SyncMaster

Synchronized Splice Control

Forty years ago, Copar built the first synchronized splice system for the corrugated industry. CSSC SyncMaster™, the ninth generation system incorporates Allen Bradley Compact Logix PLC processors with robust hardware and software for the most reliable system to date.

Automatic End of Roll Splice

- Automatic core diameter splice at the end of the roll helps prevent paper tear-outs.
- Automatic speed adjustment during a splice sequence keeps the machine at production speed longer.
- Automatic bridge fill adds extra material to the bridge before a singlefacer splice, which helps maintain the doublebacker production speed during the splice sequence.
- Improved roll measurement accuracy and continuous caliper grading throughout the roll.

Synchronized Splice

- Synchronized Splice aligns paper splices to one another for grade or width changes.
- The aligned splices are automatically removed at the shear. If single cut mode is selected, the splice packet will be put on top of the order's last stack for the operator to remove.
- Multiple Synchronized Splice Modes are included to optimize conditions for:
  - Order Lineal requirements - Over/under runs are not permitted.
  - Lineal remaining on roll requirements - Over/under runs are permitted to avoid small butt rolls.

Automatic Restock Splice

- Pressing a single pushbutton fills the bridge (if enabled), slows the machine to splice speed, splices the roll, and then resumes the previous production speed.
- A restock splice helps avoid small end of order butt rolls by splicing early into a larger roll.
- Automating the sequence keeps the machine at run speed longer, while freeing the operator for other tasks.

SyncMaster will help your plant increase productivity, improve product quality, and reduce waste with minimum operator involvement.

Singlefacer Bridge Control with Variable Bridge Loading

- Bridge Control synchronizes the singlefacer speed to the doublebacker speed.
- The bridge fill function for singlefacer splices helps keep the machine at full production speed.
- Bridge loading is integrated into the system software and is adjustable from any Copar screen. Bridge loading helps control reverse warp by allowing the web to cool on the bridge.

Paper Break Detection

- The SyncMaster automatically stops the machine when a paper break is detected.
- Faster than an operator, this feature protects your machine during missed splices, web breaks, or singlefacer wrap ups by continually monitoring paper speeds.

Laminated and Split Medium Automation

- Options for alternate medium paths are integrated into the system.

COPAR Solutions™

Practical Features

Variable Bridge Loading with Improved Bridge Measurement

- Additional web can be added to the bridge for reverse warp correction, typically when running heavy weight or coated paper.
- Additional web quantity is entered at any touch screen (not a fixed value).
- Bridge loading is integrated through the software. No additional wheels, switches, or photo-eyes are necessary.
- When communicating with the optional Copar Warp Wacker system, the bridge can be automatically loaded when warp is detected.
- Redesigned bridge validation system compensates for inconsistent roll moisture for improved measurements and sync splice accuracy, even when bridge loading is enabled.
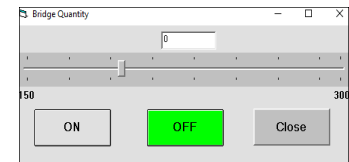
Variable Bridge Quantity Slider

Indicators and Operator Tools

- Roll status is indicated with highly visible three-color light stacks that alert the operator of impending splices or roll measurement problems.
- Water-marked splices and audible/visual alarms alert the dry end personnel to remove splices from the stacker.
- A remote shear pushbutton at the doublebacker glue station allows the operator to remove bad material during startup.
- Optional - Highly customizable overhead displays show run speeds, production lineal, and downtime with color codes to indicate when above or below production goals.
- Optional - LED TV Displays at each splicer help roll truck drivers deliver paper on time.


Splice Status Indicator

Management Tools

- Production reports are emailed to key personnel automatically (optional).
- Printable reports, graphs, and help screens.
- All screens are user friendly and have integrated troubleshooting tools.

