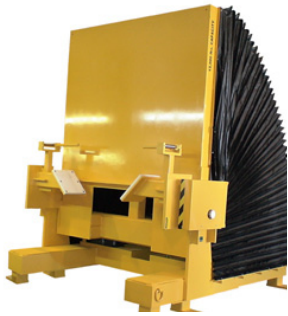


## New Steel Coil Manipulator from Green Valley

Production Resources is pleased to introduce Green Valley's latest design, the Titan 2327, a 12,000 lb. Steel Coil Manipulator.

This coil manipulator allows the user to transfer palletized steel coils to a coil cart in a safe and timely manner. The load deck rotates 90° to invert the coil. Once inverted, a coil cart is positioned under the cradled coil for extraction of the coil from the Manipulator and placement onto the mandrel of a coil feed system.



*Titan Coil Manipulator*

A steel coil is delivered to the Manipulator via a fork truck with the coil still bound to the wooden pallet while the flat deck is parallel to the floor. The operator turns on the Manipulator uses pushbutton controls to pivot the deck to

bring the coil to the upright position. During the process, the palletized coil slides on the flat deck until settling in the tapered cradle lining. A coil cart then drives under the tapered cradle, extracts the coil from the Manipulator and drives away towards the uncoiler. The operator then rotates the pivoting frame back to the "HOME" position and is ready for the next steel coil.



## Ultralift TP by Eclipse Magnetics

Simply attach the Ultralift TP to the hook of your crane or hoist and you're ready to go!

This manually operated permanent magnet lifter is specifically designed for lifting thin plate and removing single sheets from a stack. A job that takes two men with hooks, chains or slings can be done with one hand using the Ultralift TP. No more struggles to attach heavy or awkward loads. No more worries about the stability of the load once it's lifted.



The operating handle works like a car handbrake. A button on the end operates a safety catch which prevents accidental switching while a load is being held.

*(ULTRALIFT continued at right)*

## Understanding In-Die Part Quality Measurement Part 1 of a series

### Background

#### Digital die protection & go-no-go goalpost monitoring

Conventional die protection has significantly advanced in recent years; however, its aims are simple: keep the press in one piece, prevent die crashes, and monitor the press well enough for it to run unattended. Event monitoring such as short feed/long feed detection are effective in reducing die breakage as well as preventing the production of unusable parts. Other "go-no-go" digital quality detection means typically involve use of multiple sensors with limited accuracy and implementation problems. The go-no-go method of checking tells you if the parts are within the tolerance limits but not how close they are to the limits. You could be consistently making parts that are just 0.000001" below the high tolerance limit, and never know it!

Only the most repeatable sensors can be used for go-no-go detection. You are limited to small proximity sensors with good repeatability, small spot reflective sensors, and some digital lasers.

When using a die protection control as the controller for part quality checks, there is another disadvantage: the only thing you can do is stop the press if a part is out of tolerance. Die protection systems have no provisions for allowing the press to run while diverting any bad parts.

#### Tonnage monitoring

Basic attempts to monitor part quality involve the use of tonnage/load monitors. Generally, if tonnage changes, the part must change; if the part changes enough, it is no longer a good part. Unfortunately, most tonnage monitors measure only the peak or highest tonnage during the stroke. In many applications, the peak is high enough to eclipse the sometimes smaller subtle changes that signal degradation of part quality. The latest generation of tonnage monitors use signature or waveform analysis that

*(Continued on Page 3)*

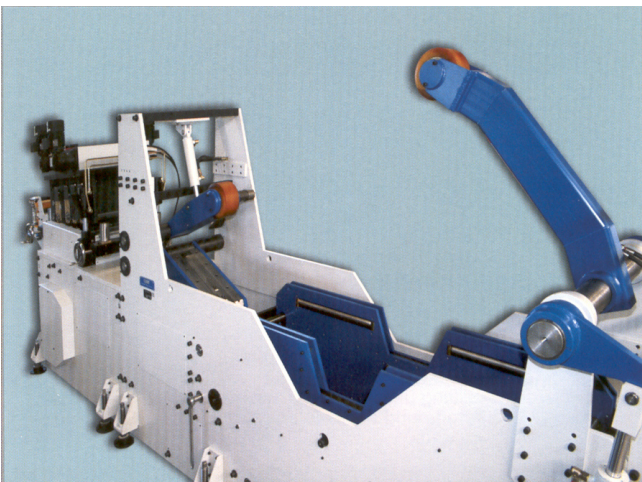


Permanent magnets and manual switching mean no operating costs. Loads can be stored and accessed more efficiently as you only need access to the load's top face to attach the Ultralift TP.

## Coe Press Equipment Announces North American Agreement with GSW Schwabe AG

Sterling Heights, MI—(April 30, 2007) Coe Press Equipment Corporation, a leading manufacturer of coil feeding equipment for the metal stamping industry, is pleased to announce their joint venture with GSW Schwabe AG, Kempen, Germany. The technical licensing agreement provides the structure for COE to market, sell, manufacture, and service the GSW brand of coil handling and feeding equipment in the North American metalstamping market. COE has targeted specific machine designs that will compliment and broaden their existing line of coil handling and feeding equipment.

