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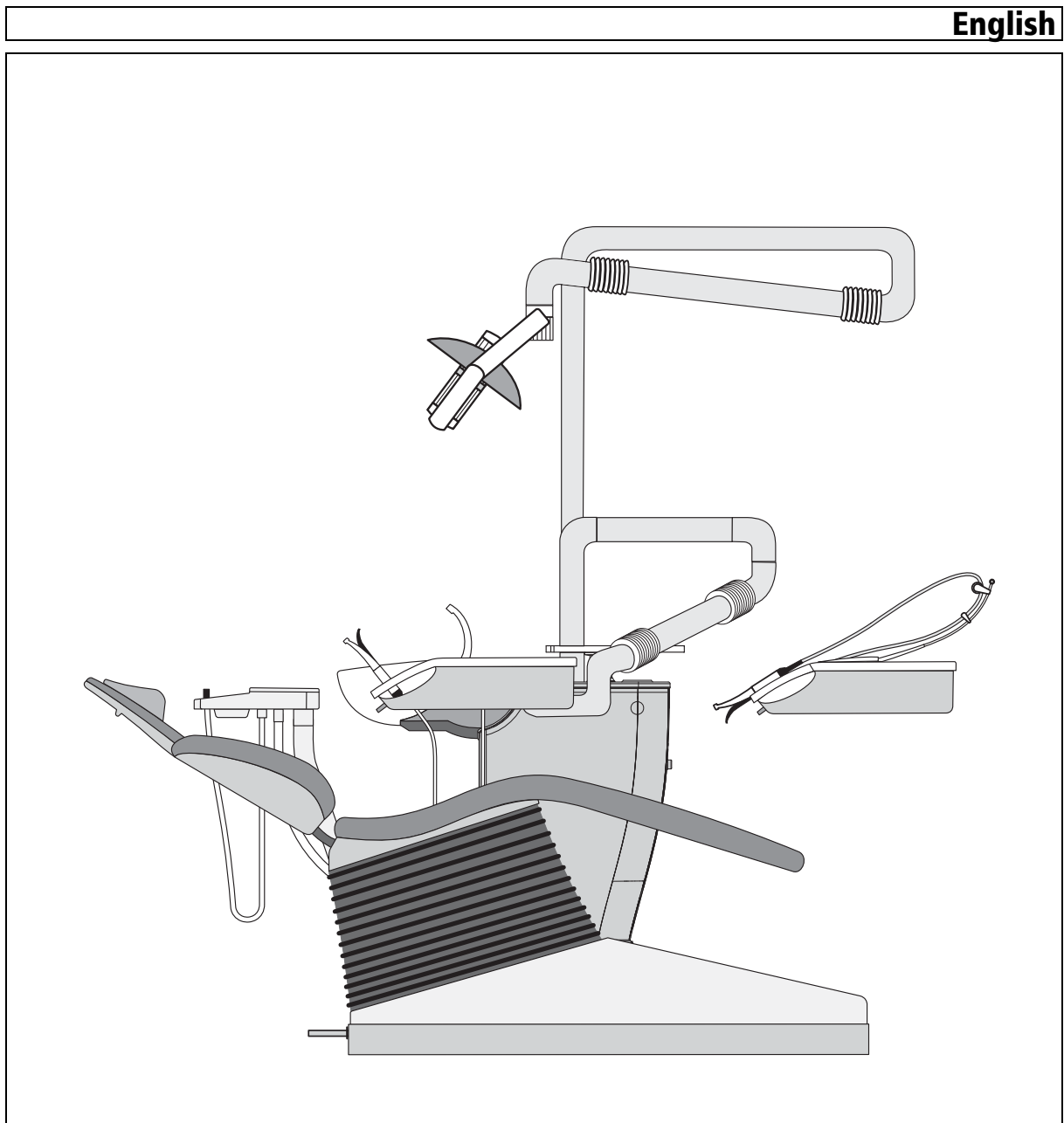
12.2012

ProFeel⁺

Paket OPTIMA

Installation Requirements

English



General information

About this document

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

Their subsequent installation is described in the Installation Instructions:

- REF 62 99 270

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

- REF 60 31 921

12.2012

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1 Preparations

ProFeel+ Paket OPTIMA

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1.1 Safety

! ATTENTION

It is essential that you comply with the warning and safety information contained in the *Installationsvoraussetzungen*. All such information is highlighted by the signal words **NOTE**, **CAUTION** or **WARNING**.

! ATTENTION

The unit may only be operated by properly trained personnel. On-site installation must be performed in accordance with our specifications. In our capacity as a manufacturer of medical electrical equipment, we only consider ourselves to be responsible for the safety characteristics of the unit if we perform maintenance and repair work on it ourselves or if this is performed by centers that we have expressly authorized to do so; and if defective components are replaced with original spare parts.

When this work is carried out, we recommend that you ask those responsible for the work to provide a certificate indicating the nature and scope of the work, including details of changes to rated data or the working area where applicable. This certificate should also be signed and dated, and should show information about the relevant company.

! ATTENTION

By law, any changes to this unit which may compromise the safety of operators, patients or third parties are not permissible.

For reasons of product safety, this product may only be operated with original Sirona accessories or accessories from third parties approved by Sirona. The user assumes the risk of using non-approved accessories.

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

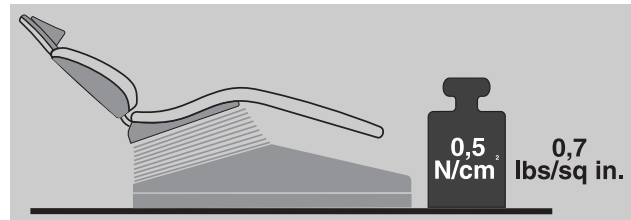
- IEC 60950 for information technology equipment (e.g. PCs) and
- IEC 60601-1 for medical equipment.

