

12 Braking Resistors

The following table shows the available integrated braking resistors:

MOVIMOT® / MOVFIT® FC	Braking resistor	Part number
MM03D-503-00 – MM15D-503-00 MM03D-233-00 – MM07D-233-00	BW1	0 822 897 3 ¹⁾
MM22D-503-00 – MM40D-503-00 MM11D-233-00 – MM22D-233-00	BW2	0 823 136 2 ¹⁾
MTF11A003 – MTF11A015	BW1	1 820 705 7
MTF11A003 – MTF11A040	BW2	1 820 754 5

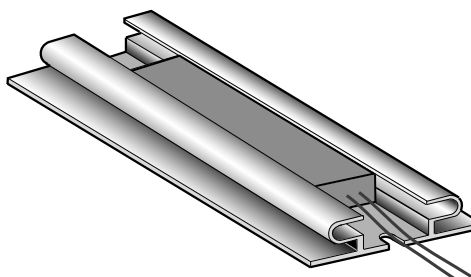
1) Two screws M4 x 8, included in scope of delivery

The following table shows the available external braking resistors:

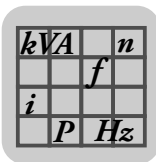
MOVIMOT® / MOVFIT® FC	Braking resistor	Part number	Protective grid
MM03D-503-00 – MM15D-503-00 MM03D-233-00 – MM07D-233-00 MTF11A003 – MTF11A015	BW200-003/K-1.5	0 828 291 9	0 813 152 X
	BW200-005/K-1.5	0 828 283 8	–
	BW150-006/T	1 796 956 5	–
MM22D-503-00 – MM40D-503-00 MM11D-233-00 – MM22D-233-00 MTF11A022 – MTF11A040	BW100-003/K-1.5	0 828 293 5	0 813 152 X
	BW100-005/K-1.5	0 828 286 2	–
	BW068-006/T	1 797 000 8	–
	BW068-012/T	1 797 001 6	–

12.1 4Q operation with integrated BW.. braking resistor

- 4Q operation with integrated braking resistor is recommended for applications in which the level of regenerative energy is low.
- The resistor protects itself (reversible) against regenerative overload by changing abruptly to high resistance and no longer consuming any more energy. The inverter then switches off and signals an overvoltage error (error code 04).



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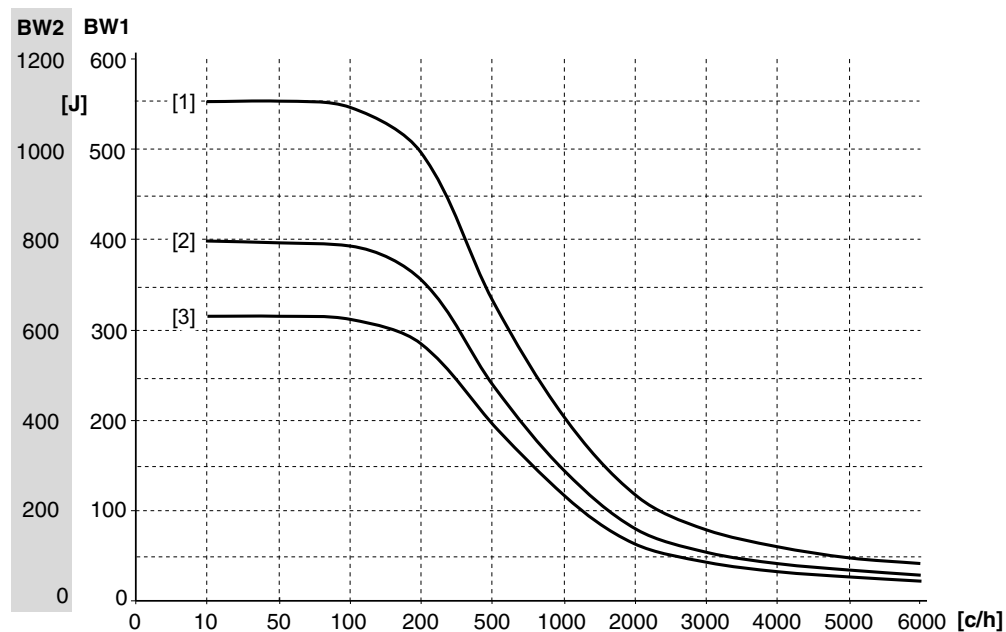


