

LIQUID COOLED DIESEL ENGINES

8.6 – 47.0 kW | 11.5 – 63 hp



KOHLER®
IN POWER. SINCE 1920.

WATER COOLED DIESEL ENGINES

STANDARD EQUIPMENT

External spin-on type oil filter
Exhaust manifold
Intake manifold
Accelerator control
Electric starter motor and alternator 12V
Thermostat valve
Flywheel with ring gear
Fuel feeding mechanical pump
Coolant pump
Flanging backplate
Electric stop 12V
Glow Plug Control Unit 12V
Fuel filter engine mounted



ACCESSORIES ON DEMAND

Fan guard	Silencers
Clutch flywheels	Dry type air cleaners (engine mounted or loose)
Bell housings and flywheels	Air intake cyclonic pre-cleaners
Transmission adapters	High capacity oil sumps*
Key panels 12V or 24V	Cab heating provision
Wiring harnesses	Hydraulic pump adaptors
Radiators	Vacuum pump adaptors
Pushing fan	Electric fuel feeding pump
Suction fan	24V starter motor, glow plugs and alternator
Engine feet	
Fuel tanks	

* Not on KDW502 model

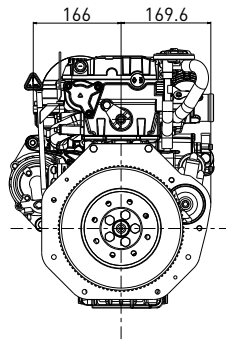
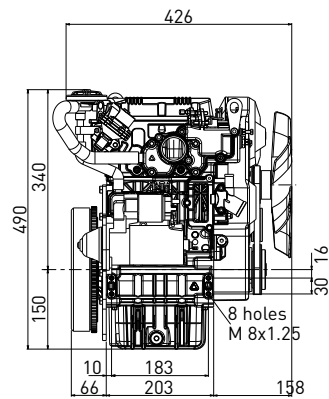
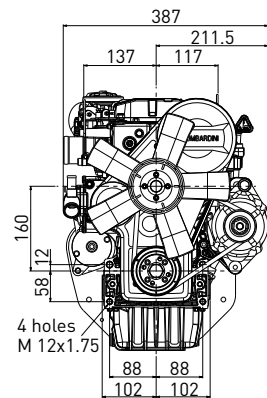
KDW

502



DATA

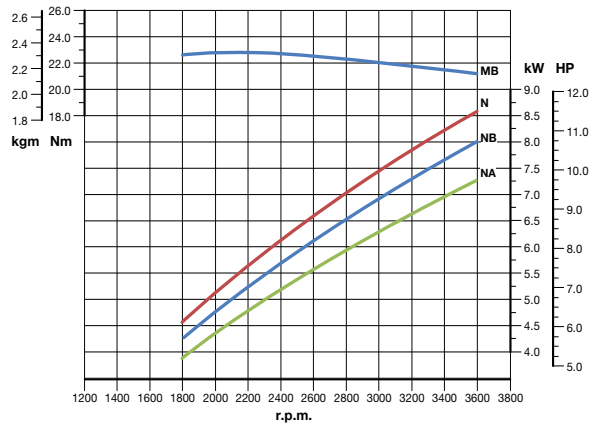
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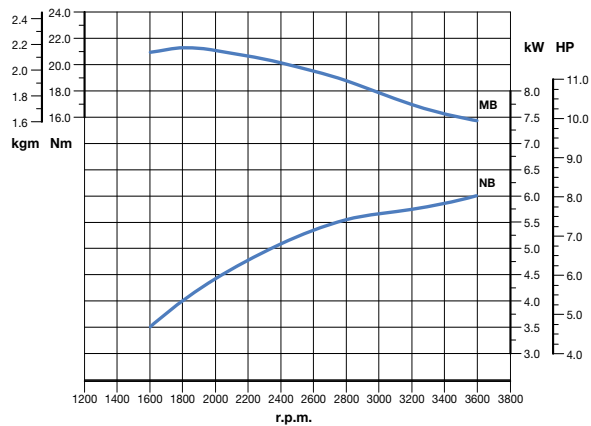
PERFORMANCE CURVES

(IFN-ACCORDING TO ISO 3046 and ISO 14396)

KDW502 ECE R 24



KDW502 Euro 4



- N - Power curve - 80/1269/CE E-ISO 1585
- NB - Power curve - ISO 3046/1 - IFN
- NA - Power curve - ISO 3046/1 - ICXN
- MB - Torque curve - (NB curve)

Power ratings refer to engines equipped with air filter, standard muffler, after running-in period at ambient conditions of +25°C, relative humidity 30% and 1 bar. Power drops by 1% every 100 m altitude and by 2% every 5°C above +25°C.

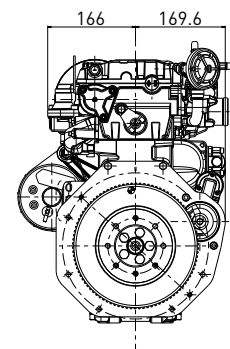
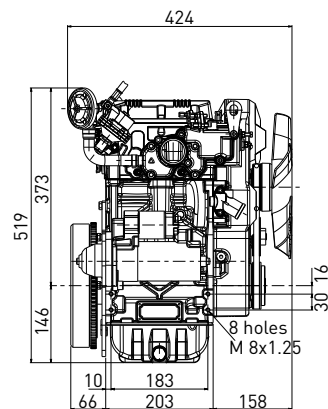
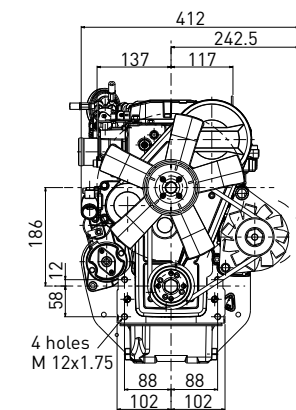
Quick specifications	KDW502 ECE R 24	KDW502 EURO 4
CYLINDERS	2	2
MAX POWER kW (hp)@rpm	8.0 (10.7) @ 3600	6.0 (8.0) @ 3000
MAX TORQUE Nm@rpm	23 @ 2000	21 @ 1800
EMISSION COMPLIANCE	ECE R 24	Euro 4 (for on-road quadricycle)

