*Quolis® Series*

# Quolis 5000 Chair

## Model Q-5000

## OPERATION INSTRUCTIONS

**IMPORTANT**

**This manual provides operation instructions for the Quolis Chair.**
**The instructions contained in this booklet should be thoroughly read and understood before operating the chair.**
**After the installation has been completed, keep this manual in a safe place and refer to it for future maintenance.**

Belmont®

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**Intended Use of the Product**

This product is intended for the exclusive use for diagnoses, treatments and relative procedures of dentistry, and must be operated or handled by the qualified dentists or by dental staffs under the supervision of the dentist.

Such dentists or dental staffs should instruct and/or assist the patients to approach to and leave from the product.

Patients should not be allowed to operate or handle the product unless he/she is so instructed.

**Environmental Requirements**

| | | |
|---|---|---|
| Operating | Ambient Temperature | 50°F ~ 104°F (10°C ~ 40°C) |
| | Humidity | 30% ~ 75% |
| | Atmospherical Pressure | 10.2psi ~ 15.4psi (700hpa ~ 1060hpa) |

**Classification**

a. Protection against electric shock : Class I Equipment, Type B Applied Parts

b. Protection against water ingress : Ordinary equipment (IPX0)

c. Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

## 1. OVERVIEW AND MAJOR CONPONENTS

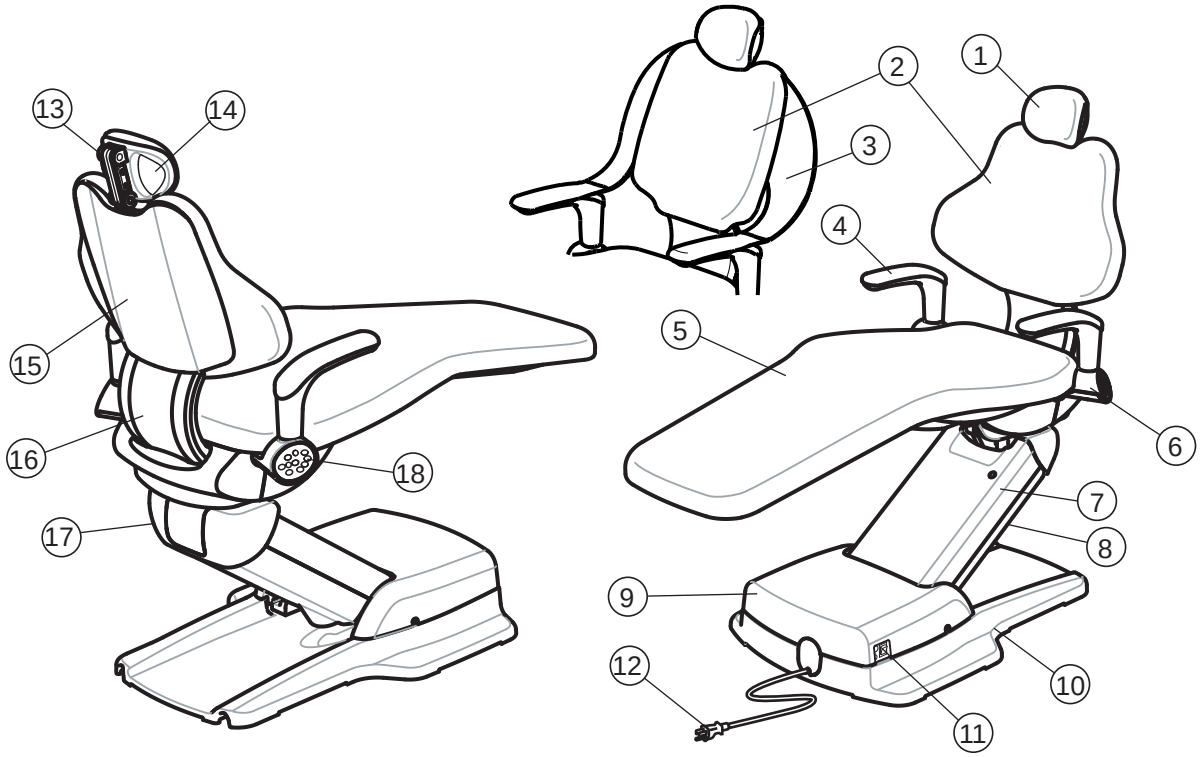
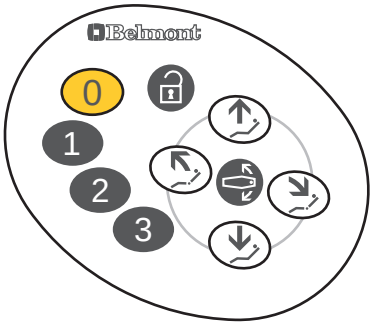
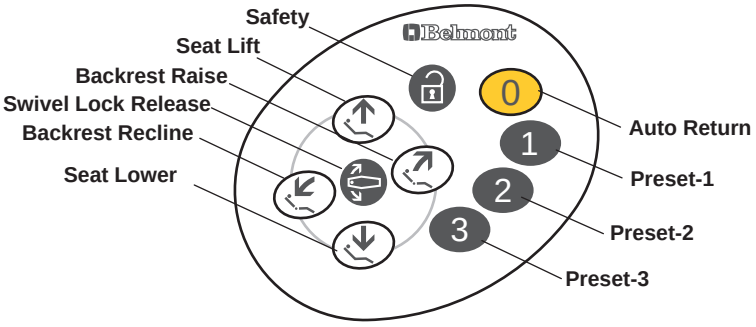



