

JIS

JAPANESE INDUSTRIAL STANDARD

Glossary of Gear Terms

JIS B 0102—1988

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In the event of any doubt arising,
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JAPANESE INDUSTRIAL STANDARD

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Glossary of Gear Terms

B 0102-1988

1. Scope

This Japanese Industrial Standard specifies the terms relating to gears to be generally used.

2. Classification

The classification of the terms of gears shall be as given in the following:

(1) General(1.1) Toothed Gear and Gear Pair

(1.1.1) Relative position of axes

(1.1.2) Mating gears

(1.1.3) Relative speeds

(1.1.4) Pitch surface and other reference surfaces

(1.2) Element of Tooth

(1.2.1) Tooth flank and tooth profile

(1.2.2) Tip and root surfaces

(1.2.3) Designation of flanks

(1.2.4) Classification of gears in terms of tooth traces

Applicable Standards:

JIS B 1701-Involute Gear Tooth Profile and Dimensions

JIS B 1723-Dimensions of Cylindrical Worm Gears

Corresponding International Standards:

ISO 1122/1-1983 Glossary of gear terms-Part 1: Geometrical definitions

ISO/R 1122-1969/Add.2-1972 Glossary of gears-Geometrical definitions-
Worm gears

Reference Standard:

JIS B 0121-Gear Notation-Symbols for Meometrical Data

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 - (1.3.2) Shapes and dimensions of teeth
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(4.3.2) Basic dimensions and overall dimensions

(4.3.3) Elements relating to contacts

(4.3.4) Tooth depths

(4.4) Gear Ratios, Tooth Depths and Clearances of Cylindrical Worm Gears (Shaft Angle 90°)3. Terms and How to Read and Definitions

The terms and how to read and definitions shall be as given below:

Furthermore, conventional terms and equivalent terms in English and German are given for information.

Remarks 1. Parts of terms given in () may be omitted.

2. Terms marked with asterisk * are not defined in ISO 1122/1 and ISO/R 1122-1969 Add. 2-1972.
3. Definitions and equivalent terms in English marked with asterisks ** are not coincident with ISO 1122/1 and ISO/R 1122-1969 Add. 2-1972.
4. The equivalent terms in German are not given in ISO.

(1) General

(1.1) Toothed Gear and Gear Pair

(1.1.1) Relative Position of Axes

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
11101	齒車	HAGURUMA	Any pair of machine elements ⁽¹⁾ or a single element which transmits motion by means of successively engaging teeth. If particularly required, a pair of gears is termed as a gear pair. Note ⁽¹⁾ Elementary machine parts.	See Fig. 11101	GIYA	toothed gear, gear, gear pair	Zahnrad, Zahnradpaar, Radpaar
11102	齒車列	HAGURUMA RETSU	Any combination of gear pairs.	See Fig. 11102		train of gears, **gear train	Getriebezug, mehrfache Radpaarung
11103	平行軸齒車	HEIKŌ JIKU HAGURUMA	A generic term of gear pairs which transmit motion between the two axes which are parallel to each other.	See Fig. 11103		gear pair with parallel axes	Radpaar mit parallelen Achsen
11104	交叉軸齒車	KŌSA JIKU HAGURUMA	A generic term of gear pairs which transmit motion between the two axes which intersect with each other.	See Fig. 11104		gear pair with intersecting axes	Radpaar mit sich schnei- denden Achsen

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
11105	食い違い軸歯車	KUICHIGAI JIKU HAGURUMA	A generic term of gear pairs which transmit motion between the two axes which are non-intersecting and non-parallel, in other words, between skew axes.	See Fig. 11105		gear pair with non-parallel, non-intersecting axes	Radpaar mit sich kreuzenden Achsen
11106	中心距離	CHŪSHIN KYORI	The shortest distance between the axes of a gear pair.	See Fig. 11106		centre distance	Achsabstand
11107	軸角	JIKU KAKU	In a gear pair, the smallest angle through which one of the axes must be rotated around the common perpendicular line to both axes in order to bring the axes into coincidence or must be swivelled in order to bring the axes parallel, so as to cause their direction of rotation to be opposite.	See Fig. 11107		shaft angle	Achsenwinkel

