

# THE FUTURE RIGHT NOW

PRECISION lathes, drilling- and milling machines



turning



milling








drilling

MAIN CATALOG 2021







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**Description** **Lathes D2000 | D2400**  
with cylindrical guideways  
Center distance 350 | 500 mm  
Center height 110 mm  
on page 8

Catalog



**Description** **Lathes D4000**  
with prismatic cast iron bed  
Center distance 350 mm  
Center height 100 mm  
on page 14

Catalog



**Description** **Lathes D6000**  
with prismatic cast iron bed  
**1.4 kW** or **2.0 kW**  
Center distance 600 mm  
Center height 135 mm  
on page 20

Catalog



Conventional milling machines



**Description** **CNC lathes CC-D6000**  
with prismatic cast iron bed  
with nccad **basic** or **professional**  
**1.4 kW** or **2.0 kW**  
Center distance 600 mm  
Center height 135 mm  
on page 38

Catalog



**Description** **CNC lathes CC-D6200**  
with slant bed  
with nccad professional  
Center distance 600 mm  
Center height 135 mm  
on page 40

Catalog







**Description** **Milling machines F1200**  
with dovetail guides  
**1.4 kW** or **2.0 kW**  
X-axis 260 mm  
Y-axis 150 mm  
Work table 450 x 180 mm  
on page 56

Catalog

**Description** **Milling machines F1210**  
with dovetail guides  
**1.4 kW** or **2.0 kW**  
X-axis 500 mm  
Y-axis 150 mm  
Work table 700 x 180 mm  
on page 62

Catalog

**Description** **Milling machines F1410**  
with linear guides  
**1.4 kW** or **2.0 kW**  
X-axis 500 mm  
Y-axis 200 mm  
Work table 700 x 180 mm  
on page 68

Catalog



**Description** **CNC milling machines CC-F1200**  
with dovetail guides  
with nccad **basic** or **professional**  
**1.4 kW** or **2.0 kW**  
X-axis 260 mm  
Y-axis 150 mm  
Work table 450 x 180 mm  
on page 76

Catalog



**Description** **CNC milling machines CC-F1210**  
with dovetail guides  
with nccad **basic** or **professional**  
**1.4 kW** or **2.0 kW**  
X-axis 500 mm  
Y-axis 150 mm  
Work table 700 x 180 mm  
on page 86

Catalog



**Description** **CNC milling machines CC-F1410**  
with linear guides  
with nccad **basic** or **professional**  
**1.4 kW** or **2.0 kW**  
X-axis 500 mm  
Y-axis 200 mm  
Work table 700 x 180 mm  
on page 96

Catalog

# LATHES

D2000 | D2400 | D4000 | D6000 | D6000 hs



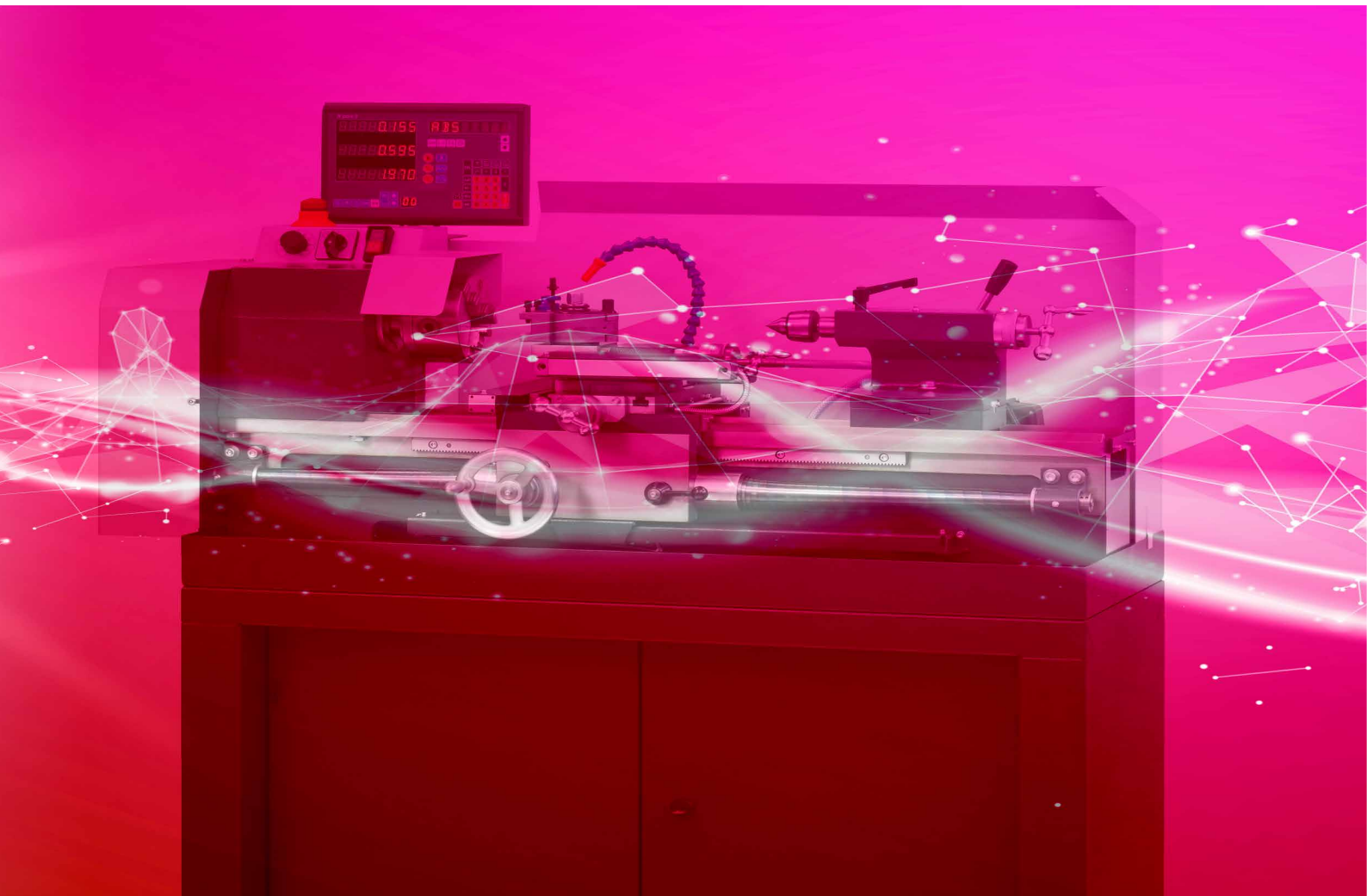
turning

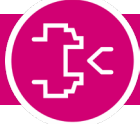


milling



drilling





- ✓ precise lead screw lathe
- ✓ in-house design and production
- ✓ the classics - tried and tested for over 40 years
- ✓ the space saver
- ✓ for metal processing
- ✓ thanks to optimised swarf waste, also ideally suited for wood processing
- ✓ perfect for hobby and model building due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements



## Lathe D2000

**Lead screw lathe  
with precise ground cylindrical steel guideways**

Item no. 10108

### Basic equipment

- **3-jaw lathe chuck Ø 100 mm**  
with turning and drilling jaws
- Dead center MT2
- Main spindle bore Ø 20 mm  
(main spindle bore Ø 30 mm optional page 10)
- Thread cutting prepared  
with lead screw drive and change gear quadrant  
automatic longitudinal feed rate 0.085 mm/rev  
(for thread cutting the change gear set is needed  
optional page 13  
for metric 0.25-6.0 mm and inch 10-36 TPI threads  
and automatic longitudinal feed rate 0.16 mm/rev)

### Working range

- **Center distance 350 mm**
- Center height 110 mm
- Workpiece diameter max. 220 mm

### Main drive power

- **1.4 kW, 30 - 2300 rpm**
- extremely silent running  
due to modern electronically adjustable drive technology

### Cylindrical guideways

- precise ground cylindrical guideways
- made of highest quality steel
- high rigidity
- optimal swarf waste
- **10 years warranty on the guideways**

### Warranty

- 5 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

### Technical data

- can be found on page 44



- ✓ precise lead screw lathe
- ✓ in-house design and production
- ✓ the classics - tried and tested for over 40 years
- ✓ for metal processing
- ✓ thanks to optimised swarf waste, also ideally suited for wood processing
- ✓ perfect for hobby, model building, craft and workshop use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

## Lathe D2400

**Lead screw lathe  
with precise ground cylindrical steel guideways**

Item no. 10200

### Basic equipment

- **3-jaw lathe chuck Ø 100 mm**  
with turning and drilling jaws
- Dead center MT2
- Main spindle bore Ø 20 mm  
(main spindle bore Ø 30 mm optional page 10)
- Thread cutting prepared  
with lead screw drive and change gear quadrant  
automatic longitudinal feed rate 0.085 mm/rev  
(for thread cutting the change gear set is needed  
optional page 13  
for metric 0.25-6.0 mm and inch 10-36 TPI threads  
and automatic longitudinal feed rate 0.16 mm/rev)

### Working range

- **Center distance 500 mm**
- Center height 110 mm
- Workpiece diameter max. 220 mm

### Main drive power

- **1.4 kW, 30 - 2300 rpm**
- extremely silent running  
due to modern electronically adjustable drive technology

### Cylindrical guideways

- precise ground cylindrical guideways
- made of highest quality steel
- high rigidity
- optimal swarf waste
- **10 years warranty on the guideways**

### Warranty

- 5 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

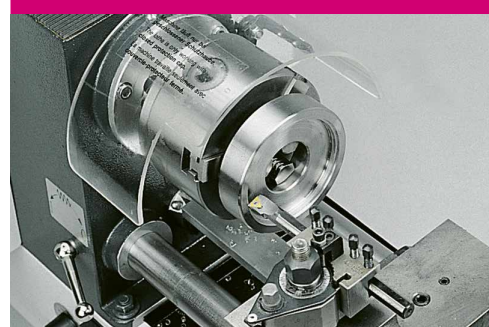
### Technical data

- can be found on page 44

**Grooving**



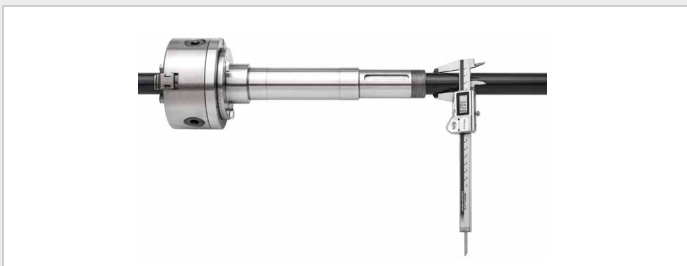
**Internal turning**







### Optional tooling available and recommended



Main spindle bore Ø 30 mm  
for workpiece Ø up to 30 mm

Item no. 10278

- without morse taper
- cannot be retrofitted



Digital position readout (DRO) and 2 optical scales  
for exact positioning of the workpieces

Item no. 10126 - for D2000

included in delivery

- Digital position readout (DRO) for 3 axes
- Optical scale 170 mm for X-axis
- Optical scale 320 mm for Z-axis
- Mounting kit and protective covers for optical scales
- factory installation

Item no. 10226 - for D2400

included in delivery

- Digital position readout (DRO) for 3 axes
- Optical scale 170 mm for X-axis
- Optical scale 520 mm for Z-axis
- Mounting kit and protective covers for optical scales
- factory installation

Mounting by the customer

Drilled holes and threads must be added to the lathe by the customer

Item no. 10280  
digital position readout (DRO) for 3 axes

Item no. 10284  
optical scale 170 mm for X-axis  
Z-axis - for D2000

Item no. 10286  
optical scale 320 mm for Z-axis  
Z-axis - for D2400

Item no. 10287  
optical scale 520 mm for Z-axis

Item no. 10289  
mounting kit and protective covers

## Optional tooling available and recommended



## Chip- and coolant tray

Item no. 10174 - for D2000

- Dimensions W560 x D170 x H10 mm

Item no. 10175 - for D2400

- Dimensions W700 x D170 x H10 mm



## Chip- and coolant tray with splash guard

Item no. 10156 - for D2000

- Dimensions W1060 x D464 x H500 mm

Item no. 10256 - for D2400

- Dimensions W1060 x D464 x H500 mm



## Coolant unit with splash guard

Item no. 10164 - for D2000

Item no. 10264 - for D2400

- Dimensions W1060 x D445 x H553 mm
- with feed pump 230 V, 50/60 Hz
- flexible hose with stop valve and nozzle
- Content coolant: 19 liter

Application

- for cooling and lubrication
- e.g. when processing high-alloy steel and aluminum, improves the surface finish, increases tool endurance, prevents build-up edges

## Coolant concentrate

Item no. 11550

- Content: 5 liter
- High-performance cooling lubricant on mineral oil base
- Corrosion protection
- Solvent: 5% or 1:20 with water
- especially suitable for processing high-alloy, rust- and acid-resistant steels

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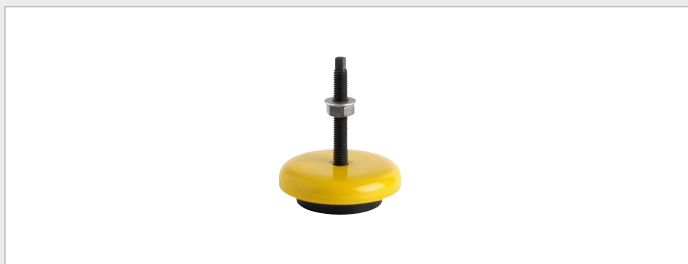
## Optional tooling available and recommended



### Machine base cabinet

Item no. 10267

- Dimensions W1060 x D445 x H850 mm
- with 2 lockable doors and 2 shelves
- Weight without packaging 58 kg



### Levelling element

Item no. 10268

- PU: 1 piece
- Vibration pick-up and absorption element
- for precise height adjustment on uneven grounds
- Ø 80 mm, thread M10
- prevents the machine base cabinet from moving
- per machine base cabinet 4 levelling elements are required



### Milling attachment

for drilling and milling work

Item no. 10270

#### included in delivery

- Milling attachment 130 x 100 mm  
width of slots 12 mm  
can be rotated infinitely by 360°  
can be traversed in 3 axes
- Clamping angle

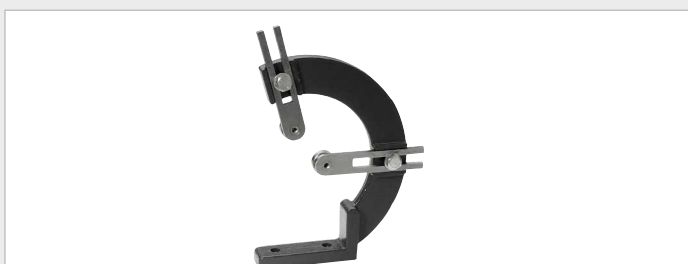


### Fixed stay

for machining longer workpieces

Item no. 10170

- for hollow turning and drilling longer workpieces
- is fixed to the cylindrical guideways



### Live stay

for machining longer workpieces

Item no. 10172

- to support long, thin shafts during longitudinal turning, prevents them from sagging
- is fixed to the tool slide

## Optional tooling available and recommended



**Hand steel rest**  
for wood processing

Item no. 10160

- adjustable

Application

- for turning works
- the lower part of the hand steel rest is clamped to the guiding bars of the lathe and can be placed close to the workpiece by adjusting as necessary



**Change gear set**  
for thread cutting

Item no. 10179

- 10 pieces
- for metric 0.25-6.0 mm and inch 10-36 TPI threads
- automatic longitudinal feed rate 0.16 mm/rev



**Push type gun**

Item no. 11535

- for grease and oil
- for conical and ball-head grease nipples
- with a pointed- and a hollow-/universal mouthpiece



**Tool set**

Item no. 10997

included in delivery

- Quick-change tool post, main body size Aa (A0)
- Boring steel holder size Aa (A0)
- Turning tool holder size Aa (A0)
- Carbide-tipped turning tool set 6 pieces  
cross section 10 x 10 mm
- Quick-action drill chuck  
clamping width 1-13 mm  
inner taper B16
- Drill chuck arbor MT2  
morse taper MT2 and flat tang



- ✓ precise lead screw lathe
- ✓ in-house design and production
- ✓ the space saver
- ✓ for metal processing
- ✓ perfect for hobby, model building, craft and workshop use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

## Lathe D4000

### Lead screw lathe with prismatic cast iron bed

Item no. 10400

#### Basic equipment

- **3-jaw lathe chuck Ø 100 mm**  
with turning and drilling jaws
- Live center MT2
- Main spindle bore Ø 20 mm
- Thread cutting  
with lead screw drive and change gear quadrant  
tumbler gear for left- and right-hand threads  
change gear set for metric 0.25 - 7.0 mm and  
inch 10 - 40 TPI threads  
2 automatic longitudinal feed rates/lead screw drive  
0.085 and 0.16 mm/rev

#### Working range

- Center distance 350 mm
- Center height 100 mm
- Workpiece diameter max. 200 mm

#### Main drive power

- **1.4 kW, 30 - 2300 rpm**
- extremely silent running  
due to modern electronically adjustable drive technology

#### Prismatic cast iron bed

- made of diagonally ribbed gray cast iron
- inductively hardened and ground guideways

#### Warranty

- 5 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- can be found on page 44







- ✓ precise lead screw lathe
- ✓ in-house design and production
- ✓ the space saver
- ✓ for metal processing
- ✓ perfect for hobby, model building, craft and workshop use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

## Lathe D4000

### Lead screw lathe with prismatic cast iron bed

Item no. 10401

#### Basic equipment

- **3-jaw lathe chuck Ø 125 mm**  
with turning and drilling jaws
- Live center MT2
- Main spindle bore Ø 20 mm
- Thread cutting  
with lead screw drive and change gear quadrant  
tumbler gear for left- and right-hand threads  
change gear set for metric 0.25 - 7.0 mm and  
inch 10 - 40 TPI threads  
2 automatic longitudinal feed rates/lead screw drive  
0.085 and 0.16 mm/rev

#### Working range

- Center distance 350 mm
- Center height 100 mm
- Workpiece diameter max. 200 mm

#### Main drive power

- **1.4 kW, 30 - 2300 rpm**
- extremely silent running  
due to modern electronically adjustable drive technology

#### Prismatic cast iron bed

- made of diagonally ribbed gray cast iron
- inductively hardened and ground guideways

#### Warranty

- 5 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

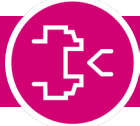
- can be found on page 44



Grooving



Longitudinal turning



## Optional tooling available and recommended



### Quick-action collet chuck for quickly changing the workpieces

Item no. 10929

- Clamping range 2 - 30 mm
- to be used up to max. 4000 rpm
- self-locking
- for dead length collets or Rubber-Flex collets
- Collets from 2 - 30 mm available - price upon request
- factory installed
- for optional retrofitting (upon request)

#### Application

for clamping and unclamping of the workpieces with hand lever



### Mountable digital vernier scales for precise machining of the workpieces

Item no. 10425

#### included in delivery

- 3 mountable digital vernier scales for X-, Z- and Z1-axis
- Mounting kit for 3 axes
- factory installation

#### Mounting by the customer

Drilled holes and threads must be added to the lathe by the customer

Item no. 11370  
for X-axis measuring length 100 mm

Item no. 11364  
for Z-axis measuring length 400 mm

Item no. 11360  
for Z1-axis measuring length 100 mm

Item no. 10499  
mounting kit for 3 axes



### Digital position readout (DRO) and 2 optical scales for exact positioning of the workpieces

Item no. 10426

#### included in delivery

- Digital position readout (DRO) for 3 axes
- Optical scale 170 mm for X-axis
- Optical scale 320 mm for Z-axis
- Mounting kit and protective covers for optical scales
- factory installation

## Optional tooling available and recommended



### Digital position readout (DRO) and 2 optical scales

Mounting by the customer

Drilled holes and threads must be added to the lathe by the customer

Item no.	10280
	digital position readout (DRO) for 3 axes
Item no.	10284
	optical scale 170 mm for X-axis
Item no.	10286
	optical scale 320 mm for Z-axis
Item no.	10489
	mounting kit and protective covers



### Chip- and coolant tray with splash guard

Item no.	10456
	<ul style="list-style-type: none"> <li>• Dimensions W1060 x D464 x H500 mm</li> </ul>



### Coolant unit with splash guard

Item no.	10464
	<ul style="list-style-type: none"> <li>• Dimensions W1060 x D445 x H553 mm</li> <li>• with feed pump 230 V, 50/60 Hz</li> <li>• flexible hose with stop valve and nozzle</li> <li>• Content coolant: 19 liter</li> </ul>

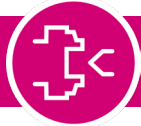
### Application

- for cooling and lubrication
- e.g. when processing high-alloy steel and aluminum, improves the surface finish, increases tool endurance, prevents build-up edges

### Coolant concentrate

Item no.	11550
	<ul style="list-style-type: none"> <li>• Content: 5 liter</li> <li>• High-performance cooling lubricant on mineral oil base</li> <li>• Corrosion protection</li> <li>• Solvent: 5% or 1:20 with water</li> <li>• especially suitable for processing high-alloy, rust- and acid-resistant steels</li> </ul>

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### Optional tooling available and recommended



#### Machine base cabinet

Item no. 10267

- Dimensions W1060 x D445 x H850 mm
- with 2 lockable doors and 2 shelves
- Weight without packaging 58 kg



#### Levelling element

Item no. 10268

- PU: 1 piece
- Vibration pick-up and absorption element
- for precise height adjustment on uneven grounds
- Ø 80 mm, thread M10
- prevents the machine base cabinet from moving
- per machine base cabinet 4 levelling elements are required



#### Milling attachment

for drilling and milling work

Item no. 10470

##### included in delivery

- Milling attachment 130 x 100 mm  
width of slots 12 mm  
can be rotated infinitely by 360°  
can be traversed in 3 axes
- Longitudinal slide
- Clamping angle



#### Adjustable longitudinal stop

Item no. 10475

- for longitudinal turning
- for protecting the lathe chuck

##### Application

for series production - for turning the workpieces to exactly the same position every time



#### Fixed stay

for machining longer workpieces

Item no. 10471

- for hollow turning and drilling longer workpieces
- is fixed to the prismatic guide

**Optional tooling available and recommended****Push type gun**

Item no. 11535

- for grease and oil
- for conical and ball-head grease nipples
- with a pointed- and a hollow-/universal mouthpiece

**Tool set**

Item no. 10997

included in delivery

- Quick-change tool post, main body size Aa (A0)
- Boring steel holder size Aa (A0)
- Turning tool holder size Aa (A0)
- Carbide-tipped turning tool set 6 pieces  
cross section 10 x 10 mm
- Quick-action drill chuck  
clamping width 1-13 mm  
inner taper B16
- Drill chuck arbor MT2  
morse taper MT2 and flat tang





- ✓ precise lead screw lathe
- ✓ in-house design and production
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

## Lathe D6000

### Lead screw lathe with prismatic cast iron bed

Item no. 10601

#### Basic equipment

- **3-jaw lathe chuck Ø 125 mm**  
with turning and drilling jaws
- Live center MT2
- Main spindle bore Ø 20 mm  
(main spindle bore Ø 30 mm optional page 22)
- Thread cutting  
with lead screw drive and change gear quadrant  
tumbler gear for left- and right-hand threads  
change gear set for metric 0.25 - 7.0 mm and  
inch 10 - 40 TPI threads  
2 automatic longitudinal feed rates/lead screw drive  
0.085 and 0.16 mm/rev

#### Working range

- Center distance 600 mm
- Center height 135 mm
- Workpiece diameter max. 270 mm

#### Main drive power

- **1.4 kW, 30 - 2300 rpm**
- extremely silent running  
due to modern electronically adjustable drive technology

#### Prismatic cast iron bed

- made of diagonally ribbed gray cast iron
- inductively hardened and ground guideways

#### Warranty

- 5 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- can be found on page 44





- ✓ precise lead screw lathe
- ✓ in-house design and production
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

## Lathe D6000 hs

### Lead screw lathe with prismatic cast iron bed

Item no. 10606

#### Basic equipment

- **3-jaw lathe chuck Ø 125 mm**  
with turning and drilling jaws
- Live center MT2
- Main spindle bore Ø 20 mm  
(main spindle bore Ø 30 mm optional page 22)
- Thread cutting  
with lead screw drive and change gear quadrant  
tumbler gear for left- and right-hand threads  
change gear set for metric 0.25 - 7.0 mm and  
inch 10 - 40 TPI threads  
2 automatic longitudinal feed rates/lead screw drive  
0.085 and 0.16 mm/rev

#### Working range

- Center distance 600 mm
- Center height 135 mm
- Workpiece diameter max. 270 mm

#### Main drive power

- **2.0 kW, 50 - 5000 rpm**  
frequency-controlled main drive motor
- extremely silent running  
due to modern electronically adjustable drive technology

#### Prismatic cast iron bed

- made of diagonally ribbed gray cast iron
- inductively hardened and ground guideways

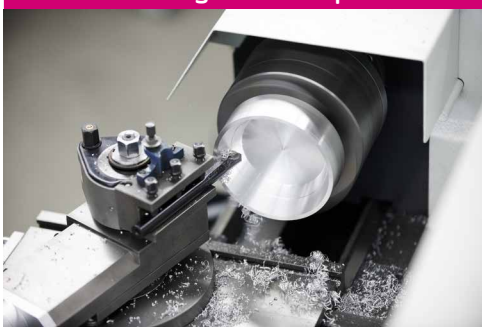
#### Warranty

- 5 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- can be found on page 44

Turning the inner taper



Knurling





## Optional tooling available and recommended



Main spindle bore  $\varnothing$  30 mm  
for workpiece  $\varnothing$  up to 30 mm

Item no. 10678

- with ground taper insert MT3
- cannot be retrofitted



Ball screws for both axes  
for high positioning accuracy

Item no. 10645

- incl. lead screw cover
- Zero backlash ball screws
- high precision pitch and positioning accuracy
- wear-free
- cannot be retrofitted



Lead screw cover  
to protect the lead screw against swarf

Item no. 10680

- to prevent premature wear and loss of precision
- cannot be retrofitted



Camlock D1-4 "Quick Change" option  
for quickly changing lathe and collet chucks by means of the Camlock fixture

Item no. 10640

- Camlock main spindle nose according to DIN 55029 size 4
- factory installed
- cannot be retrofitted

suitable camlock 3- and 4-jaw lathe chuck

can be found on page 134

suitable camlock collet chuck

can be found on page 137

## Optional tooling available and recommended



**Quick-action collet chuck**  
for quickly changing the workpieces

Item no. 10930

- Clamping range 2 - 30 mm
- to be used up to max. 4000 rpm
- self-locking
- for dead length collets or Rubber-Flex collets
- Collets from 2 - 30 mm available - price upon request
- factory installed
- for optional retrofitting (upon request)

### Application

for clamping and unclamping of the workpieces with hand lever



**Mountable digital vernier scales**  
for precise machining of the workpieces

Item no. 10625

### included in delivery

- 3 mountable digital vernier scales for X-, Z- and Z1-axis
- Mounting kit for 3 axes
- factory installation

### Mounting by the customer

Drilled holes and threads must be added to the lathe by the customer

Item no. 11371  
for X-axis measuring length 150 mm

Item no. 11365  
for Z-axis measuring length 500 mm

Item no. 11360  
for Z1-axis measuring length 100 mm

Item no. 10699  
mounting kit for 3 axes

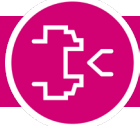


**Digital position readout (DRO) and 2 optical scales**  
for exact positioning of the workpieces

Item no. 10626

### included in delivery

- Digital position readout (DRO) for 3 axes
- Optical scale 170 mm for X-axis
- Optical scale 520 mm for Z-axis
- Mounting kit and protective covers for optical scales
- factory installation

**Optional tooling available and recommended****Digital position readout (DRO) and 2 optical scales**Mounting by the customer

Drilled holes and threads must be added to the lathe by the customer

Item no.	10280
	digital position readout (DRO) for 3 axes
Item no.	10284
	optical scale 170 mm for X-axis
Item no.	10287
	optical scale 520 mm for Z-axis
Item no.	10689
	mounting kit and protective covers

**Digital position readout (DRO) and 3 optical scales for exact positioning of the workpieces**

Item no.	10627
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included in delivery

- Digital position readout (DRO) for 3 axes
- Optical scale 170 mm for X-axis
- Optical scale 520 mm for Z-axis
- Optical scale 100 mm for Z1-axis
- Mounting kit and protective covers for optical scales
- factory installation

Mounting by the customer

Drilled holes and threads must be added to the lathe by the customer

Item no.	10280 digital position readout (DRO) for 3 axes
Item no.	10284 optical scale 170 mm for X-axis
Item no.	10287 optical scale 520 mm for Z-axis
Item no.	10283 optical scale 100 mm for Z1-axis
Item no.	10685 mounting kit and protective covers

**Chip- and coolant tray with splash guard**

Item no.	10656
	<ul style="list-style-type: none"><li>• Dimensions W1060 x D464 x H500 mm</li></ul>





## Optional tooling available and recommended



## Coolant unit with splash guard

Item no. 10664

- Dimensions W1060 x D445 x H553 mm
- with feed pump 230 V, 50/60 Hz
- flexible hose with stop valve and nozzle
- Content coolant: 19 liter

Application

- for cooling and lubrication
- e.g. when processing high-alloy steel and aluminum, improves the surface finish, increases tool endurance, prevents build-up edges



## Coolant concentrate

Item no. 11550

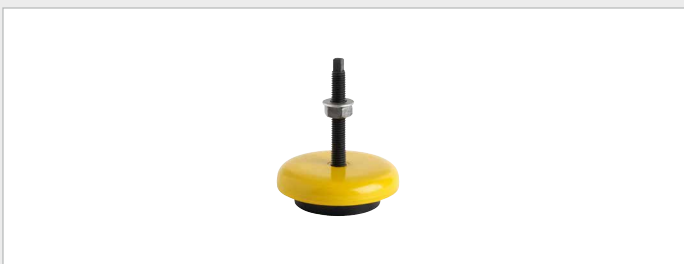
- Content: 5 liter
- High-performance cooling lubricant on mineral oil base
- Corrosion protection
- Solvent: 5% or 1:20 with water
- especially suitable for processing high-alloy, rust- and acid-resistant steels



## Machine base cabinet

Item no. 10267

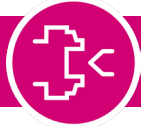
- Dimensions W1060 x D445 x H850 mm
- with 2 lockable doors and 2 shelves
- Weight without packaging 58 kg



## Levelling element

Item no. 10268

- PU: 1 piece
- Vibration pick-up and absorption element
- for precise height adjustment on uneven grounds
- Ø 80 mm, thread M10
- prevents the machine base cabinet from moving
- per machine base cabinet 4 levelling elements are required

**Optional tooling available and recommended****Milling attachment**

for drilling and milling work

Item no. 10671

included in delivery

- Milling attachment 130 x 100 mm  
width of slots 12 mm  
can be rotated infinitely by 360°  
can be traversed in 3 axes
- Longitudinal slide
- Clamping angle

**Adjustable longitudinal stop**

Item no. 10675

- for longitudinal turning
- for protecting the lathe chuck

Application

for series production - for turning the workpieces to exactly the same position every time

**Fixed stay**

for machining longer workpieces

Item no. 10670

- for hollow turning and drilling longer workpieces
- is fixed to the prismatic guide

**Live stay**

for machining longer workpieces

Item no. 10672

- to support long, thin shafts during longitudinal turning, prevents them from sagging
- is fixed to the tool slide

**Push type gun**

Item no. 11535

- for grease and oil
- for conical and ball-head grease nipples
- with a pointed- and a hollow-/universal mouthpiece

**Optional tooling available and recommended****Tool set**

Item no. 10995

included in delivery

- Quick-change tool post, main body size A
- Boring steel holder size A
- Turning tool holder size A
- Carbide-tipped turning tool set 6 pieces  
cross section 10 x 10 mm
- Quick-action drill chuck  
clamping width 1-13 mm  
inner taper B16
- Drill chuck arbor MT2  
morse taper MT2 and flat tang

# CNC LATHES

CC-D6000 | CC-D6200 hs



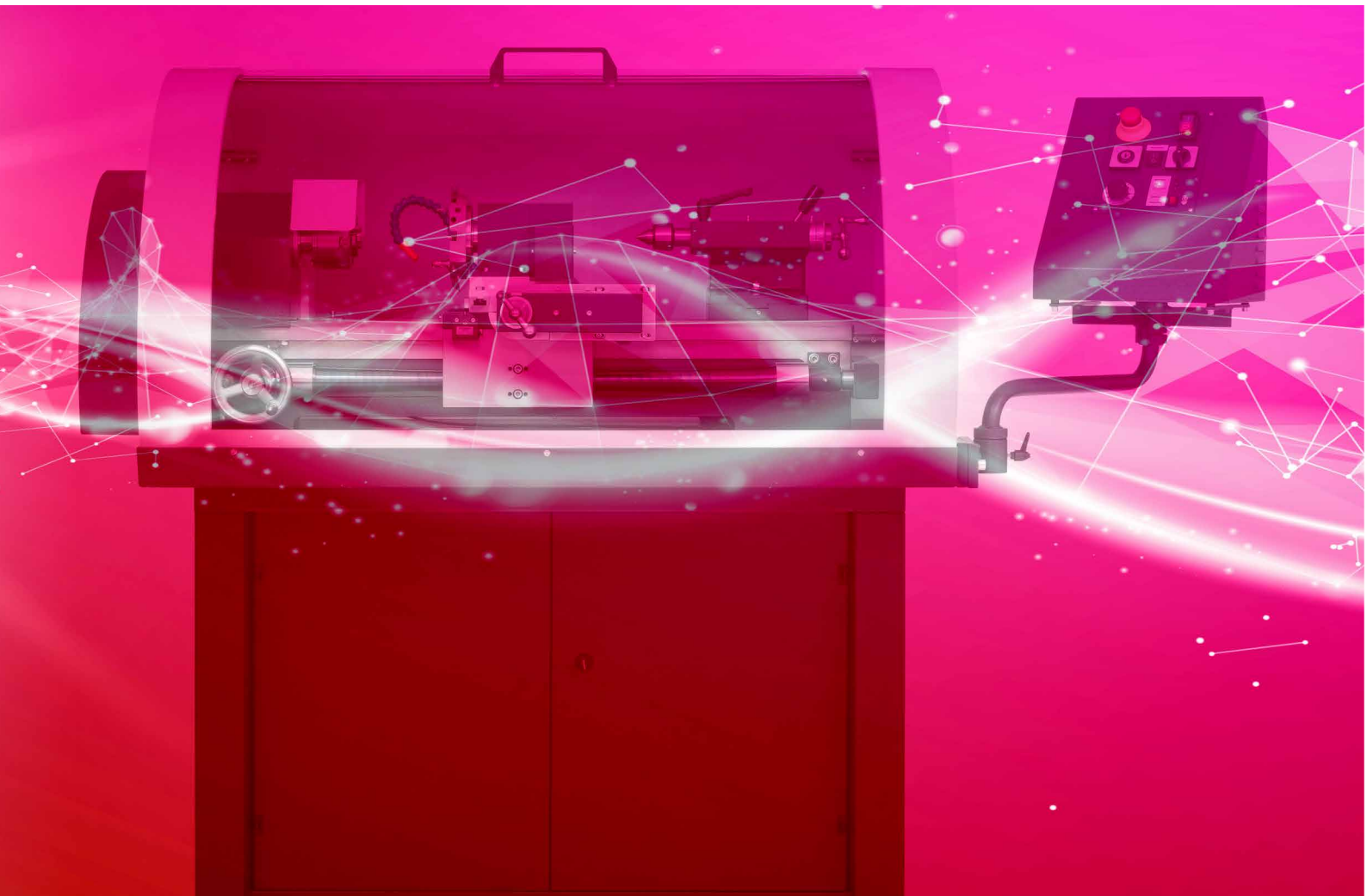
turning

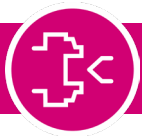


milling



drilling





## nccad basic and professional controller and turning software

nccad basic and nccad professional turning software differ in

- software functions
- and the control electronics

nccad professional turning software also provides the possibility

- of an automated production through the use of the tool turret
- thread cutting in CNC operation
- the use of an electronic handwheel
- as well as higher travel speeds











- ✓ precise lead screw CNC lathe
- ✓ in-house design and production
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

**Note**

Upgrading a manual WABECO lathe with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC lathe. To meet industrial standard safety requirements this to CNC converted lathe should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a lathe converted to CNC does not meet CE listed requirements and can result in serious injuries. Extreme caution is required operating a CNC lathe.**

