

## ***MAGPOWR TENSION CONTROL SOLUTIONS***

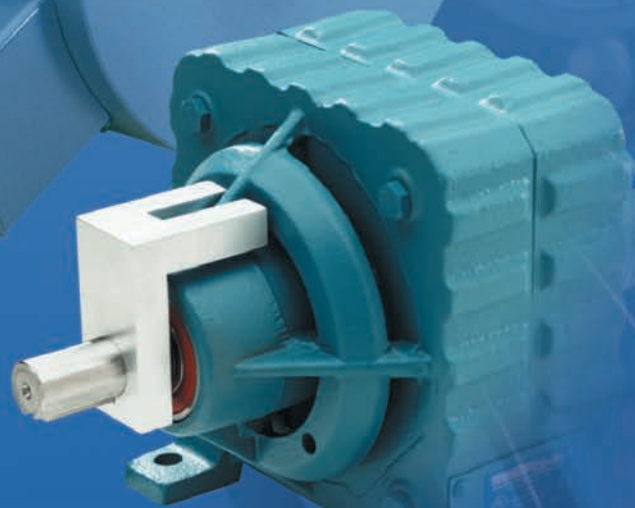
Advanced Web Tension and Torque Control Technologies



# Load Cells & Readouts



## Pneumatic Brakes



## Magnetic Particle Clutches & Brakes



## Tension Controls



## Permanent Magnet Clutches & Brakes



High quality and efficiency are the goals of every web production line, and proper control of tension and torque are critical in achieving the results you require. MAGPOWR's range of tension control products and accessories are designed to help you reach those goals, whether your operation runs paper, film, foil or wire.

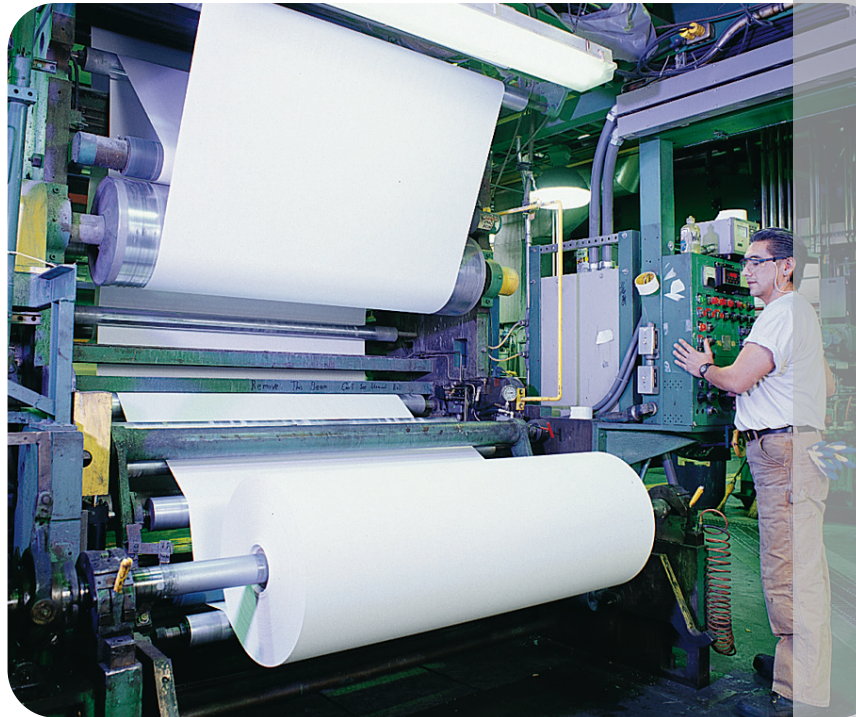
### Industry-Preferred Control

The industry has overwhelmingly chosen MAGPOWR's tension control systems as the preferred brand, with the most systems installed worldwide. With more than 40 years of providing high-quality tension control solutions, MAGPOWR has the first-hand experience and flexibility required to configure the right system to fit the needs of your application.

With a broad range of products including tension controls, readouts, load cells, brakes and clutches, MAGPOWR can match your line requirements to the proper solution, from the simplest to the most advanced.

### Leading Technology & Expertise

Knowledgeable support and impeccable service are the hallmark of MAGPOWR's role as the industry leader. That service begins with the internal sales staff



and continues far beyond installation. Factory-trained in various service disciplines, including applications analysis, design and engineering, MAGPOWR's service team is dedicated to providing solutions specifically designed for your applications.

MAGPOWR also offers the most comprehensive array of accessories and periphery equipment in the industry, thanks to its partner companies of RotoMetrics (Rotary Die Tooling and Support), Fife (Guiding & Inspection), Tidland (Slitting & Winding), Webex (Precision Rolls), Valley Roller (Rubber Covered Rolls), and Componex (Precision Rolls). Combined, the Maxcess companies provide a global reach, with operations in the Americas, Asia, Europe, and Australia.



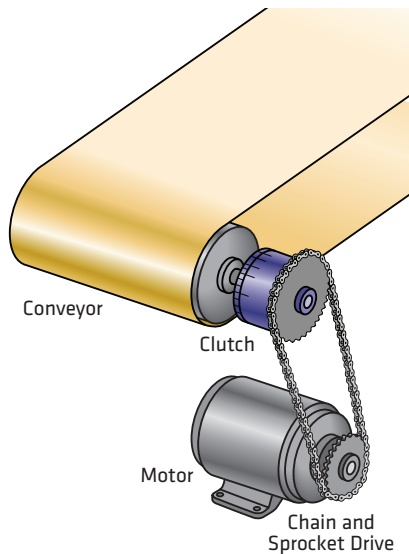
MAGPOWR clutches and brakes are available in three types; Hysteresis, Magnetic Particle and Pneumatic. Magnetic Particle and Hysteresis units simplify tension control by providing constant torque independent of slip speed. Hysteresis units are popular in light tensioning and torque applications such as these:

### As a tensioner

By using one of the Perma-Tork assemblies, you can accurately control tension. The hysteresis unit is best suited for tensioning on unwind stands and nip rolls.

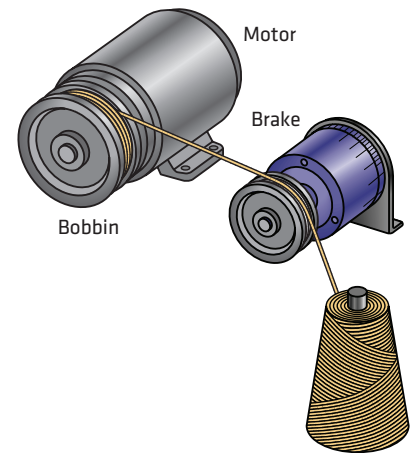
### As a torque limiting device

The power-free, maintenance-free Perma-Tork design is particularly suitable for protecting all drive train, winding or unwinding components. It not only provides overload and jam load protection, but there are no complicated electrical feedback systems or mechanical wearing parts to break down or require maintenance. The only wearing parts are the bearings themselves, and nothing but the highest quality ball bearings are used.



### Material Handling

Hysteresis clutch can provide overload protection and soft start



### Coil Winding

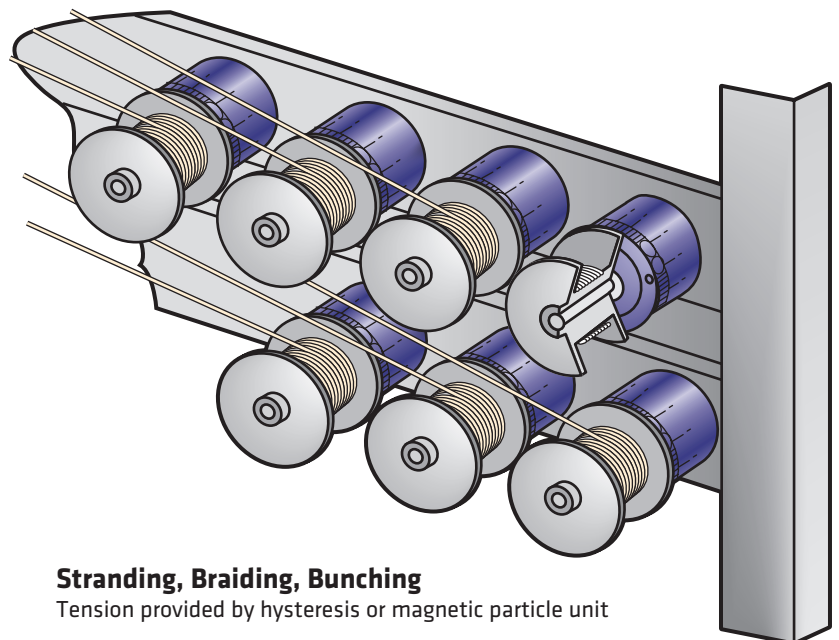
Constant tension provided by hysteresis or magnetic particle unit

### As a magnetic coupling

Perma-Tork clutches guarantee a soft transfer of power between prime mover and load at start-up. In this application, Perma-Tork behaves similar to a fluid coupling, but locks in at zero slip once torque is reached.

