

货物（设备）采购合同

项目名称：龙子湖新能源实验室 600MHz 液体核磁共振波谱仪采购项目

签订地点：河南郑州

甲方（采购人）：龙子湖新能源实验室

地址：郑州市金水区东三环与金城大道交叉口东 300 米

乙方（供货方）：广东省中科进出口有限公司

地址：广东省广州市越秀区先烈中路 100 号大院 9 号 102 房自编 A 一楼

甲乙双方根据《中华人民共和国政府采购法》、《中华人民共和国招标投标法》、《中华人民共和国民法典》等有关政府采购法律法规和合同法相关规定，现依照采购 龙子湖新能源实验室 600MHz 液体核磁共振波谱仪采购项目（招标编号：豫财招标采购-2023-854）项目招标结果，经过友好协商签订本采购合同。

合同文件包括以下文件：

- 1、合同条款；
- 2、中标通知书；
- 3、中标人投标文件；
- 4、招标文件；
- 5、其他。

上述所指合同文件应认为是互相补充和解释的，但是有模棱两可或互相矛盾之处，以其所列内容顺序为准。

一、货物的名称、型号、数量和单价

编号	采购内容	型号	制造商	产地	单价	数量	总价	备注
1	600MHz 液体核磁共振波谱仪	AVANCE NEO 600	布鲁克	瑞士	¥8,896,0 <u>00.00</u>	1	¥8,896,0 <u>00.00</u>	免税 价

注：货物及配件的名称、数量、品牌型号、配置清单、技术参数、售后服务等详见附件。

二、合同金额

本合同金额为(大写) 人民币捌佰捌拾玖万陆仟元整 (小写) ¥8,896,000.00 (以上价款以人民币进行结算)。

1、本合同金额包括本合同所有设备和随机附件、备品备件、专用工具的制造或采购、包装、税费、运输、装卸、保险以及技术服务(包括技术资料、图纸的提供)以及有关安装、培训、调试、验收、质保期保障、售后服务、强制性第三方监督检验机构验收检验费等全部费用。

2、除非双方另有约定,本合同履行期间货物清单所列货物的单价固定不变,上述费用不会因为物价、汇率、利率等变化而变化。

三、质量要求及供货方对质量负责条件和期限(采购需求中的内容)

1、乙方保证提供的产品为全新质量合格且为最新制造的产品,同时符合国家相关部门制定的生产(制造)标准以及该商品(设备)的出厂标准。如发生所供货物与合同不符,甲方有权拒收或退货,由此产生的一切责任和后果由乙方承担。

2、自安装验收合格之日起,免费质保期为1年。质保期内需无条件免费服务如下: 具体内容详见售后服务附件。

保修期内、期满后,乙方需免费提供技术咨询服务。

3、保修期外更换配件以成本价计算。如设备出现重大问题影响正常使用,乙方需给予甲方最大限度的技术支持,提供备品、备件或备机等措施。

4、终身提供产品维护、故障清除、技术升级等相关服务。如果产品停产最少提供10年备件供甲方使用。

四、交货期限和地点、方式

1、交货时间:自合同签订之日起12个月内供货。

2、交货地点:乙方按甲方指定地点将货物免费送达。

3、交货方式:乙方应在交货时向甲方提供货物(设备)生产制造标准、使用说明书、检验合格证明及相关的随机备品备件、配件、工具、软件等资料。

五、货物(设备)安装调试、验收标准和验收方式

1、乙方将所提供货物运至交货地点拆箱并免费安装调试完,并使其投入正常运行,经双方人员签字验收。

2、验收标准：投标文件上的技术规格要求或国家有关质量标准进行验收。

3、验收方式：根据验收申请，甲方组织相关人员进行正式验收，也可以根据实际需要增加出厂检验、安装调试检验等多种验收环节，特殊情况下可以组织第三方共同验收。

六、售后服务

甲方向乙方发出通知之日起三个工作日内，乙方应当安排技术人员免费为甲方人员进行技术培训和现场指导，人员培训不限制参加人数，内容包括设备功能、基础培训、应用培训和日常保养，使购买的货物（设备）满足国家规定运行标准和使用要求。具体内容详见售后服务附件。

七、货款支付

1、甲乙双方签订合同后，甲方向乙方支付合同金额 30%的预付款，甲方收到乙方的发货通知单及航班信息后 7 日内支付 60%货款，设备安装调试、验收合格后 12 个月内支付剩余 10%的货款。

2、支付方式：

本合同项下所有政府采购结算款全部支付至乙方（中标方）在中国银行股份有限公司广州先烈中路支行开立的账户，具体账户信息如下：

统一社会信用代码：914400001903678493

账户名称：广东省中科进出口有限公司

账号：628857741942

开户银行：中国银行股份有限公司广州先烈中路支行

3、甲方每次付款前，乙方需按每次付款金额开具符合国家规定的发票，甲方收到发票并通过国家税务部门官方网站检验发票真伪后按付款流程支付合同价款。

4、乙方必须提供真实、合法的发票。若乙方提供虚假发票，自发货之日起三日内乙方应无条件提供正规发票并承担甲方因此所遭受的所有损失。发票上记载的款项甲方有权不再支付，从合同款中扣减。

