Westinghouse Electric Corporation
Sharon Transformer Division
Sharon, Pa. 16146

March, 1976
New Information
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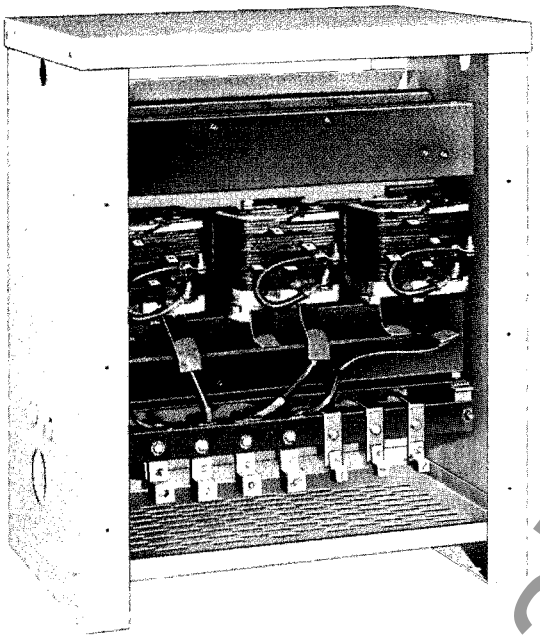
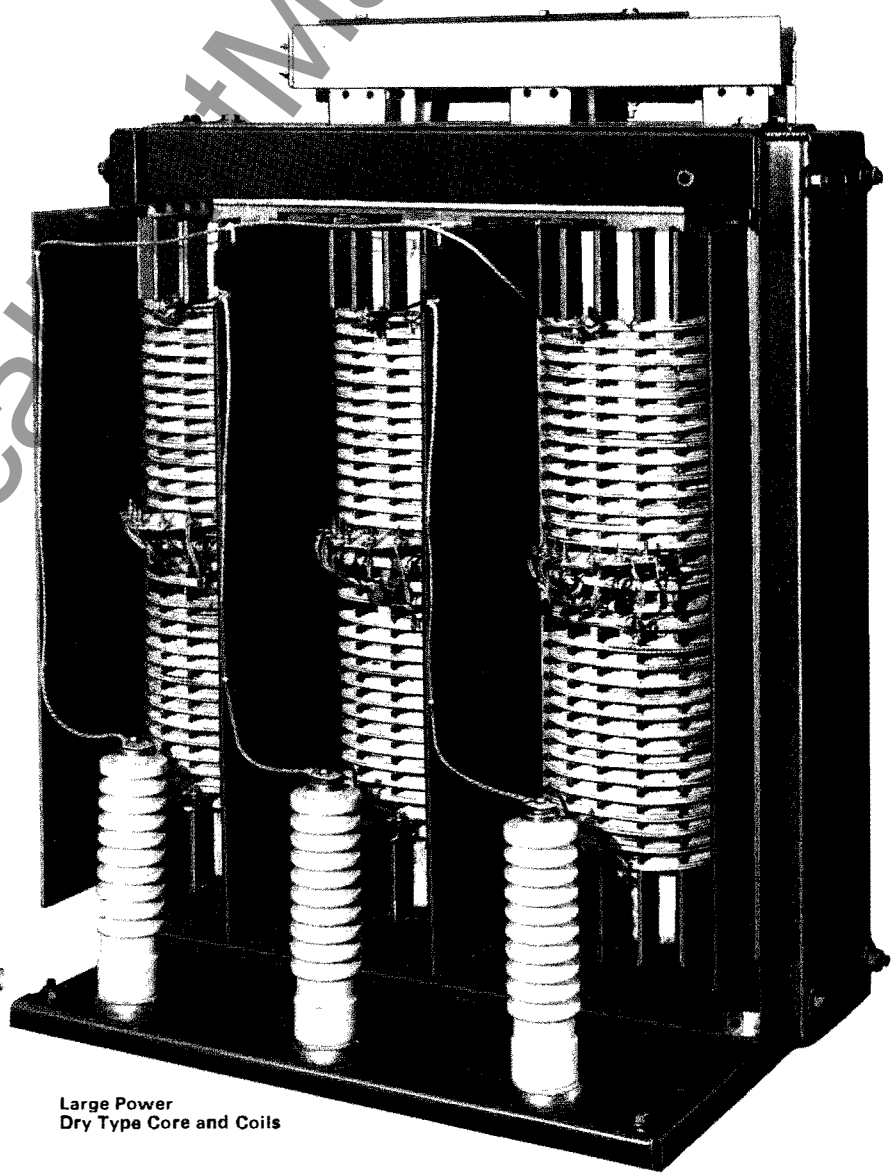
Dry Type Transformer and Reactor Components

This publication depicts the major dry type transformer and reactor components that are available to the original equipment manufacturer. These components are the same field proven devices that, when assembled into a complete unit, made Westinghouse the leader in the transformer industry. Westinghouse offers engineering analysis and application assistance in the use of these components. In addition to the components shown, special parts can be designed and manufactured to fit specific needs.

