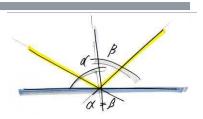


LEDIL Standard Optics for CREE LEDs

Ledil Oy, Tehdaskatu 13, 24100 SALO, Finland www.ledil.com



© Ledil Oy

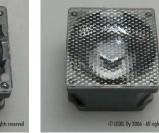
October 2008

Lenses for XR-E and XR-C CRS





CRS-RS



CRS-SS

CRS-W

CRS-D



CRS-M

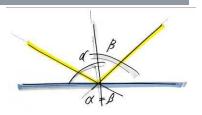




CRS-O

- Specially designed for Cree XR-E and XR-C
- Lens material optical grade PC with high UV and temperature resistance (130° C/220° F). Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Integrated holder. Fastening to heat sink with a PU foam adhesive tape of automotive grade
- Compact dimensions 21.6 x 21.6 mm.

LENS TYPE	ORDERING CODE	FWHM
CRS real spot	CRS-RS, FA10303	±6°
CRS smooth spot	CRS-SS, FA10328	±7°
CRS diffuser	CRS-D, FA10304	±7°
CRS medium	CRS-M, FA10305	±14°
CRS wide	CRS-W, FA10343	±30°
CRS oval	CRS-O, FA10306	$\pm 6^{\circ} \times \pm 24^{\circ}$



Lenses for XR-E and XR-C LC1

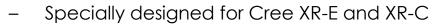




LC1-RS



LC1-D



 Lens material optical grade PMMA with high UV and temperature resistance (105° C/220° F).
 Allows use of high current and temperature conditions

 Very even color distribution over the whole beam angle

 Holder to be glued to PCB first, then assemble lens. Parts delivered separately

- Compact dimensions D=21.6 mm.

LENS TYPE	ORDERING CODE	FWHM
LC1 real spot	LC1-RS FA10454	±3°
LC1 diffuser	LC1-D F 10627	±5°
LC1 medium	LC1-M FA10452	±14°
LC1 Rectangular	LC1-REC FA10511	±11° x ±21°

LC1-M



© Ledil Oy

LC1-REC

a B a B

October 2008

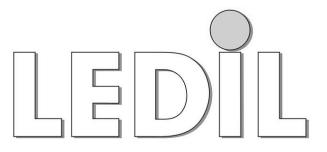
Lenses for XR-E and XR-C LC1-TAPE



LC1-TAPE-RS



LC1-TAPE-D



- Specially designed for Cree XR-E and XR-C
- Lens material optical grade PMMA with high UV and temperature resistance (105° C/220° F).
 Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Integrated holder WITH TAPE, parts assembled together
- Compact dimensions D=21.6 mm.

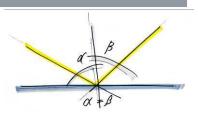
LENS TYPE	ORDERING CODE	FWHM
LC1 real spot	LC1-TAPE-RS FA10653	±3°
LC1 diffuser	LC1-TAPE-D FA 10655	±5°
LC1 medium	LC1-TAPE-M FA10652	±14°
LC1 Rectangular	LC1-TAPE-REC FA10654	±11° x ±21°

LC1-TAPE-M



© Ledil Oy

-M LC1-TAPE-REC



October 2008

Lenses for XR-E and XR-C ROCKET





ROCKET-SS



ROCKET-O



ROCKET-M



ROCKET-W

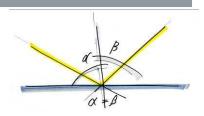


- Lens material optical grade PMMA with high UV and temperature resistance (105° C/220 ° F)
- No lens holder. Fastening to PCB with a PU foam tape of automotive grade
- Diameter 26 mm (approximately 1")

