MAXCESS

FIFE

FIFE GUIDING SOLUTIONS

Advanced Guiding Systems for Web Handling

MAXCESS

Web Guide Controllers

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

D-MAXE Series Web Guide Systems

- Compact, easy to integrate controller
- Available in single-, dual, and triple-drive version
- Pre-wired, pre-assembled solutions available even with the smallest guides
- Easy and intuitive user interface:
  OI-TS operator interface with colour touch-screen or
  OI-N operator interface with graphics and symbols on a large, easy to read, high-resolution LCD display
- Backward compatible with all existing Fife guiding systems
- Easy to network:
  DeviceNet, Modbus TCP, Ethernet/IP, ProfibusDP, ProfinetIO, EtherCAT, and ControlNet protocols available

Polaris DP-30 Web Guide Controller

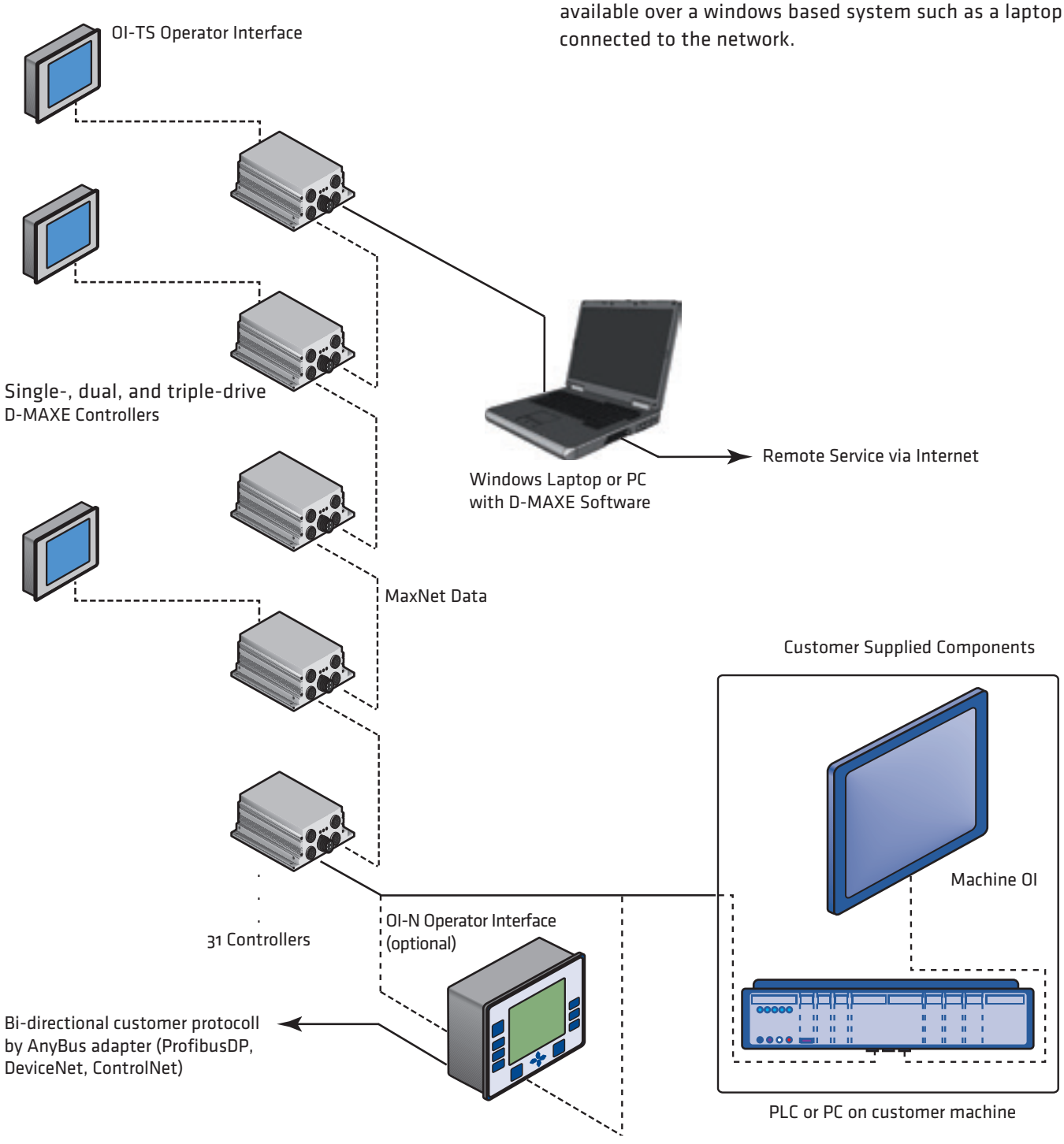
- Easy to operate and set up, alphanumeric display, user-friendly operation keys
- Ability to drive high power motors
- Easy drop-in replacement for CDP-01 controller
- Suitable for wall mount and panel mount