### Testing

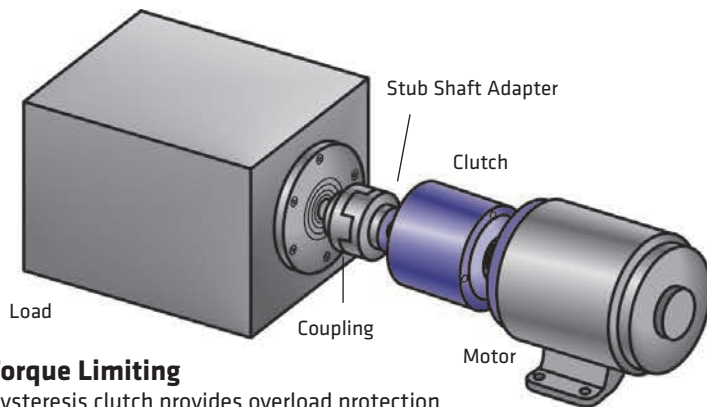
Perma-Tork hysteresis units provide a constant slip torque unaffected by wear, humidity or "stick-slip." This makes it an ideal device for many testing applications. The torque can be precisely adjusted (even at low speeds). Torque will not fluctuate over extremely long testing periods.



### Stranding, Braiding, Bunching

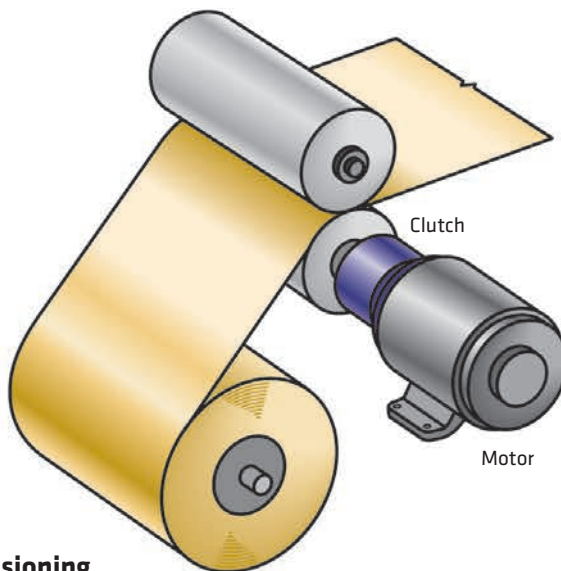
Tension provided by hysteresis or magnetic particle unit





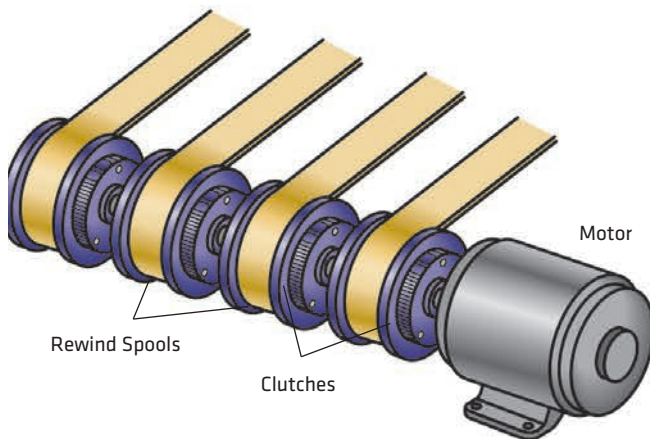
### Torque Limiting

Hysteresis clutch provides overload protection



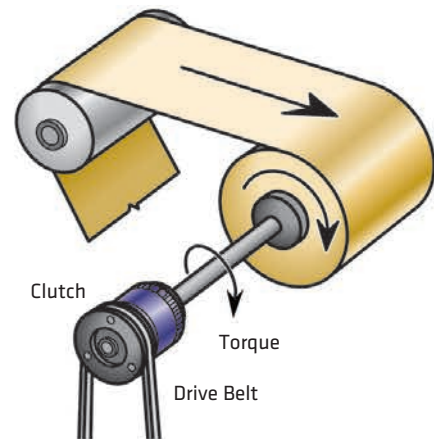
### Film Tensioning

Constant tensioning provided by hysteresis clutch



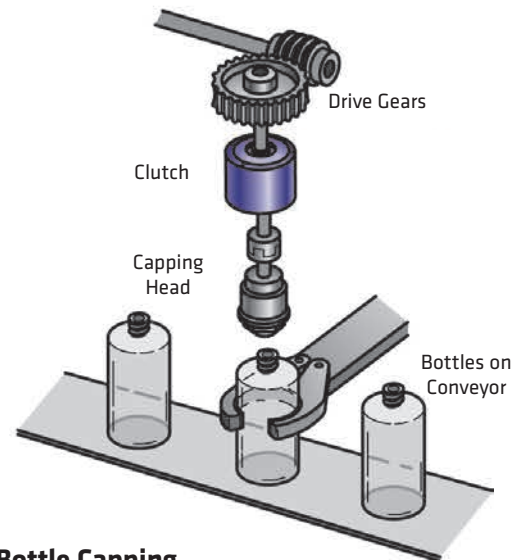
### Teflon Tape Slitter

Hysteresis clutches on tape rewinds providing taper tension



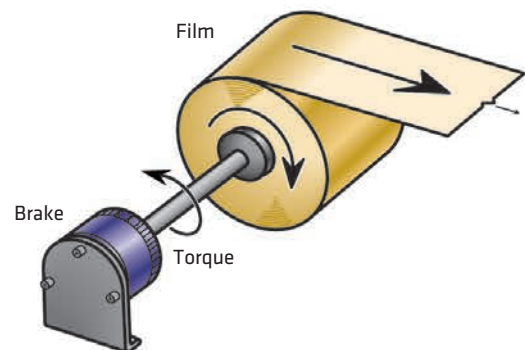
### Web Tensioning

Hysteresis clutch on a web rewind providing a taper tension



### Bottle Capping

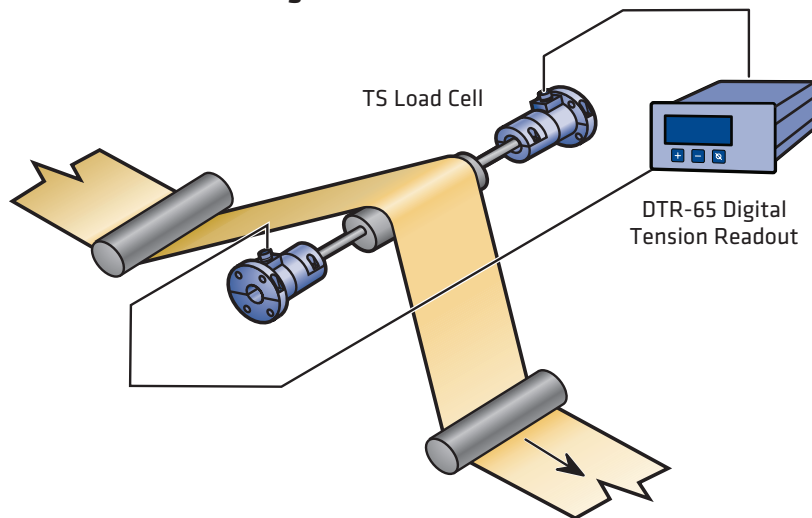
Constant torque provided by a hysteresis clutch



