



Explosion Proof Protection Systems for Mobile Vehicles

Miretti Ex Systems enable trucks to be operated
in paints / coatings, pharma, foods & flavours,
inks, bottled gases, aerosols, army, oil & gas industries



Leader in the ATEX Explosion Protection of Mobile Vehicles for over 40 years
Miretti Explosion Proof +1000 Diesel and Battery Electric vehicles annually
Our Group is an Approved Supplier to all of the leading Material Handling OEM's

We operate all over the world: Italy (head office), Germany, UK, France, Benelux, Switzerland, Austria, Scandinavia, Hungary, USA, China, Australia, Singapore, Middle East.



Miretti Ex Solutions are available for OEM's including Still, Toyota, Hyster and Yale, Jungheinrich, Linde, MCFE, Doosan, Alkè, Haulotte, Manitou, Dieci, Hitachi, Caterpillar, New Holland, Volvo, Merlo, JLG, Terex, Mitsubishi.

Zone 2 DetEx – Category 3G equipment

DetEx is an 'active' protection system that keeps the operator constantly informed advising if the operating area is safe or if it's hazardous. The most popular 'Zone 2' conversion features DetEx protection compliant with the ATEX directives.

The conversion includes the following: gas detection (infrared or pellistor heads), interface with operator, suitable enclosures for arcing and sparking components, surface temperature control, shutdown system with audible and visible alarms, stainless steel sheathed forks .

Any potential source of ignition (eg. electrical, electrostatic, mechanical, and other) is removed by the explosion protection procedures in order to get a full ATEX industrial vehicle.

Miretti ensures that all converted equipment is compliant to ATEX Directive 2014/34/EU and to relevant local regulations with the Manufacturers approval.



Focus on...DetEx Zone 2 ATEX system

- for both Diesel and Electric Battery Trucks
- cost effective Zone 2 ATEX compliant systems designed for almost all 3G applications
- truck operator receives Gas/Vapour audible and visual warnings at 10% LEL Propane in Air
- auto-Calibration test at daily start-up
- truck automatically shuts down to safety prevent an explosion or fire at 25% LEL
- simple to operate and cost effective to maintain
- choice of infrared or pellistor gas sensors to suit virtually any end user application



Electric / Diesel

Miretti DetEx Systems provide a safe solution for both electric and diesel machines for use in Zone 2 areas (gas groups IIA and IIB; temperature class up to T3 or T4).The technology applies to both AC and DC motors.

Applied to a wide range of vehicles that can include forklift trucks, sweepers, mobile cranes, tow tractors and other industrial machines.

Miretti explosion proof conversions are designed not to have an impact on the functionality and compliance standards of the original equipment.

Zone 1 – Category 2G equipment

Miretti can convert almost all brands of forklift trucks and vehicles for a safe operation in Zone 1 areas; in fact many with standardized designs. All sources of ignition (eg. electrical, static, mechanical, heat sources and other) are protected so that the equipment can operate safely within potentially flammable atmospheres.

Conversions may include explosion proof Ex d enclosures for arcing and sparking components, surface temperature control and limitation, Ex e components, Ex i intrinsically safe circuits, Ex m encapsulation, Ex e battery, stainless steel sheathed forks etc.

Miretti ensures that converted equipment is fully compliant to ATEX Directive 2014/34/EU and to relevant local regulations with the Manufacturers approval.



Electric / Diesel

Miretti Zone 1 explosion proof protections provide a safe solution for both electric and diesel vehicles for use in Zone 1 and Zone 2 areas (gas groups IIA and IIB; temperature class up to T3 or T4). The technology applies for both AC and DC motors. Applied to a wide range of vehicles that can include forklift trucks, sweepers, mobile cranes, tow tractors and other industrial machines.

Miretti explosion proof diesel conversions are designed not to have an impact on the functionality and compliance standards of the original diesel equipment (eg. Tier 4 engines).



