Testing Systems



Schleibinger Geräte Teubert u. Greim GmbH

Building Materials – Instruments and Measurement Technologies from Schleibinger

SLABTESTER

Schleibinger Geräte Teubert u. Greim GmbH Buchbach / Germany

www.schleibinger.com

Schleibinger Geräte Teubert u. Greim GmbH

- Founded 1989 by O. Teubert, M. Greim and A.Schleibinger.
- Since 1995 located in Buchbach, Bavaria, Germany
- We develop, manufacture and market innovative test systems for building materials.
- With 13 employees we now supply our customers worldwide with systems for environmental simulation, deformation measurement, and rheometrical tests.
- In cooperation with our customers we are developing new test systems for the building materials of the future

Schleibinger in Buchbach/Germany





70 km east of Munich

www.schleibinger.com

Our Team



Some of our Customers..



Since 2005 Schleibinger Instruments in the PR China

In Commemoration of the Installation of the First-Ever System SCHLEIBINGER CDF/CIF Freeze-Thaw Tester in China



史葉宾格 CDF/CIF 冻融测试系统 设备制造商 Schleibinger Geräte 德国史莱宾格公司 Gewerbestrasse 4, D-84428 Buchbach, Germany 使用单位 中国水利部 水科学与水工程重点实验室

在中国安装第一套冻融测试系统

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Our Products





Durability

Alkali-Silica Reactor

Detection of potential alkali reactivity

- Temperature range +20°C to +70°C
- Rel. humidity ~ 100%
- Capacity up to 72 specimen



Accerated method using 60 °C and high humidity:

- German Comitee for Concrete, DAfSTb (Ed.): Mitigation strategies against destroying alcali reactins in concrete: Alkali-Richtlinie, Anhang B, Teil3, Berlin: Beuth, 2007
- Standard NF P18-454 (Décembre 2004) : Béton Réactivité d'une formule de béton vis-à-vis de l'alcali-réaction - Essai de performance - Reactivity of concrete for alkalisilica Performance test
- RILEM Test Method TC 191-ARP (Ed.): AAR-4.1:
 -Detection of Potential Alkali-Reactivity-60°C Accelerated method for testing aggregate combinations using concrete prisms - Bagneaux, 2006



Durability

CDF Test Equipment Freeze-Thaw resistance

- Temperature range -20°C to +20°C
- Deviation < ±0.5K @ -20°C
- Hermetically isolated cooling machine
- Capacity up to 15 specimen

CEN/TS 12390-9 CDF – RILEM TC 117 FDC CIF – RILEM RC 176 IDC





Slab Test Equipment

Freeze-Thaw tester for freezing in air and thawing in air or water

- > Chamber with temperature and time controlled
- > refrigerating and heating system
- > Air circulation in the chamber (3 fans)
- > Flooding option with or without continuous water circulation
- > Temperature control in the external water vessel
- > Automatic spraying option
- > Stainless steel inside and outside
- > Temperature profiles freely programmable
- > Network interface, built in WEB and FTP server
- Graphically touch display
- T_set, T_specimen, T_air, T_add and T_heat-exchanger are
 measured and continuously recorded.
 www.schleibinger.com



Slab Test Equipment

Freeze-Thaw tester for freezing in air and thawing in air or water

technical specifications:

- ≻Temperature range min. -35°C to max. +45°C
- > Outer size (WxDxH): 70 x 89 x 215 cm
- > Inner size (WxDxH): 53 x 65 x 155 cm
- > Shelf size (WxD): 53 x 65 cm
- Max. load per grid: 60 kg
- ➢ Weight approx. 150 kg
- > Refrigerant: R290 (Propan)



Slab Test Equipment

For tests according to standards:

SIA 262/1:2013-08; SN 505262/1:2013-08

Concrete Structures – Supplementary specifications **ASTM C666-03 (2008), Procedure B**

Standard Test Method for resistance of concrete to rapid freezing and thawing ASTM C672 / C672M-12

Standard Test Method for scaling resistance of concrete surfaces exposed to deicing chemicals

ASTM C1262-10

Standard Test Method for evaluating the freeze-thaw durability of dry-cast segmental retaining wall units and related concrete units

EN 1338

Concrete paving blocks – requirements and test methods EN 1339

Concrete paving flags – requirements and test methods $\ensuremath{\text{EN 1340}}$

Concrete kerb units – requirements and test methods EN 12004-2:2017-05

Adhesives for ceramic tiles – part 2: test method EN 1367-1:2007

Tests for thermal and weathering properties of aggregates – determination of resistance to freezing and thawing

