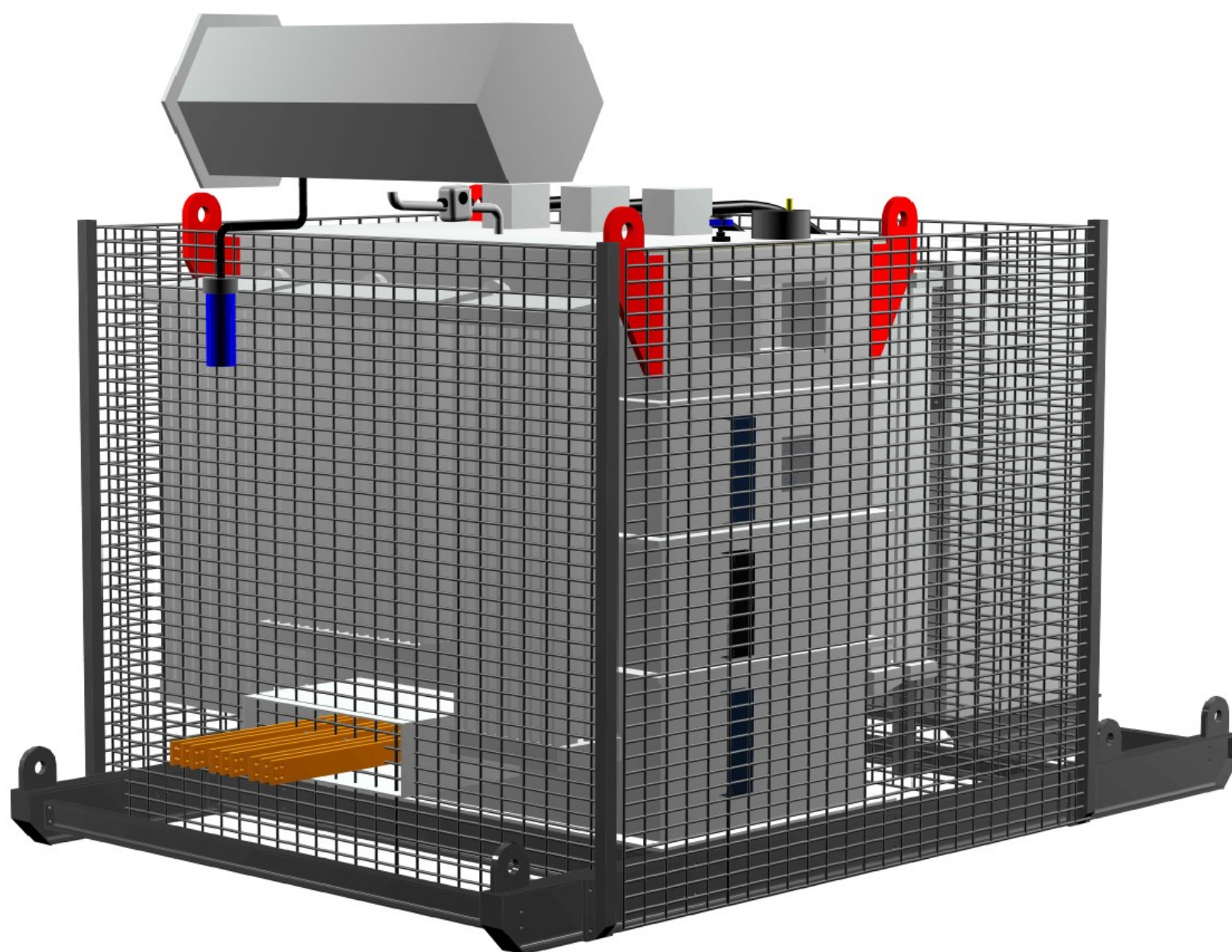




Solar PV-Transformer Station



RT Gallery



Reliable Transformers

History

Founded more than 35 years ago as a specialist manufacturer servicing mainly the gold, platinum and coal mining sectors in Southern Africa, Reliable Transformers has evolved into a significant player in the transformer industries in South Africa and beyond.

Research & Development

Our research and development efforts are currently focused on the development of transformer solutions for the renewables sector.

The expert knowledge gained allows us to apply under-the-skin innovations to our products, making them perfectly suited for this special and often challenging application.