KDW
702



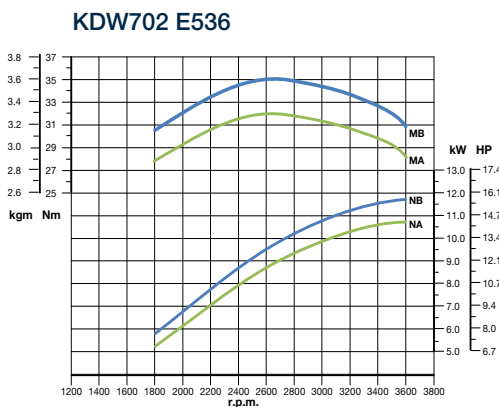
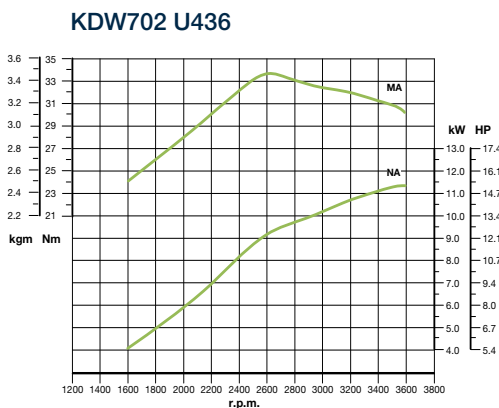
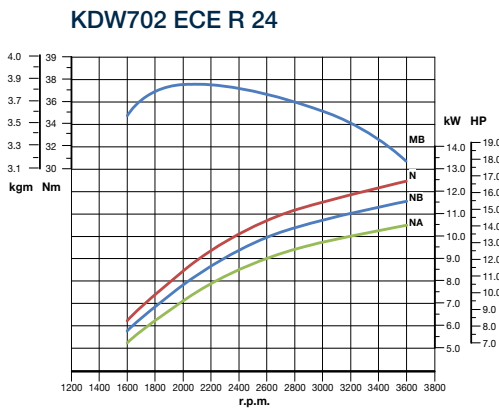
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Dimensions (mm)



PERFORMANCE CURVES

(IFN-ACCORDING TO ISO 3046 and ISO 14396)



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- MA - Torque curve - (NA curve)

Power ratings refer to engines equipped with air filter, standard muffler, after running-in period at ambient conditions of +25°C, relative humidity 30% and 1 bar. Power drops by 1% every 100 m altitude and by 2% every 5°C above +25°C.

Other available settings

Power (kW)@rpm	Torque (Nm)@rpm	Emission compliance
11.0 @ 3000 (NB)	35.0 @ 2200 (MB)	EU STAGE V
10.7 @ 3350 (NA)	33.0 @ 2600 (NA)	US TIER 4 FINAL

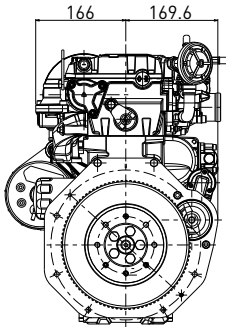
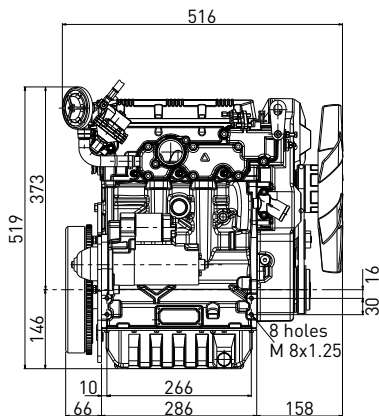
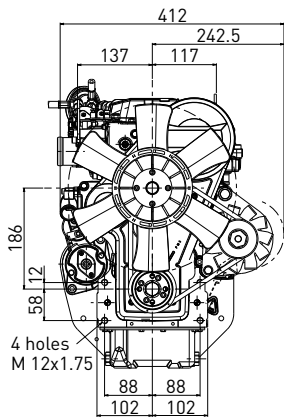
Quick specifications	KDW702 ECE R 24	KDW702 U436	KDW702 E536
CYLINDERS	2	2	2
MAX POWER kW (hp)@rpm	11.5 (15.4) @ 3600	11.5 (15.4) @ 3600	11.6 (15.5) @ 3600
MAX TORQUE Nm@rpm	37.8 @ 2000	34.0 @ 2600	35.0 @ 2600
EMISSION COMPLIANCE	ECE R 24	US TIER 4 FINAL	EU STAGE V

KDW
1003



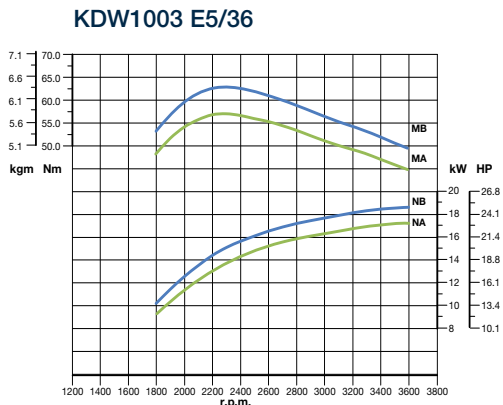
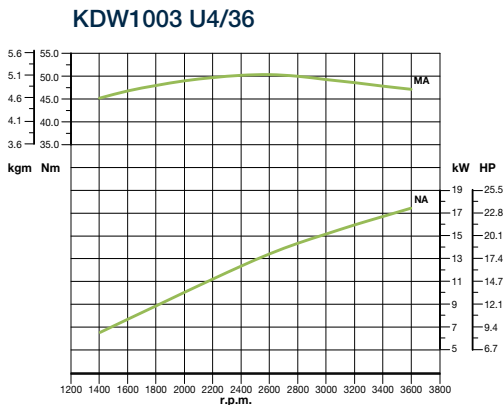
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Dimensions (mm)



PERFORMANCE CURVES

(IFN-ACCORDING TO ISO 3046 and ISO 14396)



- N - Power curve - 80/1269/CE E-ISO 1585
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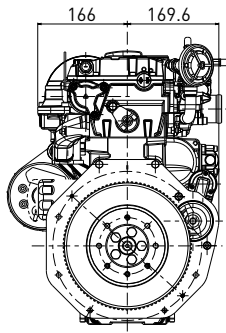
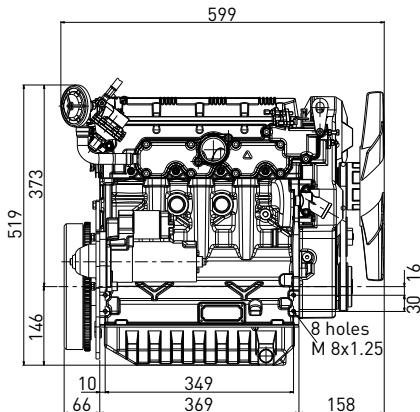
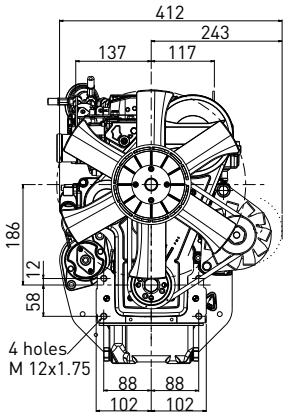
Power ratings refer to engines equipped with air filter, standard muffler, after running-in period at ambient conditions of +25°C, relative humidity 30% and 1 bar. Power drops by 1% every 100 m altitude and by 2% every 5°C above +25°C.

