INDUSTRIA RESISTENZE ELETTRICHE

Company profile

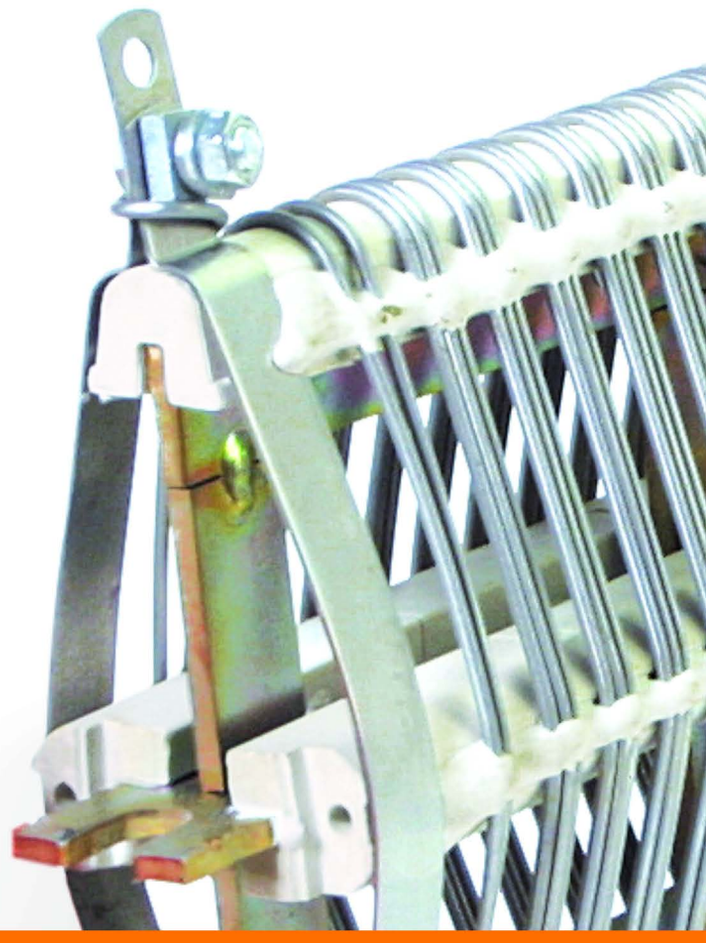
I.R.E. was founded in 1994; starting with the manufacture of traditional cemented wire wound resistors and shunts, it soon distinguished itself for the high quality of products, service and technical support offered to its customers.

Being extremely responsive to market developments, I.R.E. shortly afterwards started investing in laboratory equipment in order to sustain a continuous process of Research & Development; this soon originated innovative resistors dedicated to the new expanding industry of motor braking, so that in few years I.R.E. aluminium case models came to dominate Italian resistor market.

Today I.R.E. has firmly established itself both in the national and international market, with a top position in the lift and crane industry; certified according to ISO 9001, thanks to its reactive and very skilled staff it can design and manufacture complex systems, with powers up to MWs, for customers growing more and more demanding about performances and high safety standards.

The market in which I.R.E. operates is world-wide and its products are employed by the most important international customers. Below are the best-known:

- OMRON ELECTRONICS SPA
- OMRON YASKAWA MOTION CONTROL B.V.
- MITSUBISHI ELECTRIC EUROPE B.V.
- FUJI ELECTRIC FA EUROPE GMBH
- ZF ITALIA SRL (YASKAWA GROUP)
- S. C. S. SRL (MITSUBISHI INVERTER)
- DRIVETEC (HITACHI INVERTER)
- OMIS S.P.A
- AXOR INDUSTRIES
- PARKER HANNIFIN
- GEFRAN - SIEI
- SEMAR (J.E. GATE – BMW)
- SIT SPA (MOTION CONTROL DIVISION)
- CNR
- A.T.M. MILANO
- EATON POWERWARE
- SIEI PETERLONGO
- CONTROL TECHNIQUE
- RAIMONDI GRU
- GALILEO FERRARIS



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RFH

Studied to dissipate high power with dynamic loads, they are the ideal solution for inverters, snubbers and motor braking.
RFH resistors consist of a high resistive alloy core in a ceramic substrate, protected with a very thick case of extruded aluminium, oxycoloured (neutral standard) and designed to allow easy mounting and high dissipation. For applications needing controlled temperature RFHT version is provided with a thermostat. High quality, non magnetic, stainless, fire-proof components and a simple and functional design ensure a price/performance ratio which is certainly among the most interesting on the market.

