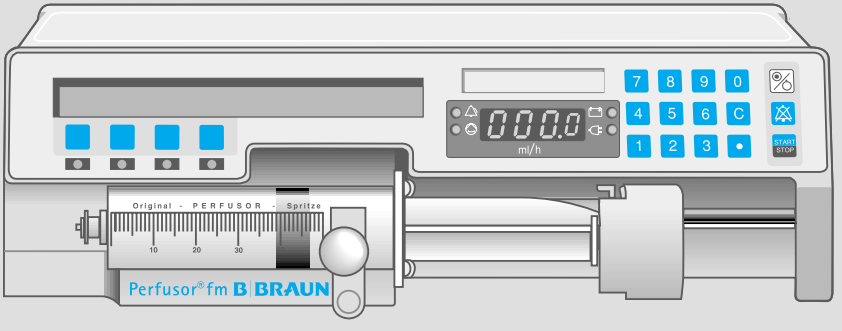
Perfusor® fm

Instructions for Use



CE 0123

Software PFAE

B BRAUN

Patient safety

Attention: Consult accompanying documents ! ⚠

▶ Read Instructions for Use prior to Use. Application only under regularly supervision by specially trained staff.

Operation

▶ Make sure unit is firmly in position. This applies in particular to use with infusion stands or wall rails. Never place more than 3 Perfusor fm units on top of one another.

▶ Prior to use:
Always check audible and visual alarms. This likewise applies where appropriate to the staff call.

▶ Patient connection should only be made when device is switched on.
Interrupt connection when changing syringe to avoid danger of incorrect dosage.

▶ Make sure syringe is correctly positioned.

▶ Whenever inputs are made, value displayed is to be compared to value entered. Do not use unit unless values coincide.

▶ Appropriate cannulas/catheters are to be used for the administration set/med. application.

▶ Make sure there are no kinks in tubing; ensure unimpeded flow.

▶ Make exclusive use of disposables. Replace after 24 hours.

▶ Use only compatible combinations of equipment, accessories, working parts and disposables.

▶ The use of not recommended resp. incompatible disposables may influence the technical specifications.

▶ Operational reliability is only guaranteed if use is made of accessories which have been tested/authorised and thus recommended by the manufacturer, B. Braun.

▶ Installation in medically used rooms must comply with the appropriate regulations (e.g. VDE 0100, VDE 0107 or IEC-publications). Observe national specifications and deviations.

▶ The infusion lines should be placed in such a way that the syringe cannot be pulled out of its fixation because of uncontrolled drawing.

▶ Possible explosion hazard if used in presence of flammable anaesthetics.

Other components

▶ These must conform to the same requirements as the administration set.

▶ Where several infusion lines are connected on one singular vascular access the possibility of their exerting a mutual influence vice-versa cannot be excluded.

▶ Operation in the occlusion pressure range may affect accuracy.

Safety Standards

Perfusor® fm satisfies all safety standards for medical electrical devices in compliance with IEC/EN 60601-1 and IEC/EN 60601-2-24.

The EMC-requirements (electro-magnetic compatibility) according to IEC/EN 60601-1-2 and IEC/EN 60601-2-24 are fulfilled. If the equipment is operated in the vicinity of other equipment which may cause high levels of interence (e.g. HF surgical equipment, nuclear spin tomography units, mobile telephones etc.) maintain the recommended protective distances for these devices. Under certain conditions malfunctions may occur which lead to a device alarm with permanent alarm tone (see also alarm conditions, page 12). Interferences may occur e.g. at electro-magnetic fields > 10 V/m resp. electro-magnetic discharges > 8 kV.

Perfusor fm®

Contents

The Perfusor fm is a transportable infusion syringe pump in accordance with IEC/EN 60601-2-24 that is suitable for dispensing liquids in nutritional and infusion therapy. The medical specialist must decide on suitability for application on the basis of the warranted properties and the technical data.

For further details please refer to these Instructions for Use.

The Perfusor fm is used primarily for the highly precise, reproducible infusion of medication in large and small quantities. The device permits extremely exacting delivery rate settings, and thus optimal adaptation to any given requirements.

The drive system ensures reliable gripping of the syringe on pressing the appropriate key, which in turn makes for optimal start-up and considerably facilitates handling when inserting the syringe.

9-stage pressure limitation provides extra safety. Pressure values and trends are displayed during infusion. In the event of a pressure alarm, the bolus volume built up by the Perfusor fm is automatically reduced. In addition, operation of the unit can be made even more reliable if required with double entry of the rate.

