Technical Construction File
EN IEC 60947-3:2021
Low-voltage switchgear and controlgear - Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units

Report Reference No.....:	TLZJ24122765718
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Date of issue.....:	January 02,2025
The Third Party.....:	Shanghai Global Testing Services Co., Ltd.
Address.....:	Floor 2nd, Building D-1, No. 128, Shenfu Road, Minhang District, Shanghai, China.
TCF procedure.....:	CE
Applicant's name.....:	Zhejiang Changcheng Trading Co., Ltd.
Address.....:	DianHou Village, Liushi Town, Yueqing City, Zhejiang, China
Manufacturer's name.....:	CNC Electric Group Zhejiang Technology Co., Ltd.
Address.....:	DianHou Village, Liushi Town, Yueqing City, Zhejiang, China
Factory's name.....:	CNC Electric Group Zhejiang Technology Co., Ltd.
Address.....:	DianHou Village, Liushi Town, Yueqing City, Zhejiang, China
TCF specification:	
Standard.....:	EN IEC 60947-3:2021
TCF procedure.....:	GTS
Non-standard TCF method……..:	N/A
TCF Form No.....:	EN IEC 60947
TCF Originator.....:	OVE
Master TCF.....:	Dated 2012-11

TCF item description.....:	Change-over Switch
Trade Mark.....:	CNC
Model/Type reference.....:	LW28-10, LW28-16, LW28-20, LW28-25, LW28-32, LW28-40, LW28-63, LW28-80, LW28-100, LW28-125, LW28-160
Main Model.....:	LW28-32
Ratings.....:	Ui:660V, Ith:32A, 380V-440V, 220V-240V

Copy of marking plate	
Change-over Switch Model LW28-32 CNC Electric Group Zhejiang Technology Co., Ltd.	Marking 

Summary of TCF

This TCF includes:

Annex I: Photo Documentation, 2 page(s)

General remarks:

The TCF results presented in this report relate only to the object.
This TCF shall not be reproduced, except in full, without the written approval of the Issuing party.

"(see Enclosure #)" refers to additional information appended to the file.
"(see appended table)" refers to a table appended to the file.

Throughout this file a comma is used as the decimal separator.

TCF item particulars.....:	Change-over Switch
- method of operation..... :	Independent manual operation
- suitability for isolation ..... :	Vertical
- degree of protection..... :	/
- number of poles..... :	/
- kind of current..... :	~
- in the case of a.c.,number of phases and rated frequency. :	/
- number of positions of the main contacts..... :	/
Rated and limiting values, main circuit.....:	/
- rated operational voltage Ue (V)..... :	/
- rated insulation voltage Ui (V).....:	/
- rated impulse withstand voltage Uimp (kV)..... :	/
- conventional free air thermal current Ith (A)..... :	/
- conventional enclosed thermal current Ithe (A).....:	N/A
- rated operational current Ie (A).....:	/
- rated uninterrupted current Iu (A).....:	/
- utilization category.....:	/
Short-circuit characteristic..... :	N/A
- rated short-time withstand current Icw (kA)..... :	/
- rated short-time making capacity Icm (kA)..... :	/
- rated conditional short-circuit current.....:	N/A
-Control circuits..... :	N/A
- Auxiliary circuits..... :	N/A
-Co-ordination of short-circuit protective devices..... :	N/A
- kind of protective device..... :	N/A
Possible TCF case verdicts:	
- TCF case does not apply to the TCF object..... :	N/A
- TCF object does meet the requirement..... :	P(Pass)
- TCF object does not meet the requirement..... :	F(Fail)
TCF.....:	
Date of receipt of TCF item..... :	December 22,2024
Date (s) of performance of TCF..... :	December 22,2024 to January 02,2025

5.2	MARKING		
	Marking on equipment itself or on nameplate or nameplates attached to the equipment and legible from the front after mounting		
	- indication of the open and closed position	O/I and OFF/ON, refer to copy of marking plate	P
	- suitability for isolation	Yes	P
	- disconnectors AC- 20 and DC- 20 only: marked "Do not operate under load"		N/A
	Following marking is visible after mounting:		
	- direction of movement of the actuator (see 7.1.5.2)		P
	- indication of the position of the actuator (see also 7.1.6.1 and 7.1.6.2)		P
	- approval or certification mark, if applicable		N/A
	- for miniaturized equipment, symbol, colour code or letter code		N/A
	- terminal identification and marking (see 7.1.8.4)		P
	- IP code and class of protection against electric shock, when applicable (marked preferably on the equipment as far as possible)		P
	- suitability for isolation, where applicable, with the isolation function symbol according to IEC 60617-7, reference 07-01-03, combined with the appropriate function symbol for the equipment		P
	- this symbols are clearly and unmistakably marked		P
	- this symbols are visible when the equipment is installed as in service and the actuator is accessible		P
	In the case of electronically controlled electromagnets, information other than that given in 5.1 may also be necessary (see also 4.5 and Annex U)		N/A
	The indication "s", "sol", "r" or "f" for non-universal screwless terminals shall be marked on the device or, if the space available is not sufficient, on the smallest package unit or in technical information provided with the product		N/A
	Marking on equipment not needed to be visible after mounting:		
	- manufacturer's name or trademark		P
	- type designation or serial number	LW28-32	P
	- rated operational currents or rated powers		P
	- rated operational voltage		P
	- utilization category		P
	- rated frequency or the indication “DC”		N/A

	- manufacturer's claim for compliance with IEC/EN 60947- 3	compliance with IEC 60947- 3	P
	- degree of protection		P
	Marking on fuse-combination units:		N/A
	- fuse ~~type~~ characteristics	Fuse gL/gG	N/A
	- maximum rated current		N/A
	- maximum power loss of the fuse-link		N/A
	Identification of terminals:		
	- line terminals, unless connection is immaterial		N/A
	- load terminals, unless connection is immaterial		N/A
	- neutral pole terminal		N/A
	- protective earth terminal		N/A
	Data in the manufacturer's published information:		
	- rated insulation voltage		P
	- rated impulse withstand voltage for equipment suitable for isolation or when determined		P
	- pollution degree, if different from 3		P
	- rated duty	Uninterrupted duty	P
	- rated short-time withstand current and duration		P
	- rated short-circuit making capacity		P
	- rated conditional short-circuit current		N/A
5.3	Instructions for installation, operation and maintenance		P
6	NORMAL SERVICE, MOUNTING AND TRANSPORT CONDITIONS		
6.1	Normal service conditions		P
6.1.1	Ambient air temperature		P
6.1.2	Altitude		P
6.1.3	Atmospheric conditions		P
6.1.3.1	Humidity		P
6.1.3.2	Pollution degree		P
6.1.4	Shock and vibration		P
6.2	Conditions during transport and storage		P
6.3	Mounting		P
7	CONSTRUCTIONAL AND PERFORMANCE REQUIREMENTS		
7.1	Constructional requirements		
7.1.1	General		
7.1.2	Materials		
7.1.2.1	General material requirements		

	Parts of insulating materials which might be exposed to thermal stresses due to electrical effects within the equipment shall not be adversely affected by abnormal heat and by fire.		P
	The manufacturer specifies which test method, 7.1.2.2 or 7.1.2.3, is to be used ..... :		
7.1.2.2	Glow wire Testing		
	The suitability of materials used is verified by making tests on..... : or		P
	- providing data from the insulating material supplier fulfilling the requirements according to IEC 60695-2-12		P
	Glow-wire test according to IEC 60695-2-10 and IEC 60695-2-11		—
	Parts made of insulating material necessary to retain current-carrying parts in position: test temperature 960 °C		P
	No visible flame and no sustained glowing	For base of switch	P
	Flames and glowing extinguish within 30 s		P
	No ignition of the tissue paper		P
	Parts of insulating material not necessary to retain current-carrying parts in position, even though in contact with them: test temperature 650 °C		
	No visible flame and no sustained glowing		N/A
	Flames and glowing extinguish within 30 s		N/A
	No ignition of the tissue paper		N/A
7.1.2.3	Test based on flammability category		
	For parts of insulating materials, hot wire ignition and, where applicable, arc ignition tests as specified in 8.2.1.1.2, shall be made based on flammability category		N/A
	Tests on materials are made in accordance with Annex M		N/A
	The hot wire ignition (HWI) and arc ignition (AI) test value requirements related to the material flammability category shall conform to Table M.1 or M.2		N/A
	Alternatively, the manufacturer may provide data from the insulating material supplier fulfilling the requirements given in Annex M		N/A
7.1.3	Current-carrying parts and their connection		P
	Current-carrying parts have the necessary mechanical strength and current-carrying capacity for their intended use		P
	For electrical connections, no contact pressure is transmitted through insulating material other than ceramic or other material with characteristics not less suitable, unless there is sufficient resiliency in		P

	the metallic parts to compensate for any possible shrinkage or yielding of the insulation material		
7.1.4	Clearances..... :		P
	Creepage distances..... :	Disconnect between contacts:≥ 3mm	P
	Pollution degree ..... :		—
	Comparative tracking index (V) ..... :		—
	Material group .....:		—
7.1.5	Actuator		P
7.1.5.1	Insulation		—
	Actuator insulated from live parts for		—
	- rated insulation voltage		P
	- rated impulse withstand voltage		P
	Actuator made of metal		—
	- connected to a protective conductor or provided with an additional insulation		P
	Actuator made of or covered by insulating material :		—
	- internal metal parts, which might become accessible in the event of an insulation failure, are also insulated from live parts for the rated insulation voltage		N/A
7.1.5.2	Direction of movement		p
	The direction of operation for actuators shall where applicable conform to IEC 60447	conform to IEC60447	p
	There is no doubt of the “I” and “O” position and the direction of operation	“I” and “O” marked	p
7.1.6	Indication of contact position		
7.1.6.1	Indicating means		p
7.1.6.2	Indication by the actuator		p
7.1.7	Additional safety requirements for equipment suitable for isolation		
7.1.7.1	Additional constructional requirements		
	- marking according to 5.2.1b		p
	- indication of the position of the contacts		p
	- construction of the actuating mechanism		p
	- minimum clearances across open contacts (see Table 13, Part 1) (mm) ..... :		—
	- measured clearances (mm) .....:		P
	- test Uimp across gap (kV) ..... :		P
7.1.7.2	Supplementary requirements for equipment with provision for electrical interlocking with contactors or circuit-breakers:		N/A
	Auxiliary switch is rated according to		N/A

