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NOTE In determining which associated components are likely to influence the performance, the following can be relevant: mechanical forces due to the short-circuit, the venting of arc products, the possibility of disruptive discharges, etc. It is recognized that, in some cases, such influence can be quite negligible. IEC TR 62271-307 lists the relevant design parameters that are considered to establish the same or less onerous conditions.

As it is not possible to cover all possible configurations and designs of switching devices, the following procedures shall be followed:

- a) if the appropriate making and breaking test series have been made with the switching device in a representative compartment, then the tests referred to above are also valid for compartments with similar or less onerous conditions;
- b) if type tested switching devices, tested with or without an enclosure, are used and a) is not applicable, the test duties set out in 7.101.2 and 7.101.3 below shall be repeated in each of the compartments where these switching devices are installed;
- c) where compartments are designed to accept more than one particular type or design of switching device, each variant of switching device shall be fully tested in accordance with the requirements of item a) or, where appropriate item b) above.

Where multiple high-voltage compartments, either side-by-side or multi-tier designs, are not identical but are designed to accept the same switching device, the above stated tests/testduties shall be performed in the compartment in which the most severe conditions are obtained, as appropriate to the requirements of the relevant standard.

7.101.2 Test requirements for main switching devices

The following test duties shall be performed as appropriate for the switching device:

- IEC 62271-100:2021: test duties T100s, T100a, and critical current tests (if any) also taking into account the requirements of 6.103.4 of that standard for the test connection arrangement, where applicable. For circuit-breakers that are already type tested in alternative configurations for both $k_{pp} = 1,5$ and 1,3, then T100s and T100a only have to be demonstrated for $k_{pp} = 1,5$;
- IEC 62271-103:2021: Test duty TD_{load2} (10 CO operations). Where the switch has a rated short-circuit making capacity, the 10 CO operations of TD_{load2} shall be followed by test duty TD_{ma} according to class E1, E2 or E3, as applicable;
- IEC 62271-105:2021: Test duties TD_{Isc}, and the highest value of TD_{Itransfer} and TD_{Ito};
- IEC 62271-106:2021: Verification of coordination with SCPDs;
- IEC 62271-107:2019: Test duties TD_{Ir}, and TD_{Isc} and TD_{Ito};
- IEC IEEE 62271-37-013:2015: Test duties 1 and 2.

Refer to 7.4.4 for maximum allowed resistance increase along the main circuit after making and breaking tests.

7.101.3 Test requirements for earthing function

If the earthing function has an assigned class E1 or E2, it shall be tested in accordance with the requirements of IEC 62271-102:2018 for short-circuit making operations. The tests shall be performed in accordance with the requirements for earthing switches of class E1 or class E2, as applicable.

If the class E1 or E2 earthing function is performed by the main switching device in combination with a class E0 earthing switch, then the test requirements shall be the same as for a combined function earthing switch as defined in 7.101 of IEC 62271-102:2018. In this case the requirements of 7.101.8 and 7.101.9 of IEC 62271-102:2018 apply to both the class E0 earthing switch and the main switching device.

- 50 - IEC

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7.102 Mechanical operation tests

7.102.1 Switching devices and removable parts

All switching devices not previously tested as mounted in the assembly, shall be operated 50 times C-O, mounted in the assembly. Test conditions and criteria to pass the test are identical to the ones defined on each corresponding switching device standard for mechanical tests.

If a removable part is intended to be used as a disconnector, then the mechanical endurance shall be in accordance with IEC 62271-102:2018. Otherwise, removable parts shall be inserted 25 times and removed 25 times to verify satisfactory operation of the equipment. The force required to insert and remove the parts shall remain lower than 150 % of that required for the first operation.

The reliable operation of shutters, for example by a mechanical drive, where the movement of the shutters is positively driven by the movement of the removable or withdrawable part, shall be checked.

