

HONIGMANN μ -Meter

Precision Instrument for Measuring the Coefficient of Friction with PC-supported control, data collection and evaluation

Introduction

In addition to the measurement and analysis of filament tension forces, the calculation of coefficients of friction is becoming more and more important in textile practice.

The strive for higher manufacturing speeds, the constantly growing demands on the quality of the products and new production processes all require exact knowledge of the fibre characteristics.

The friction behaviour of fibres and yarns is to be considered as a key parameter in many processes.

Exact knowledge and control of the behaviour of fibres and yarns is of major importance for both the filament production industry as well as for filament manufacturers and textile machine constructors.

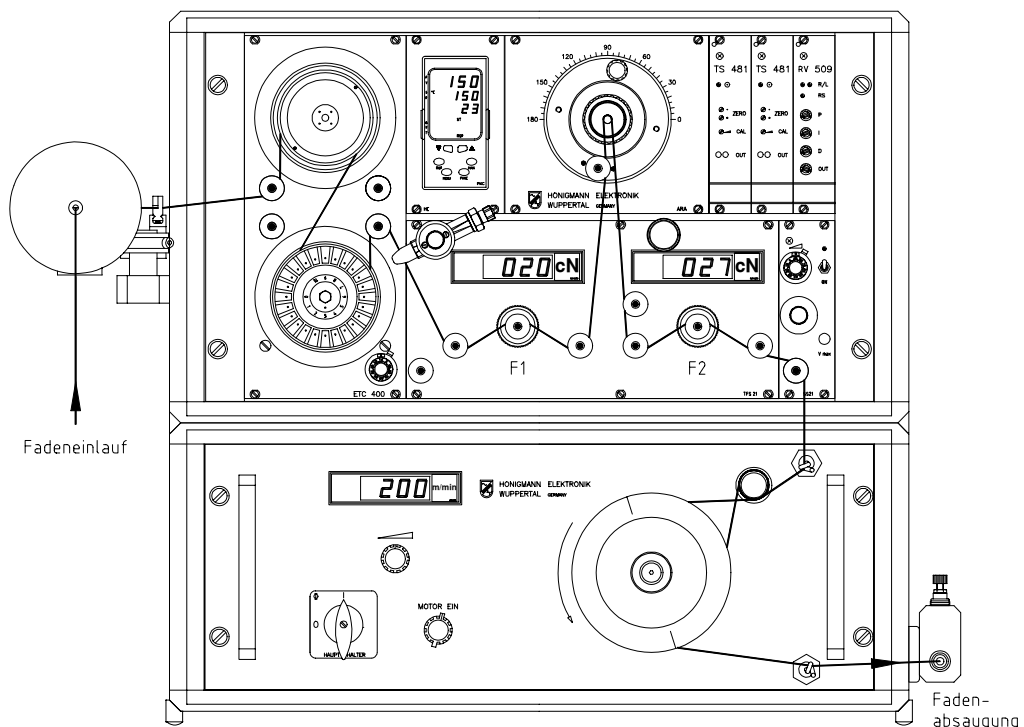


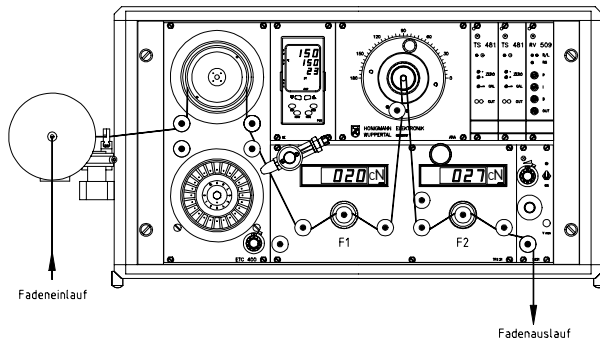
Abb. 1
Front view of μ -Meter and FAG with filament run

Apparatus for the Precision Measurement of Coefficients of Friction

The **HONIGMANN apparatus for the examination of coefficients of friction** is the result of continuous and consistent product improvement through conscious feedback from the market.

It represents a flexible system which permits you effective use with respect to the particular measurement tasks and offers the basis for easily adaptable extensions.