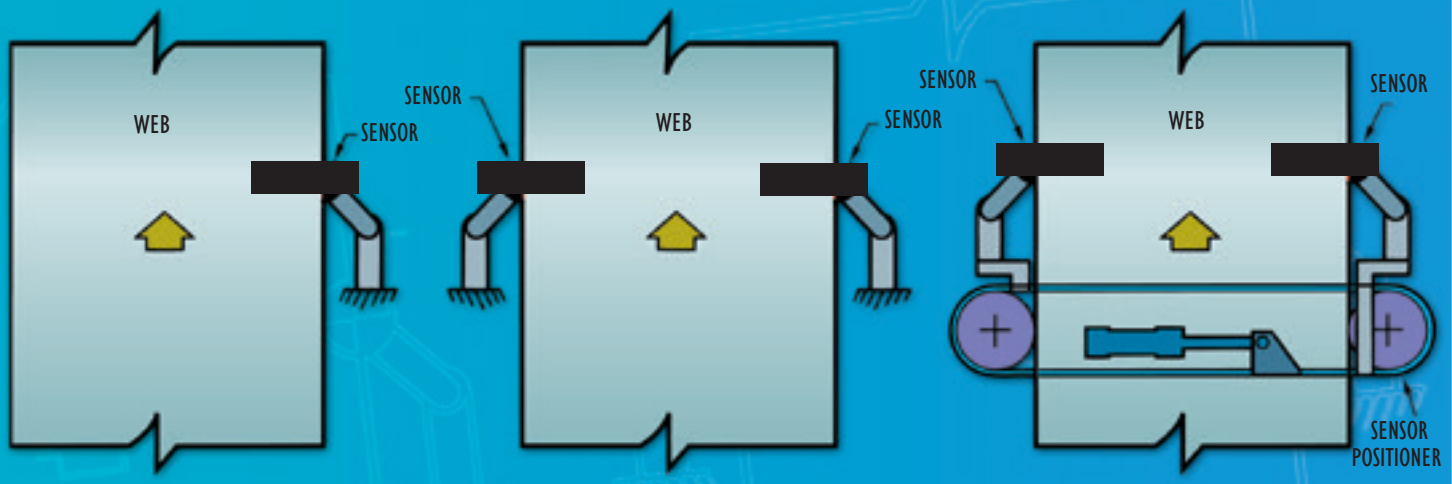
Polaris DP-20 Web Guide Controller

- Easy to operate and set up, alphanumeric display, user-friendly operation keys
- Excellent price / performance ratio
- Compact housing (144 x 144 x 103 mm)
- Suitable for panel mount and wall mount (optional bracket required)

Extended networking possibilities under Ethernet

- Each D-MAXE features an integrated 2-port Ethernet switch which facilitates the following through Ethernet, daisy-chaining several D-MAXE's in series (with no additional hardware required), star configuration (using a switch or the OI-N control panel) or a combination of both.
- Easiest networking of multiple D-MAXE controllers (up to 31), with hard real time communication without additional components, thanks to the integrated Ethernet hardware.
- Virtual-OI Windows Software available for full interfacing of the D-MAXE Network with machine PCs and Laptops for control and service purposes.
- Easiest interfacing to any machine PLC or PC via Ethernet.
- Embedded ProfiNet IO (Siemens), Ethernet IP (Rockwell), EtherCAT (Omron, Beckhoff) und Modbus TCP/IP available as option.
- Multiple control points - One or more colour touch-screen panel OI-TS available in parallel to control all devices in the whole network.
- Profibus DP, ControlNet, DeviceNet, CanOpen and other field data protocols available through the OI-N operator interface with the optional adapters.
- Process data can be collected and used for statistical process control.
- Full remote support via the Internet by our Service, available over a windows based system such as a laptop connected to the network.





