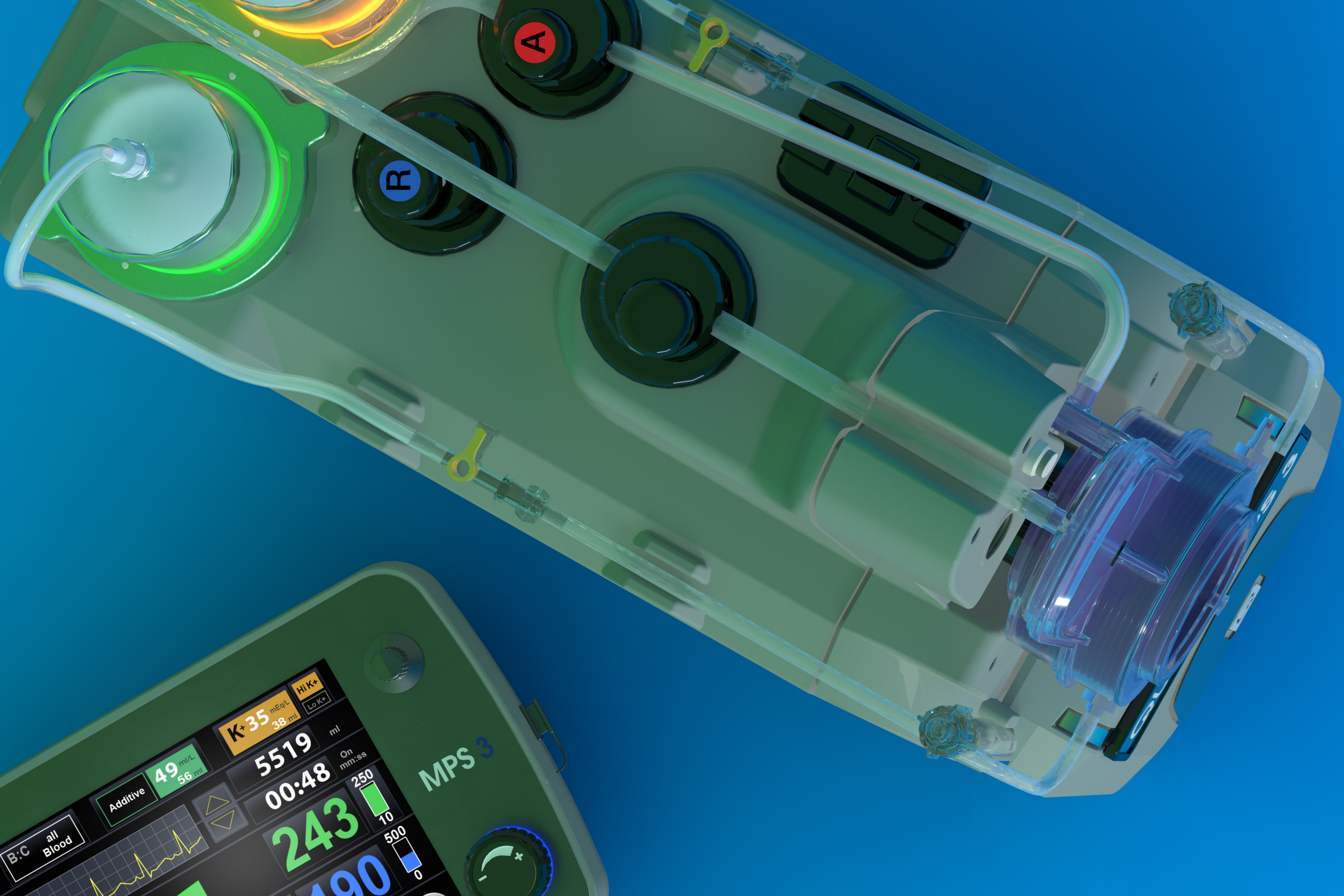


Nordson
MEDICAL

MPS[®] 3 ND System

SMARTER MYOCARDIAL
PROTECTION™





MPS® 3 ND

SMARTER MYOCARDIAL PROTECTION™

Introducing the MPS® 3 ND Myocardial Protection System, the latest innovation from Quest Medical, Inc., a Nordson MEDICAL company. The MPS® 3 ND features state-of-the-art technology, requiring no disinfection of the system's internal water circuit.

