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# Brake resistors

For frequency and servo inverters



# Well braked

For regenerative operation over a longer period of time or if large moments of inertia have to be braked, an external brake resistor is required in many applications. This converts the excess braking energy into heat.

The brake resistor is connected if the DC-bus voltage of the inverter exceeds the switching threshold. This prevents the controller from setting pulse inhibit through the "Overvoltage" fault and the drive from coasting down. The external brake resistor serves to control the braking process at any time.

Lenze offers you a wide range of brake resistors for optimum system design.



## ERBG

- For side mounting IP20
- 1900 ... 34000 W



## ERBM

- For side mounting IP20/IP23/IP54
- 20 ... 150 W



## ERBP

- For side mounting IP21
- 200 ... 300 W



## ERBS

- For side mounting IP66
- 150 ... 6300 W



#### ERBG

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**Power range**

- 1900 ... 34000 W

**Resistance range**

- 2.8 ... 15  $\Omega$

**Degree of protection**

- IP20

**Approvals**

- CE; UR for USA and Canada

**Housing**

- Steel grid

**Mounting**

- Side mounting

**Connection system**

- Terminal box

**Temperature monitoring**

- Thermal contact

**Ambient temperature during operation**

- 3K3 (-10 ... +55 °C) EN 60721-3-3 (derating of 1 %/°C above +45 °C)



#### ERBM

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**Power range**

- 86 ... 800 W

**Resistance range**

- 20 ... 390  $\Omega$

**Degree of protection**

- IP20/IP23; IP54

**Approvals**

- CE; UR for USA and Canada

**Housing**

- Aluminum profile

**Mounting**

- Side mounting

**Connection system**

- Assembled connecting cable 500 mm/700 mm

**Temperature monitoring**

- Thermal contact

**Ambient temperature during operation**

- 3K3 (-10 ... +55 °C) EN 60721-3-3 (derating of 2.5 %/°C above +45 °C)



#### ERBP

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**Power range**

- 200 ... 300 W

**Resistance range**

- 18 ... 180  $\Omega$

**Degree of protection**

- IP23

**Approvals**

- CE; UR for USA and Canada

**Housing**

- Aluminum profile

**Mounting**

- Side mounting

**Connection system**

- Assembled connecting cable 500 mm

**Temperature monitoring**

- Thermal contact

**Ambient temperature during operation**

- 3K3 (-10 ... +55 °C) EN 60721-3-3 (derating of 2.5 %/°C above +45 °C)



#### ERBS

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**Power range**

- 1900 ... 34000 W

**Resistance range**

- 2.8 ... 15  $\Omega$

**Degree of protection**

- IP66

**Approvals**

- CE; UR for USA and Canada

**Housing**

- Aluminum profile

**Mounting**

- Side mounting

**Connection system**

- Terminal box

**Temperature monitoring**

- Thermal contact

**Ambient temperature during operation**

- 3K3 (-10 ... +55 °C) EN 60721-3-3 (derating of 1 %/°C above +45 °C)

# Technical data

## ERBG

|                       |           |  |   |
|-----------------------|-----------|--|---|
| Conformity            | CE        | 2006/95/EG<br>2014/35/EU               | Low-Voltage Directive   |
|                       | EAC       | TP TC 020/2011<br>(TR ZU 020/2011)     | Eurasian conformity: Electromagnetic compatibility of technical means                           |
|                       | EAC       | TP TC 004/2011<br>(TR ZU 004/2011)     | Eurasian conformity: Safety of low voltage equipment  |
| Approval              | UR        | UL508                                  | Industrial Control Equipment, Underwriter Laboratories<br>(File-No. E221095) for USA and Canada |
| Degree of protection  | EN        | EN 60529                               | IP20  |
|                       | NEMA      | NEMA 250                               | Type 1, only protection against accidental contact  |
| Ambient conditions    | Storage   | IEC/EN 60721-3-1                       | 1K3 (-25 ... +60 °C)  |
|                       | Transport | IEC/EN 60721-3-2                       | 2K3 (-25 ... +70 °C)  |
|                       | Operation | IEC/EN 60721-3-3                       | 3K3 (-10 ... +55 °C)<br>+45 ... +55 °C: Current derating 1 %/°C                                 |
| Installation altitude |           |  | 0 ... 4000 m amsl   |
|                       |           |  | 1000 ... 4000 m amsl: Current derating 5 %/1000 m   |
| Vibration resistance  |           | EN 50178,                              | Acceleration resistant up to 0.7 g  |
|                       |           | IEC 61800-5-1                          |   |
|                       |           | Germanischer Lloyd, general conditions |   |
| Mounting position     | Standard  |  | Horizontally standing   |
|                       | Variant   |  | Vertically suspended with connecting cables at the bottom                                       |

