KNOTT Electromagnetic Release Spring-Applied Dual-Surface Spring applied Brakes

TYPE ERG
KNOTT manufacture a wide range of electromagnetic power-on and power-off brakes to suit the demands of the modern day applications.
**KNOTT** Electromagnetic Release Spring-Applied Dual-Surface Spring applied Brakes

Type **ERG**
Type ERG

Exploded 3D View

1. Body
2. Coil
3. Spring
4. Armature plate
5. Spacer
6. Bolt
7. Hub
8. Friction Plate
9. Rotor
10. Adaptor
11. Bolt
Operating Principle

ERG series Spring-operated brakes are brakes with two friction surfaces. When no current is applied, the brake force is generated by means of several coiled pressure springs. When current is applied, the brakes are released electromagnetically.

While braking, the rotor (9), which is axially movable on the hub (7), is pressed against the friction surface by means of the compression springs (3) acting on the armature plate (4). The asbestos-free friction linings ensure a high brake torque with low wear and long working life. The brake torque is transmitted between hub (7) and rotor (9) through mating splines.

Applications

- Vehicles for the disabled such as wheel chairs
- Automation equipment
- Electric motors
- Sports & recreation equipment & machinery
- Rotary indexing tables
- Material handling trucks such as forklifts, warehouse trucks, etc.
- Wood processing machines
- Hoists
- Conveyor technology

Key Product Features

- Ready to assemble design (fully assembled with rotor and flange with rotor centered for simplified mounting by customer)
- Thermal class H (180°C)
- Simplified assembly by means of integrated fixing screws
- No fixed bearing required for the brake installation
- Compact design with flange for small overall dimensional packaging
- Standard voltage - DC 24 V (other voltages on request)
- Sizes 0.01 to 0.2 can be mounted on both sides (front or back)
- Manual Release optionally available

In brake-applied condition, there is an air gap ‘s’ between body (1) and armature plate (4) as a result of the springs (3) acting on the armature plate (4). To release the brake, the coil (2) is energized with externally supplied DC voltage. The magnetic force generated causes the armature plate (4) to be attracted to the body (1), pulling it towards the Stator Assembly against the spring force. As a result, the rotor (9) is released and can rotate freely with the hub (7).
Type ERG

Drawings
(Standard Design)

Sizes 0.01 & 0.02

Sizes 0.05, 0.1 & 0.2

Sizes 0.5, 1, 2, 3.5, 6, 10, 15 & 20
Type **ERG**

### Technical Data

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**Note:**
- Power consumption values are specified at 20°C in watt, deviation up to +10% is possible depending on the selected supply voltage.
- Standard voltages for sizes 0.01-0.2: 24 V, 205 V, (103 V); sizes 0.5-3.5: 24 V, 205 V; Sizes 6 & 10: 24 V, 42 V, 205 V
- Keyways are to DIN 6885/1-P9
- ¹ Please contact our design team if special length is required depending on the counter mounting surface.
- ² Nominal air gap. Tolerance for size 0.01: ±0.1/-0.05 & for other sizes: ±0.1. The actual value is determined by the sum tolerances of the individual components.
- w: standard cable length, other options available on request
- Details of sizes 15 & 20 available on request.
- All dimensions in mm
Type **ERG**

## Selection Data

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<th>$M_1^*$ (Nm)</th>
<th>$n_{min}$ (RPM)</th>
<th>Operating times (ms)</th>
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Note:
- $^1$ In relation to relative speed $n = 100 \text{ min}^{-1}$
- The braking torque depends on the speed, refer to the operating instructions.
- $^2$ With standard rated torque and rated air gap
- Standard voltages: 24 V, 205 V, Optional voltages available on request

### Special Design Versions

**Basic Design**

(Available for sizes 0.5 to 20) is the Stator assembly & Armature additionally with the Rotor Assembly which is assembled with a rubber-band device for locking during transport. Apart from the 3 mounting bolts, 2 additional Allen-bolts provided are either used for locking during transport or as manual release and hence should not be used for the normal braking operation.
Type **ERG**

**Design with Manual Release**

uses additional to the standard or basic brake version, a hand release for manual release of the brake. It can be available factory fitted on request.

**Pan Cake Brake available under special customized design configurations:**

Custom designed brakes meet specific customer packaging needs in terms of high performance over narrow space envelope. Specifically designed and developed to meet the needs of parking and emergency braking in modern industrial material handling trucks, these brakes use a high co-efficient of friction material and powerful coil to optimize torque in a very low profile package. The coil is further linked with a PWM (Pulse Width Modulation) power supply to significantly reduce power consumption and maintenance.
Type ERG
The Knott Group –
global competency

The member companies of the Knott Group design, develop, produce and market braking systems for commercial and off-highway vehicles together with running gear components for trailers. Competent, one-to-one consulting and outstanding product quality are characteristic of all the companies within the Group. KNOTT’s own production plants and branch offices are supported by a world-wide dealership network.

www.knott-group.com