INDEX C200, VDI30

Tool holder   Technical Information

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Note on applicability

Illustrations in this publication may deviate from the product supplied. Errors and omissions due to technical progress expected.

A word on copyright

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Tool holder selection

For more information, please visit our iXshop
at ixshop.index-traub.com

We will be happy to send you an individual offer.
Just call us at +49 711 3191-9854 or
send us an email to werkzeughalter@index-werke.de.

Warranty

When using tool holders that are not adjusted, tested and marked as
such by INDEX TRAUB, the warranty for the tool drive is void.

Information on wear parts

Tool holders are wear parts requiring correct handling.
In order to ensure a long service life, compressed air or coolant must not enter the
gap seals of the holders.

Inspection of live tool holders

Tool holders must be inspected at regular intervals (at least twice a
year) for smooth running and play.

The drive pinion and drive clutch of the live tool holders must be sub-
jected to a visual inspection for damage or wear.

If one of the above-mentioned defects is detected during the inspection of the tool
holders, they must be returned immediately for preventive maintenance or repair to
the following address:

INDEX-Werke GmbH & Co. KG
Hauffstraße 4
D-73262 Reichenbach
Fon +49 711 3191-554
werkzeughalter@index-werke.de

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Tool holders with cooling lubricant supply

Tool holders marked with this symbol must be operated with cooling lubricant (no dry running permitted).

Tool holders marked with this symbol can be converted from external cooling lubricant supply to internal cooling lubricant supply.
Observe dry running capability of IC attachment!

Cooling lubricant filtering

When using live tool holders with internal cooling lubricant supply, it is necessary to use a cooling lubricant filter system with a retained particle size ≤ 50 µm.

Cleaning live tool holders
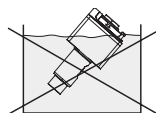
Live tool holders must never be immersed in cleaning fluid since mixing the cleaning fluid with the bearing grease will reduce the service life of the tool holders.

Speed ratio specifications on tool holders

The value to be programmed is specified in the documentation and on the live tool holders (= the input in the NC program).

$n_{prog} = n_{Tool} \times i$

n_{Tool} = speed at the cutting tool edge

n_{PROG} = speed to be programmed

i = speed ratio in the tool holder

This means the speed increase or speed reduction is not specified as a fraction but as **a number**.

This gives speed **increase** ratios as numbers **less than 1**.
Example: $i = 0.333$ (corresponds to $i = 1:3$)
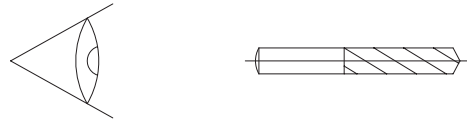 $i = 0.676$ (corresponds to $i = 1:1.48$)

Speed reduction ratios are numbers greater than 1.
Example: $i = 2$ (corresponds to $i = 2:1$)
                         $i = 1.333$ (corresponds to $i = 4:3$)

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Direction of rotation specification

Definition of the viewing direction.
Viewing direction for determining the direction of rotation is always from behind (that is, from the drive direction) toward the shaft.

On the machine side, the direction of rotation has been set by parameters such that M03 always denotes clockwise rotation and M04 counter-clockwise rotation at the interface of the drive pinion of the tool holder.

The direction of rotation given on the holder therefore refers to a "change in direction within the holder". M03 and M04 are machine functions to be programmed. The ⌒◀ and ◀⌒ arrows indicate the direction of rotation of the cutting edges.

This means:

M03   M04

No reversal of direction of rotation
When the holder drive shaft has the **same** direction of rotation as the tool cutting edge, the clockwise direction of run must be specified by M03 (clockwise rotation). Accordingly, counter-clockwise rotation must be specified by M04.
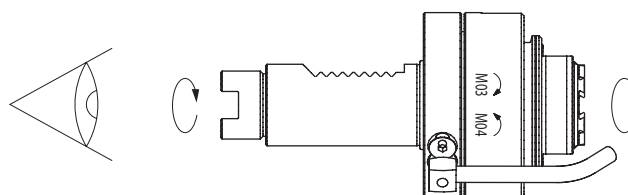
M04   M03

Reversal of direction of rotation
When the holder drive shaft has the **opposite** direction of rotation as the tool cutting edge, the clockwise direction of rotation must be specified by M04.
Accordingly, counter-clockwise rotation must be specified by M03.

Example

No reversal of direction of rotation

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Coolant supply

For tools with W-serration and double clamping serration, the 2nd hole for coolant supply through the end plug and the seal must be closed.

The gaskets on the tool shank and the coolant bushing must be regularly checked for damages.

Tightening torque

The tightening torques of the clamping pieces to the tool holder mounting depends on the shank diameter of the tool holder.

Shank size	Tightening torque
Ø 20 mm	8 Nm
Ø 25mm	20 Nm
Ø 30mm	25 Nm
Ø 40mm	40 Nm

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Replacement seals for tool shank

The gaskets on the tool shank and the cooling lubricant bushing must be regularly checked for damages.

O-ring	O-ring color	Material number	Installation location
ø18.77 x 1.78	Green	10763730	Shank ø20
ø23.52 x 1.78	Green	10823023	Shank ø25
ø9.75 x 1.78	Green	10046965	Cooling lubricant adapter
ø28.3 x 1.78	Green	10777976	Shank ø30
ø37.77 x 2.62	Green	10066870	Shank ø40
ø38.60 x 2.90	Red	10598581	Shank ø40
ø12.42 x 1.78	Green	10824672	Cooling lubricant adapter

The color of the reordered O-ring must always be the same as the one already used on the tool shank.

Sealing air port

It must be ensured on all machines with sealing air ports that the sealing air ports in the tool carrier and in the tool holders are sealed/closed with M5x6 mm set screws.

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Tool holders with fixation

⚠ Except for very few cases, all tool holders have been pre-adjusted with high precision and sealed with the INDEX V bar / TRAUB adjusting bar / W-serration.
This setting must not be changed.

