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CE Technical Documents

Product Name: Socket

Applied Directive : Low Voltage Directive 2014/35/EU

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Manufacturer	WENZHOU MVAVA ELECTIRCAL TECHNOLOGY CO., LTD.	
Address	No. 529 Binhai Road, Economic and Technological Development Area, Wenzhou, Zhejiang, China	
Test Item Description		
Product Name :	Socket	
Standard :	IEC 60884-1:2022, EN 60669-1:2018	
Model/Type Reference :	See Annex	
Ratings:	IP20	
Test Case Verdicts		
Test case does not apply to the test object :	N(.A .)	
Test item does meet the requirement :	P(ass)	
Test item does not meet the requirement :	F(ail)	
General Remarks		
◆ This report shall not be reproduced except in full without the written approval of the testing laboratory. ◆ The test results presented in this report relate only to the item tested. ◆ Clause numbers between brackets refer to clauses in IEC 60884-1:2022, EN 60669-1:2018. ◆ "(see remark #)"refers to a remark appended to the report. ◆ "(see Annex #)"refers to an annex appended to the report. ◆ Throughout this report a point is used as the decimal separator.		

Copy of Marking Plate

Product Name :Socket



Model : FK86S11W

WENZHOU MVAVA ELECTIRCAL TECHNOLOGY CO., LTD.

No. 529 Binhai Road, Economic and Technological Development Area,
Wenzhou, Zhejiang, China

IEC 60884-1:2022
Plugs and socket-outlets for household and similar purposes -
Part 1: General requirements

8	Marking		-
8.1	accessories shall be marked as follows	(see below)	P
	Rated current in amperes (A)		P
	Rated voltage in volts (V)	AC 250V	P
	Symbol for nature of supply	~	P
	Manufacturer's or responsible vendor's name, trade mark or identification mark	WENZHOU MVAVA ELECTRICAL TECHNOLOGY CO., LTD.	P
	Type reference which may be a catalogue number	Pass muster	P
	The degree of protection against access to hazardous parts and against harmful effects due to ingress of solid foreign objects		N
	Socket-outlets with screwless terminals (see below)		-
	An appropriate marking indicating the length of insulation to be removed before the insertion of the conductor into the screwless terminal	Not applicable	N
	An indication of the suitability to accept rigid conductors only, for those socket-outlets having this restriction		N
8.2	Prescript symbols		-
	The marking for the nature of supply shall be placed next to the marking for rated current and rated voltage		P
8.3	For fixed socket-outlets		-
	Rated current, rated voltage and nature of supply		N
	Either the name, trade mark or identification mark of the manufacturer or of the responsible vendor	Not applicable	N
	Length of insulation to be removed before the insertion of the conductor into the screwless terminal		N
	The type reference, which may be a catalogue member		N
	Parts such as cover plated, which are necessary for safety purposes and are intended to be sold separately, shall be marked with the manufacture's or responsible vendor's name		N
	The IP code, if applicable, shall be marked so as to be easily discernible when the socket-outlet is mounted and wired as for normal use	IP20	N
8.4	The marking of the plugs and portable		

	socket-outlets shall be easily discernible	clearly discernible	P
	Plugs and portable socket-outlets for equipment of class II shall not be marked with the symbol for class II construction	Pass muster	P
8.5	Neutral conductor terminals marked by "N"		-
	Earthing terminals marked by "N"		N
	These markings shall not be placed on screws, or any other easily removable parts	Not applicable	N
	Terminals provided for the connection of conductors not forming part of the main function of the socket-outlets		N
	Clearly identified unless their purpose is self-evident		N
	Indicated in a wiring diagram		N
	The indication of such terminals (see below)		N
	Their being marked with graphical symbols		N
	Their being marked with physical dimensions or relative location		N
8.6	For surface-type mounting boxes forming an integral part of socket-outlets having an IP code higher than IP20, the IP code shall be marked on the outside of its associated enclosure so as to be easily discernible	Pass muster	P
8.7	The degree of protection of flush-type and semi-flush-type fixed socket-outlets having an IPX0 is ensured	No such appliances	N
	It shall be indicated either by marking or in a manufacturer's catalogue or instruction sheet in which special provisions		N
8.8	Marking easily legible and durable, and marking withstands rubbing-test with water and petroleum spirit (2 x 15 s)	clearly discernible	P
9	-		
9.1	Accessories and surface-type mounting boxes shall comply with the appropriate standard sheets		P
	Insertion of plugs into fixed or portable socket-outlets shall be ensured by their compliance with the relevant standard sheets		P
	The manufacturing tolerances of these gauges shall be as shown in table 2 if not otherwise specified		P
9.2	It shall not be possible, within a given system, to engage a plug with (see below)		-
	A socket-outlet having a higher voltage rating or a lower current rating	Pass muster	P
	A socket-outlet with a different number of live poles		P

	A socket-outlet with earthing contact ,if the plug for class 0 equipment		N
	The impossibility of insertion is checked by applying the appropriate gauge for 1min		P
	150N (rating current $\leq 16A$)		P
	250N (rating current $> 16A$)		N
	Elastomeric of insertion shall be checked ,it is carried out at an ambient temperature of $(35 \pm 2)^{\circ}C$		P
9.3	Accessories with such deviations shall, comply with all other requirements of this standard as far as they reasonably apply		P
10	Protection against electric shock		-
10.1	Socket-outlets shall be so designed and constructed that when they are mounted and wired as for normal use, live parts are not accessible	Pass muster	P
	Live parts of plugs shall not be accessible		P
	The standard test finger, test probe B of IEC61032	Pass muster	P
	For accessories where the use of thermoplastic or elastomeric material is likely to influence the requirements, one additional test is made but at an ambient temperature of $(35 \pm 2)^{\circ}C$, during this additional test the accessories are subjected for 1 min to a force of 75N		P
	During this test, accessories ,with their associated mounting means, shall not deform ,no live parts shall be accessible		P
	Each specimen of plug or portable socket-outlet is then pressed between two flat surfaces with the exception of 150 N for 5 min	Not applicable	N
10.2	Parts which are accessible when the accessory is wired and mounted as for normal use, shall be made insulating material		P
	The covers or cover-plates of fixed socket-outlets and accessible parts of plugs and portable socket-outlets may be made of metal if the requirements given in 10.2.1 or 10.2.2 are fulfilled		N
10.2.1	Metal covers or cover-plates are protected by supplementary insulation made by insulating linings or insulating barriers	Not applicable	N
	The insulating linings or insulating barriers cannot be removed without being permanently damaged		N
	The insulating linings or insulating barriers cannot be replaced in an incorrect position	Not applicable	N
	There is no risk of accidental contact between live		

	parts and metal covers or cover-plates		N
10.2.2	Metal covers or cover-plates are automatically connected ,through a low resistance connection		N
10.3	It shall not be possible to made contact between a pin of plug and a live socket-contact of a socket-outlet while any other pin is accessible		P
	Test by means of gauges		P
	For accessories with enclosures or bodies of thermoplastic material ,the test is made at an ambient temperature of $(35 \pm 2)^{\circ}\text{C}$	Pass muster	P
	For socket-outlets with enclosures or bodies of rubber or polyvinyl chloride, the gauge is applied with force of 75 N for 1 min	Pass muster	P
	For fixed socket-outlets provided with metal cover-plates ,a clearance ,between a pin and a socket-contact, of at least 2 mm is required		N
10.4	External parts of plugs shall be of insulating material		-
10.5	Shuttered socket-outlets shall be so constructed that live parts are not accessible without a plug in engagement ,the gauges shall be applied to the entry holes corresponding to the live contacts only and shall not touch live parts	Not applicable	N
	Socket-outlets shall be so constructed that live contacts are automatically screened when the plug is withdrawn		N
	The means for achieving this shall be such that they cannot easily be operated by anything other than a plug and shall not depend upon parts which are liable to be lost		N
	A steel gauge is then applied with a force of 1 N and in three directions		N
	For socket-outlets with enclosures or bodies of thermoplastic material ,the test is made at an ambient temperature of $(35 \pm 2)^{\circ}\text{C}$		N
10.6	Earthing contacts, of a socket-outlet shall be so designed that they cannot be deformed by the insertion of a plug ,to such an extent that safety is impaired		N
	A test plug ,corresponding to the type of socket-outlet, is inserted into the socket-outlet with a force of 150 N which is applied for 1 min		N
10.7	Socket-outlets with increased protection shall be so constructed ,live parts shall not be accessible		N
	Compliance is checked by inspection and by applying with a test wire of 1,0 mm diameter a force of 1 N on all accessible surfaces in the most		

	unfavourable conditions without a plug inserted		N
	For socket-outlets with enclosures or bodies of thermoplastic material ,the test is made at an ambient temperature of $(35 \pm 2)^{\circ}\text{C}$		N
11	Provision of earthing		-
11.1	Accessible with earthing contacts shall be so constructed that when inserting the plug the earth connection id made before the current-carrying contacts of the plug become live		N
	When withdrawing the plug, the current-carrying pins shall separate before earth connection is broken		N
11.2	Earthing terminals of rewirable accessories shall comply with the appropriate requirements of clause 12		N
	They shall be the same size as the corresponding terminals for the supply conductors		N
	Fixed socket-outlets can have an additional external earthing terminal, the earthing terminal shall be of a size suitable for conductors of at least 6 mm ²		N
	Earthing terminals of rewirable accessories with earthing contact shall be internal		N
	Earthing terminals of fixed socket-outlets shall be fixed to the base or to a part reliably fixed to the base		N
	Earthing contacts of fixed socket-outlets shall be fixed to the base or the cover		N
	Except as mentioned above, parts of the earthing circuit shall be in one piece or shall be reliably connected together by riveting, welding, or the like		N
11.3	Accessible metal parts of fixed socket-outlets with earthing contact, which may become live in the event of an insulation fault, shall be permanently and connected to the earthing terminal		N
11.4	Adequate space for a floating terminal allowing the connection of an incoming and an outgoing conductor for the continuity of the earthing circuit		N
	The earthing terminal of the socket-outlet itself is so designed that if allows the connection of an incoming and an outgoing earthing conductor		N
11.5	The connection between the earthing terminal and metal parts to be connected thereto, shall be of low resistance		N
	Equal to 1,5 times the rated current or 25A (A)		N
	Resistance no exceed 0,05		N

12	Terminals and terminations	-
	All the test on terminals, with the exception of the test of 12.3.11 and 12.3.12 shall be made after the tests of the clause 16	P
12.1.	Common request	-
12.1.1	Rewirable fixed socket-outlets shall be provided with screw-type terminals or with screwless terminals	N
	Rewirable plugs and rewirable portable socket-outlets shall be provided with terminals with screw clamping	N
	In screw-type terminals ,the pre-soldered area shall be outside the clamp area when connected ad for normal use	N
12.1.2	Non-rewirable accessories shall be provided with soldered,welded,crimped	P
	Screwed or snap-on connections shall not be used	P
	Connections made by crimping a pre-soldered flexible conductor are not permitted	P
12.1.3	Compliance is checked by inspection and by the texts of 12.2 or 12.3 as applicable	P
12.2	Terminals with screw clamping for external copper conductors	N
12.2.1	Accessories shall be provided with terminals which shall allow the proper connection of copper conductors having nominal cross-sectional areas as shown in table 3	N
	Current and type of accessory (A)	-
	Type of conductor	-
	Least/largest cross-sectional area(mm2)	-
	diameter of the largest conductor (mm2)	-
	Symbol of terminal	-
	The conductor space shall be at least that specified in figures 2,3,4 or 5 . the rated of value, the practice of value	N
12.2.2	Terminals with screw clamping shall allow the conductor to be connected without special preparation	N
12.2.3	Terminals with screw clamping shall have adequate mechanical strength	N
	Screws and nuts for clamping the conductors shall have a metric ISO thread	N
	Screws shall not be of metal which is soft or liable to creep,such as zinc or aluminium	N

12.2.4	Terminals with screws clamping shall be resistant to corrosion		N
12.2.5	Terminals with screw clamping shall be so designed and constructed that they clamp the conductor without undue damage to the conductor		N
	Compliance is checked by the following test		N
	Type of conductor		N
	Least cross-sectional area(mm ²) ,diameter of bushing hole(mm), height(mm), pull (kg)		-
	argest cross-sectional area(mm ²), diameter of bushing hole(mm), height(mm),pull(kg)		-
	Nominal diameter of thread (mm),torque (Nm)		-
	During the test, the conductor shall neither slip out of the clamping unit nor break near the clamping unit ,nor shall the conductor the damaged in such a way as to tender it unfit for further use		N
12.2.6	Terminals with screw clamping shall be so designed that they clamp the conductor reliably between metal surfaces		N
	Least cross-sectional area(mm ²),pull(N) ,1min		-
	Largest cross-sectional area(mm ²),pull(N) ,1min		-
	Torque (Nm)		-
	During the test, the conductor shall not move noticeably in the terminal		-
12.2.7	Terminals with screw clamping shall be so designed or placed that neither a rigid solid conductor nor a wire of a standed conductor can slip out while the clamping screws or nuts are tightened		N
	Largest cross-sectional area(mm ²)		-
	Number of wires (n) and nominal diameter of conductors		-
	Rigid solid conductor (mm)		-
	Rigid stranded conductor (mm)		-
	Terminals intended for the looping-in of two or three conductors are checked,being fitted with the permissible number of conductors		-
	Torque (Nm)		-
	After the test,no wire of the conductors shall have eacaped from the clamping		N
12.2.8	Terminals with screw clamping shall be so fixed or located within the accessory that,when the clamping screws or nuts are tightened or loosened,the terminals shall not work loose from their fixing to accessories		N

