TEST REPORT
DIN VDE 0620-2-1
Plugs and socket-outlets for household and similar purposes
Part 2-1: General requirements on plugs and portable socket-outlets

Report Reference No. .....:	130600884SHA-001
Date of issue .....:	2013-07-09
Total number of pages	48
Testing Laboratory.....:	Intertek Testing Services Shanghai
Address .....:	Building No.86, 1198 Qinzhou Road (North), Shanghai 200233, China
Applicant's name.....:	Zhejiang Kangtai Electric Co., Ltd.
Address .....:	No.5, Kangtai Rd., Huanghua Industrial District, Yueqing, Zhejiang, P.R.China
Test specification:	
Standard.....:	DIN VDE 0620-2-1: 2013 in conjunction with DIN VDE 0620-1: 2013
Test procedure .....:	GS
Non-standard test method……..:	EK1 510-11:2011
Test Report Form No.....:	DIN VDE 0620-2-1_V1
Test Report Form(s) Originator.....:	Intertek_Shanghai
Master TRF .....:	Dated 2013-05
Test item description .....:	Plug / outlet unit incorporated into plug-in power meter
Trade Mark.....:	N/A (component only)
Manufacturer site.....:	Same as applicant
Model/Type reference .....:	N/A (component only)
Ratings .....:	16A 250V~ (rating of plug / socket-outlet)

Testing procedure and testing location:		
☒ **Testing Laboratory:**	Intertek Testing Services Shanghai	
Testing location/ address.....:	Building No.86, 1198 Qinzhou Road (North), Shanghai 200233, China	
Tested by (name + signature).....:	Winfee Fu	Winfee Fu
Approved by (name + signature) .:	Paulus Hou	
☐ Testing procedure: TMP		
Tested by (name + signature).....:		.....
Approved by (name + signature) .:		.....
Testing location/ address.....:		
☐ Testing procedure: WMT		
Tested by (name + signature).....:		.....
Witnessed by (name + signature):		.....
Approved by (name + signature) .:		.....
Testing location/ address.....:		
☐ Testing procedure: SMT		
Tested by (name + signature).....:		.....
Approved by (name + signature) .:		.....
Supervised by (name + signature):		.....
Testing location/ address.....:		
☐ Testing procedure: RMT		
Tested by (name + signature).....:		.....
Approved by (name + signature) .:		.....
Supervised by (name + signature):		.....
Testing location/ address.....:		

Summary of testing:	
Tests performed: This test report complies with DIN VDE 0620-2-1: 2013 in conjunction with DIN VDE 0620-1: 2013 and EK1 510-11:2011.	**Testing location:** Intertek Testing Services Shanghai
Copy of marking plate: See main test report 130400205SHA-001	

Test item particulars .....:	
Standard Sheet .....:	Socket: DIN 49440-1; Plug: DIN 49441-R1
Rated current (A) / Rated voltage (V) .....:	16A / 250V ~ (for plug / socket-outlet unit)
Degree of protection against access to hazardous parts and against harmful ingress of solid foreign objects .....:	IP20
Degree of protection against harmful ingress of water .....:	IP20
Provision for earthing .....:	with earthing contact
Method of connecting the cable .....:	Non-rewirable
Type of cable .....:	N/A
Nominal cross-sectional areas (mm^2) .....:	N/A
Type of terminals .....:	N/A
Type of connections .....:	soldered / welded / riveted
Socket-outlets:	
Degree of protection against electric shock :	normal protection
Existence of enclosures.....:	enclosed
Existence of shutters .....:	with shutters
Method of application / mounting of the socket-outlet .....:	portable type
Method of installation .....:	N/A
Plugs:	
Class of equipment .....:	I
Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
Testing.....:	
Date of receipt of test item .....:	2013-06-14
Date (s) of performance of tests .....:	2013-06-14 to 2013-07-08
General remarks:	

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.

Throughout this report a comma ~~(point)~~ is used as the decimal separator.

This test report should be read in conjunction with the Constructional Data Form (CDF).

General product information:

The device under evaluation is a plug/outlet unit rated 16A / 250V～, which is incorporated into plug-in power meter, class I, non rewirable, with solid pin, with shutters, comply with standard sheet Socket: DIN 49440-1; Plug: DIN 49441-R1.

Remarks:

1. The samples for each group of testing were selected randomly from the samples provided by the manufacturer.
2. The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.
3. Determination of the test result includes consideration of measurement uncertainty from the test equipment and methods.
4. We conclude that the product presented in this test report complies with the standard according to the test results on the submitted samples.
5. This test report concerns testing and evaluation for the plug/outlet unit and it shall be used together with
   test report 130400205SHA-001.
6. The rating of plug / socket-outlet were 16A / 250V～, meets the requirement of the end appliance, whose rating is 230V～ 50Hz Max.13A.
7. Factory information: Same as applicant.

Component Data Form(CDF):

Please refer to main test report 130400205SHA-001.

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Clause	Requirement + Test	Result - Remark	Verdict
8	**MARKING**		P
	The legal requirements for the marking of products are to considered. (GPSG)		P
8.1	Plugs and portable socket outlets marked with:		P
	- rated current (A) .....:	See main test report 130400205SHA-001	P
	- rated voltage (V) .....:	See main test report 130400205SHA-001	P
	- symbol for nature of supply.....:	~	P
	- manufacturer's or responsible vendor's name or trade mark in accordance with the GPSG §5.....:	See page 1	P
	- type reference, that may be a catalogue number .:	See main test report 130400205SHA-001	P
	- symbol for degree of protection (first digit) .....:		N/A
	- symbol for degree of protection (second digit) .....:		N/A
	- Rated value and type of replaceable fuse.....		N/A
	Plugs or socket-outlets, that is part of an equipment need not carry this marking if the equipment is marked with the rating, manufacturer and type.	Marked on Power meter	P
8.2	Symbols used: as required in the standard		P
	Marking for the nature of supply placed next to the marking for rated current and rated voltage		P
8.3	Not apply		N/A
8.4	Plugs and portable socket-outlets: marking specified in 8.1, other than the type reference, easily discernible when assembled and wired.		P
	Plugs and portable socket-outlets for equipment of class II not marked with the symbol for class II construction		N/A
	Portable socket outlets with IP-Code IPX4 shall be marked with the following symbol .....:		N/A
8.5	Neutral terminals: N.....:		N/A
	Earthing terminals: [earth symbol 8.2] .....:		N/A
	Markings not placed on screws or other easily removable parts		P
	Terminals for conductors not forming part of the main function of the portable socket-outlet:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- clearly identified unless their purpose is self evident, or		N/A
	- indicated in a wiring diagram fixed to the accessory		N/A
	Identification of accessory terminals may be achieved by:		N/A
	- their marking with graphical symbols according to EN 60147 or colours and/or alphanumeric system, or		N/A
	- their physical dimension or relative location		N/A
	Leads of indicator lamps are not to be considered conductors for the purpose of this clause.		N/A
8.6	Not apply		N/A
8.7	Not apply		N/A
8.8	Marking shall be durable and if possible not smaller than 3 mm. Clearly readable without visual aids. Test: 15 s with water and 15 s with petroleum spirit.		P
8.9	Portable Multiple socket-outlets and adaptors must have the following warnings on the equipment or in the package (Text or pictograms):	adaptor	P
	-For portable multiple outlets: - Do not connect after each other (Nicht hintereinander stecken) - Do not cover when in use. (Nicht abgedeckt betreiben)		N/A
	-For portable multiple outlets with functional switch, additionally: - To disconnect Voltage pull the plug. (Spannungsfrei nur bei gezogenem Stecker)		N/A
	For intermediate adaptors: - Do not connect after each other (Nicht hintereinander stecken)	“Nicht hintereinander stecken”	P
	- Portable multiple outlets and extensions cords shall be provided with information about the intended environment	Nur zur Verwendung in trockenen Räumen	P
8.10	Units intended for installation shall be marked on the smallest closed selling unit with the note according to Appendix E		N/A
9	**CHECKING OF DIMENSIONS**		P

DIN VDE 0620-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.1	Plugs and portable socket-outlets comply with the appropriate standard sheets:		P
	DIN49406(series),DIN49437, DIN49440-1, DIN49440-2, DIN49440-3, DIN49440-4, DIN49440-6, DIN49441(series), DIN49442, DIN 49443, DIN 49445, DIN49446, DIN 49447, DIN 49448, DIN 49464.	Socket: DIN 49440-1; Plug: DIN 49441-R1	P
	Insertion of plugs into fixed or portable socket-outlets ensured by their compliance with the relevant standard sheets		P
	Compliance checked by measurement and/or by means of gauges with manufacturing tolerances as shown in table 2, unless otherwise specified. The most unfavourable dimension of the standard sheets shall be used for the gauges.		P
	Plugs and portable socket outlets to the standard sheets in 9.1 shall be tested with the gauges L1 to L9.		P
	Portable socket-outlets are subjected, before the above checking, to 10 insertions and withdrawals of a plug complying with the corresponding standard sheet having the maximum pin dimensions.		P
9.2	It shall not be possible to engage a plug with:		P
	- a socket-outlet or portable socket-outlet having a higher voltage rating or a lower current rating;		P
	- a socket-outlet or portable socket-outlet with a different number of live poles is permissible for socket-outlets specially designed for engagement with plugs of a lower number of poles provided that no dangerous situation can arise;		P
	- a socket-outlet or portable socket-outlet with earthing contact (plug for class 0 equipment).		P
	Engagement of a plug for class 0 or class I equipment with a portable socket-outlet designed to accept plugs for class II equipment, not possible		P
	Test: inspection or testing with gauges according to the dimensions in the standard sheets.		P
	Impossibility of insertion checked by applying the gauge L11, for 1 min, with a force of:		P
	- 150 N (rated current ≤ 16A);		P
	- 250 N (rated current > 16A)		N/A

