



Hand Abrasion
Scratch Resistance
Dynamic Nail-scratch
Dynamic Shoe Sole Abrasion
Cleaning Sponge Test



HIGHLIGHTS

- Linear drive

BASIC FUNCTIONS

Abrasion is a common mechanical process on surfaces caused by scuffing, rubbing, or scratching under normal use or environmental exposure. Its functionality, quality perception and value.

The **INNOWEP EBREX® Hand Abrasion Tester** is the state of the art testing machine for the special environmental testing "Abrasion of markings and letterings caused by rubbing of fingers and hands" according to 60068-2-70.

EBREX® is designed to test lab samples, parts and the final products. Combined with additional liquid supply and various functional modules, it fulfils many international standards and specifications. The uniqueness, the versatility and the flexibility allows this special testing machine **EBREX®** to comply with multiple test conditions.

EBREX® applies an advanced linear motor to generate a controlled motion of the test piston over the test sample. With our 30-year experience in hand abrasion, human physiology, haptic and durability testing, the **INNOWEP EBREX®** assures the most reliable results with great reproducibility and repeatability.

With the great reliability and cost-effective solution, our mission is to provide you a comprehensive strategy for the material and surface quality of your products.

EBREX® can perform the following tests:

- dynamic fingernail scratch automotive
- dynamic industrial scratch
- dynamic shoe sole abrasion automotive
- abrasion with soiling materials/soiling affinity
- abrasion with abrasive cleaning sponges

- Durable Q&A

In addition, all tests can be applied either on a lab sample or on a finished product with the testing temperature ranging from -40°C to 85°C.

- Reliable R&D

STANDARDS & SPECIFICATIONS

- VDE SPEC 90017 v1.0
- DIN EN 60068-2-70
- IEC 68-2-70
- BMW GS 97034 -1, -2, -3, -4, -5, -6
- BMW PR 506, 510
- BMW AA-0471
- BMW TL 9 138681.6
- Daimler DBL 7384 & 9202
- Ford WSS-M2P188-A1/FL TM
BN155-01/ D VM-0055-MA
- GB-T 2423.53
- JIS C 60068-2-70
- PSA D24 5020
- Renault
- EWIMA
- GSO 480.1.003

ADAPTERS



Dynamic Fingernail Test Module-Industrial

Simulation of typical scratch tests with industrial tips.
Supplied with both 45° & 90° sample fixing modules.

Dynamic Fingernail Test Module - Automotive

Simulation of typical scratch and mar tests with human fingernail (PMMA) at different speeds. Supplied with 45° sample fixture. Test acc. to BMW GS97034-2.



Dynamic Fingernail Test Module Automotive (Shoe Sole Test)

Simulation of abrasion between shoe sole and the auto trim with high speeds acc. to BMW GS 97034-3.

Shoe Sole Abrasion Test General

Simulation of the general abrasion for floor, carpet, ceramics.



ADAPTERS



Steering Wheel Abrasion Test

A complete car or truck steering wheel mounting on EBREX® for the simulation of EBREX®-abrasion and other scratch tests without cutting the lab samples. The steering wheel can be any size from automotive, trucks and omnibuses.

Steering Wheel Abrasion Test with Wear Analysis

EBREX®-abrasion tests on steering wheels followed by the measurement of the abrasion rate and surface roughness, topography, structure and visual impression in a mobile fast fashion.



Banknote Durability Test

A specially designed sample mounting adapter with a certain curvature enables the simulation of EBREX®-abrasion and other tests directly on a banknote.



Teeth Abrasion Test

A specially designed adapter to simulate the tooth abrasion for testing the durability of tooth replacement materials. The materials of abrasion counterpart can be customized.