5、合同签订后，供货方严格按照合同约定进行供货，原则上不得变更合同内容。若必须变更合同内容，必须按照相关规定申报审批，报批后进行变更。合同变更形成的超出合同总额部分，待项目专项资金调整补充到位后再行支付。

八、违约责任

1、乙方逾期履行合同的，以合同总价款为基数，每逾期一日，按照中国人民银行授权全国银行间同业拆借中心发布的同期贷款市场报价利率四倍计算违约金。

乙方逾期 120 日不能交货的，甲方有权要求解除合同，并要求乙方支付违约金，违约金以合同总价款 2% 进行确定。上述违约金不足以弥补甲方损失的，甲方仍有权要求乙方赔偿损失。到期未能按时完工或供货的，造成甲方无法支付货款，由此造成的经济损失，由乙方承担。由于到期未能完工造成的一切不良影响和法律责任，由乙方承担，并列入甲方单位采购对象黑名单。

2、乙方在项目验收合格之日起保修期内违反本合同有关承诺保证的，甲方有权不予支付 10% 合同尾款，10% 合同尾款不足赔偿甲方损失的，乙方应补足甲方损失差额。

3、乙方必须按照招标文件和合同要求供货，擅自更改超越合同范围造成损失，由乙方负责。

4、项目如需追加采购，必须书面报甲方，经甲方同意，由甲方按程序上报批准后方可追加，否则甲方不予认可。

5、如发现乙方违反招标文件和合同的有关规定，甲方有权追究乙方违约责任，并有权终止合同。违约金以合同总价款 2% 进行确定。

6、任何一方违约，守约方维权支出的律师费、保全担保保险费、诉讼费、保全费、鉴定费、执行费等其它合理费用，均由违约方承担。

九、争议的解决

发生争议的，应首先通过协商解决，如协商不成，依法向有管辖权的法院通过诉讼方式解决纠纷。

甲、乙双方保证其在本合同中提供的联系方式、通信地址等信息真实有效。如有变更，均需提前两个工作日内书面通知对方，否则本合同登记信息视为唯一有效联络信息。


十、其他

1、本合同经甲方、乙方法定代表人或其委托人签字并加盖公章后生效。

2、本合同一式陆份，甲方、乙方各执叁份。

3、合同未尽事宜，双方应依照招、投标文件签订补充合同。

甲方（盖章）： 龙子湖新能源实验室
法定代表或其
委托人：
联系电话：
地 址：

乙方（盖章）： 广东省中科进出口有限公司
法定代表或
其委托人：
联系电话：020-87687613
地 址：广东省广州市越秀区先烈中
路 100 号大院 9 号 102 房自
编 A 一楼

