



# Accurate Diagnostics **for** Busy Healthcare



## Magnetic resonance

**UNMATCHED  
SOLUTIONS  
FOR QUALITY  
CONTROL**





# Magnetic resonance

## Quality Control kits

Powered by:

DIAGNOMATIC



We have prepared several QA / QC kits consisting of must-have phantoms, accessories and software that you can use in different situations depending on your requirements.

These can be your go-to selections when you are not sure what to choose for tests of a given modality.

We have introduced gradation of kits depending on the purpose and level of sophistication required:

**BASIC:** these sets are meant for constancy level testing purposes - tests that can be done practically by everyone who can use a diagnostic device

**PRO:** sets meant for acceptance and specialized testing - performed by specialized personnel, for example a medical physicist

# Pro-MRI BASIC kit

09-001



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**DIAGNOMATIC**

This kit is a versatile set of phantoms and software for carrying out constancy and acceptance tests of magnetic resonance units. Thanks to the Pro-Control.online subscription, all tests can be quickly and effortlessly automatically analysed online and with the desktop app.

## Standard kit configuration:

- Pro-MRI (09-101)
- Pro-MRI - detachable spirit level (09-104)
- Diagnomatic BASIC annual subscription
- carrying case with dedicated foam inlay

## The kit can be used to measure:

- geometric distortion
- spatial resolution
- slice thickness and position
- interslice gap
- T1 and T2 values
- image bandwidth
- low contrast detectability
- image uniformity
- Signal-to-Noise Ratio (SNR)
- physical and electronic slice offset
- point of reference
- bandwidth: water-fat shift

## Product features:

- complies with:
  - ACR MRI Accreditation Program
  - IPEM Report 80 "Quality Control in MRI", 1998
  - AAPM Rep. 28 "Quality Assurance methods & phantoms for MRI", 1990
  - AAPM Rep. 34 "Acceptance testing of MRI systems", 1992
  - AAPM Rep. 100 "Acceptance & Quality Assurance procedures for MRI facilities", 2010
- CE certified
- the Manual provides detailed guidelines for carrying out each test, results assessment and registration



# Magnetic resonance

## Phantoms



## Pro-MRI

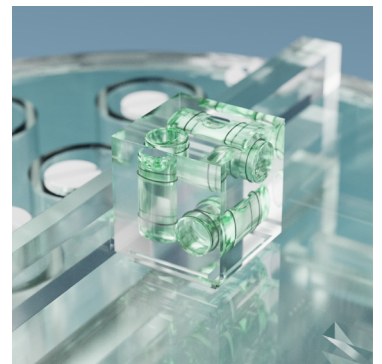
- 09-103 optional 6 removable vials for test samples - replacing the "T1 and T2 sample vials", includes 6 additional vials (12 in total)
- 09-104 optional detachable 3-axis spirit level
- 09-102 optional heavy duty carrying case
- 09-101

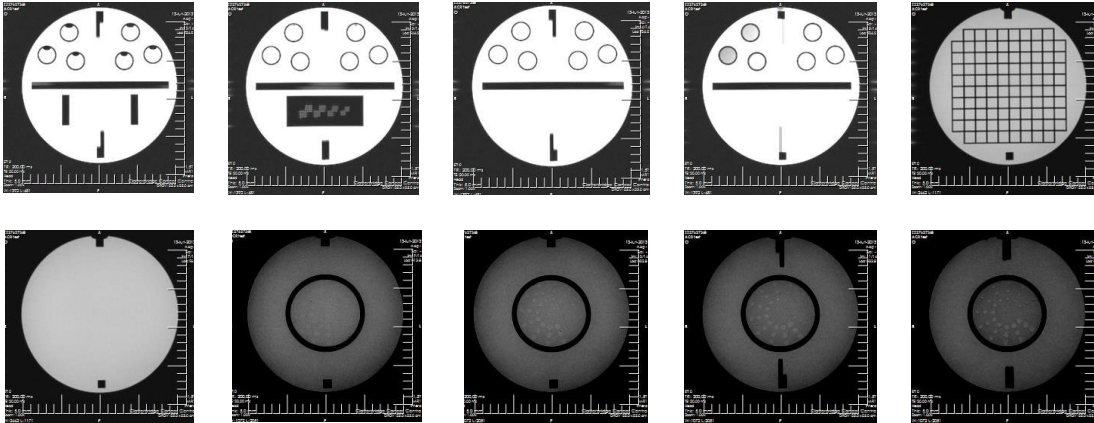


Phantom for comprehensive evaluation of critical imaging parameters of magnetic resonance imaging (MRI) in a time efficient manner. The phantom can be used for the measurement of absolute values for calibration purposes. However, its design is optimized for time efficient daily quality assurance too.

