

3M™ Ranger™ Blood/Fluid Warming System with Smartheat Technology



Introducing the Ranger System High Flow Set

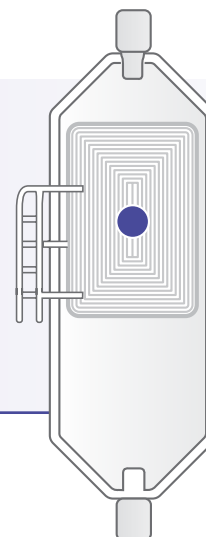
Designed to handle KVO to 30,000 mL/hr, the High Flow set is used for those cases where large volume infusion is anticipated. The High Flow set can be used as a gravity flow system or with pressure infusion up to 300 mmHg and includes a drip chamber with a 150-micron blood filter.

3M Infection Prevention Solutions

Innovation
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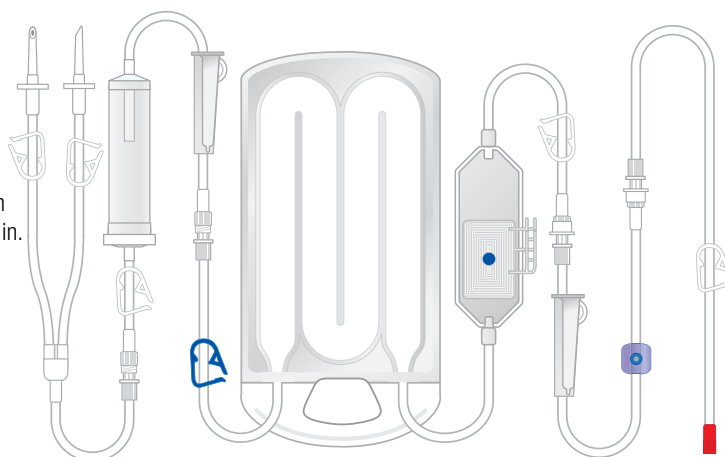
When rapidly infusing fluid it is important to guard against air embolism¹. Ranger high flow sets are equipped with a clinically proven auto-venting bubble trap, capable of venting up to 3,000 cc of air per minute without interrupting flow^{2,3}.



Model 24355

The 24355 set is a complete blood/fluid delivery system, containing both administration and patient line components, making it ideal for trauma situations.

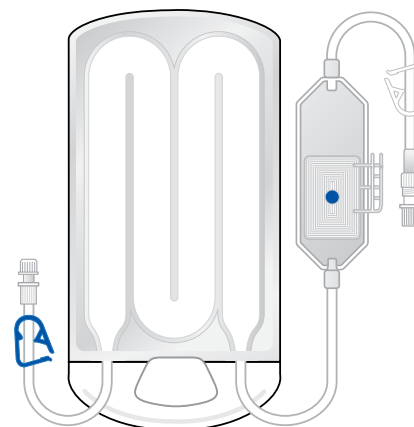
Flow Rates:	KVO - 30,000 mL/hr
Priming Volume:	150 mL
Components:	Heat exchanger, 2 IV spikes, drip chamber with 150 micron filter, needleless injection port, 60 in. patient line, auto-venting bubble trap
Filter:	Replaceable 150 micron filter
Pressure Infusion:	Up to 300 mmHg
Material:	Latex-free
Case Quantity:	10 disposable sets/case
Sterile:	EtO
Use:	Single use only



Model 24365

The 24365 set is designed for the customer who wants the added safety of an auto-venting bubble trap. The set can be used in standard flow and high flow applications allowing the customer to tailor the upstream/administration set and downstream/patient line components.

