Maximum precision for your web guiding: BST Web Guiding Systems.

Be inspired. Move forward.

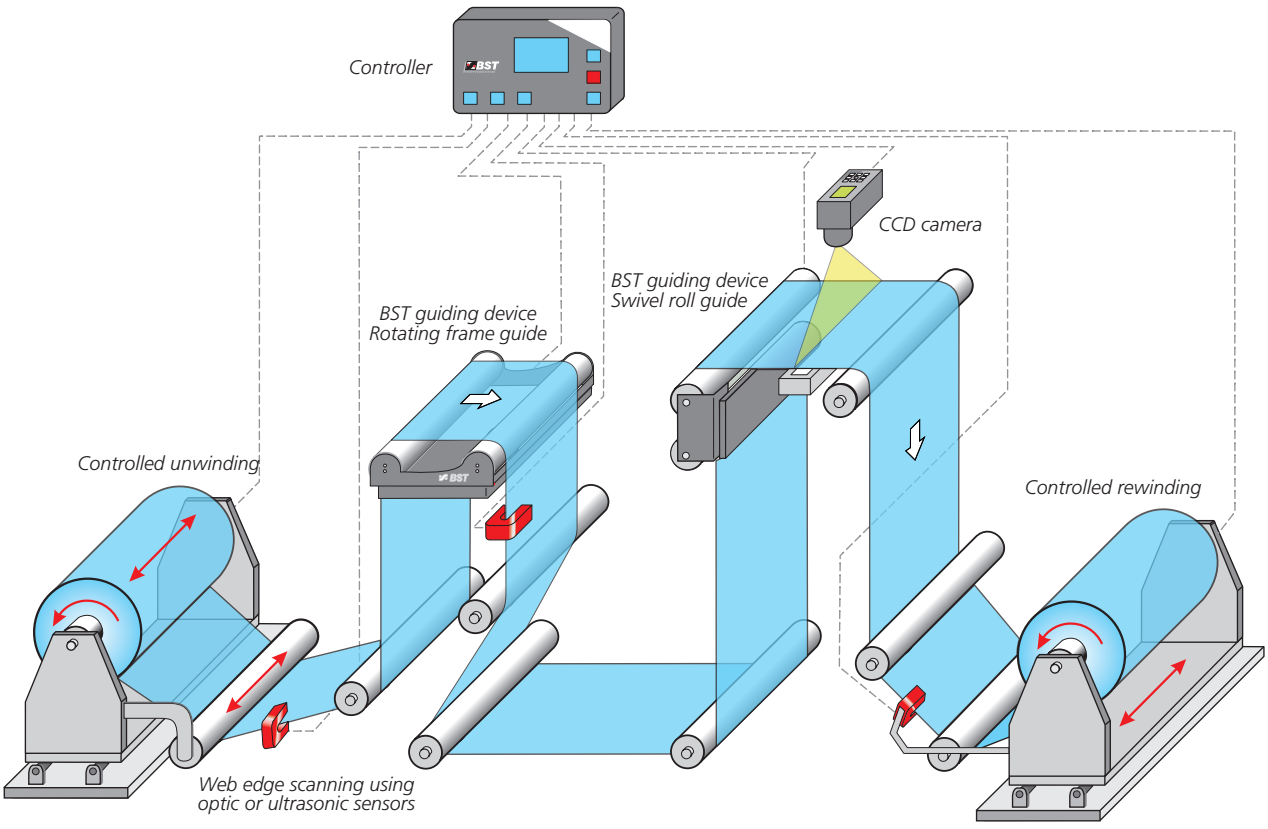
BST international

OPTIMAL WEB GUIDING – RELIABLY MANAGED.

Faster production speeds and increasing quality requirements: Advanced production equipment for processing web material, e.g. in the printing industry, can achieve speeds that were considered ambitious just a few years ago. At the same time, in light of the fierce competition, providers must ensure reliable, flawless results to persist in the market.

The challenge: The maximum machine speed must be utilized while ensuring that the web is well controlled, throughout material unwinding, guiding, production and cutting processes, and rewinding.

Continuous and precise web guiding: BST systems manage web guiding in various production processes, e.g. in the paper, foil and rubber industries as well as for conveyor and transport systems. BST web guiding systems make sure that the processed material is exactly where it is supposed to be. They can be used for a large range of substrates and help effectively to minimize waste and downtimes.



PERFECT GUIDING:
BST CONTROL CIRCUIT FOR PERFECT PRECISION.

Aligned to suit your production: BST systems for web guiding are designed to precisely match your production process in terms of scope and degree of automation.

