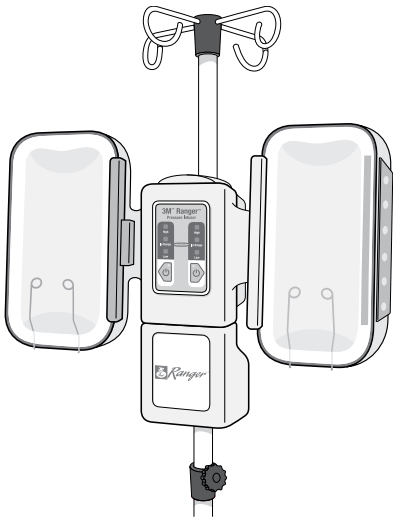


Ranger™ Pressure Infusor Model 145

Operator's Manual

(GB) Ranger Pressure Infusor Model 145
Operator's Manual

(FR) Dispositif de perfusion sous pression
Ranger modèle 145
Manuel d'utilisation

(DE) Ranger Druckinfusor Modell 145
Bedienungsanleitung

(IT) Infusore a pressione Ranger modello 145
Manuale dell'operatore

(ES) Infusor de presión Ranger, modelo 145
Manual del operador

(NL) Gebruikershandleiding Ranger-drukinfuus
model 145

(SE) Ranger tryckinfusor modell 145
Användarhandbok

(DK) Ranger trykinfuser model 145
Brugervejledning

(NO) Ranger Infusjonsenhet med trykk,
modell 145

(FI) Ranger-paineinfuusori, malli 145
Käyttäjän opas

(PT) Manual do Utilizador do Infusor de Pressão
Modelo 145

(GR) Ranger Εγχυτήρας Πίεσης Μοντέλο 145
Εγχειρίδιο Χειρισμού

(PL) Instrukcja obsługi modelu 145 infuzora
ciśnieniowego Ranger

(HU) Ranger infúziós pumpa, 145-ös modell
használati útmutatója

(CZ) Tlakový infuzor Ranger, model 145
Návod k obsluze

(LT) „Ranger" slėgio infuzoriaus 145 modelio
operatoriaus vadovas

(RU) Компрессионный инфузор Ranger, модель 145
Руководство оператора

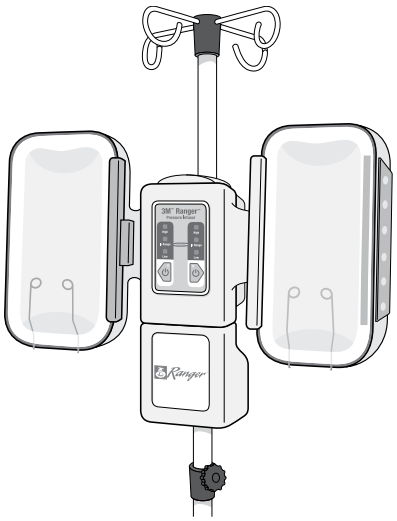
(TR) Ranger Basınçlı İnfüzör Model 145
Kullanıcı Kılavuzu

(JP) レンジャー プレッシャーインフューザー
モデル145
オペレーターズマニュアル

(CN) Ranger 压力输液器 145 型
操作指南

(AE) دليل مشغل جهاز Ranger لتسريب الضغط طراز 145

Blood and Fluid Warming Systems



Ranger™ Pressure Infusor Model 145

Operator's Manual

Revision History

Revision	Reason for Change	Pages Affected	Date
A	New Revision - First Release	All	May 2013
B	Translations added	All	July 2013

Table of Contents

Section 1: Technical Service and Order Placement

Technical service and order placement

USA

TEL: +1-800-228-3957

Proper use and maintenance

3M assumes no responsibility for the reliability, performance, or safety of the Ranger pressure infusor system if any of the following events occur:

- Modifications or repairs are performed by unqualified personnel.
- The unit is used in a manner other than that described in the operator's manual or maintenance guide.
- The unit is installed in an environment that does not meet the appropriate electrical and grounding requirements.

When you call for technical support

We will need to know the serial number of your unit when you call us. The serial number label is located on the back of the pressure infusor system.

Servicing

All service must be performed by 3M Health Care or an authorized service technician. **Call 3M Health Care technical service at 800-228-3957 for service information. Outside of the U.S. contact your local 3M Health Care representative.**

Section 2: Introduction

Indications for use

The 3M™ Ranger™ pressure infusor is intended to provide pressure to I.V. solution bags when rapid infusion of liquids is required.

