

Optical Glass Grade Cross-Reference

CDGM · SCHOTT · HOYA · OHARA · HIKARI — matched by nd/vd. For substitution assessment only; final material per customer drawing with written confirmation. © HSD Optical, Nanjing, China

Crown (K / QK)

nd/vd	CDGM	SCHOTT	HOYA	OHARA	HIKARI	■■	■■	■■■FA
1.47047/66.83	H-QK1	N-FK1	E-FC1	S-FSL1	—	■	2.3	—
1.48746/70.04	H-QK3	N-FK5	E-FC5	S-FSL5	E-FK5	■	2.43	110
1.50047/66.02	K2	BK4	BSC4	BSL4	—	—	2.39	—
1.50802/61.05	K4	ZKN7	ZNC7	ZSL7	ZK7	—	2.43	—
1.51007/63.36	H-K5	N-BK1	E-BSC1	S-BSL1	E-BK1	■	2.47	—
1.51112/60.46	H-K6	K7	C7	NSL7	E-K7	■	2.53	—
1.51602/56.79	K8	—	C2	NSL2	K2	—	2.62	—
1.51680/64.20	H-K9L	N-BK7	E-BSC7	S-BS7	E-BK7	■	2.51	100
1.51742/52.15	KF6	KF6	CF6	NSL36	KF6	—	—	—
1.51749/52.15	H-KF6	N-KF6	E-CF6	S-NSL36	E-KF6	■	2.44	—
1.51818/58.95	K10	K3	C3	NSL3	K3	—	2.58	—
1.51818/58.95	H-K10	N-K3	E-C3	S-NSL3	E-K3	■	2.53	160
1.52307/58.64	H-K51	B270	E-C12	S-NSL51	—	■	2.54	—
1.53359/55.47	K12	ZK5	ZNC5	ZSL5	ZK5	■	2.76	—

Dense Crown (ZK)

nd/vd	CDGM	SCHOTT	HOYA	OHARA	HIKARI	■■	■■	■■■FA
1.56888/62.93	H-ZK1	N-PSK2	E-PCD2	S-BAL22	E-PSK2	■	3.06	—
1.58313/59.46	H-ZK2	N-SK12	E-BACD12	S-BAL42	E-SK12	■	3.26	120
1.58913/61.25	H-ZK3	N-SK5	E-BACD5	S-BAL35	E-SK5	■	3.27	100
1.60311/60.60	H-ZK14	N-SK14	E-BACD14	S-BSM14	E-SK14	■	3.42	—
1.60729/59.46	ZK15	SK7	BACD7	BSM7	SK7	—	3.51	—
1.60738/56.65	H-ZK50	N-SK2	E-BACD2	S-BSM2	E-SK2	■	3.54	130
1.60881/58.86	H-ZK4	N-SK3	E-BACD3	S-BSM3	E-SK3	■	3.52	—
1.61117/55.77	ZK5	SK8	BACD8	BSM8	—	—	3.54	—
1.61272/58.58	H-ZK6	N-SK4	E-BACD4	S-BSM4	E-SK4	■	3.58	140
1.61309/60.58	H-ZK7	—	—	—	—	■	3.49	—
1.61375/56.40	ZK19	SK6	BACD6	BSM6	SK6	—	3.6	—
1.61405/55.12	H-ZK8	N-SK9	E-BACD9	S-BMS9	E-SK9	■	3.53	—
1.61720/53.91	ZK20	SSK1	BACED1	BSM21	SSK1	—	3.63	—
1.62041/60.34	H-ZK9	N-SK16	E-BACD16	S-BSM16	E-SK16	■	3.52	130
1.62210/56.71	ZK10	SK10	BACD10	BSM10	SK10	—	3.65	140
1.62230/56.91	H-ZK10L	N-SK10	E-BACD10	S-BSM10	E-SK10	■	—	150

nd/vd	CDGM	SCHOTT	HOYA	OHARA	HIKARI	■■	■■	■■■FA
1.62299/58.12	H-ZK21	N-SK15	E-BACD15	S-BSM15	E-SK15	■	3.56	130
1.63854/55.45	ZK11	SK18	BACD18	PSM18	SK18	—	3.66	130

