54-1206 | |

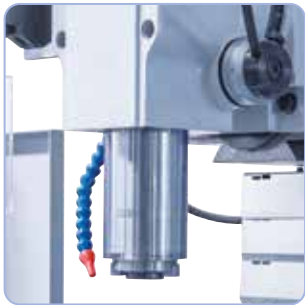
Toolroom milling machine with hydraulic tool clamp

TRM 900

- Serially with hydraulic tool clamping for quick tool changing
- Ball screws in all three axis minimize play
- Electrical central lubrication for the guideways comes standard
- Complete with manual, automatic and rapid feed in all three axis
- Vertical clamping area with 3 T-slots allows clamping of work table, universal tilting table and oversize workpieces
- Clearly arranged spindle speed control unit on machine arm
- Large dovetail guiding in x- and y-axis, rectangular guiding in z-axis
- Feeding speed adjustable by frequency inverter
- Swiveling mill head for horizontal milling
- Solid grey cast-iron machine base guarantees precision and minimizes vibrations



Clearly arranged control elements at the tiltable control panel, serially with 3-axis digital readout with LCD-display.



Large spindle guarantees high stability.



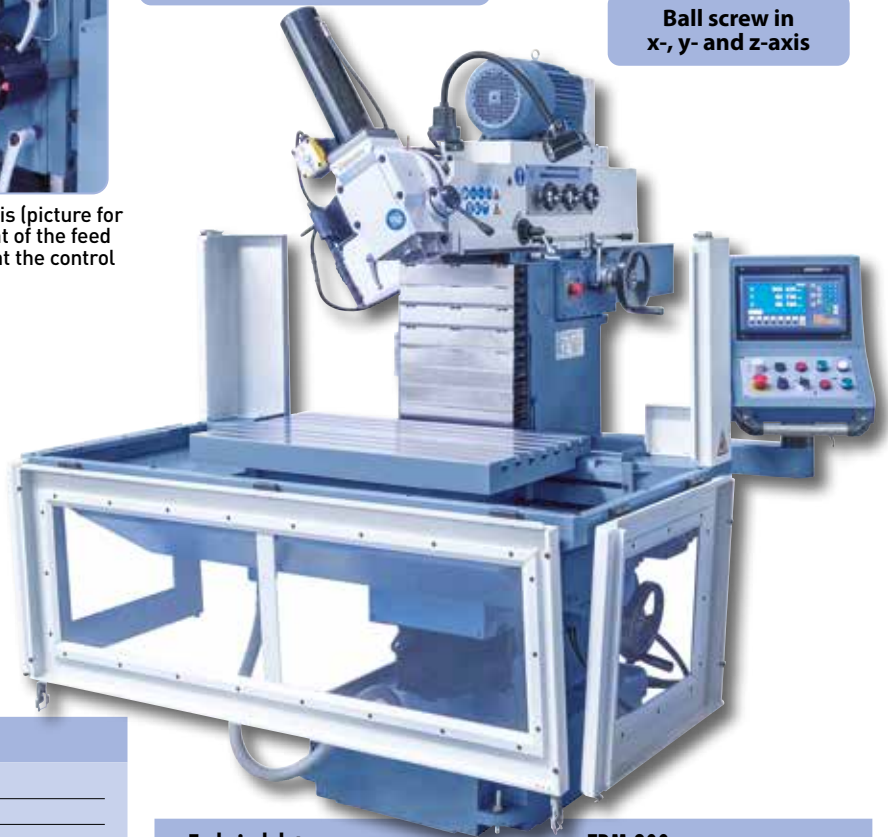
Selector lever for feed axis (picture for x- and z-axis), adjustment of the feed speed by potentiometer at the control panel.

Incl. hydraulic tool clamp with pull stud (DIN 69872)

Ball screw in x-, y- and z-axis

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- LED machine light
- Coolant device
- Power feed for x-, y- and z-axis
- Horizontal counter bearing
- Table housing
- Ball screw in all 3 axis
- Hydraulic tool clamping
- Electrical central lubrication
- Frequency inverter Delta for power feeds
- Steel cover
- Long milling arbor ISO 40/27 mm
- Adapter SK 40 / MT 3
- Morse taper drill sleeve MT 3 / 2
- Morse taper drill sleeve MT 3 / 1
- Collet chuck SK 40 with collets 5 - 25 mm (7 pcs.)
- Tools



Technical data

TRM 900

| | |
|---------------------------------|--------------------|
| Table size | 900 x 500 mm |
| Vertical clamping surface | 1200 x 250 mm |
| Travel longitudinal (x) | 560 (600*) mm |
| Travel cross (y) | 440 (480*) mm |
| Travel vertical (z) | 345 (385*) mm |
| Table load | 360 kg |
| Vertical milling head | |
| Spindle speed | (18) 40 - 2000 rpm |
| Spindle taper | SK 40 / DIN 69871A |
| Spindle stroke | 120 mm |
| Distance spindle to column max. | 550 mm |
| Distance spindle / table | 40 - 440 mm |
| Spindle head tilting range | -90° to +90° |
| Horizontal milling head | |
| Spindle speed | (18) 40 - 2000 rpm |
| Spindle taper | ISO 40 |
| Distance spindle / table | 130 - 530 mm |

* manual

Technical data

TRM 900

Feeding speeds

| | |
|---|-----------------------|
| x-axis | 10 - 450 mm/min |
| y-axis | 10 - 450 mm/min |
| z-axis | 10 - 450 mm/min |
| Rapid feed (x / y / z) | 680 mm/min |
| T-slot (quantity / width / distance) | 7 / 14 mm / 63 mm |
| T-slot vertical table (quantity / width / distance) | 3 / 14 mm / 63 mm |
| Feeding motor | 0,75 kW |
| Main motor | 3,75 kW |
| Machine dimension (B x T x H) | 1850 x 2135 x 2030 mm |
| Weight approx. | 1700 kg |
| Art. no. | 02-1327XL |
| Price excl. VAT | on request |

TRM 900

The TRM 900 universal milling machine is suitable for milling works ranging from a low to a medium level of difficulty. The standard equipment of this model allows for horizontal, vertical and inclined milling works. This machine is mainly used in tool and mould construction, in model making and for training purposes.



Easy adjustable spindle speed at the machine arm



Complete with counter bearing and long milling arbor for milling in horizontal position.



NSK / SKF main spindle bearing



Inklusive LCD



Electrical central lubrication for all guide rails and spindles

High table load

| Optional accessories: | Art. no. | excl. VAT |
|---|----------|-----------|
| Universal tilting table 620 x 320 mm | 02-1328 | |
| Horizontal & vertical rotary table HV 10 - 250 mm | 27-1002 | |
| Semi-universal dividing head BS-1 | 27-1046 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| Hydro machine vise VH 125 with swivel base | 28-2089 | |

| Optional accessories: | Art. no. | excl. VAT |
|--|----------|-----------|
| Hydraulic machine vise PHV 160 | 28-2121 | |
| 28 pcs. Standard steel parallel set | 35-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |
| Machine mount NE 120 | 53-2011 | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |

Bed milling machine with digital readout

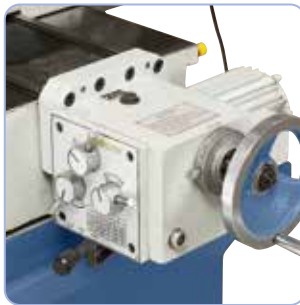
BFM 180

- Frequency inverter allows stepless height adjustment of the mill head
- Automatic table feed with rapid feed allows quick table adjustment in x- and y-axis
- Complete with digital readout in all three axis to increase productivity
- Automatic spindle feed (0.1/ 0.15 and 0.3 mm/ rev) comes standard
- Use clutch to change from manual to fine feed
- Wide speed range 94 – 2256 rpm
- Large number of standard accessories
- Robust, heavy machine design guarantees accurate results
- Spindle feed via handwheel when milling
- Spindle feed via star handle when drilling

Lifting motor comes standard



Clearly arranged control panel – a digital readout in all three axis comes standard.



Solidly designed table feed in y-axis with rapid feed.

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Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Drill chuck with arbor
- Adapter ISO 40 / MT4, ISO 40 / MT3, ISO 40 / MT2
- Taper shell end mill holder ISO 40 / 32 mm
- Coolant device
- Central lubrication
- LED machine light
- Adjustable protective device
- Lifting motor for mill head

| Technical data | BFM 180 |
|---------------------------------|--------------------------|
| Table size | 1220 x 360 mm |
| Spindle taper | ISO 40 |
| Spindle speed vertical | (16) 94 - 2256 rpm |
| Spindle stroke | 180 mm |
| Spindle feed | 0,1 / 0,15 / 0,3 mm/rev. |
| Travel longitudinal (x) | 600 mm |
| Travel cross (y) | 360 mm |
| Travel vertical (z) | 500 mm |
| Distance spindle to column | 370 mm |
| Spindle head tilting range | -45° to +45° |
| Distance spindle to table | 110 - 610 mm |
| Feed range longitudinal / cross | (8) 24 - 720 mm/min |
| T-slot size | 14 mm |
| Motor power | 1,5 / 2,4 kW |
| Machine dimension (W x D x H) | 1770 x 1800 x 2320 mm |
| Weight approx. | 1400 kg |
| Art. no. | 02-1310XL |

Electronic components from Schneider Electric

The BFM 180 - a massive bed milling machine ideal for drilling, milling and countersink works. Complete with multifunctional applications and a large number of standard accessories, this machine is designed specifically for mechanical workshops, repair shops and machine building.

BFM 180

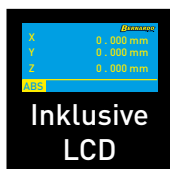


Manual or automatic spindle feed (0.1 / 0.15 / 0.3 mm/rev.)

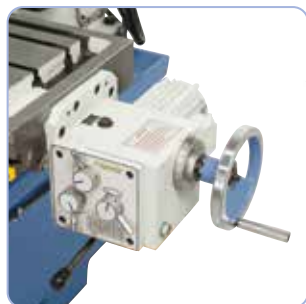
BERNARDO®
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EXKLUSIV