DIN VDE 0620-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Accessories with elastomeric or thermoplastic material: test carried out at 35 ± 2 °C		P
9.3	Plugs or portable socket outlets, building a part of a product (for example timer, lawn mower mounted plugs, direct plug-in power supplies and so on) shall comply with the dimensions of the standard sheets.	Socket: DIN 49440-1; Plug: DIN 49441-R1	P
	Additional parts that affect the dimensions of the standard sheets (e.g. flat stick in disk) are not allowed.		N/A
10	**PROTECTION AGAINST ELECTRIC SHOCK**		P
10.1	Portable socket-outlets: live parts not accessible		P
	Live parts of plugs: not accessible when the plug is in partial or complete engagement with a portable socket-outlet		P
	Test with standard test finger shown in figure 2 of DIN 61032(VDE0470-2).		P
	Portable socket-outlets with elastomeric or thermoplastic material: additional test carried out at 35 °C ± 2 °C with a straight unjointed test finger (75 N for 1 min)		P
	During the test: portable socket-outlets not deform and no live parts accessible		P
	Plugs and portable socket-outlets pressed with a force of 150 N for 5 min as shown in figure 8: specimens not show deformation 15 min after.		P
10.2	Accessible parts (with exception of small screws and the like for fixing bases and covers or cover plates and grounding): made of insulating material		P
	Cover or cover plates and accessible part of plugs and table-outlets: made of metal if the requirements of 10.2.1 or 10.2.2 are fulfilled		N/A
10.2.1	Metal covers or cover plates protected by supplementary insulation made by insulating linings or insulating barriers		N/A
	Insulating linings or insulating barriers cannot be removed without being permanently damaged		N/A
	Insulating linings or insulating barriers cannot be replaced in an incorrect position and, if they are omitted, accessories are rendered inoperable or manifestly incomplete		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	There is no risk of accidental contact between live parts and metal covers or cover plates		N/A
	For the case of single pole insertion the requirement in 10.3 applies.		N/A
10.2.2	Metal covers or cover plates automatically connected, through a low-resistance connection, to the earth during fixing.		N/A
	The Creepage distances and the clearances between the live pins of a plug when fully inserted and the earthed metal cover of a portable socket-outlet shall comply with item 2 and 7 of table 23 respectively; in addition for single pole insertion the requirements of 10.3 apply.		N/A
	Compliance shall be checked by the test of 11.5		N/A
10.3	Connection between a pin of a plug and a live socket-contact of a portable socket-outlet not possible while any other pin is accessible.		P
	Accessories with elastomeric or thermoplastic material: test carried out at 35 °C ± 2 °C		P
	Portable socket-outlets with enclosure or bodies of rubber or polyvinyl chloride: test carried out with gauge 10 with a force of 75 N for 1 min		N/A
10.4	External parts of plugs and portable socket-outlets made of insulating material. Exception is plugs and table socket-outlets		P
	Overall dimensions of rings around pins not exceed 8 mm concentric with respect to the pin		P
10.5	Shuttered portable socket-outlets: live parts not accessible, without a plug in engagement, with the gauge 13.		P
	Live contacts automatically screened when the plug is withdrawn		P
	Means cannot easily be operated by anything other than a plug and not depend upon parts which are liable to be lost		P
	Gauge 13 applied to the entry holes corresponding to live contacts with a force up to 1 N in three straight movements shall not touch live parts; portable socket-outlets with a plug partially inserted are checked with the test finger.		P
	Accessories with elastomeric or thermoplastic material: test carried out at 35 °C ± 2 °C		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Shutters shall not interfere the insertion of a plug in an unacceptable way. The opening force of the shutter shall not exceed 30N. Testing is done with the gauges of 19a or 19b. The gauge is to arrange movable	Gauge 19a	P
10.6	Earthing contacts of a portable socket-outlet designed that they cannot be deformed by the insertion of a plug		P
10.6.1	The portable socket-outlet is placed with the outlet contacts in vertical position. Gauge 14 inserted into the portable socket-outlet with a force of 150 N for 1 min. This test is conducted on new samples		P
	After this test: portable socket-outlet still comply with the requirements of clause 9		P
10.6.2	Side PE contacts are loaded with a torque of 100Ncm) 1 min. With the device figure 43. After this tests probe 4 must be possible to insert. This test is conducted on new samples		P
10.7	Portable socket-outlet with increased protection live parts not accessible		N/A
	Gauge 13 applied with a force of 1 N on all accessible surfaces shall not touch live parts		N/A
	Accessories with elastomeric or thermoplastic material: test carried out at 35 °C ± 2 °C		N/A
11	**PROVISION FOR EARTHING**		P
11.1	Earth connection made before the current-carrying contacts of the plug become live		P
	Current-carrying pins shall separate before the earth connection is broken		P
11.2	Earthing terminals of rewirable plugs and portable spcket-outlets comply with clause 12		N/A
	Earthing terminals of the same size as the corresponding terminals for the supply conductors		N/A
	Earthing terminals of rewirable plugs and portable socket-outlets: internal		N/A
	Parts of earthing circuit in one piece or reliably connected by riveting, welding, or the like	Riveting	P
11.3	Not apply		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
11.4	Portable socket-outlets, having an IP code higher than IPX0, with an enclosure of insulating material and more than one cable inlet, shall be provided with an additional internal earthing terminal for the continuity of the earthing circuit, or		N/A
	In case of sufficient space for an unsecured terminal that permits the connection of an incoming and outgoing earthing conductor.		N/A
	In the case of an unsecured terminal the requirement in 12.2.8 are not applicable.		N/A
	Test for the requirements 11.2 to 11.4 : inspection and tests in clause 12 and in addition for unsecured terminals a connection test with the type of terminal specified by the manufacturer.		N/A
11.5	Connection between earthing terminal and accessible metal parts: of low resistance		P
	Test:		P
	Test current equal to 1,5 times the rated current or 25 A a.c.(A) ..... :	25A	—
	Resistance not exceed 0,05 Ω (Ω) ..... :	0,02Ω	—
12	**TERMINALS AND TERMINATIONS**		P
12.1	General		P
12.1.1	Rewirable plugs and portable socket-outlets provided with terminals with screw clamping ..... :		N/A
	Pre-soldered flexible conductors used: pre-soldered area outside the squeezed area of screw-type terminals		N/A
	Clamping means of terminals: not serve to fix any other components.		N/A
12.1.2	Non-rewirable plug and portable socket-outlet provided with soldered, welded, crimped or equally effective permanent connections ..... :	Soldered, riveted, welded	P
	Screwed or snap-on connections not used		P
	Connections made by crimping a pre-soldered flexible conductor not permitted		N/A
12.1.3	Compliance is checked by inspection and the tests in 12.2 or 12.3 as applicable.		N/A
12.2	Terminals with screw clamping for external copper conductors		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
12.2.1	Plug and portable socket-outlet provided with terminals which allows the proper connection of copper conductors as shows in table 3.		N/A
	The space for conductors must at least be as fig. 2,3,4 or 5.		N/A
	Rated current (A); Type of accessories ..... :		—
	Smallest / largest cross-sectional area (mm^2) ..... :		—
	Diameter of the largest conductor (mm) ..... :		—
	Figure of terminal ..... :		—
	Minimum diameter D (minimum dimensions) of conductor space: required (mm); measured (mm) :		N/A
12.2.2	Terminals allow the conductor to be connected without special preparation		N/A
12.2.3	Terminals have adequate mechanical strength		N/A
	Screws and nut for clamping the conductors have metric ISO thread or a thread comparable in pitch and strength		N/A
	Screws not of soft metal or metals that yield such as zinc or aluminium		N/A
12.2.4	Terminals resistant to corrosion		N/A
	Terminals with a body of copper or copper alloy according to 26.5 are considered to comply with this requirement.		N/A
12.2.5	Screw-type terminals clamp the conductor(s) without undue damage		N/A
	Test with apparatus shown in figure 9:		N/A
	- number of conductors ..... :		—
	- smallest cross-sectional area (mm^2) (table 3); diameter of bushing hole (mm); height H (mm); mass (kg) ..... :		—
	- largest cross-sectional area (mm^2) (table 3); diameter of bushing hole (mm); mass (kg) ..... :		—
	The length of the test wire must be 75 mm longer than the height (H) given in table 9. H (mm)		—
	- nominal diameter of thread (mm); torque according to table 6 (Nm) ..... :		—
	During the test: conductor not slip out, no break near clamping unit and no damage		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The test shall be repeated with rigid solid conductors if they exist in the relevant standard, if the first test has been made with rigid stranded conductors.		N/A
12.2.6	Terminals clamp the conductor reliably between metal surfaces		N/A
	Pull test (1 min):		N/A
	- number of conductors ..... :		—
	- smallest cross-sectional area (mm²) (table 3); pull (N) ..... :		—
	- largest cross-sectional area (mm²) (table 3); pull (N) ..... :		—
	- torque (Nm) (2/3 table 6) ..... :		—
	During the test: conductor not move noticeably		N/A
12.2.7	Terminals designed or placed that the conductor cannot slip out while the clamping screws or nuts are tightened		N/A
	- largest cross-sectional area (mm²) (table 3) ..... :		—
	- number of wires and nominal diameter of wires (table 5):		—
	plugs and portable socket-outlets: flexible conductors ..... :		—
	- terminals intended for looping-in 2 or 3 conductors: permissible number of conductors..... :		—
	- torque (Nm) (2/3 table 6) ..... :		—
	After the test: no wire of the conductor escaped outside the clamping unit		N/A
12.2.8	Terminals not work loose from their fixing to accessories		N/A
	Torque test:		N/A
	- rigid solid copper conductor of the largest cross-sectional area (mm²) (table 3) ..... :		—
	- torque (Nm) (table 6 or appropriate figures 2,3,4) :		—
	Screws and nuts tightened and loosened 5 times. During the test: terminals not work loose and show no damage		N/A
	Where a screw has a hexagonal head with a slot, only the test with the screwdriver is made with the torque values given in column 2.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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, according 26.5 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 shall be taken to avoid the risk of corrosion		N/A
12.2.11	Pillar terminals: distance *g* no less than the value specified in figure 2: 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
12.3	Not Apply		N/A
12.4	Crimp connections of non-rewirable plugs and portable socket-outlets shall have sufficient electrical and mechanical properties. Photo documentation from 3 sides shall be made from in total 3 contact points, consisting of side view, top view and perspectively view. The manufacturer has to determine and to document the values of crimping height, withdrawal force or voltage drop (lower and upper limit), these values are the basis of the ongoing production control.		N/A
13	**NOT APPLY**		N/A
14	**CONSTRUCTION OF PLUGS AND PORTABLE SOCKET-OTLETS**		P
14.1	Non-rewirable plug or non-rewirable portable socket-outlet:		P
	flexible cable cannot be separated from the plug and portable socket-outlet without making it permanently useless		N/A
	plug and portable socket-outlet cannot be opened by hand or by using a general purpose tool, for example a screwdriver used as such		P
14.2	Pins of plugs and portable socket-outlets: adequate mechanical strength	Solid pins	P
	Test for pins not solid (made after clause 21): force of 100 N exerted on the pin for 1 min by means of a steel rod Ø 4,8 mm		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	During the application of the force: reduction of the dimension of the pin not exceed 0,15 mm		N/A
	After removal of the rod: dimensions of the pin not changed by more than 0,06 mm		N/A
14.3	Pins of plugs:		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 in normal use		P
	Earthing contacts and neutral pins of plugs: not possible to insert in an incorrect position		P
14.4	Earthing contacts and neutral contacts of portable socket-outlets :		P
	- locked against rotation		P
	- removable only with the aid of a tool, after dismantling the socket-outlet		P
14.5	Socket-contact assemblies: sufficient resiliency		P
	Parts of socket-contact assemblies, which with an inserted plug will be in contact with the pin and complete the circuit must be of metal. And		P
	-shall ensure metallic opposing contacts at least on two sides of each pin.		P
	These requirements also apply to socket-outlets where the contact pressure relies on insulating material		N/A
	Insulating material where the contact pressure relies on the insulating material shall have such a charateristic as to ensure a safe and permanent contact in any condition of normal use with regard to shrinking, ageing and abrasion		N/A
	The contact pressure of the contact tube shall not depend on soldered connection only.		N/A
14.6	Pins and portable socket-contacts: resistant to corrosion and abrasion		P
	Resistant to abrasion according clauses 20 and 21		P
	Resistant to corrosion by inspection and test according clause 26.5		P
14.7	Enclosures of rewirable plugs and portable socket-outlets: completely enclose terminals and ends of flexible cable.		N/A

