AIR CORE REACTORS
PHOENIX ELECTRIC CORPORATION designs and manufactures Dry Type Air Core Reactors for operation on systems rated through 800 kV. All reactors are custom designed for each application, taking into account the voltage, current, inductance, size constraints, and loss characteristics required to provide the most efficient design at the most economical price. Phoenix reactors can be designed to North American or International standards. The reactors are suitable for use outdoors or indoors.

**Reactor Types:**

**CURRENT LIMITING REACTORS**
Reduce short circuit levels to meet the system needs and reduce stresses on buses, insulators, circuit breakers, and other high voltage devices.

**FILTER REACTORS**
Provide tuned series resonant LC circuits to meet specified harmonic requirements and minimize the effects of dangerous harmonics on power systems.

**NEUTRAL GROUNDING REACTORS**
Limit line-to-ground fault currents and reduce stresses on power equipment.

**TRANSIENT LIMITING REACTORS**
Connected to capacitor banks to limit inrush currents on energization or limit resonant system frequencies. These reactors also reduce overvoltages due to energization or restrike and reduce the magnitude and frequency of induced or secondary transients in control cables and ground grid step voltage.

**Special Reactor Types:**

**BALANCING REACTORS**
Balance current flow in parallel circuits.

**MOTOR STARTING REACTORS**
Limit inrush current.

**HVDC APPLICATIONS**
Control harmonic currents.

**SHUNT REACTORS** (size permitting)
Compensate capacitive voltages.
Air Core Reactor Design

Phoenix Electric reactors are air cooled, single or multi-layer, cylindrically wound units constructed on weather resistant fiberglass epoxy tubes with all materials chosen to meet the most severe thermal and electrical shocks and cycling requirements.

Reactor coil windings are normally designed using all aluminum construction with the conductors individually insulated. Copper winding can be provided to meet special applications.

Reactors are of outdoor weatherproof construction suitable for use without further protection. Each reactor is painted ANSI 70 Light Grey unless otherwise specified.

Flat aluminum terminals are drilled to NEMA specifications unless otherwise specified to meet special customer requirements. Electrotin plated terminals can also be provided.

Phoenix Electric Reactors are designed and constructed to be maintenance free.

1. Each reactor is encapsulated with epoxy impregnated fiberglass roving and tape.

2. The top and bottom of each reactor incorporates aluminum supports and terminals.

3. The dielectric integrity of the coil is assured by the pre-insulated and pre-tested conductor insulation.

4. The mechanical integrity is provided by the epoxy, fiberglass roving and tape system.

5. Support insulator(s).
INSTALLATION
The height and diameter of a reactor can be adjusted to meet various necessary physical needs or unusual space requirements.

Connections to standard NEMA type pads can be provided vertically or horizontally. Special drilling for unusual connections can also be provided to meet any incoming or outgoing line direction.

SUPPORT STANDS
Phoenix Electric can provide support stands and/or pedestals, which are custom designed for each application. Aluminum or hot dip galvanized steel stands can be provided. Special designs are used in order to avoid loop currents.

CLEARANCES
Minimum installation clearances must be maintained. The user should be aware of any limiting dimensions or clearances involving structural steel or reinforcing steel that may be used in nearby building or supporting structures. Non-magnetic supports can also be furnished by Phoenix Electric.

ENCLOSURES
Phoenix Electric can provide custom enclosures for indoor or outdoor applications when required. Special designs are used in order to avoid loop currents and eddy currents.

Internal buswork can also be provided for ease of interfacing with external connection points.

TECHNICAL SUPPORT
Phoenix Electric will provide technical support for applications, design calculations, engineering, and field installation assistance.

Don’t hesitate to contact us.

www.phoenixelectric-usa.com
Serving the Industry since 1973 and with over 15,000 reactors in successful service, Phoenix Electric Corporation is known for strong engineering, experience and a commitment to excellence.

- Medium and High Voltage Cable Connectors
- Air Core Reactors
- Specialty Switchgear and Engineered Control Systems
- Specialty Retrofits

TESTING
Phoenix Reactors are qualified per ANSI and IEC standards or special tests depending on customer requirements.

The basic program of testing includes some or all of the following tests:
- Routine Tests
- Impulse Tests
- Thermal Current Calculation
- Mechanical Strength Test
- Impedance and Loss Test
- Temperature Rise Test
- Sound Level Test
- Seismic Analysis

QUALITY ASSURANCE PROGRAM
Phoenix Electric has established and maintains a comprehensive Quality Assurance Program. This program encompasses the major industry recognized standards including the International Standard ISO 9001 of Quality Management and Quality Assurance Standards.
AIR CORE REACTORS

DATA REQUIRED WITH ORDER OR FOR BID PURPOSES

1. System Voltage (kV)
2. Frequency (Hz)
3. Basic Impulse Level (kV)
4. Reactance/Inductance (Ohms/Microhenries)
5. Continuous Current (A)
6. Short Circuit Levels (kA) - Time Duration (Sec)
7. Fundamental/Harmonic Frequency Levels (Hz)
8. Q Required for Filter Reactors
9. Insulators supplied or not supplied and TR No. or type to be used
   if not supplied by Phoenix Electric
10. Vertical or Horizontal Mounting
11. Three phase side by side or vertical stack mounting
12. Terminal configuration if not NEMA SG1
13. Dimensional Limitations
14. Number of Units