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Test Report

Project Designation

TYPE TEST AT
SWITCH-DISCONNECTOR-FUSES
FOR USE WITH D02 FUSE-LINKS
TYPE STV D02

Client

ETI Elektroelement d.d.
1411 Izlake, Obrezija 5
SLOVENIA

Order from / No. 11/2008 / ---

Project Number 2.03.00938.1.0/STVD02 Test Engineer Ing.J.Ainetter

Date of issue	02.04.2009
Total number of issues / No.	1 / 1
Number of pages	5
Annex	CB/CCA - Test Report No. 2.03.00938.1.0/STVD02/CB/CCA (67 pages)

The results relate exclusively to the terms tested.

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Test item

Identification:

Low-voltage switch-disconnector-fuses for use with D02 fuse-links type STV D02

Manufacturer: ETI Elektroelement d.d.
Trademark: ETI
Number of poles: 1p, 1p+N, 2p, 3p, 3p+N (AC)
1p, 2p (DC)
Rated operational voltage(s): AC 230V, AC 230/400V, AC 400V
DC 48V, DC 110V
Rated operational current(s): 63A
Rated frequency: 50Hz, DC

Technical data and description:

See page 4

Testing location, Period of testing

Testing location:

Österreichisches Forschungs- und Prüfzentrum Arsenal Ges.m.b.H.
Business Unit Electric Energy Systems
Power Service Center
Giefinggasse 2
1210 Vienna
AUSTRIA

Period of testing:

12/2008 to 01/2009

Test(s)

Test(s) performed:

Type test

Test standard(s):

IEC 60947-1:2007 (5th Edition) and IEC 60947-3:2008 (3rd Edition)
EN 60947-1:2004 and EN 60947-3:1999+A1:2001+A2:2005

Test procedure(s):

CB Scheme and CCA Scheme

Result

The low-voltage switch-disconnector-fuses for use with D02 fuse-links type STV D02 have passed the type test successfully.

Test Engineer



Ing. J. Ainetter

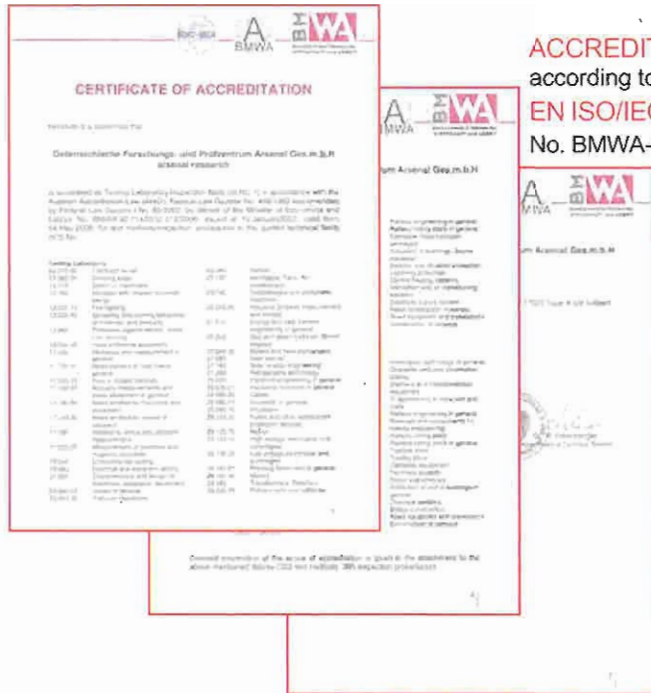


Project Engineer,
technical responsibility



Ing. K. Farthofer

Testing laboratory



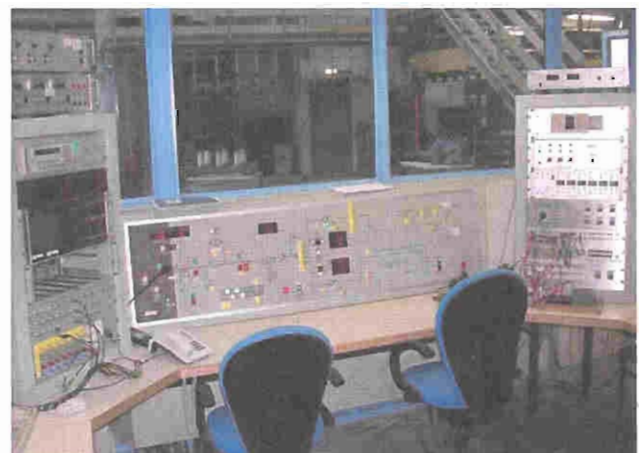
CERTIFICATED
according to
ISO 9001
Reg. No. 12769-03



