三方协议

合同编号：2017-政-32

甲方：首都医科大学附属北京世纪坛医院

乙方：山东欣益医贸易有限公司

丙方：通用电气医疗系统贸易发展（上海）有限公司

现有丙方在首都医科大学附属北京世纪坛医院医疗设备购置项目/（0686-1741B3530356）中中标，项目名称：即杂交手术数字血管造影 X 线机, 中标金额为￥11,995,000.00（大写壹仟壹佰玖拾玖万伍仟元人民币）。

中标设备明细：

序号	产品名称	型号和规格	原产地和制造商名称	数量	单价	总价
1	医用血管造影 X 射线机 Medical X-ray angiography equipment	Discovery IGS 730 注册证号：国械注进 20173301920	法国/GE	1 套	￥11,995,000.00	￥11,995,000.00
合计：￥11,995,000.00 大写：人民币壹仟壹佰玖拾玖万伍仟元整						
（折合美金金额 USD1,410,000.00 元, 大写：壹佰肆拾壹万美元）						

现三方本着互惠互利的原则，根据<<中华人民共和国合同法>>、<<中华人民共和国对外贸易法>>及相关法律、法规，经友好协商，由甲方委托乙方作为采购代理公司（甲乙双方另行签署《委托代理协议》），负责办理中标货物境外及境内货物及相关服务（详见《委托代理协议》）的代理向丙方及丙方指定的境外供货商采购事宜，并达成如下协议：

一、甲方的权利与义务：

1. 甲方应将供货产品的中标信息、配置及技术条款等内容，包括但不限于招标文件、投标文件等必要文件通知乙方。

2. 付款方式：

甲方应于收到乙方银行开具的协议金额 40%（即￥4,798,000.00 元）的为期 150 天的履约保函及丙方开具的协议金额 10%（即￥1,199,500.00 元）的为期 18 个月的质量保函后，向乙方支付协议款项（即￥9,600,000.00 元），乙方收到甲方剩余货款（即 2,395,000.00 元）后安排发货，支付方式为银行电汇/转账支票。甲方应于原代理进口协议规定的货物全部到达甲方指定地点后 5 个工作日内向乙方退还 40%履约保函，否则保函延期，同时甲方须配合丙方在设备安装完成后 30 天内完成设备计量及验收工作。质保期满一年后 5 个工作日内向丙方退还 10%质量保函。

3. 甲方授权丙方及丙方指定的境外供货商签订国内采购合同及外贸合同，乙方负责敦促丙方完成外贸合同及国内采购合同货物的验收等相关事宜。

二、乙方的权利与义务：

1. 乙方根据甲方提供的供货产品信息及配套情况同丙方及丙方指定的境外供货商签署外贸合同。

2. 乙方协助甲方根据政府采购相关规定办理财政向乙方的拨款手续。财政向乙方付款总金额为人民币¥11,995,000.00（大写壹仟壹佰玖拾玖万伍仟元整）。

乙方账户信息如下：

开户名称： 山东欣益医贸易有限公司

开户银行： 青岛农村商业银行股份有限公司崂山支行

开户账号： 9020102204842050008400

行　　号： 402452004300

3. 乙方按甲方要求在甲方指定付款期限内向丙方及丙方指定的境外供货商开证或付款，敦促供应商按时发货。

4. 乙方负责办理合同进口货物的清关事宜。

三、丙方的权利与义务：

1. 丙方负责根据中标产品信息及配套情况协调国内、外供应商及时将境内、外供货产品提供给甲方。

丙方账户信息如下：

开户银行：中国建设银行上海金桥支行

开户名称：通用电气医疗系统贸易发展(上海)有限公司

开户账号：31001576613056003969

2. 培训：

1) 产品应用培训Ⅰ级:丙方将提供设备使用所必需的安全信息和操作规程培训，包括现场培训（56 小时，共 2 次）培训费用包含在设备总价中。上述培训在设备保修期开始后一年内提供，非因丙方过错未能在有效期内完成培训的，一年期满后视为培训已经完成。

2) 产品应用培训Ⅱ级：丙方将提供有效使用设备所需的临床知识培训，包括实体课堂培训（1人，1天）培训费用包含在设备总价中。上述培训在设备保修期开始后一年内提供，非因丙方过错未能在有效期内完成培训的，一年期满后视为培训已经完成。

3. 为甲方办理财政拨款手续提供必要的协助。

四、货期:本协议签订，收到甲方支付协议 100%及发货通知且场地符合装机要求后 90 天内。

五. 安装调试验收：

1. 丙方及丙方指定的境外供货商负责设备的安装调试，费用由丙方及丙方指定的境外供货商承担。

2. 为确保设备在其性能规格范围内安装，丙方应负责根据设备预安装手册的规定提供合格的安装场地，并承担场地准备的费用，如因甲方的原因而逾期接收设备，则甲方负责因此造成的所有包括仓储及保险等费用，并且丙方有权推迟发货。

3.在设备安装和调试阶段，如果发现该设备缺失配套书中规定的部分零部件或功能，丙方将尽快前往医院协商，并且提出解决方案以及采取措施执行此解决方案。

六、质量保证及保修期：

1.设备（含球管和探测器，不含其他耗材）保修期三十六个月。甲丙双方应于设备安装完毕后30日内及时进行设备计量及验收。该设备保修期从计量及验收合格之日起算。如因设备质量问题导致验收工作无法在规定时间内完成，保修起算日可顺延至设备正常使用之日。如因买方原因造成的设备验收延误，该设备的保修起算时间从设备安装完成后第30天起算。保修期满后全保（含球管和探测器）维修价格不高于设备总金额11,995,000人民币的6%。2.如果甲方或任何第三方违反了合同货物的操作保养维护规程，或者对合同货物的构成、设计、功能等有变更，影响货物正常临床使用，丙方有权终止其保修义务。

3.其他保修服务条款请见附件。

七、三方互相保守对方的商业秘密。

八、在合同履行中，若发生争议，三方应先协商解决；协商不成三方一致同意提交中国国际经济贸易仲裁委员会在北京按照申请仲裁时该会现行有效的规则进行最终裁决。

九、如需修改或补充，各方应签署补充协议，补充协议与本协议具有同等法律效力。如有冲突，以补充协议为准。

十、未尽事宜见投标文件。本协议经三方法定代表人或授权代表人签字并盖章后即生效。本协议正本一式陆份，甲方执肆份，乙方执壹份，丙方执壹份，具有同等法律效力。

十一、本协议附件包括设备配置清单以及保修服务条款，该附件为本协议的必要组成部分。

甲方（盖章）：首都医科大学附属北京世纪坛医院

法定代表人或授权代表人（签字）：_____ 年 月 日

乙方（盖章）： 山东欣益医贸易有限公司

法定代表人或授权代表人（签字）：_____ 2018年 2 月 7 日

丙方（盖章）：通用电气医疗系统贸易发展（上海）有限公司

法定代表人或授权代表人（签字）：_____

2018年 1 月 29 日

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保修服务条款附件
（ X 光机适用 ）

1　保修服务时间

1.1　设备(含球管和探测器，不含其他耗材)保修期为三十六个月。该设备保修期从计量及验收合格之日起算。如因设备质量问题导致验收工作无法在规定时间内完成，保修起算日可顺延至设备正常使用之日。如因买方原因造成的设备验收延误，该设备的保修起算时间从设备安装完成后第 30 天起算。

1.2　设备保修期内，本附件所规定的保修服务对乙方所发生的费用（更换零部件费，乙方人工费和差旅费等）由乙方承担。

1.3　保修期内，乙方工程师应在接到甲方报修后 48 小时内做出反应。

1.4　服务时间为国家法定工作日。

2　设备运行维修环境条款

2.1　甲方负责提供设备运行所需的必要环境（包括场地、电源、人员、电磁干扰等），如甲方未提供适合的装机及运行环境，则乙方无法提供装机及维护。

2.2　甲方应提供合理的设备维修环境，其中包括安全、人力、设施以及时间和空间等，否则乙方无法提供必要的服务。

2.3　如果在保修期内设备运行环境发生变化，甲方应立即书面告知乙方并获得乙方认可。任何未经乙方认可的设备运行环境变化所导致的设备运行故障不在本合同保修服务范围内。

3　现场维修服务条款

3.1　乙方将委派经原厂认证合格的专业工程师或原厂培训的特约维修队伍提供快速优质的现场服务。

3.2　由于不可抗力事件（如自然灾害、爆炸、房屋倒塌、暴乱、坠机及撞蓄意破坏、缺乏燃料或水电、劳资纠纷、罢工等）造成的任何损坏，不在本合同保修服务之列。

3.3　在保修期内，未经乙方书面认可，甲方擅自自行或由第三方修理调整设备、改装设备或设备备件，更换非乙方认证或授权之零、备件，乙方有权终止保修服务。

3.4　本合同保修服务不包括下列服务项目（如果乙方提供下列服务，则按照甲乙双方届时另行商定的"付费维修服务"标准收费）

    3.4.1　设备整体或部分拆检、重装、迁移、搬动等所需的相关服务、保险等费用。
    3.4.2　由于使用非乙方指派的人员或甲方邀请的未经乙方认证的第三方的人员，维修调整设备、换装零件、改装设备及配件等乙方不能控制的原因所造成设备损坏而需乙方提供维修时，所需的服务及费用。
    3.4.3　甲方或其代表未遵照保养及操作手册上的程序进行操作而引起的设备故障后所需的服务及费用。

3.5　非乙方生产的设备配置不在本合同保修服务之列。

3.6　消耗品不在本合同保修服务之列。

4　球管保用条款

球管在设备保修期(期间同 1.1)内出现无法使用的故障，乙方将免费为甲方更换球管。同时，甲方应将出现故障的球管还给乙方。

5   其他条款

5.1   备件和专用工具清单：质保期满后连续运行 1 年所需的备件和专用工具清单。

5.2   卖方应提供优良的售后服务承诺，并提出具体售后服务书面承诺（作为投标文件的必要组成部分），售后服务应包括全套设备的安装，合同设备的定期随访保养。

5.3   卖方提供上述服务中的所有服务，为履行伴随服务的报价应包括在合同价中。

5.4   投标产品如属于按相关部门要求进行质控检测的产品，在新产品验收时需提供医院认可的质控检测报告，在产品使用期间，按要求配合医院对产品进行定期质控检测。

5.5   在备件停止生产的情况下，卖方应提前 3 个月将要停止生产的计划书面通知买方，使买方有足够的时间采购所需的备件。

5.6   备品备件要求：投标人应单独编报日常维修所需的备件清单及单价，费用不计入投标总报价，也不计入合同价格，质量保证期结束后 1 年内所提供的备件不得涨价。投标人应承诺提供自验收合格之日起 1 年内的备品、备件及耗材供应。

