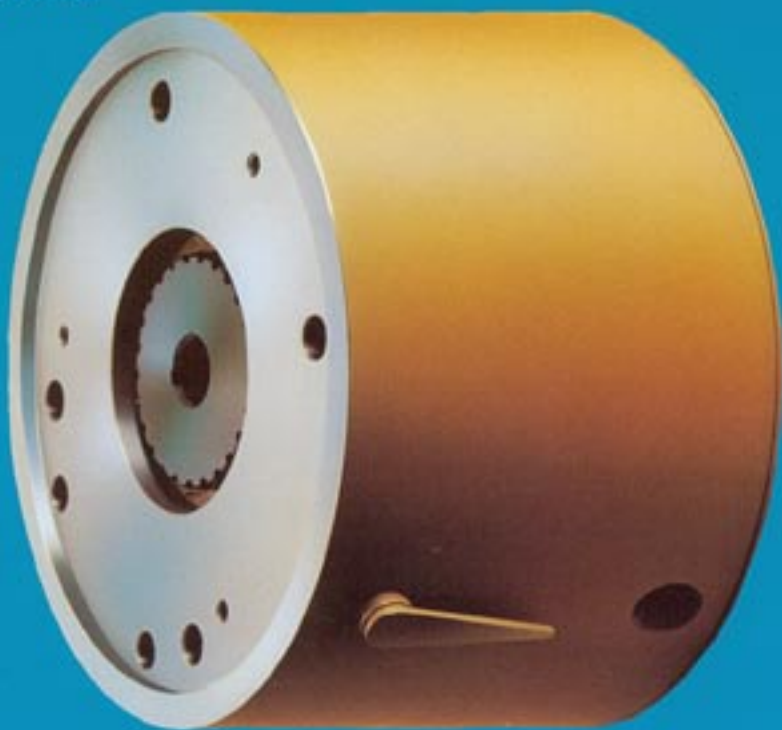


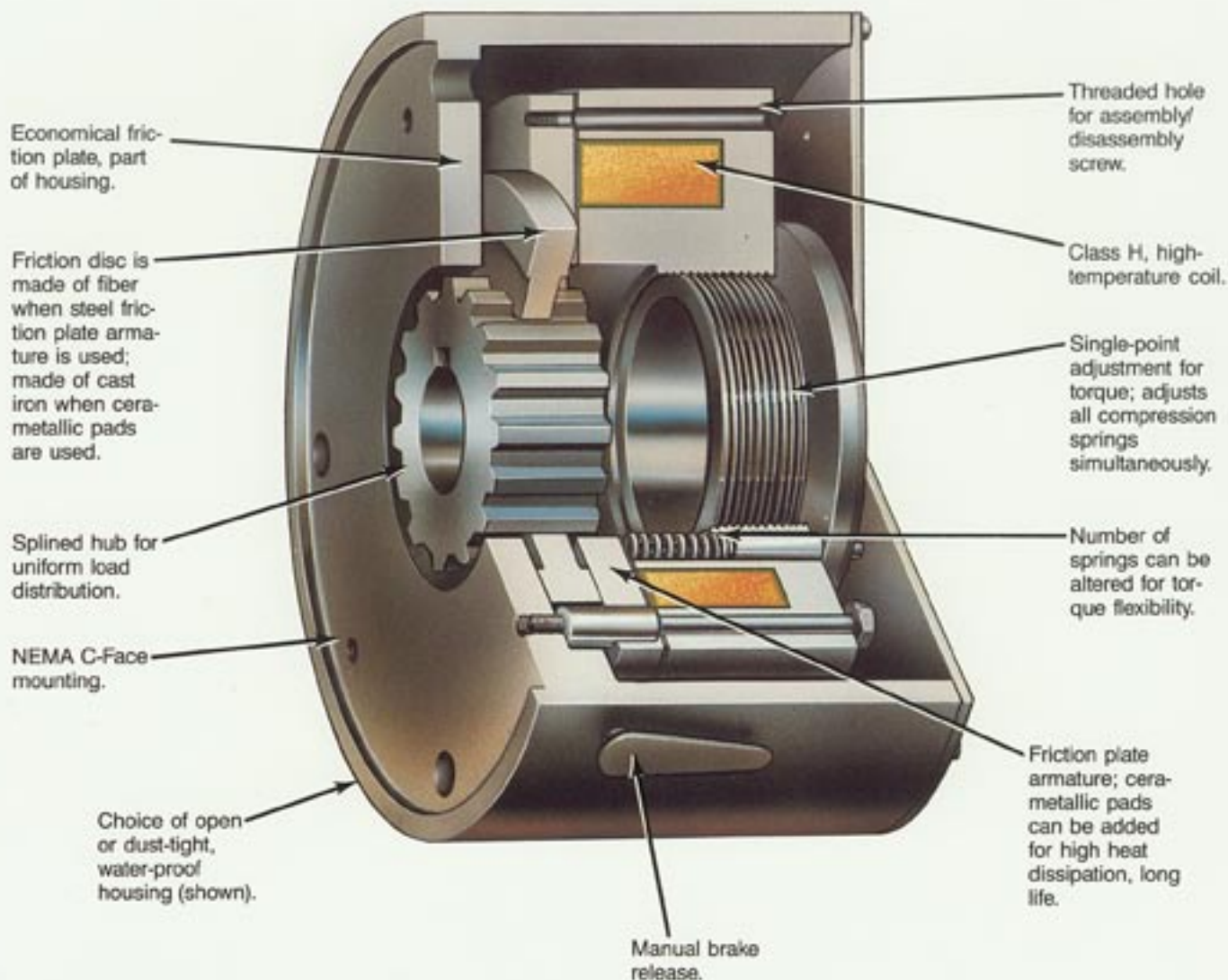
**Electromagnetic
Spring-Applied
Brakes**



