



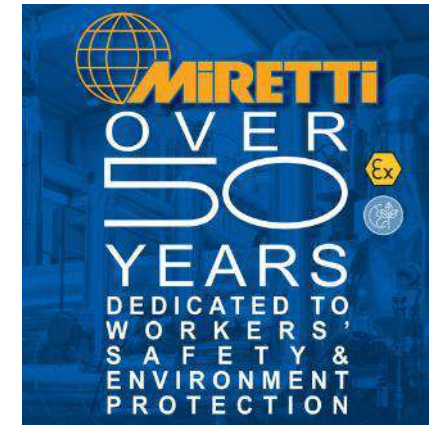
Oil & Gas

Miretti Group

overview



about Miretti Group



- Miretti has been leader since 1973 in the **Explosion Proof Protection** of mobile vehicles, engines and industrial equipment and boasts impressive experience in the field.
- The company operates all over the world with branches in Italy (head office), USA, Singapore, China, Germany, UK, France, Spain, Hungary, Benelux, Middle East, Algeria, Israel, Australia.
- Miretti is ISO 9001, ISO14001 and ISO 45001 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.
- Miretti Group has also been on the market since 1973 as a supplier of SCR DeNOx Systems, Catalysts, Ecological Kits thanks to many years of experience also in the field of **Exhaust Cleaning Solutions** reducing exhaust pollutants.

“by the customer’s side for Explosion Proof Safety and Green Environment, globally”





Certifications



Miretti Safety Systems & Services certified according to worldwide standards ATEX, IECEx, NEC.



Worldwide Standards

Miretti are approved and certified to manufacture and supply products that comply with various world-wide accepted standards for equipment operating in hazardous areas.

Standards:

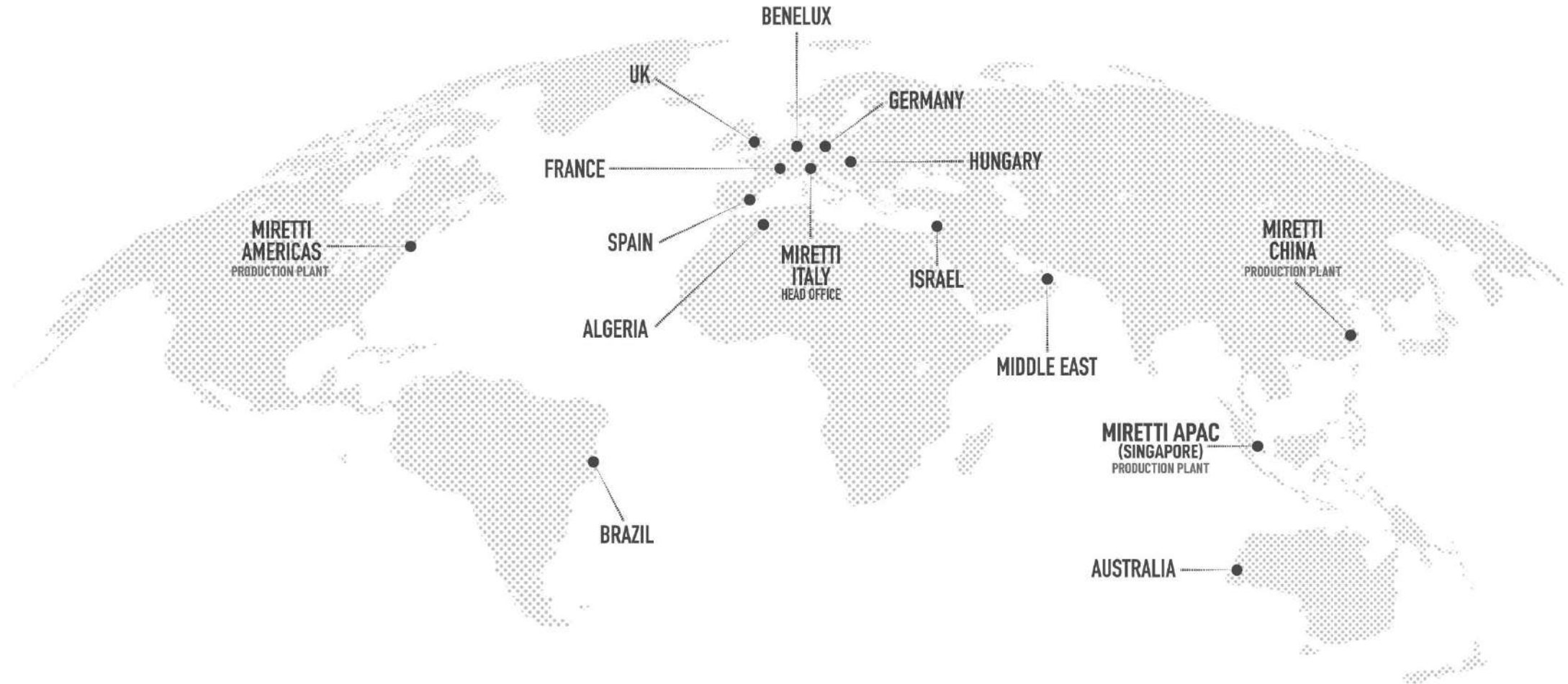
- **EN 1834-1:2000** "Reciprocating internal combustion engines – Safety requirements for design and construction of engines for use in potentially explosive atmospheres – Group II engine for use in flammable gas and vapor atmospheres
- **IEC 60079 Series**
- **NEC 500 V** - Electrical system: FM Class 3600:2011, FM Class 3610:2010, FM Class 3611:2009, FM Class 3615:2006.

Certifications:

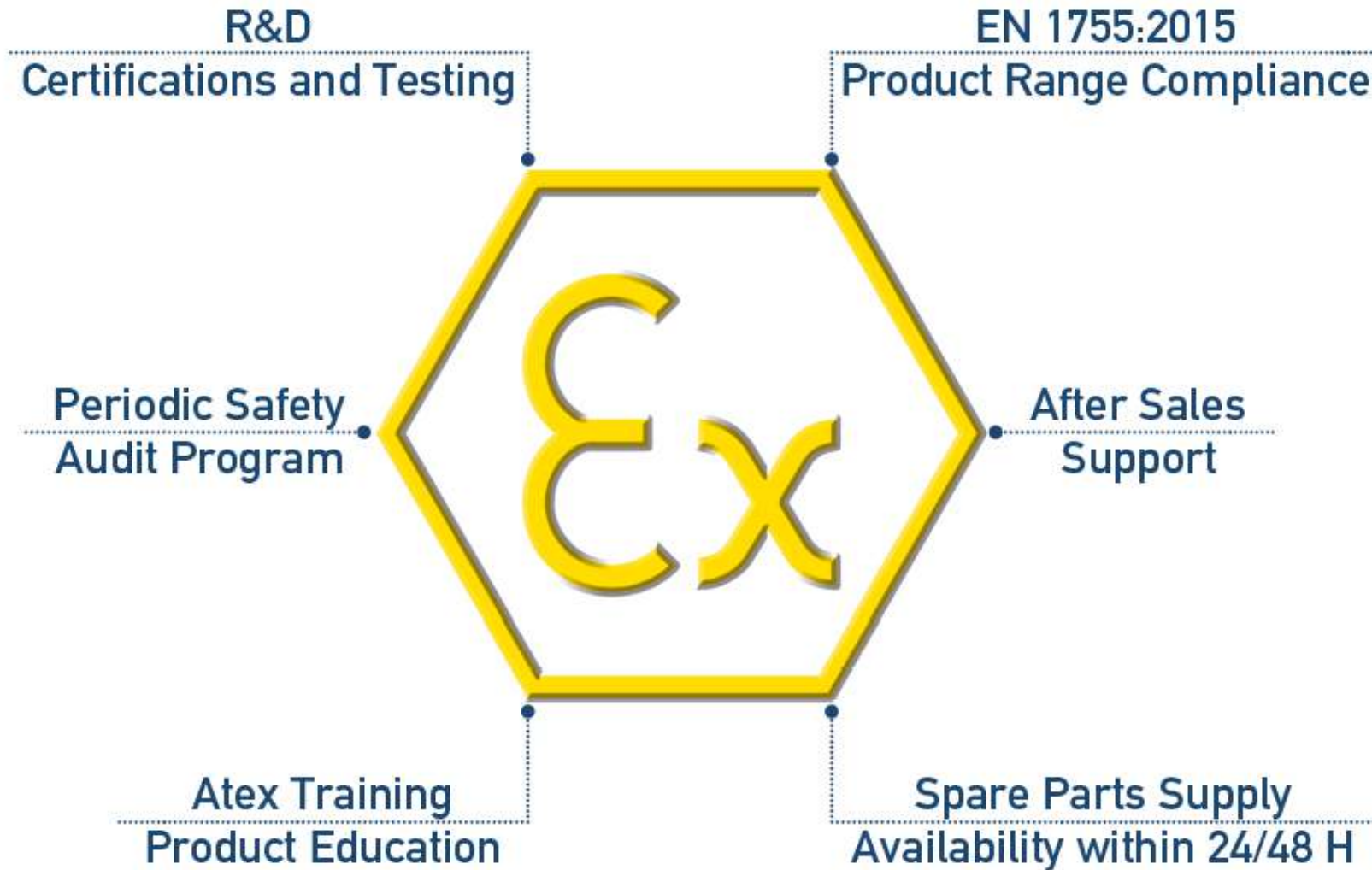
- Mark: II 3G IIA T3 Gc
- Class I Division 2 Group C&D T3
- ATEX Directive 2014/34/EU

Global Footprint Global Support

«by the customer's side, globally»



Support for Atex Systems and Services anywhere in the world



Why is the explosion proof transformation mandatory in areas classified as dangerous

It is the law



Safety of people



Preservation
company



Environment
Protection



What can Miretti do for Oil&Gas?



Oil & Gas

We are specialized in the Oil & Gas industries offering:

- Top Quality
- IP protected
- Innovative and fully certified systems for oilfield equipments
 - Power Packs
 - Compressor units
 - Gensets
 - Cement units
 - Others... ..



Miretti Group can provide worldwide....

Ex Engine Power Systems



**Ex Engine Powerpacks
/Full Conversions**

**Ex Engine Kits
for local installation**

Thanks to:

- Research & Development
- Technical Department with mechanical and electrical engineers
- Certification Department

Ex Engine Powerpacks /Full Conversions

Full conversion and complete project builds in compliance with **Zone 2 (ATEX) Kits, Class I Div. 1-2 (US), Tier 4 Engine, IECEx**

Ex testing and third party certification included, available through Miretti factories in Italy (head quarter), USA, Europe, Singapore and China.

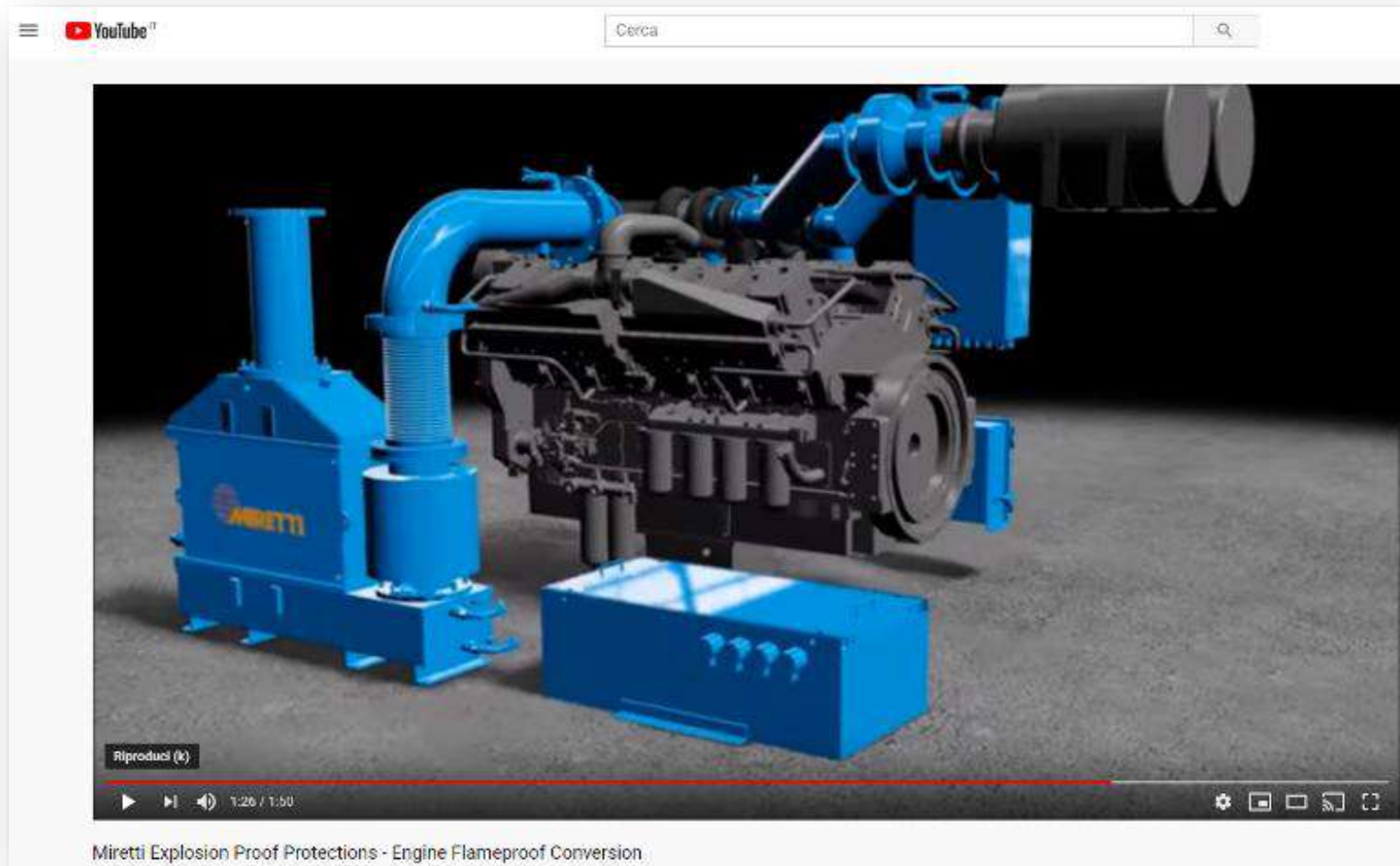
Zone 2 Atex kits for local OEM installation

Zone 2 ATEX compliant kits, reliable and safe, optimized for installation and 'uptime', maintenance friendly with FilterEx self-cleaning exhaust flame traps and spark arrestor elimination.

