

# MINING SOLUTIONS



QUALITY ENGINEERED PRODUCTS



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OVER 40 YEARS  
OF ENGINEERING EXCELLENCE

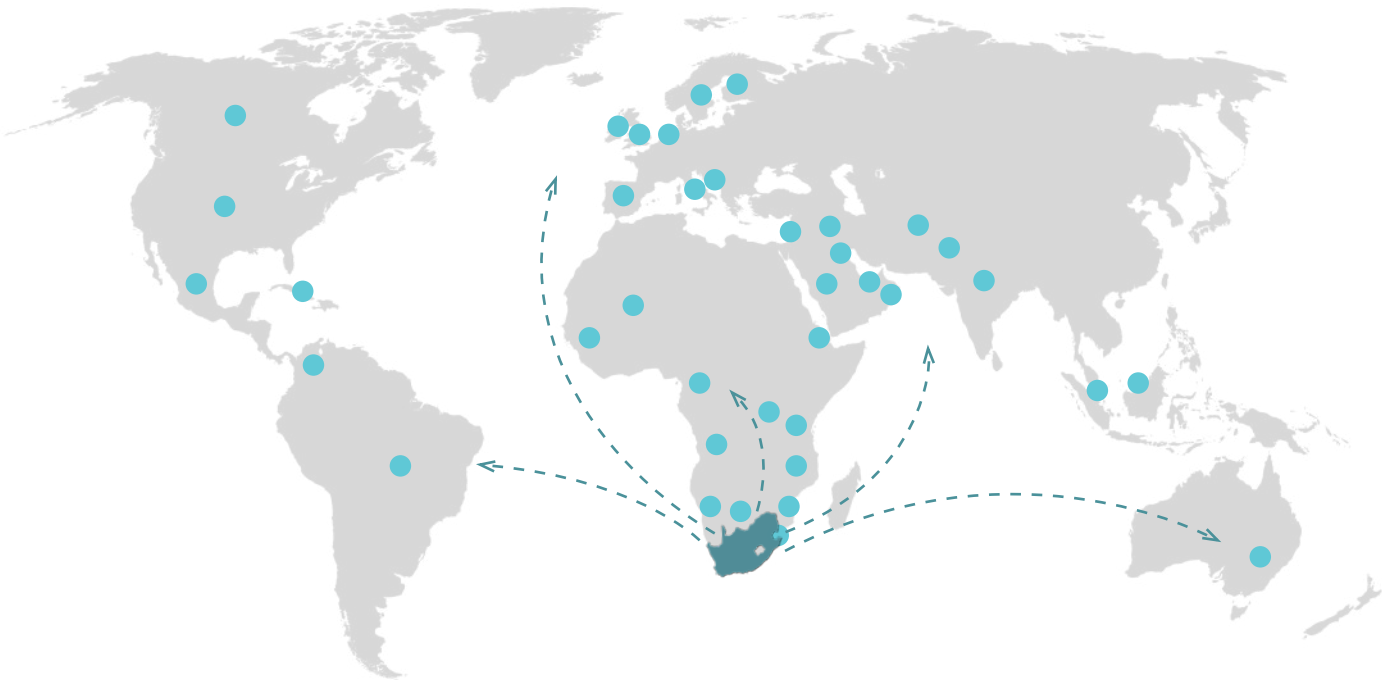
Booyco Engineering (Pty) Ltd is a South African company specialising in the design, development and manufacturing of custom-made air handling systems for mobile applications.

The company was originally established in 1985 to provide heating, ventilation and air conditioning (HVAC) systems to the local military vehicle industry, and have subsequently diversified into the mining, railway, construction and industrial sectors.

With over 4 decades of expertise, we have built a strong reputation for innovation, quality, and reliability. making us a trusted partner for industries across the globe, and earning the confidence of leading OEMs and operators alike.

LOCAL EXPERTISE, GLOBAL REACH

Our world-class engineers design our solutions to stringent international standards, ensuring superior performance in demanding environments. Manufactured in-house at our local facility, our systems are trusted by customers across the world, delivering reliability, innovation, and quality to over 40 countries across 6 continents.



MINING SOLUTIONS

Booyco Engineering has a range of standard HVAC units suitable for different types and variants of mining vehicles. These units are specifically designed to perform in the extreme conditions experienced in both surface and underground mining.

Booyco Engineering has also developed an anti-idle auxiliary power unit (APU), which can be paired with our electric air conditioning units to dramatically reduce fuel costs on large mining vehicles.

Booyco Engineering is an official distributor for Sy-Klone International and offers their range of cab and engine combustion air filtration systems, including an ISO 23875 Cab Air Quality Standard compliant filtration system.

MINING

RAIL SOLUTIONS

Booyco Engineering has developed a number of custom locomotive cab and passenger car HVAC systems for both local and international customers. These systems were designed, qualified and manufactured according to applicable railway standards and cover a wide range of input power supplies, such as 72 VDC, 110 VDC, 230 VAC, single-phase and 380 VAC, three-phase.

Booyco Engineering has also developed locomotive cooling towers for the cooling of traction motors and power converter as well as blowers to cool the traction motors of motor coaches.

RAIL

MILITARY SOLUTIONS

Booyco Engineering has designed, developed and manufactured HVAC systems, filtration systems and auxiliary power units (APU) for military vehicles such as the G6 self-propelled howitzer, RG12 riot control vehicle, RG31 mine-resistant ambush protected (MRAP) vehicle, Terrex 8x8 armoured fighting vehicle (AFV) and the Belrex family of MRAP vehicles.










Booyco Engineering has also designed, developed and manufactured crew HVAC and electronics cooling systems for military shelters.