The INDEX V bar / TRAUB adjusting bar / W-serration ensures positional accuracy of the tool when re-inserted.

The tool holders are fixed around the shank axis by pins (DIN 69880).

DIN holders can be used.

Double serration of the tool holders allows several uses.

High-pressure unit

ℹ The cooling lubricant up to 80 bar (e.g., for deep-hole drilling) is supplied through the standard cooling lubricant line.

Load limits of live tools

The drive power and torques are indicated in the performance charts. These values represent the upper limit of the calculated theoretical performance values (average values). In case of interrupted cuts, e.g., for milling, the load peaks occurring when the cutting edge enters the material may be much higher than the theoretical torque according to the performance chart.

ℹ The cutter should be selected so that a cutting edge is constantly being used for cutting during the machining process.

INDEX TRAUB

Live tool holders

Only the tool located in the working position is live.

The live tool holders are inserted into the mounting bores in the tool carriers just like non-live tool holders.
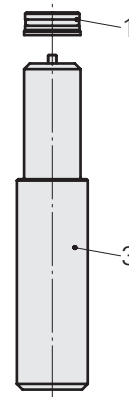
Each turret station can accept one live tool.

The motor drives the tool that is exclusively in working position. In addition, the index drive is actuated by switching using the same motor.

> The sealing washer (1) must be removed first.
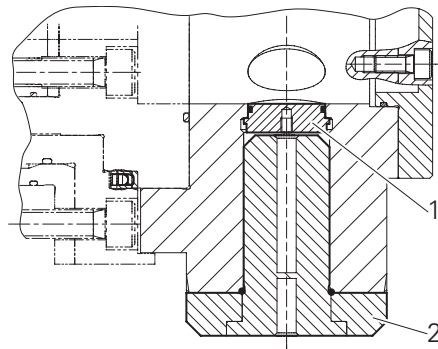
1	Blanking plug	10346973
2	Blanking plugs	10581081
3	Mounting pin	10066228

> Before using the machine, make sure that all mounting bores without a tool have been closed with a sealing washer and that the gasket on all tool holders is not damaged.

> Any mounting bores not used must be closed with blanking plugs during machining processes.

INDEX **TRAUB**

Weight distribution on turret head

> ℹ️ Tool holders may have considerably different weights depending on their function and equipment. Therefore, be sure to balance the tool holders evenly around the turret head when tooling.

Collision

> ℹ️ After a collision has occurred, check whether the tool carrier has been displaced. If this is the case, the tool carrier must be realigned to ensure that the drive and tool holder gears accurately engage with each other.

Tool change on live tool holders

To avoid damaging or changing the adjustment of the drive train in the turret, tools must **not** be changed on the live tool holders inserted in the turret.

Tools in live tool holders must be changed outside the machine.
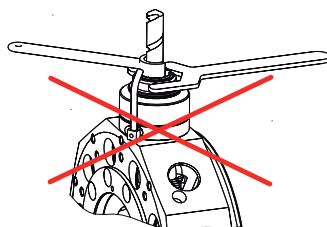
Notes on how to use the chart when using tool holders

The diagram relates to the output speed **n** of the tool unit. The tool speed can be read directly from the diagram only if the internal speed ratio **i** in the tool holder is 1:1.

For tool holders with an internal speed ratio i ≠ 1, the output speed **n** of the tool unit to be programmed must be calculated from the required tool speed and the speed ratio **i**. Afterwards, the actual powers or torques can be read off or determined.

Example (at 100% duty cycle):

live tool unit, tool speed n_{tool} = 1000 rpm	
Internal speed ratio i of the tool holder	i = 4
Programmed speed n_{prog} for the drive of the unit	$n_{prog} = n_{tool}$ x i = 1000 rpm x 4 = 4000 rpm
Torque M_{tool} at the output of the tool holder	Read-out M_d at speed n_{prog} = 4000 rpm = 1.6 Nm $M_d = M_{tool}$: i Formula changed: M_{Tool} = M_d x i = 1.6 Nm x 4 = 6.4 Nm
Power P at the output of the tool holder ≈ Power P at the output of the setup	Read-out at 4000 rpm –> P = 0.67 kW calculated: P = 2 x π x n_{prog} x M_d $P = \dfrac{2 \times \pi \times 4000 \times 1.6 \text{ Nm}}{60 \times 1000} = 0.67$ kW

Speed n_1
at output of unit (rpm)
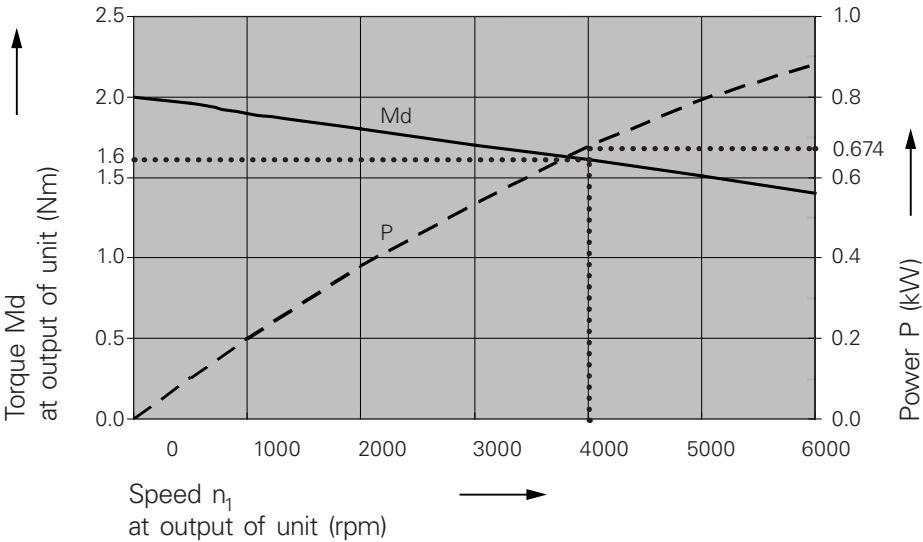
The speed ratio and the technical data of each tool holder are indicated on the next pages.

