ATEX PORTFOLIO

atam®
Living Technology

INTRODUCTION

For over 30 years **ATAM** has offered a wide range of **ATEX certified coils** suitable for different applications in **potentially explosive atmospheres**, due to the presence of **flammable gases** or **combustible dust** dispersed in the air, that can give rise to a **deflagration**.

ATAM portfolio proposes several families of ATEX certified **coils**, appropriate for distinct **ATEX zone classification levels**, and ATEX certified **solenoid valve connectors**.

APPLICATION FIELDS

The main **application fields** of ATEX products are **pneumatic** and **hydraulic**.

Below, some examples of **industries** within which it is possible to find potentially explosive gases or dust:

- Mines
- Off-shore platforms
- Fuel distribution
- Farms
- Gas supply and treatment
- Food and feed industry
- Wood industry
- Refineries
- Packaging industry
- …

ATEX PORTFOLIO

Incapsulated ATEX coils:

- 394 (22mm)
- 204 (30mm)
- 257 (30mm) – IECEx certified
- 209 (32mm)
- 481 (45mm) – with external armour, IECEx certified

Explosion proof ATEX coils:

- 271 (45mm) – IECEx certified
- 455 (45mm) – IECEx certified

ATEX connectors:

- Form A (P18mm)
- Form B (P11mm)

ATEX COIL 394 (22mm)

Family 394

394002210 – 22x30.9mm

B industrial connection with pole expansion

Environment temperature limits: -20°C ÷ +50°C

ATEX classification:

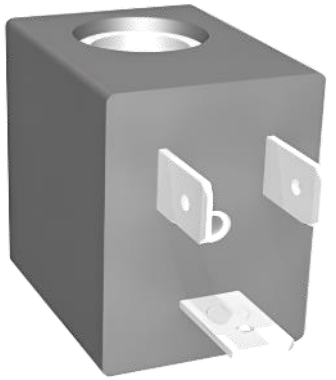
- 3G Ex ec IIC T4/T5 Gc X
- 3D Ex tc IIIC T93°C÷T120°C Dc

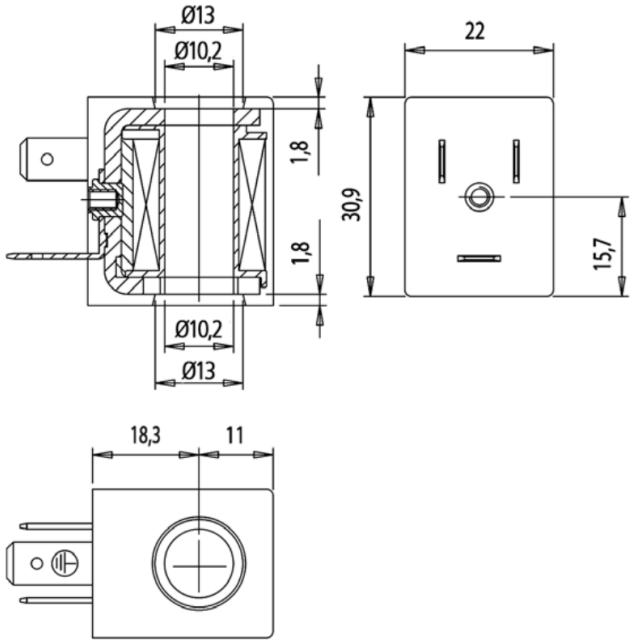
Standard applied:

- EN IEC 60079-0:2018
- EN IEC 60079-7:2015 + A1:2018
- EN 60079-31:2014

Voltage:
- 12/24 VDC
- 12/24/48/120/230 VAC

Power:
- 3.5/5.5 W
- 3.5/4.5/5.5/7.5 VA





ATEX COIL 204 (30mm)

Family 204

204008212 – 30x30.5mm

A EN 175301-803 ISO 4400 (DIN43650) connection

Environment temperature limits: -20°C ÷ +50°C

ATEX classification:

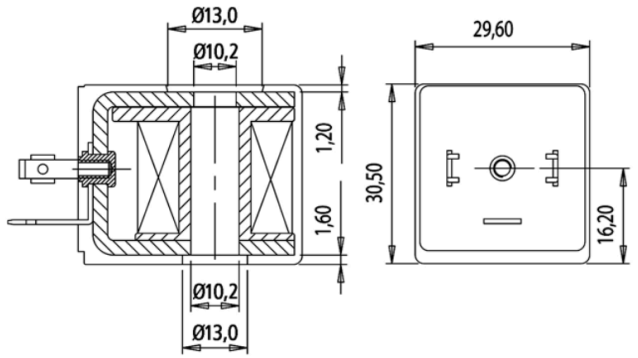
- 3G Ex ec IIC T4/T5 Gc X
- 3D Ex tc IIIC T91°C÷T115°C Dc

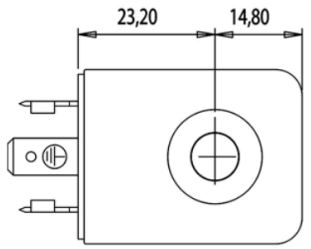
Standard applied:

- EN IEC 60079-0:2018
- EN IEC 60079-7:2015 + A1:2018
- EN 60079-31:2014

Voltage:
- 24 VDC
- 24/110/220/230 VAC

Power:
- 4.8/5.3 W
- 7.5 VA





ATEX IECEx COIL 257 (30mm)

Family 257

257GD – 30x35.5mm

Tripolar cable connection

Environment temperature limits: -20°C ÷ +40°C

ATEX-UKEX certified:

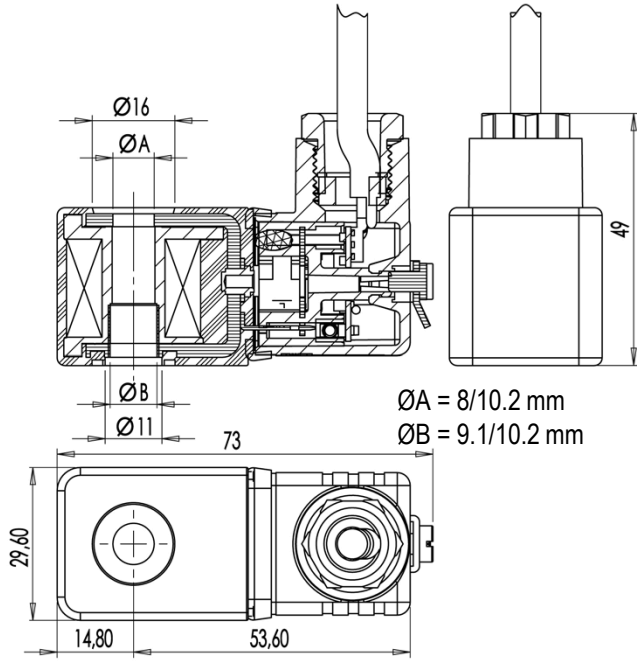
- II 2 GD / I M2
- Ex mb I Mb
- Ex mb IIC T6, T5, T4 Gb
- Ex mb IIIC T85°C, T100°C, T135°C Db
- INERIS 06 ATEX 0002 X
- CML 22 UKEX 5079 X

IECEx certified:

- Ex mb I Mb
- Ex mb IIC T6, T5, T4 Gb
- Ex mb IIIC T85°C, T100°C, T135°C Db
- IECEx INE 15.0053X

Voltage:
- 24 VDC
- 24/48/110/220/230 VAC

Power:
- 5.3 W in T4/T135°C
- 4.8 W in T5/T100°C
- 3.2 W in T6/85°C



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ATEX COIL 209 (32mm)

Family 209

209000212 – 32x48mm

A EN 175301-803 ISO 4400 (DIN43650) connection

Environment temperature limits: -20°C ÷ +50°C

ATEX classification:

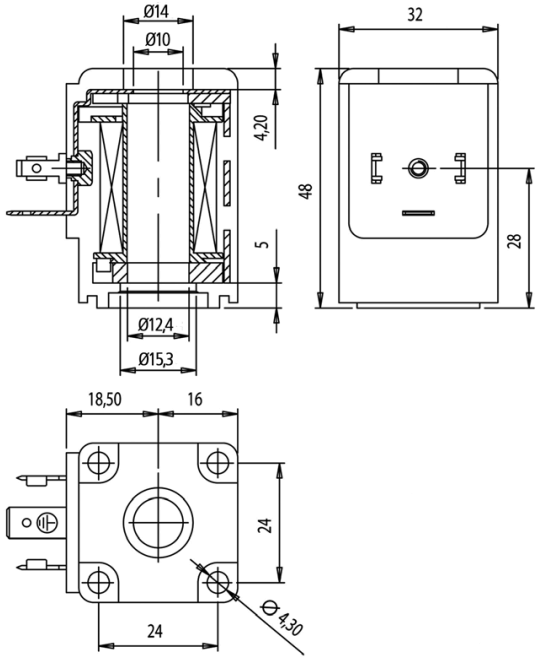
- 3G Ex ec IIC T4/T5 Gc X
- 3D Ex tc IIIC T94°C÷T109°C Dc

Standard applied:

- EN IEC 60079-0:2018
- EN IEC 60079-7:2015 + A1:2018
- EN 60079-31:2014

Voltage:
- 12/24 VDC
- 24/110/220 VAC

Power:
- 8 W
- 10 VA



ATEX IECEx COIL 481 (45mm)

Family 481

481GD – 45x54.5mm

Tripolar cable connection

Environment temperature limits: -20°C ÷ +60°C

ATEX-UKEX certified:

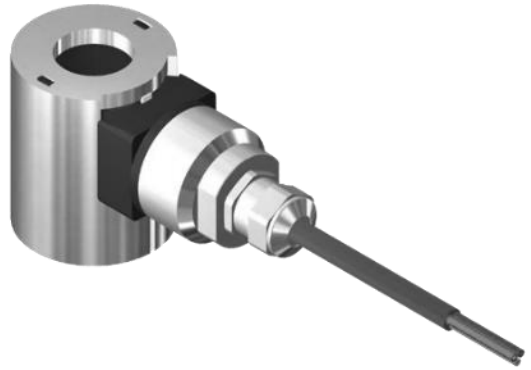
- II 2 GD
- Ex mb IIC T3 Gb
- Ex mb IIIC T200°C Db
- EPT 24 ATEX 5591 X
- CML 24 UKEX 5295 X

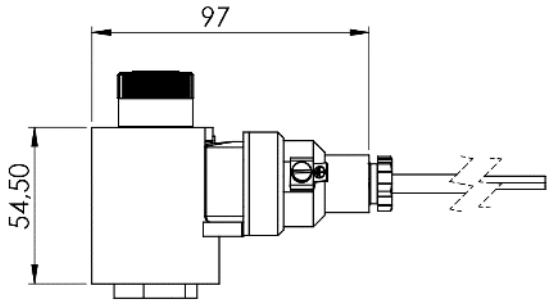
IECEx certified:

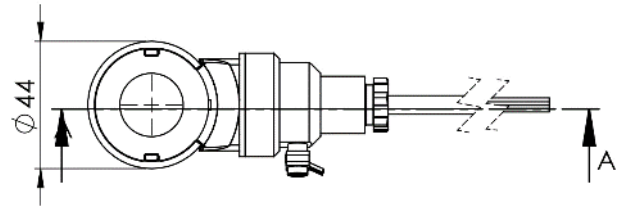
- Ex mb IIC T3 Gb
- Ex mb IIIC T200°C Db
- EUT 24.0012X

Voltage:
- 12÷240 VDC
- 24÷240 VAC

Power:
- Max 28 W







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ATEX IECEx COIL 271 (45mm)

Family 271

271GD – 45x120mm

Tripolar cable connection

Environment temperature limits: -20°C ÷ +40°C

ATEX-UKEX certified:

- II 2 GD / I M2
- Ex db I Mb
- Ex db IIC T6, T5 Gb
- Ex tb IIIC T85°C, T100°C Db
- INERIS 05 ATEX 0028 X
- CML 22 UKEX 1078 X

IECEx certified:

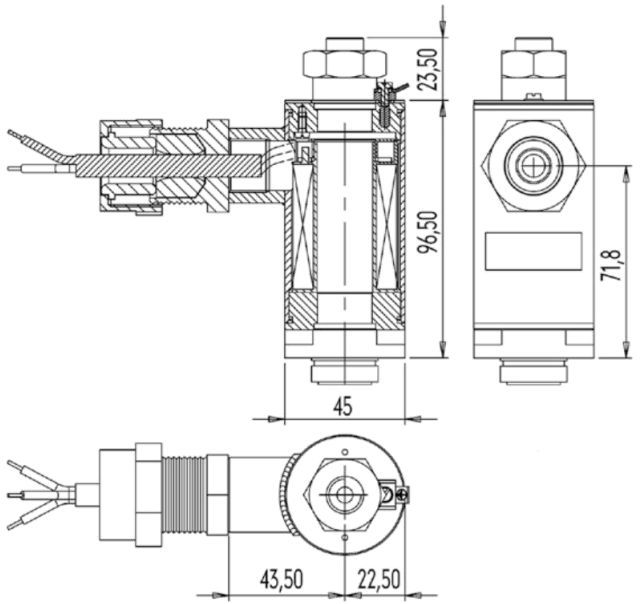
- Ex db I Mb
- Ex db IIC T6, T5 Gb
- Ex tb IIIC T85°C, T100°C Db
- INE 15.0054X

Voltage:

- 12/24/26/48/60/110/125 VDC
- 24/110/220/230 VAC

Power:

- 11 W in T5/T100°C (with bridge)
- 9.5 W in T5/T100°C (without bridge)
- 7 W in T6/T85°C (with bridge)
- 6.5 W in T6/T85°C (without bridge)



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ATEX IECEx COIL 455 (45mm)

Family 455

455GD – 45x120mm

Tripolar connection with cable or terminal block

Environment temperature limits: -60°C ÷ +80°C

ATEX-UKEX certified:

- II 2 GD / I M2
- Ex db I Mb
- Ex db IIC T6, T5, T4 Gb
- Ex tb IIIC T85°C, T100°C, T135°C Db
- EPT 17 ATEX 2768 X
- CML 22 UKEX 1261 X

IECEx certified:

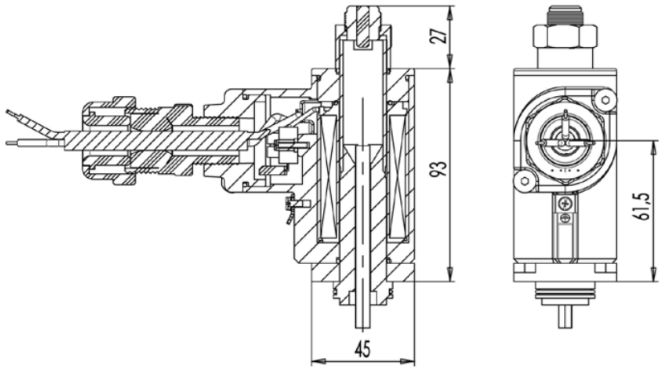
- Ex db I Mb
- Ex db IIC T6, T5, T4 Gb
- Ex tb IIIC T85°C, T100°C , T135°C Db
- EUT 17.0030X

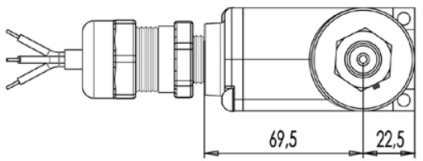
Voltage:

- 6÷240 VDC
- 6÷240 VAC

Power:

- 30 W in T4/135°C
- 14 W in T5/T100°C
- 10 W in T6/T85°C





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ATEX CONNECTORS

ATAM also offers a range of **ATEX certified connectors** suitable for potentially explosive environments. These devices arise from the **requests of ATAM customers**, who already use company's ATEX certified coils, to combine also connectors in order to guarantee a **better compatibility** and therefore the **best application safety**.

ATEX connectors are available in two configurations: **Form A** (EN 175301-803 connection), and **Form B** (B industrial connection), offered in both **field-attachable** and **over-molded** options.

