



Prüfbericht-Nr.: <i>Test report no.:</i>	IN242BA6 001 (ULRTC568824600000002P)	Auftrags-Nr.: <i>Order no.:</i>	146926336	Seite 1 von 48 Page 1 of 48
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	2427216	Auftragsdatum: <i>Order date:</i>	11.06.2024	
Auftraggeber: <i>Client:</i>	Transfix India Pvt Ltd (Subsidiary of Group CAHORS,France) Plot No E-90,MIDC Ranjangaon, Village Karegaon, Pune, Maharastra-412220, India.			
Prüfgegenstand: <i>Test item:</i>	Connector for Photovoltaic systems (DC) - Free Connectors			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	CSC-PI4 - Male / Female connectors			
Auftrags-Inhalt: <i>Order content:</i>	TUV BAUART Mark			
Prüfgrundlage: <i>Test specification:</i>	IEC 62852:2014 + Amd.1:2020 ; EN 62852:2015 + Amd.1:2020 Connectors for DC-application in photovoltaic systems - Safety requirements and tests			
Wareneingangsdatum: <i>Date of sample receipt:</i>	13.06.2024			
Prüfmuster-Nr.: <i>Test sample no:</i>	A003743264-001 to A003743264-050			
Prüfzeitraum: <i>Testing period:</i>	14.06.2024 – 17.09.2024			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (India) Pvt. Ltd. 27/B, 2nd Cross Road, Electronics City Phase 1, Bangalore - 560100, India.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (India) Pvt. Ltd., 27/B, 2nd Cross Road, Electronics City Phase 1, Bangalore - 560100, India.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>			genehmigt von: <i>authorized by:</i>	
Datum: <i>Date:</i>	03.12.2024	V. Dhinesh Kumar	Ausstellungsdatum: <i>Issue date:</i>	03.12.2024
Stellung / Position:	Project Engineer		Stellung / Position:	Report Authorizer
Sonstiges / <i>Other:</i>	1.Refer Page-4 & 5 for Product description, General Remarks & NABL test scope accreditation. 2.Attachment: Attachment 01- Photo Documentation			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* Legend:	P(ass) = passed a.m. test specification(s)	F(ail) = failed a.m. test specification(s)	N/A = not applicable	N/T = not tested
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Anmerkungen
Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>
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3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. <i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i> <i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>

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Liste der verwendeten Prüfmittel
List of used test equipment

Prüfmittel <i>Test equipment</i>	Prüfmittel-Nr. / ID-Nr. <i>Equipment No. / ID-No.</i>	Nächste Kalibrierung <i>Next calibration</i>
Digital Oscilloscope	9064952	29.04.2025
HV test prope	G1826868	26.01.2025
Impulse Voltage simulator	G1827003	Reference
True RMS Clamp meter	G1827440	01.09.2024
Regulated DC Power Supply	G1827881	Reference
Regulated DC Power Supply	G1827882	Reference
Temperature Data logger	G1827553	27.11.2024
HV Breakdown Tester	G1827015	25.06.2025
Damp heat chamber	G1827033	30.11.2024
Climatic chamber (dry heat)	G1827648	11.09.2024
SO2 chamber	G9025271	01.08.2025
IP(IP6X) - Dust Chamber	G1827637	Reference
IP(IP6X) - Vacuum Gauge	G1827636	18.12.2024
IP(IP6X) – Timer	G1827635	08.11.2024
IP (IPX5) test setup	G1827507	11.10.2024
UV test chamber	9025334	30.01.2025
Anchorage Pull test apparatus	G1827936	Reference
Impact Hammer	G1827494	13.10.2024
Cold Chamber	9047639	05.11.2024
Bending Test apparatus	G1827866	19.12.2024
UTM machine	9025357	16.11.2024
Measuring scale	9056569	14.06.2025
Thermal Shock Chamber	9025254	10.12.2024
Multimeter (6 1/2 digit)	G1827441	01.09.2025
Digital Vernier calliper	9056573	14.06.2025
IPX6 Nozzle	G1827509	18.10.2024
Glow wire Tester	G1827868	24.11.2024
Hygrometer	G1827457	10.11.2024

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Produktbeschreibung
Product description

1	Produktdetails <i>Product details</i>	Connector for Photovoltaic systems (DC) - Free Connectors - CSC-PI4 Male / Female	
2	Maße / Gewicht <i>Dimensions / Weight</i>	Dimensions : 102.6 mm x 18.8 mm Weight : 50 Grams(approx.)	
3	Bedienelemente <i>Operating elements</i>	Rated Voltage :1500VDC Rated Current : 25A for 2.5mm ² , 40A for 4.0mm ² , 50A for 6.0mm ² IP65 / IP68 (For IPX8 - Client's declaration: 1.5 meter depth with 60 minutes duration) Temperature:-40°C to +85° ULT: +105°C	
4	Ausstattung / Zubehör <i>Equipment / Accessories</i>	N/A	
5	Verwendete Materialien <i>Used materials</i>	Enclosure	Asahi Kasei – Xyron PV40z (f1)
		Lock parts	Asahi Kasei – Xyron PV40z (f1)
		O-ring	Dow corning Xiameter – RBB-6640-40
		PV cables	APAR, 1.5kV DC, EBXL, 2.5 Sq.mm, 4.0 Sq.mm & 6.0 Sqmm
		Collet	DSM engineering- PA6 Akulon K225-KS
6	Sonstiges <i>Other</i>	-	

General Remarks:

▪ **Free Connectors:**

CSC-PI4 Male connectors are suitable to use with CSC-PI4 Female connectors
and
CSC-PI4 Female connectors are suitable to use with CSC-PI4 Male connectors.

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Clause	Anforderungen - Prüfungen / Requirements - Tests	Measuring results - Remarks	Evaluation

Below List of Tests are under NABL scope of accreditation:

 TC-5688		
Clause	Test Phase	Test
6.5	A 1.2	Clearances and Creepage distances
	A2	Durability of marking
	A7	Mechanical strength impact
	B1	Initial measurement (Contact resistance)
	C1	Bending test
	D1	Initial measurement (Contact resistance)
	D2	Temperature rise test
	D3	Dryheat
	D4	Final measurement (Contact resistance)
	E1	Initial measurement (Contact resistance)
	E3	Damp heat
	E6	Final measurement (Contact resistance)
	F1	Degree of protection
	F2	Degree of protection IP code
	G3	Flammability
	G4	Flammability

Below List of Tests are under Non-NABL scope :

Clause	Test Phase	Test
6.5	A 1.1	Visual and dimensional examination
	A3	Polarisation
	A4	Terminations
	A5	Contact retention in insert
	A 6.1	Cable clamp (pull)
	A 6.2	Cable clamp (torsion)
	A8	Mechanical strength at lower temperature
	A10	Effectiveness of connector coupling device
	B2	Mechanical operation
	B3	Final measurement
	C2	Final measurement
	E2	Change of temperature
	E4	Dielectric strength
	E5	Corrosion test
	F3	Dielectric strength
	G1	Weather resistance
	G2	Dielectric strength

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A	MECHANICAL TEST GROUP A (TABLE 6)		
A1.1	VISUAL EXAMINATION : IEC 60512 / Test [1a], [1b]		
5.2	Marking and Identification		
5.2.1	Identification		
	a) trademark:		P ☒ F ☐ N/A ☐ N/T ☐
	b) type reference:	CSC-PI4 Male / Female Connectors	P ☒ F ☐ N/A ☐ N/T ☐
	c) rated current: [A]	25A for 2.5mm², 40A for 4.0mm², 50A for 6.0mm²	P ☒ F ☐ N/A ☐ N/T ☐
	d) rated voltage: [V]	1500V DC	P ☒ F ☐ N/A ☐ N/T ☐
	e) rated impulse voltage: [kV]	16kV	P ☒ F ☐ N/A ☐ N/T ☐
	f) pollution degree:	2	P ☒ F ☐ N/A ☐ N/T ☐
	g) degree of protection:	IP65/ IP68 (For IPX8 - Client's declaration: 1.5 meter depth with 60 minutes duration)	P ☒ F ☐ N/A ☐ N/T ☐
	h) specified temperatures: ULT: [°C] LLT: [°C] max. ambient temperature (min. +85°C): [°C]	ULT: +105°C LLT: -40°C max.ambinet temperature : +85°C	P ☒ F ☐ N/A ☐ N/T ☐

