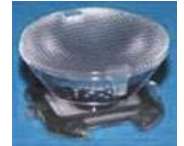


Lens/ Optics for Cree XRE High Power LED

As Cree LED viewing angle is wide (XRE/XRC has 90 degree), for certain applications, this viewing angle needs to be focus into a narrower angle. Thus, an optical lens or reflector cup is needed to focus the LED beams into a narrower angle. The normal single optics or lens have the viewing angles as 8, 12, 16, 20, 25, 30, 34, 36, 40, 45, Oval 8x50, 6x50, 60x120 and 50x135 degree. 3-in-1 lens and 6-in-1 lens also available currently for various application. In this page, optic products for XRE lens will be introduced.



► FEATURES

- Available in single, 3-in-1, 6-in-1 lens with many viewing angles

► BENEFITS

- Customer can choose the right viewing angle single lens for many of their applications from one supplier, Arrow Asia

► APPLICATIONS

- General lighting (indoor or outdoor)
- Architectural lighting
- Color-changing lighting
- Industrial lighting
- Portable lighting (includes camping, bike lighting, torch light, etc)

► SUPPLIERS



► SINGLE LENS PRODUCT OFFERING TABLE

130		▲ ARR1-R50135-L1 50 x 130 degree										
125												
120		▲ ARR1-R60120-L1 60 x 120 degree										
115												
110												
1K Pcs. Ref. Price (USD)	\$0.65											
60												
55												
50												
45		▲ ARR1-A40A-M15 40 degree/dia 19.4		▲ ARR1-A40G-L1 40 degree/dia 35.8		▲ ARR1-A40K-L1 40 degree/dia 34.6		▲ FC-E2-XR79-HRF 8*50 degree oval VA/dia 22.2		▲ OPTX-1-006 spot base + OPAA-1-OSL oval sub-lens 16*50 degree oval VA		
40												
35		▲ ARR1-A0830A-M15 8*30 degree/dia 19.4										
30		▲ ARR1-A30A-M15 30 degree/dia 19.4										
25												
20		▲ ARR1-A20A-M15 20 degree/dia 19.4										
15		▲ ARR1-A12A-M15 12 degree/dia 19.4		▲ ARR1-A15F-L1 15 degree/dia 35.8		▲ XLSL-7090-247-L08P20 8 degree VA		▲ FC-M2-XR79-HRF 25 degree VA/dia 22.2		▲ FC-N2-XR79-HRF 7.8 degree VA/dia 22.2		▲ OPTX-1-006 spot base + OPAA-1-DF diffuser sub-lens 16 degree VA
10		▲ ARR1-A08A-M15 8 degree/dia 19.4		▲ ARR1-A08C-L1 8 degree/dia 35.8								
5												
1K Pcs. Ref. Price (USD)	\$0.40		\$0.84		\$0.96	\$1.00	\$1.25	\$1.48				

► 3-IN-1 LENS PRODUCT OFFERING TABLE

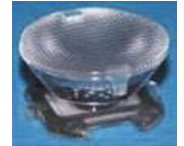
70		▲ ARR1-A60L-L3 60 degree/low profile		▲ ARR1-A3570C-L3 35*70 degree/dia 50.7		
65				▲ ARR1-A60B-L3 60 degree/dia 50.7		
60						
55						
50		▲ ARR1-A45B-L3 45 degree/low profile				
45				▲ ARR1-A45A-L3 45 degree/dia 50.7		▲ OPTX-3-008 Spot base + OPTL-3-WSL Wide sub-lens 28 degree VA
40						
35		▲ ARR1-A25M-L3 25 degree/low profile		▲ ARR1-A30D-L3 30 degree/dia 50.7		
30						
25						
20						
15						
10						▲ OPTX-3-008 spot base + OPTL-3-MSL micro sub-lens
5						
1K Pcs. Ref. Price (USD)	\$0.85		\$1.00		\$3.45	

► 6-IN-1 LENS PRODUCT OFFERING TABLE

70		▲ ARR1-A60B-L6 60 degree/50.7mm
65		
60		
55		
50		▲ ARR1-A40F-L6 40 degree/dia 73.2
45		
40		▲ ARR1-A30D-L6 35 degree/50.7mm
35		
30		
25		
20		
15		
10		
5		
1K Pcs. Ref. Price (USD)	\$2.80	

Lens/ Optics for Cree High Power XPE and Multiple Chip MCE LED

As Cree LED viewing angle is wide (XPC/XPE has 110 and 115 degree), for certain applications, this viewing angle needs to be focus into a narrower angle. Thus, an optical lens or reflector cup is needed to focus the LED beams into a narrower angle. In this page, optics product including lens and reflector will be presented for Cree XPE and MCE products.