Control systems to match any amount of processing
The principle approach to control your web depends on your way of web processing. Unprocessed webs can only be controlled based on the web edge or centre as no other contrasts are available on the web itself. Finished webs however offer more options for position detection, e.g. printed lines or freely selectable contrasts.

Web guiding types
Web edge guiding is based on the left or right web edge which is detected with an edge sensor. For **center-line guiding**, two edge sensors capture the web center position which is used as the basis for position adjustment. **Contrast control methods** are based on continuous or interrupted printed lines or a contrasting edge.

Precision based on experience
As a leading manufacturer of quality assurance systems for the web processing industries, BST International has an installed base of over 100,000 systems in more than 100 countries.

At a glance: BST's control circuit

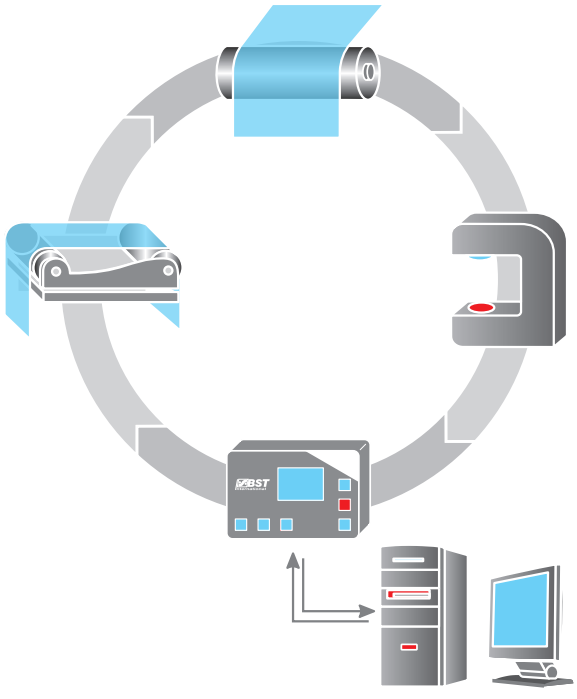
All BST web guiding systems are based on a simple, closed control circuit:

The **current position** of the web is the basis...

... it is captured by one or more **sensors** as **actual position** and transmitted to the controller...

... the **controller** compares actual values with defined **nominal values**. If there is a deviation, the controller sends a **correction signal** to...

... the **actuator**, which corrects the web position precisely and with virtually no delay.



PRECISE CORRECTION IN ANY INSTALLATION POSITION.

Usually, material is delivered in rolls for the web processing industry. It is unwound for processing, fed through the production process and rewound at the end of the machine. During these procedures, there is often a lateral offset of the web, which is why web guiding systems secure all critical positions in the process.

What happens, if the web leaves its target position?
If the actual web position measured is not in line with the nominal position, the guiding device, which is driven by the actuator, adjusts the web until the nominal position is reached again.

This process can be applied using various types of guiding devices including rotating frame or swivel roll guides, turning bars and controlled rewinding/unwinding stand.

AT A GLANCE:

BST actuators can be flexibly used for your application, depending on:

- web width
- web tension
- materials to be processed and the related permissible stress
- space in the machine

The guiding devices are available in various sizes and designs to match almost all web widths and applications. In addition, a range of roller designs and coatings are proposed to suit your material.

BST GUIDING DEVICES: THE BEST CHOICE FOR FIRST-CLASS CORRECTION PROCESSES

Rotating frame guide (DF)

Design

Fixed lower frame, pivoting upper frame with centre of motion in the entry area of the material web.

Function

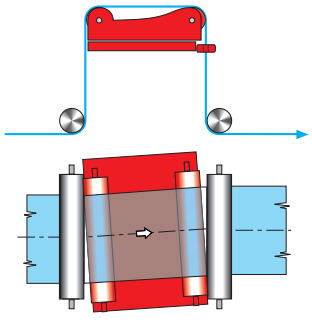
In the event of a web guiding error, the top frame moves around its centre of motion and brings the web at the next guiding roller to a defined position.

Application

- Short infeed/exfeed span with minimum material stress
- Specifically suitable for sensitive materials

Benefits

- Variable installation positions
- Low actuating forces necessary



Function principle rotating frame guide

Swivel roll guide (SF)

Design

Fixed lower frame, moving upper frame with one or two rollers.