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	i) type of terminals:	Crimped connection	P ☒ F ☐ N/A ☐ N/T ☐
	j) connectable conductors:	2.5 mm ² / 4.0 mm ² / 6.0mm ² (flexible)	P ☒ F ☐ N/A ☐ N/T ☐
	k) reference to this standard:	IEC 62852:2014+A1:2020 EN 62852:2015+A1:2020	P ☒ F ☐ N/A ☐ N/T ☐
	l) hint "do not connect or disconnect under load" (this hint can also be in national language):	Suitable marking provided (The moulded marking provided)	P ☒ F ☐ N/A ☐ N/T ☐
	m) polarity of connectors:	Marked as + & -	P ☒ F ☐ N/A ☐ N/T ☐
	n) RTE/RTI or TI (mechanical and electrical) of all polymeric insulating materials used in the connector:	Complies, Provided by manufacturer	P ☒ F ☐ N/A ☐ N/T ☐
5.2.2	Marking indelible and easily legible: - The minimum marking on the connector is a); l); m) - Marking a) and b) have been found on the smallest unit of packaging	Complies	P ☒ F ☐ N/A ☐ N/T ☐
	Symbol or warning hints listed in l) of 5.2.1 are imprinted or labelled close the connector. A notice to attach the label is given in the technical documentation.	Complies	P ☒ F ☐ N/A ☐ N/T ☐
5.2.3	Identification items not marked on the connector according to 5.2.2 and the following information are given in the technical documentation: a) information regarding the type of cable suitable for termination, if applicable b) information regarding mounting, if applicable c) assembly information such as required tooling by manufacturer, if applicable	Complies	P ☒ F ☐ N/A ☐ N/T ☐
5.7.1	Mechanisms used for mounting are not used to fix live parts	Complies	P ☒ F ☐ N/A ☐ N/T ☐

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5.7.2	Connectors are so designed that connection of conductors of the type and cross-sectional areas as described in 5.7.3 and as specified by the manufacturer is possible	Complies	P ☒ F ☐ N/A ☐ N/T ☐
	No damage of the insulation is possible, e.g. by sharp edges	Complies	P ☒ F ☐ N/A ☐ N/T ☐
5.7.3	Cables connected to the connector are suitable for use in photovoltaic systems and comply with the requirement of IEC 62930.	Complies, Photovoltaic Cables are comply as per IEC 62930	P ☒ F ☐ N/A ☐ N/T ☐
	Rated current and voltage of connected cables comply at least with rated values of the connector.	Complies	P ☒ F ☐ N/A ☐ N/T ☐
	Flexible cables and conductors are class 5 according to EN 60228	Complies, Class 5 conductors used	P ☒ F ☐ N/A ☐ N/T ☐
	Class 2 conductors of attached PV cables only for connectors intended explicit for fixed installation	Class 5 conductors used	P ☒ F ☐ N/A ☐ N/T ☐
5.7.4	Non-rewirable connectors have been designed that:	Non-Rewireable connector	
	-the flexible cable cannot be separated from the connector without marking it permanently useless	Complies	P ☒ F ☐ N/A ☐ N/T ☐
	-connector cannot be disassembled or parts of it cannot be removed by hand or by using a general purpose tool, for example a screwdriver, as intended	Complies	P ☒ F ☐ N/A ☐ N/T ☐
	- means are provided to prevent live parts, e.g. free strands of a conductor, from reducing the minimum insulation distance between such live parts and all accessible external surface of the connector, with the exception of the engagement face of the male connector	Complies	P ☒ F ☐ N/A ☐ N/T ☐
	If this cannot be granted by the design or manufacturing process itself, the in-process test schedule according to 6.4 or another test of the same safety level has be carried out.	Not Applicable	

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5.8	Design of free connector		
	In a free connector the class 5 wires are protected against shear and tensile stress at the termination and be secured to prevent twisting	Complies	P ☒ F ☐ N/A ☐ N/T ☐
5.9	Degree of protection (IP-Code)		
	The minimum degree of protection of a connector is at least IP 55 according to IEC 60529 : IP	Complies IP65/ IP68 (For IPX8 - Client's declaration: 1.5 meter depth with 60 minutes duration)	P ☒ F ☐ N/A ☐ N/T ☐
A1.1	VISUAL AND DIMENSIONAL EXAMINATION		
5.2.3	Dimensions comply with the manufacturer's specification according to 5.2.3.	Complies	P ☒ F ☐ N/A ☐ N/T ☐
A1.2	CLEARANCES AND CREEPAGE DISTANCES		
5.18	Clearances and creepage distances according to 5.18 Table 2 and Table 3 see Table 0.2	Complies Refer Table:0.2	P ☒ F ☐ N/A ☐ N/T ☐
A2	DURABILITY OF MARKING		
6.3.2	After the test by rubbing the marking by hand for 15s with cotton cloth soaked with water and 15 s with petroleum spirit. The marking on the connector or on an additional lable is still legible with naked eye.	Moulded type marking provided	P ☒ F ☐ N/A ☐ N/T ☐
A3	POLARISATION: IEC 60512 / Test [13e]		
	Test force: 20N or 1,5 times the insertion force, whichever is higher but not higher than 80N: [N]		
5.3	Multipole connectors are so polarised that improper connection of mating parts is prevented:	Not Multi-way connectors	P ☐ F ☐ N/A ☒ N/T ☐

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	VISUAL EXAMINATION: IEC 60512 / Test [1a]		
	No damage likely to impair function:		P ☐ F ☐ N/A ☒ N/T ☐
A4	TERMINATIONS		
5.5	Terminations and connection methods		
6.3.15	Connection method		
	a) Crimped connections according to IEC 60352-2:		
	visual tests on the crimp barrel as specified in IEC 60352-2 of clause 4.3 - 4.5:		
	- crimp barrels are of copper or copper alloy (with min. 60% copper):	Complies	P ☒ F ☐ N/A ☐ N/T ☐
	- bare crimp barrels or tinned crimp barrels are used:	Complies	P ☒ F ☐ N/A ☐ N/T ☐
	- no damage of the conductor has been occurred after using the crimp barrels:	Complies	P ☒ F ☐ N/A ☐ N/T ☐
	- cross section is between 0,05mm ² and 10,0 mm ² :	Complies (2.5 mm ² / 4.0 mm ² / 6.0mm ² used)	P ☒ F ☐ N/A ☐ N/T ☐
	- insulation doesn't show any damages likely to impair safety, all stranded wires are within the crimp barrel:	Complies	P ☒ F ☐ N/A ☐ N/T ☐

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	Cable does not slip out of the crimp connection during tensile strength test as specified in IEC 60352-2 min: [N] meas.: [N]	Complies, Min : 230N for 2.5mm ² , 310N for 4.0mm ² & 360N for 6.0mm ² Meas : 390N for 2.5mm ² , 460N for 4.0mm ² & 490N for 6.0mm ²	P ☒ F ☐ N/A ☐ N/T ☐
	b) Insulation displacement connections according to IEC 60352-3 (accessible IDC) or IEC 60998-2-3:		
	- Visual examination according to IEC 60512-2 test 1a carried out with 5 x magnification. The contact through the insulation between the wire and the insulation displacement termination is given.		P ☐ F ☐ N/A ☒ N/T ☐
	Tensile test according to IEC 60352-3 Table 1 diameter of conductor: [mm ²] min.withdrawl force: [N]		
	The conductor doesn't slip out of the insulation displacement connection.		P ☐ F ☐ N/A ☒ N/T ☐
	c) Insulation displacement connections according to IEC 60352-4 (non-accessible IDC) or IEC 60998-2-3:		
	- Visual examination according to IEC 60512-2 test 1a carried out with 5 x magnification. The contact through the insulation between the wire and the insulation displacement termination is given.		P ☐ F ☐ N/A ☒ N/T ☐
	Tensile test according to IEC 60352-3 Table 1 diameter of conductor: [mm ²] min.withdrawl force: [N]		
	The conductor doesn't slip out of the insulation displacement connection.		P ☐ F ☐ N/A ☒ N/T ☐
	d) Press-in connections according to IEC 60352-5:		
	- visual test as specified in IEC 60352-5 according to IEC 60512 clause 1a with 5 x magnification. The contact of the press-in connection is given.		P ☐ F ☐ N/A ☒ N/T ☐

