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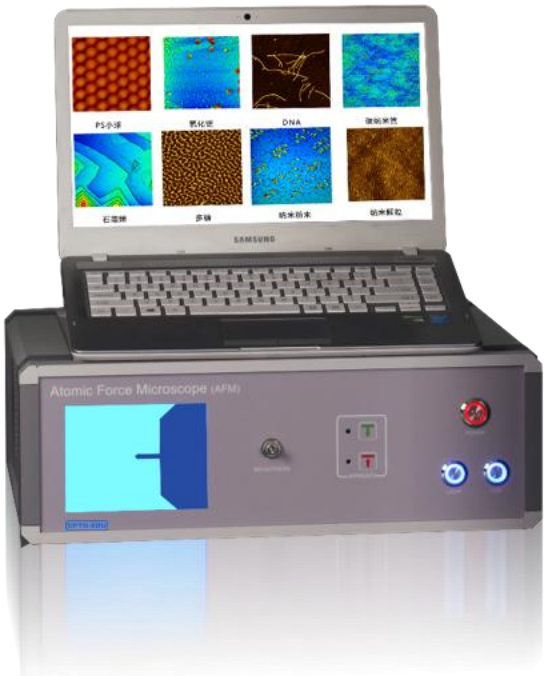
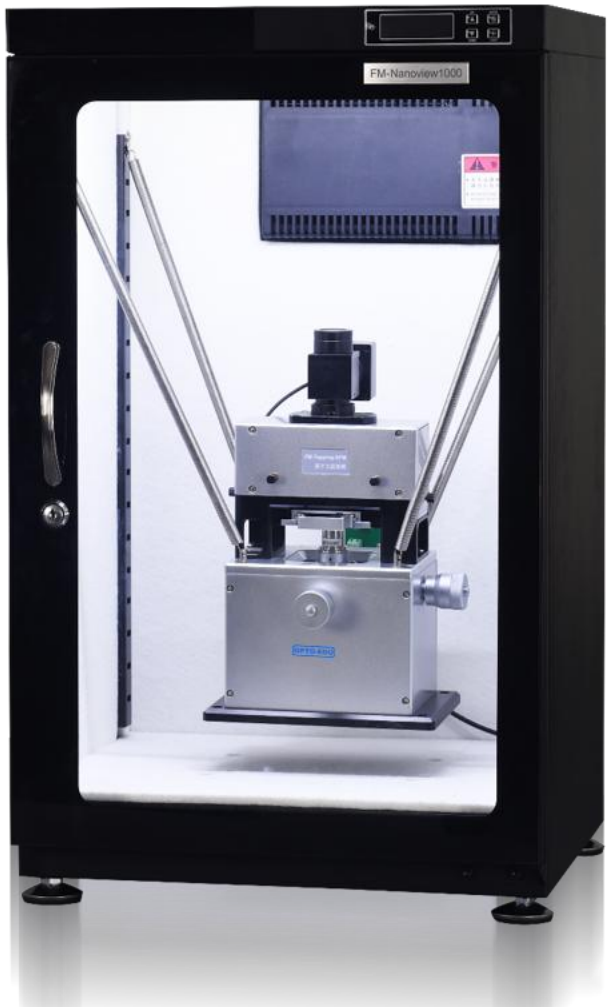
# A62.4503

## Research Level
## Atomic Force Microscope (AFM)



## Product Details

◆ The laser detection head and the sample scanning stage are integrated, the structure is very stable, and the anti-interference is strong

◆ Precision probe positioning device, laser spot alignment adjustment is very easy

◆ The single-axis drive sample automatically approaches the probe vertically, so that the needle tip is perpendicular to the sample scan

◆ The intelligent needle feeding method of motor-controlled pressurized piezoelectric ceramic automatic detection protects the probe and the sample

◆ High-precision and wide-ranging piezoelectric ceramic scanners can be freely selected