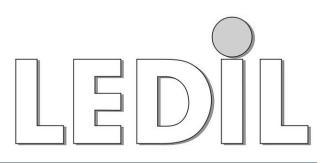
LENS	ORDERING CODE	FWHM
ROCKET smooth spot	Rocket-ss, c10324	$\pm 4^{\circ}$
ROCKET medium	ROCKET-M, C10250	±13°
ROCKET wide	ROCKET-W, C10406	±19°
ROCKET oval	ROCKET-O, C10325	±3° x 20°

October 2008

© Ledil Oy



Lenses for XR-E and XR-C LEDs ROCKET-3





ROCKET-3-SS



ROCKET-3-M

ROCKET-3-W



 Lens material optical grade PMMA with high UV and temperature resistance (105° C/220° F). Very even color distribution over the whole beam angle

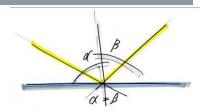
- Compact dimensions of a MR16 fixture, D = 50 mm
- NO sub lenses used; every lens is one molding only



LENS	ORDERING CODE	FWHM
ROCKET-3 smooth spot	Rocket-3-ss, C10366	±5°
ROCKET-3 medium	ROCKET-3-M, C10367	±10°
ROCKET-3 wide	ROCKET-3-W, C10365	±25°

October 2008

© Ledil Oy

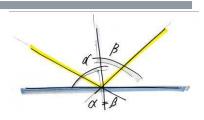


Lenses for XR-E and XR-C CUTE-3



- Specially designed for Cree XR-E and XR-C
- Lens material optical grade PMMA with high UV and temperature resistance (105° C/220° F).
 Very even color distribution over the whole beam angle
- Compact dimensions of a MR11 fixture, D = 35 mm
- NO sub lenses used; every lens is one molding only

LENS	ORDERING CODE	FWHM
CUTE-3 smooth spot	CUTE-3-SS, C10428	±6°
CUTE-3 medium	CUTE-3-M, C10427	±10°



Lenses for XR-E and XR-C CUTE-4

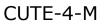




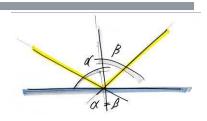


- Specially designed for Cree XR-E and XR-C
- Lens material optical grade PMMA with high UV and temperature resistance (105° C/220° F).
 Very even color distribution over the whole beam angle
- Compact dimensions of a MR11 fixture, D = 35 mm
- NO sub lenses used; every lens is one molding only

CUTE-4-SS

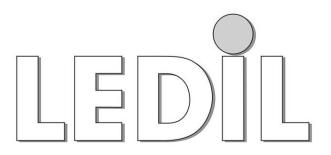


LENS	ORDERING CODE	FWHM
CUTE-4 smooth spot	CUTE-4-SS, C10446	±6°
CUTE-4 medium	CUTE-4-M, C10447	±9°



Lenses for Dragon FLARE-C series

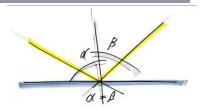




- Lens designed for Cree Xlamp XR, XR-C and XR-E
- Lens material optical grade PMMA with high UV and temperature resistance (105° C/220° F). Allows use of high current and temperature conditions
- Best available optical efficiency
- Fastening to PCB & heat sink with 2 screws (and TAPE, in that version)
- LED can be assembled parallel or perpendicular to the x,y axis (to turn the light distribution by 90°)
- Compact dimensions 23 x 25 mm. Square form enables easy build of a line without any gaps between lenses
- Especially suitable for Beacon and other 360° solutions and in linear solutions with high evenness requirements

LENS TYPE	ORDERING CODE	FWHM
FLARE-C	FLARE-C, C10402	$\pm 4^{\circ} \times \pm 45^{\circ}$
FLARE-C with TAPE	FLARE-C-TAPE, C10563	$\pm 4^{\circ} \times \pm 45^{\circ}$
FLARE-C Diffused	FLARE-C-DIFF, C10527	$\pm 6^{\circ} \times \pm 42^{\circ}$





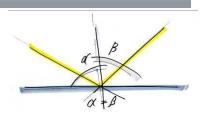
Lenses for XP-E and XP-C LXP (TAPE)





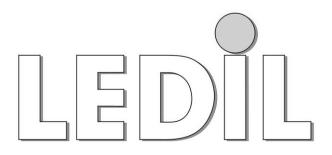
- Specially designed for Cree XP-E and XP-C
- Lens material optical grade PMMA with high UV and temperature resistance (105° C/220° F).
 Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Integrated holder WITH TAPE, parts assembled together
- Compact dimensions D=21.6 mm.