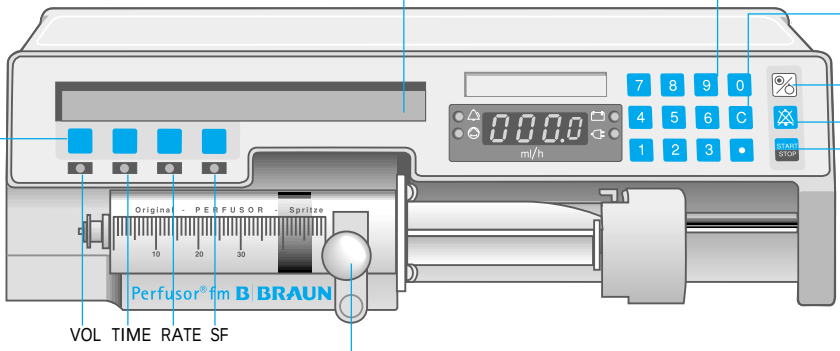
Special functions broaden the scope of applications. Additional memory cards can provide yet more functions, for example conversion to patient-controlled analgesia (PCA).

Overview

Function keys
The function of the 4 keys is governed by the respective situation. This is indicated in the display above. Thus, for example:
SF Call up special functions
+ / - Increase /Decrease
END Exit from this selection and return to normal display
-- Key has no function
If ● lights: Press key again to confirm entry.

Display and user prompting
All important data are given in plain language or can be called up.

Display with unobtrusive green light for optimum legibility. (Mains only. With battery only during unit operation.)



VOL Infusion Volume
Press key beneath VOL.
Enter volume (between 1 and 999.9 ml) and confirm entry.

TIME Infusion time
Press key beneath TIME.
Enter time (e.g.: 50 min. as 5 0 or 2 h 30 min as 2 3 0) and confirm entry.

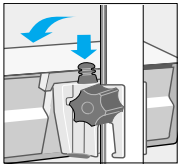
RATE Delivery rate
Press key beneath RATE to confirm calculated rate from volume and time input.
Press key beneath RATE* (if ● lights).

* Only displayed with rate calculation.

Syringe holder
Holds syringe in position. To remove syringe: Pull and move to the left.

SF Special functions
If released, successive call-up of: Dosage Calculation / Bolus function / Standby function / Drug selection / Occlusion pressure / Battery capacity / Data lock / Contrast / Date, Time.

Settings (Service only)
- Ward code (displayed when unit switched off)
- Range of syringes
- Range of drugs
- Deactivation of individual special functions



Pole clamp, back
Attach to infusion stand. Fit Perfusor fm from above and engage. To release, press black button.

Keypad for input

Correction/CLEAR key
Resets display to 000.0

Main switch ON/OFF
Press for 2 seconds to switch off.

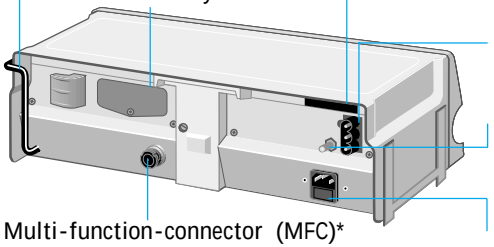
Remaining battery capacity
With device switched off and power lead disconnected: Briefly press ○/⦿ .
Battery capacity (and ward if envisaged) is indicated after 3 seconds.

Suppress alarm tone for 2 min

START/STOP
Start/interruption of infusion, e.g. for altering delivery rate.

Handle for easy transport

Slide-in memory card unit



Multi-function-connector (MFC)*
Connecting for staff call, ambulances (12 V DC) and interface for fm anaesthesia/intensive.

* As of unit no. 20001. Previously separate connections for staff call and 12 V supply.

Aluminium casing
Easy upkeep, drip-proof and resistant to disinfectant.

Memory-card window
Scope of functions can be extended for exemple by way of a PCA memory card (please ask for information).

Delivery rate

Alarm Indicator
Lights in alarm situation.

Operating Indicator
Indicates delivery.

Battery Check
Lights when using battery. Flashes with battery pre-alarm.

Mains Check
Lights during mains operation. Battery is charged.

Infrared interface
For operation with fluid manager system.

Power supply
For operation with fluid manager system.

Potential equalisation
Connect with CF-mode.
CF-application (cardiac floating), defibrillator-proof

Mains connection
Connection for power lead.Automatic switching to battery in the event of power failure. Mains fuses directly above mains connection.

Operation

Start of infusion

▶ Ensure reliable installation
Connect up staff call if appropriate.

▶ Switch on unit with ○/⊙. A short self-test is performed. Drive moves into position.

▶ Open syringe holder

▶ Insert syringe
Grip plates of syringe must be vertical and held securely by locator (see diagram). Close syringe holder.

