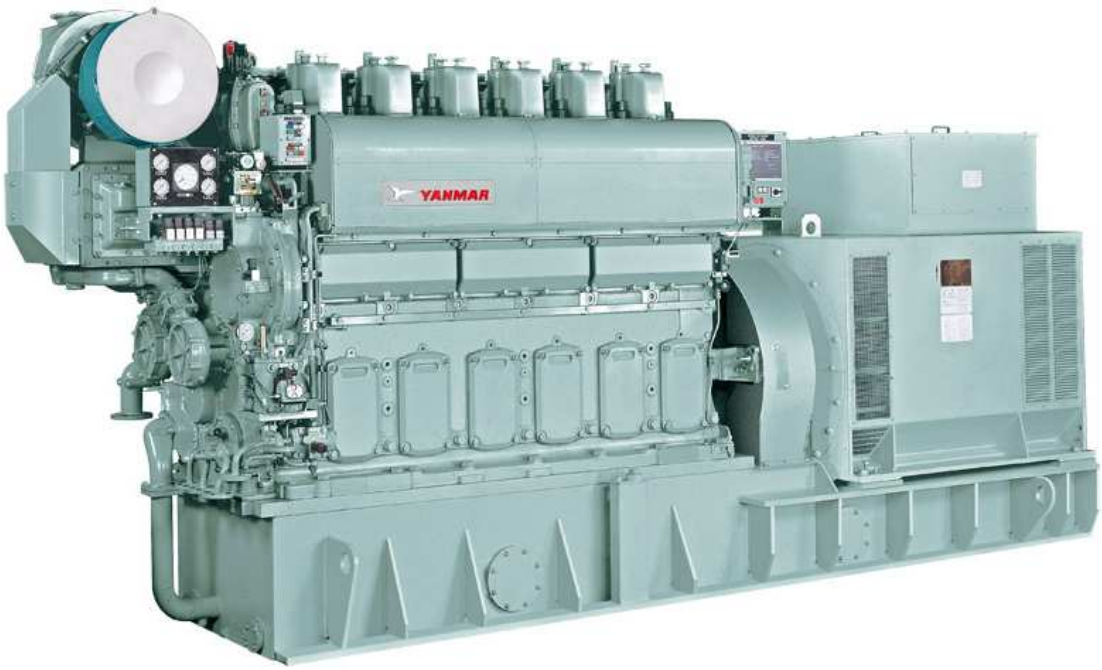
Diesel Generator Set

6EY22ALW×1250kW



YANMAR ENERGY SYSTEM CO.,LTD.

YANMAR

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- Product Specifications -

Diesel Engine 6EY22ALW

1)	Quantity	1 unit
2)	Type	Vertical, single acting, 4 stroke cycle, direct injec-tion,
		water cooled
3)	Output	1370kWm
4)	Revolution	1000 min-1
5)	Aspiration	Turbocharged, suction air cooled
6)	Bore x stroke	220 X 320 mm
7)	Total displacement	72.99 L.
8)	Cylinder arrangement	6 cylinder inline
9)	Direction of rotation	Counter clockwise (viewed from the flywheel side)
10)	Fuel consumption	Not to exceed 199 (+5%) g/kWh at rated load
		(Using Low Calorific Value of 42.7 MJ/kg)
11)	Starting system	Air motor
12)	Cooling system	Remote radiator
13)	Governor	Mechanical hydraulic type (Woodward UG8)
14)	Speed variation	
・	0 → 33%→67%→100% load	Transient : Not more than 10%
		Permanent : Not more than 5%
		Stability : Not more than 10 sec.
・	100 → 0% load	Transient : Not more than 10%
		Permanent : Not more than 5%
		Stability : Not more than 10 sec.
15)	Minimum load	More than 30% of the rated load
16)	Overload capacity	10% in excess of full load rating at rated speed for one hour in every 12 hours
17)	Stopping system	Fuel cut off by air piston
18)	Lube oil consumption	Not to exceed 1.1 g/kWh at rated load
19)	Lubricating system	Forced lubrication by use of gear pump with priming mo-tor pump
20)	Time for starting	Within 40 seconds from starting command to power supply

AC Generator

1)	Quantity	1 unit
2)	Type	Revolving field Brushless type synchronous generator, open screen protected (IP20) and self-ventilated type
3)	Capacity	1250kWe
4)	Time rating	Continuous
5)	Voltage	415V/240V
6)	No. of phase and wire	3 phase 4 wire
7)	Revolution	1000 min-1
8)	Frequency	50Hz
9)	Power factor	0.8
10)	No. of poles	8
11)	Thermal classification	155(F)
12)	Voltage regulation	
・	Steady state	Within ± 2.5% between no-load to rated load at rated power factor
・	Transient (0 → 100%)	The initial voltage drop will be limited to 30% of rated voltage and the voltage will recover to at least 97% of rated voltage in less than 2 second at power factor between 0.4 and zero (0) lagging.
13)	Deviation factor of a wave of voltage	Not to exceed 10 % at rated speed, rated voltage and no-load
14)	Negative phase sequence current	Max 15% against rated current
15)	Connection	Star without neutral point brought out

