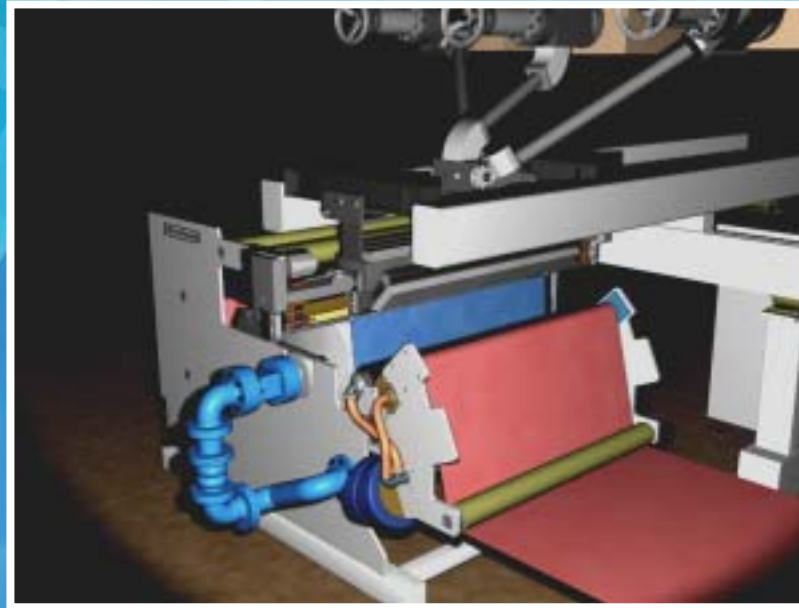


CPChem Pilot Extrusion Coating Line



Presented by Clyde Garrett

Presented at the TAPPI Place Conference September 2002

Overview

- **Web Handling Features**
- **Extrusion Capabilities**
- **Auxiliary Equipment**
- **Summary Sheets**
- **Contact Info**

Introduction

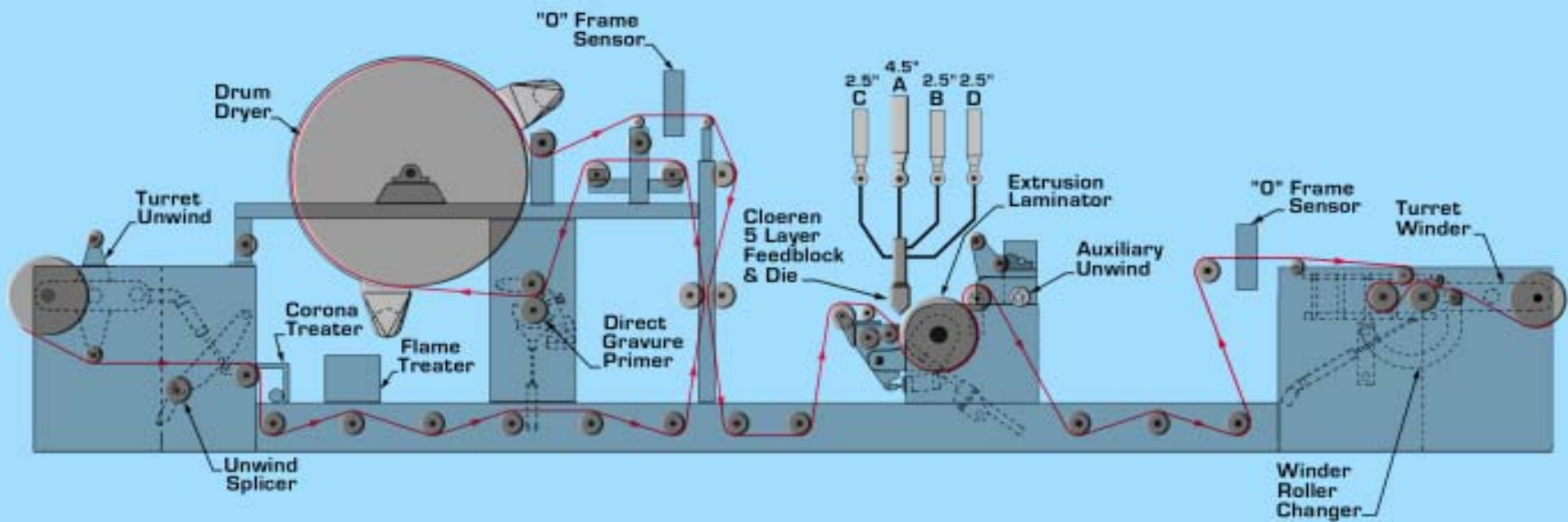
- **Unique Features**

- Four Extruder Coextrusion Capability
- Five Layer Feedblock with Encapsulation Die
- Automatic Profile Control
- Four Types of Pre-priming