INDEX TRAUB

Modular system of INDEX C200

Tool mounting VDI30, disk turret, 10 stations with W-slots
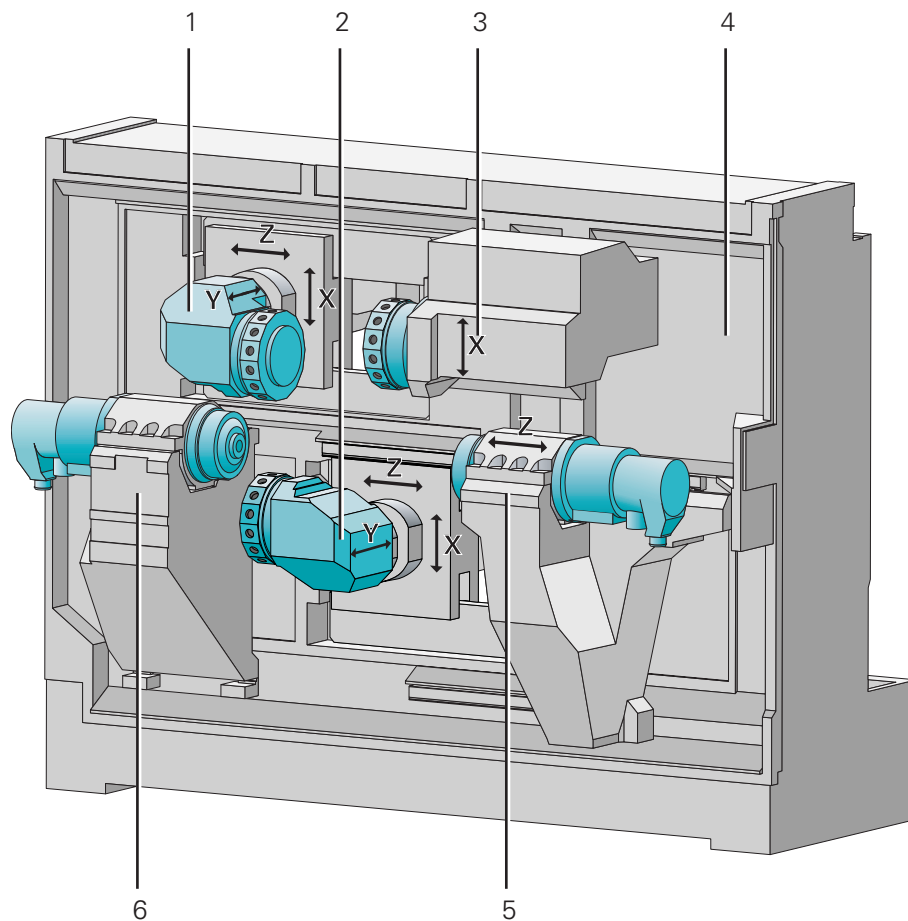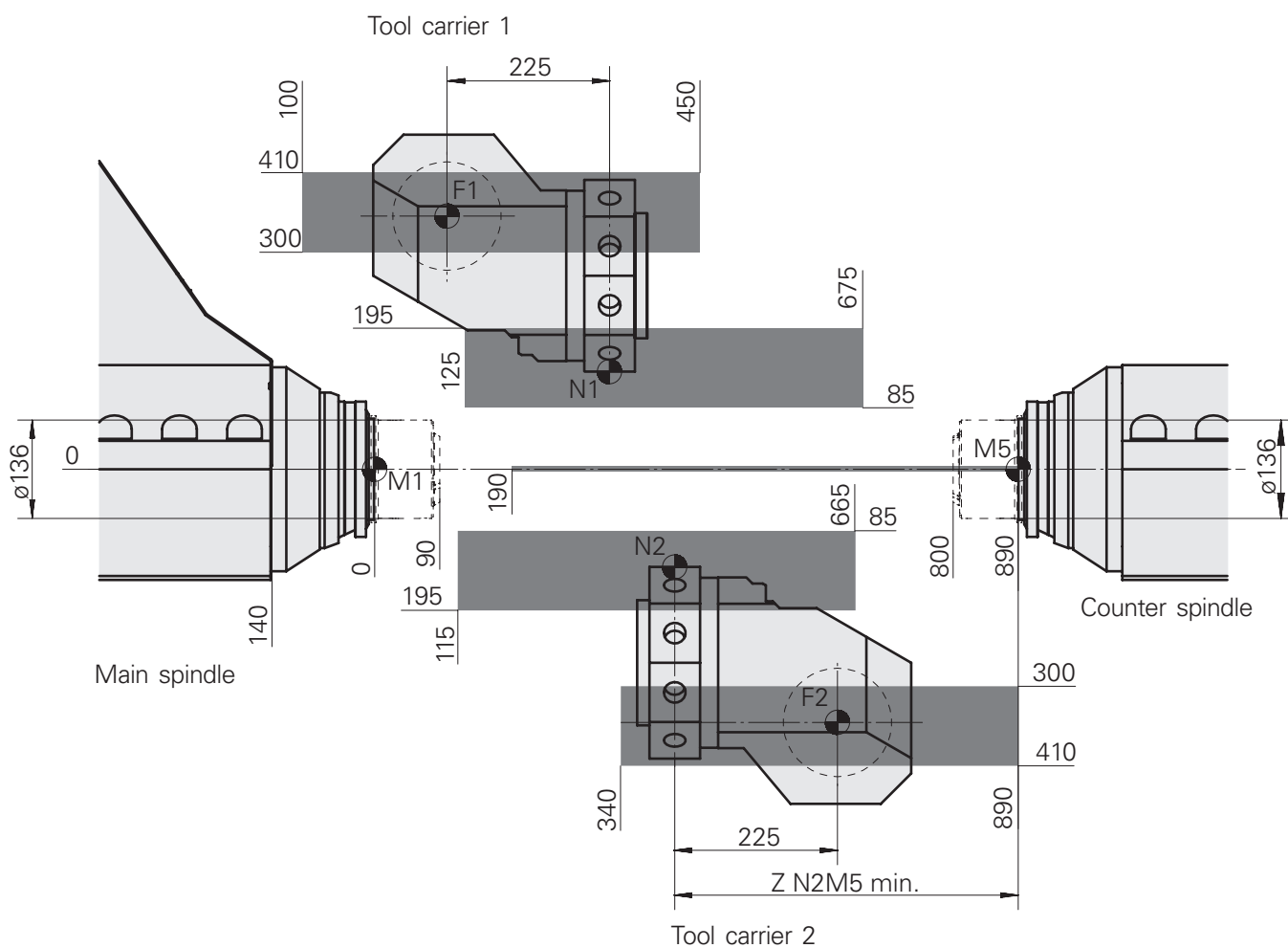

