MAXCESS®

ROTOMETRICS · FIFE · TIDLAND · MAGPOWR · WEBEX · ValleyRoller · COMPONEX

FIFE GUIDING SOLUTIONS

Advanced Guiding Systems for Web Handling

MAXCESS

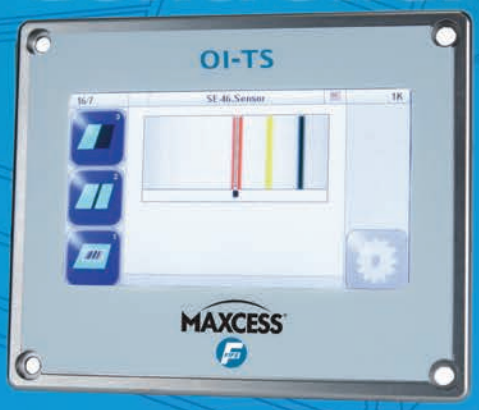
Sensors

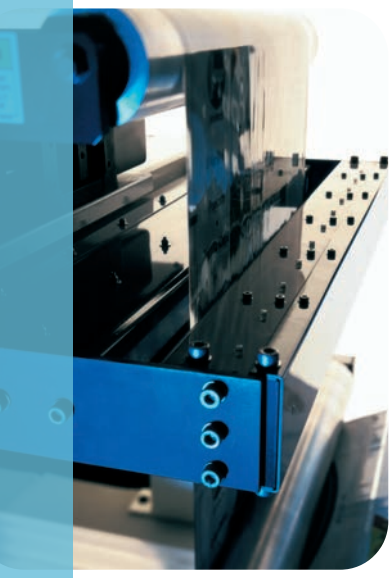
Unwind/Rewind Stands

Actuators

Guides

Controllers





Worldwide Presence

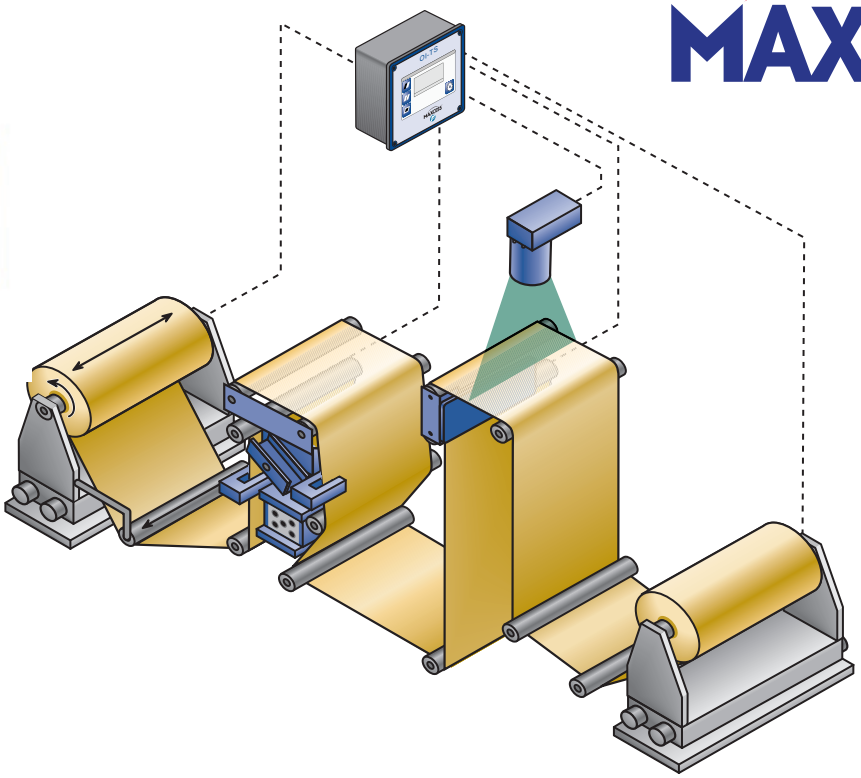
Fife prides itself on knowledgeable support and service that begins with the internal sales staff and continues beyond installation. With sales prepresentatives worldwide and operations throughout North America, South America, Europe, and Australia, Fife can deliver faster, more responsive service than other guiding suppliers. Fife sales and service personnel are factory-trained in various service disciplines including applications analysis, design and engineering. This large, reliable service team is dedicated to providing solutions specifically designed for your applications.

Application Expertise

With more guiding installations than anyone in the market, our industry knowledge is unsurpassed. Our highly trained Technical Service and Field Sales Engineers will work closely with you to identify the guiding solution that is right for your process line.

MAXCESS®

80
Years of
Innovation



Web Guide Controllers

The web guide controller is the heart of the electronic guiding system. Fife CE-compliant controllers provide the control you need to operate effectively and efficiently. When combined with appropriate sensors, actuators and guiding equipment, Fife controllers provide a highly accurate, Type I, proportional, closed-loop servo system with a high dynamic response to the running web.