- **History**

- Custom Built in 1972
- Continual Capital Investments to Maintain “State of the Art” Status

CPCChem Extrusion Coating Line



Web Handling

- Specifications

- Turret Unwinds with 54" Max O.D.
 - Unwind Splicing Capability
- Turret Winders with 54" Max O.D.
 - Winder Roll Changer Capability
- Minimum web width 24" max web width 32"
- Line speed 50-1800 fpm
- 3", 6" & 12" cores
- Wide range of substrate capabilities
 - i.e. 0.5mil film to 30 point board
- Fife edge guide

Turret Winder / Unwind



Adhesion Promotion

- **Pillar Corona Treater**

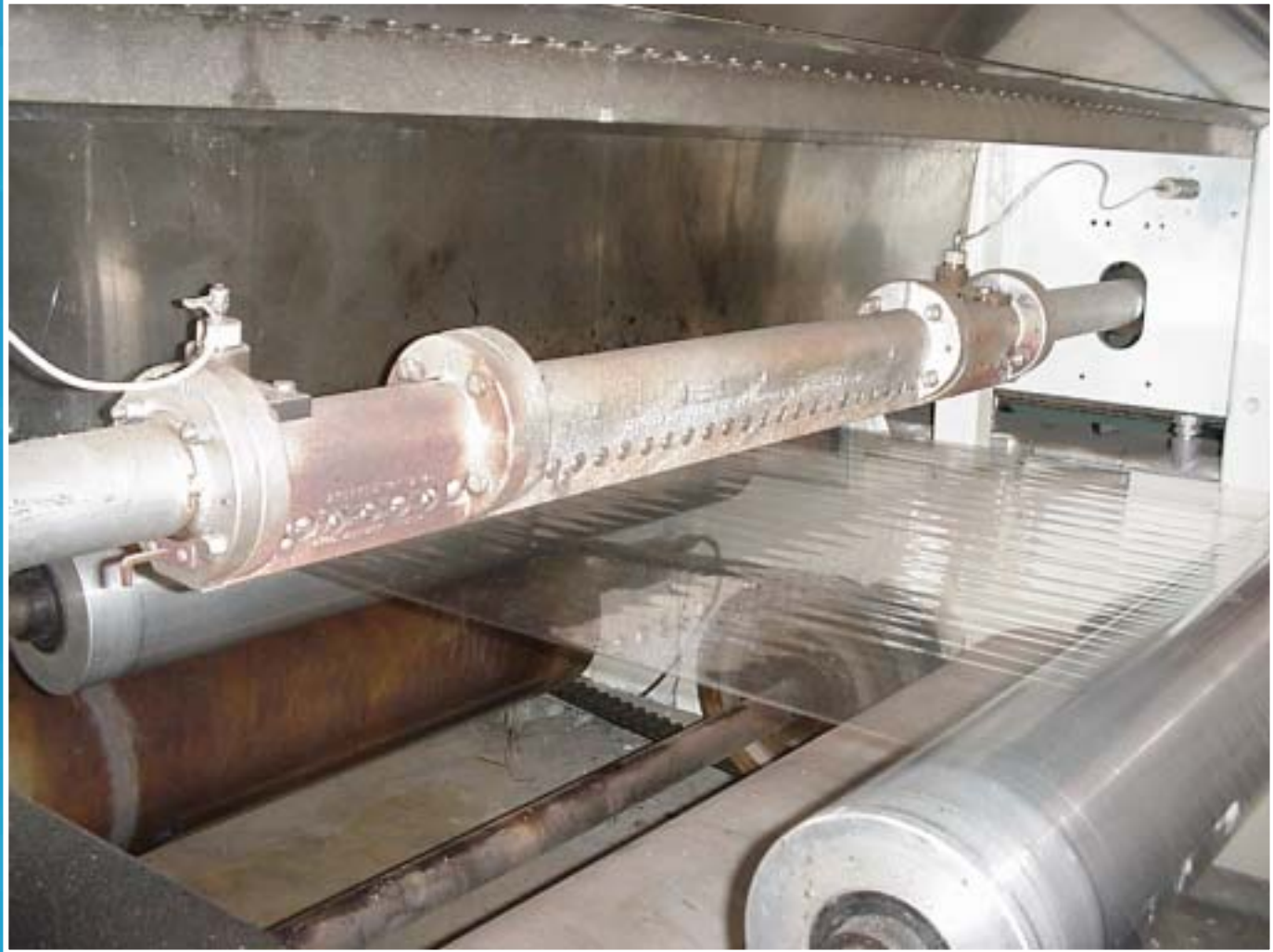
Corona Treater



Adhesion Promotion

- Pillar Corona Treater
- **Flynn Flame Treater**

Flame Treater



Adhesion Promotion

- Pillar Corona Treater
- Flynn Flame Treater
- **Chemical Priming Station**
 - **Enclosed Doctor Blade System**
 - **Gravure Cylinders:**
 - Pyramid 180 LPI
 - Ceramic Coated Ground to 60 rms
 - Quadragravure 180 LPI

Primer Station



Adhesion Promotion

- Pillar Corona Treater
- Flynn Flame Treater
- Chemical Priming Station
- **15' Drum Drying Station**

Dryer Station



Adhesion Promotion

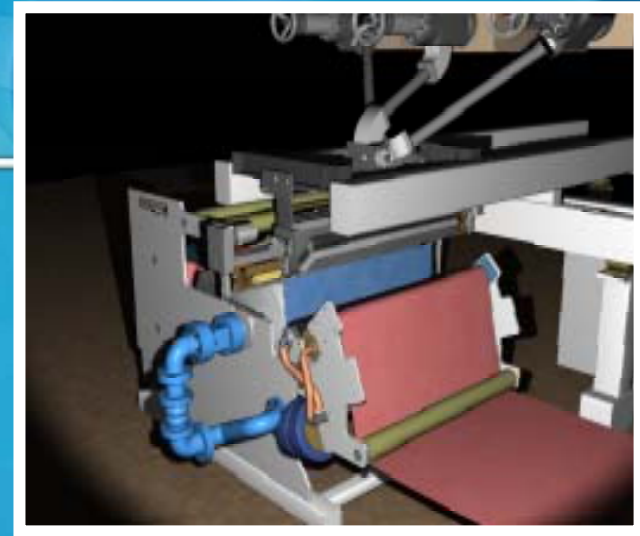
- Pillar Corona Treater
- Flynn Flame Treater
- Chemical Priming Station
- 15' Drum Drying Station
- **Ozone Extrudate Pretreater**

