

Terms relating to ophthalmic optics and spectacle frames —

Part 1: Glossary of terms relating to ophthalmic lenses

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Health Care Standards Policy Committee (HCC/-) to Technical Committee HCC/78, upon which the following bodies were represented:

- Association for Consumer Research (ACRE)
- Association of British Dispensing Opticians
- Association of Contact Lens Manufacturers
- British College of Optometrists
- British Contact Lens Association
- British Medical Association
- British Spectacle Frame Makers' Association
- British Universities Committee of Contact Lens Educators
- College of Ophthalmologists
- Consumer Policy Committee of BSI
- Department of Health
- Department of Trade and Industry (National Physical Laboratory)
- Federation of Manufacturing Opticians
- Federation of Ophthalmic and Dispensing Opticians
- Flat Glass Manufacturers' Association
- OPTIC (UK)

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Foreword

This Part of BS 3521 has been revised under the direction of the Health Care Standards Policy Committee and, together with BS 3521-2:1991, supersedes BS 3521-1:1962 & BS 3521-2:1962 which is withdrawn.

The first edition of this Part of BS 3521 was published jointly with Part 2 in 1962. Since that time, the terminology relating to spectacle lenses (and ophthalmic optics in general) has changed, mainly because of the development of increased international trade. This development has encouraged participation by many countries in the work of the International Organization for Standardization (ISO) and, in particular, in the work of ISO Technical Committee 172. That Committee has been and is being instrumental in the preparation of a number of International Standards and, in this revision of BS 3521-1 & BS 3521-2, the terms and definitions have been updated in order to align with current international usage.

In addition to publishing Parts 1 and 2 of the 1962 edition of BS 3521 separately, the recommended method of writing prescriptions for ophthalmic lenses that appeared as Appendix A is also published separately as BS 2738-3.

The purpose of this British Standard is unaltered from that of the first edition: it is to assist the mutual understanding of manufacturers, purchasers, users and others that have connections with the production, specification and sale of spectacle lenses. The use of an identical meaning for a word is all-important in such transactions.

This Part of BS 3521 presents a glossary, with a numerical classification, listing most of the terms in common use by those who design, teach the theory of, make or handle spectacle lenses. The initial numeral "0" or "1" in a reference to a classified term indicates that that term is included in this Part of BS 3521 (i.e. Part 1); the initial numeral 2 in a cross-reference to a term indicates that that term is included in BS 3521-2. An alphabetical index to this Part is provided for ease of reference.

The preferred term, where more than one term exists, is given first in bold type. Other terms, which are at present acceptable but which it is hoped will fall into disuse, are set in medium type below the preferred term. Certain terms in current use are objectionable for various reasons (for example, they are confusing, imprecise or ambiguous); these terms are followed by the word "deprecated".

Italicized words indicate terms that are defined elsewhere in this Part of BS 3521.

In preparing this edition of BS 3521-1, it was decided that a number of terms (given below) should be deleted. Either these terms were obsolete and no longer in common use or they had meanings little different from their dictionary definitions.

bad metal	cut circle	periscopic
bi-nasal notation	cut piece	prism degree
bi-temporal notation	cut square	rimless fitting
bloomed lens	datum centre ^a	scalloped edge ^b
blank number	degree of deviation	Stanhope lens
break	globular lens	Steinheil cone
centrad	goggles	step down solid bifocal
Coddington lens	mi-coquille	varifocal lens
crescent segment	nose graph	Wollaston lens

^a See 01 113

^b Replaced by "faceted edge".

A number of definitions have been amended editorially and some terms, which are now in current use (some of which are taken from BS 2092 and BS 3199) have been introduced.

A minor restructuring of this Part of BS 3521 has also been carried out, although the titles of sections 1 to 11 of the 1962 edition are unaltered. However, because of the publication of BS 3521-3 (which resulted in the deletion of section 14 by amendment in 1972) and because of other changes, such as the amalgamation of the sections dealing with defects, the numbering of section 12 and onwards has been amended.

