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Технические характеристики на устройства и принадлежности для хирургической перфузии компании GETINGE

Виды товаров: оксигенаторы, наборы трубок, центробежные насосы, гемоконцентраторы, системы управления данными пациентов, блоки нагревателя-охладителя, системы управления данными пациентов.

Heater-cooler unit HCU 40 Highest performance and safety in perfusion Maquet's HCU 40 Excellence in heating and cooling

Under the brand Maquet, Getinge is offering innovative, technologically-advanced equipment for operating rooms and intensive care units.

Maquet's heater-cooler unit HCU 40 is another current example of this innovation. Combining proven temperaturecontrol technology with outstanding performance and unique usability, the HCU 40 provides benefits for both the patient and clinician during complex cardiovascular surgery procedures.



Powerful and innovative

Reliable temperature control made easy

Easy, rapid and precise temperature control is essential for a hypo-/hyperthermia unit used during extracorporeal circulation. The heater-cooler unit HCU 40, with an intuitively controllable color touch screen display, delivers precise, fast and independent regulation of both patient and cardioplegia circuit temperatures.

The first water circuit of the HCU 40 can supply temperature controlled water to the oxygenator blood heat exchanger and to warming/cooling blankets. The second circuit provides temperature controlled water to the cardioplegia heat exchanger. Both temperature and water flow are independently adjustable in each circuit.

Fast temperature change and high accuracy

The tank for the patient and cardioplegia water circuits is divided into two parts to ensure quick temperature adjustments at the outlets. The tank design also ensures that cold cardioplegia is always available. The internal mixing valve allows very fast and accurate switching from cooling to heating to cooling again. The HCU 40 can perform rapid water temperature changes with a measurement accuracy of ± 0.3 °C.





Connectivity of three external water circuits for perfect temperature control.



Separated tank for the patient and cardioplegia water circuits for maximum cooling capabilities.

Proven hygienic safety

 ensured by design and optimized disinfection procedures

Exceptional cooling capacity and silent operation

The HCU 40 has exceptional cooling capacity through its fast ice-building technique, which uses highly effective cooling plates and a powerful compressor. The ice provides an initial cooling effect that is significantly higher than hypothermia units operating exclusively with a compressor for refrigeration (e.g. flow-through cooler). The ice-making technology of the HCU 40 results in reduced patient cooling times, greater accuracy, and faster water temperature changes. In most cases, the HCU 40 can be operated without a running compressor, thereby eliminating noise and draft from the compressor and fan for silent operation.

Efficient heating and intelligent power management

The HCU 40 is equipped with extremely large capacity heaters and intelligent electronic management of the heating and cooling components. For example, when the ice-making compressor is not in use, it is automatically bypassed, and the majority of the power supply is used for the heaters. This promotes very efficient heating performance, minimizes patient re-warming times, and contributes to more accurate and faster water temperature changes.

Fast priming and automatic de-airing

The intelligent internal circuit design allows air to be dispelled effectively from the external and internal circulation. By activating the priming function the external water tubes are primed and air is removed from the water circuit, resulting in an extremely short set-up time. In addition, the system continuously eliminates air escaping from the heating process, maximizing the efficiency and resulting in a more silent pump function.

Unique usability for an effective therapy

Unique usability through the user-friendly and flexible control unit with touch screen display: The HCU 40 is operated and controlled by an adjustable control unit. It can be individually positioned on the HCU 40 or the mast of any heart-lung machine, no additional remote control is necessary.

The HCU 40 provides a comprehensive, color touch screen display with logical, intuitive menus. Function, status, and system information can be monitored and controlled simply and conveniently by the touch screen in combination with a rotary knob. Frequently used temperature settings can be saved to be immediately accessed at the beginning of surgery via hotkeys – a special feature to save time. The use of an isolating transformer for all electrical components, precision sensors and a complete redundant safety system, helps promote both patient safety and operating reliability.

Effective emptying of external devices

The HCU 40 allows effective emptying of all connected heat exchangers and water supply tubing, by suctioning the water back into the unit. As a result, frequent filling of the tank is not necessary and water spillage is virtually eliminated promoting patient safety.

The design of the HCU 40 prevents airborne transmission of potentially existing bacteria from the water system into the operating field. Heater-cooler unit HCU 40 has only one water tank, which operates at approximately 1-3 °C water temperature, reducing the potential for bacterial growth and aerosol formation. But the most important feature is the separation of the system's sealed tank from the inner compartment where the fan is contained. The air flow from or to the fans do not pass over the area with the water tank. Therefore the air flow cannot carry aerosols from the water tank into the operating field. The system contains no stirring devices in the tank, which could generate air bubbles during operation. Test results from an independent institute provide evidence that HCU 40 does not emit any germs to the sterile OR field in any operation mode of the device – independent of the orientation (air outflow direction) of the unit.