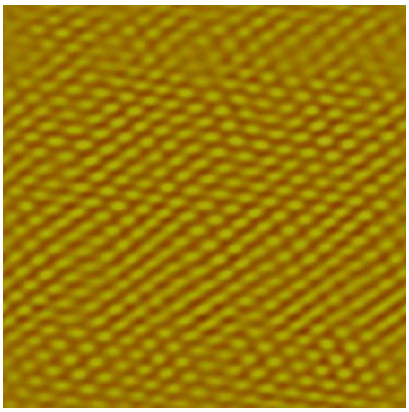
◆ High-magnification objective lens automatic optical positioning, no need to focus, real-time observation and positioning of the probe sample scanning area

◆ Spring suspension shockproof method, simple and practical, good shockproof effect

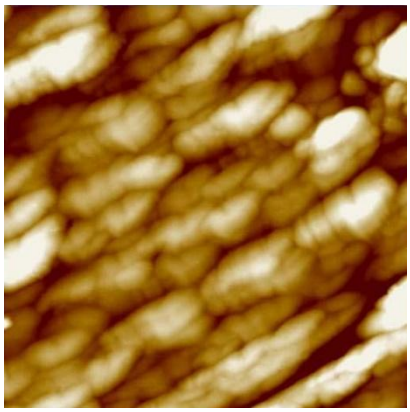
◆ Metal shielded soundproof box, built-in high-precision temperature and humidity sensor, real-time monitoring of the working environment

◆ Integrated scanner nonlinear correction user editor, nanometer characterization and measurement accuracy better than 98%

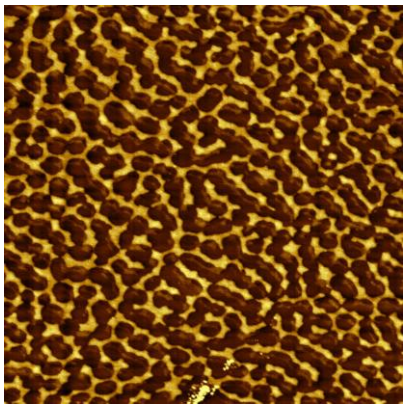
## Application Case



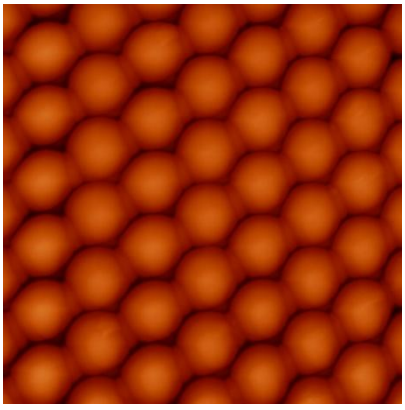
High-order graphite/scanning range 5nm×5nm



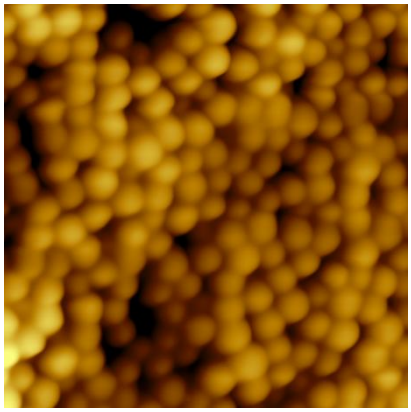
Gold clusters/scanning range 0.5μm×0.5μm



