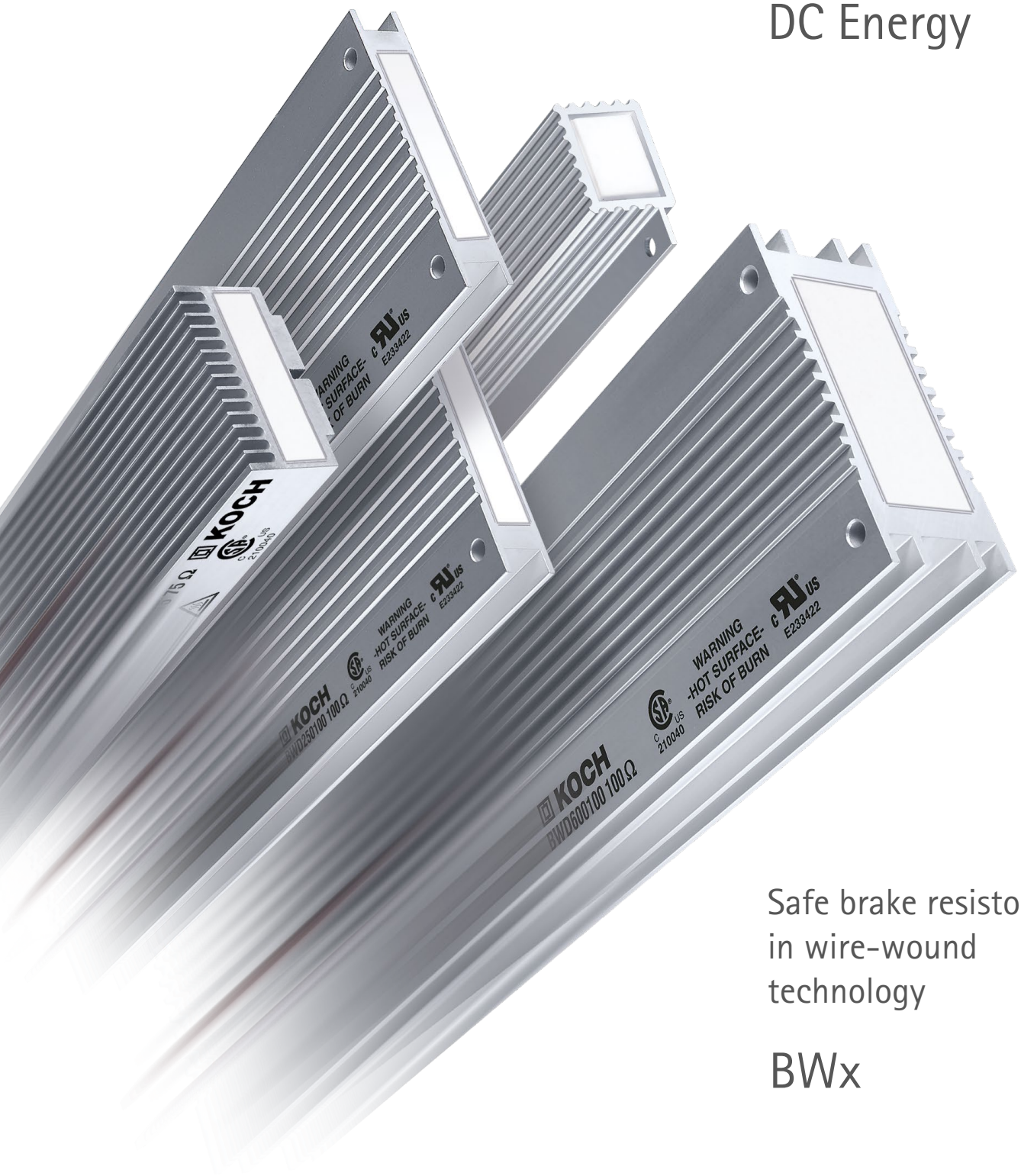
Managing DC Energy



Safe brake resistors in wire-wound technology

BWx

Brake resistor
BWx150

Short-circuit proof, „intrinsically safe" resistor for use in inverters (brake transistors) in an aluminum case, IP65* protection class.

Rated power (W)
60 (150 with duty cycle ED = 35%, ϑ_A = 20°C)

Resistance (Ohm)
75, 300

Dimensions (mm)
Enclosure: 80 x 52 x 28
Wiring: length 510±40
Ø AWG16 or 1.5 mm²
PTFE isolated, UL Style 1659

Technical specifications
(ϑ_A = 20°C, unless otherwise specified)

