

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



High Performance  
Low Maintenance

The 3M™ Ranger™ Blood/Fluid Warming System  
with Smartheat Technology. One intelligent  
blood/fluid warmer.

3M Infection Prevention Solutions

Innovation  
On A Mission



### Fast

- Quickly adapts to changes in flow rates: KVO to 30,000 mL/hr.
- Disposable sets slide easily into the warming unit — and they only fit in one direction, so set up is hassle-free.
- Highly conductive aluminium heating plates disperse heat immediately, handling sudden changes in flow rates with ease.
- The Ranger system cleaning tool makes maintenance quick and simple.



### Functional

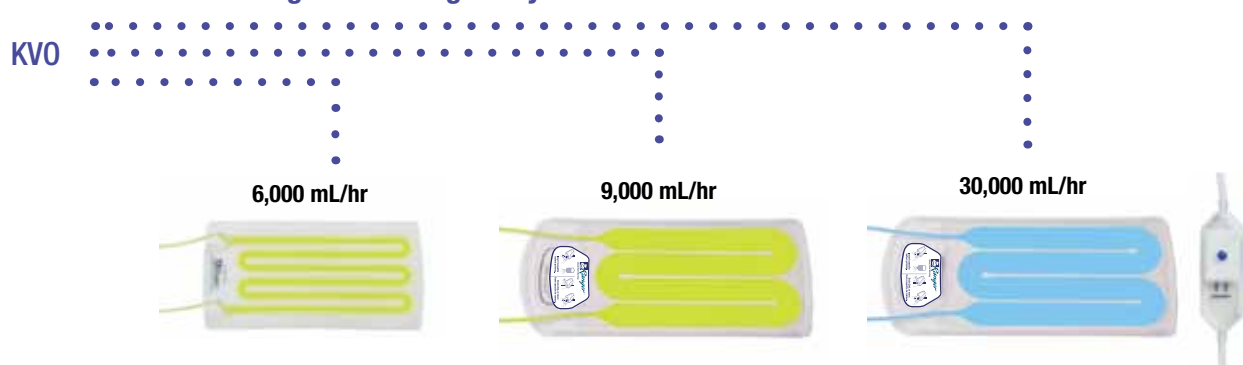
- Smartheat technology disperses heat evenly, eliminating potentially dangerous hotspots and overheating of fluids.
- The Ranger system's software monitors temperature four times each second and adjusts the heat level to maintain a 41°C setpoint. The result: fast, accurate heat control.
- Sophisticated temperature maintenance and monitoring means that alarm conditions in normal operating mode are rare. If the system functions outside of normal temperature range, redundant audible/visible alarms notify users immediately.

### Flexible

- The Ranger system maintains safe temperatures across the flow path — from stopped flow to 30,000 mL/hr.
- Economical and easy-to-use disposable sets handle the full range of fluid warming needs.
- Paediatric/Neonate (KVO - 6,000 mL/hr)
- Standard Flow (KVO - 9,000 mL/hr)
- High Flow (KVO - 30,000 mL/hr)

# No water. No risk of water-related infection

## The Range in the Ranger™ System



### Paediatric Disposable Set

#### Low Flows

- Aliquot fluid administration
- Takes chill off fluids
- Cost effective
- Reduces priming volume

