



Your partner in lighting the nation.



PHILMAXWELL ELECTRIC Co., INC.

OUR COMPANY

PHILMAXWELL ELECTRIC CO., INC. Incorporated in 2016, PHILMAXWELL Electric Co. has consolidated its position in Transformer Industry as a manufacturer of a wide range of distribution transformers, which conform to the quality expectations of both the domestic and the international market.

PHILMAXWELL's capability to develop world class Energy efficient distribution and special transformers is credited from our partners, The MAXWELL Electric Co., Ltd in Taiwan and THAIMAXWELL Electric in Thailand. Our facility is equipped with world class state of the art equipment and managed by a high skilled and experienced team of production personnel who consistently ensures that each and every production activity factors in an adherence to the high-quality benchmarks established by the organization.



ENERGY EFFICIENT TRANSFORMERS:

With the improvement of electrical steel (silicon steel) properties, MAXWELL transformer losses can be half that of a conventional type. With new magnetic materials, it is possible to achieve even higher efficiency. Our 3D type and the amorphous metal transformers are a modern example.

A VALUE BASED ORGANISATION:

As one of the country's transformer manufacturing companies, and one that is held in high esteem even by our competitors, a great deal of relevance is attached to living up to our image as a value based organization. We are an ethically responsible company, operate with transparency, validate commitment and sincerity, both vertically and horizontally across the organization and inculcate a spirit of integrity. We also try and extend these values to our business associates, be it vendors or our valued customers.

QUALITY POLICY

We perceive ourselves as a world class manufacturer of Transformers by establishing stringent quality norms in a vibrant environment that

- Values Continuous Improvement
- Develops the Best Resource Partners
- Nurtures Employee Skills and Performance
- Inculcates A High Standard of Integrity
- Believes in Team Work
- In a Persistent endeavor to ensure that each customer values their relationship with us

OUR FACILITIES

Primary winding machine



Secondary winding machine



Assembly area



Testing room



Testing equipments



PHILMAXWELL FULL RANGE OF DISTRIBUTION TRANSFORMER

consists of:

- **Single Phase Pole or Pad mounted type transformer** with sizes ranging up to 500kVA and high voltages ranging from 2400 V to 36 kV
- **Three Phase Pad mounted compartmental type transformer** 45 kVA to 4000 kVA and high voltages ranging from 2400 V to 36 kV
- **Three Phase Pad mounted substation type transformer** 45 kVA to 4000 kVA and high voltages ranging from 2400 V to 36 kV
- **Three Phase Hermetically-sealed Substation type 3D™ transformers**
- **Single Phase/Three Phase Dry Type transformers**

STANDARDS

All units are built in accordance with both ANSI and IEEE standards, except as modified to comply with customer's specifications. International Electro-technical Commission (IEC) may apply if required.

FEATURES

- Core and coil are designed for an optimum Total Owning Cost – TOC

- Wound cores with step-lap joints for increased efficiency and lower noise level
- "Low-High-Low" windings for increased short circuit strength, efficiency and thermal strength
- Computer aided design for mechanical and electrical calculations – CAD
- Dual voltage is designed to meet BIL and short circuit requirements on both connections
- Low voltage leads with sticker markings on all units with 3 LV bushings for easy reading and identification.
- Paint system meeting the performance of the IEEE C57.12.28 Standard.

Lifting Lugs

- Clamp type cover design
- Low voltage spade or terminal eyebolts as required
- Provision for surge arrester bracket, bracket available as an option
- Automatic self-resealing pressure relief device
- Externally operated off-load Tap Changers
- Stainless Diagrammatic Nameplates
- FR3 Fluids as an option
- Amorphous cores
- 3D cores



Insulation Level		
RATED VOLTAGE	INSULATION CLASS	BIL(KV)
4160-4800	8.7	75
7200-12470	15	95
13200-14400	18	125
19920-22900	25	150
34500	34.5	200

The following additional features are all standard on Completely Self Protected type (CSP)

Primary protective link.

- Surge arrester.
- Secondary Circuit Breaker.
- Secondary breaker operating handle with emergency overload reset and overload signal light.

