

CALIBRATION CERTIFICATE FOR CPT PROBE 5820

Probe No 5820
 Date of Calibration 2022-10-13
 Calibrated by Alexander Dahlin.....
 Run No 2374
 Test Class: ISO 1

Point Resistance Tip Area 10cm²

Maximum Load 50 MPa
 Range 50 MPa
 Scaling Factor **1294**
 Resolution 0,5896 kPa
 Area factor (a) 0,829
 Zero 7,187 MPa

ERRORS

Max. Temperature effect when not loaded 24,748 kPa
 Temperature range 5 –40 deg. Celsius.

Local Friction Sleeve Area 150cm²

Maximum Load 0,5 MPa
 Range 0,5 MPa
 Scaling Factor **3999**
 Resolution 0,0095 kPa
 Area factor (b) 0
 Zero 123,76 kPa

ERRORS

Max. Temperature effect when not loaded 0,524 kPa
 Temperature range 5 –40 deg. Celsius.

Pore Pressure

Maximum Load 2 MPa
 Range 2 MPa
 Scaling Factor **3553**
 Resolution 0,0215 kPa
 Zero 263,96 kPa

ERRORS

Max. Temperature effect when not loaded 1,652 kPa
 Temperature range 5 –40 deg. Celsius.

Tilt Angle

Scaling Factor **0,91**
 Range 0 - 40 Deg.

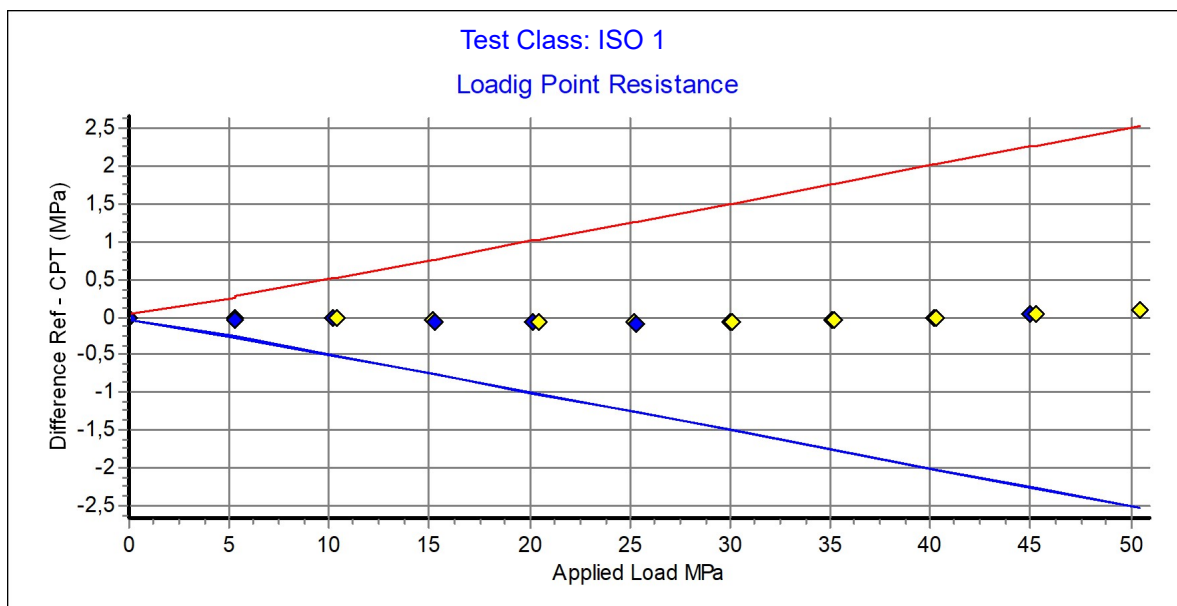
Backup memory Temperature sensor



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Probe No: **5820**
 Date of Calibration: **2022-10-13**
 Calibration Run No: **2374**
 Calibrated by: **Alexander Dahlin**
Scaling Factor: 1294
 Reference Cell: 58604

