

# Register Braking Resistors

1 – 30 kW, DB / 10 – 300 kW, KB

Series BW 600  
Type BW 601/...  
Type BW 602/...

## Applications:

Braking resistors are used with inverters, driving motors with a dynamic load that requires to be stopped quickly such as lifts, cranes or high-speed mechanisms.

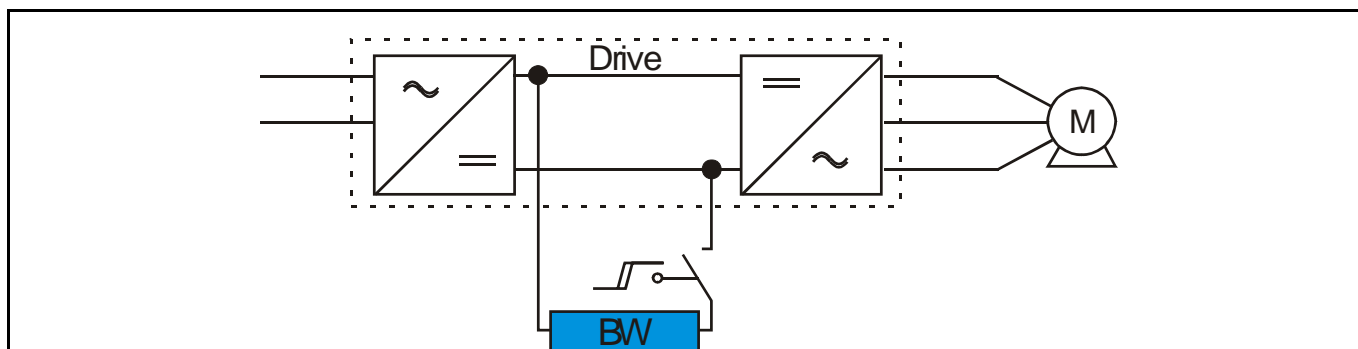
The braking resistor is connected in the DC link, between the rectifier and the switching semiconductors. When the DC voltage rises, to a pre-selected limit, a chopper circuit switches in the braking resistor thereby allowing excess energy to be “dumped” in the form of heat, instead of causing damage to the inverter.

When the DC level drops to a lower preset minimum limit the braking resistor is switched out of circuit until it is required again.



Protection IP 20...IP 22	Test voltage 3.5 kV
Max. temperature 300 °C	Ambient temperature -10...+40 °C

## Circuit example



## Benefits:

- Decelerating a load with large inertia
- Increase the control torque of the inverter
- For frequently repeated ON/OFF cycles
- Compact construction
- Easy installation
- Suitable for the use with any frequency drive
- Compact design
- Continuous power: Max. 300kW
- High temperature wire
- CE Marked
- DIN 41 480 compliant

## Technical Data

Natural cooling		Forced cooling			
Type	Continuous power [W]	Type	Continuous power [W]	Resistance values [Ω]	Max. Operating voltage [V]
BW 601/1/R[Ω]	1000	BW 602/1.5/R[Ω]	1500	1.6 – 660	1000
BW 601/2/R[Ω]	2000	BW 602/3/R[Ω]	3000	0.8 – 330	
BW 601/3/R[Ω]	3000	BW 602/4.5/R[Ω]	4500	0.6 – 220	
BW 601/4/R[Ω]	4000	BW 602/6/R[Ω]	6000	0.4 – 160	
BW 601/5/R[Ω]	5000	BW 602/7.5/R[Ω]	7500	0.33 – 130	
BW 601/7.5/R[Ω]	7500	BW 602/11/R[Ω]	11000	0.23 – 90	
BW 601/10/R[Ω]	10000	BW 602/15/R[Ω]	15000	0.17 – 65	
BW 601/12.5/R[Ω]	12500	BW 602/19/R[Ω]	19000	0.13 – 50	
BW 601/15/R[Ω]	15000	BW 602/22.5/R[Ω]	22500	0.11 – 44	
BW 601/17.5/R[Ω]	17500	BW 602/26/R[Ω]	26000	0.1 – 38	
BW 601/20/R[Ω]	20000	BW 602/30/R[Ω]	30000	0.09 - 33	

Resistance values conforming to E 6

Other power ratings on request

Option: Connecting strands

Low-inductance winding

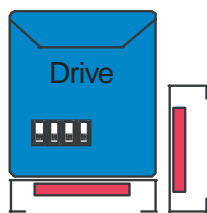
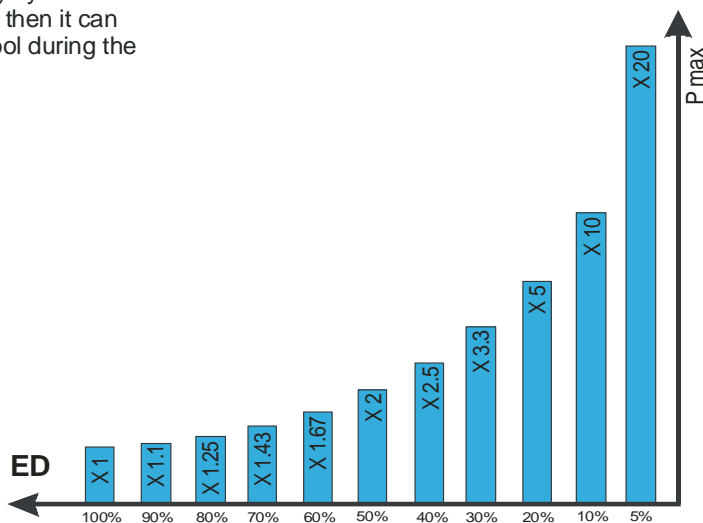
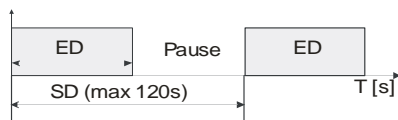
### Power Rating Calculation

