

# OPTIMUM®

MASCHINEN - GERMANY

## METAL WORKING MACHINERY

THE OPTIMUM IN TERMS OF QUALITY, PRICE-PERFORMANCE AND SERVICE



## MAIN CATALOGUE 2017/18



More than 345,000 machines and accessories are available for delivery from stock at our Logistics Centre. This allows for fast shipment of almost all of our products to Germany and throughout Europe. Qualified staff ensure the orderly delivery of the goods. Every year, more than 120,000 consignments leave the company's premises – with our own delivery vehicles, by carrier, or by parcel service.

Dear Customer,

To support any conceivable metalworking application, we have composed an assortment in our OPTIMUM domain catalogue that covers many areas with suitable machines. Each of our products impresses with its quality, precision, long service life and value stability. OPTIMUM offers the right machine for most tasks - from bench-top drills to CNC lathes.

## Your requirements are our target

For more than 25 years, we have focused on the design, development and production of OPTIMUM machines. We work unceasingly on continually optimising our machines. One important point here is also production, which is of great importance to us. This is why we made a careful choice of manufacturers to supplement our own production facilities. We set great store by the fact that these manufacturers meet our internal quality requirements. Besides our own manufacturing operations, OPTIMUM exclusively relies on manufacturers who meet our requirements. This means that we can offer you metalworking machines that impress on many scores.

OPTIMUM has built up a good reputation in the course of the years on what is a continually changing and developing tool and machine market. We are proud to say that we combine expertise, experience and a balanced price-performance ratio. Our utmost priority is you as a satisfied customer. With our motivated and expert personnel we strive to complete OPTIMUM's know-how and propagate it to you our customers.



DISCOVER OUR PRODUCT VIDEOS NOW!

All of our product videos are available for you to watch on our YouTube channel **Optimum Machines**.  
Subscribe to our YouTube channel, to avoid missing any of the new videos.





### Our products

Are you looking for a functional machine that offers a comprehensive feature set at an attractive price? Then you are making the right decision in purchasing an OPTIMUM metalworking machine. Our machines impress with excellent quality, precise manufacturing, and they offer an "OPTIMUM" price-performance ratio. We cater to a comprehensive tool machine and sheet metal working programme and are guaranteed to have the right machine variant for your needs in our assortment. You can rely on OPTIMUM, because we can realise every single one of your requirements in the metalworking environment. This main catalogue will give you an impression of our capabilities and our wide product portfolio.

### Quality

OPTIMUM products are produced under high quality requirements. A price comparison with equivalent and comparable products will give you the assurance that our OPTIMUM machines are always products that stand up to any comparison in terms of operating convenience, equipment level, quality, technology and value for money and are thus always a good buy. Check out the robust design and durability for yourself; this is what our machines stand for in a metalworking world.

You can purchase the OPTIMUM brand with confidence, and assure the best possible quality for your operations. There are many products that look identical, or similar, on the market, but which by no means achieve our OPTIMUM quality standards.

### Dealers and service

Thanks to our comprehensive network of specialist dealers, you always have a local partner with OPTIMUM who guarantees the best possible advice, intensive support, and trouble-free after-sales service. And, of course, our expert staff is there to help you at any time. Please don't hesitate to contact our qualified team if you have any questions. We are happy to help.



Kilian Stürmer  
Chief executive



**The OPTIMUM quality guarantee:**  
**All OPTIMUM products are produced under**  
**strict quality requirements.**



OPTIMUM plant in Yangzhou, China

## Production

Since 2003, OPTIMUM Maschinen Germany GmbH has produced a large share of its metalworking machines in its own factory in Yangzhou China. The quality here is monitored by German quality management officers and production supervisors. A further major part of our OPTIMUM metalworking machines is exclusively produced for OPTIMUM in line with special requirements within the company group.

## After-Sales Service

In the service area, you can call our experienced service personnel and your local specialist retailer. The comprehensive spare parts warehouse at our headquarters ensures a supply of spare parts at short notice when needed. Our service protects your investment in machinery for years.

## Sales.

You can purchase OPTIMUM machines from your expert local specialist retailer. You can benefit from a nationwide network of specialist retailers and sales partners, supported by OPTIMUM personnel, who are happy to provide advice and support.

You can call our head office on +49 951/96 555-0 to be put through to a member of staff who will be happy to answer your questions.



Drilling machine assembly

Lathe production



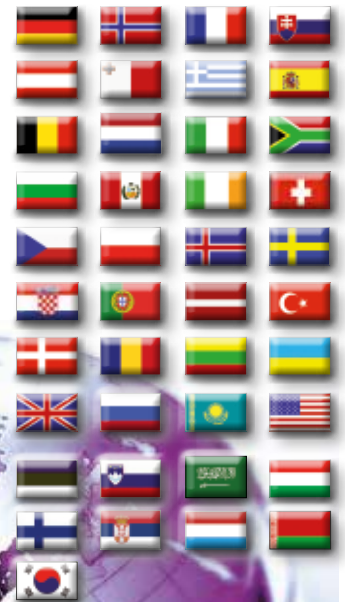


## On-site for you: in Europe and worldwide

For many years, OPTIMUM Maschinen Germany has been synonymous with the development, design and production of metalworking and CNC machines characterised by high quality standards. In the course of the years, we have also continually expanded our sales and service network.

Today, OPTIMUM Maschinen Germany GmbH, German company, collaborates globally with professional partners from its headquarters in Hallstadt near Bamberg:

You will find OPTIMUM subsidiaries with strong dealers. Our international sales network extends well beyond Germany's borders to many countries all over the world. This helps us to ensure that our customers can rely on the fast, uncomplicated and service-oriented expertise and quality standards of OPTIMUM thanks to our extensive sales organisation. We have established a responsible market position that you can trust in the course of the years!



Production on our own CNC machines



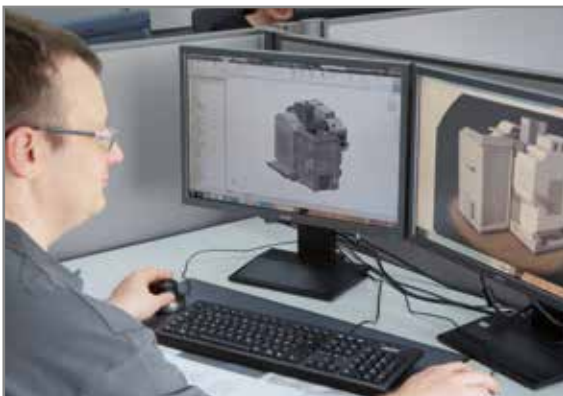
Final acceptance CNC milling machines



## ■ Planning

As early as the planning phase our engineering department manages the development of new products, which are manufactured both our facility and facilities operated by our partners. Major benefits: this ensures that market factors and customer requirements are immediately adopted into our workflow, setting the stage for a successful product design.

**Our Engineering department has a well-coordinated team of specialists with excellent engineering qualifications. Their established expertise allows flexible and creative implementation of all requirements posed for our products and services.**



## ■ Development

Development relies exclusively on state-of-the-art 3D CAD software, which we use to create a virtual model of the machine. Besides ensuring optimum functionality of the machines, our development process also targets re-usability of the data generated during the development phase. These data are not only used for devising production documents and manuals, but are also used for computations, for computer-aided manufacturing, and for visualisation and animations.



## ■ Practical testing

Our engineers combine theory and practice. To avoid leaving anything to chance in terms of product satisfaction, all of our machines and tools go through application engineering tests, and we also consistently involve selected customers in this process. This means that each new product is expected to prove itself in the daily grind before it comes a fixed part of our product range. Engineering analysis helps us to discover and eliminate any remaining weak points.





### ■ Technical customer support

Our customers rightly expect our specialists to use their knowledge and experience to their utmost satisfaction. Our product consultants support users with technical information. To allow this to happen, our customers can use our free telephone hotline and our info email address to request qualified information and solutions at short notice.



### ■ Safeguarding copyrights

To secure the rewards of our technical development work for both ourselves and our customers, patent and utility model protection is essential for our in-house developments. This helps us permanently keep the technical lead that OPTIMUM products have.

The entire catalogue is protected by copyright. Additionally, to protect our products, we register our rights to our brands, patents and designs where possible in each individual case. We take strong action against any violation of our intellectual property.



### ■ Technical documentation and risk analyses

Our technical authors again achieve a high standardised level that meets or even exceeds all requirements. These huge efforts exclusively serve the purpose of facilitating the process of familiarisation with the machine for our customers, and ensuring permanent and safe operations.

Risk mitigation measures are developed to compensate for any safety risks identified in the scope of analysis. Following this, the residual risk is evaluated after implementing the measures.



### ■ Supply of spare parts

We know that rapid availability of spare parts is one of the major pre-conditions for a working, customer-oriented service solution.

The planning, coordination and provisioning of spare parts is tuned at OPTIMUM Maschinen Germany GmbH so that our customers have the greatest possible benefits in terms of economic efficiency and speed.



### ■ Siemens cooperation partner for CNC training

Siemens has for many years been the system supplier of the control and drive technology for CNC-controlled lathes and milling machines by OPTIMUM Maschinen Germany GmbH. Due to our long-standing and successful collaboration, a cooperation partnership for CNC training in Bavaria was agreed in June 2012. Target-group specific courses familiarise the participants of the training program with the various Sinumerik controls.





## ■ Supplier management

Regular work meetings between our engineers and suppliers help to transfer our new developments and enhancements into series production at the manufacturing location in a targeted way. This direct support at our production facilities has been indispensable in manufacturing the quality products that our customers have trusted for more than 25 years.

**The clearly engineering oriented approach of our staff – in addition to the premium quality of our products, and our expert service – contribute towards constantly high levels of customer satisfaction. And our focus on technically affine employees ensures our market success – today and looking forward!**



## ■ Sales support

The requirements for OPTIMUM machines are equally as diverse as the production requirements of our end customers and the workpieces to be machined. To ensure this, our representatives and retailers have access to the entire application-specific know-how of our engineers in case of queries.

In a qualified and explanatory sales talk, our customers are given the support they need to tune their choice of products to match their needs.



## ■ Training for staff from Technology, Service and Sales, and for our customers

Successful use of our products depends and is driven to a decisive extent by the fact that we pass on our technology know-how to our dealers, their sales and service staff and our customers through training sessions. The major benefits: this qualification offers the ability to ensure professionally founded consultancy and problem solving in all dealings with the customer.

At our training centre, we offer practically-oriented product training that aim to disseminate professional knowledge in a highly intuitive way.



#### ■ Production support

A team of employees directly influences the production process on site through regular training and checks. It is only through this intensive support at the production site that we are in a position to achieve the proverbial OPTIMUM.



#### ■ Quality management, production and incoming goods inspection

In addition to adherence to delivery deadlines and service, the quality of our products is extremely important to us. Continuous on-site checks by our quality manager ensure our quality. Our comprehensive incoming goods inspection is performed in line with generally accepted technical guidelines.



#### ■ Quality management incoming goods inspection

Our quality managers from Germany are our first contacts for quality compliance on site. They are responsible for the dimensional accuracy of the components, for monitoring and quality assurance of the manufacturing process; they collaborate closely with our Engineering department at head office in Germany, thus ensuring an optimal symbiosis.



#### ■ Service support

...after all, good service is important to us!

In service cases, our OPTIMUM technicians are available at any time with their experience to support your workshop operations and ensure fast and targeted repairs.

In close cooperation with the service centre and its internal and external staff, weaknesses are analysed and customer needs registered. These weaknesses and needs are then evaluated from an engineering point of view and set out as tangible requirements or action catalogues.



#### ■ DIN EN ISO 9001 - excellent quality

Our factory is DIN EN ISO 9001 certified. This means that all company departments and services are subject to strict quality requirements. And this means consistently high quality for you. The objective of high quality is thrilled customers. And it is this attitude that finally helps to achieve this demanding certification. The key to the long-term success of our enterprise is also a relationship of trust with customers and suppliers. This explains why it is just as important to us as the sustainable quality of our products.

## Table of contents

### Drilling machines




#### V-belt-driven drills

B 13 - B 32 .....	12
B 17Pro - B 33Pro .....	16
B 16H - B 34H .....	22

#### Vario-drive drills

 DX 13V / DX 15V .....	18
 DX 17V .....	20
 DH 18V .....	24
B 24HV - B 34HV .....	26

#### Gear drilling machines

DH 24BV - DH 40BV .....	28
DH 26GT - DH 32GS .....	30
 DH 26GTV - DH 32GSV .....	32
B 40E / B 40PTE .....	34
 DH 40CT .....	36
B 40GSP / B 40GSM .....	38
 DH 45G .....	40
B 50GSM .....	42








#### Radial drilling machines

 RB 6T / RB 8S .....	14
 RD 3 .....	44
 RD 4 / RD 5 / RD 6 .....	46

#### Accessories - Drilling

Compatibility overview accessories .....	48
Drilling accessories .....	start on 49
Therm드릴 .....	52

### Milling machines

BF 16Vario .....	54
BF 20Vario - BF 20LD .....	56
 MH 18V / MH 22V / MH 22VD .....	58
MH 25V / MH 25SV .....	60
MB 4 .....	62
MB 4P / MB 4PV .....	64
BF 30 Vario .....	66
 BF 46 Vario .....	68
 MH 35G .....	70
 MH 50G .....	72
MT 50E .....	74
MT 50 .....	76
 MF 1 Vario .....	78
MF 2-B / MF 4-B .....	80
 MF 2V / MF 4V .....	82
MT 60 .....	84
 MT 100 .....	86
MT 200 / MT 220S .....	88
MT 8 .....	90
MZ 2 / MZ 4 .....	92



#### Accessories - Milling

Compatibility overview accessories .....	94
Accessories milling .....	as of 96
Starter set BT 20 / BT 30 / BT 40 .....	105

### Lathes

#### Vario and conventional lathes

TU 1503V .....	111
TU 2004V .....	112
TU 2304 / TU 2304V .....	114
TU 2406 / TU 2406V .....	116
TU 2506 / TU 2506V .....	118
TU 2807 / TU 2807V .....	120
TU 3008 / TU 3008G / TU 3008V .....	122
TH 3309 - TH 3309V .....	124
TH 3610 / TH 3610D .....	126
TH 4010 - TH 4010V .....	128
TH 4210 - TH 4215D .....	130

TH 4610D - TH 4620D .....	132
TH 5615D - TH 5630D .....	134
TH 6620D / TH 6630D .....	136
TH 8020D / TH 8030D .....	138
 TZ 4 .....	140
 TX 5216 / TX 6222 .....	142

#### Accessories - Turning

Compatibility overview accessories .....	146
Turning Accessories .....	from 148

### Metal-cutting bandsaws - circular saws

SP 11V / SP 13V .....	162
S 100G .....	163
S 131GH .....	164
S 150G Vario .....	165
S 181 .....	166
S 181G .....	167
S 210G .....	168
S 275N / S 275NV .....	169
SD 280V .....	170
S 285DG .....	171
S 300DG / S 300DG Vario .....	172
S 310DG Vario .....	173
S 350DG .....	174
SD 350AV .....	176
CS 275 / CS 315 .....	178

#### Sawing - Accessories


Material stand MSR .....	180
Length measuring system LMS .....	181

### Grinding/Polishing machines

#### Drilling/grinding machines

GQ-D13 .....	184
DG 20 .....	185
GH 10T / GH 15T .....	186
GH 20T .....	187

#### Metal grinding machines

Disk grinder TS 305 .....	188
Belt and disc sanders DBS 75 .....	189
Belt grinders BSM 75 / BSM 150 .....	190
Bench grinders GU 15 - GU 25Vario .....	191
Bench grinders SM 300 .....	191
 Universal grinders GU 20S / GU 25S .....	192
Brush polishing machines GU 15B - GU 25B .....	193
Bench grinders GZ 20D - GZ 30DD .....	194
Combined sanders GZ 20C / GZ 25C .....	195

#### Polishing machines

GU 20P / GU 25P .....	196
-----------------------	-----



#### Grinding - Accessories

GU 1 .....	197
Base structure .....	197

### Metal processing

FP 30 / BM 3 .....	198
Sheet metal working SAR 1000 .....	199
Alligator shears PS 125 - PS 300 .....	200
Spindle press DDP 10 - DDP 50 .....	200

### Machine accessories

 LED and halogen lamps .....	202
 Coolant accessories .....	204
Newall DP 700 .....	206
DPA 21 / DPA 22 .....	209
DRO 5 .....	210
Dial gauges/Gauge stand/Spirit level/Test plate .....	210





**Drilling machines**

## Inexpensive bench/column drilling machines with V-belt drive

### Facts that impress in terms of quality, performance and price

- Precisely worked drilling table, pivots through  $\pm 45^\circ$  and rotates through  $360^\circ$
- Solid, generously dimensioned baseplate with grooves, rear with pronounced ribbing
- Quality proven in millions of applications

### B 14 to B 32

- T-slot nut for fastening vice

### B 20 to B 32

Precise workmanship; stable drilling table with diagonal T-grooves and all-around cooling water channel



### B 20 / 400 V to B 32

- Clockwise/anti-clockwise rotation cams



Fig.: B 13



Fig.: B 14



Fig.: B 16



Fig.: B 20

Model	B 13	B 14	B 16	B 20	
Article no.	3008131	3008141	3008161	3008201	3008203
Technical specifications					
Electrical connection	230 V / 1 Ph ~50 Hz	230 V / 1 Ph ~50 Hz	230 V / 1 Ph ~50 Hz	230 V / 1 Ph	400 V / 3 Ph
Motor output	300 W	350 W	450 W	0.55 kW	
Drilling performance					
Drilling performance steel (S235JR)	Ø 13 mm	Ø 14 mm	Ø 16 mm	Ø 20 mm	
Continuous drilling performance steel (S235JR)	Ø 12 mm	Ø 12 mm	Ø 15 mm	Ø 18 mm	
Spindle holder					
Throat	104 mm	104 mm	125 mm	170 mm	
Spindle holder	fixed/B16	fixed/B16	MT 2	MT 2	
Spindle sleeve stroke	50 mm	50 mm	65 mm	80 mm	
Speeds					
Spindle speeds	520 - 2,620 rpm	520 - 2,620 rpm	660 - 2,500 rpm	210 - 2,220 rpm	
Number of gears	5 gears	5 gears	5 gears	12 gears	
Drilling table					
Drilling table length x width	160 x 160 mm	160 x 160 mm	200 x 200 mm	275 x 275 mm	
T-slot width	14 mm, diagonal	14 mm, diagonal	14 mm, diagonal	14 mm, diagonal	
Drilling table pivots/rotates	± 45° / 360°	± 45° / 360°	± 45° / 360°	± 45° / 360°	
Clearance spindle - drilling table	max. 240 mm	max. 330 mm	max. 390 mm	max. 465 mm	
Machine base					
Machine base work area L x W	135 x 175 mm	140 x 180 mm	160 x 170 mm	205 x 200 mm	
Distance spindle - machine base	max. 325 mm	max. 440 mm	max. 525 mm	max. 645 mm	
Dimensions					
Column diameter	46 mm	46 mm	60 mm	70 mm	
Length x width x height	420 x 220 x 580 mm	420 x 230 x 700 mm	510 x 270 x 820 mm	600 x 350 x 990 mm	
Net weight	18 kg	20 kg	34 kg	51 kg	



Fig.: B 25



Fig.: B 32



- Ground multi-tooth carrier
- Best possible force transmission thanks to aluminium pulleys in combination with GATES quality toothed belts
- V-belt cover with safety switch



- Guaranteed concentricity better than 0.03 mm measured in the drilling spindle sleeve
- Drilling spindle with precision ball bearings
- OPTIMUM quick clamping drill chuck included in standard scope of delivery (B13 with key type drill chuck)



- User-friendly switch as per IP 54
- Separate emergency stop mushroom button

#### Scope of Delivery

##### B 13

- Key type drill chuck 1.5 - 13 mm

##### B 14

- Quick-action drill chuck 1 - 13 mm
- T-slot nuts

##### B 16 / B 20

- Quick-action drill chuck 1 - 16 mm
- Morse taper MT 2/B16
- T-slot nuts

##### B 25

- Quick-action drill chuck 1 - 16 mm
- Morse taper MT 3/B16
- T-slot nuts

##### B 32

- Quick-action drill chuck 1 - 16 mm
- Morse taper MT 4/B16
- T-slot nuts

› „Accessories for drills“ on page 49

Model	B 25	B 32
Article no.	3008253	3008323
<b>Technical specifications</b>		
Electrical connection	400 V / 3 Ph ~50 Hz	400 V / 3 Ph ~50 Hz
Motor output	0.55 kW	1.1 kW
<b>Drilling performance</b>		
Drilling performance steel (S235JR)	Ø 20 mm	Ø 32 mm
Continuous drilling performance steel (S235JR)	Ø 18 mm	Ø 28 mm
<b>Spindle holder</b>		
Throat	170 mm	225 mm
Spindle holder	MT 3	MT 4
Spindle sleeve stroke	80 mm	125 mm
<b>Speeds</b>		
Spindle speeds	210 - 2,220 rpm	140 - 2,020 rpm
Number of gears	12 gears	9 gears
<b>Drilling table</b>		
Drilling table length x width	275 x 275 mm	360 x 360 mm
T-groove size	14 mm, diagonal	14 mm, diagonal
Drilling table pivots/rotates	± 45°/360°	± 45°/360°
Clearance spindle - drilling table	max. 760 mm	max. 600 mm
<b>Machine base</b>		
Work area machine base L x W	235 x 220 mm	260 x 270 mm
Distance spindle - machine base	max. 1,210 mm	max. 1,170 mm
<b>Dimensions</b>		
Column diameter	Ø 70 mm	Ø 92 mm
Length x width x height	690 x 390 x 1,570 mm	790 x 400 x 1,730 mm
Net weight	57 kg	137 kg



## Lightweight radial drilling machine with long outreach for wood, plastics, aluminium

### Facts that impress in terms of quality, performance and price

- ▶ Best possible force transmission thanks to aluminium pulleys in combination with GATES quality toothed belts
- ▶ Drill spindle with precision ball bearings
- ▶ V-belt cover with safety switch
- ▶ Drilling depth stop
- ▶ OPTIMUM key type drill chuck in standard scope of delivery
- ▶ Optimal price-performance ratio
- ▶ Lasting value



- Variable outreach by displacing the drilling head



- The drilling head pivots through  $\pm 45^\circ$

#### Drilling spindle

- Guaranteed concentricity better than 0.03 mm measured in the drilling spindle sleeve
- Precision ball bearings

#### Drill chuck guard

- Best possible user protection
- Height-adjustable
- Microswitch

#### Safety switch

- Easy to use
- Degree of protection IP 54
- Separate emergency stop mushroom button

#### Drilling table

- Precise workmanship
- Fastening holes for extended drilling table support

#### Steel column

- Smooth action and stability



Fig.: RB 6T



Fig.: RB 8S

#### Drilling table

- Precise workmanship
- Diagonal T-grooves
- Circumferential coolant channel
- The drilling table pivots through  $\pm 45^\circ$

#### Base plate

- Solid and generously dimensioned
- Grooves for T-slot nuts
- With pronounced ribbing on rear

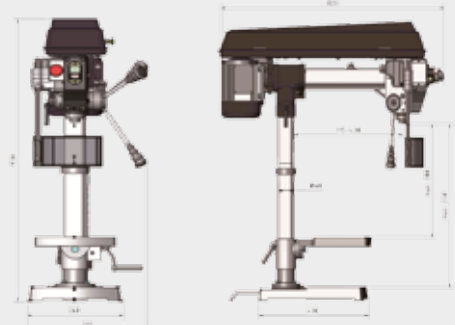
#### Electric motor

- Smooth action
- Powerful
- Aluminium housing

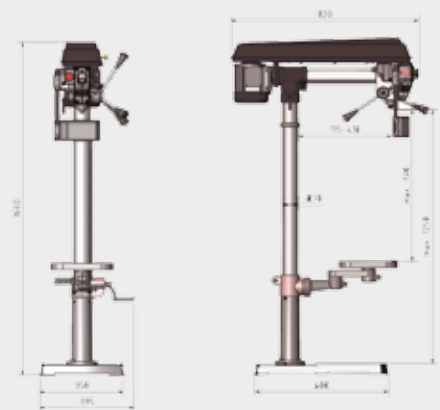
## Technical specifications, accessories and dimensions

Model	RB 6T	RB 8S
Article no.	3009161	3009181
Technical specifications		
Electrical connection	230 V / 1 Ph ~50 Hz	
Motor output	750 W	
Drilling performance		
Drilling performance steel (S235J)R	Ø 16 mm	
Continuous drilling performance steel (S235J)R	Ø 12 mm	
Spindle holder		
Spindle holder	MT 2	
Throat	115 - 430 mm	
Spindle sleeve stroke	80 mm	
Speeds		
Spindle speeds	390 - 3,000 rpm	
Number of gears	5 gears	
Drilling table		
Drilling table length x width	225 x 230 mm	262 x 262 mm
Groove size	14 mm	
Drilling table pivots through	± 45°	
Clearance spindle - drilling table	max. 380 mm	max. 740 mm
Machine base		
Machine base work area L x W	430 x 260 mm	600 x 350 mm
Groove size	14 mm	14 mm
Clearance spindle - machine base	max. 550 mm	max. 1,250 mm
Dimensions		
Column diameter	Ø 60 mm	Ø 70 mm
Length x width x height	820 x 335 x 930 mm	820 x 395 x 1,640 mm
Overall weight	47 kg	60 kg

Dimensions RB 6T



Dimensions RB 8S



### Scope of Delivery

- Key type drill chuck 1 - 16 mm B 16
- Morse taper MT 2/B16

Accessories	Article no.
Quick release chuck direct MT 2, 1 - 16 mm	3050571
Quick release chuck direct MT 2, 1 - 13 mm	3050572
Morse taper MT 2/B16	3050659
Assortment of clamping tools size 12	3352017
Taper drill punch MSP 1	3050636
Twist drill HSS MT 2	3051002
Taper drill punch MSP 1	3050636
Coolant system 230 V	3352002
Coolant mist lubricator MMC 1	3356663
Cooling hose KMS 2	3356660

Machine vices	Article no.
<b>MSO</b>	
MSO 75	3000075
MSO 100	3000100
MSO 125	3000125
MSO 150	3000150
<b>BMS</b>	
BMS 100	3000010
BMS 120	3000012
BMS 150	3000015
BMS 200	3000020
<b>BSI</b>	
BSI 100	3000210
BSI 140	3000214
<b>BSI</b>	
BSI-Q 100	3000230
BSI-Q 140	3000234
» More „Accessories for drills“ on page 49	

## Bench/column drilling machines with V-belt drive

### Facts that impress in terms of quality, performance and price

- ▶ User-friendly safety switch with IP 54 degree of protection and separate emergency stop mushroom button
- ▶ Drilling depth stop
- ▶ Precise workmanship; stable drilling table with diagonal T-grooves and all-around cooling water channel
- ▶ Drilling table height-adjustable via rack
- ▶ Drilling table pivots through  $\pm 45^\circ$  and rotates through  $360^\circ$
- ▶ V-belt cover with safety switch
- ▶ Single-piece, pressure cast aluminium spindle sleeve lever with Softgrip handles
- ▶ Industrial motor
- ▶ Precision spindle bore
- ▶ Safety electrical system in 24 V DC
- ▶ Guaranteed concentricity less than 0.02 mm measured in the drilling spindle sleeve
- ▶ Drill spindle with precision ball bearings

- ▶ Premium quick clamping chuck
- ▶ Generously dimensioned, height adjustable protective screen with safety switch
- ▶ Heavy duty design of entire machine

### B 23 Pro to B 33Pro

- ▶ GATES quality belts

### B 23 Pro / 400 V to B 33Pro

- ▶ Clockwise/Anti-clockwise rotation

### B 33Pro

- ▶ Solid, generously dimensioned baseplate with T-grooves, pronounced ribbing on rear



### Belt drive

- Smooth action thanks to polished multi-tooth carrier
- Best possible force transmission thanks to aluminium pulleys in combination with GATES quality toothed belts (as of B 23Pro)



Fig.: B 17Pro

Fig.: B 23Pro



Fig.: B 26Pro

Fig.: B 33Pro



## Technical data and accessories

Model	B 17Pro	B 23Pro	B 26Pro	B 33Pro
Article no. (230 V)	3003171	3003231	-	-
Article no. (400 V)	-	3003233	3003263	3003333
<b>Technical specifications</b>				
Electrical connection	230 V / 1 Ph ~50 Hz	230 V/1 Ph w.o. 400 V/3 Ph	400 V / 3 Ph ~50 Hz	400 V / 3 Ph ~50 Hz
Motor output	500 W	750 W	750 W	1.1 kW
<b>Drilling performance</b>				
Drilling performance in steel (S235JR)	Ø 16 mm	Ø 25 mm	Ø 25 mm	Ø 30 mm
Continuous drilling performance in steel (S235JR)	Ø 12 mm	Ø 20 mm	Ø 20 mm	Ø 25 mm
<b>Spindle holder</b>				
Spindle sleeve stroke	65 mm	80 mm	85 mm	120 mm
Spindle holder	MT 2	MT 2	MT 3	MT 4
Throat	152 mm	180 mm	210 mm	254 mm
<b>Speeds</b>				
Spindle speeds	500 - 2,520 rpm	200 - 2,440 rpm	200 - 2,440 rpm	120 - 1,810 rpm
Number of gears	5 gears	12 gears	12 gears	9 gears
<b>Drilling table</b>				
Workspace table length x width	235 x 220 mm	280 x 245 mm	330 x 290 mm	475 x 425 mm
T-groove size	12 mm, diagonal	12 mm, diagonal	14 mm, diagonal	14 mm, diagonal
Drilling table pivots/rotates	± 45° / 360°	± 45° / 360°	± 45° / 360°	± 45° / 360°
Clearance spindle - drilling table	max. 325 mm	max. 425 mm	max. 720 mm	max. 695 mm
<b>Machine base</b>				
Machine base work area L x W	220 x 230 mm	240 x 250 mm	385 x 260 mm	410 x 325 mm
Groove size/count/spacing	16 mm / 2 / 148 mm	16 mm / 2 / 170 mm	16 mm / 2 / 170 mm	16 mm / 2 / 250 mm
Distance spindle - machine base	max. 530 mm	max. 618 mm	max. 1,230 mm	max. 1,180 mm
<b>Dimensions</b>				
Column diameter	Ø 60 mm	Ø 73 mm	Ø 80 mm	Ø 92 mm
Length x width x height	565 x 275 x 840 mm	615 x 330 x 1,015 mm	670 x 355 x 1,640 mm	755 x 440 x 1,705 mm
Overall weight	36.5 kg	58 kg / 63.5 kg	85 kg	132 kg

### Scope of Delivery

- Quick-action drill chuck 1 - 16 mm
- Morse taper MT 2/B16 (B 17Pro/B 23Pro)
- Morse taper MT 3/B16 (B 26Pro)
- Morse taper MT 4/B16 (B 33Pro)
- T-slot nuts

Accessories B 17Pro / B 23Pro	Article no.
<b>Direct quick release chuck:</b>	
<b>MT 2 / 1 - 16 mm</b>	3050571
<b>MT 2 / 1 - 13 mm</b>	3050572
<b>Morse taper MT 2/B16</b>	3050659
<b>Twist drill HSS MT 2</b>	3051002
<b>Assortment of clamping tools size 10</b>	3352016
<b>Taper drill punch MSP1</b>	3050636
<b>Universal coolant unit</b>	3352002

Machine vices	Article no.
<b>BMS 100</b>	3000010
<b>BMS 120</b>	3000012
<b>BSI 100</b>	3000210
<b>BSI 140</b>	3000214
<b>BSI-Q 100</b>	3000230
<b>BSI-Q 140</b>	3000234



Accessories B 26Pro	Article no.
<b>Quick release chuck direct MT 3</b>	3050573
<b>Reduction sleeves MT 3 - MT 2</b>	3050663
<b>Morse taper MT 3/B16</b>	3050660
<b>Twist drill HSS MT 3</b>	3051003
<b>Assortment of clamping tools size 12</b>	3352017
<b>Taper drill punch MSP1</b>	3050636
<b>Thread tapping chuck M5-M12</b>	3352042
<b>Universal coolant unit</b>	3352002

Accessories B 33Pro	Article no.
<b>Quick release chuck direct MT 4</b>	3050574
<b>Reduction sleeves MT 4 - MT 3</b>	3050664
<b>Morse taper MT 4/B16</b>	3050661
<b>Twist drill HSS MT 3</b>	3051003
<b>Assortment of clamping tools size 12</b>	3352017
<b>Taper drill punch MSP2</b>	3050637
<b>Thread tapping chuck M5-M12</b>	3352042
<b>Universal coolant unit</b>	3352002

› „Accessories for drills“ on page 49

## Table drilling machine with continuously adjustable speed control.

### Facts that impress in terms of quality, performance and price

- ▶ Best possible force transmission thanks to aluminium pulleys
- ▶ Emergency stop button
- ▶ Drill spindle with precision ball bearings
- ▶ Guaranteed concentricity less than 0.03 mm measured at the drilling spindle sleeve
- ▶ Height adjustable chuck guard with microswitch
- ▶ Membrane keyboard, dirt/water-resistant, easy to clean
- ▶ EMC filter class B (use in private households)

#### DX 13V

- ▶ Drill head height adjustable

#### DX 15V

- ▶ Drilling table
- ▶ MT Adapter



Fig.: DX 15V



Fig.: DX 13V

## Technical specifications, accessories and dimensions

Model	DX 13V	DX 15V
Article no.	3020150	3020155
<b>Technical specifications</b>		
Electrical connection	230 V / 1 Ph ~50 Hz	230 V / 1 Ph ~50 Hz
Motor output	0.85 kW	0.85 kW
<b>Drilling performance</b>		
Drilling performance in steel (S235JR)	Ø 13 mm	Ø 15 mm
Continuous drilling performance in steel (S235JR)	Ø 11 mm	Ø 12 mm
<b>Spindle holder</b>		
Throat	235 mm	235 mm
Spindle holder	B 16	MT 2
Spindle sleeve stroke	60 mm	60 mm
<b>Speeds</b>		
Spindle speeds	100 - 3,000 rpm	100 - 3,000 rpm
Number of gears	Electronically controlled	Electronically controlled
<b>Drilling table</b>		
Drilling table length x width	-	290 x 290 mm
T-groove size/amount/spacing	-	10 mm / 2 / 100 mm
Rotating drilling table	-	360°
Distance chuck - drilling table	-	98 - 375 mm
<b>Machine base</b>		
Machine base work area L x W	290 x 270 mm	290 x 280 mm
T-groove size/amount/spacing	14 mm / 2 / 100 mm	14 mm / 2 / 100 mm
Distance chuck - machine base	92 - 297 mm	290 - 355 mm
<b>Dimensions</b>		
Column diameter	Ø 60 mm	Ø 60 mm
Length x width x height	517 x 325 x 895 mm	481 x 475 x 980 mm
Net weight	51 kg	66 kg

### Scope of Delivery

- Quick-action drill chuck 1 - 13 mm

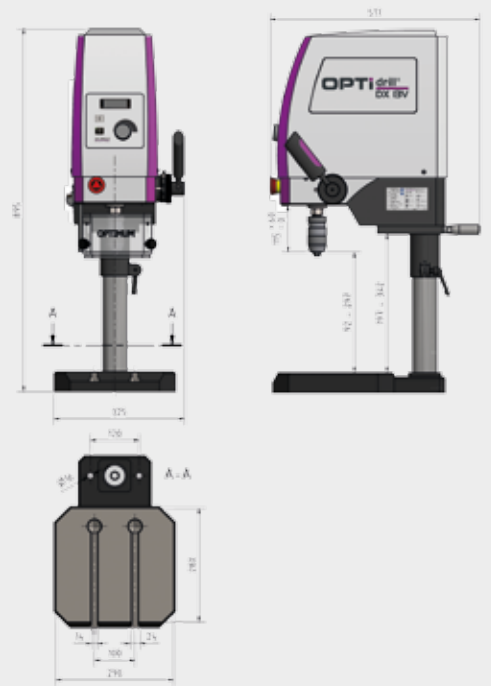
Accessories DX 13V	Article no.
Assortment of clamping tools size 12	3352017
Universal coolant unit	3352002
Universal chassis	3353000
Dimensions L x W x H: 800 x 340 x 420 mm	

Accessories DX 15V	Article no.
Direct quick release chuck:	
MT 2 / 1 - 16 mm	3050571
MT 2 / 1 - 13 mm	3050572
Morse taper MT 2/B16	3050659
Twist drill HSS MT 2	3051002
Assortment of clamping tools size 8	3352015
Assortment of clamping tools size 12	3352017
Universal coolant unit	3352002
Universal chassis	3353000
Dimensions L x W x H: 800 x 340 x 420 mm	

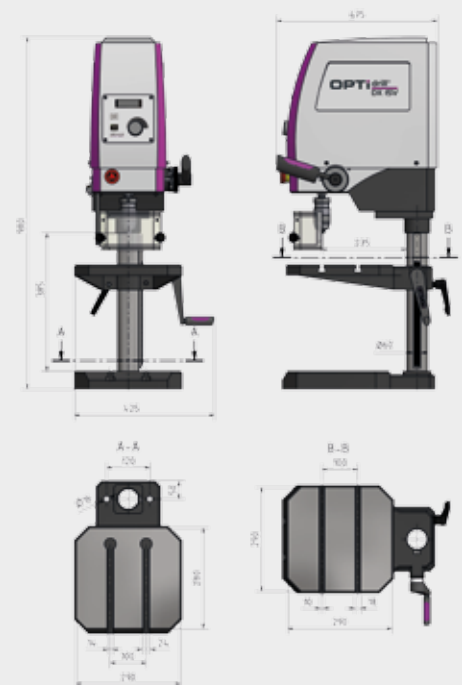
Machine vices	Article no.
MSO 75	3000075
BMS 85	3000008



Dimensions DX 13V



Dimensions DX 15V



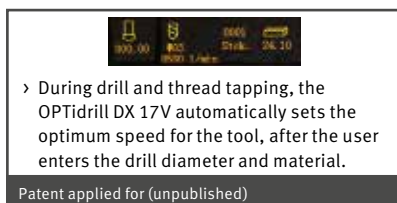


## Table drilling machine with continuously adjustable speed control.

Machine highlight - menu-controlled operation of the drilling/thread tapping operation modes

### Facts that impress in terms of quality, performance and price

- ▶ Best possible force transmission thanks to aluminium pulleys
- ▶ Emergency stop button
- ▶ Drill spindle with precision ball bearings
- ▶ Guaranteed concentricity less than 0.03 mm measured at the drilling spindle sleeve
- ▶ Height adjustability chuck guard with microswitch
- ▶ Dirt- and water-resistant, easy-to-clean membrane keyboard with high-contrast OLED display
- ▶ Thread tapping mode
- ▶ Language selection in display field, choice of DE-EN-FR-RUS
- ▶ Digital zero point
- ▶ Digital parts counter
- ▶ Audible signal on reaching drilling depth
- ▶ Reduced speed in thread tapping mode
- ▶ Siemens frequency inverter SINAMICS V20
- ▶ Anti-glare LED lighting on the left and right, integrated into the drilling head



### Easily readable with OLED display

- Spindle speed
- Depth display (target/actual)
- Counter
- Selected tool and tool size

### Emergency stop button

### LED lighting

- Integrated into drilling head on left and right
- Dazzle free
- No annoying shadows

### Chuck protection

- Best possible user protection
- Height-adjustable
- Microswitch

### Drilling table

- Precise workmanship
- Parallel T-grooves

### Base plate

- Swivelling drilling table
- Solid
- Parallel T-grooves
- Precise surface finish



Siemens inverter  
SINAMICS V20

## Technical specifications, accessories and dimensions

Model	DX 17V
Article no.	3020170
<b>Electrical connection</b>	
Electrical connection	230 V / 1 Ph ~50 Hz
Motor output	1.0 kW
<b>Drilling performance</b>	
Drilling performance in steel (S235JR)	Ø 16 mm
Continuous drilling performance in steel (S235JR)	Ø 13 mm
Thread tapping steel (S235JR)	M8
<b>Spindle holder</b>	
Throat	235 mm
Spindle holder	B 16
Spindle sleeve stroke	60 mm
<b>Speeds</b>	
Spindle speeds	50 - 4,000 rpm
Number of gears	Electronic speed control
<b>Drilling table</b>	
Drilling table length x width	290 x 290 mm
T-groove size/amount/spacing	10 mm / 2 / 100 mm
Rotating drilling table	360°
Distance chuck - drilling table	98 - 375 mm
<b>Machine base</b>	
Machine base work area L x W	290 x 280 mm
T-groove size/amount/spacing	14 mm / 2 / 100 mm
Distance chuck - machine base	385 mm
<b>Dimensions</b>	
Column diameter	Ø 60 mm
Length x width x height	425 x 475 x 980 mm
Net weight	73 kg

### Scope of Delivery

- Quick clamping drill chuck 1 - 13 mm

Accessories	Article no.
Assortment of clamping tools size 8	3352015
Assortment of clamping tools size 12	3352017
T-slot nut M 8 / 10 mm	3353020
T-slot nut M 12 / 14 mm	3353024
Universal coolant unit 230 V	3352002

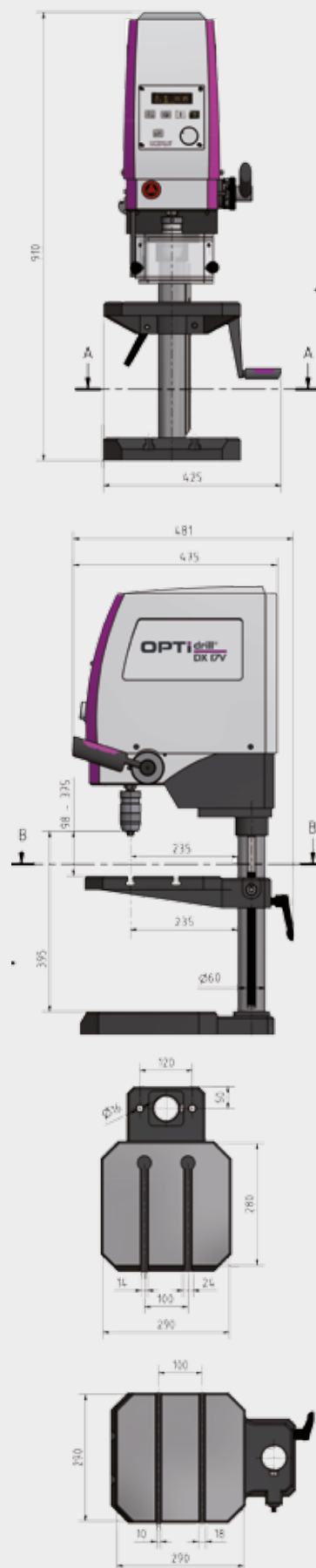
Machine vices	Article no.
MSO 75	3000075
BMS 85	3000008



Universal chassis	3353000
• Dimensions L x W x H: 800 x 340 x 420 mm	



### Dimensions



## Rugged bench/column drilling machines with V-belt drive

### Facts that impress in terms of quality, performance and price

- ▶ Smooth, powerful industrial electric motor
- ▶ Separate emergency stop mushroom button
- ▶ Robust cast column
- ▶ Drilling depth stop
- ▶ Precision machined drilling table with diagonal T-grooves and all-around cooling water channel
- ▶ Drilling table rotates through 360°
- ▶ V-belt cover with safety switch
- ▶ V-belt quick tensioning device
- ▶ Single-piece, pressure cast aluminium spindle sleeve lever (B 16H / B 24H with Softgrip handles)
- ▶ Solid, generously dimensioned baseplate with grooves, rear with pronounced ribbing
- ▶ The baseplate can be used for particularly high workpieces by swivelling out the drilling table
- ▶ Guaranteed concentricity better than 0.015 mm measured in the drilling spindle sleeve
- ▶ Drill spindle with precision ball bearings
- ▶ Premium OPTIMUM quick clamping chuck as standard equipment
- ▶ Generously dimensioned, height adjustable protective screen with safety switch

#### Ab B 24H

- ▶ Machine lamp

#### Ab B 24H/400V

- ▶ Clockwise/Anti-clockwise rotation

#### Ab B 28H

- ▶ Easy tool changes through integrated push-out tool
- ▶ Spindle sleeve lever made of steel

#### B 34H

- ▶ Digital depth sensor
- ▶ Digital speed display



#### Belt drive

- Smooth action thanks to polished multi-tooth carrier
- Best possible force transmission thanks to aluminium pulleys in combination with GATES quality toothed belts



Fig.: B 16H



Fig.: B 24H



Fig.: B 28H



Fig.: B 34H



## Technical data and accessories

Model	B 16H	B 24H	B 28H	B 34H
Article no. (230 V)	-	3020241	-	-
Article no. (400 V)	3020217	3020243	3020283	3020333
<b>Technical specifications</b>				
Electrical connection	400 V / 3 Ph ~50 Hz	230 V/1 Ph - 400 V/3 Ph	400 V / 3 Ph ~50 Hz	400 V / 3 Ph ~50 Hz
Motor output	550 W	850 W	850 W	1.5 / 2.2 kW
<b>Drilling performance</b>				
Drilling performance in steel (S235JR)	Ø 13 mm	Ø 24 mm	Ø 28 mm	Ø 34 mm
Continuous drilling performance in steel (S235JR)	Ø 11 mm	Ø 20 mm	Ø 24 mm	Ø 26 mm
<b>Spindle holder</b>				
Spindle sleeve stroke	65 mm	85 mm	105 mm	160 mm
Spindle holder	MT 2	MT 2	MT 3	MT 4
Throat	130 mm	165 mm	200 mm	285 mm
<b>Speeds</b>				
Spindle speeds	450 - 3,500 rpm	350 - 4,000 rpm	120 - 4,000 rpm	145 - 4,800 rpm
Number of gears	5 gears	7 gears	16 gears	2 x 9 speeds
<b>Drilling table</b>				
Workspace table length x width	230 x 245 mm	280 x 300 mm	340 x 360 mm	420 x 400 mm
T-groove size	12 mm, diagonal	14 mm, diagonal	14 mm, diagonal	14 mm, diagonal
Rotating drilling table	360°	360°	360°	360°
Clearance spindle - drilling table	max. 370 mm	max. 515 mm	max. 860 mm	max. 790 mm
<b>Machine base</b>				
Machine base work area L x W	200 x 240 mm	280 x 260 mm	320 x 320 mm	390 x 390 mm
T-groove size/amount/spacing	12 mm / 2 / 80 mm	14 mm / 2 / 120 mm	14 mm / 2 / 120 mm	14 mm / 2 / 150 mm
Distance spindle - machine base	max. 495 mm	max. 590 mm	max. 1,285 mm	max. 1,275 mm
<b>Dimensions</b>				
Column diameter	Ø 60 mm	Ø 80 mm	Ø 92 mm	Ø 115 mm
Length x width x height	549 x 300 x 848 mm	665 x 434 x 998 mm	698 x 449 x 1,721 mm	918 x 585 x 1,895 mm
Overall weight	54 kg	92 kg	166 kg	260 kg

### Scope of Delivery

- Quick clamping drill chuck 1 – 13 mm (B 16H)
- Quick clamping drill chuck 1 – 16 mm (as of B 24H)
- Morse taper MT 2/B16 (B 16H/B 24H)
- Morse taper MT 3/B16 (B 28H)
- Morse taper MT 4/B16 (B 34H)
- T-slot nuts

Accessories B 16H / B 24H	Articleno.
Direct quick clamping chuck MT 2 / 1 - 16 mm	3050571
Direct quick clamping chuck MT 2 / 1 - 13 mm	3050572
Morse taper MT 2/B16	3050659
Twist drill HSS MT 2	3051002
Assortment of clamping tools size 10	3352016
Taper drill punch MSP1	3050636
Universal coolant unit	3352002

Machine vices	Article no.
BSI 100	3000210
BSI 140	3000214
BSI-Q 100	3000230
BSI-Q 140	3000234



BSI



BSI-Q

Accessories B 28H	Articleno.
Quick release chuck direct MT 3	3050573
Reduction sleeves MT 3 - MT 2	3050663
Morse taper MT 3/B16	3050660
Twist drill HSS MT 3	3051003
Assortment of clamping tools size 12	3352017
Universal coolant unit	3352002
Thread tapping chuck M5-M12	3352042

Accessories B 34H	Articleno.
Quick release chuck direct MT 4	3050574
Morse taper MT 4/B16	3050661
Reduction sleeves MT 4 - MT 3	3050664
Assortment of clamping tools size 12	3352017
Universal coolant unit	3352002
Thread tapping chuck M5-M12	3352042

› „Accessories for drills“ on page 49

## Rugged table drilling machine with powerful OPTIMUM brushless drive.

Machine highlight - menu-controlled operation of the drilling/thread tapping operation modes

### Facts that impress in terms of quality, performance and price

- ▶ Smooth action and powerful brushless drive
- ▶ Separate emergency stop mushroom button
- ▶ Generously dimensioned, height adjustable protective screen with safety switch for greatest possible user protection
- ▶ Drilling depth stop
- ▶ V-belt cover with safety switch
- ▶ V-belt tensioning device



Info „Thermadrill“ on page 52

### Powerful brushless drive

- Particularly smooth action
- Extremely powerful
- Virtually constant torque over the entire speed range



### Belt drive

- Best possible force transmission thanks to aluminium pulleys in combination with GATES quality toothed belts
- Smooth action thanks to polished multi-tooth carrier

- › Drilling
- › Thread tapping
- › Workpiece thickness selection



### Easily readable display field with OLED display

- Spindle speed
- Depth display (target/actual)

### Concentricity

- Guaranteed less than 0.015 mm measured at the drilling spindle sleeve

### Drilling spindle

- Precision ball bearings
- Premium OPTIMUM quick clamping chuck as standard

### Drilling table

- Precise workmanship
- Diagonal T-grooves
- 360° rotating
- Circumferential coolant channel

### Base plate

- Solid
- Generously dimensioned
- With pronounced ribbing on rear



Figure: DH 18V

## Technical specifications, accessories and dimensions

Model	DH 18V
Article no.	3020220
<b>Technical specifications</b>	
Electrical connection	230 V / 1 Ph ~50 Hz
Total connected load	1.5 kW
<b>Drilling performance</b>	
Drilling performance in steel (S235JR)	Ø 18 mm
Continuous drilling performance in steel (S235JR)	Ø 16 mm
Thread tapping steel (S235JR)	M 12
<b>Spindle holder</b>	
Spindle sleeve stroke	65 mm
Spindle holder	MT 2
Throat	132.5 mm
<b>Speeds</b>	
Spindle speeds	100 - 6,000 rpm
Number of gears	5 gears
	Electronic speed control
<b>Drilling table</b>	
Workspace table length x width	230 x 245 mm
T-groove size	12 mm, diagonal
Rotating drilling table	360°
Clearance spindle - drilling table	max. 370 mm
<b>Machine base</b>	
Distance spindle - machine base	max. 485 mm
T-groove size/amount/spacing	12 mm / 2 / 80 mm
Machine base work area L x W	200 x 240 mm
<b>Dimensions</b>	
Column diameter	Ø 60 mm
Length x width x height	571 x 375 x 850 mm
Overall weight	64 kg

### Scope of Delivery

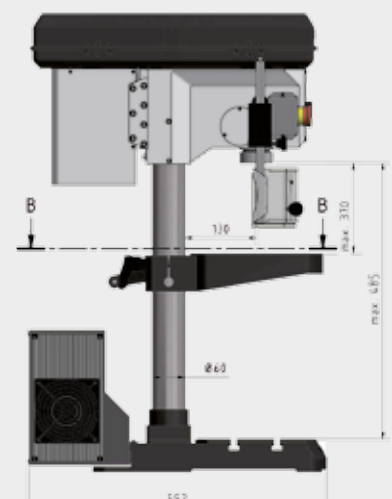
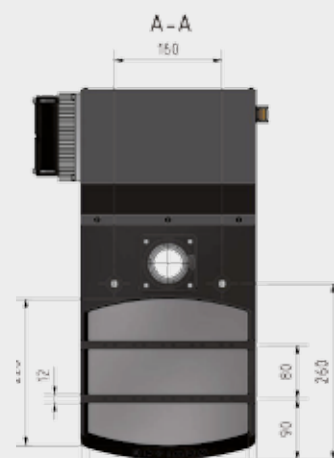
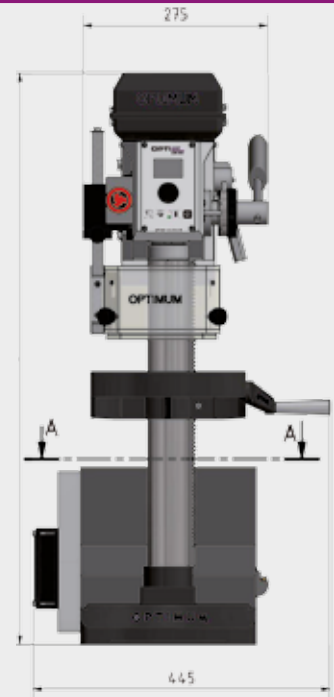
- Quick-action drill chuck 1 - 13 mm
- Morse taper MT 2
- T-slot nuts

Accessories	Article no.
Direct quick release chuck B16/ 1 - 16 mm	3050571
Direct quick release chuck B16/ 1 - 13 mm	3050572
Morse taper MT 2/B16	3050659
Twist drill HSS MT 2	3051002
Assortment of clamping tools size 10	3352016
Taper drill punch MSP1	3050636
Universal coolant unit	3352002

Machine vices	Article no.
<b>MSO</b>	
MSO 75	3000075
MSO 100	3000100
MSO 125	3000125
<b>BMS</b>	
BMS 85	3000008
BMS 100	3000010
BMS 120	3000012
» More „Accessories for drills“ on page 49	



### Dimensions





## Rugged bench and column drilling machines with powerful OPTIMUM Brushless drive, electronic speed control

### Facts that impress in terms of quality, performance and price

- ▶ Smooth action and powerful brushless drive
- ▶ Separate emergency stop mushroom button
- ▶ Generously dimensioned, height adjustable protective screen with safety switch for greatest possible user protection
- ▶ Single-piece, pressure cast aluminium spindle sleeve lever (B 24HV with Softgrip handles)
- ▶ Drilling depth stop
- ▶ V-belt cover with safety switch
- ▶ Clockwise/Anti-clockwise rotation
- ▶ Machine lamp

### Ab B 28HV

Spindle sleeve lever made of steel

- ▶ Coolant system
- ▶ Chip filter in line with Machinery Directive
- ▶ Easy tool changes through integrated push-out tool

### B 34HV

Spindle sleeve stroke 160 mm

- ▶ Thread tapping function
- ▶ Digital depth sensor



Info „Thermadrill“ on page 52

### B 34HV - Operating modes

#### "auto" operating mode

- › Motor runs automatically after lever movement
- › Stops again in original position
- › Start and stop pushbuttons do not need to be actuated for repetitive drilling tasks

#### "Thread tapping" operating mode

- › The motor is activated by moving the handle down
- › The direction of rotation is changed by the limit switch on the adjustable drilling depth stop

### Powerful brushless drive

- Particularly smooth action
- Extremely powerful
- Virtually constant torque over the entire speed range

### Belt drive

- Best possible force transmission thanks to aluminium pulleys in combination with GATES quality toothed belts
- Smooth action thanks to polished multi-tooth carrier

### Digital speed display

- Integrated in housing

### Speed control

- Via potentiometer

### Concentricity

- Guaranteed less than 0.015 mm measured at the drilling spindle sleeve

### Drilling spindle

- Precision ball bearings
- Premium OPTIMUM quick clamping chuck as standard

### Cast column

- Thick walls
- Good force absorption and stability

### Base plate

- Solid
- Generously dimensioned
- With pronounced ribbing on rear

### V-belt tensioning device

### Machine lamp

- Integrated in drilling head
- Halogen lamp

### Drilling table

- Precise workmanship
- Diagonal T-grooves
- 360° rotating
- Circumferential coolant channel

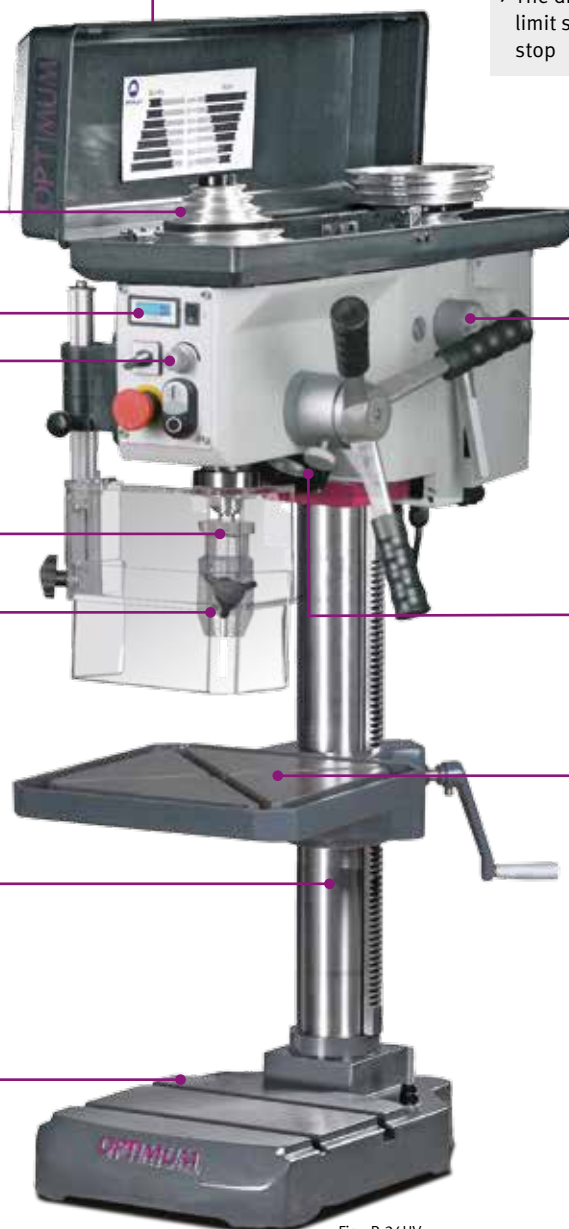


Fig.: B 24HV

The drill (frequency converter) complies with the DIN EN 55011 standard: class A

## Technical data and accessories

Model	B 24HV	B 28HV	B 34HV
Article no.	3020245	3020285	3020335
<b>Technical specifications</b>			
Electrical connection	230 V / 1 Ph ~50 Hz	230 V / 1 Ph ~50 Hz	230 V / 1 Ph ~50 Hz
Total connected load	1.5 kW	1.5 kW	2.2 kW
Coolant pump motor	-	40 W	40 W
<b>Drilling performance</b>			
Drilling performance in steel (S235JR)	Ø 24 mm	Ø 28 mm	Ø 34 mm
Continuous drilling performance in steel (S235JR)	Ø 20 mm	Ø 24 mm	Ø 26 mm
Thread tapping steel (S235JR)	-	-	M 16 x 2 mm
<b>Spindle holder</b>			
Spindle sleeve stroke	85 mm	105 mm	160 mm
Spindle holder	MT 2	MT 3	MT 4
Throat	165 mm	200 mm	285 mm
<b>Speeds</b>			
Spindle speeds	100 - 5,950 rpm	35 - 5,600 rpm	40 - 5,000 rpm
Number of gears	4 gears Electronic speed control	12 gears Electronic speed control	9 gears Electronic speed control
<b>Drilling table</b>			
Workspace table length x width	280 x 300 mm	340 x 360 mm	420 x 400 mm
T-groove size	14 mm, diagonal	14 mm, diagonal	14 mm, diagonal
Rotating drilling table	360°	360°	360°
Clearance spindle - drilling table	max. 515 mm	max. 860 mm	max. 790 mm
<b>Machine base</b>			
Distance spindle - machine base	max. 590 mm	max. 1,285 mm	max. 1,275 mm
T-groove size/amount/spacing	14 mm / 2 / 120 mm	14 mm / 2 / 120 mm	14 mm / 2 / 150 mm
Machine base work area L x W	280 x 260 mm	320 x 320 mm	390 x 390 mm
<b>Dimensions</b>			
Column diameter	Ø 80 mm	Ø 92 mm	Ø 115 mm
Length x width x height	665 x 434 x 998 mm	701 x 474 x 1,755 mm	918 x 595 x 1,930 mm
Overall weight	96 kg	166 kg	275 kg
Transport packaging flat rate**	-	TPFR 1	TPFR 1

### Scope of Delivery

- Quick-action drill chuck 1 - 16 mm
- Morse taper MT 2 / B16 (B 24HV)
- Morse taper MT 3 / B16 (B 28HV)
- Morse taper MT 4 / B16 (B 34HV)
- T-slot nuts

Accessories B 24HV	Article no.
Direct quick release chuck	
MT 2/ 1 - 16 mm	3050571
MT 2/ 1 - 13 mm	3050572
Morse taper MT 2/B16	3050659
Twist drill HSS MT 2	3051002
Assortment of clamping tools size 10	3352016

Machine vices	Article no.
BMS 100	3000010
BMS 120	3000012
BSI 100	3000210
BSI 140	3000214
BSI-Q 100	3000230
BSI-Q 140	3000234

Accessories B 28HV	Article no.
Direct quick clamping MT 3 / 1 - 16 mm	3050573
Reduction sleeves MT 3 - MT 2	3050663
Morse taper MT 3/B16	3050660
Twist drill HSS MT 3	3051003
Assortment of clamping tools size 12	3352017
Thread tapping chuck M5-M12	3352042

Accessories B 34HV	Article no.
Direct quick clamping MT 4/1-16 mm	3050574
Reduction sleeves MT 4 - MT 3	3050664
Morse taper MT 4/B16	3050661
Assortment of clamping tools size 12	3352017
Thread tapping chuck M5-M12	3352042



**VARIO DRIVE**  
Made in Germany

## Bench and column drilling machines with continuous, mechanical v-belt drive by **BERGES**. Quick speed adjustment using a lever

### Facts that impress in terms of quality, performance and price

- ▶ Smooth, powerful industrial electric motor
- ▶ Two speeds
- ▶ The baseplate can be used as a workspace for particularly high workpieces by swivelling out the drilling table
- ▶ Clockwise/Anti-clockwise rotation
- ▶ V-belt cover with safety switch

### From DH 28BV

- ▶ Easy tool changes through integrated push-out tool
- ▶ Spindle sleeve lever made of steel

### DH 40BV

- ▶ Digital depth sensor
- ▶ Reduction gearbox enables far higher torque



Info „Thermdrill“ on page 52



› Quicker speed adjustment using a lever

### Digital speed display

- Integrated in housing

### Concentricity

- Guaranteed less than 0.015 mm measured at the drilling spindle sleeve

### Chuck protection

- Best possible user protection
- Height-adjustable
- Microswitch

### Continuous mechanical gearbox

- › Extremely reliable through manual speed control
- › Powerful, smooth action
- › Durable wide groove v-belt
- › Speed change also possible while machine is running
- › Permanent optimal motor efficiency
- › DH 40BV- with reduction gearbox



### Machine lamp

- Integrated in drilling head
- Halogen lamp

### Drilling spindle

- Precision ball bearings
- Premium quick clamping chuck as standard

### Drilling table

- Precise workmanship
- Diagonal T-grooves
- 360° rotating
- Circumferential coolant channel

### Cast column

- Thick walls
- Good force absorption and stability

### Base plate

- Solid
- Generously dimensioned
- With pronounced ribbing on rear



Figure: DH 24BV

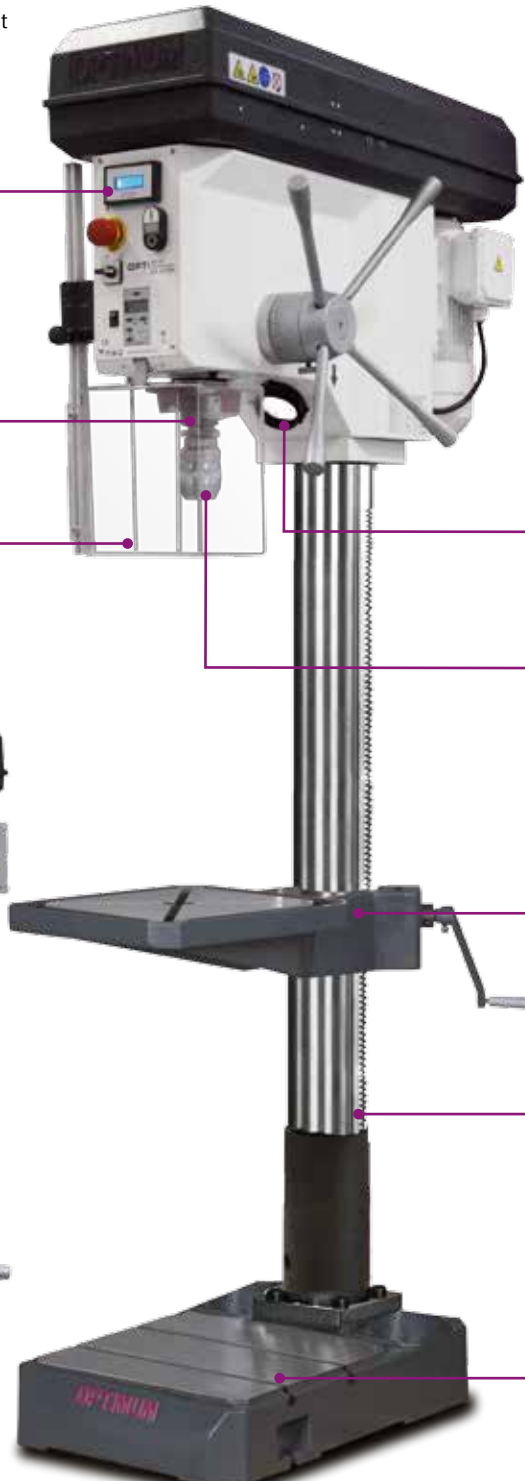


Figure: DH 40BV



## Technical data and accessories

Model	DH 24BV	DH 28BV	DH 40BV
Article no.	3020420	3020430	3020450
<b>Technical specifications</b>			
Electrical connection	400 V / 3 Ph ~50 Hz	400 V / 3 Ph ~50 Hz	400 V / 3 Ph ~50 Hz
Motor output	0.85/1.5 kW	0.85/1.5 kW	1.5/2.2 kW
<b>Drilling performance</b>			
Drilling performance in steel (S235JR)	Ø 24 mm	Ø 28 mm	Ø 40 mm
Continuous drilling performance in steel (S235JR)	Ø 20 mm	Ø 24 mm	Ø 32 mm
<b>Spindle holder</b>			
Spindle sleeve stroke	85 mm	105 mm	160 mm
Spindle holder	MT 2	MT 3	MT 4
Throat	165 mm	200 mm	285 mm
<b>Speeds</b>			
Spindle speeds 2 speed motor, manual	300 - 4,000 rpm	300 - 4,000 rpm	150 - 2,000 rpm
<b>Drilling table</b>			
Drilling table workspace L x W	280 x 300 mm	340 x 360 mm	420 x 400 mm
T-groove size	14 mm, diagonal	14 mm, diagonal	14 mm, diagonal
Rotating drilling table	360°	360°	360°
Clearance spindle - drilling table	max. 515 mm	max. 860 mm	max. 790 mm
<b>Machine base</b>			
Machine base work area L x W	280 x 260 mm	320 x 320 mm	390 x 400 mm
T-groove size/amount/spacing	14 mm / 2 / 120 mm	14 mm / 2 / 120 mm	14 / 2 / 150 mm
Distance spindle - machine base	max. 681 mm	max. 1,285 mm	max. 1,275 mm
<b>Dimensions</b>			
Column diameter	Ø 80 mm	Ø 92 mm	Ø 115 mm
Length x width x height	675 x 555 x 1,025 mm	755 x 550 x 1,745 mm	920 x 680 x 1,895 mm
Overall weight	115 kg	152 kg	275 kg
Transport packaging flat rate**	-	TPFR 1	TPFR 1

### Scope of Delivery

- Quick-action drill chuck 1 - 16 mm
- Morse taper MT 2 / B16 (DH 24BV)
- Morse taper MT 3 / B16 (DH 28BV)
- Morse taper MT 4 / B16 (DH 40BV)
- T-slot nuts

DH 24BV accessories	Article no.
<b>Direct quick release chuck:</b>	
MT 2/ 1 - 16 mm	3050571
MT 2/ 1 - 13 mm	3050572
Morse taper MT 2/B16	3050659
Twist drill HSS MT 2	3051002
Assortment of clamping tools size 12	3352017
Universal coolant unit	3352002

DH 28BV accessories	Article no.
<b>Direct quick clamping</b> MT 3 / 1 - 16 mm	3050573
<b>Reduction sleeves</b> MT 3 - MT 2	3050663
<b>Morse taper</b> MT 3/B16	3050660
<b>Twist drill HSS</b> MT 3	3051003
<b>Assortment of clamping tools</b> size 12	3352017
<b>Universal coolant unit</b>	3352002
<b>Thread tapping chuck</b> M5-M12	3352042

Machine vices	Article no.
<b>BMS 100</b>	3000010
<b>BMS 120</b>	3000012
<b>BSI 100</b>	3000210
<b>BSI 140</b>	3000214
<b>BSI-Q 100</b>	3000230
<b>BSI-Q 140</b>	3000234

DH 34BV/DH 40BV accessories	Article no.
<b>Direct quick clamping</b> MT 4 / 1 - 16 mm	3050574
<b>Reduction sleeves</b> MT 4 - MT 3	3050664
<b>Morse taper</b> MT 4/B16	3050661
<b>Assortment of clamping tools</b> size 12	3352017
<b>Universal coolant unit</b>	3352002
<b>Thread tapping chuck</b> M5-M12	3352042

## Bench and column drilling machines with polyamide gearwheels and thread tapping device.

Installation of an optional footswitch possible with DH 32GS

### Facts that impress in terms of quality, performance and price

- ▶ Smooth action thanks to polished multi-tooth carrier
- ▶ Excellent concentricity thanks to hardened and polished main spindle
- ▶ Large speed range
- ▶ Heavy, solid cast design
- ▶ Adjustable drilling depth stop with millimetre scale
- ▶ Low-maintenance, grease-lubricated gearbox
- ▶ Gearbox with PA6 gearwheels, smooth action

### ▶ DH 32GS

- ▶ Thread tapping function
- ▶ Automatic spindle sleeve feed
- ▶ Coolant pump and chip filter
- ▶ Optional footswitch available for toggling between clockwise/ anticlockwise run and for thread tapping



Info „Thermadrill“ on page 52

### DH 32GS Automatic spindle sleeve feed



In case of deep drilling or blind hole drilling, the clutch can be released or engaged at any time by pressing the button on the feed handle.

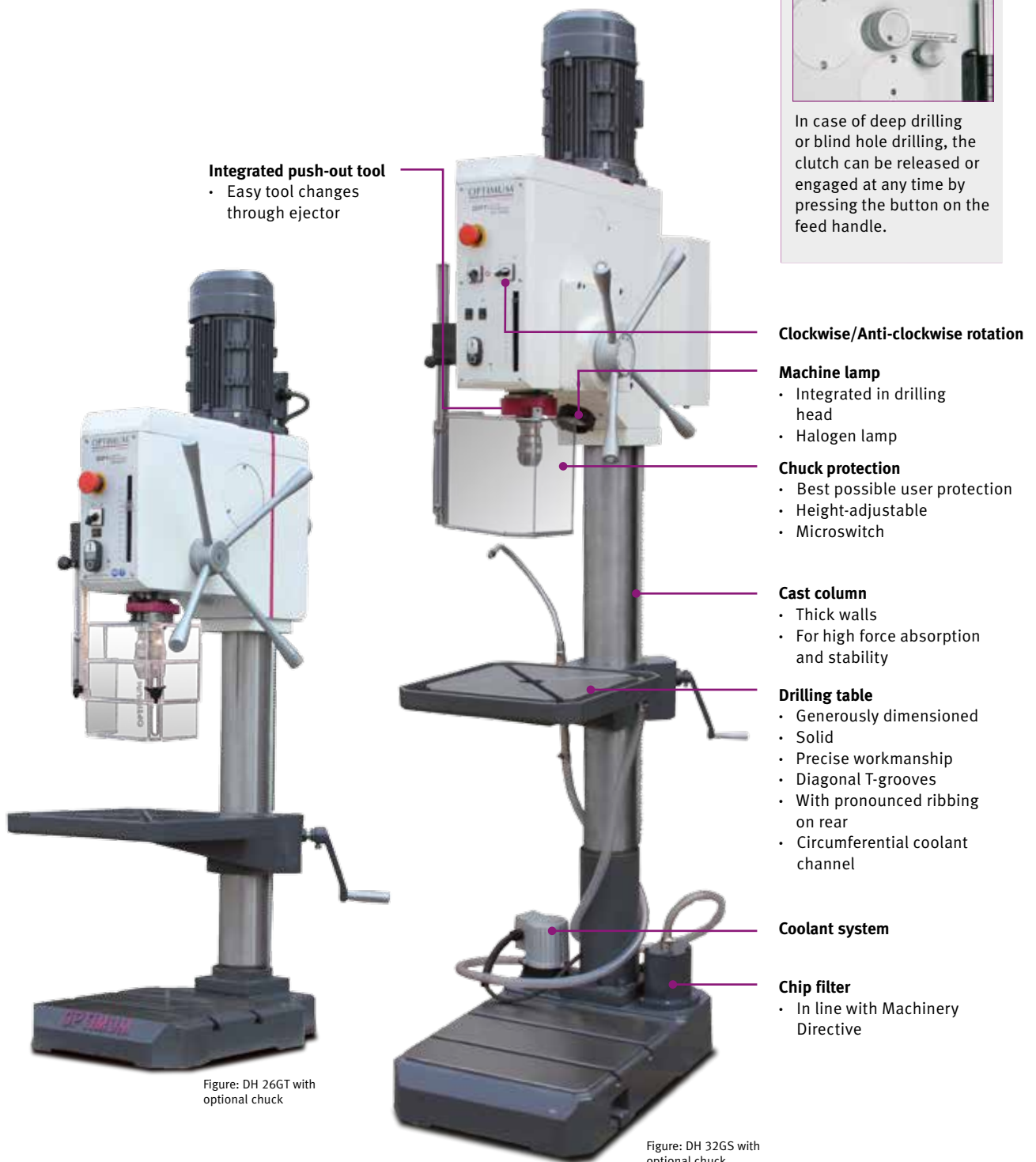


Figure: DH 26GT with optional chuck

Figure: DH 32GS with optional chuck

## Technical data and accessories

Model	DH 26GT	DH 28GS	DH 32GS
Article no.	3034220	3034230	3034240
<b>Technical specifications</b>			
Electrical connection	400 V / 3 Ph ~50 Hz	400 V / 3 Ph ~50 Hz	400 V / 3 Ph ~50 Hz
Motor output	1.1/1.5 kW	1.1/1.5 kW	1.5-2.2 kW
Coolant pump motor	-	-	40 W
<b>Drilling performance</b>			
Drilling performance in steel (S235JR)	Ø 24 mm	Ø 26 mm	Ø 30 mm
Continuous drilling performance steel (S235JR)	Ø 21 mm	Ø 23 mm	Ø 26 mm
Thread tapping steel (S235JR)	-	-	M 16 x 2 mm
<b>Spindle holder</b>			
Spindle sleeve stroke	127 mm	127 mm	125 mm
Spindle holder	MT 3	MT 3	MT 4
Throat	235 mm	260 mm	285 mm
Automatic spindle sleeve feed	-	-	0.05 mm/0.1 mm
<b>Speeds</b>			
Spindle speeds, 8 gears	75 - 2,900 rpm	75 - 2,900 rpm	75 - 2.000 rpm
<b>Drilling table</b>			
Workspace drilling table length x width	380 x 380 mm	376 x 394 mm	400 x 420 mm
T-groove size	14 mm, diagonal	14 mm, diagonal	14 mm, diagonal
Rotating drilling table	360°	360°	360°
Clearance spindle - drilling table	max. 450 mm	max. 875 mm	max. 820 mm
<b>Machine base</b>			
Machine base work area L x W	350 x 322 mm	350 x 356 mm	420 x 644 mm
T-groove size/amount/spacing	14 mm / 2 / 120 mm	14 mm / 2 / 120 mm	14 mm / 2 / 150 mm
Distance spindle - machine base	max. 610 mm	max. 1,285 mm	max. 1,270 mm
<b>Dimensions</b>			
Column diameter	Ø 92 mm	Ø 92 mm	Ø 115 mm
Dimensions	600 x 380 x 1,300 mm	670 x 550 x 2,080 mm	725 x 450 x 2,200 mm
Overall weight	158 kg	175 kg	312 kg
Transport packaging flat rate**	-	TPFR 1	TPFR 1

### Scope of Delivery

- Morse taper MT 3/B16 (DH 26GT / DH 28GS)
- Morse taper MT 4/B16 (DH 32GS)

Accessories DH 26GT / DH 28GS	Article no.
Direct quick clamping MT 3 / 1 - 16 mm	3050573
Quick clamping drill chuck 1 - 8 mm; B16	3050608
Quick clamping drill chuck 1 - 10 mm; B16	3050610
Quick clamping drill chuck 1 - 13 mm; B16	3050623
Quick clamping drill chuck 1 - 16 mm; B16	3050626
Morse taper MT 3/B16	3050661
Reduction sleeves MT 3 - MT 2	3050663
Twist drill HSS MT 3	3051003
Assortment of clamping tools size 12	3352017
Universal coolant unit	3352002
Thread tapping chuck M5-M12	3352042

Machine vices	Article no.
BMS 100	3000010
BMS 120	3000012
BSI 100	3000210
BSI 140	3000214
BSI-Q 100	3000230
BSI-Q 140	3000234

Accessories DH 32GS	Article no.
Direct quick clamping MT 4 / 1 - 16 mm	3050574
Quick clamping drill chuck 1 - 8 mm; B16	3050608
Quick clamping drill chuck 1 - 10 mm; B16	3050610
Quick clamping drill chuck 1 - 13 mm; B16	3050623
Quick clamping drill chuck 1 - 16 mm; B16	3050626
Morse taper MT 4/B16	3050661
Reduction sleeves MT 4 - MT 3	3050664
Reduction sleeves MT 4 - MT 2	3050665
Assortment of clamping tools size 12	3352017
Thread tapping chuck M5-M12	3352042

Accessories	Article no.
Footswitch only DH 32GS	3050032

Functions:

- Thread tapping
- Clockwise/anti-clockwise change over switch



› „Accessories for drills“ on page 49

## Bench and column drilling machines with latest inverter technology and polyamide gearwheels.

With continuously adjustable speed control. Installation of an optional footswitch possible

### Facts that impress in terms of quality, performance and price

- ▶ Smooth action thanks to polished multi-tooth carrier
- ▶ Excellent concentricity thanks to hardened and polished main spindle
- ▶ Large speed range
- ▶ Heavy, solid cast design
- ▶ Adjustable drilling depth stop with millimetre scale
- ▶ Low-maintenance, grease-lubricated gearbox
- ▶ Gearbox with PA6 gearwheels, smooth action
- ▶ Frequency converter,

- ▶ Thread tapping function
- ▶ Optional footswitch available for toggling between clockwise/ anticlockwise run and for thread tapping



Info „Thermdrill“ on page 52

### DH 32GSV

- ▶ Automatic spindle sleeve feed
- ▶ Coolant pump and chip filter
- ▶ Torque in lowest gear up to 200 Nm

#### Front panel

- User-friendly membrane keyboard
- Digital speed display



#### Integrated push-out tool

- Easy tool changes through ejector



Figure: DH 26GTV with optional chuck

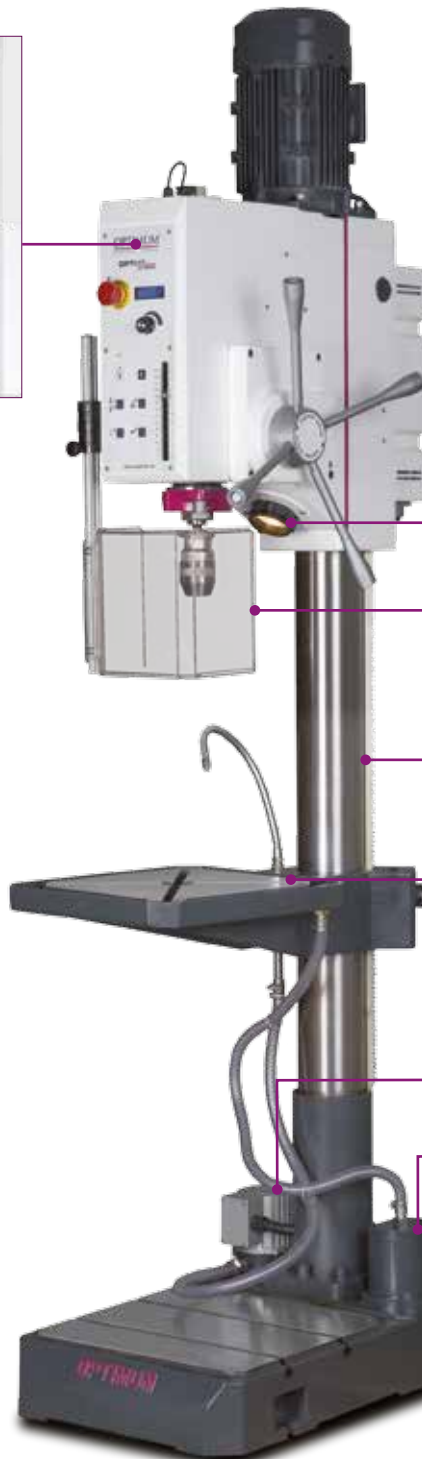


Figure: DH 32GSV with optional chuck

### DH 32GSV

#### Automatic spindle sleeve feed



Activation by pressure switch in spindle sleeve lever. An electromagnetic clutch provides propulsion. The unit is deactivated using the drilling depth stop or by once again pressing the button in the spindle sleeve lever.

#### Machine lamp

- Integrated in drilling head
- Halogen lamp

#### Chuck protection

- Best possible user protection
- Height-adjustable
- Microswitch

#### Cast column

- Thick walls
- For high force absorption and stability

#### Drilling table

- Generously dimensioned
- Solid
- Precise workmanship
- Diagonal T-grooves
- With pronounced ribbing on rear
- Circumferential coolant channel

#### Coolant system (DH 32GSV)

#### Chip filter (DH 32GSV)

- In line with Machinery Directive



## Technical data and accessories

Model	DH 26GTV	DH 28GSV	DH 32GSV
Article no.	3034225	3034235	3034245
<b>Technical specifications</b>			
Electrical connection	230 V / 1 Ph ~50 Hz	400 V / 3 Ph ~50 Hz	400 V / 3 Ph ~50 Hz
Motor output	1.5 kW	1.5 kW	2.2 kW
Coolant pump motor	-	-	40 W
<b>Drilling performance</b>			
Drilling performance in steel (S235JR)	Ø 24 mm	Ø 26 mm	Ø 30 mm
Continuous drilling performance steel (S235JR)	Ø 21 mm	Ø 23 mm	Ø 26 mm
Thread tapping steel (S235JR)	M 16 x 2 mm	M 16 x 2 mm	M 16 x 2 mm
<b>Spindle holder</b>			
Spindle sleeve stroke	127 mm	127 mm	125 mm
Spindle holder	MT 3	MT 3	MT 4
Throat	235 mm	260 mm	285 mm
Automatic spindle sleeve feed	-	-	0.05 / 0.1 mm
<b>Speeds</b>			
Spindle speeds	45 - 3,200 rpm	45 - 3,200 rpm	40 - 3,000 rpm
4 gears electronically controlled			
<b>Drilling table</b>			
Workspace drilling table length x width	380 x 380 mm	376 x 394 mm	400 x 420 mm
T-groove size	14 mm, diagonal	14 mm, diagonal	14 mm, diagonal
Rotating drilling table	360°	360°	360°
Clearance spindle - drilling table	max. 450 mm	max. 875 mm	max. 820 mm
<b>Machine base</b>			
Machine base work area L x W	350 x 322 mm	350 x 356 mm	420 x 644 mm
T-groove size/amount/spacing	14 mm / 2 / 120 mm	14 mm / 2 / 120 mm	14 mm / 2 / 150 mm
Distance spindle - machine base	max. 610 mm	max. 1,285 mm	max. 1,270 mm
<b>Dimensions</b>			
Column diameter	Ø 92 mm	Ø 92 mm	Ø 115 mm
Dimensions	600 x 380 x 1,300 mm	670 x 550 x 2,080 mm	725 x 450 x 2,200 mm
Overall weight	158 kg	175 kg	304 kg
Transport packaging flat rate**	-	TPFR 1	TPFR 1

### Scope of Delivery

- Morse taper MT 3/B16 (DH 26GTV / DH 28GSV)
- Morse taper MT 4/B16 (DH 32GSV)

Accessories DH 26GTV / DH 28GSV	Article no.
Direct quick clamping MT 3 / 1 - 16 mm	3050573
Quick clamping drill chuck 1 - 8 mm; B16	3050608
Quick clamping drill chuck 1 - 10 mm; B16	3050610
Quick clamping drill chuck 1 - 13 mm; B16	3050623
Quick clamping drill chuck 1 - 16 mm; B16	3050626
Reduction sleeves MT 3 - MT 2	3050663
Twist drill HSS MT 3	3051003
Assortment of clamping tools size 12	3352017
Universal coolant unit	3352002
Thread tapping chuck M5-M12	3352042

Accessories DH 32GSV	Article no.
Direct quick clamping MT 4 / 1 - 16 mm	3050574
Quick clamping drill chuck 1 - 8 mm; B16	3050608
Quick clamping drill chuck 1 - 10 mm; B16	3050610
Quick clamping drill chuck 1 - 13 mm; B16	3050623
Quick clamping drill chuck 1 - 16 mm; B16	3050626
Reduction sleeves MT 4 - MT 3	3050664
Reduction sleeves MT 4 - MT 2	3050665
Assortment of clamping tools size 12	3352017
Thread tapping chuck M5-M12	3352042

Machine vices	Article no.
BMS 100	3000010
BMS 120	3000012
BSI 100	3000210
BSI 140	3000214
BSI-Q 100	3000230
BSI-Q 140	3000234

Accessories	Article no.
Footswitch	3050032

Functions:

- Thread tapping
- Clockwise/anti-clockwise change over switch



› „Accessories for drills“ on page 49

## Universal column gearbox drill with 12 speeds for milling and drilling.

B 40PTE additionally with automatic spindle sleeve feed and pivoting drilling table

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, solid cast design
- ▶ Smooth action due to polished gearwheels running in an oil sump
- ▶ Large speed range from 95 - 3,200 rpm thanks to 12 switchable speeds
- ▶ Two-stage industrial electric motor
- ▶ Coupling for switching over from manual rough to manual fine feed

### B 40 PTE

- ▶ Automatic spindle sleeve feed
- ▶ Drilling table swivels horizontally through 180°



Fig.: B 40E

#### Base plate

- The baseplate can be used as a workspace for particularly high workpieces by swivelling out the drilling table
- Solid
- Precise surface finish



Fig: B 40PTE

#### Drilling head height adjustment

#### B 40PTE - Automatic spindle sleeve feed

Drilling depth stop adjustable within range of 0-90 mm. The feed is automatically switched off after reaching the preset drilling depth and turned back to its original position by the spring force of the return spring

#### Spindle sleeve feed

- Via hand wheel

#### Drilling depth stop

- Adjustable via millimetre scale

#### Chuck protection

- For best possible user protection
- Height-adjustable
- Microswitch

#### Cast column

- Thick walls
- For high force absorption and stability

#### Drilling table

- Generously dimensioned
- Solid
- Precise workmanship
- Diagonal T-grooves
- Circumferential coolant channel
- With pronounced ribbing on rear
- Double clamped

#### Chip filter

- Removes coarse components from the coolant
- In line with Machinery Directive

#### Coolant system

- Coolant tank integrated into base plate

## Technical specifications, accessories and dimensions

Model	B 40E		B 40PTE	
Article no.	3034340		3034345	
Technical specifications				
Electrical connection	400 V / 3 Ph ~50 Hz			
Total connected load	1.1/1.5 kW			
Coolant pump motor	40 W			
Drilling performance				
Drilling performance in steel (S235JR)	Ø 32 mm			
Continuous drilling performance steel (S235JR)	Ø 25 mm			
Thread tapping steel (S235JR)	M 16			
Spindle holder				
Spindle sleeve stroke	120 mm			
Spindle sleeve diameter	75 mm			
Spindle holder	MT 4			
Throat	285 mm			
Autom. spindle sleeve feed	-	0.1/0.18/0.26 mm/rev		
Drilling head	360° rotating 45° pivoting			
Drilling head height adjustment	230 mm			
Speeds				
Spindle speeds	95 - 3,200 rpm			
Number of gears	2 x 6 speeds			
Drilling table				
Drilling table length x width	400 x 420 mm		425 x 445 mm	
T-groove size	14 mm, diagonal			
Rotating drilling table	360°			
Drilling table pivots	-	180°		
Clearance spindle - drilling table	max. 855 mm			
Machine base				
Machine base work area L x W	385 x 385 mm			
T-groove size/amount/spacing	14 mm / 2 / 150 mm			
Distance spindle - machine base	max. 1,215 mm			
Dimensions				
Column diameter	Ø 115 mm			
Length x width x height	720 x 700 x 2,050 mm		710 x 685 x 2,050 mm	
Overall weight	288 kg		302 kg	
Transport packaging flat rate**	TPFR 1			

### Scope of Delivery

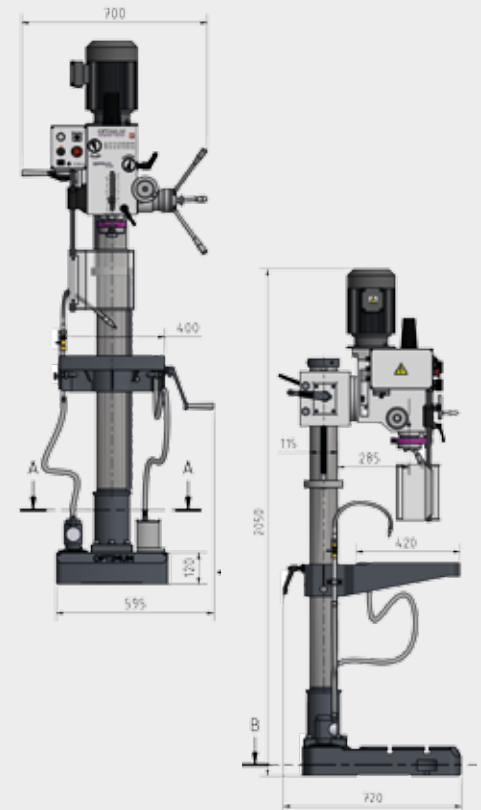
- Quick-action drill chuck 1 - 16 mm
- Morse taper MT 4/B16
- Operating tool

Accessories	Article no.
Quick release chuck direct MT 4/ 1 - 16 mm	3050574
Reduction sleeves MT 4 - MT 3	3050664
Reduction sleeves MT 4 - MT 2	3050665
Assortment of clamping tools size 12	3352017
Thread tapping chuck M5-M12, MK4	3352042

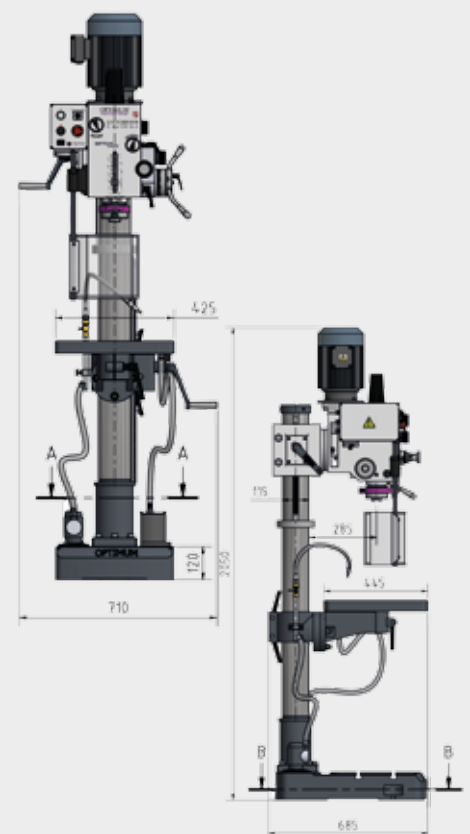
Machine vices	Article no.
BMS 100	3000010
BMS 120	3000012
BSI 100	3000210
BSI 140	3000214
BSI-Q 100	3000230
BSI-Q 140	3000234

› More „Accessories for drills“ on page 49

Dimensions B 40E



Dimensions B 40PTE



## Upright gear drilling machine.

The versatile machine for milling and drilling with XY table

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, solid cast design
- ▶ Smooth action due to polished gearwheels running in an oil sump
- ▶ Large XY table
- ▶ Large speed range of 95 - 3,200 rpm
- ▶ Two-stage industrial quality electric motor
- ▶ Gear head and table are height adjustable
- ▶ Table guideways precisely adjustable via V-ledges
- ▶ Clockwise/Anti-clockwise rotation
- ▶ Gear head pivots through  $\pm 60^\circ$
- ▶ Drilling depth stop

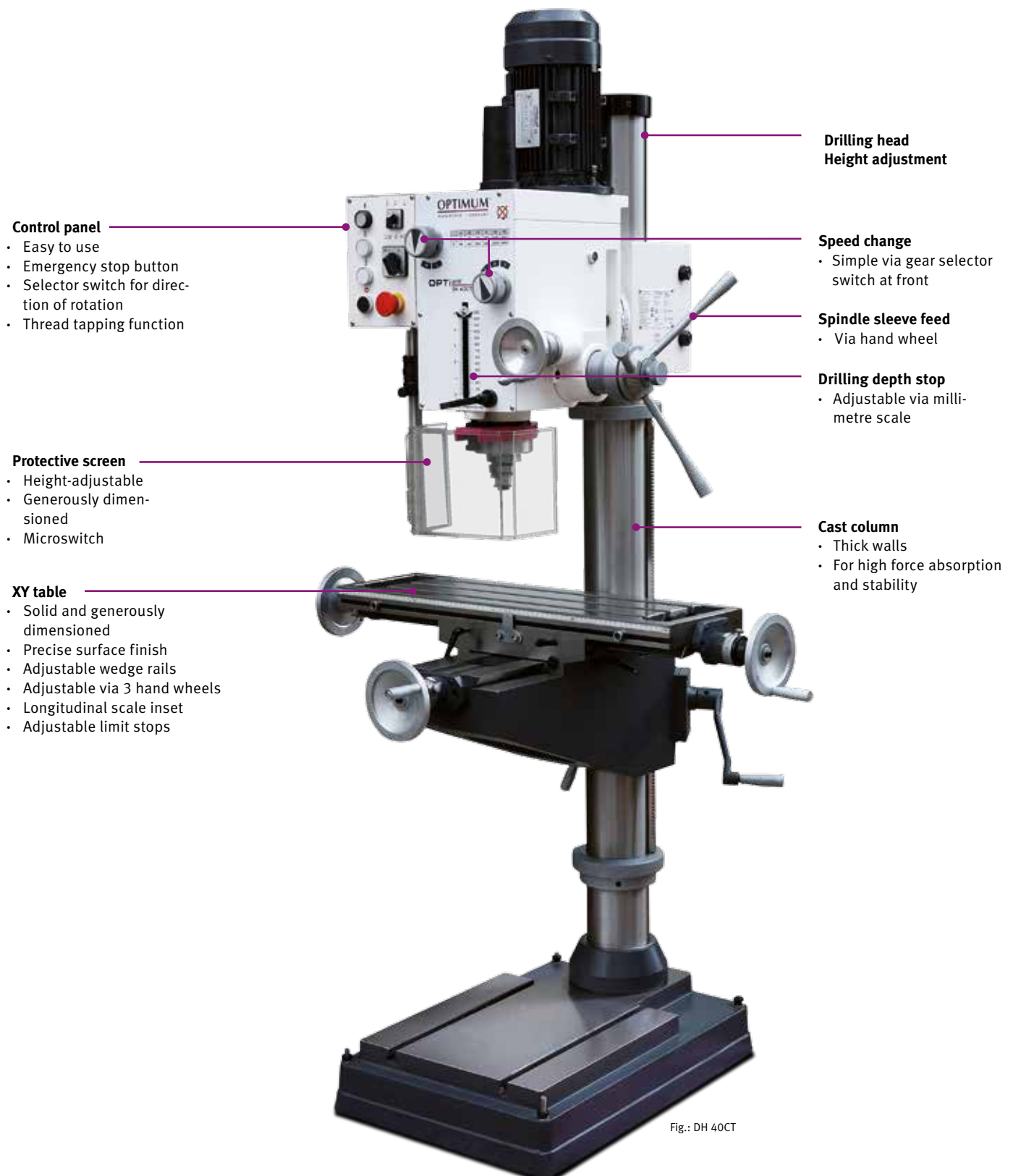


Fig.: DH 40CT



## Technical specifications, accessories and dimensions

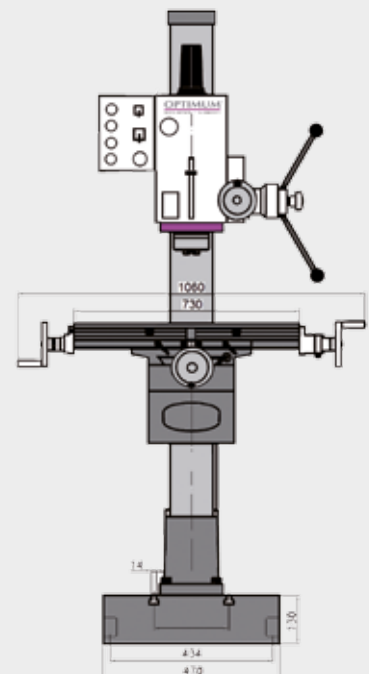
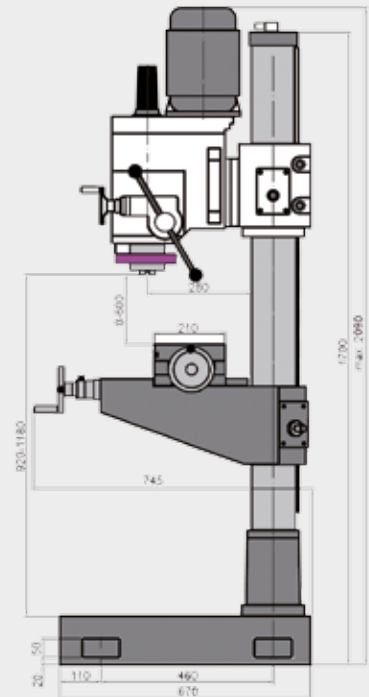
Model	DH 40CT
Article no.	3034350
<b>Technical data</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Motor output, 2 stages	1.1 kW/1.5 kW
<b>Drilling/milling output</b>	
Drilling performance steel (S235JR)	Ø 32 mm
Continuous drilling performance steel (S235JR)	Ø 28 mm
Max. sensor head size	Ø 76 mm
Max. shaft milling cutter size	Ø 25 mm
<b>Spindle holder</b>	
Spindle sleeve stroke	120 mm
Spindle holder	MT 4
Spindle sleeve diameter	75 mm
Throat	280 mm
Tightening bar	M 16
<b>Drilling/milling head</b>	
Swivel range	±45°
Spindle speeds	95 - 3,200 rpm
Gears	2 x 6 speeds
<b>XY table</b>	
Clearance spindle to XY table	600 mm
Table length x width	730 mm x 210 mm
T-groove size/amount/spacing	14 mm / 3 / 63 mm
XY table load bearing capacity	50 kg
<b>Machine base</b>	
Distance spindle - machine base	920 - 1,180 mm
Workspace length x width	670 - 470 mm
<b>Strokes</b>	
X axis manual	480 mm
Y axis manual	180 mm
Z axis manual	560 mm
<b>Dimensions</b>	
Length x width x height	1,060 x 750 x 2,090 mm
Overall weight	350 kg

Accessories	Article no.
Parallel shim set, 20-part	3354001
Height-adjustable tailstock RST 1	3356155
Horiz./vert. rotary indexing table RT 150	3356150
Universal coolant unit	3352002
Assortment of clamping tools size 12	3352017
• Metric thread	
Precision vice FMS 100	3354100
• With turntable	
• Tempered and polished jaws	



› More „Accessories for drills“ on page 49

### Dimensions



### Scope of Delivery

- Gear rim drill chuck 1 - 13 mm / B18
- T-slot nuts
- Push-out tool
- Reduction sleeve MT 4 - MT 3
- Operating tool

## Heavy-duty gearbox drilling machine with thread tapping device.

### Facts that impress in terms of quality, performance and price

- Heavy, solid cast design
- Automatic gearwheel lubrication via oil pump
- Excellent concentricity thanks to hardened and polished main spindle
- Thread tapping device.
- Main switch and motor circuit breaker
- Automatic spindle sleeve feed  
for **B 40GSM** electrical  
for **B 40GSP** mechanical

#### Spindle speed

- 9 switchable speeds via gear shift lever on front side of drilling head
- Two-stage drive motor
- 18 speeds 50 - 1,450 rpm

#### Easy tool changing

thanks to integrated push-out tool

- Insert the push-out tool
- Push the handle up
- The taper mandrel is pushed out of the drill spindle

#### Control cabinet

- Clear-cut layout
- Generously dimensioned
- Certified switches by ABB
- 24V AC
- Certified components by Siemens or Schneider



#### Drilling depth stop

- Adjustable via millimetre scale

#### Clockwise/Anti-clockwise rotation

- For thread tapping

#### Machine lamp

- Integrated in drilling head

#### Cast column

- Thick walls
- Good force absorption
- Extremely stable

#### Drilling table

- Generously dimensioned
- Solid
- Precise workmanship
- Diagonal T-grooves
- Circumferential coolant channel
- With pronounced ribbing on rear
- $\pm 90^\circ$  rotation about own axis and about column

#### Coolant system

- Coolant tank integrated into base plate
- Tank capacity 5 litres
- Delivery rate 2 l/min

#### Chip filter

- Removes coarse components from the coolant
- In line with Machinery Directive

#### Base plate

- Solid
- Parallel T-grooves
- Precise surface finish



Fig.: B 40GSM

#### Spindle quill feed 2 speeds 0.1/0.2 mm/rev



**B 40GSM - electrical** For deep drilling or blind hole drilling, the clutch on the automatic spindle sleeve feed can be released or engaged at any time by pressing the button on the feed handle.