合同生效时间：2023年10月17日

附近一：技术参数

1 超导磁体

1.1 具有低液氦与液氮消耗、高稳定性、高均匀性、抗干扰超屏蔽超导磁体或自屏蔽磁体，低温匀场线圈：9组，室温匀场线圈：36组，磁场漂移： ≤ 6 Hz / 小时

1.2 液氦维持时间： ≥ 150 天

1.3 液氦消耗速率： ≤ 16 ml / 小时

1.4 5 高斯强度处横向距离： < 0.7 米

1.5 有液氦液面自动监视和最小液面自动报警装置：

2 射频发射系统

2.1 射频通道数：2 个

2.2 各通道具有的功能：各通道有独立的观测、去偶、信号接收、模数转换功能；

2.3 双通道频率发生器数字频率合成，每个通道合成频率范围 5-1280 MHz；

2.4 双功放系统

2.5 质子最大输出功率： ≥ 100 W

2.6 多核最大输出功率： ≥ 500 W

3 接收及采样

3.1 接收中频 ≥ 1.852 GHz

3.2 每个通道独立的高速 ADC，采样速率 ≥ 240 兆次/秒

3.3 6KHz 谱宽有效动态范围 > 23 Bit

4 氦数字锁场及梯度匀场系统

4.1 自动 / 手动匀场系统

4.2 精确的氦梯度自动匀场

4.3 支持多溶剂峰（如吡啶）自动锁场

4.4 Z 方向射频脉冲梯度场

梯度场最大电流： ≥ 10 A

5 高精度变温控制单元

- 5.1 控温范围: -150°C — $+600^{\circ}\text{C}$ (低温实验需另配低温附件)
- 5.2 精度 $\leq\pm 0.1^{\circ}\text{C}$
- 5.3 利用核磁共振热电偶功能, 准确测量并自动控制样品温度
- 6 探头
 - 6.1 5mm Z 梯度场多核二合一探头
 - 6.1.1 检测核: ^1H 和 ^{19}F , 共振频率在 31P-199Hg 和 170-109Ag 之间的所有核
 - 6.1.2 ^1H 分辨率 (旋转) $\leq 0.6\text{ Hz}$ (1% CHCl_3)
 - 6.1.3 ^1H 线型 (旋转) $\leq 6/12$ (1% CHCl_3)
 - 6.1.4 ^{13}C 分辨率 (旋转) $\leq 0.2\text{ Hz}$ (ASTM)
 - 6.1.5 ^{13}C 线型 (旋转) $\leq 3/5\text{ Hz}$ (ASTM)
 - 6.1.6 灵敏度
 - ^1H 灵敏度 $\geq 1000:1$ (0.1% EB)
 - ^{13}C 灵敏度 $\geq 350:1$ (ASTM)
 - ^{31}P 灵敏度 $\geq 300:1$ (TPP)
 - ^{15}N 灵敏度 $\geq 45:1$ (90% formamide)
 - ^{19}F 灵敏度 $\geq 1100:1$ (90% TFT)
 - 6.1.7 90 度脉冲宽度
 - $^1\text{H} \leq 10\ \mu\text{s}$ (0.1% EB sample) $^{19}\text{F} \leq 12\ \mu\text{s}$ (TFT sample)
 - $^{13}\text{C} \leq 12\ \mu\text{s}$ (ASTM sample) $^{31}\text{P} \leq 12\ \mu\text{s}$ (TPP sample)
 - $^{15}\text{N} \leq 18\ \mu\text{s}$ (90% formamide sample)
 - 6.1.8 加 Z-方向梯度场线圈 ≥ 50 高斯/cm
 - 6.1.9 探头变温范围: -150°C — $+150^{\circ}\text{C}$ (低温实验需要另配低温附件)
 - 6.1.10 探头全自动调谐和匹配附件: 必须配备能调所有观测核的全自动调谐和匹配附件
 - 6.1.11 探头具备观测 ^1H 去偶后的 ^{19}F 图谱功能
 - 6.2 5mm 宽带液氮低温探头
 - 6.2.1 检测核: ^1H 和 ^{19}F , 共振频率在 ^{15}N - ^{31}P 之间的所有核 (^{199}Hg - ^{153}Eu 除外)
 - 6.2.2 ^1H 分辨率 (旋转) $\leq 0.8\text{ Hz}$ (1% CHCl_3)

6.2.3 ^1H 线型 (旋转) $\leq 8/16$ (1% CHCl_3)

6.2.4 ^{13}C 分辨率 (旋转) ≤ 0.22 Hz (ASTM)

6.2.5 ^{13}C 线型 (旋转) $\leq 3/5\text{Hz}$ (ASTM)

6.2.6 灵敏度

^1H 灵敏度 $\geq 1500:1$ (0.1% EB)

^{13}C 灵敏度 $\geq 900:1$ (ASTM)

^{31}P 灵敏度 $\geq 490:1$ (TPP)

^{15}N 灵敏度 $\geq 90:1$ (90% formamide)

^{19}F 灵敏度 $\geq 1350:1$ (90% TFT)

6.2.7 90度脉冲宽度

$^1\text{H} \leq 12 \mu\text{s}$ (0.1% EB sample) $^{19}\text{F} \leq 15 \mu\text{s}$ (TFT sample)

$^{13}\text{C} \leq 10 \mu\text{s}$ (ASTM sample) $^{31}\text{P} \leq 12 \mu\text{s}$ (TPP sample)

$^{15}\text{N} \leq 15 \mu\text{s}$ (90% formamide sample)

6.2.8 加 Z-方向梯度场线圈 ≥ 60 高斯/cm

6.2.9 探头变温范围: -40°C — $+150^\circ\text{C}$ (低温实验需要另配低温附件)

6.2.10 探头全自动调谐和匹配附件: 必须配备能调所有观测核的全自动调谐和匹配附件

7 功能

满足有机化学、生物化学、药物化学等方面的结构分析和性能研究, 可用于可溶性有机物、蛋白质、多糖等物质的分子结构和分子间相互作用研究; 可进行氢、碳、氮的双共振实验。

8 工作站及打印机

8.1 PC 工作站 (计算机工作站配置应以安装当月的主流配置为准)

CPU: intel 至强四核高端处理器

内存: 16GB

硬盘: ≥ 2 TB

独立显卡: 1G

显示器: ≥ 24 英寸宽屏液晶彩色显示器

网卡、DVD 刻录机

- 8.2 运行平台： Windows10（64 位）系统
- 8.3 激光打印机一台
- 9 NMR 软件
 - 9.1 快速多维采样处理软件许可证一个
 - 9.2 在线服务软件：包括在线使用帮助、NMR 技术指导、实验手册等
 - 9.3 脉冲程序模拟软件
 - 9.4 实验数据（原始数据及分析结果）可存为通用格式，能被其它 NMR 软件读取，并能导入 Microsoft Office 软件。
- 10 附件、零配件及消耗品(包括专用工具)
 - 10.1 随机必备的标准附件专用工具
 - 10.2 标准样品 1 套
 - 10.3 超导磁体用液氮真空输液管 1 个
 - 10.4 包含 24 位自动进样器及 36 个核磁转子
 - 10.5 陶瓷转子 5 个
- 11 技术文件与提供配套附件：
 - 11.1 技术资料：培训教材，操作规程（说明书、光盘）
 - 11.2 提供附件：
 - 11.2.1 仪器安装时，提供所需正常状态下的液氮，液氮，氦气，氮气。
 - 11.2.2 UPS 电源，6KVA, 2 小时
 - 11.2.3 空压机，带过滤器、储气罐和干燥器 1 套
 - 11.2.4 自增压液氮罐 1 个
 - 11.2.5 处理数据电脑一台
- 12 技术服务
 - 12.1 设备安装、调试
 - 12.2 设备安装：设备到货后，卖方按照用户通知的日期选派经验丰富的专家负责安装，调试；
- 13 技术支持及售后服务
 - 13.1 合同签订一个月内投标方应提供设备安装、调试等必备的技术文件，以便买方能提前作好设备安装的准备工作。

