Kinetec Centura™

User manual

Before use, please read this document.
Kinetec SAS reserves the right to effect technical modifications.
The English version is a translation of the original in French. In case of a discrepancy, the French original will prevail.

EN

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Série 7-9-11
Notice Originale

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kinetec®

CONTENTS

DESCRIPTION

DEFINITION

The device Kinetec Centura™ is PASSIVE mobilisation device for the SHOULDER and allows the following movements:

- Abduction/Adduction from 20° to 160° in an exterior rotation position.
- Abduction/Adduction from 20° to 160° with the elbow in a flexed position.
- 60° internal rotation to 90° external rotation.
- Combined movements: Abduction/Adduction from 20° to 160° and external Rotation from -30° to 90°.
- Flexion/Extension from 20° to 180°.
- Horizontal Abduction from -30° to 110° (available as option).

With the KINETEC DATA CAPTURE™ linked to a computer, you can:

- program the appliance,
- monitor a list of patients,
- produce device usage reports per patient.
- for more information, refer to the instruction manual for the Kinetec Data Capture™ software.

• Indications

• Total shoulder prostheses.
• Recurrent dislocations operated on.
• Rotator cuff tears.
• Fractures of the upper end of the humerus.
• Fractures of the scapula.
• Acromioplasties.
• Capsulotomies.
• Arthrolyses.
• Synovectomies for arthritis.
• All types of pre- and post-operative stiffness.

• Clinical Benefits

• Effectively breaks the vicious circle of:
trauma ⇨ immobility ⇨ effusion ⇨ atrophy.
• Prevents joint stiffness.
• Speeds the recovery of post-operative range of motion.
• Maintains the quality of the joint surface.
• Reduces post-operative pain.
• Promotes joint cartilage healing.
• Reduces hospitalization time.
• Reduces the need for pain medication.

• Contraindications

• Deformed joint surfaces
• Paralysed limbs (atonic or spastic)
• Non-stabilised fractures
• Unhealed or infected wounds.
• The machine is not suitable for patients more than 2m (6ft. 7ins.) or less than 1.40m (4ft. 7ins.) tall.

DESCRIPTION

Warning and safety instructions

WARNING: The machine must be installed and commissioned according to the information provided in this manual.

WARNING: If you need any assistance in the assembly, use or maintenance of the device, please contact your KINETEC® distributor.

WARNING: The practitioner determines the protocol and ensures its proper implementation (settings, session duration and frequency of use).

WARNING: Run a cycle with the device unloaded before installing the patient on the machine.

WARNING: For optimum safety, always give the hand control to the patient before starting the system. The patient must know the start/stop/reverse function on the hand control (see page 10).

WARNING: To avoid the parameters being changed, lock the machine's hand control before giving it to the patient.

WARNING: Danger, risk of explosion: Do not use the machine with anaesthetic gas or in an environment that is rich in oxygen.

WARNING: For Type B Class I devices, and to avoid all risks of electric shock, the machine should only be connected to a power supply that has protective earthing, see page 9.

WARNING: Before using this machine, always check that the electrical socket is in good condition and is suitable for the splint power supply cord. Only use the original cable supplied with the machine. Check that the cables remain free around the device so that they do not get damaged.

WARNING: Before using this machine, always check that the machine is not damaged, in particular the protective housings.

WARNING: In case of electromagnetic interference with other devices move the device.

WARNING: Please do not touch the fixed or moving parts while the unit is running: pinching or crushing risk. Keep children and pets away from the machine.

WARNING: Modifying the machine in any way is strictly forbidden.

WARNING: Always check the motion parameters displayed on the hand control before starting the device.

WARNING: Only the accessories, spare parts and supplies described in this manual should be used with this machine.

WARNING: Do not connect the device to other devices not described in this manual.

WARNING: If unforeseen events or malfunctions occur, please contact your KINETEC® distributor.

WARNING: Before each use, always check that the red knobs under the chair have been tightened (see page 5).

WARNING: Before each use, always check that the various locking knobs have been tightened (see pages 6 and 7).

WARNING: Wireless communications devices, such as domestic wireless devices in networks, mobile phones, wireless telephones and their base stations and walkie-talkies, may affect the machine. You are recommended to keep at least a distance *d* between these devices and the machine. See the table on page 33.

WARNING: Under maximum temperature conditions mentioned in the user's manual, the maximum temperature which can be reached by the hand control is 48.2°C.

Compliance:

The device Kinetec Centura™ complies with the standards of Directive 93/42/EEC, and bears the EC mark.

The device Kinetec Centura™ complies with the standards in force (IEC 60601-1-2) concerning the electromagnetic compatibility of medical devices, IEC 60601-1 concerning electrical safety and IEC 60601-1-11 concerning the utilisation in home care environment.

The device Kinetec Centura™ meets the requirements of the Machinery Directive No. 2006/42/EC.

Unpacking and packing

Unpacking
When you unpack the machine, don't forget that you may need to pack it up again. We recommend that you keep the packaging materials, boxes and plastic bags.

Recommendations for plastic bags: do not put them over the head as there is a risk of suffocation, and keep them out of the reach of children.

Be careful with small-sized pieces: they could be swallowed by a child.
Be careful with cables and wires:
risk of strangulation.

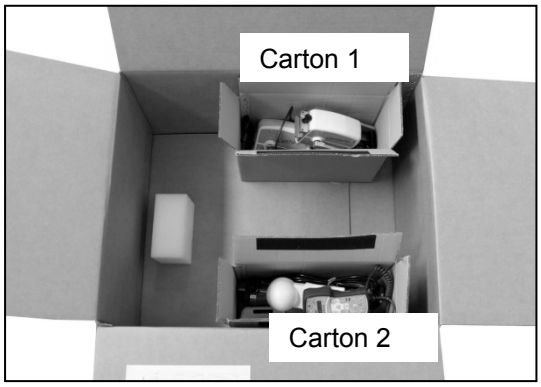
Packing
To prevent any problems when the machine is transported, only pack it using its original packaging.

- Remove all accessories from the machine.
- Fold the machine into the transport position (see page 5).
- Pack each element in a plastic bag.
- Put the elements in the two boxes; do not place anything between the boxes.
  - Box 1 – the motor units
  - Box 2 – the other accessories, except for the arm rest
- Place the machine in its box.

Installing the device

Kinetec Centura™ machine is designed to be used in hospitals, clinics, doctors' offices or in private homes (rental).

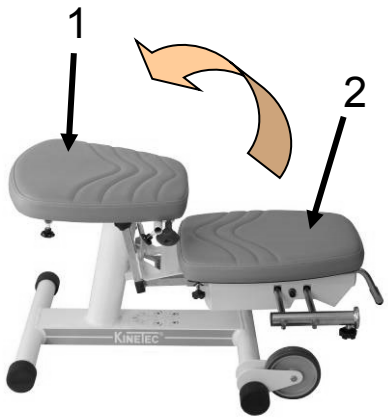
The machine is delivered with its own chair. It must not be used with another chair.
The machine must be installed on a flat surface that is wide enough to accommodate the entire device; you should leave a free space of 1 m (39 ins.) on each side.

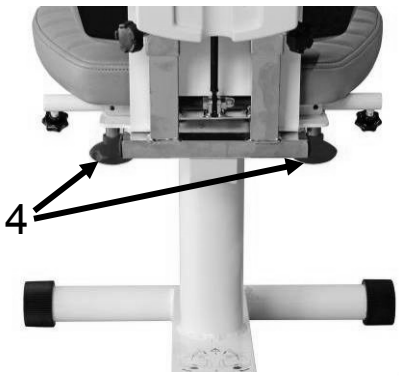


ASSEMBLY & TRANSPORT

Basic assembly

- Place the chair (1) on the floor; we recommend that two people carry out this operation. Take care not to trap your fingers.
- Straighten up the back of the chair (2).
  The tilting axis (3) must always be in good condition.
  Never use the device without it.
- Lock the back of the chair by tightening the red knobs (4).





- Install the abduction motor (5) on the right or left, depending on the limb to be moved.
- The other elements to be fitted on the chair depend on the movement to be carried out.
  (see pages 23 to 28).

WARNING:	Before each use, always check that the red knobs under the chair have been tightened (see page 5).
WARNING:	Before each use, always check that the various locking knobs have been tightened (see pages 6 and 7).

Comments and special instructions:
Take care that fingers do not get pinched during handling operations or when the chair is unfolded.
Never carry the device by the chair when it is in its working position.

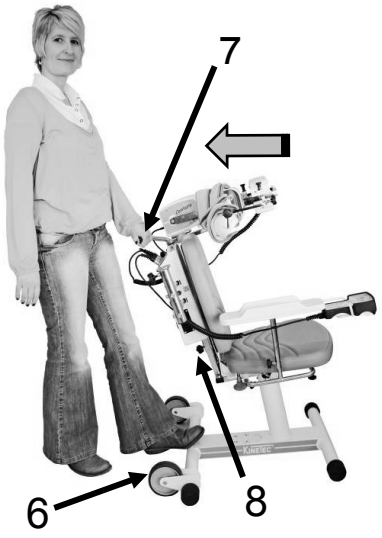
Transporting the device

For easy transport of the unit, the chair has two wheels (6) and a handle (7).

Place the arm support as close as possible to the chair to limit the overall dimensions and help balance the unit.

Place your foot as indicated to tilt the unit.