Barium Crown (BAK)

nd/vd	CDGM	SCHOTT	HOYA	OHARA	HIKARI	■■	■■	■■■FA
1.53996/59.72	H-BAK2	N-BAK2	E-BAC2	S-BAL12	E-BAK2	■	2.84	—
1.54678/62.78	H-BAK3	—	—	S-BAL21	E-PSK1	■	2.84	—
1.56388/60.76	H-BAK6	N-SK11	BACD11	S-BAL41	E-SK11	■	3.05	120
1.56883/56.04	H-BAK7	N-BAK4	E-BACD4	S-BAL14	E-BAK4	■	2.82	95
1.57250/57.49	H-BAK8	N-BAK1	E-BACD1	S-BAL11	E-BAK1	■	3.13	—

Lanthanum Crown (LAK)

nd/vd	CDGM	SCHOTT	HOYA	OHARA	HIKARI	■■	■■	■■■FA
1.64050/60.10	LAK4	LAK21	LACL6	BSM81	LAK01	—	3.71	90
1.64050/60.10	H-LAK4	N-LAK21	E-LACL60	S-BSM81	E-LAK01	—	—	90
1.65113/55.89	LAK10	LAKN22	LACL2	LAL54	LAK04	■	3.81	150
1.65113/55.89	H-LAK10	N-LAKN22	—	—	—	■	—	—
1.65160/58.40	H-LAK50	N-LAKN7	E-LAC7	S-LAL7	E-LAK7	■	3.62	150
1.67790/55.52	H-LAK5	N-LAKN12	E-LAC12	E-LAL12	E-LAK12	■	4.08	150
1.69211/54.54	LAK2	LAK9	LAC9	LAL9	LAK9	—	3.68	—
1.69211/54.54	H-LAK2	H-LAK9	E-LAC9	S-LAK9	E-LAK9	■	—	70
1.69350/53.38	H-LAK6	N-LAKN13	E-LAC13	S-LAL13	E-LAK13	■	4.29	70
1.69680/55.46	H-LAK12	N-LAK24	—	S-LAL64	—	■	3.7	—
1.69680/55.46	H-LAK51	N-LAKN14	E-LAC14	S-LAL14	E-LAK14	■	3.68	80
1.71300/53.83	H-LAK7	N-LAK8	E-LAC8	S-LAL8	E-LAK8	■	3.83	70
1.72000/50.41	H-LAK8	N-LAK10	E-LAC10	S-LAL10	E-LAK10	■	4.34	110
1.72916/54.70	H-LAK52	N-LAK34	E-TAC8	S-LAL18	E-LAK18	■	4.07	60
1.73400/51.10	H-LAK54	—	E-TAC4	S-LAL59	E-LAK09	■	—	60
1.74693/50.95	H-LAK3	—	—	—	—	■	4.08	—
1.75500/52.30	H-LAK53	N-LAK33	E-TAC6	S-YGH51	—	■	4.46	60

Lanthanum / Dense Lanthanum Flint (LAF / ZLAF)

nd/vd	CDGM	SCHOTT	HOYA	OHARA	HIKARI	■■	■■	■■■FA
1.70000/48.10	H-LAF51	—	—	S-LAM51	—	■	—	—
1.71700/47.89	LAF2	LAF3	LAF3	LAM3	LAF3	—	4.36	180
1.74330/49.20	H-LAF53	—	E-NBF1	S-LAM60	S-LAF010	■	4.17	70
1.74400/44.91	LAF3	LAFN2	LAF2	LAM2	LAF2	—	4.55	160
1.74400/44.91	H-LAF3	N-LAFN28	E-LAF2	S-LAM2	E-LAF2	■	—	160

