Metal housed wirewound resistor

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.

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

Market
Industrial automation

Option
Thermal switch

RME

CE RoHS COMPLIANT Pb Pb-Free

0.6 kW ÷ 6 kW

ELECTRICAL CHARATERISTICS

refers to room temperature 25°C

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

Tolerance on resistance value: ± 10% (E12 series)		Temperature coefficient: 70 ppm/K (FeCrAl alloy)
Dielectric strength: 2500 V	Limit voltage 700 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. Please contact Fairfild if you need assistance for it.

Connections
Power: Screw terminals for up to 6mm^2 cable. Earth: Self tapper, near screw terminals.
Thermal sensor: 6.3mm faston connections (receptacles not supplied), located near screw terminals, NC contact, opens at ~160˚C, Voltage: 240V AC rms; current: 16A AC rms.
Terminal cover of thermal switch and power contacts is always included in the supply.
The enclosures are made of galvanized steel.
Picture above refers to RME 02L.

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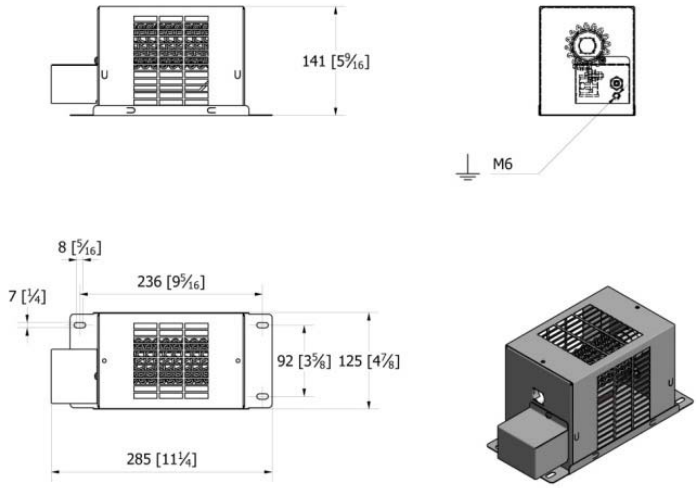
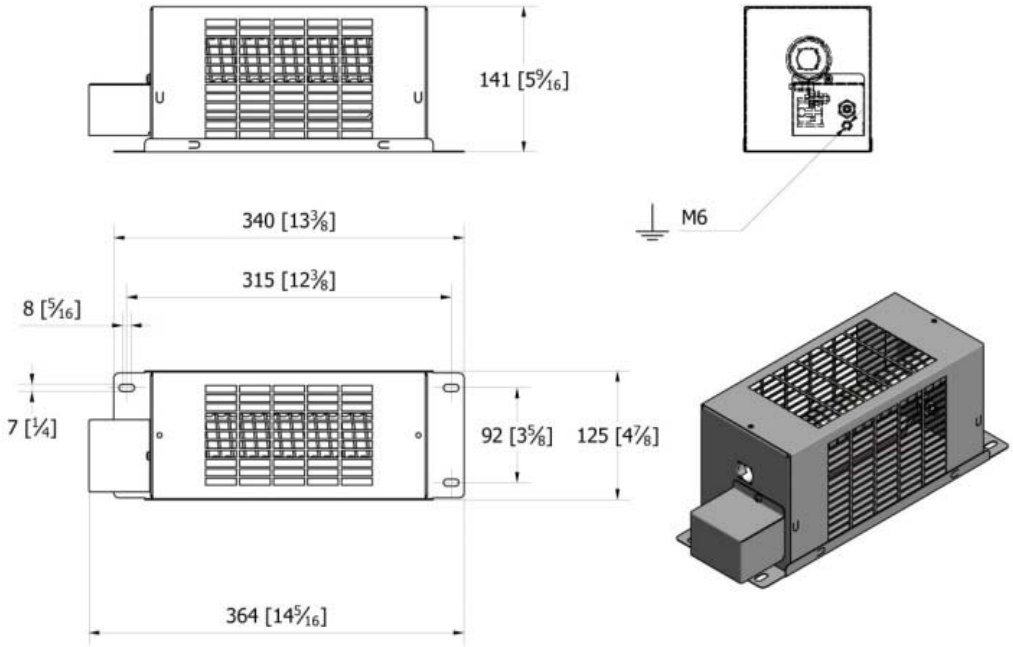
DRAWINGS

Unless otherwise specified, applicable standard of general tolerances for linear and angular dimensions is ISO 2768-1 class c; applicable standard for aluminum profile is EN 755-9:2000. Dimensions are in mm, dimensions between brackets [ ] are in inches.

