CWP/Schuler
Coil Processing/Transfer System Solution

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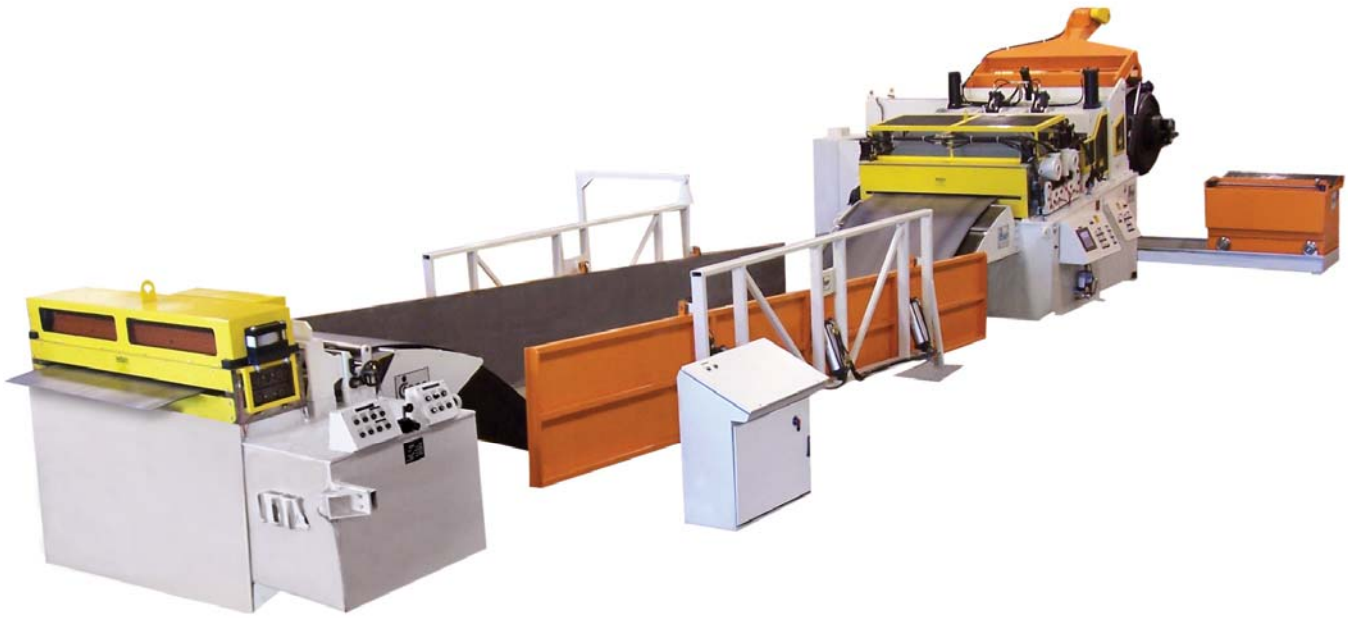


CWP's 72" x .280" x 40,000 lb. Heavy Duty Coil Processing System

When a major Tier 1 automotive stamping supplier committed to expanding it's manufacturing capabilities in the U.S. by building a new facility, many in the industry could readily foresee the positive impact that would be gained. The nearly 1,000,000 square foot facility has grown to become one of the premier suppliers of chassis frames and structural members to the southeastern North American automotive market.

When the organization identified the need for increased production capability in wide, heavy, high yield material for blank transfer and coil processing, previous experiences brought them to Schuler Incorporated. Not only would large tonnage be required, but integrated transfer capability from blanks as well as coil feeding would be needed to meet future requirements. Material capacity at .280" thickness at 72" width was determined to be optimum, while 40,000lb. coil capacity was found to be the ideal weight for transportation and handling.

