

SOLAR SOLUTIONS



SOLAR IS A LONG TERM INVESTMENT SO IT MAKES SENSE TO INVEST IN A HIGH QUALITY PRODUCT THAT WILL FUNCTION AS EFFICIENTLY AS POSSIBLE FOR AS LONG AS POSSIBLE, THEREBY MAXIMISING YOUR RETURN ON INVESTMENT.

The solar industry is constantly evolving through technological development, and the efficiency of panels has increased significantly over recent years, much to the benefit of the consumer.

The standard panel used to be 250 Watts per panel (kWp) around four years ago, but as of early 2020 the standard size is 330 Watts; so, the efficiency and generation output has leapt by around 32% in only a few years, whereas the physical dimensions of a panel is only slightly greater.

The cost has simultaneously decreased in recent years as global demand for solar as a source of clean energy in both residential and commercial sectors has soared. Consequently, the volume of solar PV is being manufactured on a far greater scale, and manufacturing technology has also evolved; both of which ultimately benefit the consumer. Although panel development is an ongoing process, more recently the gains in panel efficiency have slowed as peak efficiency has plateaued, but other innovations such as split cell modules have been introduced to make overall performance more effective.

More recently industry effort has been focused on optimising the efficiency and cost of battery solutions in order to maximise the return on investment in solar for the consumer by being able to store daytime generated energy. Lithium-ion solutions are the front runner in this field, having replaced convention lead-acid and Gel batteries, and there are now a range of manufacturers producing range of battery options.

Between the optimised solar panel performance, and the development of more efficient and cost-effective battery solutions, there is no better time to invest in solar for your home or commercial operation than right now.

ABOUT SOLAR

INSTALLATION

Metalcraft are pleased to be offering a supply and installation service for our broad range of solar power solutions. This is a natural addition to our comprehensive range of roofing products and related services, enabling us to offer you the unique service of installing a roof, and a solar power package at the same time.

We are also able to advise and quote on commercial scale projects or 'off-grid' systems to suit your specific requirements and install the solar panels on insulated panel roofing systems as well.

BEST PRACTICE

Metalcraft is a long-established company with over 50 years history in NZ, with 12 branches nationwide we value our reputation and pride ourselves on our quality of work. As such we only use the highest quality products and engage experienced specialist Solar installers in order to eliminate the risk of any faults occurring. However, in the unlikely event of a defect or issue, you can be assured that Metalcraft will honour its obligations as your solar provider and will provide support for any warranty related matters. We are Corporate members of the Sustainable Electricity Association of NZ (SEANZ) and adhere to their strict quality assurance principles.

SEANZ is an independent organisation representing organisations who research, manufacture, distribute, design, sell, finance and build Renewable Technologies and Projects in New Zealand and Pacific's.

THEIR MISSION:

Drive the growth of onsite renewable electricity generation in New Zealand by developing capacity and capability of the industry.

SEANZ MEMBERS MUST:

Meet the SEANZ entry criteria whereby company principals and directors past history is identified and taken into consideration.

Continue business operations with honesty and integrity. -Ensure only appropriately validated and verified, certified technology. -That their skills and knowledge are applied ethically in the interest of their clients.



Sustainable Energy Association New Zealand

SOLAR PV MODULES

OUR PREFERRED SUPPLIER - TRINA SOLAR

Trina Solar which is Tier 1, and among the largest Solar manufacturers in the industry with a proven track record and a culture of continual technological improvement.

330W modules are the current panel size available and are what we specify in most cases, but in a commercial setting the larger 440W modules may also be more appropriate. However, the technology and efficiency of the modules is ever increasing so the panel kWp rating increases frequently, so the module sizes may increase depending on latest release technology available.

FINISH OPTIONS

As well as improving performance efficiency, manufacturers have recognised that consumers want a panel that not only performs well, but also looks good on the roof. Initially most panels had bare aluminium frames and white backing sheets, and were quite a stark feature on a roof space.

However, most manufacturers are now producing completely black panels, with black aluminium frames, and black backing sheets that blend in with the dark solar cells themselves – these are now our standard panel type.

To complement this, we also use black clamps and mounting rails to present a more visually integrated solar array overall that will blend into the roof aspect – particularly on a dark coloured roof.

For more information on PV Solar Modules refer to www.metalcraftgroup.co.nz

SOLAFLEX LAMINATES

This is an alternative form of energy generation technology to Photovoltaic (PV) which is most common among conventional Solar modules.

Instead Solaflex Laminates use CIGS (Copper indium gallium selenide). Solar cells made of this material is deposited as a very thin layer on the flexible backing strip which then has a coating of adhesive applied. Because the material has a high absorption coefficient and strongly absorbs sunlight, a much thinner film is required than of other semiconductor materials.

The efficiency of Solaflex Laminates is between 16-17% (depending on the product), whereas conventional panels are around 18-20%. However, CIGS technology is known to be more effective in flat pitch conditions, and in vertical application such as wall cladding.

For more information on Solaflex Laminates refer to www.metalcraftgroup.co.nz

COMPATIBILITY

Of the range of Metalcraft Roofing roof profiles, these strips are compatible with Espan 470.

However, they can also be fitted to alternative roof profiles of similar dimensions. For best adhesion, we highly recommend a flat surface, rather than one with swages. There is some variability in the dimensions of similar profiles from other manufacturers, so bearing in mind the strip width is 348mm, the wider the sheet width, the better to minimise the impact of shading in morning and afternoons.

