

KOHLER'S NEW TIER 4 FINAL DIESEL

KD 420 uses larger displacement, EGR to meet sub-25 hp standards



Kohler Engines has unveiled its newest diesel engine for Tier 4 final. The single-cylinder Kohler KD 420 is rated 9.8 hp at 3600 rpm and it targets a wide range of commercial, industrial and outdoor power applications including water pumps, pressure washers, air compressors, two-wheel tractors, agricultural mowers, hydroseeders and portable generator sets.

now offers five air-cooled Tier 4 final diesels below 25.5 hp (see related chart).

“Kohler Engines has been committed to minimizing the effect of EPA Tier 4 on our outdoor power equipment manufacturing customers and, by extension, consumers,” said Cam Litt, manager – marketing, Kohler Engines. “Employing a combination of improvements, all Kohler diesel engines currently subject to Tier 4 final emissions standards have achieved them — and they still produce the same level of power and performance.

“Additionally, Kohler Engines’ OEM customers haven’t needed to

BY MIKE BREZONICK

While other segments of the diesel engine world wrestle with the newly implemented (for engines 175 to 750 hp) or upcoming (75 to 175 hp) Tier 4 interim emissions standards, it’s sometimes overlooked that in some power bands, Tier 4 final has already arrived.

Such is the case for engines below 25 hp. To meet those standards, Kohler Engines has unveiled its newest diesel engine — the single-cylinder Kohler KD 420.

Rated 9.8 hp at 3600 rpm, the new air-cooled diesel targets a wide range of commercial, industrial and outdoor power applications including water pumps, pressure washers, air compressors, two-wheel tractors, agricultural mowers, hydroseeders and portable generator sets.

With that introduction, Kohler

New Command Pro Engines Feature Quad-Clean Air System

Kohler Engines has added a new top end to its Kohler Command Pro single-cylinder, horizontal shaft commercial gasoline utility engine range. The new 14 gross hp CH440 joins the existing CH270 (7 gross hp) and CH 395 (9.5 gross hp) engines, all of which target a broad range of commercial utility, construction and landscaping applications. These include pressure washers, concrete mixers, spreaders, trenchers, ground pounders, concrete saws, screeds, air compressors, portable generators, utility vehicles, power rakes, pumps, chipper/shredders, sprayers, scariers, stump cutters, sweepers,

tillers, blower/vacuums and rental outdoor power equipment.

The CH440 is an OHV, slant-cylinder engine with a displacement of 429 cc on a bore and stroke of 89 mm. x 69 mm. It incorporates a range of commercial engine features, including forged steel crankshafts, cast iron cylinder liners, Stellite-faced exhaust valves with Tuftride-coated stems and dual main ball bearings for maximum side load capability.

All of the Command Pro engines also now incorporate the Kohler Quad-Clean system standard. Quad-Clean is a heavy-duty, four-stage cyclonic air cleaning system that also includes cold weather optimization.

make major adjustments to accommodate Tier 4 final-compliant Kohler diesel engines.”

The new engine utilizes many of the technologies that have proved to be fundamental to meeting Tier 4 emissions at any level. These include exhaust gas recirculation, which is used to reduce in-cylinder temperatures and reduce NO_x

formation; higher-pressure fuel injectors and pumps; an optimized combustion chamber; and improvements in engine timing.

“We previously had a KD 400, which wasn’t Tier 4 compliant,” said Jeff Wilke, product manager for Kohler Diesels. “We came up with this model for Tier 4 final.

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Kohler Engines has added a new top end to its Kohler Command Pro single-cylinder, horizontal shaft commercial utility engine range. The new 14 gross hp CH440 targets a broad range of commercial utility, construction and landscaping applications and incorporates the Quad-Clean, an air filtration system designed to provide four stages of air cleaning within the same space as a conventional dual-stage air cleaning system.

“With our Quad-Clean four-stage cyclonic air intake cleaning system, Kohler has created a sum-of-the-parts air purification system,” said Cam Litt, manager – marketing, Kohler Engines. “It combines the best cleaning properties of a traditional dual-element system with cyclonic air cleansing, but unlike existing cyclonic air filtration devices, Kohler’s Quad-Clean system puts it all together.”

