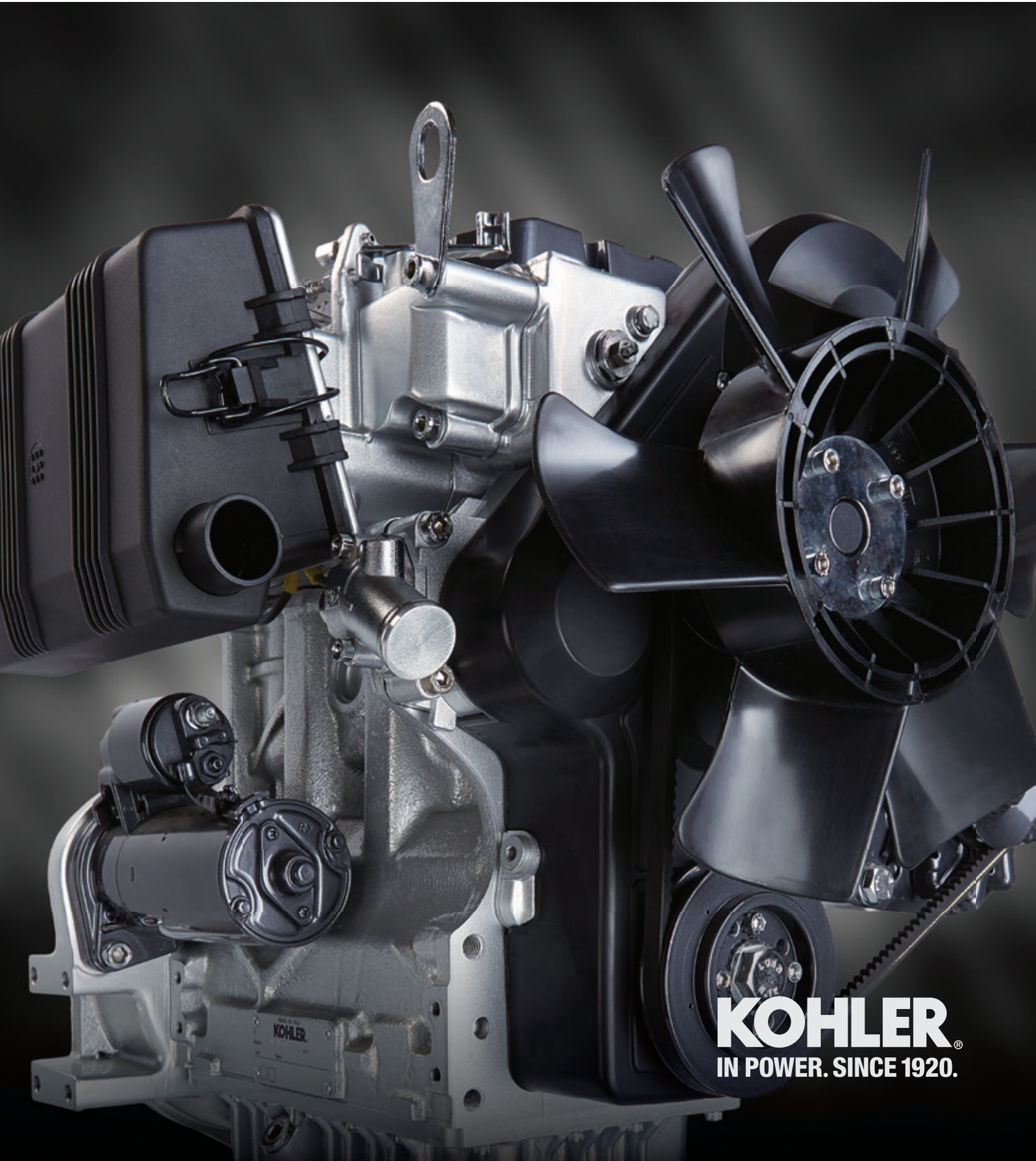


LIQUID-COOLED DIESEL ENGINES

8.6–47.0 kW | 11.5–63 hp



KOHLER[®]
IN POWER. SINCE 1920.

