

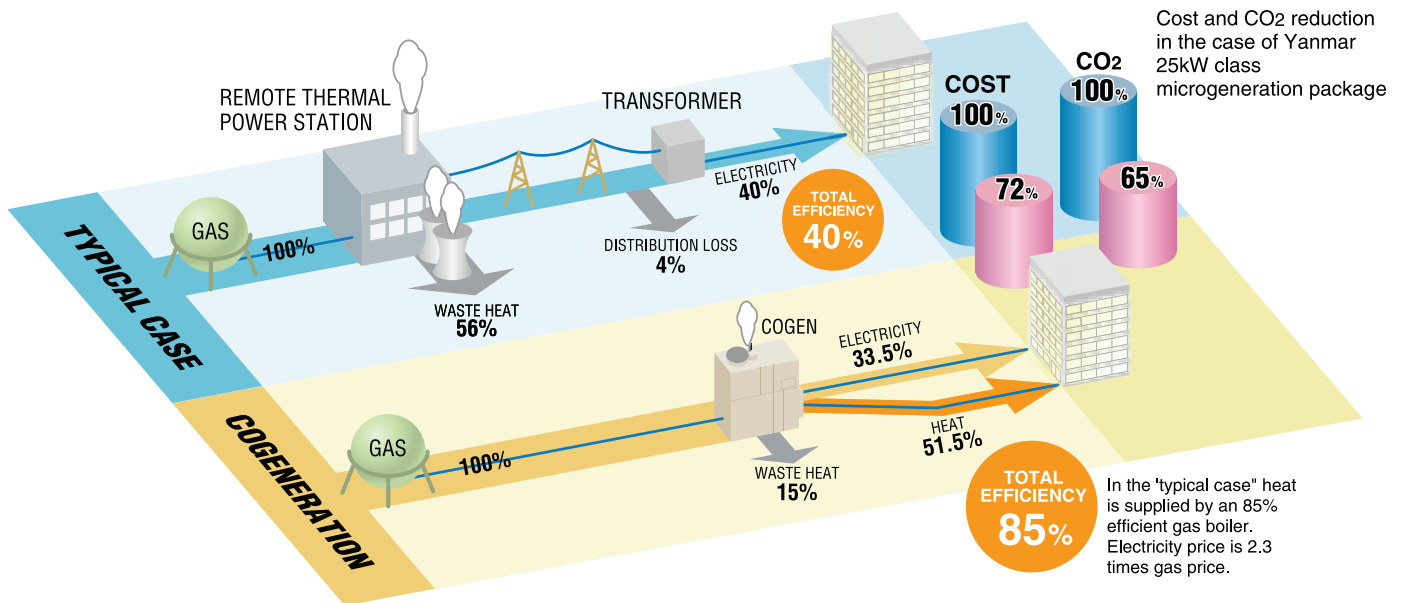
**YANMAR**



**GAS POWERED**  
MICRO COGENERATION

# Benefits of micro cogeneration

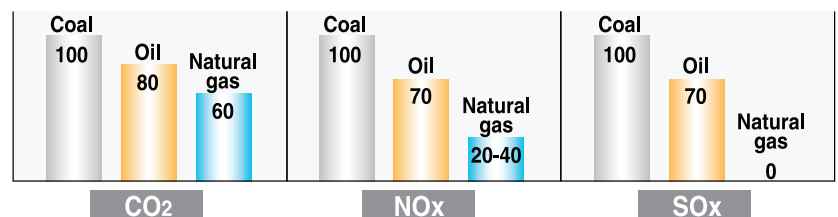
Cogeneration systems offer higher overall efficiency than typical remote electrical power generation by utilizing the heat energy that is usually lost during the conversion of primary energy into electrical power. A Yanmar micro cogeneration unit generates electrical power using a gas engine with heat reclamation. Since micro cogeneration units can be installed near to the buildings that are using power from the units, it is easy to utilize the reclaimed heat from the unit. This makes a great contribution to saving energy, reducing power transmission losses, cost reduction and reduced environmental impact (lower CO2 emissions).



## Comparison of CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub> emissions

Proportion of substances produced in fossil fuel combustion (coal=100)

Power generation using gaseous fuel, such as natural gas, has a lower impact on the environment compared to many other commonly used fuels. This benefit is further enhanced by the use of a cogeneration system such as the Yanmar micro cogeneration unit.



Natural gas is kinder to the environment than other fossil fuels, since the amount of CO<sub>2</sub>, NO<sub>x</sub> and SO<sub>x</sub> etc. generated emissions are comparatively small.