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

Sensors

One size does not fit all. For that very 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, more importantly, for any type of material.

DSE-41 Ultrasonic Sensor

Ultrasonic

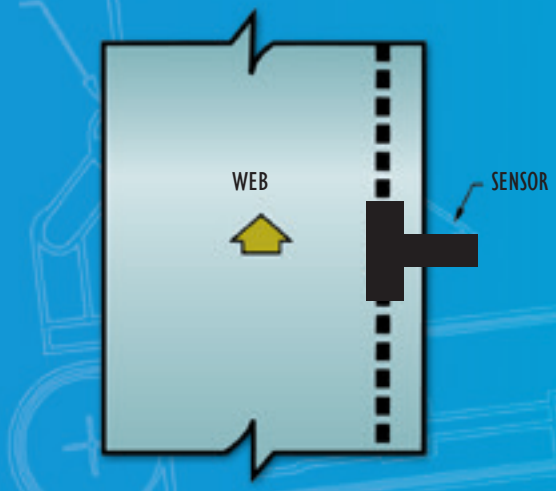
- For single-edge or center guiding applications
- Closed-face design helps with immunity to dust and contaminants
- Ambient shop noises have no effect on Fife's unique ultrasonic technology

SE-42 Infrared Light Sensor

Infrared

- For single-edge or center guiding applications
- Very versatile, widely used on opaque materials
- Also used on materials with opacity as low as 10 %
- Best cost solution for most applications
- Proportional band range from 5 to 420 mm provides accuracy for varying web widths
- Different sensor gaps available

DSE-17 Infrared Light Sensor



Line or Pattern Guiding

SE-46C Line Sensor

Camera Sensors

- Ideal solution for applications requiring a high precision within a wide field of view, from nonwovens to steel

DAC-005 Digital Diode Array Camera Sensor

- Robust IP-67 housing with drying cartridge, resistant to contamination, by dust particles, oil, vapors and water
- Ideal for edge and center guiding and for special applications such as multiple web detection and web width / web distance measurement
- Available with integrated LED illumination for close up applications, eliminating the need for a separate illumination

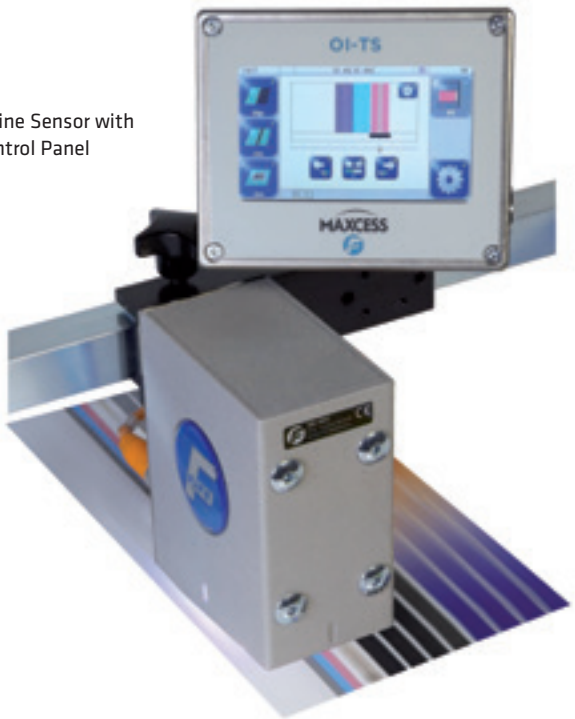
Pneumatic

- For edge and center guiding applications
- Available as intrinsically safe components with ATEX certification for application in explosion proof areas
- Will sense opaque and transparent materials
- Fife's unique pneumatic design is virtually maintenance-free

