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**Reciprocating internal combustion  
engines — Vocabulary of components  
and systems —**

**Part 3:  
Valves, camshaft drives and actuating  
mechanisms**

*Moteurs alternatifs à combustion interne — Vocabulaire des  
composants et des systèmes —*

*Partie 3: Soupapes, arbres à cames et mécanismes de commande*

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Published in Switzerland

# Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
3.1 Camshaft.....	1
3.2 Camshaft drive.....	3
3.3 Valve.....	8
3.4 Actuating mechanism.....	10
<b>Bibliography</b> .....	<b>18</b>
<b>Index</b> .....	<b>19</b>

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## 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](http://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](http://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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 70, *Internal combustion engines*.

This third edition cancels and replaces the second edition (ISO 7967-3:2010), which has been technically revised.

The main changes are as follows:

- certain terms and definitions have been modified;
- new terms and definitions related to camshaft, valve, camshaft drive and drive mechanism have been added.

A list of all parts in the ISO 7967 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

This document establishes a vocabulary for components and systems of reciprocating internal combustion engines.

ISO 2710-1 gives a classification of reciprocating internal combustion engines and defines basic terms of such engines, their working and their characteristics.

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# Reciprocating internal combustion engines — Vocabulary of components and systems —

## Part 3: Valves, camshaft drives and actuating mechanisms

### 1 Scope

This document defines terms relating to the valves, camshaft drives and actuating mechanisms of reciprocating internal combustion engines.

### 2 Normative references

There are no normative references in this document.

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/>

#### 3.1 Camshaft

##### 3.1.1

##### **camshaft**

shaft incorporating *cams* (3.1.5) which control the events of the working cycle

Note 1 to entry: The working cycle includes *valve* (3.3.1) opening and closing timings, injection or ignition and accessory driving.

##### 3.1.2

##### **one-piece camshaft**

*camshaft* (3.1.1) where *cams* (3.1.5), shaft and *camshaft signal wheel* (3.1.6) are of one piece

Note 1 to entry: Refer to [Figure 1](#).

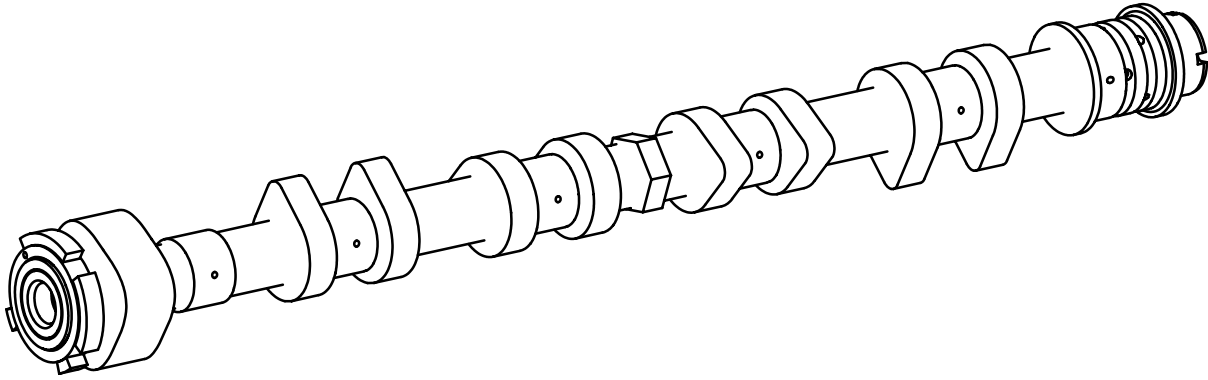


Figure 1 — One-piece camshaft

### 3.1.3

#### one-piece hollow camshaft

one-piece *camshaft* (3.1.2) where the shaft is hollow

Note 1 to entry: Refer to [Figure 2](#).

