# ENERGY EFFICIENT AMORPHOUS METAL DISTRIBUTION TRANSFORMERS

- PME Power Solutions (India) Limited has license to manufacture Amorphous Metal Cores & Transformers with technology from Metglas, Inc, USA & Hitachi Metals India.
- These are energy efficient transformers having iron losses 1/4 of CRGO core transformers.
- Range up to 500 kVA 33 kV class Distribution Transformers.

## COMPARISON OF KEY FEATURES – AMORPHOUS METAL AND CRGO STEEL TRANSFORMERS:

| Properties | Unit | Amorphous Metal – Grade 2605SA 1 | CRGO Steel – Grade M4 (Stacked Core) |
|---|---|---|---|
| Density | (g/cm3) | 7.19 | 7.65 |
| Specific resistance | | 130.00 | 45.00 |
| Saturation flux density | (tesla) | 1.58 | 2.03 |
| Typical core loss at 50 Hz | Watt/kg | 0.22 @ 1.4 Tesla | 0.89 @ 1.5 Tesla |
| Nominal Thickness | mm | 0.025 | 0.27 |
| Annealing Temperature & Process | °C | ~360 with Magnetic field annealing | ~800 |
| Core construction & assembly | | Wound core construction with distributed lap joints, ready to use core | Assembly of sheared & cut laminations |
| No load loss | | Very low around 25% of conventional grade CRGO transformer thereby improving the total owning cost. | Relatively high |
| Coil winding | | Concentric rectangular shaped coils for better space factor utilization | Concentric round shaped coils |
| Reparability | | Yes | Yes |

## AMORPHOUS METAL TRANSFORMERS BENEFITS:

- Besides energy efficiency, Total owning cost (TOC) is reduced by improvement in environment factor socials & economics costs of generation related to CO2, SO2, & other green house gases emissions.
- Improvement in 'H' factor dealing with really world power supply.
- Perform better in over excitation stage.