

CALIBRATION CERTIFICATE FOR CPT PROBE 5240

Probe No 5240
 Date of Calibration 2023-03-22
 Calibrated by Alexander Dahlin.....
 Run No 2686
 Test Class: ISO 1

Point Resistance	Tip Area 10cm²	
Maximum Load	50	MPa
Range	50	MPa
Scaling Factor	1283	
Resolution	0,5947	kPa
Area factor (a)	0,853	
Zero	7,292 MPa	

ERRORS

Max. Temperature effect when not loaded 19,612 kPa
 Temperature range 5 –40 deg. Celsius.

Local Friction	Sleeve Area 150cm²	
Maximum Load	0,5	MPa
Range	0,5	MPa
Scaling Factor	3697	
Resolution	0,0103	kPa
Area factor (b)	0	
Zero	130,78 kPa	

ERRORS

Max. Temperature effect when not loaded 0,319 kPa
 Temperature range 5 –40 deg. Celsius.

Pore Pressure		
Maximum Load	2	MPa
Range	2	MPa
Scaling Factor	3897	
Resolution	0,0196	kPa
Zero	237,65 kPa	

ERRORS

Max. Temperature effect when not loaded 1,721 kPa
 Temperature range 5 –40 deg. Celsius.

Tilt Angle

Scaling Factor	0,95	
Range	0 - 40	Deg.

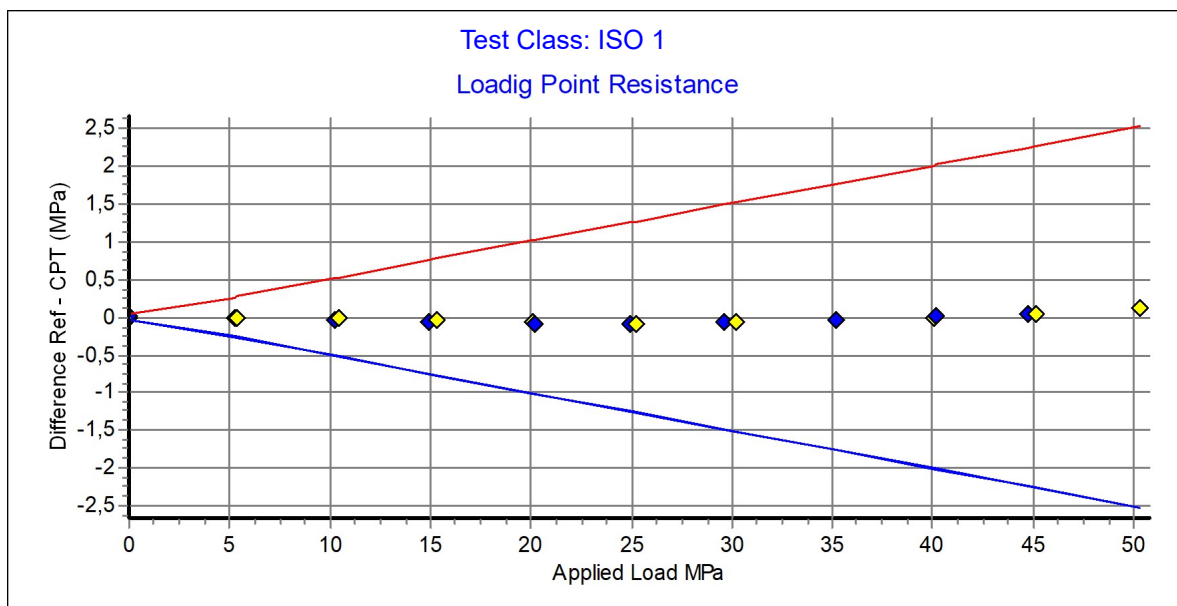
Backup memory



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Probe No: **5240**
 Date of Calibration: **2023-03-22**
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 Calibrated by: **Alexander Dahlin**
Scaling Factor: 1283
 Reference Cell: **58604**