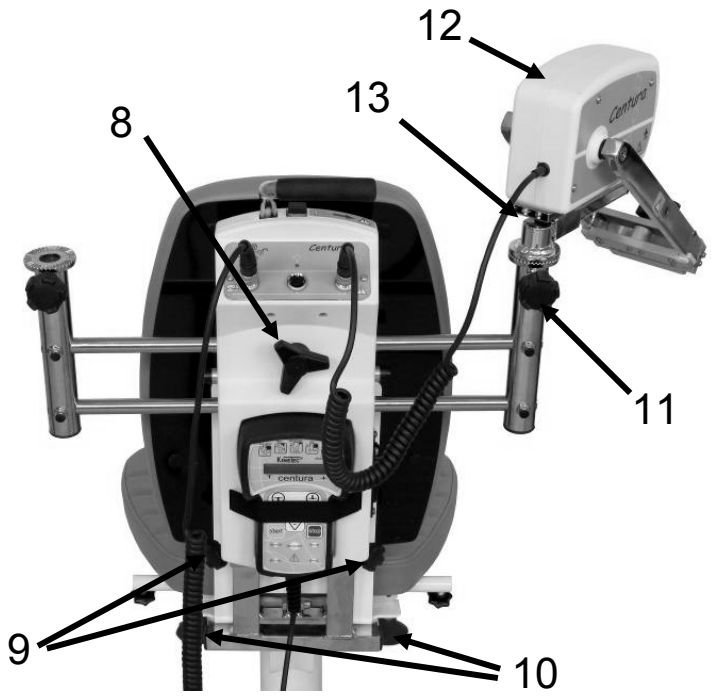
You can adjust the height of the handle with the knobs (8).



DESCRIPTION • Mechanical

The device Kinetec Centura™ consists of the following components:

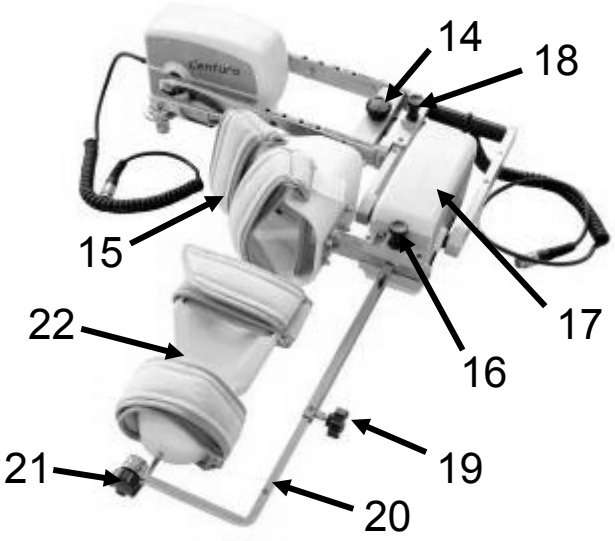
1 – Chair
2 – Base
3 – Wheels
4 – Handle
5 – Arm rest knobs
6 – Arm rest
7 – Hand control support



8 – Right/left sliding motor mount bar locking knob
9 – Up/down sliding housing locking knob
10 – Chair locking knob
11 – Abduction motor locking knob
12 – Abduction motor
13 – Shoulder depth sliding lock

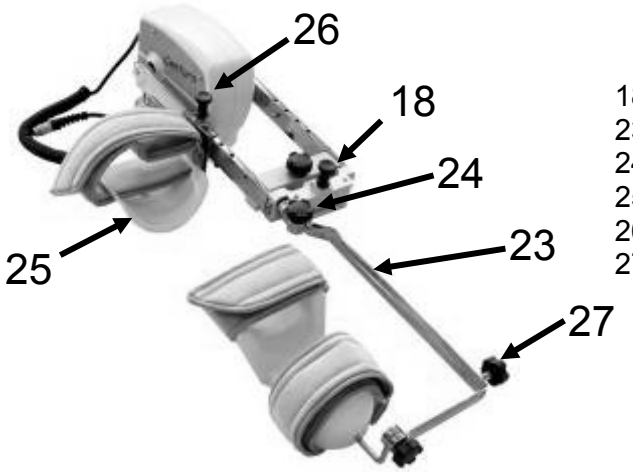
DESCRIPTION

Abduction + rotation splint



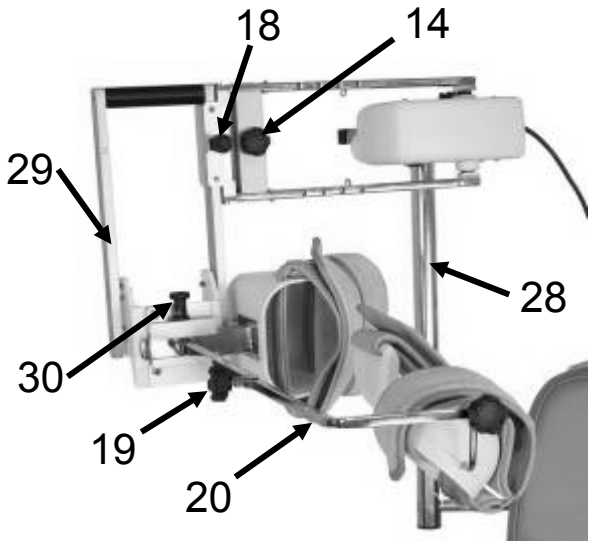
14 – Arm length setting lock
15 – 90° elbow splint
16 – 90°elbow splint lock
17 – Rotation motor
18 – Rotation motor lock
19 – Forearm length setting lock
20 – Forearm slider
21 – Right/left beam swivel lock
22 – Forearm splint

Abduction or Flexion splint



18 – Swivelling splint support lock
23 – Swivelling splint support
24 – Elbow flexion setting lock
25 – Arm splint
26 – Arm splint lock
27 – Forearm length setting lock

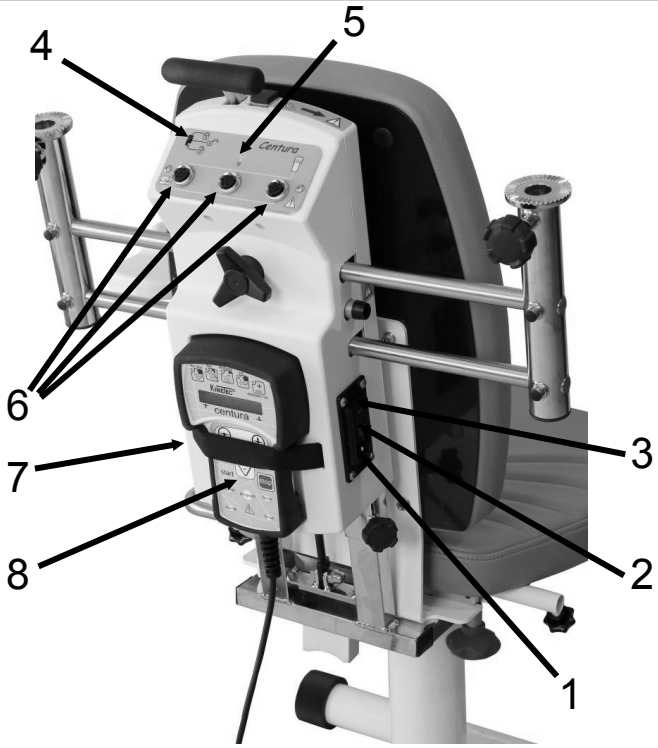
Horizontal Abduction splint (option)

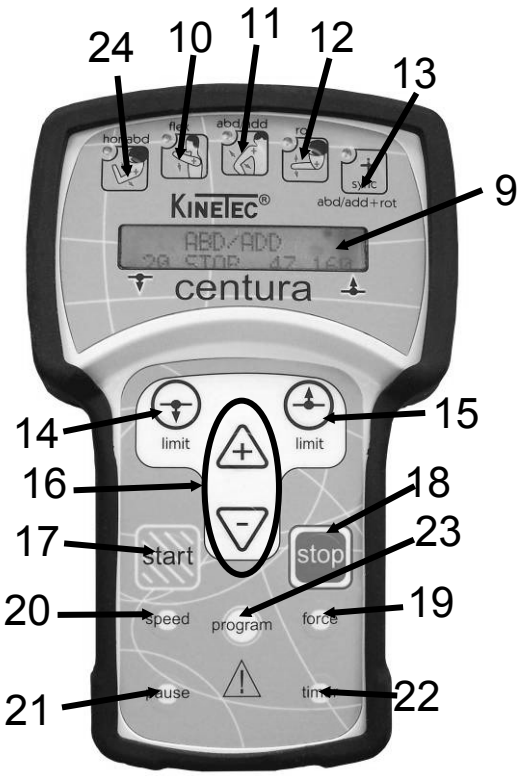


28 – Horizontal abduction column
14 – Arm length setting lock
18 – Elbow splint support lock
29 – Elbow splint support
30 – 90°elbow splint lock
19 – Forearm length setting lock
20 – Forearm slider

DESCRIPTION • Electrical

1 – Power supply cable connector
2 – Fuse
3 – ON/OFF switch
4 – Hand control lock switch
5 – Fault or power-on indicator
6 – Motor or hand control connectors
7 – Hand control location for transport
8 – Hand control





9 – Liquid-crystal display
(2 lines of 16 characters)
10 – Flexion/extension key
11 – Abduction/adduction key
12 – Rotation key
13 – Abduction/adduction with rotation key
14 – Lower limits setting key
15 – Upper limits setting key
16 – Increase / decrease keys
17 – START key
18 – STOP key
19 – FORCE key
20 – SPEED key
21 – PAUSE key
22 – TIMER key
23 – PROGRAM access key
24 – Horizontal abduction key

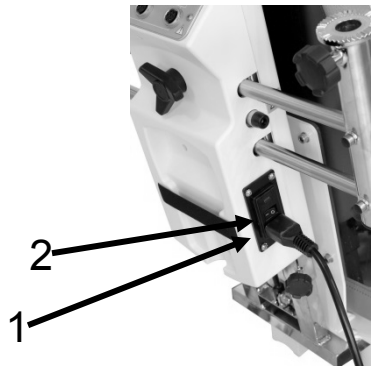
Centura DC only

A – USB key slot
B – USB key
C – Sliding protective cover

See the Kinetec Data Capture™ software user manual for more information.

