



# EM Electro-Magnets

EM 1800 EM 3000 EM 5300 EM 6800 EM 7500 EM 15000 

# EM electro-magnets: the slender, safe, secure and flexible door locking solution





#### A 'fitting' solution for every door

DORMA's EM electro-magnets are reliable and convenient door locking devices that can be readily combined with an access control system. The DORMA EM product range offers the right solution for a wide array of structural situations and applications:

- Holding forces from 1,800 to 15,000 N
- For single or double doors (non-handed)
- For double-action doors
- With and without feedback function (locked/unlocked signalling)
- For mounting in or on the door frame; also suitable for retrofitting
- EM xxxx T models of extra-slender design
- Some units with splashwater-protected casing (EM 7500)

#### It's the quality of the material that makes the difference

DORMA offers a complete portfolio of EM electro-magnets. Thanks to the materials selected and comprehensive longtime testing at the development stage, these too meet in full the quality standards set by DORMA. The details in brief:

- Very high-grade steel for excellent protection against remanence and corrosion (the same steel is also used in 'Cyclotron' particle accelerators)
- Use of high-quality resins for an extended thermal application range of -60°C to +80°C
- Use of pure copper (99.8%) for good electrical efficiency
- All magnets feature electronic protection against induced voltages



#### Easy installation with a comprehensive range of accessories

DORMA's EM magnets are easy to install and can also be retrofitted in certain cases. The armature catch plate and fixing materials are included in the scope of supply. And for special mounting situations, e.g. in the case of toughened glass doors, there is a comprehensive range of accessories available to complete the job.

- Recessed in or mounted on the door frame
- For supply voltages of 12V or 24V DC
- Comprehensive installation instructions and documentation material

Contents	Page
Overview of technical features and functions	4
Series EM 1800	5
Series EM 3000	6
Series EM 5300	8
Series EM 6800	10
Series EM 7500 and EM 15000	12
Installation examples and fixing sets	14

#### Benefits at a glance

- High holding forces for safe and secure locking despite elegant, slender dimensions
- Corrosion-protected, sturdy casings and use of selected materials for long service lifetimes
- No wear or abrasion of the magnets
- Comprehensive range of accessories enables easy installation on almost any door
- Effective protection against unauthorised removal of surface-mounted models
- Low energy consumption thanks to high electrical efficiency of the magnets

### Technical features of DORMA's EM magnets

EM electro-magnets overview							
	EM 1800	EM 3000	EM 5300	EM 6800	EM 7500	EM 7500-D	EM 15000-D
Holding force	1800 N	3000 N	5300 N	6800 N	7500 N	7500 N	15000 N
Voltage	12V/24V	12V/24V	12V/24V	12V/24V	12V/24V	12V/24V	12V/24V
Slender design		•	•	•			
Mini-magnet				•			
Shear lock magnet						•	•
Splashwater protection					•		
Model for double doors			•				
'Door closed' feedback signal				•			
'Door locked' feedback signal	•	•	•	•	•	•	•
LED display (Mega/Giga LED)	•	•	•	•			
Early warning tamper contact		•	•	•			
Early warning panic function		•	•				

#### Article designations, abbreviations and product characteristics

The article designation indicates the holding force and the characteristics of the lock magnets, e.g. EM 1800 AH = 1800 N holding force with feedback function (A), designed for surface mounting (H).

#### A = Feedback signal

A floating contact signals that the electro-mechanical lock is engaged.

#### D = Shear lock magnets

The special feature of these magnets lies in their electromechanical retention system (shear lock). Because of their design, they are also suitable for double-action doors. In the locked state, these devices are generally not visible. An integrated Hall sensor detects the closed door. This is particularly important for use in double-action doors.

#### EW = Early warning

#### 1. EW tamper contact

The magnet detects tamper attempts (rattling of the door) and triggers a floating contact.

#### 2. EW function

In addition to tamper attempts, the magnet also detects a panic situation (pressure applied for a certain predefined time, despite alarm initiation). In this case, the electromagnet releases the door for panic escape.

#### F = Front-face mounting

GL = Magnets with LED

A Mega or Giga LED indicates the magnet status (green/red).

#### H = Surface-mounted

#### I = Intruder alarm

The armature plate (catch plate) is monitored with the aid of an individualised sensor. This means that manipulation using a catch plate of identical construction can be effectively precluded.