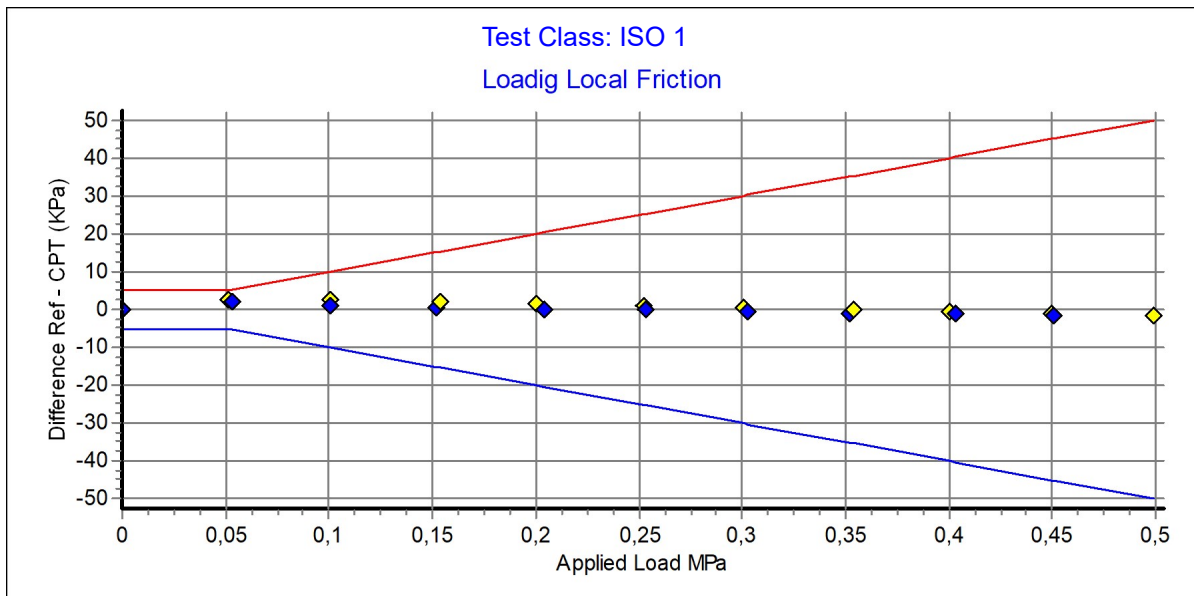
Applied Load MPa	PointRes. MPa	Difference MPa	Accuracy %/MV	Friction MPa	PorePress MPa
0,000	0,000	0,000	0,000	0,000	0,000
5,331	5,332	-0,001	-0,018	0,001	0,000
10,400	10,407	-0,007	-0,067	0,002	0,000
15,292	15,333	-0,041	-0,268	0,003	0,000
20,084	20,152	-0,068	-0,338	0,003	0,000
25,217	25,298	-0,081	-0,321	0,004	0,000
30,170	30,243	-0,073	-0,242	0,004	0,000
35,151	35,196	-0,045	-0,128	0,005	0,000
40,006	40,019	-0,013	-0,032	0,005	0,000
45,152	45,114	0,038	0,084	0,006	0,000
50,291	50,181	0,110	0,218	0,006	0,000
44,755	44,709	0,046	0,102	0,005	0,000
40,119	40,117	0,002	0,005	0,004	0,000
35,184	35,218	-0,034	-0,096	0,003	0,000
29,633	29,701	-0,068	-0,229	0,002	0,000
24,967	25,051	-0,084	-0,336	0,002	0,000
20,133	20,215	-0,082	-0,407	0,002	0,000
14,951	15,008	-0,057	-0,381	0,001	0,000
10,245	10,272	-0,027	-0,263	0,001	0,000
5,246	5,258	-0,012	-0,228	0,000	0,000
0,006	-0,005	0,011	0,000	0,000	0,000