### Standard Flow Disposable Set

#### Moderate Flows

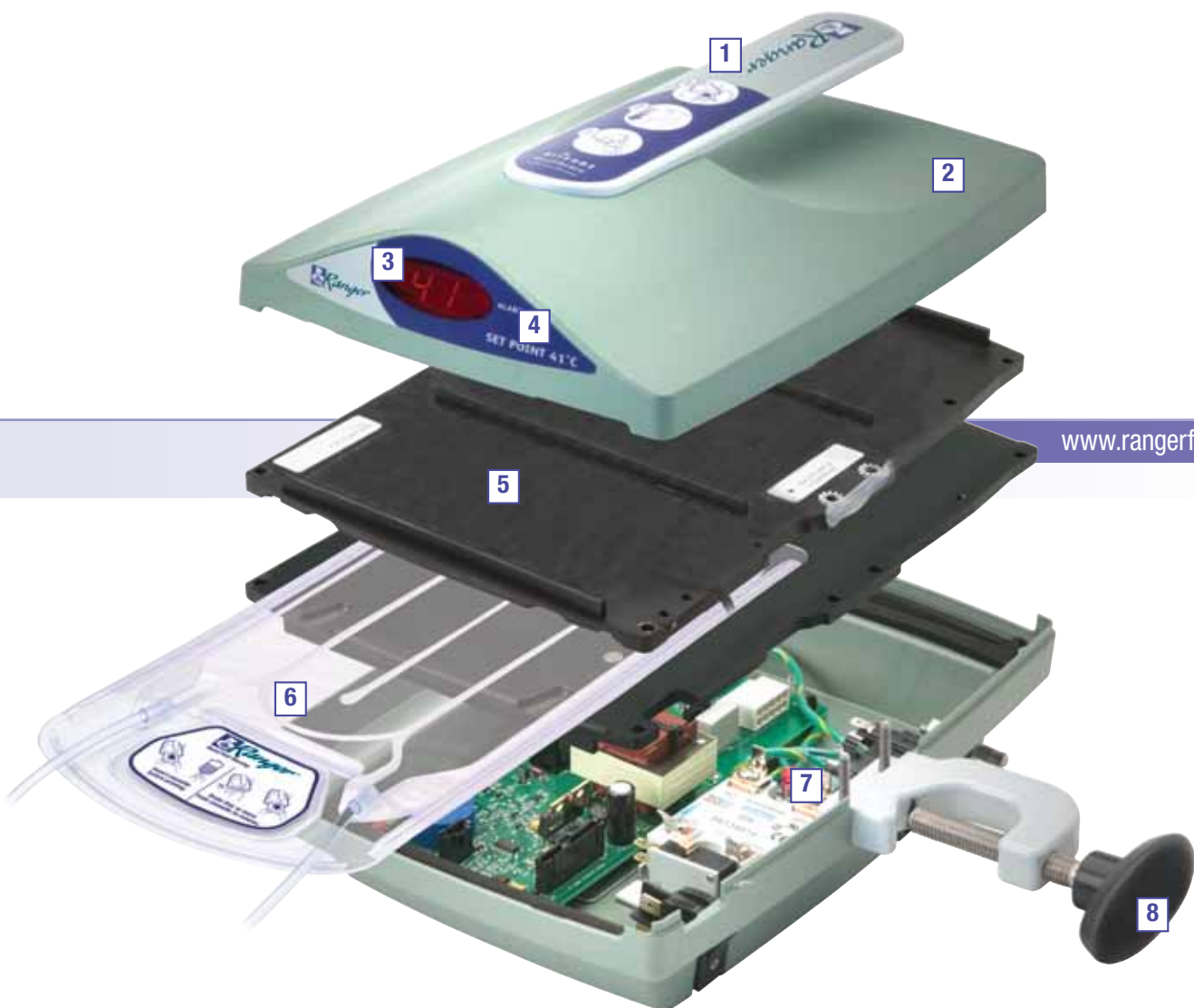
- Responsive to changes in flow rates
- Able to warm at higher flow rates
- Cost effective

### High Flow Disposable Set

#### High Flows

- Auto-venting bubble trap
- Fluid volume capacity
- Hassle-free
- Cost effective

- 1 Integrated handle for easy transport
- 2 Compact, space-saving design
- 3 Large, easy-to-read temperature display
- 4 Audible/visible over-and under-temperature alarms
- 5 Highly conductive aluminium plates for maximum heat transfer and no hotspots
- 6 Inexpensive, simple-to-use disposable warming sets
- 7 Convenient over-temperature test function
- 8 Built-in IV pole clamp for secure hold





**Warming Unit – # 24500**  
 Set point temperature: 41°C  
 Flow rates: KVO – 30,000 mL/hr  
 Alarms: Over temperature primary setpoint = 43°C  
 Over temperature secondary setpoint = 46°C  
 Power: 110 VAC / 220-240 VAC  
 Weight: 3.3 kg (7.4 lbs)  
 Dimensions: 19w x 11h x 25d cm  
 (7.5w x 4.5h x 10d in)



**Pressure Infusors – # 90083**  
 Pressure: 300-350 mmHg maximum dynamic operating pressure  
 Weight: 7.0 kg (15.5 lbs)  
 Dimensions: 33w x 43h x 25d cm  
 (13w x 17h x 10d in)  
 Case quantity: 2 Infusors on mounting bracket  
 Use with 500 to 1,000 mL solution containers  
 For use with Power Pack(#90031 or # 90033), wall air or canned air, IV pole mountable



