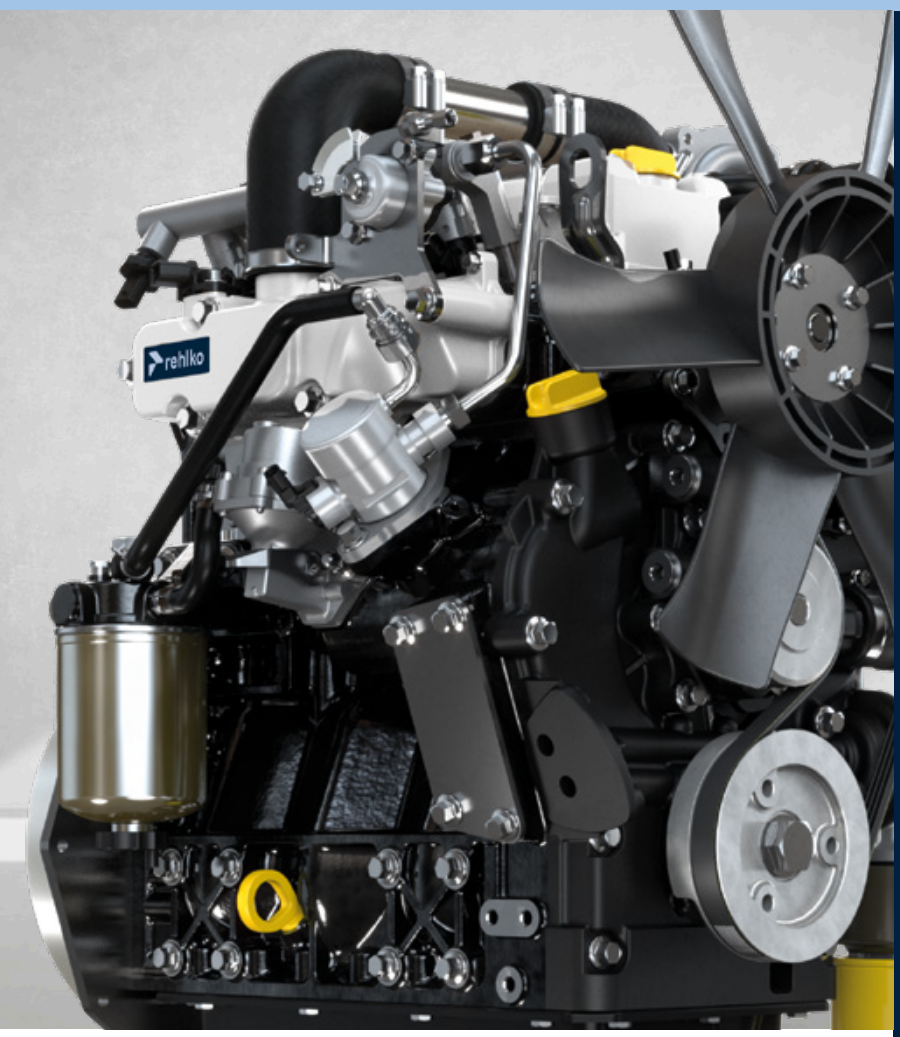
rehlko



Kohler Engines
is now Rehlko

KSD Series

Diesel Engines

18.4 kW | 24.7 hp

Experience the next level of engine technology, compatible with all types of non-road machines, compliant with all global exhaust emissions norms.

ELECTRONIC FUEL INJECTION INCREASES MACHINE PRODUCTIVITY

DURABLE COMPONENTS ALLOW THE END USER TO USE THE MACHINE FOR LONGER

VERSATILE ENGINE OPTIONS FOR EASY-TO-INTEGRATE SOLUTIONS ON MACHINES

COMPLIANCE TO GLOBAL EMISSION NORMS, PROMOTING LEAN INVENTORY MANAGEMENT

Innovations and benefits

EMISSIONS STANDARDS

The wide variety of emission standards has introduced a new level of complexity to the engines business. The KSD is a new base engine below 19 kW that complies with all global emissions standards and fuels.

