DATRON

Innovative Produktionstechnologien

DATRON D5

Setup instructions

Name	Setup instructions
Product	DATRON **D5**
Language	en
Target group	User, 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

Check the permissible floor load at the setup site!

When setting up the D5 in residential buildings, the permissible floor load must be checked by a structural engineer. Here, observe the machine weight (see table in chap. 3, Dimensions and weight) and also note that the machine generates dynamic loads of approx. 500 N with a frequency of 0 to 5 Hz.

The machine is installed on-site on a solid supporting surface. The floor of the setup site must have a sufficient load-bearing capacity and rigidity. The height of the supporting feet is adjustable and the feet aren't screwed to the floor. The machine requires a minimum all-round clearance of 60 cm to its surroundings to allow access to components within the cover. Also observe the legal regulations with regard to work safety and escape routes.

CAUTION

Observe!

Open flames, smoking, eating and drinking are prohibited in the vicinity of the machine. Please also adhere to the safety instructions of the coolant and material manufacturer!

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 cooling fluid 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. If required, install a suitable suctioning device for coolant mist. 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:

When the machine is operated continuously, the set-up environment should be kept well-ventilated or an exhaust system for the coolant mist is to be installed. The AGW values (MAK values - maximum workplace concentration values) of the used coolant must be complied with.

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

Noise level

The noise level on the machine for standard applications is < 80 dB(A). If, however, noise levels greater than 80 dB(A) occur during workpiece machining, suitable hearing protection must be worn. At lower noise levels, ear protection must be kept readily available.

2 Connecting the supply media

Connection options

The machine can be connected from below, e.g. through a cable duct in the floor, or from above, through an opening in the cabin roof.

2.1 Voltage supply

To guarantee smooth system operation, the basic disturbances of the power supply must lie below the required limit value curves in accordance with EN 55011.

Information concerning personal protection

If personal protection is required for setting up systems, frequency converters must be safeguarded in acc. with EN 50178 as follows:

- 1-phase devices by means of RCDs, type A (RCDs sensitive to pulse current) or type B (RCDs sensitive to all types of current)
- 3-phase devices (with B6 bridge rectifier) by means of RCMAs with disconnectors (preferable) or RCDs, type B (RCDs sensitive to all types of current)

The release current of the RCDs should be 300 mA or more to avoid premature tripping by leakage current from the converter (approx. 200 mA). The valid local regulations are to be observed when connecting.

Depending on the existing type of network (TN, IT, TT), other measures are required in acc. with VDE 0100 part 410 (part 4; chap. 41). In the case of TN networks, this would be protection by means of an overcurrent mechanism, for example, and for IT networks, isolation monitoring with pulse-code measurement methods. For all types of networks, protective isolation can be used, as far as the required power and line length permit this.

The DATRON machine must be connected to a separately fused electric circuit (3x16 A) .

NOTE

No other consumers or vacuum cleaner should be connected to this power circuit!

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	4.0 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

Including the DATRON machine in the customer network is the responsibility of the customer, done at his own risk: If improperly integrated in the customer network, the performance of the DATRON machine can be negatively influenced. Group guidelines on the network side can limit the machine's performance and lead to errors.

To be able to optimally prepare for the integration of the DATRON machine in the customer network, we require that you send information from the checklist for network integration (see **Chapter 6, Checklist**). Please send the filled-out checklist back to us immediately.

Please understand that for failures and damage to the machine caused by improper integration in the customer network, DATRON must bill you for all service and repair costs (even if it's within the warranty period).

2.4 Compressed air supply

The compressed air must meet the requirements of the spindle manufacturer (see 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

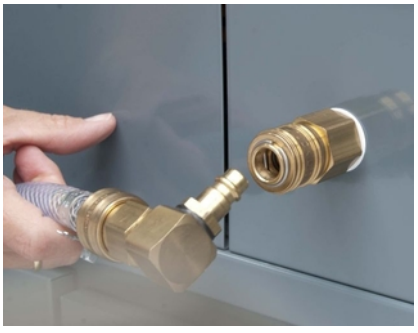

Fig. 2-2: Compressed air connection 1/2" rapid action hose coupling

Required pressure	7 to 10 bar	
Connection	1/2" rapid action hose coupling (NW 7.2 mm)	
Compressed air consumption	max. 200 Nl/min	Machine
	approx. 100 Nl / 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.

2.5 Cooling lubricant

Select a suitable cooling lubricant depending on the application.

Non-permissible 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. Problems with the cooling system caused by use of unsuitable coolants will invalidate the warranty!

2.6 Chip suction

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

2.7 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.