Parameter	Symbol	Value	Unit	Conditions
Tolerance (resistance)		± 5	%	Room temperature
Temperature coefficient	TK	20 ... 100	10^{-6}/K	
Insulation resistance	R_{ISO}	≥ 100	MΩ	U_{mess} = 1,000 VDC
Inductance	L	≤ 30	µH	f = 300 kHz, U_{mess} = 50 mV
Capacity against enclosure	C	≤ 300	pF	f = 300 kHz, U_{mess} = 50 mV
Thermal time constant	τ	approx. 250	s	
Weight	m	230	g	
Certifications	cCSAus			Standard CSA-C22.2 and UL508
Energy absorption	Q	2.2	kJ	with 1.2 s (1% duty cycle)
		4.4	kJ	with 7.2 s (6% duty cycle)
Maximum permissible operating voltage	U_B	≤ 700 AC	V	Taking into consideration
		≤ 1,000 DC	V	the „intrinsic safety"
		≤ 600 AC	V	according to cCSAus
		≤ 848 DC	V	
Isolation voltage	U_{iso}	≥ 4,000 AC	V	f = 50 Hz; t = 1 s
Max. permissible case temp.	ϑ_C	≤ 250	°C	unobstructed convection
Storage temperature	ϑ_S	-25 ... +85	°C	

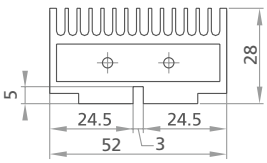
Versions

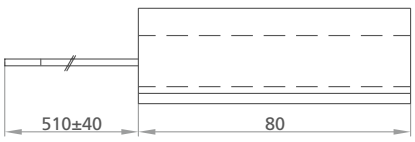

BWD150


BWS150

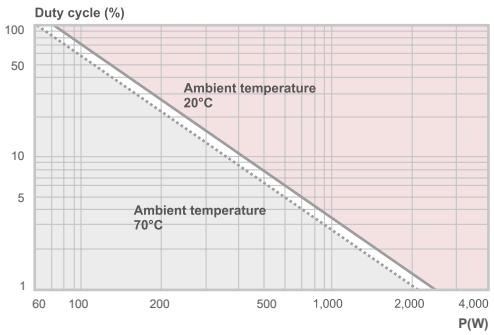

BWS150 with customer specific connector

Dimensions (mm)

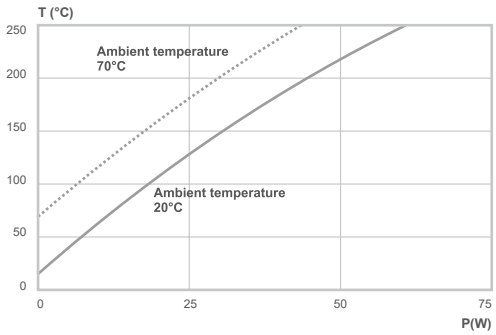




Pulse loading capacity
Brake resistor BWx150



Case temperature
Brake resistor BWx150
With duty cycle ED = 100%
Maximum permissible temperature T = 250 °C



* Test conditions: Water jet from nozzle 6.3 mm inside diameter, flow rate 12.5 l / min +/- 5%, water pressure according to volume flow, distance 2.5-3m, test duration 3min

Brake resistor
BWx200

Short-circuit proof, „intrinsically safe" resistor for use in inverters (brake transistors) in an aluminum case, IP65* protection class.

Rated power (W)
50 (100 with forced cooling)

Resistance (Ohm)
90

Dimensions (mm)
Enclosure: 105 x 22 x 36.5
Wiring: length 290±20
Ø AWG16 or 1.5 mm²
PTFE isolated, UL Style 1659

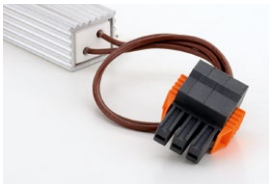
Technical specifications
(ϑ_A = 20°C, unless otherwise specified)

Parameter	Symbol	Value	Unit	Conditions
Tolerance (resistance)		± 5	%	Room temperature
Temperature coefficient	TK	40 ... 65	10^{-6}/K	
Insulation resistance	R_{ISO}	≥ 100	MΩ	U_{mess} = 1,000 VDC
Inductance	L	≤ 30	µH	f = 300 kHz, U_{mess} = 50 mV
Capacity against enclosure	C	≤ 300	pF	f = 300 kHz, U_{mess} = 50 mV
Thermal time constant	τ	approx. 700	s	Heating phase free in air
		approx. 1,000		Cooling phase free in air
Weight	m	155	g	
Certifications	cURus**			Standard CSA-C22.2 and UL508
Energy absorption	Q	2.4	kJ	with 1.2 s (1% duty cycle)
		3.6	kJ	with 7.2 s (6% duty cycle)
Maximum permissible operating voltage	U_B	≤ 700 AC	V	Taking into consideration the „intrinsic safety" according to UL
		≤ 1,000 DC	V	
		≤ 600 AC	V	
		≤ 848 DC	V	
Isolation voltage	U_{iso}	≥ 4,000 AC	V	f = 50 Hz; t = 1 s
Max. permissible case temp.	ϑ_C	≤ 200	°C	in consideration of UL and forced cooling
Storage temperature	ϑ_S	-25 ... +85	°C	

