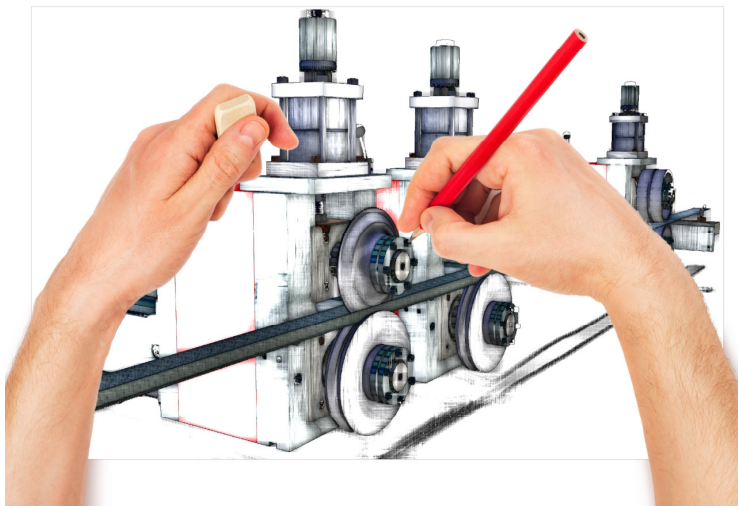


# **Waddington Electronics Inc.**

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## **Roll Feeds**

**01/16**



### **The Problem Solvers**

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**Standard and custom  
Programmable roll feeds  
Push pull feeds  
Cut strip feeds  
Wire feeds  
Multi Strip feeds**

# A Word about Accuracy

Some of the benefits of superior feed accuracy include:

- Longer tooling life
- Higher quality parts
- Improved profit margins.

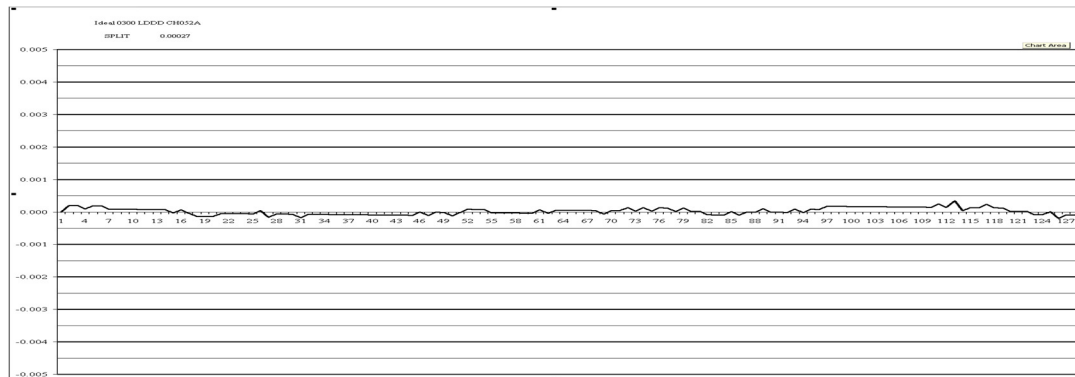
All Waddington Feeds are thoroughly tested prior to shipment.

Accuracy tests are performed at the beginning and end of each test period and the results are documented, analyzed and saved for future reference.

Over 100 measurements are taken on each feed.

Tolerances of better than  $\pm .0005$ " are required from each machine before the system is delivered to the customer.

Numerical analysis of accuracy data helps to provide insight into the sources of feed errors and possible electrical or mechanical problems not detectable from the raw accuracy data itself.



Waddington feeds offer superior accuracy, high power servo systems and maintenance-free operation.

Thorough testing of each system ensures accurate feeding of your piloted and non-piloted tooling.

## About Us

Waddington Electronics has delivered industrial control systems and, specifically, computer-driven servo systems to the machine tool and metal stamping industries for over 50 years.

## Proven Performers

Waddington Roll Feeds are proven performers in industrial applications. They offer easy to understand programming and setup along with unparalleled accuracy.

Brushless motor technology and sealed bearings offer near-zero maintenance while microprocessor controls provide for fast, easy and accurate length control to complement "just in time" and "quick die change operations."

Several control console arrangements are available to suit various pressroom space considerations, and a dozen design variations allow selection of feed size to suit budget, performance, and capacity requirements.

### **Increase Your Production**

With indexing rates as high as 2500 SPM (strokes per minute) our feeds have the fastest production rates in the industry. We can size the proper servo drive for your custom application using computer simulations of your stamping specifications.

### **Quick Setup**

Push-button control of feed length, speed and acceleration are provided and stock can be manually threaded and positioned in the tool using the remote jogging control station.

### **Accurate Positioning (in either direction)**

Accuracy in roll and bearing journal grinding and dowel-pinned heavy-duty feed frames are only part of the reason Waddington feeds provide exceptional positioning performance. High bandwidth servo systems, zero backlash drive train and high resolution feedback provide for robust servo performance in the face of varying load conditions.

### **Big Performance in a Small Package**

Compact, direct-coupled, under or over driven feeds fit in the same space as mechanical feeds. They also have the added benefit of being installable on any side of the press because they require no mechanical link to the press crank shaft. Waddington feeds provide incredible indexing performance for all applications and we have feeds for small and large presses.

### **High-speed Air or servo operated Pilot Release**

APR3 is our new, easy to adjust pilot release system. APR3 allows you to quickly optimize pilot travel and maximize production. Remote piloting (up to 300 SPM) is available on most models. This high speed pilot release system is controlled by an electronic cam switch and provides easy, fast and repeatable control for this part of the feed cycle.

### **Punch Press Shock Immunity and Resistance to Electrical Noise**

Modern high resolution feedback devices are employed for their high shock rating and immunity to electrical noise

### **Computer Interface (Standard)**

All Waddington feeds have a standard RS-232 computer interface.

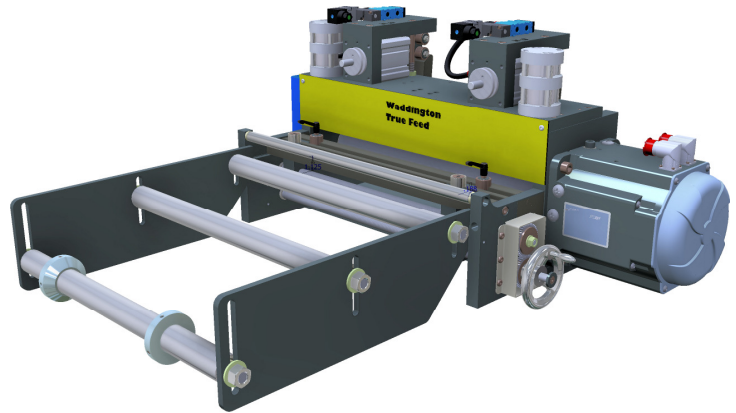
Feeds are able to communicate with any device that has an RS-232 interface allowing complete integration with other press control and monitoring functions.

Feed progression, speed, batch control and programmed patterns can all be downloaded by remote computers and flexible cell controllers.

Waddington Servo Feeds are available with a variety of set-up storage options that allow complex setups to be recalled and reused quickly and easily.

### **Performance**

Waddington feeds feature low inertia rolls and high performance brushless servo motors. Motor windings selected for indexing applications ensure you will never have to wait for the feed portion of the press cycle. Top speeds in excess of 1400 ft/min (16,800 in/min) produce extremely high line speeds at long feed lengths. Low inertia



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## Increase Your Bottom Line

and high peak motor torque allow indexing rates up to 2400 SPM for short progressions.

### Data Input and Security

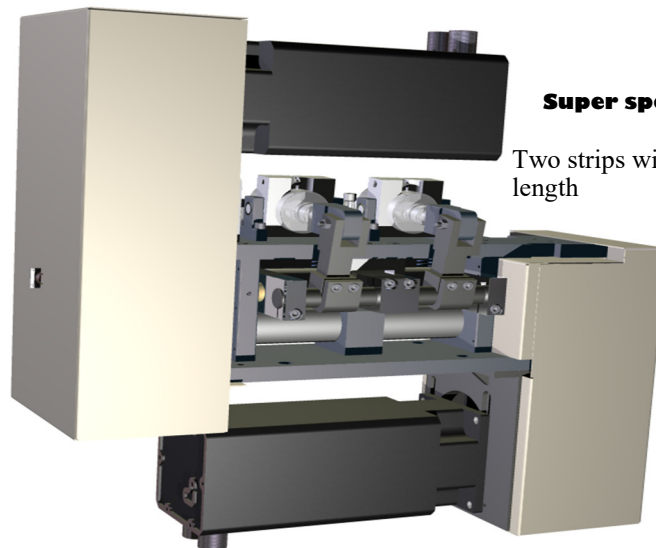
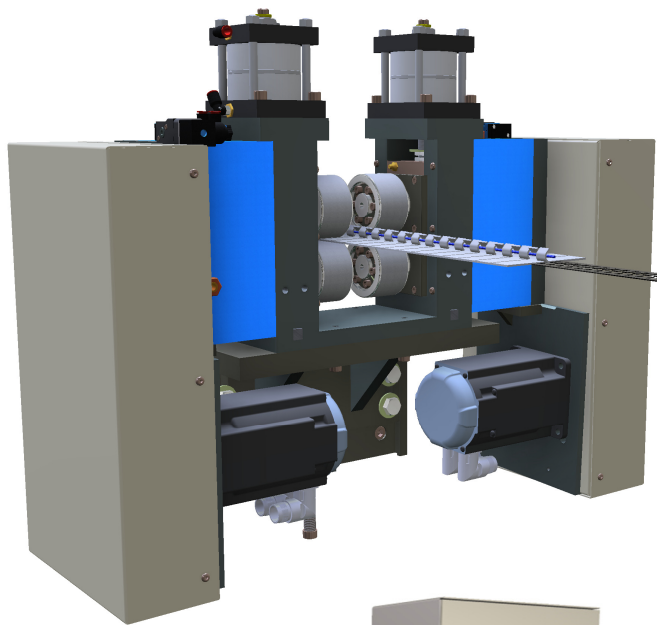
Touch screens are used for data input and can be provided with lockouts to keep unauthorized personnel from accidentally or intentionally changing feed parameters.

Job storage options offer password protection for added safety.

### Optional Features

- Electronic cams
- Anti-backup rolls
- Servo pilot release.... and more

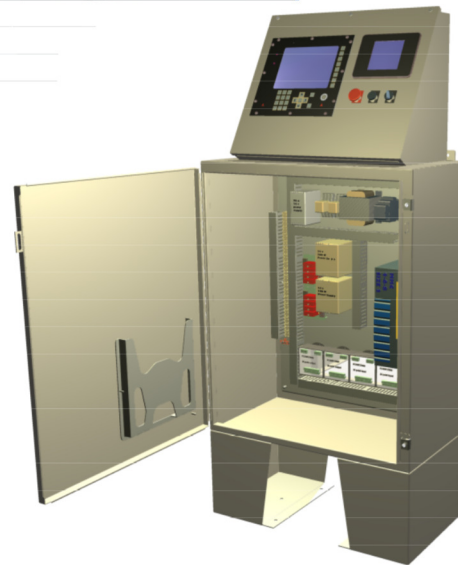
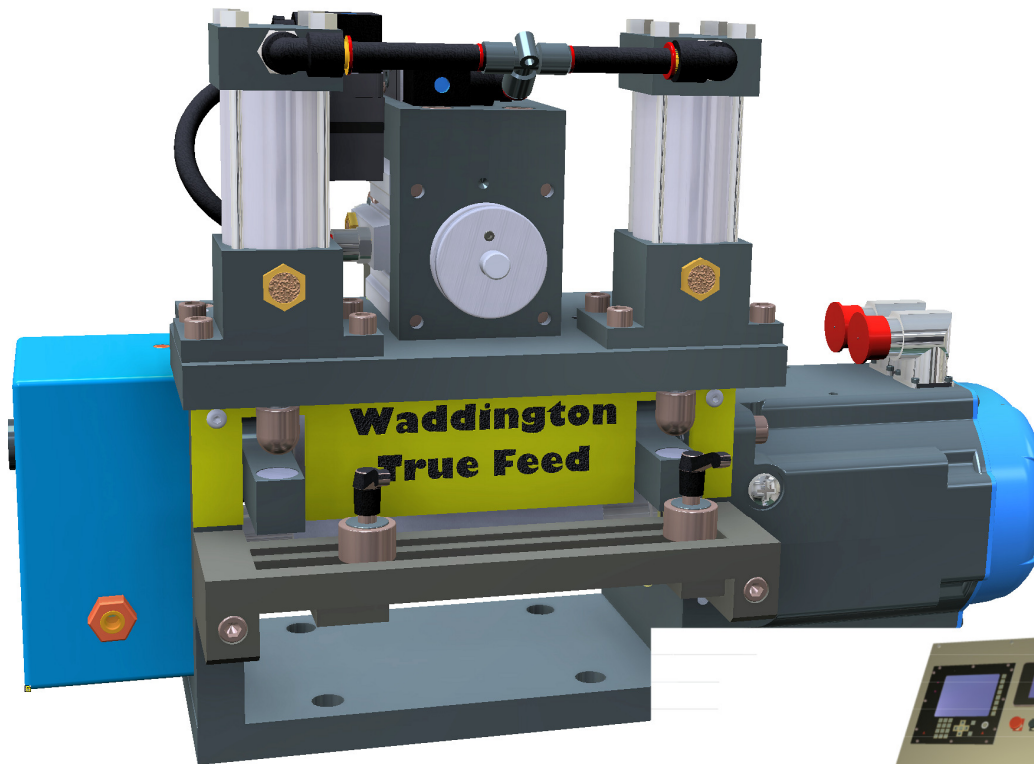
**Don't see it here Just ASK !**



**Super speed twin drive.**

Two strips with independent feed length

# True Feed



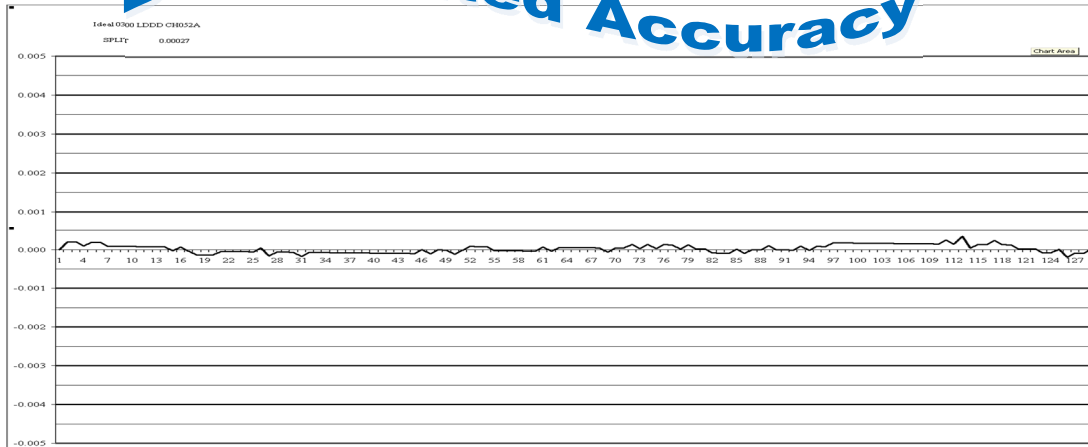
**Incredible Performance.  
Superior Design.  
Precision Construction.**

**Waddington** TRUE Feed technology is a revolution in feed design and performance.

**Waddington** once again raises the bar in what you can expect in a press feed.

- Direct drive.
- Gearing between top and bottom rolls.
- Amazing accuracy.
- APR3 high speed pilot release.
- Touch screen programming.
- Patterns, gag outputs, and registration.
- Built in diagnostics.