DIN VDE 0620-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Construction of rewirable plugs and portable socket-outlets:		N/A
	- conductors can be properly connected		N/A
	- cores not pressed against each other		N/A
	- cores of live conductor not in contact with accessible metal parts		N/A
	- core of earthing conductor not in contact with live parts		N/A
14.8	Rewirable plugs and portable socket-outlets: terminal screws or nuts cannot become loose and fall out of position and establish an electrical connection between live parts and earthing terminal or metal parts		N/A
14.9	Rewirable plugs and portable socket-outlets with earthing contact: ample space for slack of earthing (test)		N/A
	Non-rewirable non-moulded-on plugs and portable socket-outlets with earthing contact: current-carrying conductors stressed before the earthing conductor if the flexible cable slips in its anchorage		N/A
14.10	Terminals of rewirable plugs and portable socket-outlets and terminations of non-rewirable accessories: located and shielded that loose wires not present a risk of electric shock		P
14.10.1	Rewirable plugs and portable socket-outlets: test with 6 mm free wire		N/A
	free wire of a conductor connected to a live terminal not touch any accessible metal part or able to emerge from the enclosure		N/A
	free wire of a conductor connected to an earthing terminal not touch a live part		N/A
14.10.2	Non-rewirable, non-moulded-on plugs and portable socket-outlets: test with a free wire of length equivalent to the maximum designed stripping length declared by the manufacturer plus 2 mm		P
	free wire of a conductor connected to a live termination not touch any accessible metal part or reduce creepage and clearance below 1,5 mm to the external surface		P
	free wire of a conductor connected to an earth termination not touch any live part		N/A
14.10.3	Non-rewirable, moulded-on plugs and portable socket-outlets:		N/A
	Verification of means to prevent stray wires reducing the minimum distance through insulation to external accessible surface below 1,5 mm		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
14.11	Rewirable plugs and rewirable portable socket-outlets:		N/A
	- clear how relief from strain and prevention of twisting is intended to be effected		N/A
	- cord anchorage, or at least part of it, integral with or permanently fixed to one of the component parts of the plug or portable socket-outlet		N/A
	- makeshift methods not used		N/A
	- cord anchorage suitable for the different types of flexible cable which may be connected; screws, if any: not serve to fix any other component		N/A
	- cord anchorages: of insulating material or provided with an insulating lining fixed to the metal parts		N/A
	- metal parts of cord anchorages, including clamping screws: insulated from the earthing circuit		N/A
14.12	Insulating parts which keep live parts in position: reliably fixed together; not possible to dismantle the accessory without the aid of a tool		P
14.13	Covers of portable socket-outlets: bushings for entry holes for the pins not removable from the outside or detachable inadvertently from the inside		N/A
14.14	Screws intended to allow access to interior of the accessory: captive		N/A
14.15	Engagement face of plugs: no projections		P
14.16	Engagement face of portable socket-outlets: no projection		P
14.17	Plugs and portable socket-outlets other than IP20: provided with gland(s) or the like		N/A
	Plugs other than IP20: adequately enclosed		N/A
	Portable socket-outlets other than ordinary: adequately enclosed without a plug in engagement		N/A
	Lid springs (if any): of corrosion resistant material (bronze or stainless steel)		N/A
14.18	Portable Socket outlets with means for mounting on a wall or other surfaces must be so constructed that the means for mounting does not permit access to live parts and so that no fault during testing expose live parts.		N/A
	Portable Socket-outlets with means for permanent mounting shall be tested to 28.1.1 (as stationary outlet) and to 24.1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	No free openings between space intended for suspension means fixed to the wall and live parts		N/A
14.19	Combinations of plugs and portable socket-outlets with circuit-breakers or other protective devices comply with relevant standards, if any .....:		N/A
14.20	Movable accessories not integral part of lampholders.		P
	Adaptors without interposed auxiliaries (Switches, regulators, timers etc.) shall comply with DIN 49437.		N/A
	Multiple outlets with earthing contact and with stiffly mounted plug are not allowed.		N/A
14.21	- Plugs must be non-rewirable if exclusively for class II		N/A
	- Extension cords must have PE.		N/A
	- Class II Plugs incorporated in a cord set shall be provided with a connector for equipment of class II.		N/A
14.22	Components (switches and fuses) incorporated in plugs and portable socket-outlets: comply with the relevant standard	See main report 130400205SHA-001	P
14.23	Plug-in equipment: not cause overheating of the pins or impose undue strain		N/A
	Plugs with rating above 16 A and 250 V: not integral part of other equipment		N/A
	Tests for two-pole plugs, with or without earthing contact, with rating up to and including 16 A and 250 V (plug of equipment inserted into a fixed socket-outlet complying with this standard):		N/A
14.23.1	Socket-outlet connected to a supply voltage equal to 1,1 times the highest rated voltage of the equipment (V) .....:		N/A
	Temperature rise of the pins after 1 h not exceed 45 K (K) .....:		N/A
14.23.2	Additional torque applied to the socket-outlet to maintain the engagement face in the vertical plane not exceed 0,25 Nm (Nm) .....:		N/A
14.24	Plugs: can easily withdrawn by hand from the relevant socket-outlet		P
	Gripping surfaces: so designed that the plug can be withdrawn without pull on the flexible cable and comply with one of:		P