EN 1367-6:2008

Tests for thermal and weathering properties of aggragates – determination of resistance to freezing and thawing in the presence of salt www.schleibinger.com



Slab Test Equipment

For tests according to standards:

CEN/TS 12390-9:2006

Testing hardened concrete – freeze thaw resistance – scaling, method 1: reference method

EN 12091:2013

Thermal insulating products for building applications – determination of freezethaw resistance

EN 12371

Natural stone test methods – determination of frost resistance EN 12467:2012-12

Fibre-cement flat sheets – product specifications and test methods **EN 12808-3:2009-01**

Grouts for tiles – determination of flexural and compressive strength **ISO/DIS 13007-2.2**

Ceramic tiles, adhesives, part 2: test methods for adhesives

EN 13383-2: Armourstones part 2: test methods

EN 13687-3:2002

Products and systems for the protection and repair of concrete structures **EN 14891:2013-07**

Liquid-applied water impermeable products for use beneath ceramic tiling bonded with adhesives

CEN/TR 15177:2006

Testing the freeze-thaw resistance of concrete **CEN/TS 772-22:2006**

Testing freeze-thaw resistance of clay masonry units

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Setup 1

1. Samples are prepared and placed into the sample container of the Slabtester.

- Set the temperature in the ext. water container.
- define and load the program
- Start the program.



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Setup 2

1. Samples are prepared and placed into the sample container of the Slabtester.

- Set the temperature in the ext. water container.
- define and load the program
- Start the program.



Freezing Period

1. Samples are prepared and placed into the sample container of the Slabtester.

- Set the temperature in the ext. water container.

- define and load the program

- Start the program.

2. beginning of the freezing



Start of Thawing

1. Samples are prepared and placed into the sample container of the Slabtester.

- Set the temperature in the ext. water container.

- define and load the program

- Start the program.

- 2. beginning of the freezing
- 3. for thawing: pumping up water into the sample container optional feature: permanent water circulation during the thawing



Start of Thawing

1. Samples are prepared and placed into the sample container of the Slabtester.

- Set the temperature in the ext. water container.

- define and load the program

- Start the program.

2. beginning of the freezing

3. for thawing: pumping up water into the sample container
 optional feature: permanent water circulation during the thawing

overflow







Stop Thawing → Start Next Cycle

1. Samples are prepared and placed into the sample container of the Slabtester.

- Set the temperature in the ext. water container.

- define and load the program
- Start the program.
- 2. beginning of the freezing

3. for thawing: pumping up water into the sample container
 <u>optional feature</u>: permanent water circulation during the thawing

4. drain the water from the sample container into the outer vessel

5. start the next freeze thaw cycle

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Evaluate the Data

- 1. Samples are prepared and placed into the sample container of the Slabtester.
- Set the temperature in the ext. water container.
- define and load the program
- Start the program.
- 2. beginning of the freezing
- 3. thawing on air or in water pumping of water into the sample container
 <u>additional feature</u>: water circulation during the thawing
- 4. drain the water from the sample container into the outer vessel
- 5. start the next freeze thaw cycle



Slab Test Equipment



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Schleibinger Geräte Teubert u. Greim GmbH

Thank you for your attention!





Schleibinger Geräte

Teubert u. Greim GmbH

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Schleibinger in Buchbach/Germany



Our Team





Oliver Teubert and Markus Greim

www.schleibinger.com

Our team..



Since 2005 Schleibinger Instruments in the PR China

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水科学与水





machines are not in our product range.



Hear you may see s selection of our products. We are mainly focused on procedures which new standards or not even a standard yet. The classical products like slump flow vessels or pressing machines are not in our product range.







Slab Test Equipment

Freeze-Thaw tester for freezing in air and thawing in air or water

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Setup 1

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 Set the temperature in the ext. water container.
 define and load the program
 Start the program.



Setup 2

1. Samples are prepared and placed into the sample container of the Slabtester. - Set the temperature in the ext. water

container.

- define and load the program Start the program.



Freezing Period

1. Samples are prepared and placed into the sample container of the Slabtester.

- Set the temperature in the ext. water

container.

define and load the programStart the program.

- 2. beginning of the freezing



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Stop Thawing → Start Next Cycle





Slab Test Equipment

nische Fachhochschule Berlin r für Baustoffe mburger Straße 10 3 Berlin

42. Zyklus

Slab- Test

Prüfung nach DIN EN 12390 Teil 9

Verlauf der Luft- und Prüfoberflächentem Zyklusbeginn: 1.12.04 14:09 Z

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Thank you for your attention!

