

Mitutoyo Europe GmbH, Borsigstraße 8-10, 41469 Neuss

Seite 1 von 3 zum Werkskalibrierschein vom 01.06.2023

Page 1 of 3 of in-house calibration certificate dated 01.06.2023

Dokumentnr.: Blocks D 23047

Document no.:

# Mitutoyo

## Werkskalibrierschein

*in-house Calibration Certificate*

Gegenstand: Mitutoyo Testprobensatz  
*Object: Test Blocks for Shore D*

Bezugsquelle: Mitutoyo Europe GmbH, Borsigstraße 8-10, 41469 Neuss  
*Supplier:*

Typ: Mitutoyo Testprobensatz  
*Type: Shore D*

Serien-Nr.: Siehe Seite 2  
*Serial number: See page 2*

Auftraggeber: Mitutoyo Europe GmbH  
*Applicant: Borsigstraße 8-10  
41469 Neuss*

Anzahl der Seiten: 3  
*Number of pages:*

Ort der Kalibrierung: D-73240 Wendlingen am Neckar  
*Place of calibration:*

Datum der Kalibrierung: 01.06.2023  
*Date of calibration: dd.mm.yyyy*

Stempel:

Seal:

Datum:

Date:

Leiter des Kalibrierlabors:

Head of calibration laboratory

Bearbeiter:

Examiner:

**Mitutoyo  
Europe GmbH  
Borsigstr. 8-10  
41469 Neuss**

01.06.2023

Michael Hildebrand

Andreas Hildebrand

Mitutoyo Europe GmbH  
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Prüfnorm: ISO 48-4

Standard:

Härteskala: Shore D

Hardness scale:

Raumtemperatur: 23,4 °C

Room temperature:

Relative Luftfeuchte: 42,0 %

Relative humidity:

Einwirkdauer der Prüfkraft: 3 s

Duration of test force:

## Ergebnisse:

Results:

Härte Shore D an 10 Messstellen pro Testprobe.

Hardness Shore D on 10 measuring locations per Test Block.

Seriennummer Testprobe	Messwerte Measured values					Mittelwert	Spannweite	Standard- abweichung
Serial number Test block	Messfeld 1 Area 1	Messfeld 2 Area 2	Messfeld 3 Area 3	Messfeld 4 Area 4	Messfeld 5 Area 5	Mean value	Range	Standard deviation
	(Shore D)							
D40/019	38,7	36,4	36,5	36,4	37,4	36,760	2,70	0,8235
	36,9	36,0	37,1	36,2	36,0			
D60/019	62,6	62,6	62,5	62,6	62,4	62,400	0,60	0,2108
	62,4	62,5	62,0	62,1	62,3			
D85/019	89,7	90,0	90,1	90,1	89,6	89,900	0,80	0,2789
	90,0	90,2	89,4	89,7	90,2			

Zulässige Abweichung vom Mittelwert:  $\pm 3$  Einheiten (bei oben genannter Raumtemperatur und relativer Luftfeuchte)

Allowed deviation from mean value:  $\pm 3$  units (at room temperature and rel. humidity mentioned above)

Bitte beachten Sie: Die Testproben dienen lediglich als Vergleich zu anderen Proben.

Die Testproben sollten nicht älter als 2 Jahre ab der Erstmessung sein. Danach bitte austauschen.

Durometer dürfen unter keinen Umständen mit einer Testprobe kalibriert werden.

Mitutoyo Europe GmbH kalibriert Durometer als Dienstleistung.

Bitte beachten Sie die Seite 3.

Please note: Test blocks should not be older than 2 years from the initial calibration.

Test blocks are not intended to be used for the purpose of Durometer calibration.

Mitutoyo Europe GmbH will make Durometer calibrations as a Service.

Please note page 3.



## Verwendete Normale:

Calibrated measurement standards

### 1. Shore Härteprüfer

#### Shore hardness tester

Hersteller: Hildebrand Prüf- und Meßtechnik GmbH

Manufacturer:

Name des Normal: HDD-2, Shore D

Name of standard:

Seriennummer: 0106

Serial number:

DKD-Kalibrierzeichen:

DKD-mark: 58797 D-K-15009-01-00; 2022-08

### 2. Prüfstander

#### Operating Stand

Hersteller: Hildebrand Prüf- und Meßtechnik GmbH

Manufacturer:

Name des Normal: Model DuroLifter/OS-3, motorized system

Name of standard:

Seriennummer: DL 005/DuroLifter

Serial number:

OS-3/0005

mit/with:

## General information about Rubber Test Blocks

Rubber test blocks are intended as a **reference check** and **not for calibration of the hardness tester**.  
The proper way to calibrate the hardness testers is according to ISO 48-9.

### Procedure to avoid deviation of hardness measurements on Rubber Test Blocks:

- set the correct room temperature and humidity,  
at Hildebrand calibration lab: 23 °C ±1 °C, humidity 50 % ±10 %
- incorrect room temperature and humidity causes other readings
- you have to store the test block at least 12 hours in the lab (under lab condition) before testing
- testing device should be at least 10 min. switched ON before testing
- transport condition to the customer is not good. The temperature is too high or too low (airplane and storage)
- avoid vibrations on the table where the hardness tester is located
- pressure plate and indenter is dirty. Clean it with alcohol and a tissue
- the rubber test block is too old (more than 2 years)
- there is too much talcum powder on the test block
- the storage conditions of the test blocks are not correct (no exposure of sunlight to the test block!)
- Recommended storage temperature: 23 °C ±5 °C. Humidity 50 % ±15 %.
- recommended annual recalibration of test blocks
- be sure that you have the proper instruments to obtain the hardness (e.g. measuring time for Shore, Durometer is not coplanar to the measuring table etc.)

#### Information:

- the test block is not homogeneous in each measurement area
- Rubber has some aged deterioration. The indicated values are actually measured before shipping.

In general the Test Blocks consists of rubber. The are a lot of possible influences to the material (see above).

Therefore the deviation is much bigger than e.g. on steel gauge blocks for calibration of your caliper.

If you have further questions please don't hesitate to contact us.

Ende des Dokuments

End of document