| Order code   | R <sub>B</sub> | P <sub>D</sub> | Q <sub>B</sub> | V <sub>max</sub> | m    | H x W x D        | Material number |  |  |
|--|----------------|----------------|----------------|------------------|------|------------------|-----------------|--|--|
|  | [Ω]            | [W]            | [kW]           | [V DC]           | [kg] | [mm]             |                 |  |  |
| <b>Brake resistor for installation in housings</b> |                |                |                |                  |      |                  |                 |  |  |
| ERBG023D05K6                                       | 2.3            | 5600           | 840            | 1000             | 15.9 | 302 x 486 x 426  | 13598296        |  |  |
| ERBG028D04K1                                       | 2.8            | 4100           | 615            | 1000             | 12.8 | 302 x 486 x 426  | 13598297        |  |  |
| ERBG028D11K0WBN000                                 | 2.8            | 11000          | 1650           | 1000             | 28   | 302 x 486 x 736  | 13598315        |  |  |
| ERBG028D34K0WBN000                                 | 2.8            | 34000          | 5100           | 1000             | 90   | 1020 x 486 x 736 | 13598316        |  |  |
| ERBG035D03K3                                       | 3.5            | 3300           | 495            | 1000             | 12.6 | 302 x 486 x 326  | 13598298        |  |  |
| ERBG005R02K6                                       | 5              | 2600           | 390            | 1000             | 11.0 | 302 x 486 x 326  | 13598148        |  |  |
| ERBG005R10K0WBN000                                 | 5              | 10000          | 1500           | 1000             | 26.7 | 302 x 486 x 736  | 13598312        |  |  |
| ERBG005R22K0WBN000                                 | 5              | 22000          | 3300           | 1000             | 54   | 600 x 486 x 736  | 13598313        |  |  |
| ERBG005R27K0WBN000                                 | 5              | 27000          | 4050           | 1000             | 68   | 1020 x 486 x 636 | 13598314        |  |  |
| ERBG075D01K9                                       | 7.5            | 1900           | 285            | 1000             | 9.5  | 302 x 486 x 236  | 13598301        |  |  |
| ERBG075D04K5WBN000                                 | 7.5            | 4500           | 675            | 1000             | 15   | 1020 x 486 x 636 | 13598317        |  |  |
| ERBG075D15K0WBN000                                 | 7.5            | 15000          | 2250           | 1000             | 38   | 600 x 486 x 526  | 13598318        |  |  |
| ERBG012R01K9                                       | 12             | 1900           | 285            | 1000             | 9.5  | 302 x 486 x 236  | 13598270        |  |  |
| ERBG012R05K2                                       | 12             | 5200           | 780            | 1000             | 15.1 | 302 x 486 x 426  | 13598271        |  |  |
| ERBG015R03K3                                       | 15             | 3300           | 495            | 1000             | 12.6 | 302 x 486 x 326  | 13598292        |  |  |
| ERBG015R06K2                                       | 15             | 6200           | 930            | 1000             | 17.0 | 302 x 486 x 526  | 13598293        |  |  |
| ERBG015R10K0                                       | 15             | 10000          | 34000          | 1000             | 22.0 | 302 x 486 x 736  | 13598294        |  |  |
| ERBG018R04K3                                       | 18             | 4300           | 645            | 1000             | 13.5 | 302 x 486 x 426  | 13598295        |  |  |

















# ERBM

|                              |           |  |   |
|------------------------------|-----------|--|---|
| <b>Conformity</b>            | CE        | 2014/35/EU                             | Low-Voltage Directive   |
| <b>Approval</b>              | UR        | UL508                                  | Industrial Control Equipment, Underwriter Laboratories (File-No. E208678 + E232497) for USA and Canada    |
| <b>Degree of protection</b>  | EN        | EN 60529                               | IP20, IP23<br>IP 54, data applies to operationally ready mounted state and not in wire range of terminals |
|                              | NEMA      | NEMA 250                               | Type 1  |
| <b>Ambient conditions</b>    | Storage   | IEC/EN 60721-3-1                       | 1K3 (-25 ... +60 °C)  |
|                              | Transport | IEC/EN 60721-3-2                       | 2K3 (-25 ... +70 °C)  |
|                              | Operation | IEC/EN 60721-3-3                       | 3K3 (-10 ... +55 °C)<br>+45 ... +55 °C: Current derating 1 %/°C   |
| <b>Installation altitude</b> |           |  | 0 ... 4000 m amsl<br>1000 ... 4000 m amsl: Current derating 5 %/1000 m                                    |
| <b>Vibration resistance</b>  |           | EN 50178,                              | Acceleration resistant up to 0.7 g  |
|                              |           | IEC 61800-5-1                          |   |
|                              |           | Germanischer Lloyd, general conditions |   |
| <b>Mounting position</b>     | Standard  |  | Horizontally standing   |

| Order code   | R <sub>B</sub><br>[Ω] | P <sub>D</sub><br>[W] | Q <sub>B</sub><br>[kW] | V <sub>max</sub><br>[V DC] | m<br>[kg] | H x W x D<br>[mm] | Material number |  |  |
|--|-----------------------|-----------------------|------------------------|----------------------------|-----------|-------------------|-----------------|--|--|
| <b>Brake resistor for installation in housings</b>     |                       |                       |                        |                            |           |                   |                 |  |  |
| ERBM047R135W   | 47                    | 135                   | 6.3                    | 800                        | 0.67      | 216 x 80 x 28     | 13554431        |  |  |
| ERBM082R150W   | 82                    | 150                   | 22.5                   | 800                        | 0.70      | 238 x 80 x 59     | 13556675        |  |  |
| ERBM100R086W   | 100                   | 86                    | 3.4                    | 800                        | 0.49      | 110 x 80 x 28     | 13554432        |  |  |
| ERBM100R150W   | 100                   | 150                   | 22.5                   | 800                        | 0.54      | 238 x 80 x 59     | 13556673        |  |  |
| ERBM470R020W   | 470                   | 20                    | 3                      | 800                        | 0.34      | 160 x 40 x 36     | 13557874        |  |  |
| <b>Brake resistor for mounting outside the housing</b> |                       |                       |                        |                            |           |                   |                 |  |  |
| ERBM039R120W   | 39                    | 120                   | 18                     | 800                        | 1.0       | 265 x 31 x 60     | 13565484        |  |  |
| ERBM100R100W   | 100                   | 100                   | 15                     | 400                        | 0.37      | 235 x 20.6 x 40   | 13565461        |  |  |
| ERBM180R050W   | 180                   | 50                    | 7.5                    | 400                        | 0.28      | 175 x 20.6 x 40   | 13565460        |  |  |
| ERBM390R100W   | 390                   | 100                   | 15                     | 800                        | 0.37      | 235 x 20.6 x 40   | 13565482        |  |  |