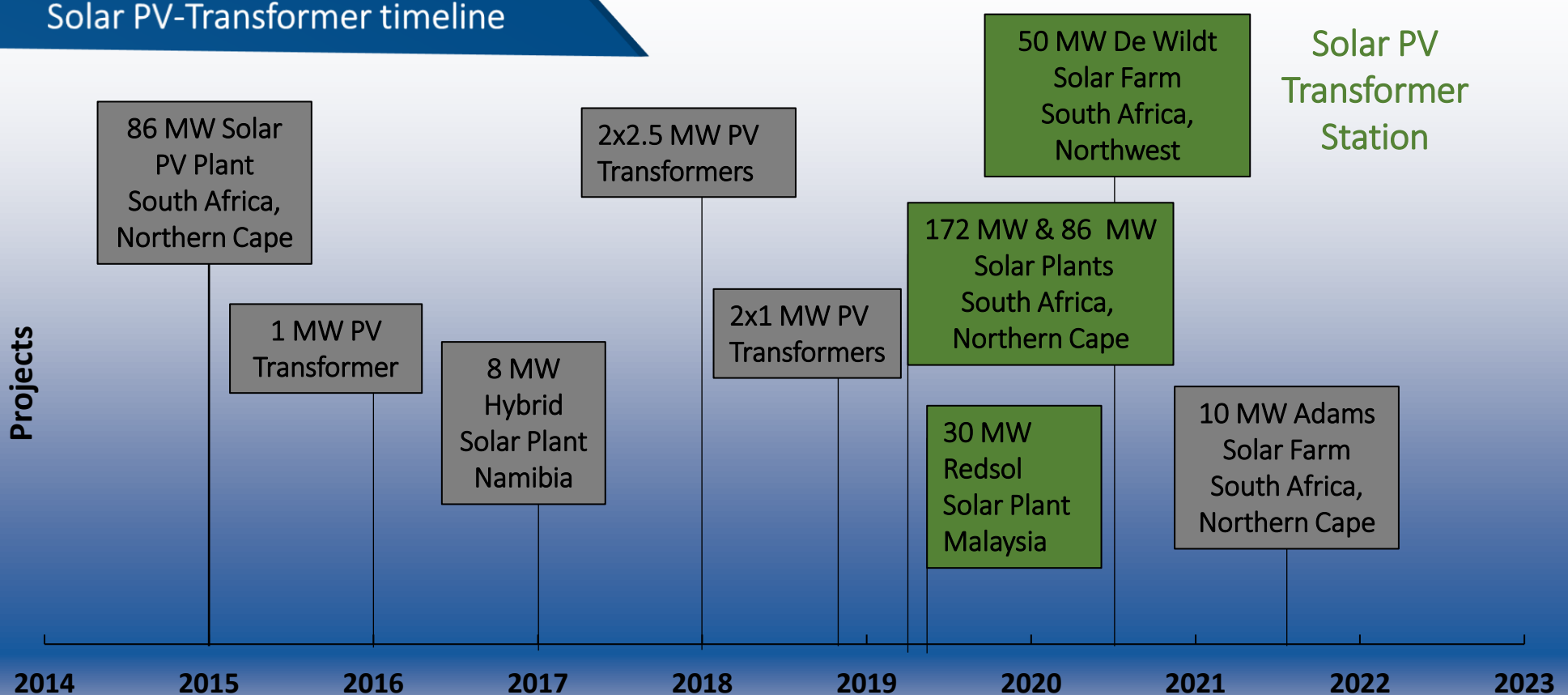
Solar Projects

Since 2015, we were involved in several large-scale solar PV projects, both locally and abroad. During 2016, we produced all the transformers for the largest solar farm in South Africa at the time, an 86MW installation near Prieska in the Northern Cape province.

Since then, RT has participated in many high-profile renewables' projects, supplying both power and auxiliary transformers for projects in South Africa and as far afield as Malaysia.

Our most recent project was the supply of all the power transformers for three adjacent solar plants near Kimberley, totaling 258MW, currently the largest single solar installation in South Africa.

Reliable Transformers Solar PV-Transformer timeline



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Solar PV-Transformer Station

Our Solar PV-Transformer Station range of products are specifically engineered to form a robust and *reliable* interface between solar PV inverter stations and MV reticulation grids.

Solar PV-Transformer Station features:

- Customizable to meet customers needs.
- Environmentally friendly.
- Skid and Container based options.
- Easy loading and transportation
- Multiple decoupled inverter inputs per station.
- Auxiliary transformers and NER options.
- Free breathing, hermetically sealed or cast resin options.
- MV switch gear (Ring Main Unit) options.