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	test of the push-out force as specified in IEC 60352-5 Table 3 push-out force: diameter < 1,3 mm: 30N diameter > 1,3 mm: 40N		
	After the test the conductor doesn't slip out of the press-in connection		P ☐ F ☐ N/A ☒ N/T ☐
	e) Insulation piercing connections according to IEC 60352-6 or IEC 60998-2-3:		
	- The conductor doesn't slip out of the insulation during tests according to IEC 60352-6 clause 5 or IEC 60998-2-3 Tensile strength test: min.: 20N meas.: [N]		P ☐ F ☐ N/A ☒ N/T ☐
	f) Screwless-type clamping units according to IEC 60999-1 or IEC 60999-2 or IEC 60352-7		
	- mechanical tests on the conductor connection as specified in IEC 60999-1 or IEC 60999-2 or IEC 60352-7. Tests according to clause 9 of IEC 60999-1. cross-section: [mm²] height: [mm] weight: [N]		
	During the test the conductor doesn't slip out of the connection		P ☐ F ☐ N/A ☒ N/T ☐
	g) Screw-type clamping units according to IEC 60999-1 or IEC 60999-2:		
	- mechanical tests on the conductor connection as specified in IEC 60999-1 or IEC 60999-2. Tests according to clause 9.6 of IEC 60999-2. Requirements see Table 5 of IEC 62852 diameter: [mm] screw type: number torque: [Nm]		
	During the test the clamping units are not damage.		P ☐ F ☐ N/A ☒ N/T ☐

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	h) Flat, quick-connect terminations according to IEC 61210		
	- The dimensional test is carried out according to IEC 61210 clause 8.1 + 8.2 Table 5 + 6.		
	The min. insertion force and min. withdrawal force in accordance to Table 5 of IEC 61210 must be fulfilled. size of the connection: [mm] insertion force: min.: [N] meas.: [N] withdrawl force: min.: [N] meas.: [N]		P ☐ F ☐ N/A ☒ N/T ☐
	The retention force in accordance to IEC 61210 Table 6 will be conducted for 1 min. size of the connection: [mm] retention force plug in: [N] retention force pull out: [N]		
	After the test no damage at the connection occurred		P ☐ F ☐ N/A ☒ N/T ☐
	Electrical and thermal tests on terminations are carried out in conjunction with the test on the connector		P ☐ F ☐ N/A ☒ N/T ☐
	Other terminations and connection method met the relevant standards		P ☐ F ☐ N/A ☒ N/T ☐
	Electrical connections are so designed that the contact pressure is not transmitted through insulating material other than ceramic, pure mica or other material with characteristics not less suitable unless there is sufficient resiliency in the metallic parts to compensate for any shrinkage or yielding of the insulating material.		P ☐ F ☐ N/A ☒ N/T ☐
	Range of connectable conductor(s):		

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A5	CONTACT RETENTION IN INSERT: IEC 60512 / Test [15a]		
	Test load is three times the specified insertion force (mating) of one contact or the specified insertion force of one contact plus 50N, whichever is less test load: [N]	Complies, Specified insertion force :50 N 100N	
5.15.2	Contacts safety retained	Complies, Contacts safety retained	P ☒ F ☐ N/A ☐ N/T ☐
	No axial displacement likely to impair normal operation:	No axial displacement observed	P ☒ F ☐ N/A ☐ N/T ☐
5.14	CABLE ANCHORAGE		
5.14.1	Connectors intended to be used with cables specified by the manufacturer		
	The cord anchorage is suitable for mounting of cables specified by the manufacturer. The tests have been performed with cables as specified by the manufacturer cable diameter: [mm]	Complies 5.80 - 6.40mm (6.0mm ²), 5.40 - 6.0mm (4.0mm ²), 4.80 - 5.40mm (2.5mm ²)	P ☒ F ☐ N/A ☐ N/T ☐
A6.1	CABLE CLAMP (PULL): IEC 60512 / Test [17c]		
	The cable is pulled for a duration of 1 s, 50 times with a force specified in Table 1a	Complies, Refer Table A6.1	
	Compliance is checked with the values of Table 1a cable diameter: [mm] pull force: [N]	Complies 4.80mm – 6.40mm 30N	

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	VISUAL EXAMINATION: IEC 60512 / Test [1a]		
	Cable displacement does not exceed 2 mm (see Table A6.1)	Complies, Refer Table A6.1	P ☒ F ☐ N/A ☐ N/T ☐
A6.2	CABLE CLAMP (TORSION): IEC 60512 / Test [17d]		
	VISUAL EXAMINATION: IEC 60512 / Test [1a]		
	Compliance is checked with the values of Table 1b cable diameter: [mm] torque: [Nm] testing time: 1 min	Complies, Refer Table A6.2 4.80mm – 6.40mm 0,10Nm	
	During test, the torsion shall not exceed 45° (see Table A6.2)	Complies, Refer Table A6.2	P ☒ F ☐ N/A ☐ N/T ☐
5.14.2	Connectors intended to be used with generic cables		
A6.1	CABLE CLAMP (PULL): IEC 60512 / Test [17c]		
	The test was performed with a mandrel equivalent to the minimum value of the anchorage range of the cable gland specified by the manufacturer as specified in Table 1a mandrel diameter: [mm] pull force: [N]		
	VISUAL EXAMINATION: IEC 60512 / Test [1a]		
	Displacement of the mandrel does not exceed 2 mm (see Table A6.1)		P ☐ F ☐ N/A ☒ N/T ☐

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A6.2	CABLE CLAMP (TORSION): IEC 60512 / Test [17d]		
	VISUAL EXAMINATION: IEC 60512 / Test [1a]		
	The torsion test was performed by using a test mandrel equivalent to the maximum value of the anchorage range of the cable gland as specified by the manufacturer or supplier, with a torque for the appropriate maximum cable diameter as specified in Table 1b diameter of mandrel: [mm] torque: [Nm] testing time: 1 min		
	During test, the torsion shall not exceed 45° (see Table A6.2)		P ☐ F ☐ N/A ☒ N/T ☐
A7	MECHANICAL STRENGTH IMPACT (ONLY FREE CONNECTORS)		
	Dropping cycles: 8 positions in 45° steps		
	Dropping height: [mm]	750mm	
	No damage likely to impair safety:	No damages observed	P ☒ F ☐ N/A ☐ N/T ☐
	Internal insulations not damaged:	No insulations damage observed	P ☒ F ☐ N/A ☐ N/T ☐
	Parts against electric shock not damaged:	No damages observed	P ☒ F ☐ N/A ☐ N/T ☐
	Clearance and creepage distances not reduced:	Complies	P ☒ F ☐ N/A ☐ N/T ☐

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A8	Mechanical strength at lower temperatures		
6.3.10	Test duration: 5 h		
	Lower temperature limit -40°C or, if lower, the ambient temperature specified by the manufacturer test temperature. [°C]	Test duration : 5h Force : 1 joule Test temperature : -40°C	
5.15	MECHANICAL STRENGTH		
5.15.1	No visual damage, no cracks on insulations parts likely to impair safety	No damages/No Crack observed	P ☒ F ☐ N/A ☐ N/T ☐
5.15.2	Contacts safety retained. Internal insulation doesn't show any damages likely to impair safety	Complies	P ☒ F ☐ N/A ☐ N/T ☐
	No damage occurred which could impair normal use	Complies	P ☒ F ☐ N/A ☐ N/T ☐
6.3.8.b	DIELECTRIC STRENGTH: IEC 60512 / Test [4a]		
	AC-test voltage: [kV] or DC-test voltage: [kV]	8kV AC	
5.10	No breakdown or flashover occurred	Complies, No breakdown or flashover occurred.	P ☒ F ☐ N/A ☐ N/T ☐
A9	Insertion and withdrawal force: IEC 60512 [13b]		
5.16	Connectors without locking device or without snap-in device withstand a withdrawal force of at least 50 N (in accordance with 6.3.13) withdrawal force: [N]		P ☐ F ☐ N/A ☒ N/T ☐