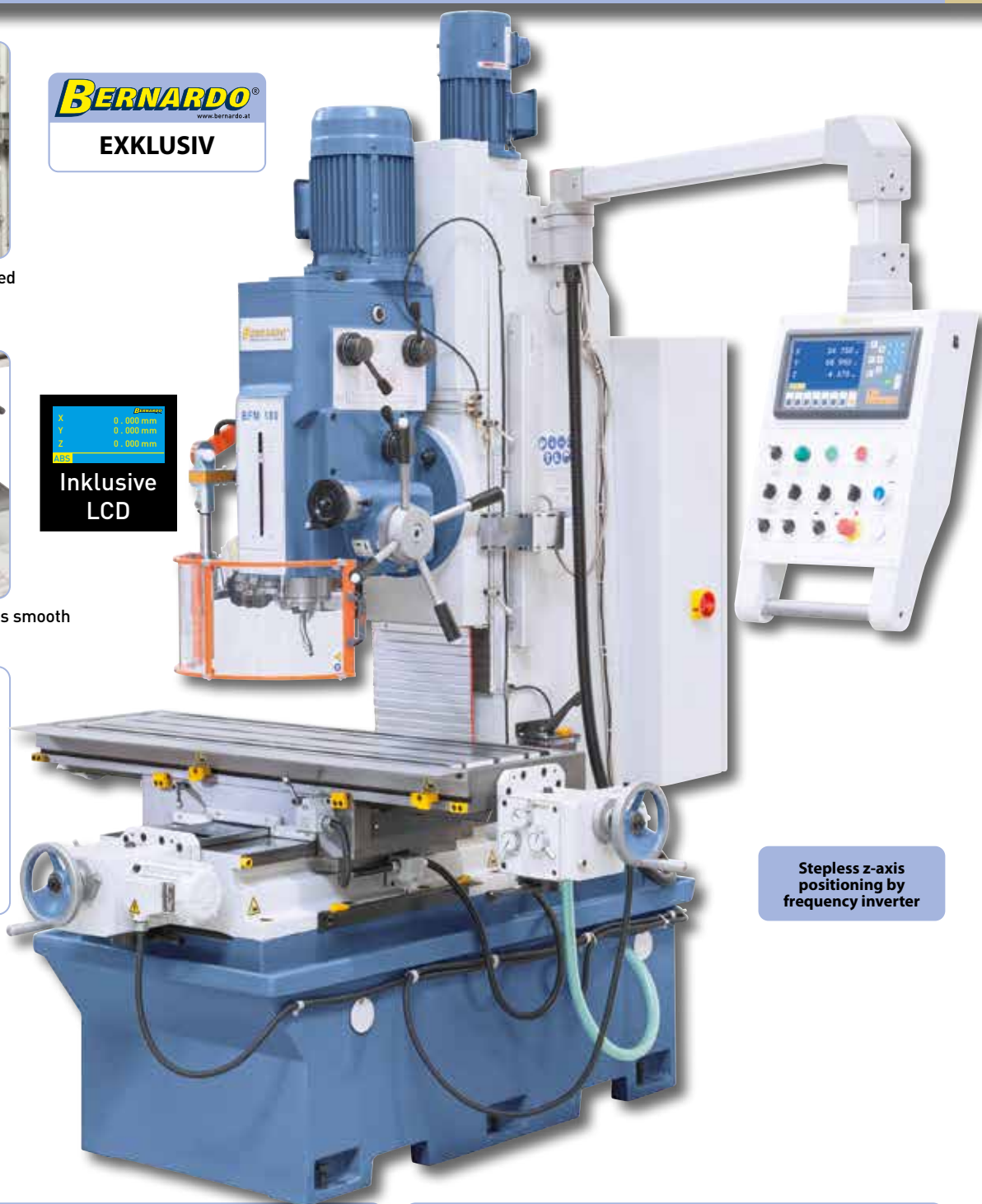
Solid flat guide in y-axis ensures smooth and accurate table adjustment.



Inklusive LCD



The x-axis table adjustment features 8 different feed rates (24 - 720 mm/min)



Stepless z-axis positioning by frequency inverter

| Travel | |
|-----------|---------------|
| x: | 600 mm |
| y: | 360 mm |
| z: | 500 mm |

Optional accessories:

| | Art. no. | excl. VAT |
|--|----------|-----------|
| 2 pcs. milling vise MS 160 | 28-1020 | |
| Opening wider machine vise FJ 150 | 28-2087 | |
| Hydraulic machine vise with swivel base PHV 130 | 28-2120 | |
| Hydraulic machine vise with swivel base PHV 160 | 28-2121 | |
| Mill chuck set ER 40, ISO 40, 3 - 25 mm, 16 pcs. | 26-1011 | |
| Horizontal and vertical rotary table HV 10 | 27-1002 | |
| Boring head combo package diam. 75 mm, incl. boring bars | 25-1020 | |
| 10 pcs. TiN-coated roughing end mills, 6 - 25 mm | 42-1016 | |

Optional accessories:

| | Art. no. | excl. VAT |
|---|----------|-----------|
| Semi-universal dividing head BS-1 | 27-1046 | |
| Tiltable rotary table TSK 250 | 27-1043 | |
| Deluxe clamping kit set 58 pcs., 14 mm, M 12 | 28-1001 | |
| 20 pcs. HSS TiN-coated end mills, 3 - 20 mm | 42-1020 | |
| Carbide indexable face milling cutter diam. 125 mm / B 40 | 42-1061 | |
| Universal coolant fluid MN 1103, 5 l canister | 54-1206 | |
| Machine mount NE 160 | 53-2012 | |
| Pneumatic tool clamping device PD 150 | 53-1000A | |

Bed milling machine with digital readout

BFM 200

- Solid, grey cast iron construction allows heavy table load
- Large flat guide guarantees stability at heavy milling
- Handwheel allows feed (100 mm) of oversize spindle
- Polished table, supported well by wide saddle
- Wide speed range (20 – 1800 rpm) feat. high torque and spindle brake
- Stepless speed adjustment comes standard
- Inductive hardened and polished guideways
- Reinforced saddle in robust box construction
- Column and machine stand are solidly designed

X 0.000 mm
Y 0.000 mm
Z 0.000 mm
ABS

Inklusive
LCD

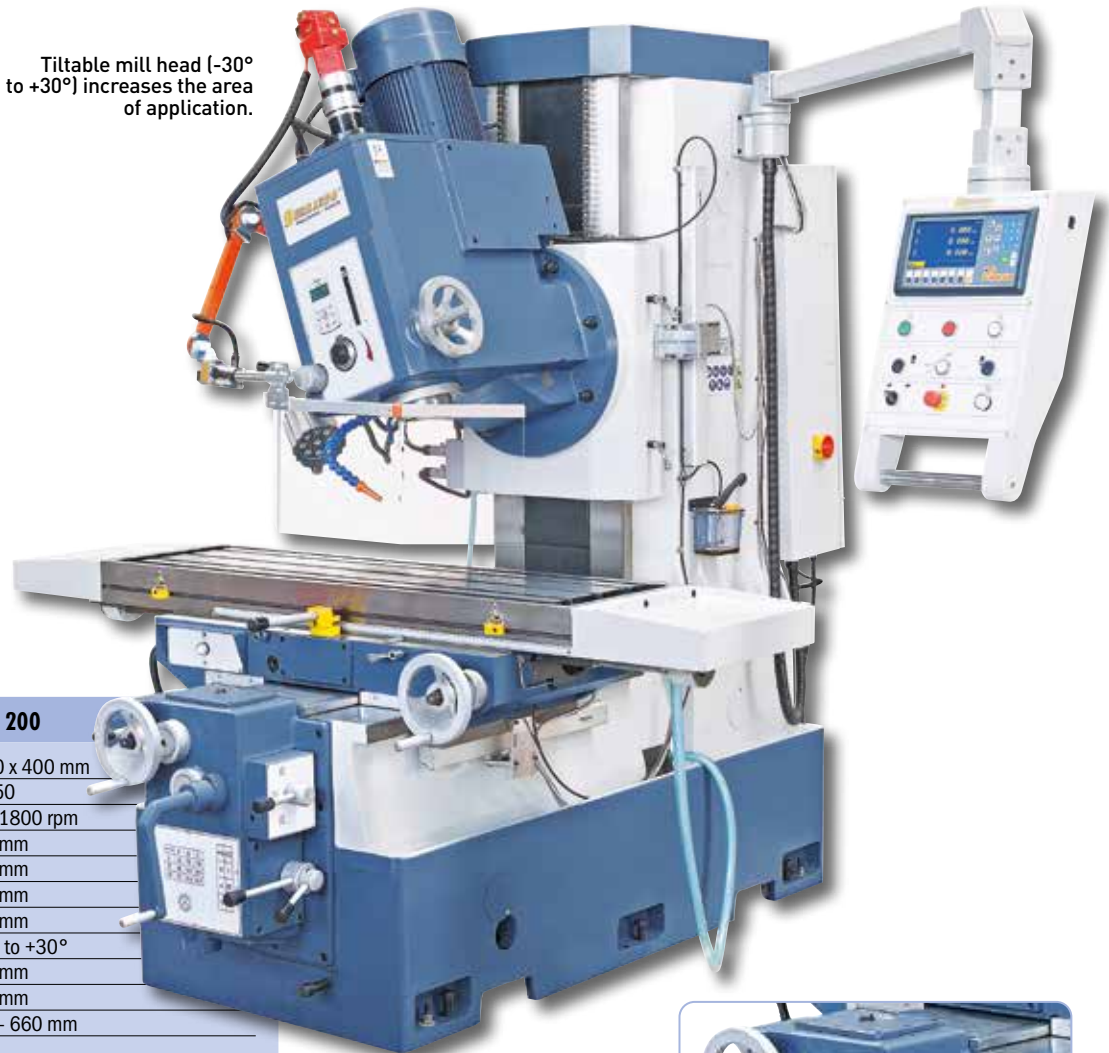
Electronic components
from Schneider Electric



Frequency inverter allows stepless speed adjustment.

x-axis travel
950 mm

Tiltable mill head (-30° to +30°) increases the area of application.



Technical data

BFM 200

| | |
|--------------------------------------|-----------------------|
| Table size | 1400 x 400 mm |
| Spindle taper | ISO 50 |
| Spindle speed, stepless | 20 - 1800 rpm |
| Travel longitudinal (x) | 950 mm |
| Travel cross (y) | 410 mm |
| Travel vertical (z) | 520 mm |
| Distance spindle to column | 520 mm |
| Spindle head tilting range | -30° to +30° |
| Spindle stroke | 100 mm |
| Spindle diameter | 180 mm |
| Distance spindle to table | 140 - 660 mm |
| Feeding speeds | |
| x-axis | (9) 18 - 627 mm/min |
| y-axis | (9) 18 - 627 mm/min |
| z-axis | (9) 18 - 627 mm/min |
| Rapid feed | 1670 mm/min |
| T-slot (width / distance / quantity) | 18 mm / 100 mm / 3 |
| Feeding motor x- and y-axis | 0,75 kW |
| Feeding motor z-axis | 0,75 kW |
| Coolant motor | 0,04 kW |
| Motor power | 7,5 kW |
| Machine dimension (W x D x H) | 2160 x 2050 x 2500 mm |
| Weight approx. | 3750 kg |
| Art. no. | 02-1313XL |

Table feed and rapid feed
in x-, y- and z-axis

Quick and easy
feed adjustment on the
front of the machine.



BFM 200

The BFM 200 is a conventional bed milling machine, featuring a strong and solid grey cast-iron construction, making it ideal for heavy chip removals on large workpieces. Additionally, this machine offers a pneumatic tool clamping device, which allows a comfortable tool change.



Large spindle guarantees high stability.



Handwheel allows spindle feed of 100 mm.



Now pneumatic tool clamp device included (DIN 2080)

Optional accessories:

| | | |
|---|----------|-----------|
| Mill chuck set ER 40, ISO 50, 3 - 25 mm, 16 pcs. | Art. no. | excl. VAT |
| Horizontal & vertical rotary table HV 12 | 26-1012 | |
| Tilting rotary table TSK 320 | 27-1003 | |
| Semi-universal dividing head BS-1 | 27-1044 | |
| Deluxe clamping kit set 58 pcs., 18 mm, M16 | 27-1046 | |
| 2 pcs. milling vise MS 200 | 28-1003 | |
| Hydro machine vice VH 200 with swivel base | 28-1021 | |
| Hydraulic machine vise PHV 160 | 28-2091 | |
| Carbide indexable face milling cutter diam. 125 mm / B 40 | 28-2121 | |
| Machine mount NE 160 | 42-1061 | |
| | 53-2012 | |

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Drawbar M 10 / M 12 / M 16 / M 24
- LED machine light
- Coolant device
- Taper shell end mill holder ISO 50 / 40 mm
- Adapter ISO 50 / MT 4
- Central lubrication
- Telescope cover in z-axis
- Stepless speed adjustment
- Anchor bolts
- Universal protective device
- Tools
- Pneumatic tool clamp device

Bed milling machine with servo drive

BFM 2100 Servo

- Variable speed adjustment with intermediate transmission system for optimal torque and almost constant speed at heavy workloads
- Rigid grey cast-iron construction allows heavy work load
- Universal milling head system "Huron" can be adjusted to various angles
- Solid flat guidings guarantees stability at heavy milling
- Stepless feed settings and rapid feed in all axis, driven by servo motors
- Reinforced saddle in robust box construction
- Precisely polished table, ideally positioned on wide saddle
- Column and stand in solid box construction
- Ball screws in all three axis minimize play



The serially horizontal spindle and the long milling arbor widens the range of applications significantly.



