

Optics

CARCLO | FRAEN | KHATOD | LEDIL | ANYCASTING | DARKOO

passion.experience.reliability.





Uwe Fischer (managing director), Tanja Hollfelder (managing and training director),
Georg Fischer (managing director)



Who we are ...

For almost 70 years, we have been one of the leading design-in distributors for electronic components and systems. At five locations in Germany with a total of 65 employees.



Headquarters:
Weisendorf



Branch Office:
Ahrensburg



Offices:
Berlin, Dortmund, Munich



... and what we do

As a traditional and family-owned company, we work exclusively with renowned and leading manufacturers. Our focus is on individual consulting as well as solutions and custom-fit products for our customers. Because only when our customers are 100% satisfied we have done a good job.



You can also find us here



Optics and Reflectors

The right secondary optics for every LED design

Together with our distribution partners for secondary optics, we can provide the right optics for all LED packages with a very high efficiency. For Mid- and High-Power, as well as COB, Acrich or Wicop LEDs, we can offer the right optics for your application. These are available as single, linear or cluster optics and reflectors. The optics and reflectors are optimized for a wide range of applications such as street, tunnel, building (in/outdoor), horticultural, industrial, architectural and terrain lighting and many more.

LEDIL

Technological know-how paired with outstanding optical knowledge ensures that the optics optimally direct the light while maximizing performance.

Carclo

Outstanding expertise in LED optics ensures innovative and specialized design solutions as well as customized solutions for large multinational luminaire manufacturers.

Fraen

Specialized in development of high performing, cost-competitive custom LED lighting optic solutions for demanding lighting applications.

Khatod

Design, development of new technologies, production processes, quality assurance, technical direction, management and administration - everything takes place in their in-house operation.

AnyCasting

Design, development of new technologies, production processes, quality assurance, technical direction, management and administration – everything takes place in their in-house operation.

Darkoo

With a focus on optical applications, in the fields of automotive, security, medical care and general lighting, Darkoo additionally offers more than 60 patents on inventions and utility patents and has been recognized as a "national high-tech company."

LEDiL®

KHATOD®
LENSES FOR POWER LED

carclo
Optics

 **AnyCasting**

 **FRAEN**
MAXIMIZING LIGHT

DARKOO®
Optics

Customized optics

Customized according to your requirements

If you cannot find the right solution for your application, we can develop together with you a custom-fit optical system which makes your application shine.

Optics for 3030-package LEDs

for street-, area-, Horticulture-, industrial-, office- and architecture lighting

Type	Dimensions [mm]	Height [mm]	Beam angle range
8-16 lens array	50.00 x 50.00	3.70 – 7.12	various beam angle
25 lens array	75.00 x 75.00	9.50	15°, 30°, 40°
linear 1 lens array	286.00 x 19.50 – 21.50	6.40 – 11.40	various beam angle
linear 3x11	268.00 x 61.00	8.45 – 11.38	various beam angle
4x1	182.00 x 40.00	20.20	50°, 80°
7x1	280.00 x 40.00	20.30	50°, 80°
28x1	1.140.00 x 40.00	20.20	50°, 80°
linear 3x1	79.4 x 29.90	19.68	various beam angle
linear 5x1	125 x 23.50	14.80	various beam angle
linear bent round 6x1	152-158.8 x 22-29.50 Ø70mm	12.45 – 21.08	various beam angle

Examples



DK-S80-GSZ-Set



DK-124-15-LENS-A2L-5H1-Set



DK-149x30-GSZ-GB-6H1



DK-96x20-GSZ-6H1-S-A6-RG-PQ



DK-100x12-ZJ-6H1-S-Set



DK-152x40-φ400-GSZ-WEI-Set



DK-70-GSZ-ZHOU-6H1-Set



DK-124-15-LENS-A2L-5H1

Einsatzgebiete für Architektur- and Shop lightingen mit Optics and Reflektoren



Optics and Reflectors can be used for a wide range of applications in LED lighting. For retail or architectural lighting, we will find the right optics/reflectors for your application.

