

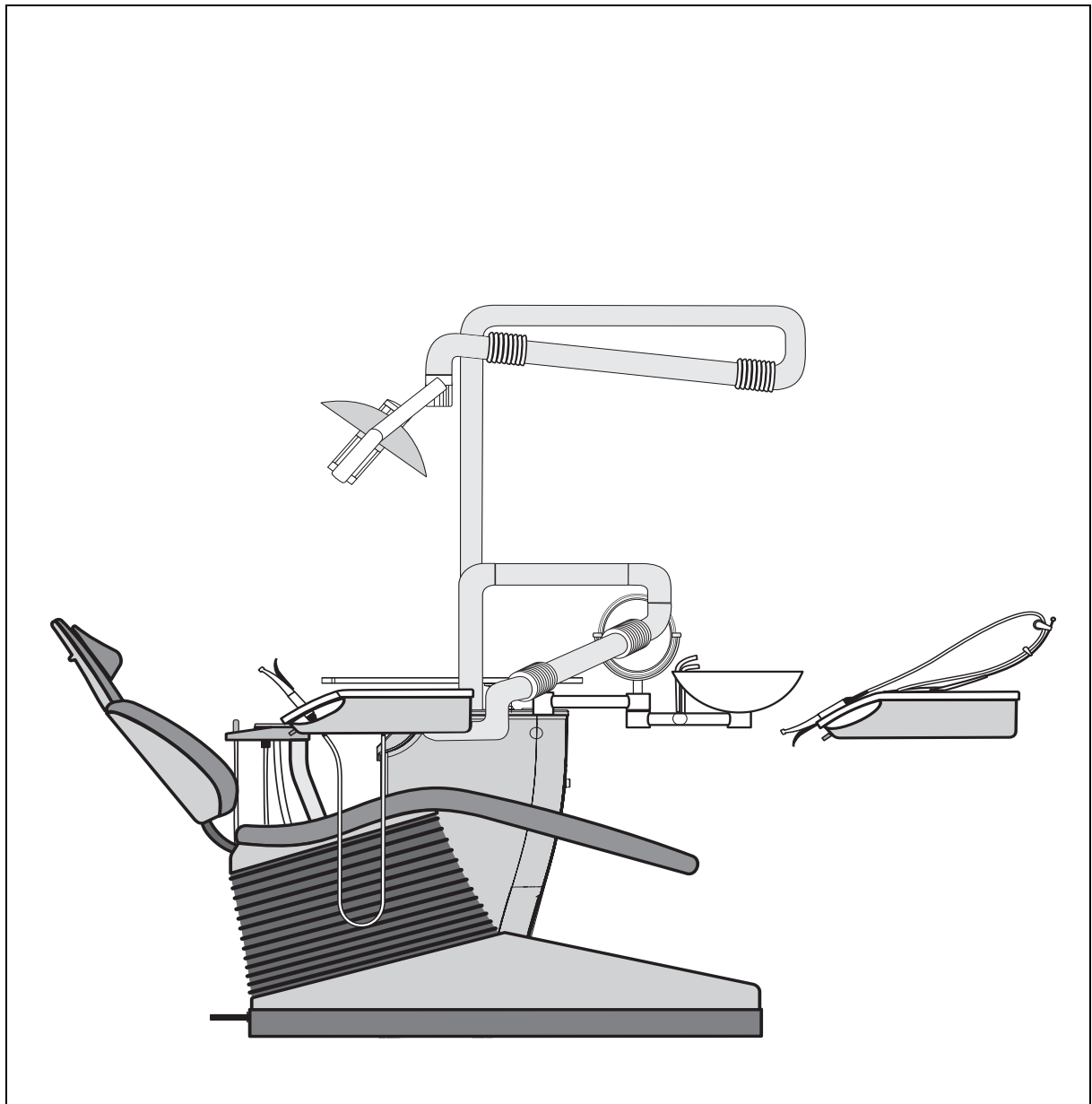
New as of:

06.2007

ProFeel⁺

Installation Requirements

English



General information

About this document

This document describes the installation requirements for the ProFeel⁺ dental treatment centers.

Their subsequent installation is described in the Installation Instructions:

- REF 60 29 644

Besides you need the drilling template, for secure fastening of the treatment center to the floor:

- REF 60 31 921

06.2007

Changes since the last version 04.2005:

Chapter or section, page

2.1 ProFeel⁺ 1:20 14t

List of Contents

1	Preparations.....	5
	1.1 Safety.....	6
	1.2 Media quality.....	7
	1.3 Supply lines in the termination panel.....	8
	1.4 Underfloor installation of SIVISION connections.....	11
	1.5 Mounting plates for ProFeel+.....	12
2	Dimensions, technical data.....	13
	2.1 ProFeel+ 1:20.....	14
	2.2 ProFeel+: Technical data.....	16
3	Electromagnetic compatibility.....	17
	3.1 Accessories.....	18
	3.2 Electromagnetic emission.....	19
	3.3 Immunity to interference.....	20
	3.4 Working clearances.....	22

1 Preparations

ProFeel⁺

1.1 Safety	6
1.2 Media quality	7
1.3 Supply lines in the termination panel	8
1.4 Underfloor installation of SIVISION connections	11
1.5 Mounting plates for ProFeel ⁺	12

1.1 Safety

! CAUTION

It is essential that you comply with the warning and safety information contained in the Installation Requirements.

All such information is highlighted by the captions NOTE, CAUTION, and WARNING

! CAUTION

For reasons of product safety, only original Sirona accessories approved for this product, or accessories from third parties approved by Sirona, may be used. The user is responsible for dangers resulting from the use of non-approved accessories.

If any devices not approved by Sirona are connected, they must comply with the applicable standards, e.g.:

- IEC 60950 for information technology equipment and
- IEC IEC 60601-1 for medical electrical equipment

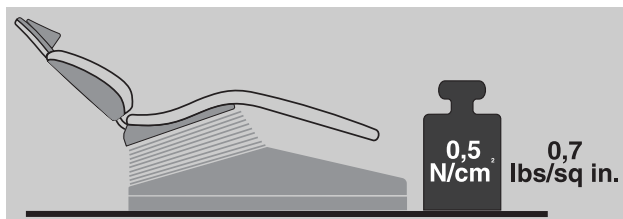
In case of doubt, contact the manufacturer of the system components.

! CAUTION

Any person who assembles or modifies a medical electrical system complying with the standard IEC 60 601-1-1 (safety requirements for medical electrical equipment) by combining it with other equipment (e.g. when connecting a PC) is responsible for ensuring that the requirements of this regulation are met to their full extent for the safety of the patients, the operators and the environment.

