



Highest protection classes for highest requirements
REO Braking resistors



**Special print for
SPS 2013**

High protection classes for demanding environment for REO Braking resistors



The protection describes the specific environment for electrical equipment. Especially in aggressive environments, climates with high temperature variations or other severe climatic conditions, using products with a high protection class is essential.

The profile resistors of the REOhm series BW 150 with high protection class are especially suitable for aggressive environments, like marine applications or in railway technology. Another large application is the wind power technology - there you can use the resistors for azimuth-drives or pitch systems. These components can be mounted externally and are protected against external environmental issues.

Often the components are mounted outside the switching cabinet - therefore it is a requirement to select a resistor with a high protection class.

REO understand this philosophy and have a large standard range of inductors (CNW M), EMC filters (CNW) and resistors (BW).

The advantages at a glance:

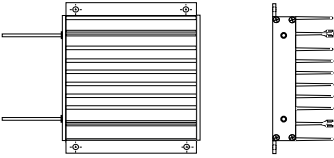
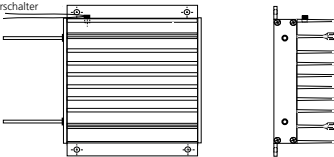
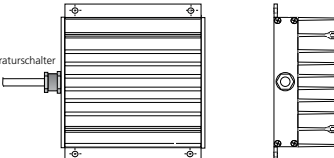
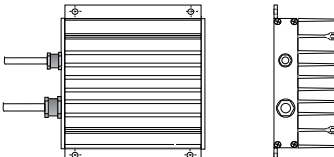
- ✓ **The special design ensures external mounting outside of the Inverter, without the need for an additional enclosure**
- ✓ **Protection from dust, liquids and slurries**
- ✓ **EMC Filters with special design provide corrosion - and salt water protection**

Protection class of REO compact resistors

Depending on the location and the environment, different protection classes are required. For the protection class \leq IP40 the temperature rise at the hottest point of the surface resistance is a maximum of 300K.

For higher protection classes ($>$ IP40) a maximum of 200K at the hottest point of the surface resistance is permitted.

Attention!!! Continuous high temperature of $>$ 200 K leads to a reduction of ingress protection.

Protection class	Setting	Series				
		152	153	154	155	156
IP20 / IP40		X	X	X	X	X
IP20 / IP40 with temperature switch	Temperaturschalter 	X	X	X	X	X
IP54 / IP64	Temperaturschalter 		X	X	X	X
IP54 / IP64 or higher with temperature switch			X		X	X

Additional temperature protection

It is possible to monitor the temperature of the resistor with a temperature switch. When exceeding a nominal temperature the temperature switch opens and triggers an alarm contact. The temperature switch is mounted externally for IP20 / IP40 versions and fitted with 2 wires ready for connection.

In a protection class IP54 / IP64 or higher, the temperature switch is integrated in the resistance and provides the connection for an external monitoring system.

Compact Braking resistor, BW153 / IP 80 - 230 W, DB / 0,8 - 2,3 kW

Applications:

Braking resistor for drives with frequency converters of small to medium output, installation close to the frequency converter.

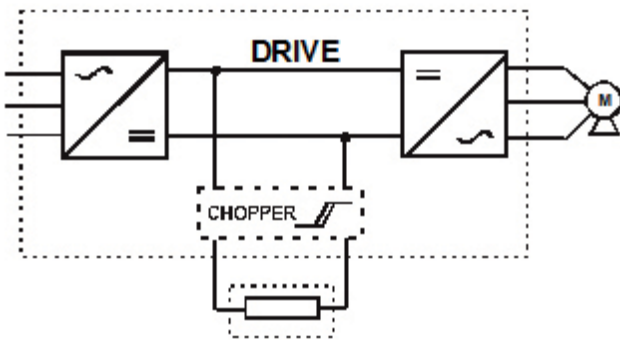
- Test voltage 4 kV DC

Benefits:

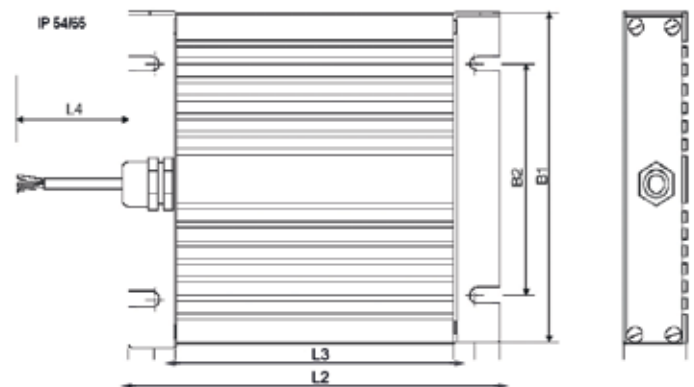
- small dimensions, fast connection
- short-circuit proof
- can be used with any frequency converter
- can be used under arduous conditions
- vertical or horizontal mounting
- high-resistance at overload



