DATRON

Innovative Produktionstechnologien

DATRON neo

Setup instructions

Designation	Setup instructions
Product	DATRON neo
Language	en
Target group	Owner/operator, machine operator

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Contents

1 Setting up the machine

1.1 Transport

For safe transport to the setup site, the transport route must be checked. In all areas, make sure that the width, height and load-bearing capacity are sufficient. Check the following:

- Entrance and parking options for a truck
- Access inside the building (stairs, doors, passageways)
- Stairwells and elevators
- Floor conditions and surfacing

1.2 Setup site

CAUTION

Building damage due to impermissible load-bearing capacity!

When setting up the machine in residential buildings, the permissible floor load must be checked by a structural engineer.

- Here, observe the machine weight (see table in the **chapter "Dimensions and weight"**) and also note that the machine generates dynamic loads of approx. 500 N with a frequency from 0 to 5 Hz.

The machine is installed on site on a solid base. The floor of the installation location must be sufficiently strong, rigid and smooth. The height of the support feet is adjustable and they are not screwed to the floor. The machine requires a minimum all-round clearance to its surroundings to allow access to components within the casing. See the Technical Data for the various dimensions.

Also observe the legal regulations on occupational health and safety and escape routes.

CAUTION

Risks of using cooling lubricants!

Flammable vapours may be generated when using cooling lubricants.

- Open flames, smoking, eating and drinking are prohibited in the vicinity of the machine.
- The safety instructions of the manufacturer of the cooling lubricant and material must be observed!

1.3 Room climate

NOTE Air should be free of aggressive dusts and gases.

Required room climate:	
Temperature	18 - 30 °C
Humidity	< 65 % rel.

Make sure the room temperature is sufficient. The ideal room temperature is 20 - 23 °C. The machine must be completely at room temperature before commissioning. For perfect operation, the spindles require a coolant temperature of at least 18 °C, ideal would be 25 °C.

If there is a risk of frost during storage or transport of the DATRON machine, the cooling water must be completely drained out of the machine and the cooling device beforehand.

Venting the set-up location

Make sure there is good ventilation in the set-up environment. When machining materials which release harmful dusts, the dusts which are formed must be suctioned off. Observe the statutory regulations.

The following must be observed when the machine is operated with cooling lubricant:

During continuous machine operation the area around the machine must be well ventilated or an exhaust system for the removing the cooling lubricant vapour must be installed. When installing the room exhaust system, note whether the cooling lubricant in use is lighter or heavier than air. Install the room exhaust system at the top or bottom as applicable. The AGW values (maximum workplace concentration values) of the cooling lubricant must be below the maximum limit.

In HVAC technology, the following general empirical values are used for the air exchange numbers (i.e. exchanged air per hour):

Location	Exchanged air per hour
Workshops	3 - 6
Workshops where especially high levels of fumes develop	10 - 18
Laboratories	5 - 15
Garages	3 - 5

CAUTION

Hearing damage dur to noise during machine operation!

At idle the noise level at the machine is < 80 dB(A).

When machining a work piece, the noise level may be > 80 dB(A).

- Wear suitable hearing protection at noise levels above 80 dB(A).
- Hearing protection must be available at lower noise levels.
- Work pieces and sheet material that tend to vibrate during machining must be clamped flat (e. g. with a vacuum plate).

1.4 Screen

Screen

CAUTION

Possible damage to the screen!

Covering the screen leads to excessive heat development.

- Never cover the screen during operation.
- Keep ventilation slots free.

2 Connecting the supply media

CAUTION

Malfunctions and trip hazards

Open and loose machine connections are trip hazards and may affect machine functions due to damage.

- Avoid loose and open installations of machine connections.
- Install machine connections in enclosed and fixed paths.
- Position machines to enable optimum use of connection ports in the machine housing.

Connection options

The machine can be connected from below, e.g. through a cable duct in the floor.

2.1 Voltage supply

The power supply must meet the requirements of EN 60204 to ensure trouble-free operation of the system.

CAUTION

Interference in domestic environments

The machine may generate electromagnetic interference, which may affect electrical equipment in domestic environments.

- If necessary, employ interference suppression measures in accordance with DIN EN 61800-3

Information concerning personal protection

- If the power supply is fitted with a residual current device (RCD or FI), the device must conform to type B.
- The machine must be connected to a separate power circuit.
- Other consumers must be separately connected.
- Observe the local legal requirements for connection.