Line Sensors

- Fife offers a complete range of reflected line sensors capable of read-ing printed lines, edge of lines and patterns, also with low contrasts
- Analog design for line and edge of the line detection, with semi-automatic calibration through all Fife processors
- Digital design for line, edge of line and pattern detection, with full automatic calibration
- Detection of watermarks, bar codes and simple patterns

SE-46C Line Sensor with OI-TS Control Panel



Special Application Sensors

- Fife is able to design and build a tailored sensor solutions to meet the requirements of special Customer applications, including for example:
  Fibre Optics Sensors, Capacitive and Inductive sensors for metallic materials, UV Sensors, Carpet Tuft Sensors, Palm Feeler (electronic and pneumatic)

Positioners

The remote positioning of sensors is another way to save time, reduce waste, improve accuracy and eliminate potential injuries. Fife has developed arange of positioners to accommodate a wide variety of applications.

Pro-Trac 150B – Motorized Sensor Positioner

- Edge or Center Guide Applications
- The Fife Pro-Trac 150B sensor positioner offers not only the possibility of remotely positioning the sensor using jog buttons, but features also an automatic edge seek function, available for both edge and center guiding applications.
- The MCP-05 Control Box with Jog Left/Right buttons is suitable for panel mounting or wall mount (with mounting bracket)
- Compatible with the Fife DP-20, DP-30 and D-MAXE controllers

Pro-Trac 200 – Full Automatic Sensor Positioner

- Edge or Center Guide Applications
- Heavy duty, full automatic positioner designed for continuous operation
- Ideal for use in chasing systems, moving sensor center guiding systems, web width measurement systems, or simple automatic sensor positioning
- Virtually maintenance-free, dust-tight design

Actuators

Fife electromechanical actuators are designed to be maintenance free with minimal backlash, which is a key component in producing the highest dynamic response in the industry, combined with the longest lifetime. Typically no stroke limiting switches are required. Position Feedback via built-in or emulated encoder is available as an option. A wide range of actuators of different thrusts and strokes is available to satisfy the requirements of any application, based upon total load, coefficient-of-friction, and performance requirements.

Low-friction bearings are currently published with coefficient-of-friction as low as 0.01. Fife uses a design coefficient-of-friction of 0.05 to 0.1, which allows for misalignments, contamination, seal drag and acceleration/deceleration of mass. A common coefficient-of-friction for Fife actuators is 0.1, ensuring high system performance and extended actuator life.

LA-2

- Actuator with a maximum designed thrust of 190 N
- Maximum shifting speed: 25 mm/sec
- Standard actuator stroke is 80 mm

GMA-1 and GMA-3

- Belt-driven actuator with a maximum nominal thrust of 2.000 N
- Integrated servo center transducer
- Maximum shifting speed: 125 mm/second
- Standard actuator stroke ranges from 50 to 305 mm, longer strokes available upon request

LAB-8

- Belt-driven actuator with nominal thrust from 5.000 to 12.500 N
- Maximum shifting speed: 28 mm/sec
- Standard actuator stroke ranges from 100 to 300 mm
- Operates only with dual-drive Fife D-MAXE controllers with VTB-60 junction box

LAB-10A

- Belt-driven actuator with a designed thrust from 1.800 to 7.100 N
- Maximum shifting speed: 29 mm/sec
- Standard actuator stroke ranges from 50 to 300 mm

LAG-17

- Heavy Duty Planetary Gear-driven actuator with a nominal thrust up to 30.000 N
- Maximum shifting speed up to 67 mm/sec
- Standard actuator stroke ranges from 100 to 600 mm
- Inverter and processor can be supplied pre-wired in an electrical cabinet for easy installation

