



# Instruction Manual

Valid as of: 01.12.2015 • Please keep the manual for future reference!



SCHMIDT · 1<sup>ST</sup> IN TENSIONMETERS WORLDWIDE



# Contents

<b>1</b>	<b>Warranty and Liability</b>	<b>3</b>
1.1	Notices within the Operating Instructions	3
1.2	Responsibilities of the Operating Company	3
1.3	Responsibilities of the Personnel	3
1.4	Informal Safety Measures	4
1.5	Training of the Personnel	4
1.6	Intended Use	4
1.7	Dangers in Handling the Device	4
1.8	Copyright	4
1.9	EC Declaration of Conformity and WEEE Registration	4
<b>2</b>	<b>Available Models</b>	<b>5</b>
2.1	Specifications	5
2.2	Delivery Includes	6
2.3	Unpacking	6
2.4	Optional Accessories	6
<b>3</b>	<b>Measuring</b>	<b>7</b>
3.1	Notices Before Starting Measurement	7
3.2	Operating Elements	7
3.3	Setup	7
3.4	Preparations Before Measuring	8
3.4.1	Setting the Measurement Parameters	8
3.4.2	Checking and Setting the Zero Point	8
3.5	Operating Procedures	8
3.6	Adjusting the Thickness Gauge to Different Materials	8
3.6.1	Changing the Feeler	9
3.6.2	Load Change	9
3.7	Interface	9
3.8	Software (optional)	9
3.8.1	Overview	9
3.8.2	Extracting the Software	9
3.8.3	User Interface	10
3.8.4	Basic Settings	11
3.8.5	Measurement Series	11
<b>4</b>	<b>Service and Maintenance</b>	<b>12</b>
<b>5</b>	<b>Cleaning</b>	<b>12</b>
<b>6</b>	<b>Correspondence</b>	<b>12</b>
<b>7</b>	<b>Repairs</b>	<b>12</b>

## **1 Warranty and Liability**

In principle, the supply of the device is subject to our "General Conditions of Sale and Delivery." These have been provided to the operating company on conclusion of the contract, at the latest.

Warranty:

- Thickness gauges are warranted for 12 months.

Parts subject to wear, electronic components and measuring springs are not covered by the warranty. No warranty or liability will be accepted for bodily injury or property damage resulting from one or several of the following causes:

- Misuse or abuse of the device.
- Improper mounting, commissioning, operation and maintenance of the device (e.g. verification interval).
- Operation of the device if any safeguards are defective or if any safety and protection precautions are not properly installed or not operative.
- Failure to comply with the notices in the Operating Instructions regarding transport, storage, mounting, commissioning, operation, maintenance and setup of the device.
- Any unauthorized structural alteration of the device.
- Insufficient inspection of device components that are subject to wear.
- Opening the device or improper repair work.
- Disasters caused by the effects of foreign objects or by force majeure.

### **1.1 Notices within the Operating Instructions**

The fundamental prerequisite for the safe handling of this device and its troublefree operation is the knowledge of the basic safety notices and safety instructions.

These Operating Instructions contain the most important notices for the safe operation of the device.

These Operating Instructions, in particular the safety notices, must be observed by any person who works with the device. In addition, the applicable local rules and regulations for the prevention of accidents must be complied with.

The representations within the Operating Instructions are not true to scale.

The dimensions given are not binding.

General indications of direction, such as FRONT, REAR, RIGHT, LEFT apply when viewing the front of the device.

### **1.2 Responsibilities of the Operating Company**

In compliance with the EC Directive 89/655/EEC, the operating company agrees to only permit persons to work with the device who:

- are familiar with the basic regulations on industrial safety and accident prevention and who have been trained in handling the device.
- have read and understood the chapter on safety and the warning notices in these Operating Instructions and have confirmed this with their signatures.
- are examined regularly on their safe and conscientious working method.