1 Tool carrier 1 XZY with disk turret
2 Tool carrier 2 XZY with disk turret
3 Tool carrier 3 X with disk turret
4 Machine bed
5 Counter spindle with Z-axis
6 Main spindle

INDEX TRAUB

Working area INDEX C200

Tool holder VDl30 with W-slots
Tool carrier 1+2 - XZB

Tool carrier 1

225

100

450

410

F1

300

675

195

125

85

N1

ø136

0

M1

190

665

85

M5

800

890

ø136

90

195

N2

Counter spindle

140

115

300

Main spindle

F2

410

340

890

225

Z N2M5 min.

Tool carrier 2

INDEX TRAUB

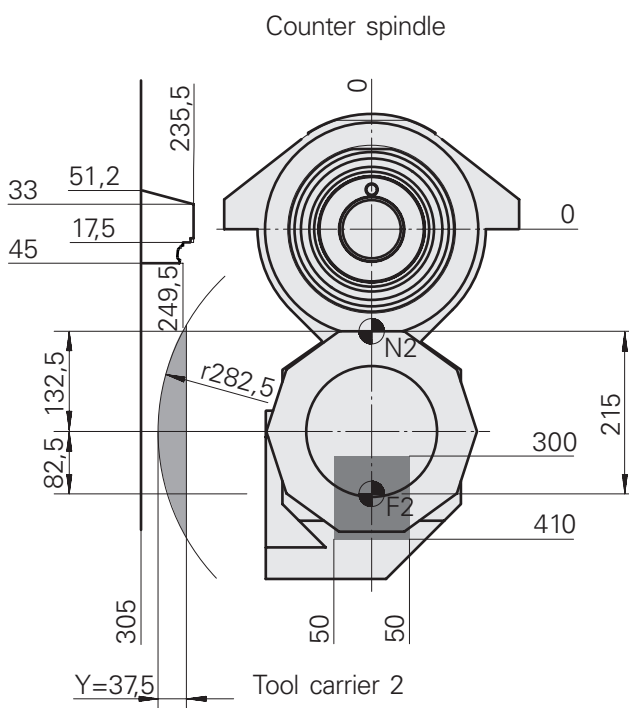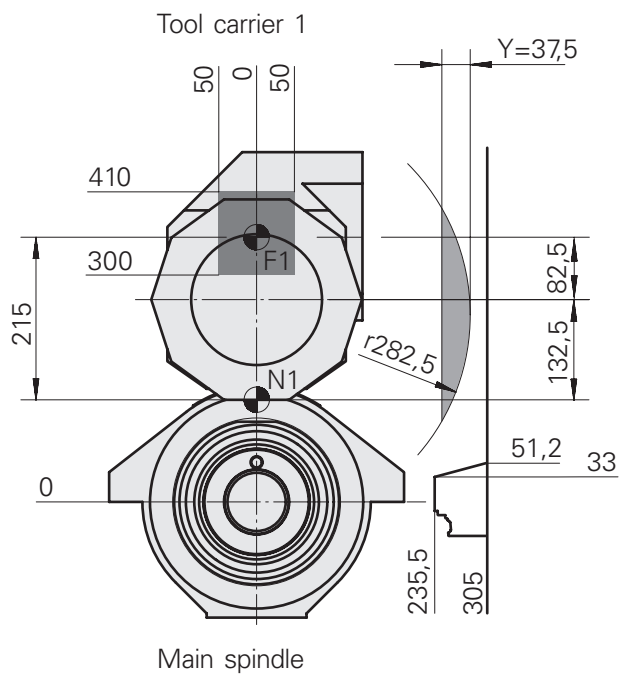# Working area INDEX C200

Tool holder VDI30 with W-slots
Tool carrier 1+2 - XZB

⚠ Risk of collision with the telescopic cover!