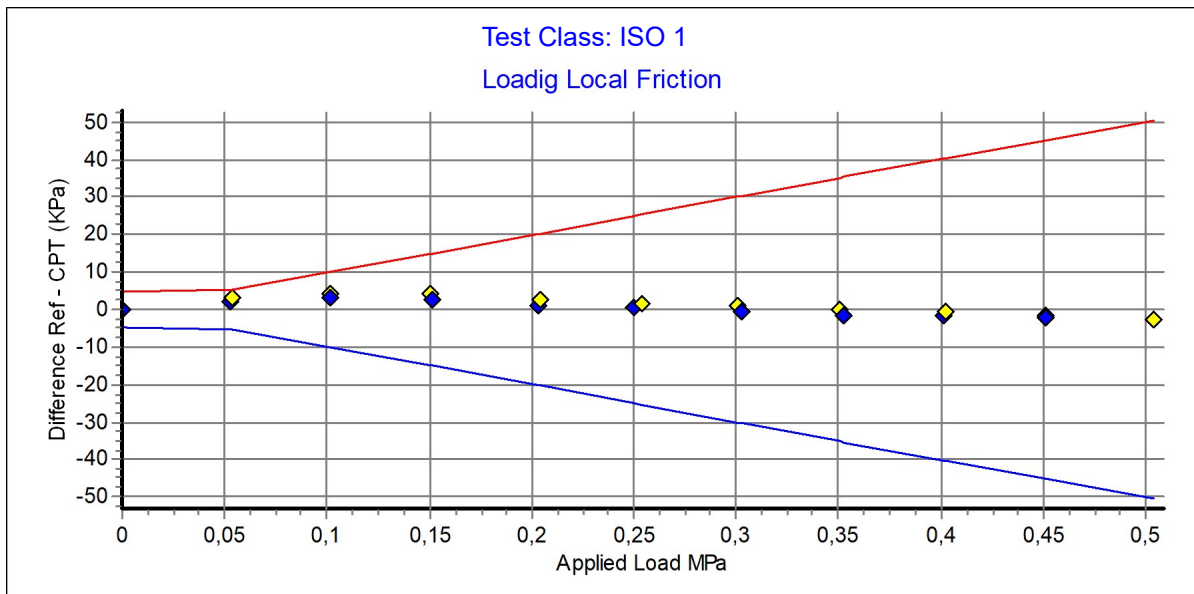
Applied Load MPa	PointRes. MPa	Difference MPa	Accuracy %/MV	Friction MPa	PorePress MPa
0,000	0,000	0,000	0,000	0,000	0,000
5,264	5,270	-0,006	-0,114	0,001	0,000
10,409	10,414	-0,005	-0,048	0,002	0,000
15,198	15,227	-0,029	-0,190	0,003	-0,001
20,404	20,458	-0,054	-0,264	0,003	-0,001
25,254	25,322	-0,068	-0,269	0,004	-0,002
30,085	30,146	-0,061	-0,202	0,005	-0,002
35,154	35,195	-0,041	-0,116	0,006	-0,002
40,260	40,267	-0,007	-0,017	0,007	-0,003
45,298	45,260	0,038	0,083	0,007	-0,003
50,437	50,336	0,101	0,200	0,008	-0,004
44,999	44,963	0,036	0,080	0,006	-0,003
40,141	40,147	-0,006	-0,014	0,005	-0,002
35,056	35,099	-0,043	-0,122	0,004	-0,002
30,018	30,085	-0,067	-0,223	0,003	-0,001
25,275	25,361	-0,086	-0,340	0,002	-0,001
20,160	20,236	-0,076	-0,377	0,002	-0,001
15,225	15,284	-0,059	-0,387	0,001	0,000
10,132	10,158	-0,026	-0,256	0,000	0,000
5,310	5,339	-0,029	-0,546	0,000	0,000
0,003	0,007	-0,004	0,000	0,000	0,000



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 Calibration Run No: **2374**
 Calibrated by: **Alexander Dahlin**
Scaling Factor: 3999
 Reference Cell: **50598**