Communications

- Communication with production scheduling systems.
  - Production schedules are automatically downloaded and viewable from any operator touchscreen.
- Communications with roll inventory systems (optional).
  - Print butt roll tags automatically with actual spliced diameter, lineal remaining, and roll ID, as well as other information without any manual measurements.
  - Creates a logged history with rollstand location and Roll ID for tracking purposes.
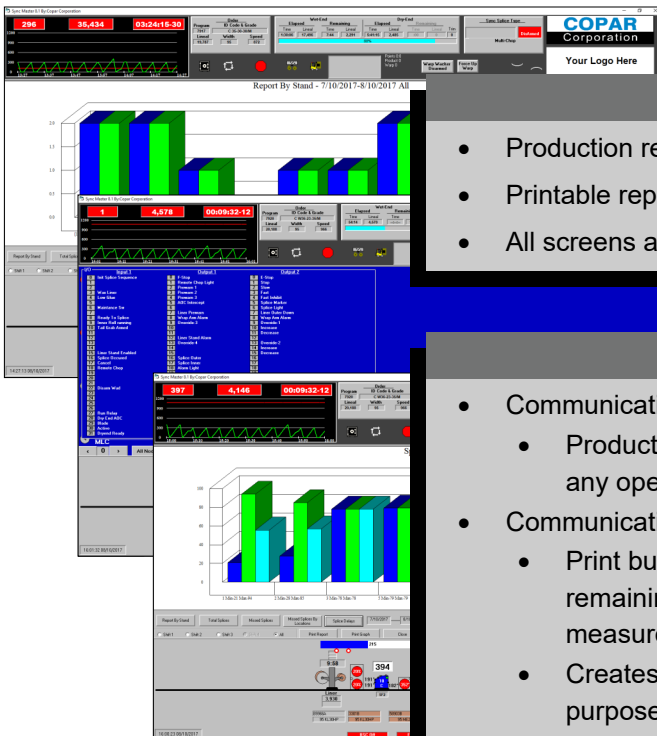
Advanced Diagnostics with Black Box

The SyncMaster was developed with a deep understanding of operator needs and machine capabilities from our 40 years of experience making splice controls. Copar has resolved many complex problems that our competitors don't know exist. Identifying hard to find problems is easier with the new Black Box "Flight Data" recorder.
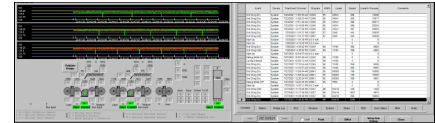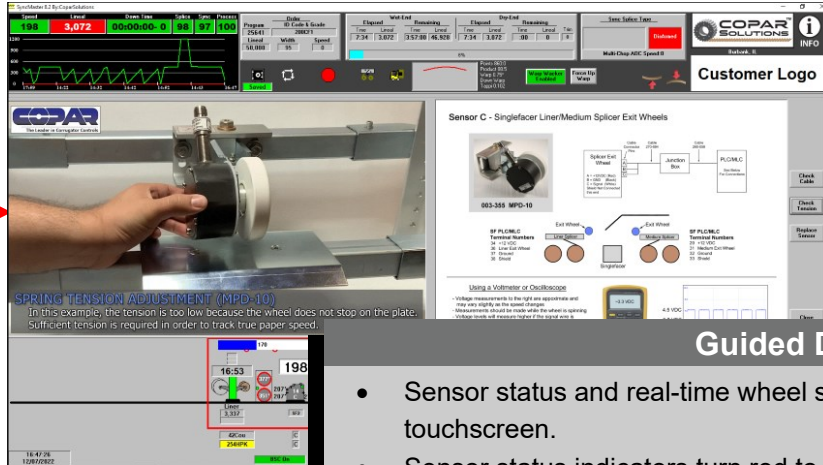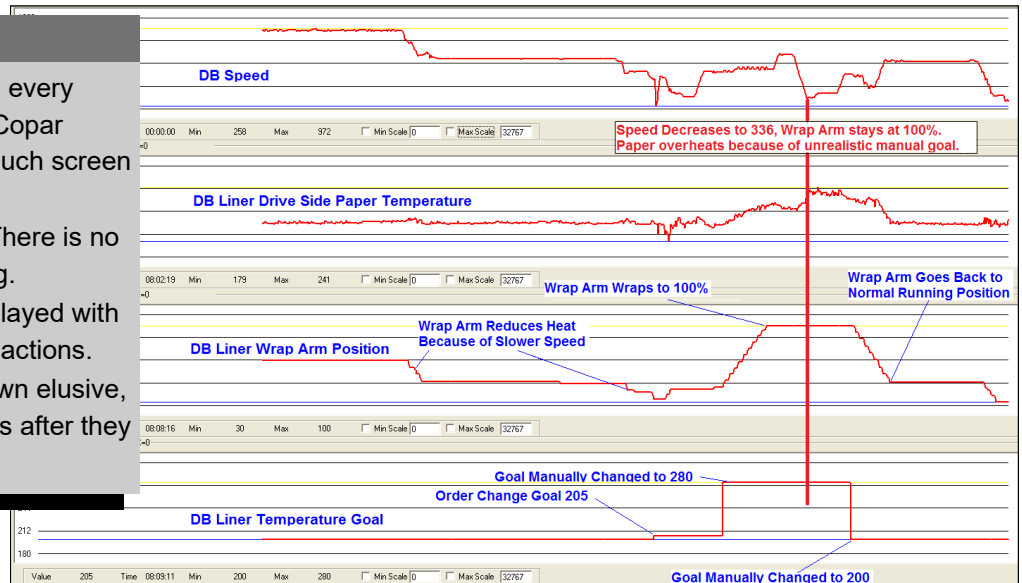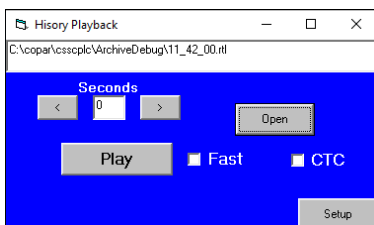