Zone 21/22

Miretti can convert almost all brands of forklift trucks and vehicles for a safe operation in Zone 21 or 22 areas with many standardized designs. Combinations of conversions effective against both explosive gas and dust are available according to the Customer's requirements.

Conversions include explosion proof Ex d enclosures for triggering and sparking components, surface temperature control and limitation, Ex e components, Ex i intrinsically safe circuits, Ex m encapsulation, Ex e battery, IP enclosures, stainless steel sheathed forks etc.

Miretti ensures that converted equipment is fully compliant to ATEX Directive 2014/34/EU and to relevant local regulations with the Manufacturers approval.

Focus on... CoatEx

CoatEx provides a thermal barrier between hot engine surfaces (e.g. turbochargers and exhaust manifolds) and the external atmosphere. CoatEx enables the OEM "dry" turbocharger and manifold to be retained reducing Zone 1 and 2 conversion costs and minimising risk of failure by fitting non OEM turbo and water cooled manifold.



Truck FilterEx Cooler

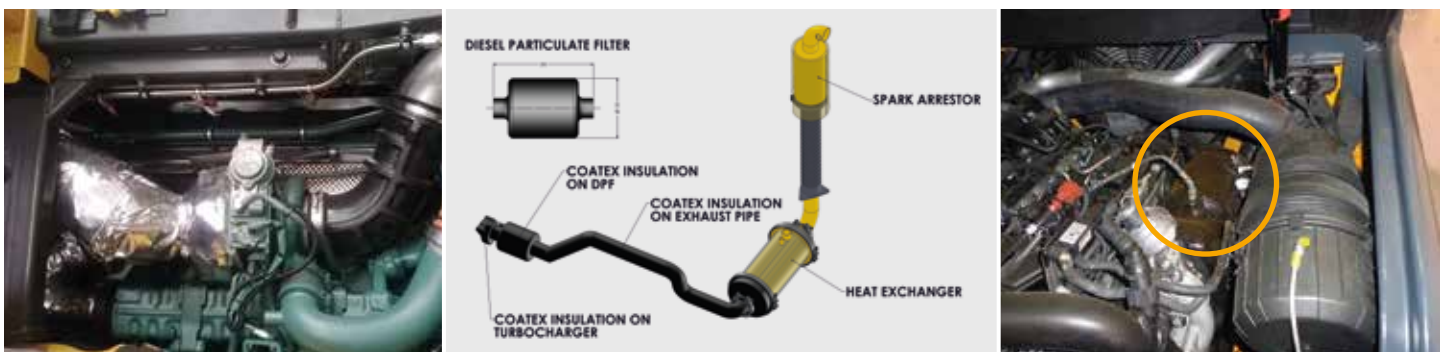
A 'compact' exhaust cooling system with integral self-cleaning exhaust flame arrestor (and spark arrestor subject to test).

Enables maximum engine 'uptime' as the self-cleaning flame arrestor can operate for approx. 1000 hours before requiring cleaning.

Reduces costly service maintenance against option of conventional exhaust flame arrestors that need to be changed every 20 hours.

DPF Systems

Miretti can Explosion Proof Protects different typologies of DPF Systems by CoatEx insulation.



Our Special Projects

Wheel loaders, tow tractors, mobile cranes, scrubbers, access platforms, dump trucks, cranes, tankers, tower light etc. . .

Miretti also provide Explosion Protections for the Oil & Gas, Coal Mining & Tunnelling industries.