	Largest cross-sectional area (mm ²)		-
	Torque (Nm)		-
	During the test, terminals shall not work loose and there shall be no damage		N
12.2.9	Clamping screws or nuts of earthing terminals with screw clamping shall be adequately locked against accidental loosening and it shall not be possible to loosen them without the aid of a tool		N
12.2.10	Earthing terminals with screw clamping shall be such that there is no risk of corrosion resulting from contact between these parts and the copper of the earthing conductor		N
	The body of the earthing terminal shall be of brass		N
	The body of the earthing terminal shall be of other metal not resistant to corrosion, unless it is a part of the metal frame or enclosure, when the screw or nut shall be of brass or other metal not less resistant to corrosion		N
12.2.11	Pillar terminals: the distance between the clamping screw and the end of the conductor, the rated value (mm), the practice value (mm)		N
	Mantle terminals: the distance between the fixed part and the end of the conductor, the rated value (mm), the practice value (mm)		N
12.3	Screwless terminals for external copper conductors		N
12.3.1	The type suitable for screwless terminals		N
	Rigid copper conductors		N
	The type suitable for both rigid and flexible copper conductors		N
12.3.2	Screwless terminals shall be provided with two clamping units each allowing the proper connection of rigid or of rigid and flexible copper conductors having nominal cross-sectional area as shown in table 7		N
12.3.3	Screwless terminals shall allow the conductor to be connected without special preparation		N
12.3.4	Parts of screwless terminals mainly intended to carry current shall be of materials as specified in 26.5		N
12.3.5	Screwless terminals shall be so designed that they clamp the specified conductors with sufficient contact pressure and without undue damage to the conductor		N
	The conductor shall be clamped between metal surface		N
12.3.6	It shall be clear how the connection and		

	disconnection of the conductors is to be made		N
	The intended disconnection of a conductor shall require an operation, other than a pull on the conductor, so that it can be made manually with or without the help of a general purpose tool		N
	It shall not be possible to confuse the opening intended for the use of a tool to assist the connection or disconnection with the opening intended for the conductor		N
12.3.7	Screwless terminals which are intended to be used for the interconnection of two or more conductors		N
	During the insertion, the operation of the clamping means of one of the conductors is independent of the operation of that of the other conductor		N
	During the insertion, the conductors can be disconnected either at the same or separately		N
	Each conductor shall be introduced in a separate clamping unit		N
	It shall be possible to clamp securely any number of conductors up to the maximum as designed		N
12.3.8	Screwless terminals of fixed socket-outlets shall be designed so that adequate insertion of the conductor is obvious and over-insertion is prevented		N
12.3.9	Screwless terminals shall be properly fixed to the socket-outlet		N
	They shall not work loose when the conductors are connected or disconnected during installation		N
	Self-hardening resins may be used to fix terminals which are not subject to mechanical stress in normal use		N
12.3.10	Screwless terminals shall withstand the mechanical stresses occurring in normal use		N
	Test:		-
	Connected and disconnected five times: the largest nominal cross-sectional area of copper conductors (mm ²)		N
	Connected and disconnected five times: the smallest nominal cross-sectional area of copper conductors (mm ²)		N
	Connected and disconnected one time: the largest nominal cross-sectional area of rigid copper conductors (mm ²)		N
	Connected and disconnected one time: the smallest nominal cross-sectional area of rigid copper conductors (mm ²)		N

	After each connection,the conductor is subjected to a pull of the value shown in tabel 8 (30N) ,1min						N
	Screwless terminals intended for both rigid and flexible conductors shall also be tested with flexible conductors						N
	Connected and disconnected five times: the largest nominal cross-sectional area of flexible conductors (mm2)						N
	Connected and disconnected five times: the smallest nominal cross-sectional area of flexible conductors (mm2)						N
	For fixed socket-outlets with screwless,each conductor is subjected is for 15 min to a circular motion with $(10 \pm 2)r/min$ using an apparatus						N
	Least cross-sectional area(mm2) ,diameter of bushing hole(mm), height(mm), pull (kg)						-
	largest cross-sectional area(mm2) ,diameter of bushing hole(mm), height(mm), pull (kg)						-
	Duing the test,the conductors shall not move noticeably in the clamping unit						N
	After these test,neither the terminals nor the clamping means shall have worked loose and the conductors shall show no deterioration impairing their further use						N
12.3.11	Screwless terminals shall withstand the electrical and thermal stresses occurring in normal use						N
	a) loaing the screwless terminals for 1 h						N
	Test current (A)						-
	Cross-sectional area (mm2)						-
	Number of screwless terminals	1	2	3	4	5	-
	The voltage drop(mV) ($\leq 15mV$)						N
	b),after test a) are tested ,the screwless is subjected to temperature cycles						-
	Test current (A)						-
	Cross-sectional area (mm2)						-
	Number of screwless terminals	1	2	3	4	5	N
	The voltage drop ater 24 temperature cycles (mV)						N
	The voltage drop ater 48 temperature cycles (mV)						N
	The voltage drop ater 72 temperature cycles (mV)						N
	The voltage drop ater 96 temperature cycles (mV)						N
	The voltage drop ater 120 temperature cycles (mV)						N
	The voltage drop ater 144 temperature cycles (mV)						N
	The voltage drop ater 168 temperature cycles (mV)						N
	The voltage drop ater 192 temperature cycles (mV)						N
	In no case shall the vottage drop exceed 22,5 mV or twice the value measured after the 24th cycle ,whichecker is the smaller						N

	After this test an inspection by normal or corrected vision without additional magnification shall show no change evidently impairing further use such as cracks, deformations or the like		N
	The mechanical strength test according to 12.3.10 is repeated and all specimens shall withstand this test		N
	Connected and disconnected five times: the largest nominal cross-sectional area of copper conductors (mm ²)		N
	Connected and disconnected five times: the smallest nominal cross-sectional area of copper conductors (mm ²)		N
	Connected and disconnected one times: the largest nominal cross-sectional area of rigid copper conductors (mm ²)		N
	Connected and disconnected one times: the smallest nominal cross-sectional area of rigid copper conductors (mm ²)		N
	After each connection, the conductor is subjected to a pull of the value shown in tabel 8 (30N) , 1min		N
	Screwless terminals intended for both rigid and flexible conductors shall also be tested with flexible conductors		N
	Connected and disconnected five times: the largest nominal cross-sectional area of flexible conductors (mm ²)		N
	Connected and disconnected five times: the smallest nominal cross-sectional area of flexible conductors (mm ²)		N
	After each connection, the conductor is subjected to a pull of the value shown in tabel 8 (30N) , 1min		N
	For fixed socket-outlets with screwless, each conductor is subjected is for 15 min to a circular motion with $(10 \pm 2)r/min$ using an apparatus		N
	largest cross-sectional area(mm ²) , diameter of bushing hole(mm), height(mm), pull (kg)		-
	During the test, the conductors shall not move noticeably in the clamping unit		N
12.3.12	Screwless terminals shall be so designed that the connected rigid solid conductor remains clamped, even when it has been deflected during normal installation		N
	Deflection test forces		N
	Test current (A)		-
	Cross-sectional area (mm ²)		-

	Pull (N)				-
	Number of screwless terminals	1	2	3	-
	the starting point (X=the original point)	X	X+10°	X+20°	N
	The voltage drop (mV) (1)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	$\leq 25\text{mV}$				N
	The largest cross-sectional area (mm)				-
	Pull				-
	Number of screwless terminals	1	2	3	-
	the starting point (X=the original point)	X	X+10°	X+20°	N
	The voltage drop (mV) (1)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	The voltage drop (mV)				N
	$\leq 25\text{mV}$				N
13	Construction of fixed socket-outlets				-
13.1	Socket-contact assemblies shall have sufficient resilience to ensure adequate contact pressure				N
13.2	Socket-contacts and pins of socket-outlets shall be resistant to corrosion and abrasion				N
13.3	Insulating linings, barriers and the like shall have adequate mechanical strength				N
13.4	Socket-outlets shall be so constructed as to permit:				-
	Easy fixing of the base to a wall or in a mounting				N

	box		
	Correct positioning of the conductors		N
	For surface type socket-outlets,adequate space between the underside of the base and surface		N
	For installation of the socket-outlets ,adequate space between the sided of the base and the enclosure		N
	Socket-outlets classified as design A shall permit easy positioning and removal of the cover or cover-plate,without displacing the conductors		N
13.5	Socket-outlets shall be so designed that full engagement of associated plugs is not prevented by any projecton from their engagement face		N
	Socket-outlet and plug does not exceed 1mm when the plug is inserted into the socket-outlet as far as it will go		N
13.6	If covers are provided with bushings for entry holes for the pins,it shall not be possible to remove them from the outside or for them to become detached inadvertently from the inside when the cover is removed		N
13.7	Covers,cover-plates of them which are intended to ensure protection against electric shock		N
	Where the fixings of covers or cover-plates of socket-outlets of design A serve to fix the base, there shall be means to maintain the base in postion,even after removal of the covers or cover-plates		N
13.7.1	For covers or cover-plates whose fixings are of the screw-type		N
13.7.2	For covers or cover-plates whose fixing is not dependent on screws and whose removal is obtained by applying a force in a direction approximately perpendicular to the mounting/supporting surface		N
	When their removal may give access,with the standard test finger,to live parts,by the tests of 24.14		N
	When their removal may give access ,with standard test finger,to non-earthed metal parts separated from live parts in such a way that creepage distances and clearances have the values shown in table 23,by the tests of 24.15		N
	Earthed metal parts		N
	Metal parts separated from live parts in such a way that creepage distances and clearances have twice the values shown in table 23		N
	Live parts of SELV circuits not greater than 25V		N

	By the tests of 24.16		N
13.7.3	For covers or cover-plates the fixing of which is not dependent on screws and whose removal is obtained by using a tool		N
	When their removal may give access, with the standard test finger, to live parts, by the tests of 24.14		N
	When their removal may give access, with standard test finger, to non-earthed metal parts separated from live parts in such a way that creepage distances and clearances have the values shown in table 23, by the tests of 24.15		N
	When their removal may give access, with standard test finger, only to		N
	Parts of insulating material		N
	Earthed metal parts		N
	Metal parts separated from live parts in such a way that creepage distances and clearances have twice the values shown in table 23		N
	Live parts of SELV circuits not greater than 25V		N
	By the tests of 24.16		N
13.8	A cover-plate intended for a socket-outlet with earthing contact shall not be interchangeable with a cover-plate intended for a socket-outlet without earthing contact		N
13.9	Surface-type socket-outlets shall be so constructed, there are no free openings in their enclosures other than the entry opening for the pins of the plug or other opening for contacts		N
13.10	Screws or other means for mounting the socket-outlet on a surface in a box or enclosure shall be easily accessible from the front		N
	These means shall not serve any other fixing purpose		N
13.11	Multiple socket-outlets with a common base shall be provided with fixed links for the interconnection of the interconnection of the contacts in parallel		N
	The fixing of these links shall be independent from the connection of the supply wires		N
13.12	Multiple socket-outlets, comprising separate bases, shall be so designed that the correct position of each base is ensured		N
	The fixing of each base shall be independent of the fixing of the combination to the mounting surface		N
13.13	The mounting plate of surface-type socket-outlets shall have adequate mechanical strength		N
13.14	Socket-outlets shall withstand the lateral strain imposed by equipment likely to be introduced into		N

	them		
	For socket-outlets having rating up to and including 16 A and 250 V, compliance is checked by means of the device shown in figure 13, hung on it such that the force exerted 5N 1 min, the test is made four times, the socket-outlet being turned through 90° after each engagement		N
	After the tests, the socket-outlets shall show no damage within the meaning of this standard		N
	After the tests, they shall comply with the requirements of clause 22		N
13.15	Socket-outlets shall not be an integral part of lampholders		N
13.16	Surface-type socket-outlets having an IP code higher than IP20 shall be according to their IP classification when fitted with conduits or with sheathed cables as for normal use and without a plug in engagement		N
	If a socket-outlet has a drain hole, it shall be not less than 5 mm in diameter, or 20 mm ² in area with a width and a length of not less than 3 mm		N
	The drain hole shall be effective in that position		N
13.17	Earthing pins shall have adequate mechanical strength		N
13.18	Earthing contacts and neutral contacts shall be locked against rotation and removable only with the aid of a tool, after dismantling the socket-outlet		N
13.19	Metal strip of the earthing circuit shall have no burrs which might damage the insulation of the supply conductors		N
13.20	Socket-outlets to be installed in a box shall be so designed that the conductor ends can be prepared after the box is mounted in position, but before the socket-outlet is fitted in the box		N
13.21	Inlet opening shall allow the introduction of the conduit or the sheath of the cable so as to afford complete mechanical protection		N
	Surface-type socket-outlets:		N
	The conduit or sheath of the cable can enter at least 1 mm into the enclosure		N
	If there are more than one, shall be capable of accepting conduit sizes of 16, 20, 25 or 32 according to IEC 60423 or combination of at least two of any of these sizes		N
	In surface-type socket-outlets, the inlet opening for cable entries will preferably be capable of accepting		