The monitor used at the treatment center must meet the requirements of IEC 60950. The loudspeaker port of the monitor may only be connected to a device that complies with IEC 60950 (e.g. a PC) or IEC 60601-1. Under no circumstances may it be connected to a stereo system, for example.

If a system is being assembled during installation, the requirements of IEC 60601-1 (3rd edition) must be adhered to. The person assembling the system assumes responsibility for ensuring that it conforms to Directive 93/42/EEC.

! ATTENTION

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).



! ATTENTION

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

! ATTENTION

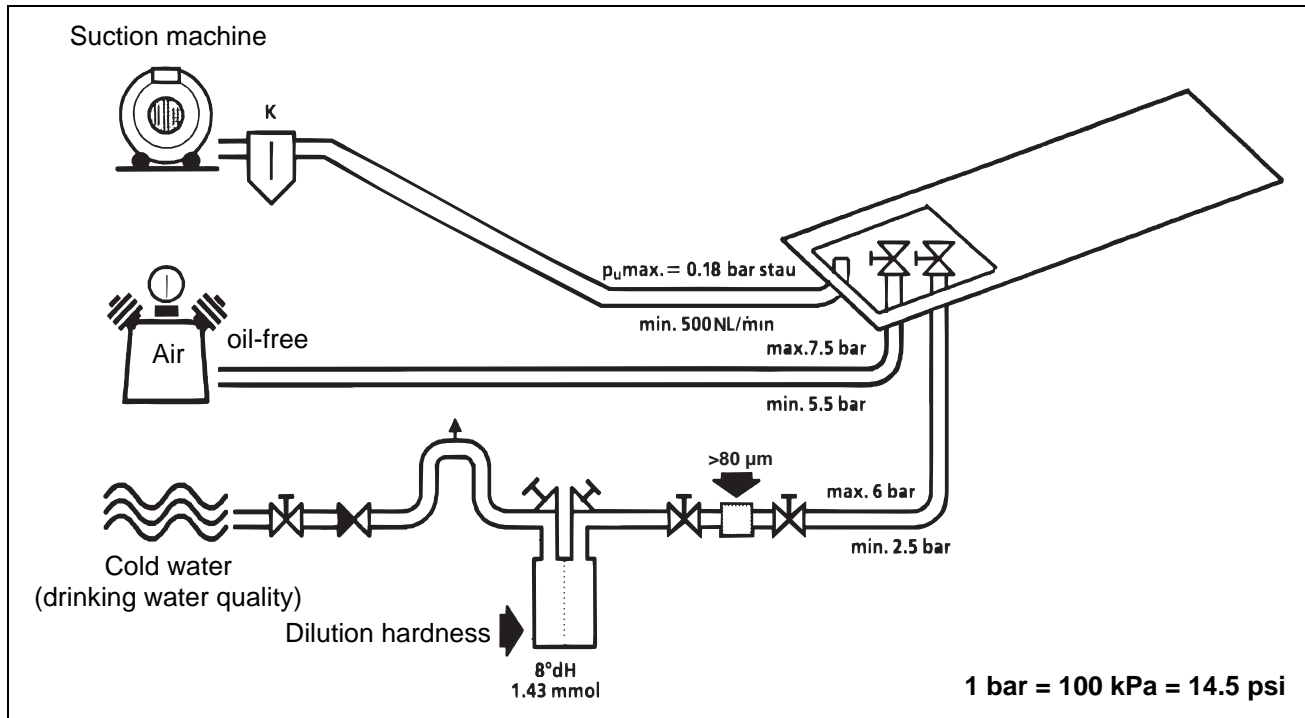
Interference of electromedical devices caused by radio telephones:

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

! ATTENTION

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:

- Permitted water pressure: 2.5 bar (36.25 psi) to 6 bar (87 psi)
- Permitted minimum flow volume: 3 l/min
- For water hardness (total hardness) of 2.2 mmol/l (= 12° dH), install water softeners. Set the blend hardness to 1.4 mmol/l (= 8° dH).
- Install a conventional fine filter; fineness: > 80 µm (0.08 mm).
- Installation must be performed in compliance with the recommendations of the national installation requirements (e.g. EN 1717).
- The water quality must comply with the national requirements for drinking water.
- The connection must be made to cold water.
- When laying the water pipe to the treatment center, comply with the following instructions to reduce the quantity of micro-organisms in the feed pipe:

- Avoid long stub lines to the treatment center.
- Carry out the installation so that, where possible, other main consumers (such as the sink) are fed from the same line downstream of the treatment center connection.
- Avoid laying the supply line parallel to hot water pipes.
- Observe EN 1717 for the protection of public drinking water. Provided a disinfection system is also installed, the treatment center fulfills the requirements of EN 1717.