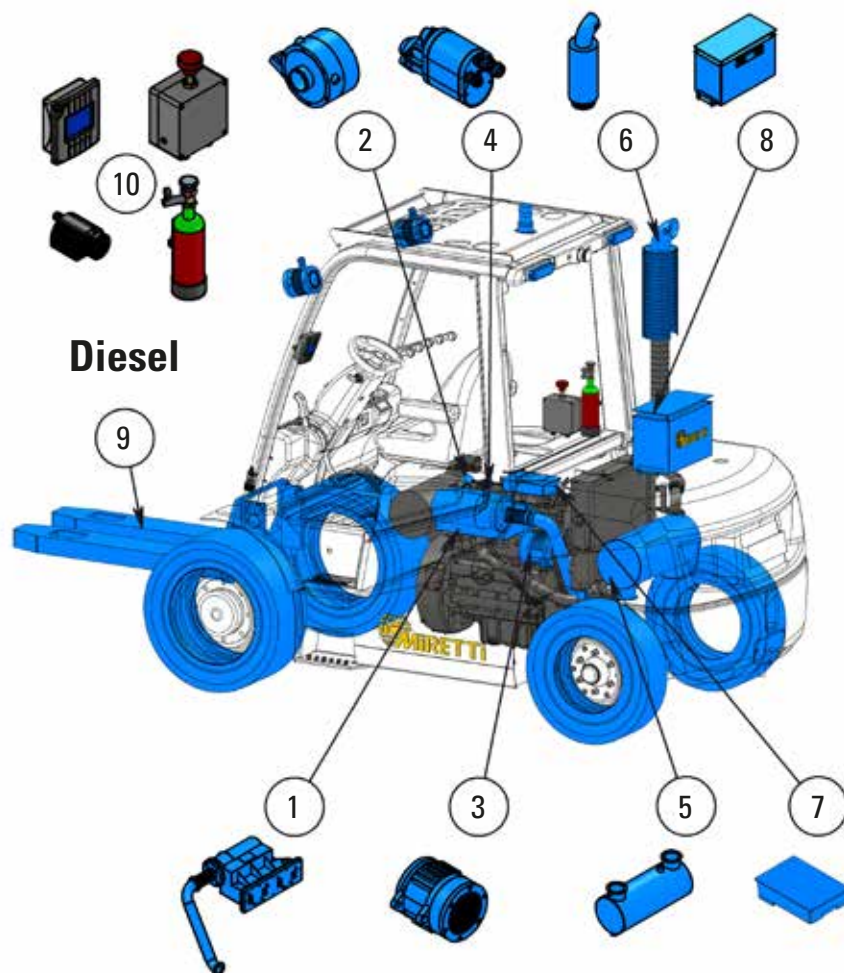


Zone 2 DetEx Category 3G equipment

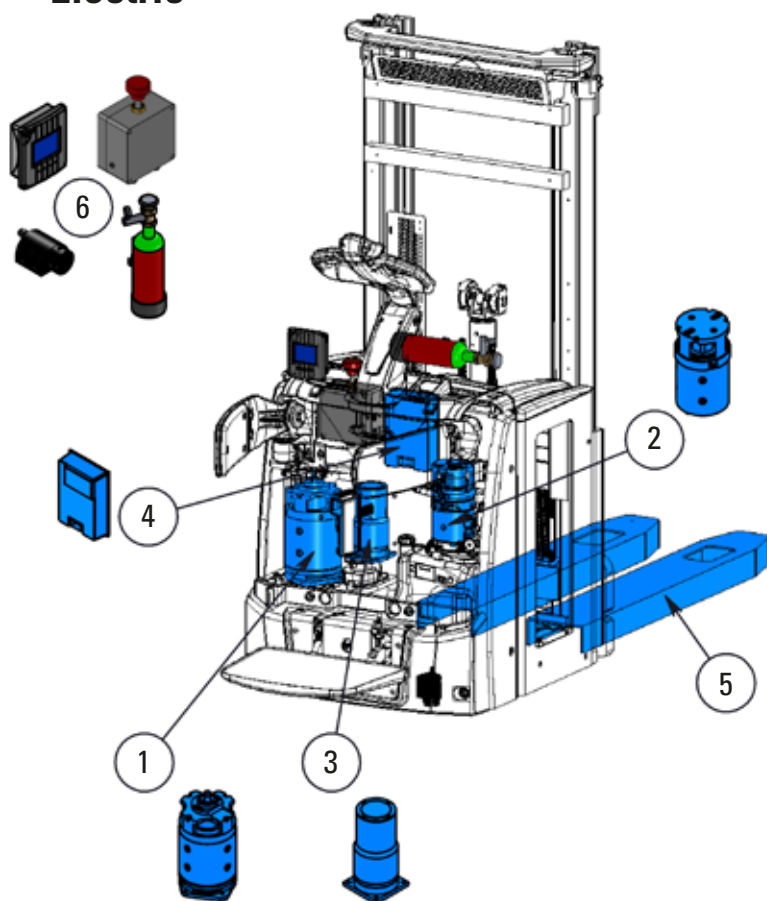
- 1 Exhaust manifold
- 2 Flame arrestor and shut down valve
- 3 Ex d Generator
- 4 Ex d Starter motor
- 5 Truck Filterex Cooler
- 6 Spark arrestor
- 7 Ex nA Electronic ECU
- 8 Ex nA Battery box
- 9 Fork Sheathing
- 10 DetEx