New disinfection procedures fulfilling latest hygienic requirements

Maquet has introduced new disinfections procedures for its HCU 40. These new protocols include a routine disinfection as well as a highly effective disinfection – also effective against atypical mycobacteria in the water system. Naturally, an effective hygienic monitoring process in the HCU 40 production ensures 100% microbiological control of every produced unit before leaving the factory. Additionally, prior to customer handover, each HCU 40 is disinfected by Maquet authorized service engineers per the validated disinfection procedure.

A CAN connection for future Getinge heart-lung machines is already in place. It is also possible to connect two external temperature sensors to the cooling and warming therapy units and the control unit. This allows operation with automatically controlled temperature gradients for physiologically optimized cooling and heating.

Individual positioning on the HCU 40 or extended as a remote control, the control unit ensures easy and accurate operation of the heater-cooler unit.

The colored touch screen display with clear symbols and large figures.



HCU 40 Benefits at a glance

- Independent temperature control of the patient and cardioplegia via separated water circuits
- Up to three external heat exchangers can be used simultaneously
- Fast and accurate temperature adjustment made possible by the split tank and automatically controlled mixing valve
- Reduced patient cooling times due to the exceptional cooling capacity of the effective ice-building system
- Silent operation most surgeries can be performed without a running compressor
- Minimized patient rewarming time due to the outstanding heating capacity and intelligent electronic management
- Gradient mode for physiologically optimized heating and cooling
- Precise and independent flow control of the water circuits allow the option of locating the unit outside the OR
- Simplified operation thanks to the user-friendly, flexible control unit with touch screen display

- Extremely short setup time required due to fast priming and automatic de-airing
- Convenient and effective emptying of external devices after surgery
- Polished stainless steel cabinet easy to clean and damage resistant
- Easy to maneuver using smooth running castor wheels with foot-lever operated brakes
- Proven patient safety and operating reliability ensured by the sophisticated electrical safety concept
- Safe design prevents an airborne transmission of any microorganisms from the system water into the operating field
- Optimized disinfection procedures, including a protocol for highly effective disinfection and biofilm reduction – also effective against atypical mycobacteria in the water system for hygienic safety

MSync Connecting systems efficiently to create time for what's really important

MSync transfers complex clinical data from your Getinge point-of-care device and translates it to Health Level Seven (HL7). This data is added into your Patient Data Management System (PDMS). All information transfers are complete and safe, and they can occur within the hospitals firewalls. MSync is Getinge's own solution for data transfer, no need for third party systems.

The MSync system transfers patient data information from your Getinge point-of-care devices to the PDMS. MSync imports real-time clinical data from your device by using its respective communication protocol. It converts the information to HL7 compliant data by exporting the point of care data into a HL7 format; it is thereafter transferred to the PDMS.

MSync consists of the MSync box, RS232 cord, a mains power cord with a power supply unit, a USB cable and a mounting kit. The MSync system utilizes the Local Area Network (LAN) to transfer information between Getinge medical devices and PDMS. Each MSync needs to be connected to your Getinge device, and have a patient ID which is acquired from the HIS. These two will be connected via a web-based user interface. The user access is controlled and set up by the hospital's IT department.

The MSync is a network system which must be installed by the hospital's IT department. For Getinge technical support please contact your local representative.

MSync is designed to address key security concerns:

- User access is in the hands of the hospital's IT department
- All data transfer occurs within firewalls of the hospital
- Maintain integrity of network security
- Conceal data from unauthorized access
- Ensure authentication of system users

MSync is available for:

- Maquet Flow-I®
- The Servo ventilator family
- Maquet Cardiohelp
- HCU 40

HCU 40 Technical specifications

Control range temperature	1.0 °C to 40.5 °C
Setting resolution temperature	0.1 °C
Temperature measurement accuracy	±0.3 °C
Temperature measuring range	-9.5 °C to 59.5 °C
Cooling system	Compression cooling system, ice-forming
Tank capacity	28 liters
Quantity of ice	15 kg
Initial cooling capacity	6,350 kJ
Continuous cooling capacity of the compressor	4,867 kJ / h (1,352 W)
Heating system	Electrical heaters
Heating capacity	2 x 3,000 W (200 240 V)
Circulation system	Pressure pumps
Flow capacity, patient water circuit	18.51/min (50 Hz), 22.01/min (60 Hz) at zero pressure head (adjustable)
Flow capacity, cardioplegia water circuit	9.51/min (50 Hz), 11.01/min (60 Hz) at zero pressure head (adjustable)
Maximum pressure, patient water circuit	1.5 bar (50 Hz), 2.0 bar (60 Hz)
	Pressure alarm limit (safety cut-off) adjustable 0.6 bar to 2.0 bar
Maximum pressure, cardioplegia water circuit	1.0 bar (50 Hz), 1.5 bar (60 Hz)
	Pressure alarm limit (safety cut-off) adjustable 0.4 bar to 1.5 bar