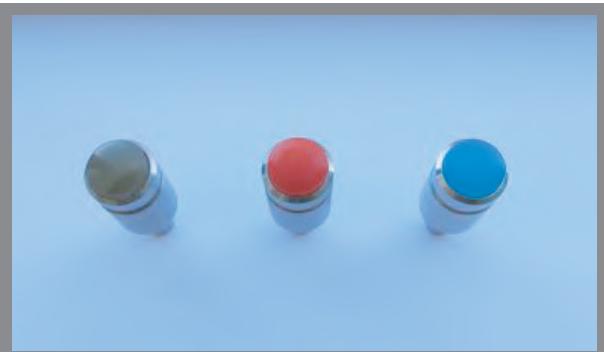
HARDWARE OPTIONS



X-Y Sample Moving Frame

For easy and accurate moving and positioning of the sample

PISTON/STAMP OPTIONS

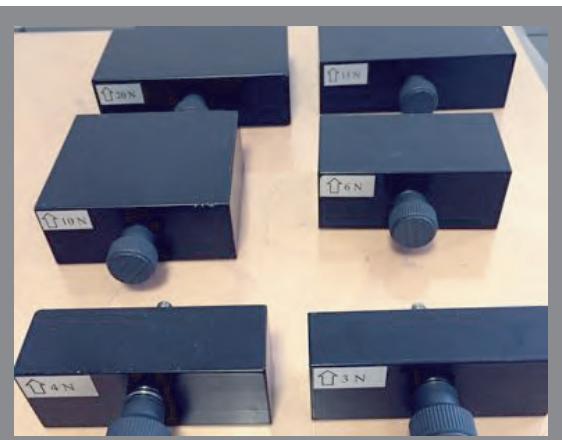


Supply of standard piston/stamp with the diameter of 10mm, 20mm and 30mm. Additionally, different piston/stamp will be especially made for different temperature ranges depending on the model of

EBREX®

0°C to 30°C (transparent)	30°C to 85°C (red)	-40°C to 0°C (blue)
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WEIGHT OPTIONS



Supply of standard weight to run acc. to various standards and specifications:

- 1N
- 1.5N
- 2N
- 3N
- 3.5N
- 4N
- 5N
- 6N
- 8N
- 10N
- 15N
- 20N
- 30N

TEXTILE OPTIONS

Standard Fabric

Simulates ABREX®-abrasion according to DIN EN60068-2-70/IEC 68-2-70/BMW GS 97034/GS 94011



Cotton-Batist Fabric (Denim)

Simulates abrasion with clothing materials (e.g. Jeans) according to ISO 105 D01



Cotton-Lawn Fabric

Simulates abrasion with fine-structured clothing materials (e.g. trouser pockets) acc. to ISO 405 F09



Soiling Fabric

Simulates soiling behaviour with standard materials (by fats, soot) acc. to BMW GS 97034 and various standards. Two versions are available.



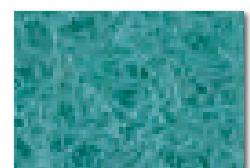
Abrasion-Pad S-1000

Simulates mechanical abrasion with high-abrasive rubbing pad



Abrasion-Pad „Scrub-Test“

Simulates mechanical wear by kitchen and cleaning sponges (M44)



Wool Felt H1

Abrasion test according to various standards, hardness H1



MEDIA OPTIONS



Artificial Sweat acc.to:

DIN 53160-2:2001
BMW GS 97034/GS94011 (2 types)
BMW PR506
DBL 7384
VW TL 226 (2 types)
FORD DVM-00870MA
PSA

Additional

Disinfection Liquids
Cleaning paste
Skin lotion
Soil/dirt
Plastic maintenance emulsion
Sun cream/hand cream
Cleaner/Spray
Seasoning
Cooking oil

For additional textile or liquid supply, please contact info@innowep.com for detailed information.

MAINTENANCE AND SERVICES

EBREX® inspection with maintenance and calibration should be performed at least once a year. Some of the spare parts including stamp, textile and artificial sweat are required to be exchanged frequently. Certain test liquids, piston/stamp, textile and drive motor unit and sensors have limited shelf life.

Please consult info@innowep.com for detailed information.