GEONOR A/S
P.O.Box 99 Røa, 0701 Oslo 7, Norway
Office: Grinidammen 10, 1343 Eiksmarka
Telephone: 02-24 75 50
Telex: 77306 genor n
Telefax: 02-24 58 46
Bank account: 6233.05.06259
Postal account: 0808 5134176

BESTILLING 005108

KALIBRERINGS - DATA

8 STK. TRYKKMÅLERE

GEONOR A/S
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CALIBRATION CERTIFICATE

for

Transducer type: Earth Pressure Cell

Serial number: 37692

Least square fit of curved line through datasets achieved by recording the changing frequency output from the transducer to find coeffisients A and B in the equation:

$$P = A(f - f_o) + B(f - f_o)^2$$

where:

P = Applied load on transducer in Bar
f = output frequency from transducer measured in Hz
f_o = output frequency from transducer with no load

P	f	f - f_o	$P_{computed}$	P - $P_{computed}$	% FR
0.00	1230.0	0.0	0.0000	0.0000	0.00
5.00	1357.1	127.1	5.0372	0.0372	0.07
10.00	1470.7	240.7	10.0350	0.0350	0.07
15.00	1574.9	344.9	15.0306	0.0306	0.06
20.00	1671.6	441.6	20.0188	0.0188	0.04
25.00	1762.0	532.0	24.9886	-0.0114	-0.02
30.00	1847.5	617.5	29.9617	-0.0383	-0.08
35.00	1929.1	699.1	34.9550	-0.0450	-0.09
40.00	2007.4	777.4	39.9734	-0.0266	-0.05
45.00	2082.6	852.6	45.0023	0.0023	0.00
50.00	2155.2	925.2	50.0518	0.0518	0.10
40.00	2008.2	778.2	40.0258	0.0258	0.05
30.00	1848.5	618.5	30.0214	0.0214	0.04
20.00	1671.4	441.4	20.0082	0.0082	0.02
10.00	1470.5	240.5	10.0258	0.0258	0.05
0.00	1230.0	0.0	0.0000	0.0000	0.00

A = 0.03732795492 = 3.73280E-02
B = 0.00001812624 = 1.81262E-05
f_o = 1230.0

Max nonlinearity error.: 0.10% of full range
Project.....: 150592
Tag no.....: P-105
Units of P.....: Bar
Calibration date.....: 9/12 1992
Signature.....: TE
Comment.....: Kalibr.v/temp.: 1 gr.C.

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CALIBRATION CERTIFICATE

for

Transducer type: Earth Pressure Cell

Serial number: 37792

Least square fit of curved line through datasets achieved by recording the changing frequency output from the transducer to find coeffisients A and B in the equation:

$$P = A(f - f_o) + B(f - f_o)^2$$

where:

P = Applied load on transducer in Bar
f = output frequency from transducer measured in Hz
f_o = output frequency from transducer with no load

P	f	f - f_o	$P_{computed}$	P - $P_{computed}$	% FR
0.00	1224.7	0.0	0.0000	0.0000	0.00
5.00	1356.9	132.2	4.9791	-0.0209	-0.04
10.00	1476.5	251.8	9.9861	-0.0139	-0.03
15.00	1586.3	361.6	15.0030	0.0030	0.01
20.00	1687.8	463.1	19.9984	-0.0016	-0.00
25.00	1783.2	558.5	25.0070	0.0070	0.01
30.00	1873.2	648.5	30.0105	0.0105	0.02
35.00	1958.6	733.9	35.0081	0.0081	0.02
40.00	2040.0	815.3	39.9982	-0.0018	-0.00
45.00	2118.1	893.4	44.9938	-0.0062	-0.01
50.00	2193.3	968.6	49.9962	-0.0038	-0.01
40.00	2041.5	816.8	40.0922	0.0922	0.18
30.00	1873.3	648.6	30.0162	0.0162	0.03
20.00	1687.3	462.6	19.9730	-0.0270	-0.05
10.00	1476.1	251.4	9.9685	-0.0315	-0.06
0.00	1224.7	0.0	0.0000	0.0000	0.00

A = 0.03545802327 = 3.54580E-02
B = 0.00001668275 = 1.66828E-05
f_o = 1224.7

Max nonlinearity error.: 0.18% of full range
Project.....: 150592
Tag no.....: P-105
Units of P.....: Bar
Calibration date.....: 10/12 1992
Signature.....: TE
Comment.....: Kalibr.v/temp.: 1 gr.C.

