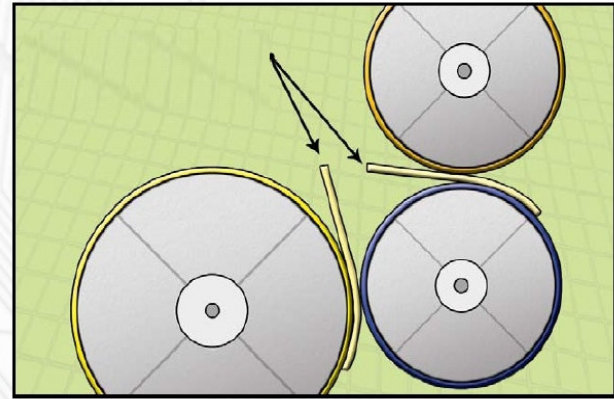
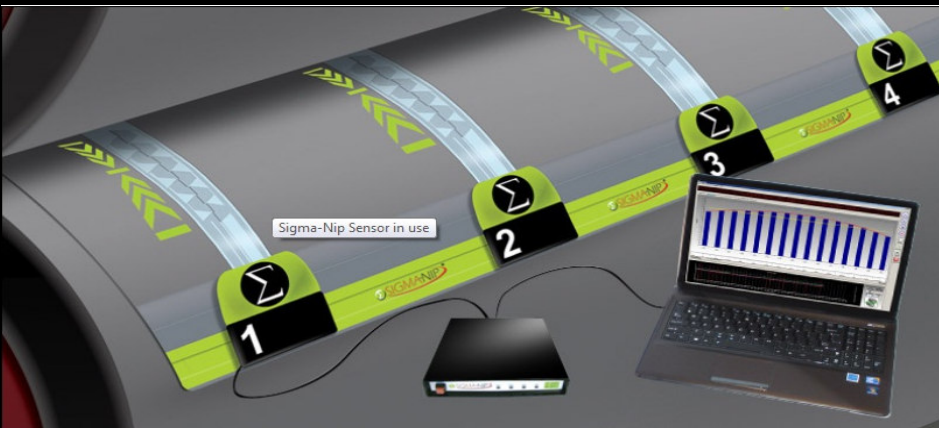


Roller Alignment at a Glance



Sigma-Nip & Auto-Nis

Roller Alignment Systems

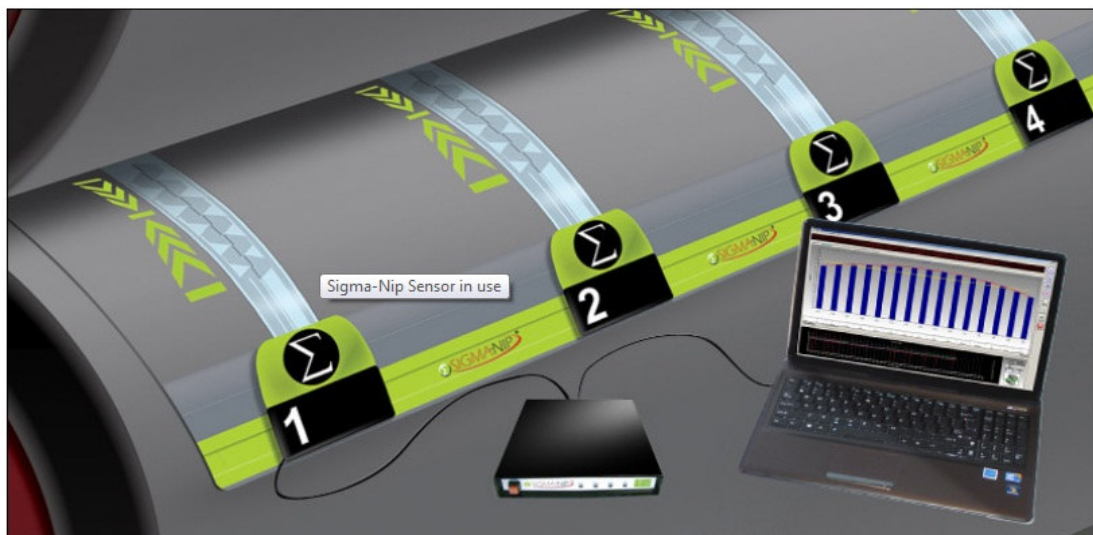
Sigma-Nip, Digi-Nip and Auto-Nis for rollers alignment

The readjustment of rollers and their exact setting is of great importance in many industries. Whether in paper manufacture or processing, during lamination or printing processes high quality products are always ensured. In addition, minimizing the downtime is a strong target to save costs. To achieve high accuracy in a short time, we offer two different solutions.

