

# PERFORMANCE THAT'S GROUND BREAKING



ALWAYS ON



# WHY CHOOSE CUMMINS

## WHO WE ARE

Cummins Inc. is a global power leader designing, manufacturing, distributing and servicing engines and related technologies including fuel systems, controls, air handling, filtration, emission solutions and electrical power generation systems. With over 100 years of diesel experience, the company is now developing a range of complementary power solutions including electric, hybrid, natural gas and fuel-cell technologies to meet or exceed environmental sustainability requirements. We partner with our customers to find the best power solution for their needs.

## GLOBAL AND LOCAL

We are the ideal global partner with the ability to design, develop and manufacture products on 6 continents. With over 80 manufacturing plants including 18 engine factories, we can make products exactly where customers need them. Common product platforms are built around world, giving our customers consistency of installation, with emissions capability and cost tailored to their regional needs.

Our dedicated global network is the largest in the industry and this gives confidence to manufacturers and end users who know that support is available for their products, all around the world.

## ENGINEERED FOR OUR CUSTOMERS

Cummins remains at the forefront of developing and applying new technologies to meet current and future emissions legislation, with an investment of close to \$1 billion per year. Our product strategy is not only focused on reducing the impact on the environment, but also engineering value for customers through benefits in performance and running costs.



# TRANSFORMING YOUR FUTURE

## ENERGY DIVERSITY

Clean diesel, diesel hybrid, plug-in hybrid, natural gas, electric, renewable fuels, fuel cells

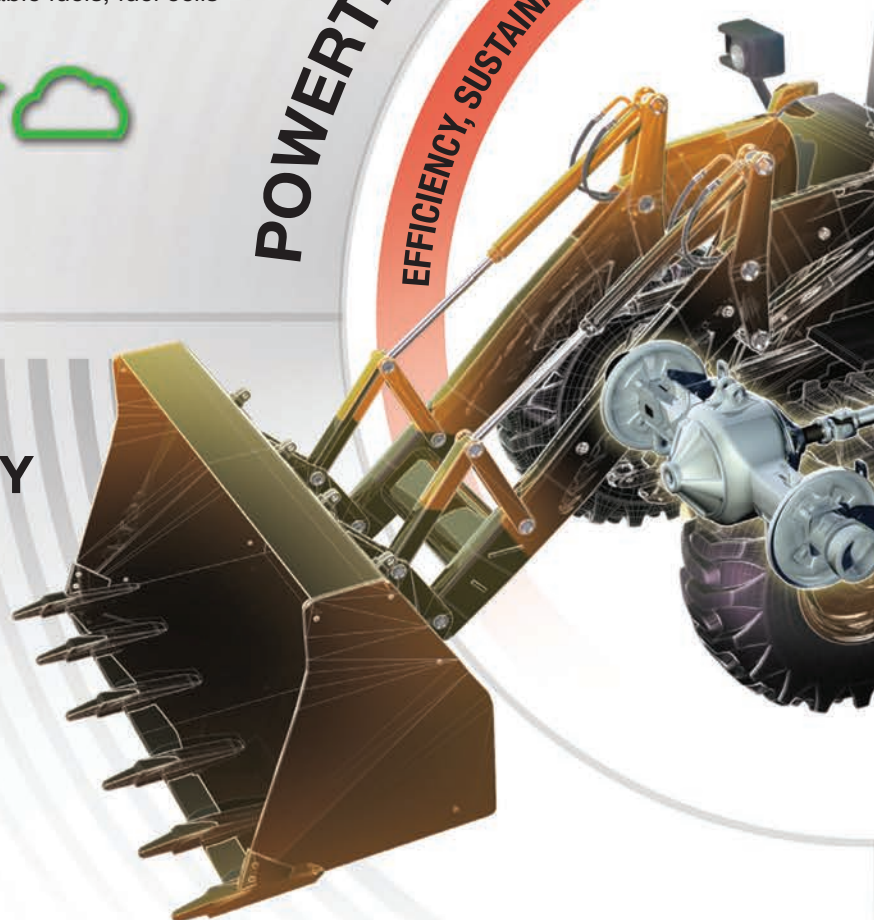


## CONNECTIVITY

Remote monitoring:  
reduced repair costs,  
longer engine life,  
reduced downtime