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CALIBRATION CERTIFICATE

for

Transducer type: Earth Pressure Cell

Serial number: 37892

Least square fit of curved line through datasets achieved by recording the changing frequency output from the transducer to find coeffisients A and B in the equation:

$$P = A(f - f_o) + B(f - f_o)^2$$

where:

P = Applied load on transducer in Bar
f = output frequency from transducer measured in Hz
f_o = output frequency from transducer with no load

P	f	f - f_o	$P_{computed}$	P - $P_{computed}$	% FR
0.00	1239.0	0.0	0.0000	0.0000	0.00
5.00	1370.3	131.3	5.0084	0.0084	0.02
10.00	1488.2	249.2	10.0072	0.0072	0.01
15.00	1596.3	357.3	15.0076	0.0076	0.02
20.00	1696.5	457.5	19.9989	-0.0011	-0.00
25.00	1790.5	551.5	24.9930	-0.0070	-0.01
30.00	1879.5	640.5	29.9995	-0.0005	-0.00
35.00	1963.8	724.8	34.9911	-0.0089	-0.02
40.00	2044.5	805.5	39.9968	-0.0032	-0.01
45.00	2121.8	882.8	45.0001	0.0001	0.00
50.00	2196.2	957.2	50.0084	0.0084	0.02
40.00	2045.7	806.7	40.0729	0.0729	0.15
30.00	1880.5	641.5	30.0573	0.0573	0.11
20.00	1696.7	457.7	20.0092	0.0092	0.02
10.00	1487.2	248.2	9.9628	-0.0372	-0.07
0.00	1239.0	0.0	0.0000	0.0000	0.00

A = 0.03590285970 = 3.59029E-02
B = 0.00001707230 = 1.70723E-05
f_o = 1239.0

Max nonlinearity error.: 0.15% of full range
Project.....: 150592
Tag no.....: P-105
Units of P.....: Bar
Calibration date.....: 10/12 1992
Signature.....: TE
Comment.....: Kalibr.v/temp.: 1 gr.C.

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CALIBRATION CERTIFICATE

for

Transducer type: Earth Pressure Cell

Serial number: 37992

Least square fit of curved line through datasets achieved by recording the changing frequency output from the transducer to find coeffisients A and B in the equation:

$$P = A(f - f_o) + B(f - f_o)^2$$

where:

P = Applied load on transducer in Bar
f = output frequency from transducer measured in Hz
f_o = output frequency from transducer with no load

P	f	f - f_o	$P_{computed}$	P - $P_{computed}$	% FR
0.00	1196.3	0.0	0.0000	0.0000	0.00
5.00	1326.9	130.6	4.9585	-0.0415	-0.08
10.00	1445.8	249.5	9.9562	-0.0438	-0.09
15.00	1555.7	359.4	14.9855	-0.0145	-0.03
20.00	1657.9	461.6	20.0157	0.0157	0.03
25.00	1753.3	557.0	25.0185	0.0185	0.04
30.00	1843.5	647.2	30.0214	0.0214	0.04
35.00	1929.1	732.8	35.0144	0.0144	0.03
40.00	2010.9	814.6	40.0090	0.0090	0.02
45.00	2089.2	892.9	44.9941	-0.0059	-0.01
50.00	2164.5	968.2	49.9768	-0.0232	-0.05
40.00	2013.0	816.7	40.1401	0.1401	0.28
30.00	1845.6	649.3	30.1410	0.1410	0.28
20.00	1658.9	462.6	20.0666	0.0666	0.13
10.00	1446.3	250.0	9.9782	-0.0218	-0.04
0.00	1196.0	-0.3	-0.0108	-0.0108	-0.02

A = 0.03583835982 = 3.58384E-02
B = 0.00001629819 = 1.62982E-05
f_o = 1196.3

Max nonlinearity error.: 0.28% of full range
Project.....: 150592
Tag no.....: P-105
Units of P.....: Bar
Calibration date.....: 11/12 1992
Signature.....: TE
Comment.....: Kalibr.v/temp.: 1 gr.C.

