



**KOHLER®**

**HYBRID**

## K-HEM Series

| Hybrid Engines

56+ kW

Power up with sustainable efficiency.  
Discover the K-HEM Hybrid Engine.

# Kohler hybrid solution optimizes the use of *multiple energy sources* to provide quiet, compact and efficient power for today's advanced applications.

## What is it?

K-HEM stands for KOHLER Hybrid Energy Module and is a full hybrid, diesel-electric power unit. Coupled at the main PTO with an electric machine, the combustion engine delivers a peak power of 55 kW, and can work as generator as well as motor.

Such configuration is called parallel hybrid and is capable of generating electric energy to be stored in the battery, as well as adding this energy as electric power to the mechanic power.

## What does it offer?

### RIGHT SIZE

- K-HEM allows the downsizing of the diesel engine, while maintaining the same level of maximum power of larger engines.

### POWER RECOVERY

- Application allowing, K-HEM can also recharge the battery in power recovery mode

### BETTER RESPONSE

- Electric power improves the transients.
- Better user experience.

### LOWER COST OF OWNERSHIP

- Improved fuel economy for cyclic loads.
- Better power management.
- Lower aftertreatment costs (no SCR)
- Lower liquids consumption (fuel, AdBlue)

### ELECTRONIC CONTROL



Kohler offers a high level of integration with K-HEM: CURTIS Instruments sister company provides the power unit with a specific electronic control, very efficient and compact.

### BATTERY

Although Kohler doesn't include the battery in the scope of supply of the K-HEM 56+ kW, the OEM is assisted by us in battery sizing and definition. We have also selected, a specific battery partner to reduce development's time and grant a perfect control matching between the power unit and the battery itself.

# K-HEM 56+ kW:

## A COMPLETE POWER SYSTEM

The new K-HEM 56+ kW can be specified on the vehicle according to two main guidelines: footprint and power.

The base diesel engines involved are the successful and celebrated KDI 1903 (1.9 L, 3 cylinders) and KDI 2504 (2.5 L, 4 cylinders) in a: 48 V or 96 V setup.

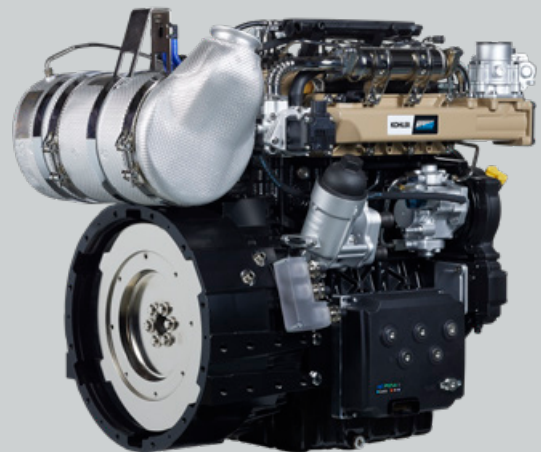
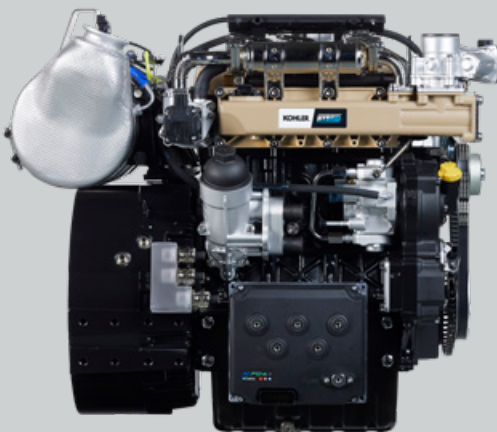
## 48 V setup

- Low voltage system, not requiring additional safety compared to 12/24 V systems.
- Additional peak electric power of 20 kW, continuous power of 16 kW.
- Additional peak electric torque of 140 Nm, continuous torque of 102 Nm.
- The K-HEM 1903 48 V features the same axial footprint as the KDI 2504 TCR, and increased power.

## 96 V setup

- High voltage system.
- Additional peak electric power of 40 kW, continuous power of 32 kW.
- Additional peak electric torque of 195 Nm, continuous torque of 140 Nm.
- Very compact footprint.