#### M = Recessed (concealed mounting)

#### **PB** = Recessed armature plate

Recessed/concealed in a profile with the aid of an additional mounting plate.

#### S = Side-mounted

Instead of being mounted on the front face, the magnet is located at  $90^{\circ}$  – e.g. for use on sliding doors.

#### T = Slender design

Because of their particularly narrow width of 35.5 mm, the magnets can also be installed in slender narrow-stile profiles.



# Series EM 1800: straightforward security for office doors and toughened glass doors

Technical features of the EM 1800 series						
	АН	АМ				
Installation	Surface-mounted	Recessed				
Voltage/current	12 V / 24 V DC 500 / 250 mA	12 V / 24 V DC 500 / 250 mA				
Slender design						
Mini-magnet						
Shear lock magnet						
Splashwater protection						
Designed for double doors						
'Door closed' feedback signal						
'Door locked' feedback signal	•	•				
LED display	•	•				
Early warning tamper contact						
Early warning panic function						

#### Specification text

Electro-magnet with 1,800 N holding force for locking interior doors in the moderate security category, such as office doors or toughened glass doors.

Corrosion-protected casing of metal, and magnet of pure copper (99.8%) for high electrical efficiency. Suitable for service temperatures between  $-60^{\circ}$ C and  $+80^{\circ}$ C.

#### EM 1800 AH

Surface-mounted model, with 'door locked' feedback function and green/red door status display

Power supply:	12 V / 24 V DC
Magnet:	166 x 39 x 21 mm
Armature plate:	133 x 31 x 8 mm
Weight:	1.2 kg

#### EM 1800 AM

Recessed model, with 'Door locked' feedback function and green/red door status display

Power supply:	12 V / 24 V DC
Magnet:	143 x 34 x 21 mm
Armature plate:	133 x 31 x 8 mm
Weight:	1.2 kg

#### Order No.





19860001

### Series EM 3000: normal security category for project applications

Technical features of the EM 3000 series							
	Н	AH	м	AM	T AM	PB M	GL AH
Installation	Surface- mounted	Surface- mounted	Recessed	Recessed	Recessed	Recessed	Surface- mounted
Voltage/current							12V/24V DC 500/250mA
Slender design					•		
Mini-magnet							
Shear lock magnet							
Splashwater protection							
Designed for double doors							
'Door closed' feedback signal							
'Door locked' feedback signal		•		•	•		•
LED display							•
Early warning tamper contact							
Early warning panic function							•

#### Specification text

Electro-magnet with 3000 N holding force for general door applications in the normal security category, such as in project applications.

Corrosion-protected casing of metal, and magnet of pure copper (99.8%) for high electrical efficiency. Suitable for service temperatures between  $-60^{\circ}$ C and  $+80^{\circ}$ C.

#### EM 3000 H

Surface-mounted model

Power supply:	12 V / 24 V DC
Magnet:	268 x 48 x 26.5 mm
Armature plate:	185 x 35 x 12.5 mm
Weight:	2 kg

#### EM 3000 AH

Surface-mounted model, with 'door locked' feedback functionPower supply:12 V / 24 V DCMagnet:268 x 48 x 26.5 mmArmature plate:185 x 35 x 12.5 mmWeight:2 kg

#### EM 3000 M

Recessed modelPower supply:12 V / 24 V DCMagnet:187 x 38 x 27 mmArmature plate:185 x 35 x 12.5 mmWeight:2 kg

Order No.

19860100

19860101







#### Specification text

Electro-magnet with 3000 N holding force for general door applications in the normal security category, such as in project applications.

Corrosion-protected casing of metal, and magnet of pure copper (99.8%) for high electrical efficiency. Suitable for service temperatures between  $-60^{\circ}$ C and  $+80^{\circ}$ C.

