

Waukesha* gas engines

APG1000

APG* Gas Engine* Generating System
 1000 kWe @ 50 Hz/1100 kWe @ 60 Hz

CHP

The APG1000 Combined Heat and Power (CHP) package allows for optimized efficiency by maximizing heat recovery. This minimizes packaging cost and time by including CHP components factory mounted. Achieve up to **89.4%** total efficiency with the APG1000 CHP package.

With a reputation for rugged durability and ongoing design advancements, Waukesha engines are the sound investment you can depend on in mission-critical applications. Now a part of GE Energy, Waukesha provides enhanced support in the form of parts, service and a network of distributors to make us an even stronger partner for today's global energy industry.

reference installations

model, site

key technical data

description

APG1000
Sicily, Italy

Fuel..... Natural gas
 Engine type..... APG1000
 Electrical output..... 1000 kWe
 Thermal output..... 1100 kW
 Commissioning..... 1st Quarter 2012

A Hospital in Catania, Sicily, Italy is installing the Waukesha APG1000 CHP package. Hospitals have a high heat load making CHP a perfect fit to maximize energy efficiency and cost savings.



APG1000
Seika Teisyo, China

Fuel..... Sewage gas (WWTP)
 Engine type..... APG1000
 Electrical output..... 900 kWe
 Thermal output..... 1100 kW
 Commissioning..... 1st Quarter 2012

The Seikai Teisyo Project is located in mainland China. JFE Engineering Corporation is installing Waukesha CHP package at a new wastewater treatment plant. The customers needed to maximize heat production for the treatment process which made the APG1000 the optimum decision.



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technical features

feature	description	advantages
Factory built CHP package	Oil and water circuits optimized for maximum thermal efficiency	-Hot water return temperature of up to 80°C (176°F) suitable for many applications -Wide range of customer side flow rates are permissible
Electric jacket water pump and temperature control valve	Engine side coolant circuit flow is controlled by genset mounted pump	-Fast engine warm-up is possible -Post shutdown cooling is possible
ECP8000E genset control panel included	Full featured CHP control panel is provided with simple hook-up to genset mounted junction box	-Customer configurable spare I/O is provided to control ancillary equipment -Connect to genset with a simple Ethernet cable -Monitor the CHP system remotely

technical data

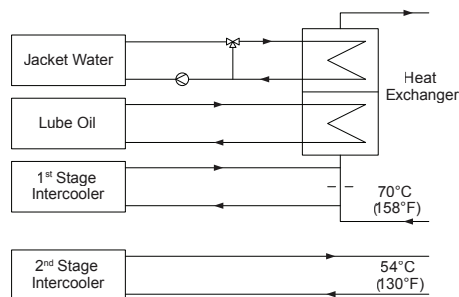
Engine	Waukesha 16V150LTD, Four Cycle, Lean Burn
Cylinders	V16
Piston displacement	48L (2924 cu. in.)
Bore & stroke	152 x 165 mm (5.98" x 6.5")
Jacket water system capacity	159L (42 gal.)
Auxiliary water capacity	30 L (8 gal.)
Lube oil capacity	820 L (215 gal.)
Starting system	24VDC Electric
Dry weight	13,730 kg (30,200 lb.)

Dimensions l x w x h mm (inch)

CHP Package	7165 (282) x 1926 (76) x 2263 (89)
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Weights kg (lb)

CHP Package	14900 (32800)
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performance data

Natural gas

NOx	Cooling system configuration	1,800 rpm/60 Hz					1,500 rpm/50 Hz				
		Pel (kW)	η_{el} (%)	Pth (kW)	η_{th} (%)	η_{tot} (%)	Pel (kW)	η_{el} (%)	Pth (kW)	η_{th} (%)	η_{tot} (%)
"TA Luft NOx 1.0 g/bhp.hr"	Standard	1,100	41.7	1,053	39.9	81.6	1,000	42.1	905	38.0	80.1
	CHP	1,100	41.7	1,260	47.7	89.4	1,000	42.1	1,067	44.9	87.0
"1/2 TA Luft NOx 0.5 g/bhp.hr"	Standard	—	—	—	—	—	1,000	40.8	976	39.9	80.7
	CHP	—	—	—	—	—	1,000	40.8	1,132	46.3	87.1
0.6 g/bhp.hr	Standard	1,100	40.8	1,095	40.6	81.4	—	—	—	—	—
	CHP	1,100	40.8	1,300	48.3	89.1	—	—	—	—	—

Biogas

"TA Luft NOx 1.0 g/bhp.hr"	Standard	1,100	40.9	995	37.0	77.9	1,000	42.0	835	35.0	77.0
	CHP	1,100	40.9	1,192	44.3	85.2	1,000	42.0	1,005	42.1	84.1



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