WARNING

Danger of injury and death due to high voltage!

Work on electrical devices requires technical knowledge, otherwise there is a risk of injury and death by electrocution.

- Electrical work must be performed by qualified electricians.

CAUTION

Power circuit interruption

If consumers other than the DATRON machine are connected to the same power circuit, there is risk of circuit interruption.

- Always connect the DATRON machine to a separate power circuit protected by an RCD (3x16 A).
- Do not connect any other consumers to the circuit used by the DATRON machine.

Fig. 2-1: Voltage supply connection 3 x 400 V

Data

Voltage	3 x 400 V /16 A
Frequency	50 Hz / 60 Hz
Power consumption with	3.5 kW

2.2 Internet connection

An Internet connection for the control computer integrated in the machine is absolutely necessary to be able to make use of remote maintenance. This is the only way DATRON can access the machine control if support is needed, making immediate analysis and help possible.

2.3 Network integration

Integration of the DATRON machine into the customer's network happens at the risk and responsibility of the customer.

If you have any questions about the network integration, consult an IT specialist who can consider the situation at your site.

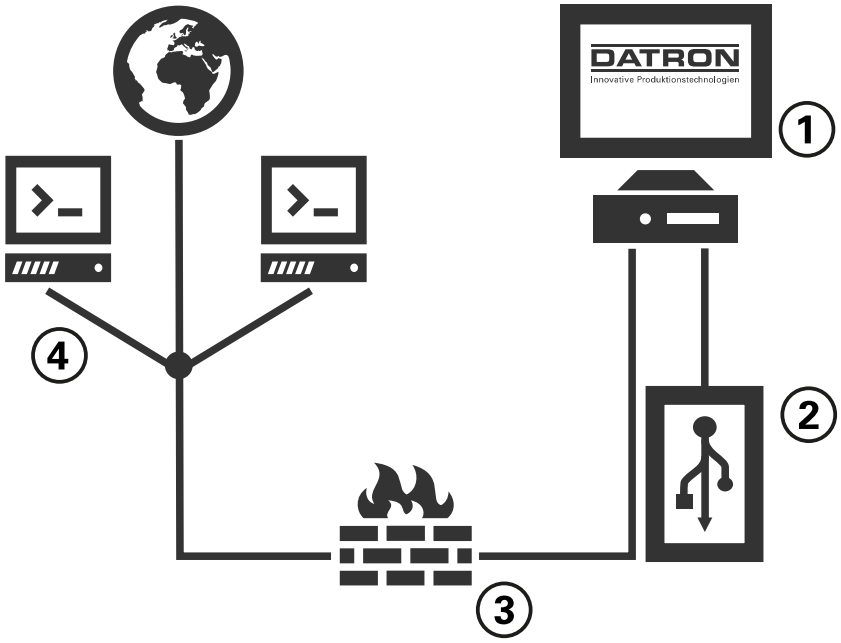

Fig. 2-2: Integration of the DATRON computer in a company network

1 Control computer of the DATRON machine
2 USB port at the control computer
3 Hardware firewall
4 Company network

The establishment of a network connection (internet, in-house data exchange) must be made without changing the configuration of the control computer (for instance, integration into a domain).

For network integration, DATRON recommends using a hardware firewall between the control computer and the company network (see **Fig. 2-2**).

Only virus-tested media may be connected to the USB port of the control computer.

Data exchange

Data is exchanged with program administration sing a USB stick.

2.4 Notes regarding the control computer

Observe the following points to ensure the process reliability of the machining system and quick help in the event repairs are needed:

- The DATRON machine may only be operated with the control components included in delivery. These are an integral part of the system.
- Do not install any other applications, and also no virus scanners on the control components, which are not expressly approved of by DATRON. Additionally installed applications can lead to non-reproducible, sporadically occurring errors.

2.5 Compressed air supply

The compressed air must meet the requirements of the spindle manufacturer (see the original spindle operating instructions). It must be dry, clean and oil-free. Otherwise, the components through which the air flows could be damaged (especially the spindle).

Required air purity

Solid contaminants	Class 3	Max. particle size 5 µm max. Particle content 5 mg/m³
Water content	Class 4	Max. pressure dew point +3 °C
Total oil content	Class 3	Max. oil content 1 mg/m³

NOTE

DATRON urgently recommends that an air treatment system be connected in front of the system!