	cables having the dimensions specified in table 14 or be as specified by the manufacturer: rated current (A), limits of external dimensions of cables (mm)		N
13.22	Membranes (grommets) in inlet opening shall be reliably fixed and shall not be displaced by the mechanical and thermal stresses occurring in normal use		N
	First the accessories are fitted with membranes which have been subjected to the treatment specified 16.1		N
	The accessories are then placed for 2 h in a heating cabinet as described in 16.1, the temperature being maintained at $(40 \pm 2)^\circ\text{C}$, an axial pull of 30N is applied for 5 s, during this test, the membranes shall not deform to such an extent that live parts become accessible		N
	an axial pull of 30N is applied for 5 s, during this test, the membranes shall not become detached		N
	The membranes shall show no harmful deformation, cracks or similar damage which would lead to non-compliance with this standard		N
	The test is then repeated with membranes which have not been subjected to any treatment		N
13.23	It is recommended that membranes in inlet openings be so designed and made of such material that the introduction of the cables into the accessory is permitted when the ambient temperature is low		N
	The accessories are fitted with membranes which have not been subjected to ageing treatment, those without openings being suitably pierced		N
	The accessories are then kept for 2 h in a freezer at a temperature of $(-15 \pm 2)^\circ\text{C}$, without undue force, cables of the largest diameter through the membranes		N
	After the test, the membranes shall show no harmful deformation, cracks or similar damage which would lead to non-compliance with this standard		N
14	Construction of plugs and portable socket-outlets		-
14.1	Non-rewirable portable accessories shall be such that:		P
	The flexible cable cannot be separated from the accessory without making it permanently useless		P
	The accessory cannot be opened by hand or by using a general purpose tool		P
14.2	Pins of portable accessories shall have adequate		

	mechanical strength		P
14.3	Pins of plugs shall be :		P
	Locked against rotation		P
	Not removable without dismantling the plug		P
	Adequately fixed in the body of the plug when the plug is wired and assembled as for normal use		P
	It shall not be possible to arrange the earthing or neutral pins or contacts plugs in an incorrect position		P
144	Earthing contacts and neutral contacts of portable socket-outlets shall be :		N
	Locked		N
	Removable only the aid of a tool ,after dismantling the socket-outlet		N
14.5	Socket-contact assemblies shall have sufficient resilience to ensure adequate contact pressure		P
14.6	Pins and socket-contacts shall be resistant to corrosion and abrasion		P
14.7	The enclosures of rewirable portable accessories shall completely enclose the terminals and the ends of flexible cable		N
	The enclosures of rewirable portable accessories:		N
	The construction shall be such that the conductors can be properly connected		N
	Pressing the cores together causes damage to the conductor		N
	A core,the conductor of which is connected to a live terminal is not necessarily pressed against accessible metal parts		N
	A core ,the conductor of which is connected to an earthing terminal is not necessarily pressed against live parts		N
14.8	Rewirable portable accessories shall be designed in such a way that terminal screws or nuts cannot become loose and fall out of position in such a way that they establish an electrical connection between live parts and the earthing terminal or metal parts connected to the earthing terminal		N
14.9	Rewirable portable accessories with earthing contact shall be designed with ample space for slack in the earthing conductors		N
	The current-carrying conductors will be stressed before the earthing conductor,if the flexible cable slips in its anchorage		N
14.10	Terminals of rewirable portable accessories and terminations of non-rewirable portable accessories shall be located or shield		N

	The free wire of a conductor connected to a live terminal shall not touch any accessible metal part or be able to emerge from the enclosure when the accessory has been assembled		N
	The free wire of conductor connected to an earthing terminal shall not touch a live part		N
14.11	For rewirable portable accessories:		N
	It shall be clear how the relief from strain and prevention of twisting is intended to be effected		N
	The cord anchorage ,or at least part of it ,shall be integral with or fixed to one of the component parts of the plug or portable socket-outlet		N
	Makeshift methods shall not be used		N
	The cord anchorage shall be suitable for the different types of flexible cable which may be connected to it		N
	Cord anchorages shall be of insulating material or be provided with an insulating lining fixed to the metal parts		N
	Metal parts of cord anchorages,including clamping screws ,shall be insulated from the earthing circuit		N
14.12	For rewirable portable accessories and non-rewirable non-moulded on portable accessories it shall not be possible to remove covers,cover-plates or parts of them intended to ensure protection against electric shock without the use of a tool		N
14.13	If covers of portable socket-outlets are provided with bushings for the entry holes for the pins,these bushes shall not be removable from the outside or detachable inadvertently from the inside,when the cover is removed		N
14.14	Screws intended to allow access to the interior of the accessory shall be captive		P
14.15	The engagement face of plugs shall have no projections other than the pins		P
14.16	Portable socket-outlets shall be designed in such a way that full engagement of associated plugs is not prevented by any projection from their engagement face		P
14.17	Portable accessories of IP code higher than IP 20 shall be enclosed according to their IP classification when they are fitted with cable		N
	Plug shall be adequately enclosed when fitted with a flexible cable as for normal use		N
	Portable socket-outlets shall be adequately		

	enclosed when fitted with a flexible cable ad for normal use and without a plug in engagement		N
	Lid springs,if any,shall be made of corrosion-resistant material,such as bronze or stainless steel		N
14.18	Portable socket-outlets having means of suspension from a wall or other mounting surfaces shall be designed that the suspension means do not allow access to live parts		P
	There shall be no free openings between the space intended for the suspension means,by which the socket-outlet is fixed to the wall,or other mounting surfaces and live parts		P
14.19	Combinations of portable accessories and switches,circuit-breakers ot other devices shall comply with the relevant individual IEC standards		N
14.20	Portable accessories shall not be an integral part of lampholders		N
14.21	Plugs classified exclusively as plugs for equipment of class II may be rewirable or non-rewirable:		N
	If they are part of a cord set,this shall be provided with a connector for equipment of class II		N
	If they are part of a cord extension set,this shall be provided with a portable socket-outlet for equipment of class II		N
14.22	Components,such as switches and fuses, incorporated in accessories shall comply with the relevant IEC standard as far as it reasonably applies		N
14.23	If a plug is an integral part pf plug-in equipment,that equipment shall not cause overheating of the pins or impose undue atrain on fixed socket-outlets		P
	Plugs having a rating above 16 A and 250 V shall not be an integral part of other equipment		P
14.23.1	The plug of the equipment is inserted into a fixed socket-outlet complying with this standard,the socket-outlet being conneceted to a supply voltage equal to 1,1 times the highest rated voltage of the equipment for 1h		P
	The temperature rise of the pins shall not exceed 45K		P
14.23.2	The additional torque which has to be applied to the socket-outlet in order to maintain the engagement face in the vertical plane shall not exceed 0,25 Nm		P
14.24	Plugs shall be shaped in such a way and made of such material that they can easily be withdraw by		P

	hand from the relevant socket-outlet		
14.25	Membranes in inlet openings of portable accessories shall meet the requirements of 13.22 and 13.23		N
15	Interlocked socket-outlets		-
	Socket-outlets interlocked with a switch		P
	Socket-outlets interlocked with a switch shall be constructed in such a way that a plug cannot be inserted into or completely withdrawn from the socket-outlet while the socket-contacts are live		P
	The socket-contacts of the socket-outlet cannot be made live until a plug is almost completely in engagement		P
16	Resistance to ageing, protection provided by enclosures, and resistance to humidity		P
16.1	Resistance ageing		P
	Accessories shall be resistant to ageing		P
	The temperature in the cabinet is $(70 \pm 2)^{\circ}\text{C}$ for seven days (168h)	168h	P
	After the test:		P
	Show no crack visible		P
	Nor shall the material have become sticky or greasy		P
	With the forefinger wrapped in a dry piece of rough cloth the specimen is pressed with a force of 5N		P
	Show no damage which would lead to non-compliance with this standard		P
16.2	Protection provided by enclosures		-
	Enclosures shall provide protection against access to hazardous parts, harmful effects due to ingress of solid foreign objects and harmful effects due to ingress of water in accordance with the IP designation of the accessory		N
16.2.1	Protection against access to hazardous parts and against harmful effects due to ingress of solid foreign objects		N
	Accessories with screwed glands or membranes are fitted and connected with cables which shall be within the connecting range specified in table 3		N
	Largest cross-sectional area (mm ²), type of conductor		-
	Least cross-sectional area (mm ²), type of conductor		-
	Tightened-nuts: pull (Nm)		-
	Loosened-nuts: pull (Nm)		-
	Test pin:		N
	—fixed socket-outlet		N

	—removal socket-outlet		N
16.2.1.1	Protection against access to hazardous parts		N
16.2.1.2	Protection against harmful effects due to ingress of solid foreign objects		N
16.2.2	Protection against harmful effects due to ingress of water		N
16.3	Resistance to humidity		P
	Accessories shall be proof against humidity which may occur in normal use		P
	The humidity treatment is carried out in a humidity cabinet containing air with a relative humidity maintained between 91% and 95%, the temperature of the air in which the specimens are placed is maintained within $\pm 1K$ of any convenient value of between 20°C and 30°C		P
	—two days (48h) for accessories having an IP code of IPX0		N
	—seven days (168h) for accessories having an IP code higher than IPX0		N
	After this treatment, the specimens shall show no damage within the meaning of this standard		P
17	Insulation resistance and electric strength		-
17.1	The insulation resistance of socket-outlets: (500V, d.c ; 1min) ($M \Omega$)		P
	a) between all poles connected together and the body, $\geq 5 M \Omega$		P
	b) between each pole in turn and all others, $\geq 5 M \Omega$		P
	c) between any metal enclosure and metal foil in contact with the inner surface of its insulating linings, $\geq 5 M \Omega$		N
	d) between any metal part of the cord anchorage, including clamping screws, and earthing terminals of earthing contacts, if any, of portable socket-outlets, $\geq 5 M \Omega$		N
	e) between any metal part of the cord anchorage of portable socket-outlets and a metal rod of the maximum diameter of the flexible cable inserted in its place, $\geq 5 M \Omega$		N
17.1.2	The insulation resistance of plugs: (500V, d.c ; 1min) ($M \Omega$)		P
	a) between all poles connected together and the body, $\geq 5 M \Omega$		P

	b)between each pole in turn and all other, $\geq 5 \text{ M}\Omega$		P
	c)between any metal part of the cord anchorage,including clamping screws,and earthing termianls or earthing contact , $\geq 5 \text{ M}\Omega$		N
	d)between any metal part of the cord anchorage and a metal rod of the macimum diameter of the flexible cable inserted in its place, $\geq 5 \text{ M}\Omega$		N
17.2	For socket-outlet: test voltage (a.c, 1min)		P
	a)test voltage (V)		P
	b) test voltage (V)		P
	c) test voltage (V)		N
	d) test voltage (V)		N
	e) test voltage (V)		N
	No flashover or breakdown shall occur during the teat		P
	For plugs: test voltage (a.c, 1min)		P
	a) test voltage (V)		P
	b) test voltage (V)		P
	c) test voltage (V)		N
	d) test voltage (V)		N
	e) test voltage (V)		N
	No flashover or breakdown shall occur during the teat		P
18	Operation of earthing contacts		-
	Earthing contacts shall provide adequate contact pressure and shall not deteriorate in normal use		N
	Compliance is checked by the tests of clauses 19 and 21		N
19	Temperature rise		-
	Non-rewirable accessories are tested as delivered		N
	Type of conductors:number of wires (n) ;nominal diameter of conductors		-
	Rewirable accessories are fitted with polyvinyl chloride insulated conductors having a nominal cross-sectional area as shown in table 15		P
	Rated current:(A)		-
	Nominal cross-sectional area (mm ²)		-
	Type of conductors		-
	The terminal screws or nuts are tightened with a torque equal to two-thirds of that specified in 12.2.8		-
	Socket-outlets are tested using a test plug with brass pins having the minimum specified dimensions		P
	Plugs are tested using a fixed socket-outlet		

	complying with this standard and having as near-to-average characteristics as can be selected		N
	The temperature rise of the terminals shall not exceed 45K		P
	For accessories having three poles or more,the current during the test shall be passed through the phase contacts		N
	Separate tests shall be made passing the current through the neutral contact (K)		N
	The adjacent phase contact and through the earthing contact,if any,and nearest phase contact (K)		N
	For the purpose of the test of 25.3,the temperature rise of external parts of insulation material not necessary to retain current-carrying parts and parts of the earthing circuit in position,even though they are in contact with them,is also determined		P
20	Breaking capacity		-
	Accessories shall have adequate breaking capacity		P
	The plug is inserted and withdraw from the socket-outlet 50 times (10 strokes) at a rate of 30 strokes per minute		-
	The test voltage shall be 1,1 times the rated voltage (V)		-
	The test current shall be 1,25 times the rated current (A) ($\cos \phi = 0.6 \pm 0.05$)		-
	For the test on three-pole accessories,three-core inductors are used		N
	During the test,no sustained arcing shall occur		P
	After the test:		P
	The specimens shall show no damage impairing their further use		P
	The entry holes for the pins shall not any damage which impair the safety within the meaning of this standard		P
21	Normal operation		P
	Accessories shall withstand without excessive wear or other harmful effect,the mechanical ,electrical and thermal stresses occurring in normal use		P
	Compliance is checked by testing socket-outlets:		P
	—Tests on shuttered socket-outlets		P
	—Performing the required number of strokes with current flowing on specimens prepared by the manufacturer without shutters		N
	—Performing the same number of strokes without		N

	current flowing on specimens provided with shutters		
	—A third choice, with operations made by hand and in normal use		N
	The condition of test		P
	10000 strokes: a rate of insertion and withdrawal		-
	A test voltage V_n (V)		-
	A test current (A); ($\cos \phi = 0.8 \pm 0.05$)		-
	The test current:		P
	The periods during which the test current is passed from insertion of the plug until subsequent withdrawal are as follows: for accessories having a rated current $\leq 16A$		P
	The periods during which the test current is passed from insertion of the plug until subsequent withdrawal are as follows: for accessories having a rated current $> 16A$		P
	In the case of multiple socket-outlets, the test is carried out on one socket-outlet of each type operated and current rating		N
	During the test, no sustained arcing shall occur		P
	After the test, the specimens shall not show:		P
	—wear impairing their further use		P
	—deterioration of enclosures, insulating linings or barriers		P
	—damage to the entry holes for the pins, that might impair proper working		P
	—loosening of electrical or mechanical connections		P
	—seepage of sealing compound		N
	For shuttered socket-outlets, a gauge according to figure 9 is applied to the entry holes corresponding to live contacts		P
	—a force of 20N		P
	—a force of 1N		P
	Temperature rise: (comply with requirements of clause 19)		P
	For the socket-outlets, the test current (A), 1h		P
	The temperature rise of the terminals shall not exceed 45K		P
	Current:		N
	Separate tests shall be made passing the current through the neutral contact (K)		N
	The adjacent phase contact and through the earthing contact, if any, and nearest phase contact (K)		N

