

# HE & BS Benson Ltd

# Electromagnetic Shotbolts

## for Machinery Safety



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# Shotbolt Principle

Electromagnetic Shotbolts provide varied and simple solutions for the interlocking and locking of movable guards enabling safe operation of hazardous machines.

An electromagnetic shotbolt includes essentially a solenoid to operate the bolt, either **locking** or **unlocking** a return spring and in some cases a mechanically operated position detector.

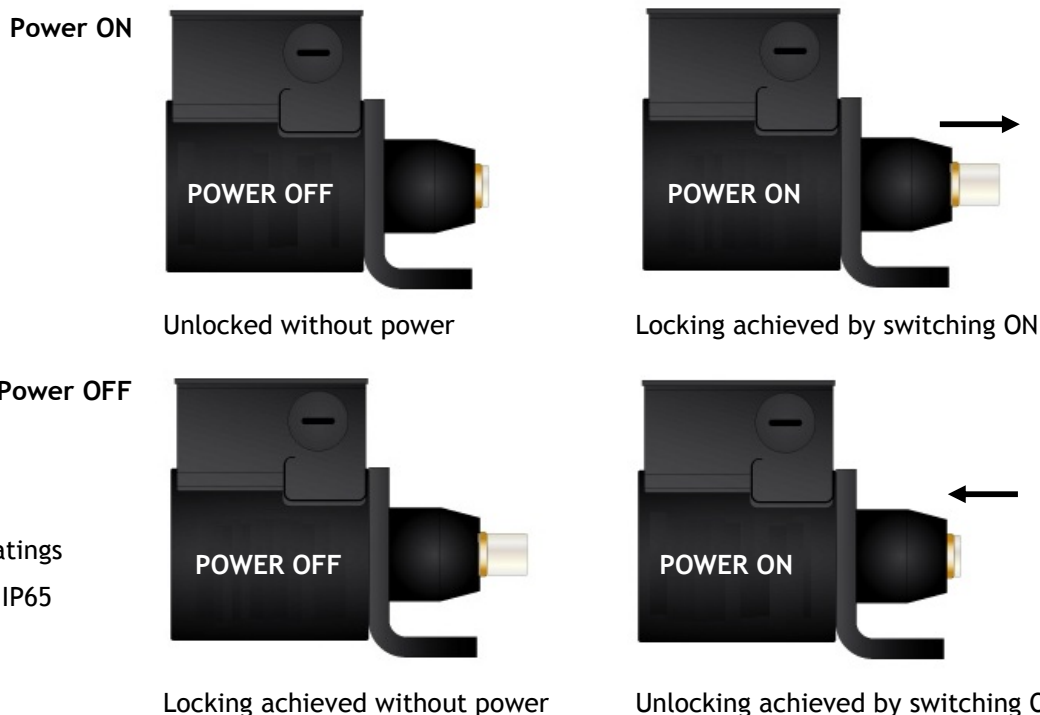
The B.26, B.28, B.29 and B.30 series are fitted with position detectors including positively forced open contacts and mechanically actuated in the positive mode.

These Shotbolts are easy to install, using a mounting bracket and tapped or plain holes, depending upon the model. The design features and materials used ensure reliability with a long life expectation. The locking metal bolt is guided with reinforced bearings and the solenoid is fitted with a return spring and a built in stop.

Shotbolts are especially designed to withstand radial forces which are inherent to the locking principle. They provide a locking function either with power OFF (passive safety) or with power ON (active safety) and can include monitoring position contacts.

## Applications:

- Locking of doors and various mechanisms.
- Locking and interlocking of guards on dangerous machines or installations.
- Fire protection.



