

INTERNATIONAL STANDARD

**Solar thermal electric plants –
Part 3-1: Systems and components – General requirements for the design of
parabolic-trough solar thermal power plants**





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CONTENTS

FOREWORD.....	5
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	7
4 General requirements	9
5 Electric power system requirements	9
5.1 General.....	9
5.2 Grid-connection	9
5.3 Relay protection and automatic safety devices.....	10
5.4 Dispatching automation.....	10
5.5 Electric power system communication.....	10
5.6 Electric energy metering	10
6 Solar resource assessment	10
7 Site selection.....	10
8 Overall planning	11
8.1 General.....	11
8.2 Off-site planning	12
8.3 On-site planning	12
9 Collector system.....	13
9.1 General.....	13
9.2 Collectors	13
9.3 Driving and tracking system	14
10 Heat transfer system	15
10.1 General.....	15
10.2 HTF storage and expansion system	15
10.3 HTF ullage system	16
10.4 HTF filling system	16
10.5 HTF anti-freezing system	17
11 Thermal energy storage system.....	17
11.1 General.....	17
11.2 Storage system of thermal storage medium	17
11.3 Heat transfer system of thermal storage medium	18
11.4 Additional components.....	19
12 Steam generation system	20
12.1 General.....	20
12.2 Steam generation equipment	20
13 Steam turbine system.....	21
13.1 Steam turbine	21
13.2 Live steam, reheat and bypass system.....	21
13.3 Feedwater system and pump	21
13.4 Deaerator and feedwater tank	22
13.5 Condensate system and condensate pump	22
13.6 Drain pumps of low pressure heater.....	23
13.7 Steam turbine cooling system	23
13.8 Auxiliary equipment cooling water system	24

13.9	Condenser and auxiliary facilities.....	25
13.10	Regenerative system	25
14	Layout of solar field	25
14.1	General layout of solar field	25
14.2	Layout of collectors and HTF pipelines	26
14.3	Wind and sand protection	26
15	Layout of power block.....	26
15.1	General.....	26
15.2	Layout of heat transfer facilities	28
15.3	Layout of thermal storage facilities.....	29
15.4	Layout of steam generation facilities	29
15.5	Layout of steam turbine hall and central control building	29
15.6	Layout of auxiliary fuel facilities	30
15.7	Maintenance facilities	31
16	Electrical equipment and system	31
16.1	Generator and main transformer	31
16.2	Main wiring	32
16.3	AC auxiliary power system.....	32
16.4	High-voltage distribution devices	32
16.5	DC system	32
16.6	Electrical monitoring and control.....	32
16.7	Relay protection and safety automation devices.....	33
16.8	Lighting system.....	33
16.9	Cable selection and cable laying.....	33
16.10	Overvoltage protection and grounding system.....	33
17	Water treatment system.....	33
17.1	Water quality and pretreatment	33
17.2	Water pre-desalination	34
17.3	Demineralized water treatment.....	34
17.4	Condensed water fine treatment	34
17.5	Chemical dosing and water and steam sampling	35
17.6	Cooling water treatment	35
17.7	Collector cleaning water treatment.....	35
17.8	Waste water treatment	35
17.9	Chemical storage	35
18	Instrumentation and control	36
18.1	General.....	36
18.2	Automation level	36
18.3	Control mode and control room	36
18.4	Measurement and instrumentation	36
18.5	Alarming	37
18.6	Thermal process protection.....	38
18.7	On-off control.....	39
18.8	Analogue control.....	39
18.9	Control system.....	39
18.10	Control power supply	40
18.11	Instrument tube, cable and layout of local equipment	41

19 Auxiliary systems and ancillary facilities 41
20 Safety and protection measures 41
Bibliography..... 43

Table 1 – Various types of normal water and steam losses for a parabolic-trough solar thermal power plant 34

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IEC 62862-3-1 has been prepared by IEC technical committee 117: Solar thermal electric plants. It is an International Standard.

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

Draft	Report on voting
117/153/FDIS	117/158/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.

A list of all parts in the IEC 62862 series, published under the general title *Solar thermal electric plants*, can be found on the IEC website.

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

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- replaced by a revised edition, or
- amended.

SOLAR THERMAL ELECTRIC PLANTS –

Part 3-1: Systems and components – General requirements for the design of parabolic-trough solar thermal power plants

1 Scope

This part of IEC 62862 specifies the general requirements for the design of parabolic-trough solar thermal power plants. It includes requirements for the electric power system, solar resource assessment, site selection, overall planning, collector system, heat transfer system, thermal energy storage system, steam generation system, steam turbine system, layout of solar field, layout of power block, electrical equipment and system, water treatment system, instrumentation and control, auxiliary system and ancillary facilities, as well as considerations concerning health and safety.

This document is applicable to the design of new, expanded or rebuilt parabolic-trough solar thermal power plants using a steam turbine.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60076-2, *Power transformers – Part 2: Temperature rise for liquid-immersed transformers*

IEC 60870-5 (all parts), *Telecontrol equipment and systems – Part 5: Transmission protocols*

IEC 61850 (all parts), *Communication networks and systems for power utility automation*

IEC TS 62749, *Assessment of power quality – Characteristics of electricity supplied by public networks*

IEC TS 62862-1-1, *Solar thermal electric plants – Part 1-1: Terminology*

IEC TS 62862-2-1, *Solar thermal electric plants – Part 2-1: Thermal energy storage systems – Characterization of active, sensible systems for direct and indirect configurations*

IEC 62862-3-2, *Solar thermal electric plants – Part 3-2: Systems and components – General requirements and test methods for large-size parabolic-trough collectors*

IEC TS 62862-3-3, *Solar thermal electric plants – Part 3-3: Systems and components – General requirements and test methods for solar receivers*

ISO 9806, *Solar energy – Solar thermal collectors – Test methods*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC TS 62862-1-1 and the following apply.