► FEATURES

- Available in single lens, lens with holder as well as reflector
- High efficiency
- For XRE and XPE LEDs
- Available in single lens and 3-in-1 lens

► BENEFITS

- Customer can choose the right viewing angle single lens for many of their applications from one supplier, Arrow Asia

► APPLICATIONS

- General lighting (indoor or outdoor)
- Architectural lighting
- Color-changing lighting
- Industrial lighting
- Portable lighting (includes camping, bike lighting, torch light, etc)

► SUPPLIERS



► XPE LENS PRODUCT OFFERING TABLE (INCLUDING SINGLE AND 3-IN-1 LENS)

Viewing angle (degree)	Product Name	Viewing Angle	Price (USD)
60	FCP-E1-XPE1-0R	10 x 50 degree	\$0.55
55	FCP-E1-XPE1-HRF	10 x 50 degree/lens + holder	
45			
40			
35	FCP-W1-XPE1-0R	27 degree	\$0.80
30	FCP-W1-XPE1-HRF	27 degree/lens + holder	
25			
20	FCP-M1-XPE1-0R	21 degree	\$0.90
15	FCP-M1-XPE1-HRF	21 degree/lens + holder	
10	FCP-N1-XPE1-0R	10 degree	CUTE-3-ISF-M for XPE +/-11 degree/35mm
5	FCP-N1-XPE1-HRF	10 degree/lens + holder	
			CUTE-3-ISF-M for XPE +/-6 degree/35mm
1K Pcs. Ref. Price (USD)			

► MCE LENS PRODUCT OFFERING TABLE

Viewing angle (degree)	Product Name	Viewing Angle	Price (USD)
60			
55			
50			
45			
40	ARR1-M1-MCE-0R	32 degree/reflector	\$1.60
35			
30			
25			
20	ARR1-N1-MCE-0R	13.5 degree/reflector	
15			
10			
5			
1K Pcs. Ref. Price (USD)			

Fraen Corporation's Optical Manufacturing Group (Fraen OMG) develops, designs, and manufactures optical solutions for high-powered LEDs. Fraen is the world's leader in providing both standard off-the-shelf optical solutions as well as complex, custom-developed systems for our customers. Fraen introduces various parts for Cree LED products including MCE, XPE and XRE LED.



► FEATURES

- High-efficiency TIR and reflector solutions
- Wide variety of optic types, beam patterns and sizes
- Illumination data available for luminaire development
- Range of optic mounting features available
- Design methodology allows for customization

► BENEFITS

- Specialization in custom solutions for complex lighting requirements
- Global manufacturing and sales support
- Refined design and development process
- Prototyping and pre-production capabilities
- Patent pending innovative solutions

► APPLICATIONS

- Architectural lighting
- Street lights
- Portable lighting
- Emergency lighting
- General illumination

► PRODUCTS BY APPLICATION CATEGORIES

	Torch	Retrofit	Street Lamp	Others
MCE	Custom solutions FRC-N1-MCE-OR  ARR1-N1-MCE-OR ARR1-N1-MCE-OR	Custom solutions FRC-N1-MCE-OR FRC-M1-MCE-OR  ARR1-M1-MCE-OR ARR1-N1-MCE-OR	Custom solutions FIG-MCE-HRL-XX  ARR1-MCE-HRL-XX	Custom solutions FRC-N1-MCE-OR FRC-M1-MCE-OR  ARR1-M1-MCE-OR ARR1-N1-MCE-OR
XPE	Custom solutions FCP-N1-XPE1-XX  ARR1-N1-XPE1-XX	Custom solutions FCP-N1-XPE1-XX FCP-W1-XPE1-XX FCP-M1-XPE1-XX FCP-E1-XPE1-XX  ARR1-N1-XPE1-XX ARR1-W1-XPE1-XX ARR1-M1-XPE1-XX ARR1-E1-XPE1-XX	Custom solutions FIG-XPE1-HRL-XX  ARR1-MCE-HRL-XX	Custom solutions FCP-N1-XPE1-XX FCP-W1-XPE1-XX FCP-M1-XPE1-XX FCP-E1-XPE1-XX  ARR1-N1-XPE1-XX ARR1-W1-XPE1-XX ARR1-M1-XPE1-XX ARR1-E1-XPE1-XX
XRE	Custom solutions FC-N2-XR79-XX FCG-N1-XR79-XX FRC-N1-XR79-OR Focusable: FXGR-N1/W1-XR79-OR  ARR1-N2-XR79-XX ARR1-N1-XR79-XX ARR1-N1-XR79-OR Focusable: ARR1-N1/W1-XR79-OR	Custom solutions FC-N2-XR79-XX FC-W2-XR79-XX FC-M2-XR79-XX FC-E2-XR79-XX FCT3-N2/M2/W2-XR79-HRLN  ARR1-N2-XR79-XX ARR1-W2-XR79-XX ARR1-M2-XR79-XX ARR1-E2-XR79-XX ARR1-N2/M2/W2-XR79-HRLN	Custom solutions FIG-XR79-HRL-XX  ARR1-MCE-HRL-XX	Custom solutions FC-N2-XR79-XX FC-W2-XR79-XX FC-M2-XR79-XX FC-E2-XR79-XX FCT3-N2/M2/W2-XR79-HRLN FC3-N1/M1/W1-XR79-HR  ARR1-N2-XR79-XX ARR1-W2-XR79-XX ARR1-M2-XR79-XX ARR1-E2-XR79-XX ARR1-N2/M2/W2-XR79-HRLN ARR1-N1/M1/W1-XR79-HR