Protection ratings  
IP40, IP54 & IP65

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# Shotbolt Range

Type	Locking Power-Off / power-On	Position Monitoring	Max shearing force	Stroke	Protection rating	Specific characteristics
B.16	Power-Off	NO	300 Kg	13mm	IP40	Access control
B.18	Power-On	NO	300 Kg	13mm	IP40	Access control
B.20	Power-Off	NO	10 Kg	11mm	IP40	Automation
B.21	Power-Off	NO	60 Kg	13mm	IP40	Automation
B.22	Power-Off	NO	300 Kg	11mm	IP54	Very compact
B.24	Power-On	YES	300 Kg	11mm	IP54	Very compact
B.26	Power-Off	YES forced open safety contact	300 Kg	11mm	IP54	Very compact
B.28	Power-Off	YES forced open safety contact	500 Kg IP54 300 Kg IP65	15mm	IP54 IP65	Very robust
B.29	Power-Off	Yes forced open safety contact	800 Kg	30mm	IP54	Long stroke
B.30	Power-Off	Yes forced open safety contact	15000 Kg	30mm	IP54	High shearing strength

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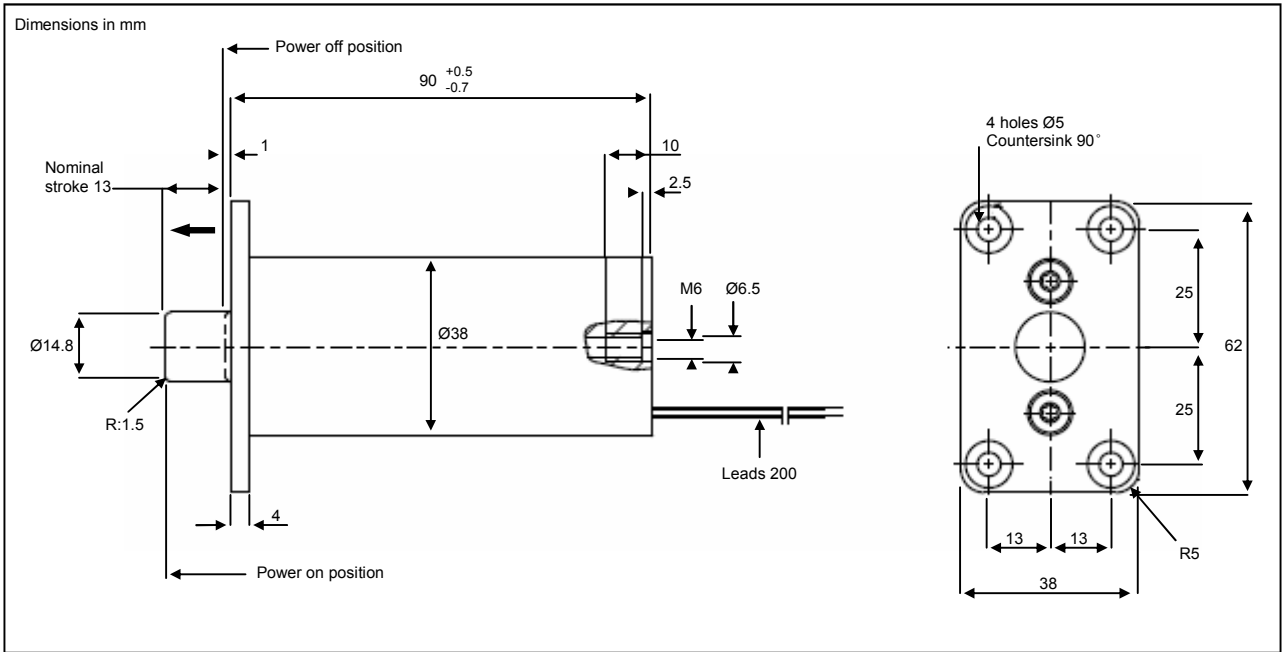
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**B.18**  
**SHOTBOLT IP40**  
**LOCKING POWER ON**



