



Oslo Energi Konsult AS  
 Laboratoriet  
 Box - 2481 Solli, N-0202 Oslo  
 Norway

## LABORATORY REPORT

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

*This report is the customer's property and can not be reported to a third party without approval from customer.*

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 mm<sup>2</sup> earthing cable, and one with the clamp equipped with 70 mm<sup>2</sup> 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/mm<sup>2</sup>. The test values become then:

	50 mm <sup>2</sup> earthing cable	70 mm <sup>2</sup> 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.

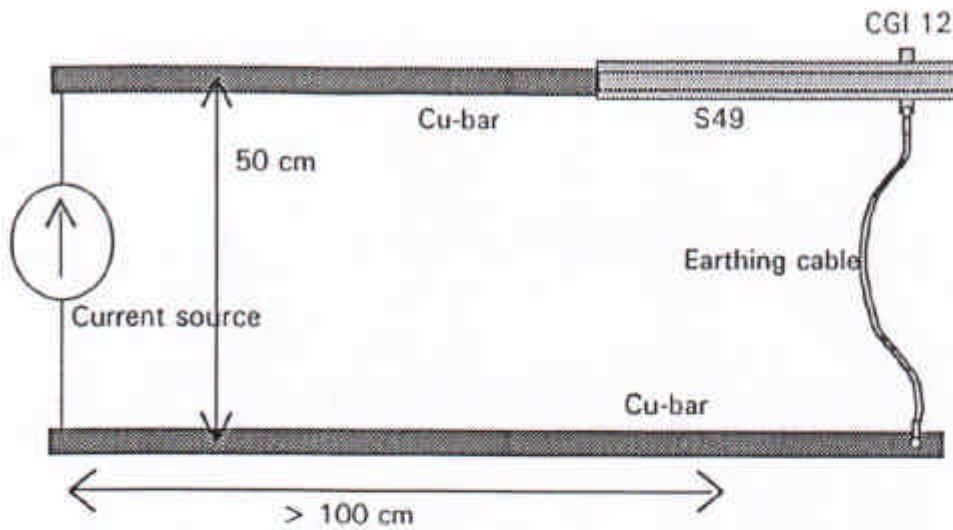


Figure no 1: The test circuit.

### Results

Earth cable	Type of test	$I_{RMS} - I_{PEAK}$ [kA]	$t_{test}$ [s]	1 sec. ekv. [kA]
1. 50 mm <sup>2</sup>	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 <sup>2</sup>	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.