# ERBP

|                              |           |  |  |
|------------------------------|-----------|--|--|
| <b>Conformity</b>            | CE        | 2014/35/EU                             | Low-Voltage Directive  |
| <b>Approval</b>              | UR        | UL508                                  | Industrial Control Equipment, Underwriter Laboratories (File-No. E232497) for USA and Canada |
| <b>Degree of protection</b>  | EN        | EN 60529                               | IP21/23  |
|                              | NEMA      | NEMA 250                               | Type 1   |
| <b>Ambient conditions</b>    | Storage   | IEC/EN 60721-3-1                       | 1K3 (-25 ... +60 °C)   |
|                              | Transport | IEC/EN 60721-3-2                       | 2K3 (-25 ... +70 °C)   |
|                              | Operation | IEC/EN 60721-3-3                       | 3K3 (-10 ... +55 °C)<br>+45 ... +55 °C: Current derating 1 %/°C                              |
| <b>Installation altitude</b> |           |  | 0 ... 4000 m amsl<br>1000 ... 4000 m amsl: Current derating 5 %/1000 m                       |
| <b>Vibration resistance</b>  |           | EN 50178,                              | Acceleration resistant up to 0.7 g   |
|                              |           | IEC 61800-5-1                          |  |
|                              |           | Germanischer Lloyd, general conditions |  |
| <b>Mounting position</b>     | Standard  |  | Horizontally standing  |

| Order code   | R <sub>B</sub><br>[Ω] | P <sub>D</sub><br>[W] | Q <sub>B</sub><br>[kW] | V <sub>max</sub><br>[V DC] | m<br>[kg] | H x W x D<br>[mm] | Material number |   |   |
|--|-----------------------|-----------------------|------------------------|----------------------------|-----------|-------------------|-----------------|---|---|
| <b>Brake resistor for installation in housings</b> |                       |                       |                        |                            |           |                   |                 |   |   |
| ERBP018R300W                                       | 18                    | 300                   | 45                     | 800                        | 1.4       | 320 x 42 x 122    | 13565500        |  |  |
| ERBP027R200W                                       | 27                    | 200                   | 30                     | 800                        | 1.0       | 240 x 42 x 122    | 13565501        |  |  |
| ERBP033R200W                                       | 33                    | 200                   | 30                     | 800                        | 1.0       | 240 x 42 x 122    | 13565504        |  |  |
| ERBP033R300W                                       | 33                    | 300                   | 45                     | 800                        | 1.4       | 320 x 42 x 122    | 13565505        |  |  |
| ERBP047R200W                                       | 47                    | 200                   | 30                     | 800                        | 1.0       | 240 x 42 x 122    | 13565502        |  |  |
| ERBP082R200W                                       | 82                    | 200                   | 30                     | 800                        | 1.0       | 240 x 42 x 122    | 13565503        |  |  |
| ERBP180R200W                                       | 180                   | 200                   | 30                     | 800                        | 1.0       | 240 x 42 x 122    | 13565506        |  |  |
| ERBP180R300W                                       | 180                   | 300                   | 45                     | 800                        | 1.4       | 320 x 42 x 122    | 13565507        |  |  |



# ERBS

|                              |           |  |  |
|------------------------------|-----------|--|--|
| <b>Conformity</b>            | CE        | 2014/35/EU                             | Low-Voltage Directive  |
| <b>Approval</b>              | UR        | UL508                                  | Industrial Control Equipment, Underwriter Laboratories (File-No. E208678 + E232497) for USA and Canada |
| <b>Degree of protection</b>  | EN        | EN 60529                               | IP66   |
|                              | NEMA      | NEMA 250                               | Type 1   |
| <b>Ambient conditions</b>    | Storage   | IEC/EN 60721-3-1                       | 1K3 (-25 ... +60 °C)   |
|                              | Transport | IEC/EN 60721-3-2                       | 2K3 (-25 ... +70 °C)   |
|                              | Operation | IEC/EN 60721-3-3                       | 3K3 (-10 ... +55 °C)<br>+45 ... +55 °C: Current derating 1 %/°C  |
| <b>Installation altitude</b> |           |  | 0 ... 4000 m amsl<br>1000 ... 4000 m amsl: Current derating 5 %/1000 m                                 |
| <b>Vibration resistance</b>  |           | EN 50178,                              | Acceleration resistant up to 0.7 g   |
|                              |           | IEC 61800-5-1                          |  |
|                              |           | Germanischer Lloyd, general conditions |  |
| <b>Mounting position</b>     | Standard  |  | Horizontally standing  |
|                              | Variant   |  | Vertically suspended with connecting cables at the bottom  |