Explanation of symbols

The following symbols may appear on the product's labeling or exterior packaging.

Date of manufacture

Manufacturer

Protective earth (Ground)

Single use only

Attention; see instructions for use

Electrical shock hazard

Sterile; sterilized using ethylene oxide

Latex free

This system is subject to the European WEEE Directive 2002/96/EC.
This product contains electrical and electronic components and must not be disposed of using standard refuse collection. Please consult local directives for disposal of electrical and electronic equipment.

Defibrillation-proof type BF applied part

Voltage, alternating current (AC)

An equipotentiality plug (grounded) conductor other than a protective earth conductor or a neutral conductor, providing a direct connection between electrical equipment and the potential equalization busbar of the electrical installation. Please consult IEC 60601-1; 2005 for requirements.

CAUTION: Recycle to avoid environmental contamination
This product contains recyclable parts. For information on recycling - please contact your nearest 3M Service Center for advice.

Fuse

Explanation of signal word consequences

WARNING: Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION: Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE: Indicates a situation which, if not avoided, could result in property damage only.

WARNINGS:

1. To prevent tipping or device damage, the Ranger pressure infusor Model 145 has been designed to only be mounted on a Model 90068/90124 pressure infusor I.V. pole/base.
2. Never infuse fluids if air bubbles are present in the fluid line, as air embolism may result.
3. To reduce the risks associated with hazardous voltage and fire:
   - keep power cord visible and accessible at all times. The plug on the power cord serves as the disconnect device. The wall socket outlet shall be as close as practical and shall be easily accessible.
   - use only the power cord specified for this product and certified for the country of use.
   - do not allow the power cord to get wet.
   - do not use the pressure infusor when it appears the pressure infusor, power cord or any component is damaged. Contact 3M Health Care technical support at 1-800-228-3957.
   - this equipment must only be connected to a supply mains with protective earth.
4. To reduce the risks associated with exposure to biohazards always perform the decontamination procedure prior to returning the pressure infusor for service and prior to disposal.
5. To prevent injury, do not use the power cord to transport or move the device.
6. To prevent injury, ensure the power cord is free from the castors during transport of the device.

CAUTIONS

1. To prevent tipping, do not mount this unit more than 56” (142 cm) from the floor to the base of the pressure infusor unit.
2. This product is designed for pressure infusion only.
3. Do not sterilize the pressure infusor.
4. To reduce the risks associated with environmental contamination follow applicable regulations when disposing of this device or any of its electronic components.
5. Do not immerse the pressure infusor in cleaning or disinfecting solutions. The unit is not liquid proof.
6. Do not clean the pressure infusor with solvents. Damage to the case, label, and internal components may result.
7. Do not pinch the power cord of the pressure infusor when attaching other devices to the I.V. pole.

NOTICES

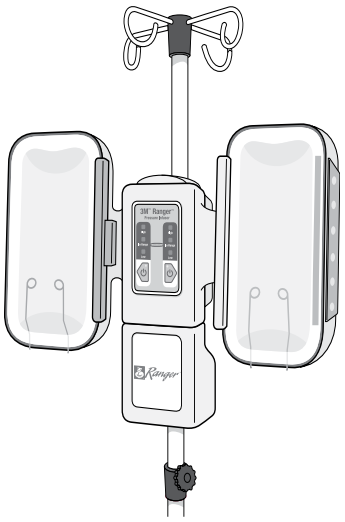
1. Federal law (USA) restricts this device to sale by or on the order of a licensed healthcare professional.
2. The Ranger pressure infusor unit meets medical electronic interference requirements. If radio frequency interference with other equipment should occur, connect the unit to a different power source.
3. To reliably ground this Ranger pressure infusor unit, only connect to receptacles marked “Hospital Only”, “Hospital Grade” or a reliable grounded outlet.
4. To avoid Ranger pressure infusor damage:
    - do not immerse the Ranger pressure infusor or pressure infusor parts or accessories in any liquid or subject them to any sterilization process.
    - do not use solvents such as acetone or thinner to clean the pressure infusor; avoid abrasive cleaners.
    - clean pressure infusor exterior with soft cloth using plain water or a mild, all-purpose or nonabrasive cleaner.

