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Qty	Description
1	<p>Optima MR450w with GEM 1.5T MR System 34/150</p> <p>Patient expectations of MR have shifted in recent years, as patients have begun to demand a better, more comfortable scanning experience. Increasing the size of the bore is a good first step, but its only the beginning. The right system should overcome traditional limitations of wide-bore MR, offering both excellent images and a user-friendly experience. Patients should be more comfortable during their scan, and clinicians more comfortable in making a diagnosis. All the while, organizations should expect their MR system to help them deliver solid financial returns, maintain a high standard of patient safety, and increase the quality of their care.</p> <p>The Optima MR450w with GEM 1.5T MRI scanner from GE Healthcare offers a range of new functionality, provides a more patient-friendly environment and is a clinical workhorse system for practices of all sizes and specialties.</p> <p>OpTix RF Receive Chain: GE's innovative Optical RF receive technology improves signal detection while simultaneously reducing electrical noise. By locating the receiver electronics on the side of the magnet and close to the origin of the MR signal, interference from external noise sources is reduced thus improving image quality and SNR. The result is a 27% SNR improvement over previous generation, non-optical systems for volumetric scanning.</p> <p>The OpTix technology can seamlessly route signals from any coil port to the receiver using a dynamic switching RF hub. To enable the simultaneous use of multiple coils, there are multiple high-density coil connections ports conveniently located where the detachable table docks to the scanner.</p> <ul style="list-style-type: none"><li>• Sampling Bandwidth 80MHz.</li><li>• Surface coil Receive ports 136.</li></ul> <p>Volume Reconstruction Engine 2.0 (VRE): The Optima MR450w utilizes the latest dual-core 2.6 GHz processing technology with the VRE 2.0 recon architecture. With its 36 GB of memory, acquisition-to-disk technology, and 13000 2D FFT/s frame rate, the VRE delivers the processing power to quickly reconstruct high-resolution 3D volumetric data.</p> <p>eXtreme Gradient Platform: The powerful gradient performance of the Optima MR450w system enables high resolution and fast acquisitions. The gradient platform includes the eXtreme Gradient Driver (XGD) and the optimized large field of view gradient coil. The eXtreme Gradient Driver (XGD) is housed within a single cabinet to simplify installation. Each axis is driven by a dedicated power supply and amplifier to ensure consistent performance for all image</p>

orientations. By incorporating a water-cooled architecture, this system supports continuous peak operation with a 100% duty cycle and excellent stability for both long-term serial studies and advanced applications.

- Peak Gradient Amplitude of 34 mT/m
- Peak Gradient Slew Rate of 150 T/m/s
- Peak XGD Current 660 Amps.
- Peak XGD Voltage 1650 Volts.

MR450w GEM Express Patient Table with IntelliTouch Technology: The fully detachable GE Express Patient Table incorporates the Liberty Docking System to improve safety, exam efficiency, and patient comfort over fixed-table solutions.

Easily docked and undocked by a single operator, the patient table is simple to move in and out of the exam room for patient transport and preparation. These become vital features in those instances where multiple patient transfers can negatively impact patient care or when emergency evacuation is required; the table can be undocked and removed from the scan room in under 30 seconds with just one

technologist. In time-sensitive situations there is no need to remove or disconnect surface coils as the system can automatically disconnect the coils for you.

Express Patient Table Comfort: The fully detachable table may help reduce patient anxiety and provide personal discretion by enabling patients to prepare for the exam in a private space. This is particularly important for patients undergoing a breast evaluation.

To improve patient comfort and safety, the GEM Suite includes a unique set of Patient Comfort pads. The pads are designed with variable density foam that uniquely compresses based on patient geometry and weight. Certain sections of the GEM Suite pads are designed to compress more easily than others and this optimal design may minimize pressure points and improve patient comfort.

In addition, the pads are made with UltraFresh protective coating, are strong, fluid-proof, air tight, and easily cleanable. An anti-skid undersurface reduces pad movement on the table and thus may simplify patient setup and egress.

Symmetric Scan: To help reduce patient anxiety, the GEM Express Patient Table is designed to accommodate head first or feet-first imaging for all neurologic, cardiac, abdominal, spinal, and peripheral vascular exams, as well as the majority of musculoskeletal imaging. Whole body imaging may also be

completed in either patient orientation. All breast imaging is completed feet first.

Symmetrically positioned within the patient supporting cradle are three high-density coil connection ports. One at each end of the patient cradle, and another one embedded under the covers to connect the GEM Posterior Array. This design enables all components of the GEM Suite to support either patient orientation and helps ensure the most comfortable patient position. Two additional coil connection ports are included on the scanner docking mechanism.

Ergonomics: With one hand and with one simple motion, the integrated arm boards and IV pole can be optimally positioned to support the patient for injections or transportation. This unique capability of the Optima Express

Table also makes it ideally suited for multi-station exams with no scan room intervention, such as peripheral vascular (run-off) imaging.

- Patient table drive: Automated, power driven vertical and longitudinal.
- Longitudinal speed: 30 cm/sec (fast) and 0.5 cm/sec (slow).
- Total cradle length: 211 cm.
- Positioning accuracy: +/- 0.5 cm.
- Maximum patient weight for lift, scanning, and when mobile: 227 kg (500 lbs).

IntelliTouch patient positioning: The Optima MR450w has automated many routine tasks to both simplify patient preparation, and gain productivity. With IntelliTouch Technology, the technologist simply touches the side of the patient table and then a highlighted button to efficiently complete the following:

- Landmark the patient.
- Activate the surface coil.
- Center the patient in the bore.
- Start scanning.
- Acquire, process and network images.

For those patients where pinpoint alignment is desired, laser alignment lights may be used for either the selection or confirmation of landmark position.

Multiple GEM Express Patient Tables may be used with a single system to enhance scanner productivity and workflow. All GEM Suite surface coil components (GEM Posterior Array, GEM Head/Neck Unit, GEM Anterior Array, GEM Peripheral Vascular Arrays) and other optional surface coils are sold as separate items with separate catalog numbers.

Optimally designed for patient safety, patient comfort, and efficient workflow, the external features of the Optima MR450w also provide an aesthetically pleasing look and feel that can reduce patient anxiety. The wide open flare of the covers increase the effective bore size and may reduce patient anxiety when entering the scan room or magnet bore. With patient-optimized lighting and air conditioning, the system can be ideally set for each individual, increasing their control of the environment.

In-room operator console (iROC): Mounted on the front of the magnet, the display provides real time interaction with the scanner and the host computer. The user has direct control or selection of the following from the exam room:

- Display of patient name, ID, study description.
- Display and entry of patient weight.
- Display and entry of patient orientation and position.
- Cardiac gating waveform display and EKG lead confirmation with gating control: trigger select, invert and reset.
- Respiratory waveform display.
- IntelliTouch Landmarking.
- AutoStart.
- Display of connected coils and coil status.
- Display of table location and scan time remaining.
- Screen saver.

