

# α ALPHA

## CBT-BT / CBT-BGT

ALUMINIUM HOUSED COMPACT BRAKE RESISTORS  
WITH CONNECTION BOX IP 65



**CBT-H** (one profile) and **CBT-V** (two profiles) with **integrated thermo watch** belonging to our high power 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 from **500W** to **5500W** 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 thermostat.)

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 of the surface for all possible load applications. We offer our assistance to our customers to find the optimum solution in any situation.

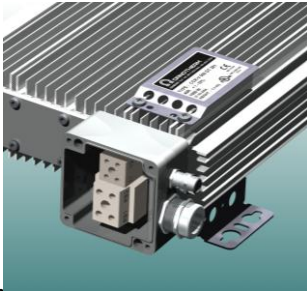
In the **CBT IP65** range do we use two different sizes of connection box: The type B box for power cables up to 10 mm<sup>2</sup> and the type BG for power cables up to 50 mm<sup>2</sup>.

The resistors comply with IP65 giving electrical and thermal protection. The resistors are Silicone free.

### Connection box type B

Power cables are connected through a cable gland with integrated screen (braid) connection. The power cables 0.75–10mm<sup>2</sup> are connected to a terminal block with screw connections. The PE is connected directly to the box with a screw. The cable for the thermo watch is connected to a terminal block 0.5-4mm<sup>2</sup> via a M12 gland with clamping range 3–7mm.

Type B box	For one profile	For two profiles
Gland size	M25	M32
Clamping range	9 - 16.6 mm	11 - 21 mm
Braid diameter	min 7.5 mm	min 9 mm

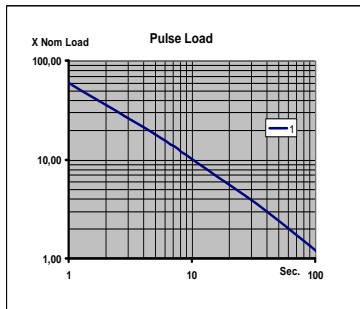


### Connection box type BG

Power cables are connected through a M40 cable gland with integrated screen (braid) connection. The gland clamping range: 19-28mm and the braid minimum diameter: 15mm. The power cables 2.5–50mm<sup>2</sup> are connected to a terminal block with screw connections. The PE is connected directly to the box with a screw. The cable for the thermo watch is connected to a terminal block 0.5-4mm<sup>2</sup> via a M12 gland with clamping range 3–7mm.

### PULSE LOAD

The curve show the pulse load ability compared to the nominal power 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 40 seconds.



For all other load conditions please contact DANOTHERM. By mean of individual thermal models we can simulate the rises of temperatures in the components and on the surfaces during and between the specified pulses.

Ratings: Resistors with 200°C T.W. (Short Pulse ratings depend on the resistance value.)

TYPE CBT-V BT	PN W @40°C According to 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 kW @40°C	Time Const sec. (Steady state)	RΩ ±10%
CBT-H 180 B T 281	500	230	25.3	7.6	4.2	1.25	1000	0.2– 22
CBT-H 210 B T 281	700	230	35.5	10.6	5.6	1.75	1000	0.25– 40
CBT-H 260 B T 281	950	230	45.5	13.7	7.6	2.4	1000	0.33– 55
CBT-H 330 B T 281	1200	230	58.75	18	10	3	1000	0.5 – 75
CBT-H 400 B T 281	1400	240	72	22	12.3	3.7	1000	0.7–100
CBT-H 460 B T 281	1700	250	110	33.5	18.5	5.6	1000	0.8–130
CBT-H 560 B T 281	2200	270	137	41	23	6.7	1000	1.0 –140
CBT-H 660 B T 281	2800	270	165	50	27	8.3	1000	1.4–150
CBT-H 760 B T 281	3200	280	192	57	32	9.5	1000	1.5– 160
CBT-V 460 B T 282	2800	240	220	65	35	9	1000	0.4 – 65
CBT-V 560 B T 282	3500	250	275	80	42	10.8	1000	0.5 – 70
CBT-V 660 B T 282	4200	275	300	100	52	13.5	1000	0.7 – 80
CBT-V 760 B T 282	5500	340	350	110	62	17	1000	0.75–85