The MPS® 3 System's coordinated drug delivery technology is well known for eliminating patient hemodilution and the associated sequelae caused by cardioplegia delivery. This technology has been proven beneficial for improved patient outcomes, as well as a sound investment for hospitals.^{1,2}

Experience cardioplegia confidence with the MPS® 3 ND.

SAFETY | VERSATILITY | PRECISION

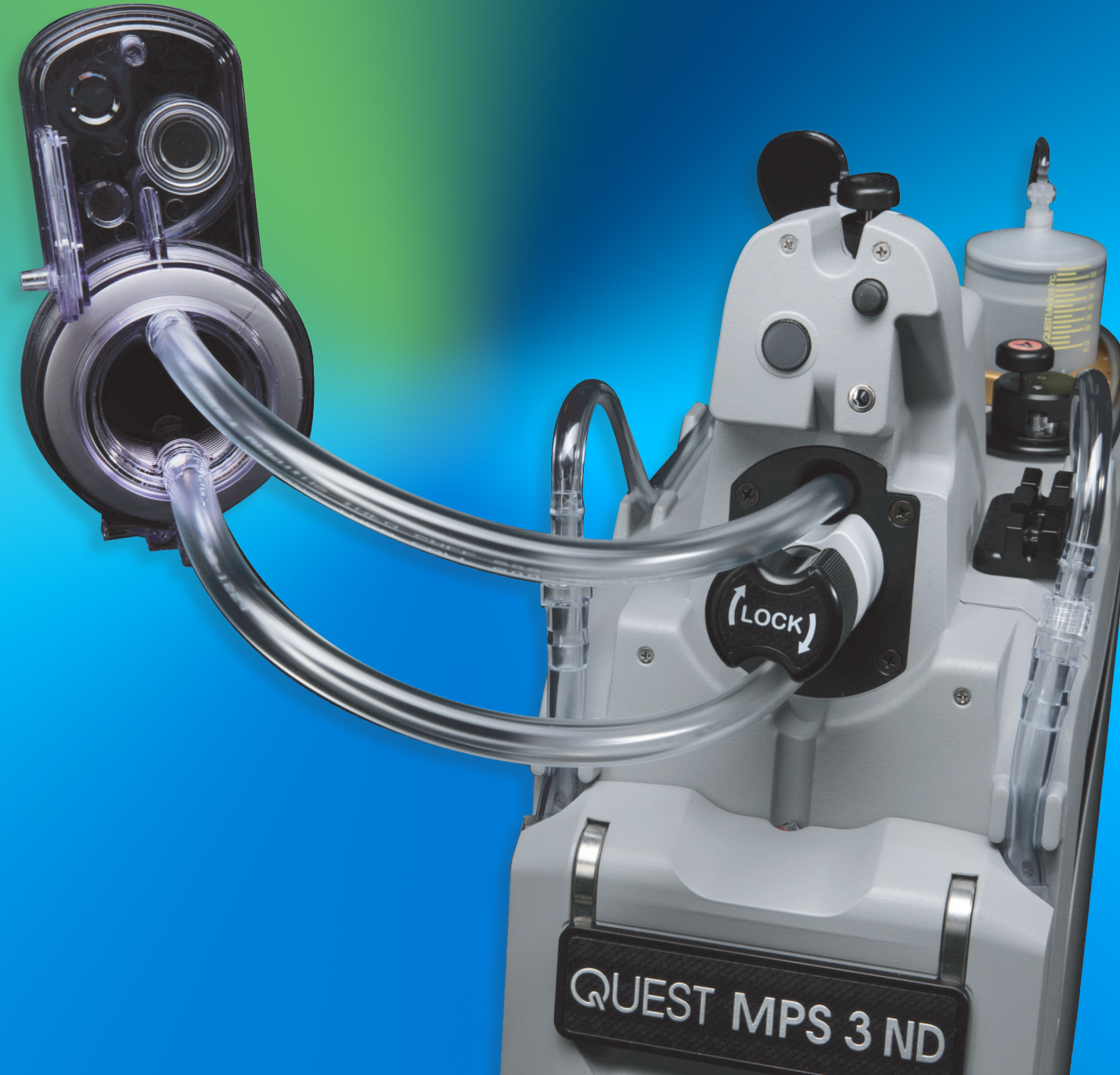
Mobile and Adaptable

MPS® 3 ND

The MPS® 3 ND console's flexibility and versatility adapt to any setup, seamlessly integrating with your heart-lung machine.

