



Sampling of viscose fibers is most often done manually. This means that the sampling procedure is both time- and personnel intensive. Moreover, the sample size and the total sampling volume is affected by subjective influence, which reduces the statistical validity of the quality control process.

In order to offer producers of staple fiber automatic and objective sampling, Lenzing Instruments developed the **ROFIS/ROFIT**, atline sampling robot. The sampling robot is available as ROFIS, ROFIT 200, ROFIT 300 and ROFIT 400. These various versions offer the customer either solely fiber sampling or individual combinations of fiber sampling, whiteness degree determination and/ or moisture content measurement. With any version of **ROFIS/ROFIT**, controlled sample collection is obtained by means of pneumatic technology. The sampling robot is installed at the filling chamber over the baleing press.

Up to six times per minute, the sampling robot grasps into the filling chamber and releases a defined sample size into a sample outlet or back to the filling chamber. Collected fiber samples are used for customer specific quality control tests. If the robotic fiber sampler features integrated whiteness- and/or moisture tests, the obtained measurement signals can be used for automatic control of the bleaching - and/or drying section.

With ROFIS and ROFIT sampling robots, controlled and defined sampling is achieved together with the option of automatic whiteness and-/ or moisture measurement for even more efficient process- and quality control.

Scope:

Automatic sampling of staple fiber with the option of integrated whiteness- and/or moisture measurement directly at the filling chamber.

Method:

A pneumatically actuated grip arm grasps into the filling chamber to collect fiber samples of defined size. The samples are then either forwarded to a sample outlet or, in case of integrated whiteness-and/ or moisture measurement, automatically guided through the measurement section. Whiteness degree is measured by means of a three filter measuring unit and moisture content is determined by means of capacitive sensors.

Results:

The results of any of the ROFIT instruments are communicated to the master PLC and displayed in the ROFIT evaluation software. Received moisture- and whiteness measurement signals can be used for automatic control of the drying and bleaching sections.

General system specifications:

Environmental conditions:

Humidity 90 %, non-condensing
Temp max. 35 °C
Protection class IP 54

Dimensions:

Control cabinet:
Length: 800 mm
Width: 310 mm
Height: 1000 mm
Weight: 50 kg

Robot:
Length: 600 mm
Width: 1220 mm
Height: 920 mm
Weight: 210 kg

Power supply:

230/115 VAC \pm 10%
50/60 Hz, 1500 W

Air supply:

6 bar, 90 psi instrument air
0.1 Nm³/min
dry, dust-free, non condensing

Moisture measurement:

Measurement principle:

Capacitive sensors

Measurement range:

5 - 25 % absolute moisture

Results:

Absolute moisture in percent by weight

Precision:

Better than \pm 1 % absolute
 \pm 2 % rIF and \pm 0.4 °C

Repeatability:

\pm 1 % absolute moisture
 \pm 2 % rIF

Whiteness measurement:

Measurement principle:

Tristimulus colorimeter for measurement of whiteness, yellowness, fluorescence (option)

Measurement geometry:

d/8° according to DIN 5033, diffuse light, observation set under 8°

Results:

Rx, Ry, Rz and the delta values for the fluorescence measurement and Tappi

Light source:

Flash light with standardized daylight D 65
(optional: fluorescent light)

Repeatability:

\pm 0.2 % with white standard

Optionally available:

- OPC UA interface

Technical data and pictures are subject to change.

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