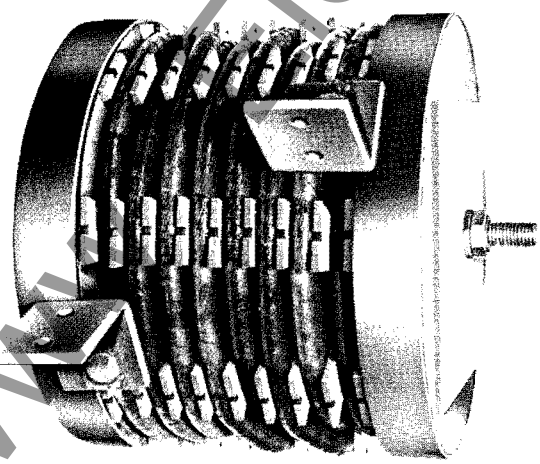


Small Distribution Dry Type Transformer



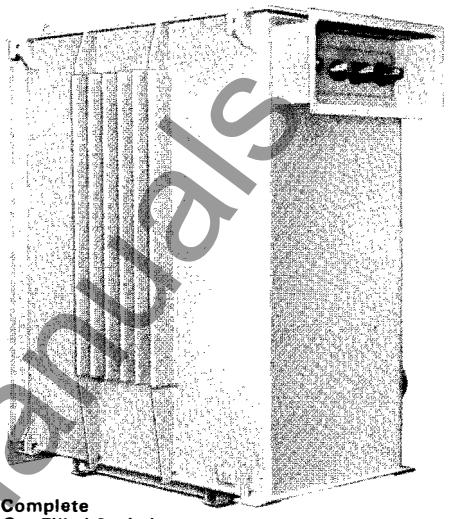
Large Power Dry Type Core and Coils

Dry Type Reactors

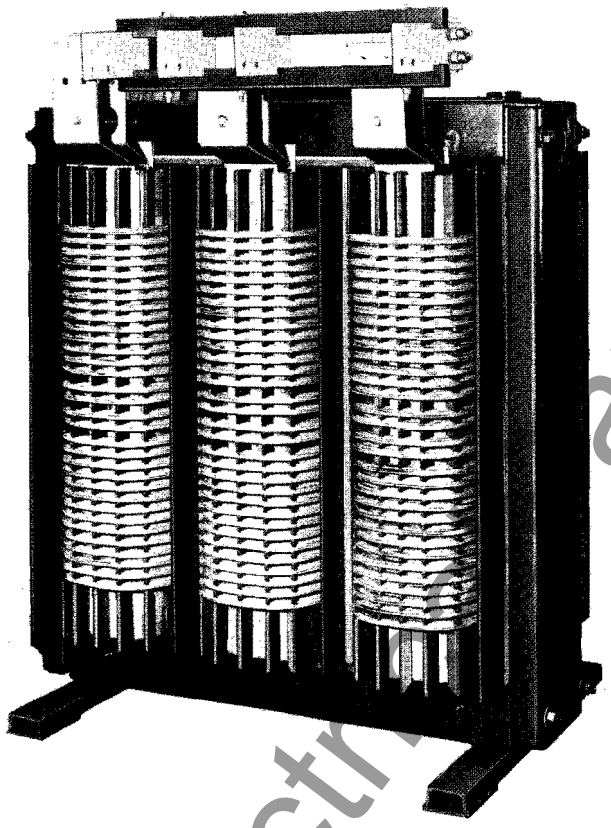


Transformer Core/Coils and Cases

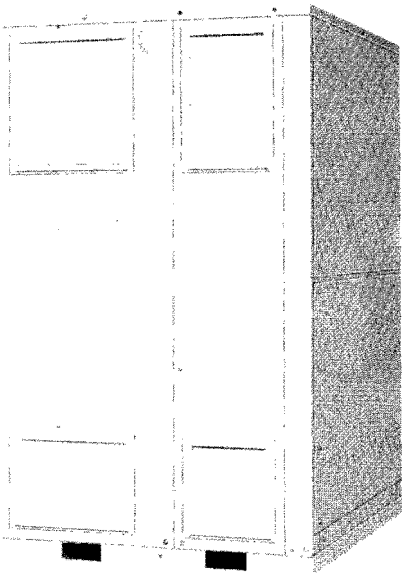
Westinghouse offers a complete line of dry type core and coils from 45 through 20,000 KVA in voltages through 34.5KV, 150KV BIL. These are available for use in secondary unit substations, rectifiers, thyristor drives or any special application with or without the cases shown below. Westinghouse dry type transformers are easy to coordinate with the associated gear with fixed predictable dimension and characteristics. A complete line of gas filled sealed dry type transformers are available for the ultimate in safety and low maintenance with high impulse levels. They can be installed indoor or outdoor or completely submerged.



