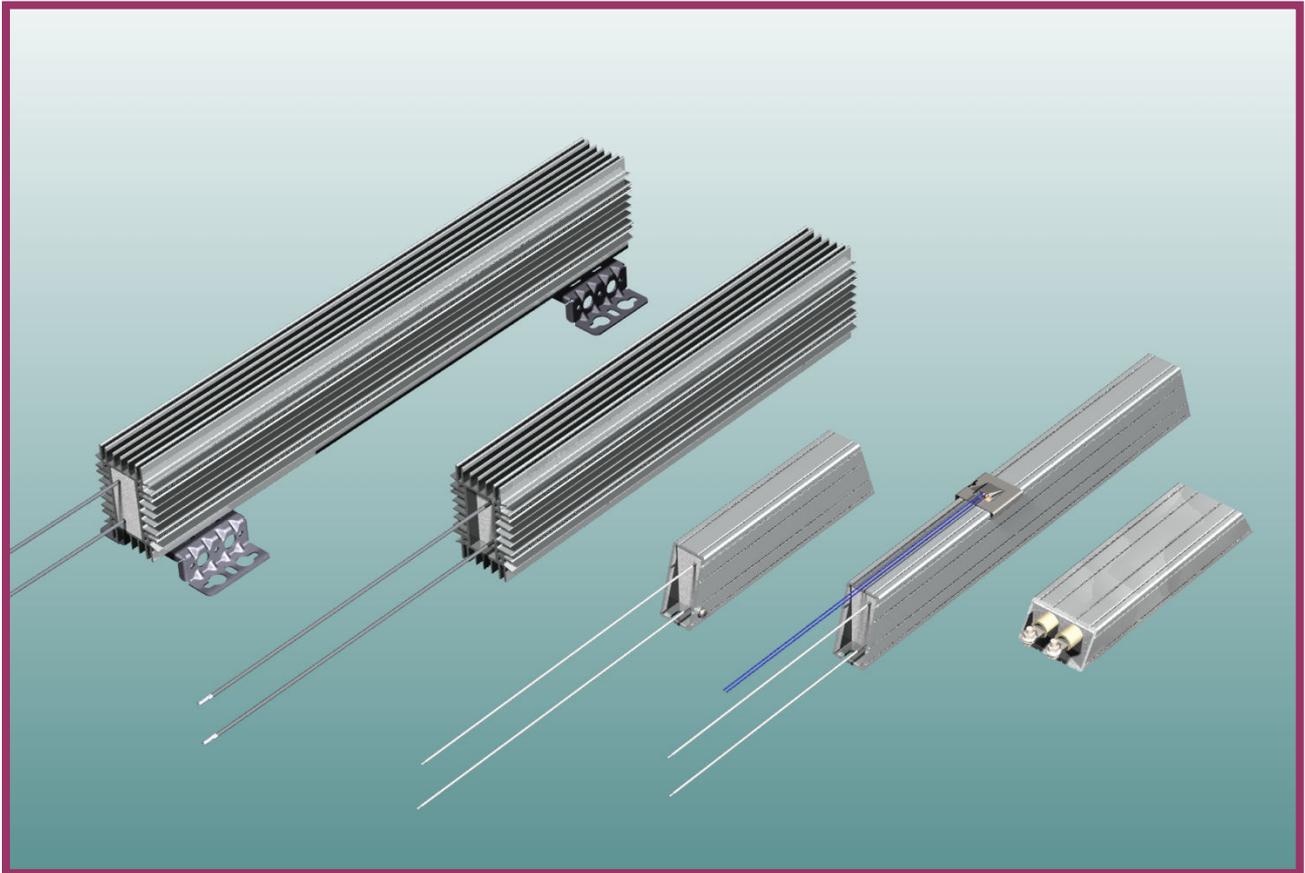


α ALPHA
CBH / CBV / CBR
ALUMINIUM HOUSED
COMPACT BRAKE RESISTORS



CBH, CBV and CBR belonging to our medium range of **COMPACT ALPHA ALUMINIUM HOUSED BRAKE RESISTORS**. These resistors are insulated and can easily be integrated in compact constructions. They are specially constructed for high pulse loads compared to the average load.