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Clause	Requirement + Test	Result - Remark	Verdict
	-The plug has a gripping surface length of at least 55 [mm] in axial direction (cable and cable protection is not counted) or		N/A
	-The plug has a grove that permit a 12±0.1 [mm] ball to enter 2 [mm] from each side or 4 [mm] from one side. or		N/A
	-The plug has a special device for pulling it out, e.g. a hook or ring	Device: complete body of Power meter	P
14.25	Membranes in inlet openings: meet the requirements of 13.22 and 13.23		N/A
14.26	Adaptors shall comply with DIN 49440 and DIN 49441		P
	Adaptors must be so constructed and the connection of the cord so manufactured that the efficacy of the protective measures is assured.		N/A
	One constructive unit may only accommodate one plug and one socket outlet.		P
	Cords connected to adapters shall be at least 1.40 [m] long.		N/A
	Adaptors shall not impose undue strain on the socket outlet. (0.25 [Nm])	Max.0,17	P
14.27	The length of the cord for portable socket-outlets shall be at least 1.40 [m]. Length is measured between outsides, if any, of entry bushings for cords.		N/A
	For cords in spiral form the length is measured when stretched under own weight.		N/A
14.28	Portable socket-outlets with self-closing lids for securing the protection degree higher or equal to IPX4 shall be constructed that the correct functioning of the self-closing lid is ensured during intended use. Compliance on portable socket-outlet with self-closing lid is checked by inspection and test according to 24.20.		N/A
	In case of non-self-closing lids, the lid shall be fixed sufficiently to the portable socket-outlet. Compliance on portable socket-outlet with non-self-closing lid is checked by inspection and test according to 24.21.		N/A
15	**REMAINS FREE**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
16	**RESISTANCE TO AGEING, PROTECTION PROVIDED BY ENCLOSURES, AND RESISTANCE TO HUMIDITY**		P
16.1	**Resistance to ageing**		P
	Plugs and portable socket-outlets shall be resistant to ageing		P
	Plugs and portable sockets with an IP code higher than IP X0 are tested after being mounted and connected according to 16.2		N/A
	Plugs and portable socket-outlets subjected to a test in a heating cabinet at 70 °C ± 2 °C for seven days (168 h)		P
	After the tests (96 h at 45-55%RH), samples shall show:		P
	- no crack visible with normal or corrected vision without additional magnification		P
	- no sticky or greasy material		P
	- no trace of cloth (forefinger pressed with 5 N)		P
	- no damage		P
16.2	Protection by enclosure		P
	Enclosure of plugs and portable socket-outlets shall provide a degree of protection against harmful ingress of solids and water in accordance with the IP classification.	IP20	P
	Plugs and portable socket-outlets with glands or membranes are fitted with a cord according to 12.2.1. Glands are tightened with a torque 2/3 of the torque for the test in Clause 24.6.		N/A
	Mounting screws for housings are tightened with 2/3 of the torque in table 6 of 12.2.8.		N/A
	Parts that can be removed without tools are removed.		N/A
	Plugs and portable socket-outlets tested on a plain, horizontal surface in a position as in normal use and fitted with flexible cables according to table 17 having the largest and smallest cross-sectional area given in table 3:		N/A
	- largest cross-sectional area (mm^2); type of cable (table 17) .....:		—
	- smallest cross-sectional area (mm^2); type of cable (table 17) .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Mounting screws tightened with a torque equal to 2/3 of the torque given in table 6 (Nm) .....:		—
	Glands tightened with a torque equal to 2/3 of the torque applied during the test of 24.6 (Nm) .....:		—
	Parts that can be removed without tools are removed.		N/A
	Portable socket outlets are tested with and without plug (or Gauge DIN 49440-4) in engagement.		N/A
	Plugs are tested engaged with an outlet of the same system and with the same degree of protection.		N/A
	High voltage test according to clause 17.2 immediately after the IP test.		N/A
16.2.1	Protection against access to hazardous parts and ingress of solids.		P
16.2.1.1	Protection against contact with hazardous parts		P
	Appropriate test performed as specified in EN 60529 (VDE 0470) (see also clause 10)		P
16.2.1.2	Protection against ingress of solids.	IP20	P
	Appropriate test performed as specified EN 60529 (VDE 0470)		P
	Test on plugs and portable socket-outlets with IP5X (considered to be of category 2): dust not penetrated in a quantity to interfere with satisfactory operation or to impair safety.		N/A
	Drain holes remain closed.		N/A
16.2.2	Protection against ingress of water	IP20	N/A
	The enclosure of plugs and portable sockets shall provide protections against ingress of water according to their IP classification (test to EN 60529).		N/A
	Directly after this test the High voltage test 17.2 must be passed. No water may penetrate in between the insulation and the strands.		N/A
16.3	Resistance to humidity		P
	Plugs and portable socket-outlets proof against humidity which may occur in normal use		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Compliance checked by a humidity treatment carried out in a humidity cabinet containing air with relative humidity maintained between 91 % and 95 %	93%	P
	Parts that can be removed without a tool are removed.		N/A
	Specimens kept in the cabinet for:		P
	- two days (48 h) for IPX0 accessories	IP20	P
	- seven days (168 h) for accessories higher than IP X0		N/A
	After this treatment the specimens show no damage		P
17	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		P
17.1.1	For portable socket-outlets: insulation resistance (500 V d.c. after 1 min application):		P
	a) between all poles connected together and the body, with a plug in engagement ≥ 5 MΩ .....:	199MΩ	P
	b) between each pole in turn and all others connected to the body, with a plug in engagement ≥ 5 MΩ .....:	199MΩ	P
	c) between any metal enclosures and metal foil in contact with the inner surface of its insulating linings, if any ≥ 5 MΩ .....:		N/A
	d) between any metal part of the cord anchorage, including clamping screws, and earthing terminal or earthing contact, if any, of portable socket-outlets ≥ 5 MΩ .....:		N/A
	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 (see table 17) ≥ 5 MΩ .....:		N/A
17.1.2	For plugs: insulation resistance (500 V d.c. after 1 min application):		P
	a) between all poles connected together and the body ≥ 5 MΩ .....:	199MΩ	P
	b) between each pole in turn and all others connected to the body ≥ 5 MΩ .....:	199MΩ	P
	c) between any metal part of the cord anchorage, including clamping screws, and earthing terminal or earthing contact, if any ≥ 5 MΩ .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	d) between any metal part of the cord anchorage and a metal rod of the maximum diameter of the flexible cable inserted in its place ≥ 5 MΩ .....:		N/A
17.2	Portable socket-outlets: electric strength, test voltage (a.c.,full value for 1 min):		P
	a) test voltage (V) .....:	2000 V	P
	b) test voltage (V) .....:	2000 V	P
	c) test voltage (V) .....:		N/A
	d) test voltage (V) .....:		N/A
	e) test voltage (V) .....:		N/A
	Plugs: electric strength, test voltage (a.c., full value for 1 min):		P
	a) test voltage (V) .....:	2000 V	P
	b) test voltage (V) .....:	2000 V	P
	c) test voltage (V) .....:		N/A
	d) test voltage (V) .....:		N/A
	During the test no flashover or breakdown		P
18	**OPERATION OF EARTHING CONTACTS**		P
18.1	Earthing contacts provide adequate contact pressure and not deteriorate in normal use. The contact pressure of the earthing side-contact of portable socket-outlets complying with DIN 49440 and DIN 49442 is tested with suitable test equipment. The equipment in figure 14 is an example of such equipment.		P
	The test equipment fig. 14 is inserted in the portable socket-outlet and secured by the screw C that presses the three screws B against the inner sides of the outlet. The equipment shall be positioned with distance pieces so that the tip of the point F is in contact with the point where the contact to the plug normally is made.		P
	Then the force is measured on each hook that is required to bring the markings in line: [N,N]….	15 / 16	P
	The test is repeated with the test equipment turned 180 degrees [N,N]……..	14,4 / 16,2	P
	The average force for each contact shall not be less than 5 [N]…….(Average [N,N])	14,7 / 16,1	P
	Other outlets are tested according to clause 19 and 21.		N/A

DIN VDE 0620-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
18.2	Earthing contacts (plug with side earthing contacts) provide adequate contact pressure and not deteriorate in normal use. (test equipment according to figure 15)		P
	The test is conducted with the equipment in figure 15 at 35 ±2 C with a force of 50 [N] applied in 168 [h]. The force must be applied where the contact takes place with the fully inserted plug.		P
	Compliance checked by measuring the change in the contact 30 seconds after the force is withdrawn. The change shall not deviate more than 1 [mm] from the measurement determined in clause 9.	< 1,0 mm (by gauge)	P
19	**TEMPERATURE RISE**		P
	Plugs and portable socket-outlets shall be so constructed that they comply with the following temperature rise test.		P
	Testing shall be performed at a draught-free location.		P
	For plugs and portable socket-outlets having three poles or more, the current during the test shall be passed through the phase contacts, where applicable. In addition, separate tests shall be made passing the current through the neutral contact, if any, and the adjacent phase contact and through the earthing contact, if any, and the nearest phase contact. For the purpose of this test, earthing contacts, irrespective of their number, are considered as one pole		P
	Separate tests made passing the current through:	20A	P
	- the neutral contact, if any, and the adjacent phase contact. Temperature rise on terminals or terminations (K) ..... :		N/A
	- the earthing contact, if any, and the nearest phase contact. Temperature rise on terminals or terminations (K) ..... :	Max.42K	P
	The temperature is determined by means of thermo couples selected and attached in a way that their influence on the temperature to be measured is negligible.		P
	Accessible metal part shall not exceed 40K		N/A
	Accessible non-metal part shall not exceed 60K	Max.14K	P
	Note: For the purpose of the test of 25.3, the temperature rise of external 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, is also determined (K) ..... :	Max.18K	P

DIN VDE 0620-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Table 15 applies for the assignment of nominal cross-sectional areas of copper conductors		N/A
	- rated current of accessory ..... :		—
	- nominal cross-sectional area (mm^2) ..... :		—
	Terminal screws or nuts tightened with a torque equal to 2/3 of that specified in 12.2.8 (Nm) ..... :		—
19.1	Remains free		N/A
19.2	Portable socket-outlets		N/A
	Portable socket-outlets provided with cords are tested as delivered. ..... :		N/A
	Rewirable portable socket-outlets without cables are fitted with polyvinyl chloride insulated conductors having a nominal cross-sectional area as shown in table 15.		N/A
	Portable socket-outlets are tested using a test plug according to Figure 16.		N/A
	Non-rewirable plug for cord extension set and multiple socket-outlet are tested with a current according to table 20 for rewirable or non-rewirable portable socket-outlets.	Test current: Measured values on plug:	N/A
19.2.1	Portable socket-outlets without additional function		N/A
	test for 1 h with a alternating current as specified in Table 20	Test current:	N/A
	The temperature rise of the terminals and internal connections shall not exceed 45 K		N/A
	The temperature rise of contact tube shall not exceed 45K (EK1 510-11).		N/A
19.2.2	Portable socket-outlets with additional function		N/A
	1) socket-outlets are tested at rated current for 1 h,	Rated current:	N/A
	The temperature rise of terminals and internal connections for additional function shall not exceed the limits given in appropriate regulations		N/A
	All other terminals and internal connections and sockets contact as well as terminals for external conductor shall not exceed 45K		N/A
	2)socket-outlets are tested with an alternating current as specified in table 20 for 1 h		N/A
	In case of tripping of the integrated protection device the test will be repeated with 0,95 times of the tripping current.		N/A

