Product Catalogue

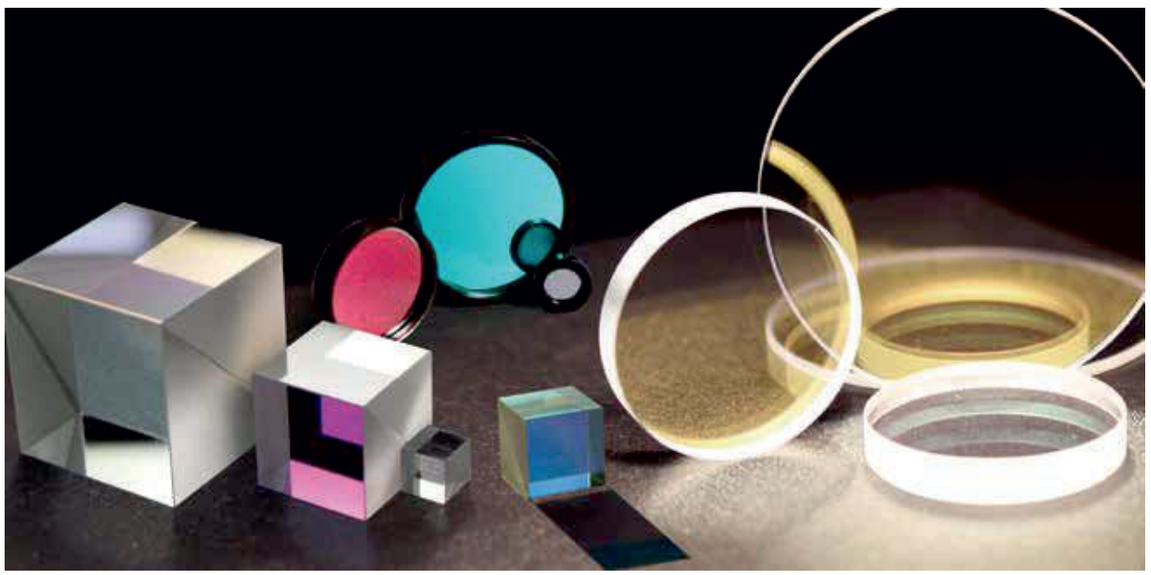
www.dahengoptics.com

Optical Thin Film Center.
CHINA DAHENG GROUP, Inc.

МАКРО ГРУПП
www.macrogroup.ru

Официальный дистрибьютор

Optical Thin Film Center,
DAHENG NEW EPOCH TECHNOLOGY,Inc.



SOLUTION TO OPTICS

WHO WE ARE	Founded in 1999,OTF is one of subsidiaries of Daheng New Epoch Technology which is listed in China.We specialize in optics especially in optical coating.
WHAT WE DO	OTF provides leading optics from Ultraviolet to Infrared applied in kinds of fields.
WHY CHOOSE US	With a professional R&D team,advanced equipments and complete quality control system,OTF can supply optics from prototype to volume production with good quality and best price.
WE ARE COMMITTED TO	Real-time monitoring in production 100% production inspection Rapaid customers response

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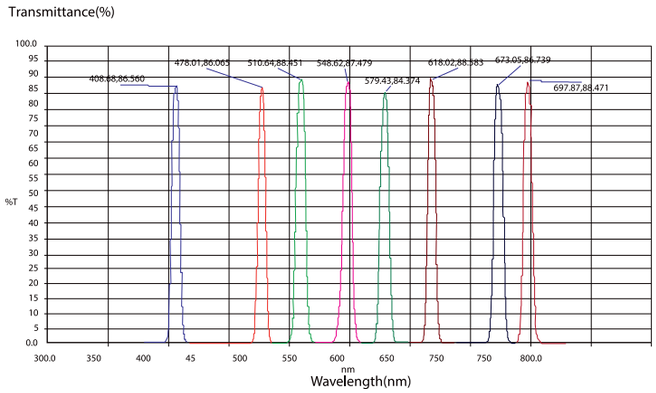
Bandpass Filter

Bandpass Filters pass a narrow spectral band of UV, visible, or NIR radiation and reject out-of-band wavelengths from X-ray to the far IR. Applications include biochemical analysis, laser range finder, or any application where spectral isolation is required.

Biochemistry Filter

Specification:
Application: Biochemical Analyzer
Surface quality: 80/50 scratch/dig per Mil-0-13830A
Standard Size: Ø12mm, Ø15mm, Ø25.4mm
Tpeak: 15%-85%
Blocking: >=OD6
CWL tolerance: ±1nm
Bandwidth tolerance: ±1nm
Diameter tolerance: +0/-0.1
CWL range: 200-3000nm
Dimension range: Ø4mm-Ø50mm



Center wavelength(nm)	FWHM(nm)	Peak Transmission	Average Blocking	Size(mm) Ø12 P/N	Size(mm) Ø8 P/N
220±2	8±2	≥15%	OD5@200-1200nm	BF-220-01	BF-220-02
254±2	8±2	≥15%	OD5@200-1200nm	BF-254-01	BF-254-02
282±2	8±2	≥25%	OD5@200-1200nm	BF-282-01	BF-282-02
340±2	8±2	≥35%	OD5@200-1200nm	BF-340-01	BF-340-02
405±2	8±2	≥40%	OD5@200-1100nm	BF-405-01	BF-405-02
450±2	8±2	≥50%	OD5@200-1100nm	BF-450-01	BF-450-02
480±2	8±2	≥50%	OD5@200-1100nm	BF-480-01	BF-480-02
492±2	8±2	≥50%	OD5@200-1100nm	BF-492-01	BF-492-02
505±2	8±2	≥50%	OD5@200-1100nm	BF-505-01	BF-505-02
510±2	8±2	≥50%	OD5@200-1100nm	BF-510-01	BF-510-02
546±2	8±2	≥50%	OD5@200-1100nm	BF-546-01	BF-546-02
578±2	8±2	≥50%	OD5@200-1100nm	BF-578-01	BF-578-02
620±2	8±2	≥50%	OD5@200-1100nm	BF-620-01	BF-620-02
630±2	8±2	≥50%	OD5@200-1100nm	BF-630-01	BF-630-02
670±2	8±2	≥50%	OD5@200-1100nm	BF-670-01	BF-670-02
700±2	10±2	≥50%	OD5@200-1100nm	BF-700-01	BF-700-02
750±2	10±2	≥50%	OD5@200-1100nm	BF-750-01	BF-750-02
760±2	10±2	≥50%	OD5@200-1100nm	BF-760-01	BF-760-02

Fluorescence Filter

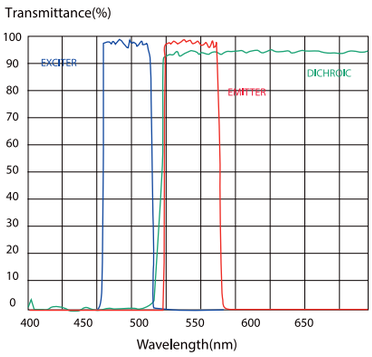
Fluorescence filters include Excitation, Emission and Dichroic filters.Which used in single and multiple microscopy application,in - cluding GFP FRET, photons,quantum dots, Pinkel, contrast imaging and other technologies.

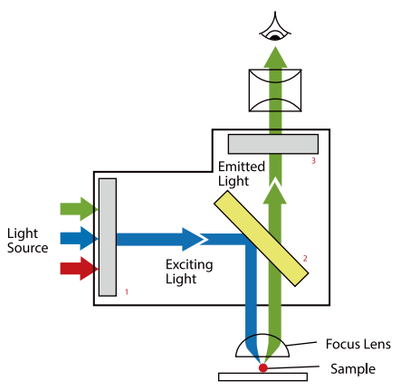
Diameter: Ø12mm, Ø8mm, Other sizes are available upon request.
Clear Aperture: >80%
Thickness: 6mm
Angle of incidence: 0°±5°
Blocking: >OD6

Application	Excitation Range(nm)	Emission Range(nm)	Dichronic filters(nm)	P/N
DAPI	340-390	435-485	412	FF-01
CFP	426-450	467-498	458	FF-02
GFP	458-487	502-538	495	FF-03
FAM,SYBR GreenI	452-482	512-532	492	FF-04
FITC	467-498	513-556	506	FF-05
YFP	488-512	532-554	520	FF-06
HEX,VIC	510-530	551-571	540	FF-07
CY3	513-556	570-613	562	FF-08
TAMRA,JOE,Cy3	530-550	571-591	560	FF-09
TRIT	505-555	578-633	567	FF-10
TRITC	532-554	570-613	562	FF-11
TEX RED	542-582	604-644	593	FF-12
TEX RED,ROX	558-578	599-619	585	FF-13
mCherry	542-582	603-678	593	FF-14
CY5	604-644	672-712	660	FF-15
CY5.5	635-675	696-736	685	FF-16

Fluorescence Excitation Module

Application: Fluorescence microscopy and fluorescence analyzer equipment
Using the professional fluorescent filter systems, high-end quality show excellent performance.
Suitable for most of international brands fluorescence microscopy.
The fluorescent filter Sets: UV1/B1/G1

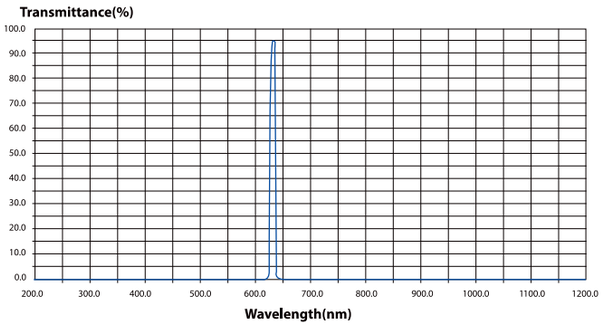




Laser Line Filter

Our Laser Line Interference Filters are available with a variety of bandwidths and transmission values to suit a multitude of laser applications.

Environmental conditions: Per Mil-STD-810E, Method 507.3
Operating Temperature: -40°C - +60°C
Minimum Size: Ø2mm or 2mm×2mm
Maximum Size: Ø50mm or 55×55mm
Surface Quality: 80/50 scratch/dig per Mil-O-13830A
Damage threshold: 20J/cm^2,10ns pulse
Typical wavelength: 488, 532, 632.8, 788, 808, 980, 1064, 1570nm



Laser mode	Center Wavelength (nm)	FWHM(nm)	Peak Transmission(%)	Average Blocking	Common Size(mm)	P/N
Hg	254±2	10±2	T>15%	OD5@200-1200nm	Ø25.4	LF-254-01
Nd:YAG	266±2	10±2	T>15%	OD5@200-1200nm	Ø25.4	LF-266-01
	280±2	10±2	T>15%	OD5@200-1200nm	Ø25.4	LF-280-01
N2	337.1±2	10±2	T>15%	OD5@200-1200nm	Ø25.4	LF-337-01
XeF	352±2	10±2	T>15%	OD5@200-1200nm	Ø25.4	LF-352-01
	355±2	10±2	T>15%	OD5@200-1200nm	Ø25.4	LF-355-01
	380±2	10±2	T>70%	OD5@200-1200nm	Ø25.4	LF-380-01
InGaN	410±2	10±2	T>70%	OD4@200-1100nm	Ø25.4	LF-410-01
Cd	441.6±2	10±2	T>70%	OD4@200-1100nm	Ø25.4	LF-442-01
InGaN	450±2	10±2	T>80%	OD4@200-1100nm	Ø25.4	LF-450-01
InGaN	450±2	20±2	T>80%	OD4@200-1100nm	Ø25.4	LF-450-02
	468±2	10±2	T>80%	OD4@200-1100nm	Ø25.4	LF-468-01
Ar	488±2	10±2	T>80%	OD4@200-1100nm	Ø25.4	LF-488-01
Argon-Ion	515±2	10±2	T>80%	OD4@200-1100nm	Ø25.4	LF-515-01
Nd-YAG	532±2	10±2	T>80%	OD4@200-1100nm	Ø25.4	LF-532-01
HeNe	632.5±2	10±2	T>80%	OD4@200-1100nm	Ø25.4	LF-633-01
Kr	647.1±2	10±2	T>80%	OD4@200-1100nm	Ø25.4	LF-647-01
O2	656±2	10±2	T>80%	OD4@200-1100nm	Ø25.4	LF-656-01
GaAlAs	670±2	10±2	T>80%	OD4@200-1100nm	Ø25.4	LF-670-01
	675±2	10±2	T>80%	OD4@200-1100nm	Ø25.4	LF-675-01
RuBy	694.3±2	10±2	T>80%	OD4@200-1100nm	Ø25.4	LF-694-01
GaAlAs	730±2	10±2	T>80%	OD4@200-1100nm	Ø25.4	LF-730-01
GaAlAs	750±2	10±2	T>80%	OD4@200-1100nm	Ø25.4	LF-750-01
GaAlAs	780±2	10±2	T>80%	OD4@200-1100nm	Ø25.4	LF-780-01
GaAlAs	808±2	10±2	T>80%	OD4@200-1200nm	Ø25.4	LF-808-01
GaAlAs	808±2	20±2	T>80%	OD4@200-1200nm	Ø25.4	LF-808-02

