CNYST NDJ-8S

CNYST Digital Viscometer NDJ-8S Instruction Manual

Model: NDJ-8S | Brand: CNYST

1. Introduction

This instruction manual provides detailed guidance for the proper use and maintenance of the CNYST Digital Viscometer, Model NDJ-8S. This instrument is an advanced rotational viscometer designed for precise and reliable measurement of absolute viscosity for Newtonian fluids and apparent viscosity for non-Newtonian fluids. Its straightforward operation and functional design make it a suitable instrument for various applications, including the measurement of viscosity in oils, paints, plastics, food products, coatings, and detergents. The NDJ-8S model features a 4-digit LCD display with a blue backlight and comes equipped with four rotors (#1, #2, #3, #4). It offers four selectable speeds (6, 12, 30, 60 RPM), allowing for 16 different combinations to accurately determine the viscosity of liquids within its measurement range of 1 to 100,000 mPa.s.

2. Safety Precautions

- Always operate the viscometer on a stable, level surface to ensure accurate readings.
- Ensure the power supply matches the instrument's requirements (AC220V±10%, 50Hz±10% or 110V as per regional voltage).
- Avoid exposing the instrument to extreme temperatures or humidity. Operate within 5°C to 35°C and relative humidity below 80%.
- Handle rotors with care to prevent bending or damage, which can affect measurement accuracy.
- Do not immerse the main unit in liquid. Clean with a soft, dry cloth.
- Keep the instrument away from strong electromagnetic fields.
- Disconnect power before cleaning or performing any maintenance.
- Only use original or approved replacement parts and accessories.

3. Product Components

The CNYST Digital Viscometer NDJ-8S package includes the following main components:

- Digital Display Viscometer Host Unit
- Rotors: #1, #2, #3, #4
- Power Adapter
- Protective Frame
- Operating Manual
- Lifting and Lowering Column
- Wrench
- Carrying Case

Image: All components of the CNYST Digital Viscometer NDJ-8S, including the main unit, rotors, stand, and accessories, neatly arranged.

Image: A close-up view of the main viscometer unit, showing the digital display and control buttons.

Image: Side view of the viscometer main unit, illustrating its compact design.

Image: The viscometer accessories, including various rotors, stored in their protective carrying case.

4. Setup Instructions

Follow these steps to set up your CNYST Digital Viscometer:

1. **Unpacking:** Carefully remove all components from the carrying case. Inspect for any damage during transit.
2. **Assemble the Stand:** Attach the lifting and lowering column to the base of the stand. Secure it firmly.
3. **Mount the Viscometer Unit:** Slide the main viscometer unit onto the lifting and lowering column. Adjust the height and secure it using the locking knob. Ensure the unit is level using the bubble level on top of the viscometer.
4. **Connect Power:** Plug the power adapter into the viscometer's power input and then into a suitable power outlet. Ensure the voltage matches the instrument's requirements.
5. **Install Protective Frame (Optional):** If desired, install the protective frame around the rotor connection point.
6. **Select and Attach Rotor:** Choose the appropriate rotor for your sample and measurement range. Carefully screw the selected rotor onto the coupling shaft at the bottom of the viscometer unit. Ensure it is securely fastened but do

not overtighten.

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Video: A short demonstration of assembling the viscometer, including attaching the main unit to the stand and installing a rotor. This video shows the physical setup process.

5. Operating Instructions

To perform a viscosity measurement, follow these steps:

1. **Prepare Sample:** Pour the liquid sample into a suitable container. Ensure the sample volume is sufficient to fully immerse the rotor up to its immersion mark.
2. **Immerse Rotor:** Carefully lower the viscometer unit using the lifting mechanism until the rotor is immersed in the sample liquid up to the designated immersion mark. Ensure no air bubbles are trapped around the rotor.
3. **Power On:** Turn on the power switch located on the back of the viscometer unit. The LCD display will light up, showing the welcome screen.
4. **Select Rotor and Speed:**
    - Press the "OK" button to enter the measurement settings.
    - Use the arrow keys (up/down) to select the desired rotor number (#1, #2, #3, or #4).
    - Use the arrow keys (left/right) to move to the speed setting.
    - Use the arrow keys (up/down) to select the desired rotational speed (6, 12, 30, or 60 RPM).
    - The instrument can automatically select the appropriate rotor and speed for the sample.
5. **Set Measurement Time (Optional):** Use the arrow keys to navigate to the timer setting. Adjust the measurement duration as required. For stable readings, a minimum of 1 minute is often recommended.
6. **Start Measurement:** Once the rotor, speed, and timer are set, press the "OK" button to start the measurement. The rotor will begin to rotate, and the display will show the real-time viscosity (VI) in mPa.s and torque percentage (TQ).
7. **Read Results:** Wait for the reading to stabilize. The instrument features a stable reading cursor block; data will be displayed stably once the vertical cursor block is fully read. The measurement will automatically end after the set time, or you can press "RESET" to stop it manually.
8. **Record Data:** Note down the displayed viscosity value.
9. **Clean Up:** After measurement, carefully lift the viscometer unit, remove the rotor, and clean both thoroughly with an appropriate solvent.

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Video: A detailed demonstration of the viscometer in operation, showing the rotor immersion, power-on sequence, setting parameters on the digital display, and real-time viscosity measurement.

6. Maintenance

- **Cleaning:** After each use, thoroughly clean the rotors and the protective frame with a suitable solvent for the sample material. Ensure no residue remains. Wipe the main unit with a soft, dry cloth.
- **Storage:** Store the viscometer and its accessories in the provided carrying case in a dry, clean, and temperature-controlled environment when not in use.
- **Rotor Care:** Handle rotors with extreme care. Bending or damaging them will lead to inaccurate measurements.
- **Calibration:** Regular calibration is recommended to maintain measurement accuracy. Refer to a qualified service technician for calibration procedures.

- **Fuse Replacement:** If the instrument does not power on, check the fuse located on the back panel. Replace it with a fuse of the same rating if blown.

7. Troubleshooting

Problem	Possible Cause	Solution
Instrument does not power on.	No power supply; Blown fuse.	Check power connection; Replace fuse with correct rating.
Inaccurate readings.	Damaged rotor; Incorrect rotor/speed selection; Sample not properly prepared; Instrument not level.	Inspect/replace rotor; Verify rotor/speed settings; Ensure proper sample immersion and temperature; Level the instrument.
Rotor not rotating.	Rotor not properly attached; Obstruction; Motor malfunction.	Re-attach rotor securely; Check for obstructions; Contact support if motor issue persists.
Display error message.	Internal error; Sensor issue.	Restart the instrument; If error persists, contact technical support.

8. Technical Specifications

Feature	Specification
Display	4-digit LCD with blue backlight
Measurement Range	1 to 100,000 mPa.s
Rotors	#1, #2, #3, #4 (4 types)
Rotor Speeds	6, 12, 30, 60 RPM
Measurement Accuracy	±1% (for Newtonian fluids)
Power Supply	AC220V±10%, 50Hz±10% or 110V (region-dependent)
Operating Conditions	Temperature: 5°C to 35°C; Relative Humidity: <80%
Dimensions (L×W×H)	370 × 325 × 280 mm
Net Weight	6.8 kg

9. Warranty and Support

For warranty information, technical support, or service inquiries, please contact your retailer or the manufacturer directly. Keep your purchase receipt as proof of purchase for warranty claims.

Manufacturer: CNYST
For further assistance, please refer to the contact information provided with your product packaging or visit the official CNYST website.