! CAUTION

The floor must be flat and level (DIN 18 202). A mounting plate must be used for uneven floors (see Section 1.5, "Mounting plates for ProFeel⁺" on page 12).



! CAUTION

The floor must have a minimum loading capacity of 0.5N/cm².

! CAUTION

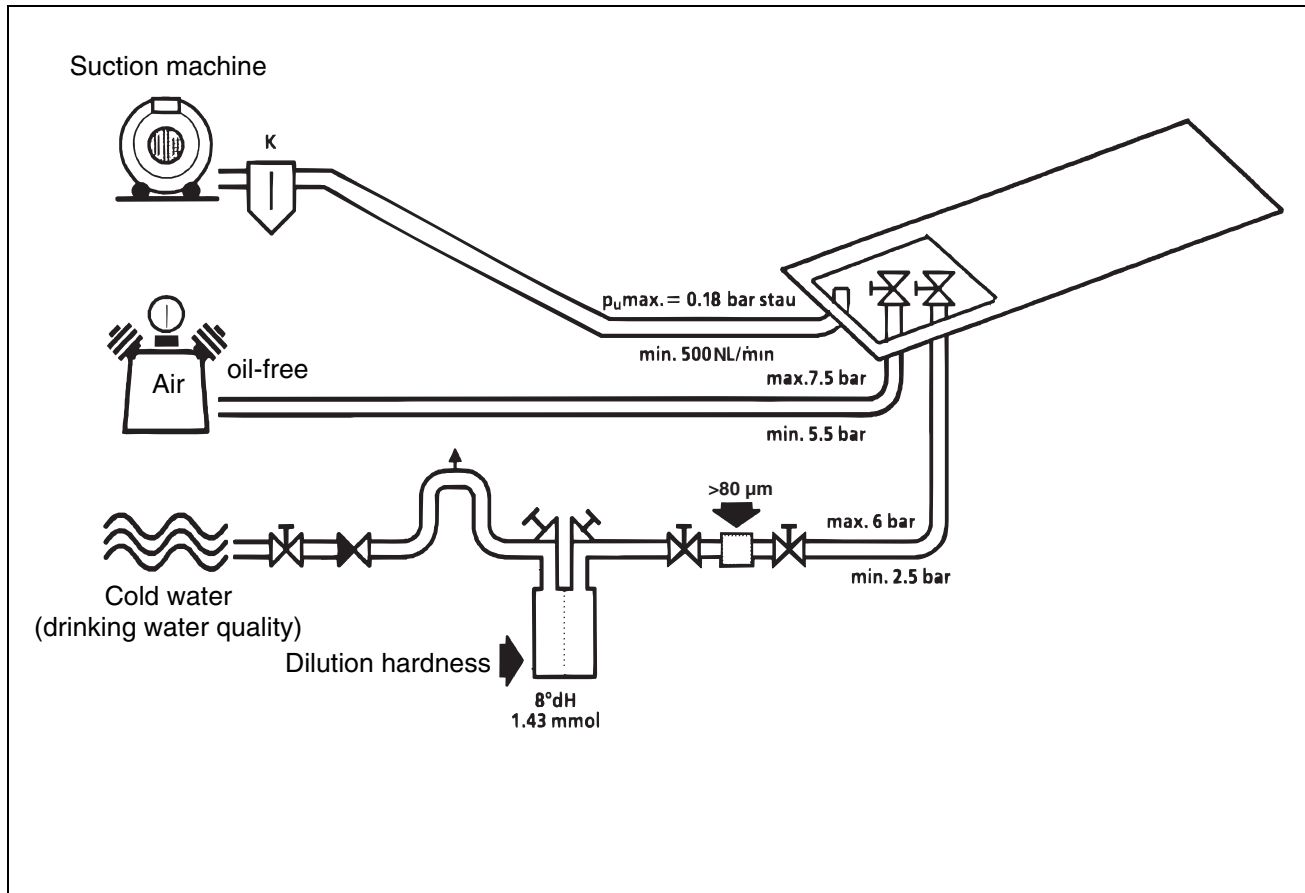
Interference of electromedical devices caused by radio telephones:

To ensure the operational readiness of electromedical devices, the use of mobile radio telephones in the practice or hospital area is prohibited.

! CAUTION

Electromagnetic compatibility: The unit should not be operated in the immediate vicinity of other devices. If this proves to be unavoidable, the unit should be monitored to ensure that it is used properly.

1.2 Media quality



Water quality

Lime deposits and corrosion residues in tap water can lead to the following malfunctions:

- Premature clogging of the filters in the unit
- Rapid clogging of the fine water paths and jets in the treatment instruments

For these reasons, the following points must be observed:

- If the water hardness exceeds 12° dH ($=2.15 \text{ mmol}$), install a water softener.
- Set dilution hardness to 8° dH (1.43 mmol).
- Install a conventional fine filter.
Fineness: $>80 \mu\text{m}$ (0.08 mm).
- Installation must be performed in compliance with the recommendations of the national installation requirements (e.g. EN1717/DIN 1988).
- The water quality must comply with the national requirements for drinking water.
- The connection must be made to cold water.