ELECTRONIC CONTROL

The versatility of KSD engines goes beyond performance, with the ability to easily fit into existing machine platforms. KSD engines are electronically managed, while being as simple to use as mechanical engines. The fuel system allows precise fuel metering and excellent load response, resulting in increased productivity. Moreover, KSD engines offer switchability for gensets.

COMBUSTION SYSTEM

The innovative technology brought on by the KSD is its architecture: it features a state-of-the-art indirect injection system but has the electronic management typical of direct injection engines.

- The engine performance is maximized in every operating condition and environment.
- Outstanding engine response
- The remarkable low-end torque values allow the operator to run their piece of equipment at lower rpm to save fuel.
- The electronic injection system results in no visible black smoke.
- Noise and vibrations are minimized.

EASE OF INSTALLATION

Rehlko KSD engines require minimal machine re-designing from OEMs. As a result, KSD engines offer a drop-in solution for existing applications.

SERVICE & TOTAL COST OF OWNERSHIP

Rehlko KSD engines allow for prognostic, diagnostic, geolocation, and remote monitoring to minimize machine downtime.

Rehlko KSD engines offer 2.000 hours of service interval of the Poly-V fan belt and no valve lash adjustment. The service interval of up to 500 hours for both oil and fuel filters and a 3-year warranty provides up to 3000 hours of protection. This reduces the total cost of ownership, making KSD-powered applications extremely productive with increased uptime.

The indirect injection system does not affect the fuel consumption rate: on the contrary, the electronic management and the focus on clean combustion drive low oil and fuel consumption and avoid oil dilution as well as heavy soot oil contamination.

Turbo Common Rail Engines

Standard equipment

Intake manifold

Exhaust manifold

Side oil refilling

Electric starter

45A alternator

Backplate flange

7 ½" flywheel

Oil filter engine mounted
+ oil cooler

Fuel filter engine mounted

Engine Control Unit (ECU)

Oil sump capacity 3.7 L

J1939 enabled Wiring Harness

Accessories on demand

Flywheel housing (Flywheel):
- SAE 5 (6 ½")
- SAE 4 (7 ½")