Laser mode	Center Wavelength (nm)	FWHM(nm)	Peak Transmission(%)	Average Blocking	Common Size(mm)	P/N
GaAlAs	808±2	10±2	T > 90%	OD5@200-1150nm	Ø25.4	LF-808-03
GaAlAs	830±2	10±2	T > 90%	OD5@200-1150nm	Ø25.4	LF-830-03
GaAlAs	850±2	10±2	T > 90%	OD5@200-1200nm	Ø25.4	LF-850-02
GaAlAs	880±2	10±2	T > 90%	OD5@200-1200nm	Ø25.4	LF-880-02
GaAlAs	905±2	10±2	T > 90%	OD5@200-1200nm	Ø25.4	LF-905-02
GaAlAs	940±2	10±2	T > 90%	OD5@200-1200nm	Ø25.4	LF-940-02
	980±2	10±2	T > 90%	OD5@200-1200nm	Ø25.4	LF-980-02
Nd-YAG	1064±2	10±2	T > 90%	OD5@200-1200nm	Ø25.4	LF-1064-02
HeNe IR	1152±2	15±2	T > 90%	OD5@200-1500nm	Ø25.4	LF-1152-02
InGaAsP	1310±2	15±2	T > 90%	OD5@200-1500nm	Ø25.4	LF-1310-02
Nd-YAG	1320±2	15±2	T > 90%	OD5@200-1500nm	Ø25.4	LF-1320-02
	1480±2	15±2	T > 90%	OD5@200-1500nm	Ø25.4	LF-1480-02
HeNe IR	1532±2	15±2	T > 90%	OD5@200-1600nm	Ø25.4	LF-1523-02
InGaAsP	1550±2	15±2	T > 90%	OD5@200-1800nm	Ø25.4	LF-1550-02

5nm narrow band

Laser mode	Center Wavelength (nm)	FWHM(nm)	Peak Transmission(%)	Average Blocking	Common Size(mm)	P/N
Nd-YAG	532±1	5±1	T > 70%	OD4@200-1100nm	Ø25.4	LF-532-02
HeNe	632.5±1	5±1	T > 70%	OD4@200-1100nm	Ø25.4	LF-633-02
K	647.1±1	5±1	T > 70%	OD4@200-1100nm	Ø25.4	LF-647-02
GaAlAs	750±1	5±1	T > 70%	OD4@200-1100nm	Ø25.4	LF-750-02
GaAlAs	780±1	5±1	T > 70%	OD4@200-1100nm	Ø25.4	LF-780-02
GaAlAs	808±1	5±1	T > 70%	OD4@200-1200nm	Ø25.4	LF-808-04
GaAlAs	830±1	5±1	T > 70%	OD4@200-1200nm	Ø25.4	LF-830-04
GaAlAs	850±1	5±1	T > 70%	OD4@200-1200nm	Ø25.4	LF-850-03
GaAlAs	880±1	5±1	T > 70%	OD4@200-1200nm	Ø25.4	LF-880-03
GaAlAs	905±1	5±1	T > 70%	OD4@200-1200nm	Ø25.4	LF-905-03
GaAlAs	940±1	5±1	T > 70%	OD4@200-1200nm	Ø25.4	LF-940-03
	980±1	5±1	T > 70%	OD4@200-1200nm	Ø25.4	LF-980-03
Nd-YAG	1064±1	5±1	T > 70%	OD4@200-1200nm	Ø25.4	LF-1064-03
HeNe IR	1152±1	5±1	T > 70%	OD4@200-1200nm	Ø25.4	LF-1152-03

Laser Range Finder Filter

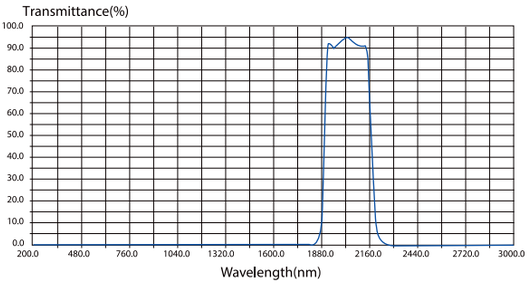
Daheng OTF supplies NIR bandpass filters with minimum angle dependency and effective blocking, they are key components in range finding devices and LIDAR system. Maximum transmission capacity of the illumination wavelength (laser or LED) with excellent signal to noise ratio is required.

CWL(nm)	FWHM(nm)	Tpeak	Blocking(average)	AOI	Thickness(mm)
905±5	48±5	T>80%	OD4@300-1200nm	0°	2.00
905±5	85±5	T>80%	OD4@300-1200nm	0°	0.55
1064±5	<40	T>87%	OD4@400-1200nm	0±20°	2.00
1064±2	10±2	T>87%	OD4@400-1200nm	0°	2.00
1550±5	60+/-5	T>90%	OD4@200-1800nm	0°	2.00
1575±5	60+/-5	T>90%	OD4@200-1800nm	0°	2.00

Sensor Filter

Application: Water Quality Analysis, Gas Detection, Pesticide Residues Detection, Atmospheric Monitoring.

Center Wavelength (nm)	FWHM (nm)	Peak Transmission	Average Blocking	Size (mm)	P/N
220±2	8±2	≥15%	OD5@200-1200nm	Ø25.4	SF-220-01
280±2	8±2	≥25%	OD5@200-1200nm	Ø25.4	SF-280-01
650±2	10±2	≥80%	OD4@200-1200nm	Ø25.4	SF-650-01
650±2	20±3	≥80%	OD4@200-1200nm	Ø25.4	SF-650-02
650±2	40±4	≥80%	OD4@200-1200nm	Ø25.4	SF-650-03
809±2	10±2	≥80%	OD4@200-1200nm	Ø25.4	SF-809-01
809±2	20±3	≥80%	OD4@200-1200nm	Ø25.4	SF-809-02
809±2	40±4	≥80%	OD4@200-1200nm	Ø25.4	SF-809-03
850±2	10±2	≥80%	OD4@200-1200nm	Ø25.4	SF-850-01
850±2	15±2	≥80%	OD4@200-1200nm	Ø25.4	SF-850-02
850±2	40±4	≥80%	OD4@200-1200nm	Ø25.4	SF-850-03
905±2	15±2	≥80%	OD4@200-1200nm &OD3@1200-1700nm	Ø25.4	SF-905-01
905±2	40±4	≥80%	OD4@200-1200nm &OD3@1200-1700nm	Ø25.4	SF-905-02
940±2	20±2	≥80%	OD4@200-1200nm &OD3@1200-1700nm	Ø25.4	SF-940-01
940±2	40±4	≥80%	OD4@200-1200nm &OD3@1200-1700nm	Ø25.4	SF-940-02
940±2	80±5	≥80%	OD4@200-1200nm &OD3@1200-1700nm	Ø25.4	SF-940-03
970±2	20±2	≥80%	OD4@200-1200nm &OD3@1200-1700nm	Ø25.4	SF-970-01
970±2	40±4	≥80%	OD4@200-1200nm &OD3@1200-1700nm	Ø25.4	SF-970-02
970±2	60±5	≥80%	OD4@200-1200nm &OD3@1200-1700nm	Ø25.4	SF-970-03
1064±2	10±2	≥80%	OD4@200-1200nm &OD3@1200-1700nm	Ø25.4	SF-1064-01
1064±2	20±2	≥80%	OD4@200-1200nm &OD3@1200-1700nm	Ø25.4	SF-1064-02
1570±2	10±2	≥80%	OD4@200-1200nm &OD3@1200-1700nm	Ø25.4	SF-1570-01
1570±2	20±2	≥80%	OD4@200-1200nm &OD3@1200-1700nm	Ø25.4	SF-1570-02



Center Wavelength (nm)	Transmission	Average Blocking	Size (mm)	P/N
2025±10nm	Tave>90%@2025±110nm	OD3@200-3000nm	Ø25.4	SF-2025-01
2165±10nm	Tave>90%@2165±20nm	OD3@200-3000nm	Ø25.4	SF-2165-01
2260±10nm	Tave>90%@2260±25nm	OD3@200-3000nm	Ø25.4	SF-2260-01
2320±10nm	Tave>90%@2320±25nm	OD3@200-3000nm	Ø25.4	SF-2320-01
2430±10nm	Tave>90%@2430±35nm	OD3@200-3000nm	Ø25.4	SF-2430-01

Gas Detection Filter

Mainly used for online detecting instrument of infrared optical type.
Common size: Ø25mm×0.5mm, Ø25mm×1mm, Ø25mm×1.5mm;
Other sizes are available upon request.

Object	Center Wavelength(μm)	Transmissivity	FWHM(μm)	Average Blocking
CO	4.5±0.045	≥85%	0.09±0.02/0.14±0.03	OD3@UV-11 μm
CO_2	4.3±0.043	≥85%	0.09±0.02/0.14±0.03	OD3@UV-11 μm
	10.6±0.106	≥85%	0.09±0.02/0.14±0.03	OD3@UV-15 μm
C_2H_4	10.6±0.106	≥85%	0.09±0.02/0.14±0.03	OD3@UV-15 μm
C_3H_6	11.6±0.116	≥85%	0.09±0.02/0.14±0.03	OD3@UV-20 μm
NO	5.2±0.052	≥85%	0.09±0.02/0.14±0.03	OD3@UV-11 μm
NO_2	6.2±0.062	≥85%	0.09±0.02/0.14±0.03	OD3@UV-11 μm
N_2O_5	8±0.08	≥85%	0.09±0.02/0.14±0.03	OD3@UV-11 μm
SO_2	7.3±0.073	≥85%	0.09±0.02/0.14±0.03	OD3@UV-11 μm
C_2H_2	13±0.13	≥85%	0.09±0.02/0.14±0.03	OD3@UV-20 μm
CCL_4	12±0.12	≥85%	0.09±0.02/0.14±0.03	OD3@UV-20 μm
H_2CO	3.597±0.035	≥85%	0.09±0.02/0.14±0.03	OD3@UV-11 μm
HCL	3.5±0.035	≥85%	0.09±0.02/0.14±0.03	OD3@UV-11 μm
H_2S	7.6±0.076	≥85%	0.09±0.02/0.14±0.03	OD3@UV-11 μm
CH_4	3.4±0.034	≥85%	0.09±0.02/0.14±0.03	OD3@UV-11 μm
NH_3	6.1±0.061	≥85%	0.09±0.02/0.14±0.03	OD3@UV-11 μm
	10.753±0.107	≥85%	0.09±0.02/0.14±0.03	OD3@UV-15 μm
	10.341±0.103	≥85%	0.09±0.02/0.14±0.03	OD3@UV-15 μm
C_6H_{14}	3.448±0.034	≥85%	0.09±0.02/0.14±0.03	OD3@UV-11 μm

IR Detector Filter

Face recognition Filter

Specific sizes are available upon request

Center Wavelength(nm)	FWHM(nm)	Peak Transmission(%)	Average Blocking	Size(mm)
850	15	≥80%	OD4@400-1100nm	Ø15×5

Security Filter

Application: Installed ahead of CMOS or CCD. Isolate interference light, improve signal-to-noise ratio.