D-MAX™ Enhanced Series Web Guide Systems

- A complete system of powerful modular components to improve efficiency and roll quality
- AOP for Rockwell Automation™ PACs
- DLR (Device Level Ring) fault tolerant network
- PTPv2 and PTPv1
- Color touchscreen Operator Interface displays graphics and speaks your language to simplify setup and operation

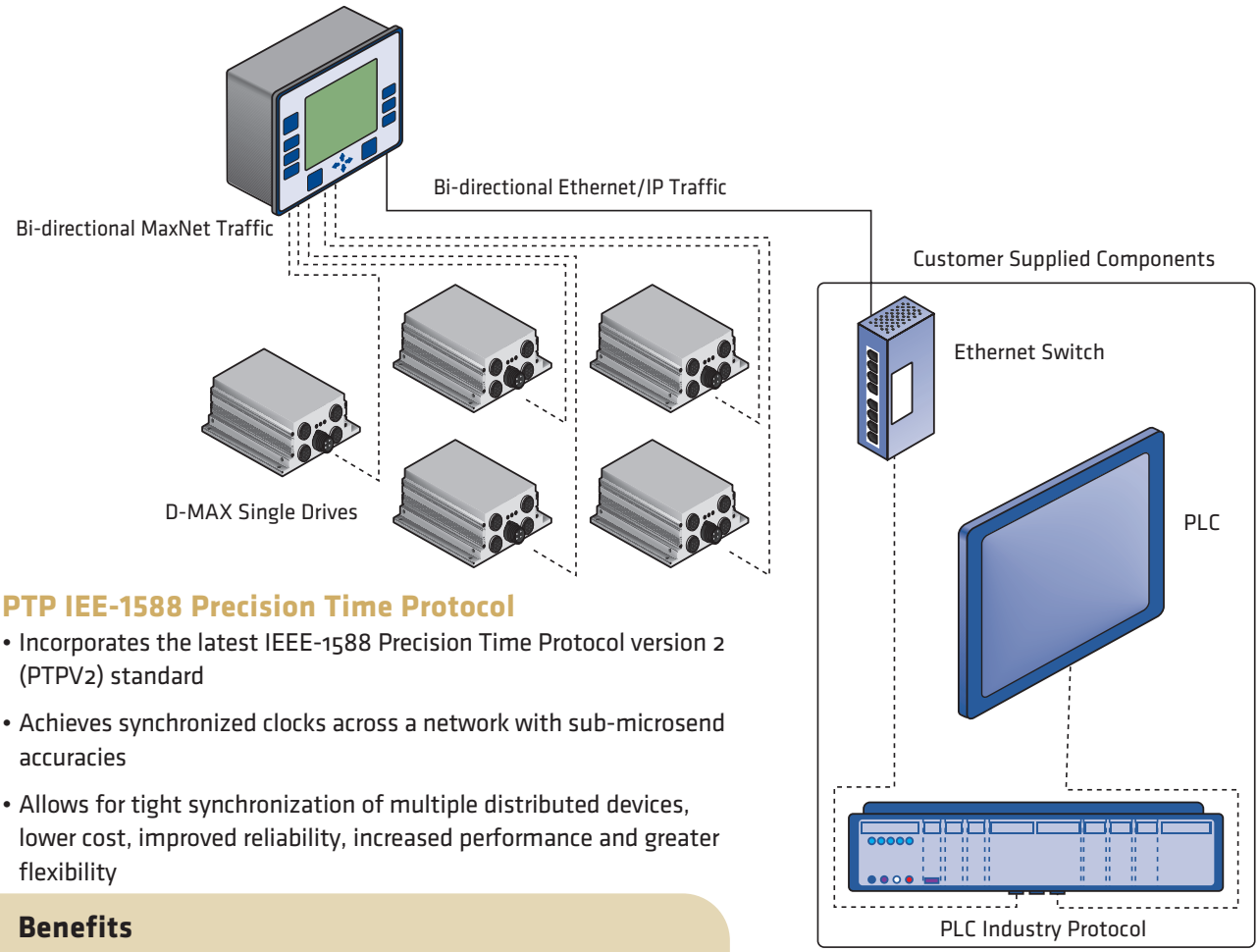
Polaris™ DP-20 Web Guide Controller

- Precise web guide control that's easy to set up and operate
- Small form factor 144 x 144 x 103 mm (5.67 x 5.67 x 4.06 inches) is easily integrated into machine panel
- Intuitive setup and user-friendly operation reduces downtime between runs
- High dynamic response ensures consistent, high quality rolls

All controllers are UL 61010 and CE compliant.

Fife CDP-01 to D-MAX Enhanced Bundle Upgrade

- Drop-in replacement - quick and easy upgrade on your line in four easy steps
- Safe dual rail power - supports CE safety recommendations to separate controller power from power to the guide structure
- Reverse polarity proection - eliminates the chance of damaging the controller board if wired incorrectly, keeping downtime to a minimum

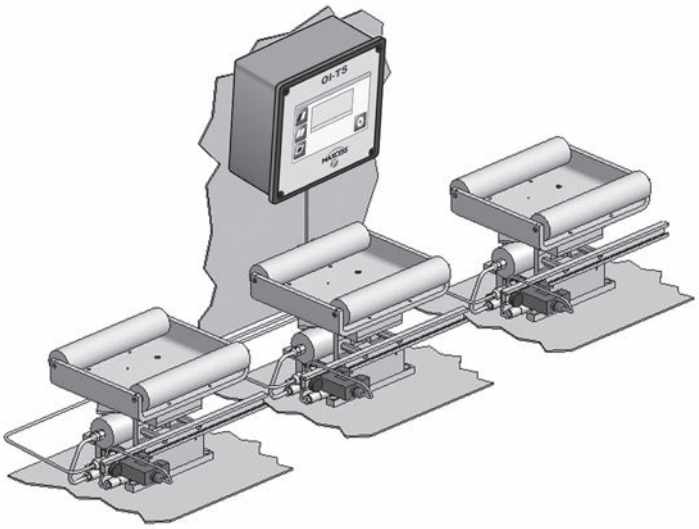


PTP IEE-1588 Precision Time Protocol

- Incorporates the latest IEEE-1588 Precision Time Protocol version 2 (PTPV2) standard
- Achieves synchronized clocks across a network with sub-microsend accuracies
- Allows for tight synchronization of multiple distributed devices, lower cost, improved reliability, increased performance and greater flexibility