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CALIBRATION CERTIFICATE

for

Transducer type: Earth Pressure Cell

Serial number: 38092

Least square fit of curved line through datasets achieved by recording the changing frequency output from the transducer to find coeffisients A and B in the equation:

$$P = A(f - f_o) + B(f - f_o)^2$$

where:

P = Applied load on transducer in Bar
f = output frequency from transducer measured in Hz
f_o = output frequency from transducer with no load

P	f	f - f_o	$P_{computed}$	P - $P_{computed}$	% FR
0.00	1176.0	0.0	0.0000	0.0000	0.00
5.00	1305.2	129.2	4.9414	-0.0586	-0.12
10.00	1423.3	247.3	9.9376	-0.0624	-0.12
15.00	1533.0	357.0	14.9886	-0.0114	-0.02
20.00	1634.5	458.5	20.0138	0.0138	0.03
25.00	1729.6	553.6	25.0290	0.0290	0.06
30.00	1819.3	643.3	30.0314	0.0314	0.06
35.00	1904.3	728.3	35.0155	0.0155	0.03
40.00	1985.7	809.7	40.0107	0.0107	0.02
45.00	2063.6	887.6	44.9948	-0.0052	-0.01
50.00	2138.4	962.4	49.9680	-0.0320	-0.06
40.00	1989.6	813.6	40.2555	0.2555	0.51
30.00	1824.2	648.2	30.3123	0.3123	0.62
20.00	1639.0	463.0	20.2444	0.2444	0.49
10.00	1425.8	249.8	10.0483	0.0483	0.10
0.00	1176.0	0.0	0.0000	0.0000	0.00

A = 0.03612602035 = 3.61260E-02
B = 0.00001641125 = 1.64113E-05
f_o = 1176.0

Max nonlinearity error.: 0.62% of full range
Project.....: 150592
Tag no.....: P-105
Units of P.....: Bar
Calibration date.....: 11/12 1992
Signature.....: TE
Comment.....: Kalibr.v/temp.: 1 gr.C.

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CALIBRATION CERTIFICATE

for

Transducer type: Earth Pressure Cell

Serial number: 38192

Least square fit of curved line through datasets achieved by recording the changing frequency output from the transducer to find coeffisients A and B in the equation:

$$P = A(f - f_o) + B(f - f_o)^2$$

where:

P = Applied load on transducer in Bar
f = output frequency from transducer measured in Hz
f_o = output frequency from transducer with no load

P	f	f - f_o	$P_{computed}$	P - $P_{computed}$	% FR
0.00	1141.2	0.0	0.0000	0.0000	0.00
5.00	1277.4	136.2	5.0415	0.0415	0.08
10.00	1398.5	257.3	10.0234	0.0234	0.05
15.00	1509.9	368.7	15.0213	0.0213	0.04
20.00	1613.1	471.9	20.0062	0.0062	0.01
25.00	1709.8	568.6	24.9869	-0.0131	-0.03
30.00	1801.4	660.2	29.9813	-0.0187	-0.04
35.00	1888.4	747.2	34.9738	-0.0262	-0.05
40.00	1971.6	830.4	39.9753	-0.0247	-0.05
45.00	2051.6	910.4	44.9935	-0.0065	-0.01
50.00	2129.0	987.8	50.0439	0.0439	0.09
40.00	1973.8	832.6	40.1105	0.1105	0.22
30.00	1803.9	662.7	30.1213	0.1213	0.24
20.00	1614.6	473.4	20.0812	0.0812	0.16
10.00	1398.5	257.3	10.0234	0.0234	0.05
0.00	1141.2	0.0	0.0000	0.0000	0.00

A = 0.03483300318 = 3.48330E-02
B = 0.00001602451 = 1.60245E-05
f_o = 1141.2

Max nonlinearity error.: 0.24% of full range
Project.....: 150592
Tag no.....: P-105
Units of P.....: Bar
Calibration date.....: 14/12 1992
Signature.....: TE
Comment.....: Kalibr.v/temp.: 1 gr.C.

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CALIBRATION CERTIFICATE

for

Transducer type: Earth Pressure Cell

Serial number: 38392

Least square fit of curved line through datasets achieved by recording the changing frequency output from the transducer to find coeffisients A and B in the equation:

$$P = A(f - f_o) + B(f - f_o)^2$$

where:

P = Applied load on transducer in Bar
f = output frequency from transducer measured in Hz
f_o = output frequency from transducer with no load

