



# MOBILE SUBSTATIONS AND PORTABLE TRANSFORMERS



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## Mobile Substations and Portable Transformers

Mobile substations are fully equipped electrical substations mounted on semi-trailers or skids. They can be as modest as a trailer mounted transformer, or as complex as any land based substation. The PTI Mobile Substation product line emphasizes both operation flexibility and long term reliability making them suitable for a wide variety of custom applications. These can include:

- Substation relief in the event of equipment failure
- Supporting substation maintenance and repair activities
- Emergency power supply in event of natural disasters
- Supply to Isolated Areas & Mining activities
- Stand by for peak load demands

Most recently a PTI Mobile Substation manufactured in Winnipeg, Canada was seen at various professional sporting championships to provide contingency power should the need arise.

The Mobile Substation design focuses on providing the user with a product that is easy to set up and use along with clear instructions and personalized training to provide a platform for rapid and safe integration into the required application. Owing to this, PTI manufactured Mobile Substations are in use with many North American utilities and the experienced team at PTI can support delivery of Mobile Substations within 10-12 months from receipt of order.

### Optimized Mobility And Maneuverability

PTI designers understand that not all substations and applications have unlimited access and as such a wide variety of features are available to optimize maneuverability. To meet local road restrictions, PTI designers optimize the size and weight of the Transformer to the greatest degree possible while at the same time being true to PTI's philosophy of reliability and robust manufacturing practices. Our design team stands ready to work closely with you to integrate all available options into your specific application.



### Optimized Transformer Design

PTI designers are Industry leaders and active members in standards groups ranging from IEEE/ANSI, CSA, IEC, and CIGRE. Our design team typically employs a Hybrid insulation system incorporating high temperatures materials in conjunction with traditional cellulose insulation to maximize the power output per unit size and weight.



### NOMEX®

In a growing number of transformer designs for mobile substations, NOMEX® high temperature conductor insulating material is used in combination with conventional cellulose insulation. The use of NOMEX® as an insulation material for the windings allows power ratings to increase substantially

Temperature Limits for Conventional and Hybrid Insulation Systems			
Design	Conventional	Hybrid	
Top oil temperature rise over ambient (K)	65	65	65
Average winding rise over ambient temperature (K)	65	95	115
Winding hottest-spot rise over ambient temperature (K)	80	130	150
Cellulose hottest-spot rise over ambient temperature (K)	80	80	80
Ambient temperature (maximum) (°C)	40	40	40
Top oil at maximum ambient temperature (°C)	105	105	105
Average winding temperature at maximum ambient (°C)	105	135	155
Winding hottest-spot at max. ambient temperature (°C)	120	170	190
Cellulose hottest-spot at max. ambient temperature (°C)	120	120	120