### **1.3 Responsibilities of the Personnel**

All persons who work with the device agree to perform the following duties before starting work:

- to observe the basic regulations on industrial safety and accident prevention.
- to read the chapter on safety and the warning notices in these Operating Instructions and to confirm with their signatures that they have understood them.

#### 1.4 Informal Safety Measures

The Operating Instructions must always be kept on hand where the device is operated. Apart from the Operating Instructions, the applicable general and local regulations on accident prevention and environmental protection must be provided and complied with.

#### 1.5 Training of the Personnel

Only trained and instructed personnel is permitted to work with the device. The responsibilities of the personnel must be clearly defined for mounting, commissioning, operation, setup, maintenance, and repair. Trainees may only work with the device under the supervision of experienced personnel.

#### 1.6 Intended Use

The device is intended exclusively to be used for measuring the thickness of textiles, felt, geomaterials, paper, floor coverings, leather, foils, rubber. Any other use or any use exceeding this intention will be regarded as misuse. Under no circumstances shall HANS SCHMIDT & Co GmbH be held liable for damage resulting from misuse.

The intended use also includes:

- Complying with all notices included in the Operating Instructions and observing all inspection and maintenance works.

#### 1.7 Dangers in Handling the Device

The device has been designed according to the state of the art and the approved safety standards. Nevertheless, its use may cause serious or fatal injury to the user or third persons, and/or an impairment of the device or of other material assets.

The device may only be applied:

- For its intended use in a faultless condition with regard to the safety requirements.
- Malfunctions that could impair safety must be remedied immediately.
- Personal protective equipment must be used according to the EC Directive 89/686/EEC.



**The device must not be operated in potential explosive areas and must not come into contact with aggressive substances.**

#### 1.8 Copyright

The copyright on these Operating Instructions remains with the company HANS SCHMIDT & Co GmbH.

These Operating Instructions are intended for the operating company and its personnel only. They contain instructions and notices that may only be reproduced on the prior written permission of

HANS SCHMIDT & Co GmbH

and under indication of the complete reference data.

Violations will be prosecuted.

#### 1.9 EC Declaration of Conformity and WEEE Registration

In compliance with the EC Directive 2014/30/EU



**HANS SCHMIDT & CO GmbH is registered in compliance with the German Electrical and Electronic Equipment Act (ElektroG).**

## 2 Available Models



These Operating Instructions refer to Model D-2000-T of the D-2000 Series; they are also applicable to the following models. The individual models of the D-2000 Series are also available with the following feelers and weights:

Model	Standard	Application	Feeler cm <sup>2</sup>	Test Pressure
D-2000-T	DIN EN ISO 5084	textiles	20	0.1 kPa and 1 kPa
D-2000-V1	DIN EN ISO 9073-2	Fleece	25	0.5 kPa
D-2000-V2	DIN EN ISO 9073-2	Fleece	25	0.1 kPa und 0.5 kPa
D-2000-G1	DIN EN ISO 9863-1	Geomaterials	25	2 kPa
D-2000-G2	DIN EN ISO 9863-1	Geomaterials	25	2 kPa, 20 kPa and 200 kPa
D-2000-NW	EN ISO 9073-2	Non-woven textiles	25	0.5 kPa and 1 kPa
D-2000-P	DIN EN ISO 534	Paper	2	50 kPa and 100 kPa
D-2000-HY	DIN EN ISO 54540	Toilet tissue	25	2 kPa
D-2000-L	DIN EN ISO 2589	Leather	0.785	49,1 kPa
D-2000-Gi		Rubber	10	5 kPa
			<b>Feeler Calotte</b>	
D-2000-F	DIN 53370	Foil	R 30 mm	0.5 N