**B 40GSP - manual**

## Technical specifications, accessories and dimensions

<b>Model</b>	<b>B 40GSP</b>
Article no.	3034403
<b>Model</b>	<b>B 40GSM</b>
Article no.	3034400

<b>Technical specifications</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Total connected load	0.85 / 1.5 kW
Coolant pump motor	40 W
<b>Drilling performance</b>	
Drilling performance in steel (S235JR)	Ø 35 mm
Continuous drilling performance in steel (S235JR)	Ø 30 mm
Thread tapping steel (S235JR)	M 24
<b>Spindle holder</b>	
Spindle sleeve stroke	180 mm
Spindle holder	MT 4
Throat	350 mm
Spindle quill feed	2 speeds, 0.1/0.2 mm/rev
<b>Speeds</b>	
Spindle speeds	50 - 1,450 rpm
Number of gears	18 gears
<b>Drilling table</b>	
Workspace drilling table length x width	560 x 560 mm
T-groove size	18 mm, diagonal
Drilling table pivots/rotates	± 90°
Clearance spindle - drilling table	max. 780 mm
Drilling table load bearing capacity	250 kg
<b>Machine base</b>	
Machine base work area L x W	510 x 500 mm
T-groove size/amount/spacing	18 mm / 2 / 150 mm
Clearance spindle - machine base	max. 1,320 mm
<b>Dimensions</b>	
Column diameter	Ø 150 mm
Length x width x height	935 x 530 x 2,280 mm
Overall weight	500 kg
Transport packaging flat rate**	TPFR 1

### Scope of Delivery

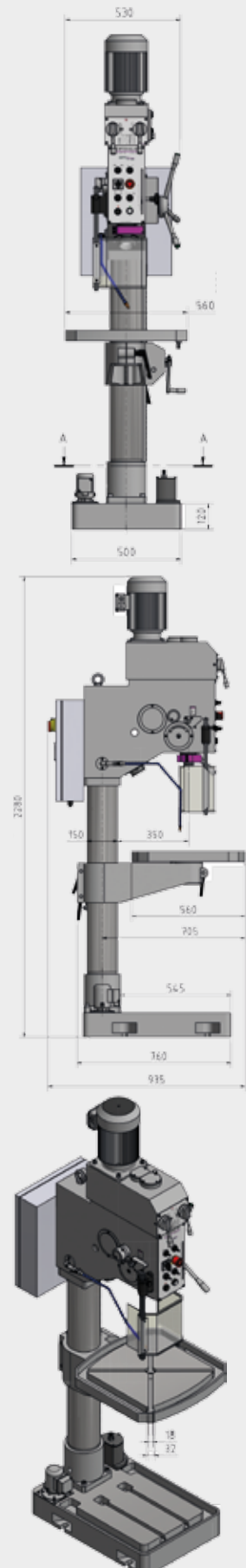
- Quick-action drill chuck 1 - 16 mm
- Morse taper MT 4/B16

<b>Accessories</b>	<b>Article no.</b>
<b>Quick release chuck direct</b> MT 4 / 1 - 16 mm	3050574
<b>Reduction sleeves</b> MT 4 - MT 3	3050664
<b>Morse taper</b> MT 4/B16	3050661
<b>Reduction sleeves</b> MT 4 - MT 2	3050665
<b>Assortment of clamping tools</b> size 16	3352019
<b>Thread tapping chuck</b> M5 - M12, MT 4	3352042

<b>Machine vices</b>	<b>Article no.</b>
<b>BMS 100</b>	3000010
<b>BMS 120</b>	3000012
<b>BSI 100</b>	3000210
<b>BSI 140</b>	3000214
<b>BSI-Q 100</b>	3000230
<b>BSI-Q 140</b>	3000234

› More „Accessories for drills“ on page 49

### Dimensions



## Heavy-duty gear drilling machine with thread tapping unit.

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, solid cast design
- ▶ Automatic gearwheel lubrication via oil pump
- ▶ Excellent concentricity thanks to hardened and polished main spindle
- ▶ Thread tapping device.
- ▶ Main switch and motor circuit breaker
- ▶ Generously dimensioned, height adjustable protective screen with safety switch for greatest possible user protection
- ▶ Drilling depth stop
- ▶ 24 V DC electronics
- ▶ Mechanical spindle sleeve feed
- ▶ Dirt- and water-resistant, easy-to-clean membrane keyboard
- ▶ Optional footswitch available for toggling between clockwise/ anticlockwise run and for thread tapping



#### Front panel

- User-friendly membrane keyboard

#### Drilling depth stop

- Adjustable via millimetre scale

#### Machine lamp

- Integrated in drilling head

#### Cast column

- Thick walls
- Good force absorption
- Extremely stable

#### Drilling table

- Generously dimensioned, solid, precision workmanship
- Parallel T-grooves
- Circumferential coolant channel
- With pronounced ribbing on rear
- $\pm 90^\circ$  rotation about own axis and about column

#### Chip filter

- Removes coarse components from the coolant
- In line with Machinery Directive

#### Coolant tank

- External, can be removed for easier and complete emptying

#### Base plate

- Solid
- Parallel T-grooves
- Precise surface finish





## Technical specifications, accessories and dimensions

Model	DH 45G
Article no.	3034255
<b>Technical specifications</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Motor output	2.2 kW
Coolant pump motor	40 W
<b>Drilling performance</b>	
Drilling performance in steel (S235JR)	Ø 40 mm
Continuous drilling performance in steel (S235JR)	Ø 35 mm
Thread tapping steel (S235JR)	M 35
<b>Spindle holder</b>	
Spindle sleeve stroke	170 mm
Spindle holder	MT 4
Throat	350 mm
Automatic spindle sleeve feed	3 speeds / 0.1 - 0.2 mm/rev
Coupling	Mechanical
<b>Speeds</b>	
Spindle speeds	90 - 1,520 rpm
Number of gears	8 gears
<b>Drilling table</b>	
Workspace drilling table length x width	530 x 530 mm
T-slot size / spacing / count	16 mm / 3 / 125 mm
Drilling table load bearing capacity	250 kg
Clearance spindle - drilling table	130 - 725 mm
<b>Machine base</b>	
Machine base work area L x W	435 x 480 mm
T-slot size / spacing / count	18 mm / 2 / 150 mm
Distance spindle - machine base	max. 1,210 mm
<b>Dimensions</b>	
Column diameter	Ø 150 mm
Dimensions	880 x 595 x 2,445 mm
weight	560 kg

### Scope of Delivery

- Quick-action drill chuck 1 - 16 mm
- Morse taper MT 4-B16
- Operating tool

Accessories	Article no.
Quick release chuck direct MT 4 / 1 - 16 mm	3050574
Reduction sleeves MT 4 - MT 3	3050664
Twist drill HSS with morse taper MT 3	3051003
Morse taper MT 4/B16	3050661
Assortment of clamping tools size 16	3352019
Thread tapping chuck M5 - M12, MT 4	3352042

Accessories	Article no.
Footswitch	3050032

### Functions:

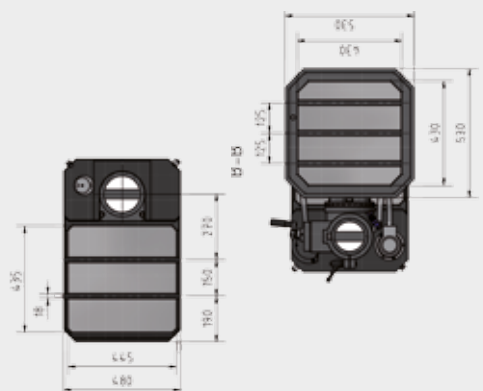
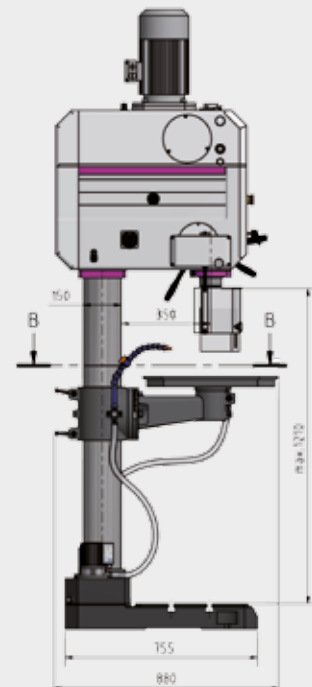
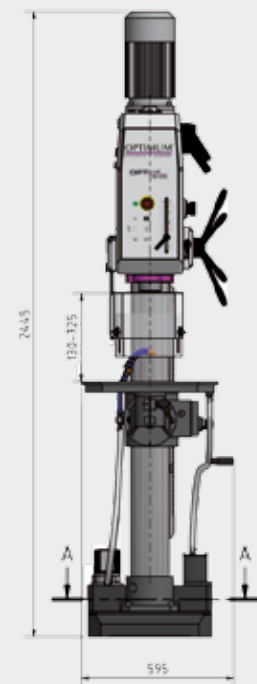
- Thread tapping
- Clockwise/anti-clockwise change over switch

Machine vices	Article no.
<b>MSO 150</b>	3000150
<b>BMS 200</b>	3000020
<b>BSI 100</b>	3000210
<b>BSI 140</b>	3000214
<b>BSI-Q 100</b>	3000230
<b>BSI-Q 140</b>	3000234

› More „Accessories for drills“ on page 49



### Dimensions



## Heavy duty gearbox drill for industrial use

With coolant and thread tapping unit, and automatic spindle sleeve feed

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, solid cast design
- ▶ Smooth action due to polished gearwheels running in an oil sump
- ▶ Excellent concentricity thanks to tempered and ground main spindle
- ▶ Two-stage drive motor
- ▶ Automatic gearwheel lubrication via oil pump
- ▶ Thread tapping device.
- ▶ Main switch and motor circuit breaker
- ▶ Machine lamp integrated into drilling head

Heavy, solid cast design  
**950 kg**  
Smooth action, stable

### Integrated push-out tool

- Easy tool changes through ejector



### Drilling table

- Generously dimensioned
- Solid
- Precise workmanship
- Diagonal T-grooves
- With pronounced ribbing on rear
- $\pm 90^\circ$  rotation about own axis and about column
- Circumferential coolant channel



### Base plate

- Can be used as a workspace for particularly high workpieces by swivelling out the drilling table
- Solid
- Parallel T-grooves
- Precise surface finish

### Automatic spindle sleeve feed



For deep drilling or blind hole drilling, the clutch on the automatic spindle sleeve feed can be released or engaged at any time by pressing the button on the feed handle.

### Spindle sleeve feed

- Via hand wheel

### Chuck protection

- Best possible user protection
- Height-adjustable
- Microswitch

### Cast column

- Extremely thick walls
- Smooth action and stability
- Column diameter 200 mm

### Table height adjustment

- motorised
- Displacement speed 450 mm/min.

### Coolant system

- Coolant tank integrated into base plate
- Tank capacity 5 litres
- Delivery rate 2 l/min

### Chip filter

- Removes coarse components from the coolant
- In line with Machinery Directive

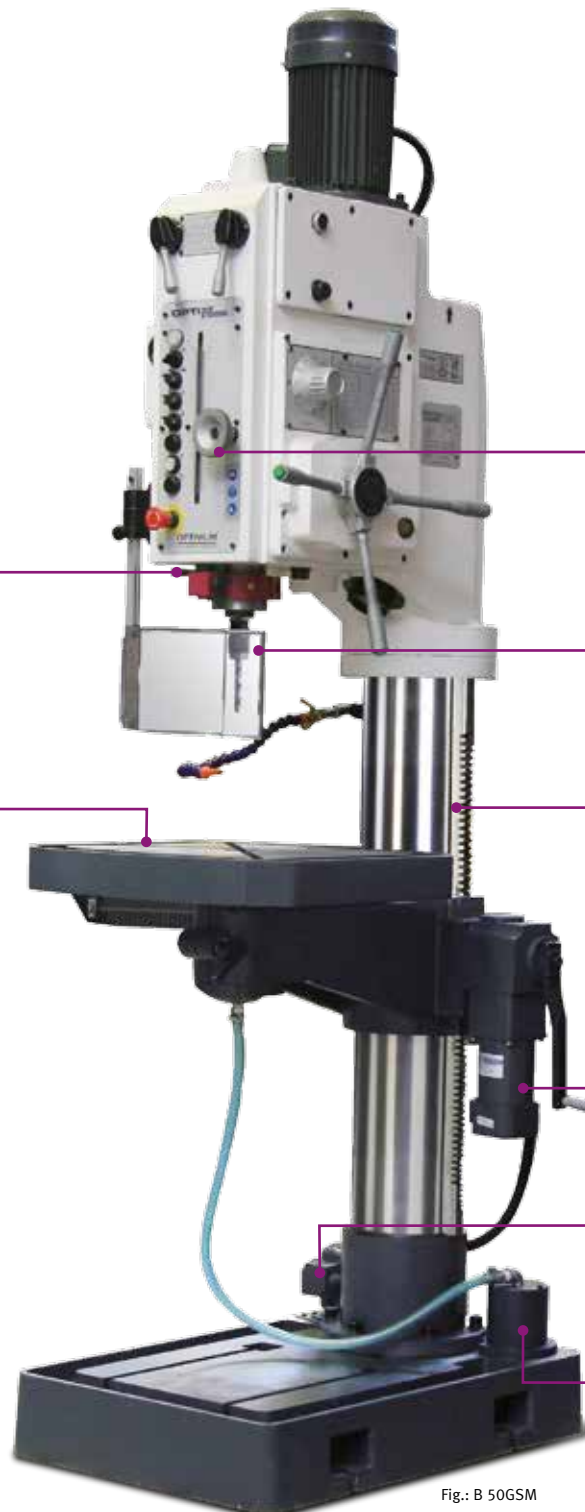


Fig.: B 50GSM

## Technical specifications, accessories and dimensions

Model	B 50GSM
Article no.	3034500
<b>Technical specifications</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Total connected load	2.4/3.0 kW
Coolant pump motor	40 W
<b>Drilling performance</b>	
Drilling performance in steel (S235JR)	Ø 50 mm
Continuous drilling performance in steel (S235JR)	Ø 45 mm
Thread tapping steel (S235JR)	M 42
<b>Spindle holder</b>	
Spindle sleeve stroke	230 mm
Spindle holder	MT 4
Throat	375 mm
Autom. spindle sleeve feed	6 speeds, 0.05-0.3 mm/rev
<b>Speeds</b>	
Spindle speeds	54 - 2,090 rpm
Number of gears	18 gears
<b>Drilling table</b>	
Workspace drilling table length x width	600 x 600 mm
T-groove size	18 mm, diagonal
Drilling table load bearing capacity	300 kg
Drilling table pivots/rotates	± 90°
Clearance spindle - drilling table	max. 800 mm
<b>Machine base</b>	
Machine base workspace length x width	600 x 520 mm
T-groove size/amount/spacing	18 mm / 2 / 280 mm
Distance spindle - machine base	max. 1,300 mm
<b>Dimensions</b>	
Column diameter	Ø 200 mm
Length x width x height	985 x 775 x 2,460 mm
Overall weight	950 kg
Transport packaging flat rate**	TPFR 1

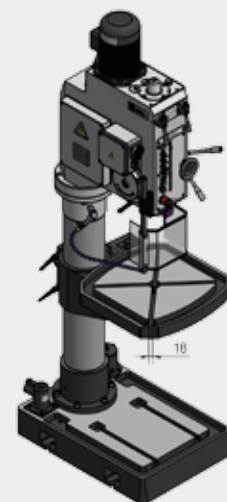
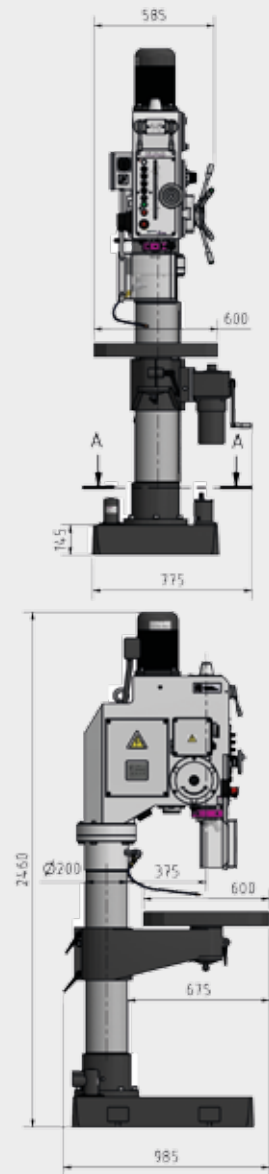
### Scope of Delivery

- Quick-action drill chuck 1 - 16 mm
- Morse taper MT 4/B16
- T-slot nuts

Accessories	Article no.
Quick release chuck direct MT 4 / 1 - 16 mm	3050574
Reduction sleeves MT 4 - MT 3	3050664
Twist drill HSS with morse taper MT 3	3051003
Morse taper MT 4/B16	3050661
Assortment of clamping tools size 16	3352019
Thread tapping chuck M5 - M12, MT 4	3352042

Machine vices	Article no.
MSO 150	3000150
BMS 200	3000020
BSI 100	3000210
BSI 140	3000214
BSI-Q 100	3000230
BSI-Q 140	3000234
› More „Accessories for drills“ on page 49	

### Dimensions



## Precision radial drilling machine with standard chassis and clamping table. Suitable for machining bulky workpieces

### Facts that impress in terms of quality, performance and price

- ▶ Versatile range of applications
- ▶ Solid grey cast iron ensures stability, smooth action and precision
- ▶ Spindle with precision taper roller bearings
- ▶ Powerful premium motor
- ▶ Automatic gearwheel lubrication via oil pump
- ▶ Guaranteed concentricity better than 0.015 mm measured in the drilling spindle sleeve
- ▶ Large speed range from 155 - 2,250 rpm thanks to two-speed motor
- ▶ Long reach thanks to horizontally adjustable machine head
- ▶ Solid, precision drilling table, generously dimensioned with precision surface finish and parallel T-slots
- ▶ Thick-walled steel column (Ø 115 mm) ensures smooth action and stability
- ▶ Electrical brake motor
- ▶ Mechanical head, column and boom clamping

#### Machine head

- Long reach thanks to horizontally adjustable machine head

#### Complete DC control cabinet



#### Circuit breaker

- Standards-compliant

#### Controls with 24 V DC electrical system



Figure shows optional chuck



## Technical specifications, accessories and dimensions

Model	RD 3
Article no.	3049030
<b>Technical specifications</b>	
Electrical connection	400 V / 3 Ph ~ 50 Hz
Total connected load	0.55 / 1.1 kW
<b>Drilling performance</b>	
Drilling performance in steel (S235JR)	Ø 28 mm
Continuous drilling performance steel (S235JR)	Ø 24 mm
Thread tapping steel (S235JR)	M 12
<b>Spindle</b>	
Spindle sleeve stroke	130 mm
Spindle holder	MT 3
Throat	160 - 530 mm
<b>Speeds</b>	
Spindle speeds	155 - 2,250 rpm
Number of gears	2 x 5 speeds
<b>Drilling table</b>	
Drilling table length x width	780 x 520 mm
Usable workpiece mounting surface	500 x 550 mm
T-groove size/amount/spacing	16 mm / 3 / 100 mm
Clearance spindle to table	170 - 630 mm
<b>Clamping table</b>	
Drilling table length x width x height	280 x 230 x 200 mm
T-groove size/amount/spacing	16 mm / 2 / 98 mm
Distance spindle to clamping table	0 - 430 mm
<b>Dimensions</b>	
Column diameter	Ø 115 mm
Length x width x height	870 x 645 x 1,550 mm (chassis 2,150 mm)
Overall weight	288 kg

### Scope of Delivery

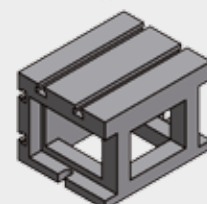
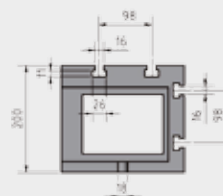
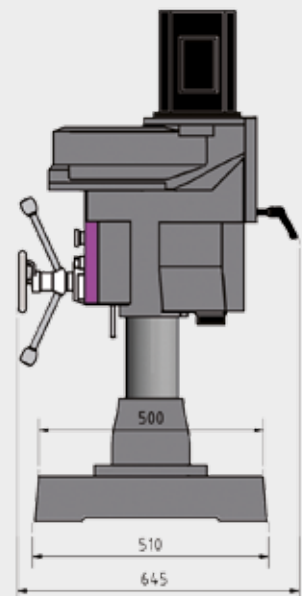
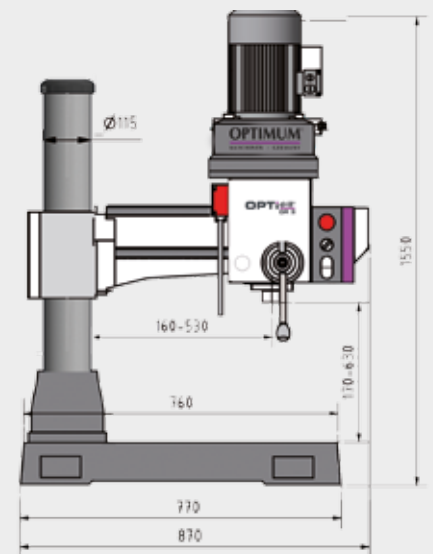
- Machine chassis
- Clamping table

Accessories	Article no.
Quick release chuck direct MT 3/ 1 - 16 mm	3050573
Reduction sleeves MT 3 - MT 2	3050663
Morse taper MT 3/B16	3050660
Twist drill HSS MT 3	3051003
Assortment of clamping tools size 14	3352017
Universal coolant unit	3352002
Thread tapping chuck M5-M12	3352042

Machine vices	Article no.
MSO 150	3000150
BMS 200	3000020
BSI 100	3000210
BSI 140	3000214
BSI-Q 100	3000230
BSI-Q 140	3000234

› More „Accessories for drills“ on page 49

### Dimensions



## Precision, solid radial drilling machines.

Ideal for versatile deployment in one-off and serial production

Top quality

### Facts that impress in terms of quality, performance and price

- ▶ Versatile range of applications drilling, reaming, thread tapping
- ▶ Powerful industrial motor
- ▶ Heavy, solid, premium quality casting
- ▶ Long reach thanks to horizontally adjustable machine head
- ▶ Clear-cut control panel layout
- ▶ Smooth action pivoting and travel axes
- ▶ Torsionally stiff boom design, capable of supporting heavy loads
- ▶ Height-adjustment of boom via powerful motorised drive and lifting spindle
- ▶ Drilling head gear box runs in oil sump
- ▶ Boom guideways tempered and precision ground
- ▶ Gear wheels made of chrome-nickel steel, tempered and precision ground for lower noise and smooth action
- ▶ Drilling head and column can be clamped or released separately
- ▶ Clockwise/Anti-clockwise rotation
- ▶ Coolant unit with coolant tank in machine base
- ▶ Solid, generously dimensioned precision drilling table
- ▶ With parallel T-slots
- ▶ Machine lamp
- ▶ Overload protection
- ▶ Thick-walled steel column ensures extremely smooth action and stability
- ▶ Adjustable drilling depth stop with millimetre scale
- ▶ Electrical brake motor
- ▶ LED lamp

### RD 4 / RD 5

- ▶ All axes are clamped manually

### RD 6

- ▶ Column is clamped hydraulically

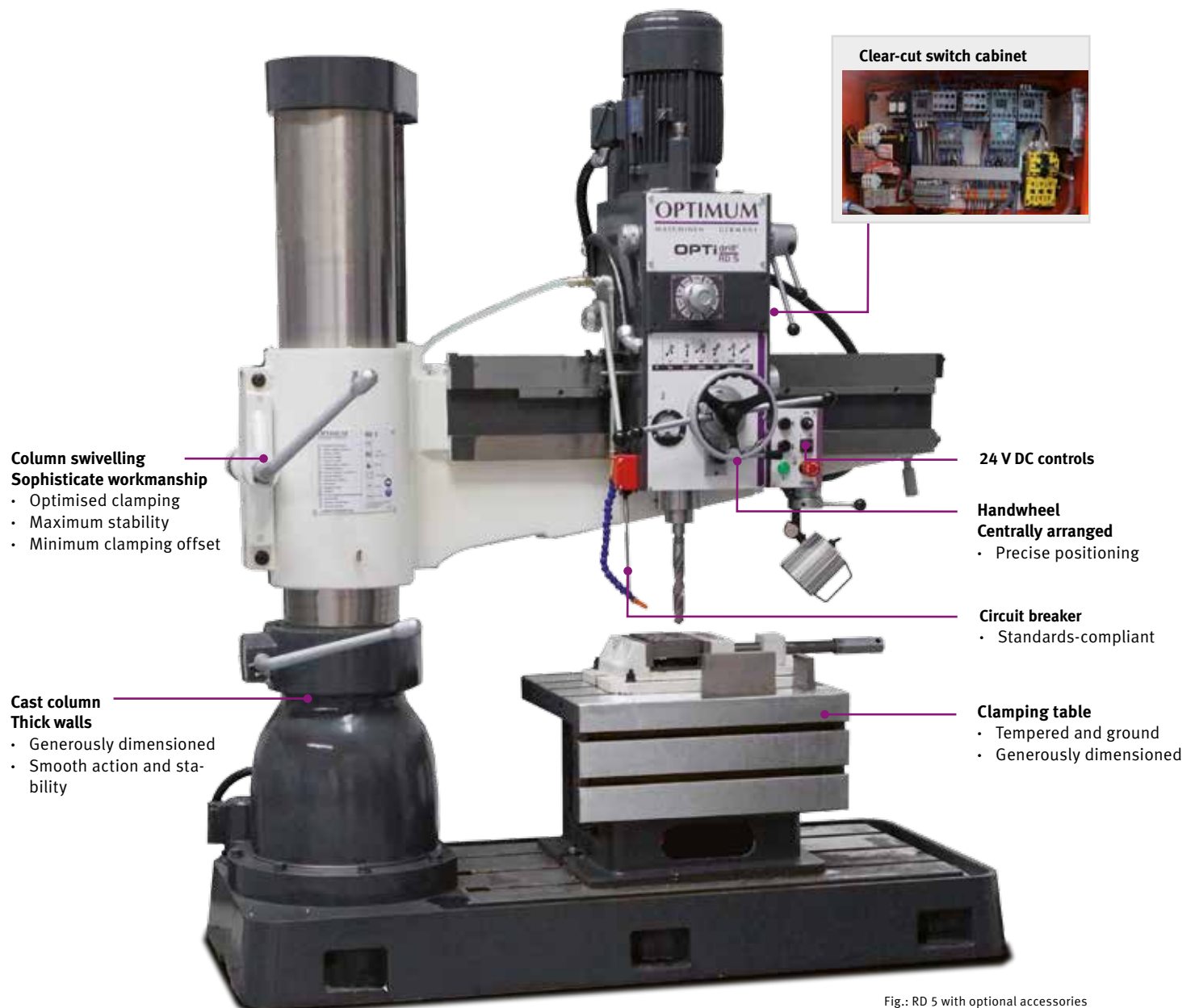


Fig.: RD 5 with optional accessories

## Technical data and dimensions

Model	RD 4	RD 5	RD 6
Article no.	3049040	3049050	3049070
<b>Technical specifications</b>			
Electrical connection	400 V / 3 Ph ~50 Hz	400 V / 3 Ph ~50 Hz	400 V / 3 Ph ~50 Hz
Total rated value	3 kW	4 kW	6.5 kW
Spindle motor drive output	1.5 kW	2.25 kW	4 kW
Boom lift motor drive output	0.75 kW	0.75 kW	1.5 kW
Hydraulic clamping drive	-	-	0.75 kW
Coolant pump motor	90 W	90 W	90 W
<b>Drilling performance</b>			
Drilling performance in steel (S235JR)	Ø 32 mm	Ø 42 mm	Ø 50 mm
Continuous drilling performance in steel (S235JR)	Ø 28 mm	Ø 40 mm	Ø 45 mm
<b>Spindle holder</b>			
Spindle sleeve stroke	220 mm	230 mm	270 mm
Spindle holder	MT 4	MT 4	MT 5
Feed	3 speeds / 0.05 - 0.15 mm/rev	3 speeds / 0.05 - 0.15 mm/rev	6 speeds / 0.06 - 0.2 mm/rev
<b>Boom</b>			
Angle of rotation	± 180°	± 180°	± 180°
Drilling head travel (horizontal)	530 mm	820 mm	1,250 mm
Boom lift stroke (vertical)	580 mm	570 mm	680 mm
<b>Speeds</b>			
Spindle speeds	73 - 1,247 rpm	37 - 1,253 rpm	44 - 1,206 rpm
Number of gears	6	12	12
<b>Drilling table</b>			
Base length x width	1,260 x 700 mm	1,608 x 745 mm	2,550 x 970 mm
Base work area	828 x 522 mm	1,147 x 589 mm	1,800 x 830 mm
T-groove size/amount/spacing	19 mm / 3 / 171 mm	19 mm / 3 / 171 mm	14 mm / 4 / 180 mm
Clearance spindle to base	260 - 1,060 mm	470 - 1,270 mm	465 - 1,420 mm
Distance spindle to column	220 - 750 mm	280 - 1,100 mm	350 - 1,600 mm
<b>Clamping table</b>			
Distance spindle to clamping table	0 - 675 mm	50 - 850 mm	0 - 910 mm
Clamping table work area	600 - 445 mm	635 - 520 mm	630 x 505 mm
T-groove size/amount/spacing	19 mm / 3 / 100 mm	19 mm / 3 / 121 mm	22 mm / 3 / 150 mm
<b>Dimensions</b>			
Column diameter	210 mm	260 mm	320 mm
Length x width x height (max.)	1,260 x 700 x 2,180 mm	1,725 x 745 x 2,550 mm	2,670 x 1,120 x 2,760 mm
Net weight	1,120 kg	1,800 kg	3,200 kg
Transport surcharge**	TPZ2000	TPZ2000	TPZ4000

### Scope of Delivery

- Clamping table

Accessories RD 4 / RD 5	Article no.
<b>Direct quick release chuck</b> MT 4 / 1-16 mm	3050574
<b>Reduction sleeves</b> MT 4 - MT 3	3050664
<b>Twist drill</b> HSS MT 3	3051003
<b>Morse taper</b> MT 4/B16	3050661
<b>Assortment of clamping tools</b> size 16	3352019
<b>Thread tapping chuck</b> M5 - M12, MT 4	3352042

Accessories RD 6	Article no.
<b>Morse taper</b> MT 5 - B16	3050675
<b>Precision quick release chuck</b> <b>1 - 8 mm; B16</b>	3050608
<b>1 - 10 mm; B16</b>	3050610
<b>1 - 13 mm; B16</b>	3050623
<b>1 - 16 mm; B16</b>	3050626
<b>Thread tapping chuck</b> M5-M12	3352042

## Compatibility overview accessories for drills

Accessories drilling			Accessories drilling																																				
			B13	B14	B16	B20	B25	B32	RB 6T	RB 8S	B 17Pro	B 23Pro	B 26Pro	B 33Pro	B 16 H	B 24H/HV	B 28H/HV	B 34H/HV	DH 18V	DX 13V	DX 15V	DX 17V	DH 248V	DH 288V	DH 408V	DH 26GT/6TV	DH 28GS/6SV	DH 32GS/6SV	DH 40CT	B 40E/B 40PTE	B40 GSM/6SP	DH 45G	B50 GSM	RD 3	RD 4 / RD 5	RD 6			
			B16	B16	MK2	MK2	MT3	MT4	MK2	MK2	MK2	MK2	MT3	MT4	MK2	MK2	MT3	MT4	MK2	MK2	MT2	B 16	MT2	B 16	MK2	MT3	MT4	MT3	MT3	MT4	MT4	MT4	MT4	MT4	MT4	MT3	MT4	MT5	
Direct SSBF	MT 2	3050571			●	●	○	○	●	●	●	●								●	●	○	○	●			○			○	○	○	○	○	○	○	○	○	○
	MT 2	3050572			●	●	○	○	●	●	●	●								●	●	○	○	●			○			○	○	○	○	○	○	○	○	○	○
	MT 3	3050573						●	○				●	●						●	○					●	○	●	●	○			○	○	○	○	○	○	○
	MT 4	3050574						●							●				●								●			●	●	●	●	●	●	●	●	●	○
Precision SSBF B16	1 - 8 mm	3050608	●	●	○	○	○	○	○	○	●	●	●	●	●	●	●	●	●		●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○
	1 - 10 mm	3050610	●	●	○	○	○	○	○	○	●	●	●	●	●	●	●	●	●		●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○
	1 - 13 mm	3050623	●	●	○	○	○	○	○	○	●	●	●	●	●	●	●	●	●		●	●		●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	
	1 - 16 mm	3050626	●	●	○	○	○	○	○	○	●	●	●	●	●	●	●	●	●		●	●		●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	
Reduction sleeves	MT 3-MT 2	3050663					●						●					●							●		●	●							●				
	MT 4-MT 3	3050664						●						●				●							●			●	●	●	●	●	●	●	●	●	●		
	MT 4-MT 2	3050665						●						●				●								●			●	●	●	●	●	●	●	●	●	●	
Morse cone B16	MT 2	3050659			●	●			●	●	●	●				●	●			●		●		●															
	MT 3	3050660					●						●				●							●		●	●									●			
	MT 4	3050661						●						●				●								●			●	●	●	●	●	●	●	●	●	●	
Twist drill HSS	MT 2	3051002			●	●	○	○	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	MT 3	3051003			○	○	●	○	○	○		○	●	○	○		○	○							○	●	●	○	○	○	○	○	○	○	○	○	○	○	○
Thread tapping chuck B 16		3342042			●	●	●	●	●	●	○	●	●	●	○	●	●	●			●		●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	
Taper drill punch	MSP 1	3050636				●	●	●	●	●	●	●	●			●	●				●		●	●		●	●								●	●			
	MSP 2	3050637												●				●							●			●	●	●	●	●	●	●	●				
Clamping tools	Size 8	3352015																		●	●																		
	Size 10	3352016									●	●			●																								
	Size 12	3352017	●	●	●	●	●	●	●	●			●	●		●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●					○		
	Size 14	3352018																															●	●	●	●			
	Size 16	3352019																															○	○	○	○	○		
Collet chuck	MT 4	3352094																												●	●								

Vices																																		
Vice	MSO 75	3000075	●	●	●	●	●	●	●	●	○	○		○	●	●	●	●	●	●	●	●	○	○	○	○	○							
	MSO 100	3000100	○	○	●	●	●	●	●	○	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○							
	MSO 125	3000125			○	●	●	●	●	●		○	●	●		●	●	●	○	○	●	●	●	●	●	●	●	●						
	MSO 150	3000150					●		●			●	○		○	○	●				○	○	●	●	●	●	●	●			○			
Vice	BMS 85	3000008								●	●			●					●	●														
	BMS 100	3000010	●	●	●	●	●	●	●	○	●	●	●	●	●	●		●	●		●	●	●	●	●	●	●	●				○		
	BMS 120	3000012	●	●	●	●	●	●	●		●	●	●		●	●	●		●	●	●	●	●	●	●	●	●				●			
	BMS 150	3000015	○	○	○	●	●	●	●	●			●	○		○	○	●	○			○	●	●	●	●	●	●	●			●		
	BMS 200	3000020			○	○	○	○	○	○	○	○	○	○	○	○	○	○				○	○	○	○	●	●				○			
Vice	BSI 100	3000210	●	●	●	●	●	●	●	●	●	○	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○							
	BSI 140	3000214	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○				○			
	BSI 200	3000220																										●	●	●	●	●		
Vice	BSI-Q 100	3000230	●	●	●	●	●	●	●	●	●	○	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○							
	BSI-Q 140	3000234	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○				●			
	BSI-Q 200	3000240																			○			○	○		●	○	●	○	●			
			● Recommended											○ Recommended - restrictions apply																				
This equipment table covers all recommended equipment options. Depending on the individual case, use of accessories can be meaningful beyond this.																																		



Collet chuck set	Article no.
<b>MT 2/ ER 25 - M10</b>	3352052
• Collet chuck	
• 15 spring collets; sizes Ø 1.5 - Ø 16 mm/DIN ISO 15488	
• Hook wrench	
• Aluminium case	
<b>MT 2/ ER 32 - M10</b>	3352053
• Collet chuck	
• 18 spring collets; sizes Ø 2 - Ø 20 mm/DIN ISO 15488	
• Hook wrench	
• Aluminium case	
<b>MT 3/ ER 32 - M12</b>	3352093
• Collet chuck	
• 18 spring collets; sizes Ø 2 - Ø 20 mm/DIN ISO 15488	
• Hook wrench	
• Aluminium case	
<b>MT 4/ ER 32 - M16</b>	3352094
• Collet chuck	
• 18 spring collets; sizes Ø 2 - Ø 20 mm/DIN ISO 15488	
• Hook wrench	
• Aluminium case	



Assortment of clamping tools size	Article no.
• Metric thread	
• 58-part: 24 pull studs, 6 T-slot nuts, 6 nuts, 4 extension nuts, 6 step blocks, 12 clamping blocks	
<b>Size 8</b>	3352015
• T-slot nuts 10 mm; locking thread M 8	
<b>Size 10</b>	3352016
• T-slot nuts 12 mm; locking thread M 10	
<b>Size 12</b>	3352017
• T-slot nuts 14 mm; locking thread M 12	
<b>Size 14</b>	3352018
• T-slot nuts 16 mm; locking thread M 14	
<b>Size 16</b>	3352019
• T-slot nuts 18 mm; locking thread M 16	



T-slot nut (individual)	Article no.
M 8 / 10 mm	3353020
M 10 / 12 mm	3353022
M 12 / 14 mm	3353024
M 14 / 16 mm	3353026
M 16 / 18 mm	3353028

End mill set HSS	Article no.
• Titanium coated	
• Improved hardness and stability with 2x to 5x service life	
• Twice the machining performance	
• Improved workpiece finish	
• With cylindrical shaft and lateral lugs	
• Version with 2 cutting edges for milling keyways/fixing grooves and milling out the workpiece centre	
• Vertical or lateral milling possible	
• Version with 4 cutting edges and 30° right-hand twist for good chip removal in normal to hard materials	
• Wooden crate	
<b>12-part</b>	3352113
• 6 end mills, short version · Version with 2 cutting edges. DIN 1835 B (Ø12x73, Ø10 x 63, Ø8 x 61, Ø6 x 52, Ø5 x 52, Ø4 x 51 mm)	
• 6 end mills, short version · Version with 4 cutting edges. DIN 1835 B (Ø12 x 83, Ø10 x 73, Ø8 x 61, Ø6 x 57, Ø5 x 57, Ø4 x 55 mm)	
<b>20-part</b>	3386200
• 10 end mills DIN 327 D · Short version · 2 cutting edges DIN 1835 B, (3/4/5/6/8/10/12/14/18/20 mm)	
• 10 end mills DIN 844 B · Short version · 4 cutting edges DIN 1835 B, (3/4/5/6/8/10/12/14/18/20 mm)	



Twist drill HSS with morse taper	Article no.
• 9-part; sizes 14.5/16/18/20/22/24/26/28/30 mm	
• Long service life.	
• Good chip removal	
• Right handed	
<b>MT 2</b>	3051002
<b>MT 3</b>	3051003



Thread tapping chuck with 6 inserts	
<b>MT 3; M3 - M12</b>	3050705
<b>MT 4; M3 - M12</b>	3050709
M3, M4, M5, M6-8, M10, M12	
<b>MT 3; M8 - M20</b>	3050706
<b>MT 4; M8 - M20</b>	3050710
M8, M10, M12, M14, M16, M18-M20	



## Accessories for drills

<b>OPTIMUM Precision quick release chuck</b>	Article no.
Concentricity better than 0.06 mm	
<b>1 - 8 mm; B16</b>	3050608
<b>1 - 10 mm; B16</b>	3050610
<b>1 - 13 mm; B16</b>	3050623
<b>1 - 16 mm; B16</b>	3050626



<b>OPTIMUM Direct quick release chuck</b>	Article no.
<b>MT 2 1 - 16 mm; up to 6,000 rpm</b>	3050571
<b>MT 2 1 - 13 mm; up to 8,000 rpm</b>	3050572
<b>MT 3 1 - 16 mm; up to 6,000 rpm</b>	3050573
<b>MT 4 1 - 16 mm; up to 6,000 rpm</b>	3050574



<b>Reduction sleeves</b>	Article no.
<b>MT 3 - MT 2</b>	3050663
<b>MT 4 - MT 3</b>	3050664
<b>MT 4 - MT 2</b>	3050665



<b>Morse cone</b>	Article no.
<b>MT 2 - B16</b>	3050659
<b>MT 3 - B16</b>	3050660
<b>MT 4 - B16</b>	3050661
<b>MT 5 - B16</b>	3050675
<b>MT 6 - B16</b>	3050676



<b>Extension sleeves</b>	Article no.
<b>MT 2 - MT 3</b>	3050667
<b>MT 3 - MT 4</b>	3050668



<b>Thread tapping chuck M5 - M12</b>	3352042
--------------------------------------	---------

- Quick reverse built-in, immediately effective on changing the feed direction
- Slip clutch 4-stage adjustable. With collet B16

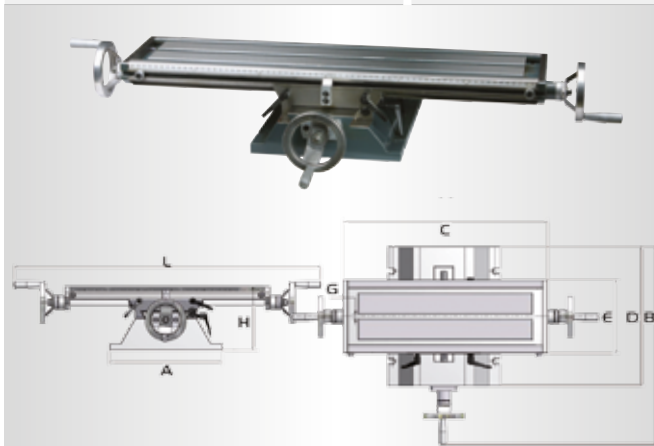
Scope of supply:

- 2 flexible spring collets · 2 open-ended spanners · Allen key



<b>XY tables KT</b>	Article no.
• Coolant channel	
• Dovetail guide adjustable	
• Adjustable handwheel scaling with 0.05 mm scale	

<b>KT 120</b>	3356595
<b>KT 179</b>	3356596
<b>KT 180</b>	3356591
<b>KT 210</b>	3356600



Technical specifications	KT 120	KT 179	KT 180	KT 210
A (Base width)	222 mm	274 mm	274 mm	280 mm
D (base length)	280 mm	340 mm	340 mm	362 mm
C (table length)	400 mm	500 mm	700 mm	730 mm
E (table width)	120 mm	180 mm	180 mm	210 mm
G (T-groove size)	10 mm	12 mm	12 mm	14 mm
L x W x H (mm)	506 x 400 x 140	748 x 483 x 155	948 x 483 x 155	1060 x 538 x 185
Net weight	22 kg	40 kg	52 kg	84 kg
Strokes				
X axis	220 mm	287 mm	480 mm	480 mm
Y axis	165 mm	167 mm	170 mm	210 mm
Max. load	40 kg	55 kg	55 kg	80 kg

<b>Hold-down unit set of 2</b>	Article no.
--------------------------------	-------------

- Clamping height adjustable
- Brass plate below clamping arm protects material against damage

<b>Table groove 14 mm/M 12</b>	3352031
--------------------------------	---------

- L x W x H: 115 x 42 x 39 mm
- Height adjustment: 0 - 89 mm

<b>Table groove 18 mm/M 16</b>	3352032
--------------------------------	---------

- L x W x H: 133 x 50 x 49 mm
- Height adjustment: 0 - 101 mm



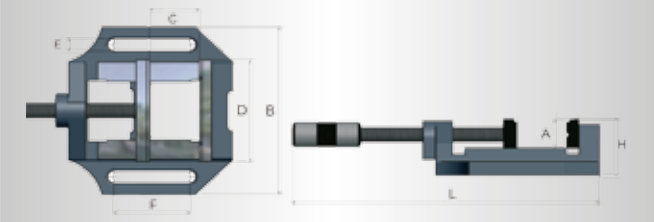
<b>Taper drill punch</b>	Article no.
<b>MSP 1 for MT 1 to MT 3</b>	3050636
<b>MSP 2 for MT 4 to MT 6</b>	3050637



## Machine vices MSO with prisms

- Easy action
- Spindle with rolled trapezoid thread
- Many assembly options on drill table thanks to slots

<b>MSO 75</b>	3000075
<b>MSO 100</b>	3000100
<b>MSO 125</b>	3000125
<b>MSO 150</b>	3000150



Tech. Data	A	C	D	E	F	L	B	H	kg
MSO 75 mm	28	55	75	12,5	55	270	130	52	2,3
MSO 100 mm	28	90	100	12,5	74	350	165	55	3,2
MSO 125 mm	30	110	125	12,5	80	400	182	65	4,5
MSO 150 mm	35	130	150	14,5	110	455	208	67	6,2

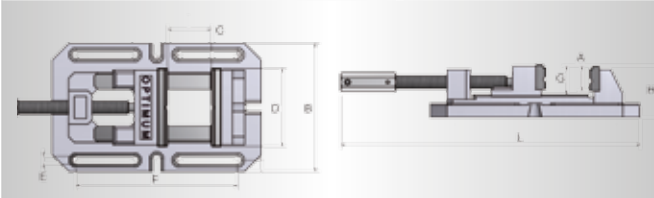


MSO 100

## Machine vices BSI

- Drill vices in industrial quality
- Replaceable prism jaws
- Long guides on moving jaw prevent tilting
- Precision ground prism jaws
- Many assembly options on drill table thanks to slots
- Premium grey cast
- Scraped guide surfaces

<b>BSI 100</b>	3000210
<b>BSI 140</b>	3000214
<b>BSI 200</b>	3000220



Tech. Data	A	C	D	E	F	G	L	B	H	kg
BSI 100 mm	35	110	100	12	216	40	max. 460	170	74	8,7
BSI 140 mm	45	150	140	14	290	50	max. 610	230	93	18
BSI 200 mm	58	200	200	16	406	64	max. 788	290	118	37

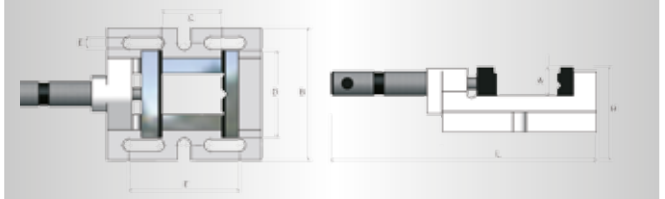


BSI 140

## Machine vices BMS with prisms

- Rugged design with prism jaws
- Easy action
- Precise jaw guidance
- Spindle with rolled trapezoid thread
- Many assembly options on drill table thanks to slots

<b>BMS 85</b>	3000008
<b>BMS 100</b>	3000010
<b>BMS 120</b>	3000012
<b>BMS 150</b>	3000015
<b>BMS 200</b>	3000020



Tech. Data	A	C	D	E	F	L	B	H	kg
BMS 85 mm	27	70	85	11	109	260	130	60	3,2
BMS 100 mm	30	90	100	12,5	125	280	150	66	4,6
BMS 120 mm	35	110	120	12,5	146	330	170	70	5,6
BMS 150 mm	45	130	150	12,5	180	375	200	78	7,6
BMS 200 mm	60	160	200	12,5	210	445	252	95	16

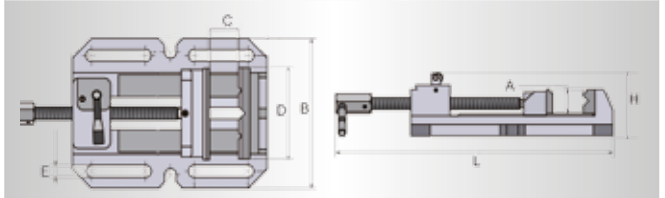


BMS 85

## Machine vices BSI-Q

- Drill vices in industrial quality
- Quick clamping thanks to quick release
- Replaceable prism jaws
- Long guides on moving jaw prevent tilting
- Precision ground prism jaws
- Many assembly options on drill table thanks to slots
- Premium grey cast . Scraped guide surfaces

<b>BSI-Q 100</b>	3000230
<b>BSI-Q 140</b>	3000234
<b>BSI-Q 200</b>	3000240



Tech. Data	A	C	D	E	L	B	H	kg
BSI-Q 100 mm	30	105	100	12	max. 335	150	95	5,5
BSI-Q 140 mm	40	155	140	14	max. 415	200	100	10,7
BSI-Q 200 mm	55	220	200	16	max. 525	275	125	20,2



BSI-Q 100



# THERMDRILL®

## The tough threaded bushing!



## Threaded bushings that no longer wobble!

In friction drilling, the friction heat from the existing material is used to create an anti-twist protected bushing without material removal in which a thread is then tapped.



YouTube



Follow this for the video presentation

■ No worries about working loose or turning  
saves time-consuming drilling out and avoids complaints

■ Easy assembly  
on virtually any upright drilling machine

■ Huge cost savings  
compared with rivet nuts, only two steps

■ Thermal drill and thread tapper - Quality - Made in Germany

### You need

1

Thermal drill



### SHAPE

For bushes with collars



### CUT

For bushes without collars



- Suitable for aluminium, non-ferrous metal, steel and stainless steel
- Made of solid carbide with a special polygon grind

2

Thread tapper



TiN coated and with lubrication grooves  
Tolerance 6HX shape C

- Legacy tool fittings can be used

3

Basic equipment



Size	Type	Max. material thickness [mm]	Art. no.	Max. material thickness [mm]	Art. no.
M4	short	1,5	3060104	2,0	3060164
	long	2,5	3060124	4,0	3060144
M5	short	2,0	3060105	3,0	3060165
	long	3,0	3060125	4,5	3060145
M6	short	2,0	3060106	3,0	3060166
	long	3,5	3060126	5,0	3060146
M8	short	2,5	3060108	4,0	3060168
	long	4,0	3060128	6,0	3060148
M10	short	2,5	3060110	4,0	3060170
	long	4,5	3060130	6,5	3060150
M12	short	2,5	3060112	4,0	3060172
	long	4,5	3060132	6,5	3060152

Other thread sizes available (also in metric fine and pipe threads)

Size	Art. no.
M4 x 0.7	3060184
M5 x 0.8	3060185
M6 x 1.0	3060186
M8 x 1.25	3060188
M10 x 1.50	3060190
M12 x 1.75	3060192

Shank	Art. no.
MK2	3060005
Contents:	
• Tool holder with cooling ring MT 2 ER 32	
• 4 pcs. Spring collets (Ø 6/8/10/12 mm)	
• Reduction sleeve MT 3 - MT 2	
• THERMDRILL Paste 100 g	
• Thread tapping oil 100 ml	
• Open-ended spanner, hook spanner	
• Case	

Tool set = Thermal drill + thread tapper

### Type SHAPE

### Type CUT

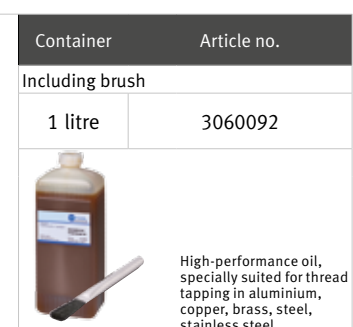
Size	Type	Max. material thickness [mm]	Art. no.	Max. material thickness [mm]	Art. no.
M4	short	1,5	3060024	2,0	3060044
	long	2,5	3060034	4,0	3060054
M5	short	2,0	3060025	3,0	3060045
	long	3,0	3060035	4,5	3060055
M6	short	2,0	3060026	3,0	3060046
	long	3,5	3060036	5,0	3060056
M8	short	2,5	3060028	4,0	3060048
	long	4,0	3060038	6,0	3060058
M10	short	2,5	3060030	4,0	3060050
	long	4,5	3060040	6,5	3060060
M12	short	2,5	3060032	4,0	3060052
	long	4,5	3060042	6,5	3060062

THERMDRILL Paste

Thread tapping oil

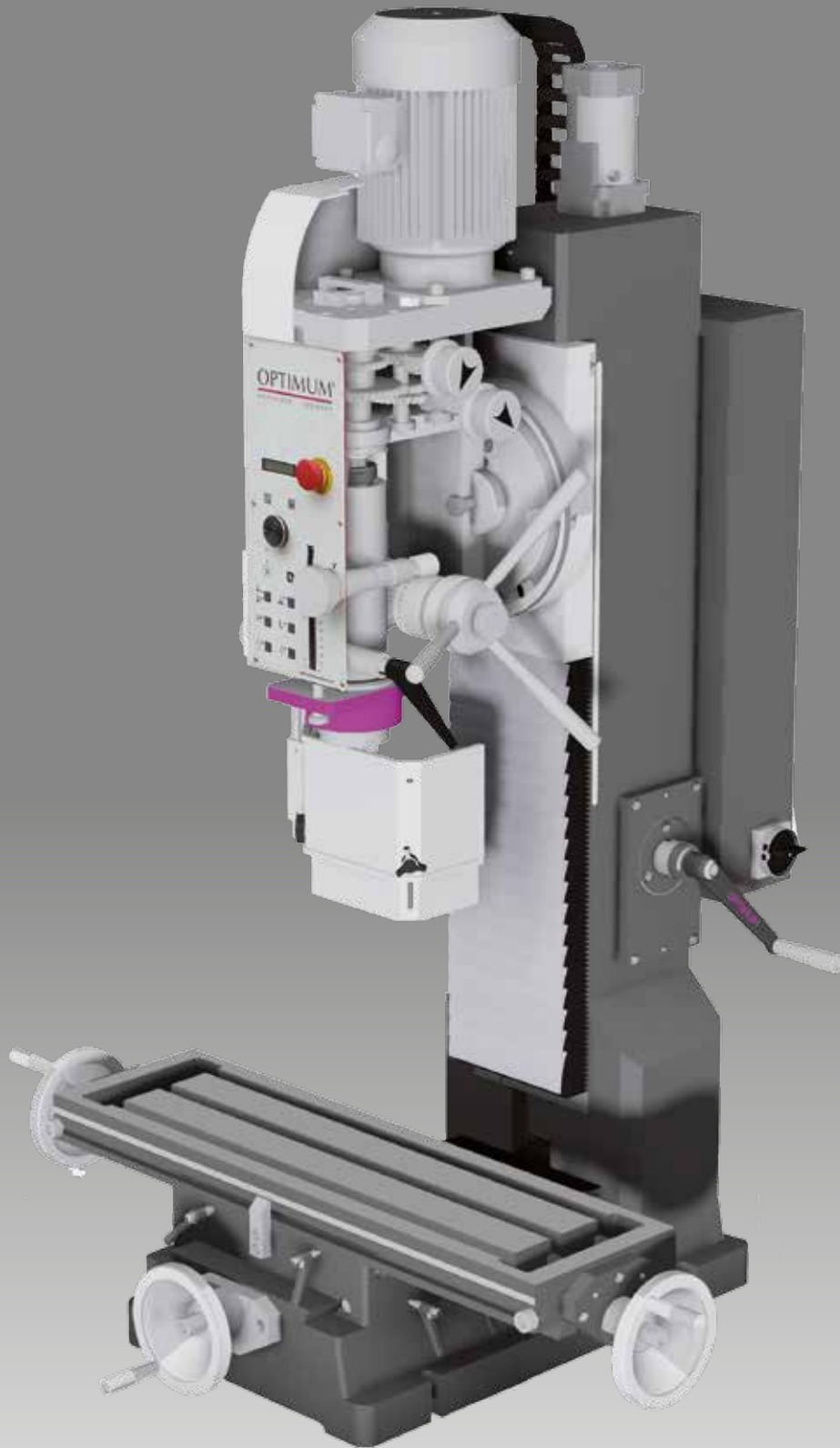


Other thread sizes available (also in metric fine and pipe threads)



High-performance oil, specially suited for thread tapping in aluminium, copper, brass, steel, stainless steel





## Milling machines

## Small drilling/milling machine with electronic, continuously controllable drive for model makers

### Facts that impress in terms of quality, performance and price

- ▶ Versatile deployment options
- ▶ All guides ground and finish shaved (oil pockets for lubrication)
- ▶ Column can be displaced laterally to extend the range of applications
- ▶ Tool holder MT 2
- ▶ Safety electrical system 24-volt version
- ▶ EMC filter class B (use in private households)
- ▶ All travel can be read off on scales
- ▶ Inexpensive, lasting value

### Control unit

- Simple
- Clear-cut
- On/off switch
- Potentiometer
- Emergency stop button

### Speed setting

- Continuously adjustable from 100 to 3,000 rpm

### Excellent concentricity

- Thanks to tapered roller bearings
- Better than 0,015 mm measured at the sleeve spindle

### Protective screen

- Height-adjustable
- Generously dimensioned
- Microswitch

### XY table

- Solid
- T-grooves
- Coolant channel
- Adjustable limit stops

### Feed spindle

- Feed spindle play adjustable and re-adjustable

### Accessories

**Digital position display DRO 5**  
Art no. 3383975

**Factory assembly DRO 5**  
Art no. 9000420



### Gear ratio

- Two-speed

### Drilling/milling head

- Tilts  $\pm 90^\circ$  both sides
- Drilling and milling work at angled positions as required

### Guides

- Clean milling work thanks to individually clamping guides

### Column

- Sturdy
- Dovetail guide
- Adjustable on all 3 axes via wedge rails

### Hand wheels

- Precise feed thanks to positioning capable scale rings on all hand-wheels

### Longitudinal scale

- Inset into XY table

### Accessories

#### Universal chassis

Dimensions L x B x W: 420 x 340 x 800 mm  
Art no. 3353000

#### Chip tray

Dimensions L x W x H: 720 x 470 x 30 mm  
Art no. 3352999

#### Vibration dampers machine base SE 1

(4 pcs. required)  
Art no. 3381012

Fig.: BF 16 Vario with optional accessories

## Technical specifications, accessories and dimensions

Model	BF 16 Vario
Article no.	3338116
<b>Technical data</b>	
Electrical connection	230 V / 1 Ph ~50 Hz
Motor output	500 W
<b>Drilling/milling output</b>	
Drilling performance in steel (S235JR)	Ø 16 mm
Continuous drilling performance in steel (S235JR)	Ø 12 mm
Max. sensor head size	Ø 63 mm
Max. shaft milling cutter size	Ø 20 mm
<b>Spindle holder</b>	
Spindle sleeve stroke	50 mm
Spindle holder	MT 2 / M 10
Throat	170 mm
Tightening bar	M 10
<b>Drilling/milling head</b>	
Swivel range	± 90°
Spindle speeds	100 - 3,000 rpm
Gears	2-speed, electronic speed control
<b>XY table</b>	
Clearance spindle to table	275 mm
Table length x width	400 x 120 mm
T-groove size / count / spacing	10 mm / 3 / 35 mm
<b>Strokes</b>	
X axis	220 mm
Y axis	160 mm
Z axis	210 mm
<b>Dimensions</b>	
Length x width x height max.	505 x 465 x 795 mm
Overall weight	62 kg

Scope of Delivery
• Tapered mandrel MT 2/B16
• Tightening bar M10
• Operating tool

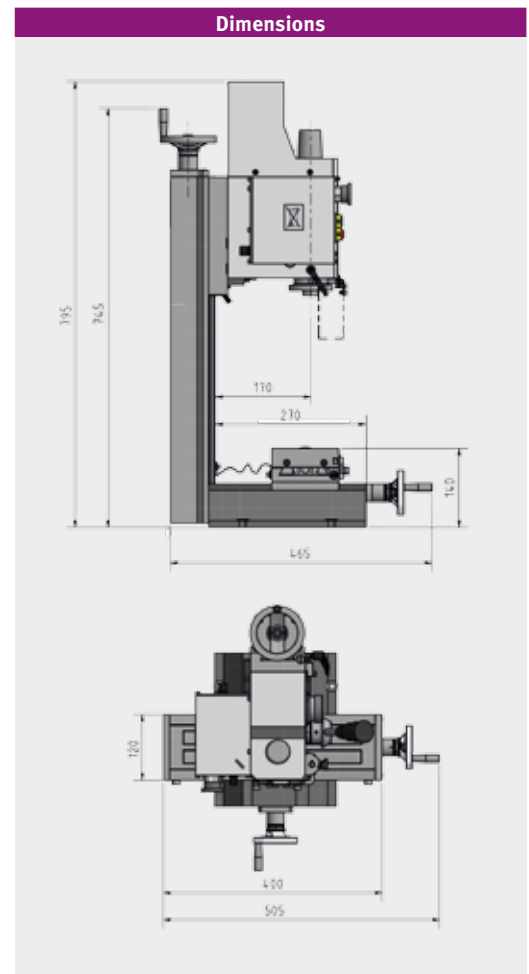
Accessories	Article no.
<b>Attachment adapter "lathe"</b>	3356568

- For mounting the column and milling head on the machine bed of lathes: TU 2506 / TU 2807



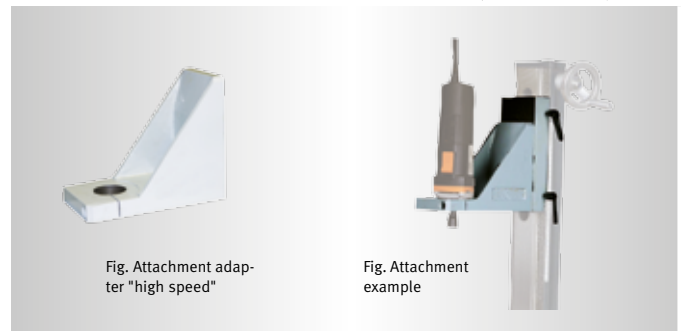
<b>Spring collet set</b> MT 2 / M10, direct clamping, 5-part	3351980
<b>Spring collet set</b> ER 25, 15-part	3441109
<b>End mill set</b> HSS TiN-coated	3352113

- 6 end mills DIN 1835 B short version with 2 cutting edges
- 6 end mills DIN 1835 B long version with 4 cutting edges



Accessories	Article no.
<b>Attachment adapter "high speed"</b>	3356567

- For mounting a high speed motor (up to 26,000 rpm)
- L x W x H: 120 x 195 x 185 mm · Mount: Ø 43 mm (without motor)



<b>Quick clamping drill chuck</b> 1 - 13 mm B16	3050623
<b>Assortment of clamping tools</b> size 8	3352015
<b>Three-axis vice</b> MV3-75	3354175
<b>Two-axis vice</b> ZAS 50	3354170

› More „Accessories for milling machines“ ab Seite 96

## Sturdy drilling/milling machines with continuously variable electronic speed control. BF 20L with longer XY table, BF 20LD with digital position display

**OPTIMUM**  
the original

### Facts that impress in terms of quality, performance and price

- ▶ Feed spindles can be adjusted without play thanks to adjustable spindle nuts
- ▶ Sturdy dovetail guide, precision ground and shaved with adjustable wedge rails
- ▶ EMC filter class B (use in private households)
- ▶ All guides are ground and finish shaved (oil pockets for lubrication)
- ▶ Precision workmanship
- ▶ Two-row angular contact ball bearings in the axes, adjustable without play
- ▶ Safety electrical system 24-volt version
- ▶ Gaiter as guide protection
- ▶ Clockwise/Anti-clockwise rotation
- ▶ Drilling/milling head pivots through  $\pm 90^\circ$  for milling and drilling work in any angled position

- ▶ Height-adjustable protective screen with microswitch for best possible user protection against chips and parts being flung out

### BF 20L:

- ▶ XY table length 700 mm
- ▶ X axis travel 480 mm

### BF 20 LD additionally:

Digital position display DRO5 and magnetic strips on all three axes



### Motor

- Two-speed gear ratio for powerful transmission of the motor output (850 W)
- Powerful DC motor with permanent current monitoring

### Speeds

- Large, controllable speed range from 90 - 3,000 rpm
- Easily readable digital speed display

### Spindle sleeve stroke display

- Digital
- Display accuracy 0.01 mm
- Switchable between mm/inch

### Start-stop connection

- For the optional CNC controller (CNC controllers are available on [www.optimum-maschinen.de](http://www.optimum-maschinen.de))

### Column

- Can be displaced by 30 mm on both sides
- with the head pivoted, longer travel strokes and centred machining of the workpiece possible
- With drill hole on rear
- Easy oiling of the trapezoidal spindle or greasing of the ball screws

### Limit stops

- Adjustable

### Longitudinal scale

- Inlet into XY table
- Easily legible

### Control electronics

- Integrated relay control
- Optional CNC controller can switch the machine on and off (CNC controllers are available on [www.optimum-maschinen.de](http://www.optimum-maschinen.de))

### Z column and X axis

- 9 mm groove prepared for easy retroactive mounting of magnetic strips by gluing in



### Machine lamp

- Integrated in drilling/milling head
- Halogen pin-base lamp, 12V - 10W

### Tapered roller bearing

- High levels of concentricity  $\leq 0.015$  mm measured in the drilling spindle sleeve

### XY table

- Solid
- Precise surface finish
- With T-grooves
- Adjustable wedge rails
- Adjustable via 3 hand wheels

### Y axis

- With 2 pockets milled in
- Sleeves can be used to easily screw on the magnetic strip holder

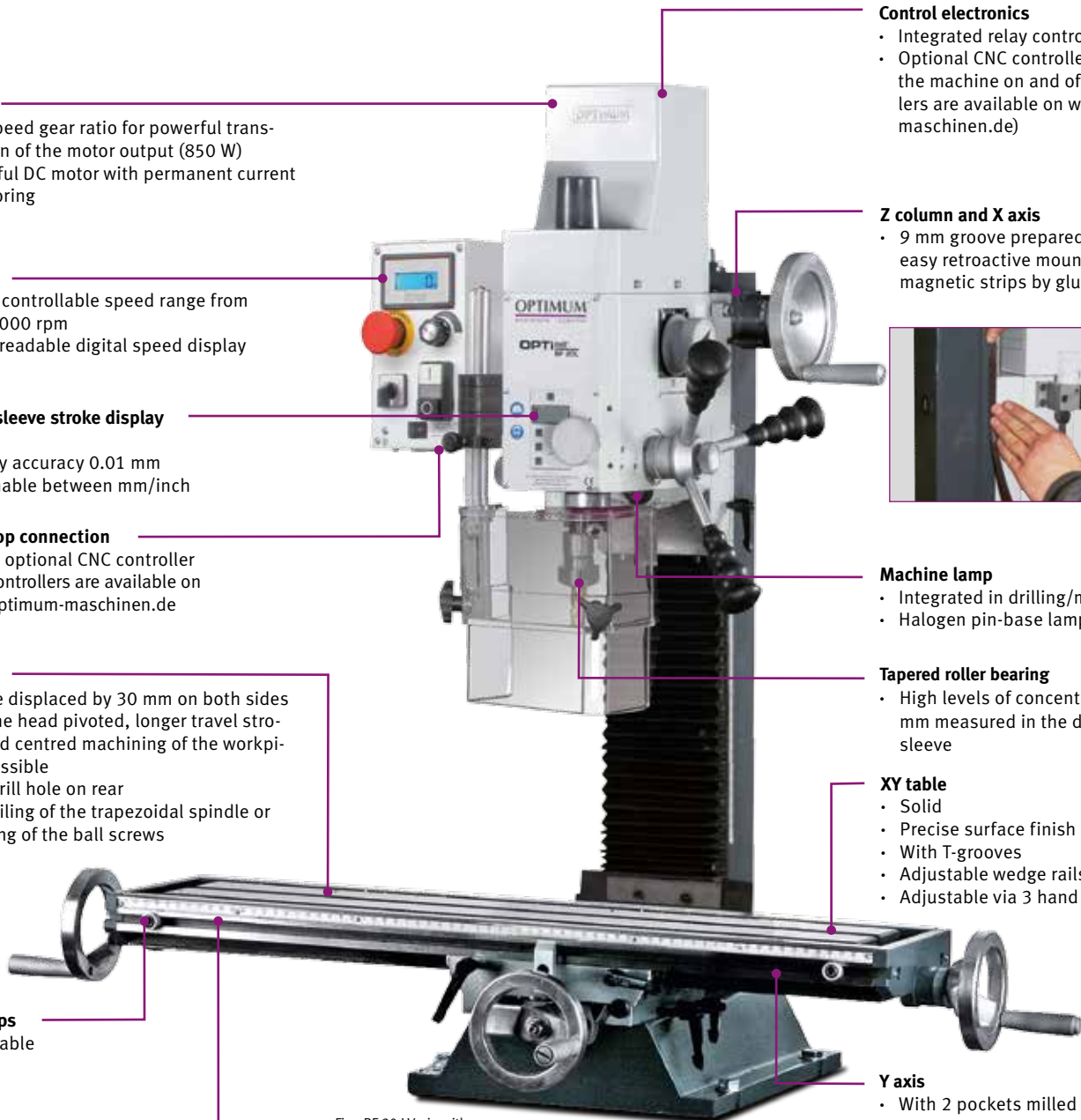


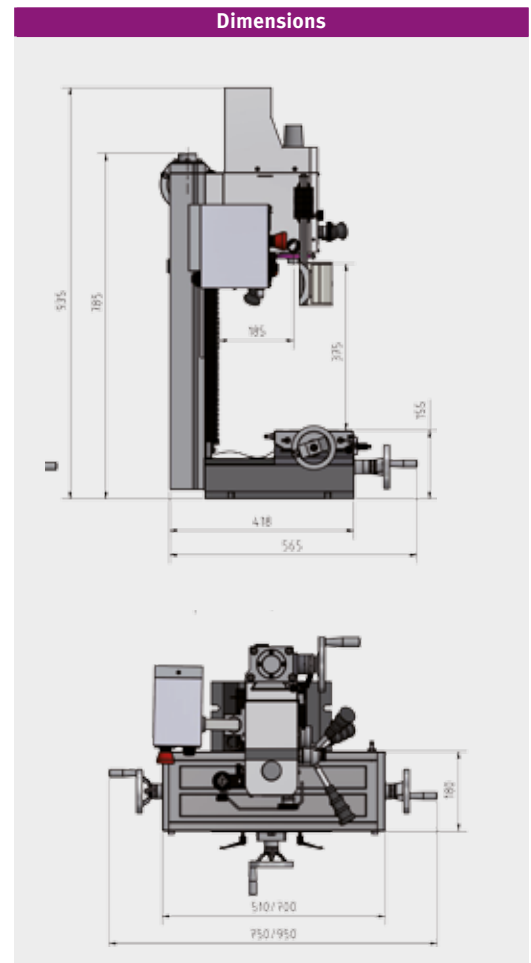
Fig.: BF 20 LVario with optional accessories



## Technical specifications, accessories and dimensions

Model	BF 20 Vario	BF 20L Vario
Article no.	3338120	3338122
Model	BF 20 LD	
Article no.	-	3338125

Technical data	
Electrical connection	230 V / 1 Ph ~50 Hz
Motor output	850 W
Drilling/milling output	
Drilling performance in steel (S235JR)	Ø 16 mm
Continuous drilling performance in steel (S235JR)	Ø 12 mm
Max. sensor head size	Ø 63 mm
Max. shaft milling cutter size	Ø 20 mm
Spindle holder	
Spindle sleeve stroke	50 mm
Spindle holder	MT 2 / M 10
Throat	185 mm
Tightening bar	M 10
Drilling/milling head	
Swivel range	± 90°
Spindle speeds	90 - 1,480 rpm / 150 - 3,000 rpm
Gears	2-speed, electronic speed control
XY table	
Clearance spindle to table	375 mm
Table length	510 mm / 700 mm
Table width	180 mm
T-groove size/amount/spacing	12 mm / 3 / 63 mm
XY table max. load bearing capacity	50 kg / 40 kg
Strokes	
X axis	280 mm / 480 mm
Y axis	175 mm
Z axis	280 mm
Dimensions	
Length	745 mm / 945 mm
Width x height max.	565 x 935 mm
Overall weight	103 kg / 112 kg / 114 kg

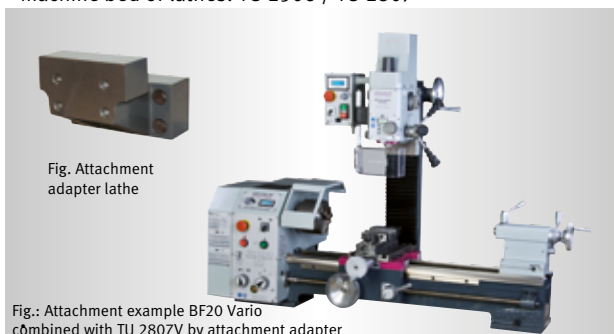


### Scope of Delivery

- Tapered mandrel MT 2/B16
- Tightening bar M10
- Operating tool

Accessories	Article no.
<b>Attachment adapter "lathe"</b>	3356572

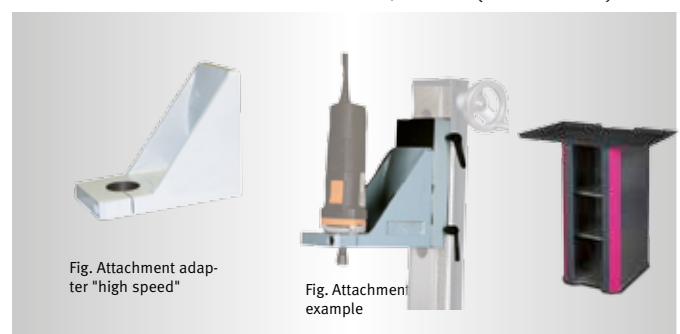
- For mounting the column and milling head on the machine bed of lathes: TU 2506 / TU 2807



BF 20AV	3338129
<ul style="list-style-type: none"> <li>• Milling head and column of drilling/milling machine</li> <li>• For attachment to lathes TU 2506 and TU 2807</li> <li>• Length x width x height max. 470 x 425 x 912 mm</li> <li>• Overall weight 60 kg</li> </ul>	

Accessories	Article no.
<b>Attachment adapter "high speed"</b>	3356571

- For mounting a high speed motor (up to 26,000 rpm)
- L x W x H: 120 x 195 x 185 mm Mount: Ø 43 mm (without motor)



Universal chassis	3353000
<ul style="list-style-type: none"> <li>• Dimensions L x W x H: 420 x 340 x 800 mm</li> </ul>	
Chip tray	3352999
<ul style="list-style-type: none"> <li>• Dimensions L x W x H: 720 x 470 x 30 mm</li> </ul>	

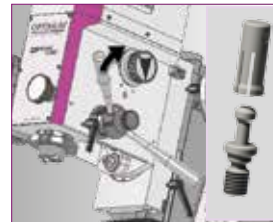
› More „Accessories for milling machines“ ab Seite 96

## Robust drilling/milling machine with electronic, continuously controllable drive MH 22VD with digital position display DRO 5

Available for  
delivery as of  
August 2017

### Facts that impress in terms of quality, performance and price

- ▶ Feed spindles can be adjusted without play thanks to adjustable spindle nuts
- ▶ Sturdy dovetail guide, precision ground and shaved with adjustable wedge rails
- ▶ EMC filter class B (use in private households)
- ▶ All guides are ground and finish shaved (oil pockets for lubrication)
- ▶ Precision workmanship
- ▶ Two-row angular contact ball bearings in the axes, adjustable without play
- ▶ Safety electrical system 24-volt version
- ▶ Gaiter as guide protection
- ▶ Clockwise/Anti-clockwise rotation
- ▶ Drilling/milling head pivots through  $\pm 90^\circ$  for milling and drilling work in any angled position
- ▶ Machine lamp
- ▶ Height-adjustable protective screen with microswitch for best possible user protection against chips and parts being flung out
- ▶ Easily readable speed and depth display, toggles between mm/inch
- ▶ Fine feed



### Patented Mechanical quick change clamping system MH 22V / MH 22VD

- The milling head is equipped with spring collet for pull studs BT30x45°
- Easy to change by moving the spindle sleeve levers upward

### Control electronics

- Integrated relay control

### Motor

- Two-speed gear ratio for powerful transmission of the motor output
- Powerful DC motor with permanent current monitoring



### Energy chain

- cable guidance easy on material

### Tapered roller bearing

High levels of concentricity  $\leq 0.015$  mm measured in the drilling spindle sleeve

### Column

- With drill hole on rear
- Easy oiling of the trapezoidal spindle or greasing of the ball screws

### XY table

- Solid
- Precise surface finish
- With T-grooves
- Adjustable wedge rails
- Adjustable via 3 hand wheels
- Adjustable limit stops

### Y axis

- Groove prepared for easy retroactive mounting of magnetic strips

### Z column and X axis

- Groove prepared for easy retroactive mounting of magnetic strips

### Control panel

- User-friendly membrane keyboard
- Easily readable digital display for speed and drilling depth
- Clear-cut
- Emergency stop button

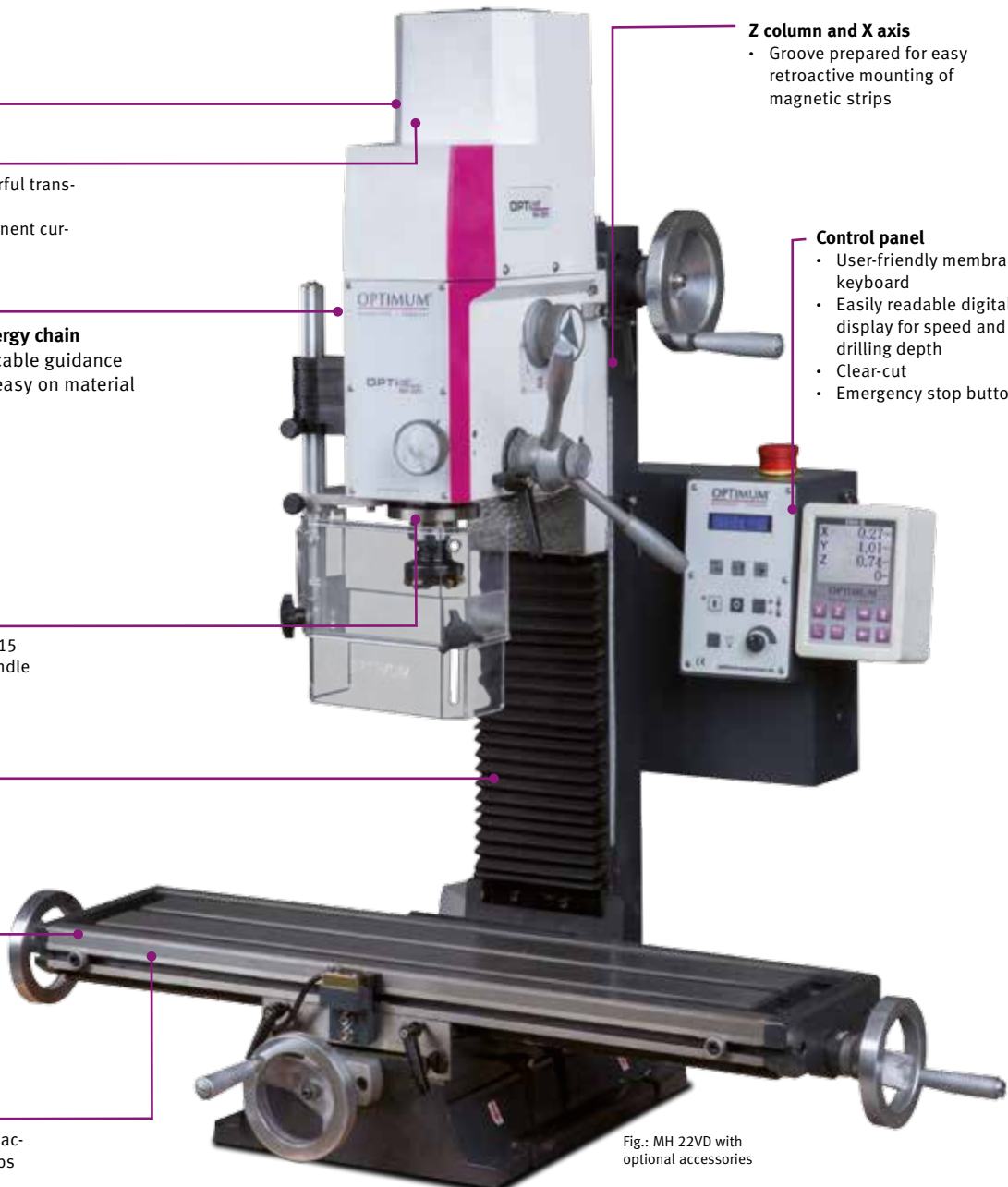


Fig.: MH 22VD with optional accessories

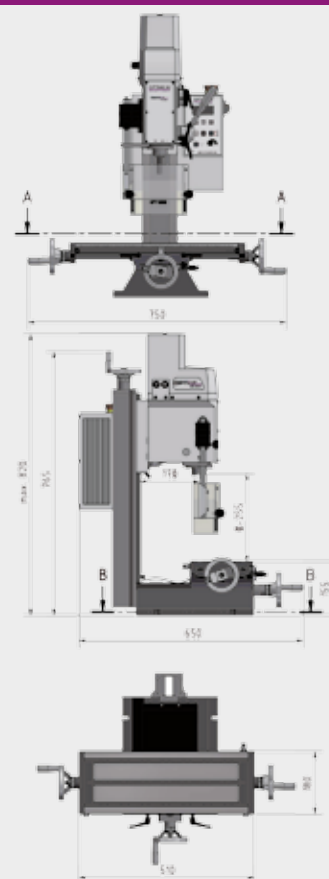
## Technical specifications, accessories and dimensions

Model	MH 18V	MH 22V
Article no.	3338115	3338135
Model		MH 22VD
Article no.	-	3338136

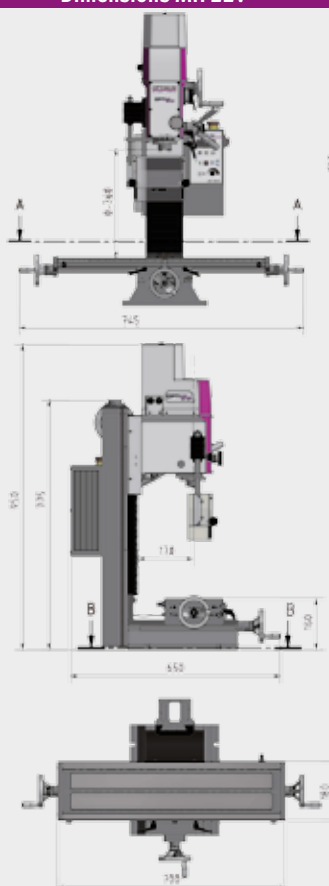
Technical data		
Electrical connection	230 V / 1 Ph ~50 Hz	
Motor output	750 W	950 W
Drilling/milling output		
Drilling performance in steel (S235JR)	Ø 16 mm	Ø 20 mm
Continuous drilling performance in steel (S235JR)	Ø 12 mm	Ø 16 mm
Max. sensor head size	Ø 52 mm	Ø 52 mm
Max. shaft milling cutter size	Ø 20 mm	Ø 12 mm
Spindle holder		
Spindle sleeve stroke	50 mm	
Spindle sleeve diameter	Ø 60 mm	
Spindle holder	MT 2	BT 20
Throat	170 mm	170 mm
Drilling/milling head		
Swivel range	± 90°	
Spindle speeds	100 - 3,000 rpm	90 - 3,000 rpm
Gears	2-speed, electronic speed control	
XY table		
Clearance spindle to table	255 mm	370 mm
Table length x width	500 x 180 mm	700 x 180 mm
T-groove size/amount/spacing	12 mm / 3 / 63 mm	
Load bearing capacity	50 kg	
Strokes		
X axis	210 mm	480 mm
Y axis	175 mm	175 mm
Z axis	210 mm	370 mm
Dimensions		
Length x width x height	750 x 650 x 820 mm	745 x 650 x 950 mm
Overall weight	94 kg	120 kg

Accessories	Article no.
Milling head holder Ø 16 mm BT 20	3536306
Chuck adapter BT 20 - B16	3352727
Weldon holder Ø 6 mm BT 20	3352732
Weldon holder Ø 8 mm BT 20	3352734
Weldon holder Ø 10 mm BT 20	3352736
Weldon holder Ø 12 mm BT 20	3352738
BT 20 - MT 2 adapter	3352730
Collet chuck ER 16	3352741
Spring collet holder spanner ER 16	3352742
Spring collet set ER 16, 12-part, 1 - 10 mm	3440282
Pull stud BT 20	3352726
Chuck 1 - 13 mm; B16	3050623
Spring collet set MT 2 / M10, direct clamping, 5-part	3351980
Spring collet set ER 25, 15-part	3441109
End mill set HSS TiN-coated	3352113
Universal chassis	3353000
• Dimensions L x W x H: 420 x 340 x 800 mm	
Chip tray	3352999
• Dimensions L x W x H: 720 x 470 x 30 mm	
Vibration damping machine base SE1	3381012
4 pcs. required	
➤ More „Accessories for milling machines“ ab Seite 96	

Dimensions MH 18V



Dimensions MH 22V



## Sturdy milling machines with continuously variable electronic speed control. MH 25SV with stepper motors and digital position display DRO 5

### Facts that impress in terms of quality, performance and price

- ▶ Counterweight facilitates Z axis adjustment
- ▶ Variable speed control
- ▶ Easy tool changing thanks to tool quick clamping system
- ▶ Wide guide rails on Z axis
- ▶ Groove prepared for easy retroactive mounting of magnetic strips
- ▶ Inverter motor
- ▶ Feed spindles can be adjusted thanks to adjustable spindle nuts
- ▶ All guides are ground and finish shaved (oil pockets for lubrication)
- ▶ Precision workmanship
- ▶ Particularly smooth action
- ▶ Angular ball bearings on the axes
- ▶ Drilling/milling head pivots through  $\pm 45^\circ$
- ▶ Clockwise/Anti-clockwise rotation
- ▶ Height-adjustable protective screen with microswitch

- ▶ Sturdy dovetail guide, precision ground and shaved with adjustable wedge rails

#### MH 25V:

- ▶ Easily readable speed display in milling head

#### MH 25SV:

- ▶ Continuously variable feed on all axes
- ▶ Rapid motion X/Y axis for fast positioning
- ▶ Digital 3-axis position display DRO 5
- ▶ Feed cut-off at end position
- ▶ Transportable control panel
- ▶ The feed switches off when the spindle is stationary

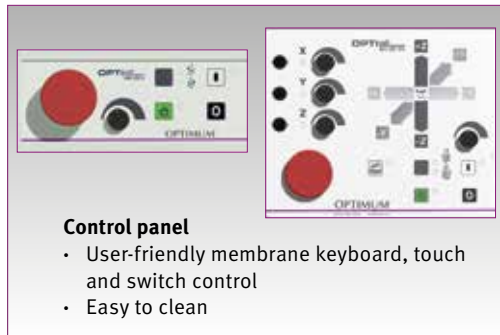


### Mechanical quick change clamping system

- The milling head is equipped with spring collet for pull studs BT30x45°
- Easy to change by turning an Allen key in the adapter bore.