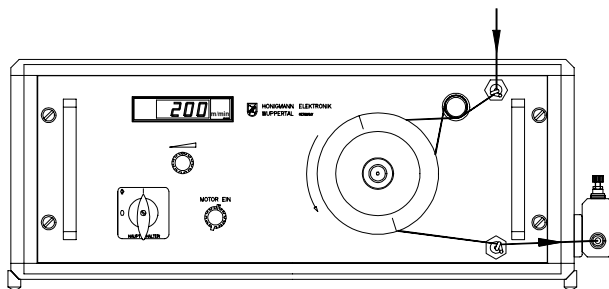
The **apparatus for the measurement of coefficients of friction** consists of three functional modules:



HONIGMANN μ -Meter

- modular structure
- Standardised measurement conditions

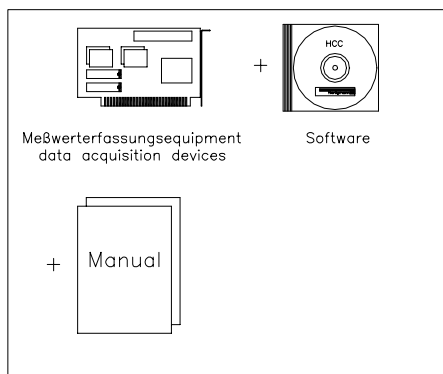
Abb. 2
 μ -Meter with filament run



FAG 478 Filament take-off device

- Low noise drive
- Speed adjustment takes place with a soft ramp

Abb. 3
FAG with filament run



HCC-F data collection and analysis system on a PC basis

- Real time presentation of the measurement signals
- Automated measurement and analysis procedure
- Menu-guided user interface

Abb. 4
HCC-F package

The **apparatus for the examination of coefficients of friction** provides you with **rapid, exact and reproducible** measurement results.

HONIGMANN μ -Meter

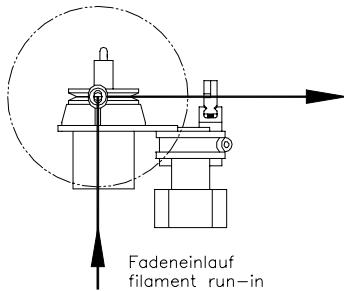


Abb. 5
Tension regulator

Compensation filament tension regulator 4 to 20 cN

- Offers defined, transient-free inlet tension strength
- Isolates variations in the tension force resulting from the spool take-off characteristics

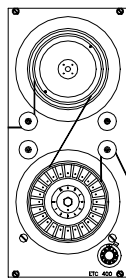


Abb. 6
Two hysteresis brakes

Hysteresis brakes for the generation of the inlet / test force

1 Unit, electronically controlled

- Working range 3 to 25 cN
- Actual value signal, filament inlet sensor F1
- Assignment of target values
 - Using 10-stage potentiometer
 - From the HCC-F software
- Very stable, test force equal to setpoint
- Interference occurring is eliminated electronically

1 Unit, manually adjustable

- Working range 3 to 15 cN
- Slip-free initiation of the braking force to conserve the filament
- Braking moment independent of the filament withdrawal speed over wide range

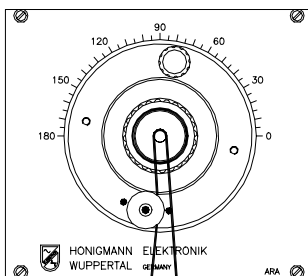


Abb. 7
Angle - setting fixture

Fixture to hold the friction body and to set the angle of contact

- Clamp holder for simple, convenient holding of the friction body
- Adjustment range 30 to 3x 360°

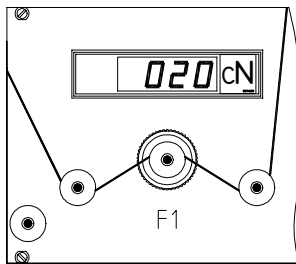


Abb. 8
Tension sensor

Tension force sensors F1 and F2

- Large measurement basis
- High precision and long-term consistency
- Guaranteeing zero-point stability without heat-up, etc..
- Very light-running reversing rollers
- Tension force measurement range
 - Standard 0 to 200 cN
 - OPTION: user-specific, e.g. 0 to 20 cN, 0 to 100 cN, 0 to 400 cN
- overload protection