5.7   投标人应单独编报日常维修所需的备件清单及单价，费用计入投标总报价、分项报价、计入合同价格，质量保证期结束后年内所提供的备件不得涨价。投标人应承诺提供自验收合格之日起年内的备品、备件及耗材供应。

5.8   在北京需设立常驻维修及售后服务机构，并能够提供 7*24 小时服务响应，且备有足够的零部件，以满足用户对投标产品的正常、持续使用需要。

5.9   如投标产品出现任何问题须在接到招标人通知后 2 小时内响应，4 小时内到场维修；一般性故障半天内修复，复杂故障须提出解决方案（包括故障诊断、原因分析、解决措施、预计时间、所需零部件等内容）。

5.10   供货方负责派合格的工程师到现场进行设备安装、调试，达到正常运作要求，保证买方正常使用。

《保修条款结束》

敬呈：

General Electric Company
GE(China)Co., Ltd. –
Healthcare

1 Yongchang North Road
Beijing Economic & Technologic Development Area
Beijing 100176 China

北京世纪坛医院

Discovery IGS 730 智能移动机器人

Discovery IGS 730 Medical X-ray angiography equipment

HealthyImagination

通用电气(中国)医疗集团

目录

详细配置清单

第一部分：基本配置

序号	说明
1.	**Discovery IGS 730 system** **Discovery IGS 730 移动心血管介入成像系统** **Discovery IGS 730** provides a revolutionary, laser guided motion technology. It offers predictable and precise positioning capabilities while improving patients' care. It allows you to do more with great confidence, from interventional X-ray to surgical procedures. Discovery features Wide Bore 3D for easier 3D acquisition, and a comprehensive set of advanced applications tailored for cardiovascular, hybrid, oncology, and neuroradiology procedures. With uncompromised sterility and easier patient access using One-Touch-Back-Out, it creates a more secured procedure. The gantry design allows steep angulations for PCI while featuring a 31cm (11.8 in.) detector to accommodate cardiac, neuro, peripheral vascular and hybrid procedures. The Discovery IGS 730 flat panel detector (31 x 31 cm square and 43 cm diagonal) unites image quality, an optimal panel size and built-in protocols for imaging versatility. Discovery IGS 730 提供了革命性的激光制导精确定位移动技术。它提供了可预见的及精确的移动轨迹和定位，大大提高了病人照顾质量。它使医生可以满怀信心的开展更多操作，从 X 射线造影介入到外科手术。 它配备大孔径 C 型臂，更容易获得三维图像。它还具备一系列综合全面的智能引导高级应用功能，量身定做专门满足心血管，复合，肿瘤和神经介入等手术需要。 它完全符合不同场地的无菌要求，使用一键进退更容易贴近病人，它创造了一个更加安全的手术流程。 它的机架设计实现经皮冠脉介入时更大的投照角度，31cm 边长的平板探测器

适合心脏、神经、外周血管和复合手术的操作。

它的平板探测器(面积 31x31cm² 和对角线长 43cm)整合了高质量的图像质量、优化的平板大小和优异影像链协议,满足多样化成像需要。

X-Ray Generator

Discovery IGS 730 utilizes a 100 kW high frequency, Jedi three-phase power unit that provides grid pulsed fluoroscopy capability.

X 射线高压发生器

Discovery IGS 730 采用 100KW Jedi 高频高压发生器提供高能量的栅控脉冲透视。

Performix 160A X-ray Tube

- 1.0, 0.6 and 0.3 mm Effective Focal Spots.
- Grid Pulsed Fluoroscopy.
- 3.7 MHU Anode Heat Storage Capacity.
- 3200 Watt Continuous Casing Heat Dissipation Rate: 4500 Watt peak capability for a maximum of 10 minutes.
- Continuous Water Cooling with External Chiller.

Performix 160A X 射线球管

- 1.0,0.6 和 0.3mm 高效三焦点。
- 栅控脉冲透视。
- 3.7MHU 阳极热容量。
- 管套连续散热率 3200W;10 分钟最大限度峰值容量 4500W。
- 外置冷却装置提供连续水冷。

GE Digital Flat Panel Detector

The key element in this image chain is GE's patented Revolution Digital detector, which captures dynamic and fluoroscopic images in digital form with very efficient use of X-ray dose. The specially designed Discovery IGS 730 Digital System provides optimized and customizable image processing algorithms to take maximum advantage of the unique properties of these images.

The system is configured with a removable anti-scatter grid to maximize image quality during routine imaging.

Digital Flat Panel Image Chain

- 31 cm Revolution Digital Flat Panel Imaging System.
- Completely Digital Imaging Chain.

		• Amorphous Silicon Photodiode Array. • Cesium Iodine Scintillator. • 30 cm x 30 cm Active Area. • 30, 20, 16, and 12 cm Fields of View. • the DQE of acquisition up to 77%, the DQE of Fluoroscopy up to 71%. GE 数字平板探测器 Discovery IGS 730 卓越影像链的核心是 GE 专利技术的革命性数字平板探测器，它可以在非常高效使用 X 射线剂量的情况下获得高质量数字化动态透视图像。特殊设计的数字化系统提供了优化的和可定制化的图像处理算法，可以最大限度充分利用这些图像的独有特质。 它配备了可拆卸的防散射栅格，可以在日常透视成像过程中最大限度优化图像质量。 数字化平板影像链 • 31cm 边长平板探测器，革命性数字平板成像系统 • 完全数字化影像链 • 非晶硅光电二极管阵列 • 碘化铯闪烁体 • 30 cm x 30 cm 有效面积 • 30,20,16 和 12cm 视野 采集 DQE 达到 77%，透视 DQE 达到 71%
2.		**IQ Table with Tilt** **IQ 倾斜床系统** The IQ Table system is a fully motorized tilting table for Discovery cardiovascular and interventional X-ray angiographic systems. This table is designed to meet the standard for surgical tables and to be used during hybrid OR procedures (IEC 60601-2-46:1998 with deviation for the clause 36.101). The IQ Table features: The IQ Table is specifically designed to reach the IPX4 level of protection against ingress of liquids as required by the operating tables standard IEC 60601-2-46 and the IQ Table features functionalities that provide effortless, automated

and flexible positioning:

- Fully motorized longitudinal and lateral motions even when tilted.
- Variable force positioning that allows for smooth and precise motion over the complete range of speeds.
- Auto positioning feature that enables the capability to memorize the table and gantry position simultaneously or separately.
- A new dedicated auto-positioner memory position for quick return to CPR position (Cardio Pulmonary Resuscitation).
- Can support a total load of 320 kg (705 lbs), comprising a maximum patient weight of 204 kg (450 lbs) for the tabletop, (at any longitudinal, lateral or tilted position), plus 40 kg (88 lbs) of accessories on each of the two sides, plus 20 kg (44 lbs) of accessories at table end, plus 16 kg (35 lbs) for other miscellaneous components or accessories (i.e. mattress, shoulder rest).
- Tabletop includes a 5 cm (2 inchs) mattress.
- Imaging coverage with table panning: up to 189cm.
- Tabletop length: 333 cm (131 inches).
- Tabletop width: 46 cm (18 inches) in trunk area.
- Horizontal eight-way float movement
- Longitudinal travel: up to 170 cm (66.9 inches).
- Transverse travel: +/- 14 cm (5.5 inches) in manual mode; +/- 13 cm (5.1 inches) with motorized panning.
- Vertical travel without tilt: 30 cm (12 inches).
- Vertical travel above floor with tilt: 80 cm (31.5 inches) to 137 cm (54.3 inches).
- Vertical speed: up to 2.5 cm (1 inch/s).
- Rotation of +/- 180 degrees (typical values).

Tilt-related specifications:

- Tilting angles of 20 degrees head down (Trendelenburg) and 12 degrees heads up (reverse Trendelenburg) (typical values).
- Tilting speed: up to 2 degrees/second.
- Equipped with iso-center tracking and incidence keeping as standard features.
- Incidence keeping available in the range from 20 degrees head down (Trendelenburg) to 12 degrees heads up (reverse Trendelenburg).

Discovery IGS 730 配备了全电动倾斜手术床。该床的设计符合外科手术床的

		标准，可以用于复合手术室操作。 IQ 手术床专门设计达到手术床标准（IEC 60601-2-46）要求的防止液体进入的 IPX4 级标准。IQ 手术床具备轻松、自动和灵活定位的功能： • 完全机动的纵向和侧向移动，即便倾斜时也能移动。 • 可变动力移动定位，可以实现一定速度范围内的平稳精确移动。 • 自动定位功能，能够同时或分别记忆床和机架位置。 • 全新专用自动记忆位置，便于快速返回心肺复苏位置。（CPR） • 最大承重为 320kg,包含床面最大病人重量 204kg(在任意纵向、侧向或倾斜位置)，床两侧附件各 40kg,床尾摆放附件 20kg 以及其他各种组件或附件 16kg(如床垫，肩托等)。 • 床面包括 1 个 5cm 床垫。 • 移动床的情况下透视成像覆盖范围：最大 189cm。 • 床面长度：333cm。 • 床面宽度：主体区域 46cm。 • 水平面八向移动。 • 纵向移动范围：最大 170cm。 • 侧向移动范围：手动模式+/-14cm;机动模式+/-13cm。 • 不带倾斜垂直移动范围：30cm。 • 带倾斜距离地面垂直移动范围：80cm 到 137cm。 • 垂直移动速度范围：最大 2.5cm/s。 • 旋转范围：+/-180 度。 倾斜相关技术参数： • 倾斜角度：头位向下 20 度，头位向上 12 度。 • 倾斜速度：最大 2 度/秒。 • 配备等中心追踪和投照角度保留。 在头位向下 20 度到头位向上 12 度范围内可以保留投照角度。
3.		**TSUI（Smart Box）** **床旁用户操作界面（智能盒）** The Smart Box provides a simple control of the positioner and table. It allows to control the AGV along imaging positions, to back-out and back-in the AGV and to control the C-Arm angulations and the table. 智能盒更易于控制机架定位和床。它可以操控激光制导机械化 L 臂（AGV）沿透视位置运动，一键控制 AGV 进退，控制 C 型臂打角度和床的运动。