Fig.1-1 Overview

1 Headrest
2 Backrest
3 Sling
4 Armrest
5 Seat
6 Armrest Bracket
7 Main Link Cover
8 Sub Link Cover
9 Pump Cover
10 Base
11 Main Switch Panel
12 Electrical Plug
13 Headrest Assembly
14 Headrest Cover
15 Backrest Cover
16 Back Support
17 Flange
18 Touchpad Control Panel




(Left Side)




(Right Side)

Fig.1-2 Touchpad Control Panel

## 2. DIMENSIONS AND SPECIFICATIONS

2-1. Dimensions

-inch-

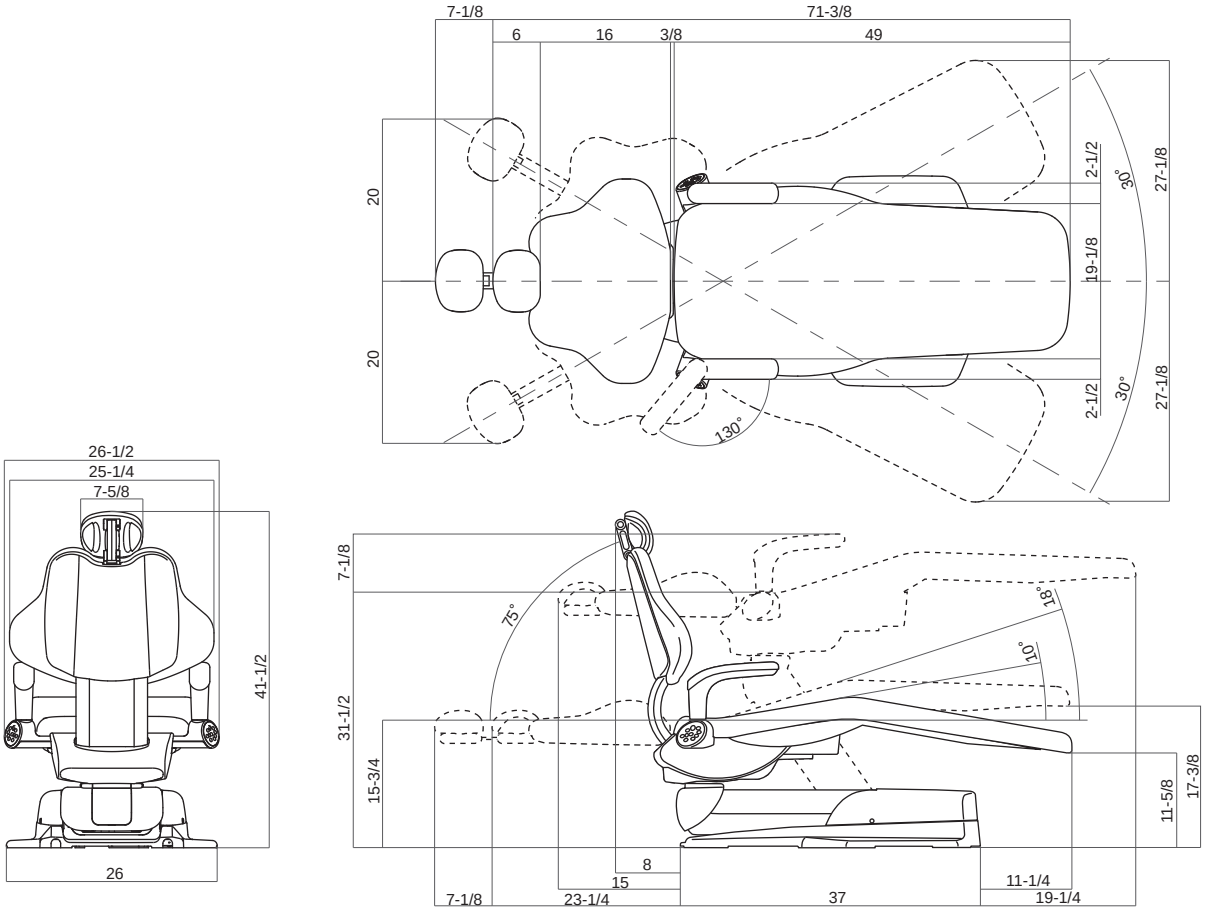



Fig.2-1 Dimensions

2-2. Specifications

Seat Initial Height ---------- 15-3/4"(400mm)
Seat Lifting Stroke---------- 15-3/4"(400mm)
Backrest Movement---------- 0°~75° (above Horozpntal)
Tilting Mechanism---------- Backrest Synchronized Tilting (10°~18°)
Seat Rotation---------- 30°Left / 30°Right of Centerline
Auto Movements---------- 3-Preset, and 1 Auto Return
Electrical Requirement---------- 120V ~ 60Hz, 3.8Amps
Control Voltage---------- DC5V
Mode of Control----------3min (Short-Time Operation)
Chair Lifting Capacity:
Patient Load---------- 297lbs.(135kgf) maximum
Accessory Load---------- 165lbs.(75kgf) maximum