	IEC 60947- 5- 1 (unless the equipment is rated AC-23)		
	Time interval between opening of the contacts of the auxiliary contact and the contacts of the main poles: ≥20 ms ..... :		—
	Measured time interval (ms) ..... :		N/A
	During the closing operation the contacts of the auxiliary switch closes after or simultaneously with the contacts of the main poles		N/A
7.1.7.3	Supplementary requirements for equipment provided with means for padlocking the open position:		
	The locking means is so designed that it cannot be removed with the appropriate padlock(s) installed	No locking mean	N/A
	Test force F applied to the actuator in an attempt to operate to the closed position (N) ..... :		—
	Rated impulse withstand voltage (kV) ..... :		—
	Test Uimp on open main contacts at the test force		N/A
7.1.8	Terminals		
7.1.8.1	All parts of terminals which maintain contact and carry current are of metal having adequate mechanical strength	(see 8.2.4 below)	P
	Terminal connections are such that necessary contact pressure is maintained	(see 8.2.4 below)	P
	Terminals are so constructed that the conductor is clamped between suitable surfaces without damage to the conductor and terminal	(see 8.2.4 below)	P
	Terminals do not allow the conductor to be displaced or to be displaced themselves in a manner detrimental to the operator of equipment and the insulation voltage is not reduced below the rated value	(see 8.2.4 below)	P
	Screwless-type clamping units, unless otherwise specified by the manufacturer, shall accept rigid and flexible conductors as indicated in Table 1		P
	On screwless-type clamping unit, the connection or disconnection of conductors shall be made as follows:		
	– on universal clamping units by the use of a general purpose tool or a convenient device, integral with the clamping unit to open it for the insertion or withdrawal of the conductors		P
	– on push-wire clamping units by simple insertion. For the disconnection of the conductors an operation other than a pull only on the conductor shall be necessary. The use of a general purpose tool or of a convenient device, integral with the clamping unit is allowed in order to "open" it and to assist the insertion or the withdrawal of the conductor		N/A

8.2.4	Mechanical and electrical properties of terminals		
	Mechanical strength of terminals		P
	Maximum cross-sectional area of conductor (mm²) ..... :		—
	Diameter of thread (mm) ..... :		—
	Torque (Nm) ..... :		—
	5 times on 2 separate clamping units		P
	Testing for damage to and accidental loosening of conductor (flexion test)		
	Conductor of the smallest cross-sectional area (mm²) ..... :		—
	Number of conductor of the smallest cross section ..... :		—
	Diameter of bushing hole (mm) ..... :		—
	Height between the equipment and the platen .....:		—
	Mass at the conductor(s) (kg) .....:		—
	135 continuous revolutions: the conductor neither slips out of the terminal nor breaks near the clamping unit		P
	Pull-out test		
	Force (N), applied for 1 min. ..... :		—
	During the test, the conductor neither slips out of the terminal nor breaks near the clamping unit		P
	Conductor of the largest cross-sectional area (mm²) ..... :		—
	Number of conductor of the largest cross section.:		—
	Diameter of bushing hole (mm) ..... :		—
	Height between the equipment and the platen .....:		—
	Mass at the conductor(s) (kg) .....:		—
	135 continuous revolutions: the conductor neither slips out of the terminal nor breaks near the clamping unit		P
	Pull-out test		
	Force (N), applied for 1 min. ..... :		—
	During the test, the conductor neither slips out of the terminal nor breaks near the clamping unit		P
	Conductor of the largest and smallest cross-sectional area (mm²) ..... :		—
	Number of conductor of the smallest cross section, number of conductor of the largest cross section .. :		—
	Diameter of bushing hole (mm) ..... :		—
	Height between the equipment and the platen .....:		—

	Mass at the conductor(s) (kg) .....:		—
	135 continuous revolutions: the conductor neither slips out of the terminal nor breaks near the clamping unit		N/A
	Pull-out test		
	Force (N), applied for 1 min..... :		—
	During the test, the conductor neither slips out of the terminal nor breaks near the clamping unit		N/A
7.1.8.2	Connection capacity		
	Type of conductors ..... :		—
	Minimum cross-sectional area of conductor (mm²):		—
	Maximum cross-sectional area of conductor (mm²)..... :		—
	Number of conductors simultaneously connectable to the terminal ..... :		—
7.1.8.3	Connection		
	Terminals for connection to external conductors are readily accessible during installation		P
	Clamping screws and nuts do not serve to fix any other component		P
7.1.8.4	Terminal identification and marking		
	Terminal intended exclusively for the neutral conductor		N/A
	Protective earth terminal		N/A
	Other terminals		P
7.1.9	Additional requirements for equipment provided with a neutral pole		
	Equipment provided with a pole intended for the connection of neutral, this pole shall be clearly marked by the letter “N”		N/A
	The switched neutral pole does not break before and does not make after the other poles except		N/A
	- a pole having the appropriate short-circuit breaking and making capacity is used as neutral pole, all poles may operate together		N/A
	Conventional thermal current of neutral pole		N/A
7.1.10	Provisions for protective earthing		
7.1.10.1	The exposed conductive parts are electrically interconnected and connected to a protective earth terminal		N/A
7.1.10.2	Protective earth terminal is readily accessible		N/A
	Protective earth terminal is suitably protected against corrosion		N/A

	Electrical continuity between the exposed conductive parts of the protective earth terminal and the metal sheathing of connecting conductors		N/A
	Protective earth terminal has no other functions		N/A
7.1.10.3	Protective earth terminal marking and identification		N/A
7.1.11	Enclosure for equipment		
7.1.11.1	Design		
	When the enclosure is opened, all parts requiring access for installation and maintenance are readily accessible		P
	Sufficient space is provided inside the enclosure		P
	The fixed parts of a metal enclosure are electrically connected to the other exposed conductive parts of the equipment and connected to a terminal which enables them to be earthed or connected to a protective conductor		N/A
	Under no circumstances a removable metal part of the enclosure is insulated from the part carrying the earth terminal when the removable part is in place		N/A
	The removable parts of the enclosure are firmly secured to the fixed parts by a device such that they cannot be accidentally loosened or detached owing to the effects of operation of the equipment or vibrations		N/A
	When an enclosure is so designed as to allow the covers to be opened without the use of tools, means is provided to prevent loss of the fastening devices		P
	If the enclosure is used for mounting push-buttons, it is not possible to remove the buttons from the outside of the enclosure		N/A
7.1.11.2	Insulation		
	If, in order to prevent accidental contact between a metallic enclosure and live parts, the enclosure is partly or completely lined with insulating material, then this lining is securely fixed to the enclosure		N/A
7.1.12	Degree of protection of enclosed equipment		
	Degree of protection ..... :		P
7.1.13	Conduit pull-out, torque and bending with metallic conduits		
	Withstand the stress occurring during its installation ..... :		N/A

8.3.3	TEST SEQUENCE I: GENERAL PERFORMANCE CHARACTERISTICS LJSF-63 1pole, AC-22A, 63A/AC 240/415V		
8.3.3.1	Temperature-rise		
	ambient temperature 10-40° C ..... :		—
	test enclosure W x H x D (mm x mm x mm) ..... :		—
	material of enclosure ..... :	insulation	—
	Main circuits, test conditions:		P
	- rated operational current Ie (A) ..... :		—
	- cable/busbar cross-section (mm²) / length (mm)..... :		—
	Fuse-link details (fuse-combination units only):		N/A
	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference ..... :		—

	- rated current (A) ..... :		—
	- power loss (W) ..... :	/	—
	- rated breaking capacity (kA) .....:	/	—
	Measured temperature-rise ..... :	see appended table 8.3.3.1	P
	Auxiliary circuits, test conditions:		N/A
	- rated operation current (A) ..... :		—
	- cable cross-section (mm²)..... :		—
	Measured temperature-rise ..... :	see appended table 8.3.3.1	N/A
8.3.3.2	Test of dielectric properties		P
	Rated impulse withstand voltage (kV) ..... :		—
	- test Uimp main circuits (kV) .....:		P
	- test Uimp auxiliary circuits (kV) ..... :		N/A
	- test Uimp on open main contacts (equipment suitable for isolating) (kV) .....:		P
	2) Power-frequency withstand voltage (V) ..... :		—
	- main circuits, test voltage for 5 sec. (V) ..... :		P
	- control and auxiliary circuits, test voltage for 5 sec. (V) ..... :		N/A
	Devices, which have been disconnected for the power-frequency withstand voltage test		N/A
	Equipment suitable for isolation, leakage current not exceed 0,5 mA		—
	Test voltage 1,1 Ue (V).....:		—
	Measured leakage current (mA).....:		P

8.3.3.3	Making and breaking capacity		P
	- utilization category ..... :		—
	- rated operational voltage Ue (V) ..... :		—
	- rated operational current Ie (A) or power (kW) . :		—
	Fuse-link details (fuse-combination units only):		—
	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference ..... :		—
	- rated current (A) ..... :		—
	- power loss (W) ..... :		—
	- rated breaking capacity (kA) ..... :	/	—
	Conditions for make/break operations or make operation, AC-23A and AC-23B only:		N/A
	- test voltage, U = 1,05 Ue.....(V):		—
	- test current, I =.....x Ie (A):		—