Sensor Alarm Screen

PLC I/O Screen

Repair videos are built into the alarm screens

Guided Diagnostics

- Sensor status and real-time wheel speeds may be viewed from any operator touchscreen.
- Sensor status indicators turn red to help identify problems quickly.
- Sensor locations, wire terminals, and the expected voltage level graphics are built into the sensor alarm screens.
- Sensor repair videos and PM procedures are integrated into the alarms, which may be viewed from any operator screen.
- PLC I/O screens facilitate event sequences monitoring from.
- Automatic notifications may be setup to email or text specific people if a sensor error occurs (optional).
- Informational help screens may be viewed from any touchscreen by pressing the info button in the top right corner.

Black Box

- The Copar Black Box records every PLC input and output, every Copar screen, and every operator touch screen entry at 1/4 second intervals.
- Black Box is always active. There is no need to start or stop recording.
- Past history can be easily replayed with actual screen shots and PLC actions.
- Data can be used to trace down elusive, "once in a while" issues weeks after they occur.

DB Speed

Speed Decreases to 336, Wrap Arm stays at 100%. Paper overheats because of unrealistic manual goal.

DB Liner Drive Side Paper Temperature

Wrap Arm Wraps to 100%

Wrap Arm Goes Back to Normal Running Position

Wrap Arm Reduces Heat Because of Slower Speed

DB Liner Wrap Arm Position

Goal Manually Changed to 280
Order Change Goal 205

DB Liner Temperature Goal

Goal Manually Changed to 200

Actual customer data "played back" at Copar showing an operator incorrectly change the DB liner goal from 205°F (96°C) to 280°F (137°C), which is far too hot.

When the DB slowed down, the paper temperature increased to 241°F (116°C) which probably caused warped sheets. The operator realized the mistake and changed the goal back to 200°F (93°C).

Clamp Truck Software (Optional)

This software interface provides clamp truck drivers with real-time roll requirements, generated from a Copar SyncMaster system. Data is transmitted via the plant's existing WIFI infrastructure to the truck's current onboard computer, tablet, or mobile device. With this software, the driver can view:

- The scheduled order queue with the current order's lineal remaining.
- Real-time running roll status including lineal remaining, diameter, time to splice, and current speed.
- Roll lineal required to complete the order. When more paper is required, the field is highlighted RED.
- The roll's paper grade that was scanned onto a rollstand. The field turns RED if the grade does not match the schedule, indicating the wrong paper may be running. (Rollstock software interface is required).
- Spliced roll history along with its roll tag ID (Rollstock software interface is required).

