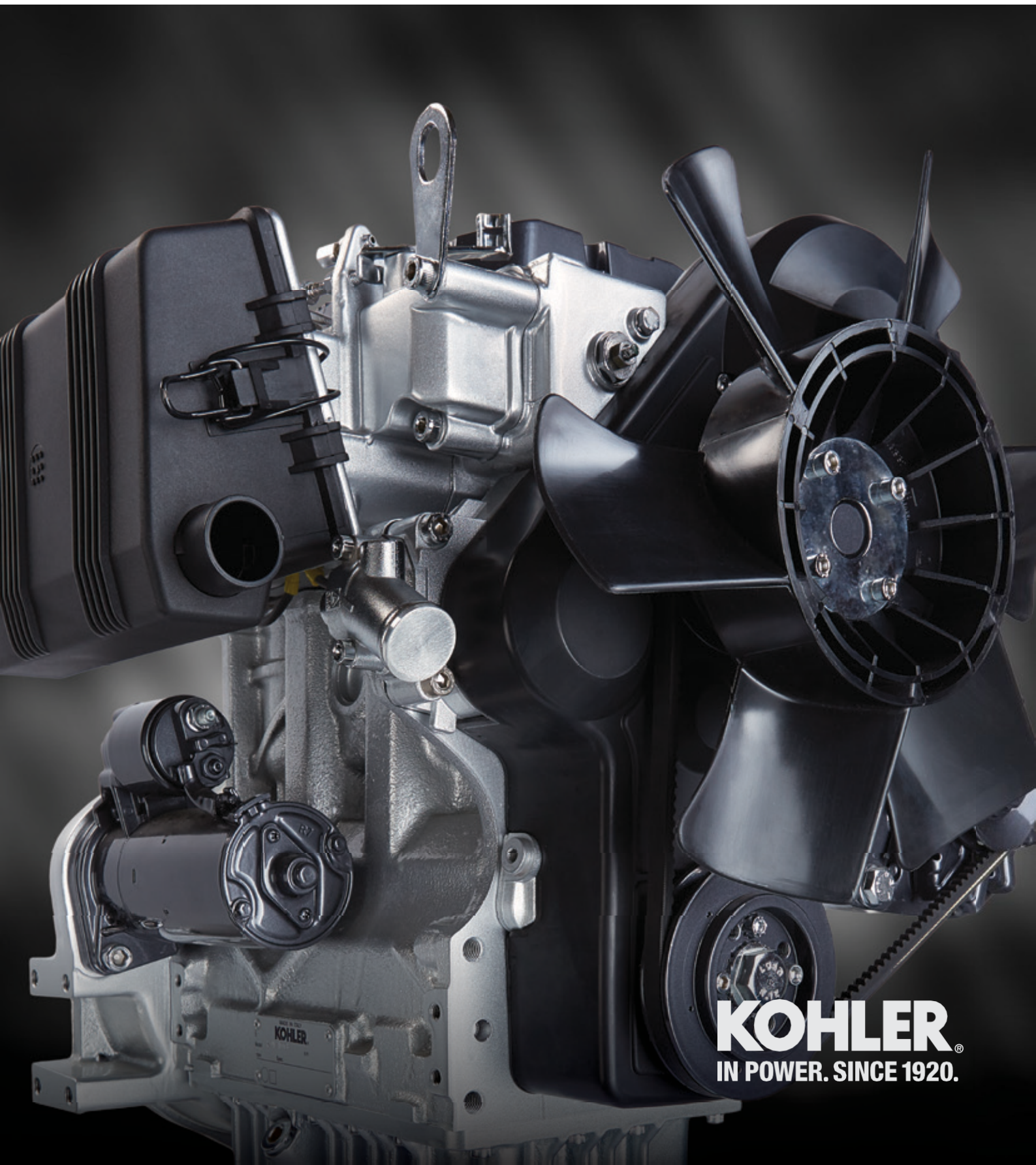


LDW 502 LIQUID-COOLED DIESEL ENGINES

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

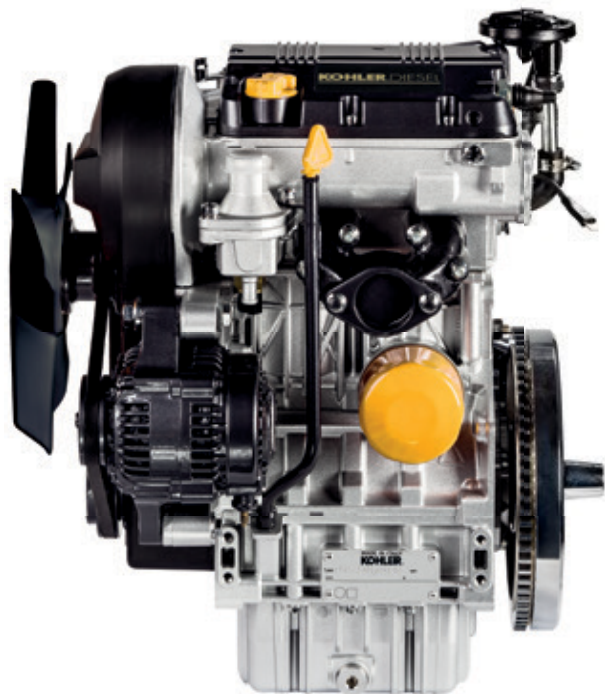


OPTIONAL ACCESSORIES

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	

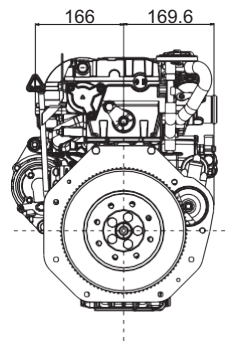
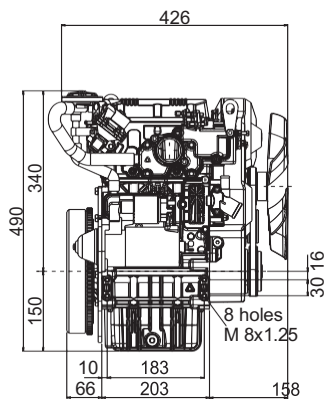
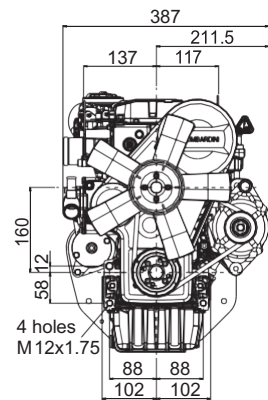
*Not available on KDW502 model