Miretti has developed a range of Engine Explosion Protection Kits **for marine and for industrial engines** in compliance with ATEX Zone 2, Group I M2, Class I Div.1-2



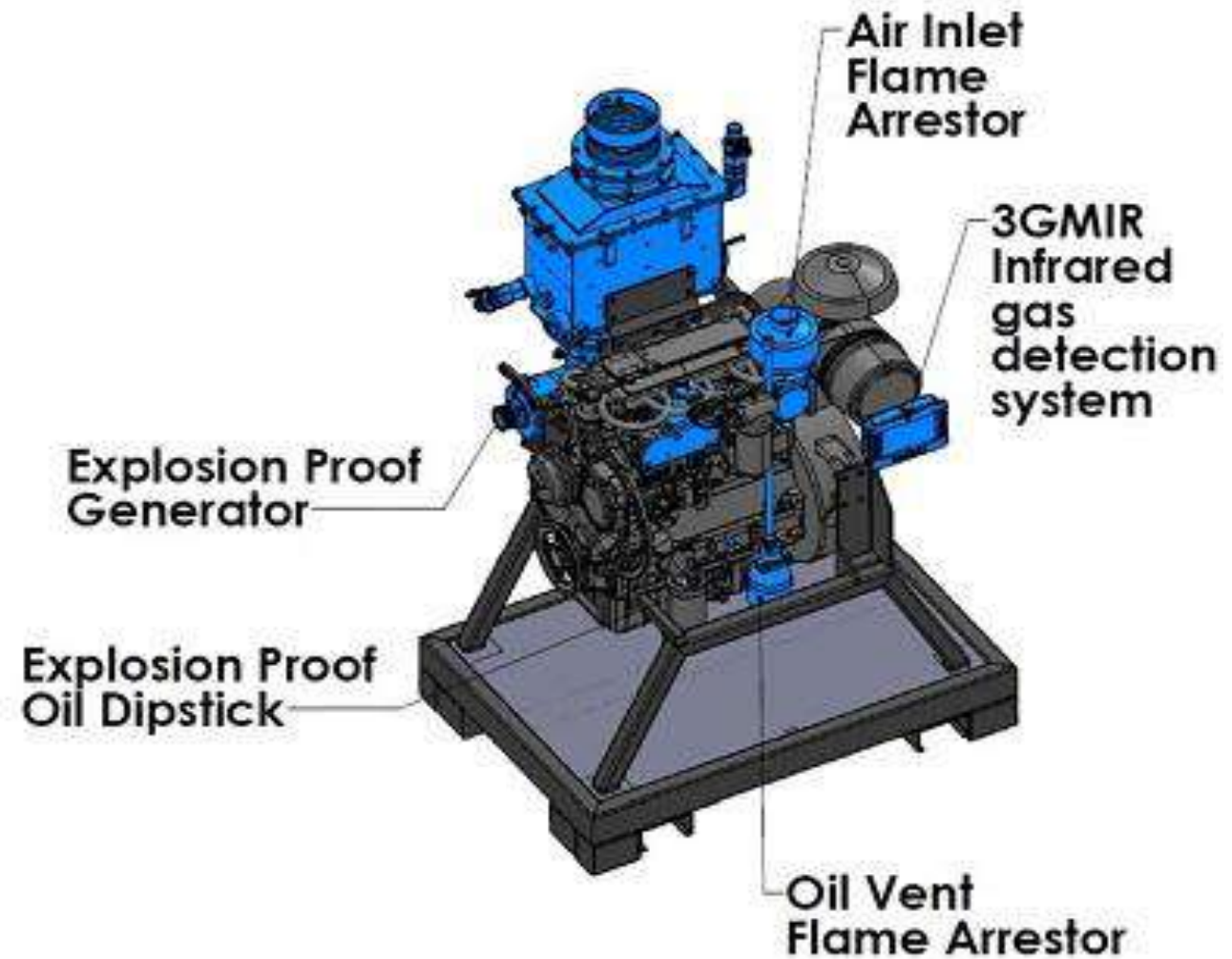
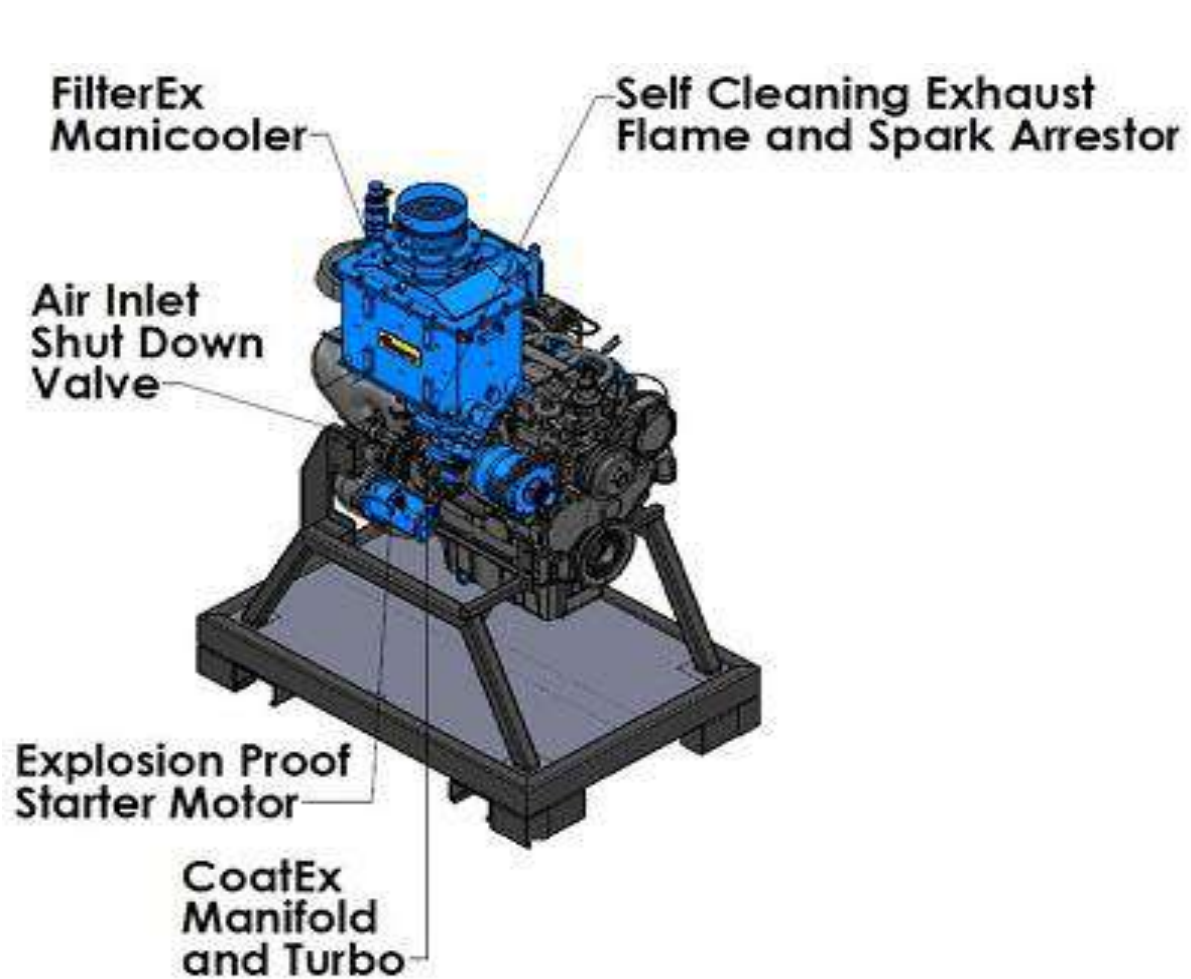
Miretti Ex Engine Conversion



[Watch the video](#) 

Example of Miretti Engine Explosion Protection System

Zone 2 ATEX Kits



Miretti Kits

Zone 2, IIA/IIB, T3 KIT

A) Miretti Air Inlet

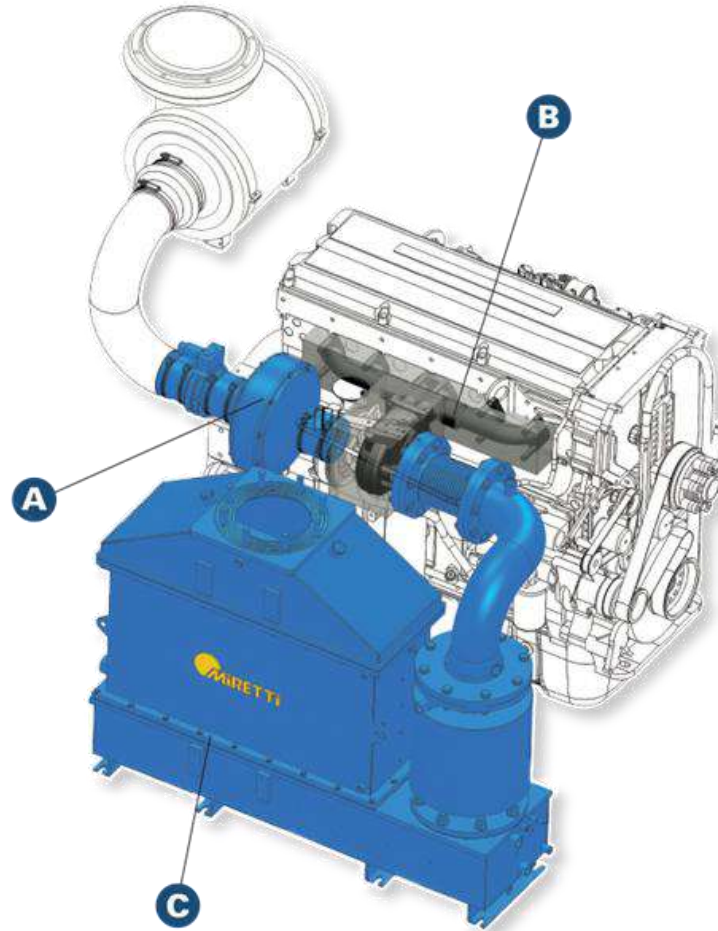
- Shut Down Valve & Flame Arrester
- Provides shutdown on abnormal engine operating condition

B) Miretti CoatEX

- Exhaust Manifold (OEM) & Turbocharger (OEM)
- Ensure surface temperature is below 200°C (T3)

C) Miretti FilterEX

- Flame arrester, Heat Exchanger & Spark Arrester
- Cools the engine exhaust gas below 200°C (T3).
- Ensure that no flames, sparks and no hot particles escape into the atmosphere



Miretti Zone 2 (ATEX) kits also include:

- Crankcase oil breather flame arrestor
- Exhaust flexibles, water-cooled exhaust pipes
- Automated shut-down system
- Ex Electrical & Instrument
- Engine Control Module (ECM) Ex Protection
- Ex Electrical starting system:
 - Battery charging alternator
 - Battery box and battery
 - Battery cut off switch enclosure
 - Conversion of original (OEM) electrical starter motor

Focus on ... FilterEx for Zone 2



Sizes:

- < 90 kw FilterEx Manicooler
- 60-120 kw
- 121-250 kw
- 251-499 kw
- 500-800 kw
- >800 kw

Miretti Group has developed a range of Engine Explosion Protection Kits: for Industrial & Marine engines too





Miretti Ex Solutions and Miretti Engine Kits are available for many worldwide brands and OEMs manufacturers:
Atlas Copco, MTU, Cummins, Caterpillar, Volvo, Perkins, John Deere, JCB, FPT, Deutz, Man, Doosan, Detroit, Kaeser, Sisu Power, Kubota, Volvo, Mercedes, Lombardini, etc...



**Thanks to its production facilities based in
Europe, America, Singapore and China
and its workshops and sales offices around the world
Miretti Group can explosion proof protects equipment locally
without necessarily having to send
the engine to the head quarter in Italy**

Miretti Explosion Protection Systems & Services for Engines

Some of the latest case histories



The FIRST gas powered engine Ex converted to Class 1, Division 2 for the NEC500

C1D1 gasoline engine Explosion Proof converted by Miretti Americas, our USA production facility. This is not only an Innovative Project for the safety in “Hazardous Areas”. This project has been an impressive challenge and is a great accomplishment which has never been done until now.



First 4 engines of a 56-unit supply



C1D2 rated fire pump diesel engine drivers



Wilitec and Miretti Group: the collaboration in Explosion Proof Solutions

Atlas Copco Compressor 350CFM 12bars
fitted with Cummins engine converted for Atex Zone 2

Doosan Compressor 250CFM 10bars
fitted with Perkins converted for Atex Zone 2

Genset 15KVA
fitted with Miretti Atex Kit
(small footprint with Manicooler)



*Source: LinkedIn page of WILITEC PTE. LTD.

<https://www.linkedin.com/company/wilitec-pte-ltd/posts/?feedView=all>

Marine Explosion Proof Diesel Engines

CL 1 DIV 1 T3/T4



Not only Atex standard....

