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.

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.

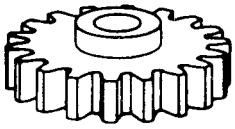
Since the latter condition can only be partially fulfilled in any particular language, as a result of the necessity of respecting certain established conventions, it is advisable, as far as translation into other languages is concerned, to refer always to the meaning of the definition itself, rather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

1 General definitions

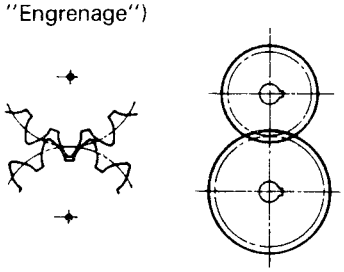
1.1 Kinematic definitions

1.1.1 Relative position of axes

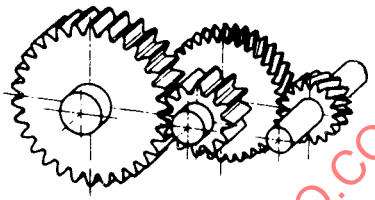
1.1.1.1 toothed gear : Any toothed member designed to transmit motion to another one, or receive motion from it, by means of successively engaging teeth.



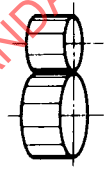
1.1.1.2 [gear pair] *: An elementary mechanism consisting of two gears mobile around axes of invariable relative position, and one of which turns the other by the action of teeth successively in contact.
(French term : "Engrenage")



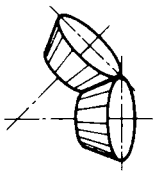
1.1.1.3 train of gears : Any combination of gear pairs.



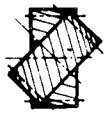
1.1.1.4 [gear pair with parallel axes]* : A gear pair whose axes are parallel.
(French term : "Engrenage parallèle")



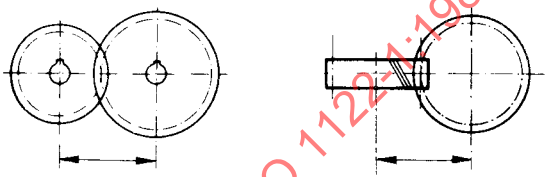
1.1.1.5 [gear pair with intersecting axes]* : A gear pair whose axes intersect.
(French term : "Engrenage concourant")



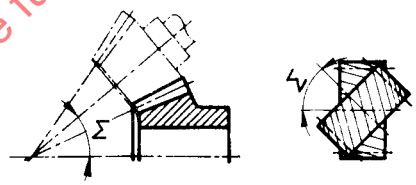
1.1.1.6 [gear pair with non-parallel, non-intersecting axes]* : A gear pair whose axes are non-parallel, non-intersecting axes.
(French term : "Engrenage gauche")



1.1.1.7 centre distance : The shortest distance between the axes of a gear pair with parallel axes or with non-parallel, non-intersecting axes.

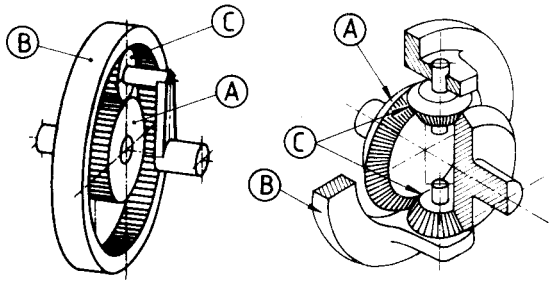


1.1.1.8 shaft angle : The smallest angle through which one of the axes must be rotated in order to bring the axes into coincidence (gear pair with intersecting axes) or must be swivelled in order to bring the axes parallel (gear pair with non-parallel, non-intersecting axes) so as to cause their direction of rotation to be opposite.



1.1.1.9 planetary or epicyclic gear train

(1) [single planetary gear train]* : A gear train comprising three co-axial elements, two of which are extreme gears with fixed axes, the third being a carrier which may or may not turn around the common axes of the two gears and which supports one or more intermediate gears.
(French term : "Train planétaire simple")



A : Sun gear
B : Ring gear
C : Planet gear

(2) [compound planetary gear train]* : A planetary gear train consisting of several coupled single planetary gear trains.
(French term : "Train planétaire composé")

* Between brackets is a translation of the French term for which there is no corresponding special term in English.

1.1.2 Mating gears

1.1.2.1 mating gear : Either one of the two gears of a pair, considered in relation to the other.

1.1.2.2 pinion : That one of the two gears of a pair which has the smaller number of teeth.

1.1.2.3 wheel or gear : That one of the two gears of a pair which has the larger number of teeth.

1.1.2.4 driving gear : That gear, of a pair, which turns the other.

1.1.2.5 driven gear : That gear, of a pair, which is turned by the other.

1.1.2.6 sun gear : In a planetary gear train, the extreme gear with external teeth.

1.1.2.7 ring gear : In a planetary gear train, the extreme gear with internal teeth.

1.1.2.8 planet gear : In a planetary gear train, the (or one of the) intermediate gear(s).

1.1.3 Relative speeds

1.1.3.1 gear ratio : The quotient of the number of teeth of the wheel to that of the pinion.

1.1.3.2 transmission ratio : The quotient of the angular speed of the first driving gear of a train of gears to that of the last driven gear.

NOTE — When it is necessary, it is agreed to give to the transmission ratio the sign + when these angular speeds are of the same direction and the sign − when they are of opposite direction.

1.1.3.3 speed reducing gear pair (or train) : A gear pair or a train of gears of which the angular speed of the last driven gear is less than that of the first driving gear.

1.1.3.4 speed increasing gear pair (or train) : A gear pair or a train of gears of which the angular speed of the last driven gear is greater than that of the first driving gear.

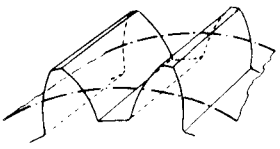
1.1.3.5 speed reducing ratio : The transmission ratio of a speed reducing gear pair or train of gears.

1.1.3.6 speed increasing ratio : The inverse of the transmission ratio of a speed increasing gear pair or train of gears.

1.1.4 Pitch and reference surfaces

1.1.4.1 pitch surface : The geometrical surface described by the instantaneous axis of the movement of the mating gear in relation to the gear under consideration in a given gear pair.

1.1.4.2 reference surface : An imaginary conventional surface with reference to which the tooth dimensions of a gear, considered alone, are defined. It is the pitch surface of engagement with the basic rack.



1.1.4.3 reference ..... * : A qualification applicable to every term defined from the reference surface of a gear.

1.1.4.4 working ..... * : A qualification applicable to every term defined from the pitch surface of a gear in a gear pair.

1.2 Teeth characteristics

1.2.1 General terms

1.2.1.1 gear tooth : Each of the projecting parts of a gear which are intended to ensure, by contact with the teeth of another gear, that one of the gears turns the other.

NOTE — In French, the teeth of a gear are collectively named "denture".

1.2.1.2 tooth space : The space between two adjacent teeth of a gear.

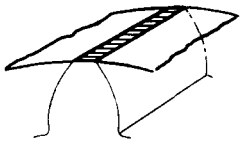
1.2.1.3 dimensions : For teeth dimensions (tooth depth, addendum, dedendum, pitch, thickness, spacewidth, chord, addendum modification) see following clauses.

1.2.1.4 module and diametral pitch : See following clauses.

1.2.1.5 reduced value of a dimension : The quotient of the dimension under consideration, expressed in millimetres, by the module; or the product of the dimension under consideration, expressed in inches, by the diametral pitch. When the dimension under consideration is the addendum modification or the shaft angle modification, the reduced value is called "coefficient".

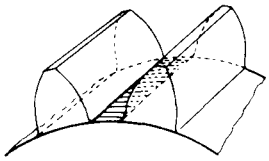
1.2.2 Tip and root surfaces

1.2.2.1 tip surface : Surface, coaxial with the gear, containing the crests of the teeth.

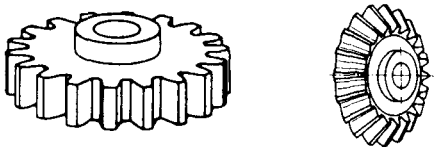


* By convention, the qualification "reference" may always be omitted, as understood, except when in express opposition to the qualification "working". Write the word "tooth" before "reference" when there is a risk of confusion with specially machined datum surface, also termed reference surface.

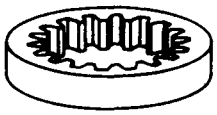
1.2.2.2 root surface : Surface, coaxial with the gear, tangential to the bottom of the tooth spaces.



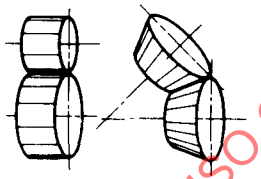
1.2.2.3 external gear : A gear whose tip surface is external to the root surface.*



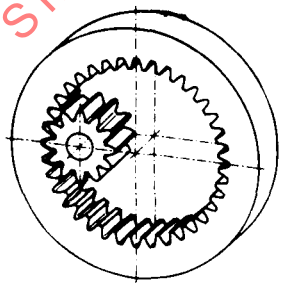
1.2.2.4 internal gear : A gear whose tip surface is internal to the root surface.*



1.2.2.5 external gear pair : A gear pair of which both gears are external gears.

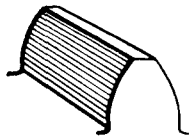


1.2.2.6 internal gear pair : A gear pair of which one gear is an internal gear.



1.2.3 Flanks and profiles

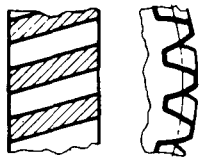
1.2.3.1 tooth flank : That portion of the surface of a tooth lying between the tip surface and the root surface.



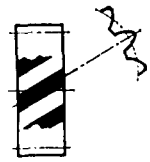
1.2.3.2 tooth trace** : The line of intersection of a tooth flank with the reference surface.

1.2.3.3 tooth profile** : The line of intersection of a tooth flank with any defined surface cutting the reference surface.

1.2.3.4 transverse profile** : The line of intersection of a tooth flank by a surface perpendicular to the straight generators of the reference surface.



1.2.3.5 normal profile : The line of intersection of a tooth flank by a surface orthogonal to the tooth traces.



1.2.3.6 axial profile : The line of intersection of a tooth flank by a plane containing the axis of the gear.

---

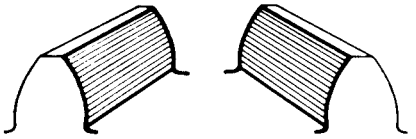
* In order to avoid any ambiguity, especially in the case of bevel gears, consider the section of both surfaces by a plane perpendicular to the axis of the gear.

** Term defined with respect to the reference surface (qualification "reference" understood). Add the qualification "working" for the corresponding term defined with respect to the pitch surface.

1.2.4 Flanks — qualifications

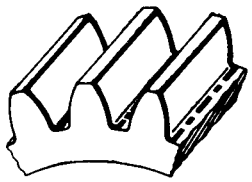
1.2.4.1 mating flank : In a gear pair, either one of the two flanks in contact considered in relation to the other.

1.2.4.2 right (or left) flank : For an observer looking from that side of the gear conventionally chosen as reference side : that one of the two flanks of a tooth which is on the right (or the left) of the tooth, when seen with its tip upwards.



Right flank Left flank

1.2.4.3 corresponding flanks : Of the teeth of a gear, flanks which are all right flanks, or all left flanks.



1.2.4.4 opposite flanks : Of the teeth of a gear, one or more right flanks in relation to one or more left flanks.

