

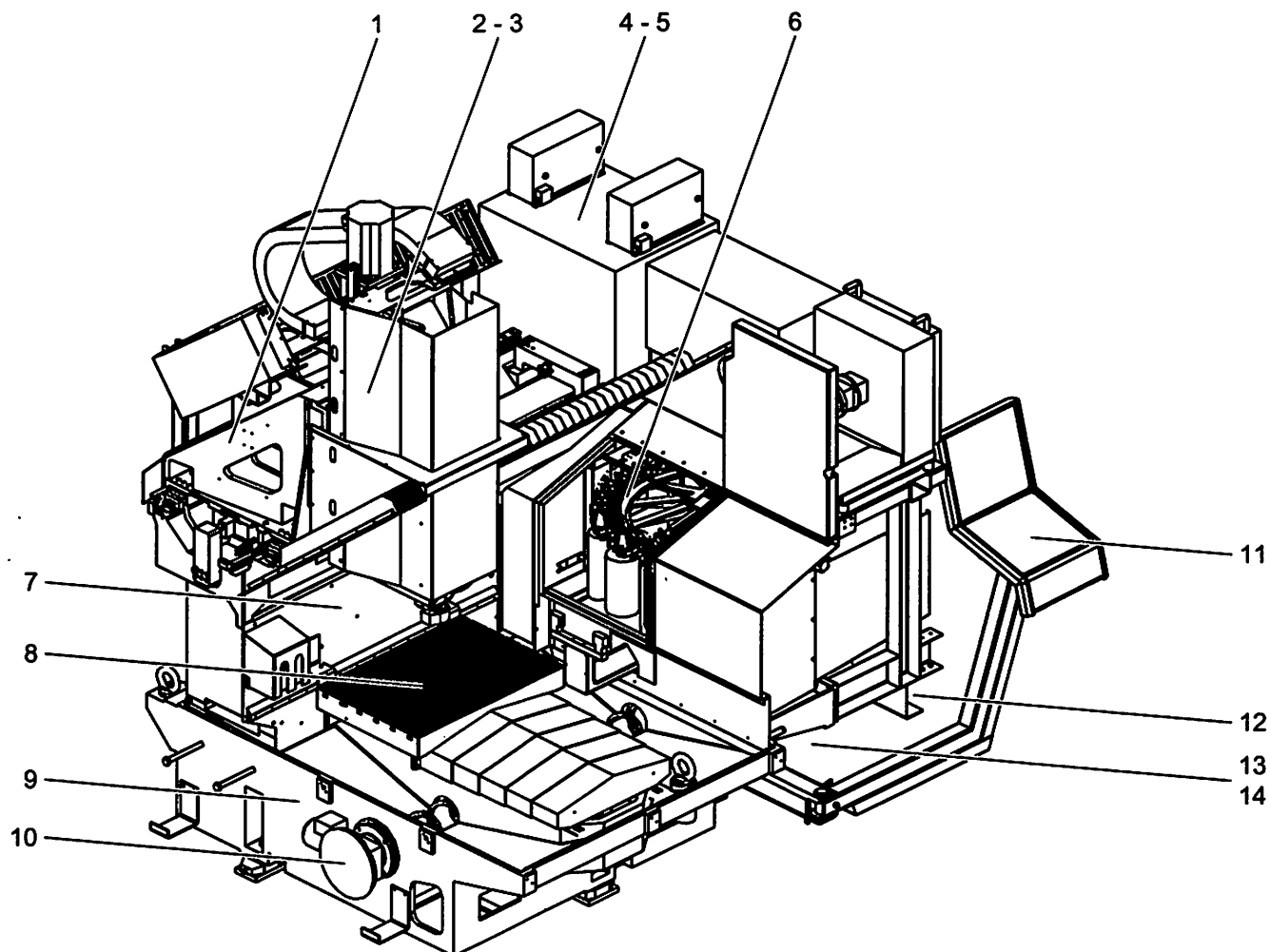
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Machine specification

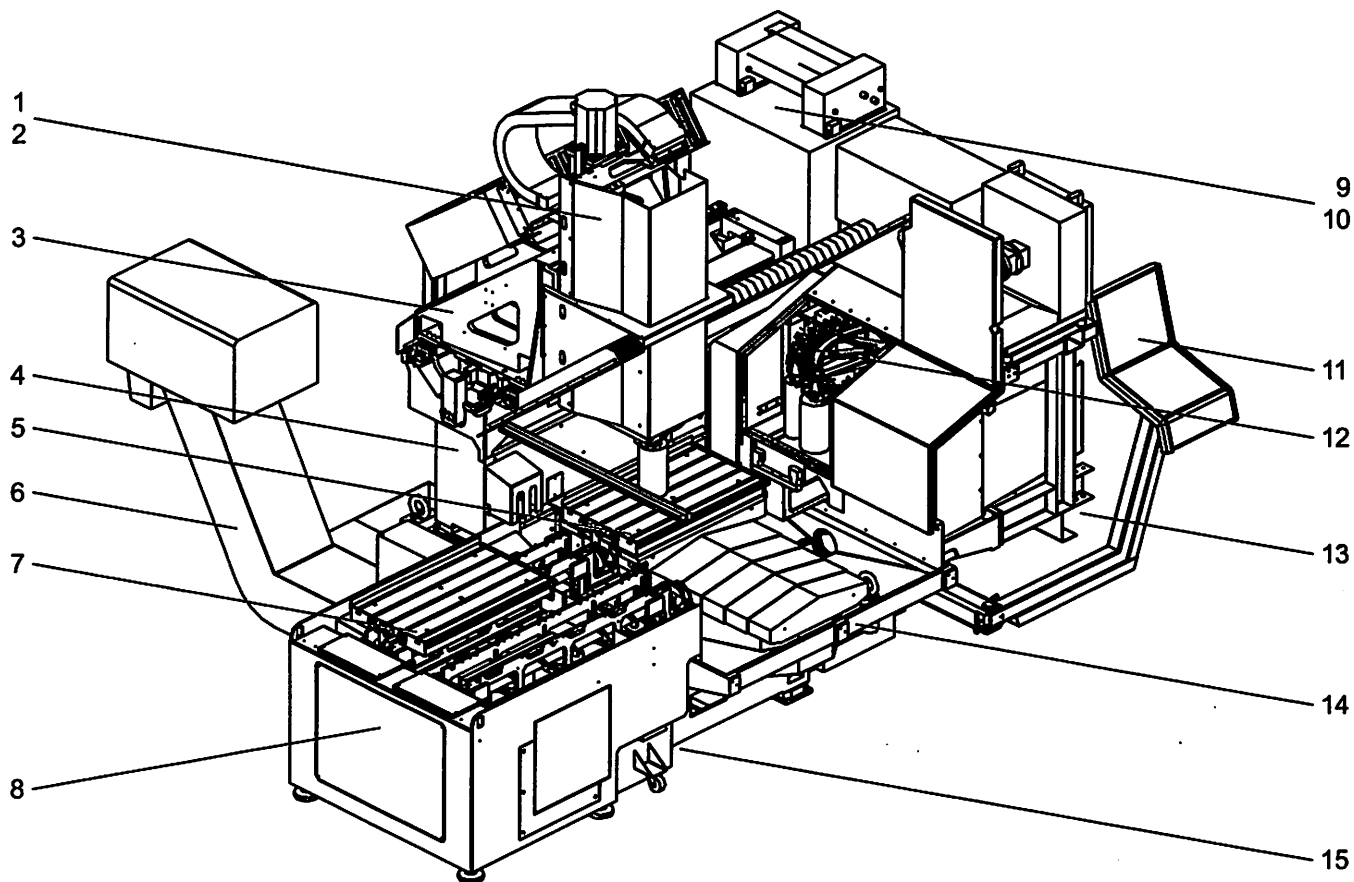
2910
DMC 64 V linear
FANUC 180i-MB
MHB – 1: EN/01.2004
en