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A10	CONNECTOR WITH LOCKING DEVICE: IEC 60512 [15f]		
6.3.14	Connectors with locking device or with snap-in device withstand a load of at least 80N with a rate of 10 N/sec. withdrawal force: [N]	Complies 80N	
	No disengagement of the connectors is possible	Complies	P ☒ F ☐ N/A ☐ N/T ☐
5.17	No damage occurred which could impair normal use	Complies, No damages observed	P ☒ F ☐ N/A ☐ N/T ☐
B	SERVICE LIFE TEST GROUP B (TABLE 7)		
B1	INITIAL MEASUREMENTS (CONTACT RESISTANCE): IEC 60512 / Test [2b]		
	Reference value for subsequent measurement: [mΩ] (Test current: 1 A)	Refer Table B1	
B2	MECHANICAL OPERATIONS: IEC 60512 / Test [9a]		
6.3.5	Operating cycles specified by the manufacturer:	50	
	Insertion speed: 0,01 m/s		
	Rest: 30 s		
	VISUAL EXAMINATION: IEC 60512 / Test [1a]		
5.11.1	No damage occurred which could impair normal use	Complies, No damages observed Refer Table B2	P ☒ F ☐ N/A ☐ N/T ☐

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B3	FINAL MEASUREMENTS (CONTACT RESISTANCE): IEC 60512 / Test [2b]		
	Test current: 1 A		
	R2 < 1,5 R1 or R2 < 5 m + R1: [mΩ]	Complies Refer Table B3	P ☒ F ☐ N/A ☐ N/T ☐
6.3.8.b	DIELECTRIC STRENGTH: IEC 60512 / Test [4a]		
	AC-test voltage: [kV] or DC-test voltage: [kV]	8kV AC	
5.10	No breakdown or flashover of the test voltage	Complies, No breakdown or flashover occurred.	P ☒ F ☐ N/A ☐ N/T ☐
C	SERVICE LIFE TEST GROUP C (TABLE 8)		
C1	BENDING TEST: IEC 60309-1, 24.4 modified		
6.3.6	Only non-rewireable connectors		
	Rated current: [A]	25A for 2.5mm², 40A for 4.0mm², 50A for 6.0mm²	
	wire cross-section: [mm²]	2.5 mm² / 4.0 mm²/ 6.0mm² (flexible)	
	load for cross-sections > 0,75mm²: 20 N load for cross-sections < 0,75mm²: 10 N	20N	
	number of bends: 100	100	
	During the test, no interruption of the test current	Complies, No interruption of test current observed. Refer Table C1	P ☒ F ☐ N/A ☐ N/T ☐

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C2	FINAL MEASUREMENT		
	The cable support sleeve has not be loosened from the body	Complies	P ☒ F ☐ N/A ☐ N/T ☐
	The insulation doesn't show any signs of abrasion or of wear and tear	Complies	P ☒ F ☐ N/A ☐ N/T ☐
5.11.2	Broken strands did not pierce the insulation	Complies	P ☒ F ☐ N/A ☐ N/T ☐
	No damage occurred which could impair normal use	Complies, No damages observed	P ☒ F ☐ N/A ☐ N/T ☐
6.3.8.b	DIELECTRICAL STRENGTH: IEC 60512/ TEST [4a]		
	AC-test voltage: [kV] or DC-test voltage: [kV]	8kV AC	
5.10	No breakdown or flashover of the test voltage	Complies, No breakdown / No flashover occurred Refer Table C2	P ☒ F ☐ N/A ☐ N/T ☐
D	THERMAL TEST GROUP D (TABLE 9)		
D1	INITIAL MEASUREMENTS (CONTACT RESISTANCE): IEC 60512 / Test [2b]		
	Reference value for subsequent measurement:[mΩ] Test current: 1 A	Complies Refer Table D1	

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D2	TEMPERATURE RISE TEST: IEC 60512 / Test [5A]		
	cross-section of the test cables: [mm²]	2.5 mm² / 4.0 mm²/ 6.0mm² (flexible)	
	length of test cables: 500 mm ± 50 mm for cross-section ≤ 10 mm² 1 000 mm ± 100 mm for cross-section > 10 mm²	500mm ± 50mm (cross-section ≤ 10mm²)	
	test current as specified by the manufacturer: [A]	25A for 2.5mm², 40A for 4.0mm², 50A for 6.0mm²	
	the test shall be carried out at an ambient temperature of 85 °C or the maximum ambient temperature specified by manufacturer, if higher test temperature: [°C]	Complies 105°C	
5.13	The upper limiting temperature (ULT) specified for the specimen is not exceeded	Complies, ULT:105°C is not exceeded during test Refer Table D2	P ☒ F ☐ N/A ☐ N/T ☐
D3	DRY HEAT: IEC 60512 / Test [11i]		
	Test duration: [h]	1000 h	
	Upper temperature limit: [°C]	105°C	
D4	FINAL MEASUREMENTS		
	VISUAL EXAMINATION: IEC 60512 / Test [1a]		
	No visual damage, no cracks on insulations parts likely to impair safety	No Crack / No damages observed	P ☒ F ☐ N/A ☐ N/T ☐
	Internal insulation doesn't show any damages likely to impair safety	Complies	P ☒ F ☐ N/A ☐ N/T ☐

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	FINAL MEASUREMENT (CONTACT RESISTANCE): IEC 60512 / Test [2b]		
	Test current: 1 A		
	R2 < 1,5 R1 or R2 < 5 mΩ + R1: [mΩ]	Complies Refer Table D4	P ☒ F ☐ N/A ☐ N/T ☐
E	CLIMATIC TEST GROUP E (TABLE 10)		
E1	INITIAL MEASUREMENTS (CONTACT RESISTANCE): IEC 60512 / Test [2b]		
	Reference value for subsequent measurement: [Ω] Test current: 1 A	Complies Refer Table E1	
E2	CHANGE OF TEMPERATURE: (IEC 60068-2-14,Test Na)		
6.3.11	Number of cycles: 200		
	test temperature: upper specified ambient temperature(min. +85 °C): [°C] lower specified ambient temperature(max. -40 °C): [°C]	+85°C -40°C (The Rated Current passed through connectors during test)	
	No damage occurred which could impair normal use	Complies, No damage observed	P ☒ F ☐ N/A ☐ N/T ☐
E3	DAMP HEAT: IEC 61215-2:2016 / Test 4.13		
6.3.12	Test duration: 1000h Relative humidity: 85 %		
	test temperature: upper specified ambient temperature(min. +85 °C): [°C]	+105 °C	

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	VISUAL EXAMINATION: IEC 60512 / Test [1a]		
	No damage occurred which could impair normal use	Complies, No damages observed	P ☒ F ☐ N/A ☐ N/T ☐
E4	DIELECTRIC STRENGTH: IEC 60512 / Test [4a]		
6.3.8.a	Impulse withstand voltage: [kV]	16kV	
6.3.8.b	AC-test voltage: [kV] or DC-test voltage: [kV]	8kV AC	
5.10	No breakdown or flashover of the testvoltage	Complies, No breakdown / No flashover observed Refer Table E4	P ☒ F ☐ N/A ☐ N/T ☐
E5	CORROSION TEST		
6.3.9 Test 1	Flowing mixed gas corrosion according to IEC 60512-11-7, test 11g Method 1 or alternatively Mehod 4 (Table 1 of IEC 60512-11-7)). Test duration is 4 days	Test 2 conducted	
5.20.1	Metal parts are so designed that corrosion does not impair safety with regard to electrical and mechanical characteristics.		P ☐ F ☐ N/A ☐ N/T ☒
	All current carrying parts consist of base metal and plating, such that during the normal operation a sufficient mechanical strength, electrical conductivity and corrosion resistance are given.		P ☐ F ☐ N/A ☐ N/T ☒
5.20.2	Under wet ambient conditions all metal parts having a difference of their electrochemical potentials more than 350mV according to IEC TR 60943 are not in contact with each other		P ☐ F ☐ N/A ☐ N/T ☒