Unwind/Rewind Guides

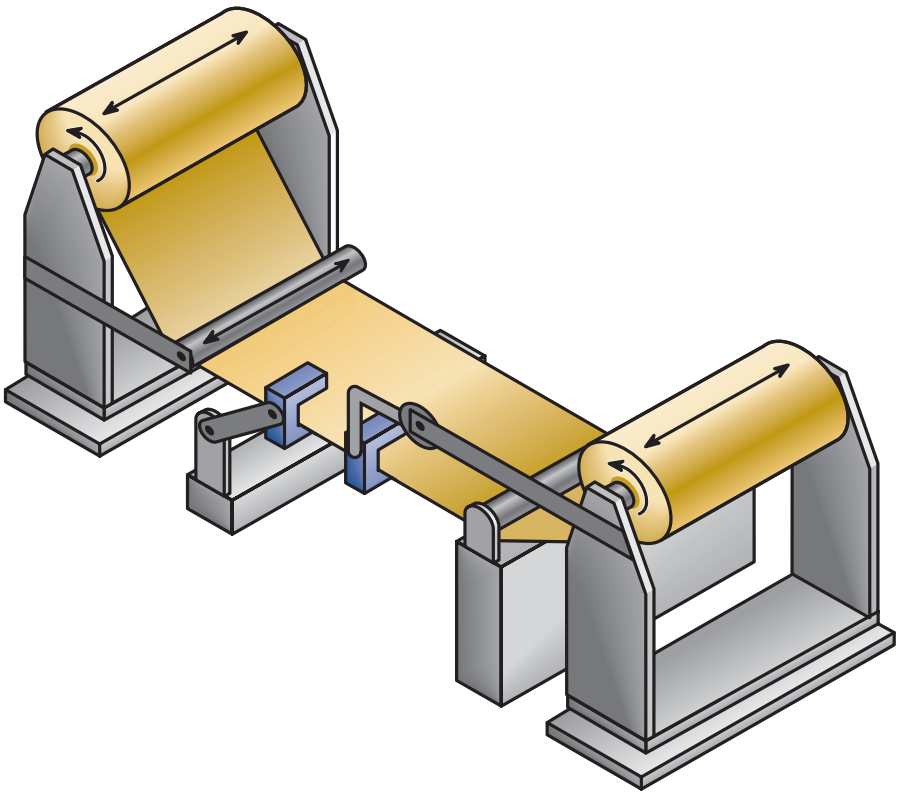
A typical unwind or rewind system consists of an actuator to keep the roll aligned during the winding process, a sensor and a controller. Maxcess can supply all the components, such as tension controls, shafts, safety chucks and of course the guiding system required by unwinders and rewinders. When required, Fife can provide integrated solutions, designed to meet the requirements of your application. Such systems can be powered either by an electro-mechanical actuator or a hydraulic cylinder as required.

Unwind Stands

- Roll stands shift laterally to compensate for web misalignment
- May require a directly mounted or slaved idler
- Easily adapts to existing assemblies
- Available with integrated tension control systems, shafts and safety chucks

Rewind Stands

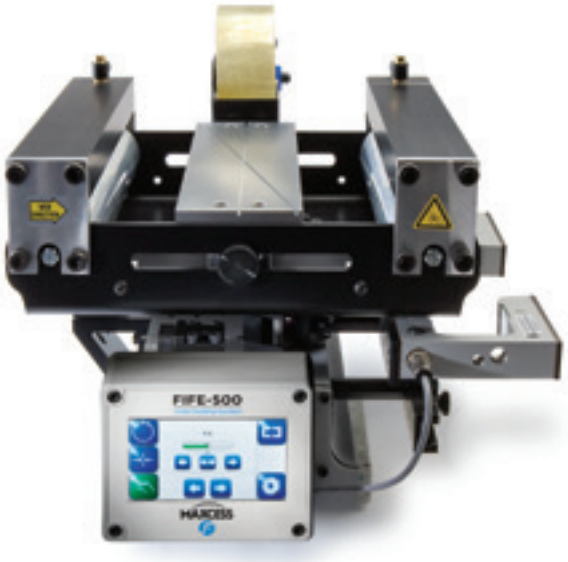
- Roll stands shift laterally to align with the edge of the approaching web
- Helps to prevent telescoping, ensuring evenly wound rolls
- Easily adapts to existing assemblies
- Available with integrated tension control systems, shafts and safety chucks



FIFE-500 Guide for Narrow Web Application

The FIFE-500 is specially designed for narrow web guiding applications, where an integrated processor solution is required. Thanks to its compact dimensions it can easily fit into new or existing machinery.

