

GBH, GBV and GBR 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 from 100W to 1700W steady state load and they can withstand pulse loads of up to 60 times these values for one second every 120 seconds.

KWX has developed thermal models for all resistor types and resistor values. By using these models we are able to predict 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

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

GBH and GBV can be equipped with CLIP-ON thermo watch. All three types can be offered with internal thermo watch, please see separate datasheet.

● 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 mica 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 with UL 508 (no further reduction is required)

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

Ordering Information

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

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

800 = Standard GBH and GBV; 001 = Standard GBR-V and GBR-H;

XXX > 400 for customer specified versions

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

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

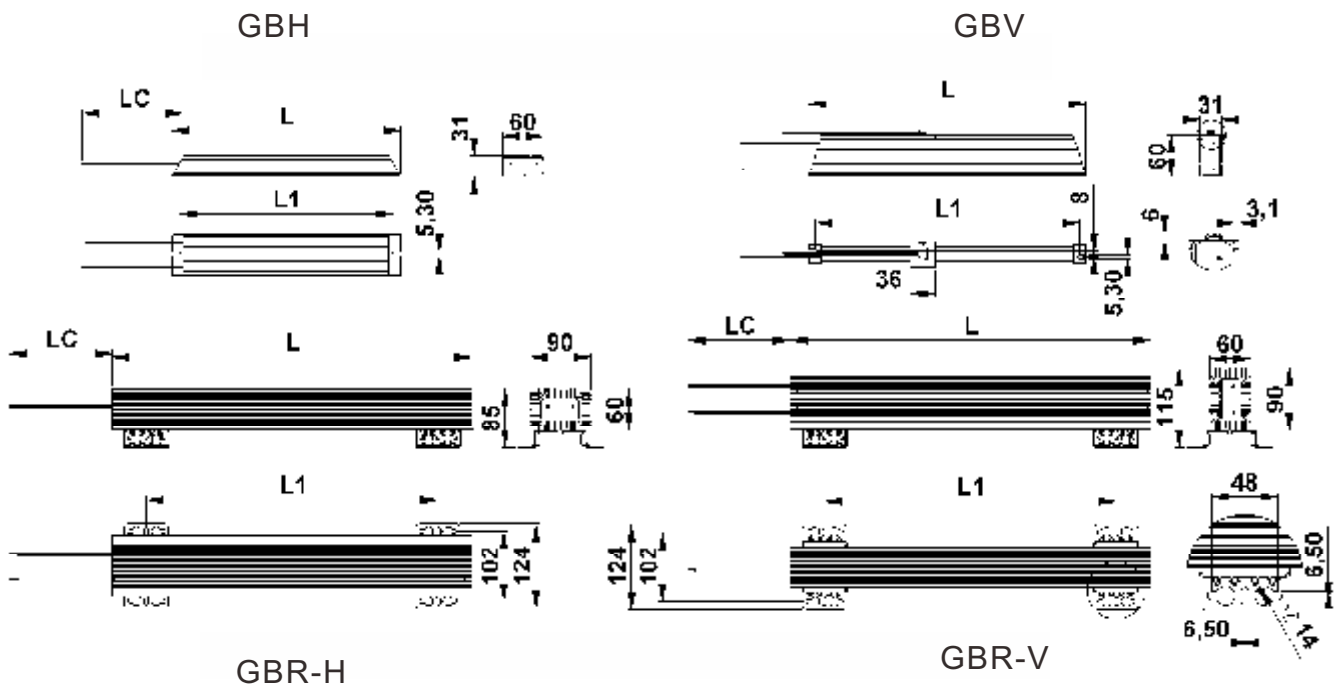
H: helix shape winding (specified by Danotherm).

C: Cable terminals, W: Cables, IP65 (only GBR)

Length of resistor profile in mm.

Type GBH,GBV,GBR-H or GBR-V;NON UL versions:GBH X 335 C 22R 800

Dimensions



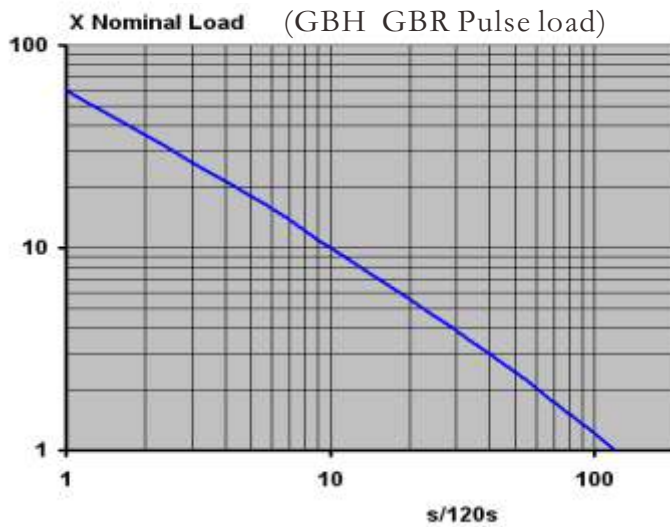
The external CLIP-ON thermo watch shown on GBV is also available for GBH.

