

Contact Lens

Clinical Pocket Guide





The Association of Optometric Contact Lens Educators (AOCLE) is a non-profit organization committed to fostering the highest levels of education in the areas of cornea and contact lenses and supporting the faculty in these areas at each of the North American schools and colleges of optometry.

For more information and an electronic version of this pocket guide, consult our website at;
www.aocle.org

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General CL Info

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Key Questions for Contact Lens Wearers

- Do you like wearing your contact lenses? What could be done to make them better?
- Are your lenses comfortable? Do your eyes feel dry while wearing your lenses?
- Do you see well at both distance and near with your lenses?
- How long have you worn your lenses today & on average?
- How old is this pair of lenses? How often do you replace your lenses?
- What care system do you use and how do you use it? How long have you been using this solution?
- When was the last time you replaced your lens case?
- Do you experience any ocular redness, irritation, drying, itching or discomfort? If yes, after how many hours of contact lens wear?
- Do you sleep or nap in your lenses? How long? Would you like to?
- Would you be interested in toric/multifocal/1-day/colored lenses?
- Do you have any questions about your contact lenses?

CL Related Red Eye Questions

- Chief Complaint:
 - Which eye is red?
 - How long has the problem existed?
 - Are symptoms getting better, worse or the same?
 - Is there pain?
 - Rate pain on a scale from 1 to 10, 10 being the worst.
 - What kind of discharge are you experiencing?
 - Are you sensitive to light?
 - Has there been a change in your vision?
 - Have you had (or been around someone with) a cold or flu?
 - Have you self treated?
- Do you wear contact lenses?
 - Does the problem go away when you take your CLs off?
 - What type/brand?
 - How many hours do you usually wear your CLs?
 - How old is your current pair?
 - How often do you throw out your CLs?
 - How often do you sleep/nap in your CLs?
 - What kind of CL solution do you use?
 - When did you last change your lens case?
- Other considerations
 - Allergies (medicine/ environment)
 - Biomicroscopy /Staining
 - Lids and Lashes
 - Conjunctiva
 - Injection (localized, circumlimbal)
 - Cornea
 - Infiltrate (location, size, depth)
 - Edema
 - A/C reaction
 - Previous occurrence
 - Recent travel

Vertex Distance Conversion Table

Spectacle Lens	Plus Lens	Minus Lens	Spectacle Lens	Plus Lens	Minus Lens
4.00	+4.25	-3.87	9.25	+10.37	-8.37
4.25	+4.50	-4.00	9.50	+10.75	-8.50
4.50	+4.75	-4.25	10.00	+11.37	-8.87
4.75	+5.00	-4.50	10.50	+12.00	-9.37
5.00	+5.25	-4.75	11.00	+12.75	-9.75
5.25	+5.62	-5.00	11.50	+13.37	-10.12
5.50	+5.87	-5.12	12.00	+14.00	-10.50
5.75	+6.12	-5.37	12.50	+14.75	-10.87
6.00	+6.50	-5.62	13.00	+15.50	-11.25
6.25	+6.75	-5.75	13.50	+16.12	-11.62
6.50	+7.00	-6.00	14.00	+16.75	-12.00
6.75	+7.37	-6.25	14.50	+17.50	-12.37
7.00	+7.62	-6.50	15.00	+18.25	-12.75
7.25	+8.00	-6.62	15.50	+19.00	-13.00
7.50	+8.25	-6.87	16.00	+19.75	-13.50
7.75	+8.50	-7.12	16.50	+20.50	-13.75
8.00	+8.87	-7.25	17.00	+21.50	-14.12
8.25	+9.12	-7.50	17.50	+22.25	-14.50
8.50	+9.50	-7.75	18.00	+23.00	-14.75
8.75	+9.75	-7.87	18.50	+23.75	-15.12
9.00	+10.12	-8.12	19.00	+24.75	-15.50

For 12mm vertex distance

Fcl = Fspec / 1-D Fspec

Diopter/mm Radius Conversion

Diopters	Radius (mm)	Diopters	Radius (mm)	Diopters	Radius (mm)
37.00	9.121	43.00	7.848	49.00	6.887
37.25	9.060	43.25	7.803	49.25	6.852
37.50	9.000	43.50	7.758	49.50	6.818
37.75	8.940	43.75	7.714	49.75	6.78
38.00	8.881	44.00	7.670	50.00	6.75
38.25	8.823	44.25	7.627	50.25	6.72
38.50	8.766	44.50	7.584	50.50	6.68
38.75	8.708	44.75	7.541	50.75	6.65
39.00	8.653	45.00	7.500	51.00	6.62
39.25	8.598	45.25	7.458	51.25	6.59
39.50	8.544	45.50	7.417	51.50	6.55
39.75	8.490	45.75	7.377	51.75	6.52
40.00	8.437	46.00	7.336	52.00	6.49
40.25	8.385	46.25	7.297	52.25	6.46
40.50	8.333	46.50	7.258	52.50	6.43
40.75	8.282	46.75	7.219	52.75	6.40
41.00	8.231	47.00	7.180	53.00	6.37
41.25	8.181	47.25	7.142	53.25	6.34
41.50	8.132	47.50	7.105	53.50	6.31
41.75	8.083	47.75	7.068	53.75	6.28
42.00	8.035	48.00	7.031	54.00	6.25
42.25	7.988	48.25	6.994	54.25	6.22
42.50	7.941	48.50	6.958	54.50	6.19
42.75	7.894	48.75	6.923	54.75	6.16

$337.5 / \text{radius} = \text{diopters}$

Diopter/mm Radius Conversion

Diopters	Radius (mm)	Diopters	Radius (mm)	Diopters	Radius (mm)
55.00	6.14	61.00	5.53	67.00	5.04
55.25	6.11	61.25	5.51	67.25	5.02
55.50	6.08	61.50	5.49	67.50	5.00
55.75	6.05	61.75	5.47	67.75	4.98
56.00	6.03	62.00	5.44	68.00	4.96
56.25	6.00	62.25	5.42	68.25	4.95
56.50	5.97	62.50	5.40	68.50	4.93
56.75	5.95	62.75	5.38	68.75	4.91
57.00	5.92	63.00	5.36	69.00	4.89
57.25	5.90	63.25	5.34	69.25	4.87
57.50	5.87	63.50	5.31	69.50	4.86
57.75	5.84	63.75	5.29	69.75	4.84
58.00	5.82	64.00	5.27	70.00	4.82
58.25	5.79	64.25	5.25	70.25	4.80
58.50	5.77	64.50	5.23	70.50	4.79
58.75	5.74	64.75	5.21	70.75	4.77
59.00	5.72	65.00	5.19	71.00	4.75
59.25	5.70	65.25	5.17	71.25	4.74
59.50	5.67	65.50	5.15	71.50	4.72
59.75	5.65	65.75	5.13	71.75	4.70
60.00	5.63	66.00	5.11	72.00	4.69
60.25	5.60	66.25	5.09	72.25	4.67
60.50	5.58	66.50	5.08	72.50	4.66
60.75	5.56	66.75	5.06	72.75	4.64

$337.5 / \text{radius} = \text{diopters}$

ICD-9 Codes

Refraction

Hyperopia	367.00
Myopia	367.10
Astigmatism regular	367.21
Astigmatism irregular	367.22
Anisometropia	367.31
Presbyopia	367.40
Amblyopia (unspecified)	368.00