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No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
11108	単一遊星歯車 列	TAN'ITSU YŪSEI HAGURUMA RETSU	A gear train comprising three co-axial elements, two of which are gears whose axis positions are fixed, and the third being an element (this is named "carrier".) which may or may not turn around the common axes of the two gears and which supports one or more gears. Particularly in the case where it is not discriminated from a compound planetary gear train, it is also called "planetary gear train".	See Fig. 11108		single planetary gear train	einstufiger (einfacher) Planeten- Getriebezug, einstufiges (einfaches) Planeten- getriebe
11109	複合遊星歯車 列	FUKUGŌ YŪSEI HAGURUMA RETSU	A gear train consisting of several coupled single planetary gear trains.			compound planetary gear train	mehrstufiger (zusammen- gesetzter) Planeten- Getriebezug, mehrstufiges (zusammen- gesetztes) Planeten- getriebe

(1.1.2) Mating Gears

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
11201	小齒車	SHŌ HAGURUMA	In a gear pair, that gear having the smaller number of teeth.	See Fig. 11201	PINION	pinion	Ritzel
11202	大齒車	DAI HAGURUMA	In a gear pair, that gear having the larger number of teeth.	See Fig. 11202	GIYA HOIRU	wheel, gear	Großrad
11203	ラック	RAKKU	A flat plate or straight bar having a series of identical and equidistant teeth on one face. It can be regarded as a part of a cylindrical gear of which the radius of the reference cylinder is finitely large.	See Fig. 11203		rack	Zahnstange
11204	駆動齒車	KUDŌ HAGURUMA	In a gear pair, that gear which turns the mating gear.			driving gear	triebendes Rad, Antriebsrad
11205	被動齒車	HIDŌ HAGURUMA	In a gear pair, that gear which is turned by the mating gear.			driven gear	getriebenes Rad, Abtriebsrad

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
11206	太陽歯車	TAIYŌ HAGURUMA	In a single planetary gear train, the external gear mounted on the centre axis.	See Fig. 11206		sun gear	Sonnenrad
11207	遊星歯車	YŪSEI HAGURUMA	In a single planetary gear train, the (or one of the) external gear(s) supported by the carrier.	See Fig. 11207		planet gear	Planetenrad

(1.1.3) Relative Speeds

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
11301	歯数	*HAKAZU	Number of teeth of a gear. In a worm, it is called the number of threads.			number of teeth	Zähnezahl
11302	歯数比	HAKAZUHI	The quotient of the number of teeth of the wheel to that of the pinion.			gear ratio	Zähnezahl- verhältnis

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
11303	速度伝達比	SOKUDO DENTATSUHI	The quotient of the angular speed of the first driving gear of a train of gears to that of the last driven gear.			transmission ratio	Übersetzung
11304	減速歯車列	GENSOKU HAGURUMA RETSU	A train of gears through which the rotational speed is reduced.			speed reducing gear train	Getriebezug mit Übersetzung ins Langsame
11305	増速歯車列	ZOSOKU HAGURUMA RETSU	A train of gears through which the rotational speed is increased.			speed increasing gear train	Getriebezug mit Übersetzung ins Schnelle
11306	減速比	GENSOKUHI	The transmission ratio of a speed reducing train of gears.			speed reducing ratio	Übersetzung ins Langsame
11307	増速比	ZOSOKUHI	The inverse of the transmission ratio of a speed increasing train of gears.			speed increasing ratio	Übersetzung ins Schnelle
11308	*換え歯車	*KAE HAGURUMA	Gears which are appropriately changed in a train of gears to obtain a necessary transmission ratio.			change gears	Wechselräder