Air quality

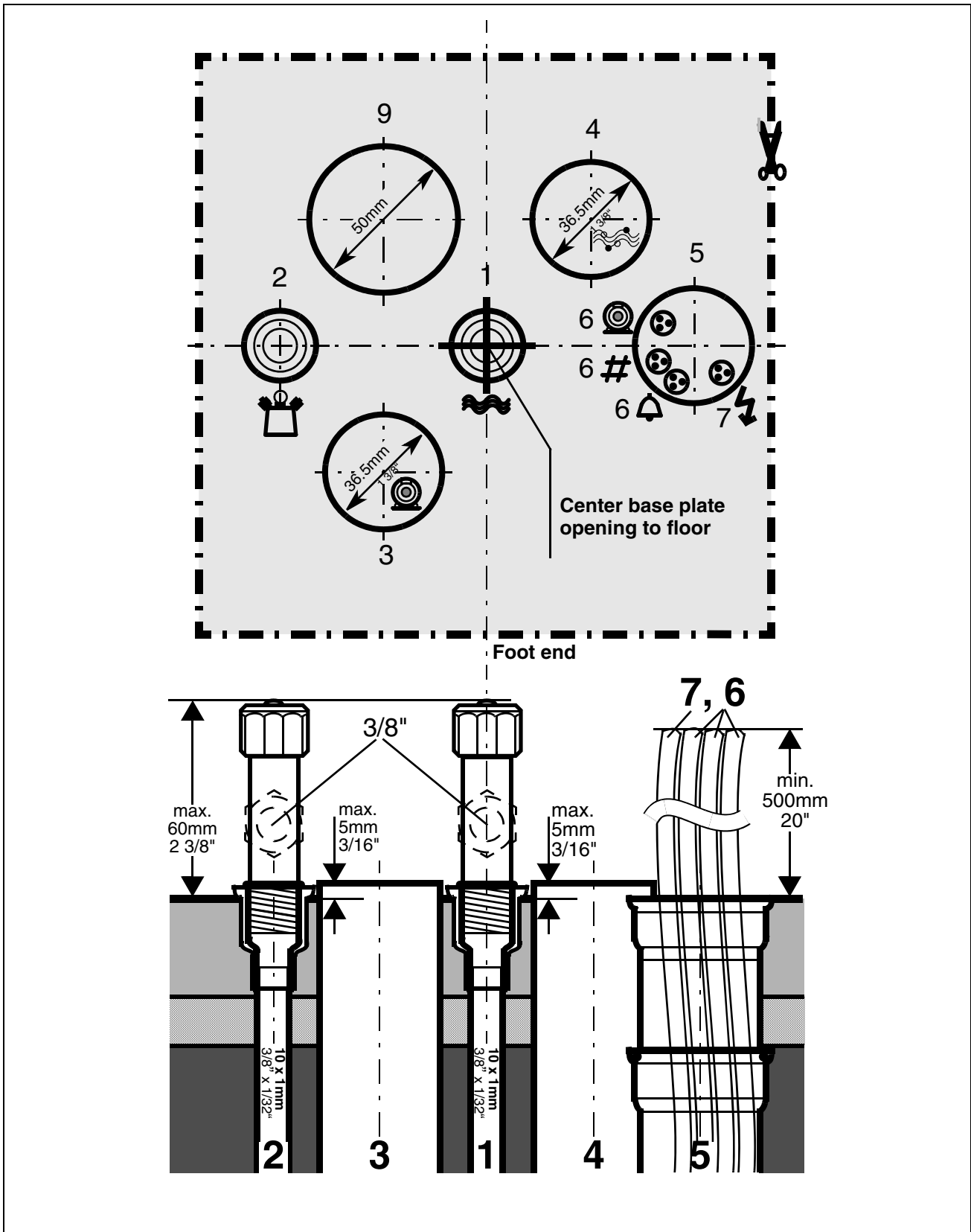
Oil-free, dry and hygienically perfect air is required for driving the highspeed handpiece, for cooling the burr drives and for the cooling spray.

Suction pipe

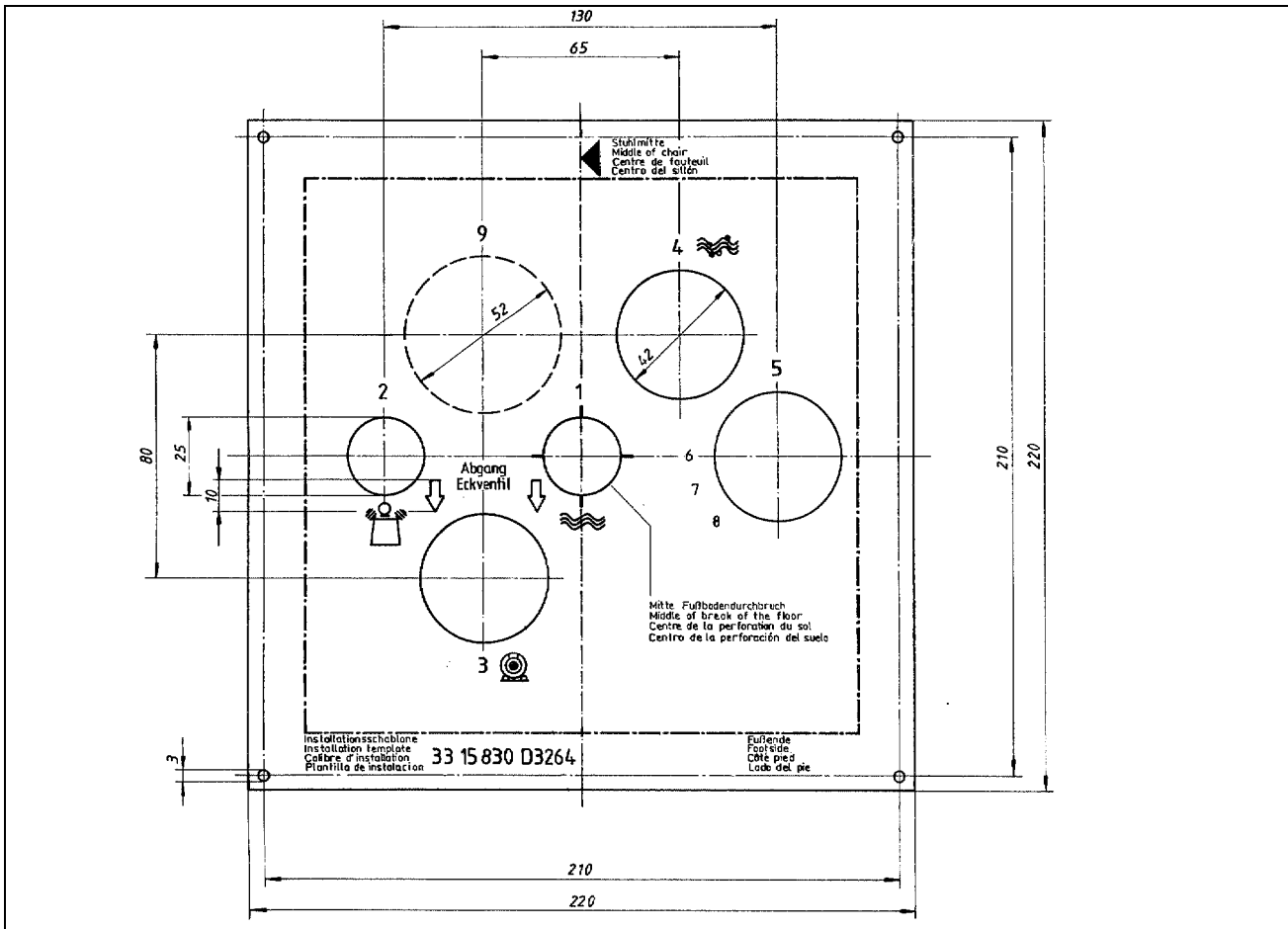
Install steam trap **K**.

