S320
S320 REELEX Coiling Machine

Introduction

High-performance **Buffer** is suitable for high-performance and sensitive products such as Category 6A and fiber optic cables.

A **Non-Contact Length Counter** is standard and mounted atop the buffer frame.

High-definition **G4 HMI touchscreen** control system features recipe functions, connectivity options, live maintenance, diagnostics and Industry 4.0 features.

New **Bladder-Style Clamp** mounted on the buffer frame offers gentler handling of high-performance cables.

Safety is design priority #1 with features such as integrated safety doors, dual-channel Category 4 safety devices and ISO best-practices design choices.

Maintenance and reliability is improved, resulting from the revision of key parts, including a new lubrication-free traverse, industry-standard AC drives and quick access panels.

Automated safety door is standard, and rotates out of the way to allow the operator in and out of the machine quickly and efficiently.

Quick-Change Mandrel sizes range from 4-inches (10cm) to 10-inches (25.5cm) diameter. Typical machines are equipped with a standard 8-inch (20.3cm) diameter set.

A **Stretch wrap module** may be equipped, which automatically wraps completed coils with plastic stretch film.

The proprietary PCB-based **G4 control system** is mounted inside a cabinet mounted flush with the frame operates on 24Vdc and offers greater reliance on common, readily-available parts.

The S320 is REELEX's next-generation single-spindle REELEX coiling machine featuring a variety of new and upgraded components and state-of-the art industrial design.

Ideal for packaging from a supply reel or other offline source, the S320 uses a single operator to cut the cable and package finished coils.

This machine can produce up to 40 packages per hour at 1,000ft (305m) each, depending on operator skill.

For more information: www.reelex.com/machines/S320

S320

113in
286cm

88in
224cm

76in
193cm
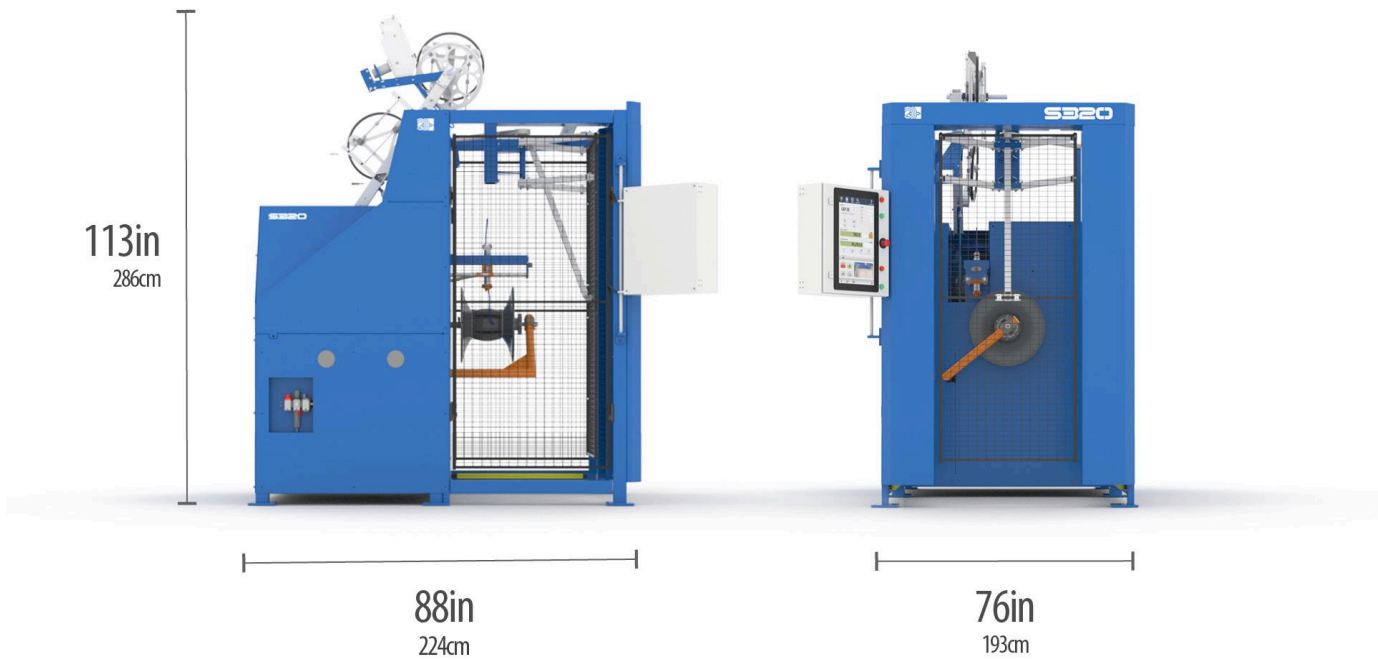
Why the S320 over other models?