Common Type:

Spectrum Specification:
T=50%@630±10nm
Tave>92%@420-600nm
Tave<2%@680-1050nm
Surface Quality: 40/20

Day Night Standard Type:

Spectrum Specification:
T>85%@400-600nm&830-870nm
T=50%@390+/-15nm&650+/-10nm&890+/-15nm
T<5%@670-770nm&950-1100nm
Surface Quality: 40-20

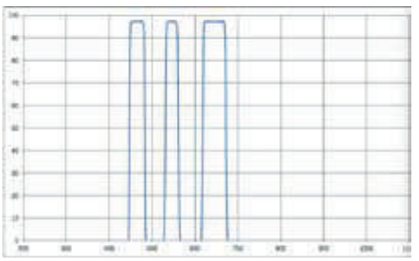
Fingerprint Detection Filter

Characteristic Wavelength (nm)	Type	Specifications	Size(mm)	P/N
535	Absorption filter	T=50%@535nm±10nm	Ø25.4×6	W-CB535-D25.4T6-S
550	Absorption filter	T=50%@550nm±10nm	Ø25.4×6	W-CB550-D25.4T6-S
565	Absorption filter	T=50%@565nm±10nm	Ø25.4×6	W-CB565D25.4T6-S
600	Absorption filter	T=50%@600nm±10nm	Ø25.4×6	W-HB600-D25.4T6-S
610	Absorption filter	T=50%@610nm±10nm	Ø25.4×6	W-HB610-D25.4T6-S
630	Absorption filter	T=50%@630nm±10nm	Ø25.4×6	W-HB630-D25.4T6-S
650	Absorption filter	T=50%@650nm±10nm	Ø25.4×6	W-HB650-D25.4T6-S
670	Absorption filter	T=50%@670nm±10nm	Ø25.4×6	W-HB670-D25.4T6-S
700	Absorption filter	T=50%@700nm±10nm	Ø25.4×6	W-HB700-D25.4T6-S
720	Absorption filter	T=50%@720nm±10nm	Ø25.4×6	W-HB720-D25.4T6-S
760	Absorption filter	T=50%@760nm±10nm	Ø25.4×6	W-HWB760-D25.4T6-S
780	Absorption filter	T=50%@780nm±10nm	Ø25.4×6	W-HWB780-D25.4T6-S
800	Absorption filter	T=50%@800nm±10nm	Ø25.4×6	W-HWB800-D25.4T6-S
830	Absorption filter	T=50%@830nm±10nm	Ø25.4×6	W-HWB830-D25.4T6-S
415	Narrow band filter	FWHM 10±2nm	Ø25.4×6	F-415-10-01
510	Narrow band filter	FWHM 1110±2nm	Ø25.4×6	F-510-10-01
550	Narrow band filter	FWHM 1210±2nm	Ø25.4×6	F-550-10-01
610	Narrow band filter	FWHM 1310±2nm	Ø25.4×6	F-610-10-01
550	Short pass filter	T=50%@550nm±10nm	Ø25.4×6	SPF-550-01

Used in the fingerprint detection instrument.Specific size are available upon request.

Multi Channel Filter

Daheng OTF manufactures multi channel filters that have been optimized for use in Military, aerospace science, Bio-medical instruments, Spectral analysisi etc.



Benefits:
High transmission
Deep blocking
Narrow FWHM
Sharp slope

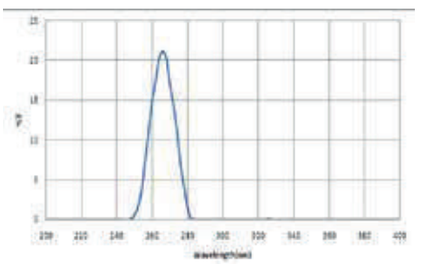
Item	CWL(um)	Tave	FWHM	Blocking
Dual-channel filter	808,850	95%	20nm,20nm	OD4@200-1100nm
Triple-channel filter	465,546,645	95%	35nm,30nm,55nm	OD5@485-520nm&570-600nm
Four-channel filter	465,546,645,720	93%	26nm,50nm,73nm,135nm	OD3@489-493nm&638-644nm OD4@556-560nm OD5@442-452nm

Solar Blind Filter

Daheng OTF has developed solar-blind UV filters for applications in detection of weak UV signal against a strong background of solar radiation, High-performance filters are fabricated with high peak transmission in the passband and sufficient rejection ratio in visible and near-infrared wavelength ranges.

Benefits:
High transmission
Deep blocking
Wide incidence angle
High signal-to-background ratio
Less sensitivity to environmental variation
Thin in thickness(7mm)

Dimension	Ø32*7±0.1mm(mounted)
SQ	60-40
AOI.	0±25deg.
Coating Specs.	T>20%@266nm&OD12@300-700nm



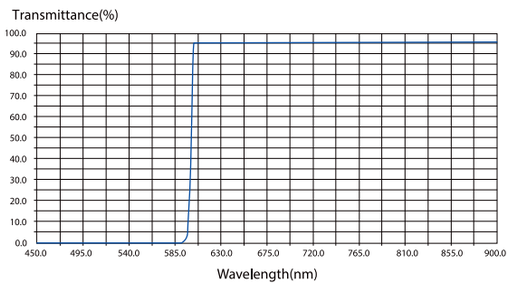
Edge Filter

Edge Filter often referred to as long wave pass(LWP) and short wave pass(SWP) filters, edge filters provide a well-defined transition between reflecting and transmitting regions.

Long Pass Filter

Specification:
Long pass-wavelength coating on one side, the other side is AR coating.
Material: BK7
Transmission: >90%
Blocking: >OD6
Angle of incidence: 0°±5°or 45°±5°
Surface Quality: 20-10
Clear Aperture: >90%
Wavelength shift with temperature: <0.25nm/°C

Cut-on Wavelength (nm)	Rejection Band (nm)	Pass Band (nm)	Dimension (mm)	AOI.0° PN.	AOI.45° PN.
400±5	200-390	410-1100	Ø25.4x2	LPF-400-01	LPF-400-02
450±5	200-440	460-1100	Ø25.4x2	LPF-450-01	LPF-450-02
500±5	200-490	510-1100	Ø25.4x2	LPF-500-01	LPF-500-02
550±5	200-540	560-1100	Ø25.4x2	LPF-550-01	LPF-550-02
600±5	200-590	610-1100	Ø25.4x2	LPF-600-01	LPF-600-02
650±5	200-640	660-1100	Ø25.4x2	LPF-650-01	LPF-650-02
700±5	200-690	710-1100	Ø25.4x2	LPF-700-01	LPF-700-02
750±5	200-740	760-1100	Ø25.4x2	LPF-750-01	LPF-750-02
800±5	200-790	810-1100	Ø25.4x2	LPF-800-01	LPF-800-02
850±5	200-840	860-1100	Ø25.4x2	LPF-850-01	LPF-850-02



Short Pass Filter

Specification:
Material: BK7
Transmission: >90%
Blocking: ≥OD6
Angle of incidence: 0°±5°or 45°±5°
Surface Quality: 20-10
Clear Aperture: >90%
Wavelength shift withtemperature: <0.25nm/°C

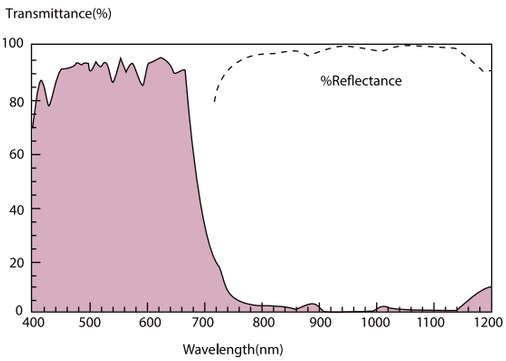
Cut-on Wavelength (nm)	Rejection Band (nm)	Pass Band (nm)	Dimension(mm)	AOI.0° PN.	AOI.45° PN.
400±5	410-1100	300-390	Ø25.4x2	SPF-400-01	SPF-400-02
450±5	460-1100	400-440	Ø25.4x2	SPF-450-01	SPF-450-02
500±5	510-1100	440-490	Ø25.4x2	SPF-500-01	SPF-500-02
550±5	560-1100	440-540	Ø25.4x2	SPF-550-01	SPF-550-02
600±5	610-1100	440-590	Ø25.4x2	SPF-600-01	SPF-600-02
650±5	660-1100	440-640	Ø25.4x2	SPF-650-01	SPF-650-02
700±5	710-1100	440-690	Ø25.4x2	SPF-700-01	SPF-700-02
750±5	760-1100	440-740	Ø25.4x2	SPF-750-01	SPF-750-02
800±5	810-1100	440-790	Ø25.4x2	SPF-800-01	SPF-800-02
850±5	860-1100	440-840	Ø25.4x2	SPF-850-01	SPF-850-02

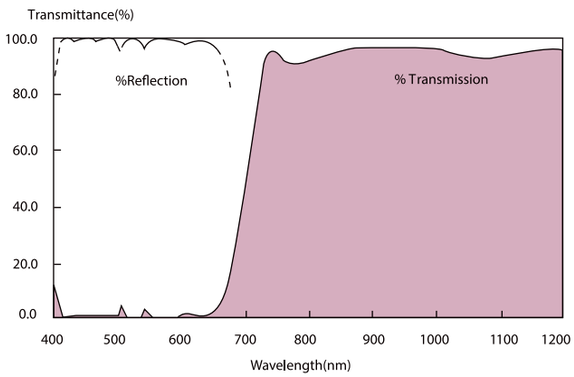
Hot Mirror

Hot Mirror can be used in such a system which need to split the heat of spectrum and wave band. When using the hot mirror, visible light is transmitted, and infrared part is reflected.

Specification
AOI: 0°or 45°
Reflection: > 95%@800-1200nm, (type 97%)
Transmission: > 90%@450-650nm(type 93%)
Material: Fused Silica,BK7
Size Range: Ø3-Ø200mm, 3×3mm—200×200mm
Wavelength Range: 350-2000nm
Specific specifications can be customized upon request.

Application: Rear Projection, Digital Projection Apparatus, Digital Camera, and CCD Imaging Detection System.





Cold Mirror

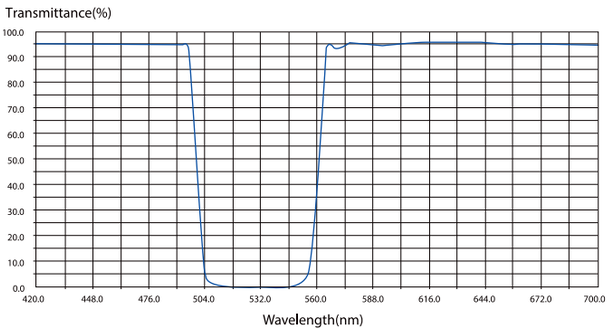
Cold Mirror can be used in such a system which need to split the heat of spectrum and wave band.When using the cold mirror, visible light is reflected, and infrared part is transmitted.

Specification
AOI: 0°or 45°
Reflection: > 90%@450-650nm
Transmission: > 90%@800-1200nm
Material: Fused Silica,K9
Size Range: Ø3-Ø200mm, 3×3mm—200×200mm
Wavelength Range: 350-2000nm
Specific specifications can be customized upon request.

Notch Filter

Notch Filter is a type of filter designed to block a pre-selected bandwidth while transmitting all other wavelengths within the design range of the filter.

Specification:
Material: BK7
Operating Temperature: -40°C to +60°C
Blocking at CWL: ≥OD4
Surface quality: 60-40
Minimum Size: Ø3mm / 3mm×3mm
Maximum Size: Ø50mm / 55mm×55mm

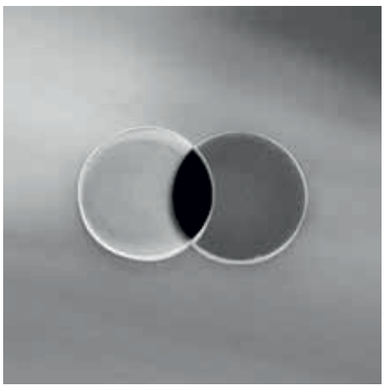


Center Wavelength(nm)	FWHM(nm)	Average Transmission	Size(mm)	P/N
355±4	30±5	Tave>90%@325-475nm	Ø25.4	NF-355-01
405±4	50±5	Tave>90%@350-600nm	Ø25.4	NF-405-01
442±4	50±5	Tave>90%@350-650nm	Ø25.4	NF-442-01
488±5	60±5	Tave>90%@380-720nm	Ø25.4	NF-488-01
514±5	60±5	Tave>90%@400-750nm	Ø25.4	NF-514-01
526±5	60±6	Tave>90%@400-780nm	Ø25.4	NF-526-01
532±5	60±8	Tave>90%@430-780nm	Ø25.4	NF-532-01
568±6	70±8	Tave>90%@430-800nm	Ø25.4	NF-568-01
594±6	70±8	Tave>90%@440-850nm	Ø25.4	NF-594-01
633±6	75±8	Tave>90%@470-900nm	Ø25.4	NF-633-01
785±8	95±8	Tave>90%@580-1100nm	Ø25.4	NF-785-01
808±8	95±8	Tave>90%@600-1150nm	Ø25.4	NF-808-01
830±8	100±8	Tave>90%@610-1180nm	Ø25.4	NF-830-01
980±8	100±8	Tave>90%@760-1300nm	Ø25.4	NF-980-01
1064±11	120±10	Tave>90%@780-1500nm	Ø25.4	NF-1064-01

Neutral Density Filter

Neutral Density Filters are designed to reduce transmission over a wide spectral range by coating a durable metallic film.They have a nearly flat transmittance from UV to NIR.

