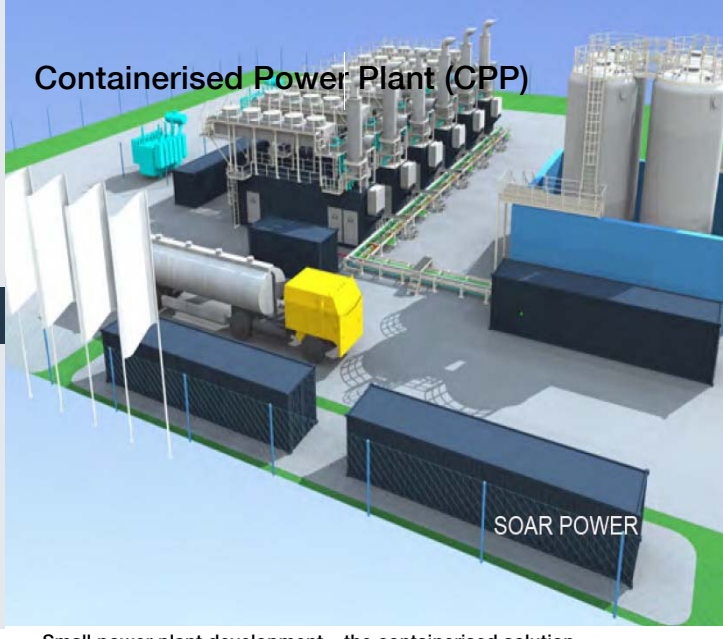
Containerised Power Plant (CPP)



Small power plant development – the containerised solution

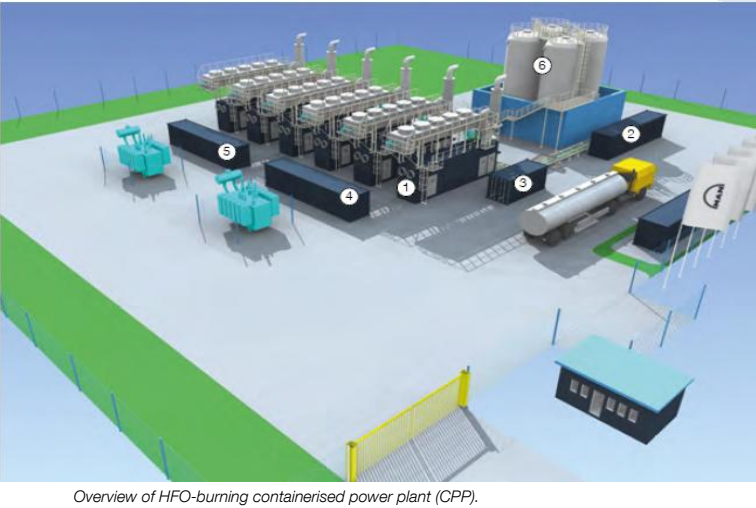
MAN Diesel & Turbo has developed a container concept based on the 9L21/31S GenSet. This is a unique concept where the power plant is composed of six GenSet containers and the containerised mechanical and electrical plant equipment. The entire plant has been designed with emphasis on reducing the civil work and site installation, and thereby the overall time needed on site. This power plant is able to operate on the same fuel as a conventional power plant up to a fuel viscosity of 700 cSt. A version operating on bio fuel is also available.

Although the plant is optimised with 6 containerised GenSets, the plant can be delivered with 1-8 GenSet containers depending on the customers need. Additionally, the GenSet containers can be delivered with varying cylinder numbers from 5 to 9 cylinders. This flexibility provides the customer with all the required combinations. If more power is required, the selected combination can be multiplied to meet this requirement.

Containerised Power Plant (CPP) -- 11 MW

The CPP design concept for the engine-unit container and the auxiliary container have evolved from MAN Diesel & Turbo's long experience of operating GenSets with diesel oil, HFO, bio fuel and crude oil. All auxiliary systems are based on well-proven setups and all auxiliary suppliers are recognised names within the energy sector involving the operation of GenSets using liquid fuels.