### 2.1 Specifications

<b>Measuring Range:</b>	0 - 10 mm (Option 0 - 25 mm or 0 - 50 mm)
<b>Resolution:</b>	0.01 mm (Option 0.001 mm)
	D-2000-P and D-2000-F: 0.001 mm (Standard)
<b>Accuracy:</b>	± 0.02 mm (up to ± 0.002 mm optional)
<b>Units of Measure:</b>	mm or inch (switchable)
<b>Display:</b>	digital
<b>Measuring System:</b>	Capacitiv -->Sylvac
<b>Measuring depth:</b>	110 mm (centre of the stamp)
<b>Feeler Shape and Surface Pressure:</b>	According to international standards DIN, EN und ISO
<b>Output Signal:</b>	USB (Sub-D9 socket)
<b>Temperature Range:</b>	10 - 45° C
<b>Air Humidity:</b>	85 % RH, max.
<b>Dimensions:</b>	300 x 240 x 300 mm (L x W x H)
<b>Weight, net (gross):</b>	approx. 23 kg (approx. 26 kg)

## 2.2 Delivery Includes

- 1 Thickness Gauge
- 1 Operating manual and certificate
- 1 Sub-D9/USB adapter cable
- 1 USB AC adapter
- 1 or 2 additional weights, if applicable (depending on model, see chapter 2)
- 1 Operating manual for dial gauge
- Load table

## 2.3 Unpacking

Unpack the thickness gauge and inspect it for any shipping damage. Notices of defect must be announced immediately, in writing, at the latest within 7 days on receipt of the goods.

## 2.4 Optional Accessories

Code R	Higher resolution 0.001 instead of 0.01 mm
Code E25	Higher measuring range 0 ... 25 mm
Code E50	Higher measuring range 0 ... 50 mm
P-DMG	Software for data acquisition and display on PC
	Additional weights

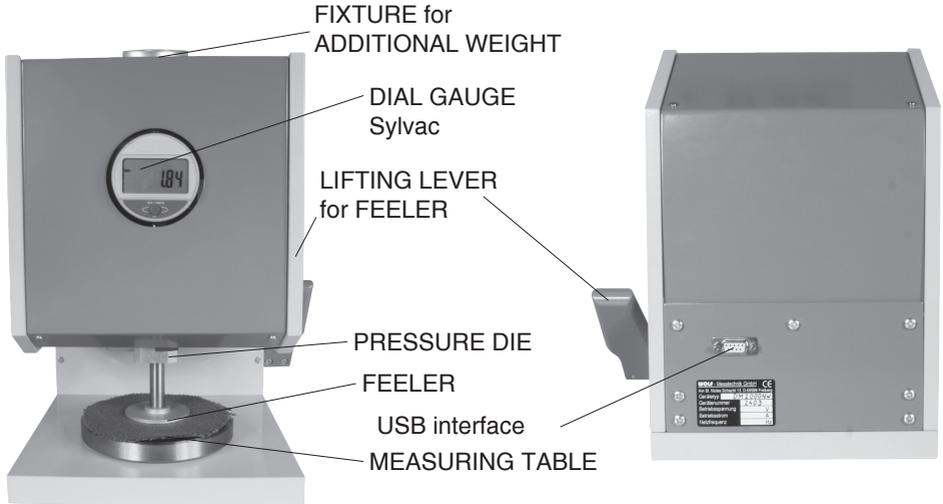
### 3 Measuring

#### 3.1 Notices Before Starting Measurement



Have you read and understood the Operating Instructions, in particular Chapter 1 “Basic Safety Notices” ?  
You are not permitted to operate the device before doing so.  
Before working with the device you must put on your personal protective clothing, if necessary. For example, eye protectors, gloves, etc.

#### 3.2 Operating Elements



#### 3.3 Setup

- Set up the thickness gauge on a horizontal, flat surface for use.
- Connect the instrument to a power supply:
  - connect the device with the Sub-D9/USB adapter cable to a PC or
  - connect the thickness gauge with the adapter cable and USB AC adapter to a power supply
- The start menu appears on the DISPLAY.



### **3.4 Preparations Before Measuring**

#### **3.4.1 Setting the Measurement Parameters**

Set the parameters as described in the operating manual for the DIAL GAUGE.