At the time of publication, the British Standards that relate to ophthalmic subjects include the following:

- BS 2092, *Specification for eye-protectors for industrial and non-industrial uses.*
- BS 2724, *Specification for sun-glare eye protectors for general use.*
- BS 2738, *Spectacle lenses.*
- BS 3062, *Specification for ophthalmic lens materials.*
- BS 3162, *Specification for ophthalmic trial case lenses.*
- BS 3172, *Specification for screw threads for spectacle frames.*
- BS 3199, *Method for measurement of spectacles including a glossary of terms.*
- BS 3521, *Terms relating to ophthalmic optics and spectacle frames — Part 2 Glossary of terms relating to spectacle frames — Part 3 Glossary of terms and symbols relating to contact lenses.*
- BS 3668, *Specification for red and green filters used in ophthalmic dichromatic and dissociation tests.*
- BS 4110, *Specification for eye-protectors for vehicle users.*
- BS 4274, *Specification for test charts for determining distance visual acuity.*
- BS 6625, *Specification for spectacle frames.*
- BS 6903, *Specification for graduated dial scales for ophthalmic instruments.*
- BS 7017, *Specification for reference wavelengths for optics and optical instruments.*
- BS 7208, *Contact lenses.*
- BS 7394, *Complete spectacles.*

NOTE The titles of the publications referred to in this standard are listed on the inside back cover. A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

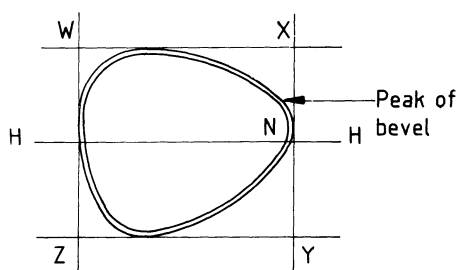
Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 40, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Section 1. Basic and general terms

No.	Term	Definition
1.1 Reference points, lines and dimensions		
NOTE See also 10 164.		
01 101	vertex	Point of intersection of the optical axis with a surface of a lens.
01 102	meridian	A direction line across the surface of a lens.
01 103	back	Relating to the surface of a lens nearer to the eye.
01 104	front	Relating to the surface of a lens remote from the eye.
01 105	optical centre (O)	That point (real or virtual) on the optical axis of a lens which is, or appears to be, traversed by rays emerging parallel to their original direction. NOTE When applied to an <i>ophthalmic lens</i> , the <i>optical centre</i> is commonly regarded as coinciding with the <i>vertex</i> of either surface.
01 106	visual point	Point of intersection of the eye's visual axis with the <i>back</i> surface of a lens.
01 107	distance visual point (DVP)	An assumed position of the <i>visual point</i> on a lens which is used for distance vision under given conditions, normally when the eyes are in the <i>primary</i> position.
01 108	near visual point (NVP)	An assumed position of the <i>visual point</i> on a lens which is used for near vision under given conditions.
01 109	lens shape	Outline of the lens periphery with the nasal side and the horizontal indicated. (See Figure 1.)
01 110	boxed lens size	Size of the rectangle containing the <i>lens shape</i> (see 01 109) and formed by the horizontal and vertical tangents to the <i>lens shape</i> . (See Figure 1.)
01 111	shape difference	Difference, in millimetres, between the horizontal and vertical dimensions of the <i>boxed lens size</i> . (See Figure 1.)
01 112	horizontal centre line (HCL) datum line <i>deprecated</i>	The line midway between, and parallel to, the horizontal tangents at the highest and lowest points of a lens.
01 113	boxed centre^a	The mid-point of the rectangle containing the <i>lens shape</i> .
^a The term "datum centre" is now deprecated. However the following definition of that term is included for information: datum centre (dat C) The midpoint of that part of the datum line which is bounded by the lens shape.		



Key

HH is the *horizontal centre line* (see 01 112)

WXYZ is the limiting rectangle defining *boxed lens size*

NOTE The letter N denotes the nasal side of the *lens shape*.