** Part no. in red is Arrow equivalent part no.

► FRAEN CUSTOM OPTICAL SOLUTION

Flashlights

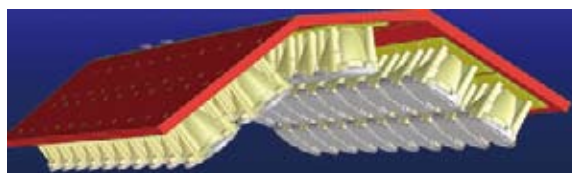
- Fraen TIR optics permits high efficiency without costly and delicate reflective coatings.
- Short optics allow for compact products.
- Focusable systems available.

Street Lights

- Create multiple pattern with any number of LEDs.
- Ideal for reducing light pollution.
- Patent Pending.

Architectural Lighting

- Symmetric and asymmetric solutions designed specifically for custom wall washing application (interior and exterior).
- Optical solutions or sub-assemblies to meet specific manufacturing needs.



Contact Arrow Business Development Specialists for Further Information

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Arrow Components (M) Sdn Bhd.

LedLink is one of the suppliers for Arrow Lighting optics solution provider. It is an expertise optical solution company which has been recognised by Cree. With integration of in house optical design, mould tooling, and mass production, the performance of our Lens is utilised to meet rapid shift in lighting industry. Lamp manufacturers may adapt our standard products or our customized lenses to design innovative LED fixtures.

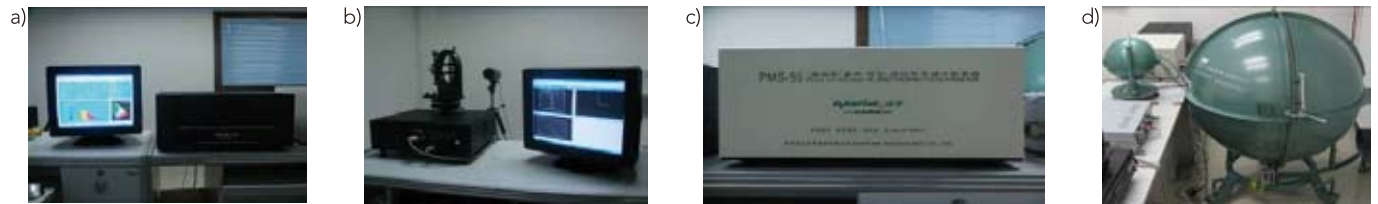


► FEATURE AND STRENGTH

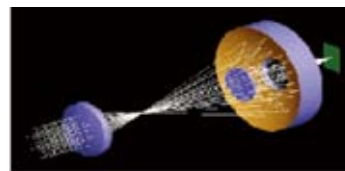
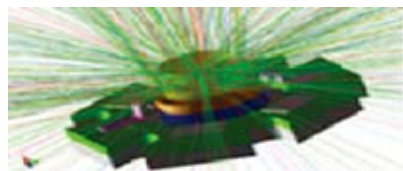
In House Optical Design

– Optical measure equipments

- a) LED luminous intensity distribution tester
- b) LED angle tester
- c) Plus UV-VIS-near IR spectra photo color meter
- d) Integrating sphere



Professional Optical Software Tracepro and Fred



In House Mould Tooling

- a) Mirror polishing electrical discharge machine
- b) Five-axie 36000 RPM CNC tooling centre
- c) Auto wire cutting machine



In House Production Facilities

- a) Central feeding centre
- b) Air shower room
- c) Nineteen injection machines



Semi-product Module Integration

- a) MR-16, GU10, and E27 semi-product module
- b) PAR series, PAR20, PAR30, and PAR38, semi-product module