4.	**Table Side System Control (TSSC)** **床旁控制系统** The Table Side Status Control (TSSC) provides simple access to key acquisition and review parameters throughout the exam. 床旁状况控制系统（TSSC）在操作过程中更加容易采集关键数据和回顾各项参数。 TSSC integrates the remote control of cardiac and peripheral vascular application. 床旁控制系统整合心脏和外周应用的床旁控制装置。 The combo Table-Side System Control (TSSC) provides safe and simple access to critical features throughout the exam. It consists of a series of push buttons for selecting: -Acquisition preference settings -Fluoro levels -Field of view – 4 FOV -Subtracted / Non Subtracted Fluoro -Roadmap -Fluoro Landscape (Option) -Room light on/off -Fluoro timer reset -Fluoro Loop and Store(Option) It also consists of 2 joysticks for controlling the contour filters and collimator blades. The programmable auto-positioning module integrated in the TSSC allows users to store 8 gantry positions for each of 9 users, with default to PA and lateral. 床旁操作系统（TSSC）保证手术中安全和便捷的操作, 包含一组按钮分别控制： -采集参数设定 -透视剂量选择 -视野选择：4 视野 -减影透视/ 非减影透视 -减影透视图像下显示不同深浅程度的背景骨性标记 -路径图 -手术灯开/关

	-透视计时器归零 -透视存贮（选件） -床旁操作系统同时包含限束器和补光板的控制。 床旁操作系统（TSSC）内包含了机架位置存储模块，可以为 9 个不同的操作者每人存储 8 组机架位置（共 72 组，每组位置包含三轴角度和探测器高度），缺省值位置为 PA 位和 Lateral 位角度。
5.	**CE Coolix SMC Auto-transformer 50/60Hz** **CE Coolix SMC 自动变压器 50/60Hz**
6.	**DFP Cooling System** **平板水冷系统** Prevent over high temperature of DFP. 冷却平板，防止过热
7.	**DFP Pre-Heating System** **平板预热系统** Keep the best working temperature in cold condition thus to improve the image quality. 使平板在低环境温度下保持最佳工作温度,提高成像质量
8.	**LCD Console Monitor And User Interface** **液晶操作台显示系统和操作界面** Console Monitor : One 48cm (19" TFT) LCD slave monitor for the live images and one 19" color monitor for operation system. 控制台配置 19" TFT 液晶（黑白）监视器浏览实时图像和 19" 彩色监视器以供系统操作。 User Interface: Dedicated keypad for convenient control of commonly used review functions. Provides an image shuttle knob to control playback and one touch access to review functions such as play / pause, previous / next

	image or run, zoom and roam, edge enhancement adjustment, and store / recall reference images. Recall reference images. And click" mouse control for patient management and advanced processing and analysis features. Keyboard for patient data entry. 操作界面: 专用控制面板用于图像控制，包含独特的图像回放旋钮，一键式操作回放/暂停，前一幅/后一幅图像(序列)，放大和游走，边缘增强调节，参考冻结图像的存入和调出；SCALER;图像自动传输；减影；图像亮度和对比度调节。鼠标用于患者管理和高级处理功能；键盘用于患者信息输入；曝光提醒；注射联动，透视时间归零；一键开关机和重起。
9.	**Dual Footswitch** **双重曝光脚闸** Footswitch for acquisition and fluro 可控制采集及透视
10.	**DRMTM II Design for Digital Detector** **DRMTM II（实时组织均衡 II）全数字动态平板专用处理技术** DRMTM is GE patented technology for wide dynamic range flat panel detector. It's the key difference between other vascular system. The detector is able to translate the full range of x-ray exposure intensities into image brightness levels far beyond the ability of the eye to discern. GE's exclusive Dynamic Range Management (DRM) Algorithm adjusts contrast in real-time across the image to optimize the contrast presented. The result is consistent visibility of objects of interest against all backgrounds with virtually no black or white saturation. DRMTM II is wider dynamic range than DRMTM, and more sensitive for X-ray. And more advanced application is base on it. DRMTM 是 GE 平板血管机专用图像处理系统,是区别于影像增强器机型及其他平板血管机的核心部件。是针对宽动态范围平板探测器设计的专利技术，因为平板探测器动态范围极广，所能感应的亮度范围远远超出人的肉眼分辨能力，所以能将更广、更细节的图像亮度范围转化出来。为了充分利用这些信号，让人的肉眼能够分辨。 GE 独有的实时组织均衡技术能实时地根据解剖部位的需

	求，优化调整图像，结果把背景淡化处理，降低噪声，相关解剖结构轮廓清晰但没有过黑或过亮的情况，而靶目标的显示轮廓清晰，对比度更好。而 DRMTM II 具有更宽的动态范围，对 X 线敏感性更高，是旋转 DA 的基础。
11.	**HIS/RIS Option** **HIS/RIS 支持协议** Streamlined PACS Workflow integration with Query/Retrieve SCP and Storage Commitment SCU. More Flexible CD/DVD-ROM Media Interchange with interactive pre-mastering and multi-session for HTML/PDF and JPEG/PNG/MPEG/AVI data. Ultrasound DICOM IOD Support: Network, Display, Print. Patient Work list provides a single point of entry of patient data, increasing staff productivity and eliminating clerical errors: the information of patients can easily be imported into the digital system from information systems that support DICOM Work list Service Class Provider. 具有与 PACS 流程整合的查询/回传/存档等功能,还可利用 CD/DVD-ROM 的灵活方式转换不同格式的数据(HTML/PDF 及 JPEG/PNG/MPEG/AVI)；支持 Ultrasound DICOM IOD 格式：包括网络、显示、打印等。Work list 功能通过一个点来输入患者信息，增加工作效率，减少笔误；患者信息由支持 DICOM Work list 服务级别的信息系统输入到 IGS 数字系统内。
12.	**CE Power Distribution Box** **CE 电源配电箱** CE power distribution box for IGS single plane systems IGS 单 C 系统配备 CE 电源配电箱
13.	**Detector RF Ablation shielding** **探测器射频电流屏蔽组件** Standard shielding address to reduce ablation artifact in EP 探测器格栅组件将有效屏蔽射频消融操作中产生的射频电流对影像的严重干扰，保证心脏电生理治疗中的优秀影像质量。
14.	**Premium AW4.7 Volume Share 7 workstation 32GB** **高级 AW 4.7 工作站 32GB**

AW4.7 includes capabilities helping to reduce operating costs, improve departmental productivity and increase diagnostic confidence. The workstation features state of the art 64-bit technology that allows it to process up to 5000 images in a single data set. This enables more accurate diagnosis using image data. The key benefits include:

AW 4.7 是全新的、可以对多影像设备影像进行观察、对比、处理的一下影像工作站。配备全新硬件和 64 位运算操作系统，充分利用四核处理器的优势，能够一次处理 5000 幅影像，帮助操作者做出更加精确的诊断，操作更加简便、功能更加强大。AW4.7 能够有效降低运行成本，提高科室工作效率，提高诊断信心。其主要优势有：

Fast access to information needed

快速提取所需信息

With its ability to integrate with RIS and automatically fetch prior information from archive on exam arrival, AW4.7 provides fast access to all information and applications needed to diagnose quickly across multi-modality images.

连接至 RIS 的 AW4.7 能够自动提取存档，迅速提取各种所需信息和影像并调用相应软件包，迅速做出诊断。

Efficient workflow to optimize productivity

高效工作流程 提高科室工作效率

AW4.7 optimizes the productivity by automating many tasks in backstage that would otherwise take much time. Optional productivity package performs background pre-processing based on configured rules and loads up to 8 sessions ahead of time to allow instant access. Dynamic load allows additional exams to be loaded in the middle of post processing. It also enables to collaborate with other physicians by marking Key Images and easily send them to multiple destinations using the End Review feature. In addition, Volume Share 7 automatically sends any output generated from using Volume Viewer applications to configured hosts.

AW4.7 能够自动地在后台完成处理，节约宝贵时间。多任务处理平台可以在后台中根据预设的规则和流程，同时处理最多 8 个病例，大幅度提高工作效率。自动加载功能可以在后处理过程中加载更多影像，关键影像功能可以使多个操作者共同对影像进行诊断。End Review 功能可以将处理完的影像在多个目的地之间传送。

Large portfolio of advanced applications on AW4.7

更多先进的后处理软件包

AW4.7 has a large portfolio of applications to address the needs across multi-modalities and care areas including vascular, cardiology, oncology, radiotherapy, neurology and women's health.

AW4.7 拥有丰富实用的临床功能包，满足临床需求。

AW4.7 工作站硬件配置

- HP Z440 Workstation

HP Z440 工作站

-Eight-core Intel Xeon 3 GHz CPU

英特尔八核 Xeon 3.0GHz 主频中央处理器

-32GB of RAM

32GB 高速内存

-NVIDIA Quadro FX 5600(PCI Expressx16/1.5GB Dual-Link DVI, Stereo) Graphics Card

高性能 3D 显卡：NVIDIA Quadro FX 5600

-1TB Hard Disk.

1T 超高速硬盘，用来存储操作系统和临床功能包

-Internal DVD Writer drive for read/write of DICOM CD/DVD media and service use

内置 DVD-ROM 驱动器，用于维修或读取/刻录 DICOM 标准影像。

- Integrated Ethernet 10/100/1000 Mbit/s Port.

集成 10/100/1000 兆以太网口

-1 Internal 3.5 in Floppy

3.5 寸软驱 Driver

-1 USB QWERTY Keyboard.