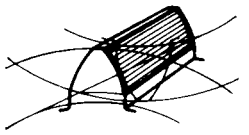
1.2.4.5 working flank : That flank of a tooth by which motion is transmitted to, or received from, a mating gear.

1.2.4.6 non-working flank : The opposite flank to the working flank of a tooth.

1.2.5 Parts of flanks

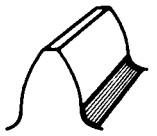
1.2.5.1 addendum (or dedendum) flank* : That portion of the flank lying between the tip (or root) surface and the reference surface.

1.2.5.2 active flank : That portion of a tooth flank of a gear which contacts the tooth flanks of a mating gear.



1.2.5.3 usable flank : The largest portion of the tooth flank of an individual gear which may be used as active flank.

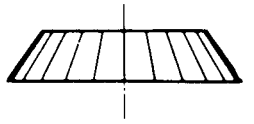
1.2.5.4 fillet : That portion of the flank between the usable flank and the bottom of the tooth spaces.



1.2.6 Definitions in terms of tooth traces

1.2.6.1 spur gear : A cylindrical gear whose tooth traces are straight line generators of the reference cylinder.

1.2.6.2 straight bevel gear : A bevel gear whose tooth traces are straight line generators of the reference cone.



* Term defined with respect to the reference surface (qualification "reference" understood). Add the qualification "working" for the corresponding term defined with respect to the pitch surface.

1.2.6.3 helical gear : A cylindrical gear whose tooth traces are helices.

1.2.6.4 right-hand teeth : Teeth whose successive transverse profiles show clockwise displacement with increasing distance from an observer looking along the straight line generators of the reference surface.

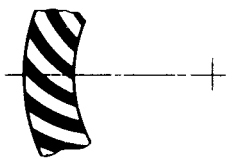
NOTE — It must be noted that a rack is regarded as an external gear of infinitely large diameter (see 2.1.7.1).

1.2.6.5 left-hand teeth : Teeth whose successive transverse profiles show anticlockwise displacement with increasing distance from an observer looking along the straight line generators of the reference surface.

NOTE — It must be noted that a rack is regarded as an external gear of infinitely large diameter (see 2.1.7.1).

1.2.6.6 double helical gear (or gear pair) : A cylindrical gear (or gear pair) in which a part of the facewidth is right-hand and the other left-hand, with or without a gap between them.

1.2.6.7 spiral bevel gear : A bevel gear whose tooth traces are curved lines other than helices.



1.3 Tooth generation

1.3.1 Generating gear, interference and modification of the flank shape

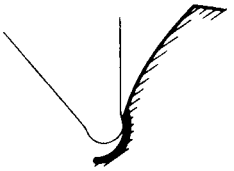
1.3.1.1 generating gear of a gear : A gear, either real or imaginary, used for defining the gear under consideration. The usable flanks of the gear are the envelope of those of its generating gear, under the conditions of relative position and motion specified.

1.3.1.2 meshing interference : The theoretical penetration of a flank in its mating flank when their meshing occurs outside certain limits.

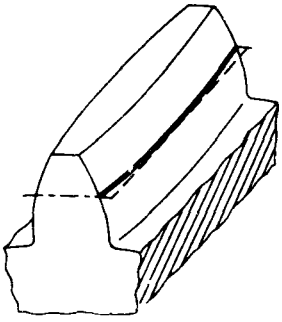
1.3.1.3 cutter interference : The penetration of the cutting tool in the flank of the tooth with result of removal of material causing a systematic variation between the cut flank and the theoretical profile of the tooth.

1.3.1.4 tip (or root) relief : The intentional modification of the form of the tooth profile implying a removal of material at the tip (or at the root) in order to smooth the contact of a flank with its mating flank.

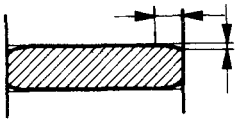
1.3.1.5 undercut : The intentional modification of the fillet implying a removal of material obtained, for instance, by means of a cutting tool with protuberance, in order to facilitate the eventual working following the cutting.



1.3.1.6 crowning : Progressive reduction of the tooth thickness from the middle part towards each end face, in order to ensure the transmittance of the stresses of a flank to its mating flank under the best conditions.



1.3.1.7 end relief : Progressive reduction of tooth thickness over a small part of the facewidth terminating at the end faces of the teeth in order to cut out the edges.

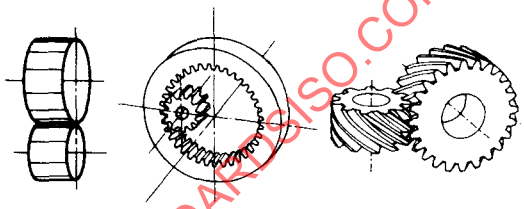


1.3.2 Definitions in terms of tooth generation

1.3.2.1 cylindrical gear : A gear whose reference surface is a cylinder.

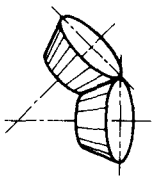
1.3.2.2 bevel gear : A gear whose reference surface is a cone.

1.3.2.3 cylindrical gear pair : A pair of mating cylindrical gears.



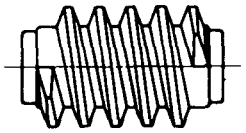
NOTE — This gear pair may be qualified as "spur" when it is made up of spur gears, or as "helical" when it is made up of helical gears.

1.3.2.4 bevel gear pair : A pair of mating bevel gears, with intersecting axes.

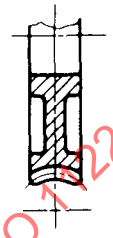


NOTE — This gear pair may be qualified as "straight" when it is made up of straight gears, or as "helical" when it is made up of helical gears, or as "spiral" when it is made up of spiral gears.

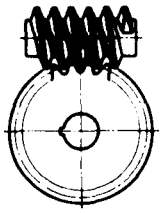
1.3.2.5 worm : A gear of cylindrical or torical form that meshes with a worm wheel (see 1.3.2.6).



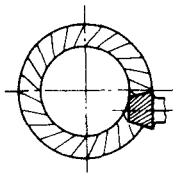
1.3.2.6 worm wheel : A gear whose flanks are capable of line contact with the flanks of a worm meshing with it on non-parallel, non-intersecting axes.



1.3.2.7 worm gear pair : A worm and its mating worm wheel.



1.3.2.8 hypoid gear pair : A pair of gears of conical or approximately conical form, having non-parallel, non-intersecting axes.



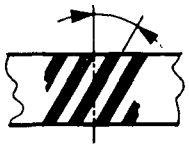
1.3.2.9 hypoid gear : Either one of the two gears of a hypoid gear pair.

1.4 Geometrical and kinematical notions used in gears

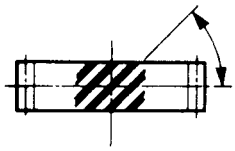
1.4.1 Geometrical lines

1.4.1.1 helix : On a cylinder of revolution, a curve whose tangents are inclined at a constant angle to the axis of the cylinder.

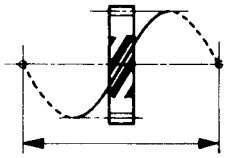
1.4.1.2 helix angle : The acute angle between the tangent to a helix and the straight generator of the cylinder on which it lies.



1.4.1.3 lead angle : The acute angle between the tangent to a helix and a plane perpendicular to the axis of the cylinder on which it lies.



1.4.1.4 lead : The distance between two consecutive intersections of a helix by a straight generator of the cylinder on which it lies.



1.4.1.5 cycloid : A plane curve described by a point on a circle (the "generating circle") which rolls without slip on a fixed straight line (the "base line").

1.4.1.6 epicycloid : A plane curve described by a point on a circle (the "generating circle") which rolls without slip on the outside of a fixed circle (the "base circle").

1.4.1.7 hypocycloid : A plane curve described by a point on a circle (the "generating circle") which rolls without slip on the inside of a fixed circle (the "base circle").

1.4.1.8 involute to a circle : A plane curve described by a point on a straight line (the "generating line") which rolls without slip on a fixed circle (the "base circle").

1.4.1.9 spherical involute : On the surface of a sphere, the curve described by a point on a great circle (the "generating circle") which moves over the sphere by rolling without slip on a fixed small circle of the sphere (the "base circle").

1.4.2 Geometrical surfaces

1.4.2.1 involute helicoid : The surface generated by a straight line inclined at a constant angle to the axis of a cylinder of revolution ("base cylinder") and rolling without slip on the surface of that cylinder (i.e. constantly tangent to a helix of the cylinder).

A section by a plane perpendicular to the axis of the cylinder is an involute to a circle.

1.4.2.2 spherical involute helicoid : The surface generated by a straight line inclined at a constant angle to the axis of a cone of revolution ("base cone") and rolling without slip on the surface of that cone.

A section by a sphere having its centre at the apex of the cone is a spherical involute.

1.4.3 instantaneous axis : In a gear pair with parallel or non-parallel axes, the imaginary line around which occurs the relative instantaneous rotation of a gear in relation to its mating gear. In a gear pair with non-parallel, non-intersecting axes, the imaginary line around which occurs the relative instantaneous helical movement of a gear in relation to its mating gear.

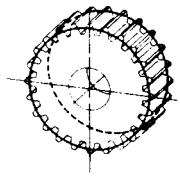
2 Cylindrical gears and gear pairs

2.1 Cylindrical gears

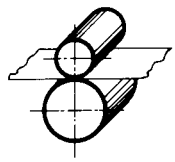
NOTE — The following definitions refer also to the rack considered as a gear of infinitely great diameter.

2.1.1 Cylinders

2.1.1.1 reference cylinder* : The reference surface of a cylindrical gear.



2.1.1.2 pitch cylinder : The pitch surface of a cylindrical gear, in a gear pair with parallel axes.

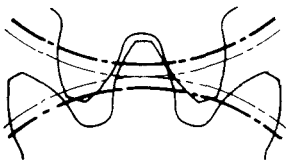


2.1.1.3 tip (or root) cylinder : The tip (or root) surface of a cylindrical gear.

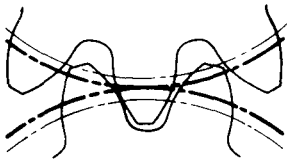
* By convention, the qualification "reference" may always be omitted, as understood, except when in express opposition to the qualification "working". Write the word "tooth" before "reference" when there is a risk of confusion with specially machined datum surface, also termed reference surface.

2.1.1.4 transverse profile : (see 1.2.3.4).

2.1.1.5 reference (or pitch) circle* : The line of intersection of the reference (or pitch) cylinder by a plane perpendicular to the axis of the gear.



Reference circles



Pitch circles

2.1.1.6 reference (or pitch) diameter* : The diameter of the reference (or pitch) circle.

2.1.1.7 tip (or root) circle : The line of intersection of the tip (or root) cylinder by a plane perpendicular to the axis of the gear.

2.1.1.8 tip (or root) diameter : The diameter of the tip (or root) circle.

2.1.1.9 facewidth : The width over the toothed part of a gear, measured along a straight line generator of the reference cylinder.

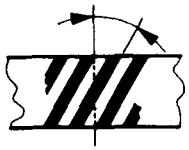
2.1.2 Helices of helical gears

2.1.2.1 reference helix : The tooth trace of a helical gear.

2.1.2.2 pitch helix : The intersection of a tooth flank with the pitch cylinder of a helical gear.

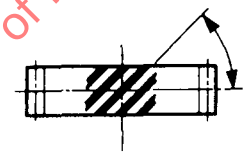
2.1.2.3 base helix : In an involute helical gear (see 2.1.7.4), the line of intersection of the involute helicoid of a flank with the base cylinder.