Express Exam and ScanTools: The Express Exam and ScanTools includes a comprehensive suite of workflow features, advanced applications, and

parallel imaging capabilities to enable the user to harness the Simply Powerful capabilities of the scanner efficiently and effectively.

The automated workflow features of the Express Exam interface includes the Modality Worklist, Protocol Library, AutoStart, AutoScan, AutoVoice, Linking, and Inline Processing that complete much of the work for the user.

**Modality worklist:** The modality worklist (MWL) provides an automated method of obtaining exam and protocol information for a patient directly from a DICOM Worklist server. For sites with full DICOM connectivity, once a patient has been selected from the MWL, a new session is opened on the host interface and the relevant exam details are highlighted for the user.

**Protocol libraries and properties:** The MR system provides the user with complete control of protocols for simple prescription, archiving, searching, and sharing. The protocols are organized into two main libraries, a GE optimized set that are included with the system, and Site Authored.

**PratoCopy:** PratoCopy enables a complete exam protocol to be shared with the click of a mouse. The exam protocol can originate from either a library or previously acquired exam. This enables routine archive of protocols for emergency backup and simple management of libraries across multiple systems.

**Workflow Manager:** The Workflow Manager controls image prescription, acquisition, processing, visualization and networking and may fully automate these steps, if requested.

**AutoStart:** With AutoStart, once the landmark position has been set and the technologist leaves the room the Workflow Manager will automatically start the first acquisition in the exam.

**Linking:** Linking automates the prescription of images for each series in an exam. Once the targeted anatomical region has been located the Linking feature combines information from a prescribed imaging series to all subsequent series in the Workflow Manager.

**AutoScan:** With AutoScan enabled, the Workflow Manager will sequentially go through the list of prescribed series without any user interaction.

**AutoVoice:** The AutoVoice feature ensures that consistent and repeatable instructions are

presented to the patient for each and every exam. User selectable, pre-recorded instructions are presented at defined points in the acquisition. The AutoVoice feature includes instructions in over 14 languages and the user can create and include their own unique voice instructions for local needs.

**Inline processing:** For certain tasks, the user must accept the results, or complete additional steps prior to saving the images to the database. In these cases the data is automatically loaded into the appropriate tool, then the system will await further instruction by the user.

**Inline viewing:** Inline viewing allows the user to conveniently view, compare, and analyze images without having to switch to the Browser.

**Image fusion:** To better visualize tissue and contrast, multiple images from separate acquisitions can be overlaid on one another. High-resolution anatomical images can be automatically fused with functional data or parametric maps for improved visualization by the user. The data is registered using translation and rotation and distortion correction to ensure accurate

fusion.

Spin Echo: The single echo gold standard for generating T1, proton density and T2 images.

Fast Spin Echo (FSE), Fast Spin Echo-XL (FSE-XL): Uses a train of spin echoes to reduce total acquisition times and provide high resolution datasets.

Fast Recovery Fast Spin Echo (FRFSE): is an extension of the Fast spin Echo sequence and incorporates an additional refocusing pulse and 90 degree excitation at the end of the echo train.

FLAIR: T1 and T2 Fluid Attenuated Inversion Recovery (FLAIR) pulse sequences have been designed expressly for neuro applications. FLAIR allows suppression of signal from cerebrospinal fluid (CSF).

Double/Triple IR: These pulse sequences are included to allow black-blood imaging for studies of cardiac morphology. Triple IR adds fat suppression to black-blood imaging.

3DFRFSE: A sequence for creating high resolution, three-dimensional T2-weighted images of all anatomies and is especially useful for MR cholangiopancreatography (MRCP) studies.

Single-Shot Fast-Spin Echo (SSFSE): An ultra fast technique that permits complete image acquisition following a single RF excitation.

GRE, FGRE, SPGR, FSPGR: This suite of gradient echo techniques uses short TR and TE times to generate Proton Density, T1, T2, T2\* tissue contrast, or a combination thereof, in far less time than conventional spin echo acquisitions.

2D and 3D Dual Echo Gradient Echo: A vital tool for abdominal imaging. This variation on conventional gradient echo provides a pair of images for which the signals from water and fat either are in-phase or out-of-phase. By design, all of the images acquired within a single breath-hold are in perfect registration.

2D and 3D Time of Flight (TOF), 2D-Gated TOF: TOF Imaging and Enhanced 3DTOF Imaging are all ideal for MR angiography. Based on conventional gradient echo scanning, time of flight imaging techniques rely primarily on flow-related enhancements to distinguish moving from stationary spins.

2D Phase Contrast (2DPC), 3D Phase Contrast (3DPC): These techniques demonstrate flow velocities and directional properties in vessels and other moving fluids such as cerebral spinal fluid and aortic flow. These acquisitions provide the data for quantitative flow analysis.

2D MERGE: Multiple Echo Recombined Gradient Echo (MERGE) uses multiple echoes to generate high-resolution images of the C-spine with excellent gray-white matter differentiation.

By combining early echoes with high SNR and late echoes with improved contrast, the result is improved cord contrast within the spinal column.

3D MERGE: The 3D MERGE sequence has been optimized to generate clear tissue contrast in the cervical spine. The high in-plane resolution and thin slices enable excellent image reformats for better tissue visualization for all angles.

COSMIC (Coherent Oscillatory State acquisition for Manipulation if Image Contrast): COSMIC is a 3D imaging technique specifically tailored for cervical spine evaluation. The unique fluid-weighted contrast yields improved visualization of the cervical nerve roots and intervertebral disks.

**2D FIESTA:** FIESTA (Fast Imaging Employing STEady-state Acquisition) is designed to produce high SNR images extremely rapidly. The technique features an extremely short TR and fully balanced gradients to rephase the transverse magnetization at the end of each TR interval. As a result, this pulse sequence accentuates the contrast of spins with a high T2/T1 ratio, such as CSF, water and fat while suppressing the signal from tissues with low T2/T1 ratio, such as muscle.

**2D FatSat FIESTA:** With the added capability to suppress the signal from fat, this sequence generates excellent contrast between the vasculature and surrounding tissues.

**3D FIESTA:** The 3D FIESTA technique is especially useful for the rapid acquisition of high spatial-resolution images of static structures such as cochlea, internal auditory canal, or joints.

**3D FatSat FIESTA:** 3D FatSat FIESTA is advanced software designed for imaging of the coronary arteries. The use of VAST (Variable Sampling in Time) technology greatly shortens breath-holding requirements or allows for higher spatial resolution.