	- power factor ..... :		—
	Conditions for break operation, AC- 23A and AC- 23B only:		N/A
	- test voltage, U = 1,05 Ue.....(V):		—
	- test current, I =.....x Ie (A):		—
	- power factor ..... :		—
	Conditions for make/break operations, other than AC- 23A/B:AC-22A		N/A
	- test voltage, U = 1,05 Ue.....(V):		—
	- test current, I =.....x Ie (A):		—
	- power factor/ time constant ..... :		—
	Number of make/break or make and break operations ..... :		N/A
	- recovery voltage duration (≥ 50 ms)		N/A
	- current duration (ms) ..... :		—
	- time interval between operations ..... :		N/A
	Characteristic of transient recovery voltage for AC- 22 and AC- 23 only		N/A
	- oscillatory frequency (kHz) ..... :		—
	- measured oscillatory frequency (kHz) ..... :		N/A
	- factor γ..... :		N/A
8.3.3.3.5	Behaviour of the equipment during making and breaking capacity tests		P
	Test performed without:		—
	- endanger to the operator		P
	- cause damage to adjacent equipment		P

	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.3.3.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 17 of IEC 60947-1		P

	- equipment is able to carry its rated current after normal closing operation		P
8.3.3.4	Dielectric verification		P
	test voltage: 2*Ue with a minimum of 1000V~.....:		—
	No flashover or breakdown		P
8.3.3.5	Leakage current		P
	test voltage (1,1 Ue) (V) ..... :		—
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B):≤0,5 mA/pole... :		N/A
	Leakage current (other utilization categories): ≤2 mA/pole) ..... :		N/A
8.3.3.6	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		—
	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference .....:		—
	- rated current (A) .....:		—
	- power loss (W) .....:		—
	- rated breaking capacity (kA) .....:		—
	- conductor cross-section (mm²) .....:		—
	- test current Ie (A) .....:		—
	Measured temperature-rise.....:	see appended table 8.3.3.6	P
8.3.3.7	Strength of actuator mechanism		P
8.2.5	Verification of the strength of actuator mechanism and position indicating device		P
	- actuator type (fig.) .....:	/	—
8.2.5.2.1	Dependent and independent manual operation		P
	- actuating force for opening (N) .....:		—
	- test force with blocked main contacts (N) .....:		—
	- used method to keep the contact closed.....:		—

	During and after the test, open position not indicated..... :	not indicated	P
	Equipment with locking mean, no locking in the open position while test force is applied.....:	Two refers to the operation	P
8.2.5.2.2	Dependent power operation		N/A
	- main contacts fixed together in the closed position..... :		N/A
	- used method to keep the contact closed..... :		N/A
	- 110% of the rated supply voltage applied to the equipment (3 times).....:		N/A
	During and after the test, open position not indicated..... :		N/A
	Equipment show no damage impairing its normal operation..... :		N/A

	Equipment with locking mean, no locking in the open position while test force is applied.....:		N/A
8.2.5.2.3	Independent power operation		N/A
	- main contacts fixed together in the closed position..... :		N/A
	- used method to keep the contact closed..... :		N/A
	- stored energy of the power operator released (3 times).....:		N/A
	During and after the test, open position not indicated..... :		N/A
	Equipment show no damage impairing its normal operation..... :		N/A
	Equipment with locking mean, no locking in the open position while test force is applied.....:		N/A

8.3.3	TEST SEQUENCE I: GENERAL PERFORMANCE CHARACTERISTICS LJSF-63 4pole, AC-22A, 63A/AC 415V		
8.3.3.1	Temperature-rise		
	ambient temperature 10-40° C ..... :		—
	test enclosure W x H x D (mm x mm x mm) ..... :		—
	material of enclosure ..... :	insulation	—
	Main circuits, test conditions:		P
	- rated operational current Ie (A) ..... :		—
	- cable/busbar cross-section (mm²) / length (mm)..... :		—
	Fuse-link details (fuse-combination units only):		N/A

	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference ..... :		—
	- rated current (A) ..... :		—
	- power loss (W) ..... :	/	—
	- rated breaking capacity (kA) .....:	/	—
	Measured temperature-rise ..... :	see appended table 8.3.3.1	P
	Auxiliary circuits, test conditions:		N/A
	- rated operation current (A) ..... :		—
	- cable cross-section (mm²)..... :		—
	Measured temperature-rise ..... :	see appended table 8.3.3.1	N/A
8.3.3.2	Test of dielectric properties		P
	Rated impulse withstand voltage (kV) ..... :		—
	- test Uimp main circuits (kV) .....:		P
	- test Uimp auxiliary circuits (kV) ..... :		N/A

	- test Uimp on open main contacts (equipment suitable for isolating) (kV) .....:		P
	2) Power-frequency withstand voltage (V) ..... :		—
	- main circuits, test voltage for 5 sec. (V) ..... :		P
	- control and auxiliary circuits, test voltage for 5 sec. (V) ..... :		N/A
	Devices, which have been disconnected for the power-frequency withstand voltage test		N/A
	Equipment suitable for isolation, leakage current not exceed 0,5 mA		—
	Test voltage 1,1 Ue (V).....:		—
	Measured leakage current (mA).....:		P
8.3.3.3	Making and breaking capacity		P
	- utilization category ..... :		—
	- rated operational voltage Ue (V) ..... :		—
	- rated operational current Ie (A) or power (kW) . :		—
	Fuse-link details (fuse-combination units only):		—
	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference .....:		—
	- rated current (A) .....:		—
	- power loss (W) ..... :		—
	- rated breaking capacity (kA) .....:	/	—

	Conditions for make/break operations or make operation, AC-23A and AC-23B only:		N/A
	- test voltage, U = 1,05 Ue.....(V):		—
	- test current, I =.....x Ie (A):		—
	- power factor .....:		—
	Conditions for break operation, AC- 23A and AC- 23B only:		N/A
	- test voltage, U = 1,05 Ue.....(V):		—
	- test current, I =.....x Ie (A):		—
	- power factor .....:		—
	Conditions for make/break operations, other than AC- 23A/B:AC-22A		N/A
	- test voltage, U = 1,05 Ue.....(V):		—
	- test current, I =.....x Ie (A):		—
	- power factor/ time constant .....:		—
	Number of make/break or make and break operations ..... :		N/A
	- recovery voltage duration (≥ 50 ms)		N/A
	- current duration (ms) ..... :		—
	- time interval between operations ..... :		N/A
	Characteristic of transient recovery voltage for AC- 22 and AC- 23 only		N/A
	- oscillatory frequency (kHz) ..... :		—
	- measured oscillatory frequency (kHz) .....:		N/A
	- factor γ..... :		N/A
8.3.3.3.5	Behaviour of the equipment during making and breaking capacity tests		P
	Test performed without:		—
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.3.3.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 17 of IEC 60947-1		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.3.4	Dielectric verification		P
	test voltage: 2*Ue with a minimum of 1000V~.....:		—

	No flashover or breakdown		P
8.3.3.5	Leakage current		P
	test voltage (1,1 Ue) (V) ..... :		—
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B):≤0,5 mA/pole... :		N/A
	Leakage current (other utilization categories): ≤2 mA/pole) ..... :		P
8.3.3.6	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		—
	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference ..... :		—
	- rated current (A) ..... :		—
	- power loss (W) ..... :		—
	- rated breaking capacity (kA) ..... :		—
	- conductor cross-section (mm²) ..... :		—
	- test current Ie (A) ..... :		—
	Measured temperature-rise..... :	see appended table 8.3.3.6	P
8.3.3.7	Strength of actuator mechanism		P
8.2.5	Verification of the strength of actuator mechanism and position indicating device		P
	- actuator type (fig.) ..... :	/	—
8.2.5.2.1	Dependent and independent manual operation		P
	- actuating force for opening (N) ..... :		—
	- test force with blocked main contacts (N) ..... :		—
	- used method to keep the contact closed..... :		—
	During and after the test, open position not indicated..... :	not indicated	P
	Equipment with locking mean, no locking in the open position while test force is applied..... :	Two refers to the operation	P
8.2.5.2.2	Dependent power operation		N/A
	- main contacts fixed together in the closed position..... :		N/A
	- used method to keep the contact closed..... :		N/A
	- 110% of the rated supply voltage applied to the equipment (3 times)..... :		N/A
	During and after the test, open position not indicated..... :		N/A
	Equipment show no damage impairing its normal operation..... :		N/A
	Equipment with locking mean, no locking in the open position while test force is applied..... :		N/A
8.2.5.2.3	Independent power operation		N/A

	- main contacts fixed together in the closed position..... :		N/A
	- used method to keep the contact closed..... :		N/A
	- stored energy of the power operator released (3 times)..... :		N/A
	During and after the test, open position not indicated..... :		N/A
	Equipment show no damage impairing its normal operation..... :		N/A
	Equipment with locking mean, no locking in the open position while test force is applied..... :		N/A
8.3.4	Procedure II: OPERATIONAL PERFORMANCE CAPABILITY LJSF-63 1pole, AC-22A, 63A/AC 240/415V		
8.3.4.1	Operational performance test		P
	- utilization category ..... :		—
	- rated operational voltage (V) ..... :		—
	- rated operational current (A) ..... :		—
	Test conditions for electrical operation cycles:		
	- test voltage (V) ..... :		—
	- test current (A) ..... :		—
	- power factor/time constant ..... :		—
	Number of cycles with current ..... :		P
	Number of cycles without current ..... :		P
	First test sequence (with/without current) ..... :		—
	Second test sequence (with/without current) ..... :		—
	- time interval between first and second test sequence ..... :		—
	- recovery voltage duration (≥ 50 ms)		P
	- current duration (ms) ..... :		—
	- time interval between operations ..... :		P
8.3.4.1.5	Behaviour of the equipment during the operational performance test		P
	Test performed without:		—
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.1.1.6	Condition of the equipment after the operational performance test		P