2.1.2.4 helix angle** : The helix angle of the reference helix of a helical gear.

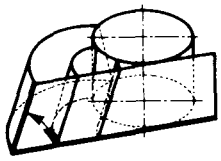


2.1.2.5 base helix angle : The helix angle of the base helix of an involute helical gear.

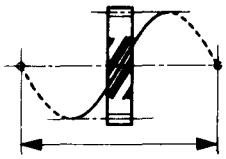
2.1.2.6 lead angle** : The lead angle of the reference helix of a helical gear.



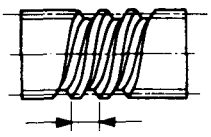
2.1.2.7 base lead angle : The lead angle of the base helix of an involute helical gear.



2.1.2.8 lead : (see 1.4.1.4).



2.1.2.9 axial pitch : The distance between the points of intersection of any line parallel to the axis of a helical gear with two consecutive corresponding flanks.

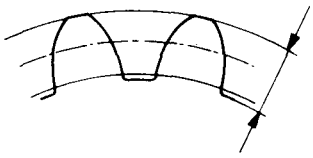


* By convention, the qualification "reference" may always be omitted, as understood, except when in express opposition to the qualification "working". Write the word "tooth" before "reference" when there is a risk of confusion with specially machined datum surface, also termed reference surface.

** Term defined with respect to the reference surface (qualification "reference" understood). Add the qualification "working" for the corresponding term defined with respect to the pitch surface.

2.1.3 Addendum and dedendum

2.1.3.1 tooth depth : The radial distance between the tip circle and the root circle.

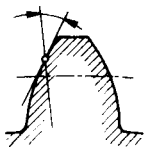


2.1.3.2 addendum* : The radial distance between the tip circle and the reference circle.

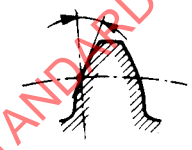
2.1.3.3 dedendum* : The radial distance between the root circle and the reference circle.

2.1.4 Transverse dimensions**

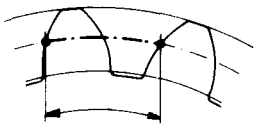
2.1.4.1 transverse pressure angle at a point : The acute angle between a radial line passing through any point on a transverse profile and the tangent to the profile at that point.



2.1.4.2 transverse pressure angle* : The transverse pressure angle at the point where the profile cuts the reference circle.



2.1.4.3 transverse pitch* : The length of the arc of the reference circle lying between two consecutive corresponding profiles.



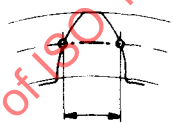
2.1.4.4 angular pitch : The quotient of the whole circumference, expressed in units of angle, to the number of teeth.

$$\tau = \frac{360^\circ}{z} = \frac{2\pi}{z} \text{ rad}$$

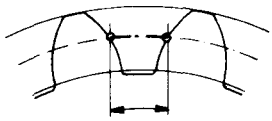
2.1.4.5 transverse module* : The quotient of the transverse pitch, expressed in millimetres, to the number π (or the quotient of the reference diameter expressed in millimetres, to the number of teeth).

2.1.4.6 transverse diametral pitch* : The quotient of the number π to the transverse pitch expressed in inches (or the quotient of the number of teeth to the reference diameter expressed in inches).

2.1.4.7 transverse tooth thickness* : The length of the arc of the reference circle lying between the two profiles of a tooth.



2.1.4.8 transverse spacewidth* : The length of the arc of the reference circle lying between the two profiles on each side of a tooth space.



2.1.5 Normal dimensions (helical gears)**

2.1.5.1 normal pressure angle at a point : The acute angle between a radial line passing through any point on a tooth flank and the tangent plane to the flank at that point.

2.1.5.2 normal pressure angle* : The normal pressure angle at a point on a tooth trace.

2.1.5.3 normal pitch* : The length of the arc, lying between the tooth traces of two consecutive corresponding flanks, of a co-cylindrical normal helix.

2.1.5.4 normal module* : The quotient of the normal pitch, expressed in millimetres, by the number π.

2.1.5.5 normal diametral pitch* : The quotient of the number π by the normal pitch expressed in inches.

2.1.5.6 normal tooth thickness* : The length of the arc of a normal helix between the two traces of a tooth.

2.1.5.7 normal spacewidth* : The length of the arc of a normal helix between the tooth traces on each side of a tooth space.

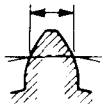
---

* Term defined with respect to the reference surface (qualification "reference" understood). Add the qualification "working" for the corresponding term defined with respect to the pitch surface.

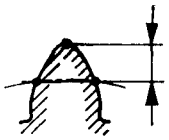
** For spur gears, the normal and transverse elements are identical and are stated without qualification. The symbol is written consequently without suffix or sign.

2.1.6 Chords and base tangent length

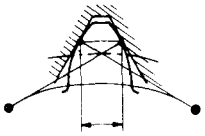
2.1.6.1 normal chordal tooth thickness* : The shortest distance between the two tooth traces of a tooth defined by the reference circle.



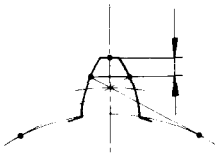
2.1.6.2 reference chordal height* : The shortest distance from the tooth crest to the mid-point of the normal chordal tooth thickness.



2.1.6.3 constant chord : In an involute gear, the shortest distance between two lines of contact of the flanks of a tooth of a gear with those of its basic rack, when the two teeth are symmetrically superimposed.



2.1.6.4 constant chord height : The radial distance between the mid-point of the constant chord and the tip of the tooth.



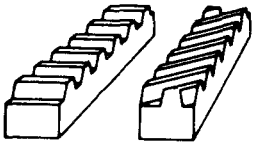
2.1.6.5 base tangent length : The distance between two parallel planes tangent to the outer flanks of a number of consecutive teeth (external gears), or tooth spaces (internal gears).

This number should be stated; for example : "Base tangent length over 3 teeth".

2.1.7 Types of cylindrical gears

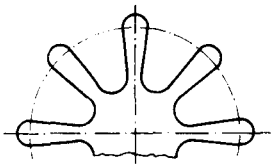
2.1.7.1 rack : A flat plate or straight bar having a series of identical teeth on one face.

It can be regarded as part of a gear of infinitely large diameter.

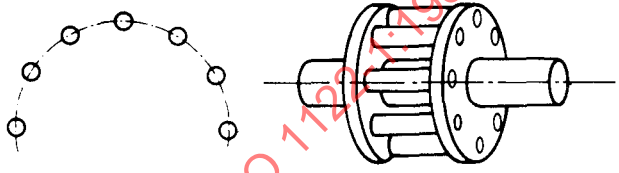


Spur rack Helical rack

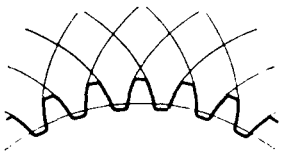
2.1.7.2 cycloidal gear : A gear of which the tooth profiles are cycloidal curves, exact or approximate.



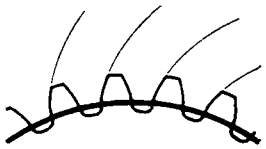
2.1.7.3 cylindrical lantern gear : A gear of which the teeth are cylindrical pins with axes parallel to the axis of the gear.



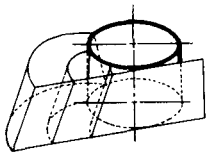
2.1.7.4 involute cylindrical gear : A cylindrical gear of which every usable tooth profile is an arc of an involute to a circle.



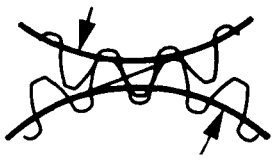
2.1.7.5 base circle : Of an involute cylindrical gear, the "base circle" of the involutes of the tooth profiles.



2.1.7.6 base cylinder : The cylinder, coaxial with the gear, having the base circle as transverse section.



2.1.7.7 base diameter : Diameter of the base circle and base cylinder.

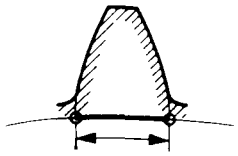


* Term defined with respect to the reference surface (qualification "reference" understood). Add the qualification "working" for the corresponding term defined with respect to the pitch surface.

2.1.7.8 transverse (or normal) base pitch : The length of the arc of the base circle lying between the origin of the involutes of two consecutive corresponding tooth profiles of a cylindrical gear (or the length of the arc of a co-cylindrical normal helix, lying between the base helices of origin of the involute helicoids of two consecutive corresponding flanks of a helicoidal gear).

It is equal to the constant distance, measured along one of their common normals, between the two involutes (or between the two involute helicoids).

2.1.7.9 transverse (or normal) base thickness : The length of the arc of the base circle lying between the origin of the involutes of the two profiles of a gear tooth (or the length of the arc of a co-cylindrical normal helix, lying between the base helices of origin of the two involute helicoid flanks of a gear tooth).



2.1.8 Tooth generation

2.1.8.1 basic rack tooth profile : The rack tooth profile which is used as a basis for defining the tooth proportions of a system of involute gears.

2.1.8.2 basic rack : An imaginary rack having basic rack tooth profile for normal section.

2.1.8.3 counterpart rack : A rack which can be engaged with the basic rack so that the teeth of the one exactly fill the spaces of the other.

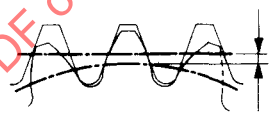
2.1.8.4 datum plane : Of the basic rack : the plane in which the ratio of tooth thickness to pitch has a specified standard value (usually 0,5).

2.1.8.5 datum line : The line of intersection of the datum plane with the plane of the basic rack tooth profile, or, in the reference profile, the line in relation to which the dimensions of the teeth are specified (ratio of the tooth thickness to the pitch generally equal to 0,5).

2.1.8.6 addendum modification : The distance, measured along their common perpendicular, between the reference cylinder of a gear and the datum plane of its basic rack, when the rack and the gear are superimposed, so that the flanks of a tooth of the one are tangential to those of a tooth of the other.

By convention, the addendum modification is positive if the datum plane is external to the cylinder; it is negative if it cuts it.

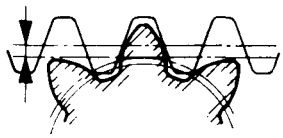
This definition is valid for both external and internal gears; for internal gearing the tooth profile is considered as being that of the tooth space.



2.1.8.7 addendum modification coefficient : The quotient of the addendum modification, expressed in millimetres, by the module, or the product of the addendum modification, expressed in inches, by the diametral pitch.

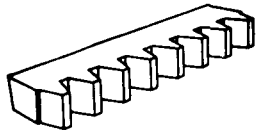
2.1.8.8 x-zero gear : An involute cylindrical gear whose addendum modification coefficient is equal to zero.

2.1.8.9 x-gear : An involute cylindrical gear whose addendum modification coefficient is different from zero.

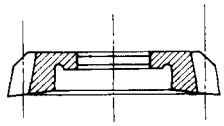


2.1.9 Generating cutting tools and associated features

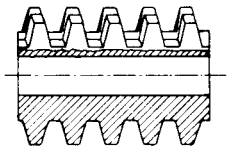
2.1.9.1 rack type cutter : A generating cutting tool, in the form of a rack.



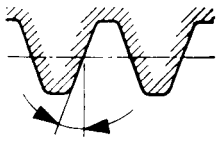
2.1.9.2 pinion type cutter : A generating cutting tool, in the form of a cylindrical gear.