**BRAVO (BRAIn VOlume Imaging):** This IR-prepared T1-weighted 3D Gradient Echo imaging technique affords isotropic, whole-brain coverage with 1x1x1 mm resolution. Coupled with parallel imaging, this sequence produces superior gray white matter contrast in just 2 to 3 minutes.

**SPECIAL:** Spectral Inversion at Lipids is a spectral spatial inversion technique for fat saturation in 3D FGRE pulse sequences.

**LAVA:** LAVA is a three-dimensional (3D) spoiled gradient echo technique designed specifically to image the liver with unprecedented definition, coverage, and speed in a single breath hold. Excellent fat suppression, through a version of the SPECIAL technique customized for the liver, is one of the reasons for the high definition of anatomical structures.

**FastCINE:** This pulse sequence is included specifically for studies of cardiac function. Through the use of retrospective gating, it allows full R-R coverage with high multi-phase temporal resolution for excellent visualization of myocardial wall motion.

**iDrive Pro:** iDrive Pro brings real-time interactive imaging to the MR system, making it easier to generate detailed diagnostic information on just about any anatomy, including organs that are subject to motion artifacts, such as spine, heart, diaphragm and GI tract.

**SmartPrep:** SmartPrep uses a special tracking pulse sequence to monitor the MR signal through a user-prescribed volume to detect the arrival of an injected contrast bolus and to trigger the acquisition when the contrast agent has arrived in the target tissue.

**EchoPlanar imaging** enables rapid imaging for such studies as functional brain mapping. Both EchoPlanar and FLAIR EchoPlanar techniques make it easier to generate neuro studies from patients who cannot or will not stay still long enough for conventional techniques.

**Diffusion EchoPlanar Imaging** is useful for detecting acute and hyper-acute stroke. Its functionality includes Single Shot EPI and FLAIR EPI, Multi-NEX capability, isotropic Diffusion-Weighting imaging and on-line image processing. To enhance body diffusion, Adiabatic SPectral Inversion Recovery (ASPIR) and STIR saturation techniques are supported.

Array Spatial Sensitivity Encoding Technique: ASSET imaging option is an image-based parallel imaging technique used to speed data acquisition. For temporally sensitive acquisitions, ASSET reduces image blurring and motion, enables greater anatomical coverage, and reduces SAR. Parallel imaging acceleration factors up to 3.0 are supported in one dimension depending on the coil selected.

Auto-Calibrating Reconstruction (ARC): Is a GE exclusive self-calibrated parallel imaging technique that eliminates breath-hold mismatch errors by imbedding the calibration data within the scan data. In addition, this unique reconstruction permits small FOV imaging by minimizing focal parallel imaging artifacts from the exam. Supporting both 1D and 2D acceleration, ARC supports high acceleration factors for reduced scan time.

Automated 3D GradWarp is automated 3D distortion correction software that corrects for spatial distortions induced by non-linearities in the gradient field. The process is completely automated and is imbedded with the MR data reconstruction process. It is compatible with 2D and 3D imaging acquisitions.

IVI: The Interactive Vascular Imaging (IVI) user interface allows operators to quickly remove background from MRA images in order to generate angiographic and maximum intensity projections (MIP) in multiple scan planes.

Multi-Projection Volume Reconstruction (MPVR): MPVR provides quick and easy generation of reformations through any 3D MR data sets.

FuncTool Performance package enables advanced MR-image post-processing using a wide range of sophisticated algorithms, including eADC maps, correlation coefficients for mapping of motor strip and visual/auditory stimuli, NEI (Negative Enhancement Integral), MTE (mean time to enhance), Positive Enhancement Integral, Signal Enhancement Ratio, Maximum Slope Increase, Maximum Difference Function, Diffusion Tensor Post-Processing, (requires DTI option), 3D CSI Post Processing.

MR Pasting is an image analysis software package that facilitates the display and filming of multiple station MR data sets in body applications (total spine, total body), as well as peripheral MR angiography data. MR Pasting will automatically register and combine multiple acquisition stations into a single image of covered anatomy.

BrainSTAT post-processing automatically generates parametric maps for neuro Blood Flow, Blood Volume, Mean Transit Time, and Time to Peak signal intensity. A Gamma Variant fitting algorithm is used to automatically estimate the arterial input function, then calculate the quantitative values for the four parametric maps.

R2\* post-processing generates quantitative relaxation maps. With the Express Exam workflow, this feature can automatically generate R2\* maps (in units of Hz) and T2\* maps (in units of milliseconds) after the multi-echo data has been acquired.

eDWI is an acquisition and post-processing technique designed to enable high SNR diffusion imaging of the brain and liver in short scan times. The eDWI suite includes Multi-B, Smart NEX 3-in-1, and Smart NEX capability, and tetrahedral encoding capabilities.

SWAN is a 3D volumetric technique designed to be sensitive to variations in susceptibility between different tissues. SWAN acquires multiple echoes at

different echo times in order to highlight areas of increased T2\* (susceptibility induced) decay. The multi-echo technique also helps generate images with higher SNR than comparable techniques that use a single echo.

READY Brain automates scan prescription for brain exams helping to enhance precision, repeatability and workflow. Once a whole brain localizer is completed READY Brain uses automated detection and registration techniques to graphically prescribe scan series.

TRICKS is a dynamic 3D volumetric technique designed to enable high-resolution, time-course imaging of the vasculature without the need for timing or triggering. TRICKS uses elliptic centric data collection to optimize contrast resolution, auto-subtraction for background suppression and a complex segmented data recombination technique to accelerate imaging without compromising spatial detail. As a result, TRICKS enables reliable, high quality vascular imaging with the ability to extract optimum phases of data.

Also included is the host computer, keyboard, mouse, monitor, and a quadrature transmit/receive RF head coil.

1 Optima MR450w with GEM Magnet Design

To improve the patient experience and provide high image quality, no other component of an MRI system has greater impact than the magnet. The Optima MR450w system features a short, wide bore magnet that delivers a large field of view. The magnet geometry has been optimized to reduce patient anxiety by providing more space in the bore and more exams with the patients head outside of the magnet. The 50cm field of view provides uniform image quality and can reduce exam times since fewer acquisitions may be necessary to cover large areas of anatomy. Complemented by GE's active shielding technology, the Optima MR450w has very flexible installation specifications to provide easy siting. And with zero-boil-off magnet technology, helium refills are effectively eliminated, thus reducing operating costs and maximizing uptime.

Magnet:

- Manufactured by GE Healthcare.
- Operating field strength 1.5T (63.86 MHz).
- Active magnet shielding.
- Zero boil-off Cryogenics.
- Magnet length 145cm.