As well as metal roofing substrates, it is also possible to apply these Strips to a membrane roof surface. They are commonly applied to smooth surfaced roofs overseas, and we have worked with our partners in this roofing segment to develop solutions for compatibility with textured finish membrane roofing also.

PRODUCT OPTIONS

We carry the recently released Third Generation of this product range, which includes a 290Watt module, and a 125Watt module. Both options are 348mm in width, however there is variation in the length.

LENGTHS:

The 290Watt option is 5,910mm in length, but requires 100mm clearance from eave line, so 6000mm roof sheet length is the minimum required to be suitable for this product.

The alternative option is 2,585mm in length, and 125Watts per strip. Although it is a lesser wattage, homes with shorter roof sheet lengths that are becoming increasingly more common are now also suitable for this Solar solution.

We can also offer a larger product best suited for commercial scale application. These are 500Watts each and are physically larger than our standard range, being 2583 x 1292mm (L x W). This product is typically used on a flat smooth membrane surface, however this does not suit every situation, so they can alternatively be adhered to a customised aluminium plate mounted to the roof.



ACCESSORIES

INVERTERS

The inverter is a critical part of any solar array. It converts the high voltage DC current that is generated by a PV module into low voltage AC current which is necessary to make the energy usable within the home.

If integrating a battery solution into the array, or for an 'Off grid' system, a 'Hybrid' Inverter is necessary. This has the extra functionality needed to control and manage batteries which standard String inverters do not have. However, some battery solutions are stand alone in that respect, and include their own battery inverter and controller which means they can be integrated into a system with only a basic String inverter at any time.

Metalcraft uses products from a range of Inverter manufacturers, depending on which is most appropriate for each situation depending on scale, individual site requirements and cost effectiveness. These include SMA, SolaX, Enphase, Goodwe and Outback.

STRING INVERTERS:

String inverters are the conventional technology whereby all the DC energy produced by the rooftop modules is received by a single inverter located within the home, which then converts the DC current to usable AC current for use within the home.

MICRO INVERTERS:

Micro inverter technology is a development of the conventional String inverter design, which increases generation efficiency, but also incurs more cost due to the additional hardware involved.

Instead of having one large String inverter unit inside the dwelling to manage the whole array, this option involves using a micro inverter that is discretely mounted on the underside of each solar panel to individually manage the energy generated by each panel.

HYBRID INVERTERS:

In order to integrate batteries, it is necessary to use a variation of a String inverter which has extra functionality to do manage the battery resource; and this is referred to as a Hybrid inverter.

BATTERIES

Battery technology and the range of solutions' available have been evolving rapidly in recent years. The development of Lithium-ion technology presents significant increases in performance, longevity and efficiency over conventional battery technology.

Metalcraft can offer a custom design and turn key service for both off-grid and grid tied solutions to suit your individual requirements.

MOUNTING BRACKETS

There are a broad range of mounting systems available to suit every roof type and application, so Metalcraft Solar will specify and provide the most appropriate solution for each situation.

Tilt mounting solutions may also be appropriate in situations where the roof space is of a flat pitch. Using this bracketry to elevate each panel to the optimum tilt will ensure you are realising the full potential energy generation possible.

Ground Mounting solutions is an alternative method that enables a solar array to be mounted on a steel or timber frame that is set into the ground. This would be appropriate for those wanting a larger system than the available roof space can allow, or those with plenty of space that would prefer not to have modules on the roof.

For more information refer to www.metalcraftgroup.co.nz

BRANCHES

For more information contact first your solar team direct sales@metalcraftsolar.co.nz | 09 272 3373

WHANGAREI 42-44 Rewa Rewa Road, Whangarei 09 470 0870 sales.whangarei@metalcraftroofing.co.nz

AUCKLAND HOBSONVILLE 25 -27 Westpoint Drive, Hobsonville, Auckland 09 444 1813 orders.ns@metalcraftroofing.co.nz

AUCKLAND EAST TAMAKI 24-26 Trugood Drive East Tamaki, Auckland 09 273 2820 orders.akl@metalcraftroofing.co.nz

HAMILTON 9 Earthmover Cres, Burbush, Hamilton 07 849 3807 sales.hamilton@metalcraftroofing.co.nz

TAURANGA 42 Poturi St, Tauriko, Tauranga 07 575 7032 sales.tauranga@metalcraftroofing.co.nz

ROTORUA 15 Monokia Street, Rotorua 07 350 1138 sales.rotorua@metalcraftroofing.co.nz NEW PLYMOUTH 218 De Havilland Drive, Bell Block, New Plymouth 06 755 2113 sales.newplymouth@metalcraftroofing.co.nz

PALMERSTON NORTH 76 Malden Street, Palmerston North 06 358 9149 sales.palmerston@metalcraftroofing.co.nz

HASTINGS 1454A Omahu Road, Hastings 06 873 9020 sales.hastings@metalcraftroofing.co.nz

WELLINGTON 201 Gracefield Rd, Seaview, Lower Hutt 04 566 2253 orders.wgtn@metalcraftroofing.co.nz

CHRISTCHURCH 85 Columbia Ave, Hornby, Christchurch 03 349 7350 sales.christchurch@metalcraftroofing.co.nz

CROMWELL 20 McNulty Road, Cromwell 03 445 4180 sales.cromwell@metalcraftroofing.co.nz





Sustainable Energy Association New Zealand

Metalcraft Roofing are members of the Roofing Association, New Zealand the New Zealand Metal Roofing Manufacturers Incorporated. and the Sustainable Energy Association New Zealand.

Brochure version Jan 2021