Hydraulic pump provision
on 3rd PTO

Flexible fan position

High capacity
oil sump 5.3 L

Remote oil and fuel filter

80A or 60A alternator

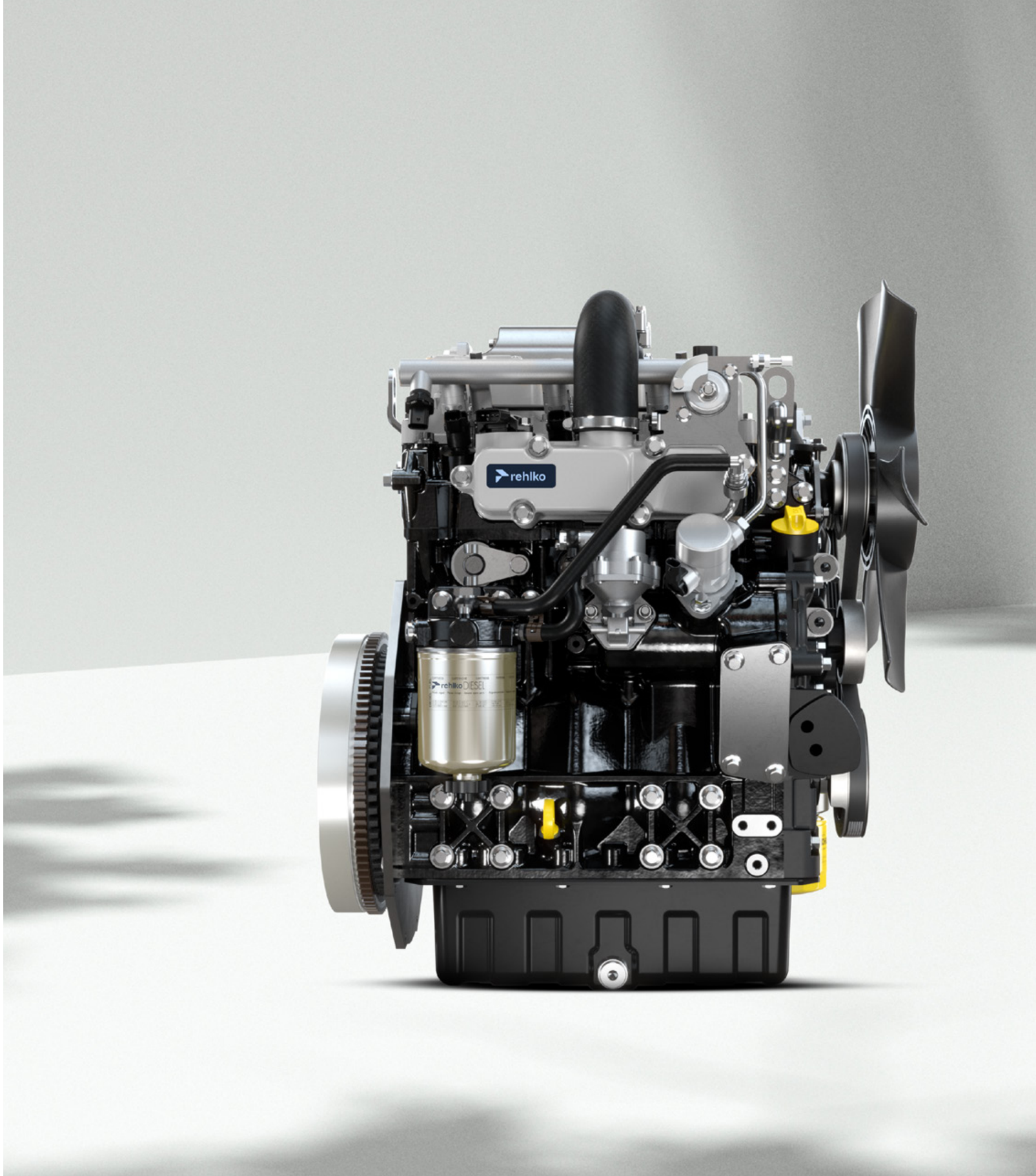
Full Capacity Wiring Harness

Muffler

Radiator

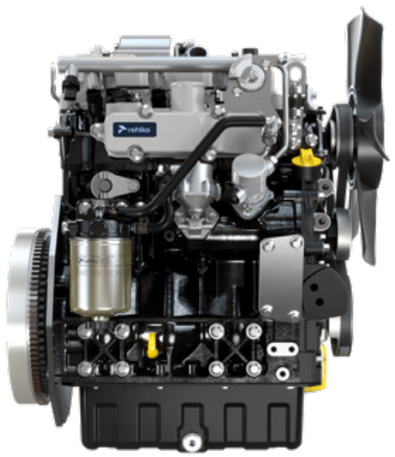
Heavy duty air cleaner

Arctic Boost
(≤–26°C startability)



KSD 1403TCA

Turbo Common Rail with Aftercooler



QUICK SPECIFICATIONS	KSD 1403TCA
CYLINDERS / FIE	3 / TURBO COMMON RAIL
MAX POWER kW (HP) @ rpm	18.4 (24.7) @ 3000 US TIER 4 FINAL 18.9 (25.7) @ 3000 STAGE V*
MAX TORQUE Nm (lb-ft) @ rpm	120 (88) @ 1400
EMISSION COMPLIANCE	EU STAGE V, US TIER 4 FINAL (EPA/CARB), BHARAT TREM V/CEV V