Air quality

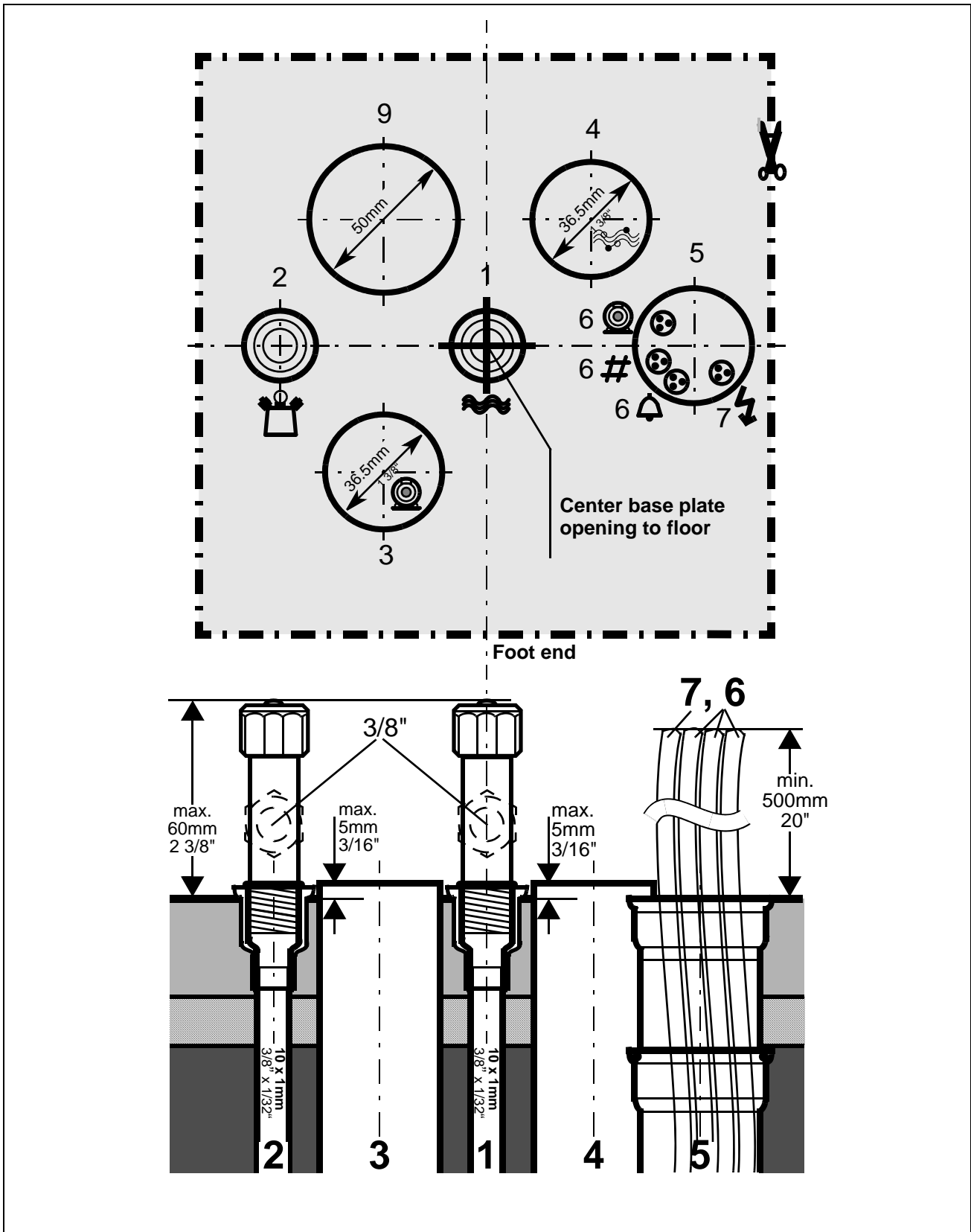
The air for driving the turbines, for cooling the drives and for the cooling spray must be free from oil, dry and hygienically faultless.

Suction pipe

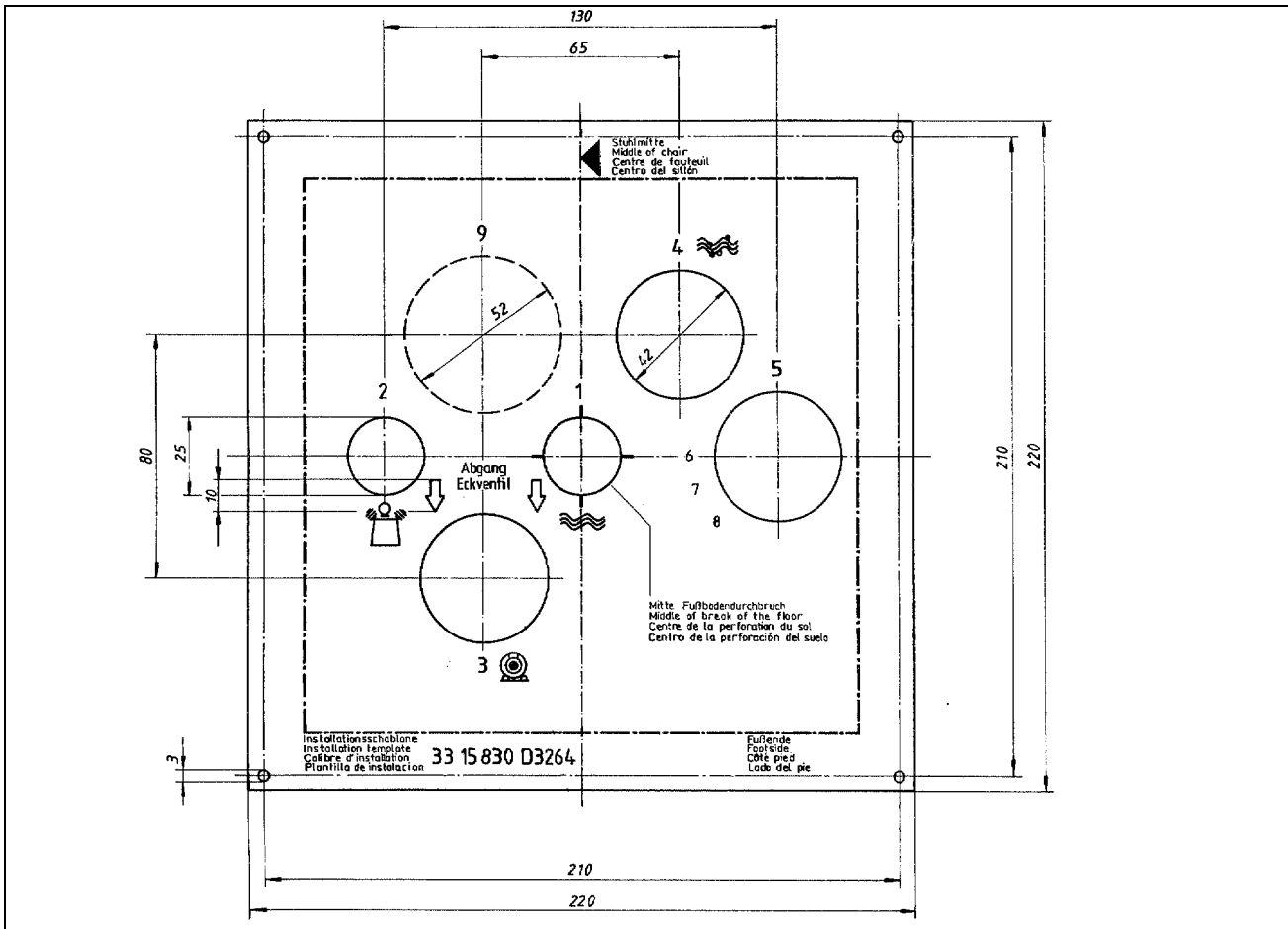
Install steam trap K.