	For socket-outlet(17.2): test voltage (a.c, 1min)	P
	a)test voltage (V)	P
	b) test voltage (V)	P
	c) test voltage (V)	N
	d) test voltage (V)	N
	e) test voltage (V)	N
	No flashover or breakdown shall occur during the test	P
	After the test, fixation socket-outlets according to 13.2	N
	After the test ,portable socket-outlets according to 14.2	P
22	Force necessary to withdraw the plug	-
	The construction of accessories shall allow for easy insertion and withdraw of the plug, and prevent the plug from working out of the socket-outlet in normal use	P
	The rated current:	P
	Pole:	P
22.1	Verification of the maximum withdrawal force	P
	—the maximum withdrawal force (N)	-
	The plug shall not remain in the socket-outlet	P
22.2	Verification of the minimum withdrawal force	P
	—the minimum withdrawal force (N)	-
	The gauge shall not fall from the contact assembly within 30 s	P
23	Flexible cables and their connection	-
23.1	Plugs and portable socket-outlets shall be provided with a cord anchorage such that the conductors are relieved from strain,including twisting,where they are connected to the terminals or terminations ,their covering being protected from abrasion	N
	The sheath,if any,of the flexible cable shall be clamped within the cord anchorage	N
23.2	Pull and torque	N
	Non-rewirable accessories:	N
	Type of flexible cable,number of cores and nominal cross-sectional area (mm ²)	-
	Pull (N): 100 times	-
	The flexible cable is subjected for 1min to a torque as specified in table 18	-
	After the test:	N
	The flexible cable shall not have been displaced by more than 2mm	N

	For non-rewirable accessories ,there shall be no break in the electrical connections		N
	The cord anchorage is used in the normal way,clamping screws,if any, being tightened with a torque equal to two-thirds of that specified in table 6		N
	—type of flexible cable,rewirable accessories are first tested with a cable having the smallest nominal cross-sectional area,and then with a cable having the largest nominal cross-sectional area,as shown in table 17		-
	Pull (N),100 times		-
	A torque as specified in table 18 (Nm)		-
	After the test:		N
	The flexible cable shall not have been displaced by more than 2mm		N
	The end of the conductors shall not have moved noticeably in the terminals		N
	For a rated current up to and including 16A		N
	Suitable for fitting with the appropriate cable, as shown in table 19		N
	Type of flexible cable,number of cores and nominal cross-sectional area (mm ²)		-
23.3	Non-rewirable plugs and non-rewirable socket-outlets shall be provided with a flexible cable complying with IEC60227 or IEC60245		N
	The flexible cables shall have the same number of conductors as there are poles in the plug or socket-outlet,earthing contacts,being considered as one pole,irrespective of their number		N
	The conductor connected to the earthing contact shall be identified by the colour combination green/yellow		N
23.4	Non-rewirable plugs and non-rewirable portable socket-outlets shall be designed in such a way that the flexible cable is protected against excessive bending where it enters the accessory		N
	Guards provided for this purpose shall be of insulating material and shall be fixed in a reliable manner		N
	Flexing test:10000 times		N
	Type of flexible cable, nominal cross-sectional area (mm ²)		-
	Test current (A)		-
	Load with a mass:(N)		-
	During the flexing test,no interruption of the current,no short circuit between conductors		N

	After the test,the guard ,shall not have separated from the body and the insulation of the flexible cable show no sign of abrasion or wear ,broken strands of the conductors shall not have pierced the insulation so far as to become accessible		N
24	Mechanical strength		-
	Accessories,surface mounting boxes and screwed glands shall have adequate mechanical strength so as to withstand the stresses imposed during installation and use		P
24.1	Impact-test:9 times		P
	—height of fall :100mm		P
	—height of fall :150mm		N
	—height of fall :200mm		N
	—height of fall :250mm		N
	After the test,the specimen shall no damage within the meaning of this standard,in particular,live parts shall not become accessible		P
24.2	Barrel test:		-
	—number of falls (times)		-
	After the test:		P
	—no part shall have become detached or loosened		P
	—the pins shall not have become so deformed that the plug cannot be introduced into a socket-outlet complying with the relevant standard sheet and also fails comply with the requirements of 9.1 and 10.3		P
	—the pins shall not turn when a torque of 0,4 Nm is applied, first in one direction for 1 min and then in the opposite direction for 1 min		P
24.3	The bases of surface type socket-outlets are first fixed to a culinder of rigid steel sheet,and then fixed in a similar manner to a flat steel sheet		P
	A thread diameter of screws(mm),torque(Nm)		P
	During and after the tests ,the bases of socket-outlets shall no damage impairing their further use		P
24.4	An impact test by means of an apparatus as shown in figure 27		P
	At a temperature of $(-15 \pm 2)^{\circ}\text{C}$,for at least 16 h		P
	Fall from a height of 100mm,falling weight $(1000 \pm 2)\text{g}$		P
	After the test,the specimen shall show no damage within the meaning of this standard		P

24.5	Compression test:		P
	The force applied being 300N as shown in figure 8		P
	After the test,the specimen shall show no damage		P
24.6	Torque test values for glands		P
	Diameter of test rod: (mm)		P
	Type of test rod		-
	Torque: (Nm)		-
	After the test,the glands and the enclosures of the specimens shall show no damage within the meaning of this standard		-
24.7	Plug pins provided with insulating sleeves are subjected to the following test by means of an apparatus as shown in figure 28		-
24.8	Shuttered socket-outlets shall have the shutter so designed that it withstands the mechanical force which may be expected in normal use		N
	One pin from a plug of the same system is applied for 1 min with a force of 40N against the shutter of an entry hole in a direction perpendicular to the front surface of the socket-outlet		-
	The pin shall not come in contact with live parts		N
	After the test,the specimens shall show no damage within the meaning of this standard		N
24.9	Rewirable multiple portable socket-outlets:mechanical strength		N
	The lightest type of flexible cable of the smallest nominal cross-sectional area specified in table 3(mm ²)		-
	The specimen is held so that the flexible cable is horizontal and then it is allowed to fall onto a concrete floor,eight times,the flexible cable being rotated through 45° at its fixing after each fall		N
	After the test,the specimens shall show no damage within the meaning of this standard ,in particular,no part shall have become detached or loosened		N
24.10	Test pins of the plug		N
	The plug is placed on a rigid steel plate provided with holes suitable for the pins of the plug ,the pull is applied within a heating cabinet at a temperature of (70±2)°C,1h .a pull P equal to the maximum withdrawal force as given in table 16,for 1min on each pin in turn		-
	After the test,no pin has been displaced in the body of the plug by more than 1mm		N
24.11	For portable socket-outlet:barriers,between the space intended for the suspension means fixed to the mounting surface and the live parts		N
	A cylindrical steel rod, ,in the most unfavourable		N

	position,the force being equal to 1,5 times the maximum plug withdrawal force (as specified in 22.2,table 16)		
	The rod shall not pierce the barrier		N
24.12	The portable socket-outlet:pull		N
	A pull equal to the force prescribed in 23.2 for checking the flexible cable anchorage is applied,in the most unfavourable position,to the flexible cable for 10 s		N
	During the test, the portable socket-outlet means for suspension on a mounting surface shall not break in a way which allows live parts to become accessible to the standard test finger		N
24.13	The portable socket-outlet:pull		N
	The pull force is applied for 10 s perpendicular to the engagement face of the socket-outlet giving the greatest strain on the suspension mens		N
	During the test, the portable socket-outlet means for suspension on a wall shall not break in a way which allows live parts to become accessible to the test probe B of IEC 61032		N
24.14	Checking the forces necessary to retain or remove covers, cover-plates		P
24.14.1	Verification of the retention of covers or cover-plates		P
	Forces are gradually applied perpendicular to the mounting surface (N) 1min		-
	The covers or cover-plates shall not come off		P
	The test is then repeated on new specimens ,(1 ± 0,1)mm thick		P
	The covers or cover-plates shall not come off		P
	After the test,the specimens shall show no damage within the meaning of this standard		P
24.14.2	Verification of the removal of covers or cover-plates		N
	A force not exceeding 120N is gradually applied, perpendicular to the mounting/supporting surface,10 times ,the covers or cover-plates shall come off		N
	The test is then repeated on new specimens ,(1 ± 0,1)mm thick		N
	the covers or cover-plates shall come off		N
	After the test,the specimens shall show no damage within the meaning of this standard		N
24.14.3	For plugs and portable socket-outlets, a force is gradually applied until 80N is achieved and maintained for 1 min ,to covers ,cover-plates or parts of them while the other parts of the		P

	accessory are fixed		
24.15	The test is made as described in 24.14		P
24.14.1	Verification of the retention of covers or cover-plates		P
	Forces are gradually applied perpendicular to the mounting surface (N) 1min		-
	The covers or cover-plates shall not come off		P
	The test is then repeated on new specimens ,(1 ± 0,1)mm thick		P
	The covers or cover-plates shall not come off		P
	After the test,the specimens shall show no damage within the meaning of this standard		P
24.14.2	Verification of the removal of covers or cover-plates		N
	A force not exceeding 120N is gradually applied, perpendicular to the mounting/supporting surface,10 times ,the covers or cover-plates shall come off		N
	The test is then repeated on new specimens ,(1 ± 0,1)mm thick		N
	the covers or cover-plates shall come off		N
	After the test,the specimens shall show no damage within the meaning of this standard		N
24.16	The test is made as described in 24.14,but applying ,for 24.14.1,the force of 10 N for all covers or cover-plates		P
24.14.1	Verification of the retention of covers or cover-plates		P
	Forces are gradually applied perpendicular to the mounting surface (N) 1min		P
	The covers or cover-plates shall not come off		P
	The test is then repeated on new specimens ,(1 ± 0,1)mm thick		P
	The covers or cover-plates shall not come off		P
	After the test,the specimens shall show no damage within the meaning of this standard		P
24.14.2	Verification of the removal of covers or cover-plates		N
	A force not exceeding 120N is gradually applied, perpendicular to the mounting/supporting surface,10 times ,the covers or cover-plates shall come off		N
	The test is then repeated on new specimens ,(1 ± 0,1)mm thick		N
	the covers or cover-plates shall come off		N
	After the test,the specimens shall show no damage within the meaning of this standard		N
24.17	The gauge shown in figure 32 is pushed toward		N

	each side of each cover or cover-plate which is fixed without screws on a mounting or supporting surface, as shown in figure 33		
24.18	A gauge according to figure 35, applied with a force of 1N shall not enter more than 1,0 mm from the upper part of any groove, hole or reverse taper		N
25	Resistance to heat		-
25.1	The specimens are kept for 1 h in a heating cabinet at a temperature of $(100 \pm 2)^{\circ}\text{C}$		P
	During the test, they shall not undergo any change impairing their further use and sealing compound, if any, shall not flow to such an extent that live parts are exposed		P
	After the test, markings shall still be legible		P
25.2	Parts of insulating material necessary to retain current-carrying parts and parts of the earthing circuit in position, a mm wide, surrounding the phase and neutral pin entry holes of socket-outlets, shall be subjected to a ball-pressure test. ball-pressure: $(125 \pm 2)^{\circ}\text{C}$, 1h		P
	The diameter of the impression caused by the ball is measured and shall not exceed 2mm	1.2	P
25.3	Parts of insulating material not necessary to retain current-carrying parts and parts of the earthing circuit in position, even though they are in contact with them, are subjected to a ball-pressure test. ball-pressure test:		P
	Test temperature : $(^{\circ}\text{C})$	70	P
	The diameter of the impression caused by the ball is measured and shall not exceed 2mm	0.8	P
25.4	Compression test: the test being made in a heating cabinet at a temperature of $(80 \pm 2)^{\circ}\text{C}$, a force of 20N		P
	After the test, the specimens shall show no damage within the meaning of this standard		P
26	Screws, current-carrying parts and connections		-
26.1	Connections, electrical or mechanical, shall withstand the mechanical stresses occurring in normal use		P
	Mechanical connections to be used during installation of accessories may be made using thread-forming screws or thread-cutting screws only when the screws are supplied together with the piece in which they are intended to be inserted		P
	Thread-cutting screws intended to be used during installation shall be captive with the relevant part of the accessory		P
	Screws or nuts which transmit contact pressure shall be in engagement with a metal thread		P
	Test:		P