Figure 1 — Boxed lens size, lens shape and shape difference

No.	Term	Definition
01 114	standard optical centre position	A reference point specific to each <i>lens shape</i> , situated on the vertical line passing through the <i>boxed centre</i> (or situated at the <i>boxed centre</i> if the manufacturer has published no contrary indication as to its height). (See note to 01 115.)
01 115	centration point (CP)	Point at which the <i>optical centre</i> is to be located in the absence of prescribed prism or after any prescribed prism has been neutralized. NOTE If the <i>centration point</i> is not specified, it is located at the <i>standard optical centre position</i> .
01 116	pantoscopic angle	The angle between the optical axis of a lens and the visual axis of the eye in the primary position, usually taken to be the horizontal.

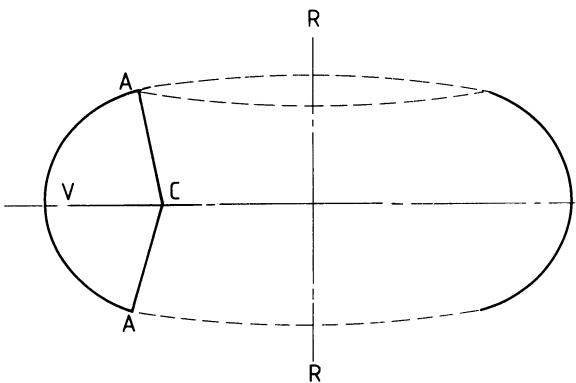
1.2 Distances and fields

01 201	optical centre distance (OCD) optical PD, optical centres (OC's) <i>both deprecated</i>	The actual horizontal distance between the <i>optical centres</i> of a pair of mounted lenses, with any prescribed prisms being neutralized.
01 202	centration distance (CD)	The specified horizontal distance between the right and left <i>centration point</i> . NOTE If an inter-pupillary distance only is stated this is taken to be the <i>centration distance</i> .
01 203	decentration (dec)	Displacement, horizontal and/or vertical, of the <i>centration point</i> from the <i>standard optical centre position</i> .
01 204	bodily decentration	1) Of <i>lenticular lenses</i> . <i>Decentration</i> which is applicable to the lenticular aperture as well as to the <i>centration point</i> . 2) Of <i>multifocal lenses</i> . <i>Decentration</i> which is applicable to the <i>segment</i> as well as to the <i>centration point</i> .
01 205	vertex distance	Distance from the <i>visual point</i> of a lens to the corneal <i>apex</i> or the closed eyelid. NOTE It should be stated whether the <i>vertex distance</i> has been measured from the corneal apex or the closed eyelid.
01 206	working distance	Distance to the object plane from a specified point or plane.
01 207	field of view	A general term denoting the maximum angular extent of vision through an optical appliance under given conditions. (See also 01 208, 01 209 and 01 210.)
01 208	apparent macular field of view	Angle subtended by the effective diameter of an optical appliance at the eye's assumed centre of rotation.
01 209	real macular field of view	Angular <i>field of view</i> in object space of an optical appliance at the eye's assumed centre of rotation. (See 01 208.)
01 210	linear field of view	The linear extent of the real <i>field of view</i> at the stated <i>working distance</i> .
01 211	apparent peripheral field of view	Angle subtended by the effective diameter of an optical appliance at the assumed centre of the eye's entrance pupil.
01 212	real peripheral field of view	Angular <i>field of view</i> in object space of an optical appliance at the assumed centre of the eye's entrance pupil.