Ex Conversions in compliance with North American

Class I Div. 1 (USA standard)

CAT 3512C



CL 1 DIV 1



Herrenknecht – Caterpillar – Miretti

Three international companies together in Explosion Proof Solutions

Caterpillar C18

Atex Explosion Proof Protected
for Offshore Application



Miretti FilterEx



Miretti CoatEx



Explosion Protection Diesel Fire Pump

Clarke Diesel Fire Pump JU6H-NLAD

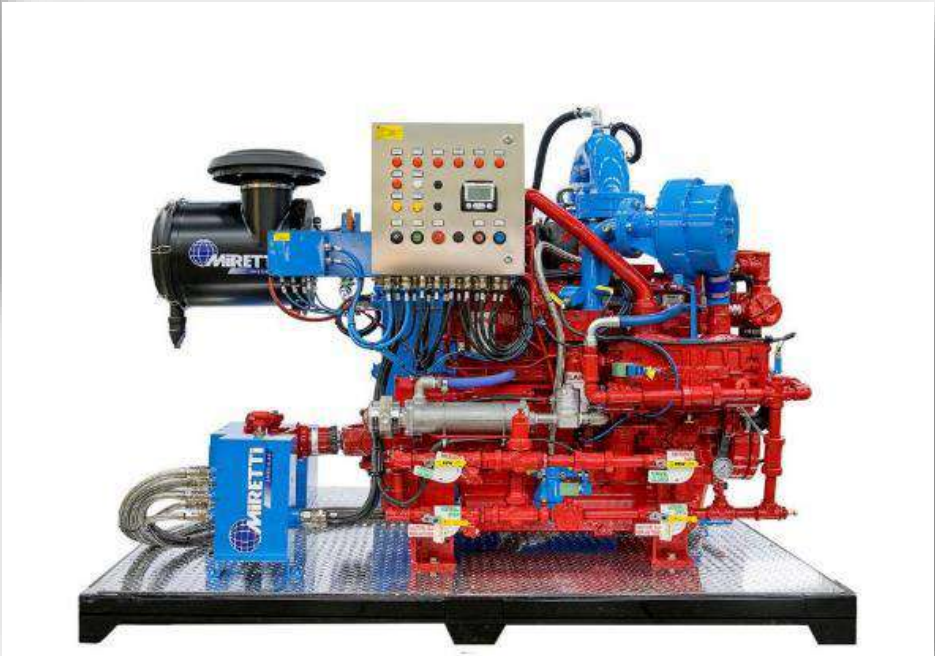
137-235 kw (185-315HP) @ 1760-2350 rpm



3G IIB T3



CL I DIV 2 T3



OTC Offshore Technology Conference
Texas | USA



CONFERENCE
& EXPO

JUNE 17-20, 2019
SAN ANTONIO, TX
HENRY B. GONZALEZ CONVENTION CENTER



Ex Solutions for Onshore Drilling

Four Detroit 8V92/TA engines
fitted with Miretti Atex Kits
Hydraulic Powerpack Unit (HPU)



Miretti Atex Kits

Miretti Explosion Protection Systems & Services for Engines

**Some of the main projects carried out by
Miretti Group recently and globally**

overview



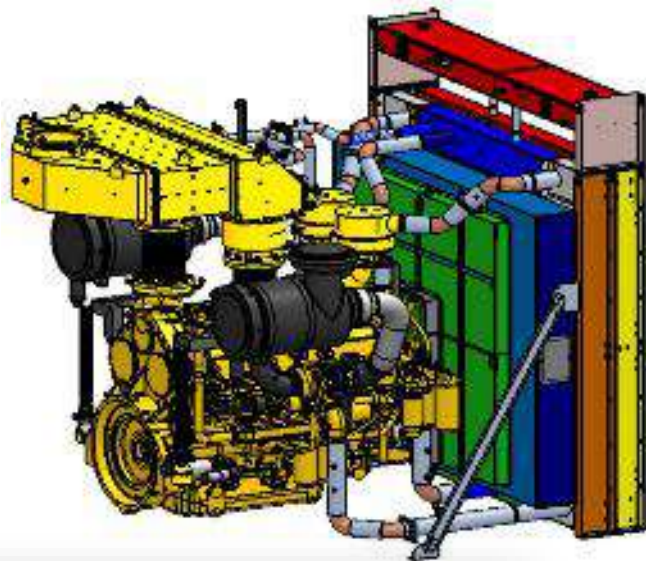
This diagram shows an exploded view of a yellow industrial robot arm. The main body is a large, rectangular yellow box with a sloped top. A yellow arm extends from the top, ending in a gripper mechanism. The gripper has two yellow fingers and a central black component. Various bolts and fasteners are shown in their respective positions on the assembly.

 **3G IIA T3**



CAT C27

597 kw (800 hp) / 2100 rpm



CAT 3054C

97 kw / 2200 rpm



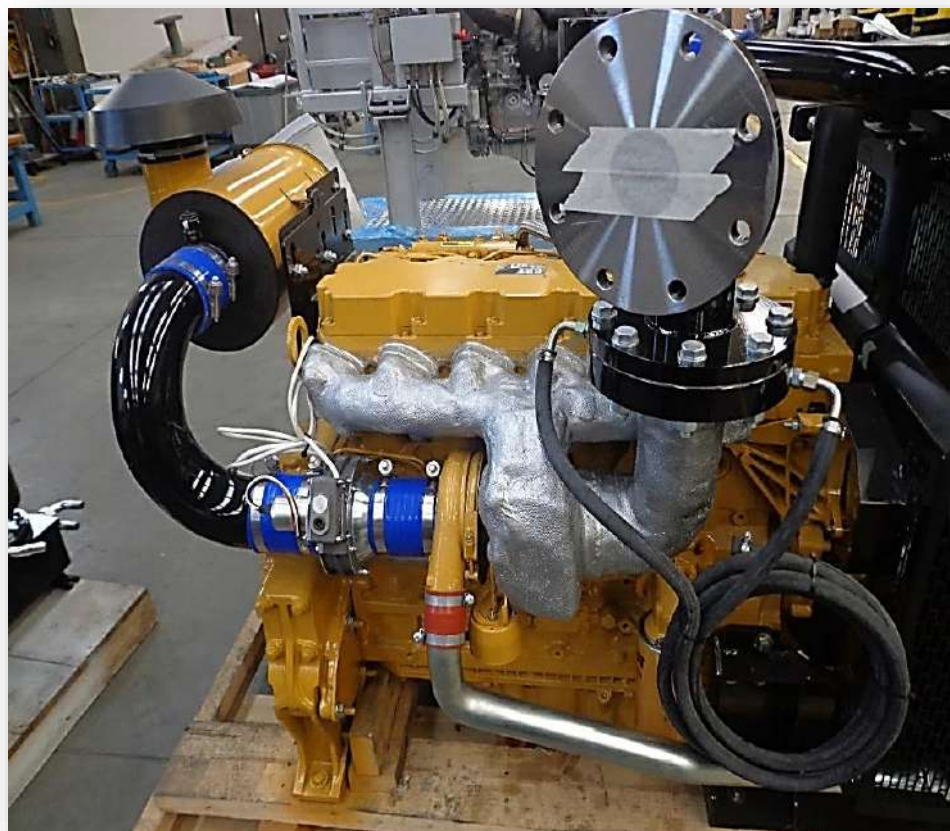
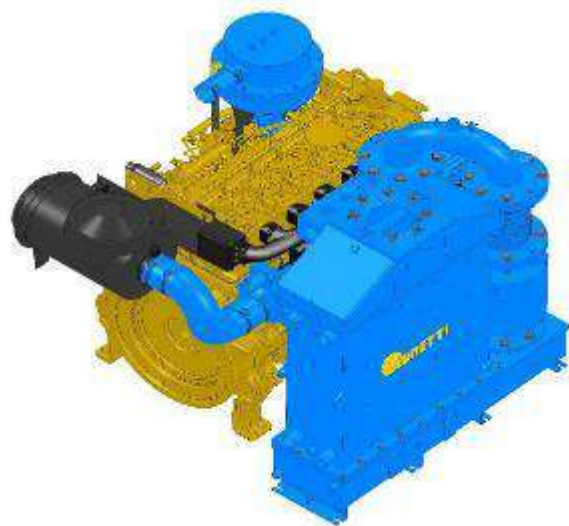
CAT C4.4

106 kw / 2200 rpm



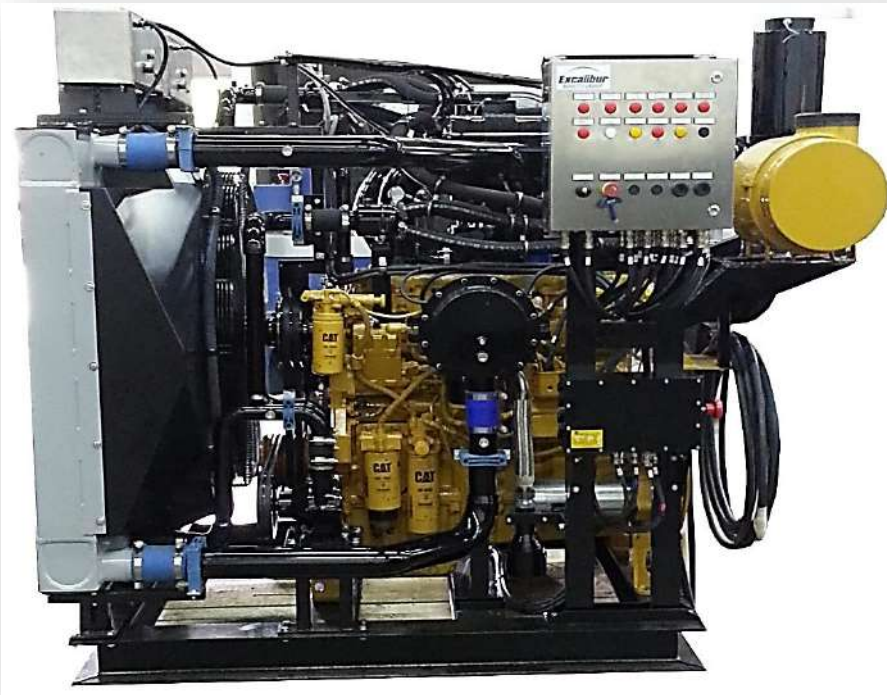
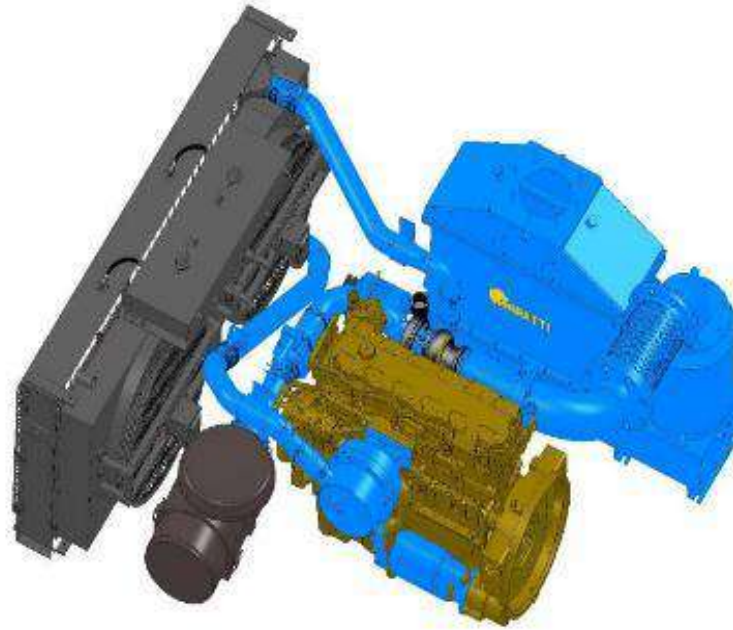
CAT C6.6

178 kw / 1800 rpm



CAT C9

261 kw / 2200 rpm



CAT C15

597 kw / 2300 rpm



CAT C18

597 kw / 1900 rpm





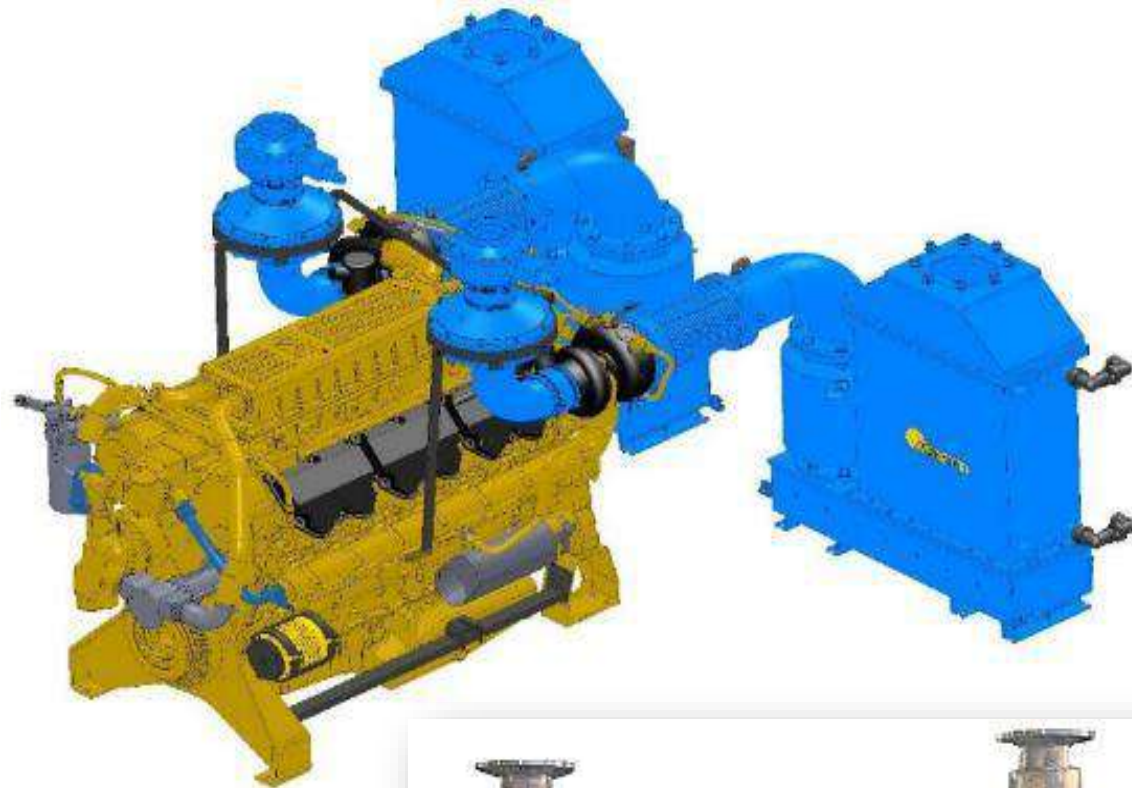
CAT C18

597 kw / 2200 rpm



CAT C32

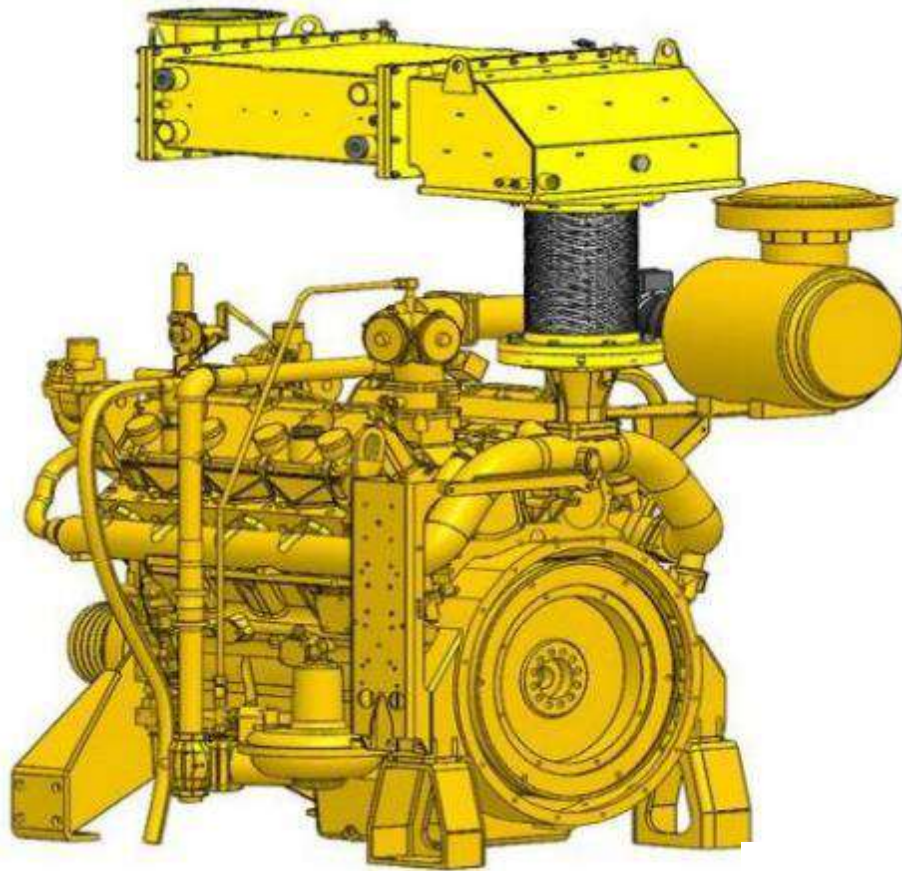
1268 kw / 2300 rpm



CAT G3408 (Gas Engine)