Main features:
- low thermal resistance
- easy assemblage engineering
- strongness and reliability
- high dissipation power with cyclic impulsive states
- ROHS compliant

HPR

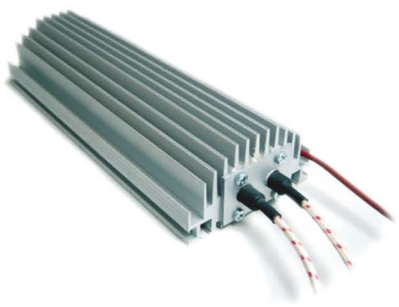
Space saving high power resistors, studied for all those cases in which a high dissipation power is required, but problems of noise, space or aesthetics do not allow the employment of a classic IP22 resistor system in metal box.
HPR resistors consist of RFH resistive bodies inside an aluminium case, provided with an efficient heat sink and shaped for an easy mounting. These characteristics guarantee the same performances as a traditional resistor bank in a volume up to 5 times smaller, with a high degree of protection (IP44, IP55 on request) and full inalterability of surfaces and connections, even in the extreme conditions of a "building site" installation.

Main features:
- easy mounting
- noiseless
- excellent performances/dimensions ratio
- low thermal resistance (from 0,6°C/W to 0,24 °C/W)
- ROHS compliant

HPM

HPM braking resistor is a restyling of HPD model, carefully studied to express the highest thermo-electric performance. The new heat sink has been designed using CFD codes and modern simulation tools.
Particular fins placed on sides and on the bottom allows for TE-M5 bolts or screws for an easy assembly inside control boxes or cooling plates.
Materials employed exclude any possibility of smoke, flame or explosion.
Thermal protection is integrated (standard 180° C). Particular versions for high protection degrees and safety failure are available on request.

Main features:
- thermostat (standard 180°)
- IP67 protection available
- high performance and power density
- ROHS compliant



NRIT IP20/IP23

The new generation of I.R.E. resistor boxes, rugged, compact and efficient, offers the possibility to house RPTM, GHPR, RCC and RPSC resistor series, in order to fit the most different needs, from occasional safety braking to continuous test banks, from high dynamic load to precision test load. The protection box is realized with high quality material and technical treatments that ensure long life and consistency also in difficult environment. It is carefully dimensioned for the application of I.R.E. resistors, a safety thermal switch is available for various temperatures, power and safety terminals are accessible from the bottom or from one side.
The original design of IP23 boxes top cover gives the best hot air evacuation with a protection grade suitable for outdoor environment.

Main features:
- low cost
- reliability
- versatility
- ruggedness
- ROHS compliant

MRIC

Rugged, versatile, compact, MRIC is a reliable and competitive solution when there is the need to group in a single enclosure braking resistors for various drives, even if widely differing from each other, such as all-movements crane braking.
The protection box is designed to work with variable environmental conditions, natural ventilation, and a protection degree to be chosen from IP20 to IP23; the special aluzinc coating is weather-proof and resists to a temperature range more than two times higher (350° C) than traditional zinc plating or galvanizing, whereas for harsh environment applications a layer of painting can be added onto the aluzinc coating.
Inside the protection box several normalized supports allow to mount the whole range of I.R.E. resistors while a lengthwise bar holds the insulators of the dipoles to which resistors are connected; dipoles are accessible from the bottom, or from one side through sealing gland.

only from I.R.E.!

MRIG

Rugged, compact, efficient, MRIG is a high power, high quality resistor box, for braking, test, safety or special applications. The possibility to house RPTM, GHPR, RCC and RPSC resistor series, makes it possible to fit the most different needs, from occasional safety braking to continuous test banks, from high dynamic load to precision test load.
The protection box is made with high quality material and technical treatments that ensure long life and consistency also in difficult environment. It is carefully dimensioned for the application of I.R.E. resistors: depending on the employed resistor, two different types are available, "G" with GHPRs and "P" with RPTMs or special configurations.
A safety thermal switch is available for various temperatures, power and safety terminals are accessible from the bottom or from one side.

Models and technology

BRV

BRV is the resistor box for the most demanding power requests. Its innovative design allows to put several layers of resistors one over another avoiding thermal interference, which drastically reduces performances of upper layers in traditional boxes, thus obtaining a size reduced to 50% with the same performances. Very sophisticated, yet rugged, it can be employed as an high quality braking, test, safety or special resistor, for the most different applications, from occasional safety braking to continuous test banks, from high dynamic to precision test load. The protection box is made with high quality materials and technical treatments that ensure long life and consistency. It is carefully designed to house 3 to 5 layers of I.R.E. GHPR resistors and offers its best price/performances ratio with powers from 60kW to 250kW.

RPTM

Particularly indicated when high current rating together with low ohmic value are requested, they are suited to various kinds of employment, such as braking resistors for inverters, starting resistors, load banks, snubber resistors.
RPTM resistors consist of a high stability alloy wire winding on a ceramic support mounted on a tropicalized steel chassis (AISI 304 on request), with terminations directly fastened on the ends of the wiring.
Adjustable collars are available on request (RPTMR).