Product description

The Ranger pressure infusor can be used with the Ranger blood/fluid warming unit, standard and high flow disposable sets, the Ranger irrigation warming unit, and irrigation warming sets[1]. The infusor can accept solution bags ranging from 250 mL to 1000 mL. The pressure infusor delivers a maximum fluid pressure of 300 mmHg.

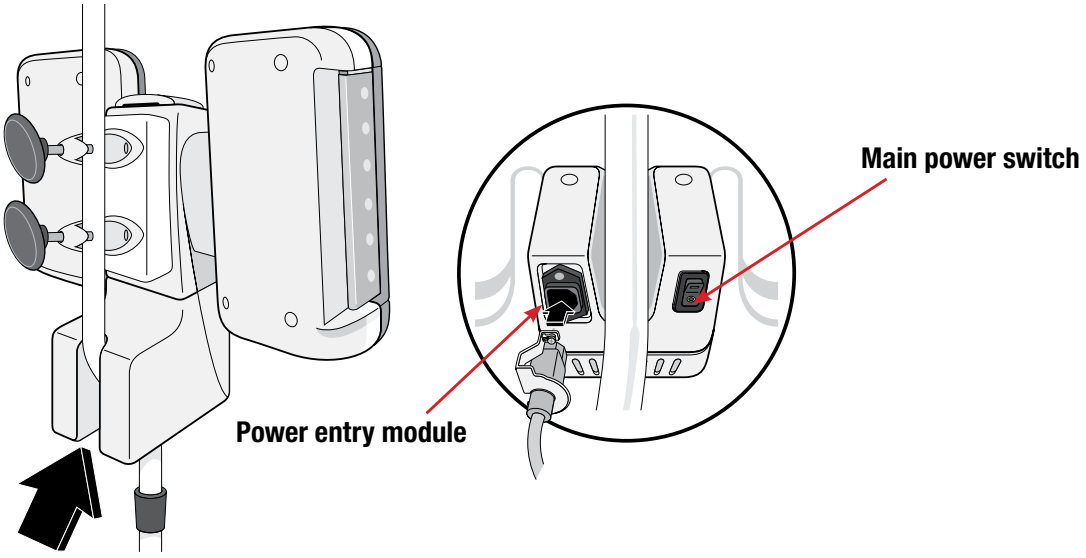
Note: The solution pressure of the Ranger pressure infusor is dependent on surface area and volume of the solution bag. To verify the pressure, refer to the Maintenance Guide (part # 210393).

The Ranger pressure infusor has no user-adjustable controls. The user slides an I.V. solution bag behind the metal fingers and against the inflation bladder located inside the pressure infusor.



When the infusor is attached to an external power source and the main power switch is turned ON, pushing the pressure infusor power button ON inflates the inflation bladder and maintains pressure on blood and solution bags.

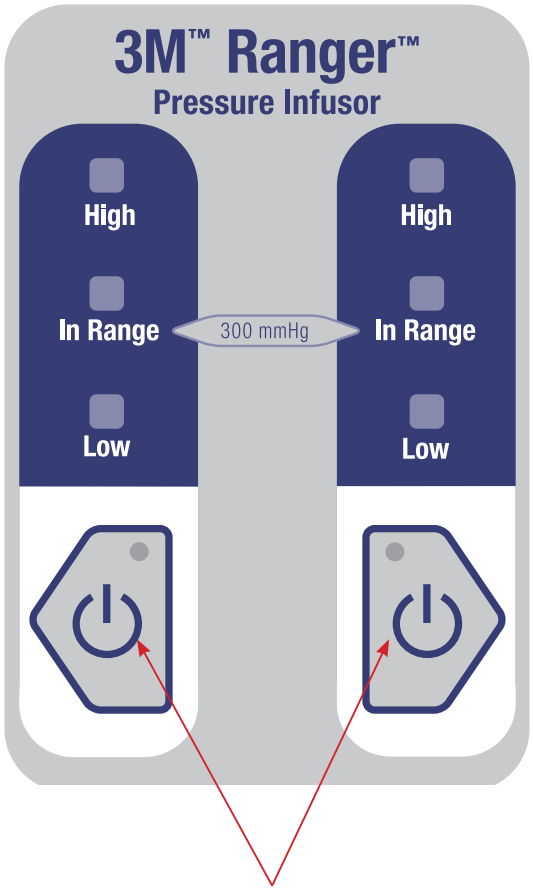
Turning the pressure infusor power button OFF deflates the bladder. Turn the main power switch OFF when the pressure infusor is not in use.