#### **3.4.2 Checking and Setting the Zero Point**

##### **Requirement:**

- Clean the MEASURING TABLE and the bottom of the FEELER.

##### **Zero adjustment:**

- Pull the LIFTING LEVER forward until the FEELER makes contact with the MEASURING TABLE.
- If the reading on the DISPLAY is not zero, press the SET key on the indicator.
- After successful zero adjustment, the display shows the start menu.

### **3.5 Operating Procedures**

##### **Requirements:**

- Check the zero adjustment.
- If required by the applicable standard, place the appropriate additional weight on the FIXTURE for ADDITIONAL WEIGHTS.
- Choose the appropriate FEELER required by the standard and attach it to the PRESSURE DIE.
- Select the required measuring unit (mm or inch).

##### **Measuring:**

1. Push the LIFTING LEVER back to raise the FEELER.
  2. Place the material to be measured on the MEASURING TABLE.
  3. Pull the LIFTING LEVER forward all the way and then release it. The FEELER is lowered at a constant speed until it makes full contact with the material to be measured. You can now perform the test in accordance with the applicable standard.
  4. The measured value is shown on the digital display.
  5. Push the LIFTING LEVER back to raise the FEELER.
  6. Remove the measured material.
- Start the next measurement from step 2.

**i**

**When you are finished measuring, return the FEELER to its home position on the MEASURING TABLE.**

### **3.6 Adjusting the Thickness Gauge to Different Materials**

Using different combinations of test weight and feeler shape, you can adjust the thickness gauge to check a wide variety of materials.

### 3.6.1 Changing the Feeler

The feeler is screwed to the PRESSURE DIE.

1. Hold the PRESSURE DIE with one hand to prevent twisting.
2. Screw off the FEELER with the other hand.
3. Place the FEELER you want to use in the center of the MEASURING TABLE. Then lower the PRESSURE DIE until it reaches into the threaded hole.
4. Hold the PRESSURE DIE with one hand and screw the FEELER in by about ½ revolution.
5. Move the PRESSURE DIE up, hold it with your hand and carefully screw the FEELER all the way in.
6. After a change of the FEELER, zero adjustment has to be carried out. The MEASURING TABLE and the FEELER have to be exactly parallel.

### 3.6.2 Load Change

On some models (see chapter 2) you can change the pressure applied to the material. This is done by placing an additional weight on the FIXTURE for ADDITIONAL WEIGHTS.



**Use only original weights supplied by the manufacturer to ensure that the correct measuring force is applied according to the relevant standard.**

## 3.7 Interface

The measured data can be transferred to a PC over the COM port. Before you can use this feature, you have to extract the P-DMG application on the PC (see chapter 3.8).

## 3.8 Software (optional)

### 3.8.1 Overview

The software allows displaying and storing the measured data.

The following instruments are supported:

- D-1000, D-2000 and D-2005

The following storage options are available for the acquired data:

- No data storage
- Storage in Excel format
- Storage in CSV format

### 3.8.2 Extracting the Software

- Extract the ZIP file from the supplied CD and save it to the appropriate folder.
- Double-Click P-DMG.exe to start the P-DMG application.

### 3.8.3 User Interface

The screenshot shows the P-DMG V1.06 Build 0 software interface. It features a title bar, a data table, a large data sets display area, and a control panel at the bottom. The data table has columns for Measure Nbr., Charge/ Part number, Actual value, Average value, Standard deviation, Maximum, and Minimum. The control panel includes buttons for Init measurement, Getvalue, and Stop measurement, along with configuration fields for DMG-Mode, Data file, and COM port.

