

Description

Rated for repetitive duty
Low inductance element

Mechanical characteristics

Based on RHP Coils, spiral wire-wound on ceramic formers with high overload capacity and cool rapidly. Degree of protection IP20. Enclosure in galvanized steel.

Applications

Dynamic braking, Motor control, Variable speed drives, Lifts & elevators

Market

Industrial automation

Option

Thermal switch

RME

Ed B



0.6 kW ÷ 6 kW



File
number:
E228809



RME 04L

ELECTRICAL CHARACTERISTICS

Surrounding air temperature

Model	CE Rated Power W	UL Continuous Power W	Nr. of elements	Type	Weight (kg)
RME 01S	600	600	1	RHP 600	1.4
RME 01M	1000	900	1	RHP 1000	1.8
RME 01L	1500	1275	1	RHP 1500	2.2
RME 02M	2000	1700	2	RHP 1000	3.0
RME 02L	3000	1900	2	RHP 1500	3.8
RME 03L	4500	3300	3	RHP 1500	5.4
RME 04L	6000	4500	4	RHP 1500	7.0

Tolerance on resistance value: $\pm 10\%$ (E12 series)

Temperature coefficient: 70 ppm/K (FeCrAl alloy)

Dielectric strength: 2500 V

Limit voltage UL 800 V

Thermal time constant: 500 s

In case of long overload (from 2 to 3 times the rated power), the thermal switch intervention is after a period between 600 and 1200 s. The temperature of the wire is about 900 °C and the air on the top is around 300 °C. Thermal switch must be adequately connected to the command circuit in order to interrupt the current through the resistor. Thermal sensor is NC contact, opens at ~160°C, Voltage: 250V AC rms; current: 16A AC rms (UL rating 10 A). Please contact Fairild if you need assistance for it.

Procedure for electrical connections

Terminal cover of thermal switch and power contacts is always included in the supply.

1. fix the resistor in its final destination according to par. Installation
2. remove the cover by unscrewing the 3 screws as shown in the Fig. 1.

power connection

3. Insert the cable gland (not provided with the resistor) in the hole diam.20 mm that is provided for cable gland M20.
4. Insert the cable into the cable gland.
5. Connect the power cable terminals to clamps BR1 and BR2, max clamping torque on the terminals is 2 Nm.
6. Torque the cable gland at the value that is specified on the cable gland datasheet provided by the manufacturer.

thermal switch connection

7. Insert the cable gland (not provided with the resistor) in the hole diam.16 mm that is provided for cable gland M16.
8. Connect the thermal switch cable terminals to clamp C1 C2, max clamping torque on the terminals is 0,45 Nm.
9. Torque the cable gland at the value that is specified on the cable gland datasheet provided by the manufacturer.
10. Close the lip by screwing 3 screws as shown in the Figure 1, max clamping torque is 1,3 Nm.



Figure 1

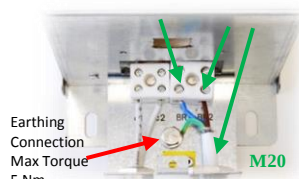


Figure 2 – power connection

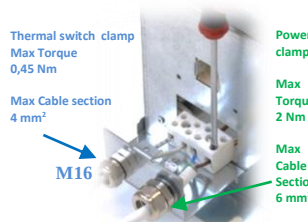


Figure 3

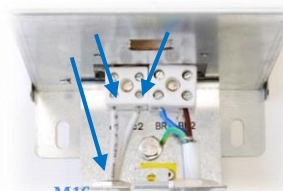
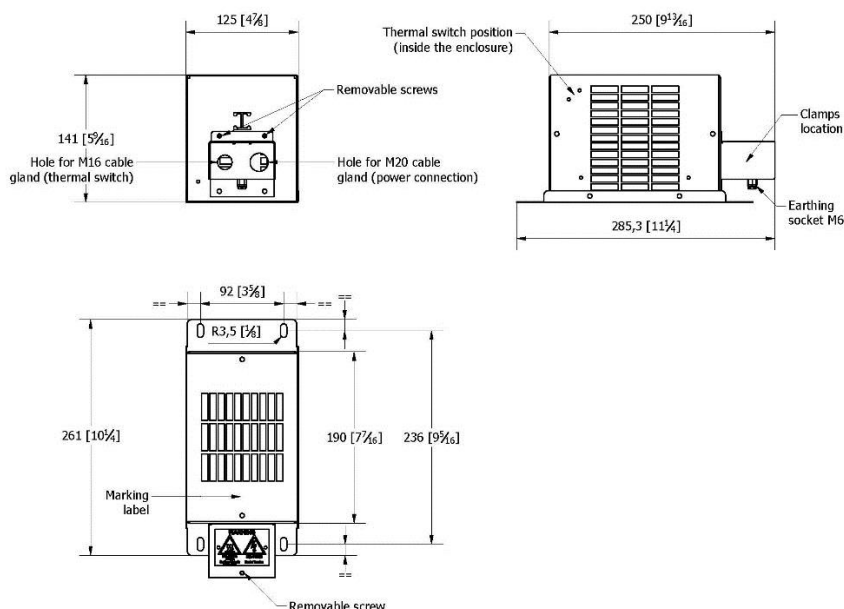