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6.3.9 Test 2 alter native	Sulfur dioxide test with general condensation of moisture according to ISO 6988 Test duration is 24h (1 test cycle)	Complies, Sulfur dioxide test with general condensation of moisture according to ISO 6988 tested	
	No damage occurred which could impair normal use	Complies, No damage observed	P ☒ F ☐ N/A ☐ N/T ☐
E6	FINAL MEASUREMENT (CONTACT RESISTANCE): IEC 60512 / Test [2b]		
	Test current: 1A		
	R2 < 1,5 R1 or R2 < 5 mΩ + R1: [mΩ]	Complies Refer Table E6	P ☒ F ☐ N/A ☐ N/T ☐
F	DEGREE OF PROTECTION TEST GROUP F (TABLE 11)		
F1	PROTECTION AGAINST ELECTRIC SHOCK		
6.3.3.1/ 5.4.2	Protection against electric shock is ensured also during insertion and withdrawal. This is proved by test with the IEC test probe 11 in accordance with IEC 61032 with a test force of 10N at disengaged connectors. No live parts accessible.	Complies, Tested with 10N force, No live parts are accessible.	P ☒ F ☐ N/A ☐ N/T ☐
F2	DEGREE OF PROTECTION IP CODE: IEC 60529		
6.3.3.2	IP-Degree of protection: IP	IP65 / IP68 (Declaration : 1.5 meter depth with 60 minutes duration)	
5.4.1	Connectors are so designed, that after mounting, its live parts are not accessible by the IEC test finger in accordance with IEC 60529 nor by test probe according to relevant IP code.	Complies	P ☒ F ☐ N/A ☐ N/T ☐
5.9	min. cross-section: [mm²] max. cross-section: [mm²]	2.0mm² 6.0mm²	

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	No ingress of dust	Complies, No ingress of dust observed.	P ☒ F ☐ N/A ☐ N/T ☐
	No ingress of water	Complies, No ingress of water observed.	P ☒ F ☐ N/A ☐ N/T ☐
F3	DIELECTRIC STRENGTH: IEC 60512 / Test [4a]		
6.3.8.b	AC-test voltage: [kV] or DC-test voltage: [kV]	8kV AC	
5.10	No breakdown or flashover of the test voltage	Complies, No breakdown / No flashover observed Refer Table F3	P ☒ F ☐ N/A ☐ N/T ☐
G	INSULATION MATERIAL TEST GROUP G (TABLE 12)		
G1	WEATHER RESISTANCE TEST		
	Test according to method ISO 4892-2 or Test according to method ISO 4892-3 Test method:	Tested according to method of ISO 4892-2	
	No damage or cracks occurred which could impair normal use. Markings are still legible	Complies, No damage / No cracks observed.	P ☒ F ☐ N/A ☐ N/T ☐
G2	ELECTRICAL STRENGTH: IEC 60512 / Test [4a]		
6.3.8.b	AC-test voltage: [kV] or DC-test voltage: [kV]	8kV AC	

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5.10	No breakdown or flashover	Complies, No breakdown / No flashover observed Refer Table G2	P ☒ F ☐ N/A ☐ N/T ☐
G3	FLAMMABILITY RATING FOR POLYMERIC MATERIALS SERVING AS AN ENCLOSURE FOR LIVE PARTS		
5.19.2. a)	Insulation materials serving as an enclosure have flammability rating of HB, V-2, acc. to IEC 60695-11-10 (see Table 0.3.3)	Complies Refer Table 0.3.3	
5.19.2. c)	Glow wire temperature during test acc. to IEC 60695-2-11 test temperature: 650 °C	750°C (Enclosure material & Parts supporting for live are same)	
	No ignition of the material (see Table 0.3.2)	Complies, Refer Table 0.3.2	P ☒ F ☐ N/A ☐ N/T ☐
5.19.2 d)	Approval of relative thermal endurance, relative thermal index or temperature index (RTE/RTI or TI) in accordance with IEC 60216-5 or IEC 60216-1. Values are listed in technical information.	Complies	P ☒ F ☐ N/A ☐ N/T ☐
G4	FLAMMABILITY RATING FOR PLOYMERIC MATERIALS SERVING TO SUPPORT LIVE PARTS		
5.19.3. a)	Insulation materials serving to support live parts have flammability rating of HB, V-2 acc. to IEC 60695-11-10 (see Table 0.3.3)	Complies, Refer Table 0.3.3	
5.19.3. c)	Glow wire temperature during test acc. to IEC 60695-2-11 test temperature: 750 °C	750°C	
	No ignition of the material (see Table 0.3.2)	Complies, No ignition of material observed. Refer Table 0.3.2	P ☒ F ☐ N/A ☐ N/T ☐
5.19.3 d)	Approval of relative thermal endurance, relative thermal index or temperature index (RTE/RTI or TI) in accordance with IEC 60216-5 or IEC 60216-1. Values are listed in technical information.	Complies, Suitable Certified Components are used	P ☒ F ☐ N/A ☐ N/T ☐

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ZUSATZ-DOKUMENTATION
ADDITIONAL DOCUMENTATION

Table A6.1	Tensile force: Covers mounted / contacts not connected						P F N/A N/T	☒ ☐ ☐ ☐
Identification	cable diameter Ø [mm]		Test mandrel Ø [mm]	Tensile force [N]	Permissible displacement [mm]	Measured displacement [mm]	—	
A6.1-1	Min.	5.80	-	30	2	0.1		
	Max.	6.40						
A6.1-2	Min.	5.40	-	30	2	0.2		
	Max.	6.0						
A6.1-3	Min.	4.80	-	30	2	0.1		
	Max.	5.40						
Remark: Conforms								
Supplementary information: Sample No: A6.1-1 connectors with 6.0mm ² cables. Sample No: A6.1-2 - connectors with 4.0mm ² cables. Sample No: A6.1-3 - connectors with 2.5mm ² cables.								

Table A6.2	Torsion test: Covers mounted / contacts not connected						P F N/A N/T	☒ ☐ ☐ ☐
Identification	cable diameter Ø [mm]		Test mandrel Ø [mm]	Torque [Nm]	Permissible angle [°]	Measured angle [°]	—	
A6.2-1	Min.	5.80	-	0.10	45	5		
	Max.	6.40						
A6.2-2	Min.	5.40	-	0.10	45	5		
	Max.	6.0						
A6.2-3	Min.	4.80	-	0.10	45	5		
	Max.	5.40						
Remark: Conforms								
Supplementary information: Sample No: A6.2-1 connectors with 6.0mm ² cables. Sample No: A6.2-2 - connectors with 4.0mm ² cables. Sample No: A6.2-3 - connectors with 2.5mm ² cables.								

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Table 0.1 Characteristic features			
	Example	X	Please mark relevant line with "X"
	Kind of equipment	X	Connector
	Existence of an enclosure		Unenclosed connector
		X	Enclosed connector
	Design of the connector		Fixed connector
		X	Free connector (for fixed wiring)
	Additional characteristics		Connector with protective earthing contact
		X	Connector without protective earthing contact
		X	Connector with cable clamp
			Connector without cable clamp
		X	Connectors (without breaking capacity) with protection against electric for hand back safety, when mated
		X	Connectors (without breaking capacity) with protection against electric for finger safety, when mated
			CBC with protection against electric shock for finger safety, both in mated and unmated condition
		X	Degree of protection of a connector
		X	Connector for class II equipment
			Connector with interlock
		X	Connector without interlock
		X	Non-rewireable connector
			Rewireable connector
	Pollution degree		1
		X	2
			3
			4
	Over voltage category		I
			II
		X	III
			IV

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Table 0.1	Characteristic features		
	Operating cycles		10
		X	50
			100
			500
			1000
			2000
			5000
			According manufacturer's
	Bends	X	100
	Upper temperature limit		+85 °C
		X	105 °C According manufacturer's
	Lower temperature limit	X	-40°C
			°C According manufacturer's
	Type of conductor		Solid
		X	Flexible
	Termination and connection	X	Crimped connection according to IEC 60352-2
			Insulation displacement connection (accessible) according to IEC 60352-2
			Insulation displacement connection (non-accessible) according to IEC 60352-4
			Press in connection according to 60352-5
			Insulation piercing connection according to IEC 60352-6 or IEC 60998-2-3
			Screwless-type clamping units according to IEC 60999-1 or IEC 60999-2
			Screw-type clamping units according to IEC 60999-1 or IEC 60999-2
			Flat, quick-connect terminations according to IEC 60760 and IEC 61210
			According manufacturer's