	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 17 of IEC 60947-1		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.4.2	Dielectric verification		P
	test voltage: 2*Ue with a minimum of 1000V~.....:		—
	No breakdown or flashover		P

8.3.4.3	Leakage current		P
	test voltage (1,1 Ue) (V) :		—
	Leakage current (utilization categories AC- 20A, AC- 20B, DC- 20A and DC- 20B) ≤ 0,5 mA/pole .:		N/A
	Leakage current (other utilization categories) ≤2 mA/pole .....:		P
8.3.4.4	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		—
	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference .....:		—
	- rated current (A) .....:		—
	- power loss (W) ..... :		—
	- rated breaking capacity (kA) .....:		—
	- conductor cross-section (mm²) ..... :		—
	- test current Ie (A) ..... :		—
	Measured temperature-rise.....:	see appended table 8.3.4.4	P

8.3.4	Procedure II: OPERATIONAL PERFORMANCE CAPABILITY LJSF-63 4pole, AC-22A, 63A/AC 415V		
8.3.4.1	Operational performance test		P
	- utilization category ..... :		—
	- rated operational voltage (V) ..... :		—
	- rated operational current (A) ..... :		—
	Test conditions for electrical operation cycles:		
	- test voltage (V) .....:		—
	- test current (A) ..... :		—
	- power factor/time constant ..... :		—
	Number of cycles with current .....:		P

	Number of cycles without current .....:		P
	First test sequence (with/without current) ..... :		—
	Second test sequence (with/without current) .....:		—
	- time interval between first and second test sequence .....:		—
	- recovery voltage duration (≥ 50 ms)		P
	- current duration (ms) .....:		—
	- time interval between operations .....:		P

8.3.4.1.5	Behaviour of the equipment during the operational performance test		P
	Test performed without:		—
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.1.1.6	Condition of the equipment after the operational performance test		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 17 of IEC 60947-1		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.4.2	Dielectric verification		P
	test voltage: 2*Ue with a minimum of 1000V~.....:		—
	No breakdown or flashover		P
8.3.4.3	Leakage current		P
	test voltage (1,1 Ue) (V) :		—
	Leakage current (utilization categories AC- 20A, AC- 20B, DC- 20A and DC- 20B) ≤ 0,5 mA/pole .:		N/A
	Leakage current (other utilization categories) ≤2 mA/pole .....:		P
8.3.4.4	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		—
	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference .....:		—

	- rated current (A) .....:		—
	- power loss (W) ..... :	/	—
	- rated breaking capacity (kA) .....:	/	—
	- conductor cross-section (mm²) ..... :		—
	- test current Ie (A) ..... :		—
	Measured temperature-rise.....:	see appended table 8.3.4.4	P

8.3.5	TEST SEQUENCE III: SHORT-CIRCUIT PERFORMANCE CAPABILITY LJSF-63 1pole, AC-22A, 63A/AC 240/415V		
8.3.5.1	Short-time withstand current test		P
	Rated short-time withstand current Icw (A) (>12.Ie max) .....:		P
	test voltage (V) ..... :		—
	r.m.s. test current (kA) ..... :		—
	peak test current (kA) ..... :		—
	power factor/time constant .....:		—
	test duration (s) .....:		—
8.3.5.1.5	Behaviour of the equipment during the test		P
	Test performed without:		—
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.5.1.6	Condition of the equipment after short-time withstand current test		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 17 of IEC 60947-1		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.5.2	Short-circuit making capacity		P
	Rated short-circuit making capacity Icm (A) ..... :		P
	test voltage (1,05 x Ue)..... (V):		—
	r.m.s. test current (kA) ..... :		—
	maximum peak test current (factor n)		P
	power factor/time constant .....:		P
	current duration (s) .....:		—
	Number of making cycles .....:		P

	Time interval between the cycles		—
8.3.5.2.5	Behaviour of the equipment during the test		P
	Test performed without:		—
	- endanger to the operator		P
	-cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.5.2.6	Condition of the equipment after short-circuit making capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 17 of IEC 60947-1		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.5.3	Dielectric verification		P
	test voltage: 2*Ue with a minimum of 1000V~.....:		—
	No flashover or breakdown		P
8.3.5.4	Leakage current		
	test voltage (1,1x Ue) (V) ..... :		—
	Leakage current (utilization categories AC- 20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:		N/A
	Leakage current (other utilization categories) ≤ 2,0 mA/pole .....:		P
8.3.5.5	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		—
	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference ..... :		—
	- rated current (A) .....:		—
	- power loss (W) ..... :		—
	- rated breaking capacity (kA) .....:		—
	- conductor cross-section (mm²) ..... :		—
	- test current Ie (A) ..... :		—
	Measured temperature-rise.....:	see appended table 8.3.5.5	P

8.3.5	TEST SEQUENCE III: SHORT-CIRCUIT PERFORMANCE CAPABILITY LJSF-63 4pole, AC-22A, 63A/AC 415V		
8.3.5.1	Short-time withstand current test		P
	Rated short-time withstand current Icw (A)		P

	(>12.Ie max) .....:		
	test voltage (V) ..... :		—
	r.m.s. test current (kA) ..... :		—
	peak test current (kA) ..... :		—

	power factor/time constant .....:		—
	test duration (s) .....:		—
8.3.5.1.5	Behaviour of the equipment during the test		P
	Test performed without:		—
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.5.1.6	Condition of the equipment after short-time withstand current test		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 17 of IEC 60947-1		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.5.2	Short-circuit making capacity		P
	Rated short-circuit making capacity Icm (A) ..... :		P
	test voltage (1,05 x Ue)..... (V):		—
	r.m.s. test current (kA) ..... :		—
	maximum peak test current (factor n)		P
	power factor/time constant .....:		P
	current duration (s) .....:		—
	Number of making cycles .....:		P
	Time interval between the cycles		—
8.3.5.2.5	Behaviour of the equipment during the test		P
	Test performed without:		—
	- endanger to the operator		P
	-cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.5.2.6	Condition of the equipment after short-circuit making capacity tests		P

	Immediately after the test equipment must work satisfactorily		P

	- required opening force not greater than the test force of 8.2.5.2 and table 17 of IEC 60947-1		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.5.3	Dielectric verification		P
	test voltage: 2*Ue with a minimum of 1000V~.....:		—
	No flashover or breakdown		P
8.3.5.4	Leakage current		
	test voltage (1,1x Ue) (V) ..... :		—
	Leakage current (utilization categories AC- 20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:		N/A
	Leakage current (other utilization categories) ≤ 2,0 mA/pole .....:		P
8.3.5.5	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		—
	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference ..... :		—
	- rated current (A) .....:		—
	- power loss (W) ..... :		—
	- rated breaking capacity (kA) .....:		—
	- conductor cross-section (mm²) ..... :		—
	- test current Ie (A) ..... :		—
	Measured temperature-rise.....:	see appended table 8.3.5.5	P

8.3.6	TEST SEQUENCE IV: CONDITIONAL SHORT-CIRCUIT CURRENT LJSF-63 1pole, AC-22A, 63A/AC 240/415V		
	Protective device details:		N/A
	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference ..... :		—
	- rated voltage (V) ..... :		—
	- rated current (A) ..... :		—
	- rated breaking capacity (kA) .....:		—
8.3.6.2	Fuse protected short-circuit withstand		N/A
	test voltage (1,05 Ue) (V) ..... :		—
	test current (kA) ..... :		—

	rated frequency (Hz) ..... :		—
	power factor ..... :		—

	Time constant (ms)..... :		—
	Fuse protected short-circuit withstand (equipment in closed position)		
	- max. let-through current (kA) .....:		—
	- Joule integral I²dt (A²s) .....:		—
	Fuse protected short-circuit making		N/A
	- mean velocity of 15 manually under no-load conditions operations (m/s) .....:		—
	- point at which the measurement is made ..... :		—
	- test speed during the fuse protected short-circuit making (m/s) ..... :		—
	- max. let-through current (kA) .....:		—
	- Joule integral I²dt (A²s) .....:		—
8.3.6.2.5	Behaviour of the equipment during the test		N/A
	Test performed without:		—
	- endanger to the operator		N/A
	- cause damage to adjacent equipment		N/A
	No permanent arcing		N/A
	No flash over between poles and poles and frame		N/A
	No melting of the fuse in the detection circuit		N/A
8.3.6.2.6	Conditions of the equipment after the test		N/A
	Immediately after the test equipment must work satisfactorily		N/A
	- required opening force not greater than the test force of 8.2.5.2 and table 17 of IEC 60947-1		N/A
	- equipment is able to carry its rated current after normal closing operation		N/A
8.3.6.3	Dielectric verification		N/A
	test voltage: 2*Ue with a minimum of 1000V~.....:		—
	No flashover or breakdown		N/A
8.3.6.4	Leakage current		N/A
	test voltage (1,1 Ue) (V) ..... :		—
	Leakage current (utilization categories AC- 20A, AC- 20B, DC- 20A and DC- 20B) ≤0,5 mA/pole .:		N/A
	Leakage current (other utilization categories) ≤2,0 mA/pole .....:		N/A
8.3.6.5	Temperature-rise verification		N/A
	Fuse-link details (fuse-combination units only):		—

	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference ..... :		—
	- rated current (A) ..... :		—
	- power loss (W) ..... :		—
	- rated breaking capacity (kA) ..... :		—
	- conductor cross-section (mm²) ..... :		—
	- test current Ie (A) ..... :		—
	Measured temperature-rise..... :	see appended table 8.3.6.5	