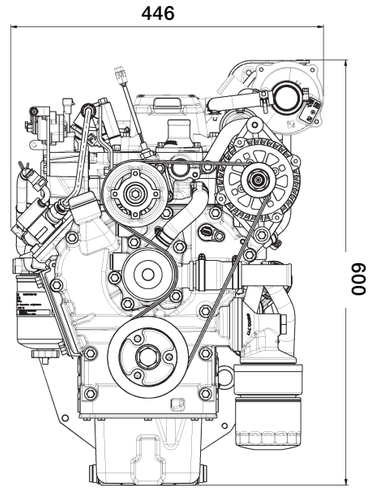
HVO APPROVED FOR HVO RENEWABLE FUEL

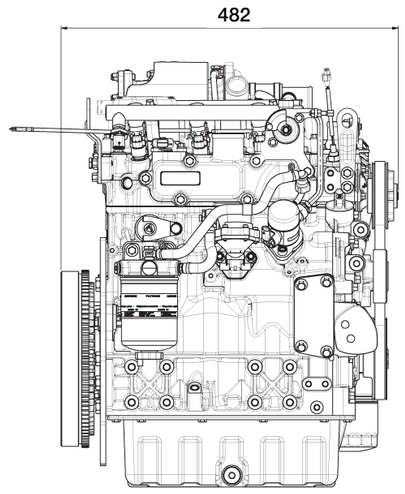
*Engine model with multiple emission compliance
(Stage V / Tier 4 Final (EPA/CARB) / Bharat TREM V, CEV V)

Photos may show non-standard equipment

Data

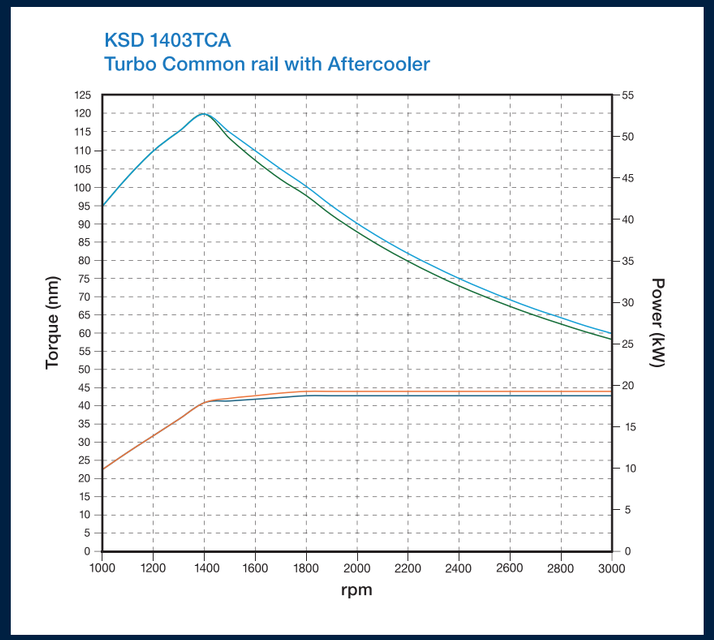
Dimensions (mm)





Performance curves

ACCORDING TO ISO 14396

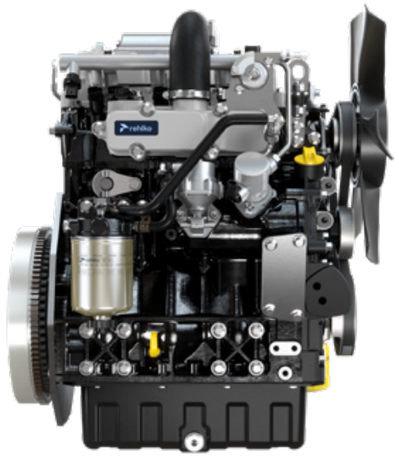


Performances measured according to ISO 14396 without final intake and exhaust line. Actual engine performances may be affected by accessories (intake and exhaust line, charging, cooling fan, etc.), application, ambient operating conditions (temperature, humidity, and altitude) and other factors.