Ozone Pretreater

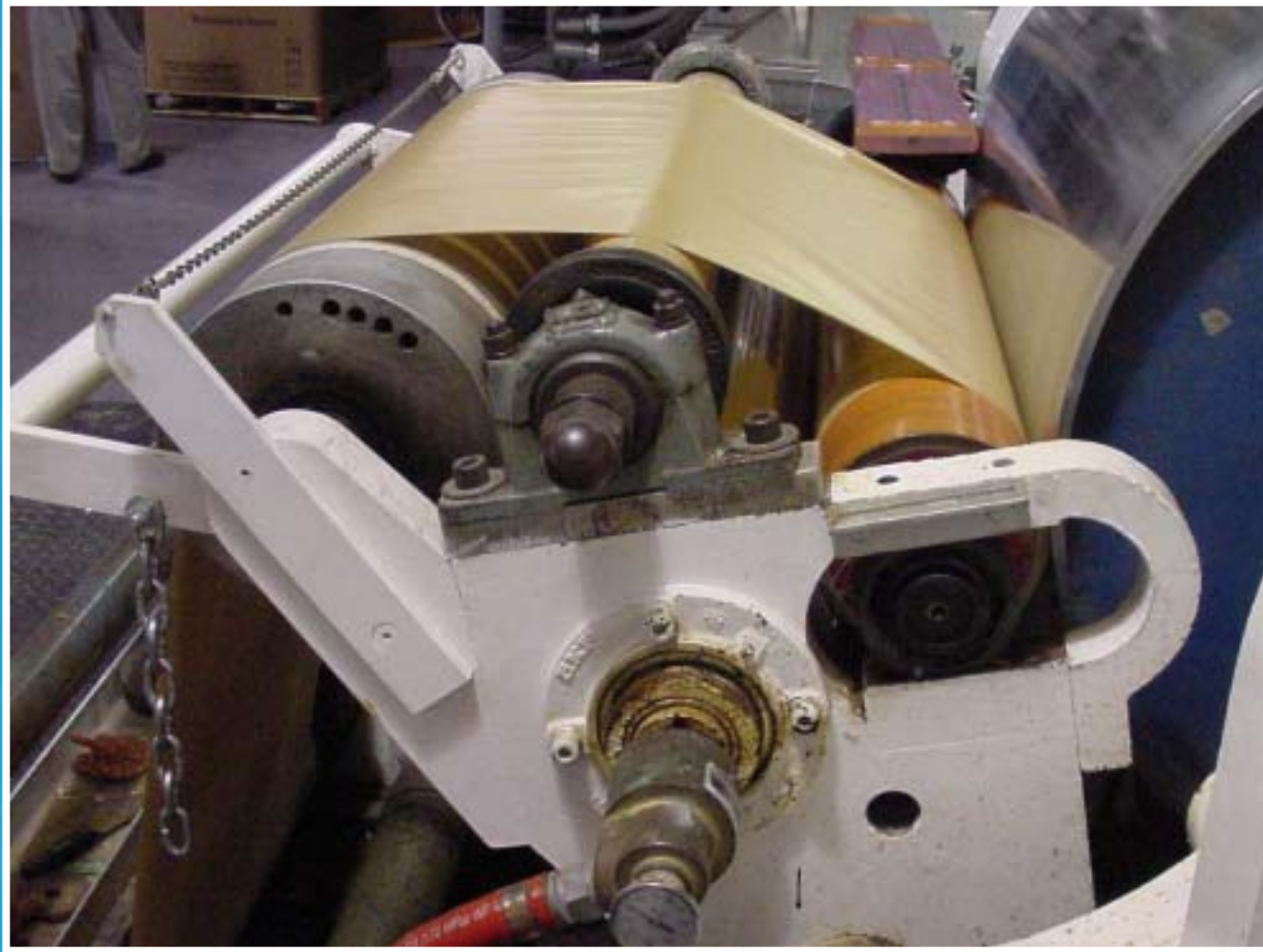


Laminator

- 6" O.D. Nip with back-up cooling roll
 - Adjustable Contact Angle
- 30" O.D. Chill Roll
- 300 GPM Cooling Rate
- Heating and Cooling Capabilities
- Four Chill Roll Types
 - Matte Finish 110 RMS
 - Matte Finish 70 RMS
 - Mirror Pocket Finish
 - Gloss Finish 0.5 RMS



Laminator



Auxiliary Unwind

- 24"-32" Web Width
- Manual Side Lay Capability
- Water Cooled Tension Control
- 24" Maximum O.D
- 3" & 6" Cores

Slitting Capabilities

- In-line Edge Trim
- Score slitters with hardened anvil roll
- 5" Shear Slitters with driven matching section
- Trim removal system with remote visual system

Winding Capabilities

- **Turret Winder**
- **Winder Roll Changer**
- **3, 6, & 12" Core Capability**
- **Manual Tension Control**

Extrusion Capabilities

- Black Clawson Integrator Process Control
- Four Extruders
- Five Layer Cloeren Coextrusion Feedblock Capability
- 18 Selector Plugs for multiple layer configurations.
- Internally Deckled EBR Cloeren Die
- Automatic Gauge Profile Control
- Edge Bead Encapsulation Capability
- XYZ Carriage Movement