USB 键盘 1 套

-1 USB Optical 2 Button Scroll Wheel Mouse

USB 鼠标 1 套

-Image Networking

影像网络传输

Standard 10/100/1000 Base-T Ethernet for DICOM

标准 10/100/1000 Base-T 以太网传输 DICOM 数据

1000 Base-T dedicated network for optimal Direct Connect performance

1000 Base-T 专用最佳直接连接传输

-Protocols supported

支持协议

	DICOM 3.0 Storage SCU/SCP and Query/Retrieve SCU/SCP
	InSite
	TCP/IP network layer
	SdCNet supported to query/retrieve from AW
15.	**AW4.7 WORKSTATION MONITORS** **AW4.7 工作站显示器** 2×19.1" LCD Monitor,1280x1024 Landscape display 2×19 英寸液晶显示器，1280x1024 分辨率。
16.	**AW4.7 China keybord** **AW4.7 工作站中文键盘**
17.	**Stenosis & LV Analysis Application for AW** **AW 工作站专用多点自动狭窄和左室功能分析软件工具包** Stenosis Analysis Application for AW AW 工作站专用多点自动狭窄分析软件工具包 - Manually, from an empty catheter present in the image to analyze. Stenosis Analysis is an application designed for estimating vessel dimensions and relevant parameters of the arterial Stenosis morphology in X-ray angiography. It is an expert tool applicable on: - cardiac vessels - peripheral vessels in subtracted format Based on the user's manual identification of the vessel to be analyzed, the software automatically detects the vessel edges and displays the stenosis severity. In order to display measurements in millimeters, the operator needs to perform calibration. It can either be done: - automatically, based on the known system geometry （For all IGS System Images）， 狭窄分析软件用于血管造影中径线测量及狭窄血管形态的相关数据分析，应用于： - 心脏冠脉血管 - 外周 DSA 血管 该软件能自动探测血管边缘，并自动计算狭窄程度. 为获得以毫米为单位的测量结果，需经过校准程序，AW 提供了两种方式：

- 自动校准, 基于图像中的 DICOM 信息中包含的几何放大率（适用于所有 IGS 系列设备的图像）.

- 手动方式，利用图像中的导管进行校准.

LV Analysis Application for AW

AW 工作站专用左室功能分析软件工具包

Left Ventricle Analysis is an expert reporting tool designed to estimate wall motion dynamics of the left ventricle, and to perform Global Ejection Fraction analysis in X-ray angiography. Based on the user's manual delineation of the end-diastolic and end-systolic contours, the software provides means to perform Wall Motion and Global Ejection Fraction (GEF).

- Wall Motion analysis is built upon the centerline method.

- GEF analysis provides results calculated with both the Simpson's rule method and the Dodge-Sandler area-length method.

左心室分析软件是用来分析左心室室壁运动的专用工具软件，利用血管造影图像分析球形射血分数

- 室壁运动分析使用的是中心线法.

GEF（球形射血分数）分析可提供 Simpson 和 Dodge-Sandler area-length 两种方法的计算结果。

18.	Volume Viewer Interventional AW 后处理应用
19.	**In-room 6 LCD monitor suspension** **室内六监视器吊架**
20.	**1 Live & 1 Reference In-room 48CM (19'') B&W LCD monitor** **1 实时 & 1 参考室内 48CM (19'') 黑白显示器** 1 Live & 1 Reference "In room" 48CM(19") B&W LCD Monitors 操作间内配置 2 个 19 寸黑白液晶显示器，分别用于显示实时屏和参考屏影像
21.	**ADVANCED SERVICE KIT** **高级伺服套件**
22.	**TABLE EXTENDER** **床面扩展附件**

23.	Digital Headholder DSA 神经介入用头托
24.	Digital Headholder DSA 头托垫子
25.	Armboard 臂托
26.	Armboard 臂托垫子
27.	**IV Pole and Mount** **输液架及固定件**
28.	**Pre-installation Kit** **预安装配套附件** Pre-installation Kit for Discovery IGS 730 system Discovery IGS 730 系统预安装配套附件: Group 1 MAX Length Cable　安装缆线 Group 2 MAX Length Cable　安装缆线 C1 Ground Cable set 24m Length Cable　　安装缆线 Group 3 Cable 安装缆线 Group 4 Cable 安装缆线 Bolus Cable Set (100ft/30m)　安装缆线 Elegance Table Plate　预安装件 Innova Lift Dolly　　预安装件 Rails & Cable Drape　预安装件 X-Ray Dig, Detector Coolant Kit　　预安装件 Monitor Suspension Spacer Kit　　预安装件 9′ 6″ In Board Monitor Bridge　　预安装件 (228"/579CM) I.B. Rails　　预安装件
29.	**AGV Room Template** **AGV 室内反射片**

30.	**MAC-LAB CABLE** **血动工作站缆线**
31.	**FE LETTER-OPERATOR MANUAL ON PAPER** **设备操作手册**
32.	MAVIG UT6001-66 床旁铅帘
33.	Intercom Clarson PUBLIC III CE （E6220J）对讲系统 ROOM Intercom system 操作间控制室双向对讲机系统
34.	MAVIG 360°column stationary, length = 850 mm MAVIG 360°悬吊立柱 850 mm
35.	MAVIG OT50001 MAVIG 悬吊 76 x 61 cm 铅玻璃屏风，铅屏带体型缺角，含伸展臂
36.	MAVIG M LED130F, focusable LED examination lamp, sterilizable handle, power supply unit. 60,000 lux MAVIG 聚光检查灯，带伸展臂

第二部分：高级配置

序号	说明
37.	Fluoroscopy image storage technology 透视图像存储技术 Store and review fluoroscopic with one touch button, reduces acquisition record and x-ray exposure. Store 450 fluoroscopic images

	(15-30-60 sec depending on frame rate). Subtracted or non-subtracted runs. 床旁一键式控制透视影像存储和回放，减少采集存储需求，减少射线剂量。 450 幅透视影像存储(依采集帧频不同，持续时间为 15-30-60 秒)，减影或非减影影像存储。	
38.	**Dynamic acquisition Package** 动态采集功能包 30/15 fps cardiac acquisition 提供 30/15 帧/秒采集模式，适用于心脏动态采集。	
39.	**IN ROOM BROWSER** **床旁多序列影像预览** IN ROOM Small Icon for each sequence 床旁实现多个序列影像索引	
40.	**Blended Roadmap** 智能混合路径图 It is a vascular road mapping application that superimposes a previously acquired vascular image over live fluoroscopy. Any DSA or bolus image can be selected as a reference roadmap image. This function has the potential to minimize contrast media and radiation. Blended roadmap provides additional features to enhance road mapping procedures: -Adjustment of the subtraction level -Adjustment of the vessels transparency -Automatic resizing of the roadmap image to adapt to the fluoroscopic field of view -Pixel shift of the vessel image to compensate for motion Blended Roadmap is available on systems with either Omega V or IQ tables and requires the Advanced Software Package. 智能混合路径图是一种血管路径图的临床功能，它使用之前采集的血管影像与实时透视影像叠加。可以选择任何 DSA 影像或 bolus 影像作为路径图蒙片，减少造影剂用量和射线剂量。该功能包含多种模式以加强路径图的临床价值：	

		-床旁调整背景减影比例 -床旁调整路径图血管透明度 -自动调整路径图的大小，适应透视视野的变化 -床旁实时像素移位功能，修正病人少许移动引起的影响 混合路经图适用 Omega V/ IQ 倾斜床，需要高级软件包
41.		**StentViz Pro** 支架增强显示及高级去导丝减影模式 Cardiac record of 30 frames with the balloon marks in place to show the stent enhancement images. Latest stent enhancement technology providing excellent visualization of the stent borders and details. Detection of both balloon marks/guide wire and elastic registration for optimized registration. Simply press the StentViz key in the exam room on Innova Central or in control room or on the remote control The StentViz image appears on the review monitor in less than 20s for the typical cases. Automated processing performed in background allowing other operations (fluoro, record, review etc.) .The DICOM image of StentViz is stored within the patient file. Automated processing and optimized workflow make StentViz perfectly fit with the cath-lab workflow Need Dynamic Acquisition package. 单独序列采集用于支架增强成像。 全新的支架增强显示技术，可清晰显示支架边缘及细微结构。 采用 Marks 点和导丝双重弹性注册，影像更清晰。 一键式操作：可在床旁操作控制面板或在控制室操作遥控器完成操作。后台重建，不影响继续透视或其它序列采集的功能。20 秒内实现，影像以 DICOM 形式自动存储于主机同一患者名下。操作简便、流畅，符合导管室流程。功能实现需动态采集软件包。 New generation StentViz with Wire-Subtracted function provides the enhanced stent image without disturbance of guide wire to show precise information about stent, vessel lesion and so on. 全新的 StentViz 高级去导丝功能可同时提供导丝减影模式影像，更好地显示支架细节等。

42.	IGS Coronary Spin
	冠脉旋转造影
	One touch button:
	The offset C-arm permits fast spin rotational angiography over a total 200° at variable speed from 20° to 40°/sec, seven configurable spin trajectories are available. The acquisition protocol is selected from table-side.
	一键式操作:
	偏置臂以 20°至 40°/秒的速度在 200°范围内旋转造影,得益于 DRMII 处理技术，确保在胸廓多变背景下仍能清晰显示冠脉血管。7 组可设定程序床旁 TSSC 选择。
	Benefit: Less contrast, less dose, more diagnosis information. Especially for patient with renal inadequacy and children.
	临床意义：更少造影剂，更低射线剂量，更多诊断信息。尤其是对肾功能不全患者和儿童更有意义。
43.	**IGS Cardiac**
	多维立体旋转心脏造影技术
	One touch button at table side
	The offset C-arm permits fast spin rotational angiography over a total 200° at variable speed from 20° to 40°/sec. The rotation can take place at oblique angulation within physical constraint.
	床旁一键式操作
	偏置臂以 20° 至 40°/秒的速度实行多维立体心脏投照，可以以有效的任意角度作为起始、结束位。得益于 DRMII 处理技术，保证在多解剖背景下仍能清晰观察冠脉血管。
	Benefit: Cardiac acquisition with CRA-CAU. Less contrast, less dose, more diagnosis information. Especially for patients with renal inadequacy and children.
	临床意义：可完成加头、足位的多维心脏造影。更少造影剂，更低射线剂量，更多诊断信息。对肾功能不全和儿童患者更有意义。
44.	**Cardiac Analysis in DL ; Stenosis Analysis Application for DL ;**

Stenosis Analysis Application for DL

心脏分析高级功能包(主机)；血管狭窄分析应用功能(主机)；左室分析应用功能(主机)

Stenosis Analysis Application for DL

多点自动狭窄分析软件工具包(主机)

Stenosis Analysis is an application designed for estimating vessel dimensions and relevant parameters of the arterial Stenosis morphology in X-ray angiography. It is an expert tool applicable on:

- cardiac vessels
- peripheral vessels in subtracted format

Based on the user's manual identification of the vessel to be analyzed, the software automatically detects the vessel edges and displays the stenosis severity. In order to display measurements in millimeters, the operator needs to perform calibration. It can either be done:

- automatically, based on the known system geometry（For all GE System Images），
- Manually, from an empty catheter present in the image to analyze.

