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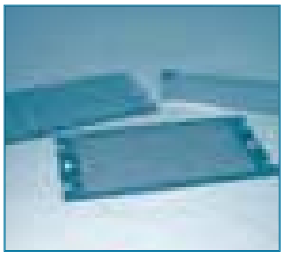
# Braking Resistors with a system

RESISTORS

– customized solutions
– consistent casing design
– the complete product range
· wire-wound
· steel grid
· cast iron



GINO ESE

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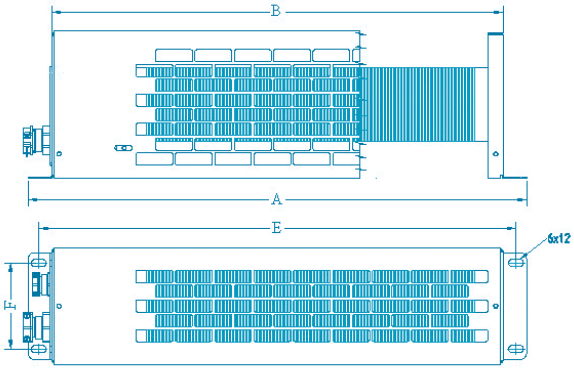
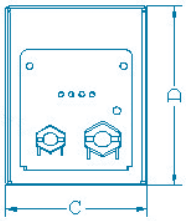
# Classic, wire-wound braking resistor with concrete-coated winding

## GINO Series DEZ ...

These tube resistors consist of a ceramic support tube with wire windings made from NiCr 3020 or CuNi44. In the next manufacturing step, the winding is coated with a layer of special concrete to fix the resistor wire. The braking resistors are mounted in a touch guard casing made from galvanized steel sheet and wired to terminals arranged on the inside of the casing. The cable entry point is a metric thread.




### Tube resistor

**Technical data**

Resistance tolerance: +/- 10 % of the nominal value
Operating voltage: ≤ 1000 V AC or 1200 V DC
Insulating test voltage: 3.5 kV, 50 Hz, 60 s

**System characteristics**

- Nominal power range ≤ 3 kW
- High pulse resistance and overload capacity
- Optional temperature control
- Compact design
- Low inductivity
- Protection IP00 and IP20

| Tube ø (mm) | | | 30 | 30 | 30 | 40 | 40 | 60 | 60 | 60 | 60 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tube lengths (mm) | | | 120 | 160 | 200 | 300 | 400 | 200 | 300 | 400 | 500 | 600 |
| Dimensions + no. of tubes in a casing | A | not dependent on number | 225 | 265 | 305 | 405 | 505 | 305 | 405 | 505 | 605 | 705 |
| | B | not dependent on number | 188 | 228 | 268 | 368 | 468 | 268 | 368 | 468 | 568 | 668 |
| | $C_1$ | 1 | 70 | | | 70 | | 95 | | | | |
| | $C_2$ | 2 | 140 | | | 140 | | 190 | | | | |
| | $C_3$ | 3 | 210 | | | 210 | | 285 | | | | |
| | D | not dependent on number | 95 | | | 95 | | 120 | | | | |
| Fastening dimensions casing + no. of tubes in a casing | E | not dependent on number | 208 | 248 | 288 | 388 | 488 | 288 | 388 | 488 | 588 | 688 |
| | $F_1$ | 1 | 50 | | | 50 | | 70 | | | | |
| | $F_2$ | 2 | 120 | | | 120 | | 165 | | | | |
| | $F_3$ | 3 | 190 | | | 190 | | 260 | | | | |
| Metric thread | | | M16 + M16 | | | M16 + M16 | | M16 + M20 | | | | |

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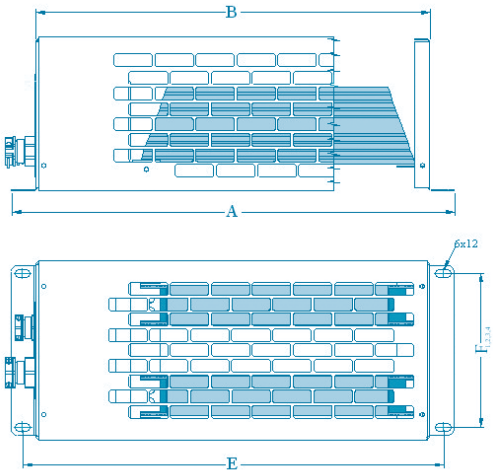
# Wire-wound, encapsulated braking resistor – The alternative