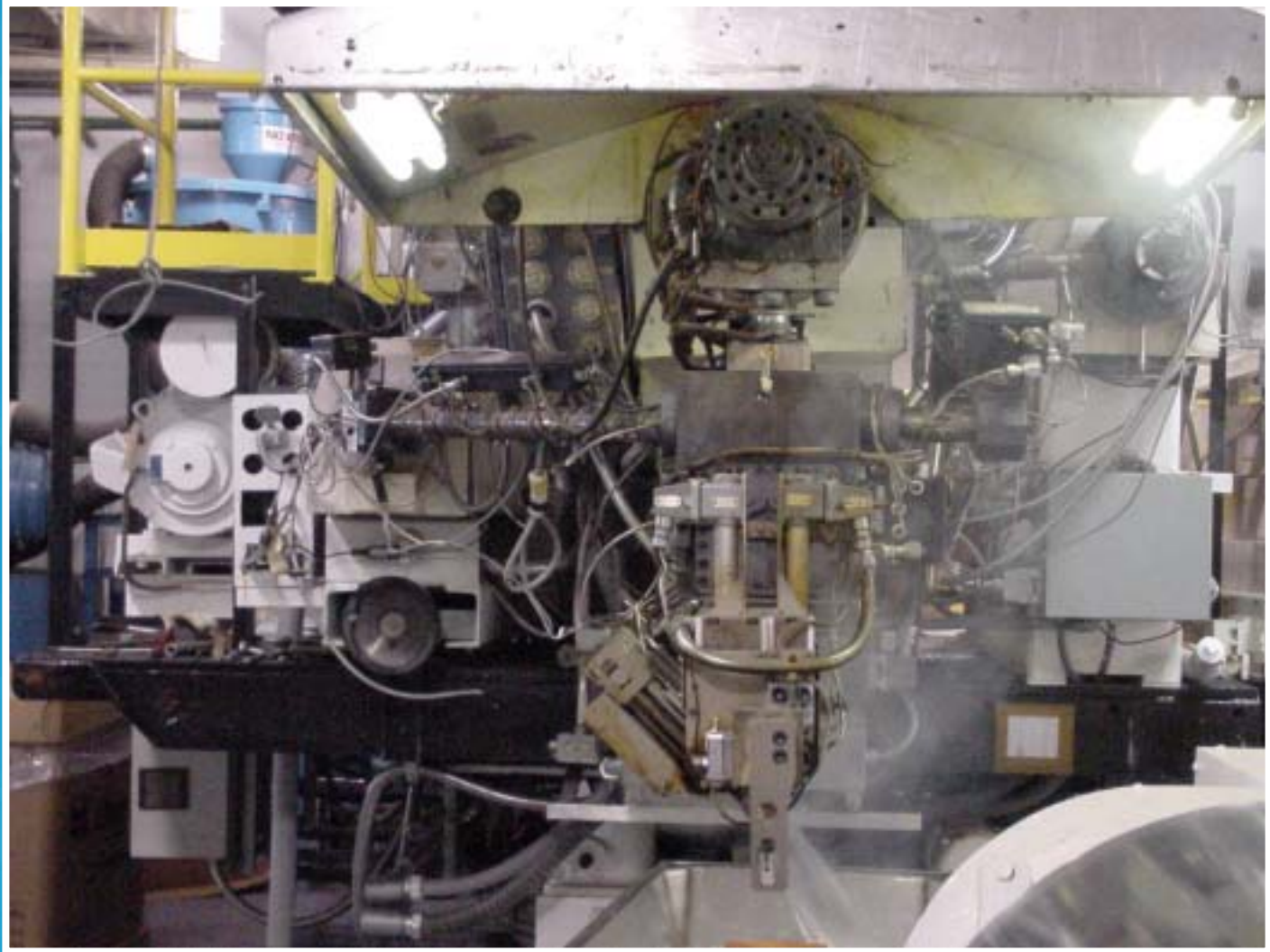
Process Control System

- **Black Clawson Integrator**
 - Wonderware touch screen interface
 - Data collection capability
- **Eurotherm Digital Drives**
- **Eurotherm Auto Gauging System**
 - Upgrade Scheduled for Nov. 2002