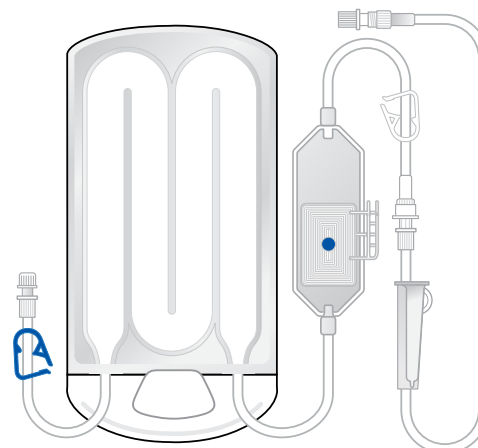
Flow Rates:	KVO - 30,000 mL/hr
Priming Volume:	65 mL
Components:	Heat exchanger, auto-venting bubble trap
Pressure Infusion:	Up to 300 mmHg
Material:	Latex-free
Case Quantity:	10 disposable sets/case
Sterile:	EtO
Use:	Single use only



Model 24370

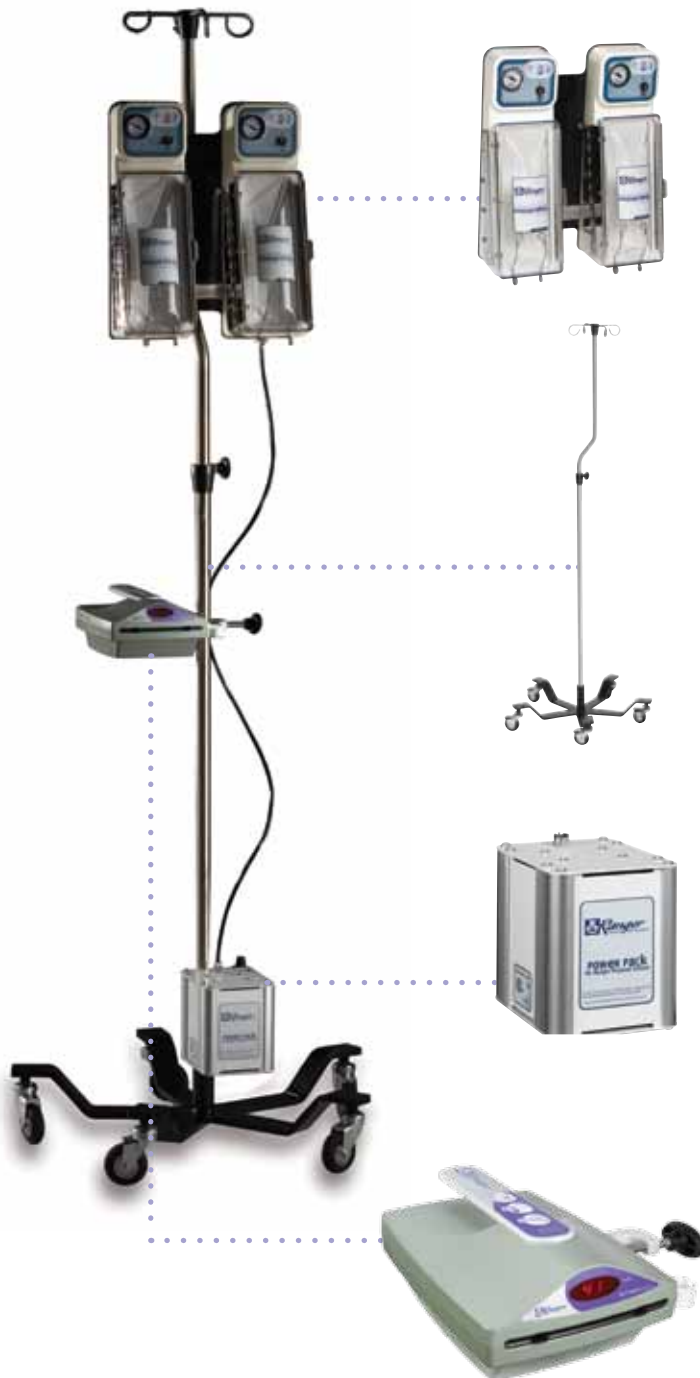
The 24370 set is designed for the customer who wants the added safety of an auto-venting bubble trap. The set can be used in standard flow and high flow applications allowing the customer to tailor the upstream/administration set components.

