Press Auxiliary Equipment

Machine Concepts

Designers & Builders
of Innovative Metal
Processing Equipment

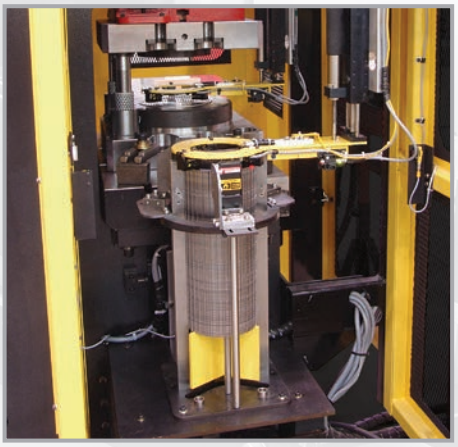
G2 Precision Straighteners

Parts Straighteners

H2 Precision Straighteners

Decoilers

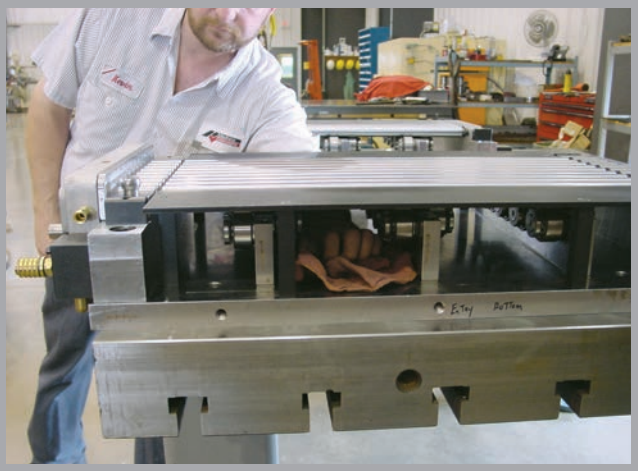
Looping Systems



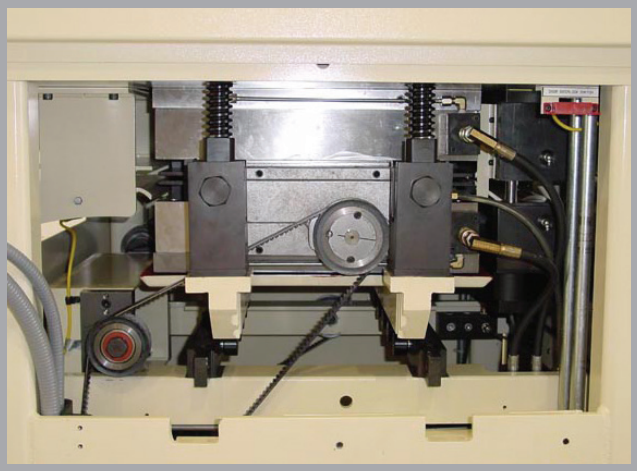
Stacking Systems

MachineConcepts.com

Standard Features Common to all Machine Concepts, Inc. Precis
Series G2, G2 Plus, G2L, H2, H2L, G2P, H2P, L2



Modular Design with Removable Cassette



Roll Drive System & Hanging Cassette Design

Oil Lubrication with

Standard Features

Common to Series G2, G2 Plus, G2L, H2, H2L, G2P, H2P & L2 Precision Straighteners

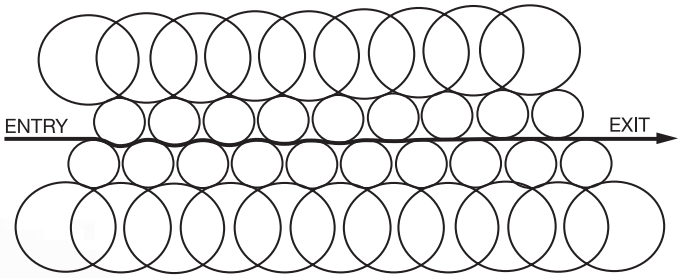
- Family of frame sizes and roll diameters to cover a large range of materials.
- Interchangeable roll diameter cassettes within the same frame size.
- Removable cassette and modular designs provide fast and easy roll exchange, cleaning, inspection and maintenance. L2/EV requires more manual operation to change the cassette.
- Precision ball and socket set to align top and bottom roll banks for accurate alignment.
- Hardened and precision ground work rolls supported with double row needle bearings.
- Durable roll drive system eliminates problems of U-joints and enhances straightener capabilities in several ways.
- Hanging cassette design eliminates adjustment backlash and greatly reduces machine deflection.
- Continuous light oil lubrication with flow and level monitoring.
- All electrical drives, controls and panels are machine mounted. EV lines do NOT have machine mounted controls.
- Proven performance and durability in the toughest stamping applications.
- Simple calibrating routine which provides extremely accurate work roll position control and repeatable set-ups.
- User-friendly operator screens provide all information required for machine operation. Straightener set-up and operation is simple and easy to understand.

Family of Sizes & Roll Diameters – Removable Cassette – Modular Design

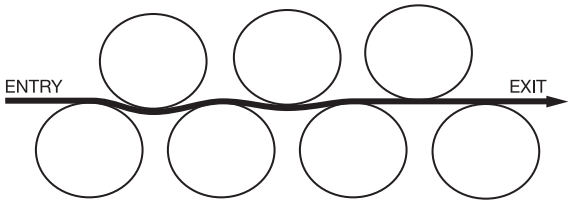
Flow and Level Monitoring

User-Friendly Operator Screens

Precision straighteners eliminate coil shape defects that simple flatteners cannot remove. Small diameter work rolls with supporting back-up rollers produce a flat strip free of stress. Parts that need to be flat – stay flat, and round parts – stay round.

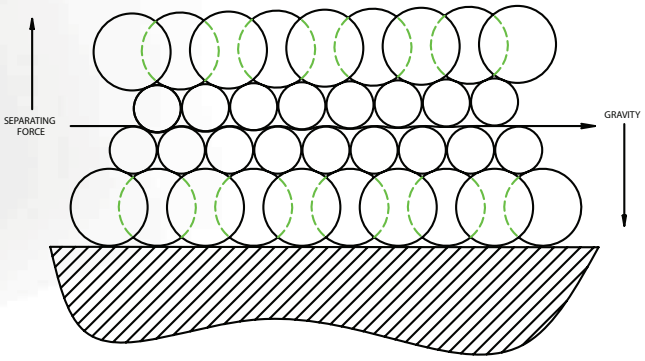


Small diameter work rolls cold work the strip beyond the yield strength of the material. Back-up bearings eliminate roll deflection.



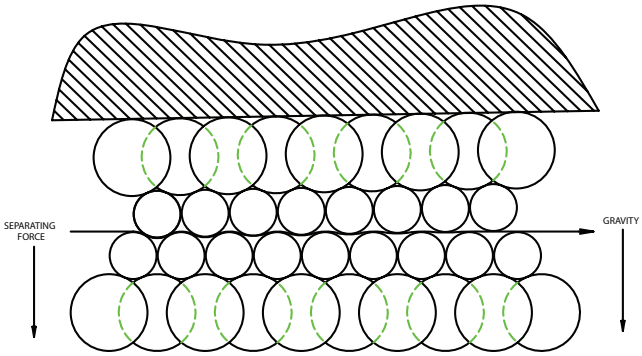
Flatteners use fewer, large diameter rolls without back-up bearings. These large diameter rolls cannot produce the amount of cold working required to eliminate shape defects.

Conventional Straightener



In a conventional straightener, the bottom roll set remains rigid and the top adjusts for entry and exit settings. Gravity is acting on the top roll set pulling the backlash to the bottom side. When material is introduced into the roll set, the separating force acting on the material pushes the top roll set to the top side of the backlash range. Therefore, the entry and exit settings change when material enters the machine.

MCI Precision Straightener



Machine Concepts, Inc. Precision Straightener has been designed to eliminate the effects of backlash by allowing the top roll set to remain rigid while the bottom roll set is adjusted for entry and exit penetration. Since the top roll set remains rigid, gravity acting on the bottom roll set pulls the backlash to the bottom side. When the material is introduced into the roll set, the separating force acting on the material pushes the bottom roll set in the same direction as gravity. Since the backlash is already removed in that direction, the entry and exit settings remain the same.

EV/L2

ELECTRIC VEHICLE PRECISION STRAIGHTENERS

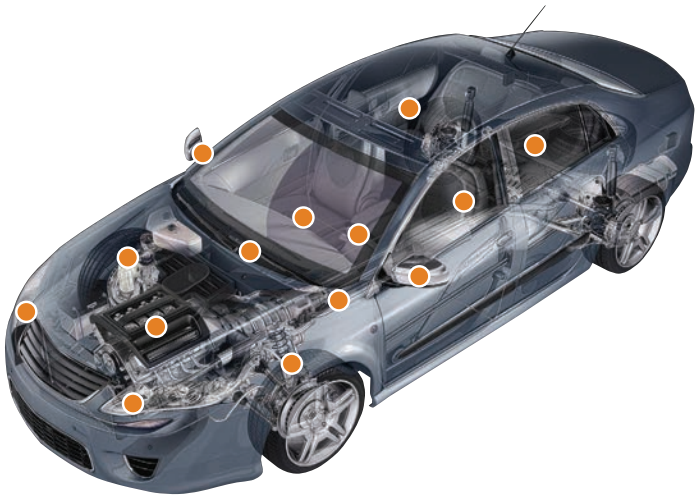
The EV/L2 family of straighteners have been designed for lighter gauges (.008" to .039") and normally higher speed applications (400 FPM). Features include easy removal of roll cassettes and interchangeable roll cassettes with different roll diameters within the same base frame.

The EV/L2 series is designed specifically for electric vehicle market materials. This machine is capable of straightening thin gauge, high strength material through a compact, efficient machine design. Utilizing a pull roll, the EV/L2 straighteners can accomplish improved flatness compared to other precision straighteners.

EV straighteners remove basic shape defects in a coil strip (such as coil set and cross bow) and can reduce the amount of edge wave and center buckle to some extent.

Electric vehicles are quickly emerging as a more efficient alternative to conventional combustion engine driven vehicles. As the range, efficiency and battery life increases, the demand for electric vehicles is constantly growing. Also, with advancements in technology, consumers expect electric motor driven features to be included in the most standard versions of most new vehicles. Machine Concepts has developed the EV/L2 Precision Straightener to meet the demand for more electric motor laminations used specifically in electric vehicles.

Applications: Electrical lamination material, high strength thin gauge stainless steels, laminated materials, electric vehicle laminations.

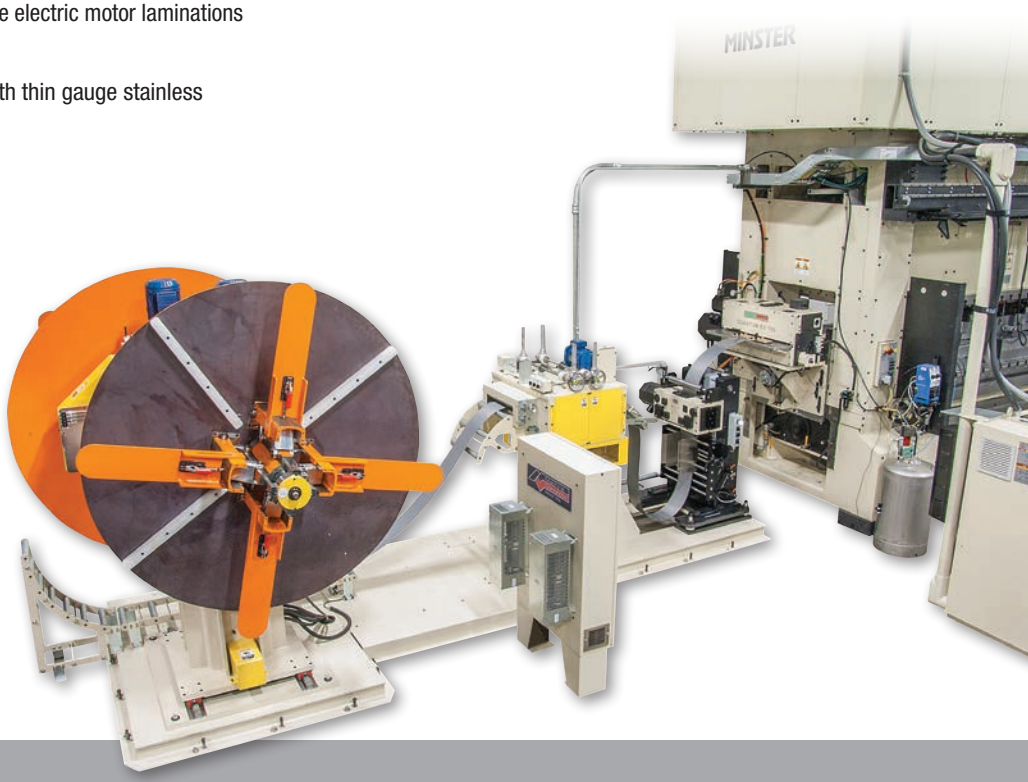


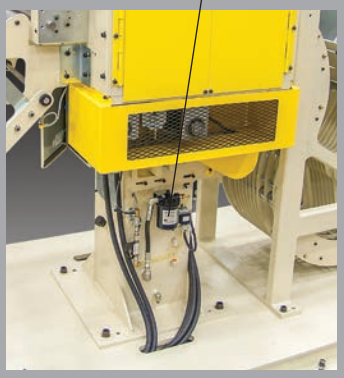
High Efficiency Laminations
Automotive End Markets, Alternators, Hybrid & Electric, Vehicle Drives, Ignitions, Sensors & Power Steering, Pumps & Cooling, Starters, Seats, Window Lift & Wipers

Specifications

Model	EV/L2
Width	6" - 14" - 18" - 24"
Roll Diameters	7/8" - 1 1/4"
Separating Load	8,000 lbs.
Gauge Range*	.008" - .039"

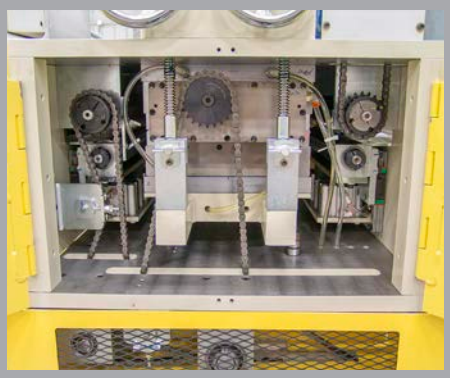
* Based on 60,000 psi yield strength.





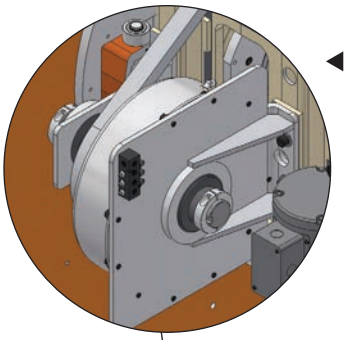
Roll Cassette Access - The roll cassette is easily accessible and removable from two sides of the machine. Roll cassettes can be interchanged with different roll diameter cassettes to accommodate a wide range of materials and thicknesses.