**CNC lathe CC-D6000 basic**

**Lead screw CNC lathe with prismatic cast iron bed and nccad basic controller**

Item no. 1060051

**Special feature**

- the lathe can be used in conventional as well as in CNC mode

**Basic equipment**

- **3-jaw lathe chuck Ø 125 mm**  
with turning and drilling jaws
- Live center MT2
- Main spindle bore Ø 20 mm  
(main spindle bore Ø 30 mm optional page 36)
- Thread cutting conventional  
with lead screw drive and change gear quadrant  
tumbler gear for left- and right-hand threads  
change gear set for metric 0.25 - 7.0 mm and  
inch 10 - 40 TPI threads  
2 automatic longitudinal feed rates/lead screw drive  
0.085 and 0.16 mm/rev
- Thread cutting not possible in CNC mode
- Machine control panel with integrated machine control elements
- nccad basic turning software

**Working range**

- Center distance 600 mm
- Center height 135 mm
- Workpiece diameter max. 270 mm

**Main drive power**

- **1.4 kW, 30 - 2300 rpm**
- extremely silent running  
due to modern electronically adjustable drive technology

**Prismatic cast iron bed**

- made of diagonally ribbed gray cast iron
- inductively hardened and ground guideways

**PC-control**

- for creating programs and for controlling the CNC machine a PC is required  
(PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

**Warranty**

- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

**Technical data**

- can be found on page 48

**Software description**

- can be found on page 52



- ✓ precise lead screw CNC lathe
- ✓ in-house design and production
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

#### Note

Upgrading a manual WABECO lathe with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC lathe. To meet industrial standard safety requirements this to CNC converted lathe should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a lathe converted to CNC does not meet CE listed requirements and can result in serious injuries. Extreme caution is required operating a CNC lathe.**

### CNC lathe CC-D6000 hs basic

Lead screw CNC lathe with prismatic cast iron bed and nccad basic controller

Item no. 1060056

#### Special feature

- the lathe can be used in conventional as well as in CNC mode

#### Basic equipment

- **3-jaw lathe chuck Ø 125 mm**  
with turning and drilling jaws
- Live center MT2
- Main spindle bore Ø 20 mm  
(main spindle bore Ø 30 mm optional page 36)
- Thread cutting conventional  
with lead screw drive and change gear quadrant  
tumbler gear for left- and right-hand threads  
change gear set for metric 0.25 - 7.0 mm and  
inch 10 - 40 TPI threads  
2 automatic longitudinal feed rates/lead screw drive  
0.085 and 0.16 mm/rev
- Thread cutting not possible in CNC mode
- Machine control panel with integrated machine control elements
- nccad basic turning software

#### Working range

- Center distance 600 mm
- Center height 135 mm
- Workpiece diameter max. 270 mm

#### Main drive power

- **2.0 kW, 50 - 5000 rpm**  
frequency-controlled main drive motor
- extremely silent running  
due to modern electronically adjustable drive technology

#### Prismatic cast iron bed

- made of diagonally ribbed gray cast iron
- inductively hardened and ground guideways

#### PC-control

- for creating programs and for controlling the CNC machine a PC is required (PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### Warranty

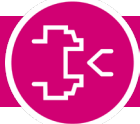
- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- can be found on page 48

#### Software description

- can be found on page 52



- ✓ precise lead screw CNC lathe
- ✓ in-house design and production
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

#### PC-control

- for creating programs and for controlling the CNC machine a PC is required (PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### **Note**

Upgrading a manual WABECO lathe with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC lathe. To meet industrial standard safety requirements this to CNC converted lathe should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a lathe converted to CNC does not meet CE listed requirements and can result in serious injuries. Extreme caution is required operating a CNC lathe.**

### **CNC lathe CC-D6000 professional**

**Lead screw CNC lathe with prismatic cast iron bed and nccad professional controller**

Item no. 1060021

#### Special feature

- the lathe can be used in conventional as well as in CNC mode
- higher travel speeds compared to nccad basic controller
- Possibility of an automated production through the use of the automatic tool turret with 8 tool positions (optional page 38)
- the use of an electronic handwheel (optional page 39)

#### Basic equipment

- **3-jaw lathe chuck Ø 125 mm**  
with turning and drilling jaws
- Live center MT2
- Main spindle bore Ø 20 mm  
(main spindle bore Ø 30 mm optional page 36)
- Thread cutting conventional  
with lead screw drive and change gear quadrant  
tumbler gear for left- and right-hand threads  
change gear set for metric 0.25 - 7.0 mm and  
inch 10 - 40 TPI threads  
2 automatic longitudinal feed rates/lead screw drive  
0.085 and 0.16 mm/rev
- Thread cutting in CNC mode
- Machine control panel with integrated machine control elements
- nccad professional turning software  
for the utmost positioning accuracy the use of ball screws  
with nccad professional is indispensable  
(optional page 36)

#### Working range

- Center distance 600 mm
- Center height 135 mm
- Workpiece diameter max. 270 mm

#### Main drive power

- **1.4 kW, 30 - 2300 rpm**
- extremely silent running  
due to modern electronically adjustable drive technology

#### Prismatic cast iron bed

- made of diagonally ribbed gray cast iron
- inductively hardened and ground guideways

#### Warranty

- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- can be found on page 48

#### Software description

- can be found on page 52



- ✓ precise lead screw CNC lathe
- ✓ in-house design and production
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

#### PC-control

- for creating programs and for controlling the CNC machine a PC is required (PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### **Note**

Upgrading a manual WABECO lathe with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC lathe. To meet industrial standard safety requirements this to CNC converted lathe should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a lathe converted to CNC does not meet CE listed requirements and can result in serious injuries. Extreme caution is required operating a CNC lathe.**

### **CNC lathe CC-D6000 hs professional Lead screw CNC lathe with prismatic cast iron bed and nccad professional controller**

Item no. 1060071

#### Special feature

- the lathe can be used in conventional as well as in CNC mode
- higher travel speeds compared to nccad basic controller
- Possibility of an automated production through the use of the automatic tool turret with 8 tool positions (optional page 38)
- the use of an electronic handwheel (optional page 39)

#### Basic equipment

- **3-jaw lathe chuck Ø 125 mm**  
with turning and drilling jaws
- Live center MT2
- Main spindle bore Ø 20 mm  
(main spindle bore Ø 30 mm optional page 36)
- Thread cutting conventional  
with lead screw drive and change gear quadrant  
tumbler gear for left- and right-hand threads  
change gear set for metric 0.25 - 7.0 mm and  
inch 10 - 40 TPI threads  
2 automatic longitudinal feed rates/lead screw drive  
0.085 and 0.16 mm/rev
- Thread cutting in CNC mode
- Machine control panel with integrated machine control elements
- nccad professional turning software  
for the utmost positioning accuracy the use of ball screws  
with nccad professional is indispensable  
(optional page 36)

#### Working range

- Center distance 600 mm
- Center height 135 mm
- Workpiece diameter max. 270 mm

#### Main drive power

- **2.0 kW, 50 - 5000 rpm**  
frequency-controlled main drive motor
- extremely silent running  
due to modern electronically adjustable drive technology

#### Prismatic cast iron bed

- made of diagonally ribbed gray cast iron
- inductively hardened and ground guideways

#### Warranty

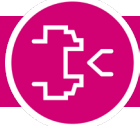
- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- can be found on page 48

#### Software description

- can be found on page 52



### Optional tooling available and recommended



Main spindle bore  $\varnothing$  30 mm  
for workpiece  $\varnothing$  up to 30 mm

Item no. 10678

- with ground taper insert MT3
- cannot be retrofitted



Ball screws for both axes  
for high positioning accuracy

Item no. 10645

- for the utmost positioning accuracy the use of ball screws with nccad professional is indispensable
- incl. lead screw cover
- Zero backlash ball screws
- high precision pitch and positioning accuracy
- wear-free
- cannot be retrofitted



Lead screw cover  
to protect the lead screw against swarf

Item no. 10680

- to prevent premature wear and loss of precision
- cannot be retrofitted



Camlock D1-4 "Quick Change" option  
for quickly changing lathe and collet chucks by means of the Camlock fixture

Item no. 10640

- Camlock main spindle nose according to DIN 55029 size 4
- factory installed
- cannot be retrofitted

suitable camlock 3- and 4-jaw lathe chuck

can be found on page 134

suitable camlock collet chuck

can be found on page 137

## Optional tooling available and recommended



### Quick-action collet chuck

for quickly changing the workpieces

Item no. 10930

- Clamping range 2 - 30 mm
- to be used up to max. 4000 rpm
- self-locking
- for dead length collets or Rubber-Flex collets
- Collets from 2 - 30 mm available - price upon request
- factory installed
- for optional retrofitting (upon request)

### Application

for clamping and unclamping of the workpieces with hand lever



### Digital position readout (DRO) and 2 optical scales

for exact positioning of the workpieces

Item no. 1060126

### included in delivery

- Digital position readout (DRO) for 3 axes
- Optical scale 170 mm for X-axis
- Optical scale 520 mm for Z-axis
- Mounting kit and protective covers for optical scales
- factory installation

### Mounting by the customer

Drilled holes and threads must be added to the lathe by the customer

Item no.	10280
	digital position readout (DRO) for 3 axes
Item no.	10284
	optical scale 170 mm for X-axis
Item no.	10287
	optical scale 520 mm for Z-axis
Item no.	1060189
	mounting kit and protective covers



### Digital position readout (DRO) and 3 optical scales

for exact positioning of the workpieces

Item no. 1060127

### included in delivery

- Digital position readout (DRO) for 3 axes
- Optical scale 170 mm for X-axis
- Optical scale 520 mm for Z-axis
- Optical scale 100 mm for Y1-axis
- Mounting kit and protective covers for optical scales
- factory installation





### Optional tooling available and recommended



#### Digital position readout (DRO) and 3 optical scales

##### Mounting by the customer

Drilled holes and threads must be added to the lathe by the customer

Item no.	10280
	digital position readout (DRO) for 3 axes
Item no.	10284
	optical scale 170 mm for X-axis
Item no.	10287 optical scale 520 mm for Z-axis
Item no.	10283
	optical scale 100 mm for Z1-axis
Item no.	1060185
	mounting kit and protective covers



#### Automatic tool turret with 8 tool positions for an automated production

Item no.	1060098
	<ul style="list-style-type: none"><li>• for 4 outside processing tools cross section 10 x 10 mm</li><li>• for 4 inside processing tools location hole Ø 16 mm</li><li>• for safety reasons only available with machine safety cabin</li><li>• for optional retrofitting (upon request)</li><li>• <b>only usable in connection with nccad professional</b></li></ul>



#### Machine safety cabin to prevent accidents

Item no.	1060090
	<ul style="list-style-type: none"><li>• with integrated coolant unit</li><li>• cannot be retrofitted</li><li>• Technical data can be found on page 49</li></ul>

##### Note

The standard EN2006/42 EG is only met in combination with a machine safety cabin. **Without a machine safety cabin a CNC lathe does not meet CE listed requirements and can result in serious injuries. Extreme caution is required operating a CNC lathe.**

## Optional tooling available and recommended



## Machine base cabinet

Item no. 10267

- Dimensions W1060 x D445 x H850 mm
- with 2 lockable doors and 2 shelves
- Weight without packaging 58 kg



## Levelling element

Item no. 10268

- PU: 1 piece
- Vibration pick-up and absorption element
- for precise height adjustment on uneven grounds
- Ø 80 mm, thread M10
- prevents the machine base cabinet from moving
- per machine base cabinet 4 levelling elements are required



## Electronic handwheel

for manually moving the axes

Item no. 1060130

- for 2 axes
- used for the positioning of the axes during the setup mode (workpiece zero point)
- **only usable in connection with nccad professional**



## Coolant concentrate

Item no. 11550

- Content: 5 liter
- High-performance cooling lubricant on mineral oil base
- Corrosion protection
- Solvent: 5% or 1:20 with water
- especially suitable for processing high-alloy, rust- and acid-resistant steels



## Push type gun

Item no. 11535

- for grease and oil
- for conical and ball-head grease nipples
- with a pointed- and a hollow-/universal mouthpiece





- ✓ precise CNC slant bed lathe
- ✓ in-house design and production
- ✓ for metal processing
- ✓ for series production
- ✓ perfect for workshop, industry, education, fixture construction, tool making, prototype construction and mold construction use due to extreme precision
- ✓ robust construction
- ✓ universal use and operator-friendly

### **CNC lathe CC-D6200 hs professional** **Slant bed CNC lathe with prismatic cast iron bed** **and nccad professional controller**

Item no. 1060800

#### Basic equipment

- 3-jaw lathe chuck Ø 125 mm with turning and drilling jaws
- Main spindle bore Ø 30 mm
- Ball screws for both axes
- Lead screw cover
- Automatic tool turret with 8 tool positions
- Machine safety cabin with integrated coolant unit
- Keyboard tray with integrated machine operating elements
- nccad professional turning software

#### Working range

- Center distance 600 mm
- Center height 135 mm
- Workpiece diameter max. 270 mm

#### Main drive power

- 2.0 kW, 50 - 5000 rpm (frequency-controlled main drive motor)
- extremely silent running due to modern electronically adjustable drive technology

#### Ball screws

- with zero backlash ball screws
- high precision pitch and positioning accuracy
- wear-free

#### Lead screw cover

- to protect the lead screw against swarf
- to prevent premature wear and loss of precision

#### Slant bed with prismatic cast iron bed

- made of diagonally ribbed gray cast iron
- inductively hardened and ground guideways

#### Automatic tool turret with 8 tool positions

- with 8 magazine stations

#### PC-control

- for creating programs and for controlling the CNC machine a PC is required (PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### Warranty

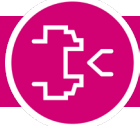
- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- can be found on page 48

#### Software description

- can be found on page 52



### Optional tooling available and recommended



#### Camlock D1-4 "Quick Change" option

for quickly changing lathe and collet chucks by means of the Camlock fixture

Item no. 10640

- Camlock main spindle nose according to DIN 55029 size 4
- factory installed
- cannot be retrofitted

suitable camlock 3- and 4-jaw lathe chuck

can be found on page 134

suitable camlock collet chuck

can be found on page 137



#### Machine base cabinet

Item no. 1120269

- Dimensions W1420 x D1000 x H850 mm
- with 2 lockable doors and 2 shelves
- Weight without packaging 58 kg



#### Electronic handwheel

for manually moving the axes

Item no. 1060130

- for 2 axes
- used for the positioning of the axes during the setup mode (workpiece zero point)

**WABECO**  
MASCHINENMANUFAKTUR seit 1885

#### Coolant concentrate

Item no. 11550

- Content: 5 liter
- High-performance cooling lubricant on mineral oil base
- Corrosion protection
- Solvent: 5% or 1:20 with water
- especially suitable for processing high-alloy, rust- and acid-resistant steels





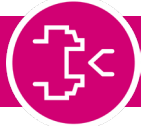


	D2000	D2400
<b>Working range</b>		
Center distance	350 mm	500 mm
Center height	110 mm	110 mm
Turning Ø above cross slide	126 mm	126 mm
Turning Ø above the guideways	220 mm	220 mm
Bed width	○	○
<b>Machine precision</b>		
Machine precision	according to DIN 8606	according to DIN 8606
True running accuracy of spindle nose	0.005 mm	0.005 mm
cylindrical turning to 100 mm cantilevered	0.01 mm	0.01 mm
cylindrical turning with a finishing cut to 300 mm between the centers	0.015 mm	0.015 mm
<b>Main drive motor</b>		
Main drive motor 230 V, 50/60 Hz	1.4 kW	1.4 kW
Single-phase inverse-speed motor speed-controlled	●	●
in direct current model with permanent, closed loop rpm control system	●	●
frequency-controlled main drive motor	○	○
due to high speed suitable for small workpiece diameters	○	○
electronically infinitely variable drive	30 - 2300 rpm	30 - 2300 rpm
Main spindle drive which can be adjusted by means of a potentiometer over a wide range of cutting speeds	●	●
Main drive motor	with overload protection	with overload protection
constant torque throughout the entire speed range	●	●
<b>Drive technology</b>		
Spindle electronics with multiple fault monitoring circuit	●	●
e.g. turning a steel shaft Ø 50 mm in one infeed	approx. 5 mm	approx. 5 mm
<b>Headstock</b>		
Housing made of gray cast iron	○	○
V-shaped slot	○	○
Spindle head in 2 adjustable precision DIN tapered roller bearings	●	●
Right-left rotation of the main spindle	●	●
Intermediate gear between main spindle and drive	●	●
high torque even in the lower speed range, e.g. for machining hard-to-cut materials	●	●
Main spindle bore	Ø 20 mm	Ø 20 mm
Taper in main spindle	MT3	MT3
Main spindle nose Ø 70 mm	according to DIN 6350	according to DIN 6350

Subject to technical modifications

● yes ○ no

D4000	D6000	D6000 hs
350 mm	600 mm	600 mm
100 mm	135 mm	135 mm
120 mm	170 mm	170 mm
200 mm	270 mm	270 mm
120 mm	185 mm	185 mm
according to DIN 8606	according to DIN 8606	according to DIN 8606
0.005 mm	0.005 mm	0.005 mm
0.01 mm	0.01 mm	0.01 mm
0.015 mm	0.015 mm	0.015 mm
1.4 kW	1.4 kW	2.0 kW
●	●	○
●	●	○
○	○	●
○	○	●
30 - 2300 rpm	30 - 2300 rpm	50 - 5000 rpm
●	●	●
with overload protection	with overload protection	with overload protection
●	●	●
●	●	●
approx. 5 mm	approx. 10 mm	approx. 10 mm
●	●	●
scraped by hands	scraped by hands	scraped by hands
●	●	●
●	●	●
●	●	●
●	●	●
Ø 20 mm	Ø 20 mm	Ø 20 mm
MT3	MT3	MT3
according to DIN 6350	according to DIN 6350	according to DIN 6350



	D2000	D2400
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**Tailstock with quick adjustment**

lateral adjustability of tailstock upper part	± 10 mm	± 10 mm
Tailstock sleeve	with an internal MT2 morse taper	with an internal MT2 morse taper
Travel of tailstock sleeve	65 mm	65 mm
Scale ring reading accuracy	○	○

**Tool slide**

universally adjustable	●	●
Dovetail guides	readjustable free of play	readjustable free of play
Reading accuracy of the scale rings	0.05 mm	0.05 mm
Travel of cross slide	110 mm	110 mm
Travel of longitudinal slide	58 mm	58 mm
Longitudinal slide can be swiveled through	360°	360°
max. height of turning tools	20 mm	20 mm
Cutting scrapers prevent dirt and cuttings entering the guideways	●	●

**Thread cutting**

	prepared	prepared
with lead screw drive and change gear quadrant	●	●
Tumbler gear	○	○
Automatic longitudinal feed rate	0.085 mm/rev optional 0.16 mm/rev	0.085 mm/rev optional 0.16 mm/rev
Change gear set for thread cutting	optional metric 0.25 - 6.0 mm inch 10 - 36 TPI	optional metric 0.25 - 6.0 mm inch 10 - 36 TPI

**Overload clutch**

on the lead screw and the lead screw drive to avoid damage to the feed system	●	●
--	---	---

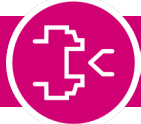
**Dimensions and weight**

Machine dimensions without packaging	W1050 x D410 x H420 mm	W1200 x D410 x H420 mm
Weight without packaging	59 kg	65 kg

Subject to technical modifications

● yes ○ no

D4000	D6000	D6000 hs
± 10 mm	± 10 mm	± 10 mm
with an internal MT2 morse taper	with an internal MT2 morse taper	with an internal MT2 morse taper
45 mm	65 mm	65 mm
0.1 mm	0.1 mm	0.1 mm
•	•	•
readjustable free of play	readjustable free of play	readjustable free of play
0.05 mm	0.05 mm	0.05 mm
100 mm	140 mm	140 mm
50 mm	60 mm	60 mm
360°	360°	360°
16 mm	20 mm	20 mm
•	•	•
standard	standard	standard
•	•	•
for left- and right-hand threads	for left- and right-hand threads	for left- and right-hand threads
0.085 and 0.16 mm/rev	0.085 and 0.16 mm/rev	0.085 and 0.16 mm/rev
metric 0.25 - 7.0 mm inch 10 - 40 TPI	metric 0.25 - 7.0 mm inch 10 - 40 TPI	metric 0.25 - 7.0 mm inch 10 - 40 TPI
•	•	•
W860 x D400 x H370 mm	W1200 x D510 x H470 mm	W1200 x D630 x H470 mm
71 kg	150 kg	177 kg



	CC-D6000	CC-D6000 hs
<b>Working range</b>		
Center distance	600 mm	600 mm
Center height	135 mm	135 mm
Turning Ø above cross slide	170 mm	170 mm
Turning Ø above the guideways	270 mm	270 mm
Bed width	185 mm	185 mm
<b>Machine precision</b>		
Machine precision	according to DIN 8606	according to DIN 8606
True running accuracy of spindle nose	0.005 mm	0.005 mm
cylindrical turning to 100 mm cantilevered	0.01 mm	0.01 mm
cylindrical turning with a finishing cut to 300 mm between the centers	0.015 mm	0.015 mm
Positioning accuracy	± 0.015 mm	± 0.015 mm
<b>Main drive motor</b>		
Main drive motor 230 V, 50/60 Hz	1.4 kW	2.0 kW
Single-phase inverse-speed motor speed-controlled	●	○
in direct current model with permanent, closed loop rpm control system	●	○
frequency-controlled main drive motor	○	●
due to high speed suitable for small workpiece diameters	○	●
electronically infinitely variable drive	30 - 2300 rpm	50 - 5000 rpm
Main spindle drive which can be adjusted by means of a potentiometer over a wide range of cutting speeds	●	●
Main drive motor	with overload protection	with overload protection
constant torque throughout the entire speed range	●	●
<b>Drive technology</b>		
Spindle electronics with multiple fault monitoring circuit	●	●
e.g. turning a steel shaft Ø 50 mm in one infeed	approx. 5 mm	approx. 5 mm
<b>Headstock</b>		
Housing made of gray cast iron	●	●
V-shaped slot	scraped by hands	scraped by hands
Spindle head in 2 adjustable precision DIN tapered roller bearings	●	●
Right-left rotation of the main spindle	●	●
Intermediate gear between main spindle and drive	●	●
high torque even in the lower speed range, e.g. for machining hard-to-cut materials	●	●
Main spindle bore	Ø 20 mm	Ø 20 mm
Taper in main spindle	MT3	MT3
Main spindle nose Ø 70 mm	according to DIN 6350	according to DIN 6350

● yes ○ no

	CC-D6000	CC-D6000 hs
<b>Tailstock with quick adjustment</b>		
lateral adjustability of tailstock upper part	± 10 mm	± 10 mm
Tailstock sleeve	with an internal MT2 morse taper	with an internal MT2 morse taper
Travel of tailstock sleeve	65 mm	65 mm
Scale ring reading accuracy	0.1 mm	0.1 mm
<b>Tool slide</b>		
universally adjustable	●	●
Dovetail guides	readjustable free of play	readjustable free of play
Reading accuracy of the scale rings	0.05 mm	0.05 mm
Travel of cross slide	140 mm	140 mm
Travel of longitudinal slide	60 mm	60 mm
Longitudinal slide can be swiveled through	360°	360°
max. height of turning tools	20 mm	20 mm
Cutting scrapers prevent dirt and cuttings entering the guideways	●	●
<b>Thread cutting (in conventional operation)</b>		
with lead screw drive and change gear quadrant	●	●
Tumbler gear	for left- and right-hand threads	for left- and right-hand threads
2 automatic longitudinal feed rates conventional	0.085 and 0.16 mm/rev	0.085 and 0.16 mm/rev
Change gear set for thread cutting	metric 0.25 - 7.0 mm inch 10 - 40 TPI	metric 0.25 - 7.0 mm inch 10 - 40 TPI
<b>Overload clutch (in conventional operation)</b>		
on the lead screw and the lead screw drive to avoid damage to the feed system	●	●
<b>Stepper motors</b>		
maintenance-free	●	●
<b>Travel speed (rapid traverse) X- and Z-axis</b>		
nccad basic	30 - 500 mm/min	30 - 500 mm/min
nccad professional	30 - 1000 mm/min	30 - 1000 mm/min
<b>Limit switches X- and Z-axis</b>		
mechanical single limit switch	●	●
<b>Dimensions and weight</b>		
Machine dimensions without packaging	W1230 x D510 x H470 mm	W1230 x D630 x H470 mm
Weight without packaging	172 kg	199 kg
<b>Machine safety cabin (optional)</b>		
Content coolant	36 liter	36 liter
Dimensions without packaging	W1298 x D848 x H653 mm	W1298 x D848 x H653 mm
Weight without packaging	81.5 kg	81.5 kg

Subject to technical modifications

● yes ○ no





## CC-D6200 hs

## Working range

Center distance	600 mm
Center height	135 mm
Turning Ø above cross slide	170 mm
Turning Ø above the guideways	270 mm
Bed width	185 mm

## Machine precision

Machine precision	according to DIN 8606
True running accuracy of spindle nose	0.005 mm
cylindrical turning to 100 mm cantilevered	0.01 mm
cylindrical turning with a finishing cut to 300 mm between the centers	0.015 mm
Positioning accuracy	± 0.015 mm

## Main drive motor

Main drive motor 230 V, 50/60 Hz	2.0 kW
frequency-controlled main drive motor	●
due to high speed suitable for small workpiece diameters	●
electronically infinitely variable drive	50 - 5000 rpm
Main spindle drive which can be adjusted by means of a potentiometer over a wide range of cutting speeds	●
Main drive motor	with overload protection
constant torque throughout the entire speed range	●

## Headstock

Housing made of gray cast iron	●
V-shaped slot	scraped by hands
Spindle head in 2 adjustable precision DIN tapered roller bearings	●
Right-left rotation of the main spindle	●
high torque even in the lower speed range, e.g. for machining hard-to-cut materials	●
Main spindle bore	Ø 30 mm
Taper in main spindle	MT3
Main spindle nose Ø 70 mm	according to DIN 6350

## Tailstock with quick adjustment

lateral adjustability of tailstock upper part	± 10 mm
Tailstock sleeve	with an internal MT2 morse taper
Travel of tailstock sleeve	65 mm
Scale ring reading accuracy	0.1 mm

● yes ○ no

## CC-D6200 hs

**Spindles**

high precision ball screws

●

**Stepper motors**

maintenance-free

●

**Travel speed (rapid traverse)**

X- and Z-axis

30 - 1000 mm/min

**Limit switches X- and Z-axis**

mechanical single limit switch

●

**Tool turret**

Cross section for 4 outside processing tools

10 x 10 mm

Location hole for 4 inside processing tools

Ø 16 mm

**Machine safety cabin**

with integrated coolant unit

●

Content coolant

27 liter

Feed pump

230 V, 50/60 Hz

**Dimensions and weight**

Machine dimensions without packaging

W1420 x D1000 x H900 mm

Weight without packaging

352 kg

Subject to technical modifications

● yes ○ no



nccad turning software	nccad basic	nccad professional
<b>Type of control</b>		
2D interpolation, i.e. 2 axes can be displaced simultaneously	●	●
2½D interpolation, i.e. 2 axes can be displaced simultaneously the 3 <sup>rd</sup> axis is intended for controlling the tool turret with 8 tool positions	○	●
Support of microstepping, i.e. smooth run and high position resolution	●	●
Look A-head, i.e. an anticipatory program process	○	●
<b>Dialog-oriented operator guidance</b>		
dialog-oriented operator guidance	●	●
<b>Program input</b>		
according to DIN 66025 with G- and M-functions	●	●
graphical programming	●	●
<b>Automatic creation of CNC programs</b>		
on the basis of a designed contour according to DIN 66025	●	●
<b>Data import</b>		
DXF-files from a CAD system e.g. Auto CAD	●	●
HPGL files e.g. from Corel Draw	●	●
<b>Contour generation by using the CAD module</b>		
Drawings can be created directly	●	●
Coordinates can be entered or edited, e.g. commands can be changed, added and/or deleted	●	●
the following functions are available: drawing of straight lines, curves, circles, polygons etc.	●	●
Contours can be e.g. shifted, rotated, copied, mirrored and trimmed	●	●
Contour generation by means of mouse or keyboard	●	●
the drawings can be dimensioned	●	●
<b>Technology values</b>		
Input of technology values for the drawn contour e.g. feed, in-feed depth, processing sequence, fine swarf removal etc.	●	●
<b>Graphic simulation</b>		
for easy checking of programming errors	●	●
<b>Graphic simulation with 3D view</b>		
Simulation with the represented tool	○	●
for easy checking of programming errors	○	●
Workpiece can be rotated during the simulation for a better view	○	●
<b>Machine zero point</b>		
Machine zero point is interrogated by means of a reference travel via limit switches	●	●

● yes ○ no

nccad turning software	nccad basic	nccad professional
<b>Workpiece zero points</b>		
19 workpiece zero points can arbitrarily be set	●	●
<b>Tool administration</b>		
Tool administration	●	●
<b>Tool memory</b>		
Administration of up to max. 20 tools	○	●
Definition of tools e.g. cutter angle, cutting edge length, cutting edge geometry, etc.	○	●
<b>Manual control panel</b>		
for displacing the individual axes without inputting a program	●	●
Direct input of the travel value either by means of the keyboard or the arrow keys in the manual control panel	●	●
Display of the current values on the screen	●	●
<b>Help</b>		
Manual integrated in the software	●	●
Direct help via the F1 key for the functions displayed in the menu bar	●	●
<b>System requirements</b>		
starting from Pentium 2 at least 600 MHz	●	●
Working memory min. 64 MB RAM, CD drive	●	●
serial interface (RS232)	●	●
Graphic resolution 1024 x 768	●	●
60 MB left on hard drive	●	●
the 3D simulation requires a graphic card with a large memory such as GeForce2 made by NVIDIA	○	●
<b>Operating systems</b>		
Windows XP, Windows NT and Windows 7	●	●
<b>Thread cutting</b>		
in CAD/CAM mode for longitudinal metric and inch threads up to 2.5 mm pitch	○	●
<b>Speed</b>		
the speed can be controlled via the software	○	●
<b>Network</b>		
compatible	●	●
<b>Update</b>		
to nccad professional is possible (provided that ball screws are used)	●	○
<b>Tool turret with 8 tool positions</b>		
optional	○	●
<b>Electronic handwheel</b>		
optional - for the zero point travel	○	●

# DRILLING- and MILLING MACHINES

F1200 | F1200 hs | F1210 | F1210 hs | F1410 LF | F1410 LF hs



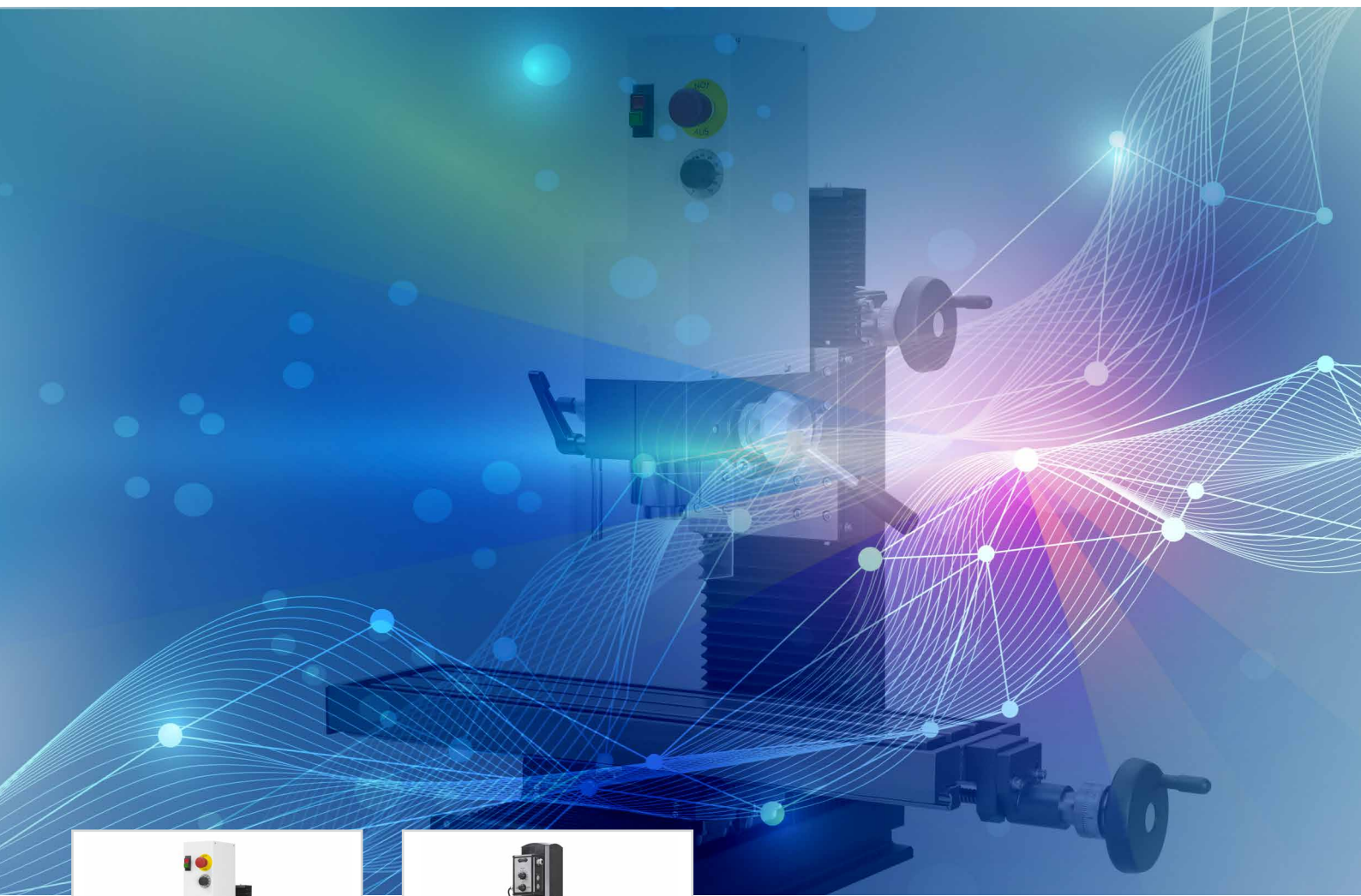
turning



milling



drilling





- ✓ precise vertical milling machine
- ✓ in-house design and production
- ✓ with dovetail guides
- ✓ the space-saver
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for hobby, model building, craft, workshop and industry use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements



## Drilling- and milling machine F1200

### Vertical milling machine with dovetail guides

Item no. 11200

#### Special feature

- thanks to the quill feature with drill depth stop, unit can also be used for drilling operation

#### Basic equipment

- Tool holder MT2  
(tool holders MT3 or ISO30 optional page 58)
- **Work table 450 x 180 mm**

#### Working range

- **Longitudinal travel X-axis 260 mm**
- **Transverse travel Y-axis 150 mm** (optional 180 mm page 58)
- Vertical travel Z-axis 280 mm

#### Main drive power

- **1.4 kW, 140 - 3000 rpm**
- extremely silent running  
due to modern electronically adjustable drive technology

#### Dovetail guides

- free of play and adjustable in all axes
- 2 protective accordion bellows to protect dovetail guides
- Results in clean machined surfaces due to fine adjustable, fine tunable dovetail guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort
- no need to drive out tools with a hammer, therefore, no damage to the anti-friction bearings

#### Warranty

- 5 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- can be found on page 106

#### Keyway milling







- ✓ precise vertical milling machine
- ✓ in-house design and production
- ✓ with dovetail guides
- ✓ the space-saver
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for hobby, model building, craft, workshop and industry use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements



## Drilling- and milling machine F1200 hs

### Vertical milling machine with dovetail guides

Item no. 11202

#### Special feature

- thanks to the quill feature with drill depth stop, unit can also be used for drilling operation

#### Basic equipment

- Tool holder MT2  
(tool holders MT3 or ISO30 optional page 58)
- **Work table 450 x 180 mm**

#### Working range

- **Longitudinal travel X-axis 260 mm**
- **Transverse travel Y-axis 150 mm** (optional 180 mm page 58)
- Vertical travel Z-axis 280 mm

#### Main drive power

- **2.0 kW, 100 - 7500 rpm**  
frequency-controlled main drive motor
- extremely silent running  
due to modern electronically adjustable drive technology

#### Dovetail guides

- free of play and adjustable in all axes
- 2 protective accordion bellows to protect dovetail guides
- Results in clean machined surfaces due to fine adjustable, fine tunable dovetail guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort
- no need to drive out tools with a hammer, therefore, no damage to the anti-friction bearings

#### Warranty

- 5 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- can be found on page 106





### Optional tooling available and recommended



#### Tool holder MT3

Item no. 11230

- Morse taper MT3 and tightening thread M12
- cannot be retrofitted



#### Tool holder ISO30

Item no. 11231

- Steep taper ISO30 (DIN 2080) and tightening thread M12
- cannot be retrofitted



#### Ball screws for all 3 axes for high positioning accuracy

Item no. 11245

- high precision pitch and positioning accuracy
- wear-free
- Down and up milling
- cannot be retrofitted



#### Y-extension for extended Y-travel

Item no. 11235

- max. travel path 180 mm
- cannot be retrofitted



#### Clockwise and counter clockwise rotation of the work spindle for thread boring

Item no. 11234

- only in conjunction with 1.4 kW motor
- cannot be retrofitted



#### Coordinate table for left-handers

Item no. 11232

- Handwheel in the X-axis is on the left side of the coordinate table

## Optional tooling available and recommended



Mountable digital vernier scales  
for precise machining of the workpieces

Item no. 11225

included in delivery

- 3 mountable digital vernier scales for X-, Y- and Z-axis
- Mounting kit for 3 axes
- factory installation

Mounting by the customer

Drilled holes and threads must be added to the milling machine  
by the customer

Item no. 11363  
for X-axis measuring length 300 mm

Item no. 11362  
for Y-axis measuring length 200 mm

Item no. 11373  
for Z-axis measuring length 300 mm

Item no. 11299  
mounting kit for 3 axes



Digital position readout (DRO) and 3 optical scales  
for exact positioning of the workpieces

Item no. 11226

included in delivery

- Digital position readout (DRO) for 3 axes
- Optical scale 270 mm for X-axis
- Optical scale 270 mm for Y-axis
- Optical scale 320 mm for Z-axis
- Mounting kit and protective covers for optical scales
- factory installation

Mounting by the customer

Drilled holes and threads must be added to the milling machine  
by the customer

Item no. 10280  
digital position readout (DRO) for 3 axes

Item no. 10285  
optical scale 270 mm for X-axis

Item no. 10285  
optical scale 270 mm for Y-axis

Item no. 10286  
optical scale 320 mm for Z-axis

Item no. 11289  
mounting kit and protective covers



### Optional tooling available and recommended



#### Machine base cabinet

Item no. 11267

- Dimensions W700 x D445 x H850 mm
- with lockable door and 2 shelves
- Weight without packaging 46 kg



#### Levelling element

Item no. 10268

- PU: 1 piece
- Vibration pick-up and absorption element
- for precise height adjustment on uneven grounds
- Ø 80 mm, thread M10
- prevents the machine base cabinet from moving
- per machine base cabinet 4 levelling elements are required



#### Coolant unit

Item no. 11264

- Dimensions W700 x D445 x H258 mm
- with feed pump 230 V, 50/60 Hz
- flexible hose with stop valve and nozzle
- Content coolant: 13 liter

#### Application

- for cooling and lubrication
- e.g. when processing high-alloy steel and aluminum, improves the surface finish, increases tool endurance, prevents build-up edges



#### Coolant concentrate

Item no. 11550

- Content: 5 liter
- High-performance cooling lubricant on mineral oil base
- Corrosion protection
- Solvent: 5% or 1:20 with water
- especially suitable for processing high-alloy, rust- and acid-resistant steels

## Optional tooling available and recommended



## Mounting bracket

Item no. 11238

- for high speed motors, high frequency spindles, drilling machines etc. (not part of the delivery)
- suitable for WABECO milling machines
- with Euronorm mounting Ø 43 mm
- Swiveling feature 90° in both directions (-90° to +90°)
- Outreach 185 mm
- Dimensions W120 x D235 x H120 mm
- Weight without packaging 3.8 kg



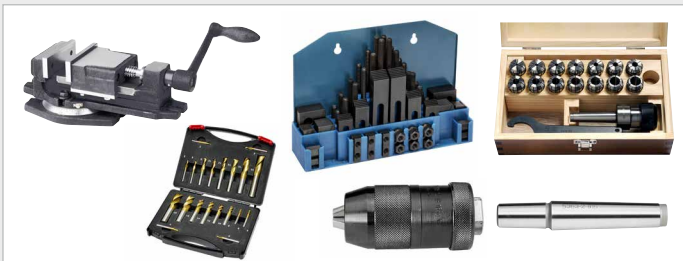
## T-slot covers original Vertex

Item no. 11259

- PU: 3 pieces
- for 12 mm T-slot width
- Length per cover rail 400 mm
- anodized aluminum
- Swarf deflector, prevents swarfs from getting into the T-slots
- with bores for draining off coolant
- can be cut as necessary

Application

T-slot covers may be used on milling tables, drilling tables, etc.