Flow Rates:	KVO - 30,000 mL/hr
Priming Volume:	89 mL
Components:	Heat exchanger, auto-venting bubble trap, 48 in. patient line
Pressure Infusion:	Up to 300 mmHg
Material:	Latex-free
Case Quantity:	10 disposable sets/case
Sterile:	EtO
Use:	Single use only



3M™ Ranger™ Pressure Infusion System

The Ranger system pressure infusor is designed for use with the Ranger warming unit and Ranger high flow disposable sets. The pressure infusor can accept 500 cc to 1,000 cc solution bags and includes a fitting to connect to the Ranger Power Pack air compressor. The Ranger system pressure infusor provides pressure up to 300 mmHg.



Pressure Infusor

Model 90083

Pressure:	300 mmHg
Weight:	7.0 kg (15.5 lb)
Dimensions:	33w x 43h x 25d cm (13 x 17 x 10 in)
Case Quantity:	2 infusors on mounting bracket
Use:	With 500 to 1,000 mL solution containers For use with power pack (Model 90031), IV pole mountable

Off-Set IV Pole & Base

Model 90068 / 90069

Height:	Adjustable from 186-279 cm (73.5 to 110 in)
Weight:	15.8 kg (35 lb)
Diameter:	71cm (28 in) Base, 5 wheels
Case Quantity:	1 each
Use:	For use with pressure infusor (Model 90083) and power pack (Model 90031)

Power Pack

Model 90031

Device Rating:	220-240 VAC
Pressure Setting:	300 mmHg
Weight:	2.7 kg (6 lb)
Dimensions:	13w x 18h x 25d cm (5 x 7 x 10 in)
Case Quantity:	1 each
Use:	With pressure infusor (Model 90083), IV pole mountable

Warming Unit

Model 24507

Set Point Temp:	41° C
Flow Rates:	KVO - 30,000 mL/hr
Alarms:	Over-temperature primary setpoint: 43°C
(audible and visual)	Over-temperature secondary setpoint: 44°C
Device Rating:	110 VAC / 220-240 VAC
Weight:	3.3 kg (7.4 lb)
Dimensions:	19w x 11h x 25d cm (7.5 x 4.5 x 10 in)
Leakage	
Current:	Meets regulatory standards for leakage current



Warming Unit – Model 24507

Set Point Temperature: 41°C
 Flow Rates: KVO – 30,000 mL/hr
 Alarms (audible and visual):
 Over-temperature primary setpoint: 43°C
 Over-temperature secondary setpoint: 44°C
 Device Rating: 110 VAC / 220-240 VAC
 Weight: 3.3 kg (7.4 lb)
 Dimensions: 19w x 11h x 25d cm
 (7.5 x 4.5 x 10 in)



Pressure Infusor – Model 90083

Pressure: 300 mmHg maximum
 Weight: 7.0 kg (15.5 lb)
 Dimensions: 33w x 43h x 25d cm
 (13 x 17 x 10 in)
 Case Quantity: 2 infusors on mounting bracket
 Use: With 500 to 1,000 mL solution containers
 For use with power pack (Model 90031),
 IV pole mountable



Power Pack – Model 90031

Device Rating: 220-240 VAC
 Pressure: 300 mmHg
 Weight: 2.7 kg (6 lb)
 Dimensions: 13w x 18h x 25d cm
 (5 x 7 x 10 in)
 Case Quantity: 1 each
 Use: With pressure infusor (Model 90083),
 IV pole mountable



Off-Set IV Pole & Base – Model 90068 / 90069

Height: Adjustable from 186-279 cm (73.5 to 110 in)
 Weight: 15.8 kg (35 lb)
 Diameter: 71cm (28 in) Base, 5 wheels
 Case Quantity: 1 unit
 Use: With pressure infusor (Model 90083)
 and power pack (Model 90031)