USING THE HAND CONTROL

Electrical connection: safety first



2 versions of electrical protection are available for Kinetec Centura™ machine. The identification label shows which version a machine is equipped with:

Type BF, Class II devices,
for home use, bear the following symbols:

Type B class I devices,
for use in a professional environment, bear the following symbol:

See page 31 for the meaning of the symbols.

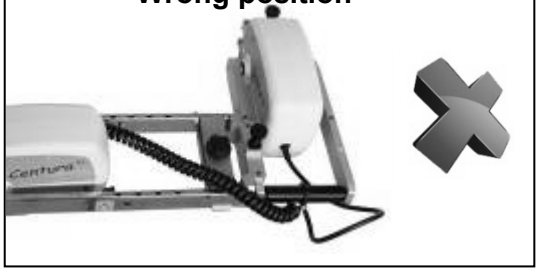
Before connecting the device to the power supply, check that the mains voltage matches that shown on the plate (100-240 V~ / 5060Hz).
The connectors can be plugged in any one of the sockets (the sockets are not assigned to a specific connector).

Connect the power supply cable (1).

IMPORTANT
For Type B Class I devices, and to avoid all risks of electric shock, the machine should only be connected to a power supply that has protective earthing.
To connect the power supply, only use the original cable supplied with the machine.
Check that the cables remain free around the device so that they do not get damaged.
Check that the machine is not damaged, in particular the protective housings.

Watch out for the position of the motor cables. They must remain clear around the machine.

Wrong position



Correct position

Starting the unit

Press the ON / OFF switch (2). The indicator light (3) lights up, the machine carries out an auto-diagnostic, and then the display shows:

KINETEC **Centura Vxx.x**

Then

Movement Verif. **Please Wait**

Then,

Hello **Patient's first name**

Only for Kinetec Centura DC™*

Then

KINETEC **30 STOP 15 70**

Your Kinetec Centura™ or Centura DC™ is ready to be used with the parameters from the previous session, unless you are using a daily program on the Kinetec Centura™ (see the instruction manual for the Kinetec Data Capture™ software).

Warning: Always check the motion parameters displayed on the hand control before starting the session.

*Note: Before using the device with data recording, please refer to the instruction manual for the Kinetec Data Capture™ software. The splint can be used immediately without the USB key being connected to a computer, or even with no USB key; in this case no data will be recorded.

USING THE HAND CONTROL

Changing the display language

Press the SPEED and FORCE buttons simultaneously,
then press + or - key to change the display language.

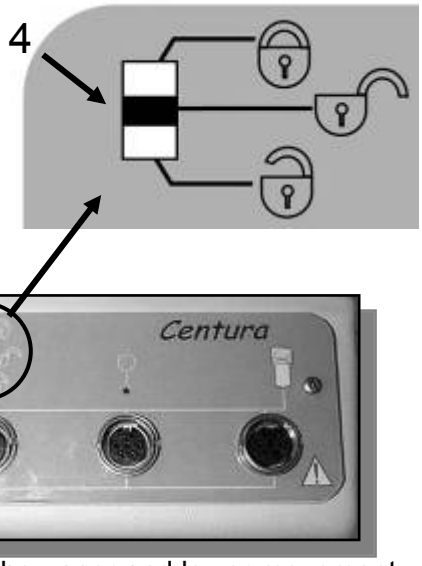
Press 

to confirm, then switch the unit OFF and then ON again

to apply the changed display language.
Available languages: English, French, German, Italian and Spanish.

Locking the hand control setting

The hand control allows the patient to control the machine as appropriate.



The switch (4) has 3 positions:

Fully locked position

In this mode the only functions available are reading the operational settings and using the START/STOP function.

Fully unlocked position

All the operational settings can be changed.

Half-locked position

In this mode, it is possible to switch the program and modify the upper and lower movement limits. The START/STOP function is always accessible.

Double locking

Simultaneously press the + and - keys to lock the hand control.
The display shows "LOCK". To unlock the hand control, simultaneously press the + and - keys; the display reads "UNLOCK".
You cannot change the parameters; if you try, the message "LOCK" will be displayed.

We recommend that you lock the hand control when you give it to the patient.

Note: the hand control locking is preserved when you switch the unit ON/OFF.

START / STOP / REVERSE function

As with all KINETEC® systems, the device Kinetec Centura™ device is equipped with ON/OFF/REVERSE functions.

Press this key of the hand control and the movement stops.

Press this key of the hand control and the movement starts in the opposite direction.

IMPORTANT: for optimum safety, always give the hand control to the patient before starting the system.

Procedure to stop the machine

To stop the machine's movement: press the STOP key
To switch power off: press the ON / OFF switch (see page 9)

Session Time

This function allows you to see how long the unit has been operating since it was last reset.

Beginning	Keys to press	Display	Remarks
To stop the unit	stop	FLEX/EXT 50 STOP 15 100	Check whether the hand control is in the position  or 
Press simultaneously on the 2 keys		TOTAL TIME 125H RESET: low.limit	The display shows how long the unit has been operating since it was last reset.
To reset the counter, press the key		TOTAL TIME 125H RESET TO ZERO	This message disappears after a few seconds; the counter is now reset.
Or After 5 seconds the time is no longer displayed, but it remains in the memory.		FLEX/EXT 50 STOP 15 100	

To choose a movement

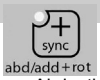
The movement can only be changed when the machine is stopped 

and the locking switch is in the unlocked position  or 

You can select a movement by pressing the appropriate button. The LED for the movement lights up.

When a movement is selected, the system returns to the movement's original parameters (default settings).

Default settings:

	 Abduction	 Flexion/Extension	 Rotation	 Abduction + Rotation		 Horizontal abduction*
• Lower limit	30°	30°	0°	30°	0°	30°
• Upper limit	90°	100°	60°	100°	60°	60°
• Speed	2	2	2	2		2
• Force	6	6	6	6		6
• Extension pause	0	0	0	0		0
• Flexion pause	0	0	0	0		0
• Timer	0	0	0	0		0
• Program	Empty					
• Patient**	Empty					

Possible values for each parameter:

	Abduction	Flexion/Extension	Rotation	Abduction + Rotation		Horizontal abduction*
• Lower limit	20° to 155°	20° to 175°	-60° to 85° external	20° to 155°	-30° to 85° external	-30° to 105°
• Upper limit	25° to 160°	25° to 180°	-55°to 90° external	25° to 160°	-25° to 90° external	-25° to 110°
• Speed	1 to 5 (from 50° to 140° per minute)					
• Force	1 to 6					
• Extension Pause	0 to 900 seconds (15 minutes)					
• Flexion Pause	0 to 900 seconds (15 minutes)					
• Timer	No timer (00H00) to 24H00					
• Number of Programs	16					

* Available as an option.

Quick Start – Kinetec Centura™

The device Kinetec Centura™ continuously records the session data (only if the USB key is connected).

Set up the patient and proceed as below:

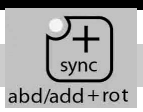
Beginning	Keys to press	Display	Remarks
Switch the unit ON		KINETEC Centura Vxx.x	
		Movement Verif. Please Wait	
		Movement Verif. Motor: M1 M2	
		Hello Patient's first name	
		FLEX/EXT 30 STOP 35 100	Displays the last movement used, unless a daily program. Check that the hand control is not locked (See page 10).
To start the session with the parameters from the previous session, unless you are using a daily program (see the instruction manual for the Kinetec Data Capture™ software).		FLEX/EXT 30 STOP 50 70	The angle display changes with the current movement.

Warning: Always check the motion parameters displayed on the hand control before starting the session.

To set the parameters for a single movement:

Beginning	Keys to press	Display	Remarks
To stop the unit	stop	RIN/REX 0 STOP 0 60	Check whether the hand control is in the position 
To choose the movement	abd/add	ABD/ADD 30 STOP 90 90	The display shows the new movement selected and the default settings for this movement's upper and lower limits.
Or	rot	RIN/REX 0 STOP 0 60	
Or	flex	FLEX/EXT 30 STOP 89 100	
Or (for Centura 5)	hor abd	ABD HOR 30 STOP 50 60	The display shows "NOT AVAILABLE" if you don't have the horizontal abduction module.
To display the lower limit of the movement	limit	FLEX/EXT **30 EXT** 89 100	The value blinks.
To change the lower limit of the movement if necessary	+ or -	FLEX/EXT **50 EXT** 89 100	The new value blinks.
To confirm the new value, press another key or wait more than 3 seconds	limit	FLEX/EXT 50 **FLEX** 89 **100**	While the value blinks press the + or - key to change if necessary.
	timer	FLEX/EXT **TIMER 00H00MIN**	
	speed	FLEX/EXT **SPEED 2**	
	force	FLEX/EXT **FORCE: _ _ _ _**	
Or To display the pauses	pause	FLEX/EXT **PAUSE HIGH 0S**	The value for the pause at the movement's upper limit blinks.
To change the value for the pause at the movement's upper limit, if necessary	+ or -	FLEX/EXT **PAUSE HIGH 10S**	The new value for the pause at the movement's upper limit blinks.
To confirm the new value and display the value for the pause at the movement's lower limit	pause	FLEX/EXT **PAUSE LOW 0S**	The value for the pause at the movement's lower limit blinks.
To change the value for the pause at the movement's lower limit, if necessary	+ or -	FLEX/EXT **PAUSE LOW 15S**	The new value for the pause at the movement's lower limit blinks.
To confirm the new value press another key or wait more than 3 seconds until the display again shows the selected movement		FLEX/EXT 50 STOP 89 100	The unit is ready to start with the new parameters.