Extrusion Capabilities

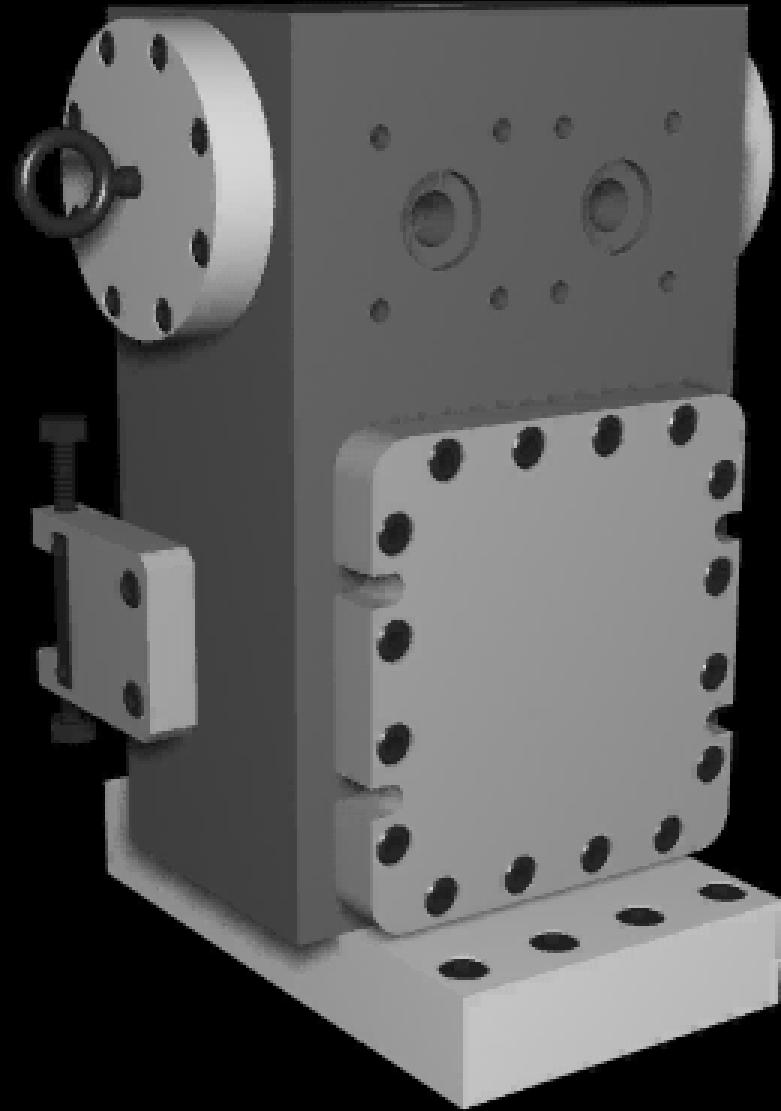
- **Four Extruders**
 - Extruder A=4.5", 28:1 L/D
 - Extruder B=2.5", 28:1 L/D
 - Extruder C=2.5", 24:1 L/D
 - Extruder D=2.5", 28:1 L/D
- **Total Output Capacity Approx.
1500 lbs/hr**

