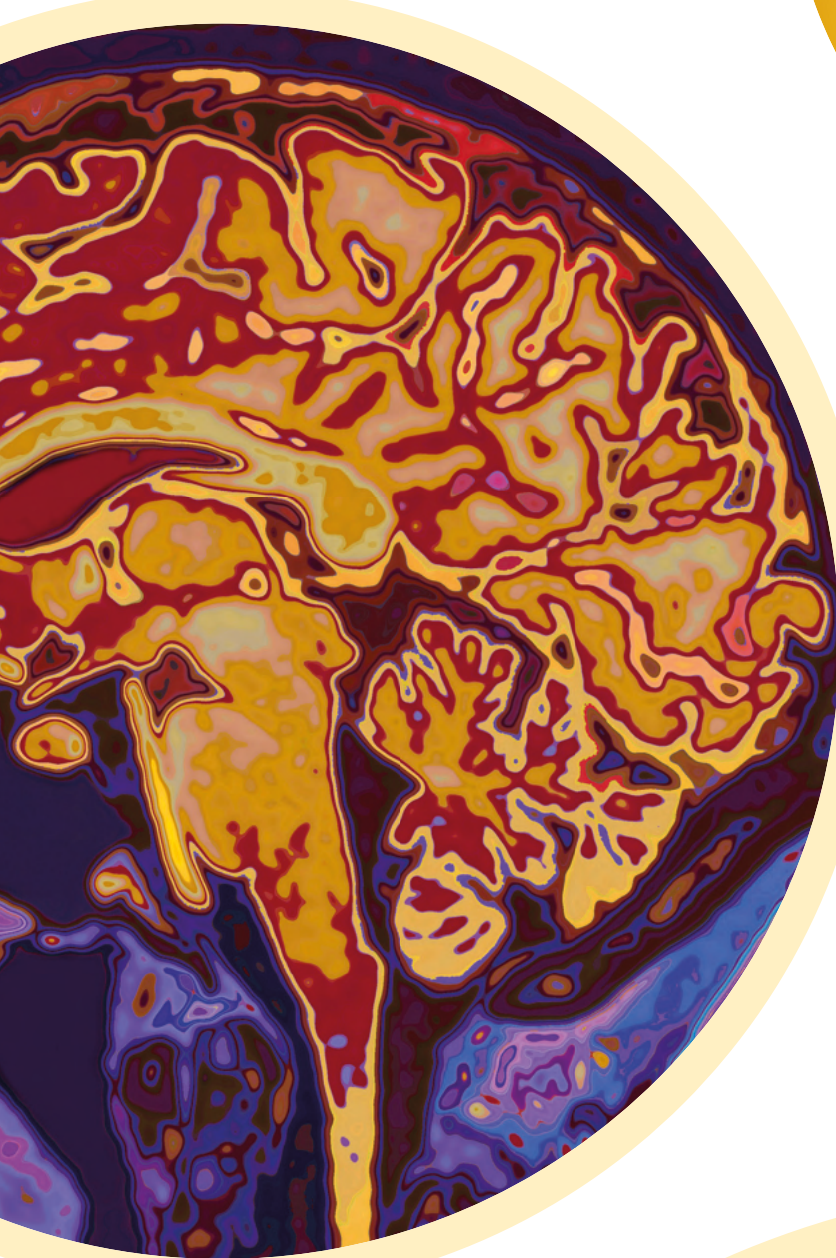


MED( TRON<sup>®</sup> AG

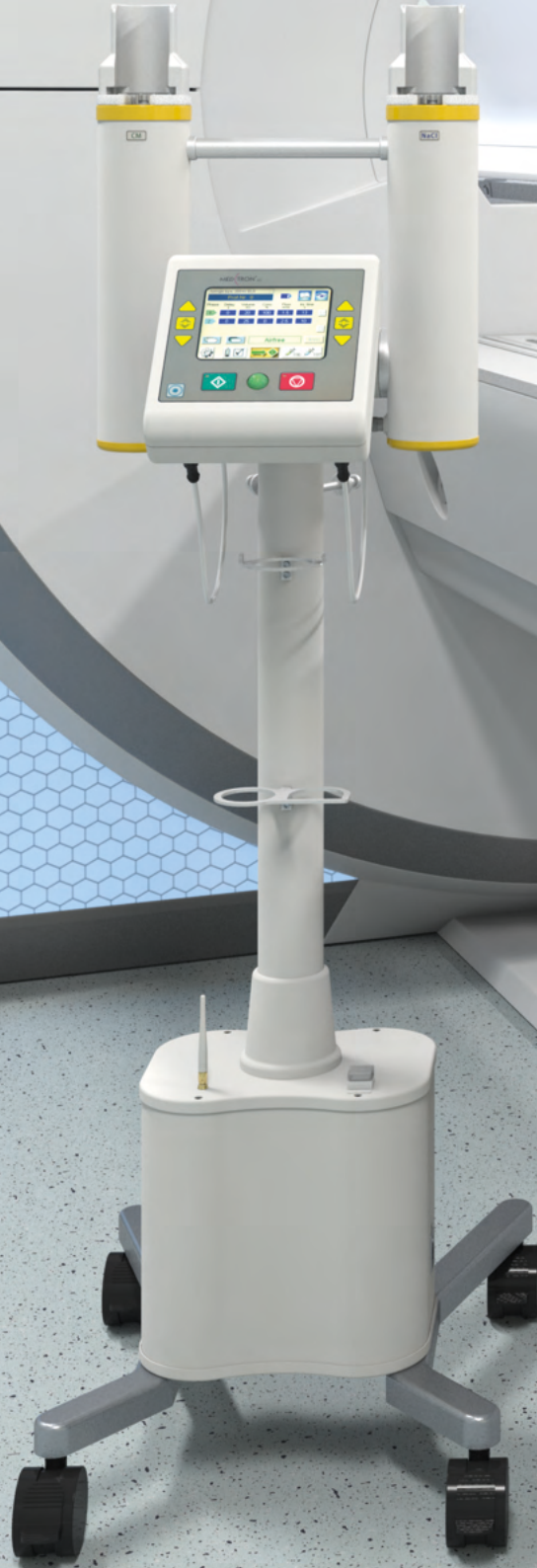


# Essential for contrast

**Accutron<sup>®</sup> Injectors for Magnetic Resonance Imaging**



# Accutron® MR





## Clinical Gains

- Keep-Vein-Open (KVO) software feature helps to maintain vascular access during longer imaging procedures
- Compatibility with select pre-filled syringes helps to support improved hygiene and reduced risk of contamination



## Operating Gains

- Wireless and mobile configuration provides flexibility by eliminating barriers; such as nearby power requirements and/or cable installations
- Can be used with two remote controls so that one injector is shared between two MR examination rooms



## Financial Gains

- Wireless and mobile configuration reduces costly installation expenses without power requirements and/or cable installations
- Increased patient throughput with pre-filled syringes; leading to potentially increased revenue



# Accutron<sup>®</sup> MR

**The mobile MRI specialist**

Model MR880

The Accutron<sup>®</sup> MR is designed for precisely dosed injections of contrast medium (CM) and saline solution (NaCl). The Accutron<sup>®</sup> MR has two injection units which can be controlled independently of each other. The contrast medium can be customized to each patient and delivered accurately with NaCl, depending on the application.