Material: BK7
Diameter tolerance: +0/-0.1
Thickness tolerance: ±0.1
Parallelism: <3′
Surface Quality: 60-40
Clear Aperture: >90%
Density tolerance: ±2%



P/N	Size(mm)	OD	Transmission
ODC-T10-D25.4T2	Ø25.4×2	1	10%
ODC-T3-D25.4T2	Ø25.4×2	1.5	3%
ODC-OD2-D25.4T2	Ø25.4×2	2	1%
ODC-OD3-D25.4T2	Ø25.4×2	3	0.10%
ODC-OD4-D25.4T2	Ø25.4×2	4	0.01%
ODC-OD5-D25.4T2	Ø25.4×2	5	0.001%
ODC-T90-D25.4T2	Ø25.4×2	0.045	90%
ODC-T79-D25.4T2	Ø25.4×2	0.1	79%
ODC-T70-D25.4T2	Ø25.4×2	0.145	70%
ODC-T63-D25.4T2	Ø25.4×2	0.2	63%
ODC-T50-D25.4T2	Ø25.4×2	0.3	50%
ODC-T40-D25.4T2	Ø25.4×2	0.4	40%
ODC-T32-D25.4T2	Ø25.4×2	0.5	32%
ODC-T25-D25.4T2	Ø25.4×2	0.6	25%
ODC-T20-D25.4T2	Ø25.4×2	0.7	20%
ODC-T16-D25.4T2	Ø25.4×2	0.8	16%
ODC-T12-D25.4T2	Ø25.4×2	0.9	12%

Circularly Variable Neutral Density Filter

The optical density linearly varies around a 0°- 270°circle to adjust laser energy.

Material: BK7
Outside Diameter: Ø50±0.2, Ø33±0.2
Centerhole Diameter: Ø8±0.2, Ø6±0.2
Thickness: 1.5±0.1
Parallelism: <3′
Density tolerance: OD ±5% @ 632.8nm
Surface Quality: 60-40
Clear Aperture: >90%

P/N	Size(mm)	OD	Transmission
ODV-1-D50T1.5	Ø50×1.5	0-1	10%-100%
ODV-2-D50T1.5	Ø50×1.5	0-2	1%-100%
ODV-3-D50T1.5	Ø50×1.5	0-3	0.1%-100%
ODV-4-D50T1.5	Ø50×1.5	0-4	0.01%-100%
ODV-1-D33T1.5	Ø33×1.5	0-1	10%-100%
ODV-2-D33T1.5	Ø33×1.5	0-2	1%-100%
ODV-3-D33T1.5	Ø33×1.5	0-3	0.1%-100%
ODV-4-D33T1.5	Ø33×1.5	0-4	0.01%-100%

Linearly Variable Neutral Density Filter

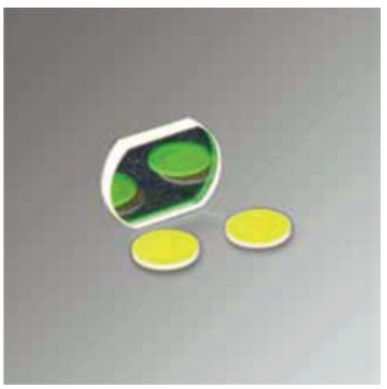
The optical density linealy varies across the length to adjust laser energy.

Material: BK7
Thickness: 2±0.1mm
Parallelism: <3′
Density tolerance: OD±5% @ 632.8nm
Surface Quality: 60-40
Clear Aperture: >90%

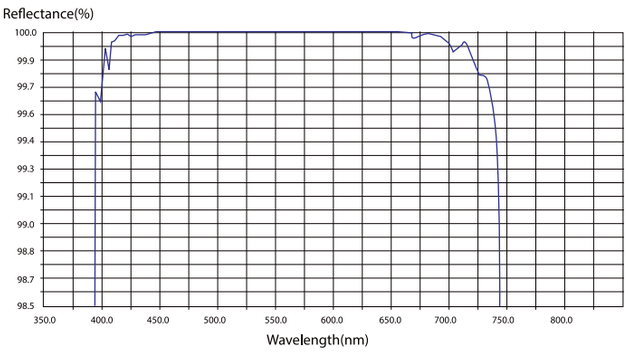
P/N	Size(mm)	OD	Transmission
ODL-2-100x25T2	100x25x20	0-2	1%-100%
ODL-3-100x25T2	100x25x20	0-3	0.1%-100%
ODL-4-100x25T2	100x25x20	0-4	0.01%-100%

Dielectric HR Mirror

High reflectivity, Broad wavelength range, High damage threshold, Great adhension durablity



Material: Fused Silica, BK7, Pyrex
Dimension range: Ø3mm-Ø200mm, 3×3mm~200×200mm
Wavelength range: 200-2000nm
Tolerance: +0.0/-0.1mm
Flatness: λ/2
Surface Quality: 60-40
Parallelism: <3'
Coating Specs:
Single Wavelength: R>99.5%
Dual Wavelength: R>99.5%
Wide Wavelength: R>99@VIS and NIR



Metallic Mirror

High reflectvity on broadband
Coatings are insensitive to the incident angle and polarization
No pinhole with special techniques
Great adhesion durability per MIL environmental experiment

Material: Flused Silica, BK7, Pyrex
Dimention range: Ø3mm-Ø200mm, 3×3mm-200×200mm
Tolerance: +0.0/-0.1mm
Front Surface:
Flatness: λ/4
Surface Quality: 60-40
Parallelism: <3'
Clear Aperture: >90%
Back Surface: Fine Ground
Other wavelengths and dimensions are available upon request

Item	Specs	AOI.
UV-enhanced Al Mirror	R>80%@200-300nm&Rave>85%@300-400n	0±20°
Protected Al Mirror	R>90%@400-700nm&Rave>92%@700-IR	45±20°
Protected Ag Mirror	R>95%@420-IR	
Protected Au Mirror	R>95%@IR	

Beamsplitter Plate

A plate beamsplitter is used to break a beam into two separate beams. It will reflect a portion of the incident energy, absorb a small portion and transmit the remaining energy.

Material: BK7
Diameter tolerance: +0.0/-0.1mm, Thickness tolerance: ±0.1mm
Flatness: λ/4
Surface quality: 60-40
Coatings:
S1: Single or broadband wavelength Beamsplitter coatings
S2: AR coatings
Angle of incidence: 45°
T/R=50/50, 30/70, 40/60…
T=(Ts+Tp)/2,R=(Rs+Rp)/2

	Wavelength (nm)	T/R	Size: Ø25.4×2 mm	Size: Ø12.7×2 mm
Conventional Beamsplitter Plates	532	T/R=50/50±2%	CBP-532-50-01	CBP-532-50-02
	632	T/R=40/60±2%	CBP-632-40-01	CBP-632-40-02
	808	T/R=30/70±2%	CBP-808-30-01	CBP-808-30-02
	1064	T/R=20/80±2%	CBP-1064-20-01	CBP-1064-20-02
	1550	T/R=80/20±2%	CBP-1550-80-01	CBP-1550-80-02
	450-650	T/R=25/75±3%	CBP-VIS-80-01	CBP-VIS-80-02
	450-650	T/R=30/70±3%	CBP-VIS-80-01	CBP-VIS-80-02
	450-650	T/R=50/50±3%	CBP-VIS-80-01	CBP-VIS-80-02
	450-650	T/R=70/30±3%	CBP-VIS-80-01	CBP-VIS-80-02
	450-650	T/R=80/20±3%	CBP-VIS-80-01	CBP-VIS-80-02
	650-900	T/R=50/50±3%	CBP-650-900-50-01	CBP-650-900-50-02
	900-1200	T/R=50/50±3%	CBP-900-1200-50-01	CBP-900-1200-50-02

Polarizing Beamsplitter Plate

Mainly used in laser system, 3D projection Display
AOI.:45°or 56.5°
Transmittance Distortion< λ/8
Reflectance Distortion< λ/4
Extincton Ratio: >500:1

	Wavelength(nm)	T/R		Size: Ø12.7 mm	Size: Ø25.4 mm
Polarizing Beamsplit - ter plates of single band	532nm	Tp>98%@532nm	Rs>99.5%@532nm	PBP-532-01	PBP-532-02
	633nm	Tp>98%@633nm	Rs>99.5%@633nm	PBP-633-01	PBP-633-02
	808nm	Tp>98%@808nm	Rs>99.5%@808nm	PBP-808-01	PBP-808-02
	1064nm	Tp>98%@1064nm	Rs>99.5%@1064nm	PBP-1064-01	PBP-1064-02
	1550nm	Tp>98%@1550nm	Rs>99.5%@1550nm	PBP-1550-01	PBP-1550-02
Polarizing Beamsplit - ter plates of broad band	420-680nm	Tp>98%@420-680nm	Rs>99.5%@420-680nm	PBP-VIS-01	PBP-VIS-02

Beamsplitter Cube

Cube beamsplitter are constructed by cementing two right angle prisms together, with interference coating on the hypotenuse surface and AR coating on all input and output surfaces.

	Wavelength (nm)	T/R	Size: 25.4×25.4×25.4 mm	Size: 12.7×12.7×12.7 mm
Conventional Beamsplitter Cubes	532	T/R=50/50±2%	CBS-532-50-01	CBS-532-50-02
	632	T/R=50/50±2%	CBS-632-50-01	CBS-632-50-02
	670	T/R=50/50±2%	CBS-670-50-01	CBS-670-50-02
	780	T/R=50/50±3%	CBS-780-50-01	CBS-780-50-02
	1064	T/R=50/50±3%	CBS-1064-50-01	CBS-1064-50-02
	1310	T/R=50/50±3%	CBS-1310-50-01	CBS-1310-50-02
	400-700	T/R=50/50±5%	CBS-VIS-50-01	CBS-VIS-50-02
	650-900	T/R=50/50±5%	CBS-650-900-50-01	CBS-650-900-50-02
	900-1200	T/R=50/50±5%	CBS-900-1200-50-01	CBS-900-1200-50-02
	1200-1600	T/R=50/50±5%	CBS-900-1200-50-01	CBS-900-1200-50-02

Polarizing Beamsplitter Cube(PBS)

Polarizing Beamsplitter cube split randomly polarized beams into two linearly polarized components, S-polarized light is reflected which P-polarized light is transmitted.
Application:AR glasses, 3D Projection Display
Specs:
Tp>96%, Rs>99%
AR coating:R<0.25%
Extinction Ratio:>500:1

	Wavelength (nm)	T/R	Size:10×10×10mm	Size:25.4×25.4×25.4mm
Conventional Polarizing Beamsplitter Cubes of single band	488	Tp>96%, Rs>99%	PBS-488-01	PBS-488-02
	532	Tp>96%, Rs>99%	PBS-532-01	PBS-532-02
	650	Tp>96%, Rs>99%	PBS-650-01	PBS-650-02
	808	Tp>96%, Rs>99%	PBS-808-01	PBS-808-02
	976	Tp>96%, Rs>99%	PBS-976-01	PBS-976-02
	1064	Tp>96%, Rs>99%	PBS-1064-01	PBS-1064-02
Conventional Polarizing Beamsplitter Cubes of broad band	420-680	Tpave>95%, Rs>99%	PBS-VIS-01	PBS-VIS-02
	600-900	Tpave>95%, Rs>99%	PBS-600-900-01	PBS-600-900-02
	800-1100	Tpave>95%, Rs>99%	PBS-800-1100-01	PBS-800-1100-02
	1200-1600	Tpave>95%, Rs>99%	PBS-1200-1600-01	PBS-1200-1600-02

Non-Polarizing Beamsplitter Cube

With the low polarization dependence of the metallic/dielectric hybrid coating, non-polarizing beamsplitter allows the transmis - sion and reflection for S and P polarization light to be within 6% of each other.

Dimention Tolerance: +0.0/-0.2mm
Flatness: λ/4
Beam Deviation: <3'
Surface Quality: 60-40
AOI: 0°
Coating: T/R=48/48±5%,|Ts-Tp|<5%, |Rs-Rp|<5%

	Wavelength (nm)	T/R	Size:12.7×12.7×12.7mm	Size:25.4×25.4×25.4
Non-polarizing Beamsplitter Cubes	488	T/R=48/48±5% |Ts-Tp|<5%, |Rs-Rp|<5%,	NPBS-488-01	NPBS-488-02
	532	T/R=48/48±5% |Ts-Tp|<5%, |Rs-Rp|<5%,	NPBS-532-01	NPBS-532-02
	808	T/R=48/48±5% ,|Ts-Tp|<5%, |Rs-Rp|<5%,	NPBS-808-01	NPBS-808-02
	450-650	T/R=48/48±5%|Ts-Tp|<5%, |Rs-Rp|<5%,	NPBS-VIS-01	NPBS-VIS-02
	650-900	T/R=48/48±5% |Ts-Tp|<5%, |Rs-Rp|<5%,	NPBS-650-900-01	NPBS-650-900-02
	900-1200	T/R=48/48±5% |Ts-Tp|<5%, |Rs-Rp|<5%,	NPBS-900-1200-01	NPBS-900-1200-02
	1200-1600	T/R=48/48±5%|Ts-Tp|<5%, |Rs-Rp|<5%,	NPBS-1200-1600-01	NPBS-1200-1600-02

Infrared Optics

Provide highest quality infrared optical components in near infrared, mid-wave infrared and long-wave infrared range. Which can be used in IR thermal imaging&thermal sensing, IR light Emitters&Detectors.

