silverschmidt

The first integrated Concrete Test Hammer

The SilverSchmidt features true Rebound Value, unmatched Repeatability and intuitive Operation all in a rugged and ergonomic Unit.

Traditional Hammers vs. SilverSchmidt

The classical hammers suffer from the following insufficiencies:
1. The rebound value is dependent on the impact direction.
2. The rebound value is affected by internal friction.
3. Limited tightness of sealing causes premature loss of accuracy.

The unique design and high quality construction of the SilverSchmidt address all of these issues and makes rebound hammer testing quicker and more accurate than ever before.

Benefits to the Customer

Ergonomics: The SilverSchmidt body lies very comfortably in the hand. The display is highly readable under any conditions.

Robustness: A two-layer seal prevents dust and dirt from penetrating to the interior of the instrument.

Impact direction independence: The forward and the rebound velocity of the hammer mass are both measured in close proximity to the point of impact. The rebound value requires no angular correction.

Measurement accuracy and repeatability: The new measurement principle and the design of the mechanics enable the SilverSchmidt to outperform its predecessors.

Objective evaluation: A larger number of measurement points can be easily collected by the instrument and automatically evaluated according to statistical criteria.

PC connection: The application “Hammerlink” allows all data to be uploaded via USB. Firmware upgrades are also possible over this connection.

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Made in Switzerland

... more than 50 years of know-how you can measure!

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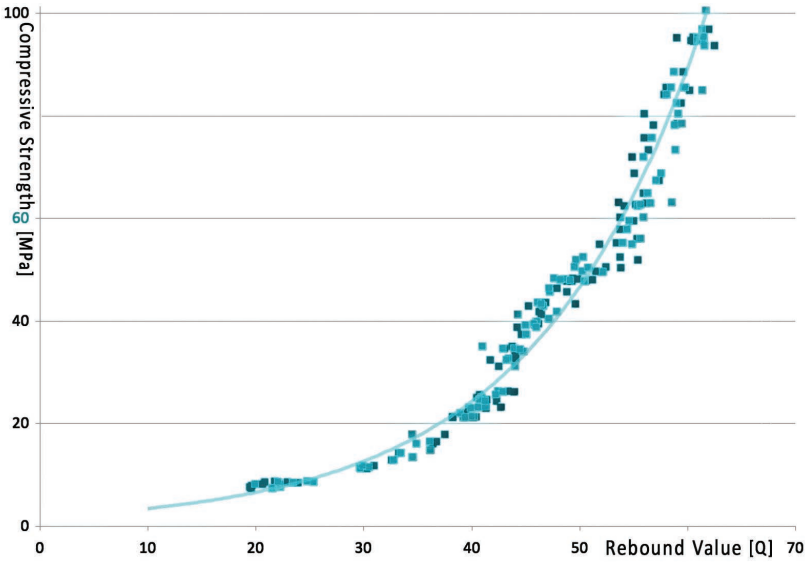
Improved Performance

Two factors contribute to the improved performance of the SilverSchmidt over its predecessors:
1. Velocity based detection of the rebound quotient.
2. The lightweight hybrid design of the impact plunger is made from aerospace alloy, matched to the elastic properties of the concrete and equipped with a hardened steel cap.



Independent validation testing by BAM (Bundesanstalt für Materialforschung und -prüfung, Federal Institute for Materials Research and Testing) in Berlin has shown the SilverSchmidt to have less dispersion than the classical hammer over the entire range.

Intuitive User Interface

The language independent user interface is simple to use and provides all of the functionality necessary for a rapid assessment of the structure. An inclination sensor allows the user to navigate from left to right within the menu. By depressing the single push-button [SELECT], the particular function is activated.

The menu structure is simple, similar to the interface of a mobile phone. Practically every command can be activated either directly or via no more than 2 consecutive steps. This allows the choice of: the measurement mode (single impact mode – various averaging modes) and the desired conversion curve (compressive strength with form factor and unit / rebound value Q). All data is automatically saved and may be reviewed via the data list.

SilverSchmidt along with a selection of various screens

Data Acquisition and Processing

Pre-programmed statistical methods in-line with all of the major standards allows an error-free, rapid determination of the rebound value. Summary views in Hammerlink make uniformity testing a simple matter. Reduced dispersion and direct conversion to compressive strength based on validated curves, regional curves or user defined curves bring improved accuracy to compressive strength estimates.

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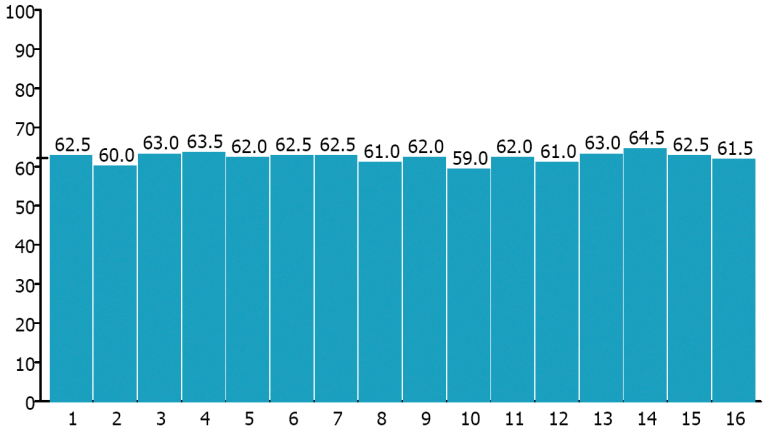
Hammerlink - Data Analysis made simple

The Windows based software Hammerlink, developed by Proceq SA, unlocks the full capabilities of the SilverSchmidt, making it an even more powerful instrument for structural assessment (SilverSchmidt PC version only).