Main assemblies • Machine with table

View front, left



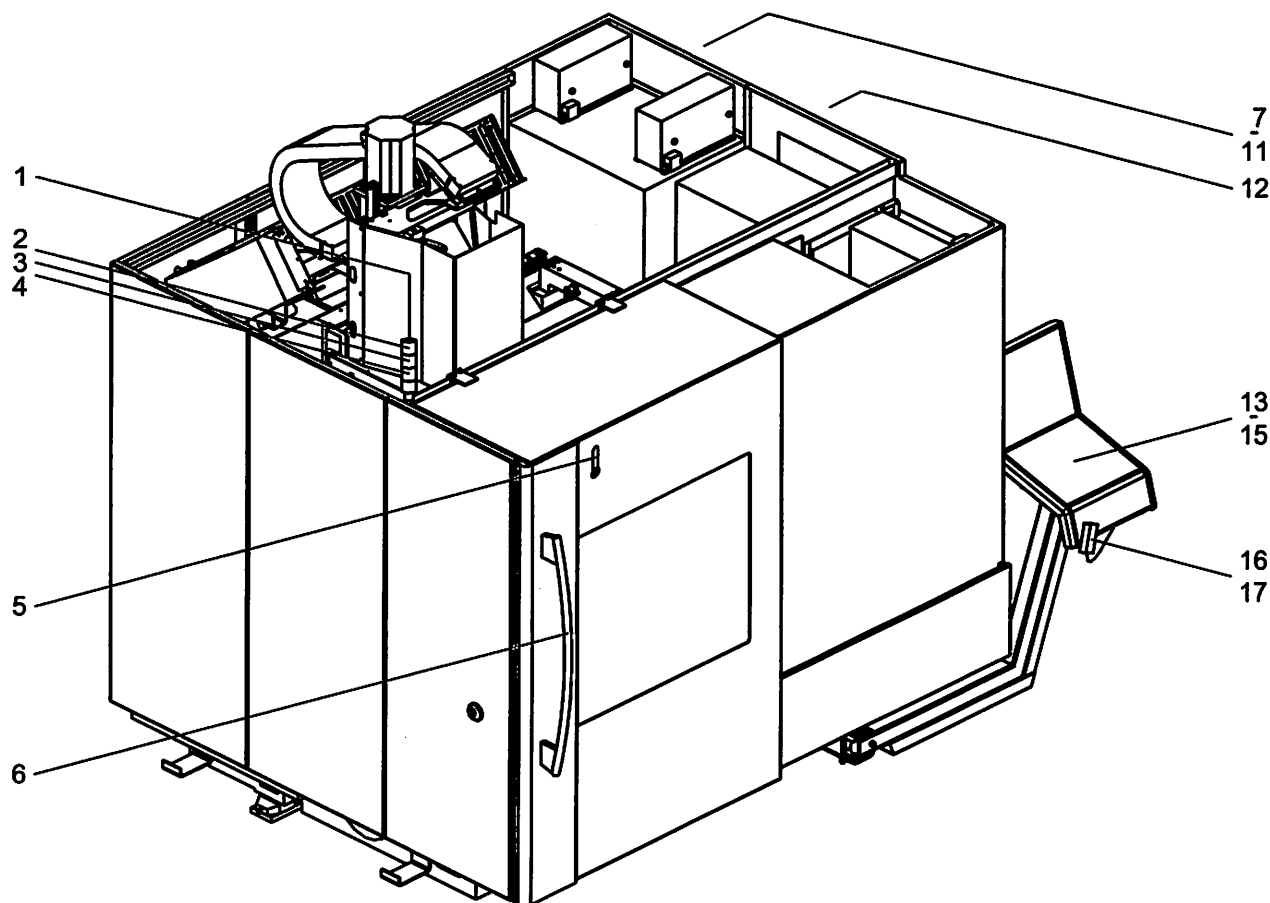
- 1 Cross-slide (X axis)
- 2 Vertical slide (Z axis)
- 3 Motor spindle
- 4 Control cabinet
- 5 Modem for DECKEL MAHO Net Service (in control cabinet)
- 6 Tool magazine
- 7 Portal
- 8 Table (Y axis)
- 9 Machine bed
- 10 Spiral-type swarf conveyor
- 11 Control console
- 12 Units
- 13 Swarf box
- 14 Swarf baskets

Main assemblies • Machine with pallet changer**View front, left**

- 1 Vertical slide (Z axis)
- 2 Motor spindle
- 3 Cross-slide (X axis)
- 4 Portal
- 5 Pallet 2 in working area on pallet mount (Y axis)
- 6 Scraper-type swarf conveyor
- 7 Pallet 1 in position 1 at set-up station
- 8 Pallet changer
- 9 Control cabinet
- 10 Modem for DECKEL MAHO Net Service (in control cabinet)
- 11 Control console
- 12 Tool magazine
- 13 Units
- 14 Machine bed
- 15 Spiral-type swarf conveyor

