

# *An Introduction of MCHP Unit for Residential Use*

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# Honda MCHP1.0 Gas Engine Micro CHP unit



Fig. 2 External view of Honda Micro CHP

## Development Concept

1: Utilizing the primary energy with minimal waste.

- High energy utilization efficiency
- Reduce discharge of CO<sup>2</sup> and NO<sub>x</sub>

2: Installation to general residence.

- Compact package
- Low operation noise
- High quality power supply
- Connection with hot water supply and heating system

# Energy Utilization Ratio ( conventional style )

## ◆ Energy service system by thermal power station (Average of 9 Japan electricity service companies in 1998)

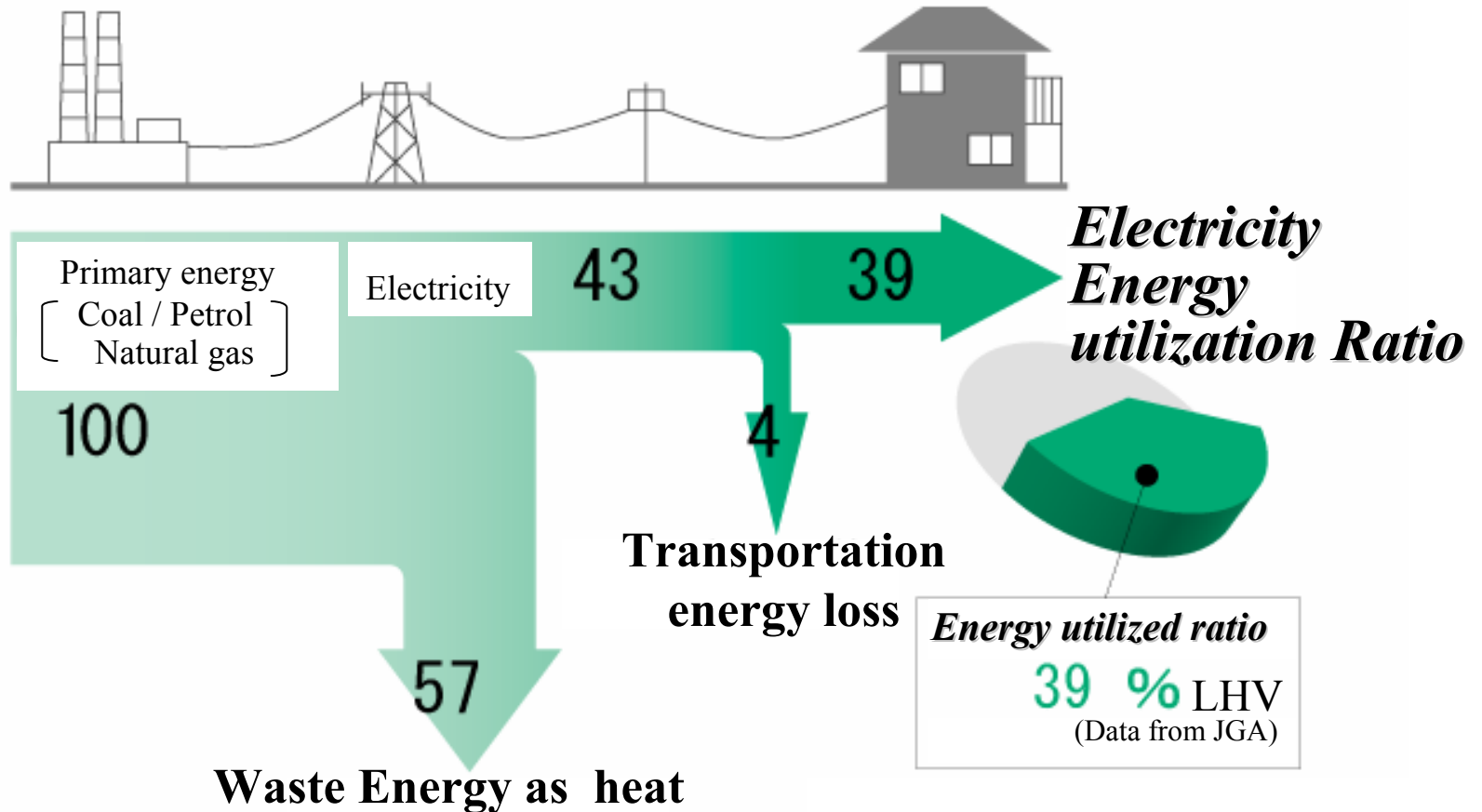


Fig. 4 Comparison of total energy efficiency