Fig.: MH 25V



#### Control panel

- User-friendly membrane keyboard, touch and switch control
- Easy to clean



### Limit switches

- For all three axes



### Energy chain

- cable guidance easy on material



Fig.: MH 25SV



### Control panel

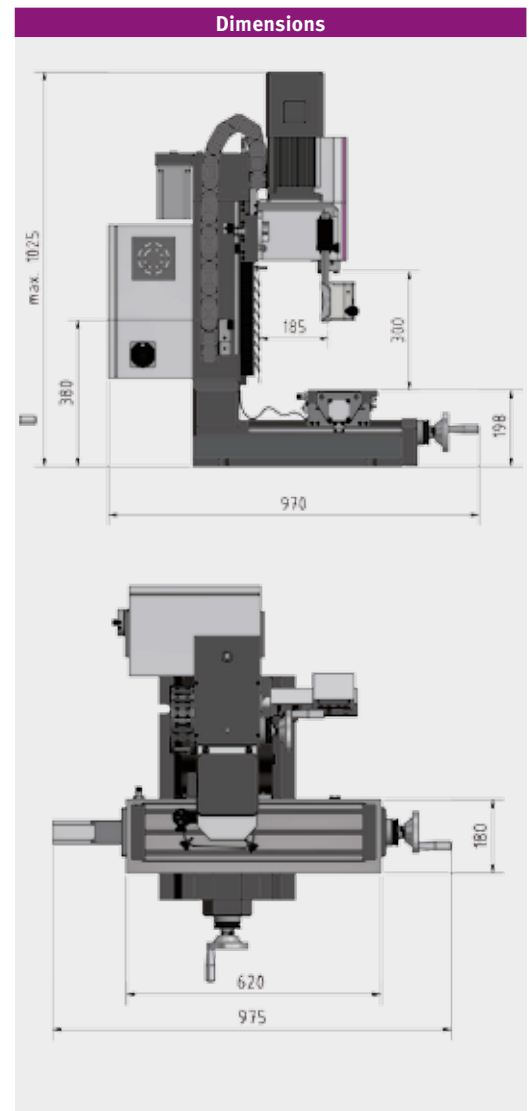
- Excellent operability
- Good mobility thanks to ability to remove control panel from holder (MH 25SV)



## Technical specifications, accessories and dimensions

Model	MH 25V	MH 25SV
Article no.	3338155	3338160
Technical specifications		
Electrical connection	230 V / 1 Ph ~50 Hz	
Total connected load	2 kW	
Milling spindle		
Drive motor	1.5 kW	
Drive motor torque	10 Nm	
Drilling/milling output		
Max. sensor head size	Ø 50 mm	
Max. shaft milling cutter size	Ø 25 mm	
Spindle holder		
Spindle holder	BT 30	
Throat	185 mm	
Drilling/milling head		
Swivel range	45°	
Spindle speeds	200 - 4,000 rpm	
Gears	Electronic speed control	
XY table		
Clearance spindle to table	300 mm	
Table length x width	620 x 180 mm	
T-groove size / count / spacing	12 mm / 3 / 50 mm	
Max. load bearing capacity	30 kg	
Strokes		
X axis	manual 400 mm	automatic 380 mm manual 400 mm
Y axis	manual 210 mm	automatic 130 mm manual 210 mm
Z axis	manual 270 mm	automatic 190 mm manual 270 mm
Torque		
X/Y/Z axis	-	2.2 / 2.2 / 4.2 Nm
Travel speeds		
X axis	-	150 - 930 mm/min.
Y axis	-	100 - 580 mm/min.
Z axis	-	80 - 450 mm/min.
Dimensions		
Length x width x height max.	970 x 975 x 1,025 mm	
Overall weight	192 kg	200 kg

Accessories	Article no.
<b>Milling head holder Ø 22 mm</b>	3536306
<b>Chuck 1 - 13 mm</b>	3536303
<b>Weldon holder Ø 6 mm, BT 30</b>	3536310
<b>Weldon holder Ø 8 mm, BT 30</b>	3536311
<b>Weldon holder Ø 10 mm, BT 30</b>	3536312
<b>Weldon holder Ø 12 mm, BT 30</b>	3536313
<b>Weldon holder Ø 16 mm, BT 30</b>	3536314
<b>Weldon holder Ø 20 mm, BT 30</b>	3536315
<b>BT 30 - MT 2 adapter</b>	3536305
<b>Spring collet holder ER 32</b>	3536304
<b>Spring collet holder spanner ER 32</b>	3536307
<b>Spring collet set ER 32</b>	3441122
<b>Height-adjuster</b>	3536290
<b>Assembly and tool adjustment gauge</b>	3536193
<b>Taper squeegee</b>	3536301
<b>Pull stud, BT 30</b>	3536302
<b>Universal chassis</b>	3353009
• Dimensions L x W x H: 700 x 500 x 750 mm	
<b>Vibration damping machine base SE1</b>	3381012
4 pcs. required	
› More „Accessories for milling machines“ ab Seite 96	



Accessories	Article no.
<b>Starter set BT 30</b>	3536107
• Milling head holder 22 mm	
• Chuck 1 - 13 mm	
• 2 pcs. Weldon Ø 6 mm and 20 mm	
• 1 pc. each Weldon Ø 8 / 10 / 12 / 16mm	
• BT 30 - MT 2 adapter	
• 3 pc. spring collet holder ER 32	
• Spring collet key ER 32	
• 18-part spring collet set ER 32	
• Height-adjuster	
• Assembly and tool adjustment gauge	
• 14 pcs. pull studs	
• Taper squeegee	



## Universal precision drilling/milling machine with 2-stage gearbox for optimum power transfer

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, solid cast design
- ▶ Smooth action due to polished gearwheels running in an oil sump
- ▶ Large speed range from 95 - 3,200 rpm thanks to 12 switchable speeds
- ▶ Two-stage industrial quality electric motor
- ▶ Clockwise/Anti-clockwise rotation
- ▶ Gear head pivots through  $\pm 60^\circ$
- ▶ Adjustable wedge rails
- ▶ Drilling depth stop

### "Thread tapping" operating mode

- The motor is activated by moving the spindle sleeve down
- When the preset depth is reached, the spindle reverses
- The machine thread tapping drill moves back out of the workpiece
- When the spindle sleeve has moved in to the switching point, the spindle rotation is stopped

### Control panel

- Easy to use
- Emergency stop button
- Selector switch for direction of rotation
- Thread tapping function

### Speed change

- Simple via gear selector switch at front

### Manual spindle sleeve feed with fine feed

- Handwheel
- Easy to operate

### Protective screen

- Height-adjustable
- Generously dimensioned
- Microswitch

### Column

- Dovetail guide
- Hand shaved

### XY table

- Solid and generously dimensioned
- Precise surface finish
- Adjustable wedge rails
- Adjustable via 3 hand wheels
- Longitudinal scale inset
- Adjustable limit stops

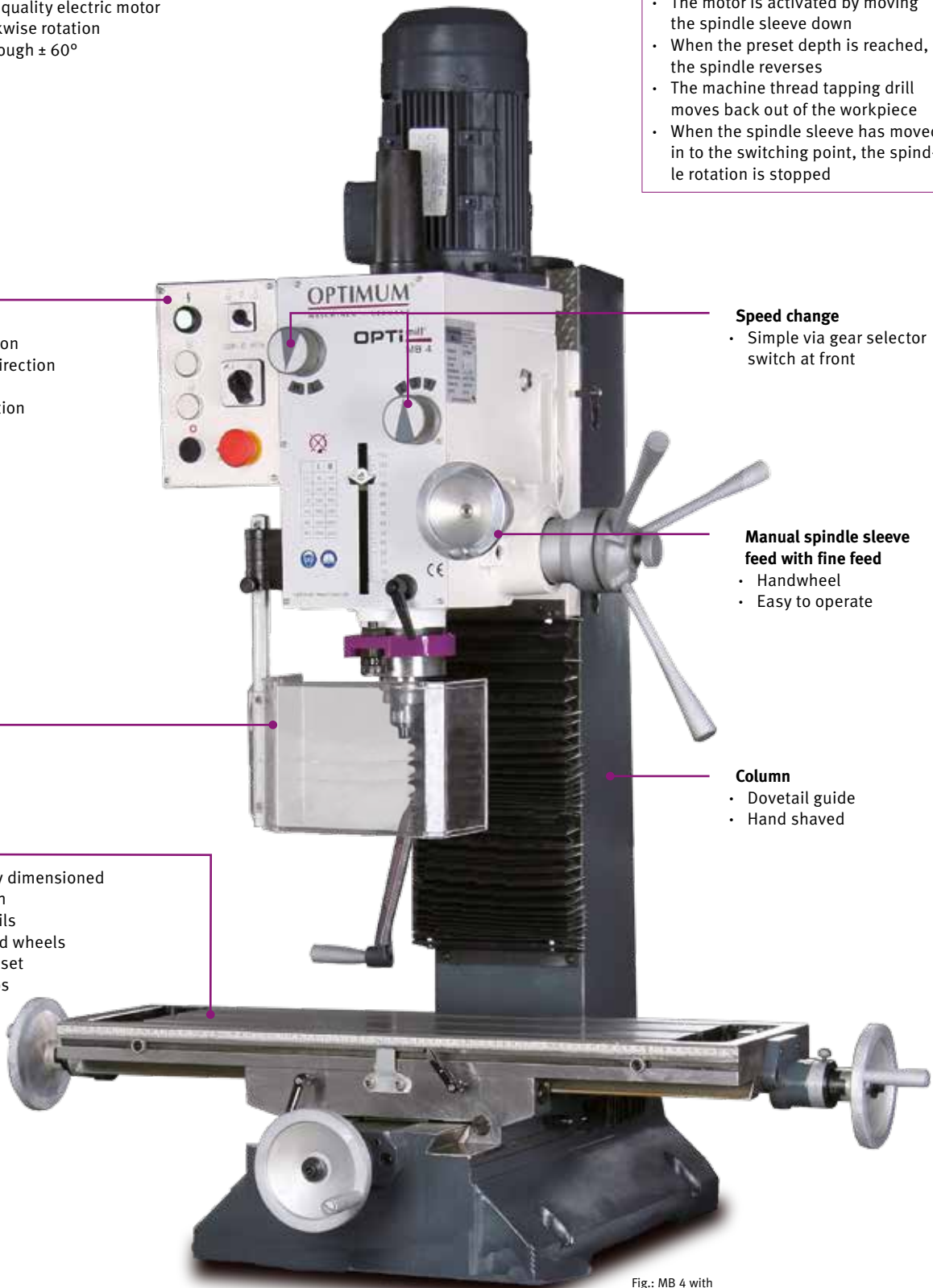


Fig.: MB 4 with optional accessories

## Technical specifications, accessories and dimensions

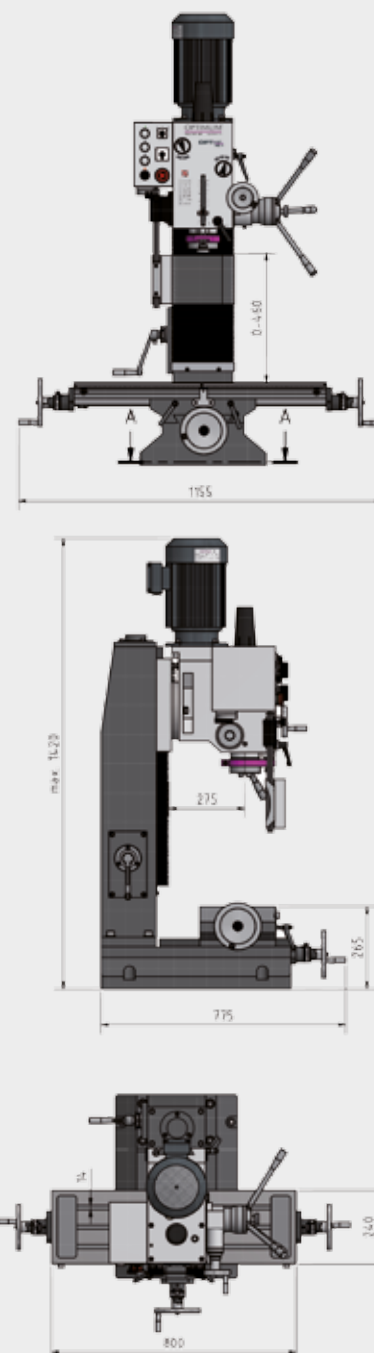
Model	MB 4
Article no.	3338450
<b>Technical data</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Motor output	1.1 / 1.5 kW
<b>Drilling/milling output</b>	
Drilling performance steel (S235JR)	Ø 32 mm
Continuous drilling performance steel (S235JR)	Ø 28 mm
Max. sensor head size	Ø 63 mm
Max. shaft milling cutter size	Ø 28 mm
<b>Spindle holder</b>	
Spindle sleeve stroke	120 mm
Spindle holder	MT 4
Spindle sleeve diameter	75 mm
Throat	275 mm
Tightening bar	M16
<b>Drilling/milling head</b>	
Swivel range	± 60°
Spindle speeds	95 - 3,200 rpm
Gears	2 x 6 speeds
<b>XY table</b>	
Clearance spindle to XY table max.	460 mm
Table length x width	800 x 240 mm
XY table load bearing capacity	80 kg
T-groove size/amount/spacing	14 mm / 3 / 63 mm
<b>Strokes</b>	
X axis	450 mm
Y axis	195 mm
Z axis	430 mm
<b>Dimensions</b>	
Length x width x height max.	1,100 x 850 x 1,150 mm
Overall weight	320 kg

### Scope of Delivery

- Morse taper MT 3
- Adapter MT 3 - MT 4
- Tightening bar M16
- Operating tool

Accessories	Article no.
Parallel shim set, 20-part	3354001
Height-adjustable tailstock RST 1	3356155
Horiz./vert. rotary indexing table RT 150	3356150
Assortment of clamping tools size 12	3352017
End mill set HSS 20-part	3386200
• 10 end mills DIN 327 D version with 2 cutting edges	
• 10 end mills DIN 844 B version with 4 cutting edges	
Precision vice FMS 100	3354100
• With turntable	
• Tempered and polished jaws	
Steel chassis	3353006
• Chip tray	
• Dimensions L x W x H: 625 x 415 x 750 mm	
• Weight	54 kg
Universal coolant unit	3352002
• Tank capacity 10 litres	
Vibration damper SE1	3381012
(4 pcs. required)	
› More „Accessories for milling machines“ ab Seite 96	

### Dimensions



## Universal drilling/milling machine with digital position display DRO 5 and cast machine chassis. MB 4PV with continuously variable electronically controlled drive

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, solid cast design
- ▶ Smooth action due to polished gearwheels running in an oil sump
- ▶ Clockwise/Anti-clockwise rotation
- ▶ Automatic spindle sleeve feed with manual fine feed
- ▶ Motorised positioning of the Z axis
- ▶ Gear head pivots through  $\pm 60^\circ$
- ▶ Adjustable wedge rails
- ▶ Drilling depth stop
- ▶ Drilling/Thread tapping function

### MB 4P:

- ▶ Two-stage industrial quality electric motor
- ▶ Large speed range from 95 - 3,200 rpm thanks to 12 switchable speeds
- ▶ DRO 5

### MB 4PV:

- ▶ Large speed range from 60 - 2,760 rpm thanks to 2 continuously variable speeds
- ▶ Single-speed, premium, industrial electric motor
- ▶ DRO 5 with speed display

### OPTI Control panel

- Digital 3-axis position display
- › Control panel for controlling:
  - › Z axis height adjustment
  - › Milling/thread tapping operating mode
  - › Spindle direction of rotation
  - › Machine lamp
  - › Coolant pump
  - › Emergency stop button

### MB 4P

- › Step switch of drive motor

### MB 4PV

- › Rev counter
- › Potentiometer for continuous speed control

### Protective screen

- Height-adjustable
- Generously dimensioned
- Microswitch

### X axis

- Motorised table feed
- Continuously variable speed control
- Rapid traverse
- Clockwise/Anti-clockwise rotation

### XY table

- Solid and generously dimensioned
- Precise surface finish
- With T-grooves
- Adjustable wedge rails
- Adjustable limit stops

### Spindle quill feed

- Automatic

### Spindle sleeve feed

- Handwheel
- Easy to operate

### Coolant system

### Column

- Solid dovetail guide
- Hand shaved
- Maximum stability
- Greatest possible precision

### Machine chassis

- Solid cast stand
- Chip channel

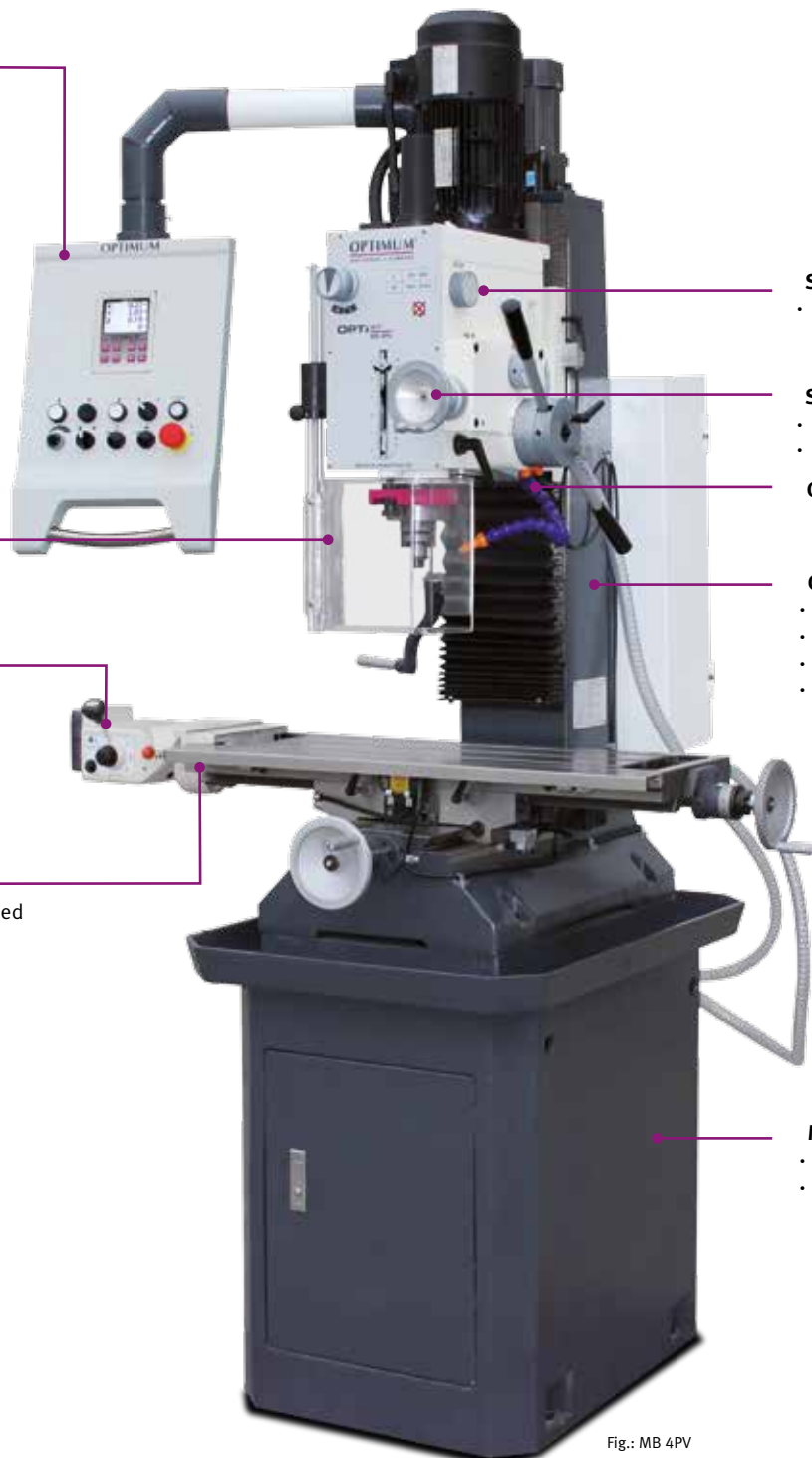


Fig.: MB 4PV



## Technical specifications, accessories and dimensions

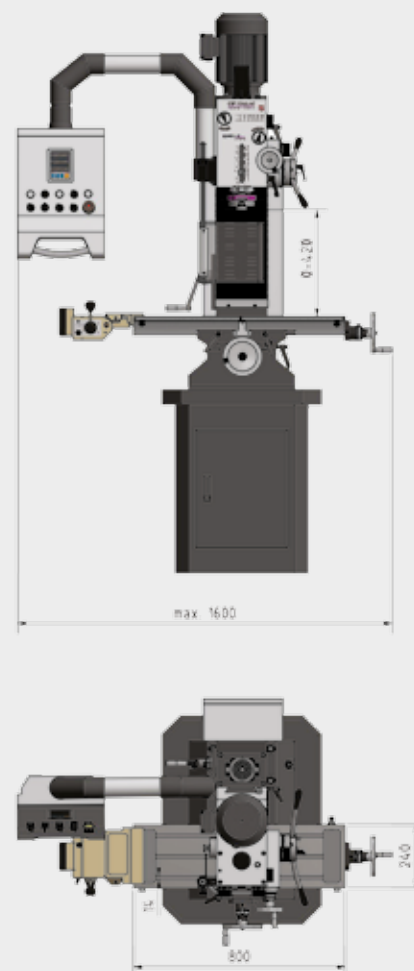
Model	MB 4P	MB 4PV
Article no.	3338460	3338465
Technical data		
Electrical connection	400 V / 3 Ph ~50 Hz	230 V / 1 Ph ~50 Hz
Motor output	1.1 / 1.5 kW	1.5 kW
Drilling/milling output		
Drilling performance steel (S235JR)	Ø 32 mm	Ø 24 mm
Continuous drilling performance steel (S235JR)	Ø 28 mm	Ø 20 mm
Max. sensor head size	Ø 63 mm	Ø 63 mm
Max. shaft milling cutter size	Ø 28 mm	Ø 26 mm
Spindle holder		
Spindle sleeve stroke	120 mm	
Spindle holder	MT 4	
Spindle sleeve diameter	75 mm	
Throat	258 mm	
Tightening bar	M 16	
Drilling/milling head		
Swivel range	± 45°	± 45°
Spindle speeds	95 - 3,200 rpm	60 - 2,760 rpm
Gears	2 x 6 speeds	2 gears, electronically controlled
XY table		
Clearance spindle to XY table max.	420 mm	
Table length x width	800 x 240 mm	
T-groove size/amount/spacing	14 mm / 3 / 80 mm	
Automatic spindle sleeve feed	0.1 / 0.18 / 0.26 mm/U	
Strokes		
X axis automatic / manual	560 mm / 480 mm	
Y axis manual	195 mm	
Z axis manual	350 mm	
Dimensions		
Length max. x width x height max.	1,600 / 930 / 2,110 mm	
Overall weight	495 kg	
Transport packaging flat rate**	TPFR 1	

Accessories	Article no.
Parallel shim set, 20-part	3354001
Copying and facing blade MT 4	3350214
Vibration damper SE1 (4 pcs. required)	3381012
Bore head set MT 4	3352084
Arbor for drill chuck MK4	3350304
Collet chuck MT 4/M16	3352094
Thread tapping chuck M5 - M12	3352042
Height-adjustable tailstock RST 1	3356155
Assortment of clamping tools size 12	3352017
• Metric thread	
Horiz./vert. rotary indexing table RT 150	3356150
End mill set HSS 20-part	3386200
• 10 end mills DIN 327 D version with 2 cutting edges	
• 10 end mills DIN 844 B version with 4 cutting edges	
➤ More „Accessories for milling machines“ ab Seite 96	

\*\* PTO for an explanation of the packaging surcharges.

\*OPTIMILL® is a registered brand of Optimum Maschinen Germany GmbH and exclusively used for milling machines

### Dimensions



### Scope of Delivery

- Machine chassis
- Morse taper MT 3
- Adapter MT 3 - MT 4
- Tightening bar M16
- Operating tool

Vices	Article no.
FMS 100	3354100
FMS 125	3354125
• Guide surfaces tempered and polished	
• Hardened and polished clamping jaws, replaceable	
• With turntable, rotating through 360°	
<b>Rotary indexing tables</b>	
RT 100	3356110
RTE 165	3356365

## Precisions drilling/milling machine with OPTIMUM brushless controller and electronic, continuously controllable drive

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, sturdy and solid columns made of premium cast material with ground and shaven dovetail guide for excellent stability and precision
- ▶ Excellent concentricity thanks to tapered roller bearings, better than 0.015 mm measured in the spindle sleeve
- ▶ Gear head pivots through  $\pm 90^\circ$
- ▶ Manual fine feed
- ▶ Adjustable wedge rails
- ▶ Very large speed range
- ▶ Continuously variable drive
- ▶ Optional, solid, heavy steel chassis ensures stability
- ▶ Drilling depth stop
- ▶ Thread tapping and automatic mode
- ▶ CNC-ready (special spindle bearing of axes and ability to fit the Y axis housing from the rear)
- ▶ Height-adjustable protective screen with microswitch for best possible user protection against chips and parts being flung out

#### "Automatic" operating mode

- The motor starts up automatically after lever movement and stops on returning to its starting position.

#### "Thread tapping" operating mode

- The motor is activated by moving the spindle sleeve down
- The direction of rotation is automatically changed by a limit switch on the adjustable drilling depth stop

#### Control panel

- Digital speed display
- Potentiometer
- Emergency stop button
- Selector switch for operating mode/direction of rotation

#### Digital depth sensor

- Display accuracy 0.01 mm
- Switchable between mm/inch

#### Slatted protective cover

- Z column
- stainless steel

#### XY table

- Solid and generously dimensioned
- Precise surface finish
- With T-grooves
- Adjustable wedge rails
- Adjustable via 3 hand wheels
- Longitudinal scale inset
- Adjustable limit stops

#### Powerful brushless drive

- Optimized, particularly smooth action
- Extremely powerful (2.2 kW)
- Virtually constant torque over the entire speed range



#### Gearbox

- Three-speed

#### Spindle quill feed

- Via spindle sleeve lever (drilling)
- Coupling for switching over from manual rough to manual fine feed

#### Column

- Solid dovetail guide
- Maximum stability
- Greatest possible precision

#### Accessories

##### Steel chassis

- Chip catchment trays
- Dimensions L x W x H: 550 (max. 940) x 650 x 750 mm Art. no. 3353004

##### Vibration damping machine base

**SE 1** (4 pcs. required)  
Art no. 3381012

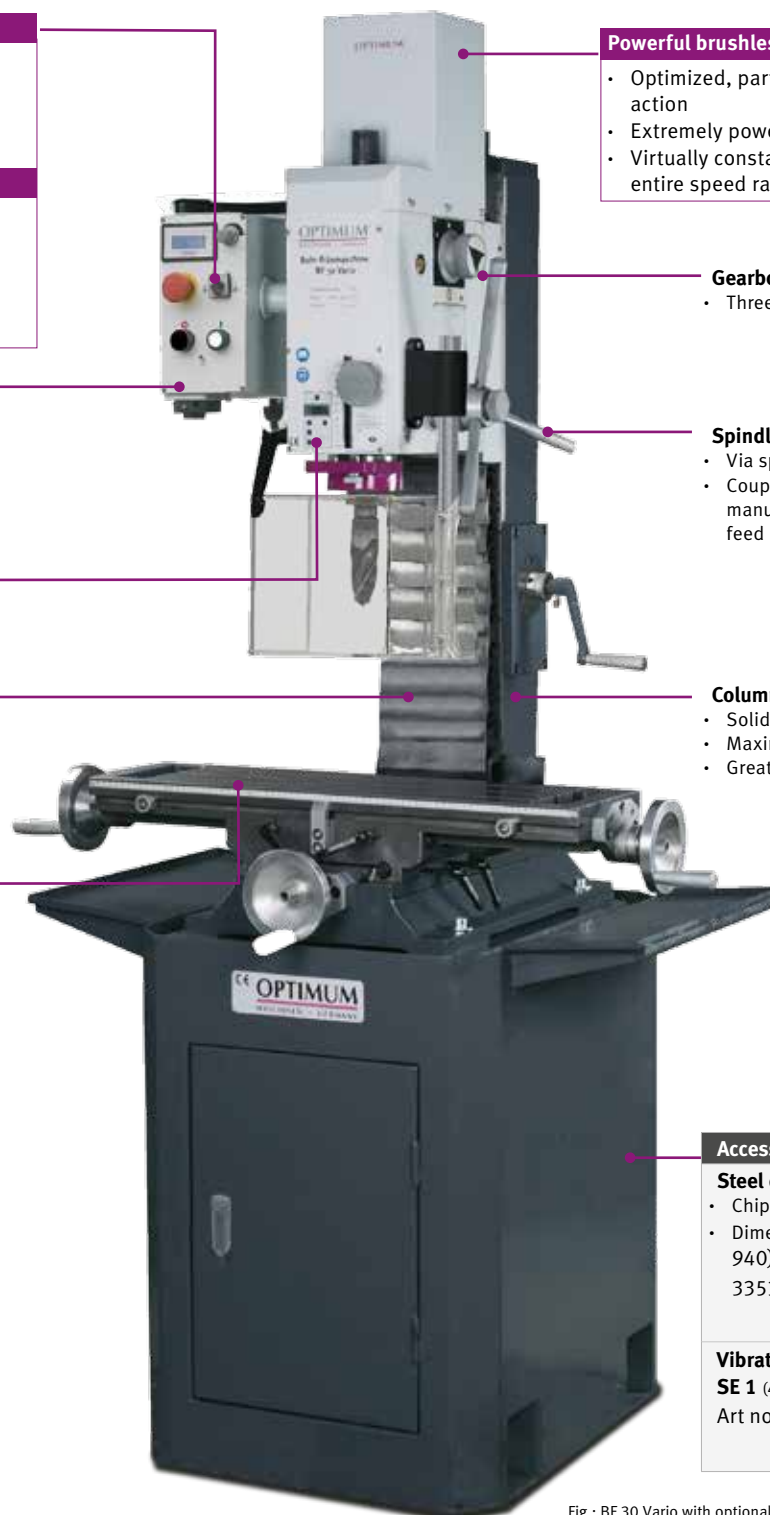


Fig.: BF 30 Vario with optional accessories

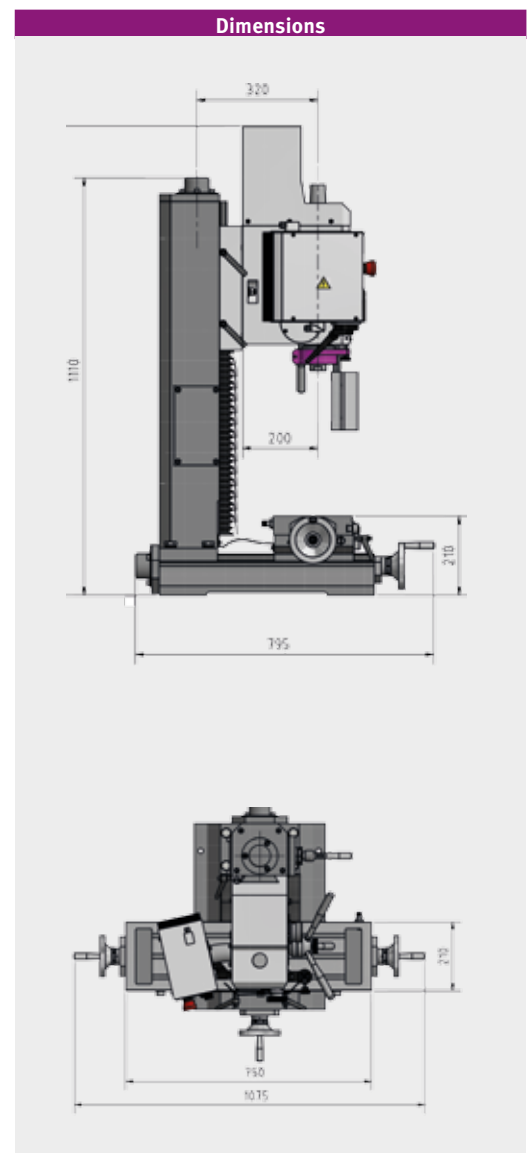
## Technical specifications, accessories and dimensions

Model	BF 30 Vario
Article no. with <b>MT 3 collet</b>	3338430
Article no. with <b>ISO 30 collet</b>	3338431
<b>Technical data</b>	
Electrical connection	230 V / 1 Ph ~50 Hz
Motor output	2.2 kW
<b>Drilling/milling output</b>	
Drilling performance steel (S235JR)	Ø 24 mm
Continuous drilling performance steel (S235JR)	Ø 20 mm
Max. sensor head size	Ø 75 mm
Max. shaft milling cutter size	Ø 30 mm
<b>Spindle holder</b>	
Spindle sleeve stroke	90 mm
Spindle holder	MT 3 or ISO 30
Throat	200 mm
Spindle sleeve diameter	70 mm
Tightening bar	M12
<b>Drilling/milling head</b>	
Swivel range	± 90°
Spindle speeds	80 - 3,100 rpm
Gears	3-speed, electronic speed control
<b>XY table</b>	
Clearance spindle to XY table max.	470 mm
Table length x width	750 mm / 210 mm
XY table max. load bearing capacity	170 kg
T-groove size/amount/spacing	12 mm / 3 / 63 mm
XY table max. load bearing capacity	150 kg
<b>Strokes</b>	
X axis	450 mm
Y axis	200 mm
Z axis	430 mm
<b>Dimensions</b>	
Length x width x height max.	1,075 x 795 x 1,245 mm
Overall weight	266 kg

Accessories BF 30 Vario	Article no.
<b>Rotary indexing table RT 150</b>	3356150
<b>Universal coolant unit</b>	3352002
<b>Universal table feed V99</b>	3352022
<b>Assembly kit V99 - X axis</b>	3352035
<b>End mill set HSS 20-part</b>	3386200
<b>Spring collet set 15-part ER 25</b>	3441109
<b>DRO 5 measuring system</b>	3390330
<b>Steel chassis with chip plates</b>	3353004
Dimensions L x W x H: 550 (max. 940) x 650 x 750 mm	

Accessories BF 30 Vario with MT 3 holder	Article no.
<b>Spring collet set 6-part MT 3</b>	3352014
<b>Copying and facing blade head MK3</b>	3350213
<b>Assortment of clamping tools size 10</b>	3352016

Accessories BF 30 Vario with ISO 30 holder	Article no.
<b>Adapter ISO 30 / MT 3</b>	3352068
<b>Collet chuck ISO 30;ER25</b>	3352046
<b>Copying and facing blade head ISO 30</b>	3350215



### Scope of Delivery

- Chuck Ø 1 - 16 mm
- Tapered mandrel MT 3/B16 with spindle MT 3
- Tapered mandrel ISO 30/B16 with spindle ISO 30
- Operating tool

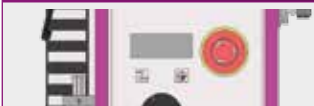
## Universal precision drilling/milling machine with manual gearbox

Control unit with dirt- and water-resistant membrane keyboard

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, sturdy and solid columns made of premium cast material with ground and shaven dovetail guide for excellent stability and precision
- ▶ Excellent concentricity thanks to tapered roller bearings, better than 0.015 mm measured in the spindle sleeve
- ▶ Gear head pivots through  $\pm 60^\circ$
- ▶ Manual fine feed
- ▶ Adjustable wedge rails
- ▶ Optional, solid, heavy steel chassis ensures stability
- ▶ Drilling depth stop
- ▶ Thread tapping mode
- ▶ Height-adjustable protective screen with microswitch for best possible user protection against chips and parts being flung out
- ▶ Two-stage industrial quality electric motor
- ▶ Easily readable spindle sleeve display in milling head

### Drilling and thread tapping depth adjustment



Depth selection freely configurable via digital display. In speed mode, the machine automatically switches over from clockwise to anti-clockwise run.

### Control panel

- User-friendly membrane keyboard
- Easily readable digital display
- Clear-cut
- Emergency stop button

### Control panel functions

- Drive motor stage selection
- Spindle direction
- Drill thread

### Control panel rotary pushbutton

- Adjustment of drilling depth mm / inch and zero point

### Manual spindle sleeve feed

- Via spindle sleeve lever (drilling)
- Coupling for switching over from manual rough to manual fine feed

### Tapered roller bearing

- High levels of concentricity  $\leq 0.015$  mm measured in the drilling spindle sleeve

### Solid column

- Dovetail guide
- Maximum stability
- Greatest possible precision
- Slatted, stainless steel protective cover

### XY table

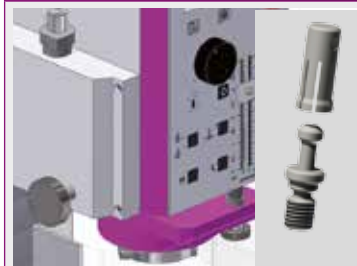
- Solid and generously dimensioned
- Precise surface finish
- With T-grooves
- Adjustable wedge rails
- Adjustable via 3 hand wheels
- Longitudinal scale inset
- Adjustable limit stops



### Energy chain

- cable guidance easy on material

### Mechanical quick change clamping system



Milling head is equipped with a spring collet for the pull stud BT30x45° tool

- Easy to change by unlocking the mechanical safeguard and moving the spindle sleeve lever upward

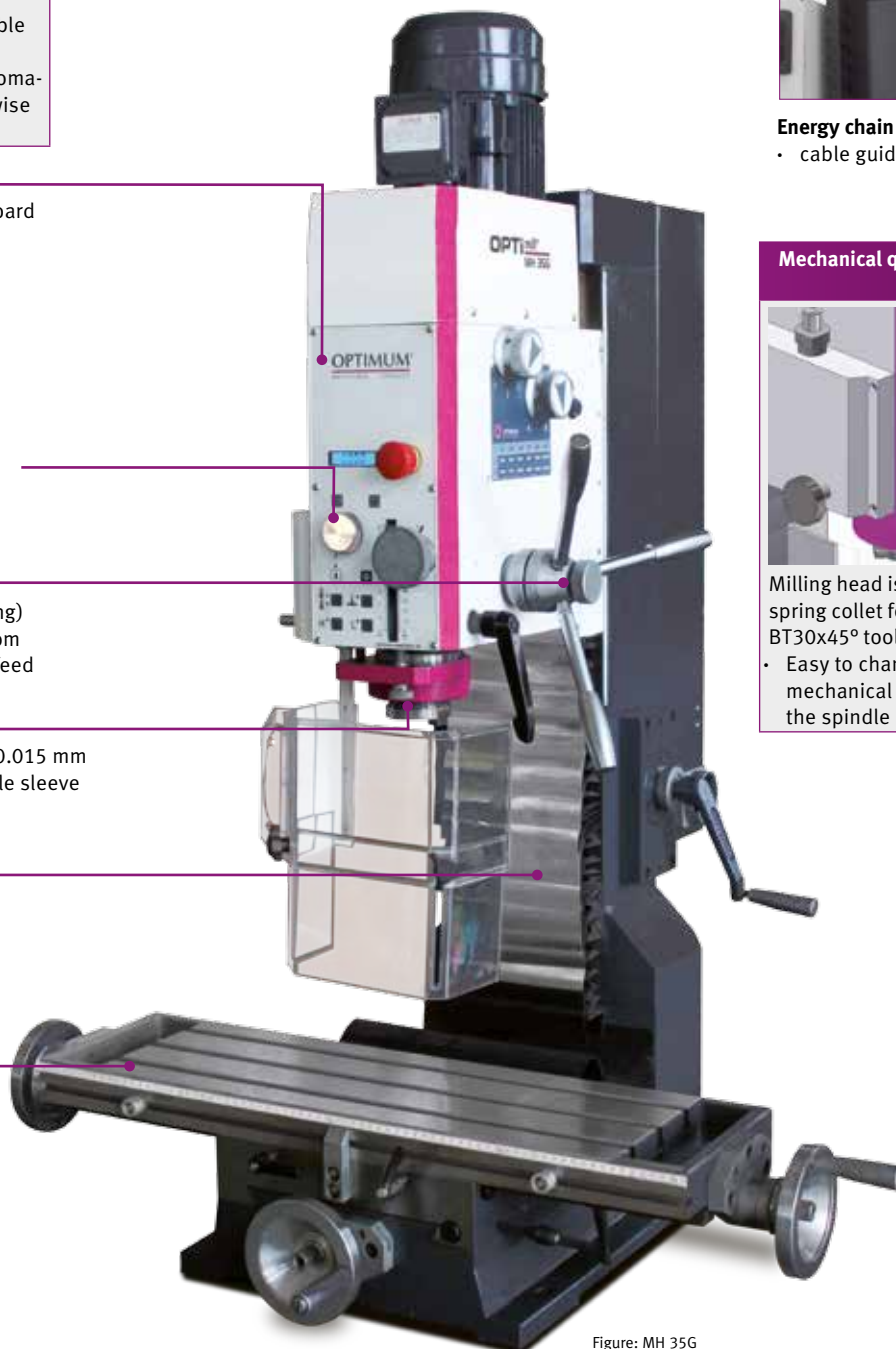


Figure: MH 35G



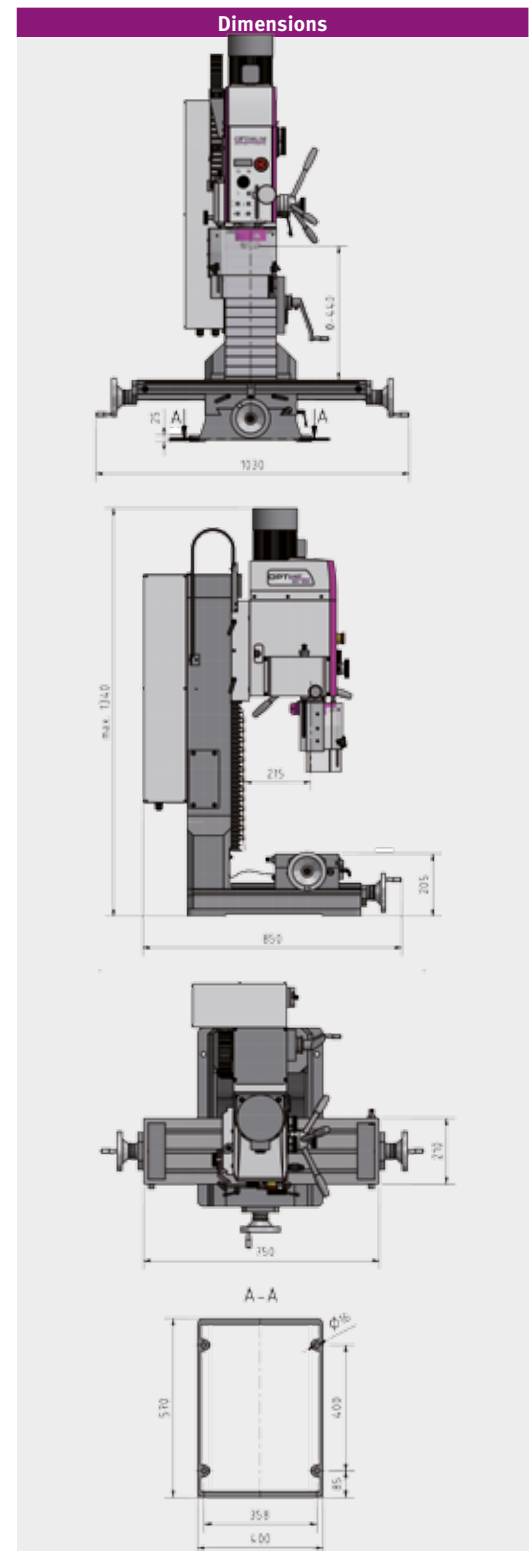
## Technical specifications, accessories and dimensions

Model	MH 35G
Article no.	3338165
<b>Technical data</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Motor output	1.1/1.5 kW
<b>Drilling/milling output</b>	
Drilling performance steel (S235JR)	Ø 32 mm
Continuous drilling performance steel (S235JR)	Ø 28 mm
Max. sensor head size	Ø 80 mm
Max. shaft milling cutter size	Ø 28 mm
<b>Spindle holder</b>	
Spindle sleeve stroke	90 mm
Spindle holder	BT 30
Spindle sleeve diameter	68 mm
Throat	215 mm
<b>Drilling/milling head</b>	
Swivel range	± 60°
Spindle speeds	220 - 3,100 rpm
Gears	2 x 6 speeds
<b>XY table</b>	
Clearance spindle to XY table max.	440 mm
Table length x width	750 mm / 210 mm
XY table max. load bearing capacity	170 kg
T-groove size/amount/spacing	12 mm / 3 / 63 mm
<b>Strokes</b>	
X axis	450 mm
Y axis	200 mm
Z axis	460 mm
<b>Dimensions</b>	
Length x width x height max.	850 / 1,030 / 1,340 mm
Overall weight	316 kg

Accessories	Article no.
<b>Milling head holder</b> 22 mm	3536306
<b>Chuck</b> 1 - 13 mm	3536303
<b>Weldon holder</b> Ø 6 mm	3536310
<b>Weldon holder</b> Ø 8 mm	3536311
<b>Weldon holder</b> Ø 10 mm	3536312
<b>Weldon holder</b> Ø 12 mm	3536313
<b>Weldon holder</b> Ø 16 mm	3536314
<b>Weldon holder</b> Ø 20 mm	3536315
<b>BT 30 - MT 2 adapter</b>	3536305
<b>Spring collet holder</b> ER 32	3536304
<b>Spring collet holder spanner</b> ER 32	3536307
<b>Spring collet set</b> ER 32	3441122
<b>Height-adjuster</b>	3536290
<b>Assembly and tool adjustment gauge</b>	3536193
<b>Taper squeegee</b>	3536301
<b>Pull stud</b>	3536302
<b>Universal table feed</b> V99	3352022
<b>Assembly kit</b> V99 - X axis	3352035

NEW

Accessories	Article no.
<b>Steel chassis</b>	3353014
• Size L x W x H: 650 x 550 x 750 mm	
• Weight 76 kg	
<b>Vibration damping machine base</b> SE1	3381012
(4 pcs. required)	
» More „Accessories for milling machines“ ab Seite 96	



Accessories	Article no.
<b>Starter set</b> BT 30	3536107
• 22 mm milling head holder, 1 - 13 mm chuck, 2 Weldon Ø 6 mm and 20 mm, 1 Weldon Ø 8 / 10 / 12 / 16 mm each, adapter BT 30 - MT 2, 3 spring collet holder ER 32, spring collet key ER 32, 18 part spring collet set ER 32, height adjustment unit, assembly and tool adjustment aid, 14 tightening bolts, wiper cone	

## Precisions drilling/milling machine with OPTIMUM brushless controller and electronic, continuously controllable drive

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, sturdy and solid columns made of premium cast material with ground and shaven dovetail guide for excellent stability and precision
- ▶ Excellent concentricity thanks to tapered roller bearings, better than 0.015 mm measured in the spindle sleeve
- ▶ Gear head pivots through 90°
- ▶ Manual fine feed
- ▶ Adjustable wedge rails
- ▶ Very large speed range
- ▶ Continuously variable drive

- ▶ Optional, solid, heavy steel chassis ensures stability
- ▶ Drilling depth stop
- ▶ Thread tapping and automatic mode
- ▶ CNC-ready (special spindle bearing of axes and ability to fit the Y axis housing from the rear)
- ▶ Height-adjustable protective screen with microswitch for best possible user protection against chips and parts being flung out

### "Automatic" operating mode

- The motor starts up automatically after lever movement and stops on returning to its starting position.

### "Thread tapping" operating mode

- The motor is activated by moving the spindle sleeve down
- The direction of rotation is automatically changed by a limit switch on the adjustable drilling depth stop

### Powerful brushless drive

- Optimized, particularly smooth action
- Extremely powerful (2.2 kW)
- Virtually constant torque over the entire speed range



### Gearbox

- Three-speed

### Spindle quill feed

- Via spindle sleeve lever (drilling)
- Coupling for switching over from manual rough to manual fine feed
- Handwheel for spindle sleeve feed

### Control panel

- Digital speed display
- Emergency stop button
- Selector switch for operating mode/direction of rotation
- Potentiometer

### Digital depth sensor

- Display accuracy 0.01 mm
- Switchable between mm/inch

### Slatted protective cover

- Z column
- stainless steel

### Central lubrication

- For spindle, nut and guides



### XY table

- Solid and generously dimensioned
- Precise surface finish
- Adjustable wedge rails
- Adjustable via 3 hand wheels
- Longitudinal scale inset
- Adjustable limit stops

### Column

- Solid dovetail guide
- Maximum stability and greatest possible precision

### Accessories

#### Steel chassis

- Chip catchment trays
- Dimensions L x W x H
- 750 (max.1,235) x 750 x 750mm
- Art. no. 3353005

#### Vibration damping machine base

- SE 1 (4 pcs. required)
- Art no. 3381012

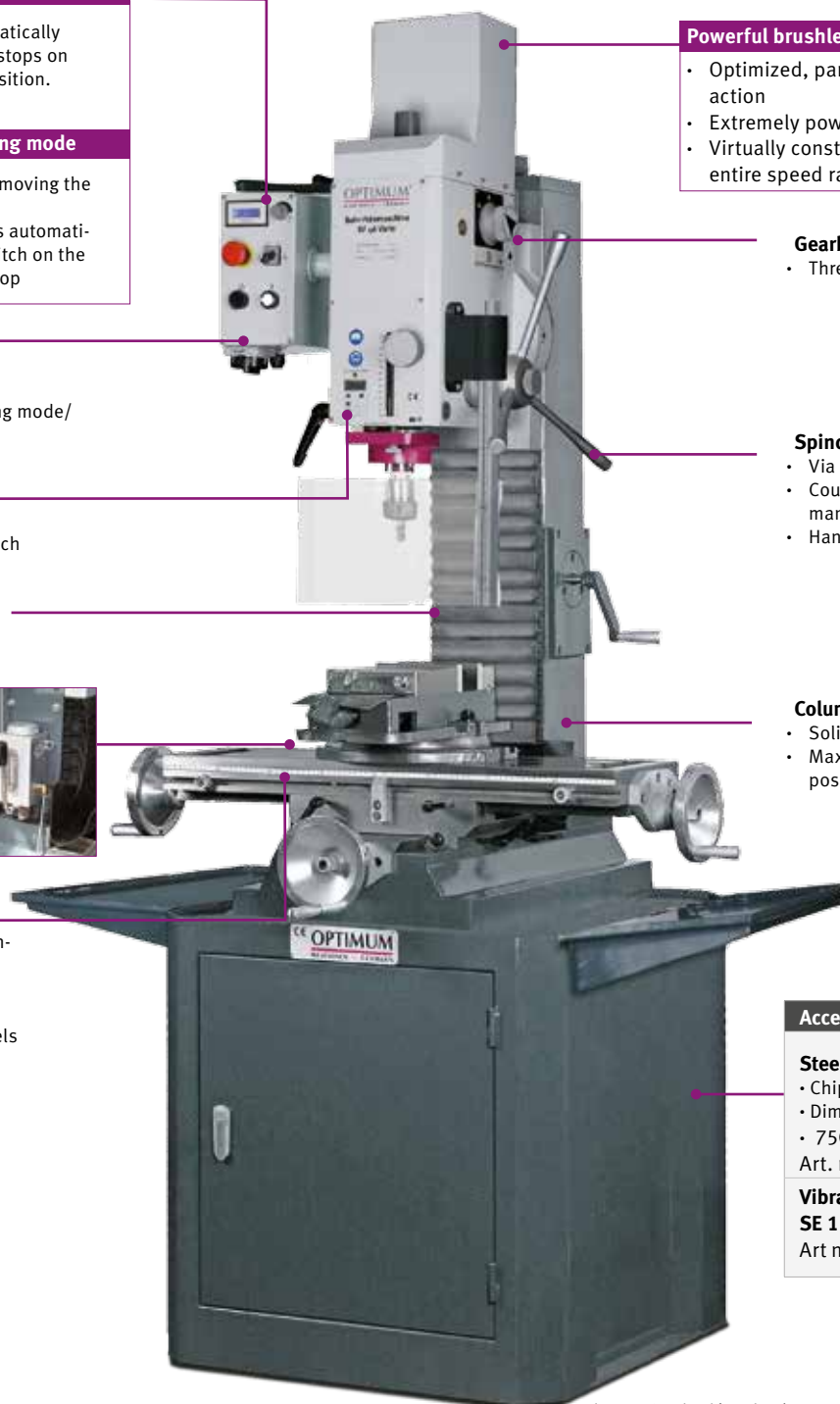
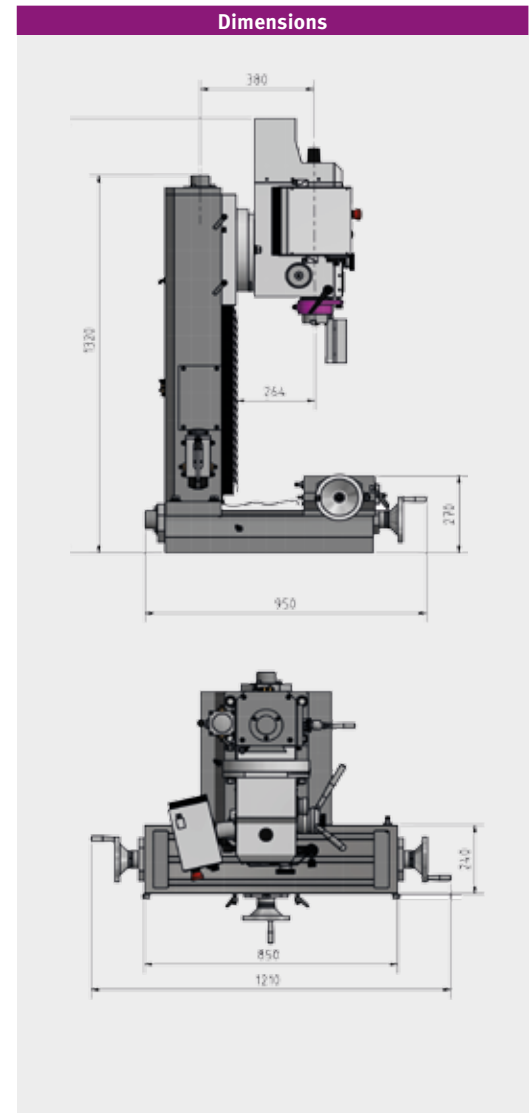


Fig.: BF 46 Vario with optional accessories

## Technical specifications, accessories and dimensions

Model	BF 46 Vario
Article no. with <b>MT 3 collet</b>	3338453
<b>Technical data</b>	
Electrical connection	230 V / 1 Ph ~50 Hz
Motor output	2.2 kW
<b>Drilling/milling output</b>	
Drilling performance steel (S235JR)	Ø 28 mm
Continuous drilling performance steel (S235JR)	Ø 24 mm
Max. sensor head size	Ø 80 mm
Max. shaft milling cutter size	Ø 32 mm
<b>Spindle holder</b>	
Spindle sleeve stroke	115 mm
Spindle holder	ISO 40 DIN 2080
Tightening bar	M16
<b>Drilling/milling head</b>	
Swivel range	± 90°
Spindle speeds	115 - 3,100 rpm
Gears	3-speed, electronic speed control
<b>XY table</b>	
Clearance spindle to XY table max.	470 mm
Table length x width	850 mm / 240 mm
XY table max. load bearing capacity	170 kg
T-groove size/amount/spacing	18 mm / 80 mm / 3
<b>Strokes</b>	
X axis	500 mm
Y axis	250 mm
Z axis	541 mm
<b>Dimensions</b>	
Length x width x height max.	1,210 x 950 x 1,520 mm
Overall weight	426 kg



Accessories BF 46 Vario	Article no.
<b>Universal coolant unit</b>	3352002
<b>Assortment of clamping tools</b> size 16	3352019
<b>End mill set</b> HSS 20-part	3386200
<b>Collet chuck set</b> 18-part ISO 40	3352056
<b>Universal table feed</b> V 99	3352022
<b>Assembly kit</b> V99 - X axis	3352036
<b>Rotary indexing table</b> RT 200	3356200
<b>Arbor</b> for drill chuck	3352070
<b>Steel chassis with chip plates</b>	3353005
Dimensions L x W x H: 750 (max. 1,235) x 750 x 750 mm	

### Scope of Delivery

- Chuck Ø 3 - 16 mm
- Taper mandrel ISO 40/B16
- Operating tool

## Universal precision drilling/milling machine with manual gearbox, 12 speeds and electrical Z axis adjustment. Control unit with dirt- and water-resistant membrane keyboard

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, sturdy and solid columns made of premium cast material with ground and shaven dovetail guide for excellent stability and precision
- ▶ Clockwise/Anti-clockwise rotation
- ▶ Excellent concentricity thanks to tapered roller bearings, better than 0.015 mm measured in the spindle sleeve
- ▶ Gear head pivots through 60°
- ▶ Manual fine feed
- ▶ Drilling depth stop
- ▶ Thread tapping mode
- ▶ Height-adjustable protective screen with microswitch for best possible user protection against chips and parts being flung out
- ▶ Optional, solid, heavy steel chassis ensures stability
- ▶ Two-stage industrial quality electric motor

### Drilling and thread tapping depth adjustment



Depth selection freely configurable via digital display. In speed mode, the machine automatically switches over from clockwise to anti-clockwise run.

### Control panel

- User-friendly membrane keyboard
- Easily readable digital display
- Clear-cut
- Emergency stop button

### Control panel functions

- Drive motor stage selection
- Spindle direction
- Drill thread

### Control panel rotary pushbutton

- Adjustment of drilling depth mm / inch and zero point

### Manual spindle sleeve feed

- Via spindle sleeve lever (drilling)
- Coupling for switching over from manual rough to manual fine feed

### Tapered roller bearing

High levels of concentricity  $\leq 0.015$  mm measured in the drilling spindle sleeve

### Solid column

- Dovetail guide
- Maximum stability
- Greatest possible precision
- Slatted, stainless steel protective cover

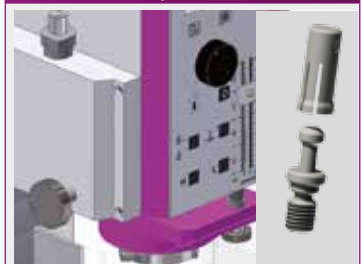
### Electrical milling head height adjustment



### Energy chain

- cable guidance easy on material

### Mechanical quick change clamping system



Milling head is equipped with a spring collet for the pull stud BT40x45° tooled

- To change, simply release the mechanical lock on the quick-clamping system and push the spindle sleeve lever upwards

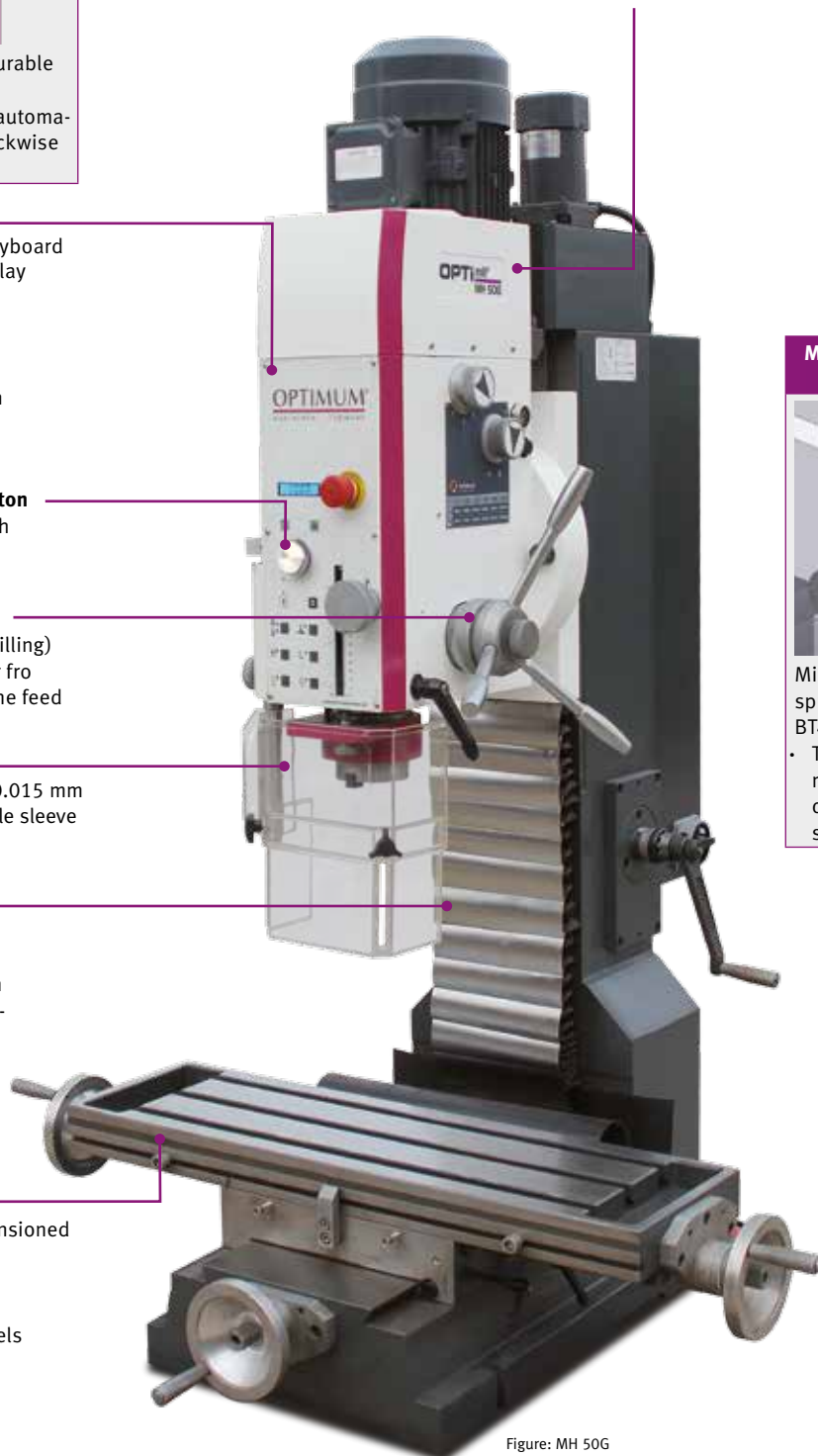


Figure: MH 50G

### XY table

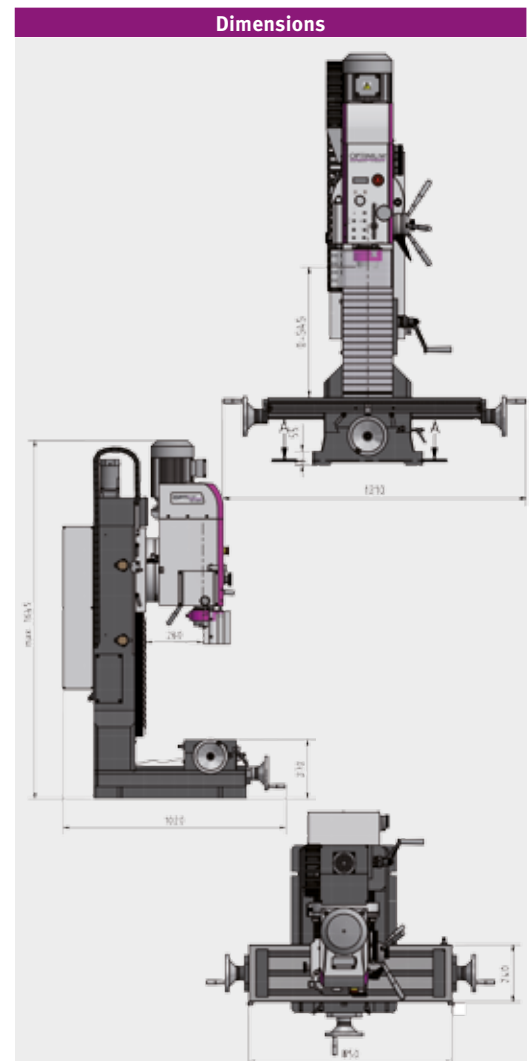
- Solid and generously dimensioned
- Precise surface finish
- With T-grooves
- Adjustable wedge rails
- Adjustable via 3 hand wheels
- Longitudinal scale inset
- Adjustable limit stops



## Technical specifications, accessories and dimensions

Model	MH 50G
Article no.	3338180
<b>Technical specifications</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Motor output	1.5 / 2.2 kW
<b>Drilling/milling output</b>	
Drilling performance steel (S235JR)	Ø 38 mm
Continuous drilling performance steel (S235JR)	Ø 32 mm
Max. sensor head size	Ø 80 mm
Max. shaft milling cutter size	Ø 32 mm
<b>Spindle holder</b>	
Spindle sleeve stroke	115 mm
Spindle holder	BT 40
Spindle sleeve diameter	80 mm
Throat	260 mm
<b>Drilling/milling head</b>	
Spindle speeds	225 - 3,260 rpm
Gears	2 x 6 speeds
Swivel range	± 30°
<b>XY table</b>	
Table length x length	850 mm x 240 mm
XY table max. load bearing capacity	175 kg
Clearance spindle to XY table max.	545 mm
T-groove size/amount/spacing	18 mm / 3 / 80 mm
<b>Strokes</b>	
X axis manual	520 mm
Y axis manual	260 mm
Z axis automatic / manual	465 mm / 385 mm
<b>Dimensions</b>	
Length x width x height max.	1,210 x 1,020 x 1,645 mm
Overall weight	525 kg

Accessories	Article no.
<b>Milling head holder</b> 27 mm	3536336
<b>Chuck</b> 1 - 13 mm	3536333
<b>Weldon holder</b> Ø 6 mm	3536340
<b>Weldon holder</b> Ø 8 mm	3536341
<b>Weldon holder</b> Ø 10 mm	3536342
<b>Weldon holder</b> Ø 12 mm	3536343
<b>Weldon holder</b> Ø 16 mm	3536344
<b>Weldon holder</b> Ø 20 mm	3536345
<b>BT 40 to MT 3 adapter</b>	3536335
<b>Spring collet holder</b> ER 32	3536334
<b>Spring collet holder spanner</b> ER 32	3536307
<b>Spring collet set</b> ER 32	3441122
<b>Height-adjuster</b>	3536290
<b>Assembly and tool adjustment gauge</b>	3536194
<b>Taper squeegee</b>	3536331
<b>Pull stud</b>	3536332
<b>Universal table feed</b> V 99	3352022
<b>Assembly kit</b> V99 - X axis	3352036
<b>Steel chassis</b>	3353015
• Dimensions L x W x H: 750 x 750 x 730 mm . Weight: 134 kg	
<b>Vibration damping</b> machine base SE1	3381012
(4 pcs. required)	
› More „Accessories for milling machines“ ab Seite 96	



### Scope of Delivery

- Operating tool

Accessories	Article no.
<b>Starter set</b> BT 40	3536108
• Quick release chuck	
• Milling head holder	
• 18-part spring collet set ER 32	
• BT 40 to MT 3 adapter	
• 3 pc. spring collet holder ER 32	
• 15 pcs. pull studs	
• Spring collet key ER 32	
• Taper squeegee	
• Height-adjuster	
• Assembly and tool adjustment gauge	
• 2 pcs. each Weldon 6 / 20 mm	
• 1 pc. each Weldon 8 / 10 / 12 / 16 mm	



## Universal drilling/milling machine with automatic table feed for X and Y axis

### Facts that impress in terms of quality, performance and price

- ▶ Vibration absorbing cast design
- ▶ Pivoting milling head with gearbox
- ▶ Gears in oil bath with polished, hardened gear wheel
- ▶ Clockwise/Anti-clockwise rotation
- ▶ Spindle sleeve feed with fine feed
- ▶ Coupling for switching from manual coarse feed to manual fine feed
- ▶ Precision XY table, generously dimensioned with precision surface finish with adjustable V-ledges
- ▶ Automatic feed of X and Y axis with speed adjustment
- ▶ Automatic and adjustable limit switch cut-off of the X axis
- ▶ Mechanical spindle sleeve feed for drilling via spindle sleeve lever
- ▶ Dovetail guides of the table, adjustable via V-ledges
- ▶ Coolant system
- ▶ LED lamp

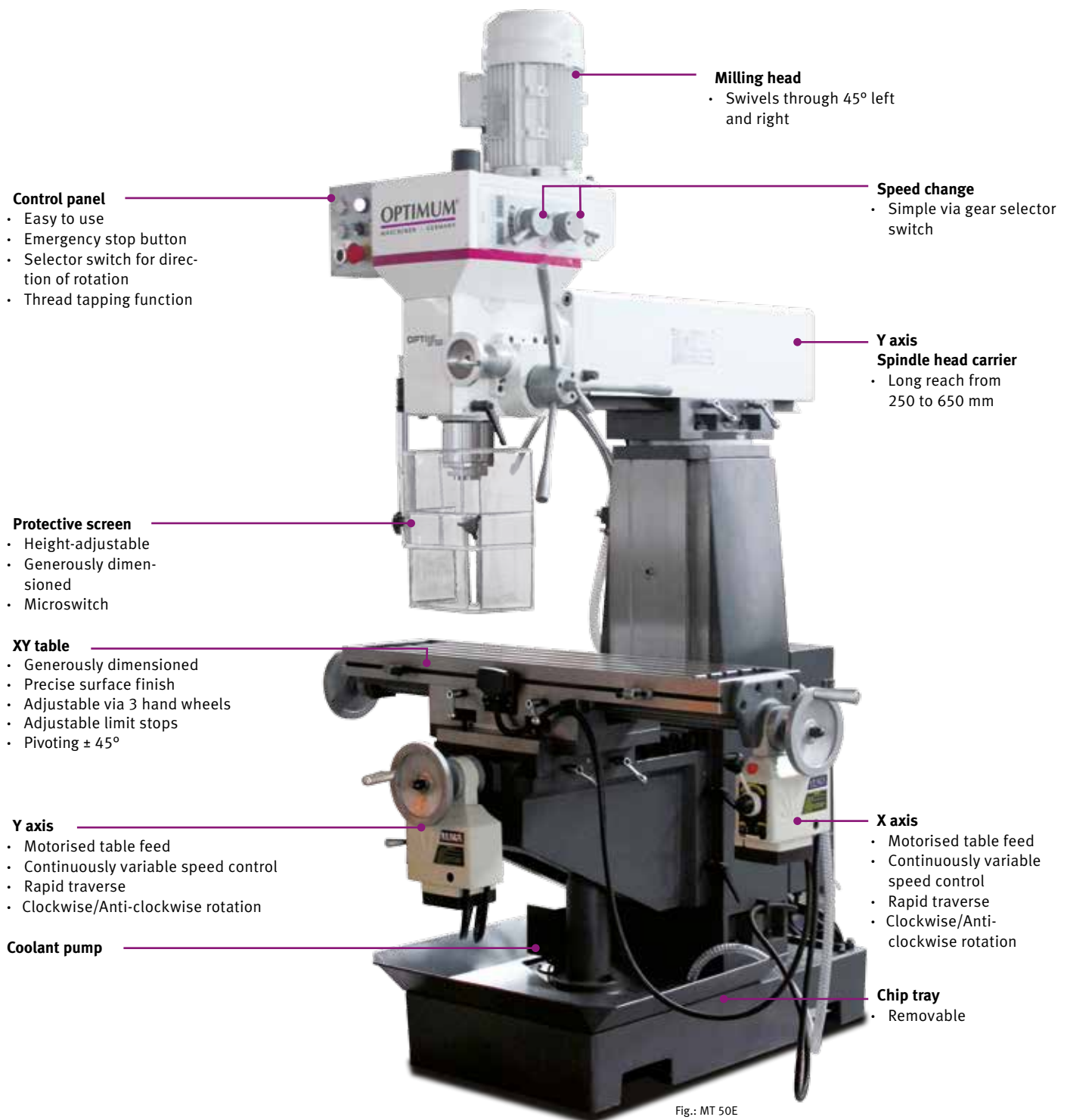


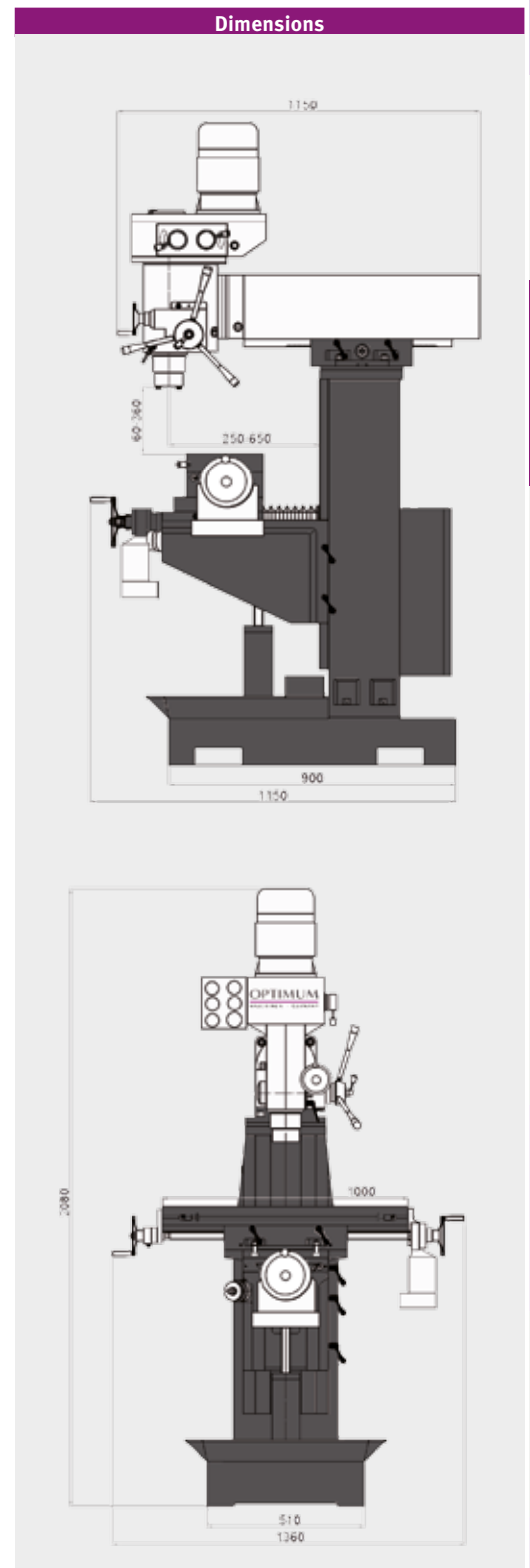
Fig.: MT 50E

## Technical specifications, accessories and dimensions

Model	MT 50E
Article no.	3336010
<b>Technical data</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Drive motor	0.85 / 1.5 kW
Coolant pump output	40 W
<b>Drilling performance</b>	
Drilling performance in steel (S235JR)	Ø 30 mm
Continuous drilling performance in steel (S235JR)	Ø 25 mm
Max. sensor head size	Ø 63 mm
Max. shaft milling cutter size	Ø 25 mm
<b>Spindle holder</b>	
Spindle holder	SK40 DIN 69871
Spindle sleeve stroke	120 mm
Tightening bar	M 16
<b>Drilling/milling head</b>	
Spindle speeds	115 - 1,750 rpm
Gears / Motor stps	4 gears / 2 steps
Throat	250 - 650 mm
Swivel range	± 45°
<b>XY table</b>	
Distance spindle to XY table	60 - 360 mm
Table length x width	1,000 x 240 mm
XY table max. load bearing capacity	150 kg
T-slot size / quantity	14 mm / 4
Swivel range	± 45°
<b>Strokes</b>	
X axis automatic / manual	580 mm / 500 mm
Y axis automatic / manual	230 mm / 150 mm
Z axis manual	400 mm
<b>Dimensions</b>	
Length x width x height	1,360 x 1,150 x 2,080 mm
Overall weight	760 kg
Transport packaging flat rate**	TPFR2

Accessories	Article no.
Parallel shim set, 20-part	3354001
Vibration damping machine base SE2 (4 pcs. required)	3381016
Assortment of clamping tools size 12	3352017
Collet chuck set 18-part ISO40	3352056
Horizontal-vertical rotary indexing table RT 200 • Worm gear tempered and polished	3356200
Arbor for drill chuck • External taper ISO 40 / B16	3352070

Vices	Article no.
HMS 125	3355127
FMS 125	3354125
• Guide surfaces tempered and polished	
• Hardened and polished clamping jaws, replaceable	
• With turntable, rotating through 360°	
› More „Accessories for milling machines“ ab Seite 96	



### Scope of Delivery

- Gear rim drill chuck 3 - 16 mm / B18
- Arbor for drill chuck ISO40 / B18
- T-slot nuts
- Push-out tool
- Reduction sleeve ISO40- MT 3/MT 3-MT 2
- Coolant pump
- Operating tool

## Universal milling machine for horizontal and vertical milling work with digital 3-axis position display DPA 2000

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, solid design using premium vibration-absorbing grey cast material
- ▶ Spindle sleeve feed via spindle sleeve lever or manual fine feed hand wheel
- ▶ X axis can be moved optionally with the hand wheel or the table feed unit
- ▶ Vertical position
- ▶ Spindle head carrier rotates through 180°
- ▶ Gears in oil bath with polished, hardened gear wheel
- ▶ Anticlockwise/clockwise run
- ▶ Precision XY table, generously dimensioned with precision surface finish with adjustable V-ledges
- ▶ Automatic end position cut-off on X axis

### OPTi Control panel

- Integrated switch panel
- Integrated **digital position display DPA 2000**

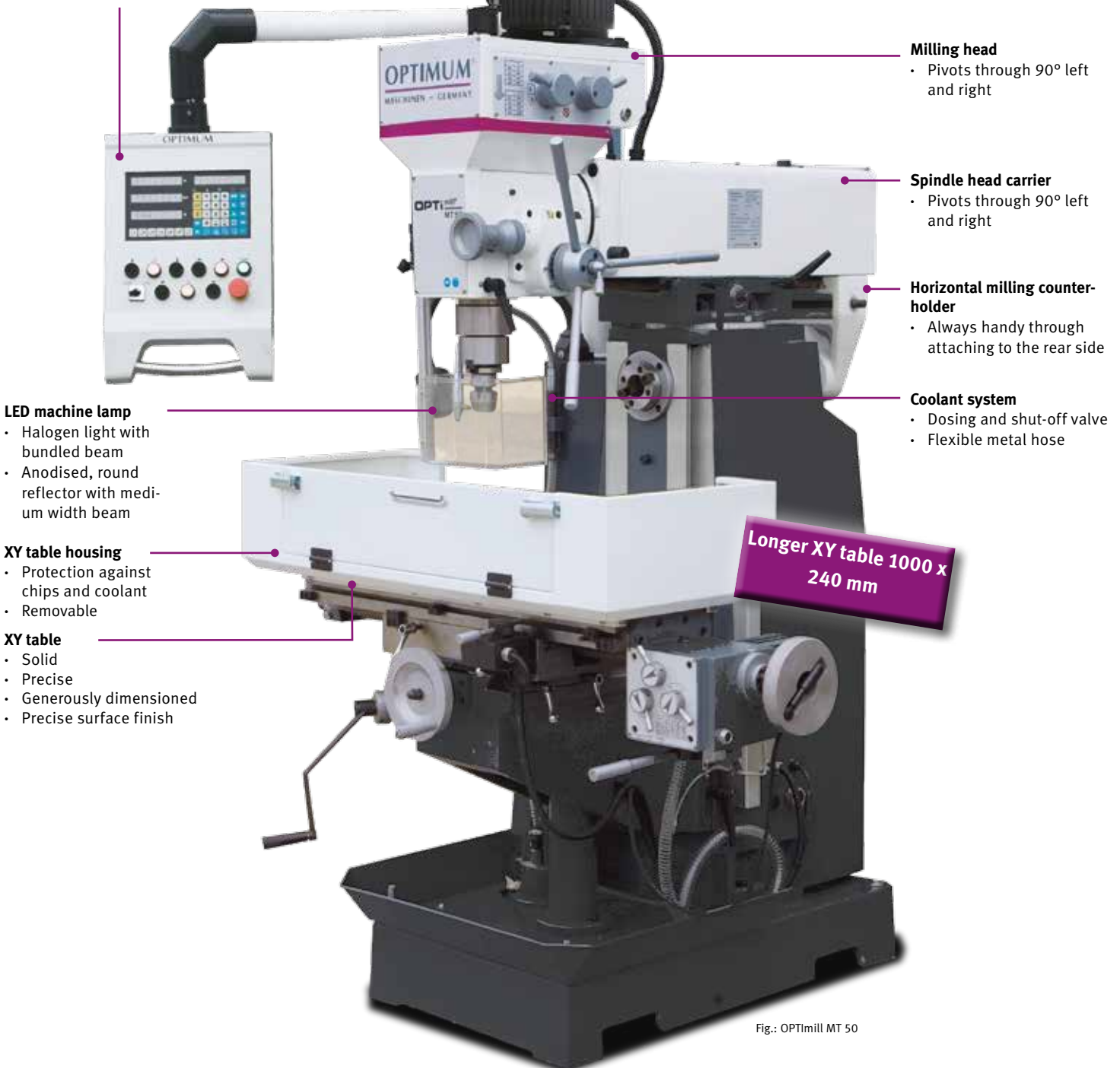


Fig.: OPTImill MT 50



## Technical data and accessories



### Horizontal milling position

- For work in horizontal milling position with arbor and collet for disc milling cutter



### Control panel

- Pivots to left and right side of machine

### Digital position display DPA 2000

- Clear reduction of manufacturing times
- Easy to use
- Greater operation accuracy
- Reduction of error quota
- Clear-cut keyboard layout
- Dazzle-free display



### Table feed

- Motorised table height adjustment
- Gear motor - Table feed for the X axis



### XY table housing

- Fold-up type
- Removable

Model	MT 50
Article no.	3336005
<b>Technical specifications</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Total connected load	4.5 kW
Coolant pump output	40 W
<b>Drilling/milling output</b>	
Drilling performance steel (S235JR)	Ø 30 mm
Continuous drilling performance steel (S235JR)	Ø 25 mm
Max. sensor head size	Ø 100 mm
Max. shaft milling cutter size	Ø 25 mm
<b>Vertical spindle</b>	
Drive motor	1.1/2.2 kW
Spindle holder	ISO 40 DIN 2080
Spindle sleeve stroke	120 mm
Throat	240 - 650 mm
Spindle speeds	115 - 1,750 rpm
Gears	8 gears
<b>Horizontal spindle</b>	
Drive motor	1.5 kW
Spindle holder	ISO 40 DIN 2080
Throat	0 - 185 mm
Spindle speeds	60 - 1,350 rpm
Gears	9 gears
<b>XY table</b>	
Table length x width	1,000 x 240 mm
XY table max. load bearing capacity	160 kg
T-slot size / quantity	14 mm / 4
<b>Strokes</b>	
X axis automatic / manual	580 mm/500 mm
Table feed X axis (8 speeds)	24 / 720 mm/min.
Y axis manual	200 mm
Z axis manual	340 mm
<b>Dimensions</b>	
Length x width x height	2,270 x 1,500 x 2,100 mm
Overall weight	820 kg
Transport packaging flat rate**	TPFR2

### Scope of Delivery

- Gear rim drill chuck 1 - 16 mm / B18
- Arbor for drill chuck ISO40 / B18
- Cutter spindle horizontal milling Ø 22 mm / 27 mm
- Milling chuck Ø 4-16 mm
- Reduction sleeves ISO 40-MT 3 / ISO 40-MT 2
- Tie rod vertical and horizontal
- T-slot nuts
- Push-out tool
- Operating tool

### Accessories

Accessories	Article no.
Parallel shim set, 20-part	3354001
Vibration-damping machine base SE2 (4 pcs. required)	3381016
Assortment of clamping tools size 12	3352017
Collet chuck set 18-part ISO 40	3352056
Horizontal-vertical rotary indexing table RT 200	3356200
Arbor for drill chuck ISO 40 / B16	3352070
Pull stud ISO 40 / B16	3536179

### Vices

Vices	Article no.
HMS 125	3355127
FMS 125	3354125

› More „Accessories for milling machines“ ab Seite 96

\*\* PTO for an explanation of the packaging surcharges.

\*OPTImill® is a registered brand of Optimum Maschinen Germany GmbH and exclusively used for milling machines

## Universal milling machine for horizontal and vertical milling work. With digital 3-axis position display DPA 21

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, solid design using premium vibration-absorbing grey cast material
- ▶ Spindle sleeve feed via spindle sleeve lever or manual fine feed hand wheel
- ▶ X axis can be moved optionally with the hand wheel or the table feed unit

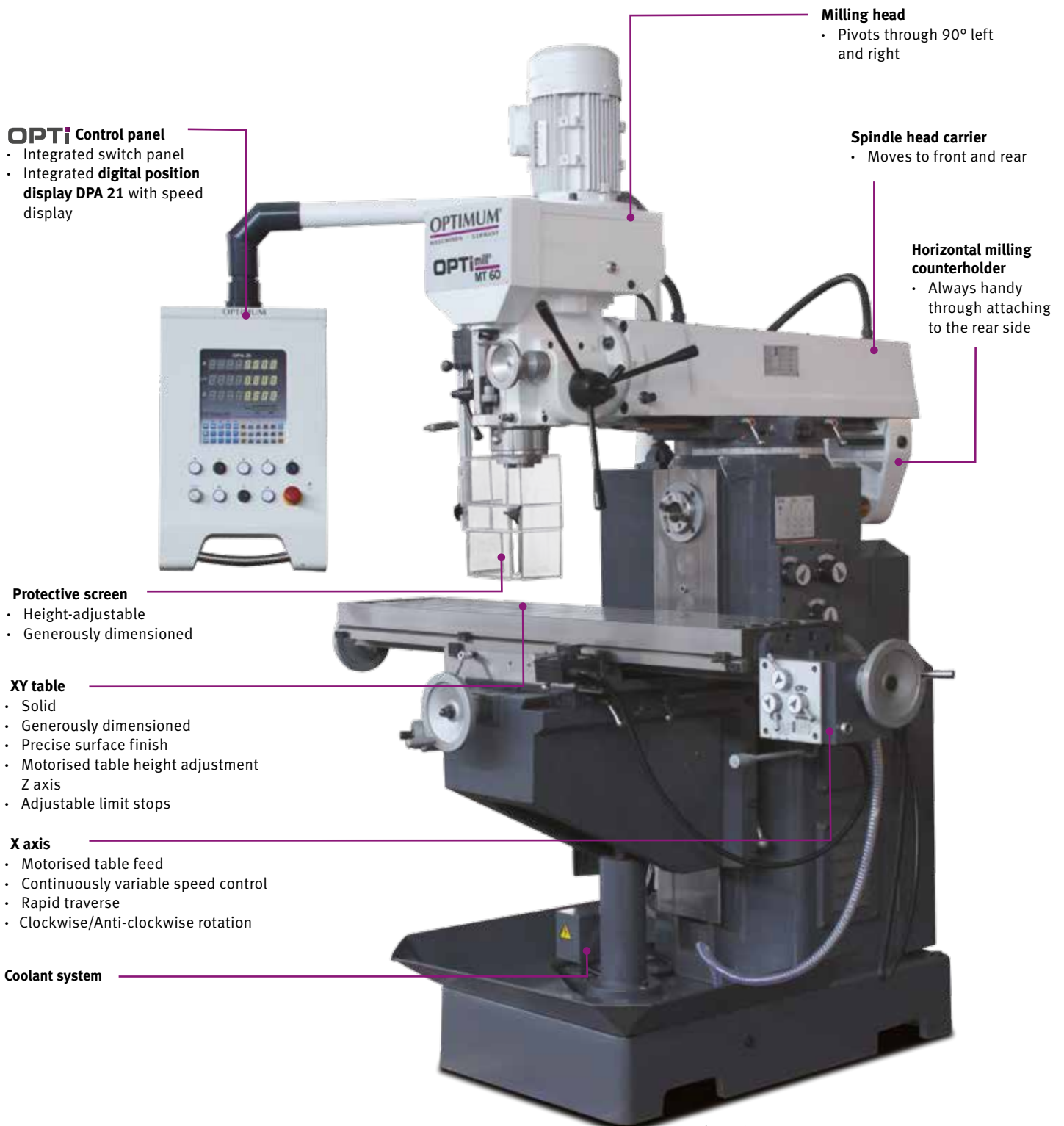


Fig.: MT 60

## Technical data and accessories



### Horizontal milling position

- For work in horizontal milling position with arbor and collet for disc milling cutter



### Control panel

- Pivots to left and right side of machine

### Digital position display DPA 21

- Clear-cut keyboard layout
- Dazzle-free display
- Resolution 5 µm
- Accuracy ± 0.003 mm
- Protected against dust, chips and splash water by a rubber lip



### Table feed

- Motorised table height adjustment
- Gear motor - Table feed X axis

Model	MT 60
Article no.	3336090
<b>Technical data</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Total connected load	5 kW
Coolant pump output	40 W
<b>Drilling/milling output</b>	
Drilling performance steel (S235JR)	Ø 30 mm
Continuous drilling performance steel (S235JR)	Ø 25 mm
Max. sensor head size	Ø 100 mm
Max. shaft milling cutter size	Ø 25 mm
<b>Vertical spindle</b>	
Drive motor	2.2 kW
Spindle holder	ISO 40 DIN 2080
Spindle sleeve stroke	120 mm
Throat	220 - 600 mm
Clearance spindle to table	125 - 465 mm
Spindle sleeve diameter	Ø 90 mm
Tightening bar	M16
Spindle speeds	90 - 2,000 rpm
Gears	8 gears
Automatic spindle sleeve feed	0.008 - 0.25 mm/rev (3 speeds)
<b>Horizontal spindle</b>	
Drive motor	2.2 kW
Spindle holder	ISO 40 DIN 2080
Throat	35 - 370 mm
Spindle speeds	40 - 1,300 rpm
Gears	9 gears
<b>XY table</b>	
Table length x width	1,270 x 280 mm
XY table max. load bearing capacity	150 kg
T-groove size/amount/spacing	14 mm / 4 / 50 mm
<b>Strokes</b>	
X axis automatic / manual	750 mm/680 mm
Y axis manual	230 mm
Z axis manual	360 mm
<b>Dimensions</b>	
Length x width x height	1,580 x 1,450 x 2,150 mm
Overall weight	900 kg

### Scope of Delivery

- Gear rim drill chuck Ø 1 - 16 mm / B18
- Arbor for drill chuck ISO40 / B18
- Adapter ISO 40 / MT 3
- Adapter ISO 40 / MT 2
- Cutter spindle horizontal milling Ø 22 mm
- Cutter spindle horizontal milling Ø 27 mm
- Milling chuck Ø 4 - Ø 16 mm
- Tie rod vertical and horizontal
- Operating tool

Accessories	Article no.
Hydraulic vice HMS 150	3355150
Precision vice FMS 150	3354150
Parallel shim set, 20-part	3354001
Assortment of clamping tools size 12	3352017
Horizontal-vertical rotary indexing table RT 200	3356200

› More „Accessories for milling machines“ ab Seite 96

## Multifunctional drilling/milling machine with OPTIMUM brushless drive. With digital position display DRO 5

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, solid design using premium cast meehanite
- ▶ All axes with adjustable dovetail guide
- ▶ Excellent concentricity thanks to tapered roller bearings, better than 0.01 mm measured in the spindle sleeve
- ▶ Automatic spindle sleeve feed
- ▶ Centralised lubrication for spindle, nuts and guides
- ▶ Milling head pivots through 90° left and right
- ▶ Spindle head carrier rotates through  $\pm 90^\circ$

### Powerful brushless drive

- Particularly smooth action
- Virtually constant torque over the entire speed range



### Control panel

- Digital speed display
- Clockwise/Anti-clockwise rotation
- Emergency stop button
- Potentiometer
- Stop/Start pushbutton

### Drilling depth stop

- Adjustable with millimetre scale
- Can be read off on front

### Protective screen

- Height-adjustable
- Generously dimensioned
- Microswitch

### Spindle speeds

- Continuously variable speed control with frequency inverter
- Very large speed range

### Y axis

- Long throat from 132 to 410 mm

### Milling head

- Swivels through 90° left and right

### Digital position display DRO5

- 3-axis position display (X - Y - Z)
- Four-line LCD display
- Rugged aluminium housing

### XY table

- Solid and generously dimensioned
- Precise surface finish
- Adjustable via 3 hand wheels
- Adjustable limit stops

### Central lubrication

- XY table and Z axis



### Chip tray

- Removable

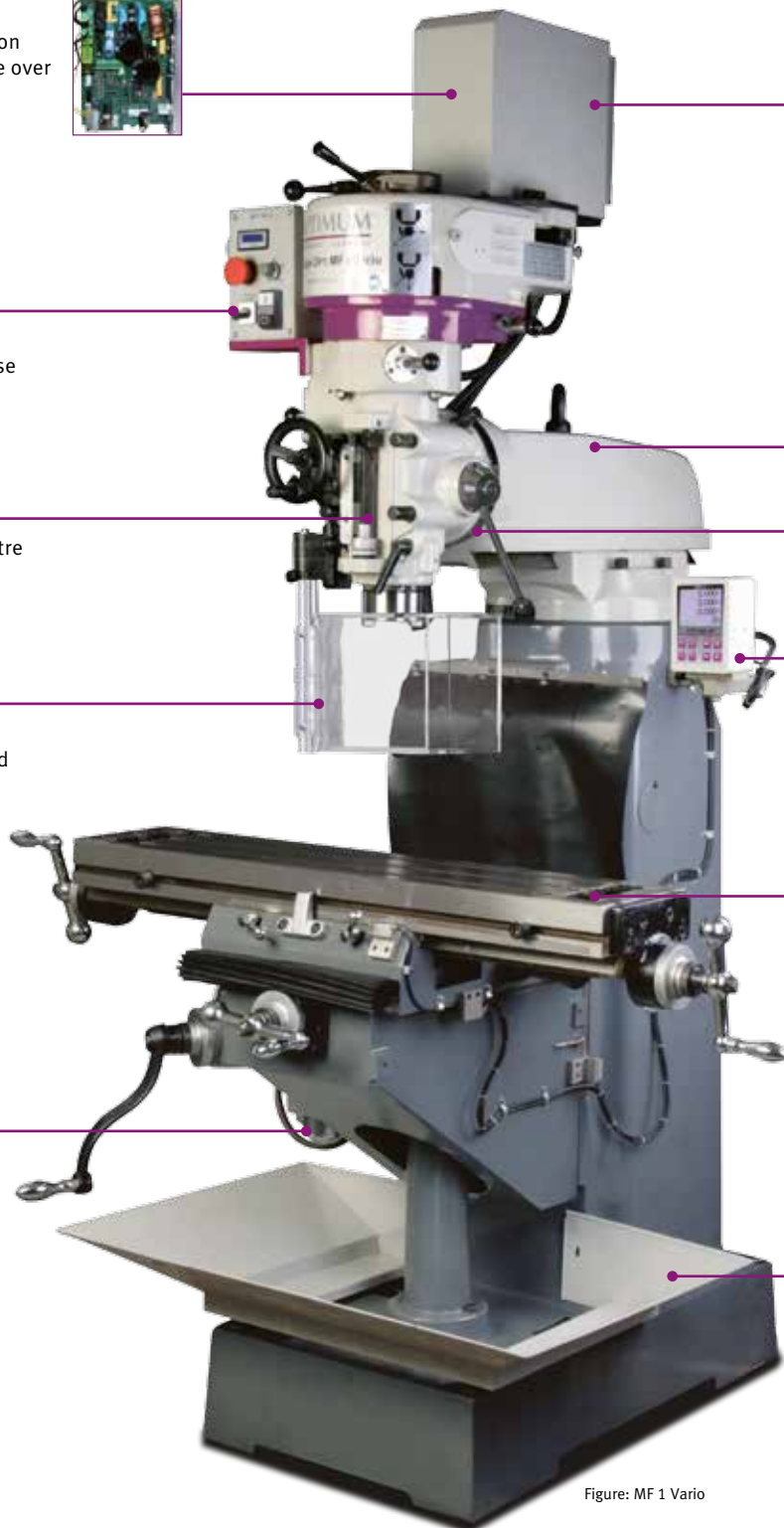


Figure: MF 1 Vario



## Technical specifications, accessories and dimensions

Model	MF 1 Vario
Article no.	3336015
<b>Electrical connection</b>	
Connection	230 V / 1 Ph ~50 Hz
Motor output	2.2 kW
<b>Drilling/milling output</b>	
Drilling performance steel (S235JR)	Ø 30 mm
Continuous drilling performance steel (S235JR)	Ø 21 mm
Max. sensor head size	Ø 63 mm
Max. shaft milling cutter size	Ø 20 mm
<b>Spindle holder</b>	
Spindle sleeve stroke	127 mm
Spindle holder	ISO 40 DIN 2080
<b>Drilling/milling head</b>	
Swivel range	± 90°
Pivot range spindle head carrier	± 180°
Spindle speeds	50 - 6,300 rpm
Gears	6 speeds, speed elec. controllable
Automatic spindle sleeve feed	0.04 / 0.08 / 0.16 mm/rev
<b>XY table</b>	
Clearance spindle to XY table	360 mm
Table length x Table width	915 x 200 mm
XY table max. load bearing capacity	160 kg
T-groove size/amount/spacing	16 mm / 3 / 64 mm
<b>Strokes</b>	
X axis	570 mm
Y axis	210 mm
Y axis spindle head carrier	330 mm
Z axis	365 mm
<b>Dimensions</b>	
Length x width x height	1,350 x 1,050 x 2,015 mm
Overall weight	850 kg
Transport packaging flat rate**	TPFR 2

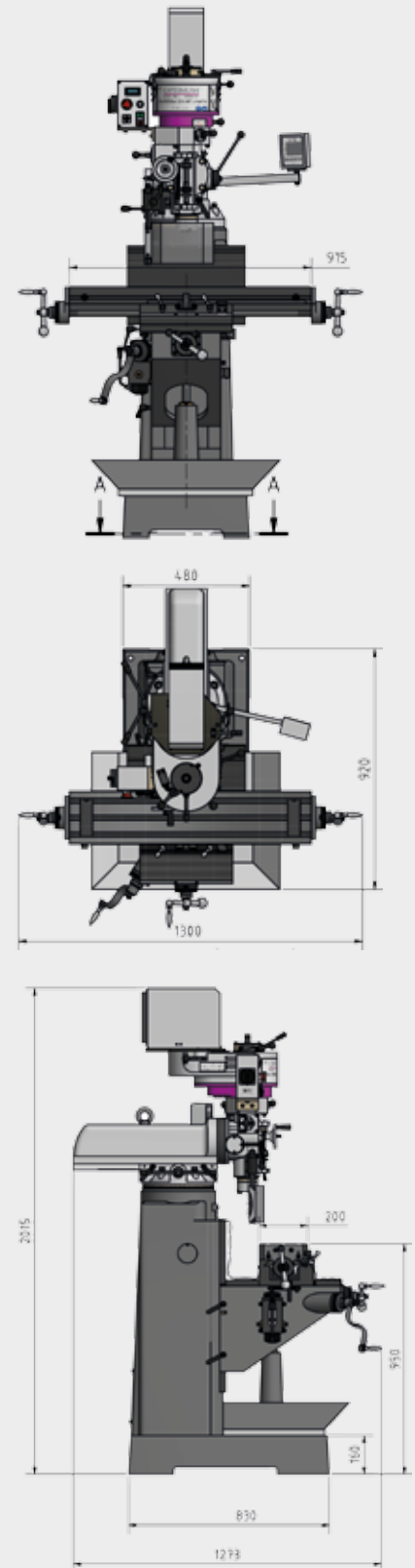
Accessories	Article no.
Parallel shim set, 20-part	3354001
Universal coolant unit	3352002
Vibration damping machine base SE2 (4 pcs. required) (tie rod)	3381016
Assortment of clamping tools size 14	3352018
Collet chuck set 18-part ISO40	3352056
Universal table feed V 250	3352029
• X axis for self-assembly	
• Includes assembly kit	
Assembly V 250 - per axis	9000485
Horizontal-vertical rotary indexing table RT 200	3356200
• Worm gear tempered and polished	
Arbor for drill chuck	3352070
• External taper ISO 40 / B16	
Pull stud ISO 40 / B16	3536179

Vices	Article no.
HMS 125	3355127
FMS 125	3354125
<ul style="list-style-type: none"> <li>Guide surfaces tempered and polished</li> <li>Hardened and polished clamping jaws, replaceable</li> <li>With turntable, rotating through 360°</li> </ul>	
<b>› More „Accessories for milling machines“ ab Seite 96</b>	

\*\* PTO for an explanation of the packaging surcharges.