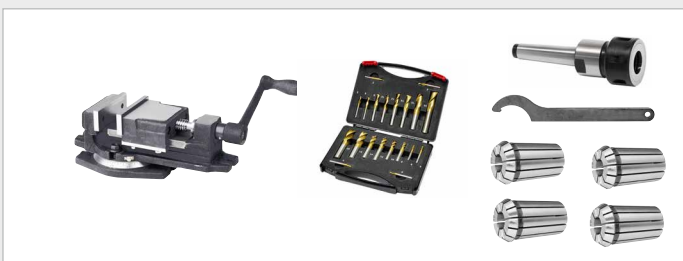


## Tool set

Item no. 11997

included in delivery

- Machine vice 125 mm
- Mill set "Titanium"-coated 20 pieces
- Collet set MT2 16 pieces
- Step clamp set 58 pieces for 12 mm T-slot width M10 thread
- Quick-action drill chuck clamping width 1-13 mm inner taper B16
- Drill chuck arbor MT2-M10 with morse taper MT2 and tightening thread M10



## Tool set

Item no. 11999

included in delivery

- Machine vice 100 mm
- Mill set "Titanium"-coated 20 pieces
- Collet chuck MT2-M10 with key
- 4 collets Ø 6 - 10 - 12 - 16 mm



- ✓ precise vertical milling machine
- ✓ in-house design and production
- ✓ with dovetail guides
- ✓ with large working range
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for hobby, model building, craft, workshop and industry use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements



## Drilling- and milling machine F1210

### Vertical milling machine with dovetail guides

Item no. 11400

#### Special feature

- thanks to the quill feature with drill depth stop, unit can also be used for drilling operation

#### Basic equipment

- Tool holder MT2  
(tool holders MT3 or ISO30 optional page 64)
- **Work table 700 x 180 mm**

#### Working range

- **Longitudinal travel X-axis 500 mm**
- **Transverse travel Y-axis 150 mm** (optional 180 mm page 64)
- Vertical travel Z-axis 280 mm

#### Main drive power

- **1.4 kW, 140 - 3000 rpm**
- extremely silent running  
due to modern electronically adjustable drive technology

#### Dovetail guides

- free of play and adjustable in all axes
- 2 protective accordion bellows to protect dovetail guides
- Results in clean machined surfaces due to fine adjustable, fine tunable dovetail guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort
- no need to drive out tools with a hammer, therefore, no damage to the anti-friction bearings

#### Warranty

- 5 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- can be found on page 106

#### Roughing with face mill







- ✓ precise vertical milling machine
- ✓ in-house design and production
- ✓ with dovetail guides
- ✓ with large working range
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for hobby, model building, craft, workshop and industry use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements



## Drilling- and milling machine F1210 hs

### Vertical milling machine with dovetail guides

Item no. 11402

#### Special feature

- thanks to the quill feature with drill depth stop, unit can also be used for drilling operation

#### Basic equipment

- Tool holder MT2  
(tool holders MT3 or ISO30 optional page 64)
- **Work table 700 x 180 mm**

#### Working range

- **Longitudinal travel X-axis 500 mm**
- **Transverse travel Y-axis 150 mm** (optional 180 mm page 64)
- Vertical travel Z-axis 280 mm

#### Main drive power

- **2.0 kW, 100 - 7500 rpm**  
frequency-controlled main drive motor
- extremely silent running  
due to modern electronically adjustable drive technology

#### Dovetail guides

- free of play and adjustable in all axes
- 2 protective accordion bellows to protect dovetail guides
- Results in clean machined surfaces due to fine adjustable, fine tunable dovetail guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort
- no need to drive out tools with a hammer, therefore, no damage to the anti-friction bearings

#### Warranty

- 5 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- can be found on page 106







### Optional tooling available and recommended



#### Tool holder MT3

Item no. 11230

- Morse taper MT3 and tightening thread M12
- cannot be retrofitted



#### Tool holder ISO30

Item no. 11231

- Steep taper ISO30 (DIN 2080) and tightening thread M12
- cannot be retrofitted



#### Ball screws for all 3 axes for high positioning accuracy

Item no. 11445

- high precision pitch and positioning accuracy
- wear-free
- Down and up milling
- cannot be retrofitted



#### Y-extension for extended Y-travel

Item no. 11235

- max. travel path 180 mm
- cannot be retrofitted



#### Clockwise and counter clockwise rotation of the work spindle for thread boring

Item no. 11234

- only in conjunction with 1.4 kW motor
- cannot be retrofitted



#### Coordinate table for left-handers

Item no. 11432

- Handwheel in the X-axis is on the left side of the coordinate table

## Optional tooling available and recommended



Mountable digital vernier scales  
for precise machining of the workpieces

Item no. 11425

### included in delivery

- 3 mountable digital vernier scales for X-, Y- and Z-axis
- Mounting kit for 3 axes
- factory installation

### Mounting by the customer

Drilled holes and threads must be added to the milling machine  
by the customer

Item no. 11365  
for X-axis measuring length 500 mm

Item no. 11362  
for Y-axis measuring length 200 mm

Item no. 11373  
for Z-axis measuring length 300 mm

Item no. 11299  
mounting kit for 3 axes



Digital position readout (DRO) and 3 optical scales  
for exact positioning of the workpieces

Item no. 11426

### included in delivery

- Digital position readout (DRO) for 3 axes
- Optical scale 520 mm for X-axis
- Optical scale 270 mm for Y-axis
- Optical scale 320 mm for Z-axis
- Mounting kit and protective covers for optical scales
- factory installation

### Mounting by the customer

Drilled holes and threads must be added to the milling machine  
by the customer

Item no. 10280  
digital position readout (DRO) for 3 axes

Item no. 10287  
optical scale 520 mm for X-axis

Item no. 10285  
optical scale 270 mm for Y-axis

Item no. 10286  
optical scale 320 mm for Z-axis

Item no. 11489  
mounting kit and protective covers



### Optional tooling available and recommended



#### Machine base cabinet

Item no. 11267

- Dimensions W700 x D445 x H850 mm
- with lockable door and 2 shelves
- Weight without packaging 46 kg



#### Levelling element

Item no. 10268

- PU: 1 piece
- Vibration pick-up and absorption element
- for precise height adjustment on uneven grounds
- Ø 80 mm, thread M10
- prevents the machine base cabinet from moving
- per machine base cabinet 4 levelling elements are required



#### Coolant unit

Item no. 11264

- Dimensions W700 x D445 x H258 mm
- with feed pump 230 V, 50/60 Hz
- flexible hose with stop valve and nozzle
- Content coolant: 13 liter

#### Application

- for cooling and lubrication
- e.g. when processing high-alloy steel and aluminum, improves the surface finish, increases tool endurance, prevents build-up edges



#### Coolant return plate

Item no. 11265

- Dimensions W285 x D300 x H17.5 mm
- is hooked into the coolant unit
- the coolant is returned to the coolant unit

**WABECO**  
MASCHINENMANUFAKTUR seit 1885

#### Coolant concentrate

Item no. 11550

- Content: 5 liter
- High-performance cooling lubricant on mineral oil base
- Corrosion protection
- Solvent: 5% or 1:20 with water
- especially suitable for processing high-alloy, rust- and acid-resistant steels

## Optional tooling available and recommended



## Mounting bracket

Item no. 11238

- for high speed motors, high frequency spindles, drilling machines etc. (not part of the delivery)
- suitable for WABECO milling machines
- with Euronorm mounting Ø 43 mm
- Swiveling feature 90° in both directions (-90° to +90°)
- Outreach 185 mm
- Dimensions W120 x D235 x H120 mm
- Weight without packaging 3.8 kg



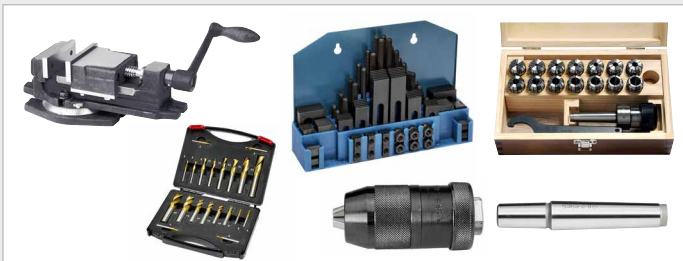
## T-slot covers original Vertex

Item no. 11259

- PU: 3 pieces
- for 12 mm T-slot width
- Length per cover rail 400 mm
- anodized aluminum
- Swarf deflector, prevents swarfs from getting into the T-slots
- with bores for draining off coolant
- can be cut as necessary

Application

T-slot covers may be used on milling tables, drilling tables, etc.

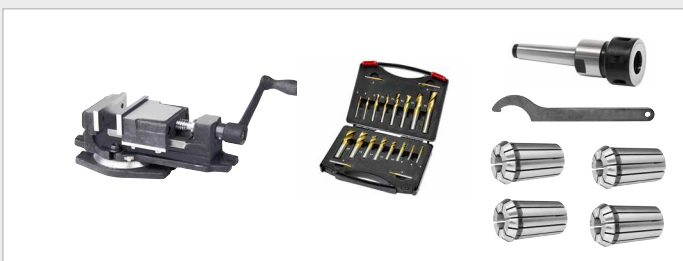


## Tool set

Item no. 11997

included in delivery

- Machine vice 125 mm
- Mill set "Titanium"-coated 20 pieces
- Collet set MT2 16 pieces
- Step clamp set 58 pieces for 12 mm T-slot width M10 thread
- Quick-action drill chuck clamping width 1-13 mm inner taper B16
- Drill chuck arbor MT2-M10 with morse taper MT2 and tightening thread M10



## Tool set

Item no. 11999

included in delivery

- Machine vice 100 mm
- Mill set "Titanium"-coated 20 pieces
- Collet chuck MT2-M10 with key
- 4 collets Ø 6 - 10 - 12 - 16 mm



- ✓ precise vertical milling machine
- ✓ in-house design and production
- ✓ with maintenance-free linear guides
- ✓ with large working range
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for hobby, model building, craft, workshop and industry use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements



## Drilling- and milling machine F1410 LF

### Vertical milling machine with maintenance-free linear guides

Item no. 16400

#### Special feature

- thanks to the quill feature with drill depth stop, unit can also be used for drilling operation

#### Basic equipment

- Tool holder MT2 (tool holders MT3 or ISO30 optional page 70)
- **Work table 700 x 180 mm**

#### Working range

- **Longitudinal travel X-axis 500 mm**
- **Transverse travel Y-axis 200 mm**
- Vertical travel Z-axis 280 mm

#### Main drive power

- **1.4 kW, 140 - 3000 rpm**
- extremely silent running due to modern electronically adjustable drive technology

#### Linear guides

- hardened and ground in all axes
- with ball bearings
- high precision and rigidity
- high workpiece accuracy
- improved surface quality
- 4 protective accordion bellows to protect linear guides
- Results in clean machined surfaces due to fine adjustable, fine tunable linear guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort
- no need to drive out tools with a hammer, therefore, no damage to the anti-friction bearings

#### Warranty

- 5 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- can be found on page 106

### Curve-wheel milling with dividing attachment







- ✓ precise vertical milling machine
- ✓ in-house design and production
- ✓ with maintenance-free linear guides
- ✓ with large working range
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for hobby, model building, craft, workshop and industry use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements



## Drilling- and milling machine F1410 LF hs

### Vertical milling machine with maintenance-free linear guides

Item no. 16402

#### Special feature

- thanks to the quill feature with drill depth stop, unit can also be used for drilling operation

#### Basic equipment

- Tool holder MT2  
(tool holders MT3 or ISO30 optional page 70)
- **Work table 700 x 180 mm**

#### Working range

- **Longitudinal travel X-axis 500 mm**
- **Transverse travel Y-axis 200 mm**
- Vertical travel Z-axis 280 mm

#### Main drive power

- **2.0 kW, 100 - 7500 rpm**  
frequency-controlled main drive motor
- extremely silent running  
due to modern electronically adjustable drive technology

#### Linear guides

- hardened and ground in all axes
- with ball bearings
- high precision and rigidity
- high workpiece accuracy
- improved surface quality
- 4 protective accordion bellows to protect linear guides
- Results in clean machined surfaces due to fine adjustable, fine tunable linear guides

#### Tool clamping and ejecting system

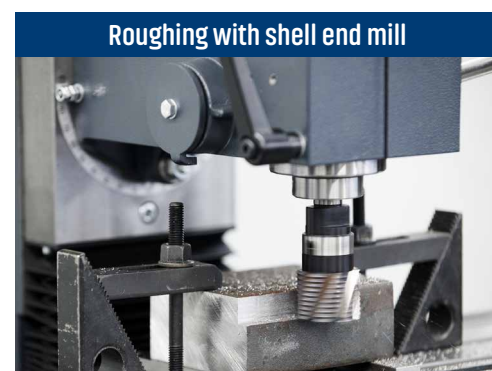
- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort
- no need to drive out tools with a hammer, therefore, no damage to the anti-friction bearings

#### Warranty

- 5 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- can be found on page 106





## Optional tooling available and recommended



### Tool holder MT3

Item no. 11230

- Morse taper MT3 and tightening thread M12
- cannot be retrofitted



### Tool holder ISO30

Item no. 11231

- Steep taper ISO30 (DIN 2080) and tightening thread M12
- cannot be retrofitted



### Ball screws for all 3 axes for high positioning accuracy

Item no. 16445

- high precision pitch and positioning accuracy
- wear-free
- Down and up milling
- Counterbalance adjustment in the Z-axis
- cannot be retrofitted



### Clockwise and counter clockwise rotation of the work spindle for thread boring

Item no. 11234

- only in conjunction with 1.4 kW motor
- cannot be retrofitted



### Digital position readout (DRO) and 3 optical scales for exact positioning of the workpieces

Item no. 16426

#### included in delivery

- Digital position readout (DRO) for 3 axes
- Optical scale 520 mm for X-axis
- Optical scale 270 mm for Y-axis
- Optical scale 320 mm for Z-axis
- Mounting kit and protective covers for optical scales
- factory installation



## Optional tooling available and recommended



### Digital position readout (DRO) and 3 optical scales

#### Mounting by the customer

Drilled holes and threads must be added to the milling machine by the customer

Item no.	10280
	digital position readout (DRO) for 3 axes
Item no.	10287
	optical scale 520 mm for X-axis
Item no.	10285
	optical scale 270 mm for Y-axis
Item no.	10286
	optical scale 320 mm for Z-axis
Item no.	16489
	mounting kit and protective covers



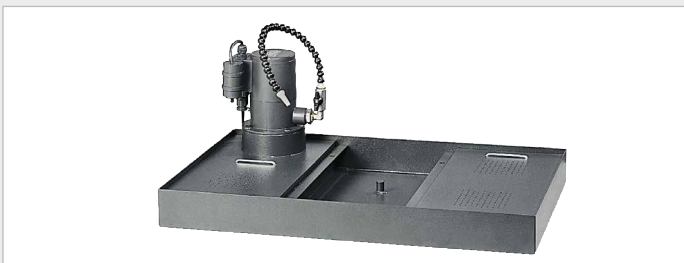
### Machine base cabinet

Item no.	11267
	<ul style="list-style-type: none"> <li>• Dimensions W700 x D445 x H850 mm</li> <li>• with lockable door and 2 shelves</li> <li>• Weight without packaging 46 kg</li> </ul>



### Levelling element

Item no.	10268
	<ul style="list-style-type: none"> <li>• PU: 1 piece</li> <li>• Vibration pick-up and absorption element</li> <li>• for precise height adjustment on uneven grounds</li> <li>• Ø 80 mm, thread M10</li> <li>• prevents the machine base cabinet from moving</li> <li>• per machine base cabinet 4 levelling elements are required</li> </ul>



### Coolant unit

Item no.	11264
	<ul style="list-style-type: none"> <li>• Dimensions W700 x D445 x H258 mm</li> <li>• with feed pump 230 V, 50/60 Hz</li> <li>• flexible hose with stop valve and nozzle</li> <li>• Content coolant: 13 liter</li> </ul>

#### Application

- for cooling and lubrication
- e.g. when processing high-alloy steel and aluminum, improves the surface finish, increases tool endurance, prevents build-up edges



## Optional tooling available and recommended



### Coolant return plate

Item no. 11265

- Dimensions W285 x D300 x H17.5 mm
- is hooked into the coolant unit
- the coolant is returned to the coolant unit

**WABECO**  
MASCHINENMANUFAKTUR seit 1885

### Coolant concentrate

Item no. 11550

- Content: 5 liter
- High-performance cooling lubricant on mineral oil base
- Corrosion protection
- Solvent: 5% or 1:20 with water
- especially suitable for processing high-alloy, rust- and acid-resistant steels



Example of use

### Mounting bracket

Item no. 11238

- for high speed motors, high frequency spindles, drilling machines etc. (not part of the delivery)
- suitable for WABECO milling machines
- with Euronorm mounting Ø 43 mm
- Swiveling feature 90° in both directions (-90° to +90°)
- Outreach 185 mm
- Dimensions W120 x D235 x H120 mm
- Weight without packaging 3.8 kg



### T-slot covers original Vertex

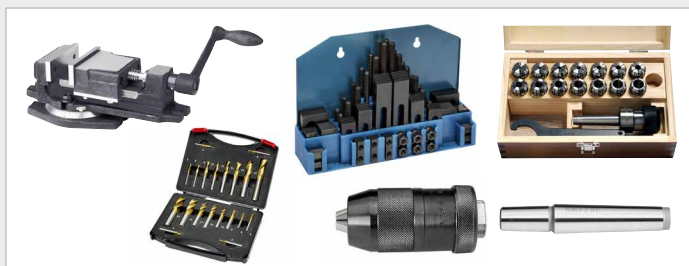
Item no. 11259

- PU: 3 pieces
- for 12 mm T-slot width
- Length per cover rail 400 mm
- anodized aluminum
- Swarf deflector, prevents swarfs from getting into the T-slots
- with bores for draining off coolant
- can be cut as necessary

### Application

T-slot covers may be used on milling tables, drilling tables, etc.

## Optional tooling available and recommended

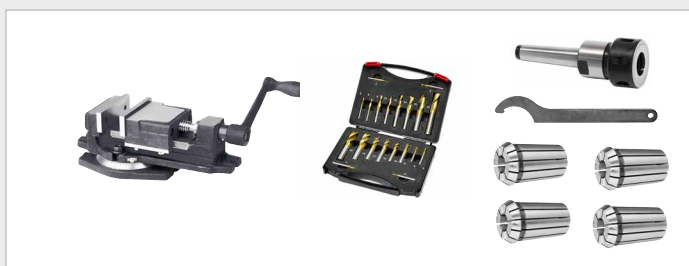


### Tool set

Item no. 11997

#### included in delivery

- Machine vice 125 mm
- Mill set "Titanium"-coated 20 pieces
- Collet set MT2 16 pieces
- Step clamp set 58 pieces for 12 mm T-slot width M10 thread
- Quick-action drill chuck clamping width 1-13 mm inner taper B16
- Drill chuck arbor MT2-M10 with morse taper MT2 and tightening thread M10



### Tool set

Item no. 11999

#### included in delivery

- Machine vice 100 mm
- Mill set "Titanium"-coated 20 pieces
- Collet chuck MT2-M10 with key
- 4 collets Ø 6 - 10 - 12 - 16 mm

# CNC DRILLING- and MILLING MACHINES

CC-F1200 | CC-F1210 | CC-F1410 LF



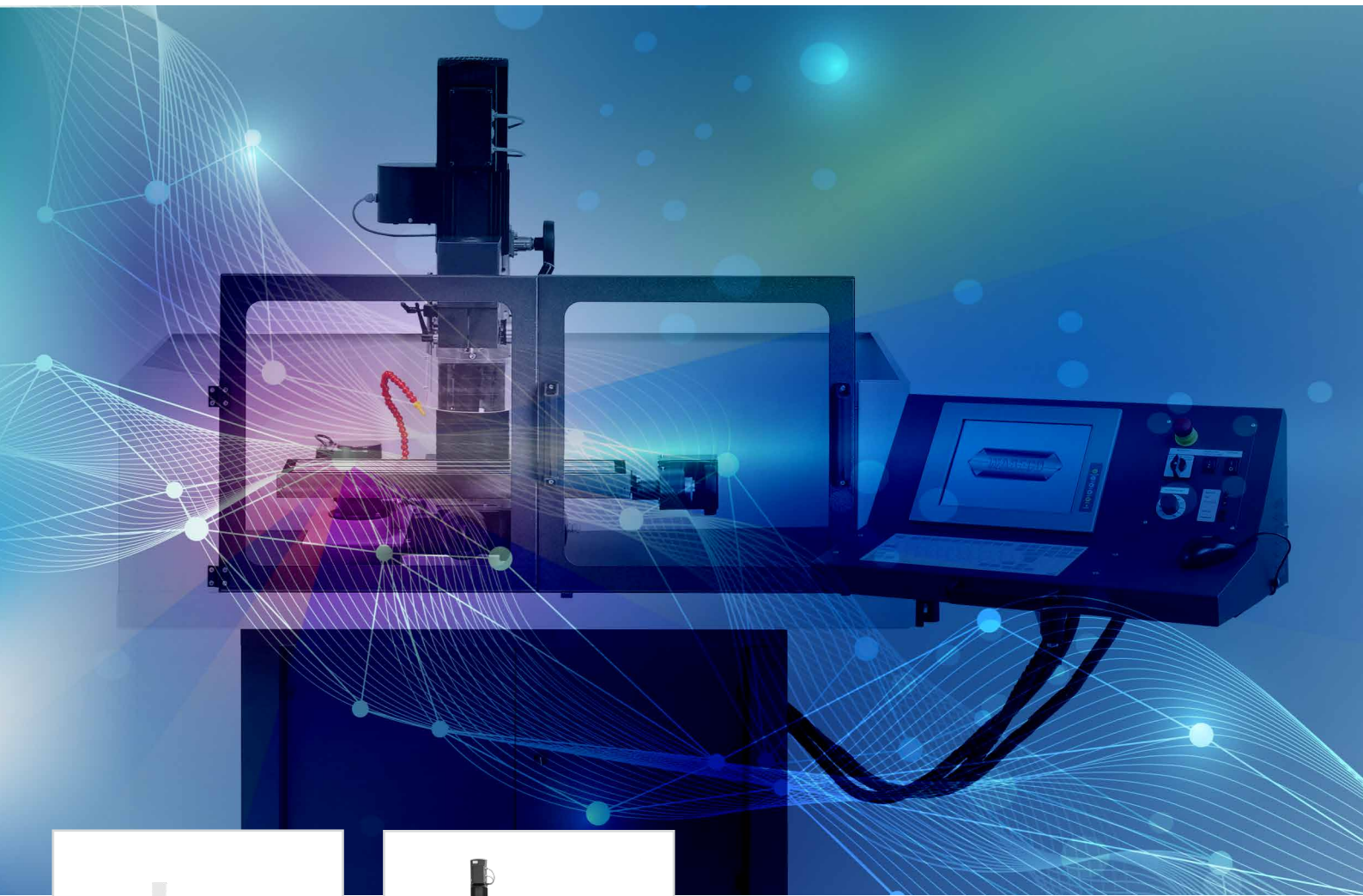
turning



milling



drilling







## nccad basic and professional controller and milling software

nccad basic and nccad professional milling software differ in

- software functions
- and the control electronics

nccad professional milling software also provides the possibility

- of an automated production through the use of the NC-rotary table in CNC operation
- the use of an electronic handwheel
- as well as higher travel speeds



with dovetail guides  
work table 450 x 180 mm







- ✓ precise vertical CNC milling machine
- ✓ in-house design and production
- ✓ with dovetail guides
- ✓ the space-saver
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

#### Note

Upgrading a manual WABECO milling machine with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC milling machine. To meet industrial standard safety requirements this to CNC converted milling machine should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a milling machine converted to CNC does not meet CE listed requirements and can result in serious injuries.**

### CNC milling machine CC-F1200 basic

#### Vertical CNC milling machine with dovetail guides and nccad basic controller

Item no. 1120050

#### Special feature

- the milling machine can be used in conventional as well as in CNC mode

#### Basic equipment

- Tool holder MT2  
(tool holders MT3 or ISO30 optional page 82)
- **Work table 450 x 180 mm**
- Machine control panel with integrated machine control elements
- nccad basic milling software

#### Working range

- **Longitudinal travel X-axis 260 mm**
- **Transverse travel Y-axis 150 mm** (optional 180 mm page 82)
- Vertical travel Z-axis 280 mm

#### Main drive power

- **1.4 kW, 140 - 3000 rpm**
- extremely silent running  
due to modern electronically adjustable drive technology

#### Dovetail guides

- free of play and adjustable in all axes
- 2 protective accordion bellows to protect dovetail guides
- Results in clean machined surfaces due to fine adjustable, fine tunable dovetail guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort

#### PC control

- for creating programs and for controlling the CNC machine a PC is required  
(PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### Warranty

- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- Technical data can be found on page 110

#### Software description

- Software description can be found on page 116



- ✓ precise vertical CNC milling machine
- ✓ in-house design and production
- ✓ with dovetail guides
- ✓ the space-saver
- ✓ for metal processing
- ✓ for single and small-series production
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#### Note

Upgrading a manual WABECO milling machine with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC milling machine. To meet industrial standard safety requirements this to CNC converted milling machine should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a milling machine converted to CNC does not meet CE listed requirements and can result in serious injuries.**

### CNC milling machine CC-F1200 hs basic Vertical CNC milling machine with dovetail guides and nccad basic controller

Item no. 1120052

#### Special feature

- the milling machine can be used in conventional as well as in CNC mode

#### Basic equipment

- Tool holder MT2  
(tool holders MT3 or ISO30 optional page 82)
- **Work table 450 x 180 mm**
- Machine control panel with integrated machine control elements
- nccad basic milling software

#### Working range

- **Longitudinal travel X-axis 260 mm**
- **Transverse travel Y-axis 150 mm** (optional 180 mm page 82)
- Vertical travel Z-axis 280 mm

#### Main drive power

- **2.0 kW, 100 - 7500 rpm**  
frequency-controlled main drive motor
- extremely silent running  
due to modern electronically adjustable drive technology

#### Dovetail guides

- free of play and adjustable in all axes
- 2 protective accordion bellows to protect dovetail guides
- Results in clean machined surfaces due to fine adjustable, fine tunable dovetail guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort

#### PC control

- for creating programs and for controlling the CNC machine a PC is required  
(PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### Warranty

- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- Technical data can be found on page 110

#### Software description

- Software description can be found on page 116



- ✓ precise vertical CNC milling machine
- ✓ in-house design and production
- ✓ with dovetail guides
- ✓ the space-saver
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

#### PC control

- for creating programs and for controlling the CNC machine a PC is required (PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### Note

Upgrading a manual WABECO milling machine with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC milling machine. To meet industrial standard safety requirements this to CNC converted milling machine should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a milling machine converted to CNC does not meet CE listed requirements and can result in serious injuries.**

### **CNC milling machine CC-F1200 professional** **Vertical CNC milling machine with dovetail guides** **and nccad professional controller**

Item no. 1120011

#### Special feature

- the milling machine can be used in conventional as well as in CNC mode
- higher travel speeds compared to nccad basic controller
- automated production through the use of the NC-rotary table in CNC mode (optional page 83)
- the use of an electronic handwheel (optional page 83)

#### Basic equipment

- Tool holder MT2  
(tool holders MT3 or ISO30 optional page 82)
- **Work table 450 x 180 mm**
- Machine control panel with integrated machine control elements
- nccad professional milling software  
for the utmost positioning accuracy the use of ball screws with nccad professional is indispensable (optional page 82)

#### Working range

- **Longitudinal travel X-axis 260 mm**
- **Transverse travel Y-axis 150 mm** (optional 180 mm page 82)
- Vertical travel Z-axis 280 mm

#### Main drive power

- **1.4 kW, 140 - 3000 rpm**
- extremely silent running  
due to modern electronically adjustable drive technology

#### Dovetail guides

- free of play and adjustable in all axes
- 2 protective accordion bellows to protect dovetail guides
- Results in clean machined surfaces due to fine adjustable, fine tunable dovetail guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort

#### Warranty

- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- Technical data can be found on page 110

#### Software description

- Software description can be found on page 116



- ✓ precise vertical CNC milling machine
- ✓ in-house design and production
- ✓ with dovetail guides
- ✓ the space-saver
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

#### PC control

- for creating programs and for controlling the CNC machine a PC is required (PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### Note

Upgrading a manual WABECO milling machine with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC milling machine. To meet industrial standard safety requirements this to CNC converted milling machine should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a milling machine converted to CNC does not meet CE listed requirements and can result in serious injuries.**

### **CNC milling machine CC-F1200 hs professional** **Vertical CNC milling machine with dovetail guides** **and nccad professional controller**

Item no. 1120013

#### Special feature

- the milling machine can be used in conventional as well as in CNC mode
- higher travel speeds compared to nccad basic controller
- automated production through the use of the NC-rotary table in CNC mode (optional page 83)
- the use of an electronic handwheel (optional page 83)

#### Basic equipment

- Tool holder MT2 (tool holders MT3 or ISO30 optional page 82)
- **Work table 450 x 180 mm**
- Machine control panel with integrated machine control elements
- nccad professional milling software for the utmost positioning accuracy the use of ball screws with nccad professional is indispensable (optional page 82)

#### Working range

- **Longitudinal travel X-axis 260 mm**
- **Transverse travel Y-axis 150 mm** (optional 180 mm page 82)
- Vertical travel Z-axis 280 mm

#### Main drive power

- **2.0 kW, 100 - 7500 rpm** frequency-controlled main drive motor
- extremely silent running due to modern electronically adjustable drive technology

#### Dovetail guides

- free of play and adjustable in all axes
- 2 protective accordion bellows to protect dovetail guides
- Results in clean machined surfaces due to fine adjustable, fine tunable dovetail guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort

#### Warranty

- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- Technical data can be found on page 110

#### Software description

- Software description can be found on page 116



## Optional tooling available and recommended



### Tool holder MT3

Item no. 11230

- Morse taper MT3 and tightening thread M12
- cannot be retrofitted



### Tool holder ISO30

Item no. 11231

- Steep taper ISO30 (DIN 2080) and tightening thread M12
- cannot be retrofitted



### Ball screws for all 3 axes for high positioning accuracy

Item no. 11245

- for the utmost positioning accuracy the use of ball screws with nccad professional is indispensable
- high precision pitch and positioning accuracy
- wear-free
- Down and up milling
- cannot be retrofitted



### Y-extension for extended Y-travel

Item no. 11235

- max. travel path 180 mm
- cannot be retrofitted

## Optional tooling available and recommended



Digital position readout (DRO) and 3 optical scales for exact positioning of the workpieces

Item no. 1120226

### included in delivery

- Digital position readout (DRO) for 3 axes
- Optical scale 270 mm for X-axis
- Optical scale 270 mm for Y-axis
- Optical scale 320 mm for Z-axis
- Mounting kit and protective covers for optical scales
- factory installation

### Mounting by the customer

Drilled holes and threads must be added to the milling machine by the customer

Item no. 10280

digital position readout (DRO) for 3 axes

Item no. 10285

optical scale 270 mm for X-axis

Item no. 10285

optical scale 270 mm for Y-axis

Item no. 10286

optical scale 320 mm for Z-axis

Item no. 1120089

mounting kit and protective covers



## NC-rotary table for 4-axes machining

Item no. 1140085

- the NC-rotary table is indispensable for rotational machining in one clamping position
- can be mounted to the work table vertically or horizontally
- for safety reasons only available with machine safety cabin
- [can only be used in conjunction with nccad professional](#)
- Technical data can be found on page 114



## Electronic handwheel

for manually moving the axes

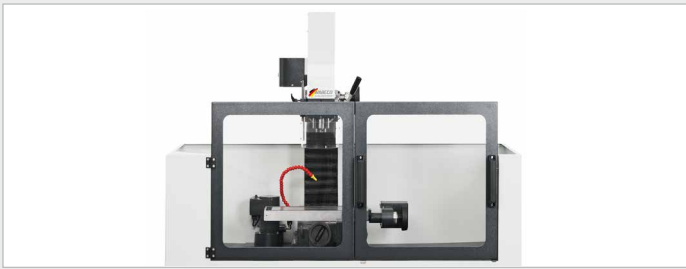
Item no. 1140130

- for 3 axes
- used for the positioning of the axes during the setup operation (workpiece zero point)
- [can only be used in conjunction with nccad professional](#)





## Optional tooling available and recommended



### Machine safety cabin to prevent accidents

Item no. 1140090

- with integrated coolant unit
- cannot be retrofitted
- Technical data can be found on page 114

