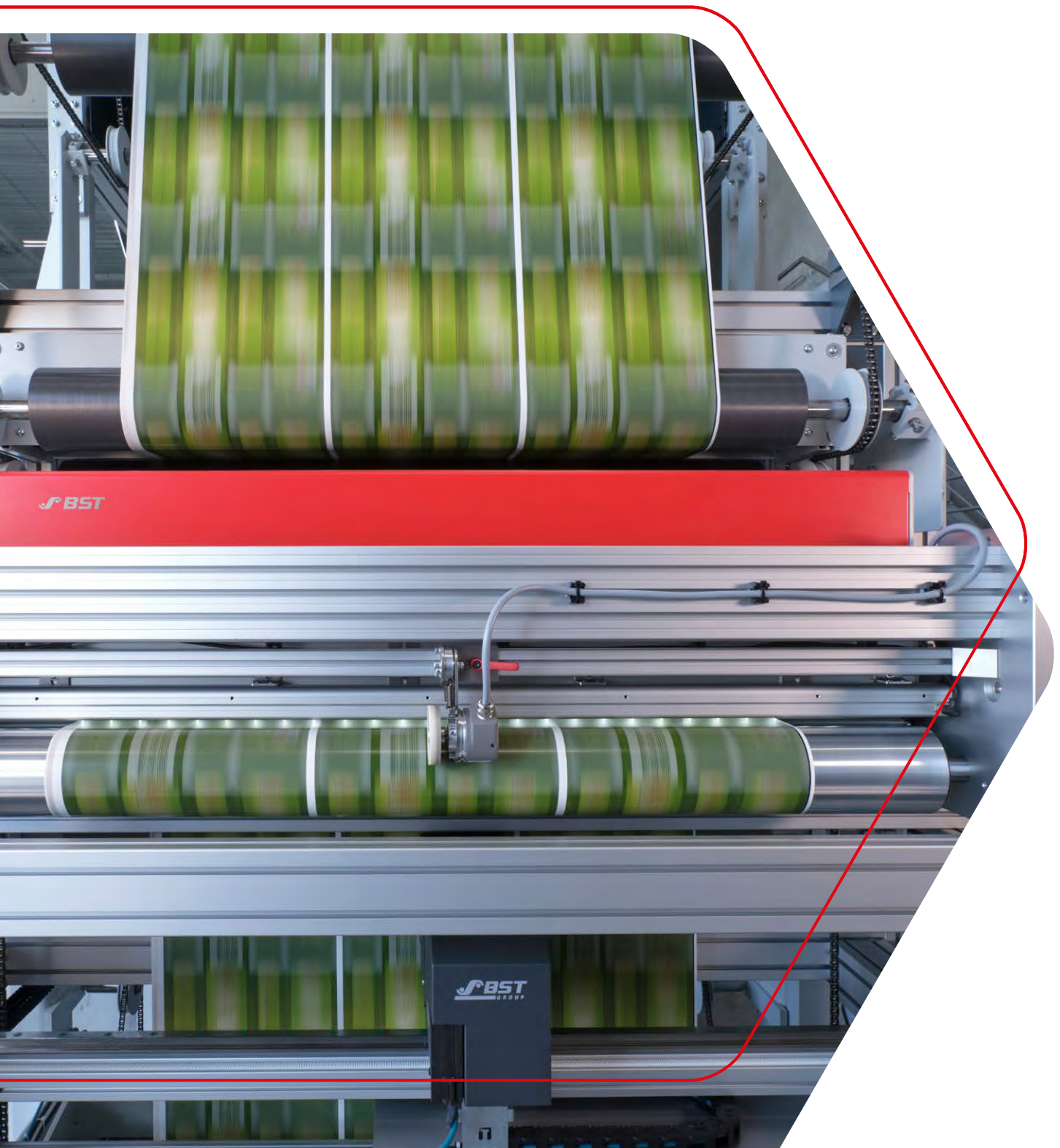


Economical 100 % inspection solution
for wide web printing and converting

TubeScan XL Slitter TubeScan XL Press



Wide web printing and converting

100 % inspection technology

The successful modular inspection system, TubeScan digital strobe, is now available for wide web applications.