# Energy Utilized Ratio ( MCHP model )

## ◆ Energy supply by using MCHP (by natural gas)

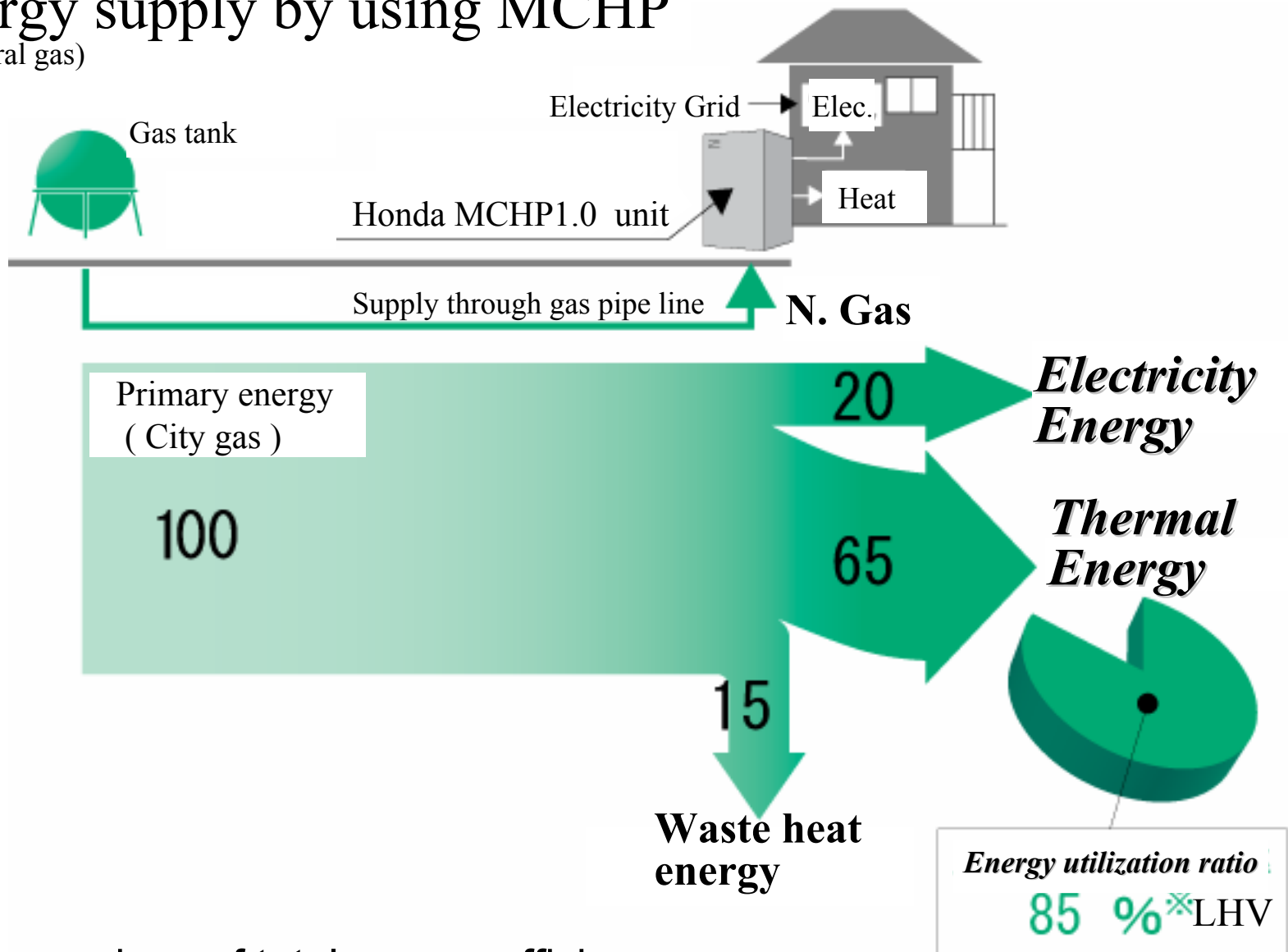


Fig. 4 Comparison of total energy efficiency

※ Calculation result with MCHP unit

# Honda MCHP1.0 Electricity and heat

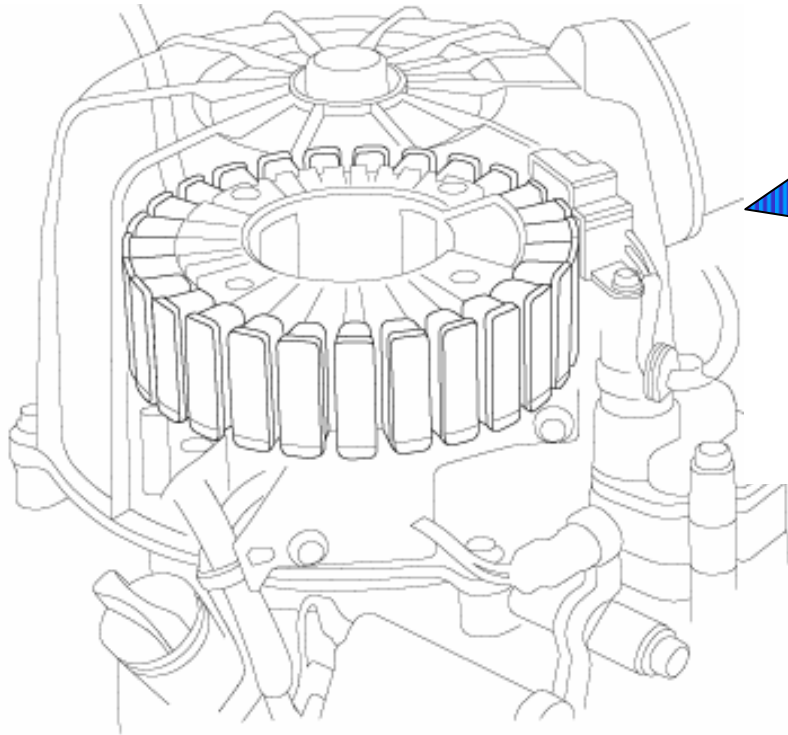


Fig. 5 Generator ( 27 poles )

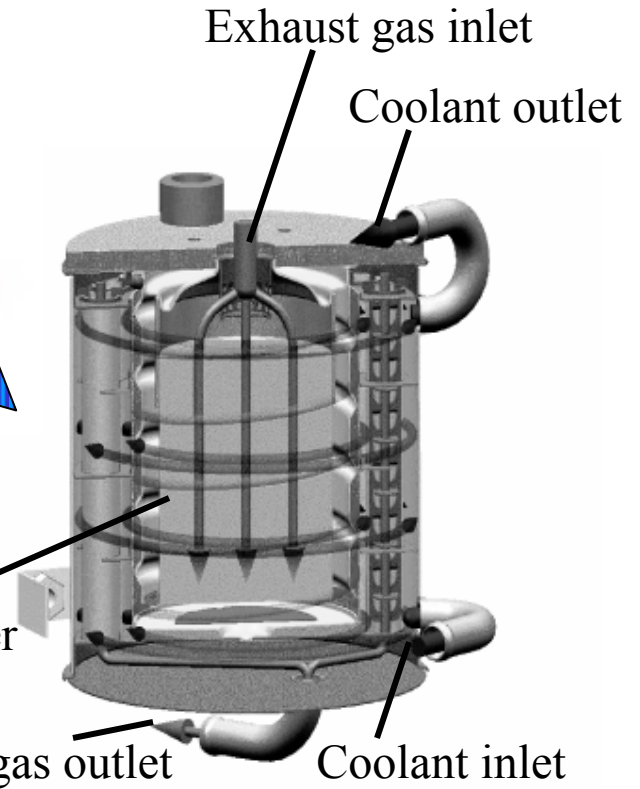
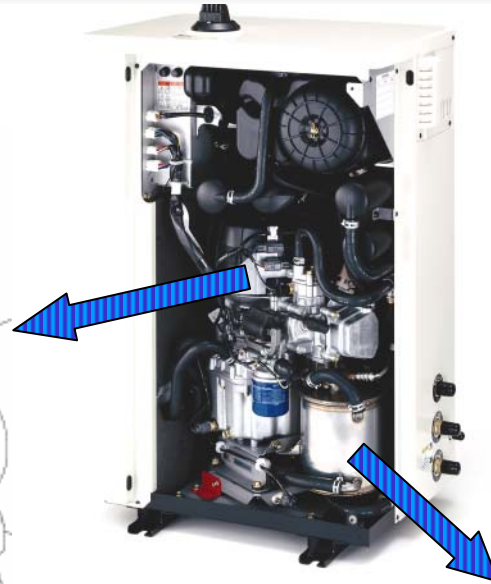