No.	Term	Definition
1.3 Power		
01 301	curvature (R)	Reciprocal of the radius of <i>curvature</i> . NOTE <i>Curvature</i> is sometimes expressed in terms of <i>dioptries</i> (when the radius of <i>curvature</i> is measured in metres). This use of the <i>dioptre</i> as a unit of <i>curvature</i> is deprecated because of the confusion which would arise between <i>curvature</i> and <i>surface power</i> . In ophthalmic optics, the appropriate unit is the reciprocal metre (m^{-1}).
01 302	power	Capacity of a lens or surface to affect incident wave-fronts by refraction. NOTE This term includes both <i>focal power</i> (see 01 303) and <i>prismatic power</i> (see 01 305).
01 303	focal power	The measure of a lens or surface to affect the <i>curvature</i> of incident wave-fronts by refraction.
01 304	deviation	The change in direction imposed on a ray of light (the normal to a specified element of a wave-front) as a result of refraction.
01 305	prismatic power	The measure of the <i>deviation</i> of a ray of light as a result of passing through a specified point on a lens or prism.
1.4 Lens theory and prescribing		
01 401	thin lens	A lens whose centre thickness has a negligible effect on its focal properties.
01 402	lens form	The combination of surface powers chosen to produce the given focal effect.
01 403	sphere (Sph)	A term commonly used for brevity to denote: a) the <i>spherical</i> element either of a <i>prescription</i> or of the <i>power</i> of a lens; or b) a <i>spherical lens</i> . (See 03 303.)
01 404	cylinder (Cyl)	A term commonly used for brevity to denote: a) the <i>cylindrical</i> element either of a <i>prescription</i> or of the <i>power</i> of a lens; or b) a <i>plano-cylinder lens</i> . (See 07 006.)
01 405	transposition	1) A change of lens form without change of <i>back vertex power</i> . (See 04 006 and 08 004.) 2) One of the customary methods of writing a <i>prescription</i> ; for example the plus <i>cylinder transposition</i> . 3) Process of converting a <i>prescription</i> from the original to an alternative formulation, especially from the plus to the minus <i>cylinder</i> and vice versa.
01 406	thin lens transposition simple transposition	A change of form without change of lens <i>power</i> , with the effects of thickness being ignored for simplicity.
01 407	correction	<i>Power</i> of a lens or lenses for correcting, or prescribed to correct for, a refractive error.
01 408	prescription (Rx)	Specification, produced by the prescriber, giving essential details of the lens or lenses required for a particular patient. NOTE The method of presenting a <i>prescription</i> is described in BS 2738-3.
01 409	prescription order	Document that provides sufficient information for suitable uncut or mounted <i>ophthalmic lenses</i> to be manufactured or supplied which comply with the <i>prescription</i> . (See 01 408.) NOTE The method of presenting a <i>prescription order</i> is described in BS 2738-3.

Section 2. Types of surfaces

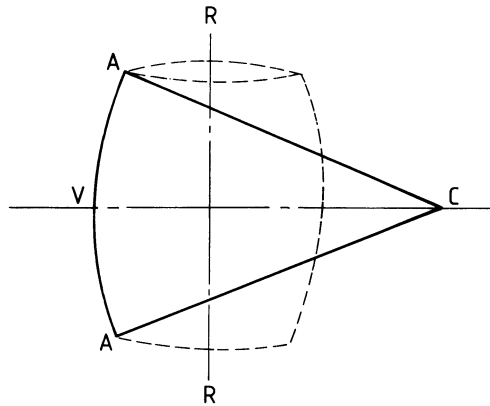
No.	Term	Definition
02 001	plane flat, plano <i>both deprecated</i> when applied to a “surface”, see 03 302	Of zero <i>curvature</i> .
02 002	concave (Cc)	Relatively depressed at the centre as compared with a <i>plane</i> surface.
02 003	convex (Cx)	Relatively raised at the centre as compared with a <i>plane</i> surface.
02 004	spherical	Forming part of the surface of a <i>sphere</i> .
02 005	cylindrical	Forming part of the surface of a <i>cylinder</i> .
02 006	aspherical	Of a surface of revolution having continuously variable <i>curvature</i> from the <i>vertex</i> to the periphery.
02 007	toroidal	Forming part of the surface generated by a circular arc rotating about an axis which is in the same <i>plane</i> as the arc but which does not pass through its centre of <i>curvature</i> . NOTE 1 It is desirable to restrict the term “ <i>toroidal</i> ” to a surface and the term “ <i>toric</i> ” to a lens or object. (See 03 210.) NOTE 2 Three different types of toroidal surface are used in <i>ophthalmic lens</i> manufacture as illustrated in Figure 2, Figure 3 and Figure 4.