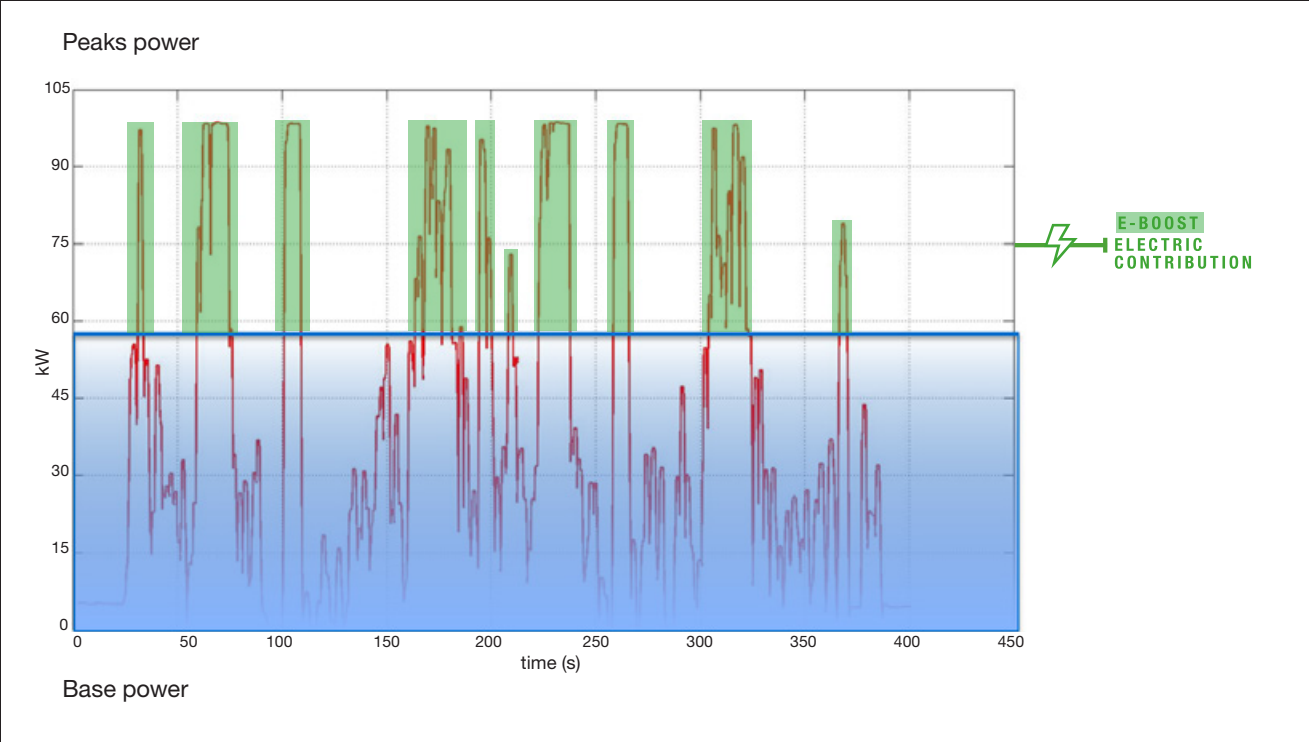
### K-HEM 1903



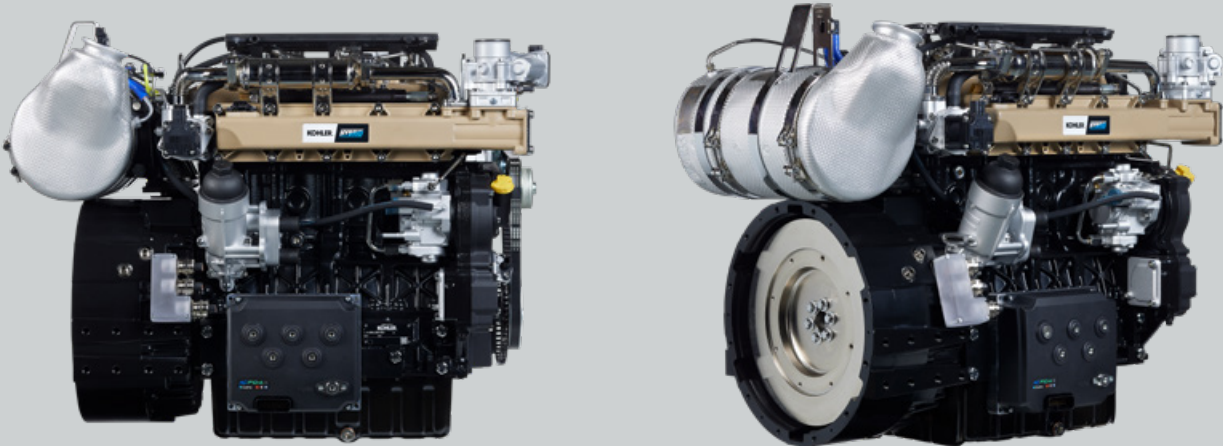
*Inverter shown in picture as loose part of Kohler's supply. Not to be considered as assembled to the engine.*

