



Medtronic

Hepcon[®] HMS PLUS

Hemostasis Management System



Bringing All the Pieces Together

One multi-purpose system for complete hemostasis management

True hemostasis management is achieved with the Hepcon® HMS PLUS Hemostasis Management System from Medtronic. This multi-purpose, intuitive system easily performs in-vitro diagnostic procedures in the:

- operating room
- catheterization lab
- clinical lab
- intensive care unit
- emergency room
- anywhere STAT coagulation testing is important to successful medical treatment.

HMS PLUS is a reliable, versatile platform on which to run the following tests:

- Heparin Dose Response (HDR) to identify individual heparin needs.
- Heparin Protamine Titration (HPT) to verify heparin concentration.
- Activated Clotting Time (ACT) to monitor anticoagulation functionality.

HMS PLUS has been designed to accommodate future product enhancements.

SPELLING OUT THE ADVANTAGES OF HMS PLUS

Proven, effective patient management
Versatility makes HMS PLUS an effective tool for diverse patient management.³ Users select specific venues through the software interface, eliminating extraneous information for more targeted protocols. Fully upgradable, new tests are added quickly and easily to keep patient management on the cutting edge.

Lower procedural and operational costs
Less blood product will be used during and after the procedure, thus reducing costs.^{1,2,4} This system is well designed and constructed, reducing downtime and making problems easier to identify and repair.

User-friendly operation and display
Simply insert the optical-coded cartridge and sample-filled syringe and press START for accurate, reproducible test results. The monochrome LCD flat panel display is easy to read. Primary data is displayed upon test completion, secondary data on subsequent screens. Compact and portable, HMS PLUS moves easily between departments.

Storage and downloading of data
An expanded user interface enhances HMS PLUS storage and downloading capabilities for improved patient data tracking and quality control. The streamlined system stores, prints and downloads records for analysis at a later date.

BENEFITS OF IMPROVED HEMOSTASIS MANAGEMENT

- Fewer complications associated with excessive blood loss.¹
- Less hemostasis activation, resulting in reduced blood product utilization.²
- Preservation of the coagulation system, resulting in fewer transfusions.³
- Fewer surgical reoperations,⁴ decreasing associated costs.

1. Hill, AG, et al. More precise heparin and protamine management during cardiopulmonary bypass. *Proceedings of the American Academy of Cardiovascular Perfusion*. 1990;11:12-16.

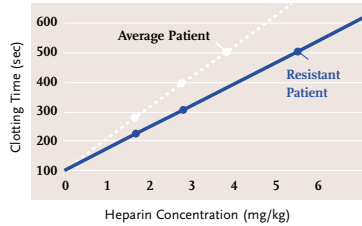
2. Despotis, GJ, et al. More effective suppression of hemostasis system activation in patients undergoing cardiac surgery by heparin dosing based on heparin blood concentrations rather than ACT. *Thromb Haemost*. 1996;67:2-8.

3. Despotis, GJ, et al. The impact of heparin concentration and activated clotting time monitoring on blood conservation. *J Thorac Cardiovasc Surg*. 1995;110:46-54.

4. Bowie, JE, et al. Automated management of heparin anticoagulation in cardiovascular surgery. *Proceedings of the American Academy of Cardiovascular Perfusion*. 1985;6:1-5.

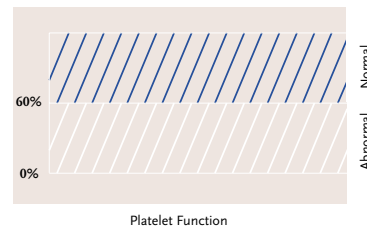
Multiple tests to optimize your clinical decision

HEPARIN DOSE RESPONSE (HDR)



The HDR test is an accurate method to determine individual in-vitro response to heparin.

- Documents **individual** patient response to heparin, identifies resistant/sensitive patients.
- Indicates when standard protocol is appropriate, thereby minimizing heparin over- and under-dosing, and identifies heparin requirements to achieve a desired activated clotting time, thus linking a quantitative measurement with a functional test.



hemoSTATUS™ PLATELET FUNCTION TEST

This test provides platelet function results quickly and easily.

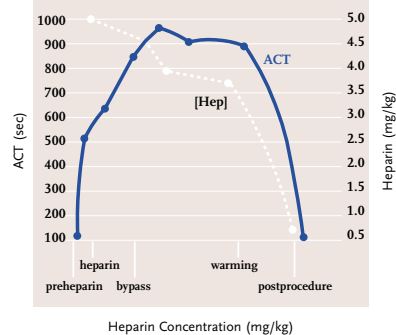
- Performs **platelet-specific** testing, independent of platelet count, and offers easy-to-interpret results, expressed as a percent of function.
- Helps identify and predict platelet-related bleeding for targeted, cost-effective transfusion management.

HEPARIN ASSAY BY HEPARIN/PROTAMINE TITRATION (HPT)

This **quantitative** test determines actual heparin concentration.

- Allows maintenance of desired heparin level and calculates protamine reversal dosage requirements to avoid protamine overdose.
- Confirms complete reversal and identifies postsurgical heparin rebound.