Weight---------- 297lbs.(135kgf)

## 3. OPERATING INSTRUCTIONS

3-1. Main Power Switch (Fig.1-1 & Fig.3-1)

Plug chair into a 120V AC outlet.

**⚠CAUTION**

Grounding reliability can only be achieved when the equipment is connected to an equivalent receptacle marked HOSPITAL ONLY or HOSPITAL GRADE.

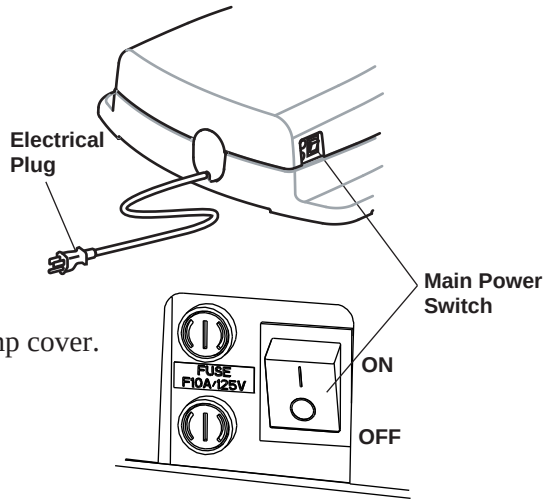



Fig.3-1 Main Power Switch

Turn on the Main Power Switch located on the left side of pump cover.
A green lamp in the main switch will illuminate.

**⚠CAUTION**

Operate the Main Power Switch by hand only.
Turn off the main switch after daily operation.

When power is turned on, Quolis chair starts self checking of electric systems.
After this self checking is completed, the motor for swivel lock stops for one second.
During above process, touchpad control panels illuminate in blue.

**⚠CAUTION**

Do not touch a switch on a control panel during above process. The touched switch stops functioning.

Note: To function properly, when room temperature is low, Quolis chair may start warm up process for three minutes.