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
11309	*変速歯車装 置	*HENSOKU HAGURUMA SOCHI	A gear drive which is pro- vided with an appropriate gear train to make the prime mover shaft rotate at required various speeds.			speed change gear drive	Wechsel- getriebe
11310	*遊星歯車装 置	*YŪSEI HAGURUMA SOCHI	A gear unit which is provided with an appropriate single planetary gear train or compound planetary gear train to make the prime mover shaft rotate at required various speeds.			planetary gear drive, planetary gear trans- mission	Planeten- getriebe
11311	*差動歯車装 置	*SADŌ HAGURUMA SOCHI	A gear unit in which, when two of three axes are driven, the third axis is rotated simultaneously by the action transmitted through the two axes. In most cases, Planetary gear trains are used.	See Fig. 11311		differential gear unit	Differential- getriebe

(1.1.4) Pitch Surface and Other Reference Surfaces

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
11401	ピッチ面	PITCHI MEN	In a gear pair, the geometrical surface described by the instantaneous axis⁽²⁾ of the relative movement between both gears in relation to each gear. For example, in the case of spur gears and helical gears, these are cylindrical surfaces which are in rolling contact with each other. Note ⁽²⁾: The instantaneous relative motion of a gear pair is rotary motion (in gear pairs with parallel axes and those with intersecting axes) or the helical motion (in a gear pair with non-parallel, non-intersecting axes) around a specific straight line. This straight line is called the instantaneous axis of the relative motion.	See Fig. 11401		pitch surface	Wälzfläche

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
11402	基準ピッチ面	KIJUN PITCHI MEN	A conventional surface with reference to which the tooth dimensions of a gear, considered alone, are defined. In the case of a gear pair with parallel axes, it is the pitch surface of engagement with the basic rack.	See Fig. 11402		reference surface	Teilfläche, Bezugsfläche
11403	基準(ピッチ) ...	KIJYUN (PITCHI)...	A qualification applicable to every term defined from the reference surface of a gear.			reference.....	Teil..., Bezugs....
11404	かみあい(ピッチ)...	KAMIAI (PITCHI)...	A qualification applicable to every term defined from the pitch surface of a gear in a gear pair.			working... rolling...	Arbeits... Betriebs... Wälz...
11405	*軸平面	*JIKU HEIMEN	(1) In a gear pair, a plane containing its two axes. (2) In a piece of gear, an arbitrary plane containing its axis.	See Fig. 11405		axial plane	Achsschnittebene, Achsenebene, Längsebene

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
11406	*正 面	*SHŌMEN	A plane perpendicular to the contact plane at one point on a pitch surface and the axial plane containing that point. In a gear pair with parallel axes, the transverse plane coincides with the plane perpendicular to the axis.	See Fig. 11406		transverse plane	Stirnebene, Stirnschnitt-tebene
11407	*齒直角平面	*HACHOKKAKU HEIMEN	A plane perpendicular to the tooth trace.	See Fig. 11407		normal plane	Normalebene, Normalschnitt-tebene
11408	*軸直角平面	*JIKU CHOKKAKU HEIMEN	A plane perpendicular to the axis of a gear.	See Fig. 11408		plane perpendicular to the axis, plane of rotation	Ebene senkrecht zur Achse

(1.2) Elements of Tooth

(1.2.1) Tooth Flanks and Tooth Profiles

No.	Term (Japanese charac- ter)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
12101	歯	HA	Projecting parts of a gear which are intended to transmit the motion securely, in a gear pair, contacting with each other.	See Fig. 12101		gear tooth, (gear tooth system)	Zahn, Verzahnung
12102	歯溝	HAMIZO	The space between two adjacent teeth.	See Fig. 12102		tooth space	Zahnücke
12103	歯面	HAMEN	That portion of the surface of a tooth lying between the tip surface and the root surface. Sometimes this is applied particularly to that portion of a gear tooth which relates to the gear engagement.	See Fig. 12103		tooth flank	Zahnflanke
12104	歯すじ	HASUJI	** The line of intersection of a tooth flank with the reference surface. Sometimes, the line of intersection of any imaginary cylindrical surface, conical surface, and the like which are coaxial with the gear with the tooth flank is also termed "the tooth trace".	See Fig. 12104		tooth trace	Flankenlinie

