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 Laboratoriet
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LABORATORY REPORT

Title: Short-circuit test on earth clamp CGI 12 for use on rail S49, S54 and UIC 60			Report no.: 95-0728
			Oslo, 13.09.95
Customer: Melbye Energi A/S Postboks 160 2020 Skedsmøkorset		Manufacturer: A. Kaufmann AG Railway Technics CH - 6300 Zug	Order no.: F 957065
			Job no.: 1274
Test Location: Hausmanns gt 16, N-0182 Oslo, Norway			Customer's ref.: Rolf Andresen
Issued by: Magne Grødem	Associates: PeGo, ASme	Checked by: Eyvind Smith	Approved by: Peder Golberg
Report consists of	2 text	tables	6 curves
no. of pages:	photos	drawings	8 total

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Short-circuit tests have been carried out 7th September at the Laboratory of Oslo Energi Konsult AS. The test object was a clamp designed for use on rail as a earth clamp. The test are based on the IEC-1230 standard.

Test

There have been executed two tests, one with the clamp equipped with 50 mm² earthing cable, and one with the clamp equipped with 70 mm² earthing cable. For each test there were taken three trials, with a new clamp for each trail. Oscillograms of the current and voltage are shown in appendix 1 and appendix 2.

The rated current I_N was set to 200 A/mm². The test values become then:

	50 mm ² earthing cable	70 mm ² earthing cable
I_{RMS}	11,5 kA i 1 second	16,1 kA i 1 second
I_{PEAK}	28,7 kA	40,25 kA

Trials

The test circuit is illustrated in figure no 1.

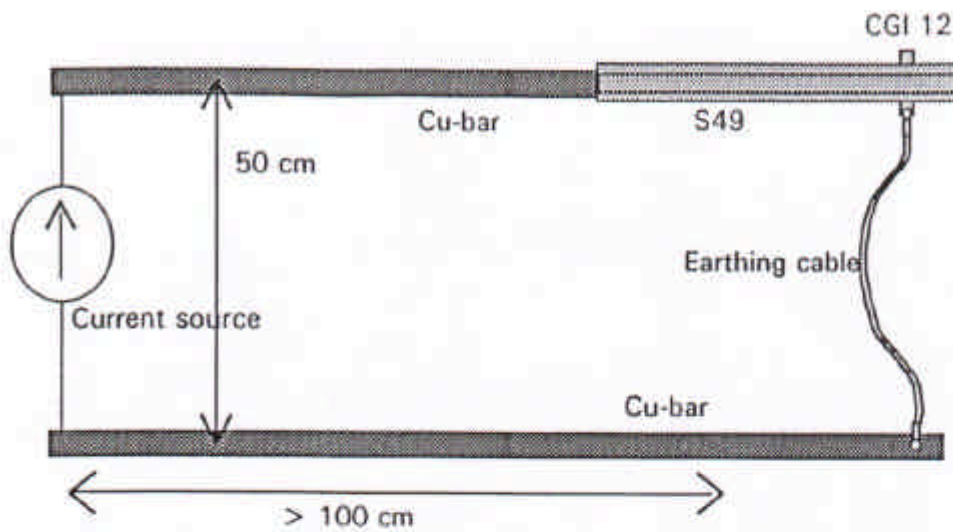


Figure no 1: The test circuit.

Results

Earth cable	Type of test	$I_{RMS} - I_{PEAK}$ [kA]	t_{test} [s]	1 sec. ekv. [kA]
1. 50 mm ²	11,5 - 28,7 [kA]	(1) 13,5 - 28,7	(1) 0,72	(1) 11,5
		(2) 13,6 - 28,7	(2) 0,77	(2) 11,9
		(3) 13,5 - 28,8	(3) 0,78	(3) 11,9
2. 70 mm ²	16,1 - 40,25 [kA]	(1) 20,6 - 42,1	(1) 0,68	(1) 17,0
		(2) 20,4 - 41,7	(2) 0,68	(2) 16,8
		(3) 20,3 - 43,3	(3) 0,68	(3) 16,7

A small spark was seen in the initial moment, but all trial passed the test.