LIQUID-COOLED DIESEL ENGINES

STANDARD EQUIPMENT

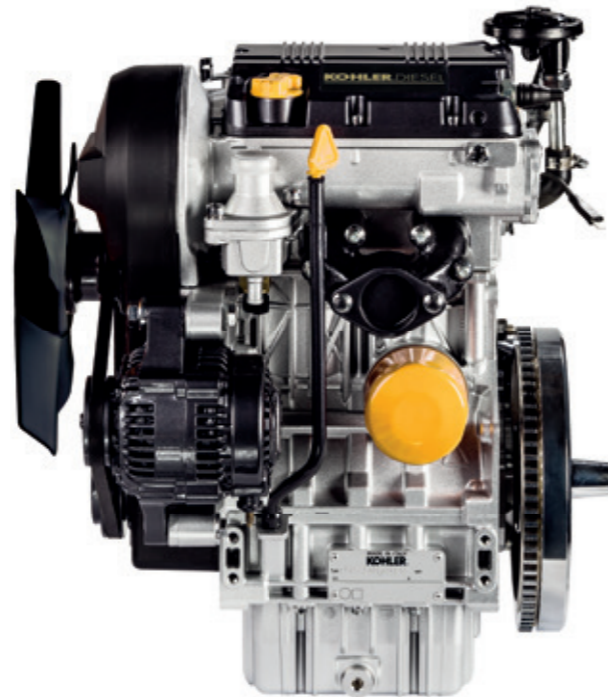
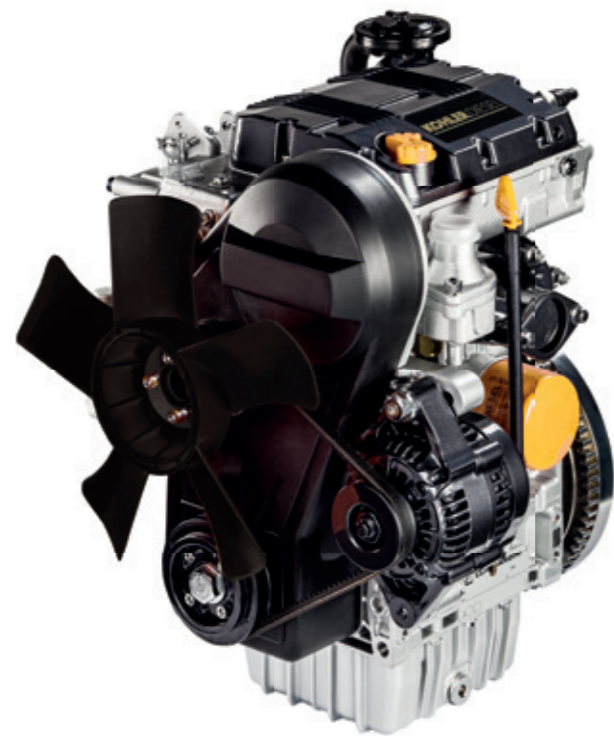
- External spin-on type oil filter
- Exhaust manifold
- Intake manifold
- Accelerator control
- Electric starter motor and alternator 12V
- Thermostat valve
- Flywheel with ring gear
- Fuel feeding mechanical pump
- Coolant pump
- Flanging backplate
- Electric stop 12V
- Glow Plug Control Unit 12V
-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



OPTIONAL ACCESSORIES

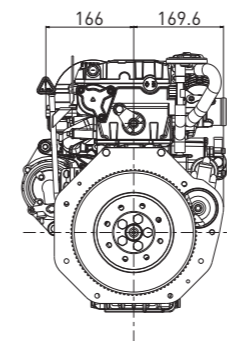
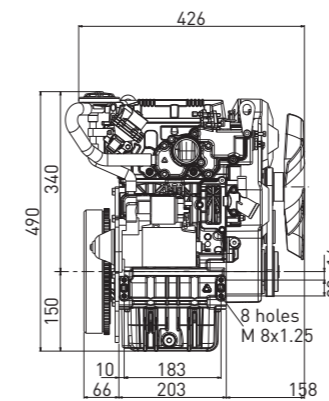
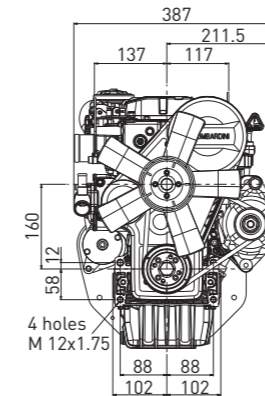
- | | |
|-----------------------------|-------------------------------------------------|
| Fan guard | Silencers |
| Clutch flywheels | Dry type air cleaners (engine mounted or loose) |
| Bell housings and flywheels | Air intake cyclonic pre-cleaners |
| Transmission adapters | High capacity oil sumps* |
| 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 | |

KDW 502



DATA

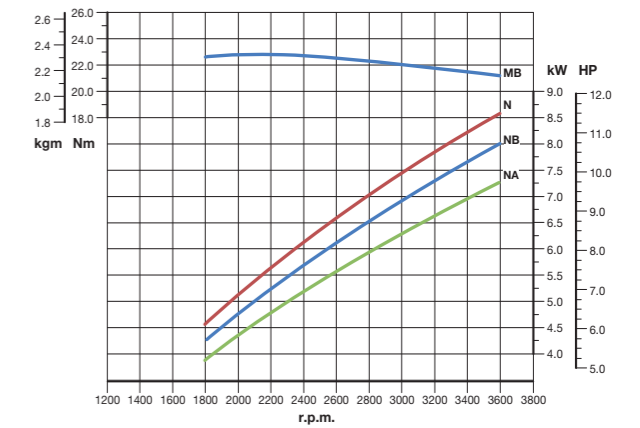
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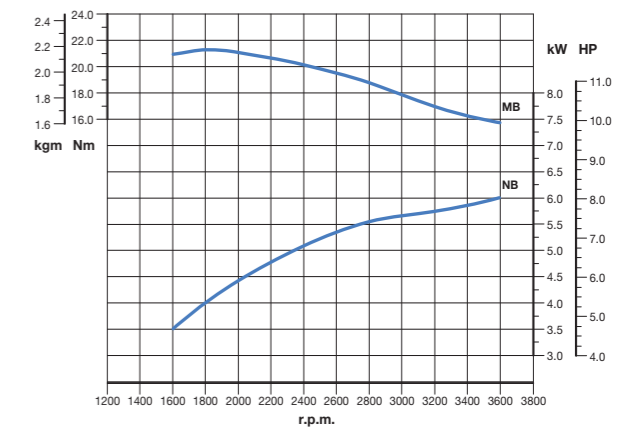
PERFORMANCE CURVES