Other parts: Antistatic fan,
Ex Instrumentation and controls,
Horn.

Options: Antistatic wheels, lights,
heating kit, flashing beacon and reverse
gear horn, wipers.



Electric



- 1 Ex nA Traction motor
- 2 Ex nR / Ex nC Pump motor
- 3 Ex nA Steering motor
- 4 Ex nA Inverter
- 5 Fork Sheathing
- 6 DetEx

Other parts: Ex instrumentation
and controls, horn.

Options: Antistatic wheels, lights,
flashing beacon and reverse gear horn.

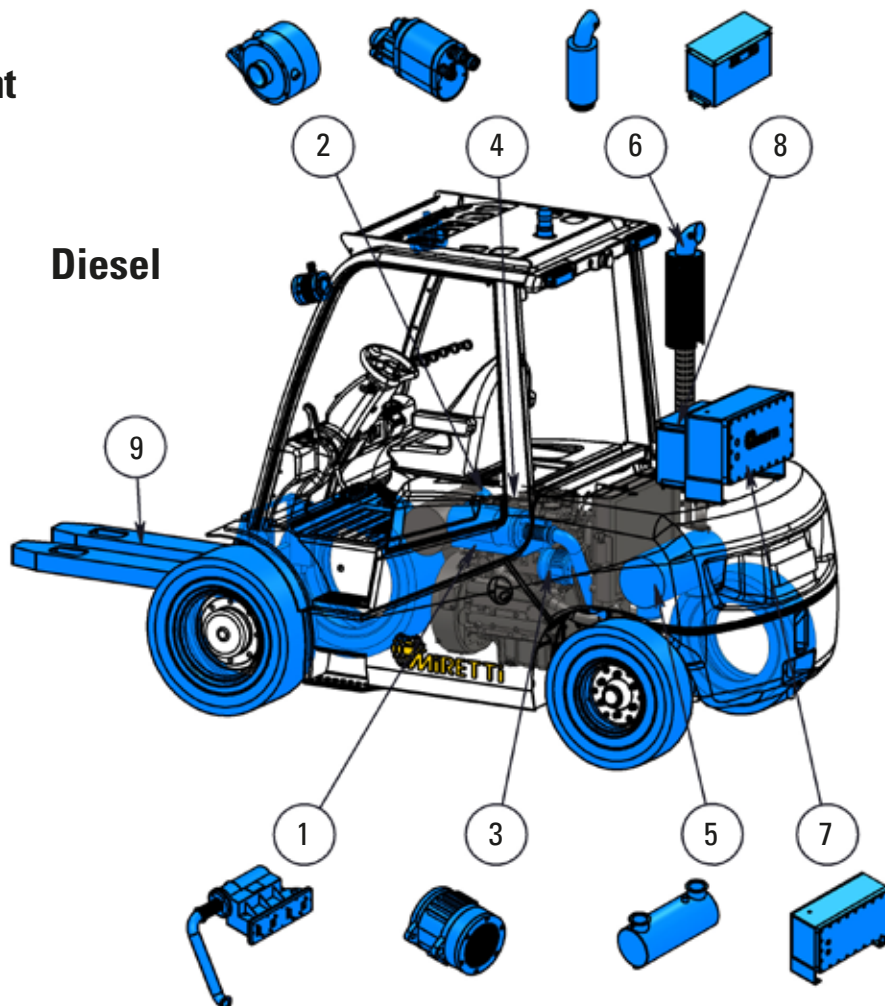
Zone 1

Category 2G equipment

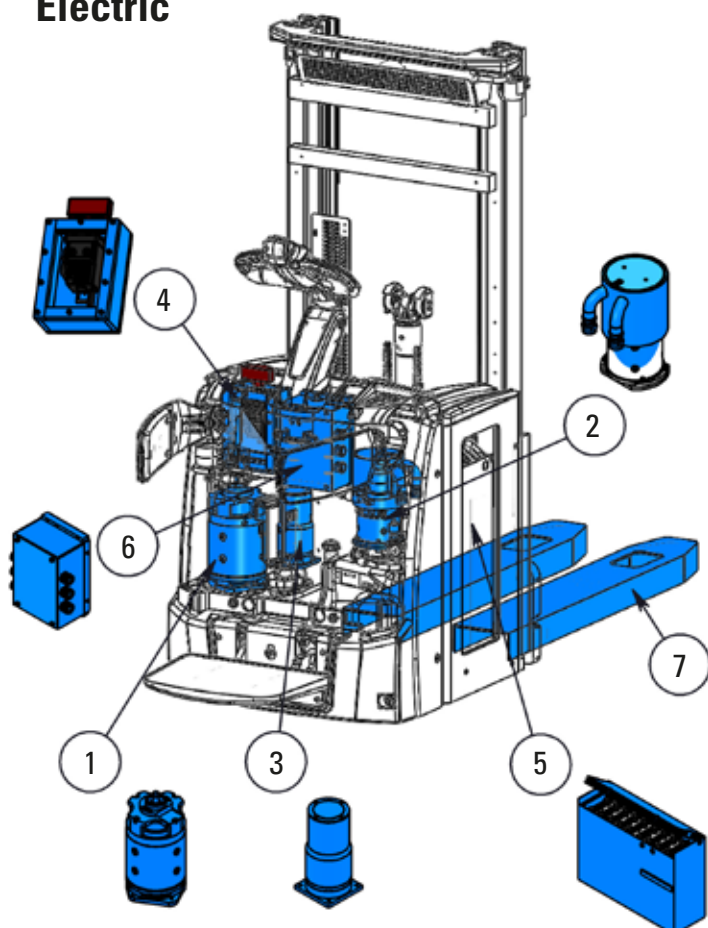
- 1 Exhaust manifold
- 2 Flame arrestor and shut down valve
- 3 Ex d Generator
- 4 Ex d Starter
- 5 Truck Filterex Cooler
- 6 Spark arrestor
- 7 Ex d / Ex q / Ex m Electronic ECU
- 8 Ex e Battery box
- 9 Fork Sheathing

Other parts: Antistatic fan,
Ex Instrumentation and controls,
Horn.

Options: Antistatic wheels, lights,
heating kit, flashing beacon and reverse
gear horn, wipers.



Electric



- 1 Ex e Traction motor
- 2 Ex d Pump motor
- 3 Ex e Steering motor
- 4 Ex d Battery cutoff enclosure
- 5 Ex e Battery box
- 6 Ex e / Ex q / Ex m Inverter
- 7 Fork sheathing

Other parts: Ex instrumentation
and controls, horn.

Options: Antistatic wheels, lights,
flashing beacon and reverse gear horn.

our Certifications, your Safety

Our products are certified according to ATEX, CNEx, IECEx, NEC and other national standards.

In line with ISO 3691.1. requirements. We work in close collaboration with Truck Manufacturers and with their written approval of our systems the explosion proof modifications are compliant with applicable regulations.