Other available settings

Table with 3 columns: Max Power (kW)@rpm, Max Torque (Nm)@rpm, and Emission compliance. It lists settings for EU STAGE V, US TIER 4 FINAL, and EU STAGE V.

Table with 4 columns: Quick specifications, KDW1003 ECE R 24, KDW1003 U436, and KDW1003 E536. It lists specifications for CYLINDERS, MAX POWER, MAX TORQUE, and EMISSION COMPLIANCE.

KDW
1404



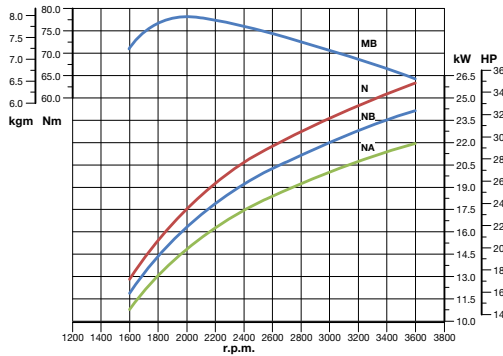
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Dimensions (mm)

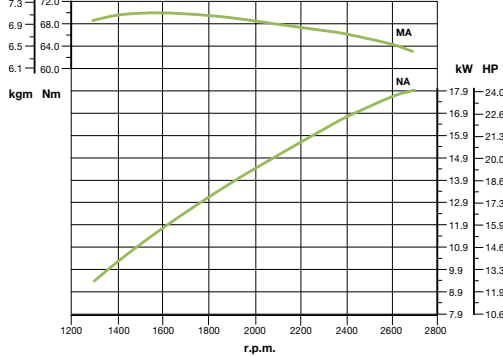
PERFORMANCE CURVES

(IFN-ACCORDING TO ISO 3046 and ISO14396)

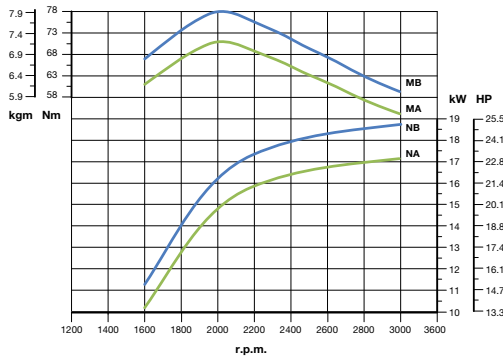
KDW1404 EA36



KDW1404 U436



KDW1404 E536



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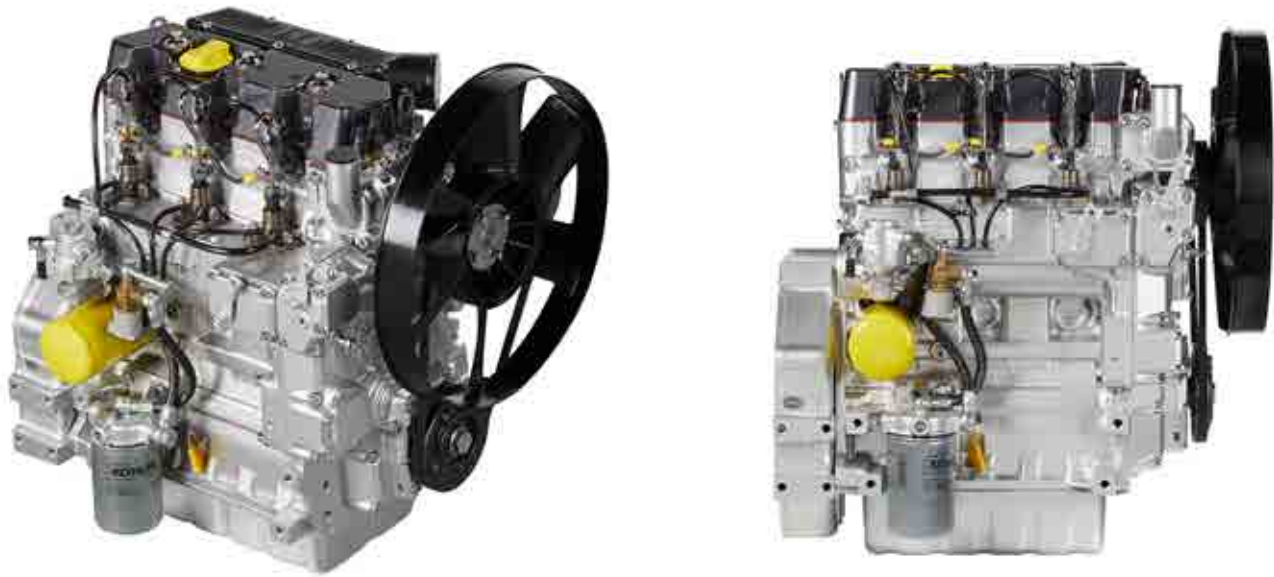
Power ratings refer to engines equipped with air filter, standard muffler, after running-in period at ambient conditions of +25°C, relative humidity 30% and 1 bar. Power drops by 1% every 100 m altitude and by 2% every 5°C above +25°C.