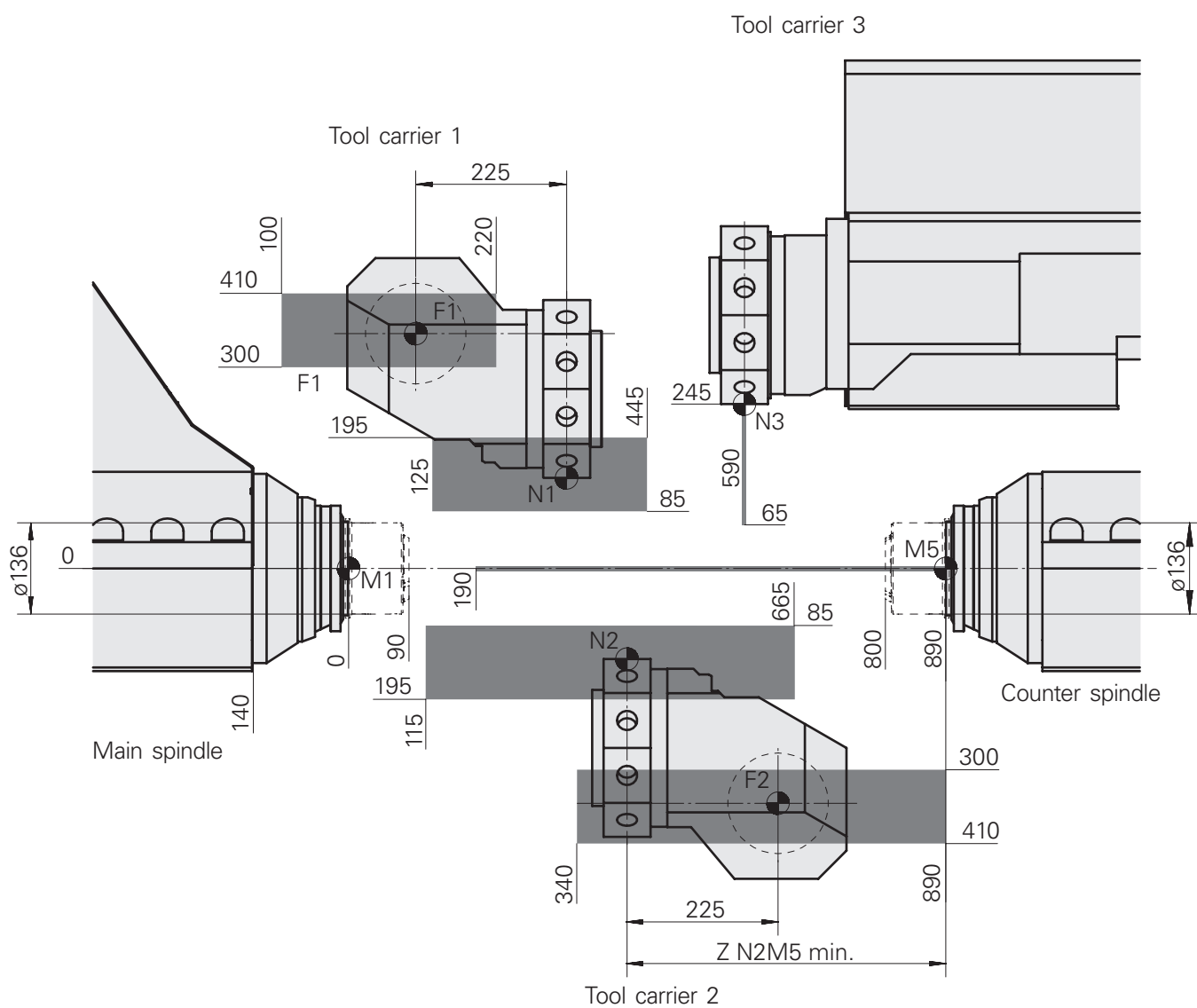When moving the tool carrier in the Y-direction, the maximum height Xmax of the tool holder is reduced.