All industrial trucks made Explosion Proof by Miretti satisfy the requirements of ATEX Directive 2014/34/EU (replacing 94/9/EC) with reference to the new European standard EN 1755:2015.

Truck Rental

Miretti provides explosion proof forklifts category 2 GD T4 for short term rental.



After Sales Service and Training

The Miretti after-sales service, present in most countries, ensures fast response times, dedicated assistance, telephone and on-site support and the availability of specific spare parts for more than ten years to help maintain constant productivity for customers.

Conversions are studied and implemented using solutions that simplify and speed up machinery maintenance. Maintenance interventions are carried out by skilled personnel, authorised and trained for the purpose in our head offices.

The Miretti After-Sales Service and the availability of local technical support through training courses for service engineers (carried out at the Milan HQ or locally when available) will support the client step by step in ensuring continuous uptime and protection of their environment.

Annual and/or three yearly Safety Audits for the Ex protection system are available on request.



Why choose Miretti?

Miretti has been leader since 1973 in the Explosion Proof Protection of vehicles and boasts impressive experience in the field. The company operates all over the world with branches in Italy (head office), USA, China, Germany, UK, France, Hungary, Benelux, Middle East, Australia, Singapore. Miretti is ISO 9001 and ISO 14001 certified and is an approved supplier for the most important world producers. Constant research focuses on new technologies and innovative solutions. All explosion proof conversions are developed and implemented in agreement with OEM Original Equipment Manufacturers to maintain original safety levels and ergonomics in conformity with local standards and regulations. Miretti ensures a reliable after-sales service, qualified technicians, quality and fast maintenance.

Expertise of over 40 years
Quality & Innovation
Competitive Pricing
Certifications & Testing
After Sales Service
Training & Product Education
Research & Development
Reliable Customized Solutions
Global footprint





We operate all over the world



Miretti Production Facilities are located in


 **MIRETTI AMERICAS**
285 Eldridge Road
Fairfield New Jersey 07004
United States of America
Tel: 1-973-808-8399
Fax: 1-973-808-8398

 **HEAD OFFICE
MIRETTI ITALY**
Via Marconi, 29/31
20812 Limbiate (MB) (Italy)
Tel: +39 02.99081.1
Fax: +39 02.99052488


 **MIRETTI CHINA**
N° 108 Lane 7333
Zhongchun Road Minhang District
Shanghai P.R. China 201101
Tel: +86 (0)21.64.59.75.35
Fax: +86 (0)21.54.85.82.86

sales references: sales.department@miretti.com

 **MIRETTI FRANCE**
Immeuble Le Confluent
6 Rue de Bretagne
38070 Saint Quentin Fallavier (Lyon)
Tel: +33 (0)4 26 09 10 63
Fax: +33 (0)4 83 07 55 37

 **MIRETTI DEUTSCHLAND**
Ostgraben 17
41751 Viersen (Dusseldorf)
Tel: +49-2162 / 890 30 61
Fax: +49-2162/ 890 51 66

 **MIRETTI UK**
Office 5 and 7, Premier House
43-45 Sanders Road
Finedon Road Industrial Estate
Wellingborough
NN8 4NL Northamptonshire
Tel. +44 (0)1933278471

 **MIRETTI BENELUX**
Koralenhoeve 15c
2160 Wommelgem België
Office: +32 (0)3 600 17 35

 **MIRETTI HUNGARY**
H 2440 Szazhalombatta
HRSZ 2982/2 Hungary
Mob: +36-70/ 70 87 830

 **MIRETTI AUSTRALIA**
16 Redemptora Road, Henderson
Western Australia 6166
Tel: +61894346622

 **MIRETTI SINGAPORE**
8 Jurong Town Hall Road #24-05
The JTC Summit - Singapore 609434
Tel: +65 6818 0986

 **MIRETTI MIDDLE EAST**
PO Box 4422
Fujairah - UAE
Mob: +971 (0) 551044979

www.miretti.com