

# Off-Highway Diesel Engines

Final Tier 4/ Stage V



JOHN DEERE

*Proud to power you*





Off-Highway Diesel Engines

## Run with confidence

You can count on John Deere PowerTech™ industrial engines to start in the morning, operate efficiently all day, and work reliably for many years. You also get the confidence of having the John Deere integration and support network at your side every step of the way.

### *Off-highway experience*

John Deere specializes in rugged off-highway applications. That's why our engines are built with heavy-duty components, top-liner cooling, steel pistons to maximize reliability, and wet-type cylinder liners for long-haul durability.

### *The power of choice*

With John Deere, you get a wide range of configurations and accessories so you can specify the right engine that best fits your application. Our preconfigured options can help save hours of engineering time and help you get machines to market faster.



### *Integration assistance*

You get expert integration assistance provided by John Deere engineers and distributors. OEMs can put our application engineering experience and know-how to work to help save development time and money.

### *Customer support*

With more than 4,000 John Deere service locations worldwide, you never have far to go to find expert assistance and advice.

### *Fast parts delivery*

Our distributors and dealers stock maintenance parts, as well as many other common replacement parts, to meet your service needs quickly. Our worldwide parts distribution system offers overnight delivery in most regions.







## Engines for Final Tier 4/Stage V applications

### Industrial engine power ratings

PowerTech technology	Engine model	Power ratings	Turbo	Cooled EGR	Aftertreatment	Exhaust canister size	SCR size	Power range														
EWX 2.9L	3029HI530	36 – 55 kW (48 – 74 hp)	WGT	-	DOC/DPF	2	-	■														
EWX 4.5L	4045TI530	55 kW (74 hp)	WGT	-	DOC/DPF	2	-	■														
PWS 4.5L	4045HI550	74 – 104 kW (99 – 140 hp)	WGT	Yes	DOC/DPF/SCR	2	3		■													
PSS 4.5L	4045CI550	93 – 129 kW (125 – 173 hp)	Series	Yes	DOC/DPF/SCR	3	3			■												
PSS 4.5L	4045CI551	116 – 129 kW (156 – 173 hp)	Series	Yes	DOC/DPF/SCR	4	4				■											
PVS 6.8L	6068HI550	104 – 129 kW (140 – 173 hp)	VGT	Yes	DOC/DPF/SCR	3	3				■											
PVS 6.8L	6068HI550	138 – 187 kW (185 – 250 hp)	VGT	Yes	DOC/DPF/SCR	4	4					■										
PSS 6.8L	6068CI550	168 – 187 kW (225 – 250 hp)	Series	Yes	DOC/DPF/SCR	4	4						■									
PSS 6.8L	6068CI550	187 – 224 kW (250 – 300 hp)	Series	Yes	DOC/DPF/SCR	5	5							■								
PSS 9.0L	6090CI550	187 – 242 kW (250 – 325 hp)	Series	Yes	DOC/DPF/SCR	5	5								■							
PSS 9.0L	6090CI550	261 – 317 kW (350 – 425 hp)	Series	Yes	DOC/DPF/SCR	6	6									■						
PSS 13.5L	6135CI550	309 – 448 kW (414 – 601 hp)	Series	Yes	DOC/DPF/SCR	7	7										■					
PWS 13.6L	6136HI550	300 – 410 kW (400 – 550 hp)	WGT	Yes	DOC/DPF/SCR	6												■				
PSS 13.6L	6136CI550	391 – 510 kW (525 – 684 hp)	Series	Yes	DOC/DPF/SCR	7														■		

kW 0 37 75 112 149 186 224 261 298 336 373 410 447 484 522  
 hp 0 50 100 150 200 250 300 350 400 450 500 550 600 650 700

### Final Tier 4/Stage V engine technology

#### PowerTech EWX

EWX engines are compact, powerful, cost-effective, and simple to install without requiring cooled EGR or SCR. Our straightforward PowerTech EWX engines have 2-valve cylinder heads, high-pressure common-rail fuel systems, and full authority electronic controls. They use simple wastegate turbocharging to maintain transient response and peak torque in all operating conditions.

#### PowerTech PWS

PWS engines combine advanced combustion technologies, enhanced engine calibration, and simple wastegate turbocharging. PWS engines feature PowerTech Plus technology with a DOC/DPF and an SCR system that reduce emissions while maximizing performance.

#### PowerTech PVS

PVS engines deliver more power, torque, and fluid economy. They utilize our proven PowerTech Plus technology with variable geometry turbocharging, a DOC/DPF, and an SCR system to improve combustion efficiency, reduce emissions, enhance performance, and improve fluid economy.