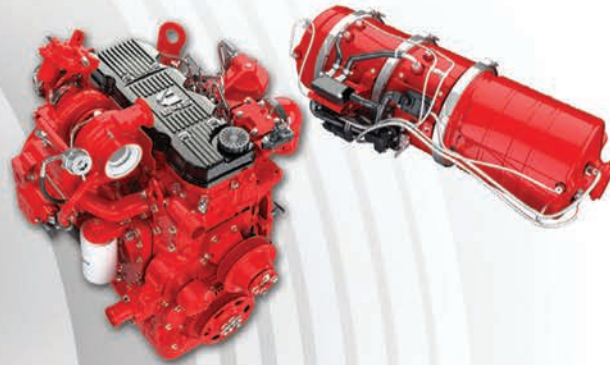
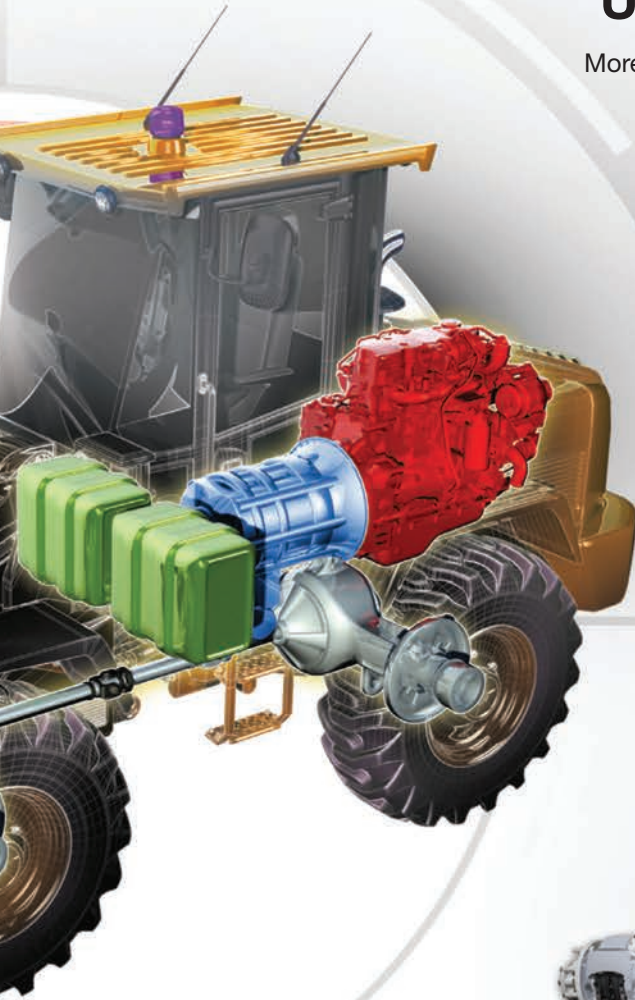
**POWERTRAIN EVOLUTION**  
EFFICIENCY, SUSTAINABILITY, PRODUCTIVITY



As a global power leader, Cummins is demonstrating expertise across multiple product platforms including ultra clean diesel, natural gas, hybrid, full electric and fuel cell technologies as well as through in-house components expertise. All products are designed and manufactured by Cummins and fully integrated for optimal performance and the lowest total cost of ownership.

## ULTRA CLEAN DIESEL

More power, lower running and maintenance costs,  
smaller, simple and reliable



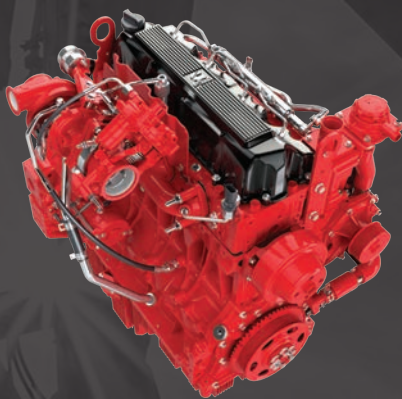
## OPTIMIZATION

Enhanced transmissions,  
hydraulic systems, cooling,  
accessories and options



Our wide range of products and services are generating your power, moving your equipment as well as managing and maintaining your valuable assets. Cummins power is delivering reliable, efficient operation with optimized uptime for excavators, dump trucks, mobile lighting and more.