3-2. Controls (Fig.1-1 & Fig.1-2)

Operate the chair with the touch pads built-in to both sides of the arm rest bracket.
Before operating the chair, confirm that it is safe for the patient and the operator

(1) Safety Switch

Theare is safety switch on the touch pads on both sides. The purpose of this switch is to avoid any accident caused by unexpected motion of the chair by unintended contact to the touchpad.
Press 🔒 always before operating the chair by the touchpad on the armrest bracket.
After 🔒 is pressed all the chair motion will be operable by the touch pads for duration of 10 seconds.
By pressing any key during the 10 seconds the duration will be extended by another 10 seconds.
By pressing 🔒 during the 10 seconds the other switches become inoperative.

(2) Manual Mode Control

- Seat Lifting
  Keep depressing ⬆ button on the touchpad control panel the seat is lifted up to the desired position.
- Seat Lowering
  Keep depressing ⬇ button on the touchpad control panel the seat is lowered to the desired position.
- Backrest Reclining
  Keep depressing ↙ button on the touchpad control panel the backrest is reclined to the desired position.
- Backrest Raising
  Keep depressing ↗ button on the touchpad control panel the backrest is raised up to the desiredposition.

(3) Swivel Lock Release

Press ⇆ before manually swiveling the chair.
After ⇆ is pressed, the lock of swivel be released for duration of 10 seconds.
Seat may be rotated 30 degrees to the right or left of center.
By pressing ⇆ again during the 10 seconds, the swivel will be locked again.

(4) Auto Mode Control

- Preset Control

Quolis chair has three preset position. (Preset-1, Preset-2, and Preset-3)
Momentary depress 1 button on the touchpad control panel, the chair will move to the preset-1 position automatically. (Preset-2 is operated by 2 button.)

- Auto Return

Momentary depress 0 button on the touchpad control panel, the chair will return to initial position.

- Emergency Stop

During automatic procedure (Preset and Auto return), depress of any buttons on the touchpad control panel will cancel the automatic movement immediately.

Note: Do not depress auto mode button 0 1 2 3 for over 5 seconds, because the memorized position

Note: Quolis chair is equipped with the shockless mechanism. Due to the nature of this mechanism, the stop position could be slightly different by room temperature and by the weight of a patient

3-3. Safety Lock Device (Fig.3-2)

All chair movements can be stopped and lifted up automatically by the safety lock device when pressure is detected between the base and the sub link cover. If the safety device has been activated, simply operate the Seat Lifting button and remove the object causing the safety device to activate from this area.

Note: Seat lifting and backrest raising can be operated when the safety lock device is activated.

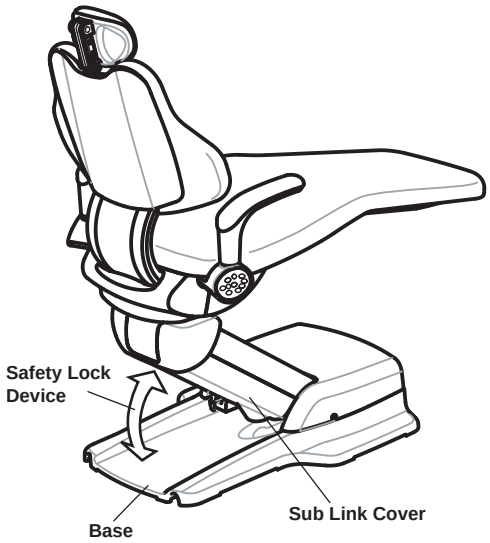


Fig.3-2 Safety Lock Device

3-4. Double Articulating Headrest (Fig.3-3)

(1)Height Adjustment

Press down or pull up the headrest to the desired height.

(2)Angle Adjustment

Angle of headrest can be changed by grasping the headrest release lever on headrest mechanism.

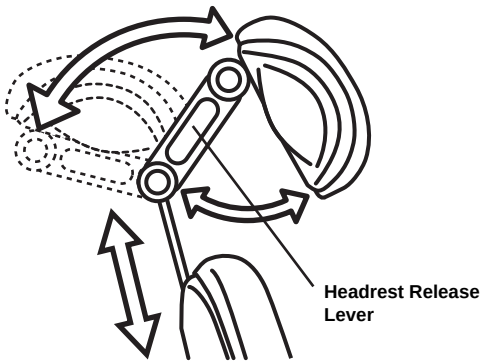


Fig.3-3 Double Articulating Headrest

3-5. Armrest Rotation (Fig.3-4)

Armrest rotate outward 130 degrees.