The resistors comply with IP50 giving electrical and thermal protection. The resistors are Silicone free.

The power range is from 100 W to 1700 W steady state load and pulse loads of 60 times compared to the nominal load in one second each 120s.

Danothem has developed **thermal models** for all resistor types and resistor values. By using these models we are able to calculate the temperature rises in the resistor wire and on the surface for all possible load applications. We offer our assistance to our customers to find the optimum solution for any situation. All types can be offered with thermostats. This range is approved to:



Construction

The Alpha resistors are constructed as follows:

The resistor elements are wire wound elements wound on mica support sheets or helix wound supported by ceramic insulators.

The housing is an aluminium profile, which is filled with micanite sheets on all inner surfaces. The resistor elements are fixed symmetrical in the profiles 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 resistor with the fixed resistor element is filled with quartz sand. This construction ensures a minimum change of temperature on the resistor surface even if the resistor element reaches its maximum temperature during a pulse load.

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

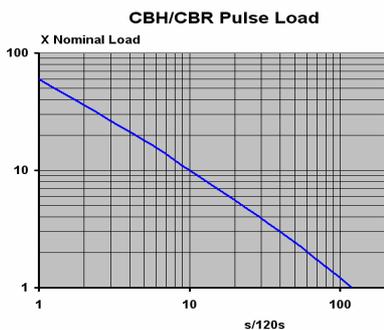
The standard cables are 300 mm AWG 16/14 Style 1659 PTFE, nature colour. We can supply cables in specified length, colours and mounted with cable shoes or connectors.

If screw terminals or higher protection classes are required for the CBR types please use our CBR or CBT resistors with connection boxes.

The highest protection class is IP65 / Type 4X, and the power range is up to 6 kW.

PULSE LOAD

The curves show the pulse load ability compared to the nominal load for the CBH-CBR resistors under the following conditions: The load is a periodic pulse load with a constant period time of 120 sec.



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

Ratings:

TYPE CBH/CBV CBR-V / CBR-H -V: Profile vertically -H: Profile horizontally	PN W @40°C Approved UL508	Max Surface temp. °C @40°C	Pulse Load in 1 s each 120s. P1/120 kW @40°C	Pulse Load in 5 s each 120 s. P5/120 kW @40°C	Pulse Load in 10s each 120 s. P10/120 kW @40°C	Pulse Load in 40 s each 120 s P40/120 kW @40°C	Time Const sec (Steady state)	R Ω ±10% (±5% on request)
CBH / CBV 165 C	110	230	5.5	1.8	1.0	330	1000	0.5 – 1000
CBH / CBV 215 C	155	230	8.5	3.0	1.65	475	1000	0.8 – 1500
CBH / CBV 265 C	200	230	12.5	4.0	2.2	540	1000	1.5 – 2000
CBH / CBV 335 C	270	230	18.0	6.0	3.1	800	1000	1.8 – 2000
CBH / CBV 405 C	330	240	25.0	8.3	4.5	1000	1000	2.0 – 2000
CBR-V/CBR-H 125 C	222	250	13.3	4.0	2.22	660	1000	0.5 – 1000
CBR-V/CBR-H 175 C	311	270	18.6	5.6	3.11	930	1000	0.8 – 1500
CBR-V/CBR-H 225 C	400	300	24	7.2	4.0	1200	1000	1.5 – 2000
CBR-V/CBR-H 295 C	525	340	31.5	9.4	5.2	1570	1000	1.8 – 2000
CBR-V/CBR-H 365 C	650	250	39	11.7	6.5	1950	1000	2.0 – 2000
CBR-V/CBR-H 426 C	980	270	58	17	9.8	2940	1000	2.4 – 40
CBR-V/CBR-H 526 C	1220	300	73	21.9	12	3660	1000	3.0 – 45
CBR-V/CBR-H 626 C	1460	340	87	26	14	4300	1000	3.5 – 50
CBR-V/CBR-H 726 C	1700	250	100	30	17	5100	1000	4.0 – 55

