



**PREFORMED** LINE PRODUCTS

The connection you can count on.



## TRANSFORMER CATALOGUE

Amorphous Metal  
Distribution Transformers

# Amorphous Metal Distribution Transformers

- ▶ Reduce the No Load Losses by 65-75%
- ▶ Increase Life of Operation
- ▶ Lower Greenhouse Gas Emissions
- ▶ Exceed "Minimum Energy Performance Standards" (MEPS)
- ▶ Surpass "Higher Efficiency Performance Standards" (HEPS)
- ▶ Reduce Carbon Footprints
- ▶ Earn Carbon Credits

▶▶▶ **Energise to begin saving...**



Preformed Line Products (PLP), Australia is a leading manufacturer and supplier of cable line hardware for aerial power and communications networks, is pleased to launch a new and innovative range of distribution transformers to the Australian market.

Known as Amorphous Metal Distribution Transformers or **AMDTs**, these transformers are a low loss, highly efficient, cost effective solution contributing to a healthier world environment.

It is generally considered that transformers are responsible for approximately one third of network losses. Losses that cost the wider community in increased power generation, wasted power distribution, and higher green house gas emissions.

The distribution transformer supplies power to the network, consumer plant and equipment and must remain energised 24 hour per day, 365 days of the year. Whilst not consuming power, distribution transformers are responsible for certain inherent losses, particularly in the metal core.

Just as the transformer is the heart of the network, the metal core is the heart of the transformer and any reduction in the losses created as energy passes through the core will have significant economical and environmental benefits.

## Technical Specification

	Single Phase	Three Phase
<b>Ratings</b>	up to 167kVA	up to 1MVA
<b>Applicable Standards</b>	IS, IEC, ANSI, JIS, AS2374	
<b>Cooling</b>	ONAN, OA	
<b>Insulating Fluid</b>	Mineral Oil to Specification or Vegetable Oil	
<b>Frequency</b>	50Hz	
<b>Primary Voltage</b>	Up to 33kV	
<b>Secondary Voltage</b>	240/480 V Other voltages on request	415, 433 V Other voltages on request
<b>Core Construction</b>	Wound core/ Stacked core	
<b>Winding Material</b>	Copper/Aluminium (DPC or SE covered)	
<b>Tapping Range</b>	± 5%, steps of 2.5% (other tappings on request)	
<b>Impedance</b>	In accordance with AS2374	

## The Amorphous Core

In AMDTs the core is manufactured from a Ferrous, Boron, and Silicon (Fe-B-Si) metal alloy. Rather than being a metal with a crystalline atomic structure, amorphous metal is not crystalline but in fact random in its arrangement of atoms. This is achieved by the rapid cooling of the molten metal alloy within a highly controlled manufacturing process. The transformer core manufactured from amorphous metal exhibits easier and more efficient magnetisation, lower magnetic losses, and faster flux reversal.



## No Load Losses

AMDT transformers are designed with No Load Losses (NLL's) 65% to 75% better than traditional counterparts. AMDTs also show vastly improved performance under harmonic load conditions, particularly when 5th and 7th harmonic conditions are applied.

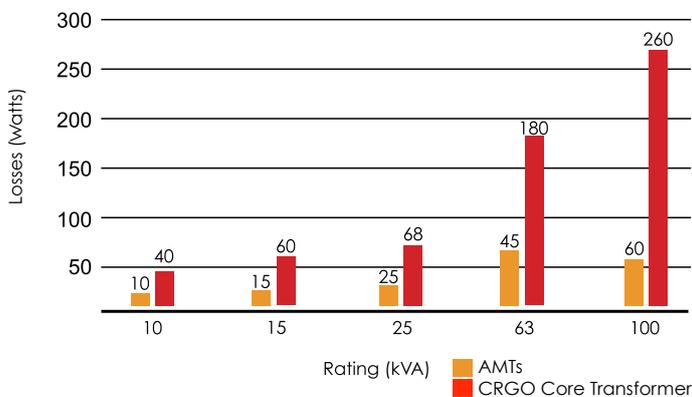
“ Known as *Amorphous Metal Distribution Transformers or AMDTs*, these transformers are a low loss, highly efficient, cost effective solution contributing to a healthier world environment. ”



## Total Ownership Cost

Whilst AMDTs may be marginally more expensive than silicon steel varieties, AMDTs are more cost effective in the long term and over the whole of life. Cost effective transformer calculations should consider capital cost, energy costs, No Load Losses (NLL's) and Load Losses (LL's) to calculate a Total Ownership Cost (TOC). Applying such variables to the TOC formula show AMDTs as being the transformer of economic and engineering choice.

## Amorphous Metal Core (Vs) CRGO Core



## Carbon Credit Trading Scheme

Each tonne of carbon is equivalent to one carbon credit; each carbon credit has a finite dollar value that can be traded. Whilst a carbon credit scheme is yet to be rolled out in Australia, the Federal Government is committed to the Kyoto Protocol and to reducing Australia's carbon footprint with a carbon credit trading scheme.

## AMDTs & CRGO Steel Comparison

Properties	Amorphous Metal	CRGO Silicon Steel
Density	7.15 g/cm <sup>3</sup>	7.65 g/cm <sup>3</sup>
Specific Resistance	130	45
Saturation Flux Density	1.59 Tesla	2.03 Tesla
Typical Core Loss (1.4 T)	0.2 W/kg	M4 Grade - 0.7 W/kg M3 Grade - 0.57 W/kg
Thickness	0.025 mm	0.27 mm
Lamination factor	0.86	0.97
Available Form	Ribbon/Foil	Sheet/Roll
Annealing Temperature	360 °C	810 °C
Annealing Atmosphere	Inert gas	Inert Gas
Annealing Requirement	Magnetic Field Annealing	-

## Fittings & Accessories

### Standard:

- ▶ Pole Mounting Brackets/ Base Channels\*
- ▶ Pressure Relief Device/ Self Venting Top Cover\*
- ▶ Lifting Lugs
- ▶ Earthing Terminal
- ▶ Name Plate
- ▶ Primary Bushings
- ▶ Secondary Bushings
- ▶ Draining Plug\*
- ▶ Filling Device\*
- ▶ Oil Level Indicator\*
- ▶ Dependant on rating and size\*

\* Dependant on rating and size

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