

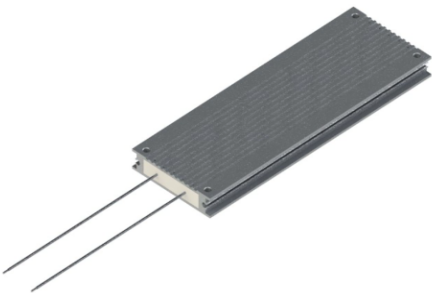
ALUMINIUM HOUSED BRAKING RESISTOR



TYPE HCF SERIES

INTRODUCTION

The HCF Series Aluminium Housed Braking s are high-performance energy dissipation designed for dynamic braking applications in modern motor control systems. Engineered with a compact aluminium-housed construction, the HCF series combines high pulse load capability, excellent thermal performance, and industrial-grade reliability, making it ideal for applications where space, safety, and performance are critical. Designed to efficiently absorb regenerative energy during motor deceleration, HCF help protect drive electronics from overvoltage conditions while ensuring smooth and controlled braking performance. They are widely used in Variable Frequency Drives (VFDs), Servo Drives, Robotics, Cranes, Elevators, Material Handling Equipment, and Industrial Automation Systems.



FEATURES

- Wide resistance range up to 10 k Ω .
- Robust wire-wound construction.
- Excellent heat dissipation performance.
- High overload withstand capability.
- UL-recognized design

APPLICATIONS

- Servo drive systems.
- Brake chopper units.
- Robotics and motion control.
- Cranes and hoists.
- Elevators and escalators.

ELECTRICAL CHARACTERISTICS

Parameter	Specification
Type	HCF
Tolerance	$\pm 5\%$ $\pm 10\%$
Maximum Operating Voltage V_{AC} (f=50 Hz)	1000V; in accordance with UL508 specification reduced to 600V
Maximum Operating Voltage V_{DC}	1414V; in accordance with UL508 specification reduced to 848V
Insulation Resistance	$\geq 100M\Omega$ @ 1000 V _{DC}
Dielectric Strength (f=50Hz, 1 Min)	3500VAC for 1 Minute Between Terminal and Aluminium Body
TCR	$\leq 200ppm/^{\circ}C$
Element	Wire Wound
Cable (L)	300 mm Standard; Insulated AWG16; 600V; 200 $^{\circ}C$
Body	Anodized Extruded Aluminium Profile
Ingress Protection Level	IP54
UL File Number	E514636

ELECTRICAL CHARACTERISTICS (CONTINUED)

Type	HCF80	HCF110	HCF166	HCF216	HCF320#
Pn @ 40°C	75	100	160	200	300
Maximum Surface Temp (°C)**	220	231	245	260	285
R Value Range (Ω)	1 - 4000	1.5 - 5000	3 - 8200	4 - 10K	1.5 - 10K
Pulse Load in 1.2s, each 120s @ 40°C. (W)*	1650	1900	5700	8800	9000
Pulse Load in 7.2s,each 120s @ 40°C. (W)*	615	975	1650	2200	2600
Pulse Load in 48s, each 120s @ 40°C. (W)*	165	245	390	500	660

Note:

*The ratings in this table refer to a of 47 Ω . These results are based on a 10000 cycles test.

**Typical temperature when is mounted vertically and is not attached to a cooling heat sink.

#This size (HCF320) is not currently UL approved.

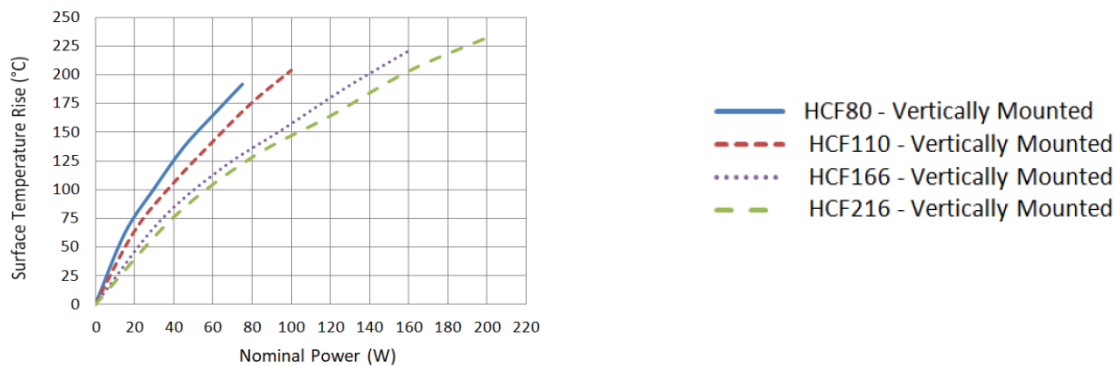
Aluminium Housed Braking Resistor

Type HCF Series

CATEGORY INDEX

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DERATING CURVE



VOLTAGE RATING

Resistors shall have a rated direct-current (DC) continuous working voltage or an approximate sine-wave root-mean-square (RMS) alternating-current (AC) continuous working voltage at commercial-line frequency and waveform corresponding to the power rating, as determined from the following formula:

$$RCWV = \sqrt{P \times R}$$

Note:

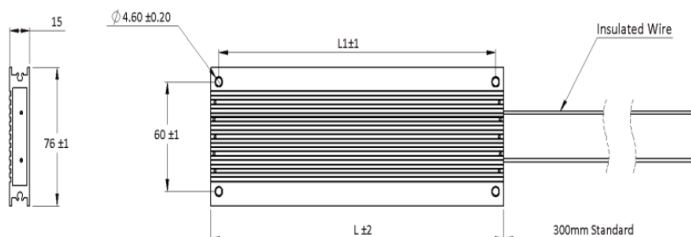
1. Max. working voltage or $\sqrt{P \times R}$ whichever is lower
2. Max. overload voltage or $2.5 \sqrt{P \times R}$ whichever is lower

Where: RCWV = Rated DC or RMS AC continuous working voltage at commercial-line frequency and waveform (volt) and
P = Power Rating (watt)

R = Nominal Resistance (ohm)

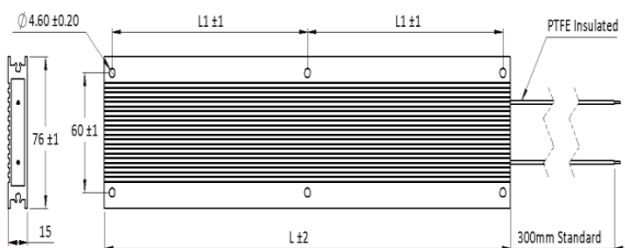
CONSTRUCTION & DIMENSION (Unit:mm)

COMPONENT DRAWING



Type	L in (mm)	L1 in (mm)
HCF80	80	56
HCF110	110	98
HCF166	166	154
HCF216	216	204
HCF320	320	154

COMPONENT DRAWING FOR HCF320:





MULTIPLIER CODE

Code	A	B	C	D	E	F	G	H	X	Y	Z
Multiplier	10^0	10^1	10^2	10^3	10^4	10^5	10^6	10^7	10^{-1}	10^{-2}	10^{-3}

Coding

XX



Resistance Code

Formula

X



Multiplier Code

Example :

$$10.2K\Omega = \begin{matrix} 102 \\ \downarrow \\ 02 \end{matrix} X \begin{matrix} 10^2 \\ \downarrow \\ C \end{matrix} \Omega = 02C$$

$$33.2\Omega = \begin{matrix} 332 \\ \downarrow \\ 51 \end{matrix} X \begin{matrix} 10^{-1} \\ \downarrow \\ X \end{matrix} \Omega = 51X$$

Value	Code	Value	Code	Value	Code	Value	Code	Value	Code
100	01	162	21	261	41	422	61	681	81
102	02	165	22	267	42	432	62	698	82
105	03	169	23	274	43	442	63	715	83
107	04	174	24	280	44	453	64	732	84
110	05	178	25	287	45	464	65	750	85
113	06	182	26	294	46	475	66	768	86
115	07	187	27	301	47	487	67	787	87
118	08	191	28	309	48	499	68	806	88
121	09	196	29	316	49	511	69	825	89
124	10	200	30	324	50	523	70	845	90
127	11	205	31	332	51	536	71	866	91
130	12	210	32	340	52	549	72	887	92
133	13	215	33	348	53	562	73	909	93
137	14	221	34	357	54	576	74	931	94
140	15	226	35	365	55	590	75	953	95
143	16	232	36	374	56	604	76	976	96
147	17	237	37	383	57	619	77		
150	18	243	38	392	58	634	78		
154	19	249	39	402	59	649	79		
158	20	255	40	412	60	665	80		

MARKING

Label shall be marked with the following items:

1. Company name or Logo
2. TE Series Number
3. Resistance Value
4. Tolerance
5. Date Code (YYMM)

 **HCF216 680R J**
200705

Note: Style of Marking – Laser

ENVIRONMENT RELATED SUBSTANCES

This product complies with the applicable requirements of the EU RoHS Directive, EU PAHs requirements, EU PFOS requirements, and halogen-free material expectations. Ozone-depleting substances are not used in the manufacturing process for this product. This product is not manufactured using chlorofluorocarbons (CFCs), Hydrochlorofluorocarbons (HCFCs), hydrobromofluorocarbons (HBFCs), or other ozone-depleting substances at any stage of manufacture.