## GINO Series DEG ...

This is a series of encapsulated, wire-wound resistors mounted in aluminum sections and coated with concrete. The degree of protection of these resistor elements is IP65. With this high protection, the braking resistors are also suited for operation in demanding climates with up to 100 % air humidity. In addition, the aluminum sections are mounted in touch guard casings made from galvanized steel sheet and wired to terminals arranged on the inside of the casing. The cable entry point is a metric thread. Due to the terminals, the resulting degree of protection of the braking resistor is IP20. The system is suited for installing up to four encapsulated resistors in one casing.




### Encapsulated resistor

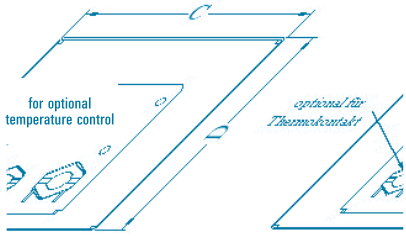
**Technical data**

Resistance tolerance: +/- 10 % of the nominal value
Operating voltage: ≤ 1000 V AC or 1200 V DC
Insulation test voltage: 4 kV, 50 Hz, 60 s

**System characteristics**

- Resistant to vibration and shock
- High pulse resistance and overload capacity
- Optional temperature control
- Compact, robust design
- Low inductivity
- Nominal power range ≤ 2 kW

| VPR | | | 100 | 200 | 200 | 300 | 300 | 400 | 400 | 500 | 500 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Design | | | S | L | S | L | S | L | S | L | S |
| Dimensions + no.of VPRs in a casing | A | ~~~ | 245 | 295 | | 345 | | 395 | | 445 | |
| | B | ~~~ | 207 | 257 | | 307 | | 357 | | 407 | |
| | $C_1$ | 1 | 70 | 95 | — | 95 | — | 95 | — | 95 | — |
| | $C_2$ | 2 | — | — | 140 | — | 140 | — | 140 | — | 140 |
| | $C_3$ | 3 | — | — | 230 | — | 230 | — | 230 | — | 230 |
| | $C_4$ | 4 | — | — | 300 | — | 300 | — | 300 | — | 300 |
| | D | ~~~ | 95 | 95 | 120 | 95 | 120 | 95 | 120 | 95 | 120 |
| Fastening dimensions + no. of VPRs in a casing | E | ~~~ | 228 | 278 | | 328 | | 378 | | 428 | |
| | $F_1$ | 1 | 50 | 70 | — | 70 | — | 70 | — | 70 | — |
| | $F_2$ | 2 | — | — | 120 | — | 120 | — | 120 | — | 120 |
| | $F_3$ | 3 | — | — | 210 | — | 210 | — | 210 | — | 210 |
| | $F_4$ | 4 | — | — | 280 | — | 280 | — | 280 | — | 280 |
| Metric thread | | | M16 + M16 | M16 + M20 | M16 + M20 | M16 + M20 | M16 + M20 | M16 + M20 | M16 + M20 | M16 + M20 | M16 + M20 |



