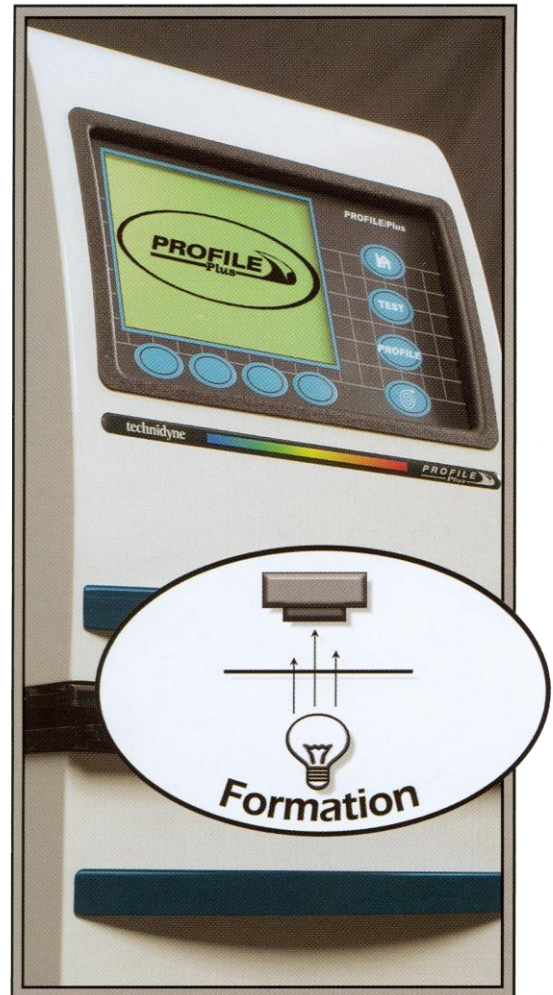


Automated Formation

The Technidyne PROFILE/Plus™ Formation measures the (optical) formation of paper according to the Paper PerFect method with core software that has been developed by OpTest™ Equipment Inc.

- + Formation measurement
- + Partitions into different scales
- + PASS/FAIL to aid operators
- + Better understanding of sheet properties
- + Easily comparable results
- + Establish a production standard
- + More reliable than visual assessments



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Features

Automated Measurement

Technidyne has earned a reputation for excellence as the pulp and paper industry's leading supplier of optical quality measurement instruments. The PROFILE/Plus™ Formation is an advanced instrument that provides fully automated measurement of optical formation to provide in-depth analysis of structure non-uniformity. While formation is usually not an end user property by itself, it can be used as a predictor for other paper properties and as an overall paper quality indicator.

A Different Approach

Most commercial formation measurements collapse the two-dimensional local grammage (or opacity) map into a single number, such as the "Formation Number". This is the Coefficient of Variation (COV) of local grammage or of local opacity. The PROFILE/Plus™ Formation Tester determines the formation for all of the scales of non-uniformity, which constitutes the sheet structure, from sub-millimetre to several centimetres. This technique provides a more accurate picture of the overall uniformity of the sheet.

Establishing a Production Standard

The PROFILE/Plus™ Formation results of two sheets can be compared by dividing the formation values of the measured sheet by that of the 'reference paper', or in practical terms the 'production standard'. Thus a relative formation value above 1 for a particular formation scale indicates a better formation than that of the reference sheet. Contrarily, a relative formation value below 1 means that at this scale of formation the sheet is worse than that of the reference sheet. By partitioning formation into its components as a function of scale, the formation values quantify the difference of formation between these two sheets, something that the simple coefficient of variation could not achieve.

PASS/FAIL

The visual appearance of paper has for many years been the first indication to the paper maker and the consumer alike of the relative quality of the product. The PROFILE/Plus™ Formation technique partitions formation into different scales, which gives a better understanding of how formation quality affects other sheet properties. It also quantifies the differences in formation from one reel to the next and provides a PASS/FAIL determination, which is a valuable tool to the papermaker.

Economic Benefits – Lowering Costs and Saving Money

The **automated measurement** of formation across the entire width of the reel provides key information about the operation of the paper machine, thus allowing better, more stable production.

The **different approach** used by the PROFILE/Plus™ Formation provides a more accurate picture of the sheet structure. This allows the machine operators to more reliably monitor other sheet parameters, such as strength, thus reducing costly retests.

Establishing a 'production standard' to use in comparison to daily production means having an effective tool to adjust the quality of the paper being produced. This in turn will enable the establishment of tighter control limits, which will help to optimize the production and save money.

The **PASS/FAIL** function allows operators to immediately determine if the production meets the required specifications, thereby reducing customer claims for rejected product.

PROFILE/Plus™ customers have reported that savings can be realized in the areas of furnish, chemical addition, customer complaints, and reduced paper machine breaks. Manpower efficiency can also be improved by increasing the testing frequency and accuracy, which lowers the overall cost of testing.

PROFILE/Plus™ Automated Test System

PROFILE/Plus™ is a unique building block approach to automated testing. Each PROFILE/Plus™ instrument is a standalone instrument that can be easily placed in line with other PROFILE/Plus™ instruments to operate as an automated test system. This one of

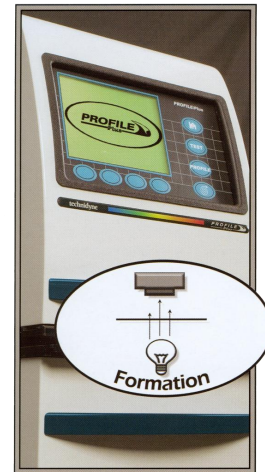


a kind versatility allows you the flexibility to build an automated test system that can be established over time or all at once. In addition as your testing needs change, the versatility of the PROFILE/Plus™ provides the flexibility to modify the testing sequence or move other test in to or out of the system. PROFILE/Plus™ puts you in charge of your automated testing program. In today's ever changing markets, having a testing program that can adapt, is key to long term viability.

Specifications and Technical Data

- + CD or MD profile strips
- + Single sheet samples (automatically)
 - o A3, A4, and 8½" x 11"
- + *Thickness Range – 25 to 650 µm
- + *Grammage Range - 15 to 450 g/m²
- + Weight –
 - o 75 lb
 - o 34 kg
- + Dimensions –
 - o Height = 26" (66 cm)
 - o Depth = 18" (46 cm)
 - o Width = 10 ½" (26.7cm)
- + Voltage/Frequency -
 - o 100-130 VAC/49-61 Hz
 - o 210-250 VAC/49-61 Hz
- + Air -
 - o 30 - 40 psi
 - o 205 - 275 Kpa

*Grade dependent



Results:

Formation according to the Paper Perfect method

Measurement completed in seconds!

In-depth analysis of formation

Ten scales of formation

Multiple measurement, averaging, statistics and trending capabilities

Average, Maximum Test Value, Minimum Test Value and Standard Deviation

Tabular and Graphical display of results