

# UTSEB Series

## Ultra Thin Spring-Engaged Power-Off Brakes with PWM Controller

Seven standard frame sizes available:

- 1.02 to 3.29" diameter; 0.47 to 0.84" length
- Bore sizes from 0.19 to 0.79"
- Static torque from 0.53 to 44.25 lb-in
- 24 VDC coil voltage for 0.5 sec max; 7 VDC holding voltage with PWM controller
- Modified designs and customized assemblies available



### Performance/ Mechanical Specifications

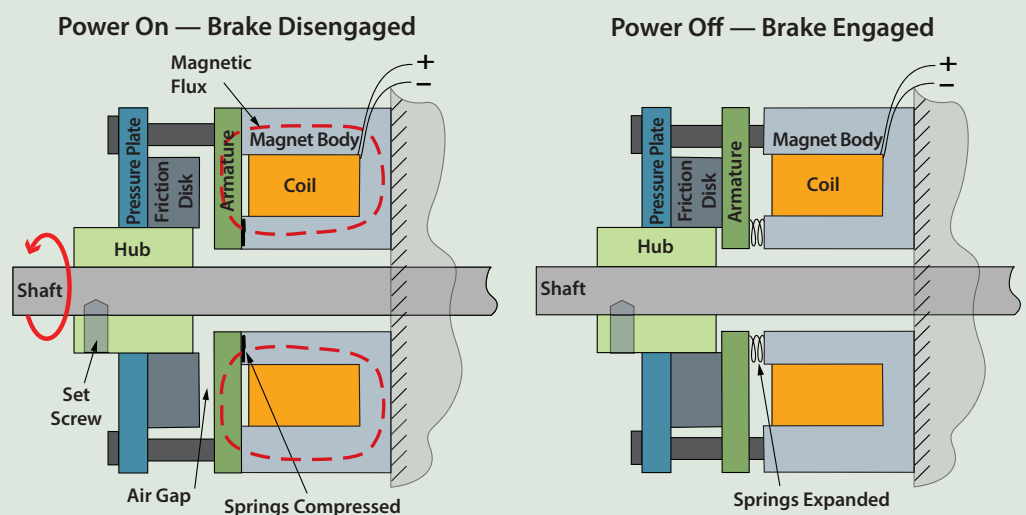
|                           |                    | UTSEB Series — Model Size |                        |                       |                      |                      |                       |                       |
|---------------------------|--------------------|---------------------------|------------------------|-----------------------|----------------------|----------------------|-----------------------|-----------------------|
|                           |                    | 102-24-<br>M05            | 114-24-<br>M08         | 154-24-<br>M08        | 189-24-<br>M14       | 221-24-<br>M14       | 280-24-<br>M20        | 328-24/7-<br>M19      |
| Torque Rating<br>(Static) | lb-in              | 0.53                      | 1.42                   | 2.83                  | 5.49                 | 11.68                | 28.32                 | 44.25                 |
|                           | Nm                 | 0.06                      | 0.16                   | 0.32                  | 0.62                 | 1.32                 | 3.20                  | 5.00                  |
| Recommended<br>Max Speed  | RPM                | 5000                      | 5000                   | 5000                  | 5000                 | 5000                 | 5000                  | 5000                  |
| Coil Data- 24VDC<br>7VDC  | Amps               | 0.60                      | 0.42                   | 0.33                  | 0.75                 | 0.83                 | 0.70                  | 0.73                  |
|                           |                    | 0.18                      | 0.12                   | 0.10                  | 0.22                 | 0.24                 | 0.20                  | 0.21                  |
| Friction Disc<br>Inertia  | lb-ft <sup>2</sup> | $1.07 \times 10^{-5}$     | $4.4 \times 10^{-6}$   | $1.43 \times 10^{-3}$ | $4.5 \times 10^{-5}$ | $8.3 \times 10^{-5}$ | $2.4 \times 10^{-3}$  | $5.93E-04$            |
|                           | kg-m <sup>2</sup>  | $0.45 \times 10^{-7}$     | $0.184 \times 10^{-6}$ | $0.6 \times 10^{-6}$  | $1.9 \times 10^{-6}$ | $3.5 \times 10^{-6}$ | $10.3 \times 10^{-6}$ | $25.0 \times 10^{-6}$ |
| Approximate<br>Weight     | lb                 | 0.07                      | 0.08                   | 0.16                  | 0.24                 | 0.35                 | 0.89                  | 1.15                  |
|                           | kg                 | 0.03                      | 0.04                   | 0.07                  | 0.11                 | 0.16                 | 0.4                   | 0.52                  |