Cornea

Corneal ulcer. Unspecified	370.00
Corneal ulcer. Marginal	370.01
Ring corneal ulcer	370.02
Central corneal ulcer	370.03
Superficial keratitis. Unspecified	370.20
Punctate keratitis	370.21
Filamentary keratinis	370.23
Vernal keratoconjunctivitis	370.32
Limbal and corneal involvement in vernal conjunctivitis	370.32
K sicca - not sjogren's	370.33
Exposure keratoconjunctivitis	370.34
Neurotrophic keratitis	370.35
Keratoconjunctivitis. Unspecified	370.40
Corneal neovascularization. Unspecified	370.60
Localized vascularization of the cornea	370.61
Pannus (corneal)	370.62
Ghost vessels (corneal)	370.64
Keratitis. Unspecified	370.90
Corneal opacity. Unspecified	371.00
Corneal opacity. Minor	371.01
Corneal opacity. Peripheral	371.02
Corneal opacity. Central	371.03
Adherent corneal leucoma	371.04
Phthisical cornea	371.05
Corneal deposit. Unspecified	371.10
Corneal pigmentations anterior	371.11
Corneal pigmentations stromal	371.12
Corneal pigmentations posterior	371.13
Corneal edema. Unspecified	371.20
Corneal edema. Secondary	371.22
Corneal edema due to wearing of contact lenses	371.24
Folds in descemet's membrane	371.32
Rupture in descemet's membrane	371.33
Corneal degeneration	371.40
Senile corneal changes	371.41
Recurrent corneal erosion	371.42
Band-shaped keratopathy	371.43
Corneal degeneration salzmann's nodular	371.46
Corneal degeneration peripheral (ex. Terrien's)	371.48
Hereditary corneal dystrophy. Unspecified	371.50
Other anterior corneal dystrophies	371.52
Keratoconus. Unspecified	371.60
Keratoconus. Stable	371.61
Keratoconus - acute hydrops	371.62
Corneal ectasia	371.71
Corneal anesthesia and hypoesthesia	371.81
Corneal disorder due to contact lens	371.82
Corneal disorder. Unspecified	371.90
Corneal abrasion	918.10
Corneal foreign body	930.00
Complications of corneal graft	996.51

ICD-9 Codes

Conjunctiva

Acute conjunctivitis, unspecified	372.00	Inflammation of eyelid. unspecified	373.90
Acute atopic conjunctivitis	372.05	Entropion. unspecified	374.00
Chronic conjunctivitis, unspecified	372.10	Senile entropion	374.01
Simple chronic conjunctivitis	372.11	Mechanical entropion	374.02
Chronic follicular conjunctivitis	372.12	Cicatricial entropion	374.04
Vernal conjunctivitis	372.13	Trichiasis of eyelid without entropion	374.05
Other chronic allergic conjunctivitis	372.14	Ectropion. unspecified	374.10
Blepharoconjunctivitis, unspecified	372.20	Senile ectropion	374.11
Angular Blepharitis	372.21	Mechanical ectropion	374.12
Contact blepharoconjunctivitis	372.22	Cicatricial ectropion	374.14
Conjunctivitis, unspecified	372.30	Lagophthalmos. unspecified	374.20
Rosacea conjunctivitis	372.31	Ptosis of eyelid. unspecified	374.30
Pingueculitis	372.34	Paralytic ptosis	374.31
Pterygium, unspecified	372.40	Blepharochalasis	374.34
Pinguecula	372.51	Lid retraction or lag	374.41
Conjunctival concretions	372.54	Hemorrhage of eyelid	374.81
Symblepharon	372.63	Edema of the eyelid	374.82
Scarring of conjunctiva	372.64	Retained foreign body of the eyelid	374.86
Conjunctival hyperemia	372.71	Dermatochalasis	374.87
Conjunctival hemorrhage	372.72		
Conjunctival edema	372.73		
Conjunctival cysts	372.75		

Eyelids and Adnexa

Blepharitis. unspecified	373.00		
Hordeolum external	373.11		
Hordeolum internal	373.12		
Chalazion	373.20		
Eczematous dermatitis of eyelid	373.31		
Contact and allergic dermatitis of eyelid	373.32		
Parasitic infestation of eyelid	373.60		
Other inflammation of eyelids	373.80		
		Lacrimal System	
		Dry Eye. unspecified	
		(tear film insufficiency unspecified)	375.15
		Epiphoria. unspecified	375.20
		Epiphoria due to excessive lacrimation	375.21
		Epiphoria due to insufficient drainage/	375.22
		Lacrimal system. NOS	375.90
		Other Disorders of the Eye	
		Pain in or around eye	379.91
		Redness or discharge of the eye	379.93

Pre-Ocular Tear Film (POTF) evaluation

White light evaluation	Normal observations
Specular reflection of the ocular surface	regular, smooth surface
Blink	complete, 12-15/min (<TBUT)
Lid apposition	good apposition with the globe along the entire lid margin (no entropion/ectropion)
Punctum	open and good apposition
Debris in the POTF	minimal to none
Tear Meniscus	TMH Inf > Sup (0.2-0.4mm) slight coloration, no frothing or foaming, little to no debris, movement with blink towards the punctum
Viscosity	moderate movement
Lashes	clear, no debris
Meibomian glands	easily expressed with clear liquid secretions

Vital Staining	Normal observations
TBUT	> 10 seconds
Fluorescein staining	< grade 1
Rose bengal/ Lissamine green	< grade 1
Jones Test	patent nasolacrimal system

Tear Tests	Normal observations
Schirmer (w/o anesthesia)	5-10 mm/5 min
PRIT / CTT	>10 mm /15 sec
NIBUT	>Fluorescein TBUT
ULMS/LWE	no staining
LIPCOF	none
Tear ferning	Type I or II (Rolando's criteria)
Tear osmolality	<308 mOsm/L
MMP-9 (InflammaDry)	<40ng/ml

CL solution sampling guidelines

Contact Lens Solutions

- Sample one (1) starter kit per new contact lens fit/refit/change of solution and consider a written recommendation of the product to promote compliance
- Document the recommended product in the medical record
- Do not offer the patient multiple sample kits
- Do not offer the patient different starter kits, as this will contribute to poor compliance
- Educate the patient on the importance of contact lens case hygiene, which is why a new case is included in each starter kit. Recommend replacing the case every 1-3 months
- Do not break-up starter kits to provide patients with individual components
- Using the latest scientific data, consider any potential CL/Solution incompatibilities to guide your choice of solution
- Explain to the patient how long the sample is likely to last and what to do thereafter (fill an Rx, return for a follow-up visit, etc.)

Rewetting drops

- Sample one (1) bottle of rewetting drop during the eye examination and consider providing a written recommendation to promote compliance
- Document the recommended product in the medical record
- Do not offer the patient multiple sample bottles
- Explain to the patient how long the sample is likely to last and what to do thereafter (fill an Rx, return for a follow-up visit, etc.)

General considerations

- Use your discretion in sampling when it may be difficult for a patient to get to a pharmacy (weekends, evenings, holidays)
- To promote compliance, explain to the patient why you have chosen that product, since not all products are the same
- Educate the patient that generic products are usually not the same as the latest brand name products and may change in formulations from year to year
- Instruct the patient to check the expiration dates on all medications, including contact lens solutions
- Promote an annual supply of contact lenses once the fit is complete to promote compliance
- Review manufacturer's recommendations with respect to the given product
- Use the AOCLE Healthy Habits tear-off pads to educate novice wearers or as a review with habitual wearers

Bottle Size: Lubricants/Rewetting drops

Brand Name	Manufacturer	Preservative	Bottle Size
Advanced Eye Relief Dry Eye Rejuvenation (USA)	B+L	BAK/ED	15mL
Aquify Comfort Drops (Canada)	Alcon	Phosphoric Acid	10mL
Bion Tears	Alcon	none	unidose
Blink Contacts	Abbott	OcuPure	2mL/10mL
Blink Gel Tears	Abbott	OcuPure	10mL
Blink Tears	Abbott	OcuPure/none	15mL/30mL/unidose
Clerz Plus Lens Drops	Alcon	Polyquad/ED	5mL/8mL/15 mL
COMPLETE Blink-N-Clean	Abbott	PHMB	20mL
COMPLETE Lubricating/rewetting	Abbott	PHMB	15mL
FreshKote (USA)	Focus	Polixetonium	15mL
GenTeal Lubricant Eye Drops	Alcon	GenAqua	15 mL
I-Drop/ I-Drop PM (Canada)	I-Med	none	unidose
I-Drop Plus/ I-Drop Pur Gel (Canada)	I-Med	none	10mL
Liposic Ophthalmic Drops (Canada)	B+L	Cetremide	10mL
Moisture Eyes (Canada)	B+L	BAK	15mL
Oasis Tears/ Oasis Tears Plus / Multidose	Oasis	none /EDTA	unidose/10mL
OPTI-FREE RepleniSH Rewetting Drops	Alcon	Polyquad/ED	10mL
OPTI-FREE PureMoist Rewetting Drops	Alcon	Polyquad/ED	12mL
Refresh Celluvisc	Allergan	none	unidose
Refresh Contacts	Allergan	Purite	15mL
Refresh Endura (Canada)	Allergan	none	unidose
Refresh Liquigel	Allergan	Purite	15mL/30mL
Refresh Optive (USA)	Allergan	Purite	15mL/ 30mL
Refresh Optive Advanced	Allergan	Purite/none	10mL/unidose
Refresh Optive Sensitive (USA)	Allergan	none	unidose