Offline Only

The S320 is ideally suited for rewind-line packaging from a motorized payoff.

A high-performance payoff should be used to maximize the output of the S320 and should be capable of quickly accelerating and decelerating a full supply reel.

Flexibility

The S320 can quickly and easily change product types and mandrel sizes.

If you run a wide variety of product sizes, the S320 can change setups within minutes. The S320 is typically used to package products from 0.10in (2.5mm) to 0.35in (9mm) OD.

Simplicity

Reliable and dependable, the S320 is designed for long life and minimal maintenance.

Easily capable of producing a 1,000ft (305m) package every 60-80 seconds, the S320 is well-suited to a packaging line with a single operator.

What you should know before you choose the S320:

If you are sequentially printing the length on the cable...	Know that while the S320 can receive a print signal from the printer and stop the machine, it will be up to the operator to visually inspect the cable and make the cut. The S320 does not automatically cut the cable, while the dual-spindle M340 does.
The S320 must come to a stop between coils.	The S320 must come to a complete stop while the operator cuts the cable, removes the product and starts the machine again. This time between coils typically takes 30 seconds. The M340 (dual-spindle machine) automatically cuts and transfers between spindles, making it higher output and a better fit for packaging in line with an extruder.
The S320 supports Industry 4.0 and IIoT.	The new G4 control system allows the user to network the machine and retrieve a wide variety of data via Modbus. The S320 will also soon be able to transmit data to REELEX via cellular connection*, enabling remote troubleshooting and health monitoring without the need for an on-site visit.

*Available at a later date via upgrade

S320 Model Features

REELEX G4 Control System

- High-definition 21-inch touchscreen blends off-the-shelf hardware with unique custom software allowing the integration of equipment control with troubleshooting, on-screen manual, packaging calculator, multi-language support, product storage, networking capability and much more.

- Recipe-based product selection.

- On-screen real-time graphical representation of switches and valves.

- Networking capability is included allowing Modbus metrics and real-time data to be downloaded remotely.

Winding Module PCB

- The "REELEX brain" Winding Module controls all machine functions related to coil formation.

- Single PCB simplifies servicing.

- Offers significant improvements to reliability and serviceability.
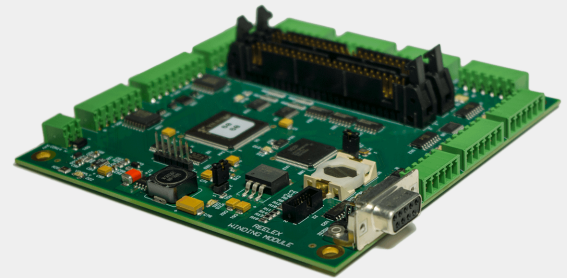
24VDC Electronics

- Greatly simplified controls, valves and switches operate at 24v, increasing safety and easing troubleshooting.

- Many issues can be diagnosed without ever having to open the cabinet, as motor performance, valve and switch positions and equipment setup are all easily visualized on the HMI.

Off-the-Shelf Components

- Increased use of readily-available components ensures minimal downtime or supply disruptions.

- The only REELEX-specific electrical component is now the Winding Module.

- Spindle and traverse motors are now AC, using industry-standard drives (currently Siemens, with others to be validated soon), thus minimizing supply constraint risks.

Advanced Safety Features

- Automated safety door opens without operator intervention to allow access to the machine.

- Conforms to CE / European safety standards.

- Dual-channel Category 4 safety devices. Designed with ISO-standards.

- Includes safety PLC and programming to drop power and air to the machine unless the door is closed.

- Improves ergonomics by eliminating the need for the operator to press multiple buttons. Machine automatically raises the endform and starts winding when the operator presses the start button.


Digital Air Regulator

- Allows HMI to control line tension by digitally altering pressure on the dancer sheaves.

- Allows for the two-stage tension control program, offering significant improvements to twisted-pair LAN cable electrical performance.