# PERFORMANCE SERIES TECHNOLOGY FOR GLOBAL CONSTRUCTION



## **F3.8™\***

**Displacement**  
3.8 Liters

**Power**  
75-129 kW / 100-173 hp

**Max. Torque**  
620 Nm Max. Torque

**Emissions Level**  
Stage V / Tier 4 Final

**Product Technologies**  
Single Module™ DPF/SCR  
EGR-free  
Wastegate turbo



## **B4.5™**

**Displacement**  
4.5 Liters

**Power**  
90-149 kW / 120-200 hp

**Max. Torque**  
780 Nm Max. Torque

**Emissions Level**  
Stage V / Tier 4 Final

**Product Technologies**  
Single Module™ DPF/SCR  
EGR-free  
Wastegate turbo



## **B6.7™**

**Displacement**  
6.7 Liters

**Power**  
116-243 kW / 155-326 hp

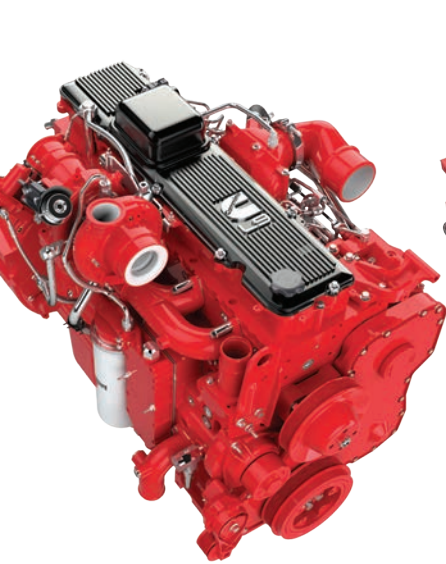
**Max. Torque**  
1375 Nm Max. Torque

**Emissions Level**  
Stage V / Tier 4 Final

**Product Technologies**  
Single Module™ DPF/SCR  
EGR-free  
Variable Geometry turbo

Cummins Performance Series engines do more with less. For operators they deliver higher performance, more machine capability and lower total cost of ownership. For equipment manufacturers, the removal of EGR from the F3.8 to L9 range coupled with Cummins' Single Module™ aftertreatment reduces installation complexity and space claim.

\*Also available at a 55 kW (75 hp) rating, ideally suited for compact equipment requiring high levels of torque.



## L9™

### Displacement

9 Liters

### Power

206-321 kW / 275-430 hp

### Max. Torque

1846 Nm Max. Torque

### Emissions Level

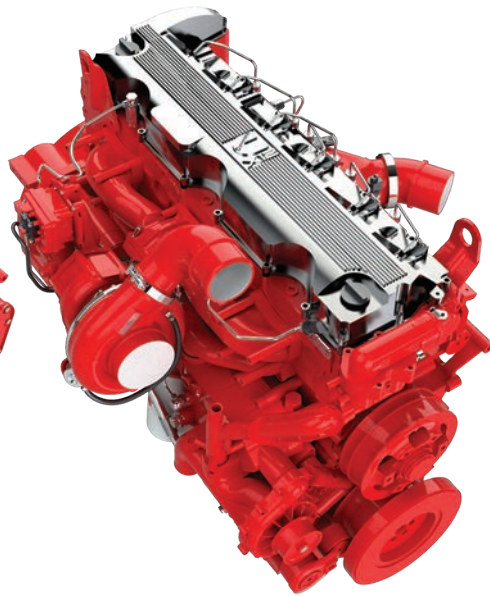
Stage V / Tier 4 Final

### Product Technologies

Single Module™ DPF/SCR

EGR-free

Wastegate turbo



## X12™

### Displacement

12 Liters

### Power

250-382 kW / 335-512 hp

### Max. Torque

2305 Nm Max. Torque

### Emissions Level

Stage V / Tier 4 Final

### Product Technologies

DPF/SCR

EGR-free

Wastegate turbo



## X15™

### Displacement

15 Liters

### Power

336-503 kW / 450-675 hp

### Max. Torque

2779 Nm Max. Torque

### Emissions Level

Stage V / Tier 4 Final

### Product Technologies

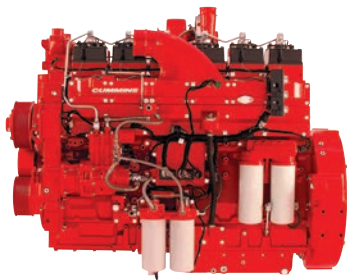
DPF/SCR

Cooled EGR

Variable Geometry turbo

All Performance Series engines are available as Power Units which are more than 60% pre-approved for installation. All Performance Series Power Units include an engine, Single Module™ aftertreatment (F3.8-L9), cooling system, hoses, air cleaner and either mounting feet or base rails.