Nominal curves,
production tolerances apply

KSD 1403TC

Turbo Common Rail



QUICK SPECIFICATIONS	KSD 1403TC
CYLINDERS / FIE	3 / TURBO COMMON RAIL
MAX POWER kW (HP) @ rpm	18.4 (24.7) @ 3000 US TIER 4 FINAL 18.9 (25.7) @ 3000 STAGE V*
MAX TORQUE Nm @ rpm	105 @ 1500
EMISSION COMPLIANCE	EU STAGE V, US TIER 4 FINAL (EPA/CARB), CHINA IV, BHARAT TREM V/CEV V

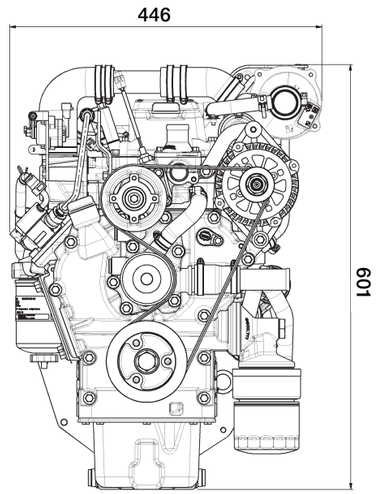
HVO APPROVED FOR HVO RENEWABLE FUEL

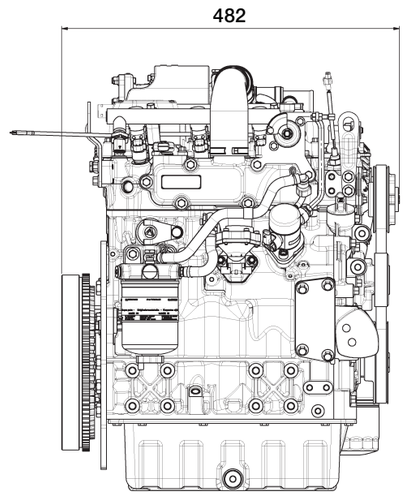
*Engine model with multiple emission compliance
(Stage V / Tier 4 Final (EPA/CARB) / China IV / Bharat TREM V, CEV V)

Photos may show non-standard equipment

Data

Dimensions (mm)

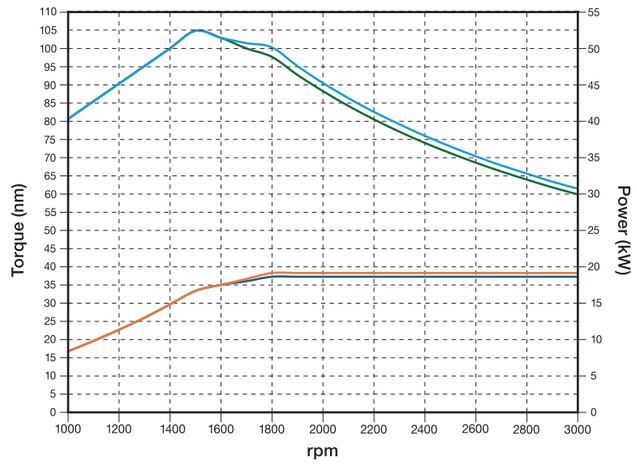




Performance curves

ACCORDING TO ISO 14396

KSD 1403TC
Turbo Common rail



Performances measured according to ISO 14396 without final intake and exhaust line. Actual engine performances may be affected by accessories (intake and exhaust line, charging, cooling fan, etc.), application, ambient operating conditions (temperature, humidity, and altitude) and other factors.

18.4kW Torque
18.9kW Torque
18.4kW Power
18.9kW Power

Nominal curves,
production tolerances apply

Naturally Aspirated Engines

Standard equipment

Intake manifold

Exhaust manifold

Side oil refilling

Electric starter

45A alternator

Backplate flange

7 ½" flywheel

Oil filter engine mounted

Fuel filter engine mounted

Engine Control Unit (ECU)

Oil sump capacity 3.7 L

Basic J1939 enabled Wiring Harness

Accessories on demand

Flywheel housing (Flywheel):
- SAE 5 (6 ½")
- SAE 4 (7 ½")