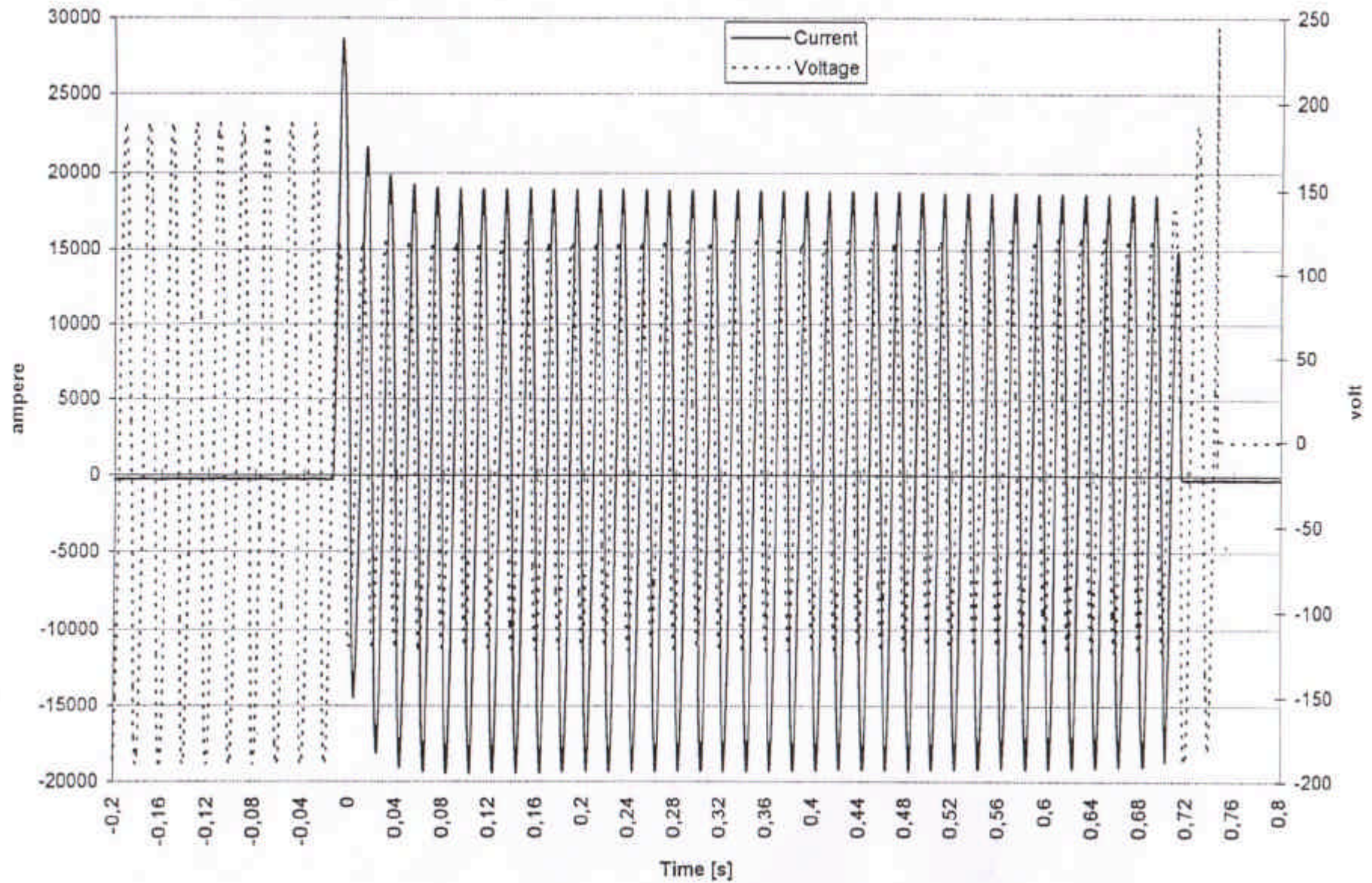
### Conclusion

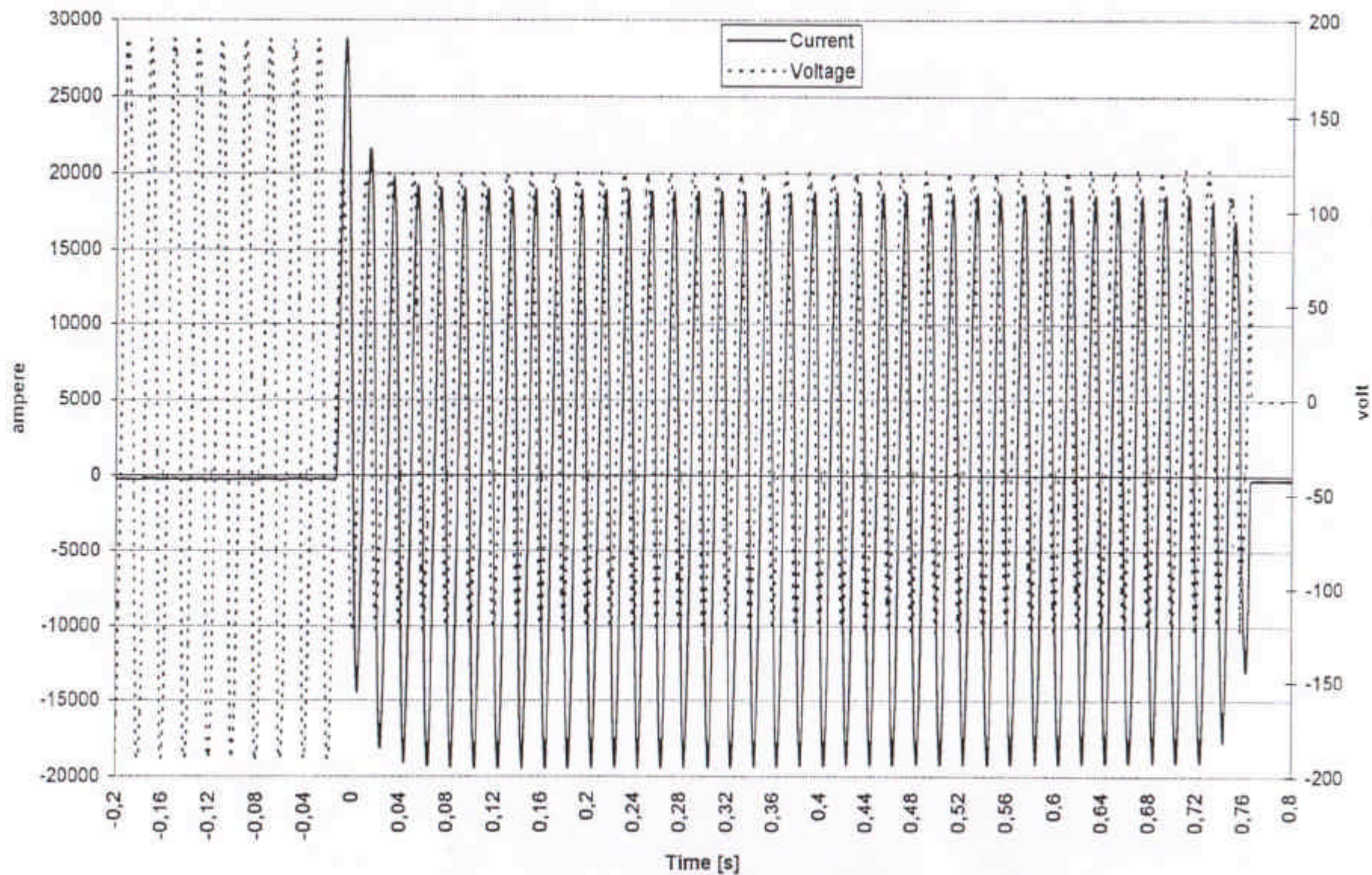
All the trials passed the test in accordance to the IEC 1230 standard.