"Simple Solutions to
Problems in Motion"

Stromag, Inc.

Stromag Spring-Applied Fail Safe Brakes



Simple Operation!

Braking torque is developed by spring action and friction. Springs are used to apply a clamping force between a friction plate armature and a friction disc to a friction plate which is part of the brake housing. The spring clamping force yields the holding torque of the brake. The Stromag brakes are termed "fail safe" because the brake holding torque is developed only when electrical power is removed.

Electric power is applied to release the brake. A high-temperature coil is energized to develop a magnetic field which compresses the springs, allowing the friction disc to rotate freely. When power is removed intentionally or accidentally, braking action occurs.

Stromag brakes are available with fiber-to-steel friction surfaces or cast iron-to-cerametallic surfaces (see illustration above). The fiber-to-steel surfaces are for holding brake or other light duty applications. Cerametallic pads (ceramic/bronze alloy) are added to the friction plate armature for high heat dissipation applications (cerametallic pads with cast-iron friction disc). With the cerametallic pad option, you can get up to twice the heat dissipation of competitive brakes, plus 50% longer life.

Compare These Outstanding Features!

- Direct acting operation with no solenoids or other linkage. Springs are compressed when power is applied. Braking occurs when power is removed.
- Cerametallic pads can be added to armature for high heat dissipation and long life.
- Precise engaging time.
- Fixed or adjustable torque models.
- Torque adjustable from a single point.
- Seven standard models available with torque rating from 15 ft-lbs to 600 ft-lbs maximum dynamic.
- Unitized construction with ductile iron frame or open-frame construction with optional metal-stamped protective cover.
- Splined hub for uniform load distribution, minimal backlash, and long life.
- Optional overenergization control circuit provides shorter brake release time and increases brake life.
- Special pneumatic or hydraulic models available.
- Custom design for space requirements.
- Optional tachometer mounting.
- Limit switch actuation signal available.
- Optional zero backlash.
- Optional sea-water proof models.

Shipped Ready to Work for You!

Stromag brakes are shipped ready to use. Just attach the hub, mount the brake, and connect it to the voltage control source. All brakes are tested for maximum torque rating before shipment.