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Scaling Factor: 3697
 Reference Cell: **50598**

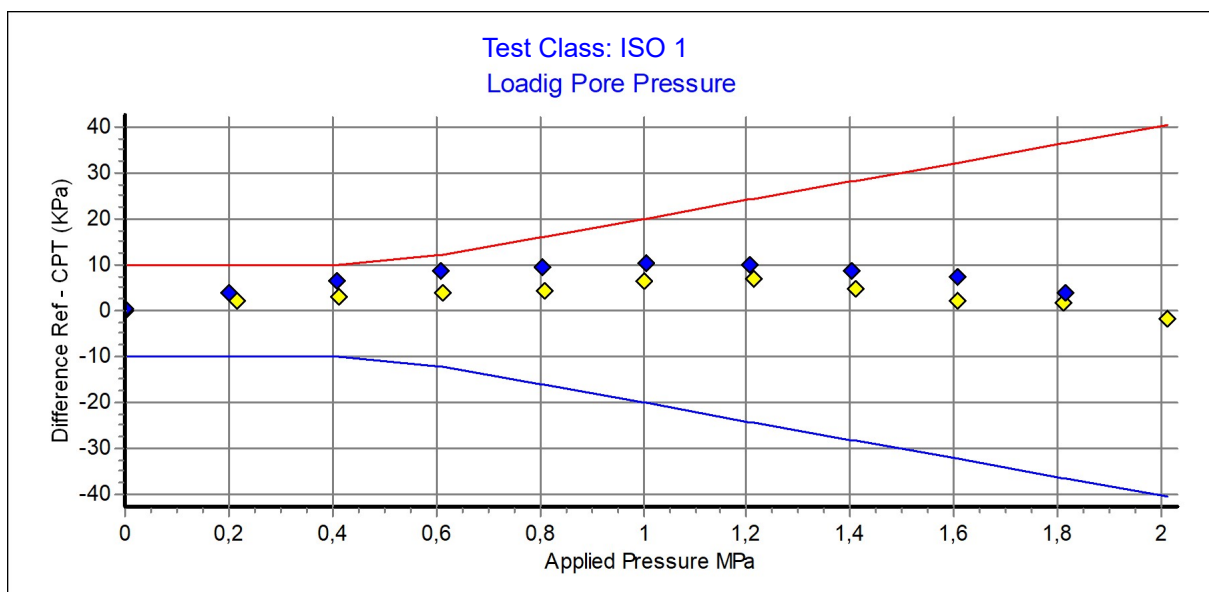
Ref MPa	Friction MPa	Difference KPa	Accuracy %/MV	PointRes. MPa	PorePress MPa
0,000	0,000	0,000	0,000	0,000	0,000
0,051	0,049	2,494	0,000	0,006	0,000
0,101	0,098	2,386	0,000	0,008	0,000
0,154	0,152	2,051	0,000	0,009	0,000
0,200	0,199	1,637	0,000	0,010	0,000
0,252	0,251	0,987	0,393	0,010	0,000
0,301	0,300	0,562	0,187	0,012	0,000
0,354	0,354	-0,071	-0,020	0,013	0,000
0,400	0,401	-0,570	-0,142	0,015	0,000
0,450	0,451	-1,074	-0,238	0,015	0,000
0,499	0,501	-1,644	-0,328	0,016	0,000
0,451	0,453	-1,422	-0,314	0,014	0,000
0,403	0,404	-1,221	-0,302	0,013	0,000
0,352	0,353	-0,947	-0,268	0,013	0,000
0,303	0,303	-0,589	-0,194	0,012	0,000
0,253	0,253	-0,233	-0,092	0,011	0,000
0,204	0,204	0,198	0,097	0,010	0,000
0,152	0,151	0,742	0,000	0,009	0,000
0,101	0,099	1,305	0,000	0,008	0,000
0,053	0,051	1,943	0,000	0,007	0,000
0,000	0,000	0,091	0,000	0,004	0,000