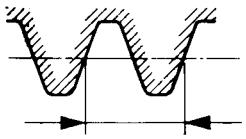
2.1.9.3 hob : A generating cutting tool, in the form of a worm.



2.1.9.4 nominal pressure angle : The normal pressure angle of the basic rack of the gears cut by the tool.



2.1.9.5 nominal pitch of the cutter : The normal pitch of the basic rack of the gears cut by the tool.



2.1.9.6 cutter module : The quotient of the nominal pitch of the cutter, esxpressed in millimetres, to the number π.

2.1.9.7 cutter diametral pitch : The quotient of the number π to the nominal pitch of the cutter expressed in inches.

2.2 Cylindrical gear pairs

2.2.1 Types of cylindrical gear pairs

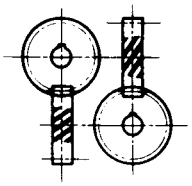
2.2.1.1 cycloidal gear pair : Two mating cycloidal gears.

2.2.1.2 cylindrical lantern pinion and wheel : A cylindrical lantern gear and its mating cylindrical gear.

2.2.1.3 involute spur gear pair : Two mating involute spur gears.

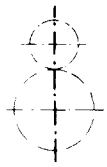
2.2.1.4 parallel helical gear pair : Two mating helical gears with parallel axes.

2.2.1.5 crossed helical gear pair : Two mating helical gears with non-parallel, non-intersecting axes.

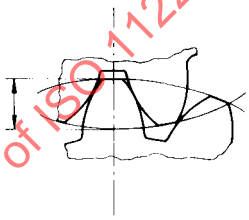


2.2.2 Depths and clearances

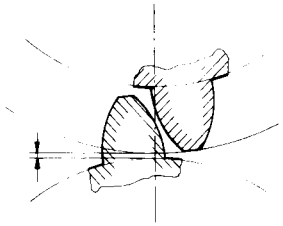
2.2.2.1 line of centres : The straight line, perpendicular to both axes, between the centres of the pitch circles.



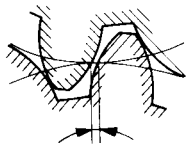
2.2.2.2 working depth : The shortest distance, on the line of centres, between the tip surfaces of two mating gears.



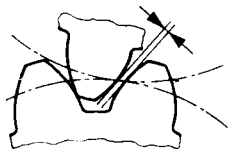
2.2.2.3 bottom clearance : The distance, on the line of centres, between the root surface of a gear and the tip surface of the mating gear.



2.2.2.4 circumferential backlash : The maximum length of arc of the pitch circle through which a gear can be rotated when the mating gear is fixed.



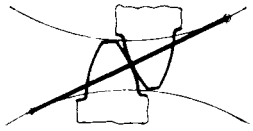
2.2.2.5 normal backlash : The shortest distance between non-working flanks of two gears, when working flanks are in contact.



2.2.3 Contact ratio (gear pairs with parallel axes)*

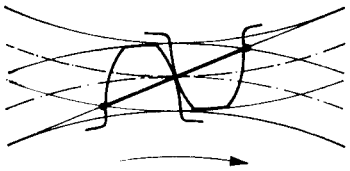
2.2.3.1 transverse line of action : The common normal to two transverse mating tooth profiles at their point of contact.

In involute gear pairs, the line of action is a fixed straight line, common tangent to the two base circles.

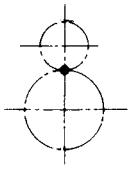


2.2.3.2 transverse path of contact : The path described in a transverse plane by successive points of contact of two mating tooth profiles.

In involute gear pairs, the path of contact is that part of the line of action lying between the tip circle of the driven and the tip circle of the driving gear.

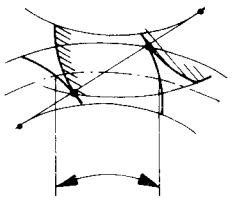


2.2.3.3. pitch point : The point of contact of the two pitch circles.



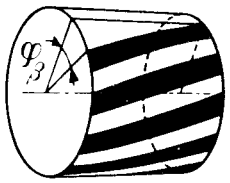
2.2.3.4 [total angle (or arc) of transmission]** : The angle (or the arc of the reference circle) through which the gear rotates between the beginning and ending of the contact on a flank.
(French term : "angle (ou arc) total de conduite")

2.2.3.5 [transverse angle (or arc) of transmission]** : The angle (or the arc of the reference circle) through which the gear rotates between the beginning and ending of the contact on a transverse profile.
(French term : "angle (ou arc) de conduite apparent")



2.2.3.6 [overlap angle (or arc)]** : The angle (or arc of reference circle) between the axial planes containing the ends of one tooth trace.

It is equal to the difference between the two angles (or arcs) defined above.
(French term : "angle (ou arc) de recouvrement")



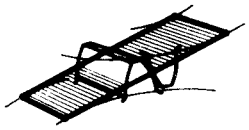
2.2.3.7 total contact ratio : The quotient of the total angle of transmission by the angular pitch.

2.2.3.8 transverse contact ratio : The quotient of the transverse angle of transmission by the angular pitch.

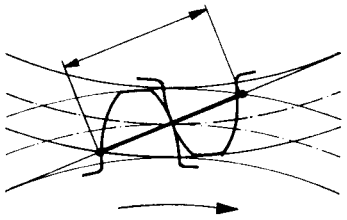
2.2.3.9 overlap ratio : The quotient of the overlap angle by the angular pitch, or the quotient of the facewidth by the axial pitch.

2.2.4 Length of path of contact (involute gear pairs with parallel axes)*

2.2.4.1 plane of action : The plane containing the lines of action of an involute gear pair with parallel axes.



2.2.4.2 length of path of contact : The length of the path of contact between the tip circle of the driven and the tip circle of the driving gear.



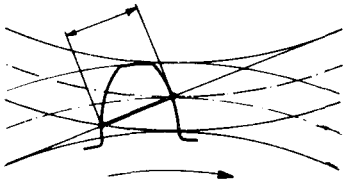
2.2.4.3 approach contact : Contact at any point of that part of the path of contact lying between the tip circle of the driven gear and the pitch point.

* For spur gears, the overlap arc, angle and ratio are zero and the total and transverse elements are identical. In this case these elements are stated without qualification and their symbols are written without suffix or sign.

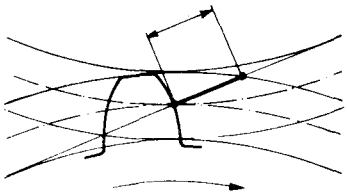
** Between brackets is a translation of the French term for which there is no corresponding special term in English.

2.2.4.4 recess contact : Contact at any point of that part of the path of contact lying between the pitch point and the tip circle of the driving gear.

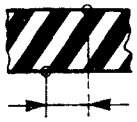
2.2.4.5 length of approach path : Length of that part of the path of contact along which the approach contact occurs.



2.2.4.6 length of recess path : Length of that part of the path of contact along which the recess contact occurs.



2.2.4.7 [overlap length]* : A length equal to the product of the facewidth and the tangent of the base helix angle.
(French term : "longueur de recouvrement")

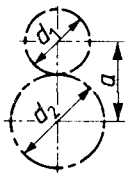


2.2.5 Addendum and centre distance modifications

2.2.5.1 x-zero gear pair : A gear pair consisting of two x-zero gears.

2.2.5.2 x-gear pair : A gear pair including at least one x-gear.

2.2.5.3 reference centre distance : Half the sum of the reference diameters of the two gears of an external gear pair (or half the difference of the reference diameters of the two gears of an internal gear pair).



$$a = \frac{z_1 + z_2}{2P} \text{ (in)}$$

$$a = \frac{z_1 + z_2}{2} \times m \text{ (mm)}$$

2.2.5.4 gear pair with reference centre distance : A gear pair whose centre distance is equal to the reference centre distance.

2.2.5.5 gear pair with modified centre distance : A gear pair whose centre distance is different (greater : gear pair with extended centre distance; shorter : gear pair with closed centre distance) from the reference centre distance.

2.2.5.6 [centre distance modification coefficient]* : The quotient of the difference, expressed in millimetres, between centre distance and reference centre distance by the module, or the product of this difference, expressed in inches, by the diametral pitch.
(French term : "coefficient de modification d'entr'axe")

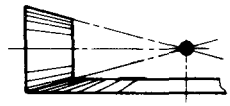
3 Bevel and hypoid gears and gear pairs

3.1 Bevel gears

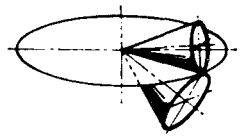
3.1.1 Cones

3.1.1.1 reference cone : The reference surface of a bevel gear.

3.1.1.2 reference cone apex : The apex of the reference cone of a bevel gear.

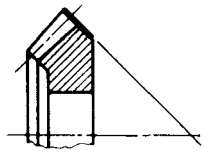


3.1.1.3 pitch cone : The pitch surface of a bevel gear, in a gear pair with intersecting axes.



3.1.1.4 tip (or root) cone : The tip (or root) surface of a bevel gear.

3.1.1.5 back cone** : The cone whose generators are perpendicular to those of the reference cone, at those ends of the teeth remote from the cone apex.



3.1.1.6 [inner (or middle) cone]*** : The cone whose generators are perpendicular to those of the reference cone, at the inner end (or at the middle point) of the facewidth.
[French term : "Cône complémentaire interne (ou moyen)"]

* Between brackets is a translation of the French term for which there is no corresponding special term in English.

** Term defined with respect to the reference surface (qualification "reference" understood). Add the qualification "working" for the corresponding term defined with respect to the pitch surface.

3.1.1.7 [inner (or middle).....*]** : Qualification applicable to all terms defined from cones similar to and co-axial with the back cone at the small end of the gear (or at midface). (French term : ".....interne (ou moyen)")

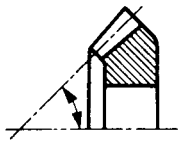
3.1.1.8 back cone tooth profile : The section of a tooth flank of a bevel gear by the back cone.

3.1.1.9 virtual cylindrical gear of a bevel gear* : An imaginary cylindrical gear of which the transverse section is the development of the section by the back cone of the gear under consideration.

3.1.2 Dimensions of cones

3.1.2.1 reference cone angle : The angle between the axis and the reference cone generator containing the root cone generator.

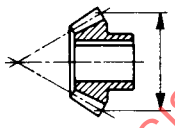
3.1.2.2 pitch angle : The angle between the axis and the pitch cone generator containing the root cone generator.



3.1.2.3 reference circle : The circle of intersection of the reference cone with a plane perpendicular to the axis, on which the pitch has the specified value.

By convention, this circle corresponds generally to the circle of intersection of the reference cone with the back cone.

3.1.2.4 reference diameter : The diameter of the reference circle.



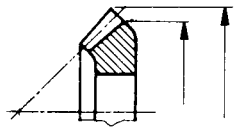
3.1.2.5 tip (or root) angle : Of the two supplementary angles between the tip (or root) cone generator and the axis : that one on the inside (or outside) of which are the teeth of the gear.

Tip angle

Root angle

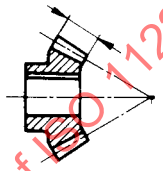
3.1.2.6 tip (or root) circle : The intersection of the tip (or root) cone with the back cone.

3.1.2.7 tip (or root) diameter* : The diameter of the tip (or root) circle.