Other available settings

Max Power NB (kW)@rpm	Max Torque NB (Nm)@rpm	Emission compliance
18.8 @ 2700	78.0 @ 2000	EU STAGE V

Quick specifications	KDW1404 EA36	KDW1404 U436	KDW1404 E536
CYLINDERS	4	4	4
MAX POWER kW (hp)@rpm	24.5 (33.3) @ 3600	17.9 (24.3) @ 2700	18.8 (25.2) @ 3000
MAX TORQUE Nm@rpm	78.0 @ 2000	70.0 @ 1600	78.0 @ 2000
EMISSION COMPLIANCE	EU STAGE IIIA	US TIER 4 FINAL	EU STAGE V

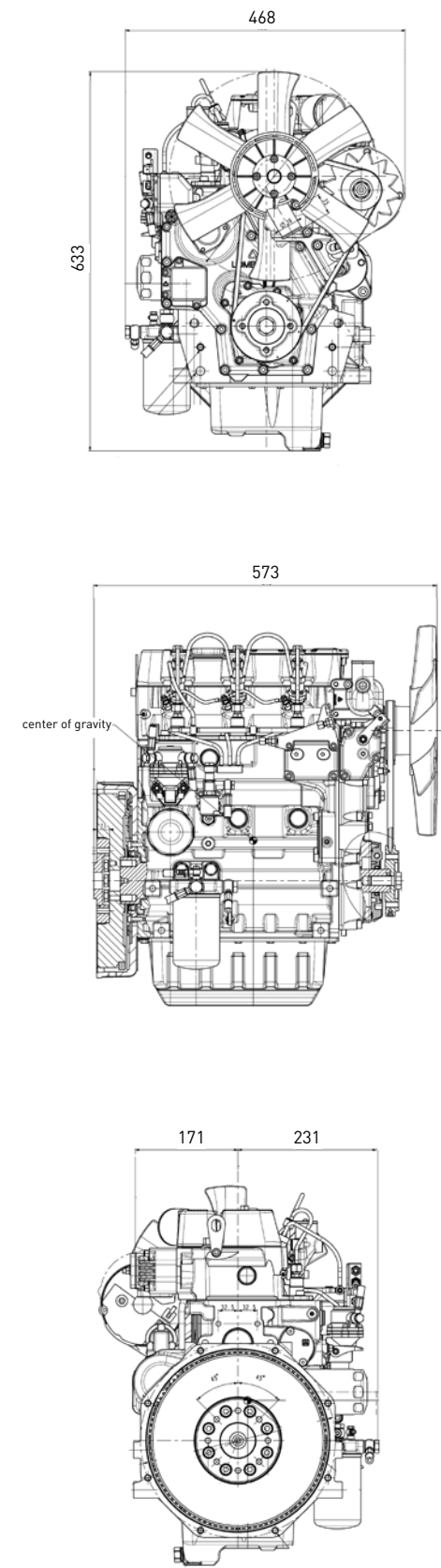
KDW
1603



Quick specifications	KDW1603 ECE R 24	KDW1603 UI30	KDW1603 E536
CYLINDERS	3	3	3
MAX POWER kW (hp)@rpm	27.6 (40.1) @ 3000	29 (38.9) @ 3000	18.8 (25.2) @ 2600
MAX TORQUE Nm@rpm	103 @ 1650	104 @ 1650	100 @ 1600
EMISSION COMPLIANCE	ECE R 24	US TIER 4 INTERIM	EU STAGE V

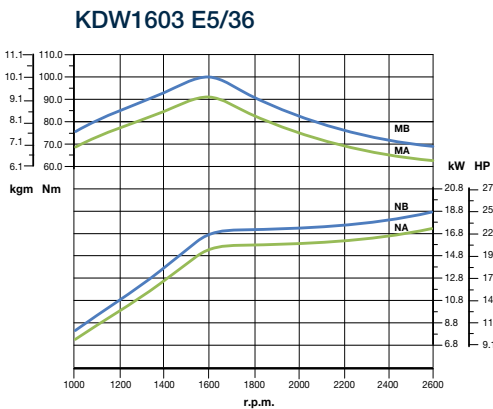
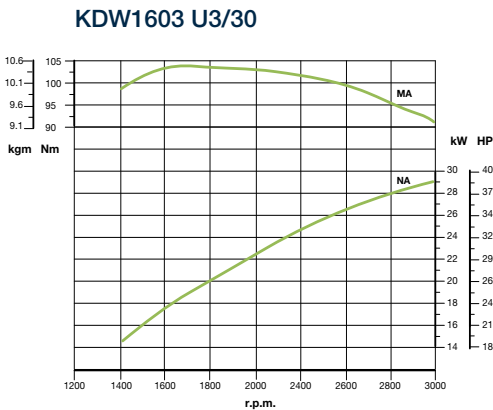
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Dimensions (mm)



PERFORMANCE CURVES

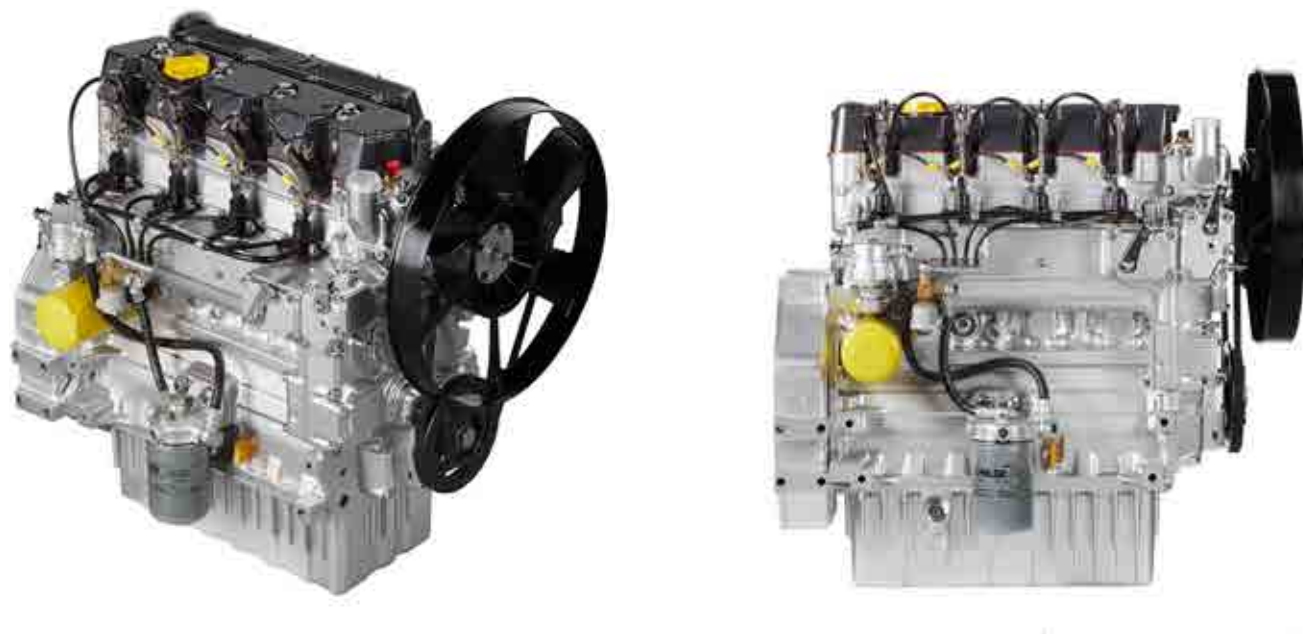
(IFN-ACCORDING TO ISO 3046 and ISO14396)