(IFN-ACCORDING TO ISO 3046 and ISO 14396)

KDW502 ECE R 24



KDW502 Euro 4

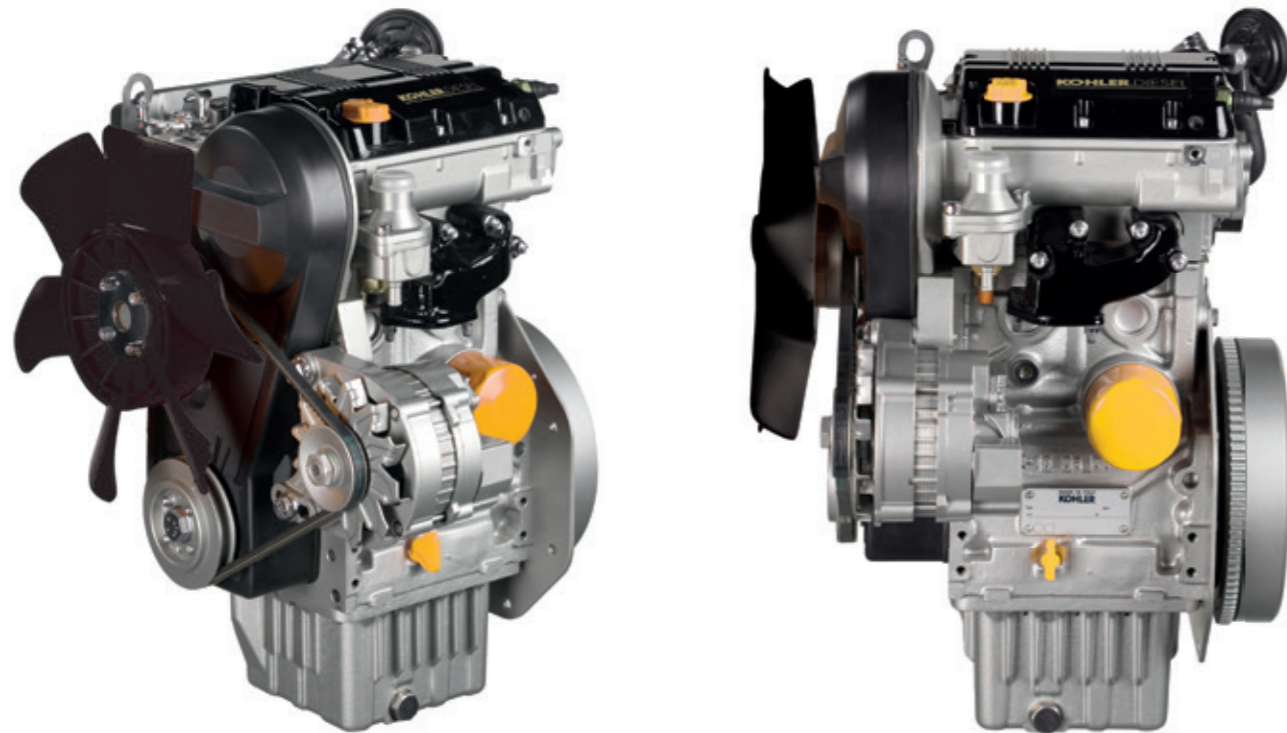


- N - Power curve - 80/1269/CE E-ISO 1585
- NB - Power curve - ISO 3046/1 - IFN
- NA - Power curve - ISO 3046/1 - ICXN
- MB - Torque curve - (NB curve)

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.

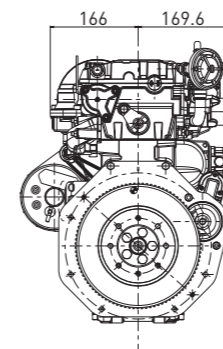
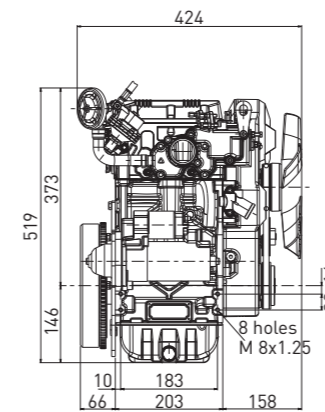
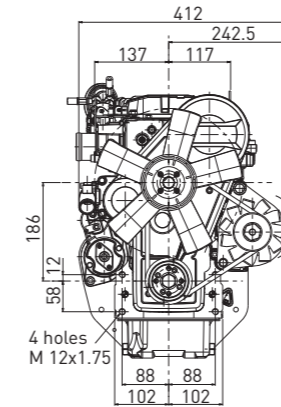
Quick specifications	KDW502 ECE R 24	KDW502 EURO 4
CYLINDERS	2	2
MAX POWER kW (hp)@rpm	8.0 (10.7) @ 3600	6.0 (8.0) @ 3000
MAX TORQUE Nm@rpm	23 @ 2000	21 @ 1800
EMISSION COMPLIANCE	ECE R 24	Euro 4 (for on-road quadricycle)