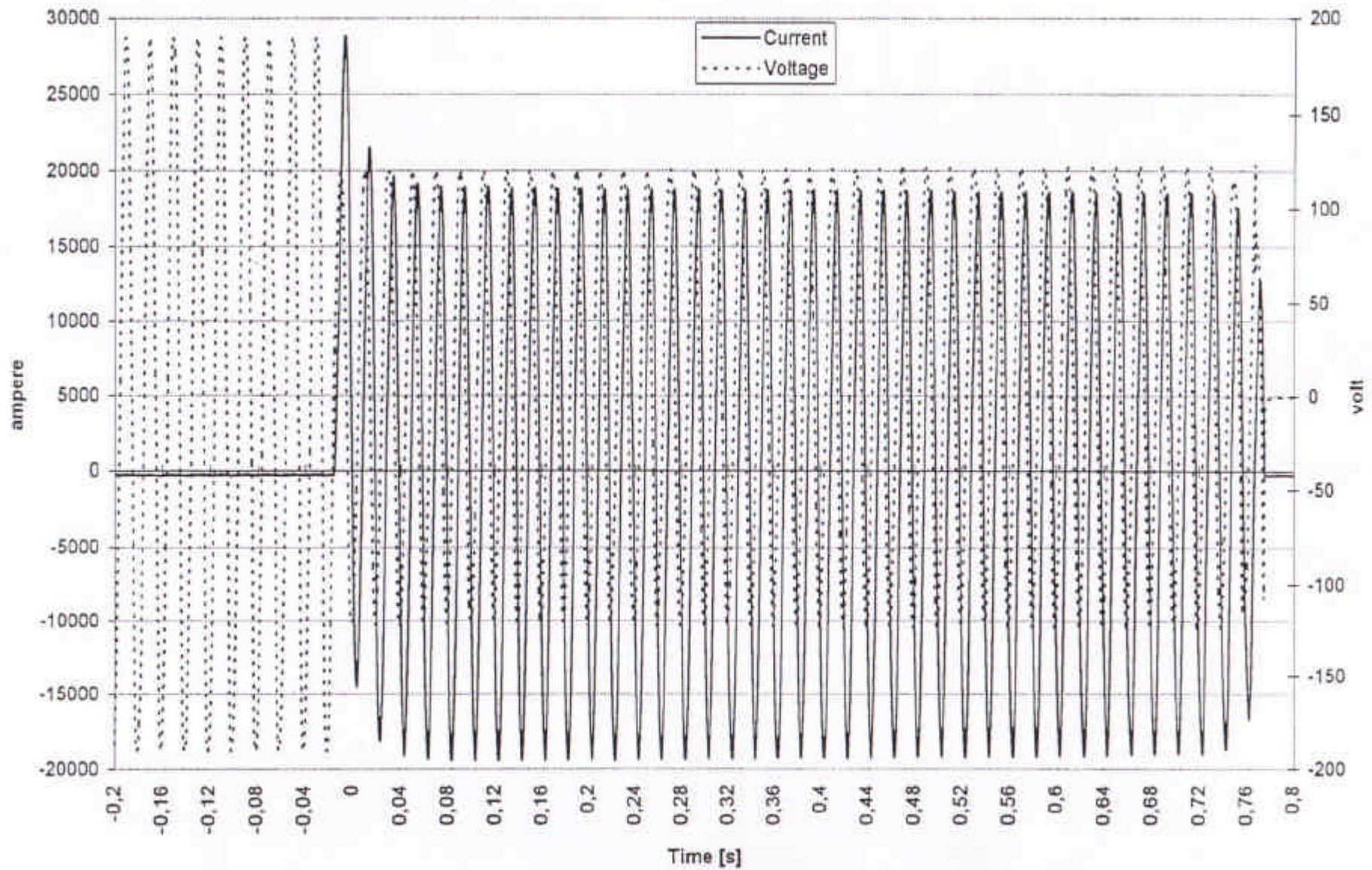
Oslo Energi Konsult AS