Any air treatment system available on the market can be used which fulfils the above requirements. Our commissioning personnel is instructed to use a suitable air dryer when there is moisture in the compressed air. This is available for purchase.

If the machine is operated with insufficiently pure compressed air, the warranty for the spindle and components through which air flows is invalid.

Data

Fig. 2-3: Compressed air connection 1/2" rapid action hose coupling

Required pressure	7 to 10 bar	
Connection	1/2" rapid action hose coupling (NW 7.2 mm)	
Compressed air consumption	max. 300 l/min	Machine
	approx. 100 l/min	Compressed air gun

Compressor

Design your compressed air supply so that there is a continuous supply available to the DATRON machine. Depending on the type of compressor, the capacity must lie much higher than the consumption of the machine and the supply buffered via a boiler, so that the compressor has sufficient cooling-off time available. Please have the manufacturer help you with the design of the compressor.

2.6 Cooling lubricant

Select a suitable cooling lubricant depending on the application.

WARNING

In the following cases, ethanol is not permissible as a cooling lubricant:

- Ethanol must not be used as a cooling lubricant when machining steel or other metals that generate sparks during machining. Danger of burns due to spark formation! Use a different suitable cooling lubricant (e.g. fatty alcohol).
- Ethanol is not permitted as a cooling lubricant when suctioning chips. Danger of explosion in the vacuum cleaner!

When machining non-ferrous metals, use the following cooling lubricant for perfect operation and the best machining results:

Ethanol (99%, denatured)

Ethyl alcohol 642

EEC designation 200-578-6 (EINECS)

Ethanol can be purchased tax free without any formalities when the following denaturants are involved: Methyl ethyl ketone, shellac, pininic colophonium, toluol or cyclohexane.

Germany	Austria
BCD Chemie GmbH Frankfurt Office Carl-Benz Strasse 4-6 D-60314 Frankfurt am Main Tel.: +49 - (0) 69 - 40101 - 0 Fax.: +49 - (0) 69 - 425994 Frankfurt@bcd-chemie.de	LACTAN Vertriebsgesellschaft m.b.H. & Co KG c/o Mr Reibenschuh Puchstrasse 85 A-8020 Graz Tel.: +43 - (0) 316 - 23692 - 12 Fax.: +43 - (0) 316 - 323692 - 19 reinhard.reibenschuh@lactan.at

Tab. 2-1: Examples for ethanol suppliers

Impermissible cooling lubricants

Do not use any drilling emulsions, cooling lubricants with high solid content or such which tend to flocculate (milky emulsion). The DATRON machine is not designed for such cooling lubricants and potential material damage could result. If this is not observed, it will invalidate the warranty.

NOTE

Export restriction for initial filling of the machine with cooling lubricant and coolant for spindle cooling unit.

DATRON machines are not filled with cooling lubricant when exported to countries outside the European Union. In this case, the customer must procure the suitable cooling lubricant.

Check your order confirmation.

DATRON approves the following products for use without reservation:

- Coolant for spindle cooling unit: Antifrogen-N with a water content of 25 % - max. 27 %
- cooling lubricant for workpiece machining **ProCut 200**, **ProCut 56** and **ProCut 56-2**

If in doubt, consult DATRON.

2.7 Chip suction

Only use suctioning systems which are permitted for the material to be machined.

3 Technical data

3.1 Dimensions and weight

CNC base system	DATRON neo	Dimensions (mm)
Machine	Weight approx.	700 kg
	Width (with screen)/depth approx.	1300/1290
	Height	1880
	Width with flaps open approx.	2275
	Depth with flaps open approx.	2310
Distance	Free space above the machine at least	400
	Free space right of the machine at least	1000
Installation width	without packaging, without terminal	805
Operating terminal	width/depth	350/570
Support feet	Distance	700/980
Chip tray	Extension length right	900
Machining traverse paths	Traverse path (X/Y/Z)	520/420/230
Portal access	Height	175
Transport dimensions when packed in wrapping on the pallet (terminal mounted)	width/depth/height	980/1480/2160