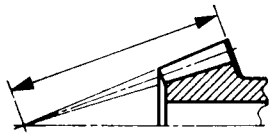


3.1.3 Longitudinal dimensions and associated features

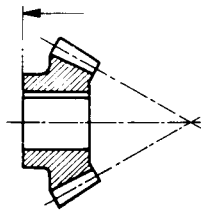
3.1.3.1 facewidth* : The width over the toothed part of the gear, measured along a reference cone generator.



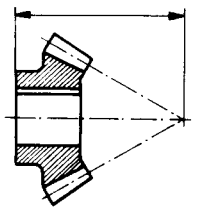
3.1.3.2 cone distance* : The distance between the apex and the back cone, measured along a reference cone generator.



3.1.3.3 locating face : That plane face of the gear to be cut, by reference to which its position along the axis is determined.



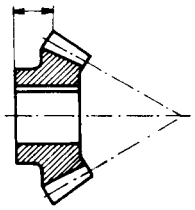
3.1.3.4 locating distance : The distance between the apex and the locating face.



* Term defined with respect to the reference surface (qualification "reference" understood). Add the qualification "working" for the corresponding term defined with respect to the pitch surface.

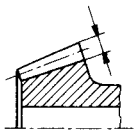
** Between brackets is a translation of the French term for which there is no corresponding special term in English.

3.1.3.5 tip distance : The distance between the plane of the tip circle and the locating face.



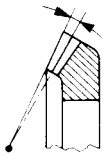
3.1.4 Addendum and dedendum

3.1.4.1 tooth depth* : The distance between the tip circle and the root circle measured along a back cone generator.



3.1.4.2 addendum* : The distance between the tip circle and the reference circle, measured along a back cone generator.

3.1.4.3 addendum angle* : The difference between the tip angle and the reference cone angle.

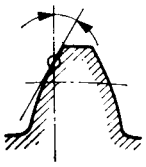


3.1.4.4 dedendum* : The distance between the reference circle and the root circle, measured along a back cone generator.

3.1.4.5 dedendum angle* : The difference between the reference cone angle and the root angle.

3.1.5 Transverse dimensions (straight bevel gears)

3.1.5.1 pressure angle at a point : Acute angle between a tangent to the profile and a line perpendicular to the reference cone, passing through the point of tangency.



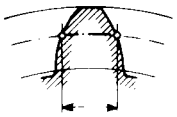
3.1.5.2 pressure angle* : Pressure angle at the point where the profile cuts the reference circle.

3.1.5.3 pitch* : Length of the arc of the reference circle between two consecutive corresponding profiles.

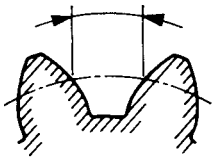
3.1.5.4 module* : The quotient of the pitch, expressed in millimetres, to the number π (or the quotient of the reference diameter, expressed in millimetres, to the number of teeth).

3.1.5.5 diametral pitch* : The quotient of the number π to the pitch expressed in inches (or the quotient of the number of teeth by the reference diameter expressed in inches).

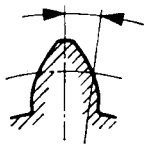
3.1.5.6 tooth thickness* : The length of the arc of the reference circle lying between the two profiles of a tooth.



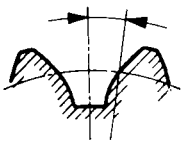
3.1.5.7 spacewidth* : The length of the arc of the reference circle lying between the two profiles of a tooth space.



3.1.5.8 tooth thickness half angle : Half the angle between the two tooth traces of a tooth.



3.1.5.9 spacewidth half angle : Half the angle between the two tooth traces of a tooth space.



* Term defined with respect to the reference surface (qualification "reference" understood). Add the qualification "working" for the corresponding term defined with respect to the pitch surface.

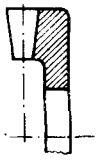
3.1.6 Chords (straight bevel gears)

3.1.6.1 chordal tooth thickness* : Of a straight bevel gear, the chordal tooth thickness of its virtual cylindrical gear.

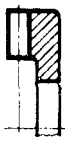
3.1.6.2 chordal height* : Of a straight bevel gear, the chordal height of its virtual cylindrical gear.

3.1.7 Types of bevel and hypoid gears

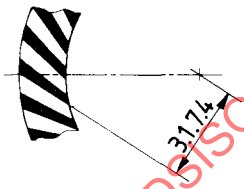
3.1.7.1 crown gear : A bevel gear with a reference cone angle of 90°.



3.1.7.2 contrate gear : A bevel or hypoid gear with tip and root cone angles of 90°.



3.1.7.3 skew bevel gear : A bevel gear defined from a crown wheel whose tooth traces are straight lines not passing through the apex.



3.1.7.4 offset of tooth trace : The shortest distance between the tooth traces produced and the apex of the crown wheel from which the skew bevel gear is defined.

3.1.7.5 octoid gear (so-called "involute bevel gear") : A bevel gear defined from a crown wheel with plane flanks.

NOTE — It is an approximation of a true "involute bevel gear", that is, of a gear of which every usable tooth profile would be an arc of a spherical involute helicoid.

3.1.8 Teeth generation (straight bevel gear)

3.1.8.1 basic rack tooth profile (of a system of bevel gears) : The basic rack tooth profile of the virtual cylindrical gears.

3.1.8.2 addendum modification of a bevel gear : The addendum modification of the virtual cylindrical gear.

3.1.8.3 addendum modification coefficient : The quotient of addendum modification, expressed in millimetres, by the module, or the product of addendum modification, expressed in inches, by the diametral pitch.

3.1.8.4 x-zero gear : A bevel gear whose addendum modification coefficient is equal to zero.

3.1.8.5 x-gear : A bevel gear whose addendum modification coefficient is different from zero.

3.1.9 Generating cutting tools

3.1.9.1 cutter tip angle : Of the crown gear : half the angle between the lines of intersection of the tip cone with the two flanks of a tooth space.

3.1.9.2 cutter module : The coarsest standard module which can be cut to standard tooth depth with the cutter.

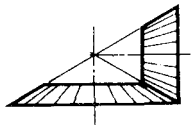
3.1.9.3 cutter diametral pitch : The finest standard diametral pitch which can be cut to standard tooth depth with the cutter.

3.2 Bevel and hypoid gear pairs

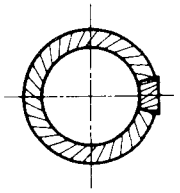
3.2.1 Types of gear pairs

3.2.1.1 contrate gear pair or face gear pair : A contrate gear and its mating pinion, with either intersecting or non-parallel, non-intersecting axes at a shaft angle of 90°.

3.2.1.2 straight bevel gear pair : Two mating involute straight bevel gears.



3.2.1.3 skew bevel gear pair : Two mating skew bevel gears with intersecting axes.



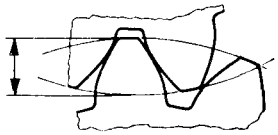
* Term defined with respect to the reference surface (qualification "reference" understood). Add the qualification "working" for the corresponding term defined with respect to the pitch surface.

3.2.1.4 virtual cylindrical gear pair : The mating virtual cylindrical gears of the two gears of a bevel gear pair.

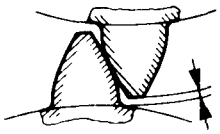
3.2.1.5 hypoid gear pair : (see 1.3.2.8)

3.2.2 Depths and clearances (gear pairs with intersecting axes)

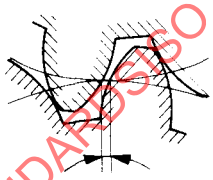
3.2.2.1 working depth : The shortest distance between the tip circle of a bevel gear and that of the mating gear, measured along the common generator of the two back cones.



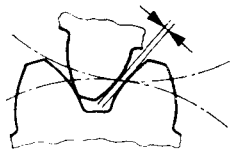
3.2.2.2 bottom clearance : The shortest distance between the tip circle of a bevel gear and the root circle of the mating gear, measured along the common generator of the two back cones.



3.2.2.3 circumferential backlash : The maximum length of arc of the pitch circle through which a gear can be rotated when the mating gear is fixed.



3.2.2.4 normal backlash : The shortest distance, measured at the back cones, between the non-working flanks of two gears, when the working flanks are in contact.



3.2.3 Addendum and shaft angle modification (gear pairs with intersecting axes)

3.2.3.1 common apex : The common apex of the two pitch cones of the gear pair.

3.2.3.2 shaft angle : See general definition 1.1.1.8. It is the sum of the two pitch angles of a bevel gear pair, either external or internal.

3.2.3.3 x-zero gear pair : A gear pair consisting of two x-zero gears.

3.2.3.4 x-gear pair : A gear pair including at least one x-gear.

3.2.3.5 [gear pair without shaft angle modification]* : A gear pair whose shaft angle is equal to the sum of the two reference cone angles.
(French term : "Engrenage sans modification d'angle des axes")

3.2.3.6 [gear pair with extended shaft angle]* : A x-gear pair whose shaft angle is greater than the sum of the two reference cone angles.
(French term : "Engrenage à angle des axes augmenté")

3.2.3.7 [gear pair with closed shaft angle]* : A x-gear pair whose shaft angle is less than the sum of the two reference cone angles.
(French term : "Engrenage à angle des axes diminué")

* Between brackets is a translation of the French term for which there is no corresponding special term in English.

Annex

Alphabetical indexes of equivalent terms

English	French	Russian	Definitions No. of clause
A			
Action (plane of)	Plan d'action	Плоскость зацепления	2.2.4.1
Action (transverse line of)	Ligne d'action	Линия зацепления	2.2.3.1
Active flank	Flanc actif	Активная поверхность	1.2.5.2
Addendum	Saillie	Высота головки	2.1.3.2, 3.1.4.2
Addendum angle	Angle de saillie	Угол головки	3.1.4.3
Addendum flank	Flanc de saillie	Поверхность ножки	1.2.5.1
Addendum modification	Déport	Смещение исходного контура	2.1.8.6, 3.1.8.2
Addendum modification coefficient	Coefficient de déport	Коэфициент смещения	2.1.8.7, 3.1.8.3
Angle (addendum)	Angle de saillie	Угол головки	3.1.4.3
Angle (base helix)	Angle d'hélice de base	Основной угол наклона	2.1.2.5
Angle (base lead)	Inclinaison de base	Основной угол подъема	2.1.2.7
Angle (cutter type)	Angle de tête d'outil	Половина угла конусности	3.1.9.1
Angle (dedendum)	Angle de creux	Угол ножки	3.1.4.5
Angle (gear pair with closed shaft)	Engrenage à angle des axes diminué	Коническая зубчатая передача с межосевым углом, меньшим суммы углов делительных конусов ее зубчатых колес	3.2.3.7
Angle (gear pair with extended shaft)	Engrenage à angle des axes augmenté	Коническая зубчатая передача с межосевым углом, большим суммы углов делительных конусов ее зубчатых колес	3.2.3.6
Angle (helix)	Angle d'hélice	Угол наклона (для зуба косозубого цилиндрического зубчатого колеса)	1.4.1.2, 2.1.2.4
Angle (lead)	Inclinaison	Угол подъема винтовой линии	1.4.1.3, 2.1.2.6
Angle (nominal pressure)	Angle nominal d'outil	Номинальный угол профиля	2.1.9.4
Angle (normal pressure)	Angle d'incidence réel ou angle de pression réel	Нормальный угол профиля	2.1.5.1, 2.1.5.2
Angle (overlap)	Angle de recouvrement	Угол осевого перекрытия	2.2.3.6
Angle (pitch)	Angle primitif de fonctionnement	Угол начального конуса	3.1.2.2
Angle (pressure)	Angle d'incidence, ou angle de pression	Угол профиля (в точке)	3.1.5.1, 3.1.5.2
Angle (reference cone)	Angle primitif de référence	Угол делительного конуса	3.1.2.1
Angle (root)	Angle de pied	Угол конуса вершин	3.1.2.5
Angle (shaft)	Angle des axes	Межосевой угол	1.1.1.8, 3.2.3.2
Angle (spacewidth half)	Demi-angle d'intervalle	Половина угловой ширины впадины	3.1.5.9
Angle (tip)	Angle de tête	Угол конуса впадин	3.1.2.5
Angle (tooth thickness half)	Demi-angle d'épaisseur	Половина угловой толщины зуба	3.1.5.8
Angle (transverse pressure)	Angle d'incidence apparent ou angle de pression apparent	Торцовый угол профиля (в точке)	2.1.4.1, 2.1.4.2
Angle modification (gear pair without shaft)	Engrenage sans modification d'angle des axes	Коническая зубчатая передача с межосевым углом, равным сумме углов делительных конусов ее зубчатых колес	3.2.3.5
Angle of transmission (total)	Angle total de conduite	Угол перекрытия	2.2.3.4
Angle of transmission (transverse)	Angle de conduite apparent	Угол торцовото перекрытия	2.2.3.5
Angular pitch	Pas angulaire	Угловой шаг	2.1.4.4
Apex (common)	Sommet (d'un engrenage)	Вершина начальных конусов	3.2.3.1
Apex (reference cone)	Sommet	Вершина делительного конуса	3.1.1.2