| Order code   | R <sub>B</sub> | P <sub>D</sub> | Q <sub>B</sub> | V <sub>max</sub> | m    | H x W x D        | Material number |  |  |
|--|----------------|----------------|----------------|------------------|------|------------------|-----------------|--|--|
|  | [Ω]            | [W]            | [kW]           | [V DC]           | [kg] | [mm]             |                 |  |  |
| <b>Brake resistor for mounting outside the housing</b> |                |                |                |                  |      |                  |                 |  |  |
| ERBS012R02K0WQN000                                     | 12             | 2000           | 300            | 800              | 9.8  | 865 x 200 x 105  | 13599742        |  |  |
| ERBS012R05K0WQN000                                     | 12             | 5000           | 750            | 800              | 35.5 | 995 x 300 x 280  | 13599743        |  |  |
| ERBS015R01K2   | 15             | 1200           | 180            | 800              | 5.6  | 1020 x 114 x 105 | 13566413        |  |  |
| ERBS015R02K4   | 15             | 2400           | 360            | 800              | 10   | 1020 x 204 x 105 | 13566414        |  |  |
| ERBS015R06K3WQN000                                     | 15             | 6300           | 945            | 800              | 39   | 1095 x 300 x 280 | 13599744        |  |  |
| ERBS015R800W   | 15             | 800            | 120            | 800              | 4.0  | 710 x 114 x 105  | 13566412        |  |  |
| ERBS018R01K2   | 18             | 1200           | 180            | 800              | 5.6  | 1020 x 114 x 105 | 13566411        |  |  |
| ERBS018R01K4   | 18             | 1400           | 210            | 800              | 6.3  | 1110 x 114 x 105 | 13566409        |  |  |
| ERBS018R01K9   | 18             | 1900           | 285            | 800              | 18.7 | 825 x 204 x 105  | 13566408        |  |  |
| ERBS018R02K8   | 18             | 2800           | 420            | 800              | 12   | 1110 x 204 x 105 | 13566410        |  |  |
| ERBS018R04K5WQN000                                     | 18             | 4500           | 675            | 800              | 30.5 | 895 x 300 x 280  | 13599745        |  |  |
| ERBS018R800W   | 18             | 800            | 120            | 800              | 4.0  | 710 x 114 x 105  | 13566407        |  |  |
| ERBS027R01K2   | 27             | 1200           | 180            | 800              | 5.6  | 1020 x 114 x 105 | 13566402        |  |  |
| ERBS027R01K4   | 27             | 1400           | 210            | 800              | 6.3  | 1110 x 114 x 105 | 13566406        |  |  |
| ERBS027R600W   | 27             | 600            | 90             | 800              | 3.1  | 550 x 114 x 105  | 13566405        |  |  |
| ERBS039R01K6NQN000                                     | 39             | 1600           | 246            | 800              | 7.8  | 748 x 200 x 122  | 13549460        |  |  |
| ERBS047R400W   | 47             | 400            | 60             | 800              | 2.3  | 400 x 114 x 105  | 13566403        |  |  |
| ERBS047R400WGQN000                                     | 47             | 400            | 60             | 800              | 2.6  | 405 x 114 x 115  | 13599422        |  |  |
| ERBS047R800W   | 47             | 800            | 120            | 800              | 4.0  | 710 x 114 x 105  | 13566404        |  |  |
| ERBS047R800WGQN000                                     | 47             | 800            | 120            | 800              | 4.3  | 715 x 114 x 115  | 13599423        |  |  |
| ERBS082R780WNQN000                                     | 82             | 780            | 117            | 800              | 3.6  | 666 x 124 x 122  | 13549459        |  |  |
| ERBS100R625WNQN000                                     | 100            | 625            | 94             | 800              | 3.1  | 566 x 124 x 122  | 13549458        |  |  |
| ERBS180R350WGQN000                                     | 180            | 350            | 53             | 800              | 2.4  | 382 x 124 x 138  | 13599424        |  |  |
| ERBS180R350WNQN000                                     | 180            | 350            | 53             | 800              | 2.1  | 382 x 124 x 122  | 13549457        |  |  |
| ERBS470R150WNQN000                                     | 470            | 150            | 22.5           | 800              | 1.3  | 222 x 124 x 122  | 13549455        |  |  |



# Project planning

## Dimensioning conditions

- The mounting location must always ensure the operating conditions mentioned in the technical data; if required, additional measures must be taken.
- The mounting location and material must ensure a durable mechanical connection.
- The installation clearances specified in the technical data must be observed to ensure unobstructed air circulation for dissipating the heat.
- Protect the mounting location by suitable fire prevention and protection against contact.
- Flammable materials or substances may not be placed in the vicinity of the brake resistor.
- Always connect the thermal contact and integrate it into the system monitoring so that the power supply to the inverter is disconnected when the thermal contact responds (e.g. switch off the control of the mains contactor).

## Assignment of brake resistors to the frequency inverter

Lenze provides selection tables for easy and quick selection of a brake resistor. The assignment via the mains voltage and the rated power of the inverter is a non-binding recommendation.

A distinction is made between 4 application classes:

| Application class     | Meaning  | Examples   |
|-----------------------|--|--|
| <b>Dynamic load</b>   | Compensation of low, sporadic voltage peaks                    | Overshoot due to backlash-affected mechanics at the end of the acceleration phase<br>Transfer of conveyed material to downstream conveyor line |
| <b>Emergency stop</b> | Compensation of regenerative energy during emergency stop      | Braking after pressing the emergency stop button   |
| <b>Passive load</b>   | Compensation of regenerative energy during horizontal movement | Braking of slides on machine tools or rotary tables  |
| <b>Active load</b>    | Compensation of regenerative energy during vertical movement   | Braking hoists   |

Observe the operating conditions:

- Mean value of regenerative power < permanent power of the brake resistor
- Regenerative power during braking time < thermal capacity of the brake resistor.
- At any time, the following must apply:  
Cumulative braking times within the cycle time < maximum braking time

The optimal design of a brake resistor can be done with the Engineering Tool DSD.