### It can be used to measure:

- geometric distortion
- spatial resolution
- slice thickness and position
- interslice Gap
- T1 and T2 values
- image bandwidth
- low contrast detectability
- image uniformity
- signal-to-noise ratio (SNR)
- physical and electronic slice offset
- point of reference
- bandwidth: water-fat shift





**Technical data (can be modified to customer specifications):**

- outside cylinder diameter: 220 mm (180 mm)
- outside cylinder height: 150 mm
- inside cylinder diameter: 204 mm (173 mm)
- inside cylinder height: 130 mm
- filled with 10 mmol nickel chloride solution containing
- sodium chloride 75 mmol
- T1 and T2 sample vials
  - 6 cylindrical vials Ø19 x 41 mm
  - refillable from outside
  - filled with different configurations of nickel chloride and sodium chloride solution, precise information to be found in the manual
- resolution insert:
  - four matrices of holes, diameters: 0.8, 0.9, 1.0 and 1.1 mm
  - spaces between the holes are equal to hole diameters
  - two small containers with water and fat for water-fat shift evaluation
- slice thickness insert:
  - 180 x 46 x 10 mm PMMA plate
  - 1 mm wide and 5mm deep counter-descending slits on both sides
  - slits form two ramps descending at 1:10 geometric distortion insert:
  - 10 x 10 array of squares
  - 148 mm on a side
  - 10 mm thick
- low contrast insert:
  - 4 polycarbonate discs 0.05, 0.1, 0.15 and 0.2 mm in thickness
  - partial volume contribution of these sheets and filling solution produce contrasts: 1.4, 2.5, 3.6 and 5.1%
  - each disc contains 12 groups of 3 holes arranged in spokes
  - each spoke has the same diameter
  - diameters range from 7.0 to 1.5 mm (0.5 mm step)
- four sets of paired 45° wedges are located on both sides of the phantom. The lower pairs are 30 x 30 mm, and the upper ones are 40 x 40 mm. The distance between intersection points of the lower and upper pairs is 90 mm
- optional 6 removable vials for test samples - replacing the “T1 and T2 sample vials”, includes 6 additional vials (in 12 total) (09-103)
- optional detachable 3-axis spirit level (09-104)
- optional heavy duty carrying case (09-102)

**Product features:**

- Complies with:
  - ACR MRI Accreditation Program
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  - AAPM Rep. 28 “Quality Assurance methods & phantoms for MRI”, 1990
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# Pro-MRI Agar

09-202



This stability (agar) phantom consists of a cylindrical phantom and agar material inside. Using this phantom a Signal to Noise Ratio, Signal Fluctuation to Noise Ratio, drift, and other imaging measures over a 100-volume or 200-volume fMRI scan can be performed. The agar phantom has characteristics similar to the T2 measures of a human head, but provides no change in signal. The T1 and T2 characteristics of the agar phantom at 3T are ~900 ms T1 and 30 ms T2.

## Technical data (can be modified to customer specifications):

- overall cylinder dimensions: 140 mm in diameter, 150 mm in height
- cylinder made of PMMA
- filled with agar gel with T1 and T2 characteristic at 3T of ~900 ms T1 and 30 ms T2.
- optional carrying case (09-102)

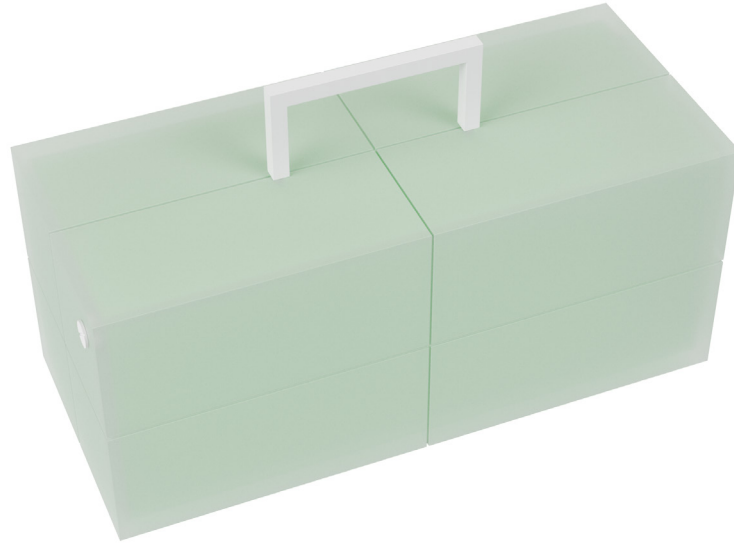
## Product features:

- Complies with:
  - ACR MRI Accreditation Program
  - IPEM Report 80 "Quality Control in MRI", 1998
  - AAPM Rep. 28 "Quality Assurance methods & phantoms for MRI", 1990
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# Pro-MRI SpineRect

09-201



Rectangular MRI phantom simulating attenuation of the human spine.

## Technical data (can be modified to customer specifications):

- inner dimensions: 372 x 150 x 148 mm
- made of PMMA
- filled with nickel chloride and sodium chloride solution
- markings on the surface to show middle axes of the phantom
- carrying handles for easy transportation

## Product features:

- Complies with:
  - ACR MRI Accreditation Program
  - IPEM Report 80 "Quality Control in MRI", 1998
  - AAPM Rep. 28 "Quality Assurance methods & phantoms for MRI", 1990
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**World Headquarters**

Kwiatowa 43A Street  
22-105 Okszów, Poland  
E-mail: [contact@pro-project.pl](mailto:contact@pro-project.pl)  
Phone: +48 668 024 874, +48 606 161 554

**US office**

8400 West Sunset Road  
Black Fire Innovation Center, Suite 300  
Las Vegas, NV 89113, USA  
E-mail: [contact.us@pro-project.pl](mailto:contact.us@pro-project.pl)  
Phone: 786 757 0514

**Distributor**