General Specifications

Temperature Coefficient:	<±100ppm
Dielectric strength:	2500VAC 1 minute
Working Voltage:	UL: 600VAC / CE: 690VAC; 1100VDC
Isolation Resistance:	> 20 MΩ
Overload:	10 x in10 s / 120 s; 60 x in 1 s / 120 s
Environmental:	-40 °C – 90 °C
De-rating :	Linear: 40°C = P _N to 90°C = 0.75*P _N
Thermostat (Internal thermostats: see special data sheet)	External, mounted with bracket or internal in +25mm- +35 longer housings: 200°C (Optional 160°C/180°C/ 130°C), 2A, 250V
Approvals	UL 508

PN: NOMINAL POWER WITH NATURAL COOLING WITHOUT INTERNAL THERMOSTAT and:

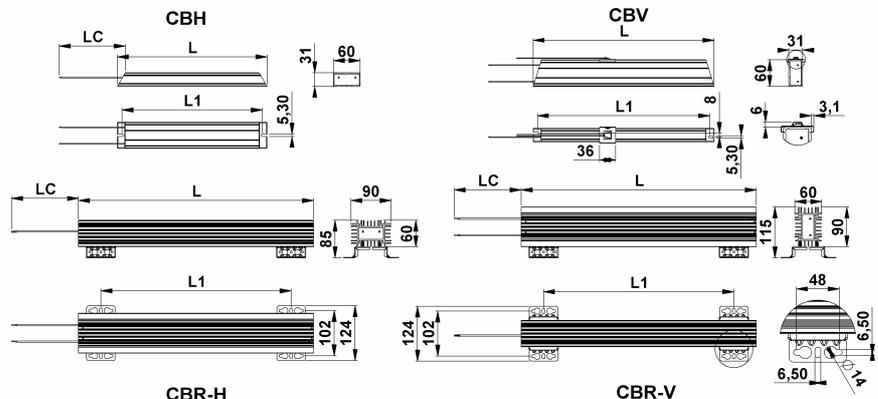
CBV and CBH mounted in a horizontal position

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

For data for resistors with internal thermostats please ask for special data sheet.

External thermostats for CBH/CBV mounted with snap-on bracket in 130 °C (brown) ,160°C (blue), 180°C (orange), 200°C (white) Other temperatures possible.

Mechanical Data



CBV shown with CLIP-ON external thermostat.

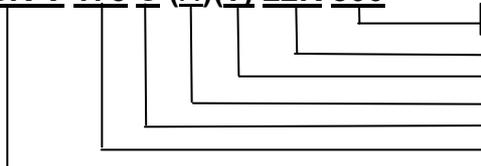
Internal Thermostats require 35 mm extra length of the housing.

CBV and CBH with internal thermostats are not UL Approved.

Type	L ± 2	L1 ± 2	Weight	Type	L ± 2	L1 ± 2	Weight
CBH / CBV 165 C	165	146	0.39	CBR-V/CBR-H 225	225	125	1.8
CBH / CBV 215 C	215	196	0.63	CBR-V/CBR-H 295	295	195	2.3
CBH / CBV 265 C	265	246	0.88	CBR-V/CBR-H 365	365	265	2.8
CBH / CBV 335 C	335	316	1.2	CBR-V/CBR-H 426	426	326	3.2
CBH / CBV 405 C	405	386	1.5	CBR-V/CBR-H 526	526	426	3.8
CBR-V/CBR-H 125	125	75	1.2	CBR-V/CBR-H 626	626	526	4.5
CBR-V/CBR-H 175	175	75	1.5	CBR-V/CBR-H 726	726	626	5.2

Type identification:

CBR-V 175 C (H)(T) 22R 800



800 = Standard CBH and CBV; 001 = Standard CBR-V and CBR-H; XXX > 400 for customer specified versions

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

(T = Internal Thermostat, 200°C, 180°C, 160°C or 130°C, (See spec data sheet))

H: helix shape winding (specified by Danotherm).

Terminals: C: Cable, S Screw terminals (only CBH and CBV)

Length of resistor profile in mm.

Type CBH, CBV, CBR-H or CBR-V

NON UL versions: CBH X 335 C 22R 800