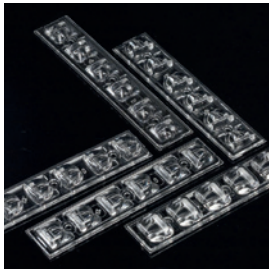
Whether as a standard or customized product.

Optics for 3535-package LEDs

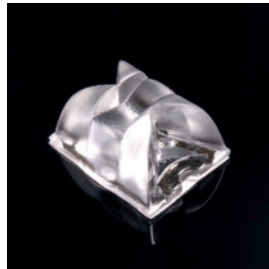
for street- and area lighting

Type	Dimensions [mm]	Height [mm]	Beam angle range
6 lens array	119.80 x 25.20	5.50 – 8.20	asymmetric
1 lens array	13.90 x 13.90 19.60 x 15.00	4.73 – 10.90	spot, medium, wide, x-wide, asymmetric
8- bis 16 lens array	49.50 x 49.50	4.30 – 7.50	spot, medium, wide, x-wide, asymmetric
linear 12 lens array	295.00 x 16.00 29.00 x 287.00	8.00 25.10	17° – 37° and rechteckig 11° – 60° and rechteckig
linear 6 lens array	119.80 x 19.60	7.00 – 7.60	asymmetric
linear 2x1	53.89 x 29.60	20.08	various beam angle
linear 3x1	79.80 x 23.50	14.80	various beam angle
linear 6x1	158.90 x 29.60	20.38	various beam angle
2x2	38.00 x 38.00	13.13	various beam angle

Examples



STRADA-6x1 modules



STRADA-A-TAPE



VANESSA



SHELLY



DK-53-GSZ-2H1-Set



DK-80-GSZ-3H1-Set



DK-149-GSZ-6H1-Set



DK-38x38-GSZ-HAN-4H1-Set

Optics for 7070-package LEDs

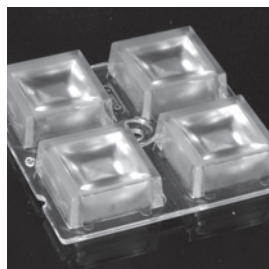
for highbay-, street-, tunnel-, pedestrian crosswalk- and area lighting

Type	Dimensions [mm]	Height [mm]	Beam angle range
1 lens array	25.00 x 25.00	12.90	50° – 72°
2x2	90.00 x 90.00	11.50 – 16.50	30° – 90°
5x1	123.00 x 25.00	8.50 – 9.00	54° – 72°
1 lens array	Ø 23.60 – Ø 27.60	13.85	15° – 70°

Examples



HB-5x1



HB-2X2-W



HB-SQ-A



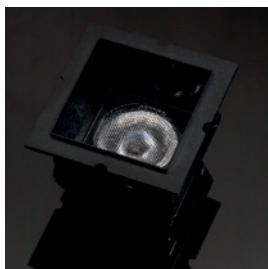
SCA1101M333M

Optics for 5050-package LEDs

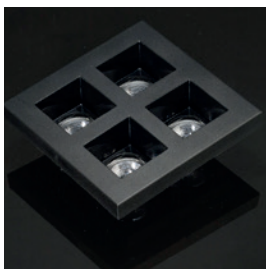
for office-, highbay-, street-, tunnel-, pedestrian crosswalk- and area lighting

Type	Dimensions [mm]	Height [mm]	Beam angle range
1 lens array	\varnothing 18.61 – \varnothing 45.00 21.60 x 21.60 29.00 x 23.00 31.90 – 40.00 x 28.40 – 40.00	7.30 – 29.00 13.00 – 13.10 12.69 17.00 – 31.90	various beam angle
2x2	50.00 – 95.60 x 50.00 – 95.60	6.72 – 28.50	various beam angle
4x1	175.60 x 55.60	6.72 – 12.00	various beam angle
2x6	172.00 – 173.00 x 71.00 – 71.40	8.00 – 13.13	various beam angle