# How does it work?

The electric machine can recharge the battery while the diesel engine is working at average power.



K-HEM 2504

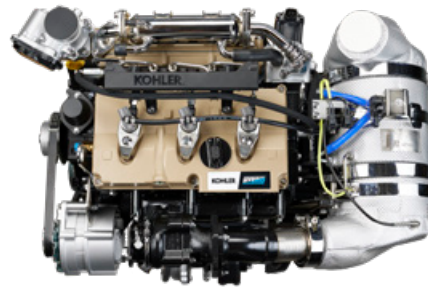


## K-HEM 2504



MODEL	K-HEM 2504 48V	K-HEM 2504 96V
GROSS POWER @ rpm max kW (hp)	55.4 + 20 PEAK ELECTRIC @ 2000+2600 (75.0 + 27.0 PEAK ELECTRIC)	55.4 + 40 PEAK ELECTRIC @ 2300+2600 (75.0 + 54.0 PEAK ELECTRIC)
PEAK TORQUE @ rpm (Nm)	446 @ 1300 rpm	510 @ 1500 rpm
ARCHITECTURE	4 CYLINDER + E-MACHINE	4 CYLINDER + E-MACHINE
INTAKE	TURBOCHARGED	TURBOCHARGED
INJECTION	COMMON RAIL DIRECT INJECTION	COMMON RAIL DIRECT INJECTION
VALVES	4 PER CYLINDER	4 PER CYLINDER
DISPLACEMENT (cc)	2482	2482
KOHLER FLEX ATS	EGR + DOC + DPF	EGR + DOC + DPF
EMISSION COMPLIANCE DIESEL ENGINE	EU STAGE V / US TIER 4 FINAL	EU STAGE V / US TIER 4 FINAL
ELECTRIC MACHINE VOLTAGE	48V DC	96V DC
SYSTEM ELECTRONIC CONTROL	KOHLER - CURTIS INTEGRATED	KOHLER - CURTIS INTEGRATED

## K-HEM 1903



MODEL	K-HEM 1903 48V	K-HEM 1903 96V
GROSS POWER @ RPM max kW (hp)	42.0 + 20.0 PEAK ELECTRIC @ 2300+2600 (56.0 + 27.0 PEAK ELECTRIC)	42.0 + 40.0 PEAK ELECTRIC @ 2400+2600 (56.0 + 54.0 PEAK ELECTRIC)
PEAK TORQUE @ RPM (Nm)	360 @ 1300	415 @ 1500
ARCHITECTURE	3 CYLINDER + E-MACHINE	3 CYLINDER + E-MACHINE
INTAKE	TURBOCHARGED	TURBOCHARGED
INJECTION	COMMON RAIL DIRECT INJECTION	COMMON RAIL DIRECT INJECTION
VALVES	4 PER CYLINDER	4 PER CYLINDER
DISPLACEMENT (cc)	1861	1861
KOHLER FLEX ATS	EGR + DOC + DPF	EGR + DOC + DPF
EMISSION COMPLIANCE DIESEL ENGINE	EU STAGE V / US TIER 4 FINAL	EU STAGE V / US TIER 4 FINAL
ELECTRIC MACHINE VOLTAGE	48V DC	96V DC
SYSTEM ELECTRONIC CONTROL	KOHLER - CURTIS INTEGRATED	KOHLER - CURTIS INTEGRATED

For more information, contact your KOHLER source of supply.  
Kohler Co. reserves the right to make modifications without prior notice.

**KOHLER**®

[kohlerengines.com](http://kohlerengines.com)

Printed in Italy ED0035585730 Rev.06 03/23 Eng KOHLER CO.