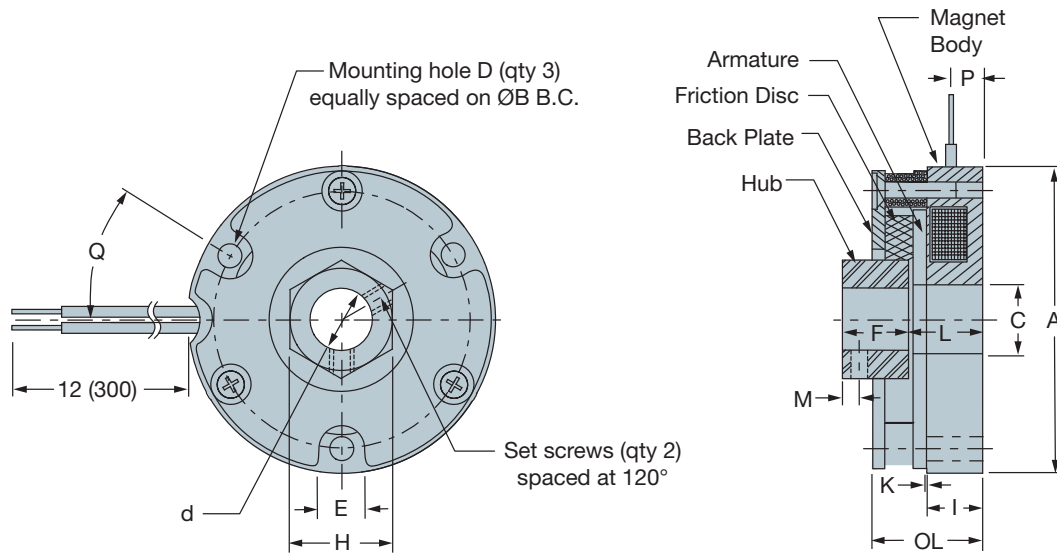
### UTSEB Operation:

The magnet body is attached to the rear of the motor or bulkhead, and the hub is attached to the shaft with two set screws. When the coil is energized, the electromagnetic field attracts the armature plate and compresses the springs. This allows the friction plate to rotate freely with the hub and shaft.

Once energized with 24 VDC, the PWM controller will provide the 7VDC to hold the brake in the release position.

When power is turned off, the electromagnetic field dissipates, allowing the springs to push the armature plate into contact with the friction disk. This squeezes the friction disk between the pressure plate and the armature plate, thus transmitting torque, and stopping/holding the friction disc, hub, and shaft.



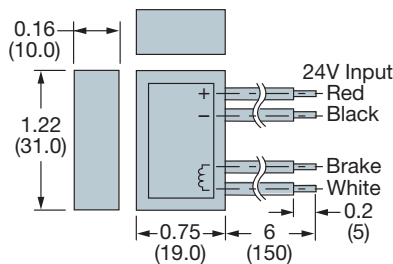
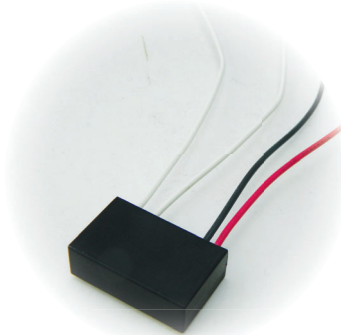