**BDC.18**

Stroke: **13mm**

Maximum radial force: **300Kg**

Weight: **550g**

Protection rating: **IP40 / B**

Standard voltage: **24V DC**

Possible voltage: **From 12 - 205V DC**

Duty cycle: **Permanent (100%)**

Power: **12W**

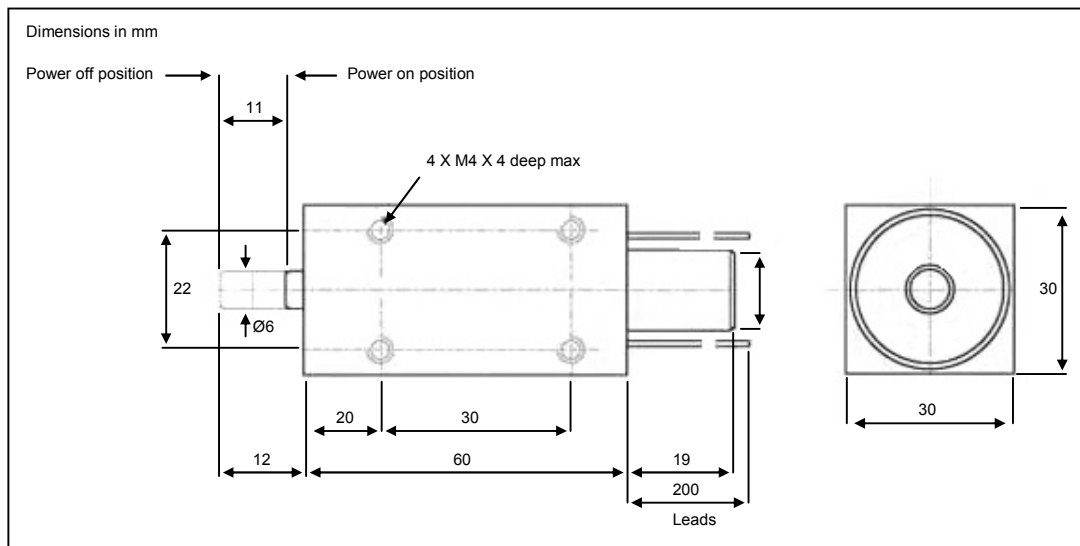
**Example of use:**

Locking

Access Control



**B.20**  
**SHOTBOLT IP40**  
**LOCKING POWER OFF**



**BDC.20**

- Maximum radial force: **60kg**
- Plunger output and input force: **100g**
- Standard voltage: **24V DC**
- Possible voltages: **12V DC - 200V DC**
- Nominal force: **9W - 20°C**
- Operating mode: **Permanent service**
- Maximum duty cycle: **100%**
- Isolation group: **0**
- Protection: **IP40**
- Service operating temperature: **-5°C, +40°C**
- Thermal class: **B**
- Total weight: **350g**

**Example of use:**

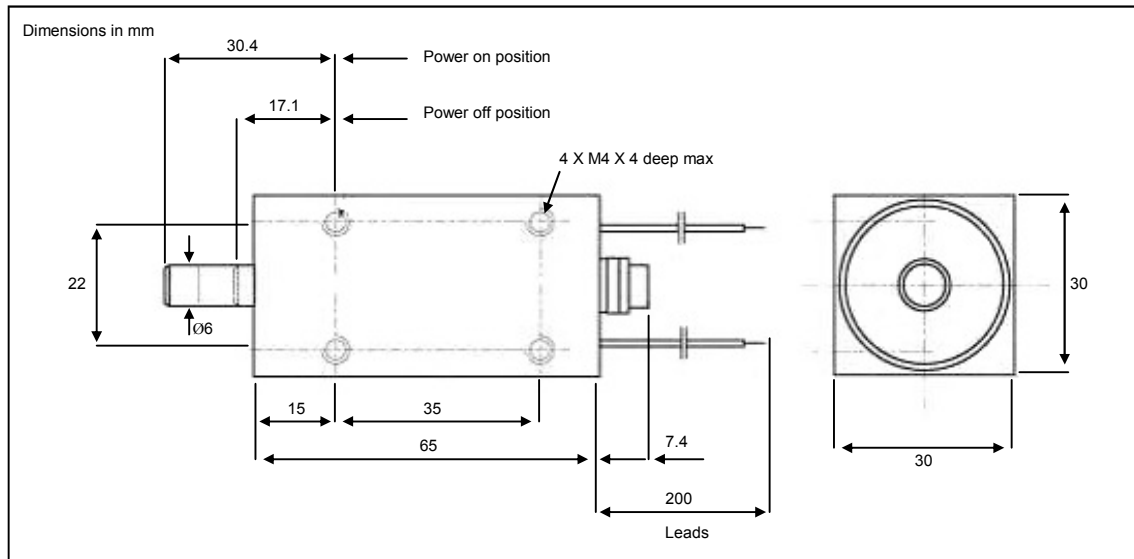
- Cover locking
- Door locking
- Master controller locking
- Protector locking

