

DGB

SPECIFICALLY DESIGNED FOR
WELL SERVICE & DRILLING APPLICATIONS

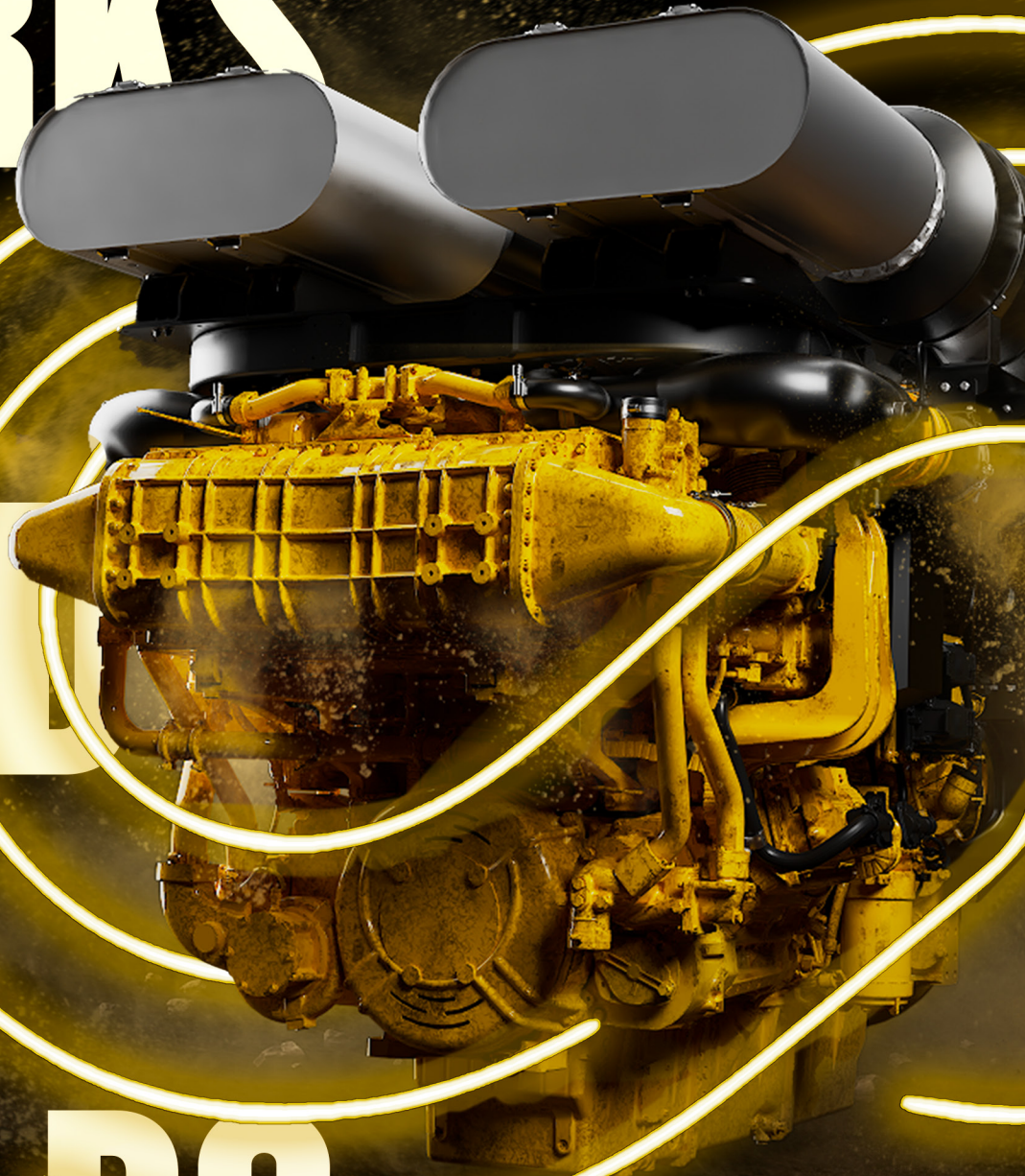
WORKS

AS

HARD

AS

YOU DO.



PERFORMANCE

WITH STAYING POWER.

OVER TEN YEARS OF RELIABILITY, FLEXIBILITY & PERFORMANCE.

You've got to be tough to last more than a decade in this industry, and that's just what the Cat® Dynamic Gas Blending (DGB) technology has proven to be. Under its layers of dust, dirt and grime, there's an engine that's still got more life to it.

