



# HL 40 Heart-Lung Machine

Inspired by perfusionists

This document is intended to provide information to an international audience outside of the US.

GETINGE 

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14:55  
2017-12-22

Adult #2  
Configuration Changed

P1-Pre-membrane  
mmHg  
**180**

P2-Post-membrane  
mmHg  
**150**

**P3 - Cardioplegia** ▲!!!  
mmHg  
**195**

Total CPL Volume  
**950 ml**  
Current CPL Volume  
**500 ml**

B1-Arterial  
Flow  
ART

T1-Cardioplegia  
**36.2°C**

CPL Pause Time  
**4:01** ↑  
Current Time  
2:30

L1-Reservoir

B2-Cardioplegia  
Flow  
CPL

CPL Delivery  
Manual Mode  
Ratio  
**4:1**

F1-Arterial  
l/min  
**4.38** ART

F2-Piegia  
l/min  
**0.00** CPL

Reset All CPL    Reset Current CPL

Perfusion    Cross-Clamp    Re-Perfusion  
1:38:30    0:46:23    0:04:09

Pressure Delta P2-P1  
mmHg  
**30**

Crystalloid Deliver Timer    Infusion (KCL, NaBr, etc.)  
0:00:00    1:30:00

Countup    Countdown  
0:25:42    0:17:13

Help Available

▲!!! (CPL) P3 Positive Stop Limit - Linked

▲! Timer 1 Expired

# No room for error

## Putting patients first for more than 30 years

The advanced perfusion features of the HL 40 support appropriate treatment. A familiar, perfusionist-developed interface minimizes the learning curve to reduce use errors.

### Safety first

Surgical perfusion allows no room for error. That's why the Getinge design team worked closely with perfusionists to identify and implement critical functionality and support best outcomes. Together, we developed a multi-level, redundant safety system that protects even your high-risk patients during cardiopulmonary bypass.

The HL 40 Heart-Lung Machine is the centerpiece of our surgical perfusion portfolio that hospitals have trusted for more than three decades. The HL 40 provides the necessary flexibility to adapt the system to individual preferences and clinical needs.

### Familiar interface minimizes error

While the safety features are evolutionary the HL 40's user interface is still as intuitive as it has always been. Our clinical partners appreciate the functional, common sense, multi-monitor design, easy set-up, and a minimized learning curve. All necessary parameters are easily accessible; additional values are just a few clicks away.

### Relevant solutions to real-world challenges

Getinge and its well known Maquet brand has put patients first for over a century. We remain committed to real world health-care challenges supported by a close relationship with our clinical partners.



# Innovative product features

For enhanced patient care



## Safety



### Multi-level safety system

The HL 40 puts safety at the forefront of its design. Integrated tools optimize care delivery.

- A multi-level safety system and redundancy ensures that all critical systems remain functional.
- Prevent arterial backflow using an automated zero-flow state – without clamping.
- System touchscreen monitor, roller pumps, and mast pump control monitors are all immediately hot-swappable.
- Pump-assignable flow-bubble sensors allow for discrete measurement and bubble detection on any pump.
- Alarm tables and help menus provide alerts with relevant guidance in the users native language.



## Usability



### Based on perfusionist's experience

The HL 40 is a robust design with advanced workspace ergonomics. It was developed in close collaboration with perfusionists and extensively validated in a simulated OR environment for routine use and in critical situations.

- An intuitive graphical user interface supports efficient navigation and workflow.
- Streamline charting with MetaVision Perfusion, our advanced point-of-care clinical information system.
- Cable-free console pumps support an organized workspace, consistent with our legacy HLM.
- Cable channels allow for safe, hygienic and organized cable routing.
- Embedded perfusion calculator for frequently required values.



## Flexibility



### Adapts to your needs

The flexible HL 40 hardware and software allows users to adapt the system to individual preferences and clinical needs. Saved custom configurations provide for efficient workflow.

- Advanced interfaces are user-configurable.
- User-defined interface configurations can be set and stored for conventional bypass and minimally invasive procedures.
- System design allows for in-field adaptation to help perfusionists optimize the workspace.