▶ Grip syringe
Keep key beneath << pressed. Drive advances and grips pressure plate of syringe, then release key. Type of syringe indicated must coincide with syringe inserted.

▶ Prime
Press key beneath ON until infusion set has been primed (pressing key once = 1 ml). Then press key beneath END.

▶ Connect up to patient

▶ Set delivery rate
Values between 0.1 and 200 ml/h. Check display! Correction: Press C, enter rate again.

Choose additional settings as described below. For automatic rate calculation: Do not enter rate!

▶ Press START
Infusion is implemented. Running symbol appears on display and green operating indicator lights.

Syringe change

To avoide incorrect dosing, always interrupt patient connection when changing syringe.

▶ Press STOP
Green operating indicator goes out. Close patient access.

▶ Remove empty syringe
Open syringe holder. Press key beneath >>, drive moves backwards.

▶ Insert new syringe
Grasp plunger, vent and connect up to patient as described.

▶ Press START

End of Infusion

▶ Press STOP
Green operating indicator goes out.
Close patient access.

▶ Remove syringe
Open syringe holder. Press key beneath >>, drive moves backwards.

▶ Switch off
Press ○/⊙ for 2 seconds.

Additional settings

To Change the Delivery Rate
▶ Press STOP.

▶ Press C. Display is reset to 000.0.

▶ Enter new delivery rate.

▶ Press START. Infusion is implemented. (Alarm is given if there is no restart within 2 minutes)

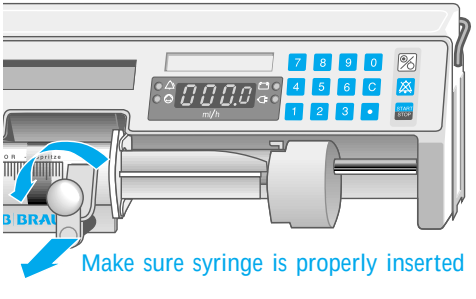
To Change the Rate Without Interrupting the infusion (Function can be deactivated by our Service staff)

▶ Enter new rate.

▶ Press key beneath RATE. Rate is transferred to red display. Unit operates at new rate. (If new rate is not confirmed within 10 s, infusion continues at old rate)

Target Volume (Volume Pre-selection)
The target volume will be administered independent on the infused volume.
▶ Press key below VOL.
▶ Enter target volume via keypad and confirm with VOL (values between 0.1 and 999.9 ml). After confirming the display shows the residual volume instead of the target volume.

Note: When target-/residual volume has been administered, the pump stops and goes into alarm. Acknowledge alarm and press VOL. Clear displayed residual volume with C (in display appears ----,- ml). Confirm this with VOL or enter new target volume. To continue infusion, the target volume has to be displayed as ---,- ml or a new target volume has to be set.



Make sure syringe is properly inserted

Target Time (Time Pre-selection)
▶ Press key beneath TIME.
Enter target time via keypad and confirm with TIME (50 min. = 5 0; 2 h/30 min. = 2 3 0). After confirming instead of the target time the residual time is displayed.

▶ Correction: Press C. Display --h --m. New entry.

Note: When time has been expired, the pump stops and goes into alarm. Acknowledge alarm and press TIME. Clear displayed residual time with C (in display appears --h -- m). Confirm this with TIME or enter new target time.

Rate calculation
Displayed delivery rate must be 000.0.

▶ Enter volume and time. The delivery rate is calculated automatically and displayed (rounded to one decimal place).

▶ Confirm RATE.

▶ Press START. Infusion is implemented.

Clear Time/Volume
▶ Press STOP, then key beneath VOL or TIME.

▶ Press C to clear.
1x: Target Vol/Time = ----.-ml / --h--m
2x: Infused Volume/Real Time = 0.0ml /00h00m

Status Request
Only when infusion is running.

▶ Press 1 x resp. 2 x key below INFO for actual values. The display disappears after 10 sec or after all information has been requested.

▶ Press x times key below INFO for displaying syringe type, battery capacity in h and min as well as hours of operation.

Set rate is automatically reduced if required for type of syringe being used.

Special functions

Select special functions SF
Depending on the version, several functions may be deactivated. Contact service.

▶ To set special functions, press key below SF repeatedly until desired special function is displayed. – Then follow Instructions for Use as described.

Activate Bolus Function
For additional boli.

▶ Pressing key below ON activates the function (values are maintained after switching on again).

To change bolus rate:
▶ Press key below RATE. Enter new value and confirm RATE. – Correction: Press C and re-enter.

Note: Keep bolus rate low to ensure required dosing accuracy. Example: At a rate of 1,800 ml/h, 0.5 ml of bolus volume are administered per second.

Exit bolus function:
▶ Press key below END.

