



BSI Standards Publication

## Space engineering — Thermal design handbook

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Part 11: Electrical Heating

## National foreword

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A list of organizations represented on this committee can be obtained on request to its committee manager.

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**Space engineering - Thermal design handbook - Part 11:  
Electrical Heating**

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Partie 11 : Chauffage électrique

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Teil 11: Elektrisches Heizen

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## European Foreword

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This document (CEN/CLC/TR 17603-31-11:2021) has been prepared by Technical Committee CEN/CLC/JTC 5 "Space", the secretariat of which is held by DIN.

It is highlighted that this technical report does not contain any requirement but only collection of data or descriptions and guidelines about how to organize and perform the work in support of EN 16603-31.

This Technical report (TR 17603-31-11:2021) originates from ECSS-E-HB-31-01 Part 11A .

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This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

This document has been developed to cover specifically space systems and has therefore precedence over any TR covering the same scope but with a wider domain of applicability (e.g.: aerospace).

# 1 Scope

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In this Part 11, the use of electrical heaters and electrical coolers in spacecraft systems are described.

Electrical thermal control is an efficient and reliable method for attaining and maintaining temperatures. Solid state systems provide for flexibility in control of thermal regulation, they are resistant to shock and vibration and can operate in extreme physical conditions such as high and zero gravity levels. They are also easy to integrate into spacecraft subsystems.

The Thermal design handbook is published in 16 Parts

TR 17603-31-01	Thermal design handbook – Part 1: View factors
TR 17603-31-02	Thermal design handbook – Part 2: Holes, Grooves and Cavities
TR 17603-31-03	Thermal design handbook – Part 3: Spacecraft Surface Temperature
TR 17603-31-04	Thermal design handbook – Part 4: Conductive Heat Transfer
TR 17603-31-05	Thermal design handbook – Part 5: Structural Materials: Metallic and Composite
TR 17603-31-06	Thermal design handbook – Part 6: Thermal Control Surfaces
TR 17603-31-07	Thermal design handbook – Part 7: Insulations
TR 17603-31-08	Thermal design handbook – Part 8: Heat Pipes
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TR 17603-31-15	Thermal design handbook – Part 15: Existing Satellites
TR 17603-31-16	Thermal design handbook – Part 16: Thermal Protection System