A braking resistor is selected according to the systems duty cycle requirements. If the resistor is not being used continuously then it can be used for a higher power rating because it has time to cool during the "rest" period. To calculate, the following formula is used:

$$P_{\max} = \frac{P \times 100}{ED [\%]}$$

$$ED\% = \frac{ED[s]}{SD[s]} \times 100$$

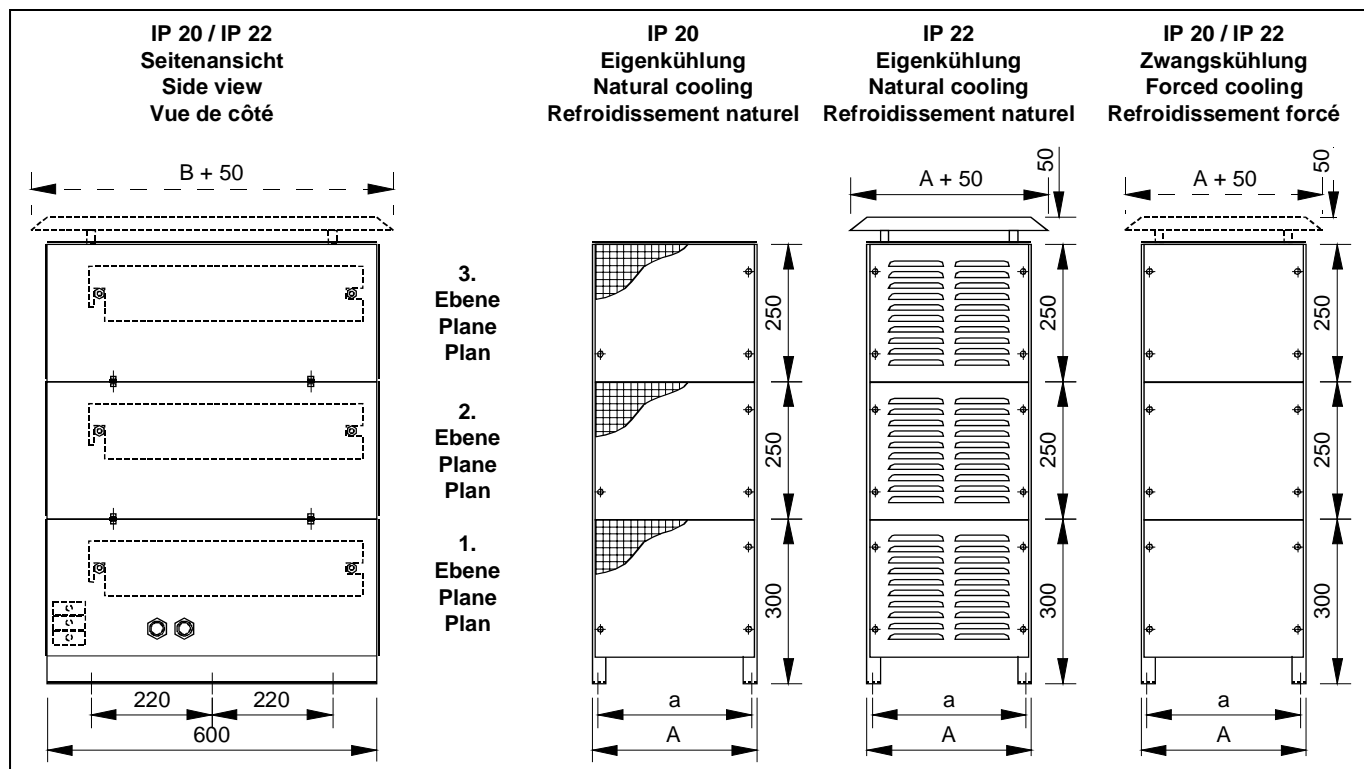
Where ED = Duty Cycle  
SD = Cycle time



REO-USA, Inc. can offer virtually any braking resistor design to suit any frequency drive, with optional mounting methods: such as footprint, book style, or compact. The footprint version is particularly useful for retrofit applications because no extra panel space is required. Most constructions are in a modular form that is easy to install.

Additional forced air cooling can be fitted to some versions and this greatly increases their power rating, or alternatively enables use within a confined space, such as an IP65 enclosure for food quality or clean room applications.

## Dimension Drawing



Type		Dimensions				
Natural cooling	Forced cooling	Number registers	Number Planes	A [mm]	a [mm]	Total height [mm]
BW 601/1/R[Ω]	BW 602/1.5/R[Ω]	1	1	270	240	300
BW 601/2/R[Ω]	BW 602/3/R[Ω]	2				
BW 601/3/R[Ω]	BW 602/4.5/R[Ω]	3				
BW 601/4/R[Ω]	BW 602/6/R[Ω]	4				
BW 601/5/R[Ω]	BW 602/7.5/R[Ω]	6				
BW 601/7.5/R[Ω]	BW 602/11/R[Ω]	8				
BW 601/10/R[Ω]	BW 602/15/R[Ω]	12	2	470	440	550
BW 601/12.5/R[Ω]	BW 602/19/R[Ω]	15	570	540		
BW 601/15/R[Ω]	BW 602/22.5/R[Ω]	18	3	470	440	800
BW 601/17.5/R[Ω]	BW 602/26/R[Ω]	21		570	540	
BW 601/20/R[Ω]	BW 602/30/R[Ω]	24		570	540	