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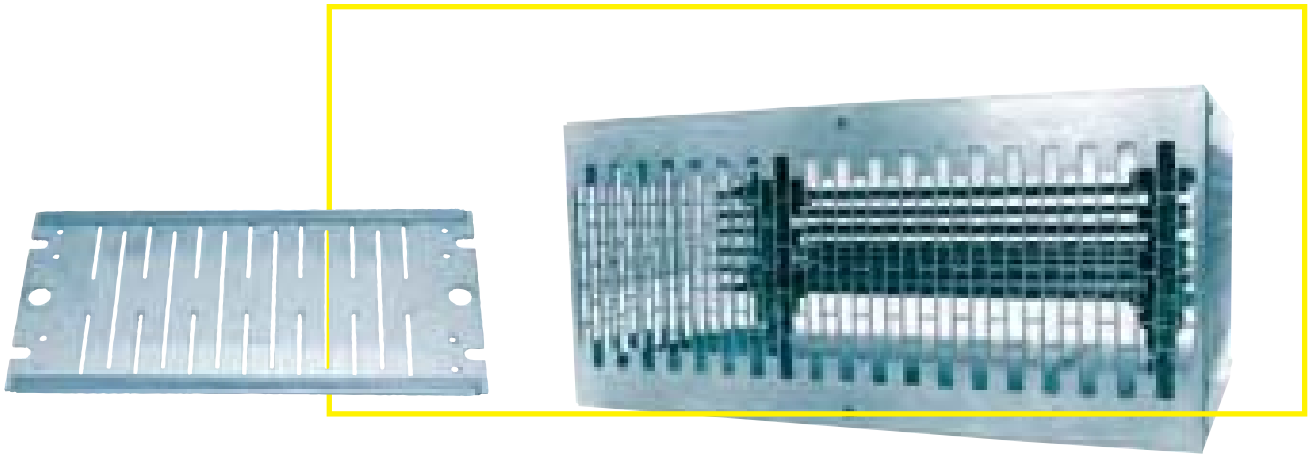
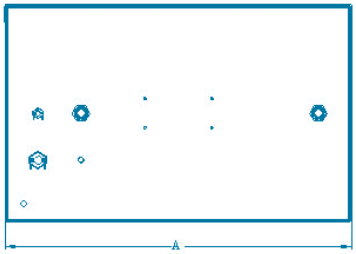
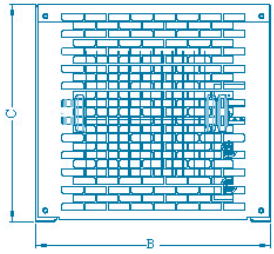
# Braking resistor in steel grid design for medium and high load applications



## GINO Series BEG ...

The steel grid resistor elements of this series consist of wave-patterned, punched or laser-cut elements made from aluminum-chromium steel X100CrAl13. The elements made from this stainless steel alloy are reinforced on their longitudinal sides and will be combined on insulated support brackets to form resistor banks. These banks are mounted in casings, e.g. made from galvanized steel sheet. The resistors are wired to terminals, the cable entry point is a metrical thread. Given the large surface of the resistor elements and the resulting good heat dissipation, this series is particularly suited for higher loads.

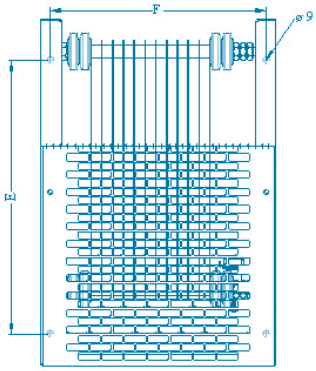



### Braking resistor

**Technical data**

Resistance tolerance: +/- 10 % of the nominal value
Operating voltage: ≤ 1000 V AC or 1200 V DC
Insulation test voltage: 4 kV, 50 Hz, 60 s




**System characteristics**

- Resistant to vibration and shocks
- High pulse resistance and overload resistance
- Optional temperature control
- Protection from IP00 to IP23
- Low inductivity
- Nominal power range ≥ 2 kW

| Steel grid resistors | | B12 | B13 | B14 | B15 | B17 | B25 | B27 | B37 | B47 |
|---|---|---|---|---|---|---|---|---|---|---|
| Dimensions | A | 483 | 483 | 483 | 483 | 483 | 483 | 483 | 483 | 483 |
| | B | 240 | 330 | 430 | 530 | 740 | 530 | 740 | 740 | 740 |
| | C | 301 | 301 | 301 | 301 | 301 | 601 | 601 | 1022 | 1322 |
| Fastening dimensions | $D_e$ | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | E | 380 | 380 | 380 | 380 | 380 | 380 | 380 | 380 | 380 |
| | F | 200 | 300 | 400 | 500 | 700 | 500 | 700 | 700 | 700 |
| Ground stud | | M8 | M6 | M6 | M6 | M8 | M8 | M8 | M8 | M12 |
| Metric thread | | M12xM20 | M16xM20 | M20xM25 | M16xM25 | M20xM25 | M20xM40 | M20xM40 | M20xM40 | M20xM40 |
| Mounting | | The minimum distance to other bodies shall be 200 mm on all sides that have ventilation slots | | | | | | | | |