#### Note

The standard EN2006/42 EG is only met in combination with a machine safety cabin. **Without a machine safety cabin a CNC milling machine does not meet CE listed requirements and can result in serious injuries.**



### Machine base cabinet

Item no. 10267

- for milling machines in conjunction with machine safety cabin
- Dimensions W1060 x D445 x H850 mm
- with 2 lockable doors and 2 shelves
- Weight without packaging 58 kg



### Machine base cabinet

Item no. 11267

- for milling machines without machine safety cabin
- Dimensions W700 x D445 x H850 mm
- with lockable door and 2 shelves
- Weight without packaging 46 kg



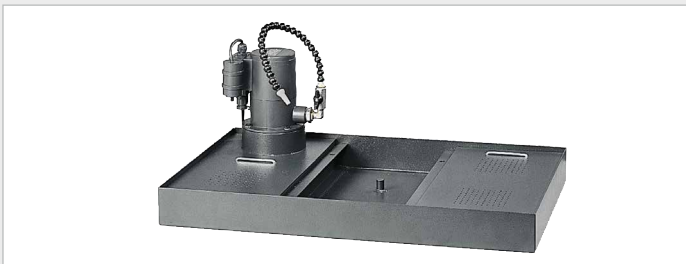
## Optional tooling available and recommended



### Levelling element

Item no. 10268

- PU: 1 piece
- Vibration pick-up and absorption element
- for precise height adjustment on uneven grounds
- Ø 80 mm, thread M10
- prevents the machine base cabinet from moving
- per machine base cabinet 4 levelling elements are required



### Coolant unit

Item no. 11264

- Dimensions W700 x D445 x H258 mm
- with feed pump 230 V, 50/60 Hz
- flexible hose with stop valve and nozzle
- Content coolant: 13 liter

### Application

- for cooling and lubrication
- e.g. when processing high-alloy steel and aluminum, improves the surface finish, increases tool endurance, prevents build-up edges



### Coolant concentrate

Item no. 11550

- Content: 5 liter
- High-performance cooling lubricant on mineral oil base
- Corrosion protection
- Solvent: 5% or 1:20 with water
- especially suitable for processing high-alloy, rust- and acid-resistant steels



## nccad basic and professional controller and milling software

nccad basic and nccad professional milling software differ in

- the software functions
- and the control electronics

nccad professional milling software also provides the possibility

- of an automated production through the use of the NC-rotary table in CNC operation
- the use of an electronic handwheel
- as well as higher travel speeds



with dovetail guides  
work table 700 x 180 mm







- ✓ precise vertical CNC milling machine
- ✓ in-house design and production
- ✓ with dovetail guides
- ✓ with large working range
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

#### Note

Upgrading a manual WABECO milling machine with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC milling machine. To meet industrial standard safety requirements this to CNC converted milling machine should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a milling machine converted to CNC does not meet CE listed requirements and can result in serious injuries.**

### CNC milling machine CC-F1210 basic

#### Vertical CNC milling machine with dovetail guides and nccad basic controller

Item no. 1140050

#### Special feature

- the milling machine can be used in conventional as well as in CNC mode

#### Basic equipment

- Tool holder MT2  
(tool holders MT3 or ISO30 optional page 92)
- **Work table 700 x 180 mm**
- Machine control panel with integrated machine control elements
- nccad basic milling software

#### Working range

- **Longitudinal travel X-axis 500 mm**
- **Transverse travel Y-axis 150 mm** (optional 180 mm page 92)
- Vertical travel Z-axis 280 mm

#### Main drive power

- **1.4 kW, 140 - 3000 rpm**
- extremely silent running  
due to modern electronically adjustable drive technology

#### Dovetail guides

- free of play and adjustable in all axes
- 2 protective accordion bellows to protect dovetail guides
- Results in clean machined surfaces due to fine adjustable, fine tunable dovetail guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort

#### PC control

- for creating programs and for controlling the CNC machine a PC is required  
(PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### Warranty

- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- Technical data can be found on page 110

#### Software description

- Software description can be found on page 116



- ✓ precise vertical CNC milling machine
- ✓ in-house design and production
- ✓ with dovetail guides
- ✓ with large working range
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

#### Note

Upgrading a manual WABECO milling machine with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC milling machine. To meet industrial standard safety requirements this to CNC converted milling machine should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a milling machine converted to CNC does not meet CE listed requirements and can result in serious injuries.**

### CNC milling machine CC-F1210 hs basic Vertical CNC milling machine with dovetail guides and nccad basic controller

Item no. 1140052

#### Special feature

- the milling machine can be used in conventional as well as in CNC mode

#### Basic equipment

- Tool holder MT2  
(tool holders MT3 or ISO30 optional page 92)
- **Work table 700 x 180 mm**
- Machine control panel with integrated machine control elements
- nccad basic milling software

#### Working range

- **Longitudinal travel X-axis 500 mm**
- **Transverse travel Y-axis 150 mm** (optional 180 mm page 92)
- Vertical travel Z-axis 280 mm

#### Main drive power

- **2.0 kW, 100 - 7500 rpm**  
frequency-controlled main drive motor
- extremely silent running  
due to modern electronically adjustable drive technology

#### Dovetail guides

- free of play and adjustable in all axes
- 2 protective accordion bellows to protect dovetail guides
- Results in clean machined surfaces due to fine adjustable, fine tunable dovetail guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort

#### PC control

- for creating programs and for controlling the CNC machine a PC is required  
(PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### Warranty

- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- Technical data can be found on page 110

#### Software description

- Software description can be found on page 116



- ✓ precise vertical CNC milling machine
- ✓ in-house design and production
- ✓ with dovetail guides
- ✓ with large working range
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

#### PC control

- for creating programs and for controlling the CNC machine a PC is required (PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### Note

Upgrading a manual WABECO milling machine with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC milling machine. To meet industrial standard safety requirements this to CNC converted milling machine should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a milling machine converted to CNC does not meet CE listed requirements and can result in serious injuries.**

### **CNC milling machine CC-F1210 professional** **Vertical CNC milling machine with dovetail guides** **and nccad professional controller**

Item no. 1140011

#### Special feature

- the milling machine can be used in conventional as well as in CNC mode
- higher travel speeds compared to nccad basic controller
- automated production through the use of the NC-rotary table in CNC mode (optional page 93)
- the use of an electronic handwheel (optional page 93)

#### Basic equipment

- Tool holder MT2  
(tool holders MT3 or ISO30 optional page 92)
- **Work table 700 x 180 mm**
- Machine control panel with integrated machine control elements
- nccad professional milling software for the utmost positioning accuracy the use of ball screws with nccad professional is indispensable (optional page 92)

#### Working range

- **Longitudinal travel X-axis 500 mm**
- **Transverse travel Y-axis 150 mm** (optional 180 mm page 92)
- Vertical travel Z-axis 280 mm

#### Main drive power

- **1.4 kW, 140 - 3000 rpm**
- extremely silent running due to modern electronically adjustable drive technology

#### Dovetail guides

- free of play and adjustable in all axes
- 2 protective accordion bellows to protect dovetail guides
- Results in clean machined surfaces due to fine adjustable, fine tunable dovetail guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort

#### Warranty

- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- Technical data can be found on page 110

#### Software description

- Software description can be found on page 116



- ✓ precise vertical CNC milling machine
- ✓ in-house design and production
- ✓ with dovetail guides
- ✓ with large working range
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

#### PC control

- for creating programs and for controlling the CNC machine a PC is required (PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### Note

Upgrading a manual WABECO milling machine with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC milling machine. To meet industrial standard safety requirements this to CNC converted milling machine should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a milling machine converted to CNC does not meet CE listed requirements and can result in serious injuries.**

### **CNC milling machine CC-F1210 hs professional** **Vertical CNC milling machine with dovetail guides** **and nccad professional controller**

Item no. 1140013

#### Special feature

- the milling machine can be used in conventional as well as in CNC mode
- higher travel speeds compared to nccad basic controller
- automated production through the use of the NC-rotary table in CNC mode (optional page 93)
- the use of an electronic handwheel (optional page 93)

#### Basic equipment

- Tool holder MT2  
(tool holders MT3 or ISO30 optional page 92)
- **Work table 700 x 180 mm**
- Machine control panel with integrated machine control elements
- nccad professional milling software for the utmost positioning accuracy the use of ball screws with nccad professional is indispensable (optional page 92)

#### Working range

- **Longitudinal travel X-axis 500 mm**
- **Transverse travel Y-axis 150 mm** (optional 180 mm page 92)
- Vertical travel Z-axis 280 mm

#### Main drive power

- **2.0 kW, 100 - 7500 rpm**  
frequency-controlled main drive motor
- extremely silent running  
due to modern electronically adjustable drive technology

#### Dovetail guides

- free of play and adjustable in all axes
- 2 protective accordion bellows to protect dovetail guides
- Results in clean machined surfaces due to fine adjustable, fine tunable dovetail guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort

#### Warranty

- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- Technical data can be found on page 110

#### Software description

- Software description can be found on page 116





## Optional tooling available and recommended



### Tool holder MT3

Item no. 11230

- Morse taper MT3 and tightening thread M12
- cannot be retrofitted



### Tool holder ISO30

Item no. 11231

- Steep taper ISO30 (DIN 2080) and tightening thread M12
- cannot be retrofitted



### Ball screws for all 3 axes for high positioning accuracy

Item no. 11445

- for the utmost positioning accuracy the use of ball screws with nccad professional is indispensable
- high precision pitch and positioning accuracy
- wear-free
- Down and up milling
- cannot be retrofitted



### Y-extension for extended Y-travel

Item no. 11235

- max. travel path 180 mm
- cannot be retrofitted

## Optional tooling available and recommended



Digital position readout (DRO) and 3 optical scales for exact positioning of the workpieces

Item no. 1140426

### included in delivery

- Digital position readout (DRO) for 3 axes
- Optical scale 520 mm for X-axis
- Optical scale 270 mm for Y-axis
- Optical scale 320 mm for Z-axis
- Mounting kit and protective covers for optical scales
- factory installation

### Mounting by the customer

Drilled holes and threads must be added to the milling machine by the customer

Item no. 10280

digital position readout (DRO) for 3 axes

Item no. 10287

optical scale 520 mm for X-axis

Item no. 10285

optical scale 270 mm for Y-axis

Item no. 10286

optical scale 320 mm for Z-axis

Item no. 1140089

mounting kit and protective covers



## NC-rotary table for 4-axes machining

Item no. 1140085

- the NC-rotary table is indispensable for rotational machining in one clamping position
- can be mounted to the work table vertically or horizontally
- for safety reasons only available with machine safety cabin
- [can only be used in conjunction with nccad professional](#)
- Technical data can be found on page 114



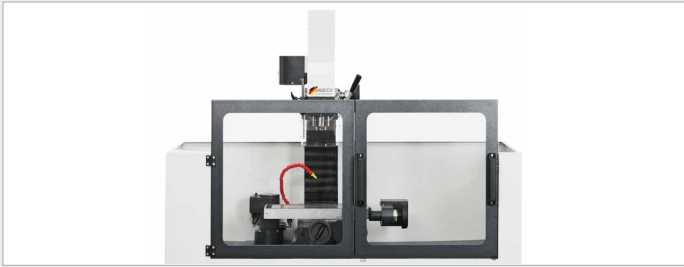
Electronic handwheel for manually moving the axes

Item no. 1140130

- for 3 axes
- used for the positioning of the axes during the setup operation (workpiece zero point)
- [can only be used in conjunction with nccad professional](#)



## Optional tooling available and recommended



### Machine safety cabin to prevent accidents

Item no. 1140090

- with integrated coolant unit
- cannot be retrofitted
- Technical data can be found on page 114

#### Note

The standard EN2006/42 EG is only met in combination with a machine safety cabin. **Without a machine safety cabin a CNC milling machine does not meet CE listed requirements and can result in serious injuries.**



### Machine base cabinet

Item no. 10267

- for milling machines in conjunction with machine safety cabin
- Dimensions W1060 x D445 x H850 mm
- with 2 lockable doors and 2 shelves
- Weight without packaging 58 kg



### Machine base cabinet

Item no. 11267

- for milling machines without machine safety cabin
- Dimensions W700 x D445 x H850 mm
- with lockable door and 2 shelves
- Weight without packaging 46 kg

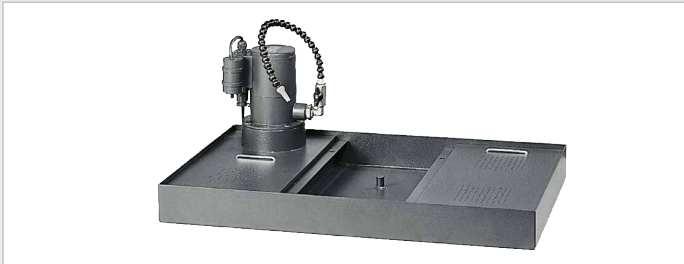
## Optional tooling available and recommended



### Levelling element

Item no. 10268

- PU: 1 piece
- Vibration pick-up and absorption element
- for precise height adjustment on uneven grounds
- Ø 80 mm, thread M10
- prevents the machine base cabinet from moving
- per machine base cabinet 4 levelling elements are required



### Coolant unit

Item no. 11264

- Dimensions W700 x D445 x H258 mm
- with feed pump 230 V, 50/60 Hz
- flexible hose with stop valve and nozzle
- Content coolant: 13 liter

#### Application

- for cooling and lubrication
- e.g. when processing high-alloy steel and aluminum, improves the surface finish, increases tool endurance, prevents build-up edges



### Coolant return plate

Item no. 11265

- Dimensions W285 x D300 x H17.5 mm
- is hooked into the coolant unit
- the coolant is returned to the coolant unit

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### Coolant concentrate

Item no. 11550

- Content: 5 liter
- High-performance cooling lubricant on mineral oil base
- Corrosion protection
- Solvent: 5% or 1:20 with water
- especially suitable for processing high-alloy, rust- and acid-resistant steels



## nccad basic and professional controller and milling software

nccad basic and nccad professional milling software differ in

- the software functions
- and the control electronics

nccad professional milling software also provides the possibility

- of an automated production through the use of the NC-rotary table in CNC operation
- the use of an electronic handwheel
- as well as higher travel speeds





with maintenance-free linear guides  
work table 700 x 180 mm







- ✓ precise vertical CNC milling machine
- ✓ in-house design and production
- ✓ with maintenance-free linear guides
- ✓ with large working range
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

#### Note

Upgrading a manual WABECO milling machine with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC milling machine. To meet industrial standard safety requirements this to CNC converted milling machine should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a milling machine converted to CNC does not meet CE listed requirements and can result in serious injuries.**

### CNC milling machine CC-F1410 LF basic

Vertical milling machine with maintenance-free linear guides and nccad basic controller

Item no. 1640050

#### Special feature

- the milling machine can be used in conventional as well as in CNC mode

#### Basic equipment

- Tool holder MT2  
(tool holders MT3 or ISO30 optional page 102)
- **Work table 700 x 180 mm**
- Machine control panel with integrated machine control elements
- nccad basic milling software

#### Working range

- **Longitudinal travel X-axis 500 mm**
- **Transverse travel Y-axis 200 mm**
- Vertical travel Z-axis 280 mm

#### Main drive power

- **1.4 kW, 140 - 3000 rpm**
- extremely silent running  
due to modern electronically adjustable drive technology

#### Linear guides

- hardened and ground in all axes
- with ball bearings
- high precision and rigidity
- high workpiece accuracy
- improved surface quality
- 4 protective accordion bellows to protect linear guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort

#### PC control

- for creating programs and for controlling the CNC machine a PC is required  
(PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### Warranty

- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- Technical data can be found on page 110

#### Software description

- Software description can be found on page 116



- ✓ precise vertical CNC milling machine
- ✓ in-house design and production
- ✓ with maintenance-free linear guides
- ✓ with large working range
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

#### Note

Upgrading a manual WABECO milling machine with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC milling machine. To meet industrial standard safety requirements this to CNC converted milling machine should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a milling machine converted to CNC does not meet CE listed requirements and can result in serious injuries.**

### CNC milling machine CC-F1410 LF hs basic

#### Vertical milling machine with maintenance-free linear guides and nccad basic controller

Item no. 1640052

#### Special feature

- the milling machine can be used in conventional as well as in CNC mode

#### Basic equipment

- Tool holder MT2  
(tool holders MT3 or ISO30 optional page 102)
- **Work table 700 x 180 mm**
- Machine control panel with integrated machine control elements
- nccad basic milling software

#### Working range

- **Longitudinal travel X-axis 500 mm**
- **Transverse travel Y-axis 200 mm**
- Vertical travel Z-axis 280 mm

#### Main drive power

- **2.0 kW, 100 - 7500 rpm**  
frequency-controlled main drive motor
- extremely silent running  
due to modern electronically adjustable drive technology

#### Linear guides

- hardened and ground in all axes
- with ball bearings
- high precision and rigidity
- high workpiece accuracy
- improved surface quality
- 4 protective accordion bellows to protect linear guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort

#### PC control

- for creating programs and for controlling the CNC machine a PC is required (PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### Warranty

- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- Technical data can be found on page 110

#### Software description

- Software description can be found on page 116



- ✓ precise vertical CNC milling machine
- ✓ in-house design and production
- ✓ with maintenance-free linear guides
- ✓ with large working range
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

#### PC control

- for creating programs and for controlling the CNC machine a PC is required (PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### Note

Upgrading a manual WABECO milling machine with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC milling machine. To meet industrial standard safety requirements this to CNC converted milling machine should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a milling machine converted to CNC does not meet CE listed requirements and can result in serious injuries.**

### **CNC milling machine CC-F1410 LF professional** **Vertical milling machine with maintenance-free linear guides** **and nccad professional controller**

Item no. 1640011

#### Special feature

- the milling machine can be used in conventional as well as in CNC mode
- higher travel speeds compared to nccad basic controller
- automated production through the use of the NC-rotary table in CNC mode (optional page 104)
- the use of an electronic handwheel (optional page 104)

#### Basic equipment

- Tool holder MT2  
(tool holders MT3 or ISO30 optional page 102)
- **Work table 700 x 180 mm**
- Machine control panel with integrated machine control elements
- nccad professional milling software for the utmost positioning accuracy the use of ball screws with nccad professional is indispensable (optional page 102)

#### Working range

- **Longitudinal travel X-axis 500 mm**
- **Transverse travel Y-axis 200 mm**
- Vertical travel Z-axis 280 mm

#### Main drive power

- **1.4 kW, 140 - 3000 rpm**
- extremely silent running due to modern electronically adjustable drive technology

#### Linear guides

- hardened and ground in all axes
- with ball bearings
- high precision and rigidity
- high workpiece accuracy
- improved surface quality
- 4 protective accordion bellows to protect linear guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort

#### Warranty

- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- Technical data can be found on page 110

#### Software description

- Software description can be found on page 116



- ✓ precise vertical CNC milling machine
- ✓ in-house design and production
- ✓ with maintenance-free linear guides
- ✓ with large working range
- ✓ for metal processing
- ✓ for single and small-series production
- ✓ perfect for craft, workshop, industry and education use due to extreme precision
- ✓ universal use and operator-friendly
- ✓ extensive accessories meet the most diverse customer requirements

#### PC control

- for creating programs and for controlling the CNC machine a PC is required (PCs are not part of the delivery)
- the PC assumes the program creation, the program administration and the data archiving
- CNC programs can be created on several PCs independently from the CNC machine

#### Note

Upgrading a manual WABECO milling machine with CNC components, connecting a WABECO nccad controller and a PC makes it now a high precision CNC milling machine. To meet industrial standard safety requirements this to CNC converted milling machine should be installed into a machine safety cabin. Please refer to local safety standard requirements. **Without a machine safety cabin a milling machine converted to CNC does not meet CE listed requirements and can result in serious injuries.**

### **CNC milling machine CC-F1410 LF hs professional Vertical milling machine with maintenance-free linear guides and nccad professional controller**

Item no. 1640013

#### Special feature

- the milling machine can be used in conventional as well as in CNC mode
- higher travel speeds compared to nccad basic controller
- automated production through the use of the NC-rotary table in CNC mode (optional page 104)
- the use of an electronic handwheel (optional page 104)

#### Basic equipment

- Tool holder MT2 (tool holders MT3 or ISO30 optional page 102)
- **Work table 700 x 180 mm**
- Machine control panel with integrated machine control elements
- nccad professional milling software for the utmost positioning accuracy the use of ball screws with nccad professional is indispensable (optional page 102)

#### Working range

- **Longitudinal travel X-axis 500 mm**
- **Transverse travel Y-axis 200 mm**
- Vertical travel Z-axis 280 mm

#### Main drive power

- **2.0 kW, 100 - 7500 rpm** frequency-controlled main drive motor
- extremely silent running due to modern electronically adjustable drive technology

#### Linear guides

- hardened and ground in all axes
- with ball bearings
- high precision and rigidity
- high workpiece accuracy
- improved surface quality
- 4 protective accordion bellows to protect linear guides

#### Tool clamping and ejecting system

- for clamping and ejecting the tools (mills, drills, clamping chucks etc.) without extra effort

#### Warranty

- 2 years warranty - the warranty does not cover parts subject to wear
- Availability of spare parts also guaranteed after warranty period

#### Technical data

- Technical data can be found on page 110

#### Software description

- Software description can be found on page 116



## Optional tooling available and recommended



### Tool holder MT3

Item no. 11230

- Morse taper MT3 and tightening thread M12
- cannot be retrofitted



### Tool holder ISO30

Item no. 11231

- Steep taper ISO30 (DIN 2080) and tightening thread M12
- cannot be retrofitted



### Ball screws for all 3 axes

for high positioning accuracy

Item no. 16445

- for the utmost positioning accuracy the use of ball screws with nccad professional is indispensable
- high precision pitch and positioning accuracy
- wear-free
- Down and up milling
- Counterbalance adjustment in the Z-axis
- cannot be retrofitted



### Digital position readout (DRO) and 3 optical scales

for exact positioning of the workpieces

Item no. 1640426

- for CNC milling machines without machine safety cabin included in delivery
- Digital position readout (DRO) for 3 axes
- Optical scale 520 mm for X-axis
- Optical scale 270 mm for Y-axis
- Optical scale 320 mm for Z-axis
- Mounting kit and protective covers for optical scales
- factory installation

## Optional tooling available and recommended



### Digital position readout (DRO) and 3 optical scales

#### Mounting by the customer

Drilled holes and threads must be added to the milling machine by the customer

Item no.	10280
	digital position readout (DRO) for 3 axes
Item no.	10287
	optical scale 520 mm for X-axis
Item no.	10285
	optical scale 270 mm for Y-axis
Item no.	10286
	optical scale 320 mm for Z-axis
Item no.	1640089
	mounting kit and protective covers



### Digital position readout (DRO) and 3 optical scales for exact positioning of the workpieces

Item no.	1640427
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- for CNC milling machines in conjunction with machine safety cabin

#### included in delivery

- Digital position readout (DRO) for 3 axes
- Optical scale 520 mm for X-axis
- Optical scale 270 mm for Y-axis
- Optical scale 320 mm for Z-axis
- Mounting kit and protective covers for optical scales
- factory installation

#### Mounting by the customer

Drilled holes and threads must be added to the milling machine by the customer

Item no.	10280
	digital position readout (DRO) for 3 axes
Item no.	10287
	optical scale 520 mm for X-axis
Item no.	10285
	optical scale 270 mm for Y-axis
Item no.	10286
	optical scale 320 mm for Z-axis
Item no.	1640088
	mounting kit and protective covers





## Optional tooling available and recommended



### NC-rotary table for 4-axes machining

Item no. 1140085

- the NC-rotary table is indispensable for rotational machining in one clamping position
- can be mounted to the work table vertically or horizontally
- for safety reasons only available with machine safety cabin
- [can only be used in conjunction with nccad professional](#)
- Technical data can be found on page 114



### Electronic handwheel

for manually moving the axes

Item no. 1140130

- for 3 axes
- used for the positioning of the axes during the setup operation (workpiece zero point)
- [can only be used in conjunction with nccad professional](#)



### Machine safety cabin

to prevent accidents

Item no. 1640090

- with integrated coolant unit
- cannot be retrofitted
- Technical data can be found on page 114

#### Note

The standard EN2006/42 EG is only met in combination with a machine safety cabin. [Without a machine safety cabin a CNC milling machine does not meet CE listed requirements and can result in serious injuries.](#)



### Machine base cabinet

Item no. 11270

- [for milling machines in conjunction with machine safety cabin](#)
- Dimensions W1000 x D700 x H850 mm
- with 2 lockable doors and 2 shelves
- Weight without packaging 76 kg

## Optional tooling available and recommended



### Machine base cabinet

Item no. 11267

- for milling machines without machine safety cabin
- Dimensions W700 x D445 x H850 mm
- with lockable door and 2 shelves
- Weight without packaging 46 kg



### Levelling element

Item no. 10268

- PU: 1 piece
- Vibration pick-up and absorption element
- for precise height adjustment on uneven grounds
- Ø 80 mm, thread M10
- prevents the machine base cabinet from moving
- per machine base cabinet 4 levelling elements are required



### Coolant unit

Item no. 11264

- Dimensions W700 x D445 x H258 mm
- with feed pump 230 V, 50/60 Hz
- flexible hose with stop valve and nozzle
- Content coolant: 13 liter

#### Application

- for cooling and lubrication
- e.g. when processing high-alloy steel and aluminum, improves the surface finish, increases tool endurance, prevents build-up edges



### Coolant return plate

Item no. 11265

- Dimensions W285 x D300 x H17.5 mm
- is hooked into the coolant unit
- the coolant is returned to the coolant unit

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### Coolant concentrate

Item no. 11550

- Content: 5 liter
- High-performance cooling lubricant on mineral oil base
- Corrosion protection
- Solvent: 5% or 1:20 with water
- especially suitable for processing high-alloy, rust- and acid-resistant steels



	F1200	F1200 hs
<b>Working range</b>		
Longitudinal travel X-axis	260 mm	260 mm
Transverse travel Y-axis	150 mm optional 180 mm	150 mm optional 180 mm
Vertical travel Z-axis	280 mm	280 mm
Drill stroke	55 mm	55 mm
Distance milling table - tool spindle	min. 100 mm max. 380 mm	min. 100 mm max. 380 mm
Outreach tool spindle - column	185 mm	185 mm
<b>Machine precision</b>		
Machine precision	according to DIN 8615	according to DIN 8615
True running accuracy of the tool spindle	0.01 mm	0.01 mm
<b>Main drive motor</b>		
Main drive motor 230 V, 50/60 Hz	1.4 kW	2.0 kW
Single-phase inverse-speed motor speed-controlled	●	○
as direct current model with permanent, closed loop rpm control system	●	○
frequency-controlled main drive motor	○	●
due to high speed suitable for small workpieces e.g. for engraving work	○	●
Clockwise and counter clockwise rotation for thread boring	○	●
electronically infinitely variable drive	140 - 3000 rpm	100 - 7500 rpm
Spindle speed can be adjusted by means of a potentiometer over a wide range of cutting speeds	●	●
Main drive motor	with overload protection	with overload protection
constant torque throughout the entire speed range	●	●
<b>Drive technology</b>		
Drive electronics with multiple fault monitoring circuit	●	●
e.g. milling in steel with a shank cutter Ø 10 mm with one infeed	approx. 10 mm	approx. 10 mm
<b>Feed screws</b>		
re-adjustable free of play trapezoidal thread spindle in all axes by means of adjustable bronze double nuts	●	●
Scale rings reading accuracy	0.05 mm	0.05 mm
Subject to technical modifications		

● yes ○ no

F1210	F1210 hs	F1410 LF	F1410 LF hs
500 mm	500 mm	500 mm	500 mm
150 mm optional 180 mm	150 mm optional 180 mm	200 mm	200 mm
280 mm	280 mm	280 mm	280 mm
55 mm	55 mm	55 mm	55 mm
min. 90 mm max. 370 mm	min. 90 mm max. 370 mm	min. 60 mm max. 340 mm	min. 60 mm max. 340 mm
185 mm	185 mm	185 mm	185 mm
according to DIN 8615	according to DIN 8615	according to DIN 8615	according to DIN 8615
0.01 mm	0.01 mm	0.01 mm	0.01 mm
1.4 kW	2.0 kW	1.4 kW	2.0 kW
●	○	●	○
●	○	●	○
○	●	○	●
○	●	○	●
○	●	○	●
140 - 3000 rpm	100 - 7500 rpm	140 - 3000 rpm	100 - 7500 rpm
●	●	●	●
with overload protection	with overload protection	with overload protection	with overload protection
●	●	●	●
●	●	●	●
approx. 10 mm	approx. 10 mm	approx. 10 mm	approx. 10 mm
●	●	●	●
0.05 mm	0.05 mm	0.05 mm	0.05 mm

● yes ○ no



	F1200	F1200 hs
<b>Tool spindle</b>		
Tool holder MT2 with tightening thread M10	●	●
with re-adjustable anti-friction bearings arranged in a large diameter drilling- and milling quill	●	●
high torque even in the lowest speed range e.g. for machining hard-to-cut materials	●	●
wide toothed belt between motor and tool spindle ensures a slip-free drive and a smooth running	●	●
<b>Z-column and coordinate table</b>		
made of ribbed gray cast iron	●	●
Work table	<b>450 x 180 mm</b>	<b>450 x 180 mm</b>
Number of T-slots	3	3
Width of T-slots	12 mm	12 mm
Center distance between T-slots	50 mm	50 mm
Fine feed in the Z-axis	●	●
<b>Milling head</b>		
Swiveling feature of milling head in both directions	90° (-90° to +90°)	90° (-90° to +90°)
Angle position easily read off of the large scale	●	●
Vertical position can be preset by means of a hardened and ground conical index pin	●	●
Protective hood	●	●
form-fit clamping of the quill over the entire lateral surface	●	●
Quill stroke with drilling depth stop	●	●
Reading accuracy scale ring - quill stroke	0.1 mm	0.1 mm
<b>Dimensions and weight</b>		
Machine dimensions without packaging	W655 x D625 x H670 mm	W650 x D610 x H870 mm
Weight without packaging	85 kg	96 kg
Subject to technical modifications		

● yes ○ no

F1210	F1210 hs	F1410 LF	F1410 LF hs
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
700 x 180 mm	700 x 180 mm	700 x 180 mm	700 x 180 mm
3	3	3	3
12 mm	12 mm	12 mm	12 mm
50 mm	50 mm	50 mm	50 mm
●	●	●	●
90° (-90° to +90°)	90° (-90° to +90°)	90° (-90° to +90°)	90° (-90° to +90°)
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
0.1 mm	0.1 mm	0.1 mm	0.1 mm
W900 x D610 x H670 mm	W900 x D625 x H880 mm	W940 x D720 x H720 mm	W940 x D720 x H880 mm
101 kg	112 kg	118 kg	127 kg

● yes ○ no





	CC-F1200	CC-F1200 hs
<b>Working range</b>		
Longitudinal travel X-axis	260 mm	260 mm
Transverse travel Y-axis	150 mm optional 180 mm	150 mm optional 180 mm
Vertical travel Z-axis	280 mm	280 mm
Drill stroke	55 mm	55 mm
Distance milling table - tool spindle	min. 100 mm max. 380 mm	min. 100 mm max. 380 mm
Outreach tool spindle - column	185 mm	185 mm
<b>Machine precision</b>		
Machine precision	according to DIN 8615	according to DIN 8615
True running accuracy of the tool spindle	0.01 mm	0.01 mm
Positioning accuracy	± 0.015 mm	± 0.015 mm
<b>Main drive motor</b>		
Main drive motor 230 V, 50/60 Hz	1.4 kW	2.0 kW
Single-phase inverse-speed motor speed-controlled	●	○
as direct current model with permanent, closed loop rpm control system	●	○
frequency-controlled main drive motor	○	●
due to high speed suitable for small workpieces e.g. for engraving work	○	●
Clockwise and counter clockwise rotation for thread boring	○	●
electronically infinitely variable drive	140 - 3000 rpm	100 - 7500 rpm
Spindle speed can be adjusted by means of a potentiometer over a wide range of cutting speeds	●	●
Main drive motor	with overload protection	with overload protection
constant torque throughout the entire speed range	●	●
<b>Drive technology</b>		
Drive electronics with multiple fault monitoring circuit	●	●
e.g. milling in steel with a shank cutter Ø 10 mm with one infeed	approx. 4 mm	approx. 4 mm
<b>Feed screws</b>		
re-adjustable free of play trapezoidal thread spindle in all axes by means of adjustable bronze double nuts	●	●
Scale rings reading accuracy	0.05 mm	0.05 mm
Subject to technical modifications		

● yes ○ no

CC-F1210	CC-F1210 hs	CC-F1410 LF	CC-F1410 LF hs
500 mm	500 mm	500 mm	500 mm
150 mm optional 180 mm	150 mm optional 180 mm	200 mm	200 mm
280 mm	280 mm	280 mm	280 mm
55 mm	55 mm	55 mm	55 mm
min. 90 mm max. 370 mm	min. 90 mm max. 370 mm	min. 60 mm max. 340 mm	min. 60 mm max. 340 mm
185 mm	185 mm	185 mm	185 mm
according to DIN 8615	according to DIN 8615	according to DIN 8615	according to DIN 8615
0.01 mm	0.01 mm	0.01 mm	0.01 mm
± 0.015 mm	± 0.015 mm	± 0.015 mm	± 0.015 mm
1.4 kW	2.0 kW	1.4 kW	2.0 kW
●	○	●	○
●	○	●	○
○	●	○	●
○	●	○	●
○	●	○	●
140 - 3000 rpm	100 - 7500 rpm	140 - 3000 rpm	100 - 7500 rpm
●	●	●	●
with overload protection	with overload protection	with overload protection	with overload protection
●	●	●	●
●	●	●	●
approx. 4 mm	approx. 4 mm	approx. 4 mm	approx. 4 mm
●	●	●	●
0.05 mm	0.05 mm	0.05 mm	0.05 mm

● yes ○ no



	CC-F1200	CC-F1200 hs
<b>Tool spindle</b>		
Tool holder MT2 with tightening thread M10	●	●
with re-adjustable anti-friction bearings arranged in a large diameter drilling- and milling quill	●	●
high torque even in the lowest speed range e.g. for machining hard-to-cut materials	●	●
wide toothed belt between motor and tool spindle ensures a slip-free drive and a smooth running	●	●
<b>Z-column and coordinate table</b>		
made of ribbed gray cast iron	●	●
Work table	450 x 180 mm	450 x 180 mm
Number of T-slots	3	3
Width of T-slots	12 mm	12 mm
Center distance between T-slots	50 mm	50 mm
Fine feed in the Z-axis	●	●
<b>Milling head</b>		
Swiveling feature of milling head in both directions	90° (-90° to +90°)	90° (-90° to +90°)
Angle position easily read off of the large scale	●	●
Vertical position can be preset by means of a hardened and ground conical index pin	●	●
Protective hood	●	●
form-fit clamping of the quill over the entire lateral surface	●	●
Quill stroke with drilling depth stop	●	●
<b>Stepper motors</b>		
maintenance-free	●	●
<b>Limit switches X-, Y- and Z-axis</b>		
mechanical single limit switches	●	●
<b>Travel speed (rapid traverse)</b>		
<b>X- and Y-axis</b>		
nccad basic	30 - 600 mm/min	30 - 600 mm/min
nccad professional	30 - 1200 mm/min	30 - 1200 mm/min
<b>Z-axis</b>		
nccad basic	30 - 400 mm/min	30 - 400 mm/min
nccad professional	30 - 800 mm/min	30 - 800 mm/min
<b>Dimensions and weight</b>		
Machine dimensions without packaging	W665 x D635 x H740 mm	W665 x D635 x H880 mm
Weight without packaging	106 kg	115 kg

Subject to technical modifications

● yes ○ no

CC-F1210	CC-F1210 hs	CC-F1410 LF	CC-F1410 LF hs
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
700 x 180 mm	700 x 180 mm	700 x 180 mm	700 x 180 mm
3	3	3	3
12 mm	12 mm	12 mm	12 mm
50 mm	50 mm	50 mm	50 mm
●	●	●	●
90° (-90° to +90°)	90° (-90° to +90°)	90° (-90° to +90°)	90° (-90° to +90°)
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
30 - 600 mm/min	30 - 600 mm/min	30 - 600 mm/min	30 - 600 mm/min
30 - 1200 mm/min	30 - 1200 mm/min	30 - 1200 mm/min	30 - 1200 mm/min
30 - 400 mm/min	30 - 400 mm/min	30 - 400 mm/min	30 - 400 mm/min
30 - 800 mm/min	30 - 800 mm/min	30 - 800 mm/min	30 - 800 mm/min
W910 x D635 x H740 mm	W910 x D635 x H880 mm	W950 x D730 x H740 mm	W950 x D730 x H880 mm
122 kg	131 kg	139 kg	148 kg