For functional units including several switching devices, the operations may be performed as part of a sequence of operations involving all these switching devices. If the insertion/removal of a removable part is involved in the sequence, the number of such sequences should be limited to 25. Any operations not included in this sequence should be separately tested.

In the case of manually operated equipment, the normal manual operation handle shall be used to perform the tests.

7.102.2 Mechanical and electromechanical interlocks and locking devices

The interlocks and locking devices shall be set in all positions intended to prevent:

- the operation of the switching devices;
- the access to operation interfaces;
- the insertion or withdrawal of removable parts.

The following tests shall be made in order to attempt to defeat the interlocks and locking devices:

- a) 10 attempts to open any interlocked or locked door or cover;
- b) 10 attempts to access or engage the operation interface, when access or engagement is prevented due to an interlocking or locking device (shutter, selector lever, etc.);
- c) 20 attempts to operate the switching devices manually, when the operation interface is accessible;
- d) 10 attempts to operate the switching device manually in the wrong direction shall be carried out in addition to, but anywhere in, the above sequence of 20 attempts;
- e) 10 attempts to insert and 10 attempts to withdraw the removable parts;
- f) in case of electrical interlocks, switch off the auxiliary power supply and carry out one attempt of items a) to e);
- g) in case of automatic closing of shutters that can be made inoperative in order to retain them in the open position: check that the switching device cannot be returned to the service position before the automatic operation of the shutters is restored (refer to 6.103.3.1).

The normal manual operation handle (if any) shall be used to perform these tests.

During the tests, the following prospective force or torque shall be applied:

 force of 400 N on handles of doors, covers and actuators of drive mechanisms with the exceptions given below;

IEC 62271-200:2021 © IEC 2021 - 51 -

- force of 750 N on handles of drive mechanisms with an interlock or lock blocking the operating shaft;
- force of 100 N on handles of shutters, selectors, etc. preventing access to the operation interface;
- force of 100 N on small linear actuators like push-button, plunger, etc.;
- torque of 3 Nm on small rotating actuators like knobs.

The force shall be applied halfway along the length of the gripping part of the handle or actuator.

Where operating handles and actuators incorporate a feature which limits the transmitted force or torque, the maximum test force or torque shall be limited to that which can be applied by the handle or actuator, provided that the handle or actuator is not interchangeable with other handles or actuators.

No adjustment shall be made to the switching devices, removable parts or interlocks during these tests.

The integrity of sliders or other devices preventing access to the operation interface shall be verified in accordance with 7.7.2 (verification of the IK coding).

Where mechanical interlocks are designed to prevent the operation of motorized switching devices, the following additional tests shall be performed using the motor:

- 20 attempts to operate the switching devices;
- 10 attempts to operate the switching device in the wrong direction shall be carried out in addition to, but anywhere in, the above sequence of 20 attempts.

110 % of the rated supply voltage of auxiliary circuits shall be applied for a duration of 2 s.

The interlocks are considered to be satisfactory if:

- a) the switching devices cannot be operated;
- b) access to the interlocked compartments is prevented;
- c) the insertion and withdrawal of the removable parts are prevented;
- d) the switching devices, removable parts and the interlocks are still operative and the effort to operate them before and after the tests, does not differ from the maximum hand operating forces (manual operation) or peak energy consumption (motor operation) by more than 50 %. In case of the test with 750 N, damage is acceptable, provided that the interlock still prevents operation.

NOTE These tests can be performed as part of the mechanical operations test sequence.

7.103 Pressure withstand test for gas-filled compartments

7.103.1 Pressure withstand test for gas-filled compartments with pressure relief devices

Each design of a gas-filled compartment with design pressure lower than or equal to 300 kPa (relative pressure) shall be subjected to a pressure test according to the following procedure:

- adjacent compartments (if any) shall be at atmospheric pressure if the manufacturer's instructions reference allow for maintenance of that compartment. Alternatively, they may be evacuated, if allowed by the manufacturer;
 - NOTE 1 The test is intended to demonstrate the over-pressure behaviour under service conditions;

NOTE 2 The design pressure (relative pressure) already considers the situation of adjacent compartment evacuated, if allowed by the manufacturer.

