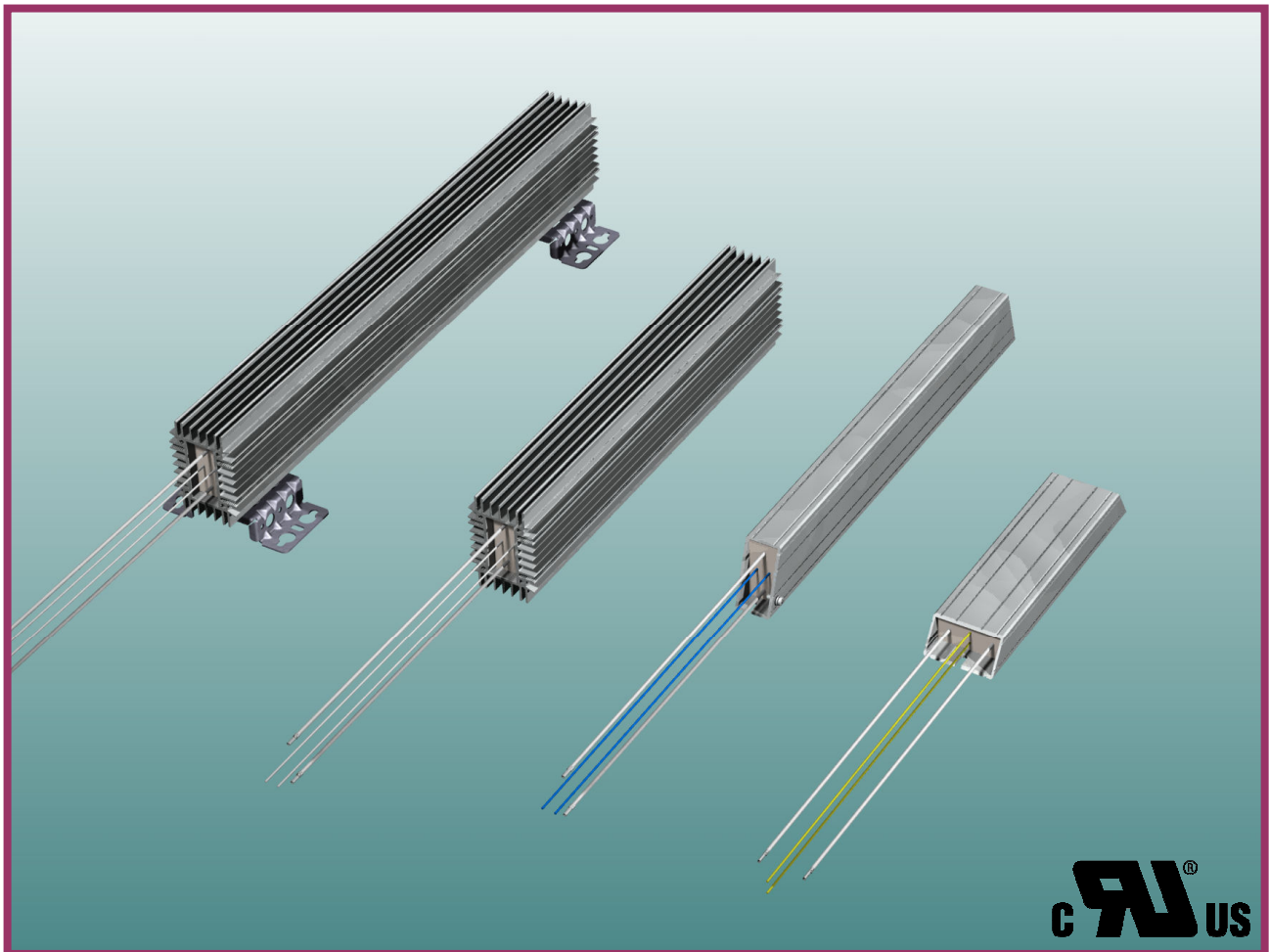


α ALPHA CBH / CBV / CBR

ALUMINIUM HOUSED COMPACT BRAKE RESISTORS
WITH INTERNAL THERMO WATCH



CBH, CBV and **CBR** with **integrated thermo watch** belonging to our medium range of **ALPHA ALUMINIUM HOUSED COMPACT BRAKE RESISTORS** are electrically insulated and with small dimensions so that they easily can be fitted into compact constructions. They are especially designed to endure high pulse loads compared to the average load.

The steady state power range span **85W** to **1300W** and they can withstand pulse loads of up to 60 times these values for one second every 120 seconds! (The power ratings are reduced compared to the resistors without thermo watch.)