8.3.6	TEST SEQUENCE IV: CONDITIONAL SHORT-CIRCUIT CURRENT LJSF-63 4pole, AC-22A, 63A/AC 415V		
	Protective device details:		N/A
	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference ..... :		—
	- rated voltage (V) ..... :		—
	- rated current (A) ..... :		—
	- rated breaking capacity (kA) ..... :		—
8.3.6.2	Fuse protected short-circuit withstand		N/A
	test voltage (1,05 Ue) (V) ..... :		—
	test current (kA) ..... :		—
	rated frequency (Hz) ..... :		—
	power factor ..... :		—
	Time constant (ms)..... :		—
	Fuse protected short-circuit withstand (equipment in closed position)		
	- max. let-through current (kA) ..... :		—
	- Joule integral I²dt (A²s) ..... :		—
	Fuse protected short-circuit making		N/A
	- mean velocity of 15 manually under no-load conditions operations (m/s) ..... :		—
	- point at which the measurement is made ..... :		—
	- test speed during the fuse protected short-circuit making (m/s) ..... :		—
	- max. let-through current (kA) ..... :		—

	- Joule integral I²dt (A²s) ..... :		—
8.3.6.2.5	Behaviour of the equipment during the test		N/A

	Test performed without:		—
	- endanger to the operator		N/A
	- cause damage to adjacent equipment		N/A
	No permanent arcing		N/A
	No flash over between poles and poles and frame		N/A
	No melting of the fuse in the detection circuit		N/A
8.3.6.2.6	Conditions of the equipment after the test		N/A
	Immediately after the test equipment must work satisfactorily		N/A
	- required opening force not greater than the test force of 8.2.5.2 and table 17 of IEC 60947-1		N/A
	- equipment is able to carry its rated current after normal closing operation		N/A
8.3.6.3	Dielectric verification		N/A
	test voltage: 2*Ue with a minimum of 1000V~.....:		—
	No flashover or breakdown		N/A
8.3.6.4	Leakage current		N/A
	test voltage (1,1 Ue) (V) ..... :		—
	Leakage current (utilization categories AC- 20A, AC- 20B, DC- 20A and DC- 20B) ≤0,5 mA/pole .:		N/A
	Leakage current (other utilization categories) ≤2,0 mA/pole .....:		N/A
8.3.6.5	Temperature-rise verification		N/A
	Fuse-link details (fuse-combination units only):		—
	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference ..... :		—
	- rated current (A) .....:		—
	- power loss (W) ..... :		—
	- rated breaking capacity (kA) .....:		—
	- conductor cross-section (mm²) ..... :		—
	- test current Ie (A) ..... :		—
	Measured temperature-rise.....:	see appended table 8.3.6.5	

8.3.7	TEST SEQUENCE V: OVERLOAD PERFORMANCE CAPABILITY LJSF-63 1pole, AC-22A, 63A/AC 240/415V		
8.3.7.1	Overload test		N/A
	ambient temperature 10- 40 °C ..... :		—
	test enclosure W x H x D (mm x mm x mm) ..... :		—

	material of enclosure ..... :		—
	test current 1,6xIthe or 1,6xIth (A) .....:		—
	cable/busbar cross-section (mm²) / length (mm) . :		—
	Fuse-link details:		N/A
	- manufacturer's name, trademark or identification mark ..... :		—
	- rated current (A) ..... :		—
	- power loss (W) ..... :		—
	- rated breaking capacity (kA) .....:		—
	- time duration of the overload test (s) .....:		—
	Within 3 min after the fuse(s) has(have) operated (or 1 h), the equipment has been operated once, i.e. opened and closed		N/A
	Required opening force not greater than the test force of 8.2.5.2 and table 17 of IEC 60947-1		N/A
	The equipment has not undergone any impairment hindering such operation		N/A
8.3.7.2	Dielectric verification		N/A
	test voltage: 2*Ue with a minimum of 1000V~.....:		—
	No flashover or breakdown		N/A
8.3.7.3	Leakage current		N/A
	test voltage (1,1 Ue) (V) ..... :		—
	Leakage current (utilization categories AC- 20A, AC- 20B, DC- 20A and DC- 20B) ≤0,5 mA/pole ..:		N/A
	Leakage current (other utilization categories) ≤2 mA)/pole ..... :		N/A
8.3.7.4	Temperature-rise verification		N/A
	Fuse-link details (fuse-combination units only):		—
	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference ..... :		—
	- rated current (A) .....:		—
	- power loss (W) ..... :		—
	- rated breaking capacity (kA) .....:		—
	Fuse links aged during the overload test are replaced by new fuse-links.....:		N/A
	- conductor cross-section (mm²) ..... :		—
	- test current Ie (A) ..... :		—
	Measured temperature-rise.....:	see appended table 8.3.7.4	

8.3.7	TEST SEQUENCE V: OVERLOAD PERFORMANCE CAPABILITY LJSF-63 4pole, AC-22A, 63A/AC 415V	
8.3.7.1	Overload test	N/A

	ambient temperature 10- 40 °C ..... :		—
	test enclosure W x H x D (mm x mm x mm) ..... :		—
	material of enclosure ..... :		—
	test current 1,6xIthe or 1,6xIth (A) .....:		—
	cable/busbar cross-section (mm²) / length (mm) . :		—
	Fuse-link details:		N/A
	- manufacturer's name, trademark or identification mark ..... :		—
	- rated current (A) ..... :		—
	- power loss (W) ..... :		—
	- rated breaking capacity (kA) .....:		—
	- time duration of the overload test (s) .....:		—
	Within 3 min after the fuse(s) has(have) operated (or 1 h), the equipment has been operated once, i.e. opened and closed		N/A
	Required opening force not greater than the test force of 8.2.5.2 and table 17 of IEC 60947-1		N/A
	The equipment has not undergone any impairment hindering such operation		N/A
8.3.7.2	Dielectric verification		N/A
	test voltage: 2*Ue with a minimum of 1000V~.....:		—
	No flashover or breakdown		N/A
8.3.7.3	Leakage current		N/A
	test voltage (1,1 Ue) (V) ..... :		—
	Leakage current (utilization categories AC- 20A, AC- 20B, DC- 20A and DC- 20B) ≤0,5 mA/pole ..:		N/A
	Leakage current (other utilization categories) ≤2 mA)/pole ..... :		N/A
8.3.7.4	Temperature-rise verification		N/A
	Fuse-link details (fuse-combination units only):		—
	- manufacturer's name, trademark or identification mark ..... :		—
	- manufacturer's model or type reference ..... :		—
	- rated current (A) .....:		—
	- power loss (W) ..... :		—
	- rated breaking capacity (kA) .....:		—

	Fuse links aged during the overload test are replaced by new fuse-links.....:		N/A
	- conductor cross-section (mm²) ..... :		—
	- test current Ie (A) ..... :		—
	Measured temperature-rise.....:	see appended table 8.3.7.4	

8.4	ELECTROMAGNETIC COMPATIBILITY TESTS LJSF-63 1pole, AC-22A, 63A/AC 240/415V		N/A
8.4.1	Immunity		N/A
8.4.1.1	Equipment not incorporating electronic circuits: no tests necessary		N/A
8.4.1.2	Equipment incorporating electronic circuits:		N/A
	Equipment utilizing circuits in which all components are passive are not required to be tested		N/A
	All other equipment, requirements according to 7.3.3.2 of IEC 60947-1 and limits according table 6 apply		N/A
	Performed tests..... :	see _____	N/A
	No unintentional separation or closing of contacts has occurred during these tests ..... :		N/A
8.4.2	Emission		N/A
8.4.2.1	Equipment not incorporating electronic circuits: no tests necessary		N/A
8.4.2.2	Equipment incorporating electronic circuits:		N/A
	Equipment utilizing circuits in which all components are passive are not required to be tested		N/A
	All other equipment, requirements according to 7.3.3.2 and limits according table 7 apply		N/A
	Performed tests..... :	see _____	N/A

8.4	ELECTROMAGNETIC COMPATIBILITY TESTS LJSF-63 4pole, AC-22A, 63A/AC 415V	N/A
8.4.1	Immunity	N/A
8.4.1.1	Equipment not incorporating electronic circuits: no tests necessary	N/A
8.4.1.2	Equipment incorporating electronic circuits:	N/A
	Equipment utilizing circuits in which all components are passive are not required to be tested	N/A
	All other equipment, requirements according to 7.3.3.2 of IEC 60947-1 and limits according table 6 apply	N/A

	Performed tests..... :	see _____	N/A
	No unintentional separation or closing of contacts has occurred during these tests ..... :		N/A
8.4.2	Emission		N/A
8.4.2.1	Equipment not incorporating electronic circuits: no tests necessary		N/A
8.4.2.2	Equipment incorporating electronic circuits:		N/A

	Equipment utilizing circuits in which all components are passive are not required to be tested		N/A
	All other equipment, requirements according to 7.3.3.2 and limits according table 7 apply		N/A
	Performed tests..... :	see _____	N/A

Annex A (normative)			N/A
A	Equipment for direct switching of a single motor		N/A
A.2	Additional rated duties.....:		N/A
A.2.1	- intermittent periodic duty		N/A
	- intermittent duty		N/A
	Classes of intermittent duty:		
	-class 1: up to 1 operating cycle per hour		N/A
	-class 3: up to 3 operating cycle per hour		N/A
	-class 12: up to 12 operating cycles per hour		N/A
	-class 30: up to 30 operating cycles per hour		N/A
	-class 120: up to 120 operating cycles per hour		N/A
A.2.2	Temporary duty..... :		N/A
A.6	Mechanical durability:		
	Equipment mounted according to manufacturer's instruction		N/A
	Preferred number of no-load operating cycles expressed in millions..... :		N/A
	0,001 – 0,003 – 0,01 – 0,03 – 0,1 – 0,3 - 1		N/A
	If no mechanical endurance is stated by the manufacturer, a minimum mechanical endurance according to the class of intermittent duty shall be tested.	Class of intermittent duty:	N/A
	Number of no-load operating cycles performed.....:	_____	N/A
A.7	Electrical durability:		N/A
	- test according to manufacturer's instruction		N/A
A.8	Verification of making and breaking capacities:		
	- utilization category ..... :		—
	- rated operational voltage Ue (V) .....:		—
	- rated operational current Ie (A) or power (kW) .... :		—
	Conditions for make/break operations or make operations:		—
	- test voltage, U = 1,05 Ue..... (V):		—
	- test current, I =.....x Ie (A):		—
	- power factor.....:		—
	Conditions for make/break operations:		N/A

