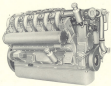


DIESEL ENGINE

WOLA H12

340-350 metric HP



The engines WOLA H12 are manufactured by the Ex-Imby Maschinenbau "FEL-WOLA" in M. Wroclaw in Poland under a license license. The "FEL-WOLA" factory has got an over thirty year experience in the field of production of compression-ignition engines.

The WOLA H12 machines operate under very

diverse conditions and long overhauling periods are due to special high-grade materials and precision-oriented production of all component parts. The WOLA H12 are industrial engines of numerous applications.

WOLA H12

Technical Data

Engine kind	— fourstroke — diesel engine	Specific fuel consumption	— 224 g/kWh — 188 g/kWh (at 100%)
Number and arrangement of cylinders	— 12, 60° V-engine	Specific oilconsumption	— 2.04 g/kWh — 1.8 g/kWh (at 100%)
Rated power (kW) / CV @ 1500	— 305 kW — (420 CV)	Injection	— direct
Max. torque (kNm) at 1000 rpm	— 440 Nm — (32.4 m.c.g.)	Cooling	— water cooling
Rated speed	— 1500 r.p.m.	Starting system	— electric — or pneumatic
Cylinder bore	— 135 mm	Power output	— directly from shaft — for flywheel — 305 power can be taken from the fuel side
Stroke stroke	— 150 mm	Flywheel	— acc. to the Manufacturer's standard
Engine capacity	— 24.20 dm ³	Dry weight (kg)	— 270 kg
Compression ratio	— 14		
Direction of rotation	— indicated when the seen from the flywheel		



Applications

The engine type W6L6 H22 are applied to other building machines and generating sets. They also find numerous applications in stationary system and navigation.



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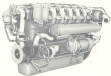


BRUNNEN MASCHINENFABRIK

TURBOCHARGED DIESEL ENGINE

WOLA H12A

360-550 metric HP



The engine WOLA H12A are manufactured by the Zavřetý-Mechanicon "TEL - WOLA" in Mělník in the former under a license license. The "TEL - WOLA" factory has got an over 30-year experience in the field of production of compression-ignition engines.

The WOLA H12A turbo-diesel engine under very climatic conditions and long operating periods are due to special high-grade materials and processes obtained in production of all component parts. The WOLA H12A are industrial engines of numerous applications.

Technical Data

Engine type	— four-stroke, turbocharged Diesel engine	Specific fuel consumption	— 224 g/kWh at 1 000 g/min at
Number and arrangement of cylinders	— 12, 60° V-engine	Specific oil consumption	— 2.00 g/kWh at 1.5 g/kWh at
Rated power (kW) (at ISO 8543)	— 628 kW (850 r/min)	Injection	— direct
Max. torque (at 1 000 r/min)	— 2 054 Nm (230 Nm/kg)	Cooling	— water cooling
Rated speed	— 1 000 r/min	Starting system	— electric or air-motive
Cylinder bore	— 120 mm	Power take-off	— directly from the flywheel, 30% power output taken from the engine front
Stroke	— 150 mm	Flywheel	— acc. to the ISO 8543 standard
Engine capacity	— 20.04 dm ³	Dry engine weight	— 2 070 kg
Compression ratio	— 14		
Direction of rotation	— anticlockwise (as seen from the flywheel)		





1 - Dependence of optical properties on wavelength for a 100 nm thick layer with refractive index $n(\lambda) = 1.65 + 0.005(\lambda - 400) + 0.00000001(\lambda - 400)^2$ and thickness $d = 100$ nm



2 - Dependence of optical properties on wavelength for a 100 nm thick layer with a 300 nm thick substrate

3 - Dependence of optical properties on wavelength for a 100 nm thick layer with a 300 nm thick substrate

4 - Dependence of optical properties on wavelength for a 100 nm thick layer with a 300 nm thick substrate

3 - Dependence of optical properties on wavelength for a 100 nm thick layer with a 300 nm thick substrate

APPENDIX

The authors would like to thank the Ministry of Education and Science of the Russian Federation for the financial support of this work under the project of the Federal Scientific Center of Information Optics and Spectroscopy.

Standard equipment

Technology
Industrial facilities
School equipment
Optical parts
Gas flow
Air flow
Heat source
Thermocouple
Oil drops
Spectra (100 nm, 200 nm)
Mirror for 1 cm, 5 cm and 10 cm
Mirror supports
Rotational rotation system for the interferometer
Oil mixer
Heat generated printing paper
Pneumatics

Optical equipment

Oil
Water column
Air stream
Mechanical printing pump
Water movement
Oil movement
Engorged interferometer
Interferometer
Engorged interferometer
Spring balance
Refractive index liquid
Spectrometer with a
Glass, industrial type
Spectrometer
Microscope slide
Cylinder for pressure control from the
spring flow

Printing instrument
Spectrometer
Spectrometer mirror
Microscope
Optical and high-contrast lamp
Heat source control
Refractive index interferometer for the oil
oil in liquid interferometer
Oil interferometer
Oil stream

Applications

The engine type R6LA, R7CA are applied to other building machinery and generating sets, they also find many other applications in the railway system and navigation.



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