Applications Unlimited

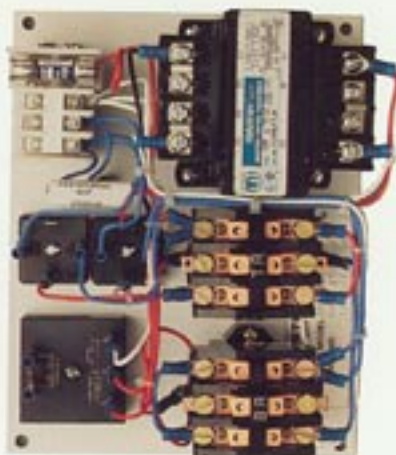
Stromag brakes are ideally suited for use as holding devices in applications where a motor is used to accurately position a load. The spring-applied brake will hold the load in its determined position until power is removed. In addition, Stromag brakes are designed to be used as stopping devices. They can be used to stop machinery in an emergency situation or in a pre-determined manner.



Seven different standard models are available in either unitized construction with ductile steel frame or open-frame construction with optional metal-stamped protective cover.

Stromag brakes are available as off-the-shelf items (see rear cover) or our applications engineers can provide you with a custom design. Stromag brakes are field-proven in such applications as:

- Mobile equipment
- Robotics
- Material Handling Systems
- Machine Tools



The OEC (Overenergization Control) is available for use with 24-volt coils (24- and 90-volt coils are both available). The OEC provides a momentary coil voltage of 90 volts to reduce drop out time and increase brake life. The circuit components are mounted on metal baseplate 8 $\frac{1}{4}$ " x 6 $\frac{1}{4}$ " x 3" (HWD).

Selecting Your Brake

Specifications for the Stromag brakes are presented on the rear cover. Three parameters are important for selecting the proper size:

Holding Torque—Select the model with the maximum torque closest to the holding torque required, but not less than that required.

Stopping Time—The time to stop a load can be determined if the system inertia and brake holding torque is known.

$$t = \frac{WR^2N}{308T}$$

t = time to stop the load in sec

Where:

WR² = system inertia at the brake location in lb-ft²

N = speed of the brake shaft in RPM

T = rated brake holding torque in lb-ft

Thermal Capacity—The thermal capacity required for rotational or linear moving loads (TC) can be calculated in hp-sec/min.

$$TC = \frac{WK_r^2 \times N_b^2 \times n}{3.2 \times 10^6}$$

Where:

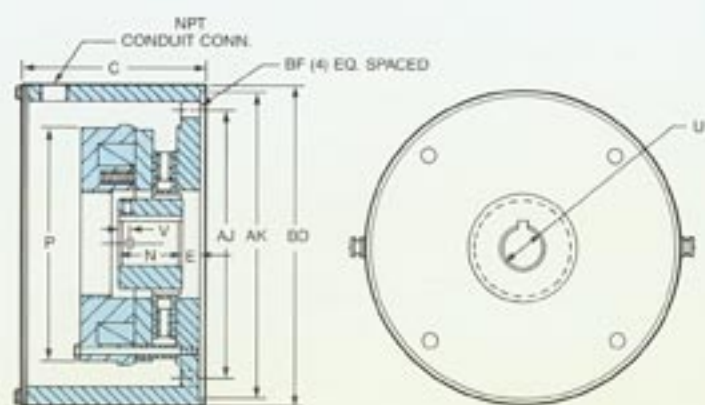
WK_r² = total system inertia reflected to brake shaft in lb-ft²

N_b² = shaft speed at brake in RPM

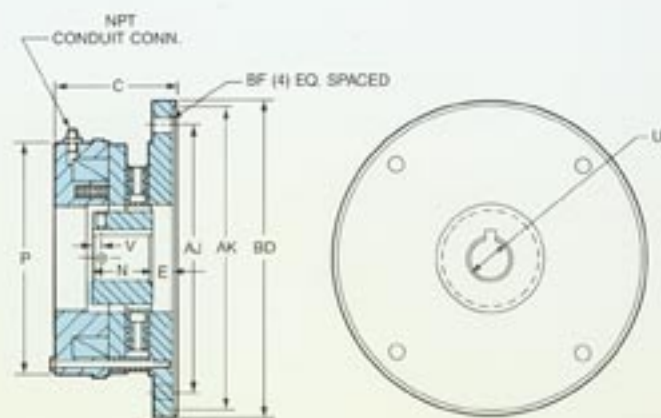
n = number of stops per minute, not less than 1

3.2 x 10⁶ = constant

Technical Specifications



Unitized construction with ductile steel frame, for example, SMB-25U.