With a vacuum of $p_u > 0.18 \text{ bar}$ back pressure, the treatment center must be retrofitted with the "Vacuum limiter" retrofit kit (Order No.: 59 68 826).

1.3 Supply lines in the termination panel



Supply lines in the termination panel

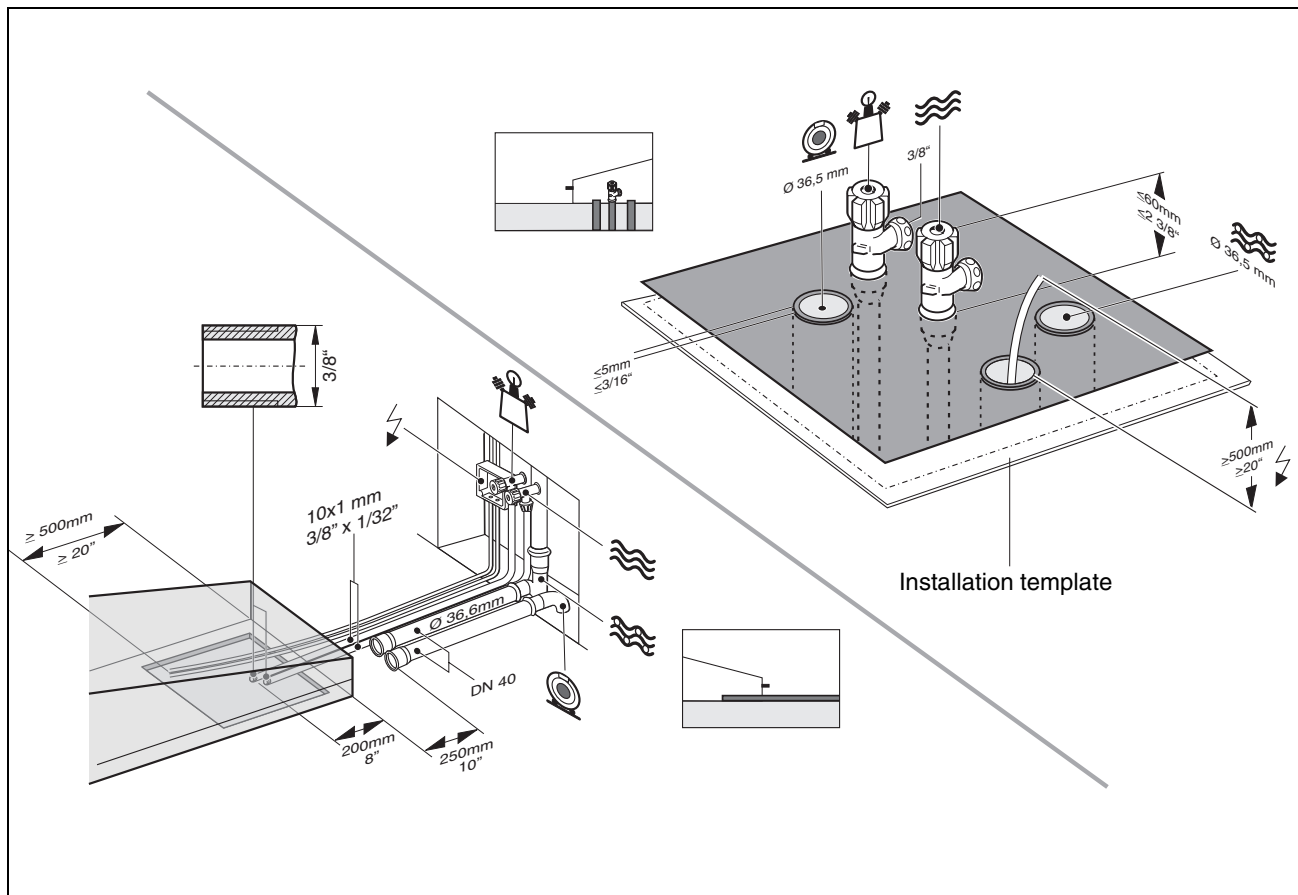


- Observe the national regulations for electrical installations (e.g. VDE 0100, VDE 0100, Part 710).
- Observe the national regulations for water supply installations (e.g. EN 1717, DIN 1988) and sewage installations (e.g. EN 12056-1).
- For the suction pipe, observe the instructions in the **Suction Machine Installation Instructions**.
- For fastening the pipe ends in the installation field, we recommend using an **installation template**. They can be ordered from Sirona under **REF 33 15 830**.
If necessary, you can also prepare the template yourself based on the above sketch (not true to scale!).

Table 1: Supply lines

Item	Description
1	Water inlet pipe 10x1mm, corner valve outlet 3/8"
2	Compressed air inlet pipe 10x1mm, corner valve outlet 3/8"
3	Suction pipe DN40 HT-PP DIN 19560 (polypropylene, inner diameter 36.5mm!)
4	Water drain DN40 HT-PP DIN 19560 (polypropylene, inner diameter 36.5mm!)
5	Installation pipe , DN40 HT-PP DIN 19560 (polypropylene, 40mm!)
6	Suction machine control cable (⊙) and call cables (#, △) 3x1.5mm ²
7	Power cable 3x1.5mm ² Fuse: 16A slow-blow Recommended: Type B automatic circuit breaker
8	not applicable
9	Installation pipe (or corresponding flat duct) for additional requirement e.g. practice network connecting cable

Supply lines in the termination panel



Supply above the floor, "above-floor installation"

The supply pipe ends, corner valves and cables must be routed as shown above.

The retrofit kit for above-floor installation (33 17 265) is required for installation.