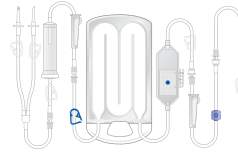
Filter Accessory High Flow Disposable Set* – Model 90029

To be used as a replacement filter with
 Ranger high flow disposable sets.
 Priming Volume: 64 mL
 Filter: 150 micron filter



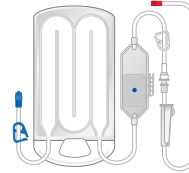
Cleaning Tool Accessory – Model 90030

To be used for cleaning surface of
 Ranger warming unit heater plates.
 Use: Disposable
 Case Quantity: 12 cleaning tools/case



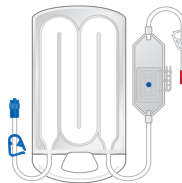
High Flow Disposable Set* – Model 24355

Flow Rates: KVO – 30,000 mL/hr
 Priming Volume: 150 mL
 Components: Heat exchanger, 2 IV spikes, drip chamber
 with 150 micron filter, needleless injection ports,
 152cm (60 in) patient line, auto-venting bubble trap
 Filter: Replaceable 150 micron filter
 Drip Rate: 20 drips per mL



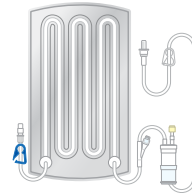
High Flow Set* – Model 24370

Flow Rates: KVO – 30,000 mL/hr
 Priming Volume: 89 mL
 Components: Heat exchanger, auto-venting bubble trap,
 122cm (48 in) patient line



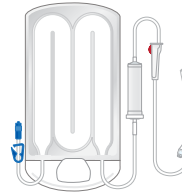
High Flow Set* – Model 24365

Flow Rates: KVO – 30,000 mL/hr
 Priming Volume: 65 mL
 Components: Heat exchanger, auto-venting bubble trap



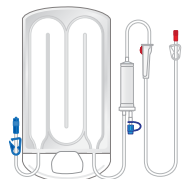
Paediatric/Neonate Disposable Set* with fluid aspiration port - Model 24450

Flow Rates: KVO - 6,000 mL/hr
 Priming Volume: 20 mL
 Components: Heat exchanger, bubble trap
 with air aspiration port, fluid aspiration
 port, 60cm (24 in) patient line



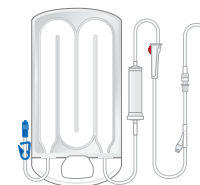
Standard Flow Disposable Set* – Model 24200

Flow Rates: KVO – 9,000 mL/hr
 Priming Volume: 39 mL
 Components: Heat exchanger, needleless injection
 port, bubble trap, 76cm (30 in) patient line



Standard Flow Disposable Set with needleless air aspiration port* – Model 24240

Flow Rates: KVO – 9,000 mL/hr
 Priming Volume: 44 mL
 Components: Heat exchanger, bubble trap
 with air aspiration port, fluid aspiration
 port, 152cm (60 in) patient line



Standard Flow Disposable Set with Extension* – Model 24250

Flow Rates: KVO – 9,000 mL/hr
 Priming Volume: 44 mL
 Components: Heat exchanger, bubble
 trap, needleless injection port
 Extension: Luer connected
 152cm (60 in) with extension set on patient line

*All disposable sets and set accessories:

Pressure Infusion: Up to 300 mmHg maximum dynamic operating pressure
 Material: Latex-free
 Case Quantity: 10 disposable sets/case
 Sterile: EtO
 Use: Single use only

1. Department of Health - The "never events" list 2011/12; 22 Air embolism

2. Eaton MP, et al. Relative Performance of the Level 1 and Ranger Pressure Infusion Devices. Anaesthesia & Analgesia, October 2003. Vol. 97, No 4: 1074-7

3. Schnoor J, et al. The air elimination capabilities of pressure infusion devices and fluid-warmers. Anaesthesia, April 2004. Vol. 59: 817-821