# Mains connection 120 V and 230 V

| Inverter |          |         |      |      | Brake resistor, protection class IP20 ... IP66 |                    |                    |
|----------|----------|---------|------|------|--|--------------------|--------------------|
| PN       | Vmains   | i500    | i700 | i900 | For control cabinet installation               |                    |                    |
| kW       | V        |         |      |      | Emergency stop                                 | Passive load       | Active load        |
| 0.25     | 1 x 120V | x       |      |      | ERBM180R050W                                   | ERBM180R050W       | ERBP180R200W       |
| 0.37     | 1 x 120V | x       |      |      | ERBM180R050W                                   | ERBM180R050W       | ERBP180R200W       |
| 0.75     | 1 x 120V | cabinet |      |      | ERBM047R135W                                   | ERBM047R135W       | ERBP047R200W       |
|          |          | protec  |      |      | ERBM100R100W                                   | ERBM100R100W       | ERBS100R625WNQN000 |
| 1.1      | 1 x 120V | cabinet |      |      | ERBM047R135W                                   | ERBM047R135W       | ERBP047R400W       |
|          |          | protec  |      |      | ERBM100R100W                                   | ERBM100R100W       | ERBS100R625WNQN000 |
| 0.25     | 1 x 230V | x       |      |      | ERBM180R050W                                   | ERBM180R050W       | ERBP180R200W       |
| 0.37     | 1 x 230V | cabinet |      |      | ERBM180R050W                                   | ERBM180R050W       | ERBP180R200W       |
|          |          | protec  |      | x    | ERBM100R100W                                   | ERBM100R100W       | ERBS100R625WNQN000 |
| 0.55     | 1 x 230V | x       |      | x    | ERBM100R086W                                   | ERBM100R086W       | ERBM100R150W       |
| 0.75     | 1 x 230V | x       |      | x    | ERBM100R086W                                   | ERBM100R086W       | ERBM100R150W       |
| 1.1      | 3 x 230V | cabinet |      |      | ERBP033R200W                                   | ERBP033R200W       | ERBP033R300W       |
|          |          | protec  |      |      | ERBM039R120W                                   | ERBM039R120W       | ERBS039R01K6NQN000 |
| 1.5      | 3 x 230V | cabinet |      | x    | ERBP033R200W                                   | ERBP033R200W       | ERBP033R300W       |
|          |          | protec  |      |      | ERBM039R120W                                   | ERBM039R120W       | ERBS039R01K6NQN000 |
| 2.2      | 3 x 230V | cabinet |      |      | ERBP033R200W                                   | ERBP033R200W       | ERBP033R300W       |
|          |          | protec  |      |      | ERBM039R120W                                   | ERBM039R120W       | ERBS039R01K6NQN000 |
| 0.25     | 3 x 230V | x       |      |      | ERBM180R050W                                   | ERBM180R050W       | ERBP180R200W       |
| 0.37     | 3 x 230V | cabinet |      |      | ERBM180R050W                                   | ERBM180R050W       | ERBP180R200W       |
|          |          | protec  |      | x    | ERBM100R100W                                   | ERBM100R100W       | ERBS100R625WNQN000 |
| 0.55     | 3 x 230V | x       |      | x    | ERBM100R086W                                   | ERBM100R086W       | ERBM100R150W       |
| 0.75     | 3 x 230V | x       |      | x    | ERBM100R086W                                   | ERBM100R086W       | ERBM100R150W       |
| 1.1      | 3 x 230V | cabinet |      |      | ERBP033R200W                                   | ERBP033R200W       | ERBP033R300W       |
|          |          | protec  |      |      | ERBM039R120W                                   | ERBM039R120W       | ERBS039R01K6NQN000 |
| 1.5      | 3 x 230V | cabinet |      | x    | ERBP033R200W                                   | ERBP033R200W       | ERBP033R300W       |
|          |          | protec  |      |      | ERBM039R120W                                   | ERBM039R120W       | ERBS039R01K6NQN000 |
| 2.2      | 3 x 230V | cabinet |      |      | ERBP033R200W                                   | ERBP033R200W       | ERBP033R300W       |
|          |          | protec  |      |      | ERBM039R120W                                   | ERBM039R120W       | ERBS039R01K6NQN000 |
| 4        | 3 x 230V | x       |      | x    | ERBS015R800W                                   | ERBS015R800W       | ERBS015R01K2       |
| 5.5      | 3 x 230V | x       |      | x    | ERBS015R800W                                   | ERBS015R800W       | ERBS015R01K2       |
| 7.5      | 3 x 230V | x       |      |      | ERBS015R800W                                   | ERBS015R800W       | ERBS015R02K4       |
| 11       | 3 x 230V | x       |      |      | ERBS015R800W                                   | ERBS015R01K2       | ERBS015R02K4       |
| 15       | 3 x 230V | x       |      |      | ERBS012R02K0WQN000                             | ERBS012R02K0WQN000 | ERBS012R05K0WQN000 |
| 18.5     | 3 x 230V | x       |      |      | ERBS012R02K0WQN000                             | ERBS012R02K0WQN000 | ERBS012R05K0WQN000 |
| 22       | 3 x 230V | x       |      |      | ERBS012R02K0WQN000                             | ERBS012R02K0WQN000 | ERBS012R05K0WQN000 |