#### EM 3000 AM

Recessed model, with 'Door locked' feedback functionPower supply:12 V / 24 V DCMagnet:187 x 38 x 27 mmArmature plate:185 x 35 x 12.5 mm

#### EM 3000-T AM

Weight:

Recessed model of particularly slender design for use in narrow-stile profiles, with 'Door locked' feedback function

2 kg

Installation:	Recessed
Power supply:	12 V / 24 V DC
Magnet:	194 x 35,5 x 26.5 mm
Armature plate:	185 x 36 x 12.5 mm
Weight:	2 kg

#### EM 3000-PB M

Recessed armature plate model, with profile fixing unit included

Installation:RecessedPower supply:12 V / 24 V DCMagnet:197 x 39 x 24 mmArmature plate:4/8 x 38 x 12 mmWeight:2 kg

#### EM 3000-GL AH

Surface-mounted model, with 'Door locked' feedback function, green/red door status display and 'Early warning' panic function

Installation:	Surface-mounted
Power supply:	12 V / 24 V DC
Magnet:	268 x 48 x 26 mm
Armature plate:	185 x 35 x 12.5 mm
Weight:	2 kg

#### Order No.

19860112

19860110

19860113









### Series EM 5300: elevated security for universal applications

Technical features of the EM 5300 series							
	н	AH	T AM	2 H	2 AH	i AH	GL AH
Installation	Surface- mounted	Surface- mounted	Recessed	Surface- mounted	Surface- mounted	Surface- mounted	Surface- mounted
Voltage/current			12V/24V DC 500/250mA				
Slender design			•				
Mini-magnet							
Shear lock magnet							
Splashwater protection							
Designed for double doors				•	•		
'Door closed' feedback signal							•
'Door locked' feedback signal		•	•		•	•	•
LED display							•
Early warning tamper contact							
Early warning panic function							
Secured amature plate						•	

#### Specification text

Electro-magnet with 5,300 N holding force for universal applications on doors in the elevated security category. Corrosion-protected casing of metal, and magnet of pure copper (99.8%) for high electrical efficiency. Suitable for service temperatures between  $-60^{\circ}$ C and  $+80^{\circ}$ C.

#### EM 5300 H

Surface-mounted model	
Power supply:	12 V / 24 V DC
Magnet:	268 x 73 x 39 mm
Armature plate:	190 x 61 x 17 mm
Weight:	5 kg

#### EM 5300 AH

Surface-mounted model, with 'door locked' feedback functionPower supply:12 V / 24 V DCMagnet:268 x 73 x 39 mmArmature plate:190 x 61 x 17 mmWeight:5 kg

#### EM 5300-T AM

Recessed model of particularly slender design foruse in narrow-stile profiles, with 'Door locked' feedbackfunctionPower supply:12 V / 24 V DCMagnet:194 x 35.5 x 26.5 mmArmature plate:185 x 36 x 12.5 mmWeight:5 kg

#### Order No.

19860200

19860201

19860210







### Specification text

Electro-magnet with 5,300 N holding force for general door applications in the normal security category, such as in project applications.

Corrosion-protected casing of metal, and magnet of pure copper (99.8%) for high electrical efficiency. Suitable for service temperatures between  $-60^{\circ}$ C and  $+80^{\circ}$ C.

#### EM 5300-2 H

Surface-mounted model for double doors

Power supply:	12 V / 24 V DC
Magnet:	536 x 73 x 39 mm
2 pcs. amature plate each:	190 x 61 x 17 mm
Weight:	7.8 kg

#### EM 5300-2 AH

Surface-mounted model for double doors,with 'Door locked' feedback functionPower supply:12 V / 24 V DCMagnet:536 x 73 x 39 mm2 pcs. amature plate each:190 x 61 x 17 mmWeight:7.8 kg

#### EM 5300-I AH

Surface-mounted model with armature plate anti-tamperprotection, with 'Door locked' feedback functionPower supply:12 V / 24 V DCMagnet:268 x 73 x 39 mmArmature plate:190 x 61 x 17 mmWeight:5 kg

#### EM 5300-GL AH

Surface-mounted model, with 'Door locked' and 'Door closed'feedback functions, and with green/red door status displayPower supply:12 V / 24 V DCMagnet:268 x 73 x 40 mmArmature plate:190 x 61 x 17 mmWeight:5 kg

#### Order No.

19860202

19860203









19860204

## Series EM 6800; small and slender design offering elevated security with door status feedback signalling and early warning contact