KDW 702



DATA

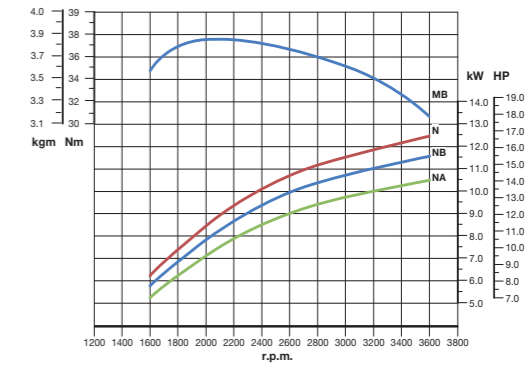
Dimensions (mm)



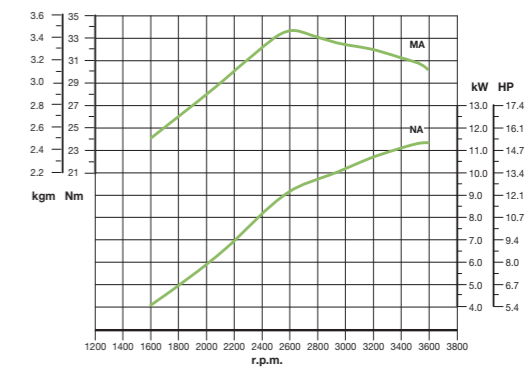
PERFORMANCE CURVES

(IFN-ACCORDING TO ISO 3046 and ISO 14396)

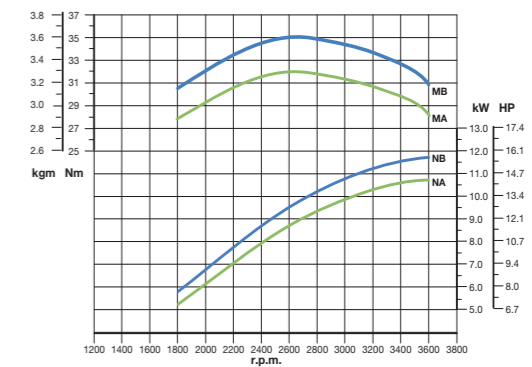
KDW702 ECE R 24



KDW702 U436



KDW702 E536



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

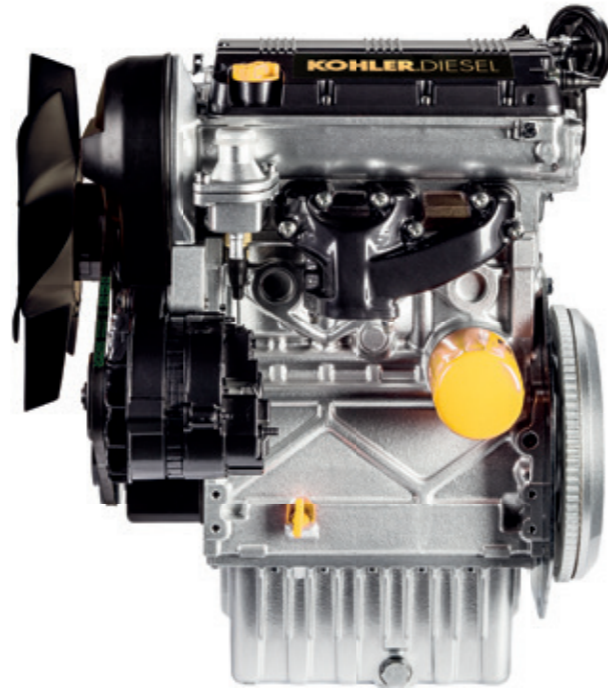
Power ratings refer to engines equipped with air filter, standard muffler, after running-in period at ambient conditions of +25°C, relative humidity 30% and 1 bar. Power drops by 1% every 100 m altitude and by 2% every 5°C above +25°C.