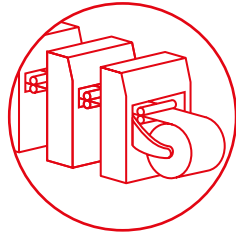
Advanced matrix camera technology and high performance image processing provide unrivaled image quality and ultra-fast, 100 % inspection at an unbeatable price.

The XL series covers web widths between 900 mm and 1700 mm and can be equipped with the full range of TubeScan accessories and lighting options such as back light, contour light and UV illumination.

It can be easily integrated in the QLink production workflow.

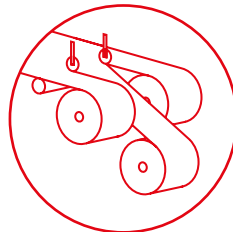


TubeScan Digital Strobe XL is available in two configurations:



Tube Scan XL Press (→ see page 6)

- » Optimized for printing presses
- » Configured for high pixel resolution
- » Ensures print quality, thus minimizing waste



Tube Scan XL Slitter (→ see page 7)

- » Configured for inspection performance, thus ideal for slitter rewinders
- » Allows for inspection at speeds up to 800 m/min.
- » Ensures print quality thus avoiding costly customer complaints

Wide web applications can now benefit from ultra-fast, 100 % inspection at an unbeatable price.

Facts and features

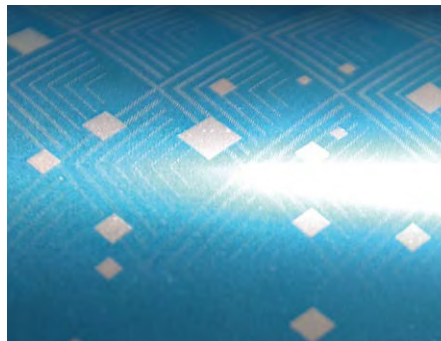
“Digital Strobe” principle

- » Real time live view during make-ready and production
- » Pulsed LED illumination for low power consumption
- » Excellent image quality on large 32" viewing monitor
- » Image stabilization due to automatic format synchronization across the entire speed range of the machine
- » Accurate length and repeat counting
- » Press: High resolution cameras for superb image quality
- » Slitter: Ultrafast cameras for up to 800 m/min web speed

Powerful QLink workflow

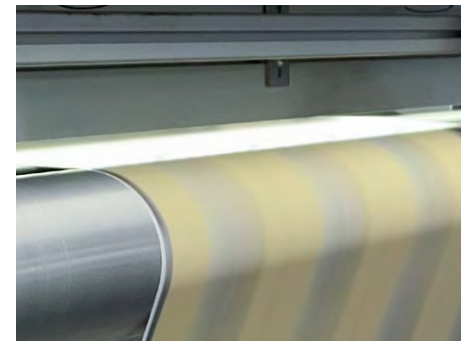
- » QLink Press (→ see page 6) or QLink Slitter (→ pages 7 – 9) can be either used as workflow in conjunction with a doctor machine or simply for visualization and archiving of defect data

Standard illumination modes



Front light illumination

- » Dark field illumination for diffuse materials
- » Bright field illumination for reflective materials



Back light illumination

- » Backing bar with integrated high-power LEDs for translucent materials or pinhole detection

100 % inspection at full production speed

Order Statistics			
	Net Length OK	Net Length Doctoring	Net Length Waste
P04183351.ET11849	41,444 m	2,583 m	2,583 m