Brand Name	Manufacturer	Preservative	Bottle Size
Refresh Tears	Allergan	Purite	15mL / 30mL
Refresh Ultra (Canada)	Allergan	Purite	15mL
Refresh Classic/Refresh Plus	Allergan	none	unidose
ReNu Multiplus Lubricating/Rewetting	B+L	Sorbic Acid/ED	8mL
ReNu Rewetting Drops	B+L	Sorbic Acid/ED	15mL
Retaine CMC Lubricant (USA)	Ocusoft	none	unidose
Retaine HPMC Lubricant (USA)	Ocusoft	none	10mL
Retaine MGD Ophthalmic Emulsion (USA)	Ocusoft	none	unidose
Sensitive Eyes Drops	B+L	Sorbic Acid/ED	15mL/30mL
Soothe Hydration (USA)	B+L	Sorbic Acid/ED	15mL
Soothe Long Lasting (USA)	B+L	BAK/ED	15mL
Soothe Preservative Free (USA)	B+L	None	unidose
Soothe Xtra Protection Emollient (USA)	B+L	Polyquaternium/ED	15mL
Systane	Alcon	Polyquad/none	15mL / 30mL/ unidose
Systane Balance	Alcon	Polyquad	10mL
Systane Contacts (USA)	Alcon	Polyquad	12mL
Systane Gel Drops	Alcon	Polyquad	10 mL
Systane ULTRA	Alcon	Polyquad/none	5mL/10mL/unidose
Tears Naturale II	Alcon	Polyquad	15mL / 30mL
Tears Naturale Forte	Alcon	Polyquad	15mL / 30mL
Tears Naturale Free	Alcon	none	unidose
Tears Plus (Canada)	Allergan	Chlorobutanol	15mL
TheraTears	AVR	PBS/ none	15mL/ 30mL/ unidose
TheraTears CL drops (USA)	AVR	PBS	10 mL
TheraTears Liquid Gel PF (USA)	AVR	none	unidose

ED = Edetate Disodium
GenAqua = Sodium Perborate

PBS= sodium perborate
PHMB = polyhexamethylene biguanide

Bottle size: Gels/Ointments/Inserts

Brand Name	Manufacturer	Preservative	Bottle Size
Duolube (Canada)	B-L	none	3.5g tube
GenTeal Gel	Alcon	Sodium perborate	10g tube
GenTeal Nighttime PM	Alcon	none	3.5g tube
Lacrisert	Valeant	none	5mg/insert
Lipasic Gel (Canada)	B-L	Cetremide	10g tube
Refresh Lacrilube	Allergan	none	3.5/7g tubes
Refresh PM	Allergan	none	3.5g tube
Retaine PM (USA)	Ocusoft	none	5g tube
Soothe Night Time (USA)	B-L	none	3.5g tube
Systane Lubricant Eye Gel (USA)	Alcon	Polyquad	10g tube
Systane Night-Time Ointment (USA)	Alcon	none	3.5g tube
Tear Gel (Canada)	Alcon	Cetremide	10g tube
Tears Naturale PM Ointment	Alcon	none	3.5g tube

Bottle Size: Lid Hygiene Products

Brand Name	Manufacturer	Preservative	Format
Baby Eyelid & Eyelash Cleanser	Ocusoft	PHMB	20 pads/box
Blephagel	Thea	none	30 g tube
Blephoclean	Thea	none	20 pads/box
Blephasol	Thea	none	100ml
iLid Cleanser (USA)	NovaBay	Hypochlorous acid	40ml
iLid 'n'lash /wipes	I-MED	Methylparabens /borate, PEG	50ml /60 pads/box
Lid Scrub Original Eyelid Cleanser	Ocusoft	Quaternium-15	30 pads/ box; 50mL foam
Lid Scrub Plus Eyelid Cleanser	Ocusoft	PHMB	30 pads/ box; 50mL foam
Oasis Lid & Lash Gel Cleanser (USA)	Oasis	Methylparabens	50ml
Systane Lid Wipes	Alcon	EDTA, Benzyl alcohol	30 pads/ box
TheraTears Sterilid/Theralid	AVR	EDTA, Sodium hydroxide	48mL foam
TheraTears Sterilid Gel (USA)	AVR	EDTA, Sodium hydroxide	15mL

Liposomal Sprays

Brand Name	Manufacturer	Preservative	Format
Tears Again Advanced	Ocusoft	EDTA	15mL

Ophthalmic Dyes

Dyes	Brand Name	Composition	Format
Fluorescein	Fluorets, Ful Glo, Bio Glo, Diafluor	Fluorescein sodium 1 mg	strip
	Glo Strips	Fluorescein sodium 0.6 mg	strip
	Dry Eye Test (DET)	Fluorescein sodium 0.12 mg	strip
	Minimis Fluorescein	Fluorescein sodium 2.0%	unit dose
Fluorescein (large molecule)	Fluoresoft	Fluorescein sodium 0.35%	solution
	Soft Glo	Fluorexon disodium 0.5mg	strip
Fluorescein/anesthetic	Fluress, Fluorax	Fluorescein Sodium 0.25% Benoxinate Hydrochloride 0.4%	solution
	Fluoracaine	Fluorescein Sodium 0.25% Proparacaine HCl 0.5%	solution
	Flura-Safe	Fluorexon disodium 0.35% Benoxinate Hydrochloride 0.4%	solution
	Minimis Lignocaine/ Fluorescein	Fluorescein 0.25%, Lignocaine 4.0%	unit dose
Fluorescein/Lissamine	Fluramene	1% fluorescein Sodium 0.5% Lissamine Green	solution
Lissamine Green	Lissamine green	Lissamine green 1.5 mg	strip
Rose Bengal	Rose Glo	rose bengal 1.5 mg	strip

Soft Lens Fit Assessment

	good	tight	loose
C entration	full, equal	full, equal	superior, decentered
L ens covers cornea	completely	completely	nasal exposure
A cuity	clear, stable	after blink clear, blur = steep	after blink blur, clear = flat
M ovement	perceptible 0.25 - 1.0 mm	less	more
O ther:	Over-K(after blink)	clear, blur = steep	blur, clear = flat
	Push-up test	easy	difficult
	Rapid (forced blink)	smooth movement	slow movement
			excessive movement

Soft CL Selection Guideline

Diameter = HVID + 2mm (usually 14.0 - 14.5)

If 3 base curves available: flat K < 42.00 = flatter BC
42.00 - 45.00 = middle BC
flat K > 45.00 = steeper BC

If 2 base curves available: flat K ≤ 44.00 = flat BC
flat K ≥ 44.25 = steep BC

Soft Lens Identification Markings

Bausch + Lomb Products

No markings	B+L inversion indicator
Biotrue ONE day	PureVision
Biotrue ONE day for presbyopia	Soflens 38: S=8.4 BC; M=8.7; F=9.0

ALCON (formerly Ciba Vision) Products

No markings	Lens Markings
Dailies Total 1	Air optix Night & Day Aqua: CIBA Z4##=8.4 BC; CIBA Z6##=8.6
Focus Dailies (sphere/MF)	Air Optix Aqua: CIBA X6##= 8.6 BC
Freshlook Colorblends	Air Optix for astigmatism: CIBA B7## = 8.7 BC
	Air Optix MF: CIBA PL/PM/PH ##= low/med/high add
	Freshlook (Colors, Dimensions, handling tint): FL inversion indicator

Vistakon Products

No markings	1 2 3 Inversion Indicator
Acuvue OASYS (astigmatism/presbyopia)	1 Day Acuvue Acuvue OASYS
	1 Day Acuvue Moist Acuvue 2
	1 Day Acuvue Tru-Eye

Soft Toric Markings

1-Day Acuvue Moist for Astigmatism
OASYS for Astigmatism

Avaira Toric/XR
Biofinity Toric
Biomedics Toric
Frequency 55 Toric/XR
Proclear Toric XR

Air Optix for astigmatism

Extreme H₂O Toric
Multifocal Toric
Proclear

Freshlook Toric/
Colorblends

Proclear Toric
marks represent 15° either side

PureVision Toric
marks represent 30° either side

Purevision2 for astigmatism

Focus DAILIES Toric
DAILIES ACP Toric

Recommended Soft CL Replacement Schedules

FDA Group I (non-ionic, <50% water)