# Mains connection 120 V and 230 V

| Inverter |          |      |      |      | Brake resistor, protection class IP54 ... IP66 |                    |                    |
|----------|----------|------|------|------|--|--------------------|--------------------|
| PN       | Vmains   | i500 | i700 | i900 | Installation outside the control cabinet       |                    |                    |
| kW       | V        |      |      |      | Emergency stop                                 | Passive load       | Active load        |
| 0.37     | 1 x 120V | x    |      |      | ERBS180R350WNQN000                             | ERBS180R350WNQN000 | ERBS180R350WNQN000 |
| 0.75     | 1 x 120V | x    |      |      | ERBS100R625WNQN000                             | ERBS100R625WNQN000 | ERBS100R625WNQN000 |
| 1.1      | 1 x 120V | x    |      |      | ERBS100R625WNQN000                             | ERBS100R625WNQN000 | ERBS100R625WNQN000 |
|          |          |      |      |      |  |                    |                    |
| 0.37     | 1 x 230V | x    |      |      | ERBS100R625WNQN000                             | ERBS100R625WNQN000 | ERBS100R625WNQN000 |
| 0.55     | 1 x 230V | x    |      |      | ERBS100R625WNQN000                             | ERBS100R625WNQN000 | ERBS100R625WNQN000 |
| 0.75     | 1 x 230V | x    |      |      | ERBS100R625WNQN000                             | ERBS100R625WNQN000 | ERBS100R625WNQN000 |
| 1.1      | 1 x 230V | x    |      |      | ERBS039R01K6NQN000                             | ERBS039R01K6NQN000 | ERBS039R01K6NQN000 |
| 1.5      | 1 x 230V | x    |      |      | ERBS039R01K6NQN000                             | ERBS039R01K6NQN000 | ERBS039R01K6NQN000 |
| 2.2      | 1 x 230V | x    |      |      | ERBS039R01K6NQN000                             | ERBS039R01K6NQN000 | ERBS039R01K6NQN000 |
|          |          |      |      |      |  |                    |                    |
| 0.25     | 3 x 230V | x    |      |      | ERBM180R050W                                   | ERBM180R050W       |                    |
| 0.37     | 3 x 230V | x    |      |      | ERBS100R625WNQN000                             | ERBS100R625WNQN000 | ERBS100R625WNQN000 |
| 0.55     | 3 x 230V | x    |      |      | ERBS100R625WNQN000                             | ERBS100R625WNQN000 | ERBS100R625WNQN000 |
| 0.75     | 3 x 230V | x    |      |      | ERBS100R625WNQN000                             | ERBS100R625WNQN000 | ERBS100R625WNQN000 |
| 1.1      | 3 x 230V | x    |      |      | ERBS039R01K6NQN000                             | ERBS039R01K6NQN000 | ERBS039R01K6NQN000 |
| 1.5      | 3 x 230V | x    |      |      | ERBS039R01K6NQN000                             | ERBS039R01K6NQN000 | ERBS039R01K6NQN000 |
| 2.2      | 3 x 230V | x    |      |      | ERBS039R01K6NQN000                             | ERBS039R01K6NQN000 | ERBS039R01K6NQN000 |
| 3        | 3 x 230V | x    |      |      | ERBS015R800W                                   | ERBS015R800W       | ERBS015R01K2       |
| 4        | 3 x 230V | x    |      |      | ERBS015R800W                                   | ERBS015R800W       | ERBS015R01K2       |
| 5.5      | 3 x 230V | x    |      |      | ERBS015R800W                                   | ERBS015R800W       | ERBS015R01K2       |
| 7.5      | 3 x 230V | x    |      |      | ERBS015R800W                                   | ERBS015R800W       | ERBS015R02K4       |
| 11       | 3 x 230V | x    |      |      | ERBS015R800W                                   | ERBS015R01K2       | ERBS015R02K4       |
| 15       | 3 x 230V | x    |      |      | ERBS012R02K0WQN000                             | ERBS012R02K0WQN000 | ERBS012R05K0WQN000 |
| 18.5     | 3 x 230V | x    |      |      | ERBS012R02K0WQN000                             | ERBS012R02K0WQN000 | ERBS012R05K0WQN000 |
| 22       | 3 x 230V | x    |      |      | ERBS012R02K0WQN000                             | ERBS012R02K0WQN000 | ERBS012R05K0WQN000 |

# Mains connection 400 V

| Inverter |          |      |      |      | Brake resistor, protection class IP20 ... IP66 |              |                    |
|----------|----------|------|------|------|--|--------------|--------------------|
| PN       | Vmains   | i500 | i700 | i900 | For control cabinet installation               |              |                    |
| KW       | V        |      |      |      | Emergency stop                                 | Passive load | Active load        |
| 0.37     | 3 x 400V | x    |      |      | ERBM470R020W                                   | ERBM390R100W | ERBM390R100W       |
| 0.55     | 3 x 400V | x    |      | x    | ERBM390R100W                                   | ERBM390R100W | ERBM390R100W       |
| 0.75     | 3 x 400V | x    |      | x    | ERBM390R100W                                   | ERBM390R100W | ERBM390R100W       |
| 1.1      | 3 x 400V | x    |      |      | ERBP180R200W                                   | ERBP180R200W | ERBP180R300W       |
| 1.5      | 3 x 400V | x    |      |      | ERBP180R200W                                   | ERBP180R200W | ERBS180R350WNQN000 |
| 2.2      | 3 x 400V | x    |      | x    | ERBP180R200W                                   | ERBP180R300W | ERBS180R350WNQN000 |
| 3        | 3 x 400V | x    |      |      | ERBM082R150W                                   | ERBP082R200W | ERBS082R780WNQN000 |
| 4        | 3 x 400V | x    |      | x    | ERBM047R135W                                   | ERBS047R400W | ERBS047R800W       |
| 5.5      | 3 x 400V | x    |      |      | ERBP047R200W                                   | ERBS047R400W | ERBS047R800W       |
| 7.5      | 3 x 400V | x    |      | x    | ERBP027R200W                                   | ERBS027R600W | ERBS027R01K4       |
| 10.3     | 3 x 400V |      | x    |      | ERBP018R300W                                   | ERBS018R01K4 | ERBG018R04K3       |
| 11       | 3 x 400V | x    |      | x    | ERBS027R600W                                   | ERBS027R01K2 | ERBS027R01K4       |
| 15       | 3 x 400V | x    |      |      | ERBP018R300W                                   | ERBS018R01K4 | ERBG018R04K3       |
| 18.5     | 3 x 400V | x    |      | x    | ERBS015R800W                                   | ERBS015R02K4 | ERBG015R06K2       |
| 20.6     | 3 x 400V |      | x    |      | ERBG012R01K9                                   | ERBG012R01K9 | ERBG012R05K2       |
| 22       | 3 x 400V | x    |      | x    | ERBS015R800W                                   | ERBS015R02K4 | ERBG015R06K2       |
| 30       | 3 x 400V | x    |      | x    | ERBG075D01K9                                   | -            | -                  |
| 37       | 3 x 400V | x    |      |      | ERBG075D01K9                                   | -            | -                  |
| 45       | 3 x 400V | x    |      | x    | ERBG075D01K9                                   | -            | -                  |
| 55       | 3 x 400V | x    |      | x    | ERBG005R02K6                                   | -            | -                  |
| 75       | 3 x 400V | x    |      | x    | ERBG005R02K6                                   | -            | -                  |
| 90       | 3 x 400V | x    |      | x    | ERBG028D04K1                                   | -            | -                  |
| 110      | 3 x 400V | x    |      | x    | ERBG028D04K1                                   | -            | -                  |
| 132      | 3 x 400V | x    |      |      | ERBG028D04K1                                   | -            | -                  |