Versions

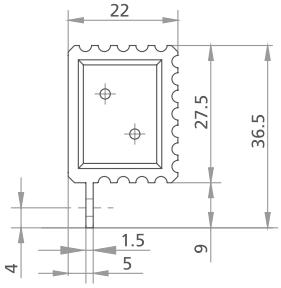
BWD200

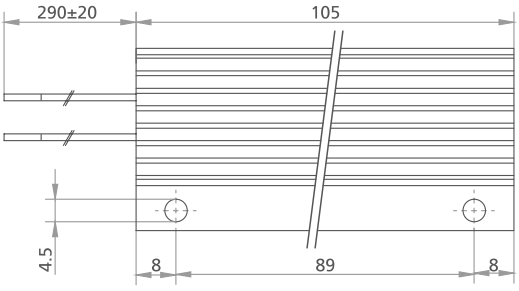
BWS200



BWS200 with customer specific connector

Dimensions and mounting holes (mm)

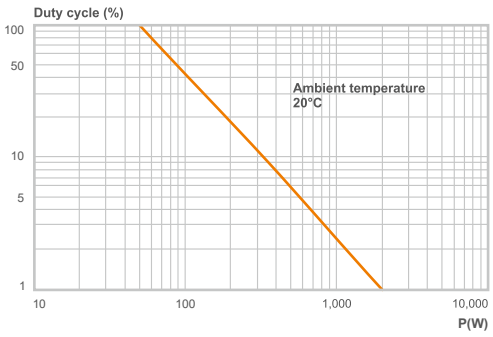




Pulse loading capacity

Brake resistor BWx200

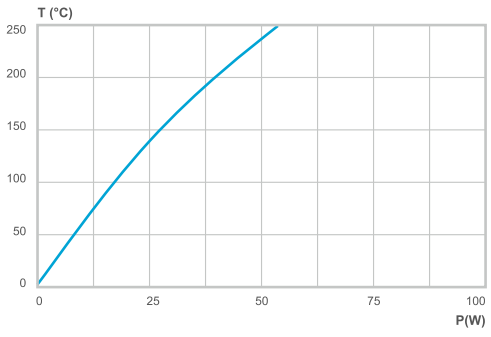
120s / free in air



Case temperature

Brake resistor BWx200

profile temperature averaged — free in air
with duty cycle ED = 100%
Maximum permissible temperature T = 250 °C



* Test conditions: Water jet from nozzle 6.3 mm inside diameter, flow rate 12.5 l / min +/- 5%, water pressure according to volume flow, distance 2.5-3m, test duration 3min
** Certification only valid in customer specific application

Brake resistor
BWx250

Short-circuit proof, „intrinsically safe" resistor for use in inverters (brake transistors) in an anodized aluminum case, IP65* protection class.

Rated power (W)
100 (250 with duty cycle ED = 35%, ϑ_A = 20°C)

Resistance (Ohm)
3, 10, 24, 27, 33, 47, 72, 100, 150, 200, 220, 330, 390, 430, 620, 830

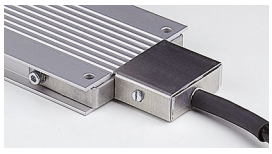
Dimensions (mm)
Enclosure: 110 x 80 x 15
Wiring: length 510±40
Ø AWG16 or 1.5 mm²
PTFE isolated, UL Style 1659

Technical specifications
(ϑ_A = 20°C, unless otherwise specified)

Parameter	Symbol	Value	Unit	Conditions
Tolerance (resistance)		± 5	%	Room temperature
Temperature coefficient	TK	20 ... 100	10^{-6}/K	
Insulation resistance	R_{ISO}	≥ 100	MΩ	U_{mess} = 1,000 VDC
Inductance	L	≤ 30	µH	f = 300 kHz, U_{mess} = 50 mV
Capacity against enclosure	C	≤ 300	pF	f = 300 kHz, U_{mess} = 50 mV
Thermal time constant	τ	approx. 550	s	
Weight	m	280	g	
Certifications	cCSAus			Standard CSA-C22.2 and UL508
	cURus			Standard CSA-C22.2 and UL508
Energy absorption	Q	4	kJ	with 1.2 s (1% duty cycle)
		8	kJ	with 7.2 s (6% duty cycle)
Maximum permissible operating voltage	U_B	≤ 700 AC	V	Taking into consideration the „intrinsic safety" according to cCSAus and UL
		≤ 1,000 DC	V	
		≤ 600 AC	V	
		≤ 848 DC	V	
Isolation voltage	U_{iso}	≥ 4,000 AC	V	f = 50 Hz; t = 1 s
Max. permissible case temp.	ϑ_C	≤ 250	°C	unobstructed convection
Storage temperature	ϑ_S	-25 ... +85	°C	