MILITARY



PRODUCTS

VEHICLE APPLICATIONS

	Split AC System	Packaged AC System	DC Electric AC System	Cabin Air Filtration	Engine Air Filtration	Anti-Idle APU
 Drills	●	●	●	●	●	
 Dozers	●	●	●	●	●	●
 Excavators/Shovels	●	●	●	●	●	●
 Graders	●	●	●	●	●	
 Tractors	●	●	●	●	●	
 Rock Crushers	●	●		●		
 Trucks	●	●	●	●	●	●
 Wheel Loaders	●	●	●	●	●	●
 Underground Vehicles	●	●	●	●	●	

STANDARD HVAC UNITS

Booyco’s Standard HVAC units leverage over 40 years of expertise to deliver readily available, easily adaptable solutions. This range of mobile HVAC units offers the same high-quality performance you have come to expect from Booyco custom HVAC systems, at competitive lead-times and costs.

- Built tough to withstand the harsh conditions.
- Rated at T3 conditions in accordance with ISO 5151.
- Operates in ambient temperatures from -40°C to +55°C.
- Adaptable to a wide variety of heavy machinery.
- Easy to install, readily available replacement parts.
- Ideal solution for most mining and industrial vehicles.



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PERFORMANCE RATINGS

Booyco Engineering rates the cooling capacity of our AC systems at ISO 5151 T3 conditions, whereas most other manufacturers rate the performance at ISO 5151 T1 conditions. We use the higher T3 rating conditions to ensure that our units perform as specified in the extreme environments often encountered on mining sites.

	Cabin Air Conditions	Ambient Air Conditions
T1 ISO 5151	27°C & 46.9% RH	35°C & 40.3% RH
T3 ISO 5151	29°C & 38.5% RH	46°C & 15.3% RH

SPLIT AC UNITS

A split AC system includes a separate evaporator (indoor) unit paired with either a condensing (outdoor) unit or a radiator-mounted condenser coil. Booyco Engineering’s split AC systems feature an electrically or hydraulically driven compressor integrated into the condensing unit or a remote engine-driven compressor.

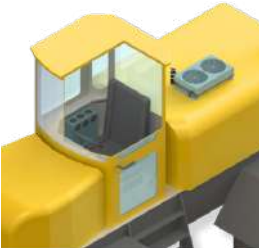
A SERIES - EVAPORATOR UNITS

	Unit	Type	Power Supply	Capacity Cooling (Heating*)	Overall Size (mm)	Condensing Units
	A002	External roof mount	12/24 VDC	5.5 (5) kW	835 x 610 x 155	B009, B011, B012, B013
	A004	Internal horizontal/vertical mount	12/24 VDC	6 (3) kW	657 x 574 x 210	B011, B015
	A006	Internal vertical mount	230 VAC, 1-Ph/380 VAC, 3-Ph, 50 Hz	6 (5) kW	670 x 576 x 210	B006
	A009	Internal vertical mount	12/24 VDC	4 kW	523 x 425 x 155	B009, B012, B013
	A015	Internal under roof mount	12/24 VDC	8 (5) kW	935 x 765 x 250	B011, B015
	A018	Internal horizontal/vertical mount, ducted system	12/24 VDC	5.5 kW	566 x 375 x 172	B009, B011, B012, B013
	A019	External roof mount	230 VAC, 1-Ph/380 VAC, 3-Ph, 50 Hz	4 (2.25) kW	840 x 718 x 225	B016B

\* Heating function is optional

B SERIES - CONDENSING UNITS

	Unit	Compressor	Power Supply	Heat Rejection Capacity	Overall Size (mm)
	B006	Integrated AC compressor	230 VAC, 1-Ph/380 VAC, 3-Ph, 50 Hz	9 kW	750 x 680 x 593
	B009	Remote engine driven compressor	12/24 VDC	9.5 kW	600 x 360 x 160
	B011	Remote engine driven compressor	12/24 VDC	14 kW	670 x 406 x 185
	B013	Integrated hydraulic compressor	12/24 VDC Hydraulics	8 kW	785 x 393 x 458
	B015	Integrated hydraulic compressor	12/24 VDC Hydraulics	14 kW	785 x 403 x 471
	B016	Integrated AC compressor	230 VAC, 1-Ph/380 VAC, 3-Ph, 50 Hz	7 kW	685 x 386 x 616



SPLIT SYSTEM WITH INTERNAL EVAPORATOR UNIT

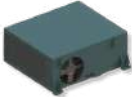

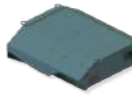


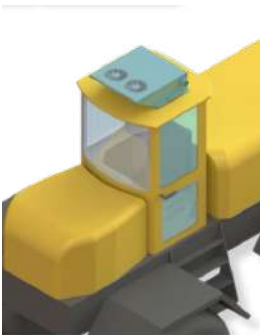
SPLIT SYSTEM WITH ROOF - MOUNTED EVAPORATOR UNIT



D SERIES - PACKAGED AC UNITS

Packaged AC units have both the evaporator and condenser combined into a single unit. Booyco Engineering’s packaged AC units are externally roof-mounted with an integrated electrically driven compressor or a remote engine-driven compressor.

	Unit	Type	Power Supply	Capacity Cooling (Heating*)	Overall Size (mm)
	D003	Integrated electric compressor	380 VAC, 3-Ph, 50 Hz	6.5 (4.5) kW	1106 x 1133 x 468
	D006	Remote engine driven compressor	12/24 VDC	5 (4) kW	802 x 846 x 242
	D007	Remote engine driven compressor	12/24 VDC	4.5 (3.5) kW	754 x 846 x 230



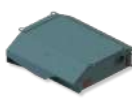


ROOF-MOUNTED PACKAGED UNIT

\* Heating function is optional

DC ELECTRIC AC UNITS

Booyco Engineering’s DC electric AC units feature DC electric compressors, making them ideal for vehicles where mounting a compressor to the engine is impractical or where AC operation is required with the engine off.

