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# NAFSA - ER SERIES

ER60-20/C

- Single acting, spring or load return
- Up to class F winding (155°C)
- Duty cycle from 0 to 100%
- Up to 234N force
- Customer specific version available




### PRODUCT DESCRIPTION

The ER series of electromagnets are a single acting solenoid.

When an electrical connection is made to to coil, the plunger moves through the magnetic field and pushes the shaft along its designated stroke.

Upon removing the electrical connection, the shaft is retracted to its rest position using either a mechanical spring or the load applied.

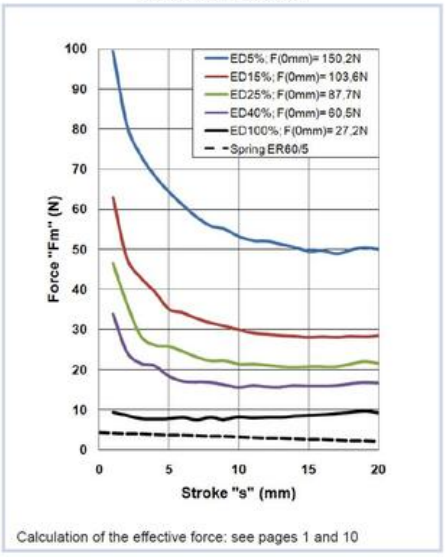
Many different standard versions are available (please see catalogue PDF below) and application specific designs can be provided for larger volume requirements.

## TECHNICAL DATA

| | |
|---|---|
| **Absorbed power @ 20°C, 100% duty** | 18 W |
| **Absorbed power @ 20°C, 15% duty** | 110 W |
| **Absorbed power @ 20°C, 25% duty** | 70 W |
| **Absorbed power @ 20°C, 40% duty** | 45 W |
| **Absorbed power @ 20°C, 5% duty** | 280 W |
| **Beginning of stroke force at 100% duty** | 92 N |
| **Beginning of stroke force at 15% duty** | 285 N |
| **Beginning of stroke force at 25% duty** | 215 N |
| **Beginning of stroke force at 40% duty** | 167 N |
| **Beginning of stroke force at 5% duty** | 50 N |
| **End of stroke force at 100% duty** | 27 N |
| **End of stroke force at 15% duty** | 103 N |
| **End of stroke force at 25% duty** | 87 N |
| **End of stroke force at 40% duty** | 60 N |
| **End of stroke force at 5% duty** | 150 N |

| | |
|---|---|
| **Function** | pull/push |
| **Insulation class** | B (130°C) |
| **IP class** | IP00 |
| **Spring return** | Yes |
| **Stroke** | 20 mm |
| **Total weight** | 650 g |
| **Voltage ac max** | 230 V |
| **Voltage ac min** | 110 V |
| **Voltage dc max** | 205 V |
| **Voltage dc min** | 6 V |

Force stroke curve




Calculation of the effective force: see pages 1 and 10

| Duty-cycle ED% | Standard voltages | | | | | | | | | Under demand voltages | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | VDC | | | | | | | VAC | | VDC | | VAC | |
| | 6 | 12 | 24 | 48 | 100 | 125 | 205 | 110 | 230 | Min | Max | Min | Max |
| 100% | x | o | o | o | o | o | o | o | o | 7 | 230 | 48 | 230 |
| 40% | x | o | o | o | o | o | o | x | o | 11 | 230 | 125 | 230 |
| 25% | x | x | o | o | o | o | o | x | o | 13 | 230 | 200 | 230 |
| 15% | x | x | o | o | o | o | o | x | x | 16 | 230 | x | x |
| 5% | x | x | o | o | o | o | o | x | x | 24 | 230 | x | x |

Layout: o = Available ; x = Unavailable

Solenoid under voltage