Controls • Machine with table

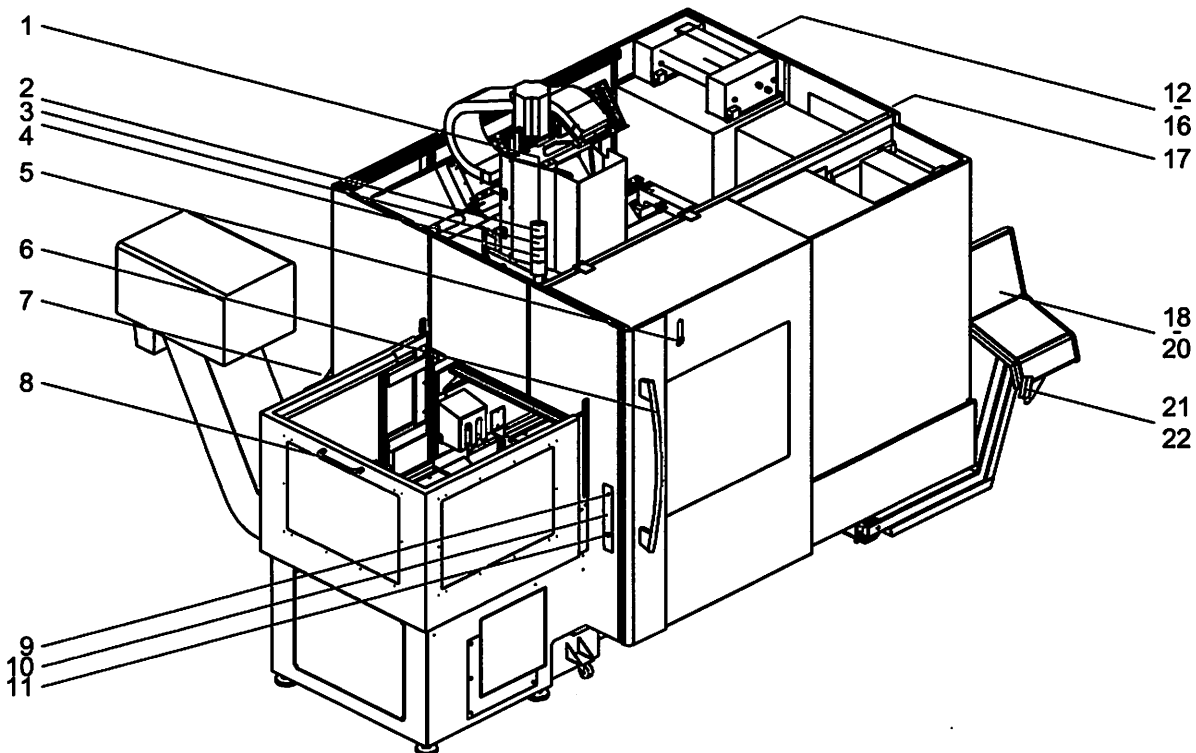
View front, left



- 1 Signal lamp (option)
- 2 Steady red light: Malfunction (machine stopped)
- 3 Steady yellow light: Operator call
- 4 Steady green light: Program run in progress
- 5 Emergency release, auxiliary release for door to working area
- 6 Door to working area
- 7 Master switch (Q1)
- 8 Interfaces
- 9 Receptacle
- 10 Upper hours-of-operation counter: Spindle running time
- 11 Lower hours-of-operation counter: Time drives are on
- 12 Sliding window, tool magazine
- 13 Control panel
- 14 Control console
- 15 EMERGENCY STOP button
- 16 Portable control (option)
- 17 EMERGENCY STOP button (option)