1 Use a maximum of 1 liter solution bags when using the Ranger pressure infusor with the Ranger irrigation fluid warmer.

Pressure infusor panel

The pressure infusor panel displays the status of the pressure infusors. The pressure infusor power indicator illuminates amber (standby) when the main power switch is turned ON and the pressure infusors are able to be turned ON. A green LED indicates that the infusor is ON. To pressurize/depressurize the pressure infusor, verify the pressure infusor door is closed and latched, then press the pressure infusor power button. Each pressure infusor is controlled independently.



1 **Pressure Infusor Power**

1

no power to unit

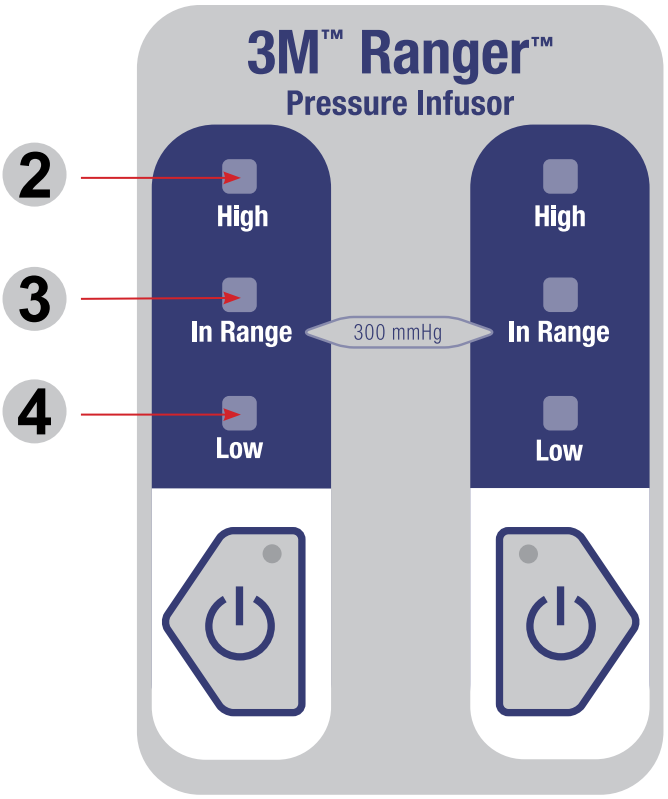
The indicator on the power button notifies the user of the status of each pressure infusor. No light indicates that the unit is either not plugged in, the main power switch is not turned ON, or there is a system fault. See “Section 4: Troubleshooting” on page 13 for more information.

standby

An amber indicator notifies the user that the pressure infusor is in standby mode and is ready to be turned ON.

ON

A green indicator notifies the user that the infusor is pressurized.



2

High

Visual and audible alarm: The High amber indicator illuminates and an audible alarm notify the user when the pressure infusor bladder is above 330 mmHg. The visual indicator and alarm will continue as long as the pressure remains above 330 mmHg. If the High condition is observed, the infusor chamber should be turned OFF by using the pressure infusor power button. Use of the infusor chamber should be discontinued immediately, and 3M Health Care technical support contacted for repair and servicing.

3

In Range

Visual only: The In Range green indicator flashes as the pressure is increasing in the pressure infusor. Once the pressure is within the target range of 230-330 mmHg, the indicator will be at a consistent green.

4

Low:

Visual and audible alarm: The Low amber indicator illuminates and an audible alarm notify the user when the pressure infusor bladder has not reached 230 mmHg within approximately 30 seconds or when the pressure drops below 230 mmHg during use.