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- Patient Aperture 76 cm.
  - Patient Bore Diameter 70cm.
  - Patient Bore Length 105cm.
  - Maximum Field of View 50 cm x 50 cm x 50 cm.

Magnet Homogeneity: Typical ppm and Guaranteed ppm shown.

- 10cm DSV 0.007 and 0.02.
- 20cm DSV 0.035 and 0.06.
- 30cm DSV 0.11 and 0.18.
- 40cm DSV 0.5 and 0.7.
- 45cm DSV 1.2 and 1.6.
- 50x50x45cm 2.3 and 3.6.

- 50cm DSV 3.3.

DSV = Diameter Spherical Volume. Homogeneity for an elliptical volume of 50cm (x,y) by 45cm (z) dimension volume is shown for reference. Fringe field (axial x radial):

- 5 Gauss = 4.0 m x 2.5 m.
- 1 Gauss = 6.2 m x 3.7 m.

Quiet Technology: GE has implemented Quiet Technology on critical components of the Optima MR system to reduce acoustic noise and improve the patient environment. This technology enables full use of the eXtreme Gradient Platform for excellent image quality, while maintaining a safe environment for the patient. The technology encompasses the gradient coil, RF body coil, and magnet mounting.

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#### Optima MR450w Preinstallation Collector

The Preinstallation Collector delivers to the site in advance of the magnet and main electronic components. This facilitates the later delivery and installation of supporting electronics. The following are the main components in the Preinstallation collector:

- Heat exchange cabinet for distribution of chilled water.
- Primary Penetration wall panel for support of the penetration cabinet.
- Secondary Penetration wall panel for support of gradient filters, helium cables, and chilled air and water.
- Helium cryocooler hose kit.
- Cabinet Dollies are provided to install the System Cabinets. Dollies remain the property of GE to be returned after cabinets are in place at



customer site.

1 MR450w Dock and 32-Channel Switch Collector

The MR450w Dock and 32-Channel Switch collector provides the interface between the magnet and GEM Express Patient Table with IntelliTouch. Also included is the RF signal switching hardware that routes the input signals to the respective OpTix receivers.

1 Optima MR450w Cable Configuration - A

To accommodate various electronic and scan room configurations and sizes, the MR450w has preset lengths of cables and connector kits to speed system installation. This cable collection is compatible with fixed and relocatable building configurations.

1 Vibroacoustic Damping Kit

Material in the Vibroacoustic Damping Kit can significantly attenuate the transmission of gradient-generated acoustic noise through the building structure to nearby areas, including adjacent rooms and floors above or below the MR suite. If this kit is applied during the installation of a new magnet, no additional service charges are necessary. However, installation of the Vibroacoustic Damping kit under an existing magnet requires special steps. The steps to prepare the site and steps to install, such as modifications to the RF screen room, and other magnet rigging, modifications to the RF screen room, and other finishing work, are not covered in the pricing.

1 MR450/MR750 Main Disconnect Panel

The Main Disconnect Panel safeguards the MR system's critical electrical components, by providing complete power distribution and emergency-off control.

1 Label Collector Kit - English

1 English Keyboard

Required for our operator console. This keyboard is ergonomically designed to keep your staff comfortable even through the longest shifts. The scan control keyboard assembly has an intercom speaker, microphone, volume controls and emergency stop switch.

1 Optima MR450w 23.1 Software and Technical Publications

- 1 Cable Concealment Kit - MR450w GEM, MR750w, MR750w GEM  
The Cable Concealment Kit option accommodates a wide-range of scan room ceiling heights and is designed to provide a clean-look installation by concealing the overhead cabling from view.
- 1 Operator's Console Table  
Wide table designed specifically for the color LCD monitor and keyboard.
- 1 1.5T Calibration Phantom Kit  
This 1.5T calibration kit contains a large volume shim phantom, a daily quality assurance phantom, an echo-planar calibration phantom, and the associated loader shells.
- 1 Calibration Kit Phantom Holder Cart
- 1 Discovery Advanced Imaging Pak  
The Advanced Imaging Pak includes the following:
  - IDEAL and Flex
  - PROPELLER 3.0
  - Inhance 2.0 Suite
  - Cube 2.0

IDEAL

Generate consistent tissue contrast and reduce the number of series in an exam with IDEAL. The IDEAL acquisition and reconstruction methods can generate a water-only, fat-only, in-phase and out-of-phase data sets for clear tissue differentiation in a single series. In addition susceptibility artifacts common to MR imaging such as incomplete or inaccurate fat saturation, and chemical shift can be eliminated as well. The IDEAL application acquires multiple echoes and uses unique reconstruction routines to generate the four image contrasts and correct correct for errors due to tissue susceptibility. IDEAL is ideally suited for imaging anatomical regions such as the brachial plexus, neck, spine, chest, foot, ankle, and axilla where where inhomogeneous magnetic fields may yield failures with traditional fat saturation techniques. IDEAL is compatible with Fast Spin Echo, 3D Gradient Echo and parallel imaging.

For fast T1w multi-phase imaging of the abdomen and pelvis, LAVA Flex acquisition uses 2D ARC parallel imaging to reduce artifacts from breath hold misregistration and incorrect FOV placement while providing up to four types

phase. LAVA Flex requires LAVA which is included in the Express Exam ScanTools and is standard with the MR750, MR450, and MR450w system.

For fast T1w multi-phase imaging of the breast, VIBRANT Flex acquisition uses 2D ARC parallel imaging to enable higher acceleration factors over ASSET parallel imaging, and reduce artifacts from breath hold misregistration and eliminates artifacts due to incorrect FOV placement, while providing up to four types of T1w-based tissue contrasts: water-only, fat-only, in-phase and out-of-phase. VIBRANT Flex requires VIBRANT, which must be purchased separately.

The IDEAL method is compatible with ASSET and ARC parallel imaging and is optimized based on the anatomy of interest.

#### PROPELLER 3.0

PROPELLER 3.0 uses an innovative k space filling technique and post processing algorithms to help reduce and correct for motion and minimize magnetic susceptibility artifacts. Radial k space filling pattern causes oversampling of the k space center, generating more SNR and providing excellent tissue contrast. Radial k space filling is inherently less sensitive to motion compared to the Cartesian method. In addition, a sophisticated motion correction post-processing algorithm is deployed to reduce effects of motion originating from CSF flow, breathing, patient tremor or voluntary movements. PROPELLER 3.0 has been enabled for all anatomies, and T1 FLAIR, T2, T2 FLAIR, DWI as well as PD contrasts in all planes.