The most innovative feature of the FIFE-500 is the colour touch screen, featuring icons and text in multiple languages to make setup and operation simple and intuitive, reducing training requirements to a minimum.



State-of-the-art technology has been adopted for the processor, brushless motor and mechanical construction to achieve the maximum performance and durability in all applications.

Key Features

- Colour touch screen
- Compact design
- Brushless motor
- Splice table (option)
- Fine adjustment (option)

Specifications

- Roller Face: 160 - 900 mm
- Roller Diameter: 40 mm, 60 mm, 80 mm
- Max. Web Tension: 1000 N
- Power Supply: 18 - 30 VDC, 108 Watt
- Temperature: 0 - 50 ˚C
- Protection Class: IP-54
- Certification: CE, UL61010-1, CAN/CSA-C22.2 No.61010-1, IEC61010-1

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 usually furnished with two rollers. The entire guide pivots to control web position and minimize web stress.

MicroSymat

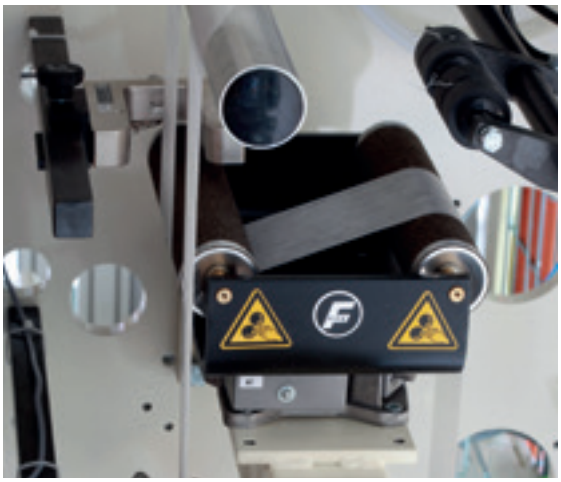
- Extremely compact, single-roller design for guiding under tight space constraints
- Standard roller faces: 80 mm and 100 mm
- Maximum allowable tension: 100 N

Symat 25/DS-25

- Versatile, compact guide capable of accommodating all threading styles
- Standard roller faces: 160 to 300 mm
- Maximum allowable tension: 200 N

Symat 70G

- Standard roller faces: 250 to 700 mm
- Maximum allowable tension: 800 N



Symat 120A/300A

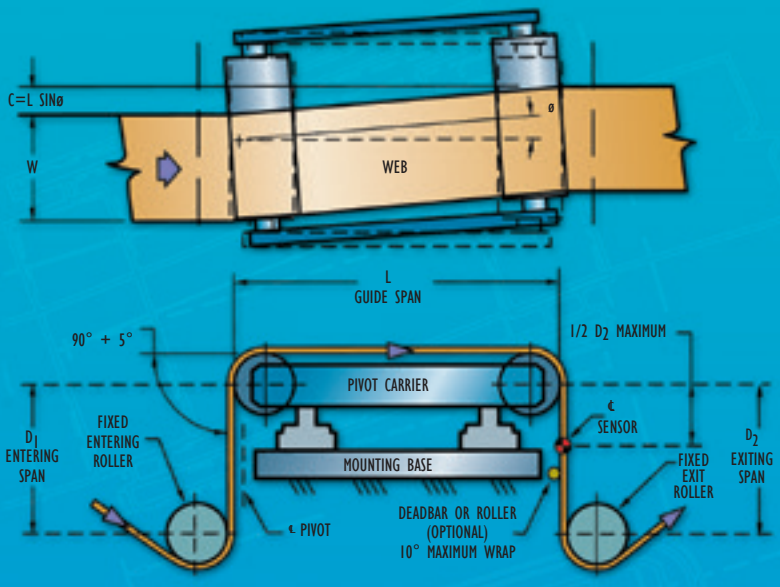
- Designed to accomodate web widths up to 1.200/3.000 mm
- Maximum allowable tension 1.500/3.000 N

Symat 20K/40K

- Designed to accommodate large webs and heavy duty applications
- Available with electromechanical and hydraulic actuators.