Mains voltage (set at the factory)	200/208/220/230/240V
Frequency	50/60Hz
Powertolerance	±10%
Line fuse	25 A (200 240 V)
Current limitation options, 200 to 240 volt	10, 12, 14 and 16 A
Current limitation options, 110 to 120 volt	16 A
Maximum power consumption	2,760 2,880 VA (230 240 V, 12 A) 2,990 VA (230 V, 13 A) 3,000 3,600 VA (200 240 V, 15 A) 3,200 3,840 VA (200 240 V, 16 A)
Volume (at 3 m distance)	40.4 dB (at 50 Hz), 44.3 dB (at 60 Hz) (patient and cardioplegia pump turned on, compressor turned off) 44.8 dB (at 50 Hz), 46.8 dB (at 60 Hz); (patient and cardioplegia pump turned on, compressor turned on)
Dimensions (H x W x D)	1,133 x 508 x 703 mm (880 x 508 x 688 mm without CU and holder)
Weight (incl. CU and holder, excl. tubes)	154 kg (340 lb)
Cabinet material	Polished stainless steel
Display of user interface	Touch screen LCD, 115.2 x 86.4 mm, 640 x 480 pixels
Tube connections	6 metal connectors (Hansen coupling kit for patient water circuit: 1/2", Hansen coupling kit for cardioplegia water circuit 3/8")

Hemoconcentrato

Optimal conservation of the patient blood

The efficient fluid management during extracorporeal circulation and cardiac surgery minimizes the need for homologous blood and blood products.



Hemoconcentrators for gentle fluid management

The hemoconcentrator removes excess plasma water and micromolecular components effectively by means of transmembrane pressure. At the same time it retains corpuscular blood cells, albumin, and other valuable components of higher molecular weight.

Three different sizes of hemoconcentrators enable efficient and appropriate fluid management with significant patient benefits.

- No-Rinse Technology for Immediate
 Use
- Dependable Ultrafiltration
- Low Priming
- Available in Three Sizes
- Outstanding Biocompatibility

No-Rinse Technology for Immediate

Use

With

hemoconcentrators, fluid management becomes simple and efficient with no porefilling agents and no pre-rinsing. This allows the hemoconcentrators to be inserted into the extracorporeal circuit and put into immediate use at any time.

Dependable Ultrafiltration

The highly stable, state-of-the-art polyarylethersulphone membrane material separates substances of high and middle molecular weights. The substance elimination rate is clearly indicated by the sharp sieving coefficient curve. All valuable blood components are retained while plasma fluid is quickly and efficiently removed.

Low Priming

Their excellent priming performance ratio, together with superior physiological hemoconcentration characteristics, provides optimum blood management for the patients' benefit.

Perfectly matching patients' needs

The hemoconcentrators are available in three different sizes to optimally meet individual patient needs. For further flexibility and convenience, each hemoconcentrator can be

Outstanding Biocompatibility

The outstanding structure of Getinges hollow fibers ensure a high ultrafiltration rate at a minimal transmembrane pressure. The highly permeable fibers increase the blood

Overview

MetaVision Perfusion

Advanced patient care tailored for perfusionists



Professional perfusionist workplace

MetaVision Perfusion is a point-of-care information system designed in close cooperation with experienced perfusionists. The system supports standardized surgical perfusion workflows and is highly configurable to meet the perfusionist needs.

Even in critical situations, the perfusionist is supported by the continuously retrieved data from all connected devices, such as the blood monitoring unit, the HCU 40 Heater-Cooler Unit, and especially the HL 40 Heart-Lung Machine.

Features

Patient safety and secure documentation

Focused on patient safety by ensuring accurate and secure documentation

Continuous capturing of all important medical device data connected to Meta∀ision Perfusion

Structured data provided to support further clinical usage and scientific application Features dedicated to perfusion workflow

Perfusion centered workplace with all necessary documentation like heartlung machine checklists, guided priming, and major clinical events during perfusion

Standardized heart-lungmachine workflows

The fully digital heartlung machine checklist, favored medication, priming and material documentation Integrated workplace in hospital environment

Vital data and laboratory data visualized by fully integrated charts to quickly provide overview in a lifecritical environment during heart surgery

MetaVision Perfusion is fully integrable into already existing hospital infrastructure by establishing the bridge between the medical devices and the hospital information system

Multivendor medical device library to support integration

Availability and professional services

- Individual reporting by SQL Server Reporting Services (SSRS)
- Available language package: English, German, French, Italian, and Spanish
- · Guided project management by Getinge and iMDsoft
- Center of Excellence by Getinge provides support and further customization improvements

Quadrox-i Oxygenators

A comprehensive oxygenator portfolio of hollow fiber membrane oxygenators covering all different patient sizes, from neonates, children, small adults and adult patients.