1 Day Replacement		
B+L	SoftLens (MF)	DW
2 Week Replacement		
B+L	SoftLens 38	DW
CooperVision	Biomedics 38	DW (US) DW/EW (7 day) Canada

FDA Group II (non-ionic, >50% water)

1 Day Replacement		
Alcon	DAILIES AquaComfort Plus (sphere/ astig/ MF)	DW
Alcon	Focus DAILIES (sphere/ astig/ MF)	DW
Alcon	Freshlook One-Day	DW
B+L	Biotrue ONEday (sphere/ MF)	DW
B+L	SoftLens daily disposable (sphere/ astig)	DW
CooperVision	Proclear 1-Day (sphere/ MF)	DW
Menicon	Miru 1-Day	DW
2 Week Replacement		
B+L	SoftLens Toric for Astigmatism	EW (7 days)
CooperVision	Biomedics XC	DW
CooperVision	Proclear EP (MF)	DW
Hydrogel Vision	Extreme H ₂ O 59% (Thin / Xtra)	DW
Hydrogel Vision	Extreme H ₂ O 54%	DW

1 Month Replacement		
CooperVision	Proclear (sphere/toric/MF/MF-Toric)	DW
CooperVision	Proclear Multifocal (astig)	DW
CooperVision	Proclear Multifocal XR	DW
Hydrogel Vision Corp	Extreme H ₂ O 54% toric	DW
Hydrogel Vision Corp	Clarity H ₂ O	DW

FDA Group III (ionic, <50% water)

3 months		
Metrosoft	Metro Optics	DW

FDA Group IV (ionic, >50% water)

1 Day Replacement		
Centennial	Bioclear 1 Day (Canada)	DW
Centennial/Sauflon	Definition AC Everyday (Canada)	DW
CooperVision	Clearsight/Biomedic 1-day (sphere/toric)	DW
J&J	1-Day Acuvue (sphere)	DW
J&J	1-Day Acuvue Moist (sphere/ astig)	DW
2 Week Replacement		
Alcon	Freshlook (sph/ astig)	EW (7 days)
CooperVision	Biomedics 55 Premier	EW (7 days)
J&J	Acuvue 2	DW

1 Month Replacement		
Alcon	Focus Softcolors Monthly	EW (7 day)
Centennial	Definition AC (Canada)	DW
CooperVision	Frequency 55 (sphere/ astig/ MF)	DW

FDA Group V (Silicone Hydrogel)

1 Day Replacement		
Alcon	DAILIES Total 1	DW
J&J	1-Day Acuvue TrueEye	DW
Sauflon	Clariti 1 Day (sphere/ astig/ MF)	DW
Sauflon	Fresh Day (US) (sphere/ astig/ MF)	DW

2 Week Replacement		
CooperVision	Avaira (US) (sphere/ astig)	DW
J&J	Acuvue OASYS (sphere/ astig/ MF)	EW (7 day)
Menicon	Premio (sphere/ astig)	EW (7 day)

1 Month Replacement		
Alcon	Air Optix Aqua (sphere/ astig/ MF)	EW (7 day)
Alcon	Air Optix Night & Day Aqua	CW (30 day)
Alcon	Air Optix Colors	DW
B+L	Bausch+Lomb ULTRA	DW
B+L	PureVision/PureVision2 (sphere/astig/MF)	CW (30 day)
CooperVision	Biofinity (sphere/ astig/ MF)	DW/EW US DW/EW/CW Canada
CooperVision	Encore 100 (Canada) (sphere/ astig)	DW
LOGIC	Logic Max	DW
Sauflon	Clariti 1 month (US) (sphere/ astig/ MF)	DW
Sauflon	Clariti elite (US)	DW

Silicone Hydrogels (SiHy): Sphere

Silicone Hydrogels: Sphere		Company	Lens name	material
1-Day	Spherical	ALCON (formerly Ciba Vision)	DALIES Total 1	delefilcon A
		J&J	1-Day Acuvue TruEye *	nardofilcon A
		Sauflon (Centennial)	Clariti 1 Day *	somofilcon A
		Sauflon	Fresh Day* (US)	somofilcon A
2 weeks	Spherical	Cooper	Avaira (US)	enfilcon A
		J&J	Acuvue OASYS*	senofilcon A
		Menicon	Premio (Europe)	asomofilcon A
1 month	Spherical	ALCON (formerly Ciba Vision)	Air Optix Aqua	lotrafilcon B
		ALCON (formerly Ciba Vision)	Air Optix Night & Day Aqua	lotrafilcon A
		ALCON (formerly Ciba Vision)	Air Optix Colors	lotrafilcon B
		B+L	Bausch+Lomb ULTRA	somofilcon A
		B+L	PureVision	balafilcon A
		B+L	PureVision 2	balafilcon A
		Cooper	Biofinity	comfilcon A
		Cooper	Biofinity XR	comfilcon A
		Cooper	Encore 100 * (Canada)	enfilcon A
		LOGIC	Logic Max	unifilcon B
		Sauflon	Clariti 1 month* (US)	filcon II 3
		Sauflon	Clariti elite* (US)	somofilcon A

* UV blocker

data provided by companies

Diam	BC	H ₂ O %	Dk	Dk/t	Modulus	Surface treatment
14.1	8.5	33-80	140	156	0.7	Water gradient SiHy
14.2	8.5/9.0	46	100	118	0.66	none - internal wetting agent (PVP)
14.1	8.6	56	N/A	86	0.5	AquaGen
14.1	8.6	56	N/A	86	0.5	AquaGen
14.2	8.4/8.5	46	100	125	0.5	aquaform, PEG
14.0	8.4/8.8	38	103	147	0.69	none - internal wetting agent (PVP)
14.0	8.3/8.6	40	129	161	0.90	nanogloss
14.2	8.6	33	110	138	1.0	plasma treatment
13.8	8.4/8.6	24	140	175	1.5	plasma treatment
14.2	8.6	33	110	138	1.0	plasma treatment
14.2	8.5	46	114	163	0.7	MoistureSeal Technology
14.0	8.3/8.6	36	91	101	1.1	plasma oxidation
14.0	8.6	36	91	130	1.1	plasma oxidation
14.0	8.6	48	128	160	0.75	aquaform
14.0	8.6	48	128	160	0.75	aquaform
14.2	8.4/8.5	46	100	125	0.5	aquaform
14.2	8.6	49	N/A	68.1	0.68	Advanced Comfort Technology
14.1	8.4/8.8	58	N/A	86	0.5	AquaGen
14.2	8.6	56	N/A	86	0.5	AquaGen

Dk/t values for >3.00 D

Silicone Hydrogels (SiHy): Toric & Multifocal

		Company	Lens name	material
1-Day	Toric	Sauflon	Clariti 1 Day Toric* (US)	somofilcon A
		Sauflon	Fresh Day for Astigmatism* (US)	somofilcon A
	Multifocal	Sauflon (Centennial)	Clariti 1 Day Multifocal*	somofilcon A
		Sauflon	Fresh Day Multifocal* (US)	somofilcon A
2 weeks	Toric	CooperVision	Avaira Toric (US)	enfilcon A
		J&J	Acuvue OASYS for Astigmatism *	senofilcon A
		Menicon	Premio Toric (Europe)	asomofilcon A
	Multifocal	J&J	Acuvue Oasys for Presbyopia *	senofilcon A
1 month	Toric	ALCON (formerly Ciba Vision)	Air Optix for Astigmatism	lotrafilcon B
		B+L	PureVision 2 for Astigmatism	balafilcon A
		B+L	PureVision Toric	balafilcon A
		CooperVision	Biofinity Toric	comfilcon A
		CooperVision	Encore 100 Toric * (Canada)	enfilcon A
	Multifocal	Sauflon (Centennial)	Clariti toric*	somofilcon A
		ALCON (formerly Ciba Vision)	Air Optix Aqua Multifocal	lotrafilcon B
		B+L	PureVision MultiFocal	balafilcon A
		B+L	PureVision 2 for Presbyopia	balafilcon A
		CooperVision	Biofinity Multifocal	comfilcon A
		Sauflon (Centennial)	Clariti multifocal*	filcon II 3