This range is generally approved to UL 508 (E208678), please consult Danotherm.

Danotherm has developed **thermal models** for all resistor types and resistor values. By using these models we are able to predict the temperature rises of the resistor wire and on the resistor surface for all possible load applications. We offer our assistance to our customers to find the optimum solution for any situation.

The resistors comply with IP50 giving electrical and thermal protection. The **CBR** are also available in an IP65 version. The resistors are Silicone free.

Construction

The resistors are designed as follows:

The resistor elements are wire wound on mica support sheets. Lower ohmic values are however made with helix wound elements mounted in a ceramic support part. The outer housing is an aluminium profile isolated with micanite sheets on all inner surfaces. The resistor elements are fixed symmetrical in the profile by the mica construction or the ceramic insulators. This ensures a symmetric expansion of the resistors and a maximum stability to high load impulses.

The aluminium profile with the fixed resistor element is filled with quartz sand. This ensures a minimum change of the resistor surface temperature even if the resistor element reaches its maximum temperature during a pulse load.

The standard cables are 300 mm AWG 18-10 Style 1659 PTFE, nature colour. We can supply cables in specified length, colours and mounted with cable shoes or connectors.

The resistors are approved to UL 508 for USA and Canada. All thermal data in this data sheet complies to UL 508 (no further reduction is required)

If screw terminals or higher protection classes are required please use our **CBR** or **CBT** resistors with connection boxes. The highest protection class is IP65 / Type 4X, and the power range goes up to 6 kW.

Rating

TYPE CBH / CBV CBR-H / CBR-V -V: Profile vertically -H: Profile horizontally	PN W @40°C Approved UL508 	Max Surface temp. °C @40°C	Pulse Load in 1s each 120s P1/120 kW @40°C	Pulse Load in 5s each 120s P5/120 kW @40°C	Pulse Load in 10s each 120s P10/120 kW @40°C	Pulse Load in 40s each 120s P40/120 W @40°C	Time Const. sec. (Steady state)	R Ω ±10% (±5%, on request)
CBH / CBV 190 CT	85	200	4.2	1.37	0.8	250	1000	0.5 – 1000
CBH / CBV 240 CT	120	200	6.4	2.28	1.25	360	1000	0.8 – 1500
CBH / CBV 290 CT	150	200	9.5	3.05	1.67	410	1000	1.5 – 2000
CBH / CBV 360 CT	200	200	13.7	4.57	2.36	610	1000	1.8 – 2000
CBH / CBV 430 CT	250	210	19.0	6.32	3.43	760	1000	2.0 – 2000
CBR-H / CBR-V 160 CT	280	210	10.1	3.03	1.69	500	1000	0.5 – 1000
CBR-H / CBR-V 210 CT	360	210	14.2	4.25	2.36	700	1000	0.8 – 1500
CBR-H / CBR-V 260 CT	450	225	18.2	5.48	3.04	910	1000	1.5 – 2000
CBR-H / CBR-V 330 CT	570	230	23.9	7.19	3.99	1190	1000	1.8 – 2000
CBR-H / CBR-V 400 CT	680	230	29.7	8.9	4.95	1480	1000	2.0 – 2000
CBR-H / CBR-V 460 CT	790	240	44.8	13.4	7.46	2230	1000	2.4 – 40
CBR-H / CBR-V 560 CT	960	250	55	16.7	9.29	2780	1000	3.0 – 45
CBR-H / CBR-V 660 CT	1130	260	66	20	11	3330	1000	3.5 – 50
CBR-H / CBR-V 760 CT	1290	260	77	23	12.9	3880	1000	4.0 – 55

Pulse ratings for short pulses depend on the ohmic value. (Resistors with lower resistance values have more resistor wire than resistors with higher resistance values). The ratings in this table refer to resistors of about 40 OHMS.

General Specifications

Temperature Coefficient:	<±100ppm
Dielectric strength:	3500VAC 1 minute
Working Voltage:	UL: 600VAC / CE: 690VAC; 1100VDC
Isolation Resistance:	> 20 MΩ
Overload:	10 x in 10s / 120s; 60 x in 1s / 120s
Environmental:	-40 °C – 90 °C
De-rating :	Linear: 40°C = P _N to 90°C = 0.75*P _N
Thermo watch	200°C (Optional 130°C/160°C/180°C), 2A, 250V, NC
Approvals	UL 508

PN: NOMINAL POWER WITH NATURAL COOLING WITH INTERNAL THERMO WATCH (200°C) and:

-CBV and CBH mounted in a horizontal position

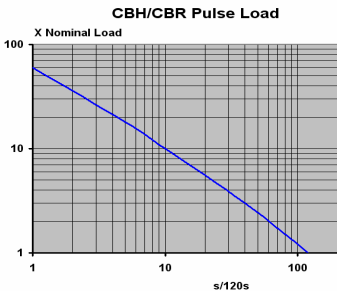
-CBR-V and CBR-H mounted in a vertical position.