Internal thermo watch require 25 - 35 mm longer resistor profile, please require special data sheet.

Type	L ± 2	L1 ± 2	Weight	Type	L ± 2	L1 ± 2	Weight
GBH / GBV 165 C	165	146	0.39	GBR-V/GBR-H225	225	125	1.8
GBH / GBV 215 C	215	196	0.63	GBR-V/GBR-H295	295	195	2.3
GBH / GBV 265 C	265	246	0.88	GBR-V/GBR-H365	365	265	2.8
GBH / GBV 335 C	335	316	1.2	GBR-V/GBR-H426	426	326	3.2
GBH / GBV 405 C	405	386	1.5	GBR-V/GBR-H526	526	426	3.8
GBR-V/GBR-H 125	125	-	1.2	GBR-V/GBR-H626	626	526	4.5
GBR-V/GBR-H 175	175	75	1.5	GBR-V/GBR-H726	726	626	5.2

Derating Curve

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 second to 40 seconds.



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

Applications And Ratings

TYPE GBH/GBV GBR-V/GBR-H -V: Profile vertically -H: Profile horizontally	PN W @40°C Approved UI508	Max Surface temp.°C @40°C	Pulse Load in 1s each 120s P1/120 kW @40°C	Pulse Load in 1s each 120s P5/120 kW @40°C	Pulse Load in 1s each 120s P10/120 kW @40°C	Pulse Load in 1s each 120s P40/120 kW @40°C	Time Const sec (Steady state)	R Ω ± 10% (± 5% on request)
GBH / GBV 165 C	110	230	5.5	1.8	1.0	330	1000	0.5 – 1000
GBH / GBV 215 C	155	230	8.5	3.0	1.65	475	1000	0.8 – 1500
GBH / GBV 265 C	200	230	12.5	4.0	2.2	540	1000	1.5 – 2000
GBH / GBV 335 C	270	230	18.0	6.0	3.1	800	1000	1.8 – 2000
GBH / GBV 405 C	330	240	25.0	8.3	4.5	1000	1000	2.0 – 2000
GBR-V/GBR-H 125 C	222	250	13.3	4.0	2.22	660	1000	0.5 – 1000
GBR-V/GBR-H 175 C	311	270	18.6	5.6	3.11	930	1000	0.8 – 1500
GBR-V/GBR-H 225 C	400	300	24	7.2	4.0	1200	1000	1.5 – 2000
GBR-V/GBR-H 295 C	525	340	31.5	9.4	5.2	1570	1000	1.8 – 2000
GBR-V/GBR-H 365 C	650	250	39	11.7	6.5	1950	1000	2.0 – 2000
GBR-V/GBR-H 426 C	980	270	58	17	9.8	2940	1000	2.4 – 40
GBR-V/GBR-H 526 C	1220	300	73	21.9	12	3660	1000	3.0 – 45
GBR-V/GBR-H 626 C	1460	340	87	26	14	4300	1000	3.5 – 50
GBR-V/GBR-H 726 C	1700	250	100	30	17	5100	1000	4.0 – 55

● Performance Characteristics

Temperature Coefficient:	< ± 100ppm
Dielectric strength:	3500VAC 1 minute
Working Voltage:	UL: 600VAC / CE: 690VAC; 1100VDC
Isolation Resistance:	> 20 MΩ
Overload:	10 x in 10 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*PN
External Thermo watch	Mounted with CLIP-ON bracket:
(Internal thermo watch types see special data sheet)	200°C (Optional 130°C/160°C/180°C), 2A, 250V, NC
Approvals :	UL 508

PN: Nomial Power With Natural Cooling Without Internal Thermo Watch and:

For GBV and GBH mounted in a horizontal position

For GBR-V and GBR-H mounted in a vertical position.

Please ask for special datasheet if resistors with internal thermo watch are required!

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