

Temperature-rise limits

Parts of ASSEMBLIES	Temperature rise K
Built-in components <sup>a)</sup>	In accordance with the relevant product standard requirements for the individual components or, in accordance with the component manufacturer's instructions <sup>f)</sup> , taking into consideration the temperature in the ASSEMBLY
Terminals for external insulated conductors	70 <sup>b)</sup>
Busbars and conductors	Limited by <sup>f)</sup> : <ul style="list-style-type: none"> <li>– mechanical strength of conducting material <sup>g)</sup>;</li> <li>– possible effect on adjacent equipment;</li> <li>– permissible temperature limit of the insulating materials in contact with the conductor;</li> <li>– effect of the temperature of the conductor on the apparatus connected to it;</li> <li>– for plug-in contacts, nature and surface treatment of the contact material</li> </ul>
Manual operating means: <ul style="list-style-type: none"> <li>– of metal</li> <li>– of insulating material</li> </ul>	<p style="text-align: right;">15 <sup>c)</sup></p> <p style="text-align: right;">25 <sup>c)</sup></p>
Accessible external enclosures and covers: <ul style="list-style-type: none"> <li>– metal surfaces</li> <li>– insulating surfaces</li> </ul>	<p style="text-align: right;">30 <sup>d)</sup></p> <p style="text-align: right;">40 <sup>d)</sup></p>
Discrete arrangements of plug and socket-type connections	Determined by the limit for those components of the related equipment of which they form part <sup>e)</sup>
<p><sup>a)</sup> The term "built-in components" means:</p> <ul style="list-style-type: none"> <li>– conventional switchgear and controlgear;</li> <li>– electronic sub-assemblies (e.g. rectifier bridge, printed circuit);</li> <li>– parts of the equipment (e.g. regulator, stabilized power supply unit, operational amplifier).</li> </ul> <p><sup>b)</sup> The temperature-rise limit of 70 K is a value based on the conventional test of 10.10. An ASSEMBLY used or tested under installation conditions may have connections, the type, nature and disposition of which will not be the same as those adopted for the test, and a different temperature rise of terminals may result and may be required or accepted. Where the terminals of the built-in component are also the terminals for external insulated conductors, the lower of the corresponding temperature-rise limits shall be applied.</p> <p><sup>c)</sup> Manual operating means within ASSEMBLIES which are only accessible after the ASSEMBLY has been opened, for example draw-out handles which are operated infrequently, are allowed to assume a 25 K increase on these temperature-rise limits.</p> <p><sup>d)</sup> Unless otherwise specified, in the case of covers and enclosures, which are accessible but need not be touched during normal operation, a 10 K increase on these temperature-rise limits is permissible. External surfaces and parts over 2 m from the base of the ASSEMBLY are considered inaccessible.</p> <p><sup>e)</sup> This allows a degree of flexibility in respect of equipment (e.g. electronic devices) which is subject to temperature-rise limits different from those normally associated with switchgear and controlgear.</p> <p><sup>f)</sup> For temperature-rise tests according to 10.10 the temperature-rise limits have to be specified by the Original Manufacturer taking into account any additional measuring points and limits imposed by the component manufacturer.</p> <p><sup>g)</sup> Assuming all other criteria listed are met a maximum temperature rise of 105 K for bare copper busbars and conductors shall not be exceeded.</p>	
<p>NOTE The 105 K relates to the temperature above which annealing of copper is likely to occur. Other materials may have a different maximum temperature rise.</p>	

Rated diversity factor (RDF)

number of main current circuits	rated diversity factor
2 and 3	0.9
4 and 5	0.8
6 to 9 inclusive	0.7
10 and more	0.6