\*OPTImill® is a registered brand of Optimum Maschinen Germany GmbH and exclusively used for milling machines

### Dimensions



### Scope of Delivery

- Tie rod M12
- Tie rod Adapter M12 - M16
- Chip tray
- Operating tool

## Multifunctional drilling/milling machines. With mechanised continuously controllable drive

### Facts that impress in terms of quality, performance and price

- ▶ Solid design using premium cast meehanite
- ▶ Excellent concentricity thanks to tapered roller bearings, better than 0.01 mm measured in the spindle sleeve
- ▶ Automatic spindle sleeve feed
- ▶ Clockwise/anti-clockwise rotation for thread tapping
- ▶ X and Y axis with adjustable 55 ° dovetail guide
- ▶ Y axis with flat guide
- ▶ Coolant system
- ▶ Clockwise/Anti-clockwise run
- ▶ Automatic spindle sleeve feed, 3 stages, 0.04 - 0.15 mm/rev
- ▶ Precision micro feed
- ▶ Milling spindle with precision bearing

- ▶ Mechanical spindle brake
- ▶ Drilling depth scale and stop
- ▶ XY table with T-slots and coolant channel
- ▶ Motorised feed on X, Y and Z axes
- ▶ Central lubrication

### MF 4-B:

- ▶ XY table load bearing capacity 300 kg
- ▶ Long travel: automatic X / Y / Z axis 820 mm / 320 mm / 340 mm



Fig.: MF 4-B

## Technical specifications, accessories and dimensions

Model	MF 2-B	MF 4-B
Article no.	3348330	3348340
<b>Technical data</b>		
Electrical connection	400 V / 3 Ph ~50 Hz	
Total connected load	3 kW	
Coolant pump output	90 W	
<b>Drilling/milling output</b>		
Drilling performance steel (S235JR)	Ø 24 mm	
Continuous drilling performance steel (S235JR)	Ø 20 mm	
Max. sensor head size	Ø 76 mm	
Max. shaft milling cutter size	Ø 25 mm	
<b>Spindle holder</b>		
Drive motor	2.2 kW	
Spindle sleeve diameter	86 mm	
Spindle sleeve stroke	127 mm	
Spindle holder	ISO 40 DIN 2080	
Throat	15 - 415 mm	0 - 420 mm
<b>Drilling/milling head</b>		
Spindle speeds	60 - 4,200 rpm	
Number of gears	2 speed, mechanically continuously controllable	
Milling cutter head travel	312 mm	470 mm
Swivel range spindle head horizontal	± 90°	
Swivel range spindle head vertical	± 45°	
Automatic spindle sleeve feed	0.04/0.08/0.15 mm/rev	
<b>XY table</b>		
Clearance spindle to XY table	405 mm	
Table length x Table width	230 x 1,246 mm	254 x 1,370 mm
XY table max. load bearing capacity	200 kg	300 kg
T-groove size/amount/spacing	16 mm / 3 / 63 mm	
<b>X axis automatic / manual</b>	690 mm/610 mm	820 mm/740 mm
<b>Y axis automatic / manual</b>	310 mm / 230 mm	410 mm / 330 mm
<b>Z axis automatic / manual</b>	390 mm/310 mm	400 mm/320 mm
<b>Dimensions</b>		
Length x width x height	2,000 x 1,600 x 2,010 mm	2,400 x 2,160 x 2,300 mm
Overall weight	1,000 kg	1,200 kg
Transport packaging flat rate**	TPFR 2	TPFR 2

### Scope of Delivery

- Operating tool

Accessories	Article no.
Parallel shim set, 20-part	3354001
Assortment of clamping tools size 14	3352018
Collet chuck set 18-part ISO40	3352056
Arbor for drill chuck ISO 40 / B16	3352070

Vices	Article no.
HMS 150	3355150
FMS 150	3354150

- Guide surfaces tempered and polished
- Hardened and polished clamping jaws, replaceable
- With turntable, rotating through 360°

› More „Accessories for milling machines“ ab Seite 96

\*\* PTO for an explanation of the packaging surcharges.

\*OPTMill® is a registered brand of Optimum Maschinen Germany GmbH and exclusively used for milling machines

**Multifunctional drilling/milling machines for professional deployment.** Electronic continuously variable drive with frequency inverter "made in EU" and digital 3-axis position display DPA 21

**Facts that impress in terms of quality, performance and price**

- ▶ Heavy, solid design using premium cast meehanite
- ▶ Excellent concentricity thanks to tapered roller bearings, better than 0.01 mm measured in the spindle sleeve
- ▶ Automatic spindle sleeve feed
- ▶ Clockwise/anti-clockwise rotation for thread tapping
- ▶ X and Z axis with adjustable dovetail guide
- ▶ Coolant system

**MF2V:**

- ▶ Y axis with adjustable dovetail guide

**MF 4V:**

- ▶ Y axis with flat guide
- ▶ Large Y axis stroke of 400 mm
- ▶ Motorised table height adjustment with rapid motion (Z axis)

**Drilling/milling head**

- Pivoting  $\pm 45^\circ$
- Throat  
215 - 533 mm - MF 2V  
200 - 680 mm - MF 4V



Frequency converter,  
Quality made in EU

**Optional tool clamping system**

- Continuous speed control Y axis
- Rapid traverse

**OPTI Control panel**

- Integrated switch panel
- Integrated **digital position display DPA 21** with speed display

**Drilling depth stop**

- Adjustable with millimetre scale
- Can be read off on front

**Protective screen**

- Height-adjustable
- Generously dimensioned

**XY table**

- Solid
- Generously dimensioned
- Precise surface finish
- Motorised table height adjustment Z axis (MF 4V)
- Adjustable limit stops

**X axis**

- Motorised table feed
- Continuously variable speed control
- Rapid traverse
- Clockwise/Anti-clockwise rotation

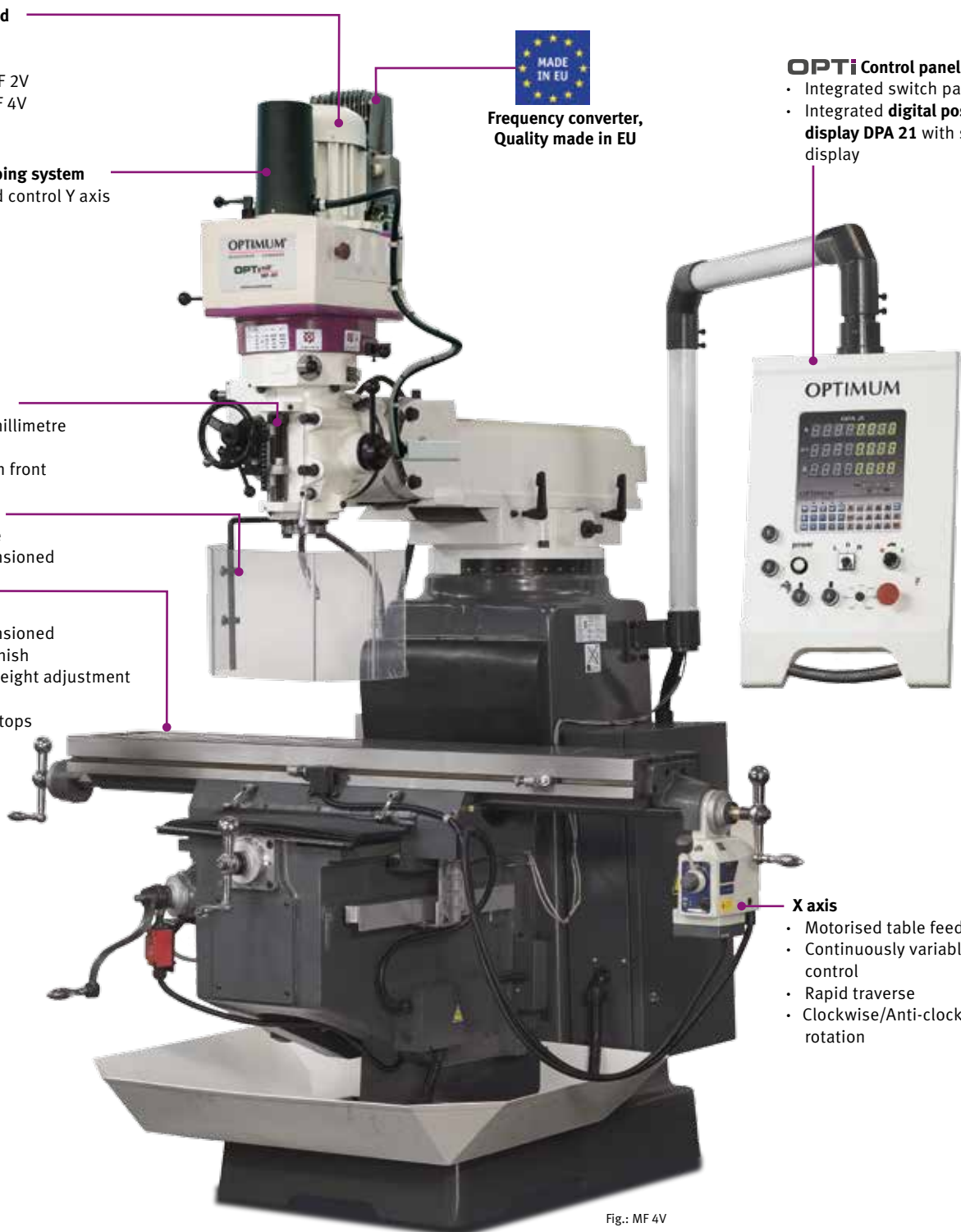


Fig.: MF 4V



## Technical data and accessories

Model	MF 2V	MF 4V
Article no.	3336030	3336050
<b>Technical data</b>		
Electrical connection	400 V / 3 Ph ~50 Hz	
Total connected load	2.2 kW	4 kW
Coolant pump output	100 Watts	
<b>Drilling/milling output</b>		
Drilling performance steel (S235JR)	Ø 24 mm	Ø 32 mm
Continuous drilling performance steel (S235JR)	Ø 20 mm	Ø 28 mm
Max. sensor head size	Ø 76 mm	Ø 100 mm
Max. shaft milling cutter size	Ø 18 mm	Ø 20 mm
<b>Spindle holder</b>		
Drive motor	1.5 kW	3 kW
Spindle sleeve stroke	127 mm	
Spindle holder	ISO 40 DIN 2080	
Throat	213 - 533 mm	200 - 680 mm
<b>Drilling/milling head</b>		
Spindle speeds	10 - 5,100 rpm	9 - 6,750 rpm
Gears	6-speed, electronic speed control	8-speed, electronic speed control
Pivoting spindle head	± 45°	
Automatic spindle sleeve feed	0.04/0.08/0.15 mm/rev	
<b>XY table</b>		
Clearance spindle to XY table	57 - 463 mm	40 - 446 mm
Table length x Table width	1,244 x 230 mm	1,370 x 254 mm
XY table max. load bearing capacity	230 kg	275 kg
T-groove size/amount/spacing	16 mm / 3 / 63 mm	
<b>Strokes</b>		
X axis manual/automatic	800 mm / 730 mm	930 mm / 850 mm
Y axis manual	305 mm	400 mm
Z axis	manual 406 mm	manual 406 mm / automatic 350 mm
<b>Dimensions</b>		
Length x width x height	1,400 x 1,450 x 2,150 mm	1,500 x 1,450 x 2,200 mm
Overall weight	950 kg	1,150 kg
Transport packaging flat rate**	TPFR 2	TPFR 2

Accessories	Article no.
<b>Parallel shim set, 20-part</b>	3354001
<b>Vibration damping machine base SE2</b>	3381016
(4 pcs. required) (tie rod)	
<b>Assortment of clamping tools size 14</b>	3352018
<b>Collet chuck set 18-part</b>	3352056
<b>Arbor for drill chuck</b>	3352070
<b>Universal table feed V250</b>	3352025
• Continuous speed control Y axis	
• Rapid motion, incl. assembly kit	
<b>Assembly table feed V250</b>	9000489
<b>Tool clamping system ISO 40</b>	3352394
• Short change times	
• Single-handed operation	
• High negative pressure achievable	
• (Orders without assembly: Some adjustment work may be necessary.)	
<b>Assembly tool clamping system</b>	9000490

Vices	Article no.
<b>HMS 150</b>	3355150
<b>FMS 150</b>	3354150
• Guide surfaces tempered and polished	
• Hardened and polished clamping jaws, replaceable	
• With turntable, rotating through 360°	
<b>› More „Accessories for milling machines“ ab Seite 96</b>	

### Scope of Delivery

- Operating tool

\*\* PTO for an explanation of the packaging surcharges.

\*OPTIMILL® is a registered brand of Optimum Maschinen Germany GmbH and exclusively used for milling machines

## Versatile and easy retooling -

the universal milling machines for workshops incl. digital 3-axis position display DPA 2000

### Facts that impress in terms of quality, performance and price

- ▶ Versatile range of applications
- ▶ Rugged machine construction
- ▶ Smooth action due to polished gearwheels running in an oil sump
- ▶ Heavy, solid design using premium cast meehanite
- ▶ All guides tempered and adjustable using wedge rails
- ▶ Central lubrication
- ▶ Generously dimensioned hand wheels with scales
- ▶ LED machine lamp
- ▶ Coolant system
- ▶ Easy operation of the switching elements
- ▶ Sturdy, square guide rails on Y and Z axis
- ▶ Table feed X and Y axis automatic
- ▶ Z axis with positioning feed

### OPTi Control panel

- Integrated switch panel
- Integrated **digital position display DPA 2000**
- Rotates about its own axis

### Vertical milling position

- E.g., for milling V-ledges along the X axis

### Milling head

- Scales easy to read off
- Pivot and rotate to any spatial angle

### Horizontal milling position



- For work in horizontal milling position with arrester and collet for disc milling cutter
- Adjustable plain bearing

### XY table

- Solid and generously dimensioned
- Precise surface finish
- Adjustable wedge rails
- Adjustable limit stops

### Hand wheels

- Decoupled

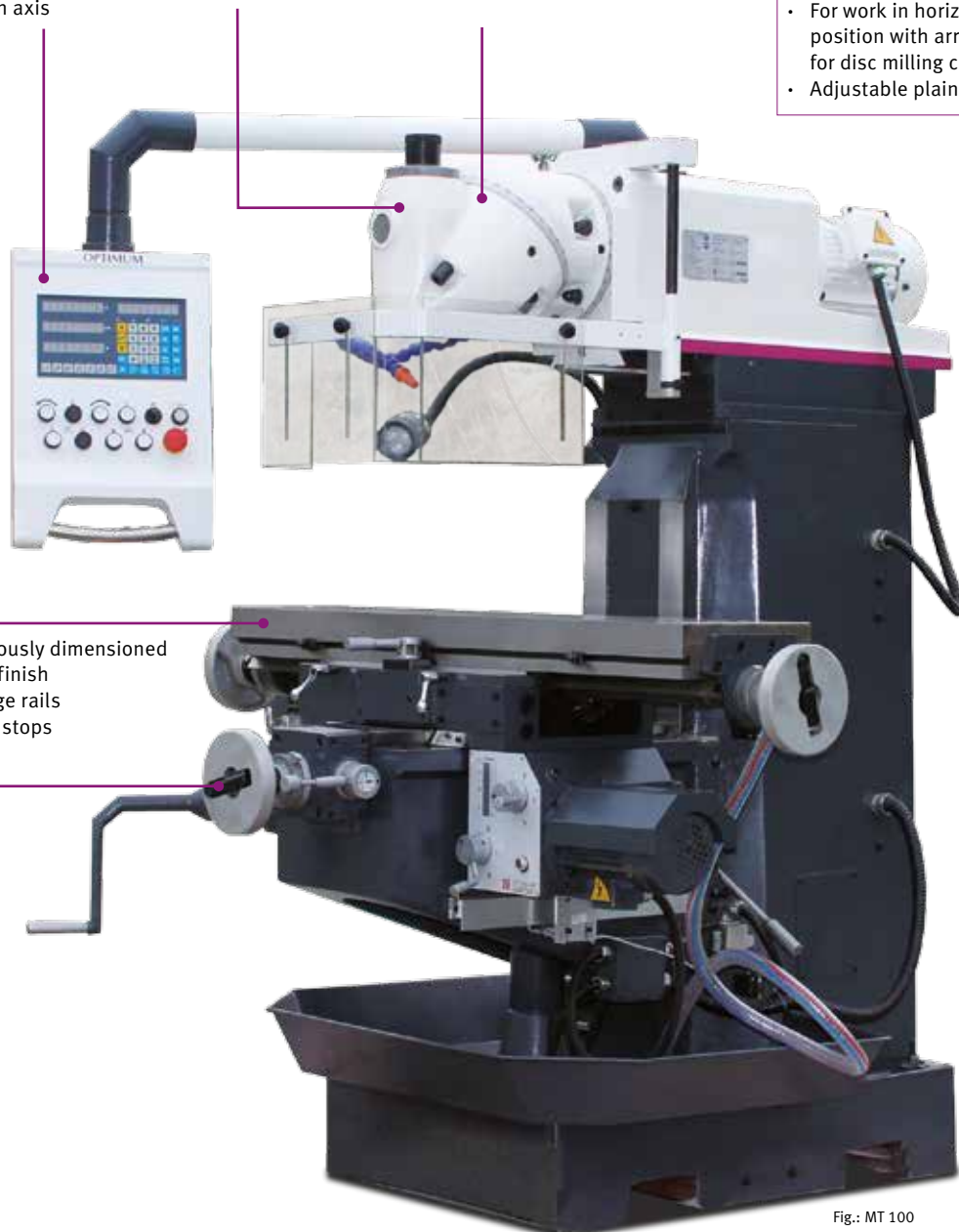


Fig.: MT 100

## Technical specifications, accessories and dimensions

Model	MT 100
Article no.	3336110
<b>Technical data</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Total connected load	3.36 kW
Coolant pump output	40 Watts
<b>Drilling/milling output</b>	
Max. sensor head size	Ø 85 mm
Max. shaft milling cutter size	Ø 20 mm
<b>Vertical spindle</b>	
Drive motor	2.2 kW
Spindle holder	ISO 40 DIN 2080
Tightening bar	M16
Spindle speeds	45 - 1,600 rpm
Gears	11 gears
Clearance spindle to XY table	90 - 520 mm
Pivot/rotate range	360°
<b>XY table</b>	
Table length x width	1,120 x 260 mm
XY table max. load bearing capacity	350 kg
T-groove size/amount/spacing	14 mm / 3 / 63 mm
<b>X axis</b>	
Travel	600 mm
Table feed	automatic 24 - 402 mm/min
Feed motor output	0.37 kW
<b>Y axis</b>	
XY table stroke	270 mm
Table feed	automatic 24 - 402 mm/min
Feed motor output	0.37 kW
<b>Z axis</b>	
Travel	380 mm
Table feed rapid motion	402 mm/min
Feed motor output	0.75 kW
<b>Dimensions</b>	
Length x width x height	1,540 x 1,355 x 1,650 mm
Overall weight	1,300 kg
Transport packaging flat rate**	TPFR 3

### Scope of Delivery

- Cutter spindle horizontal milling ISO 40 Ø 32 mm
- Cutter arbour ISO 40 Ø 32 mm
- Collet chuck Ø 4 - Ø 20 mm
- Operating tool

Accessories	Article no.
Parallel shim set, 20-part	3354001
Assortment of clamping tools size 12	3352017
Collet chuck set 18-part ISO40	3352056
Arbor for drill chuck	3352070

Vices	Article no.
HMS 150	3355150
FMS 150	3354150

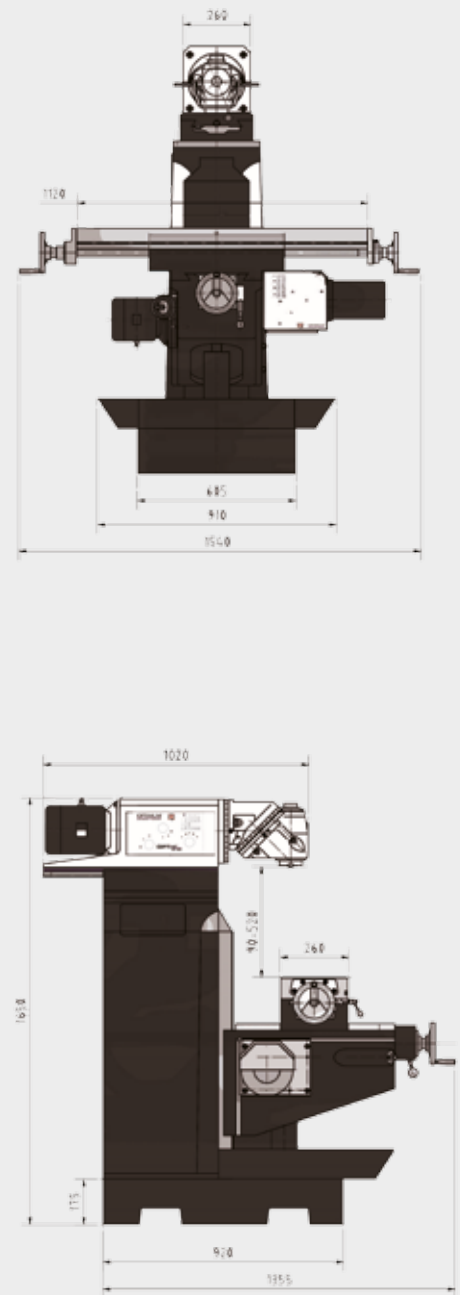
- Guide surfaces tempered and polished
- Hardened and polished clamping jaws, replaceable
- With turntable, rotating through 360°

› More „Accessories for milling machines“ ab Seite 96

\*\* PTO for an explanation of the packaging surcharges.

\*OPTMill® is a registered brand of Optimum Maschinen Germany GmbH and exclusively used for milling machines

### Dimensions



## Versatility and easy retooling - the universal milling machines for workshops with digital 3-axis position display

### Facts that impress in terms of quality, performance and price

- ▶ Versatile range of applications
- ▶ Rugged machine construction
- ▶ Smooth action due to polished gearwheels running in an oil sump
- ▶ Heavy, solid design using premium cast meehanite
- ▶ All guides tempered and adjustable using wedge rails
- ▶ Central lubrication
- ▶ Generously dimensioned hand wheels with scales
- ▶ LED machine lamp
- ▶ Coolant system
- ▶ Easy operation of the switching elements
- ▶ Sturdy, square guide rails on Y and Z axis

- ▶ Horizontal milling position
- ▶ Table feed X, Y and Z axis automatic

#### MT 200:

- ▶ Digital position display DPA 2000
- ▶ Feed motor with fixed speeds

#### MT 220S:

- ▶ Digital position display DPA 21
- ▶ Feed system with servomotor, continuously controllable

### OPTI Control panel

- Integrated switch panel
- Integrated **digital position display**
- Rotates about its own axis

### Vertical milling position

- E.g., for milling V-ledges along the X axis

### Milling head

- Two turning axes
- Scales easy to read off
- Pivot and rotate to any spatial angle

### Horizontal milling position



- For work in horizontal milling position with arrester and collet for disc milling cutter
- Adjustable plain bearing

### Horizontal milling counterholder

- Always handy through attaching to the rear side

### XY table

- Solid and generously dimensioned
- Precise surface finish
- Adjustable wedge rails
- Adjustable limit stops

### Hand wheels

- Decoupled

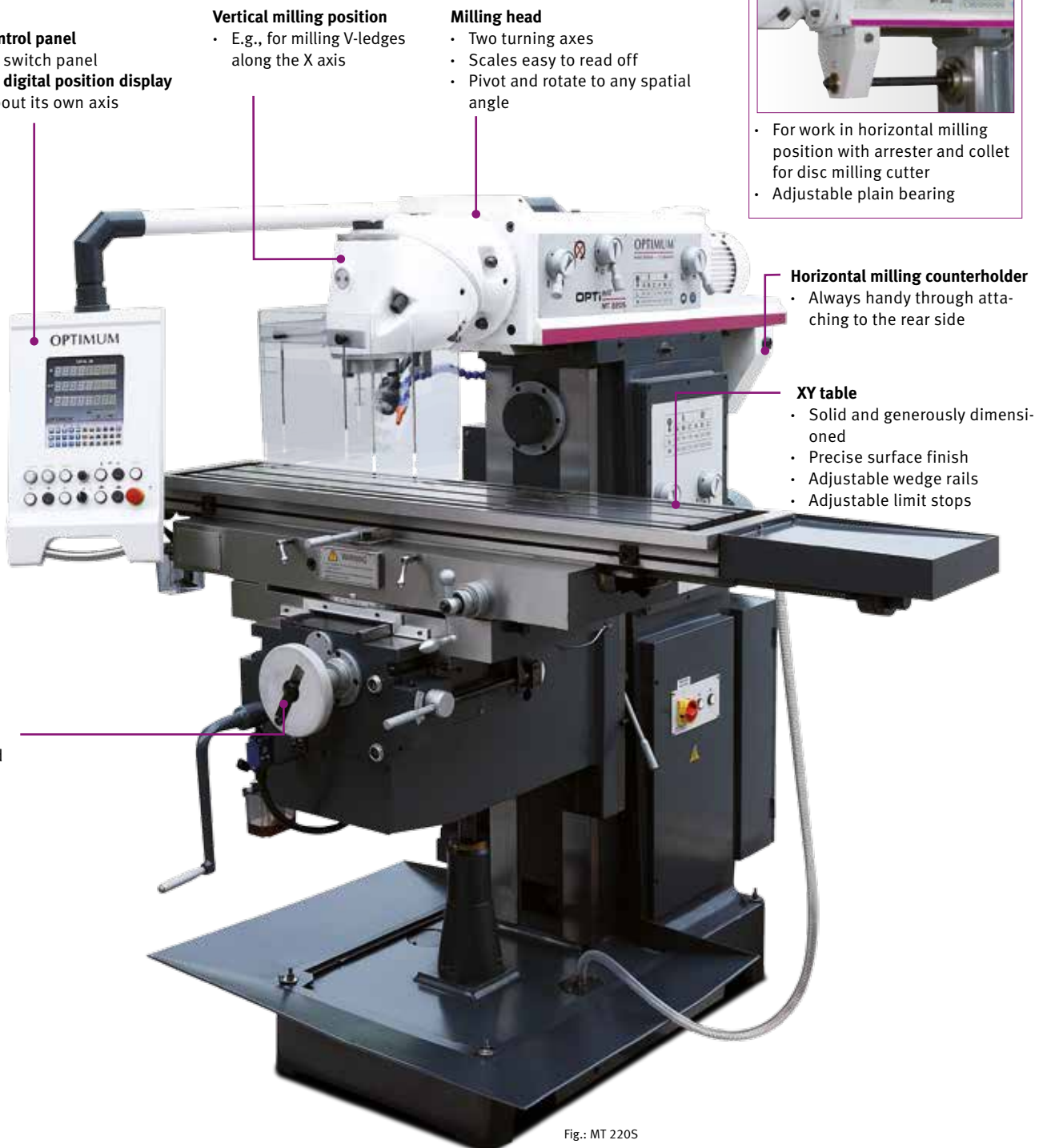


Fig.: MT 220S

The MT 220S milling machine complies with the DIN EN 55011 standard: class A



## Technical specifications, accessories and dimensions



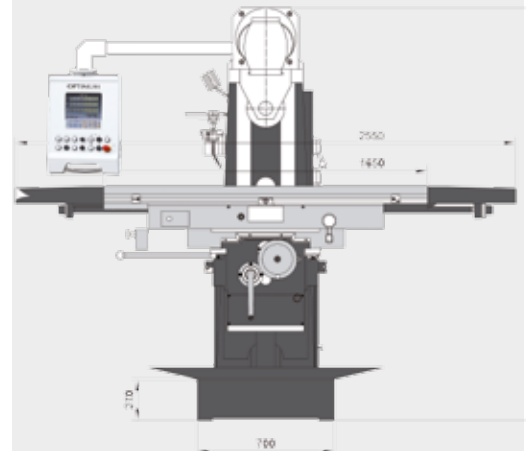
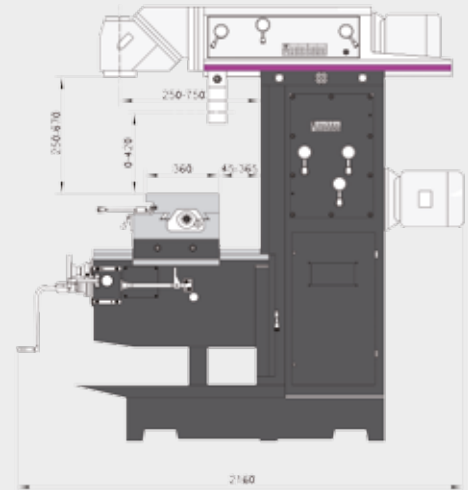
Model	MT 200	MT 220S
Article no.	3336120	3344120
Technical data		
Electrical connection	400 V / 3 Ph ~50 Hz	
Total connected load	9.2 kW	12 kW
Coolant pump output	90 Watts	
Milling capacity		
Max. sensor head size	Ø 100 mm	
Max. shaft milling cutter size	Ø 20 mm	
Vertical spindle		
Drive motor	4 kW	
Spindle holder	ISO 50 DIN 2080	
Tightening bar	M24	
Spindle speeds	60 - 1,750 rpm	
Gears	12 gears	
Clearance spindle to XY table	250 - 670 mm	
Distance spindle to column	250 - 750 mm	
Pivot/rotate range	360°	
Horizontal spindle		
Drive motor	4 kW	5.5 kW
Spindle holder	ISO 50 DIN 2080	
Clearance spindle to XY table	0 - 420 mm	
Spindle speeds	58 - 1,800 rpm	
Gears	12 gears	
XY table		
Table length x width	1,650 x 360 mm	
XY table max. load bearing cap.	450 kg	
T-groove size/amount/spacing	14 mm / 3 / 95 mm	
Rotating XY table	35°	
X axis		
Travel	manual 1,209 mm / automatic 1,210 mm	
Table feed automatic	22 - 380 mm/min.	25 / 800 mm/min.
Table feed, stages	8 gears	variable speed
Table feed rapid motion	1,290 mm/min.	1,200 mm/min.
Feed motor output	1.1 kW	1.8 kW
Y axis		
XY table stroke	manual 280 mm / automatic 200 mm	
Table feed automatic	20 / 380 mm/min.	25 / 800 mm/min.
Table feed, stages	8 gears	variable speed
Table feed rapid motion	200 mm/min	200 mm/min.
Feed motor output	1.1 kW	1.8 kW
Z axis		
Travel	manual 400 mm / automatic 320 mm	
Table feed automatic	7 / 127 mm/min.	8 / 267 mm/min.
Table feed, stages	8 gears	variable speed
Table feed rapid motion	342 mm/min	400 mm/min.
Feed motor output	1.1 kW	1.8 kW
Dimensions		
Length x width x height	1,920 x 2,350 x 2,200 mm	2,550 x 2,160 x 2,100 mm
Overall weight	2,220 kg	2,850 kg
Transport packaging flat rate**	TPFR 5	

Accessories	Article no.
Hydraulic vice HMS 150	3355150
Parallel shim set, 20-part	3354001
Assortment of clamping tools size 12	3352017
Morse cone ISO50 B18 DIN2080	3352067

\*\* PTO for an explanation of the packaging surcharges.

\*OPTMill® is a registered brand of Optimum Maschinen Germany GmbH and exclusively used for milling machines

### Dimensions



### Scope of Delivery

- Cutter spindle horizontal milling ISO 50 Ø 32 mm
- Cutter spindle horizontal milling ISO 50 Ø 27 mm
- Milling head holder ISO 50 Ø 32 mm
- Collet chuck ISO 50 Ø 4 - Ø 26 mm
- Operating tool

› „Accessories for milling machines“ ab Seite 96

Preface

Drilling

Milling

Turning

Saws

Sanding

Polishing

Lamps

Measuring

Index

## Multifunctional drilling/milling machine with tool clamping system for professional deployment. With digital 3-axis position display DPA 2000

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, solid design using premium cast meehanite
- ▶ Smooth action due to polished gearwheels running in an oil sump
- ▶ 20 switchable speeds thanks to two-speed motor in combination with 5 belt stages and reduction gearbox
- ▶ Sturdy, square guide rails on Y and Z axis
- ▶ Solid XY table, generously dimensioned with precision surface finish
- ▶ All axes adjustable in guides using wedge rails
- ▶ Excellent concentricity thanks to tapered roller bearings, better than 0.01 mm measured in the spindle sleeve
- ▶ Coolant system
- ▶ Adjustable drilling depth stop with millimetre scale, can be read off on front
- ▶ LED machine lamp
- ▶ Chip tray
- ▶ Siemens electrics
- ▶ Clockwise/anti-clockwise rotation for thread tapping

### OPTI Control panel

- Integrated switch panel
- Integrated position display
- Rotates about its own axis

### Digital position display DPA 2000

- Clear reduction of manufacturing times
- Easy to use
- Greater operation accuracy
- Reduction of error quota
- Clear-cut keyboard layout
- Dazzle-free display

### XY table housing

- Protection against chips and coolant
- Removable

### XY table

- Solid and generously dimensioned
- Precise surface finish
- Adjustable limit stops

### Compressed air tool clamping system

- Short change times
- Low eight thanks to optimised structure
- Precise guiding thanks to optimised geometry
- Lowest air consumption

### Drilling/milling head

- Powerful motor

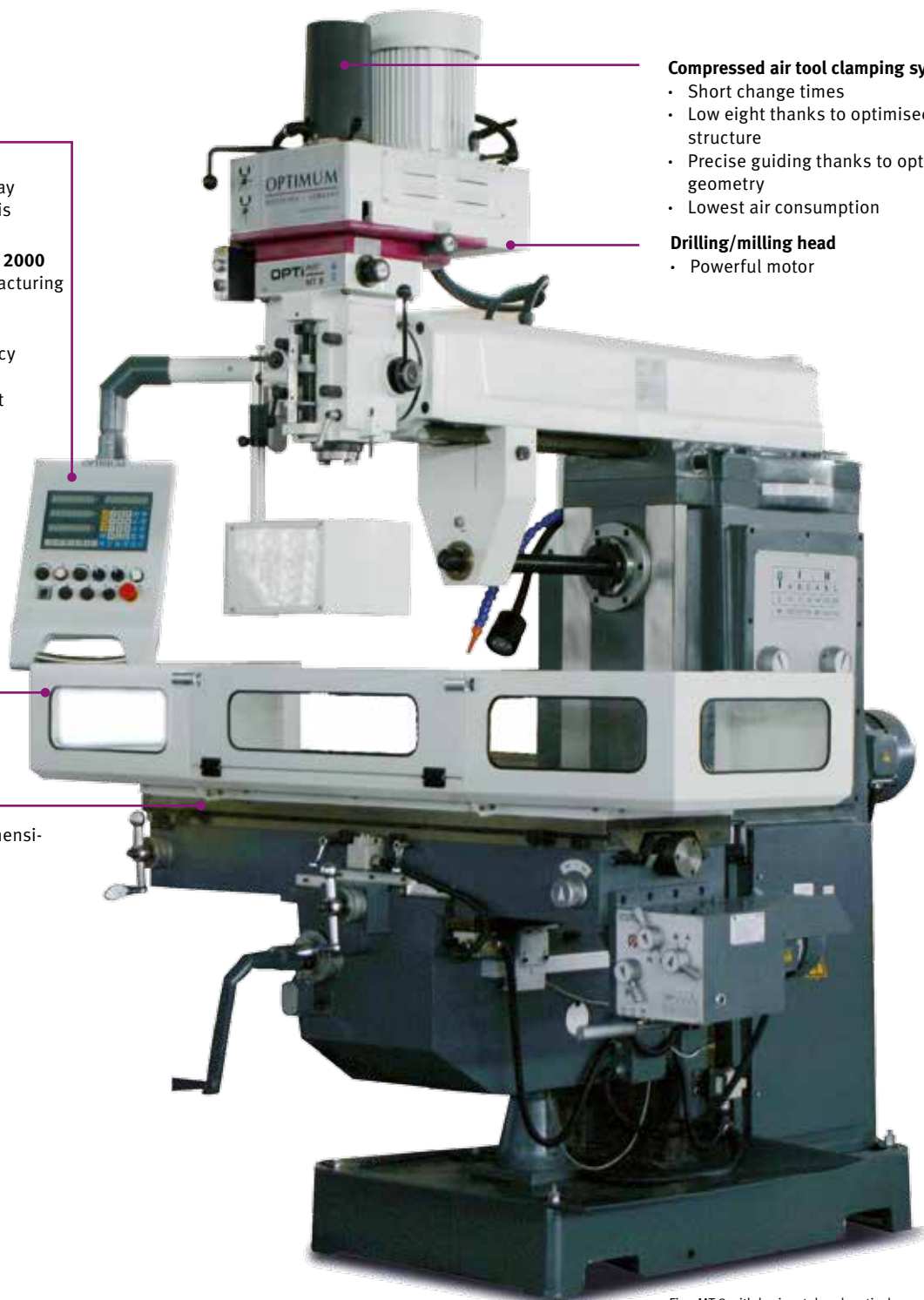


Fig.: MT 8 with horizontal and vertical milling position

## Technical data and accessories



### Horizontal milling position

- For work in horizontal milling position with arbor and collet for disc milling cutter
- Adjustable plain bearing



### Table feed

- Motorised table height adjustment
- Gear motor - table feed on X, Y and Z axis



### Horizontal milling

- Clearly arranged control lever
- Spindle speeds 58 - 1,800 rpm



### Spindle quill feed

Manual or automatic

Model	MT 8
Article no.	3336088
<b>Technical data</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Total connected load	7.2 kW
Coolant pump output	90 W
Total rated value for compressed air	min. 6 bar
<b>Drilling/milling output</b>	
Drilling performance steel (S235JR)	Ø 30 mm
Continuous drilling performance steel (S235JR)	Ø 21 mm
Max. sensor head size	Ø 80 mm
Max. shaft milling cutter size	Ø 25 mm
<b>Vertical spindle</b>	
Drive motor	5.5 kW
Spindle holder	ISO 40 DIN 2080
Spindle speeds	60 - 4,660 rpm
Gears	20 gears
Spindle sleeve stroke	140 mm
Spindle quill feed	0.086 / 0.045 / 0.142 mm
Swivel range milling head	± 45°
<b>Horizontal spindle</b>	
Drive motor	4 kW
Spindle holder	ISO 50 DIN 2080
Spindle speeds	58 - 1,800 rpm
Gears	12 gears
<b>XY table</b>	
Clearance spindle to table	155 - 610 mm
Table length x width	1,320 x 360 mm
Table feed (9 speeds)	15 / 370 mm/min.
XY table max. load bearing capacity	350 kg
T-groove size/amount/spacing	18 mm / 3 / 80 mm
<b>X axis</b>	
Travel stroke manual / automatic	980 mm/900 mm
Table feed	15 / 370 mm/min.
<b>Y axis</b>	
Travel stroke manual / automatic	300 mm/220 mm
Table feed	15 / 370 mm/min.
Y boom swivel range	± 30°
<b>Z axis</b>	
Travel stroke manual / automatic	450 mm/370 mm
<b>Dimensions</b>	
Length x width x height	2,220 x 2,060 x 2,550 mm
Overall weight	2,500 kg
Transport packaging flat rate**	TPFR 5

### Scope of Delivery

- Chuck Ø 1 - 16 mm / B18
- 1 each Adapter 7:24 ISO 50 - MT 3 / 7:24 ISO 50 - MT 2
- Arbor for drill chuck 7:24 ISO 40 / B18
- 1 each cutter spindle horizontal milling Ø27 mm/Ø32 mm
- 1 set milling chuck Ø 4 - Ø 16 mm
- Operating tool

Accessories	Article no.
Hydraulic vice HMS 150	3355150
Parallel shim set, 20-part	3354001
Assortment of clamping tools size 16	3352019
Morse cone ISO50 B18 DIN2080	3352067
Milling head holder	3352066

› More „Accessories for milling machines“ ab Seite 96

\*\* PTO for an explanation of the packaging surcharges.

\*OPTImill® is a registered brand of Optimum Maschinen Germany GmbH and exclusively used for milling machines

## Tool milling machines with digital 3-axis position display DP 700 by NEWALL

### Facts that impress in terms of quality, performance and price

- ▶ Versatile range of applications
- ▶ Excellent damping characteristics and stability of machine chassis
- ▶ All guides tempered, precision ground, and adjustable using wedge rails
- ▶ X and Y axis with adjustable dovetail guide
- ▶ Automatic feed on X, Y and Z axis
- ▶ X and Y axis with ball screws for low maintenance; play-free, robust and precise
- ▶ Trapeze spindle on Z axis
- ▶ Continuously variable feed via inverter
- ▶ Central and clearly arranged control panel with integrated digital position and speed display
- ▶ Coolant system
- ▶ Generously dimensioned hand wheels with scales
- ▶ Machine lamp
- ▶ Smooth action

### MZ 2:

- ▶ Manual centralised lubrication system

### MZ 4:

- ▶ Automatic centralised lubrication



Fig.: MZ2

### XY table housing

- Protection against chips
- Folds away to allow optimal access to the workspace



### All axes with ball screws

### OPTI Control panel

- Integrated switch panel
- Integrated **digital position display DPA 700**



### Control cabinet

- External
- Generously dimensioned
- 24-V electrical system

### XY table

- Solid and generously dimensioned
- Precise surface finish
- 5 T-grooves



Fig.: MZ4



## Technical data and accessories

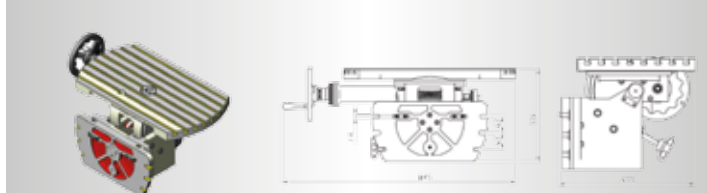
Model	MZ 2	MZ 4
Article no.	3346220	3346240
Technical specifications		
Electrical connection	400 V / 3 Ph ~50 Hz	
Total connected load	4 kW	5.4 kW
Motor rapid motion/feed	0.375 kW	0.75 kW
Coolant pump motor	95 W	
Drilling/milling output		
Drilling performance steel (S235JR)	Ø 30 mm	Ø 32 mm
Continuous drilling performance steel (S235JR)	Ø 26 mm	Ø 28 mm
Max. sensor head size	Ø 100 mm	Ø 100 mm
Max. shaft milling cutter size	Ø 25 mm	Ø 25 mm
Spindle drive		
Drive motor	2.2 kW	3.75 kW
Spindle speeds	50 - 1,890 rpm	30 - 2,250 rpm
Gears	12 gears	18 gears
Vertical spindle		
Spindle holder	ISO 40 DIN 2080	
Tightening bar	M16	
Clearance spindle to XY table	75 - 410 mm	130 - 530 mm
Spindle sleeve stroke	120 mm	
Max. throat	100 mm	185 mm
Vertical rotation area	± 90°	
Table length x width	830 x 250 mm	1,200 x 250 mm
T-groove size/amount/spacing	14 mm / 2 / 63 mm	14 mm / 3 / 63 mm
Max. load bearing capacity	1,100 Nm	1,800 Nm
Horizontal spindle		
Spindle holder	ISO 40 DIN 2080	
Clearance spindle to XY table	70 - 400 mm	130 - 530 mm
Table length x width	750 x 320 mm	900 x 500 mm
T-groove size/amount/spacing	14 mm / 5 / 63 mm	14 mm / 7 / 63 mm
Max. load bearing capacity	385 kg	500 kg
Stroke during feed		
X axis (XY table) manual/automatic	400 mm/360 mm	600 mm/560 mm
Y axis (milling cutter head) manual/automatic	200 mm/160 mm	480 mm/440 mm
Z axis (XY table) manual/automatic	365 mm/325 mm	385 mm/345 mm
Drive speed feed/rapid motion	50 - 450 rpm / 700 rpm	50 - 450 rpm / 800 rpm
Feed speed	10 / 600 mm/min.	10 / 600 mm/min.
Dimensions		
Length x width x height	1,239 x 1,168 x 1,900 mm	1,610 x 1,825 x 1,885 mm
Overall weight	1,180 kg	1,450 kg
Transport packaging flat rate**	TPFR 5	TPFR 6

Scope of Delivery	
<ul style="list-style-type: none"> <li>4 x arbour ISO 40 with counter-bearing</li> <li>› 16 mm external diameter</li> <li>› 22 mm external diameter</li> <li>› 27 mm external diameter</li> <li>› 32 mm external diameter</li> <li>› ISO40 - MT3 Adapter</li> <li>› MT2 Adapter</li> <li>› MT1 Adapter</li> <li>Operating tool</li> </ul>	



Vices	Article no.
<b>MVSP 150 x 200</b>	3530104
<b>MVSP 150 x 300</b>	3530108
› More „Accessories for milling machines“ ab Seite 96	

Angled table	3346221
Table l x w/load bearing capacity max.	375 x 660 mm / 150 kg
T-groove size/amount/spacing	12 mm / 45 mm / 8
Dimensions / weight	895 x 433 x 354 mm / 140 kg



Accessories	Article no.
<b>Collet chuck ISO 40</b>	3352056
<b>Hydraulic clamping device ISO 40*</b>	3346226
<b>Compressed air tool changer*</b>	3346225
<b>Assortment of clamping tools size 12</b>	3352017



\*\* PTO for an explanation of the packaging surcharges.

\*OPTmill® is a registered brand of Optimum Maschinen Germany GmbH and exclusively used for milling machines

\* Can only be ordered ex works

## Compatibility overview accessories for milling machines

Accessories		Article - No.	BF 16	MH 18	BF20/L	MH 22	MH 25	MB 4/P	MB 4/PV	BF 30V	BF 46V	MH 35G	MH 50G	MT 50E	MF 1V	MF 2-B	MF 4-B	MF 2V	MF 4V	MT 60	MT 100	MT 200	MT 220	MT 8		MZ 2	MZ 4		
			MT 2	MT 2	MT 2	BT 20	BT 30	MT 4	MT 4	MT 3	ISO 30	ISO 40	BT 30	BT 40	ISO 40	ISO 40	ISO 40	ISO 40	ISO 40	ISO 40	ISO 40	ISO 40	ISO 40	ISO 50	ISO 50	ISO 40	ISO 50	ISO 40	ISO 40
Starter set	BT 20	page 105				●																							
	BT 30	page 106					●			○		●																	
	BT 40	page 107											○	○	○	○	○		○	○	○				○		○	○	
Quick release chuck	B16	page 109	●		●		○	●	●	●	●	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Morse cone	SK50	3352067																					●	●		●			
Direct quick release chuck	MT 2	3050571/2								○	○																		
	MT 3	3050573								●																			
	MT 4	3050574						●	●																				
Extension sleeves	MT 2 - MT 3	3050667	●		●																								
	MT 3 - MT 4	3050668								●																			
Arbor for drill chuck	MT 2	3050670	●		●																								
	MT 3	3350303								●																			
	MT 4	3350304						●	●																				
	ISO 30	3352069					●				●	●																	
	ISO 40	3352070										●	●	●	●	●	●	●	●	●	●	●			●		●	●	
Blade head collet	MT 2	3352102	●		●																								
	SK50	3352066																					●	●		●			
Adapter	ISO 30	3352068									●																		
Reducing sleeve	MT 3 - MT 2	3350313								●																			
	MT 4 - MT 3	3350314						●	●																				
End mill set HSS	12-part	3352113	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	20-part	3386200	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Milling cutter set HM	Hard metal	3352118	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	Radius	3352116	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Twist drill bits	MT 2	3051002					○					○	○	○		○			○	○		○							
	MT 3	3051003						●	●	●		○	○	○		○			○	○		○							
Vibration damper	SE 1	3381012	●		●		●	●	●	●	●	●	●																
	SE 2	3381016												●	Threaded rod	Threaded rod	Threaded rod	Threaded rod	Threaded rod	Threaded rod	Threaded rod	Threaded rod	Threaded rod						
	SE 3	3381018																						Threaded rod	Threaded rod				
Copying and facing blade	MT 2/M10	3350212	●		●																								
	MT 3/M12	3350213								●																			
	MT 4/M16	3350214						●	●																				
	BT 30	3350203					●					●																	
Pull stud	BT 30	3536302					●					●																	
Copying and facing blade	BT 40	3350204																											
Pull stud	BT 40	3536332																											
Copying and facing blade	ISO 30	3350215									●																		
	ISO 40	3350216										●	●		●			●	●	●	●	●			●		●	●	
Bore head set	ISO 30	3352127									●																		
	ISO 40	3352128												●	●	●	●	●	●	●	●	●			●		●	●	
	ISO 50	3352129																					●	●		●			
Cutterhead set	MT 3	3352083								●																			
	MT 4	3352084						●	●																				
Try square 90	90°	3385052					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Collet chuck set	MT 2/ER25	3352052	●		●																								
	MT 2/ER32	3352053	●		●																								
	MT 3/ER32	3352093								●																			
	MT 4/M16	3352094						●	●																				
	ISO 30	3352054									●	●																	
	ISO 40	3352056										●	●	●	●	●	●	●	●	●	●	●			●		●	●	
	ISO 50	3352065																					●	●		●			
Collet chuck	ISO 30	3352046							●	●		●																	

Accessories		Article - No.	BF 16	MH 18	BF20/L	MH 22	MH 25	MB 4/P	MB 4/PV	BF 30V	BF 46V	MH 35G	MH 50G	MT 50E	MF 1V	MF 2-B	MF 4-B	MF 2V	MF 4V	MT 60	MT 100	MT 200	MT 220	MT 8	MZ 2	MZ 4
			MT 2	MT 2	MT 2	BT 20	BT 30	MT 4	MT 4	MT 3	ISO 30	ISO 40	BT 30	BT 40	ISO 40	ISO 40	ISO 40	ISO 40	ISO 40	ISO 40	ISO 40	ISO 50	ISO 50	ISO 40	ISO 50	ISO 40
Spring collet set	ER 25	3441109	●		●					○																
	ER 32	3441122			●			●	●	●						●			●	●	●	●		●	●	●
Collet chuck set	MT 2 direct	3351980	●		●																					
	MT 3 direct	3352014					●																			
Assortment of clamping tools	Size 8	3352015	●																							
	Size 10	3352016			●		●			●	●		●													
	Size 12	3352017						●	●					●						●	●	●	●		●	●
	Size 14	3352018													●	●	●	●	●							
	Size 16	3352019										●		●										●	●	
T-slot nut	M8 -10 mm	3353020	●																							
	M10 -12 mm	3353022			●		●			●	●		●													
	M12 -14 mm	3353025						●	●					●						●	●	●	●		●	●
	M14 -16 mm	3353026													●	●	●	●	●							
	M16 -18 mm	3353028									●		●											●	●	
Horizontal-vertical rotary indexing table	RTE 165	3356365			●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	RTU 165	3354165					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Horizontal-vertical rotary indexing table	RT 100	3356110	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
	RT 150	3356150			●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	RT 200	3356200																●	●	●	●	●	●	●	●	●
Tool clamping system	ISO 30	3352393								●	●															
	ISO 40	3352394									●		●					●	●							
Prism elbow	WP30	3352195	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●
Thread tapper	M5-M12	3352042	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Universal dividing head	TA 125	3356125	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Table feed	V 99	3352022								●	●	●			●											
	V 250	3352029																●	●							
Parallel spacer kit		3354001	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●
Coolant pump	230 V	3352002	●		●		●		●	●	●	●	●	●	●	●	●									
Coolant hose	KMS2	3356660	●		●		●	●	●	●	●	●	●	●	●	●	●									
Coolant mist lubricator	MMC1	3356663	●		●		●	●	●	●	●	●	●	●	●	●	●									
Edge sensor		3351171	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●
Hold-down device	14 mm	3352031						●	●											●	●	●			●	●
	18 mm	3352032									●													●	●	
Machine vices FMS	100	3354100	●		●		●																			
	125	3354125						●	●	●	●				●			●							●	●
	150	3354150																●	●	●					●	●
	200	3354200																			●			●		
Machine vices FMSN	100	3354110	●		●		●																			
	125	3354120						●	●	●	●				●			●								
	150	3354130																●	●	●				●	●	●
Machine vices HMS	100	3355100						●	●	●	●	●			●											
	125	3355127																●	●	●	●	●			●	●
	150	3355150																						●	●	●
	200	3355200																							●	●
Two-axis vice ZAS	75	3354170	●		●		●																			
Three-axis vice DAS	100	3355500	●		●		●																			
Three-axis vices MV3	75	3354175	●		●		●																			
	125	3354178	●		●		●	●	●	●	●															
Machine vice HCV	105	3536210																●	●	●	●	●		●	●	●
	125	3536214																●	●	●	●	●		●	●	●

This equipment table covers all recommended equipment options. Depending on the individual case, use of accessories can be meaningful beyond this.

● Recommended

○ Recommended - restrictions apply

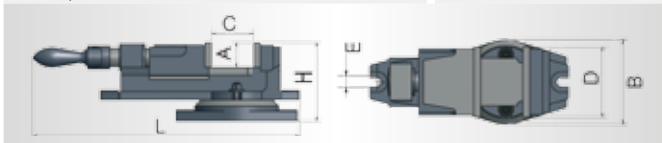
## MACHINE VICES

### Precision machine vices FMS

Article no.

- Robust design for milling, drilling and grinding
- Vice body made of premium cast material
- Guide surfaces tempered and polished
- Hardened and polished clamping jaws, replaceable
- With turntable, rotating through 360°

<b>FMS 100</b>	3354100
<b>Prism jaw</b> for FMS 100	3354102
<b>FMS 125</b>	3354125
<b>Prism jaw</b> for FMS 125	3354127
<b>FMS 150</b>	3354150
<b>Prism jaw</b> for FMS 150	3354152
<b>FMS 200</b>	3354200
<b>Prism jaw</b> for FMS 200	3354202



Tech. Data		A	C	D	E	L	B	H	kg
FMS 100	mm	30	62	100	13	295	124	100	11
FMS 125	mm	37	85	125	13	370	148	128	17
FMS 150	mm	40	114	150	13	462	180	145	28
FMS 200	mm	58	150	200	16,5	620	237	202	58



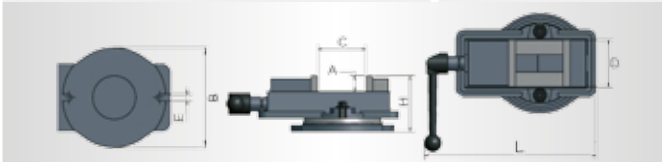
Prism jaw

### Precision machine vices FMSN

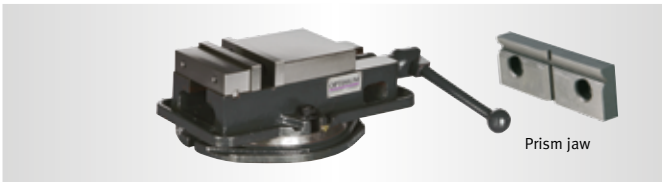
Article no.

- Safe workpiece clamping
- Vice body made of premium cast material
- Guide surfaces tempered and polished
- Hardened and polished clamping jaws, replaceable
- Protected spindle
- Clamping outward by repositioning the clamping jaws
- With turntable, rotating through 360°

<b>FMSN 100</b>	3354110
<b>Prism jaws</b> for FMSN 100	3354112
<b>FMSN 125</b>	3354120
<b>Prism jaws</b> for FMSN 125	3354122
<b>FMSN 150</b>	3354130
<b>Prism jaws</b> for FMSN 150	3354132



Tech. Data		A	C	D	E	L	B	H	kg
FMSN 100	mm	36	101	100	14,5	319	Ø 240	319	19
FMSN 125	mm	36	108	135	16,5	369	Ø 278	369	29
FMSN 150	mm	46	146	155	18,5	425	Ø 332	425	36



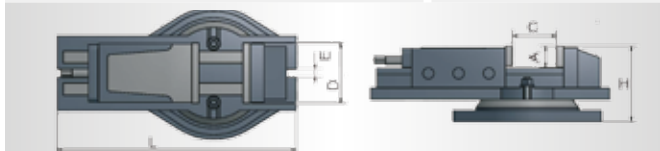
Prism jaw

### Hydraulic machine vices HMS

Article no.

- Robust design for milling, drilling and grinding
- Vice body made of premium cast material
- Guide surfaces tempered and polished
- Hardened and polished clamping jaws, replaceable
- Booster system: requires little force, high pressure build-up during clamping
- Large clamping range due to lock bolts with various hole spacings
- With turntable, rotating through 360°
- Protected spindle

<b>HMS 100</b>	3355100
<b>Prism jaws</b> for HMS 100	3355102
<b>HMS 125</b>	3355127
<b>Prism jaws</b> for HMS 125	3355129
<b>HMS 150</b>	3355150
<b>Prism jaws</b> for HMS 150	3355152
<b>HMS 200</b>	3355200
<b>Prism jaws</b> for HMS 200	3355202



		A	D	E	L	B	H	kg
HMS 100	mm	36	100	15	525	Ø 270	122	27
HMS 125	mm	46	127	16	670	Ø 290	151	46
HMS 150	mm	51	150	17	800	Ø 328	169	64
HMS 200	mm	65	200	19	710	Ø 358	158	100

C	Span	Clamping pressure
HMS 100	0 - 60 mm	57 - 115 mm
HMS 125	0 - 76 mm	72 - 150 mm
HMS 150	0 - 100 mm	98 - 200 mm
HMS 200	0 - 100 mm	98 - 200 mm



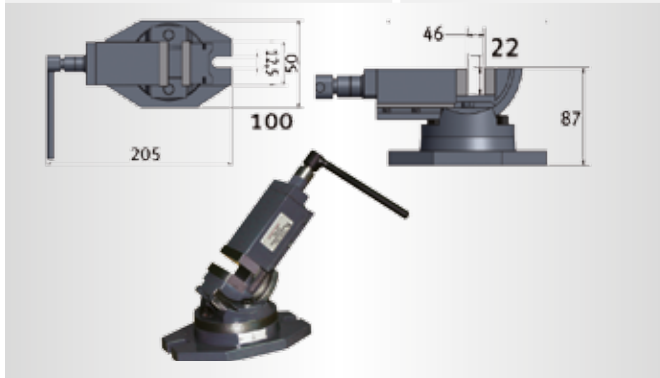
Prism jaw

### Two-axis vice ZAS

Article no.

- Tilts to -90°
- Hardened and polished clamping jaws, replaceable
- Easily readable scales for both axes
- With turntable, rotating through 360°
- Net weight 3.4 kg

<b>ZAS 50</b>	3354170
---------------	---------





### Three-axis vice DAS 100

Article no.

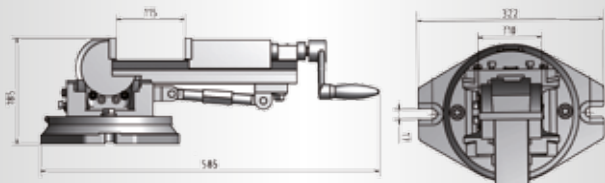
- Premium cast material
- Guide surfaces tempered and polished
- Hardened and polished clamping jaws, replaceable
- With turntable, rotating through 360°
- Horizontal swivel movement to 90°
- Vertical swivel movement to  $\pm 45^\circ$  above thread spindle
- Easily readable scales for all three axes
- Weight: 32 kg

#### DAS 100

3355500

#### Prism jaw

3355502



Prism jaw

### Three-axis vices MV3

Article no.

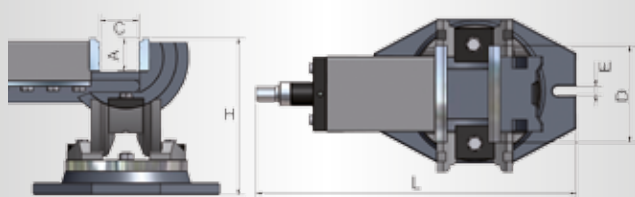
- Horizontal swivel movement to 90°
- Vertical swivel movement to  $\pm 45^\circ$
- Easily readable scales for all three axes
- Hardened and polished clamping jaws, replaceable
- With turntable, rotating through 360°

#### MV3-75

3354175

#### MV3-125

3354178



MV3-75

Tech. specifications		A	C	D	E	L	B	H	kg
MV3-75	mm	34	82	75,5	12	380	139	150	11
MV3-125	mm	45	97	125	12	290	185	206	26



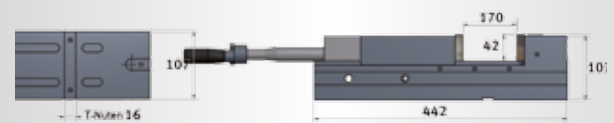
### Hydraulic machine vice HCV 105

Article no.

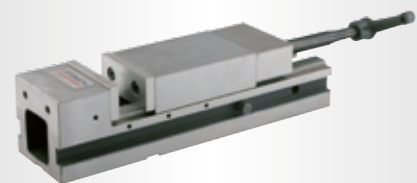
- Modular machine vice with high precision and repetition accuracy for series production and single-part machining on CNC milling machines and machining centres
- Robust design for milling
- Guide surfaces tempered and polished
- Booster system: requires little force, high pressure build-up during clamping
- Large clamping range due to lock bolts with various hole spacings
- Made of premium grade stainless steel
- Long service life thanks to high quality
- High clamping force

#### HCV 105

3536210



C	Span		Clamping pressure		weight
	0 - 85 mm	85 - 170 mm	2,500 kg	24.5 kN	22 kg



### Hydraulic machine vice HCV 125

Article no.

- Modular machine vice with high precision and repetition accuracy for series production and single-part machining on CNC milling machines and machining centres
- Robust design for milling
- Guide surfaces tempered and polished
- Booster system: requires little force, high pressure build-up during clamping
- Large clamping range due to lock bolts with various hole spacings
- Made of premium grade stainless steel
- Long service life thanks to high quality
- High clamping force

#### HCV 125

3536214

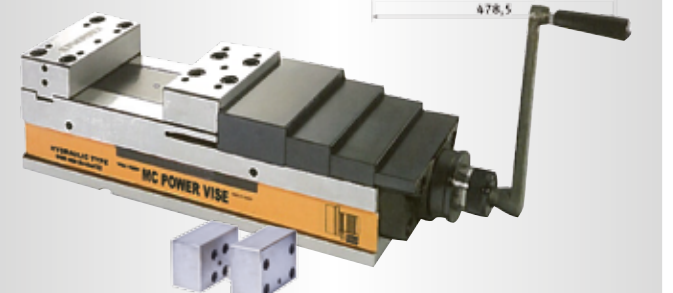
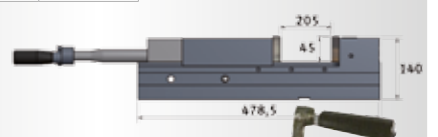
#### Soft jaws 2 pcs.

3536221

#### L jaws 2 pcs.

3536222

C	Span	weight
4,000 kg	240 Nm	35.4 kg



## ROTARY INDEXING TABLES

### Horizontal-vertical rotary indexing tables

- Quality rotary indexing tables made of premium cast meehanite
- Precision bearing
- Stability also under high load
- Large spindle bore for clamping longer workpieces
- Fast indexing via serrated locking plates for higher production speeds for mass-produced parts
- Worm gear tempered and polished
- Work table with 360° scale
- 1 revolution of handwheel 4° rotation
- Scale division on handwheel 2'
- Indexing via handwheel with vernier scale possible
- Up to 150 pcs. (RT 150) and 400 pcs. (RT 200) various indexing options possible with indirect indexing disks

Technical specifications		RT 100	RT 150	RT 200
Centring cone		MT 2	MT 2	MT 3
Transmission ratio		90:1	90:1	90:1
Disk size	mm	110	150	200
Closed height x L x W	mm	72 x 138 x 118	79 x 204 x 156	104 x 265 x 199
Max. height	mm	80	102	133
Slot width/count	mm	11/3	11/4	16/4
Net weight	kg	5	10	25

Accessories  
"CNC attachment sets for controlling  
horizontal/vertical rotary indexing  
tables" see [www.optimum-maschinen.de](http://www.optimum-maschinen.de)

### Horizontal-vertical rotary indexing table RT 100



#### Rotary indexing table RT 100

- 2 Clamping blocks
- Centring cone MT 2

#### Article no.

3356110

#### Three-jaw lathe chuck

- 75 mm

3356111

#### Tailstock Rst 1

- Max. height 72 - 108 mm

3356155

### Horizontal-vertical rotary indexing table RT 150



#### Rotary indexing table RT 150

- 2 pcs. Clamping block
- Centring cone MT 2

#### Article no.

3356150

#### Chuck flange

3356154

#### Three-jaw lathe chuck

- Ø 130 mm centric

3356100

#### Indirect indexer IT 150

- 3 Indexing disks
- Sector arm
- Angle shears with spring plate

3356152

#### Tailstock Rst 1

- Max. height 72 - 108 mm

3356155

### Horizontal-vertical rotary indexing table RT 200



#### Rotary indexing table RT 200

- 2 Clamping blocks
- Centring cone MT 3

#### Article no.

3356200

#### Chuck flange

3356254

#### Three-jaw lathe chuck 165 mm

3356225

#### Indirect indexer IT 200

- 2 pcs. Indexing disks
- Sector arm
- Angle shears with spring plate

3356205

#### Tailstock Rst 2

- Max. height 110 - 145 mm

3356157

### Horizontal-vertical rotary indexing table with 3-jaw chuck

- Quality rotary indexing tables made of premium cast meehanite
- Precision taper roller bearing
- Stability also under high load
- Large spindle bore for clamping longer workpieces
- Direct indexing via serrated locking plates for higher production speeds for mass-produced parts
- Degree indexing via 360° scale (RTE 165)
- 7 serrated locking plates for 2/3/4/6/8/12/24x divisions (RTE 165)
- Degree indexing via 360° scale with crank and vernier scale (RTU 165)
- Direct indexing via serrated locking plate
- 24 positions (15° indexing)
- Three-jaw chuck
- Including clamping disc with 3 grooves

Technical specifications		RTE 165	RTU 165
Table diameter	mm	165	165
Closed height x width x length	mm	200 x 260 x 218	221 x 250 x 235
Max. height	mm	130	130
Clamping disc	mm	203	203
Passageway	mm	36	36
weight	kg	32,5	48

Technical specifications		RTE 165	RTU 165
Direct indexing disc		24x division (= 15°)	
Indirect indexing disc		2, 3, 4, 6, 8 and 12x division	
Indexing precision of direct indexer		45'	
Clamping options		Horizontal and vertical	
Workpiece mounting surface		With scale 360°	

### Horizontal-vertical rotary indexing table RT 165



#### Rotary indexing table RTE 165

- 3-jaw chuck (mounted)
- Clamping disc
- Main indexing disk (24x division, mounted)
- 6 Indexing disks

#### Tailstock Rst 2

- Max. height 110 - 145 mm

Article no.

3356365

3356157

### Horizontal-vertical rotary indexing table RTU 165



#### Rotary indexing table RTU 165

- 3-jaw chuck (mounted)
- Clamping disc
- Main indexing disk (24x division, mounted)
- 6 Indexing disks
- Grips for handwheel

#### Indirect indexer IT 200

- 3 pcs. Indexing disks
- Sector arm
- Angle shears with spring plate

#### Tailstock Rst 2

Max. height 110 - 145 mm 72 - 108 mm

Article no.

3354165

3356205

3356157

### Universal dividing head TA 125

- Swivels from -10° to +90°
- Hardened and polished worm gear
- Precision taper roller bearing
- Hardened and polished main indexing disc (24x division), to index directly at 15°
- Up to 300 indexing options possible with indirect indexing disks



#### Scope of Delivery

- Tailstock Rst1 (peak height 72 - 108 mm)
- Centre point 60° / MT 2
- Lathe dog (tang)
- Chuck flange (Ø 140 mm, t = 12 mm) for carrier pin or mounting a lathe chuck
- 3 pcs. Indirect indexing disc

Technical specifications	
Transmission	40:1
Closed height x width with centre x length	175 x 205 x 230 mm
Max. height	100 mm
Bore in mounting shaft (keyway)	18 mm
Slot width	16 mm
Direct indexing disc (division)	15° / Ø 110 mm
Indirect indexing disc (Bore on reference circle)	15, 16, 17, 18, 19, 20, 21, 23, 27, 29, 31, 33, 37, 39, 41, 43, 47
Concentricity	0.015 mm
Net weight	12 kg

## Accessories for milling machines

### End mill set HSS

- Titanium coated
- Improved hardness and stability with 2x to 5x service life
- Twice the machining performance
- Improved workpiece finish
- Cylindrical shank and lateral lugs
- Version with 2 cutting edges for milling keyways/fixing grooves and milling out the workpiece centre
- Vertical or lateral milling possible
- Version with 4 cutting edges and 30° right-hand twist for good chip removal in normal to hard materials
- Wooden crate

**12-part** 3352113

- 6 end mills, short version · Version with 2 cutting edges. DIN 1835 B (Ø12 x 73, Ø10 x 63, Ø8 x 61, Ø6 x 52, Ø5 x 52, Ø4 x 51 mm)
- 6 end mills, short version · Version with 4 cutting edges. DIN 1835 B (Ø12 x 83, Ø10 x 73, Ø8 x 61, Ø6 x 57, Ø5 x 57, Ø4 x 55 mm)

**20-part** 3386200

- 10 end mills DIN 327 D · Short version · 2 cutting edges DIN 1835 B, (3/4/5/6/8/10/12/14/18/20 mm)
- 10 end mills DIN 844 B · Short version · 4 cutting edges DIN 1835 B, (3/4/5/6/8/10/12/14/18/20 mm)



### Carbide end mill set

3352118

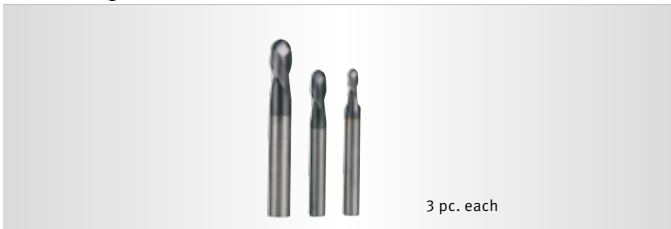
- **18-part**; 3 each in the sizes 3/4/6/8/10 and 12 mm
- 4-cutting edge version
- Coated solid carbide end mill (TiALN)
- Centre cut for plunging
- Rake angle 35°



### Radius end mill set

3352116

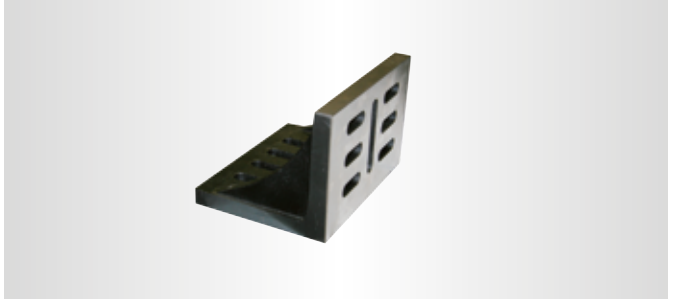
- **9-part**; 3 each in the sizes 4 mm / 6 mm / 8 mm
- 2-cutting edge version
- Coated solid carbide end mill (TiALN)
- Face cutting geometry for plunging
- Rake angle 30°



### Try square 90°

3385052

- For clamping in case of mechanical processing of workpieces, checking and scribing work
- Precision: Parallelism and trueness 0.01 to 100 mm
- Lateral reinforcing ribs
- Dimensions L x W x H: 202 x 126 x 150 mm . Weight 7 kg



### Twist drill HSS with morse taper

Article no.

- 9-part; sizes 14.5/16/18/20/22/24/26/28/30 mm
- Long service life.
- Good chip removal
- Right handed

MT 2

3051002

MT 3

3051003



### Vibration damping machine base

Article no.

- The machines and equipment can be installed without anchors and precisely levelled using the height adjustment system.
- Effective impact and vibration damping improves the machine's capability

SE 1

3381012

SE 2

3381016

SE 3

3381018



Load	SE 1	SE 2	SE 3
Milling machines	340 kg	460 kg	1,600 kg
Sawing/gen. Machine	570 kg	1,460 kg	3,500 kg
Threading	M 12	M 16	M 20
Base Ø/Base height	120/32	160/35	185/39



### Copying and facing blade head "made in Germany"



- Univ. deployment in machining of all steels and NF metals
- For facing and copying
- Made of special steel - highly quenched and tempered
- Excellent planarity and concentricity
- Milling body with asymmetrical division for extremely smooth action and uniform cutting
- Body and clamping shank form a unit for a short projection length and stable clamping
- No additional end mill mandrel used
- Special geometry for high-speed milling
- Economical as the platen can simply be rotated forward when the cutting edge is blunt (usable up to twelve times)
- Indexable inserts Ø 10 mm
- Includes five turning plates RDET 1003 MOSN 8026
- Includes Torx TX15

<b>NEW</b> Tool holder shank <b>BT 20</b>	3350202
<b>NEW</b> Tool holder shank <b>BT 30</b>	3350203
<b>NEW</b> Pull stud <b>BT 20</b>	3352726
<b>NEW</b> Pull stud <b>BT 30</b>	3536302
Tool holder shank <b>MT 2/M10</b>	3350212
Tool holder shank <b>MT 3/M12</b>	3350213
Tool holder shank <b>ISO 30 DIN 2080</b>	3350215

- Outer diameter 52 mm
- ISO designation RD X 1003 D52/R5



<b>NEW</b> Tool holder shank <b>BT 40</b>	3350204
<b>NEW</b> Pull stud <b>BT 40</b>	3536332
Tool holder shank <b>MT 4/M16</b>	3350214
Tool holder shank <b>ISO 40 DIN 2080</b>	3350216

- Outer diameter 63 mm
- ISO designation RDX. 1003 D63/R5



### HM indexing inserts 5 pcs.

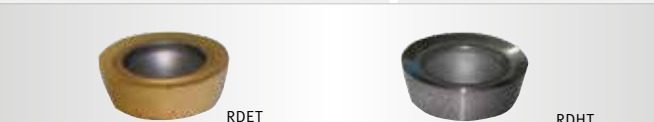
Article no.

- RDET 1003 MOSN8026 . Positive cutting geometry
- PVD coated . For machining steel up to 900 N/mm<sup>2</sup>, stainless steel, aluminium, non-ferrous metal, cast iron

<b>RDET</b>	3350220
-------------	---------

- RDHT 1003 MO-FA HF7 . Extremely pos. cutting geometry, polished
- For machining AL alloys, copper alloys, plastics

<b>RDHT</b>	3350221
-------------	---------



### Precision bore head set

Article no.

- 8 pcs. Drilling rod: BJ2008-32L/BJ2010-40L/BJ2014-53L/BJ2016-68L/BJ2020-83L/BJ2025-96L/BJ2030-115L/BJ20-L20-100L
- Adjustment range 8 - 280 mm
- Including drill rods, studs, circle extension, tools, case
- Without indexable inserts



### Indexable insert set



### Indexable insert set (10 pcs.)

Article no.

for steel (for drill rod no. 8 and 7)	3352136
for aluminium (for drill rod no. 8 and 7)	3352141
for steel (for drill rod no. 6 and 5)	3352137
for aluminium (for drill rod no. 6 and 5)	3352142
for steel (for drill rod no. 4, 3, 2 and 1)	3352138
for aluminium (for drill rod no. 4, 3, 2 and 1)	3352143

### Dimensions

Art. no.	ISO	D1	D2	S1	right
3352136	TPGT110304L-FY-EH10	11	3,4	3,18	0,4
3352141	TBGT060104L-W-T1200A	11	3,4	3,18	0,4
3352137	TPGT090204L-FY-EH10	9,6	2,8	2,38	0,4
3352142	TPGT090204L-W-T1200A	9,6	2,8	2,38	0,4
3352138	TBGT060104L-W-H1	6,9	2,2	1,59	0,4
3352143	TBGT060104L-W-T1200A	6,9	2,2	1,59	0,4

Cutting depth 0.2 - 0.6 - 1.0 mm

Feed 0.05 - 0.15 - 0.25 mm

Speed 100 - 250 - 400 mm

### Cutterhead set

Article no.

- For external and vertical machining
- Adjustment range 10 - 220 mm
- Includes boring cutter, shank, clamping sleeve; socket wrench

<b>MT 3</b>	3352083
<b>MT 4</b>	3352084





## Accessories for milling machines

Collet chuck set	Artikel no.
<b>MT 2/ ER 25 - M10</b>	3352052
<ul style="list-style-type: none"> <li>Collet chuck</li> <li>15 spring collets; sizes Ø 1.5 - Ø 16 mm/DIN ISO 15488</li> <li>Hook wrench Aluminium case</li> </ul>	
<b>MT 2/ ER 32 - M10</b>	3352053
<ul style="list-style-type: none"> <li>Collet chuck</li> <li>18 spring collets; sizes Ø 2 - Ø 20 mm/DIN ISO 15488</li> <li>Hook wrench Aluminium case</li> </ul>	
<b>MT 3/ ER 32 - M12</b>	3352093
<ul style="list-style-type: none"> <li>Collet chuck</li> <li>18 spring collets; sizes Ø 2 - Ø 20 mm/DIN ISO 15488</li> <li>Hook wrench Aluminium case</li> </ul>	
<b>MT 4/ ER 32 - M16</b>	3352094
<ul style="list-style-type: none"> <li>Collet chuck</li> <li>18 spring collets; sizes Ø 2 - Ø 20 mm/DIN ISO 15488</li> <li>Hook wrench Aluminium case</li> </ul>	
<b>ISO 30/ER32 - M12/BT 30</b>	3352054
<ul style="list-style-type: none"> <li>Collet chuck</li> <li>18 spring collets; sizes Ø 2 - Ø 20 mm/DIN ISO 15488</li> <li>Pull stud M12/M12 and pull stud BT 30</li> <li>Hook wrench Aluminium case</li> </ul>	
<b>ISO 40/ER32 - M16/BT40</b>	3352056
<ul style="list-style-type: none"> <li>Collet chuck</li> <li>18 spring collets; sizes Ø 2 - Ø 20 mm/DIN ISO 15488</li> <li>Pull stud M16/M16 and pull stud BT 40</li> <li>Hook wrench Aluminium case</li> </ul>	
<b>ISO 50/ER32 - M24/BT50</b>	3352065
<ul style="list-style-type: none"> <li>Collet chuck</li> <li>18 spring collets; sizes Ø 2 - Ø 20 mm/DIN ISO 15488</li> </ul>	



ISO 40

Collet chuck ISO 30/ER25	3352046
--------------------------	---------

- Hook wrench



ISO 30

Spring collet set	Article no.
<b>ER 25</b>	3441109
<ul style="list-style-type: none"> <li>15 spring collets; sizes Ø 1 - Ø 16 mm/DIN ISO 15488</li> </ul>	
<b>ER 32</b>	3441122
<ul style="list-style-type: none"> <li>18 spring collets; sizes Ø 3 - Ø 20 mm/DIN ISO 15488</li> </ul>	



ER25

Spring collet ER32 (individual)	Article no.
Ø 6 mm	3441126
Ø 8 mm	3441128
Ø 10 mm	3441130
Ø 12 mm	3441132

Spring collet MT 3 direct-clamping / M 12 (individual)	
Ø 4 mm	3352004
Ø 6 mm	3352006
Ø 8 mm	3352008
Ø 10 mm	3352010
Ø 12 mm	3352012
Ø 16 mm	3352013



Spring collet set	Article no.
<b>MT 2 direct-clamping / M 10</b>	3351980
<ul style="list-style-type: none"> <li>5-part; sizes Ø4 / Ø6 / Ø8 / Ø10 / Ø12 mm</li> </ul>	
<b>MT 3 direct-clamping / M 12</b>	3352014
<ul style="list-style-type: none"> <li>6-part; sizes Ø4 / Ø6 / Ø8 / Ø10 / Ø12 / Ø16 mm</li> </ul>	



MT 3

Assortment of clamping tools size	Article no.
<ul style="list-style-type: none"> <li>58-part, in practical wall-mount holder</li> <li>Metric thread</li> <li>24 pcs. pull studs</li> <li>6 pcs. T-slot nuts</li> <li>6 pcs. nuts</li> <li>4 pcs. extension nuts</li> <li>6 pcs. step blocks</li> <li>12 pcs. step blocks</li> </ul>	

<b>Size 8</b>	3352015
<ul style="list-style-type: none"> <li>T-slot nuts 10 mm; locking thread M 8</li> </ul>	
<b>Size 10</b>	3352016
<ul style="list-style-type: none"> <li>T-slot nuts 12 mm; locking thread M 10</li> </ul>	
<b>Size 12</b>	3352017
<ul style="list-style-type: none"> <li>T-slot nuts 14 mm; locking thread M 12</li> </ul>	
<b>Size 14</b>	3352018
<ul style="list-style-type: none"> <li>T-slot nuts 16 mm; locking thread M 14</li> </ul>	
<b>Size 16</b>	3352019
<ul style="list-style-type: none"> <li>T-slot nuts 18 mm; locking thread M 16</li> </ul>	



Size 12

#### Universal compressed air tool clamping system

- Includes tool clamp, cap, maintenance unit, gear rim, tightening bar, control box, operator control
- High negative pressure achievable
- Short change times through single-handed operation
- Low weight thanks to optimised structure
- Safe locking through toggle lever principle
- Precise guiding thanks to optimised geometry
- Low air consumption

<b>ISO 30</b>	3352393	<b>839,00</b>
---------------	---------	---------------

- For OPTImill BF 30 Vario

<b>Adapter platen</b>	3352391	<b>75,00</b>
-----------------------	---------	--------------

- For OPTImill BF 30 Vario

<b>ISO 40</b>	3352394	<b>839,00</b>
---------------	---------	---------------

- For OPTImill MF 2V / MF 4V / BF 46 Vario

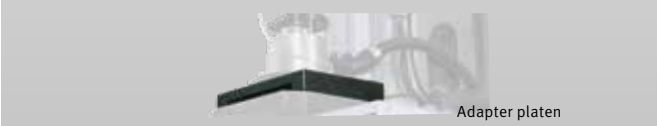
<b>Adapter platen</b>	3352392	<b>99,00</b>
-----------------------	---------	--------------

- For OPTImill BF 46 Vario

<b>Factory assembly clamping system</b>	9000490	<b>250,00</b>
---	---------	---------------



(Note: For orders without factory assembly: Some adjustment work may be necessary.)



Adapter platen

<b>Prism WP 30</b>	3352195
--------------------	---------

- Robust design for use on tool machines.
- High-precision design
- Adjustable from 0° to 60° and from 0° to -30°
- Tempered and ground carbon steel
- Precision trueness 0.005 mm
- Angle tolerance 0.01°
- Dimensions L x W x H: 75 x 25 x 32 mm



<b>Thread tapping device M5 - M12/B16</b>	3352042
---	---------

- Quick reverse built-in, immediately effective on changing the feed direction
- Slip clutch 4-stage adjustable.

#### Scope of supply:

- Two flexible spring collets
- Two open-ended spanners
- Hand grip
- Allen key



Technical specifications	
Self-release path	4 mm
Freewheel	1.5 mm
Length compensation tensioned	8.5 mm
Max. speed	1,000 rpm
Transmission ratio forward and reverse	1 : 1.75
Cutting range	M5 - M12
Clamping range	3.5 - 10
Length	B16 DIN 238
Length compensation compressed	156 mm
Shank holder	5 mm

<b>Parallel shim set</b>	3536191
--------------------------	---------

- Finely polished to 0.01 mm precision
- Length 150 mm x width 8.5 mm
- 18 pcs. 2 pcs. each 14 mm; 16 mm; 20 mm; 24 mm; 30 mm; 32 mm; 36 mm; 40 mm; 44 mm



T-slot nut (individual)	Article no.
M 8 / 10 mm	3353020
M 10 / 12 mm	3353022
M 12 / 14 mm	3353024
M 14 / 16 mm	3353026
M 16 / 18 mm	3353028

<b>Edge sensor</b>	3351171
--------------------	---------

- Rotating spindle
- Probe Ø 10 mm



## Accessories for milling machines

Universal milling table feed	Article no.
<ul style="list-style-type: none"> <li>Continuous speed control and rapid motion</li> <li>Clockwise/Anti-clockwise rotation</li> <li>230 Volt, overload protection and end point switch</li> <li>Motor: V99 - 90W, V250 - 130W</li> <li>For self-assembly!</li> </ul>	
<b>Milling table feed V 99</b>	3352022
<ul style="list-style-type: none"> <li>Horizontal assembly</li> </ul>	
<b>Assembly kit BF 30 Vario X axis</b>	3352035
<b>Assembly kit BF 46 Vario X axis</b>	3352036




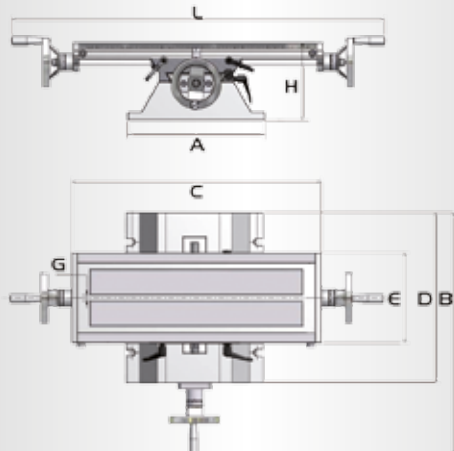
Universal milling table feed	Article no.
<ul style="list-style-type: none"> <li>Continuous speed control and rapid motion</li> <li>Clockwise/Anti-clockwise rotation</li> <li>230 Volt, overload protection and end point switch</li> <li>Motor: V99 - 90W, V250 - 130W</li> <li>For self-assembly!</li> </ul>	
<b>Milling table feed V 250</b>	3352029
<ul style="list-style-type: none"> <li>Vertical assembly</li> </ul>	
<b>Milling table feed V 250</b>	3352025
<ul style="list-style-type: none"> <li>For the Y axis MF 2V / MF 4V</li> <li>Includes assembly kit</li> </ul>	



Parallel shim set 20-part	3354001
<ul style="list-style-type: none"> <li>For precision work for parallel mounting of workpieces in machines, vices on scoring boards or tool machines</li> <li>Finely polished to 0.01 mm precision</li> <li>Thickness 3 mm</li> <li>Length 150 mm</li> <li>2 pcs. each 8 mm; 13 mm; 16 mm; 19 mm; 22 mm; 25 mm; 31 mm; 35 mm; 38 mm; 41 mm</li> </ul>	




XY tables KT	Article no.
<ul style="list-style-type: none"> <li>Coolant channel</li> <li>Dovetail guide adjustable</li> <li>Adjustable handwheel scaling with 0.05 mm scale</li> </ul>	
<b>KT 120</b>	3356595
<b>KT 179</b>	3356596
<b>KT 180</b>	3356591
<b>KT 210</b>	3356600

Technical specifications	KT 120	KT 179	KT 180	KT 210
A (Base width)	222 mm	274 mm	274 mm	280 mm
D (base length)	280 mm	340 mm	340 mm	362 mm
C (table length)	400 mm	500 mm	700 mm	730 mm
E (table width)	120 mm	180 mm	180 mm	210 mm
G (T-groove size)	10 mm	12 mm	12 mm	14 mm
L x W x H (mm)	506 x 400 x 140	748 x 483 x 155	948 x 483 x 155	1060 x 538 x 185
Net weight	22 kg	46 kg	54 kg	84 kg
Strokes				
X axis	220 mm	287 mm	480 mm	480 mm
Y axis	165 mm	167 mm	170 mm	210 mm
Max. load	40 kg	55 kg	55 kg	80 kg

Hold-down unit set of 2	Article no.
<ul style="list-style-type: none"> <li>Clamping height adjustable</li> <li>Brass plate below the clamping arm protects material against damage</li> </ul>	
<b>Table groove 14 mm/M 12</b>	3352031
<ul style="list-style-type: none"> <li>L x W x H: 115 x 42 x 39 mm Height adjustment: 0 - 89 mm</li> </ul>	
<b>Table groove 18 mm/M 16</b>	3352032
<ul style="list-style-type: none"> <li>L x W x H: 133 x 50 x 49 mm Height adjustment: 0 - 101 mm</li> </ul>	



## Milling head holder BT 20

3352728

- Collet 16 mm



## Spring collet holder spanner ER 16

3352742



## Weldon holder BT 20

Article no.

Ø 6 mm

3352732

Ø 8 mm

3352734

Ø 10 mm

3352736

Ø 12 mm

3352738



## Collet chuck set EER 16

3440282

- 12 spring collets; sizes Ø 1 - 10 mm



## Collet chuck

33352741

- ER16



## Chuck adapter

3352727

- BT 20 - B16



## Pull stud BT 20

33352726



## STARTER SET BT 30

### Starter set BT 30

3536107

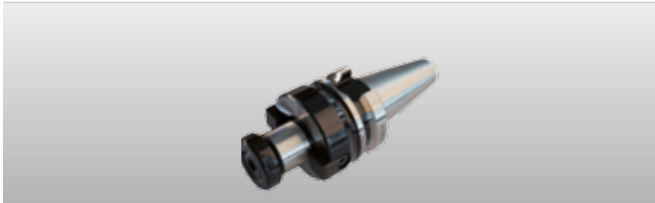
#### Comprises:

- 1 pc. milling head holder
- 1 pc. chuck 1 - 13 mm
- 2 pc. Weldon 6 mm
- 1 pc. Weldon 8 mm
- 1 pc. Weldon 10 mm
- 1 pc. Weldon 12 mm
- 1 pc. Weldon 16 mm
- 2 pc. Weldon 20 mm
- 1 pc. adapter BT 30
- 3 pc. spring collet holder ER 32
- 1 pc. spring collet spanner ER 32
- 18-part spring collet set ER 32
- 1 pc. height adjuster
- 1 pc. assembly and tool adjustment gauge
- 14 pcs. pull studs
- 1 pc. taper squeegee

### Milling head holder BT 30

3536306

- Collet 22 mm



### Chuck BT 30

3536303

- Clamping range 1 - 13 mm



### Weldon holder BT 30

Article no.

Ø 6 mm	3536310
Ø 8 mm	3536311
Ø 10 mm	3536312
Ø 12 mm	3536313
Ø 16 mm	3536314
Ø 20 mm	3536315

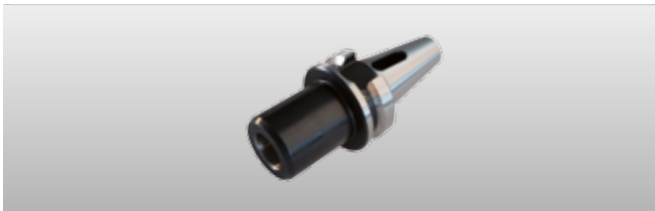


### Adapter

3536305

76,00

- BT 30 to MT 2



### Spring collet holder ER 32 BT 30

3536304



### Spring collet holder spanner ER 32 BT 30

3536307



### Height-adjuster

3536290

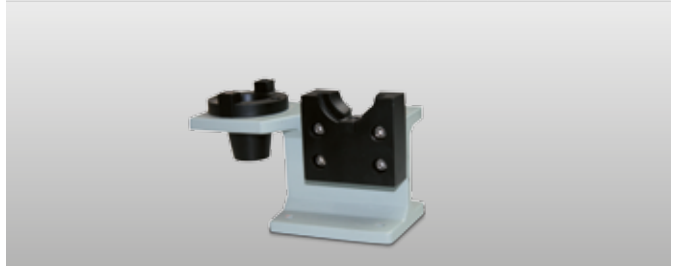
- Analogue version
- For fast and easy determination of the reference point on the Z axis and/or for adjusting tools "to zero" (e.g., for milling or drilling) without damaging the workpiece
- Housing height 50 mm



### Assembly and tool adjustment gauge

3536193

- For easy and precise adjustment of tools
- Vertical and horizontal collet for tools with a steep-angle taper



### Taper squeegee

3536301



### Pull stud BT 30

3536302





## Starter set BT40 / Set 1 3536105

### Comprises:

- 1 pc. height adjuster
- 18-part parallel shim set
- 1 pc. assembly and tool adjustment gauge
- 1 pc. milling chuck BT 40 SLA 20-90
- 1 pc. quick-release drill chuck 1 - 13 mm
- 2 pcs. spring collet holder BT 40/ER 32
- 18-part spring collet set ER 32, 3 - 20 mm
- 1 pc. adapter morse taper BT 40 - MT 3
- 1 pc. face milling mount BT 40
- 1 pc. face miller
- 6 pcs. pull studs
- 1 pc. tray

## Height-adjuster 3536180

- Analogue version
- Housing height 50 mm



## Parallel shim set 3536191

- Finely polished to 0.01 mm precision
- Length 150 mm x width 8.5 mm
- 18 pcs. sizes 2 x 14 mm/2 x 16 mm/2 x 20 mm/2 x 24 mm/2 x 30 mm/2 x 32 mm/2 x 36 mm/2 x 40 mm/2 x 44 mm



## Assembly and tool adjustment gauge 3536187

- For easy and precise adjustment of tools
- Vertical and horizontal collet for tools with a steep-angle taper shank
- Weight 13 kg



## Milling chuck BT 40 SLA 20-90 3536186

- For holding the 3-D probe



## Quick clamping drill chuck 1 - 13 mm 3536183

- Includes hook wrench for locking



## Spring collet holder ER 32 3536182

- Precision 0.005 mm



## Spring collet set ER 32 3441122

- 18 spring collets 3 - 20 mm



## Adapter morse taper BT 40 - MT 3 3536184



## Face milling mount (27 mm) 3536190



## Face-milling cutter 3536189

- 63 mm · bore 27 mm · includes cutting inserts

## Replacement cutting inserts 3530196

- 10 unit



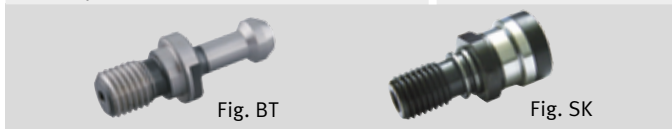
## Pull stud Article no.

BT 40 - 40 x 45°

3536185

ISO 40 / M16

3536179



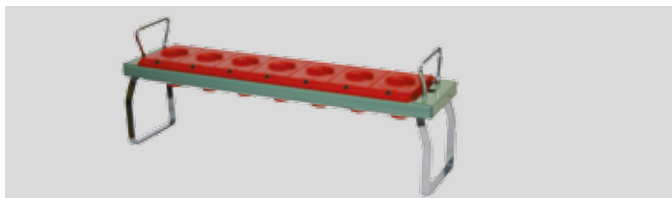
## Milling head holder 3536306

- Collet 22 mm



## Tool tray 3536188

- Dimensions L x W x H: 595 x 143 x 225 mm



## Accessories for milling machines

<b>Starter set BT40 / Set 2</b>	3536108
---------------------------------	---------

### Comprises:

- 1 pc. milling head holder with 27 mm collet
- 1 pc. quick-release drill chuck 1 - 13 mm
- 2 pc. Weldon 6 mm
- 1 pc. Weldon 8 mm
- 1 pc. Weldon 10 mm
- 1 pc. Weldon 12 mm
- 1 pc. Weldon 16 mm
- 2 pc. Weldon 20 mm
- 1 pc. adapter BT 40 to MT 3
- 3 pc. spring collet holder ER 32
- 1 pc. spring collet spanner ER 32
- 18-part spring collet set ER 32
- 1 pc. height adjuster
- 1 pc. assembly and tool adjustment gauge
- 1 pc. taper squeegee
- 15 pcs. pull studs

<b>Milling head holder</b>	3536336
----------------------------	---------

- Collet 27 mm



<b>Chuck</b>	3536333
--------------	---------

- Clamping range 1 - 13 mm



<b>Weldon holder</b>	Article no.
----------------------	-------------

Ø 6 mm	3536340
Ø 8 mm	3536341
Ø 10 mm	3536342
Ø 12 mm	3536343
Ø 16 mm	3536344
Ø 20 mm	3536345



<b>Adapter</b>	3536335
----------------	---------

- BT 40 to MT 3



<b>Spring collet holder ER 32</b>	3536334
-----------------------------------	---------



<b>Spring collet holder spanner ER 32</b>	3536307
---	---------



<b>Spring collet set ER 32</b>	3441122
--------------------------------	---------

- 18 spring collets; sizes Ø 1 - 16 mm



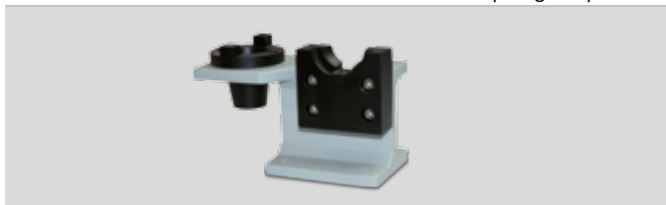
<b>Height-adjuster</b>	3536290
------------------------	---------

- Analogue version
- For fast and easy determination of the reference point on the Z axis and/or for adjusting tools "to zero" (e.g., for milling or drilling) without damaging the workpiece
- Housing height 50 mm



<b>Assembly and tool adjustment gauge</b>	3536194
---	---------

- For easy and precise adjustment of tools
- Vertical and horizontal collet for tools with a steep-angle taper



<b>Taper squeegee</b>	3536331
-----------------------	---------



<b>Pull stud</b>	3536332
------------------	---------



**Precision quick release chuck**

Concentricity better than 0.06 mm

<b>1 - 8 mm; B16</b>	3050608
<b>1 - 10 mm; B16</b>	3050610
<b>1 - 13 mm; B16</b>	3050623
<b>1 - 16 mm; B16</b>	3050626
<b>1 - 16 mm; B18</b>	3050630


**Morse cone SK 50**

3352067

- B18 DIN2080


**OPTIMUM Direct quick release chuck**

Article no.

<b>MT 2 1 - 16 mm; up to 6,000 rpm</b>	3050571
<b>MT 2 1 - 13 mm; up to 8,000 rpm</b>	3050572
<b>MT 3 1 - 16 mm; up to 6,000 rpm</b>	3050573
<b>MT 4 1 - 16 mm; up to 6,000 rpm</b>	3050574

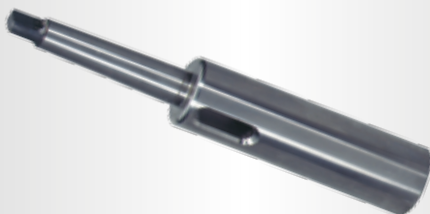


MT 3

**Extension sleeves**

Article no.

