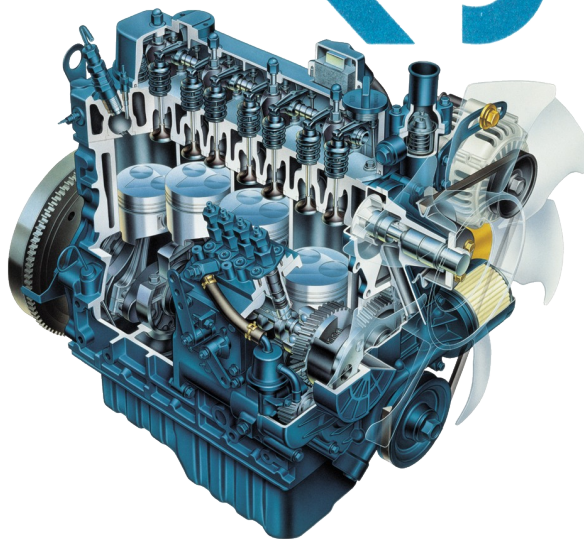


HYUNDAI HEAVY INDUSTRIES EUROPE

Training:

Kubota



V3 series IDI
(TIER 2 & 3)



- 1922: First kerosene engine produced. Start production of the horizontal type water-cooled kerosene engine "A" for agricultural use at the Funade-cho plant.

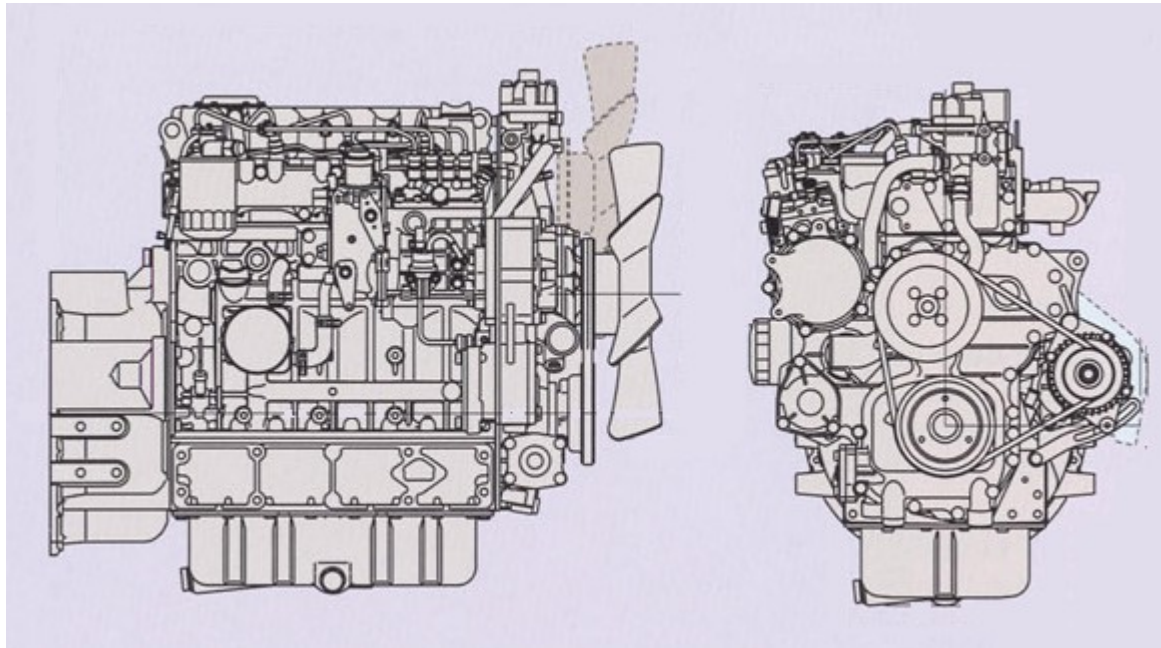


- 1950: Start production of the first horizontal type water-cooled diesel engine (HD5, HD8, HD10).
- 1997: Development of the 110mm stroke series (V3300, V3300-T, V3300-TI)
- 2004: Development of the 120mm stroke series (V3600, V3800)