Electronic hand wheels for manual travel in x-, y- and z-axis come standard.

Stepless feed and rapid feed in
x-, y- and z-axis



The adjustment of the 90° and 45° level allows the universal mill head to be set to various different angles.



Technical data

BFM 2100 Servo

| | |
|-------------------------------|-----------------------------|
| Table size | 2100 x 500 mm |
| Spindle taper | ISO 50 |
| Spindle speed, stepless | (2) 6 - 300 / 30 - 1500 rpm |
| Travel longitudinal (x) | 1500 mm |
| Travel cross (y) | 650 mm |
| Travel vertical (z) | 650 mm |
| Distance spindle to column | 610 mm |
| Spindle head tilting range | 360° |
| Distance spindle to table | 0 - 650 mm |
| Feed speeds | |
| x-axis and y-axis (stepless) | 2,5 - 3000 mm/min |
| z-axis (stepless) | 2,5 - 2500 mm/min |
| Rapid feed x- and y-axis | 6000 mm/min |
| Rapid feed z-axis | 3000 mm/min |
| Table load max. | 1800 kg |
| Feeding motor | 3,6 kW |
| Motor power | 11 kW |
| Machine dimension (W x D x H) | 3350 x 2800 x 2830 mm |
| Weight approx. | 7300 kg |
| Art. no. | 02-1323XL |

Standard accessories:

- 3-axis digital readout ES-12 H with LCD-display
- Electronic handwheels
- Stepless feed in all axis
- LED machine light
- Coolant device
- Universal mill head
- Ball screw in all 3 axis
- Horizontal counter bearing
- Long milling arbor ISO 50 / 32 mm
- Taper shell end mill holder ISO 50 / 40 mm
- Telescope cover in z-axis
- Universal protective device
- Protective cover for horizontal milling
- Automatic central lubrication
- Tools

The servo-conventional bed milling machine BFM 2100 Servo features a solid, heavy grey cast iron construction, making this model ideal for heavy machining of oversized workpieces. Features of this model include servo drive in all axis, a large work table and large travel.

BFM 2100 Servo



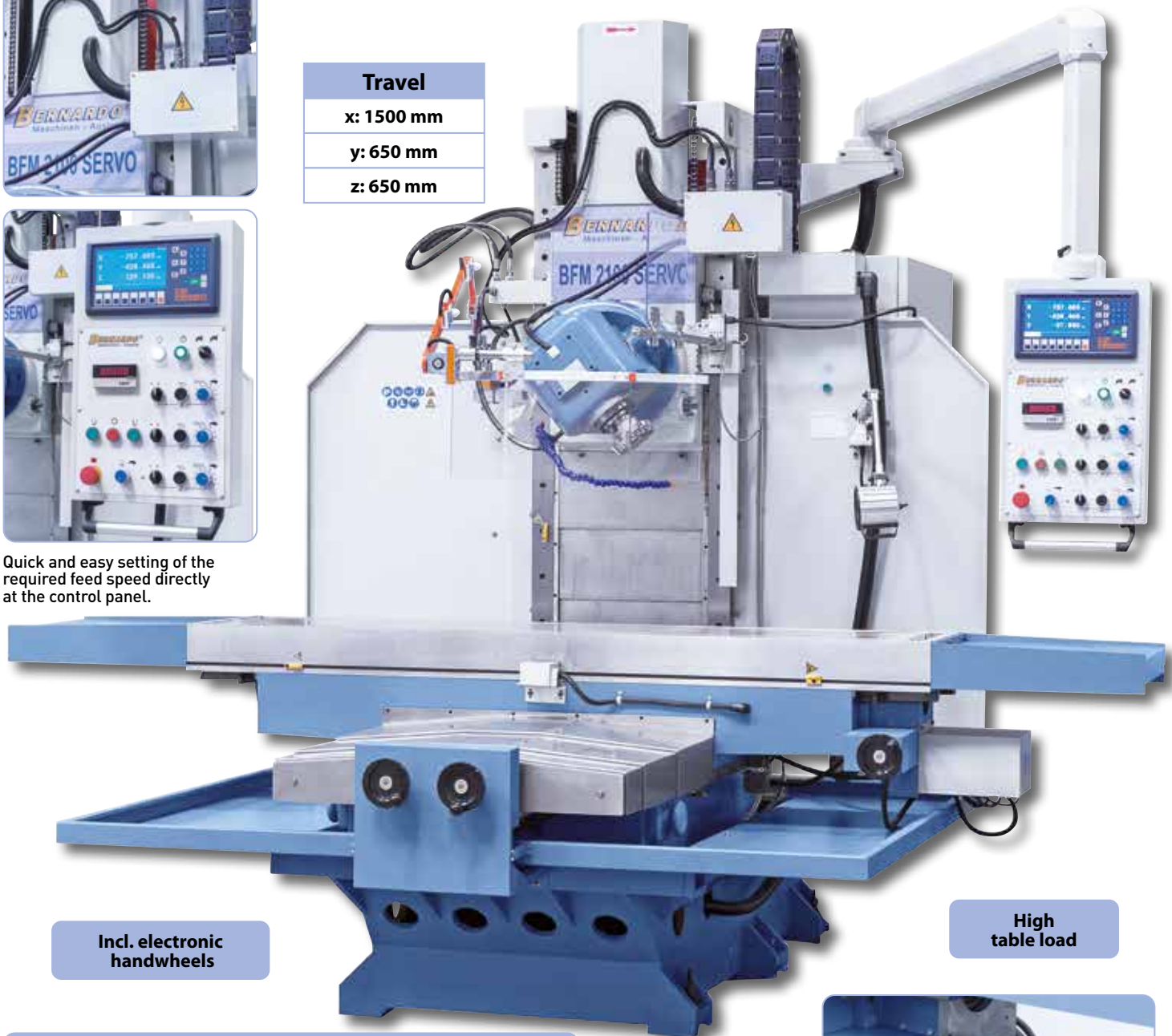
Includes counter weight, energy chain and telescope cover in z-axis.



| Travel | |
|--------|---------|
| x: | 1500 mm |
| y: | 650 mm |
| z: | 650 mm |



Quick and easy setting of the required feed speed directly at the control panel.



Incl. electronic handwheels

High table load

Optional accessories:

- Horizontal and vertical rotary table HV 12
- Tilting rotary table TSK 320
- 2 pcs. milling vice MS 200
- Hydro machine vice VH 200 with swivel base
- Hydraulic machine vice PHV 200
- Universal coolant fluid MN 1103, 5 l canister

| Art. no. | excl. VAT |
|----------|-----------|
| 27-1003 | |
| 27-1044 | |
| 28-1021 | |
| 28-2091 | |
| 28-2122 | |
| 54-1206 | |

3 powerful servo motors in x-, y- and z-axis comes standard.

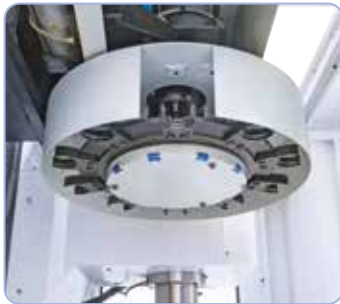


CNC vertical machining centre

VMC 635

- Machine enclosure with two sliding doors on the front and two side doors for easy access
- Stable cast frame in rigid bed construction for smooth running and best milling performance
- Precision flat guides and powerful servo drives for high rapid traverse speeds in all axes and high workpiece load
- High efficiency due to the extensive standard equipment as well as a large number of optional accessories
- Central lubrication for guide ways and ball screws
- Ergonomically arranged controls on the swiveling control panel
- Automatic 16-station tool changer in carousel construction
- Precision ball screws with preloaded nuts in all 3 axes
- Large, surface treated, solid cross table

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16-station tool changer for short changeover times

**Siemens
main spindle drive**

Standard accessories:

- Siemens Sinumerik control
- Prepared for mounting a 4th axis (Advanced 16)
- Electronic handwheel with emergency stop button
- Siemens servo drives for all 3 axis
- 16-station tool changer
- Precision flat guiding in all axis
- Automatic spindle blow-out function
- Automatic spindle orientation
- Machine enclosure with 2 front sliding door
- CE safety glass
- Safety interlock
- LED machine light
- Automatic central lubrication
- Compressed air hand pistol
- Telescope cover in x-, y- and z-axis
- Coolant device



| Technical data | VMC 635 |
|---------------------------------------|---------------------|
| Working area | |
| Table size | 600 x 350 mm |
| Spindle taper | BT 40 |
| Spindle speed, stepless | 40 - 8000 rpm |
| Travel x-axis | 400 mm |
| Travel y-axis | 350 mm |
| Travel z-axis | 400 mm |
| Distance spindle nose - table surface | 60 - 460 mm |
| Throat | 285 mm |
| Table load | 100 kg |
| T-slot (Quantity / Width / Distance) | 3 / 14 mm / 120 mm |
| Feed | |
| Working feed for x-, y- and z-axis | 2,0 - 10.000 mm/min |
| Rapid feed x- and y-axis | 30 m/min |
| Rapid feed z-axis | 24 m/min |

| Technical data | VMC 635 |
|---|-----------------------|
| Accuracy | |
| Positioning accuracy | ± 0,005 mm |
| Repeat accuracy | ± 0,003 mm |
| Tool holder | |
| Number of tool stations | 16 pcs. |
| Tools size Ø x L max. | 120 x 300 mm |
| Tool weight max. | 8 kg |
| Tool-change time tool/tool | 7 sec. |
| Motor power spindle motor | |
| Machine dimension (W x D x H) | 5,5 kW |
| Weight approx. | 2000 x 1950 x 2380 mm |
| VMC 935 with Siemens Sinumerik 808D Advanced 15 | 2000 kg |
| VMC 935 with Siemens Sinumerik 808D Advanced 16 | 02-1340XL |
| Price excl. VAT | 02-1341XL |
| | on request |

The CNC vertical machining centre VMC 635 with the Siemens Sinumerik 808D Advanced control is the ideal machine for the CNC beginner, but is also often used as a secondary machine alongside large CNC centres. Due to the unbeatable price-performance ratio, this model is ideally suited for the production of low-cost small and medium-sized series.