● yes ○ no



	CC-F1200	CC-F1200 hs
<b>Machine safety cabin (optional)</b>		
Content coolant	42 liter	42 liter
Dimensions without packaging	W1500 x D700 x H475 mm	W1500 x D700 x H475 mm
Weight without packaging	83 kg	83 kg

<b>NC-rotary table (optional)</b>		
Table diameter	150 mm	150 mm
Height	80 mm	80 mm
Width of T-slots	10 mm	10 mm
Number of T-slots	3	3
Spindle bore continuous	MT2	MT2
True running accuracy	0.02 mm	0.02 mm
Weight without packaging	14 kg	14 kg

Subject to technical modifications

☒ yes ☐ no

CC-F1210	CC-F1210 hs	CC-F1410 LF	CC-F1410 LF hs
42 liter	42 liter	58 liter	58 liter
W1500 x D700 x H475 mm	W1500 x D700 x H475 mm	W1530 x D950 x H475 mm	W1530 x D950 x H475 mm
83 kg	83 kg	109 kg	109 kg
150 mm	150 mm	150 mm	150 mm
80 mm	80 mm	80 mm	80 mm
10 mm	10 mm	10 mm	10 mm
3	3	3	3
MT2	MT2	MT2	MT2
0.02 mm	0.02 mm	0.02 mm	0.02 mm
14 kg	14 kg	14 kg	14 kg

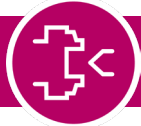
● yes ○ no





nccad milling software	nccad basic	nccad professional
<b>Type of control</b>		
2½ D interpolation, i.e. 2 axes can be displaced simultaneously , the 3rd axis can be advanced when required	●	●
3D interpolation, i.e. 3 axes can be displaced simultaneously, the 4th axis used for controlling the NC-rotary table	○	●
Support of microstepping, i.e. smooth run and high position resolution	●	●
Look A-head, i.e. an anticipatory program process	○	●
<b>Dialog-oriented operator guidance</b>		
dialog-oriented operator guidance	●	●
<b>Program input</b>		
graphical programming	●	●
according to DIN 66025 with G- and M-functions	●	●
<b>Automatic creation of CNC programs</b>		
on the basis of a designed contour according to DIN 66025	●	●
<b>Data import</b>		
DXF-files from a CAD system e.g. Auto CAD	●	●
HPGL files e.g. from Corel Draw	●	●
Import of 3D objects in STL-format	○	●
<b>Contour generation by using the CAD module</b>		
Drawings can be created directly	●	●
Coordinates can be entered or edited, e.g. commands can be changed, added and/or deleted	●	●
these functions are available: drawing of straight lines, curves, circles, polygons, engraved text etc.	●	●
Contours can be e.g. shifted, rotated, copied, mirrored and trimmed	●	●
Contour generation by means of mouse or keyboard	●	●
CAD special features like e.g. toothed wheel, ellipses, curve interpolations, engraved texts and circuit board milling	●	●
the drawings can be dimensioned	●	●
<b>Technology values</b>		
Input of technology values for the drawn contour e.g. feed, tool Ø, total depth, part in-feed, the lapping factor of the tool in the case of pocket milling, processing sequence etc.. Machining via single part, pocket angle parallel and contour parallel, track correction inside or outside	●	●
<b>Graphic simulation</b>		
for easy checking of programming errors	●	●
<b>Graphic simulation with 3D view</b>		
Simulation with the represented tool	○	●
for easy checking of programming errors	○	●
Workpiece can be rotated during the simulation for a better view	○	●

nccad milling software	nccad basic	nccad professional
<b>Machine zero point</b>		
Machine zero point is queried by means of a reference travel via limit switches	●	●
<b>Workpiece zero points</b>		
19 workpiece zero points can arbitrarily be set	●	●
<b>Tool administration</b>		
Tool administration	●	●
<b>Tool memory</b>		
Administration of up to max. 20 tools	○	●
Definition of tools e.g. diameter, cutting edge length	○	●
<b>Manual control panel</b>		
for displacing the individual axes without inputting a program	●	●
Direct input of the travel value either by means of the keyboard or via the arrow keys in the manual control panel	●	●
Display of the current values on the screen	●	●
<b>Help</b>		
Manual integrated in the software	●	●
Direct help via the F1 key for the functions displayed in the menu bar	●	●
<b>System requirements</b>		
starting from Pentium 2 at least 600 MHz,	●	●
Working memory min. 64 MB RAM, CD drive	●	●
serial interface (RS232)	●	●
Graphic resolution 1024 x 786	●	●
60 MB left on hard drive	●	●
the 3D simulation requires a graphic card with a large memory such as GeForce2 made by NVIDIA	○	●
<b>Operating systems</b>		
Windows XP, Windows NT and Windows 7	●	●
<b>Tool spindle</b>		
Tool spindle can optionally be turned on or off via the software	●	●
<b>Network</b>		
compatible	●	●
<b>Update</b>		
to nccad professional is possible (provided that ball screws are used)	●	○
<b>NC-rotary table</b>		
(optional) for controlling the 4th axis	○	●
<b>Electronic handwheel</b>		
(optional) for the zero point travel	○	●



### Parting tool holder with 2 parting blades

- Parting tool holder  
total length 80 mm
- 2 parting blades HSS  
thickness 1.5 mm  
total length 63 mm

Cross section	Item no.
8 x 8 mm	10839
10 x 10 mm	10834



### Replacement blade HSS for parting tool holder

Item no. 10836

- Parting blade thickness 1.5 mm
- Total length 63 mm



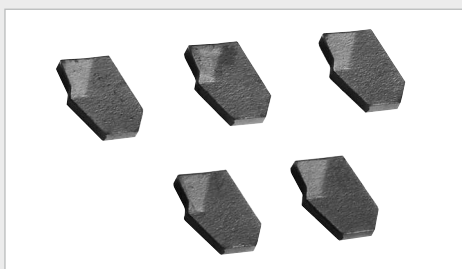
### Parting tool holder with parting insert industrial quality

Item no. 10840

- Cross section 10 x 10 mm
- with parting insert  
thickness 2.2 mm
- suitable parting insert item no. 1090650

#### Application

- for outside processing



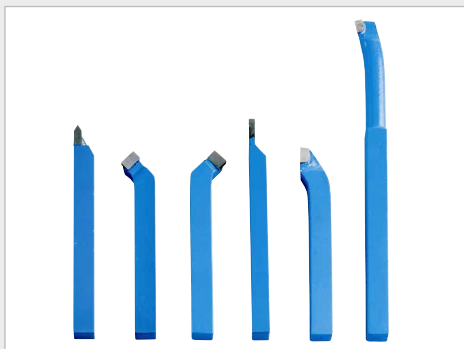
### Parting insert for parting tool holder

Item no. 1090650

- Thickness 2.2 mm
- PU: 5 pieces
- for parting tool holder item no. 1090640

#### Application

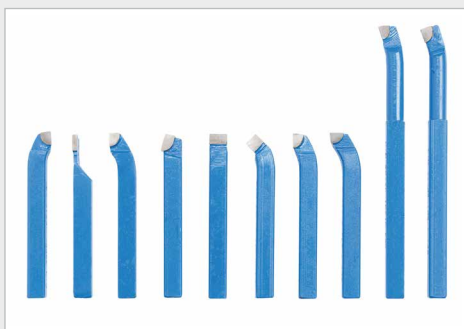
- for parting and grooving



### Carbide-tipped turning tool set

Item no. 10910

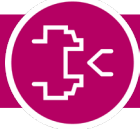
- 6 pieces
- Cross section 10 x 10 mm
- with carbide tips P30
- high cutting speed and short production times
- at the same time the long service life of carbide metal reduces the tool changing time
- 1x parting tool DIN 4981 R for grooving and parting
- 1x inside turning tool for corner work DIN 4974 R for turning of internal bores
- 1x right-hand offset side turning tool DIN 4980 R for longitudinal turning
- 1x right-hand cranked turning tool DIN 4972 R for longitudinal turning
- 1x outside thread turning tool DIN 282 R for external thread turning 60°
- 1x left-hand turning tool DIN 4972 L for longitudinal turning



### Carbide-tipped turning tool sets

- 10 pieces
- with carbide tips P30
- high cutting speed and short production times
- at the same time the long service life of carbide metal reduces the tool changing time
- all turning tools have precision-ground cutting edges and flanks
- 1x left-hand offset side turning tool DIN 4980 L for longitudinal turning
- 1x parting tool DIN 4981 R for grooving and parting
- 1x right-hand offset side turning tool DIN 4980 R for longitudinal turning
- 1x right-hand straight turning tool DIN 4971 R for longitudinal turning
- 1x wide turning tool DIN 4976 for grooving
- 1x right-hand cranked turning tool DIN 4972 R for longitudinal turning
- 1x right-hand shouldered corner turning tool DIN 4978 for longitudinal turning
- 1x offset face turning tool DIN 4977 for face turning
- 1x inside turning tool for corner work DIN 4974 R for turning of internal bores
- 1x inside turning tool DIN 4973 for turning of internal bores

Cross section	Item no.
8 x 8 mm	10911
10 x 10 mm	10912
12 x 12 mm	10913
16 x 16 mm	10914
20 x 20 mm	10909



### HSS turning tool sets

- 8 pieces
- all turning tools have precision-ground cutting edges and flanks
- 1x left-hand turning tool for longitudinal turning
- 1x outside thread turning tool 60° for external thread turning and longitudinal turning
- 1x cranked roughing tool for longitudinal turning
- 1x thread turning tool 60° for external thread turning
- 1x internal thread turning tool 60° for internal thread turning
- 1x right-hand turning tool for longitudinal turning
- 1x parting tool for grooving and parting
- 1x boring tool for turning of internal bores

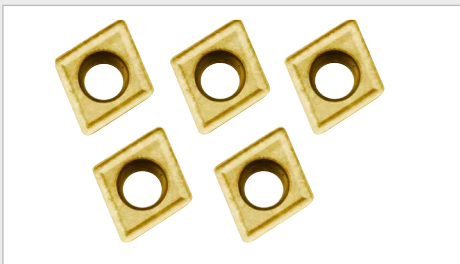
Cross section	Item no.
4 x 4 mm	10915
6 x 6 mm	10918
8 x 8 mm	10916
10 x 10 mm	10917
12 x 12 mm	10919



### Turning tool sets for indexable inserts

- 7 pieces
- with key
- each turning tool with indexable insert of carbide quality
- each indexable insert has 4 cutting edges
- Plate form CCMT
- 1x left-hand turning tool for longitudinal turning
- 1x right-hand turning tool for longitudinal turning
- 1x pointed turning tool for external thread turning and longitudinal turning
- 1x right-hand straight turning tool for longitudinal turning
- 1x right-hand facing tool for face turning
- 1x offset pointed turning tool for external thread turning and longitudinal turning
- 1x boring bar for turning of internal bores

Cross section	Item no.
8 x 8 mm	10860
10 x 10 mm	10861



### Carbide tip indexable inserts

Item no. 10865

- PU: 5 pieces
- Carbide quality
- each indexable insert has 4 cutting edges
- Plate form CCMT

**Parting tool**

- with carbide tip P30
- DIN 4981 R
- for grooving and parting

Cross section	Item no.
8 x 8 mm	109111
10 x 10 mm	109101

**Inside turning tool for corner work**

- with carbide tip P30
- DIN 4974 R
- right-hand cutting for turning of internal bores

Cross section	Item no.
8 x 8 mm	109112
10 x 10 mm	109102

**Right-hand offset turning tool 90°**

- with carbide tip P30
- DIN 4980 R
- for longitudinal turning

Cross section	Item no.
8 x 8 mm	109113
10 x 10 mm	109103

**Right-hand cranked turning tool 45°**

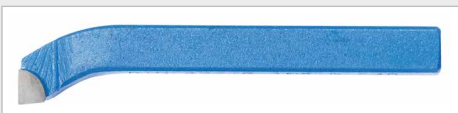
- with carbide tip P30
- DIN 4972 R
- for longitudinal turning

Cross section	Item no.
8 x 8 mm	109114
10 x 10 mm	109104

**Outside thread turning tool 60°**

Item no. 109105

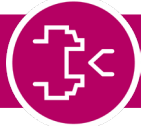
- Cross section 10 x 10 mm
- with carbide tip P30
- DIN 282 R
- for external thread turning and longitudinal turning

**Right-hand face turning tool**

Item no. 109117

- Cross section 8 x 8 mm
- with carbide tip P30
- DIN 4977 R
- for face turning





### Left-hand turning tool

- with key
- for longitudinal turning
- each turning tool with indexable insert of carbide quality
- Plate form CCMT
- the indexable insert has 4 cutting edges
- suitable replacement indexable inserts item no. 10865 on page 120

Cross section	Item no.
8 x 8 mm	108601
10 x 10 mm	108611



### Right-hand turning tool

- with key
- for longitudinal turning
- each turning tool with indexable insert of carbide quality
- Plate form CCMT
- the indexable insert has 4 cutting edges
- suitable replacement indexable inserts item no. 10865 on page 120

Cross section	Item no.
8 x 8 mm	108602
10 x 10 mm	108612



### Right-hand facing tool

- with key
- for face turning
- each turning tool with indexable insert of carbide quality
- Plate form CCMT
- the indexable insert has 4 cutting edges
- suitable replacement indexable inserts item no. 10865 on page 120

Cross section	Item no.
8 x 8 mm	108603
10 x 10 mm	108613



### Right-hand straight turning tool

- with key
- for longitudinal turning
- each turning tool with indexable insert of carbide quality
- Plate form CCMT
- the indexable insert has 4 cutting edges
- suitable replacement indexable inserts item no. 10865 on page 120

Cross section	Item no.
8 x 8 mm	108604
10 x 10 mm	108614



### Pointed turning tool

- with key
- for external thread turning and longitudinal turning
- each turning tool with indexable insert of carbide quality
- Plate form CCMT
- the indexable insert has 4 cutting edges
- suitable replacement indexable inserts item no. 10865 on page 120

Cross section	Item no.
8 x 8 mm	108605
10 x 10 mm	108615



### Boring bar

- with key
- right-hand cutting for turning of internal bores
- each turning tool with indexable insert of carbide quality
- Plate form CCMT
- the indexable insert has 4 cutting edges
- suitable replacement indexable inserts item no. 10865 on page 120

Shank Ø	lowest turning Ø	Item no.
8 mm	10 mm	108606
10 mm	12 mm	108616



### Pointed turning tool industrial quality

Item no. 10820

- Cross section 10 x 10 mm
- right-hand cutting
- without indexable insert
- suitable indexable insert item no. 10830 on page 124
- for longitudinal turning



### Offset face turning tool industrial quality

Item no. 10821

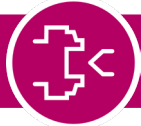
- cross section 10 x 10 mm
- right-hand cutting
- without indexable insert
- suitable indexable insert item no. 10833 on page 124
- for face turning



### Offset turning tool for corner work industrial quality

Item no. 10822

- Cross section 10 x 10 mm
- right-hand cutting
- without indexable insert
- suitable indexable insert item no. 10830 on page 124
- for longitudinal turning



### Straight turning tool industrial quality

Item no. 10823

- Cross section 10 x 10 mm
- right-hand cutting
- without indexable insert
- suitable indexable insert item no. 10831 on page 124
- for rough and longitudinal turning



### Cranked turning tool industrial quality

Item no. 10824

- Cross section 10 x 10 mm
- right-hand cutting
- without indexable insert
- suitable indexable insert item no. 10832 on page 124
- for longitudinal and face turning



### Carbide tip indexable insert industrial quality

Item no. 10830

- PU: 1 piece
- Indexable insert with 6 cutting edges
- suitable for turning tools item no. 10820 and 10822



### Carbide tip indexable insert industrial quality

Item no. 10831

- PU: 1 piece
- Indexable insert with 8 cutting edges
- suitable for turning tool item no. 10823



### Carbide tip indexable insert industrial quality

Item no. 10832

- PU: 1 piece
- Indexable insert with 8 cutting edges
- suitable for turning tool item no. 10824



### Carbide tip indexable insert industrial quality

Item no. 10833

- PU: 1 piece
- Indexable insert with 6 cutting edges
- suitable for turning tool item no. 10821



### 2-fold knurling tool

Item no. 10923

- Cross section 10 x 10 mm
- with 2 straight knurling wheels
- rough and fine
- Width 4 mm
- Ø 15 mm

#### Application

- for clamping in lathes
- used to profile spindles, screws, nuts e.g.



### Knurling tool

Item no. 10920

- Cross section 12 x 12 mm
- self-centering
- with 2 cross knurling wheels
- Width 9.5 mm
- Ø 19 mm

#### Application

- for clamping in lathes
- used to profile spindles, screws, nuts e.g.



### Knurling holder

Item no. 10921

- cross section 10 x 10 mm
- self-centering
- with 2 cross knurling wheels
- Width 9.5 mm
- Ø 19 mm

#### Application

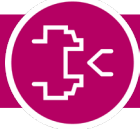
- for clamping in lathes
- used to profile spindles, screws, nuts e.g.



### Replacement knurling wheels

Item no. 10922

- PU: 2 pieces
- 2 cross knurling wheels
- Width 9.5 mm
- Ø 19 mm
- suitable for item no. 10920 and 10921



### Center drills

- HSS DIN 333
- 60° countersink angle
- spirally-fluted, ground
- right-hand cutting

#### Application

- For exactly centered bores in metals. Both face ends of the workpiece receive the appropriate center hole when turned between the centers.

Nominal Ø mm	Item no.
1.00	10841
2.00	10842
2.50	10843
5.00	10845



### Center drill set

Item no. 10846

#### included in delivery

- 4 center drills with nominal Ø 1.00, 2.00, 2.50 and 5.00 mm
- HSS DIN 333
- 60° countersink angle
- spirally-fluted, ground
- right-hand cutting



### Quick-change tool post main body

- very precise locating fixture
- rapid tool change
- the tool blade always returns to exactly the same position after changing the tool post
- the repeating accuracy is 0.01 mm
- the height of the tool blade tip can be adjusted quickly by means of an adjusting screw on each tool holder
- 40 different angular settings
- compatible e.g. with following producers: AXA, Klopfer, Multi Suisse

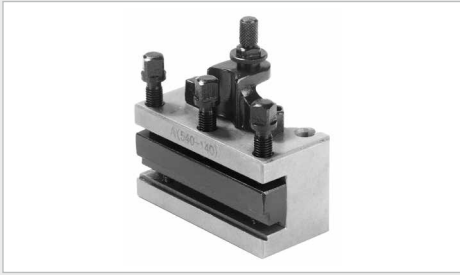
Size	Item no.
Aa (A0)	10780
A	10785



### Boring steel holder

- for holding cylindrical tools such as boring steels
- compatible e.g. with following producers: AXA, Klopfer, Multi Suisse

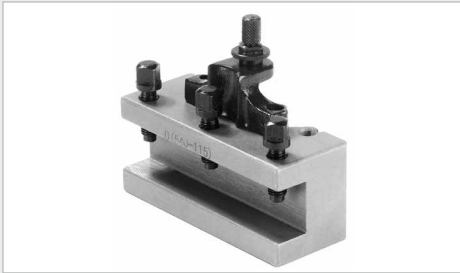
Size	Item no.
Aa (A0)	10781
A	10786



### Parting tool holder

- for holding parting tool
- compatible e.g. with following producers: AXA, Klopfer, Multi Suisse

Size	Item no.
Aa (A0)	10782
A	10787



### Turning tool holder

- for holding rectangular tools
- compatible e.g. with following producers: AXA, Klopfer, Multi Suisse

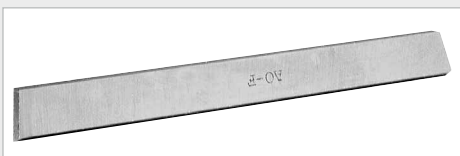
Size	Item no.
Aa (A0)	10783
A	10788



### Boring bar holder

- for holding boring bars
- compatible e.g. with following producers: AXA, Klopfer, Multi Suisse

Size	Item no.
Aa (A0)	10784
A	10789



### Parting blade

Item no. 10790

- Total length 100 mm
- Thickness 2.7 mm
- Height 10 mm
- suitable for item no. 10782 and 10787

#### Application

- for grooving and cutting to length of workpieces



### Quick-change tool post sets

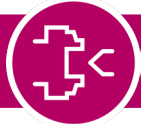
- 5 pieces

#### included in delivery

- 1 x quick-change tool post, main body  
technical data can be found on page 126
- 1 x boring steel holder  
technical data can be found on page 126
- 3 x turning tool holder  
technical data can be found on page 127

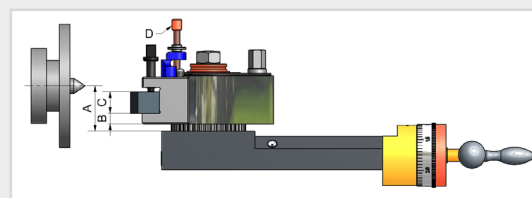
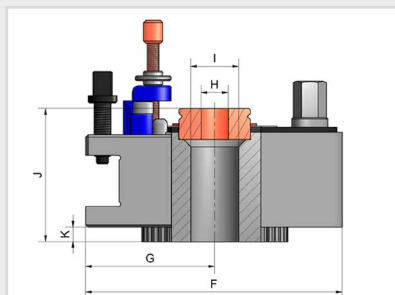
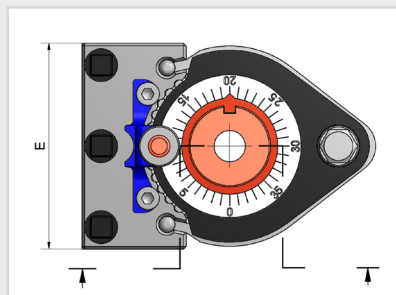
Size	Item no.
Aa (A0)	10793
A	10794





When choosing the size attention should be paid to

- The turning tool tip must be aligned precisely to the turning axis center (center point).
- To do this, the turning tool must be in the inserted steel holder on the turning axis center (center point).  
The height of the steel holder can be adjusted by turning the adjustment screw (D).
- The length of the steel holder (E) should correspond to the width of the longitudinal support upper section, if possible.
- The turning tool height (C) must be selected in such a way that, after the addition of the height of the lower lip (B) of the steel holder, it is smaller than height (A).
- The boring (H) in the centering disk must be bored to the dimension of the stud bolt.



Size	Aa (A0)	A
<b>Quick-change tool post main body</b>		
Center height (A)	depending on the machine	depending on the machine
Lower lip of steel holder (B)	6.5 mm	10 mm
Height of working steel max. (C)	12 mm	20 mm
Length of steel holder (E)	50 mm	90 mm
Total width (F)	76 mm	104 mm
Outreach (G)	35 mm	52 mm
Boring for stud bolt (H)	10 mm	10 mm
Boring in main body (I)	13 mm	20 mm
Height (J)	37 mm	56 mm
Height adjustment (K)	10 mm	12 mm
<b>Boring tool holder</b>		
for boring tools up to max cross section	12 mm	20 mm
Number of clamp screws	4	3
Total length	50 mm	90 mm
<b>Parting tool holder</b>		
Number of clamp screws	4	3
<b>Turning tool holder</b>		
for turning tools up to max. cross section	12 mm	20 mm
Number of clamp screws	4	3
Total length	50 mm	90 mm
<b>Boring bar holder</b>		
for boring bars with max. diameter	15 mm	20 mm
Total length	50 mm	90 mm
Subject to technical modifications		



### Dead center MT2

Item no. 10762

- Morse taper MT2
- hardened and ground

#### Application

- for use in the tailstock, for machining long workpieces



### Dead center MT3

Item no. 10763

- Morse taper MT3
- hardened and ground

#### Application

- for use in the spindle nose of the main spindle. Long workpieces, as well as parts which require repeated rechucking and a high degree of concentricity, are machined between the centers.



### Live centers

- hardened and ground
- Precision bearings guarantee high true running accuracy

#### Application

- for use in the tailstock, for machining long workpieces

Morse taper	Item no.
MT2	10766
MT3	10770
MT4	10771



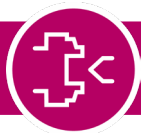
### Live center set MT2

Item no. 10768

- 8 pieces
- Morse taper MT2
- with interchangeable inserts
- hardened and ground
- Precision bearings guarantee high true running accuracy

#### Application

- for use in the tailstock, for machining long workpieces

**3-jaw lathe chucks**

- centrally clamping
- without mounting flange

included in delivery

- Turning and drilling jaws
- Clamping key
- Fastening screws

**Soft unstepped jaws 1 set**

- from Ø 100 mm optional available
- for turning out for exact true running accuracy on workpiece

Item no.	10700	10711	10721	10752
<b>3-jaw lathe chucks</b>				
Total Ø	<b>80 mm</b>	<b>100 mm</b>	<b>125 mm</b>	<b>160 mm</b>
Clamping Ø	3.5 - 67 mm	4.0 - 83 mm	4.0 - 125 mm	3.0 - 160 mm
max. speed	4000 rpm	3500 rpm	3000 rpm	2500 rpm
Bore	16 mm	22 mm	30 mm	44 mm
cylindrical inside diameter	55 mm	70 mm	95 mm	130 mm
Pitch circle Ø	66 mm	83 mm	108 mm	142 mm
Number of bores	3x M6	3x M8	3x M8	3x M8
Total height with jaws	67 mm	75 mm	85 mm	94 mm
Total height without jaws	50 mm	56 mm	58 mm	65 mm
<b>Soft unstepped jaws</b>				
Item no.	○	10713	10723	10752-1
<b>Mounting flanges</b>				
Mounting flanges for WABECO lathes				
Item no.	10701	○	10733	10746
Mounting flanges for dividing attachment Ø 100 mm				
Item no.	10741	○	○	○
Mounting flanges for dividing attachment Ø 110 mm				
Item no.	10742	○	○	○
Mounting flanges for dividing attachment Ø 150 mm				
Item no.	○	10743	10743	○
Subject to technical modifications		○ not available		



#### 4-jaw lathe chucks

- centrally clamping
- without mounting flange

##### included in delivery

- Turning and drilling jaws
- Clamping key
- Fastening screws

#### Soft unstepped jaws 1 set

- from Ø 100 mm optional available
- for turning out for exact true running accuracy on workpiece

Item no.	10728	10729	10731	10753
<b>4-jaw lathe chucks</b>				
Total Ø	<b>80 mm</b>	<b>100 mm</b>	<b>125 mm</b>	<b>160 mm</b>
Clamping Ø	3.5 - 67 mm	5.5 - 83 mm	5.5 - 125 mm	3.0 - 160 mm
max. speed	4000 rpm	3500 rpm	3000 rpm	2500 rpm
Bore	16 mm	22 mm	30 mm	44 mm
cylindrical inside diameter	55 mm	70 mm	95 mm	130 mm
Pitch circle Ø	66 mm	83 mm	108 mm	142 mm
Number of bores	3x M6	3x M8	3x M8	3x M8
Total height with jaws	67 mm	75 mm	85 mm	94 mm
Total height without jaws	50 mm	56 mm	58 mm	65 mm
<b>Soft unstepped jaws</b>				
Item no.	○	10739	10738	10753-1
<b>Mounting flanges</b>				
Mounting flanges for WABECO lathes				
Item no.	10701	○	10733	10746
Mounting flanges for dividing attachment Ø 100 mm				
Item no.	10741	○	○	○
Mounting flanges for dividing attachment Ø 110 mm				
Item no.	10742	○	○	○
Mounting flanges for dividing attachment Ø 150 mm				
Item no.	○	10743	10743	○
Subject to technical modifications		○ not available		



### Precision 3-jaw lathe chucks

- according to DIN 6350
- centrally clamping
- without mounting flange

#### included in delivery

- Turning and drilling jaws
- Clamping key
- Fastening screws

### Soft unstepped jaws 1 set

- from Ø 100 mm optional available
- for turning out for exact true running accuracy on workpiece

Item no.	10710	10712	10720	10722	10750
<b>3-jaw lathe chucks</b>					
	<b>Cast iron version</b>	<b>Steel version</b>	<b>Cast iron version</b>	<b>Steel version</b>	<b>Cast iron version</b>
Total Ø	<b>100 mm</b>	<b>100 mm</b>	<b>125 mm</b>	<b>125 mm</b>	<b>160 mm</b>
Clamping Ø	3.0 - 83 mm	3.0 - 83 mm	3.0 - 125 mm	3.0 - 125 mm	3.0 - 160 mm
max. speed	3500 rpm	5200 rpm	3200 rpm	4800 rpm	3000 rpm
Bore	20 mm	20 mm	32 mm	32 mm	42 mm
cylindrical inside diameter	70 mm	70 mm	95 mm	95 mm	125 mm
Pitch circle Ø	83 mm	83 mm	108 mm	108 mm	140 mm
Number of bores	3x M8	3x M8	3x M8	3x M8	6x M10
Total height with jaws	66 mm	66 mm	76 mm	76 mm	97 mm
Total height without jaws	50 mm	50 mm	56 mm	56 mm	66 mm
<b>Soft unstepped jaws</b>					
Item no.	10717	10717	10727	10727	10754
<b>Mounting flanges</b>					
Mounting flanges for WABECO lathes					
Item no.	○	○	10733	10733	10745
Mounting flanges for dividing attachment Ø 150 mm					
Item no.	10743	10743	10743	10743	○
Subject to technical modifications			○ not available		



### Precision 4-jaw lathe chucks

- according to DIN 6350
- centrally clamping
- without mounting flange

#### included in delivery

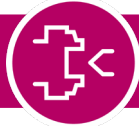
- Turning and drilling jaws
- Clamping key
- Fastening screws

### Soft unstepped jaws 1 set

- from Ø 100 mm optional available
- for turning out for exact true running accuracy on workpiece

Item no.	10730	10732
<b>4-jaw lathe chucks</b>		
	<b>Cast iron version</b>	<b>Steel version</b>
Total Ø	<b>125 mm</b>	<b>125 mm</b>
Clamping Ø	3.0 - 125 mm	3.0 - 125 mm
max. speed	3200 rpm	4800 rpm
Bore	32 mm	32 mm
cylindrical inside diameter	95 mm	95 mm
Pitch circle Ø	108 mm	108 mm
Number of bores	3x M8	3x M8
Total height with jaws	76 mm	76 mm
Total height without jaws	56 mm	56 mm
<b>Soft unstepped jaws</b>		
Item no.	10737	10737
<b>Mounting flanges</b>		
Mounting flanges for WABECO lathes		
Item no.	10733	10733
Mounting flanges for dividing attachment Ø 150 mm		
Item no.	10743	10743
Subject to technical modifications	○ not available	





### Precision camlock 3- and 4-jaw lathe chucks

- centrally clamping
  - for all lathes with camlock main spindle nose according to DIN 55029 size 4
- included in delivery
- Turning and drilling jaws
  - Clamping key

Item no.	10724	10755	10734	10756
	3-jaws	3-jaws	4-jaws	4-jaws
	Cast iron version	Steel version	Cast iron version	Steel version
Total Ø	125 mm	125 mm	125 mm	125 mm
Clamping Ø	125 mm	125 mm	125 mm	125 mm
max. speed	3200 rpm	4800 rpm	3200 rpm	4800 rpm
Bore	32 mm	32 mm	32 mm	32 mm
Total height with jaws	80 mm	80 mm	80 mm	80 mm
Total height without jaws	60 mm	60 mm	60 mm	60 mm

Subject to technical modifications



### 3-jaw chucks

- centrally clamping
- with morse taper MT2 and tightening thread M10
- with turning and drilling jaws and clamping key

#### Application

- for clamping in the tailstock of lathes
- for clamping in the milling head of milling machines

Item no.	10705	10714
Total Ø	80 mm	100 mm
Clamping Ø	2 - 67 mm	3 - 83 mm
max. speed	3000 rpm	3000 rpm
Total length incl. cone	152 mm	162 mm



### Independent chucks

- heavy version for industrial use
- with 4 stepped reverse-clamping jaws, which can be adjusted individually and independently of each other
- without mounting flange

#### Application

- Workpiece clamping device for clamping large and irregularly shaped workpieces

Item no.	13310	13314	13318	13322
Total Ø	80 mm	100 mm	125 mm	160 mm
Clamping Ø	80 mm	100 mm	125 mm	160 mm
max. speed	2500 rpm	2500 rpm	2300 rpm	2000 rpm
Bore	22 mm	25 mm	30 mm	40 mm
cylindrical inside diameter	55 mm	72 mm	95 mm	130 mm
Pitch circle Ø	66 mm	84 mm	108 mm	142 mm
Number of bores	4x M6	4x M8	4x M8	4x M8
Total height with jaws	58 mm	78 mm	79 mm	98 mm
Total height without jaws	42 mm	55 mm	56 mm	65 mm

### Mounting flanges

Mounting flanges for WABECO lathes

Item no.	10701	13315	13319	10746
Mounting flanges for dividing attachment Ø 100 mm				
Item no.	10741	○	○	○
Mounting flanges for dividing attachment Ø 110 mm				
Item no.	10742	○	○	○
Mounting flanges for dividing attachment Ø 150 mm				
Item no.	○	10744	10743	○

Subject to technical modifications

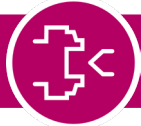
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### Clamping and face plate

Item no. 13300

- for all lathes with cylindrical main spindle nose according to DIN 6350
- cylindrical inside diameter 70 mm
- Clamping Ø up to 150 mm
- with 4 T-slots 10 mm wide
- for holding irregularly shaped workpieces



### Collet chuck

Item no. 10775

- for all lathes with cylindrical main spindle nose according to DIN 6350
- cylindrical inside diameter 70 mm
- Clamping range in connection with collets from 2-16 mm (collets are not part of the delivery)
- for holding the collets item no. 11702 to 11716 on page 139
- an extremely high true running accuracy when clamping workpieces



### Key for collet chuck

Item no. 11726



### Collet chuck with key and collets

Item no. 10778

- 16 pieces  
included in delivery
- Collet chuck (description can be found on this page above)
- Key
- 14 collets from Ø 3 - 16 mm  
description can be found on page 139



### 5C collet chuck

Item no. 10749

- for all lathes with cylindrical main spindle nose according to DIN 6350
- cylindrical inside diameter 95 mm
- Clamping range in connection with 5C collets from 2-25 mm (5C collets are not part of the delivery)
- for holding the 5C collets item no. 11735 on page 137
- an extremely high true running accuracy when clamping workpieces

### Mounting flange

Item no. 10733

- Mounting flange for all lathes with cylindrical main spindle nose according to DIN 6350
- cylindrical inside diameter 70 mm



### Camlock 5C collet chuck with flange

Item no. 10779

- for all lathes with camlock main spindle nose according to DIN 55029 size 4
- Clamping range in connection with 5C collets from 2-25 mm (5C collets are not part of the delivery)
- for holding the 5C collets item no. 11735 on page 137
- an extremely high true running accuracy when clamping workpieces



### 5C collet set

Item no. 11735

- 18 pieces
- included in delivery
- Collets type 385 E with Ø  
2 - 3 - 4 - 5 - 6 - 8 - 10 - 12 - 14 - 15 - 16 - 18 - 20 - 21 - 22 - 23 - 24 - 25 mm  
hardened and ground



### Tool turret with 6 tool positions

Item no. 10798

- 21 pieces
- with morse taper MT2
- Gray cast iron version
- with 6 cylindrical location holes Ø 16 mm

included in delivery

- 2 key-type drill chucks clamping width 1.5 - 13 mm
- 1 live center
- 1 tapping attachment with 5 die holders 2x Ø 20 mm and each 1x Ø 25, 30 and 38 mm
- 1 tapping attachment with 7 tap holders each 1x Ø 2 - 3 - 4 - 4.5 - 6 - 8 and 9 mm

Application

- for use in the tailstock of lathes



### Tapping attachment

Item no. 11691

- 9 pieces
- with morse taper MT2 and flat tang
- 4 die holders Ø 16 - 20 - 25 - 30 mm
- 4 tap holders Ø 5 - 6 - 7 - 10 mm
- Gray cast iron version

Application

- for use in the tailstock of lathes
- for inside and outside cutting for lathes



### Collet chuck MT2-M10

Item no. 11725

- with morse taper MT2 and tightening thread M10
- Clamping range with collets 2-16 mm (collets are not part of the delivery)
- hardened and ground
- for mounting the collets item no. 11702 to 11716 on page 139

#### Application

- suitable for clamping all mills and drills with straight shank



### Key for collet chuck MT2-M10

Item no. 11726



### Collet chuck MT2-M10 with key

Item no. 11728

- with morse taper MT2 and tightening thread M10
- Clamping range with collets 2-16 mm (collets are not part of the delivery)
- hardened and ground
- for mounting the collets item no. 11702 to 11716 on page 139



### Collet set MT2-M10

Item no. 11734

- 16 pieces

#### included in delivery

- Collet chuck with morse taper MT2 and tightening thread M10 clamping range with collets 3-16 mm hardened and ground
- Key for collet chuck
- 14 collets from Ø 3 to 16 mm according to DIN 415E OZ (description on page 139)