With a vacuum of $p_u > 0.18 \text{ bar}$ back pressure, the treatment center must be retrofitted with the "Vacuum limiter" retrofit kit (REF 59 68 826).

1.3 Supply lines in the termination panel



Supply lines in the termination panel

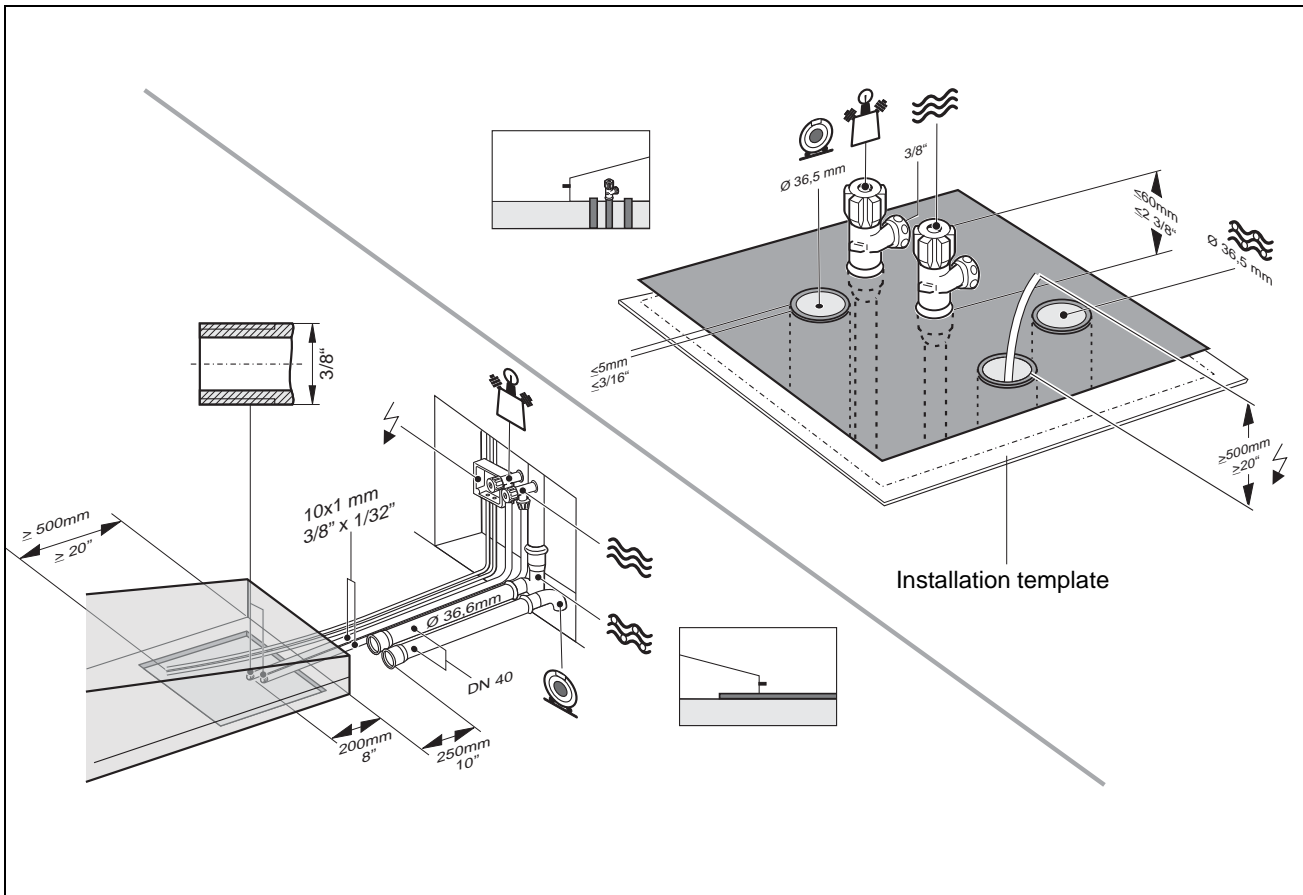


- Observe the national regulations for electrical installations (e.g. VDE 0100, VDE 0100, Part 710).
- Observe the national regulations for water supply installations (e.g. EN 1717, DIN 1988) and sewage installations (e.g. EN 12056-1).
- For the suction pipe, observe the instructions in the **Suction 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 (REF 33 17 265) is required for installation.