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
12105	歯形	HAGATA	The line of intersection of any defined surface cutting the reference surface with a tooth flank. Generally, surfaces such as the plane perpendicular to the axis, normal plane or axial plane is selected for this plane.	See Fig. 12105		tooth profile	Flankenprofil
12106	隅肉部	SUMINIKUBU	In a tooth flank, that portion which connects with the root surface from the zone capable of participating in tooth engagement.	See Fig. 12106		fillet surface	Fußrundungs- fläche
12107	*隅肉曲線	*SUMINIKU KYOKUSEN	In a tooth profile, that portion which connects with the root from the range capable of participating in tooth engagement.	See Fig. 12107		fillet curve	Fußrundungs- kurve

(1.2.2) Tip and Root Surfaces

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
12201	*歯先面	*HASAKIMEN	Surface circumscribing the tip of a tooth.	See Fig. 12201		tooth crest	Kopffläche
12202	*歯底面	*HAZOKOMEN	Surface of the bottom of the tooth space.	See Fig. 12202		bottom land	Zahnlücken- grund
12203	歯先曲面	HASAKI KYOKUMEN	Surface, coaxial with the gear, containing the crests of the teeth. In a cylindrical gear, a cylinder containing the tooth crests. In a bevel gear, a cone containing the tooth crests.	See Fig. 12203		tip surface	Kopfmantel- fläche
12204	歯底曲面	HAZOKO KYOKUMEN	Surface, coaxial with the gear, containing the bottom land.	See Fig. 12204		root surface	Fußmantel- fläche
12205	外齒草	SOTO HAGURUMA	A gear whose tip surface is external to the root surface. A gear pair of which both gears are external gears is termed an external gear pair.	See Fig. 12205		external gear, external gear pair	Außenrad, Außenradpaar

No.	Term (Japanese charac- ter)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
12206	内歯車	UCHI HAGURUMA	A gear pair whose tip surface is internal to the root surface. A gear pair of which one gear is an internal gear is termed an internal gear pair.	See Fig. 12206		internal gear, internal gear pair	Hohlrad, Innenradpaar

(1.2.3) Designations of Flanks

No.	Term (Japanese charac- ter)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
12301	歯先の面	HAZUE NO MEN	That portion of the flank lying between the tip surface and the reference surface.	See Fig. 12301		addendum flank	Kopfflanke
12302	歯元の面	HAMOTO NO MEN	The portion of the flank lying between the root surface and the reference surface.	See Fig. 12302		dedendum flank	Fußflanke
12303	右歯面	MIGI HAMEN	For an observer looking from that side of the gear chosen as reference side for con- venience. That one of the two flanks of a gear which is on the right of the tooth, when seen with its tip upwards.	See Fig. 12303		right flank	Rechtsflanke

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
12304	左 齒 面	HIDARI HAMEN	The flank on the opposite side (left side) to the right flank.	See Fig. 12304		left flank	Linksflanke
12305	作用齒面	SAYŌ HAMEN	The portion of a tooth flank of a gear which contacts the tooth flanks of a mating gear.	See Fig. 12305		active flank	aktive Flanke
12306	かみあい側 面	KAMIAIGAWA HAMEN	That flank of a tooth by which motion is transmitted to, or received from, a mating gear.	See Fig. 12306		working flank	Arbeitsflanke
12307	反かみあい側 齒面	HAN KAMIAI- GAWA HAMEN	The opposite flank to the working flank of a tooth.	See Fig. 12307		non-working flank	Rückflanke

(1.2.4) Classification of Gears in Terms of Tooth Traces

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
12401	平歯車	HIRA HAGURUMA	A cylindrical gear whose tooth traces are straight lines parallel to the axis. Generally, it transmits rotational motion between two parallel axes.	See Fig. 12401		spur gear	Geradstirnrad
12402	すくばかき歯車	SUGUBAKASA HAGURUMA	A bevel gear whose tooth traces coincide with the generators of the pitch cone.	See Fig. 12402		straight bevel gear	Geradkegelrad
12403	はすば歯車	HASUBA HAGURUMA	A cylindrical gear whose tooth traces are helices. Generally, it transmits rotational motion between two parallel axes.	See Fig. 12403		helical gear	Schrägstirnrad
12404	*右ねじれの歯車	*WIGINEJIRE NO HAGURUMA	A gear with teeth whose successive transverse profiles show clockwise displacement with increasing distance from an observer looking along the straight line generators of the reference surface, when each tooth is seen with its tip upwards.	See Fig. 12404		gear with right-hand teeth	Zahnrad mit rechtssteigender Verzahnung

