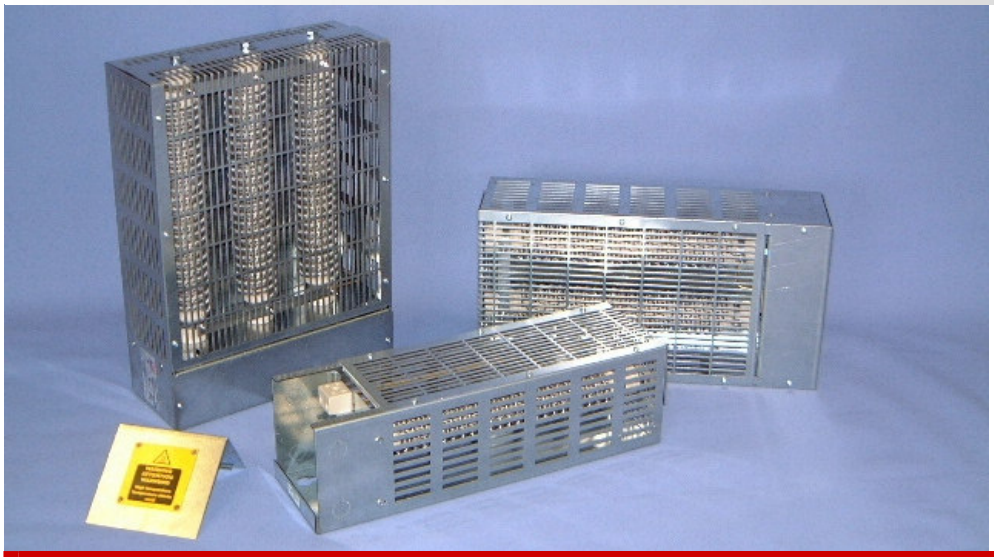
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HP SERIES

Continuous power -
1.5kW
3.0kW
4.5kW
Resistance -
3.9Ω
to 330Ω

Hi-Power series - high performance braking resistors

A range of compact, ready boxed dynamic braking resistors. Enclosed to IP 20, offering virtually no audible noise when subject to inverter braking currents. Low inductance open wound element construction allows high power dissipation in a small space.

Applications

- Dynamic braking
- Motor control
- Variable speed drives
- Lifts & elevators
- Cranes & winches
- Conveyors
- Test loads

Features and benefits

- Rated for repetitive duty
- Resistance never lower than expected
- Robust construction
- Low inductance element
- Rated for single shot duty
- Close tolerance (+5% - 0%)
- Negligible audible noise
- Temperature stable element

Ordering information

Resistor part numbering

HP1 - 3R9

Enclosure style

HP1 =	1.5kW
HP2 =	3.0kW
HP3 =	4.5kW

Resistance value

3R9 =	3.9Ω	22R =	22Ω	68R =	68Ω
4R7 =	4.7Ω	**24R =**	**24Ω**	**75R =**	**75Ω**
5R6 =	5.6Ω	27R =	27Ω	82R =	82Ω
6R8 =	6.8Ω	**30R =**	**30Ω**	100R =	100Ω
8R2 =	8.2Ω	33R =	33Ω	120R =	120Ω
10R =	10Ω	39R =	39Ω	150R =	150Ω
12R =	12Ω	**40R =**	**40Ω**	180R =	180Ω
15R =	15Ω	47R =	47Ω	220R =	220Ω
18R =	18Ω	**50R =**	**50Ω**	270R =	270Ω
20R =	**20Ω**	56R =	56Ω	330R =	330Ω

Available values: E12 series and additional popular values **shown in bold.**

Accessories

HP - PC1	3m long, 2.5mm^2, ferrule terminated, 3-core screened power cable kit, including clamping gland. (Cable not installed).
HP - TC1	3m long, 1mm^2, ferrule terminated, 2-core screened cable kit for thermal sensor, including clamping gland. (Cable not installed).
HP1 - C1	IP21 drip proof canopy for horizontally mounted HP1 DBR unit. (Canopy not installed).
HP2 - C1	IP21 drip proof canopy for horizontally mounted HP2 DBR unit. (Canopy not installed).
HP3 - C1	IP21 drip proof canopy for horizontally mounted HP3 DBR unit. (Canopy not installed).

Electrical and thermal data

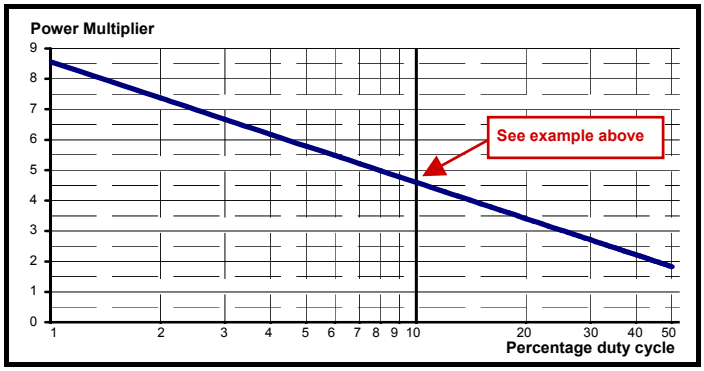
Resistance and power

Resistance / Ω Tolerance +5 / -0%	Enclosure style		
	HP1	HP2	HP3
	Maximum continuous power / kW		
	1.5	3.0	4.5
3.9			√
4.7, 5.6, 6.8, 8.2		√	√
10, 12, 15, 18, 20, 22, 24, 27, 30, 33, 39, 40, 47, 50, 56, 68, 75, 82, 100, 120, 150, 180, 220	√	√	√
270	√	√	
330		√	