DIN VDE 0620-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	In case of cartridge fuse-link according to EN 60127-2 the accessory are tested with 1,5 times of the rated current of the fuse-link. The testing time is 1 h for fuse-links with a rated current up to 6.3 A or 30 min for fuse-links with a rated current exceeding 6.3 A.		N/A
	The temperature rise of all terminals and connections shall not exceed 70K.		N/A
	The temperature rise of contact tube shall not exceed 45K.		N/A
19.3	Plugs		N/A
	Plugs provided with cords are tested as delivered.:		N/A
	Rewirable plugs without cables are fitted with polyvinyl chloride insulated conductors having a nominal cross-sectional area as shown in table 15.		N/A
	The plugs are tested as follows:		N/A
	A suitable test apparatus is mounted on each live pin or protective contact of the plug together with a thermo couple in the lower part. (NOTE A commercially available socket-outlet can be used as a suitable test apparatus.)		N/A
19.3.1	Plugs without additional function		N/A
	test for 1 h with a alternating current as specified in Table 20		N/A
	The temperature rise of clamping units and internal connections shall not exceed 45 K.		N/A
	The temperature rise of contact tube shall not exceed 45K (EK1 510-11).		N/A
19.3.2	Plugs with additional function		N/A
	1) rewirable plugs are tested at rated current for 1 h		N/A
	Non-rewiable plug are tested with an alternating current as specified in table 20 for 1 h		N/A
	The temperature rise of terminals and connections points of additional function shall not exceed the values given in relevant standards		N/A
	All other terminals and internal connections and contact as well as terminals for external conductor shall not exceed 45K		N/A
	2)plugs are tested with an alternating current as specified in table 20 for 1 h		N/A
	In case of tripping of the integrated protection device the test will be repeated with 0,95 times of the tripping current.		N/A

DIN VDE 0620-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	In case of cartridge fuse-link according to EN 60127-2 the accessory are tested with 1,5 times of the rated current of the fuse-link. The testing time is 1 h for fuse-links with a rated current up to 6.3 A or 30 min for fuse-links with a rated current exceeding 6.3 A.		N/A
	The temperature rise of all terminals and connections shall not exceed 70K.		N/A
	The temperature rise of contact tube shall not exceed 45K.		N/A
19.4	Adaptors		P
	Socket-outlets are tested using a test plug according to Figure 16.		P
	Plug part is tested as follows:		P
	A suitable test apparatus is mounted on each live pin or protective contact of the plug together with a thermo couple in the lower part. (NOTE A commercially available socket-outlet can be used as a suitable test apparatus.)		P
19.4.1	Adaptor without additional function (DIN49437 adaptor)		N/A
	test for 1 h with a alternating current as specified in Table 20	Test current:	N/A
	The temperature rise of the terminals and internal connection points shall not exceed 45 K:		N/A
	The temperature rise of contact tube shall not exceed 45K (EK1 510-11).		N/A
19.4.2	adaptor with additional function		P
	1) adaptor are tested at rated current for 1 h,	Rated current: 16A	P
	The temperature rise of terminals and internal connections for additional function shall not exceed the limits given in appropriate regulations	see main test report 130400205SHA-001 based on EN 61010-1)	P
	All other terminals and internal connections and sockets contact as well as terminals for external conductor shall not exceed 45K	Max. 31K	P
	2)adaptor are tested with an alternating current as specified in table 20 for 1 h	20A	P
	In case of tripping of the integrated protection device the test will be repeated with 0,95 times of the tripping current.		N/A
	In case of cartridge fuse-link according to EN 60127-2 the accessory are tested with 1,5 times of the rated current of the fuse-link. The testing time is 1 h for fuse-links with a rated current up to 6.3 A or 30 min for fuse-links with a rated current exceeding 6.3 A.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The temperature rise of all terminals and connections shall not exceed 70K.	Max. 52K	P
	The temperature rise of contact tube shall not exceed 45K.	Max. 35K	P
19.5	Plug-in equipment		N/A
	Plug-in equipment are tested according to appropriate product standards		N/A
	For the testing of the plug see 14.23		N/A
20	**BREAKING CAPACITY**		P
	Plugs and portable socket-outlets shall have adequate breaking capacity		P
	The test is made with connections shown in figure 18		P
	Compliance checked by testing:		P
	- Portable socket-outlets;		P
	- plugs with pins which are not solid	Solid pin	N/A
	Test conditions:		P
	- 100 strokes; rate of operation ..... :	30 (~~15~~) strokes per minute	—
	- test voltage (1,1 Vn) ..... :	275V	—
	- test current (1,25 In) (power factor 0,6) ..... :	20A	—
	Portable socket-outlets are tested with a test plug with brass pins in good condition. Diameter 4.8 +0.06/0 [mm] respective 4.0+0.06/0 [mm]. Distance between pins 19+0.05/0 [mm]. The pin ends shall comply with DIN 49441, DIN 49446, DIN 49448, or VDE 0620-101	DIN 49441	P
	Plugs tested using a socket-outlet complying with the standard VDE 0620-1 and having as near to average characteristics.		N/A
	Accessible metal parts and metal supports are connected via a fuse to ground. The fuse shall be a Cu wire 0.1 [mm] diameter and at least 50 [mm] long. The fuse shall not burn out.		N/A
	During the test: no sustained arcing occur		P
	After the test:		P
	- specimens show no damage impairing their further use;		P
	- entry holes for the pins not show any damage which may impair the safety		P

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Clause	Requirement + Test	Result - Remark	Verdict
21	**NORMAL OPERATION**		P
	Plugs and portable socket-outlets shall withstand without excessive wear or other harmful effect, the mechanical, electrical and thermal stresses occurring in normal use		P
	Compliance for portable socket-outlets as well as plugs with resilient earthing contacts or non solid pins is checked by testing:		P
	- portable socket-outlets;		P
	- plugs with resilient earthing socket-contacts;		N/A
	- plugs with pins which are not solid	Solid pin	N/A
	Test performed on:		P
	- complete portable socket-outlets (with shutters if any)	10000 strokes	P
	- if shutter fail, test repeated under same condition but with operations made by hand as in normal use (Remark: Start point 2 as shown in Figure 43 of IEC 60884-1 is not permitted)		N/A
	Test conditions:		P
	- 10000 strokes; rate of operation ..... :	30 ~~(15)~~ strokes per minute	—
	- test voltage Vn (V) ..... :	250V	—
	- test current (as specified in table 20 (A) (power factor 0,8 ±0.05) ..... :	16A (0,8)	—
	Test current passed:		P
	- during each insertion and withdrawal of the plug (In ≤ 16A)		P
	- during alternate insertion and withdrawal, the other insertion and withdrawal being made without current flowing (In > 16A)		N/A
	Multiple portable socket-outlets: test carried out on one portable socket-outlet of each type and current rating		N/A
	During the test: no sustained arcing occur		P
	After the test the specimens shall not show:		P
	- wear impairing their further use;		P
	- deterioration of enclosures, insulating lining or barriers;		P
	- damage to the entry holes for the pins, that might impair proper working;		P
	- loosening of electrical or mechanical connections;		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- seepage of sealing compound		N/A
	Shuttered portable socket-outlets: the following gauges not touch live parts when they remain under the relevant forces:		P
	- gauge 15 applied with a force up to 20 N		P
	- gauge13 applied with a force up to 1 N		P
	Temperature-rise test (requirements of clause 19):		P
	Test current for this clause is given in table 20, passed for 1 h (A) .....:	16A	P
	Temperature rise of terminals not exceed 45 K (K) .....:	Max.34K	P
	Separate tests made passing the current through:		P
	- the neutral contact, if any, and the adjacent phase contact (K) .....:		N/A
	- the earthing contact, if any, and the nearest phase contact (K) .....:	Max.32K	P
	The force to open the shutter shall not exceed 50N when tested with Gauge 19a or 19b	Gauge 19a	P
	Portable socket-outlets: electric strength (sub-clause 17.2), test voltage (a.c., for 1 min):		P
	a) test voltage (V) .....:	1500 V	P
	b) test voltage (V) .....:	1500 V	P
	c) test voltage (V) .....:		N/A
	d) test voltage (V) .....:		N/A
	e) test voltage (V) .....:		N/A
	Plugs: electric strength (sub-clause 17.2), test voltage (a.c., for 1 min):		P
	a) test voltage (V) .....:	1500 V	P
	b) test voltage (V) .....:	1500 V	P
	c) test voltage (V) .....:		N/A
	d) test voltage (V) .....:		N/A
	During the test: no flashover or breakdown		P
	Portable socket-outlets with side earthing contacts: the contacts are pressed as far as possible apart, but not more than 35 [mm]. Kept in this position for 48 h.		P
	Test according to Clause 18. The average force necessary to bring the contact in the required position shall be at least 60% of the original value. The mean value of the force shall be at least 5 N.	11 N / 12 N; 75% / 75%	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Test in clause 14.2 are carried out in compliance with the tests of this clause.		N/A
22	**FORCE NECESSARY TO WITHDRAW THE PLUG**		P
	Construction of portable socket-outlets shall allow the easy insertion and withdrawal of the plug, and prevent the plug from working out of the socket-outlet in normal use		P
	Portable socket outlets:		P
	Rated current (A) ..... :	16A	—
	Number of poles ..... :	2P + E	—
	Plugs with resilient earthing contact		N/A
	Rated current (A) ..... :		—
	Number of poles ..... :		—
22.1	Verification of the maximum withdrawal force		P
22.1.1	Test for portable socket outlets		P
	- Maximum withdrawal force (used Gauge 16a,16b,16c or 16d, force according to table 16) (N) ..... :	54N	—
	Before each test the test pin is wiped free from grease with a chemical degreaser		P
	The plug not remain in the socket-outlet		P
22.1.2	Test for plugs with resilient earthing contact		N/A
	- Maximum withdrawal force (used Gauge 16e, force according to table 16) (N) ..... :		—
	Before each test the test pin is wiped free from grease with a chemical degreaser		N/A
	The test pin not remain in the earthing contact		N/A
22.2	Verification of the minimum withdrawal force		P
	- Minimum withdrawal force (used Gauge 2A,2B or 2C, force according to table 16) (N) ..... :	Gauge 2A, 2N	—
	Before each test the test pin is wiped free from grease with a chemical degreaser		P
	The plug not fall from each individual contact-assembly within 30 s		P