### Collet chuck ISO30-M12

Item no. 1190730

- with steep taper ISO30 and tightening thread M12
- Clamping range with collets 2-16 mm (collets are not part of the delivery)
- hardened and ground
- for mounting the collets item no. 11702 to 11716 on page 139

#### Application

- suitable for clamping all mills and drills with straight shank



## Key for collet chuck ISO30-M12

Item no. 11726



## Collet chuck ISO30-M12 with key

Item no. 1190731

- with steep taper ISO30 and tightening thread M12
- Clamping range with collets 2-16 mm (collets are not part of the delivery)
- hardened and ground
- for mounting the collets item no. 11702 to 11716 on page 139



## Collet set ISO30-M12

Item no. 1190734

- 16 pieces included in delivery
- Collet chuck with steep taper ISO30 and tightening thread M12 clamping range with collets 3-16 mm (collets are not part of the delivery) hardened and ground
- Key for collet chuck
- 14 collets from Ø 3 to 16 mm according to DIN 415E OZ (description on page 139)



## Collets

- double slotted
- according to DIN 415E OZ
- with a clamping range of up to 0.5 mm below nominal size, i.e. e.g. the collet 8 mm can clamp up to 7.5 mm
- hardened and ground
- intermediate sizes upon request

Item no.	11702	117025	11703	11704	11705	11706	11707	11708
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Collets Ø mm	2	2.5	3	4	5	6	7	8
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Item no.	11709	11710	11711	11712	11713	11714	11715	11716
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Collets Ø mm	9	10	11	12	13	14	15	16
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### Morse taper sleeves MT2

- Morse taper MT2 and tightening thread M10
- short outreach, ensures improved stiffness
- hardened and ground

#### Application

- **for inserting directly into the tool spindle**

Collets Ø	Item no.
1 mm	13001
2 mm	13002
3 mm	13003
4 mm	13004
5 mm	13005
6 mm	13006
7 mm	13007
8 mm	13008
9 mm	13009
10 mm	13010
11 mm	13011
12 mm	13012
13 mm	13013



### Morse taper sleeve set MT2

Item no. 13020

- 13 pieces

#### included in delivery

- 13 morse taper sleeves with clamping Ø from 1 - 13 mm  
morse taper MT2 and tightening thread M10  
short outreach, ensures improved stiffness  
hardened and ground

#### Application

- **for inserting directly into the tool spindle**



### End mill arbor (Weldon) MT2-M10

- with morse taper MT2 and tightening thread M10
- hardened and ground

#### Application

- **for inserting directly into the tool spindle**
- the end mill arbors serve to tighten tools with a lateral driving surface

Location hole Ø	Item no.
6 mm	1190780
8 mm	1190781
10 mm	1190782
12 mm	1190783
16 mm	1190784
20 mm	1190785



### End mill arbor (Weldon) ISO30-M12

- with steep taper ISO30 (DIN 2080) and tightening thread M12
- hardened and ground

#### Application

- **for inserting directly into the tool spindle**
- the end mill arbors serve to tighten tools with a lateral driving surface

Location hole Ø	Item no.
6 mm	1190770
8 mm	1190771
10 mm	1190772
12 mm	1190773
16 mm	1190774



### Milling cutter 90° MT2

Item no. 11800

- with carbide tip indexable inserts
- with morse taper MT2 and tightening thread M10
- 3 flutes milling cutter
- Outer Ø 20 mm
- with clamping screw and screwdriver

#### Application

- **for inserting directly into the tool spindle**
- for face milling and square shoulder milling



### Replacement indexable insert for milling cutter 90° MT2

Item no. 11879

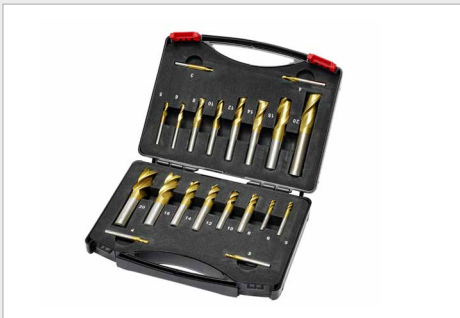
- PU: 1 piece
- Indexable insert with 2 flutes

**Mill set "Titanium"-coated**

Item no. 11873

- 12 pieces
- 6 slotting mills - 2 flutes  
1 cutting edge cuts to the middle in the front face, therefore also suitable for drilling followed by lateral displacement
- 6 end mills - 4 flutes
- helically grooved
- for a better workpiece surface
- high endurance, high cutting efficiency
- substantially less wear in comparison with HSS mills

Cutter Ø mm 2 flutes	3	4	6	8	10	12
Cutter Ø mm 4 flutes	3	4	6	8	10	12
Shank Ø mm	6	6	6	10	10	12

**Mill set "Titanium"-coated**

Item no. 11870

- 20 pieces
- 10 slotting mills - 2 flutes  
1 cutting edge cuts to the middle in the front face, therefore also suitable for drilling followed by lateral displacement
- 10 end mills - 4 flutes
- helically grooved
- for a better workpiece surface
- high endurance, high cutting efficiency
- substantially less wear in comparison with HSS mills

Cutter Ø mm 2 flutes	3	4	5	6	8	10	12	14	18	20
Cutter Ø mm 4 flutes	3	4	5	6	8	10	12	14	18	20
Shank Ø mm	6	6	6	6	10	10	12	12	16	16

**Slotting mill set "Titanium"-coated**

Item no. 11825

- 11 pieces
- short with straight shank
- 2 flutes slotting mills
- helically grooved

**Application**

- 1 cutting edge cuts to the middle in the front face, therefore also suitable for drilling followed by lateral displacement
- for drilling and milling e.g. of feather key grooves

Cutter Ø mm	2	3	4	5	6	8	10	12	14	16	18
Shank Ø mm	6	6	6	6	6	10	10	12	12	16	16



### Slotting mill set solid carbide

Item no. 11826

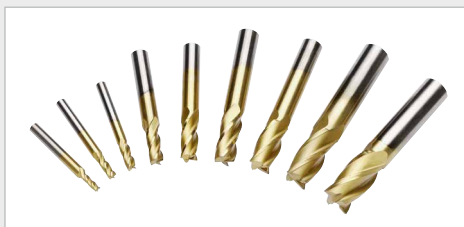
- 5 pieces
- with straight shank
- 2 flutes slotting mills
- helically grooved
- very high endurance

#### Application

- 1 cutting edge cuts to the middle in the front face, therefore also suitable for drilling followed by lateral displacement
- for drilling and milling e.g. of feather key grooves

Cutter Ø mm 4 5 6 8 10

Shank Ø mm 4 5 6 8 10



### End mill set "Titanium"-coated

Item no. 11843

- 9 pieces
- short with straight shank
- 4 flutes end mills
- helically grooved

#### Application

- for deep grooves and contour milling
- not suitable for drilling

Cutter Ø mm 4 5 6 8 10 12 14 16 18

Shank Ø mm 6 6 6 10 10 12 12 16 16



### End mill set solid carbide

Item no. 11869

- 5 pieces
- with straight shank
- 4 flutes end mills
- helically grooved
- very high endurance

#### Application

- for deep grooves and contour milling
- not suitable for drilling

Cutter Ø mm 4 5 6 8 10

Shank Ø mm 4 5 6 8 10



### Radius mill set HSS

Item no. 11885

- 5 pieces
- with straight shank
- 4 flutes radius mills
- 1 cutting edge cuts to the middle in the front face, therefore also suitable for drilling followed by lateral displacement

#### Application

- for milling of semi-circular grooves, rounding off edges, contour milling

Cutter Ø mm	4	5	6	8	10
Shank Ø mm	6	6	6	10	10
Radius mm	2	2.5	3	4	5



### Slot cutter set HSS

Item no. 11888

- 9 pieces
- with straight shank
- cross toothed
- cuts on the perimeter

#### Application

- for milling woodruff key grooves
- for milling small slots and grooves

Ø mm	10.5	10.5	19.5	19.5	19.5	22.5	25.5	28.5	32.5
Cutter width mm	2	3	4	5	6	5	6	8	10
Shank Ø mm	12	12	12	12	12	12	12	12	12



### Angle milling cutter set HSS

Item no. 11887

- 5 pieces
- with straight shank
- cuts on the perimeter and on the front side
- straight toothed

#### Application

- for milling of small dovetail guides
- for breaking edges

Ø mm	13	16	20	25	32
Shank Ø mm	12	12	12	12	16
Angle of mill	60°	60°	60°	60°	60°



### Corner rounding end mill set HSS

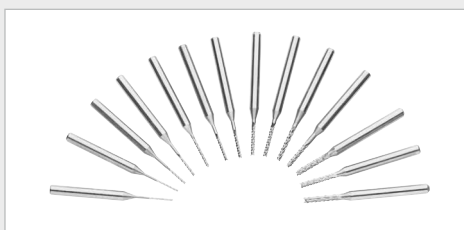
Item no. 11889

- 8 pieces
- with straight shank
- right-hand cutting
- straight toothed

#### Application

- for milling of round outer edges and guides

Radius mm	1	2	3	4	5	6	8	10
Shank Ø mm	10	10	12	12	12	16	16	16



### Carbide milling cutter set

Item no. 11890

- 14 pieces
- with straight shank

#### Application

- suitable for drilling and milling at high speed

Ø mm	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
Shank Ø mm	3	3	3	3	3	3	3	3	3	3	3	3	3	3



### Slotting mills "Titanium"-coated

- 2 flutes slotting mills
- short with straight shank
- straight grooved
- 1 cutting edge cuts to the middle on the front face, therefore also suitable for drilling followed by lateral displacement

#### Application

- for drilling and milling e.g. of feather key grooves

Item no.	11810	11811	11812	11813	11814	11815	11816	11817	11818	11819	11820
Cutter Ø mm	2	3	4	5	6	8	10	12	14	16	18
Shank Ø mm	6	6	6	6	6	10	10	12	12	16	16





### End mills “Titanium”-coated

- 4 flutes end mills
- short with straight shank
- helically grooved

#### Application

- for deep grooves and contour milling
- not suitable for drilling

Item no.	11829	11830	11831	11832	11833	11834	11835	11836	11837	11838
Cutter Ø mm	3	4	5	6	8	10	12	14	16	18
Shank Ø mm	6	6	6	6	10	10	12	12	16	16



### Roughing end mills “Titanium”-coated

- 4 flutes end mills
- with straight shank
- roughing and knurling teeth characteristics, relief ground

#### Application

- for roughing deep grooves and contour milling
- not suitable for drilling

Item no.	11850	11851	11852	11853	11854
Cutter Ø mm	10	12	14	16	18
Shank Ø mm	10	12	12	16	16



### Storage box for mills

Item no. 13600

- Plastic box for 62 mills

Shank Ø mm	6	8	10	12	16	20	25	32	42
for quantity of mills	15	12	5	5	8	7	6	2	2



### Countersink bit set 90° HSS

Item no. 11989

- 6 pieces
- with 3 flutes
- with straight shank
- right-hand cutting

#### Application

- for countersinking flat-headed screws free of chatter marks and for countersinking and deburring

Countersink Ø mm	6.3	8.3	10.4	12.4	16.5	20.5
Shank Ø mm	5	6	6	8	10	10



### Countersink bit and deburrer set 90° HSS

Item no. 11990

- 5 pieces
- with cross hole
- with straight shank

#### Application

- for deburring and countersinking bores
- due to the special cutting angle, the swarf is easily shelled
- the swarf is led safely through the slanted hole
- thus damage to the workpiece can be avoided

Countersink Ø mm	6	10	14	21	28
Shank Ø mm	6	6	8	10	12
for bores mm	1-4	2-5	5-10	10-15	15-20



### Counterbore set HSS

Item no. 11991

- 7 pieces
- with straight shank
- solid dowel pin

#### Application

- for through holes
- for countersinking of cylinder head screws

for screws mm	M3	M4	M5	M6	M8	M10	M12
Shank Ø mm	6	6	6	8	10	12	12
Dowel pin Ø mm	3.2	4.2	5.2	6.2	8.2	10.2	12.2

**Combi shell end mill arbor MT2x16-M10**

Item no. 11729

- with morse taper MT2x16 and tightening thread M10
- with mill retaining screw and feather key
- for mills with longitudinal and transverse slot
- hardened and ground

**Application**

- for mounting all milling tools with location hole Ø 16 mm  
such as shell end mills, side milling cutters, angle milling cutters etc.

**Key for combi shell end mill arbor MT2x16-M10**

Item no. 11730

**Combi shell end mill arbor MT2x16-M10 with key**

Item no. 11731

- with morse taper MT2x16 and tightening thread M10
- with mill retaining screw and feather key
- for mills with longitudinal and transverse slot
- hardened and ground

**Application**

- for mounting all milling tools with location hole Ø 16 mm  
such as shell end mills, side milling cutters, angle milling cutters etc.

**Combi shell end mill arbor MT2x16-M10 with arbor spacers and key**

Item no. 11732

- 7 pieces

**included in delivery**

- Combi shell end mill arbor  
with morse taper MT2x16 and tightening thread M10  
with mill retaining screw and feather key  
for mills with longitudinal and transverse slot  
hardened and ground
- Key for combi shell end mill arbor
- 5 arbor spacers  
width 1 - 2 - 5 - 10 - 20 mm



### Combi shell end mill arbor MT2x16-M10 set

Item no. 11733

- 9 pieces
- included in delivery
- Combi shell end mill arbor  
with morse taper MT2x16 and tightening thread M10  
with mill retaining screw and feather key  
for mills with longitudinal and transverse slot  
hardened and ground
- Key for combi shell end mill arbor
- 5 arbor spacers  
width 1 - 2 - 5 - 10 - 20 mm
- Shell end mill  
Ø 40 - width 40 mm
- Metal slitting saw blade HSS  
Ø 63 - width 2.0 mm

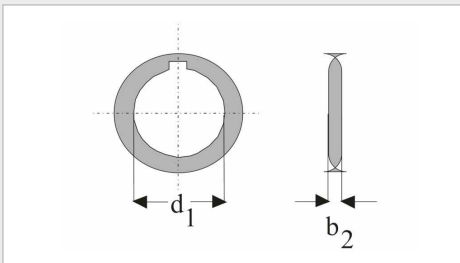


### Arbor spacers

- Location hole Ø 16 mm
- suitable for combi shell end mill arbors with location hole Ø 16 mm

#### Application

- Since shell end mills, side milling cutters, single-angle milling cutters and metal slitting saw blades come in all various widths, these arbor spacers are indispensable in combination with a shell end mill arbor.



Width $b_2$	Bore $d_1$	Item no.
1 mm	16 mm	11641
2 mm	16 mm	11642
5 mm	16 mm	11645
10 mm	16 mm	11647
20 mm	16 mm	11649



### Arbor spacer set

Item no. 11650

- 5 pieces
- Location hole Ø 16 mm
- suitable for combi shell end mill arbors with location hole Ø 16 mm
- included in delivery
- Arbor spacers width 1 - 2 - 5 - 10 - 20 mm

#### Application

- Since shell end mills, side milling cutters, single-angle milling cutters and metal slitting saw blades come in all various widths, these arbor spacers are indispensable in combination with a shell end mill arbor.

**Combi shell end mill arbor ISO30x16-M12**

Item no. 1190735

- with steep taper ISO30x16 (DIN 2080) and tightening thread M12
- with mill retaining screw and feather key
- for mills with longitudinal and transverse slot
- hardened and ground

**Application**

- for holding all milling tools with location hole Ø 16 mm like shell end mills, side milling cutters, single-angle milling cutters etc.

**Key for combi shell end mill arbor ISO30x16-M12**

Item no. 11730

**Combi shell end mill arbor ISO30x16-M12 with key**

Item no. 1190736

- with steep taper ISO30x16 (DIN 2080) and tightening thread M12
- with mill retaining screw and feather key
- for mills with longitudinal and transverse slot
- hardened and ground

**Application**

- for holding all milling tools with location hole Ø 16 mm like shell end mills, side milling cutters, single-angle milling cutters etc.

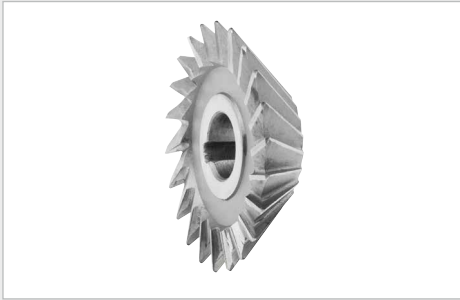
**Combi shell end mill arbor ISO30x16-M12 with arbor spacers and key**

Item no. 1190737

- 7 pieces

**included in delivery**

- Combi shell end mill arbor  
with steep taper ISO30x16 (DIN 2080) and tightening thread M12  
with mill retaining screw and feather key  
for mills with longitudinal and transverse slot  
hardened and ground
- Key for combi shell end mill arbor
- 5 arbor spacers  
width 1 - 2 - 5 - 10 - 20 mm



### Single-angle milling cutters HSS

- Location hole Ø 16 mm
- with longitudinal slot
- cuts on the perimeter and on the front side

#### Application

- for clamping onto combi shell end mill arbors with location hole Ø 16 mm
- for milling e.g. angular guides (dovetail)

Milling angle	Ø	Item no.
45°	63 mm	11910
60°	63 mm	11911



### Shell end mills HSS with fine toothed

- Location hole Ø 16 mm
- Finishing cutter with fine toothed
- cuts on the perimeter and on the front side
- fine toothed
- with longitudinal and transverse slot

#### Application

- for clamping onto combi shell end mill arbors with location hole Ø 16 mm
- for milling of corners and plane surfaces

Width	Ø	Item no.
20 mm	40 mm	11920
35 mm	35 mm	11921
40 mm	40 mm	11922



### Shell end mill HSS with rough toothed

Item no. 11925

- Location hole Ø 16 mm
- Roughing mill with rough toothed
- cuts on the perimeter and on the front side
- Roughing and knurling toothed characteristics relief ground
- with longitudinal and transverse slot

#### Application

- for clamping onto combi shell end mill arbors with location hole Ø 16 mm
- for rough milling of corners and plane surfaces

Width	Ø
40 mm	40 mm



### Side milling cutters HSS

- Location hole Ø 16 mm
- cuts on 3 sides
- cross toothed
- with longitudinal slot

#### Application

- for clamping onto combi shell end mill arbors with location hole Ø 16 mm
- for extremely long grooves

Width	Ø	Item no.
4 mm	50 mm	11930
5 mm	50 mm	11931
6 mm	50 mm	11932
8 mm	50 mm	11933
10 mm	50 mm	11934



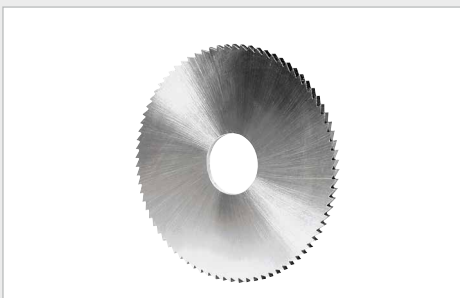
### Side milling cutter set HSS

Item no. 11935

- 5 pieces
- included in delivery
- 5 side milling cutters width 4 - 5 - 6 - 8 - 10 mm  
location hole Ø 16 mm  
Ø 50 mm  
cuts on 3 sides  
cross toothed  
with longitudinal slot

#### Application

- for clamping onto combi shell end mill arbors with location hole Ø 16 mm
- for cutting to length and for slitting of workpieces



### Metal slitting saw blades HSS

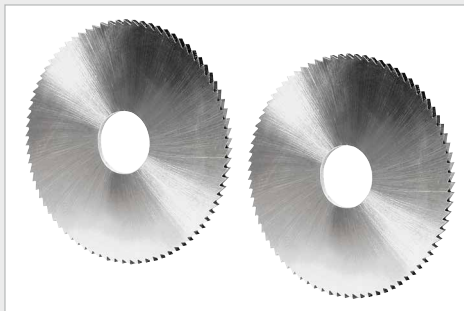
- Location hole Ø 16 mm
- with lateral clearance
- fine toothed

#### Application

- for clamping onto combi shell end mill arbors with location hole Ø 16 mm
- for cutting to length and for slitting of workpieces

Width	Ø	Item no.
1 mm	63 mm	11951
2 mm	63 mm	11952





### Metal slitting saw blade set

Item no. 11953

- 2 pieces

#### included in delivery

- 2 metal slitting saw blades width 1 and 2 mm  
location hole Ø 16 mm  
Ø 63 mm  
with lateral clearance  
fine toothed

#### Application

- for clamping onto combi shell end mill arbors with location hole Ø 16 mm
- for cutting to length and for slitting of workpieces



### Metal slitting saw blade set with holder for slitting saw blade

Item no. 11960

- 4 pieces

#### included in delivery

- Holder for metal slitting saw blade  
location shank Ø 12 mm
- 3 metal slitting saw blades

#### Application

- for cutting to length and for slitting of workpieces

Width	Ø	Location hole mm
1.0 mm	63 mm	16
1.5 mm	63 mm	16
2.0 mm	63 mm	16



### Face mill industrial quality

Item no. 11878

- with 6 carbide tip indexable inserts
- 6 flutes face mill
- Outer Ø 40 mm
- Location hole Ø 16 mm
- with clamping screw and screwdriver
- very good swarf removal due to positive cutting blade locations

#### Application

- for clamping onto combi shell end mill arbors with location hole Ø 16 mm



### Replacement indexable insert for face mill

Item no. 11879

- PU: 1 piece
- Indexable insert with 2 flutes

**Key-type drill chuck B16**

Item no. 11620

- Clamping width 1.5 - 13 mm
- Inner taper B16

**Application**

- for clamping and releasing the tools by means of a key

**Key-type drill chuck with drill chuck arbor MT2**

Item no. 11621

**included in delivery**

- Key-type drill chuck  
clamping width 1.5 - 13 mm  
inner taper B16
- Drill chuck arbor  
with morse taper MT2 and flat tang  
outer taper B16

**Quick-action drill chuck B16**

- Inner taper B16
- heavy version for industrial use

**Application**

- for fast clamping and releasing of the tools without key

Clamping width	Item no.
1 - 13 mm	11623
3 - 16 mm	11624

**Quick-action drill chuck B16 with drill chuck arbor MT2****included in delivery**

- Quick-action drill chuck  
inner taper B16
- Drill chuck arbor  
MT2 and flat tang outer taper B16

Clamping width	Item no.
1 - 13 mm	11622
3 - 16 mm	11626

**Quick-action drill chuck B16 with drill chuck arbor MT2****included in delivery**

- Quick-action drill chuck  
inner taper B16
- Drill chuck arbor  
MT2 and tightening thread M10 outer taper B16

Clamping width	Item no.
1 - 13 mm	11630
3 - 16 mm	11631



### Drill chuck arbor MT2-M10

Item no. 11627

- for milling machines
- with morse taper MT2 and tightening thread M10
- Outer taper B16
- hardened and ground



### Drill chuck arbor MT2

Item no. 11628

- for lathes
- with morse taper MT2 and flat tang
- Outer taper B16
- hardened and ground



### Drill sleeve from MT3 to MT2

Item no. 11635

- with morse taper MT3 outside and morse taper MT2 inside
- with flat tang
- hardened and ground



### Quick-action drill chuck B16 with drill chuck arbor ISO30

#### included in delivery

- Quick-action drill chuck  
inner taper B16  
heavy version for industrial use
- Drill chuck arbor  
with steep taper ISO30 and tightening thread M12  
outer taper B16

Clamping width	Item no.
1 - 13 mm	11633
3 - 16 mm	11634



### Drill chuck arbor ISO30

Item no. 1190750

- with steep taper ISO30 and tightening thread M12
- Outer taper B16
- hardened and ground



### Boring heads MT2 and MT3

- Head Ø 50 mm
- with morse taper and tightening thread
- **Feed accuracy 0.02 mm**
- Location hole 12 mm
- Total length 145 mm
- Adjustability of the boring bar holder 20 mm
- Center-to-center spacing of boring bar holders 15 mm
- hardened and ground
- suitable boring bar set item no. 11671 on page 159

#### Application

- e.g. setting holes, punctures etc.
- for vertical and horizontal use
- for clamping in table drilling machines, pillar drilling machines, column drilling machines and milling machines

Morse taper	Item no.
MT2 - M10	11666
MT3 - M12	11675



### Boring head MT2-M10 with boring bar set

Item no. 11663

- 2 pieces
- included in delivery
- Boring head  
description item no. 11666 on this page
  - Boring bar set with shank Ø 12 mm  
description item no. 11671 on page 159



### Boring head MT2-M10

Item no. 11667

- Head Ø 75 mm
- with morse taper MT2 and tightening thread M10
- **Feed accuracy 0.02 mm**
- Location hole 20 mm
- Total length 165 mm
- Adjustability of the boring bar holder 40 mm
- Center-to-center spacing of boring bar holders 24 mm
- 1 drill sleeve from shank Ø 20 to 12 mm
- hardened and ground
- suitable boring bar set item no. 11671 on page 159

#### Application

- e.g. setting holes, punctures etc.
- for vertical and horizontal use
- for clamping in table drilling machines, pillar drilling machines, column drilling machines and milling machines



### Boring head MT2-M10 with boring bar set

Item no. 11672

- 2 pieces
- included in delivery
- Boring head  
description item no. 11667 on page 156 below
- Boring bar set with shank Ø 12 mm  
description item no. 11671 on page 159



### Boring head ISO30-M12

Item no. 11664

- Head Ø 75 mm
- with steep taper ISO30 and tightening thread M12
- **Feed accuracy 0.02 mm**
- Location hole 20 mm
- Total length 160 mm
- Adjustability of the boring bar holder 20 mm
- Center-to-center spacing of boring bar holders 15 mm
- 1 drill sleeve from shank Ø 20 to 12 mm
- hardened and ground
- suitable boring bar set item no. 11671 on page 159

#### Application

- e.g. setting holes, punctures etc.
- for vertical and horizontal use
- for clamping in table drilling machines, pillar drilling machines, column drilling machines and milling machines



### Boring head ISO30-M12 with boring bar set

Item no. 11673

- 2 pieces
- included in delivery
- Boring head  
description item no. 11664 on this page
- Boring bar set with shank Ø 12 mm  
description item no. 11671 on page 159



### Boring head MT2-M10 original Vertex

Item no. 11665

- Head Ø 50 mm
- with morse taper MT2 and tightening thread M10
- **Feed accuracy 0.01 mm**
- Location hole 12 mm
- Total length 145 mm
- Adjustability of the boring bar holder 20 mm
- Center-to-center spacing of boring bar holders 15 mm
- hardened and ground
- suitable boring bar set item no. 11671 on page 159

#### Boring tools

- 2 boring bars carbide-tipped with shank Ø 12 mm length 70 and 80 mm
- 1 tool holder with shank Ø 12 mm length 90 mm for square bits

#### Application

- e.g. setting holes, punctures etc.
- for vertical and horizontal use
- for clamping in table drilling machines, pillar drilling machines, column drilling machines and milling machines



### Boring head MT2-M10 original Vertex

Item no. 11668

- Head Ø 80 mm
- with morse taper MT2 and tightening thread M10
- **Feed accuracy 0.01 mm**
- Location hole 16 mm
- Total length 165 mm
- Center-to-center spacing of boring bar holders 30 mm
- hardened and ground

#### Boring tools

- 3 boring bars carbide-tipped with shank Ø 10 mm length 60, 70 and 75 mm
- 3 boring bars carbide-tipped with shank Ø 16 mm length 95, 100 and 125 mm
- 1 tool holder with shank Ø 16 mm length 120 mm for square bits
- 1 drill sleeve from shank Ø 16 to 10 mm

#### Application

- e.g. setting holes, punctures etc.
- for vertical and horizontal use
- for clamping in table drilling machines, pillar drilling machines, column drilling machines and milling machines



### Boring bar sets

- 9 pieces
- hardened and ground shank
- carbide-tipped

#### Application

- Internal turning from 8 mm
- Boring work with the boring head

Shank Ø	Item no.
10 mm	11670
12 mm	11671



### Fly cutter set

Item no. 11805

- 3 pieces
- Shank Ø 10 mm
- Head Ø 14, 18, 22 mm
- Blade HSS
- Blade length 30 mm
- infinitely variable adjustment of the diameter

#### Application

- for finishing bores and face milling
- for clamping in table drilling machines, pillar drilling machines, column drilling machines and milling machines



### Circle cutter with bevelled blade

Item no. 11686

- Morse taper MT2 and flat tang
- Grooving capacity 30 - 300 mm
- infinitely variable adjustment of the diameter
- with drawing cut, i.e. the cutting motion is performed sloped to the tool for obtaining tear-free edges
- Material strength steel up to approx. 5 mm
- Drill hole 5 mm
- hardened and ground

#### Application

- for clamping in drills, column drilling machines, table drilling machines, pillar drilling machines, milling machines etc.
- for precise cutting out holes or disks



### Replacement blade for circle cutter

Item no. 11687

- for circle cutter item no. 11686





### Threading attachment original Vertex

Item no. 11680

- for thread cutting from M2 to M8
- with morse taper MT2 and flat tang
- with key-type drill chuck
- automatic forward and reverse motion

#### Application

- for clamping in drills, column drilling machines, pillar drilling machines, table drilling machines and milling machines which use a spindle sleeve feed and on which the direction rotation of the drilling or milling spindle cannot be reversed



### Threading attachments

- for thread cutting from M5 to M12
- with morse taper and flat tang
- Torque of sliding clutch is 4-fold adjustable with adjustable safety sliding clutch - protects the tap from breakage
- automatic forward and reverse motion
- with 2 rubber flex grips

#### Application

- for clamping in drills, column drilling machines, pillar drilling machines, table drilling machines and milling machines which use a spindle sleeve feed and on which the direction rotation of the drilling or milling spindle cannot be reversed

Morse taper	Item no.
MT2	11683
MT3	11684



### Tap chuck original Vertex

Item no. 11690

- for thread cutting from M4 to M12
- Inner taper B16
- Head Ø 42 mm
- Total length 72 mm

#### Application

- for inside thread cutting on machine tools with right- and left-hand operation e.g. lathes, milling machines, drilling machines etc.
- the torque is transferred by the square of the tap
- the tap is centered by the clamping jaws



### Tap chuck with drill chuck arbor MT2-M10

Item no. 11692

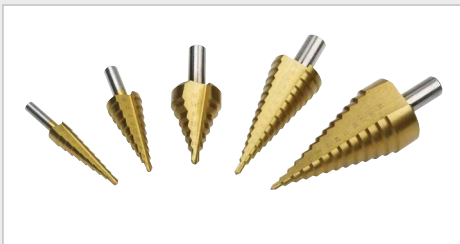
- 2 pieces

#### included in delivery

- Tap chuck  
for thread cutting from M4 to M12  
inner taper B16  
head Ø 42 mm  
total length 72 mm
- Drill chuck arbor  
with morse taper MT2 and tightening thread M10  
outer taper B16

#### Application

- for inside thread cutting on machine tools with right- and left-hand operation e.g. lathes, milling machines, drilling machines etc.
- the torque is transferred by the square of the tap
- the tap is centered by the clamping jaws



### Step drill set "Titanium"-coated

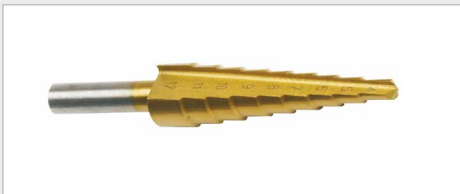
Item no. 11880

- 5 pieces
- with straight shank
- with 2 flutes
- with center drill tip

#### Application

- for drilling in thin sheet metal without pre-boring, burr-free drilling without deforming the sheet
- drills and removes burr at the same time with the next drill step

Steps Ø mm	4 - 12	4 - 20	5 - 28	4 - 30	4 - 39
Shank Ø mm	6	8	10	10	12



### Step drill Ø 4-12 "Titanium"-coated

Item no. 11881

- Step Ø 4 - 12 mm - shank Ø 6 mm
- with straight shank
- with 2 flutes
- with center drill tip



### Step drill Ø 5-28 "Titanium"-coated

Item no. 11882

- Step Ø 5 - 28 mm - shank Ø 10 mm
- with straight shank
- with 2 flutes
- with center drill tip



### Digital position readout (DRO) for 3 axes and optical scales

- Color display
- 7-digit position indicator
- +/- indication
- Resolution 0.005 mm
- reversible metric/inch
- reversible count direction by means of operation sign change
- Coordinate value setting or zero setting
- incremental or absolute measurement input
- Parameter input
- Tool memory for 100 tools with independent coordinate reference points
- Tool no. display
- Coordinate reference points
- Calculator function (addition, subtraction etc.)
- Input and consideration of shrink factors
- in the case of a power cut the data are stored in the read only memory
- switchable from lathes to milling machines
- Optical scales are protected against shock and dirt
- ergonomically designed folio keyboard, protected against dust and splash water

#### especially for lathes

- Diameter or radius display
- Display of the Z0 and Z1 axes with adding function, either the addend or the individual value is displayed

#### especially for milling machines

- Trigonometric functions (sin; cos; tan)
- Pitch circle calculation with indication of individual coordinates

#### Application

- for precise, fast and safe manufacturing
- quick set up due to exact positioning
- no parallax or reading errors
- absolute repeatability

	Item no.
Digital position readout (DRO) for 3 axes	10280
Optical scale measuring length 100 mm	10283
Optical scale measuring length 170 mm	10284
Optical scale measuring length 270 mm	10285
Optical scale measuring length 320 mm	10286
Optical scale measuring length 520 mm	10287



No. 11360 to no. 11364



No. 11365 and no. 11366



for vertical mounting

### Mountable digital vernier scales

- 5-digit LCD display
- Reading accuracy 0.01 mm
- reversible metric/inch
- Zero position
- Mini-USB interface for position display
- can be cut to any desired intermediate size

#### Application

- for the mounting on lathes, milling machines, coordinate tables, table drilling machines, pillar drilling machines, column drilling machines etc. for measuring travel distances
- Mountable digital vernier scales for precise and exact positioning, for example, any play in the spindle can be ignored.