nd/vd	CDGM	SCHOTT	HOYA	OHARA	HIKARI	■■	■■	■■■FA
1.74950/34.99	H-LAF4	N-LAFN7	E-LAF7	S-LAM7	E-LAF7	■	3.39	130
1.75719/47.81	H-LAF6	N-LAF24	E-NBF2	S-LAM54	E-LAF04	■	4.21	80
1.77250/49.60	H-LAF50	N-LAFN28	E-TAF1	S-LAH66	E-LASF016	■	4.49	60
1.78179/37.09	LAF7	LAF22	NBFD7	LAM62	LAF22	—	4.22	—
1.78590/44.19	H-LAF52	N-LAF10	E-NBFD11	S-LAH51	E-LASF01	■	4.38	70
1.78831/47.39	H-LAF10	N-LAF21	E-TAF4	S-LAH64	E-LASF014	■	4.54	60
1.79950/42.30	H-LAF54	—	E-NBFD12	S-LAH62	E-LASF02	■	4.5	70
1.80166/44.26	H-ZLAF1	N-LASF11	E-NBFD14	—	—	■	4.43	—
1.80300/46.66	H-ZLAF2	N-LASF11	—	—	—	■	—	—
1.80400/46.58	H-ZLAF50	N-LASFN30	E-TAF3	S-LAH65	E-LASF015	■	4.78	60
1.80450/39.64	H-ZLAF51	—	E-NBFD3	S-LAH63	E-LASF013	■	4.47	80
1.80610/40.95	H-ZLAF52	N-LASF43	E-NBFD13	S-LAH53	E-LASF03	■	4.41	70
1.80610/33.27	H-ZLAF56	—	E-NBFD15	—	E-LASFH6	■	—	100
1.83400/37.17	H-ZLAF53	N-LASF40	E-NBFD10	S-LAH60	E-LASF010	■	4.54	70
1.83500/42.98	H-ZLAF55	N-LASF41	E-TAFD5	S-LAH55	E-LASF05	■	4.97	60
1.85544/36.59	H-ZLAF3	N-LASF13	E-TAFD13	—	—	■	—	—

Flint (F / ZF)

nd/vd	CDGM	SCHOTT	HOYA	OHARA	HIKARI	■■	■■	■■■FA
1.51372/48.76	H-QF6	N-LLF6	E-FEL6	S-TIL6	E-LLF6	■	—	140
1.58144/40.90	H-QF50	N-LF5	E-FL5	S-TIL25	E-LF5	■	2.58	—
1.60342/38.11	F1	F5	F5	PBM5	F5	—	3.43	130
1.61293/36.96	F2	F3	F3	PBM3	F3	—	3.5	150
1.61659/36.61	F3	F4	F4	PBM4	F4	—	3.57	—
1.62004/36.35	F4	F2	F2	PBM2	F2	—	3.58	150
1.62004/36.35	H-F4	N-F2	E-F2	S-TIM2	E-F2	■	2.67	150
1.62364/36.81	F12	F10	—	PBM10	—	—	3.62	—
1.62435/35.92	F5	—	—	PBM11	—	—	3.66	—
1.62493/35.57	F6	F7	F7	—	—	—	3.67	—
1.62588/35.70	F13	F1	F1	PBM1	F1	—	3.66	140
1.63636/35.35	F7	F6	F6	PBM6	—	—	3.73	—
1.63980/34.57	F51	SF7	FD7	PBH7	SF7	—	3.77	—
1.64769/33.84	ZF1	SF2	FD2	PBM22	SF2	—	3.84	160
1.65446/33.65	ZF8	SF9	FD9	PBM29	—	—	3.91	—
1.67270/32.71	ZF2	SF5	FD5	PBM25	SF5	—	4.08	—
1.67270/32.71	H-ZF2	N-SF5	E-FD5	S-TIH25	E-SF5	■	2.9	170
1.68893/31.18	ZF10	SF8	FD8	PBM28	SF8	—	4.22	170
1.69895/30.07	ZF11	SF15	FD15	PBM35	SF15	—	4.06	140
1.71736/29.50	ZF3	SF1	FD1	PBH1	SF1	—	4.46	170
1.72825/28.32	ZF4	SF10	F10	PBH10	SF10	—	4.51	150

nd/vd	CDGM	SCHOTT	HOYA	OHARA	HIKARI	■■	■■	■■■FA
1.72825/28.32	H-ZF4	N-SF10	E-FD10	S-TIH10	E-SF10	■	3.06	150
1.74000/28.24	ZF5	SF3	FD3	PBH3	SF3	—	4.77	—
1.74077/27.76	ZF50	SF13	FD113	PBH13	SF13	—	4.46	180
1.75520/27.53	ZF6	SF4	FD4	PBH4	SF4	—	4.78	160
1.75520/27.53	H-ZF6	N-SF4	E-FFD4	S-TIH4	E-SF4	■	3.23	160
1.76182/26.55	ZF12	SF14	FD14	PBH14	SF14	—	4.64	160
1.78470/26.08	ZF51	SF56	FDS3	PBH23	SFS3	—	4.91	190
1.78472/25.76	ZF13	SF11	FD11	PBH11	SF11	—	4.9	190
1.80518/25.46	H-ZF7L	N-SF6	FD60	S-TIH6	E-SF6	■	3.36	180
1.80627/25.37	ZF7L	SF6	FD6	PBH6	SF6	—	5.19	180
1.84666/23.83	ZF52	SF57	FDS9	PBH53	SF03	—	5.55	160
1.84666/23.83	H-ZF52	N-SF57	FDS90	S-TIH53	E-SFL03	■	3.49	160
1.92286/20.9	H-ZF62	—	FDS1	—	—	—	—	—