#### PowerTech PSS

PSS engines provide a powerful combination of power density, performance, and fluid efficiency. For ultimate performance in off-highway applications, PowerTech PSS engines can handle almost any job. All displacements feature series turbochargers to deliver excellent performance and responsiveness. PSS engines feature proven PowerTech Plus technology that includes a DOC/DPF and an SCR system designed specifically for off-highway applications.





# Engines for Final Tier 4 applications

## Industrial engine power ratings

PowerTech technology	Final Tier 4 engine model	Final Tier 4/ Stage V engine model	Power ratings	Turbo	Cooled EGR	Aftertreatment	Exhaust canister size	SCR size	Power range
EWX 2.9L	3029HFC03	3029HI530	36 – 55 kW (48 – 74 hp)	WGT	-	DOC/DPF	2	-	0-100
EWX 4.5L	4045TFC03	4045TI530	55 kW (74 hp)	WGT	-	DOC/DPF	2	-	0-150
PWL 4.5L	4045HFC04	-	63 – 104 kW (85 – 140 hp)	WGT	Yes	DOC/SCR	2	3	0-200
PWS 4.5L	4045HFC07	4045HI550	93 – 104 kW (125 – 140 hp)	WGT	Yes	DOC/DPF/SCR	2	3	0-250
PSL 4.5L	4045HFC06	-	93 – 129 kW (125 – 173 hp)	Series	Yes	DOC/SCR	3	3	0-300
PSS 4.5L	4045HFC09	4045CI550	93 – 129 kW (125 – 173 hp)	Series	Yes	DOC/DPF/SCR	3	3	0-350
PSS 4.5L	4045HFC09	4045CI551	116 – 129 kW (156 – 173 hp)	Series	Yes	DOC/DPF/SCR	4	4	0-400

Final Tier 4 models will be transitioned to Final Tier 4/Stage V model numbers.

kW 0 37 75 112 149 186 224 261 298 336 373 410 447 484 522  
 hp 0 50 100 150 200 250 300 350 400 450 500 550 600 650 700

## Final Tier 4 engine technology

### PowerTech EWX

EWX engines are compact, powerful, cost-effective, and simple to install without requiring cooled EGR or SCR. Our straightforward PowerTech EWX engines have 2-valve cylinder heads, high-pressure common-rail fuel systems, and full authority electronic controls. They use simple wastegate turbocharging to maintain transient response and peak torque in all operating conditions.

### PowerTech PWL<sup>†</sup>

PWL engines combine advanced combustion technologies, enhanced engine calibration, and simple wastegate turbocharging. They pair our proven PowerTech Plus technology with a DOC and optimized SCR system to produce near-zero levels of PM without a DPF.

### PowerTech PWS

PWS engines combine advanced combustion technologies, enhanced engine calibration, and simple wastegate turbocharging. PWS engines feature PowerTech Plus technology with a DOC/DPF and an SCR system that reduce emissions while maximizing performance.

### PowerTech PSL<sup>†</sup>

PSL engines provide exceptional power in a compact package. They feature an optimized engine calibration, a 4-valve cylinder head, a high-pressure fuel system, full authority electronic controls, and series turbocharging consisting of a fixed geometry and wastegate turbocharger. Combining proven PowerTech Plus technology with a DOC and SCR system delivers excellent performance and fluid efficiency without the need for a DPF.

### PowerTech PSS

PSS engines provide a powerful combination of power density, performance, and fluid efficiency. For ultimate performance in off-highway applications, PowerTech PSS engines can handle almost any job. All displacements feature series turbochargers to deliver excellent performance and responsiveness. PSS engines feature proven PowerTech Plus technology that includes a DOC/DPF and an SCR system designed specifically for off-highway applications.

<sup>†</sup> Available only on Final Tier 4 engine models.



# The John Deere difference

## Proven performance



### Off-highway experience

John Deere has billions of hours of field experience with off-highway engine technologies.

We use an exhaust system strategy that is designed to be transparent to the operator, without impacting machine performance. Our proven aftertreatment solution has logged more than 1 billion hours of operation on hundreds of internal and external OEM applications.



### Turbocharged power

John Deere engines deliver fast transient response and high peak torque thanks to tailored turbocharging technologies. We use a combination of wastegate, variable geometry, and series turbochargers to meet your application needs.

## Reliable uptime



### Day-to-day reliability

John Deere engines feature top-liner cooling, efficient lubrication, and robust cooling systems for reliable operation.



### Long-haul durability

Heavy-duty, oversized components, steel pistons, and wet-type cylinder liners provide long engine life.

John Deere engines are designed for rugged applications.



### Extreme conditions

Engines built to operate in hot and dry, sub-zero, and humid climates as well as high altitudes. The engine control unit (ECU) monitors and protects engine components in extreme conditions.

In regions where fuel quality may vary, John Deere protects the engine with two-stage fuel filtration and water detection.

## Efficient operation



### Fuel efficiency

The efficient design of the John Deere combustion chamber with high-ring pistons helps deliver excellent fuel economy.