13.2 技术培训：仪器安装时进行现场培训，内容包括仪器的技术原理、操作、数据处理、基本维护等，保证用户可以独立操作和维护仪器；6 人次 1 周 NMR 技术培训(免培训费；差旅及食宿自理)。

14 保修期及维修

14.1 保修期：自验收合格之日起，主机和部件保修 1 年；质保期外冷头免费维护一次。

14.2 卖方在中国大陆应设有维修站。需提供负责售后服务的部门或单位的名称及联系方式以及维修人员的姓名和联系电话。

15 交货期：合同签订后 12 个月内

附件 2 配置清单

项目	物料描述	数量	单价 USD	价格 USD
	AVANCE NEO 600 MHz Digital NMR Spectrometer			
	AVANCE NEO 600 MHz 全数字化超导核磁共振谱仪			
30	AV4600C	1	PC	
	<p>NMR CONSOLE AVANCE NEO 600 MHZ/ AVANCE NEO 机柜</p> <p>The AVANCE NEO system console electronics is housed within a stainless steel one bay or double bay cabinet for 19-inch format units providing RF shielding with highest immunity against DVB-T, ATSC, ISDB-T, etc. The cabinet offers enough space to accommodate various units like Bruker RF amplifiers etc.</p> <p>The system console incorporates a state-of-the-art Ethernet ROUTER providing up to 14 TCP/IP based Ethernet ports for internal and external spectrometer devices such as sample changers, CryoProbe platforms, magnet control and monitoring equipment, Solid State NMR accessories, etc. It is equipped with a Bruker Power Distribution Unit (PDU) to enable software controlled console power-up and power-down via TopSpin.</p> <p>A dedicated system control unit (SCU) containing an embedded processing</p>			

项目	物料描述	数量	单价 USD	价格 USD
	<p>CPU with 1TB hard disk drive allows versatile and flexible spectrometer control. It controls the overall timing of system for all RF channels, gradient channels, real time pulses, triggers, etc. Each RF channel provides a fully broad banded transmit and a fully broad banded receive channel (transceiver TRX1200).</p> <p>Bruker system characteristics (AQS):</p> <ul style="list-style-type: none"> - 80 MHz system clock, 12.5ns timing resolution - Synchronicity on all channels within 12.5ns - Gradient control for all Bruker gradient amplifiers - Up to 8 RF channels - Up to 4 trigger inputs with 12.5ns resolution - Up to 4 real time output controls with 12.5ns resolution <p>Bruker Smart Magnet System (BSMS) supports:</p> <ul style="list-style-type: none"> - Ultra-stable, ultra-low noise B0 current source (ELCB) - 2G Digital NMR Lock for 2H and/or 19F nuclei (L-TRX) - Bruker Shim current sources (SCB20) - Bruker SmartVT control for up to 4 independent VT channels - Bruker SmartCoolers (e.g. BCU-I) - Bruker Low Temperature accessories (e.g. LN2 Exchanger) - Bruker High Temperature equipment (e.g. BVTE3900) - Bruker High Resolution gradient amplifiers (e.g. GAB/2) - Bruker RT Shim Systems and BST Upperparts <p>Bruker preamplifier system (HPPR) supports:</p> <ul style="list-style-type: none"> - Up to 8 RF preamplifiers - Fully Multi-receive, no extra wiring/components - Touch screen based human machine interface - Accurate tuning and matching with factory calibrated preamplifiers - Fully integrated automatic tuning and matching with ATM probes - Probe identification (PICS) interface <p># MAS rotor synchronization pre-configured # - AH0095 required for further trigger and real-time control options</p>			
40	<p>MSASC600SB MAGNET SYSTEM ASCEND 600 MHz SB/ Ascend 600磁体</p> <p>Superconducting magnet system in persistent mode with low loss cryostat technology for minimum helium and nitrogen consumption.</p> <p>Magnet system with built-in Electromagnetic Disturbance Suppression (EDS) using a proprietary technology for an efficient suppression of external disturbances (typically up to 99 %) like subways, railway lines and trams, corridor traffic, elevators, power lines or outside vehicular</p>	1	PC	