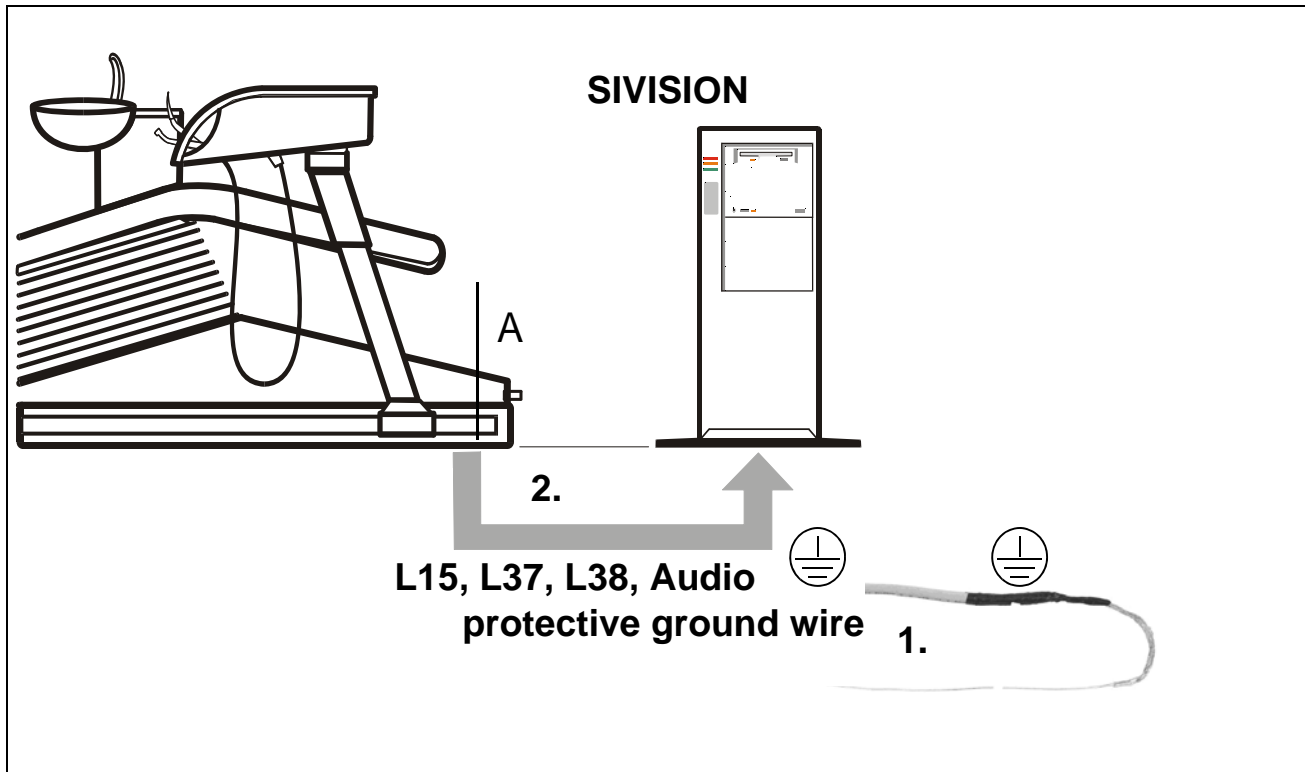
⚠ ATTENTION

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

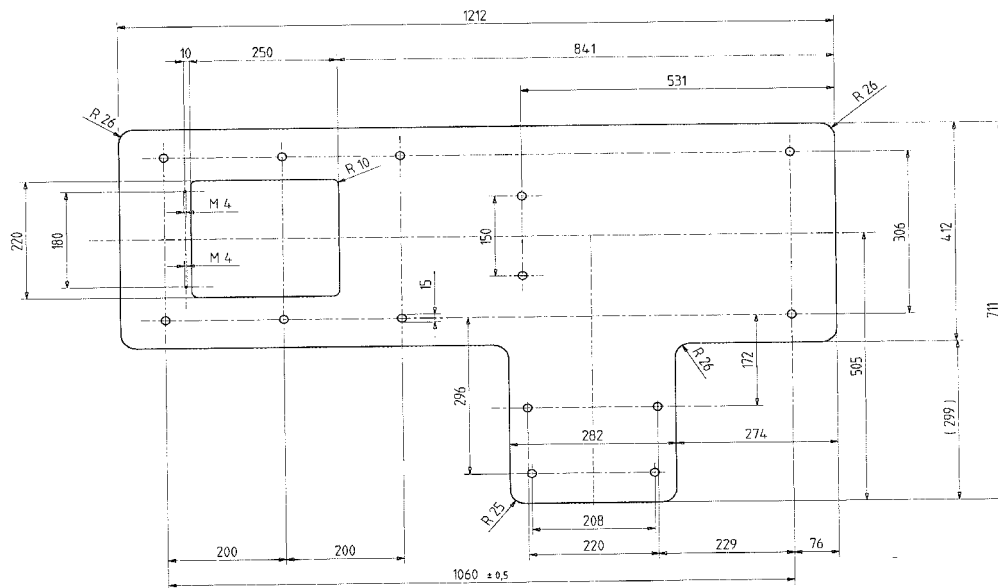
If S video cable **L15** is equipped with both a female and a male connector, make sure that the female connector (socket) points to the connection box of the treatment center.

1. Bend the wire at the front end of cables **L37** and **L38** to form a hook.

2. Pull cables **L15**, **L37** and **L38** as well as the **audio** cable and protective ground wire from the treatment center through the cable duct to the location of the SIVISION PC.