The Quad-Clean system is designed to provide four stages of air cleaning within the same space as a conventional dual-stage air cleaning system.

The first stage of the system is a mesh screen at the air intake port, which prevents ingress of some dirt and contaminants. When air

enters the cleaning chamber, it is directed into a rapid, cyclonic motion that forces larger contaminants out of the engine.

The remaining air is then sent through a reusable foam pre-cleaner, which traps mid-sized particles. In the final stage, the air is passed through a dual metal mesh-enforced pleated air filter. This filter, which Kohler said incorporates more pleats and provides 80% more surface area than comparable filters, captures fine particles and allows the engine to take in the cleanest air possible.

The system also offers a simplified way to optimize cold-weather operation. By unfastening two clips on the air cleaner cover and turning the air cleaner 180°, it allows intake

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Logan PTO with 100 gpm pump. (Guards removed for clarity)

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	Kohler Diesel Tier 4 Final Engines			
	Engine	Gross Rating	Displacement	Cylinders
	KD 350	6.7 hp	0.349 L	1
	KD 420	9.8 hp	0.442 L	1
	KD 425-2	18.8 hp	0.851 L	2
	KD 477-2	21.7 hp	0.954 L	2
	KD 625-2	25.2 hp	1.248 L	2
<i>Information from the manufacturer.</i>				

“It’s actually a bigger displacement engine. It went from 400 cc to 442 cc. That makes it a little bit stronger engine. It is rated the same horsepower, but the torque is a little higher (17 lb.ft. at 2200 rpm) because of the larger displacement.”

The change in displacement — the result of bore and stroke dimensions of 88 mm x 76 mm — did not change the engine’s overall size or mounting configurations, Wilke said.

“It’s the same package as before,” he said. “The same width, height and

length, so anyone who was using the KD 400 can basically see this as a drop-in replacement.”

Wilke said that the predecessor KD 400 had established a specific appeal in applications such as generators, pumps and pressure washers. “We saw a huge influx of business because of the oil spill in the Gulf for pumps and pressure washers,” he said. “We’ve seen a continuing demand for several of our engines in our diesel product offering.”

Like all Kohler diesel engines, the new KD 420 will be built at the company’s Lombardini facilities in Italy. **dp**

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Kohler’s new Courage XT-6 Utility engine is rated 3.75 net hp at 3600 rpm and is designed for a range of consumer utility applications such as pressure washers, tillers, chipper/shredder/vacuums, string trimmers, brush cutters and log splitters.

air to be taken from near the muffler. As the air is warmer because of the radiant heat of the muffler, the air going into the engine is warmer, which helps prevent the carburetor from freezing in cold weather conditions.

No kits or tools are required to reposition the air cleaner and it is included at no additional cost, Kohler said.

Kohler Engines has also rounded out its Courage XT gasoline

engine lineup with the launch of the Courage XT-6 Utility engine. With a displacement of 149 cc, the air-cooled, vertical shaft engine is rated 3.75 net hp at 3600 rpm and is designed for a range of consumer utility applications such as pressure washers, tillers, chipper/shredder/vacuums, string trimmers, brush cutters and log splitters.

The Courage XT-6 Utility engine incorporates an overhead valve design, with cast-iron cylinder liners,

forged crankshafts and a flywheel ball bearing for durability. Bore and stroke is 70 mm x 45 mm with external dimensions of 16 in. x 13.2 in. x 10.8 in. (L x W x H).

It incorporates engine-mounted controls with front- or side-discharge muffler, fixed or six-position indexable recoil start system, bottom or side oil drain and paper or foam-only air cleaner.

All Courage XT series engines are certified to current EPA and CARB emissions standards. Engineered in the U.S., all of Kohler’s vertical shaft Courage engines are built at Kohler-YinXiang Ltd., Kohler’s Chongqing, China-based joint venture with YinXiang Ltd.

A video detailing the operation of Kohler’s Quad Clean system can be seen at: www.kohlerengines.com/difference/howquadcleanworks.htm. **dp**

— By Mike Brezonick

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