Lubrication Pump and Fluid Reservoir - The lubrication system provides continuous flow of light oil to the journal bearings and gear mesh. A lubrication monitoring system is incorporated to protect the machine in the event of no oil flow, a block in the filtration system, or a low fluid level in the reservoir. The reservoir is built into the frame of the machine with only a filling nozzle visible for a clean, compact design.

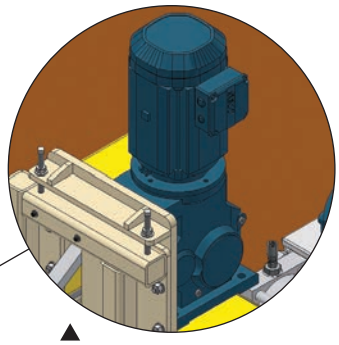


EV DM/SM Decoiler & Loop Control

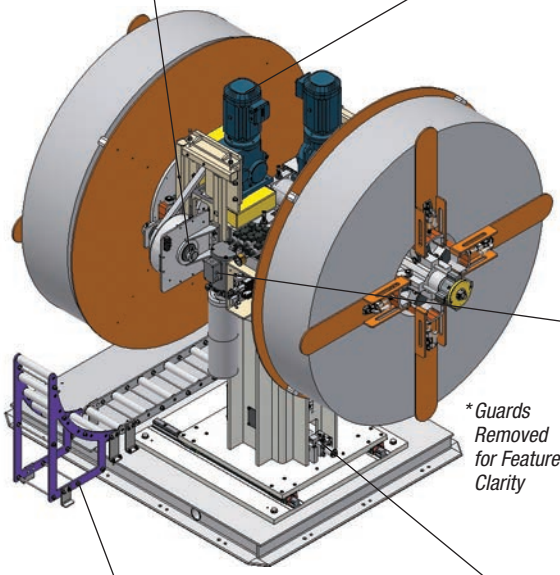
Decoilers incorporated on EV lines are, many times, required to have an electric motor powered payoff feature. With thicker materials, the straightener is responsible for pulling material off of the coil as the decoiler mandrel spins with slight resistance from the pneumatic brake to create small tension in the strip. The thinner materials typically straightened for EV lines are so thin, the material may tear due to tension on the strip between the straightener and decoiler. The powered payoff motor feature on the decoiler prevents tension on the strip, enabling the material to be fed at the same speed as the straightener without tearing. The powered payoff motor is only one of the features incorporated to meet the needs of lines processing EV material. Other features are also discussed on this page.



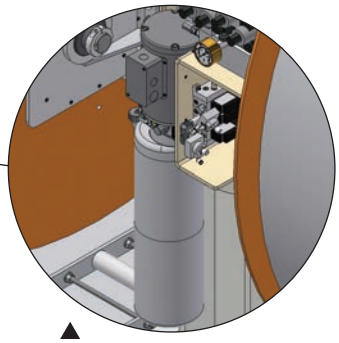
Pneumatic Brake - Provides increased mandrel rotation stopping time. These brakes are efficiently incorporated to minimize stopping time while maximizing the life of the brake.



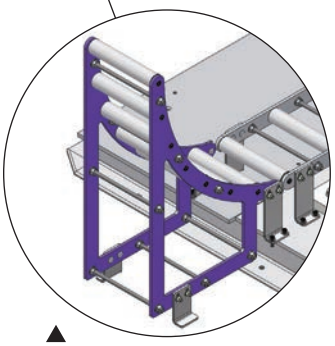
Electric Motor Powered Payoff - Uses a constant torque, variable frequency drive and motor to maintain complete control of loop storage. The motor is capable of matching the speed of the straightener at varying coil outside diameters.



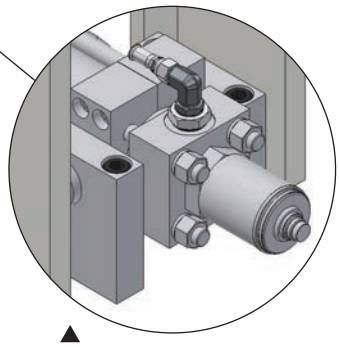
**Guards Removed for Feature Clarity*



Machine Mounted Hydraulic Power Unit - Optimizes available floor space and provides a clean machine look.



Loop Guide System - Provides strip guidance between the decoiler and straightener, and prevents the strip from dragging on the floor when feeding into the straightener. While the line is running, a laser sensor continuously monitors the loop fill level to maintain an appropriate amount of material between the straightener and decoiler.



Hydraulic Cylinder Side Shift - Uses a hydraulic cylinder with a linear transducer to automatically shift the decoiler from side to side based on pre-programmed "job codes" or coil widths.

Optional Features

EV Precision Straighteners

- **Speed Control Package -** Provides stable, accurate loop control when straightener is feeding material into a loop.
- **Motorized Entry & Exit Adjustment -** Incorporates push button control of entry and exit roll position.
- **High Speed Option -** Provides an increase in speed to 4000 inches/min., without loss of machine performance or capability.
- **Powered Pinch Rolls -** Aids in threading of material into the straightener and extends the life of the work rolls.
- **Powered Pull Rolls -** Poly-coated rolls with an independent motor located at the exit end of the straightener that adds tension to the strip to obtain more material in yield.
- **Chrome Work Rolls -** Helps reduce material pickup and marking of the rolls.
- **End of Strip Sensor -** Indicates presence of strip and turns off the ready to run signal to the press when strip is not present.
- **Bolster Extension Kart with Arms -** Aids in the installation and removal of the cassette.
- **Single Arm Decoiler Controls -** Integrates Forward/Reverse, Mandrel Expand/Collapse, Hydraulic Pump Start/Stop controls on the main operator panel.
- **Double Arm Decoiler Controls**
- **Coil Car Controls**
- **Additional Auxiliary Decoiler Station Control -** Integrated into a remote pedestal to assist in unloading a coil from the backside of the decoiler.
- **Press Interface Quick Disconnects**
- **Decoiler Interface Quick Disconnects**
- **Common Mounting Base -** For assembling and mounting s-loop, straightener & decoiler.

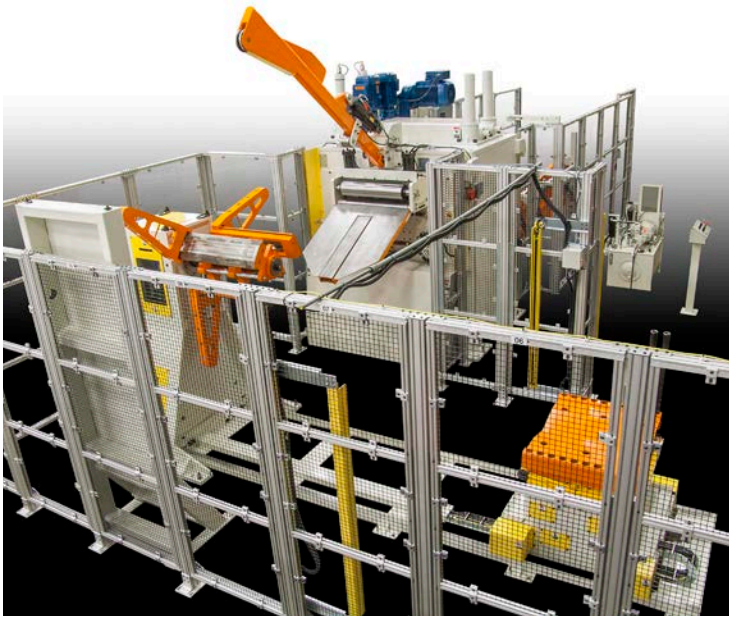
F2
FLATTENERS

The F2 family of flatteners has been designed to provide a cost competitive option as an alternative to a straightener. Flatteners are typically used in less critical dimensional stable processes and offer a way to reduce investment knowing that the end result will be of lower quality resolution.

Although flatteners are a cost competitive option, Machine Concepts has maintained the hanging cassette and interchangeable cassette design as well as many other features and options that you find within our straightener family of products. These additional features provide some inherent benefits that many other manufacturers do not offer.

Machine Concepts Flatteners have been developed based on a similar structure to the precision straighteners with the exception that they are mainly designed to remove coil set and perhaps reduce cross bow. The primary feature that sets the flattener and precision straighteners apart is the size and quantities of work rolls and number of back-ups supporting the rolls. The capacities chart shown below is based on a 50 ksi yield strength but Machine Concepts' typical capacity charts show several yield strengths higher than 50 ksi.

Machine Concepts Flatteners provide a cost competitive option for removing coil set defects. Based on a similar structure to our precision straighteners, flatteners offer many of the same desirable features as the straighteners that many other manufacturers do not offer.



Specifications

Duty Series	Light Duty					Medium Duty						Heavy Duty									
Model	FL2-16		FL2-24			FM2-40			FM2-80			FH2-120			FH2-200			FH2-280			
Width	6"	14"	6"	14"	18"	14"	18"	24"	14"	18"	24"	18"	24"	36"	18"	24"	36"	24"	36"	48"	60"
Roll Diameters	1 3/4" - 2 1/4" - 3"					2 1/4" - 3" - 4"						4" - 5" - 6 1/2"						4" - 5" - 6 1/2"			
Separating Load	16,000 lbs.		24,000 lbs.			40,000 lbs.			80,000 lbs.			120,000 lbs.			200,000 lbs.			280,000 lbs.			
Min. Thickness*	.009"		.009"			.013"			.013"			.019"			.019"			.019"			
Max. Thickness at Full Width**	.186"	.121"	.228"	.149"	.131"	.220"	.194"	.168"	.387"	.341"	.296"	.547"	.474"	.387"	.707"	.612"	.500"	.725"	.591"	.512"	.458"

* Based on 50,000 psi yield strength at smallest roll diameter. ** Based on 50% material in yield of largest roll diameter.

G2, G2 Plus & G2L

PRECISION STRAIGHTENERS

The G2, G2 Plus & G2L family of straighteners have been designed for lighter gauges (.005" to .100") and normally higher speed applications (100 to 400 FPM). Features include easy, quick removal of roll cassettes and interchangeable roll cassettes with different roll diameters within the same base frame.

The G2 Plus series extends the capacity of the G2 straightener.

The G2L series machines are built with a basic leveler cassette into the frame that is nearly the same as a precision straightener. The L series straighteners have all the same features as our standard precision straighteners in addition to incorporating manual roll bending.

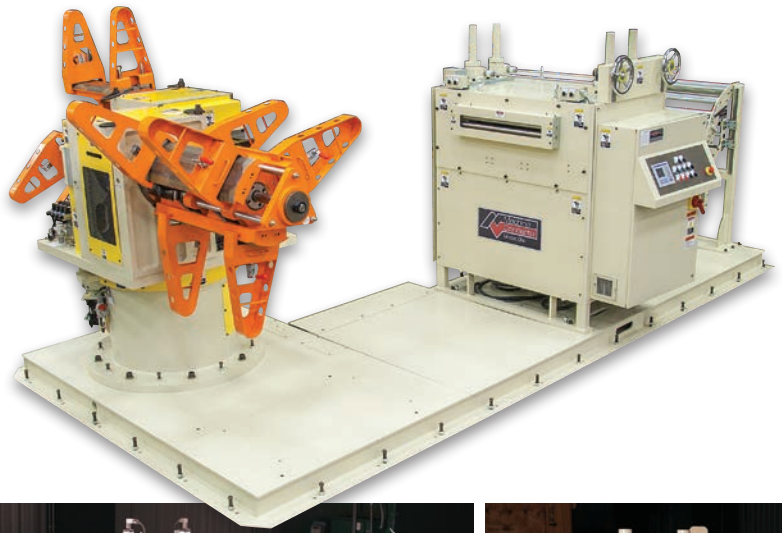
Standard straighteners remove basic shape defects in a coil strip (such as coil set and cross bow) and can reduce the amount of edge wave and center buckle to some extent. However, for more severe coil defects and critical flatness applications, roll bending machines remove much more edge wave and center buckle than a standard straightener.

Applications: Electrical lamination material, high strength thin gauge stainless steels, laminated materials.

Specifications

Model	G2 & G2L	G2 Plus
Width	6" - 14" - 24" - 36" - 48"	6" - 14" - 24" - 36" - 48"
Roll Diameters	7/8" - 1 1/4" - 1 1/2"	7/8" - 1 1/4" - 1 1/2"
Separating Load	36,000 lbs.	70,000 lbs.
Gauge Range*	.005" - .070"	.005" - .100"

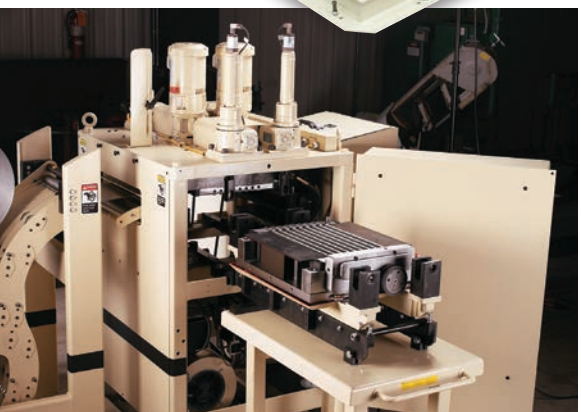
* Based on 50,000 psi yield strength.