English	French	Russian	Definitions No. of clause
Approach contact	Contact d'approche	Дополюсная часть активной линии зацепления	2.2.4.3
Approach path (length of)	Longueur d'approche	Длина дополюсной части активной линии зацепления	2.2.4.5
Arc (overlap)	Arc de recouvrement	Дуга осевого перекрытия	2.2.3.6
Arc of transmission (total)	Arc total de conduite	Угол перекрытия	2.2.3.4
Arc of transmission (transverse)	Arc de conduite apparent	Дуга торцового перекрытия	2.2.3.5
Axes (gear pair with intersecting)	Engrenage concourant	Зубчатая передача с пересекающимися осями	1.1.1.5
Axes (gear pair with non-parallel, non-intersecting)	Engrenage gauche	Зубчатая передача с перекрещивающимися осями	1.1.1.6
Axes (gear pair with parallel)	Engrenage parallèle	Зубчатая передача с параллельными осями	1.1.1.4
Axial pitch	Pas axial	Осевой шаг	2.1.2.9
Axial profile	Profil axial	Осевой профиль	1.2.3.6
Axis (instantaneous)	Axe instantané	Мгновенные оси	1.4.3
B			
Back cone	Cône complémentaire (sous-entendu : externe)	Внешний дополнительный конус	3.1.1.5
Back cone tooth profile	Profil (par abréviation de «profil apparent»)	Профиль на дополнительном конусе	3.1.1.8
Backlash (circumferential)	Jeu primitif	Боковой зазор по дуге начальной окружности	2.2.2.4, 3.2.2.3
Backlash (normal)	Jeu entre-dents	Боковой зазор	2.2.2.5, 3.2.2.4
Base circle	Cercle de base	Основная окружность	2.1.7.5
Base cylinder	Cylindre de base	Основной цилиндр	2.1.7.6
Base diameter	Diamètre de base	Основной диаметр	2.1.7.7
Base helix	Hélice de base	Основная винтовая линия зуба	2.1.2.3
Base helix angle	Angle d'hélice de base	Основной угол наклона	2.1.2.5
Base lead angle	Inclinaison de base	Основной угол подъема	2.1.2.7
Base pitch (normal)	Pas de base réel	Основной нормальный шаг	2.1.7.8
Base pitch (transverse)	Pas de base apparent	Основной окружной шаг	2.1.7.8
Base tangent length	Écartement	Длина общей нормали	2.1.6.5
Base thickness (normal)	Épaisseur de base réelle	Основная нормальная толщина зуба	2.1.7.9
Base thickness (transverse)	Épaisseur de base apparente	Основная окружная толщина зуба	2.1.7.9
Basic rack	Crémaillère de référence	Исходная рейка	2.1.8.2
Basic rack tooth profile	Tracé de référence	Стандартный исходный контур	2.1.8.1, 3.1.8.1
Bevel gear	Roue conique	Коническое зубчатое колесо	1.3.2.2
Bevel gear (involute)	Roue octoïde (dite roue conique à développante)	Октоидное зубчатое колесо (так называемое „эвольвентное коническое зубчатое колесо“)	3.1.7.5
Bevel gear (skew)	Roue conique hélicoïdale	Косозубое коническое колесо	3.1.7.3
Bevel gear (spiral)	Roue conique spirale	Кривозубое коническое зубчатое колесо	1.2.6.7
Bevel gear (straight)	Roue droite conique	Прямозубое коническое колесо	1.2.6.2
Bevel gear (virtual cylindrical gear of a)	Roue cylindrique équivalente	Цилиндрическое зубчатое колесо, эквивалентное коническому	3.1.1.9
Bevel gear pair	Engrenage conique	Коническая зубчатая передача	1.3.2.4
Bevel gear pair (skew)	Engrenage conique hélicoïdal	Косозубая коническая передача	3.2.1.3

English	French	Russian	Definitions No. of clause
Bevel gear pair (straight)	Engrenage conique droit	Прямозубая коническая передача	3.2.1.2
Bottom clearance	Vide à fond de dent	Радиальный зазор	2.2.2.3, 3.2.2.2
C			
Centres (line of)	Ligne des centres	Межосевая линия	2.2.2.1
Centre distance	Entr'axe	Межосевое расстояние	1.1.1.7
Centre distance (gear pair with modified)	Engrenage à entr'axe modifié	Цилиндрическая зубчатая передача с межосевым расстоянием, отличающимся от делительного	2.2.5.5
Centre distance (gear pair with reference)	Engrenage à entr'axe de référence	Цилиндрическая зубчатая передача с делительным межосевым расстоянием	2.2.5.4
Centre distance (reference)	Entr'axe de référence	Делительное межосевое расстояние	2.2.5.3
Centre distance modification coefficient	Coefficient de modification d'entr'axe	Коэффициент изменения межосевого расстояния	2.2.5.6
Chord (constant)	Corde constante	Постоянная хорда зуба	2.1.6.3
Chord height (constant)	Saillie à la corde constante	Высота до постоянной хорды зуба	2.1.6.4
Chordal height	Saillie à la corde	Высота до хорды зуба	3.1.6.2
Chordal height (reference)	Saillie à la corde de référence	Высота до исходной хорды зуба	2.1.6.2
Chordal tooth thickness	Corde	Толщина зуба по хорде	3.1.6.1
Chordal tooth thickness (normal)	Corde de référence	Нормальная толщина зуба по хорде	2.1.6.1
Circle (base)	Cercle de base	Основная окружность	2.1.7.5
Circle (involute to a)	Développante de cercle	Эвольвента окружности	1.4.1.8
Circle (pitch)	Cercle primitif de fonctionnement	Начальная окружность	2.1.1.5
Circle (reference)	Cercle primitif de référence	Делительная окружность	2.1.1.5, 3.1.2.3
Circle (root)	Cercle de pied	Окружность впадин	2.1.1.7, 3.1.2.6
Circle (tip)	Cercle de tête	Окружность вершин	2.1.1.7, 3.1.2.6
Circumferential backlash	Jeu primitif	Боковой зазор по дуге начальной окружности	2.2.2.4, 3.2.2.3
Clearance (bottom)	Vide à fond de dent	Радиальный зазор	2.2.2.3, 3.2.2.2
Closed shaft angle (gear pair with)	Engrenage à angle des axes diminué	Коническая зубчатая передача с межосевым углом, меньшим суммы углов делительных конусов ее зубчатых колес	3.2.3.7
Coefficient (addendum modification)	Coefficient de déport	Коэффициент смещения	2.1.8.7, 3.1.8.3
Coefficient (centre distance modification)	Coefficient de modification d'entr'axe	Коэффициент изменения межосевого расстояния	2.2.5.6
Common apex	Sommet (d'un engrenage)	Вершина начальных конусов	3.2.3.1
Compound planetary gear train	Train planétaire composé	Сложная планетарная система зубчатых передач	1.1.1.9 (2)
Cone (back)	Cône complémentaire (sous-entendu : externe)	Внешний дополнительный конус	3.1.1.5
Cone (inner)	Cône complémentaire interne	Внутренний дополнительный конус	3.1.1.6
Cone (middle)	Cône complémentaire moyen	Средний дополнительный конус	3.1.1.6
Cone (pitch)	Cône primitif de fonctionnement	Начальный конус	3.1.1.3
Cone (reference)	Cône primitif de référence	Делительный конус	3.1.1.1
Cone (root)	Cône de pied	Конус впадин	3.1.1.4
Cone (tip)	Cône de tête	Конус вершин	3.1.1.4

English	French	Russian	Definitions No. of clause
Cone angle (reference)	Angle primitif de référence	Угол делительного конуса	3.1.2.1
Cone apex (reference)	Sommet	Вершина делительного конуса	3.1.1.2
Cone distance	Génératrice (par abréviation de «longueur de génératrice»)	Конусное расстояние	3.1.3.2
Cone tooth profile (back)	Profil (par abréviation de «profil apparent»)	Профиль на дополнительном конусе	3.1.1.8
Constant chord	Corde constante	Постоянная хорда зуба	2.1.6.3
Constant chord height	Saillie à la corde constante	Высота до постоянной хорды зуба	2.1.6.4
Contact (approach)	Contact d'approche	Дополюсная часть активной линии зацепления	2.2.4.3
Contact (length of path of)	Longueur de conduite	Длина активной линии зацепления	2.2.4.2
Contact (recess)	Contact de retraite	Заполюсная часть активной линии зацепления	2.2.4.4
Contact (transverse path of)	Ligne de conduite	Активная линия зацепления	2.2.3.2
Contact ratio (total)	Rapport total de conduite	Коэффициент перекрытия	2.2.3.7
Contact ratio (transverse)	Rapport de conduite apparent	Коэффициент торцового перекрытия	2.2.3.8
Contrate gear	Roue de champ	Коронное зубчатое колесо	3.1.7.2
Contrate gear pair	Engrenage de champ	Коронная зубчатая передача	3.2.1.1
Corresponding flanks	Flancs homologues	Одноименные поверхности	1.2.4.3
Counterpart rack	Crémaillère génératrice	Производящая рейка	2.1.8.3
Crossed helical gear pair	Engrenage gauche hélicoïdal	Винтовая зубчатая передача	2.2.1.5
Crown gear	Roue plate	Плоское зубчатое колесо	3.1.7.1
Crowning	Bombé	Бочкообразность	1.3.1.6
Cutter (nominal pitch of the)	Pas nominal d'outil	Номинальный шаг инструмента	2.1.9.5
Cutter (pinion type)	Outil pignon	Зуборезный долбяк	2.1.9.2
Cutter (rack type)	Outil crémaillère	Зуборезная гребенка	2.1.9.1
Cutter diametral pitch	Diametral pitch d'outil	Диаметральный питч инструмента	2.1.9.7, 3.1.9.3
Cutter interference	Interférence de taillage	Интерференция зубьев в станочном зацеплении	1.3.1.3
Cutter module	Module d'outil	Модуль инструмента	2.1.9.6, 3.1.9.2
Cutter type angle	Angle de tête d'outil	Половина угла конусности зуба	3.1.9.1
Cycloid	Cycloïde	Циклоида	1.4.1.5
Cycloidal gear	Roue cycloïdale	Циклоидное зубчатое колесо	2.1.7.2
Cycloidal gear pair	Engrenage cycloïdal	Циклоидная зубчатая передача	2.2.1.1
Cylinder (base)	Cylindre de base	Основной цилиндр	2.1.7.6
Cylinder (pitch)	Cylindre primitif de fonctionnement	Начальный цилиндр	2.1.1.2
Cylinder (reference)	Cylindre primitif de référence	Делительный цилиндр	2.1.1.1
Cylinder (root)	Cylindre de pied	Цилиндр впадин	2.1.1.3
Cylinder (tip)	Cylindre de tête	Цилиндр вершин	2.1.1.3
Cylindrical gear	Roue cylindrique	Цилиндрическое зубчатое колесо	1.3.2.1
Cylindrical gear (involute)	Roue cylindrique à développante	Эвольвентное цилиндрическое зубчатое колесо	2.1.7.4
Cylindrical gear of a bevel gear (virtual)	Roue cylindrique équivalente	Цилиндрическое зубчатое колесо, эквивалентное коническому	3.1.1.9
Cylindrical gear pair	Engrenage cylindrique	Цилиндрическая зубчатая передача	1.3.2.3
Cylindrical gear pair (virtual)	Engrenage cylindrique équivalent	Эквивалентная цилиндрическая зубчатая передача	3.2.1.4