# CUMMINS CLEAN DIESEL TECHNOLOGY FOR QUARRYING AND MINING



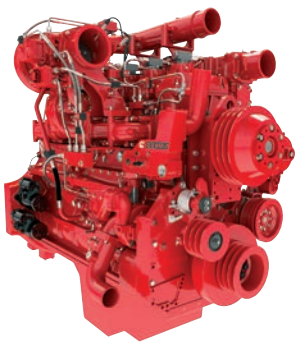
## QSK19

**Displacement**  
19 Liters

**Power**  
567 kW / 760 hp

**Max. Torque**  
3007 Nm / 2218 lb-ft

**Emissions Level**  
Stage V / Tier 4 Final



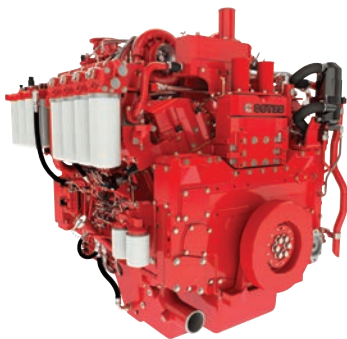
## QSK23

**Displacement**  
23 Liters

**Power**  
567-783 kW / 760-1050 hp

**Max. Torque**  
3928 Nm / 2897 lb-ft

**Emissions Level**  
Stage V / Tier 4 Final



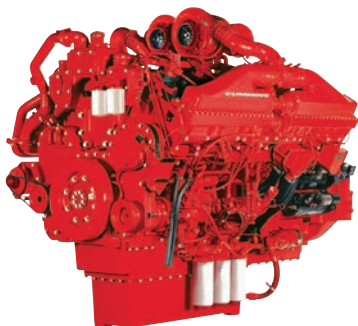
## QST30

**Displacement**  
30 Liters

**Power**  
708-895 kW / 950-1200 hp

**Max. Torque**  
6612 Nm / 4877 lb-ft

**Emissions Level**  
Stage V / Tier 4 Final



## QSK38

**Displacement**  
38 Liters

**Power**  
810-1193 kW / 1086-1600 hp

**Max. Torque**  
6242 Nm / 4604 lb-ft

**Emissions Level**  
Stage V / Tier 4 Final



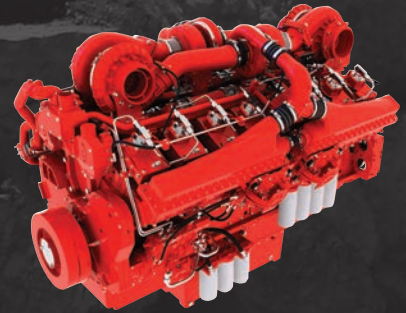
## QSK50

**Displacement**  
50 Liters

**Power**  
1119-1491 kW / 1500-2000 hp

**Max. Torque**  
9600 Nm / 7081 lb-ft

**Emissions Level**  
Stage V / Tier 4 Final



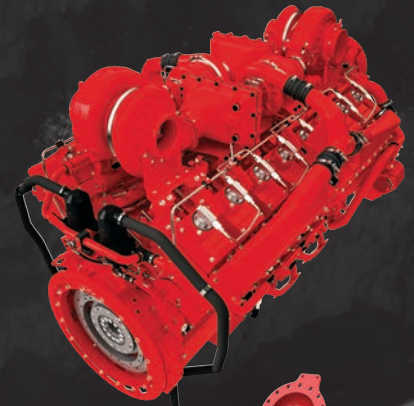
## QSK60

**Displacement**  
60 Liters

**Power**  
1398-2125 kW / 1875-2850 hp

**Max. Torque**  
11218 Nm / 8274 lb-ft

**Emissions Level**  
Stage V / Tier 4 Final



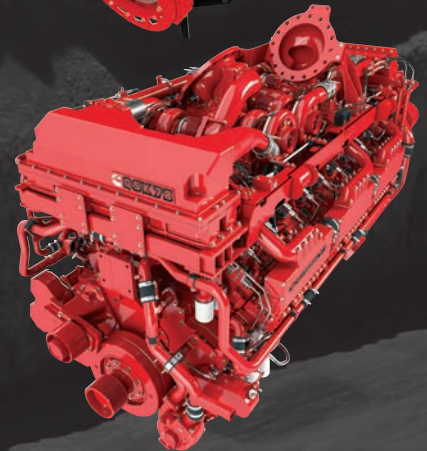
## QSK78

**Displacement**  
78 Liters

**Power**  
2610 kW / 3500 hp

**Max. Torque**  
14077 Nm / 10383 lb-ft

**Emissions Level**  
Stage V\* / Tier 4 Final  
\* certification available on request

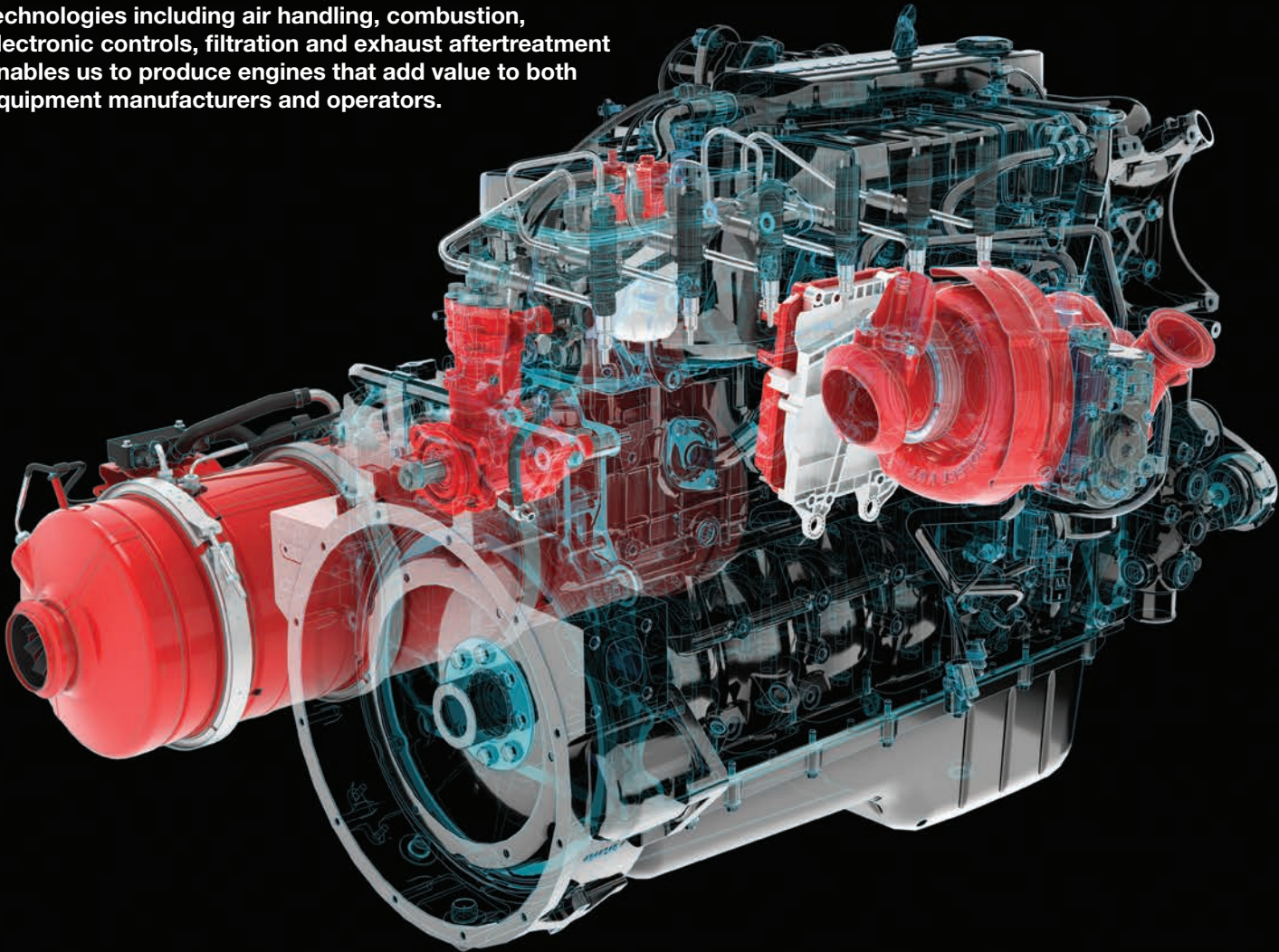


As market leader in the design, manufacture and service of engines for mining and quarrying applications, Cummins has a century of product expertise. In fact, more than 28,000 Cummins engines are active in mining operations around the globe in everything from excavators, drills and haul trucks to generators and underground mining equipment. These installations demonstrate our commitment to providing the highest uptime in the industry and reducing total cost of productivity and ownership for end users worldwide.