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Table 0.1	Characteristic features			
	Values for cable clamp		Cable diameter [mm]	Diameter range according to manufacturer
			< 4	
		X	>4 to 8	4.80mm – 6.40mm
			>8 to 11	
			>11 to 16	
			>16 to 23	
			>23 to 31	
			>31 to 43	
			>43 to 55	
			>55	
	Rated voltage(s)	1500V DC		
	Rated current	25A(2.5 mm ²) / 40A (4.0 mm ²) / 50A (6.0 mm ²)		
	Rated impulse voltage(s)	16.0 kV		
	Rated insulation voltage(s)	8.0 V		
	Number of poles	1		
	Protection degree (IP-Code)	IP65/ IP68 (Client's declaration : 1.5 meter depth with 60 minutes duration)		
	Mounting	Free connectors		
	Wire cross-section area or cross-section range	2.5 mm ² / 4.0 mm ² / 6.0 mm ²		
	Class of conductor: (class 5 or class 2)	Class 5		

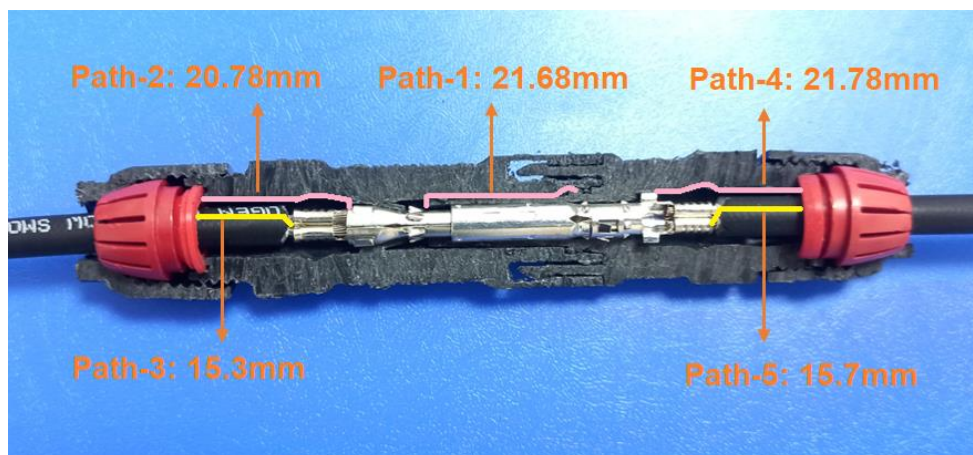
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Table 0.2	Clearances and Creepage distances (for double and reinforced insulation)					
Type / Shell-size / etc. :	CSC-P14 Male & Female (Center part at mated condition)	CSC-P14 Male		CSC-P14 Female		
Rated voltage :	DC 1500 V	DC 1500 V		DC 1500 V		
Pollution degree :	2	2		2		
Isolation material group :	1	1		1		
Rated Impulse withstand voltage [kV] :	16.0	16.0		16.0		
Altitude of test lab..... :	Considered sea Level for Testing					
Test impulse voltage [kV]	16.0	16.0		16.0		
Test voltage [kV] :	8.0mm	8.0		8.0		
Clearances required :	19.0mm	19.0mm		19.0mm		
Clearances measured :	Path-1: 21.68mm	Path-2:	20.78mm	Path-4:	21.78mm	
		Path-3:	15.3mm & Impulse test passed	Path-5:	15.7mm & Impulse test passed	
Creepage distances required :	15.0mm	15.0mm		15.0mm		
Creepage distances measured . :	Path-1: 21.68mm	Path-2:	20.78mm	Path-4:	21.78mm	
		Path-3:	15.3mm	Path-5:	15.7mm	

1)According to clause 5.18.2.1 pollution degree 2 evaluated inside the connector for creepage distances



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Table 0.3.1		IEC 60112 / Tracking test					
Specimen				Erosion depth [mm]			
Part	Material	Martial-thickness [mm]	Colour	PTI Test solution [A]	CTI	PTI Test solution [B]	Result
Insulation Material of connector body	Asahi Kasei – Xyron PV40z (f1)	CTI:0 – Reference to Certificate no : UL E82268					
Screw Cap (Nut)		CTI:0 – Reference to Certificate no : UL E82268					
Supplementary information: Suitable Certified materials are used in Product.							

Table 0.3.2		IEC 60695-2-10 / Glow-wire-test [30 s]							
Specimen				Flame					
Part	Material	Material-thickness [mm]	Colour	Temperature [°C]	Start [s]	End [s]	Height [mm]	Ignition of tissue paper	Result
Insulation Material of connector body	Asahi Kasei – Xyron PV40z (f1)	3.0	Black	750	0	0	--	No	P
Screw Cap (Nut)	Asahi Kasei – Xyron PV40z (f1)	3.0	Black	750	0	0	--	No	P

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Table 0.3.3		IEC 60695-11-10 / Flammability test HB, V-0, V-1, V-2					
Specimen				Flame			
Part	Material	Material-thickness [mm]	Colour	After burning time	After glowing time	Ignition of the cotton wool	Result
Insulation Material of connector body	Asahi Kasei – Xyron PV40z (f1)	V-0 – Reference to Certificate no : UL E82268					
Screw Cap (Nut)	Asahi Kasei – Xyron PV40z (f1)	V-0 – Reference to Certificate no : UL E82268					

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Table B1	Test phase B1, Initial measurement				P
Sample No.	Type designation		Test current [A]	Contact resistance - R1 [mΩ]	Ambient temp [°C]
	Plug	Socket			
B-1	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.698	23.3
B-2	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.895	23.3
B-3	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.799	23.3
B-4	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.996	23.3
B-5	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.206	23.3
B-6	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.038	23.3
B-7	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	3.034	23.3
B-8	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.963	23.3
B-9	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.994	23.3
Remark: Conforms Supplementary information: Sample No: B-1,B-2,B-3 - connectors with 6.0mm² cables. Sample No: B-4,B-5,B-6 - connectors with 4.0mm² cables. Sample No: B-7,B-8,B-9 - connectors with 2.5mm² cables.					

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Table B2	Test phase B2, Mechanical operation						P
Sample No.	Type designation		Type and cross section of cable and wire [mm ²]	Number of operating cycles	Speed of insertion and withdrawal [m/s]	Rest in the unmated position [s]	Result
	Plug	Socket					
B-1	CSC-PI4 Male connector	CSC-PI4 Female connector	6.0	50	0.01	30	No damage
B-2	CSC-PI4 Male connector	CSC-PI4 Female connector	6.0	50	0.01	30	No damage
B-3	CSC-PI4 Male connector	CSC-PI4 Female connector	6.0	50	0.01	30	No damage
B-4	CSC-PI4 Male connector	CSC-PI4 Female connector	4.0	50	0.01	30	No damage
B-5	CSC-PI4 Male connector	CSC-PI4 Female connector	4.0	50	0.01	30	No damage
B-6	CSC-PI4 Male connector	CSC-PI4 Female connector	4.0	50	0.01	30	No damage
B-7	CSC-PI4 Male connector	CSC-PI4 Female connector	2.5	50	0.01	30	No damage
B-8	CSC-PI4 Male connector	CSC-PI4 Female connector	2.5	50	0.01	30	No damage
B-9	CSC-PI4 Male connector	CSC-PI4 Female connector	2.5	50	0.01	30	No damage

Remark: Conforms

Supplementary information:

Sample No: B-1,B-2,B-3 - connectors with 6.0mm² cables.
Sample No: B-4,B-5,B-6 - connectors with 4.0mm² cables.
Sample No: B-7,B-8,B-9 - connectors with 2.5mm² cables.