#### Inhance (Inherent Enhancement) Suite Non-Contrast MRA

The Inhance application suite consists of several sequences designed to provide high-resolution images of the vasculature with short-acquisition times and excellent vessel detail. These sequences include:

**Inhance Inflow IR:** Inhance Inflow IR is a new angiographic method, which has been developed to image renal arteries with ability to suppress static background tissue and venous flow. This sequence is based on 3D FIESTA, which improves SNR, as well as produce bright blood images. A selective inversion pulse is applied over the region of interest, which inverts arterial, venous, and static tissue. At the null point of

the venous blood, an excitation pulse is applied to generate signal. The net result is an angiographic image with excellent background suppression and without venous contamination. Uniform fat suppression is achieved using a spectrally selective chemical saturation (SPECIAL) technique to provide

uniform fat suppression, while respiratory gating compatibility reduces respiratory motion artifacts during free-breathing renal exams.

**Inhance 3D Velocity:** Inhance 3D Velocity is designed to acquire angiography images in brain and renal arteries with excellent background suppression in a short scan time. By combining a volumetric 3D phase contrast acquisition with parallel imaging, efficient k-space traversal, and pulse sequence optimization, Inhance 3D Velocity is faster than previous generations and is capable of obtaining complete neurovascular imaging in 5-6 minutes. Furthermore, background suppression is improved by the optimized pulse sequence design, resulting in better visualization of small branches. Respiratory trigger is also compatible with 3D Velocity to enable abdominal angiography, especially renal arteries. The result is the Inhance 3D Velocity

technique offers improved productivity and image quality.

Inhance 3D DeltaFlow is a 3D non-contrast enhanced MRA application for peripheral arterial imaging. Inhance 3D DeltaFlow is based on the 3D Fast Spin Echo technique and it utilizes the systolic and diastolic flow differences to help generate arterial signal contrast. A subtraction of the systolic phase from the diastolic phase images results in arterial only images, with good venous and background suppression. Interleaved acquisition and parallel imaging (ASSET) with optimized k-space trajectory helps reduce motion misregistration and improve vessel visualization respectively. In addition, with the use of partial-Fourier and coronal plane acquisition, the scan time is considerably reduced. Inhance 3D DeltaFlow is a robust 3D NCE MRA technique that provides excellent, high SNR visualization of peripheral arteries.

Inhance 2D Inflow: The Inhance 2D Inflow pulse sequence is designed to acquire angiography images of arteries, which follow almost a straight path, i.e. femoral, popliteal, carotid arteries, etc. Arterial blood flow is faster during systolic phase and slows down during diastolic phase. Inhance 2D Inflow is designed to acquire data during systolic phase and offers the following:

- Optimized spatial saturation gap to improve fat suppression and background suppression. With this saturation gap optimization, higher views per segment (vps up to 48) could be used, resulting in significant scan time reduction.
- Peripheral Gating that minimizes the pulsatile artifacts.
- Optimized View Ordering to improve arterial signal.
- ASSET acceleration compatibility to reduce scan time.

#### Cube 2.0

The Cube technology can eliminate multiple independent two-dimensional datasets with a single three-dimensional volume (or cube) of high resolution data to provide better image quality in shorter exam times. Compared to traditional 3D fast spin echo acquisitions, Cube uses a combination of optimized echo train pulses and ARC parallel imaging to reduce SAR, extend the duration of the acquisition echo train, and reduce the echo spacing. The system automatically adjusts the echo train flip angle amplitudes to provide optimized tissue contrast based on the specific tissue T1 and T2 characteristics and prescription parameters. To further reduce exam time and improve image

quality, Cube is compatible with ARC self calibrating parallel imaging.

Isotropic Cube datasets may be automatically reformatted from a single acquisition into any plane, without gaps, and with the same resolution as the original plane for improved anatomical review and tissue visualization. The maximum parallel imaging acceleration is dependent upon the surface coil in use.

High resolution Cube data can be acquired with T1, T2, T2 FLAIR, or Proton density weighted tissue contrasts for neuro, abdominal, pelvic, and musculoskeletal imaging.

## Discovery/Optima Cardiac Pak

The Cardiac Pak includes the following:

- MR Echo
- Tagging
- 3D Heart with Cini IR, 3D MDE and Navigator

## MR Echo

MR Echo is a dedicated Cardiac MR interface that eases cardiac workflow and combines leading edge pulse sequences used specifically in cardiac imaging. It includes:

2D FIESTA imaging for cardiac wall motion visualization both in classic gated mode and with a real-time ability that needs no gating nor patient breath-holding. The real time imaging combines the resolution of MRI with the ease of use of Echocardiography and hence the product name MR Echo. The real time and gated versions of the wall motion pulse sequence use a FIESTA sequence for superb bright blood pool images which contrast against a dark myocardium for maximum contrast to noise ratio. FIESTA combined with parallel imaging permits acquisition times of approximately 50ms, which

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results in 20 frames/second in the real time mode.

Time Course imaging is performed with MR Echo and includes two new pulse sequences to visualize the myocardial tissue at a single phase over a period of time. The first of these is an FGRE pulse sequence which uses the GE exclusive notched saturation pulse to maximize contrast to noise ratio. The second is a FIESTA base time course technique, which permits time course imaging in multiple planes simultaneously Both techniques use ASSET parallel imaging speed up techniques. 'Lock coverage' is a feature within MR Echo that automatically adjusts the slice gap and R-R intervals to match the desired acquisition rate. This is particularly useful in stress imaging where there is a change in heart rate and a desire to maintain (or lock) the coverage of the time course dataset.

Myocardial Evaluation is also within the MR Echo interface to allow scar tissue assessment of the heart.

Autovoice can be combined with all pulse sequences within MR Echo allowing automated voice commands in over seven differing languages.

## Cardiac Tagging

With Cardiac Tagging, an even distribution of spatial saturation lines are applied across the myocardium in the FastCINE Gradient Echo pulse sequence to enable cardiac wall motion assessment. Cardiac Tagging allows the application of 1D diagonal stripes or 2D grid saturation pulses once per R-R interval immediately following the R-wave trigger. Resulting images demonstrate motion (or lack of motion) effects.

## 3D Heart

3D Heart is a 3D Fat Sat FIESTA sequence (Optimized for 1.5T) or 3D IRPrep FGRE sequence (Optimized for 3T) that provides whole-heart coverage for coronary artery imaging or cardiac chamber imaging. It employs a T2 preparation pulse at 1.5T to provide myocardial suppression for better coronary visualization. A multi-slab localizer allows easy whole-heart prescription, and increase inflow effect for high vessel conspicuity. A

navigator echo pulse that detects motion of the diaphragm is utilized to enable free breathing acquisition. The navigator has been optimized to improve robustness, and employs prospective real-time motion correction to improve motion suppression and increase scan efficiency. The multi-slab acquisition minimizes the effect of respiratory drift and heart rate variability on image quality. An optimized phase ordering and steady state preparation has also been used to improve CNR and SNR.