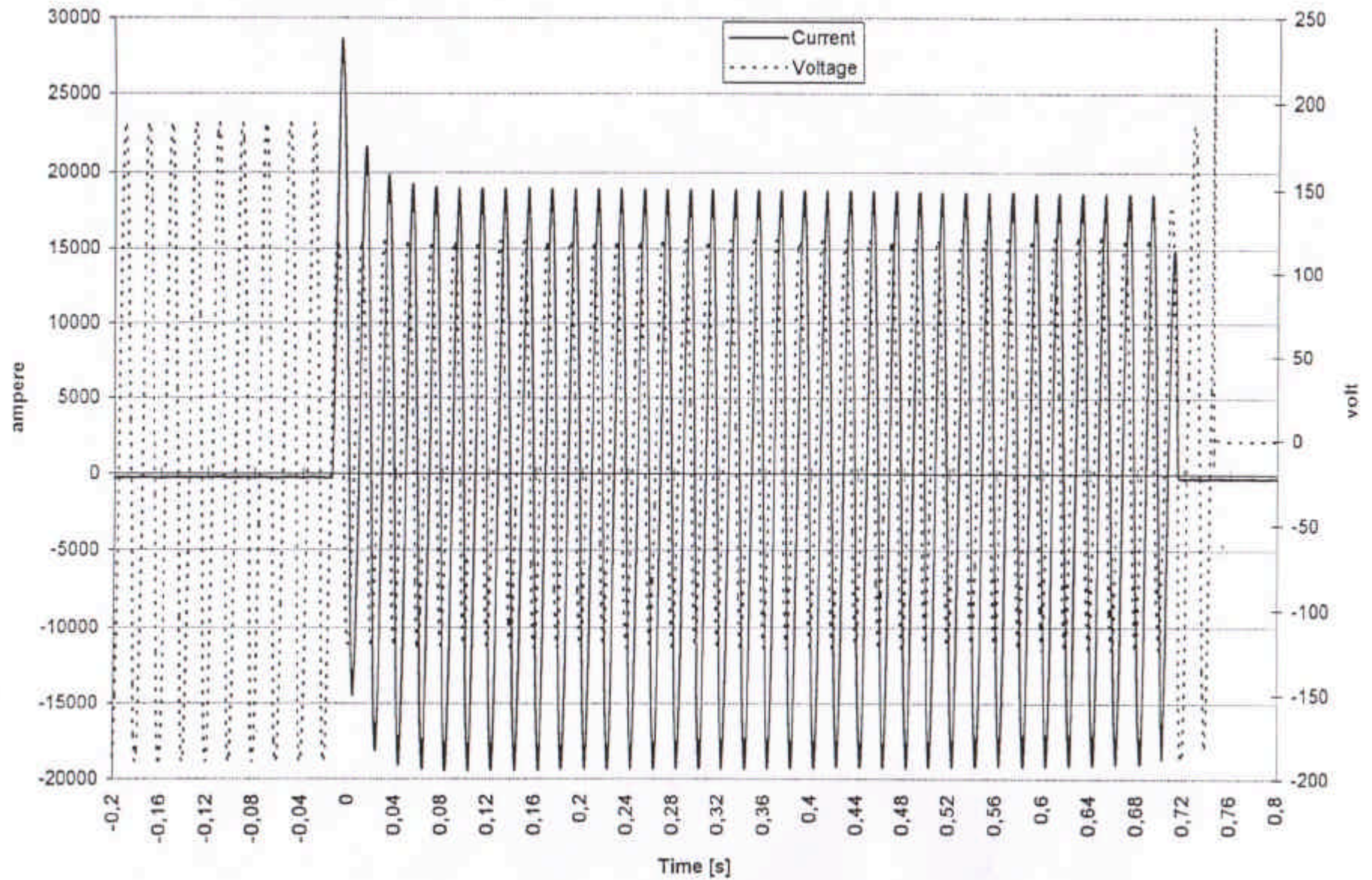
Conclusion

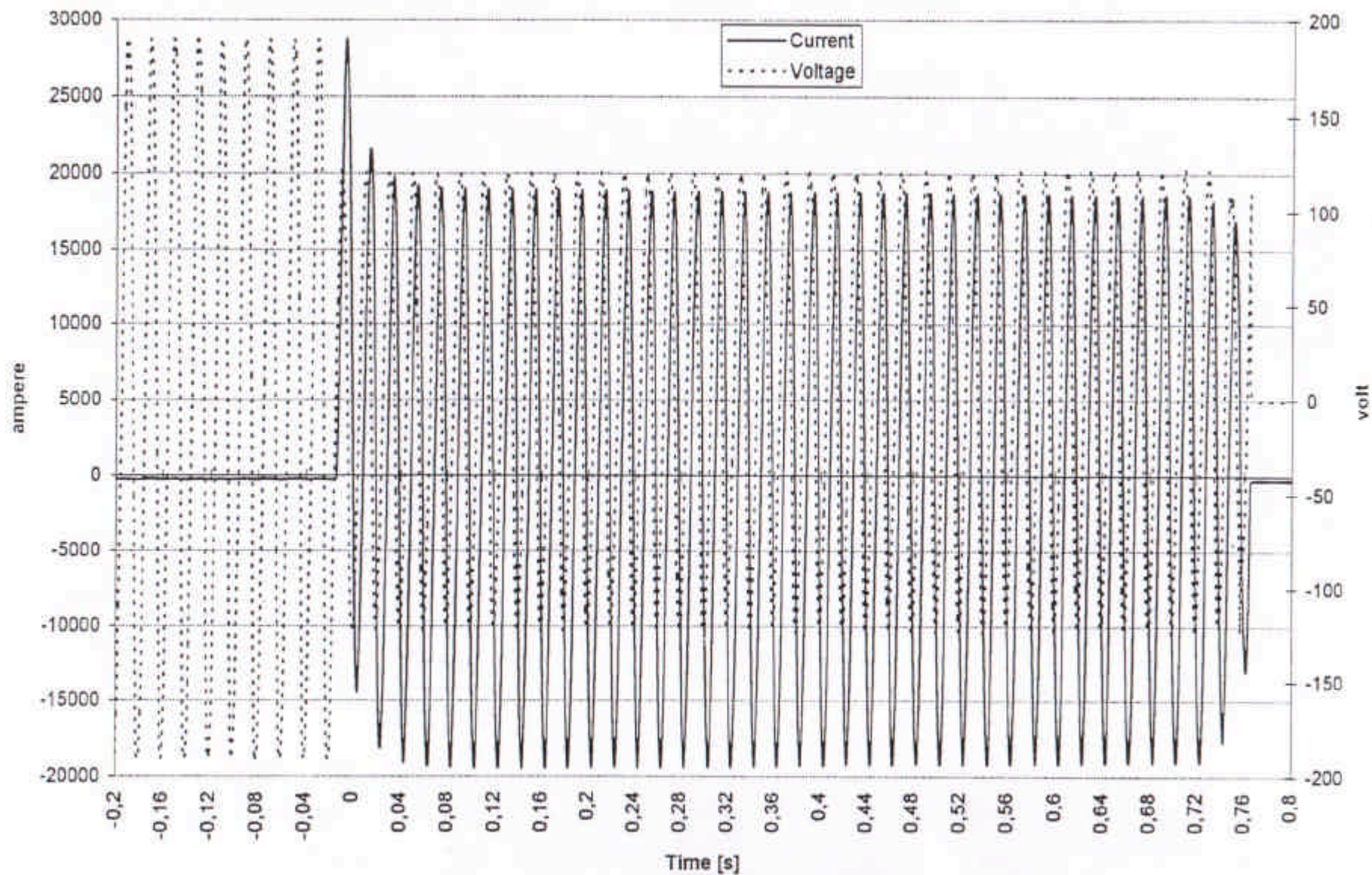
All the trials passed the test in accordance to the IEC 1230 standard.