Benefits

- D-MAX OI-N is utilized as the network gateway to the customer PLC
- Multiple controllers being controlled by a single Operator Interface (OI)



Daisy Chain With DLR

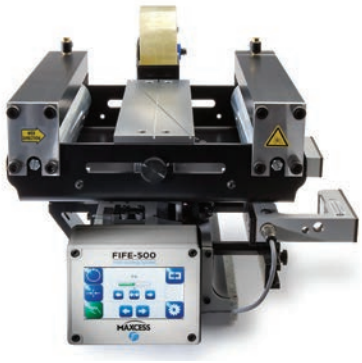
- Fault tolerant network prtocol on Ethernet
- Uses ring topology
- Integraded 2-port switch on every ring node
- Easier cable installation
- Improved system reliability by means of redundancy
- Cost effective with respect to installation and maintenance

Benefits

The D-MAX single or dual-drive controller with embedded Ethernet/IP allows machine builders the opportunity to reduce overall cost when using a PLC with Ethernet/IP communication

FIFE-500 Guide for Narrow Web Application

This guiding system is easy to use and install, while using new technology to help you improve efficiency. The FIFE-500 features icons and text in multiple languages to simplify operation and reduce the time necessary for training.



- Color touch screen is detachable and rotates 90°
- Compact design
- Brushless motor
- 16 languages and icons for easy setup and operation
- Splice table
- Fine adjustment

Specifications

- Web widths up to 900 mm (35.4 inches)
- Tension up to 355 N (80 lbs) for sizes 1-4
- Tension up to 1000 N (225 lbs) for sizes 5-7
- 24 VDC 25%, 108 watt
- CE and UL
- Optional splice table configuration

Fife DST-1 Object Recognition Sensor

From flexible packaging and carpet to batteries and more, the DST-1 Object Recognition Sensor dramatically improves setup time and material changeovers, providing the user with the ability to guide almost any material in three steps. With the latest product updates, the DST-1 Object Recognition Sensor is now faster to set up and easier to use.

Wide Band Sensors

Fife's complete family of sensors and positioners have been accommodating a variety of materials and variations in web with for decades. In 1975, the SE-4000 was released, introducing the market to the first sensor to span the entire width of the web. In the 1990s, the Lazer*Wide sensor simplified routine maintenance and in 2011 the DAC-005 Diode Array Camera added Web Width Measurement. Coupled with a full line of sensor positioners, Fife wide band sensors are a simple way to increase accuracy in web alignment. The newest addition to the family, TruWide, uses the latest technology to improve accuracy, simplify maintenance, provide web width measurement and reduce cost.

DSE-45 Wideband Ultrasonic Digital Sensor

- No repositioning needed for web width changes
- Ability to track up to 16 web edges or 8 webs
- Industry 4.0 connectivity for performance data monitoring and automation
- Easy maintenance with IP65 rating for use in harsh environments and independently replaceable transducers

Sensor Positioners

Pro-Trac for edge or center guiding applications

- Model 100 is a low-cost, self-contained positioner with display and motor controls combined for easy installation
- Model 200 is a heavy-duty positioner designed for continuous operation in chasing systems, moving-sensor center guide systems, web width measurement systems or simple sensor positioning

M-23 Oscillator for winding or guiding applications

- Used to unwind uniform staggered rolls, avoiding rippled material and non-cylindrical rolls due to caliper variation
- Provides complete, independent control of oscillation magnitude and rate
- Sensor position is variable to accommodate changes in web width

