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Dry Type Transformer



- Custom designs to fit existing line-ups
- Retro fitting dry transformers in liquid locations
- Custom bus work to meet existing connections
- Custom enclosure and packaging options
- Meeting all IEEE/CSA standards
- UL approved varnish and VPI system

The photo to the right is an AMR PEMCO dry type transformer



Dry Type Capabilities & Solutions



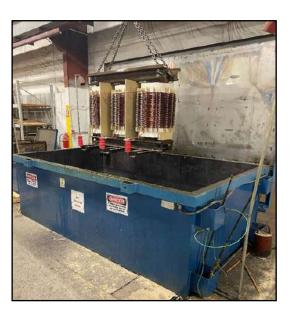
- Winding voltage up to 35 KV and 200 KV BIL
- Winding configurations
 - Distribution
 - Multiple pulse
 - Phase shifting
 - Zig zag grounding
 - Scott T connection
- Reactors and power quality filters
- Ancillary equipment
 - Fused load break switches
 - Medium voltage breakers / relays
 - Metering devices



An AMR PEMCO transformer in the building process

Transformers Protective Insulation Systems





Varnish Dip Process



Vacuum Pressure Impregnation (VPI)



Sealed Coil

New Dry Type Product



AMR PEMCO's experienced group of electrical design engineers construct the transformer around the following critical requirements on a job by job bases

- Frequency variations
- Magnetic balance
- Voltage surges
- Magnetic balance
- Harmonics
- Overload cycles



Substation Skid Product



- PEMCO dry transformer or purchased oil filed
- Primary and/or secondary
 Breakers (fixed or draw out)
- CT's (primary & secondary)
- PT's (primary & secondary)
- Primary switch (fused if required)
- Vacuum breaker
- Power quality metering if required
- Multiple feeder



Substation Skid Product



Example:

- Purchased 3 MVA liquid filed transformer (13,800V – 4160V)
- Primary fused load break air disconnect switch
- Secondary vacuum circuit breaker
- HV/LV surge arresters
- In-line fail safe capacitor trip device
- Panel mounted indication lights
- Secondary CT's (multi-ratio)
- Overcurrent/ground fault protection



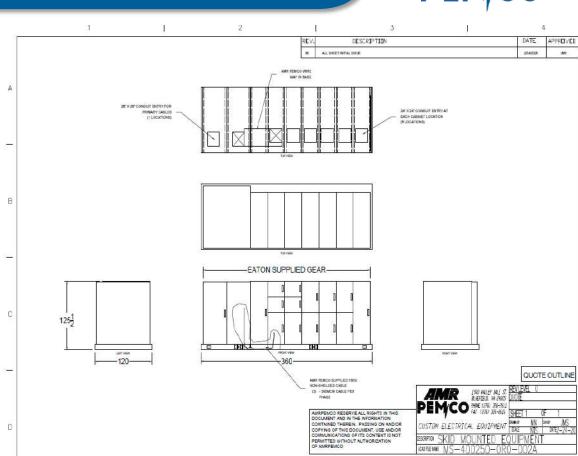
This is an AMR PEMCO Substation Skid

Substation Skid Product



Example

- Customer supplied 5 MVA liquid filed pad mount transformer
- Customer supplied 5kV MV switchgear line-up
- AMR PEMCO suppled engineered skid, mounting of customer supplied equipment, and all connections
- Testing: phase relation between transformer installed equipment terminals to ensure cables have not been crossed up



Mobile Substation Skid Product



Trailer Substation w/Dual Secondary

- Purchased 5000/6250/7000 KVA liquid filed transformer (13,800V – 13800V x 7200V)
- Input: 13800VAC main vacuum breaker with visible disconnect, SEL-751 relay, open/close lights, ARC flash protection, lighting and utility circuits
- Output: grounding resistor to limit current to 15AMP w/ SE-330 NGR monitor
- AMR PEMCO suppled enclosures on engineered skid, mounting to purchased axel mobile trailer
- All connections are made between input gear/transformer/output gear



This is an AMR PEMCO Mobile Substation

Rebuilds - Dry Type Transformers



- Guaranteed fit and re-connection to existing gear
- Environmentally friendly and cost effective
- No matter the style of winding, we are able to provide new coils
- By rebuilding your existing transformer, it gives the guarantee of an exact fit for reconnection
- AMR PEMCO's coil construction is of a barrel design, giving a smooth vertical surface