3 Dimensions and weight

Dimensions

DATRON D5	Dimensions (mm)
Weight approx.	900 kg
Width/depth	790/1190
Height	1910
Width with flaps open	1980
Depth with flaps open	1370
Height, machining area	1120
Height, operating terminal	1560
Distance between supporting feet	669/950
Distance between supporting feet Outer edge	46/96/110

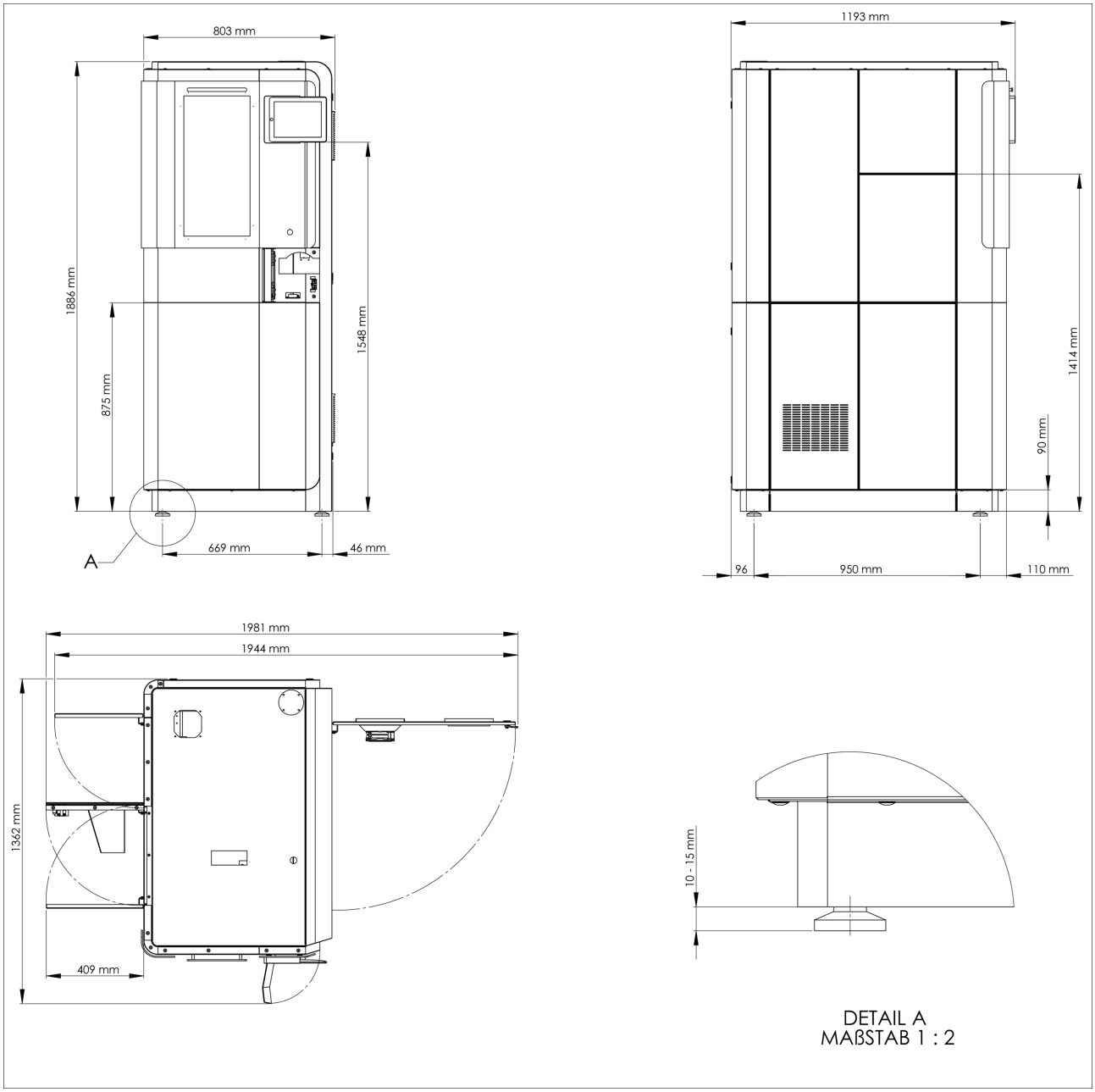

Fig. 3-1: DATRON D5

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

The following dental materials are dry machined:

- Zirconium oxide
- PMMA/wax
- Nano composite
- Other materials only after consulting with DATRON

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

WARNING

Danger due to hazardous dusts!

During dry machining of materials, dusts can be released which are hazardous to health and must be vacuumed. For this, observe the information on the safety data sheet of the respective material.

CAUTION

Possible damage to the machine 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. If the dusts are not suctioned off, the machine can be damaged.

4.2 Machining with minimum quantity cooling/lubricating system

The following dental materials are machined using the minimum quantity cooling/lubricating system:

- NEM
- Titanium alloys*/Titanium*
- Other materials only after consulting with DATRON

* (With regard to this, observe the information in **Chapter 4.4, Machining titanium**)

CAUTION

Observe the following when using cooling lubricants:

- Canisters with cooling fluid must be labelled as such.
- 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.
- Observe the safety data sheet of the used cooling lubricant.
- When using liquid 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.