- Protection Systems -

No.	Item	Engine	Breaker	Alarm	Remarks
1	Lube oil low pressure	○	○	○	
2	Lube oil high temperature	–	–	○	
3	CW high temp.(Primery circuit)	○	○	○	
4	CW high temp.(Secondary circuit)	–	–	○	
5	CW stop (Primery circuit)	○	○	○	
6	CW stop (Secondary circuit)	–	–	○	
7	Start failure	○	–	○	
8	Overspeed	○	○	○	Tacho-gen.
9	Air tank low pressure	–	–	○	
10	Fuel tank low level	–	–	○	
11	Over voltage	○	○	○	
12	Under voltage	○	○	○	
13	Over current	○	○	○	
14	Earth fault	○	○	○	
15	Gen. bearing temp. high	○	○	○	
16	Gen. stator winding temp. high	○	○	○	
17	Engine aux. machine failure	–	–	○	
18	Synchronizing failure	–	○	○	
19	Reverse power	○	○	○	

- Appealing Point of Diesel En-

6EY22ALW

1250kWe

High efficiency & performance

- Best combustion balance and low mechanical loss by YANMAR simulation analytic technology

Reducing environmental load

- YANMAR original combustion system and high-pressure Miller-cycle system

High reliability & durability

- Exhaust valve made by nimonic alloy and special cladding valve-face
- Special chrome plating piston-ring and special honing cylinder-liner
- 2-stage air-cooler for H.F.O. burning

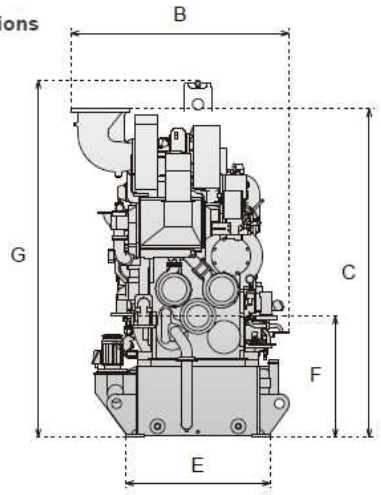
Easy maintenance & Expert service

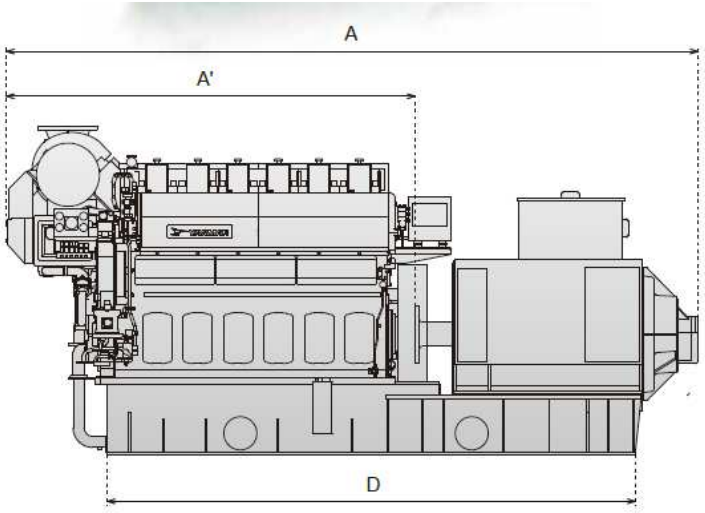
- Piping layout is gathered at engine front side
- Lube oil strainer, lube oil cooler and thermostat are built in engine
- Engine control, operation and lube oil priming pump panels are mounted on engine
- Hydraulic clamping method for main bolts
- Expert and comprehemsive support for long-term use by our worldwide service network