Tool carrier 1

Y=37,5

410

300

215

r282,5

82,5

132,5

F1

N1

Counter spindle

235,5

51,2 33

0

0

235,5 305

Main spindle

33 51,2

45 17,5

249,5

132,5

82,5

305

Y=37,5

r282,5

N2

300

215

410

F2

50 50

Tool carrier 2

INDEX TRAUB

Working area INDEX C200

Tool holder VDl30 with W-slots
Tool carrier 1+2 - XZB, Tool carrier 3 - X

Tool carrier 3

Tool carrier 1

Tool carrier 2

Main spindle

Counter spindle
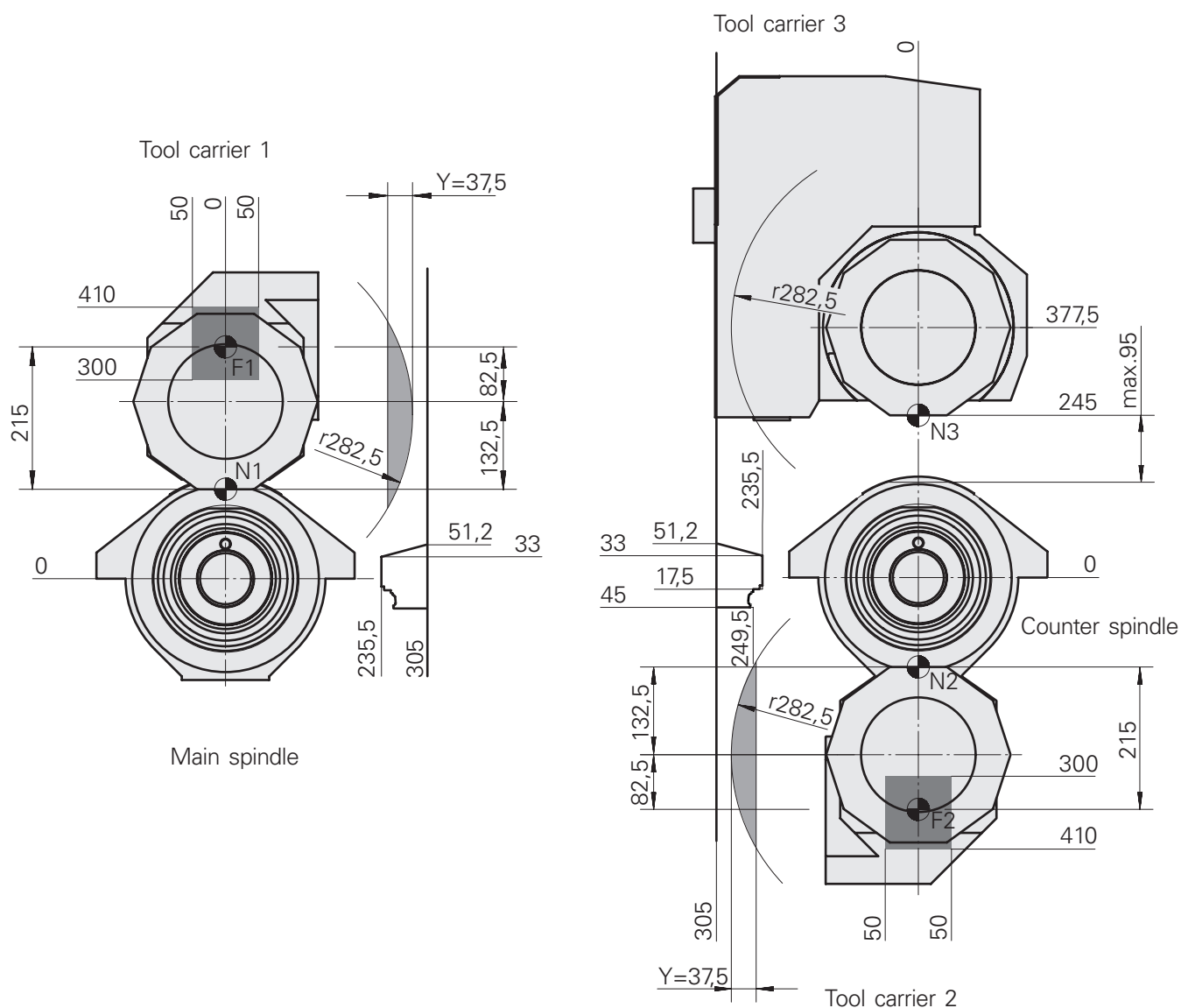
INDEX TRAUB

Working area INDEX C200

Tool holder VDI30 with W-slots
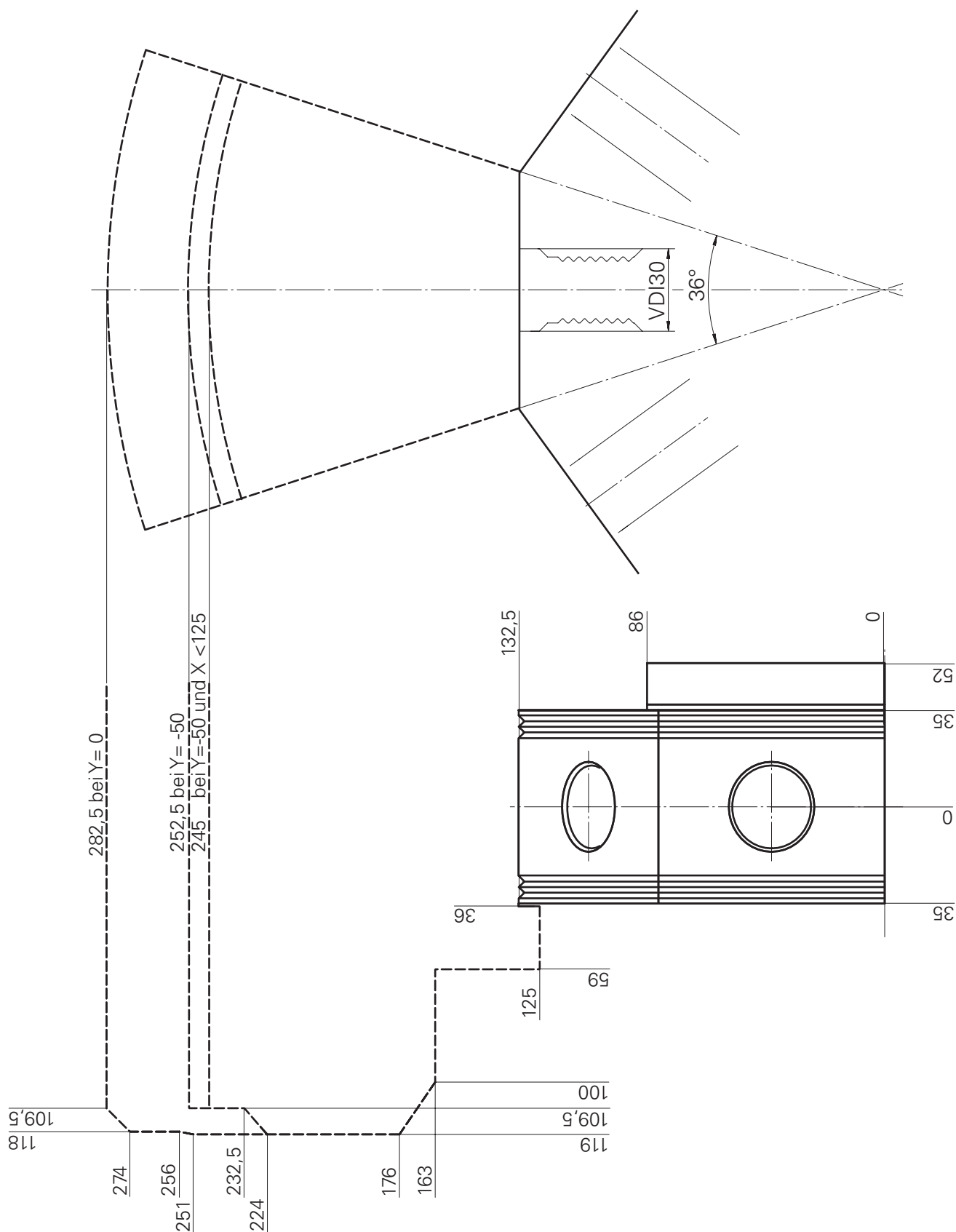## Tool carrier 1+2 - XZB, Tool carrier 3 - X

⚠ Risk of collision with the telescopic cover!