* UV blocker

data provided by companies

Diam	BC	H ₂ O %	Dk	Dk/t	Modulus	Surface treatment
14.3	8.6	56	N/A	57	0.5	AquaGen
14.3	8.6	56	N/A	57	0.5	AquaGen
14.1	8.6	56	N/A	86	0.5	AquaGen
14.1	8.6	56	N/A	86	0.5	AquaGen
14.5	8.5	46	100	91	0.5	aquaform. PEG
14.5	8.6	38	103	129	0.69	none - internal wetting agent (PVP)
14.0	8.6	40	129	172	0.9	nanogloss
14.3	8.4	38	103	147	0.69	none - internal wetting agent (PVP)
14.5	8.7	33	110	108	1.0	plasma treatment
14.5	8.9	36	91	91	1.1	plasma oxidation
14.0	8.7	36	91	91	1.1	plasma oxidation
14.5	8.7	48	128	116	0.75	aquaform
14.5	8.5	46	100	91	0.5	aquaform
14.4	8.7	56	N/A	57	0.5	AquaGen
14.2	8.6	33	110	138	1.0	plasma treatment
14.0	8.6	36	91	101	1.1	plasma oxidation
14.0	8.6	36	91	130	1.1	plasma oxidation
14.0	8.6	48	128	142	0.75	aquaform
14.2	8.7	55	N/A	86	0.5	AquaGen

Dk/t values for -3.00 D

Daily disposables: Sphere

	Company	Lens name	material	FDA
Spherical	ALCON (formerly Ciba Vision)	DAILIES AquaComfort Plus	nelfikon A	2
	ALCON (formerly Ciba Vision)	Focus DAILIES	nelfikon A	2
	ALCON (formerly Ciba Vision)	Freshlook One-Day	nelfikon A	2
	ALCON (formerly Ciba Vision)	DAILIES Total 1	delefilcon A	5
	B+L	Biotrue ONEDay*	nesofilcon A	2
	B+L	SoftLens daily disposable	hilafilecon B	2
	Centennial	Bioclear 1 Day * (Canada)	filcon IV 1	4
	Centennial	Clariti 1 Day * (Canada)	filcon II 3	5
	Centennial	Definition AC Everyday (Canada)	methafilcon A	4
	CooperVision	Biomedics 1-Day *	ocufilcon B	4
	CooperVision	Proclear 1-Day	omafilcon A	2
	CooperVision	ClearSight 1 Day* (US)	ocufilcon B	4
	J&J	1-Day Acuvue *	etafilcon A	4
	J&J	1-Day Acuvue Moist *	etafilcon A	4
	J&J	1-Day Acuvue TruEye *	narafilcon A	5
	LOGIC	Logic 1 Day* (Canada)	wetfilcon A	
	LOGIC	Logic 1 Day Colours (Canada)	wetfilcon A	
	Menicon	Miru 1-Day	hioxifilcon A	2
	Sauflon	Fresh Day* (US)	somofilcon A	5

* UV blocker

data provided by companies

Diam	BC	H ₂ O %	Dk/t	Specifics
14.0	8.7	69	26	Triple action moisture (AquaRelease™)
13.8	8.6	69	26	AquaRelease™
13.8	8.6	69	26	blue/gray/green/pure hazel
14.1	8.5	33-80	156	Water gradient SiHy
14.2	8.6	78	42	Aspheric, HD optics
14.2	8.6	59	24	Aspheric, HD optics
14.1	8.6	56	30	Advanced edge technology + AquaAtract
14.1	8.6	56	86	Advanced edge technology, aspheric
14.2	8.6	55	30	Aspheric
14.2	8.7	52	24	
14.2	8.7	60	37	Aspheric front surface
12.0-15.0	8.0-9.2	52	17	
14.2	8.5/9.0	58	26	Inversion 1-2-3
14.2	8.5/9.0	58	26	Inversion 1-2-3, Lacreon technology
14.2	8.5/9.0	46	118	Inversion 1-2-3 SiHy
14.0	8.6	58	38	Advanced Comfort Technology (ACT), aspheric
14.0	8.6	58	35	Advanced Comfort Technology (ACT)
14.2	8.6	57	19	Aberration control design, Flat pack technology
14.1	8.6	56	86	AquaGen

Dk/t values for -3.00 D

Daily disposables: Toric & Multifocal

	Company	Lens name	material	FDA
Toric	ALCON (formerly Ciba Vision)	Focus DAILIES Toric	nelfilcon A	2
	ALCON (formerly Ciba Vision)	DAILIES AquaComfort Plus Toric	nelfilcon A	2
	B+L	SoftLens daily disposable for Astigmatism	hilafilcon B	2
	CooperVision	Biomedics 1 Day Toric*	ocufilcon D	4
	CooperVision	ClearSight 1 Day Toric* (US)	ocufilcon D	4
	J&J	1-Day Acuvue Moist for Astigmatism *	etafilcon A	4
	Sauflon	Clariti 1 Day Toric* (US)	filcon II 3	5
	Sauflon	Fresh Day for Astigmatism* (US)	somafilcon A	5
Multifocals	ALCON (formerly Ciba Vision)	Focus DAILIES Progressives	nelfilcon A	2
	ALCON (formerly Ciba Vision)	DAILIES AquaComfort Plus Multifocal	nelfilcon A	2
	B+L	Biotrue ONEday for Presbyopia*	nesofilcon A	2
	CooperVision	Proclear 1 Day Multifocal	omafilcon A	2
	Sauflon (Centennial)	Clariti 1 Day Multifocal* (Canada, UK)	somafilcon A	5
	Sauflon	Fresh Day Multifocal* (US)	somofilcon A	5

* UV blocker

data provided by companies

Diam	BC	H ₂ O %	Dk/t	Specifics
14.2	8.6	69	26	AquaRelease™, double thin zone, cyl 0.75/1.50
14.4	8.8	69	26	Triple action moisture (AquaRelease™)
14.2	8.6	59	18	Aspheric, HD optics, cyl 0.75/1.25/1.75
14.5	8.7	55	18	cyl 0.75/1.25/1.75
14.5	8.7	55	20	cyl 0.75/1.25/1.75
14.5	8.5	58	31	Blink stabilized design, Lacreon technology
14.1	8.6	56	86	SiHy
14.3	8.6	56	57	SiHy, AquaGen
13.8	8.6	69	26	AquaRelease™, center-near aspheric
14.0	8.7	69	26	Triple action moisture (AquaRelease™)
14.2	8.6	78	42	Aspheric, HD optics, Hypergel
14.2	8.7	60	37	Pc technology, aspheric optics
14.1	8.6	56	86	Center near design
14.1	8.6	56	86	AquaGen

Dk/t values for -3.00 D

Soft Multifocals

		Company	Lens name	material
1-Day	Spherical	ALCON (formerly Ciba Vision)	Focus DAILIES Progressives	nelfilcon A
		ALCON (formerly Ciba Vision)	DAILIES AquaComfort Plus Multifocal	nelfilcon A
		B+L	SoftLens Multi-Focal	polymacon
		B+L	Biotrue ONEday for presbyopia	nesafilcon A
		CooperVision	Proclear 1 Day Multifocal	omafilcon A
		Sauflon (Centennial)	Clariti 1 Day Multifocal *	somafilcon A
		Sauflon (Centennial)	Fresh Day Multifocal* (US)	somafilcon A
2-4 weeks	Spherical	CooperVision	Biomedics/Proclear EP	omafilcon A
		J&J	Acuvue Oasys for Presbyopia*	senofilcon A
1 month	Spherical	ALCON (formerly Ciba Vision)	Air Optix Aqua Multifocal	lotrafilcon B
		B+L	PureVision Multi-Focal	balafilcon A
		B+L	PureVision 2 for Presbyopia	balafilcon A
		Blanchard (Canada)	Multi X	benzG 3X
		CooperVision	Biofinity Multifocal	comfilcon A
		CooperVision	Proclear Multifocal	omafilcon A
		CooperVision	Proclear Multifocal XR	omafilcon A
		Sauflon (Centennial)	Clariti multifocal*	filcon II 3
	Toric	CooperVision	Proclear Multifocal Toric	omafilcon A