- Dimensions -

Diesel Generator

Dimensions



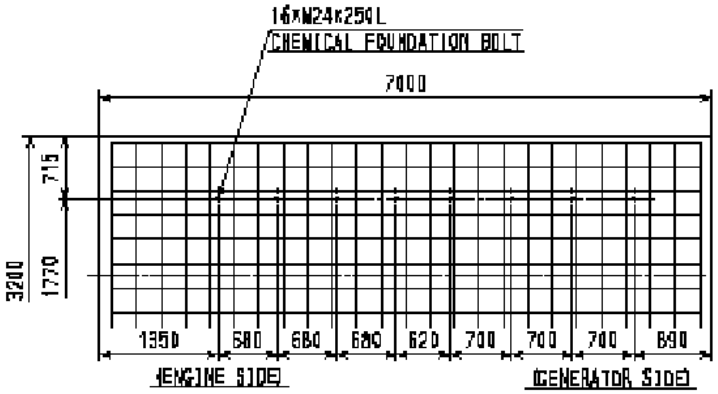


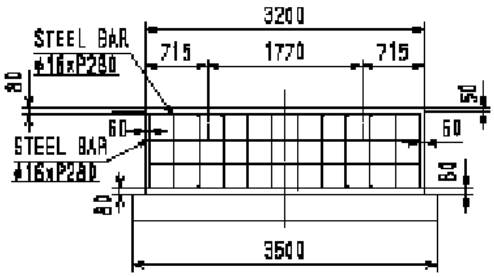
G : Minimum height for removing piston

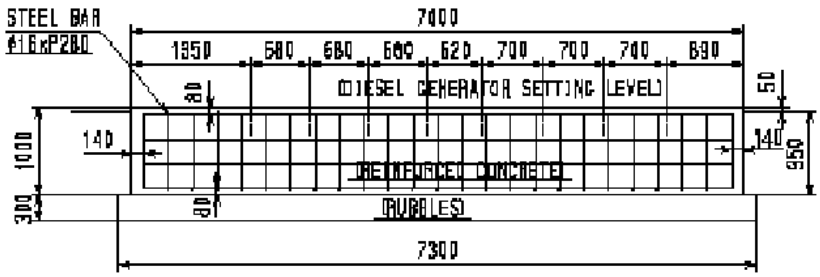
Model	A	A'	B	C	D	E	F	G
6EY22ALW	5647	3337	1782	2675	4310	1180	985	2907

Models may vary from images shown depending on the specification or options chosen.

Foundation







- Fuel Oil Consumption -

Calculation of Fuel Consumption (75% Load)

1. Engine Model : 6EY22ALW (1370kW/1000min-1) × 1250kW

2. Engine Fuel Consumption / Unit

$$Q = \frac{be \times kW}{\rho} = \frac{0.210 \times 1030}{0.96} = 225.3 \quad \ell / h$$

where,

kWm : Required Engine output 1030 kW (75% Load)

be : Specific fuel consumption of the engine (kg/kWh)
(200 g/kWh + 5%) = 210 g/kWh

ρ : Specific gravity of HFO 0.96 g/cm3

3. Total Fuel Consumption

$$Qt = Q \times n = 225.3 \times 2 = 450.6 \quad \ell / h$$

n : Number of Generator Set

- Fuel Oil Consumption -

Calculation of Fuel Consumption (100% Load)

1. Engine Model : 6EY22ALW (1370kW/1000min-1) × 1250kW

2. Engine Fuel Consumption / Unit

$$Q = \frac{be \times kW}{\rho} = \frac{0.208 \times 1344}{0.96} = 291.2 \quad \ell / h$$

where,

kWm : Required Engine output 1344 kW (100% Load)

be : Specific fuel consumption of the engine (kg/kWh)
(200 g/kWh + 5%) = 208 g/kWh

ρ : Specific gravity of HFO 0.96 g/cm3

3. Total Fuel Consumption

$$Qt = Q \times n = 291.2 \times 2 = 582.4 \quad \ell / h$$

n : Number of Generator Set

- Lubricating Oil Consumption

Engine Model	6EY22ALW	
Generator Output	1250	kW

1 . Amount of Oil Consumption : Lm

$$Lm = \frac{b \times PS}{\rho}$$

$$= \frac{1.1 \times 1370}{0.9 \times 1000} = 1.67 \text{ L/h}$$

Parameter for Calculation

d	:	Lub. Oil Consumption Ratio:	1.1	g/kW·h
PS	:	Engine Output	1370	kW (Rated Output)
ρ	:	Gravity of Lub. Oil	0.9	kg/L