	Unit	Type	Power Supply	Capacity Cooling (Heating*)	Overall Size (mm)
	B012	Split condensing unit with integrated DC electric compressor. Suitable for use with A002, A009 and A018 evaporator units or can be used with vehicle OEM evaporator unit.	24/48/72 VDC	4.8 kW	663 x 358 x 320
	D006E	Roof-mounted packaged unit with integrated DC electric compressor	24 VDC	4.8 (4) kW	802 x 846 x 242
	D007E	Roof-mounted packaged unit with integrated DC electric compressor	24 VDC	4 (3.5) kW	754 x 846 x 230

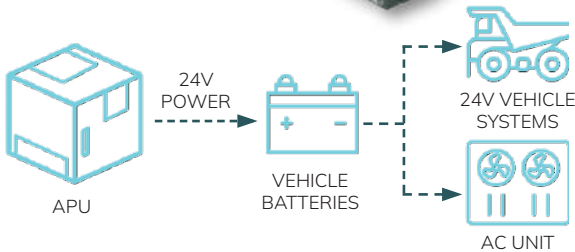
\* Heating function is optional

ANTI-IDLE SYSTEM

Booyco Engineering’s Anti-Idle System reduces fuel and maintenance costs while lowering CO<sub>2</sub> emissions of mining vehicles by allowing the main engines to be switched off during idle periods. A diesel fuelled APU supplies 24 VDC power to the vehicle batteries, which support a 24 VDC air-conditioning system and critical vehicle systems when the main engine is off. The APU can also function as a standalone unit, providing 24 VDC power and compressed air.



- Operates in ambient temperatures up to 50°C
- Nominal fuel consumption of ± 1.3 l/h
- Outputs 110 A @ 28 VDC
- Noise suppression built into enclosure
- Integrated or remote fuel tank
- Optional integrated air or AC compressor
- Also available in small footprint version











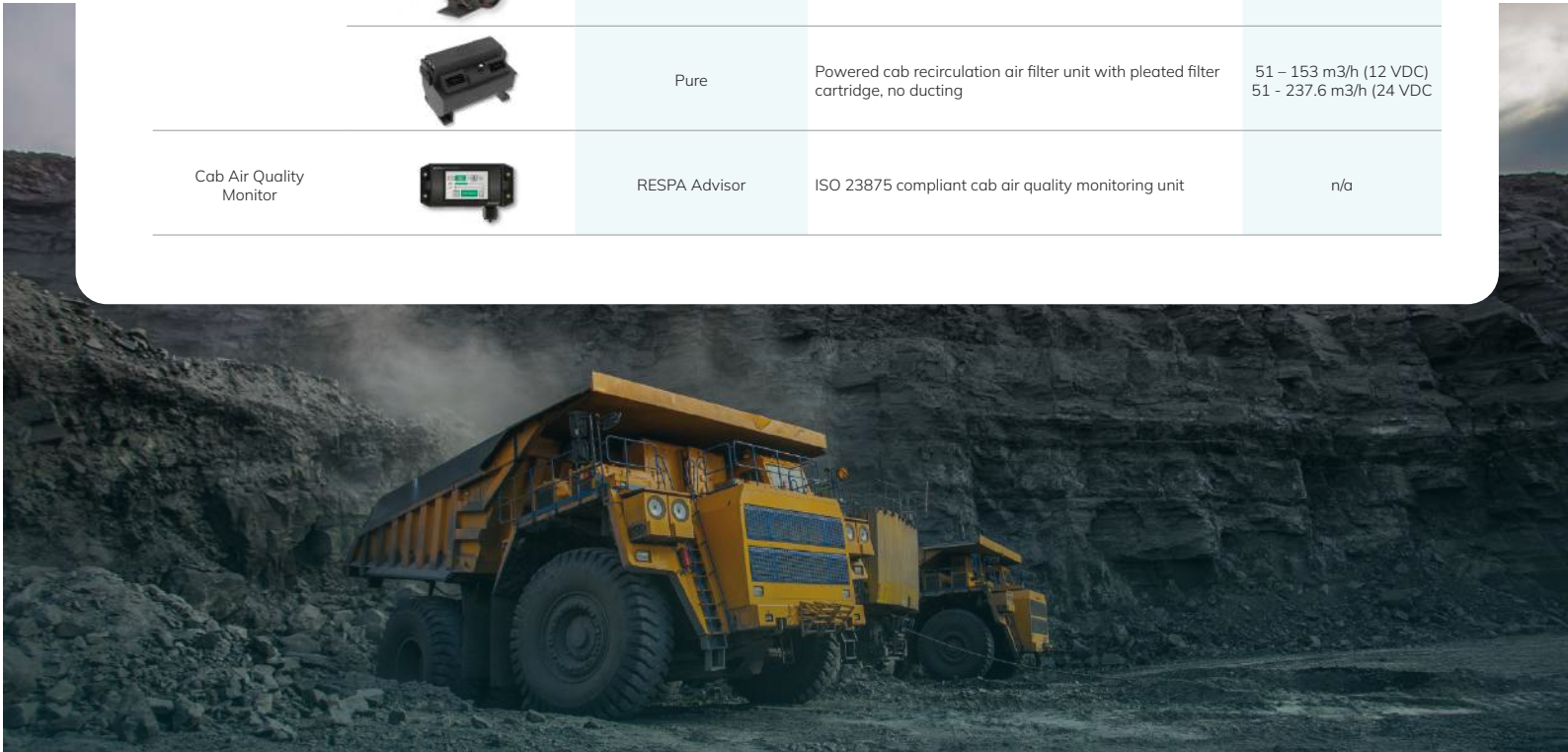
CABIN & ENGINE AIR FILTRATION UNITS

Booyco Engineering is an official distributor of Sy-Klone International products, offering a full range of cab and engine combustion air filtration systems, including an ISO 23875 compliant Cab Air Quality Standard filtration system.

All Sy-Klone International powered systems are available in 12 VDC or 24 VDC, with filter cartridges offered in MERV 16, EPA, HEPA, Engine, Odor and HEPA, ABEK Gas and HEPA, and Ammonia and HEPA options.



