

# Mechanical Transfer System

Educational Training Equipment for the 21st Century

Bulletin 171-1G

## Purpose

The Hampden **Model H-MTS-3** Mechanical Transfer System is designed to provide students with an understanding of mechanical drives and linkages. This will provide the foundation needed for the study of more advanced machines, such as industrial robots. For example, students will investigate: proportional speed drives; rotary and linear output; intermittent drives; levers; slidercrank; quick return and fourbar mechanisms.

## Description

The Hampden **Model H-MTS-3** Mechanical Transfer System consists of a stationary base and all of the breadboarding components needed to perform the twenty-five drive and fifteen linkage experiments in the manual based on material prepared by the Technical Education Research Center. Included also, are a fractional horsepower DC motor, balance scales, and tools. As students assemble the various experimental mechanisms, they gain valuable manipulative skills along with an appreciation for such things as tolerance and alignment.

All of the equipment necessary to perform the forty experiments comes complete in a steel case with carrying handle and locking detachable front cover.

## Topics for Drive Experiments

1. Mechanical Components
2. Gear Diameters
3. Gear Teeth
4. Displacement
5. Velocity Ratio
6. Torque Ratio
7. Simple Trains
8. Internal Gears
9. Planetary Gear Trains
10. Helical Gears
11. Bevel Gears
12. Rack and Pinion
13. Worm and Wheel
14. Counter Rotators
15. Mechanical Differentials
16. Spring Mechanics
17. Inertial Effect
18. Belt Drives
19. Pulley Blocks
20. Differential Hoists
21. Chain Drives
22. Toothed Belts
23. Disk Drives
24. Rotary Cams
25. Universal Joints

## H-MTS-3 Mechanical Transfer System

## Topics for Linkage Experiments

26. Class-One Levers
27. Class-Two Levers
28. Class-Three Levers
29. Four-Bar Introduction
30. Crank-Rocker Mechanisms
31. Drag-Link Mechanism
32. Four-Bar Summary
33. Slider Crank Mechanisms
34. Quick Return Mechanism I
35. Introduction to the Geneva Mechanism
36. Loading Geneva Mechanism
37. Sliding-Link Mechanism
38. Quick Return Mechanism II
39. Computing Mechanisms (Calculus)
40. Ratchet Mechanisms

## Optional Equipment

### H-MTS-3-CDL Computer Data Logging Package

Consists of:

*Hampden HPT-100A Digital Photo Tachometer*

*Hampden H-REM-LCD Load Cell*

*Hampden H-MGI-A I/O Interface Module including Genie Software*



**Model H-MTS-3**

Dimensions: 3 cu. Ft.  
Shipping Weight: 30 lbs.

**BPS-12P**  
Variable AC/DC  
Power Supply



**HPT-100A**  
Digital Photo  
Tachometer



All Hampden units are available for operation at any voltage or frequency

**Hampden**  
ENGINEERING CORPORATION