Fig. 6 Heat Exchanger with built-in catalyzer

# Honda MCHP1.0 Specifications



		<b>Fuel</b>	<b>Natural Gas ( Japan 13A)</b>
<b>Output</b>	<b>Electricity</b>	<b>1 Φ 200V/100V 50/60Hz 1 kW</b>	
	<b>Heat</b>	<b>3.25 kW</b>	
<b>Power supply</b>		<b>Grid interconnection</b>	
<b>Heat recovery</b>		<b>Max. 80°C Hot coolant</b>	
<b>Efficiencies (LHV)</b>	<b>Electricity</b>	<b>20%</b>	
	<b>Heat</b>	<b>65%</b>	
<b>Dimension (L x W x H)</b>		<b>640x380x940 mm</b>	
<b>Operation Weight</b>		<b>82 (k g)</b>	
<b>Operation Noise</b>		<b>44 (d B (A) / 1 m)</b>	
<b>Emission ( NOx )</b>		<b>Max. 60ppm</b>	
<b>Engine</b>	<b>Type</b>	<b>Liquid cooled 4-stroke OHC vertical single cylinder</b>	
	<b>Displacement</b>	<b>163 cm<sup>3</sup></b>	
<b>Starting system</b>		<b>Starter Generator</b>	

Table 1 Specifications

# Internal Structure of Honda MCHP1.0

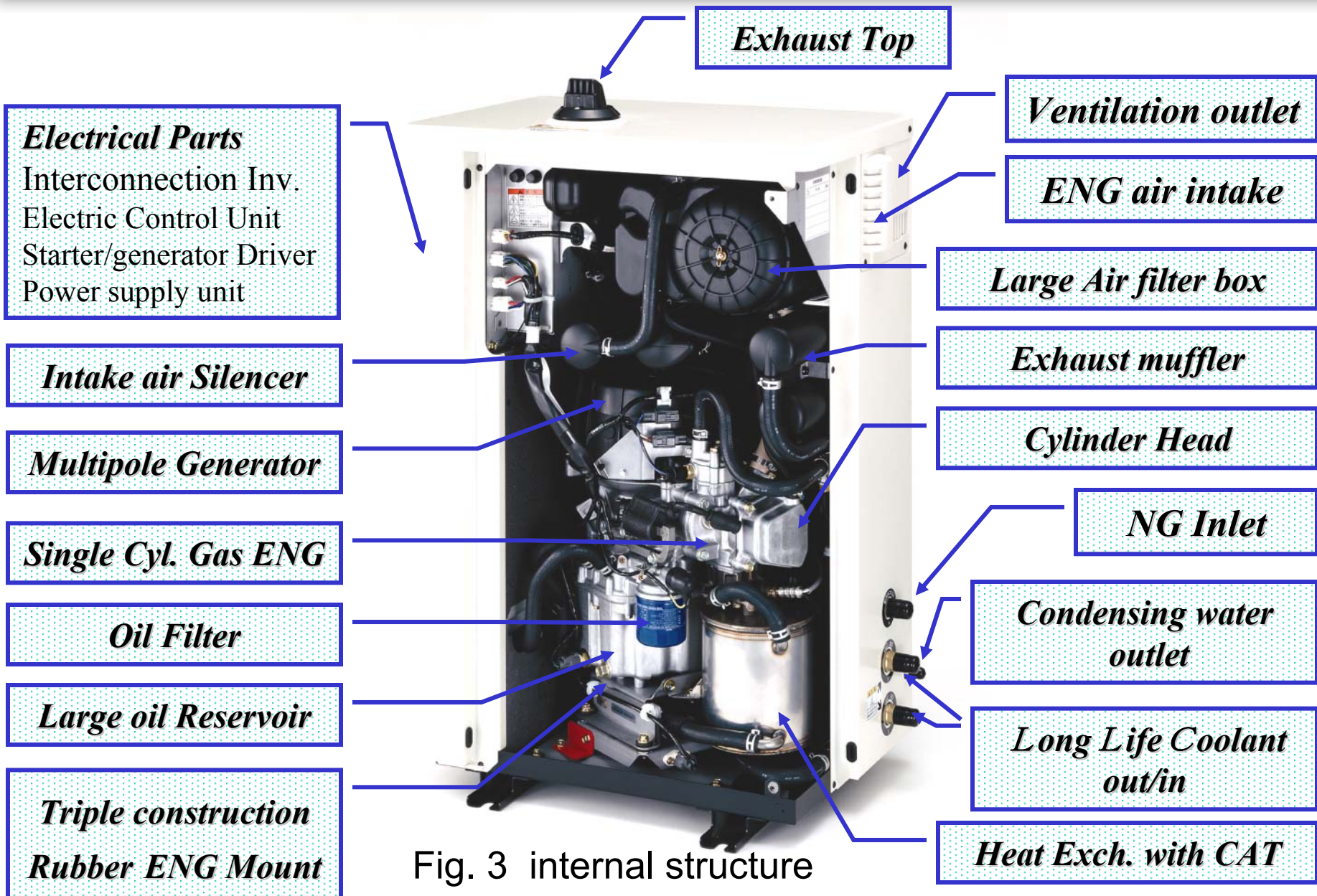
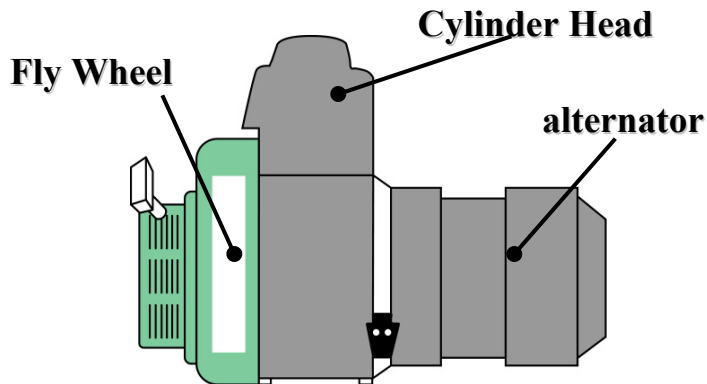