	— 10 times for screws in engagement with a thread of insulating material and for screws of insulating material		P
	— five times for other cases: nominal diameter of thread (mm), torque (Nm) times		P
	— the thread terminal: nominal diameter of thread (mm), torque (Nm) times		-
	— the earthing terminal: nominal diameter of thread (mm), torque (Nm) times		-
	— the assembly screw: nominal diameter of thread (mm), torque (Nm) times		-
	— the screw with flexible line clamping: diameter(mm), torque (Nm) times		-
	— the else types of screws or nuts: diameter(mm), torque (Nm) times		-
	During the test, no damage impairing the further use of the screwed connections shall occur		P
26.2	For screws in engagement with a thread of insulating material which are operated when mounting the accessory during installation		P
26.3	Electrical connections shall be designed in such a way that contact pressure is not transmitted through insulation material ,unless there is sufficient resiliency in the metallic parts		P
	Connections made by insulation piercing of tinsel cord shall be reliable		N
26.4	Screws and rivets, which serve as electrical as well as mechanical connections ,shall be locked against loosening and/or turning		P
26.5	Current-carrying parts, shall be of metal having mechanical strength, electrical conductivity and resistance to corrosion adequate for their intended use:		P
	— copper		P
	— an alloy containing at least 58% copper for parts made from cold-rolled sheet or at least 50% copper for other parts		N
	— stainless steel containing at least 13% chromium and not more than 0,09 carbon		N
	— steel provided with an electroplated coating of zinc according to ISO 2081, the coating having a thickness of at least		N
	5 μ m, ISO no.1 ,for accessories classified IP code IPX0		N
	12 μ m, ISO no.2 ,for accessories classified IP		N

	code IPX4		
	25 μ m, ISO no.3 ,for accessories classified IP code IPX5		N
	—steel provided with an electroplated coating of nickel and chromium according to ISO 1456,the coating having a thickness of at least:		N
	20 μ m, ISO no.2 ,for accessories classified IP code IPX0		N
	30 μ m, ISO no.3 ,for accessories classified IP code IPX4		N
	40 μ m, ISO no.4 ,for accessories classified IP code IPX5		N
	—steel provided with an electroplated coating of tin according to ISO 203,the coating having a thickness of at least:		N
	12 μ m, ISO no.2 ,for accessories classified IP code IPX0		N
	20 μ m, ISO no.3 ,for accessories classified IP code IPX4		N
	30 μ m, ISO no.4 ,for accessories classified IP code IPX5		N
	Current-carrying parts which may be subjected to mechanical wear shall not be made of steel provided with an electroplated coating		N
	Under moist conditions, metals showing a great difference of electromechanical potential with respect or each other shall not be used in contact with each other		N
26.6	Contacts which are subjected to a sliding action in normal use shall be of a metal resistant to corrosion		N
26.7	Thread-forming screws and thread-cutting screws shall not be used for the connection of current-carrying parts		P
	Thread-forming screws and thread-cutting screws may be used to provide earthing continually provided that it is not necessary to disturb the connection in normal use and that at least two screws are for each connection		N
27	Creepage distances, clearances and distances through sealing compound		-
27.1	Creepage distances, clearances and distances through sealing compound shall be not less than the values shown in table 23:		P
	1) between live parts of different polarity ≥3mm (mm)	>3	P
	2)between live parts and		P

	—accessible surface of parts of insulating material $\geq 3\text{mm}$ (mm)	>3	P
	—earthed metal parts $\geq 3\text{mm}$ (mm)	>3	P
	—metal frames supporting the base of flush-type socket-outlets $\geq 3\text{mm}$ (mm)		N
	—screws or devices for fixing bases, covers or cover-plates of fixed socket-outlets $\geq 3\text{mm}$ (mm)	>3	P
	—external assembly screws, other than screws which are on the engagement face of plugs and are isolated from the earthing circuit $\geq 3\text{mm}$ (mm)		N
	3) between pins of plugs and metal parts connected to them ,when fully engaged, and a socket-outlet of the same system having accessible unearthed metal parts made according to the most unfavourable construction $\geq 4.5\text{mm}$ or 6mm (mm)		N
	4)between the accessible unearthed metal parts of a socket-outlet and a fully engaged plug of the same system having pins and metal parts connected to them made according to the most unfavourable construction $\geq 4.5\text{mm}$ or mm (mm)		N
	5)between live parts of a socket-outlet or of a plug and their accessible unearthed or functional earthed metal parts $\geq 4.5\text{mm}$ or 6mm (mm)		N
	Clearance:		P
	6)between live parts of different polarity $\geq 3\text{mm}$ (mm)	>3	P
	7) between live parts and		P
	—accessible surface of parts of insulating material $\geq 3\text{mm}$ (mm)	>3	P
	—earthed metal parts not mentioned under items 8 and 9 including parts of earthing circuit $\geq 3\text{mm}$ (mm)	>3	P
	—metal frames supporting the base of flush-type socket-outlets $\geq 3\text{mm}$ (mm)		N
	—screws or devices for fixing bases, covers or cover-plates of fixed socket-outlets $\geq 3\text{mm}$ (mm)	>3	P
	—external assembly screws, other than screws which are on the engagement face of plugs and are isolated from the earthing circuit $\geq 3\text{mm}$ (mm)		N
	8)between live part and		N
	—unearthed metal boxes, without insulating lining with the socket-outlet in the most unfavourable position $\geq 4.5\text{mm}$		N

	—accessible unearthed or functional earthed metal parts of socket-outlets and plugs $\geq 6\text{mm}(\text{mm})$		N
	9)between live parts and the surfaces on which the base of a socket-outlet for surface mounting is mounted $\geq 6\text{mm}(\text{mm})$		N
	10)between live parts and bottom of any conductor recess, if any, in the base of a socket-outlet for surface mounting $\geq 3\text{mm}(\text{mm})$		N
	11)between live parts covered with at least 2mm of sealing compound and the surface on which the base of a socket-outlet for surface mounting is mounted $\geq 3\text{mm}$ or $4\text{mm}(\text{mm})$		N
	12)between live parts covered with at least 2 mm of sealing compound and bottom of any conductor recess, if any, in the base of a socket-outlet for surface mounting $\geq 2.5\text{mm}(\text{mm})$		N
27.2	Insulating sealing compound shall not protrude above the edge of the cavity in which it is contained		N
27.3	Surface-type socket-outlets shall not have bare current-carrying strips at the back		N
28	Resistance of insulating material to abnormal heat, to fire and to tracking		-
28.1	Resistance to abnormal heat and to fire		P
28.1.1	Glow-wire test:		P
	For parts made of insulating material ,necessary to retain current-carrying parts and parts of the earthing circuit of fixed accessories in position ,by the test made at 850°C		P
	—there is no visible flame and no sustained glowing		N
	—flames and glowing at the specimen extinguish within 30 s after removal of the glow-wire		P
	—there shall be no ignition of the tissue paper or scorching of the board		P
	—there is no visible flame and no sustained glowing		N
	—flames and glowing at the specimen extinguish within 30 s after removal of the glow-wire		N
	—there shall be no ignition of the tissue paper or scorching of the board		N
	For parts of insulating material, not necessary to retain current-carrying parts and parts of the earthing circuit in position, even though they are in contact with them, by the test made at a temperature of 650°C		P

	—there is no visible flame and no sustained glowing		P
	—flames and glowing at the specimen extinguish within 30 s after removal of the glow-wire		N
	—there shall be no ignition of the tissue paper or scorching of the board		P
28.1.2	The specimen of a plug with pins provided with insulating sleeves is tested by means of the test apparatus as shown in figure 40		N
28.2	Resistance to tracking :		N
	For accessories having an IP code higher than IPX0, parts of insulating material retaining live parts in position shall be of material resistant to tracking: test voltage; 175V, 50 drops, solution A		N
	No flashover or breakdown between electrodes shall occur		N
29	Resistance to rusting		-
	Ferrous parts shall be adequately protected against rusting		N
	The parts are then immersed for 10 min in a 10% solution of ammonium chloride in water at a temperature of $(20 \pm 5)^{\circ}\text{C}$, after the parts have been for 10 min in a heating cabinet at a temperature of $(100 \pm 5)^{\circ}\text{C}$		N
	Their surfaces shall show no signs of rust		N
30	Additional tests on pins provided with insulating sleeves		-
	The material of pin-insulating sleeves shall be resistant to the stresses to which it may be subjected at high temperature		N
30.1	Pressure test at high temperature		N
	The specimens are tested by means of the apparatus shown in figure 41		-
	This apparatus has a rectangular blade with an edge 0.7mm wide, to be used in the case of round pins, or a blade having a round shape, with a diameter of 6 mm and an edge of 0.7mm, in other cases		N
30.2	Static damp heat test		-
	A set of three specimens is submitted to two damp heat cycles in accordance with IEC 60068-2-30		N
30.3	Test at low temperature		-
	A set of three specimens is maintained at $(-15 \pm 2)^{\circ}\text{C}$		N
	After regaining ambient temperature, the specimens are submitted to the following tests:		N

	-insulation resistance and electric strength test ,in accordance with clause 17		N
	-abrasion test, in accordance 24.7		N
30.4	Impact test at low temperature		-
	The specimens are subjected to an impact test by means of the apparatus as shown in figure 42. The mass of the falling weight is (100 ± 1) g		N
	The apparatus ,on a sponge rubber pad ,40mm thick, is places , together with the specimens, in a freezer at a temperature of (-15 ± 2) °C for at least 25h		N
	At the end of this period, each specimen in turn ,is placed in position, as shown in figure 42		N

EN 60669-1:2018 Switches for household and similar fixed-electrical installations Part 1: General requirements

8	MARKING	P
8.1	General	P
	Switches are marked with:	P
	a) rated current(s) (A or AX) : 10A	P
	b) rated voltage(s) (V) : 230V	P
	c) symbol for nature of supply : ~	P
	d) manufacturer's or responsible vendor's name, trade mark or identification mark :	P
	e) type reference : FK86S11W	P
	f) symbol for mini-gap construction (m)..... :	N/A
	g) symbol for micro-gap construction (μ) :	N/A
	h) symbol for semiconductor switching device (without contact gap) (ϵ) :	N/A
	i) first IP characteristic numeral, if declared higher than 4, in which case the second characteristic numeral is also marked.....:	P
	j) second IP characteristic numeral, if declared higher than 2, in which case the first characteristic numeral is also marked.....:	P
	i & j) suitable for smooth and even wall only (IPXX)	N/A
	i & j) suitable for smooth and even wall and for rough wall (test wall of figure 21) () :	N/A
	k) length of insulation to be removed before the insertion of the conductor into the screwless-type terminal..... :	N/A
	l) symbol for the suitability to accept rigid conductors only (r) :	N/A
	In addition the following information shall be given in the manufacturer's documentation:	N/A
	m) for SBL loads: the rated power in watts and the type of load if the switch is tested according to 19.3 :	P

8.2	Symbols		P
	Symbols used: as required in the standard		P
	The symbol "AX" may be replaced by the symbol "X". For the marking with rated current and rated voltage the figures may be used alone		P
	The marking for the nature of supply shall be placed next to the marking for rated current and rated voltage		P
8.3	Visibility of markings		P
	Markings are clearly visible with normal or corrected vision, without additional magnification		P
	Markings as given in 8.1 a), b), c), d), e) and, if applicable, f), g), h), k), and l) shall be placed on the main part of the switch		P
	Parts such as cover plates, which are necessary for safety purposes and are intended to be sold separately, are marked with the manufacturer's or responsible vendor's name, trade mark or identification mark and type reference		N/A
	Markings as given in 8.1 i) and j), when applicable, are marked so as to be easily discernible when the switch is mounted and wired as in normal use		N/A
	Markings are placed on parts which cannot be removed without the use of a tool		P
8.4	Marking on terminals for phase conductors		P
	Terminals intended for the connection of phase conductors (supply conductors) are identified unless the method of connection is of no importance, is self-evident or is indicated on a wiring diagram		P
	Indications not placed on screws or other easily removable part		P
	Alternatively, the surface of such terminals shall be bare brass or copper, other terminals being covered with a metallic layer of another colour		N/A
	For switches of pattern numbers 2, 3, 03 and 6/2, terminals associated with any one pole have similar identification, if applicable, differing from that of the terminals associated with the other poles, unless the relationship is self-evident		N/A
8.5	Marking on terminals for neutral and earth conductors		N/A

