

# TEST CONFIRMATION

on the given range of performed tests

SIEMENS AG  
A&D CD SN TV  
Postfach 21  
D-04426 Böhlitz-Ehrenberg

CLIENT

SIEMENS AG  
Böhlitz-Ehrenberg

MANUFACTURER

Busbar systems for low-voltage switchgear assembly

TEST OBJECT

SIVACON, of 8PT type

TYPE

Test sample

MANUFACTURING NO.

Rated operational voltage	690 V	RATED CHARACTERISTICS GIVEN BY THE CLIENT
Rated insulation voltage	1000 V	
Rated frequency	50 Hz	

	Busbar cross-section	Unit width	Span	Max interval <sup>1)</sup>	$I_{pk} / I_{cw}$	
	mm <sup>2</sup>	mm	mm	mm		
Rated peak withstand current/	1x40x10	1200	275	-	163/65	kA <sup>4)</sup>
Rated short-time withstand current	2x40x10	1200	367	275	163/65	kA <sup>4)</sup>
	2x80x10	800	700	233	163/65	kA <sup>4)</sup>
	2x80x10	800	430	233	200/80	kA <sup>4)</sup>
	3x40x10	1000	575	300	200/80	kA <sup>4)</sup>
1) between spacers	3x80x10	1000	900	300	163/65	kA <sup>4)</sup>
2) 3 partial conductor bracings	3x80x10	1000	575	300	250/100	kA <sup>4)</sup>
3) 6 partial conductor bracings	3x100x10	1200	550	275	250/100	kA <sup>4)</sup>
4) $t_k = 1$ s	3x100x10	1200	550	275 <sup>3)</sup>	-/80	kA <sup>5)</sup>
5) $t_k = 3$ s	3x100x10	1200	550	137 <sup>3)</sup>	250/100	kA <sup>4)</sup>

DIN EN 60439 Teil1: 1994-04, IEC 60439-1: 1992

NORMATIVE DOCUMENT

Verification of the short-circuit withstand strength of the horizontal main busbar systems

TEST PERFORMED

16 February 1999, 20 May 1999

DATE OF TEST

The horizontal busbar systems are capable of properly carrying its rated peak withstand currents and its rated short-time withstand currents. The test results are documented in IPH Test Report No. 1496.045.9.020.

TEST RESULT

  
H. GLABSCH  
Head of high-power test laboratory

  
W. MORITZ  
Test engineer in charge

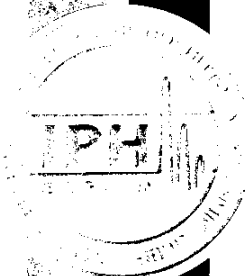
Berlin, 11 November 1999

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# TEST CONFIRMATION

on the given range of performed tests

SIEMENS AG  
A&D CD SN TV  
Postfach 21  
D-04426 Böhlitz-Ehrenberg

**CLIENT**

SIEMENS AG  
Böhlitz-Ehrenberg

**MANUFACTURER**

Busbar systems for low-voltage switchgear assembly

**TEST OBJECT**

SIVACON, of 8PT type

**TYPE**

Test sample

**MANUFACTURING NO.**

Rated operational voltage		690 V	<b>RATED CHARACTERISTICS GIVEN BY THE CLIENT</b>
Rated insulation voltage		1000 V	
Rated frequency		50 Hz	
Rated peak withstand current/	PE	2x80x10 150/60 kA	
Rated short-time withstand current	PE	1x40x10 150/60 kA	
	PEN	3x100x10 150/60 kA	
	N	2x80x10 150/60 kA	
	N	2x40x10 120/48 kA	
	N	1x40x10 98/39 kA	
	N	1x80x10 120/48 kA	

DIN EN 60439 Teil1: 1994-04  
IEC 60439-1: 1992

**NORMATIVE DOCUMENT**

Verification of the short-circuit withstand strength of the horizontal PE, N and PEN conductors

**TEST PERFORMED**

20 May 1999

**DATE OF TEST**

The horizontal PE, N and PEN conductors are capable of properly carrying their rated peak withstand currents and their rated short-time withstand currents.  
The test results are documented in IPH Test Report No. 1496.045.9.021.

**TEST RESULT**

  
**H. GLABSCH**  
Head of high-power test laboratory

  
**W. MORITZ**  
Test engineer in charge

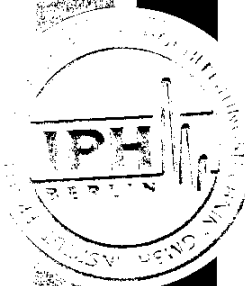
Berlin, 11 November 1999

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# SIEMENS

## Type Test Report

Report No. 35e

Rev. 00

Contents: 27 sheets  
3 annexes

**Object under test:** Type-tested LV switchgear and controlgear assembly SIVACON,  
type 8PT  
horizontal busbar systems

**Date of test:** 25. - 27.05.99 (1x40x10)  
19. - 21.05.99 (2x40x10)  
05. - 06.05.99 (2x100x10)

### Test specifications applied:

VDE 0660 part 500/04.94, paragraph 8.2.1  
IEC 60439-1: 1992 + corrigendum 1993, paragraph 8.2.1

### Tests performed:

Type test for the verification of temperature-rise limits.