To set the synchronised movement parameters



Beginning	Keys to press	Display	Remarks
To stop the unit		FLEX/EXT 50 STOP 15 100	Check whether the hand control is in the position 
To select the combined movement		SYNC **ABD**/ROT 30 STOP 15 100	The indication “ABD” blinks and the display shows the abduction movement limits. To change these proceed as for a single movement.
Press a second time on the key		SYNC ABD/**ROT** 0 STOP 15 60	The indication “ROT” blinks and the display shows the rotation movement limits. To change these proceed as for a single movement.

Synchronization rules:

- The rotation ROM is less than or equal to the abduction ROM.
- 1° of abduction produces 1° of rotation.
- When the rotation ROM is less than the abduction ROM, the synchronization applies to the upper portion of the movement.

For example: abduction from 30° to 100°
rotation from 50° to 90°

Comments:

- Speed, force, pauses and timer are the same for both movement components. They are set in the same way as for a single movement.
- Pauses can be set for the lower and/or the upper limits of the abduction movement.
- Successive presses of the synchronized movement button allow you to view the abduction movement limits followed by the associated rotation movement limits.
- You cannot change the settings while the machine is running.
- BYPASS Mode is not available for synchronised movements.

Using Programs 

The device Kinetec Centura™ allows you to store up to 16 programs (numbered 1 to 16), including the type of movement, ROM, speed, force, pauses and timer.

The original parameter values of the program are empty. These values can be modified and saved at any time (see 'To enter a program', page 17)

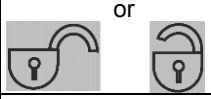
To select a program:

Beginning	Keys to press	Display	Remarks
To stop the unit		RIN/REX 0 STOP 0 60	Check whether the hand control is in the position or 
To access program mode		PROGRAM **NR1** 0 ROTATION 60	The program number blinks.
To change the program if necessary		PROGRAM **NR3** 0 FLEX/EXT 60	The new program number blinks.
To exit and confirm the selected program		FLEX/EXT 0 STOP 0 60	The current parameters are those recorded in program 3.
To exit without confirming the selected program		RIN/REX 0 STOP 0 60	Back to the starting parameters.
To start the unit		FLEX/EXT 0 RUN **10** 60	The angle display changes with the current movement.

Comments:

- The values in the display column are given as an example. They actually depend on the stored programs.
- The current movement parameters can be changed while using that program but no data will be stored in the original program. See programming mode (page 17) to modify programs.
- When a USB key is connected the programs stored on the USB key have priority.

Reading the values of a program: e.g. SPEED 

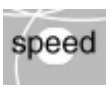
Beginning	Keys to press	Display	Remarks
To stop the unit		RIN/REX 0 STOP 15 90	Check whether the hand control is in the position or 
To access program mode		PROGRAM **NR1** 30 ROTATION 90	The program number blinks.
To change the program if necessary	 or	PROGRAM **NR3** 0 ROTATION 30	The new program number blinks.
To read the speed value		PROGRAM **NR3** SPEED: 1	Displays the speed value.
After 15 seconds or after pressing on another key		PROGRAM **NR3** 0 ROTATION 30	
To exit and confirm the selected program		RIN/REX 0 STOP 15 60	The current parameters are those recorded in program 3.
To start the unit		RIN/REX 0 RUN 20 60	The angle display changes with the current movement.

Comments:

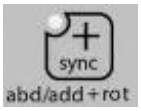
- The values in the display column are given as an example. They actually depend on the stored programs.
- The current movement parameters can be changed while using that program but no data will be stored in the original program. See programming mode (page 17) to modify programs.
- When a USB key is connected the programs stored on the USB key have priority.

PROGRAM MODE: To enter a program 

Note: This function is not available when a USB key is connected.
See the Kinetec Data Capture™ software user manual for more information.

Beginning	Keys to press	Display	Remarks
To switch off the unit			Check whether the hand control is in the position 
Press the 2 keys at the same time and switch the unit ON		KINETEC CENTURA V x.x	Welcome text displayed for 3 seconds
Then		PROGRAM **NR3** EMPTY	The program number blinks.
To change the program if necessary	 or	PROGRAM **NR10** 30 SYNC ABD 100	The new program number blinks.
To choose the movement		PROGRAM **NR10** 30 ABD/ADD 90	The display indicates the selected movement, the program number continues to blink.
Or		PROGRAM **NR10** 0 ROTATION 60	
Or		PROGRAM **NR10** 30 FLEX/EXT 100	
Or		PROGRAM **NR10** 30 SYNC ABD 100	
Or (for Centura 5)		PROGRAM **NR10** 30 ABD HOR 60	The display shows "NOT AVAILABLE" if you don't have the horizontal abduction module.
To display the lower limit of the movement		PROGRAM NR10 **30** SYNC ABD 100	The value blinks.
To change the lower limit of the movement if necessary	 or	PROGRAM NR10 **40** SYNC ABD 100	The new value blinks.
To confirm the new value, press another key		PROGRAM NR10 40 SYNC ABD **100**	While the value blinks press Or  to change if necessary.
		PROGRAM NR10 **TIMER 00H01MIN**	
		PROGRAM NR10 **SPEED: 1**	
		PROGRAM NR10 **FORCE: _ _ _ _**	
Or To display the pauses		PROGRAM NR10 **PAUSE HIGH 0S**	The value for the pause at the movement's upper limit blinks.
To change the value for the pause at the movement's upper limit, if necessary	 or	PROGRAM NR10 **PAUSE HIGH 15S**	The new value for the pause at the movement's upper limit blinks.

PROGRAM MODE: To enter a program 

Beginning	Keys to press	Display	Remarks
To confirm the new value and display the value for the pause at the movement's lower limit		PROGRAM NR10 **PAUSE LOW 0S**	The value for the pause at the movement's lower limit blinks.
To change the value for the pause at the movement's lower limit, if necessary		PROGRAM NR10 **PAUSE LOW 10S**	The new value for the pause at the movement's lower limit blinks.
To confirm and display the combined rotation component		PROGRAM **NR10** 0 SYNC ROT 60	The program number blinks and the display indicates the rotation values combined with the abduction.
To change the lower limit of the movement		PROGRAM NR10 **0** SYNC ROT 60	The value blinks.
To change the lower limit of the movement if necessary		PROGRAM NR10 **50** SYNC ROT 60	The new value blinks.
To confirm and display the upper limit of the movement		PROGRAM NR10 50 SYNC ROT **60**	The value blinks.
To change the upper limit if necessary		PROGRAM NR10 50 SYNC ROT **75**	The new value blinks. (see page 14 for more information about combined movements)
To record program 10		PROGRAM NR10 SAVE: + CLEAR: -	
Then		PROGRAM NR10 SAVING	Program 10 has been recorded and the display indicates the next program so you can change another program.
		PROGRAM **NR11** EMPTY	
OR To cancel the program		PROGRAM NR10 CLEARING	Program 10 has been removed and the display indicates the next program so you can change another program.
		PROGRAM **NR11** EMPTY	
To exit program mode, switch the unit OFF and switch back ON.		KINETEC CENTURA V x.x	To use the modified program see page 15.

Comments:

• When a program has been deleted, the display shows PROGRAM NR11
EMPTY

• The values in the display column are given as an example. They actually depend on the stored programs.

Program table:

• Program number	Movement type	Lower limit	Upper limit	Speed	Force	Pause at upper limit	Pause at lower limit	Timer
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

To define the upper and lower movement limits

• At the start of a session

This function, MANUAL MODE, allows the maximum limits that a patient can tolerate to be defined and recorded at the beginning of a session.

Set up the patient and proceed as below:

Beginning	Keys to press	Display	Remarks
Switch the unit on		KINETEC CENTURA V x.x	Check whether the hand control is in the position or  
		MOVEMENT VERIF. PLEASE WAIT	
		MOVEMENT VERIF. MOTOR: M1 M2	
		FLEX/EXT 30 STOP 89 100	
To select MANUAL MODE	 continuously press	FLEX/EXT 30 MANUAL **89** 100	The unit starts moving to the upper limit of the movement. The settings are controlled by you.
To set the pain level when reached, press	 limit	FLEX/EXT 30 MANUAL 150 150	The new upper limit of the movement is recorded.
To set the lower limit	 continuously press	FLEX/EXT 30 MANUAL **100** 150	The unit starts moving to the lower limit of the movement.
To set the pain level when reached, press	 limit	FLEX/EXT 25 MANUAL 25 150	The new lower limit of the movement is recorded.
To start the session with the new movement limits	 start	FLEX/EXT 25 RUN **30** 150	The angle display changes with the current movement.

Specific rules for synchronized movements:
• Only the upper limit of the movement can be changed in MANUAL MODE.
The value will be at least the synchronisation point + 5°.

Comments:
• The values in the display column are given as an example.
• The movement speed is fixed and cannot be changed (default factory setting: 2).

To define the upper and lower movement limits

• During the session

This function, BYPASS MODE, allows the maximum limits that a patient can tolerate to be defined and recorded, which allows you to work on increasing amplitude.