Schuler was charged with full responsibility for the entire turnkey project, and subsequently contacted Cooper-Weymouth, Peterson a Formtek-Maine company to provide the coil processing system. Coordination was made at the start of the project for the general assembly and mechanical design of the integration requirements. Since the customer required destack capabilities, two powered destack carts were provided on in-floor mounted track to allow lateral shuttling from the stack loading station to the press to a position under the transfer bars. To also allow coil fed operation, Schuler provided detail of the track design to Formtek-Maine, and mating track was provided to allow the feed to be shuttled out of position in the opposite direction. In addition to the conventional interface requirements, such as press cycle signals for feed initiate and feed complete, further coordination was required to meet specific requirements related to the specifics of this project. Since electrically interfaced safety perimeter fencing was to be installed around the coil processing system, electrical interlocks were installed to shut the press and coil processing system down any time an access door is opened. In order to allow easier threading of the coil processing system, an access door was provided adjacent to the feed and press entrance whereby the line and press were allowed to run in a jog/single stroke mode only. A sliding gate in the perimeter fence was utilized to allow the feed to traverse out of the way for destack mode of operation, again electrically interlocked to prevent unsafe operation when opened. The coil system was then interlocked with the press/destack control to prevent operation of the coil system when in destack mode, as well as prevent the destack carts from movement when the coil feed was in the run position.

Since the feed location was moved back from the press to align with the transfer position, Schuler provided floor-mounted stanchions to provide the feed unit with solid mounting surfaces when in the run position. The feed was designed to traverse into position, and then powered to raise into position to lock hydraulically into the stanchions. Once locked into position, the feed provides 12" of passline adjustment to accommodate various dieline heights.

Since the feed was provided the ability to traverse, Schuler required that the HMI be located remotely, and the feed control was provided with a remote HMI that allowed it to be located adjacent to the press control pendant, and it was conveniently mounted on the perimeter fence right near the operator's station.

CWP feed unit rail mounted and integrated with Schuler's Destack and Transfer System. Note the feed control HMI mounted on the security fence adjacent to the press column

In meeting the coil processing demands, Cooper-Weymouth, Peterson, a division of Formtek located in Clinton, ME knew that the system had to be flexible throughout a broad range of material processing capacities and be operator friendly. The end user processes material from .062" to .280" thickness with yields up to 80,000PSI and widths ranging from 18" to 72".

To offer maximum flexibility in the design and application of the end user's tooling and transfer press operations, CWP provided a **Model SMX72HDSE4 four roll servo feed** with a high performance control. The four 4" diameter matte chrome finish feed rolls provide twice the contact area with half the roll pressure to prevent slippage and marking when processing critical surface materials while five sets of backups prevent any roll deflection and provide the required roll pressure to process the heavy high yield material applications. An automatic lubrication system was provided to ensure all the critical grease points within the servo feed get greased automatically with a Trabon pump and timer ensuring lasting equipment performance. Adjustable edge guides allow the operator to control material position within the feed from a single point of adjustment. Anti-back-up rolls on the entry of the servo feed prevent loss of material into the looping pit should the feed experience a loss of power or air pressure.

Model SMX72HDSE4 Four Roll Servo Feed

With this style of equipment a looping pit was required. **Model 72PTT22 threading tables** were provided to span the looping pit. The tables are double sided which when elevated cover the looping pit and allow material to be jogged from the straightener into the feed hands free. When retracted, they form a barrier that blocks the looping pit to prevent personnel from getting too close to the material and point of possible injury, further fail-safe measures in addition to the safety fencing. The positioning of the tables is all push-button controlled.

Model 72PTT22 Threading Tables

A **Model HD72-64/7PDS heavy duty precision power driven stock straightener** designed for pull off operation was supplied to flatten the wide range of material the end user has to process. The machine has four 6” diameter matte chrome pinch rolls. The rolls are hydraulically opened for thread-up, and when closed allow the straightener to pull material from a non-powered stock reel. Seven 4” diameter hardened and ground straightening rolls ensures flat product when processing materials which range from .062”-.280”. The 4” diameter straightening rolls were backed up in five places to prevent deflection when running the thicker high yield materials while allowing smaller diameter rolls with closer center distances for superior ability to flatten the thinner materials. An angular head starts material into the loop sooner and conserves floor space, while adjustable edge guides allow the operator to control material position within the straightener from a single point of adjustment. A high response regenerative drive system with ultrasonic loop control allows adequate slack material to be maintained within the looping area for the various feed lengths processed through the system. An automatic lubrication system ensures that all the critical grease points within the straightener get greased automatically with a Trabon pump and timer ensuring lasting equipment performance. An automated powered straightener head with automatic head adjustment feature allows the straightener to adjust roll settings based on a simple material thickness input at the touchscreen HMI of the straightener.