## Easy filling

Automatic filling or manual filling with variable speed

Filling speed: 1 – 5 ml/s

Optimized tube systems with check valves

## Mindful workflow

KVO function ensures that access to the vein is maintained during long examinations

Injection can be interrupted at any time and continued if needed

## Wireless & mobile

Mains supply independent thanks to high-output rechargeable batteries

Input voltage charger:  
100 – 240 V, 50 – 60 Hz

Power consumption charger < 160 VA

## Hygienic design

Tough, stable and light aluminum casing

Easy to clean and hygienic

Total weight: 37 kg



## Disposables recommendations

### Single Use

Article number

Choose one of our pre-assembled kits:

#### MR set ELS 65/200ml

317603-000

consisting of:

1x ELS\* 65ml Syringe

1x ELS 200 RN

1x Double-head tube system

1x Vented spike MU

1x Mini-Spike, green, MU

#### MR Kit ELS\* 65 ML

317604-000

consisting of:

1x ELS\* 65 ml Syringe

1x MR Tube system with 2 valves

1x Vented Spike MU

#### MR Set ELS 65 ML

317632-000

consisting of:

2x ELS 65 ml Syringe

1x MR ELS Tube system

2x Spike

\*for use with contrast pre-filled syringes

### Multiple Use

#### MR Set Day Safe 200+65

317644-100

consisting of:

1x ELS 200

1x ELS 65

1x Day Safe Filling tube

1x Spike

1x Mini-Spike

1x SURE Patient line SP 250

318426-100

#### MR Set Day Safe 65+65

317646-100

consisting of:

2x ELS 65

1x Day Safe Filling tube

1x Spike

1x Mini-Spike

1x SURE Patient line SP 250

318426-100

**Injection Volume:**

**max 200 ml**  
per piston, selectable  
partial injection volume  
0.1-200 ml, programmable  
in 0.1 ml increments

**Number of Phases:**

**1 to 6** phases

**Injection Pressure:**

**max 21 bar**,  
programmable from  
5 to 21 bar in 1 bar  
increments

**Flow Rate:**

**0.1 - 10 ml/s**,  
programmable in  
0.1 ml/s increments,  
optional selection of  
flow rate or phase duration

**Injection Profiles:**

**80 profiles**,  
can be edited and  
stored by the user

**Injection and  
Phase Delay:**

**1-255 s**

**Filling Speed:**

**1 - 5 ml/s**,  
CM/NaCl,  
programmable in  
1 ml/s increments

**Keep Vein Open:**

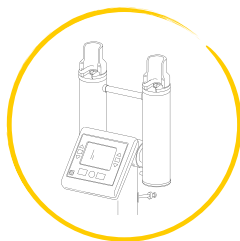
**0.5 ml** every 2 minutes

Subject to technical alterations

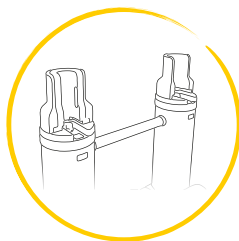
# Specifications

## Highlights

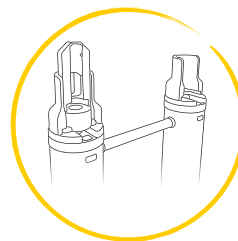
### Additional highlights & options



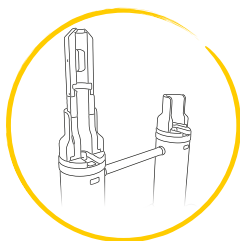
Double Head  
Receptacles



Adapter 64 ml  
ELS NaCl\*



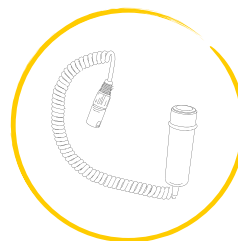
Adapter D  
for Pre-filled Syringes\*



Adapter M  
for Pre-filled Syringes\*



Remote  
Touch Screen



Hand  
Switch



**Compatible  
up to**

**7  
Tesla**

Can be positioned up to  
**1,000 Gauss line**

# Single-Use

Disposables

## Uncompromising Safety

Complies with the strictest hygiene rules worldwide. Contamination risks reduced to a minimum.

## Efficiency in your work

Unequivocal efficiency when changing the disposable set after each patient. An ideal solution for departments with reduced workloads or those which have only a few daily examinations using contrast media.