CAUTION

Danger of blockage in the vacuum cleaner!

Suctioning is not allowed when machining with cooling lubricants.

4.3 Handling different materials

For every machining operation, only load the machine with materials with are **either** dry **or** are machined with the minimum quantity lubricating system. Do not mix these two milling technologies during one machining operation.

CAUTION

Potential damage to machine due to contamination!

Clean the machine thoroughly before you change from dry machining to machining with the minimum quantity lubricating system and vice versa. Also empty the chip tray.

WARNING

Potential fire hazard due to mixing materials!

When switching from the machining of metallic materials to flammable materials (e.g. PMMA, wax, plastics, etc.), and vice versa, the machine must be thoroughly cleaned. Empty the chip tray in this case as well.

Observe the safety instructions of the coolant and material manufacturers! Keep fire blankets and fire extinguishers of classes A, B, C, D ready for extinguishing fires. Metal fires can start, especially when machining aluminium, titanium and magnesium. Metal fires are to be extinguished with a class D fire extinguisher. Do not extinguish with water under any circumstances. This poses a danger of explosion!

4.4 Machining titanium

Make sure you observe the following safety instructions when machining titanium:

WARNING

Fire hazard posed by material!

When machining titanium or other reactive materials, there is a general fire hazard due to the kind of material. DATRON therefore recommends that you install a suitable automatic extinguishing system if you machine titanium. When machining titanium, be sure to consult a safety professional or someone who has been trained accordingly to evaluate the fire hazard and the specific situation at your site. A corresponding extinguishing system can be purchased from DATRON.

4.5 Automatic production

When operating the machine without supervision, make sure you observe the following safety information:

WARNING

This constitutes a fire hazard under unfavourable conditions!

When the tool wears out or breaks, this can cause nests made of flammable materials to ignite in the chip tray. DATRON therefore urgently recommends that a suitable automatic extinguishing system is installed for unsupervised machine operation. When the machine is operated without supervision, be sure to consult a safety professional or someone who has been trained accordingly to evaluate the fire hazard and the specific situation at your site. A corresponding extinguishing system can be purchased from DATRON.

4.6 Cleaning

Every time the machine is loaded, make sure that the blank holders, grippers and seat are free of contaminants.

Empty the chip tray regularly; at latest when it is more than half-full.

Clean the machine thoroughly and always empty the chip tray when you:

- change from dry machining to machining with minimum quantity lubricating system and vice versa.
- change from machining metal materials to flammable materials (e.g. PMMA, wax, plastics, etc.) and vice versa.

5 Optional: Compact deduster

Description

The compact deduster can be moved and is installed ready to use.

Connection

The deduster is connected to the connection nozzle of the machine using the hose included in delivery.

Fig. 5-1: Compact deduster

Technical data

Compact deduster	Technical data
Dimensions LxWxH (mm)	600 x 770 x 1350
Weight	103 kg
Power	1,1 kW
Voltage	400 V
Negative pressure	2100 Pa
Air output max.	1220 Nm^3/h
Sound level	74 dB(A)
Movable dust container	30 l
Filter category	M
Hose length DIN 125	3 m

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. Please check the individual items and send us the filled-out checklist for machine setup and network integration:

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Fax: +49 (0)6151-1419-29

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, Dimensions and weight**)?
		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 2.4, Compressed air supply**)?
		Is a cooling lubricant appropriate for the application required (see **Chapter 2.5, Cooling lubricant**)?
		In the case of unsupervised production: Are the safety instructions for fire protection taken into account (see **Chapter 4.5, Automatic production**)?
		If a compact deduster is used: Is a separate power connection available (see **Chapter 5, Optional: Compact deduster**)?
		Is there a suitable central suction system? If so: What kind of suction nozzle is required? Suction nozzle: _____

The following questions are for preparing for the integration of the DATRON D5 in the network of your company.

Checklist for network integration
What network topology do you have at your company? Domain: ☐ yes ☐ No
What IP address range do you use? Please specify an IP address: (e.g. 192.168.0.1) _____ . _____ . _____ . _____
What subnet mask do you have? Please specify the subnet mask: (e.g. 255.255.255.0) _____ . _____ . _____ . _____
How should the DATRON D5 obtain its IP address? Automatically: ☐ yes ☐ No If "No", a static IP address is required: IP address: _____ . _____ . _____ . _____ Standard gateway: _____ . _____ . _____ . _____ DNS server: _____ . _____ . _____ . _____
What client systems do you use in your company? ☐ Windows 2000 ☐ Windows XP Home ☐ Windows XP Professional ☐ Windows 7 Home Premium ☐ Windows 7 Professional / Ultimate ☐ Windows 7 x64 Home Premium ☐ Windows 7 x64 Professional / Ultimate Other: _____

Please provide us with a contact person for any questions:

Name: _____ Telephone: _____

Company: _____ E-mail: _____

Address: _____

_____