DRAWING RME 01S



DRAWING RME 01M



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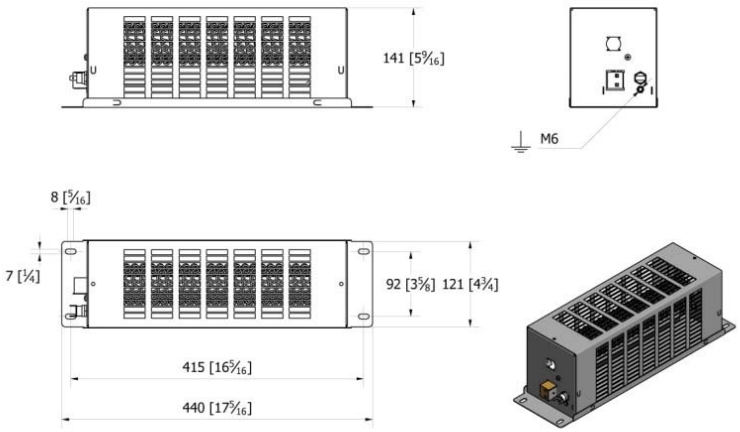
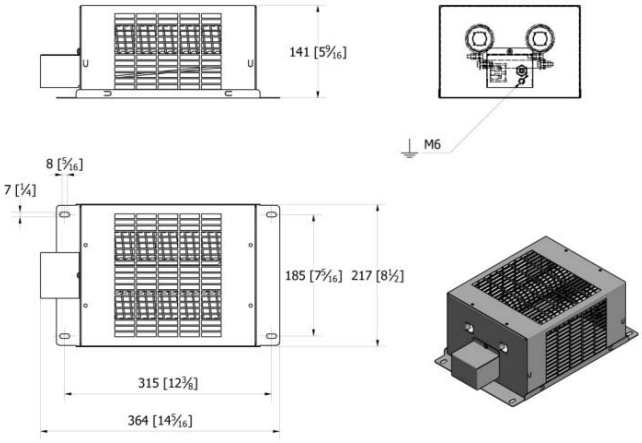
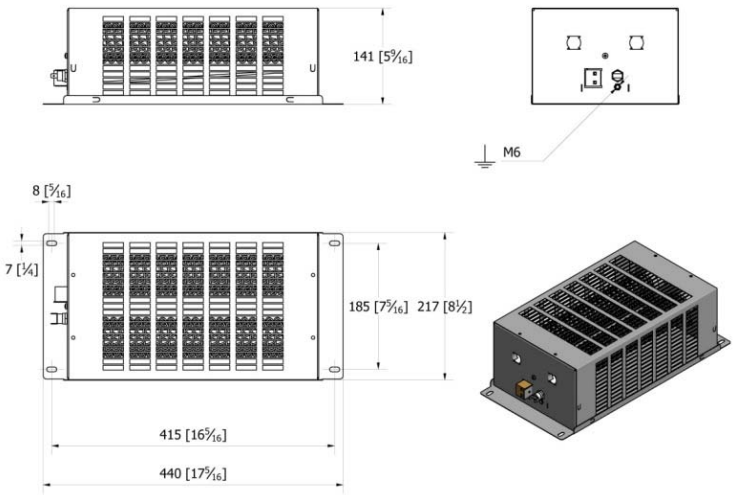
DRAWING RME 01L



DRAWING RME 02M



DRAWING RME 02L



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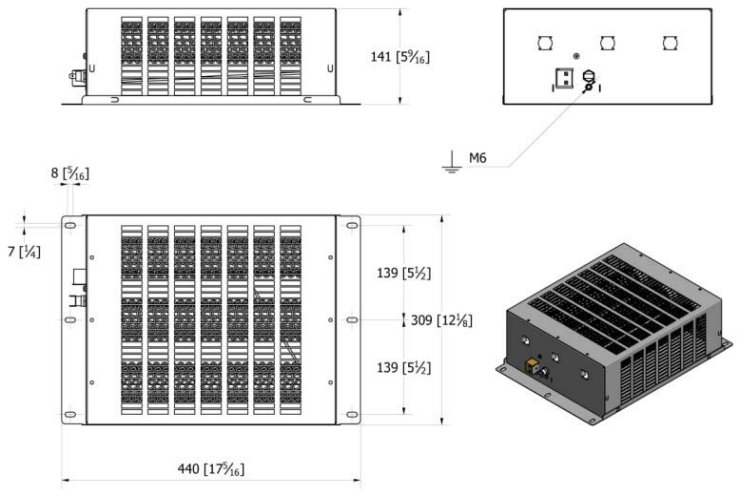
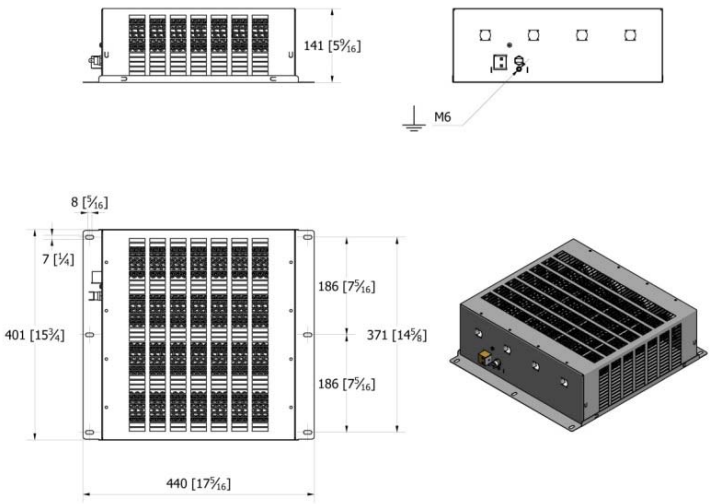
DRAWING RME 03L