FROM DAY ONE

In 2012, when diesel fuel costs were sky high, and customers were looking for relief, we launched our initial DGB solution. The results spoke for themselves. Through the combined knowledge of our engineering experts sharing insights across industries, we developed a true game-changer for oil and gas. The Cat® DGB leveraged innovative capabilities, like automatic fuel blending—delivering intelligent, on-the-fly adjustments that had never been seen before.

Today, DGB has the incredible capacity to work with and blend a wide range of natural gas fuel qualities to help offset the cost of diesel, without compromising on performance.





DGB HISTORY



Oil & Gas:
Drilling



Oil & Gas:
Well Services

2011

2012

2013

2014

2012 – 2013: The first DGB kits enter the market for drilling and well services. Peak diesel substitution achieved 70%



Mining

2018

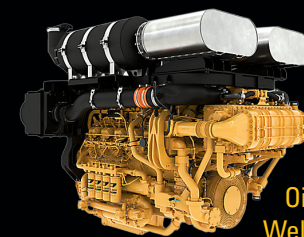
85% peak diesel displacement achieved in new Well Service T4 DGB

2017

2016

Port cylinder injectors used in mining improves DGB functionality and enables the ability to optimize substitution per cylinder.

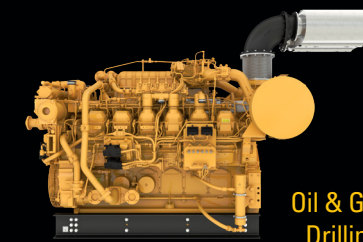
2015



Oil & Gas:
Well Services

2019

2020



Oil & Gas:
Drilling

2024

2025

Port injected technology is introduced to drilling with the DGB Gen 2 Kit.

BUILT TO BE BEST

EACH ITERATION OF THE DGB BRINGS MORE CAPABILITIES TO MORE EQUIPMENT ACROSS INDUSTRIES

- Uses gas when available, and seamlessly reverts to diesel-only when unavailable
- Continuously optimizes gas substitution while maintaining diesel power and transient performance
- Designed to handle a wide range of fuel quality
- Automatically adjusts to changing gas quality
- All engines are factory or dealer tested prior to going to the field
- Closed-loop feedback continuously monitors output and combustion characteristics to maintain U.S. EPA emission standards

A TRUE MVP IN THE FIELD

DRILLING & WELL SERVICE APPLICATIONS

MAXIMIZE THE VALUE OF YOUR DGB

- + Achieve an average of 70% diesel displacement and up to 85% peak displacement for well services
- + Achieve an average of 70% diesel displacement and up to 85% peak displacement for drilling
- + For both drilling and well servicing, DGB kits let you utilize your existing engines – avoiding costly whole-engine replacements

LEVERAGE FUEL FLEXIBILITY

- + Have peace of mind, knowing DGB will revert to 100% diesel in the event you lose access to natural gas

OPTIMIZE YOUR PERFORMANCE

- + DGB reduces costs while performing the same work as non-DGB engines
- + Auto fuel detection helps minimize downtime by automatically adjusting to current fuel quality without having to shut down your engine—making it easier to rely on fuels like field gas, where quality varies drastically

INCREASE SAFETY & REDUCE ENVIRONMENTAL IMPACT

- + Integrated controls come with customizable shutdown and alarm features—helping to simplify safe operation
- + It uses a closed-loop feedback to monitor combustion characteristics—allowing you to adjust for poor fuel quality and avoid malfunctions
- + Reduce GHG emissions as compared to diesel combustion

WELL SERVICES

TECHNOLOGY ADVANTAGES THAT KEEP YOU GOING

With the power of DGB, you can reduce fuel cost demands for your well service equipment, while also helping you respond to the carbon related objectives of your clients.