As this sequence supports 3D IRPrep FGRE acquisition mode on both 1.5T & 3T, it can also be used for 3D MDE acquisition. With the

purchase of 3D Heart, 3 additional options (3D MDE, Cine IR and Cardiac Navigator) would be included.

Cine IR is a conventional ECG-gated, gradient recalled echo FASTCARD or FASTCINE acquisition sequence with an inversion recovery (IR) preparation. A single adiabatic inversion pulse is generated upon detection of the cardiac R-wave to trigger the multi-phase readout. Each image (i.e., cardiac phase) is at a progressively longer TI time; up to 30 TI times can be captured. Cine IR can be used to approximate the myocardial null point for a subsequent delayed enhancement (MDE) study for myocardial viability.

1 MAVRIC SL

MAVRIC SL is a new advanced magnetic resonance imaging technique for imaging soft tissue and bone near MR conditional metallic devices. MAVRIC SL is designed to greatly reduce susceptibility artifacts, compared to conventional fast spin echo techniques, and is suitable for use on all patients cleared for MR exams.

1 3D ASL (Arterial Spin Labeling)

3D ASL utilizes water in arterial blood as an endogenous contrast media to help visualize tissue perfusion and provide quantitative assessment of cerebral blood flow (CBF) in ml/100 g/min. The quantitative CBF maps can be generated and stored in DICOM format.

3D ASL deploys stacked spiral FSE readout with modulated flip angle to acquire 3D data with increased SNR and less image distortion compared to conventional 2D EPI-based ASL techniques. A pulsed-continuous labeling is applied to label arterial blood close to the imaging volume thus improving conspicuity of flowing blood. Selective, interwoven pulses are then used to saturate and invert the imaging volume, in order to achieve better background suppression, and reduce sensitivity to motion. The isotropic 3D volume data can be reformatted to axial, sagittal, coronal or oblique planes.

3D ASL helps generate robust, reproducible images and perfusion maps with high SNR, reduced motion artifacts and less distortion in high magnetic susceptibility regions.

1 VIBRANT

VIBRANT (Volume Imaged BREast Assessment) is a fast, high resolution T1

weighted imaging sequence and application optimized for evaluation of breast tissue. VIBRANT uses GE exclusive technology and parallel imaging acceleration to quickly acquire multi-phase data without compromising spatial resolution. This 3D gradient echo technique, optimized for sagittal or axial acquisitions, uses an optimized inversion pulse and dual-shimming technology that yields enhanced image contrast and robust, uniform, bilateral fat suppression. Auto subtraction of the first dataset is also available to further background suppression. For enhanced speed, VIBRANT is compatible with both ASSET and ARC parallel imaging with acceleration factors up to four. As a result, VIBRANT enables reliable, high quality breast imaging.

For improved tissue contrast, VIBRANT is compatible with Flex imaging (sold separately). VIBRANT Flex acquisition will provide a water-only, fat-only, in-phase and out of phase data sets in a single acquisition and produce images with significantly reduced chemical shift and susceptibility artifacts. This is critical for evaluation of the axilla and chest wall.

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#### MSK Combo Pak for MR450w GEM

The MSK Combo Pak includes the following coils:

- 1.5T 3-channel Shoulder Array
- 1.5T 8-channel Foot/Ankle Array
- 1.5T 16-channel GEM Flex Suite-Standard

The 3-channel Shoulder Array offers the increased signal-to-noise characteristic of phased-array technology, along with a unique sleeve design that delivers exceptional joint-imaging capabilities. The coil provides clear definition of the shoulder joint, specifically the head of the humerus, clavicle, acromion, supraspinatus muscle and ligaments. Patient comfort pads and restraining straps are included.

The 8-channel Foot/Ankle coil produces high-resolution images of the foot and ankle by incorporating an 8-channel phased array design in a unique "ski" boot design. The unique coil design has excellent distal coverage and supports multiple foot positions for optimizing studies. Parallel imaging is supported to reduce acquisition times.

The GEM Flex Suite is a versatile set of high density 16-channel receive coils designed to give high quality images in a wide range of applications. The high degree of flexibility is particularly advantageous when imaging patients that do not fit the constraints of rigid coils, improving the patient and technologist experience. Consistent with the GEM philosophy, the size and shape of the elements in each flex coil have been optimized for high SNR and parallel

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imaging for the volume embraced by the coil.

This Standard set provides the Medium and Large flex coils, and a knee stabilization fixture that is designed for compatibility with the Express patient table with GEM. With these two coils and the included accessories, this suite covers a broad range of musculoskeletal applications, including hand, wrist, elbow, shoulder, hip (unilateral and bilateral), knee, ankle, and foot. In addition, the coils' versatility has been shown in a range of general purpose applications that include head, neck, and spine exams.

Includes:

- 1.5T GEM Flex Coils - Medium and Large Arrays.

- 1.5T GEM Flex Interface Module 16-channel Fixed, P-Connector.
- GEM Flex Knee Stabilization fixture for flat table.
- GEM Flex GP Strap and Interface Module Cover.
- GEM Flex Cable Take-up Pad and General Purpose Stabilization Pad.

This package is only compatible with the 1.5T Optima MR450w with the GEM Patient Table.

## 1 MR450w GEM Suite - Core Components

The Geometry Embracing Method (GEM) Suite of surface coils and accessories improves image quality and patient comfort while simplifying workflow for the operator. The GEM design ensures that the geometry of the surface coil matches the geometry of the patient. By matching size and shape of the coil with the size and shape of the patient, the GEM Suite embraces the natural shape of the anatomy thus improving image quality and patient comfort. In addition, the GEM Suite is fully integrated into the Express Patient Table and provides a simple method for the operator to prepare each patient with minimal effort and maximum productivity.

The core components of the GEM Suite include the fully integrated Posterior Array, the Head and Neck Unit, and the Large Anterior Array. Each component of the GEM Suite may be used individually or combined together to increase anatomical coverage. The GEM Suite of surface coils is used with the fully detachable GEM Express Patient Table. This combination of technologies can dramatically simplify technologist and radiographer workflow and enables the patient to be positioned head-first or feet-first for all exams.

**GEM Posterior Array:** The GEM Posterior Array (PA) is designed to provide optimum element geometry for each targeted anatomy. Unlike matrix arrays that use the exact same coil element size and shape for all anatomy, the GEM

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PA uses different element geometries for the cervical-to-thoracic spine transition, thoracic and lumbar spine, and body and cardiac anatomy. This approach maximizes signal-to-noise by matching the size and shape of the coil elements to the size and shape of the targeted anatomy. Four different sizes and shapes of elements are used throughout the design, and parallel imaging is supported in all three planes.

