



Introduction

Comprehensive package of mechanical training system MTS-5000 combines the best features of five proven EDU-LABS mechanical training systems MTS-100, MTS-200, MTS-300, MTS-330, MTS-400 and MTS-500 in one hands-on workstation. The system allows the student to progress through the full range of common mechanical skills using one comprehensive training system.

Specification

- Aluminum Profile System designed with provision for X, Y and Z combination mounting capability.
- Universal Adjustable Motor Base for angular tensioning, Universal Adjustable Idler module and driven elements.
- Multiple motor positions allow for demonstration of multiple tensioning requirements.
- Heavy-duty flanged bearings allowing for variation in shaft misalignment.
- Polished Shafting included
- Two additional flanged bearing units for open gearing application.
- Gear sets including; spur gears, helical gears, worm/worm gear, and bevel (miter) gears and rack gear.
- Gear sets represent different pitches, ratios, pressure angles, and pitch diameters.
- Bearings, including tapered roller bearings and radial ball bearings.
- Handle for illustrating thrust and establishing wear patterns
- Steel bracket for mounting dial indicator.

Experiments Cover


Gear Drives 1






- Lab Sheet 1: Introduction to Gear Drives
- Lab Sheet 2: Spur Gear Installation, Alignment and Backlash Adjustment
- Lab Sheet 3: Gear Ratios
- Lab Sheet 4: Introduction to Gear Trains
- Lab sheet 5: Introduction to compound gear trains

Gear Drives 2






- Lab Sheet 1: Helical Gears
- Lab Sheet 2: Worms and Worm Gears
- Lab sheet 3: Bevel gears
- Lab Sheet 4: Miter Gears
- Lab Sheet 5: Gearboxes

| No | Part no. & Item | Description | Specification | Qty | Qty |
|----|--|---|---|--|---|
| 1 | <p data-bbox="347 176 532 205">MTS-5000-01</p>  <p data-bbox="266 558 613 588">Universal Work Station</p> | <p data-bbox="727 176 959 205">Aluminum Profile</p> <p data-bbox="727 212 959 241">Aluminum Profile</p> <p data-bbox="727 247 959 277">Aluminum Profile</p> <p data-bbox="727 283 1019 312">Gussett Element (NB)</p> <p data-bbox="727 319 1003 348">Gussett Element (B)</p> <p data-bbox="727 354 1040 409">Hammer Head Screw & nut</p> <p data-bbox="727 415 992 445">Gussett Element 20</p> <p data-bbox="727 451 1036 506">Counter Sunk Screw & Rombus nut M6</p> <p data-bbox="727 512 808 541">Hinge</p> <p data-bbox="727 548 1003 577">Counter Sunk Screw</p> <p data-bbox="727 583 841 613">End Cap</p> <p data-bbox="727 619 911 648">Slot Block M8</p> <p data-bbox="727 655 829 684">Leveler</p> <p data-bbox="727 690 824 720">Handle</p> <p data-bbox="727 726 911 756">Magnetic lock</p> <p data-bbox="727 762 919 791">Acrylics Board</p> <p data-bbox="727 798 919 827">Acrylics Board</p> | <p data-bbox="1084 176 1243 205">L=1300mm</p> <p data-bbox="1084 212 1227 241">L=700mm</p> <p data-bbox="1084 247 1227 277">L=600mm</p> <p data-bbox="1084 283 1333 312">PS45-GE43x42-10</p> <p data-bbox="1084 319 1333 348">PS45-GE43x42-10</p> <p data-bbox="1084 354 1195 384">M8 x 25</p> <p data-bbox="1084 415 1317 445">PS30-GE20x28-8</p> <p data-bbox="1084 451 1260 480">M6 x 12 mm</p> <p data-bbox="1084 512 1317 541">PS45-H90x40-10</p> <p data-bbox="1084 548 1130 577">M6</p> <p data-bbox="1084 583 1333 613">PS45-EC45x45-10</p> <p data-bbox="1084 619 1243 648">PS45-SB8-10</p> <p data-bbox="1084 655 1146 684">M10</p> <p data-bbox="1084 690 1219 720">4" U Type</p> <p data-bbox="1084 726 1260 756">PS-ML6-8/10</p> <p data-bbox="1084 762 1357 791">500 x 596 x 6 (mm)</p> <p data-bbox="1084 798 1357 827">560 x 646 x 6 (mm)</p> | <p data-bbox="1396 176 1419 205">7</p> <p data-bbox="1396 212 1419 241">5</p> <p data-bbox="1396 247 1419 277">6</p> <p data-bbox="1396 283 1435 312">22</p> <p data-bbox="1396 319 1419 348">8</p> <p data-bbox="1396 354 1435 384">60</p> <p data-bbox="1396 415 1419 445">4</p> <p data-bbox="1396 451 1419 480">8</p> <p data-bbox="1396 512 1419 541"></p> <p data-bbox="1396 548 1419 577">6</p> <p data-bbox="1396 583 1419 613">4</p> <p data-bbox="1396 619 1435 648">30</p> <p data-bbox="1396 655 1419 684">4</p> <p data-bbox="1396 690 1419 720">4</p> <p data-bbox="1396 726 1419 756">4</p> <p data-bbox="1396 762 1419 791">2</p> <p data-bbox="1396 798 1419 827">2</p> | <p data-bbox="1507 176 1529 205">1</p> |
| 2 | <p data-bbox="347 984 532 1014">MTS-5000-02</p>  <p data-bbox="233 1570 649 1600">Motor With Adjustable Base</p> | <p data-bbox="727 984 987 1014">AC Induction Motor</p> <p data-bbox="727 1440 878 1470">Motor Base</p> <p data-bbox="727 1476 878 1505">Motor Base</p> <p data-bbox="727 1512 867 1541">Hex Screw</p> <p data-bbox="727 1547 867 1577">Hex Screw</p> <p data-bbox="727 1583 781 1612">Nut</p> <p data-bbox="727 1619 922 1648">Spring washer</p> <p data-bbox="727 1654 862 1684">Slot Block</p> <p data-bbox="727 1690 857 1719">Hex Bolts</p> <p data-bbox="727 1726 846 1755">Lock Nut</p> <p data-bbox="727 1761 894 1791">Flower Knob</p> <p data-bbox="727 1797 867 1827">Hex Screw</p> <p data-bbox="727 1833 889 1862">Flat Washer</p> | <p data-bbox="1084 984 1357 1404">Output : 0.75KW/1HP Three Phase, 4 Pole Voltage : 415VAC Current : 3.5 A Frequency : 50Hz Power factor : 0.76 Efficiency : 68% Speed : 1450rpm Starting Torque : 2-3.5 Nm Max Torque : 1.8-2Nm</p> <p data-bbox="1084 1440 1243 1470">Top U-Plate</p> <p data-bbox="1084 1476 1292 1505">Bottom U-Plate</p> <p data-bbox="1084 1512 1243 1541">M8 x 25mm</p> <p data-bbox="1084 1547 1243 1577">M8 x 20mm</p> <p data-bbox="1084 1583 1130 1612">M8</p> <p data-bbox="1084 1619 1130 1648">M8</p> <p data-bbox="1084 1654 1130 1684">M8</p> <p data-bbox="1084 1690 1227 1719">M10 x 180</p> <p data-bbox="1084 1726 1146 1755">M10</p> <p data-bbox="1084 1761 1130 1791">M8</p> <p data-bbox="1084 1797 1260 1827">M8 x 150mm</p> <p data-bbox="1084 1833 1146 1862">M10</p> | <p data-bbox="1396 984 1419 1014">1</p> | <p data-bbox="1507 984 1529 1014">1</p> |