<b>MT 2 - MT 3</b>	3050667
<b>MT 3 - MT 4</b>	3050668



MT 2-MT 3

**Arbor for drill chuck**

Article no.

External taper <b>MT 2 / M10 / B16</b>	3050670
External taper <b>MT 3 / M12 / B16</b>	3350303
External taper <b>MT 4 / M16 / B16</b>	3350304
External taper <b>ISO 30 / M12 / B16</b>	3352069
External taper <b>ISO 40 / M16 / B16</b>	3352070



ISO 40

**Milling head holder**

Article no.

<b>MT 2</b>	3352102
-------------	---------

- External taper MT 2 / end mill holder Ø 16 mm

<b>SK50</b>	3352066
-------------	---------

- External taper Ø 27 mm DIN2080



SK 50

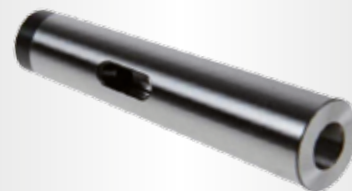
**Adapter ISO 30 / MT 3**

3352068


**Reducing sleeve**

Article no.

<b>MT 3 - MT 2 / M12</b>	3350313
<b>MT 4 - MT 3 / M16</b>	3350314



MT 3-MT 2

# Lathes



## The small-scale lathe with electronically controllable speed

**OPTIMUM**  
the original

### Facts that impress in terms of quality, performance and price

- ▶ Direct current motor
- ▶ Ribbed grey cast prism bed, induction tempered and ground
- ▶ Tempered and polished z-axis guideway
- ▶ Guaranteed concentricity of spindle nose better than 0.015 mm
- ▶ Chuck concentricity max. 0.05 mm
- ▶ Leading spindle for thread tapping or automatic longitudinal turning
- ▶ Longitudinal, cross and top slides
- ▶ Automatic longitudinal/leading spindle drive
- ▶ Large thread tapping area thanks to set of interchangeable gears
- ▶ Three-jaw lathe chuck included in standard scope of delivery
- ▶ Fast and easy speed change through V-belt
- ▶ Safety switch in cover
- ▶ Clockwise/Anti-clockwise rotation switchable via control panel
- ▶ Chuck protection with microswitch
- ▶ Hand wheels with adjustable fine scaling 0.04 / 0.01 mm
- ▶ All guides adjustable without play using wedge rails
- ▶ Emergency stop button
- ▶ Low-voltage electronics
- ▶ EMC filter class B (use in private households)



Fig.: TU 1503V

Model	TU 1503V
Article no.	3420260
<b>Technical specifications</b>	
Electrical connection	230 V / 1 Ph ~50 Hz
<b>Spindle</b>	
Drive motor	450 W
Spindle taper	MT 1
Spindle bore	Ø 11 mm
Spindle holder	cylindrical Ø 22 mm
Dual tool holder chuck height	12 mm
<b>Work areas</b>	
Max. height	75 mm
Max. width	265 mm
Max. turning diameter	150 mm <sup>(1)</sup>
Bed width	70 mm
<b>Speed range</b>	
	120 - 3,000 rpm
Number of gears	Electronic speed control
<b>Strokes</b>	
Top slide stroke	40 mm
Cross slide stroke	55 mm
<b>Feed and pitch</b>	
Longitudinal feed within the range	0.05 - 0.1 mm/rev (2 feeds)
Metric pitch	0.5 - 1.5 mm/rev (8 pitches)
<b>Tailstock</b>	
Tailstock chuck	MT 1 short
Tailstock - quill stroke	30 mm
<b>Dimensions L x W x H</b>	
	560 x 320 x 290 mm
Net weight	23 kg

### Scope of Delivery

- Three-jaw lathe chuck Ø 80 mm, centre clamping
- Fixed centre MT 1
- Splashguard
- Chip tray
- Set of interchangeable gears
- Dual tool holder
- Operating tool

### Accessories

#### ▶ lathe chuck

**Four-jaw lathe chuck** Ø 80 mm, individual clamping

**Four-jaw lathe chuck** Ø 80 mm, centre clamping

#### ▶ Steady rests

**Travelling steady** passageway max. Ø 45 mm

**Fixed steady** passageway max. Ø 40 mm

#### ▶ Lathe tool

**Lathe tool set** 8 mm, 5-part

**Lathe tool set** 8 mm, 11-part

Information on „Lathe tool set“ on page 152

#### ▶ Accessories

**Travelling centre** MT 1

**Collet chuck** ER 16, Ø 22 mm, cylindrical

**Spring collet set** ER 16, 1 - 10 mm, 12-part

▶ More „Accessories Turning“ on page 148

The Vario lathe complies with the DIN EN 55011 standard: class B  
(1) Explanation see „General notes on operating our machines“ on page 211



## Modelbuilding lathe with electronic speed control and digital speed display

### Facts that impress in terms of quality, performance and price

- ▶ Precision workmanship
- ▶ Ribbed cast steel prism bed with strong ribbing, induction tempered and precision ground
- ▶ Tempered and polished z-axis guideway
- ▶ Tempered spindle nose (DIN 6350)
- ▶ Guaranteed concentricity of spindle nose better than 0.009 mm
- ▶ Automatic longitudinal/leading spindle drive
- ▶ Longitudinal, cross and top slides
- ▶ Clockwise/Anti-clockwise rotation switchable via control panel
- ▶ Three-jaw lathe chuck included in standard scope of delivery
- ▶ Emergency stop button
- ▶ Chuck protection
- ▶ Thrust bearings
- ▶ Leading spindle borne on two sintered bearings
- ▶ Large thread tapping area thanks to set of interchangeable gears as standard
- ▶ Gearbox with interchangeable gearwheels
- ▶ EMC filter class B (use in private households)

Accessories	Article no.
Digital position display DRO 5	3383975
Magnetic strip 1,100 mm	3383978
Factory assembly	9000420



### Main spindle

- Tempered and borne on adjustable precision taper roller bearings
- Tapered roller bearings in P5 quality
- Cylindrical centring mount
- Tempered spindle nose with  $\varnothing$  21 mm spindle bore

### lathe chuck

- Concentricity better than 0.04 mm

### Chip guard

- On top slide

### Roll-milled trapezoidal thread

- Leading spindle

### Four x tool holder

- Rotatable

### Tailstock

- Adjustable for turning balls
- Tailstock spindle sleeve and handwheel with adjustable fine scaling 0.02 mm
- Fast, easy adjustment without tools thanks to clamping lever

### Digital speed display

- Easily legible speed display

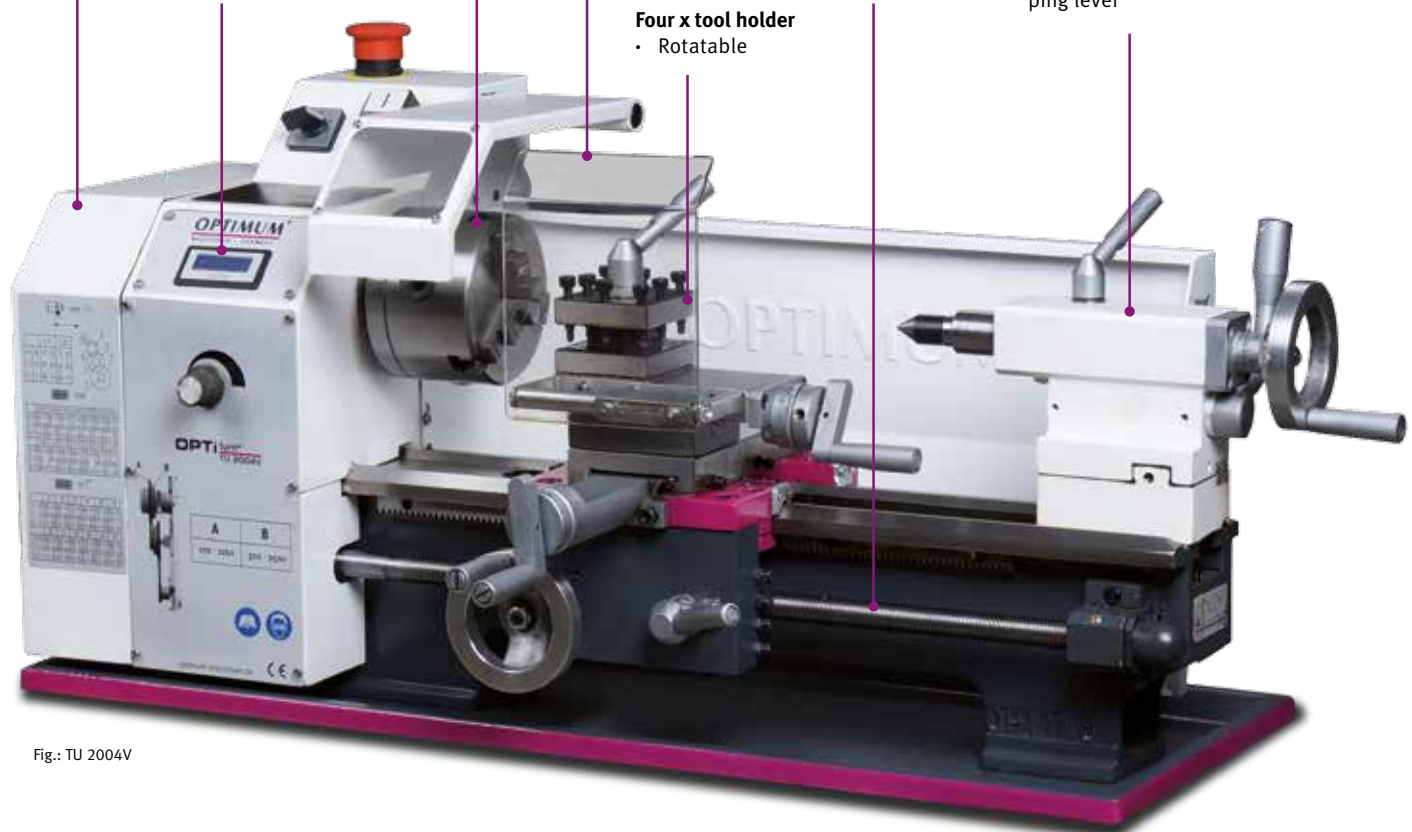


Fig.: TU 2004V

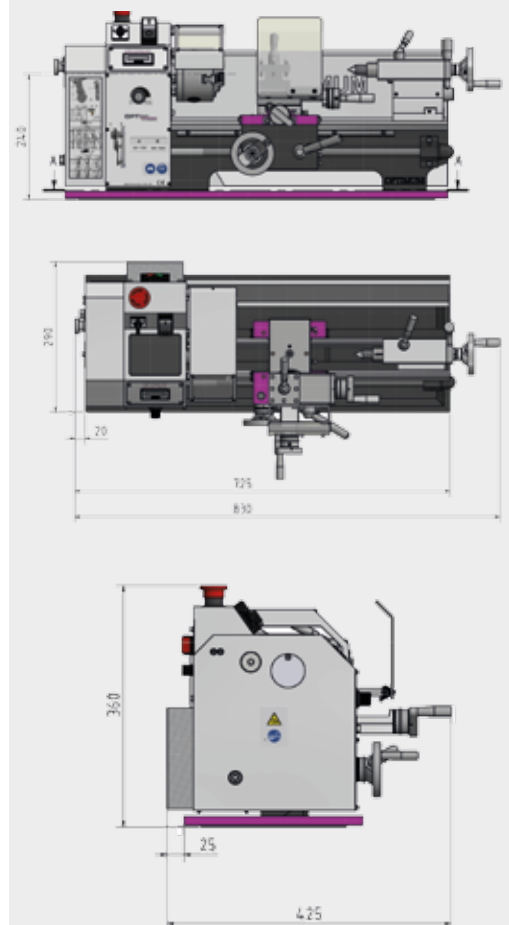
## Technical specifications, accessories and dimensions

Model	TU 2004V
Article no.	3420310
<b>Technical specifications</b>	
Electrical connection	230 V / 1 Ph ~50 Hz
<b>Spindle</b>	
Drive motor	600 W
Spindle taper	MT 3
Spindle bore	Ø 21 mm
Spindle holder	cylindrical Ø 72 mm
Passageway three-jaw chuck	Ø 20 mm
Four x tool holder mounting height	12 mm
<b>Work areas</b>	
Max. height	100 mm
Max. width	300 mm
Max. turning diameter	200 mm <sup>(1)</sup>
Orbit Ø above cross slide	110 mm
Bed width	100 mm
<b>Speed range</b>	
Spindle speeds	150 - 2,500 rpm
Number of gears	2-speed, electronic speed control
<b>Strokes</b>	
Top slide stroke	55 mm
Cross slide stroke	75 mm
<b>Feed and pitches</b>	
Longitudinal feed within the range	0.1 - 0.2 mm/rev (2 feeds)
Pitch - metric in range	0.25 - 3 mm/rev (14 pitches)
Pitch - inch in range	44 - 8 turns/inch (12 pitches)
<b>Tailstock</b>	
Tailstock chuck	MT 2
Tailstock - quill stroke	65 mm
<b>Dimensions L x H x W</b>	
Net weight	61 kg

Accessories	Article no.
<b>► Lathe chucks and accessories</b>	
<b>Four-jaw lathe chuck</b> Ø 100 mm, centre clamping (Chuck flange 3440312 required)	3442810
<b>Four-jaw lathe chuck</b> Ø 100 mm, individual clamping (Chuck flange 3440312 required)	3442872
<b>Chuck flange</b> for lathe chuck Ø 100 mm (3442810/3442872)	3440312
<b>Clamping disc</b> Ø 170 mm	3440295
<b>► Steady rests</b>	
<b>Travelling steady</b> passageway max. Ø 40 mm	3440230
<b>Fixed steady</b> passageway max. Ø 50 mm	3440231
<b>► Tool holders and accessories</b>	
<b>Quick change tool holder</b> SWH-AA	3384311
<b>Factory assembly</b> SWH-AA	9000401
<b>Spare tool holder</b> 12 x 50 type D for square chisels	3384312
<b>Spare tool holder</b> 12 x 50 type H for round chisels	3384320
<b>Lathe tool set</b> 10 mm, 11-part	3441602
<b>Lathe tool set</b> 10 mm, 5-part	3441664
Information on „Lathe tool set“ on page 152	
<b>► Accessories</b>	
<b>Collet chuck</b> ER 25, Ø 52 mm cylindrical	3440305
<b>Travelling centre</b> MT 2	3440702
<b>► More „Accessories Turning“ on page 148</b>	

(1) Explanation see „General notes on operating our machines“ on page 211

### Dimensions



### Scope of Delivery

- Three-jaw lathe chuck Ø 100 mm, centre clamping
- Fixed centre MT 2 and MT 3
- Splashguard
- Chip tray
- Set of interchangeable gears
- Four x tool holder
- Operating tool

## Lathes for DIY.

TU 2304V with electronic speed control

### Facts that impress in terms of quality, performance and price

- ▶ Precision workmanship
- ▶ Tempered and polished z-axis guideway
- ▶ Guaranteed concentricity of spindle nose better than 0.009 mm
- ▶ Chuck concentricity better than 0.05 mm
- ▶ Leading spindle for thread tapping or automatic longitudinal turning
- ▶ Clockwise/Anti-clockwise rotation switchable via control panel
- ▶ Roll-milled trapezoidal spindles
- ▶ Emergency stop button
- ▶ Comprehensive range of accessories
- ▶ Three-jaw lathe chuck included in standard scope of delivery
- ▶ Lasting value

### TU 2304 V

- ▶ High-torque motor with constant torque curve to a great extent
- ▶ Speed change easily adjustable via potentiometer
- ▶ Digital speed display
- ▶ EMC filter class B (use in private households)

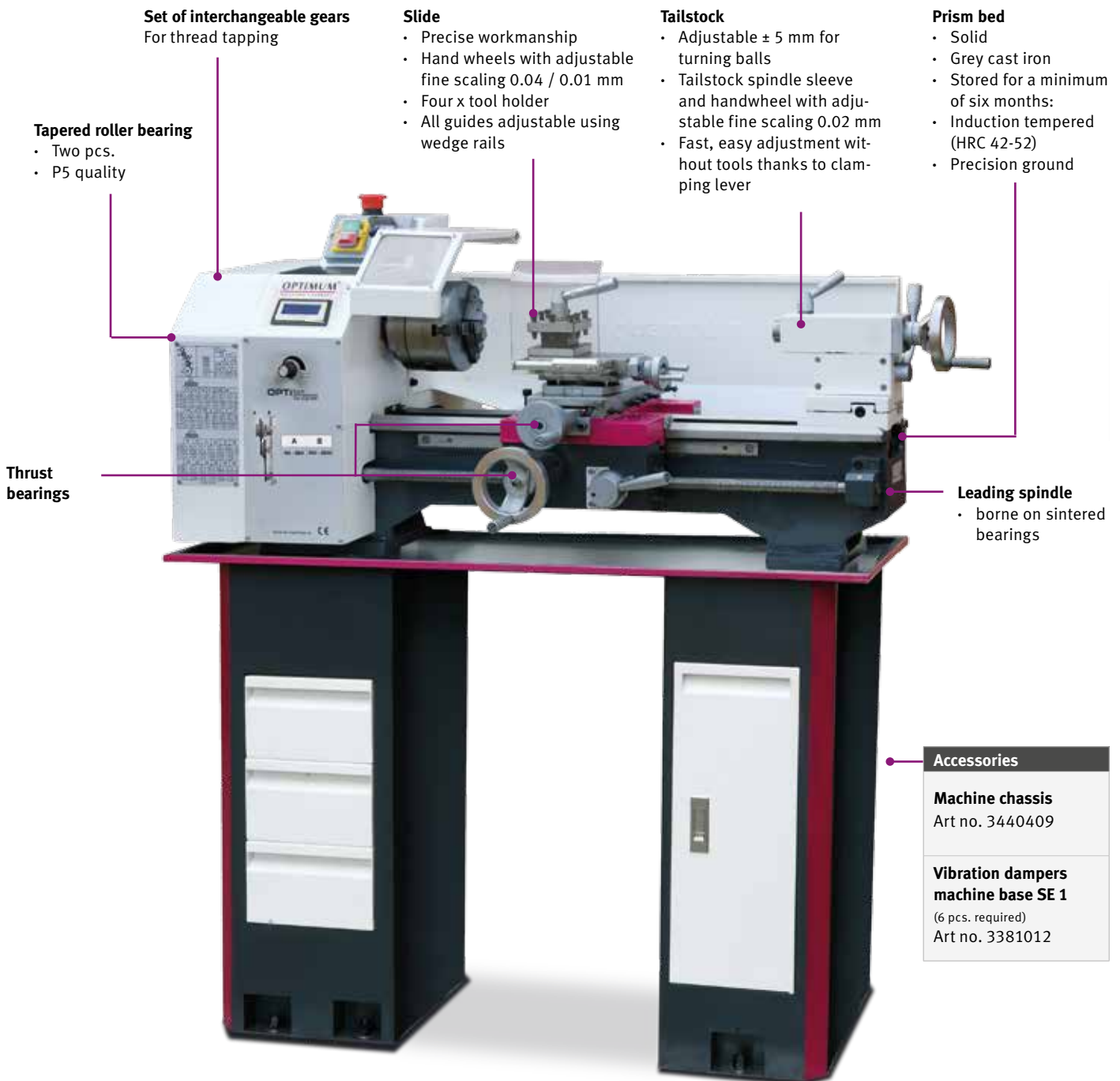
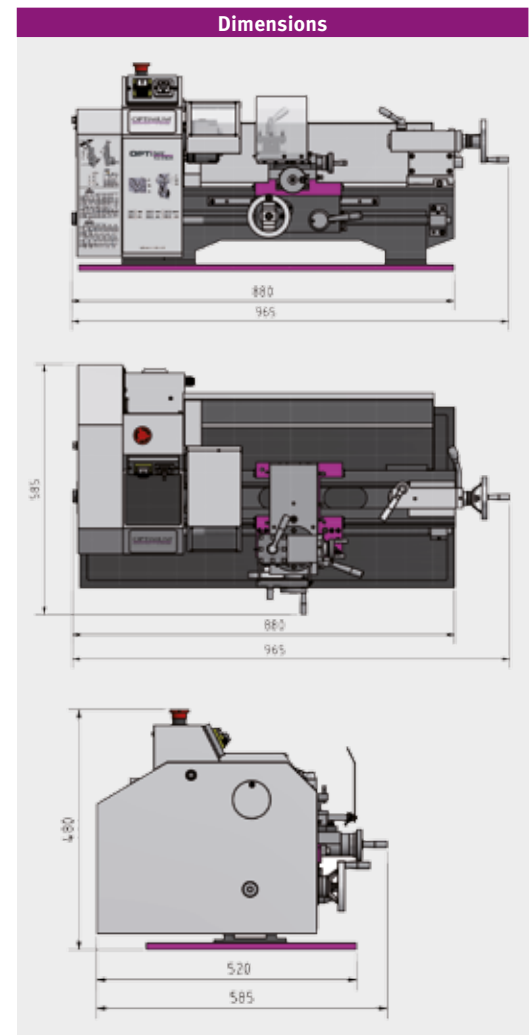


Fig. similar: TU 2304V with optional machine chassis

## Technical specifications, accessories and dimensions


Model	TU 2304		TU 2304V
Article no.	3420320		3420325
Technical specifications			
Electrical connection	230 V / 1 Ph ~50 Hz		
Spindle			
Drive motor	750 W		
Spindle taper	MT 3		
Spindle bore, bar passage diameter	Ø 20 mm		
Spindle holder	cylindrical Ø 72 mm		
Four x tool holder mounting height	14 mm		
Work area			
Max. height	115 mm		
Max. width	450 mm		
Orbit Ø above machine bed	230 mm <sup>(1)</sup>		
Bed width	135 mm		
Speed range			
Spindle speed	125 - 2,000 rpm	150 - 2,200 rpm	
Number of gears	6 gears	2 gears, electronically controlled	
Strokes			
Top slide stroke	75 mm		
Cross slide stroke	120 mm		
Pitches			
Pitch - metric in range	0.4 - 3.5 mm/rev (14 pitches)		
Pitch - inch in range	44 - 8 turns/inch (14 pitches)		
Tailstock			
Tailstock chuck	MT 2		
Tailstock - quill stroke	70 mm		
Dimensions			
Length x width x height	965 x 585 x 510 mm		
weight	111 kg	114 kg	



Accessories	Art no.
<b>► Lathe chucks and accessories</b>	
<b>Three-jaw lathe chuck</b> Ø 125 mm, centre clamping (Chuck flange 3440313 required)	3442712
<b>Four-jaw lathe chuck</b> Ø 125 mm, centre clamping (Chuck flange 3440313 required)	3442812
<b>Chuck flange</b> for lathe chuck Ø 125 mm (3442812/3442712)	3440313
<b>Four-jaw lathe chuck</b> Ø 125 mm, individual clamping (Chuck flange 3440314 required)	3442874
<b>Chuck flange</b> for lathe chuck Ø 125 mm (3442874)	3440314
<b>Planar clamping disc</b> Ø 240 mm	3441352
<b>► Steady rests</b>	
<b>Fixed steady</b> passageway max. Ø 55 mm	3440361
<b>Travelling steady</b> passageway max. Ø 34 mm	3440360
<b>► Tool holders and lathe tools</b>	
<b>Quick change tool holder</b> SWH 1-A	3384301
<b>Factory assembly</b> SWH 1-A	9000401
<b>Spare tool holder</b> 20 x 90 type D for square chisels	3384302
<b>Spare tool holder</b> 20 x 85 type H for round chisels	3384321
<b>Lathe tool set</b> 10 mm, 11-part	3441602
<b>Lathe tool set</b> 12 mm, 11-part	3441603
<b>Lathe tool set</b> 12 mm, 5-part "Made in Germany"	3441212
Information on „Lathe tool set“ on page 152	
<b>► More „Accessories Turning“ on page 148</b>	

### Scope of Delivery

- Three-jaw lathe chuck Ø 100 mm, centre clamping
- Fixed centre MT 2 and MT 3
- Splashguard
- Chip tray
- Four x tool holder
- Set of interchangeable gears
- Operating tool

Accessories	Article no.
 <p>Information: „DRO 5“ on page 210</p>	
<b>Digital position display DRO 5</b> incl. 3 magnetic sensors	3383975
<b>Magnetic strip</b> L: 1,100 mm	3383978
<b>Factory assembly</b>	9000420

(1) Explanation see „General notes on operating our machines“ on page 211



## Lathes for DIY.

### TU 2406V with electronic speed control

#### Facts that impress in terms of quality, performance and price

- ▶ Precision workmanship
- ▶ Tempered and polished z-axis guideway
- ▶ Guaranteed concentricity of spindle nose better than 0.009 mm
- ▶ Chuck concentricity better than 0.05 mm
- ▶ Leading spindle for thread tapping or automatic longitudinal turning
- ▶ Clockwise/Anti-clockwise rotation switchable via control panel
- ▶ Roll-milled trapezoidal spindles
- ▶ Emergency stop button
- ▶ Comprehensive range of accessories

- ▶ Three-jaw lathe chuck included in standard scope of delivery
- ▶ Lasting value

#### TU 2406 V

- ▶ High-torque motor with constant torque curve to a great extent
- ▶ Speed change easily adjustable via potentiometer
- ▶ Digital speed display
- ▶ EMC filter class B (use in private households)

#### Leading spindle

- borne on sintered bearings



#### Tapered roller bearing

- Two pcs.
- P5 quality

#### Slide

- Precise workmanship
- Hand wheels with adjustable fine scaling 0.04 / 0.01 mm
- Four x tool holder
- All guides adjustable using wedge rails

#### Tailstock

- Adjustable  $\pm 5$  mm for turning balls
- Tailstock spindle sleeve and hand-wheel with adjustable fine scaling 0.02 mm
- Fast, easy adjustment without tools thanks to clamping lever

#### Thrust bearings



#### Accessories

**Machine chassis**  
Art no. 3440409

**Vibration damper base SE 1**  
(6 pcs. required)  
Art no. 3381012

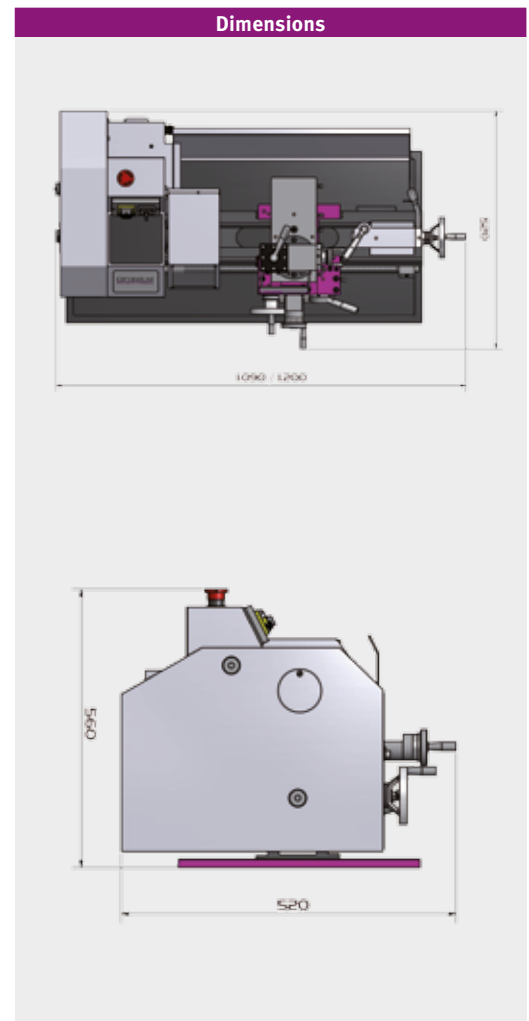
Fig.: TU 2406V with optional machine chassis

Fig.: TU 2406



## Technical specifications, accessories and dimensions

Model	TU 2406	TU 2406V
Article no. (230 V)	3420350	3420355
Article no. (400 V)	3420353	-
Technical specifications		
Electrical connection	230 V / 1 Ph ~ 50 Hz	230 V / 1 Ph ~50 Hz
	400 V / 3 Ph ~50 Hz	
Spindle		
Drive motor	750 W	1.1 kW
Spindle taper	MT 3	
Spindle bore	Ø 21 mm	
Spindle holder	cylindrical Ø 52 mm	
Four x tool holder mounting height	14 mm	
Work area		
Max. height	125 mm	
Max. width	550 mm	
Orbit Ø above machine bed	250 mm <sup>(1)</sup>	
Bed width	135 mm	
Speed range		
Spindle speed	125 - 2,000 rpm	150 - 2,500 rpm
Number of gears	6 gears	2-speed, electronic speed control
Strokes		
Top slide stroke	75 mm	
Cross slide stroke	120 mm	
Pitches		
Pitch - metric in range	0.4 - 3.5 mm/rev (14 pitches)	
Pitch - inch in range	44 - 10 turns/inch (12 pitches)	
Tailstock		
Tailstock chuck	MT 2	
Tailstock - quill stroke	70 mm	
Dimensions		
Length x width x height	1,310 x 520 x 560 mm	
Net weight	125 kg	



Accessories	Article no.
<b>► Lathe chucks and accessories</b>	
<b>Four-jaw lathe chuck</b> Ø 125 mm, centre clamping (Chuck flange 3440511 required)	3442812
<b>Four-jaw lathe chuck</b> Ø 125 mm, individual clamping (Chuck flange 3440511 required)	3442874
<b>Chuck flange</b> lathe chuck Ø 125 mm (lathe chuck 3442812/3442874)	3440511
<b>Clamping disc</b> Ø 240 mm	3440552
<b>► Steady rests</b>	
<b>Fixed steady</b> passageway max. Ø 50 mm	3441315
<b>Travelling steady</b> passageway max. Ø 34 mm	3441310
<b>► Tool holders and lathe tools</b>	
<b>Quick change tool holder</b> SWH 1-A	3384301
<b>Factory assembly</b> SWH 1-A	9000401
<b>Spare tool holder</b> 20 x 90 type D for square chisels	3384302
<b>Spare tool holder</b> 20 x 85 type H for round chisels	3384321
<b>Lathe tool set</b> 10 mm, 11-part	3441602
<b>Lathe tool set</b> 12 mm, 11-part	3441603
<b>Lathe tool set</b> 12 mm, 5-part	3441666
<b>Lathe tool set</b> 12 mm, 5-part "Made in Germany"	3441212
Information on „Lathe tool set“ on page 152	
<b>► Collet chuck</b>	
<b>Collet chuck</b> ER 25, cylindrical	3441305
<b>► More „Accessories Turning“ on page 148</b>	

Scope of Delivery
• Three-jaw lathe chuck Ø 125 mm, centre clamping
• Fixed centre MT 2 and MT 3
• Splashguard
• Chip tray
• Four x tool holder
• Set of interchangeable gears
• Operating tool

Accessories	Article no.
<p>Information: „DRO 5“ on page 210</p>	
<b>Digital position display DRO 5</b> incl. 3 magnetic sensors	3383975
<b>Magnetic strip</b> L: 1,100 mm	3383978
<b>Factory assembly</b>	9000420

(1) Explanation see „General notes on operating our machines“ on page 211

## Leading spindle lathes with feed gear for demanding users.

TU 2506V with brushless motor for continuously variable speed control

### Facts that impress in terms of quality, performance and price

- ▶ Precision workmanship
- ▶ Powerful motor, low-maintenance motor
- ▶ Ribbed grey cast steel prism bed with strong ribbing, induction tempered and precision ground
- ▶ Tempered and polished z-axis guideway
- ▶ Guaranteed concentricity of spindle nose better than 0.009 mm
- ▶ Concentricity at chuck better than 0.04 mm
- ▶ Automatic longitudinal/leading spindle drive
- ▶ Leading spindle for thread tapping or automatic longitudinal turning
- ▶ Clockwise/Anti-clockwise rotation switchable via control panel
- ▶ Leading spindle borne on two sintered bearings
- ▶ Handwheels on slide with adjustable fine scaling 0.04 / 0.01 mm
- ▶ Set of interchangeable gears in standard scope of delivery for thread tapping

- ▶ Thrust bearings
- ▶ Emergency stop button
- ▶ Three-jaw lathe chuck included in standard scope of delivery
- ▶ Fully equipped; the user can immediately start productive work after commissioning

### TU 2506 V

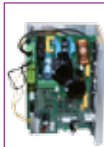
Smooth action and powerful DC drive with excellent control characteristics

- ▶ High-precision steel chuck for higher speeds
- ▶ Speed change easily adjustable via potentiometer
- ▶ Digital speed display

### TU 2506V

#### Powerful brushless drive

- Particularly smooth action
- Virtually constant torque over the entire speed range
- Extremely powerful



### Slide

- Four x tool holder
- All guides adjustable without play using wedge rails
- Roll-milled trapezoidal spindles
- Chip guard on top slide
- Milling machine BF 20V attachable
- Top slide displaceable on cross slide

### Tailstock

- Adjustable  $\pm 5$  mm for turning balls
- Tailstock spindle sleeve and hand-wheel with adjustable fine scaling 0.02 mm
- Fast, easy adjustment without tools thanks to clamping lever

### Main spindle

- Tempered and borne on adjustable precision taper roller bearings
- Two tapered roller bearings in P5 quality
- Short taper
- Tempered spindle nose with  $\varnothing 26$  mm spindle bore

### Feed gear

- Easy action
- Rounded gearwheels
- Running in oil bath

### Accessories

#### Machine chassis

Art no. 3440409

#### Vibration damper base SE 1

(6 pcs. required)

Art no. 3381012



Fig.: TU 2506V

Fig.: TU 2506

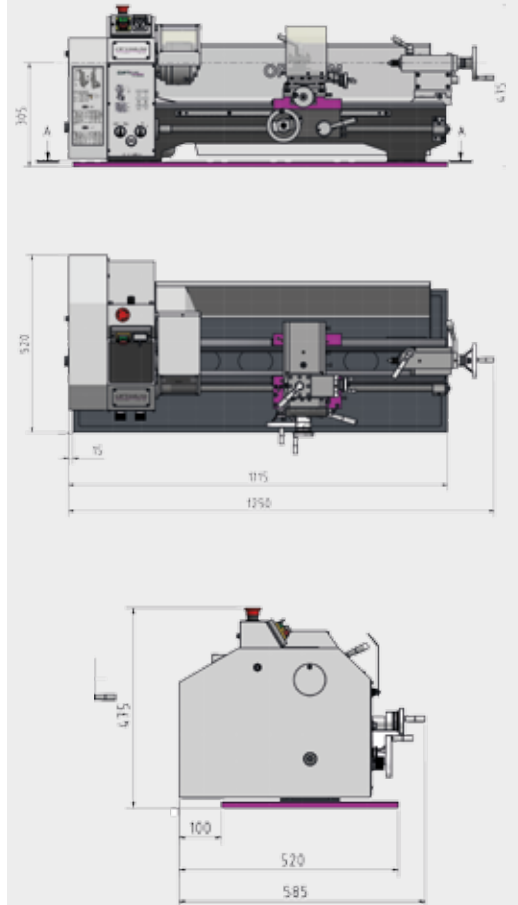
## Technical specifications, accessories and dimensions

Model	TU 2506	TU 2506V
Article no. (230 V)	3425001	3425006
Article no. (400 V)	3425003	
Technical specifications		
Electrical connection	230 V / 1 Ph ~ 50 Hz 400 V / 3 Ph ~50 Hz	230 V / 1 Ph ~50 Hz
Spindle		
Drive motor	750 W	1.5 kW
Spindle taper	MT 4	
Spindle bore	Ø 26 mm	
Spindle holder	Short taper	
Four x tool holder mounting height	max. 13 mm	
Work area		
Max. height	125 mm	
Max. width	550 mm	
Orbit Ø above machine bed	250 mm <sup>(1)</sup>	
Bed width	135 mm	
Speed range		
Spindle speed	125 - 2,000 rpm	30 - 4,000 rpm
Number of gears	6 gears	4 gears Electronically controlled
Strokes		
Top slide stroke	70 mm	
Cross slide stroke	110 mm	
Feeds and pitches		
Longitudinal feed within the range	0.07 - 0.4 mm/rev (6 feeds)	
Pitch - metric in range	0.2 - 4 mm/rev (21 pitches)	
Pitch - inch in range	56 - 8 turns/inch (21 pitches)	
Tailstock		
Tailstock chuck	MT 2	
Tailstock - quill stroke	65 mm	
Dimensions		
Length x width x height TU 2506	1,250 x 585 x 475 mm	
Length x width x height TU 2506	1,250 x 650 x 420 mm	
Net weight	125 kg	

Accessories	Art no.
<b>► Lathe chucks and accessories</b>	
<b>Four-jaw lathe chuck</b> Ø 125 mm, individual clamping (Chuck flange 3441312 required)	3442874
<b>Four-jaw lathe chuck</b> Ø 125 mm, centre clamping (Chuck flange 3441312 required)	3442812
<b>Chuck flange</b> lathe chuck Ø 125 mm (lathe chuck 3442874/3442812)	3441312
<b>Planar clamping disc</b> Ø 240 mm	3441352
<b>► Steady rests</b>	
<b>Fixed steady</b> passageway max. Ø 50 mm	3441315
<b>Travelling steady</b> passageway max. Ø 34 mm	3441310
<b>► Tool holders and lathe tools</b>	
<b>Quick change tool holder</b> SWH 1-A	3384301
<b>Factory assembly</b> SWH 1-A	9000401
<b>Spare tool holder</b> 20 x 90 type D for square chisels	3384302
<b>Spare tool holder</b> 20 x 85 type H for round chisels	3384321
<b>Lathe tool set</b> 10 mm, 11-part	3441602
<b>Lathe tool set</b> 12 mm, 11-part	3441603
<b>Lathe tool set</b> 12 mm, 5-part "Made in Germany"	3441212
<b>► Spring collets</b>	
<b>Spring collet set</b> ER 32, 3 - 20 mm	3441122
<b>Collet chuck</b> ER 32, short taper	3441306
<b>► More „Accessories Turning“ on page 148</b>	

(1) Explanation see „General notes on operating our machines“ on page 211

### Dimensions



### Scope of Delivery

- Three-jaw lathe chuck Ø 125 mm, centre clamping
- Fixed centre MT 2 and MT 4
- Splashguard
- Chip tray
- HSS lathe tools
- Four x tool holder
- Set of interchangeable gears
- Operating tool

Accessories	Art no.
<b>► Attaching a milling machine extension to the lathe</b>	
<b>BF 20AV</b> - Column and milling head from BF 20 Vario	3338129
<b>Attachment adapter</b> BF 20AV to lathe	3356572
<b>Attachment adapter</b> for column and milling head BF 16Vario	3356568

## Leading spindle lathes with feed gear for demanding users.

TU 2807V with brushless motor for continuously variable speed control

### Facts that impress in terms of quality, performance and price

- ▶ Precision workmanship
- ▶ Powerful motor, low-maintenance motor
- ▶ Ribbed grey cast steel prism bed with strong ribbing, induction tempered and precision ground
- ▶ Tempered and polished z-axis guideway
- ▶ Guaranteed concentricity of spindle nose better than 0.009 mm
- ▶ Concentricity at chuck better than 0.04 mm
- ▶ Automatic longitudinal/leading spindle drive
- ▶ Leading spindle for thread tapping or automatic longitudinal turning
- ▶ Clockwise/Anti-clockwise rotation switchable via control panel
- ▶ Leading spindle borne on two sintered bearings
- ▶ Set of interchangeable gears in standard scope of delivery for thread tapping

- ▶ Handwheels on slide with adjustable fine scaling 0.04 / 0.01 mm
- ▶ Thrust bearings
- ▶ Three-jaw lathe chuck included in standard scope of delivery
- ▶ Emergency stop button
- ▶ Fully equipped; the user can immediately start productive work after commissioning

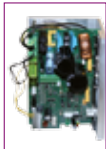
### TU 2807V

- ▶ Smooth action, powerful, brushless DC drive with excellent control characteristics
- ▶ High-precision steel chuck for higher speeds
- ▶ Speed change easily adjustable via potentiometer
- ▶ Digital speed display

### TU 2807V

#### Powerful brushless drive

- Particularly smooth action
- Virtually constant torque over the entire speed range
- Extremely powerful



### Slide

- Four x tool holder
- All guides adjustable without play using wedge rails
- Roll-milled trapezoidal spindles
- Chip guard on top slide
- Milling machine BF 20V attachable
- Top slide displaceable on cross slide

### Tailstock

- Adjustable  $\pm 5$  mm for turning balls
- Tailstock spindle sleeve and hand-wheel with adjustable fine scaling 0.02 mm
- Fast, easy adjustment without tools thanks to clamping lever

### Main spindle

- Tempered and borne on adjustable precision taper roller bearings
- Two tapered roller bearings in P5 quality
- Short taper
- Tempered spindle nose with  $\varnothing 26$  mm spindle bore

### Feed gear

- Easy action
- Rounded gearwheels
- Running in oil bath

### Accessories

#### Machine chassis

Art no. 3440409

#### Vibration damper base SE 1

(6 pcs. required)

Art no. 3381012



Fig.: TU 2807V

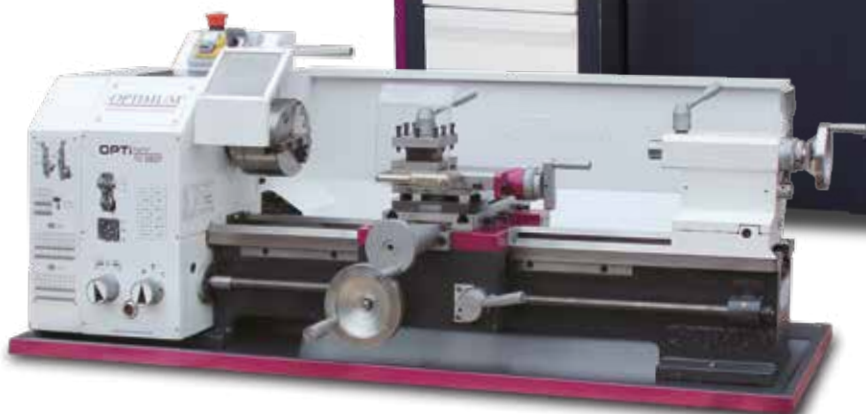


Fig.: TU 2807



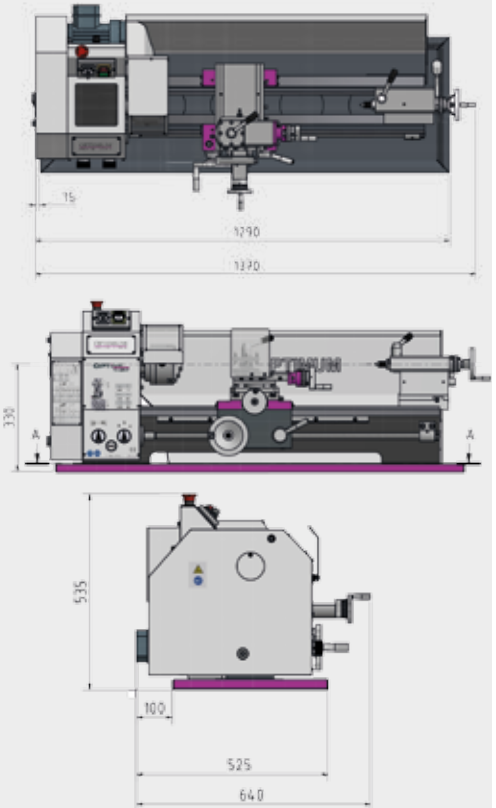
## Technical specifications, accessories and dimensions

Model	TU 2807	TU 2807V
Article no. (230 V)	3427001	3427006
Article no. (400 V)	3427003	
Technical specifications		
Electrical connection	230 V / 1 Ph ~ 50 Hz 400 V / 3 Ph ~50 Hz	230 V / 1 Ph ~50 Hz
Spindle		
Drive motor	850 W	1.5 kW
Spindle taper	MT 4	
Spindle bore	Ø 26 mm	
Spindle holder	Short taper	
Four x tool holder. Chuck height	max. 13.5 mm	
Work area		
Max. height	140 mm	
Max. width	700 mm	
Orbit Ø above machine bed	266 mm <sup>(1)</sup>	
Bed width	180 mm	
Speed range		
Spindle speed	125 - 2,000 rpm	30 - 4,000 rpm
Number of gears	6 gears	4 gears elec. control
Strokes		
Top slide stroke	60 mm	
Cross slide stroke	160 mm	
Feeds and pitches		
Longitudinal feed within the range	0.07 - 0.4 mm/rev (6 feeds)	
Pitch - metric in range	0.2 - 3.5 mm/rev (18 pitches)	
Pitch - inch in range	56 - 8 turns/inch (21 pitches)	
Tailstock		
Tailstock chuck	MT 2	
Tailstock - quill stroke	85 mm	
Dimensions		
Length x width x height	1,370 x 640 x 535 mm	1,370 x 660 x 440 mm
Net weight	180 kg	

Accessories	Art no.
<b>► Lathe chucks and accessories</b>	
<b>Four-jaw lathe chuck</b> Ø 125 mm, individual clamping (Chuck flange 3441312 required)	3442874
<b>Four-jaw lathe chuck</b> Ø 125 mm, centre clamping (Chuck flange 3441312 required)	3442812
<b>Chuck flange</b> for lathe chuck Ø 125 mm (3442874/3442812)	3441312
<b>Three-jaw lathe chuck</b> Ø 160 mm, centre clamping (Chuck flange 3441413 required)	3442716
<b>Four-jaw lathe chuck</b> Ø 160 mm, centre clamping (Chuck flange 3441413 required)	3442816
<b>Chuck flange</b> for lathe chuck Ø 160 mm (3442716/3442816)	3441413
<b>► Steady rests</b>	
<b>Fixed steady</b> passageway max. Ø 55 mm	3441415
<b>Travelling steady</b> passageway max. Ø 56 mm	3441410
<b>► Tool holders and lathe tools</b>	
<b>Quick change tool holder</b> SWH 1-A	3384301
<b>Factory assembly</b> SWH 1-A	9000401
<b>Spare tool holder</b> 20 x 90 type D for square chisels	3384302
<b>Spare tool holder</b> 20 x 85 type H for round chisels	3384321
<b>Lathe tool set</b> 10 mm, 11-part	3441602
<b>Lathe tool set</b> 12 mm, 11-part	3441603
<b>Lathe tool set</b> 12 mm, 5-part "Made in Germany"	3441212
<b>► Spring collets</b>	
<b>Spring collet set</b> ER 32, 3 - 20 mm	3441122
<b>Collet chuck</b> ER 32, short taper	3441306
<b>► More „Accessories Turning“ on page 148</b>	

(1) Explanation see „General notes on operating our machines“ on page 211

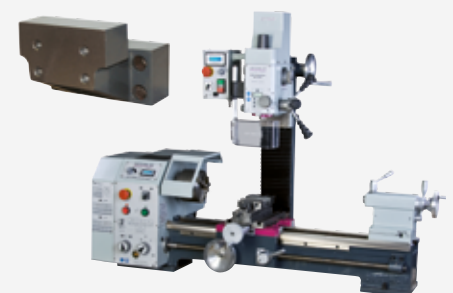
### Dimensions



### Scope of Delivery

- Three-jaw lathe chuck Ø 125 mm, centre clamping
- Fixed centre MT 2 and MT 4
- Splashguard
- Chip tray
- HSS lathe tools
- Quadruplicate tool holder 13.5 mm
- Set of interchangeable gears
- Operating tool

Accessories	Article no.
<b>► Attaching a milling machine to the lathe</b>	
<b>BF 20AV</b> - Column and milling head from BF 20 Vario	3338129
<b>Attachment adapter</b> BF 20AV to lathe	3356572





## Leading and feed spindle lathes with longitudinal and cross feed.

TU 3008G with gearbox.

TU 3008V with brushless motor for continuously variable speed control

### Facts that impress in terms of quality, performance and price

- ▶ Precision workmanship
- ▶ Large spindle bore Ø 36 mm
- ▶ Ribbed grey cast steel prism bed with strong ribbing, induction tempered and precision ground
- ▶ Tempered and polished z-axis guideway
- ▶ Guaranteed concentricity of spindle nose better than 0.009 mm
- ▶ Concentricity at chuck better than 0.04 mm
- ▶ Clockwise/Anti-clockwise rotation switchable via control panel
- ▶ Leading spindle for thread tapping or automatic longitudinal turning
- ▶ Leading and feed spindles borne on two sintered bearings
- ▶ Automatic longitudinal/cross feeds
- ▶ Feed and lead spindle cover
- ▶ Handwheels on slide with adjustable fine scaling 0.04 / 0.01 mm
- ▶ Set of interchangeable gears in standard scope of delivery for thread tapping
- ▶ Emergency stop button
- ▶ Three-jaw lathe chuck included in standard scope of delivery

#### TU 3008

- ▶ V-belt

#### TU 3008V

- ▶ Gearbox

#### TU 3008V

- ▶ V-belt and brushless drive
- ▶ Smooth action, powerful, brushless DC drive with excellent control characteristics
- ▶ High-precision steel chuck for higher speeds
- ▶ Digital speed display

#### TU 3008V

##### Powerful brushless drive

- Particularly smooth action
- Virtually constant torque over the entire speed range
- Extremely powerful



#### Main spindle

- Tempered and borne on adjustable precision taper roller bearings

#### Feed gear

- Easy action
- Rounded gearwheels
- Running in oil bath



- Prepared for mounting of measuring system on X, Z and Z0 axis

#### Slide

- Four x tool holder
- All guides adjustable without play using wedge rails
- Chip guard on top slide

#### Tailstock

- Adjustable for turning balls
- Tailstock spindle sleeve and handwheel with adjustable fine scaling 0.02 mm
- Fast, easy adjustment without tools thanks to clamping lever

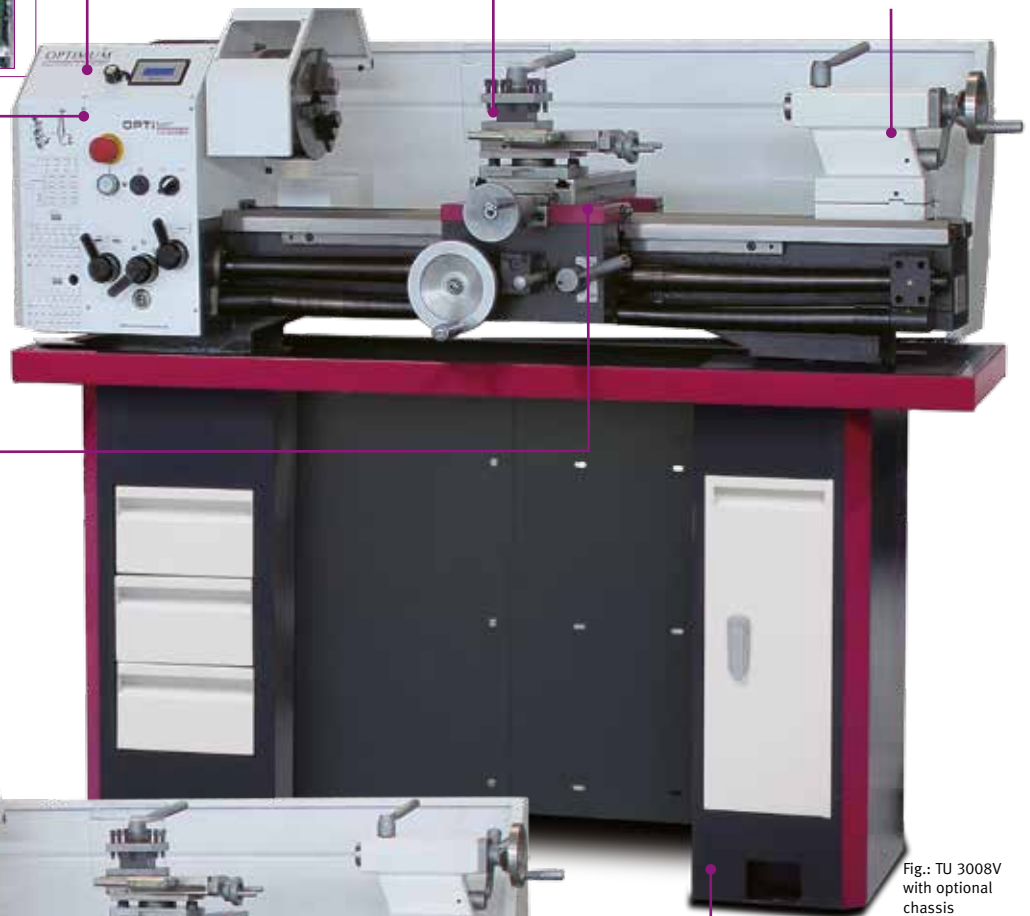


Fig.: TU 3008V with optional chassis



Fig.: TU 3008

#### Accessories

##### Machine chassis

Art no. 3440409

##### Vibration damper base SE 1

(6 pcs. required)

Art no. 3381012

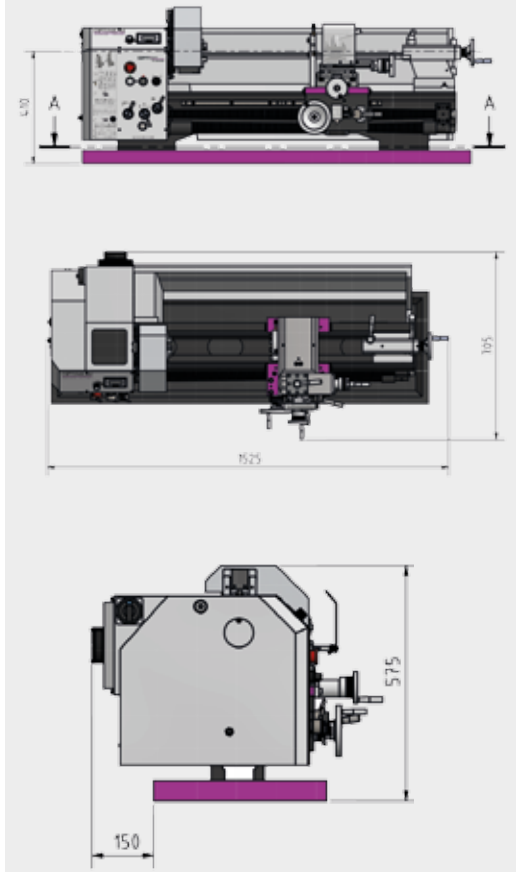
## Technical specifications, accessories and dimensions



Model	TU 3008	TU 3008G	TU 3008V
Article no.	3427200	3427210	3427205
Technical specifications			
Electrical connection ~50 Hz	400 V / 3 Ph		230 V / 1 Ph
Spindle			
Drive motor	1.1 kW	1.5 kW	
Spindle taper	MT 5		
Spindle holder	Camlock DIN ISO 702-2 No. 4		
Spindle bore, bar passage diameter	Ø 38 mm		
Four x tool holder mounting height	25 mm		
Work area			
Max. height	158 mm		
Max. width	800 mm	720 mm	800 mm
Orbit Ø above machine bed	310 mm <sup>(1)</sup>		
Orbit Ø above cross slide	190 mm		
Bed width	180 mm		
Speed range			
Spindle speed TU 3008	150 - 2,000 rpm / 6 speeds		
Spindle speed TU 3008G	150 - 2,000 rpm / 6 speeds		
Spindle speed TU 3008V	30 - 3,000 rpm 5 speeds, electronically controlled		
Strokes			
Top slide stroke	65 mm		
Cross slide stroke	150 mm		
Feeds and pitches			
Longitudinal feed within the range	0.085 - 0.832 mm/rev (9 feeds)		
Cross feed within	0.01 - 0.1 mm/rev (9 feeds)		
Pitch - metric in range	0.2 - 3.5 mm/rev (18 pitches)		
Pitch - inch in range	56 - 8 turns/inch (21 pitches)		
Tailstock			
Tailstock chuck	MT 3		
Tailstock quill diameter [mm]	Ø 38 mm		
Tailstock - quill stroke	70 mm		
Dimensions			
Length x width x height	1,525 x 705 x 575 mm		
weight	226 kg	260 kg	243 kg

Accessories	Article no.
<b>► lathe chuck</b>	
<b>OPTIMUM Four-jaw lathe chuck</b> Ø 160 mm no. 4, centric clamping	3442840
<b>BISON Four-jaw lathe chuck</b> Ø 160 mm no. 4, centric clamping	3450355
<b>► Steady</b>	
<b>Travelling steady</b> passageway max. Ø 6 - 60 mm	3441460
<b>Fixed steady</b> passageway Ø 6 - 60 mm	3441461
<b>► Tool holders and lathe tools</b>	
<b>Quick change tool holder</b> SWH 1-A	3384301
<b>Factory assembly</b> SWH 1-A	9000400
<b>Spare tool holder</b> 20 x 90 type D for square chisels	3384302
<b>Spare tool holder</b> 20 x 85 type H for round chisels	3384321
<b>Lathe tool set</b> 16 mm, 11-part	3441604
<b>Lathe tool set</b> 16 mm, 5-part	3441668
<b>Lathe tool set</b> 16 mm, 5-part	3441610
<b>Lathe tool set</b> 16 mm, 5-part "Made in Germany"	3441216
Information on „Lathe tool set“ on page 152	
<b>► Spring collets</b>	
<b>Spring collet set</b> 3 - 25 mm, 5C, 17-part	3441509
<b>Collet chuck</b> 5C - Camlock no. 4	3441554
<b>► More „Accessories Turning“ on page 148</b>	

### Dimensions



### Scope of Delivery

- Three-jaw lathe chuck Ø 160 mm, centre clamping
- Fixed centre MT 3 and MT 5
- Splashguard
- Chip tray
- Quadruplicate tool holder 25 mm
- Set of interchangeable gears
- Operating tool

Accessories	Article no.
<div>Information: „DRO 5“ on page 210</div> 	
<b>Digital position display DRO 5</b> incl. 3 magnetic sensors	3383975
<b>Magnetic strip</b> L: 1,100 mm	3383978
<b>Assembly kit</b>	3383985
Includes:	
• Holders for the X / Y and Z0 axis	
• Screw set	
<b>Factory assembly</b>	9000420

(1) Explanation see „General notes on operating our machines“ on page 211

## Fully equipped leading and feed spindle lathes.

TH 3309D with digital position display DPA 21, TH 3309V with brushless motor for continuous speed control and digital position display DPA 21

### Facts that impress in terms of quality, performance and price

- ▶ Tempered and polished z-axis guideway
- ▶ Spindle collet Camlock DIN ISO 702-2 no. 4
- ▶ Guaranteed concentricity of spindle nose better than 0.015 mm
- ▶ Motor circuit breaker (TH 3309 / TH 3309D)
- ▶ DC 24-Volt electric system with two-channel safety circuit as per EN 23125
- ▶ Lockable main switch
- ▶ Clockwise/anti-clockwise rotation switchable on bed slide
- ▶ Leading spindle cover
- ▶ Machine chassis and tool compartment on right-hand side
- ▶ Safety hand wheels with release function in the X and Z axis
- ▶ Emergency stop device with foot pedal

#### Control cabinet

- 24 Volt DC adapter
- All contactors and relays by Siemens or Schneider - TH 3309V by Eaton



#### Slide

- Precise workmanship
- Hand wheels with adjustable fine scaling 0.04 / 0.02 mm
- Four x tool holder
- All guides adjustable using wedge rails
- Adjustment range top slide  $\pm 90^\circ$

### TH 3309D / TH 3309V

#### Digital position display DPA 21

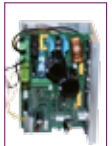
- › User-friendly membrane keyboard, splash water protected, sealed and dazzle free
- › Clear reduction of manufacturing times
- › Greater operation accuracy
- › Reduction of error quota
- › X, Z0, Z axis each with 8-digit display
- › Clear-cut keyboard layout
- › Glass scales

### TH 3309V

- ▶ Smooth action and powerful brushless drive
- ▶ Speed change easily adjustable via potentiometer

#### TH 3309V: Powerful brushless drive

- Particularly smooth action
- Virtually constant torque over the entire speed range
- High usable performance



#### Prism bed

- With pronounced ribbing
- Induction tempered
- Precision ground

### TH 3309D / TH 3309V

- Digital position display DPA 21

#### Main spindle

- Running in oil bath
- Gearwheels easy action, tempered and ground

#### Chuck protection

- tested in accordance with EN 23125

#### LED machine lamp

- Integrated into chip guard

#### Tailstock

- Adjustable  $\pm 10$  mm for turning balls
- Tailstock spindle sleeve and hand-wheel with adjustable fine scaling 0.025 mm

#### Hand wheels

- Decoupled
- tested in accordance with EN 23125

#### Switch

- With lifecycle calculation
- tested in accordance with EN ISO 13849

#### Chip tray

- Pulls out
- Guide rails

#### Machine chassis

- With 3 covers (no compartments)

#### Clockwise/anti-clockwise switch

- Two channel
- tested in accordance with EN 23125

#### Tool compartment

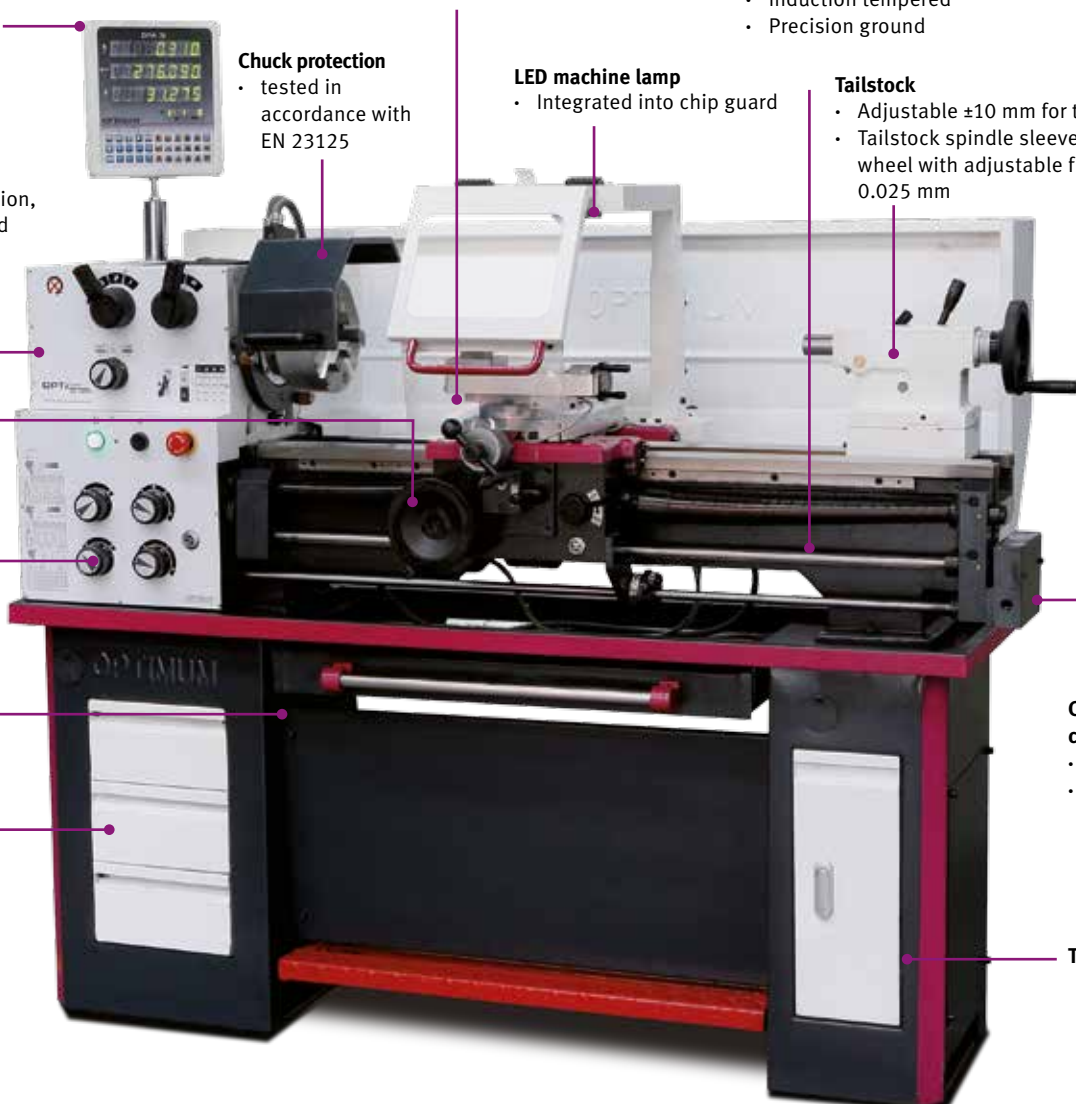


Fig.: TH 3309D - Shown with optional lathe chuck

## Technical specifications, accessories and dimensions

Model	TH 3309	TH 3309 D	TH 3309 V
Article no.	3402030	3402040	3402045
Technical specifications			
Electrical connection	400 V/3 Ph		230 V/1 Ph
Spindle			
Drive motor	1.5 kW		2.2 kW
Spindle taper	MT 5		
Spindle holder	Camlock DIN ISO 702-2 No. 4		
Spindle bore, bar passage diameter	Ø 38 mm		
Four x tool holder mounting height	16 mm		
Technical specifications			
Max. height	165 mm		
Max. width	830 mm		
Orbit Ø above machine bed	330 mm <sup>(1)</sup>		
Orbit Ø without bed bridge	448 mm		
Turning length in bed bridge	196 mm		
Speed range			
Spindle speed	70 - 2,000 rpm		15 - 2,250 rpm
Number of gears	16 speeds		8 speed, elec. controlled
Strokes			
Top/cross slide stroke	98 mm / 164 mm		
Feeds and pitches			
Longitudinal feed within the range	0.052 - 1.392 mm/rev (32 feeds)		
Cross feed within	0.014 - 0.38 mm/rev (32 feeds)		
Pitch - metric in range	0.4 - 7 mm/rev (26 pitches)		
Pitch - inch in range	56 - 4 turns/inch (34 pitches)		
Tailstock			
Tailstock chuck	MT 3		
Tailstock spindle sleeve diameter/ stroke	Ø 32 mm/110 mm		
Dimensions			
Length x width x height	1,685 x 745 x 1,320 / 1,590 mm		
Net weight	430 kg		
Transport packaging flat rate**	TPFR 2		

Accessories	Art no.
<b>► lathe chuck</b>	
OPTIMUM three-jaw lathe chuck Ø 160 mm no. 4, centric	3442761
OPTIMUM three-jaw lathe chuck Ø 200 mm no. 4, centric	3442762
OPTIMUM Four-jaw lathe chuck Ø 160 mm no. 4, centric	3442840
OPTIMUM Four-jaw lathe chuck Ø 200 mm no. 4, centric	3442843
OPTIMUM Four-jaw lathe chuck Ø 200 mm no. 4, individual	3442879
BISON three-jaw lathe chuck Ø 160 mm no. 4, centric	3450305
BISON three-jaw lathe chuck Ø 200 mm no. 4, centric	3450310
BISON Four-jaw lathe chuck Ø 160 mm no. 4, centric	3450355
BISON Four-jaw lathe chuck Ø 200 mm no. 4, centric	3450360
<b>► Tool holders and lathe tools</b>	
Quick change tool holder SWH 3-E	3384303
Factory assembly SWH 3-E	9000400
Spare tool holder 20 x 100 type D for square chisels	3384304
Spare tool holder 30 x 100 type H for round chisels	3384322
Lathe tool set 16 mm, 5-part "Made in Germany"	3441216
Lathe tool set 16 mm, 5-part	3441610
<b>► Accessories</b>	
Collet chuck 5C	3441554
Spring collet set 3 - 25 mm 5C, 17 kg	3441509
Position stop with granular adjustment	3441522
Vibration-damping machine base SE2 (6 pcs. required)	3381016
<b>► More „Accessories Turning“ on page 148</b>	

\*\* PTO for an explanation of the packaging surcharges; details of TPFR plus VAT.  
(1) Explanation see „General notes on operating our machines“ on page 211

### Dimensions

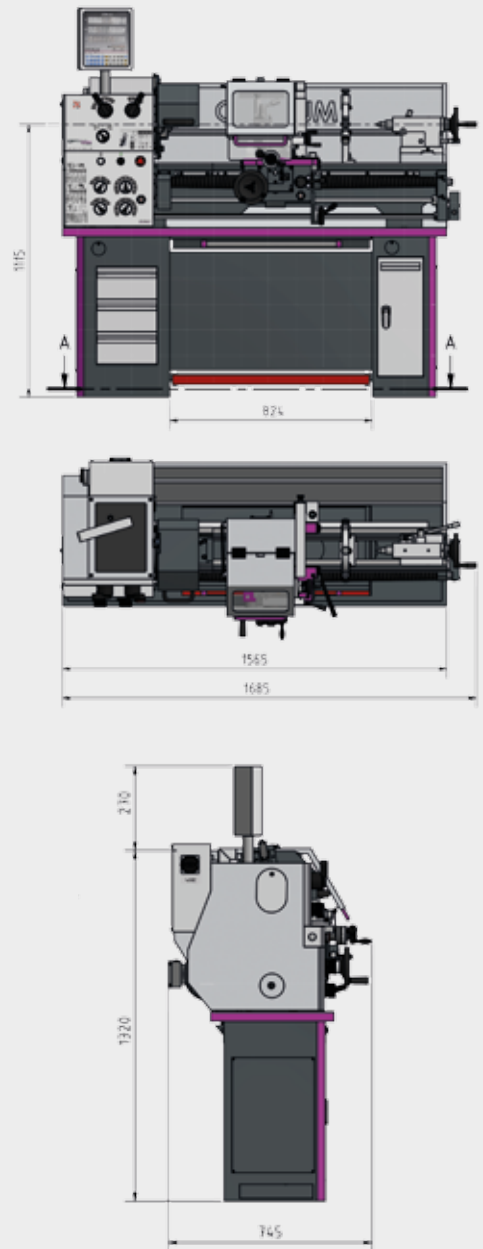


Fig.: TH 3309D

**Remember to order  
a lathe chuck**

### Scope of Delivery

- Fixed steady passageway Ø 19 - 70 mm
- Travelling steady passageway Ø 16 - 50 mm
- LED machine lamp
- Reduction sleeve MT 5 - MT 3
- Two fixed centres MT 3
- Quadruplicate tool holder 16 mm
- Set of interchangeable gears
- Machine chassis
- Machine initially filled with premium grade oil
- Operating tool



## Fully equipped lathes for mechanics.

### TH 3610D with DPA 21 digital position display

#### Facts that impress in terms of quality, performance and price

- ▶ Tempered and polished z-axis guideway
- ▶ Spindle collet Camlock DIN ISO 702-2 no. 5
- ▶ Guaranteed concentricity of spindle nose better than 0.015 mm
- ▶ Gears and shafts tempered and ground, running in oil bath on precision bearings
- ▶ Motor circuit breaker, lockable main switch
- ▶ Clockwise/anti-clockwise rotation switchable on bed slide
- ▶ Leading spindle cover
- ▶ Machine chassis with tool compartments
- ▶ Emergency stop device with foot pedal
- ▶ Safety hand wheels with release function in the X and Z axis

#### TH 3610D

##### Digital position display DPA 21

- › User-friendly membrane keyboard, splash water protected, sealed and dazzle free
- › Greater operation accuracy
- › Reduction of error quota
- › X, Z, Z axis each with 8-digit display
- › Glass scales

#### Main spindle

- Running in oil bath
- Gearwheels easy action, tempered and ground

#### Slide

- Precise workmanship
- Hand wheels with adjustable fine scaling 0.04 / 0.02 mm
- Four x tool holder
- All guides adjustable using wedge rails
- Adjustment range top slide  $\pm 90^\circ$

#### TH 3610D

- Digital position display DPA 21

#### Switch

- With lifecycle calculation
- tested in accordance with EN ISO 13849

#### Hand wheels

- Decoupled
- tested in accordance with EN 23125

#### LED machine lamp

- Integrated into chip guard

#### Prism bed

- With pronounced ribbing
- Grey cast iron
- Induction tempered and precision ground

#### Tailstock

- Adjustable  $\pm 10$  mm for turning balls
- Tailstock spindle sleeve and handwheel with adjustable fine scaling 0.025 mm

#### Clockwise/anticlockwise switch

- Two channel
- tested in accordance with EN 23125

#### Control cabinet

- 24 Volt DC adapter
- All contactors and relays by Siemens or Schneider



#### Chip tray

- Pulls out
- Guide rails

#### Machine chassis

- Tool compartments on both sides



Fig.: TH 3610D - Shown with optional lathe chuck



## Technical specifications, accessories and dimensions

Model	TH 3610	TH 3610D
article no.	3402050	3402060
Technical specifications		
Electrical connection	400 V / 3 Ph ~50 Hz	
Spindle		
Drive motor	1.5 kW	
Spindle taper	MT 6	
Spindle holder	Camlock DIN ISO 702-2 No. 5	
Spindle bore, bar passage diameter	Ø 52 mm	
Four x tool holder mounting height	max. 16 mm	
Work area		
Max. height	180 mm	
Max. width	980 mm	
Orbit Ø above machine bed	356 mm <sup>(1)</sup>	
Orbit Ø in the bed bridge	516 mm	
Turning length in bed bridge	160 mm	
Bed width	187 mm	
Speed range		
Spindle speed	70 - 2,000 rpm	
Number of gears	8 gears	
Strokes		
Top slide stroke	100 mm	
Cross slide stroke	170 mm	
Feeds and pitches		
Longitudinal feed within the range	0.052 - 1.392 mm/rev (32 feeds)	
Cross feed within	0.014 - 0.38 mm/rev (32 feeds)	
Pitch - metric in range	0.4 - 7 mm/rev (26 pitches)	
Pitch - inch in range	56 - 4 turns/inch (34 pitches)	
Tailstock		
Tailstock chuck	MT 3	
Tailstock spindle sleeve diameter / stroke	Ø 42 mm / 120 mm	
Dimensions		
Length x width x height	1,930 x 725 x 1,350 / 1,620 mm	
Net weight	610 kg	
Transport packaging flat rate**	TPFR 2	

Accessories	Art no.
<b>► lathe chuck</b>	
<b>OPTIMUM Four-jaw lathe chuck</b> Ø 200 mm no. 5, centric	3442845
<b>OPTIMUM Four-jaw lathe chuck</b> Ø 200 mm no. 5, individual	3442880
<b>BISON three-jaw lathe chuck</b> Ø 200 mm no. 5, centric	3450315
<b>BISON Four-jaw lathe chuck</b> Ø 200 mm no. 5, centric	3450365
<b>► Tool holders and lathe tools</b>	
<b>Quick change tool holder</b> SWH 3-E	3384303
<b>Factory assembly</b> SWH 3-E	9000400
<b>Spare tool holder</b> 20 x 100 type D for square chisels	3384304
<b>Spare tool holder</b> 30 x 100 type H for round chisels	3384322
<b>Lathe tool set</b> 16 mm, 11-part	3441604
<b>Lathe tool set</b> 16 mm, 5-part	3441668
<b>Lathe tool set</b> 16 mm, 5-part "Made in Germany"	3441216
<b>Lathe tool set</b> 16 mm, 5-part	3441610
Information on „Lathe tool set“ on page 152	
<b>► Accessories</b>	
<b>Collet chuck</b> 5C	3441555
<b>Spring collet set</b> 3 - 25 mm, 5C, 17-part	3441509
<b>Vibration-damping machine base</b> SE 2 (6 pcs. required)	3381016
<b>Position stop</b> with granular adjustment	3441523
<b>► More „Accessories Turning“ on page 148</b>	

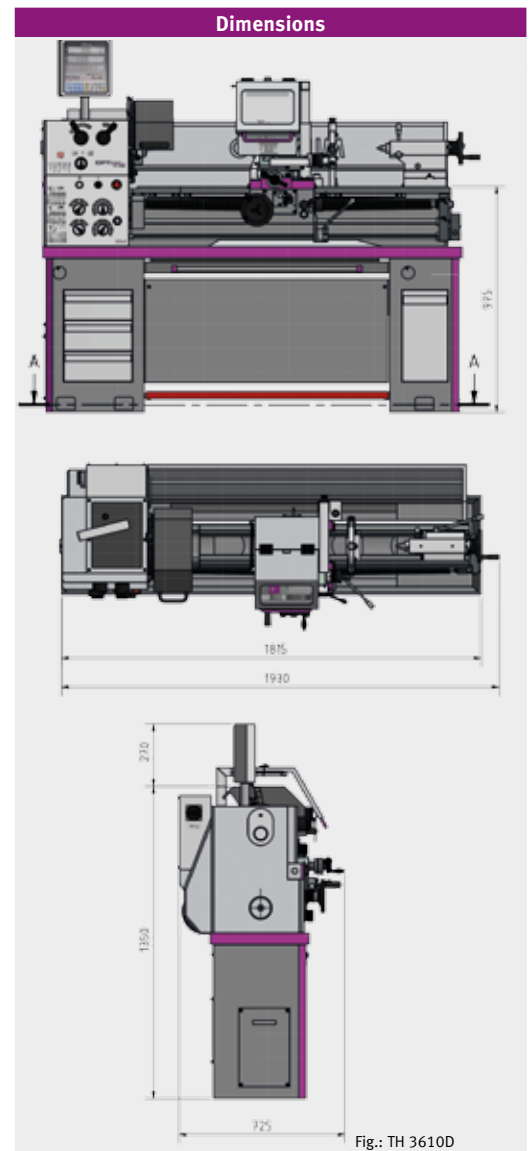


Fig.: TH 3610D

**Remember to order  
a lathe chuck**

Scope of Delivery
• Fixed steady passageway max. Ø 100 mm
• Travelling steady passageway max. Ø 95 mm
• LED machine lamp
• Reduction sleeve MT 6 - MT 3
• Two fixed centres MT 3
• Four x tool holder
• Set of interchangeable gears
• Machine chassis
• Machine initially filled with premium grade oil
• Operating tool

\*\* PTO for an explanation of the packaging surcharges; details of TPFR plus VAT.  
(1) Explanation see „General notes on operating our machines“ on page 211

## Fully equipped lathes for mechanics. Impressive precision and performance TH 4010D with digital position display DPA 21, TH 4010V additionally with Siemens inverter Vario drive

### Facts that impress in terms of quality, performance and price

- ▶ Tempered and polished z-axis guideway
- ▶ Spindle collet Camlock DIN ISO 702-2 no. 5
- ▶ Guaranteed concentricity of spindle nose better than 0.015 mm
- ▶ Gears and shafts tempered and ground, running in oil bath on precision bearings
- ▶ Motor circuit breaker (TH 4010 / TH 4010D)
- ▶ DC 24 Volt electrical system
- ▶ Lockable main switch
- ▶ Clockwise/anti-clockwise rotation switchable on bed slide
- ▶ Safety hand wheels with release function in the X and Z axis
- ▶ Emergency stop device with foot pedal
- ▶ Coolant system
- ▶ LED machine lamp in chip guard

### Control cabinet

- 24 Volt DC adapter
- All contactors and relays by Siemens or Schneider - TH 4010V by Eaton



### TH 4010D / TH 4010V

- Digital position display DPA 21

### Slide

- Precise workmanship
- Hand wheels with adjustable fine scaling 0.04 / 0.02 mm
- All guides adjustable using wedge rails
- Adjustment range top slide  $\pm 90^\circ$

### Hand wheels

- Decoupled
- tested in accordance with EN 23125

### Prism bed

- With pronounced ribbing
- Grey cast iron
- Induction tempered and precision-ground

### TH 4010V:

### Inverter SINAMICS G120D



More information:  
„Siemens frequency inverter  
SINAMICS G 120D“ auf Seite 144



### Tailstock

- Adjustable  $\pm 10$  mm for turning balls
- Tailstock spindle sleeve and hand-wheel with adjustable fine scaling 0.025 mm

### Clockwise/anticlockwise switch

- Two channel
- tested in accordance with EN 23125

### Main spindle

- Running in oil bath
- Gearwheels easy action, tempered and ground

### Switch

- With lifecycle calculation
- tested in accordance with EN ISO 13849

### Chip tray

- Pulls out
- Guide rails

### Machine chassis

- With 3 covers (no compartments)

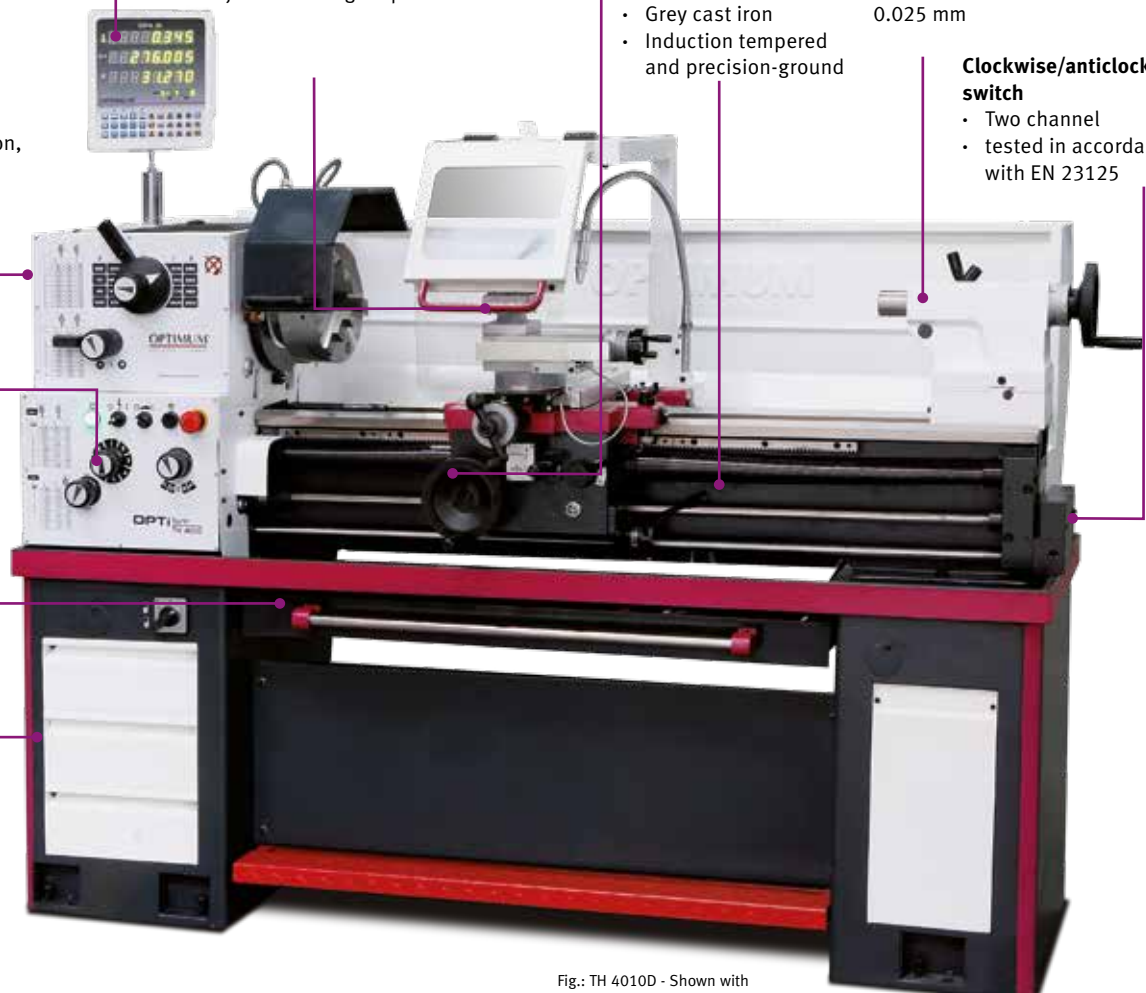


Fig.: TH 4010D - Shown with optional lathe chuck

## Technical specifications, accessories and dimensions

Model	TH 4010	TH 4010D	TH 4010V
article no.	3402070	3402080	3402085
Technical specifications			
Electrical connection	400 V / 3 Ph ~50 Hz		
Spindle			
Drive motor	1.5/2.4 kW	4 kW	
Spindle taper	MT 6		
Spindle holder	Camlock DIN ISO 702-2 No. 5		
Spindle bore, bar passage diameter	Ø 52 mm		
Four x tool holder mounting height	max. 16 mm		
Technical specifications			
Max. height	205 mm		
Max. width	1,000 mm		
Orbit Ø above machine bed	410 mm <sup>(1)</sup>		
Orbit Ø in the bed bridge	540 mm		
Turning length in bed bridge	165 mm		
Bed width	206 mm		
Speed range			
Spindle speed	45 - 1,800 rpm	30 - 3,000 rpm	
speeds	16 speeds	2 speeds; elec. control	
Strokes			
Top slide stroke	100 mm		
Cross slide stroke	195 mm		
Feeds and pitches			
Longitudinal feed within the range	0.043 - 0.653 mm/rev (48 feeds)		
Cross feed within	0.015 - 0.206 mm/rev (48 feeds)		
Pitch - metric in range	0.4 - 7 mm/rev (42 pitches)		
Pitch - inch in range	70 - 4 turns/inch (42 pitches)		
Tailstock			
Tailstock chuck	MT 3		
Tailstock spindle sleeve diameter/stroke	Ø 45 mm / 130 mm		
Dimensions			
Length x width x height	1,920 x 740 x 1,222 / 1,555 mm		
Net weight	775 kg	780 kg	
Transport packaging flat rate**	TPFR 2		

Accessories	Art no.
<b>► lathe chuck</b>	
OPTIMUM Four-jaw lathe chuck Ø 200 mm no. 5, centric	3442845
OPTIMUM Four-jaw lathe chuck Ø 200 mm no. 5, individual	3442880
BISON three-jaw lathe chuck Ø 200 mm no. 5, centric	3450315
BISON Four-jaw lathe chuck Ø 200 mm no. 5, centric	3450365
<b>► Tool holders and lathe tools</b>	
Quick change tool holder SWH 3-E	3384303
Factory assembly SWH 3-E	9000400
Spare tool holder 20 x 100 type D for square chisels	3384304
Spare tool holder 30 x 100 type H for round chisels	3384322
Lathe tool set 16 mm, 11-part	3441604
Lathe tool set 16 mm, 5-part	3441668
Lathe tool set 16 mm, 5-part "Made in Germany"	3441216
Lathe tool set 16 mm, 5-part	3441610
Information on „Lathe tool set“ on page 152	
<b>► Accessories</b>	
Collet chuck 5C	3441555
Spring collet set 3 - 25 mm, 5C, 17-part	3441509
Vibration-damping machine base SE 2 (6 pcs. required)	3381016
<b>► More „Accessories Turning“ on page 148</b>	

\*\* PTO for an explanation of the packaging surcharges; details of TPFR plus VAT.  
(1) Explanation see „General notes on operating our machines“ on page 211

### Dimensions

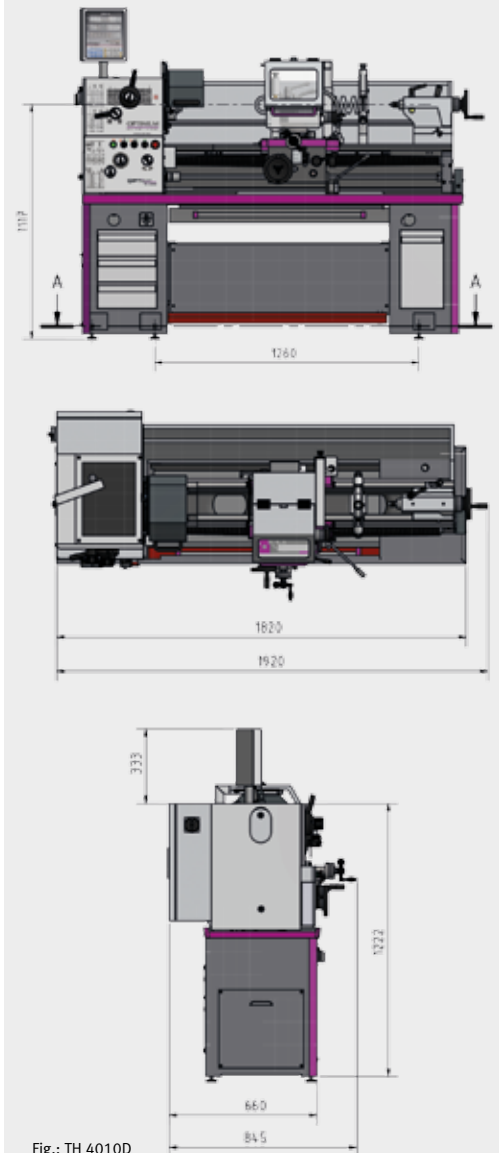


Fig.: TH 4010D

**Remember to order a lathe chuck**

### Scope of Delivery

- Fixed steady passageway Ø 5 - 85 mm
- Travelling steady passageway Ø 5 - 65 mm
- LED machine lamp
- Reduction sleeve MT 6 - MT 3
- Fixed centres MT 3
- Fixed centre MT 3, alloyed
- Travelling centre MT 3
- Position stop with granular adjustment
- Set of interchangeable gears
- Machine initially filled with premium grade oil
- Operating tool

### TH 4010 / TH 4010D

- Quadruplicate tool holder 16 mm

### TH 4010V

- Quick change tool holder 3-E
- Tool holder 20 x 100 type D for square chisels

## Precision leading and feed spindle machines, mature technology, fully equipped, easy to operate. TH 4210V featuring Siemens inverter Vario drive

### Facts that impress in terms of quality, performance and price

- ▶ Tempered and polished z-axis guideway
- ▶ Spindle collet Camlock DIN ISO 702-2 no. 6
- ▶ Coolant system
- ▶ Separate coolant tank with fill level display and oil trap; easy and complete draining and cleaning as per DIN
- ▶ Guaranteed concentricity of spindle nose better than 0.015 mm
- ▶ Main spindle runs in oil bath, tempered and ground borne on 2 adjustable precision taper roller bearings
- ▶ All metric pitches in range from 0.2 to 14 mm/rev and all inch pitches in range of 72 - 2 turns per inch configurable on control panel without replacing the interchangeable gear wheels thanks to gear shift
- ▶ Clockwise/anti-clockwise rotation switchable on bed slide, switchable via switching spindle
- ▶ Central lubrication in bed slide
- ▶ Chassis and machine bed single-piece cast meehanite
- ▶ Leading spindle cover
- ▶ Emergency stop device with foot pedal
- ▶ Safety hand wheels with release function in the X and Z axis
- ▶ Coolant system
- ▶ LED machine lamp in chip guard

### TH 4210D / TH 4215D/ TH 4210V:

#### Digital position display DPA21

- › User-friendly membrane keyboard, splash water protected, sealed and dazzle free
- › Greater operation accuracy
- › Reduction of error quota
- › X, Z0, Z axis each with 8-digit display
- › Sensor supplied for acquiring spindle speeds
- › Glass scales

### TH 4210V:

Siemens Sinamics frequency inverter / Safety Integrated

- ▶ Quick change tool holder 5-B
- ▶ Tool holder 20 x 100 type D for square chisels

### Control cabinet

- 24 Volt DC adapter
- All contactors and relays by Siemens or Schneider - TH 4210V by Eaton



### TH 4210V: Inverter SINAMICS G120D



More information:  
„Siemens frequency inverter  
SINAMICS G 120D“ auf Seite  
144



### Switch

- With lifecycle calculation
- tested in accordance with EN ISO 13849

### Slide

- Precise workmanship
- Hand wheels with adjustable fine scaling 0.04 / 0.02 mm
- All guides adjustable using wedge rails
- Adjustment range top slide  $\pm 90^\circ$

### Main spindle

- Running in oil bath
- Gearwheels easy action, tempered and ground

### Hand wheels

- Decoupled
- tested in accordance with EN 23125

### Prism bed

- With pronounced ribbing
- Grey cast iron
- Induction tempered and precision ground

### Tailstock

- Adjustable  $\pm 10$  mm for turning balls
- Tailstock spindle sleeve and hand-wheel with adjustable fine scaling 0.025 mm

### Clockwise/anticlockwise switch

- Two channel
- tested in accordance with EN 23125

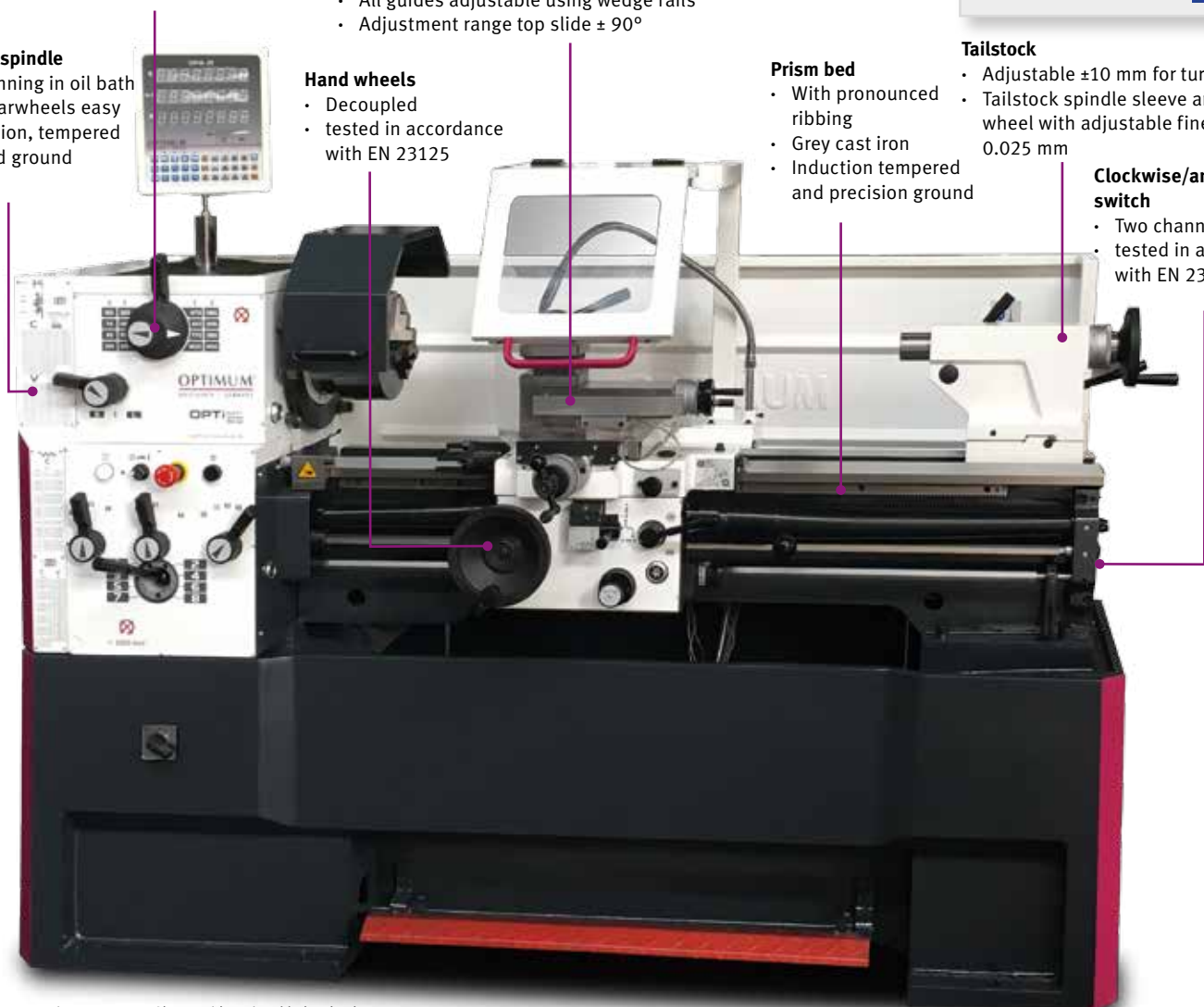
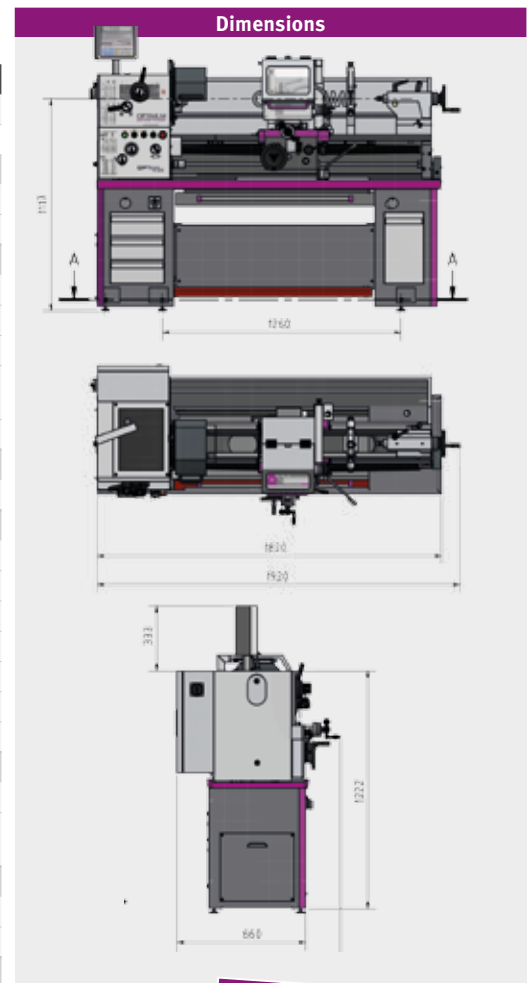


