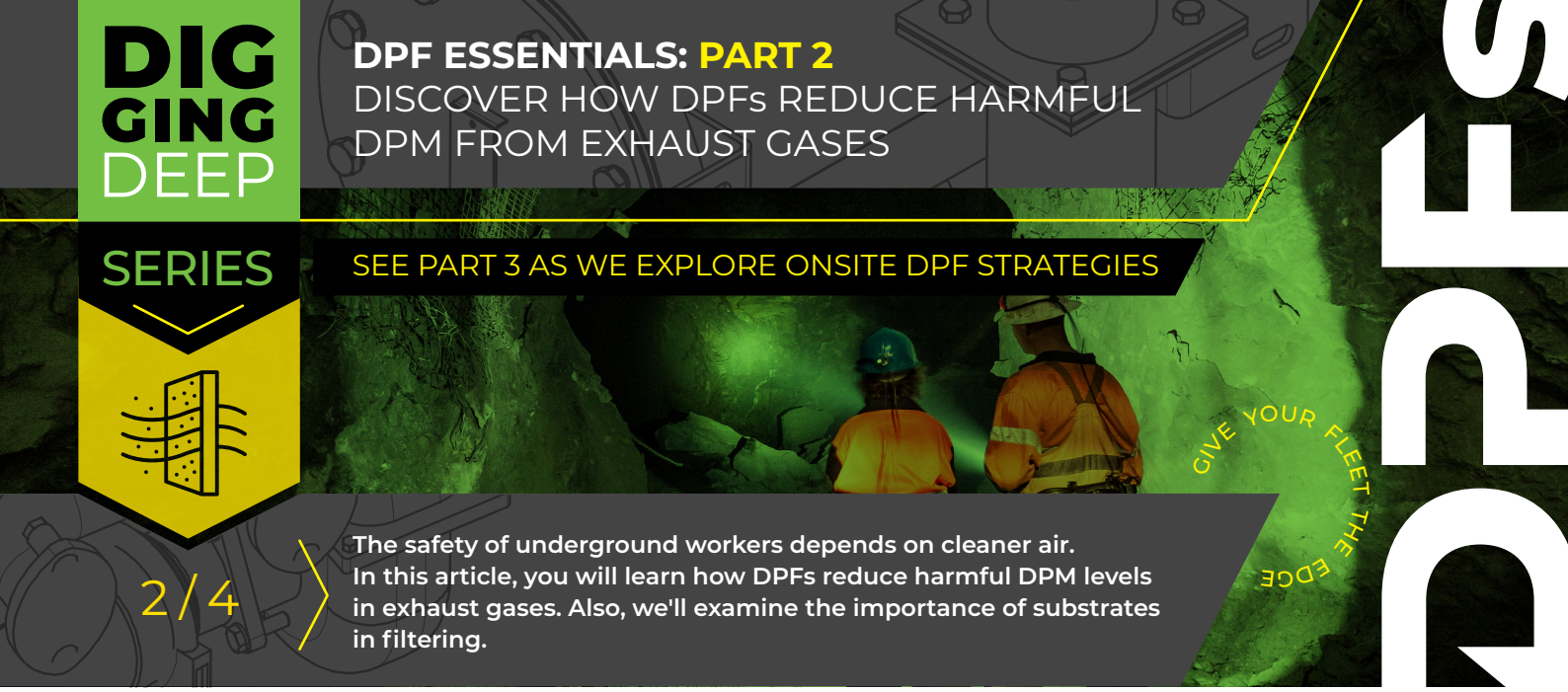
DIGGING DEEP SERIES

DPF ESSENTIALS: PART 2
DISCOVER HOW DPFs REDUCE HARMFUL DPM FROM EXHAUST GASES

SEE PART 3 AS WE EXPLORE ONSITE DPF STRATEGIES



GIVE YOUR FLEET THE EDGE

DPFs

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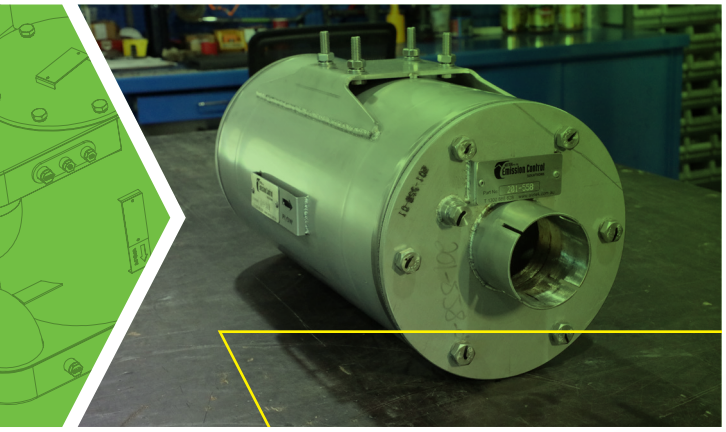
The safety of underground workers depends on cleaner air. In this article, you will learn how DPFs reduce harmful DPM levels in exhaust gases. Also, we'll examine the importance of substrates in filtering.



IN SIMPLE TERMS, WHAT IS A DPF?