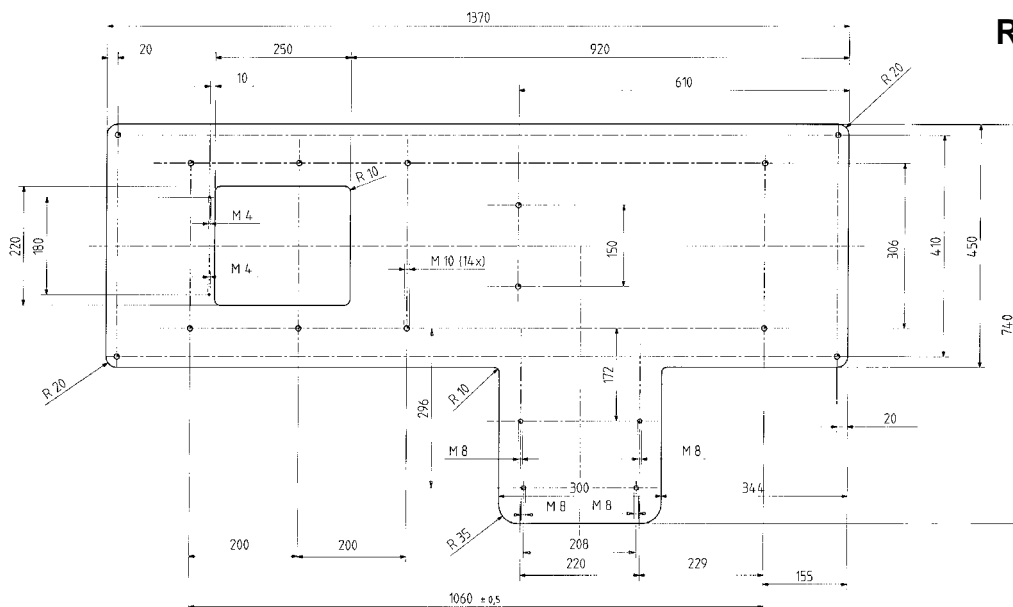
Save the accessory parts for final installation!

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).

