RNP-RNT

Descriptions
Ribbon wound on edge mounted on ceramic brackets or ceramic support fixed on a metallic bar or a metallic tie rod.
These resistors are recommended for very high energy pulses and low ohmic values

Market
Railways, Industrial automation, Energy

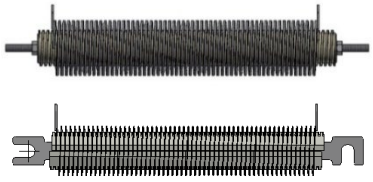
Applications
Dynamic braking, Starting motor, Crowbar

Mechanical characteristics
Protection Degree IP00

Special version
Ohmic values out of range, Special tolerance on resistance (2%, 1%), Intermediate grip

Active materials
Available: CuNi44, Nickel-Chrome Alloys, Stainless steel

File number: E228809



ELECTRICAL CHARACTERISTICS

ID	Nominal Power CE	Nominal Power UL	Min Resistance	Max Resistance	Operating Voltage
Unit	W	W	Ω	Ω	V
RNP 800	1150÷2055	450÷890	0,1	2,7	600
RNP 1000	1438÷2569	619÷1105	0,12	3,6	
RNP 1200	1726÷3082	742÷1350	0,15	4,3	
RNT 700	1218÷1984	487÷794	0,11	0,81	1000
RNT 900	1454÷2306	581÷922	0,14	0,75	
RNT 1000	1994÷2613	797÷1000	0,12	0,71	
RNT 1100	1915÷2254	766÷1250	0,08	0,44	
RNT 2	457÷795	275÷477	0,051	1,21	600
RNT 3	745÷1297	447÷778	0,083	1,97	
RNT 4	1034÷1799	621÷1080	0,115	2,74	
RNT 5	1322÷2301	795÷1381	0,147	3,5	
RNT 6	1611÷2804	966÷1550	0,18	4,27	

Dielectric strenght 50Hz; 60"	2.500 V (3500 V for RNT 700, 900, 1000, 1100)

RNP-RNT is a standard resistor only regarding the dimensions, whereas for rated power and thermal capacity must be designed on purpose. In fact it can be made with several different alloys and cross sections, then the overload operations, the rated power and the thermal capacity are very wide.
The number of the turns are fixed, so in general the higher is the ohmic value, the lower is the energy absorption.
In the table above the min rated power is related to the smallest ribbon that is possible to mount on the ceramics, and the max refers to the biggest one. Nominal power CE is given considering the ribbon temperature at 600 °C (continuous) and the room temperature at 20°C, while the nominal power UL is given considering the ribbon temperature at 415°C and room temperature at 40°C. In both cases, the resistors placed in free air.

Rated power depends on total surface area according to Newton's law

$$\frac{dQ}{dt} = h \cdot A \cdot (T_{env} - T)$$

Where
Q is the thermal energy in joules
h is the heat transfer coefficient (W/m² K)
A is the surface area of ribbon (m2)
Tenv is the temperature of the environment.
T is the temperature of the ribbon

The total surface area depends on the ohmic value according to Ohm's law

$$R = \rho \cdot \frac{l}{S}$$

Where
R is the resistance
ρ is the resistivity of the used alloy
l is the length of the conductor (ribbon)
S is the cross section of the conductor (ribbon)

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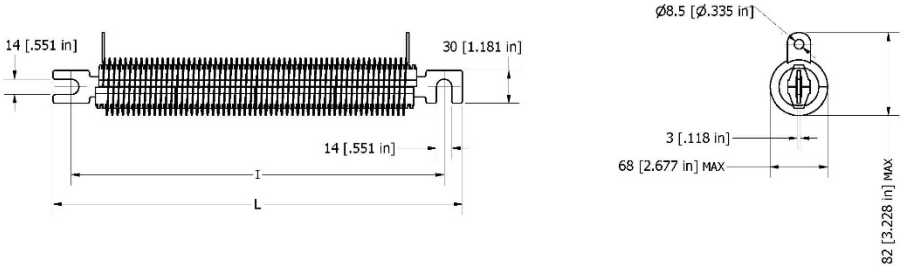
MECHANICAL DATA

ID	L mm [inch]	I mm [inch]	Weight kg [lb]
RNP 800	371 [14,6]	338 [13,3]	1,35 [2,9]
RNP 1000	443 [17,44]	410 [16,14]	1,6 [3,5]
RNP 1200	522 [20,55]	489 [19,25]	1,9 [4,2]

DRAWING

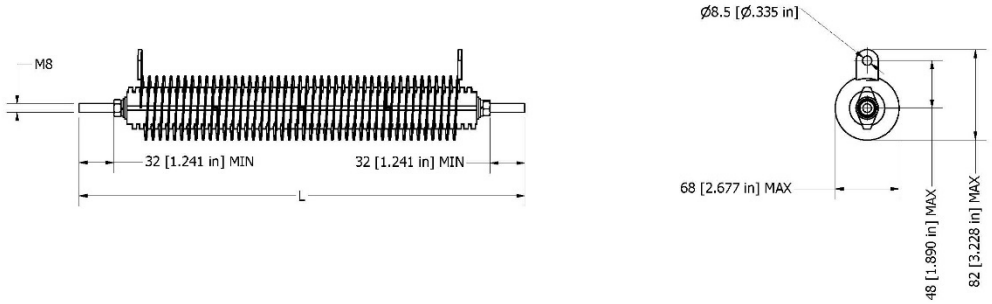
Weight is average value between minimum and maximum
Unless otherwise specified, applicable standard of general tolerances for linear and angular dimensions is ISO 2768-1 classe c.
In all drawings some dimensions depends on the size of the ribbon, we considered the widest one available.