# Documented Accuracy

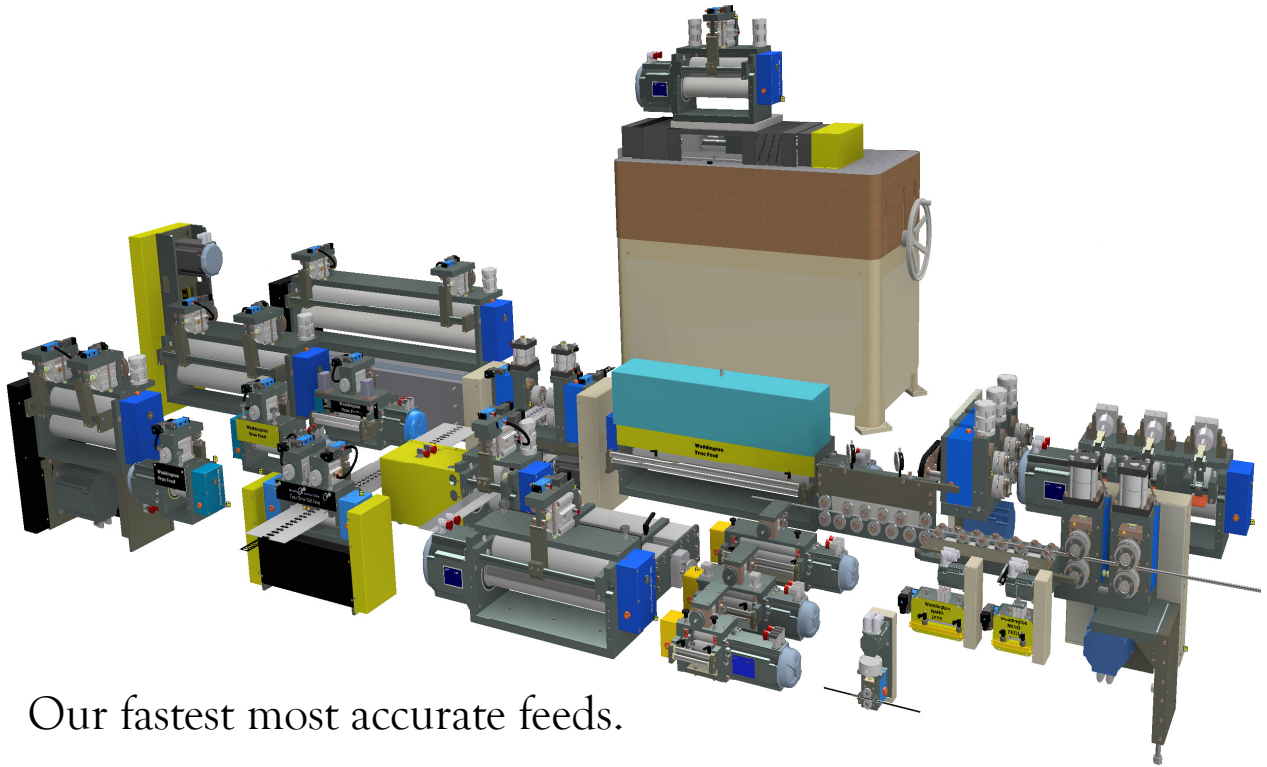


**The features you need, the accuracy you require at a price you can afford. The right feed for your application.**

- + 0.0005" accuracy
- Direct drive technology
- Single or dual strip
- Mechanical, air or servo pilot release
- Gearing between top and bottom rolls
- No adjustment for stock thickness
- Nema 12 control panel
- Touch screen programming.
- Patterns, gag outputs, and registration
- Built in diagnostics
- Push / Pull
- Cut Strips
- Formed strips
- Wire feeds

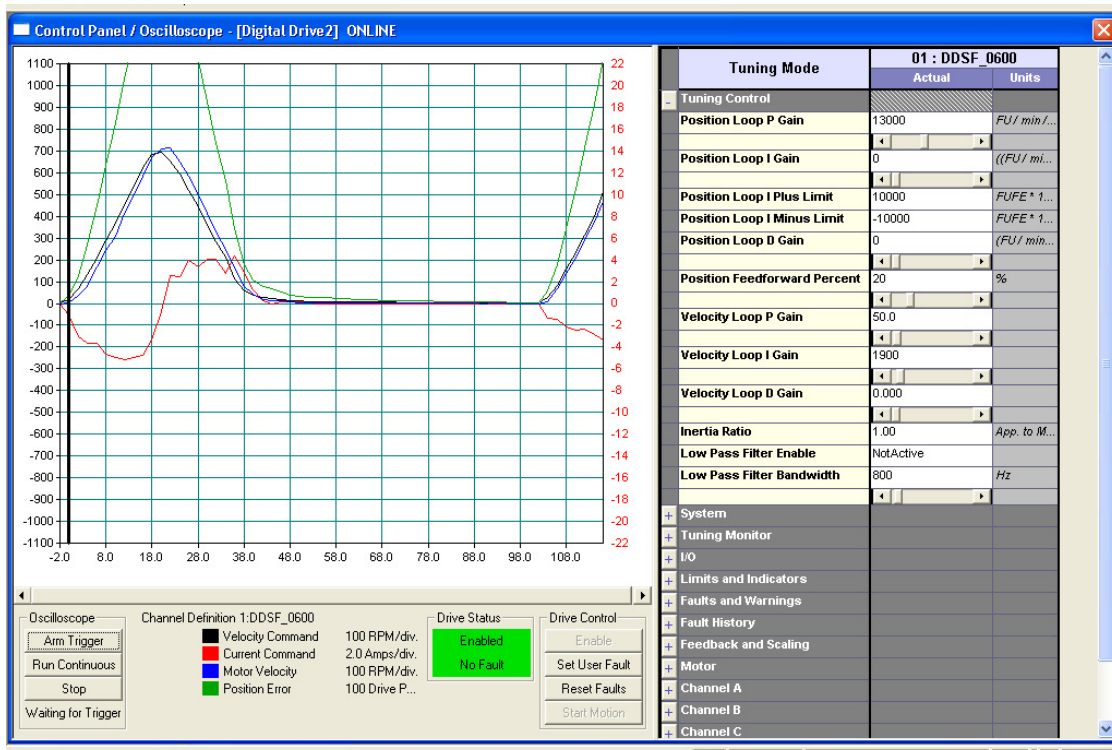


# True Feed

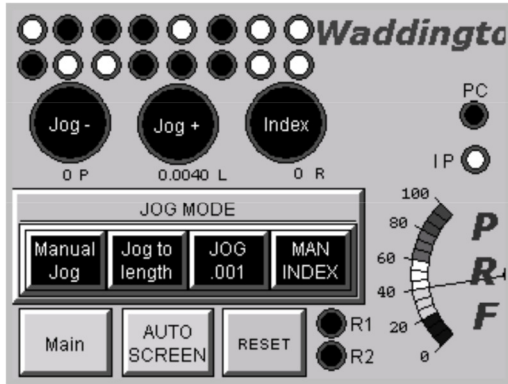


Our fastest most accurate feeds.

Offline software includes real time PC base oscilloscope



## CR Series Operator Interface



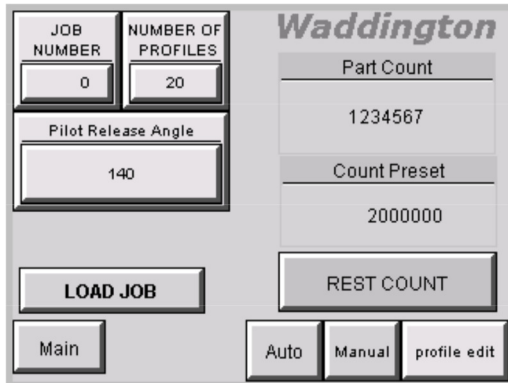
CR series controls are for complex applications such as push pull, cam mode, servo pilot release, gag dies. As well as cut to length, progressive and compound tool applications.

The multi axis capability allows high speed synchronization of push pull feeds and uses virtual master technology to tightly control position and tension of material between two feeds.

CR series controls support servo slack loop control and velocity follower output for loop control in high speed applications.

The CR series also support feed length checking and compensation from secondary stock driven feedback devices.

CR series can also be programmed from external computers and press controls. So loading complex jobs with hundreds of profiles is quick and easy.



### MANUAL MODE

Jog enables on screen jog buttons and Remote Jog buttons

Jog Modes Include

Jog to length

Jog .001

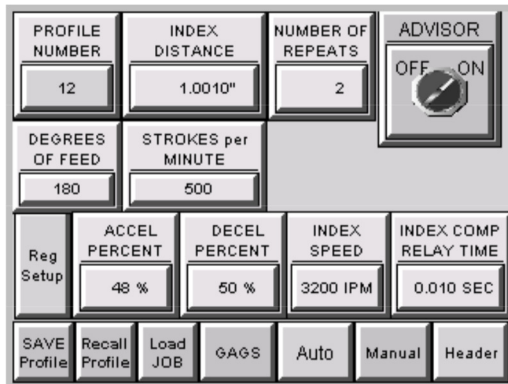
Manual Index

Jog Speed

Load Meter

Gag indicators

The Load meter shows the average load on the servo it can be a useful troubleshooting tool when the strip is binding in the die causing a load on the strip. The meter is also useful for setting strip tension in push pull applications.



### Job Editing

This is where you setup each feed length

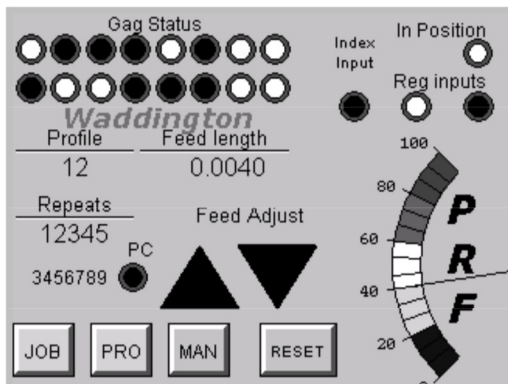
If you have a pattern of moves you setup each one by profile number. You also have control of registration moves on this screen.

### There are 3 indexing modes

Normal index

Registration index

Edge detect



### Feed Advisor

Modes include Accel, Decel and speed or feed advisor if feed advisor is on the move speed is controlled by degrees of feed time and strokes per minut

### Auto Mode Operation

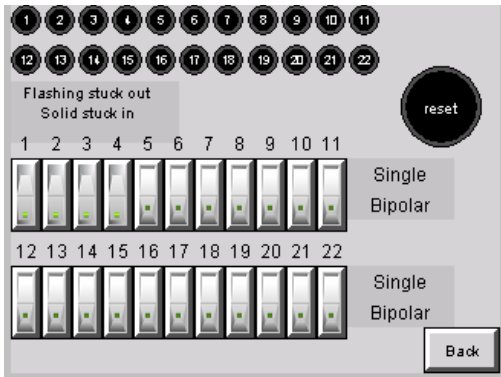
Switching to Auto mode enables the auto index input.

Feed adjust will tweak the feed length in .0001 increments.

The Load meter will show the average load on the servo with 100% being overloaded

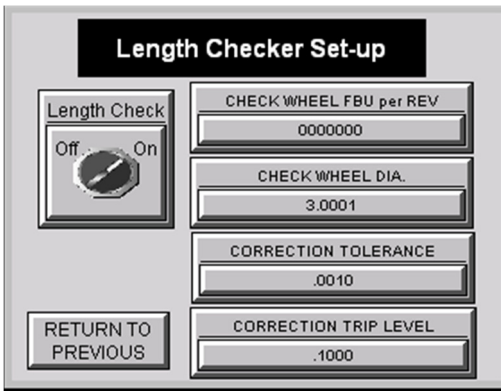


## Software Options for CR series controls



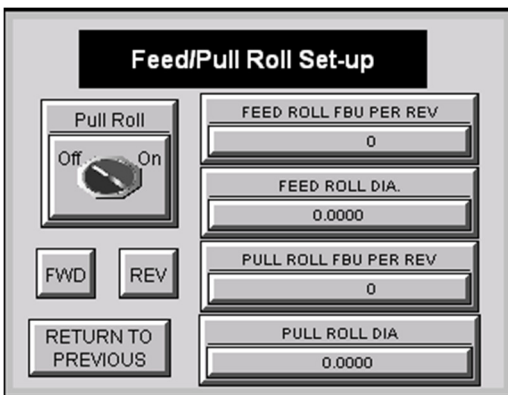
### Gag Checker

Check gag position in conjunction with press position and outputs a fault signal if a gag sticks or fails



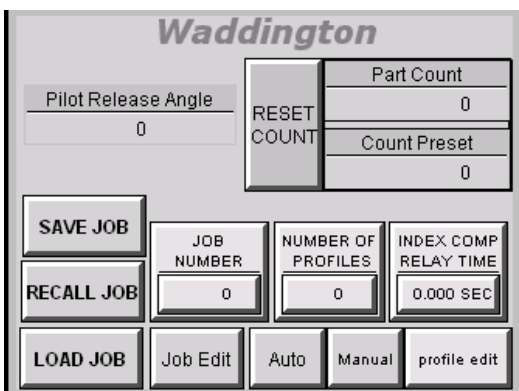
### Length Checker with correction.

Length checking wheel can adjust feed length to correct for slippage.



### Servo Loop

For high speed stamping where loop inertia must be controlled or when running long feed lengths from shallow loops with no pit.