**No matter what you're mining, or where your equipment runs, Cummins engines provide exceptional dependability, reliability and productivity – even in the most challenging environments.**

# IN-HOUSE COMPONENTS EXPERTISE

Our ability to develop and integrate in-house component technologies including air handling, combustion, electronic controls, filtration and exhaust aftertreatment enables us to produce engines that add value to both equipment manufacturers and operators.



## Aftertreatment technologies

### Single Module™ aftertreatment

- Combines DOC, DPF and SCR to facilitate the removal of EGR, and is up to 40% smaller and 20% lighter than previous systems.
- Modularity allows for ease of part replacement and reduced downtime.
- Offers easier system integration and flexible installation options.
- Advanced catalyst technologies offer improved NOx conversion efficiency and ash-loading capacity.
- Enhanced thermal efficiency and reduced aftertreatment warm up.

### Flex Module™ aftertreatment

- Innovative packaging design saves installation space to fit the requirements of OEM configuration.
- Modular accessible design of product provides convenience of maintenance for customer.
- Advanced catalyst technologies facilitate DPF's larger ash capacity.
- Advanced control strategy and urea dosing system provide higher NOx conversion efficiency.

## Turbocharging technologies

### Holset® Series HE400VG:

Cummins continues to evolve the Holset VGT™ to meet future emission challenges, including EPA, CARB 24, and Euro 7 emissions requirements.

Our latest R&D investment has facilitated a 5% efficiency improvement and includes new developments to the rotor system, compressor stage and turbine stage, alongside a range of aerodynamic packages to tailor performance and meet demands on applications up to 15L.