- Recipe controlled, allowing each product to have individual setups.
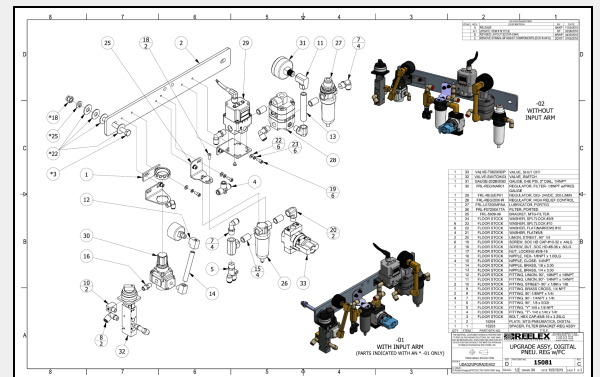
Self-Centering Endform Bearing

- Elimination of a major wearing component improves machine uptime and reduces maintenance costs.
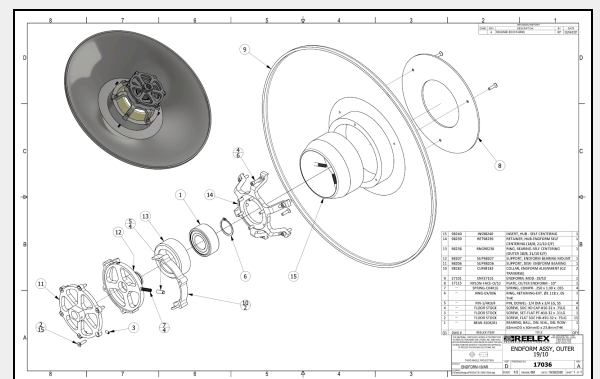
Improved Anti-Reverse Clamp

- Air bladder clamp gently and evenly squeezes the cable when the machine is stopped.

- Improves handling of high-performance twisted-pair cables by eliminating unnecessary bends.
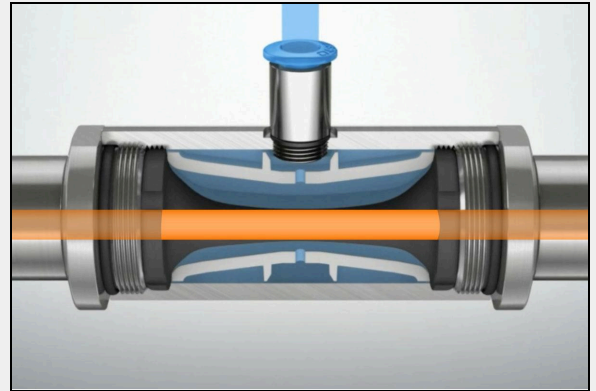
Non-Contact Length Counter

- Laser length counter by Proton Products is standard on all REELEX equipment.

- The InteliSENS® SLmini-i4 W Series non-contact speed and length measurement gauge has a wide angle lens making it ideal for the measurement of wire and cable.

- Customer configurable[†], full-quadrature output for use with an external printer eliminates errors between machine and printer.

  [†]Proton Configuration software required (available free of charge).


New Winding Algorithm*

- Next-generation winding algorithm automatically calculates coil parameters as the coil builds. Eliminates hole slant adjustment and accurately calculates coil diameter in real time.

- Distance between layers in coil and payout hole is precisely managed throughout the coil allowing for higher precision. This provides consistent crossover spacing with no radical changes from layer to layer.

- Improved spacing and hole management allows for greater opportunities for coil and package size reduction.

- Managed density and hole size based on actual coil diameter so that changes in tension are compensated for.

  [*]Available as a free software upgrade at a later date.

COIL LENGTH vs COIL DIAMETER
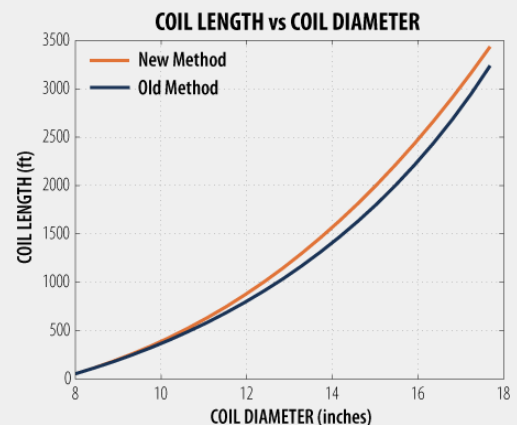
Lubrication-Free Traverse

- Unique bearings and improved traverse design eliminates the need for oil lubrication, reducing preventative maintenance needs, and prolonging mechanical life