– 52 – IEC 62271-200:2021 © IEC 2021

- the relative pressure shall be increased in order to reach a value of 1,3 times the design pressure of the compartment for a period of 1 min. The pressure relief device shall not operate;
- then the relative pressure shall be increased up to a maximum value of three times the design pressure. It is acceptable that the pressure relief device may operate, as designed by the manufacturer, below this value. This opening pressure shall be recorded in the type test report. After the test, the compartment may be distorted, but the compartment shall not rupture;
- visual inspection of the orientation of the pressure relief device shall be made to assess the direction of escaping gases.

Gas-filled compartments with design pressures higher than 300 kPa (relative pressure) shall be in accordance with the testing requirements of IEC 62271-203.

7.103.2 Pressure withstand test for gas-filled compartments without pressure-relief devices

Each design of a gas-filled compartment shall be subjected to a pressure test according to the following procedure:

- the adjacent compartments (if any) shall be at atmospheric pressure. Alternatively, they may be evacuated, if allowed by the manufacturer;
- The relative pressure shall be increased up to three times the design pressure of the compartment for 1 min. After the test, the compartment may be distorted, but the compartment shall not rupture.

Gas-filled compartments with design pressures higher than 300 kPa (relative pressure) shall be in accordance with the testing requirements of 6.103 of IEC 62271-203:2011.

NOTE The test is intended to verify the safety margin for possible overpressures under service conditions.

7.104 Tests to verify the protection of persons against dangerous electrical effects

7.104.1 General

Subclause 7.104 is applicable to non-metallic partitions and shutters intended for protection from effects of live parts. When these partitions contain bushings, tests shall be carried out under the appropriate conditions, i.e. with the primary parts of the bushings disconnected and earthed.

Solid-insulation embedded high-voltage parts that are intended to remain live when accessing the high-voltage compartment shall be tested according to 6.104 of IEC 62271-201:2014.

7.104.2 Dielectric tests

- a) The insulation between high-voltage live parts and the accessible surface of insulating partitions and shutters shall withstand the rated withstand voltages specified in 7.2.7.1 for voltage tests to earth and between poles. For the test set-up, refer to item a) of 7.2.6.
- b) A representative sample of the insulating material shall withstand the power-frequency test voltage specified in item a) above. The appropriate test methods given in IEC 60243-1 [9] should be applied.
- c) The insulation between high-voltage live parts and the inner surface of insulating partitions and shutters facing these shall be tested at 150 % of the rated voltage of the equipment for 1 min. For the test, the inner surface of the partition or shutter shall be earthed by applying a conductive layer of at least 100 cm², at the most onerous point. The test set-up shall be as specified in item a) of 7.2.6.

IEC 62271-200:2021 © IEC 2021 - 53 -

7.104.3 Measurements of leakage currents

When an assembly contains insulating partitions or insulating shutters, the following tests shall be made in order to check compliance with the requirement of item d) of 6.103.3.3.

The main circuit shall, at the discretion of the manufacturer, be connected either to a threephase supply of power-frequency voltage equal to the rated voltage of the assembly, with one phase connected to earth, or to a single-phase supply of a voltage equal to the rated voltage, the live parts of the main circuit being connected together. For three-phase tests, three measurements shall be made with the different phases of the supply successively connected to earth. In the case of single-phase tests, only one measurement is necessary.

A metal foil shall be placed in the most unfavourable situation for the test on the accessible surface of the insulation providing the protection against contact with live parts. In case of doubt about the most unfavourable situation, the test shall be repeated with different situations.

The metal foil shall be approximately circular or square, having an area as large as possible but not exceeding 100 cm². The enclosure and the frame of the assembly shall be earthed. The leakage current flowing through the metal foil to earth shall be measured with the insulation dry and clean.

