INSTITUT „PRÜFFELD FÜR ELEKTRISCHE HOCHLEISTUNGSTECHNIK" GMBH

IPH BERLIN

Unabhängiges, akkreditiertes Prüflaboratorium · Independent, accredited test laboratory

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

	Busbar cross-section	Unit width	Span	Max. interval[1]	I_{pk} / I_{cw}	
	mm²	mm	mm	mm		
Rated peak withstand current/ Rated short-time withstand current	1x40x10	1200	275	-	163/65	kA[4]
	2x40x10	1200	367	275	163/65	kA[4]
	2x80x10	800	700	233	163/65	kA[4]
	2x80x10	800	430	233	200/80	kA[4]
	3x40x10	1000	575	300	200/80	kA[4]
	3x80x10	1000	900	300	163/65	kA[4]
	3x80x10	1000	575	300	250/100	kA[4]
	3x100x10	1200	550	275	250/100	kA[4]
	3x100x10	1200	550	275[2]	-/80	kA[5]
	3x100x10	1200	550	137[3]	250/100	kA[4]

1) between spacers
2) 3 partial conductor bracings
3) 6 partial conductor bracings
4) t_k = 1 s
5) t_k = 3 s

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	**RATED CHARACTERISTICS GIVEN BY THE CLIENT**
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

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 W	P_V = 500 W	P_V = 1000 W	P_V = 0 W	P_V = 500 W	P_V = 1000 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

Test engineer

Tested and approved

Böhlitz-Ehrenberg, 30th may, 1999

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: 11th 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_{AC}
pollution degree	3
overvoltage category	III (distribution circuit level)
rated impulse withstand voltage	8 kV
minimum clearance (case A, inhomogeneous field)	**8,0 mm**
comparative tracking index	400 ≤ CTI ≤ 600
material group	II
minimum creepage distance	**14,0 mm**

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

Wellner

Tested and approved

Dr. Drebenstedt

Böhlitz-Ehrenberg, 11th may, 2000

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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 Permissible short-time withstand current at internal fault 50 kA Permissible arcing time 300 ms	**RATED CHARACTERISTICS GIVEN BY THE CLIENT**
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. GEORGIAS
Test engineer in charge

Berlin, 11 October 2001

INSTITUT „PRÜFFELD FÜR ELEKTRISCHE HOCHLEISTUNGSTECHNIK" GMBH IPH BERLIN