| | | | | | |
|---|---|---------------------|--|---|---|
| 3 | <p>MTS-5000-03</p>  <p>AC Inverter</p> | AC Inverter | VB5-21P5 | 1 | 1 |
| | | 3 Core Power Cable | | 1 | |
| | | AC 3 Pin Plug | | 1 | |
| 4 | <p>MTS-5000-04</p>  <p>Tachometer</p> | Infrared Tachometer | <p>Test Range: 2.5 to 99,999 RPM Resolution: 0.1 RPM (2.5 to 999.9 RPM), 1 RPM (1000 RPM and above) Accuracy: $\pm(0.005\% + 1 \text{ digit})$ Sampling Time: 0.8 sec Detecting Distance: 50 to 250mm</p> | 1 | |
| 5 | <p>MTS-5000-05</p>  <p>T-wrench</p> | T-wrench | 5mm | 1 | |
| 6 | <p>MTS-5000-06</p>  <p>T-Wrench</p> | T-wrench | 3mm | 1 | |
| 7 | <p>MTS-5000-07</p>  <p>Straight Ruler</p> | Straight Ruler | Length : 24" | 1 | |

| | | | | | |
|----|---|-----------------|--|---|---|
| 8 | <p>MTS-5000-08</p>  <p>Angle Ruler</p> | Angle Ruler | Length: 30cm | 1 | |
| 9 | <p>MTS-5000-9</p>  <p>T-Spanner</p> | T-Spanner | 13mm | 1 | |
| 10 | <p>MTS-5000-10</p>  <p>Miller</p> | Miller | | 1 | |
| 11 | <p>MTS-5000-11</p>  <p>Bearing/Gear Puller</p> | Chrome Vanadium | 4" (100mm) | 1 | |
| 12 | <p>MTS-5000-12</p>  <p>Shaft With Pillow Blocks</p> | Pillow Block | UCPA 204-12 Bore diameter: 19.05mm | 2 | 1 |
| | | Shaft | Length: 500mm Diameter: 19.05mm | 1 | |
| | | Shoulder Screw | M8 x 25mm | 4 | |
| | | Slot Block | M8 | 4 | |
| | | Flat Washer | M10 | 2 | |