Type		Unit	Description	Air Flow Rate
Engine Pre-Cleaner		Series 9000	Split condensing unit with integrated DC electric compressor. Suitable for use with A002, A009 and A018 evaporator units or can be used with vehicle OEM evaporator unit.	16.8 – 2378 m3/h
		XLR	Powered 2-stage engine pre-filter unit, cyclonic separator first stage and pleated filter cartridge second stage	0 - 594.6
		Vortex Max		510 – 1020 m3/h
Cab Air Filter		CF2	Powered 2-stage cab fresh air filter unit, cyclonic separator first stage and pleated filter cartridge second stage	0 - 424.8 m3/h
		CFX2	Powered 2-stage cab recirculation air filter unit, cyclonic separator first stage and pleated filter cartridge second stage, ducted inlet and outlet	0 - 424.8 m3/h
		PFX	Powered cab recirculation air filter unit with pleated filter cartridge, ducted outlet	3000 – 4380 m3/h
		FFX2	Non-powered cab recirculation air filter unit with pleated filter cartridge, ducted outlet	0 – 4380 m3/h
		Pure	Powered cab recirculation air filter unit with pleated filter cartridge, no ducting	51 – 153 m3/h (12 VDC) 51 - 237.6 m3/h (24 VDC)
Cab Air Quality Monitor		RESPA Advisor	ISO 23875 compliant cab air quality monitoring unit	n/a







DRILL

Drill rigs produce extreme vibrations and dust and therefore require rugged AC systems that are fit for purpose. Booyco offer a range of field-proven HVAC and filtration systems suitable for drill rigs.



HVAC SOLUTIONS

Size of Cab	Type	Power Supply		Suitable Products
		Electrical	Compressor	
Small (1 Occupant)	Split System	DC	Engine	A009 / A018 + B009
			DC Electric	A009 / A018 + B012
			Hydraulic	A009 / A018 + B013
	Packaged Roof Unit	DC	Engine	D006 / D007
			DC Electric	D006E / D007E
Medium (2 – 3 Occupants)	Split System	DC	Engine	A004 / A015 + B011
			Hydraulic	A004 / A015 + B015
			AC Electric	A006 + B006
	Packaged Roof Unit	AC	AC Electric	D003

OTHER SOLUTIONS

Group	Type	Product
Engine Air Filtration	Engine Air Pre-Cleaner, Non- Powered	Series 9000
	Engine Air Pre-Cleaner, Powered	XLR
Cab Air Filtration	Cab Fresh Air Filter Unit	CF2
	Cab Recirculation Air Filter Unit	CFX2, FFX2, PFX, Pure
	ISO 23875 Cab Air Quality System	CF2 + CFX2 / FFX2 / PFX / Pure + RESPA Advisor
Anti-Idle	Anti-Idle Solution	Anti-Idle APU + DC electric AC system/unit

VEHICLE APPLICATIONS

DOZER

Dozers, or bulldozers, are essential workhorses on mine sites, demanding high-quality air conditioning and filtration solutions to ensure optimal comfort and dependable service throughout their operation.