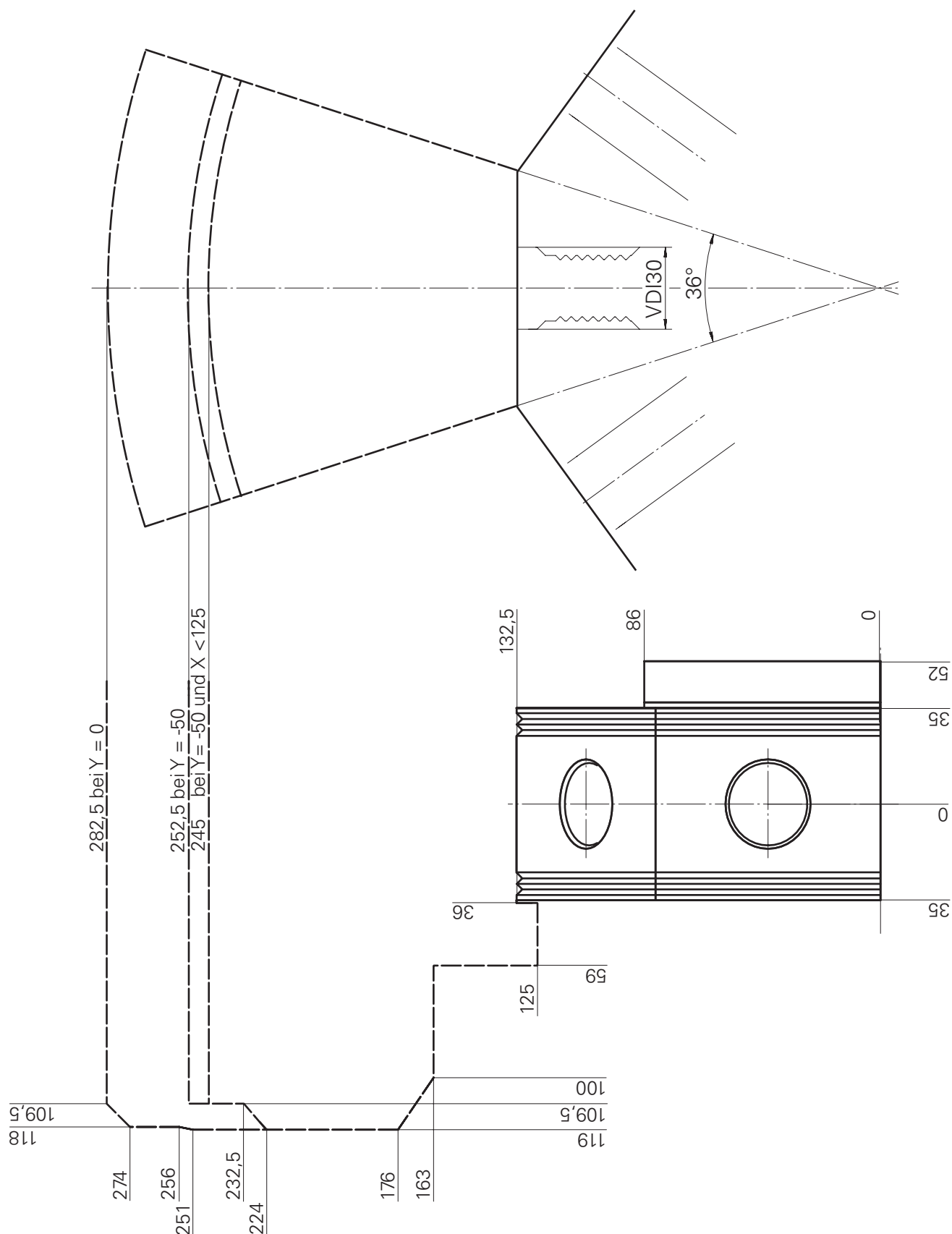When moving the tool carrier in the Y-direction, the maximum height Xmax of the tool holder is reduced.