The value of the leakage current measured shall not exceed 0,5 mA. If, as indicated in item d) of 6.103.3.3, the continuous path over insulating surfaces is broken by small gaps of gas or liquid, such gaps shall be shorted out electrically. If these gaps are incorporated to avoid the passage of the leakage current from live parts to accessible parts of insulating partitions and shutters, the gaps shall withstand the test voltages specified in 7.2.7.1 for voltage tests to earth and between poles.

It is not necessary to measure leakage currents if earthed metal parts are arranged in an appropriate manner to ensure that leakage currents cannot reach the accessible parts of the insulating partitions and shutters.

7.105 Internal arc test

7.105.1 General

The test is applicable to assemblies for which an internal arc classification has been assigned, covering the event of an arc fault within the enclosure or within components having housings which form part of the enclosure in normal operating conditions. The internal arc test makes allowance for effects acting on all parts of the enclosure, such as internal overpressure, thermal effects of the arc or its roots, the effects of ejected hot gases and glowing particles.

7.105.2 Test conditions

The test shall be carried out with the assembly in the following conditions:

- the position of high-voltage switching devices and withdrawable parts is set to realize the supply circuit according to A.5.1. All other equipment, for example measuring instruments and monitoring equipment shall be in the position as it is in normal service;
- all covers and doors of the assembly shall be closed and correctly secured. However, in case of accessibility type A, if any cover has to be removed and/or any door has to be opened to perform switching operations, the internal arc test shall be carried out with the cover and/or door removed;
- if handle flaps of switching devices do not automatically close after removing the handle, the internal arc test shall be performed with handle flaps in open position.

Every high-voltage compartment of representative functional units of the assembly shall be tested. More than one test object may be necessary to perform all the internal arc tests.

– 54 – IEC 62271-200:2021 © IEC 2021

Compartments which are protected by type-tested current-limiting fuses shall be tested with the fuse type that causes the highest cut-off current (let-through current). The actual duration of the current flow will be controlled by the fuses. The tested compartment will be designated as 'fuse-protected'. The tests shall be performed at the rated voltage $U_{\rm r}$.

Any device (e.g. protection relay) that can automatically trip the circuit before the end of the prospective duration of the test shall be made inoperative during the test. If compartments or functional units are equipped with devices intended to limit the duration of the arc itself by other means (e.g. by transferring the current to a metallic short-circuit), they shall be made inoperative during the test. However, if the manufacturer declares that these devices are an integral part of the design of the compartment or assembly which prevents to make them inoperative without modification of the construction of the compartment or the enclosure, the relevant compartment of the assembly may be tested with the device operative; but this compartment shall be qualified according to the actual duration of the arc. The test current shall be maintained for the rated short-circuit duration of the main circuit.

NOTE 1 For possible measures to mitigate the effects of internal arcs, refer to Cigré Technical Brochure 686 [11].

If, during the test, an arc ignites in other non-previously arc-tested compartment(s) of the same test object, the test shall be regarded as valid only for the compartment where the arc was initiated. The other affected compartment(s) shall be (or have been) tested for at least the number of phases involved in this take-over ignition.

NOTE 2 Reason for not accepting the test result in case of transfer to a compartment that was already arc-tested, is that the test result can be influenced by the contamination in that compartment.

7.105.3 Arrangement of the equipment

The equipment shall be arranged as follows:

- the test object shall be fully equipped. Mock-ups of internal components are permitted provided they have the same volume and external material as the original items and they do not affect the main and earthing circuits;
- tests shall be performed on all types of functional units that may be combined into an assembly, as stated by the manufacturer regarding the different possible assembly lay-outs. The following applies:
 - in case of assemblies consisting of extensible (modular) functional units, the test object shall consist of two functional units connected together as in service, unless the manufacturer specifies a different minimum number of functional units;
 - if by design of the assembly, a type of functional unit is not intended to be used as an end unit under service conditions, for its test, it shall be configured in the assembly as close as possible to the lateral side furthest away from the wall of the room simulation, in an arrangement of more than two functional units;
 - in case of assemblies with at least one high-voltage compartment belonging to more than one functional unit (e.g. several main switching devices in one compartment), the test object shall consist of functional units where the shared high-voltage compartment is complete;
 - the tests shall be made in all high-voltage compartments of a functional unit, as close as possible to the lateral side furthest away from the wall of the room simulation;
 - in case of assemblies having functional units that contain identical high-voltage compartments with the same internal arc test conditions, one test on this type of compartment is sufficient, provided that the test object was placed as close as possible to the lateral side – furthest away from the wall of the room simulation, as stated by the manufacturer regarding the different possible assembly lay-outs;
- the test object shall be earthed at the earthing point provided;
- tests shall be carried out on compartments not previously subjected to arcing, or, if subjected, being in a condition which does not affect the result of the test;

IEC 62271-200:2021 © IEC 2021 - 55 -

- in case of fluid-filled compartments (other than SF₆) the test shall be made with the original fluid at its filling pressure (±10 % of the relative pressure) for insulation;
- for environmental reasons, it is recommended to replace SF₆ with air at the filling pressure for insulation and/or switching (±10 % of the relative pressure).

NOTE Test results with air instead of SF_6 are considered to be representative.

7.105.4 Test procedure

The method to verify the internal arc classification is defined in Clause A.5.

7.105.5 Criteria to pass the test

IAC classification according to the relevant type of accessibility, is demonstrated for the assembly if the following criteria are met:

Criterion No. 1

Correctly secured doors and covers do not open. Deformations are accepted, provided that no part comes as far as the position of the indicator mounting frames or the walls (whichever is the closest) on every side and no openings with dimensions larger than 50 mm occurred in the classified sides up to a height of 2 000 mm. The assembly does not need to comply with its IP code after the test.

To extend the acceptance criterion to an installation mounted closer to the wall than tested, two additional conditions shall be met:

- the permanent deformation is less than the intended distance to the wall;
- exhausting gases are not directed to the wall.

Criterion No. 2

- no fragmentation of the enclosure occurs;
- no ejection of fragments or of other parts of the assembly of an individual mass of 60 g or more occur;
- objects of an individual mass of 60 g or more falling to the floor in the immediate vicinity of the assembly are accepted (in the case of accessible sides, this means between the assembly and the indicator rack).

Criterion No. 3

Arcing does not cause holes by burning through in the classified sides up to a height of 2 000 mm.

NOTE 1 Holes in the enclosure which are created after the duration of the test by other effects than burning through, are disregarded.

Criterion No. 4

Indicators do not ignite during the test and within 1 s after the current duration. If indicators have been ignited after 1 s after the current duration and if proof is established of the fact that the ignition was caused by glowing particles rather than hot gases, the assessment criterion has also been met. Pictures taken by high-speed cameras, video or any other suitable means should be used by the test laboratory to establish evidence.

Indicators ignited as a result of paint or stickers burning are also excluded.

– 56 –

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NOTE 2 It is assumed that the physical dimensions of the test laboratory are large enough to prevent hot gas reflections towards the indicators from surfaces not belonging to the room simulation (e.g. from other walls or measuring equipment).

Criterion No. 5

The enclosure remains connected to its earthing point. Visual inspection is generally sufficient to assess compliance. In case of doubt, the continuity of the earthing connection shall be checked (refer to 7.6.4).

7.105.6 Test report

In addition to 7.1.3 the following information shall be included:

- description of the test object with a drawing showing the main dimensions, details relevant to the mechanical strength, the arrangement of the pressure relief flaps and the method of fixing the test object to the floor and/or to the walls;
- the distance between the upper part of the test object and the ceiling of the room or building.
 For this purpose, the manufacturer shall state the point of the assembly from which this distance is measured;

NOTE Because the distance between the upper part of the assembly and the ceiling under internal arc test conditions can be different from the distance under installation conditions, the information in the test report is about the validity of the test results regarding the ceiling height for installation.