### Film Unwind

Tension provided by a hysteresis or magnetic particle unit

### Tension Monitoring and Readout



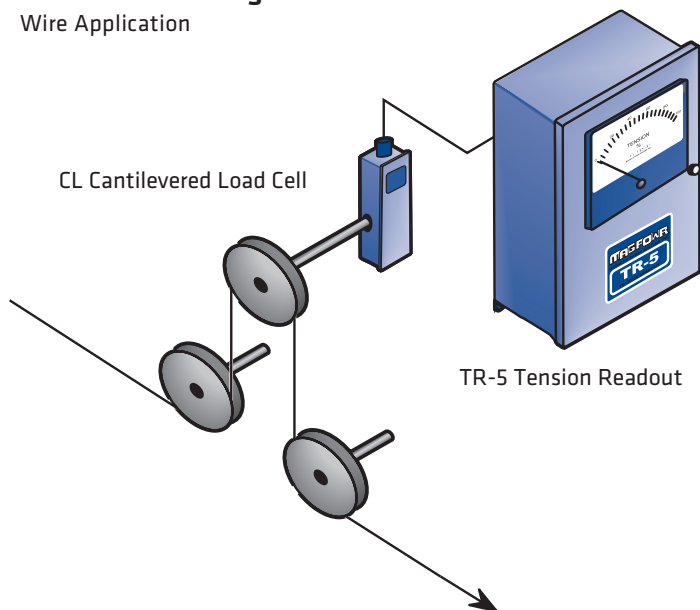
### Tension Monitoring

MAGPOWR has a broad range of tension control products designed to deliver precise readouts every time. These products can be easily combined to create the ideal tension monitoring solution for your application.

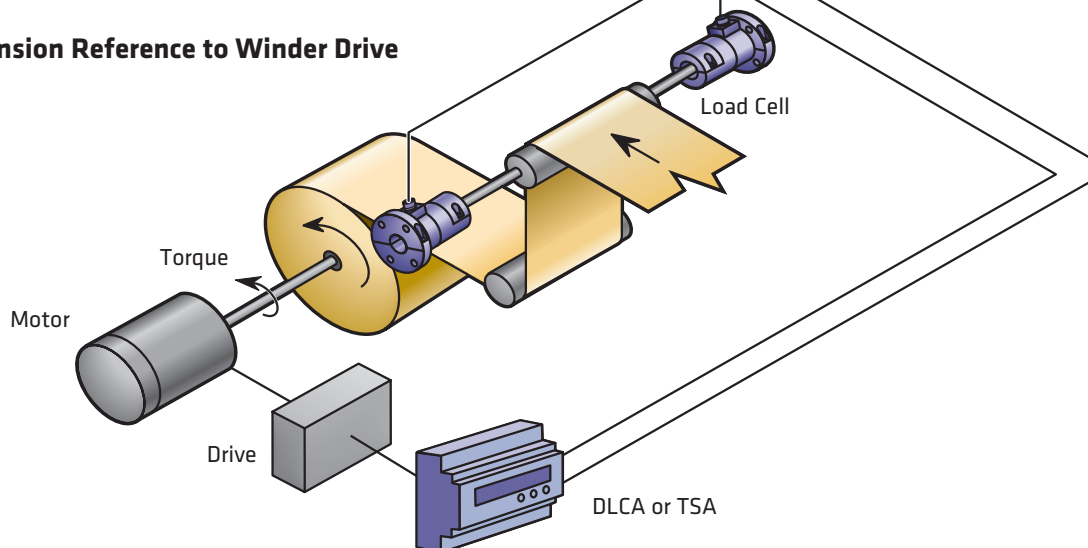
- Analog and Digital displays available
- Amplifiers available to send a 0 to 10 VDC or 4 to 20 mADC signal to a PLC or motor drive
- Available mounting options: DIN Rail (CE), Wall Mount, Panel Mount

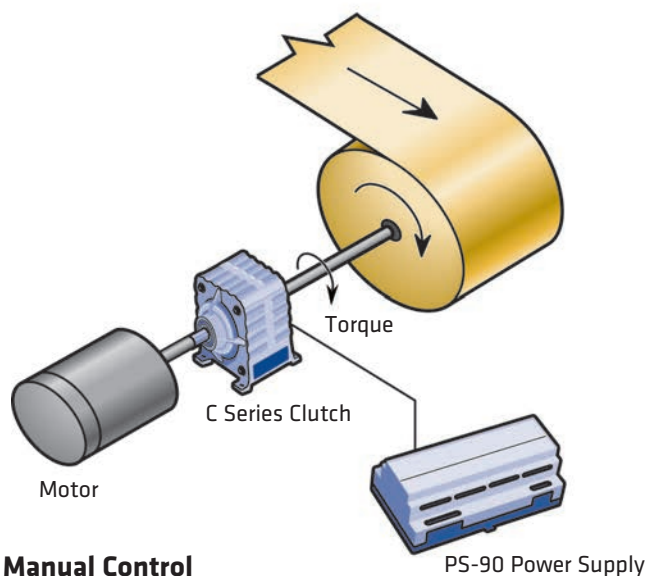
### Tension Monitoring and Readout

Wire Application



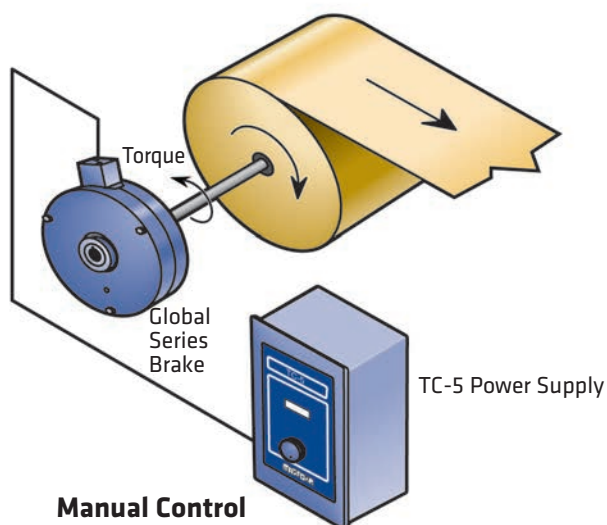
### Tension Reference to Winder Drive





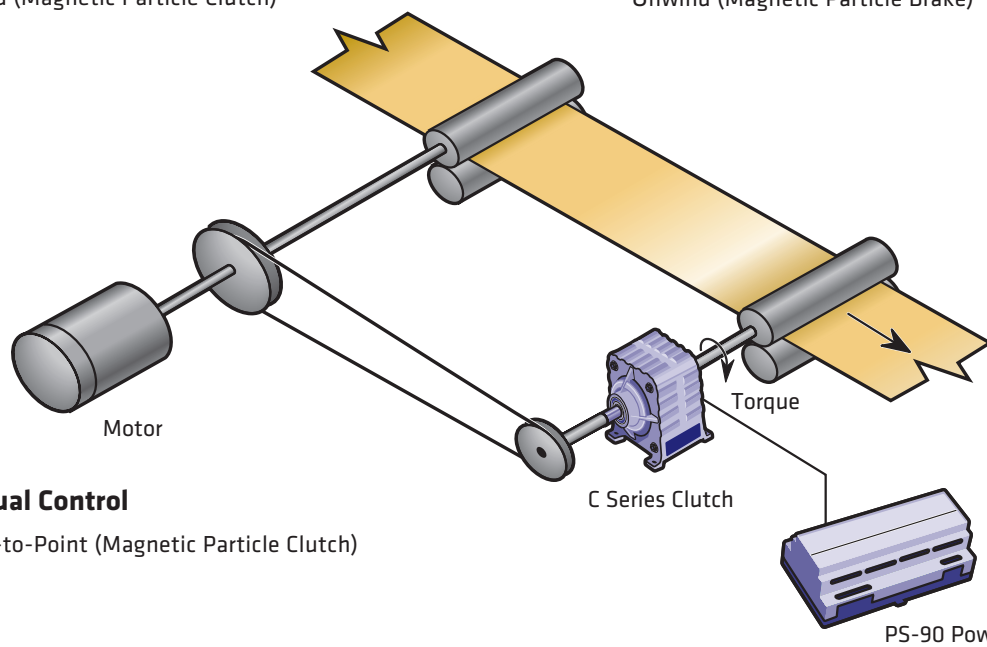
### Manual Control

Rewind (Magnetic Particle Clutch)