P	f	f - f_o	$P_{computed}$	P - $P_{computed}$	% FR
0.00	1230.6	0.0	0.0000	0.0000	0.00
5.00	1352.8	122.2	4.9622	-0.0378	-0.08
10.00	1466.3	235.7	9.9667	-0.0333	-0.07
15.00	1572.0	341.4	14.9698	-0.0302	-0.06
20.00	1672.0	441.4	20.0073	0.0073	0.01
25.00	1766.1	535.5	25.0177	0.0177	0.04
30.00	1855.7	625.1	30.0318	0.0318	0.06
35.00	1941.0	710.4	35.0259	0.0259	0.05
40.00	2022.5	791.9	39.9985	-0.0015	-0.00
45.00	2101.3	870.7	44.9932	-0.0068	-0.01
50.00	2177.2	946.6	49.9777	-0.0223	-0.04
40.00	2026.0	795.4	40.2165	0.2165	0.43
30.00	1859.5	628.9	30.2497	0.2497	0.50
20.00	1676.2	445.6	20.2254	0.2254	0.45
10.00	1468.3	237.7	10.0583	0.0583	0.12
0.00	1230.6	0.0	0.0000	0.0000	0.00

A = 0.03880020868 = 3.88002E-02
B = 0.00001478643 = 1.47864E-05
f_o = 1230.6

Max nonlinearity error.: 0.50% of full range
Project.....: 150592
Tag no.....: P-105
Units of P.....: Bar
Calibration date.....: 14/12 1992
Signature.....: TE
Comment.....: Kalibr.v/temp.: 1 gr.C.

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Bank account: 6233.05.06259
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CALIBRATION CERTIFICATE

for

Transducer type: Earth Pressure Cell

Serial number: 38292

Least square fit of curved line through datasets achieved by recording the changing frequency output from the transducer to find coeffisients A and B in the equation:

$$P = A(f - f_o) + B(f - f_o)^2$$

where:

P = Applied load on transducer in Bar
f = output frequency from transducer measured in Hz
f_o = output frequency from transducer with no load

P	f	f - f_o	$P_{computed}$	P - $P_{computed}$	% FR
0.00	1191.8	0.0	0.0000	0.0000	0.00
5.00	1325.0	133.2	4.9976	-0.0024	-0.00
10.00	1444.2	252.4	9.9779	-0.0221	-0.04
15.00	1553.8	362.0	14.9804	-0.0196	-0.04
20.00	1655.7	463.9	19.9952	-0.0048	-0.01
25.00	1751.1	559.3	25.0080	0.0080	0.02
30.00	1841.1	649.3	30.0187	0.0187	0.04
35.00	1926.3	734.5	35.0142	0.0142	0.03
40.00	2007.6	815.8	40.0095	0.0095	0.02
45.00	2085.5	893.7	45.0053	0.0053	0.01
50.00	2160.0	968.2	49.9748	-0.0252	-0.05
40.00	2008.0	816.2	40.0347	0.0347	0.07
30.00	1840.9	649.1	30.0073	0.0073	0.01
20.00	1654.7	462.9	19.9443	-0.0557	-0.11
10.00	1442.6	250.8	9.9078	-0.0922	-0.18
0.00	1191.7	-0.1	-0.0035	-0.0035	-0.01

A = 0.03527084300 = 3.52708E-02
B = 0.00001688219 = 1.68822E-05
f_o = 1191.8

Max nonlinearity error.: 0.18% of full range
Project.....: 150592
Tag no.....: P-105
Units of P.....: Bar
Calibration date.....: 15/12 1992
Signature.....: TE
Comment.....: Kalibr.v/temp.: 1 gr.C.

HB -

NVE
NORGES VASSDRAGS-
OG ENERGIVERK

BESTILLING Nr 005108

DATO 11.11.92

Vareforsendelser og faktura bes merket med bestillingens nummer.
Ved delleveringer bes bestillingsnummer påført hver følgende faktura.
Pakkseddel skal følge varen.

Geonor A/S
Postboks 99, Røa
0701 Oslo

13. 11. 1992

Saksbehandler	Vareadresse	Leveringstid
Kjell Sundøen	Middelthunsgate 29	Snarest
Deres ref.	**Avdeling**	**Rom nr.**
Per Øyen	**Fakturaadresse**	

Antall	Varesort
9 stk	Jordtrykksmålere, type 411000 P-105 m/ 50 m 461000 P-540 kabel. Kabeluttak bak.Kalibrert ved 1 grC til 50 bar.
8 stk	Som ovenfor,men med kabeluttak på siden.
1 stk	Hybridkrets, type 455000 TH 501.