Standards

IEC-60076, IEC 62271

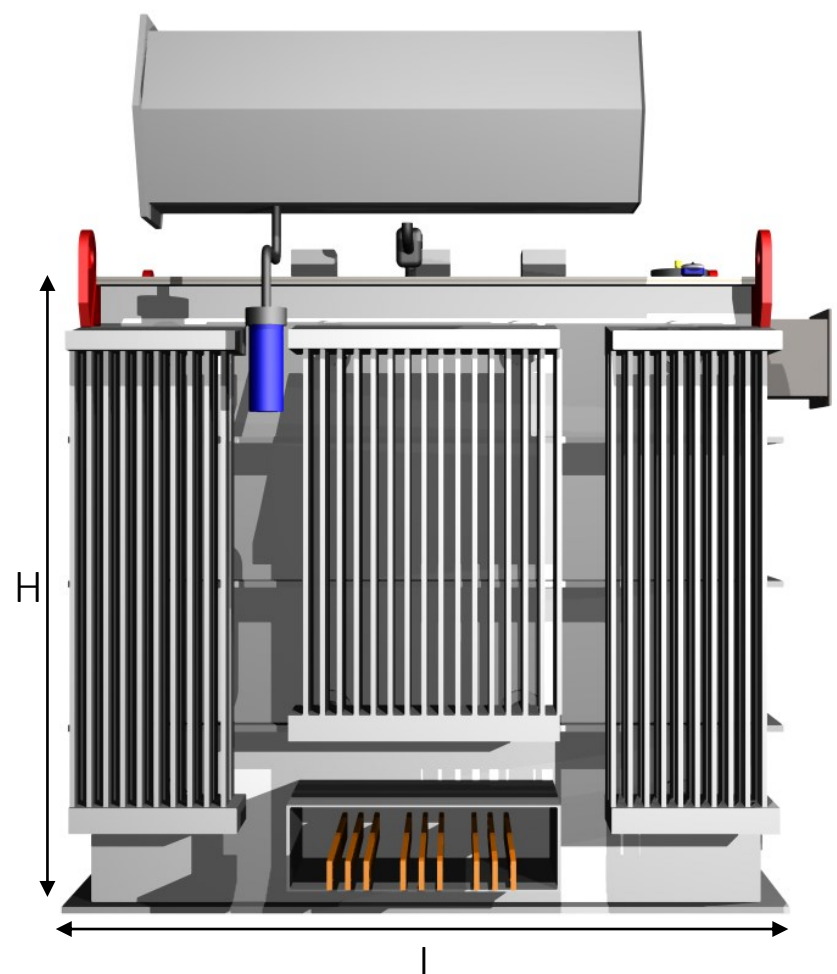
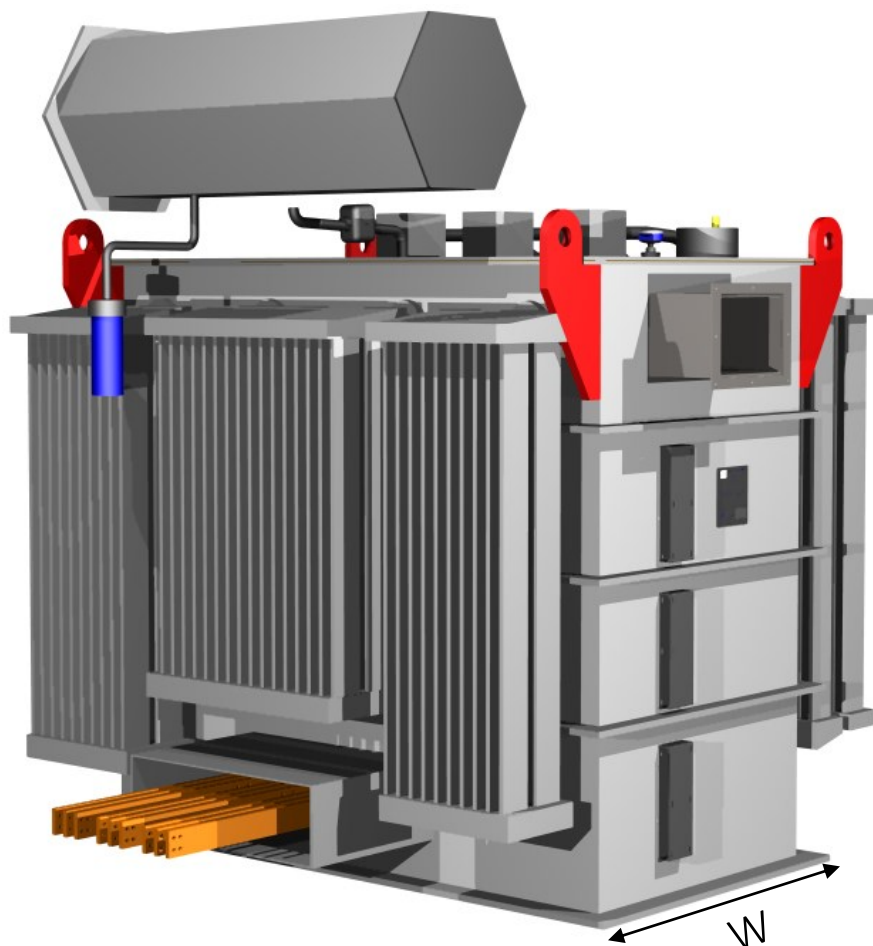