VMC 635



Comes standard with Siemens Sinumerik 808D Advanced control with LCD color display for high efficiency and easy handling



Robust headstock, tool change either manually or automatically

2 years
Siemens warranty



Best
Price

Optional accessories on request:

Renishaw TS27R contact probe for tool measurement
Renishaw OMP 40-2 contact probe with optical signal transmission
Spiral type chip conveyer
CNC rotary table for 4th axis

Optional accessories on request:

Various MAS-BT40 tool holders
Hydraulic vices in various sizes
Tilting rotary table TSK
Universal coolant fluid MN 1103, 5 l canister

CNC vertical machining centre

VMC 940

- Precision linear guides and powerful servo drives for high rapid traverse speeds in all axes and high workpiece load
- Machine enclosure with two sliding doors and two side doors for easy access
- High efficiency due to the extensive standard equipment as well as a large number of optional accessories
- Stable cast frame in rigid bed construction for smooth running and best milling performance
- Automatic 16-station tool changer in carousel construction
- Precision ball screws with preloaded nuts in all 3 axes
- Central lubrication for guide ways and ball screws
- Ergonomically arranged controls on the swiveling control panel
- Large, surface treated, solid cross table

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16-station tool changer for short changeover times

**Siemens
main spindle drive**

Standard accessories:

- Siemens Sinumerik control
- Prepared for mounting a 4th axis
- Electronic handwheel with emergency stop button
- Siemens servo drives for all 3 axis
- 16-station tool changer
- Spiral type chip conveyer
- Precision linear guiding in all axis
- Automatic spindle blow-out function
- Automatic spindle orientation
- Machine enclosure with 2 front sliding doors
- CE safety glass
- Safety interlock
- LED machine light
- Automatic central lubrication
- Compressed air hand pistol
- Telescope cover in x-, y- and z-axis
- Coolant device



| Technical data | VMC 940 |
|---------------------------------------|---------------------|
| Working area | |
| Table size | 920 x 400 mm |
| Spindle taper | BT 40 |
| Spindle speed, stepless | 40 - 8000 rpm |
| Travel x-axis | 700 mm |
| Travel y-axis | 400 mm |
| Travel z-axis | 500 mm |
| Distance spindle nose - table surface | 120 - 620 mm |
| Throat | 440 mm |
| Table load | 400 kg |
| T-slot (Quantity / Width / Distance) | 3 / 14 mm / 120 mm |
| Feed | |
| Working feed for x-, y- and z-axis | 1,0 - 10.000 mm/min |
| Rapid feed x- and y-axis | 30 m/min |
| Rapid feed z-axis | 24 m/min |

| Technical data | VMC 940 |
|---|-----------------------|
| Accuracy | |
| Positioning accuracy | ± 0,005 mm |
| Repeat accuracy | ± 0,003 mm |
| Tool holder | |
| Number of tool stations | 16 pcs. |
| Tools size Ø x L max. | 150 x 300 mm |
| Tool weight max. | 8 kg |
| Tool-change time tool/tool | 7 sec. |
| Motor power spindle motor | |
| Machine dimension (W x D x H) | 2180 x 2300 x 2600 mm |
| Weight approx. | 3200 kg |
| VMC 940 with Siemens Sinumerik 808D Advanced 16 | 02-1345XL |
| VMC 940 with Siemens Sinumerik 828D | 02-1346XL |
| Price excl. VAT | on request |

VMC 940

The CNC vertical machining center VMC 940 is alternatively equipped with a Siemens Sinumerik 808D Advanced 16 or 828D controller and a 16-station tool changer. Due to the compact design, a table size of 920 x 400 mm and the large travel distances, this model is ideal for machining small and medium-sized series in production, but also for the production of individual parts in mold and machine construction as well as in the training sector, this model is used successfully.



Comes standard with Siemens Sinumerik control with LCD color display for high efficiency and easy handling



Robust headstock, tool change either manually or automatically

**2 years
Siemens warranty**



Optional accessories on request:
 Renishaw TS27R contact probe for tool measurement
 Renishaw OMP 60 contact probe with optical signal transmission
 Automatic double arm tool changer with 24 tool stations ¹
 Spindle with 10.000 rpm and coolant ¹
 CNC rotary table for 4th axis (Ø 200 mm)

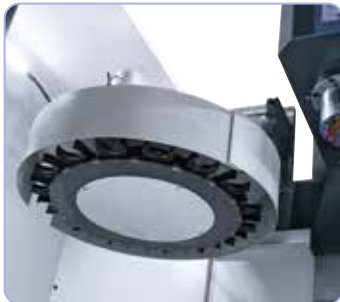
¹ only in connection with machine

Optional accessories on request:
 Various MAS-BT40 tool holders
 Hydraulic vices in various sizes
 Tilting rotary table TSK
 Universal coolant fluid MN 1103, 5 l canister

CNC vertical machining centre

VMC 1050

- Precision linear guides and powerful servo drives for high rapid traverse speeds in all axes and high workpiece load
- Machine enclosure with a sliding door and two side doors for easy access
- High efficiency due to the extensive standard equipment as well as a large number of optional accessories
- Stable cast frame in rigid bed construction for smooth running and best milling performance
- Automatic 16-station tool changer in carousel construction
- Precision ball screws with preloaded nuts in all 3 axes
- Central lubrication for guide ways and ball screws
- Ergonomically arranged controls on the swiveling control panel
- Large, surface treated, solid cross table



16-station tool changer for short changeover times

**Siemens
main spindle drive**

Standard accessories:

- Siemens Sinumerik control
- Prepared for mounting a 4th axis
- Electronic handwheel with emergency stop button
- Siemens servo drives for all 3 axis
- 16-station tool changer
- Spiral type chip conveyer
- Precision linear guiding in all axis
- Automatic spindle blow-out function
- Automatic spindle orientation
- Machine enclosure with 1 front sliding door
- CE safety glass
- Safety interlock
- LED machine light
- Automatic central lubrication
- Compressed air hand pistol
- Telescope cover in x-, y- and z-axis
- Coolant device



| Technical data | VMC 1050 |
|---------------------------------------|--------------------|
| Working area | |
| Table size | 1000 x 500 mm |
| Spindle taper | BT 40 |
| Spindle speed, stepless | 40 - 8000 rpm |
| Travel x-axis | 850 mm |
| Travel y-axis | 500 mm |
| Travel z-axis | 500 mm |
| Distance spindle nose - table surface | 110 - 610 mm |
| Throat | 560 mm |
| Table load | 500 kg |
| T-slot (Quantity / Width / Distance) | 5 / 18 / 100 mm |
| Feed | |
| Working feed for x-, y- and z-axis | 10 - 10.000 mm/min |
| Rapid feed x- and y-axis | 30.000 mm/min |
| Rapid feed z-axis | 24.000 mm/min |

| Technical data | VMC 1050 |
|--|-----------------------|
| Accuracy | |
| Positioning accuracy | ± 0,005 mm |
| Repeat accuracy | ± 0,003 mm |
| Tool holder | |
| Number of tool stations | 16 Stk. |
| Tools size Ø x L max. | 130 x 300 mm |
| Tool weight max. | 8 kg |
| Tool-change time tool/tool | 7 sec. |
| Motor power spindle motor | |
| Machine dimension (W x D x H) | 2500 x 2200 x 2400 mm |
| Weight approx. | 5500 kg |
| VMC 1050 with Siemens Sinumerik 808D Advanced 16 | 02-1347XL |
| VMC 1050 with Siemens Sinumerik 828D | 02-1348XL |
| Price excl. VAT | on request |

VMC 1050

The CNC vertical machining center VMC 1050 is alternatively equipped with a Siemens Sinumerik 808D Advanced 16 or 828D controller and a 16-station tool changer. Due to the compact design, a table size of 1000 x 500 mm and the large travel distances, this model is ideal for machining small and medium-sized series in production, but also for the production of individual parts in mold and machine construction as well as in the training sector, this model is used successfully.



Optionally available with Siemens Sinumerik 808 D Advanced 16 or 828D control.

Wide range of standard equipment



Precision grounded work table with telescopic cover in all axis.

2 years Siemens warranty



Optional accessories on request:
 Renishaw TS27R contact probe for tool measurement
 Renishaw OMP 60 contact probe with optical signal transmission
 Spindle with 10.000 rpm and coolant ¹
 CNC rotary table for 4th axis (Ø 200 mm)

¹ only in connection with machine

Optional accessories on request:
 Various MAS-BT40 tool holders
 Hydraulic vices in various sizes
 Tilting rotary table TSK
 Universal coolant fluid MN 1103, 5 l canister

CNC vertical machining centre

VMC 1160

- Precision flat guides and powerful servo drives for high rapid traverse speeds in all axes and high workpiece load
- Machine enclosure with two sliding doors and two side doors for easy access
- High efficiency due to the extensive standard equipment as well as a large number of optional accessories
- Stable cast frame in rigid bed construction for smooth running and best milling performance
- Automatic double arm tool changer with 24 tool stations
- Precision ball screws with preloaded nuts in all 3 axes
- Central lubrication for guide ways and ball screws
- Ergonomically arranged controls on the swiveling control panel
- Large, surface treated, solid cross table



Serially equipped with a 24-station tool changer.

**Siemens
main spindle drive**

**Wide range of
standard equipment**

**2 years
Siemens warranty**



Standard accessories:

- Siemens Sinumerik 828D control
- Prepared for mounting a 4th axis
- Electronic handwheel with emergency stop button
- Siemens servo drives for all 3 axis
- Automatic double arm tool changer with 24 tool stations
- Spiral type chip conveyer
- Precision flat guiding in all axis
- Automatic spindle blow-out function
- Automatic spindle orientation
- Machine enclosure with 2 front sliding doors
- CE safety glass
- Safety interlock
- LED machine light
- Automatic central lubrication
- Compressed air hand pistol
- Telescope cover in x- and y-axis
- Coolant device

Technical data

VMC 1160

Working area

| | |
|---------------------------------------|--------------------|
| Table size | 1200 x 600 mm |
| Spindle taper | BT 40 |
| Spindle speed, stepless | 40 - 8000 rpm |
| Travel x-axis | 1100 mm |
| Travel y-axis | 600 mm |
| Travel z-axis | 600 mm |
| Distance spindle nose - table surface | 120 - 720 mm |
| Throat | 600 mm |
| Table load | 600 kg |
| T-slot (Quantity / Width / Distance) | 5 / 18 mm / 100 mm |

Feed

| | |
|------------------------------------|---------------------|
| Working feed for x-, y- and z-axis | 1,0 - 10.000 mm/min |
| Rapid feed x- and y-axis | 30 m/min |
| Rapid feed z-axis | 24 m/min |

Technical data

VMC 1160

Accuracy

| | |
|----------------------|------------|
| Positioning accuracy | ± 0,005 mm |
| Repeat accuracy | ± 0,003 mm |

Tool holder

| | |
|----------------------------|--------------|
| Number of tool stations | 24 pcs. |
| Tools size Ø x L max. | 120 x 300 mm |
| Tool weight max. | 8 kg |
| Tool-change time tool/tool | 3 sec. |

| | |
|-------------------------------|-----------------------|
| Motor power spindle motor | 11,0 kW |
| Machine dimension (W x D x H) | 3100 x 2460 x 2860 mm |
| Weight approx. | 6000 kg |
| Art. no. | 02-1349XL |
| Price excl. VAT | on request |

VMC 1160

The CNC vertical machining center VMC 1160 is equipped with a Siemens Sinumerik 828D controller and a 24-station tool changer. Due to the compact design, a table size of 1200 x 600 mm and the large travel distances, this model is ideal for machining small and medium-sized series in production, but also for the production of individual parts in mold and machine construction as well as in the training sector, this model is used successfully.



Comes standard with Siemens Sinumerik 828D control with LCD color display for high efficiency and easy handling



Double arm gripper for fast changeover times.