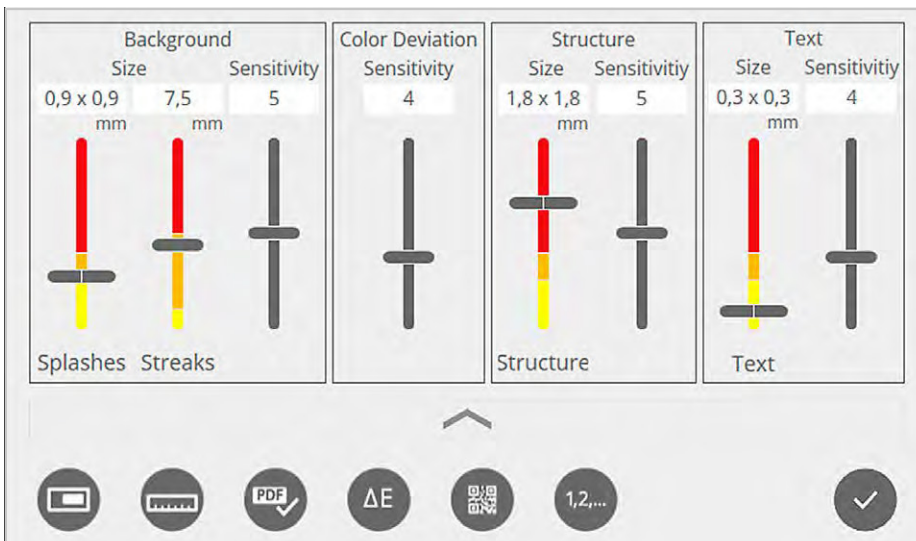
Roll Statistics	
	Total Length
> P04183351.ET11849-1	3,143 m
> P04183351.ET11849-2	2,043 m
▼ P04183351.ET11849-3	2,583 m

	Defect Rate
✔ P04183351.ET11849-3_0	0.4%
✔ P04183351.ET11849-3_1	0.6%
✔ P04183351.ET11849-3_2	0.2%
✔ P04183351.ET11849-3_3	0.1%
⚠ P04183351.ET11849-3_4	6.2%
✘ P04183351.ET11849-3_5	29.5%

Current Order P04183351
Current Article ET11849

Order management:

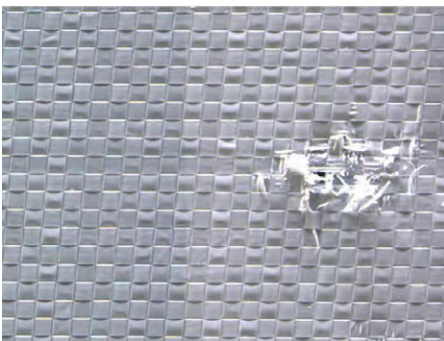
- » Up to date information about the production status of each roll
- » Generation of PDF roll reports



100 % inspection

- » Adjustable sensitivities of various defect classes
- » Masking function to ignore definable areas
- » Optimized algorithm especially for inspection of text
- » Easy to use interface

Optional illumination modes



Contour light

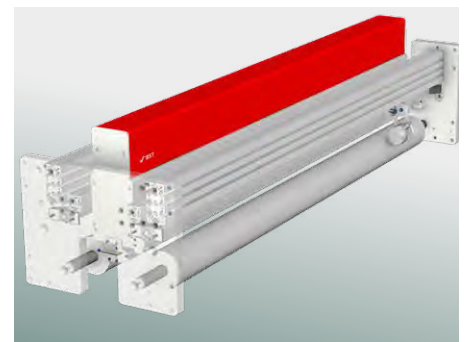
- » Enhancement of the visibility of embossed structures, wrinkles, bubbles, etc.



UV illumination

- » Inspection of luminescent areas such as coatings, adhesives, silicones
- » Inspection of security features printed with transparent luminescent ink
- » Switching between standard white light inspection and UV inspection

Compact mounting frame



- » Rugged and extremely compact housing concept using extruded aluminum profiles
 - » Easy integration into new machines and retrofits
- (→ see page 10)



High pixel resolution

TubeScan XL on the printing press

100 % web inspection

TubeScan XL provides excellent image quality for web inspection on the press. Detailed areas are analyzed in detail using high-resolution zoom functions on the large 32" monitor.

Recurring errors, e.g. from faulty printing plates, can be detected at an early stage. This minimizes unnecessary costs for misprints and shortens makeready times. Color consistency can be ensured by ΔE monitoring.