- point and method of initiation of the internal arc fault;
- drawings of test arrangement (room simulation, test object and mounting frame of indicators) with respect to the type of accessibility (A or B), classified sides (F, L or R) and installation conditions;
- applied voltage and frequency;
- for the prospective and/or test current (refer to A.4.3):
 - 1) RMS value of the AC component during:
 - the first three half-cycles;
 - the last three half-cycles;
 - 2) highest peak value (actual and/or prospective);
 - 3) average RMS value of the AC component over the actual duration of the test;
 - 4) duration of arc fault current;
 - 5) prospective RMS value and duration of the test current.
- oscillogram(s) showing currents and voltages;
- optionally, total arc energy, peak arc power;
- optionally, measurement of pressure in compartments;
- assessment of the test results, including a record of the observations in accordance with 7.105.5 and observations regarding compartments where take-over ignition took place (if any);
- other relevant remarks.

7.105.7 Extension of validity of test results

The validity of the results of a test carried out in a functional unit of a particular metal-enclosed design of assembly may be extended to another one (refer to 7.1.1 and to IEC TR 62271-307:2015) provided that the original test was more onerous and this other functional unit may be considered as similar to the tested one in the following aspects:

- dimensions;
- structure and strength of the enclosure;
- architecture of the partition;

IEC 62271-200:2021 © IEC 2021 - 57 -

- performance of the pressure relief device, if any;
- insulation system;
- physical influences (pressure rise, gas flow and thermal effects).

8 Routine tests

8.1 General

Subclause 8.1 of IEC 62271-1:2017 is applicable, with the following additions:

_	partial discharge measurement (if applicable):	8.101;
_	mechanical operation tests:	8.102;
_	pressure tests of gas-filled compartments (if applicable):	8.103;
_	tests after erection on site:	8.104;
_	measurement of fluid conditions after filling on site (if applicable):	8.105.

8.2 Dielectric test on the main circuit

Subclause 8.2 of IEC 62271-1:2017 is applicable, with the following additions and exceptions:

The power-frequency voltage test shall be performed according to the requirements in 7.2.7.2. The test voltage specified in 7.2.7.1 for U_d , common value, from column 2 of Tables 1 and 2 of IEC 62271-1:2017, shall be applied, connecting each phase conductor of the main circuit in turn to the high-voltage terminal of the test supply, with the other phase conductors connected to earth and the continuity of the main circuit ensured (e.g. by closing the switching devices or otherwise).

The test voltage may be applied at higher than the rated frequency in order to avoid the disconnection of voltage transformers.

Overvoltage protective devices shall be disconnected or removed during the test.

8.3 Tests on auxiliary and control circuits

8.3.1 Inspection of auxiliary and control circuits, and verification of conformity to the circuit diagrams and wiring diagrams

Subclause 8.3.1 of IEC 62271-1:2017 is applicable.

8.3.2 Functional tests

Subclause 8.3.2 of IEC 62271-1:2017 is replaced by:

A functional test of all low-voltage circuits shall be made to verify the proper functioning of auxiliary and control circuits in conjunction with the other parts of the assembly.

Functional tests as specified in the relevant IEC component standards shall be performed on auxiliary and control circuits of each component, subassembly or after mounted on the assembly.

Additionally, all existing auxiliary and control circuits (including electrical interlocks) shall be verified on their proper operation in conjunction with the other parts of the assembly.

The tests shall be performed with the upper and lower value limits of the supply voltage defined in 6.9 of IEC 62271-1:2017.

8.3.3 Verification of protection against electrical shock

Subclause 8.3.3 of IEC 62271-1:2017 is applicable.

8.3.4 Dielectric tests

Subclause 8.3.4 of IEC 62271-1:2017 is applicable.

