

Cat® Diesel Particulate Filter (DPF) Technology

For Underground Load-Haul-Dump (LHD) Loaders and Trucks



Scalable Emission Solutions for Better Underground Air Quality

Diesel Particulate Filters (DPF) are the preferred Diesel Particulate Matter (DPM) reduction technology for the most demanding underground machine applications.

Cat® Ventilation Reduction (VR) engines utilize selective engine hardware and software to lower DPM while maintaining low overall emission levels during the engine combustion process.

Cat DPFs – Flow Through Filters (FTF) and Wall Flow Filters (WFF) are designed to work with VR engine packages on Cat underground LHD's and trucks and when properly maintained deliver a Diesel Particulate Matter (DPM) conversion efficiency * of >50 or >98 percent, respectively.

* ultra-fine and fine particles (diameter 10 -500 nm)



Why Would You Consider Cat DPF?

The level of Diesel Particulate Matter (DPM) in the underground environment is always carefully managed by miners in order to meet regional regulatory standards imposed by mine safety and health agencies around the world. Caterpillar provides scalable emission solutions on hard rock vehicles to meet customer requirements on regulations by lowering DPM levels as well as reducing miner’s ventilation costs to improve underground working conditions.

Caterpillar offers Flow Through Type DPFs and Wall Flow Type DPFs which are compatible aftertreatment technologies working together with VR engine packages to achieve superior performance, but lower emission.


A **Flow Through DPF** is an effective emission solution in the underground application. It delivers a greater than 50 percent DPM reduction in the exhaust and it does not accumulate particulates or ash. The Flow Through DPF requires no maintenance or backpressure monitor.

A **Wall Flow DPF** is offered for those customers wanting additional DPM reduction over the highly successful Cat Flow Through Filter.

Diesel Engine Exhaust Components

PM
(Particulate Matter)

CO
(Carbon Monoxide)

