

Energizing Productivity CNC-Wood Working Machine

Situation:

A CNC-Wood Working Machine creates brake energy when changing tools and during the working process.

Problem:

Wood dust in combination with hot surfaces is a potential risk for fires. Brake resistors create heat when managing brake energy.

Intention:

The brake energy has to be managed safe and quick with an external brake resistor

furthermore safety standards require that the wood dust must not touch the heated brake resistor.

Solution:

- > Our resistor combination [BWKO.7005-600T](#) (720 Watt / 15 Ohm) consists of brake resistor modules in high protection class IP65. Additionally wired in an IP65-terminal box and integrated in a metal case.

Results:

1. The brake energy is handled safe and quick
2. The high protection class of the resistors in combination with the terminal box and housing in the metal case delivers additional safety and reduces the risk of fire

Further information:

[CNC-Wood Working](#)

We look forward to hearing from you!



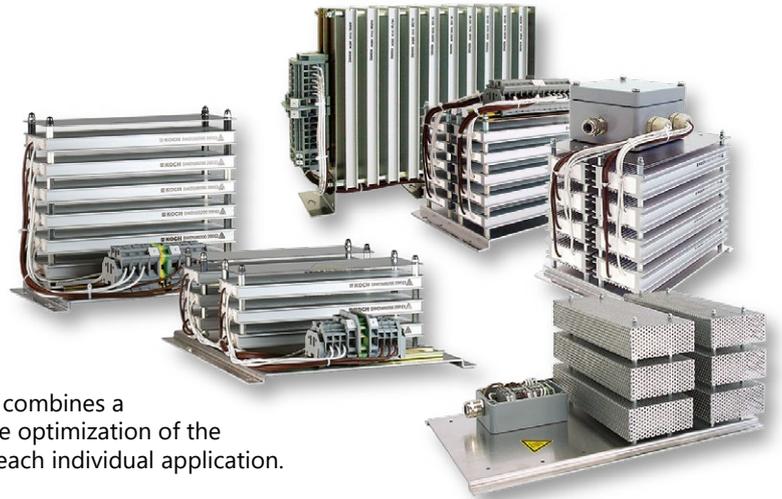
Managing braking energy

Our modular system for safe brake resistors

We manufacture resistor combinations by an extensive set of accessories for high performance applications.

The modular system is based on individual modules of the BWD series 250 to 1000 with nominal output of 100 to 400 watts.

In addition to its high performance, this modular system combines a compact design with extreme flexibility. This results in the optimization of the braking resistor in accordance with the specifications of each individual application.



Optimized to the requirements of your application:

- Required power - no „unnecessary over-dimensioning“
- Many resistance values – based on the inverters requirements
- Mechanical design – according to the existing installation space
- Assembly - horizontal or vertical
- Protection class IP 20 or IP 65¹ - according to installation location and environmental conditions
- Individual modules with UL and CSA standard approval
- Several braking resistors in a resistor combination, e.g. for moving and hoisting gear
- Optional: Temperature switch, strain relief, protective cover, etc.

Technical specifications of individual modules

($\vartheta_A = 20^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Value	Unit	Conditions
Tolerance (resistance)		± 5	%	Room temperature
Insulation resistance	R_{ISO}	≥ 100	$M\Omega$	$U_{mess} = 1,000\text{ VDC}$
Inductance	L	≤ 30	μH	$f = 300\text{ kHz}, U_{mess} = 50\text{ mV}$
Capacity against enclosure	C	≤ 300	pF	$f = 300\text{ kHz}, U_{mess} = 50\text{ mV}$
Thermal time constant	τ	approx. 550	s	BWD250/500
	τ	approx. 600	s	BWD600
	τ	approx. 850	s	BWD1000
Energy absorption BWD250	Q	4	kJ	with 1.2 s (1% duty cycle)
		8	kJ	with 7.2 s (6% duty cycle)
Energy absorption BWD500	Q	7,5	kJ	with 1.2 s (1% duty cycle)
		15	kJ	with 7.2 s (6% duty cycle)
Energy abs. BWD600/1000	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	$\leq 700\text{ AC}$	V	Taking into consideration the „intrinsic safety“ ²
		$\leq 1,000\text{ DC}$	V	according to CSA and UL
		$\leq 600\text{ AC}$	V	
		$\leq 848\text{ DC}$	V	
Isolation voltage	U_{iso}	$\geq 4,000\text{ AC}$	V	$f = 50\text{ Hz}; t = 1\text{ s}$
Max. permissible case temp.	ϑ_C	≤ 250	$^\circ\text{C}$	unobstructed convection
	ϑ_C	≤ 300	$^\circ\text{C}$	unobstructed conv. (BWD1000)
Storage temperature	ϑ_S	-25 ... +85	$^\circ\text{C}$	

¹ 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.