Figure 4 – thermal switch connection

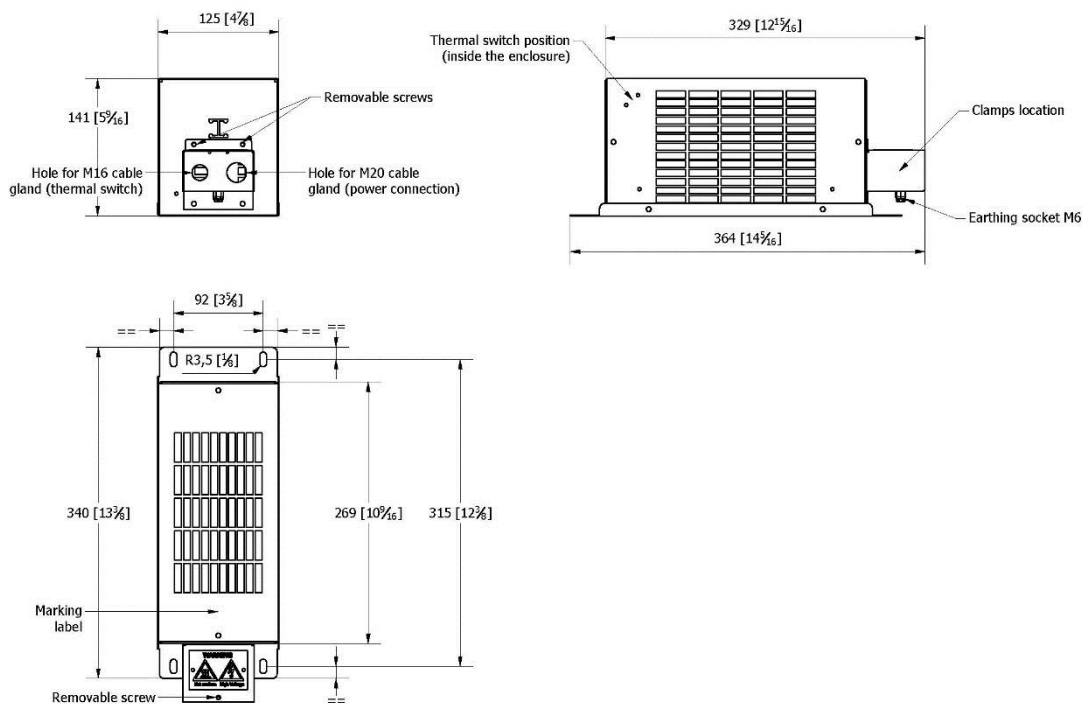
DRAWINGS

Unless otherwise specified, applicable standard of general tolerances for linear and angular dimensions is ISO 2768-1 class c; Dimensions are in mm, dimensions between brackets [] are in inches.

