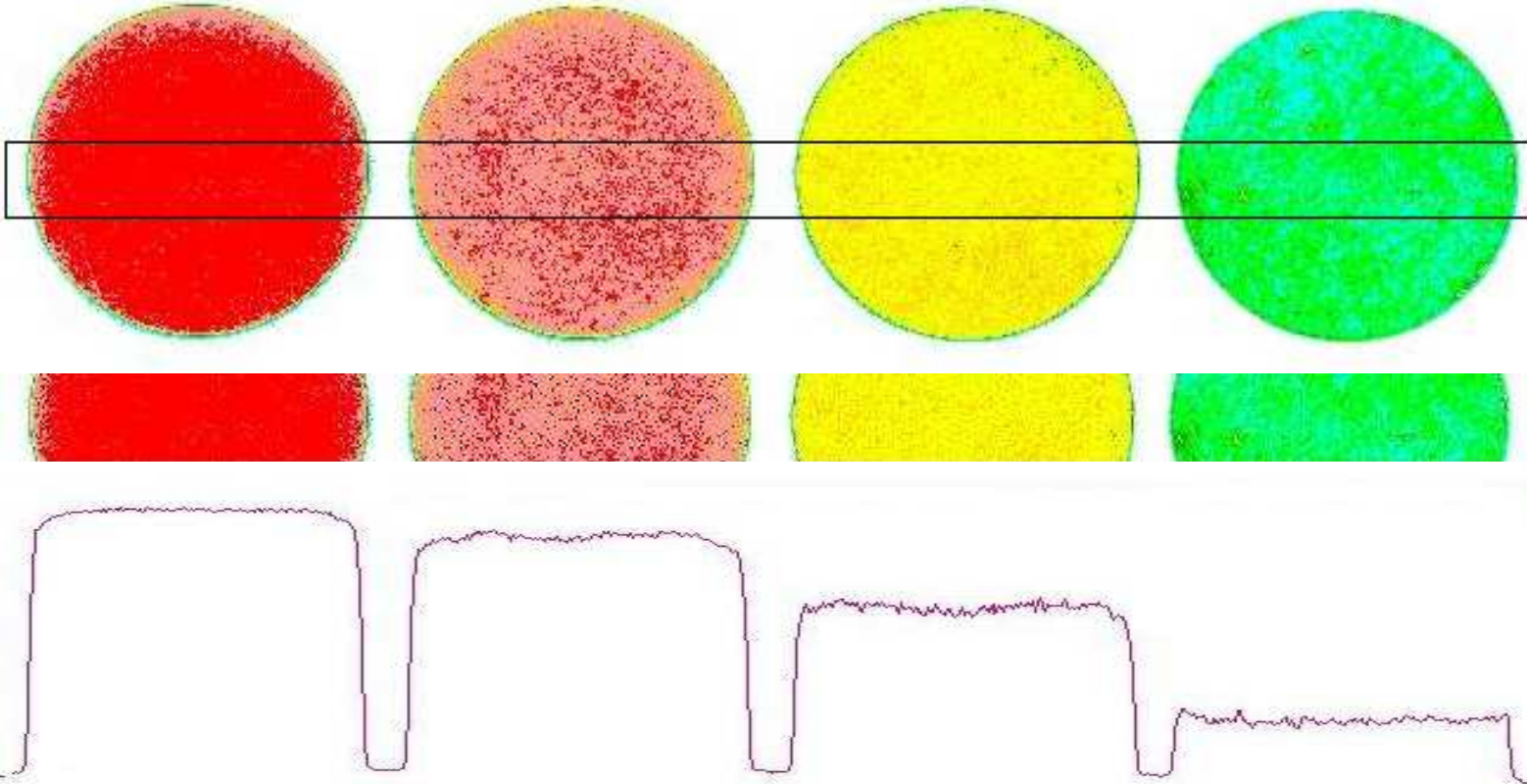


Calibration of FUJIFILM Prescale



Calibration System

TIEDEMANN

Calibration System for FUJIFILM PRESCALE

From the Cut of Film to Calibration Curves

FUJIFILM's pressure sensitive Prescale film is an important tool for the determination of contact pressure. It is ideal for fast qualitative evaluations, as for quantitative measurement, control experiments should be done prior to the measurement, which are then transferred to calibration curves.

Tiedemann has developed a calibration system, which includes all necessary tools.



Calibration plunger in the compression device with dynamometer and additional tools

Calibrations with Different Press Materials

The Tiedemann calibration system is made for smooth surface pressures as well as structured surrounding materials like grids or carpets. In such a case, the structure is visible on the films as well. The impression is difficult to evaluate, therefore it is recommended to place the film between these structured materials during calibration to generate an individual calibration curve for this material.

Execution of the Calibration System

The Tiedemann calibration system contains all necessary tools for calibration.

Two cylindrical, plain-polished plungers with well know front area press the examined material and the films together with a noted compressive force. The applied load can be set easily with a compression device individually equipped with a Tiedemann dynamometer to measure the force.

With both the optional tools for punching thicker materials as well as cutting tools for pressure sensitive films, you can reach the exact circular areas for the calibration plunger.

Calibration Plunger Device KV

The KV Calibration Plunger is the main device of the whole calibration system. The four different plungers have four defined circular areas from 200 to 2000 mm².