### General Specifications

Temperature Coefficient: (Resistor wire)	Standard:	≤±100ppm
Dielectric strength:	Standard:	2500VAC 1 minute
Working Voltage:		600VAC; 1100VDC
Isolation Resistance:		> 20 MΩ
Overload:		5-10x in 10 sec; 25-35 x in 1 s
Environmental:		-40 °C – 90 °C
De-rating :		Linear: 40°C = P <sub>N</sub> to 70°C = 0.5*P <sub>N</sub>
Thermo watch:		200°C (Optional: 130°C/160°C/180°C), 2A, 250V, NC

PN: NOMINAL POWER WITH NATURAL COOLING and mounted in a vertical position.

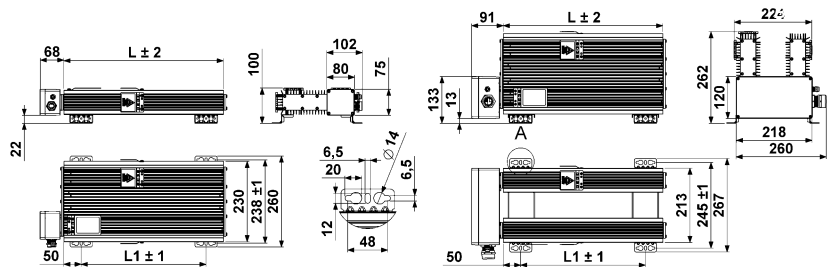
SURFACE TEMPERATURE:195°C @ 40°C AMB near Connector Box and Thermostat.

\*) Configuration: 2X1= ONE resistor profile; 2X2= TWO resistor profiles.

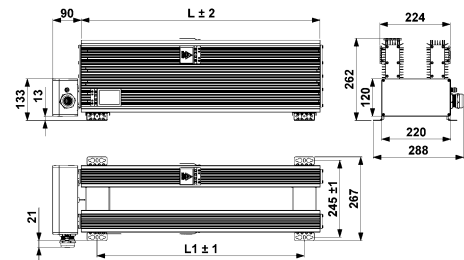
X specifies thermo watch temperature: X=5: 130°C; X=6: 160°C; X=7: 180°C; X=8: 200°C (standard)

3XX: Resistors with protecting grating

**B**



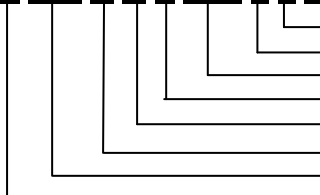
**BG**



Type	L mm	L1 mm	W Kg	Type	L mm	L1 mm	W Kg
CBT-H 180 B H T 281	160	60	3.9	CBT-H 660 B H T 281	660	560	12.8
CBT-H 210 B H T 281	210	110	4.8	CBT-H 760 B H T 281	760	660	14.6
CBT-H 260 B H T 281	260	160	5.6				
CBT-H 330 B H T 281	330	230	6.9	CBT-V 460 B/BG H T 282	460	360	18.4
CBT-H 400 B H T 281	400	300	8.2	CBT-V 560 B/BG H T 282	560	460	22
CBT-H 460 B H T 281	460	360	9.2	CBT-V 660 B/BG H T 282	660	560	25.5
CBT-H 560 B H T 281	560	460	11	CBT-V 760 B/BG H T 282	760	660	29

Type identification: Please specify your CBT Brake resistor as follows

**CBT-H 660 B H T 22R 2 8 1**



Last digits XXX > 400: Customer specified version, otherwise configuration:

Number of profiles 1 or 2

Thermo watch temperature 5 = 130°C; 6 = 160°C; 7 = 180°C; 8 = 200°C

2 = No grid; 3 = Protection grating

Ohm Value (Examples: 2R2 = 2.2Ω; 22R = 22 Ω; 220R = 220Ω; 1K0 = 1.0 kΩ)

T: Thermo watch

H: Helix wire element (Specified by Danotherm)

Connection Box: B = 10 mm<sup>2</sup>; BG = 50 mm<sup>2</sup>

Length of resistor profile in mm.

H: Horizontally mounted profile; V: Vertically mounted profile.