LENS TYPE	ORDERING CODE	FWHM
LXP real spot	LXP-RS FA10661	±3°
LXP diffuser	LXP-D FA 10663	±5°
LXP medium	LXP-M FA10660	±13°
LXP rectangular	LXP-REC FA10662	±11° x ±21°



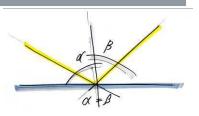
Lenses for XR-E and XR-C CXP





- Specially designed for Cree XP-E and XP-C
- Lens material optical grade PC with high UV and temperature resistance (130° C/220° F). Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Integrated holder. Fastening to heat sink with a PU foam adhesive tape of automotive grade
- Compact dimensions 21.6 x 21.6 mm.

LENS TYPE	ORDERING CODE	FWHM
CXP real spot	CXP-RS, FA10668	±3°
CXP smooth spot	CXP-SS, FA10667	± 5°
CXP diffuser	CXP-D, FA10666	±9°
CXP medium	СХР-М, FA10665	±15°
CXP wide	CXP-W, FA10708	±30°
CXP oval	CXP-O, FA10669	$\pm 6^{\circ} \times \pm 22^{\circ}$

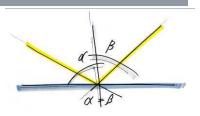


Lenses for XP-E and XP-C LISA-XP



- Specially designed for XP-E and XP-C
- Lens material optical grade PMMA with high UV and temperature resistance (105° C/220° F).
 Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Integrated holder. Fastening to PCB using appropriate glue
- Compact dimensions D=10.8 mm.

LENS TYPE	ORDERING CODE	FWHM
LISA-XP1 smooth spot	LISA-XP1-SS, CA10641	±9°



Lenses for XP-E and XP-C TINA-XP

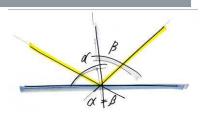






- Specially designed for Cree XP-E and XP-C
- Lens material optical grade PMMA with high UV and temperature resistance (105° C/220° F). Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Fastening to PCB by adhesive tape
- Compact dimensions D=16 mm, h=10.5 mm (max)

LENS TYPE	ORDERING CODE	FWHM
TINA XP diffuser	TINA-XP-D, FA10580	Ca. ±7°
TINA XP medium	TINA-XP-M, FA10581	Ca. ±15°



October 2008

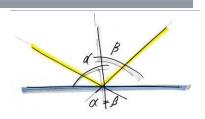
Lenses for XR-E and XR-C **TWIDDLE**





- REVOLUTIONARY ADJUSTABLE LENS free tilting by $\pm 15^{\circ}$
- Specially designed for XR-E and XR-C
- Very even color distribution over the whole beam angle
- Double lens system with holder and tape
- Compact dimensions D=22 mm, h=15 mm (max)

LENS TYPE	ORDERING CODE	FWHM
TWIDDLE XR spot	TWIDDLE-XR-S, FA10740	Ca. ±7°
TWIDDLEXR medium	TWIDDLE-XR-M, FA10741	Ca. ±15°
TWIDDLE XR wide	TWIDDLE-XR-W, FA10742	±30°



Lenses for MC-E LM1







LM1-REC

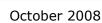


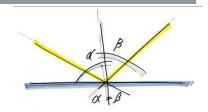
LM1-M



- Specially designed for Cree MC-E LEDs
- Lens material optical grade PMMA with high UV and temperature resistance (105° C/220° F).
 Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Holder to be glued to PCB first, then assemble lens. Parts delivered separately
- Compact dimensions D=21.6 mm.

