Photo-optical inspection system

MINIFIT

for defect detection in elastic and non-elastic tapes, braids, cords and belts

MINIFIT

Concept

MINIFIT is a simple to operate and extremely efficient inspection system for elastic and non-elastic tapes and braids. Using highly dynamic, optical sensors and proven belt transport components, inspection speeds of 200-400 m/min are not only possible in theory, but also in practical production. In combination with a very attractive price, this provides amortisation periods, which are attractive in low-wage countries.

As an option, MINIFIT can be equipped with a free-standing longitudinal and transverse (TLD) unit. This allows the precise laying of the checked tapes into containers, which secures a high degree of utilisation during further processing. A tape storage buffer between the MINIFIT and the TLD allows continuous tape laying even when the inspection process is halted due to the discovery of a defect.

Advantages

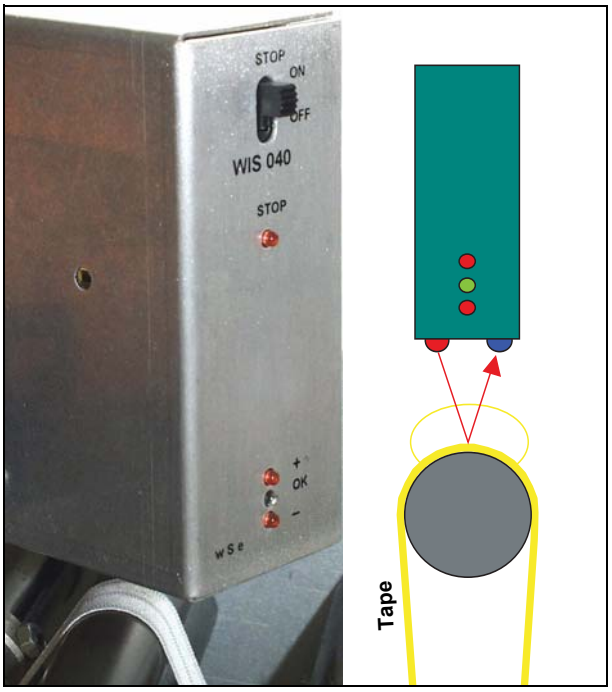
- High inspection speeds through the use of highly dynamic optical sensors.
- Very simple operation through easily accessible, clearly arranged operating elements.
- Fast article changes.
- Use of proven components for the belt transport.
- A variety of options for differing applications.
- Inspection results independent of the operator.
- Simultaneous quality controls of both sides of the tape.
- Individually adjustable defect tolerance.

Defect recognition potential

Elastic and non-elastic tapes with homogenous, longitudinal tape and colour structures can be inspected.

The following defects can be detected:

- Weave defects
- Tape width errors
- Selvedge defects
- Colour defects
- Stains
- Impurities
- Protruding threads and fluff

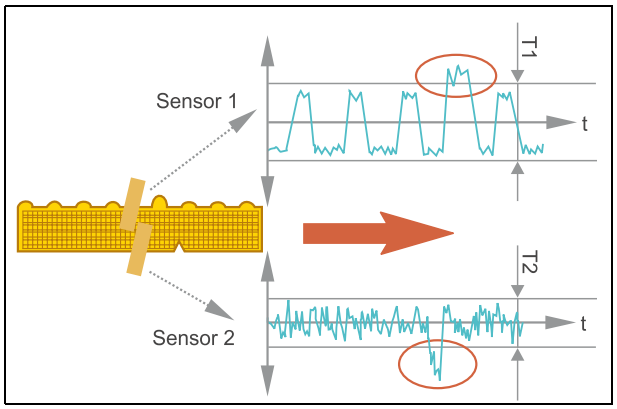


Inspection sensor, picture and schematic diagram

Various types of tapes can be examined

Functional principle

Light is transmitted onto the tape to be inspected. The intensity of the volume of light reflected from the tape is then measured in a photocell. With the help of the analogue electronics integrated in the sensor, the measured signal is evaluated within a fraction of a millisecond. Should the signal exceed the tolerance set by the operator, a defect shutdown occurs.



The diagram shows that signals from two sensors are used to check the tape
Light and the appropriate sensor signals. Inspection is stopped if either the T1 or T2 tolerance limit, which can be selected by the operator, is exceeded due to a tape irregularity.

Standard features

- Integrated untangling and pre-transport unit.
- Pre-transport rollers for the monitoring of tape tension.
- A control unit with a pair of white light sensors for 40 mm tape widths (front and reverse sides).
- A transport motor for the placing of the tapes in a container or in the buffer store.

Options

- Powered run-off device
- Longitudinal measurement devices
- "Censor" mechanical defect detector
- Knot catcher
- Longitudinal laying unit
- Transverse laying unit
- Tape buffer store
- Additional sensors for further 40 mm tape widths
- Additional red light sensors for the examination of dark and black tapes
- Anti-static device for MINIFIT
- Anti-static device for the longitudinal laying unit

Technical data

Inspection speed	200 – 400 m/min
Inspection width per sensor	40 mm
Maximum tape width	100 mm
Maximum inspection width	80 mm

Connected load

Rated output	2,0 kW inkl. TLD
Mains connection	3 x 400 V – 50/60 Hz

Dimensions

	MINIFIT	Tape buffer store	TLD longitudinal/ transverse laying unit
Width	1800 mm	1500 mm	1900 mm
Depth	800 mm	800 mm	1800 mm
Height	2400 mm	1200 mm	2400 mm

The Jakob Müller Group

Müller researches, develops, engineers and manufactures top technology – from individual subsystems to entire system solutions, including programming, warping, weaving, knitting, dyeing, finishing and making-up of narrow fabrics, webbings, labels and knitted goods.

Application areas
- Clothing
- Underwear
- Sports/leisure wear
- Footwear
- Furniture/household textiles
- Medicine
- Transport
- Conveyors and drives
- Electronics
- Building electronics
- Field technology

Narrow fabric weaving and make-up
- Product range for producing all narrow fabrics
- Complete machine range for warp patterning with dobby or jacquard shedding
- All-embracing system solutions:
  - warp
  - pattern creation
  - narrow-fabric weaving
  - dyeing and finishing
  - photo-optics quality inspection
  - winding, spooling, rolling and layering
  - Making-up narrow technical textiles

Narrow-fabric warp knitting with weft insertion
- Complete machine range for:
  - knitted goods from very simple to extremely complex designs
  - virtually unlimited repeat lengths
- Patterning versatility and unexcelled flexibility
  - proven Müller compound needle
  - technology for runproof products
- Top output capacities:
  - greater knitting width
  - top running speeds

Label weaving
- Complete system solutions developed specially for label production:
  - pattern creation
  - label sampling
  - label weaving
  - label cutting and folding
- Systems for labels with woven or cut edges
- Machines with highest speeds and minimum space requirement (needle, rapier and air technology)
- Product range to satisfy all qualitative and quantitative requirements

Your benefits as Müller customer
- Technology from one source where the emphasis has been on nothing else than narrow fabric manufacturing equipment for more than 110 years.
- Collaboration with a supplier employing over 1000 people exclusively in the production of tape and narrow fabric machinery.
- System solutions for your entire production – all from one source, one partner.
- Machines of robust, compact design, engineered to embody the latest technological advances.
- Low-maintenance systems with long life and good resale value.
- Worldwide sales and service network with more than 70 bases. We are always close to you.
- The Jakob Müller Institute of Narrow Fabrics is a centre for basic and advanced training, disseminating sound know-how on Müller products, as well as the design and production of textile products and industrial management.

Fascination of Ribbons and Narrow Fabrics
Innovation in Machinery

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