IR Bandpass Filter
Gas Detector Filter

Application: Environmental monitoring, Security systems, Gas detector etc.

Material: ZnSe, Si,Ge,Sapphire,Fused Silica

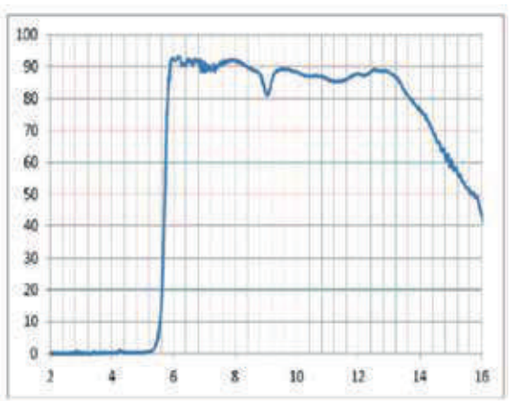
Surface quality: 80-50

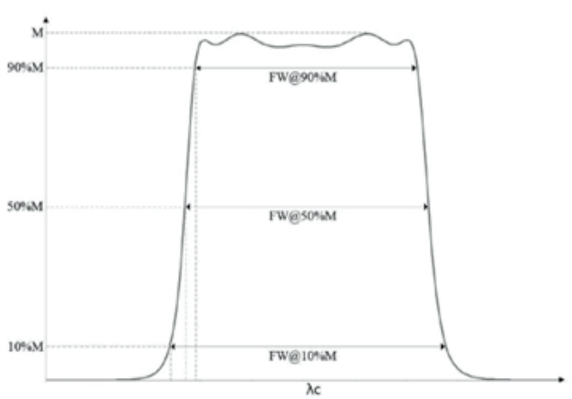
Object	Center Wavelength	T	FWHM	Blocking
CO	4.5±0.045	≥85	0.09±0.02/0.14±0.03	OD3@UV-11μm
CO_2	4.3±0.043	≥85	0.09±0.02/0.14±0.03	OD3@UV-11μm
	10.6±0.106	≥85	0.09±0.02/0.14±0.03	OD3@UV-15μm
NO	5.2±0.052	≥85	0.09±0.02/0.14±0.03	OD3@UV-11μm
NO_2	6.2±0.062	≥85	0.09±0.02/0.14±0.03	OD3@UV-11μm
SO_2	7.3±0.073	≥85	0.09±0.02/0.14±0.03	OD3@UV-11μm
C_2H_2	13±0.13	≥85	0.09±0.02/0.14±0.03	OD3@UV-20μm
CCL_4	12±0.12	≥85	0.09±0.02/0.14±0.03	OD3@UV-20μm
H_2CO	3.597±0.035	≥85	0.09±0.02/0.14±0.03	OD3@UV-11μm
HCL	3.5±0.035	≥85	0.09±0.02/0.14±0.03	OD3@UV-11μm
H_2S	7.6±0.076	≥85	0.09±0.02/0.14±0.03	OD3@UV-11μm
CH_4	3.4±0.034	≥85	0.09±0.02/0.14±0.03	OD3@UV-11μm

IR Long-Pass Filter
Flame Detector Filter

Application: Flame Detector etc.

Cut on wavelength	Transmission Band	Transmission
3.2μm±1%	3.48-5.35	T>90%
5.5μm±1%	6.3-14	T>80%
7.3μm±100nm	7.8-11	T>90%





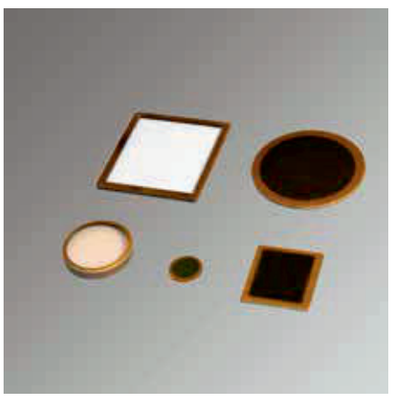
Infrared Window&Lens

Daheng OTF manufactures infrared lens, windows and special optics by traditional processing technology, with diamond turning machine to guarantee the precision of IR aspheric lens.
Application: IR Detector, Safe&Security System, Autombile night vision system

Item	Feature
Size Range	Ø3mm-Ø260mm
Surface Quality	10-5
Surface Accuracy	0.5fr
Parallelism	5''
Material	Ge, Si, ZnSe,ZnS,CaF2,BaF2 etc.
Coating	AR coating, DLC coating etc.
Standard Wavelength	3-5μm,7-12μm

Metallized Window

Daheng OTF does metalized coating on the edge or barrel of infrared window, used in hermetically sealed detector etc. Thin film metallization layers can be applied using a number of materials include:Gold Chromium, Nickel or other on request.



Solder ability:	MIL-STD-883
Gas Tightness:	10 Torr-L/sec.
SQ:	80-50
Margin:	Gold, Chromium, Nickel, or other on request
Substrate Material:	Sapphire, Si, Ge, Fused Silica, Optical Glass
Dimension:	Ø2.5mm~Ø50mm, or Square

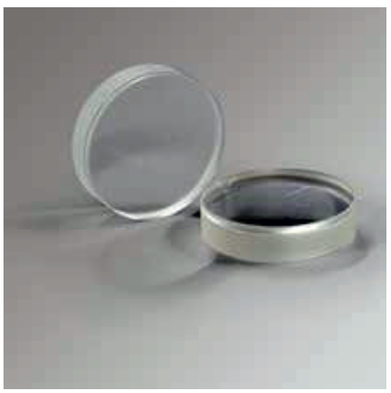
TO Cap

Daheng OTF offers molded and soldered TO caps which are suitable for precision applications with filter, infrared window or lens, with low leak rate and temperature & thermal stability. The soldering methods include glass soldering, AgSn and AuSn soldering.

Applications
Optical Sensors
Photo-communication
Gas Detectors
Medical applicatons

Laser Lens

OTF provide high precision Laser lens mainly applied in laser Cutting and laser welding.



Standard Products

Material	Wavelength	Diameter	Focal Length
JGS1/CORNING 7980	1070nm	Ø30mm	75mm/100mm/125mm/150mm
JGS1/CORNING 7980	1070nm	Ø52mm	150mm/200mm/250mm/300mm
ZnSe	10.6μm	Ø12.7mm	25.4mm/50.8mm
ZnSe	10.6μm	Ø25.4mm	50.8mm/75mm/200mm/500mm
ZnSe	10.6μm	Ø50.8mm	75mm/100mm

Laser Window

Laser windows feature a high transmission, high damage threshold and are with excellent thermal stability, low wavefront distortion etc.

Standard Products

Material	Wavelength	Size
Bk7	1070nm	Ø22.4*4.1mm/Ø25.4*4mm/Ø20*3mm/Ø37*7/Ø38.1*5/Ø50*2mm
Fused Silica	1070nm	Ø22.4*4.1mm/Ø25.4*4mm/Ø20*3mm/Ø37*7/Ø38.1*5/Ø50*2mm
ZnSe	10.6μm	Ø25.4*3mm/Ø38.1*3mm/Ø50*4mm/75*3mm/Ø90*3mm/Ø150*5mm

F-θ Lens

OTF provides high-precision F-theta lens applied in laser marking, welding, laser cleaning etc.

Material: Optical Glass, ZnSe
Surface Quality: 40-20

Standard products

Focal Length (mm)	Scanning Range (mm)	Wavelength	Material	Maximum Incident light spot (mm)	Maximun AOI	P/N
100	70×70	10.6μm	ZnSe	Ø10	28°	400701
300	210×210	10.6μm	ZnSe	Ø12	28°	400705
574	400×400	10.6μm	ZnSe	Ø20	28°	400709
160	110×110	1064nm	Optical Glass	Ø12	28°	400713
420	300×300	1064nm	Optical Glass	Ø15	25°	400717
254	150×150	532nm	Optical Glass	Ø10	25°	400721
160	110×110	355nm	Optical Glass	Ø6	28°	400723

Beam Expander

A laser beam expander is designed to either decrease the laser's beam spot size at large distances or produce a larger collimated output laser beam.

Standard Products

Expansion	C. A of incidence light (mm)	Diameter(mm)	Wavelength	Material	P/N
1.5X	Ø10	Ø12	10.6μm	GaAs	400601
2.5X	Ø10	Ø19	10.6μm	GaAs	400603
3.5X	Ø10	Ø22	10.6μm	GaAs	400605
4X	Ø10	Ø24	10.6μm	GaAs	400606
5X	Ø10	Ø26	10.6μm	GaAs	400607
10X	Ø10	Ø38	10.6μm	GaAs	400610
2X	Ø10	Ø18	10.6μm	ZnSe	4006 11
4X	Ø10	Ø24	10.6μm	ZnSe	400613
8X	Ø10	Ø29	10.6μm	ZnSe	400616
2X	Ø10	Ø14	1064nm	Optical Glass	400617
5X	Ø10	Ø26	1064nm	Optical Glass	400620
3X	Ø10	Ø18	532nm	Optical Glass	400621
4X	Ø10	Ø22	532nm	Optical Glass	400622

Scanning Mirror

The scanning mirror is used for high speed two-axis laser scanning system, be composed of X and Y mirror.
Material: BK7 Fused Silica, Silicon
Coating: High reflecting coating on one side
Wavelength: 10.6μm, 1064nm, 532nm, 355nm, 266nm

Standard Products

Material	Wavelength	Reflectivity	Spot Diamter
Silicon	10.6μm	99.4%	Ø7mm/Ø10mm/Ø15mm/Ø20mm/Ø25mm/Ø30mm
Silicon	2940nm	99.0%	Ø7mm/Ø12mm/Ø16mm
BK7/Fused Silica	1064nm	99.7%	Ø5mm/Ø8mm/Ø10mm/Ø15mm/Ø20mm/Ø30mm
BK7/Fused Silica	532nm	99.7%	Ø5mm/Ø8mm/Ø10mm/Ø15mm/Ø20mm/Ø30mm
BK7/Fused Silica	355nm	99.7%	Ø5mm/Ø8mm/Ø10mm/Ø15mm/Ø20mm/Ø30mm

Laser Output Mirror

Laser output mirror is mainly used in resonant cavity to ensure the laser power and the output mode. One part of energy is reflected to the resonant cavity, the other is outputted for cutting, welding and heat treatment.
Material: BK7 ZnSe
Coating: S1 Beamsplitter coating
S2 AR coating @ single wavelength

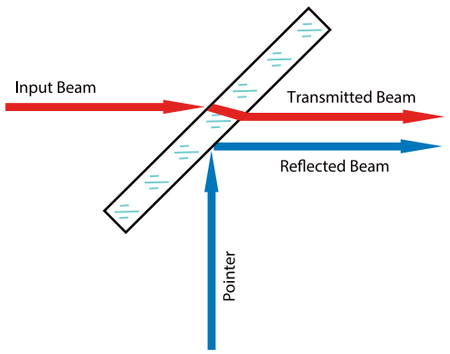
Standard Products

Material	Wavelength	Reflectivity	Size
BK7	1064nm	17%/ 40%/50%/60%/85%/90%	Ø12.7*6.4mm/Ø20*5mm/Ø25.4*9.5mm
ZnSe	10.6μm	17%/ 40%/50%/60%/85%/90%	Ø12.7*6.4mm/Ø20*5mm/Ø25.4*9.5mm

Beam Combiner

Beam Combiner usually used in system alignment calibrated by laser diode.
To combine two different ware length beam, can be used in calibration optics.