No.	Term (Japanese charac- ter)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
12405	•左ねじれの 歯車	*HIDARINEJIRE NO HAGURUMA	A gear whose tooth traces are twisted in the opposite direction to that of the right- hand teeth.	See Fig. 12405		gear with left-hand teeth	Zahnrad mit linksstei- gender Verzahnung
12406	やまば歯車	HAMABA HAGURUMA	A gear in which both right- hand and left-hand helical gears are combined in a single body. It transmits rotational motion between the parallel axes.	See Fig. 12406		double helical gear	Zahnrad mit Pfeilverza- hnung, Zahnrad mit Doppelsch- rägverza- hnung

(1.3) Tooth Generation(1.3.1) Interference and Modification

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
13101	かみあい干渉	KAMIAI KANSHO	The theoretical penetration of a flank in its mating flank when their meshing occurs outside certain limits.			meshing interference	Eingriffsstörung
13102	工具干渉	KŌGU KANSHO	After a tooth has been generated once or when it is being generated with a gear cutting tool in a cutting process, the removal of a part of the tooth by that cutting tool.	See Fig. 13102		cutter interference	Unterschnitt
13103	切下び	KIRISAGE	**Phenomena in which a part of the effective and theoretical flank at the dedendum is removed by the tip of a cutting tool. This term also includes the intentional modification of the fillet shape by means of a cutting tool with protuberance.	See Fig. 13103 (a), (b)		undercut grinding relief	Unterschnitt, Fußfreischnitt

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
13104	*歯形修整	*HAGATA SHŪSEI	Modification of the tooth profile from a curved line defined in mechanism (for example, an involute curve in the involute gear).	See Fig. 13104		profile modi- fication, toothform correction, profile crowning	Zahnform- korrektur
13105	クラウニング	KURAUNINGU	Progressive reduction of the tooth thickness from the middle part towards each end face, in order to form appropriate bulge in tooth- trace direction.	See Fig. 13105		crowning, longitudinal crowning	Breitenballig- keit, (Längs- korrektur)
13106	エンドリリー 7	ENDO RIRIFU	Progressive reduction of the tooth thickness over a small part of the end of the face- width towards its end.	See Fig. 13106		end relief	Endrück- nahme, Flankenlinien- rücknahme am Zahnende

(1.3.2) Shapes and Dimensions of Teeth

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
13201	つる巻き線	TSURU MAKI SEN	On a cylinder, a curve whose tangents are inclined at a constant angle to the axis of the cylinder.	See Fig. 13201		helix	Schraubenlinie
13202	ねじれ角	NEJIRE RAKU	**The acute angle between the tooth trace and the generator of any imaginal cylinder or cone coaxial with a gear whose tooth trace is under consideration.	See Fig. 13202 (a), (b)		helix angle, **spiral angle	Schrägungswinkel
13203	進み角	SUSUMI KAKU	The acute angle between the tangent to a helix and a plane perpendicular to the axis. Mainly used for the worm, hob, etc.	See Fig. 13203		lead angle	Steigungswinkel
13204	リ - フ	RĪDO	The amount of axial advance of a helix in one revolution.	See Fig. 13204		lead	Steigungshöhe