KDW
502



DATA

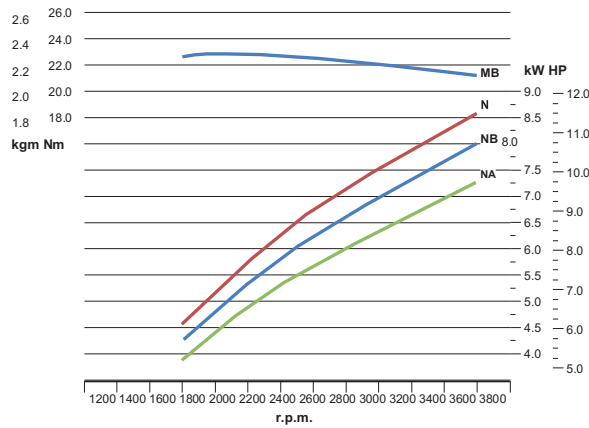
Dimensions (mm)



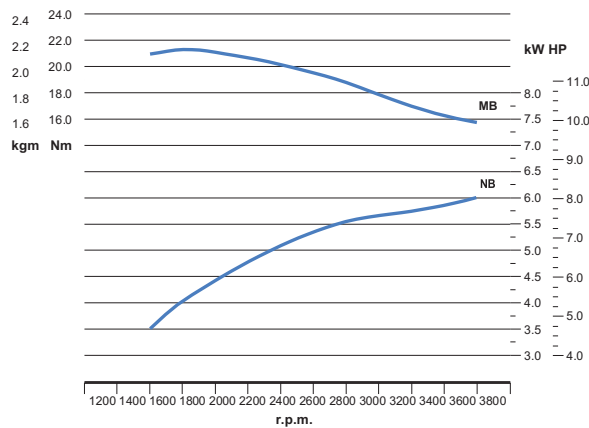
PERFORMANCE CURVES

(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)

TECHNICAL SPECIFICATIONS

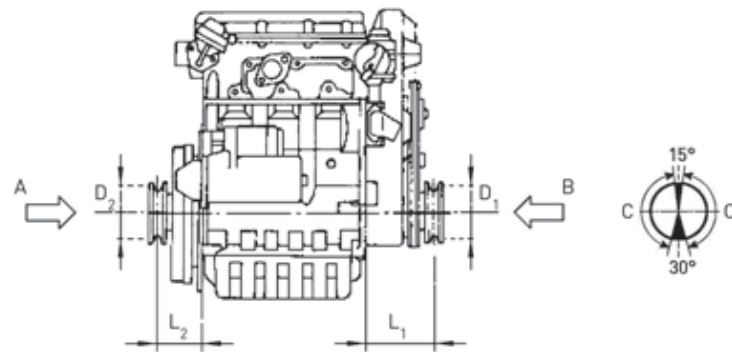
Model		KDW502		KDW702		
Engine specs	4 stroke diesel engine with cylinder in line	•		•		
	Liquid cooled	•		•		
	Indirect injection with injector pump on head	•		•		
	Overhead camshaft belt driven	•		•		
	Double PTO on crankshaft	•		•		
	3 rd PTO on the distribution	•		•		
	Counterclockwise rotation (1 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		
	UNI EN 590-2010	•		•		
Fuel compatibility	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*	•		•		
	Standard oil sump capacity (l)	1.4		1.6		
Service features	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 × L × W (mm)	490 × 426 ×387		519 × 424 ×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		

* With restrictions ** According to operating conditions *** -32° on demand

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 (cm³)	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 × L × W (mm)	519 × 516 ×412			519 × 599 ×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		

* With restrictions ** According to operating conditions *** -32° on demand

APPLICATIONS SPECS



KDW502

Minimum pulley diameters for belt drive

$$d_2 \text{ (mm)} \geq 116 [191 + I_2 \text{ (mm)}] \frac{N \text{ (kW)}}{n \text{ (rpm)}}$$

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

Cogged belt

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

C - Zone in which the radial loads can be applied

KDW702

Minimum pulley diameters for belt drive

$$d_2 \text{ (mm)} \geq 143 [101 + \frac{N \text{ (kW)}}{n \text{ (rpm)}}]$$

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

Cogged belt

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

C - Zone in which the radial loads can be applied

KDW1003

Minimum pulley diameters for belt drive

$$d_2 \text{ (mm)} \geq 114 [101 + l_2 \text{ (mm)}] \frac{N \text{ (kW)}}{n \text{ (rpm)}}$$

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

Cogged belt

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

C - Zone in which the radial loads can be applied

KDW1404

Minimum pulley diameters for belt drive

$$d_2 \text{ (mm)} \geq 110 [101 + l_2 \text{ (mm)}] \frac{N \text{ (kW)}}{n \text{ (rpm)}}$$

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

Cogged belt

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

C - Zone in which the radial loads can be ap

AVAILABLE FLANGES

Other flanges available on request

[illegible]