Open frame construction with optional stamped-metal cover, for example, SMB-25X. Consult factory for optional cover info.

MODEL	C	E	N	V	BD*	AIR GAP	U (MAX)	AJ*	AK*	BF	P
SMB-2.5U	4.50	.25	1.75	.38	7.50	.015	1.125	5.875	4.50	.40	5.31
SMB-2.5X	3.50	.62	1.50	.38	6.75	.012	1.125	5.875	4.50	.40	5.31
SMB-5U	5.38	.25	1.75	.31	9.50	.020	1.625	7.250	8.50	.53	6.50
SMB-5X	4.00	.56	2.00	.50	8.88	.012	1.625	7.250	8.50	.53	6.50
SMB-10U	5.38	.25	1.75	.31	9.50	.023	1.625	7.250	8.50	.53	7.50
SMB-10X	4.75	.88	2.00	.50	9.00	.012	1.625	7.250	8.50	.53	7.50
SMB-20U	5.62	.38	2.50	.38	13.50	.025	2.375	9.000	10.50	.53	9.50
SMB-20X	5.00	.88	2.50	.38	11.00	.012	2.375	9.000	10.50	.53	9.50
SMB-30U	5.62	.38	2.50	.38	13.50	.025	2.375	11.000	12.50	.65	9.50
SMB-30X	5.00	.88	2.50	.38	13.00	.012	2.375	11.000	12.50	.65	9.50
SMB-40U	7.50	.50	2.50	.38	13.50	.025	2.375	11.000	12.50	.65	11.50
SMB-40X	6.25	.75	2.50	.38	13.00	.016	2.375	11.000	12.50	.65	11.50
SMB-80U	8.25	.75	4.00	.38	13.50	.030	2.875	11.000	12.50	.65	13.00
SMB-80X	6.87	.75	4.00	.38	13.00	.016	2.875	11.000	12.50	.65	13.00

MODEL	TORQUE† (FT-LBS)	HEAT DISSIPATION (HP-SEC/MIN)	INERTIA (LB-FT²)	WEIGHT* (LB)	NOMINAL VOLTAGE	WATTAGE	ENGAGE TIME (MS)**	DISENGAGE TIME (MS)
SMB-2.5U	15/37	15	.04	25	24/90	57/65	110	60
SMB-2.5X	15/37	15	.04	18	24/90	57/65	110	60
SMB-5U	35/72	20	.08	41	24/90	52/62	150	80
SMB-5X	35/72	20	.06	32	24/90	52/62	150	80
SMB-10U	75/144	25	.12	62	24/90	65/79	200	110
SMB-10X	75/144	25	.12	50	24/90	65/79	200	110
SMB-20U	300/300	35	.3	110	24/90	135/141	260	155
SMB-20X	300/300	35	.3	93	24/90	135/141	260	155
SMB-30U	300/300	35	.3	110	24/90	135/141	320	185
SMB-30X	300/300	35	.3	93	24/90	135/141	320	185
SMB-40U	400/600	50	.7	173	24/90	169/204	340	215
SMB-40X	400/600	50	.7	162	24/90	169/204	340	215
SMB-80U	660/1180	80	1.2	296	24/90	184/210	450	300
SMB-80X	660/1180	80	1.2	250	24/90	184/210	450	300

All dimensions in inches. *May vary depending on mounting flange. **Switched on DC side with arc suppression. †First torque value is for holding only with manual release; second torque value is for holding only without manual release.

HP-sec/min ratings can be exceeded in many applications. Consult factory for details.

For adjustable torque, specify "K"; for non-adjustable, specify "H". For example, SMB-5U-K-90 is unitized construction with adjustable torque and 90-volt coil. When OEC is used, 24-volt coil is required (see page 3).



Stromag, Inc. 85 Westpark Rd. • Dayton, Ohio 45459 • Phone: 937/433-3882 • FAX: 937/433-6598