Source: Natural Gas Prospects 2010, 1988/IEA

## CP Features

### ■ High efficiency Yanmar design

- Lower total energy costs
- Helps reduce CO<sub>2</sub> emissions

### ■ Promotes on-site gas consumption

- Reduces reliance on electrical power system
- Natural gas, propane and biogas models (25kW type)

### ■ Flexible installation

- Indoor or outdoor installation
- Low operation noise

### ■ Flexible operation

- Heat or power based with integral radiator
- Multiple unit operation

### ■ Reliable operation

- 10,000 hour maintenance interval
- Over 6,000 installations globally

# System Configuration

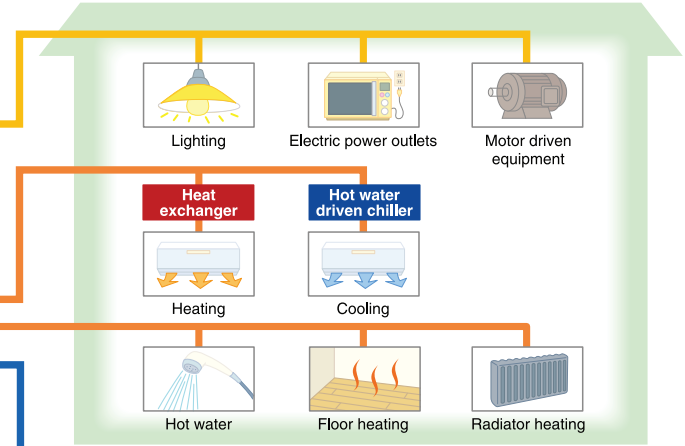
## Cogeneration package



Electric power

Hot water

## Typical loads



## System Controller



### Setting functions

- Scheduled operation
- Manual operation
- Holiday setting
- Operation start power, operation stop power
- Multiple unit operation (number of units, rotation, group operation)
- Buzzer on/off

### Monitor functions

- Setting values, setting value confirmation
- Running data (generated power, incoming power, voltage, current etc.)
- Alarm displays (history, alarm condition, reset condition)

### Alarm setting functions

\*Only for resettable alarms  
(Please refer to the operation manual for details)

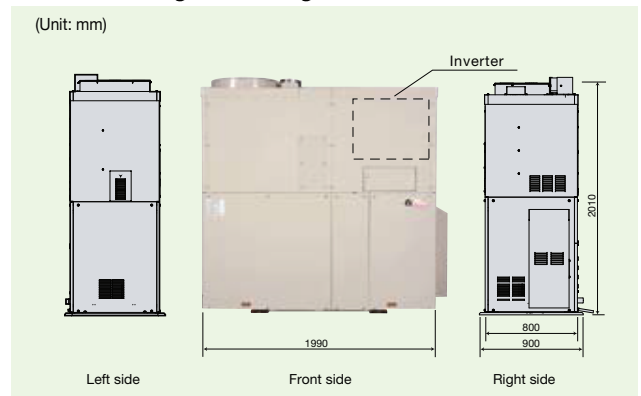
### Emergency stop functions

## Main Specifications

Model		Unit	CP25WE	
Output	Rated output	kW	25.00 <sup>*1</sup>	
	Frequency	Hz	50	
	Voltage	V	AC400	
	Current	A	35.4	
	Phase/wires	—	Three phases, four wires	
	Power factor	%	97 or more	
Heat Recovery	Recovered heat		38.4	
	Hot-water temperature	Inlet	°C	70
		Outlet	°C	75 (MAX85)
Hot-water flow rate		L/min	110 <sup>*2</sup>	
Efficiency	Overall efficiency		%	85.0
	Electrical generation efficiency		%	33.5
	Exhaust heat recovery ratio		%	51.5
Sound Pressure Level	For rated load	Radiator fan stopped	dB (A)	62
		Radiator fan operating		64
		—	—	—
Power Supply	Voltage		ACV	230
	Startup current		A	46.0 (Mean current) /AC200V
	Power consumption (rated)	Radiator fan stopped	kW	0.93
		Radiator fan operating	kW	1.35
Space heater (below 5°C)		kW	0.75	
Fuel	Consumption (LHV basis)		kW	74.6 <sup>*3</sup>
	Gas type		—	Natural gas (group E,H)
	Gas supply pressure		mbar	15-30
Dimensions	Width		mm	2,150
	Depth		mm	800 (900 including protrusions)
	Height		mm	2,010 (2,060 including the exhaust outlet)
	Net weight		kg	1,320 (including cooling water and lubricant)

- (1) The heat recovery and efficiency values are those for rated output in standard atmospheric conditions.  
 (2) The operating sound levels are maximum values measured in 4 directions at a point 1 m from the side of the unit and 1.2 m above the ground in an anechoic room simulation. The sound levels during actual operation are usually higher than the simulated values due to ambient noise and echoes.  
 (3) The values for the external dimensions do not include piping, piping connections, or protruding parts.  
 (4) The amount of fuel consumption is based on lower calorific values.  
 \*1. Power consumption is included. \*2. Max. of +5%; 25.5 L/min \*3. Tolerance +5% is not included.