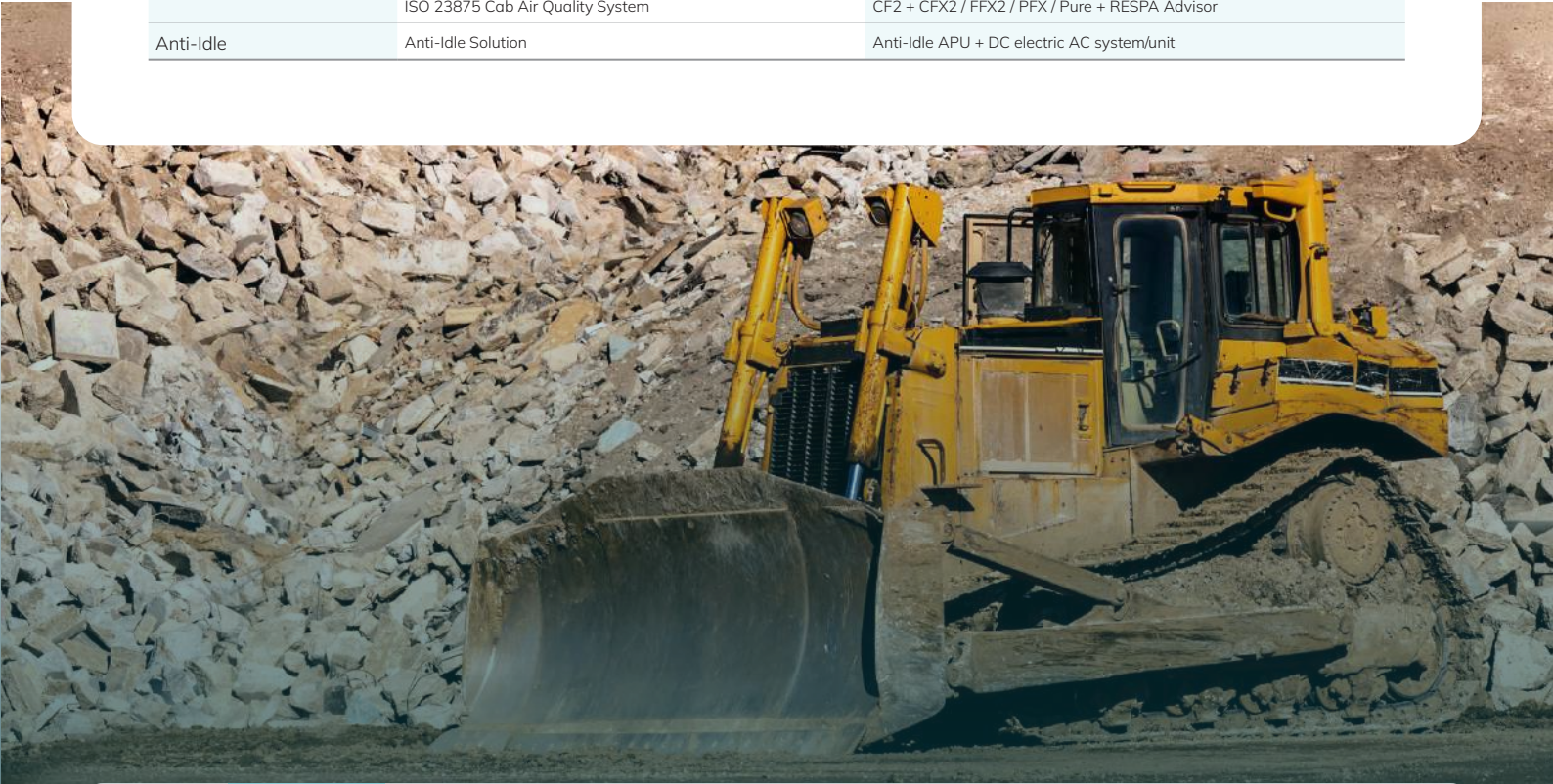


HVAC SOLUTIONS

Size of Cab	Type	Power Supply		Suitable Products
		Electrical	Compressor	
Small (1 Occupant)	Split System	DC	Engine	A009 / A018 + B009
			DC Electric	A009 / A018 + B012
			Hydraulic	A009 / A018 + B013
	Packaged Roof Unit	DC	Engine	D006 / D007
			DC Electric	D006E / D007E

OTHER SOLUTIONS

Group	Type	Product
Engine Air Filtration	Engine Air Pre-Cleaner, Non- Powered	Series 9000
	Engine Air Pre-Cleaner, Powered	XLR
Cab Air Filtration	Cab Fresh Air Filter Unit	CF2
	Cab Recirculation Air Filter Unit	CFX2, FFX2, PFX, Pure
	ISO 23875 Cab Air Quality System	CF2 + CFX2 / FFX2 / PFX / Pure + RESPA Advisor
Anti-Idle	Anti-Idle Solution	Anti-Idle APU + DC electric AC system/unit








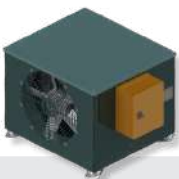
EXCAVATORS & SHOVELS

Excavators and shovels are among the largest machinery found on mine sites, often operating directly at or near the working face. This presents unique challenges for air conditioning and filtration systems, which can be effectively addressed with Booyco Engineering solutions.



A006

+



B006

TYPICAL SYSTEM FOR AN EXCAVATOR

HVAC SOLUTIONS

Size of Cab	Type	Power Supply		Suitable Products
		Electrical	Compressor	
Small (1 Occupant)	Split System	DC	Engine	A009 / A018 + B009
			DC Electric	A009 / A018 + B012
			Hydraulic	A009 / A018 + B013
	Packaged Roof Unit	DC	Engine	D006 / D007
			DC Electric	D006E / D007E
Medium (2 – 3 Occupants)	Split System	DC	Engine	A004 / A015 + B011
			Hydraulic	A004 / A015 + B015
	Packaged Roof Unit	AC	AC Electric	A006 + B006
			AC Electric	D003

OTHER SOLUTIONS

Group	Type	Product
Engine Air Filtration	Engine Air Pre-Cleaner, Non- Powered	Series 9000
	Engine Air Pre-Cleaner, Powered	XLR
Cab Air Filtration	Cab Fresh Air Filter Unit	CF2
	Cab Recirculation Air Filter Unit	CFX2, FFX2, PFX, Pure
	ISO 23875 Cab Air Quality System	CF2 + CFX2 / FFX2 / PFX / Pure + RESPA Advisor
Anti-Idle	Anti-Idle Solution	Anti-Idle APU + DC electric AC system/unit

VEHICLE APPLICATIONS

GRADERS

Mining graders maintain haul roads for safer, more efficient operations. Built for tough conditions, they ensure smooth transportation and reduce equipment wear. Booyco Engineering keeps operators comfortable with reliable HVAC solutions, maximizing productivity in any climate.