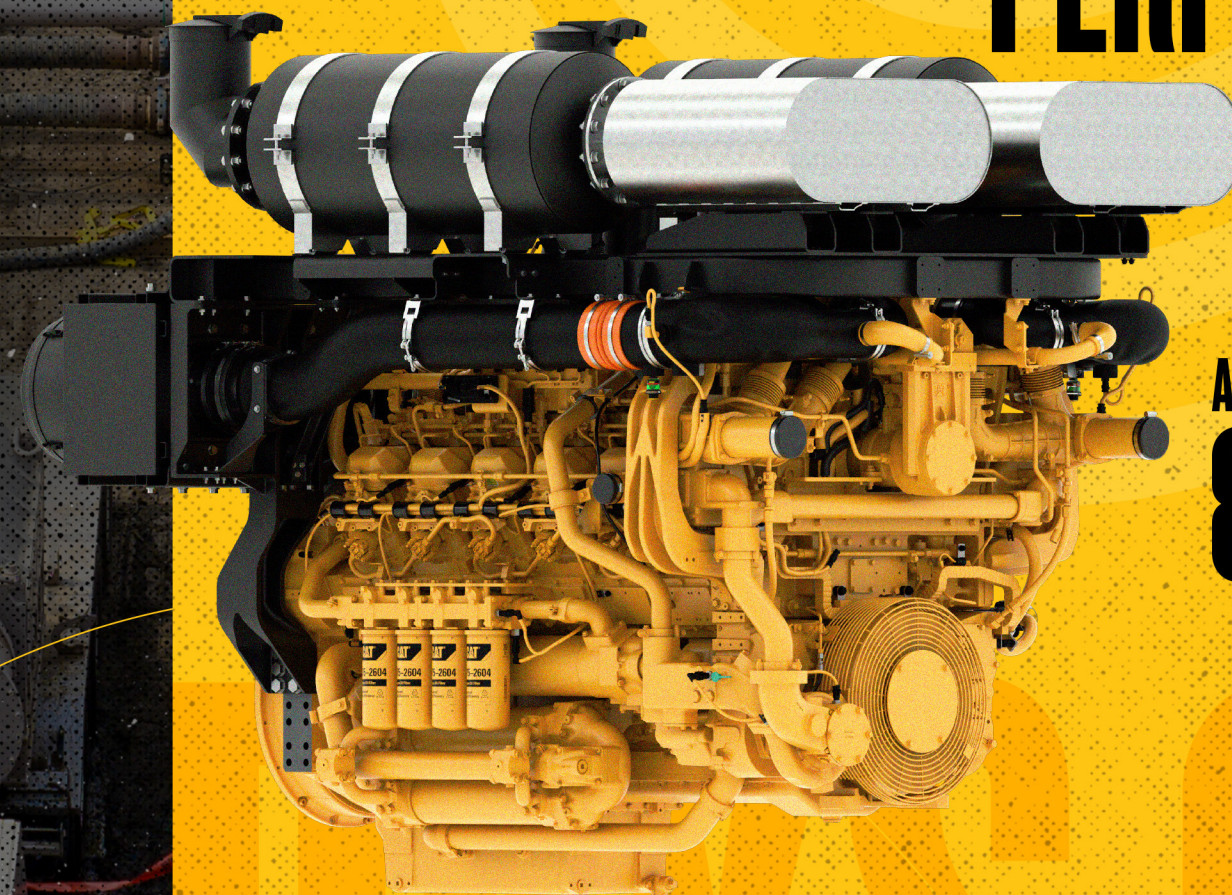
TIER 4 COMPLIANT

The Cat® 3512E DGB T4 is one of our well services engines that help operators and customers maintain the production they're used to without losing sight of emissions regulations industry wide. The DGB is built to help customers meet their climate-related objectives, while also meeting the U.S. EPA Tier 4 emission standard.

A STANDOUT IN WELL SERVICES

With DGB, you get more performance from a single package – the high load capacity and quick start of a typical diesel engine, with the lower GHG emissions and more economical performance of natural gas models. A Cat DGB engine doesn't make you choose. It helps you save time in the field and save costs on fuel—all to help increase your well service operation's efficiency, performance and profitability.

DGB PROVIDES FUEL SAVINGS



WITH AN AVERAGE OF **70%**

DIESEL DISPLACEMENT



SAME POWERFUL PERFORMANCE

AND UP TO

85%

PEAK DIESEL DISPLACEMENT



DRILLING

MADE FOR COST-SAVING FLEET CONVERSIONS

While the existing fleet of engines running your drilling operations may have the power you need, they're also having a negative effect on your bottom line. That's why we built a DGB kit that allows you to retrofit your existing engines – so you can power ahead with your current equipment.

READY TO ROCK

Our DGB kits are built to integrate right into your existing diesel-powered fleet—providing more fuel flexibility. That means you can realize the savings that come with natural gas fueling without having to invest in an entirely new engine.

DGB KEEPS DRILLERS GOING

Beyond the efficiencies provided by the overall reduction on diesel use, the DGB kit also helps you maintain performance for longer. Through its integrated diagnostic capabilities, you can identify and troubleshoot problems more quickly – allowing you to take action to avoid costly failures. On top of that, the addition of the DGB kit doesn't affect your regular service intervals, meaning you can stick to your schedule while saving money on operations and diesel costs over time.



NOT JUST AN UPGRADE, A TRANSFORMATION.