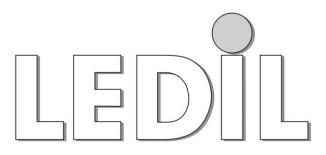
LENS TYPE	ORDERING CODE	FWHM
LM1 diffuser	LM1-D F10630	±10°
LM1 medium	LM1-M FA10614	±13°
LM1 Rectangular	LM1-REC FA10615	$\pm 19 \text{ x} \pm 12^{\circ}$





Lenses for MC-E **RGBx**





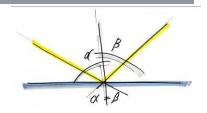
- Specially designed for Cree MC-E LEDs
- Lens material optical grade PMMA with high UV and temperature resistance (130° C/280° F).
 Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Integrated holder.
- Dimensions D=27.96 mm, h=25.09 mm.



LENS TYPE	ORDERING CODE	FWHM
RGBX	RGBX, C10548	N/A

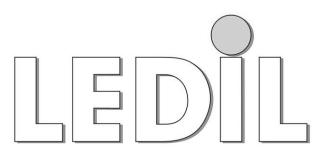
October 2008





Lenses for MC-E CMC

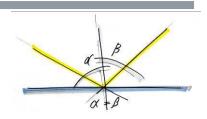




- Specially designed for MC-E LEDs
- Lens material optical grade PC with high UV and temperature resistance (130° C/220° F). Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Integrated holder. Fastening to heat sink with a PU foam adhesive tape of automotive grade
- Compact dimensions 21.6 x 21.6 mm.

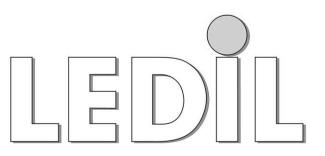
LENS TYPE	ORDERING CODE	FWHM
CMC real spot	CMC-RS, FA10674	N/A
CMC smooth spot	CMC-SS, FA10672	N/A
CMC medium	СМС-М, FA10671	N/A
CMC diffuser	CMC-D, FA10672	N/A
CMC oval	СМС-О, FA10675	N/A
CMC wide	CMC-W, FA10714	N/A





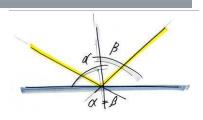
Lenses for MC-E LEDs ROCKET-3-MC





- Specially designed for MC-E LEDs
- Lens material optical grade PMMA with high UV and temperature resistance (105° C/220° F). Very even color distribution over the whole beam angle
- Compact dimensions of a MR16 fixture, D = 50 mm
- NO sub lenses used; every lens is one molding only

LENS	ORDERING CODE	FWHM
ROCKET-3 smooth spot	Rocket-3-mc-ss, c10681	N/A
ROCKET-3 medium	ROCKET-3-MC-M, C10681	N/A
ROCKET-3 wide	ROCKET-3-MC-W, C10683	N/A

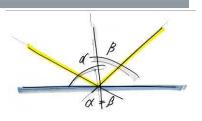


Reflectors for MC-E BOOM



- Specially designed for MC-E LEDs
- Material optical ABS, vacuum coated with aluminum and protected with lacquer
- Very even color distribution over the whole beam angle
- Dimensions D=22.22 mm, height 13.54 mm.

LENS TYPE	ORDERING CODE	FWHM
BOOM-MC Spot	BOOM-MC-SS, C10569	±10°
BOOM-MC Medium	воом-мс-м, с10570	±19°
BOOM-MC Wide	BOOM-MC-W, C10571	±24°

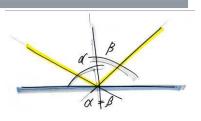


Lenses for MC-E EVA



- Specially designed for MC-E LEDs
- Standard MR11 size for replacing halogen lamps
- Material optical grade PMMA, with high UV and temperature resistance (130° C/280° F). Allows use of high current and temperature conditions
- Special care taken to make a uniform white or warm white illumination. Lenses work
- well with other colors, too.Dimensions D=35 mm, height 16.4 mm.

