



INTRODUCTION

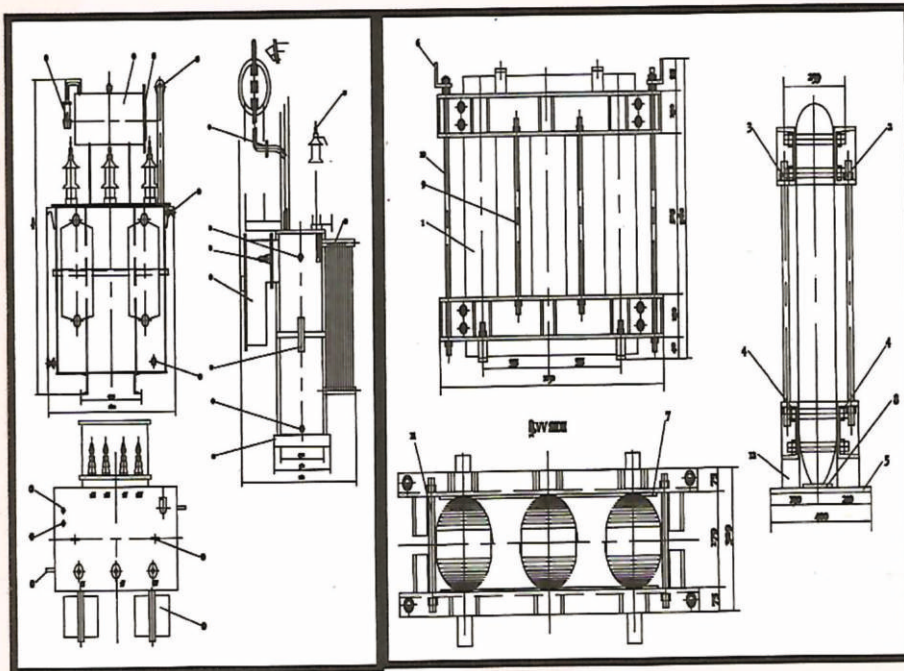
KEMTECH ENGINEERING SERVICES LIMITED, set up in Eket, Akwa Ibom State, Nigeria, with expertise in engineering and development, is offering high quality products of local origin catering to the vibrant sector of electric power distribution. The following products are manufactured in a most modern plant having dust free climate controlled atmosphere and employing state of the art technology.

- ? Distribution transformers of 11 and 33 KV up to 1500KVA
- ? Package substation with SF6/oil type RMU and distribution feeder pillar.



STANDARDS

The products are designed, manufactured and tested to comply with national and international standards including: IEC 60076, IEC 60726, ANSI C57, BS 171



DESIGN

Union Manufacturing develops the design using fully computerized techniques. All drawings are prepared on computer using CAD software. Extensive analysis by an iterative computer programme is used to obtain designs which meet the requirements of the customer specifications and the relevant standards.

CORE

High permeability cold rolled grain oriented silicon steel is used for core manufacture.

Step lap cut construction is achieved by using a fully CNC controlled high performance cutting line.

The step lap core design:

- ☒ Reduces no load loss
- ☒ Reduces excitation current
- ☒ Reduces noise level



WINDINGS

LV windings are either made of copper foil on a computer controlled foil winding machine or spiral winding made of rectangular copper. HV windings of distribution transformers are layer windings made on sophisticated machines. The layer design gives uniform impulse distribution and gives high strength against surges.

Thermally upgraded epoxy dotted paper is used for interlayer insulation. HV windings of power transformers are continuous disc windings.



TANKS

Corrugated finwall tanks or pressed steel radiator type tanks are offered as per requirements. The tanks are first sand/shot blasted and a zinc rich primer coat is applied. This is followed by an undercoat and a finish coat of the required colour.

All tanks are tested for leaks prior to assembly of the transformer.



PROCESSING:

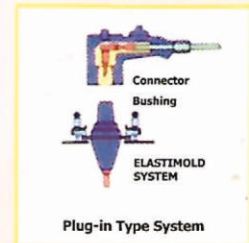
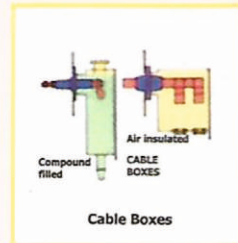
The core and winding assembly is dried under vacuum in order to remove the moisture from the insulation and then impregnated with transformer oil. The transformer is then filled under vacuum.



TERMINATIONS AND CONNECTIONS

A variety of terminations and connections are offered, including:

H.V. Bare Bushing/Cable Box Bushing
L.V. Bare Bushing/Cable Box Bushing
Cover Mounted/Side Mounted Bushing
Plug in Type Bushing



TESTING

All routine tests, as per IEC 60076-1/IEC 60726, are carried out on all oil filled transformers and dry type cast resin transformers and test reports are furnished.

The routine tests performed are;

- Insulation resistance measurement
- Ratio test
- Resistance measurement
- Polarity & phase relation test
- No load loss and excitation current measurement
- Load loss & impedance measurement
- Applied potential test
- Induced potential test
- Test oil samples (for oil filled Transformers)
- Partial discharge measurement (for cast resin transformers) The following tests are carried out as per requirement on one unit of each rating ordered:
 - Zero sequence impedance measurement
 - Temperature rise measurement
 - Partial Discharge measurement (for oil filled Transformers)

FITTINGS & ACCESSORIES:

Rating Plate
Cooling Fin/Radiator
Lifting Lugs
Off circuit Tap Switch
Underbase
Earthing terminals
Thermometer pocket
Drain valve
Oil filling hole with cap
Oil level gauge
Pressure relief device (for sealed type)
Conservator with breather (for breathing type)

OPTIONAL ACCESSORIES:

Jacking Pads
Uni/Bi-directional Rollers
Buchholz Relay
OTI with contacts
WTI with contacts
Current transformers
Marshalling Box
On load tap changer (As per Requirement)

Engineering. Construction. Procurement Services. Repairs/ Maintenance of Power and Distribution Transformers.

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