	Neutral terminals: N :		N/A
	Earthing terminals: [earth symbol (IEC 60417-5019:2006-08)] :		N/A
	Markings not placed on screws or other easily removable parts		N/A
	Terminals for conductors not forming part of the main function of the switch:		N/A
	- clearly identified unless their purpose is self-evident, or		N/A
	- indicated in a wiring diagram fixed to the accessory		N/A
	Identification of switch terminals may be achieved by:		N/A
	- their marking with graphical symbols according to IEC 60417 or colours and/or alphanumeric system, or		N/A
	- their physical dimension or relative location		N/A
8.6	Marking of the switch position		N/A
	Switches marked to indicate the switch position: they are so marked that the direction of movement of the actuating member to its different positions or the actual position is clearly indicated :		N/A
	Switches having more than one actuating member: marking indicates the effect achieved by the operation		N/A
	Marking clearly visible on the front of the switch		N/A
	Not possible to fix cover, cover plate, or removable actuating members in an incorrect position		N/A
	Symbols for "on" and "off" not used for indication of switch positions unless clearly indicate the direction of movement of the actuating members		N/A
8.7	Additional requirements for marking		N/A
	Special precautions necessary to take when installing the switch: details of these and clear information given in an instruction sheet which accompanies the switch		N/A
	Instruction sheets are written in the official language(s) of the country in which the switch is to be sold		N/A
8.8	Durability		P
	Marking durable and easily legible. Test: 15 s with water and 15 s with 95 %n-hexane.		P

9	CHECKING OF DIMENSIONS	N/A
	Switches and boxes comply with the appropriate standard sheets, if any	N/A
10	PROTECTION AGAINST ELECTRIC SHOCK	P
10.1	Prevention of access to live parts	P
	Switches: live parts not accessible	P
	Switches designed to be fitted with pilot lights supplied at voltage other than ELV have means to prevent direct contact with the lamp	N/A
	Specimen is mounted as in normal use and fitted with conductors as specified	P
	Test probe B of IEC 61032 is applied in every possible position, an electrical indicator with a voltage between 40 V and 50 V being used to show contact with the relevant part	P
	Switches having enclosures or covers in thermoplastic or elastomeric material: additional test carried out at 35 °C ± 2 °C. Switches are subjected for 1 min to a force of 75 N, applied through the tip of test probe 11 of IEC 61032	P
	Test finger applied to thin-walled knock-outs with a force of 10 N	N/A
	During the test: switches not deform and no live parts accessible with test probe 11 of IEC 61032	P
10.2	Requirements for operating parts	P
	Knobs, operating levers, push buttons, rockers and the like: of insulating material, unless:	P
	- accessible metal parts separated from metal parts of mechanism by double or reinforced insulation, or	N/A
	- reliably connected to earth	N/A
	Requirement does not apply to removable keys or intermediate parts, such as chains or rods	N/A
10.3	Requirements for accessible metal parts	N/A
10.3.1	Accessible parts of switches when in normal use are made of insulating material as specified.	P
10.3.2	Metal cover, cover plates and other parts of the enclosure are protected by supplementary insulation made by insulating linings or insulating barriers.	N/A
	Insulating linings or insulating barriers:	N/A

	- cannot be removed without being permanently damaged, or designed that		N/A
	- cannot be replaced in an incorrect position; if they are omitted, accessories are rendered inoperable or manifestly incomplete; there is no risk of accidental contact between live parts and metal cover, cover plates and other parts of the enclosure; precautions are taken to prevent creepage distances or clearances becoming less than the values specified in clause 23		N/A
	Linings or barrier comply with the tests of clauses 16 and 23		N/A
10.3.3	Earthing of metal cover, cover plates and other parts of the enclosure: connection of low resistance		N/A
10.4	Requirements for insulation of the mechanism		P
	Metal parts of the mechanism which are not insulated from live parts: not protrude from enclosure		P
	Switches operated by means of a removable key or similar device: metal parts of mechanism insulated from live parts		N/A
10.5	Requirements for insulation of the mechanism with respect to the surrounding environment		P
	Metal parts of mechanism not accessible and insulated from accessible metal parts, unless		P
	- separated from live parts (creepage distances and clearances have at least twice the value specified in clause 23), or		N/A
	- reliably connected to earth		N/A
	Unenclosed stack-type switches having a metal spindle pivoting in a metal base plate: creepage distances and clearances between live parts and the spindle, and between metal parts of the mechanism and base plate, have at least twice the values specified in clause 23		N/A
10.6	Requirements for switches operated indirectly		N/A
	Switches operated by means of a removable key or an intermediate part: key or an intermediate part can only touch parts which are insulated from live parts		N/A
	Key or intermediate part: insulated from metal parts of mechanism, unless		N/A

	Creepage distances and clearances between live parts and metal parts of mechanism have at least twice the values specified in clause 23		N/A
10.7	Requirements for switches with replaceable pull cord		N/A
	Cord-operated switches: impossible to touch live parts when fitting or replacing the pull cord		N/A
11	PROVISION FOR EARTHING		N/A
11.1	General		N/A
	Accessible metal parts: provided with, or permanently and reliably connected to, an earthing terminal (does not apply to the metal cover plates mentioned in 10.3.2)		N/A
	Small screws and the like, isolated from live parts, are not considered as accessible parts which can become live in the event of an insulation fault		N/A
11.2	Earthing terminals		N/A
	Earthing terminals: with screw clamping or screwless terminals and comply with clause 12		N/A
11.3	Requirements for surface-type switches		N/A
	Surface-type switches with an enclosure of insulating material, with IP > X0 and more than one cable inlet, are provided with:		N/A
	- an internal fixed earthing terminal, or		N/A
	- adequate space for a floating terminal allowing the connection of an incoming and outgoing conductor		N/A
11.4	Test for earthing connection		N/A
	Connection between earthing terminal and accessible metal parts: of low resistance		N/A
	Test current equal to 1,5 In or 25 A(A)		N/A
	Resistance $\leq 0,05 (\Omega)$		N/A
12	TERMINALS		P
12.1	General		P
	Switches provided with screw-type terminals or with screwless terminals..... :	Screw head terminals	P
	Clamping means of terminals: not serve to fix any other components		P
	All the test on terminals, with the exception of the test of 12.3 11, made after the test of 15.1		P
	Rigid solid conductors shall be of class 1, rigid stranded conductors shall be of class 2 and flexible conductors shall be of class 5 according		P

	to IEC 60228		
12.2	Terminals with screw clamping for external copper conductors		P
12.2.1	Terminals with screw clamping having cross-sectional areas as shown in Table 4		P
	- for rigid copper conductors only, or		P
	- for both rigid and flexible copper conductors (tests carried out with rigid and then repeated with flexible conductors)		P
	Rated current (A)		
	Type of conductor (rigid / flexible)	Rigid, flexible	
	Smallest / largest cross-sectional area (mm ²)	1 / 2,5	
	Diameter of largest conductor(mm).....	2,13	
	Figure of terminal	Figure 2	
	Minimum diameter D (minimum dimensions) of conductor space: required (mm); measured (mm)...		
12.2.2	Terminals allow the conductor to be connected without special preparation		P
12.2.3	Terminals with screw clamping have adequate mechanical strength		P
	Screws and nut for clamping the conductors have metric ISO thread or a comparable thread		P
	Screws not of soft metal such as zinc or aluminium		P
12.2.4	Terminals with screw clamping are resistant to corrosion		P
12.2.5	Terminals with screw clamping clamp the conductor(s) without undue damage to the conductor(s)	See appended table 12.2.5	P
	For screws having a hexagonal head with slot for tightening, test shall be made twice, first the torque applying to the hexagonal head and then applying the torque by means of a screwdriver		N/A
	During the test: conductor not slip out, no break near clamping unit and no damage		P
12.2.6	Terminals with screw clamping clamp the conductor reliably between metal surfaces	See appended table 12.2.6	P
	During the test: conductor not move noticeably		P
12.2.7	Terminals with screw clamping are designed or placed that the conductor cannot slip out while the		P

	clamping screws or nuts are tightened	See appended table 12.2.7	
	After the test: no wire of the conductor escaped outside the clamping unit thus reducing creepage distances and clearances to values lower than those indicated in table 23		P
12.2.8	Terminals not work loose from their fixing to the switch		P
	Movement of the terminal is allowed as long as it is sufficiently limited so as to prevent noncompliance with this document		P
	Use of sealing compound or resin is considered to be sufficient, provided that:		N/A
	- the sealing compound or resin is not subject to stress during normal use, and		N/A
	- the effectiveness of the sealing compound or resin is not impaired by temperatures attained by the terminal		N/A
	Torque test:		P
	- rated current (A)..... :		
	- solid rigid copper conductor of the largest cross-sectional area (mm ²) (table 4) :		
	- torque (Nm) (table 5 or appropriate figures 1, 2, 3,4)..... :		
	Screws and nuts tightened and loosened 5 times. During the test: terminals not work loose and show no damage		P
12.2.9	Clamping screws or nuts of earthing terminals: adequately locked against accidental loosening, not possible to loosen them without the aid of a tool		N/A
12.2.10	Earthing terminals: no risk of corrosion		N/A
	Body of brass or other metal no less resistant to corrosion		N/A
	If the body is a part of a frame or enclosure of aluminium alloy, precautions are taken to avoid the risk of corrosion		N/A
12.2.11	Pillar terminals: distance g no less than the value specified in figure 1: required (mm); measured (mm):		N/A
	Mantle terminals: distance g no less than the value specified in figure 5: required (mm); measured (mm):		N/A
12.2.12	Lug terminals:		N/A

	- used only for switches having rated current 40 A		N/A
	- fitted with spring washers or equally effective locking means		N/A
12.3	Screwless terminals for external copper conductors		N/A
13	CONSTRUCTIONAL REQUIREMENTS		P
13.1	Mechanical requirements for insulating means		P
	Insulating lining, barriers and like: adequate mechanical strength and secured in a reliable manner		P
13.2	Installation requirements		P
	Switches constructed so as to permit:		P
	- easy introduction into the terminal and reliable connection of the conductors in the terminals, except for lead wires of pilot lights		P
	- correct positioning of the conductors		P
	- easy fixing of the switch to a wall or in a box		P
	- adequate space between the underside of the main part and the surface on which the main part is mounted or between the sides of the main part and the enclosure (cover or box)		P
	Surface-type switches: fixing means do not damage insulation of the cable		P
	Switches comprising screwless terminals: connecting and/or disconnecting means of the screwless terminals cannot be activated by the conductors during and after installation of the switch in a box or on a wall		N/A
	Compliance is checked by inspection and in case of doubt by the following test		N/A
	The test is carried out with a solid copper conductor having the smallest cross-sectional area, as specified in 12.3.2 (mm ²) :		N/A
	If it is not possible to exert a force onto the connecting / disconnecting means, the product is deemed to comply with the requirements of this sub clause without further tests		N/A
	During the application of the pull, the conductor do not come out of the screwless terminal		N/A
	Switches classified as design A: permit easy positioning and removal of the cover or cover		P

	plate, without displacing the conductors or activating the connecting and/or disconnecting means of screwless terminals		
13.3	Fixing of covers, cover plates and actuating members		P
13.3.1	Covers, cover-plates and actuating members or parts of them intended to ensure protection against electric shock:		P
	- held in place at two or more points by effective fixings		P
	- fixed by means of a single fixing, e.g. by a screw, provided that they are located by another means (e.g. by a shoulder)		N/A
	Where the fixing of covers, cover plates or actuating members of switches of design A serves to fix the main part there are means to maintain the main part in position, even after removal of the covers, cover plates or actuating members.		N/A
13.3.2	Covers, cover plates or actuating members whose fixing is of the screw-type:		N/A
	Compliance checked by inspection only		N/A
13.3.3	Covers, cover plates or actuating members whose fixing is not dependent on screws and whose removal is obtained by applying a force in a direction approximately perpendicular to the mounting / supporting surface (see table 12):		P
	- when their removal may give access, with the test probe B of IEC 61032, to live parts:		P
	- when their removal may give access, with the test probe B of IEC 61032, to non-earthed metal parts separated from live parts in such a way that creepage distances and clearances have the values at least equal to those shown in table 23:		N/A
	- when their removal may give access, with the test probe B of IEC 61032, only to		P
	- insulating parts, or		P
	- earthed metal parts, or		N/A
	- metal parts separated from live parts in such a way that creepage distances and clearances have at least twice the values shown in table 23, or		P
	- live parts of SELV circuits not greater than 25 V AC and 60 V DC:		N/A
13.3.4	Covers, cover-plates or actuating members whose fixing is not dependent on screws and whose removal is obtained by using a tool, in accordance with the		N/A

	manufacturer's instructions given in an instruction sheet or catalogue:		
	By the same tests of 13.3.3 except that the covers, cover plates, actuating members or parts of them need not come out when applying a force not exceeding 120 N in directions perpendicular to the mounting / supporting surface		N/A
13.4	Openings in normal use		P
	Switches: no free openings in their enclosures according to their IP classification		P
13.5	Attachment of knobs		N/A
	Knobs of rotary switches securely attached to the shaft or part operating the mechanism		N/A
	- axial pull be applied for 1 min to try to pull off the actuating member		N/A
	- axial pull is likely to be applied in normal use, the force is 30 N		N/A
	- axial pull is unlikely to be applied in normal use, the force is 15 N		N/A
	- knob of switches having only one direction of operation: turned 100 times in the reverse direction		N/A
	During the test: knob not become detached		N/A
13.6	Mounting means		P
	Screws or other means for mounting the switch on a surface or in a box or enclosure: easily accessible from the front		P
	Fixing means not serve any other fixing purpose		P
13.7	Combination of switches		N/A
	Combinations of switches, or of switches and socket-outlets, comprising separate bases: correct position of each main part is ensured		N/A
	Fixing of each main part be independent of the fixing of the combination to the mounting surface		N/A
13.8	Accessories combined with switches		N/A
	Accessories combined with switches: comply with their standard		N/A
13.9	Surface-type switches having an IP code higher than IP20		P
	Surface-type switches with IP > 20 are in according to their classification when fitted with conduits or with sheathed cables		P
	Surface-type switches with IPX4, IPX5 and IPX6		P