Material: BK7, Fused Silica, ZnSe
Coating: S1 AR coating, T>99%
S2 Reilective coating, R>85%



Beam Combiner

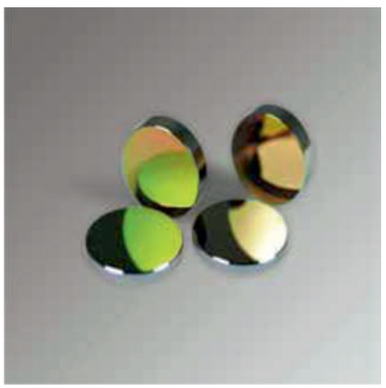
Standard Products

Material	Wavelength	Diameter(mm)	Thickness(mm)	P/N
ZnS	10.6 μmT650nmR	Ø12.7	2	400301
ZnS	10.6 μmT650nmR	Ø25.4	3	400304
ZnS	10.6 μmT650nmR	Ø30	2	400305
ZnS	10.6 μmT650nmR	Ø38.1	3	400308
BK7/JGS1	1064nmT650nmR	Ø12.7	2	400309
BK7/JGS1	1064nmT650nmR	Ø25.4	3	400312
BK7/JGS1	1064nmT650nmR	Ø30	1.5	400313
BK7/JGS1	1064nmT650nmR	Ø30	2.5	400315
BK7/JGS1	1064nmT650nmR	Ø38.1	2	400317
BK7/JGS1	532nmT650nmR	Ø25.4	2	400319
BK7/JGS1	532nmT650nmR	Ø30	2	400320

Total-reflector

Total reflector is mainly as a back mirror or folding mirror and used for the laser resonant cavity, or as a deflection mirror to transfer the beam on the outside of the laser.

Material: BK7, Fused Silica, Slicon, Mo
Coating: High reflecting coating on one side



Standard Products

Material	Wavelength	Size(mm)	Thickness(mm)	Reflectvity	Radius	P/N
Silicon	10.6μm	Ø18	3	>99.4%	3M	400501
Silicon	10.6μm	Ø20	3	>99.4%	3M	400502
Silicon	10.6μm	Ø25	4	>99.4%	3M	400503
Silicon	10.6μm	Ø20	3	>99.4%	5M	400504
Silicon	10.6μm	Ø25	4	>99.4%	5M	400505
Silicon	10.6μm	Ø25	4	>99.4%	8M	400506
Silicon	10.6μm	Ø25	4	>99.4%	10M	400507
Silicon	10.6μm	Ø20	3	>99.4%	Flat	400508
Silicon	10.6μm	Ø25	4	>99.4%	Flat	400509
Silicon	10.6μm	Ø30	4	>99.4%	Flat	400510
Fused Silica	1064nm	Ø18	3	>99.7%	3M	400511
Fused Silica	1064nm	Ø20	3	>99.7%	3M	400512
Fused Silica	1064nm	Ø25	4	>99.7%	3M	400513
Fused Silica	1064nm	Ø20	3	>99.7%	5M	400514
Fused Silica	1064nm	Ø25	4	>99.7%	5M	400515
Fused Silica	1064nm	Ø25	4	>99.7%	8M	400516
Fused Silica	1064nm	Ø25	4	>99.7%	10M	400517
Fused Silica	1064nm	Ø20	3	>99.7%	Flat	400518
Fused Silica	1064nm	Ø25	4	>99.7%	Flat	400519
Fused Silica	1064nm	Ø30	4	>99.7%	Flat	400520

Metalized Window

Daheng OTF provides complete metalized, coated windows for hermetically sealed detector, dewar packages or can provide metallization services on customer furnished materials, widely applied in infrared sensor, medical endoscopes, dewar packages, infrared imanging system.

Solder ability:	MIL-STD-883
Gas Tightness:	10^{-10} Torr·L/sec.
SQ:	80-50
Margin:	Gold, Chromium, Nickel, or other on request
Substrate Material:	Sapphire, Si, Ge, Fused Silica, Optical Glass
Dimension:	Ø2.5mm~Ø50mm, or Square

ITO Coating

ITO coating is given with the conductive layer on the glass surface. The conductive multi-layer coating with high efficiency anti-reflection is also available. Be applied in LCD, CRT, Aerospecs, Automotive, Entertainment, Imaging & Microscopy, Medical, Military & Defence, Research & Development, Space etc.

DLC Coating

DLC provides BBAR performance coupled with excellent protection of outer optical surfaces from negative influences of the environment (humidity, dust, atmospheric precipitations) and stays inert to mechanical strikes, thermal shock, acids, salts, solvents and other chemical reagents. It consists of carbon and hydrogen. Field of application is military devices and outside thermal cameras. Sometimes it's better to have window and lenses coated DLC+BBAR.
DLC coatings can be applied to Ge and Si substrates.

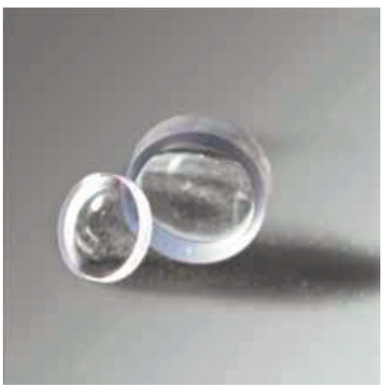
Prism

Material: BK7 Fused Silica etc.
Size: 3*3mm~200mm
Specification:
Angle: tolerance 10″-3′
Flatness: 0.2mm
Surface Quality: 40-20
Beam Deviation: 10″-3′
Type: Rectangular, Dove, Roof, Porro,
Pata Prism, Corner Cubes etc.

Lens

Lens include single lens and Achromatic doublet,
widely be applied in medical,
laser etc. fields.

Single lens

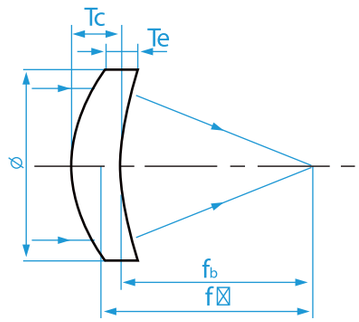


Material: BK7, Fused Silica, GE SI ZnSe Sapphire CaF2 etc.
Size: Ø3-Ø300mm
Focal Length: Positive Negative tolerance ±1%
Specification: Flatness λ/4 Center deviation 3′

Type	Focal Length	Diameter	PN
Plano-Convex Lens	6mm	3mm	CXL-6-D3T1.8-S
	15mm	5mm	CXL-15-D5T1.6-S
	25.4mm	12.7mm	CXL-25.4-D12.7T3-S
	60mm	30mm	CXL-60-D30T6-S
	100mm	50.8mm	CXL-100-D50.8T9-S
	200mm	50.8mm	CXL-200-D50.8T9-S
	500mm	80mm	CXL-500-D80T10-S
	1000mm	100mm	CXL-1000-D100T10-S
Plano-Concave Lens	-9.8mm	6mm	CVL-9.8-D6T1-S
	-15mm	10mm	CVL-15-D10T1.5-S
	-30mm	20mm	CVL-30-D20T2.5-S
	-75mm	25.4mm	CVL-75-D25.4T3-S
	-150mm	30mm	CVL-150-D30T3-S
	-200mm	38.1mm	CVL-200-D38.1T3-S
	-400mm	40mm	CVL-400-D40T3.5-S
	-600mm	50.8mm	CVL-600-D50.8T5-S
Bi-Convex Lens	10mm	6mm	BCX-10-D6T3-S
	30mm	20mm	BCX-30-D20T6-S
	75mm	38.1mm	BCX-75-D38.1T3-S
	150mm	40mm	BCX-150-D40T6-S
	350mm	60mm	BCX-350-D60T8-S
	1000nm	60mm	BCX-1000-D60T8-S

General Optical Component

Type	Focal Length	Diameter	PN
Bi-Concave Lens	-15mm	10mm	BCV-15-D10T2-S
	-38.1mm	12.7mm	BCV-38.1-D12.7T2-S
	-75mm	12.7mm	BCV-75-D25.4T3-S
	-125mm	30mm	BCV-125-D38.1T4-S
	-200mm	40mm	BCV-200-D40T5-S
	-500mm	50.8mm	BCV-500-D50.8T5-S
Meniscus Lens	50mm	25.4mm	MSL-50-D25.4T5-S
	-50mm	25.4mm	MSL-F50-D25.4T5-S
	1000mm	25.4mm	MSL-1000-D25.4T4-S
	-150mm	50.8mm	MSL-F150-D50.8T5-S
	2000mm	50.8mm	MSL-2000-D50.8T4.5-S
	-1000mm	50.8mm	MSL-F1000-D50.8T5-S



Achromatic Doublet

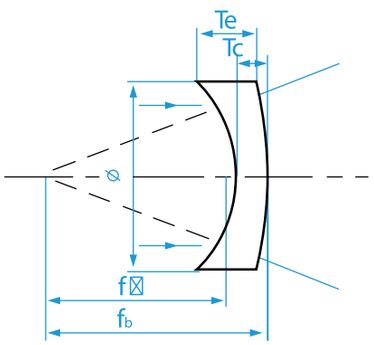
Material: Crown and Flint optical material

Size: Ø3-Ø300

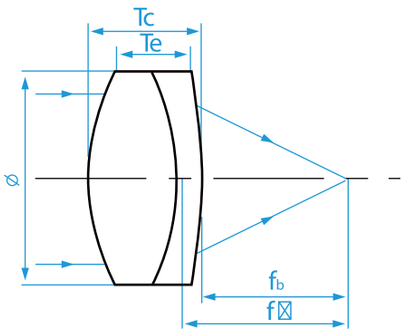
Specification: Flatness λ/4,Center deviation 3′

Type: Positive Achromatic Doublet, Negative Achromatic Doublet

Coating: Uncoated, AR coating etc.



Type	Focal Length	Diameter	PN
Positive Achromatic Doublet	10mm	6mm	ADL-10-D6T4.2-S
	20mm	10mm	ADL-20-D10T5-S
	50mm	20mm	ADL-50-D20T6-S
	150mm	30mm	ADL-150-D25.4T6.5-S
	300mm	40mm	ADL-300-D38.1T8-S
	500mm	50.8mm	ADL-500-D50.8T9-S
Negative Achromatic Doublet	-30mm	25.4mm	ANDL-30-D25.4T12-S
	-40mm	25.4mm	ANDL-40-D25.4T8.5-S
	-50mm	25.4mm	ANDL-50-D25.4T6.6-S
	-75mm	25.4mm	ANDL-75-D25.4T6.6-S
	-100mm	25.4mm	ANDL-100-D25.4T4.6S
	-150mm	25.4mm	ANDL-150-D25.4T6.6-S



Cylindrical Lens

Material: Crown and Flint optical material, Fused Silica etc.
Size: 5*5mm-300*300mm
Coating: uncoated, AR coating etc.
Type: Positive Cylindrical lens, Negative Cylindrical lens

Type	Effective Focal Length(mm)	Dimension(L*W)	Center Thickness(mm)	P/N
Plano-Convex Cylindrical Lens	6.35	6.35*6.35	3.3	CYXL-6.35-6.35*6.35-S
	12.7	12.7*12.7	5.9	CYXL-12.7-12.7*12.7-S
	12.7	25.4*12.7	5.9	CYXL-12.7-25.4*12.7-S
	25.4	25.4*12.7	9.99	CYXL-25.4-25.4*12.7-S
	25.4	25.4*25.4	11.31	CYXL-25.4-25.4*25.4-S
	50.8	50.8*12.7	3.78	CYXL-50.8-50.8*12.7-S
	50.8	25.4*25.4	5.28	CYXL-50.8-25.4*25.4-S
	50.8	50.8*50.8	21.61	CYXL-50.8-50.8*50.8-S
Plano-Concave Cylindrical Lens	80	40*20	4.23	CYXL-80-40*20-S
	80	60*40	8.16	CYXL-80-60*40-S
	100	60*50	9.45	CYXL-80-60*50-S
	-6.35	6.35*6.35	2.5	CYVL-6.35-6.35*6.35-S
	-12.7	12.7*12.7	2.5	CYVL-12.7-12.7*12.7-S
	-12.7	25.4*12.7	2.5	CYVL-12.7-25.4*12.7-S
	-25.4	25.4*12.7	2.5	CYVL-25.4-25.4*12.7-S
	-25.4	25.4*25.4	2.5	CYVL-25.4-25.4*25.4-S
	-50.8	50.8*12.7	2.5	CYVL-50.8-50.8*12.7-S
	-50.8	25.4*25.4	3	CYVL-50.8-25.4*25.4-S
	-50.8	50.8*50.8	3	CYVL-50.8-50.8*50.8-S
	-80	40*20	2.5	CYVL-80-40*20-S
	-80	60*40	3	CYVL-80-60*40-S
	-100	60*50	3	CYVL-100-60*50-S

Waveplate

Waveplate(retardation plates or phase shifters)are made from materials which exhibit birefraction index,the velocities of the extraordinary
and ordinary rays through the birefringent materials vary inversely with their refractive indexes.
Material: Crystalline quartz
Size: As requirement
Surface Quality: 20-10
Wavelength: 266nm 532nm,1064nm 1550nm etc.
Type: Zero order, Multi order, low order etc.