Electromechanical or Hydraulic Positioners for chasing applications

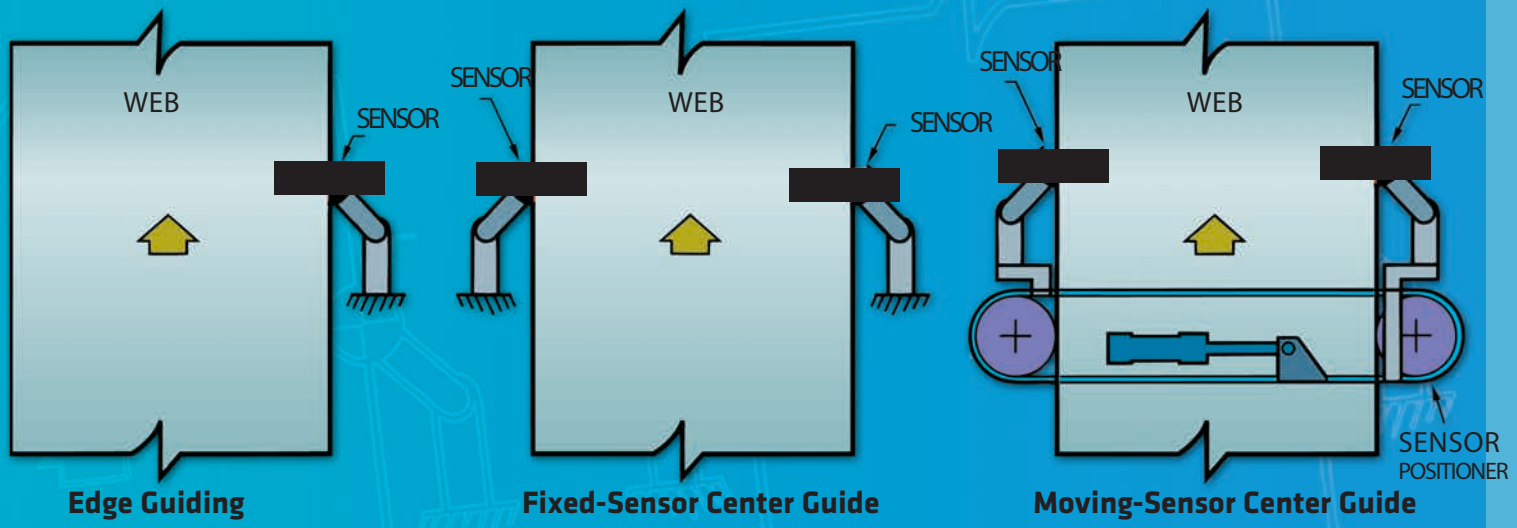
- EM-8 - Durable positioner capable of handling loads up to 568 kg (1,252 lbs) and strokes from 51 to 152 mm (2 to 6 inches)
- EM-11 - Dual-sensor positioner with placement up to 1,524 mm (60 inches) apart and strokes up to 406 mm (16 inches)

M-12 Manual Positioner for center guiding applications

- Dual-sensor positioning for most fixed-sensor center guiding applications
- Capable of handling up to 1,626 mm (64 inches) web width variations
- Position indicating handwheel provides simple, accurate operation

DSE-17 Wide Band Infrared Sensor

- Wide proportional band reduces manual sensor repositioning
- Tracks up to four independent web edges simultaneously
- No opacity set up required
- Displays the edge position and self-diagnostic results through the built-in LED display



Edge Guiding | **Fixed-Sensor Center Guide** | **Moving-Sensor Center Guide**

Sensors

One size does not fit all. For that reason, Fife develops sensors to suit any guiding application. Our versatile line of sensors can accommodate edge guiding, line/pattern guiding or center guiding (fixed or moving) in any type of environment and for any type of material.

Infrared

- For single-edge or center guiding applications
- Versatile, widely used on opaque materials
- Also used on materials with opacity as low as 10%
- Cost-effective solution for most applications
- Proportional band range from 5.08 to 420 mm (0.2 to 16.54 inches) provides accuracy for varying web widths
- Sensor gap of 25 mm (1 inch) and larger

DSE-22 Digital Infrared Light Sensor
- A compact, versatile solution for accurate web guiding

SE-38 First*Edge Sensor *Advanced technology for materials with varying opacity (down to 0.4 oz/sq yard spunbond)*

Pneumatic

- For edge and center guiding in a variety of web widths
- An intrinsically safe component
- Will sense any material opacity – 0 to 100%
- Fife's unique pneumatic design is virtually maintenance-free

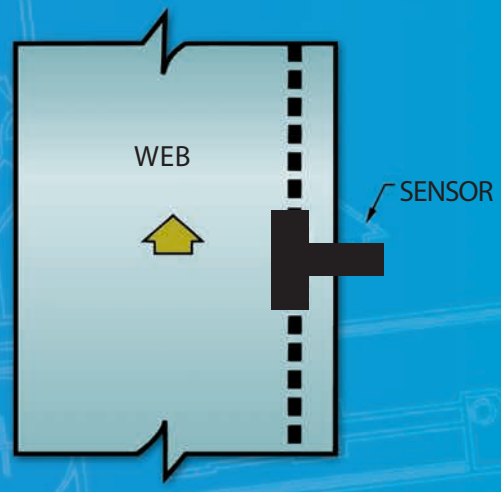
Line Guide

- Capable of detecting line, line edge and patterns such as bar codes
- Compatible with the popular D-MAX Series Web Guiding System

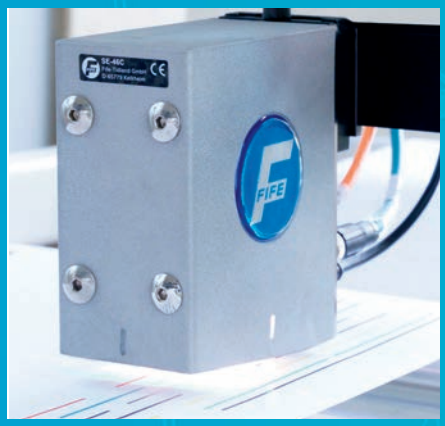
OI-TS

- Simplify line guiding with the OI-TS, a color touch screen interface offering the easies direct control and operation of the SE-46C digital line guide sensor.

Use the sensor selection chart on page 13 to find the sensors that are the best fit for your application.