Diesel Particulate Filters (DPFs) are aftermarket or factory-fitted accessories that are integral parts of diesel engine configurations. DPFs trap diesel particulates and reduce carbon monoxide and hydrocarbon emissions. These specialised filters are installed in-line with the existing exhaust system to trap harmful emissions.

Aletek DPFs offer unsurpassed emission reduction and exceptional operational performance for underground mining machinery. We are experts with a proven track record of success in emission control.

WALL-FLOW DPFS – HOW DO THEY WORK?

1. Filtration of exhaust gases
DPFs are used in diesel engines to trap diesel particulates, carbon monoxide, and hydrocarbons. A complex chemical reaction breaks down particulate matter in Aletek DPFs. Under normal operating conditions, the process occurs passively without requiring active regeneration.

2. The regeneration process
Catalyst-coated substrates have long, narrow channels with an open and blocked end. Particulate matter (soot) is trapped in the filter walls when exhaust gas passes through the walls. Soot particles are burnt away and converted into harmless gases by high exhaust gas temperatures. The exhaust gas temperature must stay above the balance point for at least 30% of the operating time for continuous regeneration.

Optimal operating conditions for most vehicles:
- >60% load for >30% of operating time; or
- >350°C for 30% of the operating time

These environmental factors influence operating conditions both positively and negatively:
- Engine design
- O2 operational levels (oxygen)
- Fuel type
- Operational duty-cycles

3. Removal of harmful DPM
Our premium wall-flow DPFs use catalytic-coated cordierite substrates. Aletek DPFs capture soot particles with an efficiency of >99%. When key elements align, such as temperature, gas levels and soot loading, the DPF regenerates passively. The reaction converts DPM into both ashes that accumulate in the filter and other gases that pass through the filter.

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DPFs - Part 2 of 4
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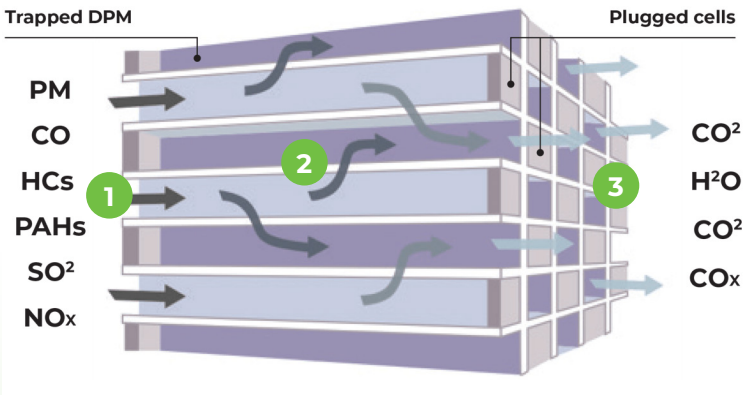

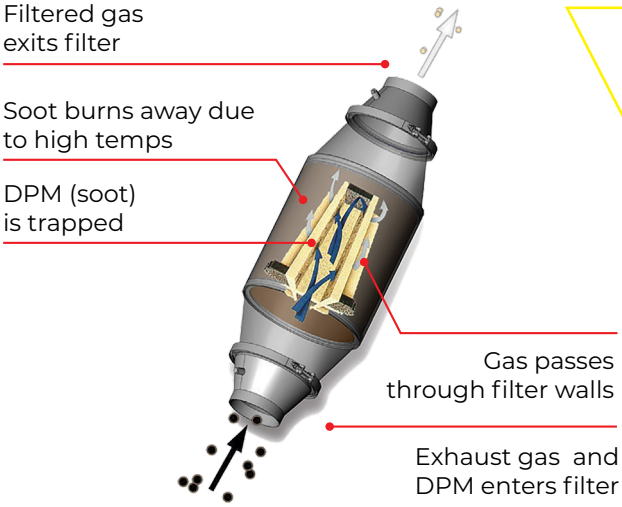

WALL-FLOW DPFS – WHAT SETS US APART?

Achieving best-in-class DPF upgrades

To build a best-in-class DPF, you must choose the best filter substrate. The superior filter design and increased capacity of Aletek filters extend service life and eliminate performance issues. With the help of expert designers and precision fabrication techniques, we manufacture reliable, master-built DPFs.

- >99% DPM emission reductions
- Premium North American filters with a regenerative catalyst coating
- High-flow filter designs prevent low power and backpressure issues
- Heavy-duty construction using 304-grade stainless steel
- Extended service life and reduced cleaning costs
- Rotable frame options for protection in transit

DPF PERFORMANCE WITHOUT THE HASSLES

Emissions from diesel engines underground are harmful. DPFs from Aletek improve the air quality underground. In addition, our solutions help underground crews overcome some frustrations related to low power and backpressure.

YOUR NEXT STEPS

We offer tailor-made DPF upgrades for major OEMs, including Caterpillar, Epiroc, Jacon, Normet, Sandvik, and Volvo. Don't let sub-standard DPF performance hinder your productivity underground. Meet your onsite goals with the help of our dedicated Business Development Managers.

Next up, we'll explore onsite DPF strategies.

Learn more:

- Get in touch with us to review your underground DPF strategy
- Contact us for a copy of our DPF insight and DPM reduction brochures

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