

Shapeline Strip System 500 Series

Non-contact, precision flatness measurement systems for increased metal strip quality and yield

For the advanced metal strip manufacturer, productivity, quality control, and total economy are crucial factors, in satisfying demanding customer needs.

In many applications continuous and accurate flatness measurement and control are integral parts of the production process and invaluable tools for improved quality. For these applications the Shapeline Strip System 500 - the state-of-the-art flatness measurement system has been developed.

The Shapeline Strip System 500 is easily integrated in the production line for continuous flatness monitoring with extremely high precision. The system is a tool for 100 percent quality control for strip widths between 250 and 500 mm. We also have other products for wider or more narrow strips, please contact us for details.

The output can be used for advanced applications such as process control, cutting and slitting optimizations as well as

defect map generation. It can be hooked up to a network for communication with other systems, remote access and backup.

The different systems in the series provide different performance regarding measurement accuracy and measurement point density.

Features:

- On-line measurement in the production line
- Current flatness profile over the full strip width
- On-line out-of-specification test
- Non-contact measurement is appropriate even for the thinnest strip
- Strip profile map and defect map
- Measurement protocol generation
- The measurement data can be retrieved using strip identity at any time
- Accuracy down to 5 μm per measurement



The Shapeline Strip System 500 is based on well tested laser measurement technology. More than 1000 measurements are performed simultaneously, which results in a high-precision surface profile, independent of strip movements and vibrations. The systems are perfectly suited for rough production environments with a minimum