**⚠CAUTION**

Do not lean on an armrest nor sit on an armrest.
It could damage an armrest or could cause an injury.

Fig.3-4 Armrest Rotation

## 4. AUTO MODE POSITION ADJUSTMENT

(1) Preset position Adjustment (Fig.4-1)

Auto Return and three preset positions can be set.
Press 🔒 first to make the other switches operative.

A. Set the seat and the backrest to the desired preset position by manual control.

B. Keep depressing 1 button until buzzer sounds (in about 5 seconds). then release it.

C. The position is then memorized for Preset-1.

D. Auto Return and preset-2, 3 can be memorized by depressing 0 or 2 or 3 buttons following A to C.

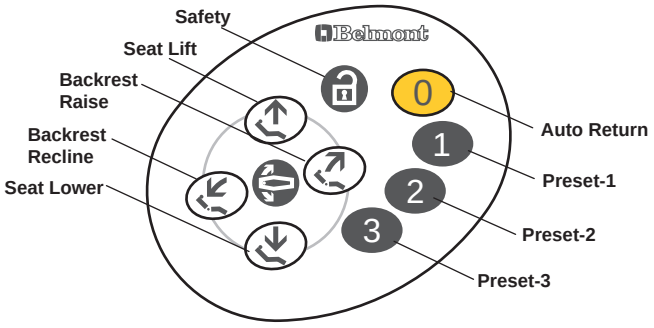



Fig.4-1 Tachpad Control Panel (Right Side)

## 5. CARE AND MAINTENANCE

**⚠ CAUTION**

Do not spray liquids directly onto chair surfaces.
In order to prevent damage to electrical components and systems, do not apply excess cleaning solution onto chair surfaces.

**Routine Care**

Clean plastic and upholstery surfaces iegularly using a mild soap and water solution.
When cleaning, use a dampened cloth only, as excess cleaning solution can flow into the chair and cause permanent damage to electrical components.

**Barrier Technique**

Use of disposable barrier products should be the first choice for the protection of dental equipment.
Disinfectants leave behind a surface residue that accumulates over time and eventually damages equipment and upholstery surfaces.

**Chemical Disinfection**

If a chemical disinfectant is to be used on chair or upholstery surfaces, contact the manufacturer of the disinfectant prior to use.
Obtain verification from the disinfectant manufacturer that their product will not damage the chair or upholstery surfaces.

**Unacceptable Disinfectants**

The following chemicals may damage equipment and upholstery:
* Alcohol based solutions
* Bleach
* Phenol / Alcohol combinations
* Foam spray products

**Use with Caution**

* Water based phenolic disinfectants, following manufacturer's exact instructions for use.

Warranty does not cover damage to equipment and upholstery caused by disinfectant solutions.

## 6. ELECTROMAGNETIC COMPATIBILITY (EMC)

Medical electrical equipment needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in this manual.
Portable and mobile RF communications equipment can affect medical electrical equipment.
The equipment or system should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the equipment or system should be observed to verify normal operation in the configuration in which it will be used.

**Guidance and manufacture's declaration - electromagnetic emissions**

The Quolis chair is intended for use in the electromagnetic environment specified below. The customer or the user of the Quolis chair should assure that it is used in such an environment.

| Emissions test | Compliance | Electromagnetic environment - guidance |
|---|---|---|
| RF emissions<br>CISPR 11 | Group 1 | The Quolis chair uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic |
| RF emissions<br>CISPR 11 | Class B | The Quolis chair is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes. |
| Harmonic emissions<br>IEC 61000-3-2 | Class A | |
| Voltage fluctuations/<br>Flicker emissions<br>IEC 61000-3-3 | Complies | |

**Guidance and manufacture's declaration - electromagnetic immunity**

The Quolis chair is intended for use in the electromagnetic environment specified below. The customer or the user of the Quolis chair should assure that it is used in such an environment.