Q-Values diagram [measurement order]



Q-Values

62.5
60.0
63.0
63.5
62.0
62.5
62.5
61.0
62.0
59.0
62.0
61.0
63.0
64.5
62.5
61.5

Statistics

Measurements	N = 16
Invalid measurements	Ni = 0 (0%)
Mean value	f = 74.5 N/mm² (62.0 Q)
Standard deviation	s = 1.5 N/mm² (1.3 Q)

Settings

Averaging mode	Mean
Conversion curve	REF N
Form factor	1.00
Carbonation depth	0.0 mm
Unit	N/mm²
Serial number	SH01-001-0115
Spring type	SilverSchmidt N

Comment

[Add]

Hammerlink Features

- Extended memory usage
- Rapid uniformity assessment with the summary view
- Sorting of data
- User-defined conversion curves (polynomial and exponential)
- User-defined statistical methods
- Highlighting of mean, median and outliers
- Carbonation correction
- Print outs
- Export to third party software

Technical Information SilverSchmidt

Mechanical Data	**Type N**	**Type L**
Impact energy	2.207 Nm (1.63 lb ft)	0.735 Nm (0.54 lb ft)
Concrete Compressive Strength Range	10-100 N/mm2 (1450-14500 psi)	
Hammer mass	135 g	
Spring extension	75 mm (2.95”)	
Dimensions of housing	55 x 55 x 255 mm (2.16” x 2.16” x 9.84”)	
Weight	570 g (1.3 lb)	
Memory Data		
Max No. of impacts in a series	99	
Memory capacity	Dependent on length of test series Example >400 series with 10 values per series Example >200 series with 20 values per series	
Electrical Data		
Display	17 x 71 pixel, graphic	
Battery life	>5000 impacts between charges	
Charger connection	USB type B (5 V, 100 mA)	
Environmental conditions		
Operating temperature	0 to 50 °C (32 to 122 °F)	
Storage temperature	-10 to 70 °C (14 to 158 °F)	

Technical Information Hammerlink Software

System requirements: Windows XP, Windows Vista, Windows 7, USB-connector.
An Internet connection is necessary for automatic Hammerlink software updates and for SilverSchmidt firmware updates (using PqUpgrade), if available. PDF Reader is required to show the “Help Manual”.

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Ordering Information

Units	Part No. / Description
	SilverSchmidt consisting of: SilverSchmidt hammer, standard accessories (battery charger with USB cable, data carrier with software, carrying strap, grinding stone, chalk, documentation) and carrying bag
SilverSchmidt ST Type N	341 30 000
SilverSchmidt ST Type L	341 40 000
SilverSchmidt PC Type N	341 31 000
SilverSchmidt PC Type L	341 41 000

Parts and Accessories

341 10 113	Cover for USB port
341 10 315	Plunger SilverSchmidt ST/PC complete
341 10 400	SilverSchmidt anvil
342 10 400	Low range anvil
341 10 395	Upgrade kit for existing Euro anvil
341 80 211	Grinding stone
341 80 105	Carrying bag
351 90 018	USB cable 1.8 m (71 inches)
341 80 112	USB charger, global
341 80 203	Carrying strap

SilverSchmidt Models

ST Standard model. Software provided for performing firmware upgrades and selecting presets only.
PC Extended memory usage. Custom curves. Download to PC. Full Hammerlink Software functionality.
N-Type standard impact energy. The test object should have a min. thickness of 100 mm and be firmly fixed in the structure.
L-Type low impact energy. Suitable for brittle objects or structures less than 100 mm thick.

Service and Warranty Information

Proceq is committed to providing complete support for the SilverSchmidt testing instruments by means of our global service and support facilities. Furthermore, each instrument is backed by the standard Proceq 2-year warranty and extended warranty options.

Standard warranty
- Electronic portion of the instrument: 24 months
- Mechanical portion of the instrument: 6 months

Extended warranty
When acquiring a SilverSchmidt, max. 3 additional years of warranty coverage can be purchased (for the electronic portion of the instrument). The additional warranty must be requested at time of purchase or within 90 days of purchase

Applicable Standards

The following standards have been applied in SilverSchmidt for the procedure to determine the rebound number:

EN12504-2 (European Standard)
ASTM C 805 (North American Standard)
JGJ/T 23-2001 (Chinese Standard)

CE

Subject to change without notice. All information contained in this documentation is presented in good faith and believed to be correct. Proceq SA makes no warranties and excludes all liability as to the completeness and/or accuracy of the information. For the use and application of any product manufactured and/or sold by Proceq SA explicit reference is made to the particular applicable operating instructions.

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