Use of QLink Workflow

In the QLink workflow, defect data is stored in roll logs. These can be used later for quality assessment or in further production steps to eliminate defective material. The stored production data can also be used as proof for your customer.

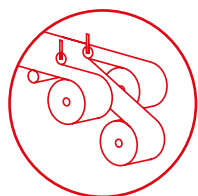


Simple, intuitive user guidance via touch screen.



In the defect gallery, the last defects can be conveniently displayed and selected.

TubeScan Digital Strobe Press	XL 900	XL 1100	XL 1400	XL 1700
Max. inspection width	900 mm (35")	1,100 mm (43")	1,400 mm (55")	1,700 mm (67")
Number of pixels	7,200			
Pixel Resolution	0.139 mm	0.167 mm	0.2 mm	0.24 mm
Housing length	1,010 mm (39.8")	1,210 mm (47.6")	1,560 mm (61.4")	1,870 mm (73.6")
Max. speed	350 m / min	400 m / min	450 m / min	500 m / min
Min. defect size	0.5 x 0.5 mm ²	0.6 x 0.6 mm ²	0.8 x 0.8 mm ²	0.9 x 0.9 mm ²
Weight of camera unit	26 kg	31 kg	39 kg	47 kg
Total weight incl. UMF	87 kg	99 kg	121 kg	145 kg



Inspection at high machine speeds

TubeScan XL on the slitter

100 % web inspection

At speeds up to 800m / min, real-time video streaming produces a crisp, stable image for evaluating print quality. Zoom functions allow accurate analysis of detailed areas on the large 32" monitor.

Automatic 100 % print control

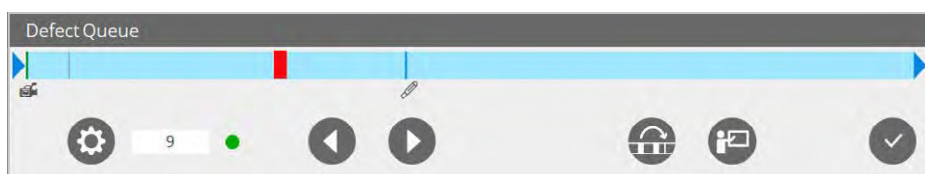
When automatic print control is activated, TubeScan XL detects sporadic or recurring errors in color and text areas and stores them – as required – in an error log. This can be used for downstream quality assessment and as proof for the customer.

Use of QLink Workflow

An error log is created on the slitter for each individual daughter roll. This serves the doctor machine as a basis for defect elimination. TubeScan XL controls the bidirectionally operating doctor machine so that the defect is automatically placed at a predefined target position.

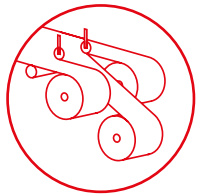


Customer application on a slitter.



Placement control allows pinpoint positioning of a selected defect on the doctor machine.

TubeScan Digital Strobe Slitter	XL 900	XL 1100	XL 1400	XL 1700
Max. inspection width	900 mm (35")	1,100 mm (43")	1,400 mm (55")	1,700 mm (67")
Number of pixels	6,000			
Pixel Resolution	0.167 mm	0.2 mm	0.24 mm	0.305 mm
Housing length	1,010 mm (39.8")	1,210 mm (47.6")	1,560 mm (61.4")	1,870 mm (73.6")
Max. speed	500 m / min	600 m / min	700 m / min	800 m / min
Min. defect size	0.6 x 0.6 mm ²	0.8 x 0.8 mm ²	0.9 x 0.9 mm ²	1.1 x 1.1 mm ²
Weight camera unit	26 kg	31 kg	39 kg	47 kg
Total weight incl. UMF	87 kg	99 kg	121 kg	145 kg



TubeScan Digital Strobe XL

QLink workflow on the slitter

Our trusted and well established QLink workflow is linking all production processes.