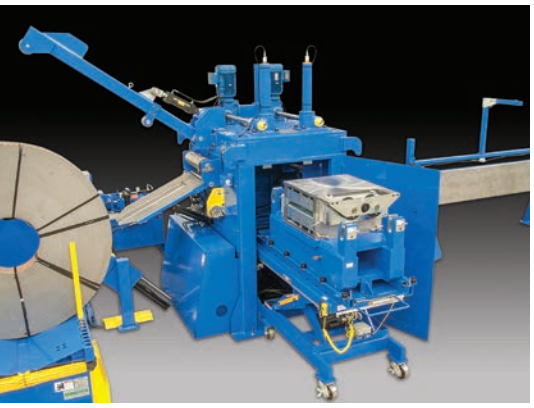


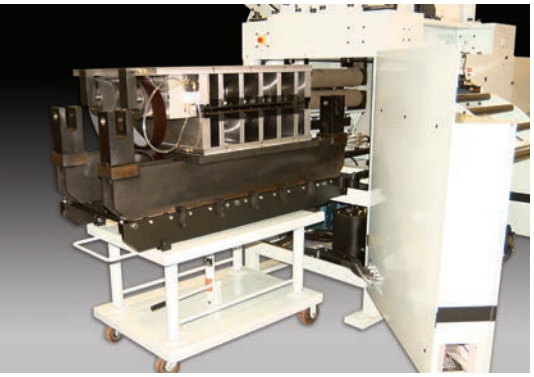
Optional Features

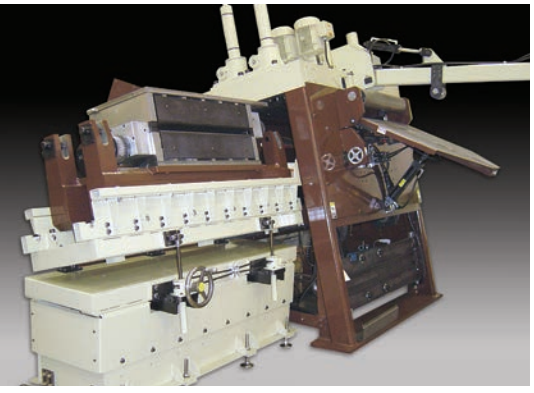
Common to G2, G2 Plus, G2L, H2 & H2L Precision Straighteners

- **Speed Control Package -** Provides stable, accurate loop control when straightener is feeding material into a loop.
- **Motorized Entry & Exit Adjustment -** Incorporates push button control of entry and exit roll position.
- **High Speed Option -** Provides an increase in speed to 4000 inches/min., without loss of machine performance or capability.
- **Entry Edge Guide -** Provides material guidance on the entry side of the straightener.
- **Powered Pinch Roll -** Aids in threading of material into the straightener and extends the life of the work rolls.
- **Powered Pull Roll -** Polycoated roll with an independent motor located at the exit end of the straightener that adds tension to the strip to obtain more material in yield.
- **Chrome Work Rolls**
- **Hold Down Arm & Peeler Table -** Hydraulically actuated arm and table that aids in threading material from a coil into the straightener in a safe and efficient manner.
- **End of Strip Sensor**
- **Bolster Extension Kart with Arms -** Aids in the installation and removal of the cassette.
- **Single Arm Decoiler Controls -** Integrates Forward/Reverse, Mandrel Expand/Collapse, Hydraulic Pump Start/Stop controls on the main operator panel.
- **Double Arm Decoiler Controls**
- **Coil Car Controls**
- **Additional Auxiliary Decoiler Station Controls -** Integrated into a remote pedestal to assist in unloading a coil from the backside of the decoiler.
- **Automatic Tension Control -** Integrates controls to automatically adjust the pressure of the decoiler brake based on the diameter of the coil to maintain constant strip tension.
- **Press Interface Quick Disconnects**
- **Decoiler Interface Quick Disconnects**
- **Common Mounting Base -** For assembling and mounting S-Loop, Straightener and Decoiler.









H2 & H2L

PRECISION STRAIGHTENERS

The H2 & H2L family of straighteners have been designed for heavier gauges (.020" to .500") and normally slower speed applications (30 to 200 FPM). Its ability to remove coil set and cross bow in today's tough, high-strength, low-alloy materials has proven itself in some of the most demanding applications.

The H2L series machines are built with a basic leveler cassette in the frame that is nearly the same as a precision straightener. The L series straighteners have all the same features as our standard precision straighteners in addition to incorporating manual roll bending.

Standard straighteners remove basic shape defects in a coil strip (such as coil set and cross bow) and can reduce the amount of edge wave and center buckle to some extent. However, for more severe coil defects and critical flatness applications, roll bending machines will remove much more edge wave and center buckle than a standard straightener.

Applications: High strength low alloy or advanced high strength steels (HSLA or AHSS) where typical flatteners cannot achieve the level of flatness.

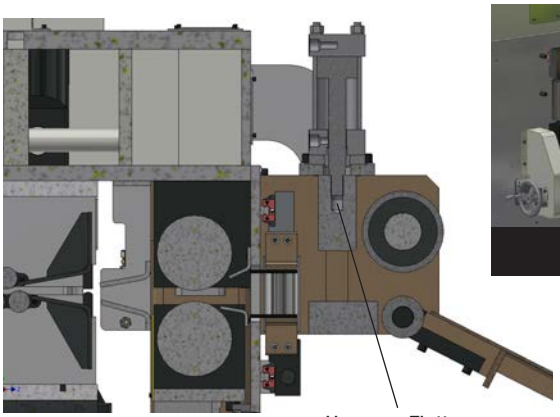
Specifications

Model	H2-80					H2-120					H2-200					H2-280					H2-400					H2-800				
Width	18"	24"	36"	48"	60"	18"	24"	36"	48"	60"	18"	24"	36"	48"	60"	18"	24"	36"	48"	60"	18"	24"	36"	48"	60"	18"	24"	36"	48"	60"
Roll Diameters	1 1/2" - 1 3/4" - 2 1/4"					1 3/4" - 2 1/4"					1 3/4" - 2 1/4" - 3"					2 1/4" - 3"					3"					6"				
Separating Load	80,000 lbs.					120,000 lbs.					200,000 lbs.					280,000 lbs.					400,000 lbs.					800,000 lbs.				
Min. Thickness*	.011"					.014"					.014"					.018"					.025"					.043"				
Max. Thickness at Full Width**	.167"	.145"	.118"	.102"	.092"	.205"	.177"	.145"	.125"	.112"	.342"	.296"	.242"	.209"	.187"	.404"	.350"	.286"	.247"	.221"	.474"	.418"	.342"	.296"	.265"	.630"	.545"	.630"	.590"	.527"

* Based on 50,000 psi yield strength at smallest roll diameter. ** Based on 50,000 psi yield strength at largest roll diameter.

H2 & H2L Commonly Used Options

- **Hammer Flattener -** As the material enters the entry side of the straightener, the strip is likely to have coil set up or down, which can make it difficult to guide the material into the straightener. With a hydraulically actuated flattener bar, an operator can engage the bar to flatten the lead edge prior to entering the straightener, making it easier to thread the material through the cassette.
- **Edge Guide -** Provides material guidance on the entry side of the straightener. A manually adjustable edge guide with protective covers can be easily installed or removed. (Option for motorized adjust).
- **Thread Table -** Pivoting Bombay style or Pivoting Roller style table that folds down while the line is running and pivots up to a horizontal position when an operator needs to thread material from the straightener to the feeder.
- **Peeler Table -** Hydraulically actuated table that aids in threading material from a coil into the straightener in a safe and efficient manner.
- **Hold Down Arm -** Hydraulically actuated arm that helps push the material along the peeler table into the straightener while maintaining pressure on the coil so it does not unwind on the decoiler.

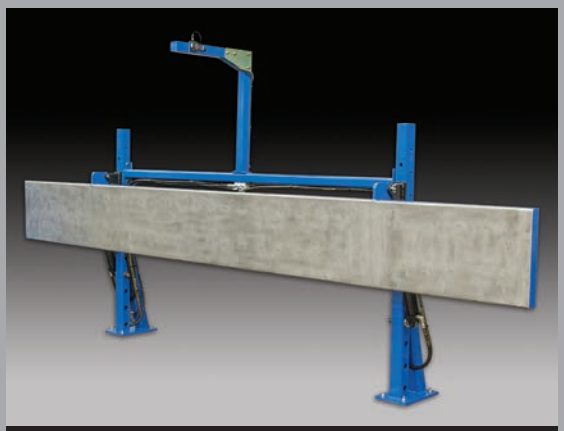


Hammer Flattener

Edge Guide

Pivoting Roller Style Thread Table

Precision Straighteners eliminate coil shaped defects in today's toughest materials with proven performance in the most demanding applications.



Bombay Style Thread Table

Peeler Table

Hold Down Arm

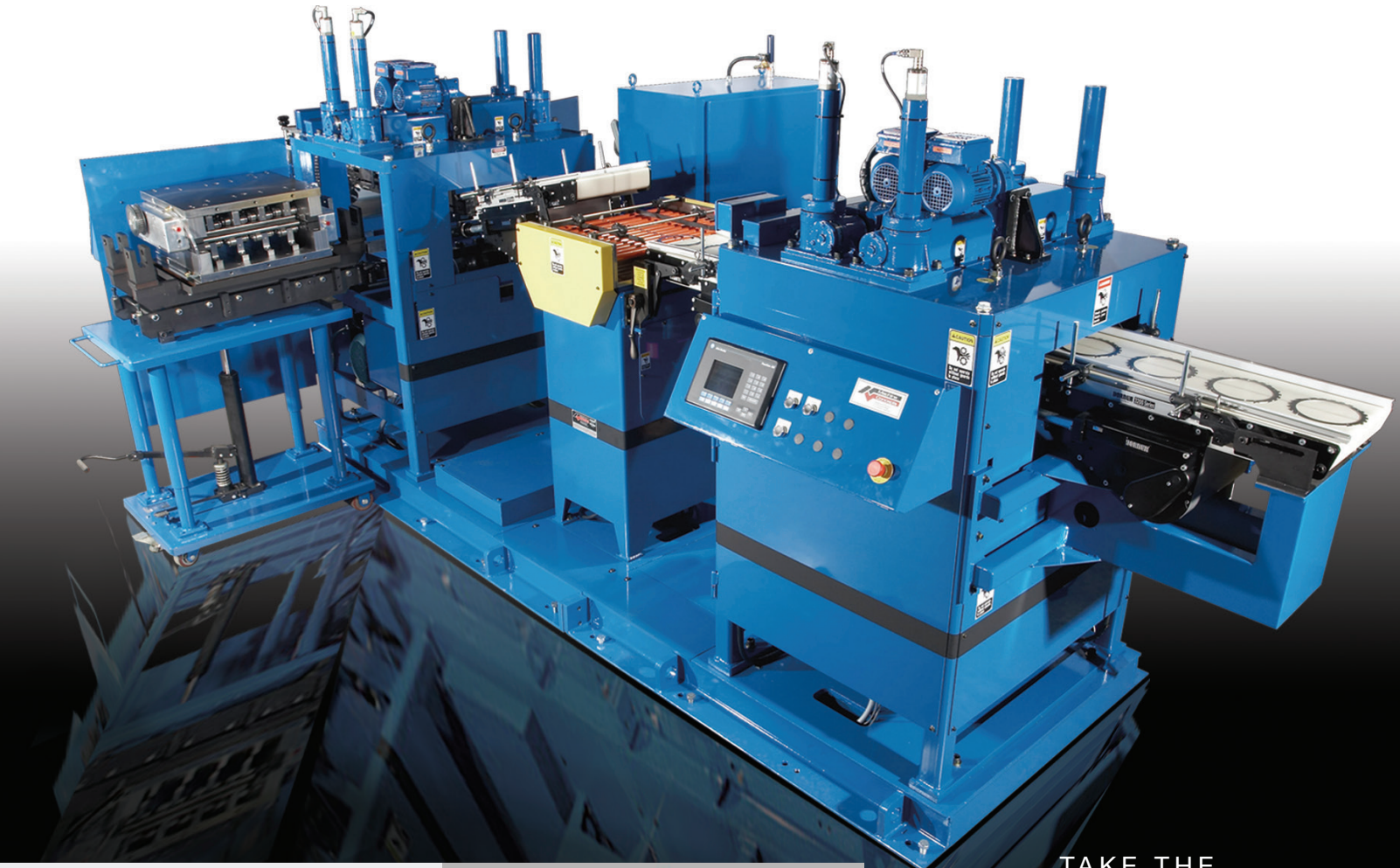
G2P & H2P

PRECISION PARTS STRAIGHTENERS

Both the G2P & H2P series have been designed to obtain a level of flatness and speed that many other parts straighteners cannot achieve. Available in single and dual head configuration and also available in single and double lane configuration.

Applications: Clutch plates, saw blades, food processing knives, laser burnt parts, fine blank parts, etc.

Achieving unsurpassed levels of flatness with proven performance and durability for today's toughest materials.



TAKE THE

"Straightening Challenge"

Send us your poorest quality, toughest part and we'll achieve a level of flatness that you've never imagined. Call us at 419-628-3498 or visit our website for details.
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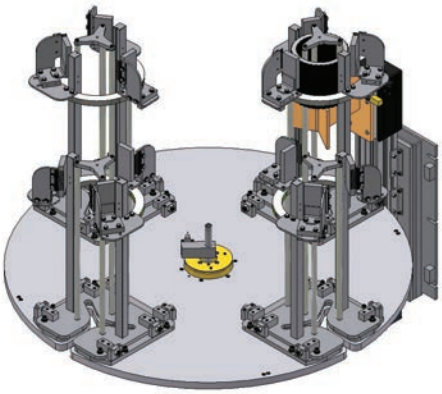
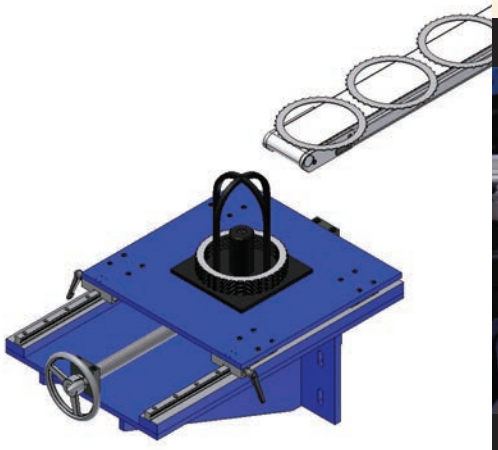
G2P & H2P Options

- Motorized entry and exit adjustment incorporates push button control of entry and exit roll position with PLC controlled travel and tilt limits.
- 4 hi, 5 hi, or 6 hi roll configurations available.
- Double thickness protection to prevent two parts from entering cassettes stacked.
- Entry feeder where an operator loads stacks of parts and the feeder/conveyor destacks one part at a time.
- Automatic Parts Loader custom designed to application requirements.
- Automatic Parts Re-stacker is custom designed to application requirements.
- Programmable job code storage of entry/exit settings and conveyor/cassette roll speeds based on part number.
- Programmable speed control of all conveyors and cassette rolls.
- Dual head straighteners with 90 degree parts rotation between heads.
- Dual lane parts straightener can double production output (available in dual head configuration).