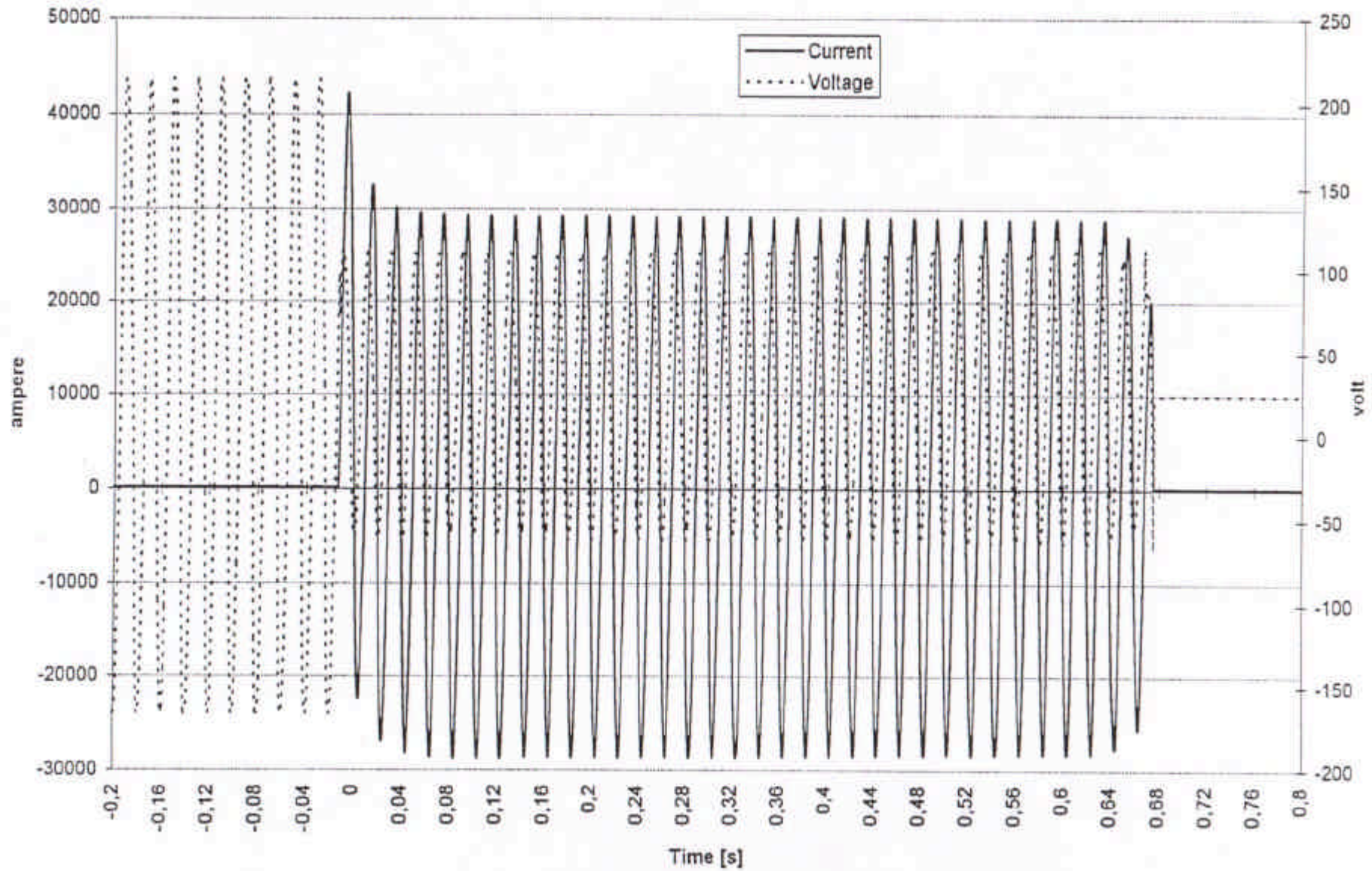
*Peder Golberg*  
Peder Golberg  
Senior engineer