D006

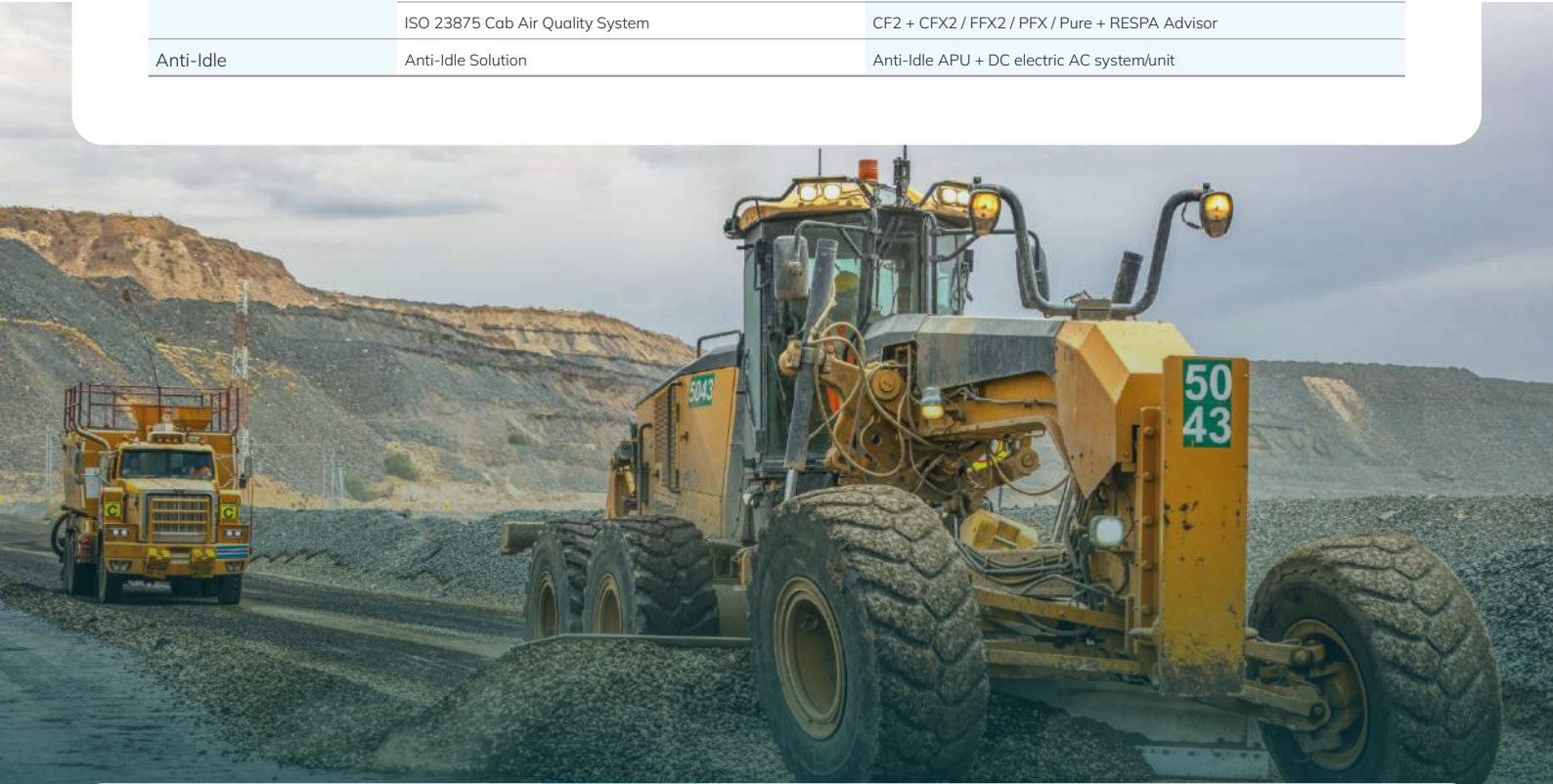
EXAMPLE SYSTEM FOR A GRADER

HVAC SOLUTIONS

Size of Cab	Type	Power Supply		Suitable Products
		Electrical	Compressor	
Small (1 Occupant)	Split System	DC	Engine	A009 / A018 + B009
			DC Electric	A009 / A018 + B012
			Hydraulic	A009 / A018 + B013
	Packaged Roof Unit	DC	Engine	D006 / D007
			DC Electric	D006E / D007E

OTHER SOLUTIONS

Group	Type	Product
Engine Air Filtration	Engine Air Pre-Cleaner, Non- Powered	Series 9000
	Engine Air Pre-Cleaner, Powered	XLR
Cab Air Filtration	Cab Fresh Air Filter Unit	CF2
	Cab Recirculation Air Filter Unit	CFX2, FFX2, PFX, Pure
	ISO 23875 Cab Air Quality System	CF2 + CFX2 / FFX2 / PFX / Pure + RESPA Advisor
Anti-Idle	Anti-Idle Solution	Anti-Idle APU + DC electric AC system/unit







## TRACTORS

Tractors play an important role in mining operations, towing trailers and equipment while also hauling mined material both above and below ground. Booyco Engineering has developed the A020, an ultra-compact, under-roof mounted evaporator unit, designed specifically for tractors.



EXAMPLE OF A SYSTEM FOR A TRACTOR

### HVAC SOLUTIONS

Size of Cab	Type	Power Supply		Suitable Products
		Electrical	Compressor	
Small (1 Occupant)	Split System	DC	Engine	A009 / A020 + B009
			DC Electric	A009 / A020 + B012
	Packaged Roof Unit	DC	Engine	D006 / D007
			DC Electric	D006E / D007E

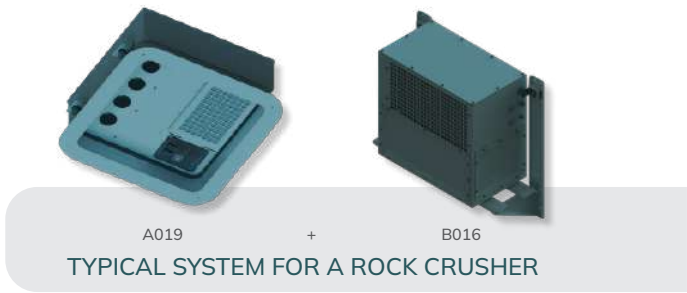
### OTHER SOLUTIONS

Group	Type	Product
Engine Air Filtration	Engine Air Pre-Cleaner, Non- Powered	Series 9000
	Engine Air Pre-Cleaner, Powered	XLR
Cab Air Filtration	Cab Fresh Air Filter Unit	CF2
	Cab Recirculation Air Filter Unit	CFX2, FFX2, PFX, Pure
	ISO 23875 Cab Air Quality System	CF2 + CFX2 / FFX2 / PFX / Pure + RESPA Advisor

## VEHICLE APPLICATIONS

### ROCK CRUSHERS

Mining rock crushers break down large rocks for processing in mining and aggregate industries, which produces large amounts of dust. Booyco Engineering’s HVAC and air filtration solutions support both mobile and stationary rock crushers by controlling temperatures and air quality in operator cabins, ensuring operator comfort and safety.