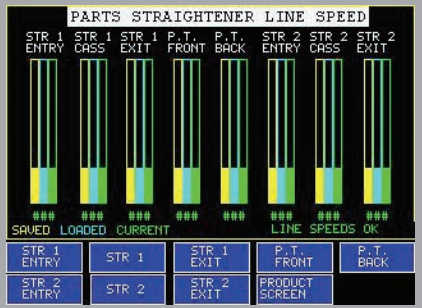


Auto Parts Loader



Auto Parts Re-stacker

Job Code Storage



Programmable Speed Control

Double Parts Thickness Detector

Manual Parts Destacker

Parts Rotator

Looping Systems

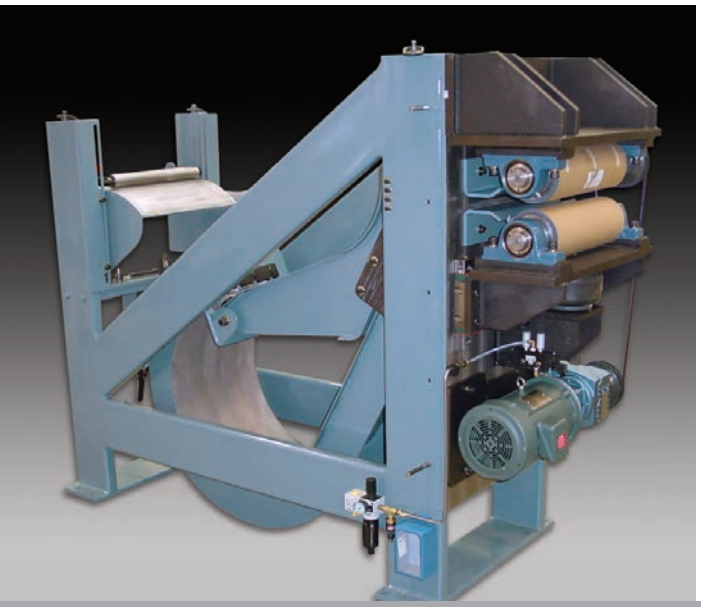
S-Loop Material Guidance

The guidance system controls the shape of the material through an S-Loop to reduce bouncing or swaying of the material during press operation. The S-Loop also delivers the material to the feeder in a free state and straight in-line with feed direction. Therefore, the feeder does not have to overcome effects of material weight hanging in a normal loop and does not have to pull the material around a curve.

This equipment will assist in achieving higher production speeds and reducing wear and tear of feeder units.

Features:

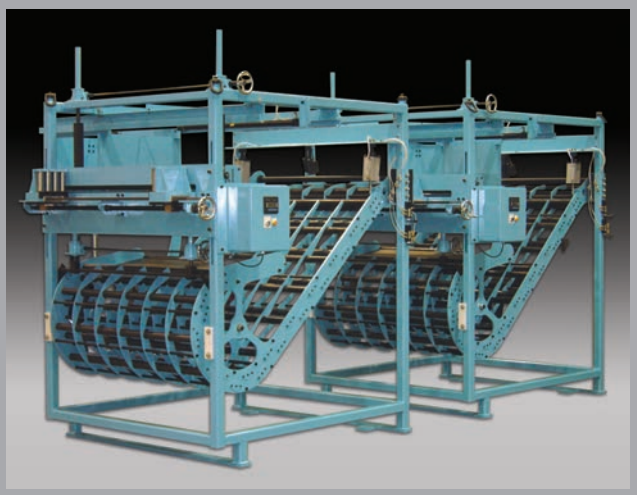
- Adjustable guide for press pass line.
- Adjustable lower-quadrant to achieve the correct free loop radii.
- Material is self-threading to free loop position.
- Free spinning rollers provide non-marking guidance for surface sensitive materials.
- Tunable loop fill position allows the operator to find the best position during productions.
- Conventional S-Loop great for short to medium feed progression (0 to 12").
- Overhead S-Loop allows longer feed progressions (up to 18").



Pull Roll / S-Loop Material Guidance

In applications where a straightener or leveler is not needed in the process, a Pull Roll / S-Loop Material Guidance System is an inexpensive option to pull material from a decoiler and provide stable loop control.

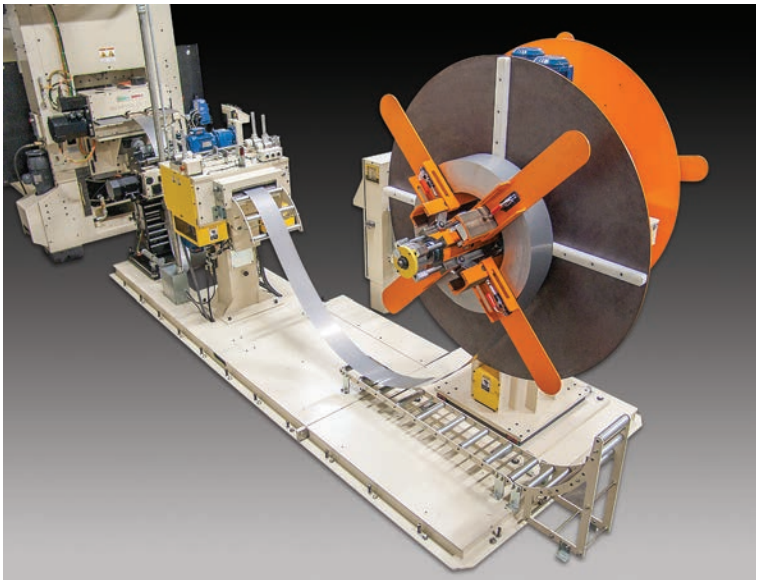
The Pull Roll / S-Loop Material Guidance System provides the same loop stability as the standard S-Loop Material Guidance System, but adds a pull roll at the entry side of the S-Loop to allow the system to pull material off the decoiler. The system is not limited to stamping applications. Pull Roll / S-Loops are also used in cut-to-length and roll-forming applications.

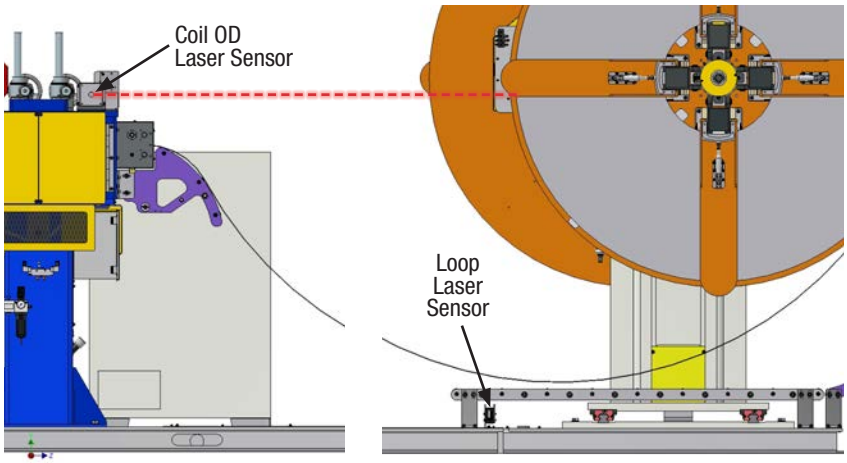


Decoiler Loop Guide System

The Decoiler Loop Guide System is designed to control the shape of the material while threading a new strip into the straightener and provides additional loop stability while the coil line is in operation. In addition, the Decoiler Loop Guide System prevents the material from dragging on the floor or common mounting base. This option is typically only used on decoilers with the electric motor powered payoff feature.

Coil lines that incorporate decoilers with electric motor powered payoff maintain a loop of material between the decoiler and straightener to prevent tension on the strip due to the straightener pulling material off of the coil. Two laser sensors are added with this option. One sensor is mounted below the Decoiler Loop Guide System to measure the depth of the loop. The other sensor is mounted on the straightener to measure the outside diameter of the coil so the electric motor with a variable frequency drive on the decoiler can match the feed speed of the straightener and maintain a consistent loop depth.





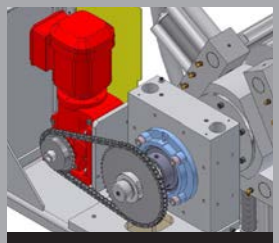
Standard Features

- **Standard Sizes for 2,500 lb. Coils**
- **Manual Crank, Gear Driven Mandrel Expansion -** Uses a wrench to turn the hex shaft which is connected to a set of internal gears. Each gear is connected to a threaded shaft that will adjust the expansions of the decoiler. The gears provide equal travel distance control for each of the three individual segments.
- **Manual Mandrel Rotation with Coil -** Coil is pulled off by the straightener or by operator hand.
- **Adjustable Front and Back Coil Keepers**
- **Pneumatic Drag Brake -** Internal (inside bearing housing) or external (outside bearing housing).
- **Manual Turret Rotation (Dual Mandrel Only) -** Operator rotates the mandrel turret using a handle and manual switch shot pin.
- **Pneumatic Shot Pin (Dual Mandrel Only) -** Controlled using an electric solenoid.
- **Fixed Base**

Optional Features

- **Motor Powered Payoff -** Uses an electric motor to payoff material from the coil at line speed and jog speed.
- **Proportional Drag Brake -** Helps to maintain constant strip tensions as diameter of coil reduces.
- **Hold Down Arm -** Non-driven or driven hydraulic motor.
- **Wheel or Disc Style Keeper Arms -** Single wheel style keeper clamped to each mandrel. Requires operator to attach and clamp on segments after a coil is loaded.
- **Coil Guard -** Guard mounted off the decoiler to contain coil clock-spring so strip does not hit personnel walking on back side.
- **Lower Base Traverse -** Self-centering manual or hydraulic adjustment.
- **Spool Decoiler -** A single center shaft replaces the expansion system to allow the decoiler to run spools of material instead of bare coils. Using spools improves coil change time and are safer and easier to handle compared to bare coils.

Manual Crank,
Gear Driven Expansion



Electric Motor
Powered Payoff

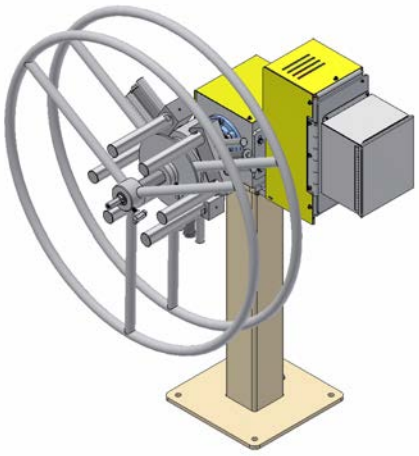
Light Series Decoilers & Spool Decoilers

Machine Concepts Light Duty Decoilers offer a low cost solution to a wide range of light duty coil handling/payoff applications. This series of machines is designed to handle coil loads up to 2,500 pounds per mandrel. The light weight coils are clamped on the inner diameter using a hand ratchet system to expand and collapse on varying coil inner diameters. The use of the hand ratchet expand and collapse feature eliminates the cost and space consumption of a hydraulic system.

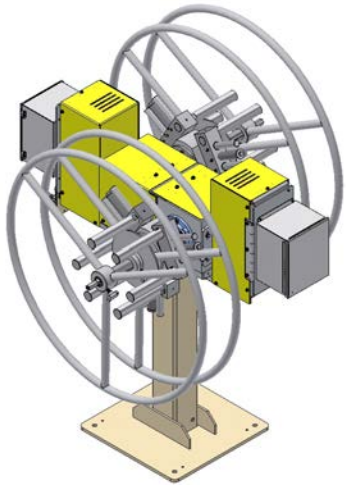
When paired with the Machine Concepts EV/L2 or G2 Precision Straighteners, these decoilers can achieve superior coil handling control. The electric motor powered payoff option allows these decoilers to feed extremely thin or low yield strength materials into a straightener without damaging the material. This feature prevents tension in the strip of material created between the straightener and decoiler when the straightener pulls material off of the coil. The electric motor powered payoff sustains a loop of material between the straightener and decoiler.

Specifications

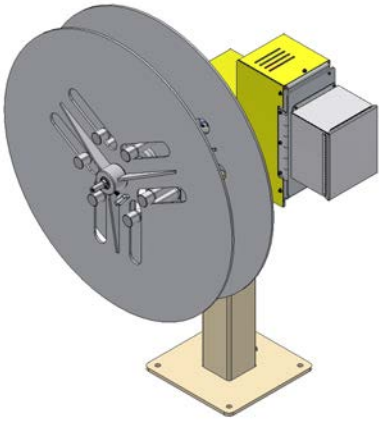
Model (Single Mandrel)	SL2.5-6”	SL2.5-9”	SL2.5-14”
Model (Dual Mandrel)	**DL2.5-6”**	**DL2.5-9”**	**DL2.5-15”**
Max. Coil Weight	2,500 lbs.	2,500 lbs.	2,500 lbs.
Max. Material Width	6”	9”	14”
Max. Coil Outside Diameter	48”	48”	48”
Standard Expansion Range	15.5”-24.5”	15.5”-24.5”	15.5”-24.5”



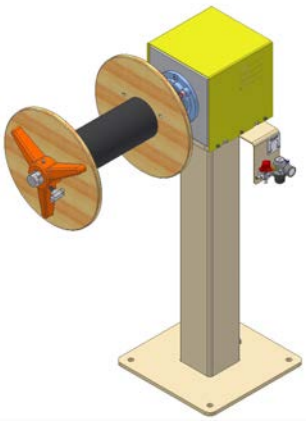
Single Mandrel with Wheel Keeper



Dual Mandrel with Wheel Keeper



Single Mandrel with Disk Keeper



Single Mandrel Spool Decoiler

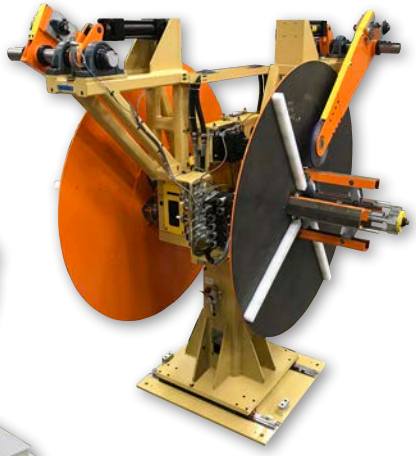
Medium Series Decoilers

Machine Concepts Medium Duty Decoilers are designed to handle coils up to 8,000 pounds per mandrel and coil widths up to 14 inches. These decoilers are typically paired with a Machine Concepts EV/L2 or G2 Precision Straightener.

When paired with a Machine Concepts Straightener, these decoilers can incorporate Hydraulic Self-Centering Adjustment. This optional feature incorporates a hydraulic cylinder with a linear transducer to shift the decoiler to accommodate different coil widths. The coil widths, along with other coil and material specifications, can be pre-programmed and stored in the straightener control memory to adjust the decoiler to different side shift positions based on the material being processed. This is just one of the many features used to make Machine Concepts Decoilers operator friendly while providing customers with superior line efficiency.