**Test results**, only applied to the above-mentioned object under study:

The test determines the following rated currents:

cross-section of busbar	ventilated cubicle			unventilated cubicle		
	$P_V = 0 \text{ W}$	$P_V = 500 \text{ W}$	$P_V = 1000 \text{ W}$	$P_V = 0 \text{ W}$	$P_V = 500 \text{ W}$	$P_V = 1000 \text{ W}$
1 x 40 x 10	1220	1210	1200	1080	1040	980
2 x 40 x 10	1890	1910	1850	1550	1540	1450
2 x 100 x 10	3200	3250	3210	2420	2460	2380

$P_V$  ...additional power loss installed per cubicle

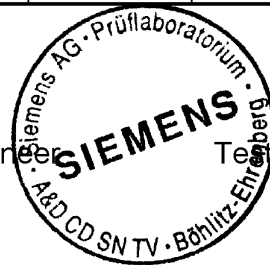
Technical Testing Laboratory  
Siemens AG  
Switchgear-Construction Leipzig

Böhlitz-Ehrenberg, 30<sup>th</sup> may, 1999

Test engineer Tested and approved

  
Wellner

  
Dr. Drebenstedt



# SIEMENS

## Type Test Report

Report No. 75e Rev. 00

Contents: 5 sheets  
12 annexes

**Object under test:** Type-tested LV switchgear and controlgear assembly  
SIVACON, type 8PT  
horizontal busbar systems

**Date of test:** 11<sup>th</sup> may, 2000

**Test specifications applied:**

VDE 0660 T.500/04.94, par. 8.2.5  
IEC 60 439-1/1999-09, par. 8.2.5

**Tests performed:**

type test for the verification of the clearances and creepage distances

**Test results**, only applied to the above-mentioned objekt under study:

The following settings and requirements are valid:

	horizontal busbar systems
rated insulation voltage $U_i$	1000 V <sub>AC</sub>
pollution degree	3
overvoltage category	III (distribution circuit level)
rated impulse withstand voltage	8 kV
<b>minimum clearance</b> (case A, inhomogeneous field)	<b>8,0 mm</b>
comparative tracking index	$400 \leq CTI \leq 600$
material group	II
<b>minimum creepage distance</b>	<b>14,0 mm</b>


The required minimum clearances and creepage distances are observed at all parts of the assembly. The clearances and creepage distances are at least 20 mm.

Technical Testing Laboratory  
Siemens AG  
Switchgear-Construction Leipzig

Test engineer

Tested and approved

  
Wellner

  
Dr. Drebenstedt

Böhlitz-Ehrenberg, 11<sup>th</sup> may, 2000

Independent, accredited test laboratory · Registration with STLA and LOVAG

# TEST CONFIRMATION

on the given range of performed tests

Siemens AG  
A&D DM TV  
Südstraße 74  
D-04430 Böhlitz-Ehrenberg

**CLIENT**

Siemens AG  
A&D DM TV

**MANUFACTURER**

Low-voltage switchgear assembly

**TEST OBJECT**

SIVACON, of 8PT type, unit of withdrawable equipment

**TYPE**

Test sample

**MANUFACTURING NO.**

Rated operational voltage	690 V	<b>RATED CHARACTERISTICS GIVEN BY THE CLIENT</b>
Permissible short-time withstand current at internal fault	50 kA	
Permissible arcing time	300 ms	

DIN EN 60439-1 Supplement 2 (VDE 0660 Teil 500 Supplement 2): 1997-10  
E DIN EN 60439-1 Bbl 2 (VDE 0660 Teil 500 Bbl 2): 2001-02

**NORMATIVE DOCUMENT**

Tests under conditions of arcing due to an internal fault with a short-circuit current of 50 kA and a duration of short-circuit of 300 ms.

**RANGE OF TESTS PERFORMED**

19 December 2000

**DATE OF TEST**

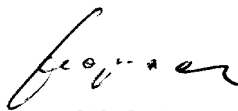
The criteria of assessment 1 to 5 of DIN EN 60439-1 Bbl 2: 1997-10 and the criteria of assessment 6 and 7 of E DIN EN 60439-1 Bbl 2: 2001-02 have been met.

The test results are documented in IPH Test Report No. 1496.692.0.459.

**TEST RESULT**



**W. MORITZ**  
For Head of high-power test laboratory



**S. GEORGAS**  
Test engineer in charge

Berlin, 11 October 2001



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