项目	物料描述	数量	单价 USD	价格 USD
	<p>traffic.</p> <p>Features:</p> <ul style="list-style-type: none"> - Standard Bore type (SB) with 54 mm bore size - Operating field 14.1 T - Very high field stability with a guaranteed drift rate of <10 ppb/hr - Extreme small fringe field in vertical and horizontal direction - Cryo shim system with 9 orthogonal shims - Excellent helium hold time - Helium flow system with one-way check valve for safe operation - Helium level measurement system - Alarm functions for low helium level (MICS) - Low nitrogen consumption with the upgrade possibility for BNL - Nitrogen flow system with one-way check valve for safe operation - Nitrogen level sensor with direct display function <p># Helium flow system to connect directly a helium recovery system</p> <p># Upgrade to different vibration damping accessories possible</p>			
50	<p>AH3012</p> <p>MAGNET STAND ASCEND Type 'F' ADI/磁体腿</p> <p>Magnet stand to support Bruker superconducting magnet systems in an upright position. Air spring and damped isolator system (ADI).</p> <p>Features:</p> <ul style="list-style-type: none"> - Double chamber isolators with high performance damping effect in vertical direction - Requires gas pressure of minimum 5 bar - Control switch for activating/de-activating - Upgradeable to different passive and active vibration isolation posts - Compatible with devices for the installation of tilting protection <p># Floor velocity tolerance level according to VDI 2038 (2013) and Amick/Gordon SPIE 5933 for sensitive laboratory instruments following the Nano-C curve for vertical and the Nano-D for horizontal vibrations (see also Bruker site planning manuals)</p>	1 PC		
60	<p>AH0070</p> <p>HELIUM TRANSFERLINE/液氮补加管</p> <p>Helium transfer line for standard ceiling height.</p> <p>Features:</p> <ul style="list-style-type: none"> - For all Bruker Ascend and USPLUS magnet systems (4 K) - 10 mm diameter - Short arm with 708 mm 	1 PC		

项目	物料描述	数量	单价 USD	价格 USD
	<ul style="list-style-type: none"> - Long arm on the transport dewar 1508 mm - Bendable part in between 2060 mm 			
70	AH0074 NITROGEN REFILL KIT PFA TUBE/液氮补加管 Nitrogen refill kit with corrugated PFA tube for low pressure dewars upto 1.5 bar.	1	PC	
	Features: <ul style="list-style-type: none"> - For all Bruker magnet systems (4 K) - Corrugated plastic tube with 3 m length - Perfluoroalkoxy alkane or PFA belongs to the family of Fluoropolymers - Short silicon tubes for magnet turret connection for 13 and 18.5 mm 			
80	AH0087 N2 VT GAS Separator/氮氧分离器 Membrane VT gas separator for production of >98% N2 gas from compressed air.	1	PC	
	# Requires higher volumes of compressed air than standard installation # Feed air must be dry and free of oil and dust			
90	AH3002 SHIM SYSTEM BOSS-3 SB PLUG/ 匀场板 Bruker Standard Bore (SB) Magnet System high performance Matrix Orthogonal Shim System (BOSS-3 SB). Designed for optimum homogeneity at low current and with low heat dissipation.	1	PC	
	Features: <ul style="list-style-type: none"> - 36 Matrix Shim Gradients - B0 coil - PT100 temperature sensor - Identification coding (ID) 			
100	AH3007 SHIM UPPERPART BST SB/进样系统 Bruker Standard Bore (SB) Magnet System Sample Transfer (BST) for NMR sample insertion and ejection (SB Spinner supported).	1	PC	

项目	物料描述	数量	单价 USD	价格 USD
	<p>Features:</p> <ul style="list-style-type: none"> - Built-in sample-up sensor - Built-in sample spinning/sample-down sensor - Prepared for shim system cooling 			
110	AH0243	2	PC	
	Shim Current Board (SCB20)/ 匀场电流板			
	SCB20 is a high precision, ultra-stable shim current board.			
	<p>Features</p> <ul style="list-style-type: none"> - 20 shim current sources - 20Bit digital resolution each - Shim current range +/- 1A each <p># Depending on shim system type two units might be necessary # Compatible with all Bruker Orthogonal and Matrix shim systems (e. g. BOSS-3)</p>			
120	AH1206	1	PC	
	BSMS GAB/2 for Z Gradients/梯度功放			
	GAB/2 is a fast single channel gradient amplifier board prepared for pulsed field gradient shimming (TopShim) and single axis GRADientenhanced SPectroscopy (GRASP).			
	Its design offers offset-free operation without the need of blanking pulses.			
	<p>Features:</p> <ul style="list-style-type: none"> - 10A max. - 16Bit resolution - Pulselength up to 50ms per second - Built-in pre-emphasis <p># TopShim uses lineshape optimization (see JMR 182(1), 38-48, 2006) # XYZ-gradient operation requires three GAB/2 units (see AH1204)</p>			
130	AH1015	1	PC	
	VT Control Unit (BSVT)/ 变温单元			

项目	物料描述	数量	单价 USD	价格 USD
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The Bruker SmartVT (BSVT) is a highly integrated gas flow system to control NMR sample lift (inject/eject) and VT temperatures within the probe.

Features:

- Digital temperature sensor resolution better than 5 mK
- Excellent temperature stability of about 10 mK/K (*)
- Supports various temperature sensors (e.g. thermocouple T or E, PT100)
- Mass-flow based VT gas flow control and monitoring, up to 3000 l/h
- Built-in sample freeze protection together with CryoProbes
- Up to 4 independent heater channels (e.g. Flow probes)
- High Temperature NMR ready (> 300°C with HT NMR probes)
- Supports SmartCoolers (BCU) and LN2 Low Temperature accessories
- Easy sample insertion with different kinds of spinner (ceramic, KEL-F, etc.).
- NMR Thermometer: accurate in-tube sample temperature determination

(*) e.g. SmartProbe, depends on environment and probe type

140 BH3072 1 PC
BSMS 2H Lock RF Unit (L-TRX)/ 2H锁发射接收锁场控制单元

The L-TRX is a highly integrated 2H lock RF transceiver (transmit and receive) unit with incorporated 5W RF amplifier for field lock operation on deuterated solvents.