Fig.: TH 4210D - Shown with optional lathe chuck



## Technical specifications, accessories and dimensions

Model	TH 4210		
Article no.	3462050		
Model	TH 4210D	TH 4215D	TH 4210V
Article no.	3462055	3462070	3462060
Technical specifications			
Electrical connection	400 V / 3 Ph ~ 50 Hz		
Total connected load	4.6 kW	5.6 kW	
Spindle			
Drive motor	4.5 kW	5.5 kW	
Spindle taper	MT 6		
Spindle holder	Camlock DIN ISO 702-2 No. 6		
Spindle bore, bar passage diameter	Ø 52 mm		
Tool holder max. chuck height	20 mm	25 mm	
Cooling lubricant system			
Coolant pump output	100 W		
Work area			
Max. height	210 mm		
Max. width	1,000 mm	1,500 mm	1,000 mm
Orbit Ø above machine bed	420 mm <sup>(1)</sup>		
Orbit Ø above cross slide	250 mm		
Orbit Ø in the bed bridge	590 mm		
Turning length in bed bridge	260 mm		
Bed width	250 mm		
Speed range			
Spindle speed	45 - 1,800 rpm	30 - 3,000 rpm	
Number of gears	16 gears	2 speeds. elec. controlled	
Strokes			
Top slide stroke	140 mm		
Cross slide stroke	230 mm		
Feeds and pitches			
Longitudinal feed within the range	0.05 - 1.7 mm/rev (17 feeds)		
Cross feed within	0.025 - 0.85 mm/rev (17 feeds)		
Pitch - metric in range	0.2 - 14 mm/rev (39 pitches)		
Pitch - inch in range	72 - 2 turns/inch (45 pitches)		
Diametral pitch in range	8 - 44 (21 turns)		
Modular thread in range	0.3 - 3.5 mm/rev (18 thread)		
Tailstock			
Tailstock chuck	MT 4		
Tailstock diameter	Ø 50 mm		
Tailstock - quill stroke	120 mm		
Dimensions			
Length	2,025 mm	2,525 mm	2,025 mm
Width x height	915 x 1,375 (DPA 1,615) mm		
Net weight	1,160 kg	1,340 kg	1,160 kg
Transport packaging flat rate**	TPFR 4		



### Scope of Delivery

- Fixed steady passageway Ø 15 - 145 mm
- Travelling steady passageway Ø 10 - 75 mm
- LED machine lamp
- Reduction sleeve MT 6 - MT 4
- Fixed centre MT 4
- Set of interchangeable gears
- Position stop with granular adjustment
- Machine initially filled with premium grade oil
- Operating tool

### TH 4210 / TH 4210D / TH 4215D

- Quad tool holder max. 20 mm

### TH 4210V

- Quick change tool holder 5-B
- Tool holder 25 x 120 type D for square chisels

Lathe chuck	Art no.
► <b>OPTIMUM lathe chucks</b>	
Three-jaw lathe chuck Ø 250 mm no. 6, centric	3442765
Four-jaw lathe chuck Ø 250 mm no. 6, centric	3442852
Four-jaw lathe chuck Ø 250 mm no. 6, individual	3442884
► <b>BISON lathe chucks</b>	
Three-jaw lathe chuck Ø 250 mm no. 6, centric	3450330
Four-jaw lathe chuck Ø 250 mm no. 6, centric	3450380
Three-jaw lathe check Ø 250 mm no. 6, steel	3450530
Four-jaw lathe chuck Ø 250 mm no. 6, steel	3450580
► <b>More „Accessories Turning“ on page 148</b>	

Tool holders and accessories	Art no.
Quick change tool holder SWH 5-B	3384305
Factory assembly SWH 5-B	9000400
Spare tool holder 25 x 120 Type D for square	3384306
Spare tool holder 32 x 130 type H for round	3384324
Lathe tool set HM 25 mm, 5-part	3441623
Lathe tool set HM 25 mm, 5-part	3441672
Lathe tool set HM 20 mm, 5-part	3441670
Lathe tool set HM 20 mm, 5-part	3441617
► <b>Vibration-damping machine base</b>	
SE 2 (6 pcs. needed)	3381016

\*\* PTO for an explanation of the packaging surcharges; details of TPFR plus VAT.  
(1) Explanation see „General notes on operating our machines“ on page 211



**Precision leading and feed spindle lathes – unique in terms of precision and control. With DPA 21 digital position display and quick change tool holder.**  
TH 4615V featuring Siemens inverter Vario drive

## Facts that impress in terms of quality, performance and price

- ▶ Tempered and polished z-axis guideway
- ▶ Coolant system featuring separate coolant tank, fill level display and oil trap; easy and complete draining and cleaning as per DIN
- ▶ Guaranteed concentricity of spindle nose better than 0.015 mm
- ▶ Clockwise/anti-clockwise rotation switchable on bed slide, switchable via switching spindle
- ▶ Mechanical longitudinal feed switch-off of bed slide with four configurable eccentrics
- ▶ Leading spindle cover
- ▶ Emergency stop device with foot pedal
- ▶ Electrical system with Siemens components
- ▶ Safety hand wheels with release function in the X and Z axis
- ▶ Scale on thread gauge adjustable
- ▶ Central lubrication in bed slide
- ▶ Quick change tool holder SWH 5-B
- ▶ Tool holder 25 x 120 type D for square chisels

## Main spindle

- Tempered and ground
- Running in oil bath
- Borne on 2 adjustable precision taper roller bearings
- Gearwheels easy action, tempered and ground

## Quick shift feed gear

- Closed design
- Gearwheels and shafts tempered and ground
- Running in oil bath on precision bearings

## Switch

- With lifecycle calculation
- tested in accordance with EN ISO 13849

## Control cabinet

- 24 Volt DC adapter
- All contactors und relays by Siemens or Schneider - TH 4210V by Eaton



## Slide

- Precise workmanship
- Hand wheels with adjustable fine scaling 0.04 / 0.02 mm
- All guides adjustable using wedge rails
- Gears and shafts running in oil bath
- Adjustment range top slide  $\pm 90^\circ$

## Cable guidance

- Via energy chain (as of TH 4615)

## Chip guard

- Generously dimensioned
- Integrated LED machine lamp

## Tailstock

- Adjustable  $\pm 15$  mm for turning balls
- Tailstock spindle sleeve and hand-wheel with adjustable fine scaling 0.025 mm

## Clockwise/anticlockwise switch

- Two channel
- tested in accordance with EN 23125

## TH 4615V:

- Siemens Sinamics frequency inverter / Safety Integrated
- ▶ Speed monitoring in line with Machinery Directive

## TH 4615V: Inverter SINAMICS G120D



More information: „Siemens frequency inverter SINAMICS G 120D“ auf Seite 144

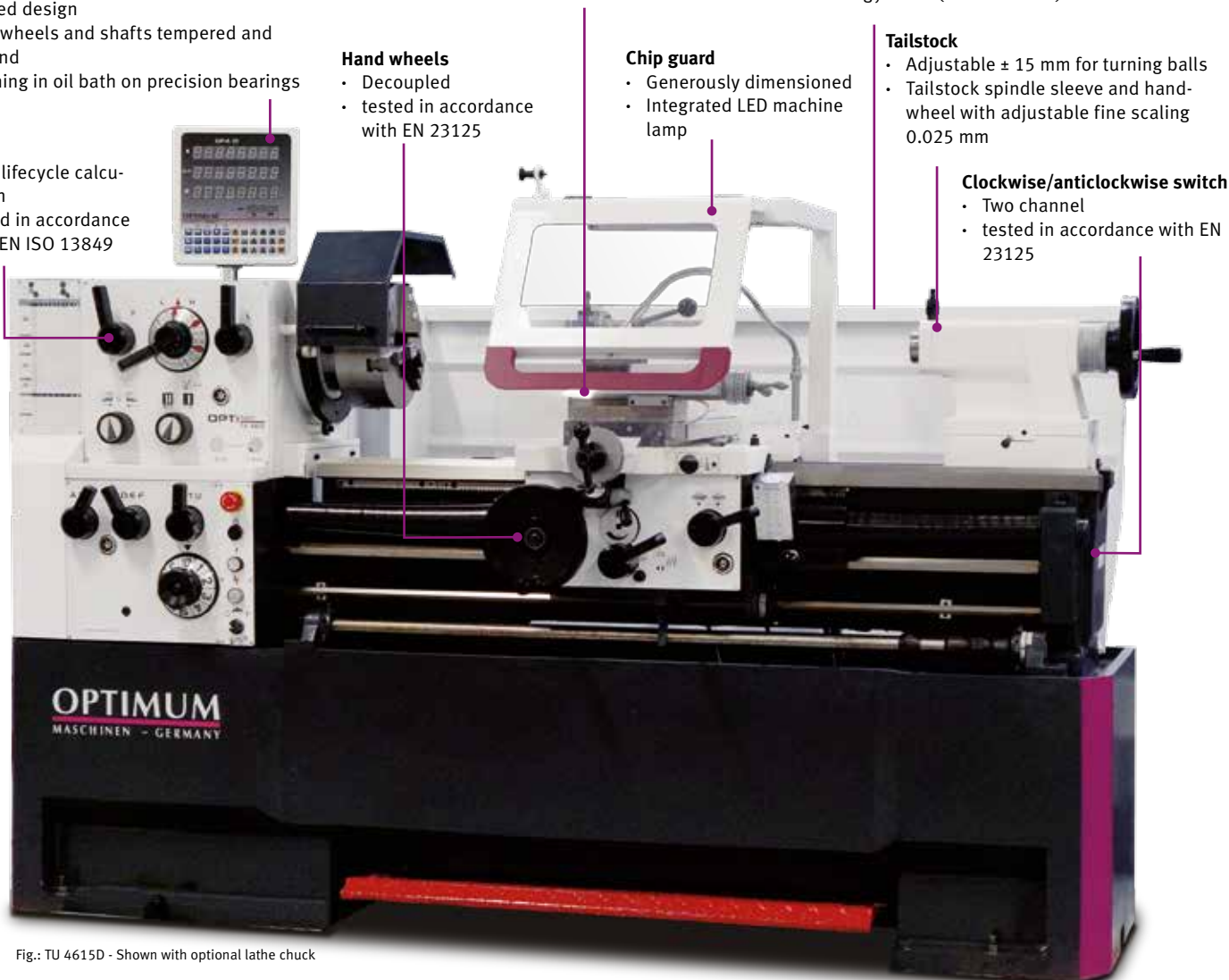


Fig.: TU 4615D - Shown with optional lathe chuck

## Technical specifications, accessories and dimensions

<b>Model</b>	<b>TH 4610D</b>	
Article no.	3462110	
<b>Model</b>	<b>TH 4615D</b>	<b>TH 4615V</b>
Article no.	3462120	3462125
<b>Model</b>	<b>TH 4620D</b>	
Article no.	3462130	

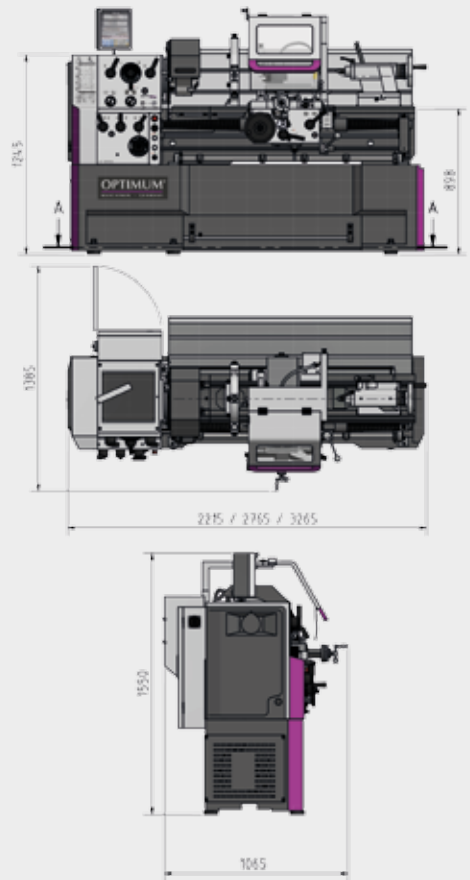
Technical specifications	
Electrical connection	400 V / 3 Ph ~50 Hz
Total connected load	5.8 kW8.5 kW
Spindle	
Drive motor	5.5 kW7.5 kW
Spindle taper	MT 6MT 7
Spindle holder	Camlock DIN ISO 702-2
	No. 6No. 8
Spindle bore, bar passage diameter	Ø 58 mmØ 80 mm
Work area	
Max. height	230 mm
Max. width TH 4610D	1,060 mm
Max. width TH 4615D / TH 4615V	1,560 mm
Max. width TH 4620D	2,060 mm
Orbit Ø above machine bed	460 mm <sup>(1)</sup>
Orbit Ø above cross slide	270 mm
Orbit Ø in the bed bridge	690 mm
Turning length in bed bridge	240 mm
Bed width	300 mm
Speed range	
Spindle speed	25 - 2,000 rpm30 - 2,000 rpm
Number of gears	12 gearselec. control
Strokes	
Top slide stroke	125 mm
Cross slide stroke	285 mm
Feeds and pitches	
Longitudinal feed within the range	0.031 - 1.7 mm/rev (42 feeds)
Cross feed within	0.014 - 0.784 mm/rev (42 feeds)
Pitch - metric in range	0.1 - 14 mm/rev (41 pitches)
Pitch - inch in range	112 - 2 turns/inch (41 pitches)
Diametral pitch in range	4 - 112 (50 threads)
Modular thread in range	0.1 - 7 mm/rev (34 thread)
Tailstock	
Tailstock chuck	MT 4
Spindle sleeve diameter / stroke	Ø 60 mm / 130 mm
Dimensions	
Length	2,215 / 2,765 / 3,265 mm
width x height	1,065 x 1,550 mm
Net weight	1,720 / 1,977 / 2,400 kg2,020 kg
Transport packaging flat rate**	TPFR 4 / TPFR 5

Lathe chuck	Art no.
► <b>OPTIMUM lathe chucks</b>	
Three-jaw lathe chuck Ø 250 mm no. 6, centric	3442765
Four-jaw lathe chuck Ø 250 mm no. 6, centric	3442852
Four-jaw lathe chuck Ø 250 mm no. 6, individual	3442884
Four-jaw lathe chuck Ø 315 mm no. 8, centric	3442856
Four-jaw lathe chuck Ø 315 mm no. 8, individual	3442888
► <b>BISON lathe chucks</b>	
Three-jaw lathe chuck Ø 250 mm no. 6, centric	3450330
Four-jaw lathe chuck Ø 250 mm no. 6, centric	3450380
Three-jaw lathe chuck Ø 250 mm no. 8, centric	3450331
Four-jaw lathe chuck Ø 250 mm no. 8, centric	3450381
Four-jaw lathe chuck Ø 315 mm no. 8, centric	3450385

Tool holders and lathe tools	Art no.
Spare tool holder 25 x 120 Type D for square	3384306
Spare tool holder 32 x 130 type H for round chisels	3384324
Lathe tool set HM 20 mm, 5-part	3441670
Lathe tool set HM 20 mm, 5-part	3441617
► <b>Clamping disc</b>	
Clamping disc Ø 350 mm no. 6	3442980
Clamping disc Ø 450 mm no. 8	3442982
► <b>Accessories</b>	
Universal collet chuck device 5C (not Vario)	3441507
Spring collet set 3 - 25 mm, 5C, 17-part	3441509
Vibration damping base SE 3 (6 pcs. needed)	3381018
Collet chuck 5C - Camlock no. 6	3441556

\*\* PTO for an explanation of the packaging surcharges; details of TPFR plus VAT.  
(1) Explanation see „General notes on operating our machines“ on page 211

### Dimensions



**Remember to order a lathe chuck**

### Scope of Delivery

- Fixed steady passageway max. Ø 160 mm
- Travelling steady passageway max. Ø 100 mm
- LED machine lamp
- Reduction sleeve MT 6/MT 4 (TH 4210D-TH 4620D)
- Reduction sleeve MT 7 / MT 4 (TH 4615V)
- Fixed centre MT 4
- Quick change tool holder 5-B
- Tool holder 25 x 120 type D for square chisels
- Thread gauge
- Position stop with granular adjustment
- Set of interchangeable gears
- Machine initially filled with premium grade oil
- Operating tool

**Heavy leading and feed spindle lathes, characterised by excellent flexibility, precision and economy.** With DPA 21 digital position display and quick change tool holder. TH 5620V featuring Siemens inverter Vario drive

## Facts that impress in terms of quality, performance and price

- ▶ Tempered and polished z-axis guideway
- ▶ Spindle collet Camlock DIN ISO 702-2 no. 8
- ▶ Coolant system featuring separate coolant tank, fill level display and oil trap; easy and complete draining and cleaning as per DIN
- ▶ Guaranteed concentricity of spindle nose better than 0.015 mm
- ▶ Clear-cut selector lever for switching the feed speeds
- ▶ Emergency stop mushroom button, motor circuit breaker, lockable main switch
- ▶ Clockwise/anti-clockwise rotation switchable on bed slide, switchable via switching spindle
- ▶ Central lubrication in bed slide
- ▶ Mechanical longitudinal feed switch-off of bed slide with four configurable eccentrics
- ▶ Leading spindle cover
- ▶ Safety hand wheels with release function in the X and Z axis
- ▶ Emergency stop device with foot pedal
- ▶ Electrical system with Siemens components
- ▶ Energy chain for material-friendly cable and hose guiding
- ▶ Scale on thread gauge adjustable
- ▶ Quick change tool holder SWH 7-C
- ▶ 1 tool holder 32 x 150 type D for square chisels
- ▶ Digital position display DPA 21
  - › Rev counter
  - › Clear reduction of manufacturing times
  - › Greater operation accuracy
  - › Reduction of error quota
  - › Glass scales

## TH 5620V:

- Two speeds
- ▶ Spindle bore/bar passage Ø 105 mm
- ▶ Siemens Sinamics frequency inverter / Safety Integrated
- ▶ Speed monitoring in line with Machinery Directive
- ▶ Other lengths on request

## Control cabinet

- 24 Volt DC adapter
- All contactors und relays by Siemens or Schneider -



## TH 5620V: Inverter SINAMICS G120D



More information: „Siemens frequency inverter SINAMICS G 120D“ auf Seite 144

## Main spindle

- Tempered and ground
- Running in oil bath
- Borne on 2 adjustable precision taper roller bearings
- Gearwheels easy action, tempered and ground

## Quick shift feed gear

- Closed design
- Gearwheels and shafts tempered and ground
- Running in oil bath on precision bearings

## Switch

- With lifecycle calculation
- tested in accordance with EN ISO 13849

## Slide

- Precise workmanship
- Hand wheels with adjustable fine scaling 0.04 / 0.02 mm
- All guides adjustable using wedge rails
- Gears and shafts running in oil bath
- Adjustment range top slide  $\pm 90^\circ$

## Hand wheels

- Decoupled
- tested in accordance with EN 23125

## Chip guard

- Generously dimensioned
- Integrated LED machine lamp

## Tailstock

- Adjustable  $\pm 15$  mm for turning balls
- Tailstock spindle sleeve and handwheel with adjustable fine scaling 0.025 mm

## Clockwise/anticlockwise switch

- Two channel
- tested in accordance with EN 23125

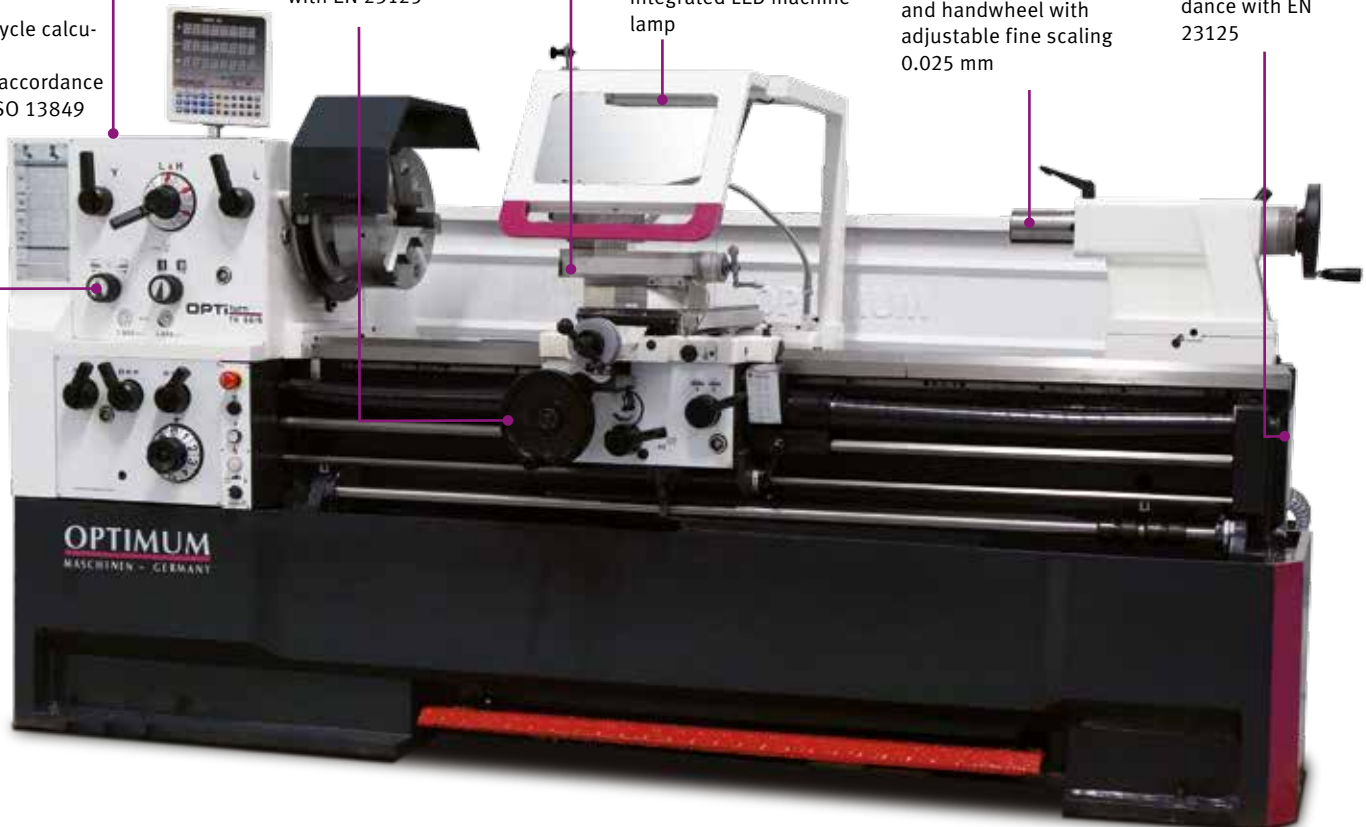
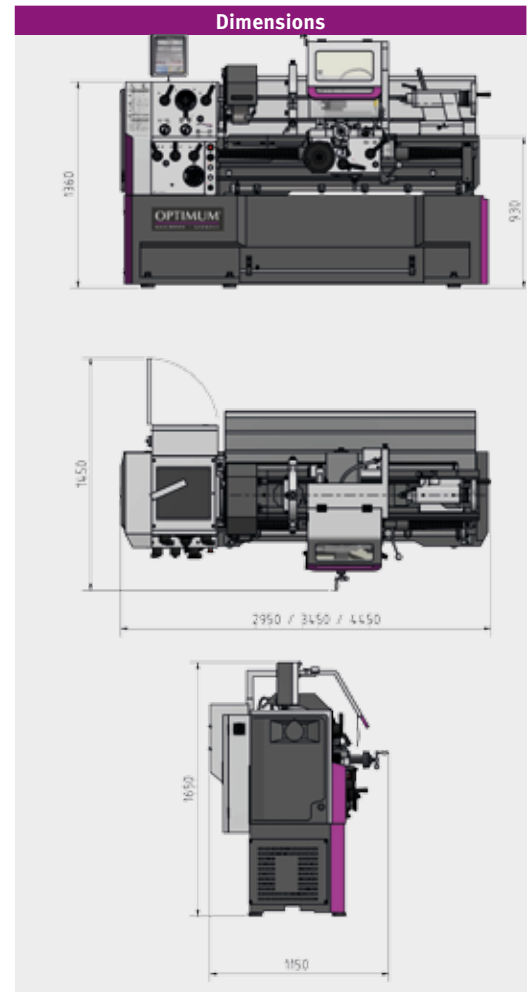


Fig.: TH 5615D - Shown with optional lathe chuck

## Technical specifications, accessories and dimensions

Model	TH 5615D	
Article no.	3462160	
Model	TH 5620D	TH 5620V
Article no.	3462170	3462175
Model	TH 5630D	
Article no.	3462180	
Technical specifications		
Electrical connection	400 V / 3 Ph ~50 Hz	
Total connected load	8.5 kW	
Spindle		
Drive motor	7.5 kW	
Spindle taper	MT 7	Ø 113 mm (taper 1:20)
Spindle holder	Camlock DIN ISO 702-2 No. 8	
Spindle bore, bar passage diameter	Ø 80 mm	Ø 105 mm
Work area		
Max. height	280 mm	
Max. width TH 5615D	1,420 mm	
Max. width TH 5620D / TH 5620V	1,910 mm	
Max. width TH 5630D	2,910 mm	
Orbit Ø above machine bed	560 mm <sup>(1)</sup>	
Orbit Ø above cross slide	355 mm	
Orbit Ø in the bed bridge	790 mm	
Turning length in bed bridge	170 mm	
Bed width	350 mm	
Speed range		
Spindle speed	25 - 1,600 rpm	
Number of gears	12 gears	2 speeds; elec. control
Strokes		
Top slide stroke	130 mm	
Cross slide stroke	316 mm	
Feeds and pitches		
Longitudinal feed within the range	0.059 - 1.646 mm/U (35)	0.031 - 1.7 mm/U (42)
Cross feed within	0.020 - 0.573 mm/U (35)	0.014 - 0.784 mm/U (42)
Pitch - metric in range	0.2 - 14 mm/U (47)	0.1 - 14 mm/U (47)
Pitch - inch in range	112 - 2 turns/inch (60 pitches)	
Diametral pitch in range	4 - 112 (50 turns)	
Modular thread in range	0.1 - 7 mm/rev (34 thread)	
Tailstock		
Tailstock chuck	MT 5	
Spindle sleeve diameter / stroke	Ø 75 mm / 180 mm	
Dimensions		
Length	2,840 / 3,340 / 4,340 mm	
width x height	1,150 x 1,460 mm	
Net weight	2,300 kg / 2,720 kg / 3,000 kg	2,720 kg
Transport packaging flat rate**	TPFR 5 up to TH 5620D TPFR 6 TH 5630D	



**Remember to order a lathe chuck**

### Scope of Delivery

- Fixed steady passageway max. Ø 165 mm
- Travelling steady passageway max. Ø 95 mm
- LED machine lamp
- TH 5615D-TH 5630D: Reduction sleeve MT 7/MT 5
- TH 5620V: Reduction sleeve Ø 113 mm / MT 5
- Fixed centre MT 5
- Fixed and travelling centre MT 5
- Quick change tool holder 7-C
- Tool holder 32 x 150 type D for square chisels
- Thread gauge
- Position stop with granular adjustment
- Machine initially filled with premium grade oil
- Set of interchangeable gears
- Operating tool

Lathe chuck	Art no.
► <b>OPTIMUM lathe chucks</b>	
Three-jaw lathe chuck Ø 315 mm no. 8, centric	3442768
Four-jaw lathe chuck Ø 315 mm no. 8, centric	3442856
Four-jaw lathe chuck Ø 315 mm no. 8, individual	3442888
► <b>BISON lathe chucks</b>	
Three-jaw lathe chuck Ø 315 mm no. 8, centric	3450335
Four-jaw lathe chuck Ø 315 mm no. 8, centric	3450385

Accessories	Art no.
Clamping disc Ø 450 mm no. 8	3442982
Travelling centre MT 5	3440705
BISON co-travelling centre MT 5	3451005
Spare tool holder 40 x 160 type H for round	3384326
Spare tool holder 32 x 150 Type D square	3384308
Lathe tool set HM 32 mm, 5-part	3441674
Vibration damping machine base SE3 (6 pcs.)	3381018

\*\* PTO for an explanation of the packaging surcharges; details of TPFR plus VAT.  
(1) Explanation see „General notes on operating our machines“ on page 211



**Leading and feed spindle lathes, characterised by excellent flexibility, precision and economy. With DPA 21 digital position display and quick change tool holder.**

## Facts that impress in terms of quality, performance and price

- ▶ Tempered and polished z-axis guideway
- ▶ Spindle collet Camlock DIN ISO 702-2 no. 8
- ▶ Closed quick shift feed gear
- ▶ Gears and shafts tempered and ground, running on precision bearings
- ▶ Clear-cut selector lever for switching the feed speeds
- ▶ Emergency stop mushroom button, motor circuit breaker, lockable main switch
- ▶ Clockwise/anti-clockwise rotation switchable on bed slide, switchable via switching spindle
- ▶ Safety limit switch with positively opening contacts
- ▶ Central lubrication in bed slide
- ▶ Leading spindle cover
- ▶ LED machine lamp
- ▶ Emergency stop device with foot pedal
- ▶ With Siemens electrical system
- ▶ Quick change tool holder SWH 9-D
- ▶ 1 tool holder 41 x 180 type D for square chisels

## Digital position display DPA 21

- › Clear reduction of manufacturing times
- › Greater operation accuracy
- › Reduction of error quota
- › Clear-cut keyboard layout
- › Glass scales

## Control cabinet

- 24 Volt DC adapter
- All contactors and relays by Siemens or Schneider -



## Main spindle

Tempered and ground

- Dry sump lubrication
- Borne on 3 adjustable precision taper roller bearings
- Gearwheels easy action, tempered and ground

## Electrical motor brake

- Fast emergency stop
- In normal operations, fast stop without post-run

## Switch

- With lifecycle calculation
- tested in accordance with EN ISO 13849

## Power saver mode

Machine switches off automatically after a few minutes idling

- Time configurable

## Slide

- Precise workmanship
- Top slide rotates through 360°
- Gears and shafts running in oil bath
- Hand wheels with adjustable fine scaling 0.04 / 0.02 mm
- Quick change tool holder SWH9-D
- All guides adjustable using wedge rails
- Chip guard on top slide

## Energy chain

- Protecting cable and hose routing



## Hand wheels

- Decoupled
- tested in accordance with EN 23125

## Fast feed

- Pushbutton and selector lever for enabling rapid motion in transverse and longitudinal directions
- For even more rational work
- Does not switch off the entire machine when running into the limit switch

## Tailstock

- Adjustable  $\pm 13$  mm for turning balls
- Tailstock spindle sleeve and hand wheel with adjustable fine scaling
- Crank for position change
- Tailstock spindle sleeve with two adjustable transmission ratios 1/4 or 1/1 rev

## Clockwise/anticlockwise switch

- Two channel
- tested in accordance with EN 23125



## Coolant tank

- Separate with fill level display and oil trap
- Easy and complete draining and cleaning

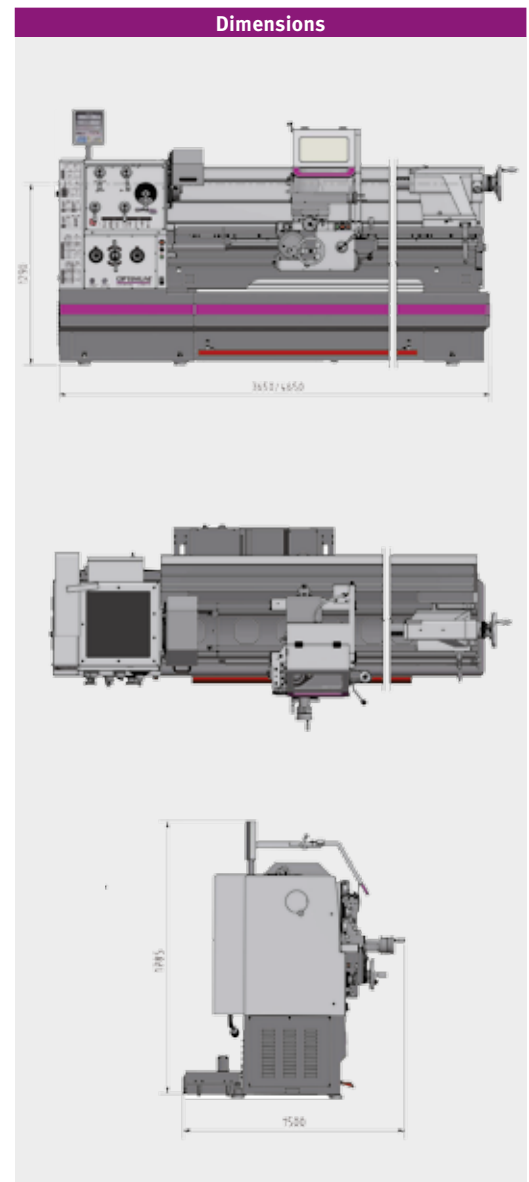
Fig.: TH 6630D



## Technical specifications, accessories and dimensions

Model	TH 6620D	TH 6630D
Article no.	3462210	3462220
Technical specifications		
Electrical connection	400 V / 3 Ph ~50 Hz	
Total connected load	10 kW	
Spindle		
Drive motor	9kW	
Spindle taper	MT 7	
Spindle holder	Camlock DIN ISO 702-2 No. 8	
Spindle bore, bar passage diameter	Ø 105 mm	
Quick change tool holder height	max. 32 mm	
Cooling lubricant system		
Coolant pump output	150 W	
Work area		
Max. height	330 mm	
Max. width	2,050 mm	3,050 mm
Orbit Ø above machine bed	660 rpm	
Orbit Ø without bed bridge	900 rpm	
Turning length in bed bridge	250 mm	
Orbit Ø above cross slide	440 mm	
Bed width	400 mm	
Speed range		
Spindle speed	25 - 1,600 rpm	
Number of gears	16 gears	
Strokes		
Top slide stroke	230 mm	
Cross slide stroke	368 mm	
Feeds and pitches		
Feed motor output	550 W	
Rapid traverse	3.8 m /min. max. 5 min. (30 min. break)	
Longitudinal feed within the range	0.044 - 1.48 mm/rev (25 feeds)	
Cross feed within	0.022 - 0.74 mm/rev (25 feeds)	
Pitch - metric in range	0.45 - 120 mm/rev (54 pitches)	
Pitch - inch in range	80 - 7/16 turns/inch (60 pitches)	
Diametral pitch in range	7/8 - 160 (42 turns)	
Modular thread in range	0.25 - 60 mm/rev (46 thread)	
Tailstock		
Tailstock chuck	MT 5	
Tailstock - quill stroke	235 mm	
Dimensions		
Load bearing capacity	1.4 t/m <sup>2</sup>	1.4 t/m <sup>2</sup>
Length	3,650 mm	4,650 mm
width x height	1,500 x 1,785 mm	
Net weight	3,345 kg	3,730 kg
Transport packaging flat rate**	TPFR 6	

Lathe chuck	Art no.
<b>OPTIMUM three-jaw lathe chuck</b> Ø 315 mm no. 8, centric	3442768
<b>OPTIMUM Four-jaw lathe chuck</b> Ø 315 mm no. 8, centric	3442856
<b>OPTIMUM Four-jaw lathe chuck</b> Ø 315 mm no. 8, individual	3442888
<b>BISON three-jaw lathe chuck</b> Ø 315 mm no. 8, centric	3450335
<b>BISON Four-jaw lathe chuck</b> Ø 315 mm no. 8, centric	3450385
<b>► Accessories</b>	
<b>Travelling centre</b> MT 5	3440705
<b>BISON co-travelling centre</b> MT 5 (2-row SKF angular contact bearings)	3451005
<b>Lathe tool set</b> HM 25 mm, 5-part	3441672
<b>Lathe tool set</b> HM 25 mm, 5-part	3441623
<b>Lathe tool set</b> HM 32 mm, 5-part	3441674
<b>Vibration-damping machine base</b> SE 3 (6 pcs. required)	3381018
<b>► More „Accessories Turning“ on page 148</b>	



**Remember to order  
a lathe chuck**

Scope of Delivery
• Fixed steady passageway max. Ø 150 mm
• Travelling steady passageway max. Ø 130 mm
• Machine lamp
• Reduction sleeve MT 5 - MT 7
• Fixed centre MT 5
• Fixed centre MT 5, alloyed
• Quick change tool holder 9-D
• Tool holder 41 x 180 type D for square chisels
• Position stop with granular adjustment
• Set of interchangeable gears
• Quality oil included
• Operating tool

\*\* PTO for an explanation of the packaging surcharges; details of TPFR plus VAT.  
(1) Explanation see „General notes on operating our machines“ on page 211

**Leading and feed spindle lathes, characterised by excellent flexibility, precision and economy.**  
With DPA 21 digital position display and quick change tool holder.

## Facts that impress in terms of quality, performance and price

- ▶ Tempered and polished z-axis guideway
- ▶ Spindle collet Camlock DIN ISO 702-2 no. 8
- ▶ Closed quick shift feed gear
- ▶ Gears and shafts tempered and ground, running on precision bearings
- ▶ Clear-cut selector lever for switching the feed speeds
- ▶ Emergency stop mushroom button, motor circuit breaker, lockable main switch
- ▶ Clockwise/anti-clockwise rotation switchable on bed slide, switchable via switching spindle
- ▶ Safety limit switch with positively opening contacts
- ▶ Central lubrication in bed slide
- ▶ Leading spindle cover
- ▶ LED machine lamp
- ▶ Emergency stop device with foot pedal
- ▶ Electrical system with Siemens components
- ▶ Quick change tool holder SWH 9-D
- ▶ 1 tool holder 41 x 180 type D for square chisels
- ▶ **Digital position display DPA 21**
  - › Clear reduction of manufacturing times
  - › Greater operation accuracy
  - › Reduction of error quota
  - › Clear-cut keyboard layout
  - › Glass scales

### Control cabinet

- 24 Volt DC adapter
- All contactors und relays by Siemens or Schneider -



### Main spindle

- Tempered and ground
- Dry sump lubrication
- Borne on 3 adjustable precision taper roller bearings
- Gearwheels easy action, tempered and ground

### Power saver mode

- Machine switches off automatically after a few minutes idling
- Time configurable

### Electrical motor brake

- Fast emergency stop
- In normal operations, fast stop without post-run

### Switch

- With lifecycle calculation
- tested in accordance with EN ISO 13849

### Hand wheels

- Decoupled
- tested in accordance with EN 23125

### Slide

- Precise workmanship
- Top slide rotates through 360°
- Gears and shafts running in oil bath
- Hand wheels with adjustable fine scaling 0.04 / 0.02 mm
- Quick change tool holder SWH9-D
- All guides adjustable using wedge rails
- Chip guard on top slide

### Energy chain

- Protecting cable and hose routing

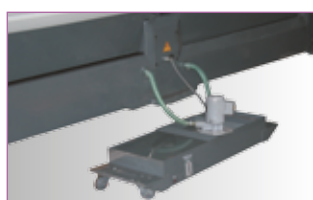
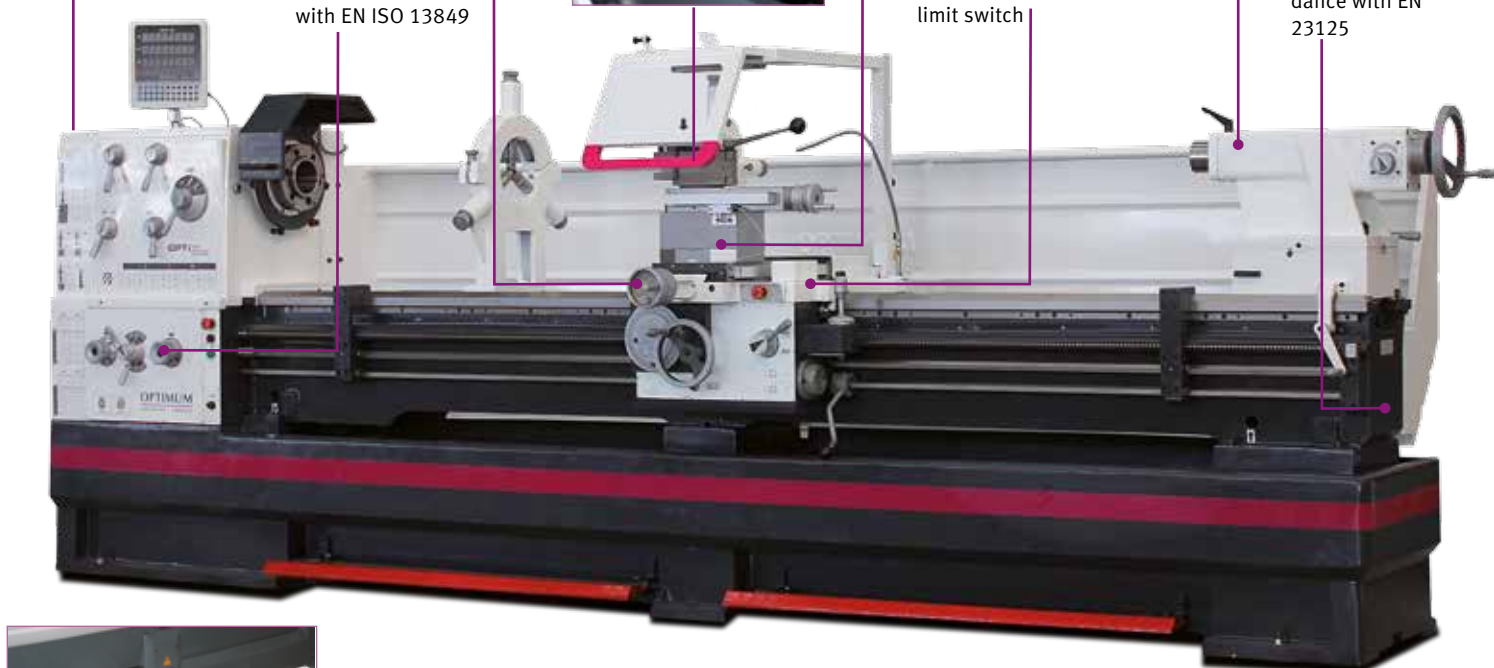


### Fast feed

- Pushbutton and selector lever for enabling rapid motion in transverse and longitudinal directions
- For even more rational work
- Does not switch off the entire machine when running into the limit switch

### Clockwise/anticlockwise switch

- Two channel
- tested in accordance with EN 23125



### Coolant tank

- Separate with fill level display and oil trap
- Easy and complete draining and cleaning

Fig.: TH 8020D

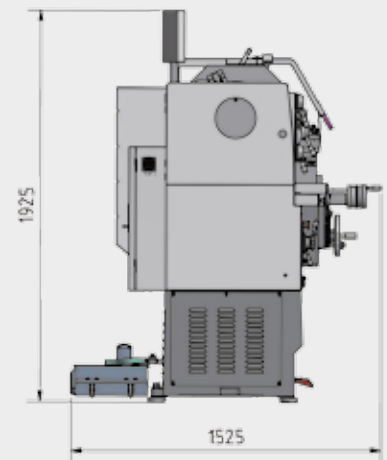
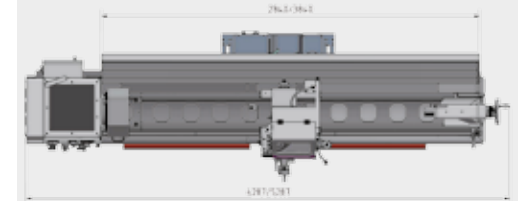
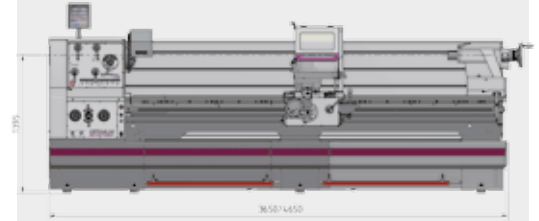
## Technical specifications, accessories and dimensions

Model	TH 8020D	TH 8030D
Article no.	3462230	3462240
Technical specifications		
Electrical connection	400 V / 3 Ph ~50 Hz	
Total connected load	12 kW	
Spindle		
Drive motor	11 kW	
Spindle taper	MT 7	
Spindle holder	Camlock DIN ISO 702-2 No. 8	
Spindle bore, bar passage diameter	Ø 105 mm	
Quick change tool holder height	max. 32 mm	
Cooling lubricant system		
Coolant pump output	150 W	
Work area		
Max. height	400 mm	
Max. width	2,050 mm	3,050 mm
Orbit Ø above machine bed	800 rpm	
Orbit Ø without bed bridge	1,035 rpm	
Turning length in bed bridge	250 mm	
Orbit Ø above cross slide	570 mm	
Bed width	400 mm	
Speed range		
Spindle speed	25 - 1,600 rpm	
Number of gears	16 gears	
Strokes		
Top slide stroke	230 mm	
Cross slide stroke	368 mm	
Feeds and pitches		
Feed motor output	550 W	
Rapid traverse	3.8 m /min. max. 5 min. (30 min. break)	
Longitudinal feed within the range	0.044 - 1.48 mm/rev (25 feeds)	
Cross feed within	0.022 - 0.74 mm/rev (25 feeds)	
Pitch - metric in range	0.45 - 120 mm/rev (54 pitches)	
Pitch - inch in range	80 - 7/16 turns/inch (60 pitches)	
Diametral pitch in range	7/8 - 160 (42 turns)	
Modular thread in range	0.25 - 60 mm/rev (46 thread)	
Tailstock		
Tailstock chuck	MT 5	
Tailstock - quill stroke	235 mm	
Dimensions		
Load bearing capacity	1.4 t/m <sup>2</sup>	1.4 t/m <sup>2</sup>
Length	4,287 mm	5,287 mm
width x height	1,525 x 1,925 mm	
Net weight	3,455 kg	3,820 kg
Transport packaging flat rate**	TPFR 6	

Lathe chuck	Art no.
<b>OPTIMUM three-jaw lathe chuck</b> Ø 315 mm no. 8, centric	3442768
<b>OPTIMUM Four-jaw lathe chuck</b> Ø 315 mm no. 8, centric	3442856
<b>OPTIMUM Four-jaw lathe chuck</b> Ø 315 mm no. 8, individual	3442888
<b>BISON three-jaw lathe chuck</b> Ø 315 mm no. 8, centric	3450335
<b>BISON Four-jaw lathe chuck</b> Ø 315 mm no. 8, centric	3450385
<b>► Accessories</b>	
<b>Travelling centre</b> MT 5	3440705
<b>BISON co-travelling centre</b> MT 5 (2-row SKF angular contact bearings)	3451005
<b>Lathe tool set</b> HM 25 mm, 5-part	3441672
<b>Lathe tool set</b> HM 25 mm, 5-part	3441623
<b>Lathe tool set</b> HM 32 mm, 5-part	3441674
<b>Vibration-damping machine base</b> SE 3	3381018

\*\* PTO for an explanation of the packaging surcharges; details of TPFR plus VAT.  
(1) Explanation see „General notes on operating our machines“ on page 211

### Dimensions



**Remember to order  
a lathe chuck**

### Scope of Delivery

- Fixed steady passageway max. Ø 150 mm
- Travelling steady passageway max. Ø 130 mm
- Machine lamp
- Reduction sleeve MT 5 - MT 7
- Fixed centre MT 5
- Fixed centre MT 5, alloyed
- Quick change tool holder 9-D
- Tool holder 41 x 180 type D for square chisels
- Position stop with granular adjustment
- Set of interchangeable gears
- Quality oil included
- Operating tool

## Precision feed and lead spindle lthees with digital position display **NEWALL DP 700** and quick change tool holder. TZ 4V with electronically controlled drive

### Facts that impress in terms of quality, performance and price

- ▶ Tempered and polished z-axis guideway
- ▶ Partly clad with travelling, generously dimensioned chip guard
- ▶ Travelling swarf guard with integrated position display, coolant hose and additional control panel
- ▶ Plane und top slide spindle tempered and ground, adjustable via split spindle nut
- ▶ Emergency stop mushroom button, motor circuit breaker, lockable main switch
- ▶ Granular feed and tapping range
- ▶ LED machine light for complete elimination of the workspace
- ▶ Reduction of the main spindle braking time thanks to electrically braked motor
- ▶ Control cabinet with 24-V DC adapter
- ▶ All contactors und relays by Siemens or Schneider
- ▶ Optionally available interchangeable gear set for imperial and modular thread
- ▶ Safety hand wheels with release function in the X and Z axis
- ▶ Quick change tool holder SWH 5-B
- ▶ Tool holder 25 x 120 type D for square chisels
- ▶ **Digital position display NEWALL DP 700**

#### Control cabinet

- 24 Volt DC adapter
- All contactors und relays by Siemens or Schneider -



#### Bed geometry

- Flat angle
- Higher force absorption

#### Control panel

- For switching
  - Lighting
  - Coolant
- For switching
  - 2-speed motor
- Foil keypad, easily cleanable



#### NEWALL digital position display DP 700

#### Guard

- Displaceable
- Co-travelling coolant hose

#### Energy chain

- Material-friendly cable and hose routing

#### Clockwise/anticlockwise switch

- Two channel
- tested in accordance with EN 23125

#### Hand wheels

- Decoupled
- tested in accordance with EN 23125

#### Feed and lead screw cover

#### Switch

- With lifecycle calculation
- tested in accordance with EN ISO 13849



#### Change gears

- also optionally available for imperial and modular thread



#### Chip tray

- Pulls out to front



Fig.: TZ 4 - Shown with optional lathe chuck



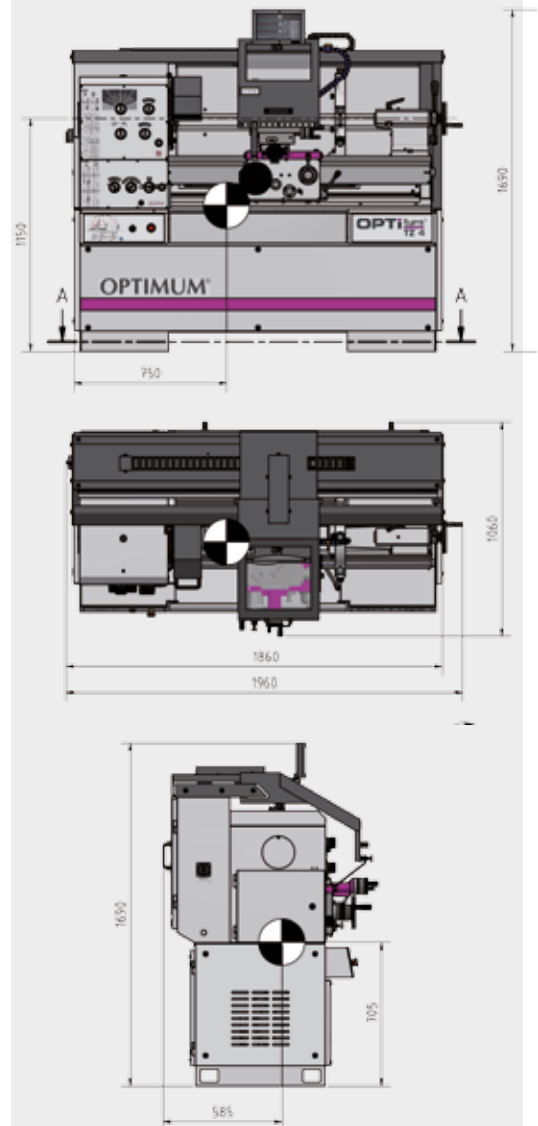
## Technical specifications, accessories and dimensions

Model	TZ 4	TZ 4V
Article no.	3432240	3432245
Technical specifications		
Electrical connection	400 V / 3 Ph ~50 Hz	
Total connected load	5 kW	6 kW
Coolant pump	125 Watts	
Spindle		
Drive motor, 2 speed	3 kW /4.5 kW	5.5 kW
Spindle taper	MT 6	
Spindle holder	DIN ISO 702-1 No. 5	
Spindle bore, bar passage diameter	Ø 52 mm	
Technical specifications		
Max. height	200 mm	
Max. width	800 mm	
Orbit Ø above machine bed	400 mm <sup>(1)</sup>	
Orbit Ø above cross slide	245 mm	
Bed width	260 mm	
Speed range		
Spindle speed	45 - 1,800 rpm	50 - 3,000 rpm
Number of gears	16 speeds	2 speed, elec. controlled
Strokes		
Top slide stroke	112 mm	
Cross slide stroke	212 mm	
Feeds and pitches		
Longitudinal feed within the range	0.0263 - 1.8416 mm/rev (48 feeds)	
Cross feed within	0.0133 - 0.9321 mm/rev (48 feeds)	
Pitch - metric in range	0.2 - 14 mm/rev (26 pitches)	
Tailstock		
Tailstock chuck	MT 3	
Tailstock spindle sleeve diameter / stroke	50 mm/110 mm	
Dimensions		
Length x width x height	1,960 x 1,060 x 1,690 mm	
Net weight	1,250 kg	
Transport packaging flat rate**	TPFR3	

Accessories	Art no.
<b>► Lathe chucks and accessories</b>	
<b>BISON three-jaw lathe chuck</b> Ø 200 mm no. 5 Centrically clamping (chuck flange 3450212 required)	3450210
<b>BISON four-jaw lathe chuck</b> Ø 250 mm no. 5 centric clamping (chuck flange 3450218 required)	3450216
<b>Chuck flange lathe chuck</b> Ø 200 mm no. 5 (lathe chuck 3450210)	3450212
<b>Chuck flange lathe chuck</b> Ø 250 mm no. 5 (lathe chuck 3450216)	3450218
<b>Clamping disc</b> Ø 320 mm no. 5	3442979
<b>► Tool holders and lathe tools</b>	
<b>Spare tool holder</b> 25 x 120 type D for square chisels	3384306
<b>Spare tool holder</b> 32 x 130 type H for round chisels	3384324
<b>Lathe tool set</b> HM 25 mm, 5-part	3441623
<b>Lathe tool set</b> HM 25 mm, 5-part	3441672
Information on „Lathe tool set“ on page 152	
<b>► Accessories</b>	
<b>Interchangeable gear set</b> for imperial and modular thread Pitch metric in range: 80 - 1 turn/“ (42 turns) Modular thread in range: 0.1 - 7 mm/rev (44 threads)	3444160
<b>Vibration-damping machine base</b> SE 1 (8 pcs. required)	3381012
<b>► More „Accessories Turning“ on page 148</b>	

\*\* PTO for an explanation of the packaging surcharges; details of TPFR plus VAT.  
(1) Explanation see „General notes on operating our machines“ on page 211

### Dimensions



**Remember to order  
a lathe chuck**

### Scope of Delivery

- Fixed steady passageway Ø 10 - 130 mm
- Travelling steady passageway Ø 10 - 100 mm
- Reduction sleeve MT 3 and MT 6
- Fixed centre MT 3
- Quick change tool holder 5-B
- Tool holder 25 x 120 type D for square chisels
- Interchangeable gear set for metric thread
- Machine initially filled with premium grade oil
- Operating tool



## Precision feed and lead spindle lathe complies with strictest requirements in terms of technical equipment and precision. With digital position display **NEWALL DP 700**

### Facts that impress in terms of quality, performance and price

- ▶ Machine bed and chassis made heavily ribbed cast material
- ▶ Single-part steel machine chassis
- ▶ High degrees of rigidity of the spindle bar housing thanks to pronounced ribbing made of 25GG cast material
- ▶ All feed gearwheels made of steel, hardened and polished
- ▶ shafts on needle bearings, all components lubricated in oil bath
- ▶ Hardened and polished spindle guarantees high degrees of accuracy and durability
- ▶ The powerful machining performance means that a high level of chip removal during roughing work is no problem
- ▶ Hardened and polished bed guides
- ▶ Electronically braked main spindle
- ▶ Electronic feed shut-off of Z axis
- ▶ All electronic controls centrally accessible
- ▶ Working area completely illuminated
- ▶ External coolant tank with filling level display and oil separator
- ▶ Complete feed and lead spindle cover
- ▶ Electrical position shut-off with quadruple positioning stop
- ▶ Three-jaw lathe chuck included in standard scope of delivery

### ▶ Digital position display DP700

- › Two Microsyn measuring bars and one Spherosyn measuring bars, resistant to dirt
  - › Intuitive and user-friendly user interface
  - › Developed and manufactured in England
  - › IP67 protection
  - › 5 year warranty for display units and read heads
- (More info, see „NEWALL - DP700“ on page 206)

### TX 5216:

Quick change tool holder SWH 5-B

- ▶ 1 tool holder 25 x 120 type D for square chisels
- ▶ Large spindle bore Ø 80 mm

### TX 6222:

Quick change tool holder SWH 7-C

- ▶ 1 tool holder 32 x 150 type D for square chisels
- ▶ Large spindle bore Ø 105 mm

### Control cabinet

- 24 Volt DC adapter
- All contactors and relays by Siemens or Schneider -



### Apron

- Housing, fully sealed
- With safety device to prevent simultaneous operation of thread cutting and pitch mechanism

### Centralised, user-friendly operation on touch panel



- Pitch deactivation using button
- Feed bar drive
- Rapid motion X and Y axis
- Machine lamp
- Coolant

### Removable rear wall

- Easy to service

### Guard

- Lockable
- Moves with lathe saddle
- Integrated position display and coolant hose
- Manually displaceable

### Energy chain

- Protecting cable and hose routing

### Clockwise/anticlockwise switch

- Two channel
- tested in accordance with EN 23125

### No interchangeable gears required

- With lifecycle calculation
- tested in accordance with EN ISO 13849

### Hand wheels

- Decoupled
- tested in accordance with EN 23125

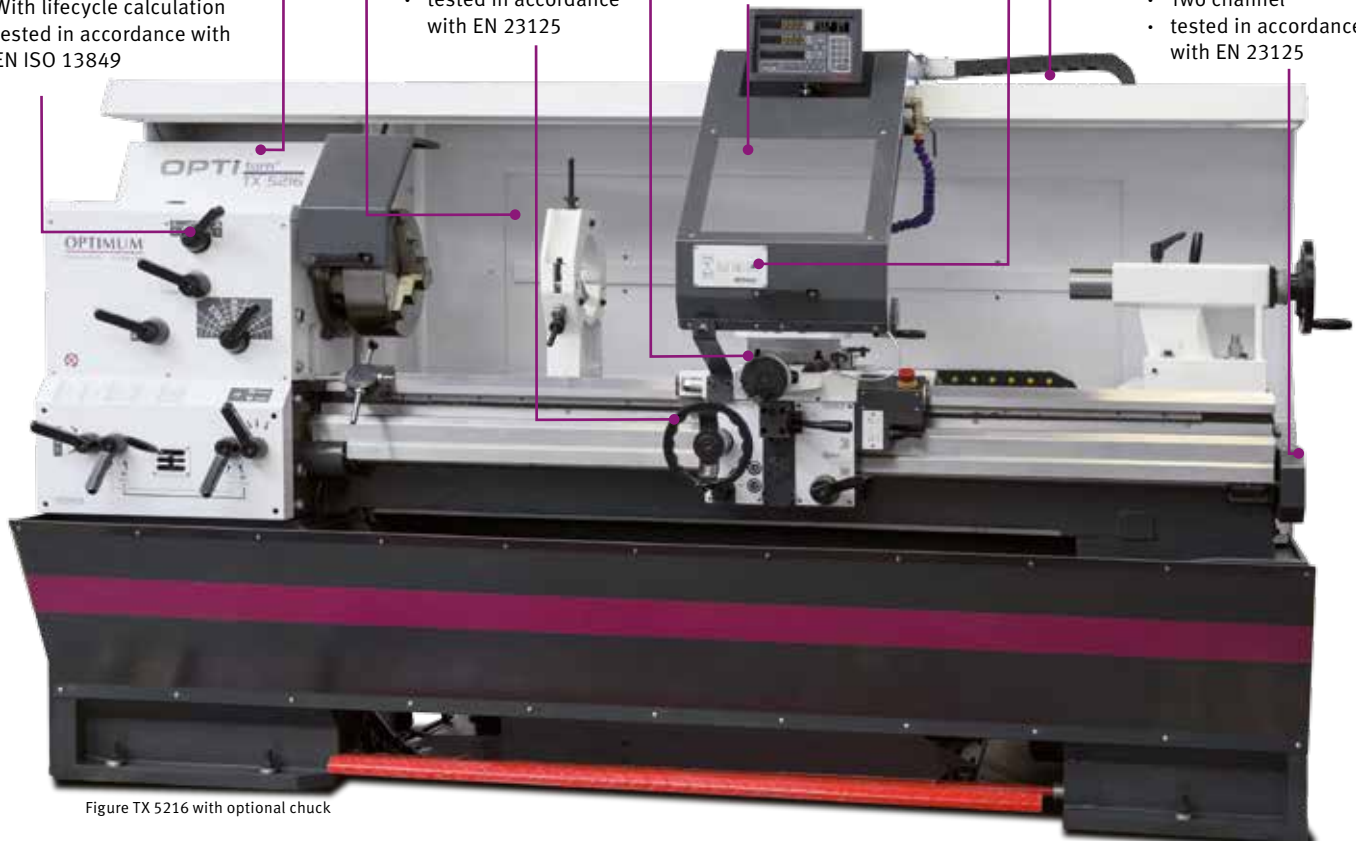
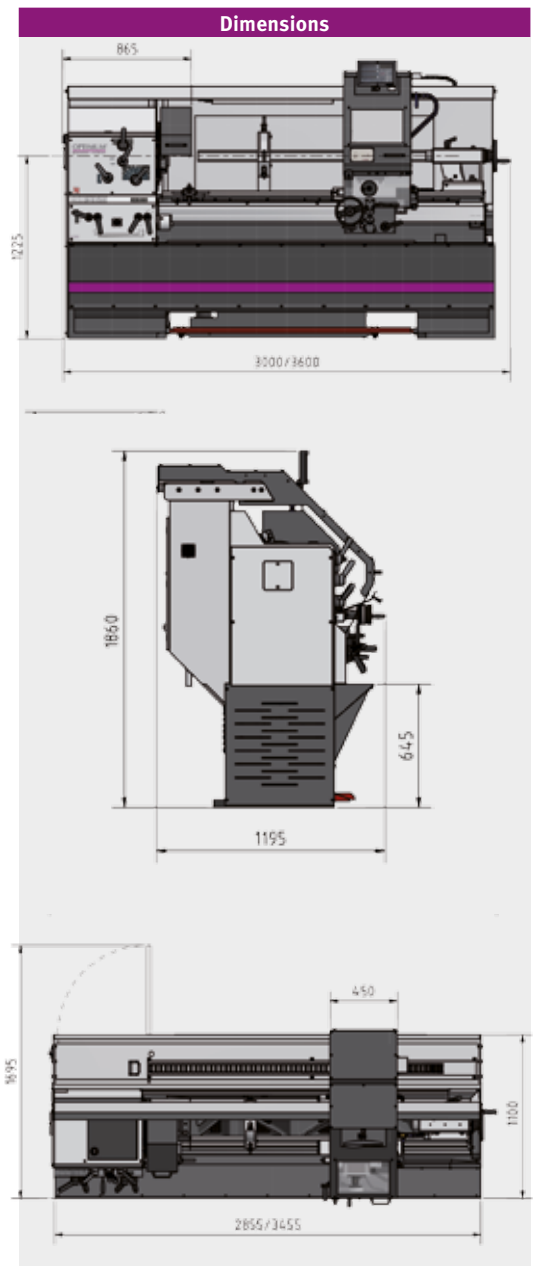


Figure TX 5216 with optional chuck

## Technical specifications, accessories and dimensions

Model	TX 5216	TX6222
Article no.	3432440	3432460
Electrical connection		
Electrical connection	400 V ~ 50 Hz	400 V ~ 50 Hz
Total connection value	6.1 kW	8.5 kW
Coolant pump	100 W	100 W
Spindle		
Drive motor output	5.5 kW	7.5 kW
Spindle taper	MT 7	MT 7
Spindle holder	Camlock DIN ISO 702-2 No. 8	Camlock DIN ISO 702-2 No. 8
Spindle bore, bar passage diameter	Ø 80 mm	Ø 105 mm
Technical specifications		
Max. height	260 mm	310 mm
Max. width	1,600 mm	2,225 mm
Orbit Ø above machine bed	520 mm <sup>(1)</sup>	620 mm <sup>(1)</sup>
Orbit Ø above longitudinal slide	520 mm	580 mm
Orbit Ø above cross slide	324 mm	425 mm
Bed width	280 mm	
Speed range		
Spindle speed/number	30 - 1,500 rpm	40 - 1,650 rpm
Number of gears	12 gears	
Strokes		
Top slide stroke	170 mm	
Cross slide stroke	350 mm	
Feeds and pitches		
Longitudinal feed within the range	0.05 - 1.5 mm/rev (55 feeds)	
Cross feed within	0.025 - 0.75 mm/rev (55 feeds)	
Metric pitch	0.5 - 15 mm/rev (55 pitches)	
Pitch - inch in range	60 - 2 turn/1"(55 turns)	
Diametral pitch in range	4 - 120 (55 turns)	
Modular thread in range	0.25 - 7.5 mm/rev (55 thread)	
Tailstock		
Tailstock chuck	MT 5	
Tailstock diameter	Ø 72 mm	
Tailstock - quill stroke	180 mm	
Dimensions		
Length	3,000 mm	3,600 mm
width x height	1,195 - 1,860 mm	1,195 - 1,860 mm
Net weight	2,470 kg	2,800 kg
Transport surcharge**	TPZ2000	TPZ3000



Accessories	Art no.
<b>► Steadies TX5216</b>	
Travelling steady passageway 15 - 125 mm	3438020
Fixed steady passageway 10 - 185 mm	3438023
Fixed steady passageway 160 - 285 mm	3438024
<b>► Steadies TX6222</b>	
Travelling steady passageway 15 - 125 mm	3438030
Fixed steady passageway 10 - 185 mm	3438033
Fixed steady passageway 160 - 285 mm	3438034
<b>► Accessories</b>	
Clamping disc Ø 450 mm no. 8	3442982
Travelling centre MT 5	3440705
<b>BISON co-travelling centre MT 5</b> (2-row SKF angular contact bearings)	3451005
Vibration damping machine base SE 3 (6 pcs. required)	3381018

Scope of Delivery
• Three-jaw lathe chuck Ø 315 mm no. 8
• Reduction sleeve MT 7 / MT 5
• Fixed centre MT 5 long
• Fixed centre MT 5 short
• Operating tool
<b>TX 5216:</b>
• Quick change tool holder SWH 5-B
• Tool holder 25 x 120 type D for square chisels
<b>TX 6222:</b>
• Quick change tool holder SWH 7-C
• Tool holder 32 x 150 type D for square chisels

► More „Accessories Turning“ on page 148

\*\* PTO for an explanation of the packaging surcharges; details of TPFR plus VAT.  
(1) Explanation see „General notes on operating our machines“ on page 211

TH 4010V  
TH 4210V  
TH 4615V  
TH 5620V

Machines as per standard EN 61800



## Siemens frequency inverter SINAMICS G 120D

Siemens  
**SAFETY INTEGRATED**

### Highlights at a glance

- ▶ Advanced safety function (STO, SLS)
- ▶ Recovery, low circuit feedback
- ▶ Energy savings up to 20 %
- ▶ No brake resistors required
- ▶ Fast and easy diagnostic capability through LEDs
- ▶ Standardised plug connections throughout
- ▶ Rugged and flat design (IP65)
- ▶ EMC class C3 as per EN 61800-3
- ▶ Safety Integrated without encoder!
- ▶ More direct switch-over
- ▶ Faster braking
- ▶ Resilient to high overload

### SINUMERIK Safety Integrated

- ▶ A comprehensive safety package that helps to protect both persons and machines. And in an extremely efficient and economic way thanks to complete integration of the safety functions in the control and drive technology. In addition, it ensures safe and practical operation of your machine under all required operating conditions. For example, in setup and test operation with the safety door open. The safety functions meet the requirements of DIN EN 61508 for use up to and including SIL (Safety Integrity Level) 2 and categories 3 and PL (Performance Level) d as per DIN EN ISO 13849. This means that critical functional safety requirements can be implemented easily and efficiently.

The feature scope includes, for example:

- ▶ Functions for safe monitoring of speed and standstill
- ▶ Functions for establishing workspace and protected space boundaries, and for area detection
- ▶ Direct connection of all safety-related signals and their internal logical links

- **STO - safe torque off as per EN 61800-5**
- **SLS - Safety limited speed as per EN 61800-5**

## Energy savings thanks to smart drive solutions

### Power recovery (Efficient Infeed Technology)

- ▶ Energy savings thanks to feeding back power in the motor's generator mode
- ▶ No need for braking resistor
- ▶ Far lower space requirement than legacy compact inverter
- ▶ No additional heat generated on braking



## OPTIMUM CNC Catalogue

OPTIMUM is also represented in the field of CNC-controlled turning and milling machines, offering a versatile product portfolio.

Learn more about our huge selection, and request your free copy of the OPTIMUM CNC Main Catalogue.

Of course, there is also an online version available on [www.optimum-maschinen.de](http://www.optimum-maschinen.de).



## Workplace mats – for dry and wet areas

- Fire-resistant
- Made of polyurethane on polyether basis
- Surface: nubbed
- Underside: nubbed for maximum standing comfort and slip resistance
- 5-year warranty



Technical specifications	Work mat 1,840 x 640 mm	Work mat 1,840 x 940 mm	Work mat 3,040 x 640 mm	Work mat 3,040 x 940 mm
Article no.	6800000	6800005	6800001	6800006
Thickness	14 mm	14 mm	14 mm	14 mm
Colour	anthracite	anthracite	anthracite	anthracite
Temperature resistant	-35 °C to +95 °C	-35 °C to +95 °C	-35 °C to +95 °C	-35 °C to +95 °C
Fire classification	B1 as per DIN 4102	B1 as per DIN 4102	B1 as per DIN 4102	B1 as per DIN 4102
Dimensions	1,840 x 640 mm	1,840 x 940 mm	3,040 x 640 mm	3,040 x 940 mm
weight	6 kg	9 kg	10.5 kg	15 kg

## Special offers, exhibition machines and demonstrators



We have set up a separate area on our website where you can purchase special offers, exhibition machines and demonstrator machines at an attractive price. Each of the machines listed there has been tested in detail by our service workshop and maintenance has been completed; the machines are thus as good as new in every respect.

**Take a look on:**  
[www.stuermer-maschinen.de](http://www.stuermer-maschinen.de)

Did you know? You can also lease or hire-purchase machines from our selection of bargains. Leasing offers you a precise costing basis. The costs are fully tax-deductible and do not affect your balance sheet. There are no ancillary costs.

## Compatibility overview Accessories for lathes

Turning accessories		article no.	TU 1503V	TU 2004V	TU 2304	TU 2406	TU 2506	TU 2807	TU 3008	TH 3309	TH 3610	TH 4010	TH 42	TZ 4	TH 46	TH 4615V	TH 56	TH 56V	TX 5216	TX 6222	TH 66	TH 80
Spindle holder									No.4	No.4	No.5	No.5	No.6	No.5	No.6	No.8	No.8	No.8	No.8	No.8	No.8	No.8
Spindle taper			MK 1	MK 2	MK 3	MK 3	MK 4	MK 4	MK 5	MK 5	MK 6	MK 6	MK 6	MK 6	MK 6	MK 7	MK 7	Ø 113 mm	MK 7	MK 7	MK 7	MK 7
Clamping disc	Ø 170 mm	3440295		●																		
	Ø 240 mm	3441352					●															
	Ø 240 mm	3440552				●																
	Ø 265 mm	3441452						●														
	Ø 300 mm No. 4	3442976								●												
	Ø 320 mm A2-5	3442979												●								
	Ø 330 mm No. 5	3442978									●	●										
	Ø 350 mm No. 6	3442980											●									
	Ø 450 mm No. 8	3442982																				
Chuck flange	Ø 160 mm No. 4	3441512								●												
	Ø 200 mm No. 4	3441513								●												
	Ø 200 mm No. 5	3441514									●	●										
	Ø 200 mm No. 6	3444012											●	●	●							
	Ø 250 mm No. 6	3444013											●	●								
	Ø 315 mm No. 8	3444041															●				●	●
Chuck flange	Ø 100 mm cyl.	3440312		●																		
	Ø 125 mm cyl.	3440313			●																	
	Ø 125 mm cyl.	3440511				●																
	Ø 125 mm short	3441312					●	●														
	Ø 160 mm short	3441413						●														
Collet chuck	ER16	3440281	●																			
	ER25	3440305		●	●																	
	ER25	3440505				●																
	ER25	3441305					●	●														
	ER32	3441306					●	●														
	ER32	3440506				●																
Collet chuck	5C - No. 4	3441554							●	●												
	5C - No. 5	3441555									●	●										
	5C - No. 6	3441556											●		●							
	5C - No. 8	3441558														●	●				●	●
Travelling centre	MK 1	3440701	●																			
	MK 2	3440702		●	●	●	●	●														
	MK 3	3440703							●	●	●	●		●								
	MK 4	3440704											●		●	●						
	MK 5	3440705															●				●	●
Travelling centre	MK 2	3440732		●	●	●	●	●														
	MK 3	3440733							●	●	●	●		●								
	MK 4	3440734											●		●	●						
Spring collet set	5C	3441509								●	●	●	●	●	●	●	●					
	ER 16	3440282	●																			
	ER 25	3441109		●	●	●	●	●														
	ER 32	3441122		●	●	●	●	●														
Vibration damper	SE 1	3381012	●	●	●	●	●	●	●					●								
	SE 2	3381016								●	●	●	●									
	SE 3	3381018													●	●	●				●	●
Universal coolant unit	230 V	3352002	●	●	●	●	●	●	●	●	●	●	●									
Twist drill HSS	MK 2	3051002		●	●	●	●	●														
	MK 3	3051003							●	●	●	●	○	○	○	○	○				●	●
Fixed steady		3440211	●																			
		3440231		●																		
		3440361			●																	



Turning accessories		article no.	TU 1503V	TU 2004V	TU 2304	TU 2406	TU 2506	TU 2807	TU 3008	TH 3309	TH 3610	TH 4010	TH 42	TZ 4	TH 46	TH 4615V	TH 56	TH 56V	TX 5216	TX 6222	TH 66	TH 80
Spindle holder									No.4	No.4	No.5	No.5	No.6	No.5	No.6	No.8	No.8	No.8	No.8	No.8	No.8	No.8
Spindle taper			MK 1	MK 2	MK 3	MK 3	MK 4	MK 4	MK 5	MK 5	MK 6	MK 6	MK 6	MK 6	MK 6	MK 7	MK 7	Ø 113 mm	MK 7	MK 7	MK 7	MK 7
		3440515																				
		3441315																				
		3441415																				
		3441461																				
Travelling steady		3440210																				
		3440230																				
		3440360																				
		3441310																				
		3441410																				
		3441460																				
Collet chuck device	5C	3441506																				
	5C	3441507																				
	5C	3444006																				
Position stop		3441522																				
		3441523																				
		3444022																				
		3444023																				
Clamping block	Set 16-05	3440653																				
	Set 20-05	3440654																				
	Set 25-05	3440655																				
Digital measuring systems	DRO 5	3383975																				
	DPA 21	3384020																				
	DPA 22	3384022																				
SWH	SWH AA	3384311																				
	SWH 1 - A	3384301																				
	SWH 3 - E	3384303																				
	SWH 5 - B	3384305																				
	SWH 7 - C	3384307																				
	SWH 9 - D	3384309																				
Lathe tool	HM 8 mm	3441662																				
	HM 10 mm	3441664																				
	HM 12 mm	3441666																				
	HM 12 mm	3441212																				
	HM 16 mm	3441668																				
	HM 16 mm	3441216																				
	HM 16 mm	3441610																				
	HM 20 mm	3441670																				
	HM 20 mm	3441617																				
	HM 25 mm	3441672																				
	HM 25 mm	3441623																				
Lathe tool	HM 8 mm	3441601																				
	HM 10 mm	3441602																				
	HM 12 mm	3441603																				
	HM 16 mm	3441604																				
Inside lathe tool set	10 mm	3441640																				
	12 mm	3441641																				

## ACCESSORIES TURNING - QUICK CHANGE TOOL HOLDER

Quick change tool holder	article no.
• Repetition accuracy 0.01 mm · angle scale on tool holder head	
• 40 different angle settings · Height adjustment via star knob	
• Tool holder head and tool holder with profile ground gears	
• Play-free and repetition-accurate clamping of the change holder	
• For self-assembly!	

Quick change tool holder set SWH AA	3384311
• Tool holder head AA	
• 3 pcs. tool holder 12 x 50 type D for square chisels	
• 1 pc. tool holder 12 x 50 type H for round chisels	
<b>Spare tool holder 12 x 50 Type D</b> for square chisels	3384312
<b>Spare tool holder 12 x 50 Type H</b> for round chisels	3384320

Quick change tool holder set SWH 1-A	3384301
• Tool holder head A	
• 3 pcs. tool holder 20 x 90 type D for square chisels	
• 1 pc. tool holder 20 x 85 type H for round chisels	
<b>Spare tool holder 20 x 90 type D</b> for square chisels	3384302
<b>Spare tool holder 20 x 85 type H</b> for round chisels	3384321

Quick change tool holder set SWH 3-E	3384303
• Tool holder head E	
• 3 pcs. tool holder 20 x 100 type D for square chisels	
• 1 pc. tool holder 30 x 100 type H for round chisels	
<b>Spare tool holder 20 x 100 type D</b> for square chisels	3384304
<b>Spare tool holder 30 x 100 type H</b> for round chisels	3384322

Quick change tool holder set SWH 5-B	3384305
• Tool holder head B	
• 3 pcs. tool holder 25 x 120 type D for square chisels	
• 1 pc. tool holder 32 x 130 type H for round chisels	
<b>Spare tool holder 25 x 120 type D</b> for square chisels	3384306
<b>Spare tool holder 32 x 130 type H</b> for round chisels	3384324

Quick change tool holder set SWH 7-C	3384307
• Tool holder head C	
• 3 pcs. tool holder 32 x 150 type D for square chisels	
• 1 pc. tool holder 40 x 160 type H for round chisels	
<b>Spare tool holder 32 x 150 type D</b> for square chisels	3384308
<b>Spare tool holder 40 x 160 type H</b> for round chisels	3384326

Quick change tool holder set SWH 9-D	3384309
• Tool holder head D	
• 3 pcs. tool holder 40 x 180 type D for square chisels	
• 1 pc. tool holder 63 x 180 type H for round chisels	
<b>Spare tool holder 40 x 180 type D</b> for square chisels	3384332
<b>Spare tool holder 63 x 180 type H</b> for round chisels	3384333

Factory assembly and adjustment SWH	9000400
• Only with orders for new machines	



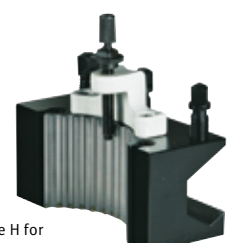
Tool holder head



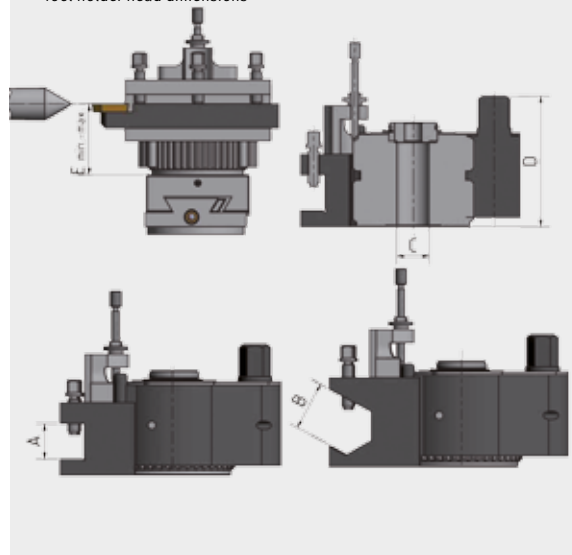
Tool holder type D for square chisels



Tool holder type H for round chisels



Tool holder head dimensions

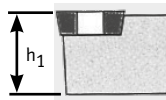


Tool holder head dimensions			SWH AA	SWH 1-A	SWH 3-E	SWH 5-B	SWH 7-C	SWH 9-D
Turning diameter		mm	120 - 220	150 - 300	200 - 400	300 - 500	400 - 700	600 - 800
Drive output lathe max.		kW	1	2	4.5	7	13	20
Support width square chisel max	A	mm	12	20	20	25	32	40
Diameter round chisel max.	B	mm	Ø 12	Ø 20	Ø 20	Ø 25	Ø 32	Ø 40
Normal bore	C	mm	Ø 13	Ø 20	Ø 20	Ø 32	Ø 40	Ø 40
Height of base body/overall	D	mm	37	56	68	79	110	122
Height top carriage to lathe centre	E	mm	18 - 26	28.5 - 39.5	28.5 - 39.5	37 - 57	47 - 87	60 - 95

## Lathe tool set **HM 8 mm**

### Lathe tool set HM 8 mm

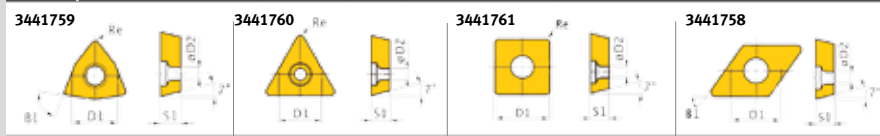
- 5-part
- With HM turning plates
- TiN coated
- Aluminium box



No.	ISO			h1
1	SWGC	L0808	D05	8 mm
2	SSDC	N0808	D06	8 mm
3	SWGC	R0808	D05	8 mm
4	STGC	R0808	D09	8 mm
5	SDJC	R0808	D07	8 mm



### HM replacement turning plates (5 pcs. each)

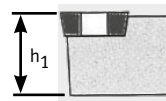


No.	ISO	D1	D2	B1	S1	right	article no.
1/3	WCMT050308	7,94	3,2	80°	3,18	0,8	3441759
2	SCMT060204	6,35	2,8	90°	2,38	0,4	3441761
4	TCMT090204	5,56	2,5	60°	2,38	0,4	3441760
5	DCMT070204	6,35	2,8	55°	2,38	0,4	3441758

## Lathe tool set **HM 10 mm**

### Lathe tool set HM 10 mm

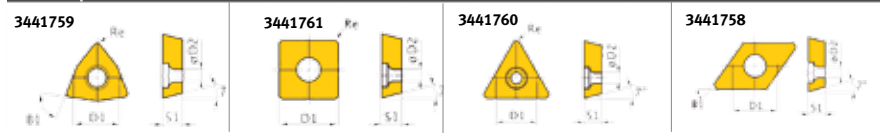
- 5-part
- With HM turning plates
- TiN coated
- Aluminium box



No.	ISO			h1
6	SWGC	L1010	E05	10 mm
7	SSDC	N1010	E06	10 mm
8	SWGC	R1010	E05	10 mm
9	STGC	R1010	E09	10 mm
10	SDJC	R1010	E07	10 mm



### HM replacement turning plates (5 pcs. each)

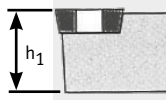


No.	ISO	D1	D2	B1	S1	right	article no.
6/8	WCMT050308	7,94	3,2	80°	3,18	0,8	3441759
7	SCMT060204	6,35	2,8	90°	2,38	0,4	3441761
9	TCMT090204	5,56	2,5	60°	2,38	0,4	3441760
10	DCMT070204	6,35	2,8	55°	2,38	0,4	3441758

## Lathe tool set **HM 12 mm**

### Lathe tool set HM 12 mm

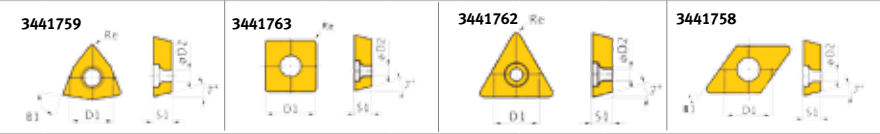
- 5-part
- With HM turning plates
- TiN coated
- Aluminium box



No.	ISO			h1
11	SWGC	L1212	H 05	12 mm
12	SSDC	N1212	H 09	12 mm
13	SWGC	R1212	H 05	12 mm
14	STGC	R1212	H 11	12 mm
15	SDJC	R1212	H 07	12 mm



### HM replacement turning plates (5 pcs. each)



No.	ISO	D1	D2	B1	S1	right	article no.
11/13	WCMT050308	7,94	3,2	80°	3,18	0,8	3441759
12	SCMT09T304	6,35	2,8	90°	2,38	0,4	3441763
14	TCMT110204	6,35	2,8	60°	2,38	0,4	3441762
15	DCMT070204	6,35	2,8	55°	2,38	0,4	3441758

## LATHE TOOL SET

### Lathe tool set HM 12 mm



Lathe tool set HM 12 mm		3441212
<ul style="list-style-type: none"> <li>• 5-part</li> <li>• With HM turning plates</li> <li>• TiN coated</li> </ul>		

No.	ISO			h1
16	SSSC	R1212	J09	12 mm
17	SCLC	R1212	J09	12 mm
18	SDNC	N1212	J11	12 mm
19	SDJC	R1212	J11	12 mm
20	SDJC	L1212	J11	12 mm



HM replacement turning plates (5 pcs. each)							
3441280		3441282		3441281			
No.	ISO	D1	D2	B1	S1	right	article no.
16	SCMT09T304	9.525	4.4	90°	3.97	0.4	3441280
17	CCMT09T304	9.525	4.4	80°	3,97	0.4	3441282
18-20	DCMT11T304	9.525	4.4	55°	3,97	0.4	3441281


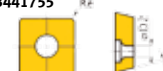


Single lathe tool 12 mm		
16	SSSC R1212J09	3441220
17	SCLC R1212J09	3441221
18	SDNC N1212J11	3441222
19	SDJC R1212J11	3441223
20	SDJC L1212J11	3441224

### Lathe tool set HM 16 mm

Lathe tool set HM 16 mm		3441668
<ul style="list-style-type: none"> <li>• 5-part</li> <li>• With HM turning plates</li> <li>• TiN coated</li> <li>• Aluminium box</li> </ul>		

No.	ISO			h1
21	PWLN	R1616	H06	16 mm
22	PWLN	L1616	H06	16 mm
23	PSDNN	1616	H09	16 mm
24	CKJN	R1616	H16	16 mm
25	MDJN	R1616	H11	16 mm



HM replacement turning plates (5 pcs. each)								
3441753		3441755			3441754		3441750	
								
No.	ISO	D1	D2	B1	S1	right	L1	article no.
21/22	WNMG060408	9,252	3,81	80°	4,76	0,8		3441753
23	SNMG090304	9,252	3,81	90°	3,18	0,4		3441755
24	KNUX160405R	9,252		55°	4,76	0,5	16,15	3441754
25	DNMG110408	9,525	3,81	55°	4,76	0,8		3441750

### Lathe tool set HM 16 mm



Lathe tool set HM 16 mm		3441216
<ul style="list-style-type: none"> <li>• 5-part</li> <li>• With HM turning plates</li> <li>• TiN coated</li> </ul>		

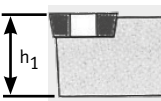
No.	ISO			h1
26	SSSC	R1616	J09	16 mm
27	SCLC	R1616	J09	16 mm
28	SDNC	N1616	J11	16 mm
29	SDJC	R1616	J11	16 mm
30	SDJC	L1616	J11	16 mm



HM replacement turning plates (5 pcs. each)							
3441280		3441282		3441281			
No.	ISO	D1	D2	B1	S1	right	article no.
26	SCMT09T304	9.525	4.4	90°	3.97	0.4	3441280
27	CCMT09T304	9.525	4.4	80°	3,97	0.4	3441282
28-30	DCMT11T304	9.525	4.4	55°	3,97	0.4	3441281

Single lathe tool 16 mm		Article no.
26	SSSC R1616J09	3441230
27	SCLC R1616J09	3441231
28	SDNC N1616J11	3441232
29	SDJC R1616J11	3441233
30	SDJC L1616J11	3441234

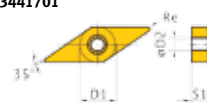


## Lathe tool set HM 16 mm

Lathe tool set HM 16 mm		3441610
<ul style="list-style-type: none"> <li>• 5-part</li> <li>• With HM turning plates</li> <li>• TiN coated</li> <li>• Aluminium box</li> </ul>		

No.	ISO			h1
31	MVJNR	1616	H16	16 mm
32	MVVNN	1616	H16	16 mm
33	PRANN	1616	H10	16 mm
34	PRGNR	1616	H10	16 mm
35	SER	1616	H16	16 mm



HM replacement turning plates (5 pcs. each)

<b>3441701</b>		<b>3441702</b>			<b>3441703</b>		
							
No.	ISO	D1	D2	B1	S1	right	article no.
31/33	VNMG160408	9.525	3,81	35°	4,76	0,8	3441701
32/34	RNMM1003MO	10	3,6	-	3,97		3441702
35	16ER AG60	16	3,95	60°	3,65		3441703

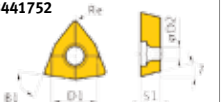

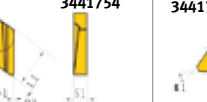

## Lathe tool set HM 20 mm

Lathe tool set HM 20 mm		3441670
<ul style="list-style-type: none"> <li>• 5-part</li> <li>• With HM turning plates</li> <li>• TiN coated</li> <li>• Aluminium box</li> </ul>		

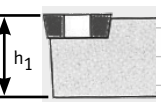
No.	ISO			h1
36	PWLN	R2020	08 grain	20 mm
37	PWLN	L2020	08 grain	20 mm
38	PSDN	N2020	12 grain	20 mm
39	CKJN	R2020	16 grain	20 mm
40	MDJN	R2020	11 grain	20 mm



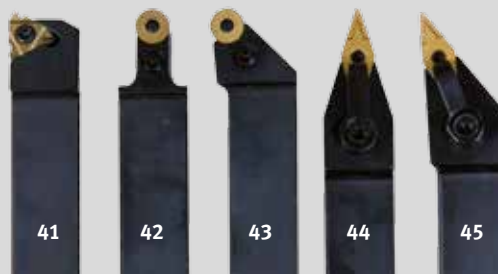
HM replacement turning plates (5 pcs. each)

3441752		3441756		3441754		3441750		
								
No.	ISO	D1	D2	B1	S1	right	L1	article no.
36/37	WNMG080408	9,252	3,81	80°	4,76	0,8		3441752
38	SNMG120408	12,7	5,16	90°	4,76	0,8		3441756
39	KNUX160405R	9,252		55°	4,76	0,5	16,15	3441754
40	DNMG110408	9,525	3,81	55°	4,76	0,8		3441750



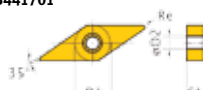
## Lathe tool set HM 20 mm

Lathe tool set HM 20 mm		3441617
<ul style="list-style-type: none"> <li>• 5-part</li> <li>• With HM turning plates</li> <li>• TiN coated</li> <li>• Aluminium box</li> </ul>		

No.	ISO			h1
41	SER	2020	16 grain	20 mm
42	PRGNR	2020	10 grain	20 mm
43	PRANN	2020	10 grain	20 mm
44	MVVNN	2020	16 grain	20 mm
45	MVJNR	2020	16 grain	20 mm



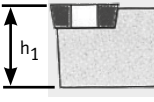
HM replacement turning plates (5 pcs. each)

3441703		3441702			3441701		
							
No.	ISO	D1	D2	B1	S1	right	article no.
41	16ER AG60	16	3,95	60°	3,65		3441703
42/43	RNMM1003MO	10	3,6	-	3,97		3441702
44/45	VNMG160408	9.525	3.81	35°	4.76	0.8	3441701

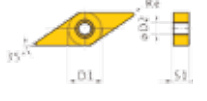
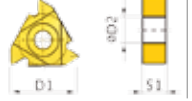



## LATHE TOOL SET


### Lathe tool set HM 25 mm

Lathe tool set HM 25 mm	3441623
<ul style="list-style-type: none"> <li>5-part</li> <li>With HM turning plates</li> <li>TiN coated</li> <li>Aluminium box</li> </ul>	



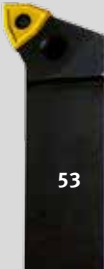


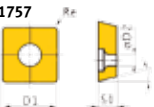
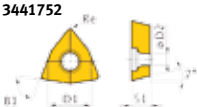
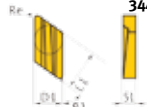
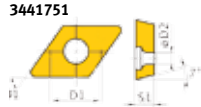
No.	ISO			h1
46	MVVN	N2525	M16	25 mm
47	SE	R2525	M16	25 mm
48	PRGN	R2525	M12	25 mm
49	PRAN	N2525	M16	25 mm
50	MVJN	R2525	M16	25 mm

HM replacement turning plates (5 pcs. each)							
3441701/04		3441703		3441705			
							
No.	ISO	D1	D2	B1	S1	right	article no.
46/50	VNMG160408	9,525	3,81	35°	4,76	0,8	3441701
47	16ER AG60	16	3,95	60°	3,65		3441703
48	RNMG1204M0	12	4,75	R	5,1	-	3441705
49	RNMG1605M0	16	5,4	R	6,3	-	3441704

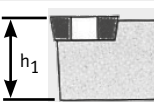
### Lathe tool set HM 25 mm

Lathe tool set HM 25 mm	3441672
<ul style="list-style-type: none"> <li>5-part</li> <li>With HM turning plates</li> <li>TiN coated</li> <li>Aluminium box</li> </ul>	






No.	ISO			h1
51	PWLN	L2525	M08	25 mm
52	PSDN	N2525	M15	25 mm
53	PWLN	R2525	M08	25 mm
54	CKJNR	R2525	M16	25 mm
55	MDJN	R2525	M15	25 mm

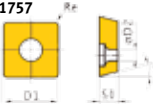



								
HM replacement turning plates (5 pcs. each)								
<b>3441757</b> 	<b>3441752</b> 	<b>3441754</b> 	<b>3441751</b> 					
No.	ISO	D1	D2	B1	S1	right	L1	article no.
51/53	WNMG080408	9,252	3,81	80°	4,76	0,8		3441752
52	SNMG150608	15.875	6.35	90°	6.35	0,8		3441757
54	KNUX160405R	9,252		55°	4,76	0,5	16,15	3441754
55	DNMG150408	12,7	5,16	55°	4,76	0,8		3441751

### Lathe tool set HM 32 mm

Lathe tool set HM 32 mm	3441674
<ul style="list-style-type: none"> <li>5-part</li> <li>With HM turning plates</li> <li>TiN coated</li> <li>Aluminium box</li> </ul>	

No.	ISO			h1
56	PWLN	L3232	P08	32 mm
57	PSDN	N3232	P15	32 mm
58	PWLN	R3232	P08	32 mm
59	CKJN	R3232	P16	32 mm
60	MDJN	R3232	P15	32 mm

				
56	57	58	59	60

HM replacement turning plates (5 pcs. each)								
3441757		3441752		3441751		3441754		
								
No.	ISO	D1	D2	B1	S1	right	L1	article no.
56/58	WNMG080408	9,252	3,81	80°	4,76	0,8		3441752
57	SNMG150608	15.875	6.35	90°	6.35	0,8		3441757
59	KNUX160405R	9,252		55°	4,76	0,5	16,15	3441754
60	DNMG150408	12,7	5,16	55°	4,76	0,8		3441751

## Inside lathe tool

### Inside lathe tool set 10 mm 3441640

- 3-part
- With HM turning plates
- TiN coated
- Aluminium box

No.	ISO		
61	S10K	SCFCR	06
62	S10K	SDQCR	07
63	S10K	STFCR	11

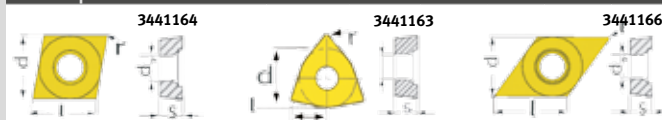
### Inside lathe tool set 12 mm 3441641

- 3-part
- With HM turning plates
- TiN coated
- Aluminium box

No.	ISO		
61	S12M	SCFCR	06
62	S12M	SDQCR	07
63	S12M	STFCR	11



### HM replacement turning plates (5 pcs. each)



for No.	ISO		l	s	R	d	d1	article no.
61	CCMT060204	C/80°	6,35	2,60	0,40	6,35	2,70	3441164
62	TCMT110204	T/60°	10,84	2,53	0,40	9,1	2,70	3441163
63	DCMT070204	D/55°	7,30	2,53	0,40	6,35	2,70	3441166



### Inside thread turning tool set 3441650

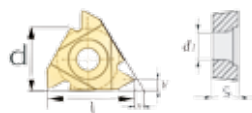
- 5part (8/10/12/16/20 mm)
- With HM turning plates
- TiN coated
- Aluminium box