	- test voltage, U = 1,05 Ue..... (V):		—

	- test current, I =.....x Ie (A):		—
	- power factor/ time constant ..... :		—
	Number of make/break or make and break operations ..... :		N/A
	- recovery voltage duration (≥ 50 ms)		N/A
	- current duration (ms) ..... :		—
	- time interval between operations ..... :		N/A
	Characteristic of transient recovery voltage if necessary:		N/A
	- oscillatory frequency (kHz) ..... :		—
	- measured oscillatory frequency (kHz) ..... :		N/A
	- factor γ ..... :		N/A
8.3.3.3.5	Behaviour of the equipment during making and breaking capacity tests		N/A
	Test performed without:		—
	- endanger to the operator		N/A
	- cause damage to adjacent equipment		N/A
	No permanent arcing		N/A
	No flash over between poles and poles and frame		N/A
	No melting of the fuse in the detection circuit		N/A
8.3.3.3.6	Condition of the equipment after making and breaking capacity tests		N/A
	Immediately after the test equipment must work satisfactorily		N/A
	- required opening force not greater than the test force of 8.2.5.2 and table 8		N/A
	- equipment is able to carry its rated current after normal closing operation		N/A
8.3.3.4	Dielectric verification		N/A
	test voltage: 2*Ue with a minimum of 1000V~..... :		—
	No flashover or breakdown		N/A

8.3.3.5	Leakage current		N/A
	test voltage (1,1 Ue) (V) ..... :		—
	Leakage current (utilization categories AC- 20A, AC-20B, DC-20A and DC-20B): ≤ 0,5 mA/pole ... :		N/A
	Leakage current (other utilization categories): ≤ 2 mA/pole) ..... :		N/A
8.3.3.6	Temperature-rise verification		N/A

	- conductor cross-section (mm²) ..... :		—
	- test current Ie (A) ..... :		—
	Measured temperature-rise.....:	see __	N/A
A.9	Operational performance test:		N/A
	- utilization category ..... :		—
	- rated operational voltage (V) .....:		—
	- rated operational current (A) ..... :		—
	Test conditions for electrical operation cycles:		N/A
	- test voltage (V) ..... :		—
	- test current (A) ..... :		—
	- power factor/time constant ..... :		—
	Number of cycles with current .....:		N/A
	Number of cycles without current .....:		N/A
	First test sequence (with/without current) ..... :		—
	Second test sequence (with/without current) .....:		—
	- time interval between first and second test sequence .....:		—
8.3.4.1.5	Behaviour of the equipment during the operational performance test		N/A
	Test performed without:		—
	- endanger to the operator		N/A
	-cause damage to adjacent equipment		N/A
	No permanent arcing		N/A
	No flash over between poles and poles and frame		N/A
	No melting of the fuse in the detection circuit		N/A
8.3.4.1.6	Condition of the equipment after the operational performance test		N/A

	Immediately after the test equipment must work satisfactorily		N/A
	- required opening force not greater than the test force of 8.2.5.2 and table 8		N/A
	- equipment is able to carry its rated current after normal closing operation		N/A
8.3.4.2	Dielectric verification		N/A
	test voltage: 2*Ue with a minimum of 1000V~.....:		—
	No breakdown or flashover		N/A
8.3.4.3	Leakage current		N/A

	test voltage (1,1 Ue) (V) ..... :		—
	Leakage current (utilization categories AC- 20A, AC- 20B, DC- 20A and DC- 20B) ≤ 0,5 mA/pole .....:		N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole .....:		N/A
8.3.4.4	Temperature-rise verification		N/A
	- conductor cross-section (mm²) ..... :		—
	- test current Ie (A) ..... :		—
	Measured temperature-rise.....:	see __	N/A
			N/A
A.10	Special tests:	see __	N/A

Annex C (normative)			N/A
C	Single pole operated three pole switches		N/A
C.2	Additional-tests to be performed on single pole operated three pole switches		N/A
C.3.1	Test “8.3.3.3 Making and breaking capacities” according to test sequence I with following modifications:		N/A
	L1 and L2 are closed, L3 is subjected to the required make-break operation cycle.....:		N/A
	L2 closed and L3 opened, L1 is subjected to the required make-break operation cycle.....:		N/A
	Test performed in a three phase circuit according to Figure 5 of IEC 60947-1		N/A
C.3.1	Test “8.3.4.1 Operational performance” according to test sequence II with following modifications:		N/A
	L1 and L2 are closed, L3 is subjected to the required make-break operation cycle.....:		N/A
	L2 closed and L3 opened, L1 is subjected to the required make-break operation cycle.....:		N/A
	Test performed in a three phase circuit according to Figure 5 of IEC 60947-1		N/A
C.3.2	Test “8.3.6.2 Fuse protected short circuit test” according to test sequence IV with following modifications:		N/A
	For the making test L1 is open and L2 closed, L3 is subjected to the required make operation cycle..:		N/A
	Test performed in a three phase circuit according to Figure 11 of IEC 60947-1		N/A
C.4	Condition of equipment after tests		N/A
	The equipment complies with the relevant clauses of 8.3.3.3.6, 8.3.4.1.6 and 8.3.5.2.6		N/A
C.5	Instruction for use		N/A
	The product literature includes following statement:		N/A
	These devices are intended for power distribution systems where switching and/or isolating of an individual phase may be necessary and shall not be used for the switching of the primary circuit of three-phase equipment.		N/A

Annex D (normative)			
D	Switches, disconnectors, switch-disconnectors and fuse-combination units for use in photovoltaic (PV) d.c. applications		
D.3	**Classification**		
D.3.1	Utilization category (according Table D.1).....:		
D.4	**Characteristics**		
D.4.3.5.1	Ability to withstand motor switching overload currents	4.3.5.1 not applicable	
D.4.3.5.2	Rated making capacity	See table D.5	
D.4.3.5.3	Rated breaking capacity	See table D.5	
D.4.3.6.1	Rated short-time withstand current (I_{CW})		N/A
	DC-PV1: rated short-time withstand current is not applicable		N/A
	DC-PV0 and DC-PV2: in accordance with 4.3.6.1.		N/A
D.5.2	**Marking**		
	Devices of utilization category AC-20A, AC-20B, DC-20A, DC-20B and DC-PV0 shall be marked "Do not operate under load", unless the device is interlocked to prevent such operation.		N/A
	Rated operational currents (or rated powers) with the corresponding rated operational voltage and utilization category (see 4.3.1, 4.3.2 and D.4.4)		N/A
	PV category..... :		N/A
	Add to the existing list in 5.2.4 the following new items h), i), j) and k):		N/A
	h) diagram and method of series connecting poles of mechanical switching devices for each operational rating		N/A
	i) appropriate connection to the PV generator and load, if applicable		N/A
	j) “+” and “-“ polarities, if applicable		N/A
	k) suitable for indoor or outdoor use.....:		N/A
D.6	**Normal service, mounting and transport conditions**		
	Unenclosed PV switches		N/A
	Enclosed PV switches - indoor		N/A
	Enclosed PV switches- outdoor		N/A
	The ambient air temperature does not exceed the maximum and minimum values given in Table D.3. Daily average ambient temperature over a period of 24 h does not exceed 35 °C.		N/A
D.7	**Constructional and performance requirements**		
	Clause 7 applies with the following addition:		N/A

	Enclosures comply with IEC 62208		N/A
D7.1.4	Clearances and creepage distances		N/A
	The minimum rated impulse voltage in accordance with Table D.4		N/A

D.7.1.12	Degrees of protection of enclosed equipment		N/A
	The degree of protection provided by the enclosure against contact with live parts, ingress of solid foreign bodies and water as indicated by the IP code according to Annex C of IEC 60947-1:2007/ AMD1:2010, declared by the manufacturer		N/A
	For indoor enclosed equipment not less than IP2X		N/A
	For outdoor enclosed equipment not less than IP33		N/A
D.7.2.3	Dielectric properties		N/A
	Subclause 7.2.3 of IEC 60947-1:2007/AMD1:2010 applies with the following changes:		—
	PV switches, PV disconnectors, PV switch-disconnectors and PV fuse-combination units shall have a rated impulse withstand voltage as given in Table D.4.....:		N/A
D.7.2.4.1	Making and breaking capacities		N/A
	PV switches, Change-over Switchs and PV fuse-combination units shall be capable of interrupting any current up to their rated making and breaking capacities. Compliance with these requirements is checked by the tests of 8.3.3 as modified by D.8.3.3.3.1.		N/A
	The rated making and breaking capacities are stated by reference to the rated operational voltage, rated operational current and to the PV utilization category according to Table D.5.		N/A
	Test conditions are as specified in D.8.3.3.3.1		N/A
	For PV switches, Change-over Switchs and PV fuse-combination units with a utilization category DC-PV1 the test supply shall be connected in accordance with the terminal markings (generator, load, “+” and “-“)		N/A
	Equipment with a utilization category DC-PV2 shall have one sequence of tests carried out on a sample with the test supply and load connected to the main poles as convenient.		N/A
	Unless the manufacturer can demonstrate the contact system and arc control arrangement is symmetrical in respect of current flow in each pole, the sequence shall then be repeated on a new sample with the supply and load terminals interchanged		N/A

D.7.2.4.2	Operational performance		N/A
	Compliance with the operational performance requirements are checked by the tests of 8.3.4 as modified by D.8.3.4.1.1.		N/A
	The number of operating cycles and the test circuit parameters for the operational performance tests for the various utilization categories are given in Table D.6 and Table D.7.		N/A
	Test conditions are as specified in D.8.3.4.1.1.		N/A