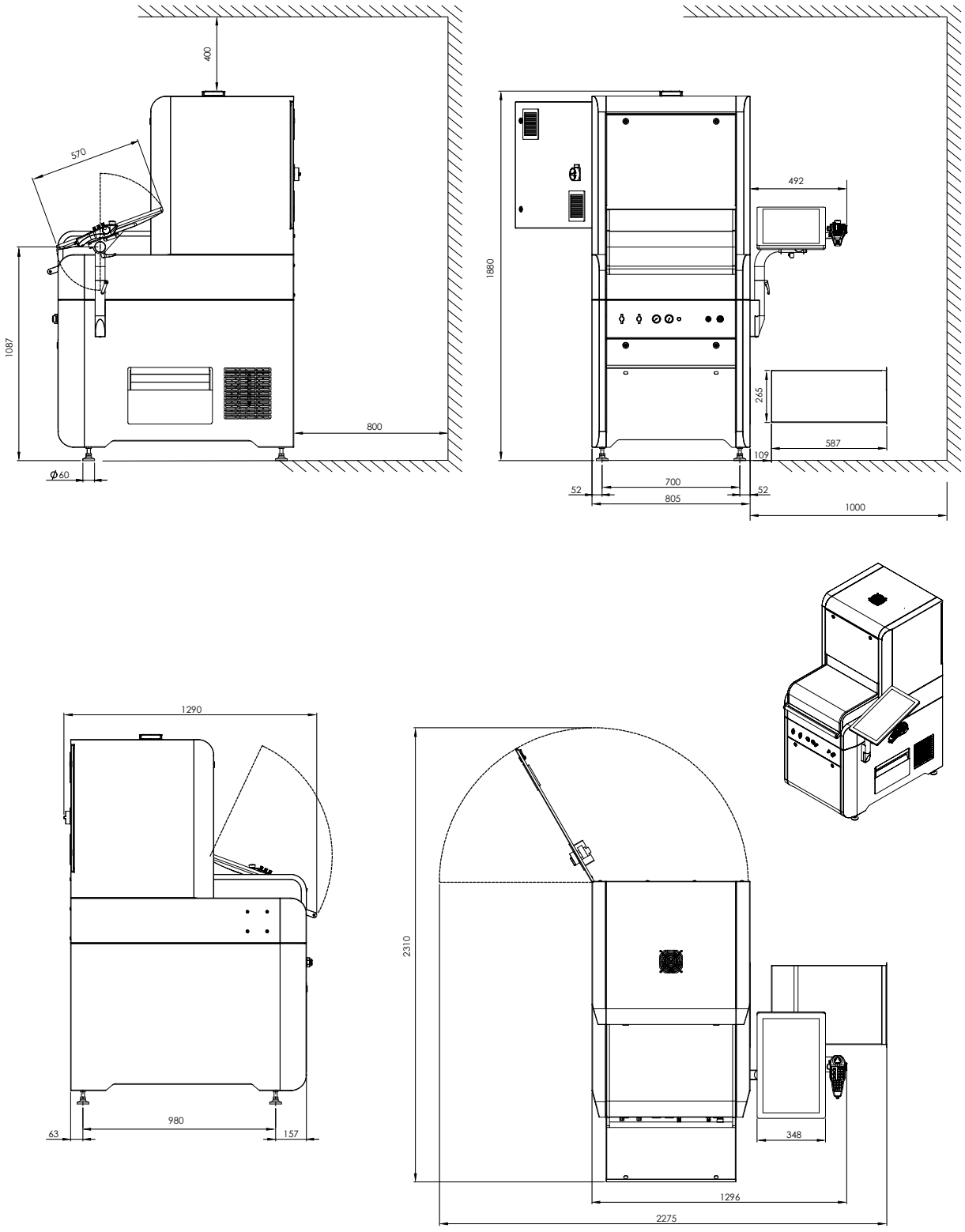

Fig. 3-1: Machine dimensions

4 Safety regulations for operating the machine

The following points are an excerpt from the operating instructions. Please observe the complete operating instructions when operating the machine.

4.1 Dry machining

In dry machining, the material is machined without the cooling spray function. The released dusts must be suctioned by a deduster.

WARNING

Damage to health due to harmful dusts!

When dry machining materials, dusts which are harmful to health can be released.

- For this, observe the information on the safety data sheet of the respective material.
- In the case of harmful dusts, you must use a suitable vacuum cleaner.

CAUTION

Machine damage due to released dusts!

During machining, the dusts that are released have to be suctioned off by a suitable vacuum cleaner.

- Check the compatibility of the vacuum cleaner and the material to be machined.

4.2 Processing with minimum-quantity cooling lubrication system

CAUTION

Hazard posed by using cooling lubricants!

When using cooling lubricants which have not been explicitly recommended by DATRON, observe the manufacturer specifications with regard to fire and explosion hazards. If in doubt, consult a safety professional.