## Multiple Use

Interested in multiple use disposables for MR? If so, please check out our full product catalog online at [medtronic.com](https://www.medtronic.com) for MR multi-use disposables.



## Pediatric MR

Pediatric MR imaging faces complex challenges such as minimal flow rate requirements, extremely fragile veins as well as optimal contrast volume selection and delivery.

Accutron® MR & MR3 are both ideal for pediatric imaging because they provide precise injection volume and flow rates with decimal increments allowing for careful administration of the contrast media dose.

It is especially critical in pediatric MR imaging where precise comparability with high quality imaging is needed, such as in pediatric cardiac and oncologic imaging.

## MR Angiography

Using the dual injection head of Accutron® MR and MR3 for multiple phase protocols allows you to optimize the delivery of contrast for vascular dynamic studies.

This includes flushing the arterial supply with saline to ensure a compact bolus is delivered. It also allows subsequent examinations to be later reproduced with the same protocol.

By simultaneously injecting contrast media and saline solution, it allows for the bolus geometry and peak enhancement to be adjusted as needed when focusing on organ tissue enhancement. For example, to increase the duration of the contrast peak for larger vessel studies.

# Clinical Application

**focus with Accutron® MR & MR3**

## Should I use a power injector?

Using power injection is inherently more stable and repeatable with respect to flow rate, timing and duration of injection during a patient examination.

A power injector such as Accutron® MR or Accutron® MR3 makes the quality of imaging more predictable, which ultimately enhances the procedural safety for the patient.

Unfortunately, hand injections are not suitable for repeatability as the variability of flow rate, time and duration are not easily controlled and/or maintained due to the manual variabilities introduced.

## MR Mammography

Contrast media perfusion in MR breast imaging requires a high degree of precision coupled with an extremely high necessity for imaging reproducibility. It allows conspicuous lesions with premature and higher grade enhancements to be analyzed. Only a power injector can meet this requirement in earnest.

## MR Neuro

Complex vascular changes can be easily visualized via the adjustment of injection parameters on the power injector. As an example, MR stroke imaging requires clearly defined contrast media injection profiles, as they are essential in enabling evaluation of contrast media distribution throughout the brain.



# Accutron® MR3







## Clinical Gains

- The integrated infusion pump enables simultaneous administration of specific medication needed by some patients to undergo MRI examination
- Enables your clinical application expansion into pharmacological Cardiac MRI stress tests



## Operating Gains

- Wireless and mobile configuration provides flexibility by eliminating barriers; such as nearby power requirements and/or cable installations
- Functions with select pre-filled syringes to increase throughput via quick use and improved patient turnaround times



## Financial Gains

- Integrated infusion pump eliminates the need to purchase a separate MR compatible infusion device
- Wireless and mobile configuration without power requirements and/or cable installations reduces costly installation expenses

# Accutron<sup>®</sup> MR3

**The master of multi-tasking**

Model MR882

The Accutron<sup>®</sup> MR3 is designed for precisely dosed injections of contrast medium (CM) and saline solution (NaCl) as well as for the infusion of fluids. The Accutron<sup>®</sup> MR3 has an injection unit with three drive units which can be controlled independently of each other. The third drive in the injection unit, the so-called infusion pump, is used for the infusion of fluids. You can create both pure infusion phases and pure injection phases as well as combined phases with injection and infusion steps in a profile.