190 kw (255HP) @ 1800 rpm

T3 rated



Doosan XP1050 CFM | Cummins QSM11

526 kw / 2500 rpm

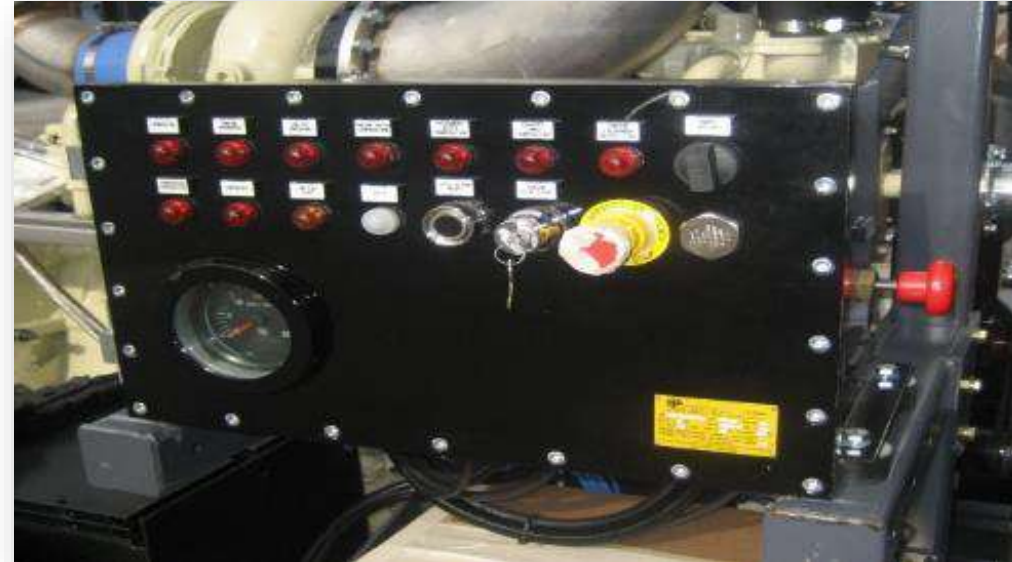
 3G IIB T3

Air Compressors



Atlas Copco 1600CFM | Cummins KTA19

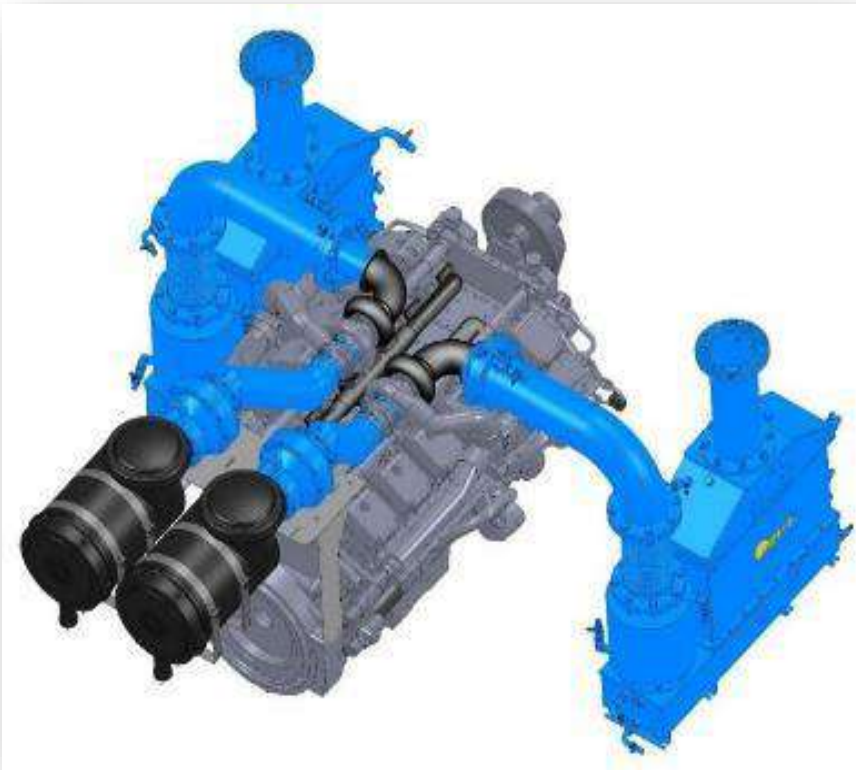
Air Compressors



Cummins KTA38

776 kw / 1800 rpm

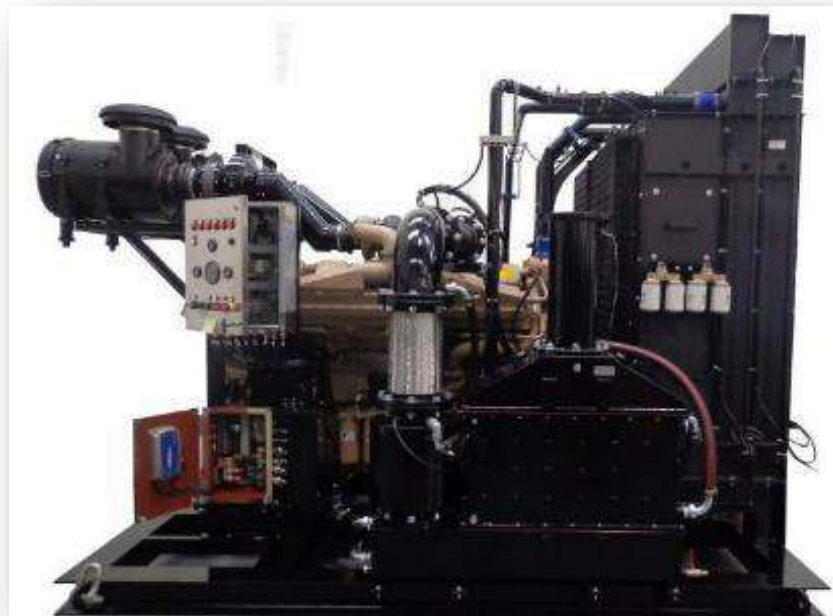
Two exhaust KITS



Zone 2 ATEX conversion of Cummins KTA 38 engine included

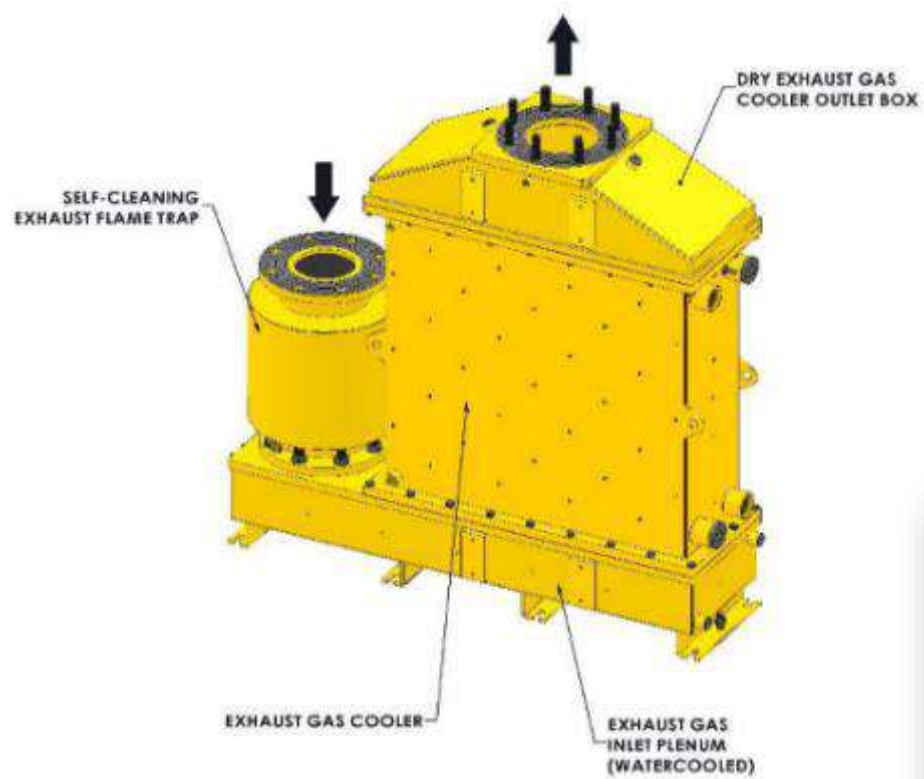
- FilterEx 'compact' exhaust gas coolers with self-cleaning exhaust flame arrestors
- CoatEx system applied to 'dry' engine turbos and exhaust manifolds
- Miretti Exd conversion of electric starter
- Miretti Exd alternator and Exe battery
- Miretti Control and Instrumentation

Cummins KTA38



KIT – Cummins 6LTAA8.9-C360

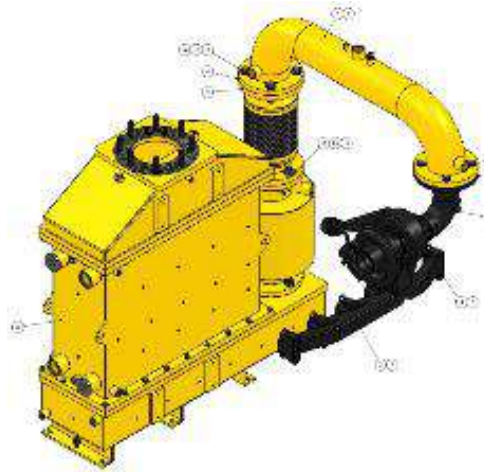
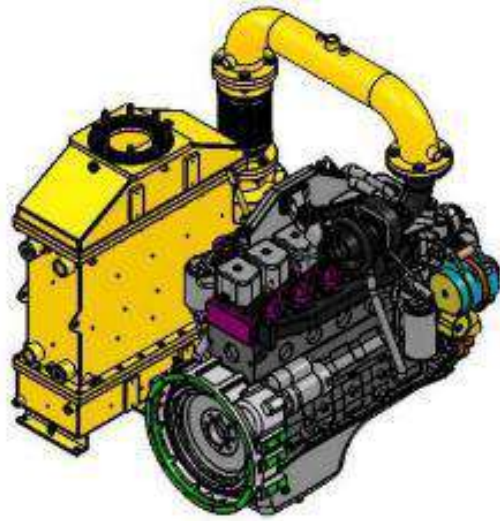
264 kw (360 HP) @ 2200 rpm