Engine specifications:

Kubota Type: V3300-E2B-HHI-1

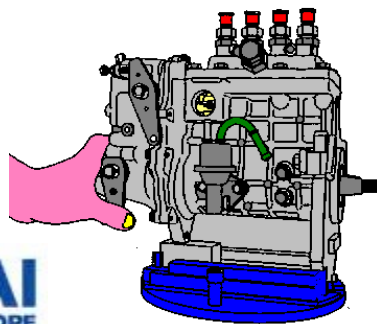
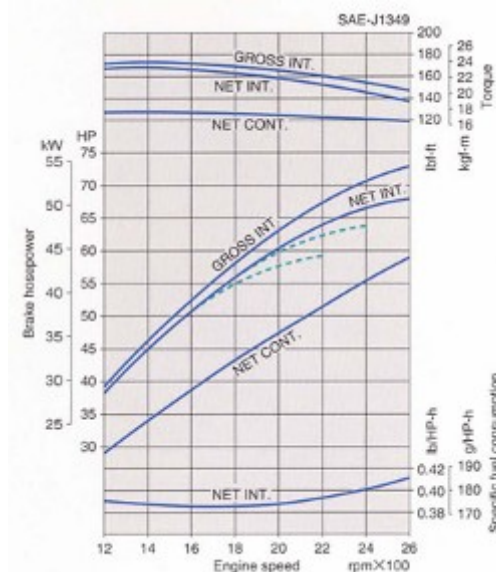


Specifications: V3300 Indirect Injection (IDI)

Model	-	KUBOTA V3300(IDI)
Type	-	4-cycle, in-line overhead valve
Cooling Method	-	Water cooling
Number of cylinders and arrangement	-	4 cylinders, in-line
Firing order	-	1-3-4-2
Combustion chamber type	-	<u>In-direct injection</u>
Cylinder bore X stroke	mm	98 × 110(3.9 × 4.3)
Piston displacement	cc	3318(202.5)
Compression ratio	-	22.6
Rated gross horse power	ps/rpm	64.5/2300
Maximum gross torque at rpm	kgf · m/rpm	21.5/1700
Engine oil quantity	l	13.2(3.5)
Dry weight	kg	272(600)
High idling speed	rpm	2500
Low idling speed	rpm	860
Rated fuel consumption	g/ps.hr	174

Specifications: V3300 Indirect Injection (IDI)

Combustion Chamber	Spherical Type (E-TVCS)
Fuel Injection Pump	Bosch Type Mini Pump
Governor	All speed mechanical governor
Direction of Rotation	Counter-clockwise (Viewed from flywheel side)
Injection Nozzle	BOSCH Throttle-Type
Injection Timing	0.21 rad. (12 °) before T.D.C.
Firing Order	1-3-4-2
Injection Pressure	13.73 MPa (140 bar)
Compression Ratio	22.6
Lubricating System	Forced lubrication by trochoid pump
Oil Pressure Indicating	Electrical Type Switch
Lubricating Filter	Full Flow Paper Filter (Cartridge Type)
Cooling System	Pressurized radiator, forced circulation with water pump
Fuel	Diesel Fuel No. 2-D (ASTM D975)
Lubricating Oil	Class CF lubricating oil as per API classification is recommended. If this class of lubricating oil is not available, preferably use Class CD or CE lubricating oil.
Lubricating Oil Capacity	13.2 L
Weight (Dry)	241 kg



Output	kW (HP)/ rpm	54.5 (73.0)/ 2,600
Gross Intermittent	kW (HP)/ rpm	54.5 (73.0)/ 2,600
Net Intermittent	kW (HP)/ rpm	50.7 (68.0)/ 2,600
Net Continuous	kW (HP)/ rpm	44.1 (59.1)/ 2,600