



Test Report issued under the responsibility of:



TEST REPORT
IEC/EN 60947-2
Low-voltage switchgear and controlgear - Part 2: Circuit-breakers

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CB/CCA Testing Laboratory.....: Shanghai Testing & Inspection Institute for Electrical Equipment (STIEE)
Address: 505 Wu Ning Rd. Shanghai 200063, P.R. CHINA

Applicant's name.....: Zhejiang Tengen Electrics Co., Ltd.
Address: TENGEN Industry Zone, Liushi, Yueqing, Zhejiang, P.R.China

Test specification:

Standard.....: ☐ IEC 60947-2:2006 (4th Edition) and/or
☒ EN 60947-2:2006 (4th Edition)
Test procedure: CCA
Non-standard test method.....: N/A

Test Report Form No......: IECEN60947_2B
Test Report Form(s) Originator: KEMA
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Test item description: Moulded Case Circuit-Breaker
Trade Mark.....: TENGEN
Manufacturer: Zhejiang Tengen Electrics Co., Ltd.
TENGEN Industry Zone, Liushi, Yueqing, Zhejiang, P.R.China
Model/Type reference: TGM1-630
Ratings: Ue: AC400V, AC690V
In: 400A,500A,630A

Testing procedure and testing location:	
<input checked="" type="checkbox"/> CB/CCA Testing Laboratory: Testing location/ address:	Shanghai Testing & Inspection Institute for Electrical Equipment (STIEE) 505 Wu Ning Rd. Shanghai 200063, P.R. CHINA
<input type="checkbox"/> Associated CB Laboratory: Testing location/ address:	N/A N/A
Tested by (name + signature): Approved by (+ signature):	Cheng Yanmin Wei Qingyuan
<input type="checkbox"/> Testing procedure: TMP Tested by (name + signature): Approved by (+ signature): Testing location/ address:	N/A N/A N/A N/A
<input type="checkbox"/> Testing procedure: WMT Tested by (name + signature): Witnessed by (+ signature).....: Approved by (+ signature): Testing location/ address:	N/A N/A N/A N/A N/A
<input type="checkbox"/> Testing procedure: SMT Tested by (name + signature): Approved by (+ signature): Supervised by (+ signature).....: Testing location/ address:	N/A N/A N/A N/A N/A
<input type="checkbox"/> Testing procedure: RMT Tested by (name + signature): Approved by (+ signature): Supervised by (+ signature).....: Testing location/ address:	N/A N/A N/A N/A N/A

Particulars: test item vs. test requirements

3. Classification

3.1. Utilization category: (A or B).....	: A
3.2. Interruption medium: (air, vacuum, gas Break).....	: Air
3.3. Design: (open construction, moulded case).....	: Moulded case
3.4. Method of controlling the operation mechanism: (dependent manual, independent manual, dependent power, independent power)	Independent manual, dependent power
3.5. Suitability for insulation: (suitable, not -suitable)	: Suitable
3.6. Provision for maintenance: (maintainable, non maintainable)	Non maintainable
3.7. Method of installation: (fixed, plug in, withdrawable) ...	: Fixed, plug in
3.8. Degree of protection: (IP code)	: N/A
4.8. Integral fuses (integrally fused circuit-breakers) Type and characteristics of SCPD.....	N/A
4.9. Switching overvoltages: (when Uimp. is declared)	: N/A
7.3 Electromagnetic compatibility (EMC) Environment A or B	: A
Circuit-breaker for use on phase-earthed systems	: N/A
Circuit-breaker for use in IT systems	: N/A
Rated and limiting values, main circuit	:
- rated operational voltage: Ue (V).....	: AC400V, AC690V
- rated insulation voltage: Ui (V)	: 800V
- rated impulse withstand voltage: Uimp (kV).....	: 8kV
- rated operational current: Ie (A).....	: 400A,500A,630A
- kind of current.....	: AC
- conventional free air thermal current: Ith (A).....	: 400A,500A,630A
- conventional enclosed thermal current: Ithe (A)	: N/A
- current rating for four-pole circuit-breakers: (A)	: 400A,500A,630A
- number of poles	: 3P(Type L, Type M), 4P(Type M)
- rated frequency: (Hz)	: 50Hz
- integral fuses (rated values)	: N/A

Rated duty :

- eight-hour duty	: N/A
- uninterrupted duty: Iu (A)	: 400A,500A,630A

Short-circuit characteristic :

rated short-time making capacity: Icm (kA).....	Type L: 105kA/AC400V, 17kA/AC690V Type M: 143kA/AC400V, 17kA/AC690V
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rated ultimate short-circuit breaking capacity: I _{cu} (kA)	Type L: 50kA/AC400V, 10kA/AC690V Type M: 65kA/AC400V, 10kA/AC690V
rated service short-circuit breaking capacity: I _{cs} (kA).....	Type L: 35kA/AC400V, 5kA/AC690V Type M: 42kA/AC400V, 5kA/AC690V
rated short-time withstand current: I _{cw} (kA/s).....	N/A
Control circuits :	
Electrical control circuits :	
- kind of current: (AC, DC)	AC
- rated frequency: (Hz)	50Hz
- rated control circuit voltage: U _c (nature, frequency, V) ..	AC 50Hz 220/230V, 380/400V
- rated control supply voltage: U _s (nature, frequency V) ..	AC 50Hz 220/230V, 380/400V
Air supply control circuits: (pneumatic or electro-pneumatic) :	
- rated pressure and its limit.....	N/A
- volumes of air, at atmospheric pressure, required for each closing and each opening operation.....	N/A
Auxiliary circuits :	
Rated and limiting values, auxiliary circuits..... :	
- rated operational voltage U _e (V).....	AC380V; DC220V
- rated insulation voltage: U _i (V)	690V
- rated operational current: I _e (A).....	3A(AC380V); 0,2A(DC220V)
- kind of current.....	AC, DC
- rated frequency: (Hz)	50Hz
- number of circuits.....	N/A
- number and kind of contact elements	2NO+2NC
- rated uninterrupted current: I _u (A)	3A
- utilization category: (AC, DC, current and voltage).....	AC-15, DC-13
Short-circuit characteristic :	
- Rated conditional short-circuit current (kA)	1kA
- Co-ordination of short-circuit protective devices	RL6-25/6
- kind of protective device	Fuse

Releases :

1) shunt release..... : Yes

2) Over-current release : Yes

a) instantaneous..... : Yes

b) definite time delay : N/A

c) inverse time delay : Yes

- independent of previous load : N/A

- dependent on previous load; (for example thermal type release) : Yes

3) Undervoltage release (for opening)..... : Yes

4) Other releases..... : N/A

Characteristics :

1) Shunt release and undervoltage release (for opening) .. :

- rated control circuit voltage: Uc (nature, frequency, V) .. : Shunt release :
AC 50Hz 220V, 380V;
DC 24V, 110V
Undervoltage release:
AC 50Hz 220V, 380V

- kind of current..... : Shunt release :AC, DC
Undervoltage release: AC

- rated frequency: (if AC)..... : 50Hz

2) Over-current release :

- rated current : 400A,500A,630A

- kind of current..... : AC

- rated frequency: (if AC)..... : 50Hz

- current setting (or range of settings) : Instantaneous: 10In(Power Distribution
Protection); 12In(Motor Protection)
Inverse time delay: In

- time settings (or range of settings) : N/A

Summary of testing:
Tests performed (name of test and test clause): N/A
Testing location: Shanghai Testing & Inspection Institute for Electrical Equipment (STIEE) 505 Wu Ning Rd. Shanghai 200063, P.R. CHINA
Summary of compliance with National Differences: N/A