Controls • Machine with pallet changer

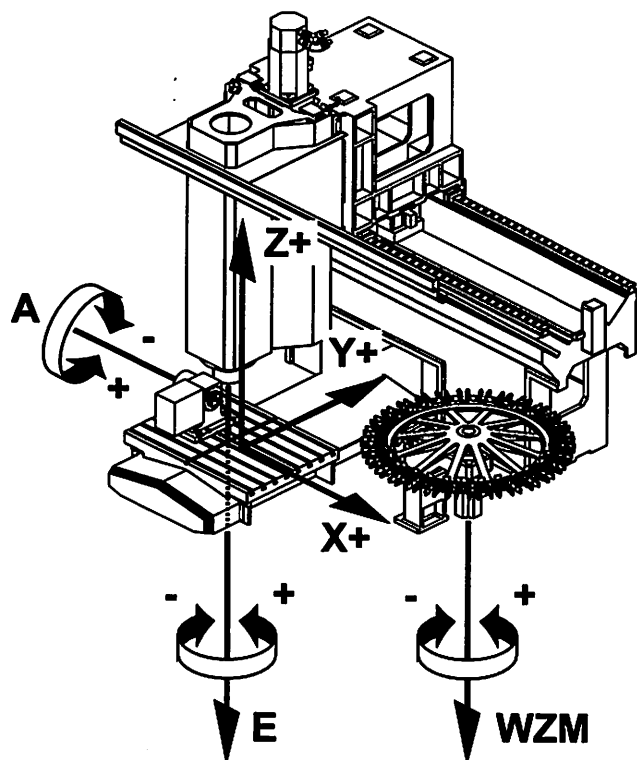
View front, left



- 1 Swarf conveyor (option)
- 2 Steady red light: Malfunction (machine stopped)
- 3 Steady yellow light: Operator call
- 4 Steady green light: Program run in progress
- 5 Emergency release, auxiliary release for door to working area
- 6 Door to working area
- 7 Supplementary control panel 1, same function as supplementary control panel 2
- 8 Pallet changer guard
- 9 "Enable pallet change" key, pallet 2
- 10 Supplementary control panel 2 on pallet changer
- 11 EMERGENCY STOP button
- 12 Master switch (Q1)
- 13 Interfaces
- 14 Receptacle
- 15 Upper hours-of-operation counter: Spindle running time
- 16 Lower hours-of-operation counter: Time drives are on
- 17 Sliding window, tool magazine
- 18 Control panel
- 19 Control console
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- 21 Portable control (option)
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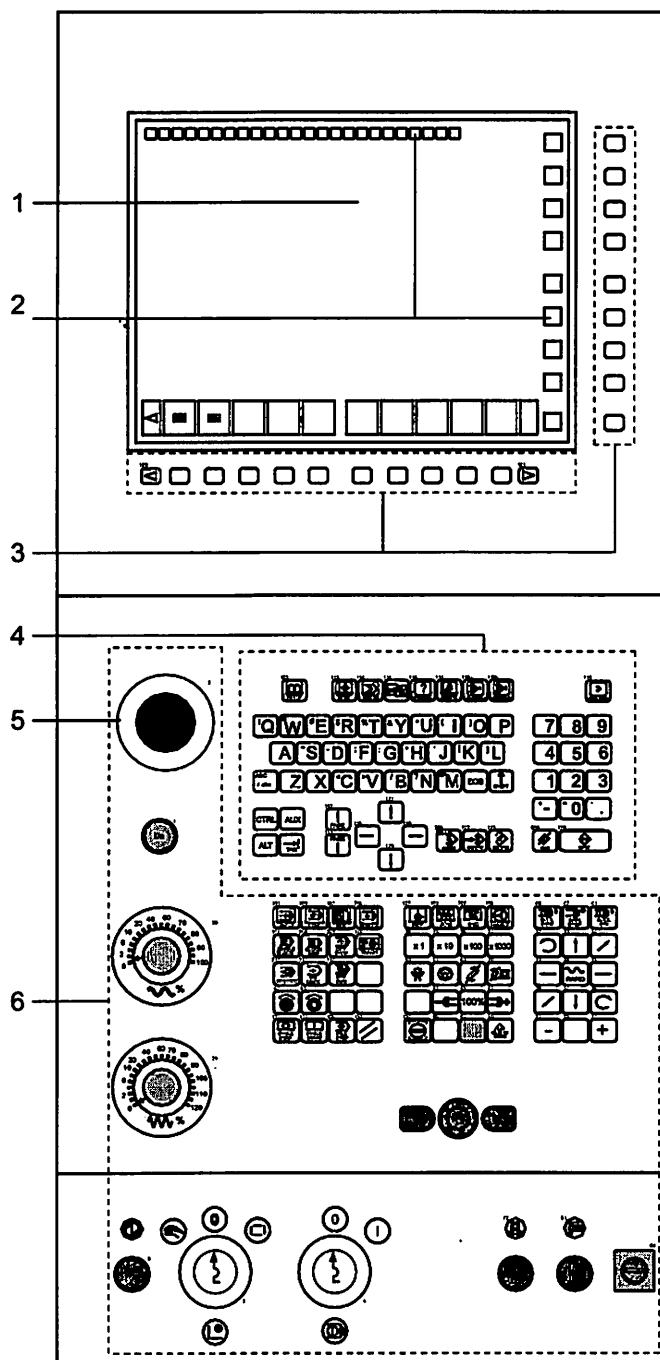
Machine axes

View front, right



Identification of machine axes with directions of traverse showing the relative tool movements in X, Y, Z and A axes, and tool magazine (WZM)

Control console



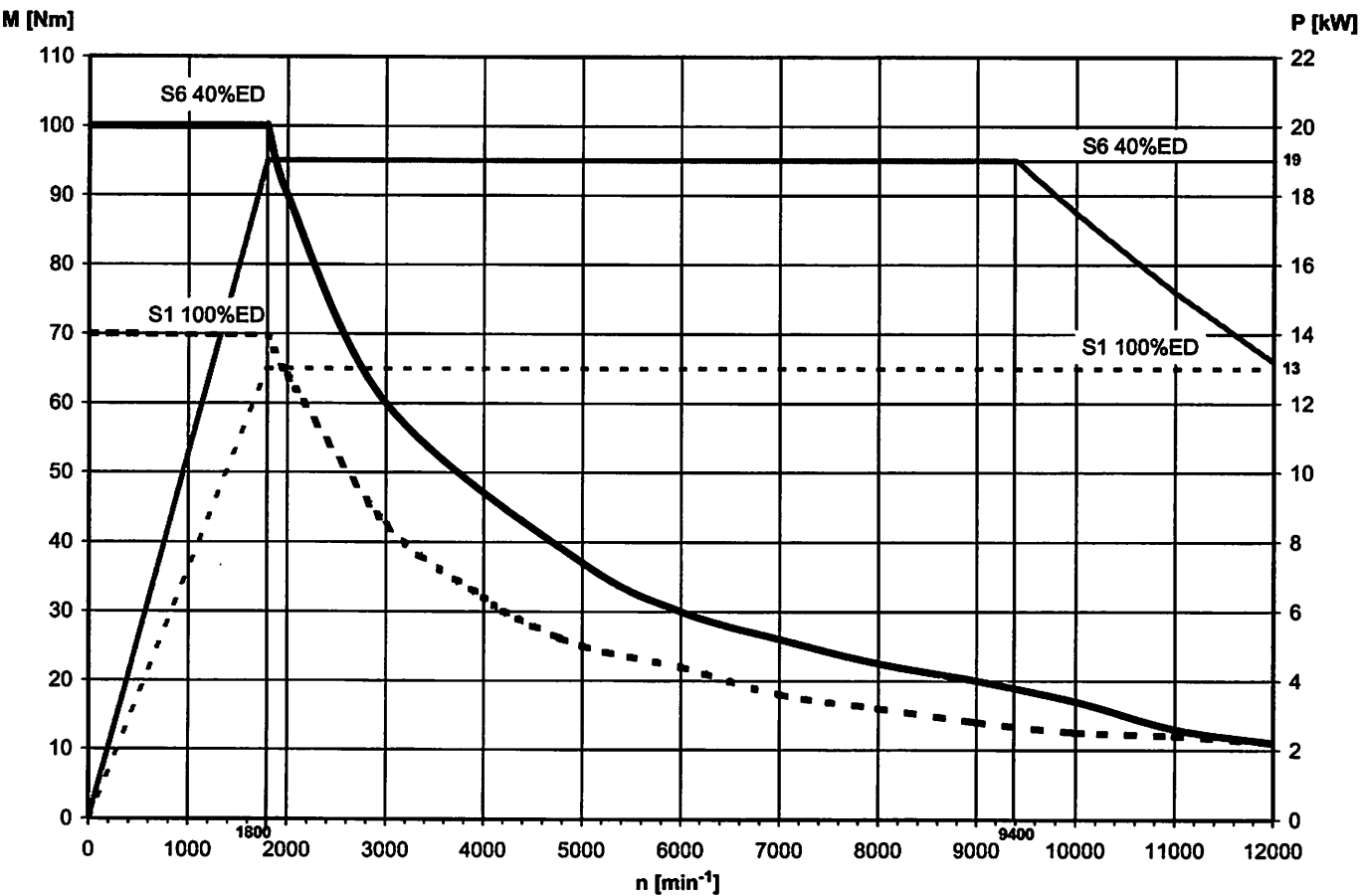
- 1 Monitor
- 2 Display, function keys
- 3 Function keys (softkeys)
- 4 NC keypad
- 5 EMERGENCY STOP
- 6 Machine control panel