### Manual Control

Unwind (Magnetic Particle Brake)



### Manual Control

Point-to-Point (Magnetic Particle Clutch)

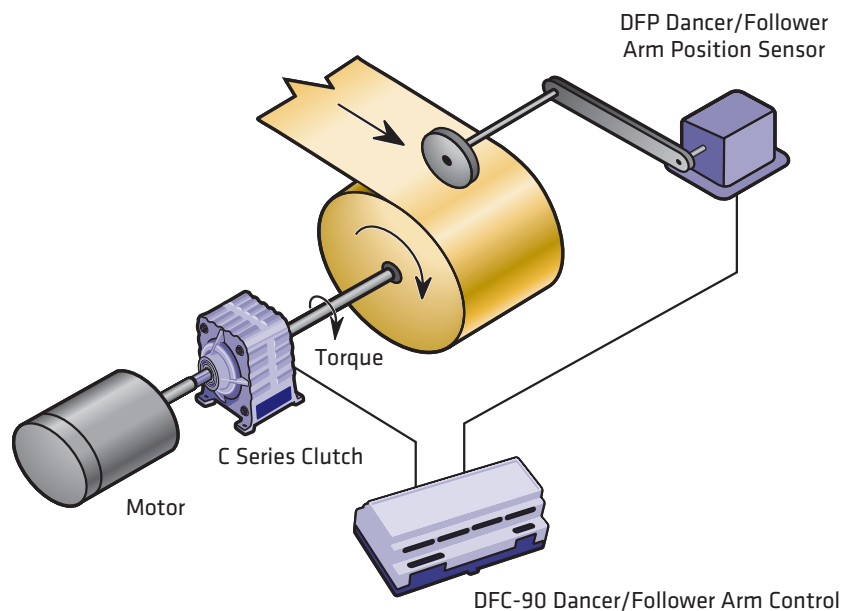
### Manual Control

MAGPOWR Manual Tension Control systems are a low-cost solution for Rewind, Point-to-Point and certain Unwind Applications. Our manual power supplies allow you to overcome residual magnetism and use the full range of your magnetic particle brake or clutch with their unique reverse current feature. These systems are ideal for (1) Rewind Applications where natural taper is needed, (2) Point-to-Point Applications where roll build does not change and (3) Unwinds where material can withstand small changes in tension from roll to core.

- Manual power supplies are current regulated so output will not change as the clutch or brake coil rises from ambient to operating temperature
- 90 VDC and 24 VDC power supplies are available with jumper selectable current ratings to match the correct magnetic particle device for your application
- Available mounting options: DIN Rail (CE), Wall Mount or Panel Mount

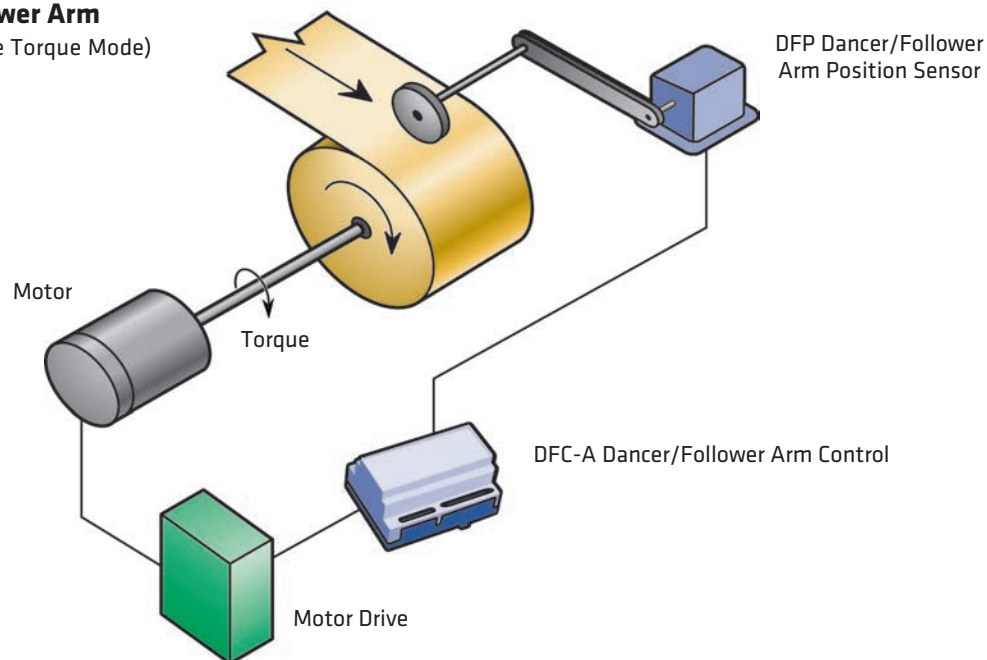
### Open Loop Follower Arm

Rewind or



### Open Loop Follower Arm

Rewind (Motor Drive Torque Mode)



### Open Loop Follower Arm

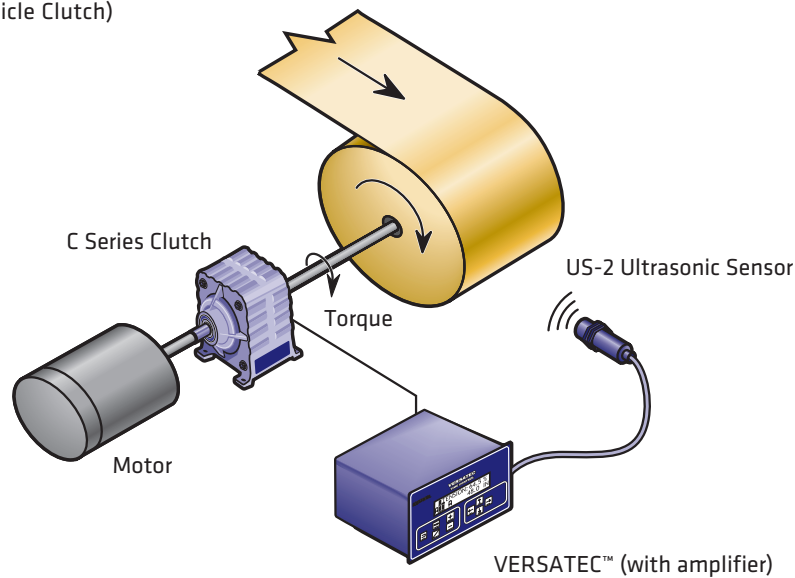
These easy-to-install systems provide tension control based on changing roll diameter.

- Available control outputs: 0 to 10 VDC, 4 to 20 mADC, and 90 VDC
- Available mounting options: DIN Rail (CE), Printed Circuit Board



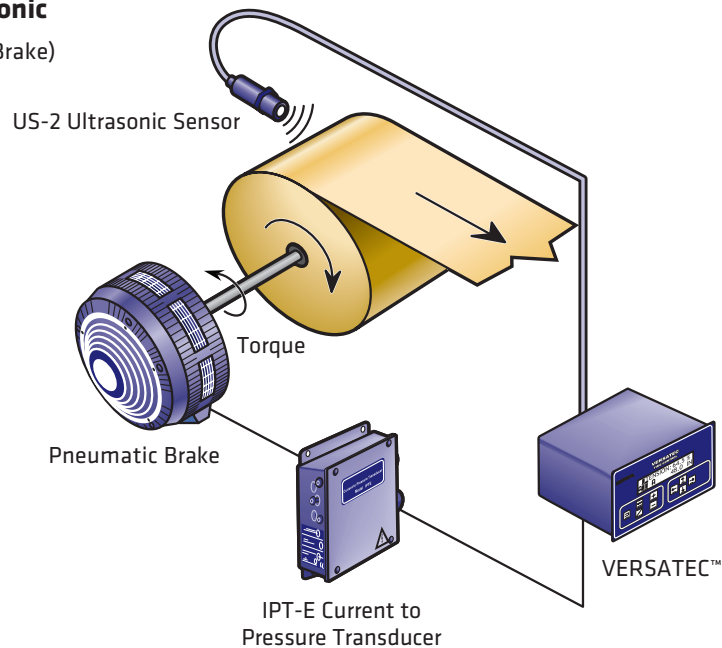
### Open Loop Ultrasonic

Rewind (Magnetic Particle Clutch)