8.4 Measurement of the resistance of the main circuit

Subclause 8.4 of IEC 62271-1:2017 is applicable with the following addition:

Where there is no continuous current test for the configuration being tested, the conditions of the test and the limits of resistance values shall be given by the manufacturer.

8.5 Tightness test

Subclause 8.5 of IEC 62271-1:2017 is applicable with the following modification:

Tightness tests shall be performed after the pressure withstand tests according to 8.103, if any.

8.6 Design and visual checks

Subclause 8.6 of IEC 62271-1:2017 is applicable.

8.101 Partial discharge measurement

This test is optional. If such a routine test is performed on the assembly, the procedure shall be in accordance with Annex B.

NOTE The measurement of partial discharges, as a routine test, can be helpful to detect possible material and manufacturing defects especially for organic solid insulating components. The test can also serve as a quality manufacturing test of assembly.

8.102 Mechanical operation tests

Operation tests shall be made to ensure that the switching devices, removable parts and auxiliary circuits function correctly and that the mechanical interlocks work properly.

The tests shall be performed as specified in 7.102 except that:

- in case of manual operation, 5 operations or attempts shall be performed in each direction with normal operating forces;
- in case of auxiliary supply voltage, and switching devices not tested within the functional unit, 5 operations or attempts shall be performed in each direction, both for the specified upper and lower limit of the auxiliary supply voltage of the operating devices;
- devices having a predetermined sequence of operation, shall be operated:
 - with the most unfavourable limit values of auxiliary supply voltage;
 - 5 times in succession in the intended conditions of use and operation;

It shall be verified that:

- the switching devices open and close correctly within the specified limits of the supply voltage and pressure of their operating devices;
- each removable part can be inserted and removed correctly;
- the interchangeability of removable components of the same rating and construction is checked (refer to 6.101);

IEC 62271-200:2021 © IEC 2021 - 59 -

- all interlocks function correctly;
- all auxiliary devices have operated properly;
- the effort to operate is practically the same before and after the tests.

8.103 Pressure tests of gas-filled compartments

Each gas-filled compartment with a filling pressure greater than 50 kPa (relative pressure) and a design pressure lower than or equal to 300 kPa (relative pressure), shall be subjected to a test at 1,3 times the design pressure for 1 min.

This is not applicable for sealed compartments with a filling pressure of 50 kPa (relative pressure) and below.

After this test the compartments shall show no signs of distress or any distortion likely to affect the operation of the assembly.

Gas-filled compartments with design pressures higher than 300 kPa (relative pressure) shall be tested according to the requirements of IEC 62271-203.

8.104 Tests after erection on site

After erection, the assembly shall be tested to check correct operation.

All routine tests of Clause 8 which have not been performed at the manufacturer's premises shall be performed on site.

Additionally, for parts which are assembled on site and for compartments which are gas or liquid filled on site and which all have been previously routine tested, the following is applicable:

a) Voltage test of the main circuit;

Power-frequency voltage tests in dry conditions should be carried out on the main circuits of an assembly after the erection on site in exactly the same manner as specified in 8.2 for the routine test at the manufacturer's premises.

The power-frequency test voltage should be 80 % of the values indicated in 8.2 and be applied to each phase conductor of the main circuit in succession with the other phase conductors earthed. For the tests, one terminal of the test transformer is connected to earth and to the enclosure of the assembly.

Voltage transformers should be disconnected during dielectric site tests, unless the test frequency used for the site test is high enough to prevent core saturation;

- b) Tightness tests: 8.5 is applicable;
- c) Measurement of fluid condition after filling on site: 8.105 is applicable.

8.105 Measurement of fluid condition after filling on site

The condition of the fluid in fluid-filled compartments shall be determined and shall meet the manufacturer's specification.

9 Guide to the selection of switchgear and controlgear (informative)

9.1 General

Subclause 9.1 of IEC 62271-1:2017 is applicable with the following additions:

Assemblies may be constructed in various forms that have evolved with changing technologies and functional requirements. The selection of an assembly essentially involves an identification