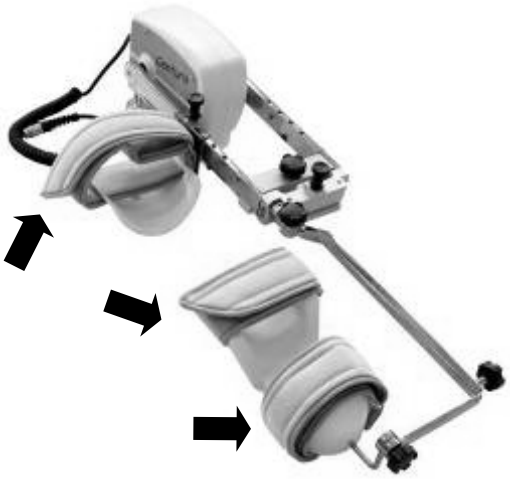
Beginning	Keys to press	Display	Remarks
The unit is running		FLEX/EXT 25 RUN **30** 150	The angle display changes with the current movement. Check whether the hand control is in the position  Or 
To select BYPASS Mode	 continuously press	FLEX/EXT 25 BYPASS **160** 150	The unit exceeds the recorded upper limit.
To set the new pain level when reached, press	 limit	FLEX/EXT 25 BYPASS 160 160	The new upper limit of the movement is recorded.
To set the lower limit	 continuously press	FLEX/EXT 25 BYPASS 20 160	The unit starts moving to the lower limit of the movement.
To set the new pain level when reached, press	 limit	FLEX/EXT 20 BYPASS 20 160	The new lower limit of the movement is recorded.
Continue the session with the new movement limits.		FLEX/EXT 20 RUN 50 160	The angle display changes with the current movement.

Comments:
- The values in the display column are given as an example.
- BYPASS Mode is not available for synchronised movements.

Using the patient pads

The device Kinetec Centura™ is delivered with 7 straps:
Part number to order the complete set: 4650001397

4 straps on the 90° elbow splint.



• 3 straps on the abduction or flexion splint.

All these straps are used the same way (see pictures).

Do not tighten the straps too much.

FOR OPTIMAL HYGIENE,
A NEW SET OF PADS SHOULD BE USED FOR EACH PATIENT.

Recommendations to obtain maximum hygiene for the straps:

• Disinfecting the straps:
Wash at 30°C, using a disinfectant solution during the rinse cycle.
Examples of products that can be used: Solution "Baclinge" at 0.125 % or "Souplanios" at 0.125% from ANIOS Laboratory. A complete list of distributors in your country is available on request.

MECHANICAL ADJUSTMENTS

Standard settings for a movement using both motors.

Possible movement:

- Abduction/Adduction with setting for ROTATION POSTURE.
The device Kinetec Centura™ provides movements from 20° to 160° of abduction.
For this movement, the rotation position will be selected by the practitioner between 60° internal rotation and 90° external rotation.

- Abduction/Adduction with ASSOCIATED EXTERNAL ROTATION.
The device Kinetec Centura™ provides movements from 20° to 160° of abduction associated with a maximum of 120° of rotation.

- INTERNAL/EXTERNAL ROTATION.
The device Kinetec Centura™ provides movements from 60° internal rotation to 90° external rotation.
For this movement, the abduction position for the arm will be selected by the practitioner.

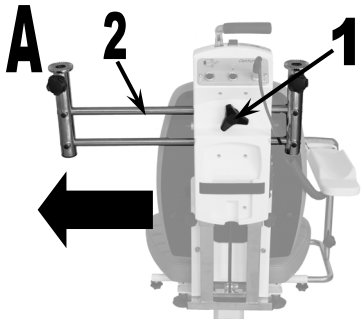
Components required

• The chair

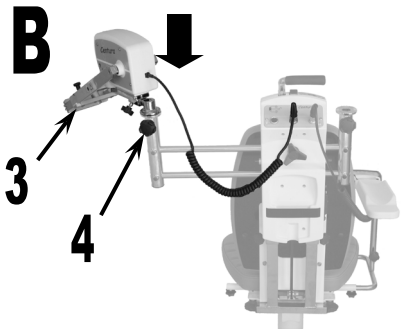
• The abduction + rotation splint

• The hand control

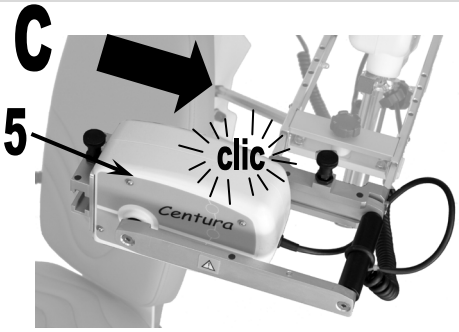
Assembling the components



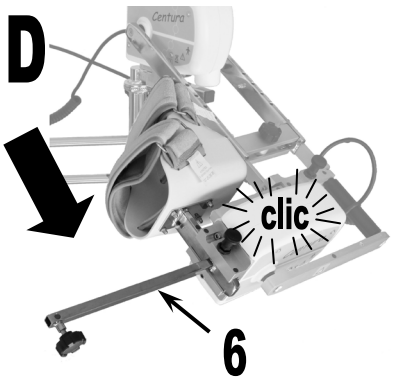
Loosen the knob (1) and slide the motor support (2) completely to the right or the left. Plug in the hand control.



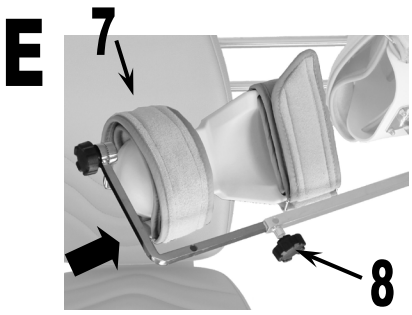
Install the abduction motor (3).
Tighten the knob (4).
Plug in the motor.



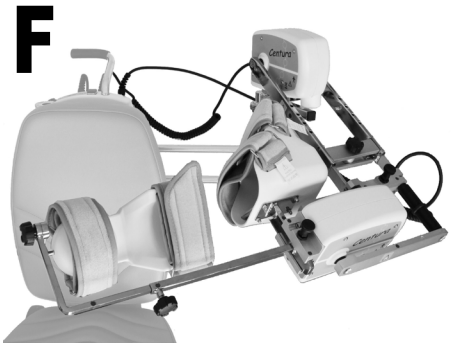
Install the rotation motor (5), using the colour code as guide:
• Blue for the left limb
• Red for the right limb.
It is correctly installed when you hear a click. Plug in the motor.



Install the 90° elbow splint (6) using the colour code as guide. It is correctly installed when you hear a click.



Install the forearm splint (7) using the colour code as guide. Tighten the knob (8).

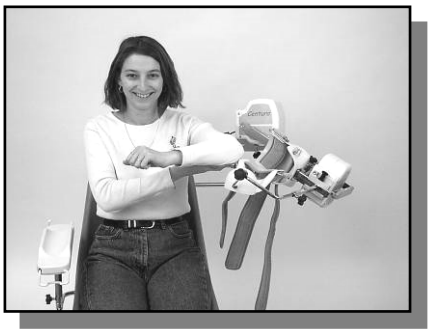


The device Kinetec Centura™ is shown ready
to be used for a left shoulder mobilisation.

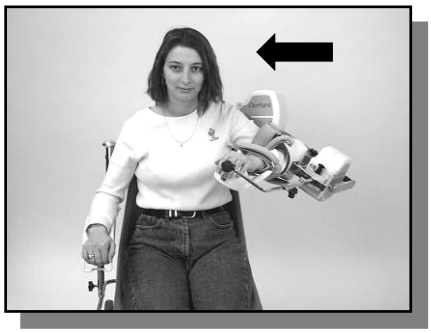
MECHANICAL ADJUSTMENTS

Setting up the patient

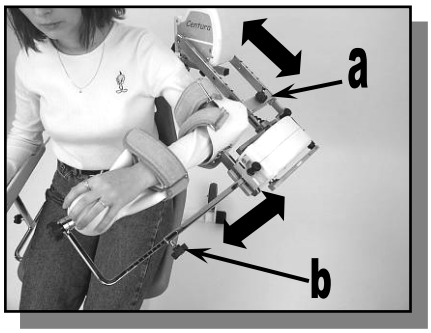
Make sure the pads are clean.
Put the unit in the position that is the most comfortable for the patient.



Place the patient comfortably in the chair, with their back against the chair back, and ask them to support the affected arm.



Slide the arm support unit toward the patient and place their arm in the supports.
Strap the arm in position.



Adjust the length of the:
a – 90° elbow splint.
b – forearm splint.

Adjusting the axes of the shoulder joints:

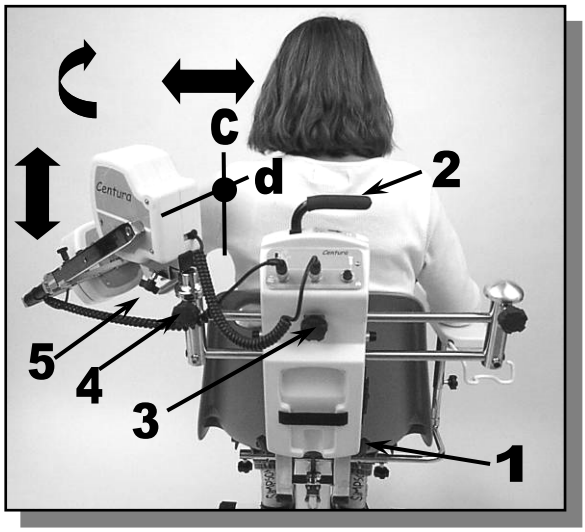
c – Vertical adjustment:
- Loosen the 2 knobs (1).
- Holding the handle (2) raise or lower the arm support unit.
- Tighten the 2 knobs (1).

d – Side to side adjustment:
- Loosen the knob (3).
- Slide the arm support unit.
- Tighten the knob (3).

e – Abduction/adduction plane adjustment
- Loosen the knob (4).
- Rotate the arm support unit.
- Tighten the knob (4).

f – Shoulder depth adjustment:
- Loosen the knob (5).
- Slide the arm support unit.
- Tighten the knob (5).