Digital displays for F1 and F2

- 3½ digit, display in cN

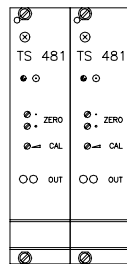


Abb. 9
Measurement amplifier

Instrument amplifier for tension force sensors

- Modern 19" technology
- 2 output signals each, direct and filtered signals in parallel

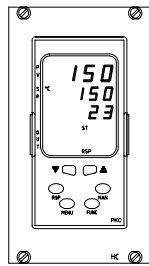


Abb. 10
Electronic heating controller

**OPTION:
Electronically-controlled friction body heating**

- To determine the coefficient of friction in case of filament / solid body friction, as a function of the friction body temperature
- Adjustment range of the friction body temperature
30 to 200 °C
- Replaceable friction body holder
- Integrated modularly into the basic unit
- Adjustment range of the angle of contact same as standard device 30 to 3 x 360°
- Digital and software-controlled temperature setpoint

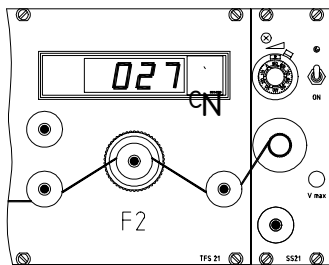


Abb. 11
Stick-Slip take-off device

**OPTION:
Take-off device for stick-slip measurements**

- Speed range stagelessly adjustable from 0.1 to 60 mm/min
- Designed with convenient filament clamp fixture
- Modularly integrated into the basic device

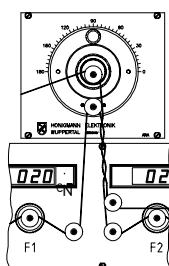


Abb. 12
Extended filament / filament measurement

**OPTION:
Extended filament/filament measurement**

- For 2 separate, different filaments
- ! Possible only in combination with the take-off device for stick-slip measurements

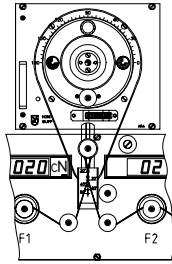


Abb. 13
Angle adjustment adapter

**OPTION:
Angle adjustment adapter for filament/filament
measurements**

- For setting the angle of the opening between the two tension force sensors F1, F2 before the twisted range of the test filament
- Setting range 30° to 50°
- For measurements acc. ASTM 3412
- A requirement for comparability of the measured values with external measurements.



Abb. 14
Thermo-Hygrometer

**OPTION:
Thermo- / Hygrometer**

- Simultaneous measurement of room temperature and air humidity
- Large, clearly legible LCD display
- Also suitable for mobile measurement
- Signal outputs for both values
- For data collection

The modular structure of the **HCC μ -Meter** permits adaptation to customer-specific applications without problems and at low cost.

Technical Data

Name	HONIGMANN μ - Meter	
Design	stable, stackable 19" modular housing with non-slip rubber feet	
Colour of housing - Top shell / rear wall - Side walls - Front panels of the modules	light grey, RAL 7035 stone grey, RAL 7030 aluminium, anodized	
Speed range	m/min	0 to 200
Test tension force - Option	cN	5 to 50 Customer - specific alternative
Tension force sensors - Nominal measurement force - Option	pcs. cN	Two RFS 150 200 each Customer - specific alternative
Instrument amplifier - Design - more data	pcs.	Two TENSOTRON® TS481 19" - push-in card ref. to datasheet TS 481
Displays - Type - Design	pcs.	2 Digital Panel Meter DPM 501 3 ½-digit LED-Display for tension force F1 and F2 in cN
Output signals Control signals	pcs.	Two 25-pin Sub-D connectors for connection to plug-in cards of the PC
Power supply - Voltage - Frequency	V Hz	230 AC, ca. 100W ¹ 45 to 60
Dimensions (WxHxD)	mm	297 x 534 x 400
Weight	kg	approx. 20

¹ 115V on request

622600

We reserve the right to make technical changes.

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