**Power Pack – # 90031**  
 Power: 220-240 VAC  
 Pressure Setting: 300 - 350 mmHg  
 Weight: 2.7 kg (6 lbs)  
 Dimensions: 13w x 18h x 25d cm  
 (5w x 7h x 10d in)  
 Case Quantity: 1 each  
 For use with: Pressure Infusor (# 90083)  
 IV pole mountable



**Off-set IV pole and base – # 90068 / 90069**  
 Height: Adjustable from 186-279 cm (73.5 to 110 in)  
 Weight: 15.8 kg (35 lbs)  
 Diameter: 71cm (28 in) Base, 5 wheels  
 Units per box: 1 unit  
 For use with: Pressure infusor (# 90083) and Power Pack (# 90031)



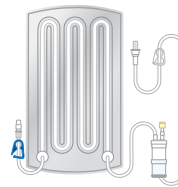
**Filter Accessory High Flow Disposable Set\* – # 90029**  
 To be used as a replacement filter with Ranger high flow disposable sets  
 Priming Volume: 64 mL  
 Filter: 150 micron filter



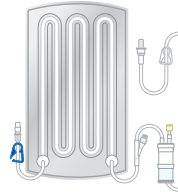
**Cleaning Tool Accessory – # 90030**  
 To be used for cleaning surface of Ranger warming unit heater plates.  
 Use: Disposable  
 Case quantity: 12 cleaning tools/case

**\*All disposable sets and set accessories:**

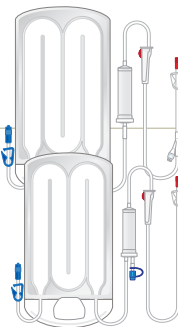
Pressure infusion: Up to 300 mmHg maximum dynamic operating pressure  
 Material: Latex-free  
 Case quantity: 10 disposable sets/case  
 Sterile: EtO  
 Use: Single use only



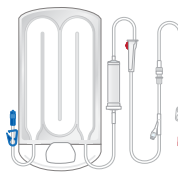
**Paediatric/Neonate Disposable Set\* #24400**  
 Flow rates: KVO - 6,000 mL/hr  
 Priming volume: 20 mL  
 Components: Heat exchanger, bubble trap with air aspiration port, 24 in. patient line



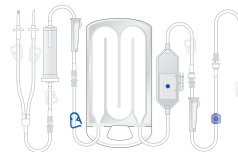
**Paediatric/Neonate Disposable Set\* with Fluid Aspiration Port #24450**  
 Flow rates: KVO - 6,000 mL/hr  
 Priming volume: 20 mL  
 Components: Heat exchanger, bubble trap with air aspiration port, fluid aspiration port, 24 in. patient line



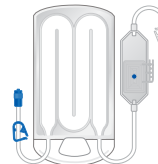
**Standard Flow Disposable Set\* – # 24200**  
 Flow rates: KVO – 9,000 mL/hr  
 Priming volume: 39 mL  
 Components: Heat exchanger, needleless injection port, bubble trap, 30 in. patient line



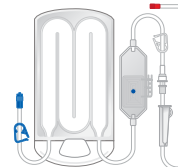
**Standard Flow with Extension Disposable Set\* – # 24250**  
 Flow rates: KVO – 9,000 mL/hr  
 Priming volume: 44 mL  
 Components: Heat exchanger, bubble trap, needleless injection port  
 Extension: Luer connected  
 30 in. extension set on 30 in. patient line



**High Flow Disposable Set\* – # 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, auto-venting bubble trap, 60 in. patient line  
 Filter: Replaceable 150 micron filter  
 Drip rate: 20 drips per mL



**High Flow Set\* – # 24365**  
 Flow rates: KVO – 30,000 mL/hr  
 Priming volume: 65 mL  
 Components: Heat exchanger, auto-venting bubble trap



**High Flow Set\* – # 24370**  
 Flow rates: KVO – 30,000 mL/hr  
 Priming volume: 89 mL  
 Components: Heat exchanger, auto-venting bubble trap, 48 in. patient line



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 Issued: 3/11 7829HB / 601477D

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