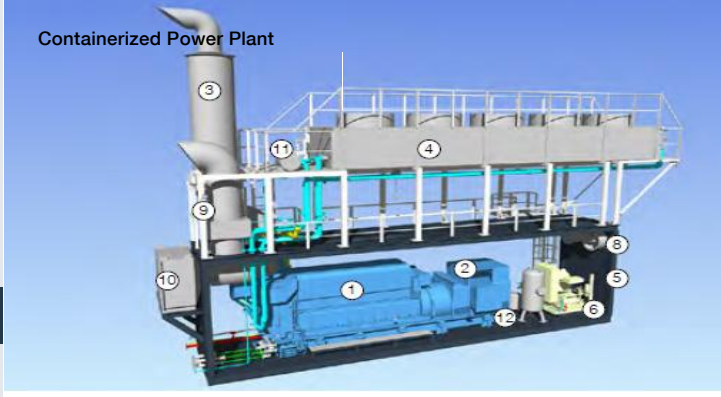
1. Engine container (9L21/31S)
2. HFO auxiliary container
3. Air auxiliary container
4. Electrical container (LV)
5. Electrical container (MV)
6. Fuel storage tanks



Overview of HFO-burning containerised power plant (CPP).
Typical CPP scope: 6 engine-unit containers, 2 mechanical aux. containers, 1 electrical aux. container, 1 control room container.

URL: http://www.soarpower.com
E-mail: sale@soarpower.com
Phone: +86 - 4008111308

Containerized Power Plant



Engine-Unit Container with MAN L21/31S GenSet

1. Engine (9L21/31S)
2. Generator
3. Exhaust gas silencer
4. Radiator cooler
5. Enclosure (container)
6. Lube oil separator
7. Air vessel for starting air
8. Fans for container ventilation (inlet)
9. Silencer for container ventilation (outlet)
10. Charge air filter
11. Air venting tank for HT water circiut
12. Pressure expansion tank

** Total weight of engine-unit container with 9L21/31S GenSet is 55 tons. GenSet output 1.81 MWe @ISO conditions.*

URL: http://www.soarpower.com
E-mail: sale@soarpower.com
Phone: +86-4008111308

SOAR
斯奥集团
SOAR GROUP

MAN L21/31S

Containerized Generator Sets

Bore: 210 mm, Stroke: 310 mm

Speed	r/min	1,000		900	
Frequency	Hz	50		60	
		Eng. kW	Gen. kW*	Eng. kW	Gen. kW*
5L21/31S		1,100	1,045	1,100	1,045
6L21/31S		1,320	1,254	1,320	1,254
7L21/31S		1,540	1,463	1,540	1,463
8L21/31S		1,760	1,672	1,760	1,672
9L21/31S		1,980	1,881	1,980	1,881

Nominal generator eficiency is 95%

Electr. GenSet Heat Rate at 100% Load

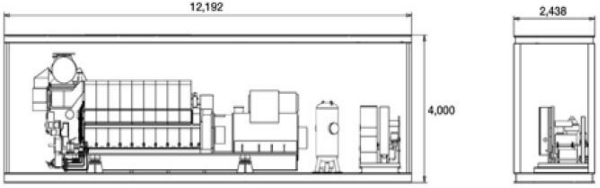
Cyl. No.		5L		6L		7L		8L		9L	
Liquid fuel (WB2007/2008)	kJ/kWh	8,405	8,360	8,405	8,360	8,405	8,360	8,405	8,360	8,405	8,360

Lube Oil Consumption	kg/h	0.4-0.9	0.5-1.1	0.6-1.2	0.7-1.4	0.8-1.6

Dimensions

L	mm	12,192	12,192	12,192	12,192	12,192
W	mm	2,438	2,438	2,438	2,438	2,438
H	mm	4,000	4,000	4,000	4,000	4,000
Total weight	t	42	45	48	52	55

Weights and dimensions are subject to final application



Note: The above dimension: only reference.
The final dimensions are determined by the type of generator.

URL: http://www.soarpower.com
E-mail: sale@soarpower.com
Phone: +86-4008111308