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Clause	Requirement + Test	Result - Remark	Verdict
23	**FLEXIBLE CABLES AND THEIR CONNECTIONS**		N/A
23.1	Plugs and portable socket-outlets provided with a cord anchorage such that the conductors are relieved from strain and that their covering is protected from abrasion		N/A
	Sheath of flexible cable clamped within the cord anchorage		N/A
23.2	Pull and torque test:		N/A
	The plugs and portable socket-outlets is to be stored for one hour at 45 °C in a climatic cabinet; immediately after it the cord anchorage is to be drawn for 30 s with 50 N, whereby the cord anchorage must remain still effective. A replacement of the cord of less than 2 mm is not regarded as an error.		N/A
	After cooling down to ambient temperature the effectiveness of the retention of the cable by the cord anchorage is checked by the following test by means of an apparatus as shown in figure 20.		N/A
	Non-rewirable plugs and portable socket-outlets:		N/A
	- rating of plug or portable socket-outlet ..... :		—
	- type of flexible cable; number of conductors and nominal cross-sectional area (mm^2) ..... :		—
	- pull (100 times) (N) ..... :		—
	- torque (1 min) as specified in table 18 (Nm) ..... :		—
	After the test:		N/A
	Displacement ≤ 2 mm ..... :		N/A
	No break in the electrical connections		N/A
	Rewirable plugs and portable socket-outlets:		N/A
	- rating of plug or portable socket-outlet ..... :		—
	- clamping screws, if any, tightened with a torque equal to 2/3 of that specified in 12.2.8 (Nm) ..... :		—
	- type of flexible cable; number of conductors and smallest nominal cross-sectional area (mm^2) as show in table 17 ..... :		—
	- pull (100 times) (N) ..... :		—
	- torque (1 min) as specified in table 18 (Nm) ..... :		—
	After the test:		N/A
	Displacement ≤ 2 mm ..... :		N/A

DIN VDE 0620-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	End of conductors not have moved noticeably in the terminals		N/A
	- type of flexible cable; number of conductors and largest nominal cross-sectional area (mm^2) as show in table 17 ..... :		—
	- pull (100 times) (N) ..... :		—
	- torque (1 min) as specified in table 18 (Nm) ..... :		—
	After the test:		N/A
	Displacement ≤ 2 mm ..... :		N/A
	End of conductors not have moved noticeably in the terminals		N/A
	Rewirable accessories having rated current up to and including 16 A:		N/A
	Suitable for fitting with the appropriate cable as shown in table 19		N/A
	Type of flexible cable; number of conductors and nominal cross-sectional area (mm^2) ..... :		—
23.3	Plugs and portable socket-outlets shall be provided with a flexible cable complying with DIN VDE 0281 or DIN VDE 0282. Plugs may have other types of cord if permitted by other German standards.		N/A
	Cord extension sets and multiple portable socket-outlets with cord and plug without internal protective devices as well as their components shall be designed for a rated current of 16A.		N/A
	A reduction of the of the cross-section area below 1.5mm² till 1.0mm² is only permitted if an internal protective device is build-in that is designed for the rated current of the wire/conductors.		N/A
	Cord extension sets and multiple portable socket-outlets with cord and plug (table type) are testes as a unit in the assembled condition.		N/A
	Conductor connected to the earthing contact: identified by the colour combination green/yellow		N/A
23.4	Plugs and portable (rewirable and non-rewirable) socket-outlets with connected cord: designed that the flexible cable is protected against excessive bending.		N/A
	For rewirable plugs and socket outlets a radius of 0.5mm at the cable entrance is considered to meet the requirement		N/A

DIN VDE 0620-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	The test is conducted for the entrance hole of the cable is sharp-edged.		N/A
	Guards shall be of insulating material and fixed in reliable manner		N/A
	Flexing test (10.000 flexings):		N/A
	- type of flexible cable and nominal cross-sectional area (mm^2) ..... :		—
	- test current (A) ..... :		—
	- mass (N) ..... :		—
	During the test: no interruption of the test current and no short-circuit between conductors		N/A
	After the test: guard no separated from the body, insulation shows no sign of abrasion or wear, broken strands become no accessible		N/A
24	**MECHANICAL STRENGTH**		P
	Plugs, portable socket-outlets and screwed glands have adequate mechanical strength		P
24.1	Portable multiple socket-outlets: impact test (apparatus shown in fig. 22, 23, 24 and 25)		N/A
	After the test: no damage, live parts do not become accessible		N/A
24.2	Portable single socket-outlets and plugs: tumbling barrel test; number of falls ..... :	25	P
	After the test:		P
	No part become detached or loosened;		P
	Pins no become so deformed that the plug cannot be introduced into a socket-outlet and also fails to comply with the requirements of 9.1 and 10.3;		P
	Pins no turn when a torque of 0,4 Nm is applied for 1 min in each direction		P
	Portable socket-outlets with shutters shall be tested again with the shutter test in cl 21 , Para. 16 to 21(no 10.000 cycles) .		P
24.3	Not apply		N/A
24.4	Portable single socket-outlets, multiple socket-outlets and plugs (elastomeric or thermoplastic material): impact test, weight 1000 g, height 100 mm (apparatus shown in fig. 21)		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Specimens placed in a refrigerator at –15 °C ± 2 °C for at least 16 h		P
	After the test: no damage		P
24.5	Portable single socket-outlets and plugs (elastomeric or thermoplastic material): compression test, 300 N for 1 min, position a) and b) (apparatus shown in fig. 22)		P
	After the test: no damage		P
24.6	Not apply		N/A
24.7	Plug pins provided with insulating sleeves: 20000 movements, 4 N (apparatus shown in fig. 29)		N/A
	After the test: no damage of pins, insulating sleeve not have punctured or rucked up		N/A
24.8	Shuttered portable socket-outlets: mechanical test carried out on specimens submitted to the normal operation test according to clause 21		P
	Force applied for 1 min against the shutter of an entry hole by means of one pin ..... :	40 N	—
	Pin not come in contact with live parts		P
	After the test: no damage		P
	Portable socket-outlets with shutters shall be tested again with the shutter test in cl 21 without repeating normal operation test		P
24.9	Multiple portable socket-outlet: mechanical test		N/A
	Rewirable multiple socket-outlets: flexible cable of the smallest cross-sectional area specified in table 3 .....:		N/A
	8 falls on concrete floor with the specimens arranged as shown in figure 30		N/A
	After the test: no damage, no part have become detached or loosened		N/A
	Portable socket-outlets With IP code higher than IP X0 submitted again to the test as specified in 16.2		N/A
	Portable socket-outlets with shutters shall be tested again with the shutter test in cl 21 without repeating normal operation test		N/A
24.10	Plugs: pull test to verify the fixation of pins in the body of the plug (new specimens)		P
	Maximum withdrawal force (table 16) applied for 1 min on each pin in turn, after the specimen has been placed at 70 °C for 1 h ..... :	54N	—

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Clause	Requirement + Test	Result - Remark	Verdict
	After the test: displacement of pins in the body of the plug ≤ 1 mm ..... :	Max. 0,4mm	P
24.11	Barriers of portable socket-outlets having means for suspension on a wall:		N/A
	Force applied for 10 s against the barrier by means of a cylindrical steel rod (1,5 times the maximum plug withdrawal force specified in table 16) (N) .. :		—
	Rod not pierce the barrier		N/A
24.12	Portable socket-outlets having means for suspension on a wall (pull test):		N/A
	Pull applied to the supply flexible cable for 10 s (force prescribed in 23.2 for checking the flexible cable anchorage) (N) ..... :		—
	During the test: no break of the means for suspension on a wall		N/A
24.13	Portable socket-outlets having means for suspension on a wall (pull test):		N/A
	Pull applied to the engagement face of the portable socket-outlet for 10 s (maximum withdrawal force specified, for the corresponding plug, in table 16) (N) ..... :		—
	During the test: no break of the means for suspension on a wall		N/A
24.14	Not apply		N/A
24.15	Not apply		N/A
24.16	Not apply		N/A
24.17	Not apply		N/A
24.18	Not apply		N/A
24.19	Shroud of portable socket-outlets: compression test (20 ± 2) N at (25 ± 5) °C by means of the apparatus shown in figure 37b		N/A
	After 1 min and while the shrouds are still under pressure the dimensions did comply with the appropriate standard sheet		N/A
	Test repeated with the specimen rotated 90 °		N/A
24.20	Portable socket-outlets with self closing lid for securing a degree of protection larger or equal to IP44 the flap lid is to be subjected to a movement test. After assembly as for the intended use the flap lid is to open to at least 5° before the limit stop for 5000-times. Possibly existing springs or other mechanisms for closing the lid shall not get lost to or become useless.		N/A