Circuit example:



Dimension drawing:



Technical Data:

Type	Resistance R [Ohm]	Continuous output P [W]	max. operating voltage U [V]
BW 153 / 100/ IP...	7 - 400	80	900
BW 153 / 200/ IP...	10 - 500	120	900
BW 153 / 300/ IP...	8 - 620	200	900
BW 153 / 400/ IP...	10 - 310	230	900

Mechanical Data:

Type	Dimensions								Connections
	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	B1 [mm]	B2 [mm]	H [mm]	D [mm]	
BW 153 / 100/ IP...	164	149	130	250	103	70	27,5	4,5	IP54/65/66 shielded connecting wire 3x1,5 mm
BW 153 / 200/ IP...	164	149	130	250	103	70	27,5	4,5	
BW 153 / 300/ IP...	214	199	180	250	103	70	27,5	4,5	
BW 153 / 400/ IP...	264	249	230	250	103	70	27,5	4,5	

Compact Braking resistor, BW155 / IP 600 – 2250 W, DB / 6 – 22,5 kW

Applications:

Braking resistor for drives with frequency converters of small to medium output, installation close to the frequency converter.

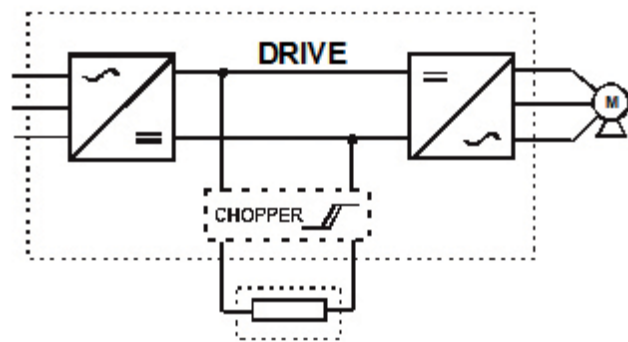
- Test voltage: 4 kV DC
- Temperature > 300 °C
- Ambient temperature: -10...+40 °C

Benefits:

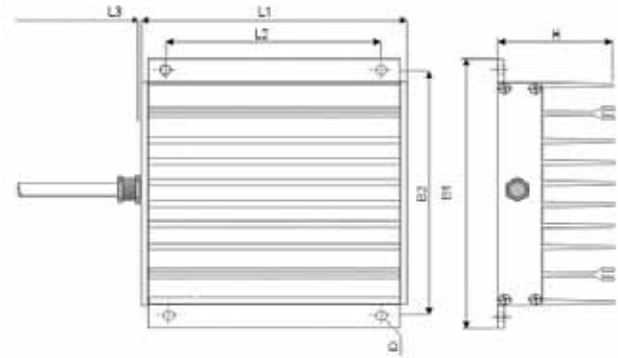
- small dimensions
- fast connection
- can be used with any frequency converter
- less additional mounting area required
- optional extras; cover and temperature switch



Circuit example:



Dimension drawing:



Technical Data:

Type	Resistance R [Ohm]	Continuous output P [W]	max. operating voltage U [V]
BW 155 / 1000 / IP...	1 - 1000	600	900
BW 155 / 1200 / IP...	10 - 300	800	900
BW 155 / 1500 / IP...	0,6 - 280	1000	900
BW 155 / 2000 / IP...	0,5 - 1440	1500	900
BW 155 / 2500 / IP...	4 - 600	1875	900
BW 155 / 3000 / IP...	4 - 750	2250	900

Mechanical Data:

Type	Dimensions							Connection
	B1 [mm]	B2 [mm]	H [mm]	L1 [mm]	L2 [mm]	L3 [mm]	D [mm]	
BW 155 / 1000 / IP...	175	165	75	182	120	250	6,5	IP54/64/65/66 shielded connecting wire 3x1,5mm ²
BW 155 / 1200 / IP...	175	165	75	242	180	250	6,5	
BW 155 / 1500 / IP...	175	165	75	342	280	250	6,5	
BW 155 / 2000 / IP...	175	165	75	542	500	250	6,5	
BW 155 / 2500 / IP...	175	165	75	672	630	250	6,5	IP54/64/65/66 shielded connecting wire 3x2,5mm ²
BW 155 / 3000 / IP...	175	165	75	762	720	250	6,5	

Note:
Continuous high temperature of > 200 K leads to a reduction of ingress protection
Other ratings upon request

Compact Braking resistor combination, BW155 / IP 3.000 - 22.500 W, DB / 30 - 225 kW

Applications:

Braking resistor for drives with frequency converters of high output, installation close to the frequency converter.