No.	ISO			d
64	S10K	SIR 0008	H08 11	8 mm
65	S10K	SIR 0010	grain	10 mm
66	S10K	SIR 0012	M11	12 mm
67	S10K	SIR 0016	P16	16 mm
68	S10K	SIR 0020	S16	20 mm

## Inside thread turning tool



### HM replacement turning plates (5 pcs. each)



	ISO		l	s	d	d1	max.*	article no.
64	08IR A60	60° IR	8	2,22	4,76	2,5	M10	3441725
65/66	11IR A60	60° IR	11	3,22	6,35	3,0	M12	3441726
67/68	16IR A60	60° IR	16	3,65	9,5	3,95	M16	3441727

**NEW**

### Lathe tool set HM 8 mm 3441601

11-part . With HM plates soldered on

### Lathe tool set HM 10 mm 3441602

11-part . With HM plates soldered on

### Lathe tool set HM 12 mm 3441603

11-part . With HM plates soldered on

### Lathe tool set HM 16 mm 3441604

11-part . With HM plates soldered on



## OPTIMUM

### Three-jaw lathe chuck

#### OPTIMUM Three-jaw lathe chuck centre clamping

##### ► Cast lathe chuck

- Cylindrical centring mount as per DIN 6350
- Concentricity better than 0.05 mm
- Chuck flange required

Ø 80 mm	3440287
Soft block jaw set 1-part - 3 pcs.	3442902
Ø 100 mm	3442710
Soft block jaw set 1-part - 3 pcs.	3442904
Ø 125 mm	3442712
Soft block jaw set 1-part - 3 pcs.	3442906
Ø 160 mm	3442716
Soft block jaw set 1-part - 3 pcs.	3442907



#### Scope of Delivery

- Chuck key
- Hard single-part inside clamping jaws
- Hard single-part outside clamping jaws

**i** „Futterflansch“ auf Seite <?>

## OPTIMUM

### Four-jaw lathe chuck

#### OPTIMUM Four-jaw lathe chuck centre clamping

##### ► Cast lathe chuck

- Cylindrical centring mount as per DIN 6350
- Concentricity better than 0.05 mm
- Chuck flange required

Ø 80 mm	3442808
Soft block jaw set 1-part - 4 pcs.	3442920
Ø 100 mm	3442810
Soft block jaw set 1-part - 4 pcs.	3442922
Ø 125 mm	3442812
Soft block jaw set 1-part - 4 pcs.	3442924
Ø 160 mm	3442816
Soft block jaw set 1-part - 4 pcs.	3442926

#### OPTIMUM Four-jaw lathe chuck individual clamping

Ø 80 mm	3440286
Ø 100 mm	3442872
Ø 125 mm	3442874



#### Scope of Delivery

- Chuck key
- Hard single-part inside clamping jaws
- Hard single-part outside clamping jaws

**i** **OPTIMUM** „Technical data of lathe chuck“ on page 156  
„Chuck flange“ on page 158

## OPTIMUM

### Three-jaw lathe chuck Camlock

#### OPTIMUM Three-jaw lathe chuck Camlock centre clamping

##### ► Cast lathe chuck

- Camlock direct mount DIN 55029

Ø 160 mm Camlock DIN ISO 702-2 No. 4	3442761
Soft block jaw set 1-part - 3 pcs.	3442907
Ø 200 mm Camlock DIN ISO 702-2 No. 4	3442762
Soft block jaw set 1-part - 3 pcs.	3442910
Ø 200 mm Camlock DIN ISO 702-2 No. 5	3442764
Soft block jaw set 1-part - 3 pcs.	3442910
Ø 200 mm Camlock DIN ISO 702-2 No. 6	3442763
Soft block jaw set 1-part - 3 pcs.	3442910
Ø 250 mm Camlock DIN ISO 702-2 No. 6	3442765
Soft block jaw set 1-part - 3 pcs.	3442912
Ø 315 mm Camlock DIN ISO 702-2 No. 8	3442768
Soft block jaw set 1-part - 3 pcs.	3442916



#### Scope of Delivery

- Chuck key
- Hard single-part inside clamping jaws
- Hard single-part outside clamping jaws

## OPTIMUM

### Four-jaw lathe chuck Camlock

#### OPTIMUM Four-jaw lathe chuck Camlock centre clamping

##### ► Cast lathe chuck

- Camlock direct mount DIN 55029

Ø 160 mm Camlock DIN ISO 702-2 No. 4	3442840
Soft block jaw set 1-part - 4 pcs.	3442926
Ø 200 mm Camlock DIN ISO 702-2 No. 4	3442843
Soft block jaw set 1-part - 4 pcs.	3442927
Ø 200 mm Camlock DIN ISO 702-2 No. 5	3442845
Soft block jaw set 1-part - 4 pcs.	3442927
Ø 200 mm Camlock DIN ISO 702-2 No. 6	3442846
Soft block jaw set 1-part - 4 pcs.	3442928
Ø 250 mm Camlock DIN ISO 702-2 No. 6	3442852
Soft block jaw set 1-part - 4 pcs.	3442935
Ø 315 mm Camlock DIN ISO 702-2 No. 8	3442856
Soft block jaw set 1-part - 4 pcs.	3442938

#### OPTIMUM Four-jaw lathe chuck Camlock individual clamping

Ø 200 mm Camlock DIN ISO 702-2 No. 4	3442879
Ø 200 mm Camlock DIN ISO 702-2 No. 5	3442880
Ø 250 mm Camlock DIN ISO 702-2 No. 6	3442884
Ø 315 mm Camlock DIN ISO 702-2 No. 8	3442888
Ø 400 mm Camlock DIN ISO 702-2 No. 8	3442890



#### Scope of Delivery

- Chuck key
- Hard single-part inside clamping jaws
- Hard single-part outside clamping jaws



## Three-jaw lathe chuck

NEW

### BISON Three-jaw lathe chuck centre clamping

#### ► Lathe chuck body made of premium cast material

- All work surfaces induction tempered and polished
- Uniform clamping forces
- High concentricity (better than DIN 6386)

Ø 125 mm DIN 6350	3450230
Block jaw set, soft	3450410
Ø 160 mm DIN 6350	3450232
Block jaw set, soft	3450412



#### Scope of Delivery

- Chuck key
- Hard single-part inside clamping jaws
- Hard single-part outside clamping jaws

### BISON Three-jaw lathe chuck centre clamping

#### ► Lathe chuck body made of premium steel

Ø 250 mm Camlock DIN ISO 702-2 No. 5	3450530
Block jaw set, soft	3450426



## Three-jaw lathe chuck Camlock

NEW

### BISON Three-jaw lathe chuck Camlock centre clamping

#### ► Lathe chuck body made of premium cast material

- All work surfaces induction tempered and polished
- Camlock direct mount DIN 55029
- High concentricity (better than DIN 6386)

Ø 160 mm Camlock DIN ISO 702-2 No. 4	3450305
Block jaw set, soft	3450412
Ø 200 mm Camlock DIN ISO 702-2 No. 4	3450310
Block jaw set, soft	3450414
Ø 200 mm Camlock DIN ISO 702-2 No. 5	3450315
Block jaw set, soft	3450414
Ø 200 mm Camlock DIN ISO 702-2 No. 6	3450320
Block jaw set, soft	3450414
Ø 200 mm DIN 6350 A2-5	3450210
Block jaw set, soft	3450414
Ø 250 mm Camlock DIN ISO 702-2 No. 5	3450325
Block jaw set, soft	3450416
Ø 250 mm Camlock DIN ISO 702-2 No. 6	3450330
Block jaw set, soft	3450416
Ø 250 mm Camlock DIN ISO 702-2 No. 8	3450331
Block jaw set, soft	3450416
Ø 315 mm Camlock DIN ISO 702-2 No. 8	3450335
Block jaw set, soft	3450418



## Four-jaw lathe chuck

NEW

### BISON Four-jaw lathe chuck centre clamping

#### ► Lathe chuck body made of premium cast material

- All work surfaces induction tempered and polished
- Uniform clamping forces
- High concentricity (better than DIN 6386)

Ø 125 mm DIN 6350	3450234
Block jaw set, soft	3450420
Ø 160 mm DIN 6350	3450236
Block jaw set, soft	3450422

#### Chuck flange

Ø 125 mm for three- and four-jaw lathe chucks Ø 125 mm	3450240
Ø 160 mm for three- and four-jaw lathe chucks Ø 160 mm	3450241
Ø 200 mm for three- and four-jaw lathe chucks Ø 200 mm	3450212
Ø 250 mm for three- and four-jaw lathe chucks Ø 250 mm	3450218

#### Scope of Delivery

- Chuck key
- Hard single-part inside clamping jaws
- Hard single-part outside clamping jaws



„Technische Daten Drehfutter“ auf Seite <?>  
„Futterflansch“ auf Seite <?>



## Four-jaw lathe chuck Camlock

NEW

### BISON Four-jaw lathe chuck Camlock centre clamping

#### ► Lathe chuck body made of premium cast material

Ø 160 mm Camlock DIN ISO 702-2 No. 4	3450355
Block jaw set, soft	3450422
Ø 200 mm Camlock DIN ISO 702-2 No. 4	3450360
Block jaw set, soft	3450424
Ø 200 mm Camlock DIN ISO 702-2 No. 5	3450365
Block jaw set, soft	3450424
Ø 200 mm Camlock DIN ISO 702-2 No. 6	3450370
Block jaw set, soft	3450424
Ø 250 mm DIN 6350 A2-5	3450216
Block jaw set, soft	3450426
Ø 250 mm Camlock DIN ISO 702-2 No. 5	3450375
Block jaw set, soft	3450426
Ø 250 mm Camlock DIN ISO 702-2 No. 6	3450380
Block jaw set, soft	3450426
Ø 250 mm Camlock DIN ISO 702-2 No. 8	3450381
Block jaw set, soft	3450426
Ø 315 mm Camlock DIN ISO 702-2 No. 8	3450385
Block jaw set, soft	3450428
Ø 400 mm Camlock DIN ISO 702-2 No. 8	3450390
Block jaw set, soft	3450430

### BISON Four-jaw lathe chuck Camlock centre clamping

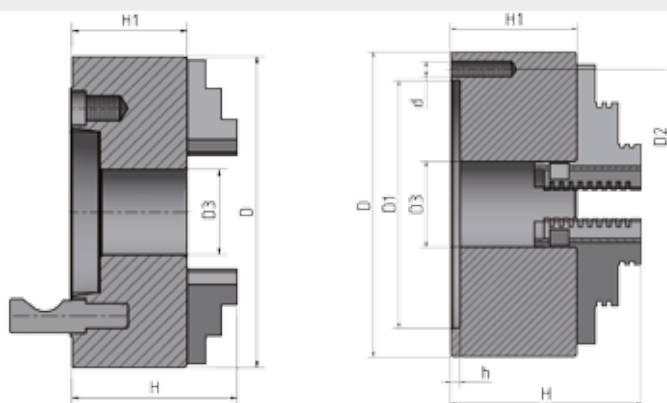
#### ► Lathe chuck body made of premium steel

Ø 250 mm Camlock DIN ISO 702-2 No. 6	3450580
Block jaw set, soft	3450426

## TECHNICAL DATA OF LATHE CHUCK

### OPTIMUM

#### Three-jaw lathe chuck



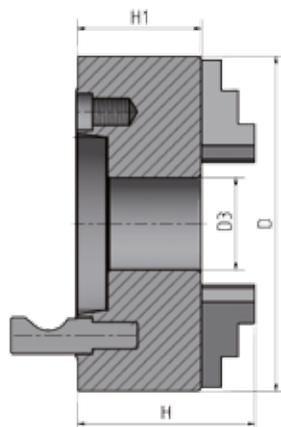
Chuck	Art. no.	D	D1	D2	D3	d	H	H1	h	Speed (rpm)
Ø 80 mm	3440287	80	55	66	16	M6	66	50	3,5	4.000
Ø 100 mm	3442710	100	72	84	22	M8	74,5	55	3,5	4.200
Ø 125 mm	3442712	125	95	108	30	M8	84	58	4	3.800
Ø 160 mm	3442716	160	130	142	40	M8	95	65	5	3.000

Chuck	Camlock	Art. no.	D	D3	H	H1	Indexing circle	Speed (rpm)
NEW Ø 160 mm	No.4	3442761	160	40	101	71	82,6	3.000
NEW Ø 200 mm	No.4	3442762	200	50	124	86	82,6	3.000
Ø 200 mm	No.5	3442764	200	50	124	86	104,8	3.000
Ø 200 mm	No.6	3442763	200	50	128	86	133,4	3.000
Ø 250 mm	No.6	3442765	250	70	140	98	133,4	2.400
Ø 315 mm	No.8	3442768	315	105	180	103,5	171,4	1.800

**BISON**

NEW

#### Three-jaw lathe chuck



Chuck	Camlock	Art. no.	D	D3	H1	H	Indexing circle	Speed (rpm)
NEW Ø 160 mm	No.4	3450305	160	42	81,5	124,5	82,6	3.600
Ø 200 mm	No.4	3450310	200	56	107	136	82,6	3.000
Ø 200 mm	No.5	3450315	200	56	107	136	104,8	3.000
Ø 200 mm	No.6	3450320	200	55	91	136	133,4	3.000
Ø 250 mm	No.5	3450325	250	76	103,5	156,5	104,8	2.500
Ø 250 mm	No.6	3450330	250	76	103,5	156,5	133,4	2.500
Ø 250 mm	No.8	3450331	250	76	103,5	156,5	171,4	2.500
Ø 315 mm	No.8	3450335	315	103	117,7	174,7	171,4	2.000

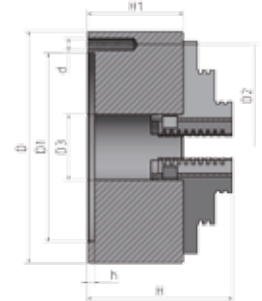
Chuck	Art. no.	B	B1	C	D H7	E	F	G	J	L	kg	Speed (rpm)
Ø 125 mm	3450230	56	60,8	4	95	32	108	3 x M8	20	40	5	4.000
Ø 160 mm	3450232	64,5	69,3	4	125	42	140	3 x M10	32	43	10	3.600
Ø 200 mm	3450210	75	79,8	4	160	55	176	6 x M10	29	45	17,5	3.000



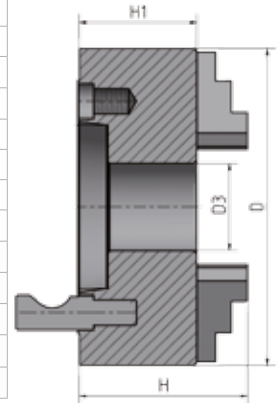
# OPTIMUM

## Four-jaw lathe chuck

Chuck	Art. no.	D	D1	D2	D3	d	H	H1	h	Speed
<b>Centre clamping</b>										
Ø 80 mm	3442808	80	55	66	16	M6	66	50	3,5	4.300
Ø 100 mm	3442810	100	72	84	22	M8	74,5	55	3,5	3.400
Ø 125 mm	3442812	125	95	108	30	M8	84	58	4	2.750
Ø 160 mm	3442816	160	130	142	40	M8	95	65	5	2.150
<b>Individual clamping</b>										
Ø 80 mm	3440286	80	55	66	22	M6	56	42	3,5	4.800
Ø 100 mm	3442872	100	72	84	25	M8	73	54	3,5	3.500
Ø 125 mm	3442874	125	95	108	30	M8	78	58	4,5	3.000



Chuck	Camlock	Art. no.	D	D3	H	H1	Indexing circle	Speed (rpm)
<b>Camlock centre clamping</b>								
NEW Ø 160 mm	No.4	3442840	160	40	95	70	82,6	2.150
NEW Ø 200 mm	No.4	3442843	200	55	109	86	82,6	3.000
NEW Ø 200 mm	No.5	3442845	200	55	109	86	104,8	3.000
NEW Ø 200 mm	No.6	3442846	200	65	109	86	133,4	3.000
NEW Ø 250 mm	No.6	3442852	250	70	120	95	133,4	2.400
NEW Ø 315 mm	No.8	3442856	315	100	142,5	106	171,4	1.800
<b>Camlock individual clamping</b>								
NEW Ø 200 mm	No.4	3442879	200	55	120	91	82,6	2.100
NEW Ø 200 mm	No.5	3442880	200	55	120	91	104,8	2.100
NEW Ø 250 mm	No.6	3442884	250	65	117,5	82	133,4	1.600
NEW Ø 315 mm	No.8	3442888	315	95	134	90	171,4	1.200
NEW Ø 400 mm	No.8	3442890	400	125	143	95	171,4	1.000

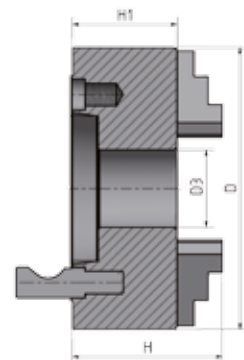


**BISON**



## Four-jaw lathe chuck

Chuck	Camlock	Art. no.	D	D3	H1	H	Indexing circle	Speed (rpm)
Ø 160 mm	No.4	3450355	160	42	81,5	124,5	82,6	3.600
Ø 200 mm	No.4	3450360	200	55	91	136	82,6	3.000
Ø 200 mm	No.5	3450365	200	55	91	136	104,8	3.000
Ø 200 mm	No.6	3450370	200	55	91	136	133,4	3.000
Ø 250 mm	No.5	3450375	250	76	103,5	156,5	104,8	2.500
Ø 250 mm	No.6	3450380	250	76	103,5	156,5	133,4	2.500
Ø 250 mm	No.8	3450381	250	76	103,5	156,5	171,4	2.500
Ø 315 mm	No.8	3450385	315	103	117,7	174,7	171,4	2.000
Ø 400 mm	No.8	3450390	400	136	128,5	207,5	171,4	1.600



Chuck	Art. no.	B	B1	C	D H7	E	F	G	J	L	kg	Speed (rpm)
Ø 125 mm	3450234	56	60,8	4	95	32	108	3 x M8	20	40	5	4.000
Ø 160 mm	3450236	64,5	69,3	4	125	42	140	3 x M10	32	43	10	3.600
Ø 250 mm	3450216	75	79,8	4	160	55	176	6 x M10	29	45	17,5	2.500

## ACCESSORIES FOR LATHES

Clamping disc	Article no.
Ø 170 mm for TU 2004V	3440295
Ø 240 mm for TU 2304 / TU 2406	3440552
Ø 240 mm for TU 2506	3441352
Ø 265 mm for TU 2807	3441452
Ø 300 mm Camlock DIN ISO 702-2 No. 4	3442976
Ø 320 mm A 2-5	3442979
Ø 330 mm Camlock DIN ISO 702-2 No. 5	3442978
Ø 350 mm Camlock DIN ISO 702-2 No. 6	3442980
Ø 450 mm No. 8	3442982

Chuck flange	Article no.
• For lathe chuck assembly	
Ø 160 mm Camlock DIN ISO 702-2 No. 4	3441512
• for four-jaw lathe chucks Ø 160 mm	
Ø 200 mm Camlock DIN ISO 702-2 No. 4	3441513
• for four-jaw lathe chucks Ø 200 mm	
Ø 200 mm Camlock DIN ISO 702-2 No. 5	3441514
• for four-jaw lathe chucks Ø 200 mm	
Ø 200 mm Camlock DIN ISO 702-2 No. 6	3444012
• for four-jaw lathe chucks Ø 200 mm	
Ø 250 mm Camlock DIN ISO 702-2 No. 6	3444013
• for four-jaw lathe chucks Ø 250 mm	
Ø 315 mm Camlock DIN ISO 702-2 No. 8	3444041
• for three- and four-jaw lathe chucks Ø 315 mm	

Chuck flange	Article no.
• For lathe chuck assembly	
Ø 100 mm	3440312
• Cylindrical for TU 2004V	
Ø 125 mm	3440313
• Cylindrical for TU 2304	
Ø 125 mm	3440511
• Cylindrical for TU 2406	
Ø 125 mm	3441312
• Short taper for TU 2506 / TU 2807	
Ø 160 mm	3441413
• Short taper for TU 2807	



Travelling centre	Article no.
• With 7 replaceable tips	
• Body made of tempered and polished tool steel	
• Precision needle bearings guarantee excellent concentricity	
MK 2	3440732
MK 3	3440733
MK 4	3440734

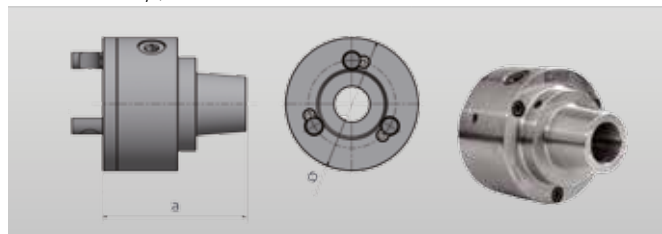


Collet chuck	Article no.
With short taper mount	
ER 16 Ø 22 mm	3440281
• Cylindrical for TU 1503V	
ER 25 Ø 72 mm	3440305
• Cylindrical for TU 2004V / TU 2304	
ER 25 Ø 52 mm	3440505
• Cylindrical for TU 2406	
ER 32 Ø 52 mm	3440506
• Cylindrical for TU 2406	
ER 25 Ø 52 mm	3441305
• Cylindrical for TU 2506 / TU 2807	
ER 32 Ø 52 mm	3441306
• Short taper for TU 2506 / TU 2807	



Collet chuck for collet type 5C / 385E
• as per DIN 6341
• With spindle chuck as per DIN ISO 702-2
• Concentricity 0.02 mm

<b>NEW</b>	5C - Camlock no. 4	3441554
	• a = 71 mm / Ø = 126 mm	
	5C - Camlock no. 5	3441555
	• a = 107.4 mm / Ø = 126 mm	
	5C - Camlock no. 6	3441556
	• a = 160 mm / Ø = 182 mm	
	5C - Camlock no. 8	3441558
	• a = 163 mm / Ø = 225 mm	



<b>Vibration damping machine base</b>	3441509
<ul style="list-style-type: none"><li>• The machines and equipment can be installed without anchors and precisely levelled using the height adjustment system.</li><li>• Effective impact and vibration damping improves the machine's capability</li></ul>	

SE 1	3381012
SE 2	3381016
SE 3	3381018



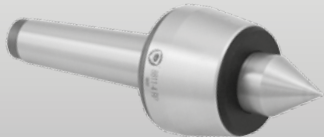
Load	SE 1	SE 2	SE 3
Milling machines	340 kg	460 kg	1,600 kg
Sawing/gen. Machine	570 kg	1,460 kg	3,500 kg
Threading	M 12	M 16	M 20
Base Ø/Base height	120/32	160/35	185/39

Travelling centre	Article no.
max. radial run-out 0.006 mm	
<b>MK 1</b>	3440701
• Max. speed 5,000 rpm; radial load max. 320 N	
<b>MK 2</b>	3440702
• Max. speed 5,000 rpm; radial load max. 400 N	
<b>MK 3</b>	3440703
• Max. speed 4,500 rpm; radial load max. 800 N	
<b>MK 4</b>	3440704
• Max. speed 3,500 rpm; radial load max. 1,250 N	
<b>MK 5</b>	3440705
• Max. speed 3,000 rpm; radial load max. 1,500 N	
<b>MK 6</b>	3440706
• Max. speed 2,500 rpm; radial load max. 1,800 N	



NEW

<b>BISON</b> Travelling centre	Article no.
max. radial run-out 0.005 mm	
<b>MK 2</b> (NSK ball roller bearings INA needle bearings)	3451002
• Max. speed 7,000 rpm; radial load max. 2,000 N	
<b>MK 3</b> (NSK ball roller bearings INA needle bearings)	3451003
• Max. speed 5,000 rpm; radial load max. 4,000 N	
<b>MK 4</b> (NSK ball roller bearings INA needle bearings)	3451004
• Max. speed 3,800 rpm; radial load max. 8,000 N	
<b>MK 5</b> (2-row SKF angular contact bearings)	3451005
• Max. speed 3,000 rpm; radial load max. 20,000 N	



Spring collet set SPZ - 5C	3441509
• 17-part, clamping range 3 - 25 mm	
• Norm 385 E	
• For universal collet chuck device	



Spring collet set	Article no.
• DIN 6499	
<b>ER 16</b>	3440282
• 12-part, clamping range Ø 1 - 10 mm	
<b>ER 25</b>	3441109
• 15-part, clamping range Ø 1 - 16 mm	
<b>ER 32</b>	3441122
• 18-part, clamping range Ø 3 - 20 mm	



Clamping block set 16-05	3440653
Lathes: TU 3008 / TH 3309 / TH 3610	
• 1 pc. clamping block SLTBN 16-05	
• 1 pc. parting off tool SLIH 26-2	
• 1 pc. parting off tool SLIH 26-3	
• 5 pcs. cutting inserts GTN2 (cutting width 2.2 mm)	
• 5 pcs. cutting inserts GTN3 (cutting width 3.1 mm)	
• Aluminium box	

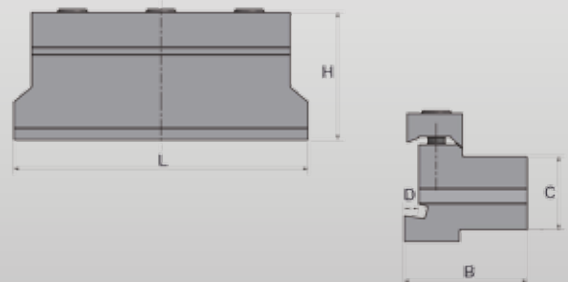
Clamping block set 20-05	3440654
Lathes: TH 4010 / TH 4210 / TH 46 / TH 56	
• 1 pc. clamping block SLTBN 20-05	
• 1 pc. parting off tool SLIH 26-3	
• 1 pc. parting off tool SLIH 26-4	
• 5 pcs. cutting inserts GTN3 (cutting width 3.1 mm)	
• 5 pcs. cutting inserts GTN4 (cutting width 4.1 mm)	
• Aluminium box	

Clamping block set 25-05	3440655
For lathes: D 660 / TU 8020 / TU 8030	
• 1 pc. clamping block SLTBN 25-05	
• 1 pc. parting off tool SLIH 26-3	
• 1 pc. parting off tool SLIH 26-4	
• 5 pcs. cutting inserts GTN3 (cutting width 3.1 mm)	
• 5 pcs. cutting inserts GTN4 (cutting width 4.1 mm)	
• Aluminium box	

Replacement cutting insert set (10 pcs.)	3441509
for cutting inserts <b>GTN 2</b>	3440663
for cutting inserts <b>GTN 3</b>	3440664
for cutting inserts <b>GTN 4</b>	3440665



Clamping block set with clamping inserts and parting off tool



Clamping block	16-05	20-05	25-05
L x W x H (mm)	88 x 38 x 42	88 x 38 x 43	100 x 42 x 43.5
C	16 mm	20 mm	25 mm
D	4 mm	5 mm	5 mm

## ACCESSORIES FOR LATHES

Twist drill HSS with morse taper	Article no.
• 9-part; sizes 14.5/16/18/20/22/24/26/28/30 mm	
• Long service life.	
• Good chip removal	
• Right handed	

<b>MK 2</b>	3051002
<b>MK 3</b>	3051003



Universal coolant unit	3352002
• Motor output 100 Watt 230 V ~50 Hz	
• Delivery height max. 2 m	
• Flow rate 4.5 l/min	
• Container capacity 10 l	
• Complete with container, flexible tube and hose	
• With switch/plug combination	
• Magnetic base fastener for coolant hose	
• For self-assembly!	



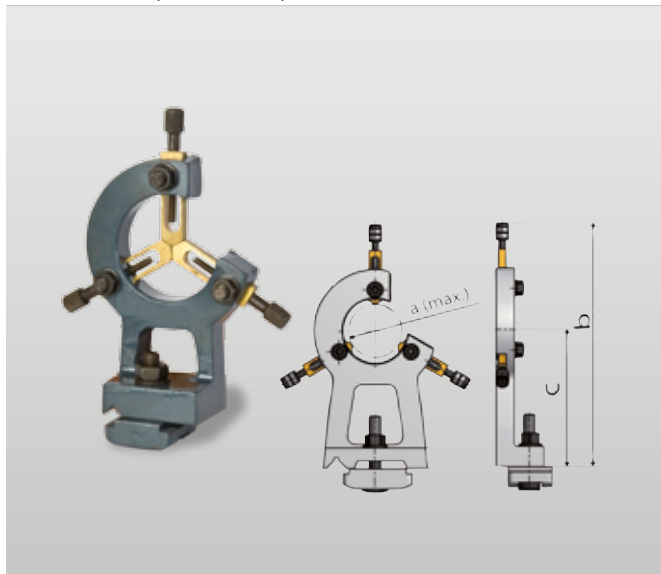
Universal collet chuck device 5C	Article no.
• for lathe <b>TH 3309</b>	3441506
• for lathe <b>TH 42</b> (not Vario)	3441507
• for lathe <b>TH 46</b> (not Vario)	3444006



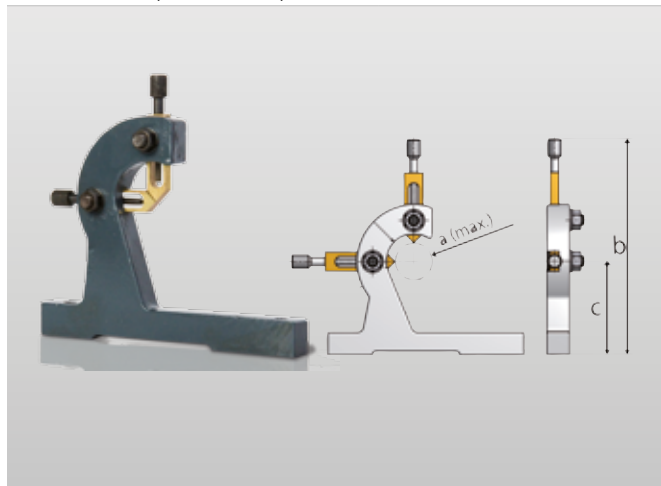
Position stop with granular adjustment	Article no.
• for lathe <b>TH 3309</b>	3441522
• for lathe <b>TH 3610</b>	3441523
• for lathe <b>TH 46</b>	3444022
• for lathe <b>TH 56</b>	3444023



Fixed steady	Article no.
<b>for TU 1503V</b>	3440211
• a = Ø 40 mm; b = 145 mm; c = 70.5 mm	
<b>for TU 2004V</b>	3440231
• a = Ø 50 mm; b = 200 mm; c = 100 mm	
<b>for TU 2304 / TU 2304V</b>	3440361
• a = Ø 55 mm; b = 220 mm; c = 115 mm	
<b>for TU 2406 / TU 2506</b>	3441315
• a = Ø 50 mm; b = 245 mm; c = 125 mm	
<b>for TU 2807 / TU 2807V</b>	3441415
• a = Ø 55 mm; b = 250 mm; c = 140 mm	
<b>for TU 3008 / TU 3008G / TU 3008V</b>	3441461
• a = Ø 60 mm; b = 260 mm; c = 157 mm	



Travelling steady	Article no.
<b>for TU 1503V</b>	3440210
• a = Ø 45 mm; b = 155 mm; c = 76 mm	
<b>for TU 2004V</b>	3440230
• a = Ø 40 mm; b = 195 mm; c = 100 mm	
<b>for TU 2304 / TU 2304V</b>	3440360
• a = Ø 34 mm; b = 200 mm; c = 97 mm	
<b>for TU 2406 / TU 2506</b>	3441310
• a = Ø 34 mm; b = 220 mm; c = 107 mm	
<b>for TU 2807 / TU 2807V</b>	3441410
• a = Ø 56 mm; b = 250 mm; c = 130 mm	
<b>for TU 3008 / TU 3008G / TU 3008V</b>	3441460
• a = Ø 60 mm; b = 255 mm; c = 151 mm	





## Metal-cutting band saws



## Transportable mitre bandsaws with excellent cutting precision, extremely low-noise.

With continuously adjustable saw band speed

### Facts that impress in terms of quality, performance and price

- Equipped as a factory standard with bi-metal saw blade
- Adjustable material stop for batch work
- Base plate with anti-slip feet
- Low vibration and wear thanks to special gearbox with two hardened steel gears
- Vario drive motor with low speed and carbon brushes for up to 10x longer service life

#### SP 11V

- Saw head swivels from 0° to +45° to allow angled sawing

#### SP 13V

- Saw head swivels from 0° to +60° to allow angled sawing



#### Mitre square

- Easily legible scale for adjusting the angle



#### Saw band guide

- Ball-bearing borne; for an excellent band run and thus optimal cutting



#### Vario drive

- Continuously adjustable saw band speed from 30 - 80 m/min.



Fig.: SP13V

#### Saw band run pushbutton

- Switches the saw band run on and off

#### Optional accessory Machine chassis

L x W x H: 500 x 470 x 780 mm

Art no. 3351490

€ 49.00 plus VAT

#### Scope of Delivery

- Material stop
- Bi-metal saw band

Model	SP 11V	SP 13V
article no.	3300070	3300075
<b>Technical specifications</b>		
Electrical connection	230 V / 1 Ph ~50 Hz	230 V / 1 Ph ~50 Hz
Motor output	850 W	1 kW
<b>General instructions</b>		
Saw band speed	30 - 80 m/min	30 - 80 m/min
Saw band dimensions	1,335 x 13 x 0.65 mm	1,440 x 13 x 0.65 mm
Cutting angle	0° - 45°	0° - 60°
<b>Dimensions</b>		
Length	650 mm	720 mm
Width without/with material stop	290 / 670 mm	300 / 650 mm
Height bottom/top limit position	450 / 630 mm	420 / 680 mm
Net weight	19 kg	19.5 kg

Cutting areas				
SP 11V	0°	Ø 105 mm	100 mm	100 x 100 mm
SP 13V	0°	Ø 125 mm	125 mm	125 x 125 mm
SP 11V	45°	Ø 65 mm	60 mm	60 x 65 mm
SP 13V	45°	Ø 85 mm	85 mm	85 x 85 mm
SP 13V	60°	Ø 45 mm	45 mm	45 x 50 mm

The cutting area was determined for a full section. The cutting range can be larger in case of cut-off sections.

Saw bands HSS bi-metal M 42			
	Teeth per inch	Tooth angle	article no.
SP 11V	6 - 10 tpi	0°	3351542
	10 - 14 tpi	0°	3351543
SP 13V	6 - 10 tpi	0°	3351546
	10 - 14 tpi	0°	3351547

„General saw band information“ on page 182

**Light and handy metal band saw.** Ideal for universal deployment on construction sites, on jobs, in customer service vehicles, workshops, hobby workshops and in agriculture

## Facts that impress in terms of quality, performance and price

- ▶ Quick clamping vice for fast workpiece clamping
- ▶ Saw head swivels from 0° to 45° to allow angled sawing
- ▶ Easily legible scale for adjusting the angle
- ▶ Microswitch for automatic limit position cut-off
- ▶ Automatic lowering of the saw head via three-stage adjustable saw head lowering pressure
- ▶ Equipped as a factory standard with bi-metal saw blade
- ▶ Large, handy handle and light weight allow for trouble-free transport to the construction site
- ▶ Adjustable material stop for batch work
- ▶ Fully equipped; the user can immediately start productive work after commissioning
- ▶ Transportation lock



Fig.: S 100 G

## Machine chassis

- Stable, space-saving, folding, easy to transport
- Dimensions L x W x H: 500 x 470 x 780 mm
- Art no. 3351490



## Automatic limit switch cut-off

- Switches the saw band off at the bottom stop



## Saw band guide

- Ball-bearing borne 3-point guide



## Transport

- Large, handy handle and light weight allow for trouble-free transport to the construction site

## Scope of Delivery

- Material stop
- Operating tool
- Bi-metal saw band

## Cutting areas

0°	Ø 100 mm	100 mm	100 x 150 mm
45°	Ø 65 mm	60 mm	60 x 100 mm

The cutting area was determined for a full section.  
The cutting range can be larger in case of cut-off sections.

## Saw bands HSS bi-metal M 42

Teeth per inch	Tooth angle	article no.
<b>10 - 14 tpi</b>	<b>0°</b>	3351110
<b>6 tpi</b>	<b>10°</b>	3351109

## Saw band set HSS bi-metal M 42

1 pcs. Saw band 10 - 14 tpi; 0°	3351100
2 pcs. Saw band 6 tpi; 10°	

„General saw band information“ on page 182

Model	S 100G
Article no.	3300100
<b>Technical specifications</b>	
Electrical connection	230 V / 1 Ph ~50 Hz
Motor output	370 W
<b>General instructions</b>	
Saw band speed	45 m/min
Saw band dimensions	1,470 x 13 x 0.65 mm
Cutting angle	0° to 45°
<b>Dimensions</b>	
Length of vice open / closed	950 / 850 mm
Width without/with material stop	300 / 660 mm
Height bottom/top limit position	680 / 820 mm
Net weight	23 kg

## Metal-cutting band saw ideal for light sawing work. Mitre cutting from -45° to 60° via pivoting saw head

### Facts that impress in terms of quality, performance and price

- ▶ Circuit breaker for belt cover and saw band cover, low-voltage version
- ▶ Separate emergency stop mushroom button
- ▶ Low-voltage electronics 24 V
- ▶ Low-noise running action
- ▶ Ball-bearing borne saw band guide
- ▶ Three gears for a wide choice of materials
- ▶ Microswitch for automatic limit position cut-off
- ▶ Easily legible scale for adjusting the angle
- ▶ Equipped as a factory standard with bi-metal saw blade
- ▶ Saw band tensioning at front, adjustable via handwheel
- ▶ Adjustable material stop for batch work
- ▶ Quick clamping vice for fast workpiece clamping



#### Saw head

- Grey cast iron
- Both sides swivel from -45° to +60°

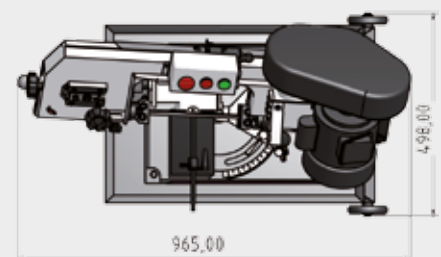
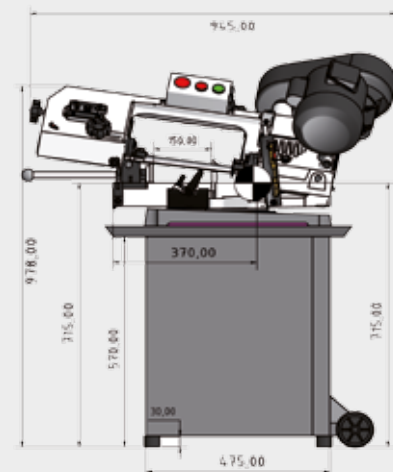
#### Machine chassis

- Mobile



Fig.: S 131GH




### Dimensions



### Scope of Delivery

- Material stop
- Bi-metal saw band
- Machine chassis

### Cutting areas

			
0 °	Ø 128 mm	145 mm	100 x 145 mm
45°	Ø 90 mm	100 mm	70 x 85 mm
60°	Ø 45 mm	45 mm	45 x 56 mm
-45°	Ø 90 mm	100 mm	70 x 85 mm

The cutting area was determined for a full section.

The cutting range can be larger in case of cut-off sections.

Model	S 131GH
Article no.	3300131
Technical specifications	
Electrical connection	230 V / 1 Ph ~50 Hz
Motor output	1.1 kW
General instructions	
Lifting the saw head	manual
Feed	continuously variable
Saw band speed	22 / 31 / 55 m/min
Saw band dimensions	1,638 x 13 x 0.65 mm
Cutting angle	-45° to 60°
Net weight	78 kg

### Saw bands HSS bi-metal M 42

Teeth per inch	Tooth angle	article no.
<b>6 - 10 tpi</b>	<b>0°</b>	3351512
<b>8 - 12 tpi</b>	<b>0°</b>	3351517
<b>10 - 14 tpi</b>	<b>0°</b>	3351518
<b>6 tpi</b>	<b>10°</b>	3351511

### Saw band set HSS bi-metal M 42

1 pcs. Saw band 10 - 14 tpi; 0°	3351500
1 pc. Saw band 6 tpi; 10°	
1 pc. Saw band 6 - 10 tpi; 6°	

„General saw band information“ on page 182

## Band saw for metal working with mitre-pivoting saw head and continuously adjustable saw band speed

### Facts that impress in terms of quality, performance and price

- ▶ Low-noise running action
- ▶ Grey cast base plate and saw head
- ▶ Stable saw frame for smooth, low-vibration action
- ▶ Easily legible scale for adjusting the angle
- ▶ Equipped as a factory standard with bi-metal saw blade
- ▶ Saw band tensioning at front, adjustable via handwheel
- ▶ Adjustable material stop for batch work
- ▶ Fast workpiece clamping thanks to quick clamping vice
- ▶ Fully equipped; the user can immediately start productive work after commissioning



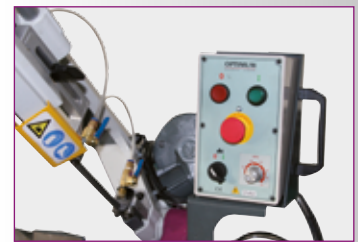
**Pushbutton  
Manual saw band run**

- Switches the saw band run on and off

**Ball-bearing borne  
saw band guide**

**Machine chassis**

- Robust



### Control unit

- Generously dimensioned
- Emergency stop button
- Coolant pump switch
- Potentiometer



### Vario drive

- Continuously adjustable saw band speed

### Scope of Delivery

- Material stop
- Bi-metal saw band
- Machine chassis
- Coolant system

Model	S 150G Vario
Article no.	3300150
Technical specifications	
Electrical connection	230 V / 1 Ph ~50 Hz
Motor output	1.1 kW
Coolant pump motor	50 W
General instructions	
Lifting the saw head	manual
Feed	continuously variable
Saw band speed	20 - 65 m/min
Number of gears	Continuously variable
Saw band dimensions	1,735 x 12.7 x 0.9 mm
Cutting angle	0° to 60°
Dimensions	
Length of vice open/closed	1,120 / 930 mm
Width without/with material stop	510 / 720 mm
height	1,240 / 1,590 mm
Saw head bottom/top limit position	
Net weight	100 kg

Cutting areas			
0°	Ø 150 mm	160 mm	150 x 160 mm
45°	Ø 105 mm	105 mm	105 x 130 mm
60°	Ø 65 mm	65 mm	65 x 65 mm

The cutting area was determined for a full section.  
The cutting range can be larger in case of cut-off sections.

### Saw bands HSS bi-metal M 42

Teeth per inch	Tooth angle	article no.
<b>6 tpi</b>	<b>10°</b>	3351521
<b>6 - 10 tpi</b>	<b>0°</b>	3351522
<b>10 - 14 tpi</b>	<b>0°</b>	3351538

### Saw band set HSS bi-metal M 42

1 pc. saw band 6 tpi; 10°	3351501
1 pc. saw band 6 - 10 tpi; 0°	
1 pc. saw band 10 - 14 tpi; 0°	

„General saw band information“ on page 182



## The metal-cutting band saw for challenging sawing tasks. With drive belt and 4 sawing speeds

### Facts that impress in terms of quality, performance and price

- ▶ Low-noise running action
- ▶ Rugged cast design
- ▶ Saw band lowering via hydraulic cylinder continuously adjustable by throttle valve
- ▶ Microswitch for automatic limit position cut-off
- ▶ Easily legible scale for adjusting the angle
- ▶ Equipped as a factory standard with bi-metal saw blade
- ▶ Saw band tensioning at front, adjustable via handwheel
- ▶ Adjustable material stop for batch work
- ▶ Circuit breaker for belt cover
- ▶ Fully equipped; the user can immediately start productive work after commissioning



Fig. S 181



### Four speeds

Adjustable by shifting the drive belt



### Quick clamping vice

- Clamping jaws adjustable from 0° to 45° for mitre cuts



### Coolant system

- Integrated in chassis
- Tank capacity 11 litres

### Scope of Delivery

- Material stop
- Bi-metal saw band
- Machine chassis

Model	S 181
Article no.	3300181
<b>Technical specifications</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Motor output	750 W
Coolant pump motor	90 W
<b>General instructions</b>	
Lifting the saw head	manual
Feed	continuously variable
Saw band speed	21 / 33.5 / 45 / 50 m/min
Saw band dimensions	2,362 x 19 x 0.9 mm
Cutting angle	0° to 45°
<b>Dimensions</b>	
Length	1,295 mm
Width	
Without material stop	450 mm
With material stop	600 mm
Height	
Saw head bottom limit position	1,060 mm
Saw head top limit position	1,550 mm
Net weight	130 kg

Cutting areas			
0°	Ø 180 mm	180 mm	180 x 240 mm 50 x 300 mm
45°	Ø 110 mm	150 mm	110 x 170 mm

The cutting area was determined for a full section.  
The cutting range can be larger in case of cut-off sections.

### Saw bands HSS bi-metal M 42

Teeth per inch	Tooth angle	article no.
5 - 8 tpi	0°	3357522
5 - 8 tpi	6°	3357516
6 - 10 tpi	0°	3357521
10 - 14 tpi	0°	3357520

### Saw band set HSS bi-metal M 42

1 pc. saw band 6 - 10 tpi; 0° 1 pc. saw band 5 - 8 tpi; 0° 1 pc. saw band 5 - 8 tpi; 6°	3357500
---	---------

„General saw band information“ on page 182



## The metal-cutting band saw for challenging sawing tasks. With manual gearing and 3 sawing speeds

### Facts that impress in terms of quality, performance and price

- ▶ Low-noise running action
- ▶ Rugged cast design
- ▶ Saw band lowering via hydraulic cylinder continuously adjustable by throttle valve
- ▶ Microswitch for automatic limit position cut-off
- ▶ Easily legible scale for adjusting the angle
- ▶ Equipped as a factory standard with bi-metal saw blade
- ▶ Saw band tensioning at front, adjustable via handwheel
- ▶ Adjustable material stop for batch work
- ▶ Fully equipped; the user can immediately start productive work after commissioning

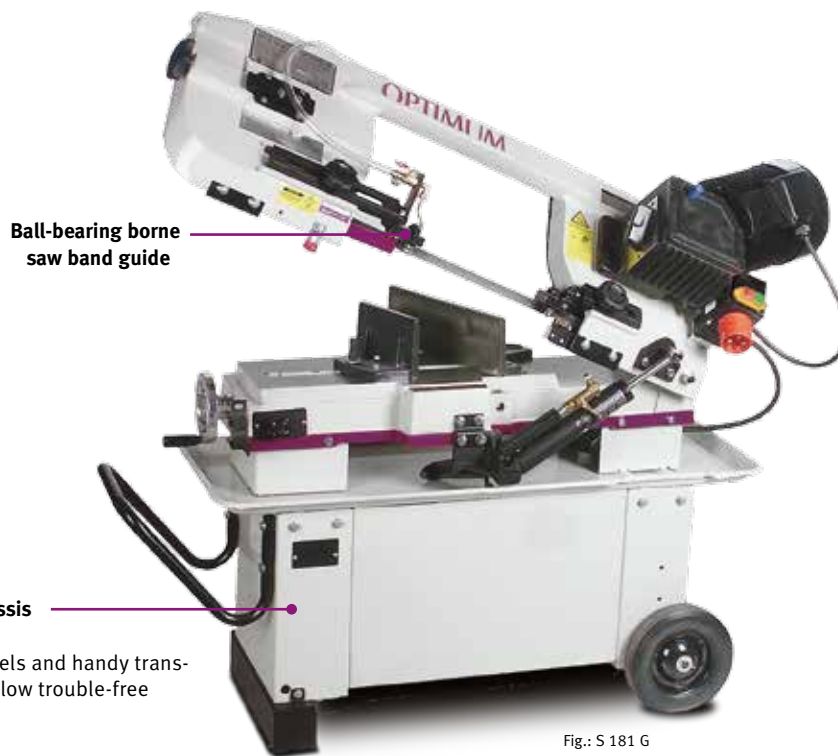
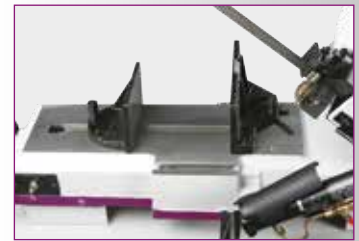


Fig.: S 181 G



#### Three speeds

- Switchable via gearbox



#### Quick clamping vice

- Clamping jaws adjustable from 0° to 45° for mitre cuts



#### Coolant system

- Integrated in chassis
- Tank capacity 11 litres

#### Scope of Delivery

- Material stop
- Bi-metal saw band
- Machine chassis

Model	S 181G
Article no.	3300182
<b>Technical specifications</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Motor output	750 W
Coolant pump motor	90 W
<b>General instructions</b>	
Lifting the saw head	manual
Feed	continuously variable
Saw band speed	45 / 67 / 77 m/min
Saw band dimensions	2,362 x 19 x 0.9 mm
Cutting angle	0° to 45°
<b>Dimensions</b>	
Length	1,200 mm
Width	
Without material stop	450 mm
With material stop	600 mm
Height	
Saw head bottom limit position	1,060 mm
Saw head top limit position	1,550 mm
Net weight	130 kg

Cutting areas			
0°	Ø 180 mm	180 mm	180 x 240 mm 65 x 300 mm
45°	Ø 110 mm	150 mm	110 x 170 mm

The cutting area was determined for a full section. The cutting range can be larger in case of cut-off sections.

#### Saw bands HSS bi-metal M 42

Teeth per inch	Tooth angle	article no.
5 - 8 tpi	0°	3357522
5 - 8 tpi	6°	3357516
6 - 10 tpi	0°	3357521
10 - 14 tpi	0°	3357520

#### Saw band set HSS bi-metal M 42

1 pc. saw band 6 - 10 tpi; 0° 1 pc. saw band 5 - 8 tpi; 0° 1 pc. saw band 5 - 8 tpi; 6°	3357500
---	---------

„General saw band information“ on page 182

## Metal-cutting band saw with pivoting saw head and two saw band speeds

### Facts that impress in terms of quality, performance and price

- ▶ Low-noise running action
- ▶ Rugged cast design
- ▶ Excellent cutting precision thanks to vibration-free action
- ▶ Two switchable speeds
- ▶ Saw band lowering via hydraulic cylinder continuously adjustable by throttle valve
- ▶ Microswitch for automatic limit position cut-off
- ▶ Easily legible scale for adjusting the angle
- ▶ Coolant system
- ▶ Equipped as a factory standard with bi-metal saw blade
- ▶ Adjustable material stop for batch work
- ▶ Fully equipped; the user can immediately start productive work after commissioning



#### Pressure gauge

- Easy and precise checking of the saw band tension

#### Ball-bearing borne saw band guide

#### Quick clamping vice

- Adjustable via hand wheel
- Workpiece is clamped using a handy quick-clamping lever

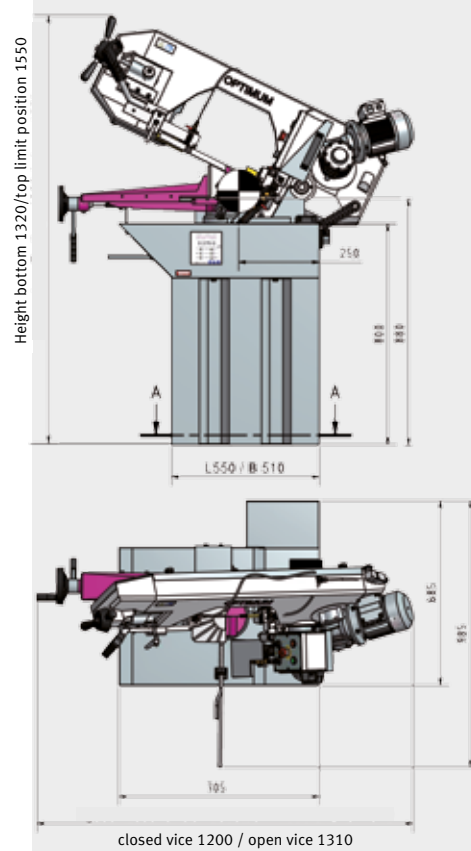
#### Machine chassis

- Robust



Fig. S 210

### Dimensions



### Scope of Delivery

- Material stop
- Bi-metal saw band
- Machine chassis
- Coolant pump

### Cutting areas

0°	Ø 170 mm	140 mm	140 x 190 mm
45°	Ø 125 mm	125 mm	95 x 140 mm

The cutting area was determined for a full section.  
The cutting range can be larger in case of cut-off sections.

Model	S 210G
Article no.	3300210
<b>Technical specifications</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Motor output	750 W
Coolant pump motor	90 W
<b>General instructions</b>	
Lifting the saw head	manual
Feed	continuously variable
Saw band speed	40 / 80 m/min
Saw band dimensions	2,080 x 20 x 0.9 mm
Cutting angle	0° to 45°
Net weight	152 kg

### Saw bands HSS bi-metal M 42

Teeth per inch	Tooth angle	article no.
5 - 8 tpi	0°	3357503
5 - 8 tpi	6°	3357505
6 - 10 tpi	0°	3357514
10 - 14 tpi	0°	3357515

### Saw band set HSS bi-metal M 42

1 pc. saw band 6 - 10 tpi; 0° 1 pc. saw band 5 - 8 tpi; 0° 1 pc. saw band 5 - 8 tpi; 10°	3357502
--	---------

„General saw band information“ on page 182

## Metal band saw with pivoting saw head. S 275NV with continuously adjustable saw band speed

### Facts that impress in terms of quality, performance and price

- ▶ Low-noise running action
- ▶ Rugged cast design
- ▶ Excellent cutting precision thanks to vibration-free action
- ▶ Saw band lowering via hydraulic cylinder continuously adjustable by throttle valve
- ▶ Microswitch for automatic limit position cut-off
- ▶ Coolant system
- ▶ Equipped as a factory standard with bi-metal saw blade
- ▶ Adjustable material stop for batch work
- ▶ Easily legible scale for adjusting the angle
- ▶ Overload protection

#### S 275N

- ▶ Motor circuit switch
- ▶ Two switchable speeds

#### S 275NV

- ▶ Continuously adjustable saw band speed 20 - 90 m/min.
- ▶ Speed change possible during operation



#### Pressure gauge

- Easy and precise checking of the saw band tension

#### Ball-bearing borne saw band guide

#### Quick clamping vice

- Adjustable via hand wheel
- Workpiece is clamped using a handy quick-clamping lever

#### Machine chassis

- Robust

#### Control panel

- Clear-cut keyboard for ease of use

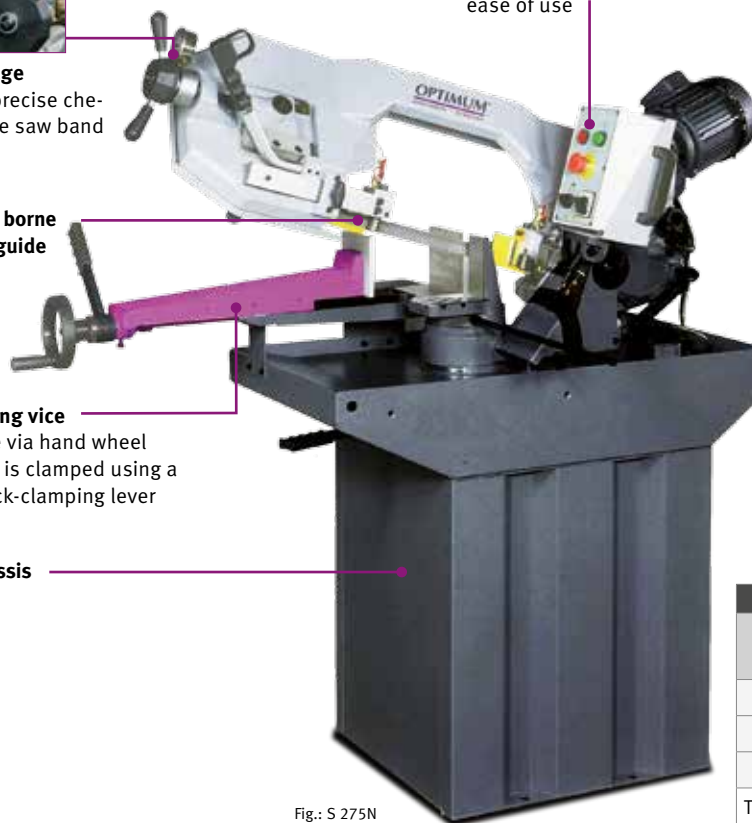
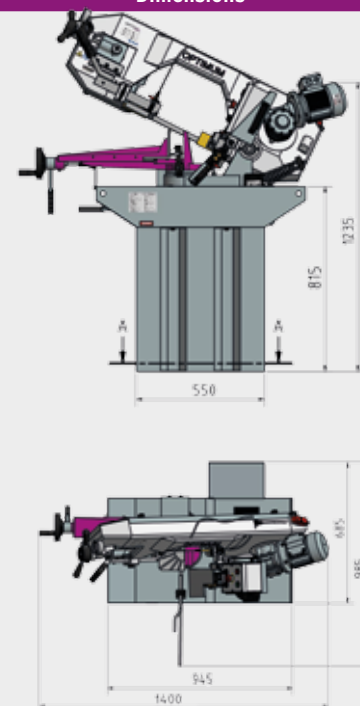


Fig.: S 275N

Model	S 275N	S 275NV
Article no.	3300260	3300265
Technical specifications		
Electrical connection	400 V / 3 Ph ~50 Hz	230 V / 1 Ph ~50 Hz
Motor output	1.1 kW	1.5 kW
Coolant pump motor	90 W	
General instructions		
Lifting the saw head	manual	
Feed	continuously variable	
Saw band speed	45 / 90 m/min	20 - 90 m/min
Saw band dimensions	2,480 x 27 x 0.9 mm	
Cutting angle	0° to 60°	
Net weight	185 kg	185 kg

The metal-cutting bandsaw (frequency converter) complies with the DIN EN 55011 standard: class A

### Dimensions



### Scope of Delivery

- Material stop
- Bi-metal saw band
- Machine chassis
- Coolant pump

### Cutting areas

0°	Ø 225 mm	150 mm	150 x 230 mm
45°	Ø 145 mm	145 mm	145 x 180 mm
60°	Ø 90 mm	90 mm	90 x 120 mm

The cutting area was determined for a full section.  
The cutting range can be larger in case of cut-off sections.

### Saw bands HSS bi-metal M 42

Teeth per inch	Tooth angle	Art.no.
5 - 8 tpi	0°	3357511
5 - 8 tpi	6°	3357512
6 - 10 tpi	0°	3357524
6 - 10 tpi	6°	3357510
10 - 14 tpi	0°	3357525

### Saw band set HSS bi-metal M 42

1 pc. Saw band 6 - 10 tpi; 0°	3357504
1 pc. Saw band 5 - 8 tpi; 0°	
1 pc. Saw band 5 - 8 tpi; 6°	

„General saw band information“ on page 182

## Metal-cutting band saw with pivoting saw head and continuously adjustable saw band speed

### Facts that impress in terms of quality, performance and price

- ▶ Low-noise running action
- ▶ Rugged cast design
- ▶ Excellent cutting precision thanks to vibration-free action
- ▶ Two switchable speeds
- ▶ Saw band lowering via hydraulic cylinder continuously adjustable by throttle valve
- ▶ Microswitch for automatic limit position cut-off
- ▶ Easily legible scale for adjusting the angle
- ▶ Equipped as a factory standard with bi-metal saw blade
- ▶ Adjustable material stop for batch work

### Pressure gauge

- Easy and precise checking of the saw band tension



### Control panel

- Clear-cut keyboard for ease of use

### Coolant system

- Powerful 100 Watts

### Carbide guide

### Quick clamping vice

- Adjustable via hand wheel
- Workpiece is clamped using a handy quick-clamping lever

### Saw band clamping lever

- Saw cutting continuously adjustable within range of 0° to 60°

### Machine chassis

- Robust

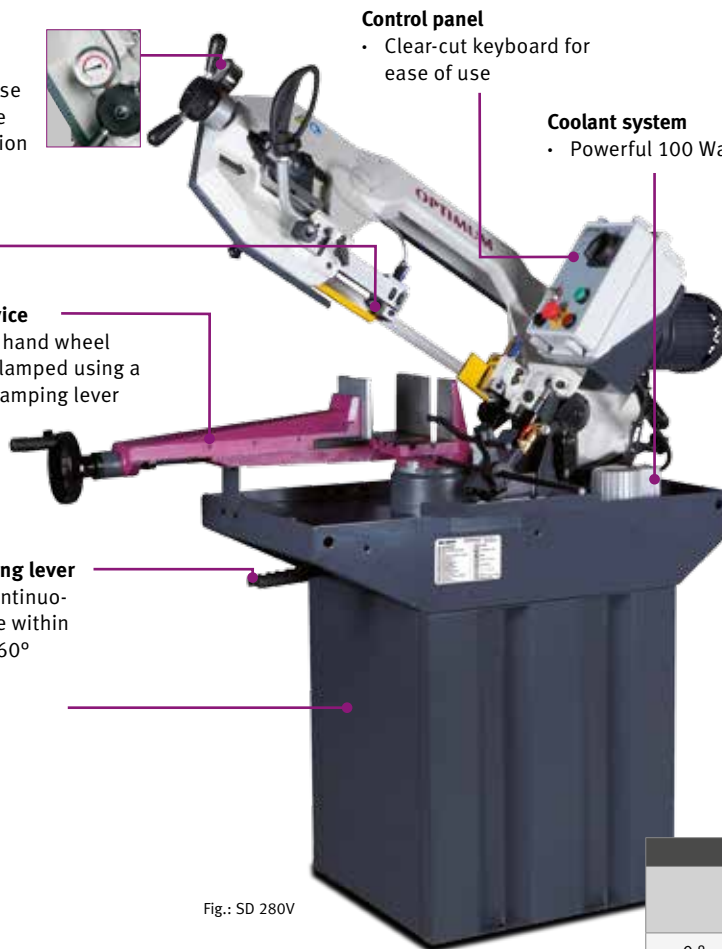
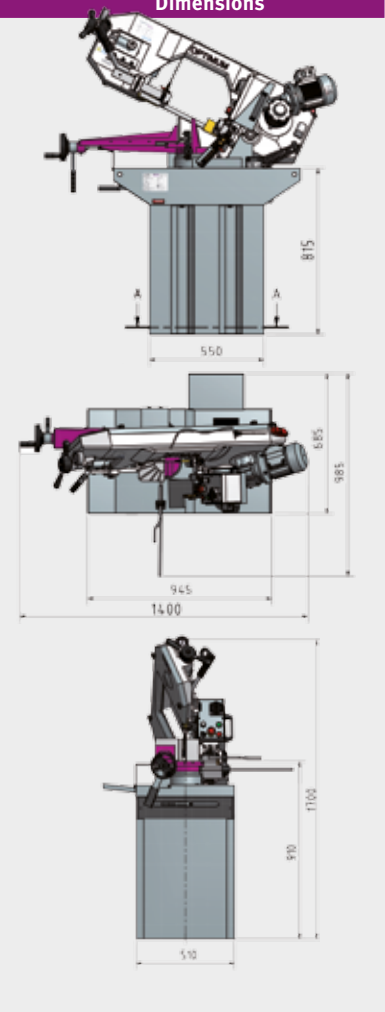


Fig.: SD 280V

### Dimensions



### Scope of Delivery

- Material stop
- Bi-metal saw band
- Machine chassis
- Coolant pump

Model	SD 280V
Article no.	3300280
<b>Technical specifications</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Motor output	1.5 kW
Coolant pump motor	100 W
<b>General instructions</b>	
Lifting the saw head	manual
Feed	continuously variable
Saw band speed	20 - 90 m/min
Saw band dimensions	2,480 x 27 x 0.9 mm
Cutting angle	0° to 60°
<b>Dimensions</b>	
Length	1,400 / 1,700 mm
Width without/with material stop	685 / 985 mm
Height bottom/top limit position	1,300 / 1,700 mm
Net weight	185 kg

Cutting areas			
0°	Ø 225 mm	190 mm	150 x 235 mm
45°	Ø 155 mm	155 mm	155 x 210 mm
60°	Ø 90 mm	90 mm	90 x 120 mm

The cutting area was determined for a full section.  
The cutting range can be larger in case of cut-off sections.

### Saw bands HSS bi-metal M 42

Teeth per inch	Tooth angle	article no.
5 - 8 tpi	0°	3357511
5 - 8 tpi	6°	3357512
6 - 10 tpi	0°	3357524
10 - 14 tpi	0°	3357525

### Saw band set HSS bi-metal M 42

1 pc. saw band 6 - 10 tpi; 0°	3357504
1 pc. saw band 5 - 8 tpi; 0°	
1 pc. saw band 5 - 8 tpi; 6°	

„General saw band information“ on page 182



## Metal-cutting band saw with pivoting saw head for economic and precise work

### Facts that impress in terms of quality, performance and price

- ▶ Low-noise running action
- ▶ Heavy cast design
- ▶ Excellent cutting precision thanks to vibration-free action
- ▶ Ball-bearing borne saw band guide
- ▶ Chip brush
- ▶ Automatic saw switch-off after completing the cut
- ▶ Equipped as a factory standard with bi-metal saw blade
- ▶ Material stop with scaling
- ▶ End stops adjustable to degree accuracy
- ▶ Fully equipped; the user can immediately start productive work after commissioning

### Control unit

- Generously dimensioned
- Emergency stop button
- Coolant pump switch
- Saw band speed



### Roller support

- For supporting long materials

### Quick clamping vice

- Adjustable via hand wheel
- High clamping force thanks to quick clamping lever

### Saw band clamping lever

- Saw cutting continuously adjustable within range of 45° to -60°

### Machine chassis

- Sturdy

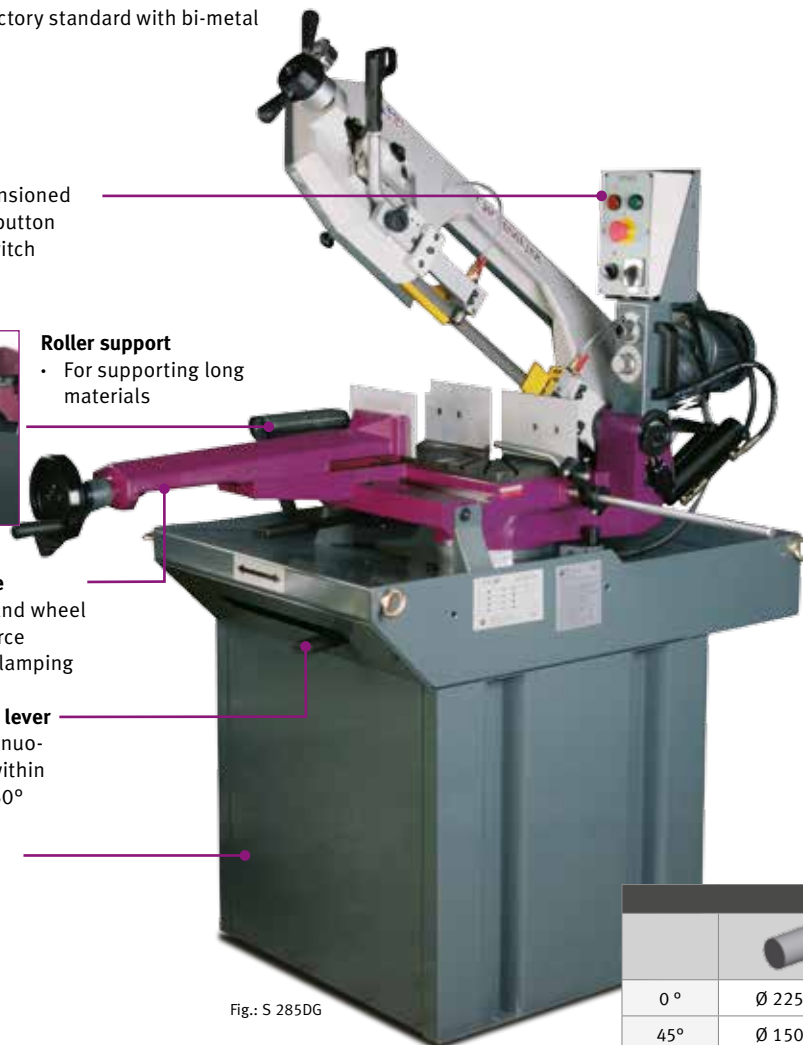


Fig.: S 285DG



### Pressure gauge

- Easy and precise checking of the saw band tension



### Coolant pump

- Powerful 100 W

### Scope of Delivery

- Material stop
- Bi-metal saw band
- Machine chassis
- Coolant pump

Model	S 285DG
Article no.	3300285
<b>Technical specifications</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Motor output	1.1 kW
Coolant pump motor	100 W
<b>General instructions</b>	
Lifting the saw head	manual
Feed	continuously variable
Saw band speed	45 / 90 m/min
Saw band dimensions	2,480 x 27 x 0.9 mm
Cutting angle	-45° to 60°
<b>Dimensions</b>	
Length	1,720 mm
Width without/with material stop	870 / 1,270 mm
Height of saw head bottom/top limit position	1,280 / 1,800 mm
Net weight	295 kg

Cutting areas			
0°	Ø 225 mm	180 mm	150 x 245 mm
45°	Ø 150 mm	150 mm	150 x 190 mm
60°	Ø 90 mm	90 mm	90 x 180 mm
-45°	Ø 150 mm	150 mm	120 x 150 mm

The cutting area was determined for a full section.

The cutting range can be larger in case of cut-off sections.

### Saw bands HSS bi-metal M 42

Teeth per inch	Tooth angle	article no.
5 - 8 tpi	0°	3357511
5 - 8 tpi	6°	3357512
6 - 10 tpi	0°	3357524
10 - 14 tpi	0°	3357525

### Saw band set HSS bi-metal M 42

1 pc. saw band 6 - 10 tpi; 0°	3357504
1 pc. saw band 5 - 8 tpi; 0°	
1 pc. saw band 5 - 8 tpi; 6°	

„General saw band information“ on page 182



## Band saw for metal working with pivoting saw head. S 300DG Vario with continuously adjustable saw band speed

### Facts that impress in terms of quality, performance and price

- ▶ Low-noise running action
- ▶ Heavy cast design
- ▶ Excellent cutting precision thanks to vibration-free action
- ▶ Ball-bearing borne saw band guide
- ▶ Chip brush
- ▶ Microswitch for automatic limit position cut-off
- ▶ Pushbutton - manual saw band run - on the lever switches the saw band run on and off
- ▶ Equipped as a factory standard with bi-metal saw blade
- ▶ Material stop with scaling
- ▶ End stops adjustable to degree accuracy

### S 300DG Vario

- ▶ Continuously adjustable saw band speed 20 - 90 m/min.



#### Roller support

- For supporting long materials

#### Quick clamping vice

- Adjustable via hand wheel
- High clamping force thanks to quick clamping lever

#### Saw band clamping lever

- Saw cutting continuously adjustable within range of -45° to 60°

#### Machine chassis

- Sturdy

Fig.: S 300DG



#### Pressure gauge

- Easy and precise checking of the saw band tension



#### Coolant pump

- Powerful 100 W

### Scope of Delivery

- Material stop
- Bi-metal saw band
- Machine chassis
- Coolant pump

Model	S 300DG
Article no.	3290290
Model	S 300DG Vario
Article no.	3290295

Technical specifications	
Electrical connection	400 V / 3 Ph ~50 Hz
Motor output	1.5 kW
Coolant pump motor	100 W
General instructions	
Lifting the saw head	manual
Feed	continuously variable
Saw band speed	35/70 m/min.
Saw band speed Vario	20 - 90 m/min
Saw band dimensions	2,750 x 27 x 0.9 mm
Cutting angle	45° to -60°
Dimensions	
Length	1,680 mm
Width without/with material stop	700 / 1,300 mm
Height bottom/top limit position	1,600 / 1,850 mm
Net weight	335 kg

Cutting areas			
0°	Ø 255 mm	190 mm	190 x 310 mm
45°	Ø 215 mm	190 mm	190 x 200 mm
-60°	Ø 135 mm	135 mm	135 x 135 mm
-45°	Ø 220 mm	190 mm	135 x 190 mm

The cutting area was determined for a full section.  
The cutting range can be larger in case of cut-off sections.

### Saw bands HSS bi-metal M 42

Teeth per inch	Tooth angle	article no.
5 - 8 tpi	0°	3357751
5 - 8 tpi	10°	3357752
6 - 10 tpi	0°	3357753
10 - 14 tpi	0°	3357754

### Saw band set HSS bi-metal M 42

1 pc. saw band 6 - 10 tpi; 0°	3357700
1 pc. saw band 5 - 8 tpi; 0°	
1 pc. saw band 5 - 8 tpi; 10°	

„General saw band information“ on page 182

## Metal-cutting band saw with turntable and pivoting saw head for economic and precise work

### Facts that impress in terms of quality, performance and price

- ▶ Low-noise running action
- ▶ Heavy cast design
- ▶ Excellent cutting precision thanks to vibration-free action
- ▶ High motor output even at low speeds
- ▶ Microswitch for automatic limit position cut-off
- ▶ Precise, re-adjustable and durable saw band guide
- ▶ End stops adjustable to degree accuracy
- ▶ Chip brush
- ▶ Coolant pump
- ▶ Control unit facilitates machine setup
- ▶ Fully equipped; the user can immediately start productive work after commissioning

### Vario drive

- Saw band speed continuously adjustable via frequency converter
- Professional inverter technology



**Carbide guide**

### Quick clamping vice

- Adjustable via hand wheel
- High clamping force thanks to quick clamping lever

### Saw band clamping lever

- Saw cutting continuously adjustable within range of -45° to 60°



### Pressure gauge

- Easy and precise checking of the saw band tension



### Turntable

- Any angle between 45° and -60° can be sawed as the sawing groove travels with the sawing arm
- Easily legible angle scale

### Scope of Delivery

- Material stop
- Bi-metal saw band
- Machine chassis
- Coolant pump

Model	S 310DG Vario
Article no.	3290335

Technical specifications	
Electrical connection	400 V / 3 Ph ~50 Hz
Motor output	1.5 kW
Coolant pump motor	100 W
General instructions	
Lifting the saw head	manual
Feed	continuously variable
Saw band speed	20 - 90 m/min
Saw band dimensions	2,750 x 27 x 0.9 mm
Cutting angle	45° to -60°
Dimensions	
Length	1,680 mm
Width without/with material stop	700 / 1,330 mm
Height bottom/top limit position	1,600 / 2,000 mm
Net weight	380 kg

Cutting areas			
0°	Ø 255 mm	255 mm	200 x 270 mm
45°	Ø 190 mm	160 mm	160 x 160 mm
-60°	Ø 110 mm	110 mm	110 x 210 mm
-45°	Ø 190 mm	140 mm	140 x 210 mm

The cutting area was determined for a full section. The cutting range can be larger in case of cut-off sections.

### Saw bands HSS bi-metal M 42

Teeth per inch	Tooth angle	article no.
<b>5 - 8 tpi</b>	<b>0°</b>	3357751
<b>5 - 8 tpi</b>	<b>10°</b>	3357752
<b>6 - 10 tpi</b>	<b>0°</b>	3357753
<b>10 - 14 tpi</b>	<b>0°</b>	3357754

### Saw band set HSS bi-metal M 42

1 pc. saw band 6 - 10 tpi; 0°	3357700
1 pc. saw band 5 - 8 tpi; 0°	
1 pc. saw band 5 - 8 tpi; 10°	

„General saw band information“ on page 182

## Metal-cutting band saw with double mitre in heavy-duty design

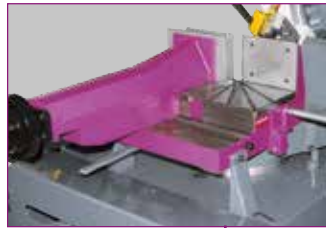
### Facts that impress in terms of quality, performance and price

- ▶ Heavy-duty industrial design
- ▶ Low-noise running action
- ▶ Excellent cutting precision thanks to vibration-free action
- ▶ Two switchable speeds 36/72 m/min.
- ▶ Mitre adjustment to -60° by pivoting the entire saw head
- ▶ Combinable and individually adjustable carbide and ball bearing guides on the saw band
- ▶ Equipped as a factory standard with bi-metal saw blade
- ▶ End stops adjustable to degree accuracy
- ▶ Chip brush
- ▶ Microswitch for automatic limit position cut-off
- ▶ Roller support adjustable for long and heavy workpieces
- ▶ Fully equipped; the user can immediately start productive work after commissioning



#### Saw band tension

- Easy and accurate adjustment of the saw band tension by pressure gauge



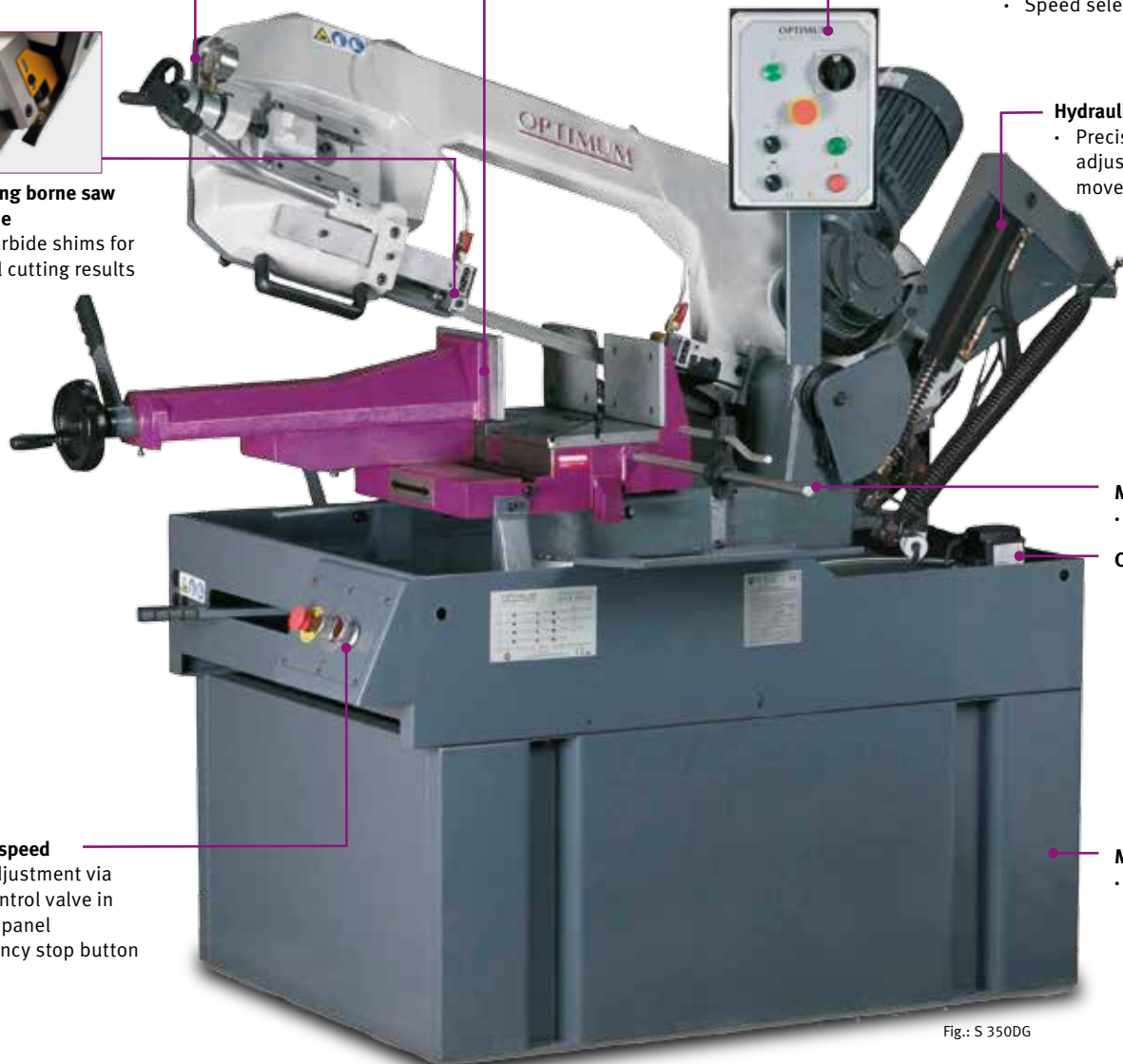
#### Rugged quick clamping vice

- Generously dimensioned
- Adjustable via hand wheel
- Workpiece is clamped using a handy quick-clamping lever
- Movable for large materials



#### Ball-bearing borne saw band guide

- With carbide shims for optimal cutting results



#### Control panel

- Master switch
- Operating indicator
- Emergency stop button
- Coolant pump switch
- Speed selection switch

#### Hydraulic cylinder:

- Precise, continuously adjustable saw band movement

#### Material stop

- With scale

#### Coolant pump

#### Lowering speed

- Easy adjustment via feed control valve in control panel
- Emergency stop button

#### Machine chassis




- Robust

Fig.: S 350DG

## Technical specifications, accessories and dimensions

Model	S 350DG
Article no.	3290350
<b>Technical specifications</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Motor output	2.2 kW
Coolant pump motor	50 W
<b>General instructions</b>	
Lifting the saw head	manual
Feed	continuously variable
Saw band speed	36/72 m/min.
Saw band dimensions	2,925 x 27 x 0.9 mm
Cutting angle	-45° to 60°
<b>Dimensions</b>	
Length	1,750 mm
Width without/with material stop	1,075 / 1,415 mm
Saw head bottom/top limit position	1,420 / 2,000 mm
Net weight	550 kg

Scope of Delivery
• Material stop
• Bi-metal saw band
• Machine chassis
• Coolant pump

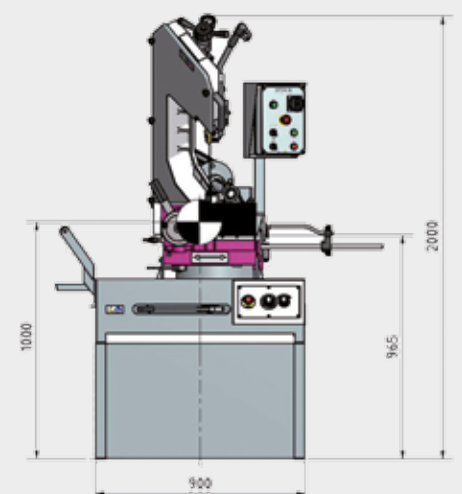
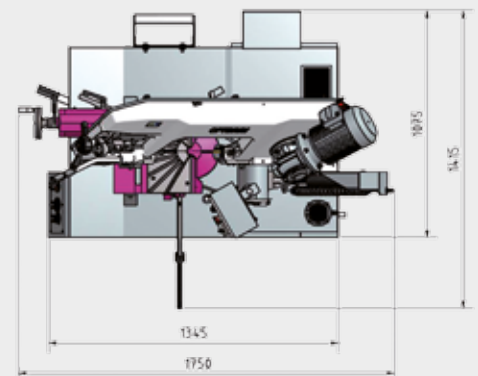
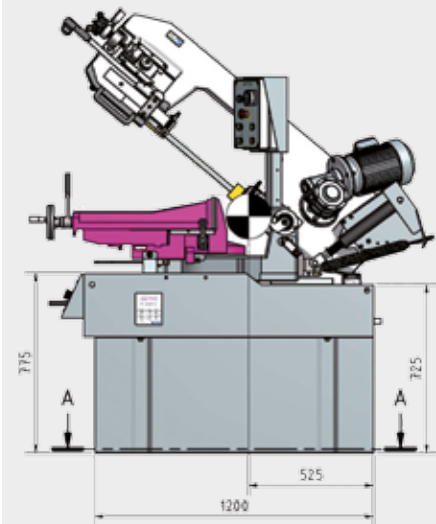
Cutting areas			
			
0°	Ø 270 mm	230 mm	230 x 350 mm
45°	Ø 230 mm	200 mm	210 x 220 mm
60°	Ø 140 mm	140 mm	140 x 220 mm
-45°	Ø 230 mm	170 mm	140 x 200 mm

The cutting area was determined for a full section.  
The cutting range can be larger in case of cut-off sections.

Saw bands HSS bi-metal M 42		
Teeth per inch	Tooth angle	article no.
5 - 8 tpi	0°	3357541
4 - 6 tpi	6°	3357540
6 - 10 tpi	0°	3357542
10 - 14 tpi	0°	3357543
Saw band set HSS bi-metal M 42		
1 pc. saw band 6 - 10 tpi; 0° 1 pc. saw band 5 - 8 tpi; 0° 1 pc. saw band 4 - 6 tpi; 6°		3357501
„General saw band information“ on page 182		

Material supports	Article no.
<b>MSR 4H</b> L x W 1,000 x 440 mm	3357001
<b>MSR 7H</b> L x W 2,000 x 440 mm	3357002
<b>MSR 10H</b> L x W 3,000 x 440 mm	3357003
<b>Table extension MSR 1</b>	3357004
<b>PVC rollers for MSR</b>	3357609

### Dimensions





## Semi-automatic double mitre metal cutting band saw with inverter Vario drive

### Facts that impress in terms of quality, performance and price

- ▶ Heavy-duty industrial design
- ▶ Low-noise running action
- ▶ Manual or semi-automatic operation
- ▶ Continuously adjustable saw band speed from 0 - 80 m/min.
- ▶ Excellent cutting precision thanks to vibration-free action
- ▶ Mitre adjustment to 60° by pivoting the entire saw head
- ▶ Combinable and individually adjustable carbide and ball bearing guides on the saw band
- ▶ Equipped as a factory standard with bi-metal saw blade
- ▶ End stops adjustable to degree accuracy
- ▶ Chip brush

- ▶ Microswitch for automatic limit position cut-off
- ▶ Roller support adjustable for long and heavy workpieces
- ▶ Fully equipped; the user can immediately start productive work after commissioning

### Semi-automatic operating mode

- ▶ Vice closes and motor is activated
- ▶ Lower the saw head to cut
- ▶ Motor stops and saw head returns to original position



#### Saw band tension

- Easy adjustment of the saw band tension by pressure gauge



#### Ball-bearing borne saw band guide

- with carbide shims for optimal cutting results

#### Rugged quick clamping vice

- Generously dimensioned
- hydraulic
- Self closing
- Displaceable for large cross-sections
- Saw cutting continuously adjustable within range of -45° to 60°
- Angle setting can be read off on scale



#### Control unit

- Clearly arranged
- Pivoting

#### Hydraulic cylinder:

- Continuously adjustable saw head movement

#### Lowering speed

- Easy adjustment via feed control valve in control panel
- Emergency stop button

#### Material stop

- With scale

#### Coolant pump

#### Machine chassis

- Robust

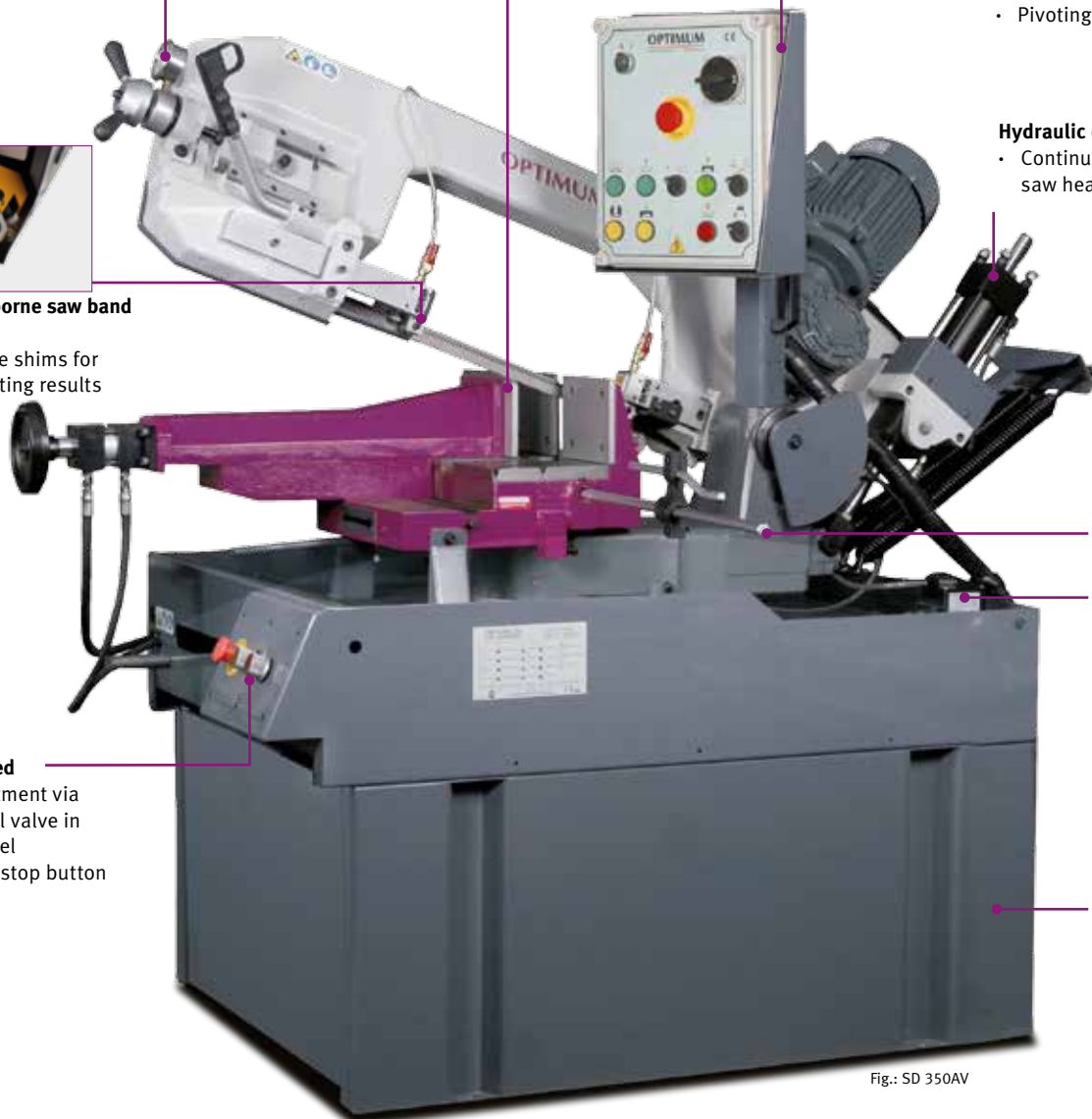


Fig.: SD 350AV






## Technical specifications, accessories and dimensions

Model	SD 350AV
Article no.	3292355
<b>Technical specifications</b>	
Electrical connection	400 V / 3 Ph ~50 Hz
Total rated value	3.8 kW
Saw motor	2.2 kW
Hydraulic pump	1.4 kW
Coolant pump motor	50 W
<b>General instructions</b>	
Lifting the saw head	Hydraulic via pushbutton automatic
• Manual operation	
• Semi-automatic operation	
Feed	continuously variable
Saw band speed	0 - 80 m/min
Saw band dimensions	2,925 x 27 x 0.9 mm
Cutting angle	-45° to 60°
<b>Dimensions</b>	
Length	1,750 mm
Width without/with material stop	1,075 / 1,415 mm
Height of saw head bottom/top limit position	1,420 / 2,000 mm
Net weight	600 kg

### Scope of Delivery

- Material stop
- Bi-metal saw band
- Machine chassis

### Cutting areas

			
0°	Ø 270 mm	230 mm	230 x 350 mm
45°	Ø 230 mm	200 mm	210 x 220 mm
60°	Ø 140 mm	140 mm	140 x 220 mm
-45°	Ø 230 mm	170 mm	140 x 200 mm

The cutting area was determined for a full section.  
The cutting range can be larger in case of cut-off sections.