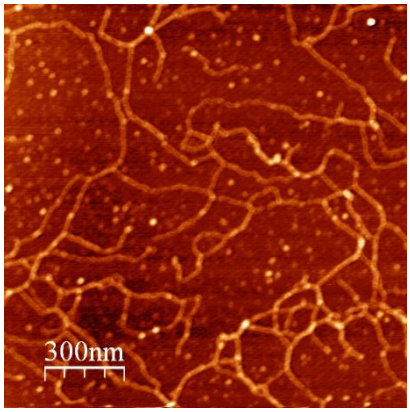
Polysaccharide 10x10um



Polystyrene ball 10x10um



Polystyrene ball 5x5um



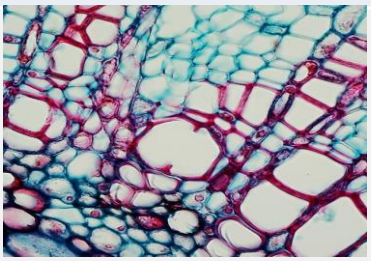
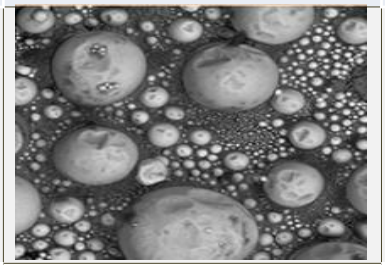
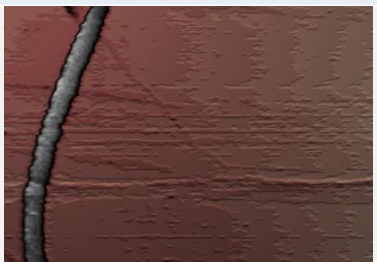

Polysaccharide 1.5x1.5um

# Specification

| Specification | A62.4500 | A62.4501 | A62.4503 | A62.4505 |
|---|---|---|---|---|
| Work Mode | Tapping Mode<br><br>【Optional】<br>Contact Mode<br>Friction Mode<br>Phase Mode<br>Magnetic Mode<br>Electrostatic Mode | Contact Mode<br>Tapping Mode<br><br>【Optional】<br>Friction Mode<br>Phase Mode<br>Magnetic Mode<br>Electrostatic Mode | Contact Mode<br>Tapping Mode<br><br>【Optional】<br>Friction Mode<br>Phase Mode<br>Magnetic Mode<br>Electrostatic Mode | Contact Mode<br>Tapping Mode<br><br>【Optional】<br>Friction Mode<br>Phase Mode<br>Magnetic Mode<br>Electrostatic Mode |
| Current Spectrum Curve | RMS-Z Curve<br><br>【Optional】<br>F-Z Force Curve | RMS-Z Curve<br>F-Z Force Curve | RMS-Z Curve<br>F-Z Force Curve | RMS-Z Curve<br>F-Z Force Curve |
| XY Scan Range | 20×20um | 20×20um | 50×50um | 50×50um |
| XY Scan Resolution | 0.2nm | 0.2nm | 0.2nm | 0.2nm |
| Z Scan Range | 2.5um | 2.5um | 5um | 5um |
| Y Scan Resolution | 0.05nm | 0.05nm | 0.05nm | 0.05nm |
| Scan Speed | 0.6Hz~30Hz | 0.6Hz~30Hz | 0.6Hz~30Hz | 0.6Hz~30Hz |
| Scan Angle | 0~360° | 0~360° | 0~360° | 0~360° |
| Sample Size | Φ≤90mm<br>H≤20mm | Φ≤90mm<br>H≤20mm | Φ≤90mm<br>H≤20mm | Φ≤90mm<br>H≤20mm |
| XY Stage Moving | 15×15mm | 15×15mm | 25×25um | 25×25um |
| Shock-Absorbing Design | Spring Suspension | Spring Suspension<br>Metal Shielding Box | Spring Suspension<br>Metal Shielding Box | - |
| Optical Syestem | 4x Objective<br>Resolution 2.5um | 4x Objective<br>Resolution 2.5um | 4x Objective<br>Resolution 2.5um | Eyepiece 10x<br>Infinity Plan LWD<br>APO 5x10x20x50x<br>5.0M Digital Camera<br>10" LCD Monitor, With Measuring<br>LED Kohler Illumination<br>Coaxial Coarse & Fine Focusing |
| Output | USB2.0/3.0 | USB2.0/3.0 | USB2.0/3.0 | USB2.0/3.0 |
| Software | Win XP/7/8/10 | Win XP/7/8/10 | Win XP/7/8/10 | Win XP/7/8/10 |

# Optical Microscope, SEM, SPM Comparation

## Scanning Probe Microscope (SPM) Compared to Other Microscopies

| | Optical Microscope | Electron Microscope | Scanning Probe Microscope |
|---|---|---|---|
| Max Resolution | 0.18um | 0.00011um | 0.00008um |
| Remark | Oil immersion 1500x | Imaging diamond carbon atoms | Imaging high-order graphitic carbon atoms |
| |  |  |  |