DIN VDE 0620-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
24.21	Portable socket-outlet with a non-self-closing lid a pull test for the captiveness of lid with a force without jerk of 50N for 30s is to be performed in the most unfavourable direction. The lid shall not come loose.		N/A
25	**RESISTANCE TO HEAT**		P
25.1	Specimens kept for 1 h in a heating cabinet at (100 ± 2) °C for 1 h		P
	During the test: no change impairing their further use and sealing compound, if any, not flow		P
	After the test:		P
	- no access to live parts with test probe applied with a force not exceeding 5 N		P
	-markings still legible		P
25.2	Parts of insulating material (Except from parts made of rubber) of portable accessories, necessary to retain current-carrying parts and parts of the earthing circuit in position, and parts of the front surface zone of 2 mm width surrounding the phase and neutral pin entry holes: ball-pressure test (1 h, 125 °C) (table 22A)		P
	After the test: diameter of impression ≤ 2 mm ..... :	1,2mm (Enclosure/Shutters)	P
25.3	For parts 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)		N/A
	Test temperature (°C) ..... :		N/A
	After the test: diameter of impression ≤ 2 mm ..... :		N/A
25.4	Portable accessories: compression test (20 N, 1 h, 80 °C) by means of the apparatus shown in figure 28		P
	After the test: no damage		P
26	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		P
26.1	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
	Thread-cutting screws intended to be used during installation: captive		N/A
	Screws or nuts which transmit contact pressure: be made of metal, and in engagement with a metal thread		N/A
	Test:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- 10 times for screws in engagement with a thread of insulating material and for screws of insulating material		N/A
	- 5 times for all other cases		N/A
	During the test: no damage impairing the further use of the screwed connections		N/A
26.2	Screws in engagement with a thread of insulating material: correct introduction into the screw hole or nut ensured		N/A
26.3	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
	Connections made by insulation piercing of tinsel cord reliable		N/A
26.4	Screws and rivets locked against loosening and/or turning		P
26.5	Current-carrying parts (including earthing terminals) have mechanical strength, electrical conductivity and resistance to corrosion adequate:		P
	- 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;	>59%	P
	- stainless steel with at least 13 % chromium and not more than 0,12 % carbon		N/A
	- steel with electroplated coating of zinc (DIN 50961): service condition ISO no. (1/2/3); IP (X0/X4/X5/X6); thickness (µm) ..... :		N/A
	- steel with electroplated coating of nickel and chromium (DIN EN ISO 1456): service condition ISO no. (2/3/4); IP (X0/X4/X5/X6); thickness (µm) ..... :		N/A
	- steel with electroplated coating of tin (DIN 50965): 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		N/A
26.6	Contacts subjected to a sliding action: of metal resistant to corrosion		P
26.7	Thread-forming screws and thread-cutting screws not used for the connection of current-carrying parts		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Thread-forming screws and thread-cutting screws used to provide earthing connection: not necessary to disturb the connection and at least two screws are used for each connection		N/A
26.8	If other than screw-type or screwless terminals used for internal connections in plugs and portable socket-outlets, these connections shall be soldered, welded, crimped or equally effective permanent connections.	Welded, Riveted, Soldered	P
	Screwless terminations, similar like insulating piercing terminations, shall only be used for uninsulated rigid conductors, compliance is checked by the tests according to 12.3 as far as applicable.		N/A
	Screw-type terminals shall not be used for internal connections in non-rewirable portable accessories, compliance is checked by inspection.		N/A
27	**CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH SEALING COMPOUND**		P
27.1	Creepage distances, clearances and distances through sealing compound no less than the values shown in table 24		P
	Creepage distances (cr):		P
	1) between live parts of different polarity ≥ 4(3) mm ..... :	> 4,0mm (measured by gauge)	P
	2) between live parts and:		P
	- accessible insulating and earthed metal parts ≥ 3 mm ..... :	> 4,0mm (measured by gauge)	P
	- parts of earthing circuit ≥ 3 mm ..... :	> 4,0mm (measured by gauge)	P
	- external assembly screws, other than screws which are on the engagement face of plugs and are isolated from the earthing circuit ≥ 3 mm ..... :	> 4,0mm (measured by gauge)	P
	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 ≥ 6(4,5) mm ..... :		N/A
	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 ≥ 6(4,5) mm ..... :		N/A

DIN VDE 0620-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	5) between live parts of a socket-outlet (without a plug) or of a plug and its accessible unearthed metal parts ≥ 6(4,5) mm ..... :		N/A
	Clearances (cl):		P
	6) between live parts of different polarity ≥ 3 mm .. :	> 4,0mm (measured by gauge)	P
	7) between live parts and:		P
	- accessible insulating and earthed metal parts not mentioned under 8 ≥ 3 mm ..... :	> 4,0mm (measured by gauge)	P
	- parts of earthing circuit ≥ 3 mm ..... :	> 4,0mm (measured by gauge)	P
	- external assembly screws, other than screws which are on the engagement face of plugs and are isolated from the earthing circuit ≥ 3 mm ..... :	> 4,0mm (measured by gauge)	P
	8) between live parts and:		N/A
	- accessible unearthed or functional earthed metal partsb of plugs and portable socket-outlets ≥ 6(4,5) mm ..... :		N/A
	9) Remains free		N/A
	10) Remains free		N/A
	11) Between live parts of a portable socket-outlet (without plug) or of a plug and their accessible metal parts which are not connected to the earthing circuit ≥ 6(4.5) mm……..:		N/A
	Distance through insulating sealing compound:		N/A
	12) Remains free		N/A
	13) Remains free		N/A
	Distance through insulation:		N/A
	14) Between accessible surfaces and live parts of non-rewirable, moulded-on plugs and portable socket-outlets. ≥ 1,5 mm……..:		N/A
28	**RESISTANCE OF INSULATING MATERIAL TO ABNORMAL HEAT, TO FIRE AND TO TRACKING**		P
28.1	Resistance to abnormal heat and to fire		P
28.1.1	Glow-wire test		P

DIN VDE 0620-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	For parts of plugs and portable socket-outlets necessary to retain current-carrying parts and parts of the earthing circuit in position: test temperature 750 °C For moulded on plugs the tests is performed on the pin base separately. Note 5: The outer material by moulded plugs is totally removed when testing the supporting parts.		P
	No visible flame and no sustained glowing	Enclosure/Shutters	P
	Flame and glowing extinguish within 30 s ..... :		N/A
	No ignition of the tissue paper		P
	For parts not necessary to retain current-carrying parts and parts of the earthing circuit in position, even though in contact with them: test temperature 650 °C		N/A
	No visible flame and no sustained glowing		N/A
	Flame and glowing extinguish within 30 s ..... :		N/A
	No ignition of the tissue paper		N/A
28.1.2	Plugs with pins provided with insulating sleeves:		N/A
	Test temperature maintained for 3 h by means of the apparatus shown in figure 39 ..... :		N/A
	Impact test according to sub-clause 30.4 (mass 100 g, height 100 mm, 4 impacts): no cracks of the insulating sleeves		N/A
28.2	Resistance to tracking		N/A
	Parts of insulating material retaining live parts in position of plugs and portable socket-outlets >IP X0: test voltage 175 V, 50 drops, solution A of DIN IEC 60112		N/A
	No flashover or breakdown		N/A
29	**RESISTANCE TO RUSTING**		N/A
	Ferrous parts protected against rusting		N/A
	No signs of rust after 10 min in carbon tetrachloride, trichloroethane or equivalent degreasing agent, 10 min 10 % solution of ammonium chloride, 10 min in a box with air saturated with moisture and 10 min at 100 °C		N/A
30	**ADDITIONAL TESTS ON PINS PROVIDED WITH INSULATING SLEEVES**		N/A
30.1	Pressure test at high temperature		N/A
	Apparatus shown in figure 29, with the test specimen in position, maintained for 2 h at 200 °C. Force applied through the blade: 2,5 N		N/A

DIN VDE 0620-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Thickness of insulation measured: before the test (mm); after the test (mm) .....:		N/A
	Thickness within the area of impression ≥ 50 % of the thickness measured before the test: percent value (%) .....:		N/A
30.2	Static damp heat test		N/A
	Set of 3 specimens submitted to two damp heat cycles in accordance with IEC 68-2-30		N/A
	After the test:		N/A
	Insulation resistance and electric strength test (clause 17)		N/A
	Abrasion test (sub-clause 24.7)		N/A
30.3	Test at low temperature		N/A
	Set of 3 specimens maintained at –15 °C ± 2 °C for 24 h		N/A
	After the test:		N/A
	Insulation resistance and electric strength test (clause 17)		N/A
	Abrasion test (sub-clause 24.7)		N/A
30.4	Impact test at low temperature		N/A
	Specimens maintained at –15 °C ± 2 °C for 24 h subjected to 4 impacts (mass 100±1 g, height 100 mm) by means of the apparatus shown in figure 41 rotating the specimen through 90° between impacts		N/A
	After the test: no crack of the insulating sleeves		N/A
31	**EMC**		P
	No requirements except when the plugs and portable socket-outlets contain electronic parts. Neon lamps are not electronic parts.		P
	Plugs and portable socket-outlets with electronic parts must comply with the relevant EMC requirements. .		P

DIN VDE 0620-2-1 **Annex C:** Additional requirements for plug and portable socket with "Hammer" logo for rough use			
Clause	Requirement + Test	Result - Remark	Verdict
C.1	DIN 49406-2, DIN49440-3, DIN 49440-5 or DIN 49440-6 and Din 49441-2, used under rough use condition.		N/A
	Splash-proof socket-outlets according to DIN49440-3 & DIN49440-1 are allowed if they meet the requirements of protection IP44 according to DIN EN 60529 (VDE 0470-1).		N/A
C.2	Symbol according to DIN ISO 7000:2008-12 (1325)		N/A
C.3	Plug or portable sockets in Annex C.1 must meet minimum degree of protection IPX4		N/A
C.4	Plug and portable socket-outlet comply with C.1 must be with flexible cord of H07RN-F with NSSH ÖU and DIN VDE 0282-4 (VDE 0282-4) min. 3x1,5mm^2 with max outer diameter of 11.9mm.		N/A
C.5	Plug and portable sockets within C.1 need the test of 24.5		N/A

DIN VDE 0620-2-1 **Annex D:** During production required test for the manufacturing of plugs and outlets with crimp connections			
Clause	Requirement + Test	Result - Remark	Verdict
D1	An ability proof of the used tool must be accomplished on at least 50 test samples. At least the following shall be documented: the crimping height; or the withdrawal force; or voltage drop of the crimping connection Testing is performed on the bases of EN 60352-2 With this test no worse values may be obtained than those, which were specified during the type testing in accordance with 12.4.		N/A
D2	During the production the crimping height, the withdrawal force or the voltage drop of the crimp connection is to be tested. The determined values may not be worse than those, which were specified during the type testing in accordance with 12.4. The test is to be conducted on at least 3 test samples for each product at the starting of the manufacturing and at the end of manufacturing of a batch, however at the latest after 8 hours. The results may not be worse than those, which were specified during the type testing in accordance with 12.4. The results are to be documented by the manufacturer and be kept for ten years.		N/A