- **30% smaller:** 12.5 in x 4.5 in x 7.5 in
- **44% lighter:** just 32 pounds!

Control and ease of use are provided by the adaptable positioning of the Active Monitoring Controller (AMC), putting power in the hands of the perfusionists.



No Water, No Risk

Mitigate your risk of M. Chimaera. The MPS® 3 ND system's disposable water circuit design removes water residue from the console.

Auto-Start

Evolved technology for effective myocardial protection. A one-touch button that allows for fast aortic valve closure, commanding a rapid arrest while maximizing cardioplegia distribution.

Internal Battery

With the MPS® 3 ND System, you no longer need to worry about a possible power surge or outage. With an all new internal battery, you will experience seamless power regardless of external conditions.

Power through Precision

Know the precise drug concentrations in real time. Avoid medication errors with organized drug records.

Enhanced Drug Cartridges

New safety features and increased capacity ensure patient safety. Experience a reduced need to refill on longer procedures and all-blood single-dose strategies.

Real-Time Data Collection

The ability to collect and review data and analytics at any time throughout, or after, a procedure.

Active Monitoring Controller (AMC)

A well-organized, visually opulent command center for the perfusionist. Control flow rate, monitor doses, and observe patient activity to stay ahead of critical moments.

ND — No Disinfection*

MITIGATE YOUR RISK OF M. CHIMAERA

MPS® 3 ND is compatible with use of Propylene Glycol**

The MPS® 3 ND System, a revolutionary development from Nordson MEDICAL, mitigates the risk and costs associated with Surgical Site Infections (SSIs) due to Mycobacterium Chimaera (M. chimaera).

Benefits of ND Technology

A state-of-the-art disposable water circuit with dripless connectors:

- Removes water from the MPS® System used to thermoregulate your patient's cardioplegia circuit
- Mitigates risk of M. Chimaera aerosolization

Reduce risk and eliminate cost related to the disinfection process.

ND Technology Cost Savings:

- Average annual disinfection cost: \$7,000 per unit³

* The MPS® 3 ND System eliminates the need for disinfecting the internal water circuit. With the MPS® 3 ND System, only exterior surfaces of the device need disinfection. Refer to the MPS® 3 ND operations manual for exterior surface disinfection instructions.

** Propylene Glycol Compatibility, Data on file

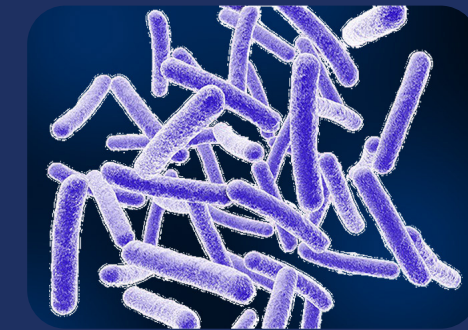


M. Chimaera

M. chimaera is a slow-growing bacterium, part of a group called nontuberculous mycobacterium (NTM) commonly found in water.

Annually, more than 250,000 heart bypass procedures are performed utilizing devices associated with these infections⁴

\$28,219 = average SSI cost/incident⁵



Active Monitoring Controller (AMC)

REAL-TIME OBSERVATION

Cardioplegia delivery and cardiac activity are now visually connected with our new Active Monitoring Controller (AMC). Observe patient activity and stay ahead of critical moments.

The all-new AMC allows perfusionists to observe:

- Real-time ECG monitoring
- Critical delivery parameters
- Drug names, volumes, concentrations, and summaries
- Temperature control and displays
- Alarms and alerts for safety
- Time recordings throughout the case

The AMC is a well-organized, visually opulent command center for the perfusionist.

A: Temperature

B: Real-time ECG display

C: Visual display of pressure and flow

D: Intuitive Icons

E: Cardioplegia ratio

F: Additive

G: Potassium

H: Digital time stamps are saved in the case file in addition to all aspects of the case

I: Pressure

J: Flow



Better Patient Care and Outcomes

The MPS® 3 ND System is a powerful tool for the cardiovascular team, promoting better patient care with detailed data analytics.

