AUTOMATED TEMPERATURE CONTROLLED Add-on

GEO-ATC

Powered by GeothermoLab

General Features:

- Unlimited temperature change cycle definition
- Definition of stage time in each cycle
- Repeated temperature change program
- Monitor real-time temperature, deformation data and graphs
- Automatic control of pumps to fill/empty the cell during/wetting tests
- Export data to Excel

GeoThermoLab Features

01 Precise control of temperature

02 Compatible with many geotechnical engineering tests (Consolidation, Swelling, Permeability, Triaxial, RLT)

03 Operate up to 6 temperature control unit at the same time

04 Automatic control of water level in consolidation test during wet and dry tests (Filling/Emptying/Refilling)

05 Automatic wetting/drying/Freezing test without the requirement to transfer the cell to the oven/freezer

TC UNIT MODEL   Range

TC UNIT MODEL	Range
GEO-ATC-5	-5 °C to 100°C
GEO-ATC-10	-10°C to 100°C
GEO-ATC-20	-20°C to 100°C
GEO-ATC-40	-40°C to 100°C
GEO-ATCH-40	-40°C to 200°C

Features

- Environmentally friendly CFC-free refrigeration technology.
- Low noise & high quality fully enclosed air-cooled compressor refrigeration
- Fan cooled compressor with overheating, automatic overload protection
- Large-screen LCD display
- Touch screen to operate
- Fuzzy control for automatic control adjustment based on the ambient temperature
- Continuous heating/cooling to reach the desired temperature

Free Swelling Test
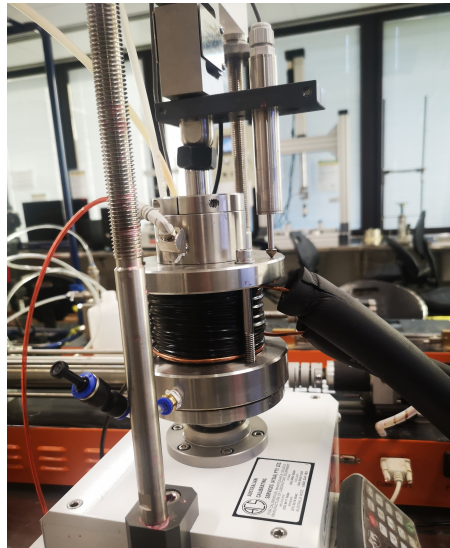
Consolidation Test

GEO-ATCH Series

GEO-ATC Series

GEO-ATC

AUTOMATED TEMPERATURE CONTROLLED Add-on

GEO-ATC is an add-on for many civil/geotechnical testing apparatuses to maintain and regulate the temperature at a specified value. This add-on has its own software and controls the temperature of the circulating liquid. The liquid is pumped continuously in a coil around the sample or an external water container.

GEO-ATC is powered with **GeoThermoLAB** to maintain the temperature with the definition of an unlimited number of temperature program patterns.

GEO-ATC can be used as an add-on to the following geotechnical engineering tests:

- Triaxial Test
- Direct shear test
- Permeability test
- Repeated Load Triaxial Test (RLT)
- Unconfined Compressive Strength Test (UCS)

Geothermolab can be tailored to each test based on the requirements of the client.

GeoThermoLAB

GeoThermoLab is a dedicated software to control GEO-ATC and many other sensors and gears like digital dial gauges, solenoid pumps, peristaltic pumps in a single software. As an example, GeothermoLab can control and read the data of a fully automated wetting/drying swelling test. This includes the following functions:

- Filling the consolidation cell with water in wetting cycle
- Emptying the consolidation cell in drying cycle
- Reading and recording the digial dial gauge
- Defining custom data logging patterns
- Reading/Controlling/Recording temperature of circulating liquid around the sample
- Defining unlimited number of wetting/drying tests with the option of defining the time to rise to the target temperature, time to keep the target temperature
- Defining the level of water in the consolidation cell for testing unsaturated soils
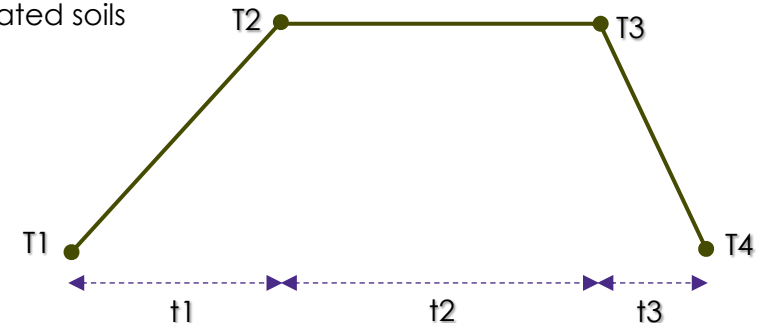
Temperature Parameter setup in GeoThermoLab software

Thermo Lab — File Tools Help

<1>Permeability — OFF / 00.000 / OFF
<2>K20B-0.5GG — 45.0 ON / 06.139 / OFF
<3>K20B-1.5CH — 45.0 <2> / 05.591 / OFF
<4>K20B-1.5SA — 45.0 <2> / 06.915