- Unique guide tube mount allows for horizontal or vertical input.
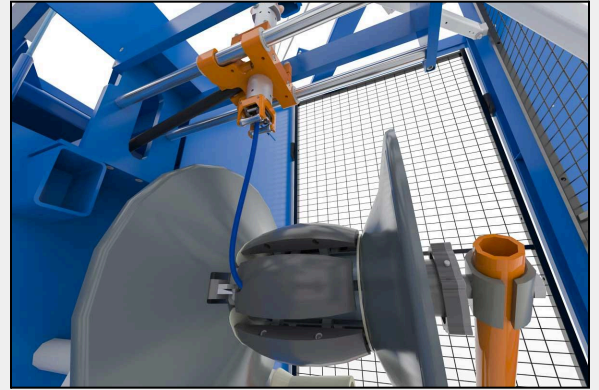
Precision Wire Guide

- Adjustable rollers offer improved guidance of the product when coiling.

- Spring-loaded components offer a cushioning effect on the cable, offering gentler handling of high-performance data cables.

- New design has demonstrated measurable performance improvements to twisted-pair cables such as Cat 6A

Quick-Change Mandrels

- Allows mandrels and endforms to be changed in less than a minute.

- Switch between small and large product ODs without multiple tools.

Additional Features

- Quick-release panels for easy serviceability.

- Control cabinet is inset within the frame for easy machine hookup, faster maintenance and improved mobility.

- Remote connectivity to be added at a later date.

Specifications

Capabilities

Typical Production Rate: 30-40 coils per hour (1,000ft/305m each). Depends on operator skill.

Maximum Spindle RPM: 750RPM

Average Line Speed: 650 ft/min (200 m/min)

Number of Spindles: 1

Online Capable: No

Operators Required: 1 Full Time

Components

Buffer: Includes 15" high-performance rim sheaves suitable for use with high-performance twisted-pair cables such as Category 6 and up. Pull handle makes moving the buffer into the string up position quick and easy.

G4 Control System: Control Cabinet mounted to the frame includes "Winding Module" PCB-based control system, I/O, power supply and "off-the-shelf" drives. All controls are 24Vdc.

Operator Interface is a high-definition 21-inch touchscreen HMI featuring on-screen help, product recipe storage, REELEX packaging calculator, maintenance functions, machine setup, multilingual options and more. Combination of soft and hard buttons allow for easy to implement upgrades and adaptations. Networking capability allows Modbus data to be transmitted and analyzed, supporting real-time machine metrics.

Motors: One 3 HP (2.2 kW) AC, 1,750 RPM spindle motor and one 2 HP (1.5 kW) AC, 1,750 RPM traverse motor. Motors are controlled by industry standard drives. At the time of this proposal, equipment is supplied with Siemens drives. Additional brands are being evaluated.

Anti-Reverse Clamp: Air bladder style wire clamp automatically prevents wire from moving when the machine is stopped. Eliminates deformation of the cable by clamping the cable via soft, high-grip bladder.

Length Counter: Non-contact length counter included. Scalar adjustable on HMI.

Mandrel and Endform Set: Machine to be supplied with one mandrel set to be determined at time of order. Standard size is 8-inch mandrel paired with 18-inch endforms. This setup is typically for most LAN cable packaging. 6-inch and 10-inch diameter mandrel sets are optional and should be specified at time of order. Mandrel kits equipped with quick-change features allowing fast changeover between setups.

Coil Parameter Adjustments: Next-generation winding algorithm features a wide variety of coil parameters including payout hole size and shape adjustment, coil wind density, tension and much more. Wind pattern is calculated in real time, and offers myriad improvements to coil formation and density. Parameters are saved to recipes in HMI and are called up simply by pressing the touchscreen.

Color: Equipment is painted Sky Blue (RAL 5015)

Safety: Physical safety barrier prevents operator access when running. Door automatically opens to allow the operator to remove the coil. Dual-channel Category 4 safety devices in place to control hazardous energy sources and prevent unexpected startup. All REELEX machines are designed from the ground-up using ISO best practices and conform to CE requirements.

Electrical Requirements

230 v (+/- 10%), 3 phase, 40 amps, 50/60 Hz.

Optional Transformer

If the above power supply is unavailable, REELEX can supply a transformer, or one can be purchased locally.

Air Requirements

70 psi (5 bar) minimum (Must be clean and dry).

Fittings: ½" NPT (or 15mm).