ATEX CONNECTOR FORM A

Connector KAEX041000

P18mm field-attachable solenoid valve connector

3 poles + PE

A EN 175301-803 ISO 4400 (DIN43650) connection

Environment temperature limits: -20°C ÷ +70°C

ATEX classification:

- 3G Ex ec IIC T5 Gc X
- 3D Ex tc IIIC T95°C Dc

Standard applied:

- EN IEC 60079-0:2018
- EN IEC 60079-7:2015 + A1:2018
- EN 60079-31:2014

Rated voltage max: 250 VAC/VDC

Rated current max: 7 A

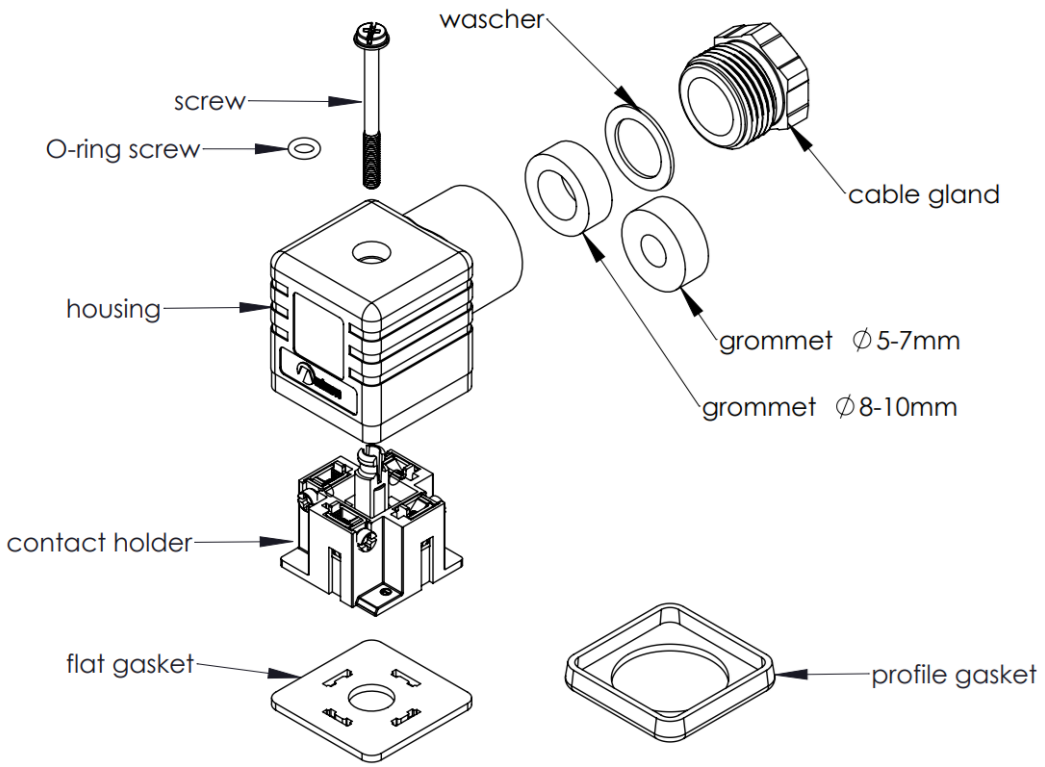
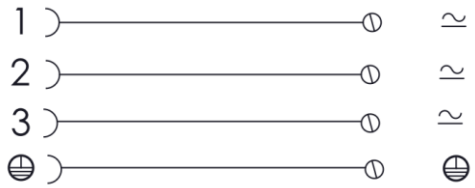


Diagram wiring



ATEX CONNECTOR FORM A

Connector MA134000PC02-EX

P18mm over-molded solenoid valve connector

2 poles + PE/PE bridged

A EN 175301-803 ISO 4400 (DIN43650) connection

Environment temperature limits: -20°C ÷ +70°C

ATEX classification:

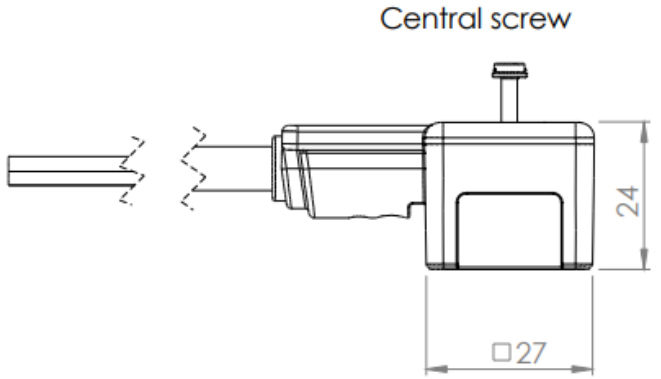
- 3G Ex ec IIC T5 Gc X
- 3D Ex tc IIIC T95°C Dc