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Scaling Factor: 3897
 Reference Cell: 153810109

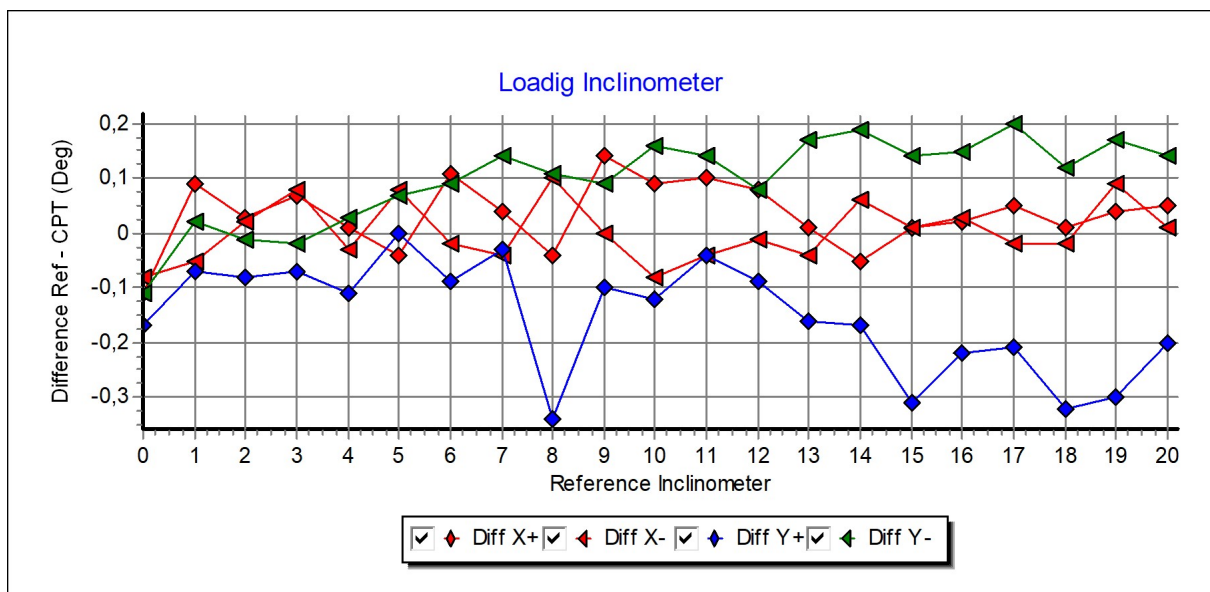
Appl. Press MPa	PorePress MPa	Difference KPa	Accuracy %/MV	PointRes. MPa	Friction MPa	Area Factor A = PR/PP	Area Factor B = LF/PP
0,000	0,000	0,100	0,000	0,000	0,000	0,000	
0,216	0,214	2,263	1,054	0,177	0,000	0,827	0,000
0,411	0,408	3,109	0,762	0,333	0,001	0,816	0,002
0,611	0,607	3,877	0,638	0,508	0,001	0,836	0,001
0,808	0,804	4,327	0,538	0,681	0,001	0,847	0,001
1,003	0,997	6,401	0,641	0,846	0,001	0,848	0,001
1,212	1,205	6,835	0,567	1,028	0,001	0,853	0,000
1,410	1,406	4,831	0,343	1,204	0,001	0,856	0,000
1,605	1,602	2,316	0,144	1,375	0,002	0,858	0,001
1,812	1,810	1,740	0,096	1,554	0,002	0,858	0,001
2,011	2,013	-1,715	-0,085	1,729	0,002	0,858	0,001
1,813	1,809	3,754	0,207	1,553	0,002	0,858	0,001
1,606	1,599	7,247	0,453	1,374	0,001	0,859	0,000
1,404	1,395	8,651	0,619	1,201	0,001	0,860	0,000
1,207	1,197	10,133	0,846	1,029	0,001	0,859	0,000
1,005	0,995	10,560	1,061	0,855	0,001	0,859	0,001
0,807	0,798	9,348	1,171	0,683	0,001	0,855	0,001
0,610	0,601	8,561	1,423	0,511	0,001	0,850	0,001
0,408	0,401	6,503	1,618	0,338	0,000	0,842	0,000
0,202	0,199	3,721	0,000	0,162	0,000	0,814	0,000
0,001	0,000	0,272	0,000	0,001	0,000	0,000	