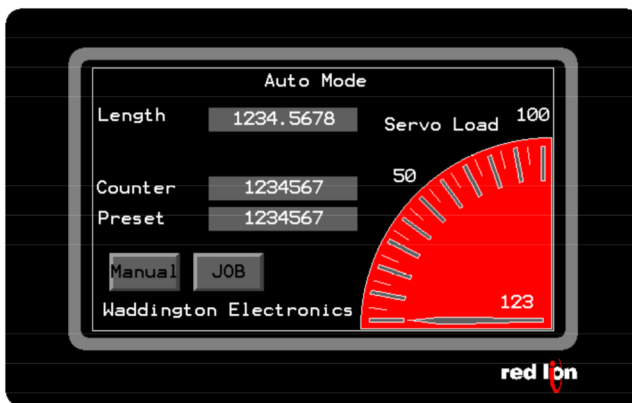
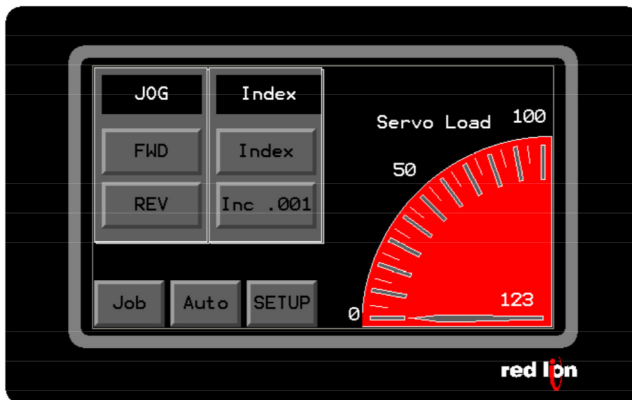
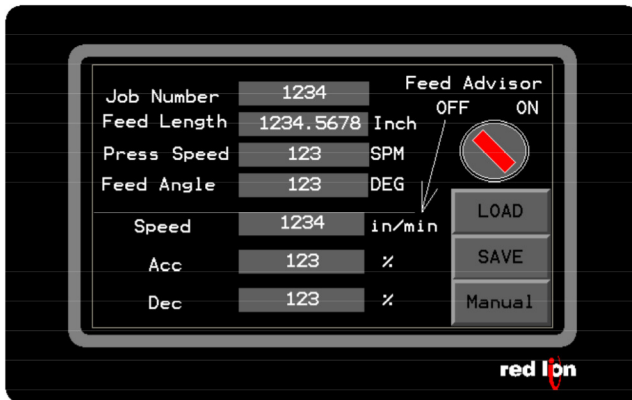
### Servo Pilot Release

For high speed feeding with high speed pilot release. Servo pilot release operates synchronously with the press crank shaft for perfect timing at high speeds.

## CS Series Operator Interface

CS series controls are for simple cut to length, progressive die and compound tool applications.

Available in sizes from 500 watts to 64,000 watts and 120, 240, 380, and 480 volts

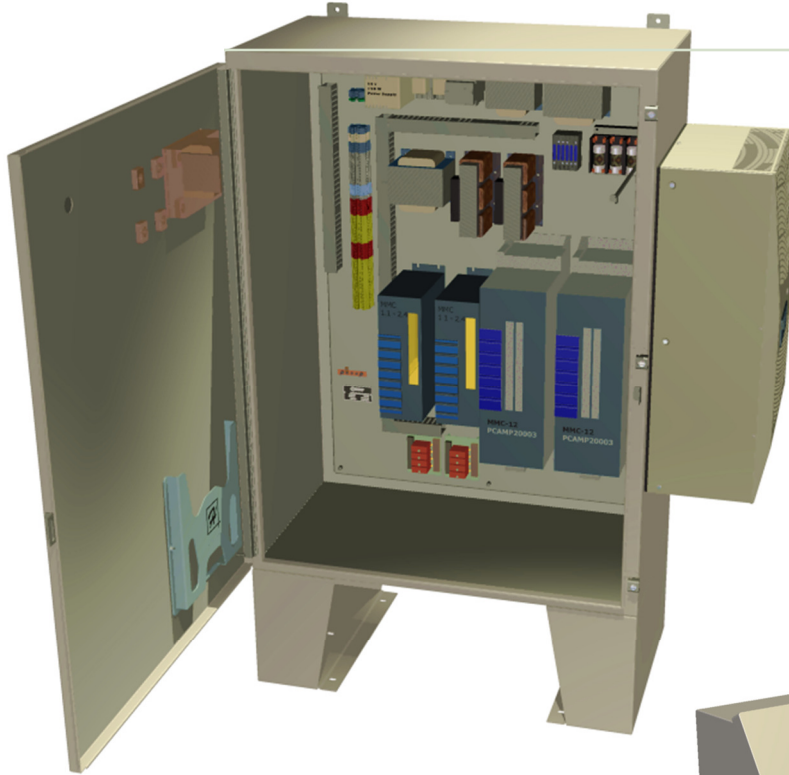


### CS series controls feature:

- Touch screen programming.
- Load meter
- Job storage
- Jog to length

Optional:  
 Remote Jog Station  
 Remote operator station



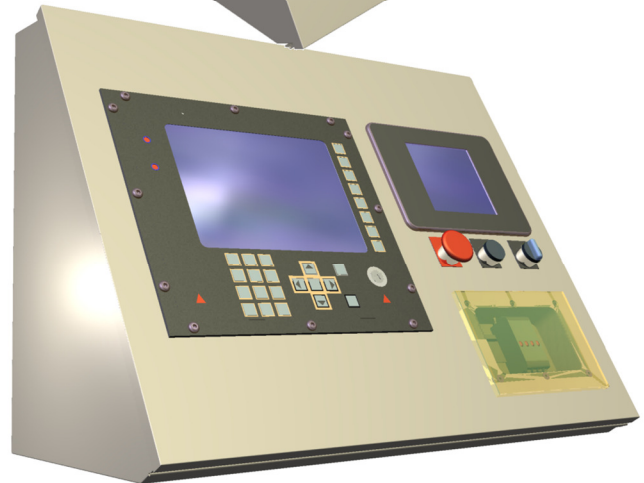
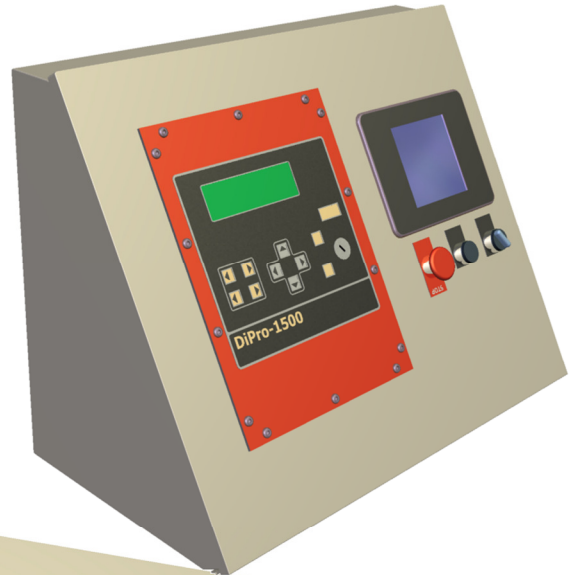


Panels with CE rated components are available for European customers.

**Interface to your favorite press control**

Servo Feed Interface options from Honeywell Data Instruments, Helm, Link Systems, and others are available to consolidate data and control to simplify press setup and operation.

Third party components can be included. From simple cam switches to press automation controllers.



## Nano Feed



Nano feeds have the following basic specifications:  
Maximum Stock Width 2 or 4 inches  
Maximum Stock Thickness .040 inches  
Maximum Feed Length 1200.0000 inches  
Standard Accuracy +/- .001 inches  
Power Supply (see options) 120 or 230V 1ph 60hz  
Works with CR or CS series controls

### Mechanical Features:

Smooth steel finish rolls.  
Steel frame  
Permanently lubricated anti-friction bearings  
Gears between top and bottom rolls  
Two adjustable stock entry guides Cam rollers with handles. No tools are required for adjustment.

Precision long life Kevlar timing belt Less elastic than steel, Kevlar belts are the ultimate choice for speed reduction in servo systems.

### Air pilot release:

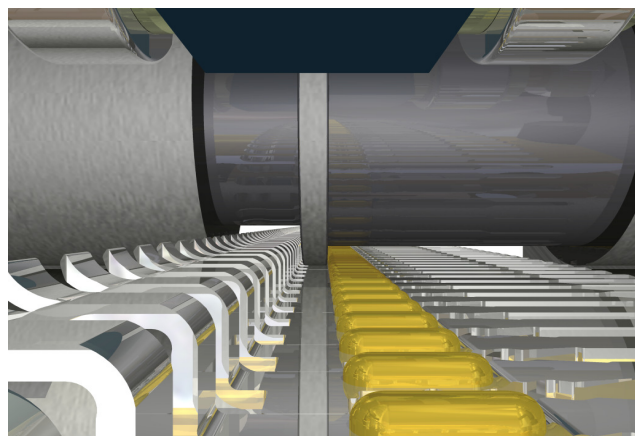
Used for releasing the feed rolls, allowing pilot pins to take control of strip position, or to help compensate for defects in strip geometry. Easy to set travel stop allows optimal setup to be achieved in seconds.

The included high speed MAC valve insures long life, low latency and high speed operation.



### Optional

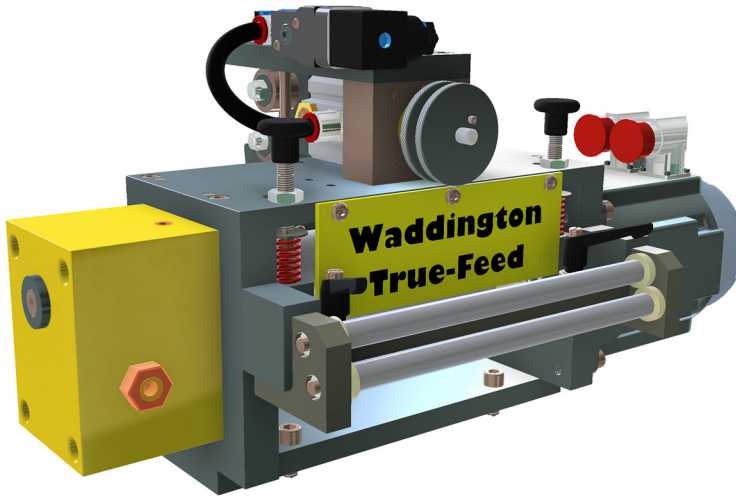
- Matte Chrome Finish on Rolls:
- Relieved rolls
- Mounting brackets.
- Stock Guides
- Stock Bridges



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## SF Feed

### SF Series available in OD UD IL and DD



- Low-cost
  - Super accurate
  - Compact
  - No-compromise
- Maximum stock width up to 9 inches  
Roll diameter 1.25 inches  
Maximum stock thickness .040 inches  
Standard Accuracy +/-0.0005 inches  
Resolution 0.00006 inches  
Power Supply (see options) 230V 3ph 60 Hz  
Cluster gears between upper and lower rolls  
Available In 3 6 and 9 inch versions with  
Over drive, Under drive, and Inline power rains  
Mechanical Pilot release standard  
Brushless AC servo  
Resolver feedback

## LD Feed

### LD Series available in OD, UD, DD and IL



- Maximum stock width up to 25 inches  
Roll diameter 2 inches  
Standard accuracy +/-0.001 inches  
Power Supply 110, 230 380, 480 V 1 or 3ph 50/60hz  
Maximum stock thickness .125 inches

## ND Feed

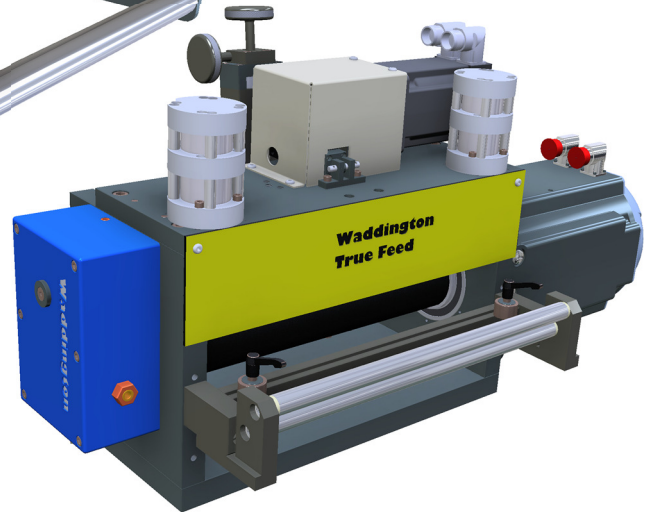
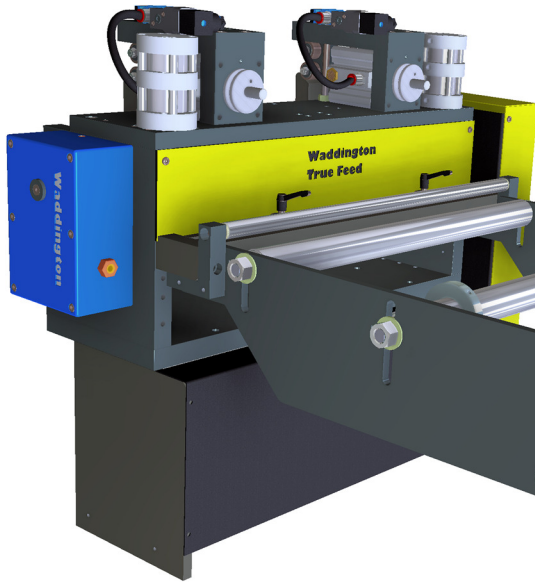
### ND Series available in UD, OD and DD

Stock width up to 30 inches

Roll diameter 3 inches

Standard accuracy +/- .002 inches

Maximum stock thickness .187 inches



### High Speed feeds for the fastest presses

Very high powered low inertia feeds for extreme speeds with servo pilot release for perfect timing every time.

Cam mode operation or simple indexing both are available in the same unit.