Duty cycle and power

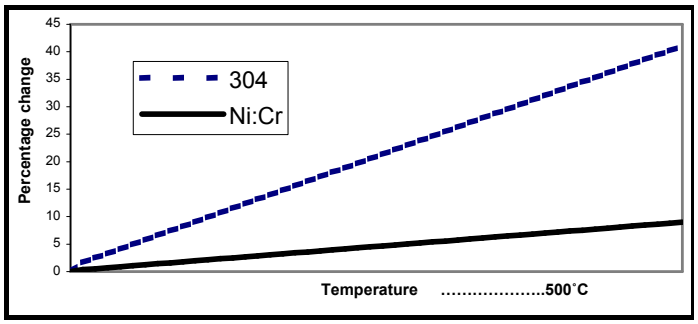
HP1, HP2 and HP3 have continuous power ratings of 1.5kW, 3.0kW and 4.5kW respectively. Continuous power ratings can be exceeded when power is applied for less than 100% of the time. The graph below gives "duty cycle" based on a 10 second on time against "power multiplier". Multiply the resistor's continuous power rating by the "power multiplier" number to calculate power. In the case of HP1 resistors, with resistance values of 100Ω or more, a de-rating factor of 0.8 needs to be applied. In the case of HP2 resistors, with resistance values of 220Ω or more, a de-rating factor of 0.8 needs to be applied.

Example: 10 seconds on in 100 seconds is defined as a 10% duty cycle. A 10% duty cycle gives a 4.6 times power multiplier. HP1 resistors are rated 1.5kW continuously and can be rated 6.9kW (4.6 x 1.5kW) for 10 seconds in 100 seconds. If the resistors have a resistance of 100Ω or more, then the power rating is reduced to 5.5kW (6.9kW x 0.8).



Resistance and element temperature

Hi-Power resistors are manufactured using high grade Nickel Chrome wire. The resistance value of this changes little over the temperature range of the element. Cheaper designs using 304 stainless steel can increase in resistance by as much as 50% resulting in less effective braking.



Maximum operating voltage

1000V DC or AC rms

Thermal sensor

Normally closed contact, opens at ~250˚C, re-closes at ~210˚C
Voltage: 240V AC rms
Current: 7A AC rms

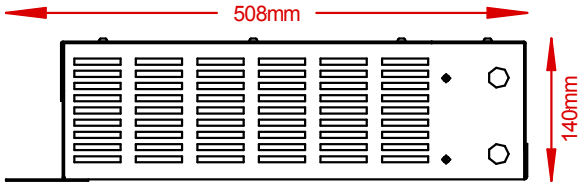
Mechanical data

Mounting, dimensions and weight

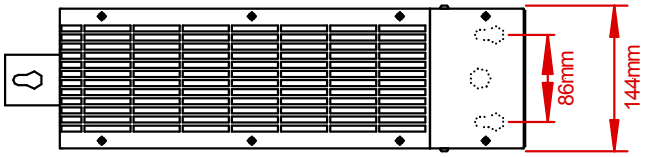
Units have 'keyhole' mounting points suitable for M8 fixings. Two keyholes are located inside the terminal compartment. HP1 is supplied with a single keyhole plate that clips to the opposite end of the unit. HP2 and HP3 are each supplied with two keyhole plates

The dimensions given below include an allowance for protruding fixings etc. Allow an additional 15mm for correct fixing alignment in keyholes, during installation.

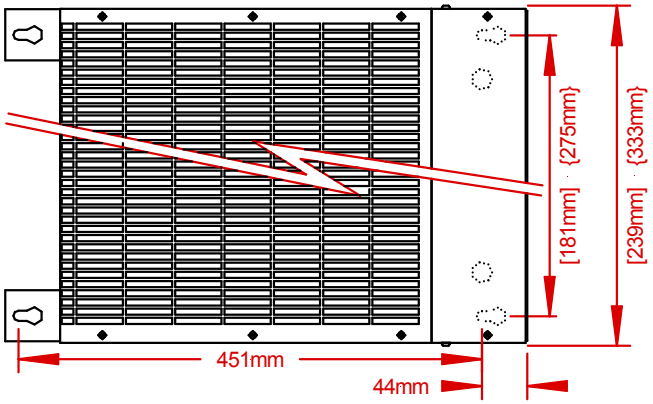
HP1, HP2, HP3 side view



HP1 top view



[HP2], {HP3} top view



Unit is designed for mounting horizontally with the largest open face up. Other orientations may result in increased element temperatures. **Warning -** units must never be situated so that the terminal box is the highest point of the resistor. Units must never be situated so that the largest open face is at the bottom.

Ingress protection: IP 20

Weight: HP1 - 4.5kg, HP2 - 6.5kg, HP3 - 8.5kg

Canopy: Fitting of a canopy will increase height by 23mm. The canopy overhangs the edges of the enclosure by 22mm.

Connections

Power: Screw terminals for up to 4mm^2 cable
Earth: M6 earth stud
Thermal sensor: 6.25mm male receptacle blade (faston) connections
Cable entry: 20mm knock out holes provided on outward facing sides and bottom of terminal compartment.

Safety

Resistors get hot in normal operation. Use guards and warning labels where necessary. Avoid proximity to flammable materials. Do not cover. Provide adequate ventilation. Fault conditions in the circuit that feeds the resistor, or the resistor itself, may lead to excessively high temperatures. Restrict access to qualified personnel only.

Cressall reserve the right to change and improve products and specifications
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