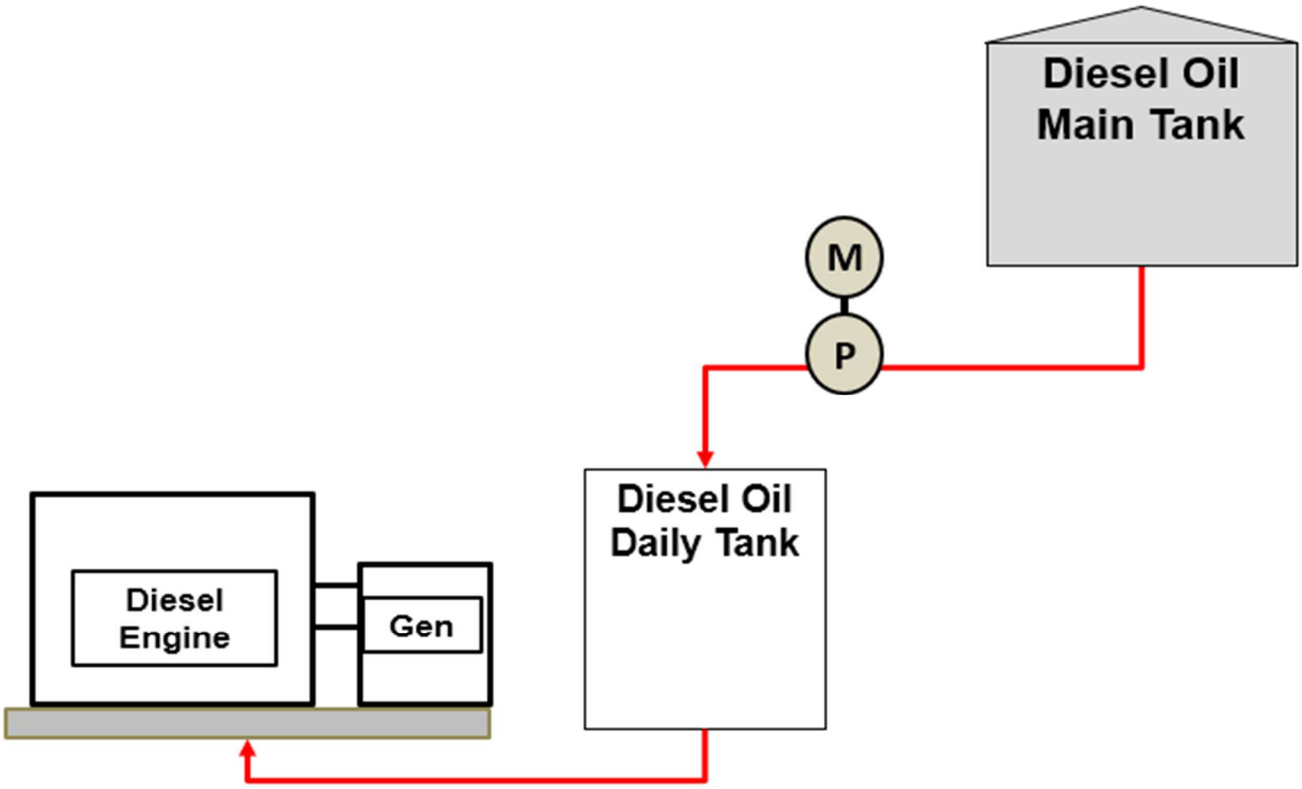
2 . Total Amount of Oil Consumption : Lmt

$$Lmt = Lm \times n = 1.67 \times 2 = 3.35\ \ell / h$$

n : Number of Generator Set

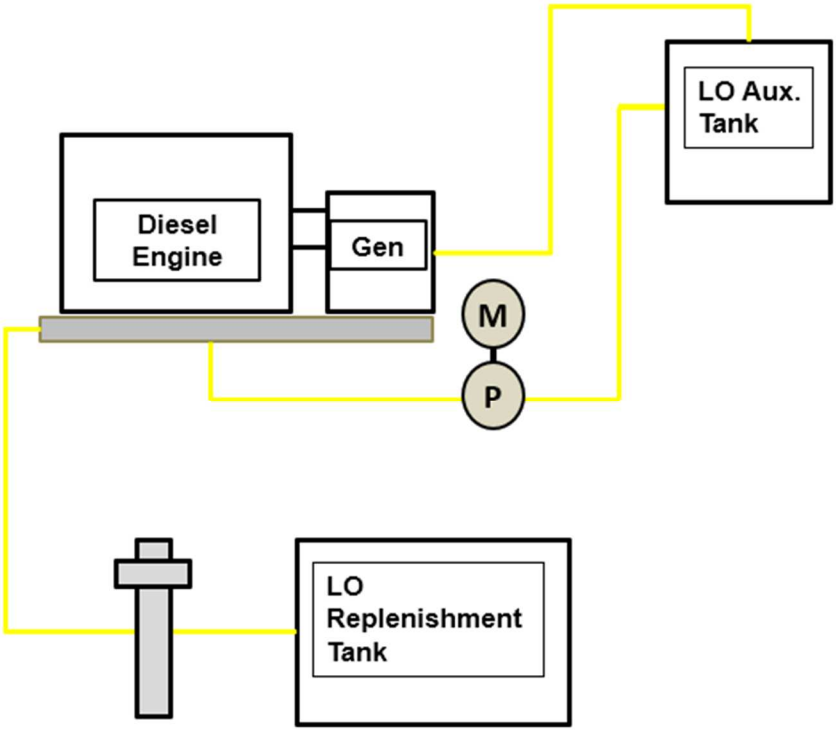
- System Flow Chart -

Fuel Oil



- System Flow Chart -

Lub. Oil



Cooling Water