Technical data

2910
DMC 64 V linear
FANUC 180i-MB
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en

Main drive 12,000 rpm

Power/speed diagram



M° [Nm] Torque
 P° [kW] Power
 n° [rpm] Spindle speed

Torque

Motor power S1 – 100 % duty rating	max.	Nm	70
S6 – 40 % duty rating	max.	Nm	100

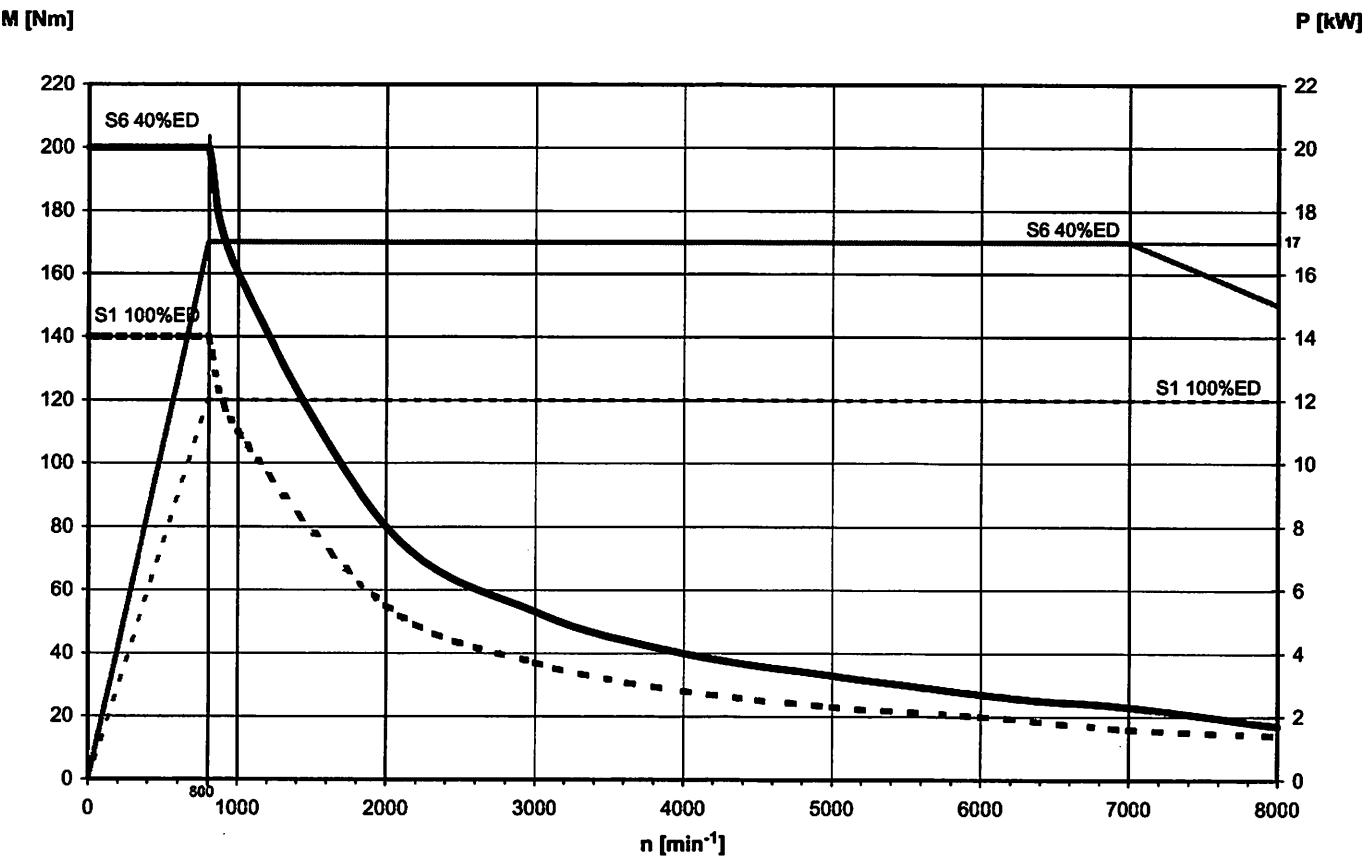
Motor power S1 – 100 % duty rating	max.	kW	13
S6 – 40 % duty rating	max.	kW	19

Steplessly programmable	max.	rpm	12,000
Set-up mode	max.	rpm	800
Program check with manual intervention	max.	rpm	5,000

Diameter, front	mm	80
Diameter, rear	mm	70

Main drive 8,000 rpm

Power/speed diagram



M°[Nm] Torque
P°[kW] Power
n°[rpm] Spindle speed

Direct drive by speed-controlled liquid-cooled induction motor

Torque

Motor power S1 – 100 % duty rating	max.	Nm	140
S6 – 40 % duty rating	max.	Nm	200

Motor power

Motor power S1 – 100 % duty rating	max. kW	12
S6 – 40 % duty rating	max. kW	17

Spindle speed

Steplessly programmable	max.	rpm	8,000
Set-up mode	max.	rpm	800
Program check with manual intervention	max.	rpm	5,000

Spindle bearings

Diameter, front	mm	80
Diameter, rear	mm	70

Tool mounts 12,000 rpm

External lubricoolant supply

Standard Tool mounts ST 40 DIN 69871 Form A

Draw-in pins ST 40 DIN 69872 Form A

Options Tool mounts BT 40 JIS B 6339

Draw-in pins BT 40 JIS B 6339

Conversion kit - Collet for draw-in pins Size 40 ASME B 5.50-1994

Lubricoolant supply through the tool

Standard Tool mounts ST 40 DIN 69871 Form A-D

Draw-in pins ST 40 DIN 69872 Form A

Options Tool mounts BT 40 JIS B 6339

Draw-in pins BT 40 JIS B 6339

Conversion kit - Collet for draw-in pins Size 40 ASME B 5.50-1994

Tool draw-in force

ST 40 N 8,000



Warning - damage to machine or operational failures may be caused by using unsuitable tool mounts.