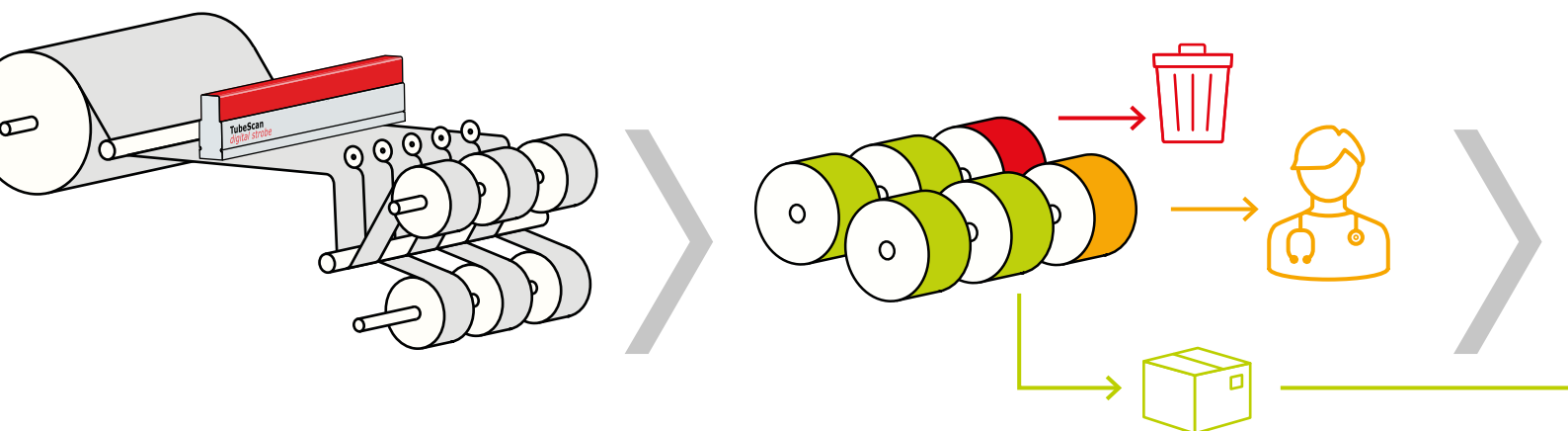
During inspection on the slitter the QLink system records quality data and stores them on a server. Each slitted lane is treated separately. This

makes the selection of daughter rolls for further processing easy. Relevant daughter roll statistics are concisely displayed on the screen for the operator.

Based on your defect presets, QLink Slitter categorizes your material in

“defect-free”, “waste” and “to be doctored”. The doctor machine uses the QLink protocols for easy automatic placement and waste removal.

For you, this means excellent quality control and maximum yield.



- » Inspection on slitter with TubeScan Digital Strobe XL
- » Generation of roll map

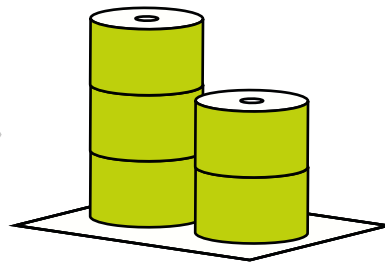
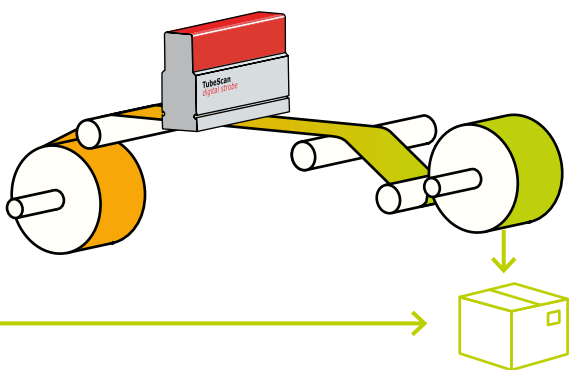
- » Automatic or manual rating “defect-free”, “waste” and “to be doctored”, according to your presets
- » Defect statistics per daughter roll (lane)



What would be the advantage of using the TubeScan inspection together with the QLink workflow on a slitter?