Function

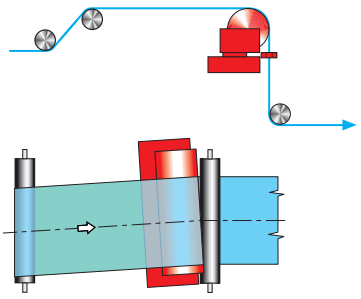
The upper frame moves around an imaginary pivot on the entry side outside the guiding device. In the event of an incoming error the guiding device swivels out to the side and brings the running web at the next guiding roller to a defined position. Correction is carried out at the entry level.

Application

- For sufficiently long infeed/exfeed span
- When the required web threading does not allow the use of a rotating frame guide
- For continuous lateral drifting of the web (integral correction)

Benefits

- Suitable for limited installation space



Function principle swivel roll guide

Controlled unwinding/ rewinding

Function

Sensors on the machine frame (unwinding) or the winding frame (rewinding) compare the nominal and the actual web position. Web position deviations are compensated by lateral tracking of the unwinding/winding stand.

Application

- Unwinding/rewinding of rolls

Benefits

- Precise feeding of web into the machine
- Production of material rolls with precise edges
- Minimal space required

Controlled unwinding

Controlled rewinding

EFFICIENT PRODUCTION.
DIGITAL COMMUNICATION.

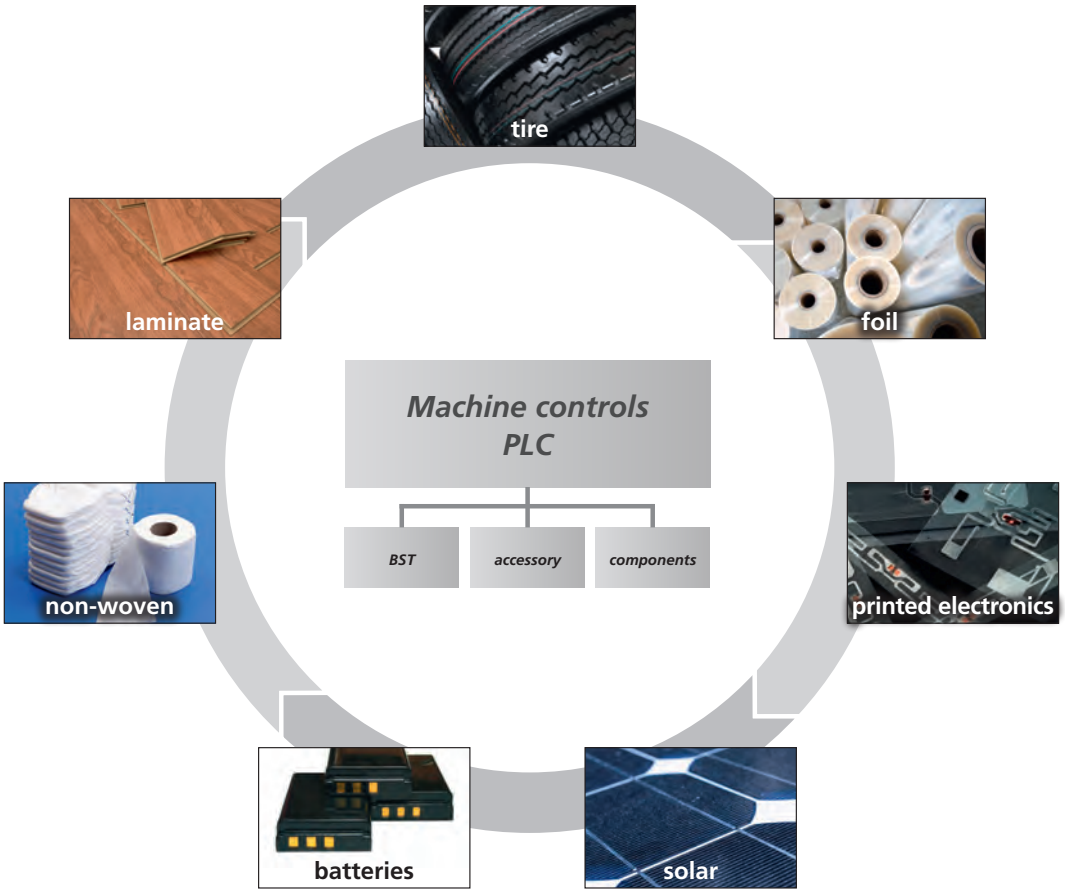
The variety of connectable BST components ensures optimal alignment with your application. All controllers have available several ports: For sensors, guiding devices and actuators of various performance classes and for the connection to your machine controls.