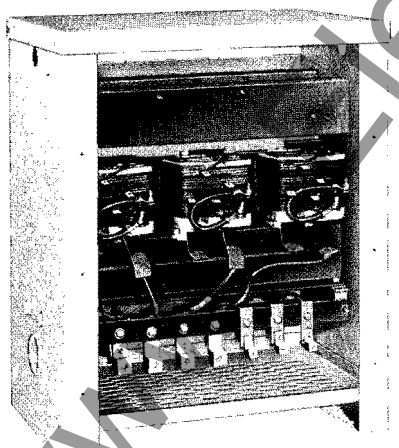
Complete Gas Filled Sealed Dry Type Transformer



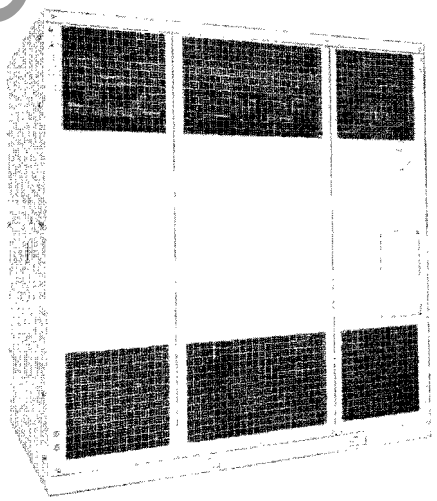
Large Power Dry Type Core and Coils



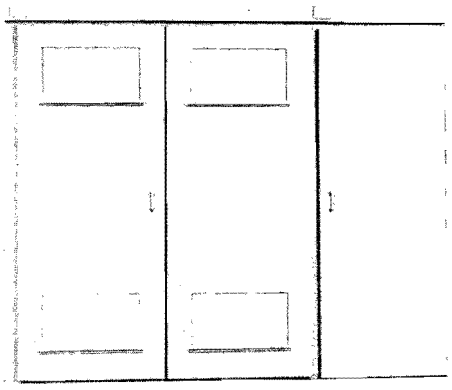
Standard Outdoor Case



Small Distribution Dry Type Transformer



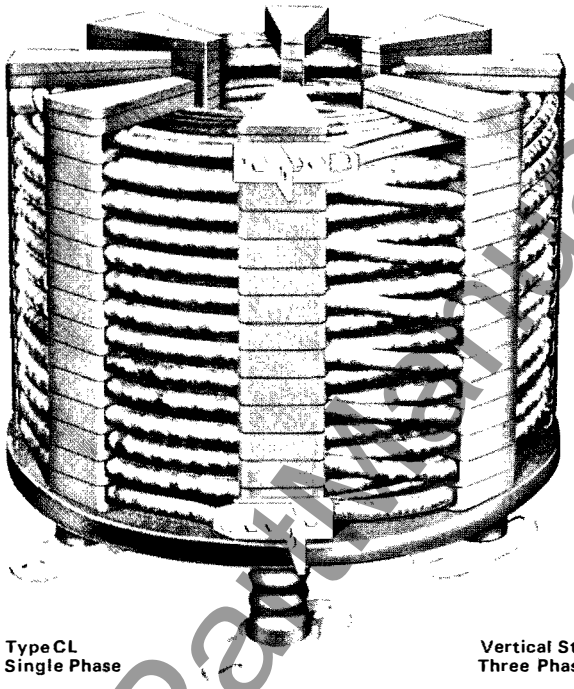
Standard Indoor Case



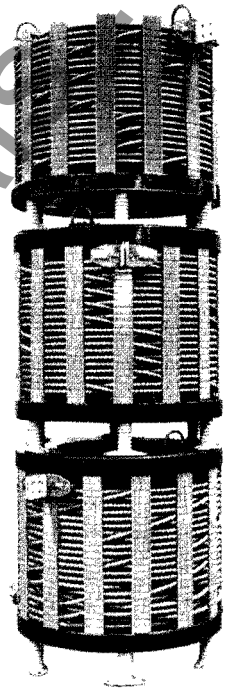
Tamper-Resistant Outdoor Case

Dry Type Current Limiting Reactors

Westinghouse offers a complete line of dry type reactors from the smallest type MSP units 600 volt and below to the largest type CL 6000 KVA 34.5KV. The major application of dry type reactors is to limit short circuit current in a feeder to values that can be handled by existing breaker equipment or new smaller less expensive overload equipment. Other applications include neutral grounding, bus tie, motor starting, thyristor smoothing, harmonic filter and special test type.