• Adjust the arm rest.



Starting the movement

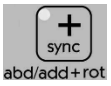
Abduction/Adduction movement with rotation posture.

1. Set the external rotation posture: press 

and adjust the posture using MANUAL MODE (see page 20)
2. Select Abduction/Adduction movement: press 

and set the movement parameters (see page 13).
3. Or select a program (see page 15).

Abduction/Adduction movement with ASSOCIATED EXTERNAL ROTATION.

1. Select Abduction/Adduction movement associated with rotation: press 

and set the movement parameters (see page 14).
2. Or select a program (see page 15).

INTERNAL/EXTERNAL ROTATION movement.

1. Set the abduction position: press 

and adjust the abduction position using MANUAL MODE (see page 20)
2. Select Rotation movement: press 

and set the movement parameters (see page 13).
3. Or select a program (see page 15).

MECHANICAL ADJUSTMENTS

Standard settings for a movement using one motor.

Possible movement:

- Abduction/Adduction with setting for ELBOW FLEXION POSTURE.
The device Kinetec Centura™ provides movements from 20° to 160° of abduction.
For this movement, the elbow flexion posture does not change and will be selected by the practitioner.

- EXTENSION/FLEXION.
The device Kinetec Centura™ provides movements from 20° to 180° of flexion.
For this movement, the elbow flexion posture does not change and will be selected by the practitioner.

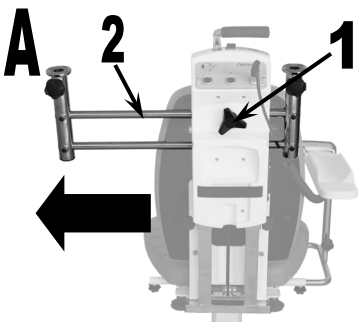
Components required

• The chair

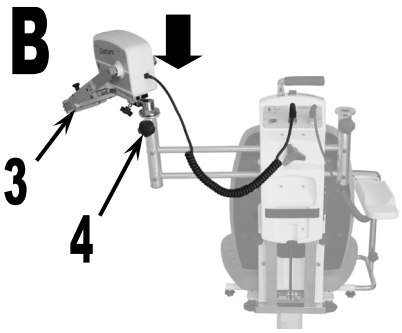
• The abduction or flexion splint

• The hand control

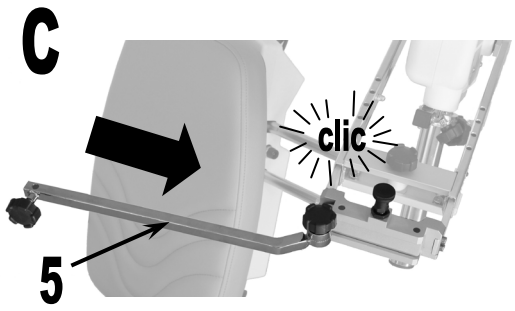
Assembling the components



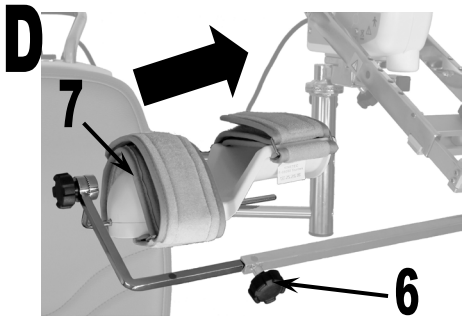
Loosen the knob (1) and slide the motor support (2) completely to the right or the left. Plug in the hand control.



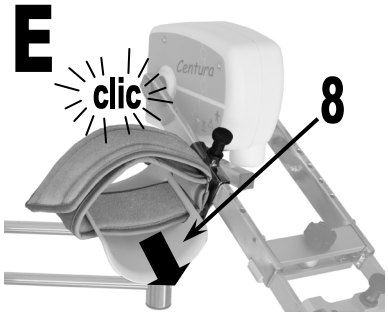
Install the abduction motor (3).
Tighten the knob (4).
Plug in the motor.



Install the splint support (5), using the colour code as guide:
• BLUE for the left limb
• RED for the right limb.
It is correctly installed when you hear a click.



Install the forearm splint (7) using the colour code as guide. Tighten the knob (6).



Install the arm splint (8).
It is correctly installed when you hear a click.

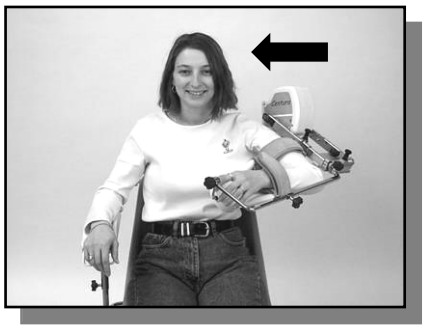
The device Kinetec Centura™ is shown ready to be used for a left shoulder mobilisation.

MECHANICAL ADJUSTMENTS

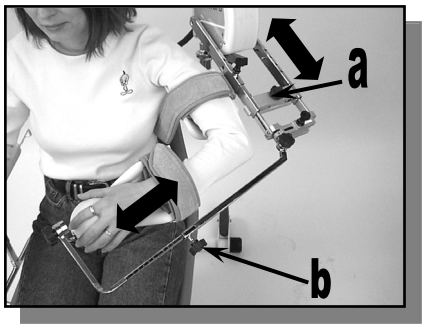
Setting up the patient

Make sure the pads are clean.
Put the unit in the position that is the most comfortable for the patient.

Place the patient comfortably in the chair, with their back against the chair back, and ask them to support the affected arm.



Slide the arm support unit toward the patient and place their arm in the supports.
Strap the arm in position.



Adjust the length of the:
a - arm splint
b – forearm splint.

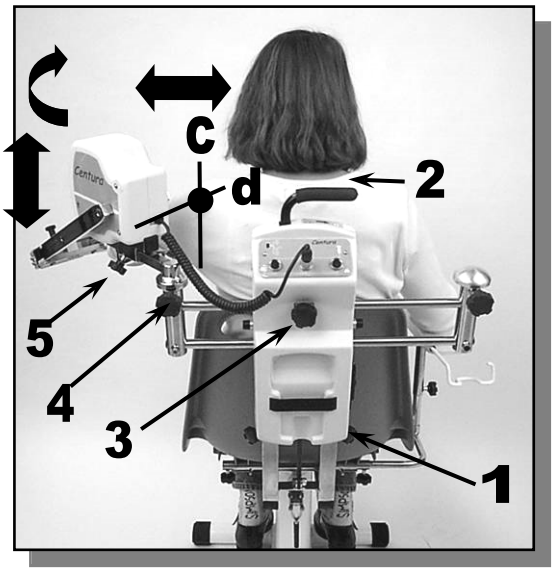
Adjusting the axes of the shoulder joints:

c – Vertical adjustment:
- Loosen the 2 knobs (1).
- Holding the handle (2) raise or lower the arm support unit.
- Tighten the 2 knobs (1).

d – Side to side adjustment:
- Loosen the knob (3).
- Slide the arm support unit.
- Tighten the knob (3).

e – Abduction/adduction plane adjustment:
- Loosen the knob (4).
- Rotate the arm support unit.
- Tighten the knob (4).

f – Shoulder depth adjustment:
- Loosen the knob (5).
- Slide the arm support unit.
- Tighten the knob (5).



• Adjust the arm rest.

Starting the movement

Abduction/Adduction movement with elbow flexion posture.

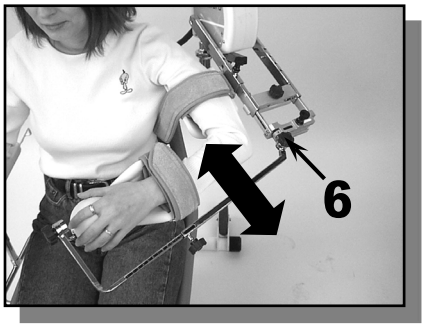
1. Set the elbow flexion posture: Unscrew the knob (6) and adjust the flexion as appropriate.
2. Select Abduction/Adduction movement: press 

and set the movement parameters (see page 13).
3. Or select a program (see page 15).

Extension/Flexion movement with elbow flexion posture.

1. Set the elbow flexion posture: Unscrew the knob (6) and adjust the flexion as appropriate.
2. Select the extension/flexion movement: press 

and set the movement parameters (see page 12).
3. Or select a program (see page 15).



MECHANICAL ADJUSTMENTS

Settings for a HORIZONTAL ABDUCTION movement.

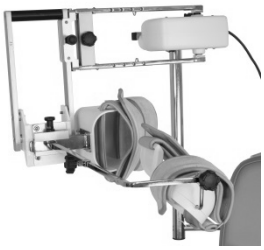
Possible movement:
- Horizontal Abduction
Available as an option: *please contact your nearest KINETEC® distributor.*

The device Kinetec Centura™ provides movements from -30° to 110° of horizontal abduction.