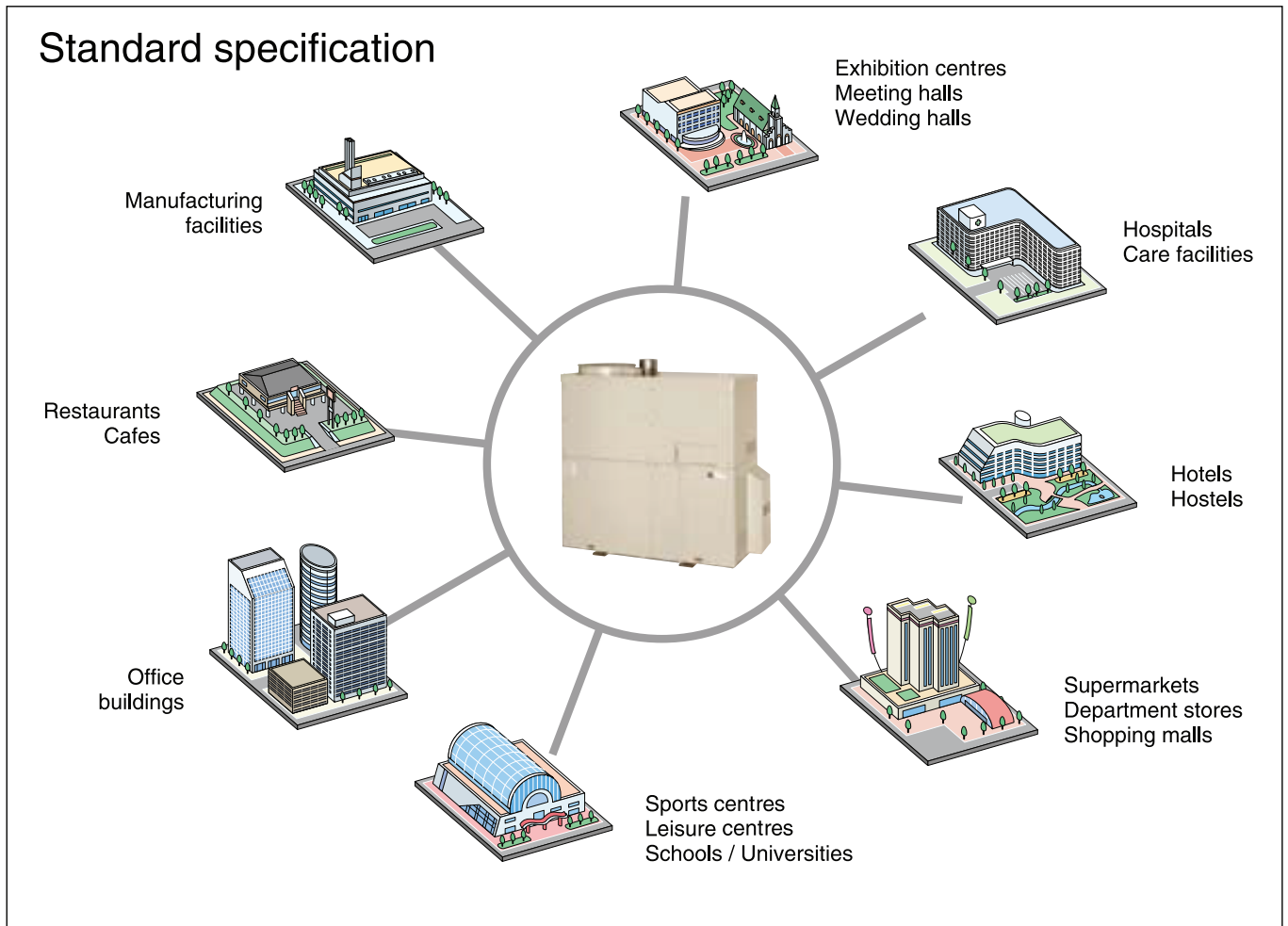
## Outline Drawing of Gas Cogeneration Main Unit



## Options

Items	Type	Items	Type
Heater kit (for ambient temperature -5°C to -15°C)	HHC4W	Exhaust pipe extension joint	EKC4W
Anti vibration mount	BKCSB	Flexible exhaust pipe	JKC4W
System controller	LKC10B3UK	Drain syphon (short type, long type)	SPW1S, SPW1L
Wall mount box for system controller	RKC20C	Neutralizer (drain filter)	DFB19E
Remote monitoring adapter (wall mount type)	CLCG2B1	Radiator exhaust air direction change duct	FKA5B
Transducer kit (for non reverse power operation)	TRC4W		

# Typical Applications



**GasAircon Australia**

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\* Specifications may change in order to incorporate continuous improvement  
\* Product images may differ slightly from actual products  
\* Every effort has been made to ensure specifications are correct, please consult the technical manual for confirmation  
\* Before using this equipment read the operation manuals and use correctly  
\* The various usage conditions (temperature, voltage, humidity etc), usage purposes (run time, applications etc), functions, terminology and expressions given in this brochure are based on Yanmar Energy System Co., Ltd standards.