	have provisions for opening a drain hole		
	Switches provided with a drain hole: it is not less than 5 mm in diameter, or 20 mm ² in area with a width and a length not less than 3 mm..... :	23,35 (3,41 x 6,85) mm ²	P
	Drain hole: effective		P
	Lid springs (if any): of corrosion resistant material (bronze or stainless steel)		P
13.10	Installation in a box		N/A
	Switches to be installed in a box: conductor ends can be prepared after the box is mounted in position, but before the switch is fitted in the box		N/A
	Main part has adequate stability when mounted in the box		N/A
13.11	Connection of a second current-carrying conductor		N/A
	Surface-type switches with IP > IPX0, pattern numbers 1, 5 and 6, with more than one inlet opening, provided with:		N/A
	- fixed additional terminal complying with the requirements of clause 12, or		N/A
	- adequate space for a floating terminal		N/A
13.12	Inlet openings		P
	Inlet openings: allow the introduction of the conduit or the sheath of the cable		P
	Surface-type switches: intended conduit or the sheath of the cable can enter at least 1 mm into the enclosure		P
	Inlet openings for conduit entries of surface-type switches: capable of accepting conduit sizes of 16, 20, 25 or 32 or a combination of at least two of these sizes not excluding two of the same size..... :		N/A
	Inlet openings for cable entries of surface-type switches: capable of accepting cables having the dimensions specified in table 13 or be as specified by the manufacturer: rated current (A); limits of external diameter of cables min/max (mm) :		P
13.13	Provision for back entry from a conduit		P
	Surface-type switches: provision for back entry (if are intended)		P
13.14	Switch provided with membranes or the like for inlet openings		P
	Switch is provided with membranes or the like for		P

	inlet openings: replaceable		
13.15	Requirements for membranes in inlet openings		P
13.15.1	Membranes are reliably fixed and not displaced by the mechanical and thermal stresses occurring in normal use		P
	Test on membranes subjected to the ageing treatment specified in 15.1 and fitted with the switches		P
	Switches placed at 40 °C for 2 h. Force of 30 N applied for 5 s by means of the tip of test probe 11 of IEC 61032. During the test: no deformation, live parts not accessible		P
	Membranes likely to be subjected to an axial pull: axial pull of 30 N applied for 5 s. During the test: membranes not come out		P
	Test repeated with membranes not subjected to any treatment		P
13.15.2	Membranes be so designed and made of such material that: Introduction of the cables into the switch is permitted when the ambient temperature is low.		P
	Test on membranes not subjected to the ageing treatment, those without opening being suitably pierced:		P
	Switches kept at a temperature of (-15 ± 2) °C for 2 h: possibility to introduce cables of the heaviest type through the membranes		P
	After the test: no harmful deformation, cracks or similar damage		P
13.16	Pilot light units		N/A
	Pilot light units comply with IEC 60669-2-1:2002, IEC 60669-2-1:2002/AMD1:2008 and IEC 60669-2-1:2002/AMD2:2015, 101.1.1.1 and Clause 102, as far as applicable		N/A
14	MECHANISM		P
14.1	Indication of the position		P
	Actuating member of a switch, when released, automatically take up the position corresponding to that of moving contacts		P
14.2	Rest and intermediate position		P
	Moving contact of switches can come to rest only in "on" and "off" positions		P
	Intermediate position permissible if:		N/A

	- it corresponds to the intermediate position of the actuating member, and		N/A
	- the insulation between fixed and moving contacts is adequate. Electric strength test as specified in 16.3: test voltage a.c. for 1 min (V) :		N/A
14.3	Undue arcing		P
	No undue arcing in slowly operation		P
	Test carried out at the end of the test of clause 19.1: breaking of the circuit 10 times, actuating member moved over a period of 2 s. During the test: no sustained arcing		P
14.4	Making and breaking		N/A
	Switches of pattern numbers 2, 3, 03 and 6/2 make and break all poles substantially simultaneously		N/A
	Neutral pole of switches of pattern number 03 not make after or break before the other poles		N/A
14.5	Action of the mechanism without cover or cover plate		P
	Action of the mechanism: independent of the presence of cover or cover plate. Test: no flicker		P
14.6	Cord-operated switches: effecting a change by application and removal of a steady pull not exceeding:		N/A
	- 45 N applied vertically, and		N/A
	- 65 N applied at $45^\circ \pm 5^\circ$		N/A
15	RESISTANCE TO AGEING, PROTECTION PROVIDED BY ENCLOSURES OF SWITCHES, AND RESISTANCE TO HUMIDITY		P
15.1	Resistance to ageing		P
	Switches are resistant to ageing		P
	Parts intended for decorative purposes only, such as certain lids, are removed		P
	Switches and boxes placed for 7 days (168 h) in a heating cabinet at $70^\circ\text{C} \pm 2^\circ\text{C}$		P
	- no crack visible after test with normal or corrected vision without additional magnification		P
	- no sticky or greasy material as a result of heat		P
	- no trace of cloth (forefinger pressed with 5 N)		P
	- no damage		P
15.2	Protection provided by enclosures of switches		P
15.2.1	General		P
	Enclosure of the switch provides protection		P

	against access to hazardous parts, against harmful effect due to ingress of solid foreign objects and against effects due to ingress of water in accordance with the IP classification of the switch		
15.2.2	Protection against access to hazardous parts and against harmful effects due to ingress of solid foreign objects		P
15.2.2.1	General		N/A
	Glands: torque (Nm) (2/3 of torque applied in 20.4) :		
	Screws of the enclosure: torque (Nm) (2/3 table 5) :		
	Parts which can be removed without the aid of a tool are removed		N/A
	Glands are not filled with sealing compound or the like		N/A
15.2.2.2	Protection against access to hazardous parts		P
	Appropriate test according to IEC 60529..... :		P
15.2.2.3	Protection against harmful effects due to ingress of solid foreign objects		P
	Appropriate test according to IEC 60529..... :		P
	For the test of the first characteristic numeral 5, enclosures of switches are considered to be of category 2 (see IEC 60529:1989 and IEC 60529:1989/AMD1:1999, 13.4); dust not penetrate in a quantity to interfere with satisfactory operation or impair safety		P
	For the test of the first characteristic numeral 6, enclosures of switches are considered to be of category 1 (see IEC 60529:1989, 13.6); no dust penetrate		N/A
15.2.3	Protection against harmful effects due to ingress of water		P
	Enclosure of switches provide a degree of protection against harmful effects due to ingress of water in accordance with their IP classification		P
	Appropriate test according to IEC 60529..... :	IPX4	P
	Flush-type and semi-flush-type switches fixed:		N/A
	- in a test wall using an appropriate box in accordance with the manufacturer's instructions		N/A
	- in a test wall according to figure 21		N/A

	Screws of the enclosure: torque (Nm) (2/3 table 5) :		N/A
	Glands: torque (Nm) (2/3 of torque applied in table 22) :		N/A
	Specimens withstand an electric strength test specified in 16.3 which is started within 5 min of completion of the test to 15.2		N/A
15.3	Resistance to humidity		P
	Switches proof against humidity which may occur in normal use		P
	Compliance checked by a humidity treatment described in 15.3, carried out in a humidity cabinet containing air with relative humidity maintained between 91 % and 95 %. Specimens kept in the cabinet for:		P
	- 2 days (48 h) for switches with IPX0		P
	- 7 days (168 h) for switches with IP>X0		P
	After this treatment: specimens show no damage		P
16	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
16.1	General		P
	One pole of any pilot lights (if available), are disconnected for this test		N/A
	Insulation resistance and electric strength of switches be adequate		P
16.2	Test for measuring the insulation resistance		P
	The insulation resistance measured 1 min after application of 500 V DC	See appended table 16.2	P
	In addition, if electrically independent pattern numbers are combined in a common base, additional tests for each combination performed		P
16.3	Electric strength test		P
	Electric strength: AC test voltage applied for 1 min	See appended table 16.3	P
	In addition, if electrically independent pattern numbers are combined in a common base, additional tests for each combination performed		P
17	TEMPERATURE RISE		P
17.1	General		P
	Switches so constructed that the temperature rise in normal use is not excessive	See appended table 17	P
	No oxidation or any other deterioration of contacts		P

17.2	Switches incorporating pilot lights		N/A
	Switches incorporating or intended to incorporate pilot lights are designed that in normal use temperature of the accessible surface is not excessive	See appended table 17	N/A
18	MAKING AND BREAKING CAPACITY		P
18.1	General		P
	For the purpose of this test, pilot lights are disconnected		N/A
	Switches have adequate making and breaking capacity		P
	- model / type reference		—
	- pattern number		—
	- rated voltage (V)	230V	—
	- rated current (A).....	10A	—
	- nominal cross-sectional area as for the test of clause 17 (mm ²)		—
18.2	Overload		P
	Test with cos ϕ 0,3 alternating current		P
	- test voltage (1,1 V _n) (V).....		—
	- test current (1,25 I _n) (cos ϕ 0,3) (A)		—
	- 200 operations; rate (operations per minute)		—
	- samples number		—
	During the test: copper wire F not melt, specimens function correctly, no sustained arcing or welding of contacts		P
	After the test: specimens show no damage		P
	During the test: specimens are not lubricated		P
18.3	Overload test with filament lamps		P
	Test with a number of tungsten filament lamps or a number of halogen filament lamps (switches with I _n 16 A / V _n 250 V and switches of pattern numbers 3 and 03 with V _n > 250 V)		P
	- test voltage (V _n) (V).....		—
	- test current ($\geq 1,2$ I _n) (A)		—
	- number of 200 W tungsten filament lamps		—
	- 200 operations; rate (operations per minute)		—

	- samples number		—
	During the test: copper wire F not melt, specimens function correctly, no sustained arcing or welding of contacts		P
	After the test: specimens show no damage		P
19	NORMAL OPERATION		P
19.1	Test for switches intended for inductive loads		P
	For the purpose of this test, pilot lights are disconnected		N/A
	Switches withstand, without excessive wear or other harmful effect, the mechanical, electrical and thermal stresses occurring in normal use		P
	- model / type reference		—
	- pattern number		—
	- nominal cross-sectional area per clause 18 (mm ²):		—
	- test voltage (Vn) (V)	230V	—
	- test current (In) (cos φ 0,6) (A)	10A	—
	- number of operations per table 18		—
	- rate (operations per minute)		—
	- samples number		—
	During the test: copper wire F not melt, specimens function correctly, no sustained arcing or welding of contacts		P
	Reduced electric strength per clause 16	See appended table 19.1	P
	Reduced temperature rise test per clause 17	See appended table 19.1	P
	After the tests the specimens not show:		P
	- wear impairing their further use		P
	- discrepancy between the position of the actuating member (if indicated) and that of the moving contacts		P
	- deterioration of enclosures, insulating lining or barriers		P
	- seepage of sealing compound		N/A
	- loosening of electrical or mechanical connections		P
	- displacement of moving contacts of switches pattern number 2, 3, 03 or 6/2		N/A
	During the test, specimens are not lubricated		P

	No sustained arcing in slowly operation (sub clause 14.3)		P
19.2	Test for switches intended for externally ballasted lamp loads		P
	Switches intended for externally ballasted lamp loads withstand, without excessive wear or other harmful effect, the electrical and thermal stresses occurring when controlling externally ballasted lamp circuits		P
	- model / type reference.....:		—
	- pattern number.....:		—
	- nominal cross-sectional area per clause 18 (mm ²):		—
	- rate (operations per minute)		—
	- test voltage (Vn); test current (In) (cos φ 0,9); number of operations with load A		—
	- test voltage (Vn); 100 operations with load B		—
	- samples number		—
	During the test: copper wire F not melt, specimens function correctly, no sustained arcing or welding of contacts		P
	Reduced electric strength per clause 16	See appended table 19.2	P
	Reduced temperature rise test per clause 17	See appended table 19.2	P
	After the tests it is possible to make and break the switch by hand, and specimen not show:		P
	- wear impairing their further use		P
	- discrepancy between the position of the actuating member (if indicated) and that of the moving contacts		P
	- deterioration of enclosures, insulating lining or barriers		P
	- loosening of electrical or mechanical connections		P
	- seepage of sealing compound		N/A
	- displacement of moving contacts of switches pattern number 2, 3 or 6/2		N/A
19.3	Test for switches intended for self-ballasted lamp loads		P
	Switches intended for self-ballasted lamp (SBL) loads withstand, without excessive wear or other harmful effect, the electrical and thermal stresses		P

	occurring when controlling self-ballasted lamp circuits		
	- model / type reference.....:		—
	- pattern number.....:		—
	- nominal cross-sectional area per clause 18 (mm ²):		—
	- test voltage (Vn) (V).....:		—
	- test current (In) (A).....:		—
	- number of operations per table 18.....:		—
	- rate (operations per minute).....:		—
	- samples number.....:		—
	During the test: copper wire F not melt, specimens function correctly, no sustained arcing or welding of contacts		P
	Reduced electric strength per clause 16	See appended table 19.3	P
	Reduced temperature rise test per clause 17	See appended table 19.3	P
	After these tests, it is possible to make and break the switch by hand in the test circuit and the specimen not show:		P
	- wear impairing further use		P
	- discrepancy between the position of the actuating member and that of the moving contacts		P
	- deterioration of the enclosures, insulating lining or barriers		P
	- loosening of electrical or mechanical connections		P
	- seepage of sealing compound		N/A
	- displacement of the moving contacts of switches of pattern numbers 2, 3 or 6/2		N/A
20	MECHANICAL STRENGTH		P
20.1	General		P
	Accessories, surface mounting boxes, screwed glands and shrouds have adequate mechanical strength so as to withstand the stresses imposed during installation and use		P
20.2	Pendulum hammer test		P
	For all types of switches and for boxes: impact test (9 blows)	See appended table 20.2	P
	After the test: no damage, live parts no become accessible		P

