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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

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 of all such patent rights.

ISO/TR 18792 was prepared by Technical Committee ISO/TC 60, *Gears*, Subcommittee SC 2, *Gear capacity calculation*.

Introduction

Gear lubrication is important in all types of gear applications. Through adequate lubrication, gear design and selection of gear lubricant, the gear life can be extended and the gearbox efficiency improved. In order to focus on the available knowledge of gear lubrication, ISO/TC 60 decided to produce this Technical Report combining primary information about the design and use of lubricants for gearboxes.

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Lubrication of industrial gear drives

1 Scope

This Technical Report is designed to provide currently available technical information with respect to the lubrication of industrial gear drives up to pitch line velocities of 30 m/s. It is intended to serve as a general guideline and source of information about the different types of gear, and lubricants, and their selection for gearbox design and service conditions. This Technical Report is addressed to gear manufacturers, gearbox users and gearbox service personnel, inclusive of manufacturers and distributors of lubricants.

This Technical Report is not applicable to gear drives for automotive transmissions.

2 Terms and definitions

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

Table 1 — Symbols, indices and units

Symbol, index	Term	Unit
A, B, C, D, E	points on the path of contact	—
b	face width	mm
C	cubic capacity of the oil pump	cm ³
d	diameter	mm
$d_{a1,2}$	outside diameter pinion, wheel	mm
$d_{b1,2}$	base circle diameter pinion, wheel	mm
$d_{w1,2}$	operating pitch diameter pinion, wheel	mm
f_H	curvature factor	N ^{0,5} /mm ^{1,5}
f_L	load factor	—
F_{bt}	circumferential load at base circle	N
n_{shaft}	rotational speed of the oil pump driving shaft	rpm
p	pressure	bar
p_H	hertzian stress	N/mm ²
P	gear power	kW
P_{vz}	gear power loss	kW
$P_{vz\text{sum}}$	total gearbox power loss	kW
s	slip	—
t	time	sec