Schedule 8:39:01 AM

Program	Width	Grade	Flute	Lineal	1	2	3	4	5
57998	98.00	ZY536Q35L-C-P	C	19,581	ZY5	------	------	36Q	35L
41:46					10	-14,324	526	-21,858	-16,446
58008	98.00	45L36Q45L36Q45L-BC-P	BC	40,534	45L	36Q	45L	36Q	45L
2:08:14					40,534	54,316	40,534	57,964	40,534
58007	98.00	45L26R45L26R45L-BC-P	BC	19,500	45L	26R	45L	26R	45L
2:49:49					19,500	26,130	19,500	27,885	19,500
58013	98.00	34P33R34P33R34P-BC-P	BC	14,738	34P	33R	34P	33R	34P
3:21:16					14,738	19,749	14,738	21,075	14,738
58010									35L
3:52:52					14,816	19,855	14,816	21,187	14,816
Total:				109,169					

Scheduled Order Queue Screen

Current Order

Green = Sufficient roll lineal

Red = Insufficient roll lineal.
More paper is required.

Brown = Currently running roll

Green = Sufficient roll lineal for the current order

Red = Insufficient roll lineal for the current order

Green = Scanned roll matches the schedule

Red = Scanned roll DOES NOT match the schedule.
The wrong paper may be running.

19,581		Real-time 8:39:01 AM							
41:46	DB Liner		SF1 Medium	SF1 Liner		SF2 Medium		SF2 Liner	
Speed	469			0			467		
Stand	1	2	3	4	5	6	7	8	9	10
Lineal	------	19,429	11,524	------	19,807	------	------	4,575	------	2,716
Order	------	10	-14,324	------	526	------	------	-21,858	------	-16,446
Diameter	------	49.82	35.52	------	50.74	------	------	27.50	------	19.51
Time	-------	41:25	43:40	--------	1:59:20	--------	-------	6:59	-------	5:48
Restock	-------	4.9	-------	-------	-------	------	------	------	-------	------
Grade	45L	ZY5						36Q	35L	35L	35L
Width	98	98	------	------	------	------	97.88	98	98	98

Real-time Roll Status Screen

History 8:39:41 AM

| Stand	Roll ID	Used	Remaining	Diameter	Started	Completed	Initated
1	21342	32156	24978	62.01	8/9/2013 11:27:20 PM	8/13/2013 8:38:06 AM	Splice Type 16
4	23456	14120	23965	60.7	8/9/2013 11:28:03 PM	8/13/2013 8:36:32 AM	Splice Type 16
5	71175	3479	4	4.68	8/13/2013 8:31:45 AM	8/13/2013 8:35:31 AM	Auto Diameter
9	12345	7117	1299	69.3	8/9/2013 9:58:20 PM	8/13/2013 8:35:14 AM	Splice Type 16
6	12343	3479	4	4.68	8/13/2013 8:27:58 AM	8/13/2013 8:31:45 AM	Auto Diameter
5	32146						Auto Diameter
4	32134						Auto Diameter
8	12347	2343	4	4.68	8/13/2013 8:16:36 AM	8/13/2013 8:20:23 AM	Auto Diameter

Spliced Roll History Screen

Rollstock Inventory Software (Optional)

Include Roll ID tracking with your Copar splice control system. Interface with an existing Kiwi, CTI, or other roll management software.

- ♦ Eliminate roll diameter measurement errors when using a tape measure.
- ♦ Avoid manual entry errors into roll inventory systems.
- ♦ Save time by printing roll tags automatically after a splice.
- ♦ Once the roll has been scanned, the mounted roll ID, grade, and width is displayed at each Copar screen. This information helps the operator verify the correct paper is being used.
- ♦ Get a handle on where your waste is with roll ID traceability and logging.
- ♦ Simple operation:
    1. Scan the rollstand location barcode, then scan the roll tag barcode.
    2. After the roll splices, the roll diameter, paper caliper, remaining lineal, and lineal consumed are automatically transferred to the roll inventory software.
    3. The roll inventory software automatically prints a tag for the operator to attach to the spliced roll.

