



**PILOMAT**  
MASTERSHIP IN RETRACTILE TECHNOLOGY

**PILOMAT 275/M50-1200**

**CRASH TESTED**

**CERTIFICATION PAS68:2013**

**BOLLARD**

**V/7500(N3)/80 (K12) RATING**

## CERTIFICATION

Crash test - PAS68:2013 Bollard V/7500(N3)/80 (K12) Rating  
English Certification - PAS68:2013 Standard  
Performed at Aisico srl.  
Crash test Center , Pereto (Aq) - Italy



**M50/K12** Automatic hydraulic anti-terrorism bollards with built-in pump



### 275/M50 1200A

- Ø 275 mm / h 1200 mm
- 2.000.000 joules
- 700.000 joules



Esteemed  
PILOMAT s.r.l.  
Via Zanica, 17/P  
24050 Grassobbio (Bg) Italy.

Attention: *Mrs Alessandra Acerbis*

Rome, September 09, 2014

On September 02, 2014 at Aisico s.r.l. Test Laboratory were performed a test, based on the Reference Standard PAS68:2013 on the product PILOMAT 275/M50-1200 A.

The PILOMAT 275/M50-1200 A, a single retractable bollard, has received an impact rating of N3 Test Level to the center of the bollard.

The N3 test level of the PAS68:2013 is evaluated using a 7,500 kg test vehicle travelling at a nominal speed of 80 km/h.

Description of the damages:

- Test Vehicle: The PILOMAT 275/M50-1200 A completely disabled the test vehicle causing severe damage to the chassis and drivetrain. The maximum penetration was recorded dynamically on the driver's side of the vehicle and it was 1,4 m. The truck cabin was totally detached from the truck and has been projected beyond the original position of the bollard for 8,0 m.
- PILOMAT 275/M50-1200 A: The PILOMAT 275/M50-1200 A sustained minor damage as result of the impact. The bollard and foundation shifted, causing the bollard to lean 2.0° in the direction of vehicle travel, the vehicle path remained blocked during and after the impact and The PILOMAT 275/M50-1200 A was operational after the test.

The performance classification of the PILOMAT 275/M50-1200 A single retractable bollard is: **PAS68:2013 Retractable bollard V/7500(N3)/80/90:1.4/8.0.**

Complete information relating to the test can be found in report number PAS68/011/14 and DVD serial number PAS68/011/14 from AISICO Srl, including test conditions, test vehicle information, test article specifications, manufacturer drawings and any deviations from the drawings in the as tested configuration.

This letter should not be considered complete documentation of this test without consideration of the test report and deliverable DVD.

Best Regards.

Test House Director  
Ing. Stefano Calamani



## 6 Results

### 6.1 Weather conditions

WEATHER	Cloudy
TEMPERATURE	23°C

### 6.2 Test conditions

IMPACT SPEED	80,2 km/h
DIFFERENCE FROM NOMINAL SPEED	+ 0,2 km/h (+ 0,3 %)
APPROACH ANGLE	90°
IMPACT ANGLE	90,1°
DIFFERENCE FROM NOMINAL ANGLE	+ 0,1° (+0,1%)

### 6.3 Test article results and damages

As recommended in PAS 68:2013 the following full scale impact test was conducted to evaluate the impact performance of the PILOMAT RETRACTABLE BOLLARD 275/M50 1200A to the N3 level.

The test article was positioned at an angle of ninety degrees (90°) to the direction of travel of the test vehicle, with the vehicle's centreline intersecting the center of bollard.

The test vehicle impacted the test article at a speed of 80,2 km/h with an angle of 90,1°.

The height of the impact point between the vehicle and the test article was 0,8 m.

The impact test was documented by four high speed digital color video cameras.

The test vehicle's forward motion was completely arrested by the PILOMAT RETRACTABLE BOLLARD 275/M50 1200A.

The maximum penetration was recorded dynamically on the driver's side of the vehicle and was 1,4 m measured using high speed video.

The PILOMAT 275/M50-1200 A sustained minor damage as result of the impact. The bollard and foundation shifted, causing the bollard to lean 2.0° in the direction of vehicle travel. The vehicle path remained blocked during and after the impact. The PILOMAT 275/M50-1200 A was operational after the test.

The foundation was in good condition without no visible cracks and shifted for 1 cm.

The PILOMAT 275/M50-1200 A completely disabled the test vehicle causing severe damage to the chassis and drivetrain. The truck cabin was totally detached from the truck and has been projected beyond the original position of the bollard for 8,0 m.

The performance classification of the PILOMAT RETRACTABLE BOLLARD 275/M50 1200A road blocker is: **PAS68:2013 Retractable bollard V/7500(N3)/80/90:1.4/8.0.**

TEST ARTICLE BEHAVIOR	
HEIGHT OF THE IMPACT POINT	0,8 m
DYNAMIC VEHICLE PENETRATION	1,4 m
STATIC VEHICLE PENETRATION	0,9 m