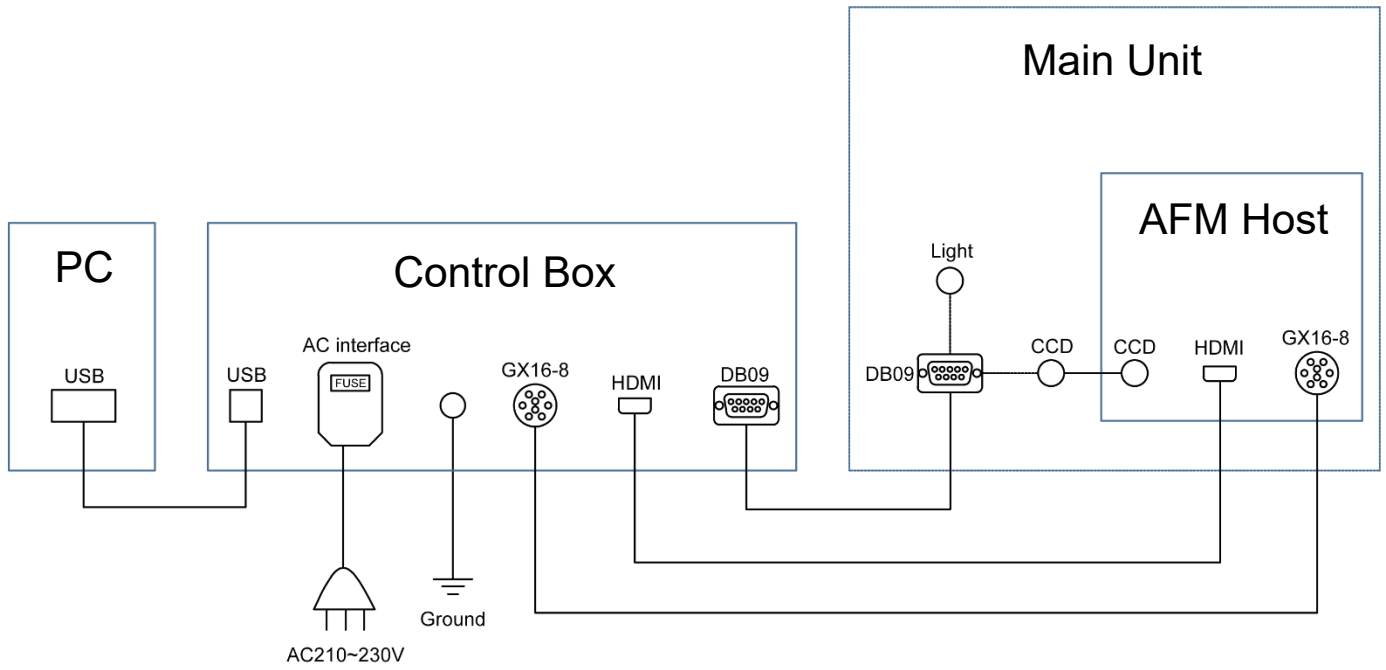
## Depth of Field, Sample Preparation of Different Microscopes

| | Resolution | Working Condition | Working Temperature | Damage to Sample | Inspection Depth |
|---|---|---|---|---|---|
| SPM | Atom Level 0.1nm | Normal, Liquid, Vacuum | Room or Low Temperature | None | 1~2 Atom Level |
| TEM | Point 0.3~0.5nm Lattice 0.1~0.2nm | High Vaccum | Room Temperature | Small | Usually <100nm |
| SEM | 6-10nm | High Vaccum | Room Temperature | Small | 10mm @10x 1um @10000x |
| FIM | Atom Level 0.1nm | Super High Vaccum | 30~80K | Damage | Atom Thickness |

## Force & Working Mode of Atomic Force Microscope (AFM)

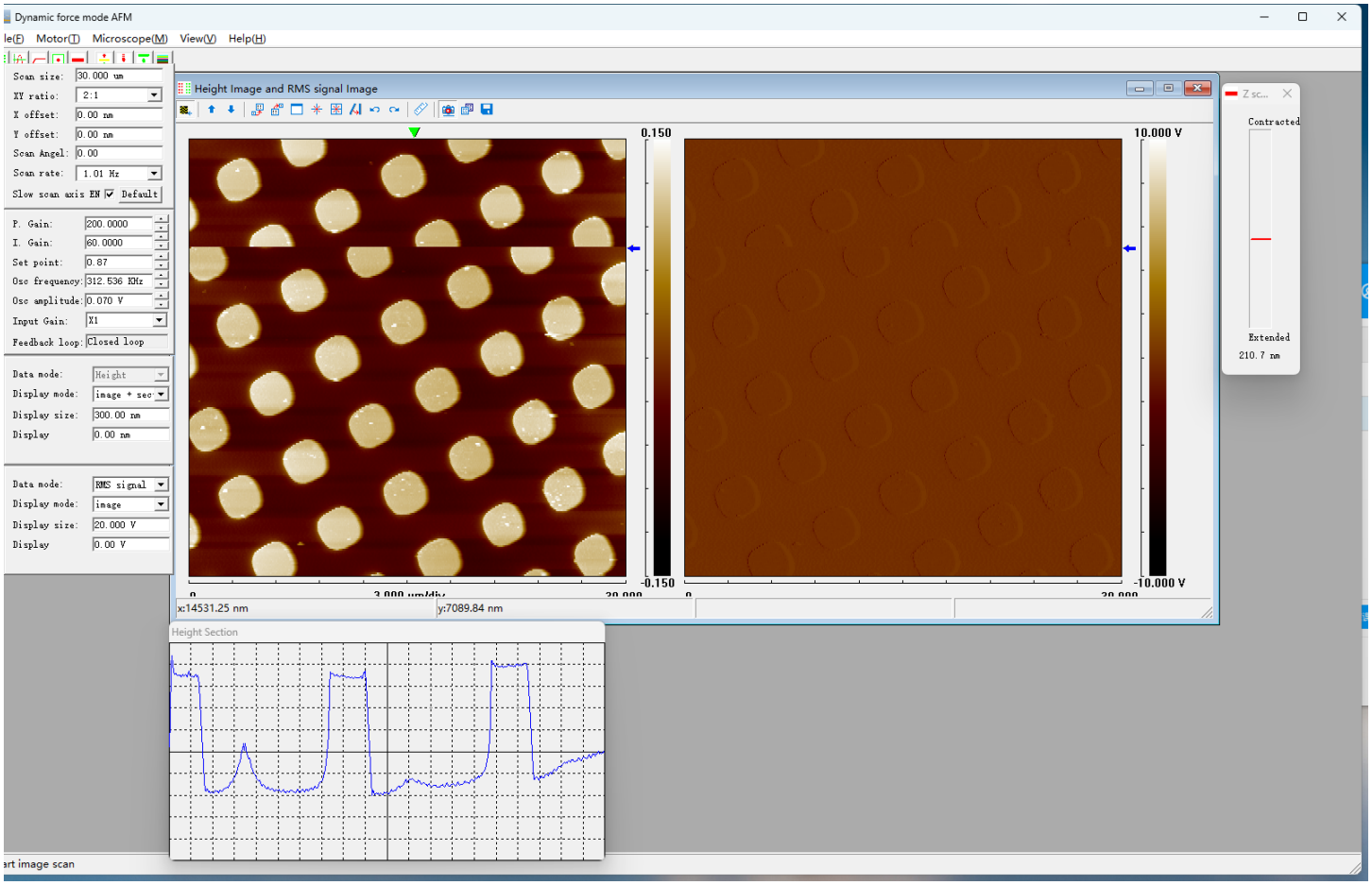
| Probe-Sample Interaction | Measure Signal | Information |
|---|---|---|
| Force | Electrostatic Force | Shape |
| Tunnel Current | Current | Shape, Conductivity |
| Magnetic Force | Phase | Magnetic Structure |
| Electrostatic Force | Phase | charge distribution |