Features:

- Versatile DDS based 2H frequency RF generation
- Fast and accurate gradient shimming on 2H using TopShim
- Easy and reliable locking with complex deuterated solvents and this even in automation with e.g. Pyridine-d5
- NMR Thermometer: accurate in-tube sample temperature determination

Can be extended with 19F lock RF unit (BH1230) for 19F lock operation

150 BH2075 2 PC
RF CHANNEL (TRX1200)/ 发射接收板

The TRX1200 is a highly integrated NMR RF transceiver (transmit and receive) unit with built-in pulse program engine (Sequencer, NCO/DDS, Shapes, etc.).

Features:

- 5 to 1200 MHz (transmit and receive)
- 12.5ns timing resolution

项目	物料描述	数量	单价 USD	价格 USD
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- 12.5ns simultaneous setting of amplitude & phase & frequency
- 1GB sequencer waveform memory
- 1852 MHz high intermediate frequency (IF)
- up to 7.5 MHz spectral width
- digital resolution (effective dynamic range)
 - > 17 Bit (SWH < 5 MHz)
 - > 19 Bit (SWH < 1 MHz)
 - > 23 Bit (SWH < 6 kHz)
- 240 MSPS / 16 Bit ADC, Digital Down Converter (DDC)
- 960 MSPS DAC, Digital Up Converter (DUC)

160 BH3400 1 PC

RF Amplifier BLABBH500/100 / 功率放大器

The BLABBH500/100 is a linear double channel high RF power amplifier for X-nuclei, 1H (and 19F) observe and decoupling.

It has a built-in ethernet interfaced, computer controlled RF amplifiers safety with forward/reflected RF power monitoring and diagnostics.

Frequency ranges of BLABBH500/100 models are

Model	BB-Channel	H-Channel
200-600	15-600MHz (A1)	180-600 MHz (A2)

Features:

- RF power A1: Min. 500W RF peak power (max. 25W CW) A2: Min. 100W RF peak power (max. 25W CW)
- Pulse program controlled blanking

170 BH0264 1 PC

HPPR HPLNA 1H Preamp/ 1H前置放大器

The HPLNA 1H is a highly linear, low noise, GaAs FET transistor technology based preamplifier for 1H and 19F observe, 1H and 19F decoupling and 19F lock operation.

Features:

- Ultralow ~1.0dB system noise figure
- Max. 4kW peak power RF capability
- Active transmit/receive switch
- Built-in RF power detector
- Factory calibrated for accurate tuning and matching

项目	物料描述	数量	单价 USD	价格 USD
180	BH0243 HPPR 2H Preamplifier/ 2H前置放大器 The HPPR 2H is a linear, low noise, GaAs FET transistor technology based preamplifier for 2H observe, 2H decoupling and 2H lock operation. Features: - Very low ~1.4dB system noise figure - Max. 500W peak power RF capability - Active transmit/receive switch - Fast, pulse program controlled mode switching - Built-in RF router for 2H lock and 2H observe - Factory calibrated for accurate tuning and matching # No external filters required	1	PC	
190	BH0269 HPPR XBB19F 2H PASS Preamplifier/ 杂核前置放大器 The HPPR XBB19F 2HP (2H pass) is a linear, low noise, GaAs FET transistor technology based preamplifier for observe and decoupling of nuclei from 57Fe up to 19F with built-in 1H Stop RF filter. Features: - Very low ~1.4dB system noise figure - Max. 500W peak power RF capability - Active transmit/receive switch - Factory calibrated for accurate tuning and matching # Designed for broad banded High Resolution NMR probes	1	PC	
200	BH0266 HR NMR RF FILTER 2H Stop/阻2H滤波器 2H Stop RF Filter to be used together with broad banded High Resolution NMR RT probes. Features: - Stop Band: 2H - Pass Band: 19F - 75As, 17O - 57Fe	1	PC	
210	PCWIN/ 电脑主机	1	PC	

项目	物料描述	数量	单价 USD	价格 USD
	NMR Workstation (WINDOWS) NMR 工作站			
	Configured NMR Workstation for AVANCE NEO NMR spectrometer series.			
	Features (*):			
	- Intel Xeon E5-1620v4 (up to 3.8 GHz), Quad Core			
	- 16GB DDR4-2133 (2x8 GB) RAM			
	- NVIDIA Quadro K620 2 GB GFX graphics card			
	- 2TB 7200 RPM SATA HDD			
	- Integrated Intel I-218 Gbit LAN (SPECT)			
	- Intel Ethernet I210-T1 PCIe NIC (NET)			
	- 9.5 mm Slim SuperMulti DVDRW 1st ODD			
	- USB US-Keyboard and USB mouse			
	- Preinstalled Windows 10 (64 Bit) and TopSpin 4.x (w/o license)			
	# (*) Configuration can change without prior notice			
220	AP2521 NMR WS MONITOR 24" LCD/ 24寸TFT显示器	1	PC	
	24" TFT Monitor for NMR Workstations.			
230	SHTS000-04 TopSpin 4.x Basic license/ Topspin软件 TopSpin4 NMR Software - Acquisition and Processing License.	1	PC	
	This software offers the full operating capability for spectrometer control, data acquisition (arbitrary dimensions) and processing (1D, 2D, 3D, 4D / nD) . capability for NMR data for WINDOWS, LINUX or MAC.			
	Features:			
	- NMR acquisition in arbitrary dimensions, with guided acquisition setup			
	- NMRGuide for training of users in use of 1D and 2D, 132 experiments with NMR literature library			
	- IconNMR automation interface			
	- NMR data processing (1D, 2D, 3D, 4D and 5D)			
	- Processing of Non Uniformly Sampled (NUS) data for 2D spectra (basic version)			
	- Integration and deconvolution of NMR spectra			
	- NMRSIM and DAISY for experiment simulation and 1D and 2D spectra prediction			
	- Relaxation analysis (T1/T2), solid state lineshape analysis			
	- TopSpin integrated structure editor			