Model HD72-64/7PDS Heavy Duty Precision Power Driven Stock Straightener

One key factor in the selection of the equipment was operator safety. Primary in the ease and safety of thread up of material in the system was a coordinated **Model 72HDP hold-down-peeler system** comprised of an extensive series of features. Some are incorporated into the stock reel, some into the straightener, and others bridge the gap between units to facilitate the threading of material. These features allow the operator to thread the system hands free.

Model 72HDP Hold-Down-Peeler System,
With Entry Heavy Duty Hydraulic Debending System

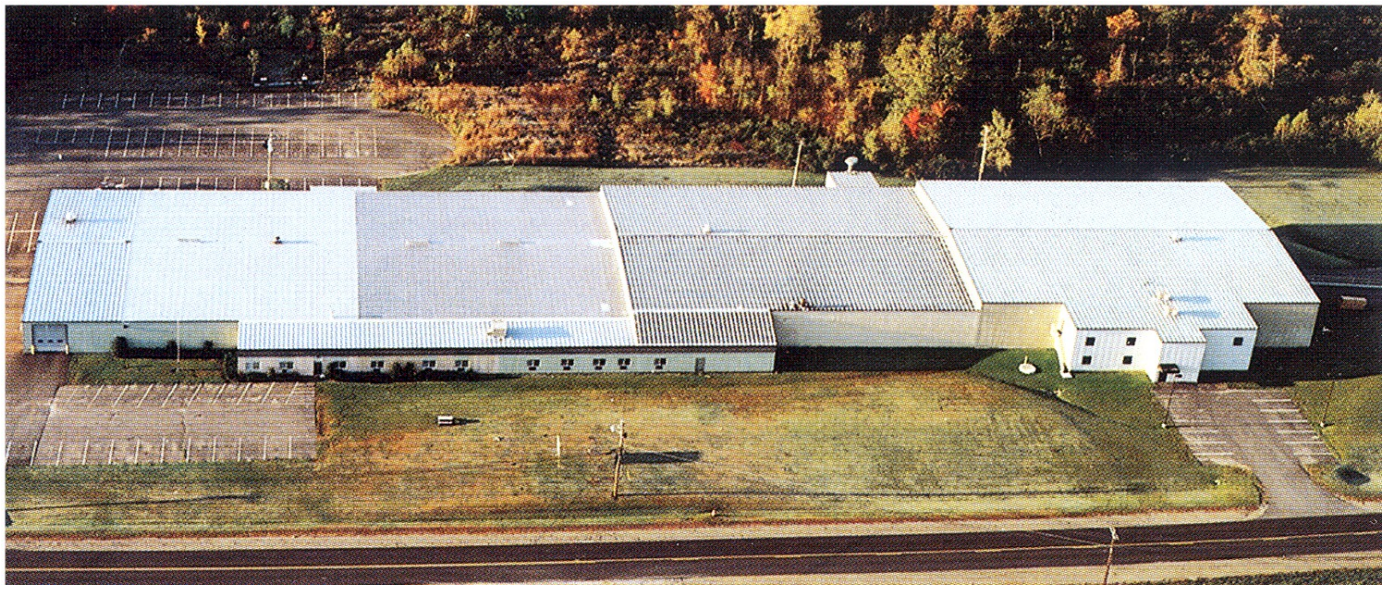
FEATURES:

A **hold-down arm**, mounted to the straightener and extending to the centerline of the coil, is raised and lowered by two large bore air cylinders and has a polyurethane covered rider roll for stock protection and extra threading traction.
A **rugged motor drive to the rider roll** helps direct the outer wrap of material toward the straightener when the reel is inched.
A **hydraulically raised and lowered peeler table**, mounted to the entry end of the straightener, helps guide material from the reel at the appropriate angle for various coil diameters.
A **hydraulic extendible peeler blade**, mounted within the peeler table, can be positioned directly under the lead edge of coils fully guiding material during the threading process.
A Coil end debender system which opens hydraulically wide enough to accept material is held in place while the bender leaves bend the material up or down (operator selectable) and prepares it for threading. This unit can also be used on the tail end of the coil.
Powered thread-up pinch rolls are diamond knurled for maximum material traction and open wide to allow easy material passage when threading and during run mode.
Solenoid operated valving with pushbutton controls and CWP's "**Auto Ready**" function, which moves all threading features to a neutral position in preparation for automatic operation. A **full diagnostic touchscreen** operator interface utilizes a multicolor display and input panel. Interface provides complete operator prompting of threading procedures, maintenance schedule, service points for the entire system, and in-depth diagnostic fault messages with recommended remedies. The touchscreen also allows the operator to program in the material thickness and with this information the control automatically adjusts the powered straightener head to the proper position to remove coil set.

A **Model 9R-72 non-powered stock reel** with 40,000 pound capacity was supplied to support the steel coils. The reel has an I.D. range of 19”-24.5” and a O.D. capacity of 72”. It also has a variable tension ultrasonic controlled brake system. As the coil depletes an ultrasonic sensor sees a reduction in coil O.D. and adjusts the brake automatically. This gives constant brake tension for smooth processing of coils from full O.D. to coil depletion. This is essential in processing a wide range of material thicknesses and mechanical properties to provide as much flexibility in the system as possible. A secondary floor mounted hold down arm with powered rider roll provides for safe processing of the high yield material applications. Coil staging and positioning on the mandrel is accomplished with a **Model 40060CLC traveling coil loading car**. Coils weighing up to 40,000lbs. are easily loaded on the stock reel. The car uses a common track system with the stock reel and is hydraulically powered and controlled with a remote jog operator pendant. The coil car has a 24” lift capacity and is equipped with anti-tip arms as standard to allow a wide range of coil widths and outside diameters to be processed. The coil car is also supplied with an automatic down and out feature to prevent the car from being inadvertently left under the stock reel and causing potential damage or operator safety hazard. When the auto-ready function of system is energized, the car automatically drops and clears stock reel, moving to a neutral position in preparation for automatic mode of operation.

Model 9R-72 Non-Powered Stock Reel. Secondary hold down arm provides additional control of high yield material, while an ultrasonic tension control provides automatic reduction in brake pressure as the coil depletes.

CWP worked very closely with Schuler and the end user to ensure that the equipment was up to task for the application which the equipment had to perform in. We knew the system had to be easy to operate, flexible and most of all dependable. As with all CWP equipment, this system was supplied with an all inclusive 2 year warranty.



CWP's 85,000 SQ.FT. Facility in Clinton, Maine

CWP is an industry leader in coil processing equipment with over 58 years of experience and innovation. Our ability to maintain 98% of our product production within our facility allows us full control over our shop through put. Our 85,000 ft^2 facility is designed to allow product to flow from raw material at the fabrication end of the building to finished product shipping to our customers from the assembly end of the building. In the center of our building product flows through a state of the art machine shop which utilizes multiple horizontal turning centers, two of them with automatic bar feed capability, one with dual turret and turning capacity of 19" diameter, 157" between centers and 6600lbs. loading capacity, multiple CNC machining centers and a CNC Bridge Mill with travel capacity of 69"X x 126"Y x53"Z are also critical to our operation. The facility also has roll hardening and grinding capabilities. Programming for the machine shop is accomplished with Surf Cam software. Our manufacturing department is staffed with 75 highly trained employees. We have an engineering staff of 8 people which allows us to quickly process customer orders as well as provide custom coil processing application solutions. Our sales staff consists of 9 people to rapidly respond to customer applications and provide the quickest quote turnaround time in the industry. Our service department is staffed with 7 full time service personnel, 4 located in Clinton, ME., 1 in Chicago, IL., 1 in Piqua, OH and 1 in Dallas, TX. This allows us to provide quick response to our customers no matter where they are located. We also have a true 24/7 service program implemented for emergency after hours service needs.
So if you have a simple servo feed requirement, to a fully automated press feed system, or a fully automated cut-to-length system, CWP has a cost effective solution to meet your needs!

For more information about CWP's coil processing equipment please contact:
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