Hydraulic pump provision on 3rd PTO

Flexible fan position

High capacity oil sump 5.3 L

Remote oil and fuel filter

80A or 60A alternator

Full Capacity Wiring Harness

Muffler

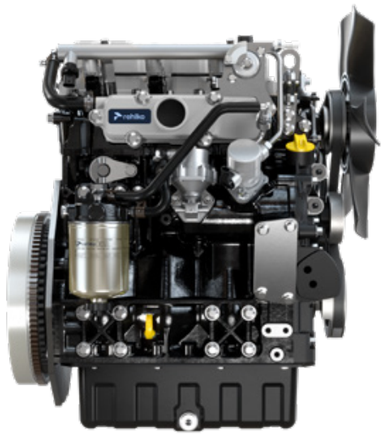
Radiator

Heavy duty air cleaner

Arctic Boost (≤–26°C startability)

KSD 1403NA

Naturally Aspirated



QUICK SPECIFICATIONS	KSD 1403NA
CYLINDERS / FIE	3 / COMMON RAIL
MAX POWER kW (HP) @ rpm	18.4 (24.7) @ 3000 US TIER 4 FINAL 18.9 (25.7) @ 3000 STAGE V*
MAX TORQUE Nm (lb-ft) @ rpm	90 (66) @ 1800
EMISSION COMPLIANCE	EU STAGE V, US TIER 4 FINAL (EPA/CARB), CHINA IV, BHARAT TREM V/CEV V

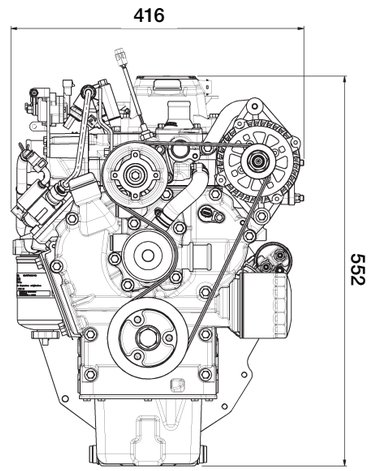
HVO APPROVED FOR HVO RENEWABLE FUEL

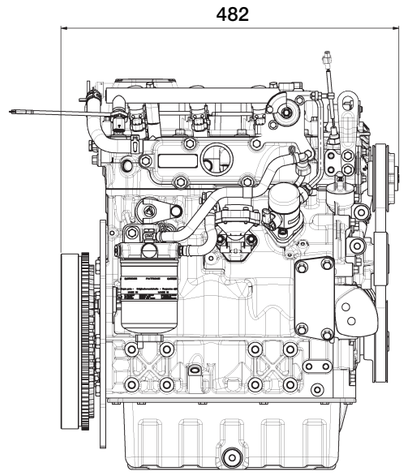
*Engine model with multiple emission compliance
(Stage V / Tier 4 Final (EPA/CARB) / China IV / Bharat TREM V, CEV V)

Photos may show non-standard equipment

Data

Dimensions (mm)

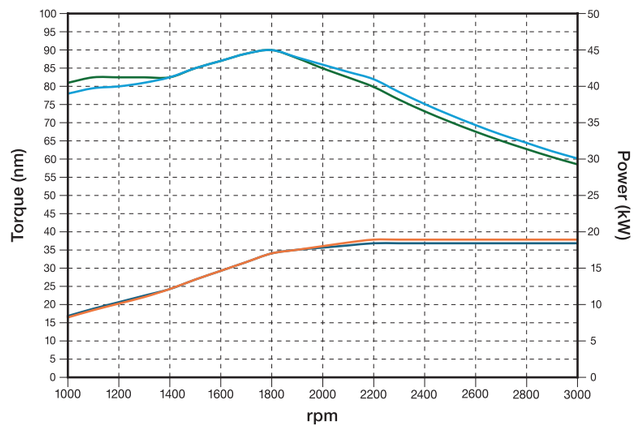




Performance curves

ACCORDING TO ISO 14396

KSD 1403NA
Naturally Aspirated



Performances measured according to ISO 14396 without final intake and exhaust line. Actual engine performances may be affected by accessories (intake and exhaust line, charging, cooling fan, etc.), application, ambient operating conditions (temperature, humidity, and altitude) and other factors.