狭窄分析软件用于血管造影中径线测量及狭窄血管形态的相关数据分析，应用于：

- 心脏冠脉血管
- 外周 DSA 血管

该软件能自动探测血管边缘，并自动计算狭窄程度. 为获得以毫米为单位的测量结果，需经过校准程序，提供了两种方式：

- 自动校准, 基于图像中的 DICOM 信息中包含的几何放大率（适用于所有 GE 血管机系列设备的图像）.
- 手动方式，利用图像中的导管进行校准.

LV Analysis Application for DL

左室功能分析软件工具包(主机)

Left Ventricle Analysis is an expert reporting tool designed to estimate wall motion dynamics of the left ventricle, and to perform Global Ejection Fraction analysis in X-ray angiography. Based on the user's manual delineation of the end-diastolic and end-systolic contours, the software provides means to perform Wall Motion and Global Ejection Fraction (GEF).

- Wall Motion analysis is built upon the centerline method.
- GEF analysis provides results calculated with both the Simpson's rule

		method and the Dodge-Sandler area-length method. 左心室分析软件是用来分析左心室室壁运动的专用工具软件，利用血管造影图像分析球形射血分数 - 室壁运动分析使用的是中心线法. GEF（球形射血分数）分析可提供 Simpson 和 Dodge-Sandler area-length 两种方法的计算结果.
45.		IGS Breeze（Bolus） 四肢血管跟踪造影技术 Variable speed tabletop translation for Digital Peripheral Angiography Automatic selection of all acquisition parameters Injection start time START and END positions selection Masks before, Real time subtraction Automatic kV, ms set 四肢跟踪 DSA，实时床速可调 自动参数设置 注射起始时间可控 起始/结束位置选择 先蒙片，实时减影 自动 kV，ms 设置 Benefit: Less contrast, Less dose and show the whole low limbs vessel situation which is subtracted in one series. 临床意义：更少造影剂，更少射线剂量，在一个序列中显示整个下肢血管情况，可观察减影/非减影/按比例减影影像。
46.		**ADVANTAGE PASTE** **图像无缝拼接技术** Reconstruction of a series of subtract bolus chase, easy to observe the whole lower limbs. Doctor can print best image with GE patent layout. 将下肢减影图像重建，形成整体连续的下肢血管图像，易于观察。独有的 layout 排版打印，满足个性化需求。

47.	**Road mapping**
	实时路径图技术
	Subtracted fluoroscopy can guide the super-selection of wires and catheter by watching the clue of vessel.
	实时观察血管走行，轻松实现超选插管。
48.	**Background Adjustable subtracted fluoroscopy**
	背景可调减影模式透视
	During real time subtract fluoroscopy, subtraction percentage can be changed, the background can change from 100% subtract fluoroscopy to no subtract fluoroscopy step by step.
	Benefit: Easy for anatomic position .
	可调节实时透视减影影像背景百分比，从 100%到 0%减影可选，床旁实现，易于解剖定位。
49.	**IGS 3D**
	IGS 数字平板血管三维重建技术功能包
	IGS 3D Spin： a 200° (approximately) rotation is performed at 40°/s, 30fr/s, Providing approximately 150 views in a 5 second acquisition.
	IGS 3D 旋转采集：以 40°/秒速度进行 200°旋转采集，采集帧频 30 帧/秒，5 秒内获取接近 150 幅影像。 Automatic Transfer and 3D/Cross-section Reconstruction: Images are automatically transferred to the Advantage Workstation (AW) and are automatically reconstructed.
	自动数据传输与三维/断面影像重建：旋转采集获取的影像可自动传输至 AW 工作站并自动重建。
	All reconstructed 3D and cross- section models can be 512^3, 256^3 or fast 512^3.
	重建三维影像和多断面影像显示解析度可达 512^3，也可选择 256^3 或 fast 512^3 模式以实现更快速的重建
50.	**3D Basic Applications**

3D 基础应用软件包

3D Model Display
The 3D model of vessels and/or interventional devices can be analyzed
using a series of 3D analysis tools including:
- MIP (maximum intensity projection)
-Volume Rendering
-Transparent rendering
-MPVR (multi-planar volume reconstruction)
3D 重建影像显示方式
血管影像可通过以下方式进行处理或呈现：
-最大密度投影
-容积再现
-透明重建
-多平面容积重建

Volume Viewer 5 is a software providing innovative new features for 3D
Review. It is well suited for 3D Processing of CT/MR/X Ray/PET and
PET/CT datasets. In addition to clinical review capabilities, it provides
great tools for analysis, segmentation, measurements, annotation,
filming and exporting of clinically relevant images.
高级 3D 浏览软件，可兼容处理 CT/MR/X Ray/PET 及 PET/CT 等多种 3D 影
像。除浏览功能外，还具有强大的分析、取样、测量、排版、输出等影像处理
功能。
It offers the ability to:
- Manipulate the 3D model around all three axes
-Perform distance and volume measurements
-Navigate inside vessels
- Detect vessels and remove un-wanted structures from the image
-Customized screen layouts for Innova 3D
应用该软件可实现
-三维影像的三轴旋转观察
-长度及容积测量
-血管内窥镜导航观察
-血管自动探测及非感兴趣区影像裁减
-三维显示界面自定义等功能

51.	3D Advanced Applications
	3D 高级应用软件包

- Transparent rendering

透明 3D

- Surface rendering

表面重建

-Volume rendering

容积重建

- MIP (maximum intensity projection)

MIP 重建

-Minimum intensity projection

MinIP 重建

- HDMIP(High Definition Maximum Intensity Projection)

高精度最大密度重建，类似 MIP，影像精度更高

-Raysum(pixel value is the sum of the voxel values along the projection).

影像效果类似传统平片重建

- Integral projection

积分重建方式投影

-3D volume measurement:

After auto calibration, AW workstation can measure and calculate the volume of the specified region of interest automatic, so help customer to make quantitative analysis with the specified region of interest .

3D 容积测量：通过自动校正，AW 工作站可自动测量并计算指定感兴趣区的三维容量以达到对感兴趣区进行定量分析的目的。

-2D segment measurement

After auto calibration, AW workstation can measure the planer straight-line distance between any two points.

2D 径线测量：通过自动校正，可直接测量任意两点间的直线距离。

-3D segment measurement

After auto calibration, AW workstation can measure the three-dimensional distance between any two points.

3D 径线测量：通过自动校正，可直接测量任意两点间的空间距离。

-3D angle send to gantry(Need synchro 3D software)

Once the optimal view of a 3D model has been selected, the gantry angles required to achieve the same view can be sent to the system for automatic repositioning of the gantry.

-3D 角度回传(需要 Synchro3D 软件)

在 3D 模式选择最佳观察角度后，可将该角度信息自动传输至主机系统并控制机架自动到达相同位置，使进一步手术操作更为方便，快捷。

-Scalpel : Cut 3D object, to define FOI

电子手术刀：对三维体积进行剪切，定义兴趣区。

-Automatic focus in center

三维病灶自动居中

In 3D post-processing, it is very often that focus is not in the center of vision. When the image is enlarged, or flipped, and else, the focus may be out the field of vision. According to this situation, customers can point the region of interest (ROI), it is usually focus and could place the region of interest to the central field of vision through one-touch operation. ROI could be observed facility in the post-processing.

三维后处理中，病灶可能并不在视野中央，在影像放大或翻转等处理时，病灶可能脱开视野范围。AW 可一键操作把指定的感兴趣区始终置于视野中央，在后处理时方便观察。

-Automatic FOV in center

三维视野自动居中

Center of 3D rotation always leaves from the center of vision during the post-processing, through one-touch click, AW automatically resets the center of observation to the center of the vision.

3D 视野中心在后处理过程中常常会偏离出显示视野中心，AW 可以一键操作把视野中心重置于显示视野中心。

-Navigation path automatic displayed

血管内窥镜路径显示

In the navigation to observe in step, AW could automatically display and save the path of stepping and observation direction. In the cine of navigation, it not only could observe the inside of vessel, but also display simultaneously on location and the direction of vision.

在内窥镜模式进行步进观察时，AW 可自动显示并保存步进路径及观察方向，在内窥镜电影制作时可显示血管内情况的同时显示所在位置和视野方向。

-3D Cine Production

3D 电影制作

3D image cancan be output in many modes: 1. Set the total angels of 3D image rotation and the rotation angle of each frame captured. AW will automatically output the rotation of three-dimensional image playback movies, save in AW or directly output to CD/ DVD or U disk. 2.

Set image rotation start position and end position, 3D image can be automatically output to the the filmer, saved in AW or directly output to CD/DVD or U disk and can accumulate and set each piece of multi-segment duration and frame rate.

AW 对处理后的 3D 影像有多种视频电影输出方式：一、设定 3D 影像总旋转角度和每两帧间的旋转角度，AW 即可自动输出连续播放的旋转 3D 影像电影，保存于 AW 或直接输出到光盘或 U 盘。二、设定 3D 影像旋转的起始和结束位置，即可自动输出旋转的 3D 影像电影，保存于 AW 或直接输出到光盘或 U 盘。可以进行多段累加及设定每段持续时间和帧率。

-Vascular automatic selected

血管自动选择

Rotation DA of Innova 3D includes all tissues' information. This feature allows tracking of vascular distribution and direction automatically

Innova 3D 的旋转 DA 影像包含了采集视野内的所有组织信息。该功能可以自动跟踪血管分布和走向。

-Vessel tree edit

血管树编辑

Powerful Tools of editing 3D vessels tree: freely cutting, adding or removing the un-connected tissue to vessels through one click.