### Open Loop Ultrasonic

Unwind (Pneumatic Brake)



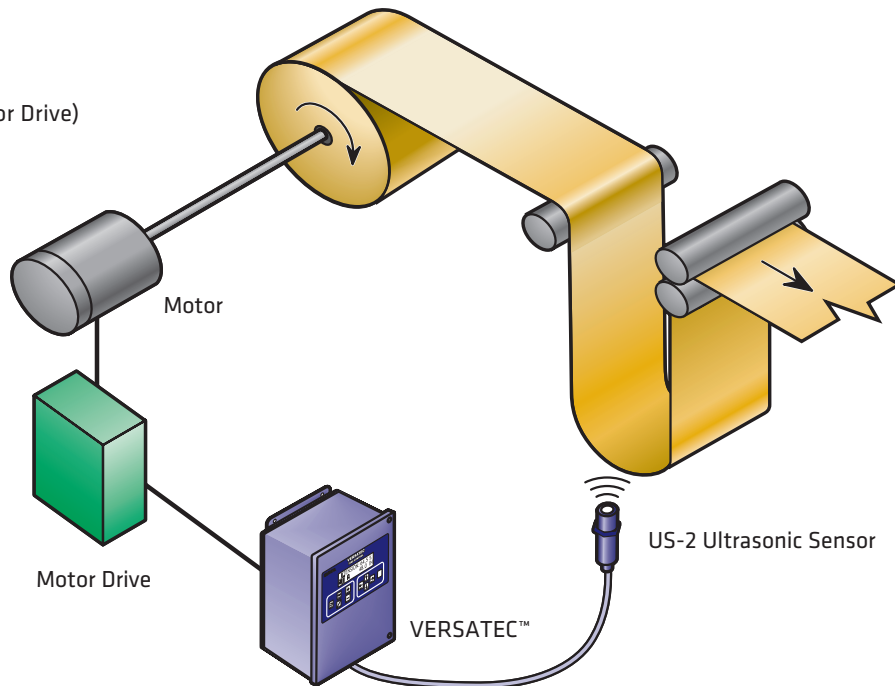
### Open Loop Ultrasonic

These systems are accurate, simple to engineer and easy to install. Tension control is based upon changing roll diameter, with no physical contact made to your web.

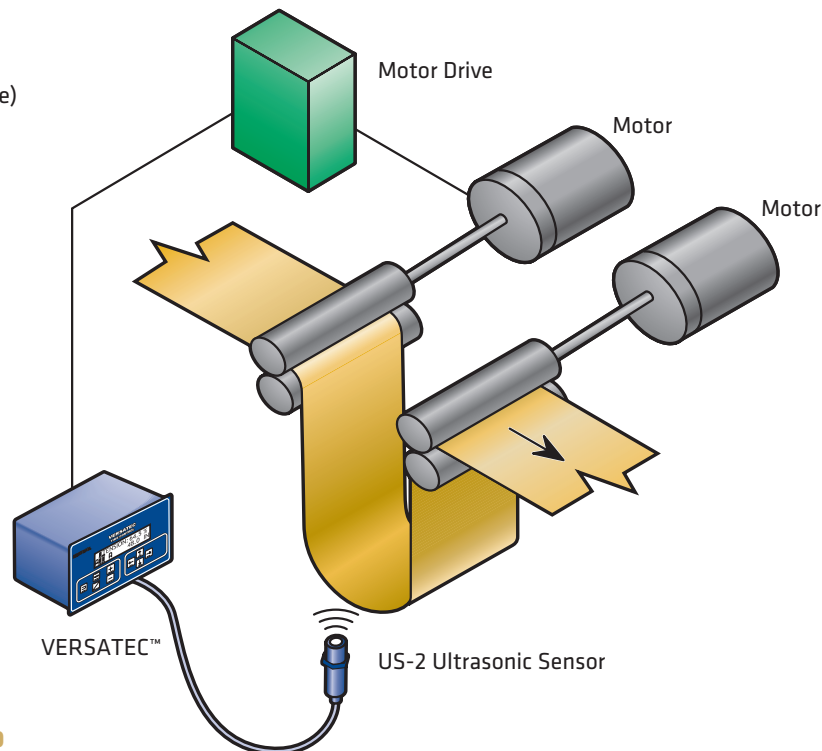
- Adjustable Taper Tension for Rewinds also available
- Inverse Diameter Output available to slow rewind motor as roll builds, decreasing slip heat in clutches
- Available control outputs: 0 to 10 VDC 4 to 20 mADC, -10 to 10 VDC, 90 VDC and 24 VDC
- Available mounting options: Wall Mount (CE), DIN Enclosure Mount (CE)

**Closed Loop Control**

Free Loop Unwind (Motor Drive)

**Ultrasonic Free Loop**

Point-to-Point (Motor Drive)

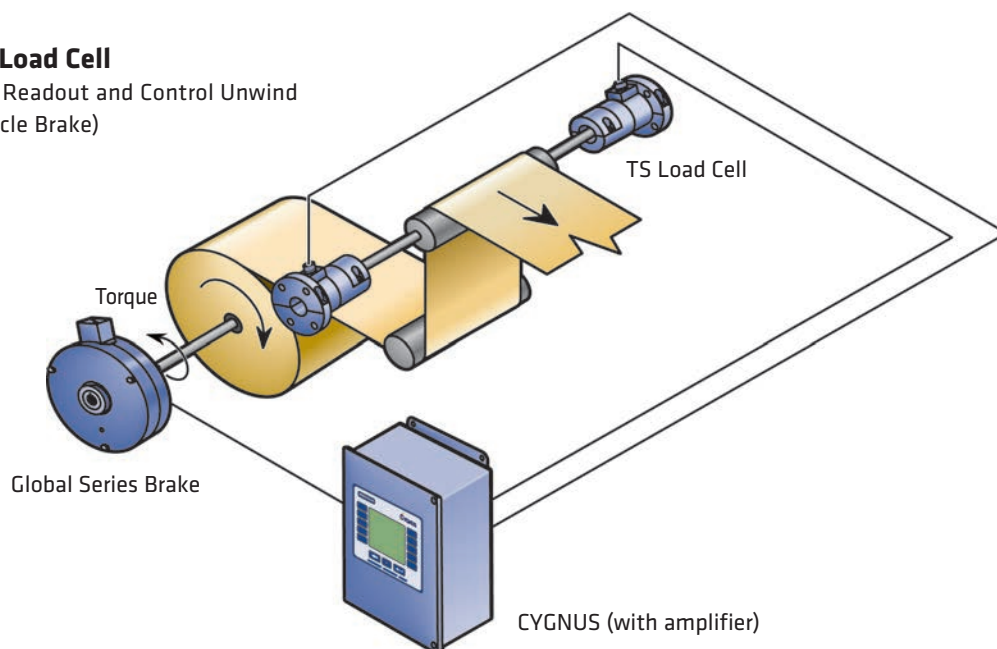
**Ultrasonic Free Loop**

These simple to engineer systems provide a low-cost solution for speed control on applications where the weight of the web is enough to provide tension.