Specifications

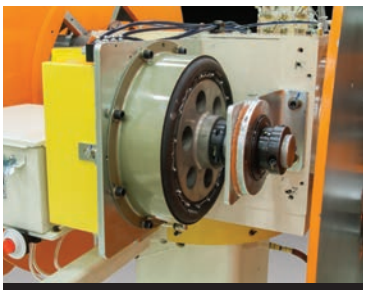
Model (Single Mandrel)	SM6-8”	SM6-14”	SM8-8”	SM8-14”
Model (Dual Mandrel)	**DM6-8”**	**DM6-14”**	**DM8-8”**	**DM8-14”**
Max. Coil Weight	6,000 lbs.	6,000 lbs.	8,000 lbs.	8,000 lbs.
Max. Material Width	8”	14”	8”	14”
Max. Coil Outside Diameter	72”	72”	72”	72”
Standard Expansion Range	20”-24”	20”-24”	20”-24”	20”-24”
Optional Expansion Range	18”-22”	18”-22”	18”-22”	18”-22”
Custom Expansion Range	13.5”-16.75”	13.5”-16.75”	14.5”-18.75”	14.5”-18.75”



Dual Mandrel Decoiler with Hold Down Arms

Dual Mandrel Decoiler

Dual Mandrel Decoiler Payoff



Pneumatic Brake

Standard Features

- **Standard Sizes for 6,000-8,000 lb. Coils**
- **Manual, Linkage Style Expansion**
- **Manual Mandrel Rotation with Coil**
- **Pneumatic Drag Brake -** Internally mounted.
- **Manual Turret Rotation (Dual Mandrel Only)**
- **Pneumatic Shot Pin (Dual Mandrel Only)**
- **Fixed Lower Base (No Side Shift)**
- **Manual Clamp Individual Coil Keepers -** Keeper on each segment. Requires an operator to attach and clamp keepers after a coil is loaded.

Optional Features

- **Hydraulic Mandrel Expansion -** Mandrel segments are expanded and collapsed using a hydraulic cylinder instead of a manual hand crank.
- **Pneumatic Drag Brake -** Externally mounted.
- **Lower Base Traverse -** Manual adjustment or hydraulic adjustment (self-centering).
- **Manual Clamp Ferris Wheel Keeper**
- **Single Powered Keeper Arm**
- **Dual Powered Keeper Arms**
- **Hold Down Arm -** Non-driven or driven hold down arm mounted to each mandrel. (Minimum coil widths are required when a hold down arm is purchased.)
- **Mandrel Rotation Style -** Hydraulic powered jog/mandrel rotation with coil at line speed or electric motor powered payoff.
- **Coil Guard -** Guard mounted directly to mandrel head to contain coil clock-spring so strip does not hit personnel walking on back side.
- **Coil Backstop Guard -** Guard mounted off of the decoiler (to the floor or common mounting base) to contain coil clock-spring so strip does not hit personnel on back side.
- **Hydraulic Power Unit -** Machine mounted or floor mounted.
- **Coil Reband Arms -** Incorporates a free standing base with two hold down arms mounted to the floor on the back side of the decoiler. The two hold down arms (one from the top and one from the bottom) will pivot simultaneously to clamp the coil. The purpose of these arms is to provide extra support to prevent coil clock-spring. This feature is typically used for lines running thick gauge material. When the mandrel jog function is engaged, the driven hold down arms will push the strip of material in the direction of mandrel rotation to help thread the material into the straightener.

Heavy Series Decoilers

Machine Concepts Heavy Duty Decoilers incorporate a robust design to handle coil loads up to 55,000 pounds per mandrel and coil widths up to 50 inches. These decoilers are typically paired with a Machine Concepts G2 or H2 Precision Straightener.

Due to the heavy coil loads on this series of decoilers, the standard features include hydraulic expansion and hydraulic powered mandrel rotation. The hydraulic expansion is accomplished through the use of wedges. The wedge design allows for maximum stability and strength when expanding on the heaviest of coils. With light and medium duty decoilers, the material can be threaded into the straightener by manually rotating the decoiler mandrel to payoff material. With heavy coil loads, Machine Concepts incorporates a hydraulic motor payoff material and assist in threading a strip into the straightener.

Machine Concepts Decoilers achieve superior coil handling control for a wide range of light to heavy duty loads providing for superior line efficiency.

Standard Features

- **Standard Sizes for 15,000 - 55,000 lb. Coils**
- **Hydraulic Cylinder Wedge Style Expansion**
- **Hydraulic Jog Motor Mandrel Rotation for Threading -** Uses a hydraulic motor to jog the coil only. This motor does not payoff the coil at line speed.
- **Pneumatic Drag Brake -** Internally mounted.
- **Hydraulic Turret Rotation (Dual Mandrel Only) -** Uses a hydraulic motor to rotate mandrel heads.
- **Hydraulic Shot Pin (Dual Mandrel Only) -** Controlled using an electric solenoid.
- **Fixed Lower Base (No Side Shift)**
- **Manual Clamp Individual Coil Keepers -** Keeper on each segment. Requires an operator to attach and clamp keepers after a coil is loaded.

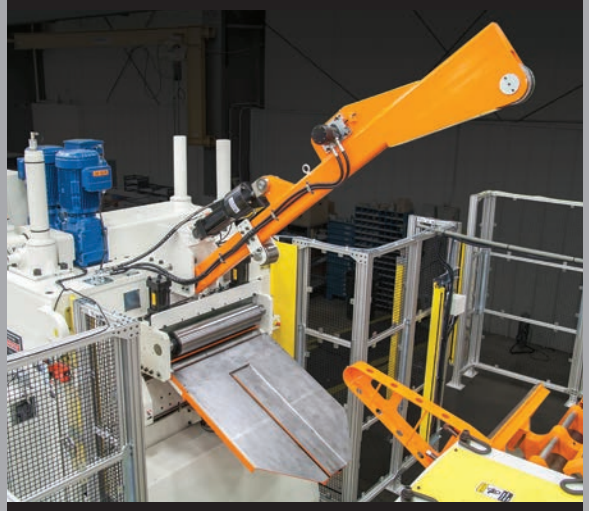
Specifications

Model (Single Mandrel)	SH15-18”	SH15-26”	SH25-26”	SH25-38”	SH40-38”	SH40-50”	SH55-50”
Model (Dual Mandrel)	**DH15-18”**	**DH15-26”**	**DH25-26”**	**DH25-38”**	**DH40-38”**	**DH40-50”**	**DH55-50”**
Max. Coil Weight	15,000 lbs.	15,000 lbs.	25,000 lbs.	25,000 lbs.	40,000 lbs.	40,000 lbs.	55,000 lbs.
Max. Material Width	18”	26”	26”	38”	38”	50”	50”
Max. Coil Outside Diameter	72”	72”	72”	72”	72”	72”	72”
Standard Expansion Range	20”-24”	19”-25”	19”-25”	19”-25”	19”-25”	19”-25”	19”-25”
Optional Expansion Range	18”-22”	15”-21”	15”-21”	N/A	N/A	N/A	N/A
Custom Expansion Range	15”-19”	N/A	N/A	N/A	N/A	N/A	N/A

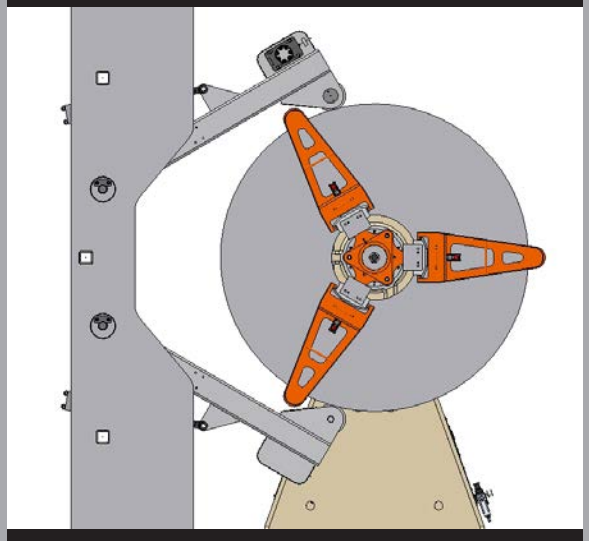
Optional Features

- **Lower Base Traverse -** Manual adjustment, hydraulic adjustment (self-centering), or electric motor driven ball screw adjustment.
- **Single Powered Keeper Arm -** The powered keeper arm feature automatically adjusts to different coil widths. The single powered keeper arm uses fixed rear keepers with a single adjustable outer keeper. The single arm is typically used with the hydraulic self-centering side shift feature to allow the rear keepers to remain fixed.
- **Dual Powered Keeper Arms -** Allows a decoiler to have a fixed base because both the rear and front keepers automatically adjust to coil width.
- **Hold Down Arm -** Single hold down arm mounted off of the straightener (pictured to the right) or directly to the decoiler (not pictured). This feature prevents coil clock-spring during coil band cutting and threading the material into the straightener. The hold down arm wheel is driven by a hydraulic motor to push the material off the coil during threading.
- **Mandrel Rotation Style -** Electric motor powered payoff.
- **Coil Guard -** Guard mounted directly to mandrel head to contain coil clock-spring so strip does not hit personnel on back side.
- **Coil Backstop Guard -** Guard mounted off of the decoiler (to the floor or common mounting base) to contain coil clock-spring so strip does not hit personnel on back side.
- **Coil Reband Arms -** Incorporates a free standing base with two hold down arms mounted to the floor on the back side of the decoiler. The two hold down arms (one from the top and one from the bottom) will pivot simultaneously to clamp the coil. These arms will have two rollers per arm with a gap between them for room to route a strap for coil rebanding. Another purpose of these arms is to provide extra support to prevent coil clock-spring. This feature is typically used for lines running thick gauge material. When the mandrel jog function is engaged, the driven hold down arms will push the strip of material in the direction of mandrel rotation to help thread the material into the straightener.

Single Powered Keeper Arm



Single Hold Down Arm Mounted Off Straightener

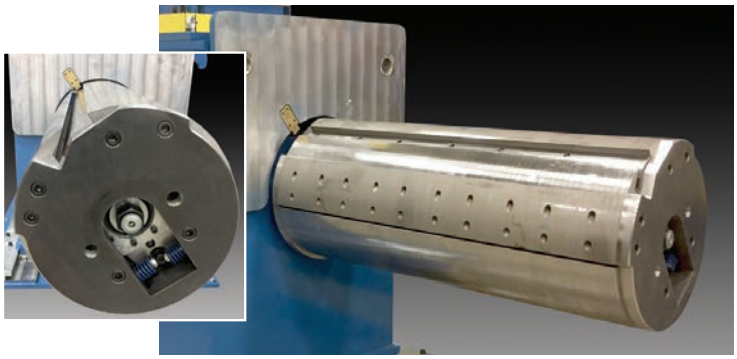


Coil Reband Arm

Gripping Mandrel Rewinders

Machine Concepts Gripping Mandrel allows the operator to place the lead edge of the coil into the mandrel slot and when the operator expands the mandrel, a gripper bar compresses the lead edge within the slot. The operator jogs roughly two wraps of material on the mandrel before placing the rewind in automatic run mode and pulling high tension.

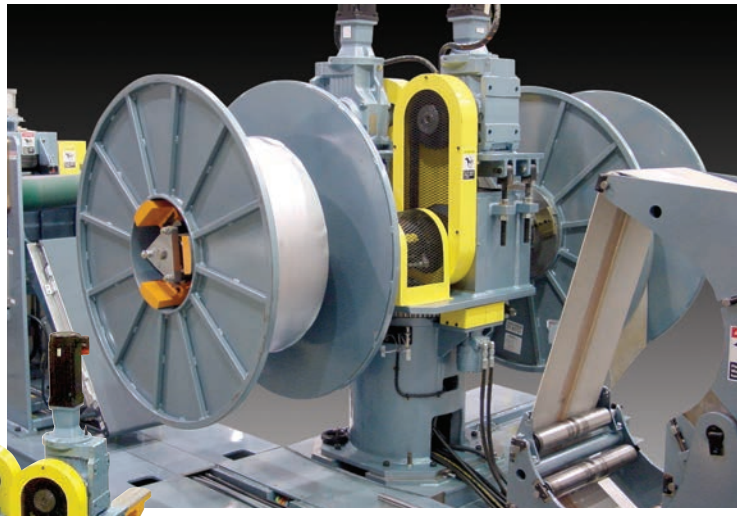
The design of the rewinders are similar to the base of decoilers shown within this brochure.



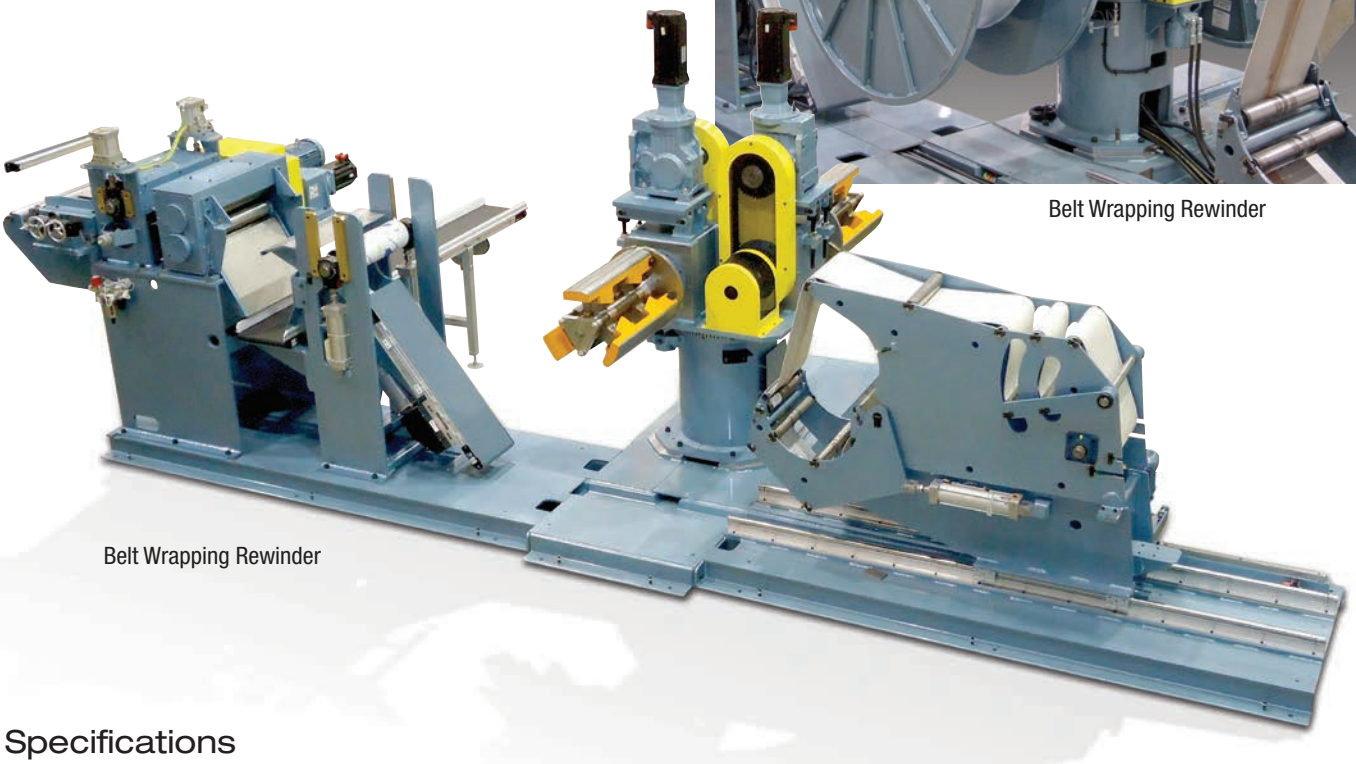
Gripping Mandrel Rewinder

Belt Wrapping Rewinders

Machine Concepts Belt Wrapping Mandrels allow customers to wrap material on a core diameter or coil spool. The operator places the core on the mandrel and expands the mandrel to size. When ready, the operator introduces the offline mandrel to inline and the belt wrapper confirms to the mandrel core. A thread table guides the material into the nip point of the belt wrapper and the mandrel will turn at line speed until enough material has been wrapped on the mandrel to pull desired tension. Then the belt wrapper opens and retracts out of the way to allow the line to run under normal conditions.



Belt Wrapping Rewinder



Belt Wrapping Rewinder

Specifications

Model (Single Mandrel)	RSH15-18”	RSH15-26”	RSH25-26”	RSH25-38”	RSH40-38”	RSH40-50”	RSH55-50”
Model (Dual Mandrel)	RDH15-18”	RDH15-26”	RDH25-26”	RDH25-38”	RDH40-38”	RDH40-50”	RDH55-50”
Max. Coil Weight	15,000 lbs.	15,000 lbs.	25,000 lbs.	25,000 lbs.	40,000 lbs.	40,000 lbs.	55,000 lbs.
Max. Material Width	18”	26”	26”	38”	38”	50”	50”
Max. Coil Outside Diameter	72”	72”	72”	72”	72”	72”	72”
Standard Inner Diameter	24”	24”	24”	24”	24”	24”	24”
Optional Inner Diameter	20”	20”	20”	20”	20”	20”	20”

Coil Cars & Coil Stands

Machine Concepts Coil Cars and Coil Stands are designed to improve coil line efficiency by creating a safe and quick coil loading system. Using a coil car or coil stand enables an operator to pre-stage coils while the decoiler is still running in line. Also the use of a Machine Concepts Coil Car or Coil Stand greatly reduces the chance of damaging the decoiler as a result of direct coil loading using other methods.

Hydraulic motor driven, self-locking machine screw jacks are used to securely support the load of a coil in the event of power loss. With a large travel range, Machine Concepts Coil Cars and Coil Stands are able to accommodate a wide range of coil outer diameters. The bellows style lift cover with a zipper allows these machines to be easily accessible for maintenance while preventing dust, debris and extremities from entering the collapsing area.

Specifications

Model (Coil Stand)	CS8-14”	CS25-26”	CS55-50”
Model (Coil Car)	CC8-14”	CC25-26”	CC55-50”
Max. Coil Weight	8,000 lbs.	25,000 lbs.	55,000 lbs.
Max. Material Width	14”	26”	50”
Max. Coil Outside Diameter	72”	72”	72”

Coil Stand

Coil Car

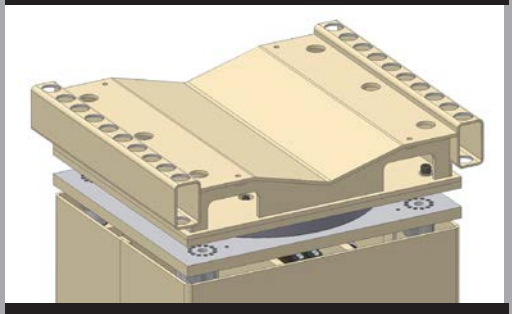
Standard Features

- Adjustable height using hydraulic motor driven machine screw jacks
- Standard height travel of 18 inches
- Two guide rods provide extra support during vertical travel and off center loads
- Manually adjustable post keepers
- Built-in keeper post storage rack
- Hydraulic motor with 4 wheel drive traverse (coil car only)

Optional Features

- **Pivoting Manual Adjustable Coil Keeper Arms -** This option incorporates pivoting keeper arms on the decoiler side of the coil car or coil stand. The arms are fixed in the direction of coil width, and pivot out of the way to allow the coil car or decoiler to retract after the coil is loaded on the decoiler. The keeper arms on the other side of the coil car or coil stand remain upright at all times, but can adjust in and out based on the coil width.
- **Rotary Coil Cradle -** The cradle of the coil car or coil stand can rotate 180°. This enables a coil to be positioned so the decoiler can payoff a strip of material from the bottom or top of the coil. The rotary cradle uses a slewing ring bearing to rotate on center off the coil car or coil stand.

Pivoting Manual Adjustable Coil Keeper



Rotary Coil Cradle

Scroll Line

Scroll strip stamping is a creative way to scroll slitting lamination material of circular or hexagonal parts. During this process, a reduction scrap of 12% to 29% can be achieved over straight slitting material. This process also controls the position of one part to another part very accurately that normal scroll slitting arbors cannot maintain. The end result is cost reduction of scrap for large motor lamination stampers.

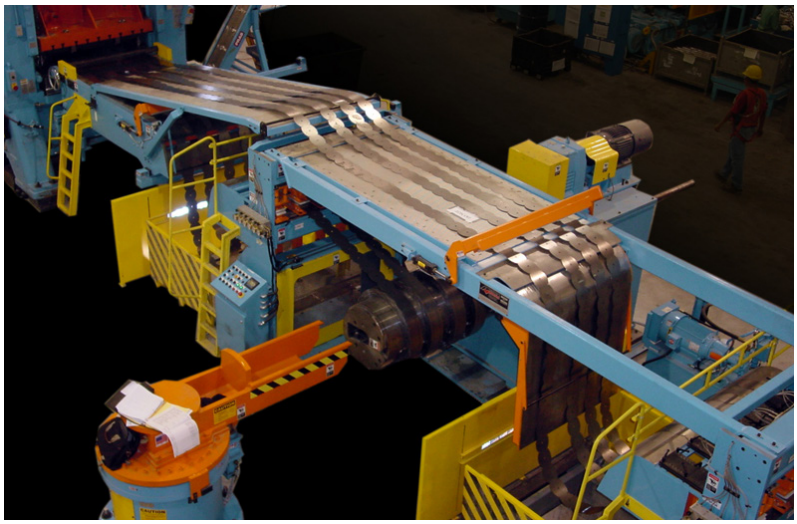
The process allows for material up to 50 inches wide to be uncoiled, straightened and fed into a stamping press to produce up to ten individual strips of scrolled material. These strips pass through a short looping pit and tension stand to be rewound back into coil form. The scrolled coils can be taken to secondary presses to complete the process of producing rotors and stators. The strips can be either single, double or triple width scroll strips based on the die construction.

Superior Tension Control & Loop Management

Machine Concepts has made several improvements to scroll processing over machines constructed in the past. One is the tension control and loop management of the strip coming out of the stamping press. Our design of tension stands has been tested against many other designs. It has been proven to control proper tension to maintain tight coils that do not slag under their own weight or telescope when rewinding into coils, while not over-tensioning the strips to cause the progression from part to part to be lost.

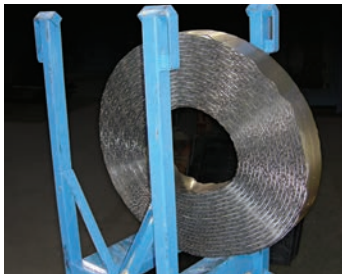
Increased Efficiency

In addition to the benefit of higher quality coils, Machine Concepts Scroll Slitting Lines are easy to set-up from one part number to another, very low maintenance and/or service cost, inexpensive wear components and reliable uptime. Combined with Machine Concepts Leveler, S-Loop and a strong lamination Feeder, these lines typically produce two to three times the output of our competitors.



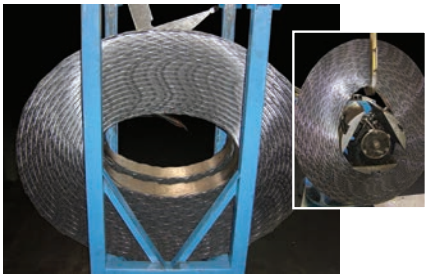
Looping pits allow for strip thickness variances while enabling higher run speeds and superior coil tension compared to competitors.

Machine Concepts Coil Strip



Superior design results in tight coils with proper tension control

Competitor Coil Strip



Inferior design results in improper tension and loose coils

Maintaining proper tension results in straight side wall coils

Measurements show proper control of tension control

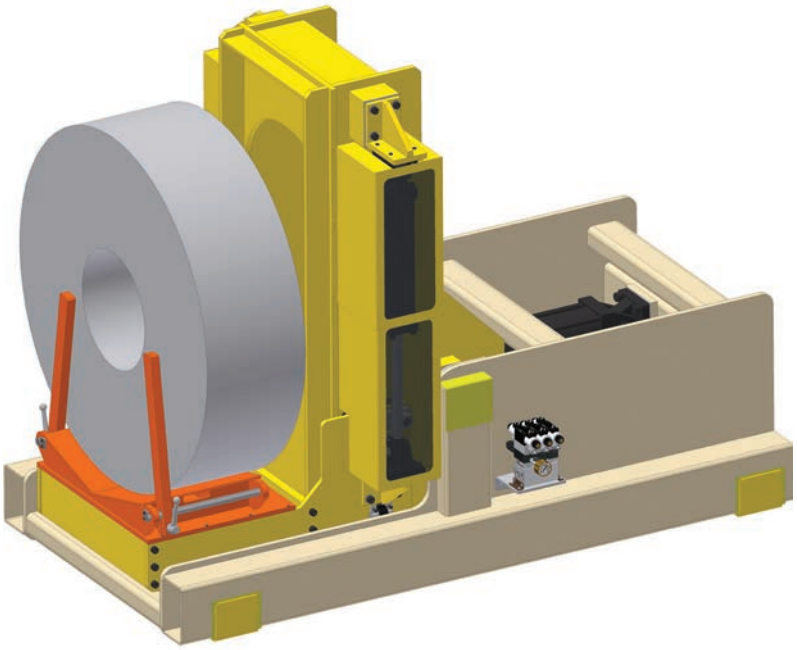
Coil Upenders

Machine Concepts Coil Upenders serve as an efficient, user-friendly addition to any coil line. The Coil Upender allows an operator to load a coil on a pallet onto the loading deck before rotating the coil upright. This machine increases line efficiency by enabling an operator to pre-stage coils while the decoiler is still running in line. In addition, the use of a Machine Concepts Coil Upender greatly reduces the chance of damaging the decoiler as a result of direct coil loading using other methods.

With a large vertical travel range, these upenders are able to accommodate a wide range of coil outer diameters. Hydraulic cylinders are used to pivot and lift the coil. Flow controls, cross port check valves and blocked center solenoid valves are incorporated directly into the hydraulic circuit to control speed and prevent unwanted motion in the event of a power loss.

Specifications

Model (Coil Upender)	CU8-14”	CU25-26”	CU55-50”
Max. Coil Weight	8,000 lbs.	25,000 lbs.	55,000 lbs.
Max. Material Width	14”	26”	50”
Max. Coil Outside Diameter	72”	72”	72”

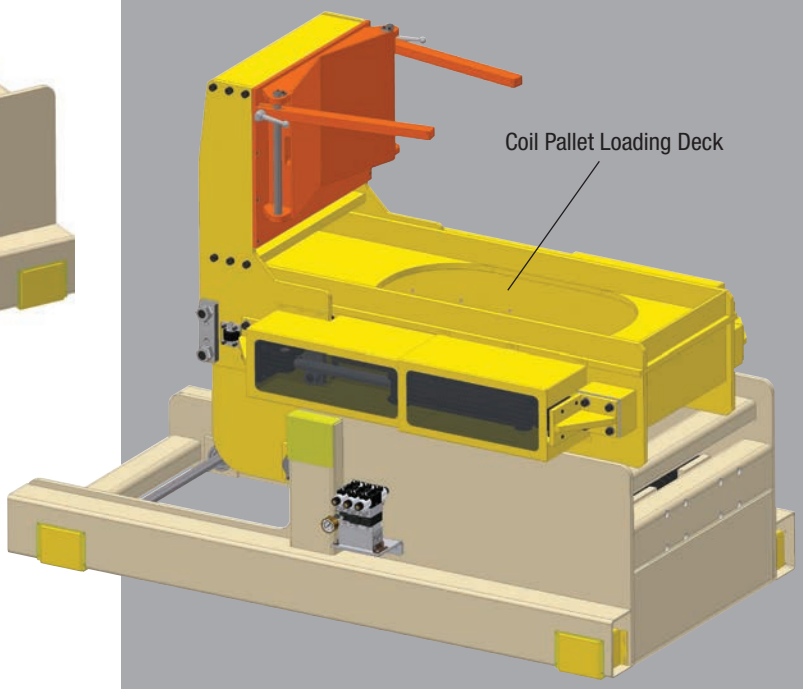


Coil Upender –
Decoiler Load Position

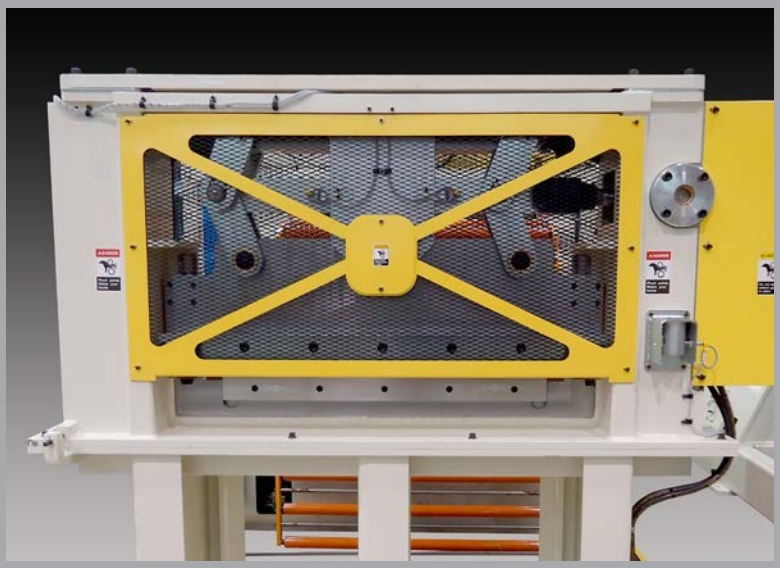
Machine Concepts Coil Upenders provide an efficient and safe means of upending and loading a wide range of coil diameters onto decoilers.