Transformer Specification

Transformers				
Type	1 Inverter	2 Inverter	3 Inverter	NECRT (optional)
Cooling	ONAN/ONAF/KNAN/AN(RESIN CAST)			
LV Voltage	400 V – 1 kV*			
MV Voltage	12/24/36 kV*			
Power Rating	1 – 4.6 Mega Watts*			
Tank seal	Hermetically sealed/ Free Breathing			
Dimensions ($L \times H \times W$)	Maximum**		2300x2000x1200	

* Other options available on request

** May vary depending on the system voltages



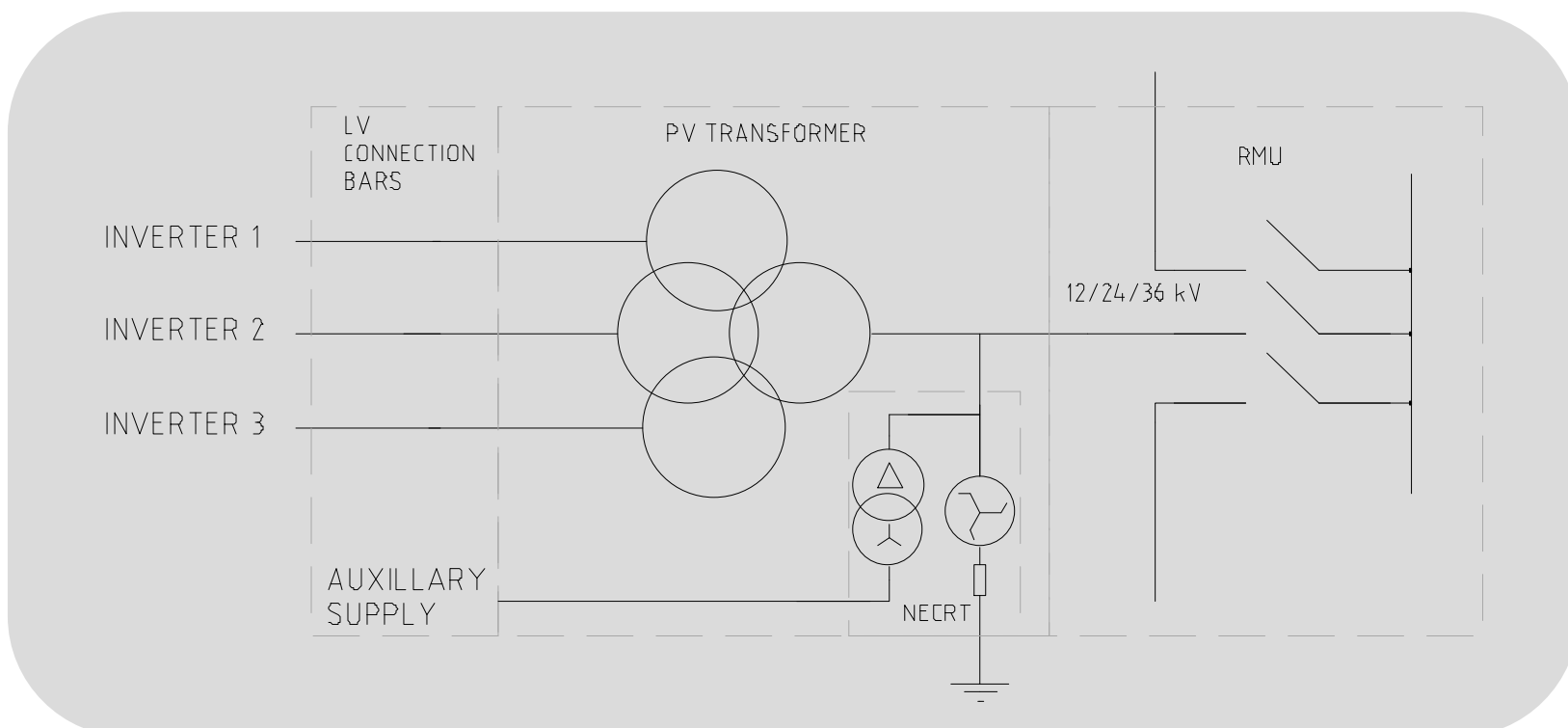
Switchgear Specifications

The RMU offers a multitude of additional features and benefits. The automation ready units now have integrated Remote Terminal Units (RTUs) in the form of the next-generation Gemini 3, enabling instant smart grid functionality.

Available in 12, 24 and 36 kV options with up to 630 A ratings, The RMU has been developed for easy installation, operation and includes several additional safety features. These include electrical and mechanical interlocking, as well as AFL/AFLR internal arc ratings.