OPTIONS

Primary Termination

- Cover-mounted HV porcelain bushings with spin top terminals
- Side-wall mounted HV porcelain bushings with spin top terminals
- Primary current limiting back up Fuse

Secondary Termination

- Low Voltage porcelain bushings with NEM spade terminals (standard on all units 167 kVA and above)

Primary Switching

- Externally operated Dual Voltage switch

Over current Protection

- Internally mounted current limiting fuse in series with protective link

RATING DETAILS

General technical information is listed below. Information on less common requirements can be obtained through PHILMAXWELL Electric.

Standard Units Single Phase

- Kva: 5 through 500
- Temperature Rise: 65°C
- Cooling type: ONAN
- Single Phase – Hertz 60, 50
- Polarity: Additive, Subtractive
- Primary Voltage: 2400V through 34500 GrdY / 19920V
- Secondary Voltage: 120/240, 240/480, 139/277, 600



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- Taps: none, or as an option, $\pm 2 \times 2.5\%$ HV (any combination of full capacity above nominal and/or reduced capacity below nominal)

COMPONENTS

Tap changers compensate for small voltage variations along the distribution system. The externally operated tap changer is a single phase, five-position design for de-energized operation.

A dual voltage switch permits use of the same transformer on distribution systems with different system voltages.

The CSP protection package consist of four related components that work together to provide

complete self-contained protection against surge, currents, short circuits and overloads:

The protective link removes internally-faulted transformers from the primary line, maintaining service to other customers on the line not served by the faulted units.

The MOV Polymer arresters handle surges of 65,000 amperes (small block) and 100,000 amperes (large blocks)

Secondary circuit breakers protect against overloads and external short circuits.

An optional current limiting fuse supplements the protective link when the fault current exceeds the link's rating.

LOSSES PROFILE :

To Comply with Standard Losses Profile of NEA for Overhead Single Phase Distribution Transformer

RATING (KVA)	SILICON STEEL CORE				AMOURPHOUS METAL CORE			
	No-Load Losses (Watts)	Load Losses (Watts)	Total Losses (Watts)	% of Rated (KVA)	No-Load Losses (Watts)	Load Losses (Watts)	TOTAL LOSSES	
							Watts	% KVA
10	36	120	156	1.56	12	120	132	1.32
15	50	195	245	1.63	15	195	210	1.40
25	80	290	370	1.48	18	290	308	1.23
37.5	105	360	465	1.24	30	360	390	1.04
50	135	500	635	1.27	32	500	532	1.06
75	190	650	840	1.12	45	650	695	0.93
100	210	850	1060	1.06	50	850	900	0.90
167	350	1410	1760	1.05	65	1410	1475	0.88
250	500	2000	2500	1.00	90	2000	2090	0.83
333	650	2500	3150	0.94	120	2500	2620	0.79

Note : Other losses profile can be manufactured on costumer request.

TANK DIMENSIONAL OUTLINE DATA FOR SINGLE PHASE SILICON STEEL CORE DESIGN are approximate and may change to meet costumer specifications

13200GrdY/7600V			
RATING (KVA)	Oil Quantity (Liters)	Tank Height (mm)	Tank Diameter (mm)
10	32	520	363
15	40	550	362
25	48	580	363
37.5	55	600	464
50	64	630	464
75	95	660	493

24940 GrdY/14400V			
RATING (KVA)	Oil Quantity (Liters)	Tank Height (mm)	Tank Diameter (mm)
25	68	580	362
50	72	630	464
100	115	660	545
167	145	700	620
250	152	750	860

34500 GrdY/19920V			
RATING (KVA)	Oil Quantity (Liters)	Tank Height (mm)	Tank Diameter (mm)
25	48	580	362
50	64	630	464
75	95	660	493
100	118	660	545
167	150	700	620
250	165	750	860
333	220	780	860



QUALITY AND RELIABILITY

PHILMAXWELL ELECTRIC CO., INC (PMEC) commitment to manufacture quality distribution transformers is backed by a series of transformer tests used to verify conformance to performance characteristics.