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## B.21

SHOTBOLT IP40  
LOCKING POWER ON



### BDC.21

Maximum radial force: **60kg**

Plunger output and input force: **100g**

Standard voltage: **24V DC**

Possible voltages: **12V DC - 200V DC**

Nominal force: **9W - 20°C**

Operating mode: **Permanent service**

Maximum duty cycle: **100%**

Isolation group: **0**

Protection: **IP40**

Service operating temperature: **-5°C, +40°C**

Thermal class: **B**

Total weight: **350g**

### Example of use:

Cover locking

Door locking

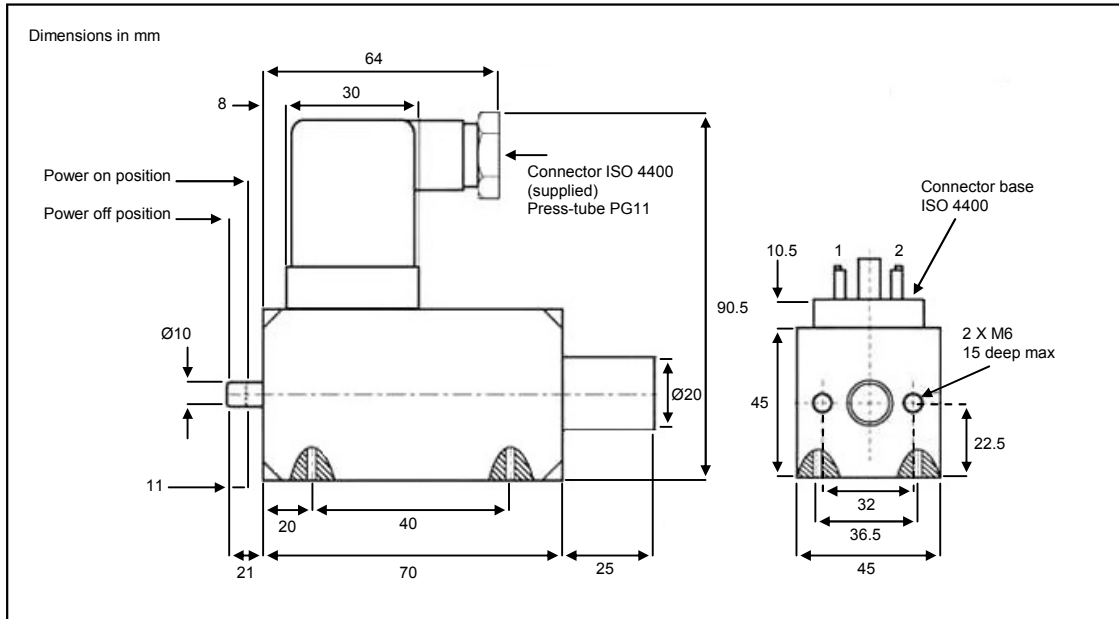
Master controller locking

Protector locking

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**B.22**  
**SHOTBOLT IP54**  
**LOCKING POWER OFF**  
**WITHOUT POSITION MONITORING**



**BDC.22 and BAC.22**

Maximum radial force: **300kg**

Plunger output and input force: **500g**

Assembly in all positions.