² With fourfold type power and free convection. 1. no short-circuit, 2. no fault to frame, 3. self-extinguishing, 4. no melting of casing. Type power always corresponds to 35% duty cycle of the respective resistor type.



We look forward to hearing from you!



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Brake resistor combination BWK...

Short-circuit-proof, „intrinsically safe“² resistor combination for operation with drive controllers (brake transistors), consisting of numerous single resistor modules of the 500/600/1000 series, installed in a protective housing.

These combinations of resistors are distinguished by their compact design and additional protection against external factors and are only suitable for wall-mounted applications. Available in protection class IP20 and IP65¹.



Rated power (kW)
0.2 - 2.4 or upon request

Technical specifications
The technical data can be found on page 2 of this document.

Resistance (Ohm)
0.8 - 5,580 or upon request

Dimensions and mounting holes (mm)

Dimensions (mm)
465 x 310 x 123
420 x 160 x 107
530 x 160 x 107

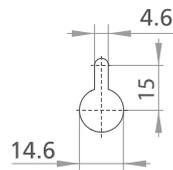
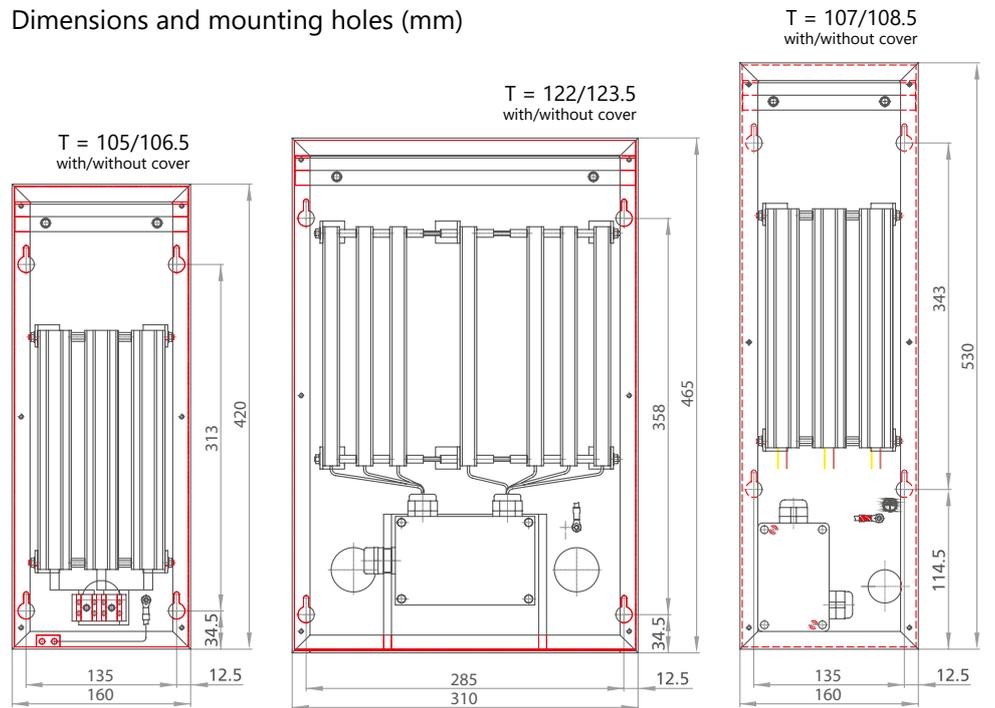
Individual solutions



Brake resistor combination in an enclosure to IP20

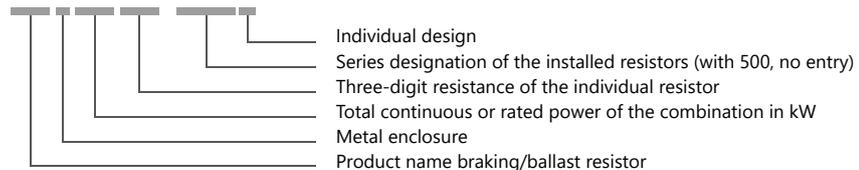


Brake resistor combination in an enclosure to IP65¹



Nomenclature Brake resistor combination BWK...

BWK2.0047-1000H



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