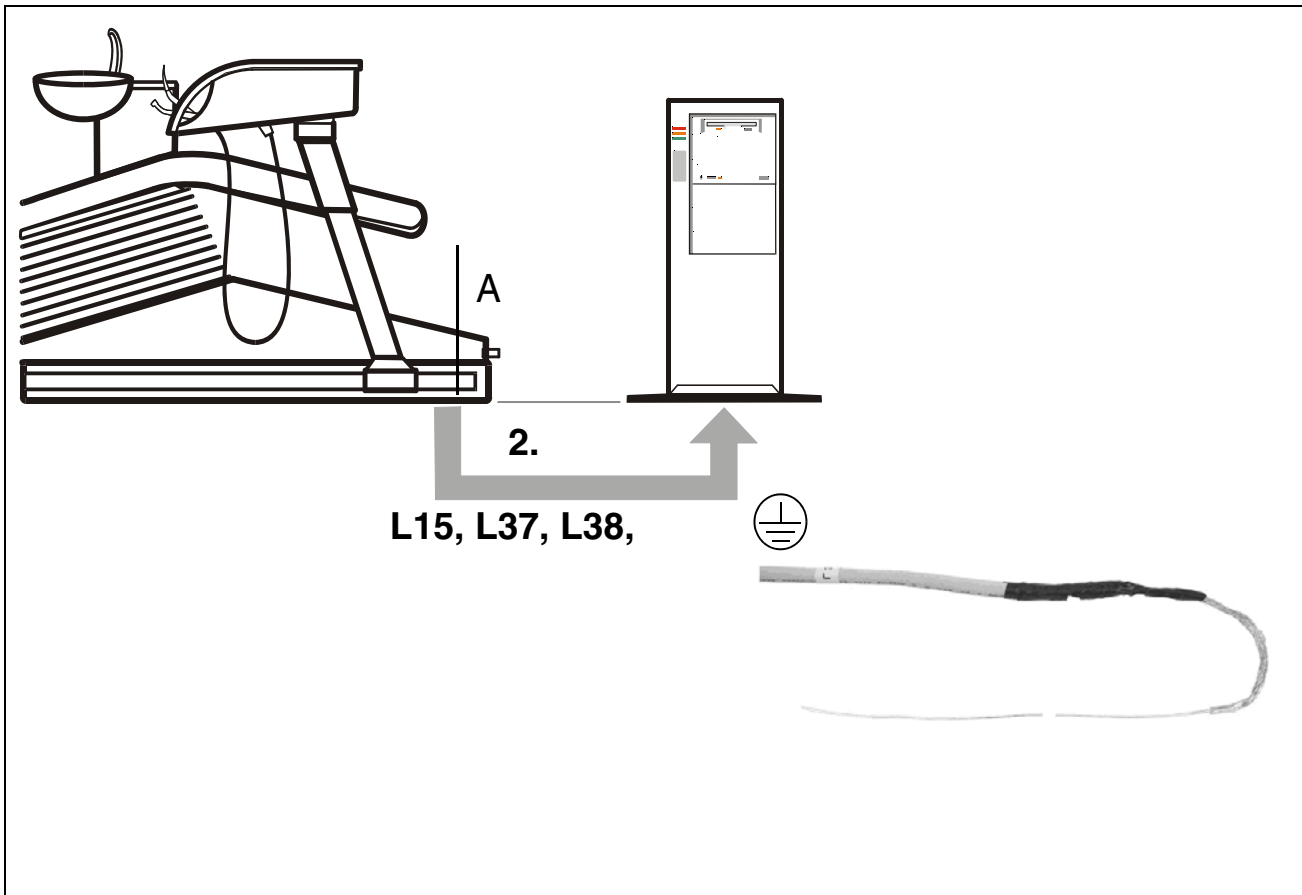
⚠ CAUTION

For cleaning, rinse the air and water pipes thoroughly (metal chips!).

Supply through the floor, "underfloor installation"

1. The top edges of the corner valves for air and water must not protrude more than 60 mm above the upper surface of the finished floor.
2. The suction and drain pipes must be flush with the upper surface of the floor (a deviation of +5 mm is permissible).
Internal diameter for both pipes: 36,5 mm.
3. The electrical cables must protrude at least 500 mm.

1.4 Underfloor installation of SIVISION connections



Important information for the installer

Depending on the prevailing local conditions, the existing cable set can be installed in the cable duct of an underfloor installation by an installer prior to the installation of the dental treatment center. In this case, please observe the following:

Proceed with **extreme care** when running the cables. Particularly cables **L15** and **L38** are very sensitive, and must never be kinked or twisted. The cables must **not overlap or cross one another**.

RS232 (**L37**) and the XGA cable (**L38**) are not yet cut to length and terminated on the PC side. It would be impossible to pull the cables through when installing them under floor level if a sub D connector were already connected. These cables should always be pulled.

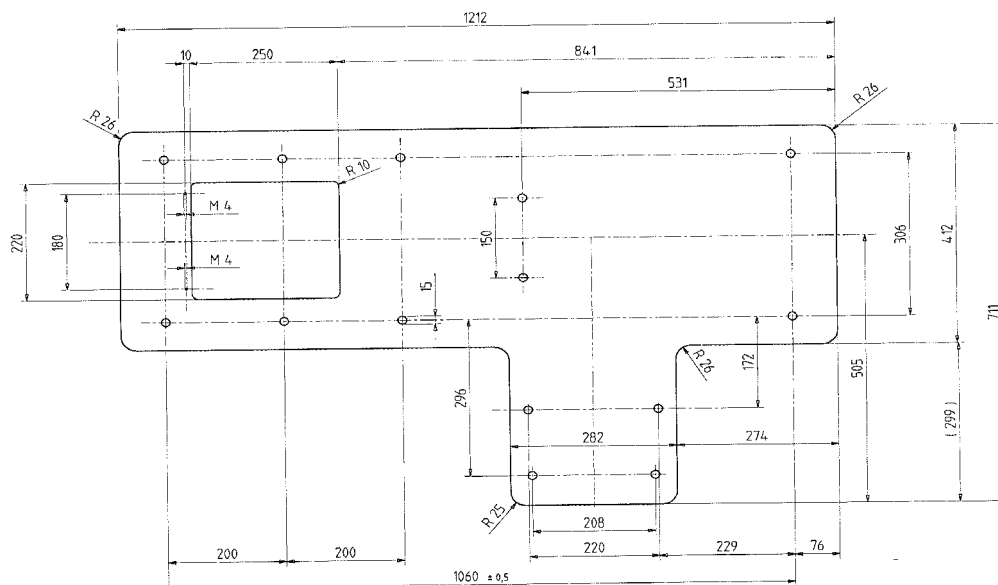
Free length **A** of cables at the treatment center end:
Length **A** = 600mm

If S video cable **L15** is equipped with both a female and a male connector, make sure that the female connector (socket) points to the connection box of the treatment center.

1. Bend the wire at the front end of cables **L37** and **L38** to form a hook.
2. Pull cables **L15**, **L37**, **L38** and the grounding cable of the treatment center through the cable duct to the location of the PC.