### Less DEF

Use of cooled EGR reduces nitrogen oxides (NOx) out of the engine. This enables the use of a smaller selective catalytic reduction (SCR) system and lower diesel exhaust fluid (DEF) consumption. John Deere engines with EGR use 1 to 3 percent less DEF compared to non-EGR engines.



### Life cycle costs

Reliable operation, low maintenance, long engine life, and exceptional fluid economy lead to low cost of operation with John Deere engines.



### Long service intervals

500-hour interval for oil and fuel filters, 1,500 hours for OCV, 4,500 hours for DEF supply module filter, 6,000 hours for coolant, and up to 15,000 hours for DPF. No service required on DEF header filter.

## Easy integration



### Stage V solutions

No re-engineering required. No hardware changes. John Deere Stage V engines have the same engine envelope size and use the same mounting points as John Deere Stage IV engines. Your engines have dual EPA and EU certification.



### Integration flexibility

With multiple parts options and various aftertreatment outlet and inlet choices, OEMs may have to do less modification to integrate John Deere engines. Easy configurability saves development costs and reduces delivery time to market.

Single-side service points make installation and maintenance easier.





## Integrated Emissions Control system

John Deere has integrated advanced technologies with field-proven solutions to meet each regulatory tier. A single engine control unit (ECU) manages the engine and entire Integrated Emissions Control system.

### Turbocharging

John Deere engines use fixed geometry turbochargers sized for specific power ranges, wastegate turbochargers (WGT) to develop more airflow at lower engine speeds, and variable geometry turbochargers (VGT) to tailor the amount of recirculated exhaust gas that mixes with fresh air. Some models use a fixed turbocharger and VGT in series to deliver higher power density, improved low-speed torque, and excellent high-altitude operation.

### Cooled exhaust gas recirculation (EGR)

Cooled EGR is a proven technology that reduces nitrogen oxides (NOx) by mixing measured amounts of cooled exhaust gas with incoming fresh air to lower the engine's peak combustion temperature.

### Exhaust filters

All engine models that meet Stage V emissions use an exhaust filter with a diesel oxidation catalyst (DOC) and diesel particulate filter (DPF) to provide a reliable solution for reducing particulate matter (PM). This is the accepted technology for reducing PM in nonattainment areas.

### Selective catalytic reduction (SCR)

John Deere Final Tier 4/Stage V engines feature an SCR system that utilizes a urea-based additive, sometimes referred to as diesel exhaust fluid (DEF). The ammonia in the urea mixes with engine exhaust gases in the SCR catalyst to reduce NOx – converting it to nitrogen and water vapor. This is an accepted technology for reducing NOx in nonattainment areas.

## Always at your side

### Warranty support when you need it

John Deere provides one of the best warranties in the business. Our 2-year/2,000-hour standard warranty applies not only to the new OEM engine but also to John Deere parts and accessories added by a John Deere engine distributor.\*

Register your John Deere OEM engine and enable your John Deere dealer or engine distributor to respond should you need a warrantable repair.† Registering your engine at [JohnDeere.com/OEMWarranty](http://JohnDeere.com/OEMWarranty) gives us the information needed to stock the right service parts, maintenance products, and servicing tools.

\* When sold and installed by John Deere or its authorized dealers and distributors.

† See specific OEM product warranty language for applicable terms and conditions. Refer to the John Deere new engine warranty for complete warranty coverage details.

Note: the 2-year/2,000-hour standard warranty and OEM engine registration may not be available in all countries.



### Worldwide locations

#### North America, South America, and Caribbean

John Deere Power Systems  
3801 West Ridgeway Avenue  
P.O. Box 5100  
Waterloo, IA 50704-5100  
Phone: 800-533-6446 (U.S.)  
Phone: 319-292-6060 (Outside the U.S.)  
Fax: 319-292-5075  
Email: [JDPower@JohnDeere.com](mailto:JDPower@JohnDeere.com)

#### Mexico and Central America

Industrias John Deere S.A. de C.V.  
Boulevard Diaz Ordaz No. 500  
Garza Garcia, Nuevo Leon 66210  
Mexico  
Phone: +52-81-8288-1212  
Fax: +52-81-8288-8284  
Email: [MexWeb@JohnDeere.com](mailto:MexWeb@JohnDeere.com)