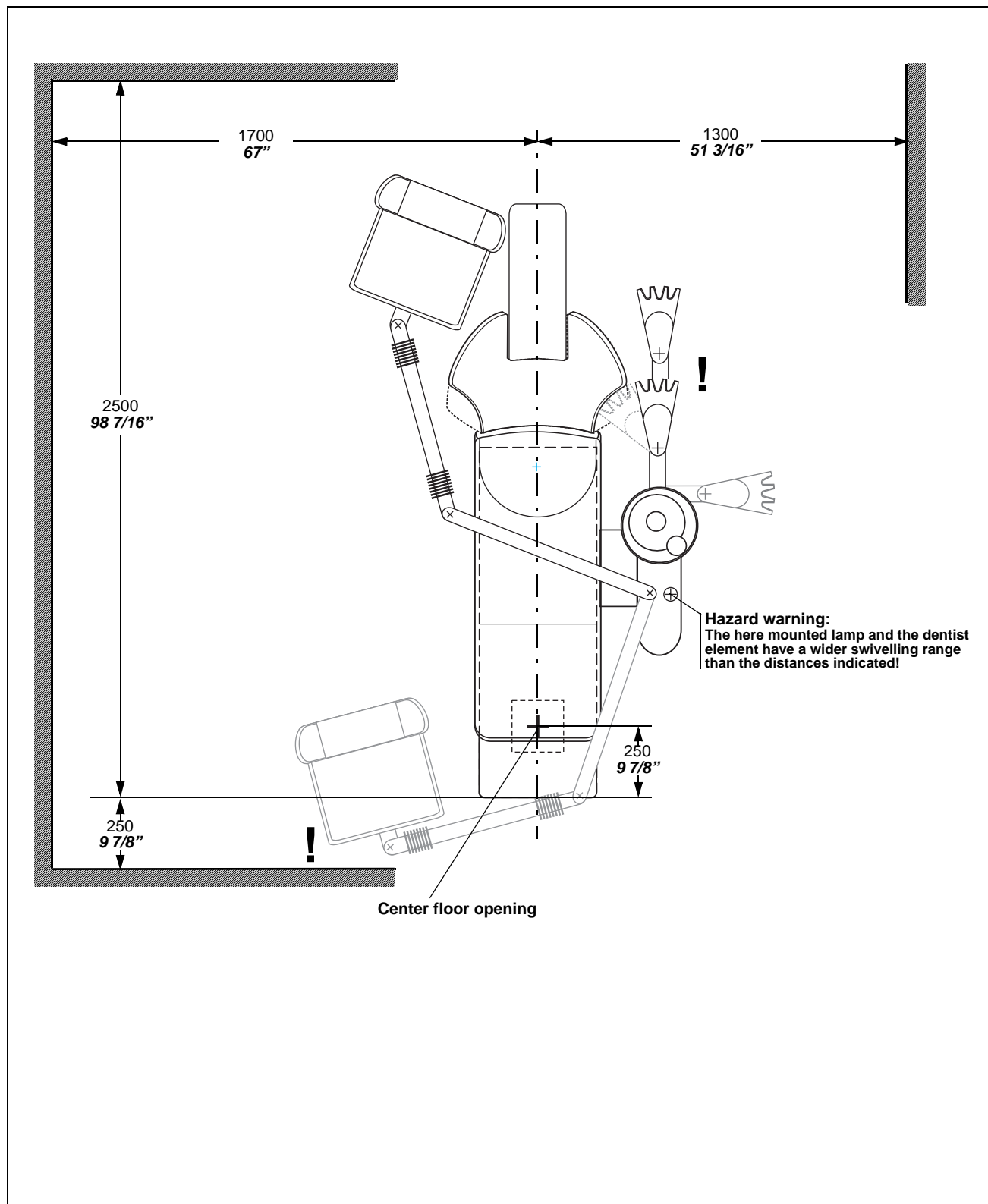
2 Dimensions, technical data

ProFeel+ Paket OPTIMA

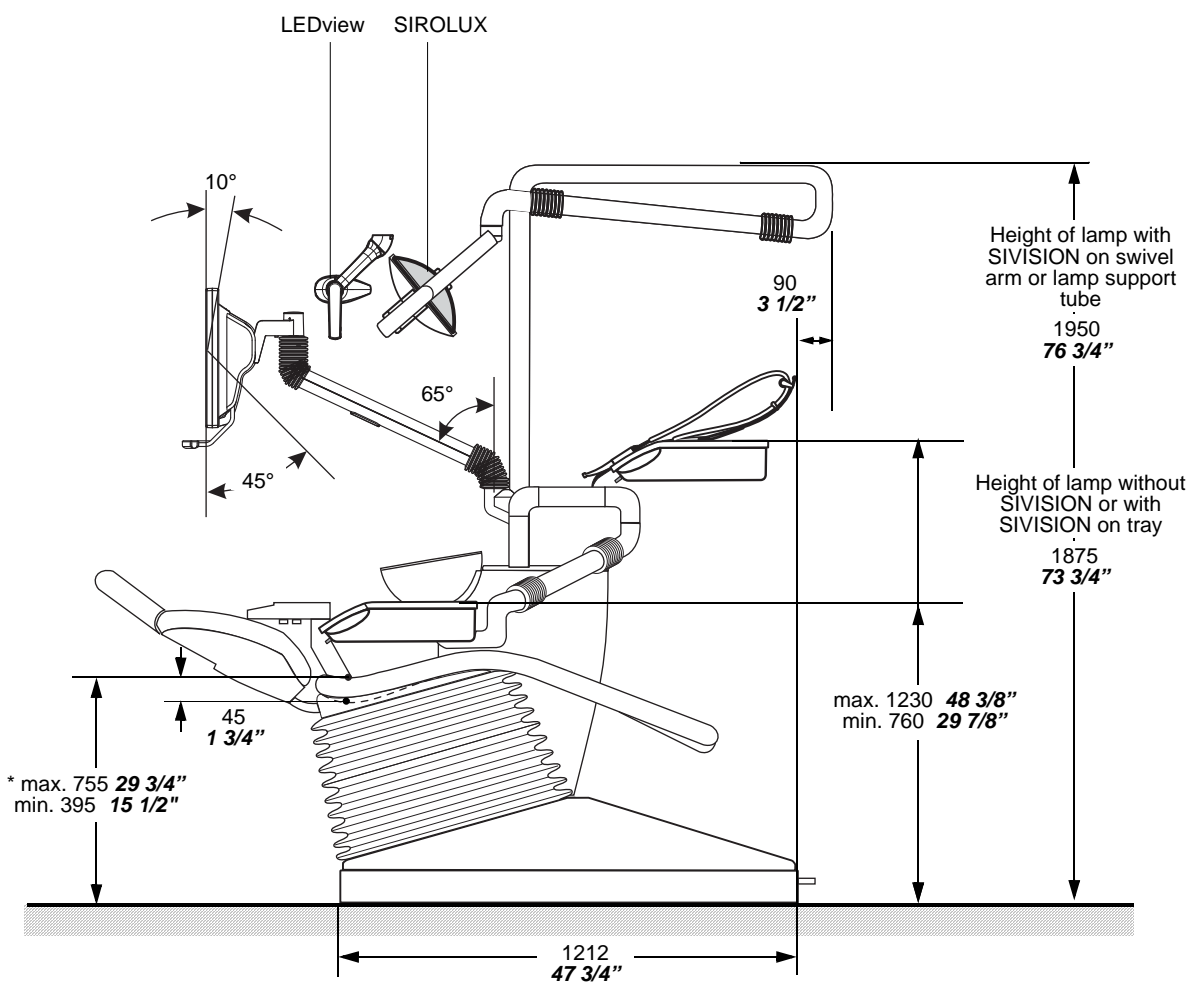
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2.1 ProFeel⁺ 1:20

Recommended distances from cabinet or wall.