20.3	Test on the main parts of surface-type switches		P
	Main parts of surface-type switches are first fixed to a cylinder of rigid steel sheet of radius equal to 4,5 times the distance between fixing holes (mm).. :		P
	Main parts are then fixed in a similar manner to a flat steel sheet		P
	Torque applied to fixing screws (Nm)	0,5 Nm / 1,2 Nm	—
	During and after the test: main parts show no damage		N/A
20.4	Screwed glands		N/A
	Screwed glands of switches with that have IP code higher than IP20: torque test		N/A
	- diameter of cylindrical metal test rod (mm)..... :		—
	- type of material..... :	metal / moulded material	—
	- torque for 1 min (table 22) (Nm)..... :		—
	After the test: no damage of glands and enclosure of the specimens		N/A
20.5	Covers, cover plates or actuating members – accessibility to live parts		P
20.5.1	General		P
	Force necessary for covers, cover-plates or actuating members to come off or not to come off (accessibility with the test finger to live parts)		P
20.5.2	Verification of the non-removal of covers, cover-plates or actuating member		P
	Force applied for 1 min in direction perpendicular to the mounting surface		—
	Covers, cover-plates or actuating members not come off		P
	Test repeated on new specimens with a sheet of hard material, 1 mm $\pm$ 0,1 mm thick, fitted around the supporting frame (fig. 13)		N/A
	Covers, cover-plates or actuating members not come off		P
	After the test: no damage		P
20.5.3	Verification of the removal of covers, cover plates or actuating members		N/A
	Force not exceeding 120 N applied 10 times in direction perpendicular to the mounting / supporting surface: covers, cover-plates or actuating members come off		N/A
	Test repeated on new specimens with a sheet of hard material, 1 mm $\pm$ 0,1 mm thick, fitted around		N/A

	the supporting frame (fig. 13)		
	Covers, cover-plates or actuating members come off		N/A
	After the test: no damage		N/A
20.6	Covers, cover plates or actuating members – accessibility to non-earthed metal parts separated from live parts		N/A
	Test is made as described in 20.5, but applying, for 20.5.2, the following forces:		N/A
20.7	Covers, cover plates or actuating members – accessibility to insulating parts, earthed metal parts, the live parts of SELV ≤ 25 V AC or metal parts separated from live parts		P
	Test is made as described in 20.5, but applying, for 20.5.2, the force of 10 N for all covers, cover plates, or actuating members		P
20.8	Covers, cover plates or actuating members – application of gauges		P
	Test with gauge of figure 14 applied according to figure 15 for verification of the outline of covers, cover-plates or actuating members: distances between face C of gauge and outline of side under test, not decrease : Not complying		—
20.9	Grooves, holes and reverse tapers		P
	Test with gauge according to figure 17 applied as shown in figure 18 (1 N): gauge not enter more than 1 mm..... : Not complying		—
20.10	Additional test for cord-operated switch		N/A
	Operating members of cord-operated switch have adequate strength		N/A
	Pull test: pull 100 N for 1 min (normal use); pull of 50 N for 1 min (unfavourable direction). After the test:		N/A
	- switch show no damage		N/A
	- operating member not broken and cord-operated switch still operate		N/A
21	RESISTANCE TO HEAT		P
21.1	General		P
	Switches and boxes are sufficiently resistant to heat		P
	Decorative parts are not subjected to the test		P
21.2	Basic heating test		P
	Switches kept for 1 h in a heating cabinet at a temperature of $100\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$		P
	During the test: no change impairing their further		P

	use and sealing compound, if any, not flow		
	After the test: no access to live parts, markings still legible		P
21.3	Ball-pressure test on parts of insulating material necessary to retain current-carrying parts and parts of the earthing circuit in position		P
	Parts of insulating material necessary to retain current-carrying parts and parts of the earthing circuit in position: ball-pressure test (1 h, 125 °C)	See appended table 21.3	P
21.4	Ball-pressure test on parts of insulating material not necessary to retain current-carrying parts and parts of the earthing circuit in position		P
	Parts of insulating material not necessary to retain current-carrying parts and parts of the earthing circuit in position, even though in contact with them: ball-pressure test (1 h)	See appended table 21.4	P
22	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		P
22.1	General		P
	Connections withstand mechanical stresses		P
	Thread-forming or thread-cutting screws used only if supplied together with the piece in which they are intended to be inserted		N/A
	Screws and nuts which transmit contact pressure are of metal and are in engagement with a metal thread		P
	Threaded part torque test	See appended table 22.1	P
22.2	Correct insertion of screws		N/A
	Screws in engagement with a thread of insulating material: correct introduction into the screw hole or nut ensured		N/A
22.3	Contact pressure of electrical connections		P
	Contact pressure: not transmitted through insulating material other than ceramic, pure mica or other material no less suitable unless there is sufficient resiliency in metallic parts		P
22.4	Screws and rivets, used both as electrical and mechanical connections		P
	Screws and rivets which serve as electrical as well as mechanical connections shall be locked against loosening and/or turning		P
22.5	Material of current-carrying parts		P
	Current-carrying parts of metal having mechanical strength, electrical conductivity and resistance to corrosion adequate:		P
	Requirement of 22.5 does not apply to screws,		P

	nuts, washers, clamping plates and similar parts of terminals		
	- copper		N/A
	- alloy with at least 58 % copper for parts made from cold-rolled sheet or with at least 50 % copper for other parts		P
	- stainless steel with at least 13 % chromium and not more than 0,09 % carbon		N/A
	- steel with electroplated coating of zinc (ISO 2081): service condition ISO no. (1/2/3); IP (X0/X4/X5/X6); thickness (µm)..... :		N/A
	- steel with electroplated coating of nickel and chromium (ISO 1456): service condition ISO no. (2/3/4); IP (X0/X4/X5/X6); thickness (µm)..... :		N/A
	- steel with electroplated coating of tin (ISO 2093): service condition ISO no. (2/3/4); IP (X0/X4/X5/X6); thickness (µm)..... :		N/A
	Current-carrying parts subjected to mechanical wear: not of steel with electroplated coating		P
	Metals having a great difference of electrochemical potential: not used in contact with each other		P
22.6	Contacts subjected to sliding actions		P
	Contacts subjected to sliding action: of metal resistant to corrosion		P
22.7	Thread-forming and thread-cutting screws		N/A
	Thread-forming screws and thread-cutting screws not used for the connection of current-carrying parts		N/A
	Thread-forming screws and thread-cutting screws used to provide earthing continuity: not necessary to disturb the connection and at least two screws are used for each connection		N/A
23	CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH SEALING COMPOUND		P
23.1	General		P
	Creepage distances, clearances and distances through sealing compound no less than the values shown in table 23	See appended table 23.1	P
	Sub clause 23.1 does not apply to pilot light units. Requirements for pilot light units are given in 13.16		N/A

23.2	Insulating compound		N/A
	Insulating compound: not protrude above the edge of the cavity in which it is contained		N/A
23.Z1	Surface-type switches do not have bare current-carrying strips at the back		N/A
24	RESISTANCE OF INSULATING MATERIAL TO ABNORMAL HEAT, TO FIRE AND TO TRACKING		P
24.1	Resistance to abnormal heat and to fire		P
	Parts of insulating material which might be exposed to thermal stresses due to electric effects and the deterioration of which might impair the safety are not unduly affected by abnormal heat and fire		P
	Glow-wire test according to IEC 60695-2-10 and IEC 60695-2-11	See appended table 24.1	P
24.2	Resistance to abnormal heat and to fire		N/A
	Parts of insulating material retaining live parts in position of switches with IP>X0: of material resistant to tracking		N/A
	Tracking test with solution A of IEC 60112	See appended table 24.2	N/A
25	RESISTANCE TO RUSTING		P
	Ferrous parts protected against rusting		P
	Test: 10 min in a 10 % solution of ammonium chloride in water at a temperature of $(+20 \pm 5) ^\circ\text{C}$., 10 min in a box containing air saturated with moisture at a temperature of $(+20 \pm 5) ^\circ\text{C}$., 10 min in a heating cabinet at a temperature of $(+100 \pm 5) ^\circ\text{C}$		P
	No signs of rust		P
26	EMC REQUIREMENTS		N/A
26.1	Immunity		N/A
	No immunity tests necessary		N/A
26.2	Emission		N/A
	No emission tests necessary		N/A
Z1	ELECTROMAGNETIC FIELDS (EMF) REQUIREMENTS		N/A
	Electromagnetic field generated by switches covered by this part of the standard are considered negligible. Therefore, these requirements are deemed to be met without performing any test.		N/A

APPENDIX A— TEST PHOTOGRAPH



EC Declaration of conformity
Council Directive 2014/35/EU on Low Voltage Detector

APPLICANT: WENZHOU MVAVA IMP & EXP CO., LTD.
Rm 1005, 2nd Building Wanluyuan, No.2 Shifu Road, Wenzhou,
Zhejiang

MANUFACTURER: WENZHOU MVAVA ELECTIRCAL
TECHNOLOGY CO., LTD.
No. 529 Binhai Road, Economic and Technological Development Area,
Wenzhou, Zhejiang, China

Certify that the product described is in conformity with the
Low Voltage Directive 2014/35/EU as amended

Product Name:

Socket

Item No:

See Annex

The product has been assessed by the application of the following standards:

IEC 60884-1:2022, EN 60669-1:2018

Issue place and date

Company stamp and Signature of authorized personnel

Annex

Model:

FK86S11W, FK86S11B, FK86S11G, FK86S11GY, FK86S12W,
FK86S12B, FK86S12G, FK86S12GY, FK86S13W, FK86S13B,
FK86S13G, FK86S13GY, FK86S21W, FK86S21B, FK86S21G,
FK86S21GY, FK86S22W, FK86S22B, FK86S22G, FK86S22GY,
FK86S31W, FK86S31B, FK86S31G, FK86S31GY, FK86S32W,
FK86S32B, FK86S32G, FK86S32GY, FK86S20AW, FK86S20AB,
FK86S20AG, FK86S20AGY, FK86S45AW, FK86S45AB, FK86S45AG,
FK86S45AGY, FK86UKSK1W, FK86UKSK1B, FK86UKSK1G,
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FK86FRSKC1GY, FK86FRSK2W, FK86FRSK2B, FK86FRSK2G,
FK86FRSK2GY, FK86FL11W, FK86FL11B, FK86FL11G, FK86FL11GY,
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FK86CS21G, FK86CS21GY, FK86DB11W, FK86DB11B, FK86DB11G,
FK86DB11GY, FK86USB2W, FK86USB2B, FK86USB2G, FK86USB2GY,
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FKH86USB2W, FKH86USB2B, FKH86USB2G, FKH86USB2GY,
FKH86CAT5W, FKH86CAT5B, FKH86CAT5G, FKH86CAT5GY,
FKH86CAT6W, FKH86CAT6B, FKH86CAT6G, FKH86CAT6GY,
FKH86TV1W, FKH86TV1B, FKH86TV1G, FKH86TV1GY, FKH86TL1W,
FKH86TL1B, FKH86TL1G, FKH86TL1GY, FKH86EP1W, FKH86EP1B,
FKH86EP1G, FKH86EP1GY, FKH86SR1W, FKH86SR1B, FKH86SR1G,
FKH86SR1GY, FKH86ST1W, FKH86ST1B, FKH86ST1G, FKH86ST1GY,
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FKH86AV1B, FKH86AV1G, FKH86AV1GY, FKH86VGA1W,
FKH86VGA1B, FKH86VGA1G, FKH86VGA1GY, FKH86MFSK2W,
FKH86MFSK2B, FKH86MFSK2G, FKH86MFSK2GY, FKH86BK1W,
FKH86BK1B, FKH86BK1G, FKH86BK1GY, FKH86S11W, FKH86S11B,
FKH86S11G, FKH86S11GY, FKH86S12W, FKH86S12B, FKH86S12G,
FKH86S12GY, PC86W2, LED, FW-FK86S11W, FW-FK86S11B,
FW-FK86S11G, FW-FK86S11GY, FW-FK86S21W, FW-FK86S21B,
FW-FK86S21G, FW-FK86S21GY, FW-FK86S31W, FW-FK86S31B,
FW-FK86S31G, FW-FK86S31GY, FK86HCAT5BK1W,
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FK86FRSK1AC1GY, FK86FRSK1USB2W, FK86FRSK1USB2B,
FK86FRSK1USB2G, FK86FRSK1USB2GY, FK86HTV1CAT5W,
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