POWER SERVICE CENTER:



Control station for tests up to 15kA



Control station for tests above 15kA

Technical data and description

Test item	Low-voltage switch-disconnector-fuses for use with D02 fuse-links
Trademark	ETI
Model/Type reference	STV D02
Manufacturer	ETI Elektroelement d.d.
Place of manufacture	1241 Kamnik, Bakovnik 4, Slovenia
Method of operation	Independent manual operation
Switching positions	ON / OFF
Number of poles	1p, 1p+N, 2p, 3p, 3p+N
Nature of supply	AC, DC
Rated operational voltage	1p: AC 230/400V, DC 48V 1p+N: AC 230V 2p: AC 400V, DC 110V 3p, 3p+N: AC 400V
Rated operational current	63A
Rated frequency	50Hz, DC
Utilization category	AC-23A (0A < I _e ≤ 35A) AC-22A (35A < I _e ≤ 63A) DC-22A (1-pole switch-disconnector-fuses) DC-22B (2-pole switch-disconnector-fuses)
Conventional free air thermal current	63A
Rated insulation voltage	690V
Rated impulse withstand voltage	6kV
Rated short-time withstand current	760A / 1s
Rated conditional short-circuit current	AC 50kA, DC 8kA
Kind of protective device	Fuse-link D02
Degree of protection	IP 20

Measuring equipment

Measured quantity	Device	Manufacturer	Code
Voltage (tests up to 15kA, AC)	Voltage divider 1:2000 Difference amplifier AM 502 Signal memory recorder TRA 800	ÖFPZ Arsenal Tektronix W&W	- AM 502/1...3 TRA800
Current (tests up to 15kA, AC)	Lin. current transformer LGSSO Burden 1Ω Signal memory recorder TRA 800	Ritz ÖFPZ Arsenal W&W	WLIN5000/1...3 - TRA800
Voltage (tests above 15kA, AC)	3-channel insulating measuring amplifier Signal memory recorder SMR II	Rohrer W&W	T908D SMRII64/1
Current (tests above 15kA, AC)	Lin. current transformer LGSSO Burden 0,7mΩ Signal memory recorder SMR II	Ritz ÖFPZ Arsenal W&W	WLIN6000.HVF/1...3 - SMRII64/1
Voltage (tests up to 10kA, DC)	Voltage divider 1:2000 Difference amplifier AM 502 Signal memory recorder TRA 800	ÖFPZ Arsenal Tektronix W&W	- AM 502/1...3 TRA800
Current (tests up to 10kA, DC)	Measuring shunt 250A/150mV Measuring shunt 5000A/60mV Difference amplifier AM 502 Signal memory recorder TRA 800	Goerz Goerz Tektronix W&W	SH250A150/1 SH5000A60/1 AM 502/4 TRA800
Current (tests at reduced voltage)	Current transformer GE 4461 Current transformer AET110 True-RMS amperemeter Kl. 0,5 Digital multimeter Fluke 185	Goerz Siemens Norma Fluke	WI600/1...3 WI4000/1...3 A0,5/1...3 FLUKE185/1, 2
Transient recovery voltage	Adjustment equipment for TRV Oscilloscope G 801.1	ÖFPZ Arsenal Tektronix	- G801.1
Dielectric properties	High-voltage test equipment 90-1F with measuring equipment Impulse tester 35 Impulse voltmeter 64M Oscilloscope 9410	Elabo Haefely Haefely Le Croy	HSG5KV G304 G502 G803
Leakage current	High-voltage test equipment 90-1F Digital multimeter Fluke 185 Digital multimeter Fluke 185	Elabo Fluke Fluke	HSG5KV FLUKE185/1 FLUKE185/2
Time	Signal memory recorder TRA 800 Stopwatch	W&W Junghans	TRA800, SMRII64/1 938-2
Temperature	24-channel recorder Polycomp SK 30 Temperature meter TESTO 901	H & B Testoterm	SK 30 TESTO
Abnormal heat and fire	Glow-wire test device with measuring equipment	Friborg	-
Mechanical strength of terminals	Test equipment	ÖFPZ Arsenal	-
Insertability of unprepared conductors	Gauges	ÖFPZ Arsenal	-
Strength of actuator mechanism	Test equipment	Schatz	-
Degree of protection	Test probe	PTL	-
Clearances, creepage distances	Digital slide gauge CD-20D	Mitutoyo	SCHUB