Type CL
Single Phase



Vertical Stack
Three Phase

Type CL

The Westinghouse type CL reactors feature polyester glass resin cleats and glass reinforced epoxy-resin tie rods for maximum dielectric and mechanical strength, thus long life. They are available in single phase or 3 phase vertically stacked, indoor or outdoor through 34.5KV (200KV BIL).

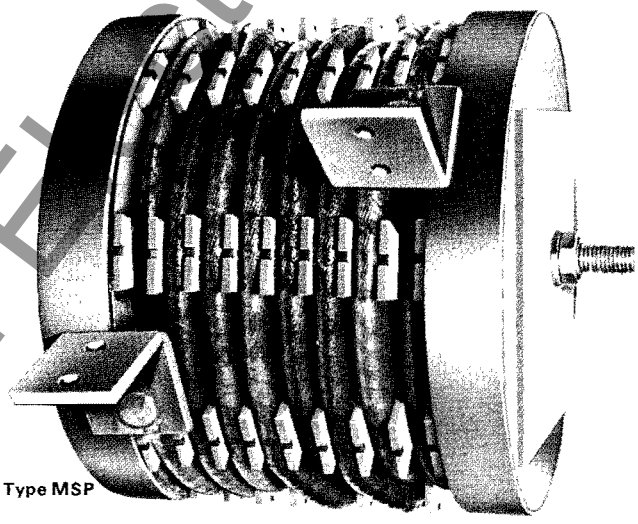
Type MSP

Type MSP magnetically self-shielded, current limiting reactors are designed to provide adequate short-circuit protection for low-voltage industrial power systems. Better regulation and circuit flexibility are obtained by the use of these reactors in individual feeder circuits rather than in the main bus.

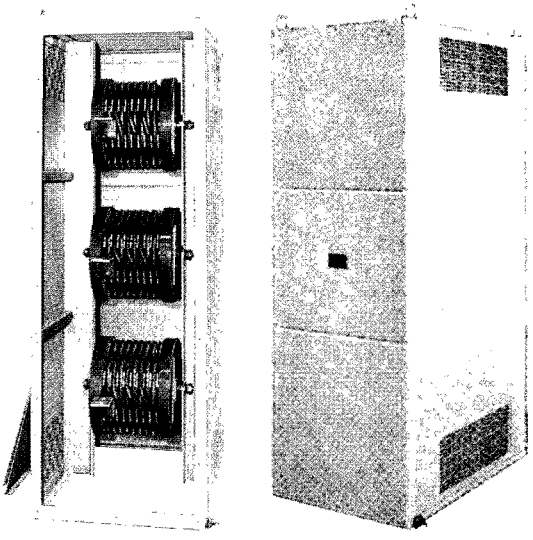
Motor circuits fed by group control apparatus such as a Control Center unit, furnish a specific example of the application of these units.

Rugged and compact in construction, these reactors permit a wide variety of single and three-phase mountings. Hipercrete® end shields effectively control the flux path so that these reactors may be mounted inside metal-clad switchgear without danger of local heating or sparking from enclosure joints, hinges and latches.

The standard line of aluminum wound type MSP reactors, including 16 designs, are available in continouus current ratings of 225 400, 600, 800, 1000, 1200, and 1600 with four standard impedance values (0.01, 0.015, 0.020 and 0.025 ohm) in each range. Ratings are as follows:
Kva: Up to 30 kva per phase at 60 Hertz



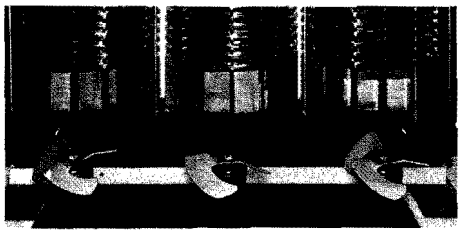
Type MSP



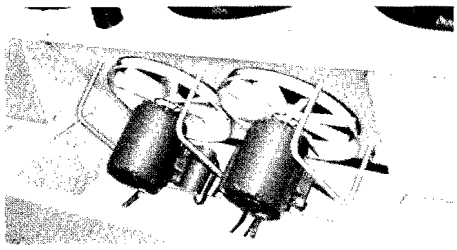
Type MSP With Housings

Accessories
Westinghouse offers a group of accessories for dry type manufacturers which includes fans, temperature devices, cores, core parts, coils, and coil parts.