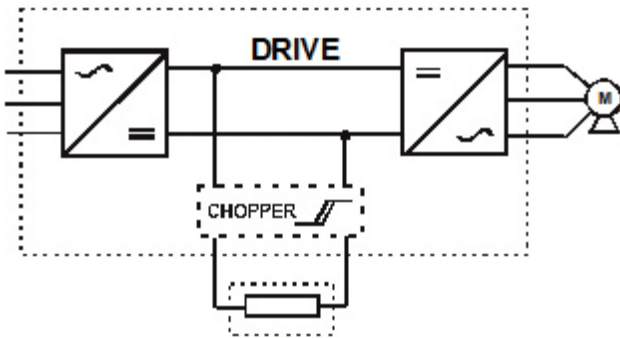
- Test voltage: 2,5 kV AC
- max. Temperature > 300 °C
- Ambient temperature: -10...+40°C

Benefits:

- fast connection
- good heat dissipation
- can be used with any frequency converter
- compact, modular construction
- high degree of protection
- easy assembly 4 point fixing
- optional cover



Circuit example::



Technical Data:

Type	Resistance R [Ohm]	Continuous output P [W]	max. operating voltage U [V]
BW 155 / 4000 / IP...	10 – 200	3.000	900
BW 155 / 5000 / IP...	6 – 500	3750	900
BW 155 / 6000 / IP...	4 – 600	4500	900
BW 155 / 7500 / IP...	3 – 600	5600	900
BW 155 / 9000 / IP...	2,1 – 750	6750	900
BW 155 / 10000 / IP...	2,1– 820	7500	900
BW 155 / 12000 / IP...	2 – 740	9000	900
BW 155 / 15000 / IP...	1,5 – 700	11250	900
BW 155 / 18000 / IP...	1,2 – 630	13500	900
BW 155 / 22000 / IP...	1 – 560	16800	900
BW 155 / 24000 / IP...	0,9 – 580	18000	900
BW 155 / 27000 / IP...	0,8 – 600	20250	900
BW 155 / 30000 / IP...	0,8 – 600	22500	900

Compact Braking resistor, BW156 / IP 300 – 800 W, DB / 3 – 8 kW

Applications:

Braking resistor for drives with frequency converters of small to medium output. Installation in or outside of the control cabinet is possible.

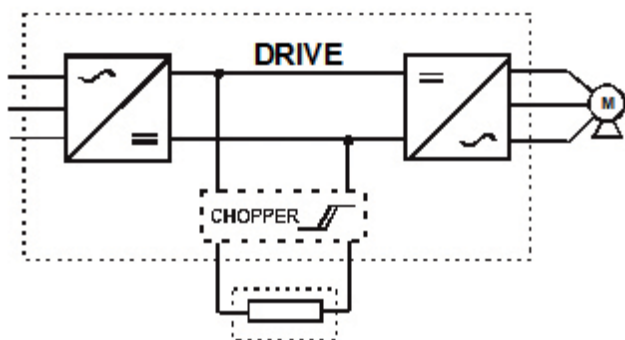
- Test voltage 4 kV AC

Benefits:

- fast connection
- short-circuit proof
- small dimensions at high output
- very good heat dissipation
- high-resistance at overload
- options available with terminal covers and temperature switches
- installation also possible outside the control cabinet



Circuit example:



Dimension drawing:



Technical Data:

Type	Resistance R [Ohm]	Continuous output P [W]	max. operating voltage U [V]
BW 156 / 400 / IP...	1 - 1000	300	900
BW 156 / 600 / IP...	1 - 250	400	900
BW 156 / 800 / IP...	3 - 620	500	900
BW 156 / 1000 / IP...	1 - 500	600	900
BW 156 / 1200 / IP...	5 - 400	700	900
BW 156 / 1500 / IP...	10 - 300	800	900

Mechanical Data:

Type	Dimensions								Connection
	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	B1 [mm]	B2 [mm]	H [mm]	D [mm]	
BW 156 / 400 / IP...	174	159	140	500	103	70	50	4,5	IP54/65/66 shielded connecting wire 3x1,5 mm ²
BW 156 / 600 / IP...	234	219	200	500	103	70	50	4,5	
BW 156 / 800 / IP...	304	289	270	500	103	70	50	4,5	
BW 156 / 1000 / IP...	374	359	340	500	103	70	50	4,5	
BW 156 / 1200 / IP...	454	439	420	500	103	70	50	4,5	
BW 156 / 1500 / IP...	604	589	570	500	103	70	50	4,5	

Note:
Continuous high temperature of > 200 K leads to a reduction of ingress protection
Other ratings upon request

■ REO (UK) Ltd.

Units 2-4 Callow Hill Road · Craven Arms
Shropshire · SY7 8NT · UK
Tel.: +44 (0)1588 673 411
Fax: +44 (0)1588 672 718

E-Mail: main@reo.co.uk
Internet: www.reo.co.uk

■ Headquarters - Germany

REO ELEKTRONIK AG

Brühler Straße 100 · D-42657 Solingen
Tel.: +49 (0)212 8804 0 · Fax: +49 (0)212 8804 188

REO INDUCTIVE COMPONENTS AG

Brühler Straße 100 · D-42657 Solingen
Tel.: +49 (0)212 8804 0 · Fax: +49 (0)212 8804 188

E-Mail: info@reo.de
Internet: www.reo.de

■ China

REO Shanghai Inductive Components Co., Ltd
No. 536 ShangFeng Road · Pudong, 201201 Shanghai · China
Tel.: +86 (0)21 5858 0686 · Fax: +86 (0)21 5858 0289
E-Mail: info@reo.cn · Internet: www.reo.cn

■ France

REO VARIAC S.A.R.L.

ZAC Du Clos aux Pois 1 · 6/8 rue de la Closerie-LISSES · F-91048 Evry Cédex
Tel.: +33 (0)1 6911 1898 · Fax: +33 (0)1 6911 0918
E-Mail: reovariac@reo.fr · Internet: www.reo.fr

■ India

REO GPD INDUCTIVE COMPONENTS PVT. LTD

2/202 Luna Road · Village Luna · Taluka Padra
Vadodara - 391440 · India
Tel.: +91 (2662) 221723, +91 (265) 2396148 · Fax: +91 (265) 2396971
E-Mail: info@reogpd.com · Internet: www.reo-ag.in

■ Italy

REO ITALIA S.r.l.

Via Treponti, 29 · I-25086 Rezzato (BS)
Tel.: +39 030 279 3883 · Fax: +39 030 279 0600
E-Mail: info@reoitalia.it · Internet: www.reoitalia.it

■ Poland

REO CROMA Sp. zo.o

ul. Pozaryskiego 28, bud 20 · PL-04-703 Warszawa
Tel.: +48 (0)22 812 3066 · Fax: +48 (0)22 815 6906
E-Mail: croma@croma.com.pl · Internet: www.croma.com.pl

■ Spain

REO ESPAÑA 2002 S.A.

C/Manuel Ventura i Campeny 21B · local 9 · E-08339 Vilassar de Dalt (Barcelona)
Tel.: +34 937 509 994 · Fax: +34 937 509 995
E-Mail: info@reospain.com · Internet: www.reospain.com

■ Switzerland

REO ELEKTRONIK AG

Im Halbiacker 5a · CH-8352 Elsau
Tel.: +41 (0)52 363 2820 · Fax: +41 (0)52 363 1241
E-Mail: info@reo.ch · Internet: www.reo.ch

■ Turkey

REOTURKEY ELEKTRONIK San. ve Tic. Ltd. Şti.

Halil Rifatpasa Mah. · Darülcenze CD Perpa Tic Merkezi
B Blok Kat 8 No:1095 · TR-34384 Sisli – Istanbul
Tel.: +90 (0)212 2215 118 · Fax: +90 (0)212 2215 119
E-Mail: info@reo-turkey.com · Internet: www.reo-turkey.com

■ USA

REO-USA, Inc.

8450 E. 47th St · USA-Indianapolis, IN 46226
Tel.: +1 (317) 899 1395 · Fax: +1 (317) 899 1396
E-Mail: info@reo-usa.com · Internet: www.reo-usa.com

Questions or suggestions?
Please contact our team
in Kyritz:

Tel.: +49(0)33971 485 0