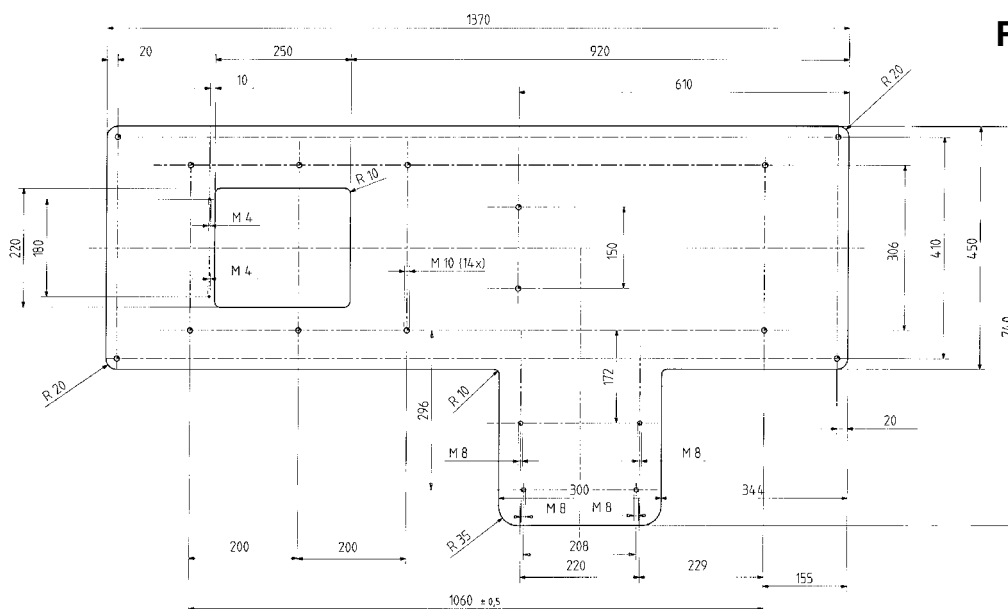
Save the accessory parts for final installation!

1.5 Mounting plates for ProFeel⁺



**Chair plate
REF 58 26 511**

For especially uneven floor conditions, a steel chair plate is available to compensate for the irregularities of the floor (REF 58 26 511).



**Demo plate
REF 47 08 074**

For floors which do not permit permanent connection of the unit (e.g. demo operation at a fair), installation on a steel demo plate is possible (REF 47 08 074).

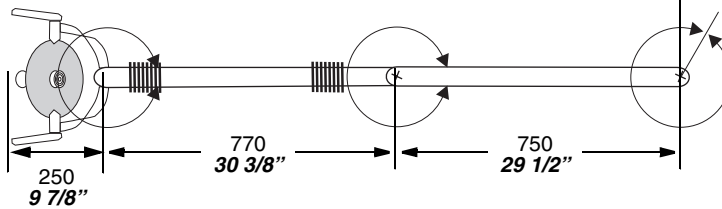
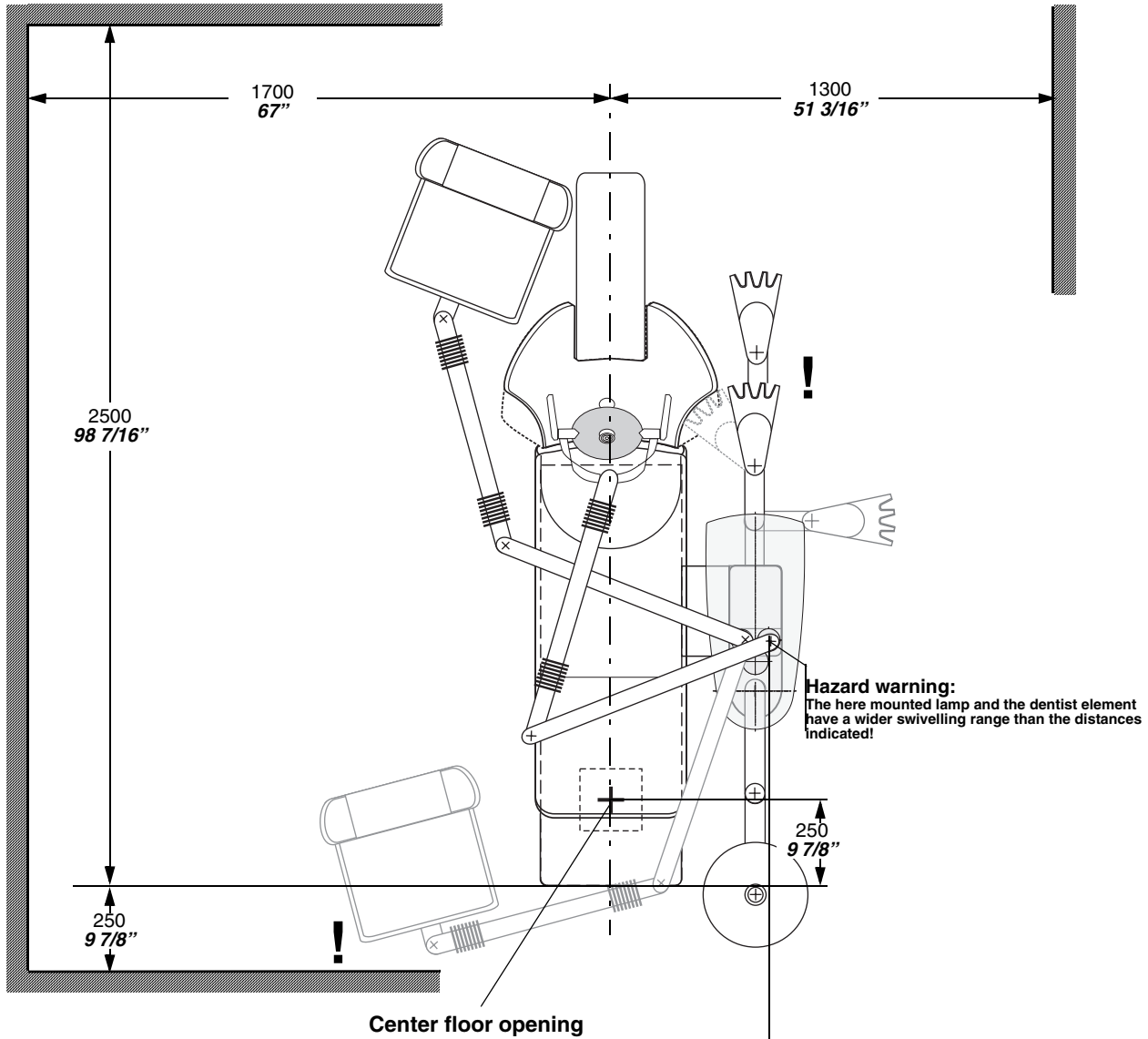
2 Dimensions, technical data