# Cable Connection

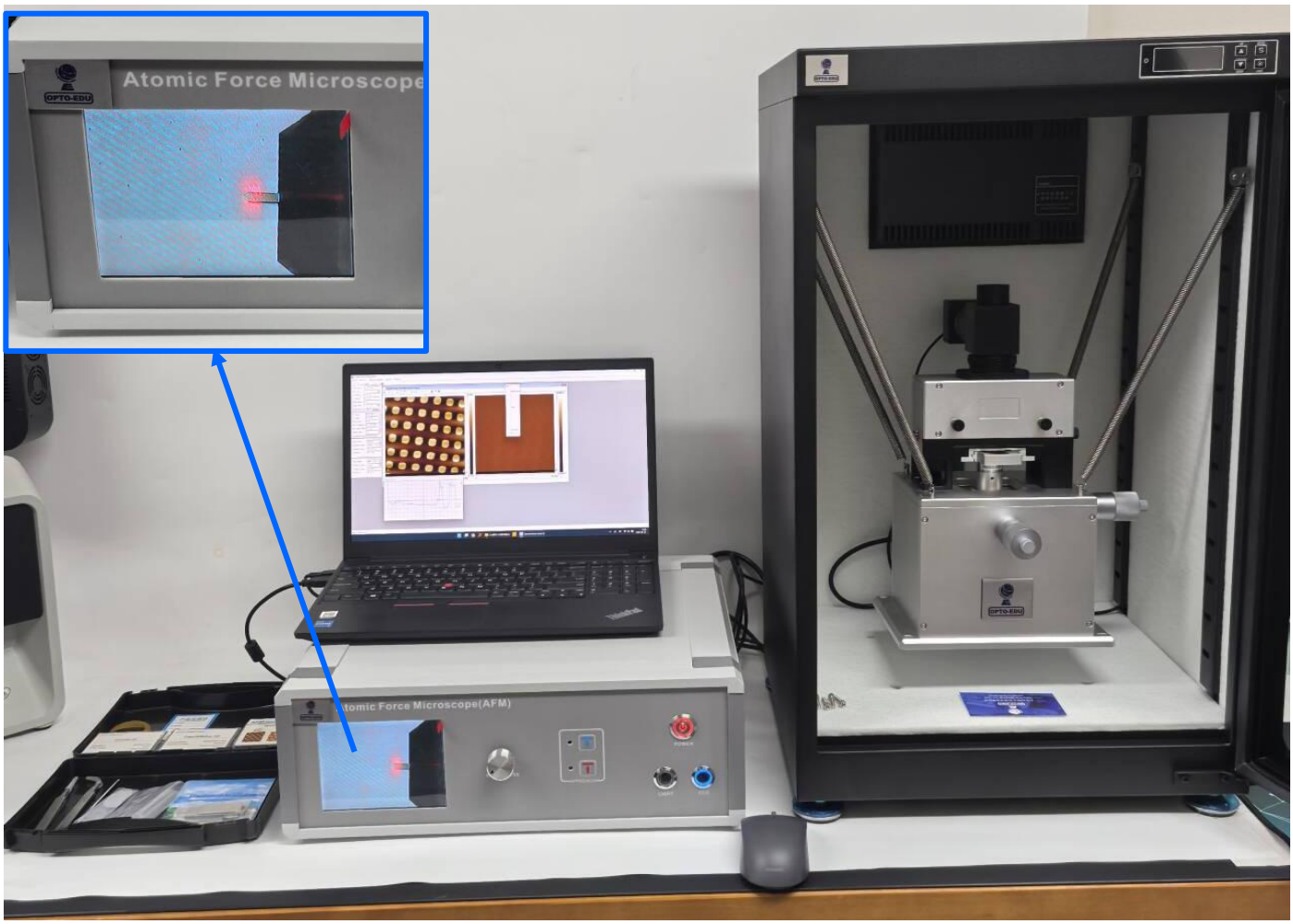


# System Diagram

# Software & Accessories




# More Pictures



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THE KEY TO MICRO WORLD

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