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
13205	*ピッチ	*PITCHI	Considering a curve intersecting at each specified point with a tooth flank and the adjacent flank corresponding to it the length of the portion of the curve being cut by these two points of intersection.	See Fig. 13205		pitch	Teilung
13206	*モジュール	*MOJŪRU	The quotient of the pitch, expressed in millimetres, by the number π .			module	modul
13207	*圧力角	*ATSURYOKU KAKU	Acute angle between a tangent to the tooth profile at any point on a tooth flank and the normal to the plane passing through the point and being tangent to a cylinder which is co-axial with the reference cylinder in the case of super gears, the normal to the plane passing through that point and being tangent to a cone which is co-axial with the reference cone and holds the common apex, in the case of bevel gears, and the normal to a plane passing through that point and being parallel to the datum plane in the case of racks.	See Fig. 13207		pressure angle	Pressungs- swinkel, Profilwinkel

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
13208	歯厚 *歯厚	*HA ATSU	The length of the arc, being cut by the tooth flanks on each side of a gear tooth with a gear concentric circle with a gear or the normal helix. The former may be termed "arc tooth thickness". If there is no confusion the tooth thickness on the reference circle may be simply called "tooth thickness".	See Fig. 13208		tooth thickness	Zahndicke
13209	弦歯厚 *弦歯厚	*GEN HA ATSU	The shortest distance between the two points in which the concentric circle with a gear or the normal helix intersects with the tooth flanks on each side of a tooth.	See Fig. 13209		chordal tooth thickness	Zahndicken- sehne
13210	歯溝の幅 *歯溝の幅	*HAMIZO NO HABA	The length of the arc, being cut by the tooth flanks on each side of a tooth space, of the concentric circle with a gear or the normal helix.	See Fig. 13210		spacewidth	Lückenweite

(1.3.3) Types of Gears

No.	Term (Japanese charac- ter)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
13301	円筒歯車	ENTŌ HAGURUMA	**A single gear whose reference surface is a cylinder or a pair of mating cylindrical gears. Two axes of the cylindrical gear pair are either parallel with each other or non-parallel, non-intersecting.	See Fig. 13301		cylindrical gear, cylindrical gear pair	Stirnrad, Stirnradpaar
13302	かき歯車	KASA HAGURUMA	**A single gear whose reference surface is a cone, or a pair of mating bevel gears transmitting motion between the intersecting two axes.	See Fig. 13302		bevel gear, bevel gear pair	Kegelrad, Kegelradpaar
13303	ねじ歯車	NEJI HAGURUMA	A gear pair in which cylindrical gears are utilized to transmit motion between the non-parallel, non-intersecting axes.	See Fig. 13303		crossed helical gear pair	Schraubrad- paar, Stirnschraub- radpaar, Zylindersch- raubenrad- paar

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
13304	ウァーム	UŌMU	Cylindrical or toric form helical gear with one or more threads.	See Fig. 13304		worm	Schnecke
13305	ウァームホイ ール	UŌMU HOIRU	A gear having tooth flanks contacting with the mating flanks of a worm and used in meshing between non-parallel, non-intersecting axes.	See Fig. 13305		worm wheel	Schneckenrad
13306	ウァームギヤ	UŌMU GIYA	A generic term of gear pair consisting of worm and worm wheel. Generally, these contact with each other in line, and in many cases, the shaft angle is 90°.	See Fig. 13306		worm gear pair, worm gears, worm gearing	Schnecken- radsatz
13307	ハイポイドギ ヤ	HAIPOIDO GIYA	A single gear or a pair of gears having conical or approximately conical form, and used for transmitting motion between the non- parallel, non-intersecting axes.	See Fig. 13307		hypoid pinion, hypoid gear, hypoid gear pair, hypoid gears, hypoid gearing	Hypoidrizel, Hypoidrad, achsversetzte Kegelräder, Kegelschraub- radpaar, Hypoidrad- paar

(1.4) Others

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
14001	*転がり接触	*KOROGARI SESSYOKU	Such a motion in which the relative speed of a pair of curved surfaces becomes zero at their contact point.			rolling contact	Wälzkontakt
14002	*滑り接触	*SUBERI SESSYOKU	A motion where a relative speed exists at a point of contact of a pair of curved surfaces and the direction of that speed is perpendicular to the common normal to both curved surfaces at this point.			sliding contact	Gleitkontakt
14003	*ずり転がり 接触	*ZURI KOROGARI SESSYOKU	A motion in the case where two curved surfaces contact each other along a straight line, and these slide relatively in the direction of that straight line, but roll in the perpendicular direction of that straight line without relative sliding.			jerkily- rolling- sliding contact	Schrotung- kontakt