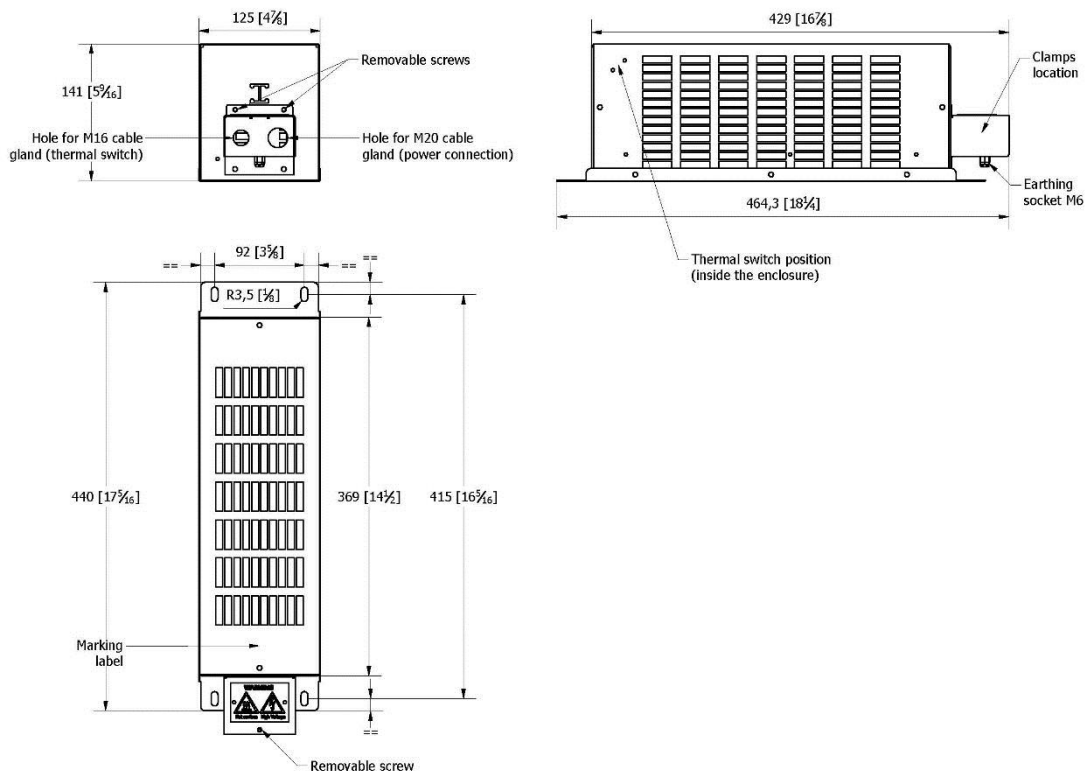
DRAWING RME 01S



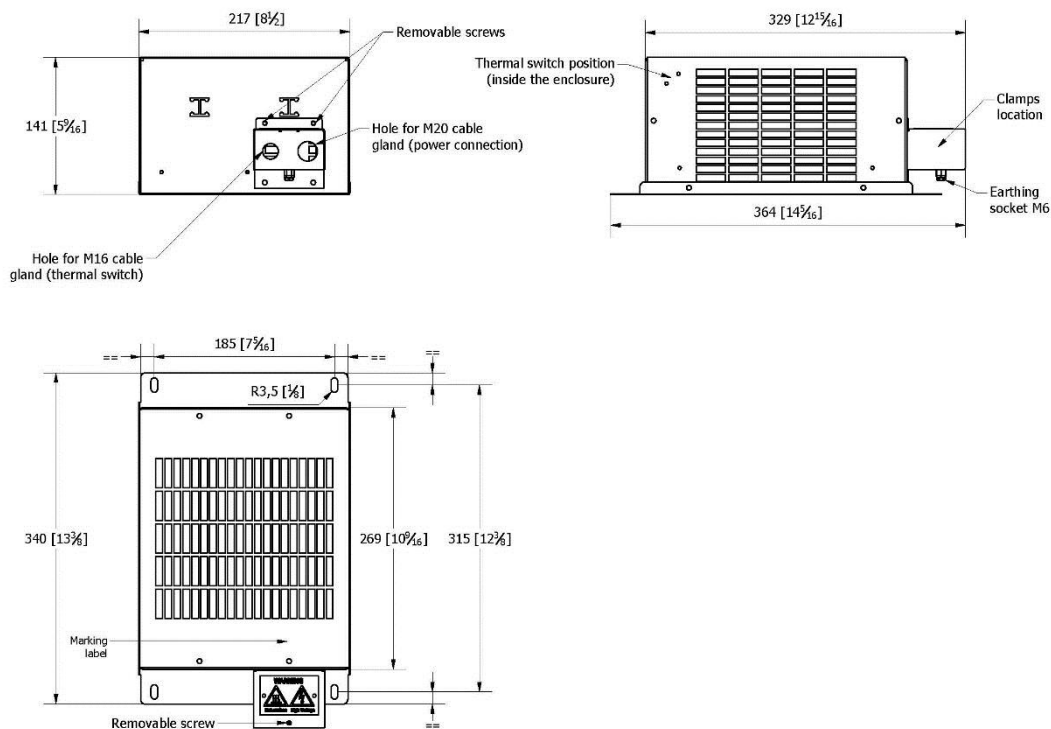
DRAWING RME 01M



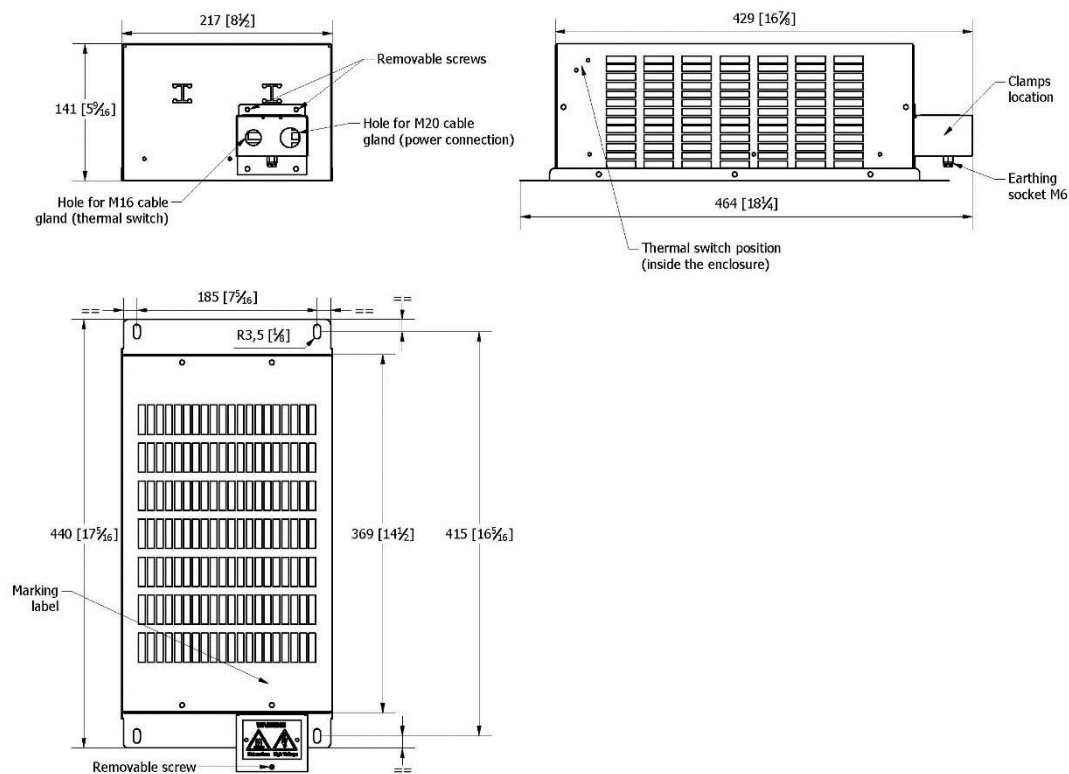
DRAWING RME 01L



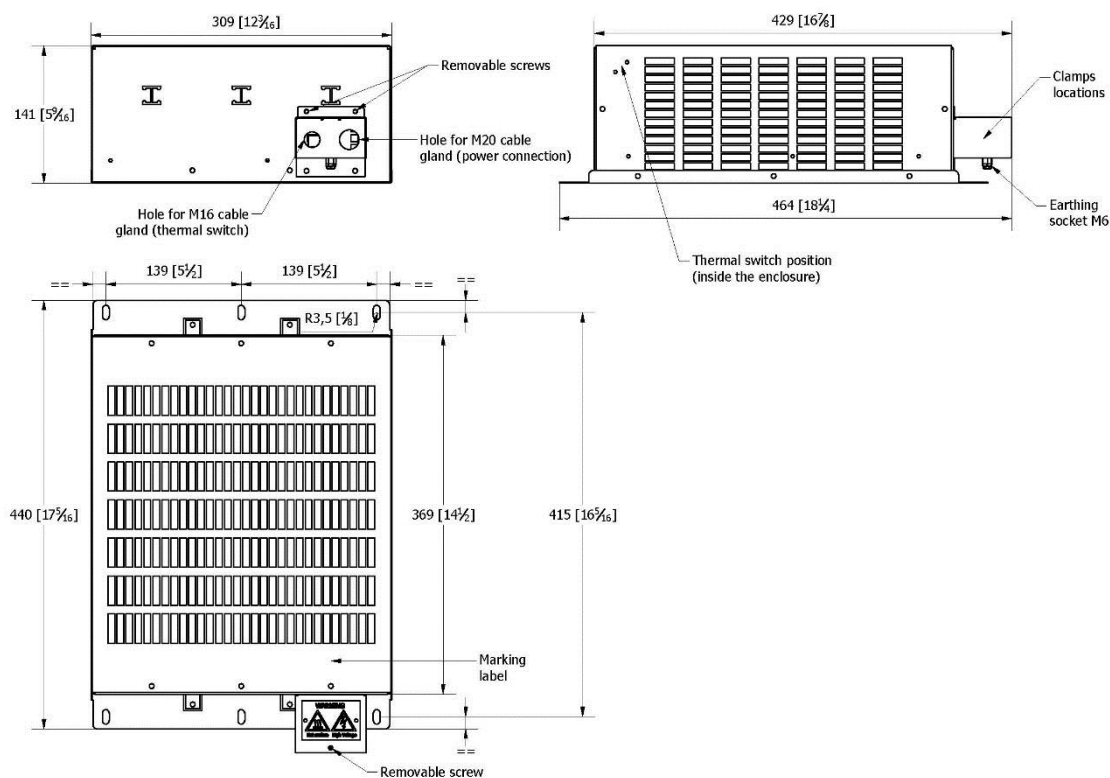
DRAWING RME 02M



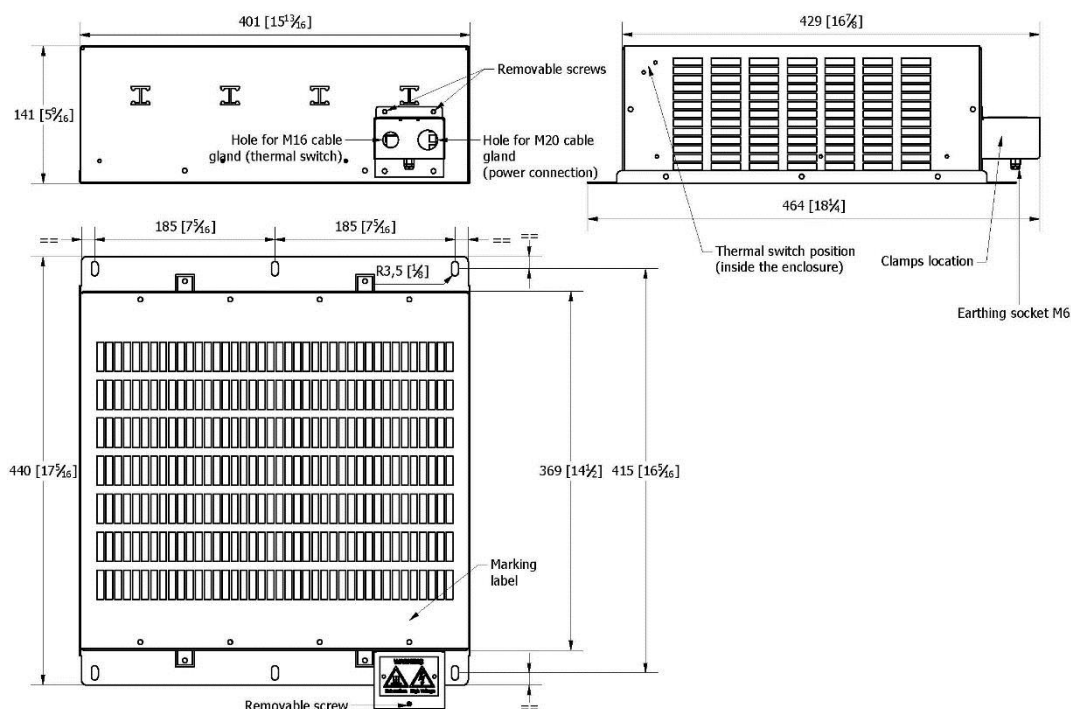
DRAWING RME 02L



DRAWING RME 03L



DRAWING RME 04L



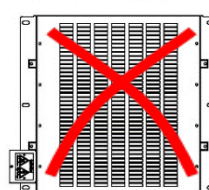
Installation

- Allowed mounting positions are shown in the pictures on the right.
- The terminals should always be kept low to avoid heating during the working of the resistance.
- The resistor is provided with 6 slots for screws max M6, not included in the resistor.
