

구 매 규 격 서

Commodity Description

품목번호 Item No.	관세분류번호 HSK No.	정부물품분류번호(8자리) Korean Government Commodity Classification Code(eight-digit)	품 명 Description	단위 Unit	수량 Q'ty
1	9027.30-4000	41115409	500MHz 핵자기공명분광기 (500MHz NMR Spectrometer)	set	1

I. End-user's Use (용도)

1. Various research fields such as chemistry, biology, pharmacy, medicine, and used for qualitative and quantitative analysis of organic and inorganic substances.
2. Identification of molecular structures of organic compounds, polymers, and natural products based on pharmaceutical samples
3. Identify the physical properties of the chemical reaction output
4. Characterization of organic samples and materials for identification of drug binding and material analysis for academic research.

II. Configurations of Goods (장비의 구성)

[주장비]

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|-------------------------------------|-------|
| 1. 500MHz spectrometer console | 1 set |
| 1) Spectrometer console main unit | |
| 2) Head amplifier chassis | |
| 3) NMR lock shim coil | |
| 2. 500MHz superconducting magnet | 1 set |
| 1) Superconducting magnet mainbody | |
| 2) Vibration proof table for magnet | |
| 3. Data system hardware | 1 set |
| 4. NMR software package | 1 set |
| 1) Main operation software | |
| 2) qNMR analysis software | |
| 3) NoD NMR analysis software | |

[부속장비]

1. Auto tuning unit	1 set
2. 500MHz broadband auto tuning probe	1 set
3. LN2 dewar with adaptor	1 set
4. Vibration proof table	1 set
5. NMR air supply system	1 set
6. Variable temp. experiment system	1 set
7. Auto sample changer	1 set
8. Cryogenics and gases for Super Conducting Magnet installation	1 set
9. Air compressor & Dryer	1 set
10. UPS	1 set
11. NMR standard samples with sample tube	1 set
12. Aluminum step ladder	1 set
13. Printer & Operation table	1 set

III. Performance & Specification (성능 및 사양)

[주장비]

1. 500MHz spectrometer console
 - 1) Standard frequency ^1H : 500MHz or more
 - 2) Stability : 0.1Hz/h or less
 - 3) High-frequency transmission control
 - Frequency range : 5 to 535MHz for all channels or wider
 - Frequency resolution : 0.005Hz or less
 - Offset frequency
 - Range : 5MHz or more
 - Switching time interval : 5ns or less
 - Phase
 - Shift range : 0 to 360° or wider
 - Resolution : 0.001° or less
 - Switching time interval : 5ns or less
 - Full range of amplitude : 159dB or more
 - Amplitude
 - Shift range : 0 to 100%
 - Switching time interval : 5ns or less
 - Attenuation
 - Range : 0 to 79dB or more
 - Step : 1dB or less
 - 4) Pulse controller time resolution : 5ns or less

- 5) RF transmitter & receiver channels : More than 3channels
- 6) Room temperature shim : More than 36shims

2. 500MHz superconducting magnet

- 1) Standard magnetic field : 11.74T or more
- 2) 5gauss stray field distance : 0.6m (Radial) / 1.2m (Axial) or less
- 3) Field Drift Rate : 5Hz/Hr or less
- 4) LHe Refill period : \geq 200days or more

3. Data system hardware

- 1) Host Computer for Data Processing
 - Memory : 8GB or more
 - CPU clock : 3.6GHz or better
 - HDD : 500GB or more
- 2) Data system common unit for system control
 - HDD : 500GB or more
 - Memory : 4GB or more

4. NMR software package

- 1) OS : Microsoft Windows 10
- 2) Graphics system : Windows GDI/OpenGL
- 3) Standard NMR Data Processing Software
- 4) Full Automatic NoD NMR software package
- 5) Automatic quantitative NMR software package
- 6) Unlimited Copy of NMR data processing software for all processing PC

[부속장비]

1. Auto tuning unit

- 1) Method : Automatic tuning and matching by separated controller
- 2) Tuning range : 1H, 19F, 15N~31P or wider

2. 500MHz broadband auto tuning probe

- 1) Temperature range -100 °C to +150 °C or wider
- 2) Nuclei for OBS/IRR : 1H, 19F, 15N ~ 31P or wider
- 3) Fully Automated tuning & matching should be supported
- 4) Observation of 15N~31P with 19F decoupling should be available
- 5) Manual tuning should be possible in case of auto tuning motor trouble
- 6) Sensitivity
 - 800 : 1 for 19F (TFT) or more
 - 320 : 1 for 13C (ASTM) or more
 - 150 : 1 for 31P (TPP) or more

- 35 : 1 for 15N (90% Formamide) or more
- 800 : 1 for 1H (0.1% EB) or more

3. Auto sample changer

- 1) Number of sampler : 24samples or more

4. Cryogenics and gases for Super Conducting Magnet installation

- 1) Liquid helium : 500 liter or more
- 2) Liquid Nitrogen : 5dewars or more
- 3) Helium gas : 2dewars or more
- 4) Nitrogen gas : 1dewar or more

5. Air Compressor with Air Dryer

- 1) Operating pressure : 0.65 ~ 0.8 Mpa or wider
- 2) Capacity : 420 L/min or bigger
- 3) Noise level : 49 dB or less

6. U.P.S

- 1) Capacity : 5 KVA or bigger
- 2) Holding time : 30 min or longer

7. NMR standard samples with sample tube

- 1) 1H sensitivity standard
- 2) 13C sensitivity standard
- 3) Sample tube : 100ea or more

IV. 기타 조건(Remarks)

1. Installation and Supervision.

Installation and Supervision should be carried out by qualified engineer.

2. Warranty of equipment

Warranty service for the goods manufactured by Maker should provided within 1year after installation.

3. Operation Training

Free of charge operation training of equipment should be carried out by qualified engineer

4. Delivery terms (※Consultation is possible)

Shipping from manufacturer's export airport should be performed within 90days after contract date

5. Packing

The system should be shipped under export standard packing condition