Standard voltage: **24V DC - 230V AC**

Possible voltages: **12V - 200V DC / 24V - 230V AC (-10%, +5%)**

Nominal force: **18W - 20°C**

Maximum duty cycle: **100%**

Protection: **IP54**

Service operating temperature: **-5°C, +40°C**

Thermal class: **B**

Total weight: **900g**

**Example of use:**

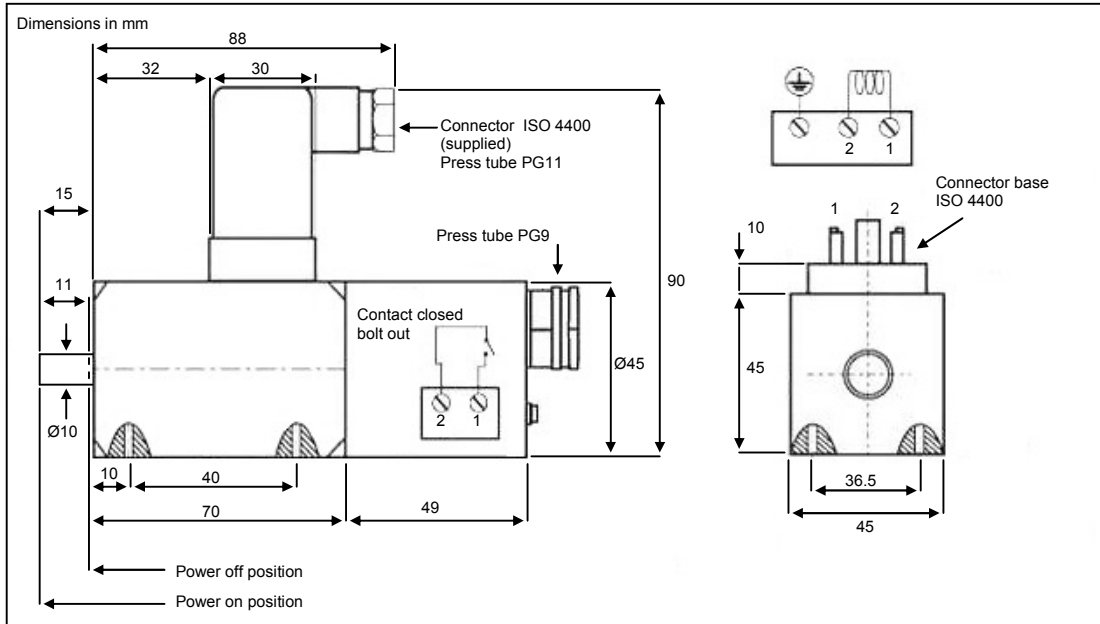
- Cover locking
- Door locking
- Manipulator locking
- Protector locking

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# B.24

SHOTBOLT IP54  
LOCKING POWER ON  
WITH OR WITHOUT  
POSITION MONITORING



### BDC.24, BDC.24PM and BAC.24, BAC.24PM

Maximum radial force: **300kg**

Plunger output and input force: **500g**

Assembly in all positions.

Standard voltage: **24V DC - 230V AC**

Possible voltages: **12V - 200V DC / 24V - 230V AC (-10%, +5%)**

Nominal force: **18W - 20°C**

Duty cycle: **100%**

Detection of plunger position.

