Comparison Chart - Diesel vs Gas Turbine Generators

Item		Diesel Generator Set		Gas turbine Generator Set	
Standard features	Start up time	Start up within 10 sec	○	Start up within 40 sec (Impossible to start within 10 sec)	△
	Efficiency	50 to 70%kW out put of rated capacity possible	△	If uniaxial, 100% output possible. If biaxial, 70 ～ 100% output is possible	○
	Maximum possible output	110% load of rated capacity up to 1 hour is possible	○	No overload capacity	△
Installation requirements	Indoor outdoor installation	Up to 500kVA class, external installation is possible. However, over this size, due to the noise, an enclosed installation is	△	Enclosed cabinet type is standard and can be installed either as internal or external.	△
	Roof/basement installation	Due to heavy vibration and the requirement of cooling water, installation of high roof top is not practical. 1fl or basement installation is common.	△	Water cooling is not required, and with only slight vibrations, installation on building roof is possible. If installed in the basement, exhaust piping required is larger than for a similar size diesel unit	○
	Cold region installation	Insulation to prevent water pipe freezing is required. Same for fuel oil pipes.	△	With no cooling water, support is simple. Fuel pipes however need insulation to prevent freezing.	○
Fuel	Fuel consumption	Fuel consumption 50%	○	Fuel consumption is 100%	△
	Possible fuel types	Diesel & "A" type fuel and for short operating runs	○	Kerosene, Diesel, ship oil, "A" type fuel and LNG are all usable	○
Cooling water	Cooling water consumption	If radiator cooling is used only top up water is required. If cooling water is used a large scale water resevoir is required.	△	Air cooled system. No cooling water is necessary.	○
	Cooling water equipment required	Several major equipments related to the cooling system are	△	No cooling water facilities/equipment are	○
Intake/exhaust	Air in take required	With the increase in size, the air intake increases in direct proportion.	○	In comparison to a similar size Diesel unit, the amount of air intake is much smaller.	△
	Ventilation required	With the increase in size, the amount of ventilation increases in proportion.	○	In comparison to a similar size Diesel unit, the amount of air intake is much smaller.	○
Exhaust	Exhaust required	Smaller than for the gas turbine	△	Larger than for the diesel	△
	Temperature	About 250℃	△	About 350℃	△
Noise	Generator	Open condition Noise level 110～115db(A) @ 1m With the installation of sound deadening features a further reduction in noise can be	△	Sound insulated cabinet is standard in the package. 85dB(A) @ 1m Possible to lower noise further if required.	△
	Exhaust noise level	Standard noise reduction 85 ～ 90 dB(A) With the installation of sound deadening features a further reduction in noise can be	△	Standard noise reduction 85 ～ 90 dB(A) With the installation of sound deadening features a further reduction in noise can be	△
Vibration	Vibration	It is reciprocating facility, and big vibration.	△	It is rotary machine, and small vibration.	○
	Vibration prevention requirements	With anti-vibration device, turn the vibration down.	○	No vibration absorption is necessary.	○
Maintenance/inspection		As facilities construction is simple, overhaul a machine is possible at the site.		As facilities construction is complicated, factory rebuilt is necessary.	△
Overall rating		It is advantage that the body is inexpensive than gas turbine, and is easy to reserve water.		It is advantageous to install gas turbine on the roof as it does not require cooling water though is costs more than diesel.	

○ Excellenct
△ Ordinary