## Reliability



### A long-term commitment

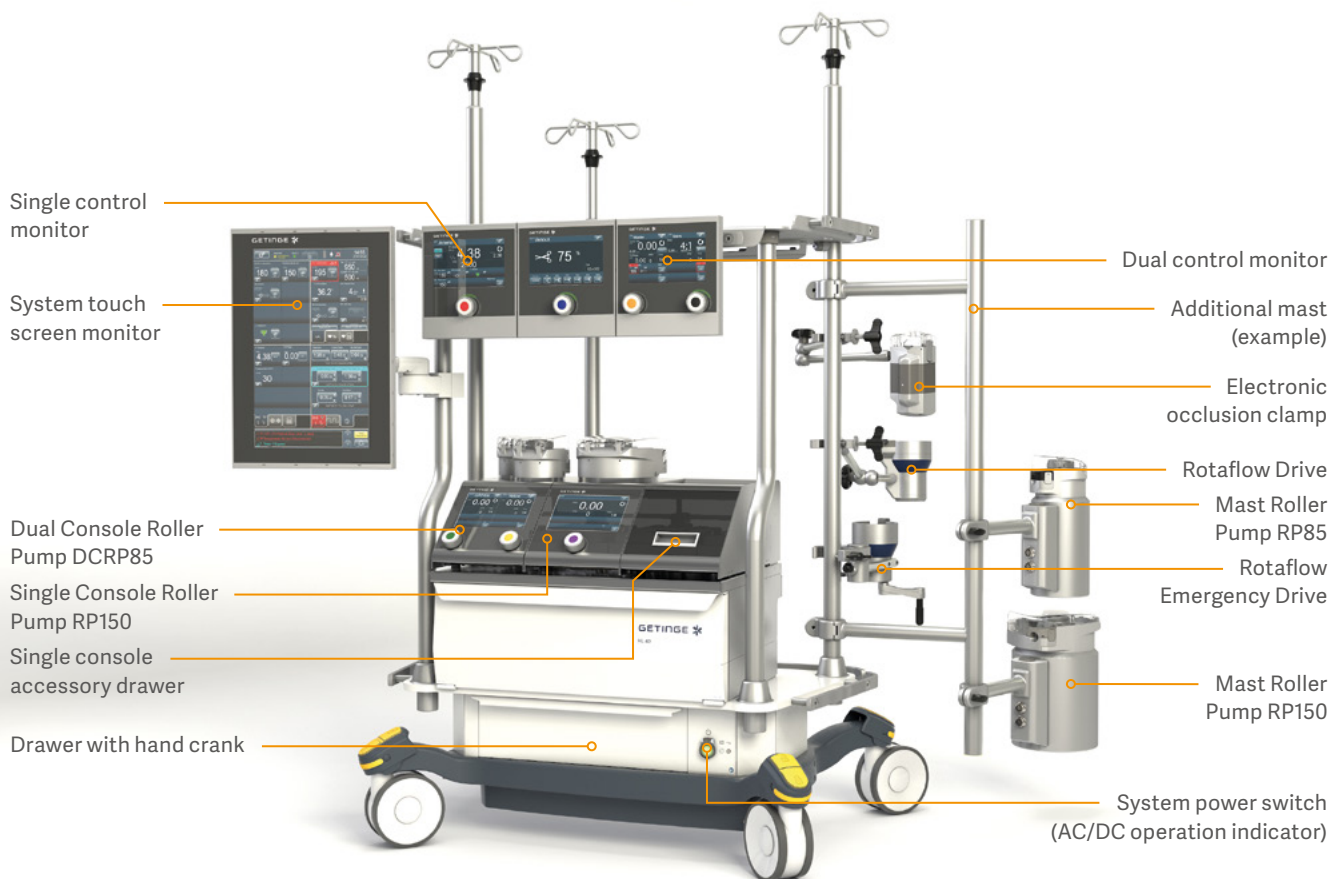
Getinge Heart-Lung Machines are designed to deliver what perfusionists and patients need. Our safe and reliable systems ensure cardiac surgical suite uptime.

- HL 40 is designed to ensure optimized uptime through failsafe modes, swap-capable components, and a long-lasting battery backup.
- Our long-standing market experience and on-site service are the foundation for an extended product lifecycle at a predictable cost.
- We are a one-supplier interface, with a local presence, on-site service, long-term spare parts availability, a continuous supply of necessary disposables; and preventive service plans.

# A clean, streamlined design

## Functional, usable, and scalable

The HL 40 Heart-Lung Machine is the centerpiece of Getinge's perfusion offering containing everything you need for safe and effective patient care.



# A reliable investment

## in safety and performance

A modern perfusion system is a long-term investment. The HL 40 is scalable to meet current and future needs. Premium parts and a comprehensible service offering ensure a long, reliable lifecycle.



### Keep patient data in sight

The HCU 40 Heater-Cooler Unit with its flexible control unit ensures that patient data is always visible. The remote control of the HCU 40 can be individually positioned on the HCU 40 or anywhere on the mast of the HL 40.

### A trusted perfusion portfolio

Getinge surgical perfusion components are used successfully in thousands of cardiopulmonary bypass procedures each year. The cardiac surgery suite portfolio includes a gas blender, the Quadrox-i family of oxygenators, the Rotaflow Centrifugal Pump, VHK family of reservoirs, custom tubing packs, hemoconcentrators, Quart Arterial Filters, Plegiox Cardioplegia Heat Exchangers, sensors, pre-bypass filters, and approved accessories.

### MetaVision Perfusion improves perfusionist workflow

MetaVision Perfusion can improve patient safety by providing clinicians with the information they need to make informed decisions. The advanced point-of-care clinical information system is designed to support perfusionist workflow so perfusionists spend less time on documentation to focus on patient care. It interfaces with the HL 40 and retrieves data from other devices.

### Minimizing your long-term costs

We understand that the purchase price is just a small part of the total cost of owning a heart-lung machine over time. With HL 40, we have designed a reliable system for an extended product lifecycle with optimized system uptime at a predictable cost.

### Getinge Care: protecting your investment

Our service offerings maximize the long-term value of your investments and are an excellent way to boost productivity and reduce costs. A Getinge Care service plan ensures your equipment always performs to its full potential, allowing you to focus on saving lives.

### Extensive training programs

Keeping skills updated improves patient outcomes, reduces risks and boosts productivity. We tailor our hands-on trainings to your individual needs.

## References

- HL 40 Usability Summary 0060-00-2034
- Summary Advisory Panel Meetings
- First Advisory Panel Meeting  
Date: December 07-09, 2011
- Second Advisory Panel Meeting  
Date: March 05, 2012
- Third Advisory Panel Meeting  
Date: June 10-12, 2012
- Fourth Advisory Panel Meeting  
Date: June 02-05, 2014



This document is intended to provide information to an international audience outside of the US. The Getinge HL 40 Heart-Lung Machine is not yet commercially available in the EC. The Getinge HL 40 Heart-Lung Machine may be pending regulatory approvals to be marketed in your country. Contact your Getinge representative for more information.

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