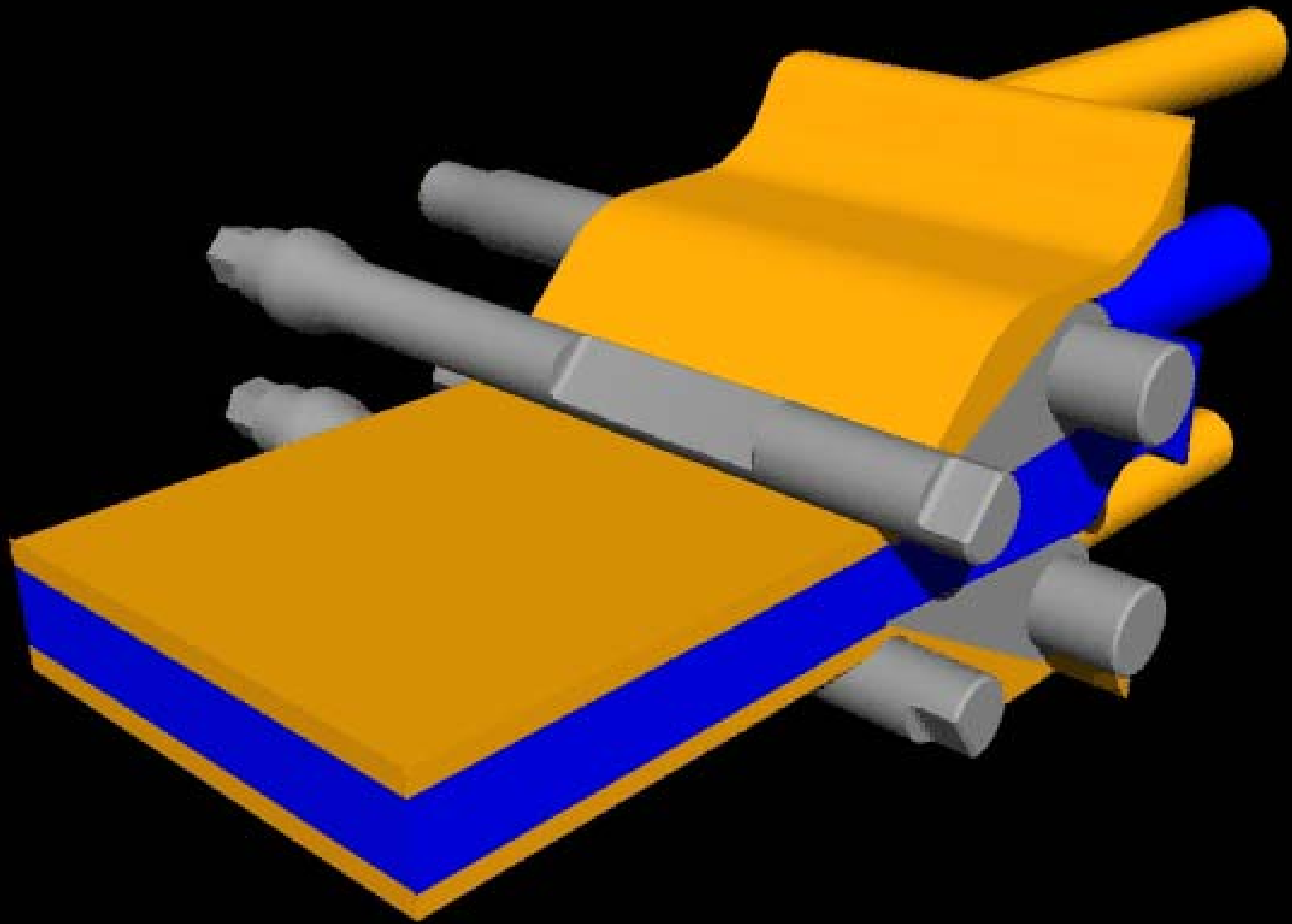
Extruders



Extrusion Capabilities

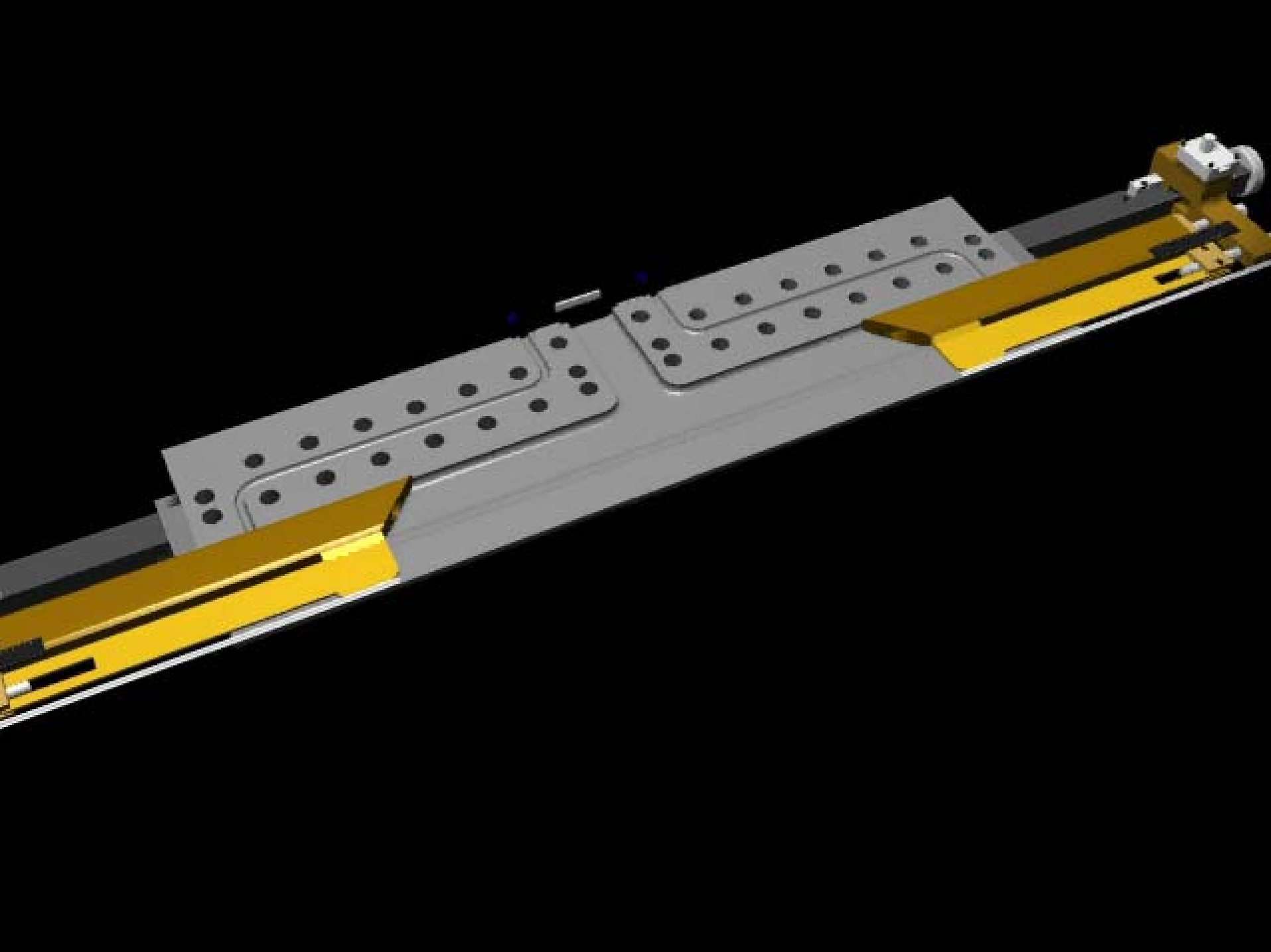
- **Five Layer Cloeren Coextrusion**
- **Feedblock Capability**
- **18 Different Coextrusion Layer Configurations**