	For PV switches, PV disconnectors, PV switch-disconnectors and PV fuse-combination units with a utilization category DC-PV1, the test supply shall be connected in accordance with the terminal markings (generator, load, “+” and “-“).		N/A
	equipment with a utilization category DC-PV2 shall have one sequence of tests carried out on a sample with the test supply and load connected to the main poles as convenient		N/A
	Unless the manufacturer can demonstrate the contact system and arc control arrangement is symmetrical in respect of current flow in each pole, the sequence shall then be repeated on a new sample with the supply and load terminals interchanged.		N/A
D.7.2.4.4	Electrical durability		N/A
	Subclause 7.2.4.3.2 of IEC 60947-1:2007 applies. Test conditions are specified in D.8.5.2		N/A
D.7.2.8	Critical load current performance		N/A
	The main circuits of equipment shall be capable of making and breaking its critical load current according to D.8.3.8 and as verified by test sequence VI.		N/A
D.8	**Tests**		
D.8.3.1	Test sequences		N/A
	Add to existing Table 10 the following new sequences listed in new Table D.8:		N/A
D.8.3.2	General test conditions		N/A
	Subclause 8.3.2.1 applies with the following addition:		
	For all tests, the connection of poles of the PV switches, PV disconnectors, PV PEFS-ELs and PV fuse-combination units shall be as in accordance with the manufacturer installation instructions.		N/A
	Replace all references to "Table 3" by "Table D.5"		N/A
	Subclause 8.3.3.3.1, seventh paragraph is not applicable.		N/A
	Subclause 8.3.4.1.1 applies with the following modifications:		N/A

	Replace all references to existing "Table 4" and "Table 5" by "Table D.6" and "Table D.7", respectively.		N/A
	Replace 8.3.5.1.2 by the following: Subclause 8.3.4.1.2 of IEC 60947-1:2007/ AMD1:2010 applies The time constant of the test circuit shall be 1 ms		N/A
	Replace 8.3.6.2.2 by the following: Subclause D.8.3.5.1.2 applies.		N/A

	Subclause 8.3.7.1 applies with the following changes: Replace the existing first paragraph with the following: The equipment shall first be temperature-conditioned at room temperature. The test current is 1,45 × Ithe or 1,45 × Ith for a period of 1 h, or until one or more of the gPV fuse-links operate.		N/A
	Time is less than the specified period.....:		N/A
D.8.3.8	Test sequence VI: critical load current performance		N/A
	This test does not apply to PV disconnectors, PV Change-over Switchs and PV disconnector fuses.		N/A
	Test made at the rated operational voltage Ue assigned by the manufacturer to the PV switches, Change-over Switchs and PV fuse-combination units.		N/A
	Time constant of the test circuit: 1 ms		N/A
	At the discretion of the manufacturer, a higher value of time constant may be used.....:		N/A
	The PV switches, Change-over Switchs and PV fuse-combination units opened seven times:		
	- manually or mechanically.....:		—
	- on each of the test currents 4 A, 8 A, 16 A 32 A, 63A and steps of two times the previous current thereafter until a maximum arcing time is determined, without exceeding the rated operational current.....:		—
	If the arcing times are shorter within the range of test currents, there is no critical load current		N/A
	If a maximum in arcing time is shown, this is the critical load current.....:		N/A
	During each cycle, the PV switches, PV switch-disconnectors and PV fuse-combination units remain closed for a sufficient time, but not exceeding 2 s.....:		N/A
	Number of operating cycles per hour according to Table D.6.....:		—
	For DC-PV1:		

	- the supply connected in accordance with the generator and load markings.		N/A
	For DC-PV2:		
	a) the supply connected to the terminals as determined by the manufacturer for a symmetrical contact system.		N/A
	b) the first four operations with the supply connected in one direction followed by three operations in the opposite direction for a non-symmetrical contact system.		N/A
D.8.3.8.1.2	Sub-clause 8.3.4.1.2 applies.		N/A
D.8.3.8.1.3	Critical load current		N/A

	The time of the arc extinction during the test shall be recorded and shall not exceed 1 s..... :		N/A
	If no critical load current is identified below the rated operational current, the critical load performance test need not be carried out.		N/A
D.8.3.8.2	Critical load current performance		N/A
	The test maybe carried out on a new sample.		N/A
	This test sequence is identical as test sequence II, except existing Table 4 and Tabl3 5 are replaced by new Table D.9 and Table D.10, respectively.		N/A
	The test supply shall be connected in accordance with the generator – load and polarity markings, where applicable.		N/A
	For switches capable of current flow in both directions, the supply shall be connected so as to provide the longest arc duration at the critical current, as determined in D.8.3.8.1.3.		N/A
D.8.3.9	Thermal cycling test		N/A
	PV switches, Change-over Switchs and PV fuse-combination units, including the enclosure, where applicable, subjected to a temperature cycling test according to IEC 60068-2-14, test Nb:		N/A
	- 50 cycles		N/A
	- each cycle consisting of 1 h at -40 °C, followed by 1 h at +85 °C		N/A
	- the product is in closed position		N/A
	- the temperature change shall be 1 K / min		N/A
	- at the conclusion, the equipment shall be returned to 25 ±5 °C for a minimum of 3 h.....:		—
	The equipment shall then subjected to:		

	a) visual inspection to confirm that there is no distortion or damage to parts that will affect normal operation and protection		N/A
	b) one open and close operation to confirm normal mechanical operation		N/A
	c) temperature rise test of 8.3.3.6		N/A
	d) dielectric test in accordance with 8.3.3.4		N/A
	Number of samples acc. Table 11 for sequence I.		N/A
D.8.3.10	Climatic test		N/A
	PV switches, Change-over Switchs and PV fuse-combination units subjected to the climatic tests of IEC 60947-1:2007/A1:2010/ A2:2014, Annex Q, category B:		N/A
	- environment subjected to temperature and humidity..... :		N/A
	- the dry heat test and the low temperature test are not required.		N/A

	Product verification during and after the test comply with the relevant requirements of 8.3.3.6.		N/A
	Number of samples acc. Table 11 for sequence I.		N/A
	At the discretion of the manufacturer, this test may be combined with the thermal cycling test and made on the same samples.		N/A
D.8.3.11	Temperature rise verification with solar effects – Outdoor units only		N/A
	Test carried out in accordance with sub-clause 8.3.3.1 plus the following additional solar effects:		
	The most onerous solar effects on the assembly are assumed to be mid-morning or mid-afternoon when the top, back or front and one adjacent side of the unit is subjected to solar radiation.		N/A
	The maximum solar radiation reduced by approximately 10 %		N/A
	Radiant heat lamps used to simulate the effects of solar radiation on top, front or back and one adjacent side of the test sample		N/A
	Average solar radiation received by the sample perpendicular to the surface being considered is: - Top [0,9 x 1,2/√2] = 0,76 kW/m² - Front or back [0,9 x 1,2/(√2x√2)] = 0,54 kW/m² - Side [0,9 x 1,2/(√2x√2)] = 0,54 kW/m²		
	Pyranometer used to measure the simulated level of solar radiation		N/A

	Ambient temperature sensing means not affected by the radiation		N/A
	Average level of radiation on each of the exposed surface.....(kW/m²):	Top: Front/back: Side:	—
	Temperature rise not exceeds 80 K on the terminals for external connections, assuming a maximum shade ambient temperature of 40 °C		N/A
	No damage is caused to adjacent parts of insulating materials		N/A
D.8.3.12	Verification of resistance of insulating materials to abnormal heat and fire		N/A
	Insulating materials meet glow wire test requirements in accordance with 8.2.1.1.1 of IEC 60947-1:2007		N/A
D.8.3.13	Degree of protection – Enclosed equipment		N/A
	Ingress protection (IP) tests are carried out on enclosed equipment in accordance with Annex C of IEC 60947-1:2007/AMD1:2010.....:		N/A
D.8.3.14	Clearance and creepage distances		N/A

	Clearance and creepage distances shall be measured to confirm compliance with D.7.1.4 (see Annex G of IEC 60947-1:2007 for guidance on measurement of clearance and creepage distances)		N/A
D.8.4	Electromagnetic compatibility tests		N/A
	Electromagnetic compatibility shall be verified in accordance with 8.4.		N/A
	Immunity		N/A
	Performed tests.....:		N/A
	Emission		N/A
	Performed tests.....:		N/A
	Electrical durability		N/A
	The electrical durability test (see D.7.2.4.4 and 8.1.5), where required, is made in accordance with the appropriate requirements of 8.3.4.1 as modified by D.8.3.4.1.1, except that for equipment suitable for isolation, the maximum value of leakage current shall not exceed 2 mA per pole for utilization categories DC-PV1 and DC-PV2.		N/A
	Total number of operating cycles, declared by the manufacturer.....:		N/A

8.3.3.1	**TABLE: Temperature-rise (measurements)**	P
Temperature rise dT of part:	dT (K) measured	dT (K) required
Terminals	55.2	⩽70
Manual operating means: metallic / non-metallic	14.7	⩽25
Parts intended to be touched but not hand-held: metallic / non-metallic	35.3	⩽40
Parts which need not be touched during normal operation	33.4	⩽50
supplementary information:		

8.3.3.6	**TABLE: Temperature-rise (measurements)**	P
Temperature rise dT of part:	dT (K) measured	dT (K) required
Terminals	57.8	⩽80
Manual operating means: metallic / non-metallic	15.1	⩽35
Parts intended to be touched but not hand-held: metallic / non-metallic	36.5	⩽50
Parts which need not be touched during normal operation	34.8	⩽60
supplementary information:		