Standard Features

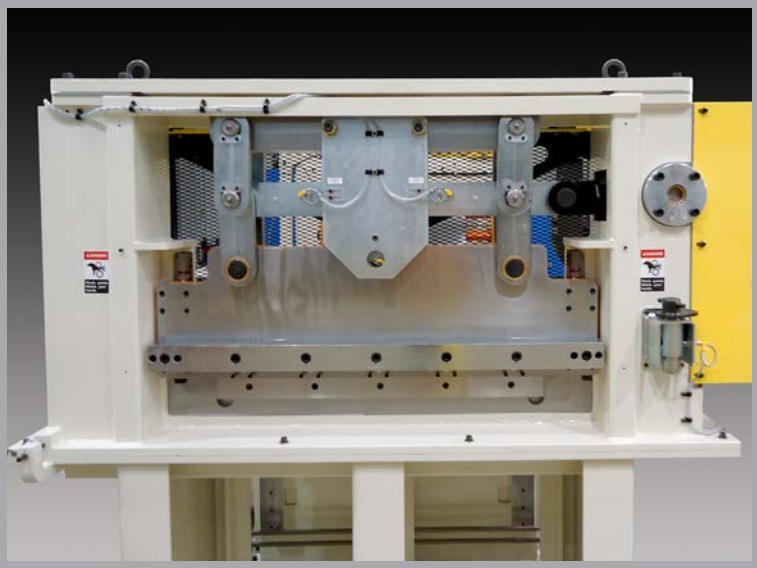
- Heavy-duty construction for high load capacities
- Utilizes V-cradle to eliminate coil outer diameter damage during pivot
- Pivoting manual adjustable keeper arms
- Hydraulic motor, 4 wheel drive traverse
- Hydraulic cylinder powered lift and pivot
- Hydraulic circuit flow controls, cross port checks and blocked center solenoid valves
- Customizable designs to accommodate customer needs
- Optional surrounding barrier guarding



Coil Upender –
Coil on Pallet Loading Position



High Efficiency Toggle Action



Full Force Near Bottom of Toggle Movement

Bowtie Toggle Crop Shear

Machine Concepts Bowtie Toggle Crop Shears are designed to be an efficient addition to a coil line requiring a cut to length operation. These shears are capable of achieving speeds up to 100 cuts per minute and capable of cutting materials up to 0.375" thick.

Machine Concepts Toggle Shears can shear strips of material at higher line speeds than traditional hydraulic shears. The toggle design uses a mechanical advantage to allow a strip of material to be sheared on the extension and on the retraction of a hydraulic cylinder instead of one cut per cylinder extend and retract cycle. This keeps the reliability of these machines high while keeping the cost low. In addition, the bowtie shape knives keep the strip on center of line compared to a single rake knife.

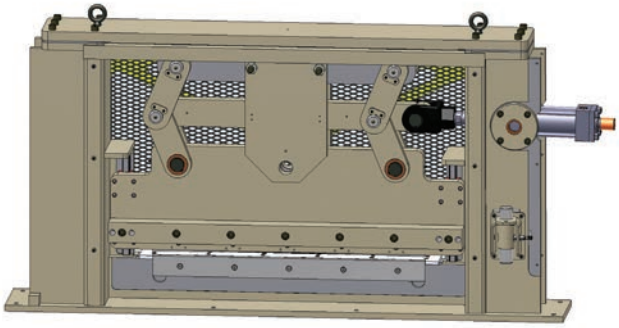
Shear Standard Sizes

Model	TS75-14"	TS75-18"	TS75-24"	TS75-36"	TS75-50"
Max. Speed	100 CPU	90 CPU	85 CPU	80 CPU	75 CPU
Max. Material Width	14"	18"	24"	36"	50"
Max. Material Shear Strength	50,000 PSI	50,000 PSI	50,000 PSI	50,000 PSI	50,000 PSI

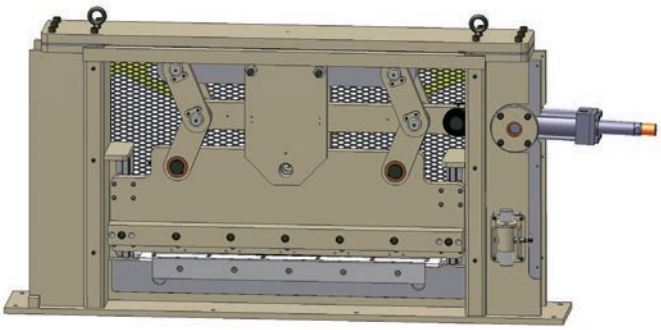
* Max. speed is subject to thickness and design parameters of shear.
* Max. thickness is subject to speed and design parameters of shear.

Higher speeds may be achieved by replacing the hydraulic system with a servo system. A servo system allows the operator to adjust the swing of the linkage design, which can increase the speeds at thinner gauges. Servo shears are speed synchronized to the speed of the press.

Machine Concepts Toggle Shear has been proven in the field for over ten years as one of the fastest non-servo driven shears in the industry.



Bowtie Toggle Crop Shear - Extension



Bowtie Toggle Crop Shear - Retraction

Parts Retrieval Systems & Removal Karts

Parts Retrieval System Mounted to Press

Parts Retrieval System Mounted to Press

Parts Retrieval System

Machine Concepts Parts Retrieval Systems are designed to pick up and remove up to 4 parts (2 inner and 2 outer) from the bottom die and catch the scrap as it is being released from the upper die. After the part is stamped and the die is opening, a shuttle plate will enter the die cavity to pick up the parts and scrap, then begin retracting. As the shuttle plate is retracting, a fixed plate will scrape the scrap off the top of the shuttle plate on a customer-supplied conveyor. The shuttle plate will continue to retract and drop the part(s) on a customer-supplied conveyor or tote. After the shuttle plate has evacuated the die cavity, the press will begin to stamp another part. Additional shuttle plates can be purchased for a different number of parts, sizes and locations.

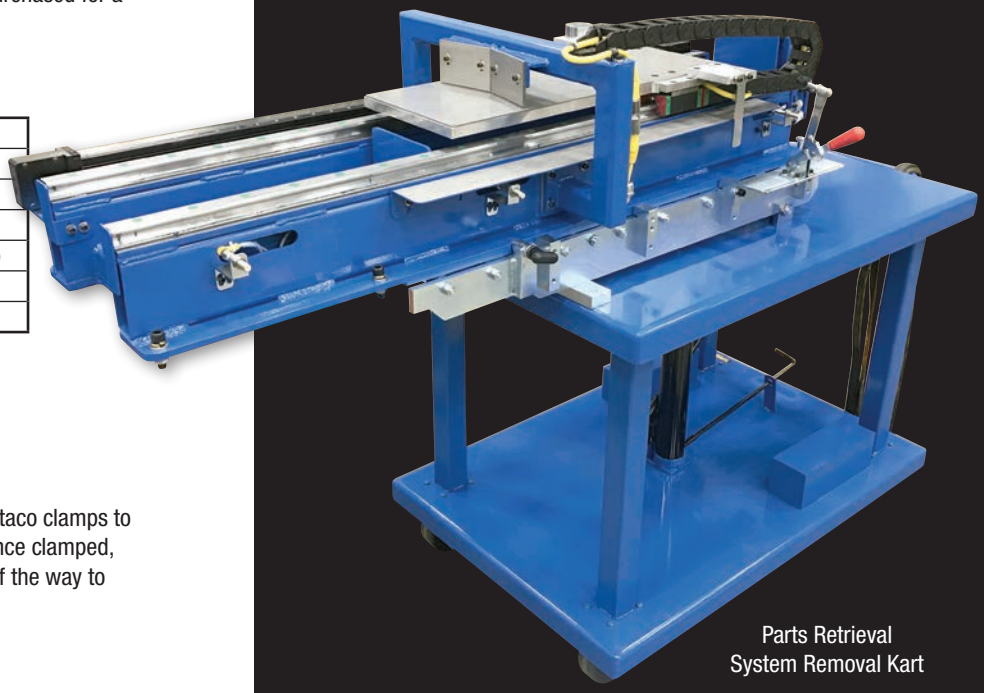
Specifications

Max. Parts Weight	2 lbs.
Max. Scrap Weight	2 lbs.
Min. Thickness	Application Dependent
Max. Thickness	Application Dependent
Max. Speed of Shuttle	30 SPM (subject to press travel and speed)
Largest Part Diameter	Application Dependent
Smallest Part Diameter	Application Dependent

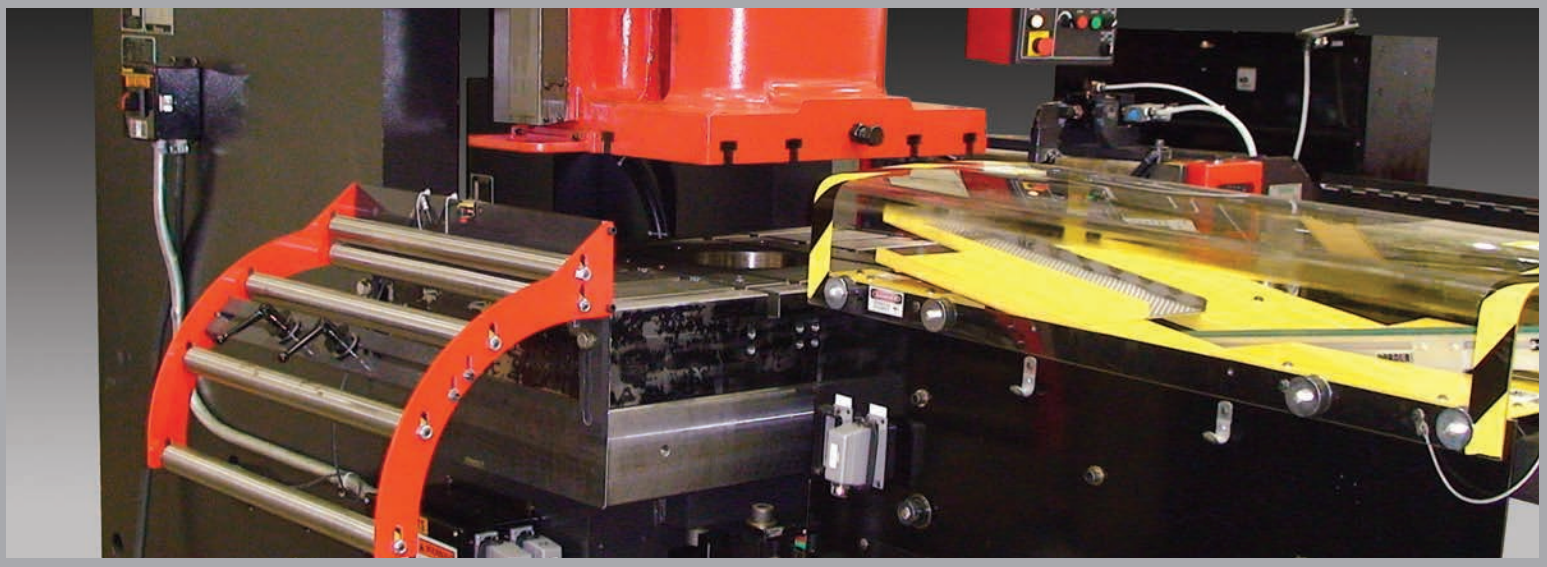
Parts Retrieval System Removal Kart

A foot operated hydraulic kart with locating pins and Destaco clamps to lock onto the retrieval system and clamp it to the kart. Once clamped, the operator can raise the table and roll the system out of the way to access the dies.

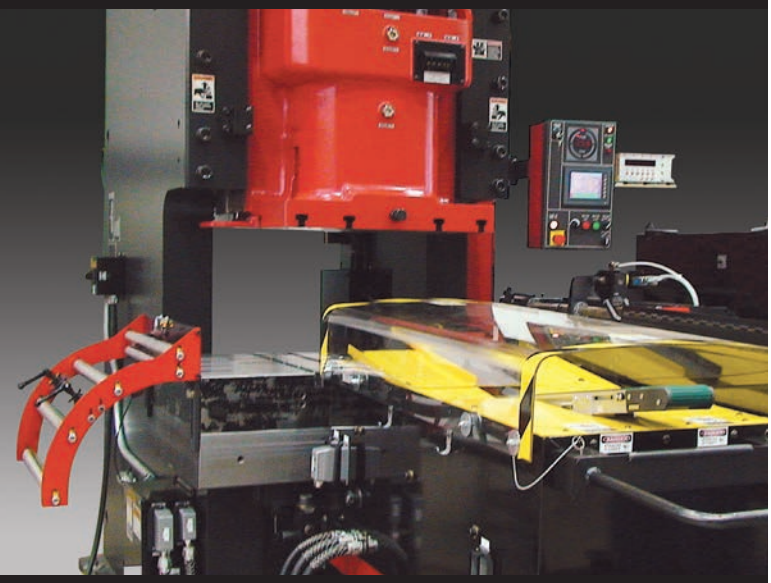
Machine Concepts Parts Retrieval Systems are a reliable, cost-effective way of removing parts and scrap from the die.



Parts Retrieval System Removal Kart



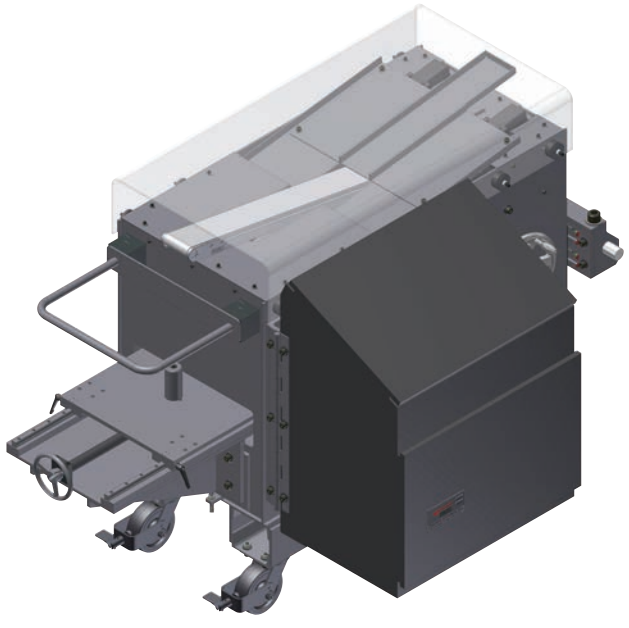
Delivers mobility and manageability, all while maintaining the highest level of performance possible.



Die Ejection Stacking (DES)

The Die Ejection Stacking (DES) System is designed to catch and remove parts being ejected from the upper die. After the part is stamped and the press is returning to the top position, a receiver plate extends underneath the upper die. When the press reaches the top, the part is ejected from the die and the receiver plate catches the part and is retracted. As the receiver plate is being retracted, the part slides off the receiver plate, lands on a conveyor, and is transferred into a tote or a customer specified location.

The DES is mobile and can be moved from one press to another with the same connections.