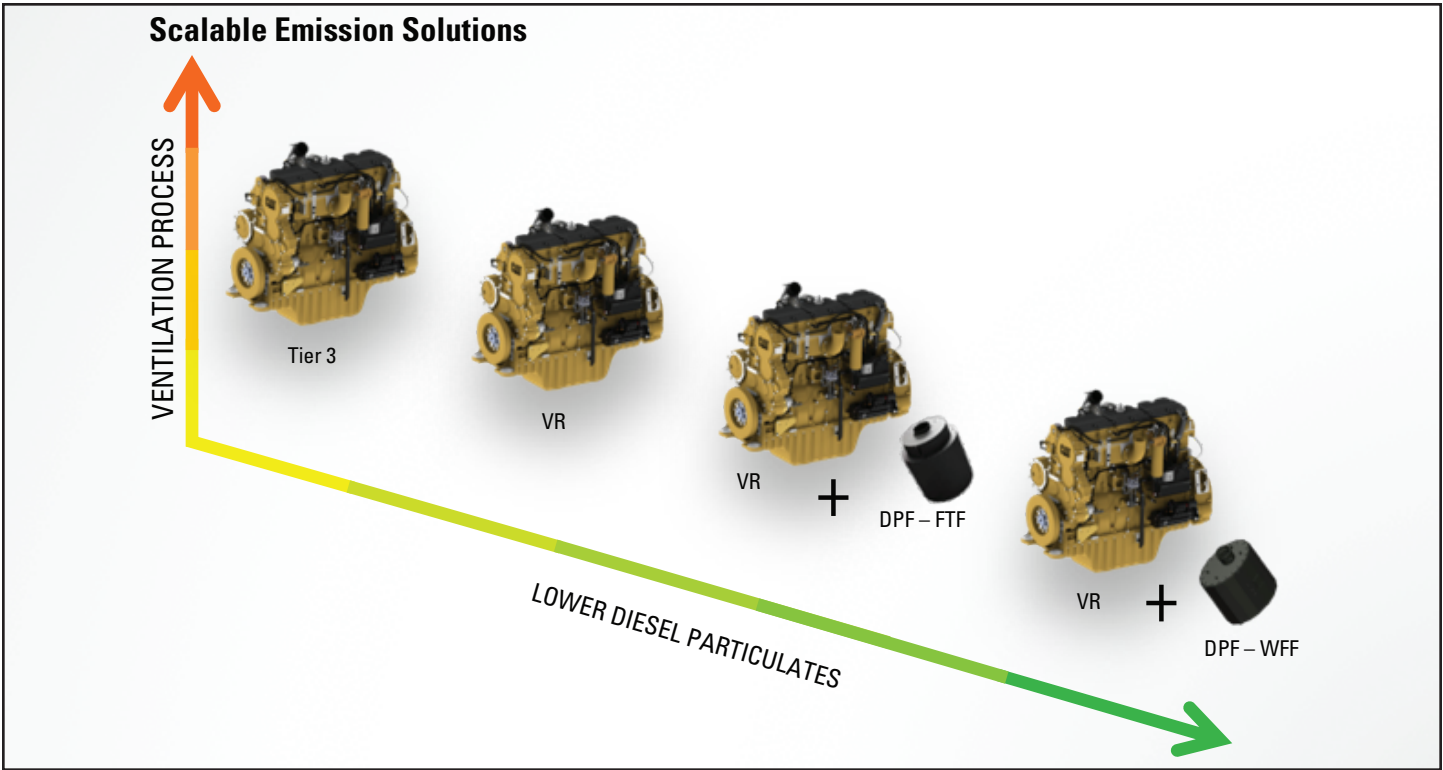




NO_x
(Oxides of Nitrogen)

HC
(Hydrocarbons)

Many mining industry regulations require adequate ventilation underground to keep the level of NO_x, PM, HC, and CO at acceptable levels.

Ventilation in the underground environment is a large percentage of a mine’s operating cost. Caterpillar is committed to supplying Hard Rock Underground Loaders and Trucks with engine packages that minimize the level of ventilation required.



Features and Benefits		
	DPF – Flow Through	DPF – Wall Flow
Technology	Aftertreatment – Flow Through Filter and Catalytic Conversion	Aftertreatment – Wall Flow Filter and Catalytic Conversion
Methodology	Incorporates a metal filter medium to trap particles and effectively oxidize them by means of a catalytic coating	The DPM flows to solid wall and then is forced in a perpendicular manner to original flow path through the substrate
PM Reduction	+50%	+98%
Service Requirement	Does not require specialized services	Fully serviceable and offers extended service life with minimal to no impact to maintenance schedules
Monitoring System	N/A	Full Caterpillar integrated monitoring system with live health monitoring to determine when service or replacement is required
No_x Control	Maintain same NO _x Level	
Components Structure Life	10,000 hours	
Noise Control	Muffler/DPF offers the same or better noise attenuation	
Fluids	No Diesel Exhaust Fluid (DEF) required Use ultra low sulfur diesel (ULSD) and low ash oil (ECF-3, CJ-4)	
Retrofit Availability	YES	
Machine Performance	Provide superior performance Lower fuel consumption and faster transient response	
Cost Benefit	Further reduce ventilation rate	

Emission Solution Availability by Machine Model

	VR Engine		Diesel Particulate Filter (Flow Through Filter)		Diesel Particulate Filter (Wall Flow Filter)	
Model	Factory Fit	Retrofit	Factory Fit	Retrofit	Factory Fit	Retrofit
R1300G			✓	✓		
R1600H	✓		✓	✓		✓
R1700G	✓	✓	✓	✓		✓
R1700	✓					✓
R2900G/R2900	✓	✓	✓	✓	✓	✓
R2900 XE			✓			
R3000H	✓	✓	✓	✓	✓	✓
AD22	n/a	n/a	n/a	n/a	n/a	n/a
AD30	✓	✓	✓	✓		✓
AD45B/AD45	✓	✓	✓	✓		
AD60	✓		✓	✓	✓	✓
AD63			✓	✓	✓	✓

Contact and discuss with your local dealer to identify the suitable package for your needs.

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at mining.cat.com and cat.com

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