The axis of rotation RR and the *vertex* V of the generating arc AA are on the opposite sides of the latter’s centre of *curvature* C.

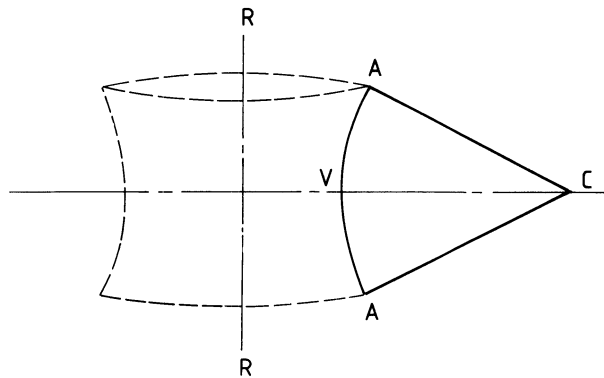
Figure 2 — Tyre formation

No.	Term	Definition
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The axis of rotation RR lies between the *vertex* V of the generating arc AA and its centre of *curvature* C.

Figure 3 — Barrel formation



The axis of rotation RR and the centre of *curvature* C of the generating arc AA are on opposite sides of the *vertex* V.

Figure 4 — Capstan formation

02 008 **progressive**

Surface, which is non-rotationally symmetrical, having two designed *curvatures* in different zones of the surface, with a gradual continuous change between the two zones.

Section 3. General classes of lenses

No.	Term	Definition
3.1 Classification according to purpose		
03 101	ophthalmic lens	A lens worn in front of the eye, whether in contact with the eyeball or not.
03 102	spectacle lens corrective lens <i>deprecated</i>	An <i>ophthalmic lens</i> not worn in contact with the eyeball.
03 103	contact lens	A lens worn in contact with the eyeball. (See BS 3521-3.)
03 104	protective lens	A lens designed to protect the eye from injury. (See section 12.)
03 105	absorptive lens	A lens designed to absorb a certain range or proportion of the incident radiations.
03 106	tinted lens	A lens (generally an <i>absorptive lens</i>) having a noticeable colour in <i>transmission</i> . (See section 11.)
03 107	magnifying lens	A lens designed with the primary purpose of increasing the apparent size of an object. (See section 13.)
03 108	distance lens	A lens prescribed for distance vision.
03 109	intermediate lens	A lens intermediate in power between the distance and near correction (or between the power of the <i>distance lens</i> and that of the <i>near lens</i>).
03 110	near lens reading lens <i>deprecated</i>	A lens prescribed for near vision.
03 111	balancing lens	A lens fitted to a spectacle frame or mount to balance the weight of the other lens, its <i>power</i> being unspecified or unimportant.
03 112	matching lens	A lens, the <i>power</i> of which may be unspecified, fitted to a spectacle frame or mount to match the appearance of the other lens.
03 113	coated lens	See 11 014.
3.2 Classification according to lens form		
03 201	plano-(hyphenated)	Having at least one <i>plane</i> surface.
03 202	plano-concave	Having one <i>plane</i> and one <i>concave</i> surface.
03 203	plano-convex	Having one <i>plane</i> and one <i>convex</i> surface.
03 204	sphero-(hyphenated)	Having one <i>spherical</i> surface.
03 205	bi-concave	Having two <i>concave</i> surfaces.
03 206	bi-convex	Having two <i>convex</i> surfaces.
03 207	equi-concave	Having two <i>concave</i> surfaces of equal power.
03 208	equi-convex	Having two <i>convex</i> surfaces of equal power.
03 209	curved form lens bent lens <i>deprecated</i> , see 08 004	A lens having one surface <i>convex</i> in all <i>meridians</i> and the other surface <i>concave</i> in all <i>meridians</i> .
03 210	toric lens	A curved form lens having a <i>toroidal</i> surface. NOTE The use of this term as a synonym for a <i>meniscus lens</i> (see 06 005) is deprecated.
03 211	flat form lens	A lens that does not satisfy the definition of a <i>curved form lens</i> . (See 03 209.)
03 212	best-form lens corrected curve lens	Lens whose <i>curvatures</i> are computed to eliminate or minimize a stated image defect or defects under defined conditions.
03 213	plano-toroidal	Lens having one surface <i>plane</i> and the other <i>toroidal</i> .