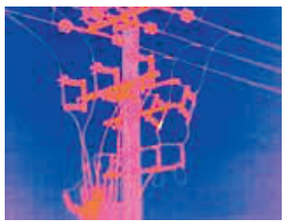
UV/Visible Corona Detector

Working Principle

Using the sun "blind"phonomenon,UV Corona Detection System by adopting a "solar blind"UV band pass filter with deep blocking and its matched photocathode,only respond to 240~280nm band UV radiation,making the "Solar Filter"Corona UV detection system can detect corona in daylight conditions. Although the radiation of corona is weaker than in the 230~450nm , completely without interference of the sun background radiation, "Solar Filter"UV corona detection can provide high-quality,high contrast images.

Contrast Corona Detection with Infrared thermal imaging Detection

UV/Visible Corona Detection	Infrared Thermal Imaging Detection
Detecting UV radiation by the corona discharge	Measuring temperature, looking for abnormal heat phenomenon
Associated with the voltage	Associated with the current
Do not affected by the sunlight	Strongly affected by sunlight
Can detect the early stage of the phenomenon of Defect	Can detect the late stage of the phenomenon of Defect



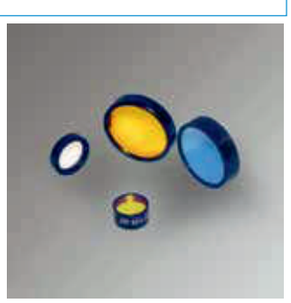
Main structure of UV/Visible Corona Detect

Solar blind"UV/visible corona detection equipment by splitting the incident light into visible and UV lights, respectively,into the visible and UV channels. The Ultraviolet images generated by the two-channel's corona discharge, through the electronic system ultraviolet image processing board for video capture,processing,stacking, and finally enter the LCD monitor and achieve the show of composite UV and visible light images.

Main performance parameters of UV/Visible Corona Detection

Channel	UV channel	Visible channel
Image Sensor	SONY 1/2Inch CCD	SONY 1/4Inch CCD
Video signal system	CCIR	PAL Standard
Pixels	440,000 pixels:768(Level)×582(Vertical)	
Shot	f=168mm,F3	18 opticalzoom f=4.1~73.8mm
Field of view angle	5°×3.75°	
Backlight Compensation	Auto/22 manual	
Electronicshutler	1~1/10000 sencond	
LCD Monitor	5Inch TET Color, 960(Level)×234(Vertical)	
Gainadju adjustment rang	0%~100% 10stalls adjustable	Automatic-3dB~18dB
Memory	4MB Flash(can store about 100 JPEG images)	
Video output format	PAL Standard composite video signal format	
Power supply	200v or DC 15V±10%	
Dimention(L×W×H mm)	280×200×150	

Solar Blind Filter



Technical index

Optical spectrum coming from the sun include all wave band from ultraviolet wave to infrared wave. Ozone of the atmospheric strongly absorb 240-280nm ultraviolet wave ,so this wave band cannot arrive at the earth's surface .This is the reason for the coming about of the solar blind.This solar blind filter only allow the solar blind wave band across,at the same time stop the other wave land .Degree of the closing is greater than OD10.

Laser Night Vision Device

Laser night vision device has many merits, which are low price, stabilization, operating facility, long life, far observing distance(100m-4000m).
Mainly apply: maritime affair, coast, salvage, frontier, border, frontier observing, police, airdrome, and port.Perfect design for variable environment, strong alloy metal, resisting impact, antisepsis, safety of IP66.

Contrast

Type		03S/Z (hand)	1Z	2Z	4Z
observation distance		1km (day)	3km (day)	10km (day)	10km (day)
(1×1×1m Target)		300m (night)	1km (night)	2km (night)	4km (night)
lens variable focus		50~200mm	11~374mm	20~600mm	1024mm
Observation angle (day)		0.63~3.78°	0.35~23.8°	0.23~13.8°	0.2~0.4°
Observation angle (night) [mainly restrict by laser's illumination angle]		1.8°	1°	0.7~0.8°	0.4°
magnify		×6(day),×4(night)	×68(day), ×6(night)	×60(day), ×10(night)	—
laser illumination	Power	1.5w	6w	10w	15w
	wavelength	980nm	980nm/940nm	808nm/980nm	808nm
	angle	2.0°	1.5°	1.0°	0.4°
safe distance between eyes and laser		10m	25m/30m	100m/70m	300m
Platform	Horizontal	N/A	-170°~+170°	-170°~+170°	-170°~+170°
	Vertical		-45°~+45°	-45°~+45°	-45°~+45°
	Running speed		0.5°~3°/sec	0.1°~12°/sec	0.1°~12°/sec
	Running error		0.5°	0.02°	0.02°
CCD1/3inch IR low illumination	Efficiency pixel	795×596	795×596	795×596	795×596
	definition	600TVLine	600TVLine	600TVLine	600TVLine
	SNR	60db	60db	60db	60db
Protect time of instant strong laser sending		1S	2S	2S	2S
laser range finder(safe distance is 20 meters)		choose	choose	4km	6km
Fast running speed of observing object		May set	100 period	200 period	400 period
Observing image diameter(m^2)		3.5×2.5	12×9	17×14	25×18
Consume power		15W	55W	125W	135W
working temperature		-25~+55℃	-25~+55℃	-25~+55℃	-25~+55℃
size(W×H×L)		———-	——	——	———
weight		2kg	12kg	28kg	50kg

Type

DH-4Z

DH-1Z

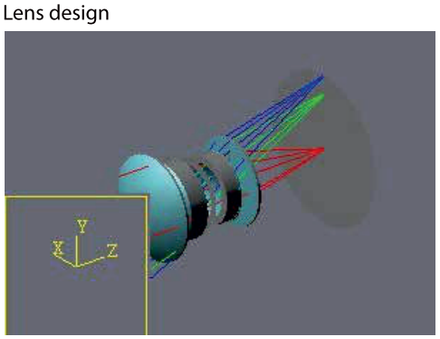
DH-03Z

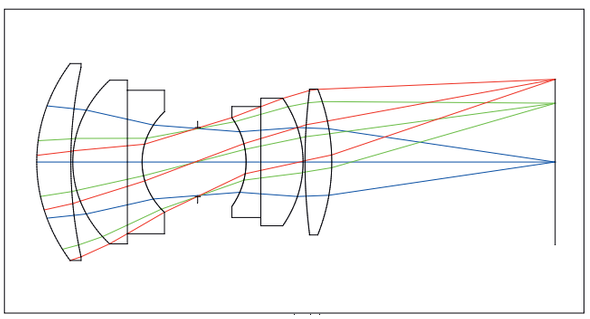
DH-C01Z

Optical System Design

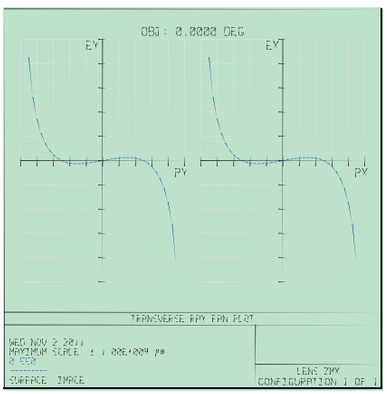
Benefit from our many years of experience in the development of optical system design. Our optical designing service are relate to laser material processing, imaging system, microsystem, and etc. We are in pursuit of high precision design and high-quality technology at all times. Now we know the latest optical design Microsoft and illumination Microsoft, such as Zemax, Code V, Lighttools and Tracepro.

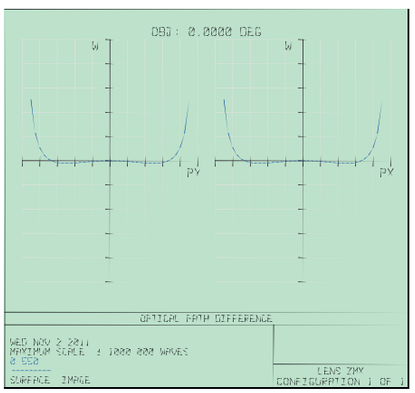
Lens design



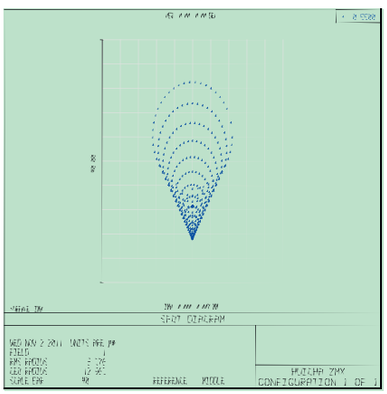


Spherical aberration analysis

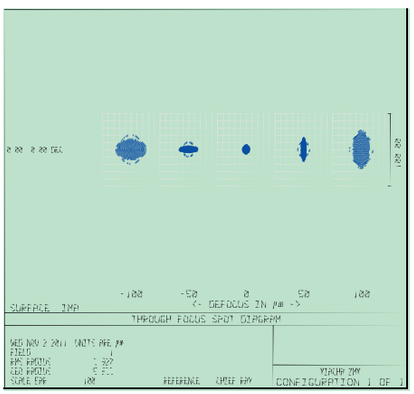




Coma aberration analysis



Astigmatism aberration analysis



AR Polarizing Beamsplitter

Description

We have developed technologies to manufacture the Polarizing Beamsplitter (PBS) with higher efficiency and lower contrast ratio which can be applied in various types of AR devices.

Applications

· Augmented Reality
· HUD System
· Pico-Projector
· Laser Projector
· Wearable Device
· Near-Eye Display

Benefits

· High Lumens throughput
· Brightness and contrast uniformity
· Minimum dead area
· Low energy consumption
· Flexible shape and size

Products

• Dimension: minimum to 2mm cubic
• Dimension tolerance: ±0.01mm
• Angular tolerance: ±1′
• Flatness: λ/8
• Surface quality: 40-20
• Spectral performance: Tp>95%,Rs>99%@420-680nm
• AOI.: 45±20°
• Contrast>300:1

PBS For 3D Projection Display

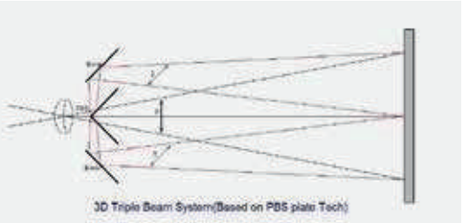
Description

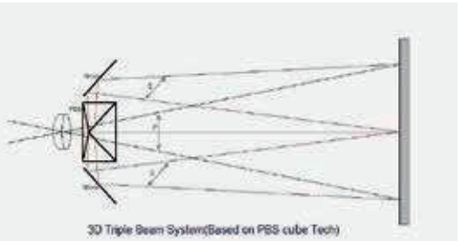
We specialized in 3D display optics. Our products include polarizing beam splitter(PBS), mirror and window, which can make your 3D display system brighter and clearer with excellent performance of higher light efficiency and lower crosstalk.

Benefits

- Brightness and contrast uniformity
- High reliability
- Wavelength and AOI independent
- Size and shape as your request
- Wide wavelength range

Products

Item	PBS Plate	Application
Character	Light e fficiency:10% higher than Wire Grid Polarizers Less absorption loss Precise Alignment Tp>98%@420-680nm Rs>99.5%@420-680nm AOI:45±20° Transmittance Distortion<λ/8 Reflectance Distortion<λ/4	

Item	PBS Cube	Application
Character	Designed for laser source No diffraction shadow in the center No color deviation Less absorption loss Precise Alignment Tp>98%@420-680nm Rs>99.5%@420-680nm Transmittance Distortion<λ/8 Reflectance Distortion<λ/4	

Filter For Drone-Based Monitoring

Description

We are delighted to offer series of filters specially designed for remote monitoring by drones. Filters are covered from UV band to IR band.