- Canisters with cooling lubricants must be labelled.
- Only use the cooling lubricants recommended by DATRON, since these are optimally suited for the system. Non-recommended cooling lubricants can lead to poor results and damage of the machine.
- When using cooling lubricants, make sure there is sufficient ventilation at the setup site.
- Observe the safety data sheet of the used cooling lubricant.

CAUTION

Danger of blockage in the vacuum cleaner!

Suctioning is not allowed when machining with cooling lubricants.

- Switch the vacuum cleaner off beforehand.

4.3 Use of ethanol as cooling lubricant

When using ethanol as a cooling lubricant, observe the following safety information:

Ethanol

WARNING

Fire hazard due to spark formation!

- When machining steel or other metals where sparks are formed during machining, pure ethanol may not be used as a coolant/lubricant. Use another suitable coolant/lubricant (e.g. fatty alcohol).
- If ethanol is being used as a coolant: No more than 5 l of ethanol may be stored in a flame-resistant canister for operational use at the machine.
- Do not place any objects on the top of the machine. If the air vent at the top is covered, there is a danger that a flammable atmosphere may form inside the machine.

NOTE

Only use as little cooling lubricant as possible and as much as necessary: **Ethanol max. 500 ml/h!**

Chip suctioning

WARNING

Danger of explosion in the vacuum cleaner!

- Suctioning chips is not allowed when ethanol is being used as a coolant.
- Only use extraction equipment which is suitable for extracting swarf from the material to be machined.

Cleaning

When you clean the machine, wait until the ethanol has evaporated and use a vacuum cleaner which is free of ignition sources.

4.4 Safety instructions for cleaning

Health hazard due to milling scrap!

When cleaning the machine and when in contact with milling scrap, observe the information in the safety data sheet of the respective material.

- When carrying out cleaning work and when in contact with milling scrap, wear protective gloves, protective goggles and light breathing protection, especially when you come in contact with harmful dusts or with coolants/lubricants.

Empty the chip tray regularly, no later than when it is more than half-full. Observe the information regarding cleaning in the **operating instructions of the machine**.

5 Vacuum cleaner (optional)

Description

The vacuum cleaner can be moved and is installed ready to use. A separate power circuit is required for operation.

Connection

The vacuum cleaner is connected to the machine for **suction** with the hose included with it.

The vacuum cleaner is actuated by the machine software after connection with a cable included with it.

Technical Data

Vacuum cleaner	Technical Data
Dimensions LxWxH (mm)	544 x 456 x 600
Weight	40 kg
Power	1.1 kW
Voltage	100-230V
Negative pressure	2100 Pa
Air output max.	285 m³/h
Sound level	<66 dB(A)
Volume	18 l
Filter category	H10

6 Checklist

The following checklist provides an overview and summary of all necessary preparatory work for setting up a DATRON machine. The items point out the individual steps. For exact details, please refer to the respective chapter. Using this checklist, please check whether everything is ready for bringing the machines in to you.

If you should have any further questions regarding this checklist, we will be happy to answer them.

yes	No	Checklist for machine setup
		Are the access routes to the setup site free of obstacles? Is there a freight elevator, and is this suitable for the weight of the machine (see **Chapter 1, "Setting up the machine"**)?
		Is there enough room for setup and the surrounding area and is the setup site suitable for the weight of the machine (see **Chapter 1, "Setting up the machine"** and **Chapter 3, "Technical data"**)?
		Can the required room climate be complied with, and is there sufficient ventilation (see **Chapter 1, "Setting up the machine"**)?
		Is the required voltage supply available (see **Chapter 2.1, "Voltage supply"**)?
		Is there a suitable Internet connection available for remote maintenance (see **Chapter 2.2, "Internet connection"**)?
		Is a suitable network available (see **Chapter 2.3, "Network integration"**)?
		Is the compressed air connection with the corresponding air treatment available (see **Chapter 2.5, "Compressed air supply"**)?
		Is a cooling lubricant appropriate for the application required (see **Chapter 2.6, "Cooling lubricant"**)?
		If a compact deduster is to be used, is there a designated power connection for this (see **Chapter , "Compact deduster (optional)"**)?
		Is there a suitable central suction system? If so: What kind of suction nozzle is required? Suction nozzle: _____
		If your country has import restrictions on hazardous liquids, such as oil, cooling lubricants and coolant, the method of supply must be clarified on site.