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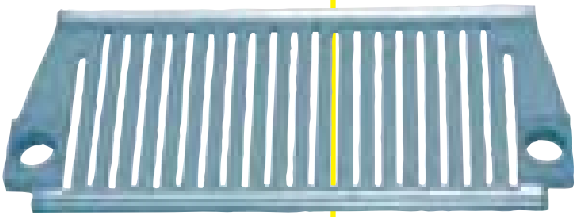
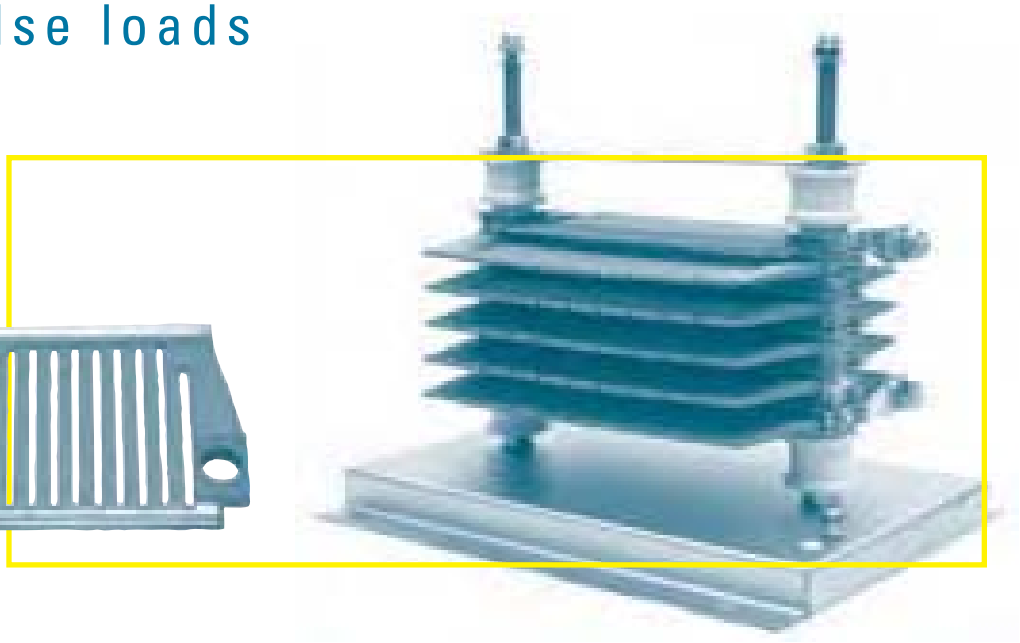
# Braking resistor in cast iron design for high pulse loads





## GINO Series GWG ...

The typical field of application for cast iron resistors of the GEW series are short, high-energy impulse loads. With their highly active resistance material the cast iron resistor elements are arranged in series on insulated support brackets and mounted in a painted steel sheet casing with cable box. Cast iron resistors are resistant to climatic impact pursuant to DIN 50 010 T1 and suited for indoor and outdoor climates at varying conditions of condensation, without weathering protection and with low pollutant impact. Cast iron resistors in alternative designs such as in the systems by AEG, BBC, Siemens and Wiemann, are suited for a wide range of applications as braking, starting, damping, industrial-type and grounding resistors.

### Cast iron resistor element

**Technical data**

| | |
|---|---|
| Resistance tolerance: | +/- 10 % of the nominal value |
| Operating voltage: | ≤ 1000 V AC or 1200 V DC |
| Insulation test voltage: | 3.5 kV, 50 Hz, 60 s |

**System characteristics**

- Impulse capacity, e.g. 500 kW for t = 2 sec.
- Highest impulse resistance and overload capacity
- Optional temperature control
- Robust and shock-proof design
- Wall mounting possible
- Protection IP00, IP20 and IP23