

**PUMP ASSISTED LUNG PROTECTION
CARDIOHELP SYSTEM**

CARDIOVASCULAR





ENLARGE YOUR THERAPY OPTIONS PUMP ASSISTED LUNG PROTECTION MAQUET – THE GOLD STANDARD



Leading the way: MAQUET Cardiovascular is a premier international provider of therapeutic solutions through advanced medical technology. Focused on the OR and ICU, the company is committed to developing solutions that improve patient care. MAQUET draws on many years' experience in supplying state-of-the-art extracorporeal heart-lung support systems. Since the introduction of the first ECMO treatments in the seventies there has always been the dream of having a fully capable heart and lung assist system in the size of a suitcase. This dream has come true with the introduction of CARDIOHELP System.

CARDIOHELP System now sets the standard for extracorporeal cardiac or respiratory assist or the combination of both.

CARDIOHELP System combines a high level of clinical performance for veno-venous or veno-arterial life support during percutaneous or centrally cannulated ventricular assist, and for providing state-of-the-art CO₂ removal capabilities to enable ideal protective ventilation protocols. All this together with outstanding mobility and cost efficiency. CARDIOHELP System delivers a high level of clinical performance to help clinicians provide the best possible care for their patients.

Designed to be easily upgradeable, it grows with the hospital's changing needs to ensure lasting value.

MAQUET – The Gold Standard.

DESIGNED TO MEET YOUR CURRENT AND FUTURE IN-HOSPITAL AND TRANSPORT NEEDS

Cost-effective care by flexible solution: The CARDIOHELP System all-in-one platform with its broad range of treatment options can satisfy the extracorporeal circulation needs of every patient, from the most acute phases of respiratory distress and cardiac insufficiency through recovery and the weaning phase. It continuously delivers outstanding oxygenation and CO₂ removal capabilities and ensures optimum treatment as atraumatically as possible thanks to its uniquely designed disposable modules and state-of-the-art tubing sets.

The up-time of CARDIOHELP System is maximized by:

- Same system for veno-venous or veno-arterial life support at the bedside and during transport and CT examinations
- Ventricular assist device with oxygenation possibilities
- Extracorporeal CO₂ removal system for ideal protective ventilation settings
- Ideal standby perfusion system in cardiac hybrid OR's or for CABG procedures using minimal extra corporeal circulation techniques (MECC)
- Integrated blood monitoring capabilities
- Quick automatic pre-use check of entire system including initialization of venous probe for blood monitoring
- Bedside upgrade of software

CARDIOHELP System can be used more frequently and in more situations, saving time, ensuring continuous care and simplifying training and maintenance.

Flexible bedside adaption: All CARDIOHELP Device configurations can easily be lifted out of the mobile SPRINTER CART and mounted in many different ways. The CARDIOHELP transport holder can be attached to a variety of rails and shelves and is even approved for mounting the device in ground transport vehicles, fixed wing aircraft and helicopters.*

Treatment on the move: Continuity of care is essential for critically ill patients. CARDIOHELP System provides the same high level of care for all patients during transport, with no loss of treatment values, safety systems or information. The CARDIOHELP transport holder can carry all accessories, including an infusion pole. A gas bottle adds to the convenience when transporting patients. Compact and light weight battery modules power the system during transport when no wall or on-board power supply is available.

Inter-hospital transport by land and air: CARDIOHELP Device adapts effectively for transport thanks to its low weight, small dimensions, long battery operating time and optimized user-friendly interface.

** Comply with any additional national transportation regulations.*



CARDIOHELP Device



HLS Module Advanced 7.0

DELIVERING EXTRA VALUE WITH FEATURES TO FIT EVERY NEED

Control with ease: CARDIOHELP Device is easy to learn and use. The device provides the information needed when needed, allowing a fast and appropriate response from the user. A highly intuitive interface with a large touch screen and simple, logical menu's gives easy access to all settings. The most important parameters are accessed through direct push buttons. As such the user is always informed, in control and able to react.