#### Europe, Africa, Middle East, Australia, and New Zealand

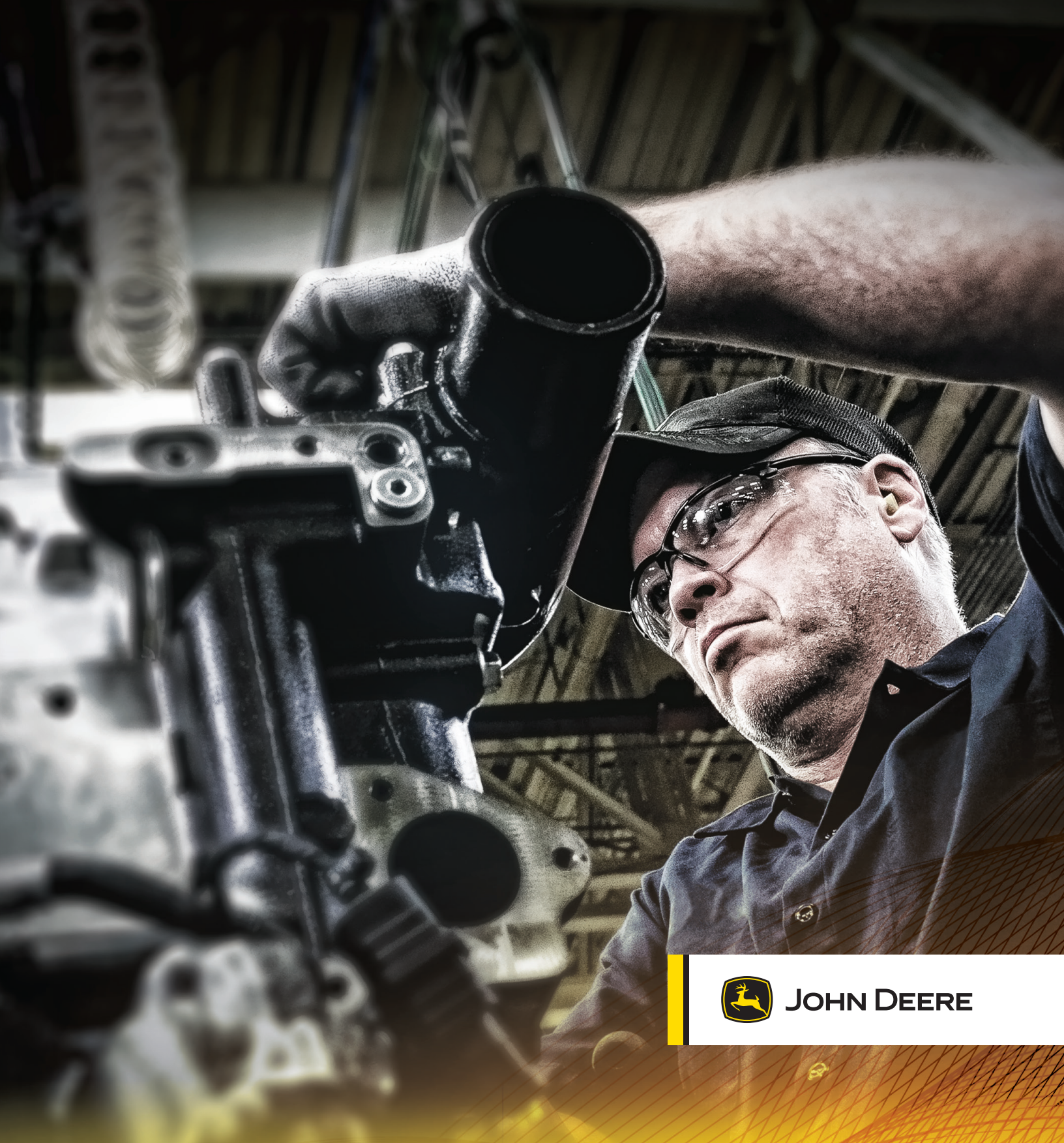
John Deere Power Systems  
Orléans-Saran Unit  
1, rue John Deere – B.P. 11013  
45401 Fleury-les-Aubrais Cedex  
France  
Phone: +33-2-38-82-61-19  
Fax: +33-2-38-84-62-66  
Email: [JDEngine@JohnDeere.com](mailto:JDEngine@JohnDeere.com)

#### Asia

John Deere Asia (Singapore) Pte. Ltd.  
#06-02/03 Alexandra Point  
438 Alexandra Road  
119958 Singapore  
Phone: +65-6879-8800  
Fax: +65-6278-0363  
Email: [JDAsiaEngines@JohnDeere.com](mailto:JDAsiaEngines@JohnDeere.com)







**JOHN DEERE**

*This literature has been compiled for worldwide circulation. While general information, pictures and descriptions are provided, some illustrations and text may include finance, credit, insurance, product options and accessories NOT AVAILABLE in all regions. PLEASE CONTACT YOUR LOCAL AUTHORIZED JOHN DEERE DEALER OR DISTRIBUTOR FOR DETAILS. John Deere reserves the right to change specification, design and price of the products described in this literature without notice. John Deere's green and yellow color schemes, the leaping deer symbol, and JOHN DEERE are trademarks of Deere & Company.*

