API Technologies produces a broad range of magnetic devices, including a variety of transformers, inductors, chokes, coils and custom application-specific solutions. Our magnetics group combines the people, products and technologies of several brands, including Filtran and RTI Electronics, in order to satisfy your magnetics requirements. API Magnetics is a key supplier to many of the world’s leading OEMs, serving the military, aerospace, medical, telecom, transport, RF and industrial/test measurement markets.

**Engineering Expertise**

The engineering team at API brings a wealth of experience to helping you find the ideal magnetic product for your application. We will help you find a standard part number or develop a custom solution using the design criteria you prefer, from construction (raw materials, winding and finish) to electrical and mechanical characteristics to circuit function.

**Quality Construction**

API’s commitment to quality begins with a rigorous raw material selection and inspection process and continues through highly trained operators utilizing state-of-the-art equipment. The end result is the highest quality magnetics consistently manufactured to meet some of the industry’s most stringent requirements including many MIL, ANSI and ISO certifications.

**Custom Solutions**

We offer extensive design and manufacturing capabilities, including more than two dozen magnetic core materials and winding wire from 6 to 45 gauge with many coatings, leads and terminations. We produce toroids ranging in size from 0.5” to 18” in diameter with up to 4,000 turns and accuracy to +/- 1 turn, and a wide variety of encapsulation and laminate options.

**Design Considerations**

The Magnetics group at API specializes in designing custom products to meet your needs. Our above mentioned capabilities provide great flexibility in designing and building a magnetic device specifically for your application. Below are some of the critical design criteria we will work with your engineering team to address.

**Electrical Characteristics** - Identifying the circuit function/application and/or specifying electrical requirements such as amperage, voltage, inductance, frequency response, leakage, and noise reduction often determines selection of materials and components.

**Mechanical Constraints** - Restrictions on maximum height and available board area and mounting style (surface mount or through-hole) set physical parameters that often are difficult to change. Mechanical size restrictions can strongly affect component temperature rise.

**Environmental Conditions** - Maximum/minimum operating temperatures and allowed surface and/or internal temperatures of components, including UL compliance, as well as conditions such as air flow, sealing of container, high shock, and vibration will influence material selection and design.

**Regulating Requirements** - Considerations include safety standards to be met (e.g. IEC/UL 60950-1, UL61010-1, UL 1585 etc), listing of the unit with a regulatory agency such as UL, CSA or VDE and requirements for UL thermal insulation system marking.

**Qualification Conditions** - Identify the qualification process required prior to approval, be it customer standards, or Hi-Rel standards such as MIL-PRF-27 or MIL-STD-981 and whether formal testing or the ability to demonstrate compliance by design is necessary.
Current Transformers

Current Sense Transformers
- Measures electrical current (AC & DC) and can transform current from high to low measurable values
- Wide primary current range of 3.5 Amps to 800 Amps
- Apps include advanced fault tolerant computers and workstations, control panels reading current flowing to electric transformer, telecom and communications

High Frequency Current Transformers
- 20 kHz-100 kHz operating frequency
- Available totally encapsulated, with or without wound primary turns and loading resistor
- Built to UL, MIL, VDE, CE specs, EMRL current transformers meet UL1244
- Ideal for ammeters, wattmeters, relays and cross current compensation

Load Detector Current Sensors
- Innovative Snap-On load detectors mount on pre-wired systems without disrupting existing connections
- Broad frequency response of 30Hz to 15 kHz
- Measure currents up to 40 Amps RMS continuous and 120 Amps intermittent
- Excellent for economical energy management and automation control

Power Inductors/Chokes
- Precision wound heavy-duty toroidal inductors
- Stores energy as a magnetic field, can delay and reshape alternating current
- Up to 100 amps, standard
- Semi or full epoxy molded, horizontal and vertical mounting
- Lighting dimmers – low wattage residential to higher wattage commercial, motor controls, SCR controls and line filters

Switch Mode Power Supply Inductors
- Filter inductors, toroidal current sense transformers and high frequency inverter transformers
- Performance verified in 25kHz power supply
- 10 to 1,000 watts with low power losses
- Switching frequencies from 5 to 100 kHz
- Open winding, semi-encapsulated and encapsulated construction
- Custom designs up to 200 Amps

Lighting Chokes & Inductor/Filters
- Precision wound heavy-duty toroidal inductors
- Rugged design
- 120 volt models from 12.5 to 100 Amps
- 240 volt models from 8.3 to 60 Amps
- High quality noise rejection filter
- Ideal for lighting dimmers, EMI/RFI filters, PWM and PM circuits primarily for motor controls, UPS Systems, differential mode line filters
Toroidal Power Transformers
- 50/60Hz, 5-15,000V Power Transformers (Europe ER series)
- 60 Hz 120V Power Transformers (U.S. FR series)
- 400Hz 115-230V Power transformer (Military DR series)
- Convert power-level voltages from one level or phase configuration
- Lower magnetic leakage, lower electrical noise and mechanical hum
- Excellent as isolation step-down and high voltage step-up transformers, autotransformer, ferroresonant transformer and smoothing inductor

Laminate Power Transformers
- Value ranges from 3 VA to 100,000 VA
- Transform line voltage to any other voltage
- Apps include audio power conditioning, low-wattage indoor and outdoor lighting solutions, military and commercial UPS systems, power supplies, monocrystalline and crystalline solar processing

Modem & Module Transformers
- Broadband and voiceband transformers used for datacom and telecom applications
- xDSL, T1/E1, T3/DS3/E3/STS-1, ISDN interface modules
- ADSL / POTS splitter modules
- Impedance and line matching transformers

Air Coils
- Custom and build-to-print air coils for RF power, filter and sensing applications
- Made with specialized custom tooling to meet customer dimensional and electrical requirements

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