## LC Feed

### LC Series available in UD OD

Fast · Accurate · Powerful

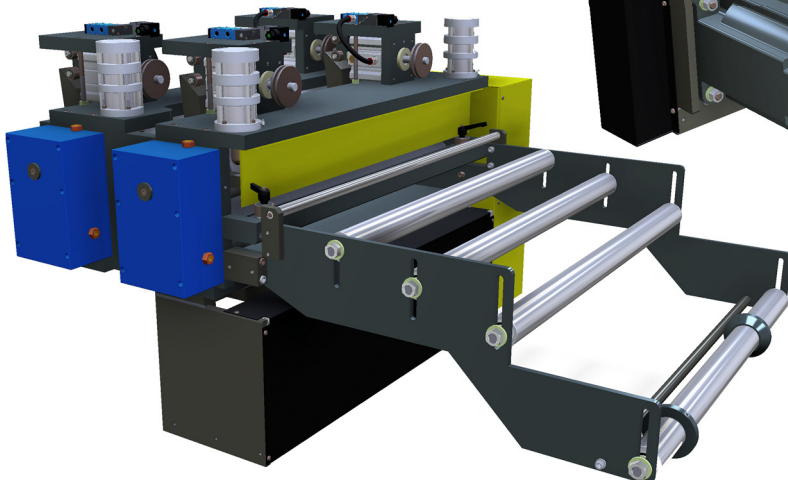
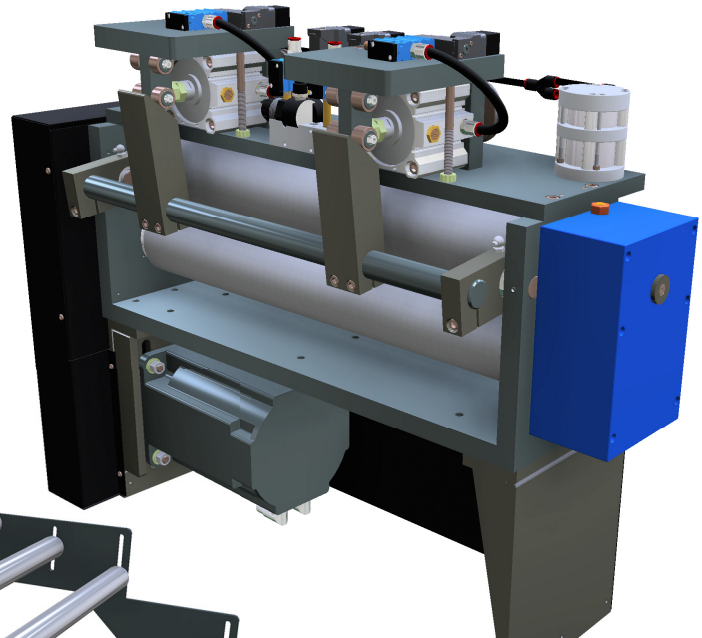
Maximum Stock Width Up to 48 inches

Roll Diameter 4 inch lower 4 inch upper

Maximum Stock Thickness .187 inches

Standard Accuracy +/- .002 inches

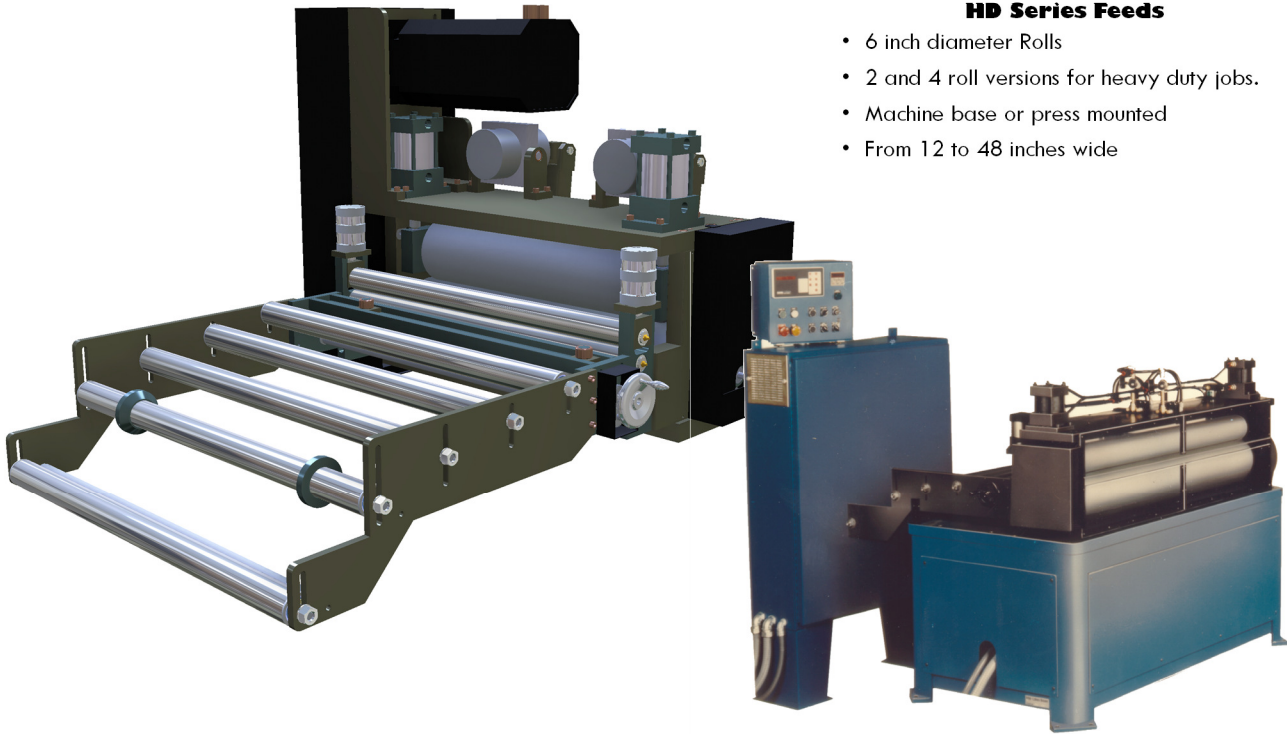
Maximum stock thickness .325 inches



LC Series is also available in a 4 roll version for moving heavy strips where more traction is

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## HD Feed



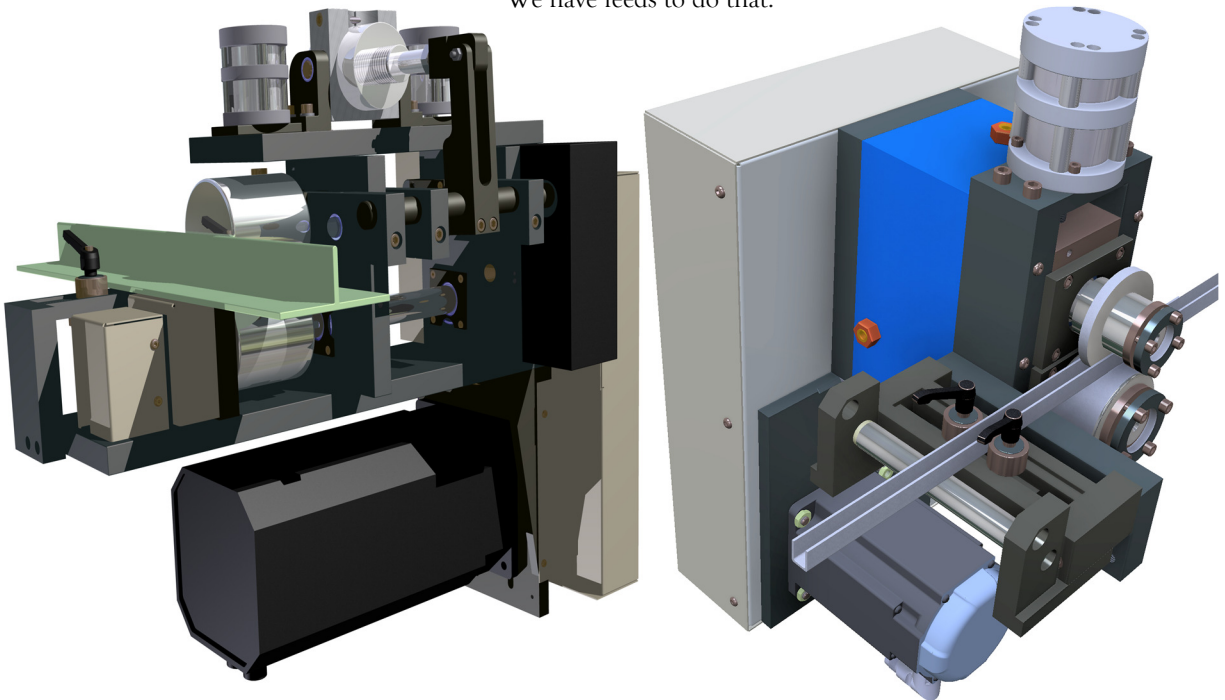
### HD Series Feeds

- 6 inch diameter Rolls
- 2 and 4 roll versions for heavy duty jobs.
- Machine base or press mounted
- From 12 to 48 inches wide

## Feeds for shaped material

### LTUZ FEED

Need to Feed L T U or Z shaped Stock  
We have feeds to do that.

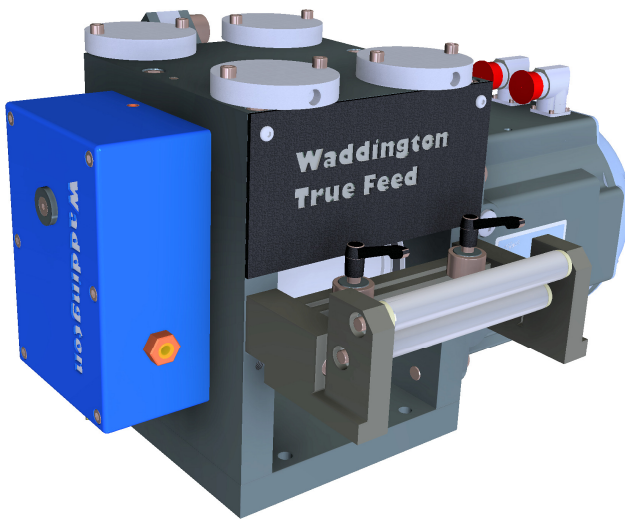
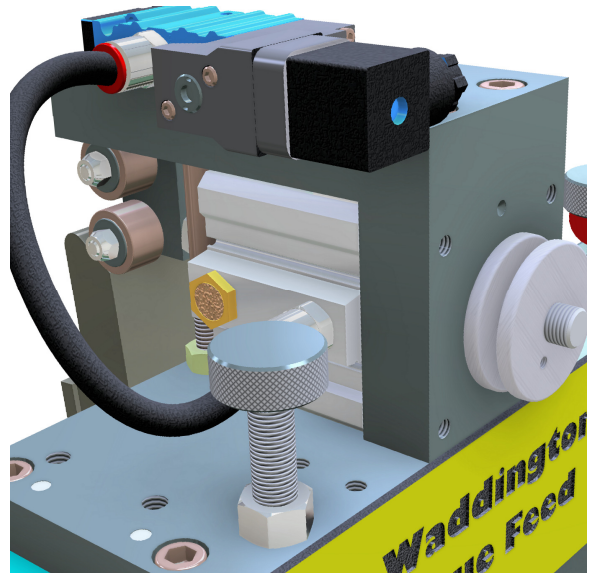


**The new APR3 pilot**

Operators can set pilot release travel quickly and easily with our new APR3 pilot adjuster. Now Standard

Retrofit kit available for older feeds.

APR3 can be equipped with sensors that when used with the feed software allow easy pilot optimization at speeds as high as 400 SPM



**Low Profile IL inline feeds can be mounted in the die.**

Waddington builds feeds that have been used inside the die area for jobs that just couldn't be done any other way.

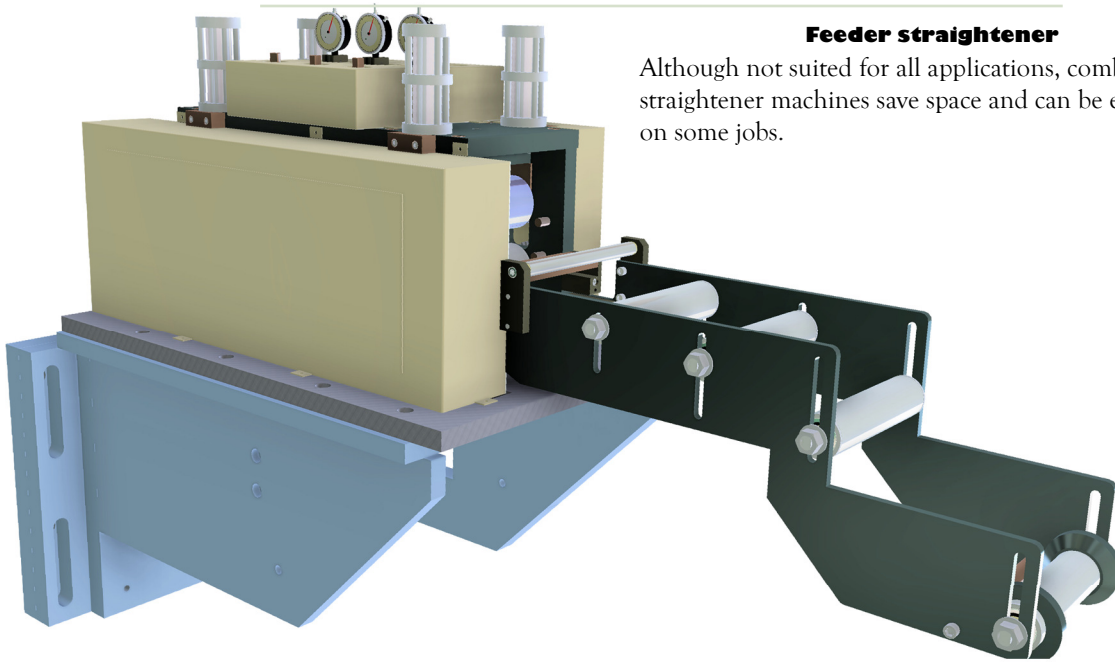
Other direct drive solutions are also available.

**Feeds for Very Thick material**

Able to Feed material up to 1 inch thick. Feed features adjustable closer stops to prevent crushing delicate materials like Gator Board. Upper and lower rolls are driver and there is no gearing adjustment required thruout the entire thickness range. Dial indicators allow easy parallel adjustment for the stops.