Ring Main Unit Specification

Rated Voltage (up to)	Mode of Fault Current Interruption	Insulation Medium	Rated Current	Installation Conditions	Operation
36 kV	Vacuum	SF6	630A	Indoor / Outdoor	Local / Remote



Skid & Container Options

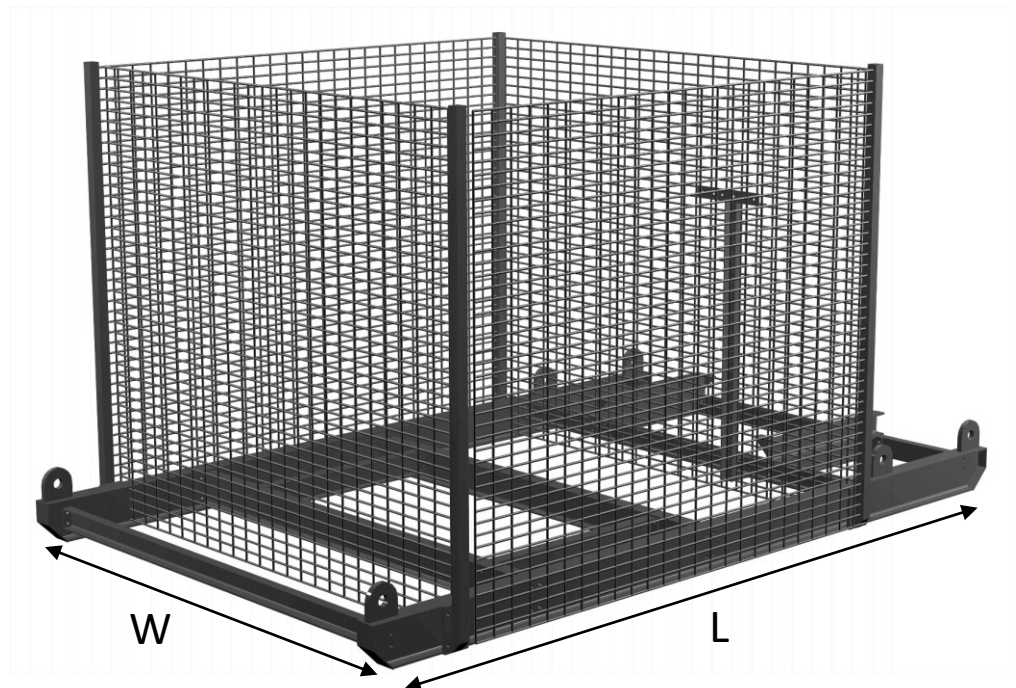
Skids

Skid Spec	
Dimension (Max) (L × H × W)	4000 2200* 2300*
Tank seal	Sealed/free breathing
Material	Galvanized Mild Steel
Weight	Approx. 2 tons

The skid base solution can have a sealed and a free breathing transformer, the fence is optional.

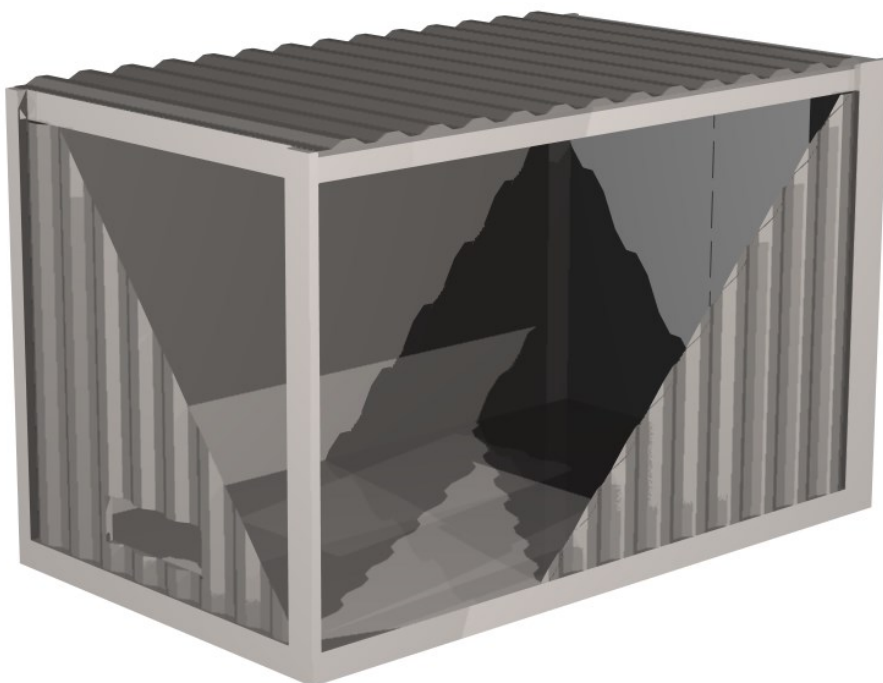
* Value are kVA rating dependent.

Skid mounted solutions vastly simplify transportation, installation and swopping of installed equipment. We design our solutions to comply with normal load transportation regulations wherever possible.