Cummins 6BTA5.9-C180

132 kw (180HP) @ 2200 rpm

 3G IIA T3



Cummins QSB 6.7

164 kw (220HO) @ 2200 rpm

 3G IIB T3



Cummins 6CTAA8.3-C215

160 kw (215HP) @ 2200 rpm

 3G IIA T3



Cummins QSL9D

253.5 kw (349HP) @ 1800 rpm

 3G IIA T3



Cummins QSX15

496 kw / 2100 rpm



3G IIB T3



CL I DIV 2 T3



Atlas Copco XAHS350, 350CFM | Cummins 4BTAA3.9-C125

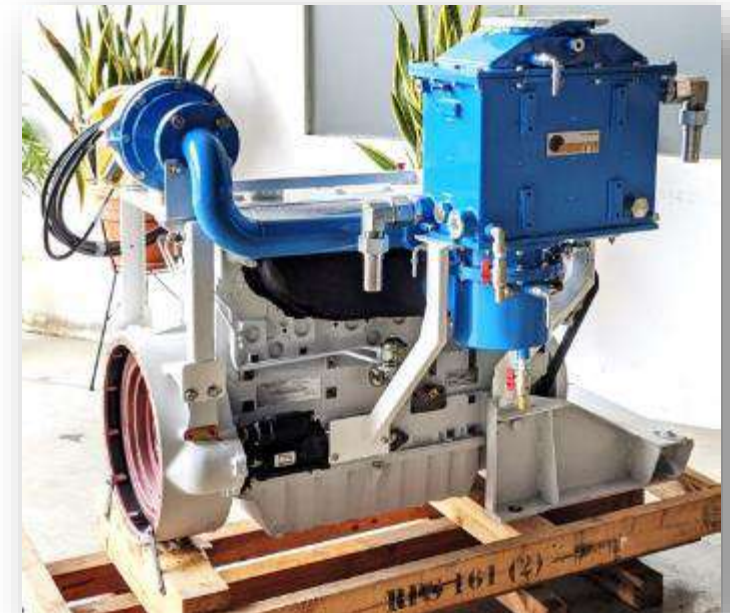


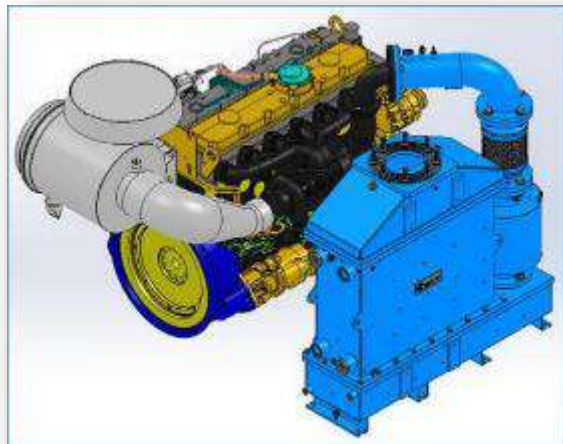


Perkins 1104C-44
Perkins 1104C-44T
Perkins 1006.6



ATEX Zone 2
3G IIB T3





KIT - Perkins 1106A-70TAG3

162.7 kw (218.2HP) @ 1500 rpm

 3G IIB T3



Perkins 1104A-44TG2

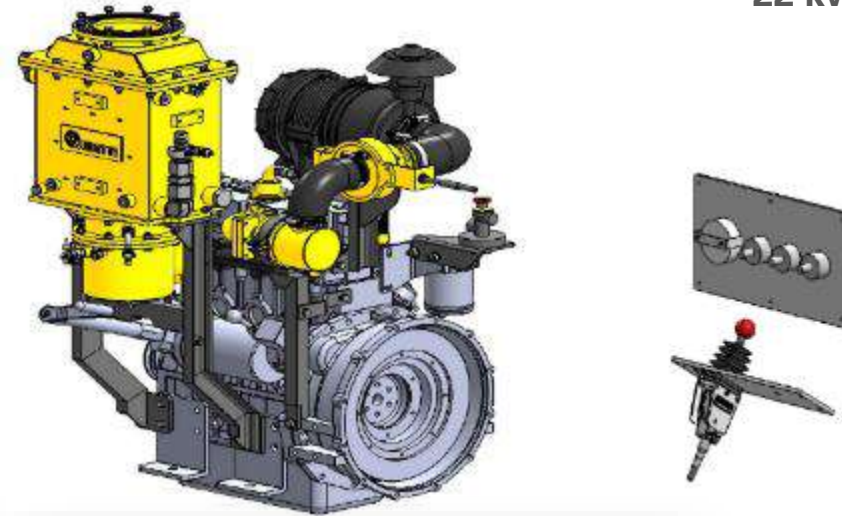
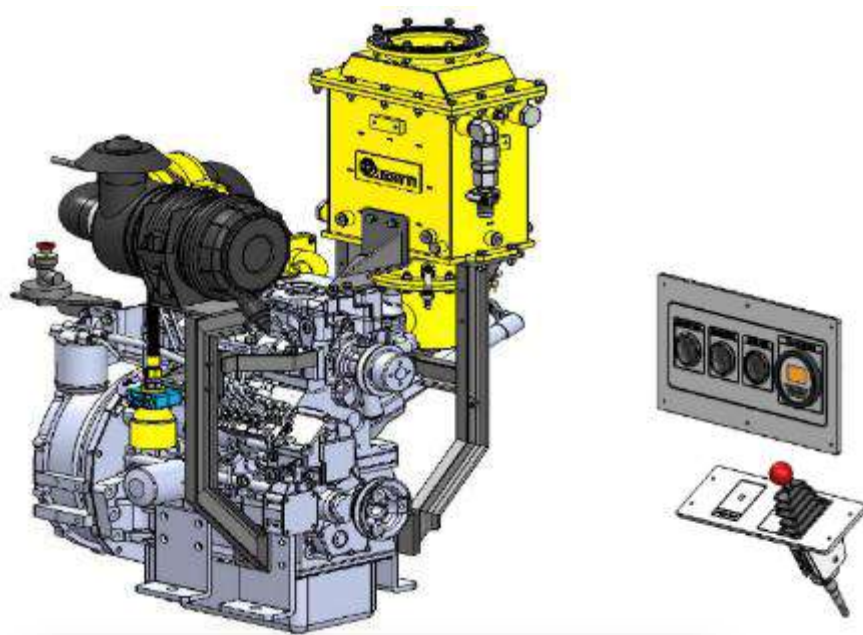
 3G IIB T3



Perkins 404D-22G

22 kw (29.5HP) @ 1800 rpm

 3G IIB T3



Perkins 1104C-44TA

97 kw (130.1HP) @ 2200 rpm

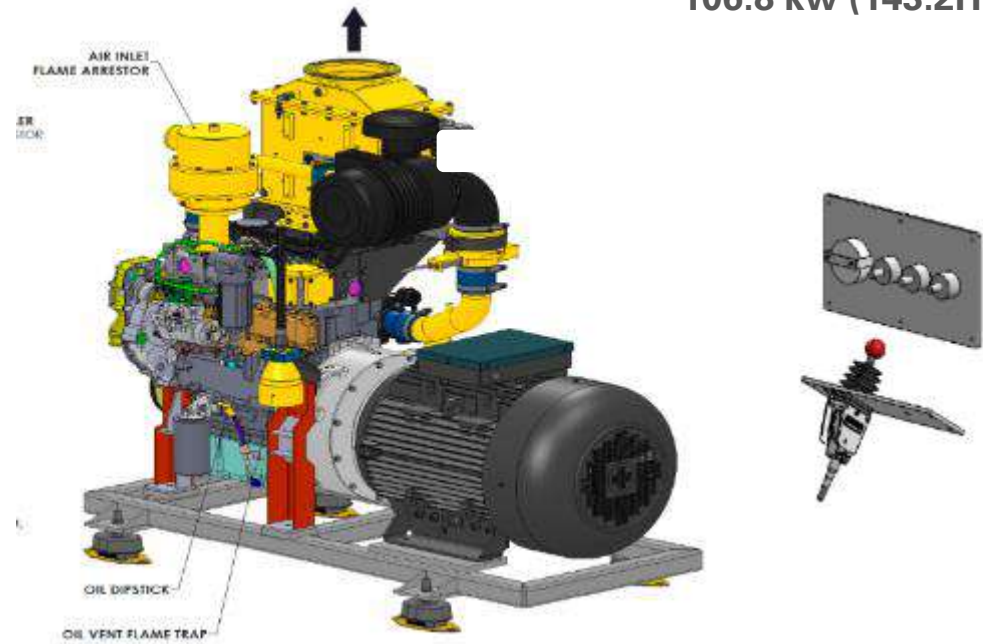
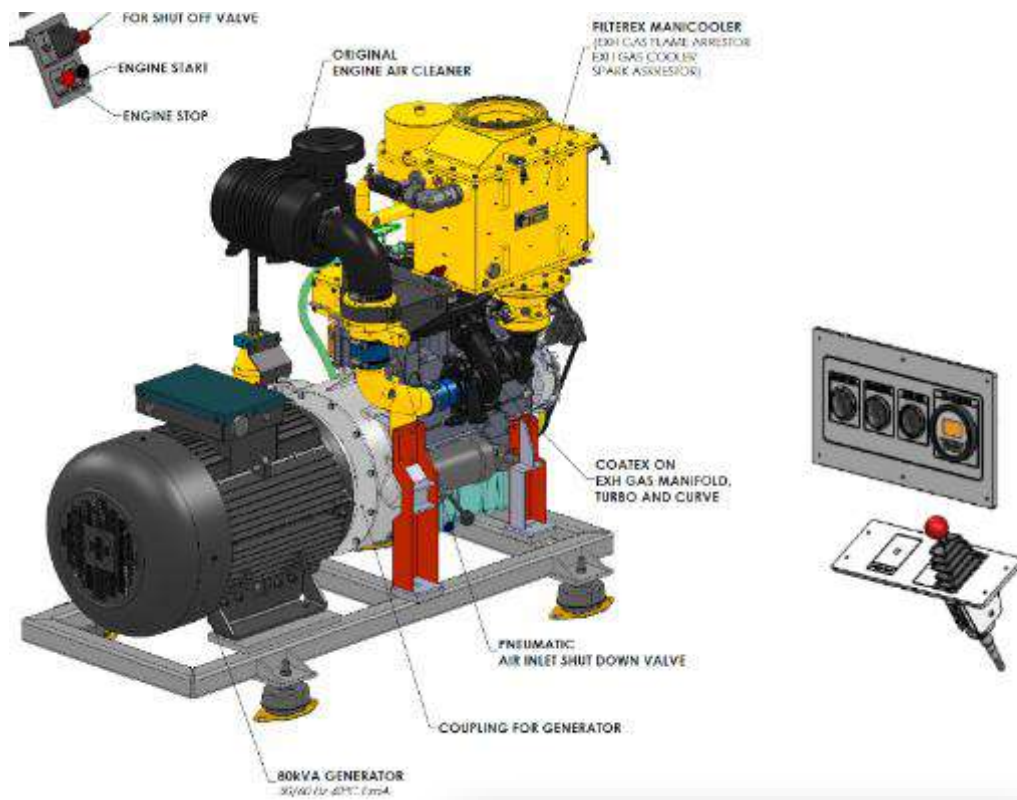
 3G IIB T3



Perkins 1104C-44TAG2

106.8 kw (143.2HP) @ 1800 rpm

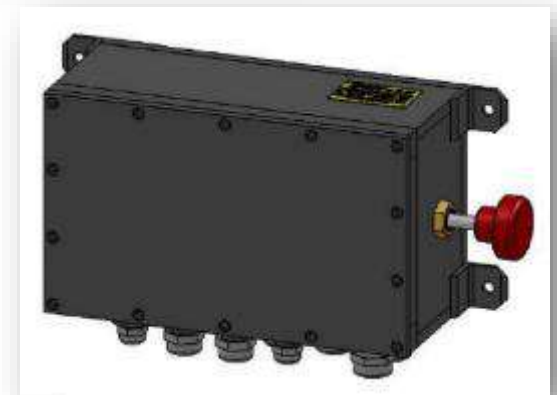
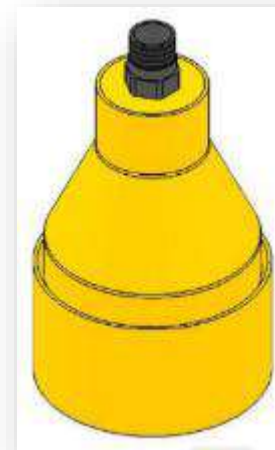
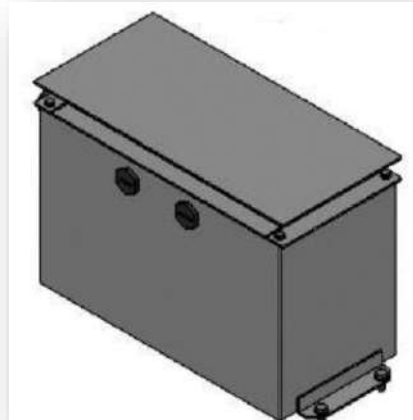
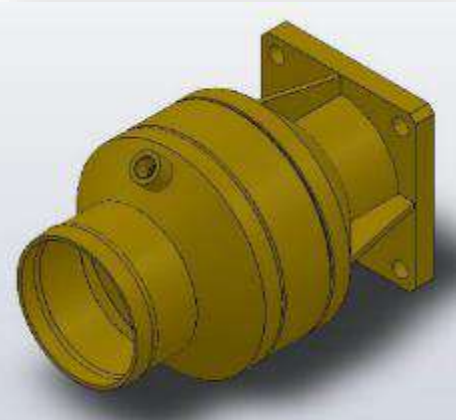
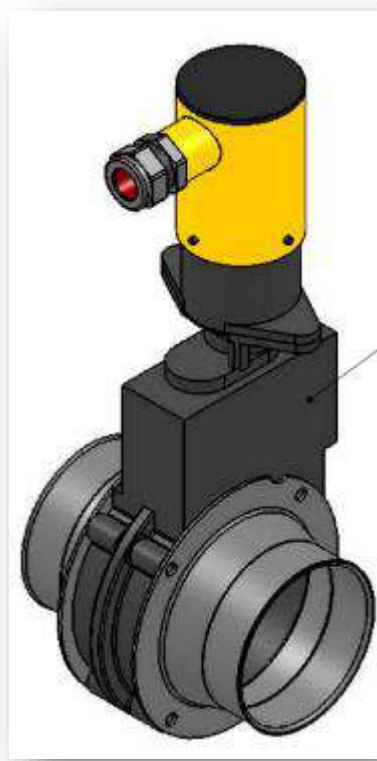
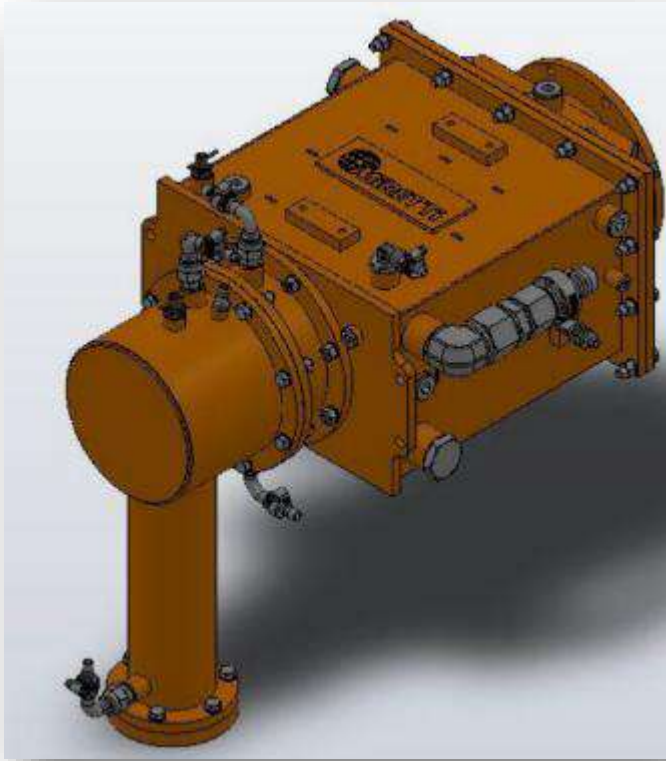
 3G IIB T3



