INTERNATIONAL STANDARD

ISO 14084-1

First edition
2015-06-01

Process diagrams for power plants —

Part 1: Specification for diagrams

Schémas de procédés pour centrales électriques —

Partie 1: Spécifications pour diagrammes

Reference number
ISO 14084-1:2015(E)

© ISO 2015



COPYRIGHT PROTECTED DOCUMENT

© ISO 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword ..... **v**

Introduction ..... **vi**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**

4 Basic aspects for process diagrams for power plants **2**
4.1 General 2
4.2 Diagram types and interrelations 2
4.3 Life cycle aspects 3
4.4 Contents of information in diagrams 3

5 Diagram types and content **4**
5.1 General 4
5.2 Block diagram (BLD) 4
5.2.1 Description 4
5.2.2 Application 4
5.2.3 Contents 4
5.2.4 Representation 5
5.3 Process flow diagram (PFD) 5
5.3.1 Description 5
5.3.2 Application 5
5.3.3 Contents 5
5.3.4 Representation 6
5.3.5 Other types of process flow diagrams 6
5.4 Process and instrumentation diagram (PID) 7
5.4.1 Description 7
5.4.2 Application 7
5.4.3 Contents 7
5.4.4 Representation 8
5.5 Process control diagram 8
5.5.1 Description 8
5.5.2 Application 8
5.5.3 Contents 8
5.5.4 Representation 9
5.6 Typical diagram 9
5.6.1 Description 9
5.6.2 Application 9
5.6.3 Contents 9
5.6.4 Representation 10

6 Representation subjects **10**
6.1 General 10
6.2 Document sheet issues 10
6.3 Technical information 10
6.4 Graphical symbols 11
6.4.1 General 11
6.4.2 Graphical symbols for power plant diagrams 11
6.4.3 Extension of information 11
6.4.4 Combination of graphical symbols 12
6.4.5 Representation of complex/large objects in diagrams 12
6.5 Connections 12
6.5.1 General 12
6.5.2 Indication of flow directions 13
6.5.3 Indication of pipe dimension 13

© ISO 2015 – All rights reserved

6.5.4 Change of dimension on pipelines 13
6.5.5 Representation of connection lines 13
6.6 Measurement and control 14
6.7 Non-object symbols 14
6.8 Reference designation 14
6.8.1 General 14
6.8.2 Representation and location 14
6.8.3 Reference designations for pipelines 15
Annex A (informative) **Non-object symbols, etc.** **16**
Annex B (informative) **Diagram examples** **18**
Annex C (informative) **Reference designation for power plants** **25**
Annex D (informative) **Reference designation symbols** **27**
Bibliography **28**

 © ISO 2015 – All rights reserved

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

The committee responsible for this document is ISO/TC 10, *Technical product documentation*, SC 10, *Process plant documentation*.

ISO 14084 consists of the following parts, under the general title *Process diagrams for power plants*:

— *Part 1: Specification for diagrams*

— *Part 2: Graphical symbols*

© ISO 2015 – All rights reserved

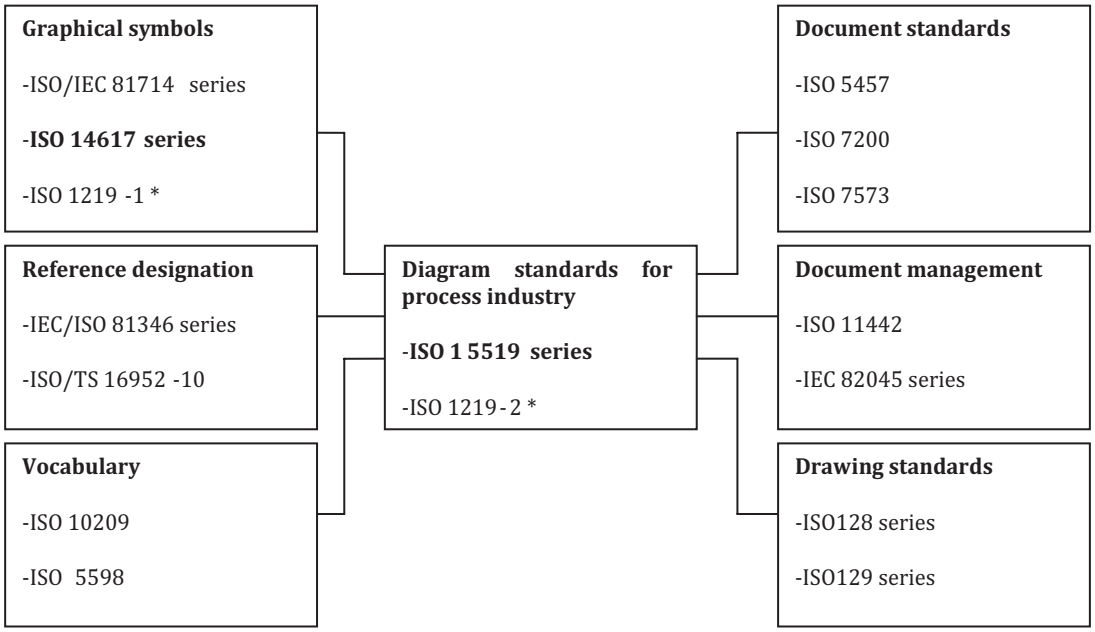
Introduction

0.1 General

This part of ISO 14084 deals with preparation of process diagrams for power plants.

ISO/TC10/SC10 prepares standards for diagrams including graphical symbols which together with standards prepared by other ISO committees and IEC constitute the basis for preparation of diagrams for process industry.

The interrelations between these standards are illustrated in Figure 1. Standards in bold are ISO/TC10/SC10 standards.



NOTE Standards marked * are collective application standards.

Figure 1 — Interrelations between ISO and IEC standards for diagrams for power plants

0.2 Collective application standard

ISO/TC10/SC10 standards:

— ISO 15519 series: Specifications for diagrams for process industry;

— ISO 14617 series: Graphical symbols for diagrams;

These are basic standards, which are general and apply to all fields of applications. Technical committees working in a specific application field are allowed to make extracts and publish them as collective application standards of ISO 15519 series, ISO 14617 series, or both.

0.3 Application fields

This part of ISO 14084 applies to the power plant field, which includes conventional fossil and biomass-fired power plants, hydropower plants, sea wave power plants, wind power plants, nuclear power plants, geothermal power plants, solar power plants, osmosis power plants, incineration plants, and industrial power plants.

0.4 Figures

Figures in this part of ISO 14084 are only examples for illustration of a given rule.

© ISO 2015 – All rights reserved

0.5 Reference designation

In this part of ISO 14084, ISO/TS 16952-10 is used for illustration of rules and guidelines for the use of reference designation in process diagrams for power plants.

A summary of ISO/TS 16952-10 is given in Annex C.

NOTE In case of application of another reference designation system, its application in diagrams has to be interpreted analogously.

© ISO 2015 – All rights reserved

Process diagrams for power plants —

Part 1:
Specification for diagrams

1 Scope

This part of ISO 14084 specifies types of process diagrams for power plants and rules and guidelines for the preparation and representation of information in such diagrams.

This part of ISO 14084 series is a collective application standard of the ISO 15519 series.

This part of ISO 14084 does not apply to electrotechnical diagrams, which are covered by IEC 61082, and to fluid power diagrams, which are covered by ISO 1219-2.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 10209, *Technical product documentation — Vocabulary — Terms relating to technical drawings, product definition and related documentation*

ISO 14617 (all parts), *Graphical symbols for diagrams*

ISO 15519 (all parts), *Specification for diagrams for process industry*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in the ISO 15519 (all parts) and ISO 10209, and the following apply.

3.1
block diagram
BLD
overview diagram predominantly using block symbols

[SOURCE: ISO 10209:2012, modified]

3.2
process flow diagram
PFD
diagram illustrating the configuration of a process system or process plant by means of graphical symbols

[SOURCE: ISO 10209:2012, modified]

© ISO 2015 – All rights reserved