- The use of the appropriate screws and washers and its torqueing clamp is at user's responsibility.
- In order to assure the correct thermal behaviour of the unit, it's recommended to keep at least 100 mm between two consecutive resistors and 150 mm of free space on the top, as indicated in the picture on the right.
- If the power connection is kept low it also secures the optimal position of the thermal switch.

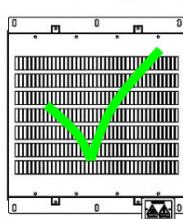
Floor mounting



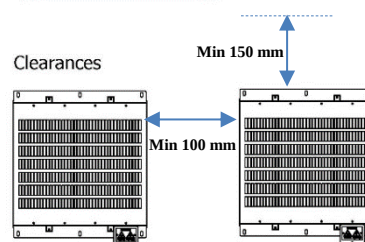
Wall mounting (horizontal)



Wall mounting (vertical)



Clearances



Overload conditions – not covered by UL certification

Box resistors are mostly used for overload operation, such as precharge of capacitors, dynamic braking of VFD, crowbar operations. We can distinguish between 3 typical overload conditions: one is the isolated single pulse (emergency braking, precharge in case of short circuit or abnormal duty), the second one is the cyclic work load (i.e. braking of a lift), and the third one is a long overload (i.e. due to a fault in the system). In all 3 cases, we can state that for pulses of duration less than 60 s, the mass of the wire must be taken in account to define the admissible overload. The mass of the wire depends on the ohmic value.

As far the operation in the **cyclic work load** condition, we can easily calculate the admissible braking power in respect off the duty cycle (ton / total time): Braking power = Rated power * (1 / Duty cycle). This is valid only if the period does not exceed 60 s and the time on is longer than 6 s, for shorter period a derating applies. In the following table is shown the max power that is possible to supply for different duty cycle and period. Fairfield developed an accurate thermal model to simulate temperature of the wire according to different loads. Ask our technical office for further details.

CYCLIC WORK LOAD

Model	Pulse load period 60s			
	ED 2.5%	ED 10%	ED 25%	ED 50%
	kW	kW	kW	kW
RME 01S	20.4	5.4	2.4	1.2
RME 01M	34	9	4	2
RME 01L	51	13.5	6	3
RME 02M	68	18	8	4
RME 02L	102	27	12	6
RME 03L	153	40	18	9
RME 04L	204	54	24	12