Braking Resistors

4Q operation with integrated BW.. braking resistor

12.1.1 Regenerative load capacity of internal braking resistors

The following figure shows the regenerative load capacity of the internal braking resistors:



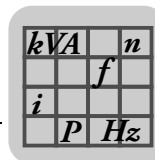
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[c/h] Cycles/hour

[1] Brake ramp 10 s

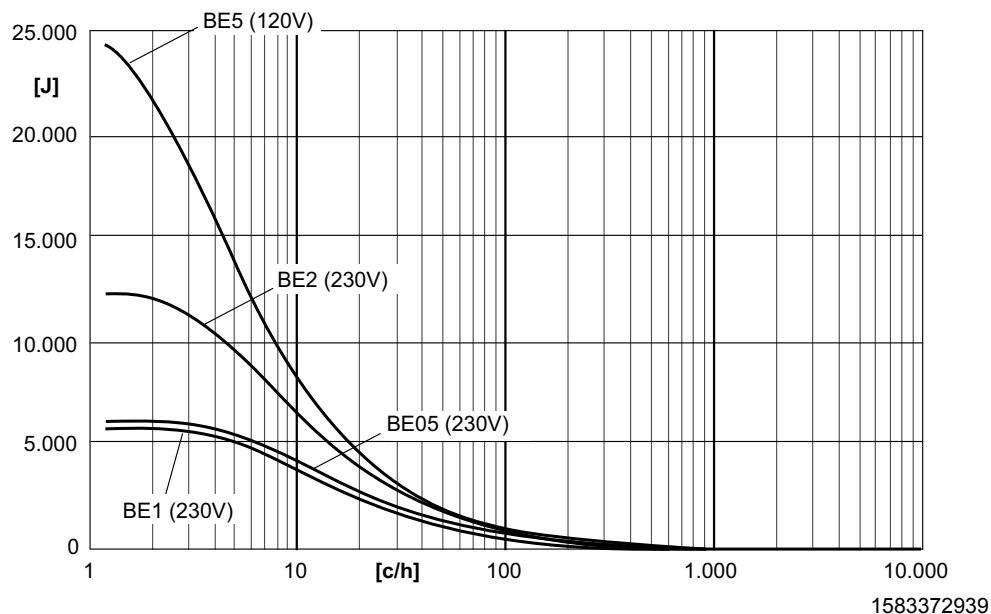
[2] Brake ramp 4 s

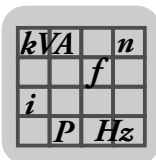
[3] Brake ramp 0.2 s



12.2 4Q operation for motors with mechanical brake

- The brake coil can be used as a braking resistor in 4-Q operation.
- Brake voltage is generated internally within the unit, which means it is mains-independent.
- Should the regenerative load capacity not be sufficient for the application, refer to section "4Q operation with integrated brake and external brake resistor" (page 302):
- The following figure shows the load capacity of the DR motor brake coils:





Braking Resistors

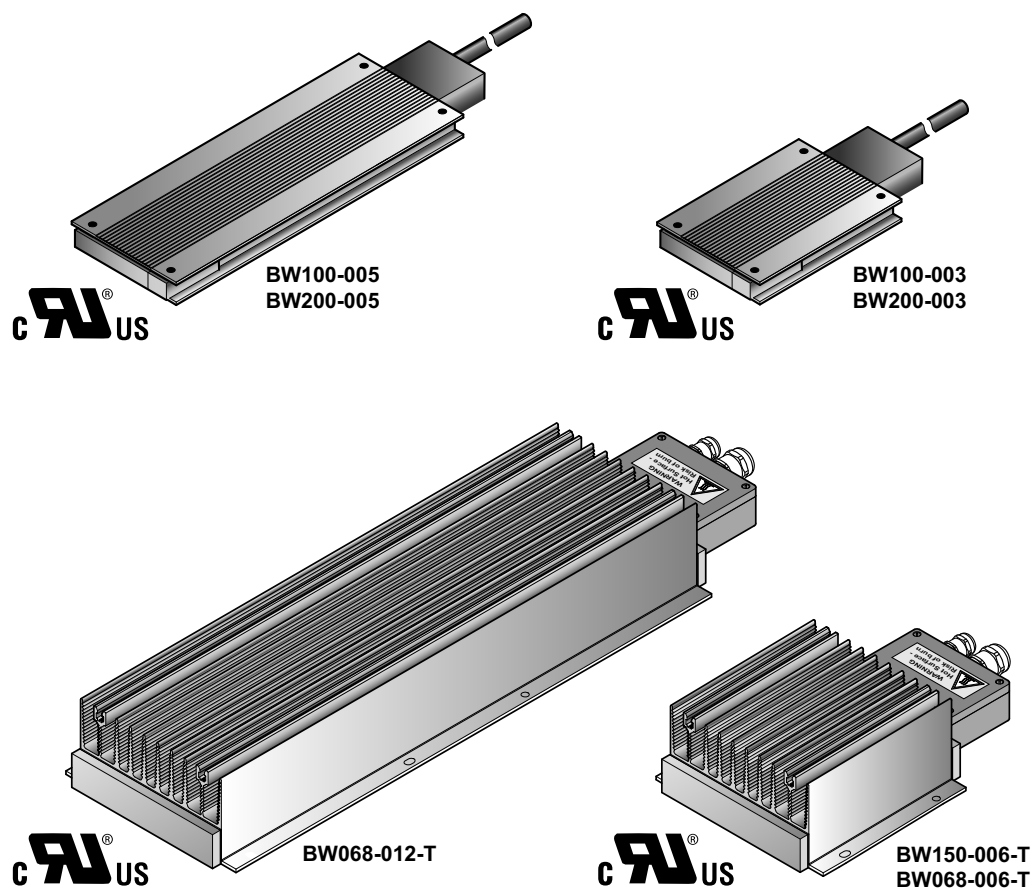
4Q operation with integrated brake and external braking resistor

12.3 4Q operation with integrated brake and external braking resistor

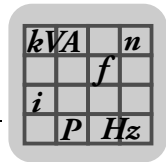
4Q operation with external braking resistor is necessary for applications with a large amount of regenerative energy.

12.3.1 Overview

The following figure gives an overview of the external braking resistors:

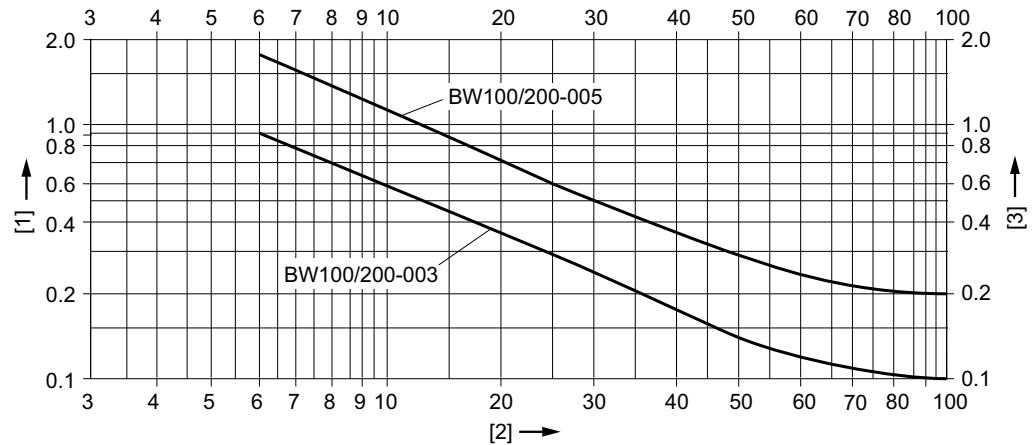


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12.3.2 Power diagrams BW100-003, BW200-003, BW100-005 and BW200-005

The following figure shows the rating diagrams of braking resistors BW100-003, BW200-003, BW100-005 and BW200-005