English	French	Russian	Definitions No. of clause
Cylindrical lantern gear	Roue cylindrique à fuseaux	Цилиндрическое цевочное колесо	2.1.7.3
Cylindrical lantern pinion and wheel	Engrenage cylindrique à fuseaux	Цилиндрическая цевочная передача	2.2.1.2
D			
Datum line	Ligne de référence	Делительная прямая	2.1.8.5
Datum plane	Plan de référence	Делительная плоскость	2.1.8.4
Dedendum	Creux	Высота ножки	2.1.3.3, 3.1.4.4
Dedendum angle	Angle de creux	Угол ножки	3.1.4.5
Dedendum flank	Flanc de creux	Поверхность ножки	1.2.5.1
Depth (tooth)	Hauteur de dent	Высота зуба	2.1.3.1, 3.1.4.1
Depth (working)	Hauteur utile	Глубина захода	2.2.2.2, 3.2.2.1
Diameter (base)	Diamètre de base	Основной диаметр	2.1.7.7
Diameter (pitch)	Diamètre de fonctionnement	Начальный диаметр	2.1.1.6
Diameter (reference)	Diamètre primitif de référence	Делительный диаметр	2.1.1.6, 3.1.2.4
Diameter (root)	Diamètre de pied	Диаметр впадин	2.1.1.8, 3.1.2.7
Diameter (tip)	Diamètre de tête	Диаметр вершин	2.1.1.8, 3.1.2.7
Diametral pitch	Diametral pitch	Диаметральный питч	3.1.5.5
Diametral pitch (cutter)	Diametral pitch d'outil	Диаметральный питч инструмента	2.1.9.7, 3.1.9.3
Diametral pitch (normal)	Diametral pitch réel	Нормальный диаметральный питч	2.1.5.5
Diametral pitch (transverse)	Diametral pitch apparent	Торцовый диаметральный питч	2.1.4.6
Dimensions	Dimensions	Размеры	1.2.1.3
Distance (centre)	Entr'axe	Межосевое расстояние	1.1.1.7
Distance (cone)	Génératrice (par abréviation de «longueur de génératrice»)	Конусное расстояние	3.1.3.2
Distance (gear pair with reference centre)	Engrenage à entr'axe de référence	Цилиндрическая зубчатая передача с делительным межосевым расстоянием	2.2.5.4
Distance (gear pair with modified centre)	Engrenage à entr'axe modifié	Цилиндрическая зубчатая передача с межосевым расстоянием, отличающимся от делительного	2.2.5.5
Distance (locating)	Distance de départ	Базовое расстояние	3.1.3.4
Distance (reference centre)	Entr'axe de référence	Делительное межосевое расстояние	2.2.5.3
Distance (tip)	Distance de tête	Расстояние от основания конуса вершин до базовой плоскости	3.1.3.5
Distance modification coefficient (centre)	Coefficient de modification d'entr'axe	Коэффициент изменения межосевого расстояния	2.2.5.6
Double helical gear	Roue en chevron	Шевронное зубчатое колесо	1.2.6.6
Double helical gear pair	Engrenage en chevron	Шевронная зубчатая передача	1.2.6.6
Driven gear	Roue menée	Ведомое зубчатое колесо	1.1.2.5
Driving gear	Roue menante	Ведущее зубчатое колесо	1.1.2.4
E			
End relief	Dépouille d'extrémité	Срез у торца	1.3.1.7
Epicyclic gear train	Train épicycloïdal	Эпициклоидная система зубчатых передач	1.1.1.9
Epicycloid	Épicycloïde	Эпициклоида	1.4.1.6

English	French	Russian	Definitions No. of clause
Extended shaft angle (gear pair with)	Engrenage à angle des axes augmenté	Коническая зубчатая передача с межосевым углом, большим суммы углов делительных конусов ее зубчатых колес	3.2.3.6
External gear	Roue extérieure	Зубчатое колесо с внешними зубьями	1.2.2.3
External gear pair	Engrenage extérieur	Зубчатая передача с внешним зацеплением	1.2.2.5
F			
Face gear pair	Engrenage de champ	Коронная зубчатая передача	3.2.1.1
Face (locating)	Face de départ	Базовая плоскость	3.1.3.3
Facewidth	Largeur de denture	Ширина зубчатого венца	2.1.1.9, 3.1.3.1
Fillet	Flanc de raccord	Переходная поверхность	1.2.5.4
Flank (active)	Flanc actif	Активная поверхность	1.2.5.2
Flank (addendum)	Flanc de saillie	Поверхность ножки	1.2.5.1
Flanks (corresponding)	Flancs homologues	Одноименные поверхности	1.2.4.3
Flank (dedendum)	Flanc de creux	Поверхность головки	1.2.5.1
Flank (left)	Flanc de gauche	Левая поверхность	1.2.4.2
Flank (mating)	Flanc conjugué	Сопряженная поверхность	1.2.4.1
Flank (non-working)	Flanc arrière	Нерабочая поверхность	1.2.4.6
Flanks (opposite)	Flancs anti-homologues	Разноименные поверхности	1.2.4.4
Flank (right)	Flanc de droite	Правая поверхность	1.2.4.2
Flank (tooth)	Flanc	Боковая поверхность	1.2.3.1
Flank (usable)	Flanc utilisable	Главная поверхность	1.2.5.3
Flank (working)	Flanc avant	Рабочая поверхность	1.2.4.5
G			
Gear (bevel)	Roue conique	Коническое зубчатое колесо	1.3.2.2
Gear (contrate)	Roue de champ	Коронное зубчатое колесо	3.1.7.2
Gear (crown)	Roue plate	Плоское зубчатое колесо	3.1.7.1
Gear (cycloidal)	Roue cycloïdale	Циклоидное зубчатое колесо	2.1.7.2
Gear (cylindrical)	Roue cylindrique	Цилиндрическое зубчатое колесо	1.3.2.1
Gear (cylindrical lantern)	Roue cylindrique à fuseaux	Цилиндрическое цевочное колесо	2.1.7.3
Gear (double helical)	Roue en chevron	Шевронное зубчатое колесо	1.2.6.6
Gear (driven)	Roue menée	Ведомое зубчатое колесо	1.1.2.5
Gear (driving)	Roue menante	Ведущее зубчатое колесо	1.1.2.4
Gear (external)	Roue extérieure	Зубчатое колесо с внешними зубьями	1.2.2.3
Gear (generating)	Roue génératrice (d'une roue)	Производящее зубчатое колесо	1.3.1.1
Gear (helical)	Roue hélicoïdale	Косозубое цилиндрическое колесо	1.2.6.3
Gear (hypoid)	Roue hypoïde	Гипоидное зубчатое колесо	1.3.2.9
Gear (involute bevel)	Roue octoïde (dite roue conique à développante)	Октоидное зубчатое колесо (так называемое „эвольвентное коническое зубчатое колесо„)	3.1.7.5
Gear (involute cylindrical)	Roue cylindrique à développante	Эвольвентное цилиндрическое зубчатое колесо	2.1.7.4
Gear (internal)	Roue intérieure	Зубчатое колесо с внутренними зубьями	1.2.2.4
Gear (mating)	Roue conjuguée	Сопряженное зубчатое колесо	1.1.2.1

English	French	Russian	Definitions No. of clause
Gear (octoid)	Roue octoïde (dite roue conique à développante)	Октоидное зубчатое колесо (так называемое „эвольвентное коническое зубчатое колесо“)	3.1.7.5
Gear (planet)	Roue planétaire	Планетарное зубчатое колесо	1.1.2.8
Gear (ring)	Couronne (de train planétaire)	Зубчатое колесо с внутренним зацеплением	1.1.2.7
Gear (skew bevel)	Roue conique hélicoïdale	Косозубое коническое колесо	3.1.7.3
Gear (spiral bevel)	Roue conique spirale	Кривозубое коническое зубчатое колесо	1.2.6.7
Gear (straight bevel)	Roue droite conique	Прямозубое коническое колесо	1.2.6.2
Gear (sun)	Roue solaire	Планетарное зубчатое колесо	1.1.2.6
Gear (toothed)	Roue (d'engrenage)	Зубчатое колесо	1.1.1.1
Gears (train of)	Train d'engrenages	Система зубчатых передач	1.1.1.3
Gear (virtual cylindrical gear of a bevel)	Roue cylindrique équivalente	Цилиндрическое зубчатое колесо, эквивалентное коническому	3.1.1.9
Gear (wheel or)	Roue	Колесо	1.1.2.3
Gear (x-)	Roue déportée	Зубчатое колесо со смещением	2.1.8.9, 3.1.8.5
Gear (x-zero)	Roue sans déport	Зубчатое колесо без смещения	2.1.8.8, 3.1.8.4
Gear of a bevel gear (virtual cylindrical)	Roue cylindrique équivalente	Цилиндрическое зубчатое колесо, эквивалентное коническому	3.1.1.9
Gear pair	Engrenage	Зубчатая передача	1.1.1.2
Gear pair (bevel)	Engrenage conique	Коническая зубчатая передача	1.3.2.4
Gear pair (contrate)	Engrenage de champ	Коронная зубчатая передача	3.2.1.1
Gear pair (crossed helical)	Engrenage gauche hélicoïdal	Винтовая зубчатая передача	2.2.1.5
Gear pair (cycloidal)	Engrenage cycloïdal	Циклоидная зубчатая передача	2.2.1.1
Gear pair (cylindrical)	Engrenage cylindrique	Цилиндрическая зубчатая передача	1.3.2.3
Gear pair (double helical)	Engrenage en chevron	Шевронная зубчатая передача	1.2.6.6
Gear pair (external)	Engrenage extérieur	Зубчатая передача с внешним зацеплением	1.2.2.5
Gear pair (face)	Engrenage de champ	Коронная зубчатая передача	3.2.1.1
Gear pair (hypoid)	Engrenage hypoïde	Гипоидная зубчатая передача	1.3.2.8
Gear pair (involute spur)	Engrenage cylindrique droit à développante	Эвольвентная прямозубая цилиндрическая передача	2.2.1.3
Gear pair (internal)	Engrenage intérieur	Зубчатая передача с внутренним зацеплением	1.2.2.6
Gear pair (parallel helical)	Engrenage parallèle hélicoïdal	Косозубая цилиндрическая передача	2.2.1.4
Gear pair (skew bevel)	Engrenage conique hélicoïdal	Косозубая коническая передача	3.2.1.3
Gear pair (speed increasing)	Engrenage multiplicateur	Зубчатая передача, увеличивающая скорость	1.1.3.4
Gear pair (speed reducing)	Engrenage réducteur	Зубчатая передача, уменьшающая скорость	1.1.3.3
Gear pair (straight bevel)	Engrenage conique droit	Прямозубая коническая передача	3.2.1.2
Gear pair (virtual cylindrical)	Engrenage cylindrique équivalent	Эквивалентная цилиндрическая зубчатая передача	3.2.1.4
Gear pair (worm)	Engrenage à vis	Червячная передача	1.3.2.7
Gear pair (x-)	Engrenage avec déport	Зубчатая передача со смещением	2.2.5.2, 3.2.3.4
Gear pair (x-zero)	Engrenage sans déport	Зубчатая передача без смещения	2.2.5.1, 3.2.3.3
Gear pair with closed shaft angle	Engrenage à angle des axes diminué	Коническая зубчатая передача с межосевым углом, меньшим суммы углов делительных конусов ее зубчатых колес	3.2.3.7