### Holset® Series HE600WG:

- Increased overall turbocharger efficiency by over 4 points compared to current product HE600.
- High pressure ratio compressor stage, aerodynamically tailored for off highway application.
- New compressor stage offers +3 points higher efficiency compared to current product HE600.
- New compressor stage offers increased flow range enabling customers using HE800 to switch to more compact and less expensive HE600
  - » helps meet downsizing requirements
  - » offers improved transient response and space claim benefits.
- New turbine housing offering higher durability (optimized thermal stress to improve fatigue life).

## Fuel systems

**Common rail with EDV** – stop-start functionality. Capable of nominal operating pressure up to 2600 bar and sized for 4.5-15L engines.

**CRFI-C Series** – fuel injector showcasing electromagnetic and mechanical valve enhancements, as well as next generation controls integration to achieve state of the art performance.

**OLP3c** – a compact design fuel pump with up to 2600 bar pressure rating and Active Inlet Metering (AIM) for superior transient rail pressure response.

## Electronics and diagnostics

**CM2850** – complete engine control module for high levels of performance in all conditions.

## Filtration technologies

**Industrial Pro** – the Fleetguard FH239 series is an extra rugged fuel housing specifically designed for off-road equipment. It combines EleMax™ filter technology and multi-layered NanoNet® media.

**Fleetguard Hydraulic Filters** – filter elements are available in a variety of media and micron rating efficiencies. Filters can be selected for petroleum- and water-base fluid compatibility.

**FleetguardFIT™** – through intelligent sensing and data analytics, award-winning FleetguardFIT provides real-time status updates of Fleetguard filters in your equipment so maintenance can be based on real-world conditions.