Roll ID   **Roll Statistics**

	Roll ID	Used	Remaining	Diameter / Target	Caliper	Started	Completed	Initiated	Speed / Target	DF Speed	ms	Initial Diameter	Bridge Quantity
5	'RD27D2517371	20121	3	4.73/4.68	8.6726	05/11 10:47:23	05/11 11:32:12	Auto Diameter	588/600	603	170	55.32	91
1	'RG16K3014300	15305.1	12806	43/4.68	9.3388	05/11 10:31:24	05/11 10:47:34	Sync Splice	546/600	546	143	58.32	0
4	'RG37E0120448	13483.9	21167	45.03/4.68	6.2024	05/11 10:36:12	05/11 10:47:25	Sync Splice	549/550	546	131	59.75	94
6	'RG16K3014400	9991	22942	48.91/4.68	6.7625	05/11 10:36:41	05/11 10:47:23	Sync Splice	549/600	546	152	55.32	94
5	'RG16L1909100	25059	3	4.71/4.68	6.7785	05/11 07:09:01	05/11 10:36:41	Auto Diameter	564/600	606	110	45.64	92
3	'RG37E0123147	32537.3	4	4.73/4.68	6.6979	05/11 07:09:01	05/11 10:36:12	Auto Diameter	555/550	537	116	56.73	104
2	'RG16L1909300	19694.8	20	4.9/4.68	6.9209	05/11 10:02:53	05/11 10:31:24	Auto Diameter	597/600	597	128	43.55	0
1	'RS27D2210361	19552.7	4899	26.31/4.68	8.9562	05/11 09:40:38	05/11 10:02:53	Operator	501/600	495	0	58.89	0
8	'RG37D2923447	10348.2	24898	48.69/4.68	6.1743	05/11 09:53:50	05/11 10:02:30	Operator	459/550	495	0	56.54	233
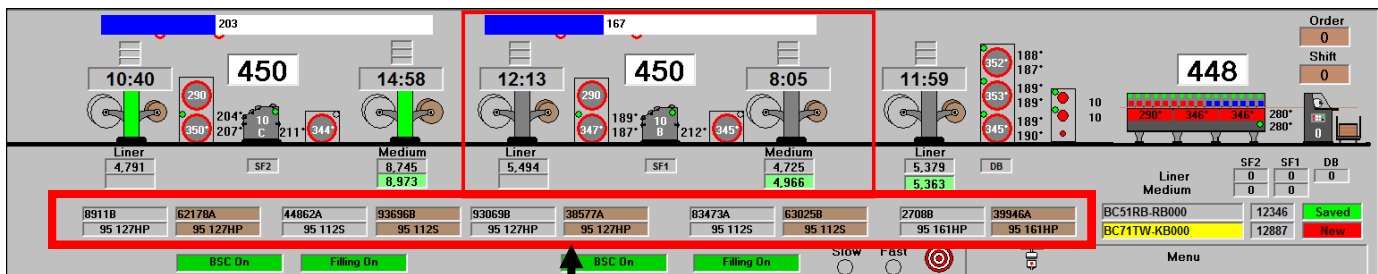
**The Scanned Roll ID, Grade, and Width are shown**

Automatic Email Reports (Optional)