8.3.4.4	**TABLE: Temperature-rise (measurements)**	P
Temperature rise dT of part:	dT (K) measured	dT (K) required
Terminals	59.5	⩽80
Manual operating means: metallic / non-metallic	16.8	⩽35
Parts intended to be touched but not hand-held: metallic / non-metallic	37.4	⩽50
Parts which need not be touched during normal operation	35.5	⩽60
supplementary information:		

8.3.5.5	**TABLE: Temperature-rise (measurements)**	P
Temperature rise dT of part:	dT (K) measured	dT (K) required
Terminals	58.2	⩽80
Manual operating means: metallic / non-metallic	15.3	⩽35
Parts intended to be touched but not hand-held: metallic / non-metallic	37.0	⩽50
Parts which need not be touched during normal operation	34.1	⩽60
supplementary information:		

8.3.6.5	**TABLE: Temperature-rise (measurements)**	N/A
Temperature rise dT of part:	dT (K) measured	dT (K) required
Terminals		
Manual operating means: metallic / non-metallic		
Parts intended to be touched but not hand-held: metallic / non-metallic		
Parts which need not be touched during normal operation		
supplementary information:		

8.3.7.4	**TABLE: Temperature-rise (measurements)**	N/A
Temperature rise dT of part:	dT (K) measured	dT (K) required
Terminals		
Manual operating means: metallic / non-metallic		
Parts intended to be touched but not hand-held: metallic / non-metallic		
Parts which need not be touched during normal operation		
supplementary information:		

8.3.3.1	**TABLE: Temperature-rise (measurements)**	P
Temperature rise dT of part:	dT (K) measured	dT (K) required
Terminals	55.9	≤70
Manual operating means: metallic / non-metallic	14.9	≤25
Parts intended to be touched but not hand-held: metallic / non-metallic	35.6	≤40
Parts which need not be touched during normal operation	33.8	≤50
supplementary information:		

8.3.3.6	**TABLE: Temperature-rise (measurements)**	N/A
Temperature rise dT of part:	dT (K) measured	dT (K) required
Terminals	58.2	≤80
Manual operating means: metallic / non-metallic	15.6	≤35
Parts intended to be touched but not hand-held: metallic / non-metallic	36.9	≤50
Parts which need not be touched during normal operation	35.1	≤60
supplementary information:		

8.3.4.4	**TABLE: Temperature-rise (measurements)**	P
Temperature rise dT of part:	dT (K) measured	dT (K) required
Terminals	62.1	⩽80
Manual operating means: metallic / non-metallic	16.9	⩽35
Parts intended to be touched but not hand-held: metallic / non-metallic	38.2	⩽50
Parts which need not be touched during normal operation	35.7	⩽60
supplementary information:		

8.3.5.5	**TABLE: Temperature-rise (measurements)**	P
Temperature rise dT of part:	dT (K) measured	dT (K) required
Terminals	58.8	⩽80
Manual operating means: metallic / non-metallic	15.6	⩽35
Parts intended to be touched but not hand-held: metallic / non-metallic	37.5	⩽50
Parts which need not be touched during normal operation	34.7	⩽60
supplementary information:		

8.3.6.5	**TABLE: Temperature-rise (measurements)**	N/A
Temperature rise dT of part:	dT (K) measured	dT (K) required
Terminals		
Manual operating means: metallic / non-metallic		
Parts intended to be touched but not hand-held: metallic / non-metallic		
Parts which need not be touched during normal operation		
supplementary information:		

8.3.7.4	**TABLE: Temperature-rise (measurements)**	N/A

Temperature rise dT of part:	dT (K) measured	dT (K) required
Terminals		
Manual operating means: metallic / non-metallic		
Parts intended to be touched but not hand-held: metallic / non-metallic		
Parts which need not be touched during normal operation		
supplementary information:		

Remarks:

	ANNEX 1: components					
object/part No.	code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity

No.	mark of conformity	No.	mark of conformity	No.	mark of conformity	No.	mark of conformity
1		2	VDE	3	SEV	4	ÖVE
5	DEMKO	6	SEMKO	7	NEMKO	8	FIMKO
9	BSI	10	UL	11	CSA	12	LCIE
13	IMQ	14	BNL	15	CEBEC	16	KEMA

The codes above have the following meaning:

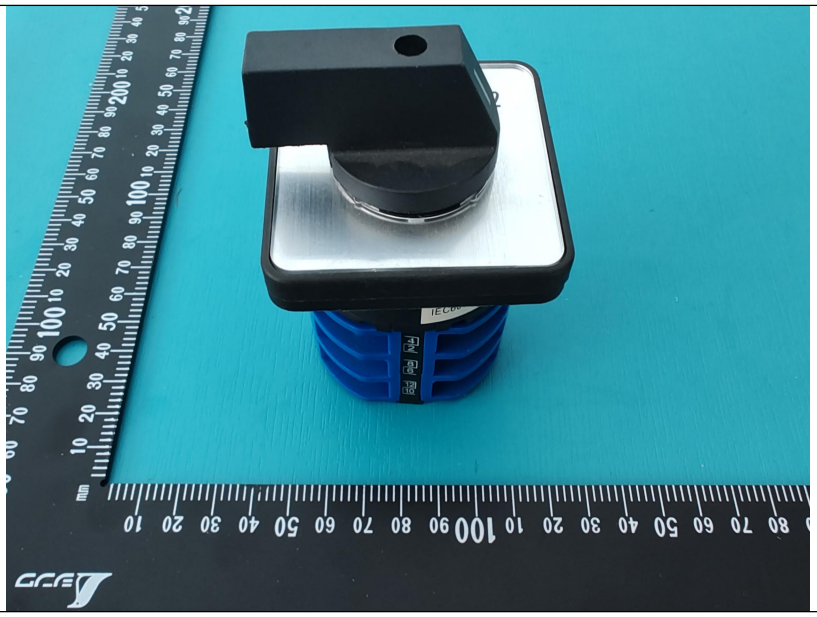
A – The component is replaceable with another one, also certified, with equivalent characteristics B – The component is replaceable if authorised by the test house

C – Integrated component tested together with the appliance

D – Alternative component

Photo documentation:

Type of equipment: Model:	Change-over Switch, LW28-10, LW28-16, LW28-20, LW28-25, LW28-32, LW28-40, LW28-63, LW28-80, LW28-100, LW28-125, LW28-160

Details of:	
View: [X] general [ ] front [ ] rear [ ] right [ ] left [ ] top [ ] bottom	

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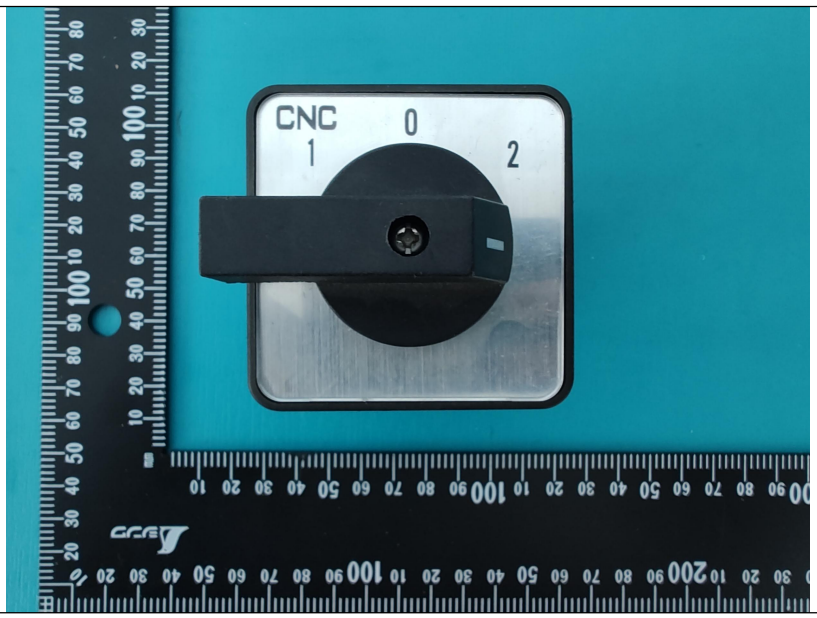
View: [X] general [ ] front [ ] rear [ ] right [ ] left [ ] top [ ] bottom	

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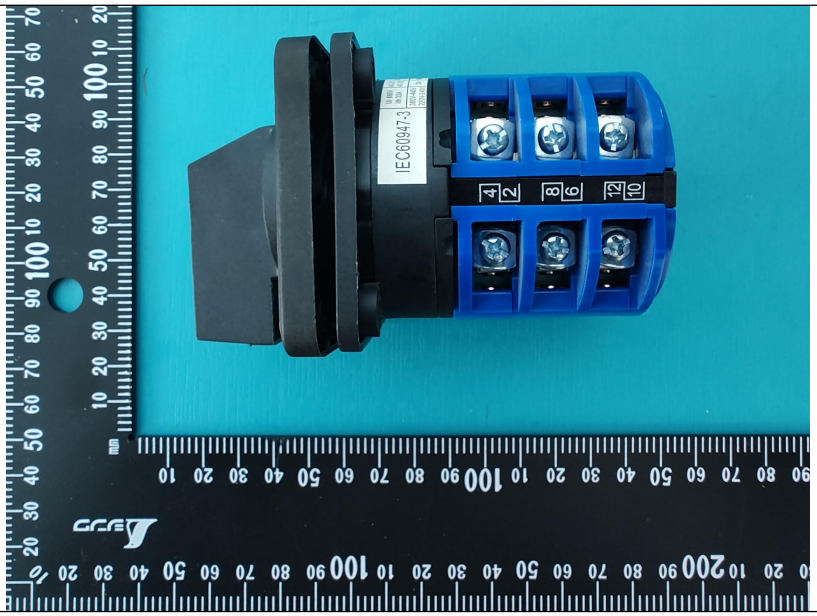
View: [X] general [ ] front [ ] rear [ ] right [ ] left [ ] top [ ] bottom	

-End of Report -