

Materials List for

# Performing Microscope-Mounted Y-Shaped Cutting Tests

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## Materials

Name	Company	Catalog Number	Comments
<b>Buy Parts</b>			
1" OD Pulley	McMaster Carr	3434T75	Pulley for Wire Rope (Larger)
100 g Micro Load Cell	RobotShop	RB-Phi-203	
1K Resistor	Digi-Key	CMF1.00KFGCT-ND	1 kOhms $\pm 1\%$ 1 W Through Hole Resistor Axial Flame Retardant Coating, Moisture Resistant, Safety Metal Film
1M Resistor	Digi-Key	RNF14FAD1M00	1 MOhms $\pm 1\%$ 0.25 W, 1/4 W Through Hole Resistor Axial Flame Retardant Coating, Safety Metal Film
3/8" OD Pulley	McMaster Carr	3434T31	Pulley for Wire Rope
4" Clear Protractor with Easy Read Markings	S&S Worldwide	LR3023	
Breadboard	ECEB	N/A	
IC OPAMP ZERO-DRIFT 2 CIRC 8DIP	Digi-Key	LTC1051CN8#PBF-ND	
M2 x 0.4 mm Nut	McMaster Carr	90592A075	Steel Hex Nut
M2 x 0.4 mm x 25 mm	McMaster Carr	91292A032	18-8 Stainless Steel Socket Head Screw
M2 x 0.4 mm x 8 mm	McMaster Carr	91292A832	18-8 Stainless Steel Socket Head Screw
M3 x 0.5 mm x 15 mm	McMaster Carr	91290A572	Black-Oxide Alloy Steel Socket Head Screw
M3 x 0.5 mm x 16 mm	McMaster Carr	91294A134	Black-Oxide Alloy Steel Hex Drive Flat Head Screw
M3 x 0.5 mm, 4 mm High	McMaster Carr	90576A102	Medium-Strength Steel Nylon-Insert Locknut
M4 x 0.7 mm Nut	McMaster Carr	90592A090	Steel Hex Nut
M4 x 0.7 mm x 15 mm	McMaster Carr	91290A306	Black-Oxide Alloy Steel Socket Head Screw
M4 x 0.7 mm x 16 mm	McMaster Carr	91294A194	Black-Oxide Alloy Steel Hex Drive Flat Head Screw

M4 x 0.7 mm x 18 mm	McMaster Carr	91290A164	Black-Oxide Alloy Steel Socket Head Screw
M4 x 0.7 mm x 20 mm	McMaster Carr	91290A168	Black-Oxide Alloy Steel Socket Head Screw
M4 x 0.7 mm x 20 mm	McMaster Carr	92581A270	Stell Raised Knurled-Head Thumb Screw
M4 x 0.7 mm x 30 mm	McMaster Carr	91290A172	Black-Oxide Alloy Steel Socket Head Screw
M4 x 0.7 mm x 50 mm	McMaster Carr	91290A193	Black-Oxide Alloy Steel Socket Head Screw
M4 x 0.7 mm, 5 mm High	McMaster Carr	94645A101	High-Strength Steel Nylon-Insert Locknut
M5 x 0.8 mm Nut	McMaster Carr	90592A095	Steel Hex Nut
M5 x 0.8 mm x 16 mm	McMaster Carr	91310A123	High-Strength Class 10.9 Steel Hex Head Screw
M5 x 0.8 mm x 35 mm	McMaster Carr	91290A195	Black-Oxide Alloy Steel Socket Head Screw
M5 x 0.8 mm, 13 mm Head Diameter	McMaster Carr	96445A360	Flanged Knurled-Head Thumb Nut
M5 x 0.8 mm, 5 mm High	McMaster Carr	90576A104	Medium-Strength Steel Nylon-Insert Locknut
Solidworks	Dassault Systemes		CAD software
Wiring Kit	ECEB	N/A	
XYZ Axis Manual Precision Linear Stage 60 mm x 60 mm Trimming Bearing Tuning Platform Sliding Table	OpticsFocus	N/A	
<b>Make Parts</b>			
Angle adjustment system- arm	3D Printing		solidworks: arms_arm_single.SLDPRT QTY: 2 Setting: Fast/0.2 mm layer height
Angle adjustment system- arms stationary	3D Printing		solidworks: arms_stationary.SLDPRT QTY: 1 Setting: Fast/0.2 mm layer height
Angle adjustment system- link	3D Printing		solidworks: arms_arm_link.SLDPRT QTY: 2 Setting: Fast/0.2 mm layer height
Angle adjustment system- slider	3D Printing		solidworks: arms_slider.SLDPRT QTY: 1 Setting: Fast/0.2 mm layer height
Angle adjustment system- spacer	3D Printing		solidworks: arms_front_spacer.SLDPRT QTY: 1 Setting: Fast/0.2 mm layer height
Clip- Blade clip	3D Printing		solidworks: Blade clip.SLDPRT QTY: 1 Setting: Fine/0.1 mm layer height
Clip- Blade clip mount	3D Printing		solidworks: Blade clip mount.SLDPRT QTY: 1 Setting: Fine/0.1 mm layer height
Frame arm	3D Printing		solidworks: frame arm.SLDPRT QTY: 2 Setting: Fast/0.2 mm layer height
Mounting platform	Laser Cut Acrylic		solidworks: mounting platform.SLDPRT QTY: 1
Pulley arm (left)	3D Printing		solidworks: pulley arm_Mirror.SLDPRT QTY: 1

			Setting: Fast/0.2 mm layer height
Pulley arm (right)	3D Printing		solidworks: pulley arm.SLDPRT QTY: 1 Setting: Fast/0.2 mm layer height
Sample holder and tab- Clamp	3D Printing		solidworks: Clamp.SLDPRT QTY: 1 Setting: Fast/0.2 mm layer height
Sample holder and tab- Sample holder	3D Printing		solidworks: Sample holder.SLDPRT QTY: 1 Setting: Fast/0.2 mm layer height
Sample holder and tab- Tab	3D Printing		solidworks: Tab.SLDPRT QTY: 2 per test Setting: Fine/0.1 mm layer height, no brim
Vertical adjust system- Inner slide	3D Printing		solidworks: Inner slide.SLDPRT QTY: 1 Setting: Fast/0.2 mm layer height
Vertical adjust system- Outer slide	3D Printing		solidworks: Outer slide.SLDPRT QTY: 1 Setting: Fast/0.2 mm layer height