▶ PRODUCTS BY APPLICATION CATEGORIES



Application

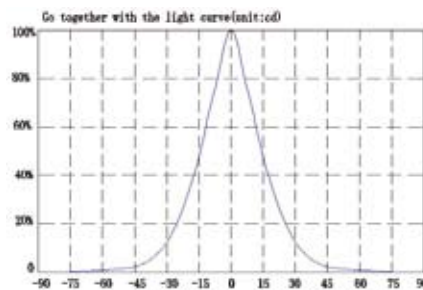
- Retrofit lighting application
- Torch
- Large area optic for street lamp
- Stage lighting
- Light bar
- Tunnel lighting

	Narrow Beam	Medium Beam	Wide Beam	Others
XRE	 <p>ARR1-AO40L-M15 LL01CR-AO15L-M2 Degree: 15° D x H: 23.5*15.2mm</p> <p>Also available with: 25° 40° 60° 80° 25° x 40°</p>	 <p>ARR1-AJ40L-L1 LL01ED-AAJ40L Degree: 40° D x H: 28.9*19.7mm</p> <p>Ultimised for single color Mixing effect</p>	 <p>ARR1-A80H-M15 LL01CR-AP80L-M2 Degree: 80° D x H: 26.7*17.7mm</p> <p>Also available with: 15° 25° 40° 60° 25° x 40°</p>	 <p>ARR1-R75135-L1 LL01CR-AU75135L Degree: 75° x 135° D x H: 24*13.2*9.6mm</p>  <p>ARR1-R50120-L1 LL01CR-AU50120L Degree: 50° x 120° D x H: 21*11.8*9.4mm</p>
XPE	 <p>ARR1-AO30L-L1 LL01ED-AO30L Degree: 20° D x H: 24.7*20.3mm</p> <p>Also available with: 40°</p>	 <p>ARR1-AK40L-L1 LL01ED-AK40L Degree: 40° D x H: 34.4*18.8mm</p> <p>Ultimised for single color mixing effect</p>	 <p>ARR1-AQ60L-L1 LL01ED-AQ60R Degree: 60° D x H: 26.7*17.7mm</p> <p>Telescopic lens for uniform beam effect</p>	 <p>ARR1-DM15-L3 LL03ZZ-DM15L Degree: 15° D x H: 22*11.9mm</p> <p>Also available with: 40° 60°</p>
	 <p>ARR1-DF10L-L1 LL01ZZ-DF10L Degree: 10° D x H: 12.4*10.5mm</p>	 <p>ARR1-BR50L-L1 LL01CR-BR50L Degree: 45° D x H: 19.6*12.7mm</p> <p>Also available with: 30° 40° 20° x 55°</p>	 <p>ARR1-AQ40L-L1 LL04ED-AQ40L Degree: 55° D x H: 22.5*10.4mm</p>	 <p>ARR1-DN15L-L4 LL04ZZ-DN15L Degree: 15° D x H: 22*11.9mm</p> <p>Also available with: 40° 60°</p>
MCE	 <p>ARR1-BS10-L1 LL01CR-BS10L Degree: 20° D x H: 19.8*12.5mm</p> <p>Also available with: 25° 40° 60° 80° 25° x 40°</p>	 <p>ARR1-AY38L-L1 LL01ED-AY38L Degree: 38° D x H: 43.8*24.5mm</p>	 <p>ARR1-DR60L-M15 LL01CR-DR60L-M2 Degree: 60° D x H: 28.8*16.6mm</p> <p>Also available with: 40°</p>	 <p>ARR1-AI60L-L1 LL01ED-AI60L Degree: 60° D x H: 59.9*32.5mm</p> <p>Telescopic lens for uniform beam effect</p>

** Red highlight is equivalent Arrow part no.

Definition of Our Beam Angle:

LedLink defines full angle, which is 90% of light intensity within the defined angle range, as our beam angle. The reason we use full angle instead of half angle is to prevent the different understanding between the demand and final result. For example, from this figure, it's around 30 degree (half angle), but the slope of the curve under the 50% point can be varied. And the effect of the beam pattern is different as well. The smaller the slope of the curve, the better the beam uniformity.



Customization Process and Time

- a) To define the light source (LED type).
- b) To define the beam angle (full angle view).
- c) To define the mechanical design.
- d) The optical simulation time is two weeks after above details confirmed.
- e) T1 sample will be available within 30 days after our client confirms our provided simulation report.
- f) Total developing period is around 30 to 45 days, depending on the situation.

Lead Time

Normally our lead time is three weeks.

Contact Arrow Business Development Specialists for Further Information

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