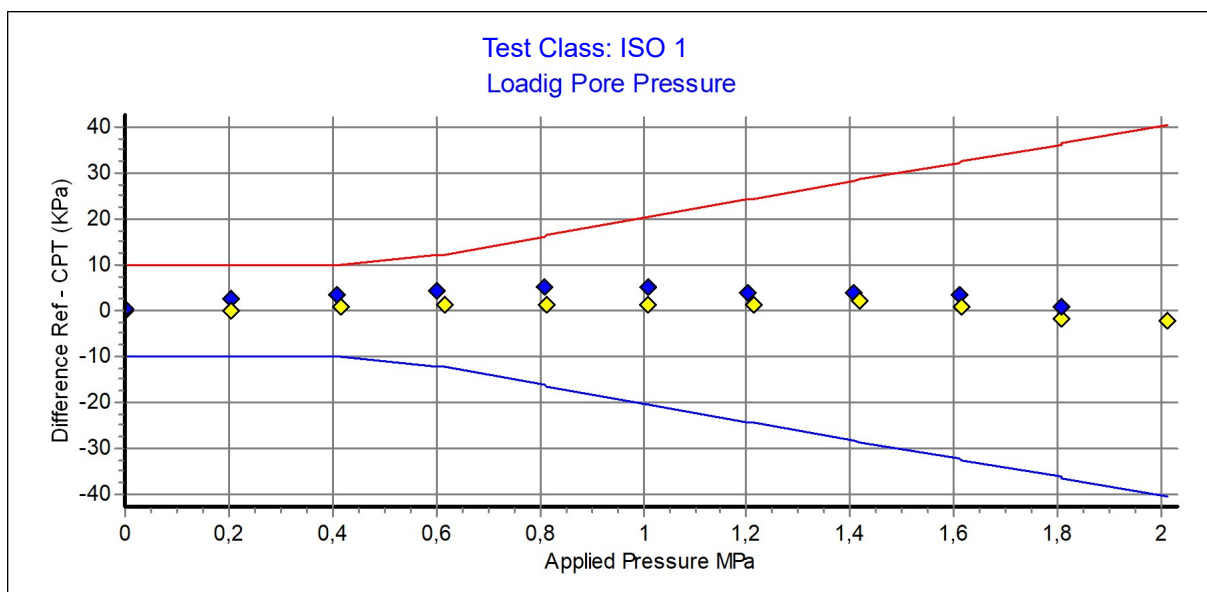
Ref MPa	Friction MPa	Difference KPa	Accuracy %/MV	PointRes. MPa	PorePress MPa
0,000	0,000	0,000	0,000	0,000	0,000
0,054	0,051	3,079	0,000	0,002	0,000
0,102	0,098	4,483	0,000	0,005	0,000
0,150	0,146	4,152	0,000	0,005	0,000
0,204	0,201	2,551	1,264	0,007	0,000
0,254	0,252	1,547	0,612	0,008	0,000
0,301	0,300	1,107	0,368	0,010	0,000
0,351	0,351	-0,205	-0,058	0,011	0,000
0,402	0,403	-0,733	-0,181	0,011	0,000
0,451	0,453	-1,802	-0,397	0,012	0,000
0,504	0,506	-2,773	-0,547	0,014	0,000
0,451	0,453	-2,195	-0,484	0,011	0,000
0,401	0,402	-1,651	-0,410	0,008	0,000
0,353	0,354	-1,367	-0,385	0,007	0,000
0,303	0,304	-0,502	-0,165	0,005	0,000
0,250	0,249	0,785	0,314	0,005	0,000
0,203	0,201	1,299	0,643	0,004	0,000
0,151	0,149	2,540	0,000	0,002	0,000
0,102	0,099	3,136	0,000	0,002	0,000
0,053	0,051	2,277	0,000	0,000	0,000
0,000	0,000	-0,140	0,000	0,001	0,000



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 Calibrated by: **Alexander Dahlin**
Scaling Factor: 3553
 Reference Cell: 153810109