ProFeel⁺

2.1 ProFeel ⁺ 1:20	14
2.2 ProFeel ⁺ : Technical data	16

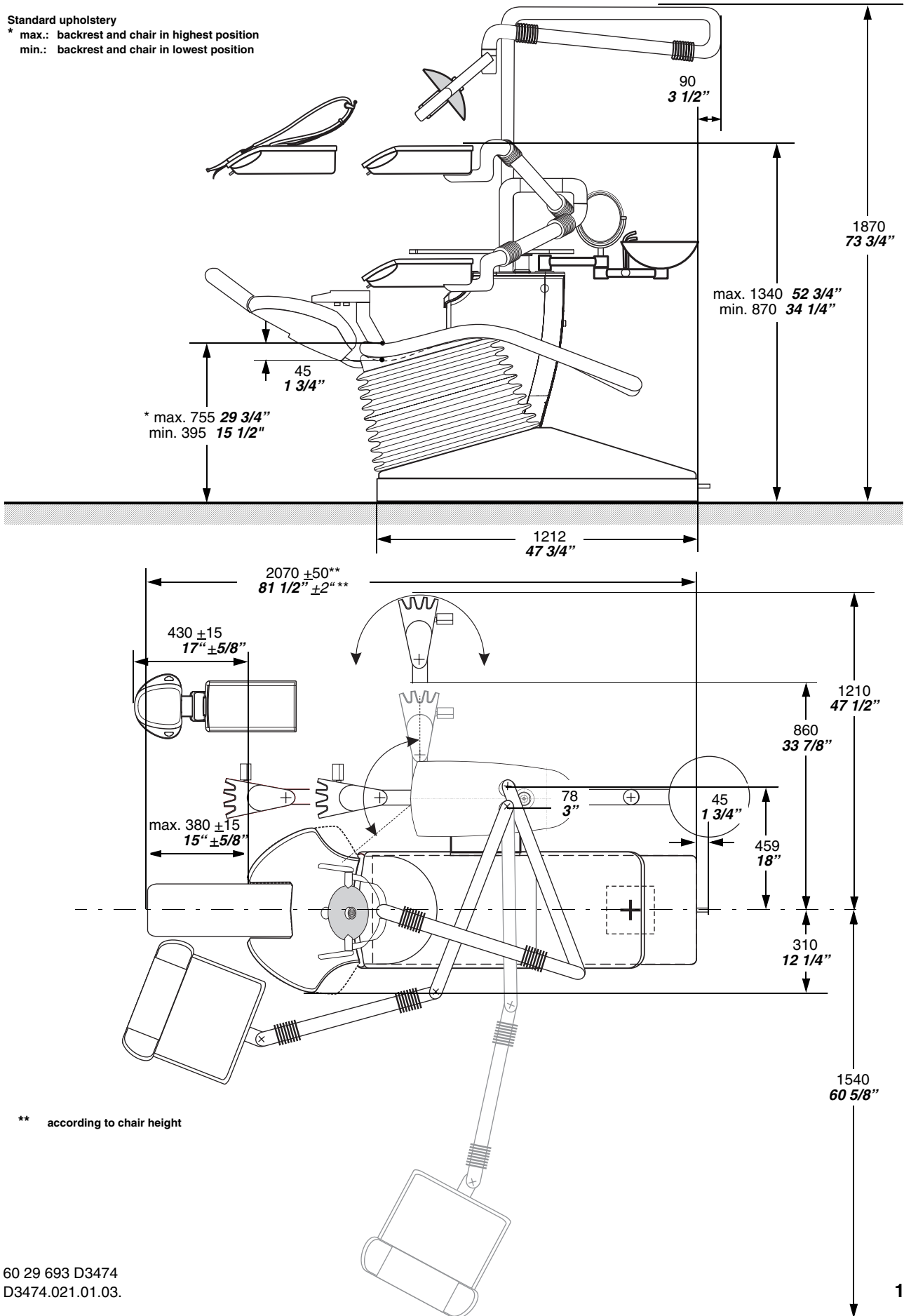
2.1 ProFeel+ 1:20

Recommended distances from cabinet or wall.



Standard upholstery

- * max.: backrest and chair in highest position
- min.: backrest and chair in lowest position



** according to chair height

2.2 ProFeel⁺: Technical data

Dimensions of the packaging

Dentist element, assistant element	120cm x 63cm x 110cm
Water unit	120cm x 63cm x 96cm
Chair	157cm x 64cm x 82cm
Upholstery	120cm x 52cm x 40cm
SIRLOLUX FANTASTIC	10,5cm x 56cm x 28cm

Weight

incl. / without packaging

Dentist element, assistant element	37,5kg / 10kg + 3kg
Water unit	44kg / 16,5kg
Chair	120kg / 90kg
Upholstery	13kg / 9kg
SIRLOLUX FANTASTIC	14kg / 10kg

Power supply connection

230V, 50Hz
 115/115/127V, 50 / 60Hz

Nominal current

at 230V	5A
at 127V	9A
at 115V	10A
at 100V	11,5A

On-site pressure readings

Air min./max.	1bar=14.5 PSI	5.5 / 7.5bar
Water min./max.		2.5 / 6bar

3 Electromagnetic compatibility

ProFeel⁺

3.1 Accessories	18
3.2 Electromagnetic emission	19
3.3 Immunity to interference	20
3.4 Working clearances	22

i NOTE

The ProFeel⁺ fulfills all requirements for electromagnetic compatibility (EMC) compliant with IEC 60601-1-2:2001.
The ProFeel⁺ is referred to as "**UNIT**" in the following.

Observance of the following information is necessary to ensure safe operation regarding EMC aspects.

3.1 Accessories

Making the PC connection

Designation of interface cables to the PC	Supplier
XGA cable, 10m	Sirona
S video cable, 10m	Sirona
RS232 cable, 10m	Sirona
2nd protective groundwire, 1.5mm ² , 10m	Sirona

- The **UNIT** may be operated only with accessories and spare parts approved by Sirona. Unapproved accessories and spare parts may lead to an increased emission of or a reduced immunity to interference.
- The **UNIT** should not be operated immediately adjacent to other devices. If this proves to be unavoidable, the **UNIT** should be monitored to check and make sure that it is used properly.