KIT – Perkins 1103A-33G

28.2 kw (37.8HP) @ 1500 rpm

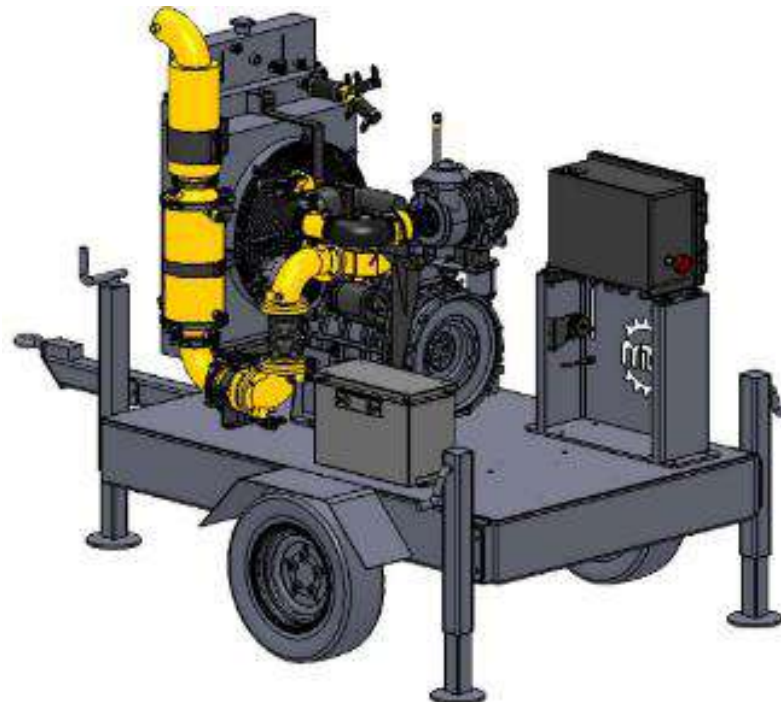
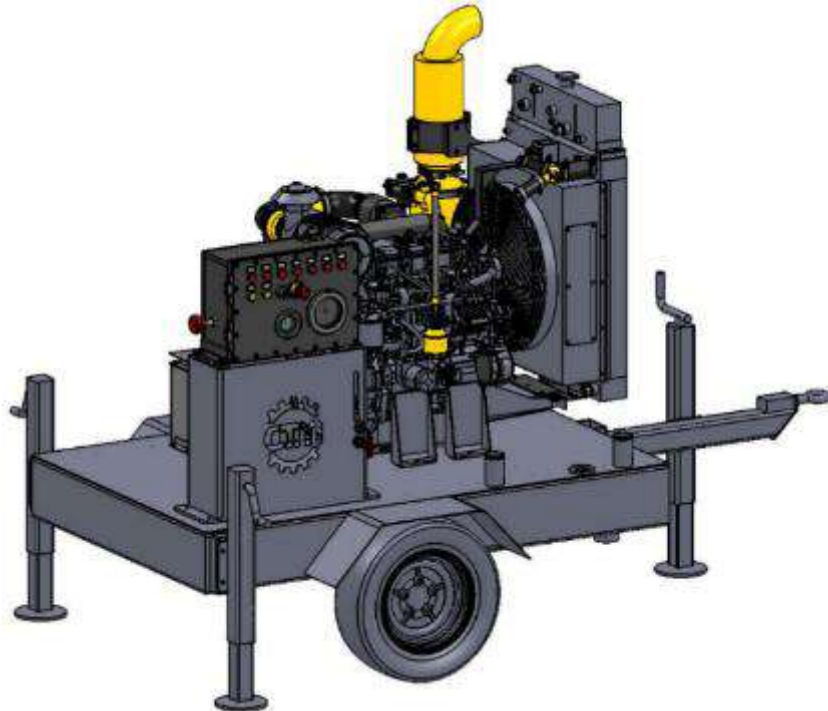
 3G IIA T3



Perkins 404D-22G

18.7 kw (25.1HP) @ 1500 rpm

 3G IIA T3



Perkins 1104D-E44TA



3G IIB T3



Perkins 1106

109 kw
TIER II



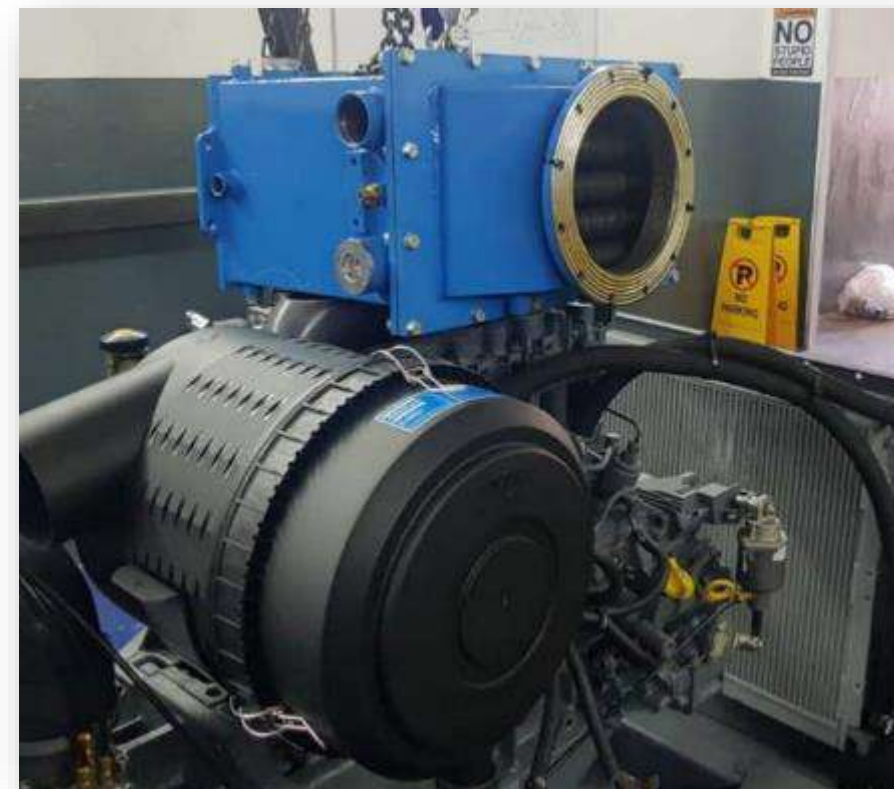
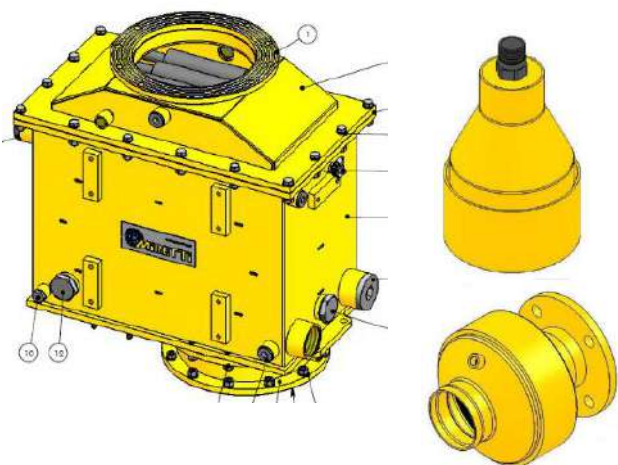
Atlas Copco XAS97Dd, 190CFM |KIT – Deutz D2011L03 / F3M2011