English	French	Russian	Definitions No. of clause
Gear pair with extended shaft angle	Engrenage à angle des axes augmenté	Коническая зубчатая передача с межосевым углом, большим суммы углов делительных конусов ее зубчатых колес	3.2.3.6
Gear pair with intersecting axes	Engrenage concourant	Зубчатая передача с пересекающимися осями	1.1.1.5
Gear pair with modified centre distance	Engrenage à entr'axe modifié	Цилиндрическая зубчатая передача с межосевым расстоянием, отличающимся от делительного	2.2.5.5
Gear pair with non-parallel, non-intersecting axes	Engrenage gauche	Зубчатая передача с перекрещивающимися осями	1.1.1.6
Gear pair with parallel axes	Engrenage parallèle	Зубчатая передача с параллельными осями	1.1.1.4
Gear pair with reference centre distance	Engrenage à entr'axe de référence	Цилиндрическая зубчатая передача с делительным межосевым расстоянием	2.2.5.4
Gear pair without shaft angle modification	Engrenage sans modification d'angle des axes	Коническая зубчатая передача с межосевым углом, равным сумме углов делительных конусов ее зубчатых колес	3.2.3.5
Gear ratio	Rapport d'engrenage	Передаточное число	1.1.3.1
Gear tooth	Dent	Зуб	1.2.1.1
Gear train (compound planetary)	Train planétaire composé	Сложная планетарная система зубчатых передач	1.1.1.9 (2)
Gear train (epicyclic)	Train épicycloïdal	Эпициклоидная система зубчатых передач	1.1.1.9
Gear train (single planetary)	Train planétaire simple	Планетарная система зубчатых передач	1.1.1.9 (1)
Gear train (speed increasing)	Train miltiplicateur	Зубчатая передача, увеличивающая скорость	1.1.3.4
Gear train (speed reducing)	Train réducteur	Зубчатая передача, уменьшающая скорость	1.1.3.3
Generating gear (of a gear)	Roue génératrice (d'une roue)	Производящее зубчатое колесо	1.3.1.1
H			
Half angle (spacewidth)	Demi-angle d'intervalle	Половина угловой ширины впадины	3.1.5.9
Half angle (tooth thickness)	Demi-angle d'épaisseur	Половина угловой толщины зуба	3.1.5.8
Height (chordal)	Saillie à la corde	Высота до хорды зуба	3.1.6.2
Height (constant chord)	Saillie à la corde constante	Высота до постоянной хорды зуба	2.1.6.4
Height (reference chordal)	Saillie à la corde de référence	Высота до исходной хорды зуба	2.1.6.2
Helical gear	Roue hélicoïdale	Косозубое цилиндрическое колесо	1.2.6.3
Helical gear (double)	Roue en chevron	Шевронное зубчатое колесо	1.2.6.6
Helical gear pair (crossed)	Engrenage gauche hélicoïdal	Винтовая передача	2.2.1.5
Helical gear pair (double)	Engrenage en chevron	Шевронная зубчатая передача	1.2.6.6
Helical gear pair (parallel)	Engrenage parallèle hélicoïdal	Косозубая цилиндрическая передача	2.2.1.4
Helicoid (involute)	Hélicoïde développable	Эвольвентный геликоид	1.4.2.1
Helicoid (spherical involute)	Hélicoïde en développante sphérique	Сферическо-эвольвентный геликоид	1.4.2.2
Helix	Hélice	Винтовая линия	1.4.1.1
Helix (base)	Hélice de base	Основная винтовая линия зуба	2.1.2.3

English	French	Russian	Definitions No. of clause
Helix (pitch)	Hélice primitive de fonctionnement	Начальная винтовая линия зуба	2.1.2.2
Helix (reference)	Hélice primitive (de référence)	Делительная винтовая линия зуба	2.1.2.1
Helix angle	Angle d'hélice	Угол наклона (для зуба косозубого цилиндрического колеса)	1.4.1.2, 2.1.2.4
Helix angle (base)	Angle d'hélice de base	Основной угол наклона	2.1.2.5
Hob	Fraise-mère	Червячная фреза	2.1.9.3
Hypocycloid	Hypocycloïde	Гипоциклоида	1.4.1.7
Hypoid gear	Roue hypoïde	Гипоидное зубчатое колесо	1.3.2.9
Hypoid gear pair	Engrenage hypoïde	Гипоидная зубчатая передача	1.3.2.8
I			
Increasing gear pair (speed)	Engrenage multiplicateur	Зубчатая передача, увеличивающая скорость	1.1.3.4
Increasing gear train (speed)	Train multiplicateur	Зубчатая передача, увеличивающая скорость	1.1.3.4
Increasing ratio (speed)	Rapport de multiplication	Передаточное число	1.1.3.6
Inner	..... interne	Внутренний	3.1.1.7
Inner cone	Cône complémentaire interne	Внутренний дополнительный конус	3.1.1.6
Instantaneous axis	Axe instantané	Мгновенные оси	1.4.3
Interference (cutter)	Interférence de taillage	Интерференция зубьев в станочном зацеплении	1.3.1.3
Interference (meshing)	Interférence d'engrènement	Интерференция зубьев	1.3.1.2
Internal gear	Roue intérieure	Зубчатое колесо с внутренними зубьями	1.2.2.4
Internal gear pair	Engrenage intérieur	Зубчатая передача с внутренним зацеплением	1.2.2.6
Intersecting axes (gear pair with)	Engrenage concourant	Зубчатая передача с пересекающимися осями	1.1.1.5
Intersecting axes (gear pair with non-parallel, non-)	Engrenage gauche	Зубчатая передача с перекрещивающимися осями	1.1.1.6
Involute (spherical)	Développante sphérique	Сферическая эвольвента	1.4.1.9
Involute bevel gear	Roue octoïde (dite roue conique à développante)	Октоидное зубчатое колесо (так называемое „эвольвентное коническое колесо")	3.1.7.5
Involute to a circle	Développante de cercle	Эвольвента окружности	1.4.1.8
Involute cylindrical gear	Roue cylindrique à développante	Эвольвентное цилиндрическое зубчатое колесо	2.1.7.4
Involute helicoid	Hélicoïde développable	Эвольвентный геликоид	1.4.2.1
Involute helicoid (spherical)	Hélicoïde en développante sphérique	Сферическо-эвольвентный геликоид	1.4.2.2
Involute spur gear pair	Engrenage cylindrique droit à développante	Эвольвентная прямозубая цилиндрическая передача	2.2.1.3
L			
Lantern gear (cylindrical)	Roue cylindrique à fuseaux	Цилиндрическое цевочное колесо	2.1.7.3
Lantern pinion and wheel (cylindrical)	Engrenage cylindrique à fuseaux	Цилиндрическая цевочная передача	2.2.1.2
Lead	Pas hélicoïdal	Ход винтовой линии	1.4.1.4, 2.1.2.8
Lead angle	Inclinaison	Угол подъема винтовой линии	1.4.1.3, 2.1.2.6
Lead angle (base)	Inclinaison de base	Основной угол подъема	2.1.2.7
Left flank	Flanc de gauche	Левая поверхность	1.2.4.2

English	French	Russian	Definitions No. of clause
Left-hand teeth	Denture à gauche	Левые зубья	1.2.6.5
Length (base tangent)	Écartement	Длина общей нормали	2.1.6.5
Length (overlap)	Longueur de recouvrement	Длина осевого перекрытия	2.2.4.7
Length of approach path	Longueur d'approche	Длина дополюсной части активной линии зацепления	2.2.4.5
Length of path of contact	Longueur de conduite	Длина активной линии зацепления	2.2.4.2
Length of recess path	Longueur de retraite	Длина заполюсной части активной линии зацепления	2.2.4.6
Line (datum)	Ligne de référence	Делительная прямая	2.1.8.5
Line of action (transverse)	Ligne d'action	Линия зацепления	2.2.3.1
Line of centres	Ligne des centres	Межосевая линия	2.2.2.1
Locating distance	Distance de départ	Базовое расстояние	3.1.3.4
Locating face	Face de départ	Базовая плоскость	3.1.3.3
M			
Mating flank	Flanc conjugué	Сопряженная поверхность	1.2.4.1
Mating gear	Roue conjuguée	Сопряженное зубчатое колесо	1.1.2.1
Meshing interference	Interférence d'engrènement	Интерференция зубьев	1.3.1.2
Middle	..... moyen	Средний	3.1.1.7
Middle cone	Cône complémentaire moyen	Средний дополнительный конус	3.1.1.6
Modification (addendum)	Déport	Смещение исходного контура	2.1.8.6, 3.1.8.2
Modification (gear pair without shaft angle)	Engrenage sans modification d'angle des axes	Коническая зубчатая передача с межосевым углом, равным сумме углов делительных конусов ее зубчатых колес	3.2.3.5
Modification coefficient (addendum)	Coefficient de déport	Коэффициент смещения	2.1.8.7, 3.1.8.3
Modification coefficient (centre distance)	Coefficient de modification d'entr'axe	Коэффициент изменения межосевого расстояния	2.2.5.6
Modified centre distance (gear pair with)	Engrenage à entr'axe modifié	Цилиндрическая зубчатая передача с межосевым расстоянием, отличающимся от делительного	2.2.5.5
Module	Module	Модуль	3.1.5.4
Module (cutter)	Module d'outil	Модуль инструмента	2.1.9.6, 3.1.9.2
Module (normal)	Module réel	Нормальный модуль	2.1.5.4
Module (transverse)	Module apparent	Торцовый модуль	2.1.4.5
N			
Nominal pitch of the cutter	Pas nominal d'outil	Номинальный шаг инструмента	2.1.9.5
Nominal pressure angle	Angle nominal d'outil	Номинальный угол профиля инструмента	2.1.9.4
Non-working flank	Flanc arrière	Нерабочая поверхность	1.2.4.6
Normal backlash	Jeu entre dents	Боковой зазор	2.2.2.5, 3.2.2.4
Normal base pitch	Pas de base réel	Основной окружной шаг	2.1.7.8
Normal base thickness	Épaisseur de base réelle	Основная нормальная толщина зуба	2.1.7.9
Normal chordal tooth thickness	Corde de référence	Нормальная толщина зуба по хорде	2.1.6.1
Normal diametral pitch	Diametral pitch réel	Нормальный диаметральный питч	2.1.5.5