VRMA Series Piloting Feeder-Straighteners: Standard machine designs are available in 2.36", 3.15" and 3.94" roll diameters. Configurations with 5 -13 straightening rolls are offered, and machine widths up



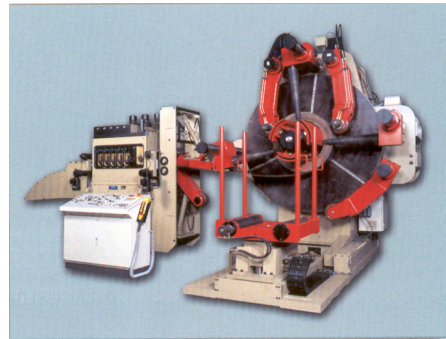
*Compact Cradle/Feeder/Straightener*

to 60" wide are available. These precision machines have fully driven feed rolls and lower straightener rolls, and provide true pilot release function for running both blanking and progressive die operations.

RMA Series "Alligator" Straighteners: Three models of heavy-duty straighteners that provide roll access for threading and/or cleaning. Depending on the application requirements, the "alligator" head is opened by mechanical lever or hydraulic cylinder. These straighteners are typically used in "non-marking" and "critical-surface" applications and where the need to access and clean the straightener rolls is increased.

*(Continued in next column)*

CA/VR Series Cradle-Straightener-Feeders: Unique "3 operations in 1 machine" feeding systems for processing



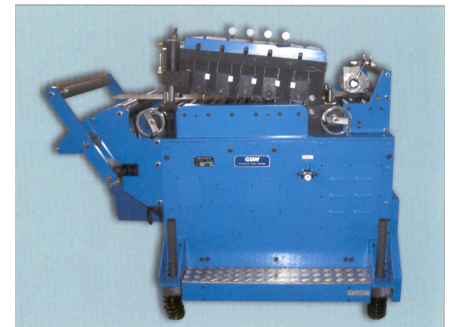
*Space Saver Heavy Duty Feeding Line*

narrow and heavy gauge materials up to .500" thick in extremely tight floor space applications. Heavy-duty cradle box construction is combined with efficient hold-down and threading systems. True pilot

release is provided by the fully-driven feeder-straightener for running blanking, progressive die, and fineblanking operations.

VRMA/SHR Series Heavy-Duty Compact Lines: Specialized machine designs for "3 operations in 1 machine" systems to process up to .250"-.310" material thickness and high yield strengths. A mandrel-type payoff system with heavy-duty coil containment and threading devices allows processing in limited floor space applications and provides effective coil threading and rewinding capability.

The COE/GSW partnership will provide tremendous technology benefits to the North American metalstamping market. We look forward to supporting the existing GSW customers in this



*Straightener with Tilt Open Head*

market, as well as working with GSW to develop new customers, specifically in the fineblanking industry and heavy-gauge coil feeding markets.

Coe Press Equipment Corporation, with headquarters in Sterling Heights, Michigan, is a leading producer of pressroom feed equipment including servo roll feeds, power straighteners, coil reels, and complete coil feed systems. They also design and build fully-integrated coil processing systems, blanking and cut-to-length lines, specialized oscillating shear dies and presses, and space-saving compact coil lines for metal stamping and processing operations. For more information, contact Production Resources at 800-863-3164.



## Wintriss Unveils New 16-Input DSI

A new 16-input Wintriss DSI is available for sale. The unit has front panel labels with LEDs numbered 1 through 16. For connection to the die, QDP, HD19, or any other connector can be provided, including 41-pin AERO connectors as well as 41-pin AERO and 4 Turck micro connectors. The 16-channel DSI is intended for use with Wintriss SmartPac2 press automation controls. SmartPac2 offers 8-, 16- and 32-channel die protection with expansion modes to 64 channels. The SmartPac2 can support conventional die protection as well as in-die measurement.



DSI2 16-Channel Sensor Interface

UNDERSTANDING IN-DIE (continued from Page 1)

measures the load throughout the stroke. This technology improves the ability of the device to provide a role in the part quality program but still has limitations:

1. Part quality is inferred rather than measured.
2. Process variables can change, causing a change in tonnage, but the press will still make a good part.
3. It's easy to adjust monitoring limits such that detection of part quality becomes questionable.

### In-Die Part Quality Verification

In die part quality measurement requires the use of analog sensors to measure part quality in an attempt to deliver 100% good parts, on time, regardless of the lot size. The only sure way to verify part quality “on-the-fly” is to use sensors in the die to check the actual part dimensions. The controller will either compare these measurements against some preset control limits then stop the press or control a parts diverter when an out-of-tolerance condition is detected.

