

**Materials List for:**

# **A Millimeter Scale Flexural Testing System for Measuring the Mechanical Properties of Marine Sponge Spicules**

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## **Materials**

| <b>Name</b>                                                                  | <b>Company</b> | <b>Catalog Number</b> | <b>Comments</b>               |
|------------------------------------------------------------------------------|----------------|-----------------------|-------------------------------|
| TMC 36" x 48" isolation table with 4" CleanTop breadboard                    | TMC            | 63-563                | Isolation Table               |
| Differential Screw Adjuster                                                  | Thorlabs       | DAS110                | For stage leveling plate      |
| 1" Travel Micrometer Head with 0.001" Graduations                            | Thorlabs       | 150-801ME             | For stage leveling plate      |
| Right-Angle Bracket for PT Series Translation Stages, 1/4"-20 Mounting Holes | Thorlabs       | PT102                 | For microscope mount          |
| 1" Dovetail Translation Stage, 1/4"-20 Taps                                  | Thorlabs       | DT25                  | For microscope mount          |
| 1" Translation Stage with 1/4"-170 Adjustment Screw, 1/4"-20 Taps            | Thorlabs       | PT1B                  | For microscope mount          |
| 12" Length, Dovetail Optical Rail                                            | Edmund Optics  | 54-401                | For microscope mount          |
| 2.5" Width, Dovetail Carrier                                                 | Edmund Optics  | 54-404                | For microscope mount          |
| 0.5" Width, Dovetail Carrier                                                 | Edmund Optics  | 54-403                | For microscope mount          |
| InfiniTube Mounting C-Clamp with 1/4"-20                                     | Edmund Optics  | 57-788                | Microscope component          |
| Standard (with no In-Line Attachment), InfiniTube                            | Edmund Optics  | 56-125                | Microscope component          |
| Standard In-Line Attachment (Optimized at 2X-10X), InfiniTube                | Edmund Optics  | 56-126                | Microscope component          |
| Mitutoyo/Achrovid Objective Adapter (M26 to M27)                             | Edmund Optics  | 53-787                | Microscope component          |
| 5X Infinity Achrovid Microscope Objective                                    | Edmund Optics  | 55-790                | Microscope component          |
| 0.316" ID, Fiber Optic Adapter SX-6                                          | Edmund Optics  | 38-944                | Microscope component          |
| 1/4" x 36", Flexible Fiber Optic Light Guide                                 | Edmund Optics  | 42-347                | Microscope component          |
| 115V, MI-150 Fiber Optic Illuminator w/IR Filter and Holder                  | Edmund Optics  | 55-718                | Microscope component          |
| Allied Vision Manta G-223 2/3" Color CMOS Camera                             | Edmund Optics  | 88-452                | Microscope component          |
| Power Supply for Manta/ Guppy Pro/ Stingray/ Pike                            | Edmund Optics  | 68-586                | Microscope component          |
| 1/4" Travel Single Axis Translation Stage                                    | Thorlabs       | MS1S                  | FODS micrometer               |
| Analog Reflectance Dependent Fiber Optic Displacement Sensor                 | Philtex        | D20                   | FODS                          |
| 30V, 3A DC Power Supply                                                      | Agilent        | U8001A                | Power supply for DAQ and FODS |

|                                                                     |                        |                      |                                      |
|---------------------------------------------------------------------|------------------------|----------------------|--------------------------------------|
| 14-Bit, 48 kS/s Low-Cost Multifunction DAQ                          | National Instruments   | USB-6009             | DAQ for FODS                         |
| Three Axis Motorized Translation Stage                              | Thorlabs               | Thorlabs T25 XYZ-E/M | Translation stage                    |
| T-Cube DC Servo Motor Controller                                    | Thorlabs               | TDC001               | Motor controller for stage           |
| T-Cube Power Supply                                                 | Thorlabs               | TPS001               | Power supply for motor controller    |
| National Instruments LabVIEW (2013 SP1)                             | National Instruments   |                      | Used for running software            |
| National Instruments LabVIEW Vision Acquisition Software (2016)     | National Instruments   |                      | Used for running software            |
| Nikon Eclipse Ci-POL Main Body                                      | MVI                    | MDA96000             | Polarized light microscope           |
| Nikon Pi Intermediate Tube with Analyzer Slider                     | MVI                    | MDB45305             | Polarized light microscope           |
| Nikon Dia-Polarizer                                                 | MVI                    | MDN11920             | Polarized light microscope           |
| Power Cord - 7'6"                                                   | MVI                    | 79035                | Polarized light microscope           |
| Nikon P-Amh Mechanical Stage                                        | MVI                    | MDC45000             | Polarized light microscope           |
| Nikon Lwd Achromat Condenser                                        | MVI                    | MBL16100             | Polarized light microscope           |
| Nikon LV-NBD5BD-CH Manual Quint Nosepiece ESD                       | MVI                    | MBP60125             | Polarized light microscope           |
| Nikon C-TF Trinocular Tube F                                        | MVI                    | MBB93100             | Polarized light microscope           |
| Nikon CFI 10X Eyepiece FN 22mm NC                                   | MVI                    | MAK10110             | Polarized light microscope           |
| Nikon TU Plan Flour BD 10x Objective                                | MVI                    | MUE42100             | Polarized light microscope           |
| Venus Flower Basket Sponge                                          | Denis Brand            | N/A                  | Sponge skeleton                      |
| 3.5X Headband Flip-Up Magnifier                                     | McMaster Carr          | 1490T5               | Used for spicule sectioning          |
| Ø1" Silicon Wafer, Type P / <100>                                   | Ted Pella              | 16011                | Used for load point mirror           |
| Low Lint Tapered Tip Cotton Swab                                    | McMaster Carr          | 71035T31             | Used for cleaning LP mirror          |
| Rubber grip precision knife                                         | McMaster Carr          | 35575A68             | Used for sectioning spicules         |
| Microscope Slides, frosted end, 75 x 25 x 1mm                       | Ted Pella              | 260409               | Used for sectioning spicules         |
| Sable Brushes, #00000, 0.08mm W x 4.0mm L                           | Ted Pella              | 11806                | Used for handling spicules           |
| PELCO Pro High Precision Tweezers, extra fine tips, superior finish | Ted Pella              | 5367-5NM             | Used for handling spicules           |
| Dual Axis Linear Scale Micrometer                                   | Edmund Optics          | 58-608               | Used for calibrating the microscopes |
| FLEX-A-TOP FT-38 CAS                                                | ESD Plastic Containers | FT-38-CAS            | Used for storing spicules            |
| Plastic Vial Bullseye Level                                         | McMaster Carr          | 2147A11              | Used for leveling the stage          |
| Analytical Balance                                                  | Mettler Toledo         | MS105DU              | Used to mass calibration weights     |