#### for horizontal mounting

Measuring length	Item no.
100 mm	11360
150 mm	11361
200 mm	11362
300 mm	11363
400 mm	11364
500 mm	11365
600 mm	11366

#### for vertical mounting

Measuring length	Item no.
100 mm	11370
150 mm	11371
200 mm	11372
300 mm	11373
400 mm	11374
500 mm	11375



### Single axis position readout (DRO) with power plug

Item no. 11356

- 5-digit LCD display with light
- Reading accuracy 0.01 mm
- reversible metric/inch
- Zero position
- solid plastic housing with magnetic mount
- 1 connecting cable for Mini-USB port

#### Application

- for connecting to a mountable digital vernier scale (not part of the delivery)
- used to display output data
- the position indicator can be easily attached to the lathes, milling machines, table drilling machines, pillar drilling machines, column drilling machines, etc. using the magnetic mount



### 3-axes position readout (DRO) with power plug

Item no. 11358

- 5-digit LCD display with light
- Reading accuracy 0.01 mm
- reversible metric/inch
- Zero position
- solid plastic housing with magnetic mount
- 3 connecting cables for Mini-USB port

#### Application

- for connecting to mountable digital vernier scales (not part of the delivery)
- the position indicator can be easily attached to the lathes, milling machines, table drilling machines, pillar drilling machines, column drilling machines, etc. using the magnetic mount



### Power plug

Item no. 11379

- for single axis and 3-axes position readout (DRO)



### Marking and height gauge

Item no. 11325

- Measuring height 300 mm
- ground and hardened
- 2 locking screws
- Precise adjustment
- adjustable carbide tip

#### Application

- for marking holes, slots, etc. on different workpieces



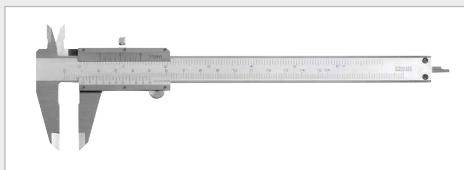
### Digital marking and height gauge

Item no. 11326

- Measuring height 300 mm
- 5-digit LCD display
- Reading accuracy  $\pm 0.01$  mm
- Reset button
- reversible metric/inch
- ground and hardened
- 2 locking screws
- Precise adjustment
- adjustable carbide tip

#### Application

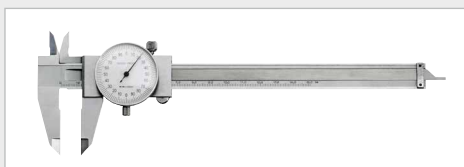
- for marking holes, slots, etc. on different workpieces



### Vernier calipers

- Reading accuracy 0.05 mm
- with locking screw and depth gauge
- hardened and ground

Measuring range	Item no.
100 mm	11314
150 mm	11322



### Dial vernier caliper

Item no. 11319

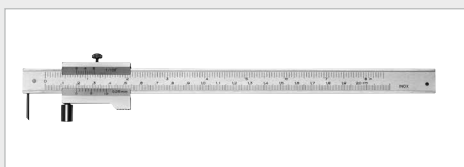
- Reading accuracy 0.02 mm
- with locking screw and depth gauge
- hardened and ground



### Electronic digital vernier calipers

- 5-digit LCD display
- Reading accuracy 0.01 mm
- reversible metric/inch
- with locking screw and depth gauge
- hardened and ground

Measuring range	Item no.
100 mm	11328
150 mm	11320
200 mm	11321



### Marking vernier caliper

Item no. 13125

- Measuring range 200 mm
- Reading accuracy 0.05 mm
- with guide roller
- hardened and ground



### Divider with scriber

Item no. 13101

- Rail length 150 mm
- Scriber 150 mm
- Opening width 190 mm
- hardened tips
- clamping screw



### Center indicator with dial gauge

Item no. 11337

- Dial Ø 40 mm, 0 - 3 mm
- Clamping shank Ø 10 mm
- Head length 135 mm
- Reading accuracy 0.01 mm
- with 3 outside and inside feelers each - length: 45, 100 and 150 mm
- resilient scriber
- with stop rod for fixing the head

#### Application

- suitable for determining the centers of bores and shafts
- for centering, scribing or zero point marking



### Dial test indicator

Item no. 13160

- Dial Ø 30 mm
- Measuring span 0.8 mm
- Reading accuracy 0.01 mm
- Scale 0 - 40 - 0
- Feeler length 12 mm
- Measuring insert equipped with carbide ball Ø 2 mm
- with dovetail guides for clamping shank
- incl. clamping shank Ø 6 and 8 mm



### Dial gauge

Item no. 11334

- Measuring range 10 mm
- Scale division 0.01 mm
- Clamping shank Ø 8 mm h6
- Metal casing matt-chromium finished Ø 55 mm
- according to DIN 878

#### Application

- for measuring and presetting tools and jigs on machines



### Digital dial gauge

Item no. 11336

- Measuring range 10 mm
- Reading accuracy 0.01 mm
- Clamping shank Ø 8 mm h6
- 4-digit LCD display
- Zero position button
- reversible metric/inch
- Metal casing matt-chromium finished Ø 58 mm

#### Application

- for measuring and presetting tools and jigs on machines





### Magnetic measuring stand

Item no. 11333

- mechanical clamping of the magnetic base
- the magnet can be switched on and off
- Holding force 50 kg
- Magnet adheres to the ground v-block base and the ground back
- Magnetic base W50 x D63 x H55 mm
- adjustable to many positions
- with fine adjustment
- Location hole Ø 8 mm
- Measuring column Ø 12 x 160 mm
- Transverse arm Ø 10 x 150 mm

#### Application

- for measuring and presetting tools and jigs on lathes, milling machines, coordinate tables, table drilling machines, pillar drilling machines, column drilling machines
- used for the testing of brake disks and wheel hubs for lateral runout



### Magnetic measuring stand with central clamping

Item no. 11332

- central clamping of the measuring column enabling easy and fast fixing in almost every position
- mechanical clamping of the magnetic base
- the magnet can be switched on and off
- Holding force 80 kg
- Magnet adheres to the ground v-block base and the ground back
- Magnetic base B50 x T63 x H55 mm
- Articulated arm is fitted with a ball joint and can be rotated in all directions
- Location hole Ø 8 mm
- Total height 340 mm

#### Application

- for measuring and presetting tools and jigs on lathes, milling machines, coordinate tables, table drilling machines, pillar drilling machines, column drilling machines
- used for the testing of brake disks and wheel hubs for lateral runout



### Magnetic measuring stand with dial gauge

Item no. 11335

#### included in delivery

- Magnetic measuring stand  
description item no. 11333 on page 167
- Dial gauge  
description item no. 11334 on page 166



### Magnetic measuring stand with dial gauge and dial test indicator

Item no. 13162

#### included in delivery

- Magnetic measuring stand  
description item no. 11333 on page 167
- Dial gauge  
description item no. 11334 on page 166
- Dial test indicator  
description item no. 13160 on page 166



### Magnetic measuring stand with dial test indicator

Item no. 13161

#### included in delivery

- Magnetic measuring stand  
description item no. 11333 on page 167
- Dial test indicator  
description item no. 13160 on page 166



### Magnetic measuring stand with central clamping with dial gauge

Item no. 11338

#### included in delivery

- Magnetic measuring stand with central clamping  
description item no. 11332 on page 167
- Dial gauge  
description item no. 11334 on page 166



### Micrometer

Item no. 11301

- Measuring range 0 - 25 mm
- Reading accuracy 0.01 mm
- according to DIN 863
- hardened and ground measuring surfaces



### Micrometer set

Item no. 11317

- 4 pieces
- Measuring ranges 0 - 25, 25 - 50, 50 - 75 and 75 - 100 mm
- Reading accuracy 0.01 mm
- according to DIN 863
- hardened and ground measuring surfaces
- with ground check gauges



### Digital micrometers

- 5-digit LCD display
- Reading accuracy 0.001 mm
- reversible metric/inch
- according to DIN 863
- hardened and ground measuring surfaces
- with ground check gauges

Measuring range	Item no.
0 - 25 mm	11392
25 - 50 mm	11393



### Holder for micrometer

Item no. 11304

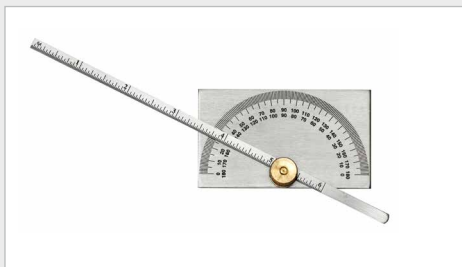
- suitable for micrometers from 0 to 100 mm



### Straight edge

Item no. 11311

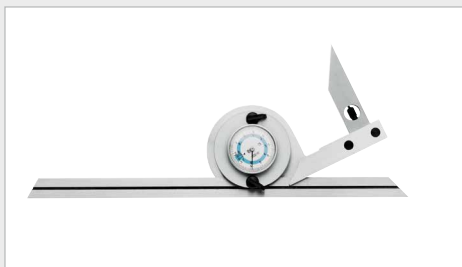
- 200 mm
- Cross section 28 x 7 mm
- Measuring edge hardened and ground
- with isolation protection



### Vernier protractor

Item no. 13105

- Rail length 150 mm
- Measuring range 0 - 180°
- Reading accuracy 1°
- Clamp for rail and angle adjustment



### Universal vernier protractor

Item no. 11310

- Rail length 300 mm
- Measuring range 360°
- easy read off 4 x 90°
- Readout 5 min
- hardened and ground
- with additional angle 45° and 60° chamfered, reversible and slideable
- Clamp for rail and angle adjustment



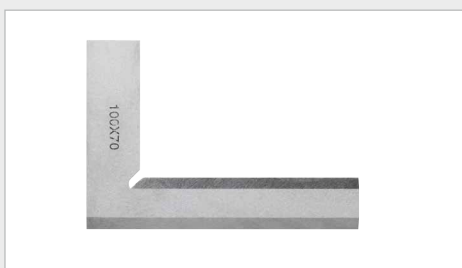
### Universal angle plate set

Item no. 11347

- 30° - 45° - 60° - 90°
- Hole Ø 8 mm
- Width 6.35 mm
- hardened and ground

#### Application

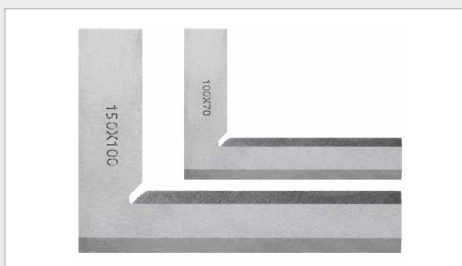
- for setting up, adjusting and measuring tools



### Squares

- hardened and ground
- 2 wedge-shaped knife measurement edges

Leg length	Item no.
100 x 70 mm	13140
150 x 100 mm	13141



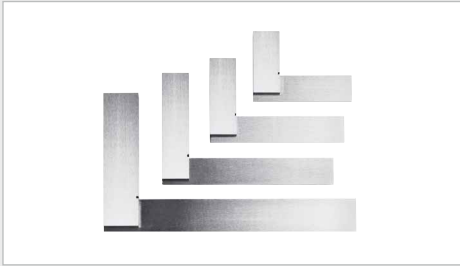
### Square set

Item no. 13143

- 2 pieces

#### included in delivery

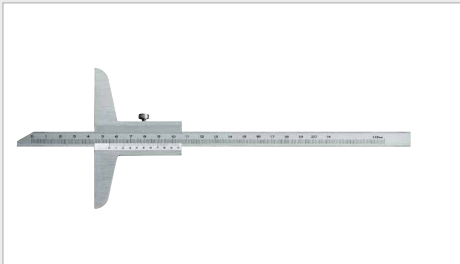
- Square 100 x 70 mm
- Square 150 x 100 mm
- hardened and ground
- 2 wedge-shaped knife measurement edges



### Try-square set

Item no. 13130

- 4 piece
- 70 x 50, 95 x 60, 120 x 80 and 175 x 100 mm
- hardened and ground



### Vernier depth gauge

Item no. 11323

- Measuring range 200 mm
- Reading accuracy 0.05 mm
- Rest 100 mm
- with locking screw
- hardened and ground



### Digital vernier depth gauge

Item no. 11327

- Measuring range 150 mm
- 5-digit LCD display
- Reading accuracy 0.01 mm
- reversible metric/inch
- Rest 100 mm
- with locking screw
- hardened and ground



### Depth micrometer

Item no. 11324

- Measuring range 100 mm
- Reading accuracy 0.01 mm
- 4 replaceable inserts Ø 3 mm  
length 25 - 50 - 75 and 100 mm
- with locking screw and ratchet
- hardened and ground measuring surfaces



### Telescopic gauge set

Item no. 11315

- 6 piece
- Measuring range 8-12.7, 12.7-19, 19-32, 32-54, 54-90, 90-150 mm
- hardened and ground

#### Application

- for internal measurements such as, e.g. bores and bearing seats
- The two feelers are expanded by pressure springs. The internal dimension of the bore is taken. The actual measurement is taken at both ends of the feelers by using a micrometer.



### Bore gauge

Item no. 13121

- 15 piece
- Measuring range 20 - 200 mm
- Dial gauge
- 4 replaceable gauging pins - 4 extension rods
- Reading accuracy 0.01 mm
- hardened and ground measuring surfaces
- carbide-tipped measuring surfaces

#### Application

- for internal measurements such as, e.g. bores and bearing seats



### Inside micrometer set

Item no. 11316

- 11 pieces
- Measuring range 50 - 600 mm
- Micrometer 50 - 63 mm  
with 6 extensions 13 - 25 - 50 - 100 - 150 - 200 mm
- Reading accuracy 0.01 mm
- Control gauge 50 mm
- hardened and ground measuring surfaces

#### Application

- for internal measurement such as, e.g. bores and bearing seats



### Two point inside micrometer set

Item no. 13114

- 3 inside micrometers with measuring range 5 - 30, 25 - 50 mm and 50 - 75 mm
- Reading accuracy 0.01 mm
- according to DIN 863
- Measuring spindle 0.5 mm upwards
- hardened and ground measuring surfaces
- with locking screw and ratchet



### Two point inside micrometers

- Reading accuracy 0.01 mm
- according to DIN 863
- Measuring spindle 0.5 mm upwards
- hardened and ground measuring surfaces
- with locking screw and ratchet
- carbide-tipped measuring surfaces

Measuring range	Item no.
5 - 30 mm	13115
25 - 50 mm	13116
50 - 75 mm	13117
75 - 100 mm	13118



### Gauge block set

Item no. 11345

- 87 pieces
- stainless, hardened and lapped
- made of hardened special steel with particular heat treatment
- individual blocks
  - 1.001-1.009 mm - 9 scale divisions - by 0.001 mm
  - 1.01-1.49 mm - 49 scale divisions - by 0.01 mm
  - 0.5-9.5 mm - 19 scale divisions - by 0.5 mm
  - 10-100 mm - 10 scale divisions - by 10.0 mm

#### Application

- for checking check gauges and check blocks
- for setting length measuring equipment
- for direct measurement and for setting dial comparators, gauges, measuring devices and tool machines



### V-block adjustable

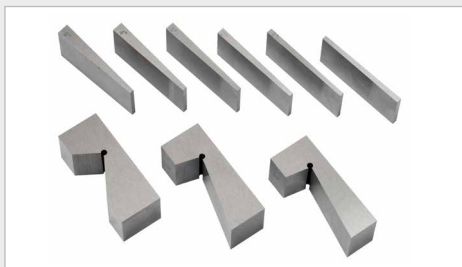
Item no. 11350

- 32 x 25 x 75 mm
- with scale and nonius
- Swivel range 0-60° and 0-30°
- hardened and ground

#### Application

- used as an underlay in the vice for machining workpieces under different working levels





### Universal angle block set

Item no. 11340

- 9 pieces
- 0.5°, 1°, 2°, 3°, 4°, 5°, 10°, 15°, 30°
- hardened and ground

#### Application

- used as an underlay in the vice or under workpieces



### V-block pairs

- PU: 2 pieces
- hardened V-blocks with clamping bracket
- all sides ground
- machined in pairs

#### Application

- for clamping, scribing, testing and drilling

Dimensions	Item no.
44 x 41 x 35 mm	11305
clamping Ø up to 30 mm	
70 x 45 x 41 mm	11308
clamping Ø up to 42 mm	



### V-block set

Item no. 11307

- PU: 2 pieces
- 1 V-block 44 x 41 x 35 mm clamping Ø up to 30 mm
- 1 V-block 70 x 45 x 41 mm clamping Ø up to 42 mm
- hardened V-blocks with clamping bracket
- all sides ground

#### Application

- for clamping, scribing, testing and drilling



### Single V-blocks

- PU: 1 piece
- hardened V-block with clamping bracket
- all sides ground

#### Application

- for clamping, scribing, testing and drilling

Dimensions	Item no.
44 x 41 x 35 mm	11306
clamping Ø up to 30 mm	
70 x 45 x 41 mm	11309
clamping Ø up to 42 mm	



### Edge finder

Item no. 11330

- Clamping shank Ø 10 mm
- Total length approx. 85 mm
- Probe Ø 10 mm
- Alignment accuracy 0.01 mm
- hardened and ground

#### Application

- used for starting, i.e. to find position on the workpiece reference surfaces or edges



### Edge finder with centering point

Item no. 11329

- Clamping shank Ø 10 mm
- Total length approx. 75 mm
- Probe Ø 4 mm and conical
- Alignment accuracy 0.01 mm
- hardened and ground

#### Application

- used for locating the center of a bore



### Edge finder set

Item no. 11331

- 5 pieces
- Clamping shank Ø 10 and 12 mm
- Probe Ø 4, 10 and 12 mm and conical
- Alignment accuracy 0.01 mm
- hardened and ground

#### Application

- used for starting, i.e. to find position on the workpiece reference surfaces or edges



### 2D edge finder with LED display

Item no. 13172

- LED display
- acoustic signal sound with workpieces made of metal
- hardened probe ball Ø 10 mm
- Clamping shank Ø 20 mm
- Total length approx. ca. 160 mm
- Alignment accuracy 0.01 mm

#### Application

- used for starting, i.e. to find position on the workpiece reference surfaces or edges



### Machine level

Item no. 11353

- Length 200 mm
- 0.02 mm/m accuracy
- with longitudinal and transverse lobes
- ground seating surface

#### Application

- used to level up horizontal surfaces and arbors without time-consuming adjustments



### Frame level

Item no. 11354

- Length 200 mm
- 0.02 mm/m accuracy
- 2 prismatic sides - 1 flat side
- with longitudinal and transverse lobes
- ground seating surface

#### Application

- used to level up horizontal surfaces and arbors without time-consuming adjustments



### Measurement and test board

Item no. 11395

- 450 x 450 x 75 mm
- black granite
- ground and lapped
- DIN 876/1
- without measuring tools
- Weight without packaging 46.5 kg

#### Application

- suitable for marking, measuring and adjusting



### Machine vice with quick adjustment

Item no. 40521

- with horizontal and vertical v-block for round material
- open base plate for clamping or through-drilling of the workpieces
- Trapezoidal thread spindle

Jaw width	Clamping width	Jaw height	Weight w/o pack.
60 mm	70 mm	28 mm	0.4 kg



### Machine vice with quick adjustment

Item no. 40523

- with double pillar guide
- with rubber protective jaws
- with horizontal and vertical v-block for round material
- open base plate for clamping or through-drilling of the workpieces
- Trapezoidal thread spindle

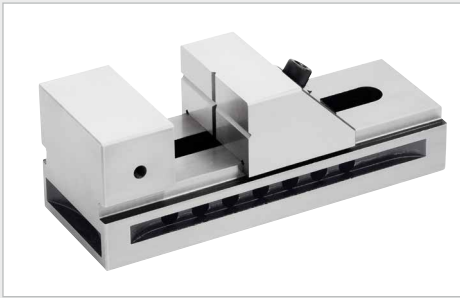
Jaw width	Clamping width	Jaw height	Weight w/o pack.
100 mm	100 mm	35 mm	1.6 kg



### Machine vices made of gray cast iron

- with horizontal and vertical v-block for round material
- open base plate for clamping or through-drilling of the workpieces
- Trapezoidal thread spindle

Item no.	40526	40527	40528
Jaw width	85 mm	100 mm	125 mm
Clamping width	70 mm	100 mm	125 mm
Jaw height	22 mm	29 mm	29 mm
Weight without packaging	2.4 kg	3.3 kg	4.6 kg



### Toolmakers vices

- made of hardened steel
- all sides ground
- with prism jaw
- Workpiece machining on 4 different sides
- Pull-down clamping system for high accuracy
- Accuracy 0.005 mm

Item no.	40588	40590	40591	40592	40594
Jaw width	25 mm	48 mm	63 mm	88 mm	125 mm
Clamping width	20 mm	70 mm	87 mm	125 mm	160 mm
Jaw height	9 mm	25 mm	32 mm	40 mm	50 mm
Total length	65 mm	140 mm	175 mm	233 mm	285 mm
Total height	29 mm	50 mm	63 mm	80 mm	100 mm
Weight w/o pack.	0.2 kg	1.5 kg	2.8 kg	6.7 kg	14.7 kg



### Sine vices swiveling

- made of hardened steel
- all sides ground
- with prism jaw
- swiveling by 45°
- Pull-down clamping system for high accuracy
- Accuracy 0.005 mm

Item no.	40709	40710
Jaw width	50 mm	73 mm
Clamping width	65 mm	105 mm
Jaw height	25 mm	35 mm
Total length	140 mm	190 mm
Total height	80 mm	103 mm
Weight without packaging	2.7 kg	6.5 kg



### Machine vices

- made of hardened steel
- all sides ground
- with prism jaw
- Workpiece machining on 4 different sides
- Accuracy 0.005 mm

Item no.	40596	40597	40598
Jaw width	50 mm	73 mm	88 mm
Clamping width	67 mm	100 mm	125 mm
Jaw height	25 mm	35 mm	40 mm
Total length	155 mm	210 mm	250 mm
Total height	50 mm	71 mm	88 mm
Weight without packaging	2.1 kg	5.5 kg	9.0 kg



### 1-axis machine vice original Vertex

Item no. 40540

- made of high-quality cast iron
- with adjustable guides
- hardened and ground steel jaws
- ground guiding surface
- 1 axis with degree scale
- rotating by 360°

Jaw width	Clamping width	Jaw height	Total length	Total height	Weight w/o pack.
100 mm	65 mm	36 mm	290 mm	115 mm	9.4 kg



### Single prism jaw

Item no. 405401 - for item no. 40540

- with horizontal and vertical v-block for clamping round material

**1-axis machine vice original Vertex**

Item no. 40541

- made of high-quality cast iron
- with adjustable guides
- hardened and ground steel jaws
- ground guiding surface
- 1 axis with degree scale
- rotating by 360°

Jaw width	Clamping width	Jaw height	Total length	Total height	Weight w/o pack.
125 mm	85 mm	38 mm	365 mm	135 mm	15.6 kg

**Single prism jaw**

Item no. 405411 - for item no. 40541

- with horizontal and vertical v-block for clamping round material

**1-axis machine vice**

Item no. 40585

- made of high-quality cast iron
- with adjustable guides
- hardened and ground steel jaws
- ground guiding surface
- 1 axis with degree scale
- rotating by 360°

Jaw width	Clamping width	Jaw height	Total length	Total height	Weight w/o pack.
50 mm	50 mm	25 mm	195 mm	90 mm	3.3 kg

**2-axes machine vice**

Item no. 40599

- made of hardened steel
- all sides ground
- 2 axes with degree scales
- rotating by 360°
- $\pm 45^\circ$  swiveling
- Accuracy 0.005 mm

Jaw width	Clamping width	Jaw height	Total length	Total height	Weight w/o pack.
70 mm	80 mm	30 mm	200 mm	145 mm	11.2 kg





### 2-axes machine vices

- made of high-quality gray cast iron
- with adjustable guides
- hardened and ground steel jaws
- ground guiding surface
- 2 axes with degree scales
- rotating by 360°
- 90° horizontal-vertical swiveling

Item no.	40580	40581
Jaw width	50 mm	75 mm
Clamping width	50 mm	75 mm
Jaw height	23 mm	32 mm
Total length	200 mm	270 mm
Total height	90 mm	120 mm
Weight without packaging	3.5 kg	9.1 kg



### 3-axes machine vices

- made of high-quality cast iron
- with adjustable guides
- hardened and ground steel jaws
- ground guiding surface
- 3 axes with degree scales
- rotating by 360°
- 90° horizontal-vertical swiveling
- 45° left-right swiveling each

Item no.	40567	40568	40569
Jaw width	50 mm	75 mm	100 mm
Clamping width	50 mm	75 mm	100 mm
Jaw height	25 mm	32 mm	40 mm
Total length	190 mm	260 mm	330 mm
Total height	120 mm	165 mm	195 mm
Weight without packaging	4.1 kg	10.9 kg	21.7 kg



### 3-axes articulated vice

Item no. 40565

- made of high-quality cast iron
- with adjustable guides
- hardened and ground steel jaws
- ground guiding surface
- 3 axes with degree scales
- rotating by 360°
- 90° horizontal-vertical swiveling
- 45° left-right swiveling each
- the vice can be inclined or swiveled as required so that any position to the machine can be taken up

Jaw width	Clamping width	Jaw height	Total length	Total height	Weight w/o pack.
50 mm	50 mm	22 mm	170 mm	125 mm	3.8 kg



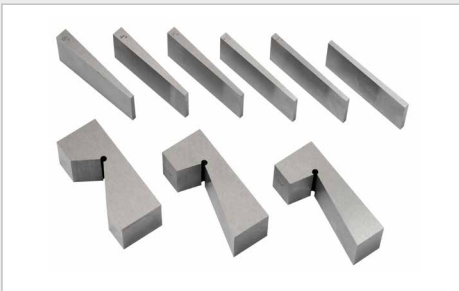
### Work stop tool original Vertex

Item no. 40810

- anodized
- 5 axes infinitely rotatable and slidable
- rotating by 360°

#### Application

- for use on drilling and milling machines
- can be used as an inner and outer stop



### Universal angle block set

Item no. 11340

- 9 pieces
- 0.5°, 1°, 2°, 3°, 4°, 5°, 10°, 15°, 30°
- hardened and ground

#### Application

- used as an underlay in the vice or under workpieces



### V-block adjustable

Item no. 11350

- 32 x 25 x 75 mm
- with scale and vernier
- Swivel range 0-60° and 0-30°
- hardened and ground

#### Application

- used as an underlay in the vice for machining workpieces with different working angles



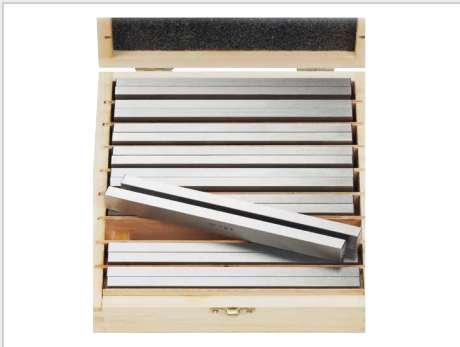
### Parallels 6 pairs

Item no. 11659

- 6 pairs
- one pair each (dimensions in cross section):  
4 x 10 - 4 x 15 - 4 x 20 - 4 x 25 - 4 x 30 - 4 x 35 mm
- Accuracy 0.01 mm
- Total length 120 mm
- hardened and ground

#### Application

- used as parallel support to fix workpieces in machine vices and as stops
- they are indispensable for parallel supporting of workpieces in machine vices or surface plates



### Parallels 9 pairs

Item no. 11660

- 9 pairs
- one pair each (dimensions in cross section):  
8.5 x 14 - 8.5 x 16 - 8.5 x 20 - 8.5 x 24 - 8.5 x 30 mm  
8.5 x 32 - 8.5 x 36 - 8.5 x 40 and 8.5 x 44 mm
- Accuracy 0.01 mm
- Total length 150 mm
- hardened and ground

#### Application

- used as parallel support to fix workpieces in machine vices and as stops
- they are indispensable for parallel supporting of workpieces in machine vices or surface plates



### Wave-shaped parallels

Item no. 11661

- 8 pairs
- 2 mm ascending from 9-23 mm, 0.5 mm thick
- Accuracy 0.01 mm
- Total length 110 mm
- hardened and ground

#### Application

- help to save time when clamping workpieces for grinding, milling, drilling etc.
- no swarfs remain on the contact surface



### Step clamp sets

- 58 pieces

#### included in delivery

- 12 step blocks with stepped teeth
- 6 step clamps
- 6 flange nuts
- 6 T-slot nuts
- 24 studs
- 4 extension nuts

#### Application

- for clamping the workpieces
- for all tables with T-slots such as milling table, drilling table, cross table, clamping table, coordinate table etc.

#### 10 mm T-slot width and M8 thread suitable for

- WABECO drilling milling stands
- WABECO coordinate tables
- Dividing attachments Ø 110 and 150 mm

#### 12 mm T-slot width and M10 thread suitable for

- WABECO milling machines

for T-slot width	Thread	Item no.
10 mm	M 8	24417
12 mm	M 10	24413
14 mm	M 12	24418
16 mm	M 14	24419



### Step clamp sets

- 10 pieces

#### included in delivery

- 2 step blocks with stepped teeth
- 2 step clamps
- 2 flange nuts
- 2 T-slot nuts
- 2 studs

#### Application

- for clamping the workpieces
- for all tables with T-slots such as milling table, drilling table, cross table, clamping table, coordinate table etc.

#### 10 mm T-slot width and M8 thread suitable for

- WABECO drilling milling stands
- WABECO coordinate tables
- Dividing attachments Ø 110 and 150 mm

#### 12 mm T-slot width and M10 thread suitable for

- WABECO milling machines

for T-slot width	Thread	Item no.
10 mm	M 8	24412
12 mm	M 10	24415



### T-slot nuts

PU: 4 pieces

10 mm T-slot width and M8 thread suitable for

- WABECO drilling milling stands
- WABECO coordinate tables
- Dividing attachments Ø 110 and 150 mm

12 mm T-slot width and M10 thread suitable for

- WABECO milling machines

for T-slot width	Thread	Item no.
10 mm	M 8	24429
12 mm	M 10	24411

### Clamping angle 90°

- Cast version with lateral reinforcing ribs
- robust design
- both clamping surfaces are ground

#### Application

- for drilling, milling and marking work
- for clamping on the machine table of drilling machines, column drilling machines, table drilling machines, pillar drilling machines, milling machines etc. to clamp the workpieces and set-up at an angle to the vertical
- on marking tables, measuring tables, straightening tables, welding tables etc. to position workpieces vertically



Item no. 13500

Dimensions (W x D x H)	Longitudinal slots	Transverse slots	Weight w/o pack.
115 x 90 x 75 mm	3 x 12 mm	1 x 14 mm	2.1 kg



Item no. 13501

Dimensions (W x D x H)	Longitudinal slots	Transverse slots	Weight w/o pack.
150 x 130 x 115 mm	4 x 14 mm	4 x 14 mm	4.3 kg



Item no. 13502

Dimensions (W x D x H)	Longitudinal slots	Transverse slots	Weight w/o pack.
204 x 155 x 120 mm	4 x 18 mm	6 x 18 mm	6.7 kg



### Parallel vice

Item no. 40503

- rotating
- with steel jaws
- Trapezoidal thread screw
- made of gray cast iron
- Table clamp

Jaw width	Clamping width	Clamping depth	Clamping width of the clamp	Weight w/o pack.
50 mm	50 mm	32 mm	50 mm	1.4 kg



### Workbench vices

- free of play adjustable guides
- hardened and ground steel jaws
- Groove for removal of swarfs
- large, ground anvil
- with pipe gripping jaws from jaw width 100 to 175 mm

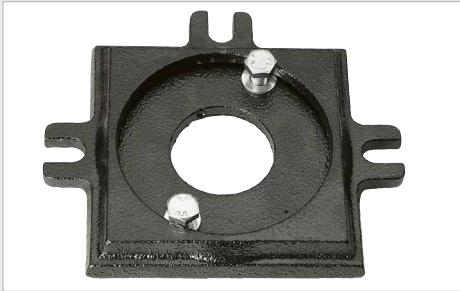
Item no.	40101	40102	40103	40104	40105
Jaw width	75 mm	100 mm	125 mm	150 mm	175 mm
Clamping width	75 mm	100 mm	125 mm	150 mm	175 mm
Clamping depth	45 mm	53 mm	67 mm	87 mm	87 mm
Anvil	70x45 mm	88x59 mm	116x80 mm	132x90 mm	132x90 mm
Weight w/o pack.	2.7 kg	5.2 kg	11.1 kg	15.7 kg	16.2 kg



### Height adjuster for workbench vices

Item no. 40118

- suitable for workbench vices item no. 40102, 40103 and 40104
- rotating by 360°
- Height adjustment by 300 mm
- Clamping plate 130 x 130 mm
- Clamping bore Ø 13 mm
- Center distance clamping bore 78 - 108 mm
- removeable lift insert with pressure spring  
the spring is used to balance the weight of the vice
- Working height can be adapted quickly and easily to suit any person's height
- suitable for all workbenches



### Swivel base for workbench vices

Item no. 40112 - suitable for workbench vice item no. 40102

Item no. 40113 - suitable for workbench vice item no. 40103

- the vice can be rotated by 360° on this swivel base
- can be fixed in any position



### Plastic pipe and protective jaws

- PU: 2 pieces
- suitable for all types of vices
- with magnetic adhesion
- with horizontal and vertical v-block for round material

for jaw width	Item no.
100 mm	40612
125 mm	40613
150 mm	40614



### Aluminum pipe and protective jaws

- PU: 2 pieces
- suitable for all types of vices
- with horizontal v-block for round material

for jaw width	Item no.
100 mm	40122
125 mm	40123
150 mm	40124



### Workbench vice 100 mm with swivel base

Item no. 40136

#### included in delivery

- Workbench vice with jaw width 100 mm  
technical data can be found on page 186
- Swivel base for 100 mm  
the vice can be rotated by 360° on this swivel base  
can be fixed in any position





### Workbench vice 125 mm with swivel base

Item no. 40138

#### included in delivery

- Workbench vice with jaw width 125 mm  
technical data can be found on page 186
- Swivel base for 125 mm  
the vice can be rotated by 360° on this swivel base  
can be fixed in any position



### Workbench vice 100 mm

with aluminum and plastic pipe and protective jaws 100 mm

Item no. 40130

#### included in delivery

- Workbench vice with jaw width 100 mm  
technical data can be found on page 186
- Aluminum pipe and protective jaws for 100 mm  
with horizontal v-block for round material
- Plastic pipe and protective jaws for 100 mm  
with magnetic adhesion  
with horizontal and vertical v-block for round material



### Workbench vice 125 mm

with aluminum and plastic pipe and protective jaws 125 mm

Item no. 40131

#### included in delivery

- Workbench vice with jaw width 125 mm  
technical data can be found on page 186
- Aluminum pipe and protective jaws for 125 mm  
with horizontal v-block for round material
- Plastic pipe and protective jaws for 125 mm  
with magnetic adhesion  
with horizontal and vertical v-block for round material



### Workbench vice 150 mm

with aluminum and plastic pipe and protective jaws 150 mm

Item no. 40132

#### included in delivery

- Workbench vice with jaw width 150 mm  
technical data can be found on page 186
- Aluminum pipe and protective jaws for 150 mm  
with horizontal v-block for round material
- Plastic pipe and protective jaws for 150 mm  
with magnetic adhesion  
with horizontal and vertical v-block for round material



### Dividing attachment Ø 80 mm with 4-jaw lathe chuck Ø 70 mm

Item no. 11590

- 2 pieces  
included in delivery
- Dividing attachment  
table Ø 80 mm  
true running accuracy 0.08 mm  
vertical and horizontal clamping options
- 4-jaw lathe chuck Ø 70 mm  
centrically clamping  
with turning and drilling jaws, clamping key and fastening screws

#### Technical data

- for the dividing attachment can be found on page 196



### Dividing attachment Ø 100 mm

Item no. 11500

- Table Ø 100 mm
- True running accuracy 0.08 mm
- vertical and horizontal clamping options
- Indexing disks and tailstock are not available

#### Technical data

- can be found on page 196



### Dividing attachments Ø 100 mm with lathe chuck and mounting flange

- 3 pieces  
included in delivery
- Dividing attachment  
table Ø 100 mm  
true running accuracy 0.08 mm  
vertical and horizontal clamping options  
indexing disks and tailstock are not available
- Lathe chuck Ø 80 mm  
centrically clamping  
with turning and drilling jaws, clamping key and fastening screws
- Mounting flange  
for mounting the lathe chuck on dividing attachment

#### Technical data

- for the dividing attachment can be found on page 196
- for the 3-jaw lathe chuck can be found on page 130
- for the 4-jaw lathe chuck can be found on page 131

Lathe chuck	Item no.
with 3-jaw lathe chuck	11525
with 4-jaw lathe chuck	11513



### Dividing attachment Ø 110 mm

Item no. 11559

- Table Ø 110 mm
- **True running accuracy 0.04 mm**
- vertical and horizontal clamping options

#### suitable accessories

- Indexing disks item no. 11514 on page 194
- Tailstock item no. 11565 on page 194

#### Technical data

- can be found on page 196



### Dividing attachments Ø 110 mm with lathe chuck and mounting flange

- 3 pieces

#### included in delivery

- Dividing attachment  
table Ø 110 mm  
**true running accuracy 0.04 mm**  
vertical and horizontal clamping options
- Lathe chuck Ø 80 mm  
centrically clamping  
with turning and drilling jaws, clamping key and fastening screws
- Mounting flange  
for mounting the lathe chuck on dividing attachment

#### suitable accessories

- Indexing disks item no. 11514 on page 194
- Tailstock item no. 11565 on page 194

#### Technical data

- for the dividing attachment can be found on page 196
- for the 3-jaw lathe chuck can be found on page 130
- for the 4-jaw lathe chuck can be found on page 131

Lathe chuck	Item no.
with 3-jaw lathe chuck	11557
with 4-jaw lathe chuck	11558



### Dividing attachment Ø 110 mm original Vertex

Item no. 11501

- Table Ø 110 mm
- **True running accuracy 0.02 mm**
- vertical and horizontal clamping options

#### suitable accessories

- Indexing disks item no. 11514 on page 194
- Tailstock item no. 11565 on page 194

#### Technical data

- can be found on page 197



### Dividing attachments Ø 110 mm with lathe chuck and mounting flange

- 3 pieces

#### included in delivery

- Dividing attachment original Vertex  
table Ø 110 mm  
**true running accuracy 0.02 mm**  
vertical and horizontal clamping options
- Lathe chuck Ø 80 mm  
centrically clamping  
with turning and drilling jaws, clamping key and fastening screws
- Mounting flange  
for mounting the lathe chuck on dividing attachment

#### suitable accessories

- Indexing disks item no. 11514 on page 194
- Tailstock item no. 11565 on page 194

#### Technical data

- for the dividing attachment can be found on page 197
- for the 3-jaw lathe chuck can be found on page 130
- for the 4-jaw lathe chuck can be found on page 131

Lathe chuck	Item no.
with 3-jaw lathe chuck	11516
with 4-jaw lathe chuck	11506



### Dividing attachments swiveling

- **True running accuracy 0.04 mm**
- vertical and horizontal clamping options

#### suitable accessories

- Indexing disks item no. 11514 on page 194
- Tailstock item no. 11565 on page 194

#### Technical data

- can be found on page 197

Dividing attachments	Item no.
Table Ø 110 mm	11505
Table Ø 150 mm	11512



### Dividing attachment Ø 150 mm

Item no. 11560

- Table Ø 150 mm
- **True running accuracy 0.04 mm**
- vertical and horizontal clamping options