Utilize the Data

Download core data and easily utilize by converting into spreadsheet format for analysis.

Ease of Use

- Create up to 64 custom protocols
- Streamline case setup: all saved protocols are available at the touch of a button
- A master file is created and can be transferred to all other MPS® 3 System controllers: protocols can easily be updated, keeping the whole fleet current.

Knowledge is Power

Imagine the possibilities of training and education from the data analytics provided from our MPS® 3 System.

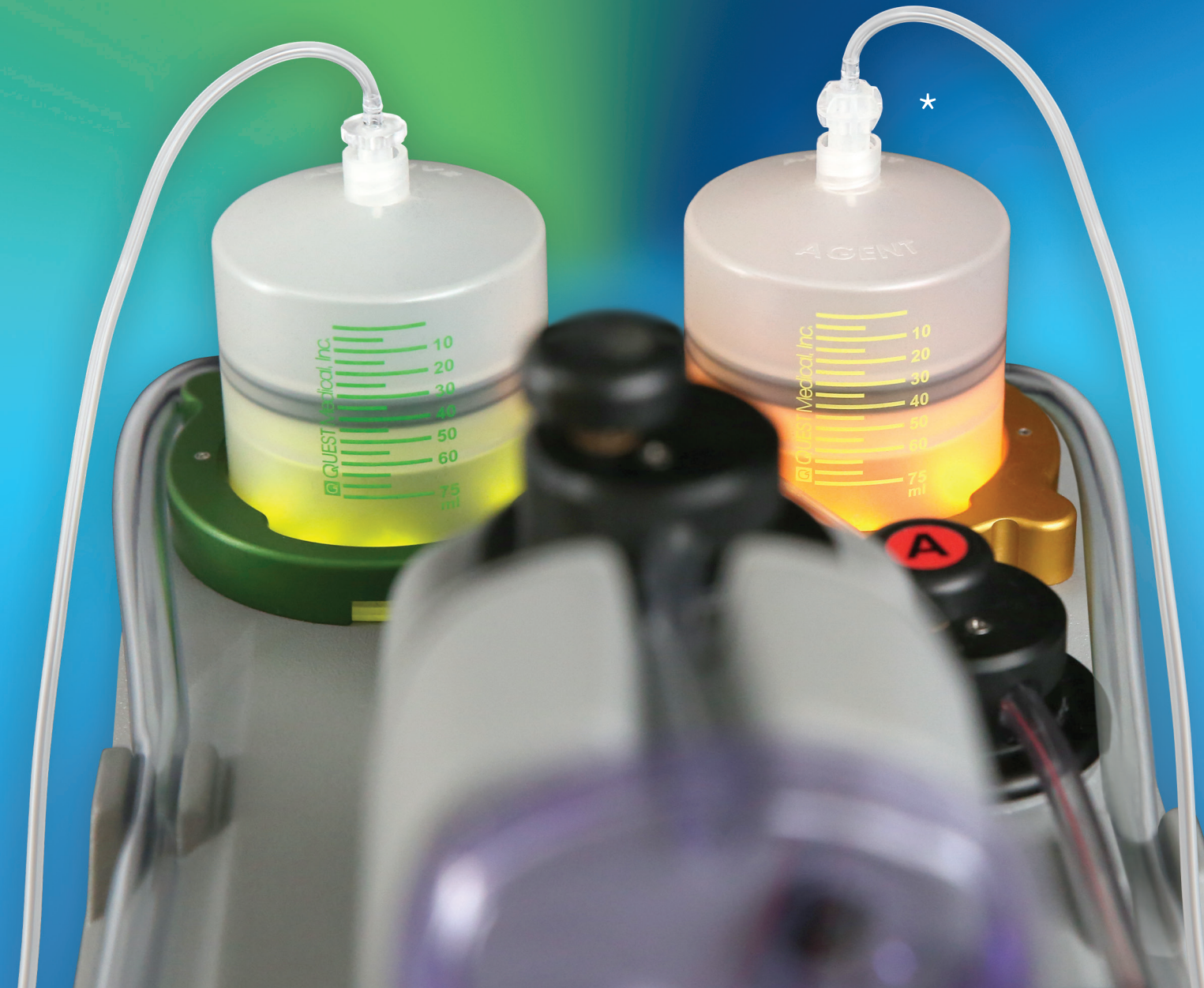
Review individual case logs for drug distribution and usage, and digital case files to assist with budget management.