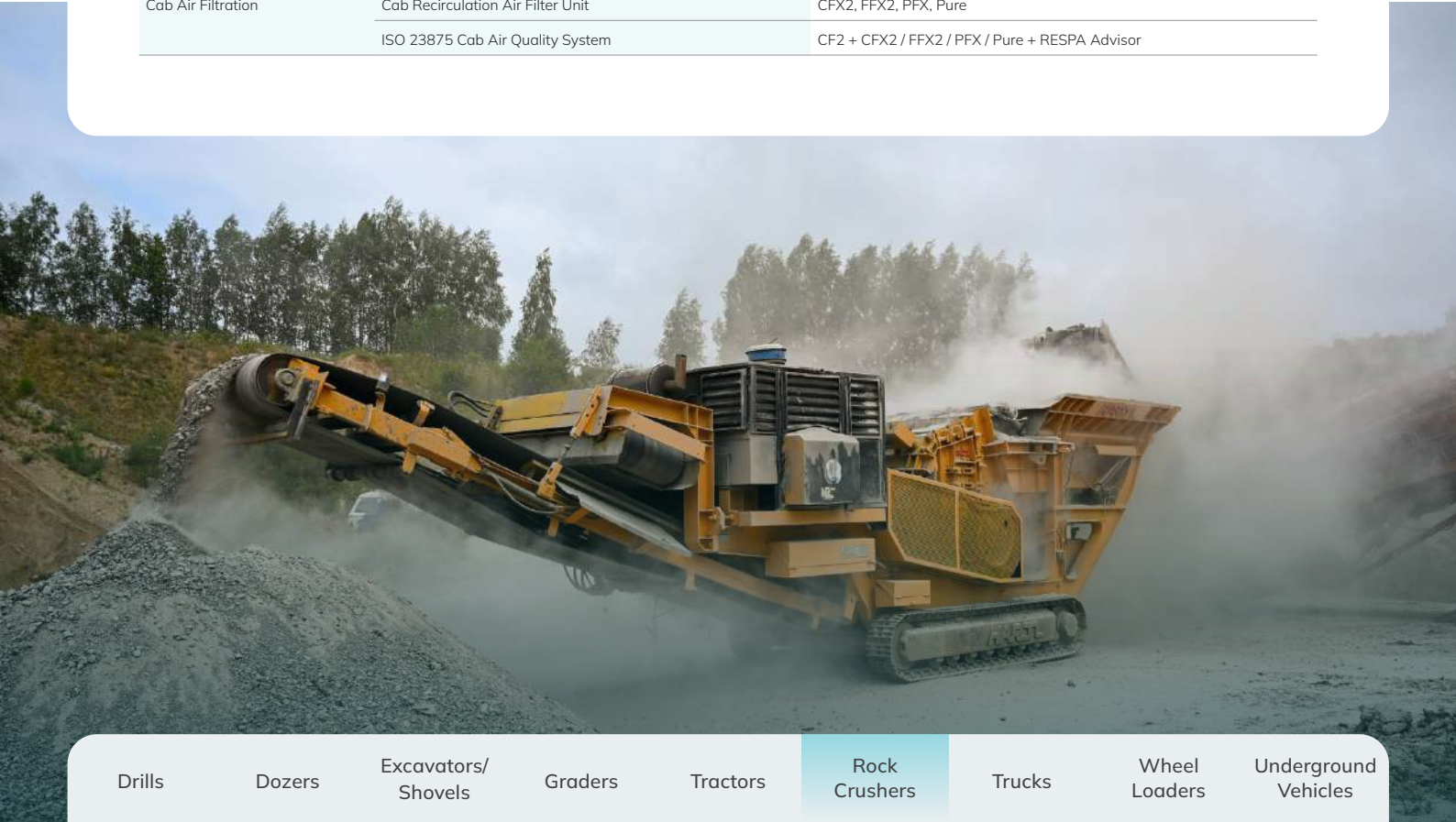
TYPICAL SYSTEM FOR A ROCK CRUSHER

### HVAC SOLUTIONS

Size of Cab	Type	Power Supply		Suitable Products
		Electrical	Compressor	
Small (1 Occupant)	Split System	AC	AC Electric	A019 + B016
	Packaged Roof Unit	AC	AC Electric	D003

### OTHER SOLUTIONS

	Type	Product
Engine Air Filtration	Engine Air Pre-Cleaner, Non- Powered	Series 9000
	Engine Air Pre-Cleaner, Powered	XLR
Cab Air Filtration	Cab Fresh Air Filter Unit	CF2
	Cab Recirculation Air Filter Unit	CFX2, FFX2, PFX, Pure
	ISO 23875 Cab Air Quality System	CF2 + CFX2 / FFX2 / PFX / Pure + RESPA Advisor







TRUCKS

Trucks are essential for transporting heavy loads in mining and operate in extreme conditions. Booyco Engineering offers a range of cab HVAC and air filtration solutions to maintain driver comfort and safety, as well as engine air filtration solutions to ensure high reliability while decreasing maintenance costs. Booyco Engineering’s Anti-Idle System is ideally suited to trucks, as they typically spend significant time idling while waiting.



HVAC SOLUTIONS

Size of Cab	Type	Power Supply		Suitable Products
		Electrical	Compressor	
Small (1 Occupant)	Split System	DC	Engine	A009 / A018 + B009
			DC Electric	A009 / A018 + B012
			Hydraulic	A009 / A018 + B013
	Packaged Roof Unit	DC	Engine	D006 / D007
			DC Electric	D006E / D007E
Medium (2 – 3 Occupants)	Split System	DC	Engine	A004 / A015 + B011

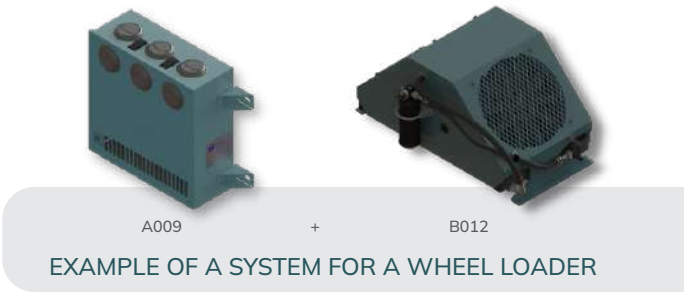
OTHER SOLUTIONS

Group	Type	Product
Engine Air Filtration	Engine Air Pre-Cleaner, Non- Powered	Series 9000
	Engine Air Pre-Cleaner, Powered	XLR
Cab Air Filtration	Cab Fresh Air Filter Unit	CF2
	Cab Recirculation Air Filter Unit	CFX2, FFX2, PFX, Pure
	ISO 23875 Cab Air Quality System	CF2 + CFX2 / FFX2 / PFX / Pure + RESPA Advisor
Anti-Idle	Anti-Idle Solution	Anti-Idle APU + DC electric AC system/unit

VEHICLE APPLICATIONS

WHEEL LOADERS

Wheel loaders are indispensable machines in mining, handling heavy loads with precision in demanding environments. Booyco Engineering ensures operators stay comfortable and safe with rugged, field-proven HVAC and air filtration solutions, maintaining productivity in any climate.

