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Schramme

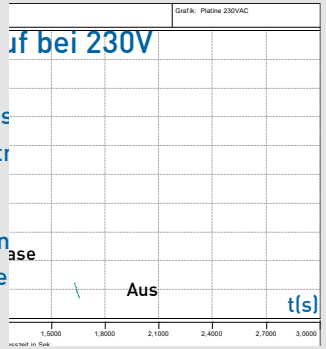
Transforming into success.

Moving. Holding. Switching. Regulating.

Brake magnet „almost for free“ through energy saving >90%

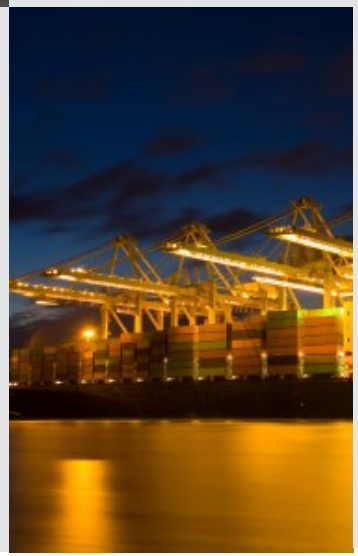
1. Electromagnets exponential increas curve toward the str

Objectives:
-> High end position necessary force-> e



2. Owing to the declining characteristic curve, electromagnets have a low starting force.

Objectives :
-> More output power when switching on -> higher magnetization -> more force -> smaller sized magnets possible-> saving resources



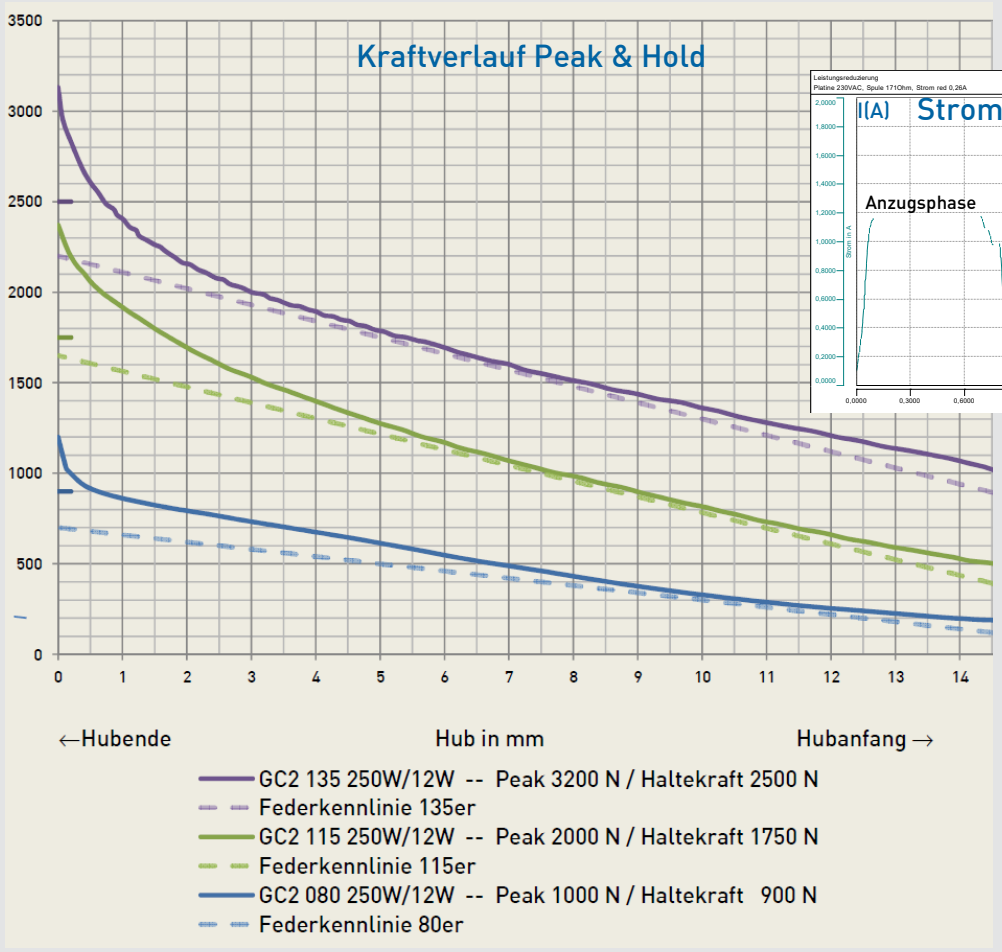
Performance data—Stroke and braking magnets

The characteristic curves shown are examples for stroke and braking magnets realized in series.

The size and characteristic curves of the electromagnet for your project can be adapted.

	PCB 60000880120 (110VAC)	PCB 60000880121 (230VAC)
Input voltage	110 VAC 50/60 Hz	230VAC 50/60Hz
Reduction period	0.8s	0.8s
Holding current (costant)	0.5A	0.26A
Cycles	As desired	As Desired
Switching capacity	Peak: 250W Hold: <10 W	Peak: 250 W Hold: <12 W
Savings	96%	95%

Green Power: More power with less watts



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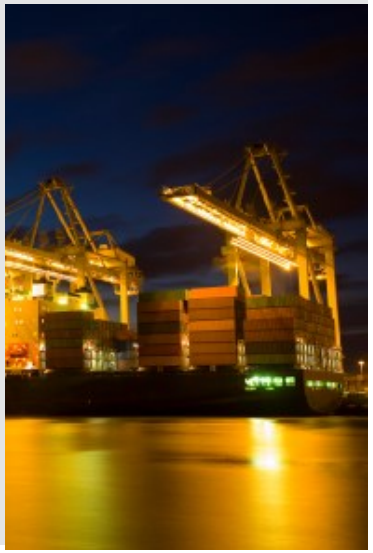

Task

Electromagnets or solenoids can perform a high degree of linear work within a minimum of space.

To operate an electromagnet energy-efficiently, it is decisive which amount of force is actually required in the stroke starting and stroke end position, so that the size, output power and integrated electronic control can be optimally dimensioned.

For braking applications, it would be ideal to have much more output power short-term when switching on, in order to get more force at stroke start, and to have significantly less output power in the end position, so that only the necessary holding force is generated.

In this, the self-heating, temperature and voltage fluctuations should be reliably compensated.

Constant—current regulated peak & hold circuit

Magnetbau Schramme has developed a regulated peak & hold circuitry for 110 VAC and 230 VAC supply voltages.

The resulting stroke—force characteristic curve for the various sizes generally is a result of the current characteristic curve, which is impressed independent of temperature, self-heating and input voltage. Thus, the force in the stroke end position.

The solution - Self—regulating power electronics

- Minimal sized brake magnet / stroke magnet through maximal over excitation -> High force when switching on
- Minimal energy consumption through impressed constant current in the end position -> Reliable, high force in the stroke end position
- Energy saving >90% (e.g. from 250 W auf <12 W)
- Less costs through smaller sized linear solenoids and swift amortization through energy savings
- In 24/7 operation, the magnet basically pays itself off within one year through the saved energy

For actuation of the magnet, power ratings of 250 W can be transferred.

The power electronics reduce the current to a set constant current after 0.8 seconds.

In the stroke end position, the power rating is reduced from 250 W to 10-12 W, meaning 95% less.

The electronics are housed in the small ballast box and can be plugged onto the magnet.