DRAWING RME 04L



Installation

Units have slotted mounting points suitable for M6 fixings. Mount horizontally with base facing down. Other orientations may result in increased element temperatures. Warning: Units must never be mounted with the terminal area or base uppermost.

Safe installation (as shown in the below image): in case of an uncontrolled overload, wire can melt. It is very important to have the panel on the bottom in order to gather hot parts.

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Overload conditions

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. Fairfild 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				

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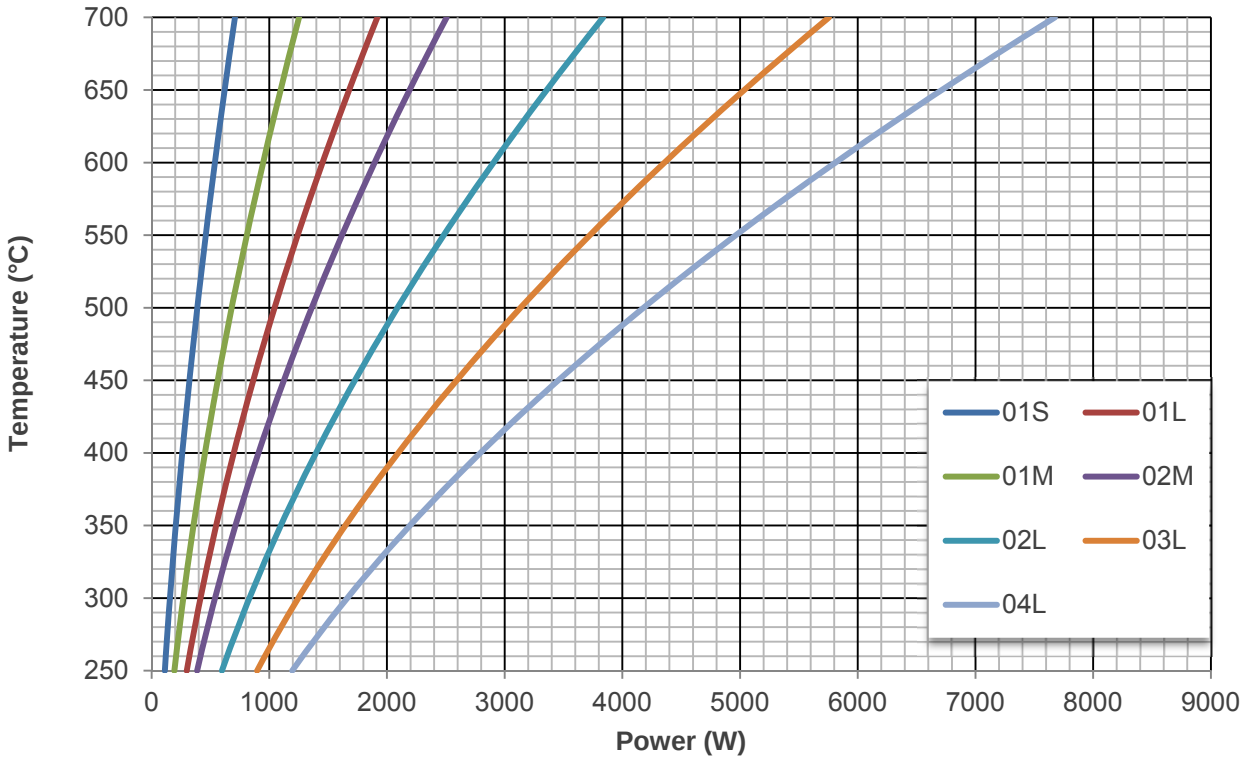
POWER TEMPERATURE GRAPH

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

The rater 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

The resistor is marked on the cover with indelible ink high temperature

FAIRFILD – RME 01S 600W 10R 5% WW/YY (week / year)

Packing

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

Disclaimer

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Ordering information

RME/T XXX WWW RRRR 10%

Y T : External thermal switch 160±5°C (rated voltage: 250 V; rated current: 16 A; leads available in clip)

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

WWW Wattage 600 W, 1 kW, 1.5 kW, 2 kW, 3 kW, 4.5 kW, 6 kW

RRRR Resistance value (nominal at 20°C)

Example
RME/T 01S 600 15R 10%
RME is the name of the product
T means the clixon is provided
01S is the model
600 W is the wattage
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

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