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

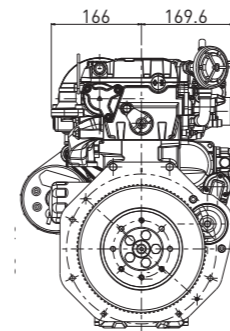
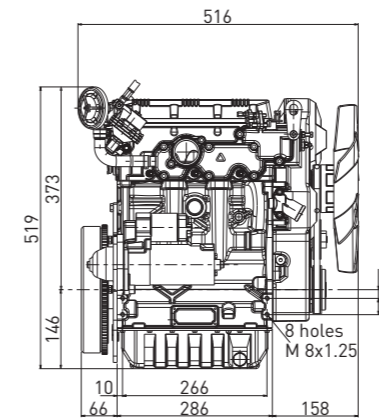
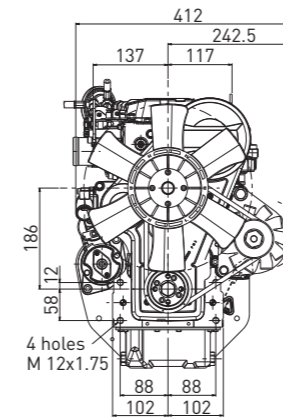
Quick specifications	KDW702 ECE R 24	KDW702 U436	KDW702 E536
CYLINDERS	2	2	2
MAX POWER kW (hp)@rpm	11.5 (15.4) @ 3600	11.5 (15.4) @ 3600	11.6 (15.5) @ 3600
MAX TORQUE Nm@rpm	37.8 @ 2000	34.0 @ 2600	35.0 @ 2600
EMISSION COMPLIANCE	ECE R 24	US TIER 4 FINAL	EU STAGE V

KDW 1003



DATA

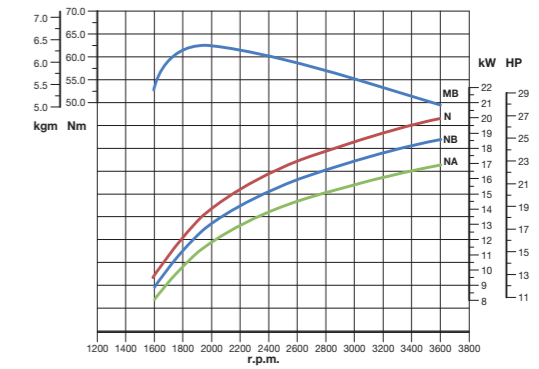
Dimensions (mm)



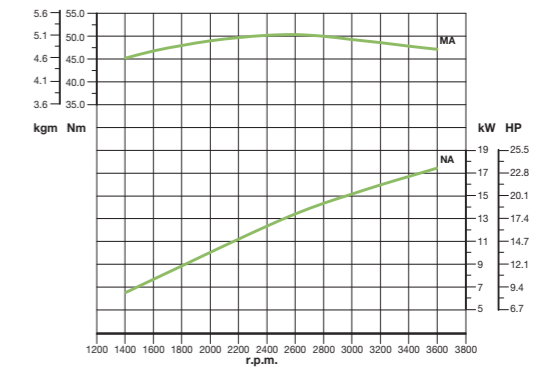
PERFORMANCE CURVES

(IFN-ACCORDING TO ISO 3046 and ISO 14396)

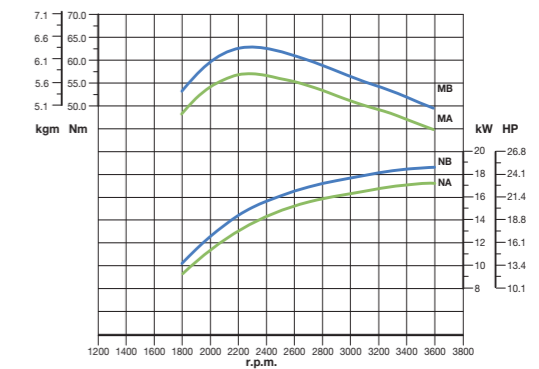
KDW1003 ECE R 24



KDW1003 U4/36



KDW1003 E5/36



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

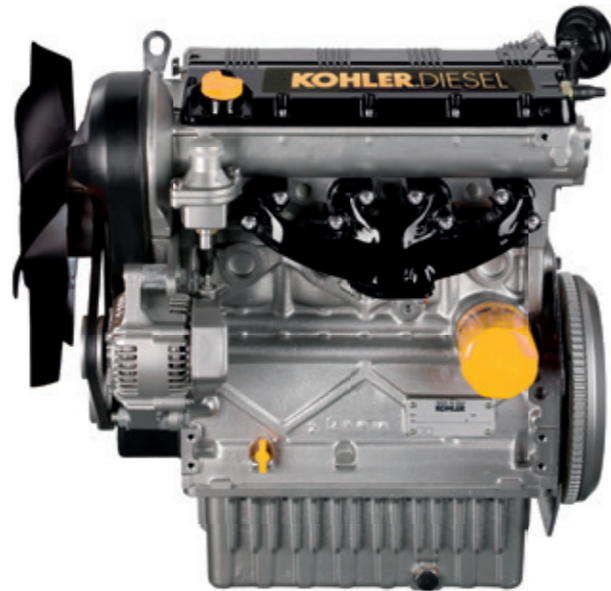
Power ratings refer to engines equipped with air filter, standard muffler, after running-in period at ambient conditions of +25°C, relative humidity 30% and 1 bar. Power drops by 1% every 100 m altitude and by 2% every 5°C above +25°C.