Main features:
- wide range of applications
- high energy pulses resistant
- reliability
- strength
- ROHS compliant

GHPR

Resistor module of outstanding thermal and electric properties and high power density, designed to operate with short duty cycles and high energy loads. Standard resistor alloy is AISI304, since typical applications do not suffer from ohmic value thermal derivative and GHPR's low inductance allows for quick response, high commutation frequency and low transient overvoltage peaks. Other high stability alloys can be employed for thermal stability sensitive applications. The resistor is a class 0 device and is generally housed in a metallic box with protection degree from IP20 to IP24 on request. GHPR's highly efficient geometry performs at its best when laid horizontally on its supports, in a freely ventilated environment.
Among its power rating class, GHPR is certainly the most space saving and performing resistor available on the market.

Main features:
- modular
- high thermal efficiency
- ROHS compliant

HLR

The next generation heavy duty aluminium housed power resistors for extremely demanding applications: characteristics of HLR resistors are high protection grade, from standard IP44 to special IP67, extreme energy absorption capability and a new patent pending heat sink which makes them the highest power density resistors available on the market. Cabling can be performed in the embedded terminal case, high temperature cables are suggested. Compact and noiseless, HLR resistors are the ideal solution for lift and crane industry, replacing with improved performances traditional metallic box resistors, for applications with up to 40kW inverters.

Main features:
- noiseless
- compact
- heavy duty applications
- alternative to metallic box resistors

MRPS-MRCF

Resistor module which updates the classic tubular resistors, reliable and rugged, by housing them in a steel aluzinc protected box, with IP20 protection degree and access to terminals through cable bushing, thus making them structurally independent and compliant to safety standards.
The modules consist of 1,2 or 3 cemented tubular resistors, covering power applications from 500W to 6kW.
For particular applications these resistors may represent a valid alternative to the more sophisticated NRIT series.

Main features:
- low cost
- rugged
- reliable
- ROHS compliant

RCC-RPSC

RCC are tubular wirewound resistors MIL-R-26 compliant. Thanks to the employment of metallic and ceramic materials and the absence of organic or volatile components in the cement coating, RCC resistors are fully flame proof and can work with very high temperatures, thus representing a low cost alternative to enamelled resistors. The adjustable RCCR version allows to adjust the resistance value through a sliding collar.
Thanks to the corrugated ribbon, RPSC resistors can dissipate higher powers than the corresponding wirewound types, managing strong impulsive loads and high power. The corrugated ribbon, wound on a ceramic tube, is electrosoldered to the strong AISI 304 terminations and coated with cement.
In the adjustable type RPSCR a sliding collar allows to adjust the resistance value.

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RFI

Studied to dissipate high powers in transient loads, such as those generated by inverters, snubbers, motor braking and load limiters for condensers; their very small dimensions make them ideal space saving components.
RFI resistors consist of a high resistive alloy core in a ceramic substrate, protected with a very thick case of oxycoloured (neutral standard) extruded aluminium. The high quality of components excludes any possibility of smoking also in case of high loads. For application with controlled thermal state RFIT version is provided with a thermostat.
The uniformity of their surface allows RFIs to dissipate up to 4 times their nominal power, when mounted on a heatsink.

Main features:
- space saving design
- wide range of transitory states
- lower working temperature
- strongness and easy assemblage engineering
- thermostat on request (max. 180°)
- ROHS compliant

CBR

Very small braking resistors, recommended as inside resistors for inverters and in any case in which high power together with minimized overall dimensions are required.
CBR resistors consist of a resistive core in a ceramic case, protected by an aluminium cover. Their simple construction and the small number of components allow to offer high performances at low costs.

Main features:
- low cost
- high thermal loads
- new aluminium cover
- ROHS compliant
- highest power with minimal dimensions

RFST

Anti-moisture heaters, to be employed inside switchboards, motor housings and any small closed space, in order to prevent moisture condensation and icing.
RFST resistors consist of a resistive core embedded in a ceramic insulator and protected with a thick finned anodized aluminium case (neutral standard; black and other colours on request).
A bimetallic thermostat is available to control heat sink temperature, connected either in series with the resistor or with alarm/control circuits.

ROHS compliant.

FBR

Rugged, flat, steel housed resistor, designed to dissipate high dynamic loads in applications such as safety braking, snubbers, motion control, current limiters.
FBR resistors consist of a high resistive alloy core in a ceramic insulator, protected with a strong steel case aluzinc treated or painted. Their flat, bi-dimensional design is ideal for panel and heat sink mounting, to increase power dissipation capability.

