

# Extruder Operation & Control - Single Screw



Paulson's fully interactive training program explains the relationship between machine controls, plastic behavior and the single screw extrusion process in full motion video, text, audio and graphic animation.

Train production personnel, supervisors and managers with the very latest extrusion process technology. Through this courseware, your extrusion team will:

- ◆ Understand the basics of single screw extrusion
- ◆ Learn how to optimize control settings
- ◆ Develop safe operating procedures
- ◆ Learn valuable troubleshooting techniques

Recommended For: Extruder Operators, Material Handlers, Set-up Personnel, Production Supervisors

Dive into the latest technology of the single screw extrusion process – from start-up to shutdown. Learn about extrusion machinery, plastic behavior, and how to maximize the productivity and efficiency of the extruder.

Through nine lessons, you'll learn to optimize the extrusion process, quickly solve problems, and develop advanced troubleshooting skills.

This program teaches the fundamentals of single screw technology, including all of the knowledge that your personnel must understand in order to make informed decisions on the production floor.

## Extruder Operation and Control - Single Screw Lessons

- 1** Lesson 1: *The Single Screw Extruder: Parts and Operation*  
Describes extruder applications, raw material forms, and how plastic travels through extruder. Defines the parts of the extruder and how they operate.
- 2** Lesson 2: *The Structure of Plastic Raw Materials*  
Explains polymerization, the difference between thermoplastic and thermoset, the effects of molecular weight and weight distribution, the structure of polymers, and the characteristics of amorphous and crystalline plastics.
- 3** Lesson 3: *The Characteristics of Plastics for Extrusion*  
Explains copolymers and blends/alloys, the causes and effects of degradation, and the effects of additives on the plastic in the extrusion process.
- 4** Lesson 4: *Effects of Pressure, Temperature and Flow*  
Describes the characteristics and practical effects of plastic flow in extrusion, including how and why orientation occurs: the inter-relationship between flow and viscosity; how plastic flow behavior is measured; and how viscosity is affected by temperature, pressure and molecular length.
- 5** Lesson 5: *Optimizing Extruder Controls - Part 1*  
Explains how variables and control settings affect the extrusion process from the hopper through the feed zone of the extruder. Illustrates how plastic melts and flows in the extruder.
- 6** Lesson 6: *Optimizing Extruder Controls - Part 2*  
Describes plastic behavior as it travels through the compression and metering zones of the extruder and how it is affected by control settings. Defines adapter zone and gear pump controls.

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## Extruder Operation and Control - Single Screw Lessons

7

Lesson

### Lesson 7: *Safety, Pre-Start and Start-Up Procedures*

Teaches safety procedures in the extrusion plant and practical, hands-on, pre-start and start-up procedures.

8

Lesson

### Lesson 8: *Steady-State Operation, Shutdown and Maintenance Procedures*

Explains steady-state extrusion operation and typical shutdown procedures for leaving the extruder full of plastic, running the barrel dry and purging. Describes emergency shutdown procedures and routine post-extrusion operations.

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Lesson

### Lesson 9: *Single Screw Extruder Troubleshooting*

Teaches guidelines and fundamentals for successful troubleshooting of extrusion processing problems. Analyzes common problems and how to solve them.

## PAULSON'S INTERACTIVE LEARNING SYSTEM



- ◆ More Effective Training: Get a 40% increase in knowledge retention and comprehension using interactive technology.
- ◆ Scheduling Flexibility: Training is available to all shifts, 24 hours a day without affecting production.
- ◆ Automatic Record Keeping: You can test and track employee progress automatically.
- ◆ No Instructor Required: Fully interactive format provides either a self-paced, one-on-one or classroom learning environment.
- ◆ Reduced Training Costs: Train on company time without loss of production. No dedicated instructor, no overtime and no overhead add up to large savings.
- ◆ Increased Motivation: Immediate feedback and personal involvement are key factors in training effectiveness.
- ◆ Complete Curriculum: The interactive library provides a complete career path curriculum for all employees.

To sign up for a hands-on-I-T system demonstration in your plant, call 1-800-826-1901.



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