Bolus application during infusion:
Bolus with volume pre-selection.
▶ Press key below BOL and release.
Display: BOLUS RELEASE?

▶ Enter bolus. Values between 0.1 and 50.0 ml (if no entry is made within 10 sec., function is automatically exited).

▶ Press key below YES. Bolus is administered. After the bolus application the infusion continues at basic rate.

To stop bolus:
▶ Press key below STOP.
Bolus without volume pre-selection

▶ Press and hold BOL until a second BOL is displayed.

▶ Hold both BOL-keys. Bolus is administered as long as both keys are pressed. Per ml bolus administered a short audible signal sounds.

Interval bolus
Automatic bolus in set time interval. In case of manual bolus administration the interval bolus is skipped.

▶ Select bolus function under SF.

▶ Press key below VOL, TIME or RATE. Enter values and confirm. After value below TIME has been confirmed, interval time runs automatically. Exit function with END, set basic rate and start. Remaining interval time is displayed in h:min:sec. A bolus on demand is possible at any time during infusion at the basal rate.

Bolus and dosage calculation
▶ Operation as in volumetric mode. Depending on the settings in ml (volume), quantity of active agent (e.g. mg) or in quantity of active agent per kg weight (mg/kg) the bolus may be administered. During bolus administration all three values are displayed.

Standby/Pause
In case of extended interruptions set values are maintained.

▶ Press STOP.

▶ Press key beneath SF until "Standby" is displayed.

▶ Press key beneath ON.

▶ Enter length/duration of interruption interval or confirm time displayed.

Correction: Press C. Display 00h 00m.

New entry.

▶ Confirm TIME. Timer for interruption on display is running. Alarm at the end of interruption interval.

Check Battery Capacity
Remaining battery life time is displayed, e.g.:
Time = 02h 30 min
In addition the operating hours are displayed.

To switch off display again:
Press key beneath END.

▶ With unit switched off and power lead detached: Briefly press ○/⊙. Short display of remaining battery life time after 3 sec.

▶ Device switched off and power lead connected: Permanent display of remaining battery life time.

Battery replacement is recommended if a remaining life time of less than 2 hours is displayed after 16 hours charging time.

Drug Display
9 selectable drug names can be stored (input via service program only).

▶ Select with key beneath (+). Drug is displayed also during infusion.

▶ Key beneath CLR deletes drug name from display.

▶ Exit selection: Press key beneath END.

Occlusion Pressure
For shorter alarm triggering times, occlusion pressure limit can be adjusted in 9 stages.

Optimum setting:
Max. 2 - 3 bars can be seen in the course of infusion.

▶ Set value between 1 and 9 with key beneath (+) or (-).

▶ Exit selection: Press key beneath END.

Data / Clock
Interlocks keys to prevent unauthorised use.

▶ Press key beneath ON. Keys are interlocked.

▶ Key release: Press decimal point key, then key beneath OFF.

▶ Exit data lock: Press key beneath END.

Set Date/Clock
▶ Set date. Press key below DAT, enter date and confirm with DAT.

▶ Set time. Press key below TIME, enter time and confirm with TIME.

▶ Exit selection: Press key below END.

▶ Continued on next page

Special functions

Dosage Calculation (Overview)
The dosage calculation automatically calculates the delivery rate in ml/h. Setting parameters:

1. Syringe concentration
- per ml or
- quantity per syringe filling volume

Entry: mcg, mg, IU or mmol, each from 0.001 to 99999. (5-digit, decimal point counts as one digit. Exception is syringe volume: there only 2-digit.)

2. Selection for weight and time-related or only time-related dosage. Entry of body weight: from 0.01 kg to 200 kg.

3. Entry of dosage:

a) Weight and time-related in mcg/kg, mg/kg, IU/kg, mmol/kg, each per /min, /h or /24 h.

b) Time-related only in mcg, mg, IU or mmol, each per /min, /h or /24 h.

Dosage Calculation (Operation)
▶ Press key below SF repeatedly until DOSAGE CALC. OFF appears.

▶ Press key below ON.

▶ Concentration: At first select quantity unit. Select with key below µg?.

Note: After numerical entry change of quantity unit is not possible anymore. (Remedy: delete numbers).

▶ Enter syringe concentration by moving flashing star to desired entry position with arrow keys. Confirm all numbers with OK.

Entry of syringe concentration per 1 ml or per syringe filling.

▶ For dosage by body weight enter body weight and confirm. Otherwise confirm 0 kg. (With OFF complete termination of all dosage settings.)

▶ After confirming value weight with OK select dosage requested (quantity- and time unit).

▶ Enter values (at flashing star as described) and confirm with OK. Automatically calculated values (rate or dosage) are displayed.