Cooling on Ventilated Dry Type Units



Small Units



Large Units

Fans: Fans can be used to provide forced cooled ratings on ventilated dry type transformers. A complete line of fans, blades, fan mountings and duct work is available.

Temperature Devices
Ventilated Dry Type Transformers

The type TRC Opt-i-Therm Temperature Indicator and Control is the most sophisticated instrument ever applied to ventilated dry type transformers for temperature indication and control of transformer protective devices.

The type TRC Opt-i-Therm is a thermocouple actuated, optically isolated temperature indicator and control. The instrument indicates hottest spot temperature in degrees centigrade and provides contacts for starting and stopping cooling fans, operating alarm signals and lights and actuating breaker trip coils or initiating other shut down or load reduction procedures.

The actuating thermocouple is wound into the transformer low voltage coil at the point of highest temperature. The instrument, therefore, indicates the actual hottest spot temperature of the transformer rather than a simulated hot spot temperature from conventional instruments.

The ability of this type TRC relay to more accurately measure hot spot temperatures offers three benefits: 1. The ability to safely and reliably carry heavier overloads. 2. The ability to size a transformer more nearly to the actual load which means lower first cost. 3. More accurate fan control has the benefit of longer transformer life and fewer failures.

Type TRC, Opt-i-Therm Winding Temperature Indicator and Control

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Core and Coil Parts

Steel:

Cases, cabinets, brackets, bosses, etc. can be tailored to meet specific needs.

Copper and Aluminum:

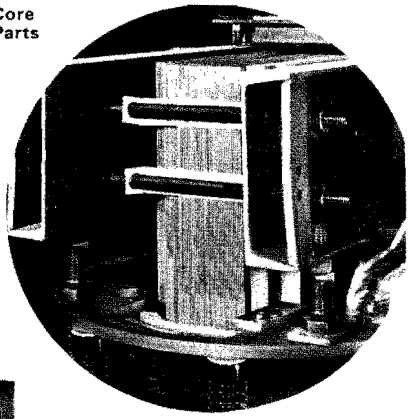
Four coil constructions -- cylindrical, helitran, continuous and hisercap, plus bar and flexible leads are available to fit the particular application.

Electrical Steel:

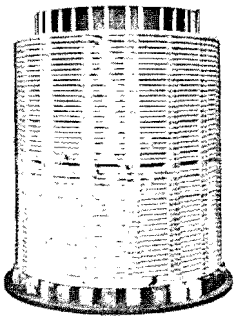
Grain-oriented hipersil steel offers the best magnetic circuit for transformer and reactor cores and can be purchased as laminations or as completed cores.

Insulation:

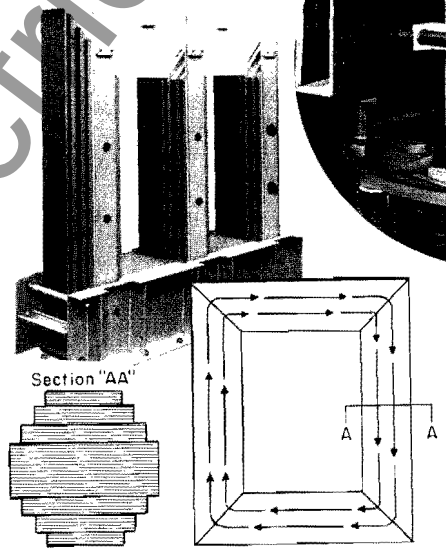
All types of insulation such as winding tubes terminal boards, vertical and radial spacers, insulators, and cast resin cleats can be supplied.



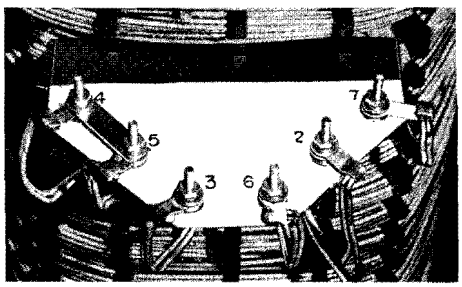
Core Parts



Hisercap Coils



Cores



Tap Terminal Board

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