36 kw (48.3HP) @ 2750 rpm



3G IIB T3

Air Compressors



Deutz TCD2012L06

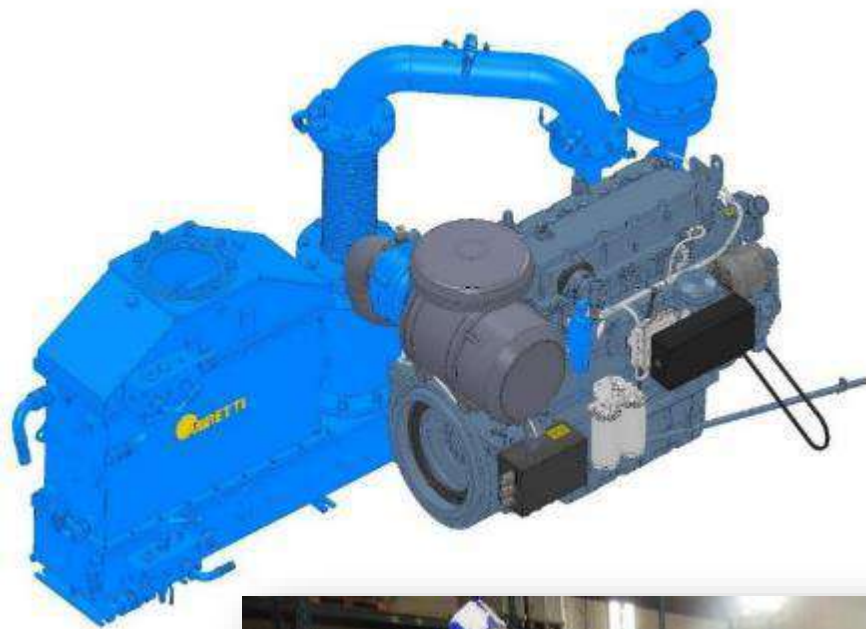
135 kw / 2400 rpm



Deutz TCD2013L064V

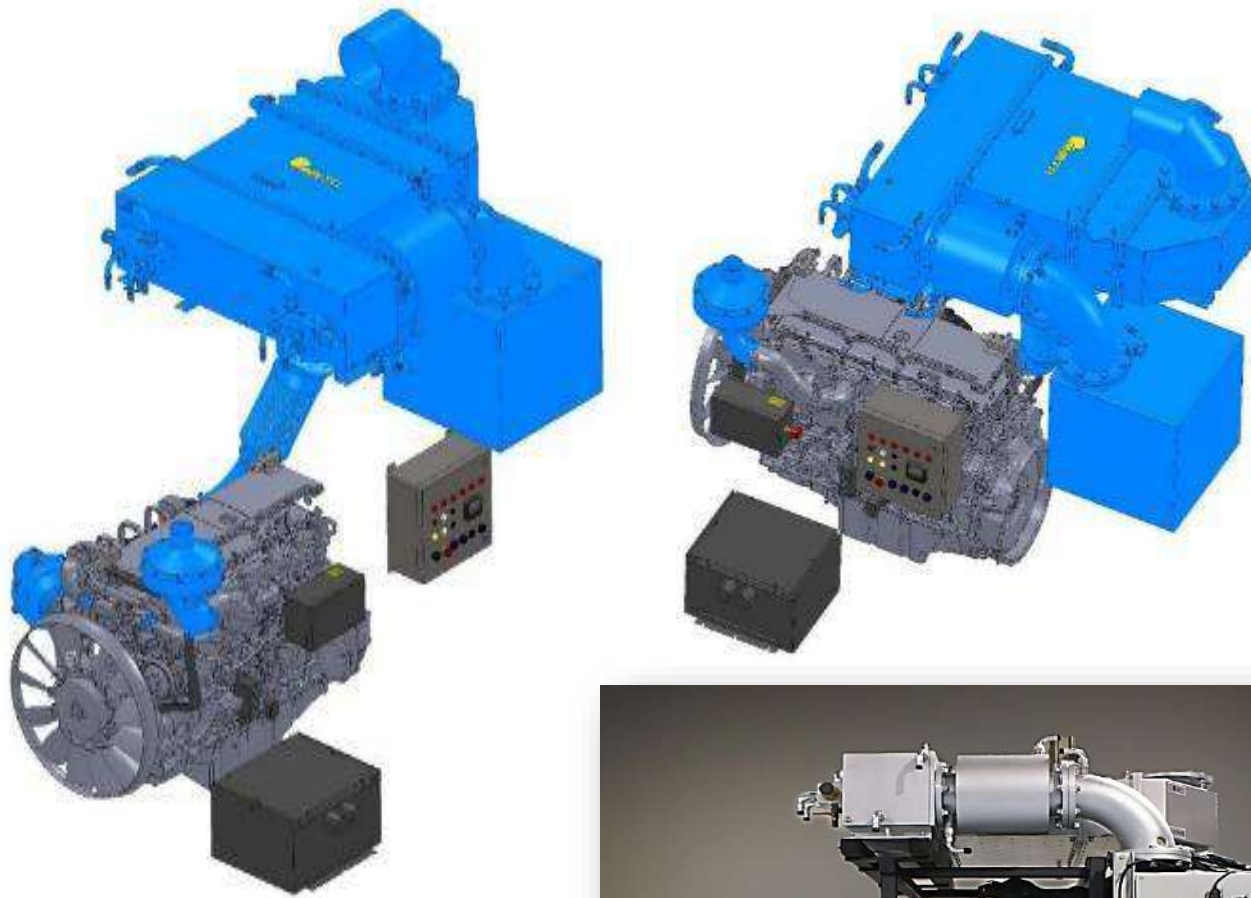
263 kw / 1800 rpm

 3G IIB T3



MTU MERCEDES MBE 1500

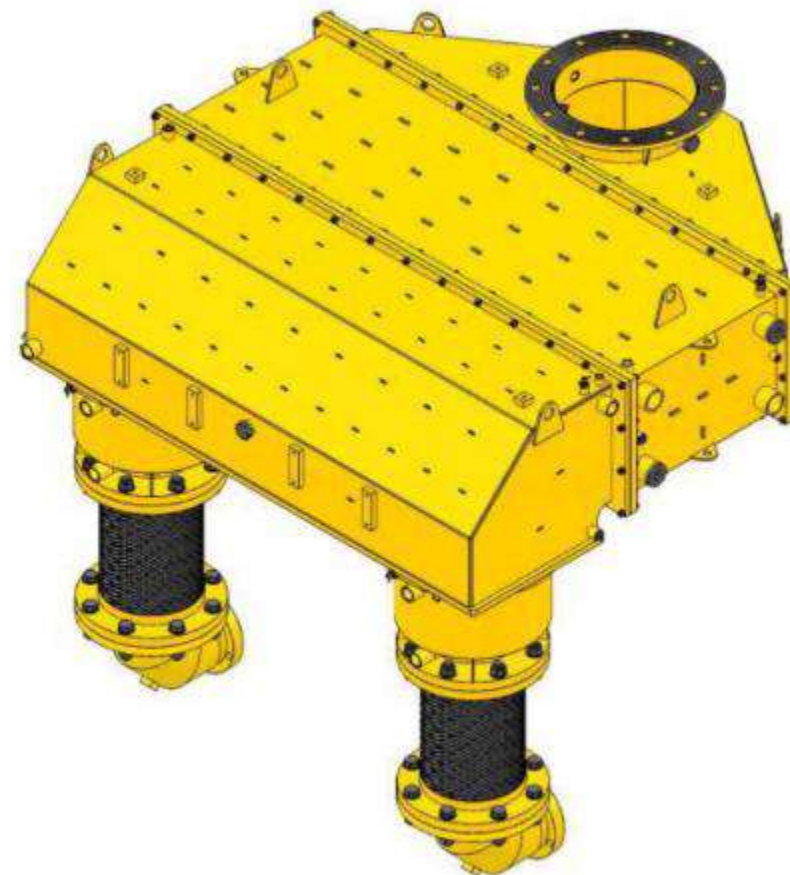
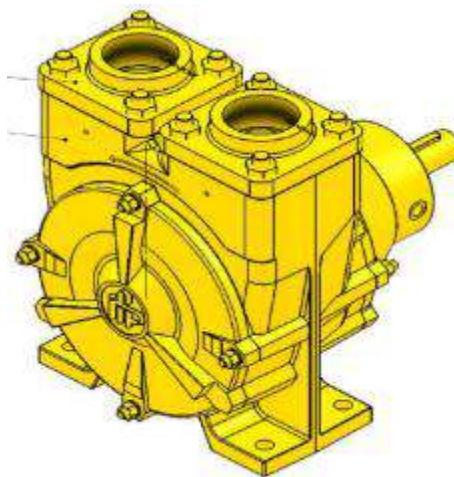
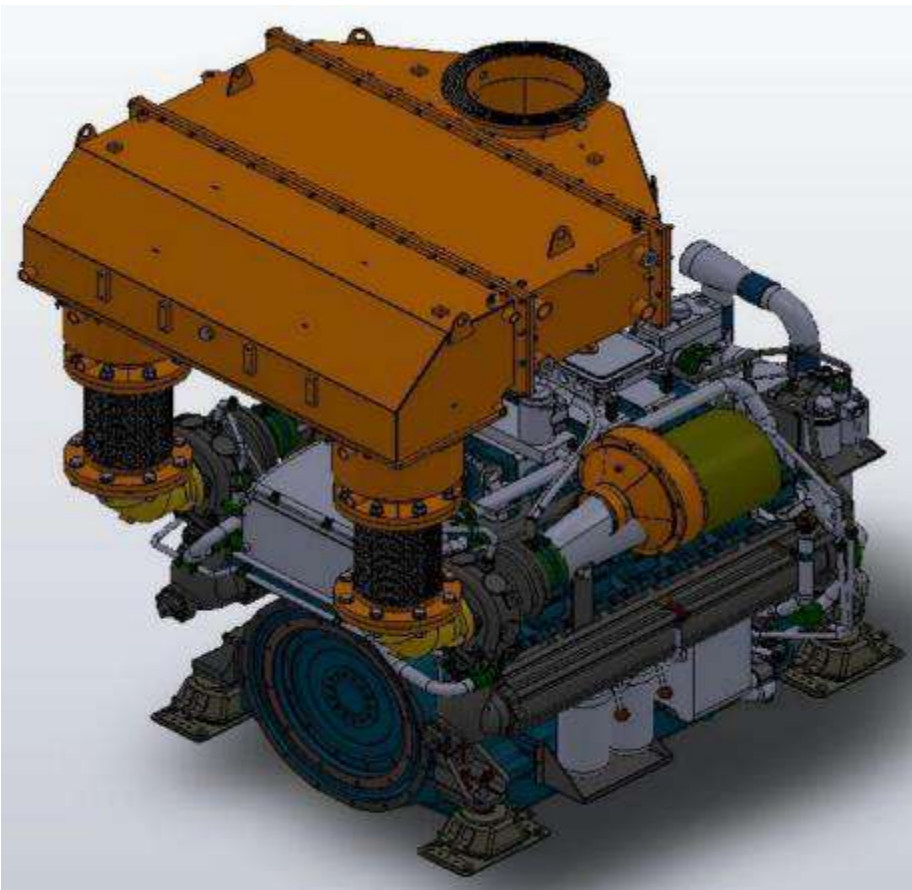
460 kw / 1300 rpm