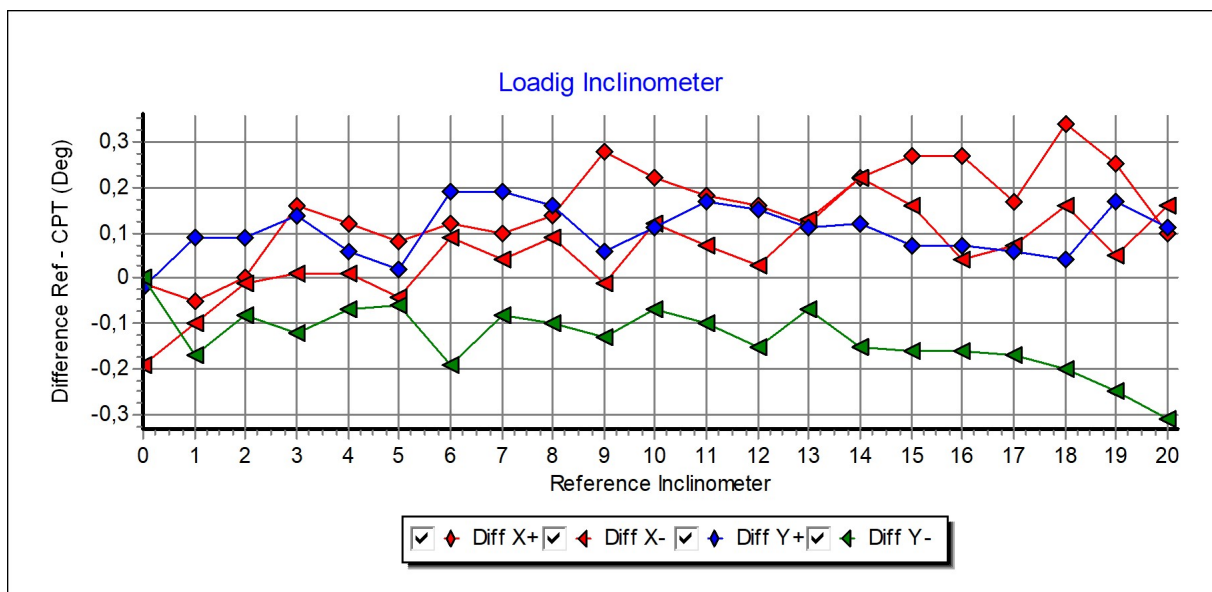
Appl. Press MPa	PorePress MPa	Difference KPa	Accuracy %/MV	PointRes. MPa	Friction MPa	Area Factor A = PR/PP	Area Factor B = LF/PP
0,000	0,000	0,100	0,000	0,000	0,000	0,000	
0,206	0,206	0,184	0,089	0,163	0,000	0,791	0,000
0,416	0,415	1,041	0,250	0,327	0,000	0,788	0,000
0,615	0,614	1,312	0,213	0,495	0,000	0,806	0,000
0,814	0,813	1,375	0,169	0,664	0,000	0,816	0,000
1,011	1,010	1,313	0,130	0,832	0,000	0,823	0,000
1,213	1,211	1,204	0,099	1,004	0,000	0,829	0,000
1,417	1,415	2,115	0,149	1,177	0,000	0,831	0,000
1,613	1,612	0,765	0,047	1,348	0,000	0,836	0,000
1,805	1,807	-1,598	-0,088	1,511	0,000	0,836	0,000
2,011	2,013	-1,971	-0,097	1,686	0,000	0,837	0,000
1,806	1,806	0,768	0,042	1,513	0,000	0,837	0,000
1,609	1,605	3,344	0,208	1,346	0,000	0,838	0,000
1,405	1,402	3,703	0,264	1,176	0,000	0,838	0,000
1,203	1,199	4,000	0,333	1,007	0,000	0,839	0,000
1,008	1,003	5,030	0,501	0,843	0,000	0,840	0,000
0,808	0,803	4,991	0,621	0,674	0,000	0,839	0,000
0,602	0,598	4,364	0,729	0,501	0,000	0,837	0,000
0,407	0,403	3,461	0,857	0,336	0,000	0,833	0,000
0,204	0,202	2,478	1,226	0,165	0,000	0,816	0,000
0,000	0,000	0,423	0,000	0,005	0,000	0,000	