| | | | | |
|----|--|----------------|-------------|----|
| 13 | MTS-5000-13 | Pillow Block | UCPA 204-12 | 8 |
| |  <p>Pillow block bearings</p> | Flat Washer | M8 | 16 |
| | | Shoulder Screw | M8 x 25 | 16 |
| | | Slot Block M8 | PS45-SB8-10 | 16 |
| 14 | MTS-5000-14 | OD 19.05mm | 300mm | 2 |
| |  <p>Polished Shaft</p> | OD 19.05mm | 500mm | 2 |
| 15 | | MTS-5000-15 | 1 Ton | |
| 16 | MTS-5000-16 | | | 1 |
| |  <p>Goggle</p> | | | |
| 17 | MTS-5000-17 | | | 1 |
| |  <p>Silicon Carbide Abrasive Paper</p> | | | |

| | | | | | | | |
|----|--|------------------------------------|--------|-----------------|-----------|----------------|-----|
| 18 | <p>MTS-5000-18</p>  <p>Cotton Glove</p> | | | | | | 1 |
| 19 | <p>MTS-5000-19</p>  <p>Multi-Purpose Lubricant</p> | <p>WD-40</p> <p>3 OZ HANDY CAN</p> | | | | | 1 |
| 20 | <p>MTS-360-01</p>  <p>Spur gear</p> | Description | Module | Number of teeth | | Pressure Angle | Qty |
| | | M1.5 x 35T | 1.5 | 35 | | 20° | 1 |
| | | SS1.5 x 44T | 1.5 | 44 | | 20° | 1 |
| | | M1.5 x 50T | 1.5 | 50 | | 20° | 1 |
| | | M1.5 x 60T | 1.5 | 60 | | 20° | 1 |
| | | SS1.5 x 70T | 1.5 | 70 | | 20° | 1 |
| | | SS1.5 x 80T | 1.5 | 80 | | 20° | 1 |
| 21 | <p>MTS-360-02</p>  <p>Helical gear</p> | Description | Module | No of teeth | Direction | Pressure Angle | Qty |
| | | SN2.5 x 10T | 2.5 | 10 | L | 20° | 1 |
| | | SN2.5 x 15T | 2.5 | 15 | R | 20° | 2 |
| 22 | <p>MTS-360-03</p>  <p>Bevel gear</p> | Description | Module | Number of teeth | | Pressure Angle | Qty |
| | | M3 x 40T | 3 | 40 | | 20° | 1 |
| | | M3 x 20T | 3 | 20 | | 20° | 1 |

| | | | | | | |
|----|--|---|--------|-----------------|----------------|-----|
| 23 | <p>MTS-360-04</p>  <p>Worm and worm gear</p> | Description | Module | Number of teeth | Pressure Angle | Qty |
| | | Worm gear CG3 60R1 | 3 | 60 | 20° | 1 |
| | | Worm SW3 R1 | 3 | 1 | R | 1 |
| 24 | <p>MTS-360-05</p>  <p>Miter gear</p> | Description | Module | Number of teeth | Pressure Angle | Qty |
| | | SM 2.5 x 30T | 2.5 | 30 | 20° | 2 |
| 25 | <p>MTS-360-06</p>  <p>Spiral miter gears</p> | Description | Module | Number of teeth | Hand | Qty |
| | | SMS 2.5 - 30R | 2.5 | 10 | Right | 1 |
| | | SMS 2.5 - 30L | 2.5 | 15 | Left | 1 |
| 26 | <p>MTS-360-07</p>  <p>Dial indicator</p> | <p>Mitutoyo No. 513-404 Range: 0.00-0.8mm Increment range: 0.01mm</p> | | | | 1 |
| 27 | <p>MTS-360-08</p> | | | | | 1 |



Magnetic Arm

28

MTS-360-11



Vise Grip

DUWELL chrome vanadium vise grip
DW16138

1

29

MTS-360-12



V-BELT

B-35

1

30

MTS-360-13



**Single groove pulley
For Motor & Gears Shaft**

Outer diameter : 3 inch
Bore : 19.05mm

2

31



MTS-360-14



Single groove pulley

Outer diameter : 3 inch
Bore : 16mm

1

| | | | | |
|----|--|-------------------------|--|----|
| | For Gear Box | | | |
| 32 | <p>MTS-360-15</p>  <p>Taper-Lock Pulley For Gear Box</p> | Hub: | | 1 |
| | | SPB 125 | Outer Diameter: 5 inch | |
| | | Bush: | | |
| | | 1610 | <p>Screw Size: 3/8 inch</p> <p>Screw Quantity: 2</p> <p>Bush Bore : 22mm</p> | |
| 33 | <p>MTS-360-16</p>  <p>5" Hand wheel & Handle</p> | | | 1 |
| 34 | <p>MTS-360-17</p>  <p>Risers set</p> | Aluminum Profile | L=350mm | 4 |
| | | Hammer Head Screw & Nut | M8x25 | 16 |
| | | Gussett Element (B) | PS45-GE43x42-10B | 8 |
| | | | | |
| | | | | |

Note: Due to products continuous development process, layout and specification may change without prior notices.