Containerized

The containerized solution offers a hermetically sealed transformer only and is available in two standard container sizes.



Container Spec	
Container size 1	6m (20ft)
Container size 2	3m (10ft)
Ventilation	Natural/fan/Air Conditioned
Weight	Size 1 (1.3 tons) Size 2 (2.9 tons)

Container ventilation options:

Sealed, natural circulation, fan and air-conditioned.

Note: Auxiliary transformer is required for fans and air-conditioners.

Commissioning & Maintenance

Commissioning service



Reliable Transformers offer a comprehensive equipment commissioning service that affords you the peace of mind knowing that your equipment arrived safely on site and was installed properly.

Our qualified commissioning teams perform extensive testing and inspections, all strictly in accordance with the applicable SANS or IEC standards. All test results are compared with FAT results to ensure compliance.

Inspections:

- Visual checks for transportation damage, oil leaks and paint chips.

Some of the tests:

- Insulation resistance
- Winding resistance
- Winding ratio
- Oil dielectric tests

Additional tests such as Tan-delta analysis available on request.

Maintenance programs

Transformers play a critically important role in the proper functioning of a solar PV plant. Even though transformers and associated equipment do not require a lot of maintenance, it is still important to perform important checks and inspections regularly to ensure years of trouble-free service.

Oil Analysis service

Our maintenance programs also include transformer oil sampling and analysis, a vital preventative maintenance tool that affords you the ability to often predict pending failures and track the ageing profile of transformers over time.

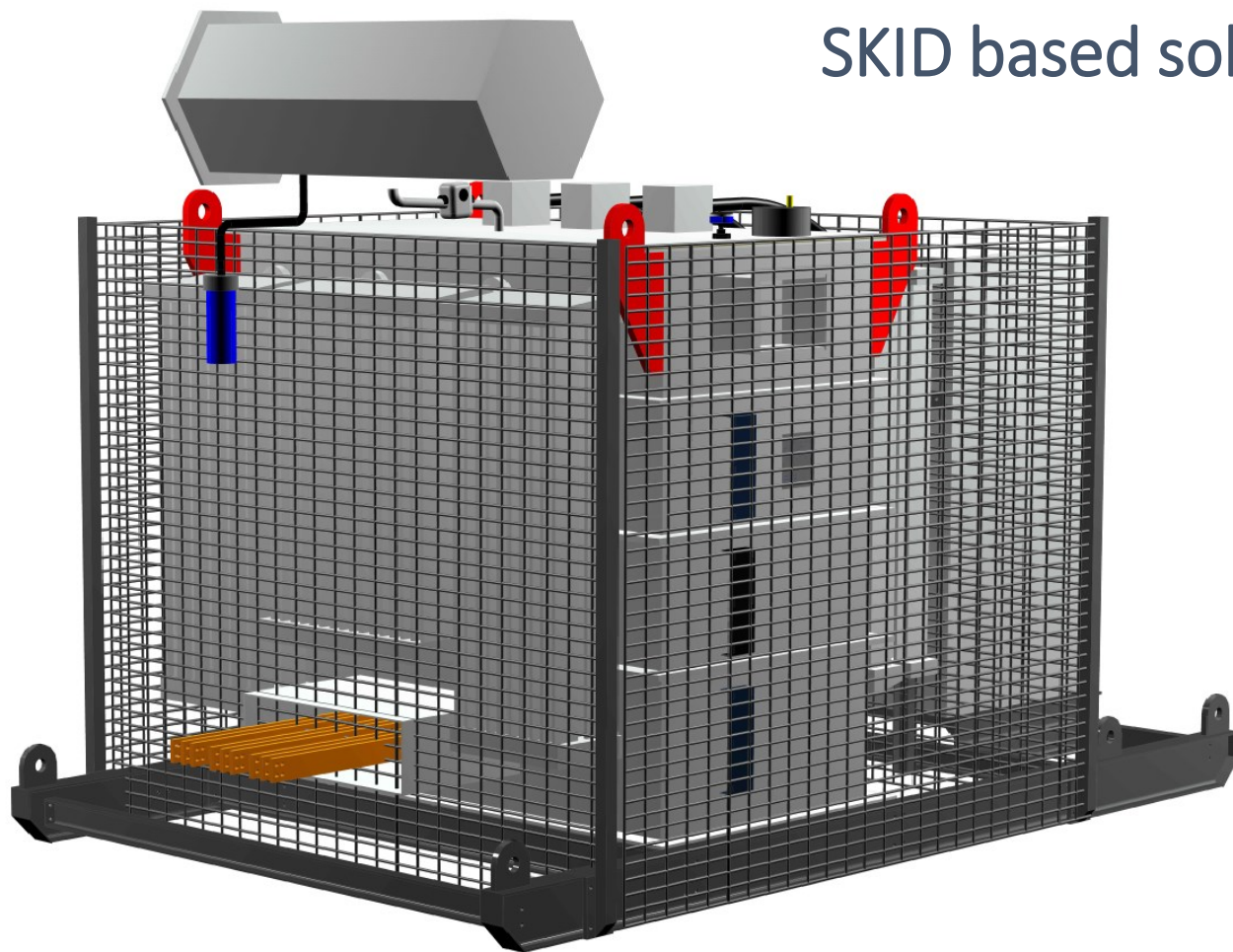


Extended Warranty

Reliable Transformers offers maintenance programs that are linked to extended warranty options. Enquire with us about a program that best suits your specific requirements.