“Until today, installing a 100 % inspection system on a slitter machine was simply a matter of budget and benefit. TubeScan has changed that. It delivers a cost-effective solution and provides a detailed overview of print quality at high speed. A slitter won't stop on time when a defect is detected. So QLink Slitter records all defects and enables precise assessment of print quality in conjunction with further rework of individual rolls on a doctor machine.”

Dr. Stephan Krebs, Founder and Product Manager Nyquist Systems



- » Defect placement or inspection on doctor machine with TubeScan
- » Removal of defects



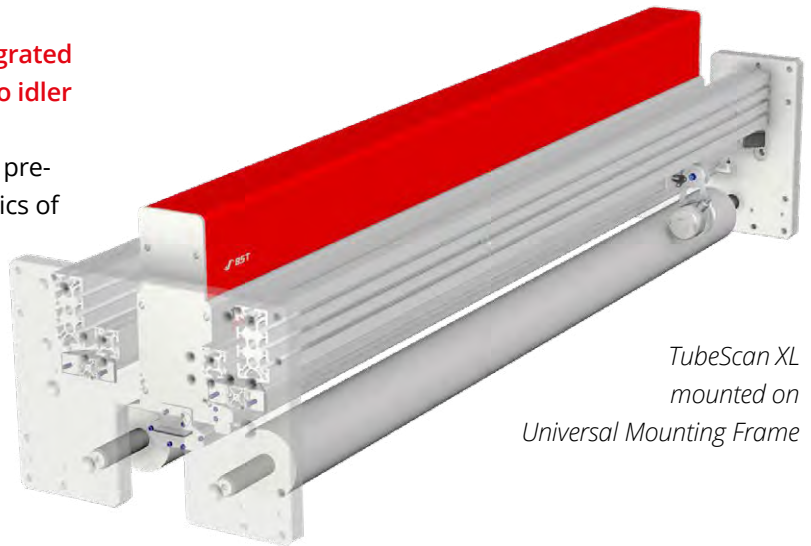
Roll map: Lanes correspond to daughter rolls