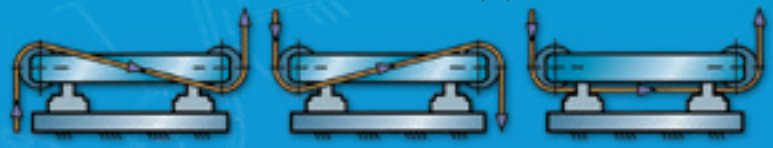
All guiding systems are engineered for your specific application. For higher tensions or wider webs contact Maxcess or your local Field Sales Engineer.

Offset Pivot Guide



$$D_1 \text{ OR } D_2 \text{ (MIN)} = 0.00357\, W\, ø \sqrt{\frac{W\, E\, t}{T}}$$

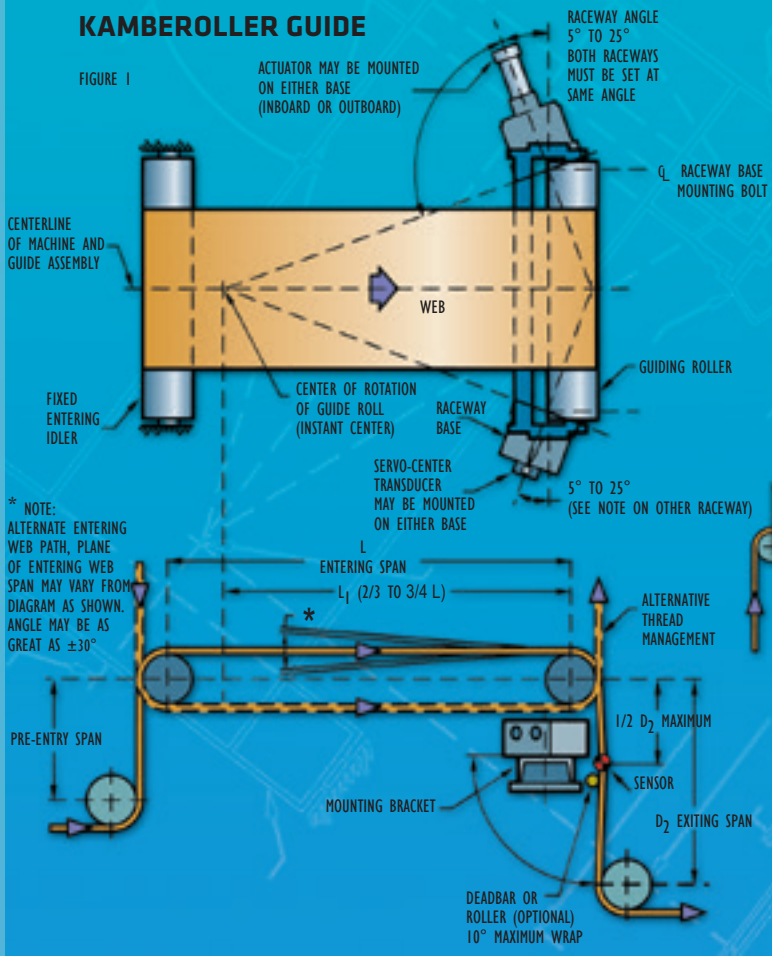
D_1/D_2 = ENTERING/EXITING SPAN (mm)
E = MATERIAL MODULUS OF ELASTICITY (N/mm^2)
C = CORRECTION (mm)
L = GUIDE SPAN (mm)
ø = GUIDE ANGLE (DEGREES) $ø = SIN^{-1}(\frac{C}{L})$
T = TENSION (N)
t = WEB THICKNESS (mm)
W = WEB WIDTH (mm)