Optional accessories on request:










- Renishaw TS27R contact probe for tool measurement
- Renishaw OMP 60 contact probe with optical signal transmission
- Spindle with 10.000 rpm and coolant ¹
- CNC rotary table for 4th axis (Ø 200 mm)

¹ only in connection with machine

Optional accessories on request:

- Various MAS-BT40 tool holders
- Hydraulic vices in various sizes
- Tilting rotary table TSK
- Universal coolant fluid MN 1103, 5 l canister

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| <p>Gewindeschneidapparat</p> <p>Double roller tapping chuck set</p>  <p>MK 2 / MK 3 / MK 4 von M3 - M12 MT 2 / MT 3 / MT 4 from M3 - M12</p> | <p>Gewindeschneidapparat</p> <p>Double roller tapping chuck set</p>  <p>MK 3 / MK 4 / MK 5 von M12 - M24 MT 3 / MT 4 / MT 5 from M12 - M24</p> | <p>Gewindeschneidapparat Super</p> <p>Aut. reversible tapping chuck set</p>  <p>M2 - M7 / M5 - M12 / M8 - M20 M2 - M7 / M5 - M12 / M8 - M20</p> | <p>Gewindeschneid-Schnellwechselfutterset</p> <p>Quick change tapping chuck set</p>  <p>MK 2 / MK 3 / MK 4 / MK 5 M6 - M30 MT 2 / MT 3 / MT 4 / MT 5 M6 - M30</p> |
| <p>Plan- und Ausdrehkopf</p> <p>Precision boring head</p>  <p>Durchmesser 50 / 75 / 100 mm Diameter 50 / 75 / 100 mm</p> | <p>Aufnahmeschaft</p> <p>Boring head shank</p>  <p>MK 2 / MK 3 / MK 4 / MK 5 ISO 30 / ISO 40 MT 2 / MT 3 / MT 4 / MT 5 ISO 30 / ISO 40</p> | <p>Plan- und Ausdrehkopfset</p> <p>Boring head combo package</p>  <p>Mit Bohrstangen, MK 2 - 50 mm / MK 3 - 50 mm With boring bars, MT 2 - 50 mm / MT 3 - 50 mm</p> | <p>Plan- und Ausdrehkopfset</p> <p>Boring head combo package</p>  <p>Mit Bohrstangen, MK 3 - 75 mm / MK 4 - 75 mm With boring bars, MT 3 - 75 mm / MT 4 - 75 mm</p> |
| <p>Spannzangenset</p> <p>Collet set</p>  <p>MK 2, 3 - 10 mm - 6-tlg. MK 3, 4 - 16 mm - 7-tlg. MT 3, 4 - 16 mm - 6 pcs. MT 2, 3 - 10 mm - 7 pcs.</p> | <p>Fräser-Spannzangenfutter ER-Set</p> <p>Mill chuck set ER</p>  <p>ER 16, MK 2, 3 - 10 mm, 7-tlg. ER 16, MT 2, 3 - 10 mm, 7-pcs.</p> | <p>Fräser-Spannzangenfutter ER-Set</p> <p>Mill chuck set ER</p>  <p>ER 25, MK 2, 4 - 16 mm, 8-tlg. ER 25, MK 3, 4 - 16 mm, 8-tlg. ER 25, MT 2, 4 - 16 mm, 8-pcs. ER 25, MT 3, 4 - 16 mm, 8-pcs.</p> | <p>Fräser-Spannzangenfutter ER-Set</p> <p>Mill chuck set ER</p>  <p>ER 25, MK 2, 3 - 16 mm, 10-tlg. ER 25, MK 3, 3 - 16 mm, 10-tlg. ER 25, MT 2, 3 - 16 mm, 10-pcs. ER 25, MT 3, 3 - 16 mm, 10-pcs.</p> |
| <p>Fräser-Spannzangenfutter ER-Set</p> <p>Mill chuck set ER</p>  <p>ER 32, MK 2, 3 - 20 mm, 13-tlg. ER 32, MK 3, 3 - 20 mm, 13-tlg. ER 32, MT 2, 3 - 20 mm, 13-pcs. ER 32, MT 3, 3 - 20 mm, 13-pcs.</p> | <p>Fräser-Spannzangenfutter ER-Set</p> <p>Mill chuck set ER</p>  <p>MK 2 / MK 3 / MK 4 / MK 5 3 - 25 mm / 16-tlg. MT 2 / MT 3 / MT 4 / MT 5 3 - 25 mm / 16 pcs.</p> | <p>Fräserspannfutter ER-Set</p> <p>Mill chuck set ER</p>  <p>ISO 30 / ISO 40 / ISO 50 3 - 25 mm / 16-tlg. ISO 30 / ISO 40 / ISO 50 3 - 25 mm / 16 pcs.</p> | <p>Spannzangenset ER</p> <p>Collet set ER</p>  <p>ER 16, 1 - 10 mm, 10-tlg. ER 20, 1 - 12 mm, 12-tlg. ER 25, 2 - 16 mm, 12-tlg.</p> |

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| Spannzangenset ER | Kombi-Aufsteckfräsdorn | Adapter SK / MK | Montagestand ISO 40 |
| Collet set ER | Taper shell end mill holder | Adapter SK / MT | Horizontal / vertical tool fixture |
|  |  |  |  |
| ER 32, 3 - 20 mm, 18-tlg. ER 40, 4 - 26 mm, 23-tlg. | MK 2 - 13 / 16 / 22 mm MK 3 - 16 / 22 / 27 / 32 mm MK 4 - 16 / 22 / 27 / 32 / 40 mm ISO 40 - 16 / 22 / 27 / 32 / 40 mm | ISO 30 - MK 2 / ISO 30 - MK 3 ISO 40 - MK 2 / ISO 40 - MK 3 / ISO 40 - MK 4 | Horizontale und vertikale Aufnahme Horizontal and vertical mounting possible |
| Horizontal- und Vertikalrundtisch RT 3S | Horizontal- und Vertikalrundtisch RT 3 | Horizontal- und Vertikalrundtisch RT 4 L | Horizontal- und Vertikalrundtisch RT 4 |
| Horizontal & vertical rotary table RT 3S | Horizontal & vertical rotary table RT 3 | Horizontal & vertical rotary table RT 4 L | Horizontal & vertical rotary table RT 4 |
|  |  |  |  |
| Ø 80 mm, Bauhöhe 55 mm 36:1, schwenkbar 0° - 90° Ø 80 mm, height 55 mm 36:1, tiltable 0° - 90° | Ø 80 mm, Bauhöhe 40 mm Übersetzungsverhältnis 36:1 Ø 80 mm, height 40 mm Gear transmission ratio 36:1 | Ø 100 mm, Bauhöhe 54 mm Übersetzungsverhältnis 36:1 Ø 100 mm, height 54 mm Gear transmission ratio 36:1 | Ø 110 mm, Bauhöhe 85 mm Übersetzungsverhältnis 90:1 Ø 110 mm, height 85 mm Gear transmission ratio 90:1 |
| Horizontal- und Vertikalrundtisch RT 5 | Schwenkbarer Rundtisch RT 4 S | Dreibackendrehfutter | 4-Backenfutter |
| Horizontal & vertical rotary table RT 5 | Tiltable rotary table RT 4 S | 3-jaw chuck | 4-jaw chuck |
|  |  |  |  |
| Ø 125 mm, Bauhöhe 85 mm Übersetzungsverhältnis 60:1 Ø 125 mm, height 85 mm Gear transmission ratio 60:1 | Ø 100 mm, Bauhöhe 63 mm 36:1, Schwenkbar 0° - 90° Ø 100 mm, height 63 mm 36:1, tiltable 0° - 90° | Durchmesser: 80 mm Mit Aufspannscheibe diam. 100 mm Diameter: 80 mm With mounting plate diam. 100 mm | Durchmesser: 70 mm bzw. 80 mm Mit Aufspannscheibe Ø 80 mm bzw. 125 mm Diameter: 70 mm or 80 mm With mounting plate Ø 100 mm or 125 mm |
| Planscheibe | Schwenkbarer Winkeltisch SW | Kombi-Set | Rundtisch HV 4 - Set |
| Independent chuck | Tilting table SW | Combi-Set | Rotary table HV 4 - Set |
|  |  |  |  |
| Durchmesser: 80 mm Mit Aufspannscheibe diam. 100 mm Diameter: 80 mm With mounting plate diam. 100 mm | Schwenkbar von 0° - 90° Passend für RT 4 L Tiltable from 0° - 90° Suitable for RT 4 L | RT 4 L + SW | Diam. 100 mm, Spitzenhöhe 68 mm Inkl. Reitstock, Teilscheibe, Flansch Ø 100 mm, center height 68 mm, incl. tailstock, index plate and flange |

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| Horizontal- und Vertikalrundtisch HV | Horizontal- und Vertikalrundtisch HV | Reitstock für HV-Serie | Teilscheiben für HV-Serie |
| Horizontal & vertical rotary table HV | Horizontal & vertical rotary table HV | Tailstock for HV-series | Dividing plates for HV-series |
|  |  |  |  |
| <p>Tischdurchmesser 150 / 200 / 250 mm Spitzenhöhe 100 / 135 / 165 mm Table diameter 150 / 200 / 250 mm Center height 100 / 135 / 165 mm</p> | <p>Tischdurchmesser 300 / 350 / 400 mm Spitzenhöhe 195 / 230 / 260 mm Table diameter 300 / 350 / 400 mm Center height 195 / 230 / 260 mm</p> | <p>TS-1 für HV-6 / TS-2 für HV-8 / 10 / 12 TS-4 für HV-14 TS-1 for HV-6 / TS-2 for HV-8 / 10 / 12 TS-4 for HV-14</p> | <p>DP-1 für HV-6 / DP-2 für HV-8 / 10 / 12 DP-3 für HV-14 DP-1 for HV-6 / DP-2 for HV-8 / 10 / 12 DP-3 for HV-14 /</p> |
| Flansch für HV-Serie | Direkteilkopf | Schwenkbarer Rundtisch TSK | Halbuniversal-Teilkopf BS |
| Flange for HV-series | Horizontal & vertical dividing head | Tilting rotary table TSK | Semi-universal dividing head |
|  |  |  |  |
| <p>Diam. 150 / 200 / 250 / 300 / 350 / für HV-6 / 8 / 10 / 12 / 14 Diam. 150 / 200 / 250 / 300 / 350 / for HV-6 / 8 / 10 / 12 / 14</p> | <p>Spitzenhöhe: 150 mm Teilung: 2 / 3 / 4 / 6 / 8 / 12 / 24 Center height: 150 mm Indexing: 2 / 3 / 4 / 6 / 8 / 12 / 24</p> | <p>Durchmesser 250 / 320 mm Diameter 250 / 320 mm</p> | <p>BS-0: Spitzenhöhe 100 mm BS-1: Spitzenhöhe 128 mm BS-0: Center height 100 mm BS-1: Center height 128 mm</p> |
| Stiftschrauben-Sortiment 38-tlg. | Spannwerkzeugsortiment 24-tlg. | Spannwerkzeugsortiment 58-tlg. | Spannwerkzeugsortiment 58-tlg. |
| Stud bolt set 38 pcs. | Clamping kit set 24 pcs. | Deluxe clamping kit set 58 pcs. | Deluxe clamping kit set 58 pcs. |
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| <p>T-Nutenbreite: 14 mm - M12 16 mm - M14 / 18 mm - M16 T-slot width: 14 mm - M12 16 mm - M14 / 18 mm - M16</p> | <p>T-Nutenbreite: 8 mm - M6 T-slot width: 8 mm - M6</p> | <p>T-Nutenbreite: 10 mm - M8 12 mm - M10 / 14 mm - M12 T-slot width: 10 mm - M8 12 mm - M10 / 14 mm - M12</p> | <p>T-Nutenbreite: 16 mm - M14 18 mm - M16 T-slot width: 16 mm - M14 18 mm - M16</p> |
| Präz. Maschinenschraubstock PS | 2-Achs Präz. Schraubstock PTS | 3-Achs Gelenkschraubstock PGS | 3-Achs-Maschinenschraubstock PDA |
| Precision machine vise PS | 2 way precision tilting vise PTS | Precision universal machine vice PGS | 3 way angle machine vise PDA |
|  |  |  |  |
| <p>Backenbreite: 50 / 75 / 100 mm Jaw width: 50 / 75 / 100 mm</p> | <p>Backenbreite: 50 / 75 / 100 mm Jaw width: 50 / 75 / 100 mm</p> | <p>Backenbreite: 50 mm Jaw width: 50 mm</p> | <p>Backenbreite 50 / 75 / 100 mm Jaw width 50 / 75 / 100 mm</p> |