18.4kW Torque
18.9kW Torque
18.4kW Power
18.9kW Power

Nominal curves,
production tolerances apply

Turbo Common Rail Engines

MODEL		KSD 1403TCA	KSD 1403TC
ENGINE SPECS	4 STROKE DIESEL WITH CYLINDER IN LINE	•	•
	LIQUID COOLING	•	•
	2 VALVES PER CYLINDER	•	•
	IN CRANKCASE CAMSHAFT, GEAR TRAIN DRIVEN	•	•
	PUSHROD – ROCKER ARMS TIMING WITH HYDRAULIC TAPPETS	•	•
	CAST IRON CRANKCASE	•	•
	CAST IRON CYLINDER HEAD	•	•
	CLOSED CRANKCASE VENTILATION SYSTEM	•	•
TECHNICAL FEATURES	CYLINDER	3	3
	BORE (mm)	81	81
	STROKE (mm)	90	90
	ENGINE DISPL (cm^3)	1391	1391
	INJECTION SYSTEM	IDI	IDI
	INJECTION EQUIPMENT	IDI COMMON RAIL	IDI COMMON RAIL
	AFTERCOOLER	•	–
PERFORMANCE	MAX POWER (ISO 14396) [kW(hp) @ rpm]	18.4 (24.7) @ 3000 US TIER 4 F 18.9 (25.7) @ 3000 STAGE V[1]	18.4 (24.7) @ 3000 US TIER 4 F 18.9 (25.7) @ 3000 STAGE V[1]
	MAX TORQUE (ISO 14396) (Nm @ rpm)	120 @ 1400	105 @ 1500
	LOW-END TORQUE (Nm @ 1000 rpm)	95	80
	EMISSION COMPLIANCE	EU STAGE V, US TIER 4 FINAL (EPA/CARB), BHARAT TREM V/CEV V	EU STAGE V, US TIER 4 FINAL (EPA/CARB), CHINA IV, BHARAT TREM V/CEV V
FUEL ECONOMY	BEST POINT (G/kWh)	242	245
	MAX POWER (G/kWh @ 1800 rpm)	255	256
STARTABILITY	UNAIDED (˚C)	DOWN TO –15	DOWN TO –15
	UNAIDED (˚C) WITH ARCTIC BOOST	DOWN TO –26	DOWN TO –26
	AIDED (˚C) [COOLANT HEATER]	BELOW –26	BELOW –26
FUEL COMPATIBILITY	EN 590	•	•
	NO 1 DIESEL (US) – ASTM D 975-09 B – GRADE 1-D S 15	•	•
	NO 2 DIESEL (US) – ASTM D 975-09 B – GRADE 2-D S 15	•	•
	ARCTIC EN 590/ASTM D 975-09 B (NO PETROLEUM ADDED)	•	•
	HIGH SULFUR FUEL < 2000 PPM *	•	•
	HVO - HYDROTREATED VEGETABLE OIL	•	•
SERVICE FEATURES	OIL/FILTER CHANGE INTERVAL STD/SYNTHETIC (HR)	500–1000**	500–1000**
	ALTERNATOR BELT REPLACEMENT	36 MTH	36 MTH
	COOLANT CHANGE	24 MTH	24 MTH
	OIL CONSUMPTION (% FUEL)	<0.05	<0.05
PHYSICAL CHARACTERISTICS	H×L×W (FAN EXCLUDED) (mm)	600 X 482 X 445	600 X 482 X 445
	WEIGHT (kg)	126	127
	DAILY SERVICE POINTS – POSITIONS	OPTIONAL SINGLE SERVICE SIDE (SELECT SIDE)	OPTIONAL SINGLE SERVICE SIDE (SELECT SIDE)
	AMBIENT OPERATING TEMPS (˚C)	–40 TO + 50***	–40 TO + 50***
	GRADEABILITY-ALL ROUND (CONTINOUS) (Deg)	35	35
	GRADEABILITY-ALL ROUND (INTERMITTENT-1MIN) (Deg)	45	45
LUBRICATION	OIL TYPE	10W-40 API CI4	10W-40 API CI4
AUXILIARY PTOS (3RD OPTIONAL)	MAX TORQUE (Nm)	40	40
	DRIVE RATIO	1:1 TIMES ENGINE SPEED	1:1 TIMES ENGINE SPEED
	PROVISION FOR A DOUBLE GR.2 TANDEM HYDRAULIC PUMP	•	•