### Analog Sensors

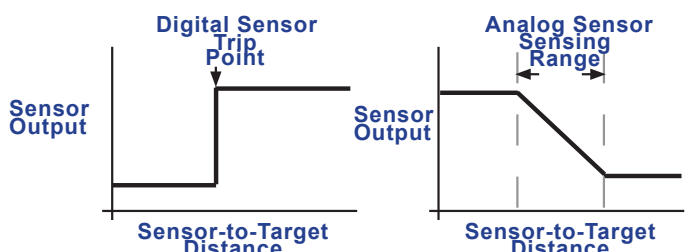
Analog sensors provide an electrical output that is proportional to the physical parameter that it is designed to detect. Unlike a digital sensor’s output that “trips” when the target reaches a specific distance from the sensor, an analog sensor’s output “tracks” the target parameter within its sensing range, changing as the target’s characteristics

*(Continued in next column)*

### UNDERSTANDING IN-DIE (continued)

(distance, pressure, temperature, etc.) change. See the diagram below for a comparison of the outputs of digital and analog distance sensors.

When connected to the appropriate monitoring equipment, an analog sensor can be used to measure part



Outputs of Digital and Analog Distance Sensors

parameters, provided it is accurate enough.

Analog sensors are available to measure distance, pressure, electrical current, temperature, flow, force, and dozens of other items. Analog sensors have a variety of electrical outputs; however, the most suitable for in-die use are voltage output sensors.

### Calibration

The sensors measure the parts output “volts.” Your part prints show the dimensions and tolerances in “inches.” Calibration is the process of adjusting the output of the sensor so that it detects the target object in a predictable manner, and setting up a control to display the sensor readings in usable units. Calibration, analog sensors, and controller operation will be discussed in the next series of this article.

*We thank Jim Finnerty of Wintriss Controls for contributing to this series of articles. Contact PRI to learn more about in-die part quality measurement.*

UNDERSTANDING IN-DIE (continued from Page 1)

## Did you know?

### Information required to specify and quote a coil handling and feeding line

Minimum/Maximum Coil Width, thickness and yield; for example - .120” thick @ 24” width @ 50,000 PSI yield strength and/or .080” thick @ 36” width @ 80,000 PSI yield strength. Note – more and more lines are being specified to run a wider range of material thicknesses with the lighter gauges being higher strengths. This makes the straightening process more and more challenging.

Material type(s): MCRCs or other. Specify tensile & yield. Note – as stated above, it’s important to know the yield strength for each cross section of material to properly size the straightener, coil containment, and threading systems.

Material finish requirements; if any. Are burnish marks or other material marking a concern.

*(Continued on Page 4)*

*DID YOU KNOW?* (continued from Page 3)

Min/Max feed length x speed. Example: 6” move x 120 spm and 24” move x 40 spm. The coil line must be designed with correct layout and drive sizes to meet maximum linespeed requirements and acceleration/ deceleration limits.

What feed accuracy is required?

Do you use pilots?

Is a programmable limit switch or similar device available to time feed advance and/or pilot release?

How much floor space is available? Can you provide a pit, if required?

- Compact Feed Lines as standard run 60-70 FPM net linespeeds
- Conventional Lines without a pit can run 80+ FPM net linespeeds
- Conventional Lines with correct material in loop can run 250+ FPM

Line configuration:

1. Powered reel to free loop and feed with pull through straightener.
  - a. Hands free coil threading required?
  - b. Is true pilot release functionality required?
2. Non powered reel - powered pull off straightener to a loop supplying feed.
  - a. Coil hold down arm?
3. Coil cradle/straightener to overhead or conventional loop supplying feed.
  - a. Special coil plates to manage camber?
5. Space saver close coupled loopless reel/ straightener/feeder combination.
6. Pallet decoiler serving feed with or without straightener

If a straightener is required are there any expectations other than removing basic coil set?

Is a crop shear required to provide a clean material edge to the straightening and or feeding equipment? This

feature can be used to cut the strip for tailout after a batch run is completed or tooling problem shuts down a run and the coil must be rewound.

Will the feed be secured to the press by: press mount or cabinet mount?

What is the minimum/maximum material passline?

How frequently is the passline adjusted?

Coil size – minimum/maximum ID, OD, Width

Calculate material footage available in the coil then calculate the length of time between coil changes based on the feed length x press rate. If the run time to coil change is short you may want to consider a double ended reel or another means of staging a replacement coil to maximize press uptime.

Special features required to reduce setup time?

Motorized passline, motorized straightening rolls, automatic coil centering, interface to press automation controls such as Wintriss SmartPAC?

Is there a customer specification or preference for certain controls – ie. Allen Bradley, Siemens, Indramat, etc?

How will the coil be delivered to the decoiling equipment? Is a coil car, upender required, or jib crane required?

Does the coil stock need to be cleaned or oiled prior to feeding?

Assuming all specifications can be met, what is most important:

- Reliability
- Price
- Delivery
- Availability of Service
- Warranty
- Brand

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## FYI

Additional technical information is available at no charge on our website: [www.production-resources.com](http://www.production-resources.com). Just click on “OSHA/Safety” or “Tech Information.”

Production Resources has Application Engineers available to help you at your facility. We can be reached at:

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