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Table B3 Test phase B3, Final measurement					
Sample No.	Type designation		Test current [A]	Contact resistance-R2 [mΩ]	Ambient temp [°C]
	Plug	Socket			
B-1	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.927(R2)<5mΩ + 1.698mΩ(R1)	23.3
B-2	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.043(R2)<5mΩ + 1.895mΩ(R1)	23.3
B-3	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.928(R2)<5mΩ + 1.799mΩ(R1)	23.3
B-4	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.177(R2)<5mΩ + 1.996mΩ(R1)	23.3
B-5	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.105(R2)<5mΩ + 2.206mΩ(R1)	23.3
B-6	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.205(R2)<5mΩ + 2.038mΩ(R1)	23.3
B-7	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	3.183(R2)<5mΩ + 3.034mΩ(R1)	23.3
B-8	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	3.105(R2)<5mΩ + 2.963mΩ(R1)	23.3
B-9	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	3.103(R2)<5mΩ + 2.964mΩ(R1)	23.3
Remark: Conforms Supplementary information: Sample No: B-1,B-2,B-3 - connectors with 6.0mm ² cables. Sample No: B-4,B-5,B-6 - connectors with 4.0mm ² cables. Sample No: B-7,B-8,B-9 - connectors with 2.5mm ² cables.					

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Table C1	Test phase C1, Bending (flexing) test							P
Sample No,	Type designation		Ambient temperature [°C]	Number of cycles [times]	Loaded weight [N]	Cable size [mmsq]	Rated current [A]	Result
	Plug	Socket						
C-1	CSC-PI4 Male connector	CSC-PI4 Female connector	23.0	100	20	6.0	50	No breakdown / No flashover
C-2	CSC-PI4 Male connector	CSC-PI4 Female connector	23.0	100	20	6.0	50	No breakdown / No flashover
C-3	CSC-PI4 Male connector	CSC-PI4 Female connector	23.0	100	20	6,0	50	No breakdown / No flashover
C-4	CSC-PI4 Male connector	CSC-PI4 Female connector	23.0	100	20	4.0	40	No breakdown / No flashover
C-5	CSC-PI4 Male connector	CSC-PI4 Female connector	23.0	100	20	4.0	40	No breakdown / No flashover
C-6	CSC-PI4 Male connector	CSC-PI4 Female connector	23.0	100	20	4.0	40	No breakdown / No flashover
C-7	CSC-PI4 Male connector	CSC-PI4 Female connector	23.0	100	20	2.5	25	No breakdown / No flashover
C-8	CSC-PI4 Male connector	CSC-PI4 Female connector	23.0	100	20	2.5	25	No breakdown / No flashover
C-9	CSC-PI4 Male connector	CSC-PI4 Female connector	23.0	100	20	2.5	25	No breakdown / No flashover

Remark: Conforms

Supplementary information:

Sample No: C-1,C-2,C-3 - connectors with 6.0mm² cables.
Sample No: C-4,C-5,C-6 - connectors with 4.0mm² cables.
Sample No: C-7,C-8,C-9 - connectors with 2.5mm² cables.

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Table C2	Test phase C2, Final measurement (Dielectric strength)					P
Sample No,	Type designation		Test Voltage [V]	Location (L-E)	Cut off current [mA]	Result
	Plug	Socket				
C-1	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	._**	2.0	No breakdown / No flashover
C-2	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	._**	2.0	No breakdown / No flashover
C-3	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	._**	2.0	No breakdown / No flashover
C-4	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	._**	2.0	No breakdown / No flashover
C-5	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	._**	2.0	No breakdown / No flashover
C-6	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	._**	2.0	No breakdown / No flashover
C-7	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	._**	2.0	No breakdown / No flashover
C-8	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	._**	2.0	No breakdown / No flashover
C-9	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	._**	2.0	No breakdown / No flashover

****Supplementary information:** Test Voltage is applied between contacts to accessible enclosure

Remark: Conforms

Supplementary information:

Sample No: C-1,C-2,C-3 - connectors with 6.0mm² cables.
Sample No: C-4,C-5,C-6 - connectors with 4.0mm² cables.
Sample No: C-7,C-8,C-9 - connectors with 2.5mm² cables.

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Table D1	Test phase D1, Initial measurement				P
Sample No,	Type designation		Test current [A]	Contact resistance-R1 [mΩ]	Ambient temp [°C]
	Plug	Socket			
D-1	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.529	23.6
D-2	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.613	23.6
D-3	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.529	23.6
D-4	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.101	23.6
D-5	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.167	23.6
D-6	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.303	23.6
D-7	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	3.122	23.6
D-8	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	3.005	23.6
D-9	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.911	23.6

Remark: Conforms

Supplementary information:

Sample No: D-1,D-2,D-3 - connectors with 6.0mm² cable.
Sample No: D-4,D-5,D-6 - connectors with 4.0mm² cables.
Sample No: D-7,D-8,D-9 - connectors with 2.5mm² cables.

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Table D2		Test phase D2, Temperature rise										P	
Sample No	Type designation		Specified max ambient temp [°C]	Upper limit temperature [°C]	Ambient temperature [°C]	ΔT_A [K]	Wire Size [mm ²]	Test Current [A]	Male housing ΔT [K]	Female housing ΔT [K]	Contact ΔT [K]	RTI of insulating material parts	the RTI- value was not exceeded $\Rightarrow$ $T_{max} \equiv$ upper limit temperature
	Plug	Socket											
D-1	CSC-PI4 Male connector	CSC-PI4 Female connector	+85	+105	85	20	6.0	50	8.3	3.7	10.5	105	OK
D-2	CSC-PI4 Male connector	CSC-PI4 Female connector	+85	+105	85	20	6.0	50	9.0	9.3	15.6	105	OK
D-3	CSC-PI4 Male connector	CSC-PI4 Female connector	+85	+105	85	20	6.0	50	8.0	5.2	9.1	105	OK
D-4	CSC-PI4 Male connector	CSC-PI4 Female connector	+85	+105	85	20	4.0	40	7.2	6.6	10.0	105	OK
D-5	CSC-PI4 Male connector	CSC-PI4 Female connector	+85	+105	85	20	4.0	40	7.8	3.3	12.0	105	OK
D-6	CSC-PI4 Male connector	CSC-PI4 Female connector	+85	+105	85	20	4.0	40	7.2	8.6	11.6	105	OK
Remark: Conforms													

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Table D2		Test phase D2, Temperature rise										P	
Sample No	Type designation		Specified max ambient temp [°C]	Upper limit temperature [°C]	Ambient temperature [°C]	ΔT_A [K]	Wire Size [mm ²]	Test Current [A]	Male housing ΔT [K]	Female housing ΔT [K]	Contact ΔT [K]	RTI of insulating material parts	the RTI- value was not exceeded $\Rightarrow$ $T_{max} \equiv$ upper limit temperature
	Plug	Socket											
D-7	CSC-PI4 Male connector	CSC-PI4 Female connector	+85	+105	85	20	2.5	25	4.5	4.2	6.8	105	OK
D-8	CSC-PI4 Male connector	CSC-PI4 Female connector	+85	+105	85	20	2.5	25	5.7	4.9	7.0	105	OK
D-9	CSC-PI4 Male connector	CSC-PI4 Female connector	+85	+105	85	20	2.5	25	4.2	3.7	3.8	105	OK
Remark: Conforms													

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Table D4 Test phase D4, Final measurement					
Sample No.	Type designation		Test current [A]	Contact resistance-R2 [mΩ]	Ambient temp [°C]
	Plug	Socket			
D-1	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	4.366(R2)<5mΩ + 1.529mΩ(R1)	23.5
D-2	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	3.466(R2)<5mΩ + 1.613mΩ(R1)	23.5
D-3	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.445(R2)<5mΩ + 1.529mΩ(R1)	23.5
D-4	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.409(R2)<5mΩ + 2.101mΩ(R1)	23.5
D-5	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.355(R2)<5mΩ + 2.167mΩ(R1)	23.5
D-6	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.108(R2)<5mΩ + 2.303mΩ(R1)	23.5
D-7	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	3.440(R2)<5mΩ + 3.122mΩ(R1)	23.5
D-8	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	3.404(R2)<5mΩ + 3.005mΩ(R1)	23.5
D-9	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	3.288(R2)<5mΩ + 2.911mΩ(R1)	23.5
Remark: Conforms Supplementary information: Sample No: D-1,D-2,D-3 - connectors with 6.0mm² cables. Sample No: D-4,D-5,D-6 - connectors with 4.0mm² cables. Sample No: D-7,D-8,D-9 - connectors with 2.5mm² cables.					