Applications

· Monitor forest fire
· Agricultural monitoring
· Detect Corona and Arcing Emitted on high voltage equipment
· Range Finding
· Image recognition

Benefits

· Wide field of view with minimal spectral shift
· High transmission
· High temperature stability
· Size and shape as your request

Products

Band	CWL	FWHM	Tpeak	Blocking(average)
UV	266nm	20nm	T>20%	OD12@300-700nm
VIS	440nm	15nm	T>90%	OD4@U V-1200nm
	505nm	20nm	T>90%	OD4@U V-1200nm
	665nm	15nm	T>90%	OD4@U V-1200nm
NIR	840nm	15nm	T>90%	OD4@U V-1200nm
	905nm	15nm	T>90%	OD4@U V-1200nm
	940nm	15nm	T>90%	OD4@U V-1200nm
	1550nm	60nm	T>90%	OD4@U V-1800nm
	1575nm	60nm	T>90%	OD4@U V-1800nm
IR	3.4μm	140nm	T>85%	OD3@U V-11μm
	4.66μm	180nm	T>85%	OD3@U V-11μm
	5.33μm	300nm	T>85%	OD3@U V-11μm
	7.3μm	180nm	T>85%	OD3@U V-11μm

Filter in Stock

UV Band

			DIA12(mm	DIA15(mm)	DIA25.4(mm)
CWL(nm)	FWHM(nm	Blocking(nm)	P/N	P/N	P/N
220	10	200-1100	F-220-10-01	F-220-10-02	F-220-10-03
254	10	200-1100	F-254-10-01	F-254-10-02	F-254-10-03
280	10	200-1100	F-280-10-01	F-280-10-02	F-280-10-03
340	10	200-1100	F-340-10-01	F-340-10-02	F-340-10-03

UV Band

			DIA12(mm	DIA15(mm)	DIA25.4(mm)
CWL(nm)	FWHM(nm)	Blocking(nm)	P/N	P/N	P/N
340	10	200-700	F-340-10-04	F-340-10-05	F-340-10-06
365	10	200-1100	F-365-10-01	F-365-10-02	F-365-10-03
394	10	200-1100	F-394-10-01	F-394-10-02	F-394-10-03
394	10	200-700	F-394-10-04	F-394-10-05	F-394-10-06

VIS Band

			DIA10(mm)	DIA12.7(mm)	DIA25.4(mm)
CWL(nm)	FWHM(nm)	Blocking(nm)	P/N	P/N	P/N
405	8	200-1100	F-405-8-01	F-405-8-02	F-405-8-03
410	10	200-1100	F-410-10-01	F-410-10-02	F-410-10-03
415	20	200-1100	F-415-20-01	F-415-20-02	F-415-20-03
440	10	200-1100	F-440-10-01	F-440-10-02	F-440-10-03
440	20	200-1100	F-440-20-01	F-440-20-02	F-440-20-03
450	8	200-1100	F-450-8-01	F-450-8-02	F-450-8-03
465	20	200-1100	F-465-20-01	F-465-20-02	F-465-20-03
470	10	200-1100	F-470-10-01	F-470-10-02	F-470-10-03
470	20	200-1100	F-470-20-01	F-470-20-02	F-470-20-03
470	30	200-1100	F-470-30-01	F-470-30-02	F-470-30-03
476	10	200-1100	F-476-10-01	F-476-10-02	F-476-10-03
480	8	200-1100	F-480-8-01	F-480-8-02	F-480-8-03
488	8	200-1100	F-488-8-01	F-488-8-02	F-488-8-03
492	8	200-1100	F-492-8-01	F-492-8-02	F-492-8-03
495	8	200-1100	F-495-8-01	F-495-8-02	F-495-8-03
510	8	200-1100	F-510-8-01	F-510-8-02	F-510-8-03
515	8	200-1100	F-515-8-01	F-515-8-02	F-515-8-03
520	10	200-1100	F-520-10-01	F-520-10-02	F-520-10-03
523	20	200-1100	F-523-20-01	F-523-20-02	F-523-20-03
525	20	200-1100	F-525-20-01	F-525-20-02	F-525-20-03
530	5	200-1100	F-530-5-01	F-530-5-02	F-530-5-03
530	10	200-1100	F-530-10-01	F-530-10-02	F-530-10-03
530	40	200-1100	F-530-40-01	F-530-40-02	F-530-40-03
532	10	200-1100	F-532-10-01	F-532-10-02	F-532-10-03
543	20	200-1100	F-543-20-01	F-543-20-02	F-543-20-03
546	8	200-1100	F-546-8-01	F-546-8-02	F-546-8-03

VIS Band

			DIA10(mm	DIA12.7(mm)	DIA25.4(mm)
CWL(nm)	FWHM(nm)	Blocking(nm)	P/N	P/N	P/N
550	10	200-1100	F-550-10-01	F-550-10-02	F-550-10-03
550	30	200-1100	F-550-30-01	F-550-30-02	F-550-30-03
560	10	200-1100	F-560-10-01	F-560-10-02	F-560-10-03
564	20	200-1100	F-564-20-01	F-564-20-02	F-564-20-03
571	20	200-1100	F-571-20-01	F-571-20-02	F-571-20-03
575	8	200-1100	F-575-8-01	F-575-8-02	F-575-8-03
584	20	200-1100	F-584-20-01	F-584-20-02	F-584-20-03
590	10	200-1100	F-590-10-01	F-590-10-02	F-590-10-03
600	10	200-1100	F-600-10-01	F-600-10-02	F-600-10-03
620	8	200-1100	F-620-8-01	F-620-8-02	F-620-8-03
628	20	200-1100	F-628-20-01	F-628-20-02	F-628-20-03
630	8	200-1100	F-630-8-01	F-630-8-02	F-630-8-03
635	25	200-1100	F-635-25-01	F-635-25-02	F-635-25-03
647	10	200-1100	F-647-10-01	F-647-10-02	F-647-10-03
650	10	200-1100	F-650-10-01	F-650-10-02	F-650-10-03
650	20	200-1100	F-650-20-01	F-650-20-02	F-650-20-03
660	20	200-1100	F-660-20-01	F-660-20-02	F-660-20-03
665	8	200-1100	F-665-8-01	F-665-8-02	F-665-8-03
670	8	200-1100	F-670-8-01	F-670-8-02	F-670-8-03
674	25	200-1100	F-674-25-01	F-674-25-02	F-674-25-03
678	20	200-1100	F-678-20-01	F-678-20-02	F-678-20-03
680	10	200-1100	F-680-10-01	F-680-10-02	F-680-10-03
690	10	200-1100	F-690-10-01	F-690-10-02	F-690-10-03
692	20	200-1100	F-692-20-01	F-692-20-02	F-692-20-03
698	8	200-1100	F-698-8-01	F-698-8-02	F-698-8-03
700	8	200-1100	F-700-8-01	F-700-8-02	F-700-8-03

NIR Band

			DIA15(mm)	DIA25.4(mm)	DIA50(mm)
CWL(nm)	FWHM(nm)	Blocking(nm)	P/N	P/N	P/N
710	20	200-1100	F-710-20-01	F-710-20-02	F-710-20-03
710	50	200-1100	F-710-50-01	F-710-50-02	F-710-50-03
718	20	200-1100	F-718-20-01	F-718-20-02	F-718-20-03
750	10	200-1100	F-750-10-01	F-750-10-02	F-750-10-03
750	40	200-1100	F-750-40-01	F-750-40-02	F-750-40-03
760	10	200-1100	F-760-10-01	F-760-10-02	F-760-10-03
770	60	200-1100	F-770-60-01	F-770-60-02	F-770-60-03
780	30	200-1100	F-780-30-01	F-780-30-02	F-780-30-03
808	25	200-1100	F-808-25-01	F-808-25-02	F-808-25-03
830	10	200-1100	F-830-10-01	F-830-10-02	F-830-10-03
835	10	200-1100	F-835-10-01	F-835-10-02	F-835-10-03
840	12	200-1100	F-840-12-01	F-840-12-02	F-840-12-03
845	15	200-1100	F-845-15-01	F-845-15-02	F-845-15-03
850	15	200-1100	F-850-15-01	F-850-15-02	F-850-15-03
850	30	200-1100	F-850-30-01	F-850-30-02	F-850-30-03
850	50	200-1100	F-850-50-01	F-850-50-02	F-850-50-03
850	60	200-1100	F-850-60-01	F-850-60-02	F-850-60-03
860	30	200-1100	F-860-30-01	F-850-30-02	F-850-30-03
860	60	200-1100	F-860-60-01	F-860-60-02	F-860-60-03
873	15	200-1100	F-873-15-01	F-873-15-02	F-873-15-03
875	10	200-1100	F-875-10-01	F-875-10-02	F-875-10-03
880	18	200-1100	F-880-18-01	F-880-18-02	F-880-18-03
900	40	200-1100	F-900-40-01	F-900-40-02	F-900-40-03
905	33	200-1100	F-905-33-01	F-905-33-02	F-905-33-03
905	48	200-1100	F-905-48-01	F-905-48-02	F-905-48-03
927	10	200-1200	F-927-10-01	F-927-10-02	F-927-10-03
930	10	200-1200	F-930-10-01	F-930-10-02	F-930-10-03
930	40	200-1200	F-930-40-01	F-930-40-02	F-930-40-03
935	40	200-1200	F-935-40-01	F-935-40-02	F-935-40-03
940	15	200-1200	F-940-15-01	F-940-15-02	F-940-15-03
940	40	200-1200	F-940-40-01	F-940-40-02	F-940-40-03
940	75	200-1200	F-940-75-01	F-940-75-02	F-940-75-03
945	40	200-1200	F-945-40-01	F-945-40-02	F-945-40-03
950	40	200-1200	F-950-40-01	F-950-40-02	F-950-40-03
955	40	200-1200	F-955-40-01	F-955-40-02	F-955-40-03
960	55	200-1200	F-960-55-01	F-960-55-02	F-960-55-03

NIR Band

			DIA15(mm)	DIA25.4(mm)	DIA50(mm)
CWL(nm)	FWHM(nm)	Blocking(nm)	P/N	P/N	P/N
960	80	200-1200	F-960-80-01	F-960-80-02	F-960-80-03
970	50	200-1200	F-970-50-01	F-970-50-02	F-970-50-03
1015	10	200-1200	F-1015-10-01	F-1015-10-02	F-1015-10-03
1057	30	200-1200	F-1057-30-01	F-1057-30-02	F-1057-30-03
1060	10	200-1200	F-1060-10-01	F-1060-10-02	F-1060-10-03
1060	30	200-1200	F-1060-30-01	F-1060-30-02	F-1060-30-03
1064	10	200-1200	F-1064-10-01	F-1064-10-02	F-1064-10-03
1064	10	200-1500	F-1064-10-04	F-1064-10-05	F-1064-10-06
1064	30	200-1200	F-1064-30-01	F-1064-30-02	F-1064-30-03
1071	10	200-1200	F-1071-10-01	F-1071-10-02	F-1071-10-03
1073	30	200-1200	F-1073-30-01	F-1073-30-02	F-1073-30-03
1090	30	200-1200	F-1090-30-01	F-1090-30-02	F-1090-30-03
1310	10	200-1500	F-1310-10-01	F-1310-10-02	F-1310-10-03
1403	10	200-2200	F-1403-10-01	F-1403-10-02	F-1403-10-03
1410	10	200-2200	F-1410-10-01	F-1410-10-02	F-1410-10-03
1417	10	200-2200	F-1417-10-01	F-1417-10-02	F-1417-10-03
1422	10	200-2200	F-1422-10-01	F-1422-10-02	F-1422-10-03
1436	18	200-2200	F-1436-18-01	F-1436-18-02	F-1436-18-03
1445	15	200-2200	F-1445-15-01	F-1445-15-02	F-1445-15-03
1550	10	200-2200	F-1550-10-01	F-1550-10-02	F-1550-10-03
1550	40	200-2200	F-1550-40-01	F-1550-40-02	F-1550-40-03
1557	40	200-2200	F-1557-40-01	F-1557-40-02	F-1557-40-03
1572	14	200-2200	F-1572-14-01	F-1572-14-02	F-1572-14-03
1574	14	200-2200	F-1574-14-01	F-1574-14-02	F-1574-14-03
1593	13	200-2200	F-1593-13-01	F-1593-13-02	F-1593-13-03
1600	15	200-2200	F-1600-15-01	F-1600-15-02	F-1600-15-03
1650	15	200-2200	F-1650-15-01	F-1650-15-02	F-1650-15-03
1676	15	200-2200	F-1676-15-01	F-1676-15-02	F-1676-15-03
1690	13	200-2200	F-1690-13-01	F-1690-13-02	F-1690-13-03
1725	15	200-2200	F-1725-15-01	F-1725-15-02	F-1725-15-03
1760	15	200-2200	F-1760-15-01	F-1760-15-02	F-1760-15-03
1762	12	200-2200	F-1762-12-01	F-1762-12-02	F-1762-12-03
1960	15	200-2200	F-1960-15-01	F-1960-15-02	F-1960-15-03
2003	15	200-2200	F-2003-15-01	F-2003-15-02	F-2003-15-03
2008	15	200-2200	F-2008-15-01	F-2008-15-02	F-2008-15-03

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Санкт-Петербург	(800) 333-06-05
Москва	(495) 988-02-72
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Чебоксары	(8352) 23-79-55
Новосибирск	(383) 233-34-87
Ростов-на-Дону	(863) 227-03-93
Минск	+375 (29) 771-85-15