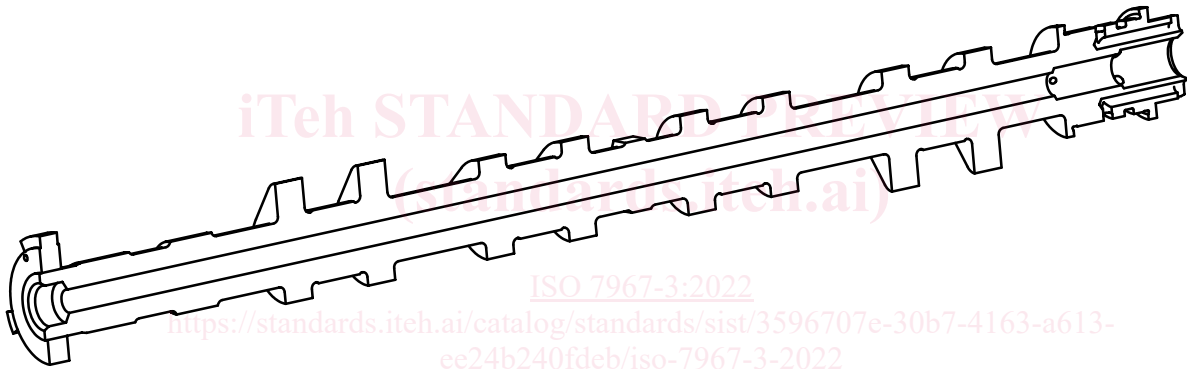


Figure 2 — One-piece hollow camshaft

### 3.1.4

#### assembled camshaft

*camshaft* (3.1.1) where *cams* (3.1.5), *camshaft signal wheel* (3.1.6) and flanges, among other things, are fitted onto the shaft

Note 1 to entry: Refer to [Figure 3](#).



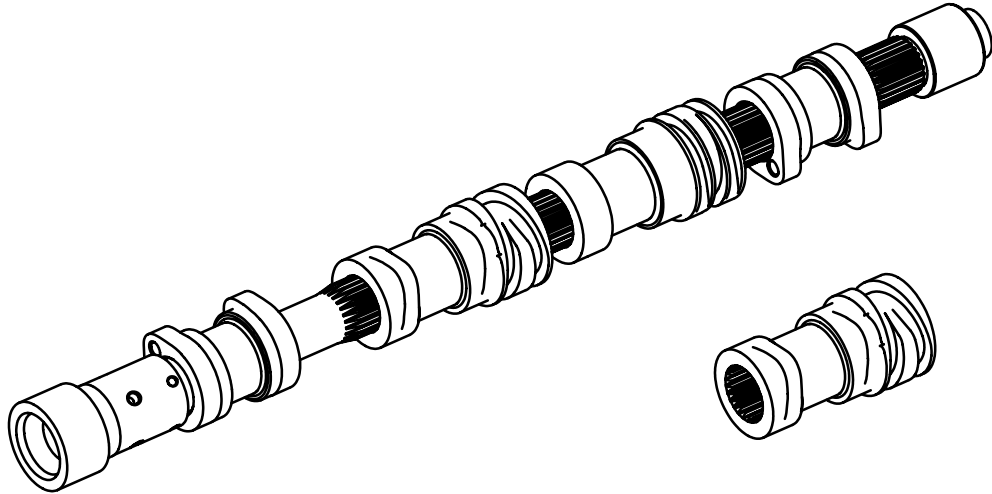


Figure 3 — Assembled camshaft

### 3.1.5

#### cam

component by which *valves* (3.3.1) or fuel injection pumps are operated

### 3.1.6

#### camshaft signal wheel

component for producing synchronization phase signal on the *camshaft* (3.1.1)

Note 1 to entry: Refer to [Figure 4](#).

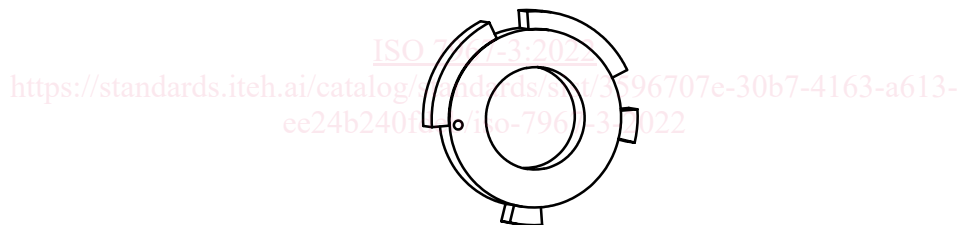


Figure 4 — Camshaft signal wheel

## 3.2 Camshaft drive

### 3.2.1

#### camshaft drive

mechanism by which the *camshaft* (3.1.1) is rotated

### 3.2.2

#### gear drive

crankshaft-to-camshaft driven by means of a series of gears

Note 1 to entry: Refer to [Figure 5](#).