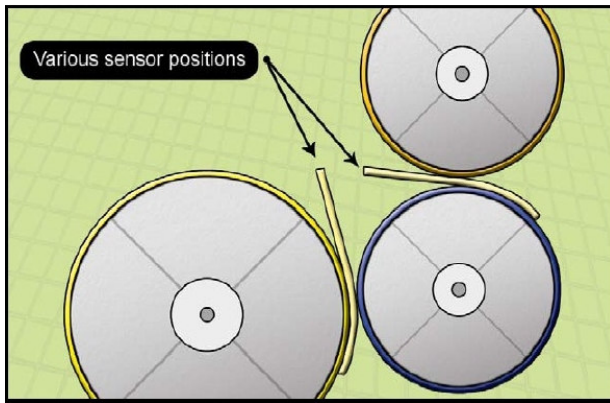
One is based on real time measurement of the nip width even during adjustment, the second is an approximation using Prescale pressure indication films and a scanner to measure nip and pressure distribution along the roller.

Nip-Width Analysis with Sigma-Nip in Real Time

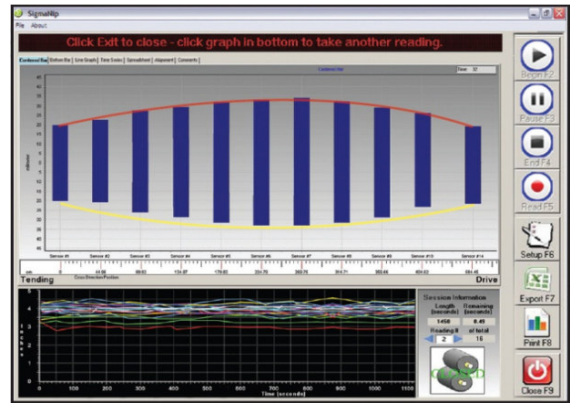
The electronic nip analysis system measures and calculates the nip width at different points along the rolls in real-time. The system Sigma-Nip consists of a series of sensors that are placed between the rollers together with an analysis program. The sensors can be positioned quickly and easily. They survive high pressures and are able to measure simultaneously with high accuracy and reproducibility. It is the ideal solution for setting all kinds of rolls



The nip width measurement system consists of various sensors, based on thin film resistance technology, which are positioned at specific points between the rollers. Once the sensors are placed, the rolls can be closed. The Windows based software shows simultaneously the nip widths in an easily interpretable way on the screen. The user thus immediately detects if the rollers are adjusted.