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Table E1	Test phase E1, Initial measurement				P
Sample No.	Type designation		Test current [A]	Contact resistance-R1 [mΩ]	Ambient temp [°C]
	Plug	Socket			
E-1	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.574	23.2
E-2	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.578	23.2
E-3	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.607	23.2
E-4	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.947	23.2
E-5	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.119	23.2
E-6	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.925	23.2
E-7	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	3.122	23.2
E-8	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	3.115	23.2
E-9	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.942	23.2

Remark: Conforms

Supplementary information:

Sample No: E-1,E-2,E-3 - connectors with 6.0mm² cables.

Sample No: E-4,E-5,E-6 - connectors with 4.0mm² cables.

Sample No: E-7,E-8,E-9 - connectors with 2.5mm² cables.

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Table E4	Test phase E4, Dielectric strength a) Impulse withstand test					P
Sample No,	Type designation		Test Voltage [V]	Location (L-E)	Polarity	Result
	Plug	Socket				
E-1	CSC-PI4 Male connector	CSC-PI4 Female connector	16k	-**	+/- 3 times	No breakdown / No flashover
E-2	CSC-PI4 Male connector	CSC-PI4 Female connector	16k	-**	+/- 3 times	No breakdown / No flashover
E-3	CSC-PI4 Male connector	CSC-PI4 Female connector	16k	-**	+/- 3 times	No breakdown / No flashover
E-4	CSC-PI4 Male connector	CSC-PI4 Female connector	16k	-**	+/- 3 times	No breakdown / No flashover
E-5	CSC-PI4 Male connector	CSC-PI4 Female connector	16k	-**	+/- 3 times	No breakdown / No flashover
E-6	CSC-PI4 Male connector	CSC-PI4 Female connector	16k	-**	+/- 3 times	No breakdown / No flashover
E-7	CSC-PI4 Male connector	CSC-PI4 Female connector	16k	-**	+/- 3 times	No breakdown / No flashover
E-8	CSC-PI4 Male connector	CSC-PI4 Female connector	16k	-**	+/- 3 times	No breakdown / No flashover
E-9	CSC-PI4 Male connector	CSC-PI4 Female connector	16k	-**	+/- 3 times	No breakdown / No flashover

****Supplementary information:** Test Voltage is applied between contacts to accessible enclosure.

Remark: Conforms

Supplementary information:

Sample No: E-1,E-2,E-3 - connectors with 6.0mm² cables.

Sample No: E-4,E-5,E-6 - connectors with 4.0mm² cables.

Sample No: E-7,E-8,E-9 - connectors with 2.5mm² cables.

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Table E4	Test phase E4, Dielectric strength b) Withstand voltage test					P
Sample No,	Type designation		Test Voltage [V]	Location (L-E)	Cut off current [mA]	Result
	Plug	Socket				
E-1	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2.0	No breakdown / No flashover
E-2	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2.0	No breakdown / No flashover
E-3	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2.0	No breakdown / No flashover
E-4	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2.0	No breakdown / No flashover
E-5	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2.0	No breakdown / No flashover
E-6	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2.0	No breakdown / No flashover
E-7	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2.0	No breakdown / No flashover
E-8	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2.0	No breakdown / No flashover
E-9	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2.0	No breakdown / No flashover

****Supplementary information:** Test Voltage is applied between contacts to accessible enclosure.

Remark: Conforms

Supplementary information:

Sample No: E-1,E-2,E-3 - connectors with 6.0mm² cables.
Sample No: E-4,E-5,E-6 - connectors with 4.0mm² cables.
Sample No: E-7,E-8,E-9 - connectors with 2.5mm² cables.

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Table E6 Test phase E6, Final measurement					
Sample No.	Type designation		Test current [A]	Contact resistance-R2 [mΩ]	Ambient temp [°C]
	Plug	Socket			
E-1	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.787(R2)<5mΩ + 1.574mΩ(R1)	23.3
E-2	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.574(R2)<5mΩ + 1.578mΩ(R1)	23.3
E-3	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	1.790(R2)<5mΩ + 1.607mΩ(R1)	23.3
E-4	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.199(R2)<5mΩ + 1.947mΩ(R1)	23.3
E-5	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.276(R2)<5mΩ + 2.119mΩ(R1)	23.3
E-6	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	2.053(R2)<5mΩ + 1.925mΩ(R1)	23.3
E-7	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	3.253(R2)<5mΩ + 3.122mΩ(R1)	23.3
E-8	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	3.215(R2)<5mΩ + 3.115mΩ(R1)	23.3
E-9	CSC-PI4 Male connector	CSC-PI4 Female connector	1.0	3.105(R2)<5mΩ + 2.942mΩ(R1)	23.3
Remark: Conforms Supplementary information: Sample No: E-1,E-2,E-3 - connectors with 6.0mm ² cables. Sample No: E-4,E-5,E-6 - connectors with 4.0mm ² cables. Sample No: E-7,E-8,E-9 - connectors with 2.5mm ² cables.					

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Table F3	Test phase F3, Dielectric strength						P
Sample No,	Type designation		Cable diameter	Test Voltage [V]	Location (L-E)	Cut off current [mA]	Result
	Plug	Socket					
F-1 (IP6X)	CSC-PI4 Male connector	CSC-PI4 Female connector	6.4	8kV/min	- **	2.0	No breakdown / No flashover
F-1 (IPX8)	CSC-PI4 Male connector	CSC-PI4 Female connector					
F-2 (IP6X)	CSC-PI4 Male connector	CSC-PI4 Female connector	6.4	8kV/min	- **	2.0	No breakdown / No flashover
F-2 (IPX8)	CSC-PI4 Male connector	CSC-PI4 Female connector					
F-3 (IP6X)	CSC-PI4 Male connector	CSC-PI4 Female connector	5.4	8kV/min	- **	2.0	No breakdown / No flashover
F-3 (IPX8)	CSC-PI4 Male connector	CSC-PI4 Female connector					
F-4 (IP6X)	CSC-PI4 Male connector	CSC-PI4 Female connector	5.4	8kV/min	- **	2.0	No breakdown / No flashover
F-4 (IPX8)	CSC-PI4 Male connector	CSC-PI4 Female connector					
F-5 (IP6X)	CSC-PI4 Male connector	CSC-PI4 Female connector	4.8	8kV/min	- **	2.0	No breakdown / No flashover
F-5 (IPX8)	CSC-PI4 Male connector	CSC-PI4 Female connector					
F-6 (IP6X)	CSC-PI4 Male connector	CSC-PI4 Female connector	4.8	8kV/min	- **	2.0	No breakdown / No flashover
F-6 (IPX8)	CSC-PI4 Male connector	CSC-PI4 Female connector					

****Supplementary information:** Test Voltage is applied between contacts to accessible enclosure.

Remark: Conforms

Supplementary information:

Sample No: F-1,F2 connectors with 6.0mm² cables.
Sample No: F-3,F4 connectors with 4.0mm² cables.
Sample No: F-5,F6 connectors with 2.5mm² cables.

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Table G2	Test phase G2, Dielectric strength					P
Sample No,	Type designation		Test Voltage [V]	Location (L-E)	Cut off current [mA]	Result
	Plug	Socket				
G-1	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2	No breakdown / No flashover
G-2	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2	No breakdown / No flashover
G-3	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2	No breakdown / No flashover
G-4	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2	No breakdown / No flashover
G-5	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2	No breakdown / No flashover
G-6	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2	No breakdown / No flashover
G-7	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2	No breakdown / No flashover
G-8	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2	No breakdown / No flashover
G-9	CSC-PI4 Male connector	CSC-PI4 Female connector	8kV/min	..**	2	No breakdown / No flashover

****Supplementary information:** Test Voltage is applied between contacts to accessible enclosure.

Remark: Conforms

Supplementary information:

Sample No: G-1,G-2,G-3 - connectors with 6.0mm² cables.

Sample No: G-4,G-5,G-6 - connectors with 4.0mm² cables.

Sample No: G-7,G-8,G-9 - connectors with 2.5mm² cables.

END OF TEST REPORT