Automatically generated email reports save valuable time for managers and maintenance. Each email has unique information for efficient production tracking. The reports include individual shift statistics, as well as combined totals.
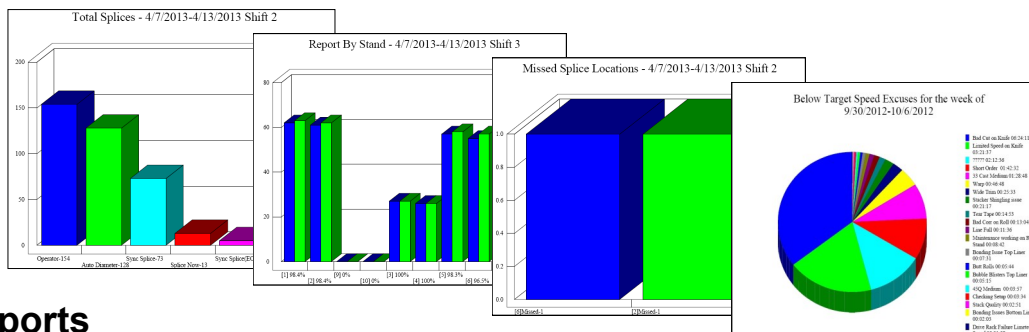
Daily Reports

- **Itemized Order Production Report** - Lineal Produced, Average Speed, and Downtime during the order
- **Graphical Shift Production Display**
  - **Lineal -** Total produced, total lost from downtime, total lost when under target speeds
  - **Downtime -** Number of occurrences and duration, per event and per shift
  - **Square Footage/Meters** - Total over or under target

Detailed Production Report — 6/4/2013 Shift: 1

Run	Width	Lineal	Grade	Flute	Target	Average	POP%	Start	End	Stops	Downtim
70452	61	11,008	125C-23M	C	856	753	0%	6/4/2013 7:00:00 AM	6/4/2013 7:14:37 AM	0	00:00:0
70478	86.75	68,129	E32C-33UM	C	862	725	0%	6/4/2013 7:14:37 AM	6/4/2013 8:48:34 AM	1	00:04:4
70480	86.75	33,450	200C-33UM 42MW	C	842	429	0%	6/4/2013 8:48:34 AM	6/4/2013 10:06:28 AM	2	00:24:1
70469	80.75	31,297	E44C-33UM	C	681	626	0%	6/4/2013 10:06:28 AM	6/4/2013 10:56:27 AM	0	00:00:0
70476	78.5	15,634	E32C-23M	C	843	568	0%	6/4/2013 10:56:27 AM	6/4/2013 11:23:58 AM	1	00:01:5
70470	85	53,767	125C-23M	C	856	838	0%	6/4/2013 11:23:58 AM	6/4/2013 12:28:07 PM	0	00:00:0
70495	98	22,913	200C-33UM	C	858	578	0%	6/4/2013 12:28:07 PM	6/4/2013 1:07:46 PM	1	00:05:3
70496	80.75	9,308	200C-33UM	C	858	408	0%	6/4/2013 1:07:46 PM	6/4/2013 1:30:34 PM	1	00:04:2
70501	80.75	49,476	200C-23M 42MW	C	833	783	0%	6/4/2013 1:30:34 PM	6/4/2013 2:33:44 PM	0	00:00:0
70502	89	18,312	175C-23M 35UPMW 42K	C	700	697	0%	6/4/2013 2:33:44 PM	6/4/2013 3:00:00 PM	0	00:00:0
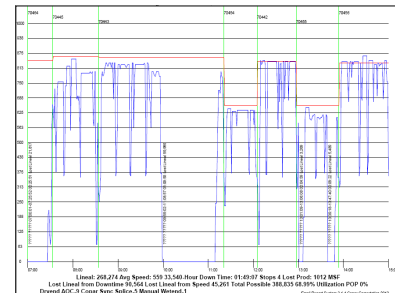
Weekly Reports

- **Total Number of Splices** - With indication of how the splice was made (operator/manual, optical, automatic at diameter, automatic reusable roll, synchronized splice)
- **Total Number of Missed Splices** - By roll stand number with percentages and number of occurrences
- **Below Target Speed Excuses** - (optional) If enabled, the system records when the machine is running below the target speed and the operator is required to enter reasons for the low speed such as "Line Full".