Line or Pattern Guiding



Ultrasonic

- For single-edge or center guiding applications
- UL, cUL and CE certified
- Closed-face design helps with immunity to dust and contaminants
- Ambient shop noises have no effect on Fife's unique ultrasonic technology

Intrinsically Safe

- Single-edge or center guiding in hazardous environments
- Fully certified to Class I, Division 1, Groups C and D hazardous environments
- UL, cUL and CENELEC certified for use throughout Europe and North America

Camera Sensors

- The ideal solution for a wide range of difficult to sense materials from nonwovens to steel
- Highly resistant to contamination, dust particles, oil, vapors and water
- Ideal for armless rewinding, center, edge, line guiding and web width measurement
- Optional LED light

DAC-005 Digital Camera Sensor

Visible Light and Laser

- Single-edge or center guiding and web width measurement
- The most intense, incandescent light bulbs are used to ensure high contrast for maximum guiding accuracy
- Laser-based technology provides flexibility for web width measurement and changes
- Ideal for opaque materials

Special Application Sensors

- Fiber optic sensors
- Capacitance center guide sensor
- Inductive sensors

DSE-41 Sensor

Actuators

Fife electromechanical actuators are designed to be trouble-free with minimal backlash, producing the highest Dynamic Response in the industry, typically less than 0.051 mm (0.002 inch), for higher accuracy and longer product life. Required application thrust will be a function of total load, coefficient of friction and performance requirements.

Anti-friction bearings are currently published with coefficient of friction as low as 0.01. Fife uses a design coefficient of friction of 0.06 to 0.1 to ensure performance through misalignments, contamination, seal drag and acceleration/deceleration factors.

GMA

- Integrated Servo-Center
- Belt-driven actuator with a maximum designed thrust of 2,005 N (451 lbs)
- Maximum shifting speeds of 130 mm/sec (5.12 inches/sec)
- Standard actuator stroke ranges from 25 to 305 mm (1 to 12 inches)

LAB-8

- Belt-driven actuator with a designed thrust from 5,000 to 12,500 N (1,125 to 2,810 lbs)
- Maximum shifting speeds: 27.9 mm/sec (1.1 inch/sec)
- Standard actuator stroke range from 100 to 300 mm (3.94 to 11.81 inches)

LAB-10

- Belt-driven actuator with a designed thrust from 2,002 to 3,558 N (450 to 800 lbs)
- Maximum shifting speeds: 31.75 mm/sec (1.25 inches/sec)
- Standard actuator strokes range from 25 mm to 250 mm (1 to 10 inches) in 25 mm (1 inch) increments

AB-12

- Gear-driven actuator with a designed thrust from 3,914 to 9,341 N (880 to 2,100 lbs)
- Maximum shifting speeds: 26.16 mm/sec (1.03 inches/sec)
- Standard actuator strokes range from 25 to 250 mm (1 to 10 inches) in 25 mm (1 inch) increments, and 305 to 406 mm (12 to 16 inches) in 50 mm (2 inch) increments

LAG-17

- Gear-driven actuator with a designed thrust up to 38,500 N (8,655 lbs)
- Maximum shifting speeds: 67 mm/sec (2.64 inches/sec)
- Standard actuator stroke range from 100 to 600 mm (3.94 to 23.62 inches)

Intermediate Guiding – Displacement-Type

When space is limited, Fife Offset Pivot Guides deliver web/strip position correction with minimal entry and exit span requirements. This type of guide is typically furnished with two rollers. The entire guide pivots to control web position and minimize web stress.

MicroSymat

- Standard roller faces: 80 mm (3.15 inches) and 100 mm (3.94 inches)
- Maximum allowable tension: 100 N (22.5 lbs)

Symat 25/DS-25

- Standard roller faces: 160 mm (6.30 inches), 200 mm (7.88 inches) and 250 mm (9.84 inches)
- Maximum allowable tension: 200 N (45 lbs)

Symat 50/Symat 70G/DS-70

- Standard roller faces: 203 to 610 mm (8 to 24 inches)
- Maximum allowable tension: 623 N (140 lbs)

Symat 120

- Designed to accommodate web widths up to 1,200 mm (47 inches)
- Maximum allowable tension 1,500 N (337 lbs)

LRB

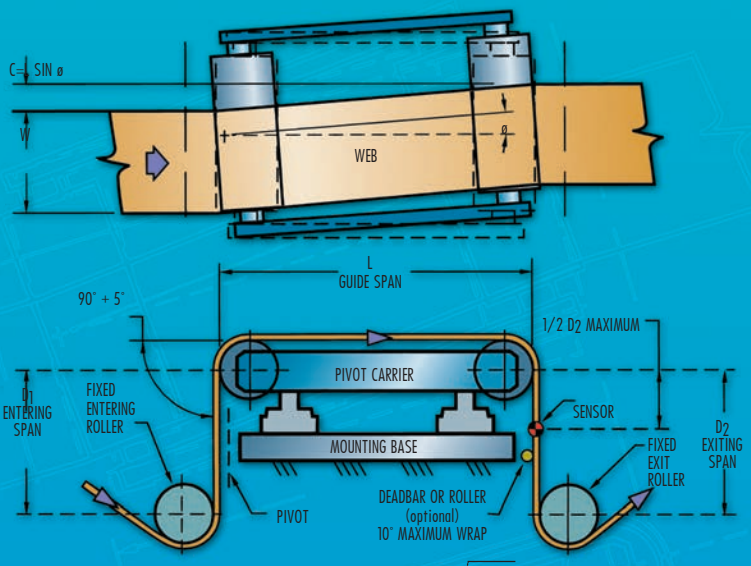
- Designed to accommodate web widths up to 1,930 mm (76 inches)
- Maximum allowable tension: 2,504 N (563 lbs)
- Available for both electromechanical and hydraulic control systems

LRC/Symat 300

- Designed to accommodate large applications
- Available for both electromechanical and hydraulic control systems

All guiding systems are engineered to your specific application. For higher tensions or wider webs, contact Fife or your local Field Sales Engineer.