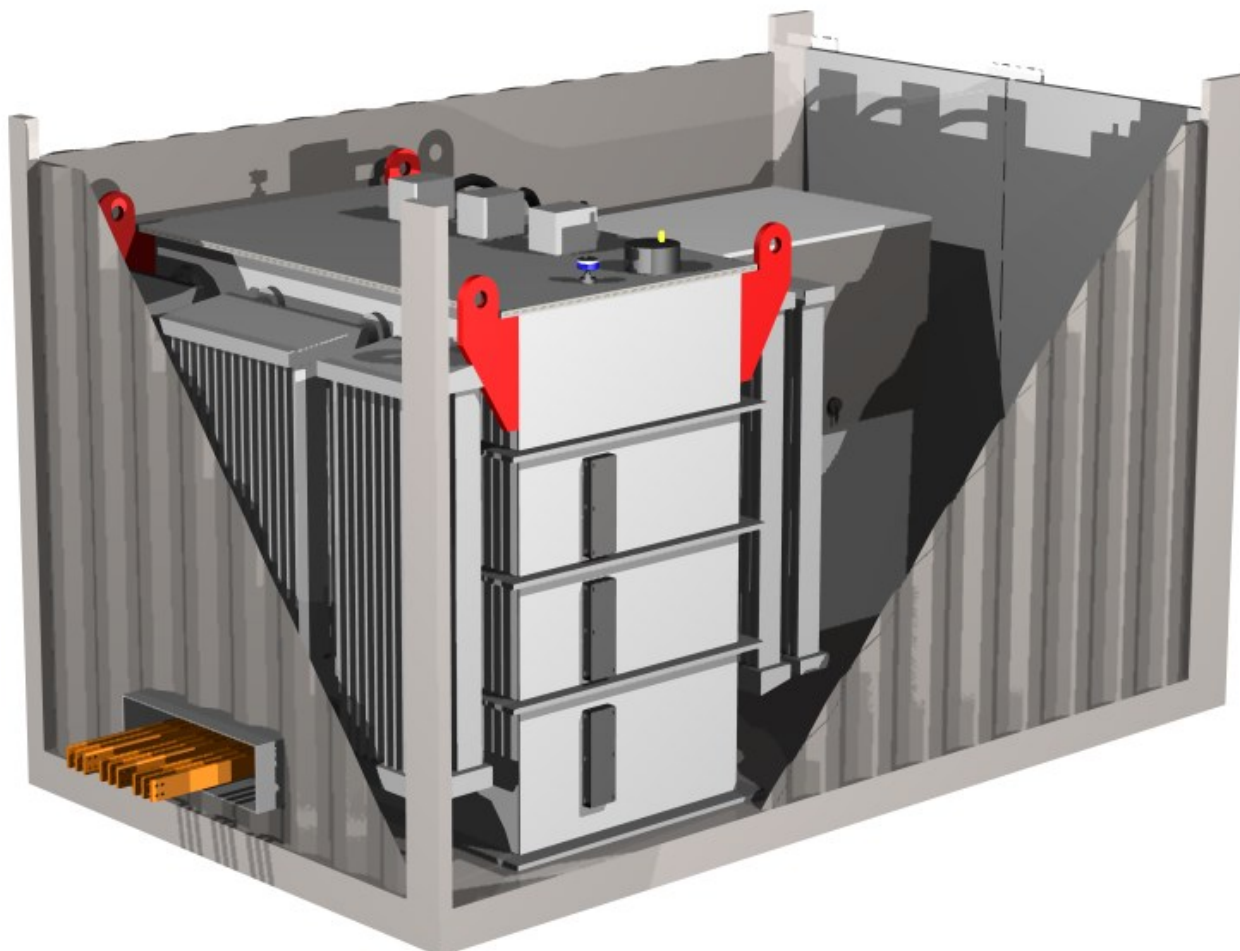
RT Solar PV-Transformer Station

1 MW – 4.6 MW



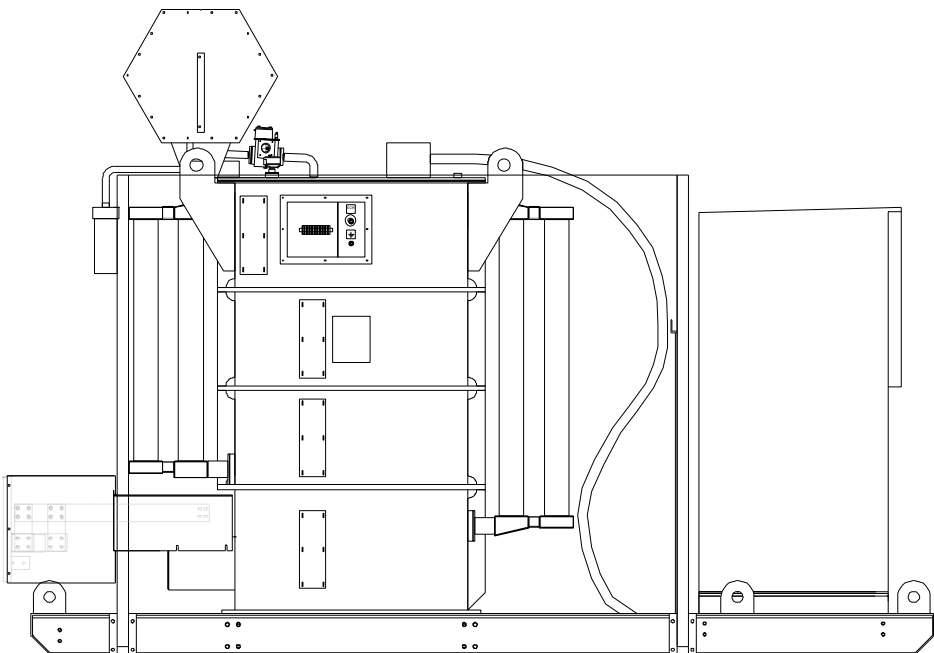
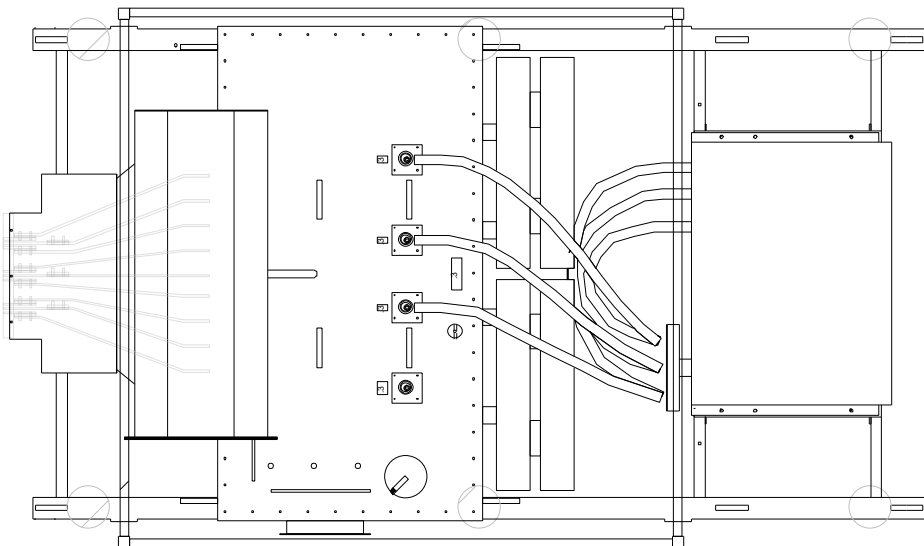
SKID based solution

Container based Solution



RT Solar PV-Transformer Station

Skid Base Package Solution							
Rated Power (MW)	1.25	1.75	2.25	2.75	3.25	3.75	4.55
approx. Skid dimensions (W × L × H)	2300	2300	2300	2300	2300	2300	2300
	3500	3700	3700	3900	3900	4000	4000
	1800	1800	1900	2000	2000	2100	2200
All skid dimensions are within the allowable limit for normal loads as set on Section 2 on the TRH 11 doc SA DOT							
Cooling Method	ONAN/ONAF/KNAN/KNAF/AN(Resin Cast)						
Rated MV Voltage	12/24/34 kV						
Approx. Weight	7 ton.	8 ton.	9 ton.	11 ton.	11 ton.	12 ton.	13 ton.
Transformer Compliance	IEC 60076						



IEC 60076 compliance tests	
Load & No-load	IEC 60076-1
Temperature-rise	IEC 60076-2
Lightning Impulse	IEC 60076-3
Separate Source AC	
Short-Duration Induced	
Sweep Freq. Response	IEC 60076-18

All tests mentioned on the table above have been performed on the transformer range. All test meet their respective IEC 60076 clause.

Contact Information

Collection & Deliveries Address

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Benoni South
1501

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Vat Reg No.

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Contact Numbers

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Tel No. (S.A.): (011) 421 2333

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Postal Address

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