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
14004	滑り率	*SUBERI RITSU	At the point of contact between a pair of flanks S_1 and S_2 , when the corresponding micro travelling distances of the point of contact on the flanks measured in the direction of relative speed of both flanks are denoted by d_{s_1} and d_{s_2} respectively, $(d_{s_1} - d_{s_2})/d_{s_1}$ and $(d_{s_2} - d_{s_1})/d_{s_2}$ are called the specific slidings at that point of contact of flanks S_1 and S_2 respectively.			specific sliding	spezifisches Gleiten

(2) Cylindrical Gears and Cylindrical Gear Pairs

(2.1) Cylindrical Gears

(2.1.1) Reference Surfaces and Lines

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
21101	かみあいピッチ円筒	KAMIAI PITCHI ENTŌ	The pitch surface which is a cylinder. The pitch surface of a cylindrical gear.	See Fig. 21101		pitch cylinder	Wälzylinder
21102	基準ピッチ円筒	KIJUN PITCHI ENTŌ	The reference surface in a cylindrical shape. The reference surface of a cylindrical gear.			reference cylinder	Teilzylinder
21103	齒先円筒	HASAKI ENTŌ	The tip surface of a cylindrical gear. The line of intersection of the tip cylinder by a plane perpendicular to the axis of the gear is termed tip circle, and its diameter is termed tip circle (cylinder) diameter.	See Fig. 21103		tip cylinder	Kopfzylinder
21104	齒底円筒	HAZOKO ENTŌ	The root surface of a cylindrical gear. The line of intersection of the root cylinder by a plane perpendicular to the axis of the gear is termed root circle, and its diameter is termed root circle (cylinder) diameter.	See Fig. 21104		root cylinder	Fußzylinder

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
21105	かみあいピッチ 円	KAMIAI PITCH EN	The line of intersection of the pitch cylinder by a plane perpendicular to the axis of the gear. The diameter of a working pitch circle is termed working pitch circle (cylinder) diameter.	See Fig. 21105		**working pitch circle	Wälzkreis
21106	基準ピッチ円	KIJUN PITCH EN	The line of intersection of the reference cylinder by a plane perpendicular to the axis of the gear. The diameter of a reference circle is termed reference pitch circle (cylinder) diameter.	See Fig. 21106		reference circle	Teilkreis
21107	*基準ピッチ線	*KIJUN PITCH SEN	When a rack is meshed with a reference rack, a straight line coinciding with the datum line.	See Fig. 21107		reference line, datum line	Teilinie, Bezugslinie
21108	*歯切ピッチ円	*HAKIRI PITCH EN	In the gear cutting by means of a generating cutting tool, a working pitch circle in the case where this is considered as gear meshing.	See Fig. 21108		generating pitch circle	Erzeugungs-wälzkreis
21109	*ピッチ平面	*PITCH HEIMEN	A pitch surface which is a plane.	See Fig. 21109		pitch plane	Wälzebene

(2.1.1.2) Basic Dimensions of Tooth

No.	Term (Japanese charac- ter)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
21201	つる巻き線	TSURUMAKI SEN	In a helical gear, the line of intersection of its tooth flank with cylinder. In the case where cylinders are the reference cylinder, working pitch cylinder, base cylinder and tip cylinder, the lines for them are called the reference helix, pitch helix, base helix and outside helix, respectively.	See Fig. 21201 (a), (b), (c)		helix, reference helix, pitch helix, base helix, **outside helix	Schrauben- linie, Teilzylinder- Flankenlinie, Wälzylinder- Flankenlinie, Grundzylinder- Flankenlinie, Kopfzylinder- Flankenlinie
21202	*歯直角つる 巻き線	*HA CHOKKAKU TSURUMAKI SEN	In a cylinder on which a helix is considered, a helix which is perpendicular to that helix.	See Fig. 21202		normal helix	Normal- schraube