Machine integration of TubeScan Digital Strobe XL

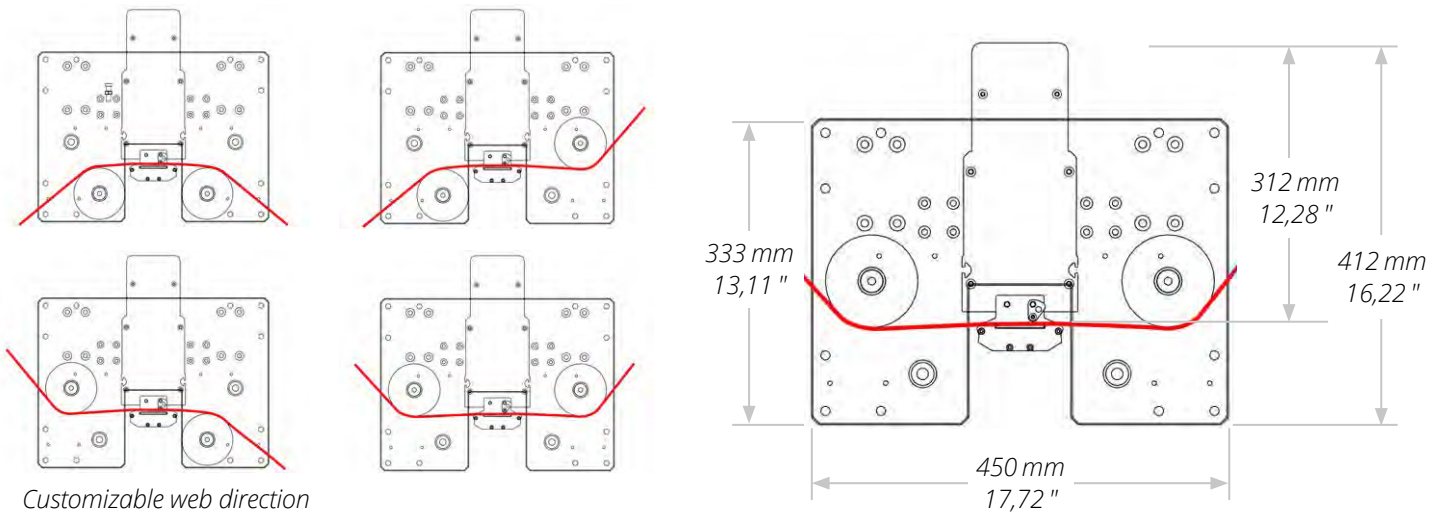
Universal Mounting Frame

The TubeScan Digital Strobe XL comes readily integrated in a Universal Mounting Frame (UMF) featuring two idler rollers.

These idler rollers and the encoder traverses can be pre-mounted in different ways to match the characteristics of the web path in the machine. Request dimensional and 3D drawings for further information.



*TubeScan XL
mounted on
Universal Mounting Frame*



Customizable web direction

Mechanical specification of UMF

TubeScan Digital Strobe	XL 900	XL 1100	XL 1400	XL 1700
Max. web width	920 mm (36")	1,120 mm (44")	1,420 mm (56")	1,720 mm (68")
Outer width of UMF	1,140 mm (44.9")	1,340 mm (52.8")	1,690 mm (66.5")	2,000 mm (78.7")
Roller material	Aluminum, hard anodized			
Roller diameter	100 mm			
Maximum wrap angle	90°			
Minimum tension	90 N (18 lb)	110 N (22 lb)	140 N (28 lb)	170 N (34 lb)
Maximum tension	630 N (126 lb)	770 N (154 lb)	980 N (196 lb)	1,190 N (239 lb)

Configure your system

Standard features and options

TubeScan XL standard configuration

3 high speed cameras

Backing bar for web stabilization

Switchable dark field / bright field illumination for diffuse and reflective materials

Universal Mounting Frame with hard anodized idler rollers

Electrical cabinet including:

- » High performance PC
- » Uninterruptible Power Source
- » Binary I/O module for 2 or 4 external event inputs (24 V)
- » Alarm set

15" touch monitor

32" viewing monitor

Repeat / length counter and coarse inspection (digital strobe +)

Fine Print and Surface Defect Detection Module (digital strobe ++)

Placement queue for rewinder ("TS XL Slitter" only)

PDF print report manager

5 m monitor cables (TS XL Slitter)

20 m+ extenders (TS XL Press)

Optional features

Diffuse back illumination

Contour light

UV illumination (365 nm)

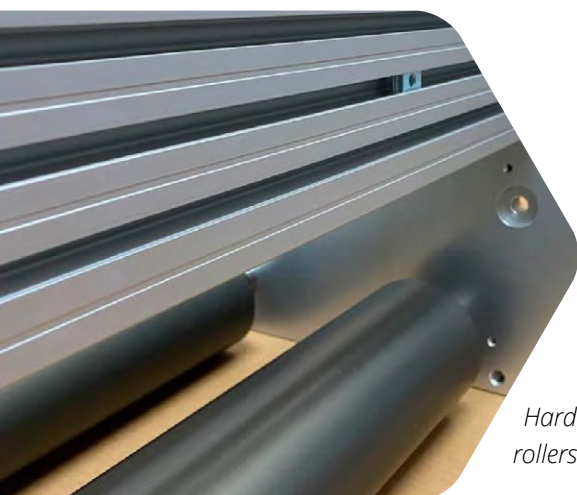
IR illumination (contact Nyquist for details)

Distance Monitoring Module

PDF Validation

Delta-E Monitoring

Cable extension for 10, 15 or 20 m; longer ranges with active extenders available



Hard anodized rollers



Installation of a TubeScan XL 1400 on a slitter



BST GmbH
Remusweg 1
33729 Bielefeld
Germany

T +49 521 400 70-0
www.bst.elexis.group
info@bst.group