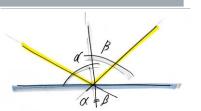
LENS TYPE	ORDERING CODE	FWHM
EVA-SS Smooth Spot	eva-ss, c10684	N/A
EVA-M Medium	EVA-M, C10685	N/A
EVA-W Wide	EVA-W, C10686	N/A





LEDIL Standard Optics for Osram LEDs

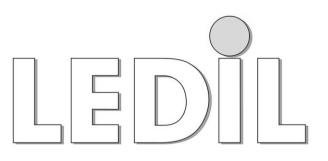
Ledil Oy, Tehdaskatu 13, 24100 SALO, Finland www.ledil.com



September 2008

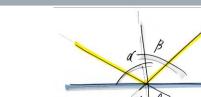
© Ledil Oy

Lenses for Dragon/Dragon+ OSS



- Specially designed for Osram Dragon and Dragon+
- Lens material optical grade PC with high UV and temperature resistance (130°C/220°F). Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Integrated holder. Fastening to heat sink with a PU foam adhesive tape of automotive grade
- Compact dimensions 21.6 x 21.6 mm.

LENS TYPE	ORDERING CODE	FWHM
OSS real spot	OSS-RS, FA10299	±3°
OSS smooth spot	OSS-SS, FA10327	±7°
OSS diffuser	OSS-D, FA10300	±6°
OSS medium	oss-m, fa10301	±15°
OSS wide	OSS-W, FA10342	±30°
OSS oval	OSS-O, FA10302	±6° x ±24°







OSS-RS



OSS-M



OSS-W



OSS-D

OSS-O

September 2008

© Ledil Oy



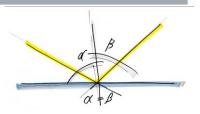
Lenses for Dragon/Dragon+ LO2



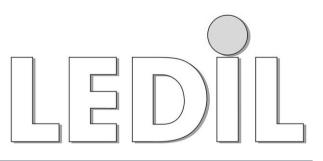


- Specially designed for Osram Dragon and Dragon+
- Lens material optical grade PMMA with high UV and temperature resistance (105°C/220°F). Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Integrated holder WITH TAPE
- Compact dimensions D=21.6 mm.

LENS TYPE	ORDERING CODE	FWHM
LO2 real spot	LO2-RS FA10751	±3°
LO2 diffuser	LO2-D FA10753	±5°
LO2 medium	LO2-M FA10750	±15°
LO2 Rectangular	LO2-REC FA10752	±15° x ±25°



Lenses for Dragon/Dragon+ TITANUM





TITANUM-SS



TITANUM-M



TITANUM-O

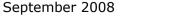


TITANUM-W

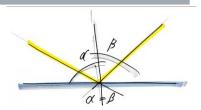
- Designed for Osram Dragon and Dragon+

- Lens material optical grade PMMA with high UV and temperature resistance (105°C/220 °F)
- No lens holder. Fastening to PCB with a PU foam tape of automotive grade
- Diameter 26 mm (approximately 1")

LENS	ORDERING CODE	FWHM
TITANUM smooth spot	titanum-ss, C10318	±7°
TITANUM medium	TITANUM-M, C10252	±13°
TITANUM wide	TITANUM-W, C10244	±35°
TITANUM oval	TITANUM-O, C10319	±3° x ±18°



© Ledil Oy



Lenses for Dragon/Dragon+ TITANUM-3



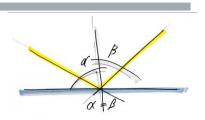


TITANUM-3-S

TITANUM-3-M

- Specially designed for Osram Dragon and Dragon
- Lens material optical grade PMMA with high UV and temperature resistance (105°C/220°F). Very even color distribution over the whole beam angle
- Compact dimensions of a MR16 fixture, D = 50 mm
- Sub lens used to create a soft beam medium lens