- For applications where the weight of the material provides adequate tension
- Ideal for start/stop applications or if unwind rolls are out-of-round
- Provides control through loop position feedback
- Mounting options: Enclosure Mount (CE), DIN Panel Mount (CE)
- Available outputs: 0 to 10 VDC, 4 to 20 mADC, -10 to 10 VDC

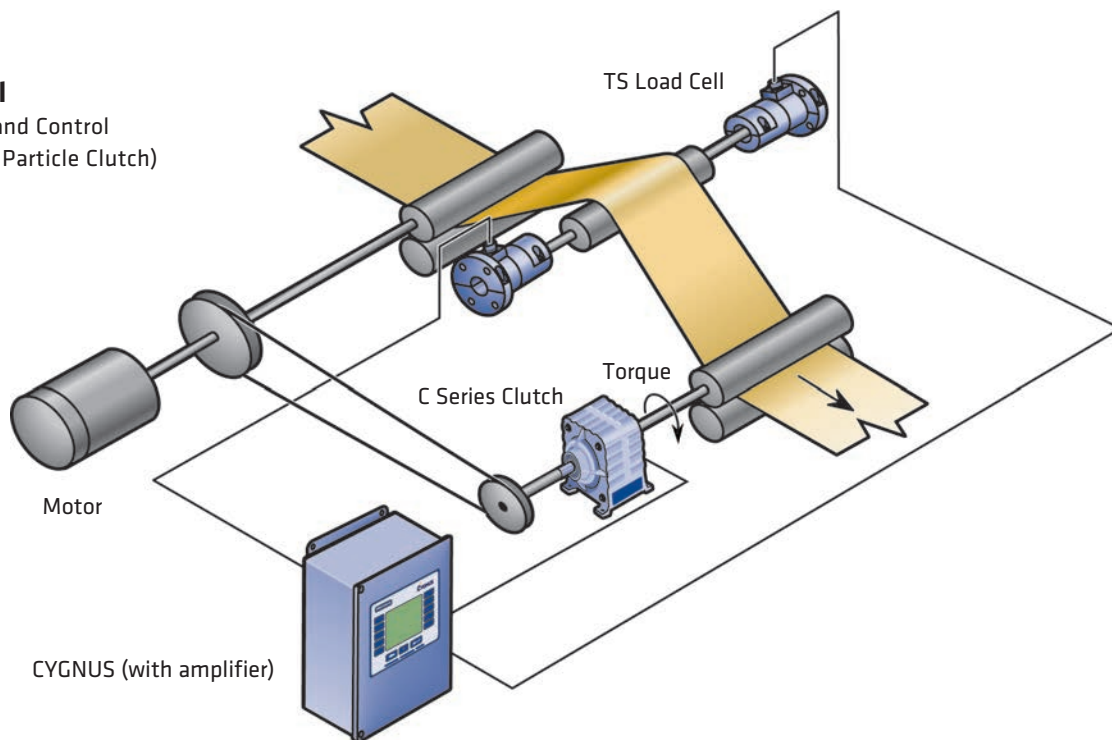
### Closed Loop Load Cell

Digital Tension Readout and Control Unwind  
(Magnetic Particle Brake)



### Closed Loop Load Cell

Digital Tension Readout and Control  
Point-to-Point (Magnetic Particle Clutch)



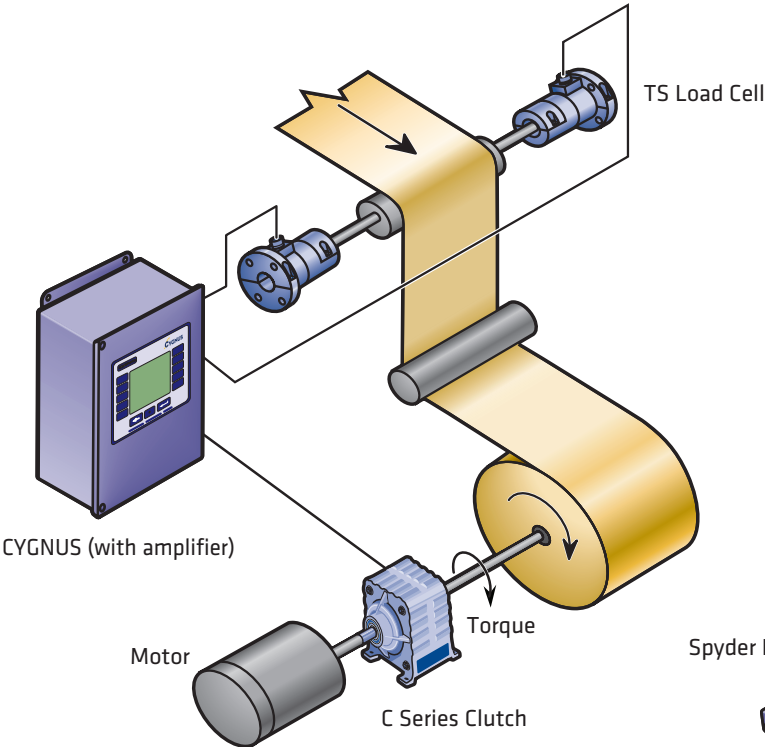
### Closed Loop Load Cell

Designed to provide “actual” tension feedback, these product combinations will ensure you get the most accurate method of tension control available.

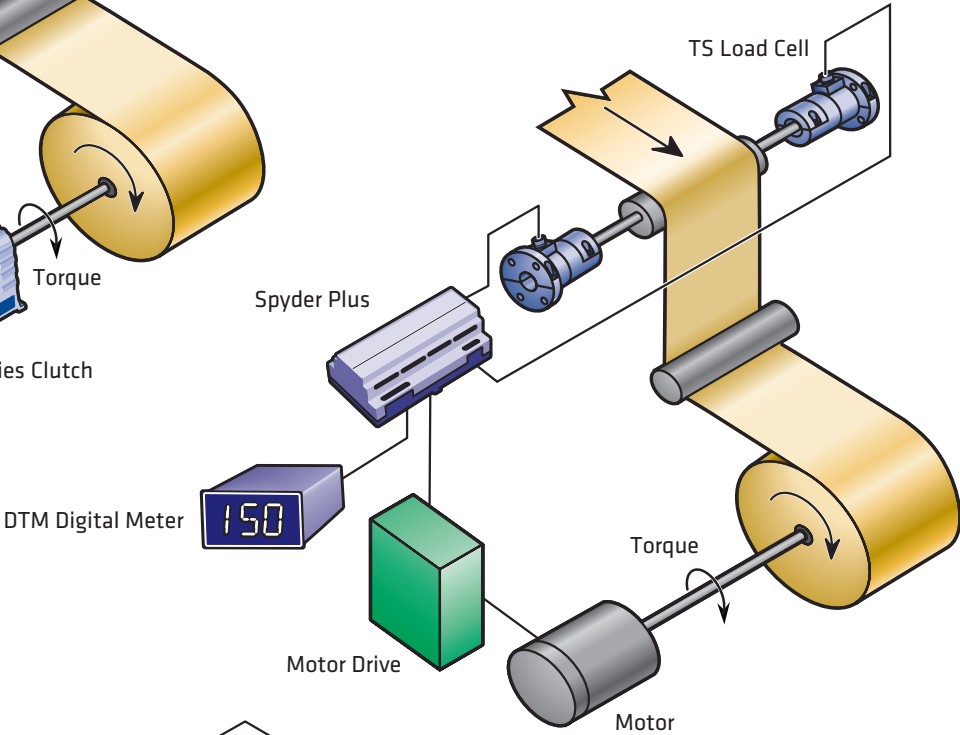
- Adjustable taper tension for rewinds standard
- Available control outputs: 0 to 10 VDC, 4 to 20 mADC, -10 to 10 VDC, 90 VDC and 24 VDC
- Available mounting options: Wall Mount (CE), DIN Enclosure Mount (CE) and DIN Rail Mount (CE)
- Inverse Diameter Output available to slow rewind motor as roll builds, decreasing slip heat in clutches
- Web break detection



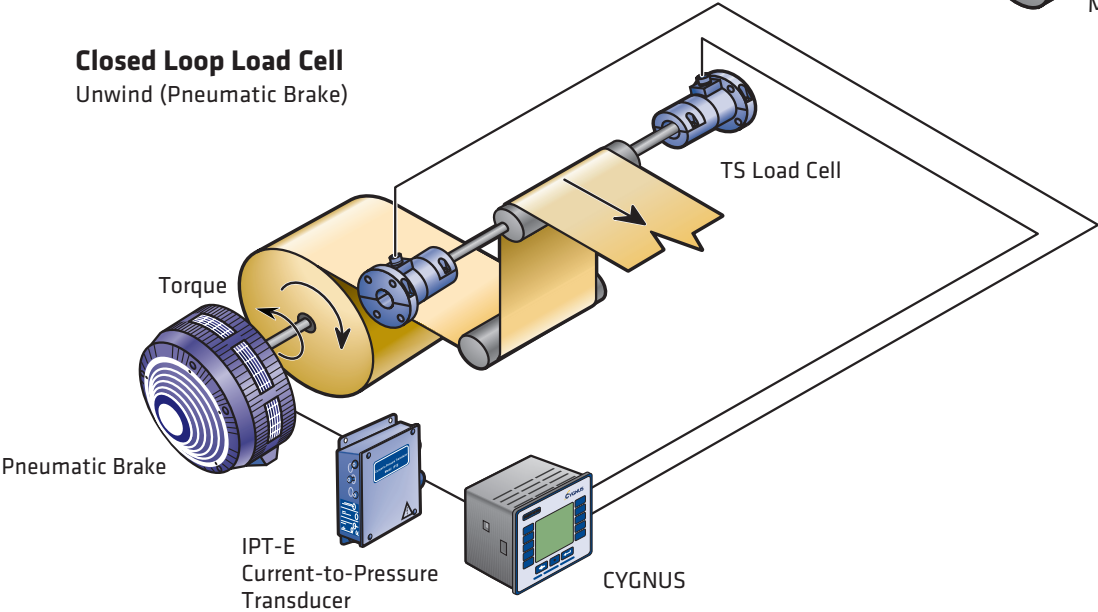
**Closed Loop Load Cell**  
Rewind (Magnetic Particle Clutch)