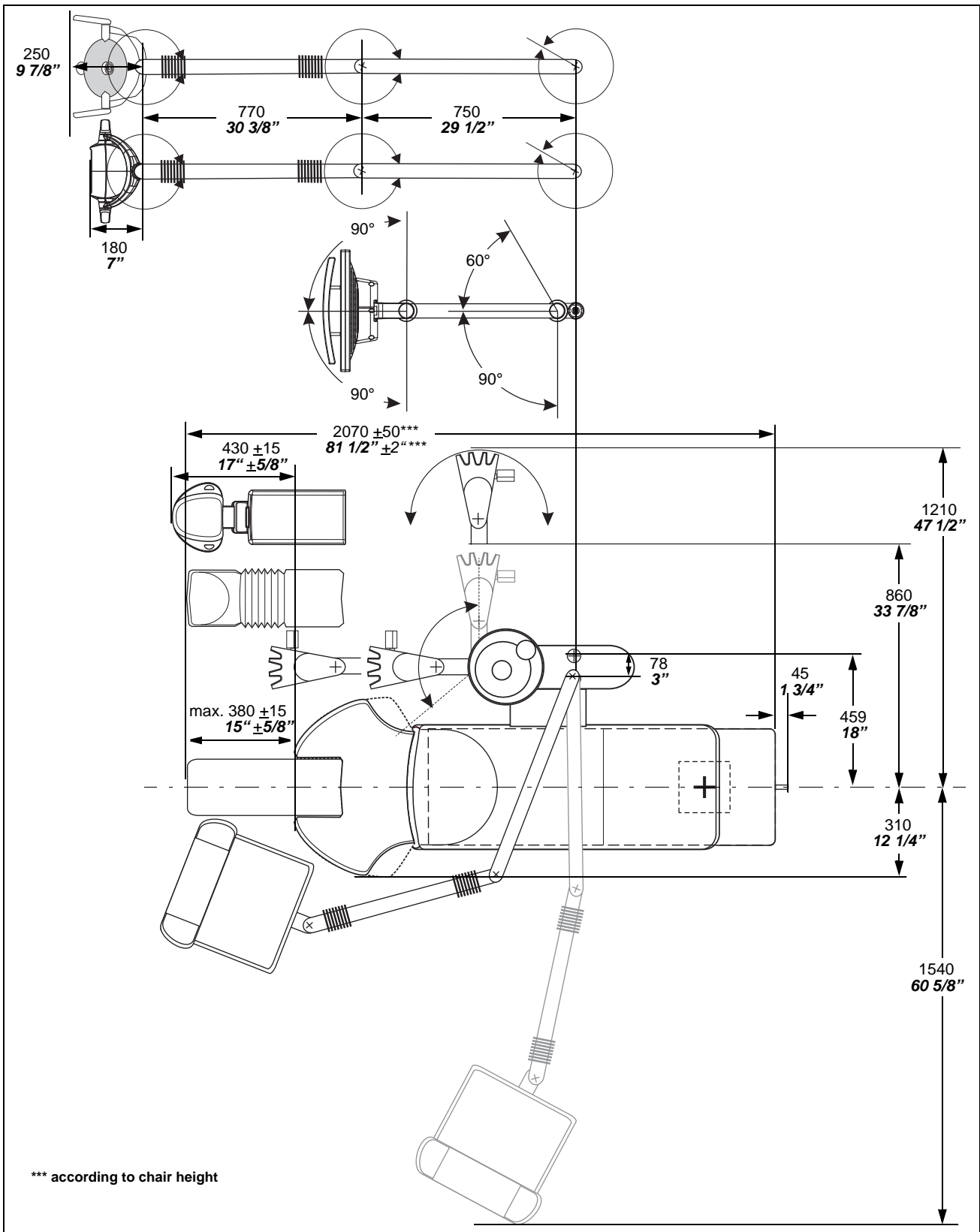


ProFeel⁺ 1:20





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

ProFeel+ 1:20



2.2 ProFeel⁺: Technical data

Model designation	ProFeel ⁺ Paket OPTIMA
Power supply line	100 V / 115 V / 127 V / 230 V AC 50 / 60 Hz
Nominal current	11.5 A at 100 V AC 10 A at 115 V AC 9 A at 127 V AC 5 A at 230 V AC In addition, max. 6 A for external devices (see page 46)
Main unit fuse	T 10 A H, 250 V AC, REF 10 77 460
Transport and storage conditions	Temperature: -40°C – +70°C (-40°F – +158°F) Relative humidity: 10% – 95% Air pressure: 500hPa – 1060hPa
Operating conditions	Ambient temperature: 10°C – 40°C (50°F – 104°F) Relative humidity: 30% – 85% (no condensation) Air pressure: 700hPa – 1060hPa
Maximum load capacity of the patient chair	135 kg, including accessories
Installation site	≤ 3000 m above sea level
Pollution degree	2 acc. to IEC 60664-1
Protection class	Class I device
Device class in accordance with Directive 93/42/EEC	Class IIa equipment
Degree of protection against electric shock	Type B applied parts, except SIROCAM 3/SIROCAM C: Type BF applied parts
	
Degree of protection against ingress of water	Ordinary equipment (not protected) The foot switch has an IPX1 degree of protection against liquids (drip-proof).
Operating mode	Continuous operation with intermittent loading corresponding to the dental mode of working. Permanently connected unit.
Year of manufacture	 20xx (on rating plate of chair)
Dimensions of the packaging	
Dentist element, assistant element	120 cm x 63 cm x 110 cm
Water unit	120 cm x 63 cm x 96 cm
Chair	157 cm x 64 cm x 82cm
Upholstery	120 cm x 52 cm x 40 cm
SIROLUX / LEDview	10,5 cm x 56 cm x 28 cm
Weight	incl. / without packaging
Dentist element, assistant element	37,5 kg / 10 kg + 3 kg
Water unit	44 kg / 16,5 kg
Chair	120 kg / 90 kg
Upholstery	13 kg / 9 kg
SIROLUX / LEDview	14 kg / 10 kg
On-site pressure readings	1bar=14.5 PSI
Air min./max.	5.5 / 7.5 bar
Water min./max.	2.5 / 6 bar

3 Electromagnetic compatibility

ProFeel⁺ Paket OPTIMA

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i NOTE

The ProFeel⁺ fulfills all requirements for electromagnetic compatibility (EMC) compliant with IEC 60601-1-2.
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 for the PCs	Supplier
XGA cable, 10m (L38)	Sirona
S video cable, 10m (L15)	Sirona
RS232 cable, 10m (L37)	Sirona
Audio cable, 10m	Sirona
2nd protective ground wire, 2.5mm 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: Siemens Fujitsu, Pentium IV, 3.0 GHz

Extension of the PC

Graphics card: NVIDIA GeForce 7300 LE
 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> $d = [1, 2] \sqrt{P}$ $d = [1, 2] \sqrt{P}$ at 80MHz to 800MHz $d = [2, 3] \sqrt{P}$ at 800MHz to 2.5GHz <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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D3474.021.02.02.02 12.2012

Sprache: englisch
Ä.-Nr.: 115 392

Printed in Germany
Imprimé en Allemagne

Sirona Dental Systems GmbH

Fabrikstraße 31
64625 Bensheim
Germany
www.sirona.com

Order No **63 01 811 D3474**