LENS	ORDERING CODE	FWHM
TITANUM-3 spot	titanum-3-s, c10268	±5°
TITANUM-3 medium	TITANUM-3-M-SUB, CA10374	±15°





Lenses for Dragon/Dragon+ PLATINUM-3





PLATINUM-3-SS



PLATINUM-3-M

PLATINUM-3-W

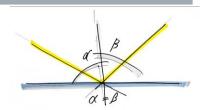
- Specially designed for Osram Dragon and Dragon+
- Lens material optical grade PMMA with high UV and temperature resistance (105°C/220°F). Very even color distribution over the whole beam angle
- Compact dimensions of a MR16 fixture, D = 50 mm
- NO sub lenses used; every lens is one molding only



LENS	ORDERING CODE	FWHM
PLATINUM-3 smooth spot	Platinum-3-ss, C10366	±7°
PLATINUM-3 medium	PLATINUM-3-M, C10367	±10°
PLATINUM-3 wide	PLATINUM-3-W, C10365	±25°

September 2008





Lenses for Dragon+ PLATINUM-4



- Specially designed for Dragon+
- Lens material optical grade PMMA with high UV and temperature resistance (105°C/220°F). Very even color distribution over the whole beam angle
- Compact dimensions of a MR16 fixture, D = 50 mm
- NO sub lenses used; every lens is one molding only

LENS	ORDERING CODE	FWHM
PLATINUM-4 smooth spot	PLATINUM-4-OS, C10704	±7°
PLATINUM-4 medium	PLATINUM-4-OM, C10703	±10°
PLATINUM-4 wide	PLATINUM-4-OW, C10705	±25°

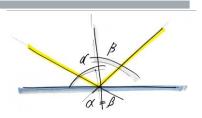
Lenses for Dragon+ CUTE-3-O+





- Specially designed for Osram Dragon+
- Lens material optical grade PMMA with high UV and temperature resistance (105°C/220°F). Very even color distribution over the whole beam angle
- Compact dimensions of a MR11 fixture, D = 35 mm
- NO sub lenses used; every lens is one molding only

LENS	ORDERING CODE	FWHM
CUTE-3-O+ smooth spot	CUTE-3-O+S, C10710	±6°
CUTE-3-O+ medium	CUTE-3-O+M, C10711	±10°
CUTE-3-O+ wide	CUTE-3-O+W, C10712	±25°



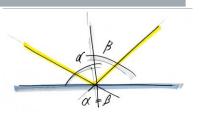
Lenses for Dragon OSR-5-M





- Specially designed for Osram Platinum Dragon series of LEDs
- Lens material optical grade PMMA with high UV and temperature resistance (105°C/220°F). Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Compact dimensions MR11, D=35 mm.

LENS TYPE	ORDERING CODE	FWHM
OSR-5 medium	OSR-5-M, C10472	±13°



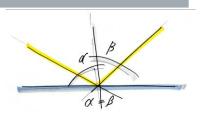
Lenses for Dragon





- Specially designed for Osram Dragon
- Lens material optical grade PMMA with high UV and temperature resistance (105°C/220°F). Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Integrated holder. Fastening LED package by snap hooks, no glue needed
- Compact dimensions D=10.8 mm.

LENS TYPE	ORDERING CODE	FWHM
LISA O1 medium	LISA-01-SS, CA10444	±10°



Lenses for Dragon/Dragon+ TINA

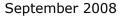




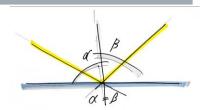
- Specially designed for Osram Dragon/Dragon+
- Lens material optical grade PMMA with high UV and temperature resistance (105°C/220°F). Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- W-version: integrated holder. Fastening LED package by snap hooks, no glue needed. SS nad M versions: holder and tape
- Compact dimensions D=16 mm, h=10.5 mm (max)



LENS TYPE	ORDERING CODE	FWHM
TINA O+ smooth spot	tina-o+ss, fa10642	Ca. ±7°
TINA O+ medium	TINA-O+M, FA10643	Ca. ±15°
TINA O+ wide	TINA-O+W, C10449	±36°