No.	Term	Definition
3.3 Classification according to refractive properties		
03 301	plano (unhyphenated) afocal	Denoting zero <i>power</i> or (when used of prisms) zero <i>focal power</i> .
03 302	plano lens afocal lens (plane lens <i>deprecated</i> , see 02 001)	A lens of zero <i>power</i> . (See 03 301.)
03 303	spherical lens sphere	1) A lens with two <i>spherical</i> surfaces, one of which may be of infinite radius of <i>curvature</i> , i.e. <i>plane</i> . 2) A lens bringing a paraxial pencil of parallel rays to a single focus. NOTE Definition 2) could be satisfied by either: a) a lens having two non-spherical surfaces (e.g. a crossed <i>cylinder</i> with effectively equal <i>surface powers</i>); or b) a lens having one or more <i>aspherical</i> surfaces.
03 304	astigmatic lens	A lens bringing a paraxial pencil of parallel rays to two separated line foci mutually at right-angles and hence, unlike a <i>spherical lens</i> , having two <i>principal powers</i> . NOTE One of these <i>powers</i> may be zero, with the corresponding line focus at infinity.
03 305	prismatic lens	A lens designed to exert a <i>prismatic effect</i> at the <i>centration point</i> .
03 306	bifocal lens	A lens having two discrete portions of different <i>focal power</i> , usually for distance and near vision.
03 307	trifocal lens	A lens having three discrete portions of different <i>focal power</i> , usually for distance, intermediate and near vision.
03 308	multifocal lens	A lens designed to provide correction for two or more discrete viewing ranges (for example, bifocal and trifocal).
03 309	single-vision lens single-focus lens <i>deprecated</i>	A lens incorporating only one correction.
03 310	progressive power lens varifocal lens	A special type of <i>multifocal lens</i> designed to provide correction for more than one viewing range and in which the <i>power</i> changes continuously rather than discretely.

3.4 Classification according to stage of completion

03 401	blank	A piece of material for the making of a lens at any stage before completion of the <i>surfacing</i> processes.
03 402	coquille	An unsurfaced lens, approximately <i>plano</i> , made by allowing sheet material to sag onto a shaped former.
03 403	drop dropping	A piece of glass allowed to sag by means of heat into a single curved former. (See also 03 402.)
03 404	moulding	A piece of glass formed by means of heat and pressure to a pre-determined shape.
03 405	gob	A piece of glass dispensed molten from a tank orifice.
03 406	semi-finished	Having only one side completely finished. (See 03 414.)
03 407	fused blank	A glass blank for the preparation of a <i>fused bifocal</i> or <i>multifocal lens</i> at the stage when the contact surfaces have been worked and fused together.
03 408	roughed fused blank	A <i>fused blank</i> with the <i>segment side</i> ground approximately to the required <i>curvature</i> .

No.	Term	Definition
03 409	semi-finished fused blank	A <i>fused blank</i> with the <i>segment side</i> completely finished.
03 410	solid blank	A <i>semi-finished</i> blank made of one homogeneous piece of material for the preparation of a <i>solid bifocal</i> or <i>multifocal lens</i> , the segment side being completely finished to the various <i>curvatures</i> required for the different <i>powers</i> . (See also 03 407.)
03 411	semi-finished flat cylinder rough cylinder <i>deprecated</i>	A blank with one surface finished <i>cylindrical</i> .
03 412	semi-finished meniscus rough meniscus <i>deprecated</i>	A curved <i>drop</i> or <i>moulding</i> with one surface finished <i>spherical</i> .
03 413	semi-finished toric rough toric <i>deprecated</i>	A curved <i>drop</i> or <i>moulding</i> with one surface finished <i>toroidal</i> .
03 414	finished lens	A lens both sides of which have their final optical surface but may be either cut or uncut.
03 415	uncut lens	A lens completely finished but which is not cut or edged.