**Air Filtration** – Air filtration offers broad coverage for cabin and engine air intake systems. Using the highest quality components and manufacturer processes to ensure consistent protection in all environments. Cummins proprietary media can be customized for specialized environments and applications.

**NanoNet® Fuel Filtration** – designed to deliver fuel to your engine that meets the fuel injection equipment (FIE) manufacturer's suggested ISO 12/9/6 cleanliness level. The product is proven with millions of miles and hundreds of thousands of hours of testing in the field and can extend service intervals, maintain high efficiency, reduce downtime and maintenance cost.

**NanoNet® Lube Filtration** – improves oil flow ability both at cold and hot operating temperatures resulting in better overall fuel economy, as well as captures contaminants that can damage the engine. The LF14000NN holds between 11-24% more contaminant than the will-fit filters made by others.

**Fleetguard Coolant** – ES Compleat™ OAT (Organic Acid Technology) is a Life-of-the-Engine organic additive fully formulated extended life Ethylene Glycol (EG) antifreeze/coolant. It provides superior diesel engine protection against freezing, boil-over, cavitation, liner pitting, erosion, corrosion, elastomer gasket degradation, and scaling.

# DIGITAL SOLUTIONS FOR MAXIMUM AVAILABILITY



## MONITORING

### Connected Diagnostics™

Make informed decisions on when to really stop equipment and when to continue working by understanding the suggested root cause of fault alerts and knowing how long you have before an issue is likely to escalate. Wirelessly connect engines to Cummins using telematics for continuous monitoring and diagnosis using alert notifications sent via a convenient mobile app, email or web portal.

## REPORTING

### Connected Advisor™

Keep projects on schedule by planning service stops more productively, using streamlined engine reports which include daily and monthly summaries of engine health, required field actions and active campaigns. You'll know exactly what's wrong and how to resolve it using our integrated and detailed expert recommendations that automatically accompany each report.

## CALIBRATING

### Connected Software Updates™

Cummins powered equipment can remain on a jobsite while beneficial performance or fuel efficiency enhancements are applied at a fraction of the cost using integrated telematics systems and wireless, over-the-air connectivity services. This enables operators to scale software deployment efforts with ease and calibrate engine control modules remotely with minimal downtime.

## SERVICING

### Cummins Guidanz®

Guidanz technology integrates and streamlines every aspect of the Cummins service experience, accelerating the diagnostic and repair process. The Guidanz mobile app, when paired with the new Bluetooth®-enabled INLINE™ mini datalink adapter, displays Cummins fault codes and other key engine information anywhere you need it. Its Immediate Assessment feature enables you to determine root cause of a fault, review estimated repair times and identify the most likely repair parts for easier service scheduling. You can provide this information to your nearest certified service provider ensuring you receive the right support and streamlining the repair process.



# GLOBAL PARTS AND SERVICE NETWORK



In today's connected world, look no further than Cummins. Wherever your Cummins powered equipment operates, you have access to the largest number of certified service and support locations of any engine manufacturer.

#### **Cummins distribution network**

- More than 8,000 distributor and authorized dealer locations in over 190 countries
- Local Cummins-certified technicians ready to complete your in-shop or field service needs and deliver high-quality repairs and rebuilds quickly by using the best tools with the most advanced technology
- Engineers trained in powering applications and identifying options to improve product performance
- Complete range of Cummins products and Genuine Cummins new and ReCon® parts
- Three global parts distribution centers equipped to handle the most complex business processes
- 24/7 customer support

**We are the experts with advanced technology to make your life easier while providing a seamless support experience.**

**Contact us:**

**UK: 00-8000-CUMMINS™ (00 8000 286 6467)**

**[care.cummins.com](http://care.cummins.com)**





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# STRENGTH, EVOLVED

QSK78 TIER 4 ENGINE  
FOR MINING APPLICATIONS



FOR  
A WORLD  
THAT'S  
ALWAYS ON™



# THE QSK78. BECAUSE EVOLUTION MAKES GREAT, BETTER.

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**Evolution. Continuous improvement.** These are the forces that have shaped the QSK78 Tier 4. We've taken the QSK78 to new levels with a whole suite of smart design and technology upgrades. That means stronger capabilities and an even more robust design, to give you the best of both worlds – increased productivity and massive reliability in the toughest conditions, with next-generation efficiency that meets the latest emissions regulations.