**UTSEB Series — Model Size (add "UTSEB-" to model size below to complete model number)**

| Dimensions — Inches (mm)               |             | 102-24-M05    | 114-24-M08    | 154-24-M08    | 189-24-M14    | 221-24-M14    | 280-24-M20    | 328-24/7-M19  |
|--|-------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Overall Body Diameter                  | A           | 1.02 (26.0)   | 1.14 (29.0)   | 1.54 (39.0)   | 1.89 (48.0)   | 2.20 (56.0)   | 2.80 (71.0)   | 3.29 (83.5)   |
| Overall Length (ref)                   | OL          | 0.49 (12.6)   | 0.47 (12.0)   | 0.55 (14.0)   | 0.55 (14.0)   | 0.57 (14.5)   | 0.75 (19.0)   | 0.84 (21.3)   |
| Thickness                              | I           | 0.30 (7.5)    | 0.30 (7.5)    | 0.28 (7.0)    | 0.28 (7.0)    | 0.30 (7.5)    | 0.42 (10.5)   | 0.48 (12.2)   |
| Depth                                  | L           | 0.37 (9.3)    | 0.35 (8.9)    | 0.36 (9.2)    | 0.36 (9.2)    | 0.38 (9.7)    | 0.55 (14.0)   | 0.27 (7.0)    |
| Magnet Body Lead Wire Location         | P           | 0.18 (4.5)    | 0.18 (4.5)    | 0.16 (4.0)    | 0.16 (4.0)    | 0.18 (4.5)    | 0.25 (6.3)    | 0.27 (7.0)    |
|  | Q           | 30°           | 30°           | 45°           | 45°           | 45°           | 30°           | 30°           |
| Magnet Body Mounting Hole Ø            | D           | 0.09 (2.3)    | 0.08 (2.1)    | 0.12 (3.0)    | 0.12 (3.0)    | 0.13 (3.4)    | 0.17 (4.2)    | 0.18 (4.5)    |
| Magnet Body Mounting Holes Bolt Circle | B           | 0.866 (22.00) | 0.984 (25.00) | 1.299 (33.00) | 1.653 (42.00) | 1.968 (50.00) | 2.560 (65.00) | 2.993 (76.00) |
| Clearance Slot                         | E           | 0.17 (4.3)    | 0.18 (4.5)    | 0.24 (6.0)    | 0.24 (6.0)    | 0.26 (6.5)    | 0.32 (8.0)    | 0.35 (9.0)    |
| Pilot I.D.                             | C           | 0.28 (7.0)    | 0.35 (9.0)    | 0.35 (9.0)    | 0.59 (15.0)   | 0.59 (15.0)   | 0.87 (22.0)   | 1.85 (47.0)   |
| Length                                 | F           | 0.30 (7.7)    | 0.33 (8.5)    | 0.33 (8.5)    | 0.35 (9.0)    | 0.35 (9.0)    | 0.41 (10.5)   | 0.51 (13.0)   |
| Width                                  | H           | 0.32 (8.0)*   | 0.38 (9.7)*   | 0.51 (13.0)   | 0.75 (19.0)   | 0.75 (19.0)   | 1.00 (25.4)*  | SPLINE        |
| Hub Bore Ø                             | d           | 0.197 (5.00)  | 0.315 (8.00)  | 0.315 (8.00)  | 0.551 (14.00) | 0.551 (14.00) | 0.790 (20.00) | 0.748 (19.00) |
| Hub Set Screws (Qty 2)                 | Thread Size | M3            | M3            | M3            | M3            | M3            | M4            | No Set Screws |
|  | Location    | M             | 0.10 (2.5)    | 0.07 (1.8)    | 0.08 (2.0)    | 0.10 (2.5)    | 0.10 (2.5)    | 0.13 (3.2)    |
| Air Gap (nominal ref)                  | K           | 0.003 (0.07)  | 0.003 (0.07)  | 0.003 (0.08)  | 0.003 (0.08)  | 0.004 (0.10)  | 0.004 (0.10)  | 0.004 (0.10)  |

\* Hub is square, not hex

## PWM Controller



## Specifications

|                        |   |
|------------------------|---|
| Input Voltage          | 24 VDC ±15%   |
| Output Current— DC Max | 0.8 A (@ 80°C)  |
| Output Voltage         | Energize coil with 24 VDC for 0.5 sec max.; then reduce to 7 VDC (±5%) for holding status |
| Temperature Range      | -20 to 80°C   |
| Insulation Resistance  | 500 VDC/50MΩ (min)  |
| High Potentiometer     | 1500 V / 1 mA / 1 second  |
| Lead Wire              | UL3266 (22 AWG)   |