HIGH RANGE ACTIVATED CLOTTING TIME (HRACT)



The HRACT is a **qualitative** test that measures heparin effect and serves several purposes.

- Establishes patient's baseline clotting time.
- Monitors overall anticoagulant effect prior to, during and after cardiopulmonary bypass.

The Hepcon® HMS PLUS from Medtronic

Each instrument includes an internal printer, one-year warranty, two operating manuals, condensed operating instructions, case analysis pad and a complete quality assurance program.

| Cat. # | Description | |
|--------|-----------------|----------------------|
| 30514 | Hepcon HMS PLUS | 100-120 volt |
| 30522 | Hepcon HMS PLUS | 200-240 volt English |
| 30515 | Hepcon HMS PLUS | 200-240 volt German |
| 30517 | Hepcon HMS PLUS | 200-240 volt French |
| 30518 | Hepcon HMS PLUS | 200-240 volt Italian |
| 30520 | Hepcon HMS PLUS | 100-120 volt Japan |
| 30524 | Hepcon HMS PLUS | 200-240 volt Spanish |
| 30032 | HMS PLUS cart | |

Dimensions for Hepcon HMS Plus

Height: 40 cm (15.75") Depth: 38 cm (15.0")
Width: 33 cm (13.0") Weight: 15.47 kg (34.1 lbs.)

HMS PLUS Controls

Each box contains 10 vials of single-use control and 10 vials of deionized water for reconstitution.

| Cat. # | Description |
|--------|--|
| 306-01 | Red/Yellow; use with 304-01 and 304-02 |
| 306-02 | Tan/Silver; use with 304-03 and 304-04 |
| 306-03 | Blue/Gold; use with 304-05 and 304-08 |
| 306-04 | Green/White; use with 304-06 and 304-09 |
| 306-05 | Orange; use with 304-07 |
| 306-09 | Purple/Black; use with 304-10 and 304-11 |
| 306-10 | 0.3 U/ml; use with 304-12 |
| 306-11 | 0.6 U/ml; use with 304-13 and 304-14 |
| 306-12 | 0.3 U/ml; use with 304-15 |
| 306-13 | 0.6 U/ml; use with 304-16 and 304-17 |

CLOTtrac® Controls

Each box contains 15 vials of single-use control and 15 vials deionized water for reconstitution.

| Cat. # | Description |
|--------|--|
| 550-07 | CLOTtrac HR Coagulation Control; use with 304-30 |
| 550-08 | CLOTtrac HR Abnormal Coagulation Control; use with 304-30 |
| 550-13 | CLOTtrac HR Control Pak Coagulation Control; use with 304-30 (contains one box of 550-07 and 550-08) |

HMS PLUS Test Cartridges

Disposable cartridges undergo strict manufacturing standards and quality control to provide accurate, dependable performance. Each box of color-coded cartridges comes with 3cc syringes and blunt tip needles. The HPT and HDR cartridges are shipped 9 per box. The hemoSTATUS™ cartridges are shipped 9 per box. The HRACT cartridges are shipped 18 per box. Cartridge room temperature and/or refrigerated shelf life are stamped on each box.

| Cat. # | Range | Description |
|--------|---------------|-----------------------------|
| 304-01 | 0.0-0.9 mg/kg | Heparin Assay-Red |
| 304-02 | 0.0-1.5 mg/kg | Heparin Assay-Yellow |
| 304-03 | 1.5-3.0 mg/kg | Heparin Assay-Tan |
| 304-04 | 2.0-3.5 mg/kg | Heparin Assay-Silver |
| 304-05 | 2.5-4.0 mg/kg | Heparin Assay-Blue |
| 304-06 | 3.5-5.0 mg/kg | Heparin Assay-Green |
| 304-07 | 0.0-2.5 mg/kg | Heparin Assay-Orange |
| 304-08 | 1.5-4.0 mg/kg | Heparin Assay-Gold |
| 304-09 | 2.5-5.0 mg/kg | Heparin Assay-White |
| 304-10 | 4.5-6.0 mg/kg | Heparin Assay-Purple |
| 304-11 | 3.5-6.0 mg/kg | Heparin Assay-Black |
| 304-12 | 0.0-0.5 U/ml | Heparin Assay-Rose |
| 304-13 | 0.0-1.0 U/ml | Heparin Assay-Plum |
| 304-14 | 0.0-1.5 U/ml | Heparin Assay-Navy |
| 304-15 | 0.0-0.5 U/ml | Heparin Assay-Rose/Citrated |
| 304-16 | 0.0-1.0 U/ml | Heparin Assay-Plum/Citrated |
| 304-17 | 0.0-1.5 U/ml | Heparin Assay-Navy/Citrated |
| 304-20 | | Heparin Dose Response |
| 304-30 | | HRACT |

hemoSTATUS™ Platelet Function Tests

| Cat. # | Type | Description |
|--------|-------------|---|
| 304-78 | PAF | Platelet Function Test with PAF |
| 304-79 | PAF + Hep 3 | Platelet Function Test with PAF-3U/ml Heparin |
| 304-80 | PAF + Hep 4 | Platelet Function Test with PAF-4U/ml Heparin |
| 304-81 | PAF + Prot | Platelet Function Test with PAF-Protamine |



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