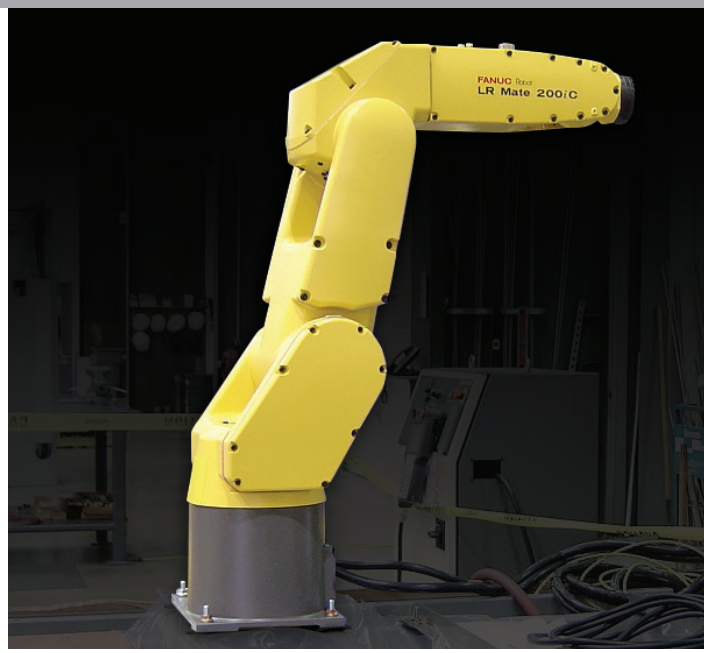


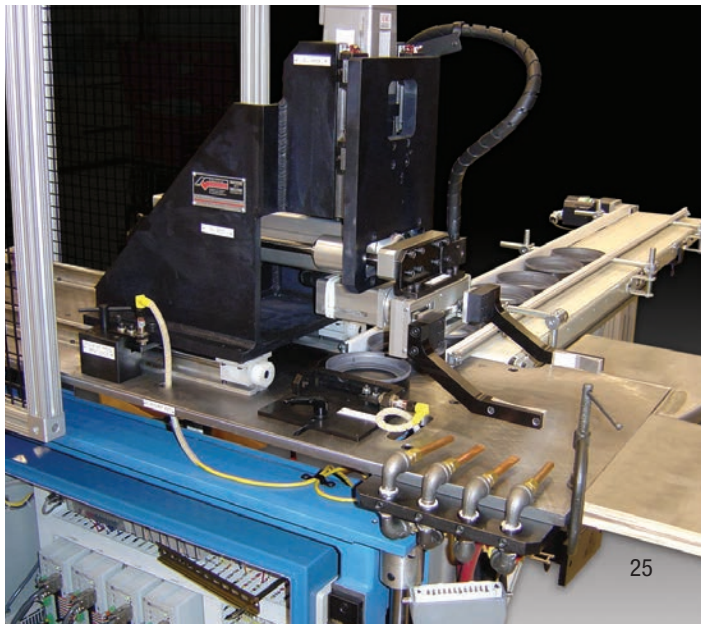
Automatic Press Load/Unload/Stacking

Custom designed and built for each application, Automatic Load/Unload Systems increase pressroom production while at the same time creating an efficient, operator safe work place. Automatic Load/Unload Systems are the first step in a complete work cell that starts with raw materials at the input and finishes with a completed, ready-to-ship part at the output. The ability to custom design pre and post press machines and then integrate with Automatic Load/Unload Systems make it a great fit for pressroom automation applications.

Features:

- Servo Controlled Load/Unload Systems for re-strike and forming processes.
- Automatic part separation and de-stacking systems.
- Index style operator load systems for continuous press operation.
- Press exit side part stacking systems.
- Robotic systems for press load/unload and stacking.
- Robotic part palletizing.





High Speed Lamination and Flat Blank Stacking

Operational Benefits:

- Achieves straight side stacks at high speeds.
- Presents operators with stacks to programmed number of laminations.
- Eliminates the hazards of handling lamination shoots.
- Eliminates loading and unloading of laminations into the shoots at set-up.
- Greatly reduces the storage requirements for tooling.
- Operator can see die damaged parts within inches of stamped product (reduces scrap).
- Reduces changeover time.

Common Equipment Features:

- Achieves press speeds of 250 to 400 spm depending on lamination configuration and thickness.
- Continuous stacking operation without stopping the press during stack exchange.
- Some models capable of dual lane stacking.
- Maintains part orientation throughout whole process in most cases.
- All high speed linear motion is guided by profile rail bearings.
- Integrated into the press controls with proper timing and sequencing of stacker operations.
- Programmable final stack height from operator screen.
- Presents final stacks to operator for final wiring and handling.
- Designed to allow multiple part tooling set-ups with minimal tooling change.
- Quick change tooling allows the customer to change from one part number to another.
- Contains proper guarding and door interlocks surrounding stacking operation.

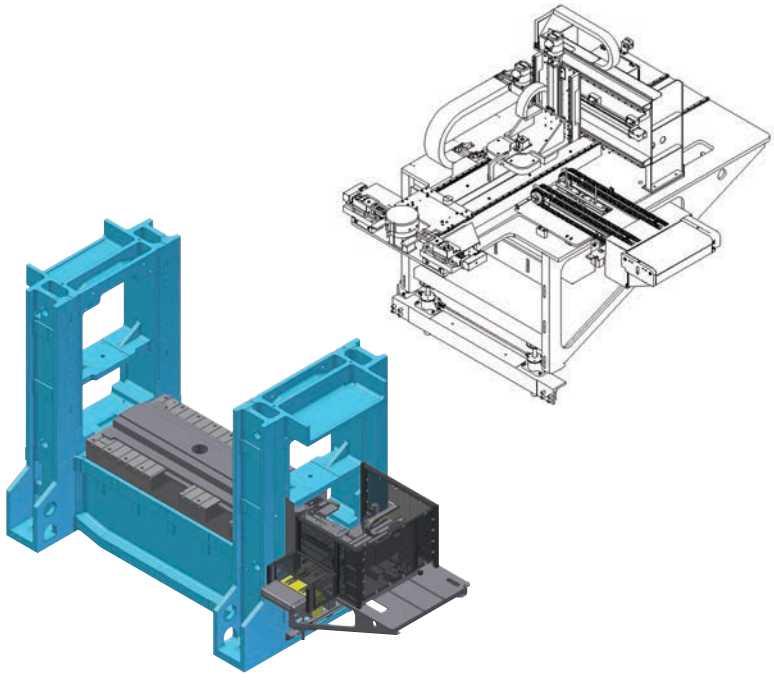
End of Crop Stacking System (ECS)

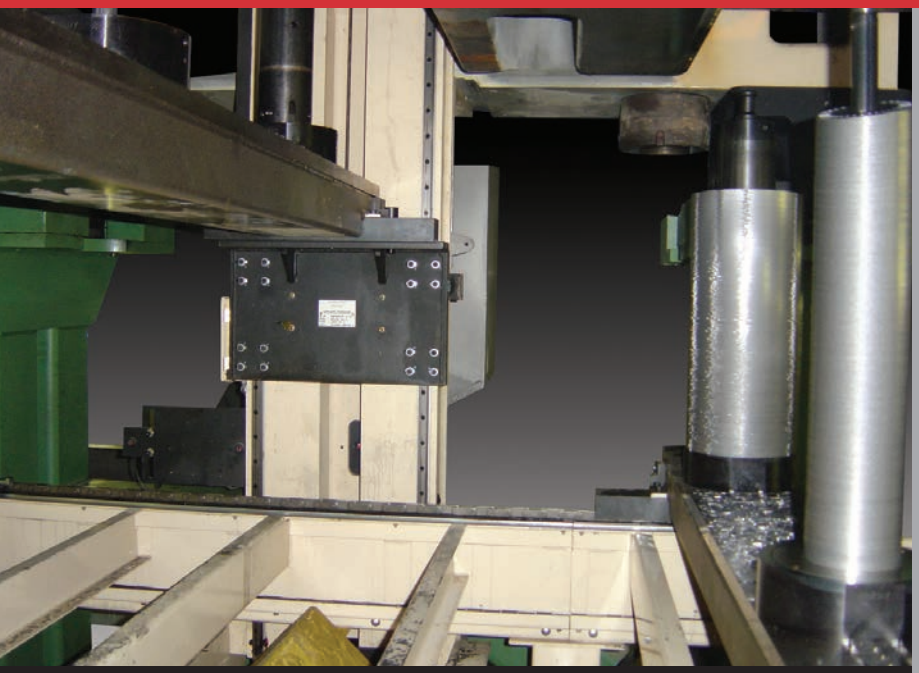
End of Crop Stacking (ECS)

SINGLE LANE CAPABLE

The End of Crop Stacking System (ECS) is an end cut operation that allows the stacker to catch the lamination as it is being cropped from the end of the die and accumulated onto an escapement mandrel. The escapement allows a short stack of laminations to stage on this mandrel. A transfer system moves smaller stacks to an area where they are constructed into taller stacks, to the programmed number of laminations entered by the operator.

The completed stack is conveyed out of the stacking system to a staging area that the customer can define based on their operational needs.





Below Bed Stacking System (BBS)

Below Bed Stacking (BBS)
DUAL LANE CAPABLE

The Below Bed Stacking System (BBS) receives stamped laminations through the die and bolster, extracts them below the press and presents them to the operator at floor level.

A pallet transfer system presents dual mandrels in position under the die to accumulate laminations as they are punched. When the mandrels are full, typically 18” to 36” stack height, the transfer system lowers the full pallet and exchanges it with an empty pallet while escapements allow laminations to accumulate under the die. At the same time the empty pallet with dual mandrels is raised into position under the die, the transfer system shuttles the full pallet out from under the press and raises it to present the full mandrels to the operator.

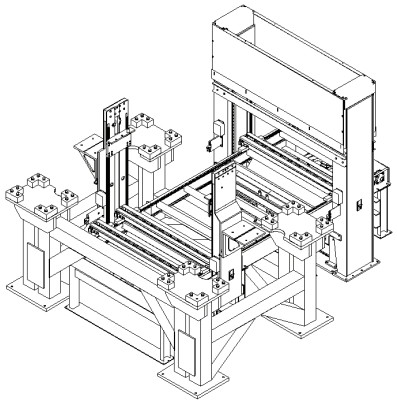
The operator (or an automated system) picks up the full mandrels and places them into a lamination container where the mandrel is triggered to release the laminations.

Above Bed Stacking (ABS)
DUAL LANE CAPABLE

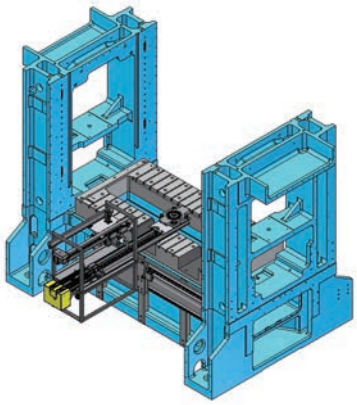
The Above Bed Stacking System (ABS) receives stamped laminations above the press bed through a modified bolster and presents them to the operator on the side of the press.

A short stack of laminations is accumulated in an escapement integrated within a modified bolster just below the die. The laminations are released onto a mandrel which rises to penetrate the escapement. As the escapement continues to accumulate laminations, the mandrel lowers, carrying the short stack of laminations down to a small pallet also located within the modified bolster. The pallet shuttles the short stack of laminations through the side of the modified bolster and presents the laminations to a pick and place device. The pick and place device stacks the short stacks of laminations to taller stacks based on programmed stack height. The final stack is conveyed to a staging area where the process may continue with manual or automated processes.

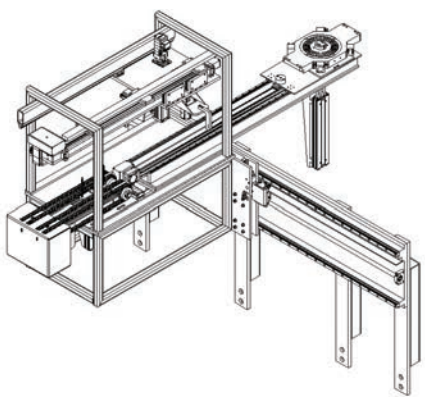
Our professional engineering staff delivers unprecedented dedication to develop systems to satisfy the most demanding requirements.



Below Bed Stacking System (BBS)



Above Bed Stacking System (ABS)



Above Bed Stacking System (ABS)

Precision Roll Services

New Work Rolls, Intermediate Rolls and Repair/ Reconditioning Services for Multi-Roll Levelers, Tension Levelers and Straighteners

Machine Concepts recognizes the need for work roll replacement and/or reconditioning with fast turnaround to minimize downtime. We have highly trained personnel with thorough knowledge of work roll design utilizing high-end equipment for all your precision roll service needs.

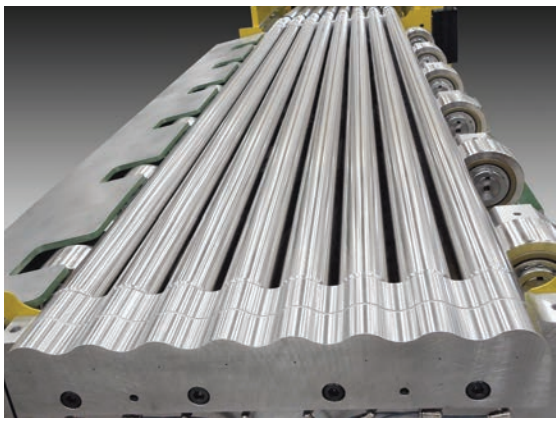
New Rolls

- Extensive experience in work roll design – based on customer parameters or reverse engineering of customer supplied rolls.
- High-performance rolls with enhanced durability and longevity.
- Suitable for a wide range of machines and applications, such as work rolls and intermediate rolls.
- Various finishes available including micro finish and chrome plating.
- Precise tolerances are held to customer's satisfaction.
- Wide range of roll sizes available.

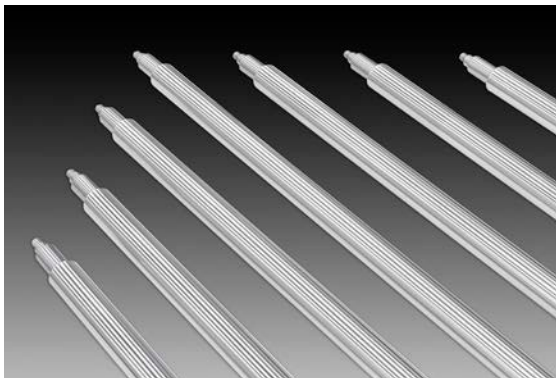
Roll Reconditioning

- Capability to recondition rolls back to original specifications, including:
  - Repair damaged roll ends
  - Straighten bent rolls
  - Regrind and finish worn rolls
- Extend roll service life reducing downtime and maintenance costs.
- Inspection reports and documentation – pre and post repair.
- Full service support as needed.
- Emergency roll repair service.

Reconditioned back up and individual rolls



Rebuilt cassette module



New set of work rolls

Machine Concepts

Designers & Builders of Innovative Metal Processing Equipment

Machine Concepts Inc. modern engineering and manufacturing facility

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