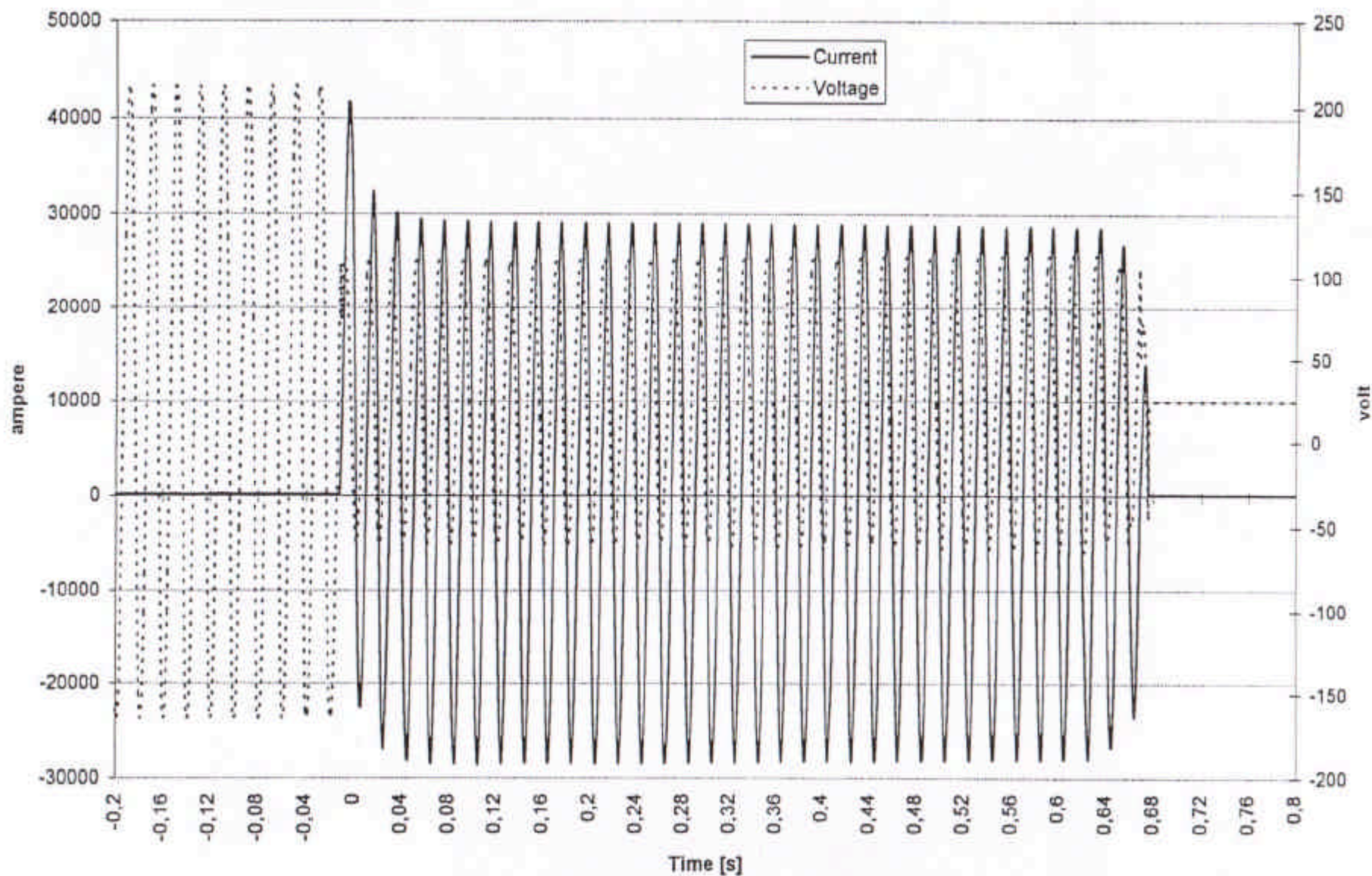
*Magne Grødem*  
Magne Grødem  
Project engineer