#### suitable accessories

- Indexing disks item no. 11514 on page 194
- Tailstock item no. 11565 on page 194

#### Technical data

- can be found on page 197



### Dividing attachments Ø 150 mm with lathe chuck and mounting flange

- 3 pieces
- included in delivery
- Dividing attachment  
table Ø 150 mm  
**true running accuracy 0.04 mm**  
vertical and horizontal clamping options
  - 3- or 4-jaw lathe chuck Ø 100 or 125 mm  
centrically clamping  
with turning and drilling jaws, clamping key and fastening screws
  - Mounting flange  
for mounting the lathe chuck on dividing attachment

#### suitable accessories

- Indexing disks item no. 11514 on page 194
- Tailstock item no. 11565 on page 194

#### Technical data

- for the dividing attachment can be found on page 197
- for the 3-jaw lathe chuck can be found on page 130
- for the 4-jaw lathe chuck can be found on page 131

Lathe chuck	Item no.
with 3-jaw chuck Ø 100 mm	11580
with 3-jaw chuck Ø 125 mm	11581
with 4-jaw chuck Ø 100 mm	11582
with 4-jaw chuck Ø 125 mm	11583



### Dividing attachment Ø 150 mm with indexing disks

Item no. 11566

- 2 pieces
- included in delivery
- Dividing attachment  
table Ø 150 mm  
**true running accuracy 0.04 mm**  
vertical and horizontal clamping options
  - Indexing disks for indirect indexing

#### Technical data

- for the dividing attachment can be found on page 197
- for indexing disks can be found on page 194



### Dividing attachment Ø 150 mm original Vertex

Item no. 11510

- Table Ø 150 mm
- **True running accuracy 0.02 mm**
- vertical and horizontal clamping options

#### suitable accessories

- Indexing disks item no. 11514 on page 194
- Tailstock item no. 11565 on page 194

#### Technical data

- can be found on page 197



### Dividing attachments Ø 150 mm with lathe chuck and mounting flange

- 3 pieces
- included in delivery
  - Dividing attachment original Vertex table Ø 150 mm
  - **true running accuracy 0.02 mm**
  - vertical and horizontal clamping options
- 3- or 4-jaw lathe chuck Ø 100 or 125 mm
- centrically clamping
- with turning and drilling jaws, clamping key and fastening screws
- Mounting flange
- for mounting the lathe chuck on dividing attachment

#### suitable accessories

- Indexing disks item no. 11514 on page 194
- Tailstock item no. 11565 on page 194

#### Technical data

- for the dividing attachment can be found on page 197
- for the 3-jaw lathe chuck can be found on page 130
- for the 4-jaw lathe chuck can be found on page 131

Lathe chuck	Item no.
with 3-jaw chuck Ø 100 mm	11519
with 3-jaw chuck Ø 125 mm	11507
with 4-jaw chuck Ø 100 mm	11508
with 4-jaw chuck Ø 125 mm	11509



### Dividing attachment Ø 150 mm with indexing disks

Item no. 11518

- 2 pieces
- included in delivery
  - Dividing attachment original Vertex table Ø 150 mm
  - **true running accuracy 0.02 mm**
  - vertical and horizontal clamping options
- Indexing disks for indirect indexing

#### Technical data

- for the dividing attachment can be found on page 197
- for indexing disks can be found on page 194





### Dividing attachments Ø 150 mm with indexing disks, lathe chuck and mounting flange

- 4 pieces

#### included in delivery

- Dividing attachment original Vertex table Ø 150 mm  
**true running accuracy 0.02 mm**  
vertical and horizontal clamping options
- 3- or 4-jaw lathe chuck Ø 100 or 125 mm  
centrically clamping  
with turning and drilling jaws, clamping key and fastening screws
- Mounting flange  
for mounting the lathe chuck on dividing attachment
- Indexing disks for indirect indexing

#### suitable accessories

- Tailstock item no. 11565 on page 194

#### Technical data

- for the dividing attachment can be found on page 197
- for the 3-jaw lathe chuck can be found on page 130
- for the 4-jaw lathe chuck can be found on page 131
- for indexing disks can be found on page 194

Lathe chuck	Item no.
with 3-jaw chuck Ø 100 mm	11520
with 3-jaw chuck Ø 125 mm	11523
with 4-jaw chuck Ø 100 mm	11522
with 4-jaw chuck Ø 125 mm	11524



### Indexing disks for indirect indexing

Item no. 11514

- **for dividing attachments with table Ø 110 and 150 mm**
- for degree and indirect indexing
- included in delivery are 3 indexing disks and 1 indexing crank
- Outer Ø 100 mm
- Number of bores  
indexing disk A: 15, 16, 17, 18, 19, 20  
indexing disk B: 21, 23, 27, 29, 31, 33  
indexing disk C: 37, 39, 41, 43, 47, 49

#### Application

- e.g. for drill patterns and gear wheels



### Tailstock with height adjustment

Item no. 11565

- **for dividing attachments with table Ø 110 and 150 mm**
- with center point for supporting long workpieces
- Height adjustment from 80-110 mm
- Adjustability of center point 15 mm
- Basic dimension 130 x 95 mm





### Dividing attachment Ø 200 mm

Item no. 11502

- Table Ø 200 mm
- **True running accuracy 0.04 mm**
- vertical and horizontal clamping options

#### suitable accessories

- Indexing disks item no. 11511 on page 195

#### Technical data

- can be found on page 197



### Indexing disks for indirect indexing

Item no. 11511

- **for dividing attachments with table Ø 200 mm**
- for degree and indirect indexing
- included in delivery are 2 indexing disks and 1 indexing crank
- Outer Ø 180 mm
- Number of bores
  - indexing disk A: 28, 32, 37, 39, 43, 46, 49, 53, 59
  - indexing disk B: 63, 69, 73, 79, 83, 89, 93, 99

#### Application

- e.g. for drill patterns and gear wheels



### Dividing attachment Ø 200 mm with indexing disks

Item no. 11503

- 2 pieces

#### included in delivery

- Dividing attachment
  - table Ø 200 mm
  - true running accuracy 0.04 mm**
  - vertical and horizontal clamping options
- Indexing disks for indirect indexing

#### Technical data

- for the dividing attachment can be found on page 197
- for indexing disks can be found on page 195



## Dividing attachment vertical/horizontal

- for multi face machining  
a dividing attachment is indispensable, if workpieces are to be spot faced or counter sunk around the circumference, which can also be circular, e. g. milling polygons, hole patterns on a circle, splined shafts, helical grooves and gear wheels

## Construction features

- enclosed construction, prevents the ingress of dirt and swarf
- Quick clamping device

	11590	11500	11559
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## Clamping table

Ø	80 mm	100 mm	110 mm
swiveling	○	○	○
Number of T-slots	4	4	3
Width of T-slots	6 mm	8 mm	11 mm
rotating by	360°	360°	360°
with scale	●	●	●
hardened spindle bore	○	○	MT2

## Accuracies

True running accuracy	0.08 mm	0.08 mm	0.04 mm
Parallelism of the clamping surface with the base	0.08 mm	0.08 mm	0.04 mm
Dividing accuracy	1° and 10" per division	1° and 10" per division	45"

## Technical data

re-adjustable worm hardened and ground	○	○	●
Transmission of the worm gear	36:1	36:1	90:1

## Dimensions

Basic dimension horizontal	105 x 85 mm	105 x 134 mm	139 x 130 mm
Basic dimension vertical	105 x 30 mm	134 x 55 mm	139 x 58 mm
Height	45 mm	55 mm	72 mm
Base plate	○	○	○

## Weight

Weight without packaging	3.3 kg	3.7 kg	8.5 kg
--------------------------	--------	--------	--------

Subject to technical modifications

● yes ○ no

11501	11505	11560	11510	11512	11502
110 mm	110 mm	150 mm	150 mm	150 mm	200 mm
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
3	3	4	3	3	4
11 mm	11 mm	11 mm	11 mm	11 mm	14 mm
360°	360°	360°	360°	360°	360°
<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
MT2	MT2	MT2	MT2	MT2	MT3
0.02 mm	0.04 mm	0.04 mm	0.02 mm	0.04 mm	0.04 mm
0.02 mm	0.02 mm	0.04 mm	0.02 mm	0.02 mm	0.04 mm
45°	45°	45°	45°	45°	45°
<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
90:1	90:1	90:1	90:1	90:1	90:1
139 x 130 mm	140 x 170 mm	180 x 170 mm	180 x 170 mm	180 x 195 mm	270 x 330 mm
139 x 58 mm	140 x 104 mm	205 x 80 mm	205 x 80 mm	180 x 110 mm	270 x 100 mm
72 mm	116 mm	80 mm	80 mm	125 mm	100 mm
<input type="radio"/>	approx. 146 x 149 mm	<input type="radio"/>	<input type="radio"/>	approx. 210 x 178 mm	<input type="radio"/>
7.0 kg	12.2 kg	11.1 kg	12.2 kg	19.6 kg	25.0 kg

☒ yes ☐ no



### Direct dividing attachment Ø 100 mm

Item no. 11504

- Table Ø 100 mm
- enclosed construction, prevents the ingress of dirt and swarf
- Quick clamping device
- vertical and horizontal clamping options
- 3-jaw lathe chuck Ø 100 mm  
with turning and drilling jaws  
bore 22 mm



### Direct dividing attachment Ø 160 mm

Item no. 11526

- Table Ø 160 mm
- enclosed construction, prevents the ingress of dirt and swarf
- Quick clamping device
- vertical and horizontal clamping options
- 3-jaw lathe chuck Ø 160 mm  
with turning and drilling jaws  
bore 45 mm

	11504	11526
<b>Clamping table</b>		
Ø	100 mm	160 mm
rotating by	360°	360°
with scale	●	●
<b>Accuracies</b>		
True running accuracy	0.02 mm	0.03 mm
Dividing accuracy	45"	1°
<b>Technical data</b>		
re-adjustable worm hardened and ground	●	○
Transmission of the worm gear	90:1	○
direct indexing	○	24 à 15°
6 indexing spacers for direct indexing	○	2, 3, 4, 6, 8 and 12
<b>3-jaw lathe chuck</b>		
Ø	100 mm	160 mm
Basic dimension vertical	22 mm	45 mm
Height	140 mm	190 mm
<b>Fixing measurements</b>		
Base plate	approx. 146 x 149 mm	○
with 2 longitudinal slots	approx. 13 x 13 mm	○
for horizontal clamping	○	approx. 235 mm
for vertical clamping	○	approx. 170 mm
<b>Weight</b>		
Weight without packaging	9.9 kg	27.2 kg
Subject to technical modifications		
	● yes ○ no	



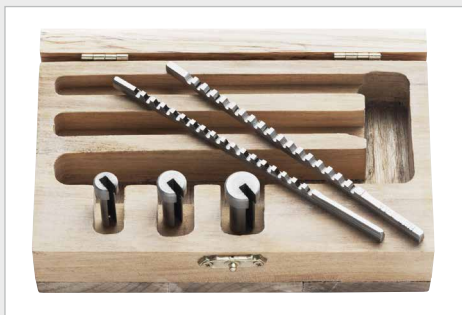
### Arbor presses

- Body made of high-quality gray cast iron

#### Application

- for pressing in and out of ball bearings, bushings, mandrils, pins etc, straightening and bending, broaching with broaches.

Item no.	13400	13401
<b>Press force</b>	<b>1t</b>	<b>2t</b>
max. size of workpiece	145 mm	215 mm
Outreach	100 mm	142 mm
Ram size	25 x 25 mm	31 x 31 mm
Table Ø	120 mm	165 mm
Dimensions	130 x 260 x 320 mm	170 x 450 x 420 mm
Weight without packaging	14.6 kg	38.0 kg
Subject to technical modifications		



### Keyway broaches HSS

Item no. 13410

- ground from solid

#### Application

- quick, precise production of exact keyways in bores (gear wheels, v-belt pulleys etc.)
- can be used on hand presses, arbor presses and broaching machines
- fast and exact broaching process
- a particularly ground toothing ensures clean surface
- by means of guide bushings and additional insets, exactly centered, accurate keyways can be produced
- suitable for the processing of steel, aluminum, brass etc.

Keyway	Total length	Guide bushings for bore Ø
2 x 2	130 mm	6 - 8 - 10 mm
3 x 3	130 mm	6 - 8 - 10 mm



### Keyway broaches HSS

Item no. 13411

- ground from solid

#### Application

- quick, precise production of exact keyways in bores (gear wheels, v-belt pulleys etc.)
- can be used on hand presses, arbor presses and broaching machines
- fast and exact broaching process
- a particularly ground toothing ensures clean surface
- by means of guide bushings and additional insets, exactly centered, accurate keyways can be produced
- suitable for the processing of steel, aluminum, brass etc.

Keyway	Total length	Guide bushings for bore Ø
4 x 4	150 mm	12 - 14 - 15 - 16 mm
5 x 5	150 mm	12 - 14 - 15 - 16 mm
6 x 6	300 mm	18 - 19 - 20 - 22 mm
8 x 7	300 mm	25 - 26 - 28 - 30 mm



### Folding presses

- for clamping in vices

#### Application

- for sheet metal working
- several folding operations with different distances possible without taking out the sheet
- easy and quick removal of a closed profile by removing the toggle screw

Item no.	55780	55785
Working range	450 mm	630 mm
Steel sheets	up to 1.2 mm	up to 1.2 mm
Aluminum sheets	up to 1.5 mm	up to 1.5 mm
Copper sheets	up to 1.5 mm	up to 1.5 mm
Bending angle	max 120°	max 120°
Weight without packaging	10.0 kg	13.0 kg





### Folding presses with workbench vice

- 2 pieces
- included in delivery
- Folding press
- Workbench vice with jaw width 100 mm

#### Application

- for sheet metal working
- several folding operations with different distances possible without taking out the sheet
- easy and quick removal of a closed profile by removing the toggle screw

#### Technical data

- on folding presses can be found on page 201
- on workbench vices can be found on page 186

Folding press	Item no.
Working range 450 mm	55781
Working range 630 mm	55784



### Lever operated sheet metal shears

- for cutting of sheet metal and profiles
- high-quality cutting blades
- Base with four fixing bores
- infinitely adjustable holding-down device
- strong safety spring prevents the blade from accidental closing

Item no.	55790	55791	55792
Blade length	125 mm	200 mm	300 mm
Cutting power/round steel	11 mm	13 mm	13 mm
Cutting power/sheet metal/steel	6 mm	6 mm	6 mm
Weight without packaging	9.5 kg	17.2 kg	26.0 kg

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### Replacement blades

- replacement blades for lever operated sheet metal shears

Replacement blade	Item no.
for item no. 55790	55793
for item no. 55791	55794
for item no. 55792	55795



### Pin punch set

Item no. 13290

- 8 pieces
- Ø 1.6 - 2.4 - 3.2 - 4.6 - 4.8 - 5.6 - 6.4 - 8.0
- Total length 100 mm
- 20 mm pin length



### Auto center punch

Item no. 13295

- with spring mechanism for one hand operation
- Punch force infinitely variable via knurled screw
- Length 130 mm
- Shank Ø 14 mm

#### Application

- To apply a hole that exactly matches the coordinates, a center mark is to be placed beforehand to center the drill.
- In order to do this, it is common to use a center punch, slammed with a hammer.
- For that both hands are needed.
- With the auto center punch the center mark is placed via the spring mechanism using one hand.



### Telescopic magnetic pick-up tool

Item no. 13980

- telescopes up to approx. 615 mm
- Magnet Ø approx. 12 mm



### Universal multifunction holder

Item no. 20140

- suitable for all drill stands with Euronorm Ø 43 mm
- Holder head swiveling or rotating
- with table clamp
- Width of table plate max. 45 mm

#### Application

- universally applicable e. g. for grinding or polishing work



### Taps HSS

- high cutting performance
- Tap with polished flank angle of 60°
- DIN 352
- Tolerance 6H
- for metric right-hand threads
- for through bores

Thread	Pitch	Item no.
M1	0.25 mm	30090
M1.5	0.3 mm	30091
M2	0.4 mm	30092
M2.5	0.45 mm	30093



### Hand tap set HSS

- 3-piece set including a taper tap, second tap and plug tap
- the thread is drilled in three steps
- Taper tap (with 1 ring) with 6- to 8-turn cut
- Second tap (with 2 rings) with 4- to 5-turn cut
- Plug tap (no ring) with 2- to 3-turn cut
- high cutting performance
- Tap with polished flank angle of 60°
- DIN 352
- Tolerance 6H
- for metric right-hand threads

Thread	Pitch	Item no.
for through bores		
M3	0.5 mm	30103
M4	0.7 mm	30104
M5	0.8 mm	30105
M6	1.0 mm	30106
for pocket hole bores		
M8	1.25 mm	30108
M10	1.50 mm	30110
M12	1.75 mm	30112



for pocket hole bores



### Adjustable tap wrench

Item no. 30600

- Size 1½
- for taps M3-M12 DIN 352

#### Application

- for clamping of tools with square, e.g. hand taps DIN 352 and hand reamers



for through bores



for pocket hole bores

### Single-cut taps HSS

- high cutting performance
- Tap with polished flank angle of 60°
- DIN 352
- Tolerance 6H
- for metric right-hand threads

Thread	Pitch	Item no.
--------	-------	----------

for through bores		
-------------------	--	--

M3	0.5 mm	30303
----	--------	-------

M4	0.7 mm	30304
----	--------	-------

M5	0.8 mm	30305
----	--------	-------

M6	1.0 mm	30306
----	--------	-------

for pocket hole bores		
-----------------------	--	--

M8	1.25 mm	30308
----	---------	-------

M10	1.50 mm	30310
-----	---------	-------

M12	1.75 mm	30312
-----	---------	-------



### Round dies HSS

- Ø 25 mm
- high cutting performance
- DIN 223
- for metric right-hand threads

Thread	Pitch	Item no.
--------	-------	----------

M3	0.5 mm	30203
----	--------	-------

M4	0.7 mm	30204
----	--------	-------

M5	0.8 mm	30205
----	--------	-------

M6	1.0 mm	30206
----	--------	-------

M8	1.25 mm	30208
----	---------	-------

M10	1.50 mm	30210
-----	---------	-------

M12	1.75 mm	30212
-----	---------	-------



### Die stock

Item no.	30500
----------	-------

- Ø 25 x height 9 mm
- DIN 225
- for holding round dies M3-M12 DIN 223



### Tap wrench with ratchet

Item no. 32622 - for taps M3 up to M10

Item no. 32626 - for taps M5 up to M12

- 2-jaw clamping chuck for right- and left-hand turn and for rigid use
- All-steel construction - fully chromed
- with adjustable t-handle

#### Application

- for clamping of hand taps and hand reamers

for taps	Square clamping range	Length
M3 up to M10	2.6 - 5.5 mm	252 mm
M5 up to M12	4.9 - 7.0 mm	315 mm



### Tap wrench with ratchet

Item no. 32702 - for taps M3 up to M10

Item no. 32707 - for taps M5 up to M12

- 2-jaw clamping chuck for right- and left-hand turn and for rigid use
- All-steel construction - fully chromed
- with adjustable t-handle

#### Application

- for clamping of hand taps and hand reamers

for taps	Square clamping range	Length
M3 up to M10	2.6 - 5.5 mm	85 mm
M5 up to M12	4.9 - 7.0 mm	110 mm



### Tap and die set HSS

Item no. 35430

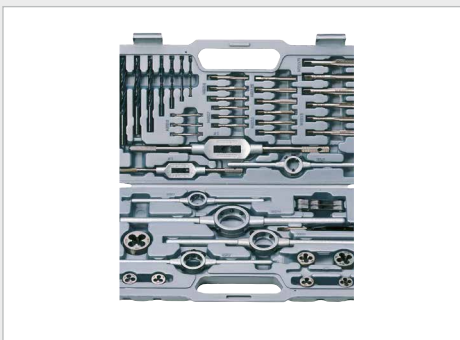
- 30 pieces
- 9 round dies  
M1 - M1.1 - M1.2 - M1.4 - M1.6 - M1.8 - M2 - M2.2 - M2.5
- 18 taps M1-M2.5 (2 pieces each)
- 1 die stock
- 2 holders for clamping the hand taps



### Tap and die set HSS

Item no. 35411

- 31 pieces
- DIN model
- Round dies HSS M3-4-5-6-8-10-12
- Hand taps HSS M3-4-5-6-8-10-12  
(3-piece sets including a taper tap, second tap and plug tap)
- 1 die stock Ø 25 mm
- 1 adjustable tap wrench size 1½
- 1 screwdriver



### Tap and die set HSS

Item no. 35501

- 44 pieces
- DIN model
- Round dies HSS M3-4-5-6-8-10-12
- Hand taps HSS M3-4-5-6-8-10-12  
(3-piece sets including a taper tap, second tap and plug tap)
- Die stocks 20x5 - 20x7 - 25x9 - 30x11 - 38x14 mm
- Adjustable tap wrenches sizes 1 and 2
- Core hole drills HSS  
Ø 2.5 - 3.3 - 4.2 - 5.0 - 6.8 - 8.5 - 10.2 mm
- Screw pitch gauge 24 blades
- 1 screwdriver



### Tapping attachment

Item no. 35805

- suitable for all drilling stands with Euronorm Ø 43 mm
- included in delivery
- Tool holder for taps – clamping range 2.0 – 5.0 mm
  - Adjustable tap wrench size 1½
  - Adapter for Euronorm Ø 43 mm

#### Application

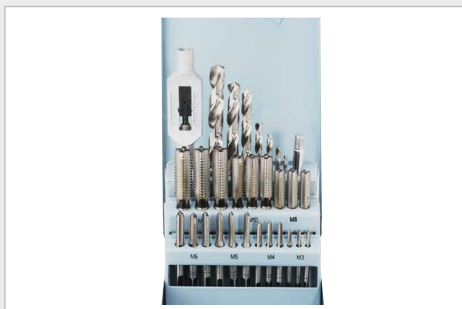
- for positioning the tap at an angle
- Thread depth can be adjusted using a positioning ring



### Tapping drill set HSS

Item no. 35610

- 19 pieces
- with straight shank
- right-hand cutting
- Drilling range 1 - 10 mm
- Pitch 0.5 mm



### Tapping drill and hand tap set HSS

Item no. 35600

- 29 pieces
- Hand taps M3-4-5-6-8-10-12  
(3-piece sets including a taper tap, second tap and plug tap)
- 1 adjustable tap wrench size 1½
- Tapping drills HSS  
with straight shank  
right-hand cutting  
drills Ø 2.5 - 3.3 - 4.2 - 5.0 - 6.8 - 8.5 - 10.2



### Hand reamer set adjustable HSS

Item no. 13240

- 11 pieces
- with straight shank and square
- right-hand cutting

#### Application

- for reaming bores

Total length	Adjustable range Ø
138 mm	11.90 - 13.49 mm
145 mm	13.49 - 15.00 mm
163 mm	15.00 - 16.66 mm
170 mm	16.66 - 18.25 mm
175 mm	18.25 - 19.84 mm
185 mm	19.84 - 21.43 mm
200 mm	21.43 - 23.81 mm
225 mm	23.81 - 27.00 mm
250 mm	27.00 - 30.00 mm
275 mm	30.00 - 34.10 mm
300 mm	34.10 - 38.00 mm





### Hand reamers adjustable HSS

- with straight shank and square
- right-hand cutting

#### Application

- for reaming bores

Total length	Adjustable range Ø	Item no.
138 mm	11.90 - 13.49 mm	13241
145 mm	13.49 - 15.00 mm	13242
163 mm	15.00 - 16.66 mm	13243
170 mm	16.66 - 18.25 mm	13244
175 mm	18.25 - 19.84 mm	13245
185 mm	19.84 - 21.43 mm	13246
200 mm	21.43 - 23.81 mm	13247



### Levelling elements

Item no. 10268

- PU: 1 piece
- Vibration pick-up and absorption element
- Ø 80 mm, thread M10
- prevents the machine base cabinet from moving
- for precise height adjustment on uneven grounds



### T-slot covers original Vertex

- PU: 3 pieces
- Length per cover rail 400 mm
- anodized aluminum
- Swarf deflector, prevents swarfs from getting into the T-slots
- with bores for draining off coolant
- can be cut as necessary

#### Application

- T-slot covers may be used on milling tables, drilling tables etc.

for T-slot width	Item no.
12 mm	11259
14 mm	11260



### Push type gun

Item no. 11535

- for grease and oil
- for conical and ball-head grease nipples
- with a pointed- and a hollow- /universal mouthpiece



### Universal coolant unit original Vertex

Item no. 13800

- suitable for all machine tools
- Weight without packaging 10 kg

#### included in delivery

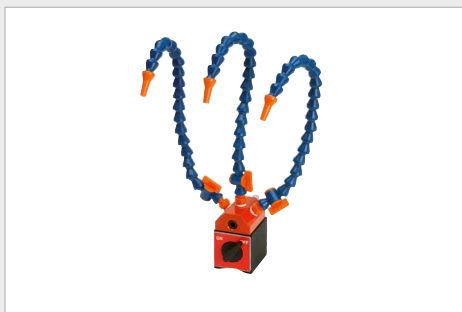
- Coolant pump 230 V, 50 Hz
- Flow rate 25 l/min
- Coolant tank L350 x W250 x H185 mm
- Content coolant: 16 liter
- Coolant hose 260 mm with magnetic base - magnetic power 30 kg
- flexible feed hose 1500 mm
- Draining hose
- ON/OFF switch



### Coolant concentrate

Item no. 11550

- Content 5 liter
- High-performance cooling lubricant on mineral oil base
- Corrosion protection
- Solvent: 5% or 1:20 with water
- especially suitable for processing high-alloy, rust- and acid-resistant steels



### Coolant hose with 3 nozzles

Item no. 13810

- with magnetic base
- Magnetic power 50 kg
- 3 variable coolant hoses with stop valve and spray nozzle
- Coolant hose 300 mm each
- Hose connection for Ø 10 mm
- suitable for all machine tools



### Mist coolant system

Item no. 13815

- with magnetic base
- Magnetic power 75 kg
- Working pressure 2 - 6 bar
- Connection for compressed air hose Ø 13 mm
- suitable for all machine tools

#### Application

- By means of compressed air very small quantities of oil or coolant are nebulised and exactly head to the workpiece or tool. The lubricant quantity is adjusted via the air and liquid regulator.

# **General Business Terms and Conditions (T&C) as of May 11, 2018**

## **1. Sphere of Validity**

Our General Business Terms and Conditions shall be valid both for entrepreneurs as well as also consumers in accordance with § 13 of the German Civil Code. Insofar as different provisions shall be valid for consumers and/or entrepreneurs, reference shall be expressly made to this fact. Our General Business Terms and Conditions shall be valid exclusively. We shall not recognize terms and conditions of our commercial customers which are opposing or deviate from our sales terms and conditions, unless we have expressly approved their validity in writing. By issuing its order and/or rendering its offer, the Customer hereby expressly recognizes the following General Business Terms and Conditions.

## **2. Conclusion of the Agreement**

The Purchasing Agreement shall only then be considered to have been concluded through our confirmation of the order at the conditions specified on the order confirmation. Exceptions to this provision shall be purchasing agreements concluded on eBay; they shall be considered to have been concluded upon the rendering of the highest bid and/or selection of (clicking on) another type of sales method provided by eBay (such as, for example, clicking on the Immediate & New and/or Immediately Purchase symbols). In this regard, we make reference to the applicable provisions of eBay's General Business Terms and Conditions. After the conclusion of the agreement, you shall receive an advance payment invoice from us with the VAT indicated. Please only make the bank transfer after the receipt of our advance payment invoice, stating the Customer No. and Receipt No. as due to the numerous orders, it would not otherwise be possible to classify your bank transfer.

We ask our customers to keep in mind that our business is not staffed on weekends and public holidays.

## **3. Prices – Payment Terms and Conditions**

The statutory VAT shall be included in our prices because the sale is also being made to a consumer. It shall be separately indicated on the invoice in the statutory amount on the invoicing date. The Customer shall not be entitled to deduct any discounts.

The purchase price shall become payable upon the conclusion of the agreement. Insofar as nothing to the contrary has been agreed in writing, the sale shall be made against advance payment. Except in the case of Internet transactions, a cash on delivery payment shall also be possible. Insofar as you have opted for this payment method, you shall pay the cash on delivery amount in cash, upon the surrendering of the goods to the carrier. In this case, we must also bill you a cash on delivery fee of 6.40 € incl. VAT. If the delivery is made on account, the Customer shall be considered to have automatically entered into payment default 30 days after receipt of the invoice (§ 286 of the German Civil Code). The statutory provisions shall remain unaffected based upon which payment default occurs earlier: Thus, payment default shall also be considered to have occurred upon the issuance of a warning letter by the creditor as well as upon the lapsing of the contractually-agreed payment timeframe or a contractually-agreed payment due date. The payment default interest rate in dealings with consumers shall amount to 5 percentage points above the respective base interest rate and 9 percentage points above the respective base interest rate in dealings with entrepreneurs (§ 288 of the German Civil Code).

## **4. Delivery**

We shall endeavor to promptly fill each order. However, we wish to point out that our business is staffed only on work days. As a rule, orders and inquiries made on weekends and public holidays are responded to on the following workday. Insofar as a binding delivery timeframe has not been expressly agreed, our delivery timeframes and/or delivery deadlines shall be exclusively non-binding information. The beginning of the delivery timeframe which we have prescribed shall also require the proper fulfilment of the Customer's obligations.

## **5. Warranty/Liability for Defects**

The statutory provisions regarding warranties/liability for defects shall be valid.

Only for entrepreneurs: Claims for defects asserted by entrepreneurs shall require that they have properly fulfilled their own obligations to examine and make notification of defects that are owed in accordance with § 377 of the German Commercial Code. If the goods are not being purchased for private use, but rather for independent or commercial work activities, the statutory claims for defects may be asserted only within one year's time after the delivery is made. All warranty claims must be submitted to:

Walter Blombach GmbH, Am Blaffertsberg 13, 42899 Remscheid  
Fax: 02191 – 59742 - E-Mail: [info@wabeco-remscheid.de](mailto:info@wabeco-remscheid.de)

## **6. Liability Limit**

We shall be liable in unlimited fashion insofar as the cause of the damages is attributable to a contractual violation upon our part, upon the part of one of our representatives or upon the part of one of our vicarious agents which is based upon intentional wrongdoing or gross negligence.

Furthermore, we shall be liable for the violation of essential obligations which are based upon simple negligence. Essential obligations shall be considered to be obligations, the violation of which puts at risk the attainment of the contractual purpose or whose fulfillment only then enables the proper implementation of the agreement at all and upon whose fulfillment you regularly rely and may rely.

However, in this case, we shall be liable only for the foreseeable, contractually-typical damages. We shall not be liable for the violation of other obligations than those which are specified in the aforementioned clauses which are based upon simple negligence.

The aforementioned liability limits shall not be valid for the loss of life, physical injury or damage to health, for a defect which is covered by a warranty guaranteeing the quality features of our product and for defects which have been maliciously concealed. The liability prescribed by the German Product Liability Act shall likewise remain unaffected.

## **6. Liability Limit**

Insofar as our liability is excluded or limited in accordance with the aforementioned provision, this shall also be valid for the personal liability upon the part of our employees, representatives and vicarious agents.

## **7. Right of Revocation for Consumers**

Consumers shall be entitled to a right of revocation in accordance with the following provision whereby a consumer is considered to be any natural person who concludes a legal transaction for purposes which are primarily attributable neither to its commercial nor its independent professional work activities.

### **7.1 Instructions on the Right of Revocation**

### **7.2 Right of Revocation**

You shall have the right to revoke this agreement within fourteen days without being required to state reasons for so doing. The revocation timeframe shall amount to fourteen days after the day on which you and/or your designated third-party representative—who is not the carrier—has and/or have taken possession of the last set of goods. In order to exercise your right of revocation, you must notify us,

Walter Blombach GmbH - Am Blaffertsberg 13 - 42899 Remscheid  
Phone: +49 2191-597-0; Fax: +49 2191-59742; E-Mail: [info@wabeco-remscheid.de](mailto:info@wabeco-remscheid.de)

of your intention to revoke this agreement by means of a transparent declaration (e.g. a letter sent by post, fax or email). You may use the enclosed model revocation form. However, the use of this form is not mandatory.

You may also electronically fill out and submit the model revocation form or any other transparent declaration on our web site ([www.wabeco-remscheid.de](http://www.wabeco-remscheid.de)). If you utilize this option, we shall promptly send you (e.g. via email) a confirmation of the receipt of such a revocation.

In order to meet the revocation deadline, it is sufficient for you to send the notification of the exercising of the right of revocation before the revocation timeframe lapses.

### **7.3 Consequences of the Revocation**

If you revoke this agreement, we shall repay to you all payments, which we have received from you including the delivery costs (with the exception of the additional costs which are created as the result of the fact that you chose another type of delivery than the cheapest standard delivery which we offer), promptly and by no later than within fourteen days after the day on which we received the notification of your revocation of this agreement. For this repayment, we shall use the same payment method which you used during the original transaction unless something to the contrary has been expressly agreed with you. In no case shall you be charged fees for this repayment.

We may refuse to make the repayment until we have received the goods back or you have submitted documentation that you have sent back the goods based upon which occurs first.

You must send back or surrender the goods promptly and, in any case, within fourteen days after the day on which you notify us of the revocation of this agreement. The deadline shall be considered to have been met if you send back the goods before the timeframe of fourteen days lapses. We shall assume the costs for the return shipment of the goods.

You must pay for any loss of value of the goods only if this loss of value is attributable to interventions with them upon your part which are not required for the inspection of the quality features, properties and functionality of the goods.

### **7.4 Exclusion of the Right of Revocation**

A right of revocation shall not be valid for agreements for the supplying of goods which are not prefabricated and, for whose manufacturing, an individual selection or designation by the consumer shall be prevailing or which have been clearly customized to the consumer's personal requirements.

END OF THE INSTRUCTIONS ON THE RIGHT OF REVOCATION

## **8. Transfer of Risk and Transport**

Insofar as nothing to the contrary has been agreed, for deliveries to entrepreneurs, delivery ex works shall be agreed. For deliveries to consumers, the place of performance shall be the consumer's place of residence. For commercial customers, transport damage claims shall only then be recognized if they are reported to us promptly, but by no later than 48 hours after the receipt of the goods, in writing or via email whereby the prompt sending of the notification shall suffice for meeting the deadline.

## **9. Reservation of Ownership**

For deliveries made on account, we shall reserve the ownership rights to the purchased goods until we receive all payments from the Supply Agreement. In the event of a contractual violation upon the part of the Customer—particularly in the event of its payment default, we shall be entitled to demand the return of the goods. If we take back the purchased goods, this shall constitute a revocation of the agreement. After taking back the purchased goods, we shall be entitled to dispose of them (sell them to another party). The proceeds from such a disposal must be offset against the Customer's liabilities—less any appropriate disposal costs. The buyer shall be obliged to neither sell, pledge, lend nor otherwise dispose of the goods until payment in full has been rendered. Moreover, until payment in full has been rendered, the Customer shall be obliged to promptly notify us if the goods are seized.

## **10. Customs**

If you order our products for delivery outside of the EU, you may be required to pay import duties and import taxes which shall be collected as soon as the goods reach the designated delivery destination. You must pay any additional fees for the customs clearance; we have no control over these fees. Customs regulations differ from country to country which is why you should contact your local customs authorities for more detailed information in this regard.

## **11. Choice of Laws and Legal Venue**

1. The laws of the Federal Republic of Germany shall be valid for the contractual relationship between the Customer and us. The following shall be excepted from this choice of laws: The mandatory consumer protection directives of the country in which the Customer has its customary place of residence. The applicability of the United Nations Convention on Contracts for the International Sale of Goods shall be excluded.
2. The legal venue for all disputes arising from the contractual relationship between the Customer and us shall be our commercial residence in Remscheid insofar as the Customer is an entrepreneur, a juridical person under public law or a special foundation under public law.

## **12. Disputes**

The European Commission provides a platform for online dispute resolution (DR) which you can find at <http://ec.europa.eu/consumers/odr/>. We shall not be obliged to participate in dispute resolution proceedings before an arbitration board and are also not in principle willing to do so. You can reach us via email at: [info@wabeco-remscheid.de](mailto:info@wabeco-remscheid.de).

## **13. Miscellaneous**

We reserve the exclusive copyrights to the illustrations, descriptions, user manuals and any other miscellaneous documents. All product and company names which we mention shall be considered to be trade names of the respective owners and/or manufacturers. Insofar as we enable access to other web sites from our Internet site via a link, we shall not be liable for the contents of such third-party web sites. In the event that an order is made electronically, we shall be entitled to save the Customer's data for the timeframe until the agreement has been definitively implemented and all warranty and revocation timeframes have lapsed. Any dissemination to third parties shall be excluded.





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Germany

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Fax +49 2191 597-42  
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**WABECO**

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