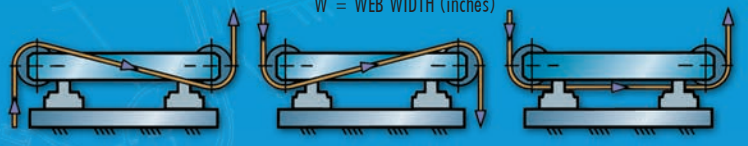
Offset Pivot Guide



$$D1 \text{ OR } D2 \text{ (MIN.)} = 0.00357\ W\text{Ø}\sqrt{\frac{WEt}{T}}$$

D1/D2 = ENTERING/EXITING SPAN (inches)
E = MATERIAL MODULUS OF ELASTICITY(p.s.i.)
C = CORRECTION (inches)
L = GUIDE SPAN (inches)
Ø = GUIDE ANGLE (degrees) $\text{Ø} = \text{SIN}^{-1}\left(\frac{C}{L}\right)$

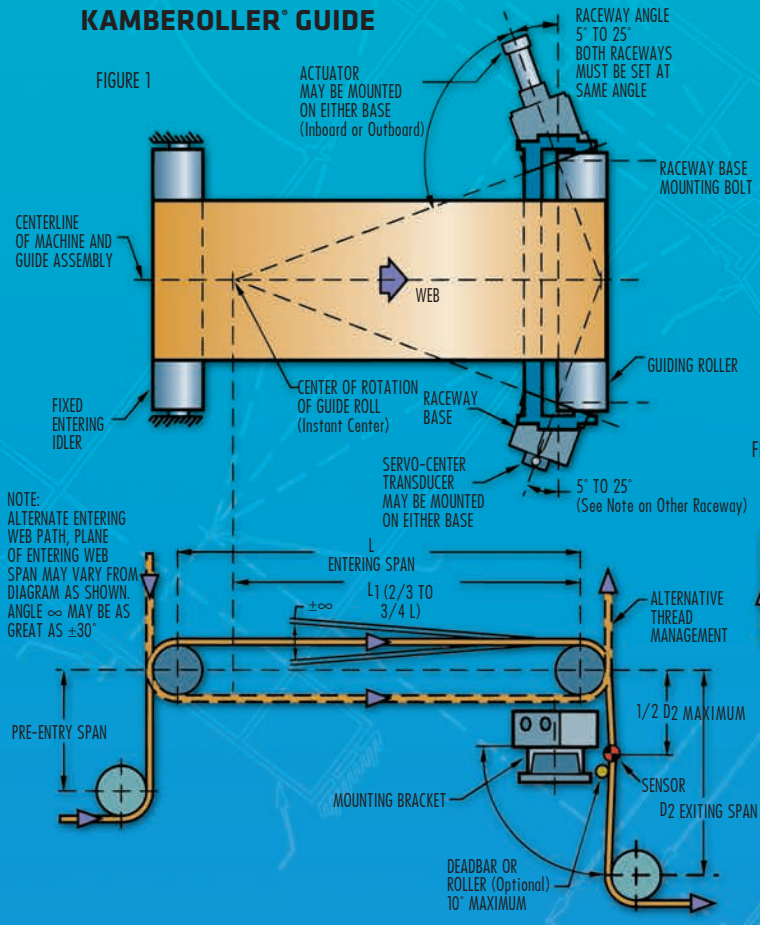
T = TENSION (lbs.)
t = WEB THICKNESS (inches)
W = WEB WIDTH (inches)



Other Threading Arrangements

KAMBEROLLER® GUIDE

FIGURE 1



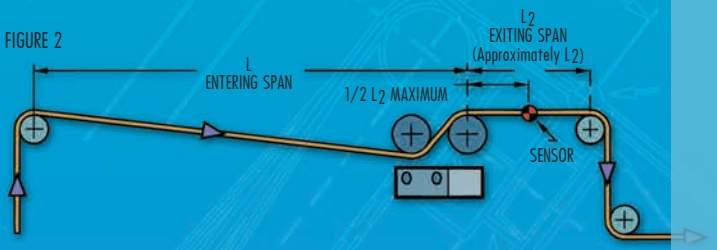
Kamberoller Entry Span Formulas

$$1.\ C = \frac{9T\left(\frac{L}{W}\right)^2}{tE}$$

$$2.\ L = \frac{W}{3}\sqrt{\frac{CtE}{T}}$$

C = ± GUIDE CORRECTION (inches)
E = MATERIAL MODULUS OF ELASTICITY (p.s.i.)
L = LENGTH OF ENTRY SPAN (inches)
T = TENSION (lbs.)
t = MATERIAL THICKNESS (inches)
W = MATERIAL WIDTH (inches)

FIGURE 2



Typical Straight-Through Threading (S-Wrap)

Intermediate Guides – Steering Type

Fife's innovative Steering Guides deliver precise web position by utilizing a long entry span. These versatile guiding assemblies provide immediate lateral correction for transient errors, while simultaneously compensating for the web's steady state errors.