3.5 Classification according to material

03 501	glass lens mineral glass lens	A lens formed from a vitreous substance made from mineral materials. NOTE The term "glass" is not to be used without qualification to describe lenses formed from plastics materials; the term "organic glass" should be used.
03 502	plastics lens organic glass lens	A lens formed from an organic polymeric material. (See note to 03 501.)
03 503	hard resin lens	A lens formed predominantly from a thermosetting plastics material such as poly-digol bisallyl carbonate.
03 504	polycarbonate lens	A lens formed predominantly from bisphenol A polycarbonate.
03 505	high index glass	Glass with a refractive index greater than 1.523, but which is usually greater than 1.58.
03 506	high index plastics	Plastics material with a refractive index greater than 1.498, but which is usually greater than 1.55.
03 507	acrylic lens	A lens formed predominantly from poly (methyl methacrylate) (PMMA).
03 508	copolymer lens	A lens formed from more than one polymeric material.

Section 4. Focal properties

No.	Term	Definition
04 001	diopetre (D)	The unit of <i>focal power</i> of a lens or surface, determined as the reciprocal of the focal length in air measured in metres, m^{-1} . (See also 04 002, 04 005 and 04 007.)
04 002	surface power	The <i>power</i> in <i>dioptries</i> of a single surface, which is numerically equal to $(n_2 - n_1)/r$ where n_1 and n_2 are the refractive indices of two media and r is the radius of <i>curvature</i> in metres. (See also 01 303 and 04 001.)
04 003	thin lens	See 01 401.
04 004	thin lens power	The sum of the <i>surface powers</i> .
04 005	back vertex focal length (f_v)	The paraxial distance from the <i>vertex</i> of the <i>back</i> surface to the second principal focus, when using parallel light of a specific wavelength ^a incident on the <i>front surface</i> .
04 006	back vertex power (F_v) effective power <i>deprecated</i> , see 04 012	The reciprocal of the <i>back vertex focal length</i> measured in metres. NOTE In <i>ophthalmic lens</i> practice the <i>back</i> and <i>front vertex powers</i> are expressed in <i>dioptries</i> (see 04 001). It is customary to give the <i>front vertex power</i> of a lens the same sign as the <i>back vertex power</i> with a plus (+) sign denoting a <i>converging lens</i> .
04 007	front vertex focal length (f_v)	The paraxial distance from the <i>vertex</i> of the <i>front</i> surface to the first principal focus, when using parallel light of a specific wavelength ^a incident on the <i>back surface</i> .
04 008	front vertex power (F_v) neatralizing power <i>deprecated</i>	The reciprocal of the <i>front vertex focal length</i> measured in metres. (See note to 04 006.)
04 009	nominal surface power	The <i>power</i> stated by the manufacturer for identification purposes.
04 010	compensated surface power	The actual <i>power</i> of the surface that, in combination with a given other surface and at a given centre thickness, will produce a lens of a specified <i>vertex power</i> .
04 011	vertex power allowance	A modification of the <i>front surface power</i> in order to achieve a specified <i>back vertex power</i> .
04 012	effective power	The <i>power</i> of a lens (or surface) with reference to a particular plane situated away from the plane of the lens (or surface). NOTE The use of the term “ <i>effective power</i> ” as a synonym for <i>back vertex power</i> is deprecated (see 04 006).
04 013	plus lens positive lens, converging lens (convex lens <i>deprecated</i> , see 02 003)	A lens which causes parallel incident light to converge to a real focus.
04 014	minus lens negative lens, diverging lens (concave lens <i>deprecated</i> , see 02 002)	A lens which causes parallel incident light to diverge from a virtual focus.
04 015	depth of field	The variation in object distance over which out-of-focus blurring of the image does not exceed a given tolerance.

^a This wavelength is usually 587.56 nm which corresponds to the d-line of the helium spectrum and is one of two reference wavelengths specified for use with ophthalmic lenses in BS 7017. The alternative wavelength of 546.07 nm, corresponding to the e-line of the mercury spectrum, is sometimes used.