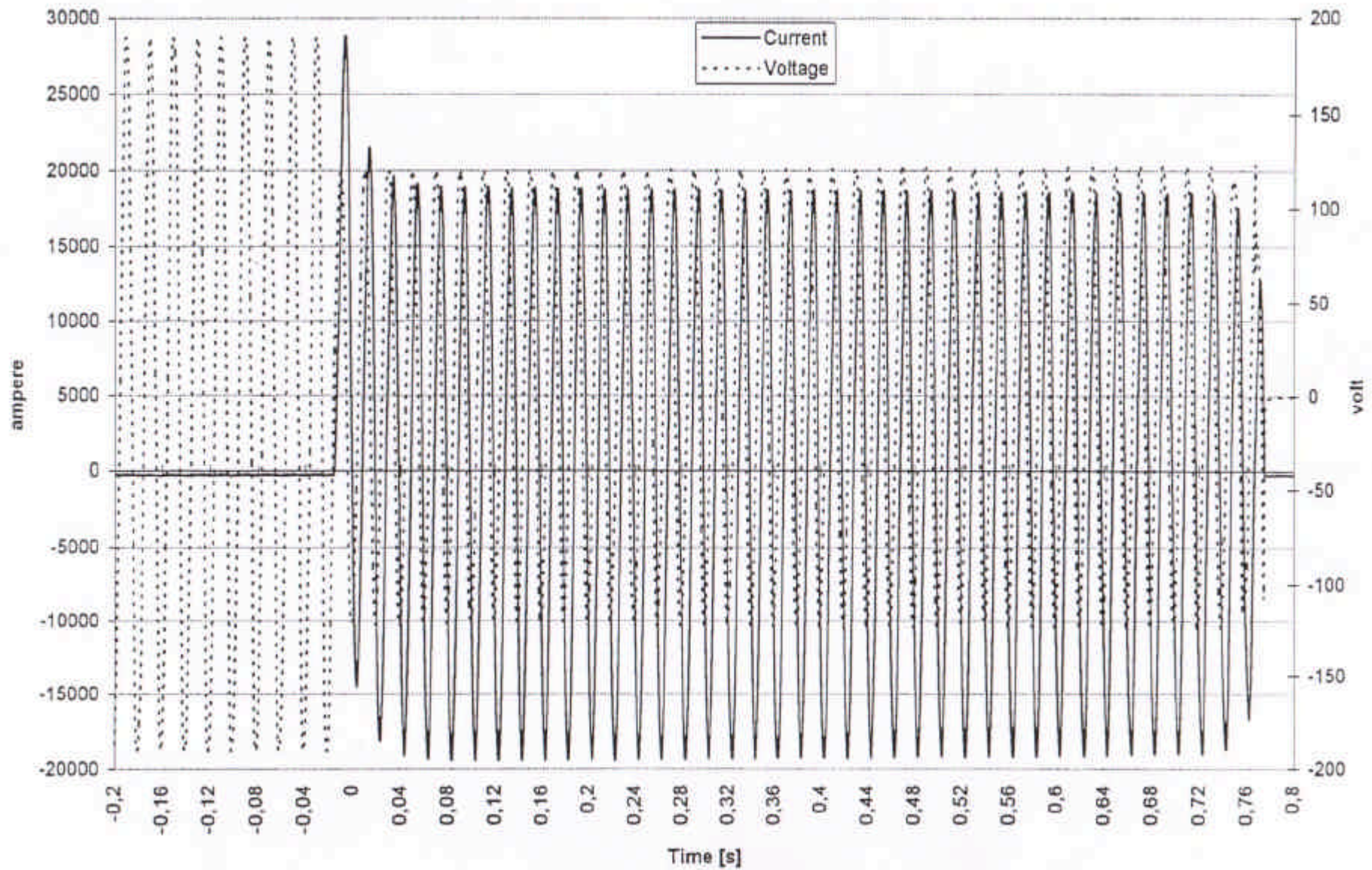
Oslo Energi Konsult AS