可对 3D 血管树进行任意编辑、剪切或添加，以及一键式去除与血管没有关联的软组织等，是功能强大的血管 3D 处理工具。

-Implant Reconstruction

植入物重建

Advanced application on AW. The stents and clips can be reconstructed so that to be watched for the details and guiding the next action

AW 高级应用功能：对大血管支架、血管夹等金属植入物进行三维重建，三维立体观察植入物细节，判断手术效果并指导下一步措施。

- Enhance Contrast

弹簧圈增强显示

Enhance to show the details of coils in 3D model and guiding the actions.

增强显示弹簧圈，以 3D 方式观察弹簧圈内部情况以确定下一步措施。

-Calcium clot reconstruction

钙化斑块重建

-Shell View

Not only watch the vessel in 3D model, but also in navigation model.

		Help to understand the details of vessel and make better procedure plan 血管"壳"状重建技术 同时观察血管内、外情况，即同时具有 3D 和仿真内窥镜的效果。 临床意义在于完整观察血管具体走行及开口处情况，帮助判断病变细节并制定治疗方案。
52.		IGS holography 3D IGS 全息三维 IGS holography 3D is a new generation application of IGS 3D. It enhances the IGS 3D application by adding automated sequential mask and contrast spin acquisitions with processing protocols to produce subtracted 3D vascular images. Clinicians may use Subtracted 3D to quickly visualize Vessels without the need to remove surrounding bone, tissue, and implanted devices. The output of the 3D processing provides convenient side by side and separate visualization of the mask series, the subtracted vascular anatomy and the standard 3D vascular images. The mask image can be fused on to the subtracted image and their transparency can be adjusted for optimal visualization of the implanted devices in relationship to the vascular anatomy. IGS Subtracted 3D requires the following: IGS 3D, AW VolumeShare 4 or above. IGS Holographic 3D acquisition : 2 times of a 200° (approximately) rotation is performed at 40°/sec, at a frame rate of 30fr/s, providing approximately 300 views . IGS 全息 3D 是全新一代的 IGS 3D 功能。它增加了注射造影剂前的自动蒙片协议，与注射造影剂后的旋转采集信息互相减影，无需处理周围组织和植入物即可直接得到减影 3D 血管影像并提供减影、非减影及蒙片的 3D 影像。 -可根据不同病变和病变大小，采用不同视野进行采集和重建。 -可根据病变性质，重建多种不同组织模式，如骨、血管、软组织等。 IGS 全息 3D 以 40°/s 速度进行两次 200°旋转，采集帧频 30 幅/秒，获取接近 300 幅影像进行 3D 和软组织断面重建。
53.		Revolution multi-Volume 3D Revolution 多容积三维

Revolution multi-Volume 3D is a new technology in 3D imaging and reprocessing on the brand of new GE IGS platform. This creative technology consists of three main steps: fast reconstruction, synchro-tracking, multiple Fusion. Within one-step fast 3D acquisition and reconstruction, multiple volume images including vessels、bones、coil、stent、soft issue sections、virtual endoscopic views and other 3D volume images, could be displayed simultaneously, which could give a comprehensive view of the interested area to the physician, and greatly optimize the workflow of preoperative diagnosis and postoperative assessing. During the procedure, the target area could be locked through synchro-tracking technology, the views of inside/outside the vessel could be seen by different angles, the lesion size /shape/location could be showed clearly, the feeding vessel could be detected easily. All above information certainly optimize the whole workflow, complete the complex operations with less X-ray exposure, less contrast and save more time. After the procedure, multiple vessels、bones、implanted devices and so on more than 20 items, all could be precisely merged together, the merging leads to the accuracy of postoperative accessing, which is very useful to access the flow in certain vessel, outcome of the coils and embolization, the deployment of stents, the location of clips, and some surgical effect.

Revolution 多容积三维是 GE IGS 平台血管机最新推出的一项全新 3D 成像和处理技术。根据手术流程，分别带来多容积三维快速重建、同步追踪和影像融合三种技术。一次 3D 采集快速三维重建，同时获得血管、骨骼、弹簧圈/支架植入物、软组织断面、仿真内窥镜等多种三维容积图像，提供全面的影像学数据，从而帮助医生快速准确地进行术前诊断和术后评估。术中，应用多容积三维同步追踪技术锁定病灶部位，多屏联动同步显示血管外部、腔内和断面的病灶大小、位置、形态及供血路径，帮助医生快速超选目标血管，缩短手术时间和减少造影剂用量。术后，通过多容积三维影像融合技术，将不同血管、骨骼、植入物等进行精确融合显示（最多可以融合 20 多个容积），帮助医生综合评估术后血流情况、弹簧圈/液态胶体栓塞效果、植入支架展开形态和贴壁情况以及外科夹闭效果和瘤夹位置等。

54.	IGS CT （IGS edition）
	数字平板断面影像重建技术
	IGS CT is GE's new generation package that provides CT-like imaging for internal body structures (such as bone and soft tissues), as well as

	vessel in one image. Helped by patent reconstruction software with modified 30artifact correction and reconstruction parameter designed to optimize of the IGS data, the reconstruction image, something like CT image, intended to assist the physician in diagnosis, surgical planning, interventional procedures and treatment follow-up. Workflow enhanced by avoiding the patient transportation between Catheter-lab and CT room. IGS CT 是 GE 新一代数字平板成像技术, 通过 IGS 数字平板造影系统一次旋转采集, 同时获得血管、骨组织及软组织结构影像在内的高数据量空间影像信息。利用专利软件重建不同断面影像，达到类似 CT 影像的效果。该技术将为介入诊断治疗方式的选择，介入治疗操作及治疗后随访提供十分重要的信息，有助于提高手术效率，减少手术风险。并可减少患者在导管室和 CT 室间的移动，改善工作流程。 Applied in Interventional Neuroradiology, Vascular Interventional Radiology, Pain management and vertebroplasty, Biopsies and Interventional Oncology. 可用于神经介入、外周介入、肿瘤介入、疼痛治疗及穿刺引流等临床领域。 Automatically Reconstruct image by 150/300/600 views image in a 5,10,20 second acquisition. 5、10、20 秒采集, 150、300 或 600 幅图像自动重建。 Cross-sections: axial, sagittal, coronal and oblique cross-sections view is available. 轴位、矢状位、冠状位及斜位横断面显示，可同时显示 4 个断面影像，观察层厚及窗宽窗位可调。 Reconstruction solution: 512^3 or256^3. 512^3, 256^3 重建模式可选。 No extra calibration is needed for mode selection. 模式转换方便，无须重复校正。
55.	IGS View Link 三维和断面联动 GE patent technology. In a 5 second acquisition and auto transfer, 3D& CT images are displayed on the same screen and can be fully managed in viewlink model. GE 独有专利 3D/CT 同步处理技术。5 秒采集，同时重建 3D 和类 CT 影像并在 AW 显示：同时显示 3D/类 CT 影像的不同截面(冠状面、矢状面、斜断面、横

	断面等)并且所有影像可以相互联动或单独操作处理。
	Benefit: Different from other vascular system, Innova viewlink is GE's patent technology. With this feature, 3D&CT image can display on the one AW interface and can be operated synchronistically. The vessel can be viewed in 3D model and also CT model can be watched in different section. And meantime parenchyma, bone also can be displayed. 临床意义：区别于其它 3D 和类 CT 功能只能分别进行处理，GE 公司率先开发了 3D/类 CT 同步处理技术，可同时得到 3D/类 CT 重建影像并同屏显示、同步处理。不仅可观察 3D 血管，还能多角度、多断面观察类血管周围软组织类 CT 影像进行综合分析和判断，制定最佳手术方案。 Application: Applied in Interventional Neuroradiology, Vascular Interven-tional Radiology, Pain management, vertebroplasty and Interventional Oncology. 临床应用：神经介入、肿瘤介入、椎体成型、经皮穿刺等。
56.	**Intelligent anti-collision system** 智能防碰撞系统 IGS 730 system is equipped with intelligent position sensor and software, so that during the C arm rotation and movement process it can detect the surrounding objects and patients, if reach the distance threshold, it will automatically alarm. The unique pressure-sensitive anti-collision sensor to ensure that the detector will automatically stop when the object encountered. There is one level of collision sensing for X-ray tube sensor and there are three levels for detector sensor. IGS 730 系统安装有智能位置感应器和软件，使得 C 臂旋转及移动过程智能探测周边物体及患者，到达距离阈值时自动报警提示。探测器周边特有的压敏防碰撞传感器，保证探测器碰到物体时会自动停止，增加安全性。X 射线管上有一级碰撞感知传感器，平板探测上有三级传感器
57.	**Background Adjustable subtracted fluoroscopy** 背景可调减影模式透视 During real time subtract fluoroscopy, subtraction percentage can be changed, the background can change from 100% subtract fluoroscopy to no subtract fluoroscopy step by step. Benefit: Easy for anatomic position .