## Easy filling

Automatic filling or manual filling with variable speed

Filling speed: 1 – 4 ml/s

Optimized tube systems with check valves

## Mindful workflow

KVO function insures that access to the vein is maintained during long examinations

Injection can be interrupted at any time and continued if needed

Pre-filled syringes can be used

## Wireless & mobile

Mains supply independent thanks to high-output rechargeable batteries

Input voltage charger  
100 – 240 V AC, 50 – 60 Hz

Power consumption  
charger < 140 VA

## Hygienic design

Tough, stable and light  
aluminum casing

Easy to clean and hygienic

Total weight: 41 kg





## Disposables recommendations

### Single Use

Article number

Choose one of our pre-assembled kits:

#### MR set ELS 65/200ml

317603-000

consisting of:

1x ELS\* 65ml Syringe

1x ELS 200 RN

1x Double-head tube system

1x Vented spike MU

1x Mini-Spike, green, MU

#### MR Kit ELS\* 65 ML

317604-000

consisting of:

1x ELS\* 65 ml Syringe

1x MR Tube system with 2 valves

1x Vented Spike MU

#### MR Set ELS 65 ML

317632-000

consisting of:

2x ELS 65 ml Syringe

1x MR ELS Tube system

2x Spike

\*for use with contrast pre-filled syringes

### Multiple Use

#### MR Set Day Safe 200+65

317644-100

consisting of:

1x ELS 200

1x ELS 65

1x Day Safe Filling tube

1x Spike

1x Mini-Spike

1x SURE Patient line SP 250

318426-100

#### MR Set Day Safe 65+65

317646-100

consisting of:

2x ELS 65

1x Day Safe Filling tube

1x Spike

1x Mini-Spike

1x SURE Patient line SP 250

318426-100

(For the infusion unit, please use your standard infusion syringe.)

**Injection Volume:**

**max 64 ml** (CM)  
**200 ml** (NaCl)  
 programmable in  
 0.1 ml/s increments and  
**50 ml** (infusion pump),  
 programmable in  
 0.001 ml/min increments

**Number of Phases:**

**1 to 6** phases

**Injection Pressure:**

**max 21 bar**,  
 programmable from  
 5 to 21 bar in  
 1 bar increments

**Flow Rate:**

**0.1 - 10 ml/s**,  
 programmable in  
 0.1 ml/s increments,  
 Infusion pump:  
**0.001-30 ml/min**,  
 programmable in  
 0.001 ml/min increments