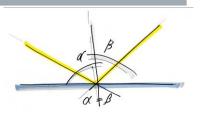
Lenses for Dragon/Dragon+ TWIDDLE



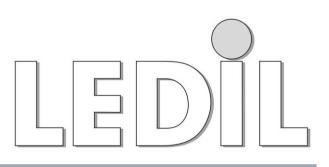


- REVOLUTIONARY ADJUSTABLE LENS free tilting by ±15°
- Specially designed for Osram Dragon/Dragon+
- Very even color distribution over the whole beam angle
- Double lens system with holder and tape
- Compact dimensions D=22 mm, h=15 mm (max)

LENS TYPE	ORDERING CODE	FWHM
TWIDDLE O+ spot	TWIDDLE-O+S, FA10740	Ca. ±7°
TWIDDLE O+ medium	TWIDDLE-O+M, FA10741	Ca. ±15°
TWIDDLE O+ wide	TWIDDLE-O+W, FA10742	±30°



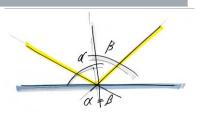
Lenses for Ostar **LEDILSTAR**





- Specially designed for Ostar
- Lens material optical grade PC with high UV and temperature resistance (130°C/280°F). Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Integrated holder. Fastening to heat sink 2 screws
- Dimensions D=35 mm, h=24.6 mm.

LENS TYPE	ORDERING CODE	FWHM
LEDILSTAR Lighting Spot	LEDILSTAR-L-S, C10265	±8°
LEDILSTAR Lighting Wide	LEDILSTAR-L-W, C10266	±18°
LEDILSTAR Projection Spot	Ledilstar-p-s, c10271	±6°
LEDILSTAR Projection Sub lens	LEDILSTAR-P-SUB, CA10317	±7°
LEDILSTAR Projection Wide	Ledilstar-p-w, C10270	±16°



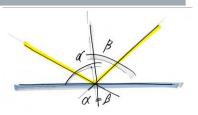
Lenses for Ostar SMT **RGBX**





- Specially designed for Ostar SMT
- Lens material optical grade PMMA with high UV and temperature resistance (130°C/280°F). Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Integrated holder.
- Dimensions D=29 mm, h=18 mm.

LENS TYPE	ORDERING CODE	FWHM
RGBX Smooth Spot	RGBX-OSMT-SS, C10542	±8°
RGBX Medium	rgbx-osmt-m, ca 10766	±18°
RGBX Oval	RGBX-OSMT-O, CA 10767	±8° x ±25°



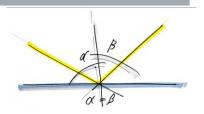
Lenses for Ostar CAT





- Specially designed for Ostar and streetlighting
- Lens material optical grade PMMA with high UV and temperature resistance (105°C/220°F). Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Integrated holder. Fastening LED package by 2 screws
- Dimensions 31 X 27 X 23 mm.

LENS TYPE	ORDERING CODE	FWHM
CAT	CAT, C10410	±60°



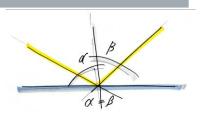
Lenses for Ostar NATALIE





- Specially designed for Ostar
- Lens material optical grade PMMA with high UV and temperature resistance (105°C/220°F). Allows use of high current and temperature conditions
- Very even color distribution over the whole beam angle
- Dimensions D=35 mm, height 6 mm.

LENS TYPE	ORDERING CODE	FWHM
NATALIE	NATALIE, C10267	±9°



Reflectors for Ostar BOOMERANG





- Specially designed for Ostar
- Material optical ABS, vacuum coated with aluminum and protected with lacquer
- Very even color distribution over the whole beam angle
- Dimensions D=20 mm, height 15.5 mm.

LENS TYPE	ORDERING CODE	FWHM
BOOMERANG	BOOMERANG, C10437	±14° x ±15°