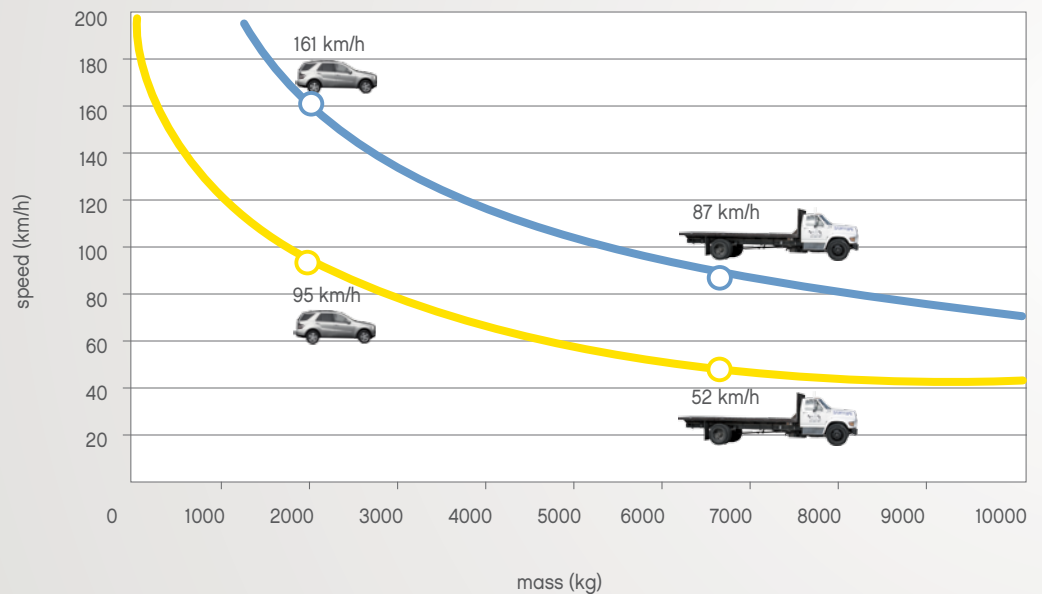


## 275/M50 1200A

MOVING CYLINDER	FE 510 STEEL
MOVING CYLINDER NOMINAL DIAMETER	275 mm
MOVING CYLINDER HEIGHT	1200 mm
MOVING CYLINDER FE 510 STEEL THICKNESS	25 mm
MOVING CYLINDER FE 510 STEEL FINISH	POLYESTER POWDER PAINT – STANDARD GREY ANTHRACITE
OTHER MOVING CYLINDER FINISH	RIBS ON CYLINDER SURFACE - 316 AISI STAINLESS STEEL BRUSHED COVERING 1,5 mm
REFLECTING ADHESIVE STRIP	YES - HEIGHT 55 mm
RISING SPEED	22 cm/sec
LOWERING SPEED	22 cm/sec
MANUAL EMERGENCY LOWERING	YES (VERSION WITH RELEASE NO 220 = AUTOMATIC LOWERING)
CONNECTION LINE TO CONTROL UNIT	STANDARD 10 m (MAXIMUM LENGTH: 80 m)
HYDRAULIC PUMP	BUILT-IN INTO THE PILOMAT
PROTECTION CLASS	IP 67
TYPE OF USE	INTENSIVE - LIFE AVERAGE 2.000.000 MOVEMENTS - 2.000 MOVEMENTS/DAY
IMPACT RESISTANCE (WITHOUT DEFORMATION)	700.000 J
BREAKOUT RESISTANCE	2.000.000 J
OPERATING TEMPERATURE	- 40°C + 70°C (FOR LOW TEMPERATURES SEE HEATING RESISTANCE)
NOMINAL PILOMAT WEIGHT (WITHOUT PIT)	605 kg
NOMINAL WEIGHT OF STANDARD PIT	425 kg

### PILOMAT 275/M50 1200A

- 2.000.000 JOULES
- 700.000 JOULES



#### BREAKOUT RESISTANCE

The resistance to breakage at a given threshold applies to the impact of a vehicle causing the Pilomat permanent damage in its active and structural mechanisms. The Pilomat, although damaged, provides the vehicle stop within a metre from the point of collision.

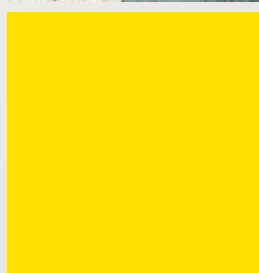
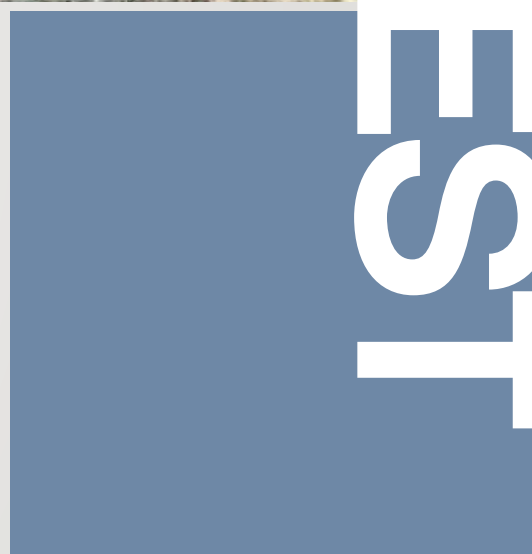
#### IMPACT RESISTANCE

Resistance to impact at a given threshold indicates that the impact of a vehicle does not cause the PILOMAT blocking or damage to the structural and action mechanisms. The Pilomat's continued functionality and safety are guaranteed.





OPERATIONAL TEST





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100% MADE IN ITALY



PILOMAT s.r.l.

Via Zanica 17/p, 24050 Grassobbio (BG) Italy

Tel. +39.035.29.72.20 , Fax +39.035.29.70.94

[pilomat@pilomat.com](mailto:pilomat@pilomat.com) [www.pilomat.com](http://www.pilomat.com)