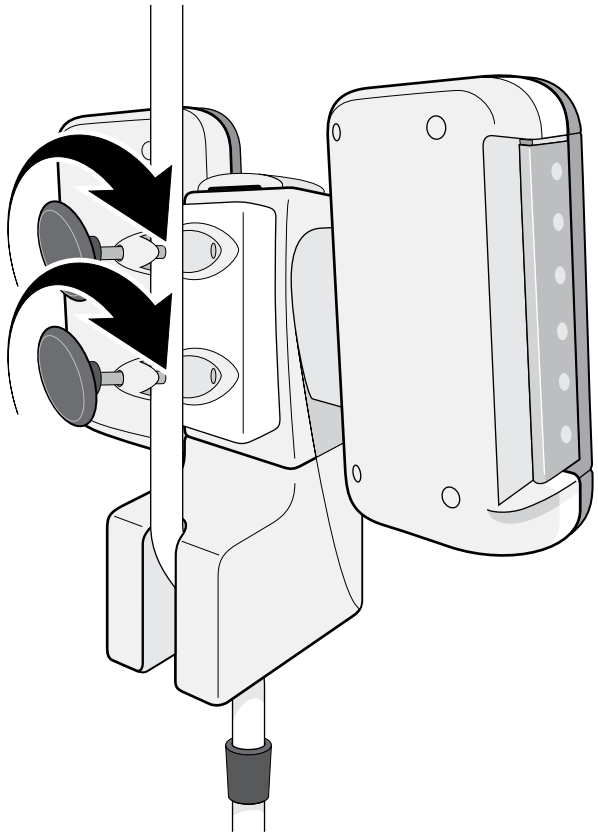
Section 3: Instructions for Use

Attaching the pressure infusor to the I.V. pole

1. Mount the Model 145 pressure infusor onto a Model 90068/90124 pressure infusor I.V. pole/base as shown below.

Caution: To prevent tipping, do not mount this unit more than 56" (142 cm) from the floor to the base of the pressure infusor unit.

2. Securely fasten the clamps at the back of the infusor and tighten the knob screws until the infusor is stable.



3. Using the provided hook-and-loop strap, secure the power cord to the lower portion of the I.V. pole.

Load and pressurize the infusors

1. Plug the power cord into an appropriately grounded outlet.
2. Using the main power switch located under the pressure infusor, turn the unit ON.
3. Remove excess air from I.V. solution bags and prime.
4. Open pressure infusor door.
5. Slide solution bag to the bottom of the pressure infusor ensuring bag is completely inside the metal fingers.

Note: Ensure solution bag port and spike hang below the pressure infusor fingers.

6. Securely close and latch the pressure infusor door.
7. Press the pressure infusor power button on the pressure infusor control panel to turn the corresponding pressure chamber ON.

Note: A pressure infusor can only be turned ON when the power status display indicator is amber. A green display indicator notifies the infusor chamber is ON.

8. Once the pressure infusor is In Range, open clamps to begin flow.

Changing a fluid bag

1. Press the pressure infusor button on the pressure infusor control panel to turn the corresponding pressure chamber OFF.
2. Close pinch clamps on tubing.
3. Open pressure infusor door and remove solution bag.
4. Remove the spike from the used solution bag.
5. Remove air from the new solution bag.
6. Insert spike into the new I.V. bag port.
7. Push the pressure infusor's bladder to expel the remaining air and slide solution bag to the bottom of the pressure infusor, ensuring bag is completely inside the metal fingers.

Note: Ensure solution bag port and spike hang below the pressure infusor fingers.

8. Securely close and latch the pressure infusor door.
9. Press the pressure infusor power button on the pressure infusor control panel to turn the corresponding pressure chamber ON.

Note: A pressure infusor can only be turned on when the power status display indicator is amber. A green display indicator notifies the infusor chamber is ON.

10. Once the pressure infusor is In Range, open clamps to resume flow from the new bag of fluid.

Section 4: Troubleshooting

All repair, calibration, and servicing of the Ranger pressure infusor requires the skill of a qualified, medical equipment service technician who is familiar with good practice for medical unit repair. All repairs and maintenance should be in accordance with manufacturer's instructions. For additional technical support contact 3M patient warming.

Standby/ON mode

Condition	Cause	Solution
Nothing illuminates on the pressure infusor control panel when the main power switch is turned ON.	Unit is not plugged into the power entry module, or power cord is not plugged into an appropriately grounded outlet.	Make sure the power cord is plugged into the power entry module of the pressure infusor. Make sure the pressure infusor is plugged into a properly grounded outlet.
	Unit failure.	Contact a biomedical technician.
Power LED status lights do not illuminate.	Unit is not plugged into the power entry module, or power cord is not plugged into an appropriately grounded outlet.	Make sure the power cord is plugged into the power entry module of the pressure infusor. Make sure the pressure infusor is plugged into a properly grounded outlet.
	Unit is not turned ON.	Using the main power switch located under the pressure infusor turn the unit ON.
	Burned out LED light.	Push the pressure infusor power button, if unit functions properly, continue use. Contact a biomedical technician after use to replace LED.
	Unit failure.	Contact a biomedical technician.
The status indicators (Low, In Range, and/or High) do not illuminate when the pressure infusor power button is pushed.	Unit is not plugged into the power entry module, or power cord is not plugged into an appropriately grounded outlet.	Make sure the power cord is plugged into the power entry module of the pressure infusor. Make sure the pressure infusor is plugged into a properly grounded outlet.
	Unit is not turned ON.	Using the main power switch located under the pressure infusor turn the unit ON.
	Burned out LED light(s).	Contact a biomedical technician.
	Unit failure.	Contact a biomedical technician.