项目	物料描述	数量	单价 USD	价格 USD
	# License key only (software available for download from our webserver)			
240	PA3823_BF/H_Z iProbe BBFO 5mm BBF/1H/ 5mm常温液体探头 X nuclei optimized 5mm double resonance broad banded Bruker iProbe (BBFO SmartProbe) designed for direct X-nuclei observation with 1H decoupling and for 1H observation (indirect detection). The X-nuclei range corresponds to 19F and the broad band range 31P-109Ag (BBF) excluding 171Yb-9Be. This probe offers superior single or multiple solvent suppression. Multipurpose probe with highest sensitivities for X and 1H detection. Features: - Designed for BBF observation and decoupling - BBF range: 19F, 31P-109Ag excluding 171Yb-9Be - Designed for 1H decoupling and observation - 2H lock - Z-gradient with 5 G/A*cm - Fast Automated Tuning & Matching (2G ATM) - VT range: -150 °C to +150 °C - VT gas: Nitrogen # Automatic probe recognition (PICS) # Integrated VT Adapter (VTA) # No external RF filters required # Requires BOSS-3 Shim System (not included) # Extended delivery time at 400 MHz	1	PC	
250	PA5011_BB/H_EZ Prodigy (N2) BBO-H&F 5mm 5mm BBO-H&F 液氮超低温探头 X nuclei optimized 5mm double resonance BBO H&F CryoProbe Prodigy designed for X-nuclei observation with 1H or 19F decoupling and 1H or 19F observation with X-nuclei decoupling. The X-nuclei range includes the broadband (BB) range 31P-15N excluding 199Hg-153Eu. Probe includes cooled preamplifiers for 1H & 19F, BB and 2H. Features: - Designed for X-nuclei (BB) observation or decoupling - 1H or 19F decoupling or observation	1	PC	

项目	物料描述	数量	单价 USD	价格 USD
	<ul style="list-style-type: none"> - 2H lock - Z-gradient with 5 G/A*cm - Z-gradient with 6 G/A*cm at 500 and 600 MHz - Automated Tuning & Matching (2G ATM) - VT range: -40°C to +150°C - VT gas: Nitrogen <p># Automatic probe recognition (PICS) # Required but not included:</p> <ul style="list-style-type: none"> # - BOSS-3 Shim System at 500, 600 and 700 MHz # - Cryo platform Prodigy # - BCU II for applications below 0°C # <p>Non standard delivery time at 700 MHz</p>			
253	AH0039 BSVT Adaptor Type-T (standard probes) 探头T型热电偶接口	1 PC		
	TC-T VT Adapter for NMR probes with Thermocouple type 'T' temperaturesensors.			
	Features: <ul style="list-style-type: none"> - Probe Thermocouple type T interface (2x) - Probe heater interface - Probe heater safety sensor interface 			
	# For Standard Temperature NMR probes (up to 200°C) # Not required for iProbes (built-in VTA)			
255	BH5510 Prodigy (N2) Cryo-Platform Nonstop/ 低温探头平台 PCU based LN2 CryoPlatform basic system supporting Prodigy CryoProbes including Prodigy nonstop option.	1 PC		
	Package includes: <ul style="list-style-type: none"> - Prodigy Cooling Unit (PCU) including vacuum pumps - 100 liter LN2 dewar with adaptor for re-fill during operation - 2 meter LN2-flexline - CryoProbe mounting system 			
	# Only applicable on initial system order together with a console # Only compatible with shielded magnet systems # Regular maintenance required for vacuum pumps within PCU # - not covered by the Prodigy CryoProbe warranty, must be purchased			

项目	物料描述	数量	单价 USD	价格 USD
	separately			
258	BH5450 PRODIGY (N2) Balance for N2 level 液氮秤 Balance accessory for PCU based LN2 CryoPlatforms. Features: - Measurement of the LN2 amount (weight) within the LN2 Dewar # Applicable only for shielded magnet systems	1 PC		
260	AH0171 SampleCase (24 position)/ 24位自动进样器 SampleCase (SC24) is a versatile sample changer for routine High Resolution NMR applications. Features: - Convenient sample access at user height - Safe operation - 24 easily accessed sample positions - Random access for sequential- or batch automation - Unique manual push-button sample exchange - Supports all common sample-tubes in spinners or shuttles - Compatible with MAS and CryoFIT # Spinners not included # Compatibility: AVIII and later # Extended delivery time	1 PC		
270	AH3051_50 5mm SB SPINNER (PCTFE)/ 5mm转子 KEL-F (PCTFE) 5 mm standard bore (SB) spinner for high resolution (hr) liquids NMR. For hr applications up to 850MHz. Features: - Sample temperature range: -40°C ... +120°C - Recommended for hr liquids CryoProbes # Spinner material is Polychlorotrifluoroethylene (PCTFE)	36 PC		