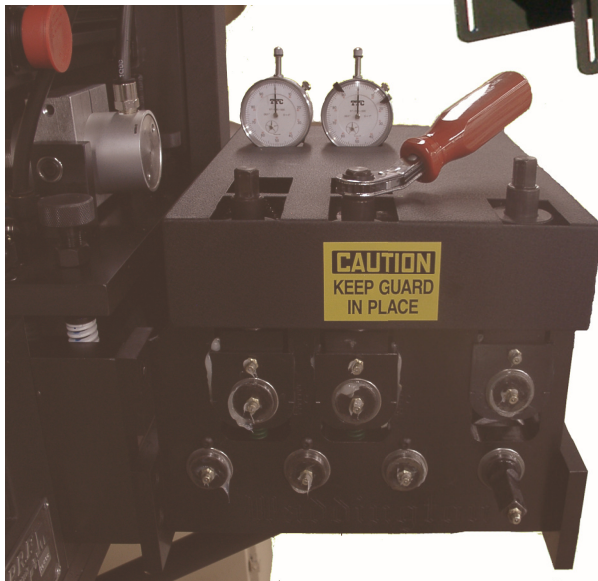
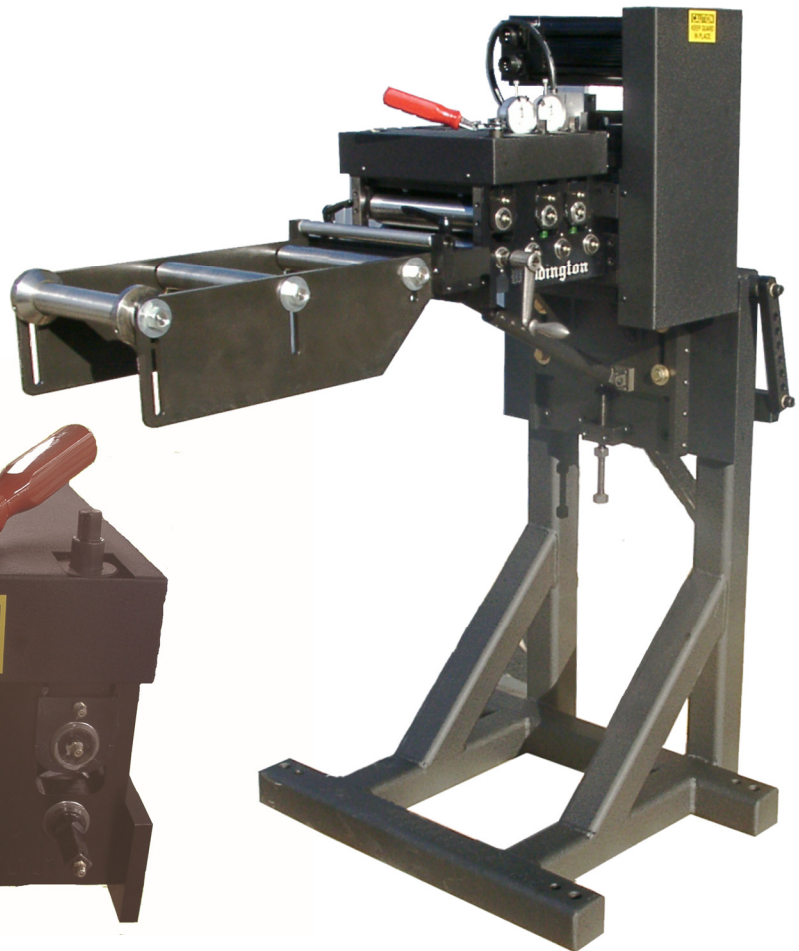


**Feeder straightener**

Although not suited for all applications, combo feeder straightener machines save space and can be effective on some jobs.

**Pull Through Straightener**

Our Straightening attachments are design and built with the accuracy and precision required for use in roll feed applications. Dial indicators provide precise repeatable settings.



## Multi Strip Designs

### Waddington Invented the dual strip feed

Independent suspension of the upper rolls allows 2 strips to run reliably at high speeds. We offer a variety of dual strip designs to fit your application.

Multi strip feeds can increase production by feeding multiple strips. Independent upper rolls allow strips of different thickness and widths to be run at the

### Twin top roll feeds

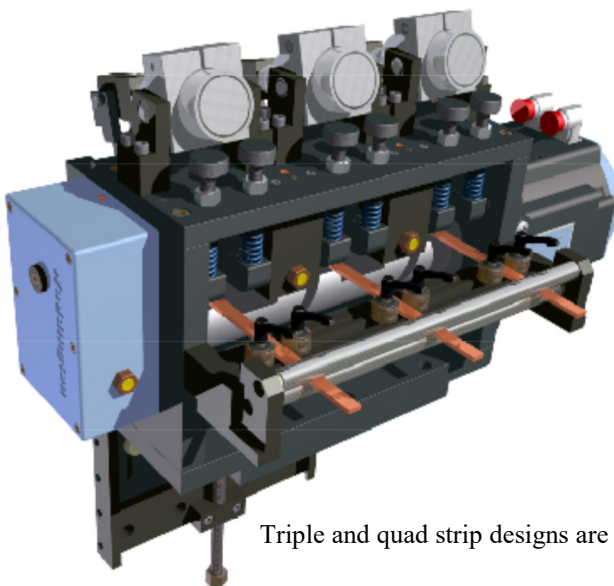
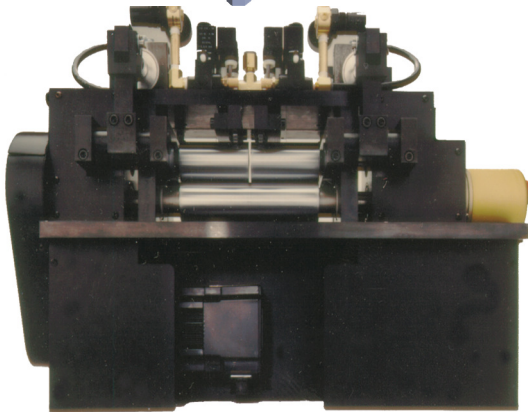
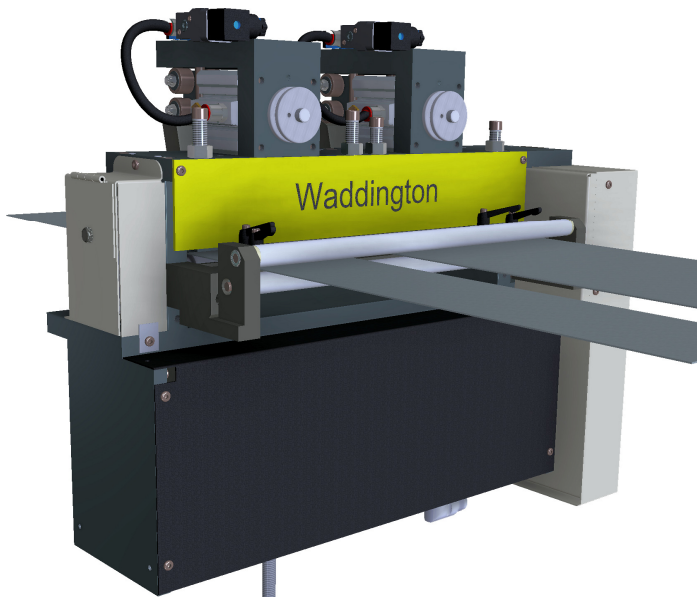
Sometimes you need the strips right next to each other sometimes you need to spread them out. We offer several designed to cover a wide range of applications.

### Twin drive roll feeds

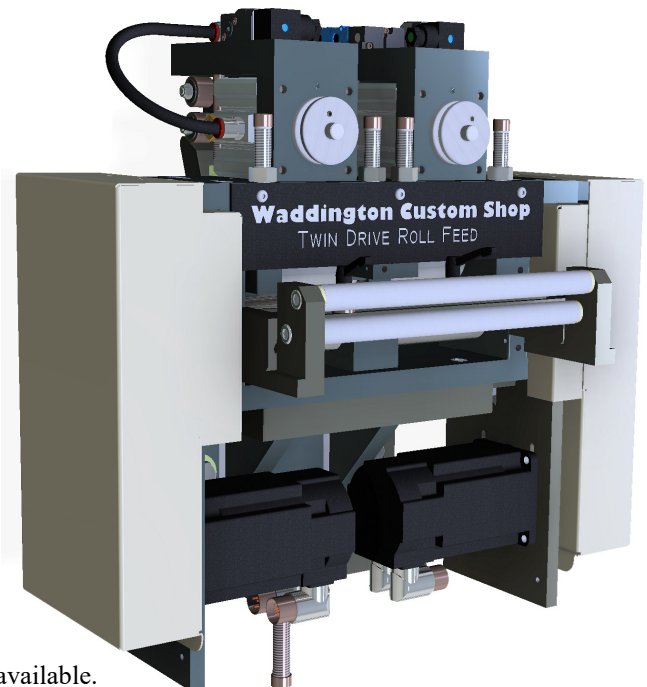
While twin top roll feeds run both strips at the same length Twin drive feeds can run two strips at different feed lengths.

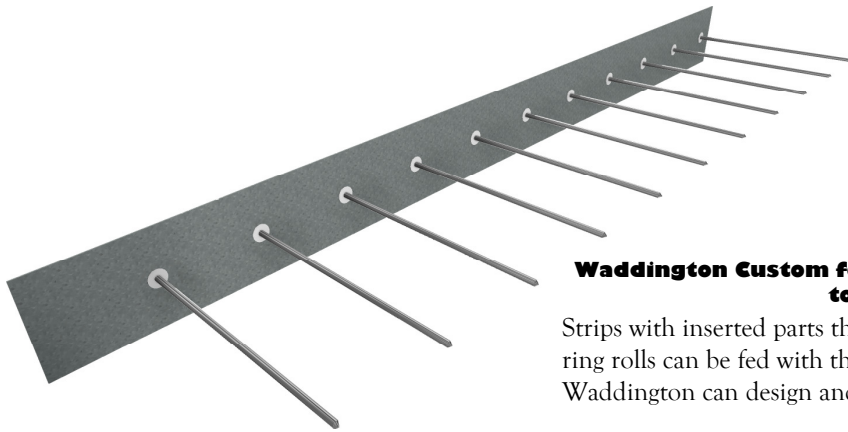
Used to make two different parts requiring different feed lengths, widths, and thicknesses.

Twin drive feeds feature independent settings for all parameters.



Triple and quad strip designs are available.



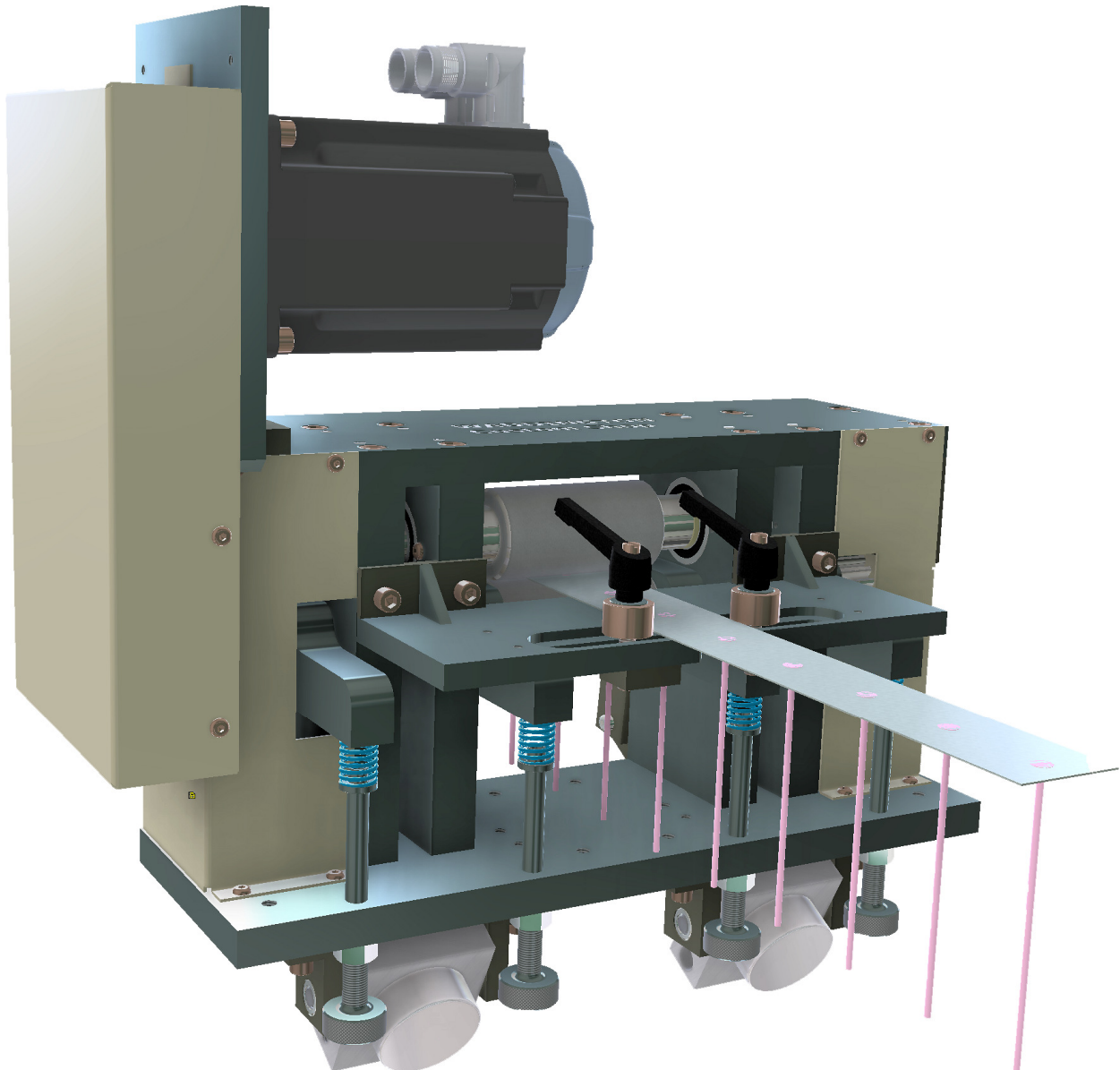


## Custom feed Designs

### **Waddington Custom feeds can solve problems with hard to handle strips**

Strips with inserted parts that exceed the limits of roll reliefs and ring rolls can be fed with this special feed.

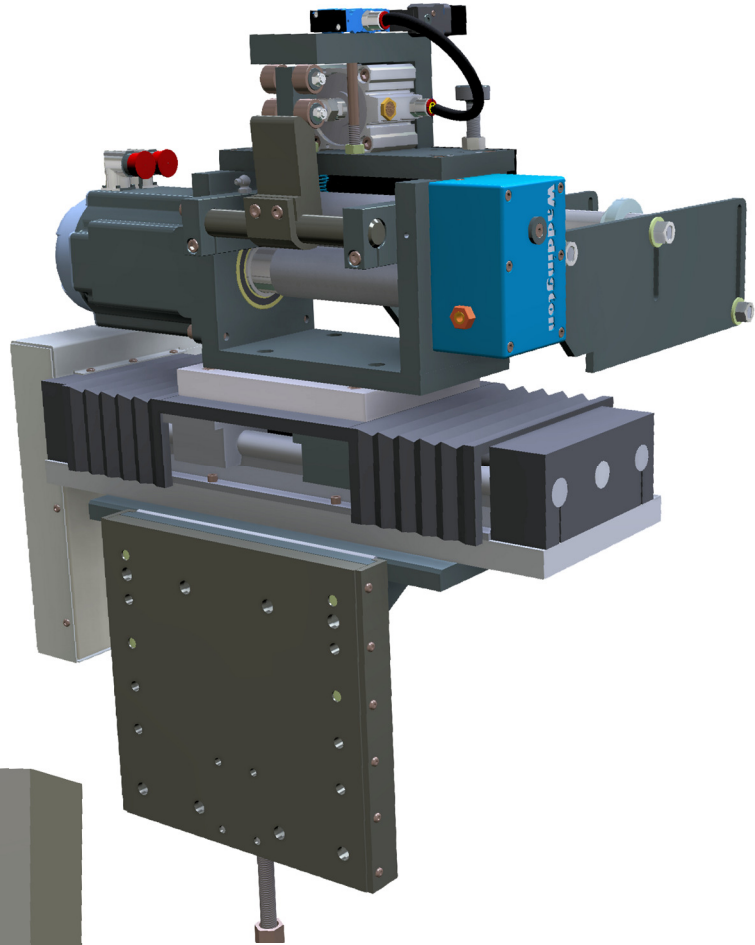
Waddington can design and build a feed for your special application.