Confidence In Safety

MICROPLEGIA™—OUR STRATEGY FOR CONFIDENT MYOCARDIAL PROTECTION

Microplegia™ is the pure blood initiative, a whole blood alternative to traditional blood-crystalloid cardioplegia. It provides superior myocardial protection without hemodilution, using the patient's own blood as the most physiologic buffer, lowering transfusion rates.

Pure blood is infused with specific drugs to arrest and optimally protect the heart¹.



MPS® 3 ND-Specific Drug Cartridges

DESIGNED FOR SAFETY AND EASE OF USE.

- Reduce the need to refill during longer cases and all-blood, single-dose strategies with our new and larger drug cartridges — 75mL capacity
- Visually manage independent drug delivery through translucent cartridges with mL markers and color-coded LED lighting
- Volume accuracy and delivery precision are now at your fingertips
- Cartridge securement ensures proper placement onto arrest and additive pumps where sensors interface with the Active Monitoring Controller (AMC)
- Drug cartridges can be pre-filled and offer a refilling port if necessary during a case

Safeguard patient safety and prevent accidental connections with a new, non-standard luer* on the arrest cartridge.

Confidence In Versatility

WITH THE MPS® 3 ND

The MPS® 3 ND System can accommodate any ratio, any strategy, any methodology, **any time**.

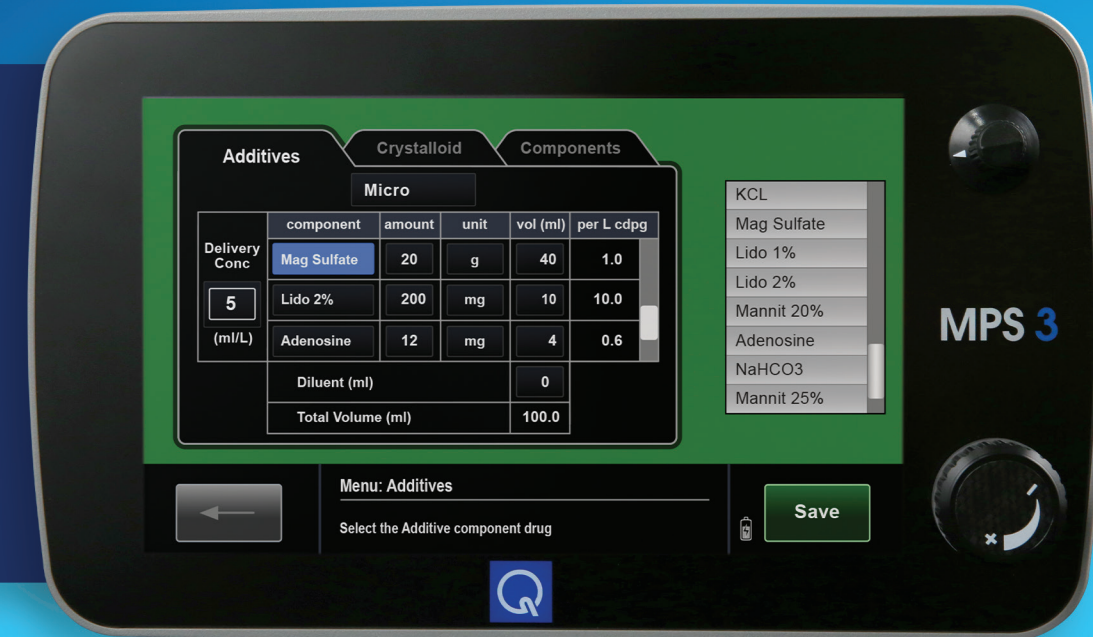
- Microplegia
- All Blood Single
- del Nido 1:4
- Cold Agglutinins
- Buckberg 4:1
- Custodiol® (HTK)
- Plegisol®



All parameters are easily and quickly adjustable during the case, providing accurate and agile control.