		可调节实时透视减影影像背景百分比，从 100%到 0%减影可选，床旁实现，易于解剖定位。
58.		**Sub/No-Sub Fluoroscopy** 减影及非减影透视 An option for IGS. It is used to display the real-time subtraction and non-subtraction fluoroscopy images simultaneously. An additional monitor is needed in operating room to achieve this function 该功能是 IGS 的一个选配，用于实现在透视条件下同时实时显示减影与非减影图像。要实现该功能，操作间吊架上必须配备额外的第三个显示器。
59.		**Automatic noise reduction technology** 自动降噪技术 Automatic noise reduction technology can help filter temporal and spatial noise, Improve image quality 使用最新的数字信号降噪方法滤除图像上时间和空间的噪声信号，提高图像质量，降低噪声 Features 功能特点 Automatic image processing techniques 全自动图像处理技术 Clinical Benefits 临床优势 Automatic noise reduction technology can help to reduce noise, improve image definition and show doctor the best clinical image 应用自动噪声降低技术能有效降低图像上噪声，降低噪声对解剖信息的影像，提高图像清晰度和锐利度，为医生提供更有价值的临床图像。
60.		**Touch Screen** 床旁触摸屏 Supporting Multi function connectivity and control which including exposure data, digital processing system, imaging processing system. Simple and easy to use, peace of mind. 床旁触摸屏设计，可以控制主机系统及相关可提供被控线路的辅助系统。主

	机控制包括曝光参数、数字处理系统、影像处理系统。便捷、简单、人性化设计。 Acquisition 采集模块 Protocol select, FPS of record, Inject delay, Auto inject, X ray delay selection. 预设参数、采集速度、注射延迟、联动注射、曝光延迟等采集参数选择。 Image Review 图像模块 Store photo, Recall photo, Previous Sequence, Next Sequence, Measurement. 存储图像、招回图像、前面序列、下面序列、测量等图像浏览处理功能。
61.	**Table Side Central** 床旁中央控制系统 IGS Review screen：All basic review and display functions are directly available from this screen. When the In-room Browser option is activated, all images acquired during the procedure can easily be reviewed using the IGS Central touch screen joystick. For angio processing, Mask select and Pixel Shift are directly accessible. 查看屏幕可直接使用所有基本查看功能和显示功能。激活 In-room Browser（室内浏览器）选项时，使用 IGS Central 触摸屏操纵杆即可轻松查看采集到的所有图像。对于血管处理，可以直接访问 Mask Select（蒙片选择）和 Pixel Shift（像素位移）选项。 IGS Dose screen summarizes the parameters that can be adjusted to directly affect dose. 剂量控制屏幕可直接调整影响剂量的参数。 Table side Central's special feature is integrated other related equipment in the operate room. Different from other tableside touchscreen, doctors can operate such as Mac-lab and CardioLab etc. with the Tableside Central. 床旁中控台的独特性在于可以将导管室常用设备：电生理多导记录仪及血流动力学系统等整合起来。所谓整合的意义在于不是简单的设备堆砌，而是真正做到床旁中控台可以完全控制包括血管机在内的所有设备。 Depending on system configuration, when a Mac-Lab and/or CardioLab system is/are connected to the IGS system, the most common physio functions such as probe selection, zero setting, scale selection, measurements, gain selection... are directly accessible.

	根据系统配置，Mac-Lab 和/或 Cardio Lab 系统连接到 IGS 系统后，即可直接访问最常用的物理治疗功能，如探头选择、零位设置、比例选择、测量、增益选择等。
	"Smart Nav" is a graphical interface present on the system if the IGS Central touch screen option is available on the system. Smart Nav provides an easy access to system functionalities (applications and actions to perform) from a menu displayed on user request, on the Reference display in 2 monitors configuration or on the Live 2 display in the 3 monitors configuration.
	如果系统配有 IGS Central 触摸屏选件，则在系统上会显示一个图形界面 "Smart Nav"（智能导航）。在 2 监视器配置的参考显示器上或在 3 监视器配置的现场 2 显示器上，Smrat Nav（智能导航）可根据用户请求从显示的菜单轻松访问系统功能（要执行的应用程序和操作）。
	Benefit: Operate all related equipment including FP vascular system itself.
	临床意义：可以通过床旁中控台控制所有导管室相关设备，包括血管机本身。提供术者最大的便利性。
62.	**Smart Controller** **智能遥控器** Doctors can control it by themselves in the operating room, without assistance of technicians. Smart controller consists of a series of buttons for selecting: 1 Cancel 2 Menu 3 Brightness/Contrast Selection 4 2D Send Angles： Transfer the angulation information from a review image to positioner forauto-positioning of the gantry. 5 Pixel Shift Selection 6 Zoom 7 Store Photo 8 Recall Photo 9 Previous Image 10 Play / Pause 11 Next Image 12 Previous Sequence 13 Exam Loop (Collage / In-room Browser)

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14 Next Sequence

15 SUB/No Sub Selection / Pixel Shift Up Left / Roam / IRB

16 Faster Review / Contrast + / Pixel Shift Up / Roam / IRB

17 Mask Selection to select another mask if needed / Pixel Shift Up-Right / Roam / IRB

18 Backward Review/Brightness-/Pixel Shift Left/Roam/IRB

19 Enter Key

20 Forward Review/Brightness+/Pixel Shift Right/Roam/IRB

21 Previous Sequence/Pixel Shift Down Left/Roam/IRB

22 Next Sequence/Pixel Shift Down Right/Roam/IRB

23 Slower Review/Contrast-/Pixel Shift Down/Roam/IRB

可完全由医生在手术室内一人掌控，不需技师协助。

智能遥控器包含下列按钮组键：

1 取消

2 菜单

3 亮度/对比度选择

4 2D 发送角度：回放二维影像的角度使用遥控器一键式传输到机架系统，通过床旁自动定位器按钮可使机架自动达到所需机架角度，方便操作。

5 像素切换选择

6 缩放

7 存储照片

8 调用图片

9 上一幅图像

10 播放/暂停

11 下一副图像

12 上一个序列

13 检查循环

14 下一个序列

15 减影/无减影选择/切换至左上像素/Roam/IRB

16 快速查看/增加对比度/切换为上面的像素/Roam/IRB

17 使用蒙片选择来选择其它蒙片（如果需要）/切换至左上像素/Roam/IRB

18 向后查看/减少对比度/切换为左面的像素/Roam/IRB

19 回车键

20 向前查看/增加对比度/切换为右面的像素/Roam/IRB

	21 上一个序列/切换至左下像素/Roam/IRB
	22 下一个序列/切换至左右下像素/Roam/IRB
	23 慢速查看/减少对比度/切换为下面的像素/Roam/IRB
63.	**IGS Integrated UPS** **IGS 主机内置式连续电源保护系统** Protects against downtime and data loss by providing continuous, clean power 提供连续的清洁电力，保护设备免受瞬时停电造成的设备损伤、和数据丢失的影响。

第三部分：IGS 低剂量技术

序号	说明
64.	**Automated electric collimator** 自动电子束光器 Collimator is an Electric Optical device which is installed in X Ray cube besides Output port 束光器 是一种安装于 X 线管组件管套输出窗前方的机电型光学装置 When collimated, an electronic shutter can be automatically applied around the image area to optimize its esthetic during Fluoroscopy or Record acquisition, or during Review. 限束后，在透视或记录采集过程中或查看过程中，电子光栅可以自动应用到图像区域周围，以使其更美观。 Features 功能特点 Collimator can could Keep the field of illumination automatically when SID changes 随着焦~屏距的改变，全自动限束器具有自动保持其照射野大小的能力

	Clinical Benefits 临床优势 Control the field of illumination in order to narrow field of illumination and reduce Unwanted X-ray, absorb soft X ray, therefor Improve image definition 控制 X 射线球管输出线的照射野，以便在能够满足 X 线成像和诊断的前提下，尽量减少投射范围，避免不必要的剂量；并能吸收一些散乱的射线，提高影响清晰度。
65.	**Automated blade collimator** 自动叶片式束光器 2 pairs of collimation blades for maximum blockage of direct radiation for dose optimization. 两对叶片式束光器最大程度地阻断直射线，实现剂量最优。
66.	**Virtual Collimation** 虚拟光栅技术 Enable the collimator blades position without radiation. 实现无射线准直器叶片设置，简便操作，减少不必要射线剂量。
67.	**Two-way smart fluoroscopy store technology** 双向智能透视存储技术 Different from fluoro store, this feature adds intelligent operate module into bidirectional fluoro store. It can catch the fluoro sequence after operation and make the operation process optimization. 区别于普通透视存储功能，增加了智能化操作模块，可在操作之后捕捉透视序列。更加人性化的设计，利于优化手术流程。
68.	**Dose IQ Customization** **剂量定制选择** 5 Auto-Exposure Preferences to reach the best balance of dose and IQ. -IQ Plus : Maximize IQ & Maximize Contrast -IQ Standard : Maximize IQ & Limiting Dose - Smart IQ : Minimize Dose

	-Receptor Dose Limited Plus : Minimize Dose -Receptor Dose Limited Standard : Minimize Dose 提供多达 5 种剂量及影像质量水平选择，在提高影像质量与降低剂量间达到最佳平衡，满足不同临床需求。
69.	**Integrated Dose Monitoring** 剂量监测与显示系统 Integrated system to monitor and show the dose level in real time. 内置剂量监测系统，可监测剂量并实时显示。
70.	**Radiation Dose/Image Balance** 剂量/图像均衡技术 The latest technology is used in the whole imaging chain on IGS, so that the radiation dose and image quality to achieve a better balance, obtaining better image quality without increasing the radiation dose (better contrast, richer details and less noise) IGS 系统在整个影像链中采用了最新的技术，在放射剂量与图像质量达到更好的平衡，可以在不增加放射的剂量下获得更好的图像质量（更好的对比度、更加丰富的细节显示、更低的噪声）。
71.	**Frequency conversion DSA** 变频 DSA We can adjust acquisition rate According to need 在 DSA 采集过程中可以根据需要调节采集帧率 Features 功能特点 Acquire DSA in different rate 在 DSA 采集过程中将以变化的采集帧率进行图像采集 Clinical Benefits 临床优势 We can split the acquisition procedure in three phase, According to Arterial phase, Intermediate stage, Venous phase. then acquire sequences in different rate, it helps reduce unwanted radiation of doctor and patient 血流进入组织的过程可以分为三个阶段:动脉期，实质期，静脉期，我们可以根据血流速度和成像要求将采集过程分成三段，设置不同的采集参数，较少了不

	必要的辐射，降低了医生和病人接收的辐射剂量 In the DSA mode, based on the patient's vascular conditions and clinical needs, the user can adjust the phase duration or acquisition frame rate, and get the optimal images. -available frame rate: 0.5~7.5fps -Single shot capability -Can skip some phase on the control room 数字减影模式下，基于患者本身的血管状况及临床需求，可针对时相和帧频进行调节，获取最佳的影像。 -0.5~7.5 帧频可选 -可点片操作 -可手动选择需要跳过的时相
72.	**SafeguardTM Radiation Package** **放射防护包** SafeguardTM Radiation Package is consist of lower body radiation shield and ceiling mounted shield 76x61cm & lamp package and Integrated Dose Monitoring and summary and Anti-scatter Grid and Spectral filter and Audio intercom, it provides a total solution to reduce the dose for patient. SafeguardTM 剂量防护包向用户提供了一个全方位的剂量防护解决方案，最大限度的降低 X 线剂量。 Lower body radiation shield 0.5mm lead equivalent ; Included removable over table shield 床旁防护铅帘: 0.5mm 铅当量；包含一个床上防护帘用于下半部身体的防护（详见其它配置）。 Ceiling mounted shield & lamp package 0.5 mm lead equivalent 悬吊式防护屏（带灯）0.5mm 铅当量用于眼部和甲状腺的防护(详见其它配置)。 Integrated Dose Monitoring and summary It allows monitoring of real-time dose rates, integrated skin dose, as well as total dose area product received by the patient during a procedure. 剂量监控系统 实时显示剂量率，综合皮肤剂量，患者累计总剂量。