The GEM PA is symmetrically positioned within the patient cradle and is fixed in location. This design enables all components of the GEM Suite to support either head-first or feet-first patient orientation to support either patient preference.

The GEM PA is invisible to additional surface coils when they are placed directly on top of the surface. Unique electronic decoupling circuits ensures there is no electrical interference between surface coils. This feature is critically important for patient and operator workflow and enables the PA to be stationary for all exams, including breast and musculoskeletal exams where dedicated coils are typically used for these anatomies.

**PA Coil Specifications:**

- S/I Coverage: 100cm.
- Head or Feet-first imaging.
- Elements: 40.

The GEM PA Array is designed to be used in conjunction with the GEM Head and Neck Unit, the Large Anterior Array, the Small Anterior Array (purchased

separately) and the GEM Peripheral Vascular Array (purchased separately). In addition, the PA may co-reside with a suite of flexible coils or dedicated anatomy-specific coils (each purchased separately). Additional GE PA coils may be purchased for use in additional patient tables.

**GEM Head and Neck Unit and Comfort Tilt:** The GEM Head and Neck Unit (HNU) is a standard component of the GEM Suite. The HNU consists of four imaging components, a HNU Base Plate and three anatomy-optimized anterior components. The inclusion of separate anterior components ensure that the geometry of the surface coil matches the geometry of the patient to improve both image quality and patient comfort. The three anterior components are the Neuro Vascular

Array, a dedicated Cervical Array, and the Open Face Adapter.

The HNU Base Plate supports the patient's head and includes three rows of elements separated in both the superior/inferior and right/left dimensions. Any of the three separate anterior arrays may be connected to the Base

Plate.

The Comfort Tilt is a variable-degree ramp that may be positioned under the HNU. The Comfort Tilt can elevate the superior end of the coil to match the curvature of the patient's head and thoracic spine angulations. The operator may easily adjust the angle of tilt with a single motion.

The HNU Base Plate, Comfort Tilt, and any of the anterior components may be positioned at either end of the GEM Express Patient Table to support head-first or feet-first imaging. The HNU Base plate may remain in place for all body, vascular, spine, and the majority of musculoskeletal exams for either patient orientation.

**GEM Head and Neck Unit Coil Specifications:**

- Length: 49.5 cm (19.5 in).
- Width: 38.8 cm (15.3 in).
- Height: 36.8 cm (14.5 in).
- Height: 33.6cm (13.2in) with Cervical Array.
- Height: 25.7cm (10.1in) with Open Face Adapter.
- Weight: 8.8kg (19.4 Ib).
- S/I Coverage: 42 cm.
- R/L Coverage: 50 cm.
- Head or feet-first imaging.
- Elements: up to 28 elements in the Field of View.

**GEM Anterior Array:** The GEM Anterior Array (AA) is a standard component of the GEM Suite that facilitates chest, abdomen, pelvis, and cardiac imaging. The GEM AA is lightweight, flexible, thin, and pre formed to conform to the patients size and shape. With 54 cm of S/I coverage, the coil permits upper abdominal and pelvic imaging without repositioning the patient.

**GEM Anterior Array Specifications:**

- Length: 56.2 cm (22.1 in).
- Width: 69.8 cm (27.5 in).
- Height: 4.4 cm (1.7 in).
- Weight: 2.4 kg (5.3 Ib) resting on patient.
- Weight: 3.6 kg (7.9 Ib) with cable.

- S/I Coverage: 54 cm.
- Head or feet-first imaging.
- Elements: up to 36 elements in the field of view when used with the GEM Posterior Array.

#### 1 MR450w 1.5T with GEM 8-Channel Breast Array with Biopsy Grids

The Breast Array generates high-definition MR breast images with the Optima MR450w with GEM system. The design is optimized for use with ASSET and ARC parallel imaging techniques to accelerate image acquisition for both 2D and 3D data sets. The eight element phased-array coil helps ensure excellent temporal and spatial resolution, patient after patient. The array is compatible with VIBRANT, VIBRANT-flex, IDEAL, Fast Spin Echo, Fast Gradient Echo, spectroscopy and diffusion imaging sequences. It provides uncompromised lateral and medial access for interventional purposes. This catalog contains a set of MR compatible biopsy grids that are compatible with this coil.

This coil is only compatible with the GEM Express Patient Table on the Optima MR450w system.

#### 1 MR Accessories Kit

The Accessories Kit combines a physician's chair, a complete set of positioning pads, and a set of Velcro security straps.

The Physician's Chair has padded arms for comfort and comes in a charcoal gray color that blends with any environment.

The MR Accessories Kit contains a complete set of coated positioning pads in a lightweight tote case that can be a permanent fixture in an MR suite or can be easily carried from room to room. The following pads are included: 1 knee rest, 1 knee coil insert, 1 extremity rest, segment table pads, 4 body wedges, 4 rectangle stack pads, and 2 rectangle elbow pads.

The Velcro Security Straps include one 14 inch wide set and one 6 inch wide set.

#### 1 Medrad Spectris Solaris EP MR Injection System

Medrad Spectris Solaris EP MR injector for use in all MR scanner field strengths up to and including 3.0T. Optimized touch-screen for fewer keystrokes, KVO (keep vein open) allows patient to be prepared before beginning the scan. Larger 115 ml saline syringe for longer KVO or multiple flushes. Includes cables and starter kit...E

NOTE: GE is responsible for unpacking, assembly, and installation of equipment. Medrad will be available for technical assistance by phone at (412)767-2400. An additional charge will apply for on-site installation

assistance. Medrad will be responsible for operational checkout, final calibration, in-service of the equipment, and initial applications training. Please contact the local Medrad office two weeks in advance of installation.

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#### 700 VA Partial System UPS - MR

Tested with all MR system computers, the 700VA Partial System UPS provides reliable, clean, consistent power for the data processing portion of the MR imaging system. The use of the double conversion UPS enables the MR system data processing portion electronics to operate when there is a power anomaly or total power loss. Valuable data and the system operating software are protected, if there is an extended outage the UPS allows for an orderly shutdown of the system.