### Saw bands HSS bi-metal M 42

Teeth per inch	Tooth angle	article no.
5 - 8 tpi	0°	3357541
4 - 6 tpi	6°	3357540
6 - 10 tpi	0°	3357542
10 - 14 tpi	0°	3357543

### Saw band set HSS bi-metal M 42

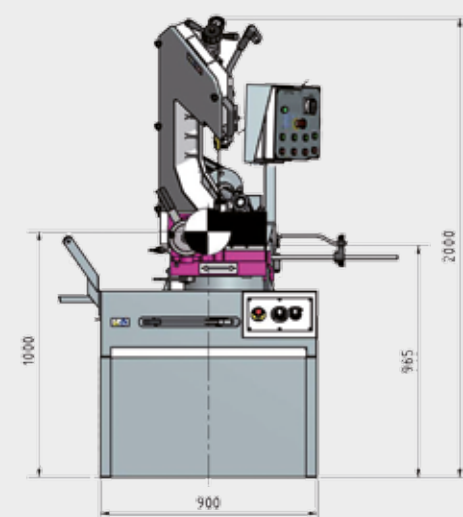
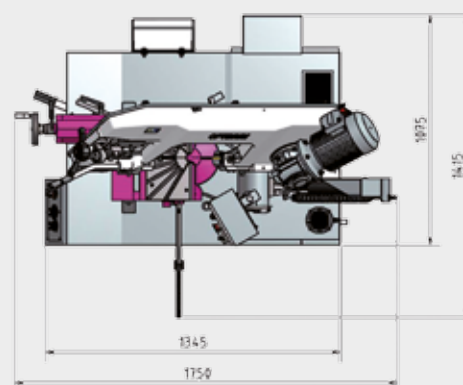
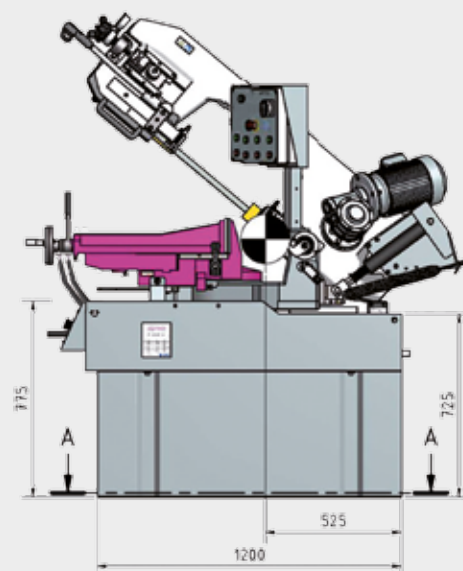
1 pc. saw band 6 - 10 tpi; 0°	3357501
1 pc. saw band 5 - 8 tpi; 0°	
1 pc. saw band 4 - 6 tpi; 6°	

„General saw band information“ on page 182

### Material supports

	Article no.
<b>MSR 4H</b> L x W 1,000 x 440 mm	3357001
<b>MSR 7H</b> L x W 2,000 x 440 mm	3357002
<b>MSR 10H</b> L x W 3,000 x 440 mm	3357003
<b>Table extension MSR 1</b>	3357004
<b>PVC rollers for MSR</b>	3357609

### Dimensions



Manual metal-cutting circular saws for steel, iron, light alloys, solid materials and sections

Facts that impress in terms of quality, performance and price

- ▶ Swivel range of  $\pm 45^\circ$
  - ▶ Easily readable angle scale supports precise work
  - ▶ Mitre adjustment within seconds
  - ▶ Protected vice spindle
  - ▶ Solid machine chassis with drill holes on both sides for attaching the MSR material stand
- ▶ Machine chassis sizes:
    - CS 275 - 460 x 515 x 775 mm and
    - CS 315 - 546 x 620 x 801 mm
  - ▶ The saw is delivered without a circular saw blade (saw blade division freely selectable)

Protection device

- Functional
- Closed design
- Mobile
- Fast opening mechanism for optimal safety during cutting

Vice

- Centric clamping
- 4 x guided
- Individually adjustable clamping jaws
- Cut always occurs in optimal position relative to workpiece
- 4-lever clamping system
- Protected vice spindle

Machine chassis

- Solid
- Lockable door

Long handle

- Supports sawing without applying excessive force
- Integrated pushbutton (on/off)
- Automatic coolant pump switch-on during sawing



Coolant pump

- Removable coolant tank
- Integrated powerful pump



Fig.: CS 315

Material supports	Article no.
MSR 4	3357610
MSR 4H	3357001
MSR 7	3357611
MSR 7H	3357002
MSR 10	3357613
MSR 10H	3357003




Information „MSR 4 / MSR 7 / MSR 10“ on page 180

## Technical specifications, accessories and dimensions

Model	CS 275	CS 315
Article no.	3302275	3302300
Technical specifications		
Electrical connection	400 V / 3 Ph ~50 Hz	400 V / 3 Ph ~50 Hz
Motor output	1.4 / 2.0 kW	0.75 / 1.5 kW
Coolant pump motor	40 W	
General instructions		
Cutting angle	-45°to +45°	
Cutting angle adjustment	Via rotating bearing block	
Feed	manual	
Cutting speed	41 / 82 rpm	19 / 38 rpm
Saw blade diameter	Ø 275 mm Internal Ø 40 mm	Ø 315 mm Internal Ø 40 mm
Vice jaw width	110 mm	135 mm
Dimensions		
Length	460 mm	560 mm
Width	830 mm	902 mm
height	1,700 mm	1,765 mm
Net weight	175 kg	235 kg

### Scope of Delivery

- Coolant system
- Machine chassis

Cutting areas				
				
CS 275	0°	Ø 60 mm	60 mm	60 x 100 mm
CS 315		Ø 85 mm	85 mm	70 x 130 mm
CS 275	45°	Ø 60 mm	60 mm	60 x 70 mm
CS 315		Ø 85 mm	85 mm	70 x 90 mm


### Circular saw blades - information

**4 mm/T:**    tube/sections (wall thickness)

- up to 1 mm: Aluminium/Bronze/Copper/Brass
- up to 1.5 mm: steels up to 1,500 N/m<sup>2</sup>/stainless steels
- up to 2 mm: Steels up to 1,200 N/m<sup>2</sup>

**6 mm/T:**    tube/sections (wall thickness)



- up to 1.5 mm: Aluminium/Bronze/Copper/Brass
- as of 3 mm: Steels up to 1,800 N/m<sup>2</sup>

**6 mm/T:**   solid materials (cross-section)

- 10-20 mm: Aluminium/Bronze/Copper/Brass
- 20-40 mm: Steels up to 1,800 N/m<sup>2</sup>/stainless steels

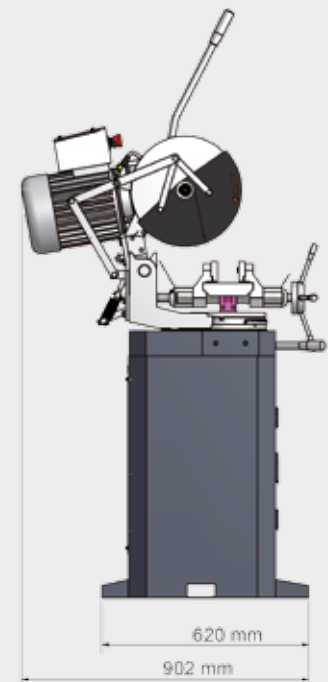
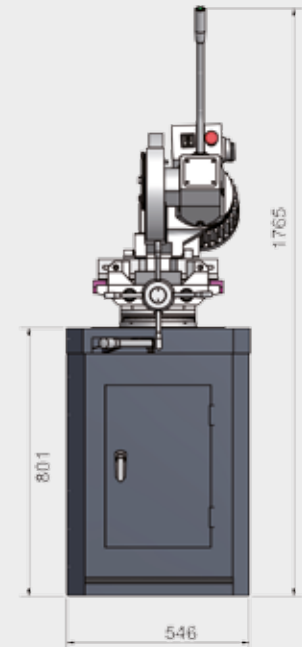
**8 mm/T:**    tube/sections (wall thickness)

- as of 3 mm: Aluminium/Bronze/Copper/Brass

**8 mm/T:**   solid materials (cross-section)

- 20-40 mm: Steels up to 1,800 N/m<sup>2</sup>: Aluminium/Bronze/Copper
- 40-60 mm: Steels up to 1,200 N/m<sup>2</sup>/stainless steels

### Dimensions



### Metal-cutting circular saw blade CS 275

mm/per tooth	Teeth	Blade width	article no.
<b>4 mm/T</b>	220 teeth	2.5 mm	3357444
<b>6 mm/T</b>	140 teeth	2.5 mm	3357446
<b>8 mm/T</b>	110 teeth	2.5 mm	3357448

### CS 315

<b>4 mm/T</b>	240 teeth	2.5 mm	3357454
<b>6 mm/T</b>	150 teeth	2.5 mm	3357456
<b>8 mm/T</b>	120 teeth	2.5 mm	3357458

## Height-adjustable MSR material stand as a manual aid for supporting and moving workpieces on metal-cutting saws. H version variably adjustable up to 1,050 mm

### Facts that impress in terms of quality, performance and price

- ▶ Trouble-free and material transport when feeding and unloading workpieces
- ▶ Universally deployable for metal-cutting band saws, circular saws, etc.
- ▶ Roller support, continuously adjustable
- ▶ Safe workpiece support due to solid steel rollers with high load-bearing capacity
- ▶ Infinitely extensible
- ▶ Extension options for LMS length measuring systems
- ▶ Stable frame design with strong custom profile
- ▶ Steel bearing rollers, ball-bearing borne on both sides



Fig.: MSR 10

Fig.: MSR 7

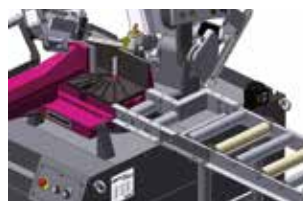
Fig.: MSR 4

Model	MSR 4	MSR 7	MSR 10
Article no.	3357610	3357611	3357613
Model	MSR 4H	MSR 7H	MSR 10H
Article no.	3357001	3357002	3357003

Technical specifications			
Idler roller diameter	60 mm	60 mm	60 mm
Idler roller width	360 mm	360 mm	360 mm
Static table load	500 kg	700 kg	700 kg
Dimensions			
Length x width	1,000 x 440 mm	2,000 x 440 mm	3,000 x 440 mm
height	650 - 950 mm	650 - 950 mm	650 - 950 mm
Height H version	660 - 1,050 mm	660 - 1,050 mm	660 - 1,050 mm
Net weight	30/33 kg	58/61 kg	78/83 kg

### Scope of Delivery

- Fastening material for extension



### Accessories PVC rollers

- Additionally attachable
- Made of non-slip PVC
- To avoid scratches
- Simply slot the rollers into the holder provided
- With practical wall-mount

### Table extension MSR 1

- Additionally attachable
- Can be fitted in both directions

### Connecting plate

- Additionally attachable
- With add-on parts right and left
- Slots

Accessories	PVC rollers 3 pcs.	Table extension MSR 1	Connecting plate
Article no.	3357609	3357004	3357005

## Length measuring systems for attaching to MSR material stand.

For perfect length measurement and precise positioning

### Facts that impress in terms of quality, performance and price

- ▶ Magnetic measuring system with magnetic strip
- ▶ For recurring measuring tasks with high precision 0.05 mm
- ▶ Automatic display switch-on
- ▶ In case of longer breaks, the measuring system switches off and keeps the last stored dimension
- ▶ Measuring precision:  $\pm(0.025 + 0.02 \times \text{measuring length [m]})$
- ▶ Battery life of up to 10 years



- Display: LCD
- Switching functions:
- Display reset
- Reset
- Directional display  $\pm$
- Absolute dimension and incremental function
- Right and left stop



Fig.: MSR 4 material stand with LMS 10 length measuring system

Model	LMS 10	LMS 20	LMS 30	LMS 40
Article no.	3383851	3383852	3383853	3383854
<b>Technical specifications</b>				
Rail length	1,000 mm	2,000 mm	3,000 mm	4,000 mm
Travel	830 mm	1,830 mm	2,830 mm	3,830 mm

Other lengths on request



### Material stop

- For large diameters
- Stop for small pieces with extension



### Slide

- Easily movable
- Precisely guided
- Replaceable, long-life dry plain bearings
- Easy self-assembly



### Stop slide

- Right and left stop
- Folds up



### Linear guide

- Lubrication-free
- Very quiet action
- Wear resistant
- Corrosion-resistant
- Low friction values
- High static load bearing capacity



## General saw band information

### Workpiece

The workpiece to be machined must be firmly clamped so that it cannot vibrate or twist. Do not use damaged, bent or severely deformed workpieces. The closer the band saw guides are fixed relative to the workpiece, the more precise the cut becomes.



### Teeth per inch

This figure describes the number of teeth per inch (25.4 mm).

As a general rule:

The shorter the cut length (e.g., sections), the finer the tpi you need to select. The greater the material attack (e.g., solid material), the coarser the tpi value used.

Too large a tpi value can cause the cut to run out as chips clog the gullet thus forcing the saw band out of its cutting line. Too small a tpi value can cause teeth to break out as the cutting pressure on the individual tooth becomes too great. At least 3 teeth need to be engaged to achieve economical results.

### Running in saw bands

- ▶ Correct running in guarantees a long service life.
- ▶ Sharp cutting edges with extremely small edge radii are the precondition for high cutting capacity of the saw bands.
- ▶ To achieve an optimal service life, we recommend running in the saw band appropriately.
- ▶ Depending on the material and the dimension of the material you are cutting, determine the correct cutting speed (m/min.) and feed rate (mm/min.).
- ▶ The important thing is that the new saw band should be deployed at approx. 50 % of the determined feed rate only. The idea is to avoid the extremely sharp cutting edges on the teeth being damaged by micro fracturing in case of large chip thicknesses.
- ▶ New saw bands can tend to vibrate and cause vibration noise initially. If this happens, reduce the cutting speed slightly. In case of small workpiece dimensions, the run-in should be over approx. 300 - 500 cm<sup>2</sup> of the material you are cutting.
- ▶ If you are processing large workpiece dimensions, we recommend running in for a period of approx. 15 min. After running in, gradually increase the feed rate to the target value determined previously.

### Optimal chip formation

Chips are the best indicator of a correctly adjusted feed and the correct saw band speed. Take a look at the chips you generate and set the feed correctly.

### Thin chips that look like powder

- Increase the feed rate or reduce the saw band speed.



### Burnt, heavy chips

- Reduce the feed rate and/or the saw band speed.



### Crinkly, silver and warm chips

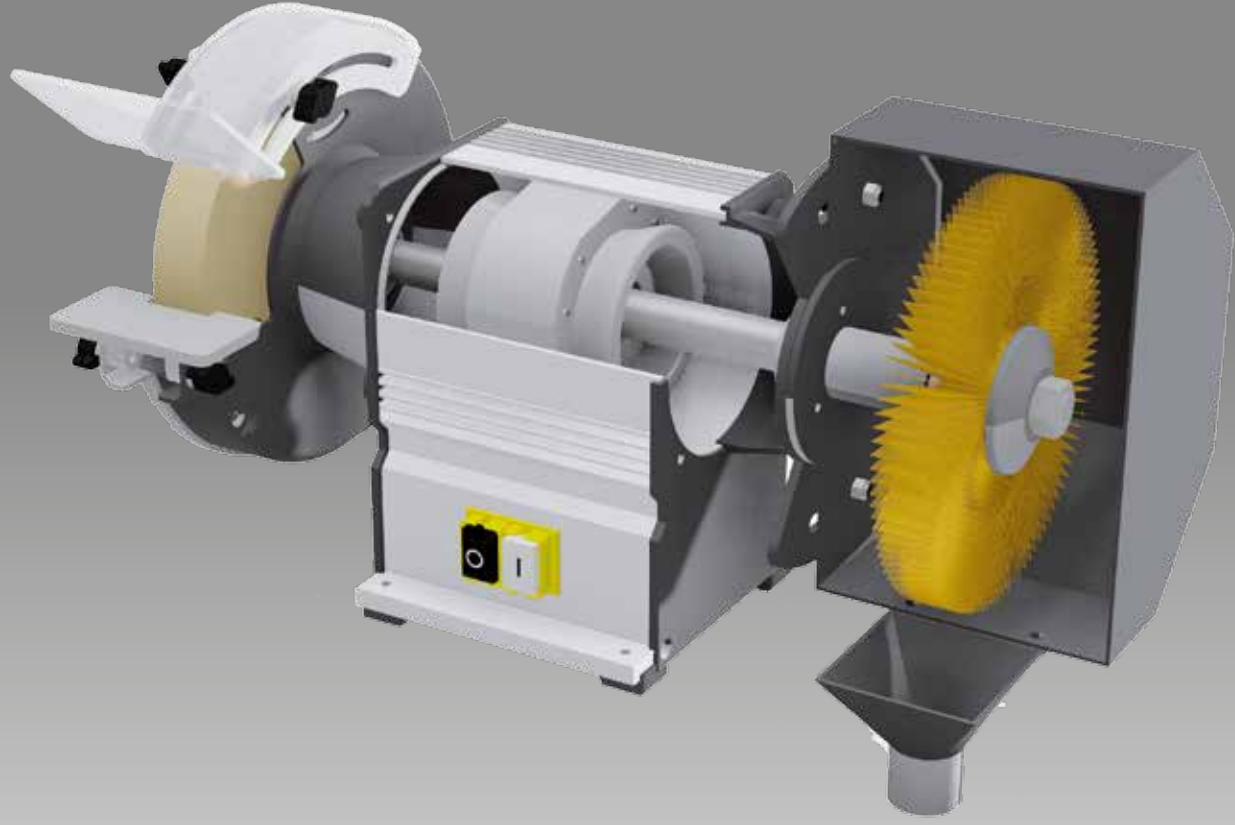
- Optimal feed rate and sawing speed



Materials	Cutting speed (M42)
Construction steel/Machining steel	80 - 90 m/min
Case-hardened steels/Heat-treated steels	45 - 75 m/min
Unalloyed tool steels/Rolled steels	40 - 60 m/min
Alloyed tool steels/high-speed steels	30 - 40 m/min
Stainless steels	20 - 35 m/min
Heat resistant steels/Highly heat-resistant alloys	15 - 25 m/min

### Teeth per inch when using HSS bi-metal bands

Standard tpi		Combined tpi		Sawing tubes and sections						
Section cross-section	Number of teeth per inch	Section cross-section	Number of teeth per inch	Diameter (D)	Ø 40	Ø 80	Ø 100	Ø 150	Ø 200	Ø 300
				Wall thickness	Teeth per inch					
< 12 mm	14 tpi	< 25 mm	10 - 14 tpi	3 mm	8 - 12	8 - 12	8 - 12	8 - 12	6 - 10	6 - 10
12 - 30 mm	10 tpi	20 - 40 mm	8 - 12 tpi	8 mm	8 - 12	6 - 10	6 - 10	5 - 8	4 - 6	4 - 6
30 - 50 mm	8 tpi	25 - 70 mm	6 - 10 tpi	12 mm	6 - 10	5 - 8	5 - 8	4 - 6	4 - 6	4 - 6
50 - 80 mm	6 tpi	35 - 90 mm	5 - 8 tpi	15 mm	5 - 8	4 - 6	4 - 6	4 - 6	3 - 4	3 - 4
80 - 100 mm	4 tpi	50 - 100 mm	4 - 6 tpi	20 mm	-	4 - 6	4 - 6	4 - 5	4 - 5	4 - 5



**Grinding and polishing machines**

## The handy drill bit grinding device by quantum.

For easy sharpening of twist drill bits from Ø 3 mm to Ø 13 mm

### Facts that impress in terms of quality, performance and price

- ▶ Easy to operate for inexpensive grinding of twist drill bits with two cutting edges
- ▶ Drill bit grinding without prior experience - clean, fast and precise
- ▶ Easy to transport
- ▶ Easy replacement of the grinding disc
- ▶ Positively-driven sharpening action, thus easy to operate
- ▶ Automatic grinding of the tip geometry thanks to cam
- ▶ Robust plastic housing with anti-slip base
- ▶ Diamond grinding stone with long service life for the perfect grind



Fig.: GQ-D13

### Three steps to a ground drill bit



#### Adjust the drill bit

- Twist drills are aligned in projection length and at the correct angle



#### Sharpening the drill bit

- Through slight rotation from stop to stop



#### Tipping the drill bit

- Again through slight rotation from stop to stop

### Scope of Delivery

- Diamond grinding disc
- Collet chuck holder

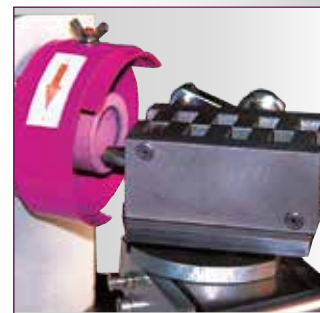
Model	GQ-D13
Article no.	3140020
Technical data	
Electrical connection	230 V/1 Ph ~50 Hz
Motor output	80 W
Technical specifications	
Speed (continuously variable)	4,200 rpm
Grinding disc	Ø 78 mm
Grinding capacity drill bits	Ø 3 mm to Ø 13 mm
Dimensions	
Length x width x height	220 x 200 x 160 mm
Net weight	2.5 kg

Accessories	Article no.
<b>Replacement grinding disc</b> <b>Crystalline cubic boron nitride</b> Grain size: 170 - 200 Applications: High-speed steel (HSS)	3140021

## Drill bit grinding device with continuous speed control and precise repetition accuracy

### Facts that impress in terms of quality, performance and price

- ▶ Solid cast baseplate with high deadweight for low-vibration action
- ▶ Long service life and quiet action thanks to balanced rotor with quality ball bearings
- ▶ Precise repetition accuracy thanks to prism-guided feed
- ▶ Variable speed control option for different materials
- ▶ Angle adjustment possible for all twist drill types
- ▶ Prism holders for precise centring of the workpiece
- ▶ Rubber cap for protection against dust and water
- ▶ Coolant tray and grinding cup included as standard in scope of delivery



### Large grinding area

Twist drills from Ø 3 to Ø 20 mm

### Grinding cup

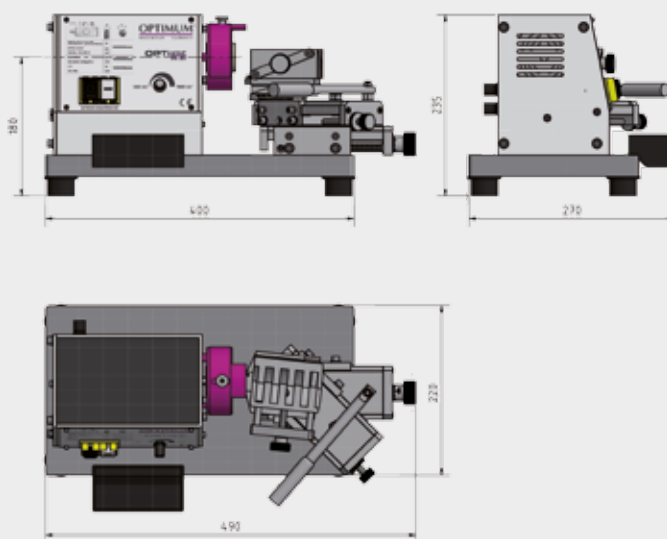
- Self dressing
- No dressing required



### Prism support

- Sturdy
- Precise centring and secure hold

### Dimensions



Model	DG 20
Article no.	3100020
<b>Technical data</b>	
Electrical connection	230 V/1 Ph ~50 Hz
Motor output	600 W
<b>Technical specifications</b>	
Speed (continuously variable)	1,400 - 7,600 rpm
Grinding speed	16 m/s
Grinding capacity drill bits	Ø 3 mm to Ø 20 mm
Tip sharpening angle	90° - 150°
<b>Cup grinding disc</b>	
External Ø	40 mm
Inner Ø	26 mm
Thread Ø	M 10
Depth	22 mm
<b>Dimensions</b>	
Length x width x height	490 x 270 x 235 mm
Net weight	22.5 kg

### Scope of Delivery

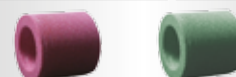
- Coolant tray
- Cup grinding disc, red

### Accessories

- Cup grinding disc, red**
- Cup grinding disc, green for carbides**

### Article no.

- 3107120
- 3107121



## The handy drill bit grinding device - ideal for grinding twist drill bits

### Facts that impress in terms of quality, performance and price

- Easy to operate for precise and inexpensive grinding of twist drill bits with two cutting edges
- Drill bit grinding without prior experience - clean, fast and precise
- Easy to transport
- Diamond grinding stone with long service life for the perfect grind
- Fully equipped with ER spring collets in the machine interior



Fig.: GH15T



Fig.: GH10T

Model	GH10T	GH15T
Article no.	3100110	3100115
<b>Technical data</b>		
Electrical connection	230 V/1 Ph ~50 Hz	230 V/1 Ph ~50 Hz
Motor output	180 W	450 W
<b>Technical specifications</b>		
Speed (continuously variable)	5,300 rpm	5,000 rpm
Tip sharpening angle	90° - 135°	90° - 145°
Grinding capacity drill bits	Ø 2 mm to Ø 13 mm	Ø 3 mm to Ø 30 mm
<b>Dimensions</b>		
Length x width x height	310 x 180 x 190 mm	450 x 240 x 270 mm
Net weight	9.5 kg	33 kg

### Drill bit ...



- ... with blunt cutting edges



- ... ground and tip sharpened

### Comprehensive scope of delivery

with complete assortment of spring collets



#### GH15T

- 6 pcs. spring collet ER 20  
Sizes Ø 3 to Ø 8 mm
- 22 pcs. spring collet ER 40  
Sizes Ø 8 to Ø 30 mm



#### GH10T

- 11 pcs. spring collet ER 20  
Sizes Ø 2 to Ø 13 mm

Accessories	Article no.
<b>GH10T</b>	
<b>Replacement grinding disc</b> <b>Crystalline cubic boron nitride</b> Grain size: 170 - 200 Applications: High-speed steel (HSS)	3100126
<b>Replacement grinding disc</b> <b>Diamond</b> Grain size: 150 Applications: carbides	3100131
<b>GH15T</b>	
<b>Replacement grinding disc</b> <b>Crystalline cubic boron nitride</b> Grain size: 170 - 200 Applications: High-speed steel (HSS)	3100127
<b>Replacement grinding disc</b> <b>Diamond</b> Grain size: 150 Applications: carbides	3100132



## Versatile graver and tool grinding machine for various tool geometries

### Facts that impress in terms of quality, performance and price

- ▶ Universally deployable thanks to versatile pivoting and adjustment options
- ▶ Many pivoting and adjustment options for creating engraving quills (cylindrical, centric, tapered)
- ▶ For grinding stamps, twist drills, electrodes, lathe tools, centres, etc.
- ▶ High level of precision thanks to rugged machine body and vibration-free driven precision grinding spindle
- ▶ Easy handling and operation
- ▶ Indexing head with 24 latching positions
- ▶ Adjustable dressing device



Model	GH20T
Article no.	3100125
<b>Technical data</b>	
Electrical connection	400 V/3 Ph ~50Hz
Motor output	370 W
<b>Speeds</b>	
Grinding disc speed, diamond	5,000 rpm
Grinding speed	max. 35 m/s
Motor speed	2,750 rpm
<b>Strokes</b>	
Tool holder travel	140 mm
Tool holder fine adjustment	18 mm
Longitudinal fine adjustment	6 mm
<b>Adjustable angle</b>	
vertical/rear side	0° - 40°
horizontal/conical grinding	0° - 180°
Negative angles	0° - 52°
Latching setting angle of rotation	22° x 15° 180°
<b>Collet chuck holder</b>	
Clamping range	Ø 1- 12 mm
Clamping jaw type	385E (5C), DIN 6341
<b>Dimensions</b>	
Length x width x height	350 x 450 x 340 mm
Net weight	45 kg

\* Two latching positions occupied for sharpening drill bits

Replacement grinding disc	Grain size	Applications	Article no.
Corundum	Grain size: 80	Fast-working steel (HSS)	3100128
Diamond	Grain size: 150	Carbide	3100129

### Comprehensive scope of delivery



- Spring collet 385E (5C) DIN 6341  
Ø 37.5 mm; L=89 mm; 20°
- Sizes Ø 4/6/8/10/12 mm



- Corundum cup grinding disc  
Ø 100 x 51 x Ø 20 mm
- Diamond cup grinding disc  
Ø 100 x 51 x Ø 20 mm  
(preassembled in as-delivered condition)



- Device for sharpening lathe tools



- Device for sharpening end mills



- Device for sharpening twist drill bits



- Operating tool



## Disc grinder for machining metal surfaces

### Facts that impress in terms of quality, performance and price

- ▶ Versatile areas of application:
- ▶ For roughing, fine and moulding grinding work
- ▶ Sturdy and stable machine body
- ▶ Balanced aluminium grinding disc for smooth action
- ▶ Powerful motor
- ▶ Delivered with grinding sheet bonded onto grinding disc



Fig.: TS 305



- Factory standard extraction duct with two diameters for attaching an extraction unit
- Outside nominal width  $\pm \varnothing 30 / \varnothing 38$  mm



- Factory standard mitre stop pivots up to  $\pm 60^\circ$
- Grinding table pivots up to  $\pm 45^\circ$



- Hook and loop fastener pad for grinding disc available as optional accessory. Good grinding disc adhesion, easy replacement

### Scope of Delivery

- Adjustable angle stop
- Grinding sheet

Model	TS 305
Article no.	3310305
Technical specifications	
Electrical connection	230 V/1 Ph ~50 Hz
Motor output	900 W
General instructions	
Grinding disc	$\varnothing 305$ mm
Speed	1,420 rpm
Table support	155 x 440 mm
Adjustment of angle stop	$\pm 60^\circ$
Pivoting grinding table	$\pm 45^\circ$
Dimensions	
Length x width x height	440 x 445 x 365 mm
Net weight	30 kg

Accessories	article no.
Hook and loop fastener pad	3357801

Grinding sheets	Article no.	PQ
• Hook and loop fastener		
Grain size 40	3357854	5 pcs.
Grain size 40	3357856	5 pcs.
Grain size 80	3357858	5 pcs.
Grain size 100	3357860	5 pcs.
Grain size 120	3357862	5 pcs.
Grain size 150	3357865	5 pcs.
Grain size 180	3357866	5 pcs.
Grain size 240	3357867	5 pcs.



## Universally deployable belt and disc grinding machine with swivelling grinding arm for deburring, surface and profile grinding

### Facts that impress in terms of quality, performance and price

- ▶ Powerful motor
- ▶ Pneumatic sanding belt tension manually adjustable
- ▶ Easily replaceable grinding belt
- ▶ Fine adjustment for parallel belt run
- ▶ Pivoting grinding table, adjustable via clamping lever
- ▶ Extraction port
- ▶ Delivered with grinding sheet bonded onto grinding disc
- ▶ The hook and loop fastener pad and grinding discs available as accessories offer good adhesion and easy replacement



Fig.: DBS75

### Scope of Delivery

- Grinding belt 60 grain
- Grinding sheet 60 grain

Model	DBS 75
Article no.	3311075
<b>Technical specifications</b>	
Electrical connection	400 V/3 Ph ~50 Hz
Motor output	1.1 kW
Speed	1,410 rpm
Belt running speed	11 m/sec.
<b>Dimensions</b>	
Grinding belt dimensions	75 x 1,180 mm
Grinding disc dimensions	Ø 150 mm
Extraction duct nominal width inside	Ø 47 mm
Extraction duct nominal width outside	Ø 50 mm
Grinding support	85 x 215 mm
Swivel range belt grinding table	90°
Length x width x height	665 x 560 x 405 (765) mm
Net weight	68 kg

Grinding belt	Article no.	PQ
• Size: 75 x 1,180 mm		
Grain size 40	3357622	5 pcs.
Grain size 40	3357624	5 pcs.
Grain size 80	3357626	5 pcs.
Grain size 120	3357628	5 pcs.
Grain size 180	3357629	5 pcs.
Grain size 240	3357630	5 pcs.

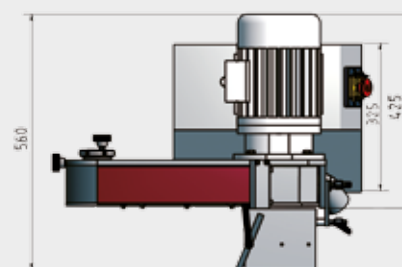
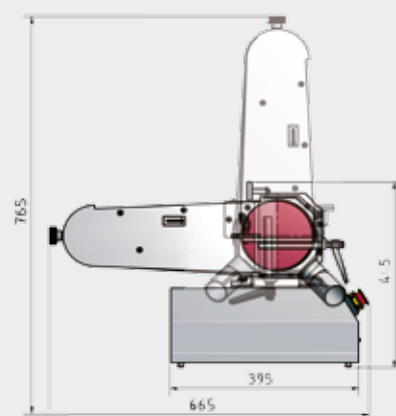


Grinding sheet	Article no.	PQ
• Size: Ø 150 mm		
Grain size 40	3357832	5 pcs.
Grain size 40	3357834	5 pcs.
Grain size 80	3357836	5 pcs.
Grain size 120	3357838	5 pcs.
Grain size 180	3357839	5 pcs.
Grain size 240	3357840	5 pcs.



Hook and loop disc	3357802
• For the grinding disc. Good grinding disc adhesion, easy replacement	

### Dimensions



## Heavy and rugged industrial design belt grinding machine

for roughing, finishing and profile grinding of various materials in continuous operations

### Facts that impress in terms of quality, performance and price

- ▶ Time-saving deburring of edges and weld polishing
- ▶ Sturdy and vibration-free design
- ▶ Powerful motor
- ▶ Grinding table pivots through 15° - 30°
- ▶ Continuously adjustable top stop supports fast and convenient initial grinding of workpieces
- ▶ Large flat grinding surface

- ▶ Adjustable stops for universal deployment
- ▶ Operating tools in practical holder
- ▶ Additional safety device
- ▶ One grinding belt included in standard scope of delivery

#### Rollers

- Rubberised
- Quiet action
- Prevents the belt slipping



#### Spark guard



Fig.: BSM 150

#### Fast belt running speed

- 33 m/sec.
- Fast material removal

#### Workpiece support

- Adjustable inclination
- Supports grinding at the required angle

#### Extraction port

- At front and rear
- For attaching an extraction unit



#### Flat grinding surface

- Open throughout and to rear
- Also perfectly suited for machining longer workpieces

#### Workpiece support

#### Article no.

- Continuously adjustable; supports fast initial grinding

For **BSM 75**

3357881

For **BSM 150**

3357891



#### Grinding belts BSM 75\*

#### Article no.

#### PQ

Grain size 40	3357642	5 pcs.
Grain size 40	3357644	5 pcs.
Grain size 80	3357646	5 pcs.
Grain size 120	3357648	5 pcs.
Grain size 180	3357649	5 pcs.
Grain size 240	3357650	5 pcs.

#### Sanding belts BSM 150

#### Article no.

#### PQ

Grain size 40	3357672	5 pcs.
Grain size 40	3357674	5 pcs.
Grain size 80	3357676	5 pcs.
Grain size 120	3357678	5 pcs.
Grain size 180	3357679	5 pcs.
Grain size 240	3357680	5 pcs.



Model	BSM 75	BSM 150
Article no.	3321075	3321150
<b>Technical data</b>		
Electrical connection	400 V/3 Ph ~50 Hz	400 V/3 Ph ~50 Hz
Motor output	3 kW	4 kW
<b>Speeds</b>		
Speed	3,000 rpm	3,000 rpm
Circumferential belt speed	33 m/sec.	33 m/sec.
<b>Grinding belt</b>		
Grinding belt dimensions	75 x 2,000 mm	150 x 2,000 mm
<b>Dimensions</b>		
Extraction duct nominal width inside	Ø 57 mm	Ø 57 mm
Extraction duct nominal width outside	Ø 60 mm	Ø 60 mm
Dimensions length x width	500 x 995 mm	575 x 995 mm
Height: Bottom pivot bearing	1,045 mm	1,045 mm
Height: Top pivot bearing	1,135 mm	1,135 mm
Net weight	98 kg	125 kg

#### Scope of Delivery

- Grinding belt 60 grain
- Allen key



## Double grinder by OPTIMUM - quality products for trades and industry.

Vario version with frequency inverter "Made in the EU"

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, durable industrial design with maintenance-free motor for continuous use
- ▶ GU housing made of strand cast aluminium
- ▶ SM 300 housing made of die cast aluminium
- ▶ Long service life and quiet action thanks to balanced rotor with quality ball bearings
- ▶ Spark guard on each grinding disc reduces flying sparks
- ▶ Viewing glass made of break-proof material
- ▶ Vibration-damping rubber feet
- ▶ Coarse and fine grinding disc (K36/K60) included in standard scope of delivery



#### Workpiece support

- Sturdy
- Adjustable



Fig.: GU 20



Fig.: SM 300

Grinding disc	Article no.
• Normal corundum grinding disc	
• Rough grain 36	
Ø 150 x 20 Ø 16 mm	3107150
Ø 175 x 25 Ø 32 mm	3107180
Ø 200 x 30 Ø 32 mm	3107210
Ø 250 x 40 Ø 32 mm	3107250
Ø 300 x 50 Ø 75 mm	3107270

Grinding disc	Article no.
• Normal corundum grinding disc	
• Fine grain 80	
Ø 150 x 20 Ø 16 mm	3107155
Ø 175 x 25 Ø 32 mm	3107185
Ø 200 x 30 Ø 32 mm	3107215
Ø 250 x 40 Ø 32 mm	3107255
Ø 300 x 50 Ø 75 mm	3107275

### Accessories

„Chassis for grinding and polishing machines“ you find on page 197



### Scope of Delivery

- Grinding disc - normal corundum coarse 36 grain
- Grinding disc - normal corundum fine 80 grain

Model	GU 15	GU 18	GU 20 / GU 20Vario	GU 25 / GU 25Vario	SM 300
Article no. (230 V)	3101505	3101510	3101515	-	-
Article no. (400 V)	-	-	3101520	3101525	3101303
Article no. (400 V) (Vario)	-	-	3010260*	3010270*	-
<b>Technical specifications</b>					
Electrical connection	230 V/1 Ph ~50 Hz	230 V/1 Ph ~50 Hz	230 V / 400 V	400 V / 3 Ph ~50 Hz	400 V/3 Ph ~50 Hz
Motor output	450 W	450 W	600 W	1.5 kW	2.2 kW
<b>Grinding discs</b>					
Dimensions	Ø 150 x 20 mm Drill hole Ø 16 mm	Ø 175 x 25 mm Drill hole Ø 32 mm	Ø 200 x 30 mm Drill hole Ø 32 mm	Ø 250 x 40 mm Drill hole Ø 32 mm	Ø 300 x 50 mm Drill hole Ø 75 mm
Speeds	2,850 rpm	2,850 rpm	2,850 rpm	2,850 rpm	1,450 rpm
Speeds Vario	-	-	800 - 2,850 rpm	800 - 2,850 rpm	-
<b>Dimensions</b>					
Length x width x height	389 x 205 x 265 mm	389 x 235 x 280 mm	495 x 260 x 330 mm	471 x 320 x 365 mm	736 x 365 x 410 mm
Net weight	11 kg	14 kg	19 kg	33 kg	84 kg

\* The optional chassis SM (Art. 3107060) is required for the electronics with the Vario version



## Functional universal grinding machines with grinding attachment

### Facts that impress in terms of quality, performance and price

- ▶ Rugged and sturdy universal grinding machines with grinding belt and grinding disc for a variety of materials
- ▶ Heavy, durable industrial design with maintenance-free motor for continuous use
- ▶ Housing made of strand cast aluminium
- ▶ Large, heavy fastening flanges ensure excellent disc concentricity
- ▶ Grinding attachment with graphite support; prevents friction and heat
- ▶ Stop allows for fast and convenient initial grinding of the workpieces
- ▶ Belt run adjustment without tools - adjustable using a single star knob
- ▶ Universal corundum grinding disc and grinding belt included in standard scope of delivery



Fig.: GU 20S

#### Workpiece support

- Sturdy
- Adjustable

Grinding disc	Article no.
• Normal corundum grinding disc	
• Rough grain 36	
Ø 200 x 30 Ø 32 mm	3107210
Ø 250 x 40 Ø 32 mm	3107250

Grinding disc	Article no.
• Normal corundum grinding disc	
• Fine grain 80	
Ø 200 x 30 Ø 32 mm	3107215
Ø 250 x 40 Ø 32 mm	3107255

Grinding belt	Article no.
• For GU 20S	
• Sanding belt size 75 x 762 mm	
Grain size 40	3357612
Grain size 40	3357614
Grain size 80	3357616
Grain size 120	3357618
Grain size 180	3357619
Grain size 240	3357620

Grinding belt	Article no.
• For GU 25S	
• Sanding belt size 75 x 1,016 mm	
Grain size 40	3357682
Grain size 40	3357684
Grain size 80	3357686
Grain size 120	3357688
Grain size 180	3357689
Grain size 240	3357690

Scope of Delivery
• Grinding disc normal corundum fine 80 grain
• Grinding belt normal corundum fine 80 grain

Model	GU 20S	GU 25S
Article no. (230 V)	3101570	-
Article no. (400 V)	3101575	3101580

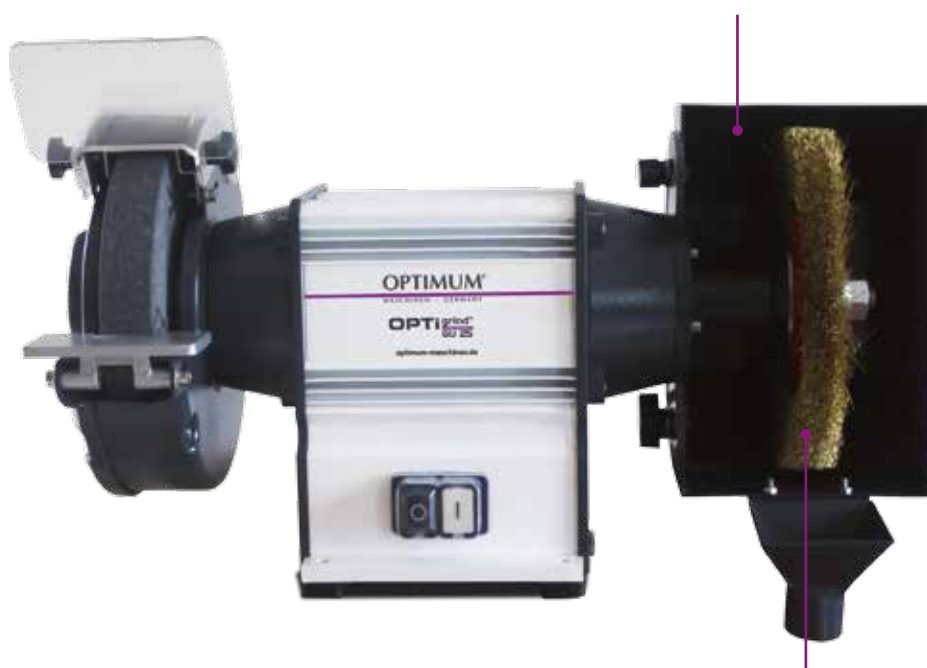
Technical specifications		
Electrical connection	230 V/1 Ph ~50 Hz	400 V/3 Ph ~50 Hz
Motor output	600 W	1.5 kW
Grinding discs		
Grinding disc size	Ø 200 x 30 mm Drill hole Ø 32 mm	Ø 250 x 40 mm Drill hole Ø 32 mm
Grinding attachment		
Grinding belt length, width	75 x 762 mm	75 x 1,016 mm
Grinding attachment swivel range	90°	90°
Extraction duct nominal width	Ø 32 mm	Ø 32 mm
Grinding support	87 x 180 mm	87 x 305 mm
Speed	2,850 rpm	2,850 rpm
Dimensions L x W x H		
Net weight	20.7 kg	31.5 kg

Accessories
„Chassis for grinding and polishing machines“ you find on page 197

## Combined grinding machines by Optimum for workshops

### Facts that impress in terms of quality, performance and price

- ▶ Durable design with maintenance-free motor for continuous use
- ▶ Housing made of strand cast aluminium
- ▶ Large, heavy fastening flanges ensure excellent disc concentricity
- ▶ Grinding attachment with graphite support; prevents friction and heat
- ▶ Stop allows for fast and convenient initial grinding of the workpieces



#### Brush protection housing

- Swivelling
- Extraction duct for attaching an extraction unit

#### Multi-purpose wire brush

- High tensile steel wire
- Available as an accessory in various thicknesses

Grinding disc	Article no.
• Normal corundum grinding disc	
• Rough grain 36	
Ø 150 x 20 Ø 16 mm	3107150
Ø 175 x 25 Ø 32 mm	3107180
Ø 200 x 30 Ø 32 mm	3107210
Ø 250 x 40 Ø 32 mm	3107250

Grinding disc	Article no.
• Normal corundum grinding disc	
• Fine grain 80	
Ø 150 x 20 Ø 16 mm	3107155
Ø 175 x 25 Ø 32 mm	3107185
Ø 200 x 30 Ø 32 mm	3107215
Ø 250 x 40 Ø 32 mm	3107255

Round brush	Article no.
• Thickness 0.3 mm	
Ø 150 x 20 Ø 32 mm	3107425
Ø 175 x 20 Ø 32 mm	3107430
Ø 200 x 25 Ø 32 mm	3107435
Ø 250 x 30 Ø 32 mm	3107440

#### Accessories

„Chassis for grinding and polishing machines“ you find on page 197



#### Scope of Delivery

- Grinding disc - normal corundum coarse 36 grain
- Brush disc, wire thickness 0.3 mm

Model	GU 15B	GU 18B	GU 20B	GU 25B
Article no. (230 V)	3101600	3101605	3101610	-
Article no. (400 V)	-	-	3101615	3101620
<b>Technical specifications</b>				
Electrical connection	230 V/1 Ph ~50 Hz	230 V/1 Ph ~50 Hz	230 V / 400 V	400 V / 3 Ph ~50 Hz
Motor output	450 W	450 W	600 W	1.5 kW
<b>Grinding discs</b>				
Dimensions	Ø 150 x 20 mm Drill hole Ø 16 mm	Ø 175 x 25 mm Drill hole Ø 32 mm	Ø 200 x 30 mm Drill hole Ø 32 mm	Ø 250 x 40 mm Drill hole Ø 32 mm
Speeds	2,850 rpm	2,850 rpm	2,850 rpm	2,850 rpm
<b>Dimensions</b>				
Length x width x height	495 x 305 x 305 mm	495 x 305 x 305 mm	580 x 345 x 335 mm	650 x 380 x 385 mm
Net weight	11 kg	13 kg	17 kg	30 kg

## PREMIUM Bench grinding machines

GZ - DD Models with chassis and integrated extraction system

### Facts that impress in terms of quality, performance and price

#### ► 10-year OPTIMUM guarantee\*

- Heavy industrial grinding machine absorbs the vibrations (which are low anyway) thanks to its high deadweight
- Also suitable for strong thrust force on the grinding discs
- Maintenance-free, durable, induction motor with smooth action
- Cast iron housing
- Spark guard
- Sturdy, adjustable workpiece support
- Grinding discs not included in standard scope of delivery

#### GZ-DD models:

Integrated extraction system with aluminium fan and self-cleaning impellers

- Dust bag made of self-extinguishing woven material
- Sturdy chassis with water tray



Fig.: GZ 25DD with optional grinding discs

Chassis	Article no.
• Without extractor	
<b>GZ 20D</b>	3091120
• L x W x H: 400 x 370 x 760 mm	
• Weight 33 kg	
<b>GZ 25D</b>	3091122
• L x W x H: 460 x 430 x 760 mm	
• Weight 40 kg	
<b>GZ 30D</b>	3091124
• L x W x H: 460 x 430 x 760 mm	
• Weight 52 kg	

Grinding disc	Article no.
• Pure corundum grinding disc	
• Hardness M - grey	
• Made in Italy	
<b>GRINDING DISC GZ 20D/DD</b>	
<b>K 36</b>	3098121
<b>K 60</b>	3098123
<b>K 80</b>	3098125
<b>GRINDING DISC GZ 25D/DD</b>	
<b>K 36</b>	3098131
<b>K 60</b>	3098133
<b>K 80</b>	3098135
<b>GRINDING DISC GZ 30D/DD</b>	
<b>K 36</b>	3098141
<b>K 60</b>	3098143
<b>K 80</b>	3098145

ELECTRONIC BRAKE	Article no.
	3091099

- Controlled braking
- Including factory assembly



\*„Warranty conditions“ you find on page 211

Model	GZ 20D	GZ 25D	GZ 30D
Article no.	3091010	3091015	3091020
Model	GZ 20DD	GZ 25DD	GZ 30DD
Article no.	3091040	3091045	3091050
Technical data			
Electrical connection	400 V/3 Ph ~50 Hz	400 V/3 Ph ~50 Hz	400 V/3 Ph ~50 Hz
Motor output	750 W	1.1 kW	1.8 kW
Grinding discs			
Dimensions	Ø 200 x 25 mm, Drill hole Ø 20 mm	Ø 250 x 30 mm, Drill hole Ø 25 mm	Ø 300 x 35 mm, Drill hole Ø 30 mm
Speeds	2,800 rpm	1,400 rpm	1,400 rpm
Dimensions			
L x W x H GZ-Models	550 x 290 x 360 mm	670 x 340 x 410 mm	810 x 420 x 560 mm
L x W x H GZ-DD models	800 x 710 x 1,300 mm	800 x 710 x 1,300 mm	810 x 1,200 x 1,300 mm
Net weight GZ models	25 kg	44.8 kg	64.5 kg
Net weight GZ-DD models	63.7 kg	91 kg	124 kg

## PREMIUM Combined grinding machines for workshops, steel construction companies,...

Facts that impress in terms of quality, performance and price

- ▶ **10-year OPTIMUM guarantee\***
- ▶ Heavy industrial combined grinding machine absorbs the vibrations (which are low anyway) thanks to its high deadweight
- ▶ Also suitable for strong thrust force on the grinding disc and brush
- ▶ Maintenance-free, durable, induction motor with smooth action
- ▶ Cast iron housing
- ▶ Sturdy, adjustable workpiece support
- ▶ Grinding disc and brush not included in standard scope of delivery



Fig.: GZ 20C with optional grinding disc and brush

### Multi-purpose wire brush

- High tensile steel wire available as an accessory in various thicknesses

### Brush protection housing Swivelling

- Extraction duct for attaching an extraction unit

\*„Warranty conditions“ you find on page 211

Model	GZ20C	GZ25C
Article no.	3091070	3091075
<b>Technical data</b>		
Electrical connection	400 V/3 Ph ~50 Hz	400 V/3 Ph ~50 Hz
Motor output	750 W	1.1 kW
<b>Grinding discs</b>		
Dimensions	Ø 200 x 25 mm, Drill hole Ø 20 mm	Ø 250 x 30 mm, Drill hole Ø 25 mm
Speeds	2,800 rpm	1,400 rpm
<b>Dimensions</b>		
Length x width x height	650 x 300 x 360 mm	850 x 340 x 410 mm
Net weight	26.5 kg	40.7 kg

Chassis	Article no.
---------	-------------

- Without extractor
- |               |         |
|---------------|---------|
| <b>GZ 20C</b> | 3091120 |
|---------------|---------|
- L x W x H: 400 x 370 x 760 mm
  - Weight 33 kg
- |               |         |
|---------------|---------|
| <b>GZ 25C</b> | 3091122 |
|---------------|---------|
- L x W x H: 460 x 430 x 760 mm
  - Weight 40 kg



Grinding disc	Article no.
---------------	-------------

- Pure corundum grinding disc
- Hardness M - white
- **Made in EU**

<b>GZ 20C</b>	
<b>K 36</b>	3098121
<b>K 60</b>	3098123
<b>K 80</b>	3098125
<b>GZ 25C</b>	
<b>K 36</b>	3098131
<b>K 60</b>	3098133
<b>K 80</b>	3098135

Grinding disc	Article no.
---------------	-------------

- High tensile steel wire
- **Made in EU**

<b>GZ 20C</b>	
<b>0.35 mm</b>	3098081
<b>0.5 mm</b>	3098082
<b>GZ 25C</b>	
<b>0.3 mm</b>	3098086
<b>0.5 mm</b>	3098087

ELECTRONIC BRAKE	Article no.
------------------	-------------

- Controlled braking
- Including factory assembly



## Polishing machines for surface machining of metal workpieces

### Facts that impress in terms of quality, performance and price

- ▶ Heavy, durable industrial design with maintenance-free motor
- ▶ Housing made of strand cast aluminium
- ▶ Long service life and quiet action thanks to balanced rotor with quality ball bearings
- ▶ Vibration-damping rubber feet
- ▶ Two wide polishing discs included in standard scope of delivery

#### Balanced rotor

- Long service life
- Extremely smooth action
- Quality ball bearings

#### Scope of Delivery

- Soft polishing disc
- Hard polishing disc



Fig.: GU 20P

Polishing disc	Article no.
• hard	
Ø 200 x 20 Ø 16 mm	3107321
Ø 250 x 25 Ø 20 mm	3107331

Polishing disc	Article no.
• soft	
Ø 200 x 20 Ø 16 mm	3107320
Ø 250 x 25 Ø 20 mm	3107330

Model	GU 20P	GU 25P
Article no. (230 V)	3101540	-
Article no. (400 V)	3101545	3101550
<b>Technical specifications</b>		
Electrical connection	230 V / 1 Ph or 400 V / 3 Ph	400 V/3 Ph ~50 Hz
Motor output	600 W	1.5 kW
<b>Technical specifications</b>		
Speed	2,850 rpm	2,850 rpm
Polishing disc size	Ø 200 x 20 mm	Ø 250 x 25 mm
<b>Dimensions</b>		
Length x width x height	545 x 200 x 262 mm	555 x 250 x 296 mm
weight	10.6 kg	17.4 kg

#### Scope of Delivery

- Soft polishing disc
- Hard polishing disc

#### Accessories

„Chassis for grinding and polishing machines“ you find on page 197





## Machine chassis with cyclone extractor for grinding machines

## Facts that impress in terms of quality, performance and price

- ▶ Sturdy chassis
- ▶ Cyclone vacuum integrated in chassis, consequently less space required
- ▶ For GU and GU-S machines
- ▶ Noise-insulated
- ▶ Lamp holder for LED 3-500
- ▶ Without drilled holes - must be drilled individually
- ▶ **Automatic start-up**
  - When the double grinder is switched on, the extractor automatically starts with a delay of 2-3 seconds. It is not necessary to additionally switch on extraction
  - Extraction continues for 2-3 seconds after having switched off the double grinder
  - The residual dust is extracted after switching off the machine in line with the Hazardous Materials Ordinance

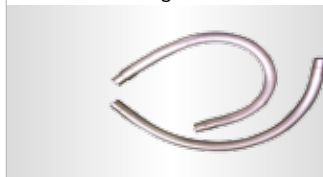
Model	GU 1	
Article no.	3107110	3107109
Electrical connection	230 V / 1 Ph	400 V / 3 Ph
Motor output	1.3 kW	
Speed	29,000 rpm	
Dimensions	477 (550) x 340 x 805 (890) mm	
Net weight	40 kg	

Note: Extractor needs a neutral conductor, 400-V version

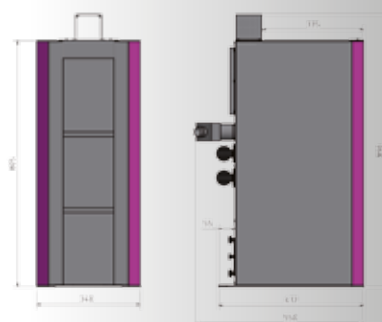


**LED 3-500** 3351010  
• Energy-saving and durable machine lamp

**Extraction hose** 3107111  
• 2 flexible extraction hoses for GU and GU-S grinders



## Dimensions



**Lamp holder**  
▶ prepared for machine lamp LED 3-500



**Chip drawer**  
▶ for emptying the chips

## Chassis for grinding and polishing machines

**Wall holder** 3107050

- Coolant tray
- L x W x H: 332x 300 x 230 mm



**Chassis SM** 3107060

- Coolant tray
- L x W x H: 320 x 270 x 820 mm



**Chassis SSM** 3107101

- Coolant tray
- L x W x H: 345 x 300 x 785 mm



**Chassis** 3107103

- For SM 300
- L x W x H: 505 x 600 x 790 mm



Folding machine FP 30 - universally deployable

Facts that impress in terms of quality, performance and price

- ▶ Folding machine FP 30 for bending and folding sheet metals
- ▶ Removable bending beam segments
- ▶ Convenient swivel movement of the bending beam via lever handle
- ▶ Premium quality bending beam
- ▶ For use on a vice

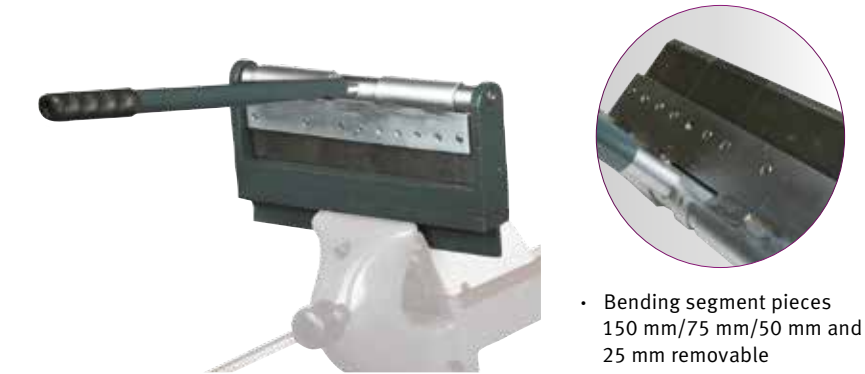
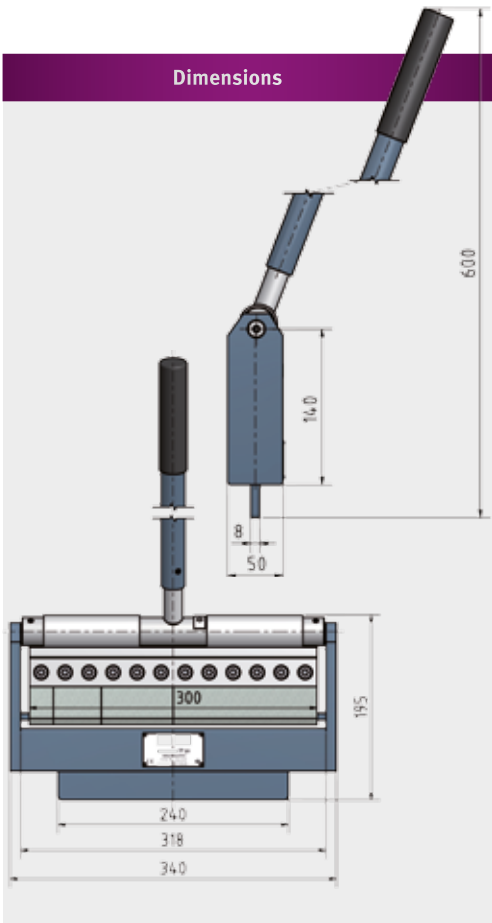


Fig.: Folding machine FP 30

Model	FP 30	Max. folding performance at 90°	
Article no.	3244028		
Performance features		Aluminium/copper	300 x 2 mm
Max material width	320 mm	Steel sheet	300 x 1 mm
Max. sheet thickness	2.5 mm	Net weight	10 kg



Three-roller roll bending machine BM3 - universally deployable

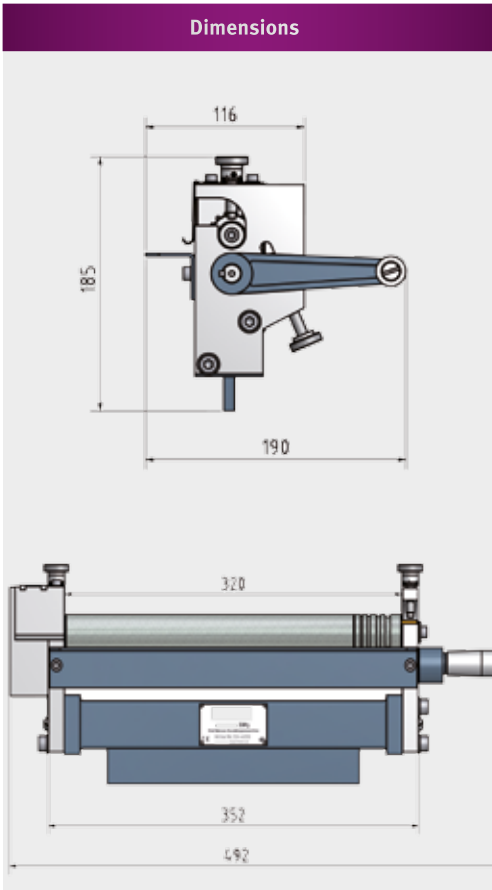
Facts that impress in terms of quality, performance and price

- ▶ Bending and rolling of wires, tubes and sheet
- ▶ Polished bending rollers
- ▶ Borne steel side frames (self-lubricating)
- ▶ Two removable unwinding rollers
- ▶ Material thickness and rolling radius separately adjustable
- ▶ For use on a vice
- ▶ Sturdy support surface



Fig.: BM 3

Model	BM 3	Rolling thickness_max.	
Article no.	3244030		
Performance features		Steel sheet St. 37	1 mm
Max material width	310 mm	stainless steel	1 mm
Bending Ø min.	35 mm	Aluminium/copper	2 mm
Bending Ø max.	unlimited	Brass	1 mm
Net weight	10 kg	Gold/silver/tinplate	2 mm
		Narrow widths	3 mm
		Round materials	1 - 5 mm
		Unwinding roller	Ø 30 mm



## Sheet metal working machine 3 in 1: plate rolling, folding and cutting.

Ideally suited for demanding users

### Facts that impress in terms of quality, performance and price

- ▶ Modern design and sturdy steel construction
- ▶ High level of design flexibility thanks to segmented folding rail
- ▶ Segments removable from the folding bar
- ▶ Operation via two large, adjustable and easily operable levers arranged at the side
- ▶ Long support surface
- ▶ Extensible support arm for safely supporting large-format sheet metal
- ▶ Scissor table with recessed measuring strips and right-angle stop on both sides
- ▶ Easily adjustable top, rear and bottom rollers
- ▶ Extensible rear stop and front material support for safe support



Fig.: SAR 1000

#### Scope of Delivery

- Adjustable rear stop
- Front material support
- Tool



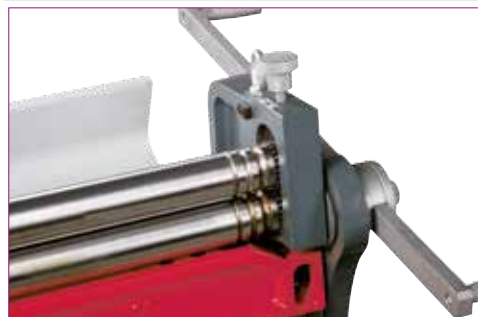
#### optional accessory Chassis

- L x W x H: 1,185 x 500 x 700 mm
- Art. no. 3242107

Model	SAR 1000
Article no.	3242100
<b>Technical data</b>	
Max material width	700 mm
<b>Plate rolling</b>	
Plate rolling (min.)	Ø 48 mm
Plate rolling (max.)	Ø unlimited
Steel sheet (S235JR)	up to 1 mm
stainless steel	up to 0.5 mm
Aluminium/copper	up to 1.5 mm
Brass	up to 1 mm
Gold/silver/tinplate	up to 1.5 mm
Unwinding roller Ø	48 mm
<b>Folding</b>	
Max. sheet thickness	2.5 mm*
Aluminium/copper	up to 1.5 mm
Steel sheet (S235JR)	up to 1 mm
Number of segments	7
<b>Cutting</b>	
Cutting capacity max.	up to 1 mm
Net weight	290 kg

### Plate rolling

- Adjusting screws for material thickness with scale
- Ground bending rollers with wire insert grooves on the bottom and front rollers



### Folding

- Premium folding bars
- Spring hold-down unit
- Segmented folding rail
- Segments removable from the folding bar 40 mm/50 mm/65 mm/100 mm/180 mm/255 mm/380 mm for cartridge bending

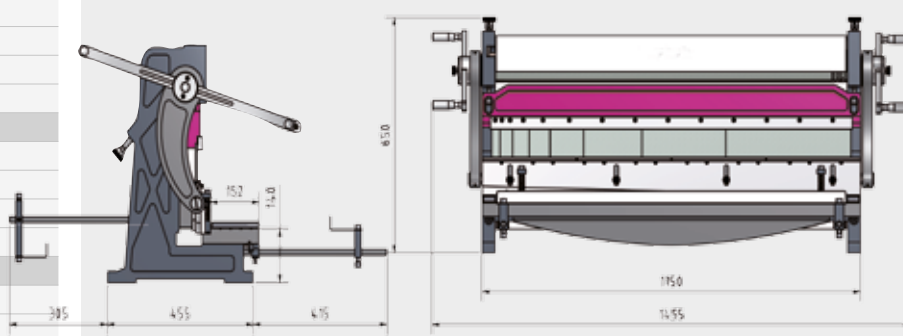


### Cutting

- Clean and burr-free cutting thanks to top and bottom blades made of quality grade steel



### Dimensions



## Lever-action snips - a quality product for trade applications

### Facts that impress in terms of quality, performance and price

- ▶ For cutting metal plates, sheet, round and flat steel
- ▶ Sturdy snip body
- ▶ Good ergonomic cutting geometry
- ▶ Easy, strength-saving cutting over the entire length of the cut
- ▶ Robust handle ensures a good grip
- ▶ Premium blades
- ▶ The workpiece to be cut is held down in horizontal position by the hold-down unit
- ▶ Stable base and holes drilled for stationary fastening

Fig.: Ps 125

Fig.: Ps 300



- Premium blade with long service life
- Hold-down unit prevents sheet twisting during cutting
- Strong springs prevent the shears closing autonomously

Replacement blade set	Article no.
• 2-part	
for PS 125	3241025
for PS 150	3241026
for PS 300	3241028

Model	PS 125	PS 150	PS 300
article no.	3241006	3241007	3241012
<b>Cutting capacity</b>			
Max. cutting length (b)	95 mm	115 mm	235 mm
Max. sheet thickness (c)	3 mm*	4 mm*	4 mm*
Dimensions L x W x H	245 x 110 x 935 mm	325 x 120 x 960 mm	490 x 155 x 1,340 mm
Net weight	8.7 kg	10.7 kg	23 kg

\*Not over the entire length - material steel (S235JR), stainless steel up to 1 mm



## DDP 10/DDP 20/DDP 30/DDP 50

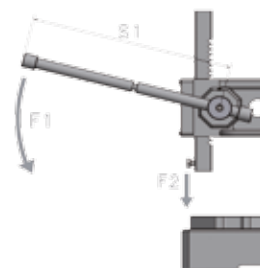
### Precision arbour presses with rugged and solid design.

For mechanical workshops and repair operations

- ▶ For pressing in and out of bearings, mandrels, bushings, spindles, pins
- ▶ Stable design
- ▶ Premium grey cast body
- ▶ Variably adjustable lever
- ▶ Baseplate adjustable in four positions
- ▶ For fastening on a workbench



Model	DDP 10	DDP 20	DDP 30	DDP 50
article no.	3359011	3359012	3359013	3359015
<b>Technical specifications</b>				
Max. workpiece height	123 mm	195 mm	310 mm	459 mm
Throat	95 mm	120 mm	150 mm	226 mm
<b>Dimensions</b>				
L x W x H max.	270 x 180 x 410 mm	430 x 235 x 680 mm	455 x 260 x 850 mm	650 x 350 x 785 mm
Stamp size (L x W x H)	25 x 25 x 240 mm	32 x 32 x 345 mm	38 x 38 x 455 mm	50 x 50 x 647 mm
weight	14 kg	33 kg	55 kg	167 kg



Effective force		DDP 10		DDP 20		DDP 30		DDP 50	
Hand force	F1	392.4 N	589 N	392.4 N	589 N	392.4 N	589 N	392.4 N	589 N
		(40 kg)	(60 kg)	(40 kg)	(60 kg)	(40 kg)	(60 kg)	(40 kg)	(60 kg)
Long lever	S1	340 mm		450 mm		600 mm		850 mm	
Effective force	F2	7,480 N	11,220 N	8,364 N	12,555 N	7,705 N	11,566 N	10,251 N	15,372 N
		(763 kg)	(1,143 kg)	(853 kg)	(1,280 kg)	(786 kg)	(1,179 kg)	(1,045 kg)	(1,567 kg)



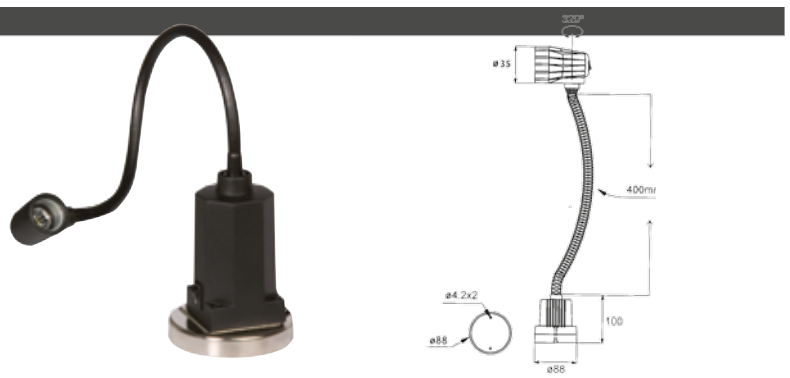


**Machine accessories - Coolant accessories, measuring equipment, machine lamps**

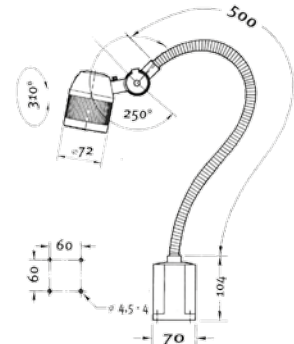


### Robust machine lamps for individual use:

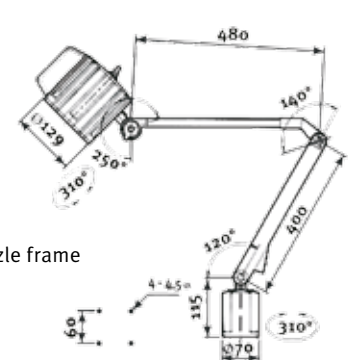
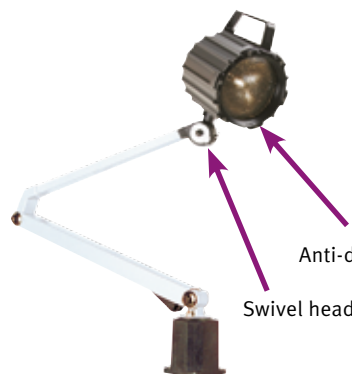
Model	LED machine lamp AL 12
Article no.	3351131
<b>Energy-saving and durable machine lamp</b>	
▶ Optimum mobility of the articulated arm	
▶ Excellent positional stability	
▶ Stable flexible hose arm with sleeve 400 mm	
▶ Magnetic base and assembly plate	
▶ Screen diameter Ø 35 mm	
▶ Luminosity 250 - 330 Lux	
▶ Integrated transformer	
▶ Colour: black	
▶ 1.95 W / 230 V connection	



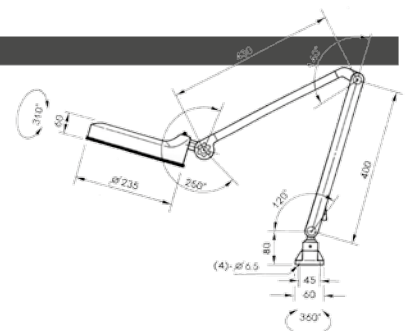
Model	Halogen machine lamp AL 25
Article no.	3351145
<b>Brilliant light</b>	
▶ Articulated arm with sleeve for best possible mobility	
▶ Excellent positional stability	
▶ Swivel head	
▶ Impact-proof, easy-to-clean plastic housing	
▶ Magnetic base and assembly plate	
▶ Arm length 500 mm	
▶ Degree of protection IP20	
▶ Integrated transformer	
▶ Colour: black	
▶ 20 W / 230 V connection	



Model	Halogen machine lamp AL 35
Article no.	3351152
<b>Concentrated halogen light</b>	
▶ Anodised, round reflector with medium width beam	
▶ Assembly plate	
▶ Ribbed, stable aluminium lamp head for protection against water, oil, dust and knocks	
▶ Low outside temperature	
▶ Swivel head	
▶ Articulated arm length 880 mm	
▶ Handle on lamp head	
▶ Anti-dazzle frame for glare free work	
▶ IP degree of protection IP65 (lamp head)	
▶ 12 V illuminant	
▶ Integrated transformer	
▶ Colour aluminium silver/black/white	
▶ 55 W / 230 V connection	

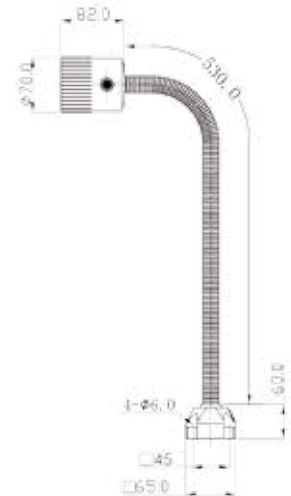


Model	Magnifying lamp ALM 3
Article no.	3351160
<b>Magnifying lamp with 1.5x optical magnification</b>	
▶ Large magnifying glass: 127 mm diameter	
▶ Joint easily adjustable and lockable thanks to clamp screw	
▶ Pleasant, dazzle-free light thanks to round neon tube	
▶ Articulated arm length 830 mm	
▶ IP Degree of protection: IP20	
▶ 22 W / 230 V connection	



## Robust LED machine lamps for individual use

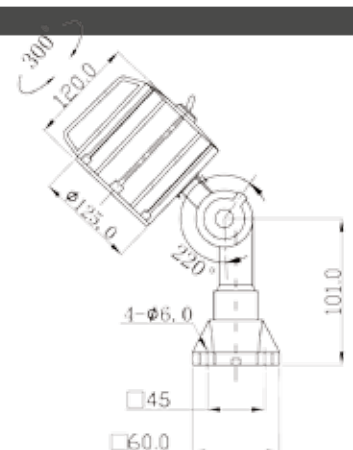
Model	LED 3-500
Article no.	3351010
<b>Energy-saving and durable machine lamp</b>	
► Equipped with high performance LEDs	
► Low exterior temperature; lubricants and coolants do not burn on	
► Made of robust, oil-resistant and impact proof plastic	
► No impairment of the service life through vibration or knocks	
► Excellent positional stability	
► Stable flexible hose arm with sleeve 530 mm	
► Optimum mobility of the articulated arm	
► IP degree of protection IP64 (dust and splash-water protected)	
► Lifetime 60,000 operating hours	
► Colour temperature: 4,000 - 4,500 K	
► Mains supply cable approx. 1.2 m	
► Colour: black	
► Illuminant: 3 x 1 W LED / 230 V ~50 Hz	



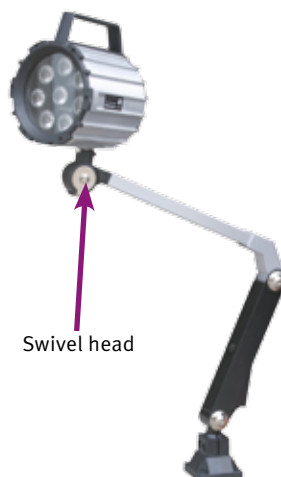
Model	LED 8-100
Article no.	3351021
<b>Robust and powerful articulated machine lamp</b>	
► State of the art LED technology	
► Low exterior temperature; lubricants and coolants do not burn on	
► Swivel head	
► Light distribution: medium width, asymmetric, 25° beam angle	
► Lamp cover made of temperature-resistant safety glass	
► IP degree of protection IP65 (lamp head)	
► Colour temperature: 4,000 - 4,500 K	
► Mains supply cable approx. 1.2 m	
► Colour aluminium silver/black	
► Illuminant: 8 x 1 W LED / 230 V ~50 Hz	



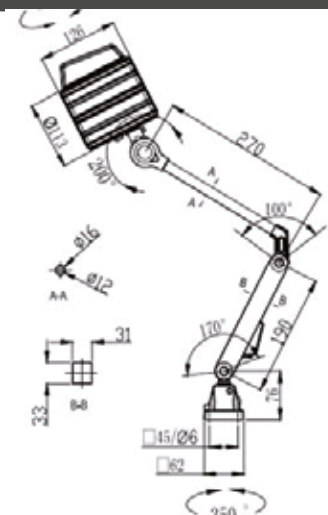
Swivel head



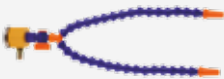


Model	LED 8-600	LED 8-720
Article no.	3351026	3351027
<b>Robust and powerful articulated machine lamp</b>		
► State of the art LED technology		
► Low exterior temperature; lubricants and coolants do not burn on		
► Swivel head		
► Light distribution: medium width, asymmetric, 25° beam angle		
► Lamp cover made of temperature-resistant safety glass		
► IP degree of protection IP65 (lamp head)		
► Articulated arm length LED 8-600: 505 mm and 8-720: 720 mm		
► Colour temperature: 4,000 - 4,500 K		
► Mains supply cable approx. 1.2 m		
► Colour aluminium silver/black		
► Illuminant: 8 x 1 W LED / 230 V ~50 Hz		
► Weight: 3.6 kg		




Swivel head



## Coolant accessories

	Designation	Size	Article no.
	Coolant hose set 2 pcs. Articulated hoses; 300 mm 2 pcs. Round nozzles, 1 unit Shut-off valve 1 pcs. Magnetic base	1/4"	3356700
		1/2"	3356801
	Coolant hoses 4 pcs. Articulated hoses; 150 mm	1/4"	3356701
	Coolant hose set 2 pcs. Articulated hoses; 150 mm 2 pcs. 1/4" and 1/8" NPT coupling 3 pcs. 1/16" / 1/8" / 1/4" round nozzle 1 pcs. Flat nozzle	1/4"	3356702
		1/2"	3356802
	Coolant hose set 2 pcs. Articulated hoses; 150 mm 2 pcs. 1/4" and 1/8" NPT coupling 2 pcs. 1/8" / 1/4" round nozzles 2 pcs. Shut-off valve	1/4"	3356703
	Grips	1/4"	3356710
		1/2"	3356810
	Hose roll - articulated hose 15 metres	1/4"	3356711
		1/2"	3356811
	Circular nozzles	1/4"	3356712
		1/2"	3356812
	Flat nozzles 5-hole 5 unit	1/4"	3356713
		1/2"	3356820
	Flat nozzles 5 unit	1/4"	3356714
		1/2"	3356813
	Flat nozzle 75 mm wide 2 unit	1/4"	3356715
		1/2"	3356814
	3/8" connector NPT connection 5 unit	1/4"	3356716
		1/2"	3356815
	1/2" connector NPT connection 5 unit	1/2"	3356816
	Y connector 5 pcs. (1/4") 2 pcs. (1/2")	1/4"	3356717
		1/2"	3356817
	Cap 5 unit	1/4"	3356718
		1/2"	3356818
	Shut-off valve 2 unit	1/4"	3356719
		1/2"	3356819

	Designation	Size	Article no.
	<b>Coolant hoses basic equipment</b> <b>1/4" - No. 1</b> 8 pcs. articulated hose 150 mm 2 pcs. each round nozzle 1/16" / 1/8" / 1/4", 2 pcs. NPT coupling 1/4" and 1/8", 1 pc. flat nozzle, 1 pc. Y-distributor, 2 pcs. shut-off valve inside and outside, 2 pcs. shut-off valve inside - 1/4", 2 pc. NPT extension, 1 pc. magnetic base, 1 pc. flexible sealing tape	1/4"	3356704
	<b>Coolant hoses basic equipment</b> <b>1/4" - No. 2</b> 6 pcs. articulated hose 150 mm 2 pcs. each round nozzle 1/16" / 1/8" / 1/4", 2 pcs. each NPT coupling 1/4" and 1/8", 5 pcs. flat nozzle, 4 pcs. 90° nozzle, 1 pc. Y-distributor, 1 pc. shut-off valve, inside and outside, 1 pc. shut-off valve, inside - 1/4" 1 pc. grips	1/4"	3356705
	<b>Coolant hoses basic equipment</b> <b>1/2" - No. 1</b> 6 pcs. articulated hose 150 mm 2 pcs. each round nozzle 1/2" / 3/8" / 1/4", 2 pcs. each NPT coupling 1/4" and 1/2", 1 pc. flat nozzle, 3 pcs. 90° round nozzle 1/2" / 3/8" / 1/4", 1 pc. Y-distributor, 1 pc. shut-off valve, inside and outside, 1 pc. shut-off valve, inside - 1/2" 1 pc. grips	1/2"	3356800

Universal coolant unit 230 V/1 Ph	3352002
<ul style="list-style-type: none"> <li>• Delivery height max. 2.5 m</li> <li>• Flow rate 8 l/min</li> <li>• Container capacity 11 l</li> <li>• Container size L x W x H: 370 x 245 x 170 mm</li> <li>• Complete with container, flexible tube, hose</li> <li>• With switch/plug combination</li> <li>• Magnetic base fastener for coolant hose</li> <li>• For self-assembly!</li> </ul>	



Coolant mist lubricator MMC1	3356663
<ul style="list-style-type: none"> <li>• Magnetic base</li> <li>• Base size L x W x H: 62 x 50 x 55 mm</li> <li>• Screw connection for external compressed air supply</li> <li>• Magnetic base holding force 75 kg</li> <li>• Flexible and stable hose</li> <li>• Length of coolant hose 500 mm</li> </ul>	



Coolant hose KMS 2	3356660
<ul style="list-style-type: none"> <li>• Two flexible and stable coolant hoses made of individual plastic elements</li> <li>• Not electrically conductive</li> <li>• Magnetic base holding force up to 50 kg</li> <li>• Length of coolant hoses each 335 mm</li> <li>• Insensitive to most solvents and chemicals</li> <li>• Universally deployable on all tool machines</li> </ul>	



## Digital position display DP700 for precise measurement of travel strokes and positioning on the machine and drives



Digital position display DP700	3390073
--------------------------------	---------

Extension kit - Spherosyn milling	3390220
-----------------------------------	---------

- ▶ Digital position display DP700
- ▶ Display holder
- ▶ Attachment parts for assembling three axes Spherosyn

Extension kit - Microsyn milling	3390230
----------------------------------	---------

- ▶ Digital position display DP700
- ▶ Display holder
- ▶ Attachment parts for assembling three axes Microsyn

Extension kit - turning 1	3390405
---------------------------	---------

- ▶ Digital position display DP700
- ▶ Display holder
- ▶ Attachment parts for assembling one axis Spherosyn and one axis Microsyn greater than 300 mm

Extension kit - turning 2	3390406
---------------------------	---------

- ▶ Digital position display DP700
- ▶ Display holder
- ▶ Attachment parts for assembling one axis Spherosyn and one axis Microsyn less than 300 mm

Complete attachment kit BF 30Vario	3390330
------------------------------------	---------

- ▶ Digital position display DP700
- ▶ 3 pcs. measuring strip Microsyn
- ▶ Display holder · Attachment parts measuring strip assembly

Complete attachment kit BF 46Vario	3390346
------------------------------------	---------

- ▶ Digital position display DP700
- ▶ 3 pcs. measuring strip Microsyn
- ▶ Display holder · Attachment parts measuring strip assembly

Complete attachment kit TH 3309	3390420
---------------------------------	---------

- ▶ Digital position display DP700
- ▶ 2 pcs. measuring strip Microsyn · 1 pc. measuring strip Spherosyn
- ▶ Display holder · Attachment parts measuring strip assembly

Complete attachment kit TH 3610 / TH 4010	3390430
---	---------

- ▶ Digital position display DP700
- ▶ 2 pcs. measuring strip Microsyn · 1 pc. measuring strip Spherosyn
- ▶ Display holder · Attachment parts measuring strip assembly

### Digital position display DP700

- ▶ Powerful DP display with many functions
- ▶ Ergonomically shaped, slim-line aluminium housing
- ▶ Has all necessary functions for a variety of machining applications
- ▶ The operator works with an intuitive and user-friendly interface
- ▶ Developed and manufactured in England
- ▶ IP67 encoding units can be deployed under the toughest ambient conditions with a high degree of precision.
- ▶ Five-year warranty on indicator and read heads
- ▶ The linear encoding units are insensitive to soiling in the workshop, such as coolant, water, dust, chips, knocks and vibrations
- ▶ No maintenance required
- ▶ Fast and easy installation

Possible functions		
Number of axes	2 or 3 axes	
	Milling machine	Lathe
Undo	•	•
Digfind (position search function)	•	•
Centrefind	•	•
Radius/diameter	•	•
Absolute/steps	•	•
mm/inch	•	•
Axes preset/zero set	•	•
Approach zero point	•	•
Tool repository		•
Taper		•
Axis addition		•
PCD/bolt circle	•	
Arc control	•	
Polar coordinates	•	
Slotted rail	•	
Input mode/Sub-datum	•	•
Feed function	•	•
RS232 output	•	•
Linear error compensation	•	•
Segmental error compensation	•	•
Protection classes	IP 40 (digital display)	
	IP 54 (front control panel)	
Languages	DE, EN, FR, ES, IT TU, TR, CZ, RU, PT, DK	



## Analogue measuring systems (Spherosyn & Microsyn)

The Spherosyn and Microsyn length measuring systems are specially designed for requirements in the demanding environment of a workshop. The measuring transducers use a totally unique design with all components sealed and protected. This means that you can achieve precise and reliable measured values, even if the measuring systems are immersed in coolant, oil water or lubricant.



### The advantages

- ▶ Easy to install – low assembly costs
- ▶ Degree of protection IP 67
- ▶ Impermeable to coolants, oil, dust, chips and almost all workshop influences
- ▶ No risk of broken or scratched glass
- ▶ Tolerant towards vibration and magnetic interference
- ▶ No regular maintenance or cleaning needed
- ▶ No mechanical wear
- ▶ Lifetime guarantee on the measuring probe

Worldwide, more than 400,000 Spherosyn and Microsyn transducers offer the highest degree of reliability.

Spherosyn and Microsyn can be used both for the digital position display DP700 and also be integrated for a variety of feedback applications, such as CNC systems and PLC.

How does that work?

The Spherosyn and Microsyn measuring probes rely on the principle of electro-magnetism and consist of a stainless steel or carbon fibre cube filled with individual, classified, highly precise steel balls. The balls are pre-stressed and calibrated in a temperature-controlled environment in the tube.

The read head consists of six coils which are wound around a composite fibre coil. The coils and the required electronic circuitry are sealed on the inside of the read head by a special potting method. Applying voltage to the coil generates an electro-magnetic field in the read head. Due to the curvature of the balls on the inside of the tube, the output signal varies depending on the position of the coils above the balls. When the measuring head runs over the probe, signals are generated by the relative axial movement induced at each probe coil.



### Difference between Spherosyn and Microsyn measuring probes

Analogue measuring systems	Spherosyn	Microsyn
Measuring length	51 mm to 2,945 mm	30 mm to 1,000 mm
Scale	15.25 mm	6.5 mm
Measuring probe material	Stainless steel	Carbon fibre
Measuring probe length, total	Measuring length + 250 mm	Measuring length + 175 mm
Read head dimensions	51 mm x 131 mm x 28 mm	35 mm x 75 mm x 20 mm
Maximum feed	2.0 metres per second	0.75 metres per second
Output cable length	3.5 metre stainless steel armouring (Extension cable available as accessory page 208)	
Precision	± 10 micron	
Repetition accuracy	Within one resolution sample	
Drive input	85mA ± 5mA	
Output	2.0 V ± 0.5 RMS, 1 kHz phase-analogue, 360 degrees per 12.7 mm	
Suitable	For large machines and machines without space problems when fitting the probes	For small machines with space problems when fitting the probes

## Analogue measuring systems (Spherosyn & Microsyn)



Fig.: **Spherosyn** with optional fastening



Fig.: **Microsyn** with optional fastening

Measuring strips Spherosyn	Article no.
MS S2G - 51 mm	3391005
MS S2G - 102 mm	3391010
MS S2G - 152 mm	3391015
MS S2G - 178 mm	3391018
MS S2G - 203 mm	3391020
MS S2G - 229 mm	3391023
MS S2G - 254 mm	3391025
MS S2G - 305 mm	3391030
MS S2G - 356 mm	3391035
MS S2G - 406 mm	3391040
MS S2G - 457 mm	3391046
MS S2G - 508 mm	3391051
MS S2G - 559 mm	3391056
MS S2G - 610 mm	3391061
MS S2G - 660 mm	3391066
MS S2G - 711 mm	3391071
MS S2G - 762 mm	3391076
MS S2G - 813 mm	3391081
MS S2G - 864 mm	3391086
MS S2G - 914 mm	3391091
MS S2G - 965 mm	3391097
MS S2G - 1,016 mm	3391101
MS S2G - 1,118 mm	3391111
MS S2G - 1,168 mm	3391117
MS S2G - 1,219 mm	3391121
MS S2G - 1,270 mm	3391127
MS S2G - 1,321 mm	3391132
MS S2G - 1,372 mm	3391137
MS S2G - 1,422 mm	3391142
MS S2G - 1,473 mm	3391147
MS S2G - 1,524 mm	3391152
MS S2G - 1,626 mm	3391162
MS S2G - 1,727 mm	3391172
MS S2G - 1,829 mm	3391182
MS S2G - 1,930 mm	3391193
MS S2G - 2,032 mm	3391203
MS S2G - 2,134 mm	3391213
MS S2G - 2,235 mm	3391223
MS S2G - 2,337 mm	3391233
MS S2G - 2,438 mm	3391243
MS S2G - 2,540 mm	3391254
MS S2G - 2,642 mm	3391264
MS S2G - 2,743 mm	3391274
MS S2G - 2,845 mm	3391284
MS S2G - 2,946 mm	3391294

Measuring strips Microsyn	Article no.
MS M2G - 30 mm	3392003
MS M2G - 50 mm	3392005
MS M2G - 75 mm	3392007
MS M2G - 100 mm	3392010
MS M2G - 125 mm	3392012
MS M2G - 150 mm	3392015
MS M2G - 175 mm	3392017
MS M2G - 180 mm	3392018
MS M2G - 200 mm	3392020
MS M2G - 225 mm	3392022
MS M2G - 250 mm	3392025
MS M2G - 275 mm	3392027
MS M2G - 300 mm	3392030
MS M2G - 325 mm	3392032
MS M2G - 350 mm	3392035
MS M2G - 400 mm	3392040
MS M2G - 450 mm	3392045
MS M2G - 500 mm	3392050
MS M2G - 550 mm	3392055
MS M2G - 600 mm	3392060
MS M2G - 650 mm	3392065
MS M2G - 700 mm	3392070
MS M2G - 750 mm	3392075
MS M2G - 800 mm	3392080
MS M2G - 850 mm	3392085
MS M2G - 900 mm	3392090
MS M2G - 950 mm	3392095
MS M2G - 1,000 mm	3392100

Accessories	Article no.
Extension cable 1 metres	3393601
Extension cable 2 metres	3393602
Extension cable 3.5 metres	3393603
Extension cable 5 metres	3393604
Extension cable 10 metres	3393605

## Digital positioning displays for versatile deployment for three axes with speed display. Premium technology and durable industrial quality

### Differences:

#### DPA 21

- ▶ LED display

#### DPA 22

- ▶ LCD display
- ▶ High-contrast display
- ▶ Simplified menu navigation
- ▶ Graphical input for cycle programming



DPA 22



DPA 21

Digital position display	Article no.
<b>DPA 21</b> (LED display)	3384020
<b>DPA 22</b> (LCD display)	3384022
<ul style="list-style-type: none"> <li>▶ User-friendly membrane keyboard, splash water protected, sealed and dazzle free</li> <li>▶ Switchable for milling machine and lathe, freely selectable input signal (sinus/square), e.g. usable for glass measuring probes and/or magnetic strip system</li> <li>▶ Greater operation accuracy</li> <li>▶ Clear reduction of manufacturing times</li> <li>▶ Reduction of error quota</li> <li>▶ X, Y/Z, Z axis each with 8-digit display</li> <li>▶ Sensor supplied for acquiring spindle speeds</li> <li>▶ Three measuring inputs can be evaluated with seven correction memory stores each for tools</li> <li>▶ Dimensions L x W x H: 230 x 80 x 260 mm . Weight: 2 kg</li> </ul>	

### Possible functions

- ▶ Calculator, speed display, axis coupling (total Z), sub-D connector sockets, absolute/incremental operation, conversion inch/metric thread, bolt circle computation (chain dimension), coordinates in circle (pitch circle), drill holes in circle (pitch circle), measured values switchable radius/diameter, Zero reset data default, self diagnostics, reference point, linear error correction, 99 tool memory slots

### Scope of delivery

- ▶ Speed sensor
- ▶ Holder
- ▶ Power supply 24 V

Read head active



### Magnetic strip

- ▶ Magnetic strip for assembly machines that do not have enough space for magnetic measuring probes

- ▶ Connector 9-pin

**Length 1,100 mm** 3383978

**Length 2,000 mm** 3383979

**Read head active** 3383934

- ▶ for magnetic strip

### Measuring strips

### Article no.

- ▶ Fully encapsulated measuring systems with high precision glass measuring probe
- ▶ Resolution 5 µm
- ▶ Accuracy ± 0.003 mm
- ▶ Sampling slide borne on miniature ball bearings and connected to the assembly base by a coupling
- ▶ Protected against dust, chips and splash water by a rubber lip
- ▶ Flexible metal protection hose
- ▶ Connecting cable three metres; four metres as of ML 620
- ▶ Without assembly

<b>ML 80 mm</b>	3384108
<b>ML 100 mm</b>	3384110
<b>ML 120 mm</b>	3384112
<b>ML 170 mm</b>	3384117
<b>ML 220 mm</b>	3384122
<b>ML 270 mm</b>	3384127
<b>ML 320 mm</b>	3384132
<b>ML 370 mm</b>	3384137
<b>ML 420 mm</b>	3384142
<b>ML 470 mm</b>	3384147
<b>ML 520 mm</b>	3384152
<b>ML 570 mm</b>	3384157
<b>ML 620 mm</b>	3384162
<b>ML 670 mm</b>	3384167
<b>ML 720 mm</b>	3384172
<b>ML 770 mm</b>	3384177
<b>ML 820 mm</b>	3384182
<b>ML 870 mm</b>	3384187
<b>ML 920 mm</b>	3384192
<b>ML 970 mm</b>	3384197
<b>ML 1,020 mm</b>	3384202
<b>ML 1,250 mm</b>	3384225
<b>ML 1,400 mm</b>	3384240
<b>ML 1,520 mm</b>	3384252
<b>ML 1,670 mm</b>	3384267
<b>ML 1,940 mm</b>	3384294
<b>ML 2,010 mm</b>	3384295
<b>ML 3,000 mm</b>	3384300
<b>Factory assembly ML</b>	9000410

- ▶ Per measuring strip

## Digital 3-axis position display for milling machines and lathes with speed display

### Digital 3-axis position display DRO5

Article no.	3383975
<ul style="list-style-type: none"> <li>▶ Digital 3-axis position display for milling machines (X - Y - Z) and for lathes (X, Z, Z<sub>0</sub>)</li> <li>▶ For measuring positions</li> <li>▶ Rev counter</li> <li>▶ Three incremental inputs</li> <li>▶ Four-line LCD display</li> <li>▶ User-friendly menu navigation</li> <li>▶ Rugged aluminium housing</li> <li>▶ Programming from the front</li> <li>▶ Dimensions length 98 mm x width 65 mm x height 134 mm</li> </ul>	
Including:	
<ul style="list-style-type: none"> <li>▶ Speed sensor cable length 5 metres</li> <li>▶ 3 pcs. magnetic sensors without magnetic strip</li> <li>▶ Power supply cable length 6 metres</li> <li>▶ Magnetic plate</li> </ul>	



Accessories	Article no.
<b>Magnetic strip</b> length 1,100 mm	3383978
<b>Magnetic strip</b> length 2,000 mm	3383979
<b>Magnetic strip</b> per metre	3383980

Factory assembly	
<b>Magnetic strip</b> three axes	9000420
<b>Speed sensor</b>	9000421

## Measuring accessories

<b>Dial gauge</b>	3385090
<ul style="list-style-type: none"> <li>▶ Precision as per DIN 878</li> <li>▶ Metal housing matt chrome plated</li> <li>▶ Clamping shank 8 mm</li> <li>▶ Scale 0.01 mm</li> <li>▶ Measuring range 10 mm</li> <li>▶ Outer ring with two adjustable tolerance marks</li> <li>▶ Scale rotatable via outer ring for easy zeroing</li> </ul>	

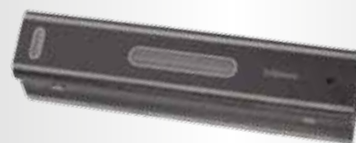


<b>Precision magnetic measuring stand</b>	3356650
<ul style="list-style-type: none"> <li>▶ Measuring column Ø 12 mm x 181 mm</li> <li>▶ Traverse Ø 10 mm x 160 mm</li> <li>▶ Magnetic base L x W x H: 50 x 62 x 55 mm</li> <li>▶ Holding force 50 kg</li> <li>▶ Dial gauge holder with mounting hole for dial gauges, fine indicators, electrical length measuring probes</li> </ul>	



Fig.:  
Dial gauge and  
measuring stand

<b>Machine spirit level</b>	3385064
<ul style="list-style-type: none"> <li>▶ With prismatic base for levelling horizontal surfaces and shafts</li> <li>▶ Compact and stress-free installation of the longitudinal spirit level guarantees constant precision</li> <li>▶ Precision 0.02 mm/m</li> <li>▶ Horizontal and longitudinal spirit level as per DIN 2276 Form B</li> <li>▶ Eliminates time-consuming adjustment work</li> <li>▶ Heat protected handle</li> <li>▶ Dimensions: 200 mm x 46 mm x 46 mm</li> </ul>	



<b>Measuring and test platen</b>	3385060
<ul style="list-style-type: none"> <li>▶ Dimensions L x W x H: 630 x 400 x 100 mm</li> <li>▶ Precision 7 µ</li> <li>▶ Granite</li> <li>▶ Thermally and dynamically stable</li> <li>▶ Compressive strength 250 - 260 N/mm<sup>2</sup></li> <li>▶ DIN 876/0</li> <li>▶ Corrosion-free</li> </ul>	



### Please note

- The publication of this catalogue renders all previous price lists invalid.
- Prices are recommended retail prices, subject to change, in €, plus statutory VAT, plus packaging, shipping, transportation, unloading, installation and training costs as applicable.
- We accept no liability for printing errors, mistakes or incorrect representation.
- Subject to technical modifications and visual changes.
- Illustrations show optimal accessories in some cases
- Delivery is effected solely on the basis of our terms of delivery and payment.
- The machines are delivered partly knocked down for transportation reasons.
- All items are sold through specialist retailers.
- The goods shall remain our property until payment has been received in full.
- Our retention of title shall remain valid in case of sale to a third-party.
- Legal warranty conditions apply for businesses.
- Copying and reproduction in full or in part is subject to written approval by us.
- Please note that transport packaging surcharges apply for some machines in this catalogue to cover transport units, packaging and packaging overheads. These machines are appropriately marked in the catalogue.

### Warranty conditions

- Independently of your legal warranty entitlement, OPTIMUM provides a guarantee on the basis of the following provisions for the period as stated in the catalogue for the respective machine; the guarantee period starts on the date of sale of the machine to the end customer. OPTIMUM offers a guarantee on catalogue products where a guarantee is specifically indicated. The guarantee exclusively covers defects resulting from material or manufacturing errors. The warranty exclusively covers spare parts but not the transport and installation costs or labour and ancillary services necessary for eliminating defects. The guarantee excludes unintended use or improper application such as overloading of the machine or the use of non-approved and unsuitable tools, use of force, damage caused by external influences or by foreign bodies, e.g., dust, chips or stones, damage caused by failure to observe the Operating Instructions, e.g., connection to the wrong mains voltage or current, failure to observe assembly instructions, conversions and extensions carried out by the customer, as well as normal wear. The guarantee also excludes partially or fully disassembled machines and machine tools. When claiming against guarantee/warranty, you must submit the original sales receipt showing the date of purchase. Repairs under guarantee/warranty may be performed by authorised partners only who will be named by the guarantee/warranty provider. The guarantee/warranty is restricted to the end customer of the new machine and is not transferrable.

### General notes on operating our machines

- gence.
- The details on machine precision are found in the technical data of the catalogue pages. If you do not find any values here, please contact [info@optimum-maschinen.de](mailto:info@optimum-maschinen.de) for more detailed information.
- The stated precisions are achieved under standardised conditions (correct installation of the machine and ambient temperature of 20°C). The machines are not designed for continuous operation.
- (1) Please note that operators are required to make conversions in the event of installing third-party chucks or flanged chucks to reach the stated, technically possible rotating diameter.



YOU WILL FIND MORE PRODUCTS IN OUR MAIN CATALOGUES



optimum-maschinen.de



holzkraft.de



metallkraft.de



holzstar.de



schweisskraft.de



uncraft.de



aircraft-kompressoren.de



cleancraft.de

#### Sales Germany:

**OPTIMUM Maschinen Germany GmbH**  
Dr. Robert-Pfleger-Str. 26  
96103 Hallstadt/Germany

**Phone:** +49 (0) 9 51 - 96 555 - 0

**Fax:** +49 (0) 9 51 - 96 555-888

**email:** info@optimum-maschinen.de



www.optimum-maschinen.de

#### Sales Austria:

**AIRCRAFT Kompressorenbau und  
Maschinengroßhandel GmbH**

Gewerbestraße Ost 6  
4921 Hohenzell / Austria

**Phone:** +43 (0) 77 52 - 70 929 - 0

**Fax:** +43 (0) 77 52 - 70 929 - 99

**email:** info@aircraft.at

**Web:** www.aircraft.at

DISCOVER OUR PRODUCT VIDEOS NOW!





Are you familiar with our YouTube channel, **Optimum Machines**?

You can view all of our product videos here. We always seek to offer you a **wide range** and **high quality selection** of videos.

**Subscribe** to our YouTube channel, to avoid missing any of the new videos: [www.youtube.com/user/OptimumMaschinen](http://www.youtube.com/user/OptimumMaschinen)

Your specialist retailer:



#### Main Catalogue



#### CNC Catalogue



**OPTIMUM Cap**  
Part no. 9000072