Benefits

100% production quality assurance

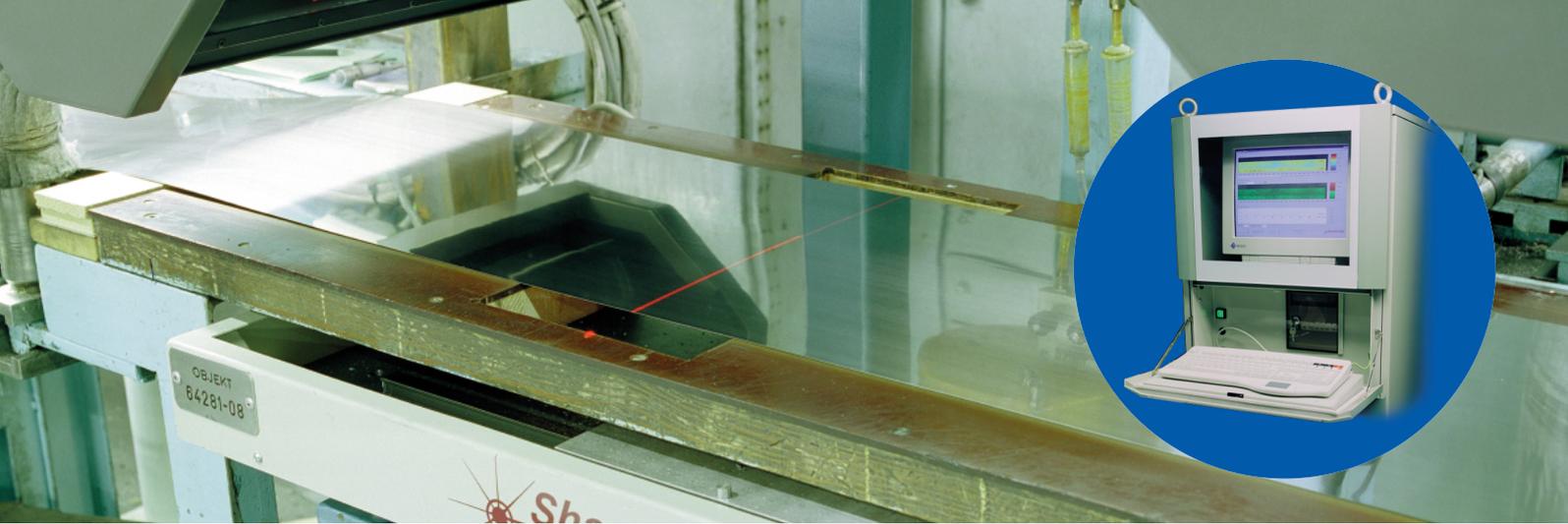
Enables elimination of complaints

Provides information for optimal cutting, slitting and grading

Possibilities to improve all process steps in terms of flatness

Systematic production follow-up

Measurement protocols for better customer support



Typical applications

The system is built for quality assurance of metal strips that have areas that are out-of-specification, such as local dents, bumps, grooves and ridges which are detected and measured. Even more general flatness defects are measured to a high accuracy. Moreover, the system can be used for non-

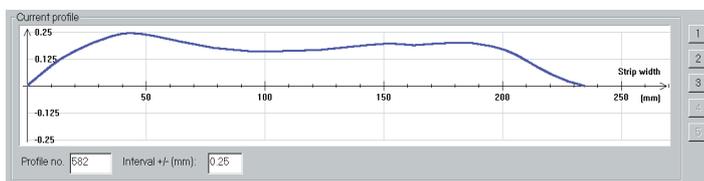
sts of several hundred tests per profile. If the specification is not fulfilled in any part of the strip, an alarm is generated, and the area is marked red in a defect map. Since the system can be connected to a pulse transducer, each measurement has a physical correspondence, and a defect can easily be located on the strip.

- access to measurement data from a host computer via network etc.

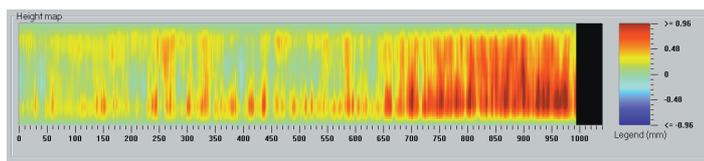
Please contact us for further details.

Fast customer support

The system has been dimensioned for optimal reliability with a minimum of maintenance. However, to provide fast customer support, all systems are equipped for off-site service and updating via modem or network.



The current profile is updated once per second and displayed in real-time to a high precision. The profiles also build up a height map that shows the overall flatness of the strip. In this map, the horizontal axis represents strip length and the vertical axis position in width. The profiles are also evaluated in real time, and the result is a defect map (not shown).



metal surfaces such as paper, wood, plastics, rubber and ceramics. It can also be used for profile verification of e.g. extruded materials.

Functionality

The system control cabinet has a user interface for plotting measurement and evaluation data, and a display unit for plotting the current profile. The plot auto-scales and the maximum height deviation is computed and displayed. An alarm can be generated if the deviation is larger than a preset value.

Each individual profile is evaluated on-line, using a pre-defined specification (customer defined). Each profile is the target of an exhaustive flatness test that consi-

Modular software for measurement applications

The system comes with ShapeSoft Base, which is software for standard flatness measurements. The base software includes current profile, height map, defect map, pulse transducer interface, calibration, tools for strip specification definition, user interface etc. Additional software is available for a number of applications e.g.

- on-line detection of local defects
- on-line evaluation of non-flat profiles
- protocol printouts
- detection of stain, rust, oil, hue variations etc.

Technical specifications

(The technical specifications are system specific. Please refer to the technical description for further details.)

HEIGHT RANGE: >10 mm

STAND-OFF DISTANCE: 100 mm

ACCURACY (std.dev.): Down to 5 µm per measurement point. The accuracy varies with point density and the number of profiles per second

Number of points per profile: User selectable over a wide range.

MEASUREMENT FREQUENCY: User selectable over a wide range. The measurements can also be controlled by a pulse transducer.

INTERFACES: Ethernet, Serial RS232 interface, parallel interface (printer), modem, pulse transducer interface. For other interface options, contact us.

OPERATING CONDITIONS: 0-50° C. Humidity: 10-90%, non-condensing.

PHYSICAL SIZE: Varies with strip width and system type. See the Technical Descriptions.

POWER REQUIREMENTS: 220-240VAC, 200 W max.