Other available settings

Max Power (kW)@rpm	Max Torque (Nm)@rpm	Emission compliance
18.0 @ 3000 (NB)	63.0 @ 2300 (MB)	EU STAGE V
14.8 @ 3000 (NA)	50.0 @ 2200 (MA)	US TIER 4 FINAL
14.0 @ 2400 (NB)	60.0 @ 1800 (MA)	EU STAGE V

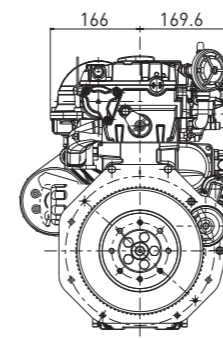
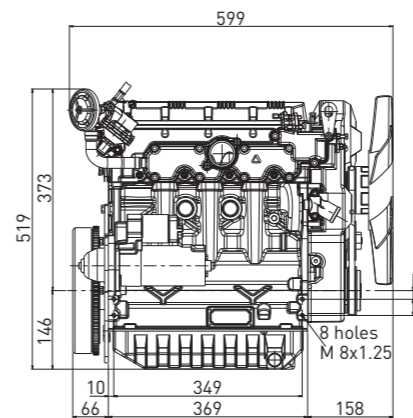
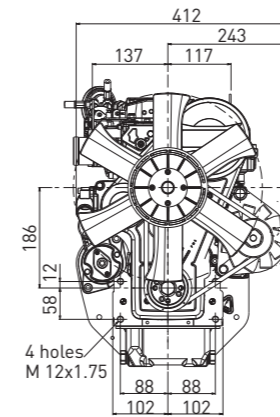
Quick specifications	KDW1003 ECE R 24	KDW1003 U436	KDW1003 E536
CYLINDERS	3	3	3
MAX POWER kW (hp)@rpm	18.6 (24.9) @ 3600	17.7 (23.7) @ 3600	18.8 (25.2) @ 3600
MAX TORQUE Nm@rpm	62.5 @ 2000	50.0 @ 2600	63.0 @ 2300
EMISSION COMPLIANCE	ECE R 24	US TIER 4 FINAL	EU STAGE V

KDW 1404



DATA

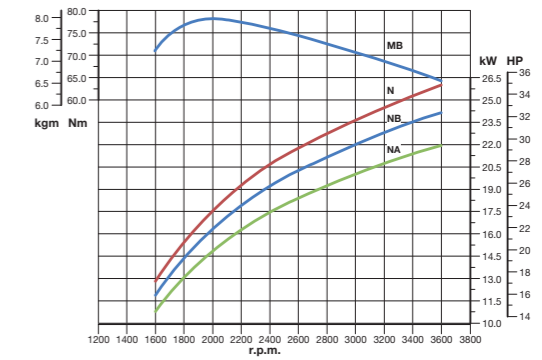
Dimensions (mm)



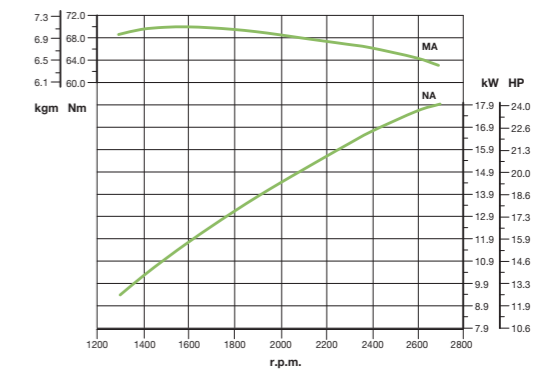
PERFORMANCE CURVES

(IFN-ACCORDING TO ISO 3046 and ISO14396)

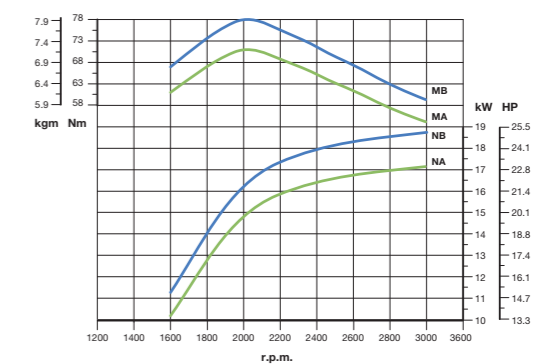
KDW1404 EA36



KDW1404 U436



KDW1404 E536



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

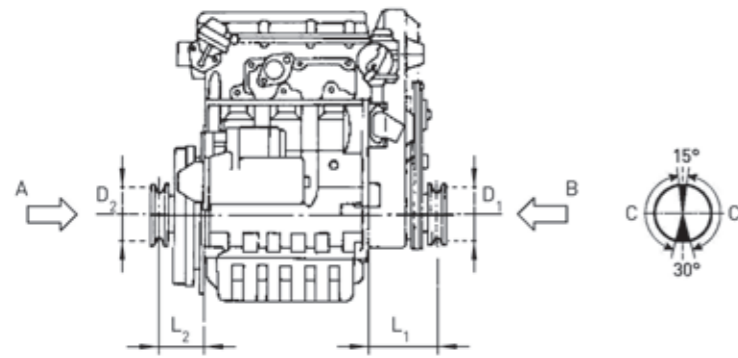
Power ratings refer to engines equipped with air filter, standard muffler, after running-in period at ambient conditions of +25°C, relative humidity 30% and 1 bar. Power drops by 1% every 100 m altitude and by 2% every 5°C above +25°C.