* UV blocker

Data provided by companies

Diam	BC	Add	Type
13.8	8.6	prog add to +3.00	center-near aspheric, AquaRelease
14.0	8.7	add: low, med, high	
14.5	8.5/8.8	low: <+1.50, high: +1.75-2.50	center-near design, front surface aspheric
14.2	8.6		Aspheric, HD optics, Hypergel
14.2	8.7	add: +1.00 to +2.50	Aspheric, center near
14.1	8.6	low: <+2.25, high: +2.25-3.00	center near design, aspheric back surface
14.1	8.6	low: <+2.25, high: +2.25-3.00	center near design
14.4	8.7	add: +1.25	center distance, aspheric intermediate and near
14.3	8.4	add: low, med, high	center distance, with zonal aspheric stereo precision
14.2	8.6	add: low, med, high	
14.0	8.6	low: +1.50, high +1.75 to +2.50	center near aspheric optics
14.0	8.6	low: +0.75-1.50, high: +1.75-2.50	center near aspheric optics
14.5	8.8/9.1	add: up to +2.25	S-form progression profile
14.0	8.6	add: +1.00 to +2.50	D and N lens
14.4	8.7	add: +1.00 to +2.50	D and N lens
14.4	8.4/8.7	add: +1.00 to +4.00	D and N lens
14.2	8.7	low: <+2.25, high: +2.25-3.00	center near design, aspheric back surface
14.4	8.4/8.8	add: +1.00 to +4.00	D and N lens, cyl up to 5.75

Soft Contact Lens Care

Multi Purpose Solution

Trade Name	Manufacturer	Disinfectant/ Preservative
Biotrue	B+L	PHMB 0.00013%, Polyquaternium 0.0001%
Complete Easy Rub Formula	AMO	PHMB 0.0001%
OPTIFREE Express	ALCON	Polyquad 0.001%, Aldox 0.0005%
OPTIFREE PureMoist	ALCON	Polyquad 0.001%, Aldox 0.0006%
OPTIFREE RepleniSH	ALCON	Polyquad 0.001%, Aldox 0.0005%
renu fresh	B+L	PHMB 0.0001%
renu sensitive	B+L	PHMB 0.00005%
RevitaLens OcuTec	AMO	Polyquaternium-1 0.0003%, Alexidine 0.00016%
Sauflon All in One Lite	Sauflon	Polyhexanide 0.0001%
SoloCare Aqua (Canada)	Menicon	Polyhexanide 0.0001%, ED 0.025%

PHMB: polyhexamethylene biguanide

Peroxide

Trade Name	Manufacturer	Disinfectant/ Preservative
AOSep+ Plus* (Canada)	ALCON	3% H ₂ O ₂
Clear Care*	ALCON	3% H ₂ O ₂
Oxysept UltraCare	AMO	3% H ₂ O ₂
One Step (US)	Sauflon	3% H ₂ O ₂
Ocusoft Lens Care System	Ocusoft	3% H ₂ O ₂
PeroxiClear*	B+L	3% H ₂ O ₂

* compatible with GP lenses

Wetting agent	Buffer	Other
Hyaluronan, poloxamine	Sodium borate/Boric acid	EDTA, pH 7.5
Poloxamer 237	Phosphate	EDTA
Tetronic 1304	Sodium Citrate	EDTA (chelating agent)
HydraGlyde, Tetronic 1304	Boric acid	EDTA (chelating agent)
TearGlyde	Sodium Borate	Designed for SiHy lenses
Poloxamine (surfactant)	Sodium borate/Boric acid	EDTA, HYDRANATE (chelating agent)
Poloxamine (surfactant)	Sodium borate/Boric acid	EDTA
Tetronic 904 (surfactant)	Sodium borate decahydrate/ Boric acid	EDTA (chelating agent)
poloxamer	Sodium phosphate	EDTA (chelating agent)
Dexpanthenol, Poloxamer 407	Tromethamine phosphate, Sodium dihydrogen phosphate	NaCl, disodium hydrogen phosphate

Wetting agent	Buffer	Other
	Phosphate	Platinum disk
	Phosphate	Platinum disk, pluronic 17R4
	Phosphate	Neutralizing tablet (catalase, hydroxypropyl methylcellulose, cyanocobalamin)
Poloxamer	Phosphate	Platinum disk
	Phosphate	Platinum disk
Poloxamer 181	Phosphonic acid	Platinum disk, triple-moist technology (PG, carbamide, poloxamer 181)

Gas Permeable Lens Design

Bennett Method

Gas Permeable Base Curve Selection (Minus Lenses)

Corneal Cylinder	Base Curve
plano - 0.50D	0.50 - 0.75D Flat
0.75 - 1.00D	0.25 - 0.50D Flat
1.25 - 1.50D	On K - 0.25 Flat
1.75 - 2.00D	0.25D Steep
2.25 - 2.50D	0.50D Steep
2.75 - 3.00D	0.50 - 0.75D Steep

For plus lenses fit 0.25-0.50D steeper than those recommended for minus lenses.

Tetracurve Design	Tricurve Design
> 8.8mm OAD	< 8.8mm OAD
SCR = BCR + 0.8mm/0.3mm	SCR = BCR + 1.0mm/0.3mm
ICR = SCR + 1.0mm/0.2mm	PCR = SCR + 2.0mm/0.3mm
PCR = ICR + 1.4mm/0.2mm	

Both should be blended medium ideally

OAD of 8.4-8.8 for >45.50D K reading and decrease OZD

OAD of 9.4-9.6 for <41.50D K reading and increase OZD

Adjustments of Base Curve and Power

0.25 D change in Power for each BC change of 0.05mm

SAM (Steeper Add Minus) or FAP (Flatter Add Plus)

Flatten BC 0.25D (0.05mm) for each increase in OAD & OZ of 0.5mm

Steeper BC 0.25D (0.05mm) for each decrease in OAD & OZ of 0.5mm

Gas Permeable Lens Design

Mid K Method

OAD	8.5mm	9.0mm	9.5mm
BC	avg K	avg K - 0.50D	avg K - 1.00D
OZ	7.3mm	7.8mm	8.3mm
ICR/W	BC +1.0mm/0.2	BC +1.0mm/0.2	BC +1.0mm/0.2
PCR/W	BC + 3.0 to 5.0mm/0.4	BC + 3.0 to 5.0mm/0.4	BC + 3.0 to 5.0mm/0.4
	10.50/0.4	11.25/0.4	12.25/0.4

K > 45.50 use smaller OAD

K < 41.50 use larger OAD

GP Center Thickness Estimation (non-ultrathin designs)

Power	20 to 49 Dk	50+ Dk
-1.00	0.18	0.19
-2.00	0.16	0.18
-3.00	0.14	0.16
-4.00	0.14	0.15
-5.00	0.13	0.14
>-6.00	0.13	0.14

Rules of Thumb

Increase center thickness 0.02mm for high Dk materials

Increase center thickness 0.02mm for each diopter of corneal astigmatism

Plus lenticular for >5.00 and minus lenticular for -1.50 into plus powers, CN bevel for -4.00 to -6.00

GP Material Guide

Name	Type	DK	W.A.	R.I.	S.G.
Alberta Lens S*	SA	66	8.6	1.475	1.13
Alberta Lens SM-2*	SA	45	9.0	1.48	1.12
Accucon	FSA	25	<25	1.46	1.16
Boston II	SA	12	20	1.47	1.13
Boston IV	SA	19	17	1.47	1.10
Boston EO*	FSA	58	49	1.43	1.23
Boston Equalens*	FSA	47	30	1.44	1.19
Boston Equalens II*	FSA	85	30	1.42	1.24
Boston ES*	FSA	18	52	1.44	1.22
Boston XO*	FSA	100	49	1.42	1.27
Boston XO2*	FSA	141	38	1.42	1.19
FloSi*	FSA	26	23.5	1.46	1.12
Fluorex 300	FSA	30	12.6	1.47	1.11
Fluorex 500	FSA	50	13.3	1.46	1.11
Fluorex 700	FSA	70	15.3	1.46	1.10
Fluorperm 30	FSA	30	12.8	1.47	1.14
Fluorperm 60	FSA	60	14.7	1.45	1.15
Fluorperm 92	FSA	92	16	1.45	1.10
Fluorperm 151	FSA	151	42	1.42	1.10
Hybrid FS	FSA	31	0	1.45	1.18
Hydro2	FSA	50	<5	1.46	1.15
Menicon Z*	FSA	>163	24	1.44	1.20
ONSI-56*	FSA	56	7.2	1.45	1.21
OP-2	FSA	15.9	17	1.47	1.12
OP-3	FSA	30	21	1.46	1.12
OP-6	FSA	60	26	1.45	1.11
OP-10	FSA	97	23	N/A	1.13
O-Perm F30	SA	31	<25	1.47	1.09
O-Perm F60	FSA	62	19.2	1.45	1.13
Optacryl 60	SA	18	25	1.47	1.13