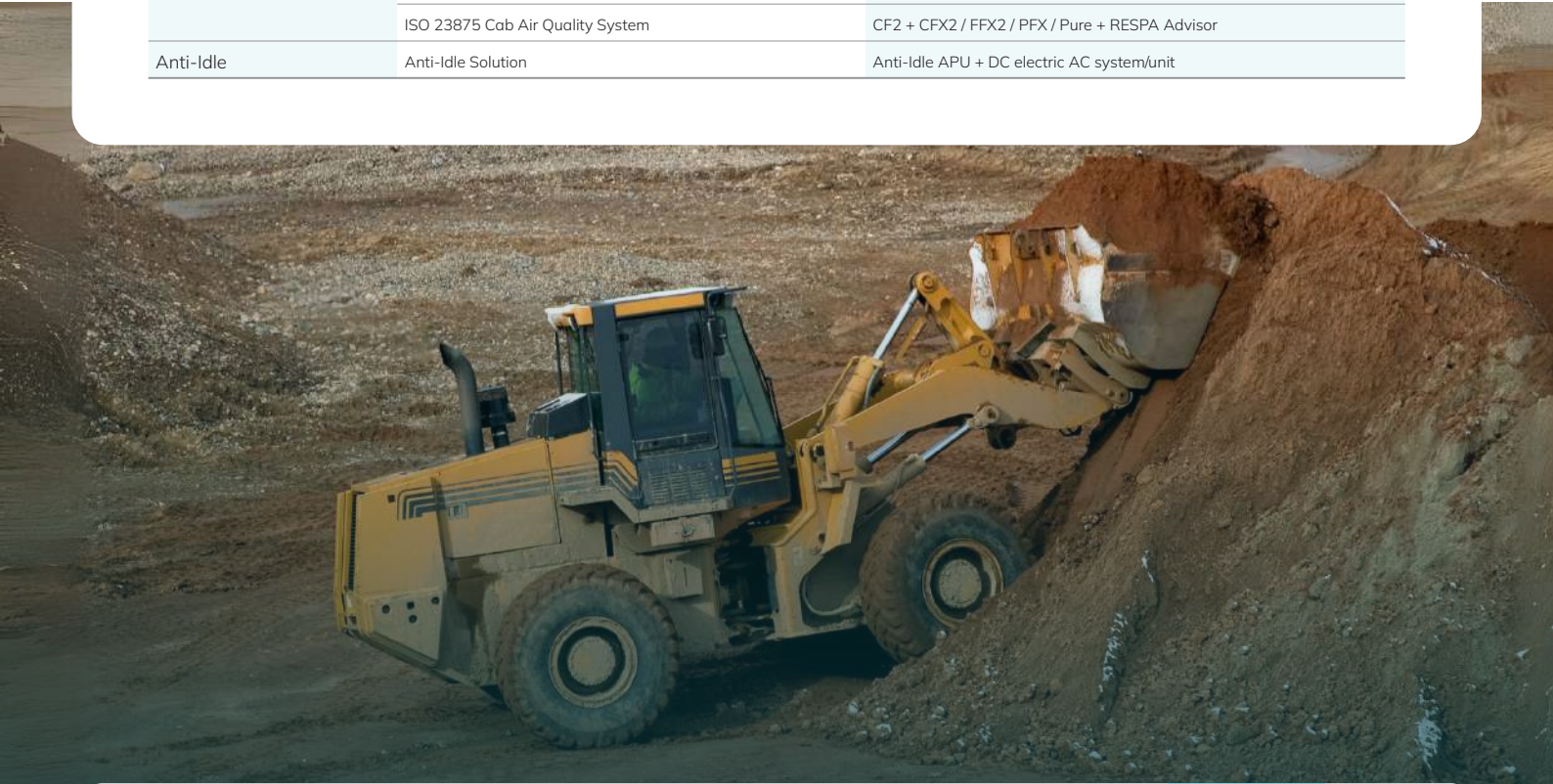


HVAC SOLUTIONS

Size of Cab	Type	Power Supply		Suitable Products
		Electrical	Compressor	
Small (1 Occupant)	Split System	DC	Engine	A009 / A018 + B009
			DC Electric	A009 / A018 + B012
			Hydraulic	A009 / A018 + B013
	Packaged Roof Unit	DC	Engine	D006 / D007
			DC Electric	D006E / D007E

OTHER SOLUTIONS

Group	Type	Product
Engine Air Filtration	Engine Air Pre-Cleaner, Non- Powered	Series 9000
	Engine Air Pre-Cleaner, Powered	XLR
Cab Air Filtration	Cab Fresh Air Filter Unit	CF2
	Cab Recirculation Air Filter Unit	CFX2, FFX2, PFX, Pure
	ISO 23875 Cab Air Quality System	CF2 + CFX2 / FFX2 / PFX / Pure + RESPA Advisor
Anti-Idle	Anti-Idle Solution	Anti-Idle APU + DC electric AC system/unit







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## UNDERGROUND VEHICLES

Underground mining vehicles operate in confined, high-risk environments, transporting materials and personnel safely. The extreme ambient conditions underground demand purpose-built HVAC and air filtration solutions to keep operators and occupants safe and comfortable.



### HVAC SOLUTIONS

Size of Cab	Type	Power Supply		Suitable Products
		Electrical	Compressor	
Small (1 Occupant)	Split System	DC	Engine	A009 / A018 + B009
			DC Electric	A009 / A018 + B012
			Hydraulic	A009 / A018 + B013
Medium (2 – 3 Occupants)	Packaged Roof Unit	DC	Engine	D006 / D007
			DC Electric	D006E / D007E
			Hydraulic	A004 / A015 + B015

### OTHER SOLUTIONS

Group	Type	Product
Engine Air Filtration	Engine Air Pre-Cleaner, Non- Powered	Series 9000
	Engine Air Pre-Cleaner, Powered	XLR
Cab Air Filtration	Cab Fresh Air Filter Unit	CF2
	Cab Recirculation Air Filter Unit	CFX2, FFX2, PFX, Pure
	ISO 23875 Cab Air Quality System	CF2 + CFX2 / FFX2 / PFX / Pure + RESPA Advisor
Anti-Idle	Anti-Idle Solution	Anti-Idle APU + DC electric AC system/unit

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