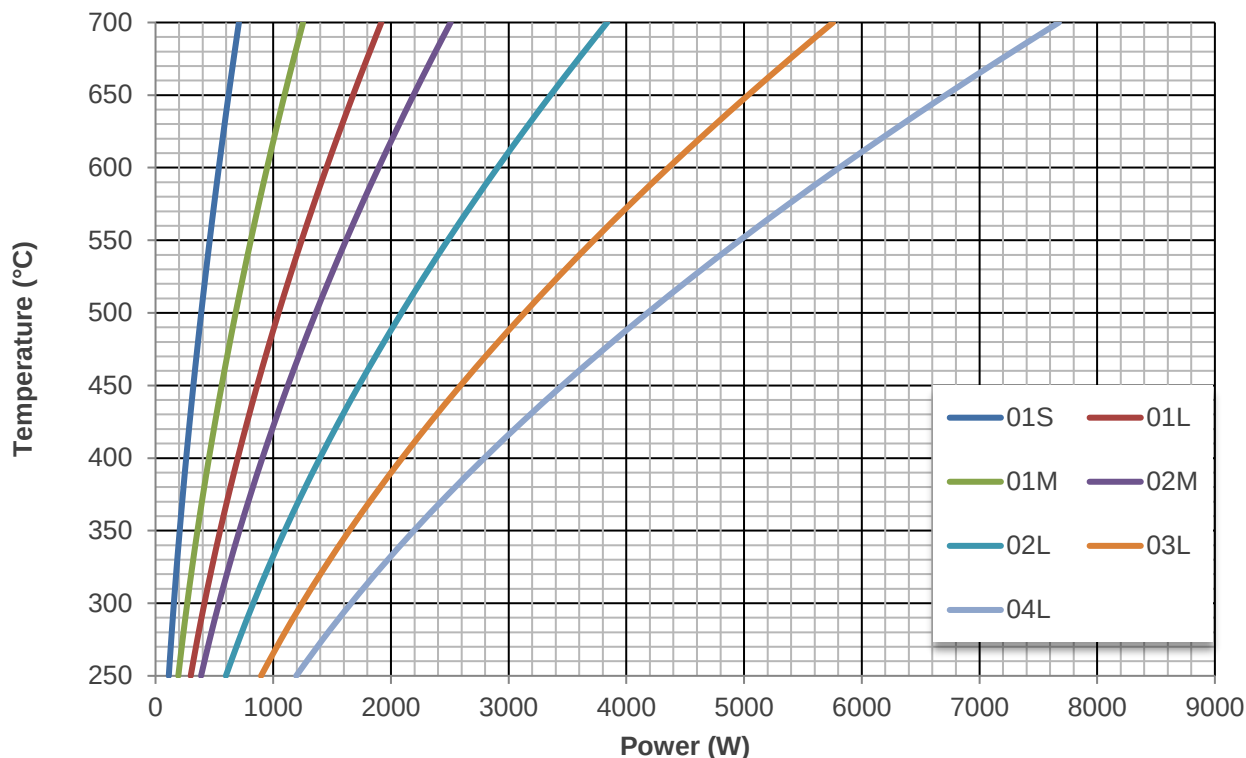
In the following table it's written for every ohmic value (E12 series) and for each model the related energy absorption in kJ for short pulses (less than 0.5 s). In the first row it's written the rated power in W of each model.

P (W)	600	1000	1500	2000	3000	4500	6000
R (Ω)	01S	01M	01L	02M	02L	03L	04L
1,5							276
2,2	48			205		276	359
2,7	59			245		359	273
3,3	72			172	276	273	328
3,9	53			224	359	328	240
4,7	64	102		160	273	240	288
5,6	44	122		192	328	288	262
6,3	50	86	138	192	328	288	321
8,2	48	112	179	178	240	321	201
10	59	80	136	205	288	321	238
12	36	96	164	245	262	201	287
15	45	89	120	224	321	287	153
18	24	107	144	106	201	153	
22	30	67	131	128	287	172	140
27	36	82	160	95	153	140	170
33	28	45	100	107	172	170	120
39	33	53	119	82	140	120	150
47	23	64	143	100	170	150	97
56	28	47	76	165	120	97	119
63	31	53	86	90	120	97	146
82	22	41	70	106	150	146	262
100	27	50	85	128	97	201	321
120		32	60	107	119		201
150		40	75	82	146	287	238
180		48	48	82	140	172	287
220			59	64	170		
270			73				

POWER TEMPERATURE GRAPH

The RME series can withstand a continuous temperature on the housing of 300 °C with no damage.

The rated power stated in this datasheet refers to resistor mounted in horizontal position (with no possibility to exchange heat in the bottom direction) at the ambient temperature of 25°C and 600°C on the wire.



Marking

Each resistor is labelled with this information:

- Name of the product and part number
- Ohmic value and tolerance
- Rated power UL and CE
- Batch of production in the format WW/YY
- UL file nr.

Packing

The resistor is packed in a way to preserve incidental damages due to transport.

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Ordering information

RME/T XXX WWW RRRR 10%

T : External thermal switch 160±5°C (rated voltage: 250 V; rated current: 16 A – UL rating 10 A) – this is an option, it can be blank

XXX Model 01S, 01M, 01L, 02M, 02L, 03L, 04L

WWW Wattage (UL rating)

RRRR Resistance value (nominal at 20°C)

Example

RME/T 04L 3kW 15R 10%

RME is the name of the product

T means the clixon is provided with the resistor

04L is the model

3000 W is the wattage (UL continuous power)

15R means 15 Ω that is the nominal ohmic value at 20°C

10% is the tolerance on the ohmic value, in this case the value of the resistor is accepted when is within 13.5 Ω ÷ 16.5 Ω

RME is built according to E12 series