Components required

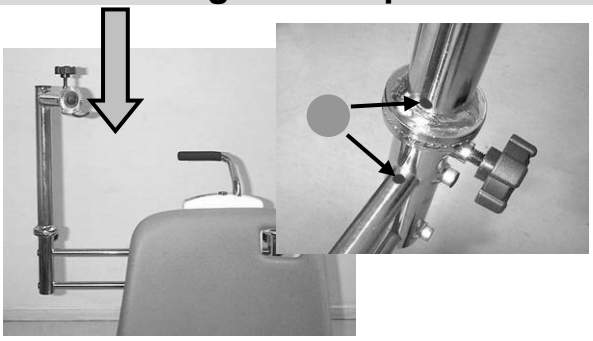
• The chair

• The horizontal abduction splint

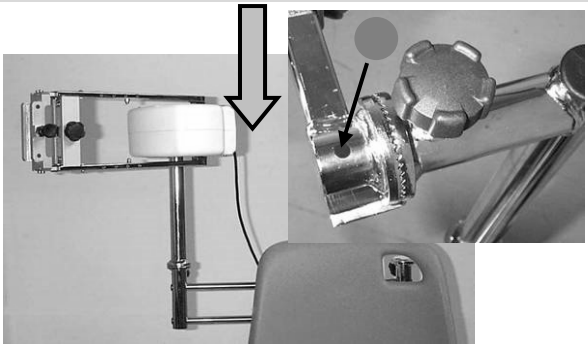


• The hand control

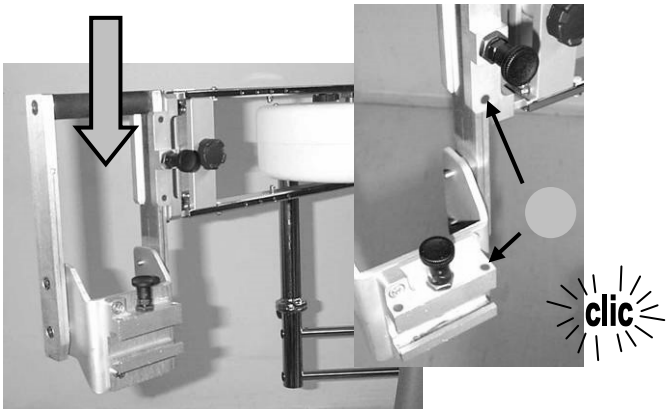
Assembling the components



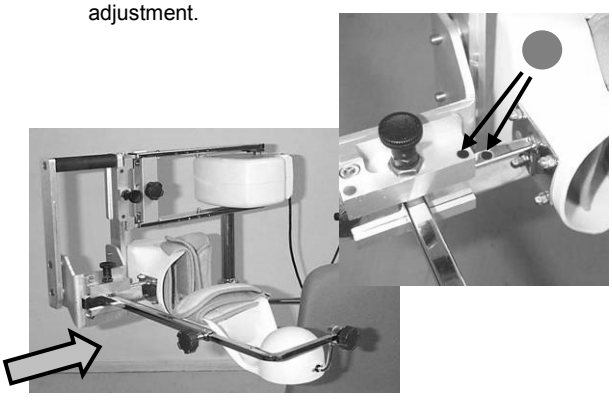
Install the horizontal abduction column on the device.
Use the colour code to position the column correctly. Tighten the black knob.



Install the abduction motor on the column.
The red disc must be visible for a right side set up (blue for left).
Several positions are possible for the movement plane adjustment.



Insert the elbow support into the extremity of the abduction motor.
The appropriate colour disc (red for right and blue for left) must be positioned on the inside. For safety reasons, this part can only be removed by lifting upwards.

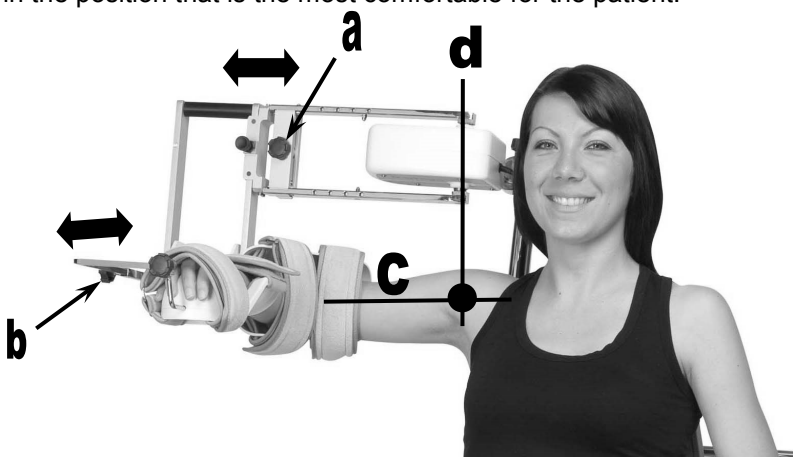


Install the elbow splint using the colour code as guide.

MECHANICAL ADJUSTMENTS

Setting up the patient

Make sure the pads are clean.
Put the unit in the position that is the most comfortable for the patient.



Place the patient comfortably in the chair, with their back against the chair back, and ask them to support the affected arm.

Slide the arm support unit toward the patient and place their arm in the supports.
Strap the arm in position.

Adjust the length of the:
a – 90° elbow splint.
b – forearm splint.

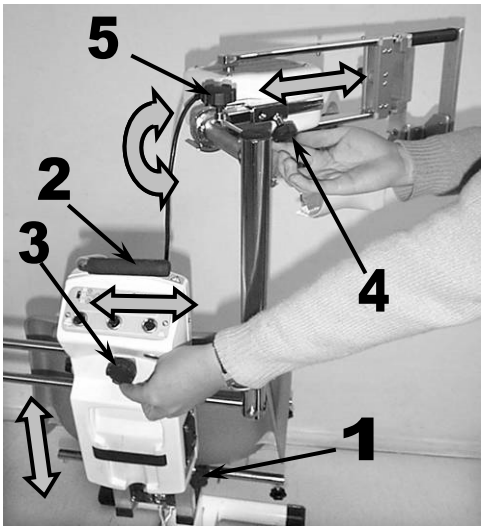
Adjusting the axes of the shoulder joints:

c – Vertical adjustment:
- Loosen the 2 knobs (1).
- Holding the handle (2) raise or lower the arm support unit.
- Tighten the 2 knobs (1).

d – Side to side adjustment:
- Loosen the knob (3).
- Slide the arm support unit.
- Tighten the knob (3).

e – Shoulder depth adjustment:
- Loosen the knob (4).
- Slide the arm support unit.
- Tighten the knob (4).

f – Horizontal or inclined plane adjustment
- Loosen the knob (5).
- Rotate the arm support unit.
- Tighten the knob (5).



• Adjust the arm rest.

Starting the movement

• Select the horizontal abduction movement:

- Press 

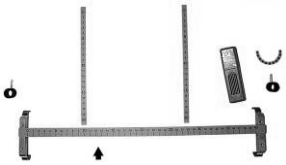
and set the movement parameters (see page 13).

- Or select a program (see page 15).

Options

Horizontal Abduction Kit
Part number to order: 4670020020

Head and shoulder rests
Part number to order: 4670024551



Graduated positioning kit
Part number to order: 4670019726

Transport case
Part number to order: 4640001464

CEM kit (elbow module)
Part number to order: 4621007002

Maintenance

After 2,000 hours of operation, or once a year, The device Kinetec Centura™ requires lubrication and maintenance operations (lubrication of the joints and pointer stops). The need for maintenance is indicated by display of the message **SERVICE TIME Mx** when the system is switched on.
Despite this indication, you can continue to use your machine by pressing **[START]**, but you should contact your nearest KINETEC® technician to have the maintenance operations carried out as soon as possible.
An after-sales service inspection sheet and the technical catalogue are available on request from your KINETEC® distributor.

WARNING:	Before using this machine, always check that the electrical socket is in good condition and is suitable for the splint power supply cord. Only use the original cable supplied with the machine. Check that the cables remain free around the device so that they do not get damaged.
WARNING:	Before using this machine, always check that the machine is not damaged, in particular the protective housings.

When the machine is no longer in working condition, please return it to us, together with its accessories, for destruction.
Change the battery if there is no stored date (see the Technical Catalogue).

Trouble shooting

A spare parts list and technical catalogue are available on request from your KINETEC® distributor.
If, after connecting the power supply cable to the power supply and switching on the machine:

- The display does not indicate any information:
  - Check that the electrical socket is live using another device or voltmeter.
  - Replace the fuse(s) of the connector with fuses of the same type and calibre: 2 fuses T 750 mA 250V (6.3 x 32) (KINETEC® order: 4610007434).
  - If the display still does not indicate any information, contact your nearest KINETEC® technician.
- Your Kinetec Centura™ does not work and the display indicates **"50 STOP 25 115"**, press **START** again. If your machine still does not work, contact your nearest KINETEC® technician.
- Your machine does not work and the display indicates:

"SERVICE D1": angle measurement function failure,
or "SERVICE D2": no movement,
or "SERVICE D3": abnormal electrical consumption by motor,
or "SERVICE D4": power failure or disconnected motor,
or "SERVICE D7": the USB key was disconnected while in use;

contact your nearest KINETEC® technician if the same message is displayed after switching the device off, then on

or "SERVICE D8": the USB key used has not been programmed for use on Kinetec Centura™; See the Kinetec Data Capture™ software user manual for more information.