Other available settings

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 (32.8) @ 3600	17.9 (24.0) @ 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

APPLICATIONS SPECS



KDW502

Minimum pulley diameters for belt drive

$$V_{BELT} \quad D_2 \text{ (mm)} \geq 116 [191 + L_2(\text{mm})] \frac{N \text{ (kW)}}{n \text{ (rpm)}}$$

Max intermittent axial load in both directions A-B= 300 kg

$$COGGED \text{ BELT} \quad D_1 \text{ (mm)} \geq 89 [191 + L_1(\text{mm})] \frac{N \text{ (kW)}}{n \text{ (rpm)}}$$

C - Zone in which the radial loads can be applied

KDW702

Minimum pulley diameters for belt drive

$$V_{BELT} \quad D_2 \text{ (mm)} \geq 143 [101 + L_2(\text{mm})] \frac{N \text{ (kW)}}{n \text{ (rpm)}}$$

Max intermittent axial load in both directions A-B= 300 kg

$$COGGED \text{ BELT} \quad D_1 \text{ (mm)} \geq 99 [101 + L_1(\text{mm})] \frac{N \text{ (kW)}}{n \text{ (rpm)}}$$

C - Zone in which the radial loads can be applied

KDW1003

Minimum pulley diameters for belt drive

$$V_{BELT} \quad D_2 \text{ (mm)} \geq 114 [101 + L_2(\text{mm})] \frac{N \text{ (kW)}}{n \text{ (rpm)}}$$

Max intermittent axial load in both directions A-B= 300 kg

$$COGGED \text{ BELT} \quad D_1 \text{ (mm)} \geq 79 [101 + L_1(\text{mm})] \frac{N \text{ (kW)}}{n \text{ (rpm)}}$$

C - Zone in which the radial loads can be applied

KDW1404

Minimum pulley diameters for belt drive

$$V_{BELT} \quad D_2 \text{ (mm)} \geq 110 [101 + L_2(\text{mm})] \frac{N \text{ (kW)}}{n \text{ (rpm)}}$$