Monthly Reports

- **Total Lineal**
- **Total Lineal Possible** - Based on individual order target speeds
- **Lineal Loss due to downtime**
- **Lineal Loss due to running under target speed**
- **System Utilization Percentage** - Percentage above or below target lineal
- **Total number of Wet End, Dry End and Manual Order Changes**
- **System Usage Percentages** - Indication if the Copar automated systems are being used. Low percentages indicate production and quality are not being maximized.

Current June 2013 Totals

	Shift 1	Shift 2	Shift 3	All
Lineal	5,355,376	5,973,905	6,603,476	17,932,757
Possible	9,633,513	8,837,294	9,643,325	28,114,132
D/T Loss	-2,966,527	-1,833,862	-1,746,058	-6,546,447
Speed Loss	-1,311,610	-1,029,527	-1,293,791	-3,634,928
Utilization	55.6%	67.6%	68.5%	63.8%
Stops	165	111	144	420
Downtime	58:50:47	37:12:40	35:38:10	131:41:37
Dryend AOC	258	280	286	824
Wetend AOC	118	140	136	394
Manual AOC	26	27	38	91
POP Usage	0%	0%	0%	0%
CSSC Auto	82.5%	88.3%	85.6%	85.6%
CTC Auto	100%	100%	100%	100%

LED TV Splicer Display (Optional)

The LED TV Splicer Display above each splicer shows real-time roll information.
- Helps operators and roll truck drivers by displaying information they use frequently.
- Can be customized to show the scanned roll ID or previous spliced roll statistics.
- Each display interfaces with Cat-6 ethernet communication and VGA for simple installation.

One Screen at Each Splicer
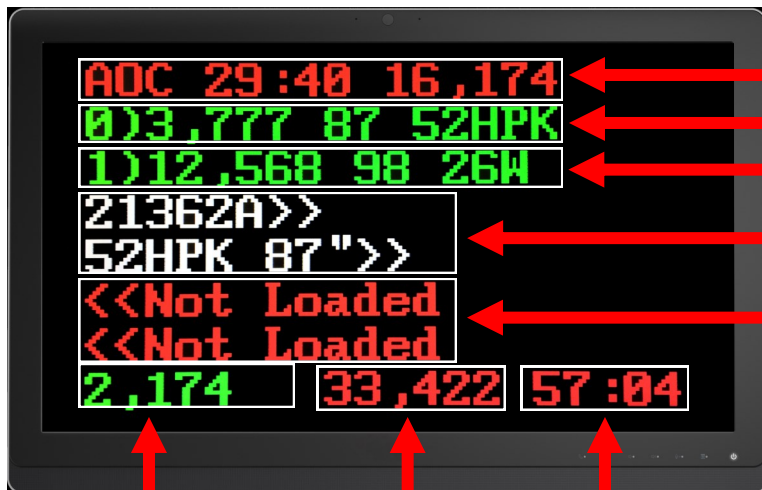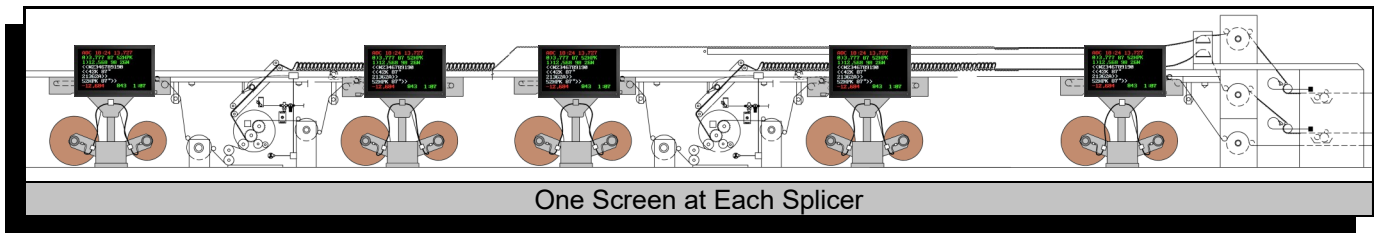
Wet End AOC Time and Lineal remaining
- 🟩 = Sync Splice Armed
- 🟥 = Sync Splice Not Armed