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
21203	ねじれ角	NEJIRE KAKU	**In a helical gear, an acute angle between its helix and the generator of the cylinder on which the helix is considered. In the case where cylinders are the reference cylinder, pitch cylinder, base cylinder and tip cylinder, the angles for them are called the reference helix angle, pitch helix angle, base helix angle and tip helix angle, respectively.	See Fig. 21203		helix angle	Schrägungswinkel
21204	進み角	SUSUMI KAKU	** A acute angle between the tangent to a helix and the plane perpendicular to the axis.			lead angle	Steigungswinkel
21205	*基準圧力角	*KIJUN ATSURYOKU KAKU	The pressure angle for the basic rack tooth profile of an involute cylindrical gear.	See Fig. 21205		standard pressure angle	normaler Eingriffswinkel, Standard-Eingriffswinkel
21206	*軸平面圧力角	*JIKU HEIMEN ATSURYOKU KAKU	A pressure angle in a section containing the axis of a helical gear.	See Fig. 21206		axial pressure angle	axialer Eingriffswinkel, Achseneingriffswinkel

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
21207	*かみあい カ角	*KAMIAI ATSURYOKU KAKU	A pressure angle on the working pitch circle of a gear pair.	See Fig. 21207		working pressure angle	Eingriffswinkel am Wälzkreis
21208	*基準ピッチ	*KIJUN PITCHI	A pitch selected as the reference for size of tooth of a gear. It is equal to the pitch of the basic rack.	See Fig. 21208		reference pitch	Werkzeug- Teilung, Bezugsteilung
21209	*円ピッチ	*EN PITCHI	The distance between the cor- responding portions of adjoining gear teeth measured on the pitch circle or pitch line.	See Fig. 21209		circular pitch, transverse pitch	Stirnteilung
21210	法線ピッチ	HŌSEN PITCHI	In an involute cylindrical gear, the pitch measured along the common perpendicular line between tooth profiles in a specified section. The transverse plane or plane of action is generally taken as specified section.	See Fig. 21210 (a), (b)		base pitch	Grundzylinder -Stirnteilung
21211	軸方向ピッチ	JIKU HŌKŌ PITCHI	**The pitch measured along a straight line parallel to the axis.	See Fig. 21211		axial pitch	Axialteilung

No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
21212	*基準モジュール	*KIJUN MOJŪRU	The quotient of the reference pitch, expressed in millimeters, by the number π . If no confusion is anticipated, it may be termed simply module.			reference module	Bezugsmodul
21213	*軸方向モジュール	*ZIKU HŌKŌ MOJŪRU	The quotient of the axial pitch expressed in millimeters by the number π .			axial module	Axialmodul
21214	歯幅	HA HABA	The length over the toothed part of a gear in the axial plane. Generally, it is the length of the portion of a gear tooth measured along a straight line generator of the reference cylinder.	See Fig. 21214		facewidth	Zahnbreite
21215	*有効歯幅	*YŪKŌ HA HABA	In a facewidth, the length which actually takes part in gear engagement.	See Fig. 21215		effective facewidth, working facewidth	Wirksame Zahnbreite, gemeinsame Zahnbreite
21216	*全歯幅	*ZEN HAHABA	The overall facewidth in a gear. In a double helical gear, it is the dimension that includes a gap provided in the middle of the facewidth.	See Fig. 21216		total facewidth	Gesamt-Zahnbreite

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No.	Term (Japanese character)	Reading	Definition	Remark	Informative reference		
					Term used hitherto or conven- tional term	English equivalent	German equivalent
21217	*相当平歯 数	*SŌTŌ HIRA HAGURUMA HAKAZU	The quotient of the circumference of the circle of curvature at a point of the line which is an intersection of the reference cylinder of a gear with a normal plane containing that point on that reference cylinder. It is equal to the value, $z/\cos^3 \beta$. where z: number of teeth β: helix angle of reference cylinder			equivalent number of teeth, virtual number of teeth	Ersatzzähnezahl einer Schrägverzahnung