项目	物料描述	数量	单价 USD	价格 USD
280	AH3052_50 5mm SB SPINNER CERAMICS/ 5mm陶瓷转子 Ceramics 5 mm standard bore (SB) spinner for high resolution (hr) liquids NMR tubes. For hr applications up to 850MHz. Features: - Sample temperature range: -150°C ... +180°C # Spinner material is ceramics # Optimized for Wilmad tubes	5 PC		
290	AH0016 VT GAS COOLER (BCU-I) BCU I高分辨探头非液氮制冷单元, The SmartCooler (BCU-I) is a chiller for VT gas cooling of NMR probes. Achievable temperature within the probe depends on probe and selected VTgas flow but may be as low as ~0 °C. Features: - VT gas temperature about -40 °C (at the end of the transferline) - Up to 3000 litre per hour # Requires dry VT gas with at least -50 °C (at 1 bar) dew pointtemperature	1 PC		
300	SHC000A-04 SOFT LIC BRUKER SUITE TS4 ACA/ 软件包	1 PC		
310	LS_PRODIAGNOSE LABSCAPE PRODIAGNOSE/ 远程诊断 Allows the connection of NMR systems to Bruker's AutoDiagnose platform which currently offers the following features*: - Health Status Overview over all connected systems at a glance - System Configuration - Integrated cryogen level Overview - Integrated platform notifications - Email notification free trial - Easier root cause analysis for technical issues For AvNeo spectrometers, TopSpin 4.1.0. or higher is required. For	1 PC		

项目	物料描述	数量	单价 USD	价格 USD
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cryogen notification features, TopSpin 4.1.4. or higher is required.

For the connection of NMR systems to Bruker's AutoDiagnose platform, the customer has to ensure that the spectrometer workstation is connected to the Internet and all security settings are adapted to allow communication via a remote session.

The connection to and use of Bruker's AutoDiagnose platform is subject to the "AutoDiagnose Terms and Conditions of Use" which must be accepted during the registration process.

*Bruker's Autodiagnose is subject to continuous developments and the feature scope may vary over time.

320	LP-9999999 Training, 6people/ week/ 培训, 6人/周	1 EA		
330	LP-9999999 LHe, LN2 for installation/ 安装用低温气、液体	1 EA		
340	LP-C000276 Printer/ 打印机	1 EA		
350	LP-U0000094 UPS/ C6KS/2H storage battery(SANTAK)/ UPS 电源	1 EA		
360	LP-0000241 Self pressure liquid nitrogen container/ 自增压液氮容器/YDZ-100	1 EA		
370	LP-0001656 空压机, 带过滤器、储气罐和干燥器	1 EA		

项目	物料描述	数量	单价 USD	价格 USD
380	LP-C000709 HP Z4 G4 Workstation/ 处理数据电脑	1 EA		



附件3 厂家售后服务承诺

技术支持及售后服务承诺书

1. 布鲁克（北京）科技有限公司售后服务热线：400-898-1088/010-58333190；或 e-mail 至 customersupport.bbio.apac@bruker.com；

2. 我们提供中英文场地准备文件，并提供专业场地检测。保障仪器安全可靠地运行。

3. 我们的响应时间：<=8 小时；到达现场时间：<=48 小时。（非工程师所在城市的现场响应时间，将视交通情况适当延长）重大问题或其他无法迅速解决的问题在 5 个工作日内解决或提出明确解决方案；在力所能及的范围内提供终身维修。

4. 我们提供专业的安装调试及应用培训（个别不需要现场安装的仪器、配件除外）；由专业工程师负责安装、调试；安装过程中负责介绍仪器操作、日常保养注意事项；提供现场操作培训及操作手册。

5. 布鲁克（北京）科技有限公司在北京、上海和广州设有办公室，在仪器分布的主要城市如北京、上海、广州、沈阳、武汉、成都、苏州等城市均有驻地工程师，有原厂认证的资深工程师为用户提供专业、高效的服务。

6. 我们提供远程诊断服务。布鲁克（北京）科技有限公司已在全球建立起远程维修检测/技术支持中心。基于全球最先进的维修/技术支持网络服务系统，布鲁克（北京）科技有限公司能最大程度地降低设备的停机时间和提高设备的使用效率。

7. 布鲁克（北京）科技有限公司在上海外高桥保税区设有保税备件库，在北京和上海有备品备件库，保证有充足的零备件储备。

8. 我们为客户提供备品备件，认证，维修合同等服务，还提供客户定制服务，欢迎致电售后服务热线查询详情。

9. 我们为用户提供应用支持热线 400-898-5858

10. 保修期：验收合格之日起，主机和部件保修 1 年；质保期外冷头免费维护一次

11. 技术培训：仪器安装时进行现场培训，内容包括仪器的技术原理、操作、数据处理、基本维护等，保证用户可以独立操作和维护仪器；6 人次 1 周 NMR 技术培训（免培训费；差旅及食宿自理）

