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Interested committees:

Title: BS IEC 63277-3-1 Binary power generation systems

Part 3-1: Safety requirements for the system with less than 500 kW in capacity

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



126/55/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER:

IEC 63277-3-1 ED1

DATE OF CIRCULATION:

2023-08-11

CLOSING DATE FOR COMMENTS:

2023-11-03

SUPERSEDES DOCUMENTS:

126/42/NP, 126/43/RVN

IEC PC 126 : BINARY POWER GENERATION SYSTEMS

SECRETARIAT:

Japan

SECRETARY:

Mr Kazuo SHIBATA

OF INTEREST TO THE FOLLOWING COMMITTEES:

TC 2,TC 5,TC 117

PROPOSED HORIZONTAL STANDARD:



Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.

FUNCTIONS CONCERNED:

☐ EMC

☐ ENVIRONMENT

☐ QUALITY ASSURANCE

☒ SAFETY

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TITLE:

Binary power generation systems - Part 3-1: Safety requirements for the system with less than 500 kW in capacity

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

BINARY POWER GENERATION SYSTEMS –

PART 3-1: SAFETY REQUIREMENTS FOR THE SYSTEM WITH LESS THAN 500KW
IN CAPACITY

FOREWORD

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International Standard IEC 63277 has been prepared by IEC project committee 126: Binary power generation systems.

The text of this International Standard is based on the following documents:

Draft	Report on voting
126/XX/FDIS	126/XX/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document.

At this date, the document will be

- 1) reconfirmed,
- 2) withdrawn,
- 3) replaced by a revised edition, or
- 4) amended.

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INTRODUCTION

While the world's binary power generation systems are growing, the standard of IEC 63277 specifies the performance test methods of binary power generation systems and realizes the fair and standardized competition of binary power generation systems.

It is very important to ensure that the binary power generation systems would be operated in safe during the operation. The safety requirements are important theme that should be internationally standardized as well as the performance test methods.

By adding an objective evaluation of safety based on international standards, it is expected that the selection criteria will become more appropriate and that it will have the effect of promoting it worldwide.

This standard will address the safety considerations unique to binary power generation system and is intended to be one in a series of international standards addressing this new technology.

BINARY POWER GENERATION SYSTEMS –

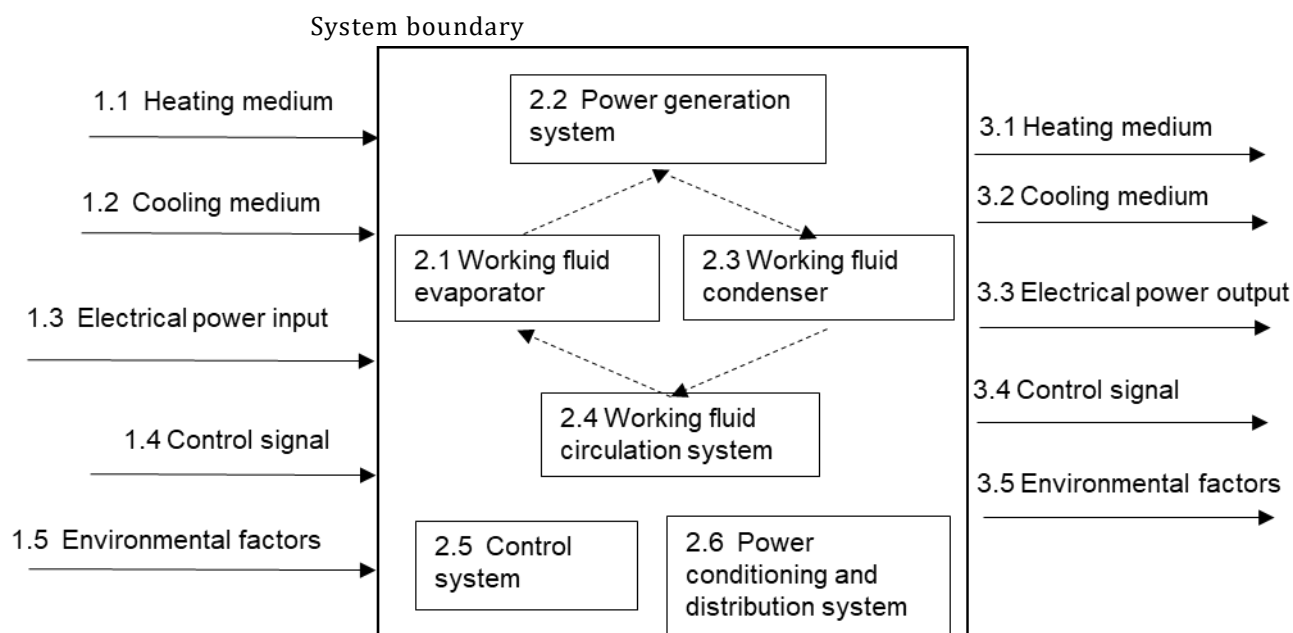
PART 3-1: SAFETY REQUIREMENTS FOR THE SYSTEM WITH LESS THAN 500KW IN CAPACITY

1 Scope

This document describes the safety requirements of binary power generation systems based on Organic Rankine Cycle (ORC) with less than 500 kW in output capacity.

This document contemplates significant hazards, hazardous situations and events, with the exception of those associated with environmental compatibility (installation conditions), relevant to binary power generation systems (ORC), when they are used as intended and under the conditions foreseen by the manufacturer.

A typical binary power generation system is shown in Figure 1.



Elements		Description
Input		
1.1	Heating medium	Heat transport medium for working fluid heating, commonly steam or hot water
1.2	Cooling medium	Heat transport medium for working fluid cooling, commonly air or water.
1.3	Electrical power input	Electrical input for system start-up and etc.
1.4	Control signal	Includes the providing of control signals, setpoint and operation instructions as well as remote access, parameter, software, and firmware updates
1.5	Environmental factors	Factors that the surrounding conditions effecting the binary power generation system, such as earthquake, rain, wind, snow, temperature, humidity, and atmospheric condition but also electromagnetic disturbances
Within system boundaries		
2.1	Working fluid evaporator	Heat exchanger for evaporating the working fluid using of heating medium
2.2	Power generation system	The system consists from a turbine/expander and a generator, it converts thermal energy of working fluid to electric energy