* With restrictions ** According to operating conditions *** Case by case evaluation for special application requirements.
[1] Engine model with double emission compliance (Stage V/Tier 4 Final): 18.4 kW (24.7 hp) @ 3000 rpm

Naturally Aspirated Engines

MODEL		KSD 1403NA
ENGINE SPECS	4 STROKE DIESEL WITH CYLINDER IN LINE	•
	LIQUID COOLING	•
	2 VALVES PER CYLINDER	•
	IN CRANKCASE CAMSHAFT, GEAR TRAIN DRIVEN	•
	PUSHROD – ROCKER ARMS TIMING WITH HYDRAULIC TAPPETS	•
	CAST IRON CRANKCASE	•
	CAST IRON CYLINDER HEAD	•
	CLOSED CRANKCASE VENTILATION SYSTEM	•
TECHNICAL FEATURES	CYLINDER	3
	BORE (mm)	81
	STROKE (mm)	90
	ENGINE DISPL (cm^3)	1391
	INJECTION SYSTEM	IDI
	INJECTION EQUIPMENT	IDI COMMON RAIL
	AFTERCOOLER	–
PERFORMANCE	MAX POWER (ISO 14396) [kW(hp) @ rpm]	18.4 (24.7) @ 3000 US TIER 4 FINAL 18.9 (25.7) @ 3000 STAGE V[1]
	MAX TORQUE (ISO 14396) (Nm @ rpm)	90 @ 1800
	LOW-END TORQUE (NM @ 1000 rpm)	70
	EMISSION COMPLIANCE	EU STAGE V, US TIER 4 FINAL, CHINA IV, BHARAT TREM V/CEV V
FUEL ECONOMY	BEST POINT (G/kWh)	243
	MAX POWER (G/kWh @ 2200 rpm)	253
STARTABILITY	UNAIDED (˚C)	DOWN TO –15
	UNAIDED (˚C) WITH ARCTIC BOOST	DOWN TO –26
	AIDED (˚C) [COOLANT HEATER]	BELOW –26
FUEL COMPATIBILITY	EN 590	•
	NO 1 DIESEL (US) – ASTM D 975-09 B – GRADE 1-D S 15	•
	NO 2 DIESEL (US) – ASTM D 975-09 B – GRADE 2-D S 15	•
	ARCTIC EN 590/ASTM D 975-09 B (NO PETROLEUM ADDED)	•
	HIGH SULFUR FUEL < 2000 PPM *	•
	HVO - HYDROTREATED VEGETABLE OIL	•
SERVICE FEATURES	OIL/FILTER CHANGE INTERVAL STD/SYNTHETIC (HR)	500–1000**
	ALTERNATOR BELT REPLACEMENT	36 MTH
	COOLANT CHANGE	24 MTH
	OIL CONSUMPTION (% FUEL)	<0.05
PHYSICAL CHARACTERISTICS	H×L×W (FAN EXCLUDED) (mm)	552 X 482 X 418
	WEIGHT (kg)	121
	DAILY SERVICE POINTS – POSITIONS	OPTIONAL SINGLE SERVICE SIDE (SELECT SIDE)
	AMBIENT OPERATING TEMPS (˚C)	–40 TO +50***
	GRADEABILITY-ALL ROUND (CONTINOUS) (Deg)	35
	GRADEABILITY-ALL ROUND (INTERMITTENT-1MIN) (Deg)	45
LUBRICATION	OIL TYPE	10W-40 API CI4
AUXILIARY PTOS (3RD OPTIONAL)	MAX TORQUE (Nm)	40
	DRIVE RATIO	1:1 TIMES ENGINE SPEED
	PROVISION FOR A DOUBLE GR.2 TANDEM HYDRAULIC PUMP	•

For more information, contact your Rehlko source of supply.

Discovery Energy, LLC reserves the right to make modifications without prior notice.

engines.rehlko.com

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