Technical features of the EM 6800 series					
	АМ	F AM	S AM	AH	GL AH
Installation	Recessed	Semi-recessed	Semi-recessed	Surface- mounted	Surface- mounted
Voltage/current	12 V DC 300 mA	12 V DC 300 mA	12 V DC 300 mA	12 V / 24 V DC 240 / 120 mA	12 V / 24 V DC 240 / 120 mA
Slender design	•	•	•	•	•
Mini-magnet	•	•	•	•	•
Shear lock magnet					
Splashwater protection					
Designed for double doors					
'Door closed' feedback signal	•	•	•	•	•
'Door locked' feedback signal	•	•	•	•	•
LED display					•
Early warning tamper contact	٠	•	•	•	•
Early warning panic function					

#### Specification text

Mini-electro-magnet with 6,800 N holding force for universal application on doors in the elevated security category; with integrated feedback signalling for 'Door closed' and 'Door locked', and also an 'Early warning' contact. Corrosion-protected casing of metal, and magnet of pure copper (99.8%) for high electrical efficiency. Suitable for service temperatures between  $-60^{\circ}$ C and  $+80^{\circ}$ C.

#### EM 6800 AM

Recessed model of slender design, also suitable for use in narrow-stile profiles; with 'Door locked' and 'Door closed' feedback functions, and also an 'Early warning' contact

Power supply:	12 V DC
Magnet:	128 x 21,7 x 26.7 mm
Armature plate:	104 x 21 x 8.5 mm
Weight:	0.45 kg

#### EM 6800-F AM

Semi-recessed model (armature plate on front face) of slender design, also suitable for use in narrow-stile profiles; with 'Door locked' and 'Door closed' feedback functions, and also an 'Early warning' contact Power supply: 12 V DC

Power supply:	12 V DC
Magnet:	128 x 21,7 x 26.7 mm
Armature plate:	104 x 21 x 8.5 mm
Weight:	0.45 kg

### Order No.

19860220





#### Specification text

Mini-electro-magnet with 6,800 N holding force for universal application on doors in the elevated security category; with integrated feedback signalling for 'Door closed' and 'Door locked', and also an 'Early warning' contact. Corrosion-protected casing of metal, and magnet of pure copper (99.8%) for high electrical efficiency. Suitable for service temperatures between  $-60^{\circ}$ C and  $+80^{\circ}$ C.

#### EM 6800-S AM

Semi-recessed model (side-mounted armature plate) of slender design, also suitable for use in narrow-stile profiles; with 'Door locked' and 'Door closed' feedback functions, and also an 'Early warning' contact

Power supply:	12 V DC
Magnet:	128 x 21.7 x 26.7 mm
Armature plate:	104 x 21 x 8.5 mm
Weight:	0.45 kg

#### EM 6800 AH (not illustrated)

Surface-mounted model of slender design, also suitablefor use in narrow-stile profiles; with 'Door locked' and 'Doorclosed' feedback functions, and also an 'Early warning' contactPower supply:12 V DCMagnet:128 x 21,7 x 26.7 mmArmature plate:104 x 21 x 8.5 mmWeight:0.45 kg

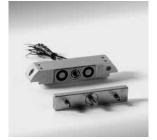
#### EM 6800-GL AH (not illustrated)

Surface-mounted model of slender design, with 'Door locked' and 'Door closed' feedback functions, 'Early warning' contact and green/red door status display

Power supply:	12 V DC
Magnet:	128 x 21.7 x 26.7 mm
Armature plate:	104 x 21 x 8.5 mm
Weight:	0.45 kg

19860231

#### Order No.



19860222

# Series 7500 with splashwater protection: high security solution, also suitable for industrial environments

	EM 7500-F AH	EM 7500-S AH
Installation	Surface-mounted	Surface-mounted
Voltage/current	12 V / 24 V DC 500 / 250 mA	12 V / 24 V DC 500 / 250 mA
Slender design		
Mini-magnet		
Shear lock magnet		
Splashwater protection	•	•
Designed for double doors		
'Door closed' feedback signal		
'Door locked' feedback signal	•	•
LED display		
Early warning tamper contact		
Early warning panic function		

#### Specification text, splashwater protection

Electro-magnet with 7500 N holding force for use in industrial environments, damp rooms and general applications requiring elevated security. With integrated 'Door locked' feedback function.

Corrosion-protected casing of metal, and magnet of pure copper (99.8%) for high electrical efficiency. Suitable for service temperatures between  $-60^{\circ}$ C and  $+80^{\circ}$ C.