DIN VDE 0620-2-1 **Annex E:** Units intended for installation shall be marked on the smallest closed selling unit with the note according to Appendix E **(referred by clause 8.10)**		
	Hinweis! ***Installation nur durch Personen mit einschlägigen elektrotechnischen Kenntnissen und Erfahrungen!****)* *Durch eine unsachgemäße Installation gefährden **Sie**:* *– Ihr eigenes Leben;* *– das Leben der Nutzer der elektrischen Anlage.* *Mit einer unsachgemäßen Installation riskieren **Sie** schwere Sachschäden, z. B. durch Brand.* *Es droht für **Sie** die persönliche Haftung bei Personen- und Sachschäden.* ***Wenden Sie sich an einen Elektroinstallateur!*** ***) Erforderliche Fachkenntnisse für die Installation*** *Für die Installation sind insbesondere folgende Fachkenntnisse erforderlich:* *– die anzuwendenden „5 Sicherheitsregeln": Freischalten; gegen Wiedereinschalten sichern; Spannungsfreiheit – feststellen; Erden und Kurzschließen; benachbarte, unter Spannung stehende Teile abdecken oder abschranken;* *– Auswahl des geeigneten Werkzeuges, der Messgeräte und ggf. der persönlichen Schutzausrüstung;* *– Auswertung der Messergebnisse;* *– Auswahl des Elektro-Installationsmaterials zur Sicherstellung der Abschaltbedingungen;* *– IP-Schutzarten;* *– Einbau des Elektroinstallationsmaterials;* *– Art des Versorgungsnetzes (TN-System, IT-System, TT-System) und die daraus folgenden Anschlussbedingungen* *– (klassische Nullung, Schutzerdung, erforderliche Zusatzmaßnahmen etc.).* **Reference!** **Installation only by persons with relevant electrotechnical knowledge and experiences!*)** By an inappropriate installation **you** endanger - your own life; - the life of the users of the electrical system. With an inappropriate installation you risk heavy damages to property, e.g. by fire. The personal adhesion threatens with damages to property and person for **you**. **Contact an Electrician! *)** ***)Necessary expertise for the installation** For the installation in particular the following expertise is necessary: - The appropriate "5 safety rules" : De-energize; secure against restarting; determine De-energizing; Grounding and short circuiting; cover energized neighbouring parts or provide it with barriers; - Selection of the suitable tool, the measuring instruments and if necessary the personal protection equipment; - Evaluation of the measurement results; - Selection of the electricity installation material for the securing of the switching off conditions; - IP enclosures; - Installation of the electrical installation material; - Kind of the supply network (TN-system, IT-system, TT-system) and the electrical operating conditions following from it (classical protective grounding, protective grounding, necessary additional measures etc.)	N/A

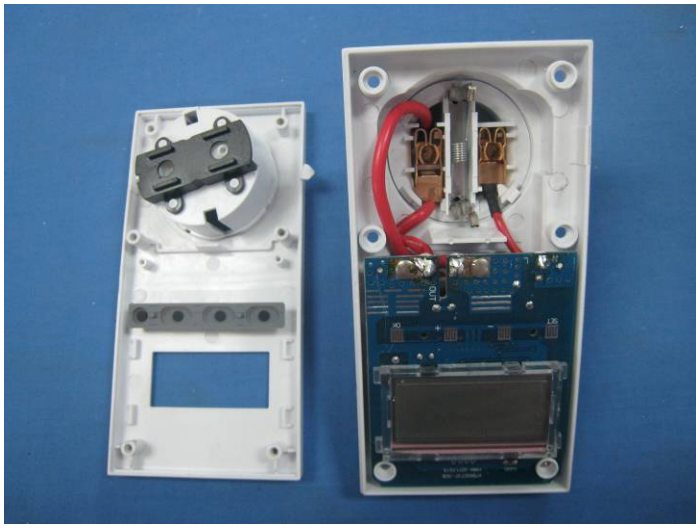
Photos:

TTRF No.: DIN VDE 0620-2-1_V1

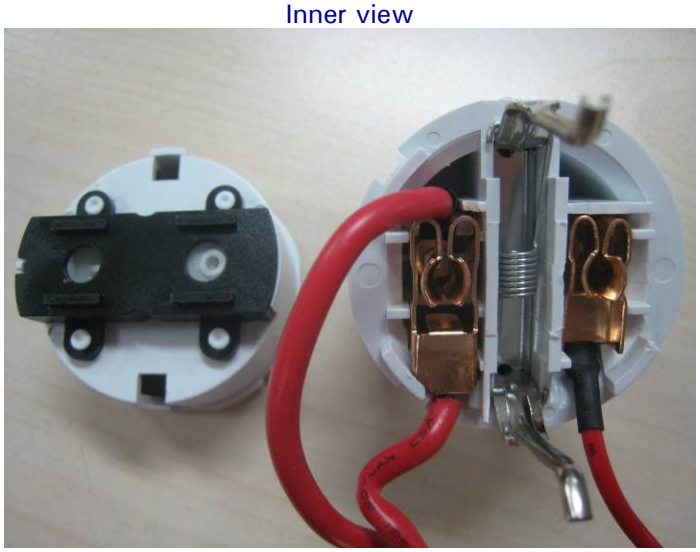
Overall view (ending product)

Rear view

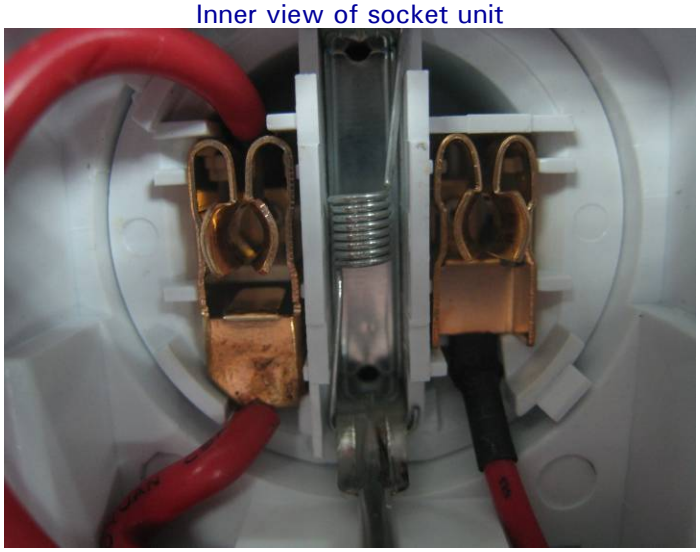
Lateral view



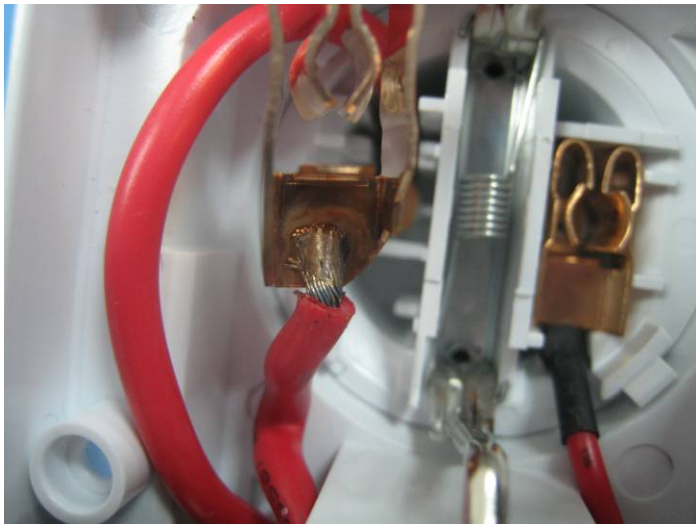
Inner view



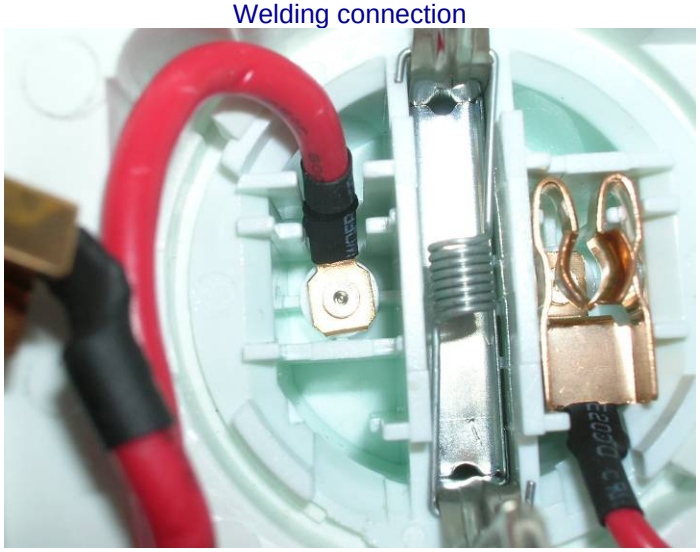
Inner view of socket unit



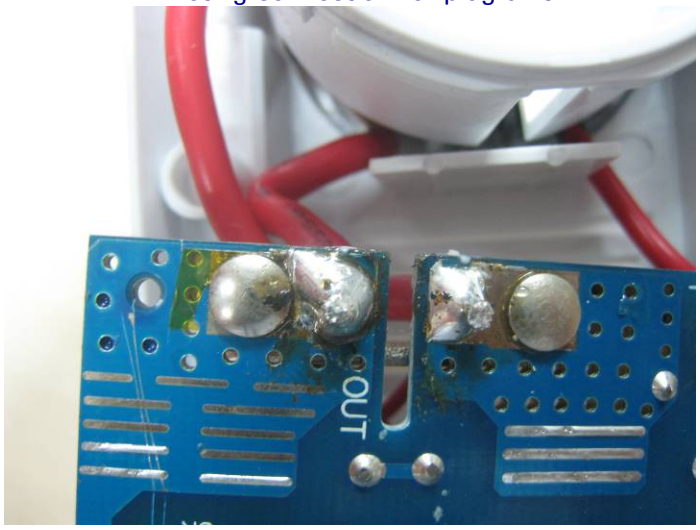
Contact tube



Welding connection



Riveting connection for plug unit



Soldering connection