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|---|---|---|---|
| Uni.-Maschinenschraubstock UMS Universal machine vise UMS | Maschinenschraubstock KV Machine vise KV | Weitspann-Maschinenschraubstock FJ Opening wider machine vise FJ | 2-Achs-Maschinenschraubstock GS 2 way angle machine vise GS |
|  <p>Backenbreite: 60 / 100 mm Drehteller 360° drehbar Jaw width: 60 / 100 mm Swivel base 360° turnable</p> |  <p>Backenbreite: 100 / 125 / 150 / 200 mm Jaw width: 100 / 125 / 150 / 200 mm</p> |  <p>Backenbreite: 100 / 125 / 150 mm Jaw width: 100 / 125 / 150 mm</p> |  <p>Backenbreite: 100 / 150 mm Jaw width: 100 / 150 mm</p> |
| 3-Achs-Maschinenschraubstock CY 3 way angle machine vise CY | Werkstückanschlag AMS-160 Work stop tool AMS-160 | Schwenkbarer Winkeltisch Adjustable angle plates | Schwenktisch Adjustable angle plates |
|  <p>Backenbreite: 80 / 100 / 130 mm Jaw width: 80 / 100 / 130 mm</p> |  <p>Universell einsetzbar für Bohr- und Fräsmaschinen Useable for milling and drilling machines</p> |  <p>Tischgröße 230 x 120 mm Schwenkbar von 0° - 45° Table size 230 x 120 mm Tilttable from 0° - 45</p> |  <p>3 versch. Tischgrößen 180 x 130 / 250 x 180 / 300 x 240 mm 3 different table sizes 180 x 130 / 250 x 180 / 300 x 240 mm</p> |
| Hydro-Maschinenschraubstock VH Hydro machine vise VH | Maschinenschraubstock PHV Hydraulic machine vise PHV | NC-Maschinenschraubstock CHV MC compact vise CHV | Pneumatik-Schraubstock PQV Pneumatic quick vise PQV |
|  <p>Backenbreite: 100 / 125 / 150 / 200 mm Jaw width: 100 / 125 / 150 / 200 mm</p> |  <p>Backenbreite: 130 / 160 / 200 / 250 mm Jaw width: 130 / 160 / 200 / 250 mm</p> |  <p>Backenbreite: 100 / 130 / 160 / 200 mm Jaw width: 100 / 130 / 160 / 200 mm</p> |  <p>Backenbreite: 100 / 130 / 160 / 200 mm Jaw width: 100 / 130 / 160 / 200 mm</p> |
| Präzisionsspanner QKG Precision tool maker vise QKG | Präzisionsspanner QGG Precision tool maker vise QGG | Präzisions-Sinusspanner QKJ Precision angle vise QKJ | Präzisions-Sinusspanner QGJ Precision angle vise QGJ |
|  <p>Backenbreite: 50 / 73 / 100 / 125 mm Jaw width: 50 / 73 / 100 / 125 mm</p> |  <p>Backenbreite: 50 / 73 / 100 / 125 mm Jaw width: 50 / 73 / 100 / 125 mm</p> |  <p>Backenbreite: 50 / 73 / 100 / 125 mm Jaw width: 50 / 73 / 100 / 125 mm</p> |  <p>Backenbreite: 50 / 73 / 100 / 125 mm Jaw width: 50 / 73 / 100 / 125 mm</p> |

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| <p>Präzisionsspanner, 2 - dimensional Precision universal vise</p>  <p>Backenbreite: 70 mm Jaw width: 70 mm</p> | <p>Taschenmessschieber mit Rundskala Dial caliper</p>  <p>Messbereich 150 x 0,02 mm, 300 x 0,02 mm Range: 150 x 0,02 mm, 300 x 0,02 mm</p> | <p>Digital-Taschenmessschieber Digital caliper</p>  <p>Messbereich: 150 x 0,01 mm, 300 x 0,01 mm Range: 150 x 0,01 mm, 300 x 0,01 mm</p> | <p>Werkstattmessschieber Mono block vernier caliper</p>  <p>Messbereich: 500 bzw. 1000 x 0,02 mm, mit Messerspitzen 150 mm Range: 500 or 1000 x 0,02 mm, with upper jaws 150 mm</p> |
| <p>Digital-Werkstattmessschieber Big size digital caliper</p>  <p>Messbereich: 500 x 0,01 mm, mit Messerspitzen 200 mm Range: 500 x 0,01 mm, with upper jaws 200 mm</p> | <p>Tiefenmessschieber Depth vernier gauge</p>  <p>Messbereich: 200 x 0,02 mm, mit abgesetzter Schiene Range: 200 x 0,02 mm, with hook</p> | <p>Höhenmess- und Anreißgerät Double beam dial height gauge</p>  <p>Mit Messuhr, Messbereich: 300 x 0,01 mm / 500 x 0,01 mm With dial gauge, Range: 300 x 0,01 mm / 500 x 0,01 mm</p> | <p>Digital-Höhenmess- und Anreißgerät Double column digital height gauge</p>  <p>Messbereich: 300 x 0,01 mm / 500 x 0,01 mm Range: 300 x 0,01 mm / 500 x 0,01 mm</p> |
| <p>Kombinations-Winkelmesser Combination square set protractor</p>  <p>Länge: 300 x 0,5 mm Length: 300 x 0,5 mm</p> | <p>Universal-Winkelmesser Univeral bevel protractor</p>  <p>Schienenlänge: 300 mm Messbereich: 0 - 360°, mit Lupe Length: 300 mm Range: 0 - 360°, with magnifier</p> | <p>Messzeugsatz 3-tlg. Professional measuring tool set</p>  <p>Schieblehre, Mikrometer und Innenmessschraube in Holzkassette Vernier caliper, micrometer and inside micrometer in wooden box</p> | <p>Messzeugsatz 4-tlg. General purpose measuring tool set</p>  <p>Schieblehre, Mikrometer, Massstab u. Haarwinkel in Kunststoffkassette Vernier caliper, micrometer, edge square and steel ruler in plastic box</p> |
| <p>Messzeugsatz 5-tlg. Precision measuring tool set</p>  <p>Messwerkzeuge aus Edelstahl, rost- frei mattverchromt, in Holzkassette Different stainless steel measuring tools, packed in wooden box</p> | <p>Bügelmessschrauben 6-tlg. Outside micrometer set</p>  <p>Messbereich: 0 - 150 x 0,01 mm Range: 0 - 150 x 0,01 mm</p> | <p>Bügelmessschrauben 6-tlg. Outside micrometer set</p>  <p>Messbereich: 150 - 300 x 0,01 mm Range: 150 - 300 x 0,01 mm</p> | <p>Digital-Bügelmessschraube Electronic digital micrometer</p>  <p>0 - 25 x 0,001 mm 25 - 50 x 0,001 mm 50 - 75 x 0,001 mm 75 - 100 x 0,01 mm</p> |

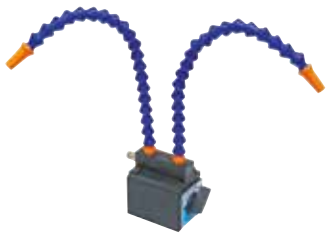

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| Digital-Bügelmessschrauben 4-tlg. | Tiefenmessschraube | Digitale Tiefenmessschraube | Innenmessschrauben 4-tlg. |
| Electronic digital micrometer set | Depth micrometer | Electronic digital depth micrometer | Inside micrometer set |
|  |  |  |  |
| Messbereich: 0 - 100 x 0,001 mm | Messbereich: 0 - 100 x 0,01 mm | Messbereich: 0 - 100 x 0,001 mm | Messbereich: 5 - 100 x 0,01 mm |
| Range: 0 - 100 x 0,001 mm | Range: 0 - 100 x 0,01 mm | Range: 0 - 100 x 0,001 mm | Range: 5 - 100 x 0,01 mm |
| Digitale Innenmessschrauben 4-tlg. | Präzisions-Messuhr | Präzisions-Messuhr, staubgeschützt | Messuhr mit großer Messspanne |
| 4 pcs. digital inside micrometer set | Dial indicator general style | Dial indicator | Large size dial indicator |
|  |  |  |  |
| Messbereich: 5 - 100 x 0,001 mm | Messbereich: 10 x 0,01 mm | Messbereich: 10 x 0,01 mm | Messbereich: 100 x 0,01 mm |
| Range: 5 - 100 x 0,001 mm | Range: 10 x 0,01 mm | Staubgeschützt Range: 10 x 0,01 mm With dust resistant function | Range: 100 x 0,01 mm |
| Digitale Messuhr | Präzisionsführlhebelmessgerät | Digitales Fühlhebelmessgerät | Digitales Dickenmessgerät |
| Digital indicator | Dial test indicator | Digital dial test indicator | Digital thickness gauge |
|  |  |  |  |
| Messbereich: 10 x 0,01 mm | Messbereich: 0 - 0,8 x 0,01 mm | Messbereich: 0 - 0,5 x 0,01 mm | Messbereich: 0 - 25 x 0,01 mm |
| Range: 10 x 0,01 mm | Range: 0 - 0,8 x 0,01 mm | Range: 0 - 0,5 x 0,01 mm | Range: 0 - 25 x 0,01 mm |
| Fühlerlehren 20-tlg. | Universal-Magnetmesstativ | Universal-Magnetmesstativ | Parallel-Endmaßsatz 47-tlg. |
| 20 pcs. feeler gauge | Mechanical universal magnetic base | Hydraulic universal magnetic base | Metric gage block set 47 pcs. |
|  |  |  |  |
| Messbereich: 0,05 - 1,0 mm | Haftkraft: 50 kg | Mit hydraulischer Klemmung | Genauigkeit nach DIN 861/1 |
| Blattlänge: 100 mm | Adhesive force: 50 kg | Haftkraft: 50 kg | Inhalt von 1,005 - 100 mm |
| Range: 0,05 - 1,0 mm | | With hydraulic clamping | Accuracy according to DIN 861/1 |
| Length: 100 mm | | Adhesive force: 50 kg | Sizes from 1,005 - 100 mm |