▶ Check first rate displayed for plausibility, then confirm RATE. Rate appears in red display.

▶ Start infusion.

Note: Dosage (e.g. 5 mg/kg/h) is displayed (down on the right).

As the automatically calculated value of the rate is rounded, the dosage value may change insignificantly.

Info Request
▶ Press key below INFO.

1x: Infused Volume, Run Time
2x: Infused Volume, Actual Dose
3x: Selected Syringe Type
4x: Battery Capacity, Operating Hours

Change Rate / Dosage
▶ Press stop.

▶ Enter new dosage value and confirm with RATE.

▶ Start infusion again.

Change Rate or Dosage
without Interruption of Infusion
During infusion a star is flashing down on the right.

▶ Enter new value and confirm with RATE. Pump operates with new rate / dosage.

Note: Alternatively the star can be moved with the arrow key to change the rate in ml/h.

Change Syringe Concentration
with Dosage Calculation Activated
Note: Always out of basic menu.
If necessary, press END until display basic menu is VOL TIME -- SF.

▶ Press key below SF repeatedly until DOSAGE CALC. ON appears and confirm with OK.

▶ Clear syringe concentration with C.
Enter new value and confirm.

Change Dosage from Basic Menu
▶ Press key below SF repeatedly until DOSAGE CALC. ON appears and confirm with OK.

▶ Confirm concentration with OK.

▶ If active, confirm weight with OK.

▶ Change values (move flashing star as described) and confirm entries with OK.

▶ Check entered or calculated rate for plausibility and confirm with key below RATE.
Rate appears in red display.

▶ Start Infusion.

Switch off dosage calculation
▶ The dosage calculation remains activated until it is switched off in Special Functions. If the Perfusor fm is switched off in the meantime all previous values except the body weight are maintained.

Switch off from Basic Menu
▶ Press key below SF repeatedly until display DOSISCALC.ON.

▶ Press DOSISCAL.OFF.
Dosage calculation is deactivated.

▶ With key below END back to basic menu.

Interface

Interface Operation:
Connection to interface input via MFC-plug.
Interface descriptions available from B. Braun.

Remote Control
Via fm controller possible. When using a commercially available external computer this must satisfy the requirements acc. to IEC/EN 60601-1 as well as the single-fault fail-safe condition acc. to IEC/EN 60513.

Send Proposal
The delivery rate and a drug can be entered in the Perfusor fm as "proposal" via an external computer. Both items of data must be checked on the Perfusor fm and acknowledged.

Documentation
All operating data of the Perfusor fm can be requested and logged via external computer.

Reasons for alarm

Operating alarms

Remedy failure and restart infusion

Pressure alarm

▶ Occlusion? - Check the free flow and insert infusion line free of kinks. Bolus is automatically reduced.

▶ Press START for renewed infusion.

Battery alarm

▶ Battery pre-alarm 3 min. before battery is discharged.

▶ Then battery alarm:
- Yellow battery indicator flashes.
- Red alarm indicator is on.
- Audible alarm every 4 s.
- Operating indicator off.
- Staff call.

▶ Switch off unit. Connect to mains.

Syringe alarm

Fault on syringe replacement? Manipulation of syringe holder during infusion?

▶ Pull syringe holder.

Syringe pre-alarm

▶ 3* min before syringe empty:
- Display: Syringe pre-alarm.
- Audible alarm every 9 s.

* Time can be set by our Service staff to between 3 and 30 min.

▶ If syringe empty:
- Display: Syringe empty.
- Operating indicator off.
- Audible alarm every 4 s.
- Staff call.

Standby alarm

▶ Alarm after pre-selected pause?

To terminate pause: Press key beneath END.
To extend pause: Press key beneath ON.

Further alarms/displays

▶ Display: No rate? Set rate.

Device Alarms

When display indicates "device alarm" an audible alarm sounds permanently.

▶ Press ON/OFF-key repeatedly until display indication "do not press any key until display is off". Pump switches off automatically after a few seconds.

▶ Switch on device again. In case of repeated device alarm inform service.

Cleaning / Battery

Regular checking, cleaning, disinfection

Check regularly

▶ Self-check, audible alarm, process- and alarm control. Use only according to Instructions for Use.

▶ Cleanliness, completeness, damage.

▶ Function of staff call (if connected).

Cleaning

▶ With standard household cleaners, soap and water solution.

Wet disinfection

▶ Only use surface disinfection agents. Do not use spray disinfectant at mains connection. Before operation the device allows to vent for at least 1 min. B. Braun recommends Meliseptol.

Service

▶ Servicing must be carried out exclusively by personnel instructed by B. Braun.