MECHANICAL DATA

ID	L mm [inch]	Weight kg [lb]
RNT 2	248 [9,76]	0,89 [1,9]
RNT 3	326 [12,83]	1,1 [2,4]
RNT 4	404 [15,9]	1,2 [2,6]
RNT 5	482 [19,97]	1,25 [2,7]
RNT 6	560 [22,04]	1,3 [2,8]

DRAWING

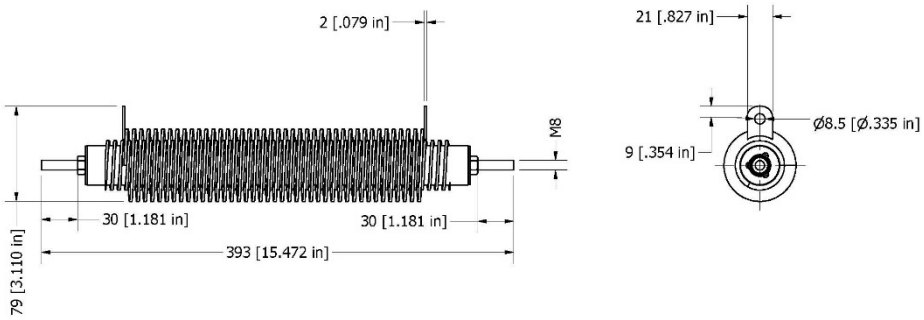


MECHANICAL DATA

ID	Weight kg [lb]
RNT 700	1,86 [4,1]

DRAWING

RNT 700

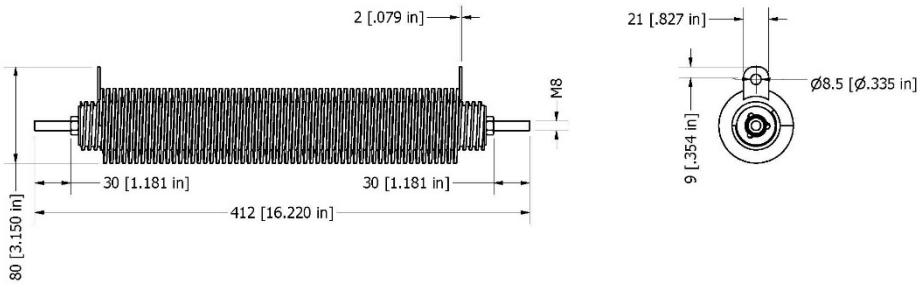


MECHANICAL DATA

ID	Weight kg [lb]
RNT 900	0,85 [1,87]

DRAWING

RNT 900

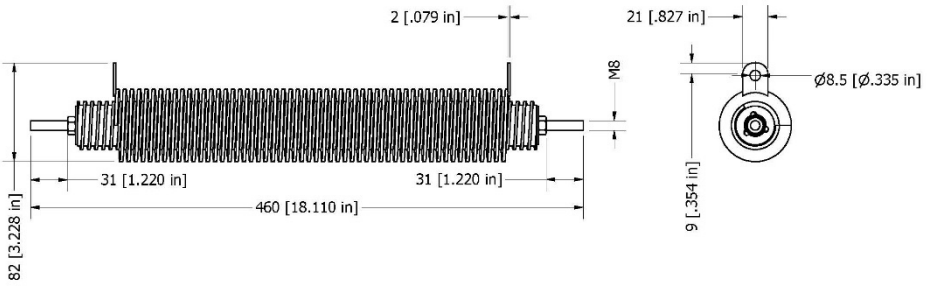


MECHANICAL DATA

ID	Weight kg [lb]
RNT 1000	2,69 [5,93]

DRAWING

RNT 1000

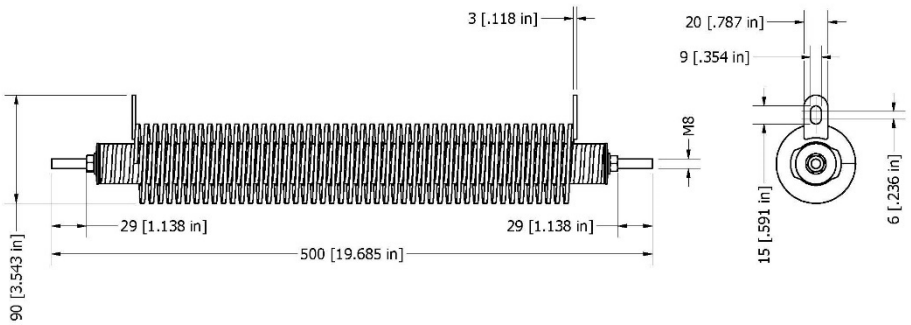


MECHANICAL DATA

ID	Weight kg [lb]
RNT 1100	3,83 [8,44]

DRAWING

RNT 1100



Marking

The resistor is marked on the terminals

FAIRFILD - WW/YY (week / year)–

Model – Rated power – Resistance – Tolerance – Rated Voltage

Installation

In case of group mounting keep a distance of at least 60 mm between consecutive resistors.

Packing

The resistor is packed in a way to preserve incidental damages due to transport. The resistor is made by ceramic parts, accidental fall can damage it, handle with care.

Disclaimer

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Ordering Information

In the order must be specified:

Type: RNT or RNP

Model: for RNP 800/1000/1200,
for RNT 2, 3, 4, 5, 6 or 700/900/1000/1100

Ohmic value at room temperature

Requested tolerance on ohmic value (standard ±10%)

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