Main features:
- low cost
- high dynamic loads
- ROHS compliant

DBR

DBR resistors are the natural evolution of flat resistors enhancing available power up to 2kW for single resistor mounted on heat sink (DBRD version).
The innovative manufacturing process and the bottom of thick aluminium make this product unique in its kind, being able to absorb high dynamic loads and, when mounted on heat-sink, an average power up to 3 times higher than its nominal power.

Main features:
- thermostat on request (max. 180°)
- easy assemblage engineering
- high dynamic loads
- ROHS compliant

RFGH-RFGHV

These products are an alternative to traditional tubular resistors. The employment of a non-porous ceramic case, a "labyrinth" fastening, high resistive alloys and a simple manufacturing give to this resistors higher levels of insulation, protection and performance in comparison with traditional resistors, as well as an easy fitting up.
RFGHs are particularly suitable as inner resistors for driving gears of DC or brushless engines, with AISI 304 connections and silicone rubber insulated cables.
The versatility of RFGHV manufacturing process makes it possible to employ connections for vertical fitting up onto printed circuits. These resistors are therefore a cheaper and more space-saving alternative to traditional resistors.

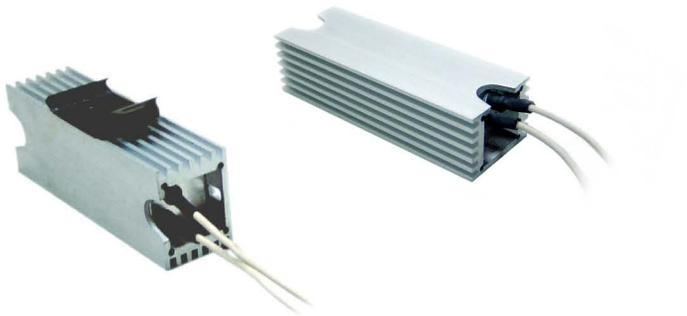
Main features:
- suitable as inner resistors
- easy fitting up
- ROHS compliant
- low cost alternative
  to traditional resistors

Models and technology

RFHS

Anti-moisture and heating resistor elements for industrial use, suitable to DIN bar mounting through dedicated accessory. Available also with internal thermostat, they are particularly economical if employed without, as they self-regulate to nominal temperature.
Compact, rugged and easy to assemble, RFHS heaters are made of incombustible materials.

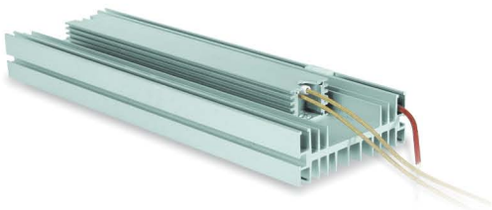
ROHS compliant.



RFHD

RFHD consists of an excellent heat sink on which a RFH series resistor is installed, with a thermal performance enhancement of 40%.
The heat sink plate, besides better performances, gives to RFHD resistor three important advantages: easy fitting of the thermostat, very simple assembly on the user system and high reliability.

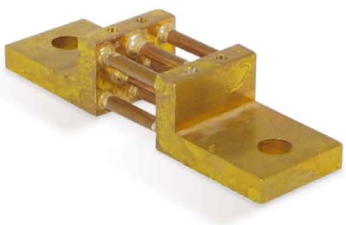
Main features:
- easy fitting up
- reliability
- ROHS compliant



SHUNT

Sense resistors studied to take an electric signal proportional to the current which flows through them, with great precision, repetitiveness and insensitivity to temperature.
Particularly suited to be employed with direct current instruments and measurement systems, SHUNTS are made with manganin bars silver brazed on brass terminations and calibrated by filing until the ohmic value, within the indicated tolerance, is reached.
Dimensioning does not exceed the load of 0,8W/cm2.

Main features:
- high precision of the derived signal
- electrical characteristics CEI 13-6 IEC 51 compliant



ZPC

Cemented flat resistors, with characteristics which can be compared to those required by MIL-R-26-D standards (styles RW20, RW21, RW23, RW24). Thanks to their shape and the special mounting brackets, ZPC resistors are the ideal solution for those cases in which high power dissipation together with small dimensions and high reliability during mechanic shocks are required.

Main features:
- high reliability
- easy mounting
- small dimensions and high performances
- ROHS compliant

MINISHUNT

Sense resistors, recommended for circuit boards.
Available in a wide range of pitches, MINISHUNTS are made of easy-soldering material with pins suited for holes of diameter 1,5-2 mm.
On request, they can be provided "C" bent (minimum lenght: 10 mm).

Main features:
- temperature coefficient exceeding 50 ppm
- minimum inductance
- E M F -42 µV °C^-1
- short overload 5PN in 5"
- ROHS compliant

Automotive

Designed specifically for the automotive industry, these compact cemented tubular resistors can be employed for DC motors control and sensing, such as speed regulation of the motor main cooling fan or of the electric windows.

ROHS compliant.

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