MTU 12V2000P82

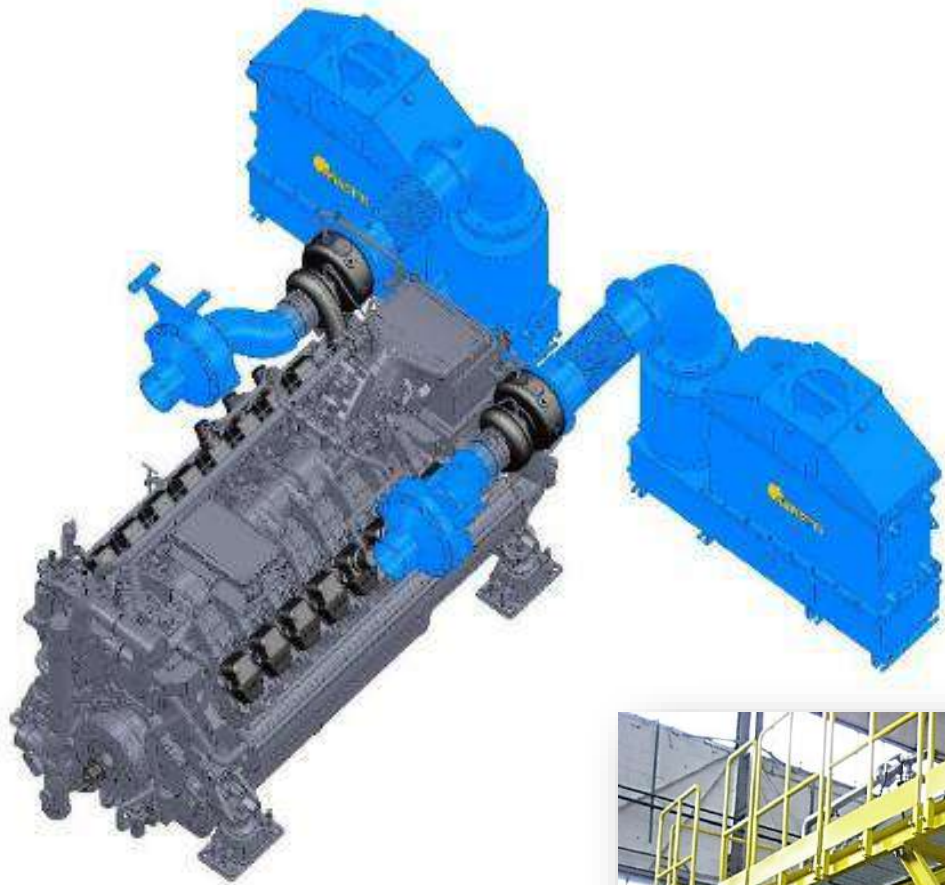
600 kw (805HP) @ 1800 rpm

 3G IIA T3



MTU 16V4000P

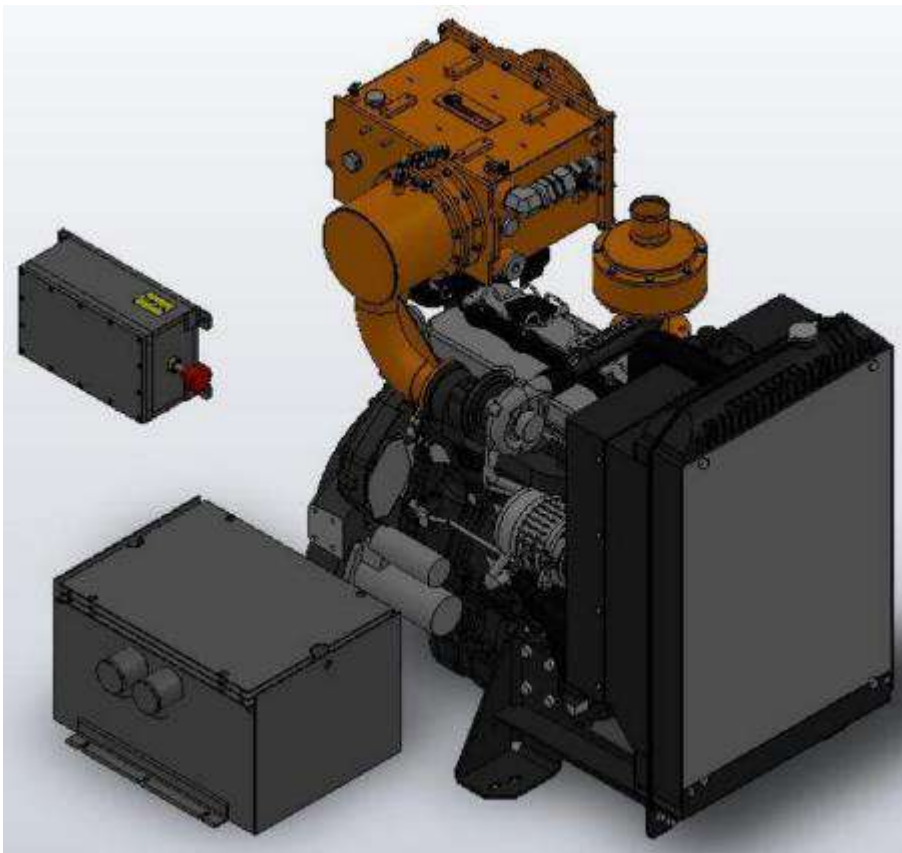
930 kw / 1800 rpm



KIT – JCB G-TC2

74 kw (99.2HP) @ 1500 rpm

 3G IIA T3



JCB 444TCA

70.1 kw (94HP) @ 2200 rpm

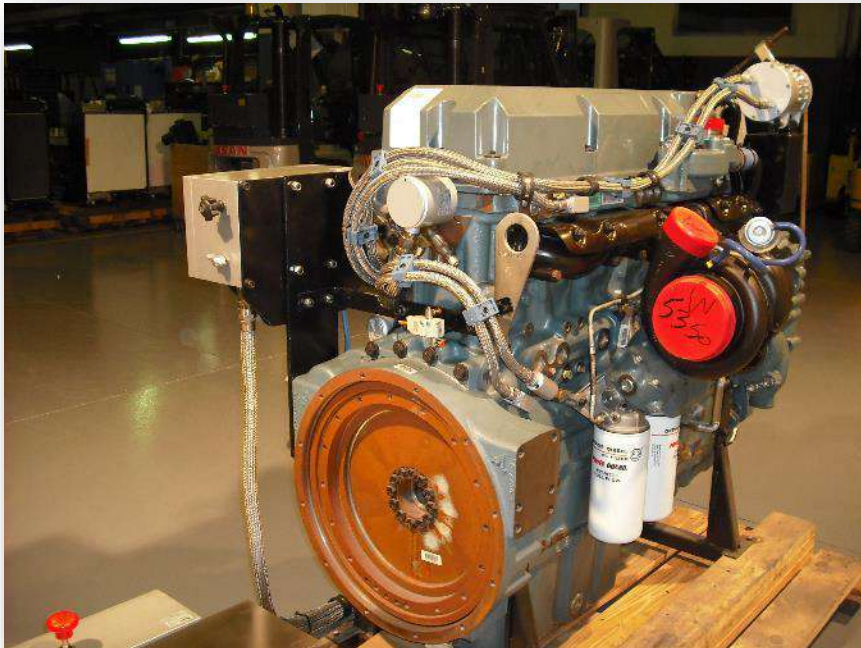
 3G IIA T3



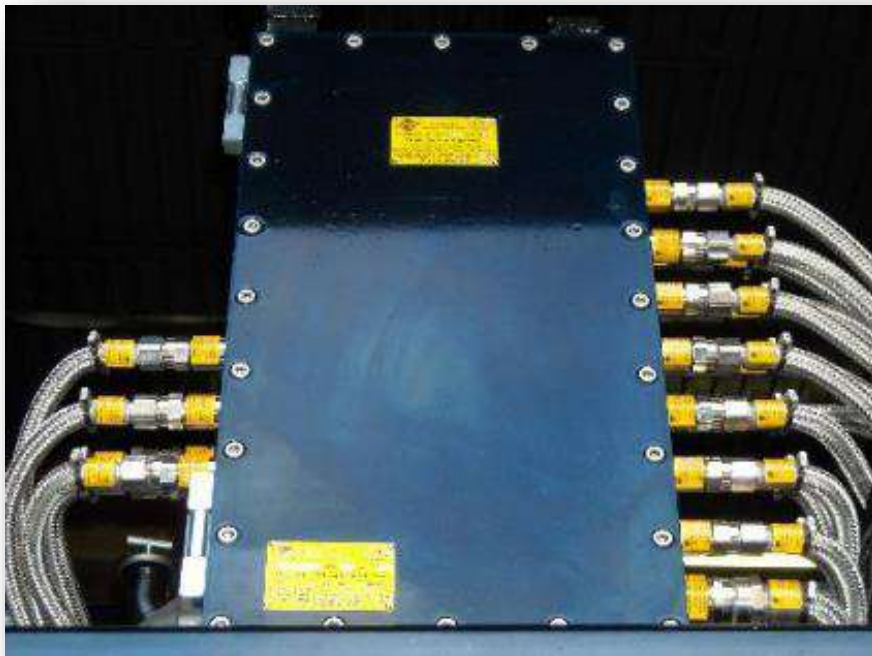
John Deere 4045HFU81



Detroit Engine S60



Detroit Engine

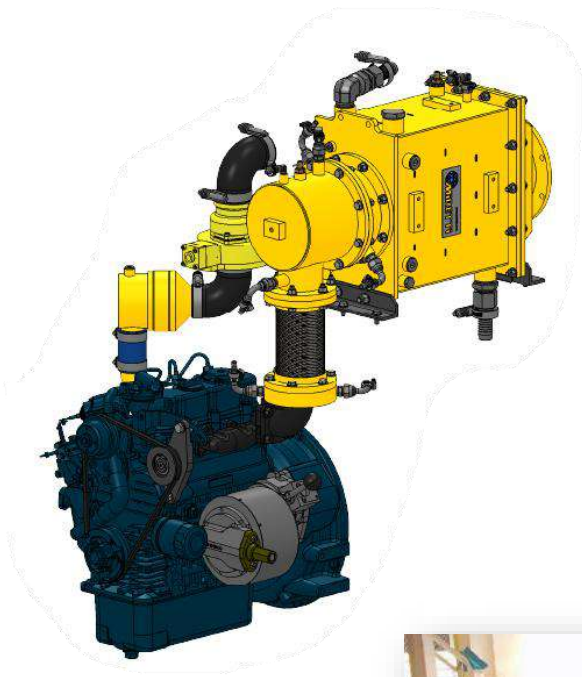


Kaeser M123, 405CFM



Atlas Copco U100CFM | Kubota D902

Air Compressors



Atlas Copco U130CFM | Kubota V1505

Air Compressors



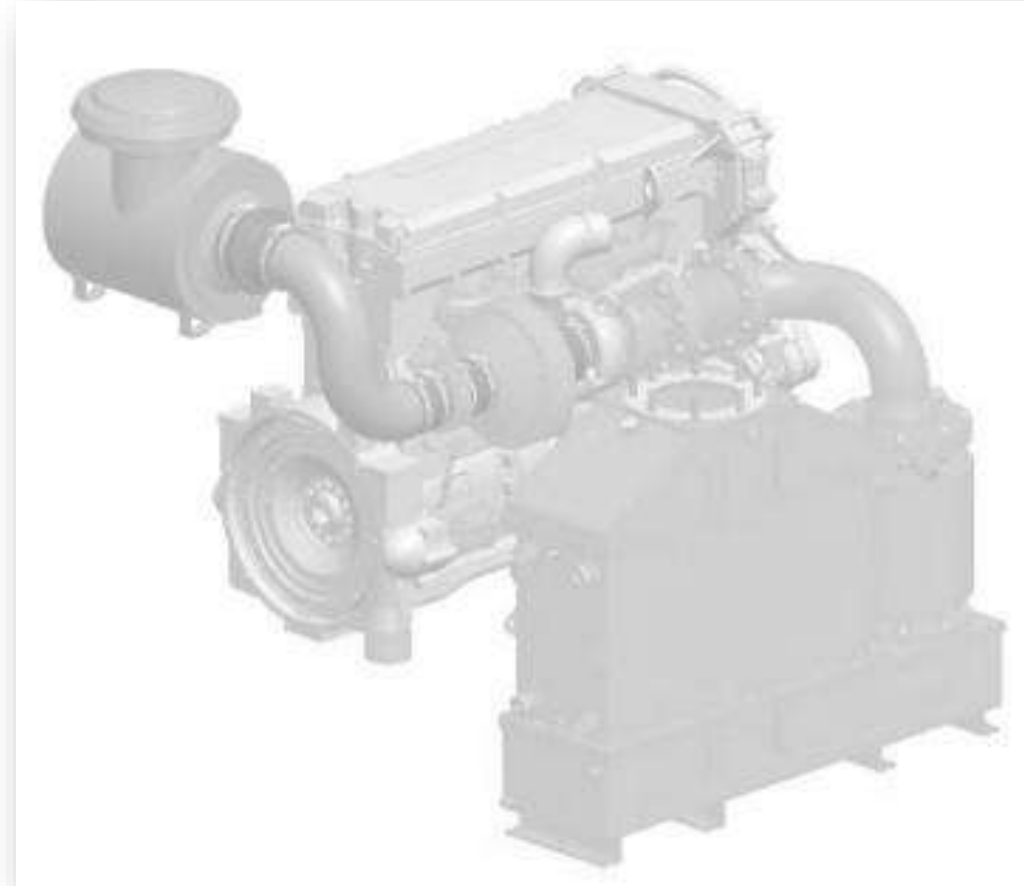
Airman PDS185S | Yanmar 4TNV88

Air Compressors



FilterEx

Miretti Innovative Solution



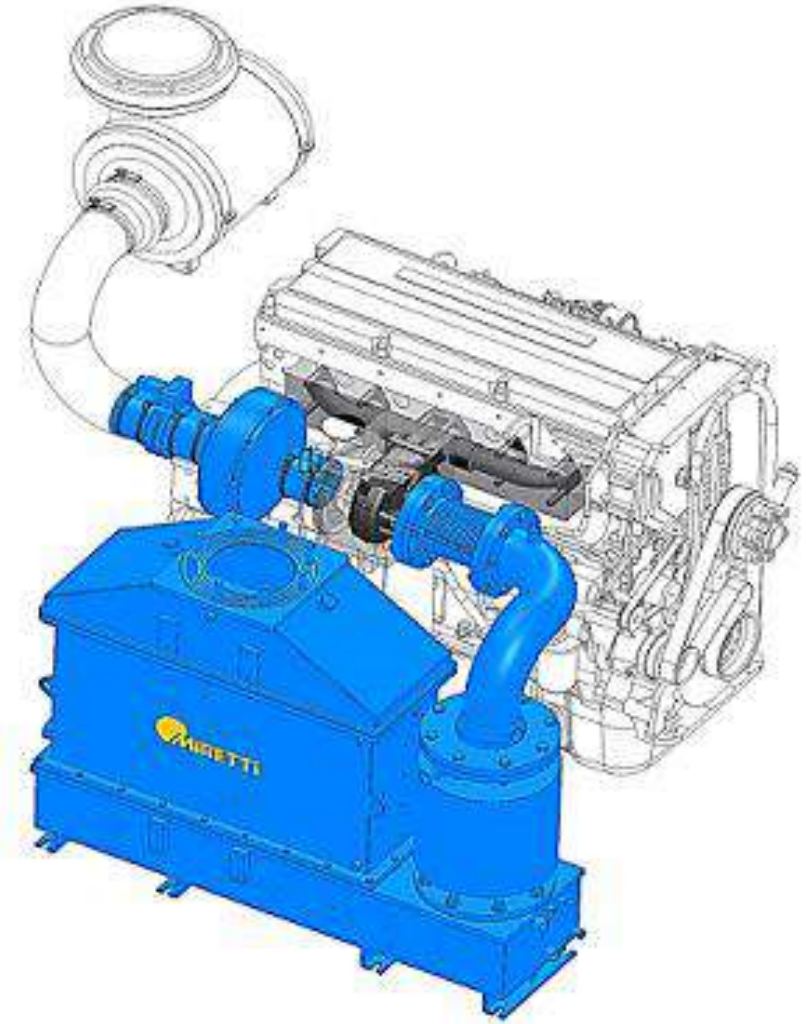
About FilterEx

- 3 in 1

Compact exhaust cooling system with an embedded self-cleaning exhaust Flame and Spark arrestors

- Gas cooler
- Flame arrestor
- Spark arrestor

- Approximately 1,000 hours before inspection
- Easy to install and clean
- IIA, IIB certified

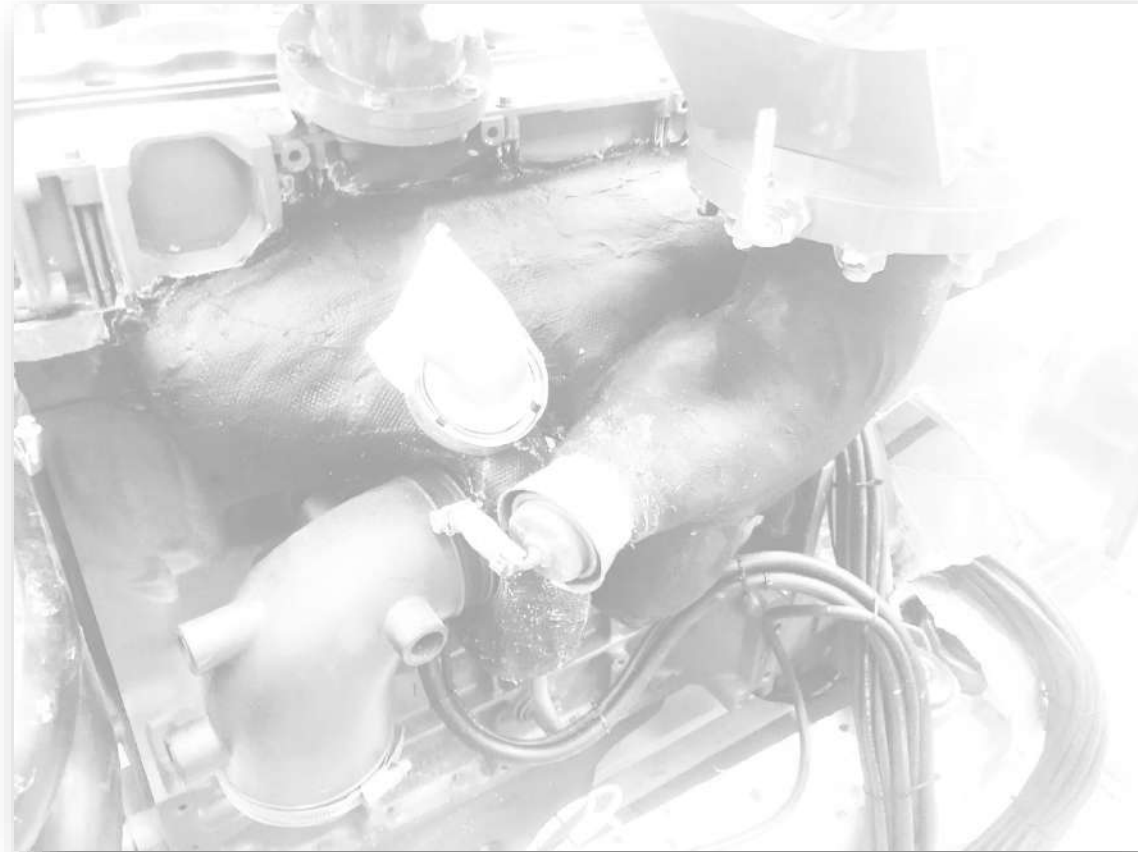


About FilterEx

- Dedicacted to ATEX compressors, generators, pumps operating continuously without frequent interruptions due to the maintenance of the exhaust line flame arrestor
- Miretti's technology: the bestpoke alternative to the traditional systems based on
 - Exhaust gas cooler
 - Removable heavy tray that has to be replaced for cleaning every 200 working hr max
- Miretti's offer of a solution for reducing
 - Cost
 - Service manteinance
 - Equipment downtime

CoatEx

Miretti Innovative Solution



About CoatEx

- Thermal barrier between hot engine surfaces (turbochargers and exhaust manifolds) and the atmosphere
- Most dry engines enabling to be converted to Zone 2 ATEX specification
- Original engine OEM turbocharger enabling to be retained, reducing risk of failure when replacement water-cooled turbochargers are fitted
- Retaining the original OEM turbocharger warranty minimum impact on exhaust emission levels
- Supplied with embedded cooling for special applications
- Miretti CoatEx systems – fully patented



About CoatEx

- Non-toxic solution
- Resistant to many chemical and corrosive atmospheric agents
- Temperature surface decrease 75%
- Thermal insulation capability up to 600°C
- In compliance with the requirements of European Standard EN 13463-1:2009
- Group I and Group II certified with an ambient temperature range from -20°C to + 60°
- Original engine parts - Same performances in terms of power and emissions



Why choose Miretti?

Reliable
Customized Solutions

Research
& Development

Quality & Innovation

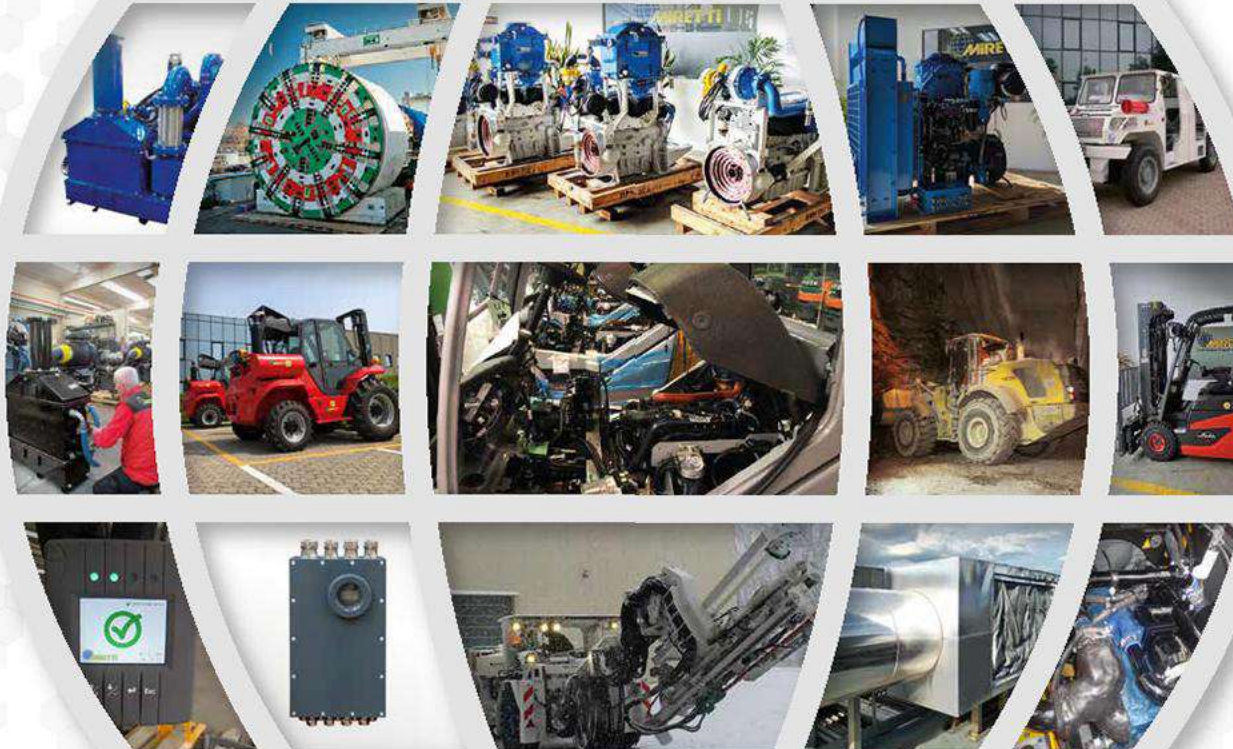
Global Footprint

Certifications
& Testing

After Sales Service

Training
& Product Education

Engineering Excellence



Ex Material Handling

Oil & Gas Ex Engine
Power Systems

Mines & Tunnels
Ex Heavy Duty
Solutions

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