Versions

BWD250

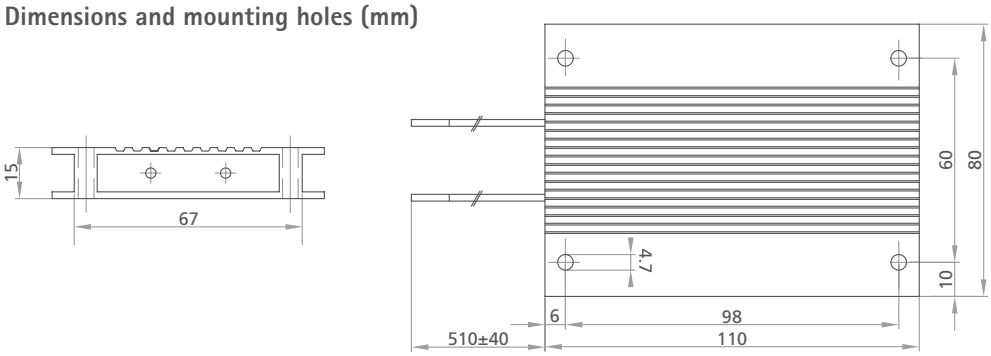


BWG250

BWS250

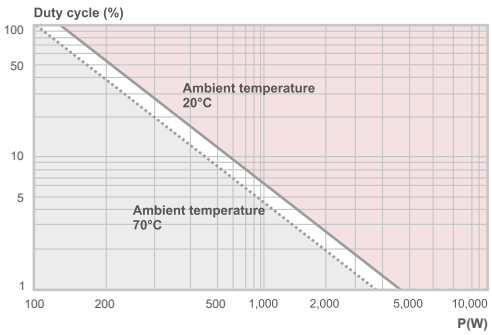
BWT250
without CSA and UL approval

Dimensions and mounting holes (mm)



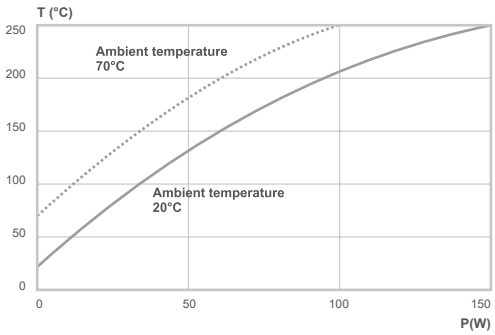
Pulse loading capacity

Brake resistor BWx250



Case temperature

Brake resistor BWx250
With duty cycle ED = 100%
Maximum permissible temperature T = 250 °C



* Test conditions: Water jet from nozzle 6.3 mm inside diameter, flow rate 12.5 l / min +/- 5%, water pressure according to volume flow, distance 2.5-3m, test duration 3min

Brake resistor
BWx350

Short-circuit proof, „intrinsically safe" resistor for use in inverters (brake transistors) in an aluminum case, IP65* protection class.

Rated power (W)
75 (150 with forced cooling)

Resistance (Ohm)
45

Dimensions (mm)
Enclosure: 185 x 36 x 31.6
Wiring: length 330±20
Ø AWG16 or 1.5 mm²
PTFE isolated, UL Style 1659

Technical specifications
(ϑ_A = 20°C, unless otherwise specified)

Parameter	Symbol	Value	Unit	Conditions
Tolerance (resistance)		± 5	%	Room temperature
Temperature coefficient	TK	40 ... 65	10^{-6}/K	
Insulation resistance	R_{ISO}	≥ 100	MΩ	U_{mess} = 1,000 VDC
Inductance	L	≤ 30	µH	f = 300 kHz, U_{mess} = 50 mV
Capacity against enclosure	C	≤ 300	pF	f = 300 kHz, U_{mess} = 50 mV
Thermal time constant	τ	approx. 750	s	Heating phase free in air
		approx. 1,080		Cooling phase free in air
Weight	m	257	g	
Certifications	cURus**			Standard CSA-C22.2 and UL508
Energy absorption	Q	3.8	kJ	with 1.2 s (1% duty cycle)
		5.4	kJ	with 7.2 s (6% duty cycle)
Maximum permissible operating voltage	U_B	≤ 700 AC	V	Taking into consideration the „intrinsic safety" according to UL
		≤ 1,000 DC	V	
		≤ 600 AC	V	
		≤ 848 DC	V	
Isolation voltage	U_{iso}	≥ 4,000 AC	V	f = 50 Hz; t = 1 s
Max. permissible case temp.	ϑ_C	≤ 200	°C	in consideration of UL and forced cooling
Storage temperature	ϑ_S	-25 ... +85	°C	

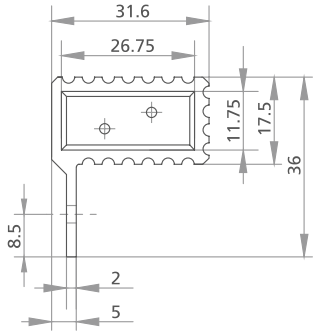
Versions

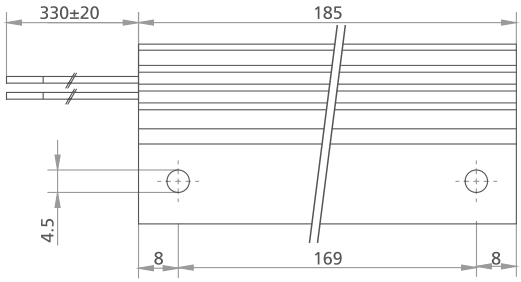
BWD350

BWS350

BWS350 with customer specific connector

Dimensions and mounting holes (mm)