Kamberoller® Steering Guide

- Standard roll face lengths range from 381 to 3,048 mm (15 to 120 inches)
- Available for both electromechanical and hydraulic control systems
- Single-, double- or tri-roller arrangements available

Kantiroller Steering Guide

- Versatile guide ideal for applications such as envelope machines and label presses
- Accommodates web widths from less than 203 to 356 mm (8 to 14 inches)
- Single-, double- or tri-roller arrangements available
- Available for both electromechanical and hydraulic control systems

Kamberoller® Steering Guide

Unwind/Rewind Guides

A typical unwind or rewind system consists of an actuator to move the roll laterally, a sensor and a controller. In some cases; however, traditional guiding systems will not work. If a suitable roll stand is not available, Fife will provide the Shifta-Roll Positioning Stand. Powered by either electromechanical or hydraulic actuators, these durable stands are capable of handling loads up to 4,536 kg (10,000 lbs).

Shifta-Roll Positioning Stands

Unwind Stands

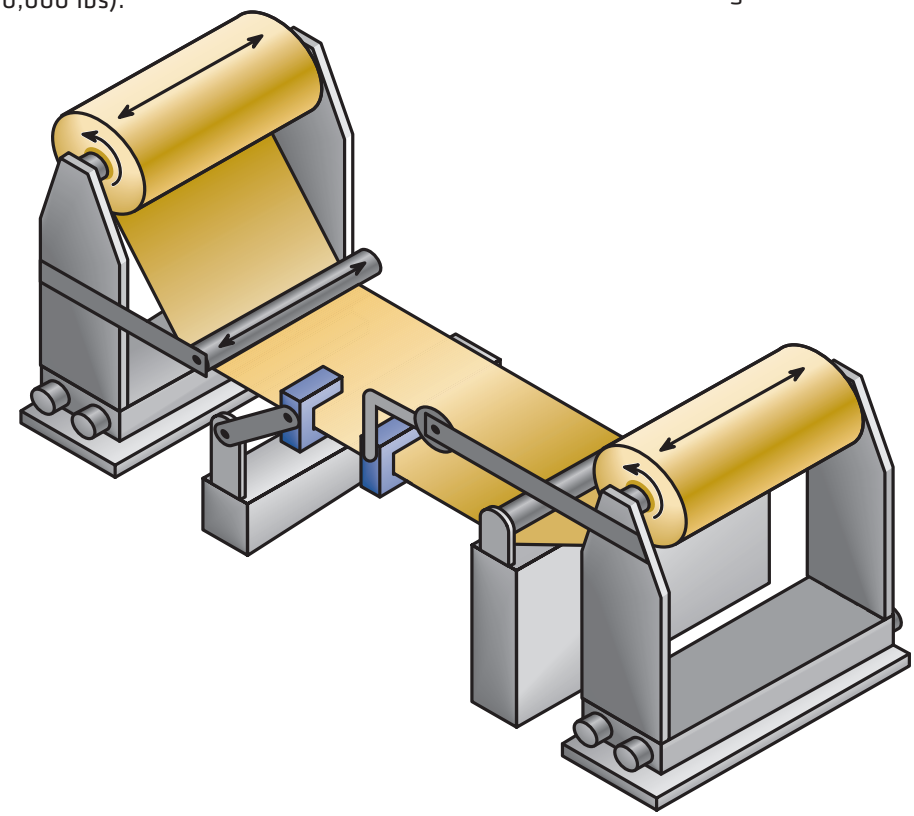
- Roll stands shift laterally to compensate for web misalignment
- May require a directly mounted or slaved idler
- Easily adapts to existing assemblies

Rewind Stands

- Roll stands shift laterally to align with the edge of the approaching web
- Helps to prevent telescoping, ensuring evenly wound rolls
- Easily adapts to existing assemblies

SRS-Type Unwind Stands

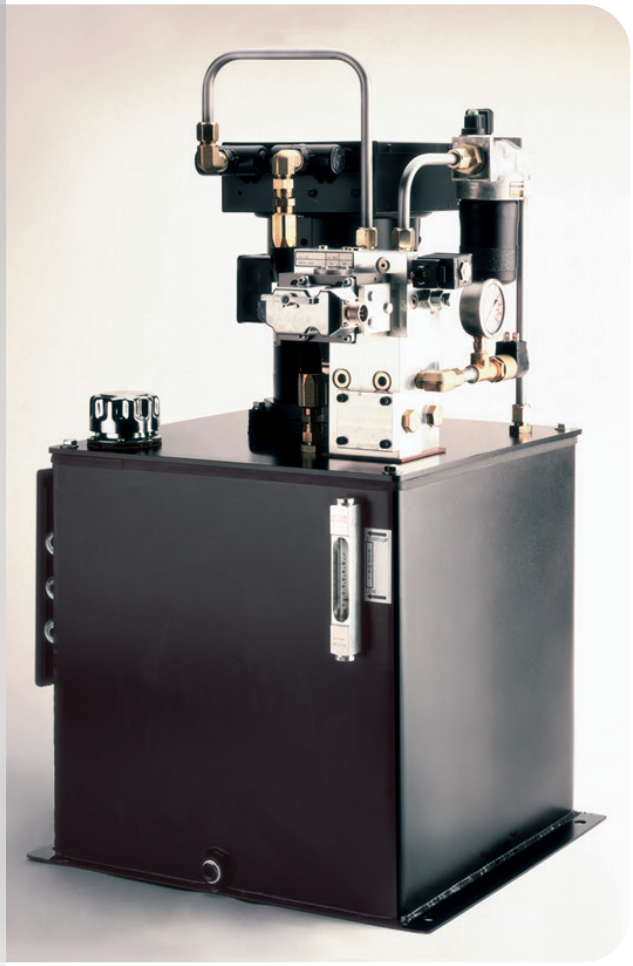
- Specifically designed to accommodate large polyethylene rolls used in making bags
- Two-high, light-duty roll design allows one roll to be loaded while the other roll is being used
- Includes roll shafts and drag brakes



Power Units

Regardless of the type of control system you choose, Fife power units are versatile enough to accommodate almost any web material and load requirement.