Standard applied:

- EN IEC 60079-0:2018
- EN IEC 60079-7:2015 + A1:2018
- EN 60079-31:2014

Rated voltage max: 250 VAC/VDC

Rated current max: 7 A



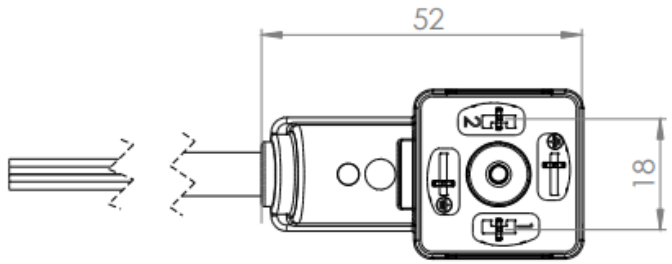
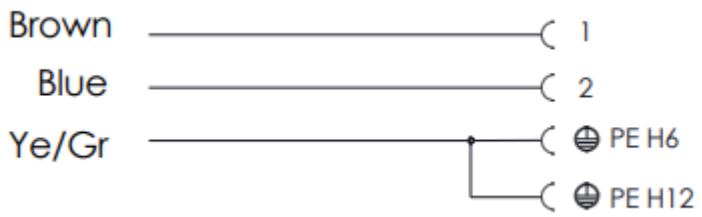


Diagram wiring



ATEX CONNECTOR FORM B

Connector KBEX131000

P11mm field-attachable solenoid valve connector

2 poles + PE

B industrial connection

Environment temperature limits: -20°C ÷ +70°C

ATEX classification:

- 3G Ex ec IIC T5 Gc X
- 3D Ex tc IIIC T95°C Dc

Standard applied:

- EN IEC 60079-0:2018
- EN IEC 60079-7:2015 + A1:2018
- EN 60079-31:2014

Rated voltage max: 250 VAC/VDC

Rated current max: 7 A

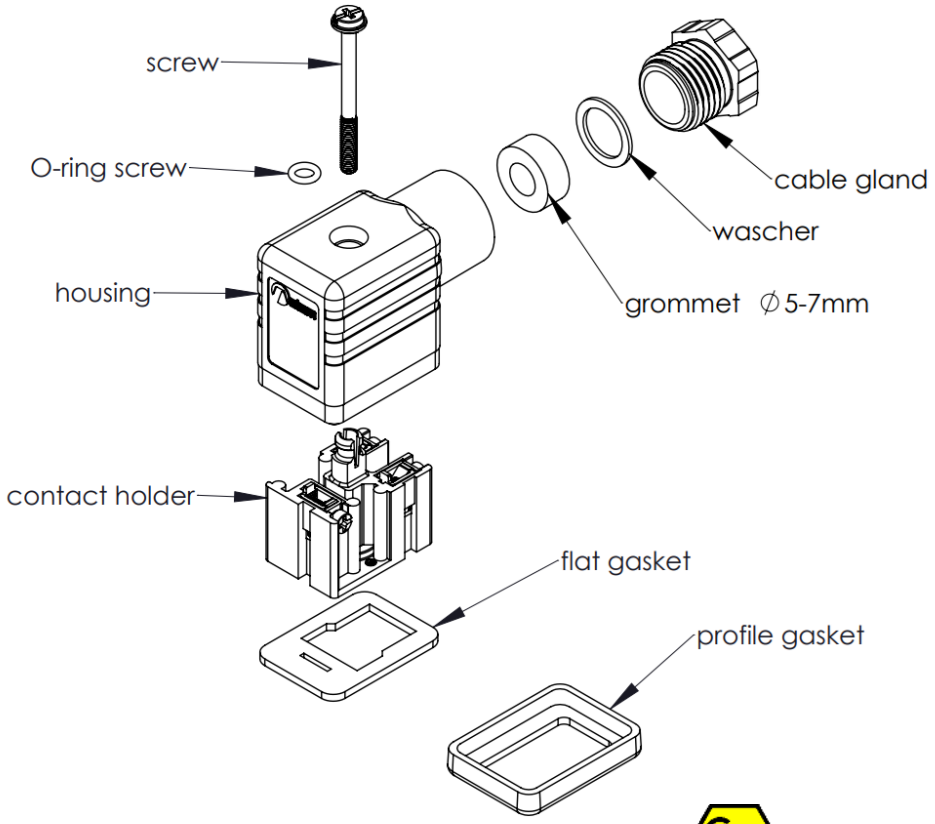


Diagram wiring

ATEX CONNECTOR FORM B

Connector MB136000PC02-EX

P11mm over-molded solenoid valve connector

2 poles + PE

B industrial connection

Environment temperature limits: -20°C ÷ +70°C

ATEX classification:

- 3G Ex ec IIC T5 Gc X
- 3D Ex tc IIIC T95°C Dc

Standard applied:

- EN IEC 60079-0:2018
- EN IEC 60079-7:2015 + A1:2018
- EN 60079-31:2014

Rated voltage max: 250 VAC/VDC

Rated current max: 7 A

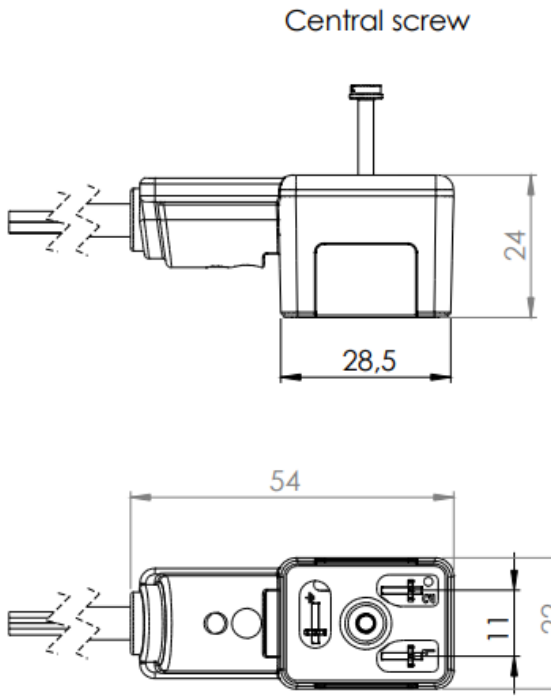
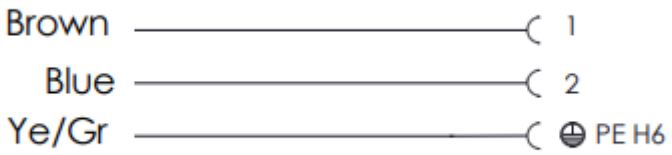


Diagram wiring



ATAM EXPERTISE

At ATAM, the **Control & Acceptance** department examines 100% of the incoming components necessary for manufacturing ATEX certified products. This guarantees a punctual control of the conformity of all the elements that make up the final product.

The **Testing Laboratory** allows to make various checks which guarantee maximum quality at every stage of the production process. The fully equipped and advanced tools permits to determine the values of all relevant physical parameters and to carry out thermal cycles and operating life tests in environments at various temperatures and humidity levels.

At the end, in the **Final Tests** department, with the aid of fully automated computerized machinery, ATAM's entire production range undergoes stringent test to check the compliance of each individual product.

ATAM EXPERTISE

Thanks to **decades of experience in the ATEX world**, ATAM has helped many solenoid valves manufacturing clients to get the desired **certifications** for their products.

This happened thanks to **consulting** and **support activities** performed by ATAM technicians who are **industry experts**.

ATEX DIRECTIVES

There are **two ATEX directives** concerning health and safety in potentially explosive environments:

- **ATEX 1999/92/EC**: gives a classification of **application areas**
- **ATEX 2014/34/EU**: gives a classification of used **equipment/devices**

Moreover, **electronics constructions** located in dangerous areas should also be classified based on their **maximum surface temperature**, both in normal operating conditions and in the event of a fault.

ATEX directives imply a **process control** carried out by a **notified body** to verify that the product is in conformity with the mandatory requirements.