Input custom drug lists including concentration values.

Throughout the case, the MPS® 3 ND System actively monitors drug amount delivered and saves the data in the case file for future reference.



Instructional safety alerts/alarms display on the AMC which guide the perfusionist to a quick resolution.

Train in Safety with Trainer Mode:
Each AMC has a Trainer Mode for ease of learning and case scenario simulation prior to patient use.



Confidence in Precision

EXPERIENCE THE EVOLUTION OF CONTROL & ACCURACY

Auto-Start and the Induction Dose:

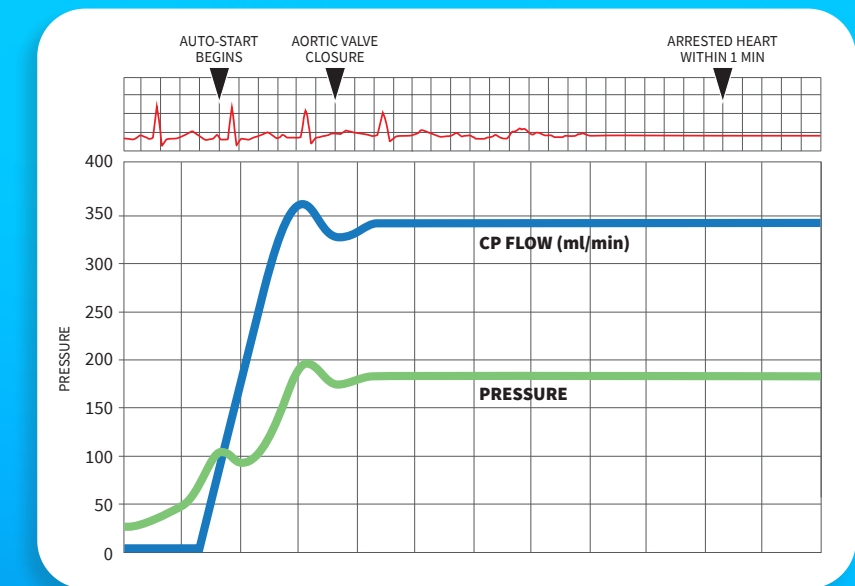
The MPS® 3 ND System is redefining the induction dose of entegrade cardioplegia. With the touch of a button, you engage the auto-start feature. Auto-start is an innovative technology for myocardial protection allowing for rapid closure of the aortic valve and commanding a faster arrest, while maximizing cardioplegia distribution and reducing time in the operating room.

The most effective induction dose possible, with the touch of a button.



The MPS® 3 ND System has redefined and expanded the cross clamp timer:

- X-clamp time
- Time to arrest timer
- Arrest time timer
- Ischemic timer
- Time to rhythm



Confidence in Precision

EXPERIENCE THE EVOLUTION OF CONTROL & ACCURACY

Precise drug concentrations and volumes are now available and easily managed on the new Active Monitoring Controller (AMC).

Power Through Precision:

- Know the precise drug concentrations given to your patient in real time
- Avoid medication errors with organized drug records
- Increase patient safety with evidence-based medicine

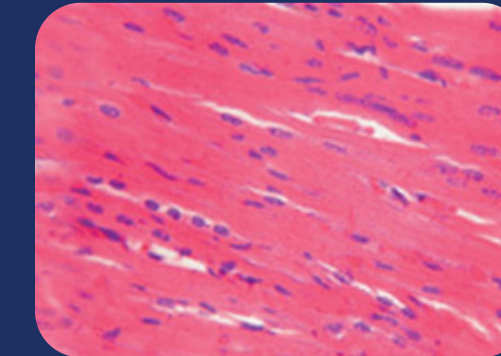
Real-Time Data Collection

The MPS® 3 ND System displays and records all drug volumes and quantities in real time. The agility of the system allows for changes any time during the procedure. The console and freestanding controller work in unison to provide accurate and safe delivery of arrest and additive agents, no matter which cardioplegia protocol you prefer.



Microplegia is superior myocardial protection without hemodilution. Only MPS® technology delivers precision microplegia by independent control of additive and arrest agents.