On machines equipped with lubricoolant supply through the tool (option), the ST (steep taper) tool mounts and the draw-in pins must be provided with a central through bore.

Tool mounts 8,000 rpm

External lubricoolant supply

Standard Tool mounts ST 40 DIN 69871 Form A

Draw-in pins ST 40 DIN 69872 Form A

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On machines equipped with lubricoolant supply through the tool (option), the ST (steep taper) tool mounts and the draw-in pins must be provided with a central through bore.

Permissible tools

Only tools which meet the following requirement may be used on the machine:

- They must be firmly mounted and be in perfect condition.
- They must fit the spindle taper and match the clamping system.
- They must be adequately dimensioned for the intended speed of rotation and cutting force (as specified by the manufacturer) and properly balanced.
- The tool diameter and the spindle speed must be such that the retaining capacity of the inspection windows on the door to the working area is not exceeded (see Chapter "Maintenance, lubrication" under the heading "Inspection windows").



Caution - the use of tools of larger diameter or at higher speeds is dangerous and may lead to accidents.

Observe and follow the instructions of the tool manufacturer.



Warning - damage to machine or operational failures may be caused by using unbalanced tools.

For spindle speeds higher than 8,000 rpm the use of rotationally symmetrical and balanced cutting tools is mandatory.

Balancing quality G as per DIN ISO 1940 G 6.3

Data sheet

Working range

Ranges of traverse	X axis	mm	640
	Y axis	mm	600
	Z axis	mm	500

Feedrates

Feed force

X/Y/Z axes (40 % duty rating) N 7,000

Feedrate

X/Y/Z axes max. m/min 40

Rapid traverse rate

Y/Z axes m/min 40

X axis m/min 70

Ballscrews Y/Z axes

Diameter mm 40

Lead mm 15

Linear measuring system

Positioning tolerance (max. permissible values) as per VDI/DGQ 3441, absolute

Measuring system X axis

$P_{\max}$ mm 0.008

Direct measuring system (standard)

Measuring system Y/Z axes

$P_{\max}$ mm 0.020

Indirect measuring system (standard)

$P_{\max}$ mm 0.010

Direct measuring system (option)

System resolution	mm	0.001
Input resolution	mm	0.001
X/Y/Z axes		

Tool magazine

Number of magazine pockets	30
Position coding	Fixed position coding
Magazine load max. kg	90
Cut-to-cut time as per VDI°2852 without tool retraction logic	
t ₃	sec 6.8
t ₂	sec 6.8
t _{1 (30)}	sec 7.9

Cut-to-cut time as per VDI°2852 with tool retraction logic

t₃	sec	8.3
t₂	sec	8.3
t_{1 (30)}	sec	9.3

Permissible tools/Tool magazine

Diameter

Standard tools	max. mm	100
Tool shanks ST (steep taper) 40		
Special tools	max. mm	140
when neighbouring positions are vacant		
Tool shanks ST (steep taper) 40		
Trepanning tools	see collision diagram	

Length

Tool shanks ST 40 max. mm 300

Weight

Tool shanks ST 40 max. kg 7

Tool changer

Arrangement	Vertical
System	Pick-up (by cutter spindle)

Table

Clamping surface	L	mm	850
	W	mm	600
T slots	DIN	650-14	
Loading height (upper edge of table)		mm	850
Table load	max.	kg	600

Pallet changer

Number of pallets	2
Pallet change time	17
Pallet repeat accuracy	+/- mm (in) 0.01

Pallet

Clamping surface	L	mm	850
	W	mm	500
T slots	DIN	650-14	
Loading height (upper edge of pallet)		mm	932
Pallet load	max.	kg	500

Spiral-type swarf conveyor with chip box (standard)

Tank capacity	l	150
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2. Technical data

Pump delivery

External lubricoolant supply	l/min	50
	bar	2.0
Flush cleaning	l/min	90
	bar	1.9
Flush gun	l/min	50
	bar	2.0

Scraper-type swarf conveyor with lubricoolant tank (option 1)

Tank capacity | 230

Pump delivery

External lubricoolant supply	l/min	50
	bar	2.0
Flush cleaning	l/min	90
	bar	1.9
Flush gun	l/min	50
	bar	2.0

Swarf disposal

Discharge height, scraper-type swarf conveyor mm 850

Discharge height, scraper-type swarf conveyor mm 1,250
with end piece removed



When the end piece of the swarf discharge is removed, a collecting vessel with guard has to be used.

Lubricoolant supply through tool with SPB 3-600 lubricoolant cleaning unit (option 2)

Tank capacity | 780
including scraper-type swarf conveyor

Pump delivery

External lubricoolant supply	l/min	50
	bar	2.0
Lubricoolant supply through the tool (Option 2.1)	l/min	23
	bar	16
Lubricoolant supply through the tool (Option 2.2)	l/min	26
	bar	40
Flush cleaning	l/min	90
	bar	1.9
Flush gun	l/min	50
	bar	2.0

For detailed information on lubricoolant units see Machine Manual 2

Shipment data

Transport weight without packing with hoisting gear including enclosure, control cabinet, chip box	approx.	kg	7,740
Transport weight, machine on transport pallet with hoisting gear including enclosure, control cabinet, chip box	approx.	kg	8,000
Transport weight, machine in transport crate with hoisting gear including enclosure, control cabinet, chip box	approx.	kg	9,250
Transport dimensions, machine on transport pallet (approx.)	L	m	4.1
	W	m	2.5
	H	m	3.0
Height, transport pallet	H	m	0.2
Dimensions, transport crate	L	m	4.0
	W	m	2.8
	H	m	3.2

2. Technical data

Clear width required (doors, passages, etc.) W min. m 2.8

H min. m 3.4

Installation data

Electrical connection

Rated power kVA 39

Rated current A 56

Back-up fuse (3x, slow) A 63

Operating voltage V 400

Frequency Hz 50

Compressed-air supply

Inside diameter, fitting min. DN 16

Operating pressure bar 6

Required system capacity at Customer's plant Nm³/h 38

Machine with table

(peak value, only attained momentarily)

Required system capacity at Customer's plant Nm³/h 65

Machine with pallet changer

(peak value, only attained momentarily)

Ambient temperature min. °C + 5

as per EN 60204-1 max. °C + 40

Mean temperature within 24 hours °C + 35

Relative humidity min. % 30

max. % 95

Noise emission dB 75

as per DIN 45635-16-Class 2

(mean measuring-surface

sound-pressure level L_{pA})

Overall height of machine m 3.2

Overall space required L m 3.7

W m 3.8

H m 3.3



Be sure to provide for adequate escape routes and safety areas in compliance with applicable legislation, standards, rules and regulations.