| Inverter |          |      |      |      | Brake resistor, protection class IP66     |                    |                    |
|----------|----------|------|------|------|---|--------------------|--------------------|
| PN       | Vmains   | i500 | i700 | i900 | For inverters outside the control cabinet |                    |                    |
| KW       | V        |      |      |      | Emergency stop                            | Passive load       | Active load        |
| 0.37     | 3 x 400V | x    |      |      | ERBS470R150WNQN000                        | ERBS470R150WNQN000 | ERBS470R150WNQN000 |
| 0.55     | 3 x 400V | x    |      |      | ERBS470R150WNQN000                        | ERBS470R150WNQN000 | ERBS470R150WNQN000 |
| 0.75     | 3 x 400V | x    |      |      | ERBS470R150WNQN000                        | ERBS470R150WNQN000 | ERBS470R150WNQN000 |
| 1.1      | 3 x 400V | x    |      |      | ERBS180R350WNQN000                        | ERBS180R350WNQN000 | ERBS180R350WNQN000 |
| 1.5      | 3 x 400V | x    |      |      | ERBS180R350WNQN000                        | ERBS180R350WNQN000 | ERBS180R350WNQN000 |
| 2.2      | 3 x 400V | x    |      |      | ERBS180R350WNQN000                        | ERBS180R350WNQN000 | ERBS180R350WNQN000 |
| 3        | 3 x 400V | x    |      |      | ERBS082R780WNQN000                        | ERBS082R780WNQN000 | ERBS082R780WNQN000 |
| 4        | 3 x 400V | x    |      |      | ERBS047R400W                              | ERBS047R400W       | ERBS047R800W       |
| 5.5      | 3 x 400V | x    |      |      | EERBS047R400W                             | EERBS047R400W      | ERBS047R800W       |
| 7.5      | 3 x 400V | x    |      |      | ERBS027R600W                              | ERBS027R01K2       | ERBS027R01K4       |
| 11       | 3 x 400V | x    |      |      | ERBS027R600W                              | ERBS027R01K2       | ERBS027R01K4       |
| 15       | 3 x 400V | x    |      |      | ERBS018R800W                              | ERBS018R01K4       | ERBS018R04K5WQN000 |
| 18.5     | 3 x 400V | x    |      |      | ERBS015R800W                              | ERBS015R02K4       | ERBS015R06K3WQN000 |
| 22       | 3 x 400V | x    |      |      | ERBS015R800W                              | ERBS015R02K4       | ERBS015R06K3WQN000 |

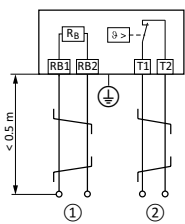
# Mains connection 480 V

| Inverter |          |      |      |      | Brake resistor, protection class IP20 ... IP66 |              |                    |
|----------|----------|------|------|------|--|--------------|--------------------|
| PN       | Vmains   | i500 | i700 | i900 | For control cabinet installation               |              |                    |
| KW       | V        |      |      |      | Emergency stop                                 | Passive load | Active load        |
| 0.37     | 3 x 400V | x    |      |      | ERBM470R020W                                   | ERBM390R100W | ERBM390R100W       |
| 0.55     | 3 x 400V | x    |      | x    | ERBM390R100W                                   | ERBM390R100W | ERBM390R100W       |
| 0.75     | 3 x 400V | x    |      | x    | ERBM390R100W                                   | ERBM390R100W | ERBM390R100W       |
| 1.1      | 3 x 400V | x    |      |      | ERBP180R200W                                   | ERBP180R200W | ERBP180R300W       |
| 1.5      | 3 x 400V | x    |      |      | ERBP180R200W                                   | ERBP180R200W | ERBS180R350WNQN000 |
| 2.2      | 3 x 400V | x    |      | x    | ERBP180R200W                                   | ERBP180R300W | ERBS180R350WNQN000 |
| 3        | 3 x 400V | x    |      |      | ERBM082R150W                                   | ERBP082R200W | ERBS082R780WNQN000 |
| 4        | 3 x 400V | x    |      | x    | ERBM047R135W                                   | ERBS047R400W | ERBS047R800W       |
| 5.5      | 3 x 400V | x    |      |      | ERBP047R200W                                   | ERBS047R400W | ERBS047R800W       |
| 7.5      | 3 x 400V | x    |      | x    | ERBP027R200W                                   | ERBS027R600W | ERBS027R01K4       |
| 11       | 3 x 400V | x    |      | x    | ERBS027R600W                                   | ERBS027R01K2 | ERBS027R01K4       |
| 15       | 3 x 400V | x    |      |      | ERBP018R300W                                   | ERBS018R01K4 | ERBG018R04K3       |
| 18.5     | 3 x 400V | x    |      | x    | ERBS015R800W                                   | ERBS015R02K4 | ERBG015R06K2       |
| 22       | 3 x 400V | x    |      | x    | ERBS015R800W                                   | ERBS015R02K4 | ERBG015R06K2       |
| 30       | 3 x 400V | x    |      | x    | ERBG075D01K9                                   | -            | -                  |
| 37       | 3 x 400V | x    |      |      | ERBG075D01K9                                   | -            | -                  |
| 45       | 3 x 400V | x    |      | x    | ERBG075D01K9                                   | -            | -                  |
| 55       | 3 x 400V | x    |      | x    | ERBG005R02K6                                   | -            | -                  |
| 75       | 3 x 400V | x    |      | x    | ERBG005R02K6                                   | -            | -                  |
| 90       | 3 x 400V | x    |      | x    | ERBG028D04K1                                   | -            | -                  |
| 110      | 3 x 400V | x    |      | x    | ERBG028D04K1                                   | -            | -                  |
| 132      | 3 x 400V | x    |      |      | ERBG028D04K1                                   | -            | -                  |