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- NA - Power curve - ISO 3046/1 - ICXN
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KDW
2204

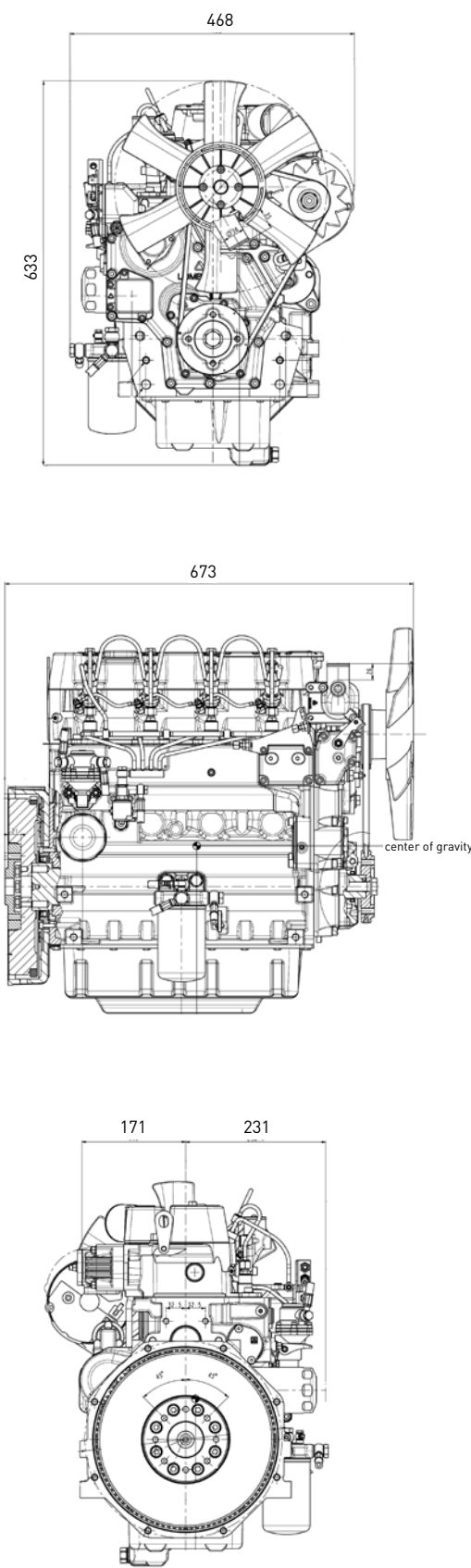


Quick specifications	KDW2204 ECE R 24	KDW2204 UI30
CYLINDERS	4	4
MAX POWER kW (hp)@rpm	34.5 (46.9) @ 3000	36.6 (49) @ 3000
MAX TORQUE Nm@rpm	130 @ 1800	132.5 @ 2100
EMISSION COMPLIANCE	ECE R 24	US TIER 4 INTERIM

(Power & torque NB curve - ISO 3046/1 - IFN)

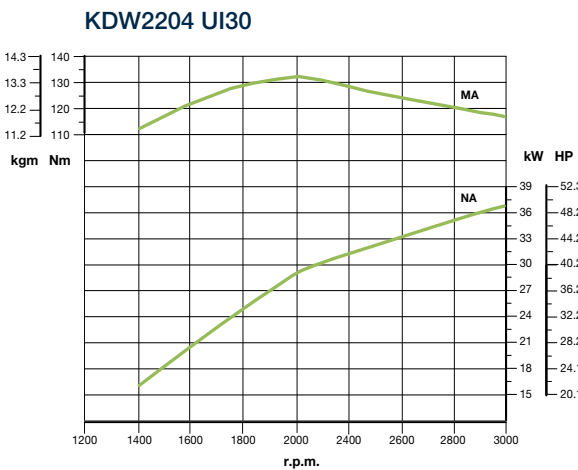
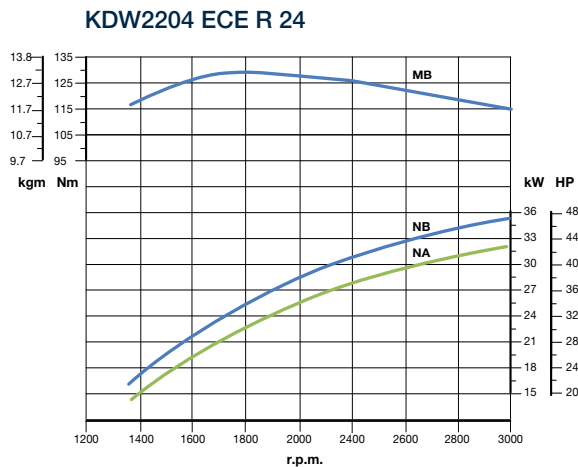
DATA

Dimensions (mm)



PERFORMANCE CURVES

(IFN-ACCORDING TO ISO 3046 and ISO14396)