Control snap switch rating 5A 250V DC

Protection: **IP54**

Service operating temperature: **-5°C, +40°C**

Thermal class: **B**

Total weight: **1.1Kg**

### Example of use:

Cover locking

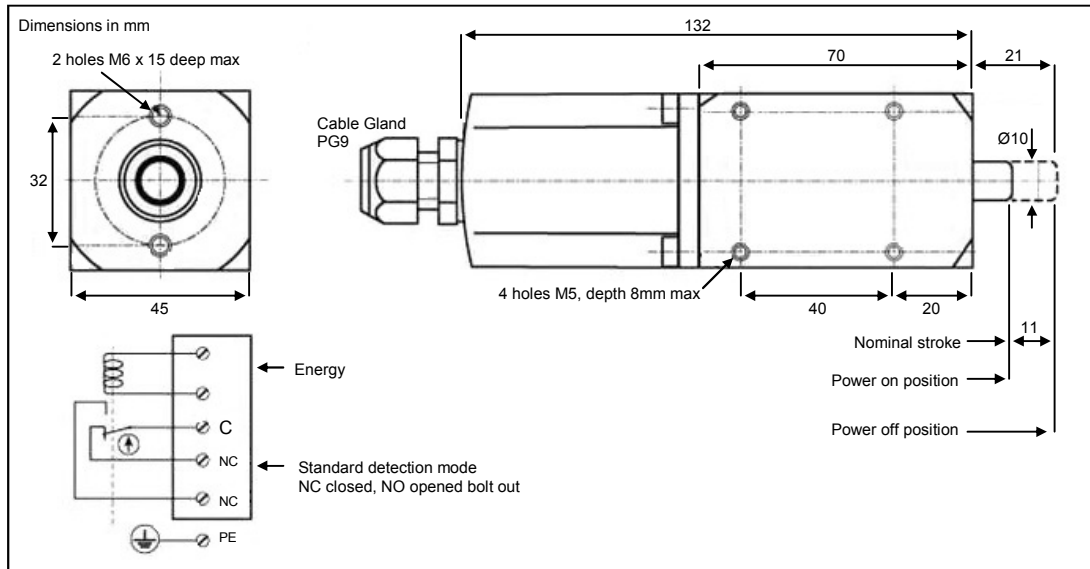
Door locking

Manipulator locking

Dust cover locking



**B.26**  
**LOCKING POWER OFF**  
**WITH POSITION MONITORING**  
**BY FORCED OPEN SAFETY CONTACT**



**BDC.26PM and BAC.26PM**

Maximum radial force: **300kg**

Plunger output and input force: **500g**

Assembly in all positions.

Standard voltage: **24V DC - 230V AC**

Possible voltages: **12V - 220V DC / 110V - 230V AC (-10%, +5%)**

Nominal force: **18W - 20°C**

Duty cycle: **100%**

Detection of plunger position: by NF contact with opening positive movement (force opening) and with positive mechanical control.

**Possibility of disconnection according to EN 60947-5-1**

AC 15 : 240/6A

DC 13 : 24V / 0.8A (I/r = 40ms)

Protection: **IP54**

Service operating temperature: **-5°C, +40°C**

Thermal class: **B (130°C)**

Total weight: **1.1Kg**

**Example of use:** Securing dangerous machines according to standards EN292, EN1088, EN60204-1 and EN60947-5-1

Locking moving guards

Locking doors accessing dangerous areas

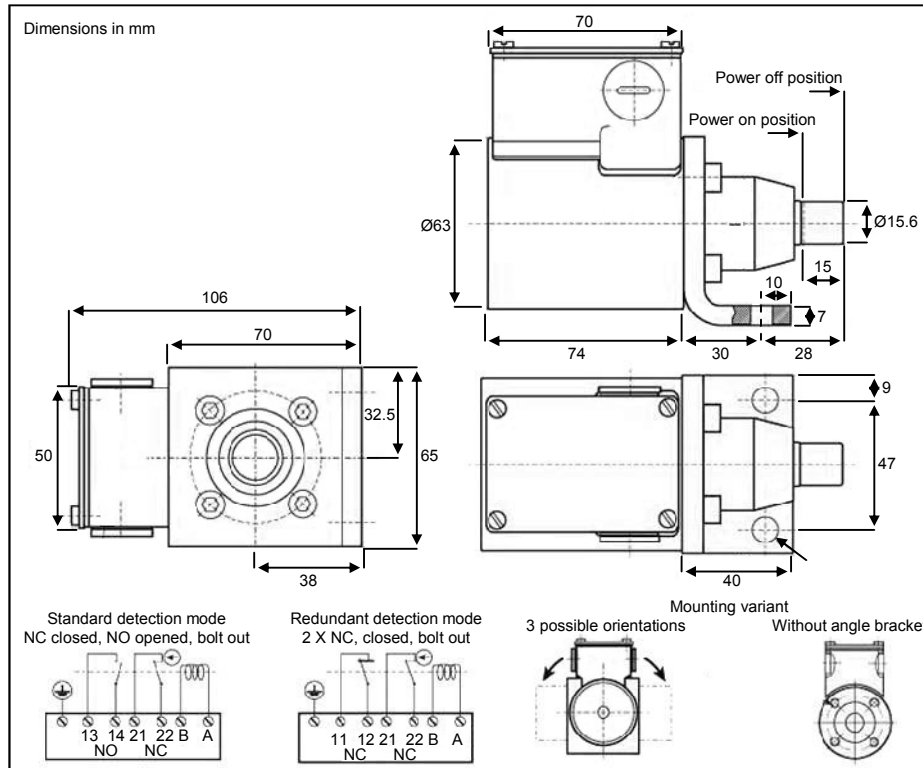
Locking covers

Any locking requiring resistant parts and detecting the plunger position.



## B.28PM54

LOCKING POWER OFF  
WITH POSITION MONITORING  
BY FORCED OPEN SAFETY CONTACT



### BDC.28PM54 and BAC.28PM54

Maximum radial force: **500kg**

Plunger output and input force: **1Kg**

Assembly in all positions.