Barium Flint (BAF / ZBAF)

nd/vd	CDGM	SCHOTT	HOYA	OHARA	HIKARI	■■	■■	■■■FA
1.54980/53.95	BAF11	BALF5	—	BAL5	—	—	2.93	—
1.56970/49.45	BAF2	BAF2	BAF2	BAM2	BALF2	—	3.16	—
1.57960/53.87	BAF3	BALF4	BAFL4	BAL4	BALF4	—	3.2	—
1.58271/46.47	BAF4	BAF3	BAF3	BAM3	BAF3	—	3.28	—
1.60562/43.88	BAF5	BAF4	BAF4	BAM4	BAF4	—	3.5	—
1.60729/49.40	ZBAF8	BAF5	BAF5	BAM5	—	—	3.54	—
1.60801/46.21	BAF6	BAF52	BAF7	—	BAF7	—	3.5	—
1.62012/49.80	ZBAF11	—	BACDE9	BSM29	—	—	3.27	—
1.62231/53.14	ZBAF1	SSK2	BACDE2	BSM22	SSK2	—	3.66	—
1.62604/39.10	BAF8	BASF1	BAFD1	BAM21	BASF1	—	3.68	—
1.63930/45.18	ZBAF13	BAF12	BAF12	BAM12	BAF12	—	3.6	—
1.65128/38.32	ZBAF15	—	BAFD4	BAH24	BASF4	—	3.91	—
1.65691/51.12	ZBAF3	—	—	—	—	—	3.98	—
1.65844/50.85	ZBAF50	SSKN5	BACED5	BSM25	SSK5	—	3.98	150
1.65844/50.85	H-ZBAF50	N-SSK5	E-BACED5	S-BAM25	E-SSK5	■	—	150
1.66426/35.45	ZBAF4	BASF2	BAFD2	BAH22	BASF2	—	3.94	—
1.66672/48.42	ZBAF16	BAFN11	BAF11	BAH11	BAF11	—	3.76	150
1.66755/41.93	ZBAF17	BASF6	BAFD6	BAH26	BASF6	—	3.76	—
1.66988/39.20	ZBAF18	BASF12	—	BAH32	BASF12	—	3.9	—
1.67103/47.29	H-ZBAF5	N-BAF10	E-BAF10	S-BAH10	E-BAF10	■	3.61	140
1.70181/41.01	ZBAF20A	BASF62	BAFD7	BAH27	BASF7	—	4.28	140
1.72340/37.99	ZBAF21A	BASF51	BAFD8	BAH28	BASF8	—	4.41	130

Low Expansion

nd/vd	CDGM	SCHOTT	HOYA	OHARA	HIKARI	■■	■■	■■■FA
1.472/65.646	H-PZ33■■■■■■■■■■■ ■	—	—	—	—	—	—	—

Other

nd/vd	CDGM	SCHOTT	HOYA	OHARA	HIKARI	■■	■■	■■■FA
1.52249/59.48	H-H50	N-K5	E-C5	S-NSL5	E-K5	■	2.55	—
1.53172/48.76	QF6	LLF6	FEL6	PBL6	LLF6	—	2.78	140
1.54811/45.87	QF1	LLF1	FEL1	PBL1	LLF1	—	2.93	130
1.56091/46.78	QF2	LLF3	FEL3	PBL3	—	—	3.02	—
1.57502/41.31	QF3	LF7	FL7	PBL27	LF7	—	3.23	—
1.57842/41.11	QF11	LF4	FL4	PBL24	LF4	—	3.2	—
1.58144/40.89	QF50	LF5	FL5	PBL25	LF5	—	3.23	110
1.58215/42.03	QF5	LF3	FL3	PBL23	LF3	—	3.22	—
1.59551/39.18	QF14	F8	F8	PBM8	F8	—	3.23	140
1.80100/31.96	—	—	—	—	S-LAH66	■	—	—