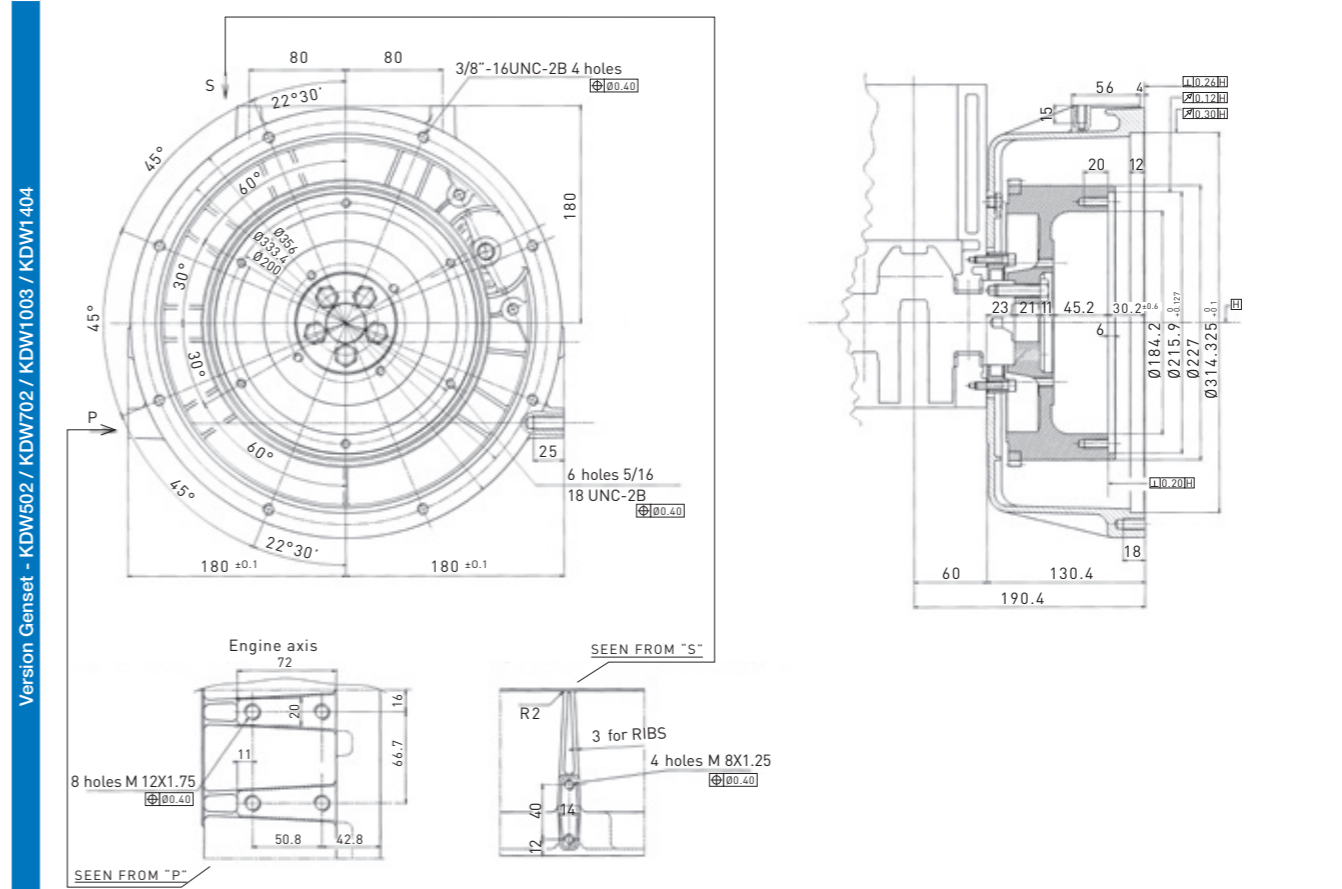
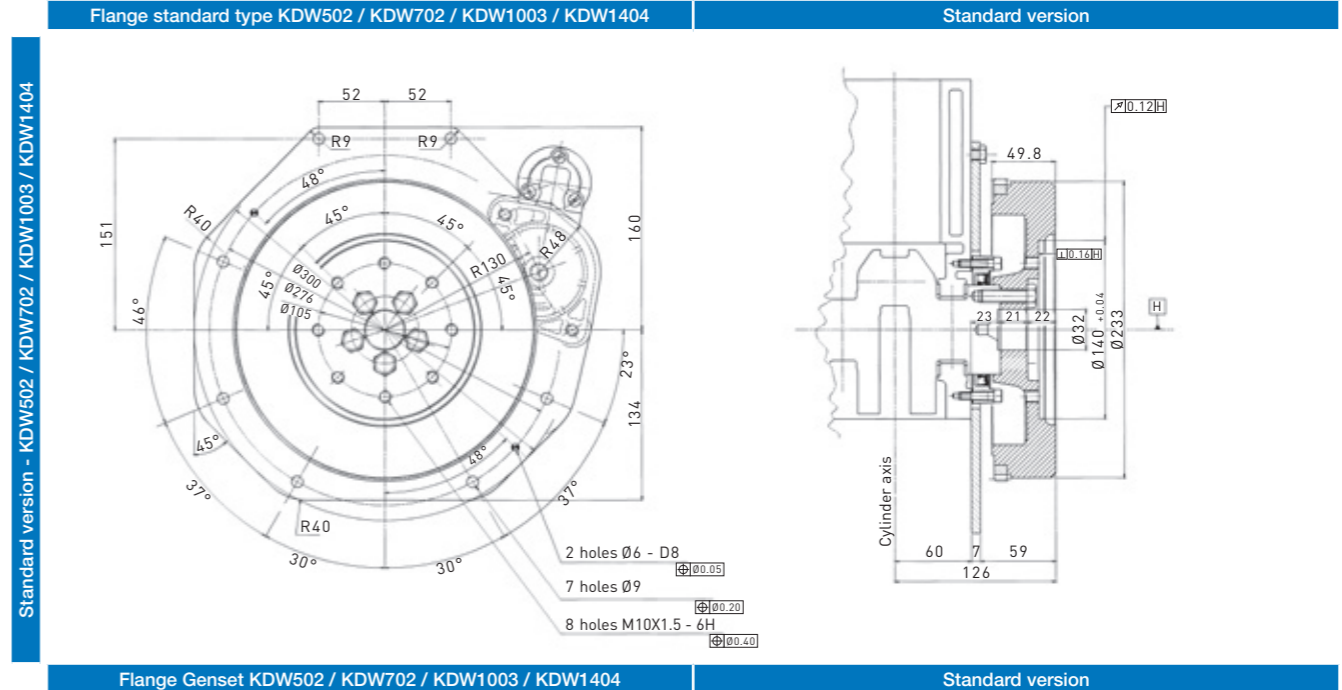
Max intermittent axial load in both directions A-B= 300 kg

$$COGGED \text{ BELT} \quad D_1 \text{ (mm)} \geq 72 [101 + L_1(\text{mm})] \frac{N \text{ (kW)}}{n \text{ (rpm)}}$$

C - Zone in which the radial loads can be applied

AVAILABLE FLANGES

Other flanges available on request





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 (cm ³)	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 -	(@ 3600) - -
	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 (m ³ /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 structure	-	-				
2 valves per cylinder	•	•					
Closed crankcase ventilation system	•	•					
Cab heater provision	-	-					
Technical features	Cylinder	3	4				
	Bore (mm)	75	75				
	Stroke (mm)	77.6	77.6				
	Engine displ (cm ³)	1028	1372				
	Injection system	IDI	IDI				
	Compression ratio	22.8:1	22.8:1				
Performance	Emission compliance	ECE R 24	US TIER 4 FINAL	EU STAGE V	EU STAGE IIIA	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 /34.8 24.5 /32.8 22.4 /30.0	(@ 2700) - 17.9 /24.0 -	(@ 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 (m ³ /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				