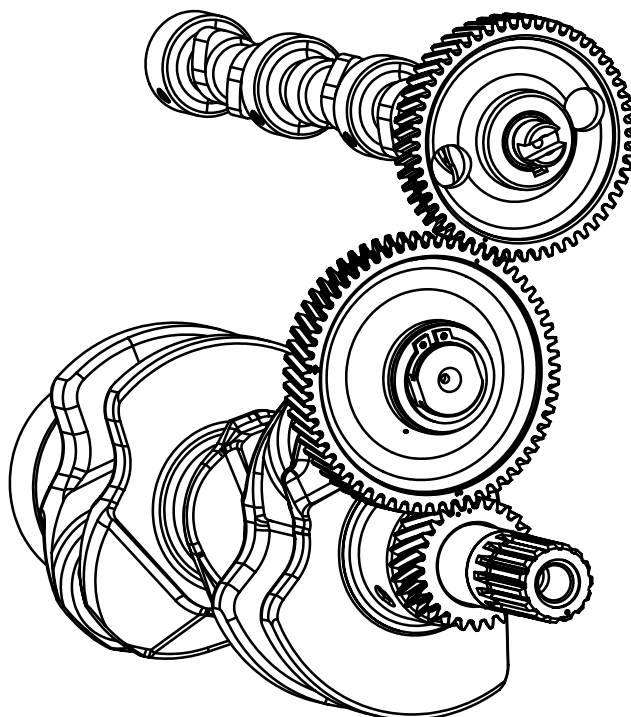


Figure 5 — Gear drive

### 3.2.3 camshaft timing gear

gear for driving the *camshaft* (3.1.1) and ensuring the phase

Note 1 to entry: Refer to [Figure 6](#).

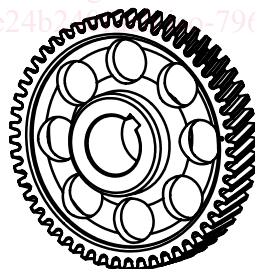
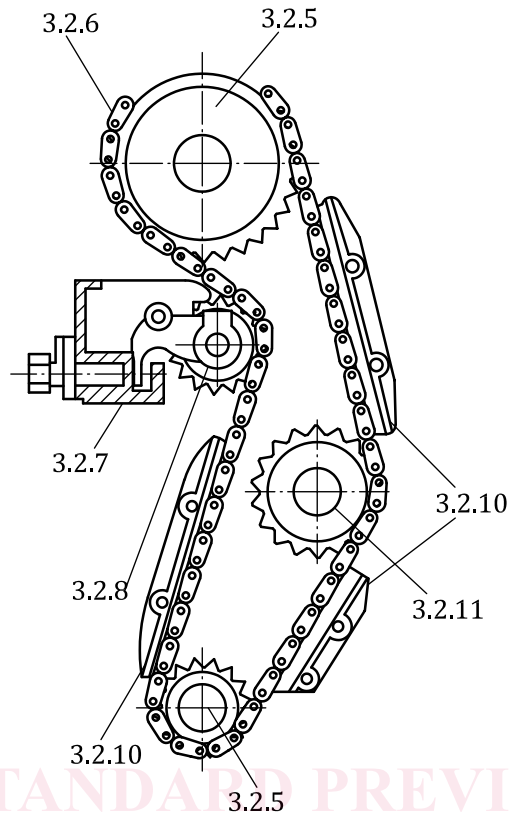


Figure 6 — Camshaft timing gear

### 3.2.4 chain drive

crankshaft-to-camshaft driven by means of *sprocket wheels* (3.2.5) and *timing chain* (3.2.6)

Note 1 to entry: Refer to [Figure 7](#).



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Figure 7 — Chain drive

### 3.2.5

#### sprocket wheel

wheel that drives or is driven by the *timing chain* (3.2.6)

Note 1 to entry: Refer to [Figure 7](#).

### 3.2.6

#### timing chain

component to transmit movement from the crankshaft to the *camshaft* (3.1.1)

Note 1 to entry: Refer to [Figure 7](#).

### 3.2.7

#### chain tension adjuster assembly

mechanism to compensate for the increase in length resulting from chain wear, using a *tensioning wheel* (3.2.8) or a *slide rail* (3.2.9)

Note 1 to entry: Actuation is by spring or hydraulic mechanism.

Note 2 to entry: Refer to [Figure 7](#).

### 3.2.8

#### tensioning wheel

wheel pressed against the chain to adjust its tension

Note 1 to entry: Refer to [Figure 7](#).

### 3.2.9

#### slide rail

rail pressed against the chain to adjust its tension