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| Parallel-Endmaßsatz 87-tlg. | Mess- und Prüfstiftsatz 41-tlg. | Mess- und Prüfstiftsatz 91-tlg. | Präzisions-Wasserwaage |
| Metric gage block set 87 pcs. | Precision steel plug gauge set | Precision steel plug gauge set | Master precision level |
|  |  |  |  |
| Genauigkeit nach DIN 861/1 Inhalt von 1,001 - 100 mm Accuracy according DIN 861/1 Sizes from 1,001 - 100 mm | DIN 2269, von 1,0 - 5,0 mm Stufung: 0,1 mm DIN 2269, from 1,0 - 5,0 mm Graduation: 0,1 mm | DIN 2269, von 1,0 - 10,0 mm Stufung: 0,1 mm DIN 2269, from 1,0 - 10,0 mm Graduation: 0,1 mm | Länge: 200 mm Genauigkeit: 0,02 mm Length: 200 mm Accuracy: 0,02 mm |
| Präzisions-Rahmenwasserwaage | 1-Achs-Positionsanzeige POSITRON P2 | Härteprüfgerät RW 150 | Digitaler Winkelmesser |
| Precision frame bubble | Single axis position indicator POSITRON P2 | Rockwell hardness tester RW 150 | Digital angle finder |
|  |  |  |  |
| Abmessung: 200 x 200 mm Genauigkeit: 0,02 mm Measurement: 200 x 200 mm Accuracy: 0,02 mm | Messlängen: 600 / 1000 mm Genauigkeit: 0,01 mm Sizes: 6600 / 1000 mm Graduation: 0,01 mm | Messbereich: HRC 20 - 70 Rockwell range: HRC 20 - 70 | Kostengünstiger Winkelmesser Messbereich: 0° - 90° Cheap angle finder Range: 0° - 90° |
| Null-Einstellgerät NEG 50 | 2D-Taster | Kantentaster | Kantentaster |
| Zero setting device NEG 50 | Centering indicator | Edge finder | Edge finder |
|  |  |  |  |
| Zum Bestimmen des Referenzpunktes der Z-Achse For setting the basing point of the z-axis | Zum Zentrieren, Ausrichten, Anreißen, Nullpunkt einstellen For centering, adjustment, marking, zero point setting | Schaftdurchmesser 10 mm Tastkopf diam. 10 / 4 mm Shaft diameter 10 mm Feeler head diam. 10 / 4 mm | Schaftdurchmesser 10 mm Tastkopf diam. 10 mm Shaft diameter 10 mm Feeler head diam. 10 mm |
| Kantentaster set 5-tlg. | Kantentaster mit Leuchtanzeige | Kantentaster mit Leuchtanzeige | Präzisions-Winkellehrensatz 10-tlg. |
| Edge finder set 5 pcs. | Edge finder with indicator lamps | Edge finder with indication lamp | 10 pcs. precision angle block set |
|  |  |  |  |
| Zum Bestimmen der Nulllinie Mit zylindrischem Schaft Using for identifying centre lines With cylindrical shaft | SOE 20 L: \varnothing 20 mm / L: 160 mm SOE 20 L: \varnothing 20 mm / L: 160 mm | Mit Aufnahme MK 2 Länge: 160 mm With MT 2 taper Length: 160 mm | Mit folgenden Winkel: 1° / 2° / 3° / 4° / 5° / 10° / 15° / 20° / 25° / 30° Each set include: 1° / 2° / 3° / 4° / 5° / 10° / 15° / 20° / 25° / 30° |

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| Universal-Winkelendmaßsatz 8-tlg. 8 pcs. universal angle block set | Universal-Winkelendmaßsatz 17-tlg. 17 pcs. angle block set | Parallelunterlagensatz 28-tlg. Standard steel parallel set | Wellenförmige Parallelunterlagen Wavy parallel set |
|  |  |  |  |
| Mit folgenden Winkel: 1° / 2° / 3° / 4° / 5° / 10° / 15° / 30° Each set include: 1° / 2° / 3° / 4° / 5° / 10° / 15° / 30° | Endmaße von 0,25° - 45° Various angle blocks from 0,25° - 45° | Abmessung / size: 150 x 10 x (14 / 16 / 18 / 20 / 22 / 24 / 26 / 28 / 30 / 32 / 35 / 40 / 45 / 50) mm | Parallelität: +/- 0,005 mm Parallelism: +/- 0,005 mm |
| Spezialprisma mit Spannbügel Tool maker V-block set | Prismenpaar mit Spannbügel Ultra precision V-block & clamp set | Permanent-Magnetprisma Magnetic V-block | Präzisions-Winkelprisma, 0° - 60° Adjustable angle gauge, 0° - 60° |
|  |  |  |  |
| Stehend und liegend verwendbar Abmessung: 90 x 48 x 48 mm Upright or reclined useable Measurement: 90 x 48 x 48 mm | L / B / H: 35 x 35 x 30 mm L / B / H: 60 x 60 x 50 mm L / B / H: 105 x 105 x 75 mm | L / B / H: 100 x 70 x 95 mm L / W / H: 100 x 70 x 95 mm | Abmessungen: 25 x 32 x 75 mm / 30 x 48 x 102 mm Measurement: 25 x 32 x 75 mm / 30 x 48 x 102 mm |
| 3-Achs-Digitalanzeige DT 40 Digital display DT 40 | 3-Achsen Anzeigegerät i200 Three axis digital readout system | 3-Achsen Anzeigegerät ES-12 H Three axis digital readout system | 3-Achsen Anzeigegerät ES-12 V Three axis digital readout system |
|  |  |  |  |
| Mit LCD-Anzeige, universell einsetzbar with LCD display, universal useable | Mit LCD-Anzeige, universell einsetzbar with LCD display, universal useable | Mit LCD-Anzeige, universell einsetzbar with LCD display, universal useable | Mit LCD-Anzeige, universell einsetzbar with LCD display, universal useable |
| Längenmesssystem BB-10 Linear measuring system BB-10 | Längenmesssystem BB-20 Linear measuring system BB-20 | Längenmesssystem BB-30 Linear measuring system BB-30 | Längenmesssystem BB-40 Linear measuring system BB-40 |
|  |  |  |  |
| Messlängen von 100 - 500 mm Measuring lengths from 100 - 500 mm | Messlängen von 100 - 500 mm Measuring lengths from 100 - 500 mm | Messlängen von 550 - 1000 mm Measuring lengths from 550 - 1100 mm | Messlängen von 1100 - 3000 mm Measuring lengths from 1100 - 3000 mm |

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| <p>3 in 1 - Kombibohrer 6-tlg. 6 pcs. tap / drill countersink set</p>  <p>M3 / M4 / M5 / M6 / M8 / M10 Bohren, Gewindeschneiden, Entgraten Drilling, thread cutting, deburring</p> | <p>Satz Schaftfräser 3 - 10 mm, 6-tlg. 2 flute HSS end mill set, 6 pcs.</p>  <p>3 / 4 / 5 / 6 / 8 / 10 mm HSS - Qualität 3 / 4 / 5 / 6 / 8 / 10 mm HSS - quality</p> | <p>Satz Schaftfräser 4 - 16 mm, 7-tlg. 2 flute HSS end mill set, 7 pcs.</p>  <p>4 / 6 / 8 / 10 / 12 / 14 / 16 mm HSS - Qualität 4 / 6 / 8 / 10 / 12 / 14 / 16 mm HSS - quality</p> | <p>Schaft-Schrupfräser HSS 7-tlg. 7 pcs. HSS roughing end mill set</p>  <p>6 / 8 / 10 / 12 / 14 / 16 / 20 mm In Holzkassette 6 / 8 / 10 / 12 / 14 / 16 / 20 mm In wooden case</p> |
| <p>Schaft-Schrupfräser HSS-TiN 10 pcs. TiN-coated roughing end mills</p>  <p>10-tlg., 6 / 8 / 10 / 12 / 14 / 16 / 18 / 20 / 22 / 25 mm, in Holzkassette 10 pcs., 6 / 8 / 10 / 12 / 14 / 16 / 18 / 20 / 22 / 25 mm, in wooden case</p> | <p>Schaftfräser TiN-beschichtet 12 pcs. HSS TiN-coated end mills</p>  <p>12-tlg., 3 / 4 / 6 / 8 / 10 / 12 mm Je 6 Stk. 2 bzw. 4 Schneiden 12 pcs., 3 / 4 / 6 / 8 / 10 / 12 mm Each 6 pcs. of 2 & 4 flute</p> | <p>Schaftfräser TiN-beschichtet 20 pcs. HSS TiN-coated end mills</p>  <p>20-tlg. 3 / 4 / 5 / 6 / 8 / 10 / 12 / 14 / 16 / 20 mm Je 10 Stk. 2- bzw. 4-Schneiden Each 10 pcs. of 2 & 4 flute</p> | <p>Schaftfräser Carbide indexable end mill</p>  <p>Schaft: 10 / 12 / 14 / 16 mm mit HM-Wendeschneidplatten Shaft: 10 / 12 / 14 / 16 mm with carbide inserts</p> |
| <p>Schaftfräser Carbide indexable end mill</p>  <p>Schaft: 18 / 20 / 25 / 32 mm mit HM-Wendeschneidplatten Shaft: 18 / 20 / 25 / 32 mm with carbide inserts</p> | <p>Schaftfräser Carbide indexable end mill</p>  <p>Schaft: 16 / 20 / 25 mm, mit 20 Stk. HM-Wendeschneidplatten Shaft: 16 / 20 / 25 mm, with 20 pcs. carbide inserts</p> | <p>Kombi-Fräserkassette 12-tlg. Combi milling box 12 pcs.</p>  <p>Je 6 Stk. Schaft- bzw. Radiusfräser HSS-TiN beschichtet, 3 - 12 mm Each 6 pcs. end mills and ball end mills HSS-TiN-coated, 3 - 12 mm</p> | <p>T-Nutenfräsersatz 9-tlg. HSS woodruff keyseat cutter set</p>  <p>TiN-beschichtet / TiN-coated Größen / sizes: 10,5x2/10,5x3/19,5x4/19,5x5/19,5x6 22,5x5/22,5x6/28,5x8/32,5x10 mm</p> |
| <p>Schwalbenschwanz-Fräsersatz 5-tlg. 60 degree dovetail cutter set 5 pcs.</p>  <p>TiN-beschichtet Größen: 13 / 16 / 19 / 25 / 32 mm TiN-coated Sizes: 13 / 16 / 19 / 25 / 32 mm</p> | <p>Satz HSS-Viertelkreisfräser, 8-tlg. HSS corner rounding end mill set, 8 pcs.</p>  <p>R2 / R3 / R4 / R5 / R6 / R8 / R10 / R12 TiN-beschichtet, in Holzkassette R2 / R3 / R4 / R5 / R6 / R8 / R10 / R12 TiN-coated, in wooden case</p> | <p>Wendepplattenfräser Indexable carbide end mill</p>  <p>MK 2 - 16 mm MK 3 - 30 mm MT 2 - 16 mm MT 3 - 30 mm</p> | <p>Maschinen-Reibahlenset, 8-tlg. HSS-cobalt machine reamer set, 8 pcs.</p>  <p>5 / 6 / 8 / 10 / 12 / 14 / 18 / 20 mm TiN-beschichtet 5 / 6 / 8 / 10 / 12 / 14 / 18 / 20 mm TiN-coated</p> |