Sensor placement between the rollers



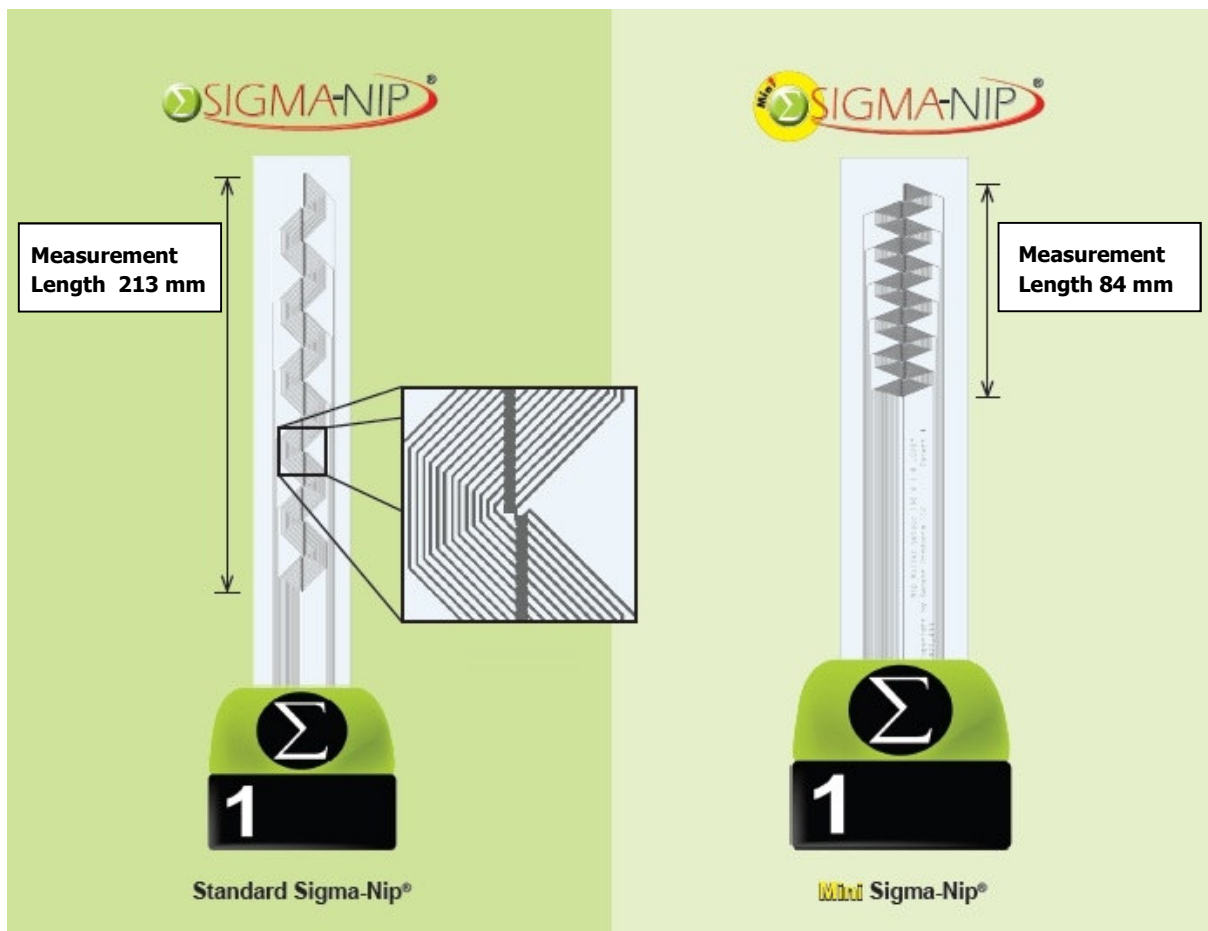
Analysis program for intuitive and quick documentation of nip-widths in real time

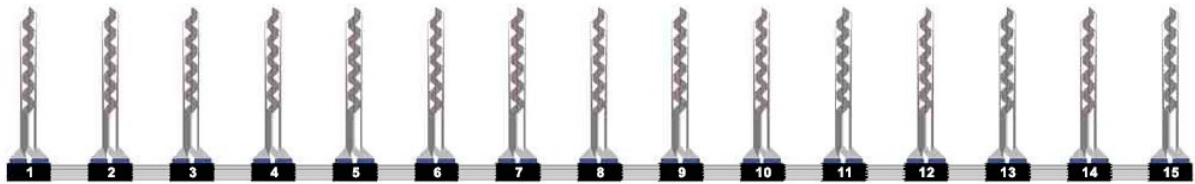
Since the analysis system operates in real time, the rollers can be adjusted directly in the closed state. Changes in the alignment can be directly monitored on screen. After proper adjustment the print out documents the final status.

Sigma-Nip comes complete with all necessary system components for quick and accurate nip width determination. The system consists of 3 to 15 sensors depending on customer requirements, the sensor hub with USB cable, intuitive software and a standard notebook.

Sigma-Nip Sensors

The sensors are available in two different lengths to fit various diameters and roller covers. The standard sensor has a measuring length of 213 mm, while the mini-sensor covers a length of 84 mm. All sensors are calibrated individually.