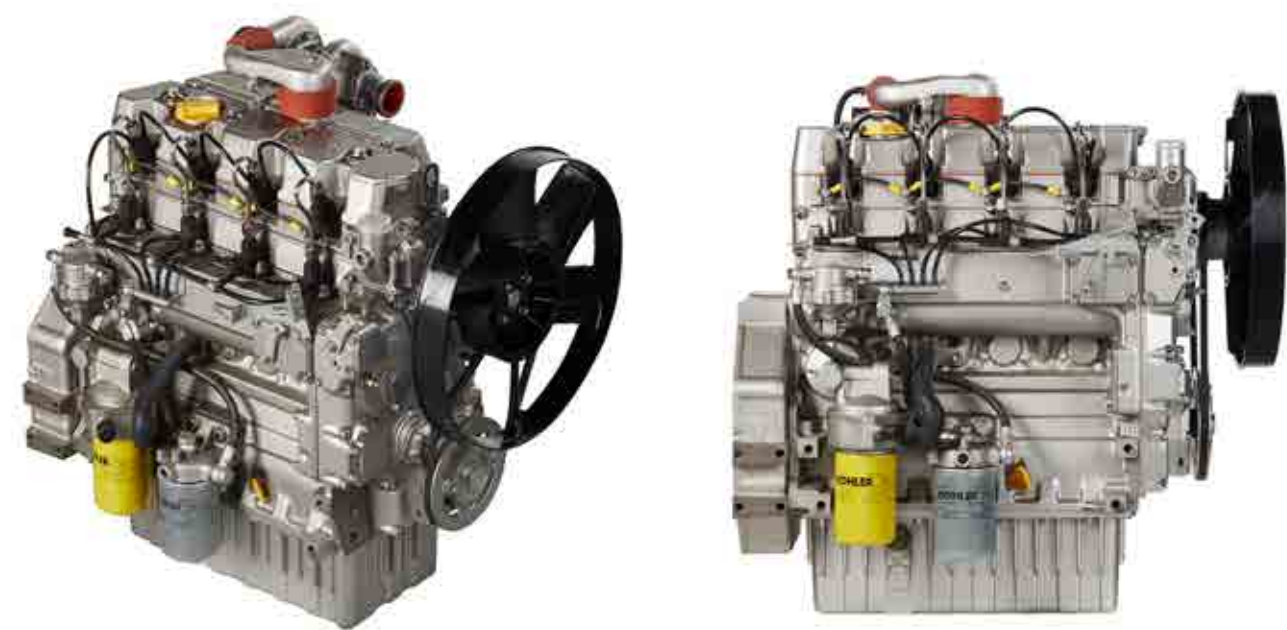
- NB - Power curve - ISO 3046/1 - IFN
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Other available settings

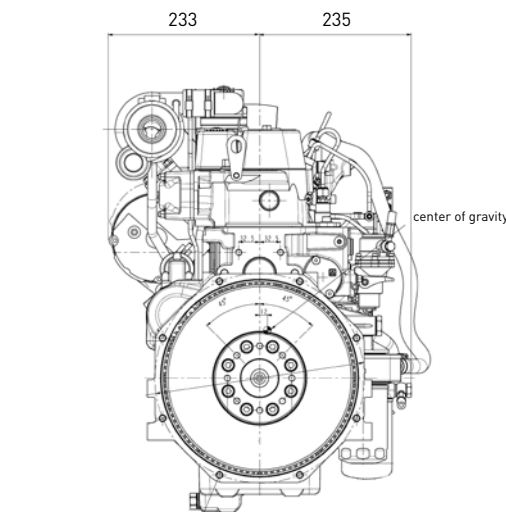
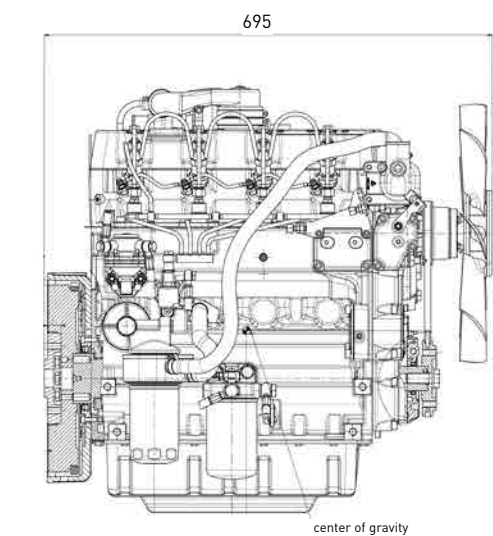
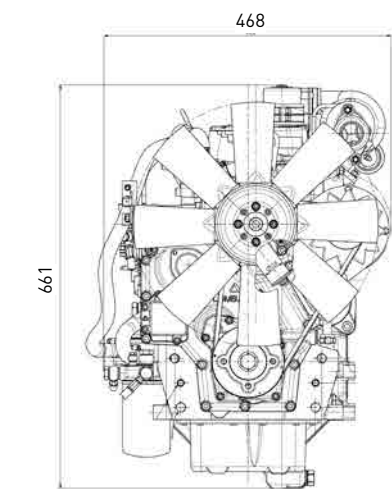
Max Power NB (kW)@rpm	Max Torque NB (Nm)@rpm
35 @ 3000	130 @ 2100

KDW
2204T



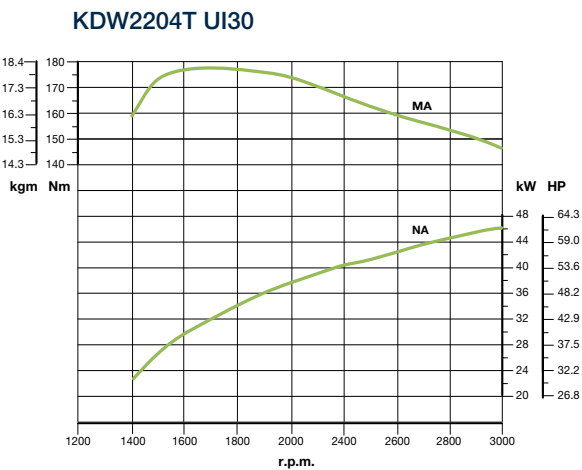
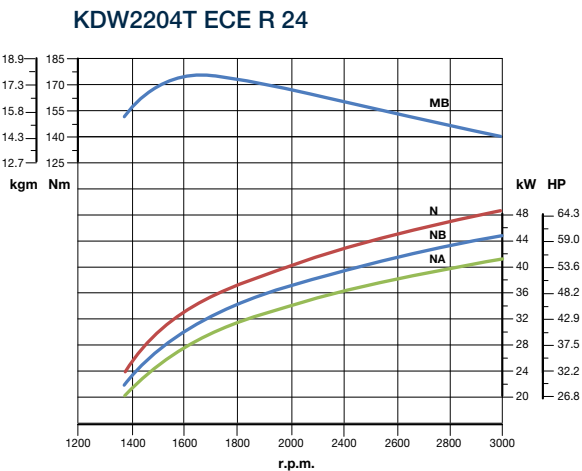
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Other available settings

Max Power NB (kW)@rpm	Max Torque NB (Nm)@rpm
44 @ 3000	176 @ 1700

Quick specifications	KDW2204T ECE R 24	KDW2204T UI30
CYLINDERS	4	4
MAX POWER kW (hp)@rpm	44.3 (60.2) @ 3000	46 (61.6) @ 3000
MAX TORQUE Nm@rpm	176 @ 1700	178 @ 1700
EMISSION COMPLIANCE	ECE R 24	US TIER 4 INTERIM

