

Reciprocating internal combustion engine driven alternating current generating sets —

Part 2: Specification for engines

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Machinery and Components Standards Policy Committee (MCE/-) to Technical Committee MCE/14 upon which the following bodies were represented:

- Association of Consulting Engineers
- British Railways Board
- Ministry of Defence
- Society of Motor Manufacturers and Traders Ltd.

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

- Agricultural Engineers Association
- Association of Manufacturers of Power Generating Systems and Association of British Generating Set Manufacturers
- British Industrial Truck Association
- Department of Transport
- Health and Safety Executive
- Marine Engine and Equipment Manufacturers' Association

This British Standard, having been prepared under the direction of the Machinery and Components Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 October 1993

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National foreword

This Part of BS 7698 has been prepared under the direction of the Machinery and Components Standards Policy Committee. It is identical with ISO 8528-2:1993 *Reciprocating internal combustion engine driven alternating current generating sets — Part 2: Engines*, published by the International Organization for Standardization (ISO).

BS 7698 consists of the following Parts, which are identical with the corresponding Parts of ISO 8528:

- *Part 1: Specification for application, ratings and performance;*
- *Part 2: Specification for engines;*
- *Part 3: Specification for alternating current generators for generating sets;*
- *Part 4: Specification for controlgear and switchgear;*
- *Part 5: Specification for generating sets;*
- *Part 6: Test methods;*
- *Part 7: Technical declarations for specification and design¹⁾.*

Further Parts of ISO 8528 are in preparation. It is envisaged that when these Parts of ISO 8528 are published they will be implemented as dual-numbered Parts of BS 7698.

Cross-references

International standard	Corresponding British Standard
	BS 5514 <i>Reciprocating internal combustion engines: Performance</i>
ISO 3046-1:1986	Part 1:1987 <i>Specification for standard reference conditions and declarations of power, fuel consumption and lubricating oil consumption</i> (Identical)
ISO 3046-4:1978	Part 4:1979 <i>Speed governing</i> (Identical)
ISO 3046-5:1978	Part 5:1979 <i>Torsional vibrations</i> (Identical)
ISO 3046-6:1990	Part 6:1992 <i>Specification for overspeed protection</i> (Identical)
	BS 7698 <i>Reciprocating internal combustion engine driven alternating current generating sets</i>
ISO 8528-1:1993	Part 1:1993 <i>Specification for application, ratings and performance</i> (Identical)
ISO 8528-5:1993	Part 5:1993 <i>Specification for generating sets</i> (Identical)

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

¹⁾ In preparation.

1 Scope

This part of ISO 8528 specifies the principal characteristics of a reciprocating internal combustion (RIC) engine when used for alternating current (a.c.) generating set applications.

It applies to RIC engines for a.c. generating sets for land and marine use, excluding generating sets used on aircraft or to propel land vehicles and locomotives.

For some specific applications (for example, essential hospital supplies, high rise buildings, etc.), supplementary requirements may be necessary. The provisions of this part of ISO 8528 should be regarded as a basis.

The terms which define the speed governing and the speed characteristics of RIC engines are listed and explained where they apply specifically to the use of the engine for driving generators.

For other reciprocating-type prime movers (e.g. sewage gas engines, steam engines), the provisions of this part of ISO 8528 should be used as a basis.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8528. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8528 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3046-1:1986, *Reciprocating internal combustion engines — Performance — Part 1: Standard reference conditions and declarations of power, fuel consumption and lubricating oil consumption.*

ISO 3046-4:1978, *Reciprocating internal combustion engines — Performance — Part 4: Speed governing.*

ISO 3046-5:1978, *Reciprocating internal combustion engines — Performance — Part 5: Torsional vibrations.*

ISO 3046-6:1990, *Reciprocating internal combustion engines — Performance — Part 6: Overspeed protection.*

ISO 8528-1:1993, *Reciprocating internal combustion engine driven alternating current generating sets — Part 1: Application, ratings and performance.*

ISO 8528-5:1993, *Reciprocating internal combustion engine driven alternating current generating sets — Part 5: Generating sets.*

3 Symbols

n_r	Declared speed, in revolutions per minute
n_{sf}	Firing speed, in revolutions per minute
n_{max}	Maximum permissible speed, in revolutions per minute
n_a	Partial-load speed, in revolutions per minute
$n_{i,r}$	Declared no-load speed, in revolutions per minute
$n_{i,min}$	Lowest adjustable no-load speed, in revolutions per minute
$n_{i,max}$	Highest adjustable no-load speed, in revolutions per minute
$n_{d,s}$	Setting speed of overspeed limiting devices, in revolutions per minute
$n_{d,o}$	Operating speed of overspeed limiting devices, in revolutions per minute
δn_s	Related range of speed setting
Δn_s	Range of speed setting
$\Delta n_{s,do}$	Downward range of speed setting
$\delta n_{s,do}$	Related downward range of speed setting
$\Delta n_{s,up}$	Upward range of speed setting
$\delta n_{s,up}$	Related upward range of speed setting
v_n	Rate of change of speed setting
δn_{st}	Speed droop
$\Delta \delta n_{st}$	Speed/power characteristic deviation