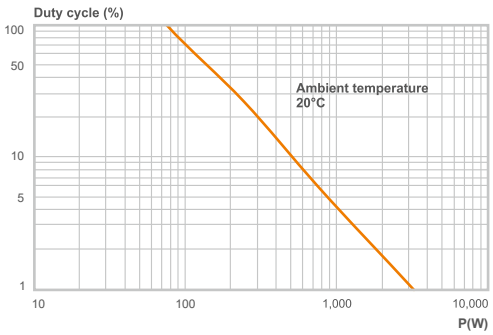




Pulse loading capacity

Brake resistor BWx350

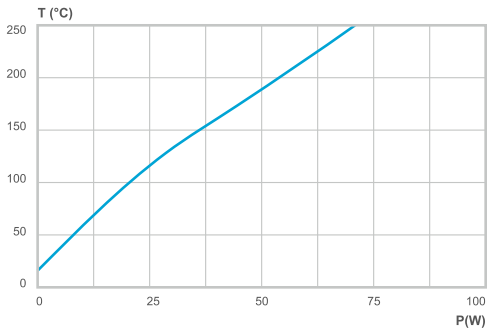
120s / free in air



Case temperature

Brake resistor BWx350

profile temperature averaged — free in air
with duty cycle ED = 100%
Maximum permissible temperature T = 250 °C



* Test conditions: Water jet from nozzle 6.3 mm inside diameter, flow rate 12.5 l / min +/- 5%, water pressure according to volume flow, distance 2.5-3m, test duration 3min
** Certification only valid in customer specific application

Brake resistor
BWx375

Short-circuit proof, „intrinsically safe" resistor for use in inverters (brake transistors) in an aluminum case, IP65* protection class.

Rated power (W)
70 (150 with forced cooling)

Resistance (Ohm)
90

Dimensions (mm)
Enclosure: 185 x 22 x 36.5
Wiring: length 290±20
Ø AWG16 or 1.5 mm²
PTFE isolated, UL Style 1659

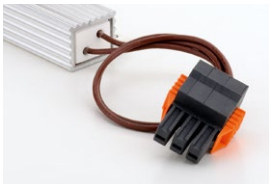
Technical specifications
(ϑ_A = 20°C, unless otherwise specified)

Parameter	Symbol	Value	Unit	Conditions
Tolerance (resistance)		± 5	%	Room temperature
Temperature coefficient	TK	40 ... 65	10^{-6}/K	
Insulation resistance	R_{ISO}	≥ 100	MΩ	U_{mess} = 1,000 VDC
Inductance	L	≤ 30	µH	f = 300 kHz, U_{mess} = 50 mV
Capacity against enclosure	C	≤ 300	pF	f = 300 kHz, U_{mess} = 50 mV
Thermal time constant	τ	approx. 850	s	Heating phase free in air
		approx. 1,200		Cooling phase free in air
Weight	m	260	g	
Certifications	cURus**			Standard CSA-C22.2 and UL508
Energy absorption	Q	3.6	kJ	with 1.2 s (1% duty cycle)
		5.0	kJ	with 7.2 s (6% duty cycle)
Maximum permissible operating voltage	U_B	≤ 700 AC	V	Taking into consideration the „intrinsic safety" according to UL
		≤ 1,000 DC	V	
		≤ 600 AC	V	
		≤ 848 DC	V	
Isolation voltage	U_{iso}	≥ 4,000 AC	V	f = 50 Hz; t = 1 s
Max. permissible case temp.	ϑ_C	≤ 200	°C	in consideration of UL and forced cooling
Storage temperature	ϑ_S	-25 ... +85	°C	

Versions

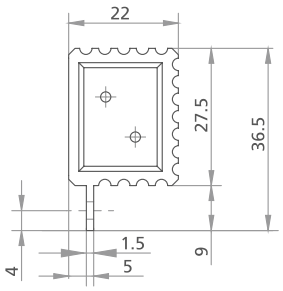
BWD375

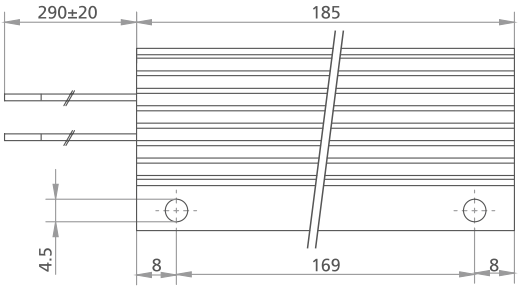
BWS375



BWS375 with customer specific connector

Dimensions and mounting holes (mm)

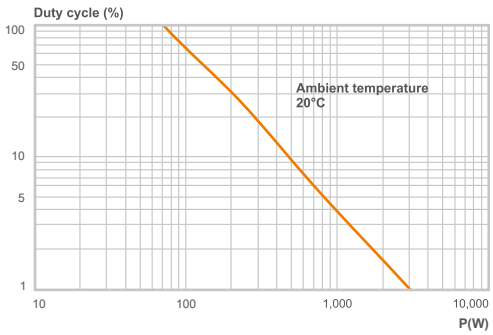




Pulse loading capacity

Brake resistor BWx375

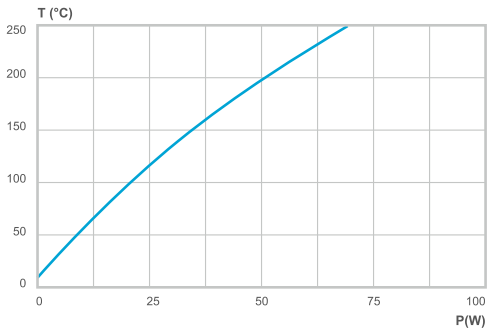
120s / free in air



Case temperature

Brake resistor BWx375

profile temperature averaged — free in air
with duty cycle ED = 100%
Maximum permissible temperature T = 250 °C