TECHNICAL SPECIFICATIONS

Model		KDW502		KDW702		
Engine specs	4 stroke diesel engine with cylinder in line	•		•		
	Liquid cooled	•		•		
	Indirect injection with injector pump on head	•		•		
	Overhead camshaft belt driven	•		•		
	Double PTO on crankshaft	•		•		
	3 rd PTO on the distribution	•		•		
	Counterclockwise rotation (1 st PTO)	•		•		
	Forced lubrication with vane pump on the crankshaft	•		•		
	Full flow external oil filter	•		•		
	Coolant pump in the engine block	•		•		
	Automatic extra fuel starting device	•		•		
	Centrifugal governor	•		•		
	Torque adapter	•		•		
	Aluminum cylinder head	•		•		
	Cast iron engine block with re-borable integral liners	-		•		
	Die-cast aluminum engine block with reinforced structure	•		-		
	2 valves per cylinder	•		•		
Closed crankcase ventilation system	•		•			
Cab heater provision	•		-			
Technical features	Cylinder	2		2		
	Bore (mm)	71,5		75		
	Stroke (mm)	62		77.6		
	Engine displ (cm³)	498		686		
	Injection system	IDI		IDI		
	Compression ratio	22.8:1		22.8:1		
Performance	Emission compliance	ECE R 24	Euro 4	ECE R 24	US TIER 4 FINAL	EU STAGE V
	Rating (kW/HP): N (80/1269/CEE)ISO 1585 NB ISO 3046 IFN NA ISO 3046 ICXN	(@ 3600) 8.6 /11.5 8.0 /10.7 7.3/ 9.8	(@ 3600) 6 /8 - -	(@ 3600) 12.5 /16.8 11.5 /15.4 10.7 /14.3	(@ 3600) - 11.5/15.4 -	(@ 3600) - 11.6/15.5 -
	Max torque (Nm@rpm)	23.0 @ 2000	21.0 @ 1800	37.8 @ 2000	34.0 @ 2600	35.0 @ 2600
	Min idling speed (rpm)	900		900		
Fuel compatibility	UNI EN 590-2010	•		•		
	No 1 Diesel (US) - ASTM D 975-09 B - Grade 1-D S 15	•		•		
	No 1 Diesel (US) - ASTM D 975-09 B - Grade 1-D S 500	•		•		
	No 2 Diesel (US) - ASTM D 975-09 B - Grade 2-D S 15	•		•		
	No 2 Diesel (US) - ASTM D 975-09 B - Grade 2-D S 500	•		•		
	ARCTIC EN 590/ASTM D 975-09 B	•		•		
	High Sulfur Fuel < 5000 ppm (< 0.5%)	•		•		
	High Sulfur Fuel > 5000 ppm (> 0.5%)	•		•		
	Military NATO Fuels F34 - F35 - F44 - F63 - F64 - F65 *	•		•		
	Military US Fuels JP5- JP8 (AVTUR) *	•		•		
	Jet Fuel -Jet A/ A1*	•		•		
Service features	Standard oil sump capacity (l)	1.4		1.6		
	Oil consumption (kg/h)	0.007		0.009		
	Oil change interval std/synthetic (hr)	150**		250**		
	Oil filter change interval std/synthetic (hr)	150**		250**		
Physical characteristics	H x L x W (mm)	490 x 426 x 387		519 x 424 x 412		
	Dry weight (kg)	54		66		
	Ambient operating temps (°C)	-15 +50***		-15 +50***		
	Gradeability-all round (intermittent -30 min) (deg)	25		25		
	Gradeability-all round (peak value -1 min) (deg)	35		35		
	Cap. of air required for correct combustion @3600 (l/min)	910		1240		
	Cap. of air required for correct cooling @3600 (m³/min)	65 (1:1.23)		65 (1:1.23)		
Lubrication	Oil type	SAE 5W 40 / API SJ/CF4		SAE 5W 40 / API SJ/CF4		
Auxiliary PTOs (3rd optional)	Max torque (Nm)	-		37.0 @ 1800 rpm		
	Drive ratio	0.5:1		0.5:1		

Model		KDW1003			KDW1404		
Engine specs	4 stroke diesel engine with cylinder in line	•			•		
	Liquid cooled	•			•		
	Indirect injection with injector pump on head	•			•		
	Overhead camshaft belt driven	•			•		
	Double PTO on crankshaft	•			•		
	3 rd PTO on the distribution	•			•		
	Counterclockwise rotation (1 st PTO)	•			•		
	Forced lubrication with vane pump on the crankshaft	•			•		
	Full flow external oil filter	•			•		
	Coolant pump in the engine block	•			•		
	Automatic extra fuel starting device	•			•		
	Centrifugal governor	•			•		
	Torque adapter	•			•		
	Aluminum cylinder head	•			•		
	Cast iron engine block with re-borable integral liners	•			•		
	Die-cast aluminum engine block with reinforced struc- ture	-			-		
	2 valves per cylinder	•			•		
Technical features	Closed crankcase ventilation system	•			•		
	Cab heater provision	-			-		
	Cylinder	3			4		
	Bore (mm)	75			75		
	Stroke (mm)	77.6			77.6		
	Engine displ (cm³)	1028			1372		
Performance	Injection system	IDI			IDI		
	Compression ratio	22.8:1			22.8:1		
	Emission compliance	ECE R 24	US TIER 4 FINAL	EU STAGE V	ECE R 120	US TIER 4 FINAL	EU STAGE V
	Rating (kW/HP): N (80/1269/CEE)ISO 1585 NB ISO 3046 IFN NA ISO 3046 ICXN	(@ 3600) 20.0 /26.8 18.6 /24.9 17.0 /22.8	(@ 3600) - 17.7 /23.7 -	(@ 3600) - 18.8 /25.2 -	(@ 3600) 26.0 /35.2 24.5 /33.3 22.4 /30.5	(@ 2700) - 17.9 /24.3 -	(@ 3000) - 18.8 /25.2 -
	Max torque (Nm@rpm)	62.5 @ 2000	50.0 @ 2600	63.0 @ 2300	78.0 @ 2000	70.0 @ 1600	78.0 @ 2000
	Min idling speed (rpm)	900			900		
Fuel compatibility	UNI EN 590-2010	•			•		
	No 1 Diesel (US) - ASTM D 975-09 B - Grade 1-D S 15	•			•		
	No 1 Diesel (US) - ASTM D 975-09 B - Grade 1-D S 500	•			•		
	No 2 Diesel (US) - ASTM D 975-09 B - Grade 2-D S 15	•			•		
	No 2 Diesel (US) - ASTM D 975-09 B - Grade 2-D S 500	•			•		
	ARCTIC EN 590/ASTM D 975-09 B	•			•		
	High Sulfur Fuel < 5000 ppm (< 0.5%)	•			•		
	High Sulfur Fuel > 5000 ppm (> 0.5%)	•			•		
	Military NATO Fuels F34 - F35 - F44 - F63 - F64 - F65 *	•			•		
	Military US Fuels JP5 - JP8 (AVTUR) *	•			•		
	Jet Fuel -Jet A/ A1*	•			•		
Service features	Standard oil sump capacity (l)	2.4			3.2		
	Oil consumption (kg/h)	0.0013			0.0017		
	Oil change interval std/synthetic (hr)	250**			250**		
	Oil filter change interval std/synthetic (hr)	250**			250**		
Physical characteristics	H x L x W (mm)	519 x 516 x 412			519 x 599 x 412		
	Dry weight (kg)	85			98		
	Ambient operating temps (°C)	-15 +50***			-15 +50***		
	Gradeability-all round (intermittent -30 min) (deg)	25			25		
	Gradeability-all round (peak value -1 min) (deg)	35			35		
	Cap. of air required for correct combustion @3600 (l/min)	1850			2470		
	Cap. of air required for correct cooling @3600 (m³/min)	80 (1:1)			115 (1:1)		
Lubrication	Oil type	SAE 5W 40 API SERVICE CF			SAE 5W 40 API SERVICE CF		
Auxiliary PTOs (3rd optional)	Max torque (Nm)	37.0 @ 1800 rpm			37.0 @ 1800 rpm		
	Drive ratio	0.5:1			0.5:1		