The notified body examines the **technical files** supplied by the manufacturer and conducts such inspections and tests as may be required to confirm the product **complies** with the requirements stated by the producer.

ATEX DIRECTIVES

ATEX 1999/92/EC directive classifies **dangerous areas** in **three zones** based on the **frequency** and **presence time** of the explosive substance:

- **Gas Zones**
  - Zone 0 (Ga)
  - Zone 1 (Gb)
  - Zone 2 (Gc)

Frequency
Presence time

- **Dust Zones**
  - Zone 20 (Da)
  - Zone 21 (Db)
  - Zone 22 (Dc)

Frequency
Presence time

ATEX 2014/34/EU directive divides into **mining** and **surface materials**, and classifies products in **categories**, based on the **protection level** and **degree of danger** of the environment:

- **Mining materials** (Group I)
  - M1 category: very high protection level
  - M2 category: high protection level
- **Surface materials** (Group II)
  - 1G/1D category: very high protection level
  - 2G/2D category: high protection level
  - 3G/3D category: normal protection level

ATEX DIRECTIVES

Hazardous **area classification** for material of **Group II** is typically used in order to identify different zones on the basis of **frequency** and **duration** of the occurrence of an explosive.

As a matter of fact the **ATEX Directives 2014/34/EU** and **1999/92/EC** provide guidelines about the **device requirements** according to the zone classification:

Gases and vapors	Frequency	Duration	Group II ATEX category	Dust	Frequency	Duration	Group II ATEX category
Zone 0	Continuously or for long periods or frequently	More than 1000 hours/year	1G	Zone 20	Continuously, or for long periods or frequently	More than 1000 hours/year	1D
Zone 1	Likely to occur in normal operation occasionally	From 10 up to 1000 hours/year	1G or 2G	Zone 21	Likely to occur in normal operation occasionally	From 10 up to 1000 hours/year	1D or 2D
Zone 2	Not likely to occur in normal operation but, if it does occur, it will exist for a short period only	From 0.5 up to 10 hours/year	1G or 2G or 3G	Zone 22	Not likely to occur in normal operation but, if it does occur, will persist for a short period only	From 0.5 up to 10 hours/year	1D or 2D or 3D

ATEX DIRECTIVES

Special precautions has to be taken into account for design and construction of equipment applied on hazardous areas, summarized in the following table:

Protection	Primary description	Type of protection
Enclosure	Ex d	Flame proof
	Ex t	Dust proof
Exclusion	Ex p	Pressurization
	Ex m	Encapsulation
	Ex o	Oil immersion
	Ex q	Powder filling
Equipment	Ex i	Intrinsically safe
	Ex op	Optical radiation
	Ex e	Increased safety
	Ex n	Non sparking

Ignition temperature of the substances is one of the key factor in order to guarantee the safety of the installation against the explosion risk.

The **surface temperature** of the device in normal use must not exceed the ignition classes listed below:

Temperature class	Max surface temperature
T1	450°C
T2	300°C
T3	200°C
T4	135°C
T5	100 °C
T6	85°C

Substances commonly found in industrial applications are **classified** according to the following table:

Gas	Group	Temperature class
Acetylene	II C	T2
Ammonia	II A	T1
Butane	II A	T2
Ethanol	II A	T2
Hydrogen	II C	T1
Kerosene	II A	T3
Natural gas	II A	T1
Propane	II A	T1
Toluene	II A	T1
Xylene	II A	T1
Dust	**Cloud ignition temperature**	**Layer ignition temperature**
Aluminium	560°C	450°C
Cellulose	520°C	410°C
Flour	380°C	320°C
Wood	410°C	220°C
PVC	700°C	450°C
Sugar	490°C	460°C

ATAM ATEX CERTIFICATIONS

CESI:

- Notification Product Quality ATEX

Eurofins:

- Certificate 455 IECEx
- Certificate 455 ATEX
- Certificate 481 ATEX
- TBD 481 IECEx

Ineris:

- Certificate 271 IECEx
- Certificate 271 ATEX
- Certificate 257 IECEx
- Certificate 257 ATEX

UKCA:

- Certificate 257-271-455 UKCA

CONTACTS

The **ATAM** team is available to answer your questions or provide you with more information about products and services.

THANKS!

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