- Different windows for optimized visualization, enable the user to only see what he wants to see
- Separate lab value screen displaying hemoglobin, venous saturation, hematocrit and temperature readings (venous and arterial)
- All alarms are indicated with colors and sound patterns, enabling the user to identify different alarm priorities
- The CARDIOHELP Device alarm header will tell the user what the problem is, no hidden views, windows for fastest reaction time and maximum patient safety. The ward call allows alarms to be indicated even in remote locations
- Continuous storage of data in 3 seconds to 10 minutes steps
- Fast and simple start-up procedure with automated self test and calibration
- User defined start-up configuration



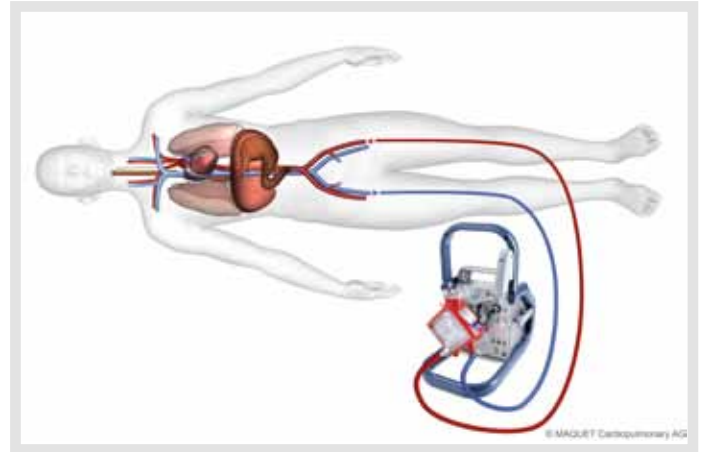
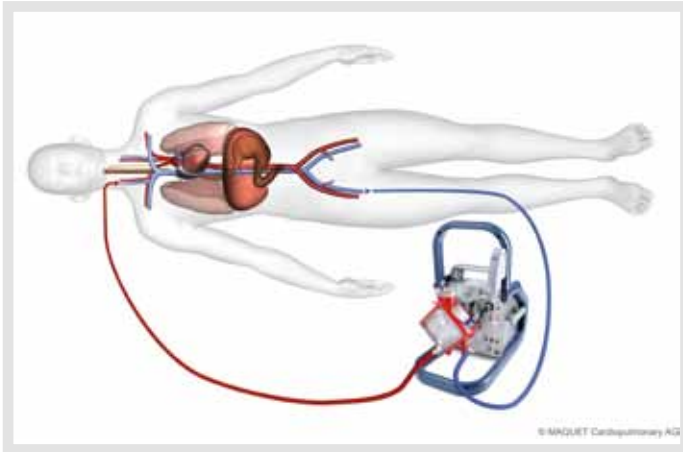
HLS Cannulae

Designed for convenience: HLS System comes with a number of value-adding features that add to its convenience. The HLS Set including the HLS Module Advanced in combination with CARDIOHELP System is by far the most compact all-in-one life support system available. All necessary pressure monitoring, blood values and temperature information as well as gas emboli detection possibilities come in one portable system.

The complicated and confusing elements which belonged to ECLS systems in the past are eliminated with CARDIOHELP Device and its partnering disposable sets.

- Temperatures and pressures do not require cumbersome calibration
- Temperature probes and pressure sensors are in built into the disposable modules, no cables, no wrong connections, no traps for leaking and clotting, no hazard of disconnection
- One blood monitoring probe with fast connection for Hct, Hb, S_vO₂ and venous temperature information. No calibration necessary for highly accurate readings
- The HLS Set, which has been specifically developed for long-term use integrates a diffusion membrane gas exchanger with a cutting-edge VAD pump and high-tech blood monitoring sensors
- HLS Cannulae provide safe and gentle vascular access from and to the patient
- SAFEGUARD Pressure Assisted Device reduces demands on the staff, maximizes valuable resources, and enhances patient comfort

A COMPLETE SPECTRUM OF TREATMENT OPPORTUNITIES



v-v ECLS:

- Possible fields of application: Respiratory failure without cardiac impairment: e.g. ARDS, H1N1, bridge to lung transplant
- Patient and user values: Reduced complexity, safe to use and more security due to little or no component change during the entire system run
- Special feature: Support of gas exchange for up to 30 days with focus on oxygenation
- Cannulation: Typically percutaneous cannulation of jugular and femoral vein

PALP (Pump Assisted Lung Protection):

- Possible fields of application: Respiratory failure, such as ARDS, ALI, VILI
- Patient and user values: Extracorporeal CO₂ removal enables protective ventilation
- Special feature: Support of gas exchange for up to 30 days without exchanging components with focus on low flow and CO₂ removal instead of oxygenation
- Cannulation: Percutaneous cannulation of either jugular, subclavian or femoral vein

v-a ECLS:

- Possible fields of application: Respiratory and circulatory failure: e.g. during cardiopulmonary resuscitation, acute myocardial failure, cardiogenic shock, multiple organ failure
- Special feature: Support of heart and lungs for up to 30 days
- Patient and user values: One system for all applications. From rapidly deployable emergency life saving circulatory support to long term VAD with respiratory assistance
- Cannulation: Typically percutaneous cannulation of the femoral vein and femoral or subclavian artery



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