Name	Type	DK	W.A.	R.I.	S.G.
Optimum Classic*	FSA	26	12	1.45	1.19
Optimum Comfort*	FSA	65	6	1.44	1.17
Optimum Extra*	FSA	100	3	1.43	1.16
Optimum Extreme*	FSA	125	6	1.43	1.15
Optimum HR 1.51*	FSA	50	33	1.51	1.04
Optimum HR 1.53	FSA	26	42	1.53	1.04
Paragon HDS*	FSA	58	14.7	1.45	1.16
Paragon HDS HI*	FSA	22	44	1.54	1.12
Paragon HDS 100*	FSA	100	42	1.44	1.10
Paragon Thin*	FSA	29	12.8	1.46	1.14
Paraperm EW	SA	56	26	1.47	1.07
Paraperm O2	SA	16	23	1.47	1.12
SA 18*	SA	18	<25	1.49	1.13
SA 32*	SA	32	<25	1.47	1.10
SGP I	SA	22	<30	1.48	1.13
SGP II	SA	44	<30	1.47	1.13
SGP 3	FSA	44	<20	1.48	1.13
Sport-Sight (30)	FSA	30	12.0	1.47	1.14
Tyro 97*	FSA	97	23	1.44	1.19
PMMA	XXX	0	18	1.49	1.20

SA = Silicone Acrylate
 FSA = Fluorosilicone Acrylate
 N/A = Not Available
 * = UV Blocker

W.A. = Wetting Angle
 R.I. = Refractive Index
 S.G. = Specific Gravity

Specialty: Large Diameter

Trade Name	Manufacturers	Diameter (mm)
Atlantis	X-Cel	15-16.5
AVT Scleral	Advanced Vision Technologies	16.1-17.1
Comfort SL	Accu Lens, Inc	16.2
Custom Stable	Valley Contax	14.8, 15.8, 16.8, 17.8
Custom Stable Elite	Valley Contax	14.8-16.8
Custom Stable NEAR	Valley Contax	14.8-16.8
Digiform 15 (RK1, K1, N1, G1, L1)	Tru-Form Optics, Inc.	15 (Custom avail.)
Digiform 18	Tru-Form Optics, Inc.	18.0 (Custom avail.)
Dyna Semi-Scleral	Lens Dynamics, Inc.	13.5, 14.0, 14.5, 15.0, 15.5, 16.0
Europa	Visionary-Optics	16, 18 and 20
Perimeter	Essilor Contact Lens, ABBA Optical Inc.	14.0-14.8
ICD 16.5	ABB Optical Group, Valley Contax	16.5
iSight	GP Specialists	14.2-24
Jupiter Scleral	Essilor Contact Lens, ABBA Optical Inc., Visionary-Optics	15.0 - 20.2
Jupiter + Scleral	Essilor Contact Lens	15.0 - 20.2
Maxim	Accu Lens, Inc	Many Different
Mini-Scleral	ABB Optical Group	only to 12.5
MSD	Blanchard Contact Lens	15.8 and 18.0
NormalEyes 15.5	Paragon	15.5
One Fit Cone	Blanchard	13.8-14.9, 14.3 Standard
One Fit P+A	Blanchard	13.8, 14.3, 14.6 (Standard), 14.9
Puresite Semi-scleral	Deiversified Ophthalmics, Inc.	14.0-16.0
Rose K2 XL	ABB Optical Group, Art Optical, Blanchard, Valley Contax, X-Cel	13.6-15.6 (14.6 standard)
Semi-Scleral	ABBA Optical Inc.	13.5
SoClear	Art Optical	13.0-15.0
TruScleral	Tru-Form Optics, Inc.	18.0
ZenLens	Alden	16 and 17

Base Curve/SAG	Specifics
6.5-9.0	Boston XO and XO2
Many	Contamac materials
Many	Designed for normal conrears
Any BC/SAG	Boston XO and XO2, front cylinder toric, laser markings standard
Toric PC and/or Front Toric	Boston XO, and XO2, toric landing zone of delta 100-400 um laser markings standard
Any BC/SAG with Center Near	Boston XO and XO2, stable multifocal, near zone laser markings standard
Any	Bitoric, bifocal availability, quadrant specific available, Laser Markings available
Any	Bitoric, bifocal availability, quadrant specific available, Laser Markings available
5.5 to 8.5 (in .05 steps)	Quad Sym if needed
Any	Front Toric/Back Toric/Lens Notching/Complete Parameter customization
7.0-7.8 (OZ)	Boston XO2 Risk free lenses fit from trial set and customized for each patient
Based on Sagittal Depth	Fitting set available / online information available.
5.50-9.50	Multifocal available
With/ Without reverse geometry	Fit from trial set and customized for each patient
With/ Without reverse geometry	Fit from trial set and customized for each patient-up to +1.75
Many	Custom made
Any BC	
360-580 microns	Midperipheral zone (decrease, standard, increase, double increase)Available in front toric
5.8-10.5	HDS 100, Available in 72 or 21 lens sets
5.90, 6.10, 6.30 to 7.4 (in 0.10 inc.)	Tyro97, Boston XO/ XO2
6.70 - 8.50 mm (in 0.10 inc.)	Front toric and multifocal (Fixed +2.25 add)
5.50-7.90 (.20 steps)	13 lens fitting set
5.80-8.40	16 lens fitting set
Any BC	Loaner sets available
Any BC (9.5-5.83)	Fitting set strongly recommended - multiple fitting options - presbyopic available
Any	Radial Venting
3500 to 6700 microns	Edge profiles from steep 3 to Flat 3

Specialty: Kone

Trade Name	Lens Material	Diameter	Base Curve
ABBA-Kone	Any	Made to order	Made to order
AccuKone	Any	8.4/ 9.0	Made to order
ACL Kera	Any	Made to order	Made to order
Art Keratoconic System	Any	Made to order	Made to order
AO Kone	Any	8.0-10.6	5.0-8.0
Apex	Boston XO	7.9-10.3	4.96-8.44
APK	Any	Made to order	Made to order
Aspheric Cone	Any	Made to order	Made to order
Aspherix K	All Boston materials and Aquasil	Made to order	Made to order
B-cone	Any	6.0-10.8	4.5-12.0
Boston Envision	Boston ES, EO, XO, XO2	9.3-10.3	7.00-8.30
Burger	Any	Made to order	Made to order
C5	Any	Made to order	Made to order
Cak	Any	Made to order	Made to order
CarterKone	Any	Made to order	Made to order
C-Cone	Any	6.0-10.8	4.85-9.8
CentroCone	Any	9.0 (standard) 8.6 / 8.2	5.3 - 7.6
CentroCone Bi-Symmetry	Any	9.0 (standard) 8.6 / 8.2	5.3 - 7.6
Centra PGA - Cone	Any	8.2 - 10.5	4.0 - 8.0
C Kone	Any	Made to order	Made to order
CLCK	Any	Made to order	Made to order
Clear Kone	Hybrid	14.5	Made to order (Vault 100-600)
Comfort Kone	Any	7.8 - 9.5	Made to order
Con-Cise	Any	Made to order	Made to order
Conforma-K	Any	8.5-9.5	5.0 - 6.9

Trade Name	Lens Material	Diameter	Base Curve
Conoid	Any	8.2 - 10.4	4.0 - 8.0
CVC	Any	Made to order	Made to order
Dyna Cone Plus	Any	8.0 - 9.9	4.5 - 9.5
Dyna Intra-Limbal	Any	10.0-12.2 (Standard 11.2)	5.6-10.25
Dyna Z Cone +	Any	Made to order	Made to order
E Kone	Any	Made to order	Made to order
ESC-K	Any	8.5-9.5	5.0 - 6.9
G.B.L.	Any	11.2 (Standard) / Custom	6.49-9.38
GL-Cone	Any	Made to order	Made to order
Horizon Kone	Boston ES, EO, XO	7.5-9.5 (0.5 steps)	4.5-8.4
HydroKone	Hioxifilcon A/ Methafilcon A	12.0 - 17.0	4.1 - 9.3
IKone	Boston XO	8.8, 9.6, 10.4	Made to order
KBA	Optimum	6.0-10.8	3.5-11.0
KeraSoft 2	Hioxifilcon	14.0, 14.5, 15.0	8.0, 8.2, 8.4, 8.6
KeraSoft 3	Silicone hydrogel	14.0, 14.5, 15.0	8.0, 8.2, 8.4, 8.6
KeraSoft IC	Silicone hydrogel	14.0 - 15.5	7.4 - 9.4
K-Max	Onsi 56	11.5, 12.0, 12.5	Made to order
Kone	Any	Made to order	Made to order
Ksphere	Any	Made to order	Made to order
K Vault	Any	11.0	Made to order
McGuire Cone	Any	Made to order	Made to order
Ni-cone	Any	Made to order	Made to order
NovaKone	Hioxifilcon D	15.0 (standard) / Made to order	Made to order
One Fit keratoconus	Tyro97, Boston XO/ XO2	13.8/ 14.3/ 14.6	6.9 - 8.5