Technical Data

| System-Specifications | | Sigma-Nip Sensor-Specifications | | |
|-----------------------|----------------------|---------------------------------|----------------------------|----------------|
| Technology | Thin-film resistance | | Standard Sigma-Nip | Mini Sigma-Nip |
| Speed | 300 mm/s | Active sensor length | 213 mm | 84 mm |
| Accuracy | +/- 6 % | Matrix points | 168 | 168 |
| Reproducibility | +/- 98 % | Sensor thickness | 0.381 mm | 0.381 mm |
| Free Storage | 200 MB | Temperature range | -18 bis 150°C | -18 bis 150°C |
| Main storage | 128 MB RAM | Resolution | 1,3 mm | 0,5 mm |
| Connection | USB Port | Nip-width range | 3.8 bis 213 mm | 1.5 bis 84 mm |
| Operating System | Win 7 | Min. Pressure | 0.1 MPa | 0.1 MPa |
| Notebook | Actual version | Max. Pressure | 70 MPa | 70 MPa |
| | | Min. Sensor distance | 270 mm (190 mm as special) | 270 mm |
| | | Weight of Sensor | 227 g | 113 g |
| | | Material | PET | PET |

Nip-Width Analysis with Digi-Nip for Smaller Rollers

Digi-Nip is the ideal instrument for shorter and smaller rollers. With minimal investment and without experience a user can quickly and accurately record the nip width – the contact length between rollers. With Digi-Nip nip readings can be determined instantaneously between 0.6 to 25 mm with an accuracy of 0.1 mm. Adjustments are made while the two sensors are between your rolls. Digi-Nip is designed to provide thousands of readings before sensor replacement is necessary.

The weight of the portable system is 0.9 kg.



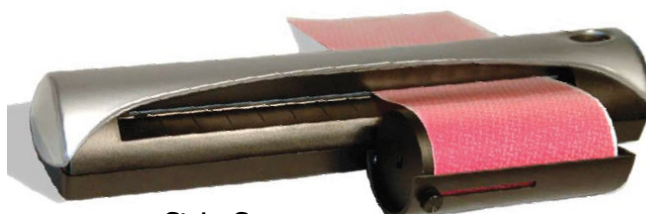
Strip Scan with Auto-Nis - Evaluation of Nip-Width

Auto-Nis is a Windows based scanner and analysis software system that enables accurate interpretation and analysis of nip-impression by Fuji Prescale film stripes. The sensor film instantaneously and permanently changes colors proportional to the surface pressure when placed between the two nipped rolls.



Pressure film records nip impression

Economical bands of only a few centimeters in width are sufficient to detect the nip impression. Place the stripe on the nip area of the opened roller. After closing and under the roller pressure of production the pressure sensitive film changes the color permanent. The color change is shows the nip-width and the intensity of the color is proportional to the pressure. Prescale films stripes can be obtained by Tiedemann as a service.



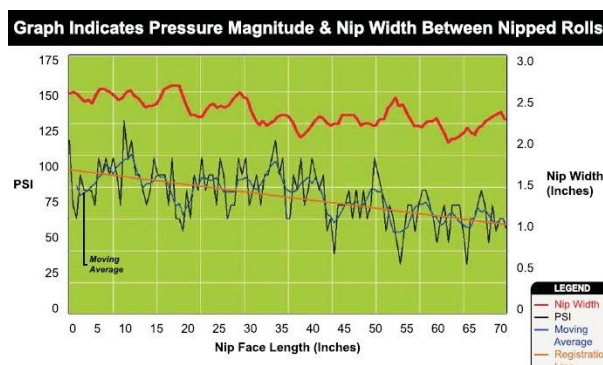
Strip Scanner

Auto-Nis scans can interpret the sensor film stripe up to a length of 12 m. It assimilates the data into a variety of easy to read graphical formats and displays of data.

Often nip-widths and pressure are not uniform along the length of the rolls. So readjustment is necessary and can be easily controlled by using Auto-Nis.

A final scan and print out of nip- impression documents the successful adjustment.

| Sensor Specifications | |
|-----------------------|--------------------------------------|
| Interface | USB Powered and Compliant |
| Resolution | 75 DPI |
| Scan Frequency | 1/25 inch (1.02 mm) |
| Scan Speed | Approximately 39 in/min (150 cm/min) |
| Dimensions | 296 x 110 x 42mm (L x W x H) |
| Weight | 13.9 oz (335 g) |
| Max Nip Length | 472 inches (12 m) |
| Min Width | 2.7 inches (6.7 cm) |
| Max Width | 8 inches (23 cm) |
| Operating System | Windows 7 and XP Compatible |





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