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Scaling Factor: 0,91

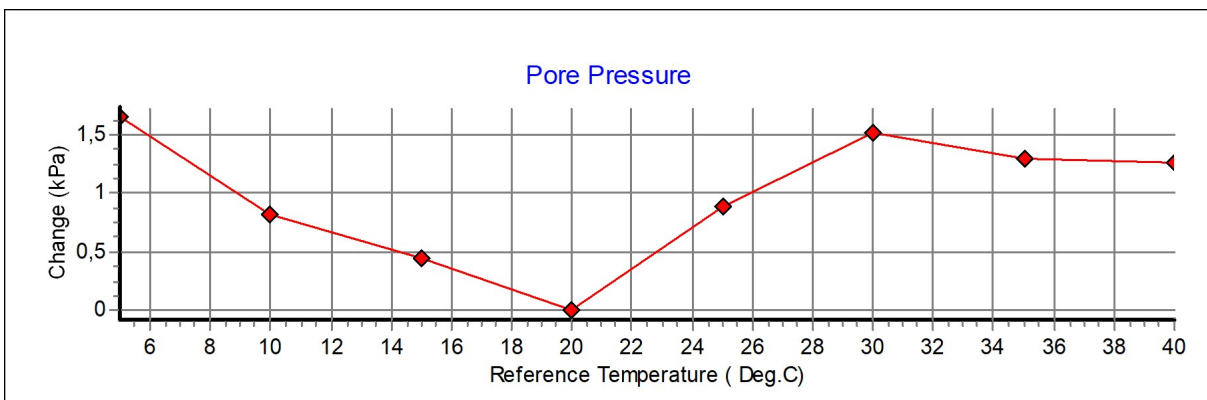
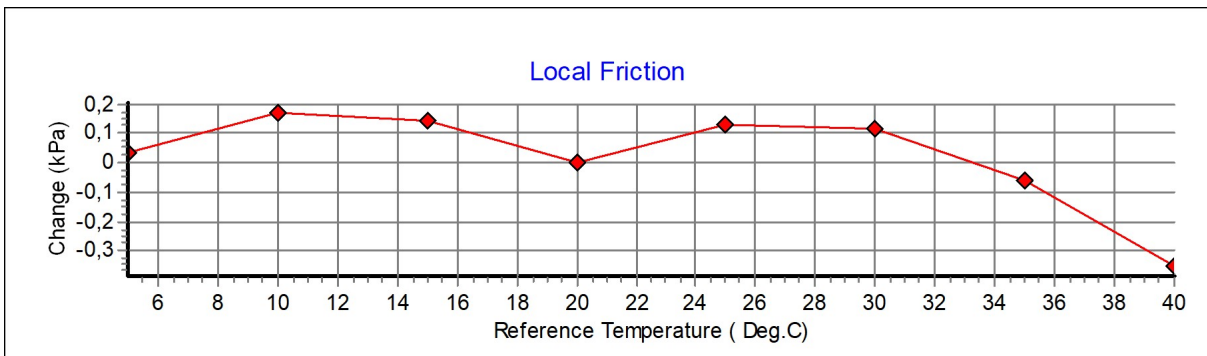
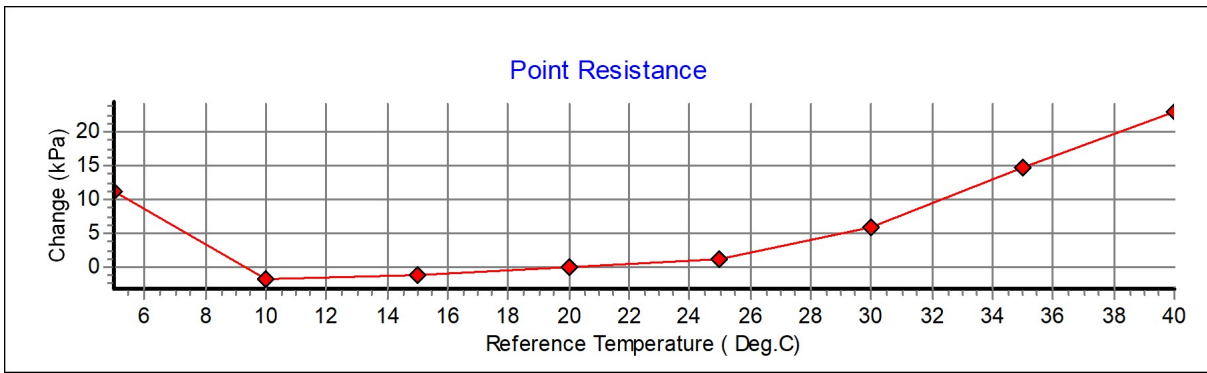
Appl. Incin. Deg	X+ Deg	X- Deg	Y+ Deg	Y- Deg	Diff X+ Deg	Diff X- Deg	Diff Y+ Deg	Diff Y- Deg
0,00	0,01	0,19	0,02	0,00	-0,01	-0,19	-0,02	0,00
1,00	1,05	1,10	0,91	1,17	-0,05	-0,10	0,09	-0,17
2,00	2,00	2,01	1,91	2,08	0,00	-0,01	0,09	-0,08
3,00	2,84	2,99	2,86	3,12	0,16	0,01	0,14	-0,12
4,00	3,88	3,99	3,94	4,07	0,12	0,01	0,06	-0,07
5,00	4,92	5,04	4,98	5,06	0,08	-0,04	0,02	-0,06
6,00	5,88	5,91	5,81	6,19	0,12	0,09	0,19	-0,19
7,00	6,90	6,96	6,81	7,08	0,10	0,04	0,19	-0,08
8,00	7,86	7,91	7,84	8,10	0,14	0,09	0,16	-0,10
9,00	8,72	9,01	8,94	9,13	0,28	-0,01	0,06	-0,13
10,00	9,78	9,88	9,89	10,07	0,22	0,12	0,11	-0,07
11,00	10,82	10,93	10,83	11,10	0,18	0,07	0,17	-0,10
12,00	11,84	11,97	11,85	12,15	0,16	0,03	0,15	-0,15
13,00	12,88	12,87	12,89	13,07	0,12	0,13	0,11	-0,07
14,00	13,78	13,78	13,88	14,15	0,22	0,22	0,12	-0,15
15,00	14,73	14,84	14,93	15,16	0,27	0,16	0,07	-0,16
16,00	15,73	15,96	15,93	16,16	0,27	0,04	0,07	-0,16
17,00	16,83	16,93	16,94	17,17	0,17	0,07	0,06	-0,17
18,00	17,66	17,84	17,96	18,20	0,34	0,16	0,04	-0,20
19,00	18,75	18,95	18,83	19,25	0,25	0,05	0,17	-0,25
20,00	19,90	19,84	19,89	20,31	0,10	0,16	0,11	-0,31