Weights

Weight of machine	approx. kg	7,715
including enclosure, control cabinet and chip box		
Installation weight	kg	8,615
Weight of machine plus max. weight of workpiece, tools, oil and lubricoolant		

Load at machine base

Static load	1	kN	21
per support element	2	kN	29
	3	kN	19
Dynamic load	1	kN	37
per support element	2	kN	49
	3	kN	30



For location of support elements see "Layout diagram, support elements".

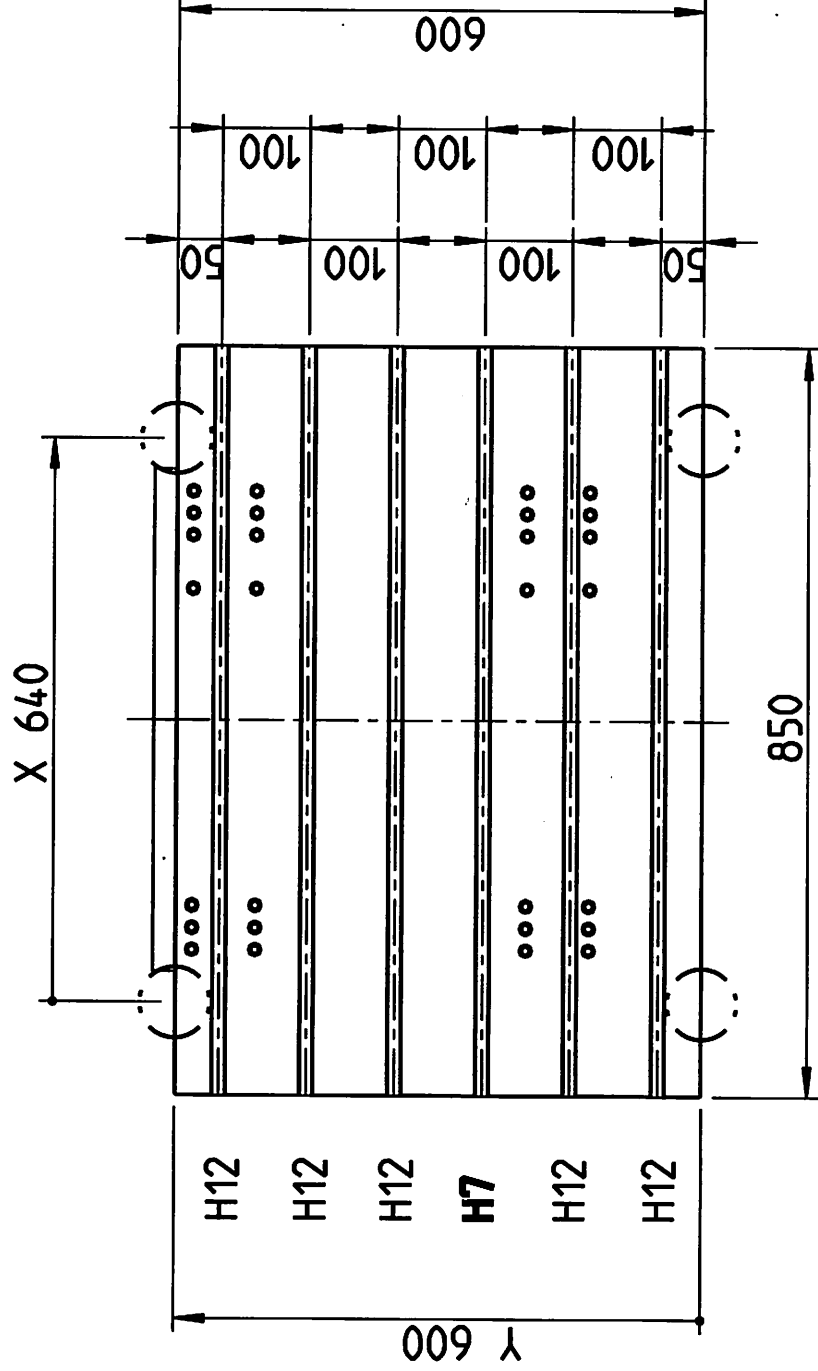
Support elements (wedge-type levelling shoes)