Overview

The Quadrox-i family allows

and a station

Quadrox-i oxygenators are available as stand-alone products, in modular and

Features

membrane

Sizes from neonatal to pediatric to small adult and adult patients With or without integrated arterial filter With SOFTLINE Coating or BIOLINE Coating

Extremely low pressure drop, also with integrated

filter

priming volume

Low

Low foreign surface area Good O₂ and CO₂ transfer

Efficient heat exchanger Optimized surface refinement with Softline Coating Optional available with Bioline Coating Isoflurane and Sevoflurane compatibility

Rotaflow RF-32

Radial centrifugal blood pump.

Integrated into an extracorporeal circuit, the RF-32 maintain the blood flow during cardiopulmonary bypass procedures or for extracorporeal circulatory support.

Overview

Engineered with simplicity and sophistication

Highly flexible modular component for integration in Rotaflow System.

The Rotaflow RF-32 centrifugal pump is a non-occlusive pump with no metal shaft or seal. This pump features a peg-top, onepoint sapphire bearing that lowers friction substantially. Its volute housing provides an optimized flow ratio without stagnant zones. The centrifugal pump's minimal suction volume of 32 ml significantly reduces hemodilution.

calotte)

eatures

Minimal	Minimal	No	Minimal
priming	surface	stagnant	hemolytic
volume	area	blood	index
		zones	
		and less	
		hot spots	

Minimal	Hydraulic	Siral	Low-
MTT	optimized	housing	friction
(Mean	flow	for best	one-
Transit	channels	flow ratio	point
Time)			bearing
			(sapphire
			ball & PE

Overview

Tubing Sets

Customized or modular sets - you have the choice.

Getinge offers you customized tubing sets or the option for a modern modular tubing set approach.



Perfusion simplified with the modular tubing set approach by Getinge

The combined expertise of perfusionists and Getinge is the basis for creation of the modular tubing sets. These sets comply with international standards of practice, adhering to minimum safety considerations for the safe conduct of surgical perfusion.

Modular tubing sets

- ensure a quality standard in production, configuration and validation
- are pre-produced and available from stock
- contain all the essential components you need for an extracorporeal circuit

Modular tubing sets ensure a quality standard in production, configuration and validation

Machine

Sets

Machine set consists of the disposables and the tubing, which are assembled on the heart-lung machine and carry the perfused blood between the table lines and reservoir, pump, oxygenator.

Main components include the reservoir, the oxygenator with integrated arterial filter and pump lines. Several variations are available as well as additional components and lines.

Table Sets

Table set consists of lines, which are connected between the patient and the heartlung machine lines.

Main components include arterial line, venous line, suction lines, vent lines and pre-bypass filter, if needed. Several variations as well as additional components and lines are available in different lengths depending on where the heart-lung machine is located.

Cardioplegia Sets

Cardioplegia set includes the tubing lines and disposable components, which are used for carrying the cardioplegia solution to the heart for myocardial protection.

Getinge has cardioplegia sets for standard cardioplegia solution delivery methods, like blood cardioplegia or crystalloid cardioplegia

Hemoconcentrati Sets

Hemoconcentrator set consists of the inlet and outlet tubing lines, a waste bag and the hemoconcentrator. Several variations are available as well as additional components and lines.

Benefits

Quality

Modular tubing sets ensure a quality standard in production, configuration and validation and have been intensively tested and validated at Getinge.

Drawing approvals, documentation or verification for quality assurance are now a thing of the past. Getinge ensures that the modular tubing sets comply with the guidelines for minimum system requirements and risk analysis for the Getinge Heart-Lung Machine HL 40.

Availability

Modular tubing sets are pre-produced and available from stock. Availability is normally given within two working days. This facilitates sustainable planning and inventory management.

When selecting modules, the new digital product catalog for modular tubing sets is available to help. The e-catalog contains a detailed overview of the individual modules and customized configuration of these modules is possible.

Flexibility

Stay flexible with modular tubing sets, the modules contain all the essential components you need for an extracorporeal circuit. The combination of modules is completely customizable.

Modules consists of table sets, machine sets, hemoconcentrator sets, cardioplegia sets and additional components and lines. Uncoated versions or with Softline Coating are available for adults and small adult patients. Алматы (7273)495-231 Ангарск (3955)60-70-56 Архангельск (8182)63-90-72 Астрахань (8512)99-46-04 Барнаул (3852)73-04-60 Белгород (4722)40-23-64 Благовещенск (4162)22-76-07 Брянск (4832)59-03-52 Владивосток (423)249-28-31 Владикавказ (8672)28-90-48 Владимир (4922)49-43-18 Волоград (844)278-03-48 Волоград (8472)26-41-59 Воронек (473)204-51-73 Екатеринбург (343)384-55-89

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