TESTING PROGRAM

Factory tests are performed on a transformer to confirm that it is properly designed and constructed to carry rated loads and that it will withstand the conditions it will be exposed into service.

Each transformer manufactured by PHILMAXWELL ELECTRIC CO., INC. must undergo a series of tests.

Continuity Check:

- This test is performed on all transformers to verify transformer circuit and component integrity. This test is performed with an ohmmeter to verify that the internal wiring is correct.

Insulation Resistance Test:

- This test is performed with an Ohmmeter to verify the dryness of the transformer.

Polarity, Phase –Relation and Ratio Test:

- These tests verify proper phase-relation (three phase), ratio and polarity (single phase) of the transformer under test. To pass, a unit must demonstrate the proper polarity or phase-relation and have turns ratio within one-half of one percent of the nominal voltage ratio.

No-Load Loss and Excitation Current:

- This test measures the no-load (excitation) loss and the transformer exciting current with rated voltage applied. If the exciting current and/or the no-load loss exceed the limits specified, transformer is being rejected.

Impedance Voltage and Load Loss:

- This test measures the load loss and the impedance voltage at rated current. The load loss and the impedance voltage must be within specified units.

Induced Voltage Test:

- The principal purpose of this test is to verify the dielectric strength of turn to turn, layers to layer, phase to phase and other insulation structures within the transformer windings by inducing an over voltage condition (at higher than normal frequency to avoid saturation of the core). The test current is monitored, and if exceeds limits specified for each transformer, the unit is rejected.

Applied Voltage Test of the LV / HV:

- This test checks the dielectric integrity of insulation structures between the HV and LV, and between the HV and Ground and so between the LV and Ground. A pass/fail decision is made by monitoring the test current intensity. If the resulting current is larger than specified normal leakage and capacitive currents, the unit is rejected. This test is omitted for transformers with a permanently grounded high voltagewindings.

Winding Resistance Test:

- Winding resistance measurements in transformers are of fundamental importance for the following purposes:
 - Calculations of the I²R component of conductor losses.
 - Calculation of winding temperature at the end of a temperature test cycle.
 - As a bases for assessing possible damage in the field.

Warranty Services:

- 3 years warranty on CSP
- 2 years warranty on Conventional

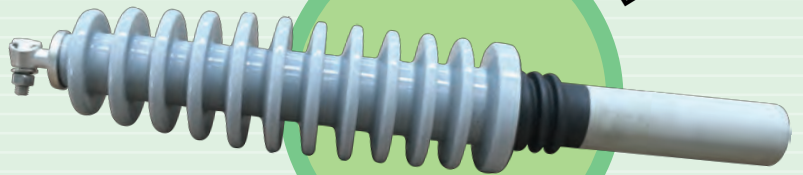
CORE & COIL



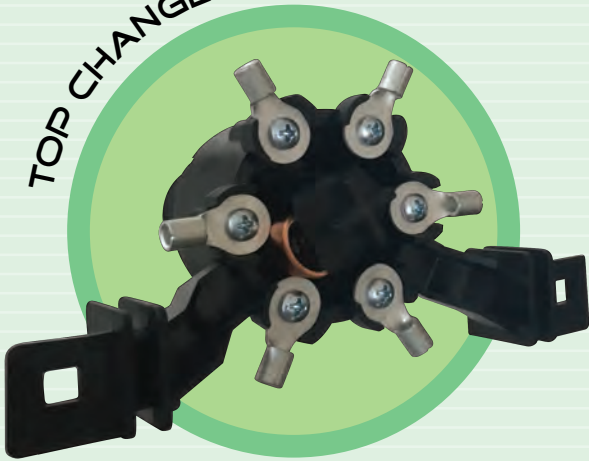
SECONDARY BUSHING



PRIMARY BUSHING



TOP CHANGE



SECONDARY BUSHING



OTHER PRODUCTS:

SINGLE PHASE PADMOUNTED



THREE PHASE PADMOUNTED





Let there be light.



PHILMAXWELL

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