Specialty: Kone

Trade Name	Lens Material	Diameter	Base Curve
Opal Cone	Any	9.0 - 10.5	5.0 - 11.0
Pro-ECC	Any	Made to order	Made to order
QuadraKone	Any	Made to order	Made to order
Rose K	Any	Made to order	Made to order
Rose K2	Any	Made to order	Made to order
Rose K2 IC	Any	Made to order	Made to order
Rose K2 NC	Any	Made to order	Made to order
Rose K2 PG	Any	Made to order	Made to order
S-cone	Any	7.0-11.0	5.4-10.6
SK 2000	Any	Made to order	Made to order
SoClear Asphere Cone	Boston XO, XO2, Optimum Extra, HDS 100	13.0-15.0	5.85-9.00
Saper Cone	Any	Made to order	Made to order
SPH-K	Any	8.5 - 10.0	5.0 - 8.0
Super Cone	Any	Made to order	Made to order
SynergEyes KC	Hybrid	14.5	5.7 - 7.10
System 10	Any	5.65 - 10.25	4.82 - 7.34
Tru-Kone	Boston materials	7.5-10.3	4.8-8.2
Tru-PMD	Boston materials	Made to order	Made to order
Ultima-K	Any	Made to order	Made to order
Ultrahealth	Hybrid	14.5	Made to order (Vault 50 - 550)
VKone	Any	Made to order	Made to order
Verage	Any	8.7	Made to order
VIP Cone	Any	Made to order	Made to order
X Kone	Any	Made to order	Made to order

Specialty: Ortho-K

Trade Name	Lens Material	Diameter	Base curve
BE Retainer	Boston Equalens II	Made to order	Made to order
CKR	Boston Equalens II	Made to order	Made to order
Dreamlens	Boston XO, XO2, Equalens II	Made to order	Made to order
Emerald	Boston XO, Equalens II	9.8 - 10.6 mm	Made to order
Jade	Boston XO, Equalens II	9.8 - 11.4 mm	Made to order
MiraLens	Boston Equalens II	Made to order	Made to order
NightMove	Boston equalens II	Made to order	Made to Order
OK Series	Boston XO	8.0 - 12.2 mm	Made to order
Orthofocus	Boston XO, Equalens II	Made to order	Made to order
Ortho Tool	Paragon HDS 100	7.0 - 12.0 (0.5 mm steps)	6.5 - 10.5 mm
Paragon CRT Dual Axis	Paragon HDS , HDS 100	10.5 mm & 11.0 mm	Made to order (0.1mm steps)
Paragon CRT RG4	Paragon HDS 100	10.0-12.0 (0.5mm steps)	Made to order (0.1mm steps)
Paragon CRT Standard	Paragon HDS , HDS 100, Menicon Z	10.0-12.0 (0.5mm steps)	Made to order (0.1mm steps)
Super Bridge/E-Lens	Boston Equalens II	Made to order	Made to order
Vipak	Boston Equalens II	Made to order	Made to order
Wave	Boston Equalens II	Made to order	Made to order

Specialty: Hybrid

Trade Name	Lens Materials	Diameter	Base Curve
Duette HD/Prog/MF	Petrafocon A (center) / Hem-larafilcon A (skirt)	14.5 mm	7.1 to 8.3 (in .2mm steps)
UltraHealth	Petrafocon A (center) / Hem-larafilcon A (skirt)	14.5 mm	Vaults: 50-550 (in 50 μ steps)
ClearKone	Paflufocon D (center) / Hem-iberfilcon A (skirt)	14.5 mm	Vaults: 50-700 (in 50 μ steps)
SynergEyes A	Paflufocon D (center) / Hem-iberfilcon A (skirt)	14.5 mm	7.0 to 8.2 (in .1mm steps)
SynergEyes KC	Paflufocon D (center) / Hem-iberfilcon A (skirt)	14.5 mm	5.3 to 7.1 (in .2mm steps)
SynergEyes Multifocal	Paflufocon D (center) / Hem-iberfilcon A (skirt)	14.5 mm	7.0 to 8.2 (in .1mm steps)
SynergEyes PS	Paflufocon D (center) / Hem-iberfilcon A (skirt)	14.5 mm	7.2 to 9.0 (in .2mm steps)

Gas Permeable CL care (soaking and disinfection)

Trade Name	Manufacturer	Preservative	Wetting agent / Other
Boston Advance System	B+L	DYMED, Chlorhexidine gluconate, ED	Cleaner: alkyl ether sulfate, ethoxylated alkyl phenol, tri-quaternary cocoa based phospholipid, silica gel, titanium dioxide Conditioner: PVA, PEG
Boston Simplus	B+L	DYMED, Chlorhexidine gluconate	HPMC, poloxamine, hydroxyalkylphosphonate, boric acid, sodium borate, glucam
Menicare GP (USA)	Menicon	Benzyl alcohol 0.3%, ED 0.5%	Lauryl Sulfate Salt of imidazoline octylphenoxypolyethoxyethanol
Optimum GP System	Contamac US	Benzyl alcohol, BAC	Sodium bisulfite
Unique pH (USA)	Menicon	Polyquad 0.0011%, ED 0.01%	HP Guar, Boric acid, Tetronic 1304, Poloxamine, PG, PEG

DYMED: Polyaminopropyl Biguanide
ED: Edetate disodium
HPMC: Hydroxypropylmethyl cellulose

PEG: Polyethylene glycol
PG: Propylene glycol
PVA: Polyvinyl alcohol

Useful Contact Lens websites

Companies

- www.abbconicse.com
- www.abbott.com
- www.aculens.com
- www.acuvueprofessional.com
- www.alcon.com
- www.allergan.com
- www.artoptical.com
- www.bausch.com
- www.blanchardlab.com
- www.contamac.com
- www.coopervision.com
- www.essilorcontacts.com
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- www.valleycontax.com
- www.visionary-optics.com
- www.walman.com

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- www.aaopt.org (AAO)
- www.aocle.org (AOCLC)
- www.bcla.org.uk (BCLA)
- www.brienholdenvision.org (IER grading scales)
- www.claa.org (CLAO)
- www.clsa.info (CLSA)
- www.gpli.info (GPLI)
- www.iacle.org (IACLE)
- www.sclerollens.org
- www.sjogrens.org
- www.tearfilm.org (TFOS)

Patient info

- www.aaa.org/contact-lenses.xml
(AOA consumer page)
- www.aaa.org/dry-eye.xml (Dry Eye)
- www.contactlenses.org
- www.contactlensesafety.org
- www.fda.gov/medicaldevices/productsandmedicalprocedures/homehealthandconsumer/consumerproducts/contactlenses/default.htm (Contact Lenses)
- www.mayoclinic.com/health/dry-eyes/ds00463
(Dry Eye)
- www.mycontactlenses.org
- www.nei.nih.gov/health/dryeye/index.asp (Dry Eye)
- www.nkcf.org (Keratoconus)

Publications

- <http://eyetubeod.com/> (Advanced Ocular Care)
- <http://journals.lww.com/corneajnl/> (Cornea)
- www.claajournal.org (Eye & CL)
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- www.optivisci.com (OVS)

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- www.eyedock.com
- www.adspecs.com
- www.opted.org (ASCO residency website)
- www.staininggrid.com
- www.tearfilm.org/dewsreport (DEWS report)
- www.tearfilm.org/mgdworkshop (MGD report)
- www.tearfilm.org/tfos_cld_report.php
(CL Discomfort report)

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