Extrusion Capabilities

- **Internally Deckled EBR Cloeren Die**
- **Automatic Gauge Profile Control**
- **Edge Bead Encapsulation Capability**



Auxiliary Equipment

- **Resin Drying Capability**
 - 1300lb capacity
- **Resin Blending Capability**
- **Ozone Destruct Unit**
- **Maxon Burner System for Dryer**
- **100 ton Dedicated Chiller**

Resin Dryer



ChevronPhillips Coating Line Features

<u>Extruders</u>	<u>Laminator</u>
A = 4.5" Egan	100 -1800 FPM
B = 2.5" Egan	Substrates: 0.5 Mil to 27 Pt. Board
C = 2.5" Egan	Core Sizes: 3", 6" & 12" - Primary
D = 2.5" Egan	Core Sizes: 3" & 6" - Secondary
	Primary Unwind - Maximum 54" O.D.
	Secondary Unwind - Maximum 24" O.D.
<u>Feedblock and Die</u>	Eurotherm Gauge w/ Auto Profile Control
Cloeren Flex-Lip EBR Die w/ APC	Minimum Web Width = 24"
Coex Encapsulation Feature	Maximum Web Width = 32"
Cloeren 5 Layer Feedblock	Minimum Die Opening = 24"
<u>Direct Gravure Priming Station</u>	<u>Four 30" Chill Rolls</u>
Dryer Length = 16.5 Feet	Gloss = 0.5 rms
Enclosed Doctor Blade System	Mirror Pocket = 10-13 rms
Gravure Cylinders:	Matte A = 75 rms
Pyramid 180 LPI	Matte B = 110 rms
Ceramic Coated Ground to 60 rms	
Quadrgravure 180 LPI	
<u>Other Pretreatment</u>	<u>In-line Drying Capacity</u>
Pillar Corona Pretreatment	Gas Fired Drum Dryer
Flynn Burner Flame Pretreatment	Digital Controlled Maxon Burner

Coextrusion Selector Plugs

5 Layers

AAAAA

BBAAA

AAABB

BAAAB

AABAA

BDCAA

BDCDA

BCAAD

AADBC

ABCBA

BAAAC

BCAAA

AAACB

BCACB

BAACD

AAAAA(BB encapsulation)

BCBAA

BAAAB (CC encapsulation)

CPChem Contact Information

- CPChem Houston Headquarters
 - 1-800-231-1212
- CPChem Technical Center
 - 1-800-437-2650
 - Clint Cleaver (Board Coating & Laminating)
ext. 6121
 - Kelly Frey (Flexible Packaging)
ext. 6315
- Internet www.cpchem.com