Other Threading Arrangements

KAMBEROLLER GUIDE

FIGURE 1



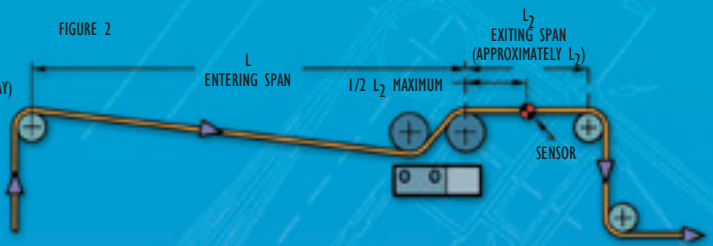
Kamberoller Entry Span Formulas

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

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

C	=	± GUIDE CORRECTION (mm)
E	=	MATERIAL MODULUS OF ELASTICITY (N/mm^2)
L	=	LENGTH OF ENTRY SPAN (mm)
T	=	TENSION (N)
T	=	MATERIAL THICKNESS (mm)
W	=	MATERIAL WIDTH (mm)

FIGURE 2



Typical Straight-Through Threading (S-Wrap)

Intermediate Guides – Steering Type

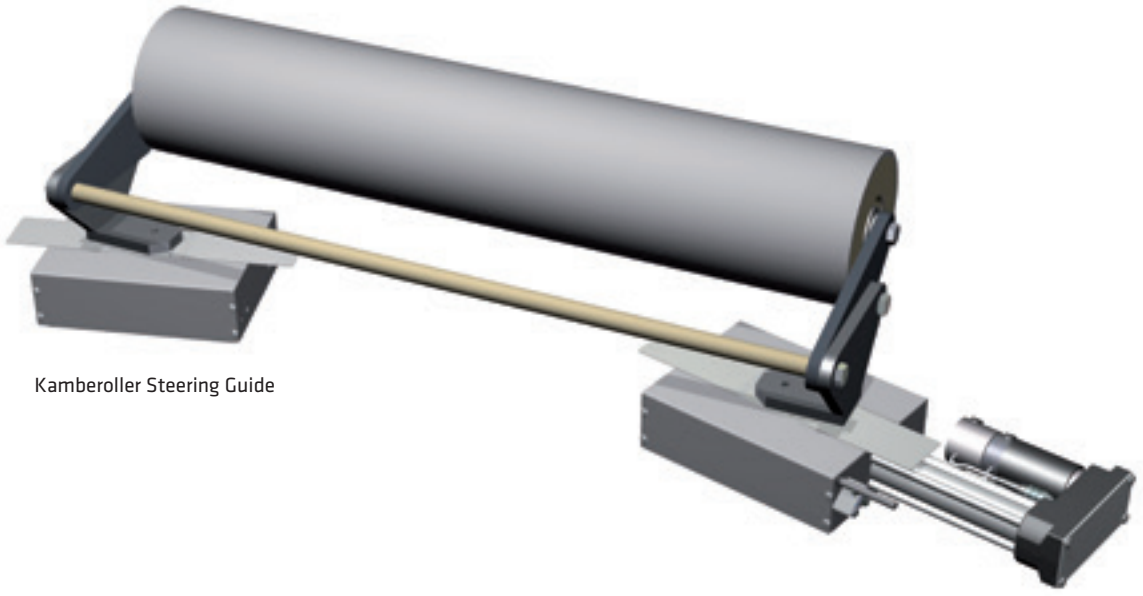
Fife's innovative Steering Guides deliver precise web position by utilizing a long entry span. These versatile guiding assemblies provide immediate lateral correction for transient errors, while at the same time compensating for the web's steady state errors.

Kamberoller Steering Guide

- Standard roll face lengths range up to 9 meters and more
- Available with electromechanical and hydraulic actuators
- Single-, double- or tri-roller arrangements available

Kantiroller Steering Guide

- Compact steering guide ideal for usage with narrow webs
- Accommodates web widths from less than 200 to 360 mm
- Single, double or tri-roller arrangements available
- Available with electromechanical and hydraulic actuators



Kamberoller Steering Guide

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