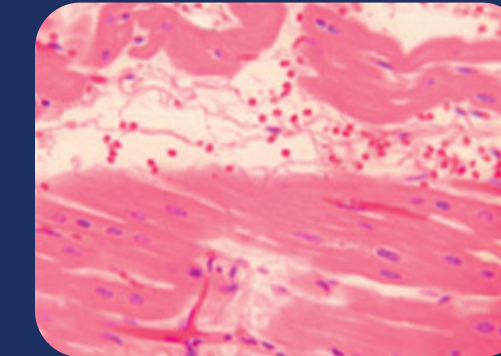
Precision Drug Delivery Without Hemodilution¹



THE BENEFITS OF MICROPLEGIA

- Provides superior myocardial protection with natural distribution:
- Maximizes aerobic environment for the myocardium
- Reduction of hemodilution
- Lowers transfusion rates
- Minimizes use of hemoconcentrator
- Reduces inotropes/blood products

Diluted Cardioplegia¹ (Traditional 4:1 (Blood:Crystalloid))



NEGATIVE EFFECTS OF USING CRYSTALLOID

Excessive dilution may lead to:

- Tissue edema
- Increased use of blood transfusions
- A low HCT
- Elevated glucose levels
- Low cardiac output syndrome⁴
- Increased potassium levels

The Sound Investment

BENEFITTING PATIENTS & HOSPITALS THROUGH
ADVANCED TECHNOLOGY

Mitigate risk and cost associated with *Mycobacterium Chimaera*

Save an average of \$7,000 per unit³ on annual disinfection costs and an average of \$29,219 per SSI incident related to M. Chimaera.

Improved patient outcomes²

Reduce hospital length of stay, adverse events, medication costs, and transfusions associated with edema for a faster recovery.

Patient safety

The MPS® 3 ND System is the most versatile platform for cardioplegia delivery in the safest manner possible.

Data

Clinical data supports evidence-based medicine and improving patient outcomes.

Reduce pharmacy and hospital costs

Eliminate the cost associated with all crystalloid cardioplegia bags.

The MPS® 3 ND System is more than a capital expenditure, it's an investment benefitting your community.



Microplegia with MPS® vs. traditional cardioplegia²



Experience a reduction in
adverse events



Patients experience 1 day less
in the ICU



Patients recover faster and are
discharged 1 day earlier



Reduction in medication costs



Reduction in hospital costs



Better patient outcomes

Contact our team today to set up a
free demonstration:



+1.800.627.0226



mps3@nordsonmedical.com

REFERENCES

- 1 Bharat Datt, CCP, et al. Blood Only Cardioplegia with Quest MPS, Canadian Perfusion Canadienne 2009; 19(1) April: 31-37
- 2 Marc W Gerdisch, et al. Clinical and economic benefits of advanced microplegia delivery system in cardiac surgery: evidence from 250 hospitals. Journal of Comparative Effectiveness Research 2018; April: 273-683
- 3 Disinfecting Cost, Data on File
- 4 <http://www.cdc.gov/hai/outbreaks/heater-cooler.html>
- 5 Estimating the Additional Hospital Inpatient Cost and Mortality Associated With Selected Hospital-Acquired Conditions. Content last reviewed November 2017. Agency for Healthcare Research and Quality, Rockville, MD.
- 6 Ulysses G McCann, et al. Whole Blood Cardioplegia (Minicardioplegia) Reduces Myocardial Edema After Ischemic Injury and Cardiopulmonary Bypass. J Extra Corpor Technol 2006 Mar;38(1):14-21.
- 7 Algarni KD, MD, MHS, et al. Microplegia during coronary artery bypass grafting was associated with less low cardiac output syndrome: a propensity-matched comparison. Ann Thorac Surg. 2013 May;95(5):1532-8. doi:10.1016/j.athoracsur.2012.09.056.

“MPS® Technology makes a good perfusionist great.”

— Alan Dubey, *University of Massachusetts Medical Center*

**Set up a free demonstration of the MPS® 3 ND System
by calling customer service team at +1.800.627.0226
or visiting our website.**



IMPORTANT SAFETY INFORMATION: For complete indications, contraindications, warnings, precautions, and potential adverse events, refer to the product's Instructions for Use (IFU).

Manufactured by Quest Medical, Inc.

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