**Closed Loop Load Cell**  
Rewind (Motor Drive in Torque Mode)

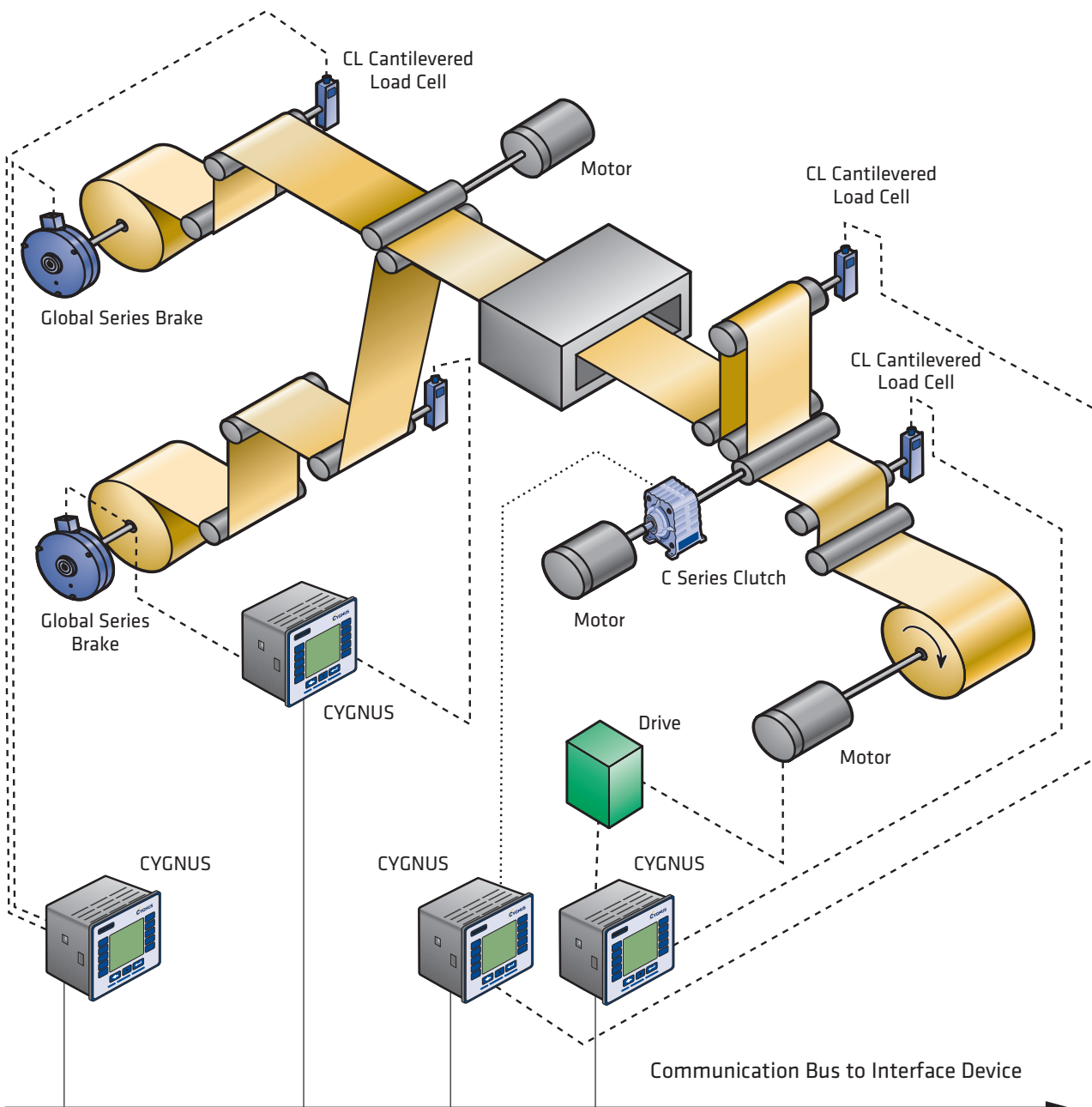


**Closed Loop Load Cell**  
Unwind (Pneumatic Brake)



## Closed Loop Load Cell

Fieldbus Application



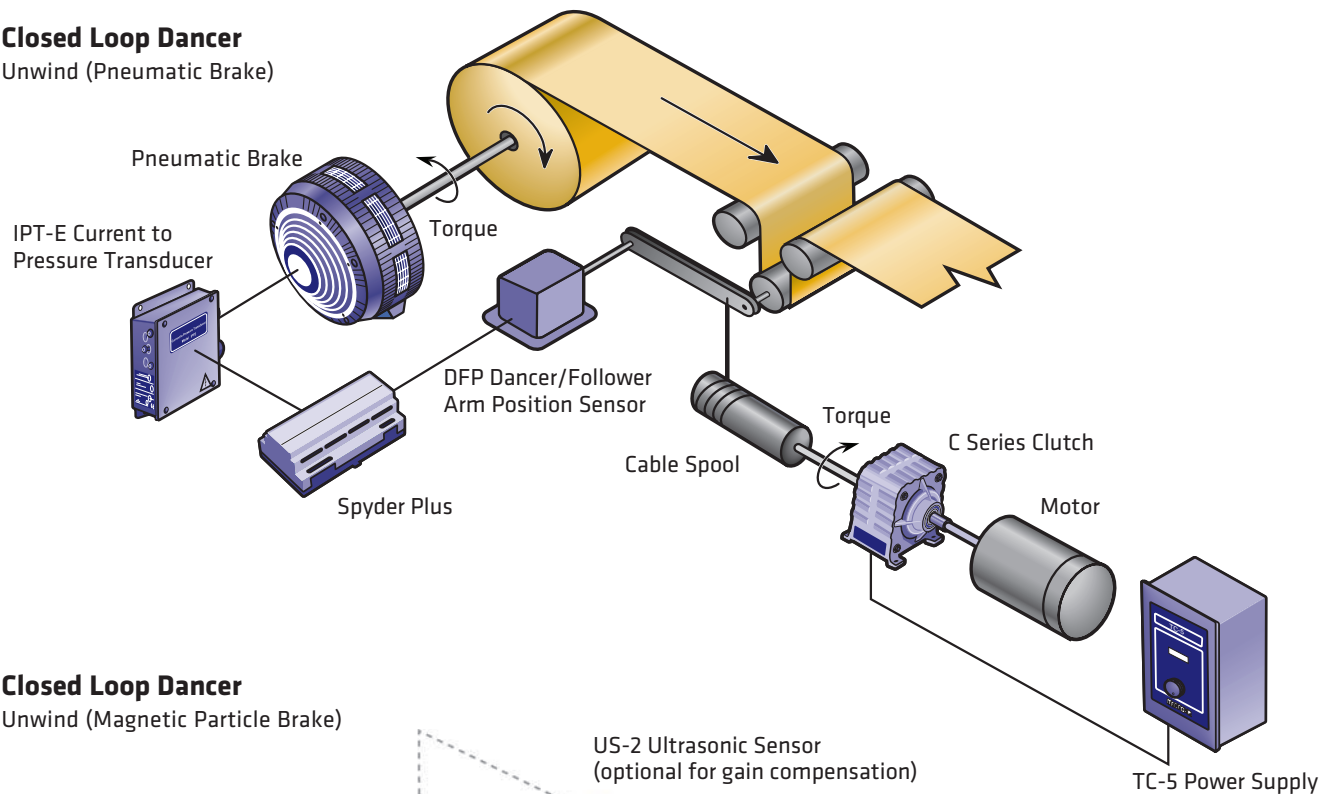
### Closed Loop Load Cell Fieldbus

Access and control multiple independent tension zones over an Ethernet IP, DeviceNet or Profibus DP network. Modbus/TCP available on some models.