Cleaning

Before carrying out any cleaning operation, SWITCH OFF the unit and disconnect the power supply. In order to ensure optimal hygiene, you are advised to clean the machine for each new patient.
Cleaning should be carried out in the environmental conditions specified in the “Technical Specifications” section below.
Use a DISINFECTANT product (alcohol-free or <5% alcohol solution) in spray (plastic cases and metal components).
FOR OPTIMAL HYGIENE, A NEW SET OF PADS SHOULD BE USED FOR EACH PATIENT.
All the consumables enable hazard-free disposal.

Disposal and recycling

a • Packaging: The packaging must be separated into plastic and paper / cardboard components and taken to special recycling sites.
b • KINETEC® patient pad kit: Clean with a disinfectant product then take it to special recycling sites.
c • Unit: It contains electronic components, cables, aluminium, steel and plastic parts. When the machine is no longer operational, disassemble it, separate it into different types of material and take these to authorised recycling centres or return the machine to Kinetec SAS for destruction. Or contact the local authorities to determine the appropriate method of disposal for parts and accessories that are potentially hazardous to the environment.

PRODUCT INFORMATION

Technical specifications

Product:

Lifespan of the machine:	12 years
Weight:	28 Kg (61.7 pounds)
Splint dimensions:	56cm (22 inches) x 100cm (39 inches) x 76cm (30 inches)
Angular limits:	see page 2
Speeds:	from 50 to 140° per minute
Patient sizes:	1.40m (4ft. 7ins.) to 2m (6ft. 7ins.)
Maximum weight of the user:	135 kg (297 pounds)
Acoustic pressure:	<70dB
Applied parts:	Hygienic pads, straps, seat and backrest

Electricity:

Power supply:	100-240V~
Frequency:	50-60 Hz
Power consumption:	50 VA
Class:	Device of Type BF Class II or Type B Class I
Protection class (device):	IP 20 (protected against solid objects greater than 12.5mm, but not protected against liquids)
Protection class (carrying case):	IP 01 (non-protected against solid foreign objects, protected against vertically falling water drops)
Fuse:	T 750mA 250V 6.3 x 32mm (KINETEC® order: 4610007434)
Data backup: (only for Centura DC™)	3V – CR1620 battery (KINETEC® order: 4610008987)

Environment:

Storage/transport conditions:	Temperature:	-25 to 70°C / -13 to 158°F.
	Relative humidity:	up to 93% without condensation.
Operating conditions:	Temperature:	5 to 40°C / 41 to 104°F.
	Relative humidity:	15% to 93% without condensation.
	Atmospheric pressure:	700 hPa to 1060 hPa.

Symbols used

	Warning or CAUTION (consult the accompanying documentation)	force	Force	start	Start movement
	STOP (power off)	pause	Pause	stop	Stop movement
	ON (power on)		Increase	flex	Flexion movement
program	Program access (see page 10)		Decrease	rot	Rotation movement
speed	Speed	limit	Lower limit	abd/add	Abduction movement
timer	Timer, see page 8	limit	Upper limit	sync abd/add+rot	Combined movement
	Hand control locked		Hand control unlocked		Hand control half locked
hor abd	Horizontal abduction movement		Fault or power-on indicator		Do not push
	Right way up when box is stored	+70°C -25°C	Temperature Limit during storage or transport		Fragile
IP20 IP01	See “Protection class” in section “Technical specifications”		Keep dry during storage or transport	93% % 0%	Humidity limit during storage or transport
~	Alternating current		Follow the instructions for use		Contains electric and electronic components; do not throw away with household refuse.
	Class II device		TYPE BF device (protection against electric shocks)		TYPE B device (protection against electric shocks)

Warranty

The KINETEC® warranty is strictly limited to the replacement, free of charge, or to factory repairs of part(s) recognised as defective.
Kinetec SAS guarantees its continuous passive motion systems for 2 years against all defects of manufacture from the date of purchase by the consumer.
Kinetec SAS is the only organization able to assess the application of the warranty to its systems.
The warranty will be considered null and void if the device has been used abnormally or under conditions of use other than those indicated in the user's manual.
The warranty will also be considered null and void in the event of deterioration or an accident due to negligence, inappropriate surveillance or inappropriate maintenance, or due to transformation of the equipment or an attempt to repair the equipment.

Guidance and manufacturer's declaration

Guidance and manufacturer's declaration - Electromagnetic emissions		
The device Kinetec Centura™ is intended for use in the electromagnetic environment specified below. The customer or the user of The device Kinetec Centura™ should ensure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment – guidance**
Radio frequency emissions (RF) CISPR 11	Group 1	The device Kinetec Centura™ 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 equipment.
Radio frequency emissions CISPR 11	Class B	The device Kinetec Centura™ 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 IEC 61000-3-2	Class A	
Voltage fluctuations / Flicker emissions IEC 61000-3-3	Complies	
Electromedical appliances require special precautions concerning EMC. They therefore need to be installed and commissioned following the EMC information supplied. Electromedical appliances may be affected by mobile and portable RF communication devices. WARNING: using cables and accessories other than those specified, except for those sold by KINETEC® as replacements for internal components, may lead to an increase in emissions or a decrease in The device Kinetec Centura™ machine's immunity. WARNING: The device Kinetec Centura™ should not be used next to other appliances. If The device Kinetec Centura™ must be used next to other appliances, it should be under constant supervision to check that it is working normally in the given configuration.		

Guidance and manufacturer's declaration - Electromagnetic immunity			
The device Kinetec Centura™ is intended for use in the electromagnetic environment specified below. The customer or the user of the device Kinetec Centura™ should ensure that it is used in such an environment.			
Immunity test	**IEC 60601 Test level**	**Compliance level**	**Electromagnetic environment – Guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV - contact ±8 kV - air	±6 kV - contact ±8 kV - air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient / burst IEC 61000-4-4	±2 kV for electrical power lines ±1 kV for input/output lines	±2 kV for electrical power lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV phase-to-phase ±2 kV phase-to-earth	±1 kV phase-to-phase ±2 kV phase-to-earth	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 IEC 61000-4-11	< 5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles < 5% U_T (>95% dip in U_T) for 5 seconds	< 5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles < 5% U_T (>95% dip in U_T) for 5 seconds	Mains power quality should be that of a typical commercial or hospital environment. If the user of The device Kinetec Centura™ requires continued operation during power supply interruptions, we recommend powering The device Kinetec Centura™ using an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3A/m	3A/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 AC mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration

Guidance and manufacturer's declaration - Electromagnetic immunity

The device Kinetec Centura™ is intended for use in the electromagnetic environment specified below.
The customer or the user of the device Kinetec Centura™ should ensure that it is used in such an environment.

Immunity test	Test level according to IEC 60601	Compliance level	Electromagnetic environment – Guidance
Conducted RF interference IEC 61000-4-6	3 Veff from 150 kHz to 80 MHz	3 V	Mobile and portable RF communication devices should not be used closer to any part of The device Kinetec Centura™ machine, including its cables, than the recommended separation distance, calculated based on the equation applicable to the emitter's frequency. **Recommended separation distance** $d = 1.2\sqrt{P}$
Radiated RF interference IEC 61000-4-3	3 V/m from 80 MHz to 2.5 GHz	3 V/m	$d = 1.2\sqrt{P}$ from 80 MHz to 800 MHz $d = 2.3\sqrt{P}$ from 800 MHz to 2.5 GHz where *P* is the emitter's maximum output power characteristic in watts (W), according to the emitter's manufacturer, and *d* is the recommended separation distance in metres (m). The field intensities of fixed RF emitters, determined by an on-site electromagnetic investigation[a], should be below the compliance level in each frequency range[b]. There may be interference near appliances bearing the following symbol: 

NOTE 1 At 80 and 800 MHz, the highest frequency range is applicable.
NOTE 2 These directives cannot be applied in every situation. Electromagnetic propagation is affected by absorption and reflection by structures, objects and people.

[a] The field intensity of fixed emitters such as base stations for radio-telephones (cellular/cordless) and land mobile radios, amateur radio, AM/FM radio broadcasts and TV broadcasts cannot be predicted exactly in theory. To evaluate the electromagnetic environment due to fixed RF emitters, an on-site electromagnetic investigation should be considered. If the field intensity measured where The device Kinetec Centura™ machine is used exceeds the aforementioned applicable RF compliance level, The device Kinetec Centura™ machine should be monitored to check that it is working normally. If abnormal results are observed, additional measures may be necessary, such as reorienting or repositioning The device Kinetec Centura™.

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

Recommended separation distances between mobile and portable RF communication devices and the Kinetec Centura™ machine

The device Kinetec Centura™ machine is designed to be used in an electromagnetic environment in which radiated RF interference is controlled. The customer or user of The device Kinetec Centura™ machine can help prevent electromagnetic interference by maintaining a minimum distance between mobile and portable RF communication devices (emitters) and The device Kinetec Centura™ machine, as recommended below, according to the communication device's maximum output power.

Maximum assigned output power for the emitter W	Separation distance according to the emitter's frequency m		
	from 150 kHz to 80 MHz $d = 1.2\sqrt{P}$	80 MHz to 800 MHz $d = 1.2\sqrt{P}$	from 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 emitters whose assigned maximum emitted power is not given above, the recommended separation distance *d* in metres (m) can be estimated using the equation applicable to the emitter frequency, where *P* is the emitter's maximum emission power characteristic in watts (W), according to the latter's manufacturer.
NOTE 1 At 80 and 800 MHz, the separation distance for the highest frequency range is applicable.
NOTE 2 These directives cannot be applied in every situation. Electromagnetic propagation is affected by absorption and reflection by structures, objects and people.

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