

KEMA TYPE TEST CERTIFICATE OF SHORT-CIRCUIT PERFORMANCE

Object	A three-pole three-position GIS SF ₆ disconnecter. Single-pole enclosures, common-operated.			2210-16
Type	NGDES2/ZFW34A-252(L)/T4000-50	Serial No.	K-GIS15111201	
Rated voltage	252 kV	Rated normal current	4000 A	
Rated short-circuit current	50 kA	Rated frequency	50/60 Hz	
Manufacturer	Chint Electric Co.Ltd., Shanghai, China *)			
Client	Chint Electric Co.Ltd., Shanghai, China			
Tested by	DNV GL Netherlands B.V., Arnhem, the Netherlands			
Date of tests	26 May 2016			

The object, constructed in accordance with the description, drawings and photographs incorporated in this Certificate, has been subjected to the series of proving tests in accordance with

IEC 62271-102 (2001) subclause 6.6 (STC)

This Certificate has been issued by DNV GL following exclusively the STL Guides.

The results are shown in the record of proving tests and the oscillograms attached hereto. The values obtained and the general performance are considered to comply with the above standard(s) and to justify the ratings assigned by the manufacturer as listed on page 4.

This Certificate applies only to the object tested. The responsibility for conformity of any object having the same type references as that tested rests with the Manufacturer.

*) as declared by the manufacturer

This Certificate consists of 52 pages in total.

DNV GL Netherlands B.V.



J.P. Fonteijne
Executive Vice President
KEMA Laboratories



Laboratories

Arnhem, 25 November 2016



TABLE OF CONTENTS

- 1 Identification of the object tested..... 4
- 1.1 Ratings/characteristics of the object tested 4
- 1.2 Description of the object tested 4
- 1.3 Travel recorder 4
- 1.4 List of drawings 5
- 2 General Information 6
- 2.1 The tests were witnessed by 6
- 2.2 The tests were carried out by 6
- 2.3 Accuracy of measurement 6
- 3 Legend 7
- 4 Summary of tests..... 8
- 5 Short-time withstand current and peak withstand current test on earth position 12
- 5.1 Condition before test 12
- 5.2 Single line diagram 12
- 5.3 Test circuit S01 13
- 5.4 Photograph before test 14
- 5.5 Test results and oscillograms 15
- 5.6 Condition / inspection after test 17
- 6 No-load test on earth position..... 18
- 6.1 Condition before test 18
- 6.2 Test results and oscillograms 19
- 6.3 Condition / inspection after test 21
- 6.4 Photographs after test 22
- 7 Short-time withstand current and peak withstand current test on service position 29
- 7.1 Condition before test 29
- 7.2 Single line diagram 29
- 7.3 Test circuit S01 30
- 7.4 Photograph before test 31
- 7.5 Test results and oscillograms 32
- 7.6 Condition / inspection after test 34
- 8 No-load test on service position 35
- 8.1 Condition before test 35
- 8.2 Test results and oscillograms 36
- 8.3 Condition / inspection after test 38
- 8.4 Photographs after test 39
- 9 Drawings..... 46

1 IDENTIFICATION OF THE OBJECT TESTED

1.1 Ratings/characteristics of the object tested

Voltage	252 kV	
Normal current	4000 A	
Number of poles	3	
Frequency	50/60 Hz (1)	X
Short-time withstand current	50 kA	X
Peak withstand current	130 kA	X
Duration of short-circuit	3 s	X
Bus-transfer voltage	100 V	
Bus-transfer current	1600 A	
Pressure for interruption SF ₆ at 20 °C	0,68 MPa	
Supply voltage of closing and opening devices	220 Vd.c.	
Class	M2	

X = This rating has been proved by the tests of this Certificate.

(1) Tests have been performed at 60 Hz.

1.2 Description of the object tested

A three-pole three-position GIS SF₆ disconnecter. Single-pole enclosures, common-operated.

Minimum pressure at 20 °C 0,60 MPa

For test purposes equipment filled with air at atmospheric pressure for insulation instead of SF₆ gas.

Mechanism:

Dependent power opening (motor).

Dependent power closing (motor).

Supply voltage motor 220 Vd.c.

1.3 Travel recorder

Travel recorder attached to main contact shaft. Non-linear with contact travel.

2 GENERAL INFORMATION

2.1 The tests were witnessed by

Name	Company
Luo, G.	Chint Electric Co.Ltd.,
Xia, S.	Shanghai, China
Wu, Q.	

2.2 The tests were carried out by

Name	Company
Hofstee, A.B.	DNV GL Netherlands B.V.,
	Arnhem, the Netherlands

2.3 Accuracy of measurement

The guaranteed uncertainty for the measured voltages and currents taking into account the total measuring system, is less than 5%, unless mentioned otherwise.

4 SUMMARY OF TESTS

Short-time withstand current and peak withstand current test on earth position							
Test no.			160526 4043				
	A	kA	132				
Peak value of current	B	kA	-99,2				
	C	kA	-99,3				
	A	kA	48,8				
Symmetrical current, beginning	B	kA	47,4				
	C	kA	47,7				
	A	kA	48,2				
Symmetrical current, middle	B	kA	46,9				
	C	kA	47,1				
	A	kA	48,2				
Symmetrical current, end	B	kA	46,9				
	C	kA	47,1				
	A	kA	48,5				
Symmetrical current, average	B	kA	47,2				
	C	kA	47,4				
Average current, three phase		kA	47,7				
	A	s	3,38				
Current duration	B	s	3,38				
	C	s	3,38				
Thermal equivalent			50,0 kA during 3,07 s				
Gas pressure at 20 °C		MPa	-				

Remarks	
160526-4043	No visible disturbance.

Short-time withstand current and peak withstand current test on service position							
Test no.			160526 4046				
	A	kA	132				
Peak value of current	B	kA	-100,0				
	C	kA	-97,9				
	A	kA	49,0				
Symmetrical current, beginning	B	kA	47,6				
	C	kA	47,5				
	A	kA	48,5				
Symmetrical current, middle	B	kA	47,1				
	C	kA	47,0				
	A	kA	48,5				
Symmetrical current, end	B	kA	47,2				
	C	kA	47,0				
	A	kA	48,8				
Symmetrical current, average	B	kA	47,4				
	C	kA	47,2				
		kA	47,8				
Average current, three phase		kA	47,8				
Current duration	A	s	3,38				
	B	s	3,38				
	C	s	3,38				
Thermal equivalent			50,0 kA during 3,08 s				
Gas pressure at 20 °C		MPa	-				

Remarks	
160526-4046	No visible disturbance.

8.3 Condition / inspection after test

Externally no visible change.

Inspection of contacts:

Fixed arcing contact practically new.

Moving contact arcing area (inner cylinder) practically new.

Main contact area (outer cylinder) practically new. Silver layer intact.

Fixed main contact area practically new. Silver layer intact.