## ZigZag and WigWag feeds

### Zig-Zag Feeds

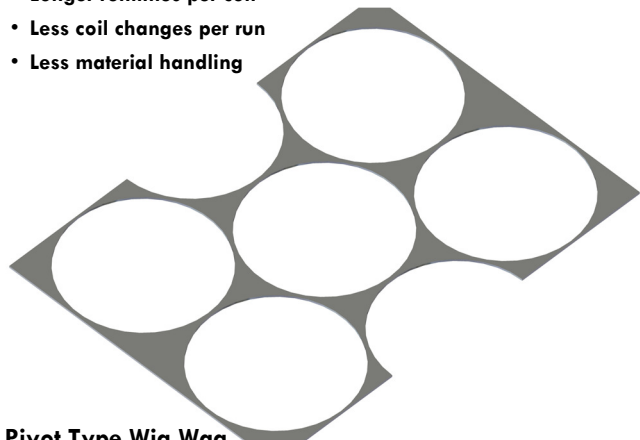
- Optimize material usage
- Available ultra light aircraft aluminum feed body
- Precision linear guide ways
- High speed
- Incredible accuracy
- Programmable lane shifts
- Up to 30 lanes
- Programmable startup over feed amount
- Programmable centerline offset



**Reduce scrap per part by up to 35%**

### PLUS

- Longer runtimes per coil
- Less coil changes per run
- Less material handling



### Pivot Type Wig Wag

Fits Transfer type presses with pivoting feed system  
Up to 30 lanes  
Compact design with direct drive pivot servo.

## ZigZag and WigWag Feeds

### Side Shifter Zig Zag Feed

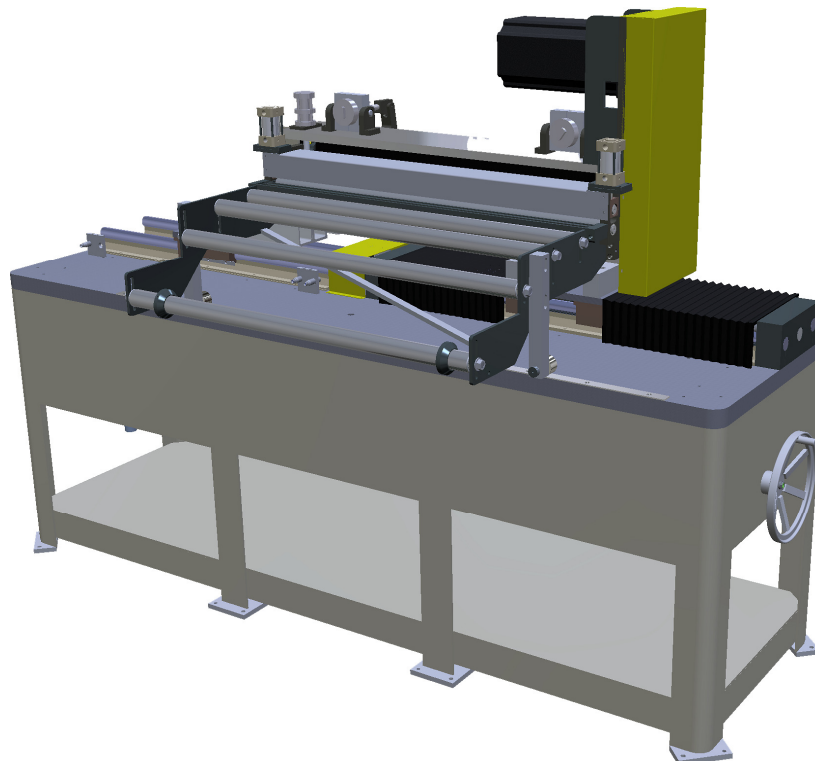
Used on a variety of presses can be used as a 2 up zigzag feed making twice as many parts per press stroke



### 43 Wide Zigzag

30 inches of side shift travel.  
See this feed in action on our web site at:

[www.waddingtonelectronics.com](http://www.waddingtonelectronics.com)



## Push Pull Feeds

### Push Pull Feeds

Used for all types of thin material and stamped webs that need to be pulled thru the die.

Programmable ratio between feeds insuring proper material tension with load meter for tension indication.

All Waddington feeds are available in push pull configuration.

State of the art virtual master technology allows perfect synchronization and regulation of tension and position at very high speeds.

Load meters permit easy adjustment of draw tension allowing you to feed delicate materials and strips without distortion or bagging while the material indexes.

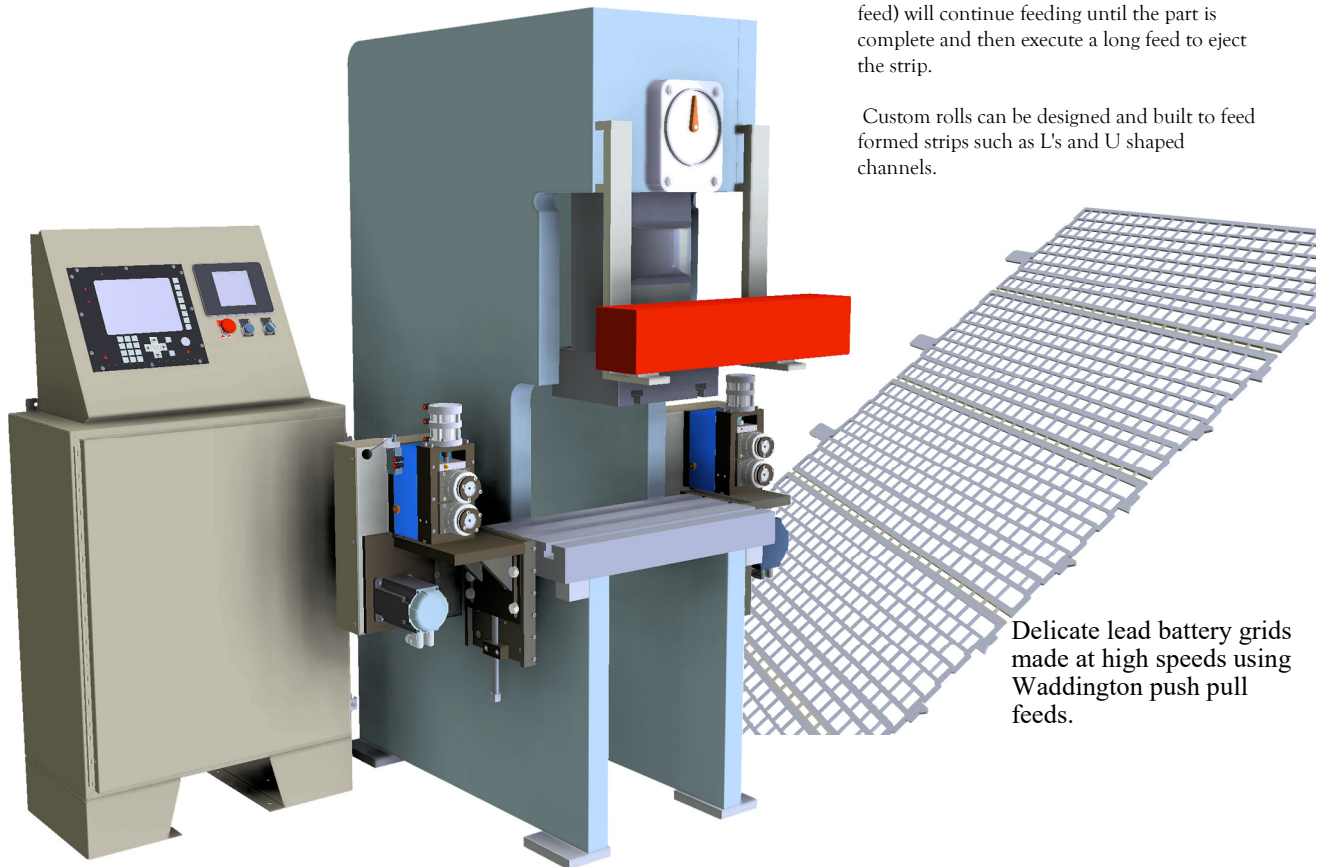
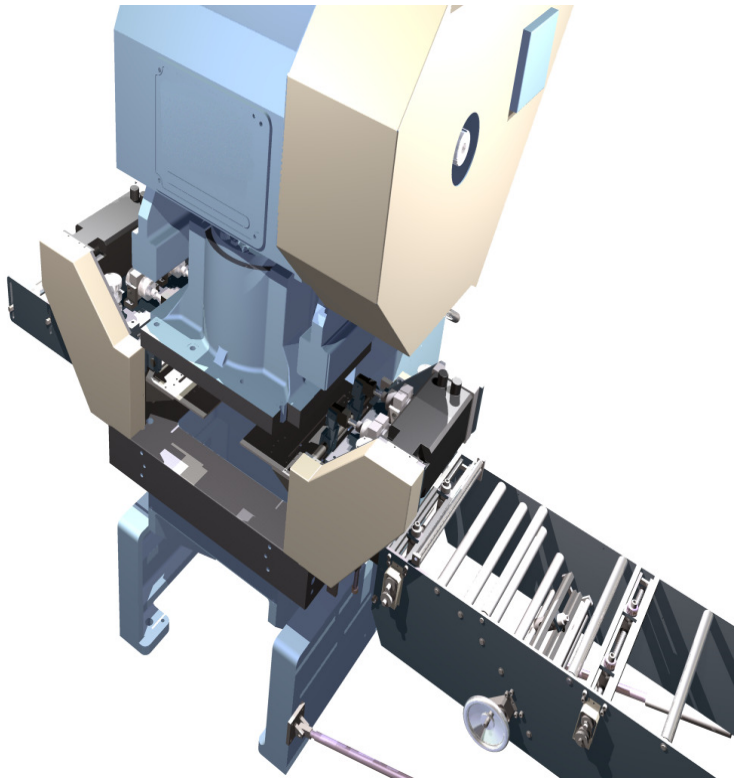
### Cut Strip Feeders

The push pull feed system is configured so an operator can start material between the feed rolls. At the signal of the operator, or a strip loader, the feed rolls will close on material, feed to a sensor, accurately locate the leading edge of the strip, then feed from sensor to first die station.

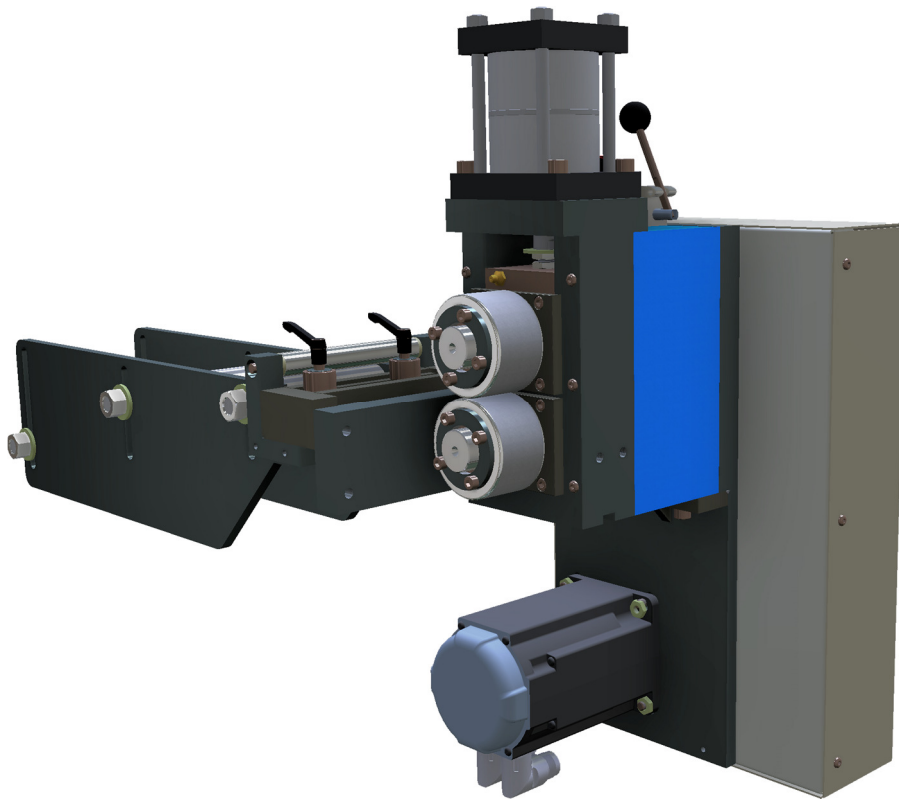
The feed will index the part through the die station until such time as the output feed can takeover.

Additional registration moves can be performed while punching to insure proper registration to pre-printed or pre-punched features. The output feed (pull feed) will continue feeding until the part is complete and then execute a long feed to eject the strip.

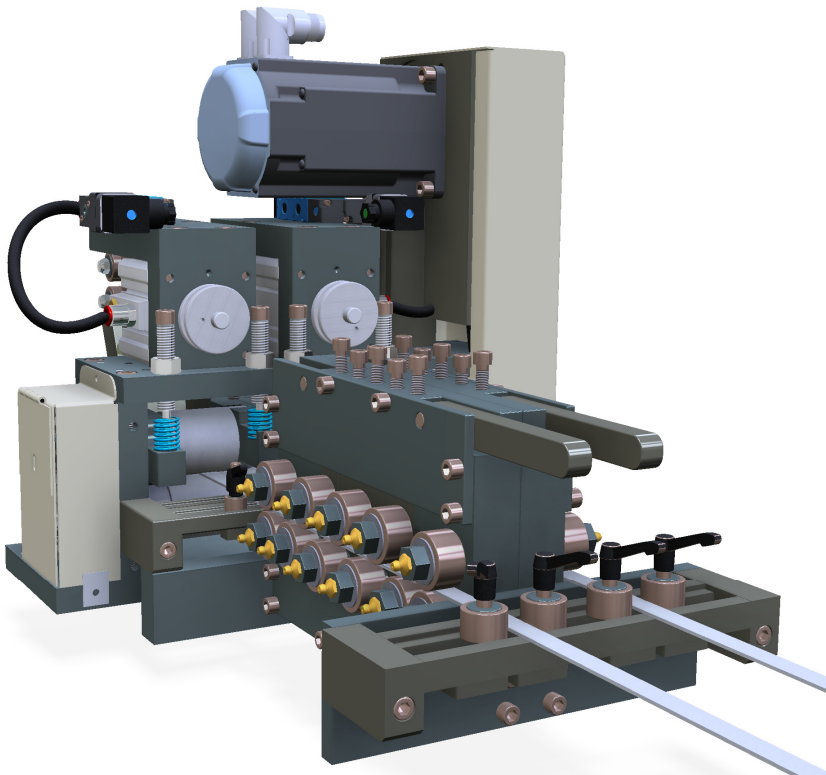
Custom rolls can be designed and built to feed formed strips such as L's and U shaped channels.



Delicate lead battery grids made at high speeds using Waddington push pull feeds.



**Feeds for wire  
flat wire, shapes,  
and edge drives**



**Flat wire and round stock  
straighteners**

With quick release.  
For easy threading without  
loosing the settings.

Dial indicators for fast  
repeatable setups.

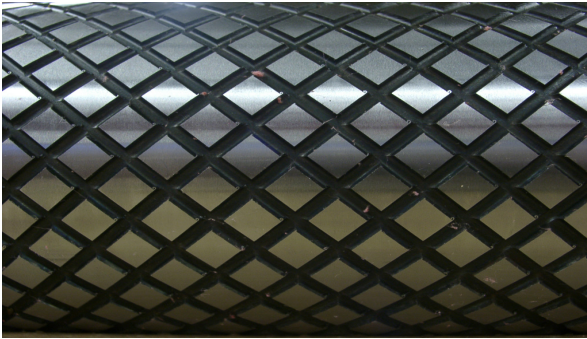
Single or 2 plane

**Round stock, wire and flat wire**  
Feed or transporter / pull roll

Feeds designed just for what your  
feeding.

2, 4 and 6 roll versions.

## Options and accessories



### Special Roll Finishes

- Urethane
- Matte Chrome
- Satin Chrome
- No 5
- Titanium nitride
- Diamond Cut
- Ring Rolls
- Split Ring Rolls
- and more.....

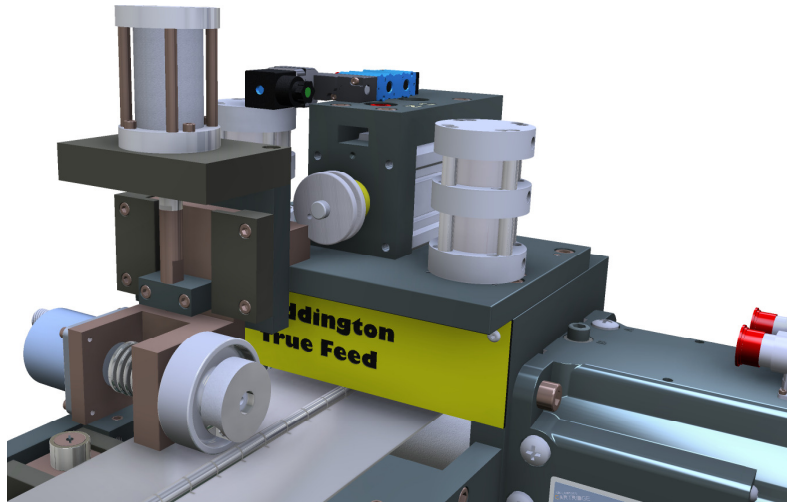


### Split rings with hydraulic mounts

Quick change roll surfaces for the feed that has to run jobs that are not compatible with a one size fits all approach.

If you have strips with raised surfaces, shapes, Bi metallic strips and areas that cant be contacted ring rolls can be quickly and accurately positioned to contact the proper location on the strip.



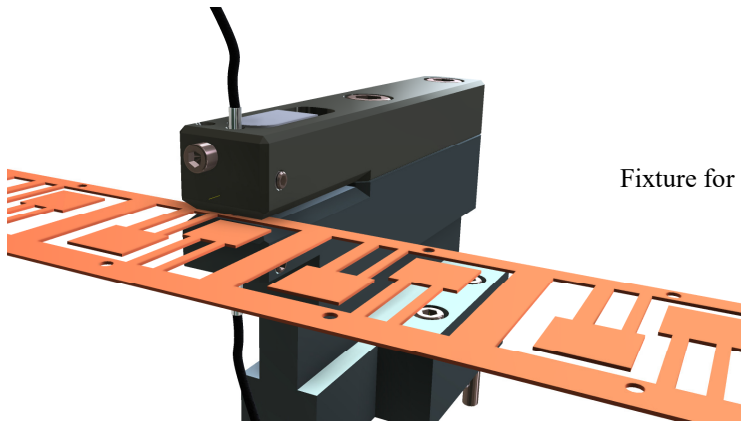


**Length checking and correction**

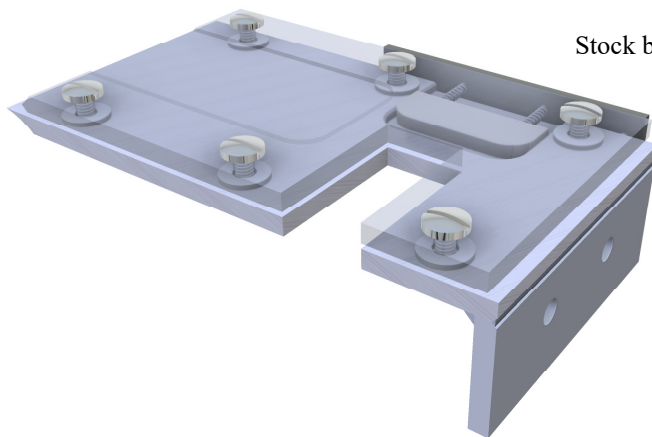
Sometimes feed length needs correction due to improper strip geometry, slippage and rounding errors..

The length checker is designed to check and correct over long parts with many moves.

- 22 bit resolution
- Checks feed and corrects feed length errors.



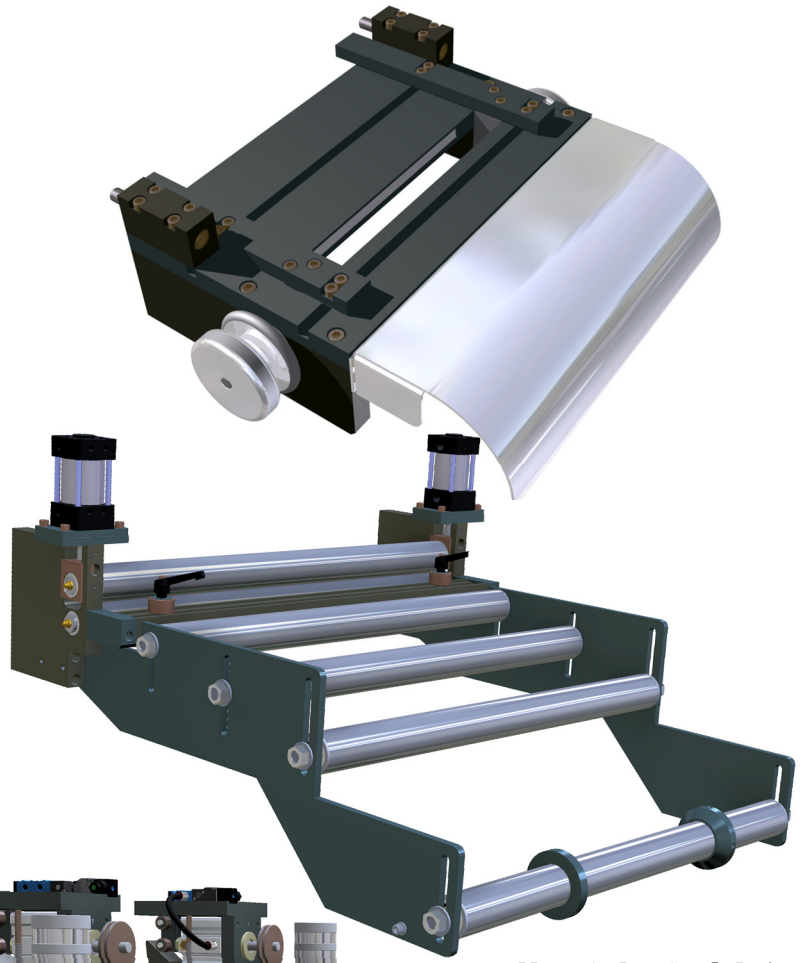
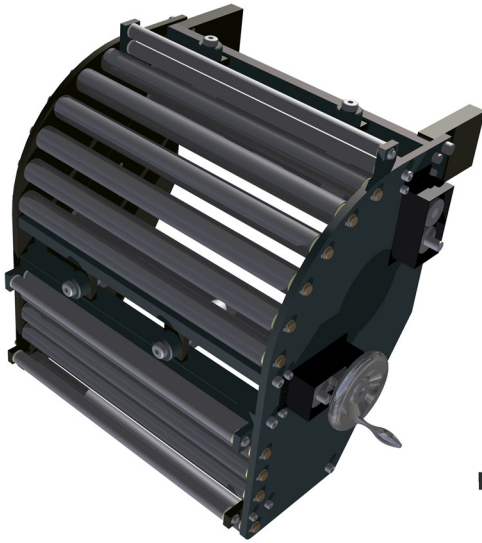
Fixture for fiber optic registration sensor.



Stock bridge for use with registration sensor

**Entry and Exit options**

- Cascade Rolls
- Special Guides
- Stock Bridges
- Anti-Backup rolls
- All designed to suit your application.

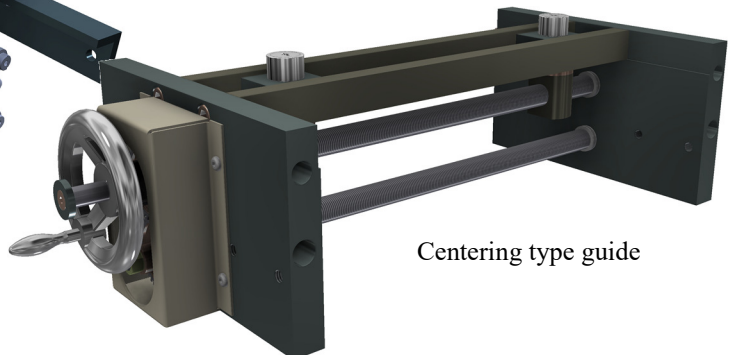
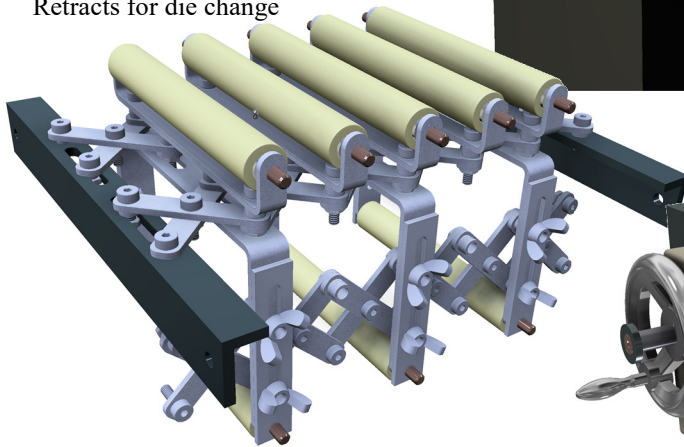
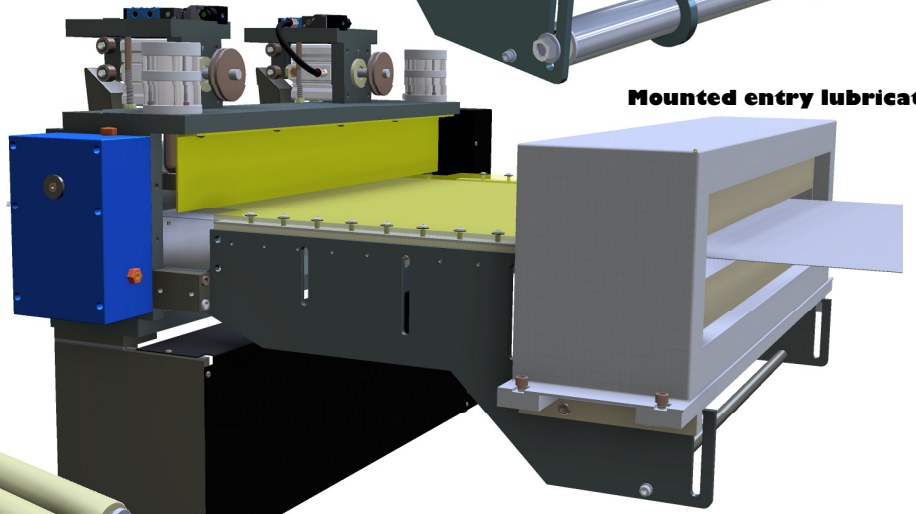


**Mounted entry lubricator**

**Exit stock Bridge**

Prevents stock sagging between the feed and die causing feed length variation.

Retracts for die change



**Centering type guide**

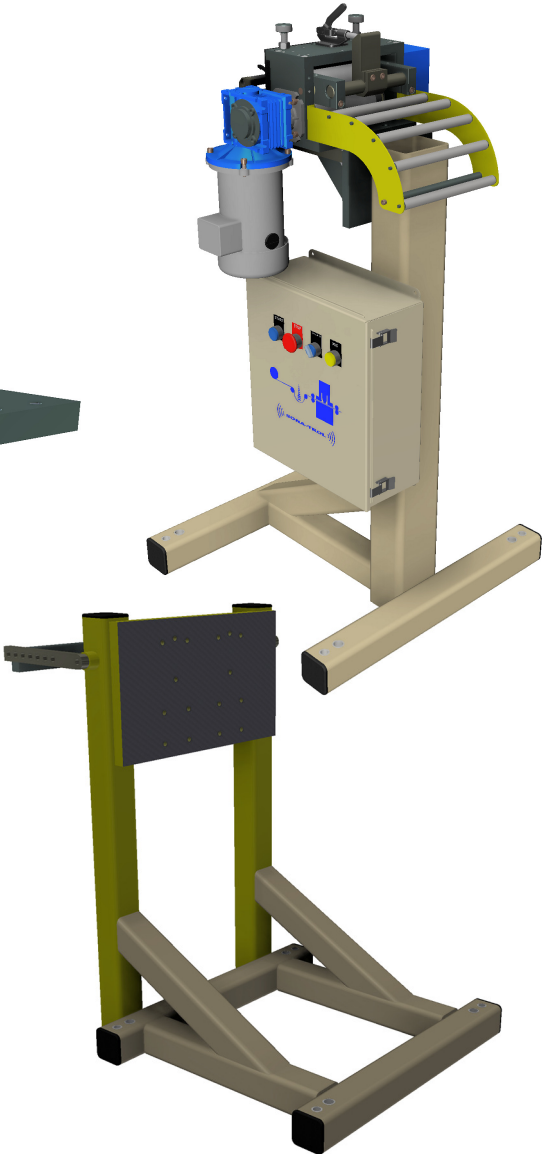
**Pull Rolls**

Can be used to haul material off reels or through non powered straighteners. Pull material through plating lines and heat treat ovens and other processes.