Test Report issued under the responsibility of:



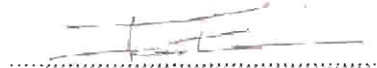
TEST REPORT IEC/EN 60947-3 Low-voltage switchgear and controlgear Part 3: Switches, disconnectors, switch-disconnectors and fuse combination units	
Report Reference No.	2.03.00938.1.0/STVD02/CB/CCA
Date of issue.....	02.04.2009
Total number of pages	67
CB/CCA Testing Laboratory.....	Österreichisches Forschungs- und Prüfzentrum Arsenal Ges.m.b.H.
Address	1210 Vienna, Giefingasse 2, Austria
Applicant's name.....	ETI Elektroelement d.d.
Address	1411 Izlake, Obrezija 5, Slovenia
Test specification:	
Standard	<input checked="" type="checkbox"/> IEC 60947-3:1999 (Second Edition) + A1:2001 + A2:2005 in conjunction with IEC 60947-1:2004 (Fourth Edition) <input checked="" type="checkbox"/> EN 60947-3:1999 + A1:2001 + A2:2005 in conjunction with EN 60947-1:2004
Test procedure	CB / CCA
Non-standard test method.....	N/A
Test Report Form No.	IECEN60947_3B
Test Report Form(s) Originator	OVE
Master TRF.....	Dated 2006-08
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This report is not valid as a CCA Test Report unless signed by an approved CCA Testing Laboratory and appended to a CCA Test Certificate issued by an NCB in accordance with CCA	
Test item description	Switch-disconnector-fuses for use with D02 fuse-links
Trade Mark	ETI
Manufacturer	ETI Elektroelement d.d.
Model/Type reference	STV D02
Ratings	AC 230V, AC 230/400V, AC 400V, DC 48V, DC 110V / 63A / 50Hz, DC / 1p, 1p+N, 2p, 3p, 3p+N

Testing procedure and testing location:

CB/CCA Testing Laboratory: Österreichisches Forschungs- und Prüfzentrum Arsenal Ges.m.b.H.
 Testing location / address: 1210 Vienna, Giefingasse 2, Austria

Associated CB Laboratory: ---
 Testing location / address: ---

Tested by (name + signature): Ing.J.Ainetter 

Approved by (name + signature).....: Ing.K.Farthofer 



Testing procedure: TMP
 Tested by (name + signature): ---
 Approved by (name + signature).....: ---
 Testing location / address: ---

Testing procedure: WMT
 Tested by (name + signature): ---
 Witnessed by (name + signature).....: ---
 Approved by (name + signature).....: ---
 Testing location / address: ---

Testing procedure: SMT
 Tested by (name + signature): ---
 Approved by (name + signature).....: ---
 Supervised by (name + signature) ..: ---
 Testing location / address: ---

Testing procedure: RMT
 Tested by (name + signature): ---
 Approved by (name + signature).....: ---
 Supervised by (name + signature) ..: ---
 Testing location / address: ---

Summary of testing:

Tests performed (name of test and test clause):

A type test was performed according to

- the standards, stated on page one

and also according to

- IEC 60947-1:2007 (5th Edition)
- IEC 60947-3:2008 (3rd Edition)

and

- EN 60947-1:2004
- EN 60947-3:1999+A1:2001+A2:2005.

The low-voltage switch-disconnector-fuses type

- STV D02

have passed the type test successfully.

Testing location:

ÖFPZ Arsenal Ges.m.b.H.
 Business Unit Monitoring, Energy and
 Drive Technologies – Power Service Center
 Giefinggasse 2
 1210 Wien
 AUSTRIA

The ÖFPZ Arsenal Ges.m.b.H. is a recognized
 CB Testing Laboratory under the responsibility
 of OVE as the National Certification Body.

Summary of compliance with National Differences:

Copy of marking plate:

