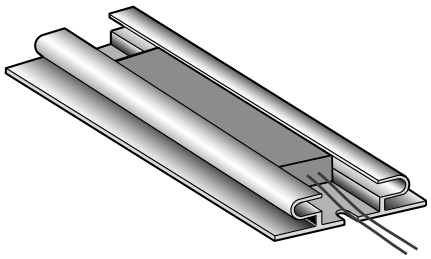
11 Braking Resistors

11.1 4Q operation with integrated braking resistor BW..

- 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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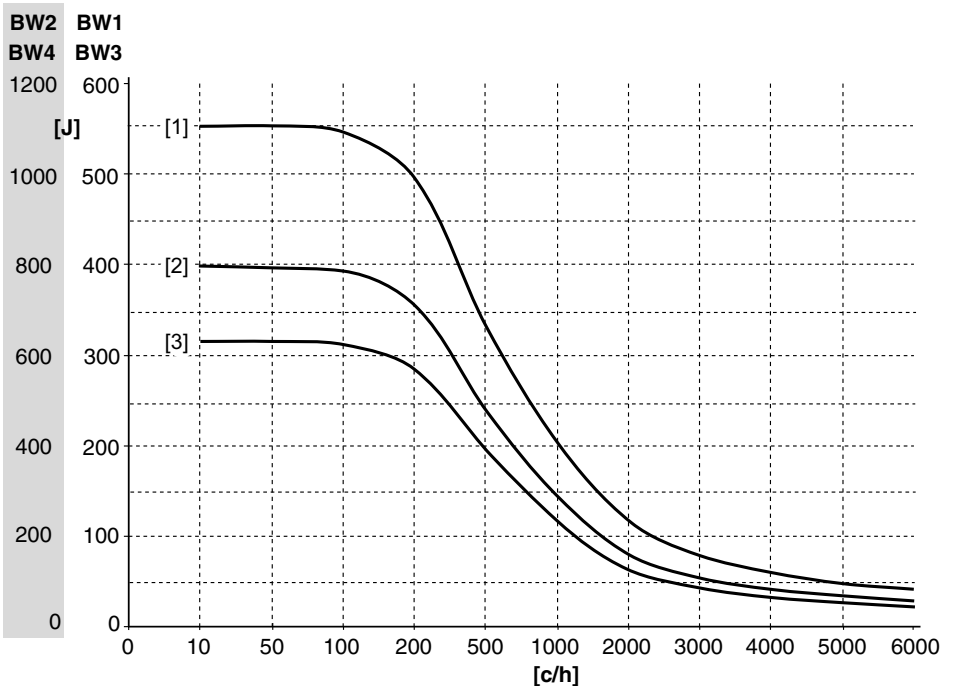
11.1.1 Regenerative load capacity of internal braking resistors

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



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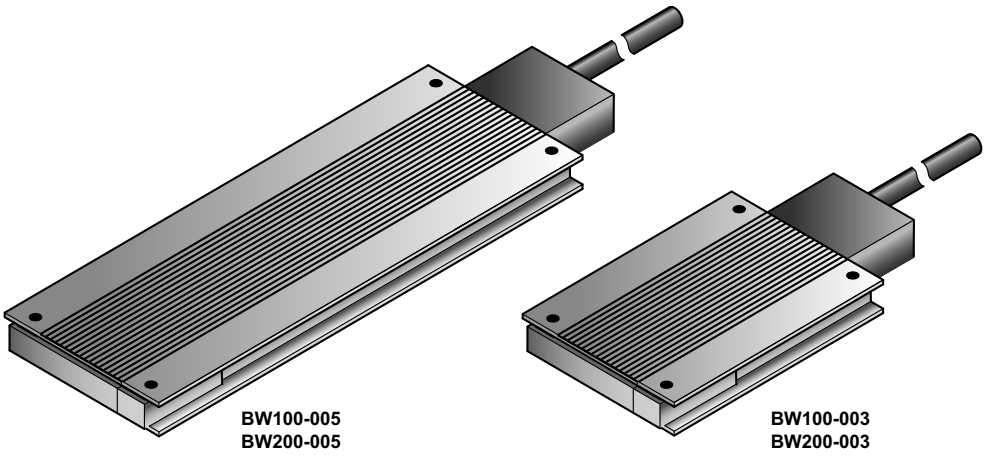
[c/h] Cycles per hour
[1] Brake ramp 10 s
[2] Brake ramp 4 s
[3] Brake ramp 0.2 s

11.2 4Q operation with brake and external braking resistor

4Q operation with external braking resistor is recommended for applications in which the level of regenerative energy is high.

11.2.1 Overview

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



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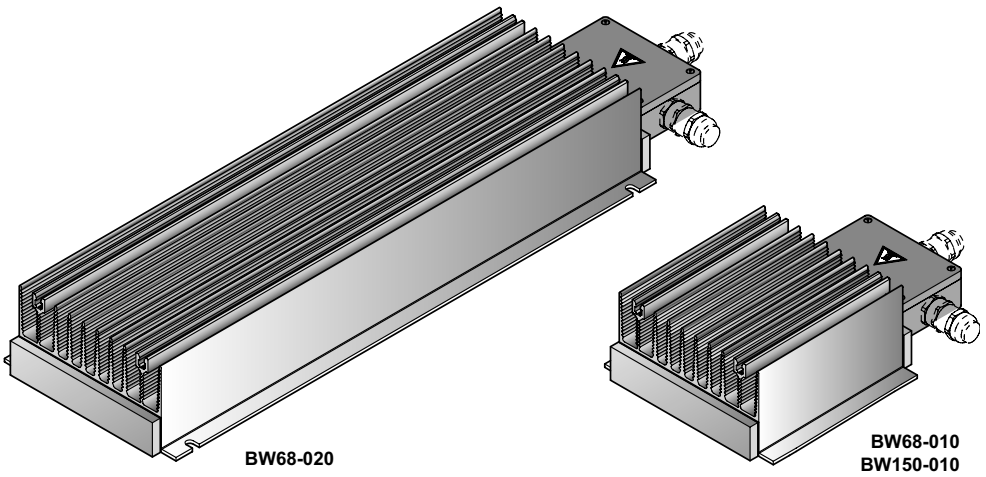

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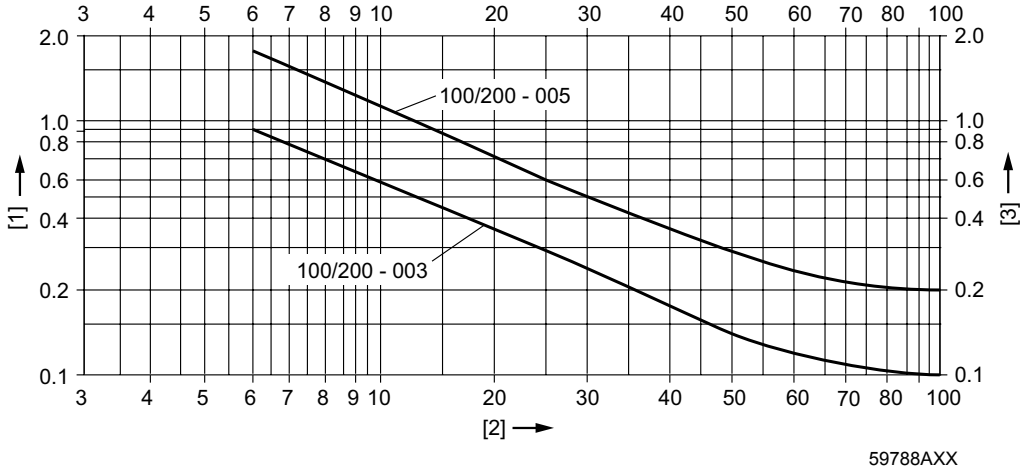
11.2.2 Power diagrams BW100-003, BW200-003, BW100-005 and BW200-005

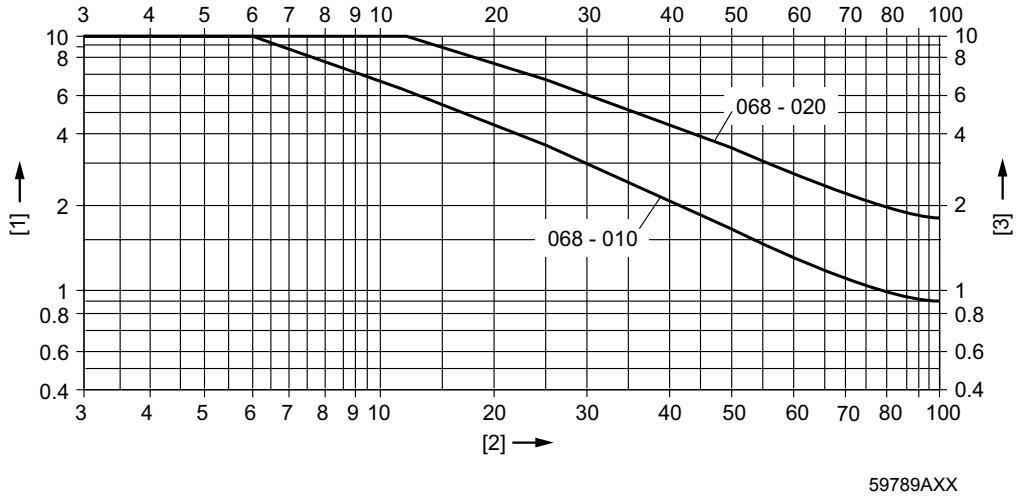
The following figure shows the power diagrams of braking resistors BW100-003, BW200-003, BW100-005 and BW200-005



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

11.2.3 Power diagrams of BW068-010 and BW068-020

The following figure shows the power diagrams of braking resistors BW068-010 and BW068-020:

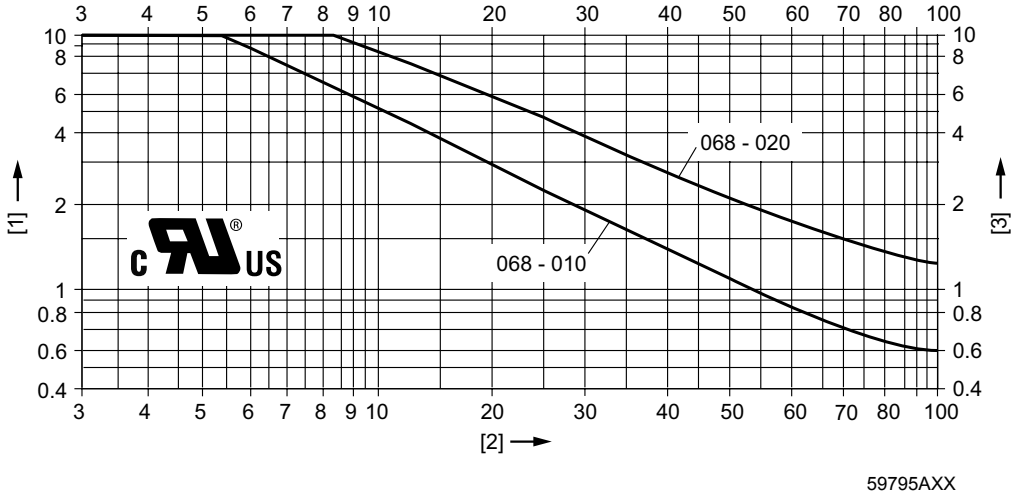


[1] Short-time power in kW
[2] Cyclic duration factor cdf in %
[3] Continuous power 100 % cdf in kW

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

11.2.4 Power diagrams of BW068-010 and BW068-020 according to UL approval

The following figure shows the power diagrams of braking resistors BW068-010 and BW068-020 according to UL approbation:

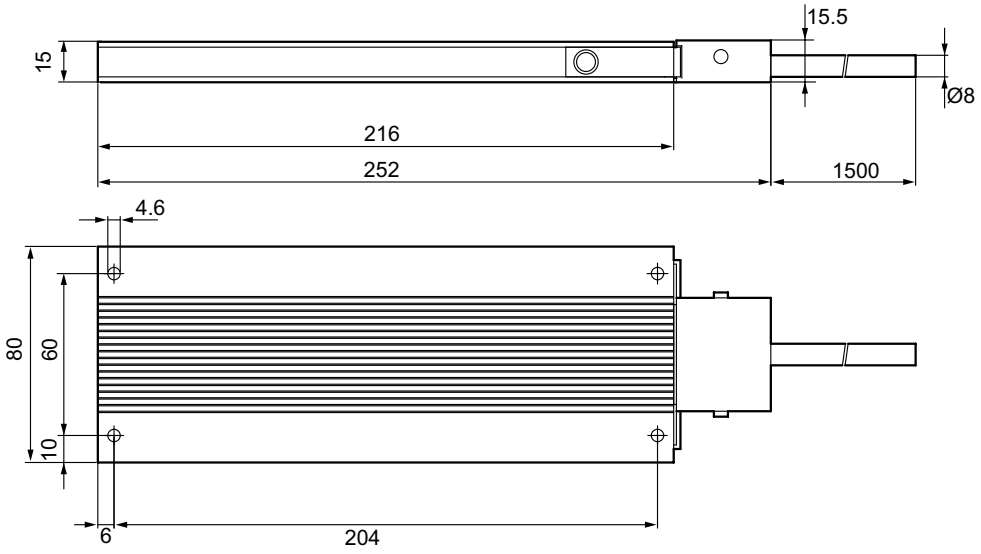


[1] Short-time power in kW
[2] Cyclic duration factor cdf in %
[3] Continuous power 100 % cdf in kW

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

11.2.5 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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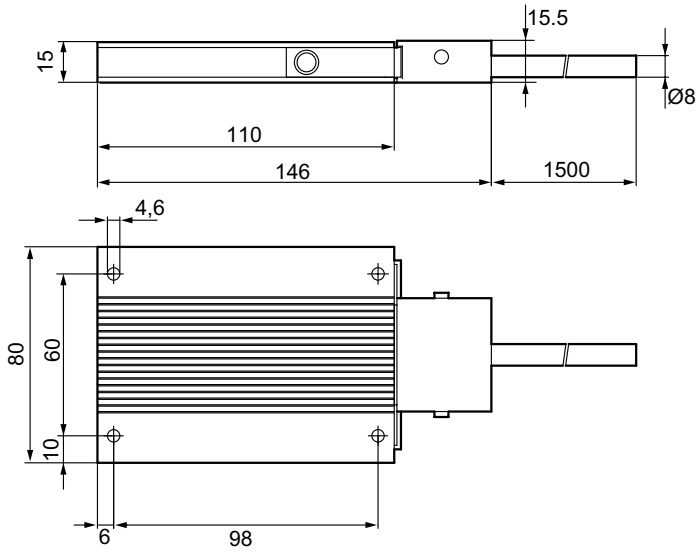
11.2.6 Dimension drawing for BW100-003 and BW200-003

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



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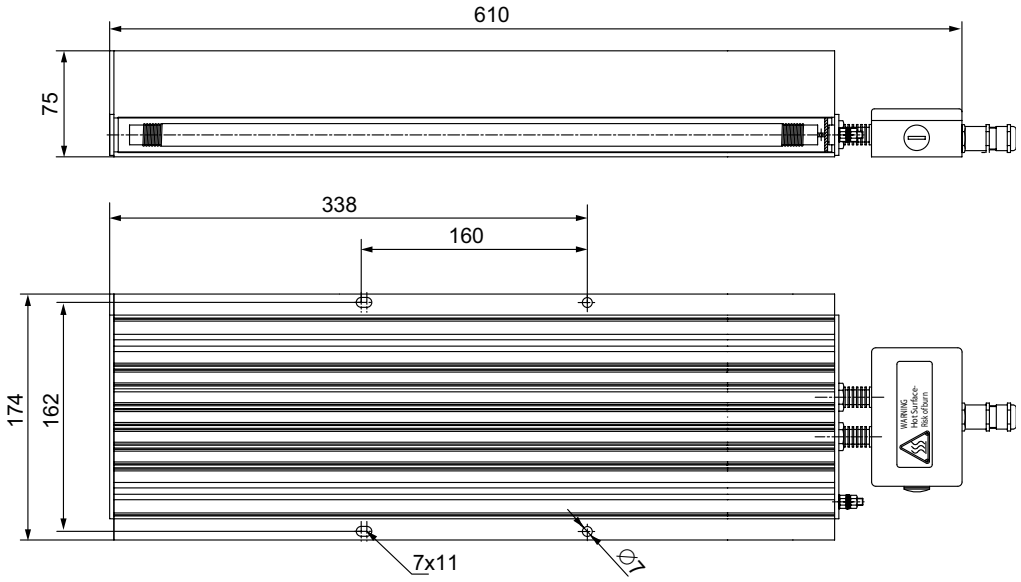
11.2.7 Dimension drawing for external braking resistor BW68-020

The following figure shows the dimensions of the external braking resistor BW68-020:



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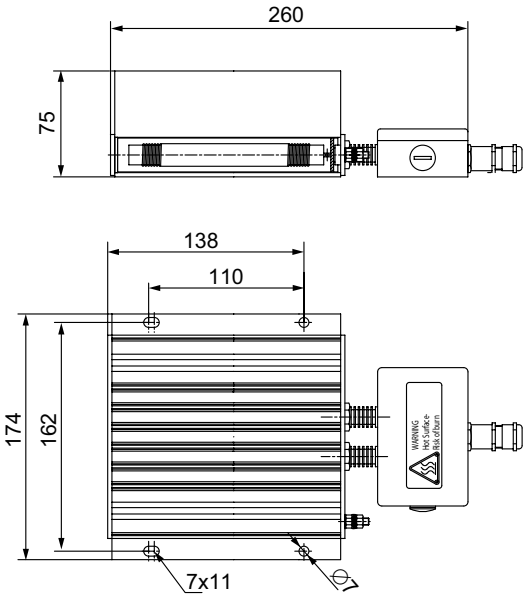
11.2.8 Dimension drawing for external braking resistors BW68-010 and BW150-010:

The following figure shows the dimensions of the external braking resistors BW68-010 and BW150-010:



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