▶ Carry out safety check every 24 months.

▶ Use only original spare parts and accessories.

12 V mains operation or battery

▶ Check mains voltage as per type plate.

▶ Plug in power lead at rear (screw in 12 V lead in ambulance car).

▶ In case of power failure or if 12 V DC/230 V AC is not connected the unit automatically will be switched to integrated rechargeable battery.

Charge Battery

▶ Charge battery in case of
- first use,
- battery alarm,
- non-use for more than 2 months.

Battery is charged - even during infusion - if 12 V⎓ or 230 V AC are connected.

Charging time

▶ Approx. 16 hours. Longer charging is not detrimental.

Capacity

A fully charged battery is sufficient for more than 3.5 hours with delivery rates < 25 ml/h.

Rechargeable batteries ageing

After 2 years, the original capacity is only approx. 50 %.

▶ The life time of the battery can be extended by completely discharging from time to time and recharging afterwards.

Inspection on Delivery

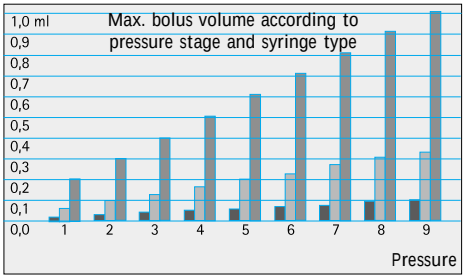
Despite careful packaging, the risk of transport damage cannot be entirely prevented. Upon delivery, please check that nothing is missing. Do not use a damaged device. Contact the service department.

Items included

Perfusor fm, mains lead, Pole clamp, Instructions for Use.

Start-up graphs and trumpet curves

Max. bolus volume



10 ml Omnifix 20 ml OPS 50 mlOPS

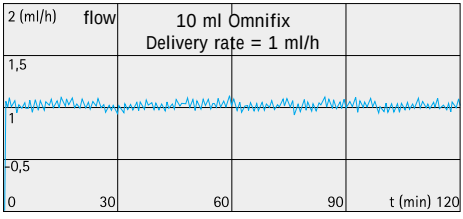
Start-up graphs /trumpet curves

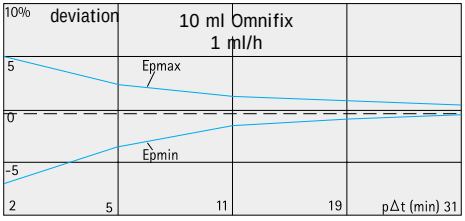
The graphs on page 7 are designed to show the accuracy/ uniformity of flow versus time.

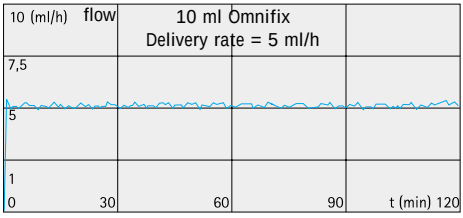
Note: The delivery behaviour/delivery accuracy is essentially influenced by the types of syringe used (disposables). Significant deviations may be encountered if use is made of syringes (disposables) other than those stated in the order data.

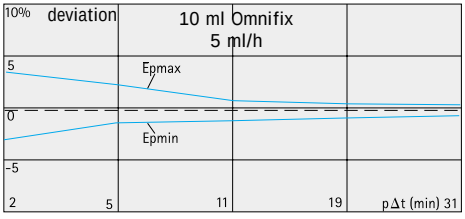
Trumpet curves
Measured values for second and last hour in each case.
Measurement intervall Δt = 0.5 min
Observation interval p $\cdot \Delta t$ [min]

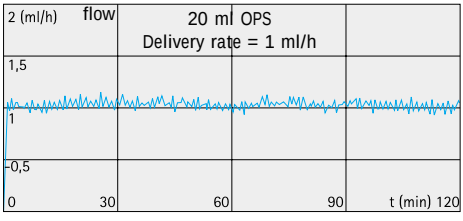
Start-up graphs
Measurement interval Δt = 0.5 min
Measurement duration T = 120 min
Flow Q_i (ml/h)

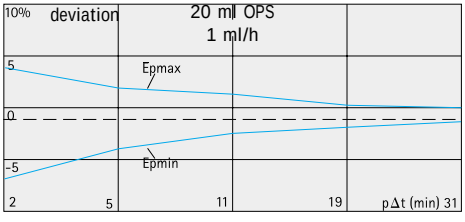


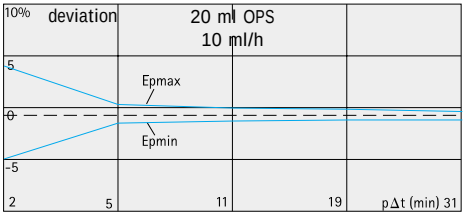


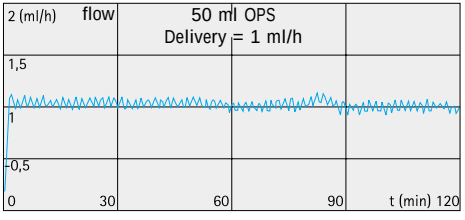


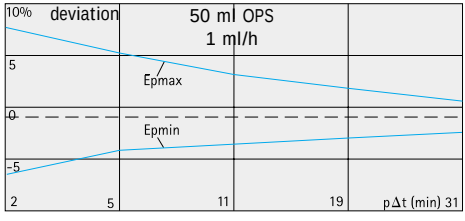


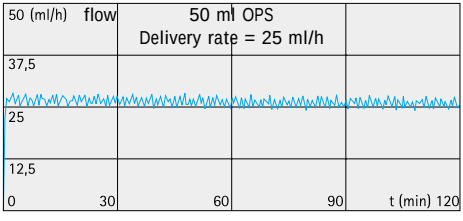


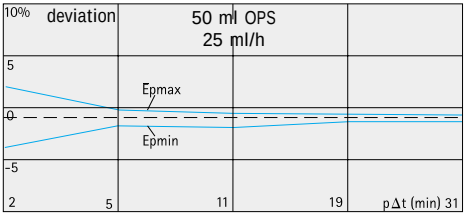








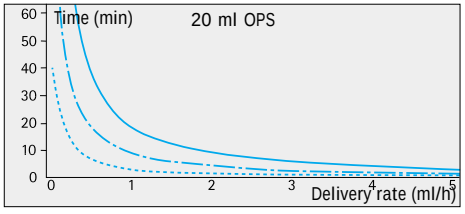


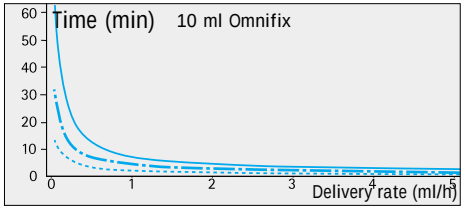


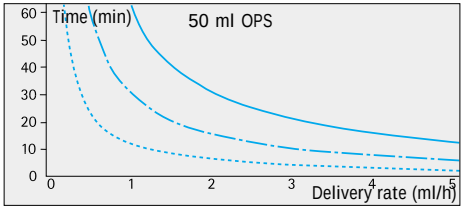
Alarm signalling times

The graphs show the alarm signalling times in dependence on pressure stage and type of syringe.

Stage 1 Stage 5 Stage 9







Technical data

Type of unit	Syringe Pump
Classification (acc. to IEC/EN 60601-1)	defibrillator-proof; Type CF
	Protection Class I
Class (acc. to Directive 93/42 EEC)	II b
Moisture Protection	IP 22 (drip protected for horizontal use)
Rated voltage/current	230 VAC (0.07 A), 50/60 Hz Fuse 0.2 A slow-blow (IEC 127)
	200/230/240 VAC switch-selectable (0.07 A) 50/60 Hz Fuse 0.2 A slow-blow (IEC 127)
	100/110/120 VAC switch-selectable (0.15 A) 50/60 Hz
	Fuse 0.4 A slow-blow (IEC 127)
External extra-low voltage	12 V ⎓
Staff call	Max. 24 V/1 A/24 VA Arbitrary connection polarity (VDE 0834)
Interference suppression EMC	EN 55011 (CISPR 11), EN 60601-1-2 (IEC 601-1-2)
Time of operation	100 % (continuous operation)
Operating conditions	
- Relative humidity	30 % ... 90 % (without condensation)
- Temperature	+ 5 °C ... + 40 °C
- Atmospheric pressure	500 mbar ... 1060 mbar
Storage conditions	
- Relative humidity	10 % ... 90 %
- Temperature	- 25°C ... + 55°C
- Atmospheric pressure	500 mbar ... 1060 mbar
Type of battery	NiCd (rechargeable) 6 x 1.2 V; 1.2 Ah
Operating time of rech. battery	> 16 h
Recharging time	> 16 h
Weight/dimensions (WxHxD)	approx. 3.5 kg / 360x110x170 mm

Accuracy of set delivery rate	± 2 %, measuring time > 1 h, min. 2 ml (including disposables approved by manufacturer)
Delivery range	0.1 - 200.0 ml/h
Delivery pre-selection	1 - 999.9 ml (in 1 ml increments)
Occlusion alarm pressure	9-stage (approx. 0.2 bar...1.0 bar ± 0.2 bar)
Settings for bolus function	Rate 1 ml/h to 1800 ml/h Volume 0.1 ml to 50.0 ml Interval time 1 min. to 99 h 59 min.
Alarm in case of incorrect delivery	In case of incorrect delivery < 0.01 ml due to apparatus malfunction the pump switches off automatically.

Syringe table

Manufacturer	Display / Type	Syringe size / Reference article number		
		10/12 ml	20 ml	50/60 ml
B. Braun	Perfusor Proinjekt Omnifix Euroject	4617100	8728615 4617207	8728810 8728917 4617509 4630505
Becton Dickinson	B-D Plpak	300912 300912	309661 300913 300134 300629	300865 300869 309663
Terumo	Terumo EU	SS*10L	SS*20L	BS50LG SS*60L
TYCO (in the past Kendall/Sherwood)	Monoject EU Monoject US	1100-6121173 8881-512878	1100-620036 8881-520657	1100-650030 8881-560125

* (Plastipak)

For pre-selection of syringes at the Perfusor use reference list of article numbers. If syringes from manufacturers are used with different article numbers (similar) constructed than mentioned in the above table, please contact the original manufacturer directly.

Warranty

Manufacturer responsibility

Manufacturer, assembly and installation personnel or instructors can only be held responsible for any effects on device safety, reliability and performance if

- Installation, expansion work, readjustments, modifications or repairs are carried out by personnel authorised by the above and

- The electrical wiring in the room concerned satisfies the requirements of VDE 0100, 0107 and/or IEC publications and

- The device is operated in line with the instructions for use.

The CE mark confirms compliance with the "Council Directive on Medical Products 93/42/EEC" dated 14th June 1993.

B.Braun Melsungen AG

Warranty

B. Braun provides 24 months' warranty as of the date of delivery for every Perfusor fm. This includes the repair or replacement of damaged parts as a result of design/manufacturing errors or material defects. Modifications or repairs to the unit by the owner or third parties invalidate the warranty.

The warranty does not cover the elimination of faults attributable to incorrect/inexpert handling or normal wear and tear as well as rechargeable batteries.

Service

The Perfusor fm is sturdy and hard-wearing. It nevertheless requires a safety check and the appropriate entries in the equipment log book every 2 years.

2-yearly maintenance is recommended. This is best achieved by calling in Service. Individual consultation enables allowance to be made for the specific conditions in a given hospital.

A complete service manual can be provided if required, however only in conjunction with technical instruction.

Order Data

	Art. No.
Original Perfusor syringe:	
50 ml with draw-off cannula	872 8810F
50 ml without draw-off cannula	872 8844F
50 ml with draw-off cannula and particle filter	872 8852F
50 ml with draw-off cannula and particle filter, with light protection	872 8828F
20 ml with draw-off cannula	872 8623F
20 ml without draw-off cannula	872 8615F
20 ml with draw-off cannula and particle filter	872 8631F
20 ml Omnifix	461 7207V
Omnifix syringe 10 ml	461 7100V
Adapter for 10 ml syringe	870 0117
Original Perfusor tubing:	
N,PVC, with Luer lock connectors,pressure-resistant, 150 cm	872 2960
L,PVC, with Luer lock connectors,pressure-resistant, 200 cm	872 2862
MR,PVC, with Luer lock connectors,pressure-resistant, 75 cm	872 2870
M,PVC, with loose lock nut on patient end, pressure-resistant, 150 cm	872 2994
PE,PE, with Luer lock connectors,pressure-resistant, 150 cm	872 2935
S,PVC, light-protected, with Luer lock connectors,pressure-resistant, 150 cm	872 2919
PES, PE, light-protected, with Luer lock connectors,pressure-resistant, 150 cm	872 3010
MK,PVC, with cannula, with Luer lock connectors, pressure-resistant, 75 cm	872 2889
PVC, with sterile filter 0.22 µ, with Luer lock connectors, pressure-resistant, 200 cm	872 3001
Perfusor fm	871 3820
Recommended accessories for Perfusor fm	
MFC-Connecting lead for staff call	871 1682
Connecting lead for potential equalisation	870 1628
MFC-Connecting lead for ambulance car (12 V)	871 1674
MFC-RS 232 interface cable with electrical isolation	871 1661
Y-cable for central power supply for 2 Perfusors	870 0109

B BRAUN

HOSPITAL CARE

B. Braun Melsungen AG
Postfach 1120
D-34209 Melsungen

Tel (05661) 71- 0
Fax (05661) 71- 20 44

Drawing no. M 637 010 014 F04d Raw material no. 3891009/8
05/01 Printed on pulp bleached 100% chlorine-free