## SERIOUS STRENGTH

- **MODERN ENGINE AND TURBO CHARGING DESIGN** leads to improved transient response.
- **MODULAR COMMON RAIL FUEL SYSTEM (MCRS)** provides precise control of the fuel ejection event that results in lower noise, vibration and smoke, and optimized fuel economy.
- **FORGED HIGH-STRENGTH STEEL CRANKSHAFT** lowers noise and vibration for operators delivering maximum performance and durability.
- **DUAL VISCOUS DAMPERS** reduce gear train wear, leading to longer life to overhaul (LTO).

The QSK78 incorporates the best features of our legendary design, including full-authority electronic controls to achieve exceptional combustion efficiency.

# UNBEATABLE COST-PER-TON

- **ELIMINATOR™ SELF-CLEANING FILTRATION SYSTEM** combines full-flow and bypass filters with an oil pressure-powered centrifuge; this system extends oil drain intervals and reduces consumable waste, while improving cost of production (COP).
- **ADVANCED SELECTIVE CATALYTIC REDUCTION (SCR) TECHNOLOGY** allows the engine to meet global emissions regulations without increasing displacement, heat rejection or significantly changing the engine footprint or ratings. By using SCR technology, we're able to protect engine performance and power density, equating to best in class COP.
- **NANONET® ADVANCED MEDIA TECHNOLOGY** filters out the smallest impurities that impede optimal engine performance, extending maintenance intervals and keeping your engine running longer. Extended service intervals mean less downtime for routine maintenance and more uptime for profitable productivity.

Bring optimized maintenance schedules and advanced combustion efficiency together, and the result is a game-changer – **an engine with the lowest cost-per-ton of any engine in its class.**



## DATA IS POWERFUL TOO

Through Cummins PrevenTech® mining, we can empower you with innovative digital solutions for remote engine monitoring, prognostics, and customer alert creation and notifications, which improve productivity, reduce costs, and optimize maintenance and servicing.

## SERVICE AND SUPPORT. WE'VE GOT YOUR BACK.

**GLOBAL SUPPORT NETWORK** Distributor branches in over 190 countries to support your parts and service needs, no matter where your equipment is located.

**CUMMINS CARE** our unique solutions center with experts who have specialized skill sets, experience, and in-depth knowledge, to help you problem-solve fast and assist you with your service and support needs.

**BEST WARRANTY IN THE INDUSTRY** QSK78 engines are backed by the best warranty in the industry, with full coverage for unlimited hours during the first year, extending through two years or 2,000 hours, whichever occurs first. Major-components coverage continues through the third year or 10,000 hours, whichever occurs first. Extended protection plans are available.

**QUICKSERVE™ ONLINE MOBILE** With Cummins, one of the most comprehensive and powerful parts and service tools in the industry is all yours.



# BREAKING NEW GROUND WITH PLANET 2050

In 2014, Cummins adopted its first comprehensive sustainability plan. Planet 2050 builds on this with 2050 aims and incremental 2030 goals. One of those goals is to partner with customers to reduce greenhouse gas (GHG) emissions from products in the field by 55 MILLION METRIC TONS. This is accomplished by improving the efficiency of our products. For more information on Planet 2050, [visit cummins.com](http://cummins.com).

## RATINGS

ENGINE MODEL	ADVERTISED HP (kW) @ RPM	PEAK TORQUE LB-FT (N•M) @ RPM
QSK78 3500	3500 (2610) @ 1900	10,157 (13,771) @ 1500

## SPECIFICATIONS

ENGINE TYPE	18-CYLINDER	
Aspiration	Two-Stage Turbocharged, Intercooled and Aftercooled	
Displacement	4,735 CU IN	77.6 LITERS
Bore and Stroke	6.69 IN x 7.48 IN	170 MM X 190 MM
Oil System Capacity	76-86 U.S. GAL	287-327 LITERS
Coolant Capacity	175 U.S. QT	166 LITERS
Length	135.9 IN	3,453 MM
Width	70.6 IN	1,794 MM
Height	103.1 IN	2,618 MM
Dry Weight	26,506 LB	12,023 KG
Wet Weight	27,137 LB	12,309 KG



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