Pressure infusor

Condition	Cause	Solution
Pressure infusor is not working.	Unit is not plugged into the power entry module, or power cord is not plugged into an appropriately grounded outlet.	Make sure the power cord is plugged into the power entry module of the pressure infusor. Make sure the pressure infusor is plugged into a properly grounded outlet.
	Unit is not turned ON.	Using the main power switch located under the pressure infusor turn the unit ON.
	Unit fault.	Discontinue use of unit. Contact a biomedical technician.
Low indicator (solid amber visual with audible alarm).	Pressure infusor bladder is loose or has become unattached.	Reattach bladder by using your thumbs to fit one side of the bladder port on the bladder retaining collar and stretch into position.
	Pressure infusor door may not be closed and securely latched.	Securely close and latch the pressure infusor door.
	Detected pressure has fallen below 230 mmHg.	Continue infusion or use the other side of the pressure infusor. Contact a biomedical technician after use.
High indicator (solid amber visual with audible alarm).	Pressure is above 330 mmHg.	Discontinue use of pressure infusor chamber. Use the other side of the pressure infusor. Contact a biomedical technician after use.
Leakage of solution.	Bag is not spiked securely.	Secure spike in bag.
Bladder does not deflate after pressure is discontinued.	Unit fault.	Contact a biomedical technician after use.

Section 5: Maintenance and Storage

Cleaning the Ranger pressure infusor unit

Clean the Ranger pressure infusor unit on an as-needed basis or per institutional protocol.

To clean the outside of the unit

1. Disconnect the Ranger pressure infusor unit from the power source.
2. Wipe the outside of the unit with warm, soapy water, nonabrasive cleaning solutions, diluted bleach, or cold sterilants. Do not use abrasive materials. Contact 3M Patient Warming technical support for a complete list of approved cleaning solutions.
3. Wipe with a dry, soft cloth.

Cautions

- Do not immerse the pressure infusor in cleaning or disinfecting solutions. The unit is not liquid proof.
- Do not clean the pressure infusor with solvents. Damage to the case, label, and internal components may result.

Storage

Cover and store all components in a cool, dry place when not in use. Take care not to drop or jar the unit.

Section 6: Specifications

Physical characteristics

Dimensions
15.75 in (40 cm) high

20 in (51 cm) wide, 7.75 in (20 cm) deep

Weight
17 lb. (7.7 kg)

Mounting
Dual clamp

Classification
Classifed under IEC 60601-1 Guidelines as Class 1, Type BF, Ordinary Equipment.

Medical Equipment 24RL

Classified by Underwriters Laboratories Inc. with respect to electric shock, fire, and mechanical hazards only, in accordance with UL 60601-1 and Canadian/CSA C22.2 No. 601.1.

Storage/transport temperature
-20°C to 45°C (-4°F to 113°F)

Store all components in a cool, dry place when not in use.

Electrical characteristics

Leakage current
Meets leakage current requirements in accordance with UL 60601-1 and IEC 60601-1.

Power cord
15 feet (4.6 m)

Device rating
110-120 VAC, 50/60 Hz, 1 Amp

220-240 VAC, 50/60 Hz, 0.8 Amp

Fuse
1 Amps (110-120 VAC)

0.8 Amps (220-240 VAC)

Performance characteristics

Operating pressure

300 mmHg setpoint

Note:

- Pressure system is In Range when the pressure infusor bladders are inflated to between 230 mmHg (low) and 330 mmHg (high). If pressure falls below 230 mmHg for more than approximately 30 seconds the Low amber indicator will illuminate and an audible alarm will sound. The High amber indicator and an audible alarm notify the user when the pressure infusor bladder is above 330 mmHg.
- The outlet pressure of the fluid may vary with the surface area and volume of the solution bag.

CE 0086

Made in the USA of globally sourced material by 3M Health Care.

Federal law (USA) restricts this device to sale by or on the order of a licensed healthcare professional.

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