* Test conditions: Water jet from nozzle 6.3 mm inside diameter, flow rate 12.5 l / min +/- 5%, water pressure according to volume flow, distance 2.5-3m, test duration 3min
** Certification only valid in customer specific application

Brake resistor
BWx500

Short-circuit proof, „intrinsically safe" resistor for use in inverters (brake transistors) in an anodized aluminum case, IP65* protection class.

Rated power (W)
200 (500 with duty cycle
ED = 35%, ϑ_A = 20°C)

Resistance (Ohm)
10,12, 15, 22, 27, 35, 40, 47, 50, 60, 72, 100, 130,150, 160, 200, 210, 240, 300, 310, 430, 620

Dimensions (mm)
Enclosure: 216 x 80 x 15
Wiring: length 510±40
Ø AWG16 or 1.5 mm²
PTFE isolated, UL Style 1659

Technical specifications
(ϑ_A = 20°C, unless otherwise specified)

Parameter	Symbol	Value	Unit	Conditions
Tolerance (resistance)		± 5	%	Room temperature
Temperature coefficient	TK	20 ... 100	10^{-6}/K	
Insulation resistance	R_{ISO}	≥ 100	MΩ	U_{mess} = 1,000 VDC
Inductance	L	≤ 30	µH	f = 300 kHz, U_{mess} = 50 mV
Capacity against enclosure	C	≤ 300	pF	f = 300 kHz, U_{mess} = 50 mV
Thermal time constant	τ	approx. 550	s	
Weight	m	550	g	
Certifications	cCSAus			Standard CSA-C22.2 and UL508
	cURus			Standard CSA-C22.2 and UL508
Energy absorption	Q	7.5	kJ	with 1.2 s (1% duty cycle)
		15	kJ	with 7.2 s (6% duty cycle)
Maximum permissible operating voltage	U_B	≤ 700 AC	V	Taking into consideration
		≤ 1,000 DC	V	the „intrinsic safety"
		≤ 600 AC	V	according to cCSAus and UL
		≤ 848 DC	V	
Isolation voltage	U_{iso}	≥ 4,000 AC	V	f = 50 Hz; t = 1 s
Max. permissible case temp.	ϑ_C	≤ 250	°C	unobstructed convection
Storage temperature	ϑ_S	-25 ... +85	°C	

Versions

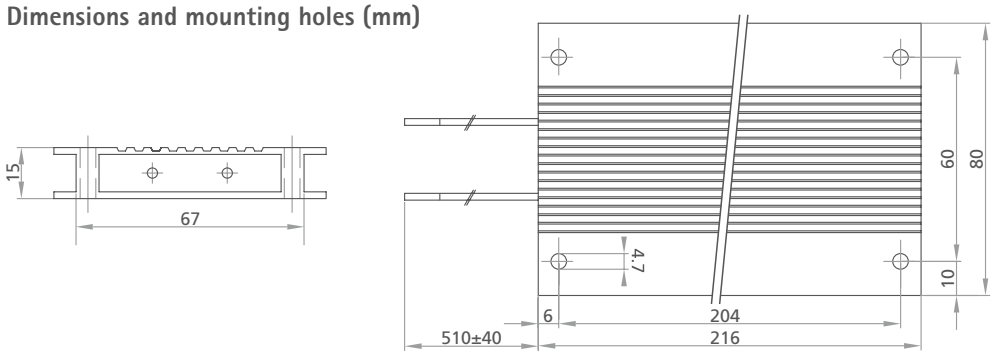

BWD500


BWG500


BWS500

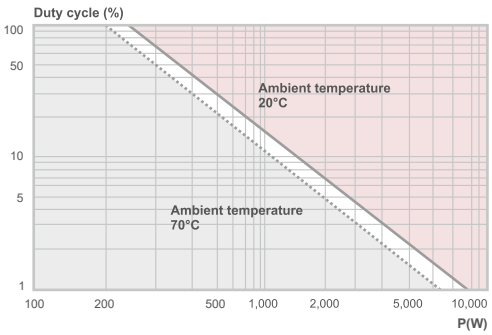

BWT500
without CSA and UL approval

Dimensions and mounting holes (mm)



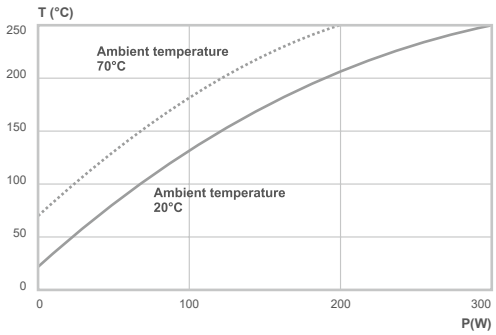
Pulse loading capacity

Brake resistor BWx500



Case temperature

Brake resistor BWx500
With duty cycle ED = 100%
Maximum permissible temperature T = 250 °C



* Test conditions: Water jet from nozzle 6.3 mm inside diameter, flow rate 12.5 l / min +/- 5%, water pressure according to volume flow, distance 2.5-3m, test duration 3min

Brake resistor
BWx600

Short-circuit proof, „intrinsically safe" resistor for use in inverters (brake transistors) in an anodized aluminum case, IP65* protection class.