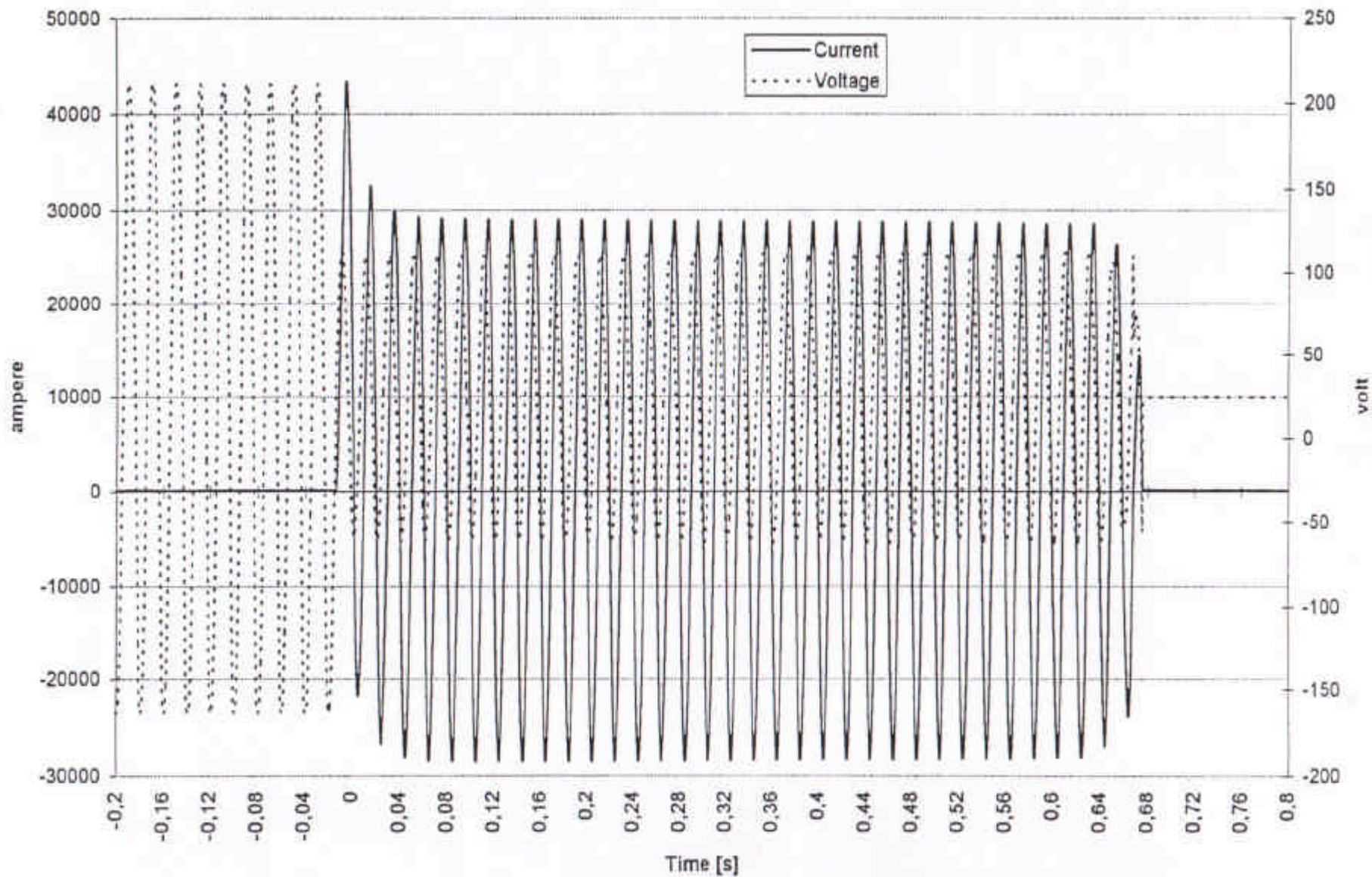














KAGO CONTACT-CLAMP TYP CGI12

(with female thread M12)