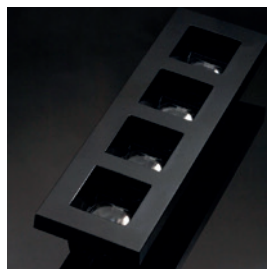
Examples



FLORENTINA-1



FLORENTINA-2x2



FLORENTINA-4x1



HB-2x6



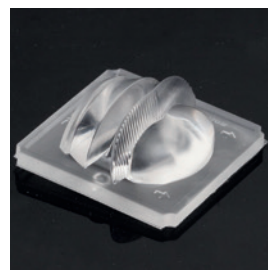
STRADA-IP 2x6



FLARE-Maxi-D



ZORYA-SC-B



JENNY-FT65

Optics for 5630-package LEDs

for shop-/ shelf lighting, decorative light

Type	Dimensions [mm]	Height [mm]	Beam angle range
linear	286 x 20 300 x 11 1.200 x 11 300 – 600 x 28	7.00 5.00 5.00 18.70	various beam angle
linear 3 lens array	286 x 61	11.40	60°, 90°, 85° x 40° (oval)

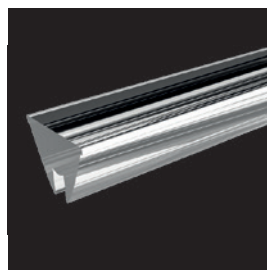
Examples



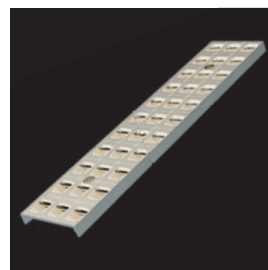
FLORENCE-3R-IP-Z90



10398



12750



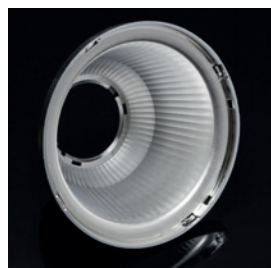
KCLPL2161

Optics/Reflektors for COBs

for downlight, retrofit , architecture-, shop-, stage lighting and wall-washing

Type	for COBs with an LES area [mm]	Sizes [mm]	Beam angle range
Reflektoren	14.00 – 35.00	Ø 50.00 – 120.00	various beam angle
Optics	6.00 – 23.00	Ø 50.00 – 90.00	various beam angle

Examples



ANGELETTE-M



BROOKE-G2-W-RZ



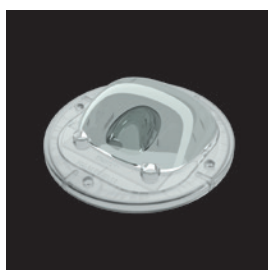
BROOKE-G2-S



MOLLY-S



BROOKE-G2-W-RZ



PLL2056SR00



PLL2087UNSR



ILONA-M



DK-35-xx-LENS-11S



DK-25-15-LENS-7S-Set



DK-69-ZJ-5S-Zhaga- 6960



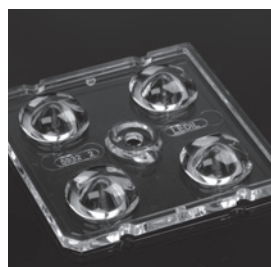
DK-35-xx-Shadow-LENS

Optics for CSP-LEDs

for street lighting

Type	Dimensionen [mm]	Height [mm]	Beam angle range
2x2 Optik	50.00 x 50.00	6.60 – 7.70	asymmetric
2x6 Optik	173.00 x 71.40	7.90 – 12.75	asymmetric

Examples



STRADA-2X2CSP-VSM



STRADA-IP-2X6



STRADA-SQ



KCLPL2161



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