

Mk-Id High Concentration Photovoltaic Panel (HCPV)

The OPEL **Mk-Id** uses state of the art triple junction Boeing-Spectrolab solar cells that provide more than twice the conversion efficiency of conventional silicon solar cells. The OPEL **Mk-Id** uses a dual element refractive concentrator technology that minimizes optical losses resulting in higher energy output and less area than conventional silicon flat plate panels.

Different from conventional silicon flat plate panels, in the OPEL **Mk-Id** HCPV each individual cell will continue to deliver full power even if other cells in the module are shadowed or covered by a foreign object.

With the use of advanced triple junction solar cells, the degradation in power output due to temperature is less than half of that of conventional silicon flat plate panels.

The OPEL **Mk-Id** is designed to be used in conjunction with OPEL's high precision dual axis trackers in order to optimize system performance.

The OPEL **Mk-Id** utilizes passive convection cooling, that requires no moving parts or fluids to keep the HCPV within a reliable temperature operating range.

The **Mk-Id** is backed by a 25 year limited warranty and OPEL's experienced applications engineering team.



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The OPEL Mk-Id high concentration photovoltaic panel (HCPV) is a high performance product designed for:

- Applications with medium to high solar irradiance
- Grid connected solar systems—providing a combination of high conversion efficiency and lower system cost than conventional silicon flat plate panels

Physical Data

Length	62.05 in (1576 mm)
Width	11 in (279 mm)
Height	12.08 in (307 mm)
Weight	25 lb (11.3 kg)
Material	Aluminium
Cables	4mm MC panel receptacles
Lens hail test	1 inch hail at 55 m.p.h.
Certifications	CE (UL Pending)
Limited warranty	25 years ¹

Electrical Characteristics at 25 °C

Cells	36.7%
Open circuit voltage (V_{oc})	17.4 V
Short circuit current (I_{sc})	6.4 A
Rated voltage (V_{mp})	15.6 V
Rated current (I_{mp})	5.8 A
Maximum power rating (P_{max})	90 W \pm 3%
Maximum system voltage	600 V
Operating temperature range	-40 °C to +50 °C

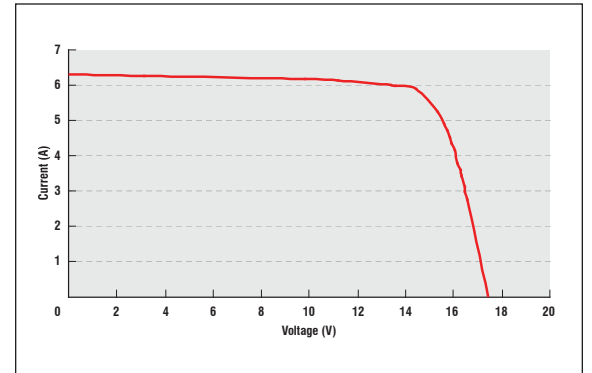
Temperature Coefficients

Open circuit voltage (V_{oc})	- 26.4 mV / °C
Short circuit current (I_{sc})	+ 200 μ A / °C
Maximum power rating (P_{max})	- 0.13 W / °C

Test Conditions

Spectral irradiance	AM 1.5
Cell temperature	25 °C
Direct Normal Irradiance (DNI)	1000 W/m ²

Mk-Id IV Curve



1. Warranty: Limited power output for 25 years. Freedom from defects in materials and workmanship for 5 years. Please refer to our detailed limited warranty for additional details.

Module Diagram