| Immunity test | IEC 60601 test level | Compliance level | Electromagnetic environment - guidance |
|---|---|---|---|
| Electrostatic discharge (ESD)<br>IEC 61000-4-2 | ±6 kV contact<br>±8 kV air | ±6 kV contact<br>±8 kV air | Floors should be wood, concrete or ceramic file. If floors are covered with synthetic material, the relative humidity should be at least 30%. |
| Electrical fast transient/burst<br>IEC 61000-4-4 | ±2 kV for power supply lines<br>±1 kV for input/output line | ±2 kV for power supply lines<br>±1 kV for input/output line | Mains power quality should be that of a typical commercial or hospital environment. |
| Surge<br>IEC 61000-4-5 | ±1 kV differential mode<br>±2 kV common mode | ±1 kV differential mode<br>±2 kV common mode | Mains power quality should be that of a typical commercial or hospital environment. |
| Voltage dips, short interruptions and voltage variations on power supply input lines<br>IEC 61000-4-11 | <5% $U_T$<br>(>95% dip in $U_T$)<br>for 0.5 cycle<br>40% $U_T$<br>(60% dip in $U_T$)<br>for 5 cycle<br>70% $U_T$<br>(30% dip in $U_T$)<br>for 25cycle<br><5% $U_T$<br>(>95% dip in $U_T$) | <5% $U_T$<br>(>95% dip in $U_T$)<br>for 0.5 cycle<br>40% $U_T$<br>(60% dip in $U_T$)<br>for 5 cycle<br>70% $U_T$<br>(30% dip in $U_T$)<br>for 25cycle<br><5% $U_T$<br>(>95% dip in $U_T$) | Mains power quality should be that of a typical commercial or hospital environment. If the user of the Quolis chair requires continued operation during power mains interruptions, it is recommended that the Quolis chair be powered from an uninterruptible power supply or a battery. |
| Power frequency (50/60 Hz) magnetic field<br>IEC 61000-4-8 | 3 A/m | 3 A/m | Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment. |

NOTE $U_T$ is the a.c. mains voltage prior to applications of the test level.

## Guidance and manufacture's declaration - electromagnetic immunity

The Quolis chair is intended for use in the electromagnetic environment specified below. The customer or the user of the Quolis chair should assure that it is used in such an environment.

| Immunity test | IEC 60601 test level | Compliance level | Electromagnetic environment - guidance |
|---|---|---|---|
| | | | Portable and mobile RF communications equipment should be used no closer to any part of the Quolis chair, including cables, than the recommended separation distance calculated from the equation applications to the Frequency of the transmitter.<br><br>**Recommended separation distance** |
| Conducted RF<br>IEC 61000-4-6 | 3 Vrms<br>150 kHz to 80 MHz<br>outside ISM bands[a] | 3 Vrms | $d = 1.2\sqrt{P}$ |
| Radiated RF<br>IEC 61000-4-3 | 3V/m<br>80 MHz to 2.5 GHz | 3 V/m | $d = 1.2\sqrt{P}$ 80 MHz to 800 MHz<br>$d = 2.3\sqrt{P}$ 800 MHz to 2.5 GHz<br><br>Where $P$ is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and $d$ is the recommended separation distance in metres (m).<br><br>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,[a] should be less than the compliance level in each frequency range.[b]<br><br>Interference may occur in the vicinity of equipment marked with the following symbol:<br>  |

NOTE 1 At 80 MHz and 800MHz, the higher frequency range applies.
NOTE 2 These quidelines may not apply in all situations. Electromagnetic propagation is affected by adsorption and reflection from structures, objects and people.

[a] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Quolis chair is used exceeds the applicable RF compliance level above, the Quolis chair should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Quolis chair.

[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3V/m.

## Recommended separation distances between Portable and mobile RF communications equipment and the Quolis chair

The Quolis chair is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Quolis chair can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Quolis chair as recommended below, according to the maximum output power of the communications equipment.

| **Rated maximum output power of transmitter** W | **Separation distance according to frequency of transmitter** m | | |
|---|---|---|---|
| | **150 kHz to 80 MHz** $d = 1.2\sqrt{P}$ | **80 MHz to 800 MHz** $d = 1.2\sqrt{P}$ | **800 MHz to 2.5 GHz** $d = 2.3\sqrt{P}$ |
| 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 rated at a maximum output power not listed above, the recommended separation distance d in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.
NOTE 1 At 80 MHz and 800MHz, the separation distance for the higher frequency range applies.
NOTE 2 These quidelines may not apply in all situations. Electromagnetic propagation is affected by adsorption and reflection from structures, objects and people.

## NOTE

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