International Standard 1122/1

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Glossary of gear terms — Part 1 : Geometrical definitions

Vocabulaire des engrenages — Partie 1 : Définitions géométriques

First edition — 1983-02-15

UDC 621.83 : 001.4 **Ref. No. ISO 1122/1-1983 (E)**

Descriptors : gears, geometric characteristics, vocabulary.

Price based on 34 pages

Contents

* At present under study; the glossary for worm gear pairs will be published later on in the form of an addendum to this part of ISO 1122.

Glossary of gear terms — Part 1 : Geometrical definitions

0.1 Introduction

The drawing up of a vocabulary of gears may be conceived in many different ways, depending on the aim : in its most simplified form, the vocabulary may have the sole aim of fixing the terminology, which sometimes varies from one workshop to another, that is to say, it may consist of a simple list of recommended terms, possibly completed by corresponding terms in other languages, but without definitions, on the assumption that these are already familiar to the people dealing with gears. On the other hand, the glossary may be a proper document of instruction, containing both the definition of each term and all useful comments to make it readily intelligible to young people and to enable them to understand better the various mathematical and practical consequences which may result from it in connection with the range of other definitions.

Since we are here dealing with international standardization, it seems essential to enable men who deal with gears to understand one another, without error or ambiguity, by placing at their disposal the standard terms in each language which have exactly the same significance between one country and another.

This part of ISO 1122 must not therefore be regarded as aiming directly at teaching, which would necessitate longer explanations, nor as intended specifically for workshop technicians who would doubtless prefer shortened and perhaps less rigorous definitions which could easily be assimilated in the light of their long experience. This part of ISO 1122 has been drawn up for general use in the sense of a dictionary which may confidently be consulted in case of doubt or disagreement.

For this reason, this part of ISO 1122 gives as rigorous a geometrical definition as possible for each term, since this is an indispensable factor in eliminating uncertainty in the interpretation of difficult passages, especially as regards dealings between countries where different languages are used.

If certain definitions are found to be somewhat abstract in character, it is nevertheless true that the work was carried out taking account solely of practical necessities, deliberately leaving aside all purely theoretical and historical considerations. (Thus it is, for example, that only ordinary gears with constant ratio are considered, to the exclusion of elliptical or other types of gears, and that no reference is made to working hyperboloids, which have their place in kinematic theories but are not actually used in the study, cutting or use of gear wheels).

For the same reason, in the case of two equivalent definitions which would be equally possible for the same term, but one of which is a consequence of the other, only the more general definition has been retained as a basic definition even if, in some cases, it would have been more convenient to use the other. (For example, the module may be defined in terms of the pitch or the diameter and the number of teeth; here, the first definition, which is more general and is applicable even in the case of the rack, must be considered to be the basic definition).

Comparison of the proposal drawn up in this way with the standards and proposals which were taken as a starting point shows great similarity as regards subject matter; this similarity is clearly imposed by gear engineering itself, which is the same in all countries.

As regards form, the following should be noted :

— on the one hand, the addition of certain terms which did not exist in older standards (e.g. constant chord);

— on the other hand, the elimination of some other terms, which have either secondary or no interest in practice and which actually belong, not to a vocabulary of gears, but to a vocabulary of geometrical or kinematic sciences, and which have already been adequately defined in this respect;

— lastly, certain French terms did not have corresponding terms in English; in the English version, these terms appear as translations of the French terms and have been put between square brackets.

0.2 Scope and field of application

This part of ISO 1122 contains the part of the international glossary of gears which is devoted solely to geometrical definitions.

It gives, for each of the geometrical terms relative to gears, a standard definition which will be valid internationally, the corresponding term being chosen as far as possible in each language in such a way as to be a direct reflection of the meaning of the definition.

Since the latter condition can only be partially fulfilled in any particular language, as a result of the necessity of respecting certain established conventions, it is advisable, as far as translation into other languages is concerned, to refer always to the meaning of the definition itself, rather than to a simple transposition of the original term.