TECHNICAL SPECIFICATIONS

Model		KDW1603			KDW2204		KDW2204T	
Engine specs	4 stroke diesel engine with cylinder in line	•			•		•	
	Liquid cooled	•			•		•	
	Indirect injection	•			•		•	
	Gear driven in crankcase camshaft w.pushrod, rocker arm and hydraulic lash adjuster	•			•		•	
	Double PTO on crankshaft	•			•		•	
	Two PTOs on the distribution	•			•		•	
	Counterclockwise rotation (1 st PTO)	•			•		•	
	Forced lubrication with vane pump on the crankshaft	•			•		•	
	Full flow external spin-on oil filter	•			•		•	
	Automatic extra fuel starting device	•			•		•	
	Centrifugal governor	•			•		•	
	Torque adapter	•			•		•	
	Cast iron cylinder head	•			•		•	
	Cast iron engine block with re-borable integral liners	•			•		•	
	Closed crankcase ventilation system	•			•		•	
Cab heater provision	•			•		•		
Technical features	Cylinder	3			4		4	
	Bore (mm)	88			88		88	
	Stroke (mm)	90.4			90.4		90.4	
	Engine displ (cm³)	1649			2199		2199	
	Injection system	IDI			IDI		IDI	
	Compression ratio	22:1			22.5:1		22.8:1	
Performance	Emission compliance	ECE R 24	US TIER 4 Interim	EU STAGE V	ECE R 24	US TIER 4 Interim	ECE R 24	US TIER 4 Interim
	Rating (kW/hp): N (80/1269/CEE)ISO 1585 NB ISO 3046 IFN NA ISO 3046 ICXN	(@3000) 29.5 /40.1 27.6 /37.5 25.4 /34.5	(@3000) - 29.0/ 38.9 -	(@2600) - 18.8/ 25.2 -	(@3000) 37.5 /51.0 34.5 /46.9 32.0 /44.0	(@3000) - 36.6 / 49 -	(@3000) 47.0 /63.0 44.3 /60.2 40.8 /55.5	(@3000) - 46 / 61.6 -
	Max torque (Nm@rpm)	103 @ 1650	104 @ 1650	100 @ 1600	130 @ 1800	132.5 @ 2100	176 @ 1700	178 @ 1700
	Min idling speed (rpm)	900			900		900	
Fuel compatibility	UNI EN 590-2010	•			•		•	
	No 1 Diesel (US) - ASTM D 975-09 B - Grade 1-D S 15	•			•		•	
	No 1 Diesel (US) - ASTM D 975-09 B - Grade 1-D S 500	•			•		•	
	No 2 Diesel (US) - ASTM D 975-09 B - Grade 2-D S 15	•			•		•	
	No 2 Diesel (US) - ASTM D 975-09 B - Grade 2-D S 500	•			•		•	
	ARCTIC EN 590/ASTM D 975-09 B	•			•		•	
	High Sulfur Fuel < 5000 ppm (< 0.5%)	•			•		•	
	High Sulfur Fuel > 5000 ppm (> 0.5%)	•			•		•	
	Military NATO Fuels F34 - F35 - F44 - F63 - F64 - F65 *	•			•		•	
	Military US Fuels JP5 - JP8 (AVTUR) *	•			•		•	
Jet Fuel -Jet A/ A1*	•			•		•		
Service features	Standard oil sump capacity (l) [w. With dynamic balancer]	4.4			6.4 [5.3]		6.4 [5.3]	
	Oil consumption (kg/h)	0.019			0.025		0.032	
	Oil change interval std/synthetic (hr)	200**			200**		200**	
	Oil filter change interval std/synthetic (hr)	200**			200**		200**	
Physical characteristics	H x L x W (mm)	633 x 573 x 468			633 x 673 x 468		661 x 695 x 468	
	Dry weight (kg)	156			192		197	
	Ambient operating temps (°C)	-15 +50***			-15 +50***		-15 +50***	
	Gradeability-all round (intermittent -30 min) (deg)	30			30		30	
	Gradeability-all round (peak value -1 min) (deg)	35			35		35	
	Cap. of air required for correct combustion @3000 (l/ min)	2475			3300		4200	
	Cap. of air required for correct cooling @3000 (m³/ min)	96			128		180	
Lubrication	Oil type	SAE 5W 40 / API CF - SH			SAE 5W 40 API CF - SH		SAE 5W 40 API CF - SH	
Auxiliary PTOs (3rd optional)	Max torque (Nm)	39.2 @3000			39.2 @3000		39.2 @3000	
	Drive ratio	1:1			1:1		1:1	

NOTE

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