#### EM 7500-F AH

Surface-mounted model (armature plate on front face), with 'Door locked' feedback function and splashwater-protected casing

0	
Power supply:	12 V / 24 V DC
Magnet:	224 x 63.5 x 45 mm
Armature plate:	190 x 61 x 16 mm
Weight:	5.4 kg
Magnet: Armature plate:	190 x 61 x 16 mm

#### EM 7500-S AH (not illustrated)

Surface-mounted model (side-mounted armature plate), with 'Door locked' feedback function and splashwater-protected casing

0	
Power supply:	12 V / 24 V DC
Magnet:	224 x 63.5 x 45 mm
Armature plate:	190 x 61 x 16 mm
Weight:	5.4 kg

#### Order No.

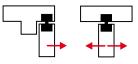
19860300



# Series 7500 and 15000 with shear lock: high security – also for double doors

Technical features of the 7500 and 15000 series with shear lock		
	EM 7500-D AM	EM 15000-D AM
Installation	Recessed	Recessed
Voltage/current	12 V / 24 V DC 300 / 150 mA	12 V / 24 V DC 300 / 150 mA
Slender design		
Mini-magnet		
Shear lock magnet	•	•
Splashwater protection		
Designed for double doors		
'Door closed' feedback signal		
'Door locked' feedback signal	•	•
LED display		
Early warning tamper contact		
Early warning panic function		

Shear lock magnets



The special feature of these magnets lies in their ability to exert electro-mechanical retention in the shear direction (shear lock capability). Because of their design, they are also suitable for double-action doors. In the locked state, these devices are generally not visible. An integrated Hall sensor detects the closed position of the door. This is particularly important where these devices are used in doubleaction doors.

#### Specification text, shear lock magnets

Electro-magnet with 7,500 N or 15,000 N holding force for use in industrial environments or damp rooms and general applications requiring elevated security. With integrated 'Door locked' feedback function.

Corrosion-protected casing of metal, and magnet of pure copper (99.8%) for high electrical efficiency. Suitable for service temperatures between  $-60^{\circ}$ C and  $+80^{\circ}$ C.

#### EM 7500-D AM

Recessed model with shear lock magnet for use in doubleaction doors, with 'Door locked' feedback function

Power supply:	12 V / 24 V DC
Magnet:	129 x 31 x 19 mm
Armature plate:	129 x 25 x 21 mm
Weight:	1.3 kg

#### EM 15000-D AM

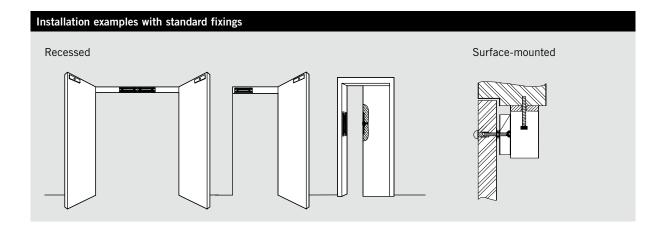
Recessed model with shear lock magnet for use in double-<br/>action doors, with 'Door locked' feedback functionPower supply:12 V / 24 V DCMagnet:151 x32 x 23 mmArmature plate:151 x 30 x 27 mmWeight:1.4 kg

#### Order No.

19860320



### Installation: the right fixing solution for every door



Accessory fixing sets	Order No.	
AMZL Fixing set comprising an L-bracket and an adjustable Z-bracket for flush mounting on the pull side		1.1.1
AMZL 1800 – suitable for EM 1800 magnets	19860090	in the second
AMZL 3000 – suitable for EM 3000 magnets	19860190	in it
AMZL-GL 3000 – suitable for EM-GL 3000 magnets	19860197	
AMZL-EW 3000 – suitable for EM 3000 magnets with early warning function/contact	19860198	
AMZL 5300 – suitable for EM 5300 magnets	19860290	
AMZL-GL 5300 – suitable for EM 5300-GL magnets	19860293	
<b>AML</b> Fixing set comprising an L-bracket for flush-mounting on the push side.		
AML 3000 – suitable for EM 3000 magnets	19860191	

AML 5300 – suitable for	EM 5300 magnets



Accessory fixing sets	Order No.	
AMF Mounting backplate for fixing the armature plate to fire doors, without drilling through the door leaf; comes complete with holes ready drilled.		
AMF 3000 – suitable for EM 3000 magnets	19860192	
AMF 5300 – suitable for EM 5300 magnets	19860292	