The EMC measurements were performed with the following PCs:

PC as peripheral device for checking the interfaces with:

PC 1: Siemens Fujitsu, Pentium III, 650 MHz
PC 2: Siemens Fujitsu, Pentium IV, 2.4 GHz

Extension of the PC

Graphics card Matrox Millenium G450 Dual-Head graphic controller

Frame grabber card PicPort Color frame grabber card (Leutron) REF: 46 93 961

3.2 Electromagnetic emission

The **UNIT** is intended for operation in the electromagnetic environment specified below.

The customer or user of the **UNIT** should make sure that it is used in such an environment.


Emission measurement	Conformity	Electromagnetic environment guidelines
HF emission according to CISPR 11	Group 1	The UNIT uses HF energy only for its internal function. The HF emission is therefore very low, and it is improbable that nearby electronic devices might be disturbed.
HF emission according to CISPR 11	Class B	The UNIT is intended for use in all facilities, including residential areas and in any facilities connected directly to a public power supply providing electricity to buildings used for residential purposes.
Harmonics according to IEC 61000-3-2	Class A	
Voltage fluctuations / Flicker according to IEC 61000-3-3	compliant	

3.3 Immunity to interference

The **UNIT** is intended for operation in the electromagnetic environment specified below.

The customer or user of the **UNIT** should make sure that it is used in such an environment.

Immunity interference tests	IEC 60601-1-2 test level	Conformance level	Electromagnetic environment guidelines
Electrostatic discharge (ESD) according to IEC 61000-4-2	± 6kV contact discharge ± 8 kV air discharge	± 6kV contact discharge ± 8kV air discharge	Floors should be made of wood or concrete or covered with ceramic tiling. If the floor surface consists of synthetic material, the relative humidity must be at least 30%.
Electrical fast transient/burst according to IEC 61000-4-4	± 1 kV for input and output lines ± 2kV power cables	± 1 kV for input and output lines ± 2kV power cables	The quality of the supply voltage should conform to the typical business or hospital environment.
Surge voltages according to IEC 61000-4-5	± 1 kV push-pull voltage ± 2kV push-pull voltage	± 1 kV push-pull voltage ± 2kV push-pull voltage	The quality of the supply voltage should conform to the typical business or hospital environment.
Voltage dips, short interruptions and variations of the power supply according to IEC 61000-4-11	<5% U_T for ½ period (>95% dip of U_T) 40% U_T for 5 periods (60% dip of U_T) 70% U_T for 25 periods (30% dip of U_T) <5% U_T for 5sec. (>95% dip of U_T)	<5% U_T for ½ period (>95% dip of U_T) 40% U_T for 5 periods (60% dip of U_T) 70% U_T for 25 periods (30% dip of U_T) <5% U_T for 5sec. (>95% dip of U_T)	The quality of the supply voltage should correspond to the typical business or hospital environment. If the user of the UNIT requires it to continue functioning following interruptions of the power supply, it is recommended to have the UNIT powered by an uninterruptible power supply or a battery.
Magnetic field of power frequencies (50/60 Hz) according to IEC 61000-4-8	3 A/m	3 A/m	The power frequency magnetic fields should correspond to the typical values found in the relevant business and hospital environment.
Remarks: U_T is the AC supply voltage prior to application of the test level.			

Immunity interference tests	IEC 60601-1-2 test level	Conformance level	Electromagnetic environment guidelines
<p>Conducted HF interference IEC 61000-4-6</p> <p>Radiated HF interference IEC 61000-4-3</p>	<p>3V_{eff} 150 kHz to 80 MHz^a</p> <p>3V/m 80MHz to 800MHz^a</p> <p>3V/m 800MHz to 2.5GHz^a</p>	<p>3V_{eff}</p> <p>3V_{eff}</p> <p>3V_{eff}</p>	<p>Portable and mobile radio equipment must not be used within the recommended working clearance from the UNIT and its cables, which is calculated based on the equation suitable for the relevant transmission frequency.</p> <p>Recommended working clearance:</p> $d = [1, 2] \sqrt{P}$ $d = [1, 2] \sqrt{P}$ <p>at 80MHz to 800MHz</p> $d = [2, 3] \sqrt{P}$ <p>at 800MHz to 2.5GHz</p> <p>where P is the nominal transmitter output in watts (W) specified by the transmitter manufacturer and d is the recommended working clearance in meters (m).</p> <p>The field strength of stationary radio transmitters is based on a local investigation for all frequencies^b less than the conformance level for all frequencies^c.</p> <p>Interference is possible in the vicinity of equipment bearing the following graphic symbol.</p> 

- a. The higher frequency range applies at 80MHz and 800MHz.
- b. The field strength of stationary transmitters such as the base stations of radio telephones and land mobile services, amateur radio stations as well as AM and FM radio and television broadcasting stations cannot be accurately predetermined. An investigation of the location is recommended to determine the electromagnetic environment resulting from stationary HF transmitters. If the field strength measured at the **UNIT** location exceeds the conformance level specified above, the **UNIT** must be observed with respect to its normal operation at each application site. If unusual performance characteristics are observed, it may be necessary to take additional measures such as reorientation or repositioning of the **UNIT**.
- c. A frequency range of 150kHz to 80MHz results in a field strength of less than 3V/m.

3.4 Working clearances

Recommended working clearances between portable and mobile HF communication devices and the UNIT

The **UNIT** is intended for operation in an electromagnetic environment, where radiated HF interference is checked. The customer or the user of the **UNIT** can help prevent electromagnetic interference by duly observing the minimum distances between portable and/or mobile HF communication devices (transmitters) and the **UNIT**. These values may vary according to the output power of the relevant communication device as specified above.

Nominal transmitter output [W]	Working clearance according to transmission frequency [m]		
	150kHz to 80MHz	80MHz to 800MHz	800MHz to 2.5GHz
	$d = [1, 2] \sqrt{P}$	$d = [1, 2] \sqrt{P}$	$d = [2, 3] \sqrt{P}$
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12	12	23

For transmitters whose maximum nominal output is not specified in the above table, the recommended working clearance d in meters (m) can be determined using the equation in the corresponding column, where P is the maximum nominal output of the transmitter in watts (W) specified by the transmitter manufacturer.

Annotation 1

The higher frequency range applies at 80 MHz and 800 MHz.

Annotation 2

These guidelines may not be applicable in all cases. The propagation of electromagnetic waves is influenced by their absorption and reflection by buildings, objects and persons.

We reserve the right to make any alterations which may be required due to technical improvements.

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