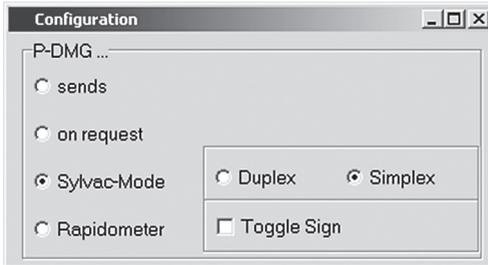
Annotations and their corresponding interface elements:

- Batch or part number: Points to the Charge/ Part number field.
- Average value of measuring series: Points to the Average value field.
- Standard deviation of measuring series: Points to the Standard deviation field.
- Maximum value of measuring series: Points to the Maximum field.
- Minimum value of measuring series: Points to the Minimum field.
- Number of the current measurement: Points to the Measure Nbr. field.
- Current actual value of measuring series: Points to the Actual value field.
- Display area for readings: Points to the Data sets display area.
- Display of data source (see ch. 3.8.4): Points to the DMG-Mode field.
- Name of file for measured data: Points to the Data file field.
- Currently selected port (see ch. 3.8.4): Points to the COM port field.
- Stops the measurement series: Points to the Stop measurement button.
- Opens the Configuration dialog box (see ch. 3.8.4): Points to the Configuration button.

**i** If you want to store the measured data, you need to assign a Charge / Part Number. This information is needed to make up the file name.

### 3.8.4 Basic Settings

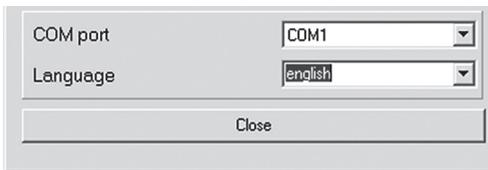
Click the “Configuration” button (see chapter 3.8.3) to open the Configuration dialog box.



- Choose the data source  
Must be set to “Sylvac-Mode” and “Simplex”



- Choose a data storage option:  
No data storage, or data storage as Excel or CSV file. The file is created in the program directory.



- Choose the communication port
- Choose a language (English/German)
- Close the Configuration dialog box.

When you have made all your settings, you can close the dialog box. The parameters are saved to the “DMGConfig.ini” file in the program directory and automatically loaded the next time you start the software.



**When the software is started for the first time, the data source and port have to be specified.**

### 3.8.5 Measurement Series

Before starting a measurement series, enter a Charge / Part Number. This information is needed to make up the file name.

The file name is made up of the elements “YYYYMMDD\_HHMMSS\_NNNNN”, where:

Y	...Year (four digits)
M	...Month (two digits)
D	...Day (two digits)
H	...Hour (two digits)
M	...Minute (two digits)
S	...Second (two digits)
N	...Name entered in the “Part / Charge number” box

Data acquisition starts as soon as you click the “Init measurement” button. All the data received from then on will be stored.

To stop the measurement series, click the “Stop measurement” button. You can now access the stored data in the program directory.

#### 4 Service and Maintenance

The instrument is easy to maintain. Depending on operating time and load, the instrument should be checked according to the locally valid regulations and conditions.

#### 5 Cleaning

For cleaning the unit, do not use any



##### **AGGRESSIVE SOLVENTS**

such as trichloroethylene or similar chemicals.



##### **NO WARRANTY OR LIABILITY**

shall be accepted for damage resulting from improper cleaning.

#### 6 Correspondence

Should you have any questions regarding the instrument or Operating Instructions, or their use, please indicate above all the following details which are given on the ID plate:

- 1) Model
- 2) Serial number

#### 7 Repairs

##### **Shipping instructions:**

We kindly ask for return free of charge for us, if possible by airmail parcel. All occurring charges, if any (such as freight, customs clearance, duty etc.), will be billed to customer. For return from foreign countries, we ask you to include a proforma invoice with a low value for customs clearance only, e.g. 50 Euro, each and to advise the shipment in advance by fax or eMail.



**To avoid unnecessary follow-up questions, and the resulting loss of time or possible misunderstandings, please return the instrument with a detailed fault description to our service department. Please indicate in your order whether you require an Calibration certificate done by an DAkkS (DKD) approved laboratory.**

##### **Service address:**

**HANS SCHMIDT & Co GmbH  
Schichtstr. 16  
84478 Waldkraiburg  
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**Seit 70 Jahren in aller Welt**

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