Accessory fixing sets for toughened glass doors	Order No.	
<b>UBG-8 1800</b> For use on 8 mm thick toughened glass doors. Suitable for EM 1800 magnets	19860091	A
<b>UBG-10 1800</b> For use on 10 mm thick toughened glass doors. Suitable for EM 1800 magnets	19860092	
<b>UBG-12 1800</b> For use on 12 mm thick toughened glass doors. Suitable for EM 1800 magnets	19860093	
<b>UBG-8 3000</b> For use on 8 mm thick toughened glass doors. Suitable for EM 3000 magnets	19860193	· · · · · · · · · · · · · · · · · · ·
<b>UBG-10 3000</b> For use on 10 mm thick toughened glass doors. Suitable for EM 3000 magnets	19860194	
<b>UBG-12 3000</b> For use on 12 mm thick toughened glass doors. Suitable for EM 3000 magnets	19860195	





Door Control





**Glass Fittings** and Accessories



Security/Time and Access (STA)



Movable Walls

#### Door Control Division worldwide

Central Europe DORMA GmbH + Co. KG DORMA Platz 1 D-58256 Ennepetal Tel. +49 2333 793-0 Fax +49 2333 793-495

#### Australasia

DORMA Door Controls Pty. Ltd. 46-52, Abbott Road Hallam/Victoria 3803 Australia Tel. +61 3979 63555 Fax +61 3979 63955

#### China/Hong Kong

DORMA Door Controls (Suzhou) Co. Ltd. No. 9, Hong Feng Road Suzhou Singapore Industrial Park Suzhou, 215021 P.R. of China Tel. +86 512 67612481 Fax +86 512 67614582

DORMA Door Controls Pte. Ltd. Room 701, Technology Plaza 651 King's Road North Point Hong Kong Tel. +852 25034632 Fax +852 28875370

Emerging Markets DORMA GmbH + Co. KG DORMA Platz 1 D-58256 Ennepetal Tel. +49 2333 793-0 Fax +49 2333 793-495

DORMA Door Controls (Pty.) Ltd. Kings Court 4A Mineral Crescent ZA-2000 Crown/Gauteng South Africa Tel. +27 11 8300280 Fax +27 11 8300291

#### Far East

DORMA Far East Pte. Ltd. No. 31 Gul Lane Singapore 629425 Tel. +65 6268 7633 Fax +65 6265 7995

#### France

DORMA France S.A.S. Zone Europarc Immeuble Mega 42 42, Rue Eugène Dupuis F-94046 Créteil Cedex Tel. +33 1 41942400 Fax +33 1 41942401

#### Gulf

DORMA Gulf Door Controls FZE Jebel Ali Free Zone South Plot No. S 20135 Road No. SW 301 G P.O. Box 17268 Dubai – United Arab Emirates Tel. +971 4 8020400 Fax +971 4 8869100/8869101

#### North America

DORMA Architectural Hardware DORMA Architectural Hardine DORMA Drive, Drawer AC Reamstown, PA 17567-0411 Tel. +1 800 5238483 Fax +1 800 2749724

#### Scanbalt

DORMA Danmark A/S Sindalvej 6–8 DK-2610 Rødovre Tel. +45 44 543000 Fax +45 44 543001

South America DORMA Sistemas de Controles para Portas Ltda. Av. Piracema, 1400 Centro Empresarial Tambore CEP 06400-933 Barueri/ São Paulo, Brasil Tel. +55 11 46899280 Fax +55 11 46899215

#### South-East Europe

DORMA AUSTRIA GmbH Pebering Strass 22 A-5301 Eugendorf Tel. +43 6225 284880 Fax +43 6225 28491

South Europe DORMA Italiana S.r.I. Via. Canova 44/46 I-20035 Lissone (MI) Tel. +39 039 244031 Fax +39 039 24403310

DORMA Ibérica, S.A. Camino San Martin de la Vega, 4 E-28500 Arganda del Rey (Madrid) Tel. +34 91 8757850 Fax +34 91 8757881

#### UK/Ireland

DORMA UK Ltd. Wilbury Way Hitchin GB-Hertfordshire SG4 0AB Great Britain Tel. +44 1462 477600 Fax +44 1462 477601