Current Order   Remaining, Lineal, Width and Grade

Next Order   Remaining Lineal, Width, and Grade

Right Roll

Left Roll

Scanned Roll ID, Grade, and Width
- 🟥 = Roll Has Not Been Scanned

Time Remaining until the end of the roll (based on current run speed).
- 🟩 = Ready to Splice
- 🟥 = Not Ready to Splice (roll is not in place)

Lineal Remaining on the running roll.
- 🟩 = Ready to Splice
- 🟥 = Roll is Not Ready to Splice (roll is not in place)

Estimated Lineal On Roll at the end of the order.
- 🟩 = There is enough paper to complete the order (Positive Number).
- 🟥 = There is not be enough paper to complete the order (Negative Number).

24 Volt Controls - "Touch Safe"

All Control Cabinets, Alarms, Switches and Indicators are 24 Volts DC for safe troubleshooting without Arc-Flash restrictions.
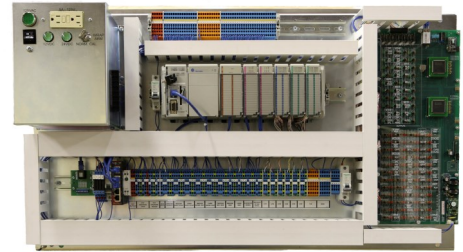
Operator Stations

♦ Industrial grade 23" 1920x1080 HD resistive LCD touchscreen
♦ NEMA Type 4X sealed enclosures
♦ An Internal GFCI outlet and Battery Backup are included for reliability.
♦ Remote touchscreens are compact for flexible mounting options.
♦ Screens function independent of one another, with complete operator control at each station. Different tasks can be performed at each station, simultaneously.
♦ Additional remote stations can be easily installed for convenience.
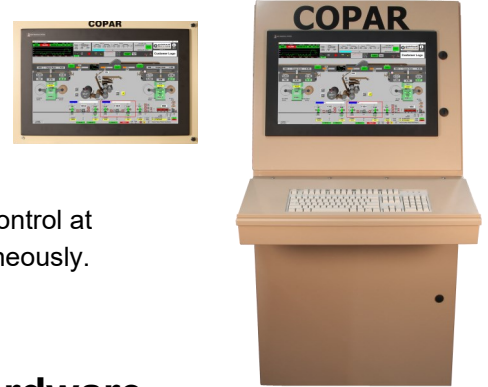
Includes all DC Wires/Cables, Brackets and Hardware

♦ Ensures correct items are used, eliminating improvised installations.
♦ Special Teflon/PVC mix wire coating is designed for the environment and is easier to pull through wire ways.
♦ All steel brackets are manufactured at Copar, then are zinc plated for durability, corrosion resistance, and to give a professional look and feel.

Minimized Spare Part Inventory

♦ Allen Bradley PLC Processors and I/O modules are readily available worldwide, or directly from Copar's fully stocked inventory. Same day shipment or delivery is available when ordering from Copar's headquarters.
♦ There are only two types of wheels used with the SyncMaster system. Having one of each on hand will cover your entire system.
  • All wheels use the same bearings and bushings for simplified repairs.
♦ A Spare Parts Kit is included under consignment for two years. After two years, the plant has the option to purchase the Spare Parts Kit, or can simply return it to Copar.
  • The Spare Parts Kit contains essential parts that are manufactured specifically for the SyncMaster.
  • The Spare Parts Kit is packaged in a sealed briefcase type package for easy handling. This package helps keep everything in one place.

Unparalleled Customer Support

♦ 24/7 Phone Support
♦ VPN Support
  • When calling for help, Copar can help diagnose issues by using the Black Box feature.
  • We can assist operators and maintenance personnel remotely from Copar by demonstrating basic procedures with mouse cursor and screen actions.

Free Software Upgrades For Life

Copar does not charge fees for software changes or upgrades for the life of previously purchased features.

2 Year Limited Warranty

Buy with confidence. Copar is proud of the products we produce, and we stand behind them.

♦ A standard 2 Year Limited Warranty on all parts is included.