#### FEATURES/BENEFITS

- True double-conversion, online technology provides reliable operation and uninterrupted glitch free power
- Automatic frequency selection eases startup, i.e., 50 or 60 Hz compatible
- Integral Electronic Static Bypass switch means zero transfer time
- Improves user productivity, system reliability, reduces service costs and increases system uptime
- Advanced Battery Management (ABM) software monitors / indicates battery health and improves battery service life

#### SPECIFICATIONS

- Dimensions (H x W x D): 9.09" x 6.3" x 13.9"
- Weight: 26 lbs.
- Input Voltage Range: Single Phase 80-138 V
- Input Frequency Range: 47-70 Hz
- Rating: 700 VA / 630 W

#### COMPATIBILITY

- MR Systems

#### NOTES

- This is a partial system UPS - it covers only the computer, not the entire MR imaging system. After a power event portions of the system will have to be reset before operation can resume
- Customer is responsible for rigging and arranging for installation with a

certified electrician

- ITEM IS NON-RETURNABLE AND NON-REFUNDABLE

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TIP Discovery and Optima Family Training 10 Days Onsite Plus 10 Hrs TVA

The TIP Training Choices program is designed for CURRENT GE customers WITHOUT HDx experience who purchase a Discovery or Optima system. Training is delivered onsite at the customers facility and instructs students in start-up operation of the system and introduces participants to the system design, workflow, new options and clinical applications included. Extended TVA support ensures learners maintain performance over the long term.

This training program must be scheduled and completed within 36 months after the date of product delivery.

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### **NonProducts**

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Rigging

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### **Discovery MR750 3.0T IB Options**

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MR Safety Warning Kit - English

Maintaining awareness around both patient and personnel safety is of paramount concern. This versatile kit contains signage in the English language that can be posted around the MR suite to heighten awareness of a high field MR system and the special precautions that ensure the safety of patients, technologists, and other people who come into close proximity with the MR system.

## Options

Qty	Description
1	<p>PROSE Spectroscopy</p> <p>PROSE (PROstate Spectroscopy and Imaging Exam) is an image-guided clinical imaging and spectroscopy package that allows users to acquire high-resolution prostate-gland images using optional Surface Coil Intensity Correction (SCIC) - as well as volume localized water/lipid-suppressed hydrogen spectra and multi-voxel spectroscopic images via endorectal and phased-array coils.</p> <p>The result is invaluable diagnostic information about the relative concentrations of in vivo metabolites, acquired non invasively. The data can be displayed as individual spectra or as multi-voxel spectroscopic images. Just as important, this capability is easy to use. Automated acquisition setup includes auto homogeneity adjustment.</p>
1	<p>Vanguard Breast MRI Table for Discovery MR450 and Optima MR450w 1.5T-forward production</p> <p>The Vanguard Breast MRI Table for the MR450 and MR450w 1.5T platforms includes a 16-channel receive-only, high-density RF coil designed to produce images with optimal signal to noise ratio and uniform coverage for breast imaging. The Variable Coil Geometry of this product allows imaging coils to be customized for each breast of every patient, improving signal-to noise ratio over fixed coils. This results in the ability to resolve detail in morphology, which can lead to better breast cancer management and treatment options.</p> <p>The open design of the Vanguard patient support allows maximum access to the breast for ease of positioning and intervention, while the coils can be adjusted for different sized breasts and different areas for intervention. The coils can easily be moved medially and laterally, as well as anteriorly and posteriorly, providing the greatest flexibility in coil and grid placement. This permits optimal access for targeting in all quadrants of the breast. The Sentinelle Vanguard for GE is universally compatible with leading biopsy devices and localization needles.</p> <p>The Sentinelle Vanguard for GE offers a detachable table with comprehensive features storage drawers, tray tables, biopsy grids, padding, safety rails, movable sternum supports and integrated lighting - that work together to improve workflow. Patients can be prepared outside the MRI suite before and after imaging and intervention.</p> <p>Requires 22.0 software or higher.</p>

## GE Optima MR450w Heat Exchangers - 49kW (20 Tons)

Cooling for your GE Healthcare MR system has never been so easy. GE Healthcare has partnered with the Glen Dimplex Group, a world leader in cooling systems, to offer heat exchangers designed to meet the needs of your Discovery MR System. Now you can look to GE Healthcare for your entire MR purchase and support.

This heat exchanger is highly reliable and the only unit verified to perform with the new platform of GE Healthcare MR systems. As part of your integrated GE Healthcare solution, you'll work with a single contact throughout the whole installation. A Project Manager of Installation will help with building layout, room designs, delivery and installation - every step until your system is ready to scan. Our team will work seamlessly with architects, contractors and your internal team to help ensure timely, cost-effective completion.

Once your cooling system is running, you'll get fast, highly-skilled service support managed through GE Healthcare - with the same quality and response time you expect from your MR system.

### FEATURES AND BENEFITS

- Designed to provide stable fully dedicated cooling for your MR system's needs
- Water/glycol outdoor-air-cooled heat exchangers to support your highest exam volumes and your full range of diagnostic procedures
- Redundant fluid pumps with automatic switchover let you keep operating with no loss of cooling even if one pump goes down
- Quad compressor, dual tandem refrigeration circuit design saves on energy while your system smoothly transitions through the 10% to 100% heat load capacity cycles of patient scanning and idling
- Quiet operation between patient exams and overnight - ideal for facilities in residential areas
- Comes with installation support, installation visits, preventative maintenance visit and 1 full year of parts and labor warranty
- Installation support includes: support through GE's Project Manager of Install, GE's Design Center, technical support from the Glen Dimplex company, two (2) installation visits
- Comprehensive and quality service rapidly delivered through our CARES ~~28~~/29

service solution

- 65 gallons of 100% glycol concentrate for complete system filling and diluting
- Wall mounted remote display panel provides the ability to monitor the system's operation and indicates possible system errors
- Filter kit with flow meter helps to ensure purity of water prior to entry to the MR system
- Rust inhibiting configuration specifically designed to deal with corrosive environments typical within 10 miles of coastline
- Highly recommended that Vibration Isolation Spring Kit (E8911CJ) be added for systems that will be roof top mounted

#### SPECIFICATIONS

- Net Cooling Capacity: 49 kW / 20 Ton
- Maximum Coolant Flow: 35 gpm (132 l/m)
- Coolant Outlet Temperature: 48 F (8.9 C)
- Coolant Temp Stability:  $\pm 1.8$  F (  $\pm 1.0$  C)
- Max Coolant Pressure : 70 Psi (4.8 Bar)
- Refrigerant: R407C
- Ambient Temp Range: -20 to 120 F (-30 to 50 C)
- Condenser Air Flow (Approx): 18,000 Cfm
- Tank Capacity: 100 gal (378l)
- Flow Meter Range: 4-40 gpm
- Filters: 50 micron cartridge filters
- Supply Voltage: 460v / 3 phase / 60 Hz
- Coolant Connections: 2" NPTF
- Overall Size (L x W x H) 44" x 136" x 84.5"

#### COMPATIBILITY:

- GE Optima MR450w 1.5T MR System

#### NOTES:

- Item is NON-RETURNABLE and NON-REFUNDABLE