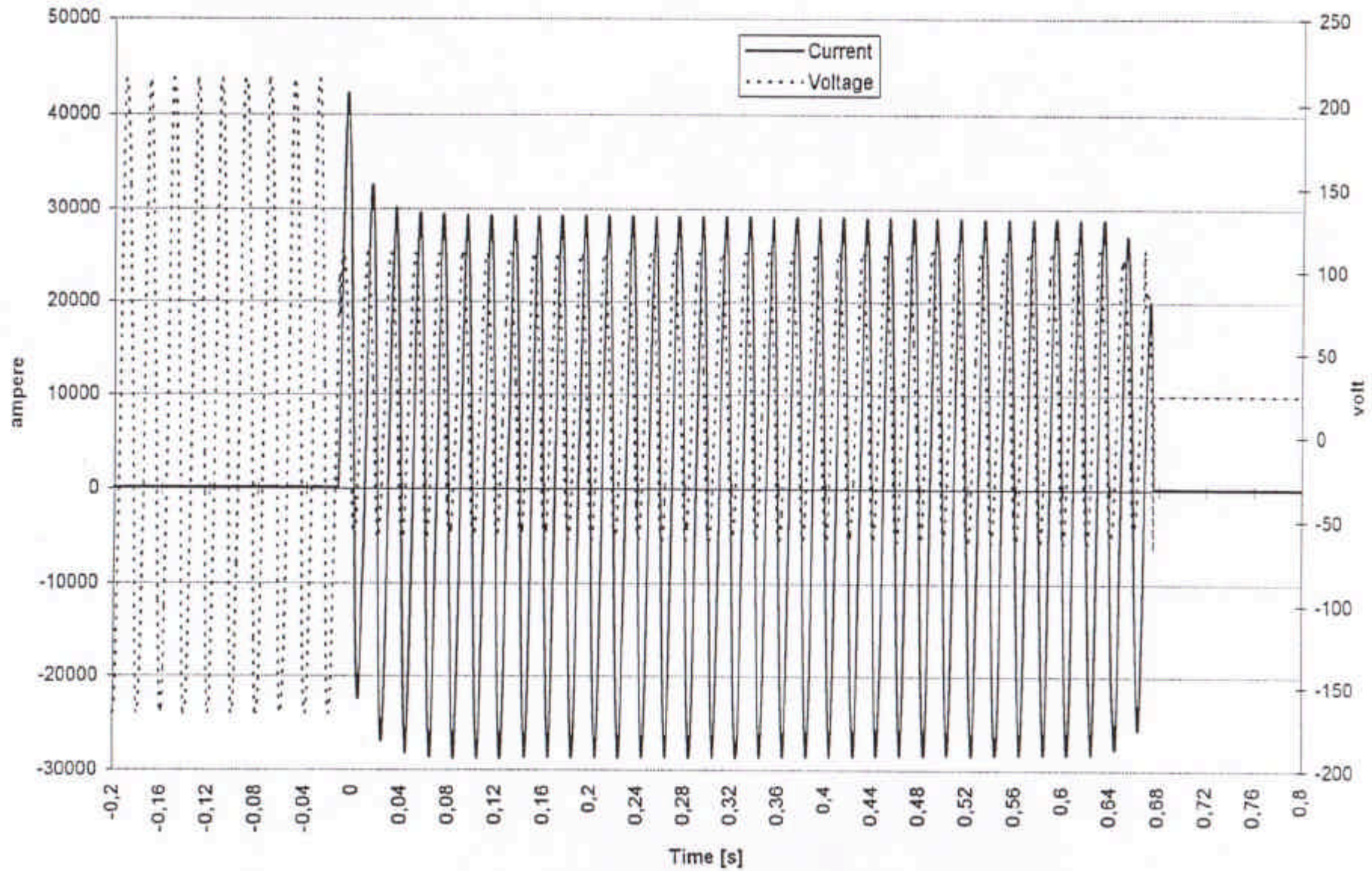
Peder Golberg
Peder Golberg
Senior engineer