Calibration of temperature effect when not loaded.

Göteborg:2022-10-13

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Calibration procedure.

Göteborg: 2022-10-13

Upon delivery, the equipment complies with ISO 22476-1:2012, including Technical Corrigendum 1 (ISO 22476-1:2012/Cor 1:2013)

Point resistance.

The point resistance is calibrated from 0 to maximum range in 10 steps up and down. Then we adjust the calibration factor to fit the best linearity.

Local friction.

A special adapter unit substitutes the cone and transfers the axial forces to the lower end of the friction sleeve. The friction is calibrated from 0 to maximum range in 10 steps up and down then the sleeve is turned 90 degrees and the calibration repeated.

Then we adjust the calibration factor to fit the best linearity.

Pore pressure & Area ratio a and b.

The completed probe is installed in a special chamber and the pore pressure sensor are calibrated from 0 to maximum range in 10 step up and down.

Then we adjust the calibration factor to fit the best linearity.

At half range the pressure of the point and friction is registered and used for calculation of the area factor.

Tilt inclination.

The tilt sensor is calibrated +/- 20deg. from vertical line in steps of 1 deg.

This will be done in 2 orthogonal directions.

Temperature.

The temperature sensor is calibrated in steps of 5°C from 5 to 40 °C.

Temperature compensation.

The Point, Friction and the Pore pressure sensors in the probe is temperature compensated and tested in the range 5 to 40 °C.

The reference sensors are connected to the Geotech black box together with the CPT probe. The measuring data from the reference sensors are simultaneously send to the computer and stored in the Geotech calibration software. The completed systems are recalibrated at RISE Research Institutes of Sweden once a year.

Environment.

Air pressure: 1015,7 hPa.

Temperature: 24,5 °C.