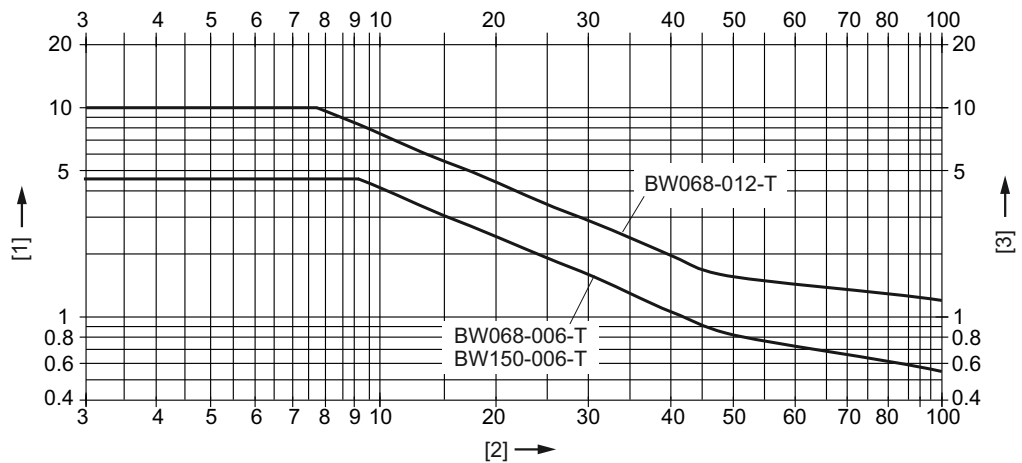


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- [1] Short-term braking power in kW
- [2] Cyclic duration factor cdf in %
- [3] Continuous power 100% cdf in kW

12.3.3 Rating diagrams for BW150-006-T, BW068-006-T and BW068-012-T according to UL approval

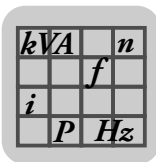
The following figure shows the rating diagrams of braking resistors BW150-006-T, BW068-006-T and BW068-012-T according to UL approval:



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- [1] Short-term braking power in kW
- [2] Cyclic duration factor cdf in %
- [3] Continuous power 100% cdf in kW

cdf = Cyclic duration factor of the braking resistor in relation to a cycle duration $T_D \leq 120$ s.

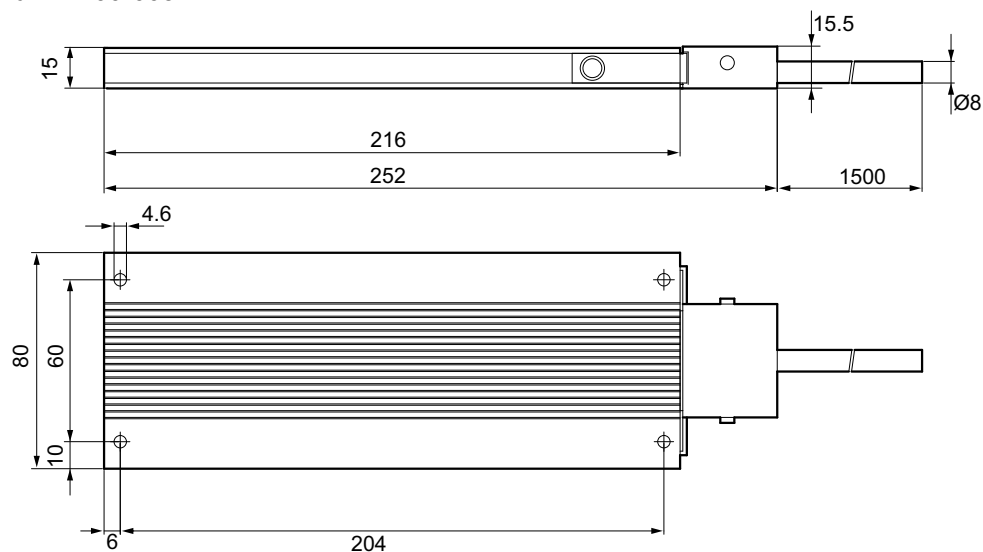


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4Q operation with integrated brake and external braking resistor

12.3.4 Dimension drawing for BW100-005 and BW200-005

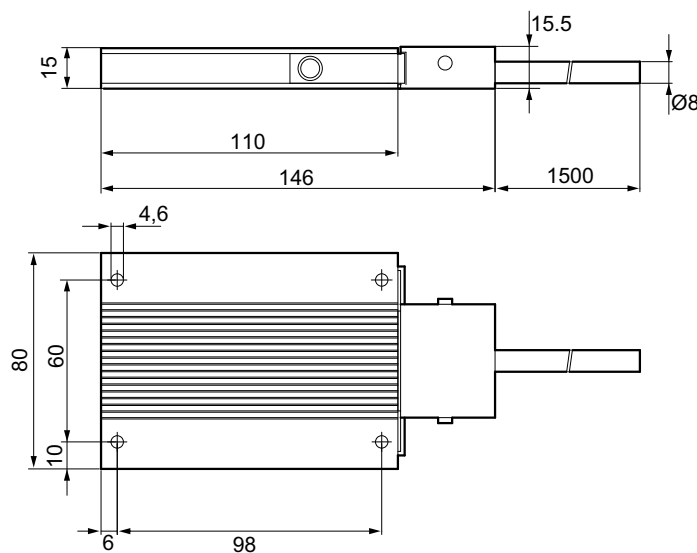
The following figure shows the dimensions of the external braking resistors BW100-005 and BW200-005:



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12.3.5 Dimension drawing for BW100-003 and BW200-003

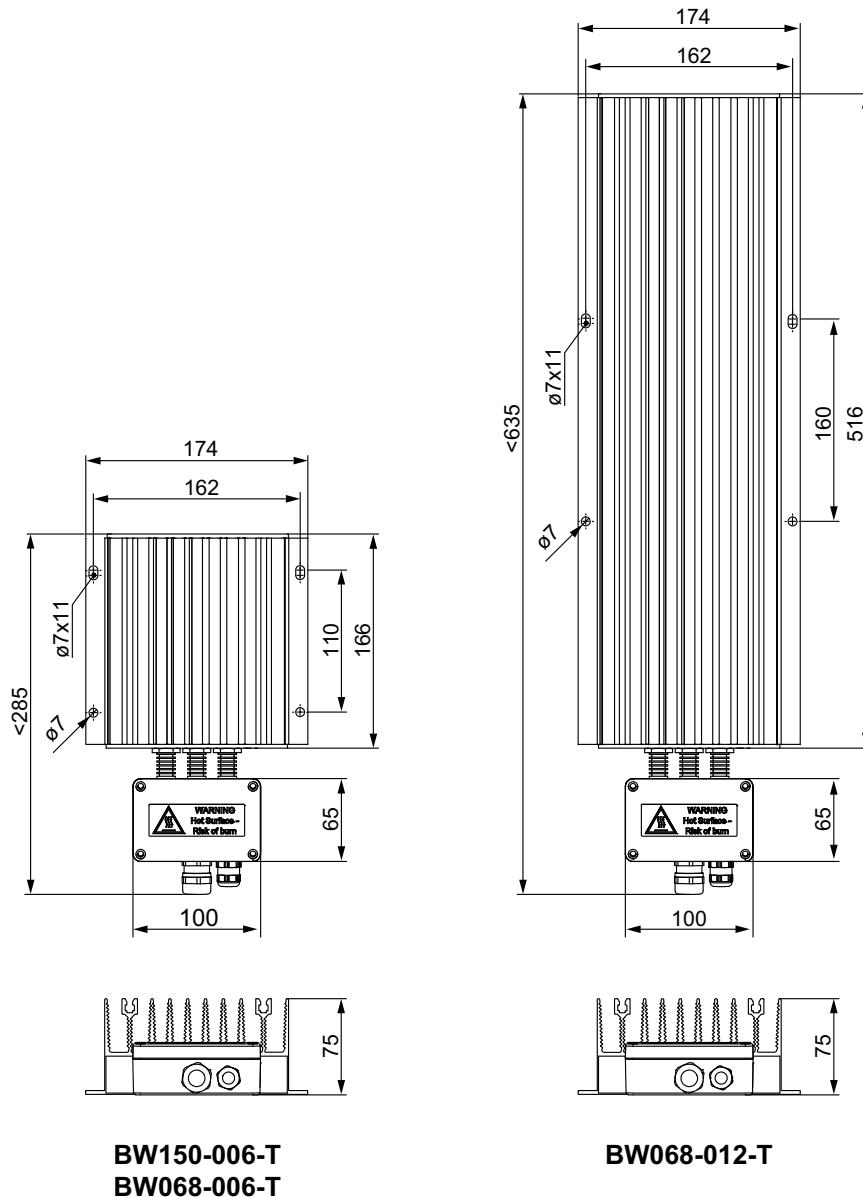
The following figure shows the dimensions of the external braking resistors BW100-003 and BW200-003:



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12.3.6 Dimension drawing for BW150-006-T, BW068-006-T and BW068-012-T

The following figure shows the external braking resistors BW150-006-T, BW068-006-T and BW068-012-T ¹⁾:



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1) The braking resistor is equipped with a temperatures sensor.