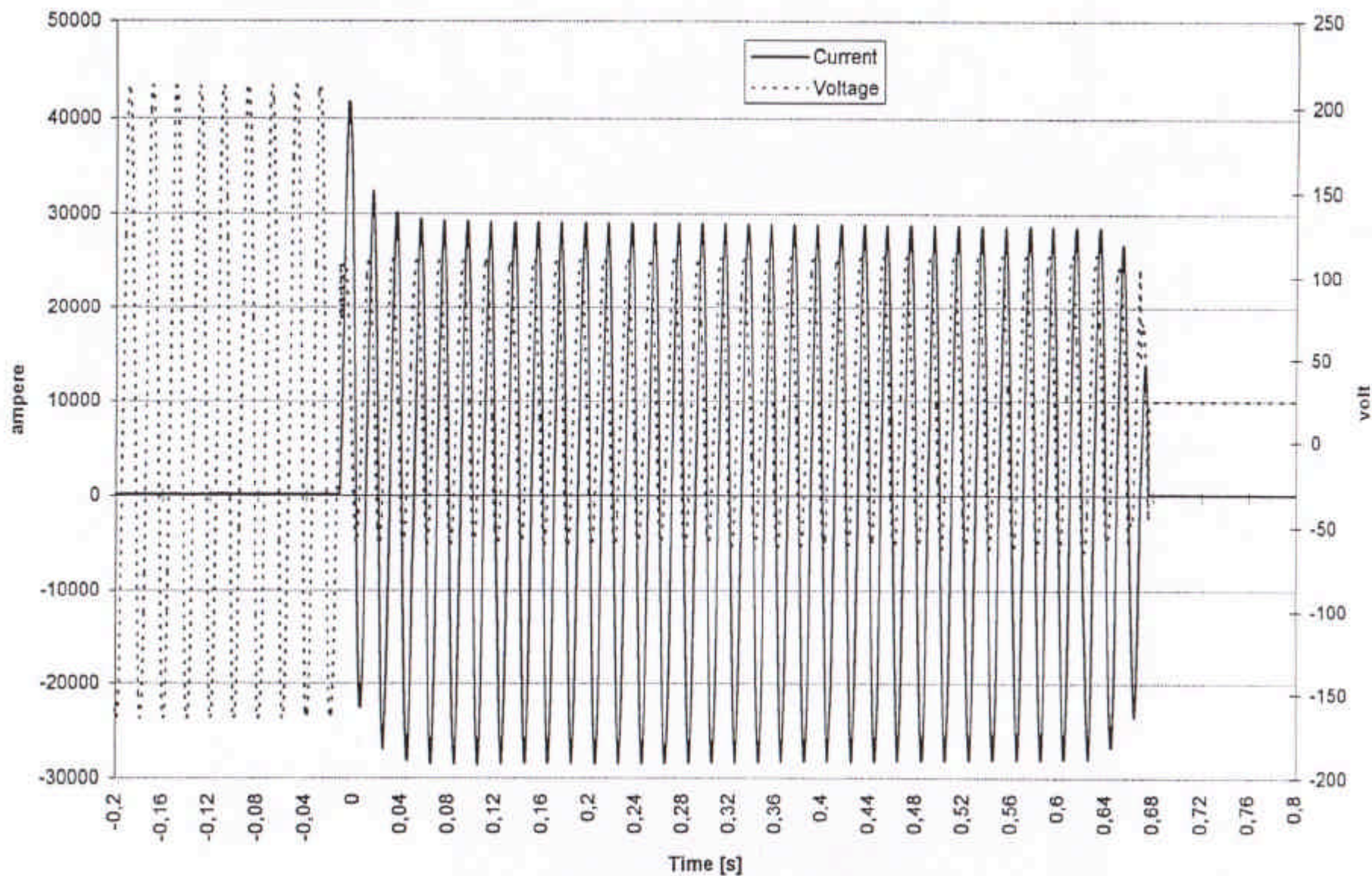
Magne Grødem
Magne Grødem
Project engineer

