

Convoy M3-C Torch Retrofit (XHP 70.3 HI)



Purpose of Retrofit

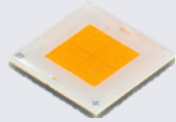
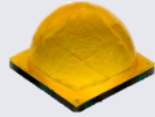
- The purpose of this retrofit is to highlight the capabilities of the third generation of the XHP 70 family of LEDs which brings improved optical performance versus previous generations.
- The XHP70 family of LEDs are optimized for applications that require large amount of light output making is suitable for outdoor area, stadium, and architectural applications.
- This particular retrofit places emphasis on the high intensity version of the XHP70.3 in a torch application.

Convoy MC-3 Torch Summary

- The Convoy brand is well known amongst flashlight enthusiasts
- The MC3 uses a Cree XHP70.2 LED off the shelf available in a variety of color temperatures
- Utilizes an orange-peel type optical reflector
- Compatible with 26650 or 18650 battery cell options
- Built-in USB-C charging port

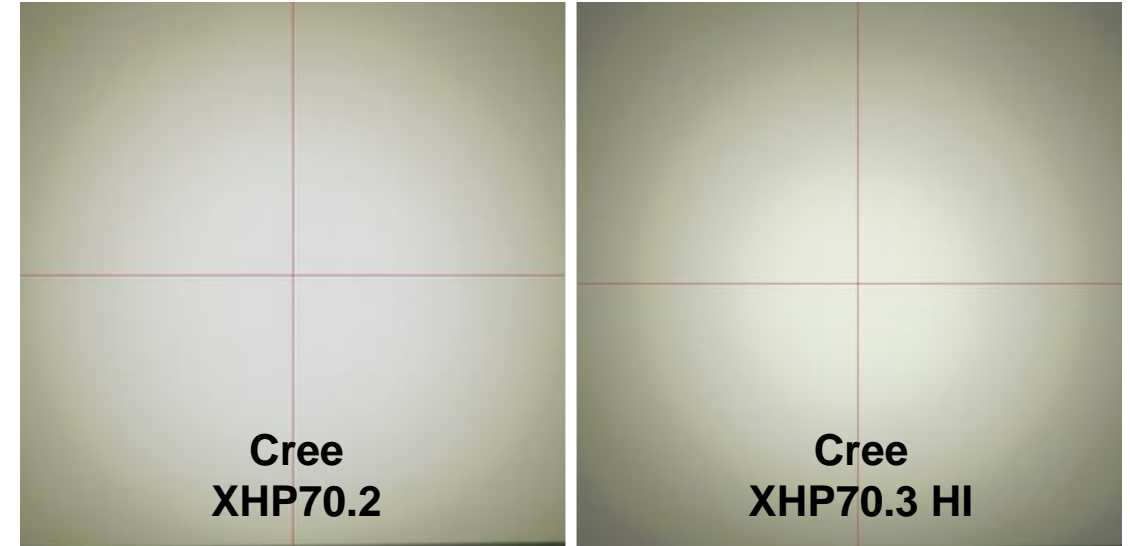


XHP70.2 (stock) to XHP70.3 HI (retrofit) Comparison



	XHP70.2 (stock)	XHP70.3 HI (retrofit)
Test Current (A)	2.1 A	2.1 A
Luminous Flux (lm)	1611	1574
CCT (K)	5500K	5600K
CRI	68	70
Beam Angle	19°	14°
Peak Candela	14,389	24,276
Candela/lumen	8.93	15.42
Peak Cd @ max current	27,339 (4.8A)	63,117 (7.2A)
Lf @ max current	3061 (4.8A)	4100 (7.2A)
Max Throw (calculated) (m)	331 m	502 m
Max delta u'v'	0.019	0.014

Initial beam shot comparison



* beam projections taken at 2.1A with Radiant Imaging Colorimeter

Application Photos – XHP70.3 HI Retrofit



* Building photo taken with Nikon D7100, 1/1.6, F4.5, ISO100, distance of 30m

* Tree photos taken with a Nikon D7100, 15s, F5 and ISO100, distance of 20m

Application Photos – XHP70.3 HI Retrofit



* Scoreboard photo taken with Nikon D7100, 1/8s, F3.8, ISO100, distance of 50m

* Woods photo taken with a Nikon D7100, 30s, F8 and ISO100, distance of 15m

Application Photos – XHP70.3 HI Retrofit



* Rings photo taken with Nikon D7100, 18s, F/4, ISO100, distance of 60m

* Art photo taken with a Nikon D7100, 10s, F/10 and ISO100, distance of 30m

Parts List

Part	Details / P/N
Convoy MC-3 Torch	SKUG74277-SR1LP
Cree XHP70.3 HI LED mounted on star board	E2 color, P2 brightness, 70 CRI
26650 Battery Cell, 3.7V, 5000mAh	Available from various retailers

Conclusions – XHP70.3 HI Compared to XHP70.2 Torch

- **70%** improvement in peak candela at **matched** drive current
- **72%** improvement in candela per lumen, tighter beam angle
- **131%** improvement in peak candela at **max** drive current
- **52%** increased throw
- Improved color over angle