The new Cat® DGB Gen 2 kit takes fleet performance to the next level – retrofitting your existing engines instead of saddling you with the cost of replacing them. It's a solution that puts efficiency first, by expanding the capabilities of your trusted 3512C fleet to help keep you on the right side of U.S. EPA regulations while reducing fuel costs.



DGB GEN 2 DELIVERS:

FUEL SAVINGS

Achieve 70% average and 85%* peak diesel displacement under certain conditions**

ASSET UTILIZATION

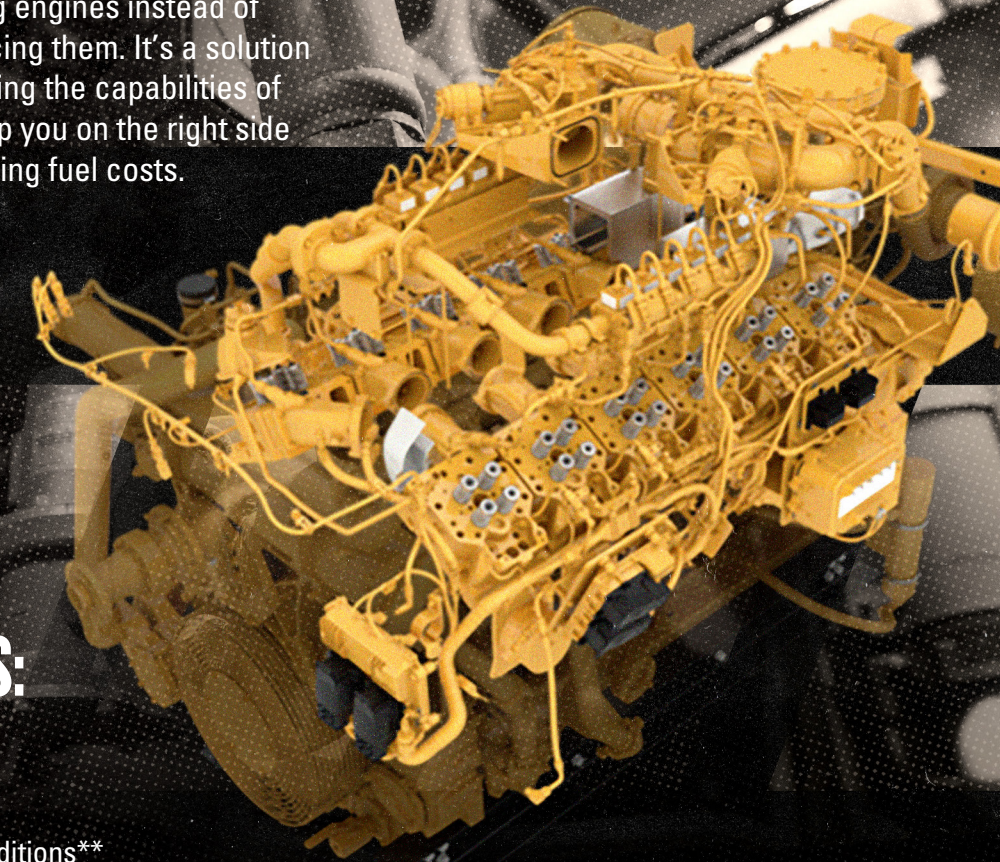
Optimize existing investments with cost-effective fuel-types

SAME POWERFUL PERFORMANCE

Transient response performance of a diesel engine with fuel savings of dual fuel

REDUCED EMISSIONS

Up to 40%* GHG and 80%* Methane Slip reduction



* Reductions calculated based on DGB Gen 2 kit @ 70MN compared to a fumigated kit @ 85MN at 550-650 kW operating range.

** Displacement values calculated based on DGB Gen 2 kit with CNG at 0-1125 kW operating conditions.

Note: Productive time of four engine drill rigs with access to gas supply and automated engine management systems.



**DYNAMIC GAS BLENDING
FOR DRILLING EXCELLENCE**



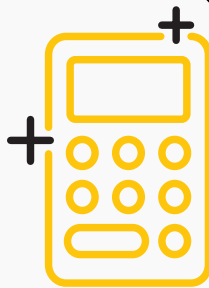
WE'VE GOT MORE COVERED.

WITH DGB, BOTH WELL SERVICE AND
DRILLING OPERATIONS NOW HAVE A
SOLUTION TO MAXIMIZE SAVINGS AND
REDUCE EMISSIONS.



DGB'S SAVINGS ADD UP

Use our online savings calculator to see
how much adding DGB can save your well
service and drilling operations.



CONTACT YOUR CAT® DEALER TO LEARN MORE

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