Rated power (W)
240 (600 with duty cycle
ED = 35%, ϑ_A = 20°C)

Resistance (Ohm)
5, 10, 14, 18, 22, 27, 33, 47, 72, 80, 100, 150, 200, 220, 300

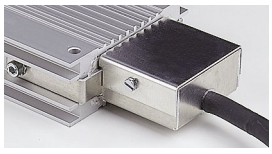
Dimensions (mm)
Enclosure: 216 x 80 x 30
Wiring: length 510±40
Ø AWG16 or 2.5 mm²
PTFE isolated, UL Style 1659

Technical specifications
(ϑ_A = 20°C, unless otherwise specified)

Parameter	Symbol	Value	Unit	Conditions
Tolerance (resistance)		± 5	%	Room temperature
Temperature coefficient	TK	20 ... 100	10^{-6}/K	
Insulation resistance	R_{ISO}	≥ 100	MΩ	U_{mess} = 1,000 VDC
Inductance	L	≤ 30	µH	f = 300 kHz, U_{mess} = 50 mV
Capacity against enclosure	C	≤ 300	pF	f = 300 kHz, U_{mess} = 50 mV
Thermal time constant	τ	approx. 600	s	
Weight	m	1,050	g	
Certifications	cCSAus			Standard CSA-C22.2 and UL508
	cURus			Standard CSA-C22.2 and UL508
Energy absorption	Q	13	kJ	with 1.2 s (1% duty cycle)
		26	kJ	with 7.2 s (6% duty cycle)
Maximum permissible operating voltage	U_B	≤ 700 AC	V	Taking into consideration
		≤ 1,000 DC	V	the „intrinsic safety"
		≤ 600 AC	V	according to cCSAus and UL
		≤ 848 DC	V	
Isolation voltage	U_{iso}	≥ 4,000 AC	V	f = 50 Hz; t = 1 s
Max. permissible case temp.	ϑ_C	≤ 250	°C	unobstructed convection
Storage temperature	ϑ_S	-25 ... +85	°C	

Versions

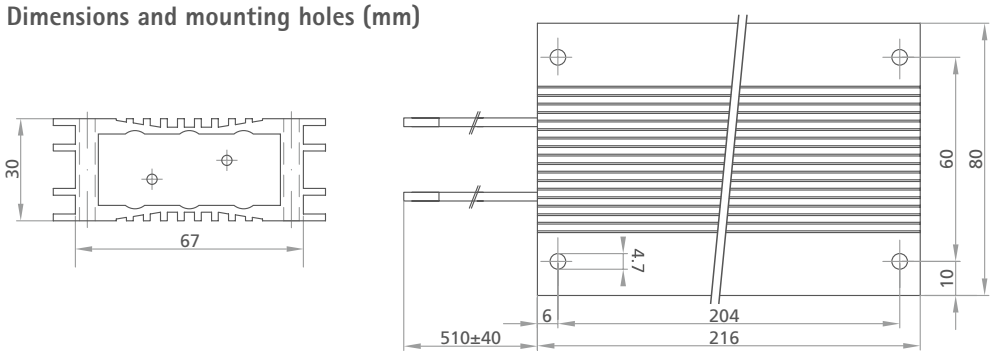

BWD600


BWG600


BWS600

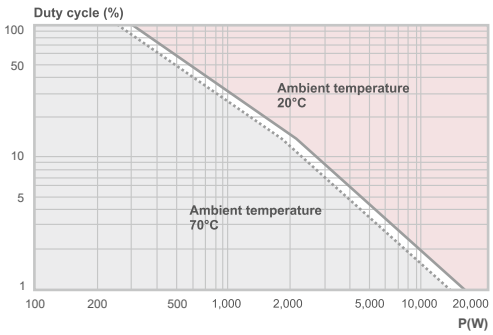

BWT600
without CSA and UL approval

Dimensions and mounting holes (mm)



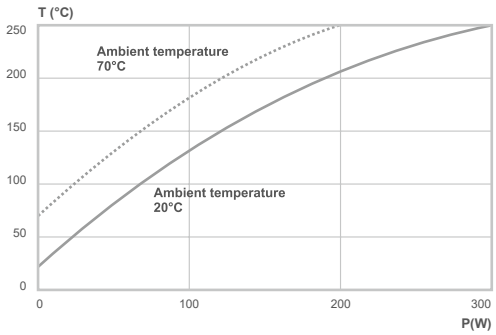
Pulse loading capacity

Brake resistor BWx600



Case temperature

Brake resistor BWx600
With duty cycle ED = 100%
Maximum permissible temperature T = 250 °C



* Test conditions: Water jet from nozzle 6.3 mm inside diameter, flow rate 12.5 l / min +/- 5%, water pressure according to volume flow, distance 2.5-3m, test duration 3min

Brake resistor
BWx1000

Short-circuit proof, „intrinsically safe" resistor for use in inverters (brake transistors) in an anodized aluminum case, IP65* protection class.