STORAGE CONDITION (MSL1)

The performance of these products, including solderability, provided the products remain in the original delivered packaging and are stored. Even within this period, the products should not be stored under conditions that may adversely affect electrical performance, solderability, or packaging integrity.

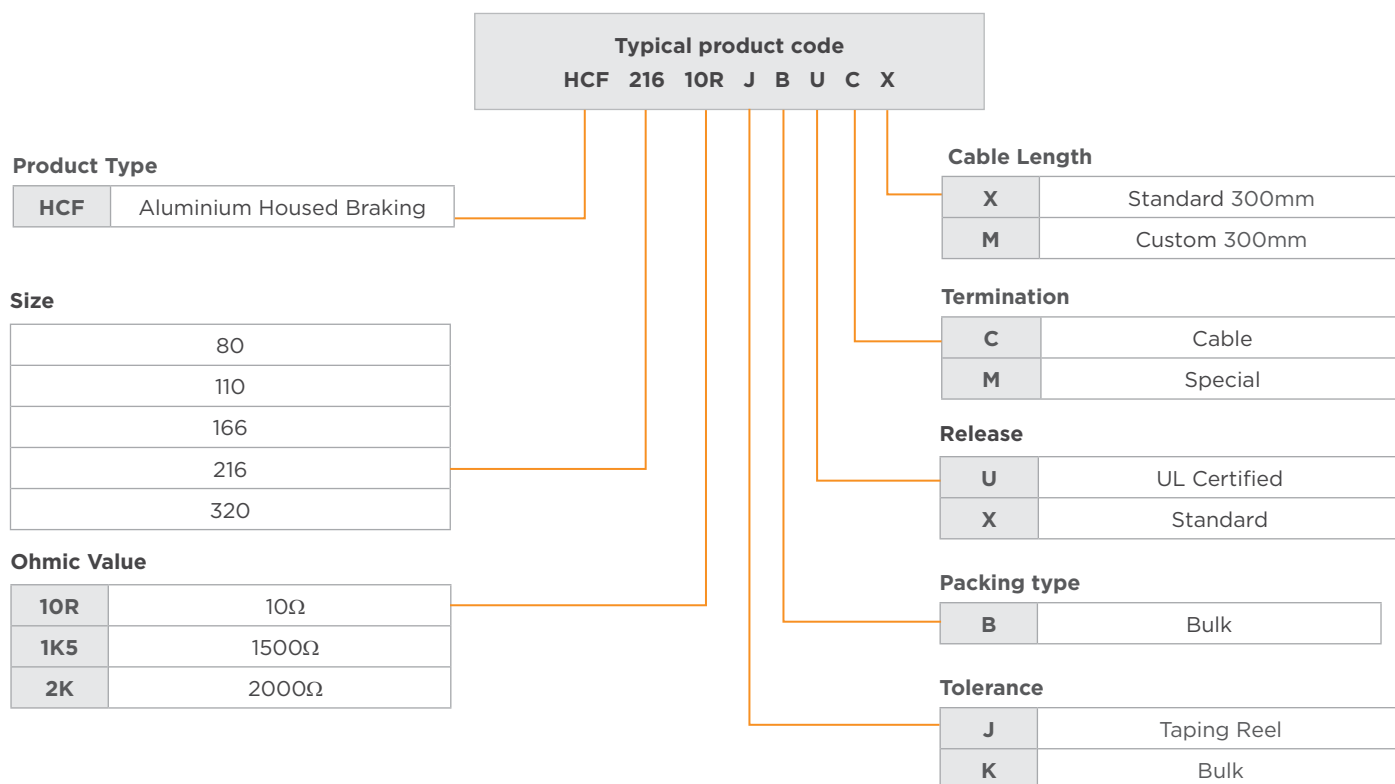
1. In salty air or in atmospheres containing corrosive gases such as Cl₂, H₂S, NH₃, SO₂, or NO₂.
2. In direct sunlight

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ORDERING INFORMATION



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