Newly Rebuilt Unit

AMR PEMCO Rebuilds



- During the rebuild, we are able to update the accessories by replacing the fan package, temperature monitor, LA's etc.
- The existing enclosure & base are also able to be refurbished
- 12/18 month warranty which is the same as a new transformer
- Cost is typically 20-25% less than the price of a new unit with it increasing (25-30%)



The photo to the right is a completed on-site rebuild after being hooked up and put back in its enclosure

Past Transformer Before Rebuild



- Our technicians inspect and assess the issue
- The transformer is then taken apart and the proper measures are taken to rebuild your unit specific to your needs
- Top clamps and new insulators are installed and then sprayed with dielectric varnish

Old Failed Unit 420 KVA





Past Transformer After Rebuild



- We perform all of the work with regards to the re-assembly of the core and coil
- All accessories will be done by the AMR PEMCO's service technician during the reassembly process
- From a failed transformer to an fully operational transformer with new coils and a warranty

Newly Rebuilt Unit





AMR PEMCO Rebuilds



- AMR PEMCO will evaluate how we can best help
- Once the rebuild is completed, then the contactor has a third party test group finalize the rebuild by performing standard field tests so you know you're working with a safe product
- You'll save money and time with our rebuild service
- We guarantee high quality products and customer service each time



Before and after images of a successful rebuilds



On-Site Rebuilds



What is the On-Site Rebuild Service?

- AMR PEMCO will bring in-house rebuild service to the job site and send a qualified technician to evaluate and determine what work needs to be done
- Over-all logistics of how the rebuild will take place discussed with the contactor and the new coils are manufactured, tested, varnished, and shipped
- AMR PEMCO then schedules technicians to return to the site to perform the Rebuild service
- This takes place over 3 to 4 days



Successful Transformer Rebuild

On-Site Rebuilds - Why & Where



Who is this unique and beneficial service for?

- Customers who want quick turnaround with minimal rental expense
- Buildings with substation foot print that can't grow with the installation of a new DOE required transformer
- Buildings with very limited access to the electrical room
- We come to you and guarantee a high quality and on time On – Site rebuild and installation

tion

The photo to the right is a customer's transformer before beginning the rebuild process

On-Site Rebuilds



Why should you choose the On-Site Rebuild service?

- Guaranteed fit and re-connection to existing gear
- Environmentally friendly and cost effective
- 60 years of Manufacturing experience
- Warrantied the same as a fully new transformer
- When considering total cost, the on-site rebuild service saves you money with the same results, and less effort



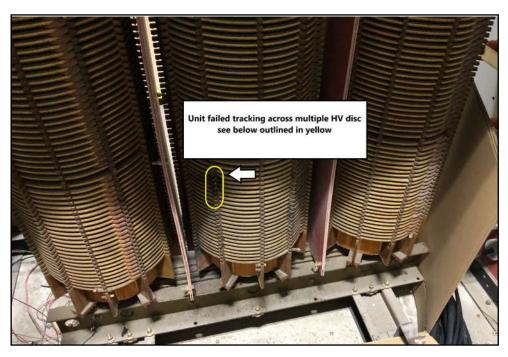
The photo to the right is a completed on-site rebuild after being hooked up and put back in its enclosure

On-Site Rebuilds – Before



Further Explanation of How does this work?

- We use the existing unit's core, bus work, clamp assembly, termination connections, and enclosure (unless its determined that any of these items needs to be replaced)
- The new coils are engineered, manufactured, and tested at our facility located in Bluefield, VA
- The technician's will have the ability to perform additional site modifications



This is an example of a point of failure on the transformer of a customer before the rebuild process

On-Site Rebuilds – During



Top clamps removed





Core legs sprayed with dielectric varnish and then clamed



Continued build in progress



Top clamps and new insulators installed and then sprayed with dielectric varnish

On-Site Rebuilds – After



- We perform all of the work with regards to the disassembly and re-assembly of the core and coil
- All accessories (fans, brackets, CPT, temperature monitor, LA's, etc.) will be done by the AMR PEMCO's service technician during the re-assembly process
- From a failed transformer to an fully operational transformer with new coils and a warranty without leaving the facility



AMR PEMCO On-Site Rebuilds



- AMR PEMCO will come to you and evaluate how we can help
- Once the rebuild is completed, then the contactor has a third party test group finalize the rebuild by performing standard field tests so you know you're working with a safe product
- You'll save money and time with our on-site rebuild service
- We guarantee high quality products and customer service each time



Before and after images of a successful on-site rebuild



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