Rated power (W)
400 (1.000 with duty cycle ED = 35%, ϑ_A = 20°C)

Resistance (Ohm)
5, 10, 14, 18, 22, 27, 33, 47, 72, 80, 100, 150, 200, 220, 300

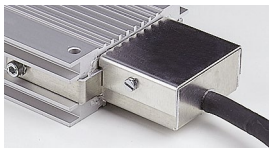
Dimensions (mm)
Enclosure: 216 x 80 x 30
Wiring: length 510±40
Ø AWG16 or 2.5 mm²
PTFE isolated, UL Style 1659

Technical specifications
(ϑ_A = 20°C, unless otherwise specified)

Parameter	Symbol	Value	Unit	Conditions
Tolerance (resistance)		± 5	%	Room temperature
Temperature coefficient	TK	20 ... 100	10^{-6}/K	
Insulation resistance	R_{ISO}	≥ 100	MΩ	U_{mess} = 1,000 VDC
Inductance	L	≤ 30	µH	f = 300 kHz, U_{mess} = 50 mV
Capacity against enclosure	C	≤ 300	pF	f = 300 kHz, U_{mess} = 50 mV
Thermal time constant	τ	approx. 850	s	
Weight	m	1,050	g	
Energy absorption	Q	13	kJ	with 1.2 s (1% duty cycle)
		26	kJ	with 7.2 s (6% duty cycle)
Maximum permissible operating voltage	U_B	≤ 700 AC	V	Taking into consideration the „intrinsic safety"
		≤ 1,000 DC	V	
Isolation voltage	U_{iso}	≥ 4,000 AC	V	f = 50 Hz; t = 1 s
Max. permissible case temp.	ϑ_C	≤ 300	°C	unobstructed convection
Storage temperature	ϑ_S	-25 ... +85	°C	

Versions

BWD1000

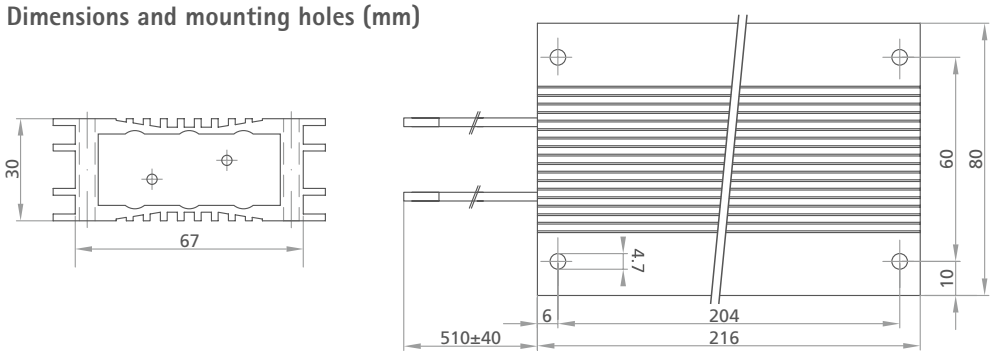


BWG1000

BWS1000

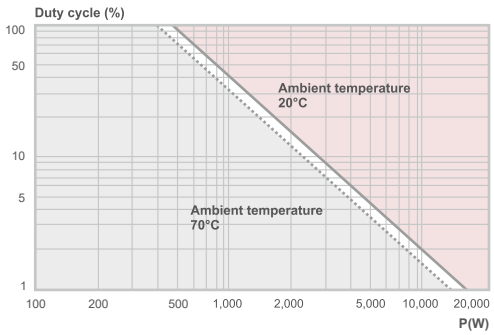
BWT1000

Dimensions and mounting holes (mm)



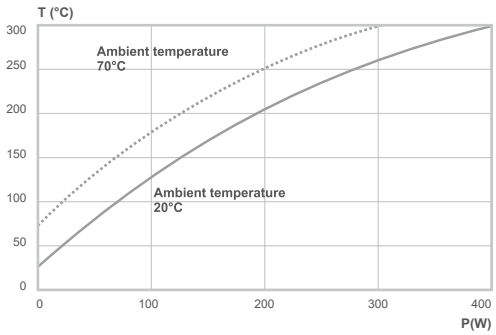
Pulse loading capacity

Brake resistor BWx1000



Case temperature

Brake resistor BWx1000
With duty cycle ED = 100%
Maximum permissible temperature T = 300 °C



* Test conditions: Water jet from nozzle 6.3 mm inside diameter, flow rate 12.5 l / min +/- 5%, water pressure according to volume flow, distance 2.5-3m, test duration 3min

Managing DC Energy

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We look forward to hearing from you!

Michael Koch GmbH, Zum Grenzgraben 28, D-76698 Ubstadt-Weiher
Phone (+49) 7251 / 96 26 200, Fax (+49) 7251 / 96 26 210
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