BST web guiding systems provide information that can be directly integrated into your production process. Furthermore, BST systems can be controlled right from your control station.

This system determines time-critical process data in real time to make sure you always have current data for your complete system. With simple internal and external networking, convenient operation, extreme interference resistance, fast and secure signal transmission as well as a minimum of wiring work by plug & play, BST together with your fieldbus system makes a valuable contribution to your quality assurance system.

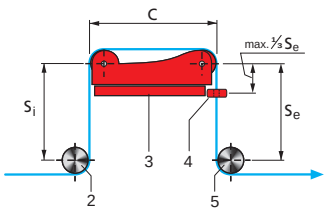
We have a number of special interfaces available for connecting our web guiding systems to all common bus systems (CAN bus, Profibus-DP, DeviceNet).

This technology is frequently used in various industries including:

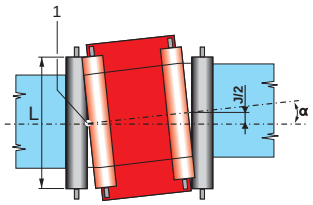


PROJECT PLANNING INFORMATION

Rotating frame guide design



C = Correction span
S_i = Infeed span
S_e = Exit span
L = Roller length
J = Stroke of correction
α = Angle of rotation max. ±5°



1 Pivot
2 Infeed roller
3 Rotating frame guide
4 Sensor
5 Exit roller (idler)

S_i = infeed span = 0.5 to 1x max. web width
S_e = exit span = 0.5 to 1x max. web width

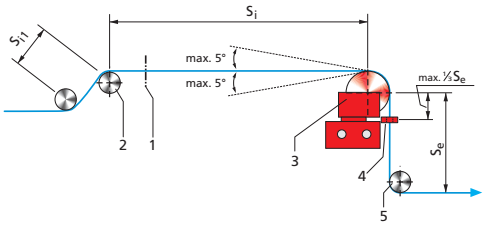
The syntax of a rotating frame guide is defined as follows:
DF n x D x L x C

It is composed of the following elements:

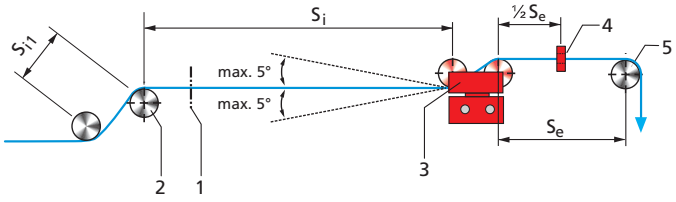
DF = Rotating frame guide
n = Number of rollers
D = Diameter of the rollers
L = Length of the rollers
C = Correction span

Swivel roll guide design

L-form wrap



W-form wrap



S_i = infeed span = 1.8 to 2x max. web width
S_{i1} = pre-entry span
S_e = exit span = 0.5 to 1x max. web width

1 Pivot
2 Infeed roller
3 Rotating frame guide
4 Sensor
5 Exit roller (idler)

S_i = infeed span = 1.8 to 2x max. web width
S_{i1} = pre-entry span
S_e = exit span = 0.8 to 1x max. web width

The syntax of a swivel roll guide is defined as follows:
SF n x D x L

It is composed of the following elements:

SF = Swivel roll guide
n = Number of rollers
D = Diameter of the rollers
L = Length of the rollers

The following information is necessary in order to design a BST web guiding system with a rotating frame guide or a swivel roll guide:

General data:

- Machine type
- Mounting location within the machine
- Transparency of the material (clear as glass, translucent, changeable, reflective, opaque)
- Ambient conditions (normal, dirty, dusty)
- Ambient temperature
- Power supply
- Operation mode (continuous, intermittent)
- Web speed
- Web tension at maximum width
- Thickness of the material
- Web width
- Variations in web width
- Maximum incoming error
- Elasticity modulus

Guiding mode:

- Web edge
- Web center-line
- Line
- Contrast

SMART SERVICE TO HELP YOU ACHIEVE THE NEXT LEVEL.

No matter where you use our technologies, we are here for you, providing dependable BST service. Our experts are available internationally and will be quick to help you sort out any issues. You can rely on a broad global production and sales network, ensuring first-class service anywhere in the world.

Being partners for top quality: To ensure you achieve maximum value, all our systems are precisely aligned to your specific conditions. You define what you need: project-based cooperation or a full BST service package. No matter what you choose, we are fully committed to making your products define new benchmarks.

To learn more, please visit **www.bst-international.com**.

Your local contact

Be inspired. Move forward.

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