Standard voltage: **24V DC - 230V AC (-10%, +5%)**

Possible voltages: **12V - 220V DC / 110V - 230V AC (-10%, +5%)**

Nominal force: **32W**

Duty cycle: **100%**

Detection of plunger position: by NF contact with opening positive movement (force opening) and with positive mechanical control.

**Possibility of disconnection according to EN 60947-5-1**

AC 15 : 240 / 3A

DC 13 : 24V / 0.55A ( $I/r = 75ms$ )

Protection: **IP54**

Service operating temperature: **-5°C, +40°C**

Thermal class: **B (130°C)**

Total weight: **2.2Kg**

**Example of use:** Securing dangerous machines according to standards EN292, EN1088, EN60204-1 and EN60947-5-1

Locking moving guards

Locking doors accessing dangerous areas

Locking covers

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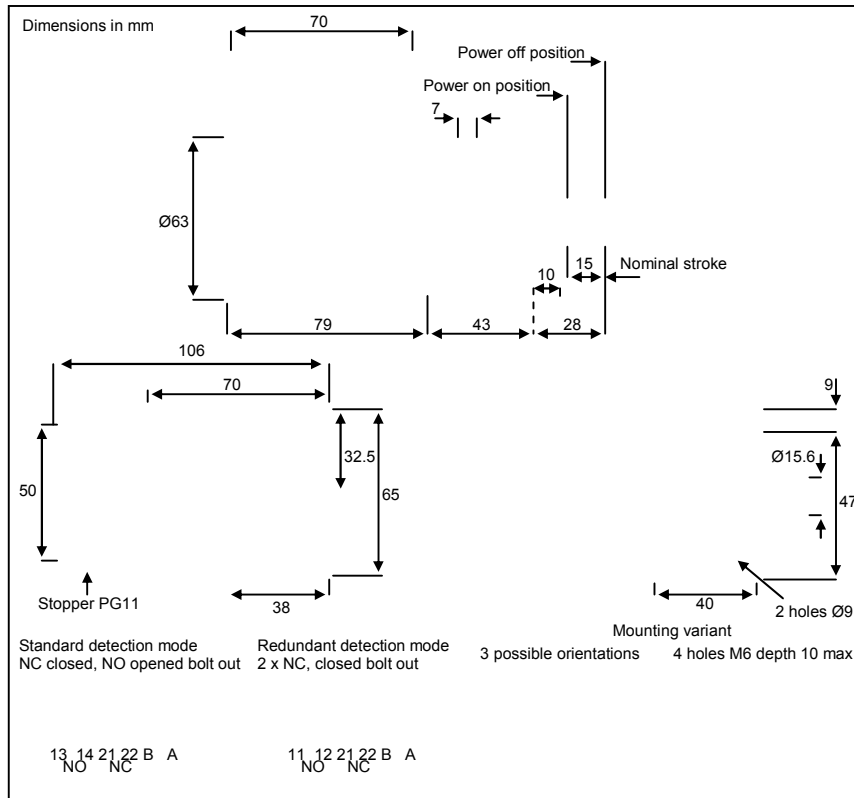
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**B.28PM65**  
**LOCKING POWER OFF**  
**WITH POSITION MONITORING**  
**BY FORCED OPEN SAFETY CONTACT**



**BDC.28PM65 and BAC.28PM65**

Maximum radial force: **300kg**

Plunger output and input force: **1Kg**

Assembly in all positions.

Standard voltage: **24V DC - 230V AC (-10%, +5%)**

Possible voltages: **12V - 220V DC / 110V - 230V AC (-10%, +5%)**

Nominal force: **32W**

Duty cycle: **100%**

Detection of plunger position: by NF contact with opening positive movement (force opening) and with positive mechanical control.

**Possibility of disconnection according to EN 60947-5-1**

AC 15 : 240 / 3A

DC 13 : 24V / 0.55A (I/r = 75ms)

Protection: **IP65**

Service operating temperature: **-5°C, +40°C**

Thermal class: **B (130°C)**

Total weight: **2.2Kg**

**Example of use:** Securing dangerous machines according to standards EN292, EN1088, EN60204-1 and EN60947-5-1

Locking moving guards

Locking doors accessing dangerous areas