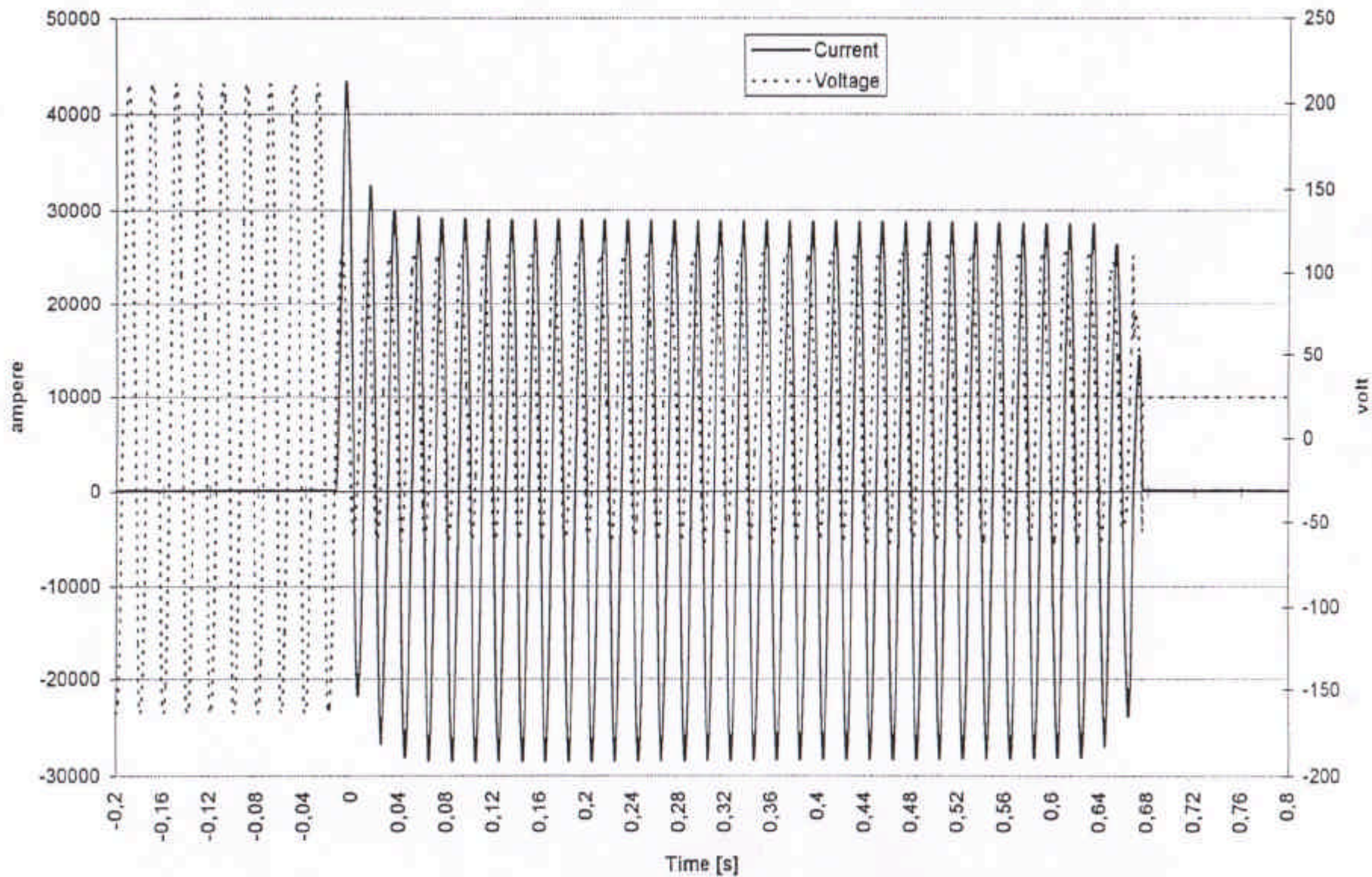












KAGO CONTACT-CLAMP TYP CGI12

(with female thread M12)