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Scaling Factor: 0,95

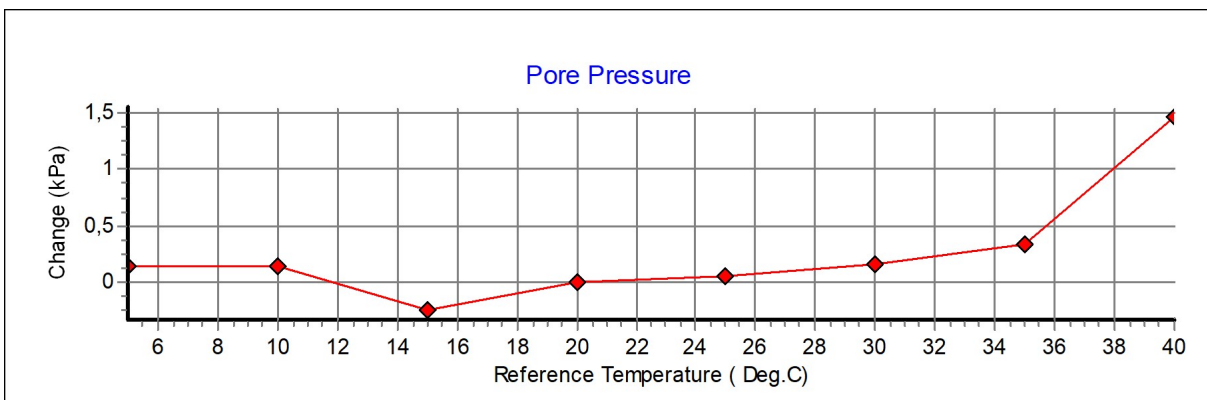
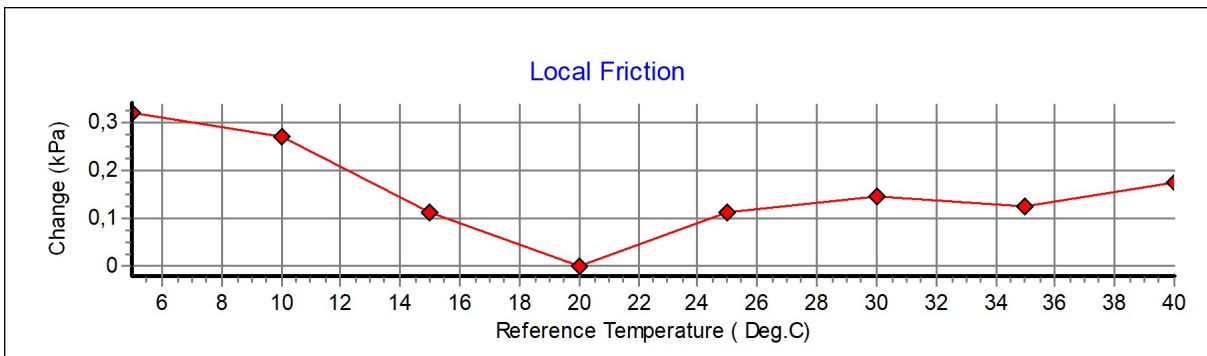
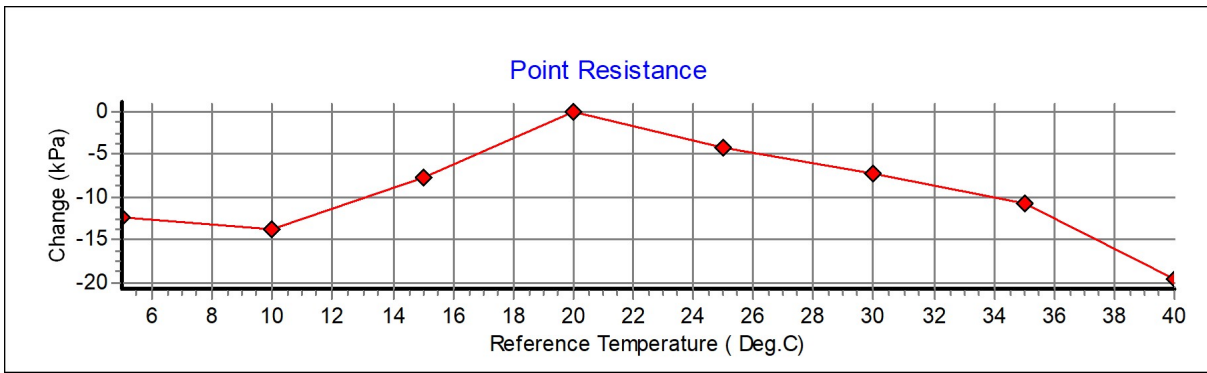
Appl. Incin. Deg	X+ Deg	X- Deg	Y+ Deg	Y- Deg	Diff X+ Deg	Diff X- Deg	Diff Y+ Deg	Diff Y- Deg
0,00	0,11	0,08	0,17	0,11	-0,11	-0,08	-0,17	-0,11
1,00	0,91	1,05	1,07	0,98	0,09	-0,05	-0,07	0,02
2,00	1,97	1,98	2,08	2,01	0,03	0,02	-0,08	-0,01
3,00	2,93	2,92	3,07	3,02	0,07	0,08	-0,07	-0,02
4,00	3,99	4,03	4,11	3,97	0,01	-0,03	-0,11	0,03
5,00	5,04	4,92	5,00	4,93	-0,04	0,08	0,00	0,07
6,00	5,89	6,02	6,09	5,91	0,11	-0,02	-0,09	0,09
7,00	6,96	7,04	7,03	6,86	0,04	-0,04	-0,03	0,14
8,00	8,04	7,90	8,34	7,89	-0,04	0,10	-0,34	0,11
9,00	8,86	9,00	9,10	8,91	0,14	0,00	-0,10	0,09
10,00	9,91	10,08	10,12	9,84	0,09	-0,08	-0,12	0,16
11,00	10,90	11,04	11,04	10,86	0,10	-0,04	-0,04	0,14
12,00	11,92	12,01	12,09	11,92	0,08	-0,01	-0,09	0,08
13,00	12,99	13,04	13,16	12,83	0,01	-0,04	-0,16	0,17
14,00	14,05	13,94	14,17	13,81	-0,05	0,06	-0,17	0,19
15,00	14,99	14,99	15,31	14,86	0,01	0,01	-0,31	0,14
16,00	15,98	15,97	16,22	15,85	0,02	0,03	-0,22	0,15
17,00	16,95	17,02	17,21	16,80	0,05	-0,02	-0,21	0,20
18,00	17,99	18,02	18,32	17,88	0,01	-0,02	-0,32	0,12
19,00	18,96	18,91	19,30	18,83	0,04	0,09	-0,30	0,17
20,00	19,95	19,99	20,20	19,86	0,05	0,01	-0,20	0,14



Calibration of temperature effect when not loaded.

Göteborg:2023-03-22

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Calibration procedure.

Göteborg: 2023-03-22

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: 1000,0 hPa.

Temperature: 23,0 °C.