Tool carrier 1

Main spindle

Tool carrier 3

Counter spindle

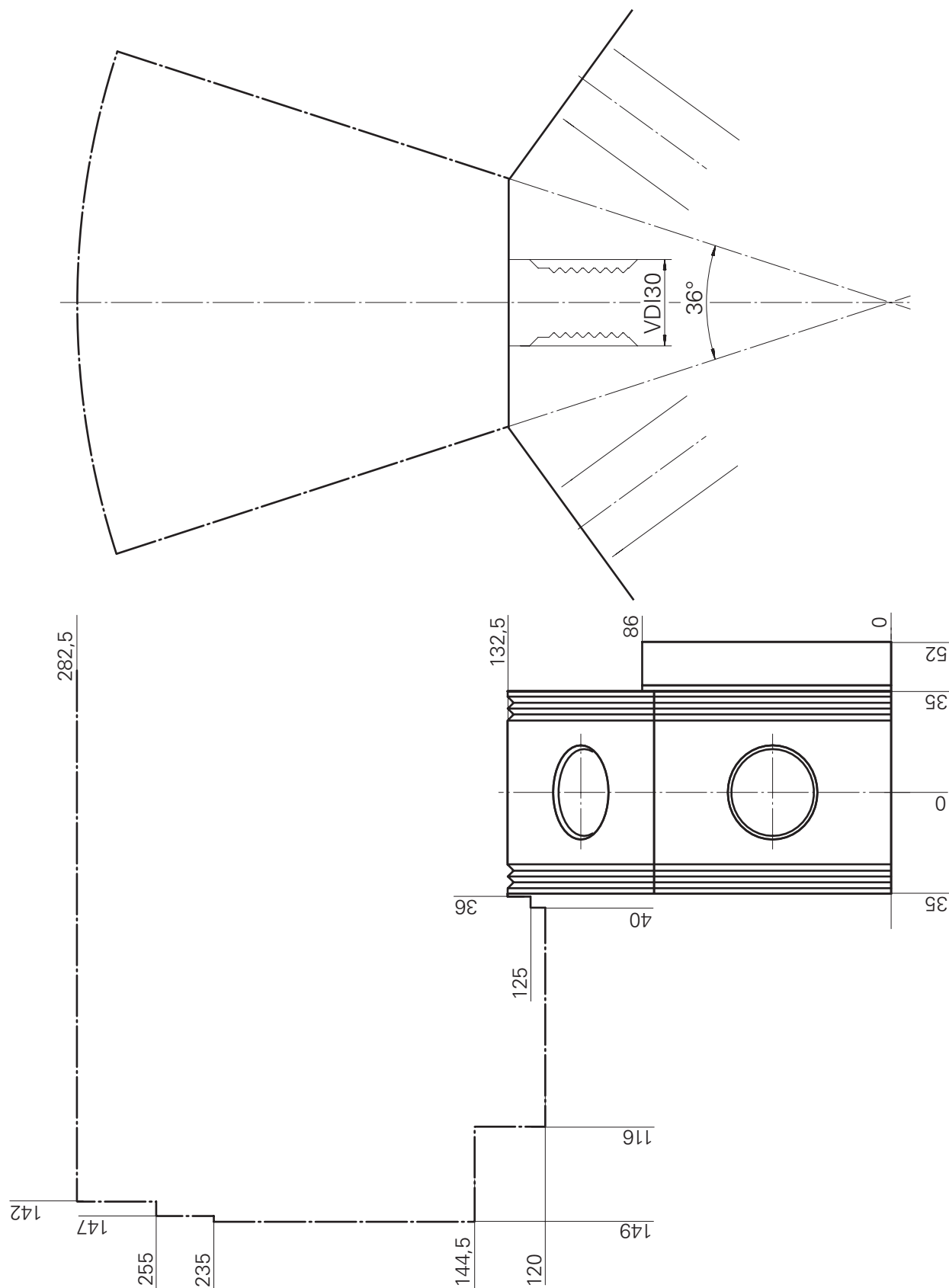Tool carrier 2

INDEX TRAUB

Swivel range of tool carrier INDEX C200

Tool mounting VDI30 with W-slots, tool carrier 1

INDEX TRAUB

Swivel range of tool carrier INDEX C200

Tool mounting VDI30 with W-slots, tool carrier 2

VDI30

36°

282,5 bei Y = 0

252,5 bei Y = -50

245 bei Y = -50 und X <125

132,5

86

0

52

35

0

35

36

59

125

100

109,5

119

109,5

118

274

251

256

224

232,5

176

163

INDEX TRAUB

Swivel range of tool carrier INDEX C200

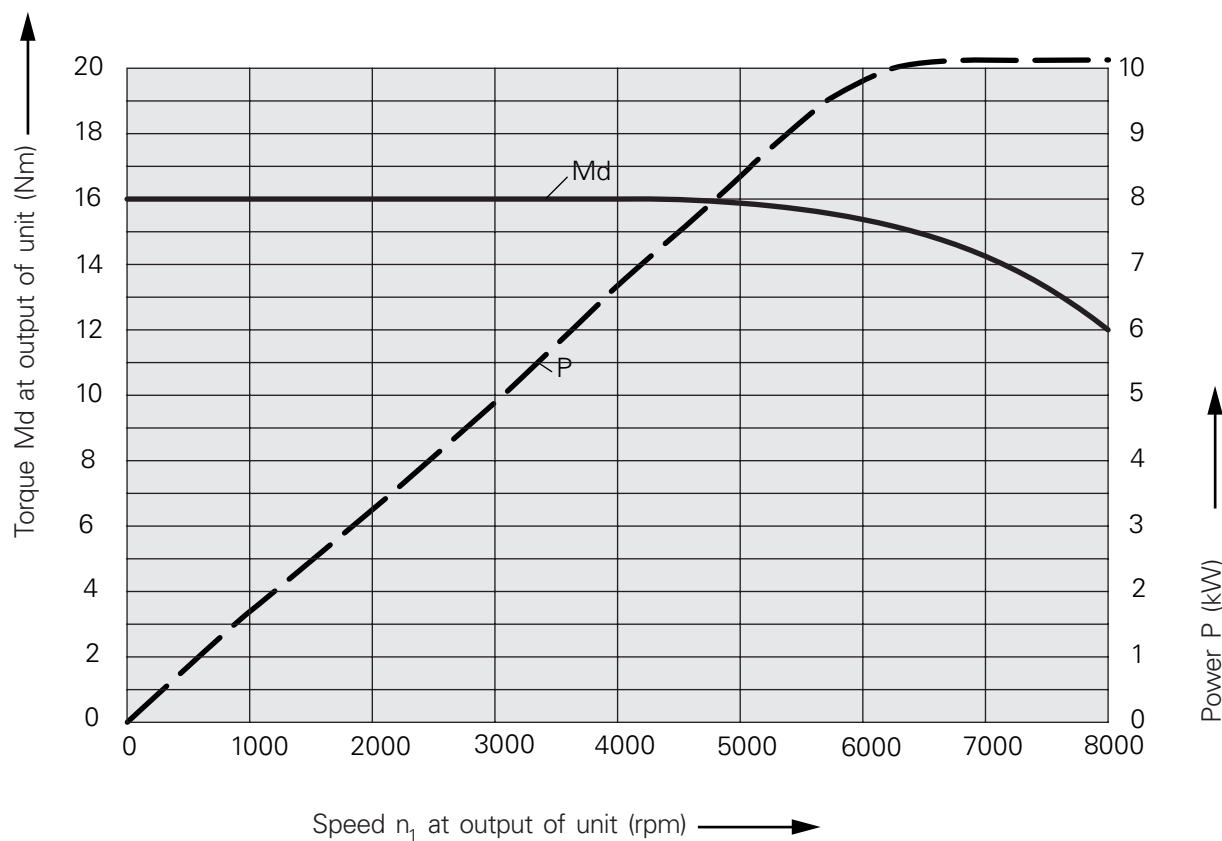## Tool mounting VDI30 with W-slots, tool carrier 3

INDEX T̄RAUB

Performance diagram

Live tools

Speed range 0-8000 rpm

ℹ️ For information on how to use the diagram, see Chapter "Technical Information".

INDEX TRAUB

INDEX TRAUB

INDEX

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