Colour code for thermo watch cables: 130°C: brown / 160°C: blue / 180°C: orange / 200°C: white

For data for resistors without internal thermo watch, please ask for special data sheet.

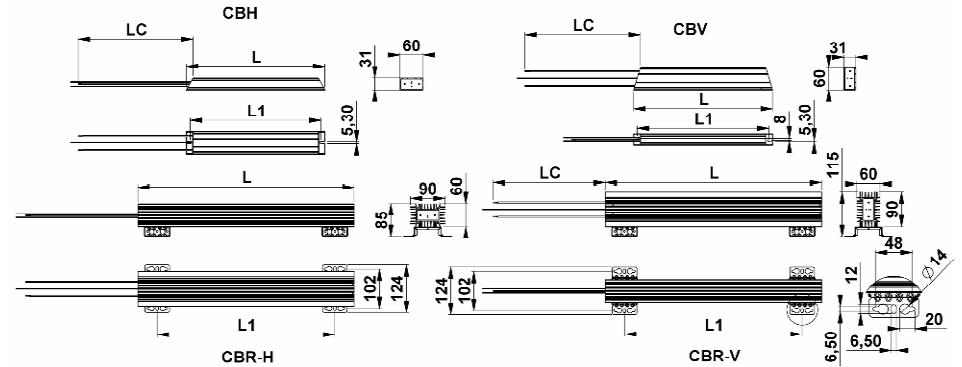
PULSE LOAD

The curve show the pulse load ability compared to the nominal load for the resistors under the following conditions: The load is a periodic pulse load with a constant period time of 120 seconds and a pulse width from 1 to 120 seconds.



For further optimization offers Danotherm individual thermal electric circuit models for all types and ohm values. With these models can the temperature of the resistor wire and resistor surface during any pulse load conditions be simulated with a standard software like PSpice. Alternatively offers Danotherm to make thermal simulation for our customers

Mechanical Data

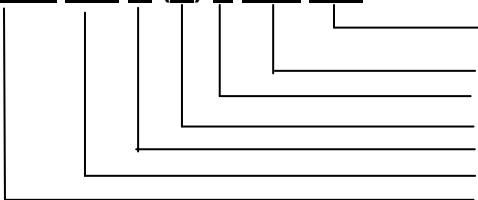


Cable length on standard resistors: LC = 300 mm +20mm – 0mm
Please contact Danotherm if dimension for the CBR type W are needed.

Type	L ±2mm	L1 ±2mm	Weight kg	Type	L ±2mm	L1 ±2mm	Weight kg
CBH/CBV 190 CT	190	171	0.5	CBR-H/CBR-V 260 CT	260	160	2.1
CBH/CBV 240 CT	240	221	0.71	CBR-H/CBR-V 330 CT	330	230	2.6
CBH/CBV 290 CT	290	271	0.97	CBR-H/CBR-V 400 CT	400	300	3.1
CBH/CBV 360 CT	360	341	1.3	CBR-H/CBR-V 460 CT	460	360	3.5
CBH/CBV 430 CT	430	411	1.6	CBR-H/CBR-V 560 CT	560	460	4.1
CBR-H/CBR-V 160 CT	160	70	1.5	CBR-H/CBR-V 660 CT	660	560	4.8
CBR-H/CBR-V 210 CT	210	110	1.8	CBR-H/CBR-V 760 CT	760	660	5.5

Type identification:

CBR-V 210 C (H) T 22R 081



(X): Only part of ID number if option is chosen

081 = Standard 200°C TW, 071 = 180°C TW, 061 = 160°C TW, 051 = 130°C TW;
XXX > 400 customer specified version.

Ohm Value (Examples: 2R2=2.2Ω; 22R=22 Ω; 220R=220Ω; 2K2 = 2.2 kΩ)

T = Thermo Watch (200 °C is standard; please specify if other temperatures are required)

H: helix shape winding (specified by Danotherm).

C: Cable terminals, W: Cable terminals and IP65 (only CBR)

Length of resistor profile in mm.

Type CBH, CBV, CBR-H or CBR-V NON UL versions: CBHX 360 CT 22R 081