Together with the right choice for dynamometer many pressure ranges can be reached. For higher accuracy, the bigger plunger should be used.

Because the maximum load of the compression device is limited to 10 kN, you may use the calibration plunger in your own press as well.



	Calibration Plunger Devices KV			
Characteristics of KV	KV0.5	KV1	KV2	KV5
Plunger diameter (mm)	50.46	35.68	25.23	15.95
Plunger area (mm ²)	2000.00	1000.00	500.00	200.00
1 kN load: surface pressure (MPa)	0.5	1	2	5

Compression Device BELV

In the Compression Device BELV, the Calibration Plunger can be loaded up to a compressive force of 10 kN.

The measurement of the force can be made by different dynamometers built in the compression device.

The ideal calibration for the FujiFilm Prescale type LLLLW is made with the KVO.5 calibration plunger with the Tiedemann DT05 dynamometer (500 N).

The film LW requires a combination of the KV1 calibration plunger and the DT10 dynamometer (10 kN measurement range).

All combinations are shown in the table on page 3.



Compression device BELV with Tiedemann dynamometer

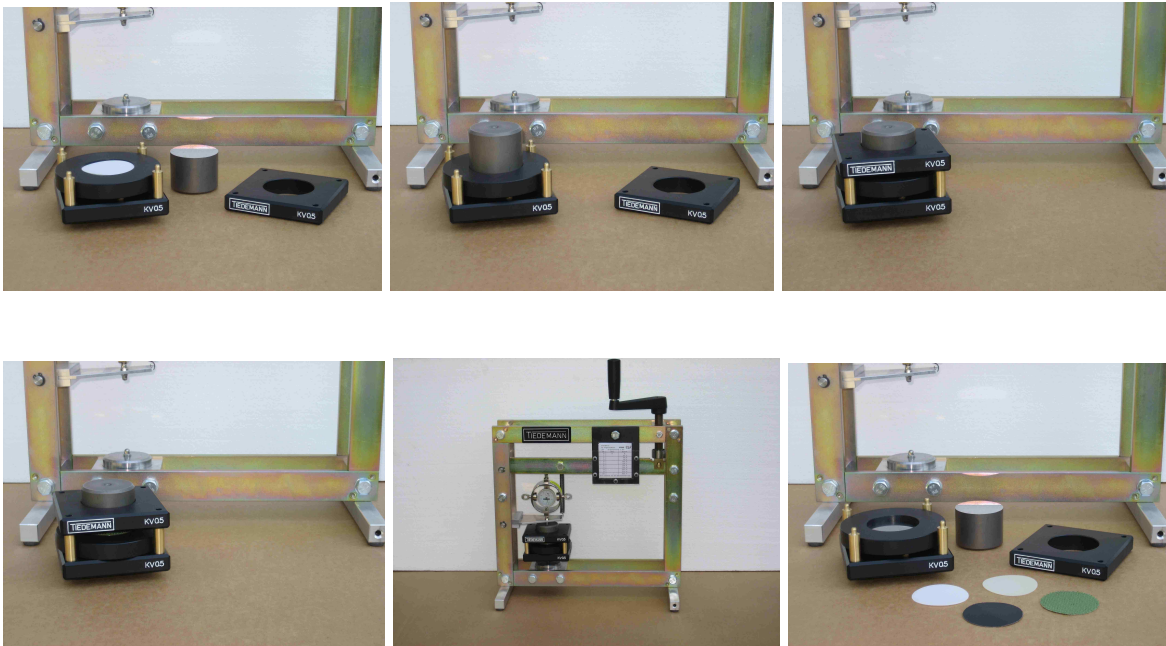
Cutting and Punching Tools

The optional tools for hand cutting SV are helpful to cut circular areas out of the pressure sensitive film or other thin materials. These circular areas fit exactly to the size of the plunger.



PV Punching Tools are also available to cut thicker materials for the right diameters. For punching the Compression Device BELV may be used as well as your own presses.

Course of Calibration Action



Find the Right Combination of Tools

The following overview shows the ideal combinations of all tools. A basic configuration for surface compressions up to 50 MPa is the Compression Device BELV. Further, you choose the right Tiedemann dynamometer, the KV Calibration Plunger device plus optional the SV Hand Cutter tool.

Whether a PV Punching Tool is recommended depends on the ambient structural materials.

At surface pressures above 50 MPa, we must refer to your own press.

Film Type	Film Name	Pressure Range	Compression Device	Tiedemann Dynamometer	Calibration Plunger	Cutting Device	Punching Device
4LW	Extreme Low	0,05 - 0,2 MPa	BELV	500 N (DT05)	KV0.5	SV0.5	PV0.5
3LW	Ultra Super Low	0,2 - 0,6 MPa	BELV	5 kN (DT5)	KV0.5	SV0.5	PV0.5
LLW	Super Low	0,5 - 2,5 MPa	BELV	5 kN (DT5)	KV1	SV1	PV1
LW	Low	2,5 - 10 MPa	BELV	10 kN (DT10)	KV2	SV2	PV2
MW	Medium	10 - 50 MPa	BELV	10 kN (DT10)	KV5	SV5	PV5
HS	High	50 - 130 MPa	own press	own press	KV5	SV5	PV5
HHS	Super High	130 - 300 MPa	own press	own press	KV5	SV5	PV5



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