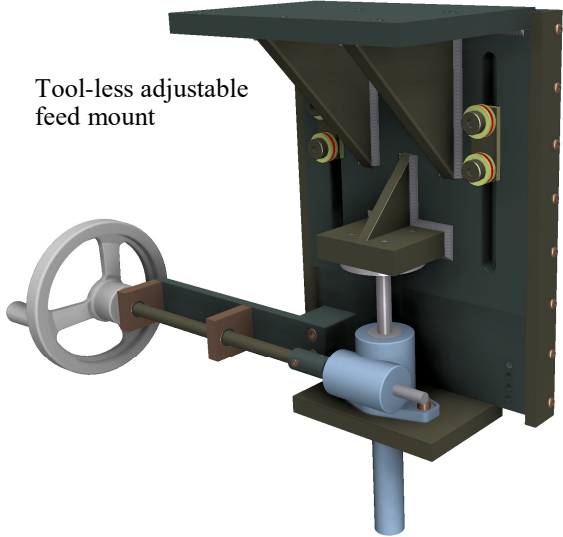
They can be configured with DC motors, AC vector drives and gearboxes to suit your application.



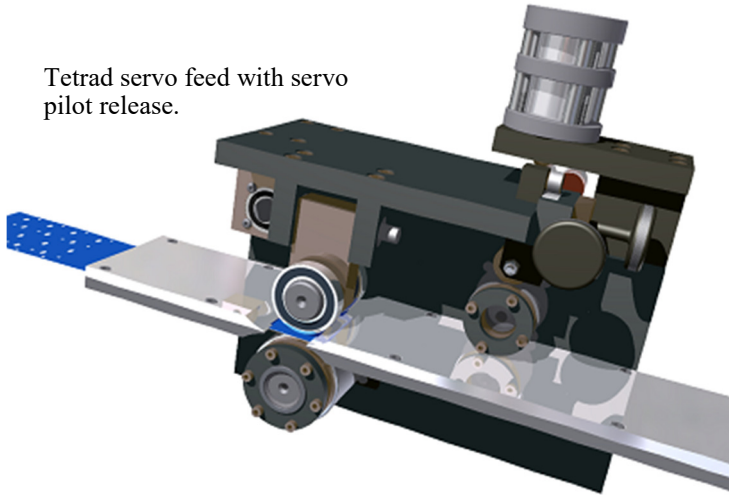
Mounting Brackets  
Feed stands  
Fixed height bases  
Adjustable pass line bases



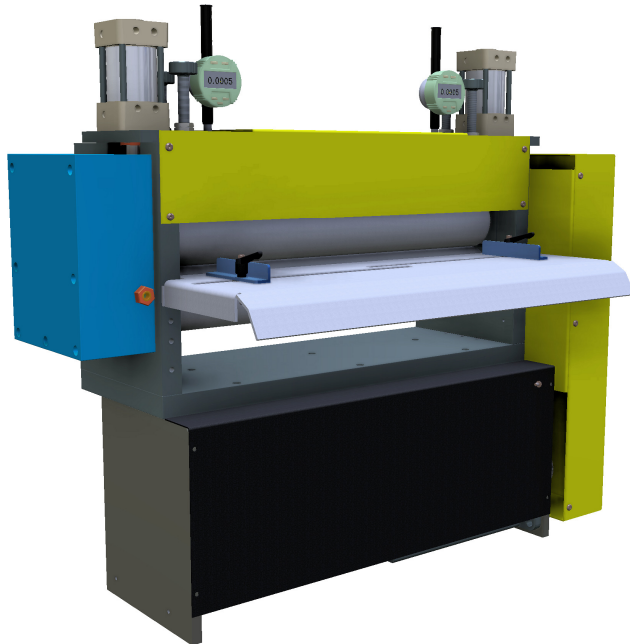
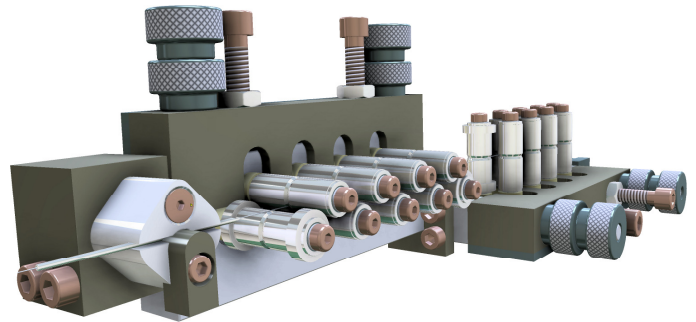
Tool-less adjustable  
feed mount



Tetrad servo feed with servo pilot release.



Micro Straightener  
For wire or flat strip.  
Single or 2 plane.



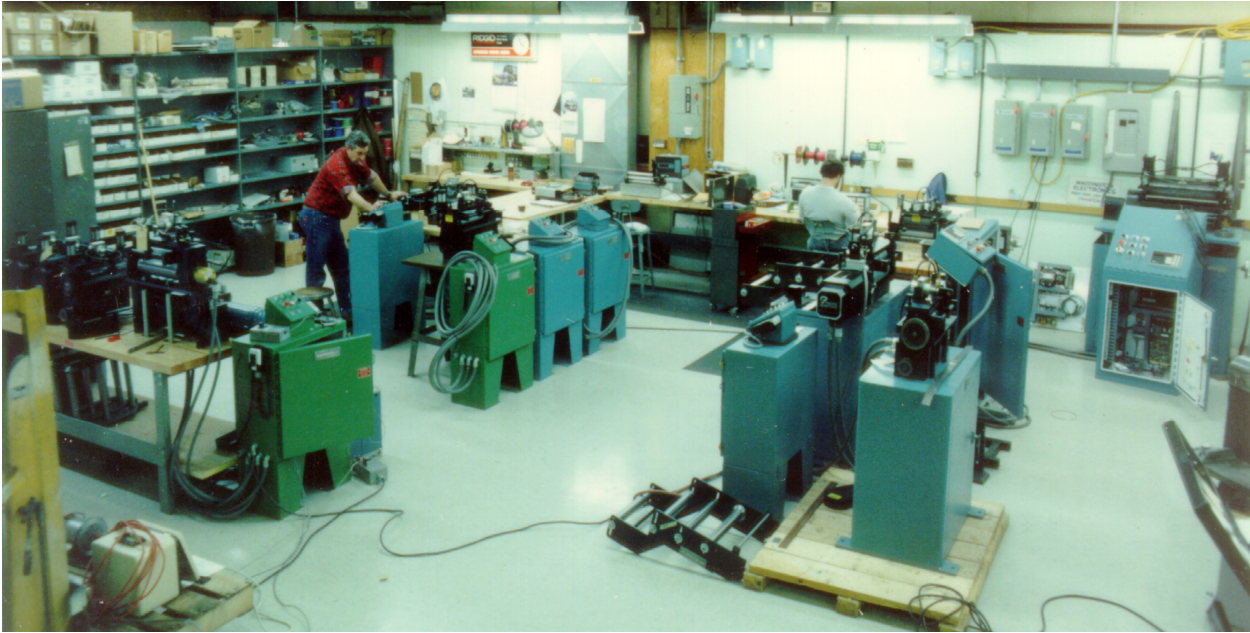
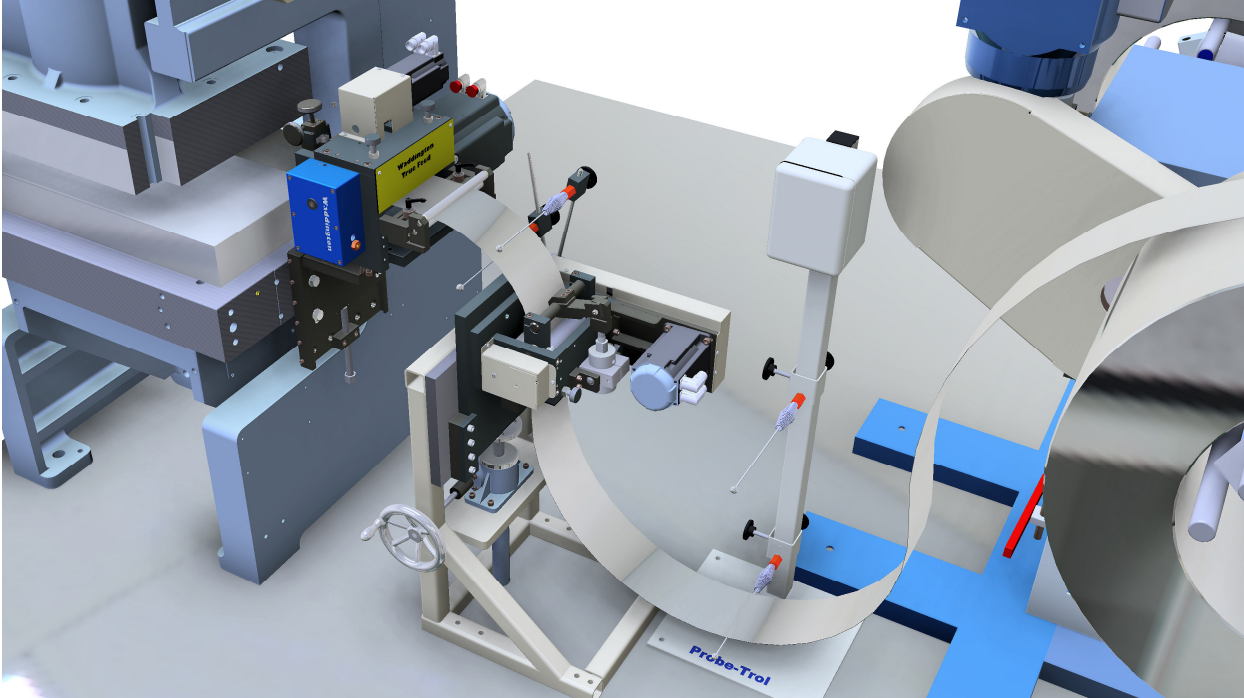
TLF feed for very thick compressible materials.

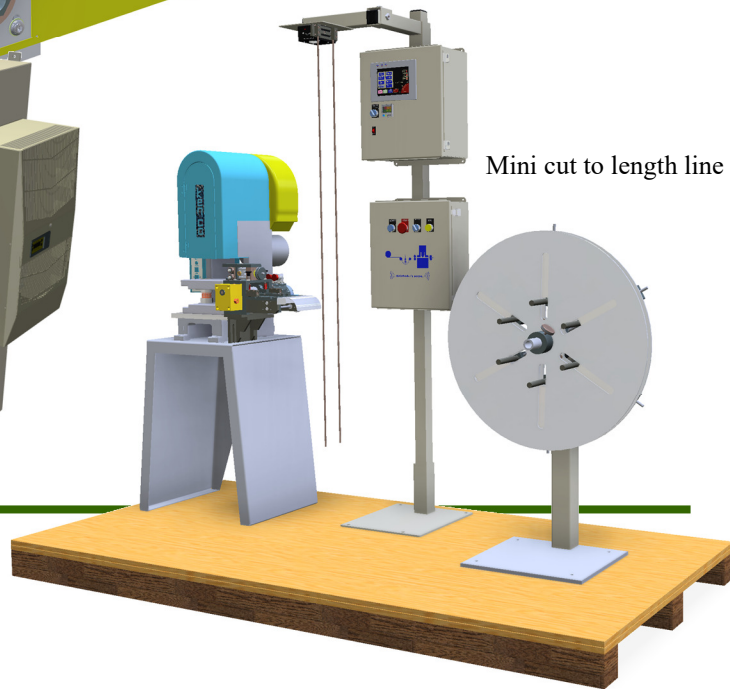
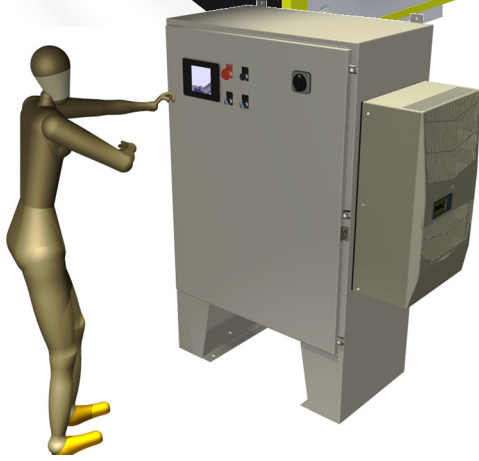
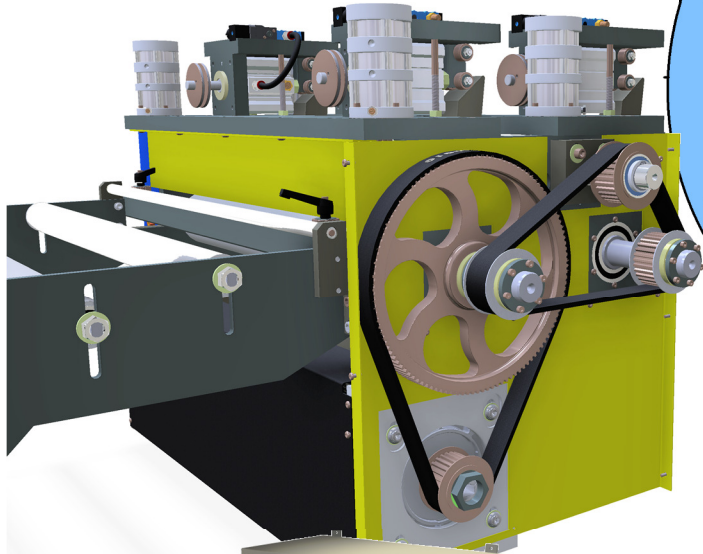
High powered wire feeds.



**Servo Loop**

For high speed feeding where material inertia must be tightly controlled.





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