Number	3
Model	DK-2 (M20)
Manufacturer	Nivell AG

Working range • Machine with table

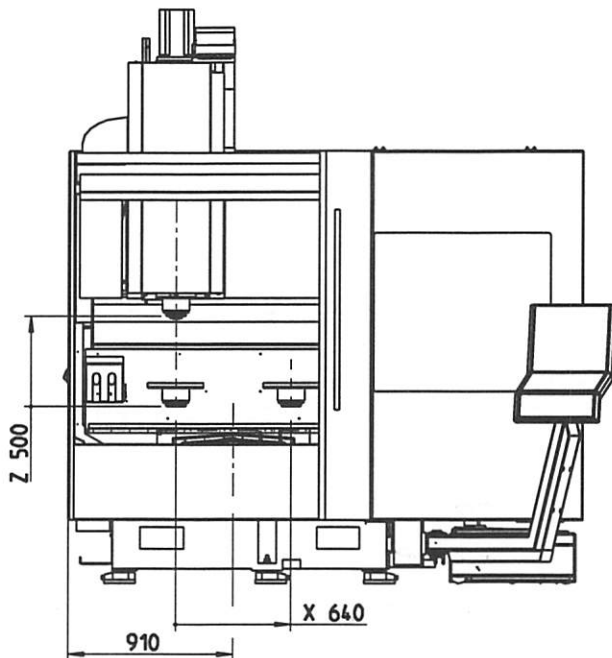
Plan view

Dimensions in mm



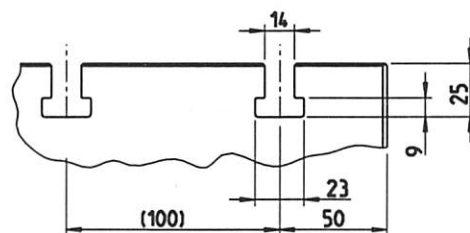
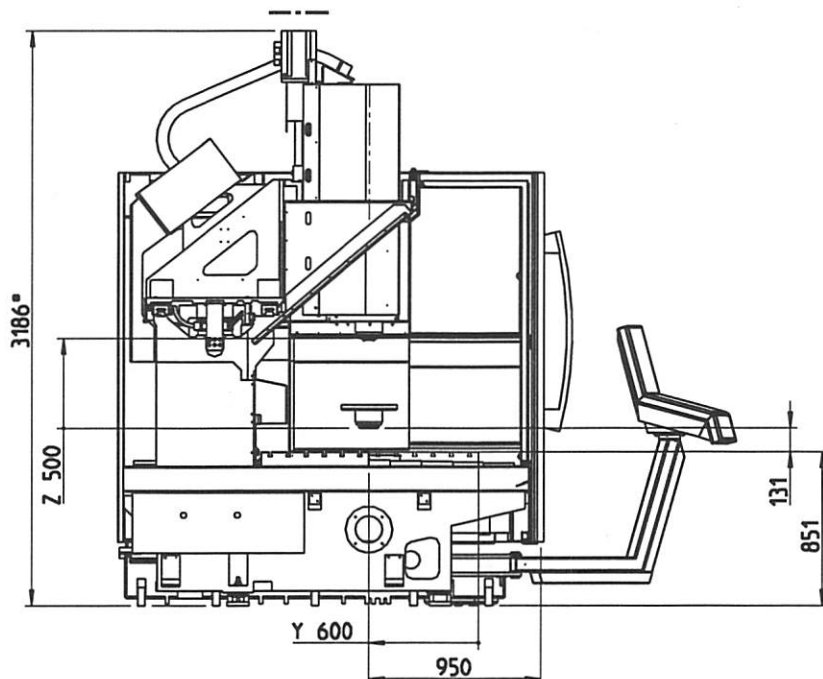
Front view

Dimensions in mm



Left-hand side view

Dimensions in mm

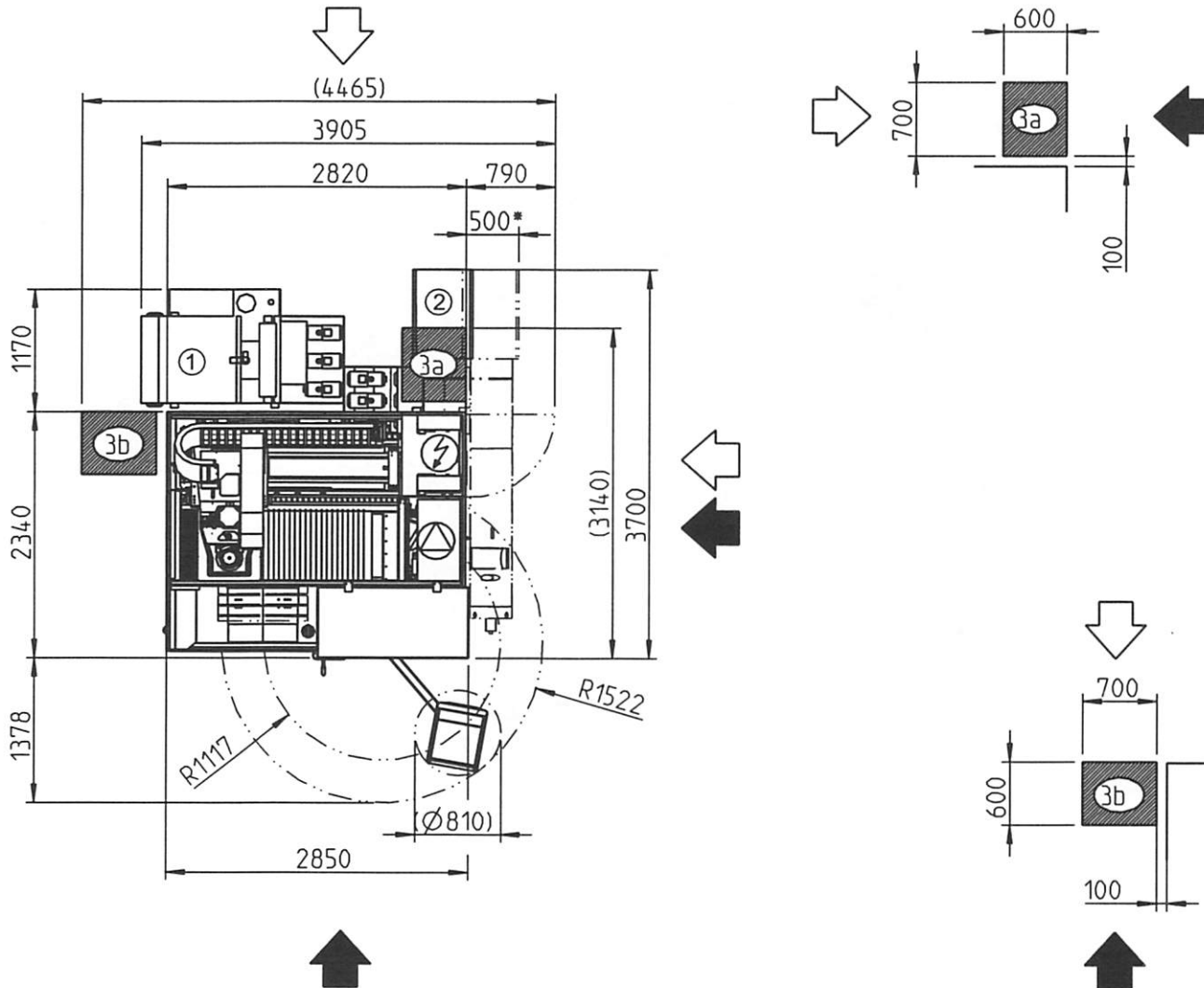


* End position at Z = 500, plus at least 100 mm for motor cooling

Installation diagram • Machine with table

Plan view

Dimensions in mm



- ◼ Operation
- ◻ Maintenance
- ⚡ Electric power connection
- Ⓐ Compressed-air supply
- ① Lubricoolant cleaning unit for lubricoolant supply through tool (option)
- ② Swarf conveyor (option)
- ③a Cooling unit for linear motor and motor spindle (option), location without 1 and 2
- ③b Cooling unit for linear motor and motor spindle (option), location with 1 and 2
- * Room required for maintenance work on chip box (standard) and swarf conveyor (option)



Be sure to provide for adequate escape routes and safety areas in compliance with applicable legislation, standards, rules and regulations.

Layout diagram, support elements • Machine with table

Plan view

Dimensions in mm