- Ethernet capabilities for networking and remote access
- Available control outputs: 0 to 10 VDC, 4 to 20 mA DC, -10 to 10 VDC, 90 VDC and 24 VDC
- Available mounting options: Enclosure Mount (CE), DIN Panel Mount (CE) and DIN Rail Mount (CE)

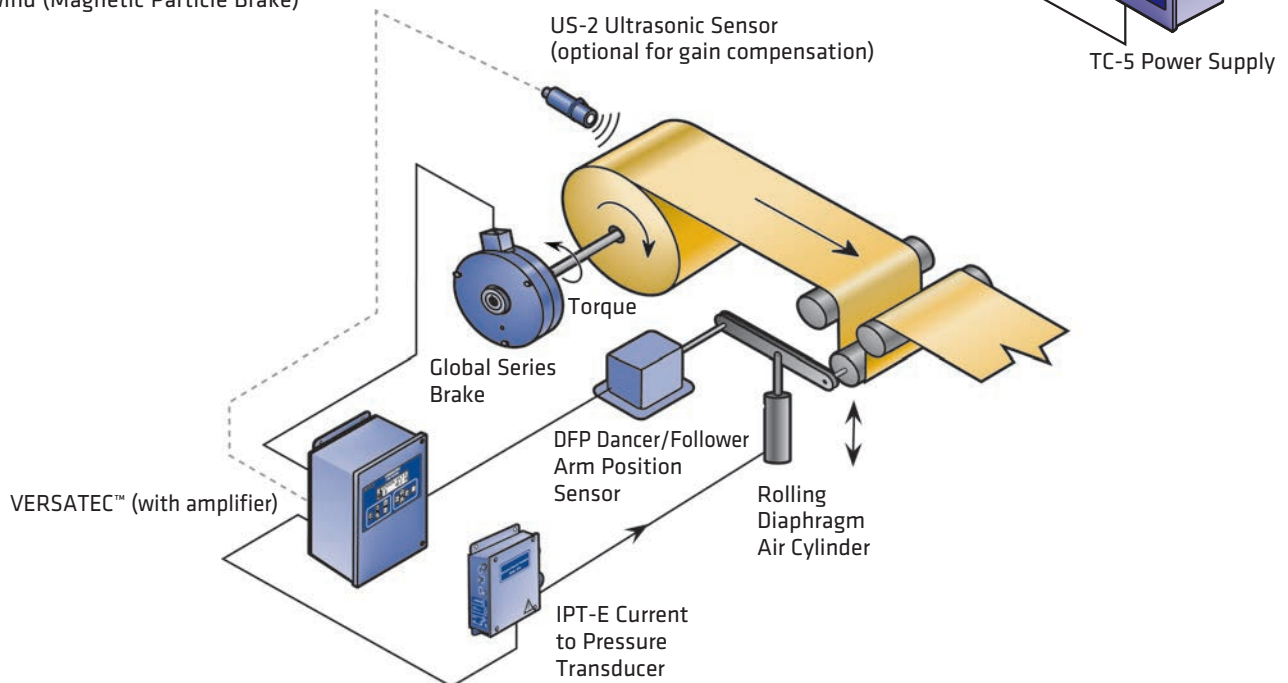
### Closed Loop Dancer

Unwind (Pneumatic Brake)



### Closed Loop Dancer

Unwind (Magnetic Particle Brake)



### Closed Loop Dancer

These systems are the ideal choice for maintaining constant tension on start/stop applications or when unwind rolls are out-of-round.

- Inverse Diameter Output available to slow rewind motor as roll builds, decreasing slip heat in clutches (when using optional US-2 Sensor with Versatec™)
- Available control outputs: 0 to 10 VDC, 4 to 20 mADC, -10 to 10 VDC, 90 VDC and 24 VDC
- Available mounting options: Wall Mount (CE), DIN Enclosure Mount (CE), DIN Rail Mount (CE), Printed Circuit Board



For the tension control solution that is right for you, simply find your application in the chart below, then select the combination of MAGPOWR products that best suit your specific needs.

	CYGNUS Tension Control	Spyder Plus Tension Control	VERSATEC Tension Control	PA-90/PA-2 Power Amplifiers	US-2 Ultrasonic Sensor	DFC-90 DIN Mounted Tension Control	TC-5/TC-5P Power Supply	PS-90/PS-24 Power Supply	IPT/IPTe/IP80 Tension Transducers	TS/CL/GTS/TSU/LC Load Cells	DTR65 Digital Tension Readout	DTM Digital Tension Meter	TR-5 Load Cell Amplifier	TSA/DLCA Load Cell Amplifier	IS-2 Intrinsically Safe Amplifier	9A22-1 Tension Meter	HEB250 Pneumatic Brake	C Style Magnetic Particle Clutch	C Style Magnetic Particle Brake	Global Magnetic Particle Clutch	Global Magnetic Particle Brake	B Style Magnetic Particle Clutch	B Style Magnetic Particle Brake	SOFSTEP Magnetic Particle Clutch	SOFSTEP Magnetic Particle Brake	PERMA-TORK Permanent Magnet Clutch	PERMA-TORK Permanent Magnet Brake
<b>Tension Monitoring and Readout</b>																											
Tension Readout										X	X	X	X	X	X	X											
Tension Readout in Hazardous Area										X	X			X	X												
<b>Manual Control</b>																											
Manual Unwind (Magnetic Particle)							X	X										X		X	X		X				
Manual Point-to-Point (Magnetic Particle)							X	X										X	X	X	X	X	X	X			
Manual Rewind (Magnetic Particle)							X	X										X	X			X					
Manual Unwind (Permanent Magnet)																										X	
Manual Point-to-Point (Permanent Magnet)																									X	X	
Manual Rewind (Permanent Magnet)																								X			
Ultrasonic Unwind (Magnetic Particle)	X*	X	X	X				X										X		X	X	X	X				
Ultrasonic Rewind (Magnetic Particle)	X*	X	X	X				X										X		X			X				
Ultrasonic Unwind (Pneumatic)	X*	X	X	X				X									X										
Ultrasonic Rewind (Motor Drive)	X*	X	X	X																							
Follower Arm Unwind (Magnetic Particle)					X				X									X		X	X	X	X				
Follower Arm Rewind (Magnetic Particle)					X				X									X		X			X				
Follower Arm Unwind (Pneumatic)						X		X	X								X										
Follower Arm Rewind (Motor Drive)					X				X																		
Ultrasonic Free Loop Unwind (Motor Drive)		X	X	X																							
Ultrasonic Free Loop Point-to-Point (Motor Drive)		X	X	X																							
Ultrasonic Free Loop Rewind (Motor Drive)		X	X	X																							
Digital Tension Readout and Control Unwind (Magnetic Particle)	X	X							X		X	X					X		X	X	X	X	X				
Digital Tension Readout and Control Point-to-Point (Magnetic Particle)	X	X									X		X	X	X	X			X	X	X	X	X	X	X	X	XXX
Digital Tension Readout and Control Rewind (Magnetic Particle)	X	X							X		X	X					X		X	X	X	X	X				
Digital Tension Readout and Control Unwind (Pneumatic)	X	X						X	X	X	X				X	X											
Digital Tension Readout and Control Unwind (Motor Drive)	X	X							X	X	X				X												
Digital Tension Readout and Control Point-to-Point (Motor Drive)	X	X									X	X			X			X									
Digital Tension Readout and Control Rewind (Motor Drive)	X	X							X	X	X				X												
Dancer Control Unwind (Magnetic Particle)	X	X	X	X	X	X	X	X	X									X		X	X	X	X				
Dancer Control Rewind (Magnetic Particle)	X	X	X	X	X	X	X	X	X									X		X			X				
Dancer Control Unwind (Pneumatic)	X	X	X	X	X			X	X								X										
Dancer Control Unwind (Motor Drive)	X	X	X	X	X			X																			
Dancer Control Rewind (Motor Drive)	X	X	X	X	X			X																			

X\*requires 3rd party diameter sensor with a 0 to 10 VDC output



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