Test procedure — File

Step 1
Equipment: 2
Equipment Nme: K20B-0.5GG

Test type
◉ No change
○ Keep wet
○ Keep dry

Sync temp data from: <2>K20B-0.5GG

Step 2) Scattered Temperature setting
Initial Temperature (T0): 45
Target Temperature (°C): 45
Time to reach the target (minutes): 360
Time at target (minutes): 9999
☐ Disable temperature control
Filling/Emptying Time (sec): 180
Refilling Time (sec): 5

Step 3) Data logging
For the first 60 minutes Take 10 samples/min.
Afterwards one sample every 10 minutes

Add Stage
Update Selected Stage
Remove Selected Stage
Clear All
Copy from
Test Notes

001) Wet test (2.42) From 26.7 to 23 (In 5 minutes) & Hold for 7200 mins (10 Ss/min for 60 minute(s), Then 1 sample per 10 mi
002) Wet test (.02) From 23 to -7 (In 360 minutes) & Hold for 1440 mins (10 Ss/min for 60 minute(s), Then 1 sample per 10 min
003) Wet test (.02) From -7 to 23 (In 360 minutes) & Hold for 1440 mins (10 Ss/min for 60 minute(s), Then 1 sample per 10 min
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Stop test | Run selected stage | Restart

Visualisation — File
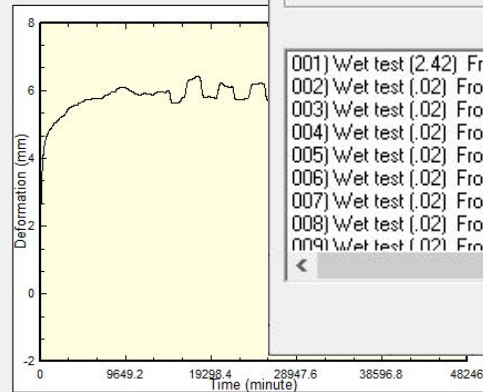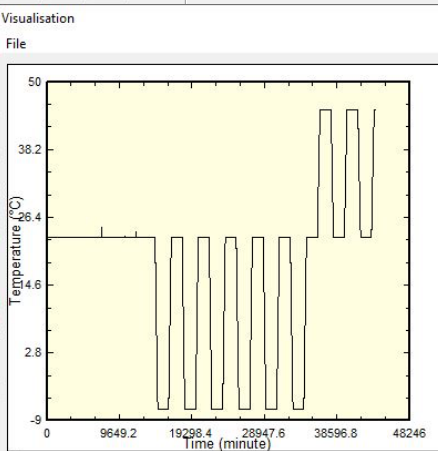
Live data
Equipment: <2>K20B-0.5GG
Current stage: 18
Current temperature (°C): 45
Initial Temperature (°C): 23
Target Temperature (°C): 45
Current deformation(mm): 6.139
Time in stage D:H:M:S: 000:10:55:47
Stage finishes on : 8/12/2022 7:13:38 PM
Target reaching time D:H:M:S: 000:00:00:0
Post delay time D:H:M:S: 000:19:04:13
Global time D:H:M:S: 030:11:01:47
Test Status: Running
☑ Show the most recent data

No	Stage	DateTime	Global Timer (minute)	Stage timer (minute)	Temperature (°C)	Deformation (mm)	Status
15649	18	07/12/2022 21:03:36.54	43674.967	469.967	45	6.161	
15650	18	07/12/2022 21:13:36.19	43684.967	479.967	45	6.161	
15651	18	07/12/2022 21:23:36.49	43694.967	489.967	45	6.161	
15652	18	07/12/2022 21:33:36.31	43704.967	499.967	45	6.161	
15653	18	07/12/2022 21:43:36.16	43714.967	509.967	45	6.161	
15654	18	07/12/2022 21:53:36.15	43724.967	519.967	45	6.161	
15655	18	07/12/2022 22:03:36.30	43734.967	529.967	45	6.161	
15656	18	07/12/2022 22:13:36.59	43744.967	539.967	45	6.161	
15657	18	07/12/2022 22:23:36.41	43754.967	549.967	45	6.161	
15658	18	07/12/2022 22:33:36.10	43764.967	559.967	45	6.161	
15659	18	07/12/2022 22:43:36.17	43774.967	569.967	45	6.161	
15660	18	07/12/2022 22:53:36.71	43784.967	579.967	45	6.161	
15661	18	07/12/2022 23:03:36.48	43794.967	589.967	45	6.161	
15662	18	07/12/2022 23:13:36.08	43804.95	599.95	45	6.161	
15663	18	07/12/2022 23:23:36.36	43814.967	609.967	45	6.156	
15664	18	07/12/2022 23:33:36.38	43824.967	619.967	45	6.151	
15665	18	07/12/2022 23:43:36.20	43834.967	629.967	45	6.151	
15666	18	07/12/2022 23:53:36.33	43844.967	639.967	45	6.145	
15667	18	08/12/2022 00:03:36.28	43854.967	649.967	45	6.145	

☐ Show all graphs

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