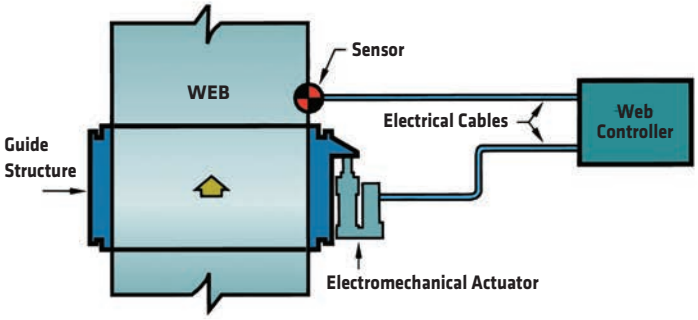
- For Electrohydraulic or Pneumohydraulic guiding systems with large unwind/rewind loads
- Compact, modular construction is completely self-contained
- Virtually maintenance-free



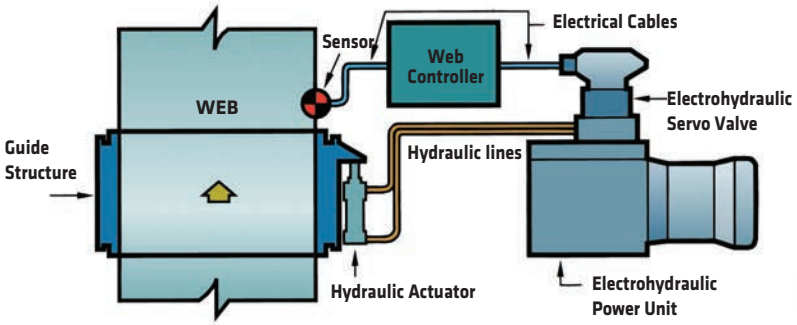
Guiding Controls

Smooth, efficient web handling operations begin with the right guiding control system. Fife offers a full line of automatic controls designed to deliver precise, dependable performance, and flexibility to upgrade your operations in the future.

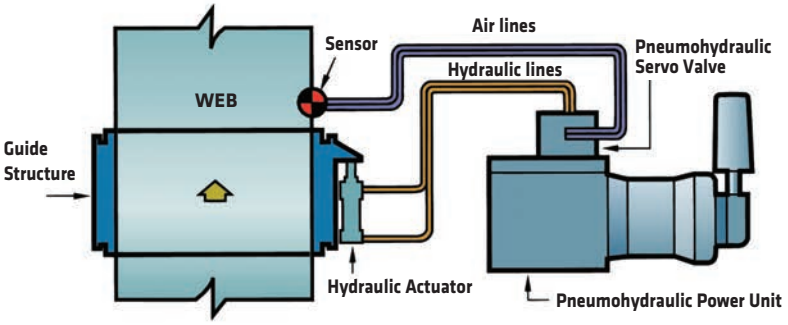
Types of Automatic Guiding Control Systems



Electromechanical



Electrohydraulic



Pneumohydraulic

Digital Edge Sensors

Our New Line of Digital Sensors Helps You Choose the Perfect Fit for Your Application

N = Narrow Web
W = Wide Web
V = Variable

Web edge may vary by
- less than 2 inches
- greater than 2 inches

	Opaque					Transparent		Woven			Nonwoven		Specialty		
	Paper	Colored Film	Foil	Felt	Opaque & Trans	Film	Irregular Edge	Cloth	Mesh	Gauze	Spunbond	Roofing	Carpet Tuft	Battery	Tire Cord
Infrared Sensors															
DSE-11 (N)	■	■	■	■	■			■	■	■	■			■	
DSE-22 (N, W)	■	■	■	■	■			■	■	■	■			■	
DSE-23 (N, W, V)	■	■	■	■	■			■	■	■	■			■	
DSE-17 (N, W, V)	■	■	■	■	■		■	■	■	■	■		■	■	■
SE-38 (N, W)	■	■	■	■	■		■	■	■	■	■			■	
Ultrasonic Sensors															
DSE-31 (N)	■	■	■	■	■	■								■	
DSE-41 (N)	■	■	■	■	■	■								■	
DSE-45 (N, W, V)	■	■	■	■	■	■	■					■		■	

Infrared Sensors vs Ultrasonic Sensors

- **Ultrasonic** and **infrared** technology can be used for standard, opaque webs
- **Ultrasonic** sensors are best for transparent films because these webs are invisible to infrared light
- **Infrared** sensors are best for porous materials, as they cannot be detected with ultrasonic sound

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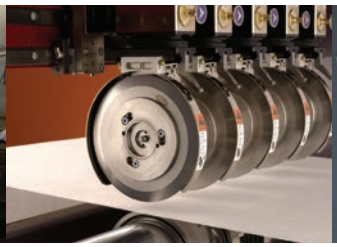

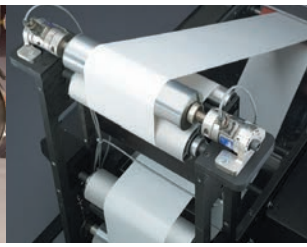

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ROTOMETRICS FIFE TIDLAND MAGPOWR WEBEX ValleyRoller COMPONEX