**Injection Profiles:**

**80 profiles**,  
 individually  
 programmable and  
 storable

**Injection and  
Phase Delay:**

**0.1 - 600 s**  
 injection delay  
**1 - 255 s**  
 phase delay

**Filling Speed:**

**1 - 4 ml/s**,  
 CM/NaCl,  
 programmable  
 in 1 ml/s increments

**Keep Vein Open:**

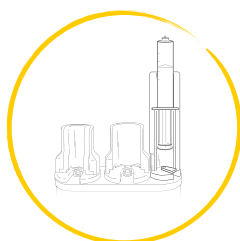
**1 ml** every 2 minutes

Subject to technical alterations

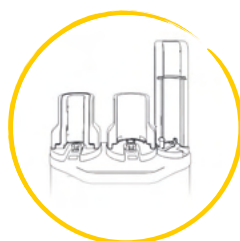
# Specifications

## Highlights

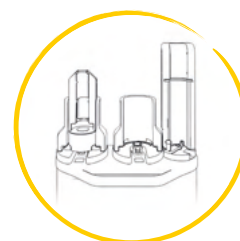
### Additional highlights & options



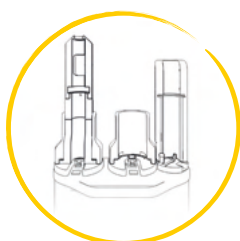
Integrated  
Infusion Pump



Adapter 64 ml  
ELS NaCl\*



Adapter D  
for Pre-filled Syringes\*



Adapter M  
for Pre-filled Syringes\*



Remote  
Touch Screen



Compatible  
up to

**3**  
**Tesla**

Can be positioned up to  
**1,000 Gauss line**

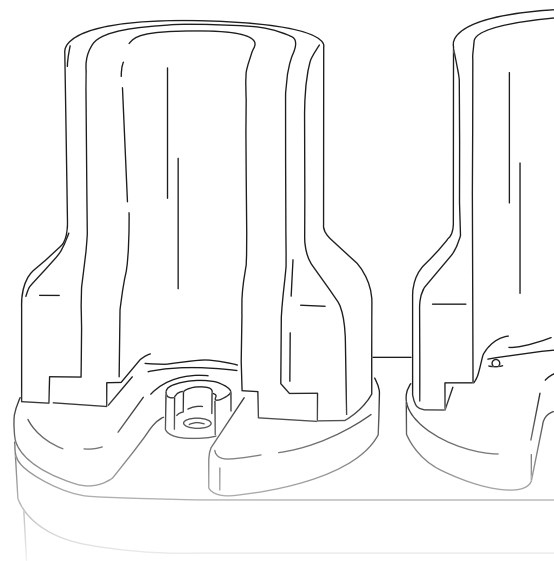


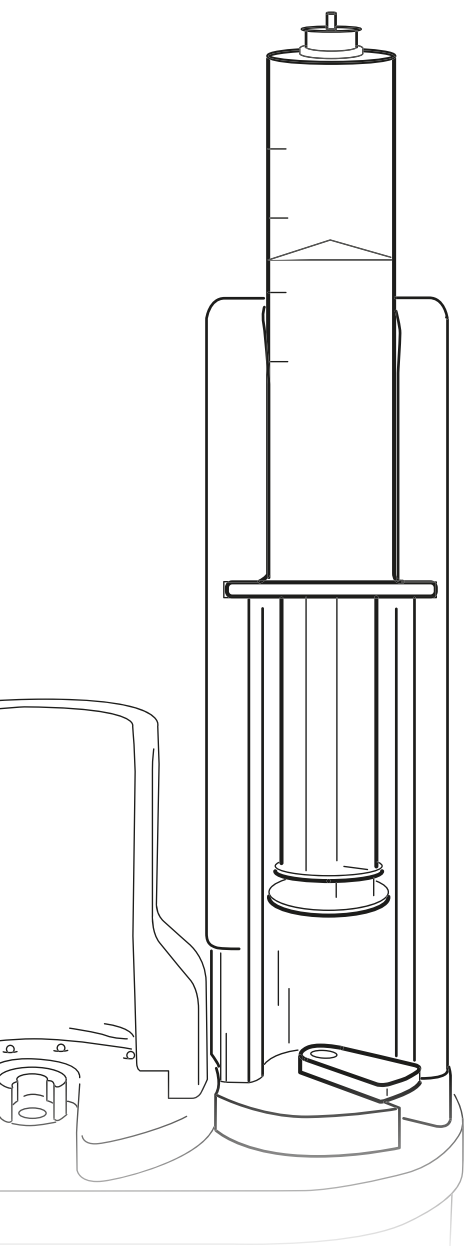
# Cardiac Stress

## Application Focus

Accutron® MR3 is a dual head dual syringe contrast media injector with a third syringe unit operating as a dedicated infusion pump specifically indicated for MR Stress test imaging. An MR stress test is a chemical induced stress imaging examination of the heart using a pharmaceutical agent such as Adenosine or Dobutamine.

These agents simulate the effects of exercise in patients thereby causing the coronary arteries to dilate. This dilation with contrast media allows the visualization of the heart muscle not receiving enough blood supply i.e., ischemia. In addition, Accutron® MR3 software features MPRO Assist which helps guide you during set-up for the optimal injection and infusion rates.





## Guided Assistance

Patient based profile assistant (MPRO) generates the optimal injection and infusion protocol based upon established criteria helping you to be more efficient in your daily workflow.

## Infusion Pump

The integrated infusion pump provides for continuous infusion of diagnostic medication during an MR scan. It also features bolus functionality and is ideal for MRI Stress testing.

## Remote Control

Offers a comprehensive view to monitor the medication infusion and contrast injection phases. It also provides complete remote operational control including parameter adjustment and injection from the scanner control room.

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