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|---|---|--|---|
| Walzenstirnfräser | Walzenstirn-Schruppfräser | Planfräser 75° | Plan- und Eckfräser |
| Metric shell end mill | Shell roughing end mill | 75° face milling cutter | Carbide 90° indexable face milling cutter |
|  |  |  |  |
| Diam. 40 / 50 / 63 / 80 mm | Diam. 40 / 50 / 63 / 80 mm | Durchmesser: | Durchmesser / Diameter: |
| Rechtsschneidend | Rechtsschneidend | 80 / 100 / 125 mm | 40 mm / B 16 |
| Diam. 40 / 50 / 63 / 80 mm | Diam. 40 / 50 / 63 / 80 mm | Diameter: 80 / 100 / 125 mm | 50 mm / B 22 |
| Right hand cutting | Right hand cutting | | 63 mm / B 22 |
| Plan- und Eckfräser | Plan- und Eckfräser-Set | Räumnadelset A | Räumnadelset B / C |
| Carbide 90° indexable face milling cutter | Carbide 90° indexable face milling cutter | Metric keyway broache set 2 / 3 mm | Keyway broache set 4 / 5 / 6 / 8 mm |
|  |  |  |  |
| Durchmesser / Diameter: | Durchmesser / Diameter: | Je 1 Räumnadel 2 / 3 mm | Je 1 Räumnadel 4 / 5 / 6 / 8 mm |
| 80 mm / B 27 | 40 mm / 50 mm / 63 mm | Je 1 Führungsbuchse 6 / 8 / 10 mm | Je 1 Führungsbuchse 12 / 14 / |
| 100 mm / B 32 | inkl. 20 Stk. HM-Wendeschneidplatten | Keyway size 2 / 3 mm | 15 / 16 / 18 / 19 / 20 / 22 / 24 / |
| 125 mm / B 40 | incl. 20 pcs. carbide inserts | Bushing diam. 6 / 8 / 10 mm | 26 / 28 / 30 mm |
| Räumnadelset D | Räumnadelset E | Bohrstangensatz | Kreisschneider |
| Keyway broache set 10 / 12 / 14 mm | Keyway broache set 16 / 18 mm | Braze carbide tipped boring bar set | Taper shank HSS circular cutter |
|  |  |  |  |
| Je 1 Räumnadel 10 / 12 / 14 mm | Je 1 Räumnadel 16 / 18 mm | Schaft: 12 / 16 / 18 / 20 / 25 mm | Aufnahme MK 2 / MK 3 |
| Je 1 Führungsbuchse 32 / 34 / 35 / | Je 1 Führungsbuchse 52 / 54 / | Shank: 12 / 16 / 18 / 20 / 25 mm | Durchmesser 30 - 300 mm |
| 36 / 38 / 40 / 42 / 44 / 45 / 46 / | 55 / 56 / 58 / 60 / 62 / 65 mm | | Taper shank MT 2 / MT 3 |
| 48 / 50 | | | From diameter 30 - 300 mm |
| Universal-Kühlmitteleinrichtung | Universal-Kühlmitteleinrichtung | Kühlmittelschlauch-Set 1/4" | Kühlmittelschlauch-Set 1/2" |
| Universal coolant pump | Universal coolant pump | Coolant hose set | Coolant hose set |
|  |  |  |  |
| Mit Plastikbehälter (10 l) | Kompl. mit Behälter (12 l) | 28-tlg., Anschluss 1/4" | 25-tlg., Anschluss 1/2" |
| und flexiblem Schlauch, 230 V / 400 V | und flexiblem Schlauch, 230 V / 400 V | 28-pcs., connection 1/4" | 25-pcs., connection 1/2" |
| With plastic tank (10 l) and flexible tube | Compl. with tank (12 l) and flexible tube | | |
| 230 V / 400 V | 230 V / 400 V | | |

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| Kühlmittelschlauch CH2 | Universal-Kühlmittelkonzentrat | Pneum. Werkzeugklemmung APD 230 | Verstellbare Schutzeinrichtung |
| Coolant hose CH2 | Universal coolant fluid | Pneumatic tool clamping APD 230 | Adjustable safety guard |
|  |  |  |  |
| mit Magnetfuß | MN 1103, im 5 Liter Kanister | Einsätzbar auf Fräsmaschinen mit Spindelbohrung, ISO 40 Aufnahme | Geeignet für Bohr- und Fräsmaschinen |
| with magnetic base | MN 1103, 5 l canister | Useable on milling machines with spindle hole and ISO 40 taper | Verschiedene Größen auf Anfrage |
| | | | Useable on drilling and milling machines |
| | | | Different sizes on request |
| Schutzeinrichtung PFR 01 | Schutzeinrichtung PFR 02 | Frästischvorschub FTV-1 / 230 V | Frästischvorschub FTV-2 / 230 V |
| Adjustable safety guard PFR 01 | Adjustable safety guard PFR 02 | Auto feeder FTV-1 / 230 V | Auto feeder FTV-2 / 230 V |
|  |  |  |  |
| Geeignet für Fräsmaschinen | Geeignet für Fräsmaschinen | Für Bohr- und Fräsmaschine | Für Bohr- und Fräsmaschine |
| Verschiedene Größen auf Anfrage | Verschiedene Größen auf Anfrage | KF 20 / KF 20 Super | KF 20 L / KF 20 L Super |
| Useable for milling machines | Useable for milling machines | For drilling and milling machine | For drilling and milling machine |
| Different sizes on request | Different sizes on request | LF 20 / KF 20 Super | KF 20 L / KF 20 L Super |
| Frästischvorschub FTV-5 / 230 V | Frästischvorschub FTV-6 / 230 V | Frästischvorschub FTV-8 / 230 V | Frästischvorschub FTV-9 / 230 V |
| Auto feeder FTV-5 / 230 V | Auto feeder FTV-6 / 230 V | Auto feeder FTV-8 / 230 V | Auto feeder FTV-9 / 230 V |
|  |  |  |  |
| Für Bohr- und Fräsmaschine | Für Bohr- und Fräsmaschine | Für Bohr- und Fräsmaschine | Für Bohr- und Fräsmaschine |
| BF 25 Super / BF 25 L Super | KF 25 D Vario / L Vario / Pro | BF 22 L Vario / BF 22 LD Super | BF 28 L Vario / BF 28 LD Super |
| For drilling and milling machine | For drilling and milling machine | For drilling and milling machine | For drilling and milling machine |
| BF 25 Super / BF 25 L Super | KF 25 D Vario / L Vario / Pro | BF 22 L Vario / BF 22 LD Super | BF 28 L Vario / BF 28 LD Super |
| Universal-Tischvorschub AL 280 D | Universal-Tischvorschub AL 350 D | Universal-Tischvorschub AL 450 D | Universal-Tischvorschub AL 500 D |
| Power feed AL 280 D | Power feed AL 350 D | Power feed AL 450 D | Power feed AL 500 D |
|  |  |  |  |
| Für Bohr- und Fräsmaschine | Für Bohr- und Fräsmaschine | Für Bohr- und Fräsmaschine | Inkl. Transformator, Endschalter, |
| BF 28 BDC | BF 30 Super | For drilling and milling machine | verwendbar für X-Achse |
| For drilling and milling machine | For drilling and milling machine | BF 35 BDC / FM 45 HS / 45 HSV / 50 HSV / | Incl. transformer, limit switch, |
| BF 28 BDC | BF 30 Super | BF 40 HS / BF 45 HSV / BF 45 HSV Vario | only for x-axis |

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| Universal-Tischvorschub AL 500 P | Maschinenschuh MS 80 | Maschinenschuhe NE 80 / 120 / 160 | Magnetisches Spanabhebegerät |
| Power feed AL 500 P | Machine mount MS 80 | Machine mounts NE 80 / 120 / 160 | Magnetic chip collector |
|  |  |  |  |
| Inkl. Rechts-Linkslauf, Eilgang Vertikale Montage an x-, y- und z-Achse Incl. Left-right turning, fast motion Vertical mounting on x-, y- and z-axis | Belastbarkeit: 500 kg Durchmesser 80 mm Capacity: 500 kg Diameter 80 mm | Belastbarkeit: 500 / 800 / 1000 kg Durchmesser: 80 / 120 / 160 mm Capacity: 500 / 800 / 1000 kg Diameter: 80 / 120 / 160 mm | Für leichtes Entfernen von Spänen For easy removal of chips |
| LED-Arbeitsleuchte mit Gelenkarm | Maschinenleuchte LED 2 | Maschinenleuchte LED 3 | Maschinenleuchte LED 3-130 |
| LED lamp with hinged bracket | LED lamp 2 | LED lamp 3 | LED lamp 3-130 |
|  |  |  |  |
| Spannung: 230 V Mit flexiblem Arm und Magnet Voltage: 230 V With flexible arm and magnet | Spannung: 24 V oder 230 V mit Trafo Mit flexiblen Arm Voltage: 24 V or 230 V with transformer With flexible arm | Spannung: 24 V, Durchmesser wahlweise 90 oder 130 mm Voltage: 24 V, diameter optionally 90 or 130 mm | Spannung: 230 V Mit Trafo Voltage: 230 V With transformer |
| Maschinenleuchte LED 4 | Maschinenleuchte LED 4 | | |
| LED lamp 4 | LED lamp 4 | | |
|  |  | | |
| Spannung: 24 V Voltage: 24 V | Spannung: 230 V Mit Trafo Voltage: 230 V With transformer | | |

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| Untergestell f. KF 10 / KF 10 HS | Untergestell BF 0 mit Spänewanne | Untergestell BF 1 mit Spänewanne | Untergestell BF 2 mit Spänewanne |
| Stand f. KF 10 / KF 10 HS | Stand BF 0 with chip tray | Stand BF 1 with chip tray | Stand BF 2 with chip tray |
|  |  |  |  |
| Für Bohr- und Fräsmaschine KF 10 / KF 10 HS For drilling and milling machine KF 10 / KF 10 HS | Für Bohr- und Fräsmaschine KF 16 Vario / KF 16 L Vario For drilling and milling machine KF 16 Vario / KF 16 L Vario | Für Bohr- und Fräsmaschine For drilling and milling machine KF 20 / KF 20 L / KF 20 Super / KF 20 L Super / KF 16 Vario / KF 16 L Vario | Für Bohr- und Fräsmaschine For drilling and milling machine KF 18 Top / KF 25 D Vario / KF 25 L Vario / KF 25 Pro / KF 28 Top |
| Untergestell Deluxe f. BF 28 BDC | Untergestell BF 2 Deluxe | Untergestell BF 3 mit Spänewanne | Untergestell BF 3 Deluxe |
| Stand Deluxe f. BF 28 BDC | Stand BF 2 Deluxe with chip tray | Stand BF 3 with chip tray | Stand BF 3 Deluxe with chip tray |
|  |  |  |  |
| Für Bohr- und Fräsmaschine BF 28 BDC For drilling and milling machine BF 28 BDC | Für Bohr- und Fräsmaschine For drilling and milling machine KF 18 Top / KF 25 D Vario / KF 25 L Vario / KF 25 Pro / KF 28 Top | Für Bohr- und Fräsmaschine For drilling and milling machine FM 40 HS / FM 40 HSV / FM 45 HS / FM 45 HSV / FM 50 HSV | Für Bohr- und Fräsmaschine For drilling and milling machine FM 40 HS / FM 40 HSV / FM 45 HS / FM 45 HSV / FM 50 HSV |
| Untergestell BF 5 | Untergestell BF 5 Deluxe | Untergestell BF 6 mit Kühlmittelwanne | Untergestell BF 6 Deluxe |
| Stand BF 5 | Stand BF 5 Deluxe with chip tray | Stand BF 6 with coolant tray | Stand BF 6 Deluxe |
|  |  |  |  |
| Für Bohr- und Fräsmaschine BF 30 G / BF 30 Super / BF 35 BDC For drilling and milling machine BF 30 G / BF 30 Super / BF 35 BDC | Für Bohr- und Fräsmaschine For drilling and milling machine BF 28 L Vario / BF 28 LD Super / BF 30 G / BF 30 Super / BF 35 BDC | Für Bohr- und Fräsmaschine For drilling and milling machine FM 40 HS / FM 40 HSV / FM 45 HS / FM 45 HSV / FM 50 HSV | Für Bohr- und Fräsmaschine For drilling and milling machine FM 40 HS / FM 40 HSV / FM 45 HS / FM 45 HSV / FM 50 HSV |

Your dealer

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