	Anti-scatter Grid The system is configured with a removable anti-scatter grid to maximize image quality during routine imaging. Removal of the grid improves x-ray dose efficiency. 防散射线隔栅 该系统配备了可拆卸的防散射线隔栅为常规造影时获得最大的图像质量，不使用隔栅时则可以提供 X 线效率。 Spectral filter inside and adjust automatically : Cu Filter. 内置频谱滤波器: 自动选择插入铜滤板, 降低散射线剂量达 30%。
73.	**Patient Sense Contouring** 全新智能轮廓追踪技术 Table side activation, Single Button control for gantry and detector. 床旁单键控制开关智能轮廓跟踪 Intelligent algorithm during gantry motion to select the optimal position for the image receptor relative to the patient. Faster and Safer Contouring Motion Closer to Patient 10cm. 独有智能探测器定位技术保证机架运动时，探测器自动感应病人体表轮廓，自动升降，实时保持探测器与病人体表 10cm 的距离。 机架操作更加省时安全，避免发生病人碰撞。 Lower SID optimizes the imaging geometry and implies Dose savings. GE Patents. 实时保证最小 SID 和投照范围合理，减少射线剂量。GE 专利技术。
74.	**Dose map** 智能剂量地图 IGS Dose map is a feature used to calculate, display and record the estimated local cumulated dose during procedures done on the GE X-Ray angiographic system. It is designed to provide to the user visualization of the distribution of the local cumulated dose all along the exam as well as the current projection of the beam. The local dose is calculated depending on the estimated air kerma, the gantry position, the table position, the table estimated attenuation, the estimated backscatter correction and the system settings. Calculation and cumulated local dose is updated for each acquisition

and displayed upon user request or upon user request or upon configured threshold. The dose map is the key reference for dose management. It will automatically give a warning to doctors when local cumulated dose exceeds safe dose, thus help avoid patients' local radiation damage.

IGS 剂量路图用于在介入手术操作过程中实时计算，显示并记录病人的局部累积剂量。它可以让医生非常直观地观察到当 X 射线产生的过程中，病人全身每厘米皮肤的剂量分布情况。剂量路图对病人每厘米皮肤的显示是根据空气密度，机架旋转角度位置，床的手术位置与操作角度，光栅角度与系统设置。获得的局部剂量显示数据在每次旋转采集中都是实时更新显示，并且可以按照医生的要求进行阈值的手动设置。剂量路图对剂量系统管理提供了非常好的参考工具，当局部累积剂量超过辐射阈值，可自动预警提示医生，以帮助避免病人体表局部的放射损伤。

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第四部分：HOR 专用配置

序号	说明
76.	**Removable Rails at surgical size** **可拆检查床导轨** Removable rails at surgical size can widen the laptop of the table and meet the surgical requirement in the hybrid surgery. It can easy to fix the patient with the surgery patient restraint strap. 通过复合手术床的专有导轨设置，可以使传统的介入手术床与宽面板的外科手术床实现轻松的转换。通过导轨的安装，介入床的宽度可以加宽到外科手术床的操作要求，方面了在复合手术中行使外科手术部分时，病人需要绑定外科术带的要求。实现多种手术同时操作的过程。
77.	**Anesthesia screen holder** **麻醉屏幕支架** Anesthesia screen holder can help doctor to see the anesthesia screen with more flexible angle by the tableside. And doctor can also adjust the angle by themselves. 方面手术过程中医生更加灵活地在手术床旁观察麻醉屏幕，医生可以按照操作习惯自由选择术中所需要的观察角度。

78.	**Arm board with thick pad** **厚垫板手臂板** Different from traditional arm board, the thick pad provide more comfortable for the patient, and can provide more fast procedure. 与传统的手臂板不同，加厚手臂板提高了病人在手术操作过程中的舒适度。医生在进行桡动脉穿刺时可以更加安全快速地进行手术。
79.	**HEAD SUPPORT WIDENER** **头部支撑加宽器** Head support widener provide wider area in the beginning the laptop during the head operation and brings doctor more space for the head surgery. 头部支撑加宽器使床面提供更大的操作面积, 用于医生在进行头部手术操作过程，使导管床的头部操作面积加宽。
80.	**HEAD RAILS EXTENDER** **头部延长导轨**
81.	**PATIENT RESTRAINT STRAP** **病人固定绑带** Comfortably secures patient in place during hybrid procedures 在复合手术过程中舒适地保证病人的位置固定和安全,帮助医生稳固病人，使得复合手术的操作更加安全灵活。
82.	**ACCESSORIES CART** **附件推车** Accessories cart helps to storage all the relative device used in the hybrid procedure, since the variety is complex and difficult to identify. The cart and move to any surgical point followed by the request from the doctor or nurse. It and provide a more tidy and easy operation procedure in the whole surgery. 因复合手术室各类辅助设备较多，附件推车用于安放复合手术过程中的小型辅助设备，它可以按照医生或护士的要求移动到任意手术位置，方便医生进行手

	术操作，保证手术过程的整洁，有序，便捷操作。
83.	**CE POWER DISTRIBUTION BOX** **UPS 电源配电箱**
84.	**UPS Interface** **UPS 接口** UPS interface used for the connection between the UPS and CE power 用于连接机柜与 UPS 电源的接口
85.	**20KVA UPS for site with Neutral** **20KV UPS 透视电源** 20KV UPS provide continuous power in the surgery, and ensure IGS 730 continued to work for 5 to 10 minutes when the electric is turned off. UPS leaves doctors more time to handle the none electrical accident during complex hybrid procedure and can also helps to protect the data immediately. UPS helps for the security protection for the patient in the surgery, and helps doctors handling accident more easily. 20KV UPS 可以提供手术中不间断电源，可以保障设备在停电之后继续工作 5-10 分钟，以使医生能够紧急应对在复杂手术中因停电引起的突发状况，不致因停电而丢失数据。UPS 大量提高了手术中对病人的安全保护性，使得医生对复杂手术的处理更加从容稳定。

第五部分：动平衡地面解决方案

86.	**Motion-Balance surface system** **动平衡地面系统** 土建方完成基层后，进行动平衡地面系统安装，具有耐腐蚀、防静电、良好冲击性能，与 IGS 730 的动平衡系统进行稳定的匹配与支持。

Motion-Balance surface befefit
- For the better precise motion and image quality
- Stopping distance is small to protect user safety
- Floor is robust to ensure durable usage for the long room life cycle
- Floor meets hospital expectation on cleanliness and microbial safety

动平衡地面的独有性
- 动平衡地面保证智能移动机器人运动的精确性以及高清的影像质量；
- 保证设备移动过程中可以按照医生停止的操作指令快速停止；
- 动平衡地面坚实耐用，可以较常规设备地面有更长的使用年限；
- 动平衡地面可以非常好的满足医院对手术室的整洁度的要求与微生物数量的限制。

Final floor in sights
- It is a grey color matt finish resin
- Our flooring finish system shall cover the exam room

动平衡地面外观
- 动平衡地面为无光泽的灰色亚光地面；
- 整个动平衡地面系统会覆盖整个手术室；

Prerequisites for floor finish installation
- Sub floor prepared by others and meeting spec
- Floor grounding location identified
- Walls/coving support/celling ready
- Environmental conditions under control
- Final room lights in the exam room are operational
- Power availale for power tools
- Storage and mixing area adjacent to exam room

动平衡地面系统安装前准备
- 提前准备毛地板，并满足安装动平衡地面要求参数；
- 确定地基位置；
- 确定墙面/天顶支撑情况；
- 确定手术室内其它相关安装合格；
- 通过手术室内环境测试；
- 确定手术室内的灯与电源的操作正常；

- 确定手术室周围的操作环境。

Determine floor application schedule and secure execution
- Fitting floor finish application schedule in overall project plan Site pre-inspection
- Acceptance of base plate installation
- Sign off on sub floor testing
- Get details on existing cleaning procedures/products approved in the hospital
- Sign off on finished floor acceptance

动平衡地面施工前协调与安装执行
- 确定动平衡地面系统的项目进度安排；
- 确定动平衡地基安装情况；
- 通过毛地面合格测试；
- 获得客户对于现有涉及产品和手术操作在复合手术室内的洁净度要求；
- 通过地面安装接收。

Finished floor applicator
- Flooring material ordering, receiving, strorage and handing
- Sub-floor surface final preparation(leveling, pore closure if applicable
- All tools and power tools required for floor application, Mixing room flooring protection, sufficient personnel
- Installation of Motion Balance floor and coves
- Trash removal& clean up of mixing room and any effected areas

动平衡地面应用
- 地面材料的面积确定，接收与预处理；
- 完成毛地面的准备（包括对平整度与地面封闭毛孔的处理）
- 准备所有地面操作相关的工具与电源连接，准备相应配料，所有安装人员提前入场；
- 安装动平衡地面；
- 安装完成后清理所有非动平衡地面的相关物品，以及在安装过程中所涉及的相关工作区域。

Security supervisor
- Supervision of the substrate preparation to meet Motion balance

	system and requirements
	• Reception of the substrate and associated records
	• Supervision of the Motion balance system application and finish coating(including intermediate flatness measurement)
	• Reception of the finished floor including mechanical tests flatness measurement, visual inspection(aesthetic defects)
	
	动平衡地面安全检测
	   • 检查基层条件满足动平衡地面系统的安装要求；
	   • 确定基层检查合格记录；
	   • 检查动平衡地面系统的使用与覆盖（包括各层介质的平整度测试）；
	   • 检查动平衡地面系统的机械操作测试结果，与地面观察结果。

第六部分：附加配置

序号	说明
87	落地式高压注射器
88	58 英寸显示器一个
89	按医院要求提供 PACS 系统医生报告工作站软件两套
90	按医院要求提供手术间场地加固改造、清理场地、射线防护、及装饰装修工程

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