| Inverter |          |      |      |      | Brake resistor, protection class IP66 |                    |                    |
|----------|----------|------|------|------|---------------------------------------|--------------------|--------------------|
| PN       | Vmains   | i500 | i700 | i900 | For wall mounting                     |                    |                    |
| KW       | V        |      |      |      | Dynamic load                          | Passive load       | Active load        |
| 0.37     | 3 x 400V | x    |      |      | ERBS470R150WNQN000                    | ERBS470R150WNQN000 | ERBS470R150WNQN000 |
| 0.55     | 3 x 400V | x    |      |      | ERBS470R150WNQN000                    | ERBS470R150WNQN000 | ERBS470R150WNQN000 |
| 0.75     | 3 x 400V | x    |      |      | ERBS470R150WNQN000                    | ERBS470R150WNQN000 | ERBS470R150WNQN000 |
| 1.1      | 3 x 400V | x    |      |      | ERBS180R350WNQN000                    | ERBS180R350WNQN000 | ERBS180R350WNQN000 |
| 1.5      | 3 x 400V | x    |      |      | ERBS180R350WNQN000                    | ERBS180R350WNQN000 | ERBS180R350WNQN000 |
| 2.2      | 3 x 400V | x    |      |      | ERBS180R350WNQN000                    | ERBS180R350WNQN000 | ERBS180R350WNQN000 |
| 3        | 3 x 400V | x    |      |      | ERBS082R780WNQN000                    | ERBS082R780WNQN000 | ERBS082R780WNQN000 |
| 4        | 3 x 400V | x    |      |      | ERBS047R400W                          | ERBS047R400W       | ERBS047R800W       |
| 5.5      | 3 x 400V | x    |      |      | EERBS047R400W                         | EERBS047R400W      | ERBS047R800W       |
| 7.5      | 3 x 400V | x    |      |      | ERBS027R600W                          | ERBS027R01K2       | ERBS027R01K4       |
| 11       | 3 x 400V | x    |      |      | ERBS027R600W                          | ERBS027R01K2       | ERBS027R01K4       |
| 15       | 3 x 400V | x    |      |      | ERBS018R800W                          | ERBS018R01K4       | ERBS018R04K5WQN000 |
| 18.5     | 3 x 400V | x    |      |      | ERBS015R800W                          | ERBS015R02K4       | ERBS015R06K3WQN000 |
| 22       | 3 x 400V | x    |      |      | ERBS015R800W                          | ERBS015R02K4       | ERBS015R06K3WQN000 |

# Electrical installation

## Connection diagrams



### Short connection cables up to 0.5 m

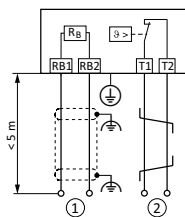
Up to a cable length of 0.5 m, the cable for the brake resistor and that of the temperature monitoring can be twisted. Doing so reduces problems due to EMC interference.

### Long connection cables up to max. 5 m

The cable of the brake resistor must be shielded

The maximum length is 5 m.

Twisting is sufficient for the temperature monitoring cable.



① Wiring to the "brake resistor" connection on the inverter or another component with brake chopper.

② Wiring to a control contact that is set to monitor the thermal contact. If the thermal contact responds, the voltage supply to the inverter must be disconnected (e.g. switch off the control of the mains contactor).

## Assembled connecting cable

For ERBM and ERBP brake resistors with assembled connection cables, the cables can be extended to max. 5 m.

To do this, shorten the assembled connection cables to max. 10 cm and place them on external terminal points. Lay shielded or twisted cables from there.



## Connection of the brake resistors

The information on the connections of the brake resistors can be found on the dimensional drawings together with the installation dimensions. This way you have everything together for the installation of the products.

|       |          |  |  |
|-------|----------|--|--|
|       |          |  |  |
| x 122 | 13565500 |  |  |
| x 122 | 13565501 |  |  |
| x 122 | 13565504 |  |  |
| x 122 | 13565505 |  |  |

Home » Support

### Support

Please enter a material number

Where can I find the material number?

Your product:

**Brake resistor**  
Type ERBP03R200W  
Material number: 13565504

Services at a glance

[Technical data](#) [CAD data](#) [Data and dimension sheets](#) [Documentation](#)

[Offer](#) [Support request](#)

Dimension sheet  
Material number

**ERBP018R300W | 18 Ω | 300 W**  
Material number: 13565500

| Connection data          |                    |                          |                    |
|--------------------------|--------------------|--------------------------|--------------------|
| Connection               | 001-002            | Connection               | 001-002            |
| Connection type          | 00100              | Connection type          | 00100              |
| Max. cable cross-section | 25 mm <sup>2</sup> | Max. cable cross-section | 25 mm <sup>2</sup> |
| Length strand            | 200 mm             | Length strand            | 200 mm             |
| Cable tag                | 001                | Cable tag                | 001                |
| Tightening torque        | 10 Nm              | Tightening torque        | 10 Nm              |

| General data          |                 |
|-----------------------|-----------------|
| Operating temperature | 0 °C ... 100 °C |
| Resistance            | 18 Ω ± 1%       |
| Max. input current    | 40 A            |
| Max. input voltage    | 200 V           |

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