Fig. 3 internal structure

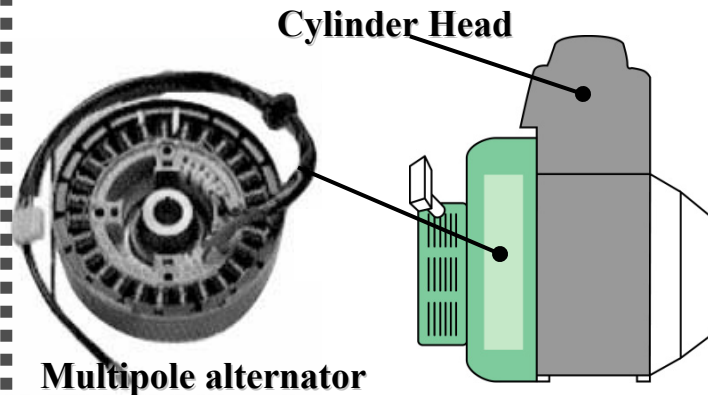


# Honda MCHP1.0 Comparison of layout

## Conventional Generator

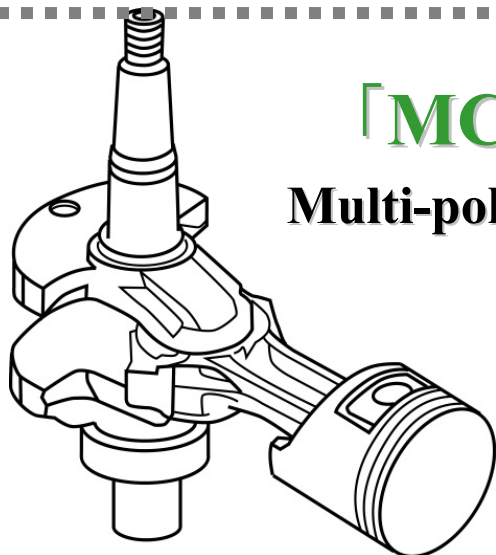


## New multi-pole Gen.



## 「MCHP unit Generator」

### Multi-pole alternator



Vertical crankshaft layout engine

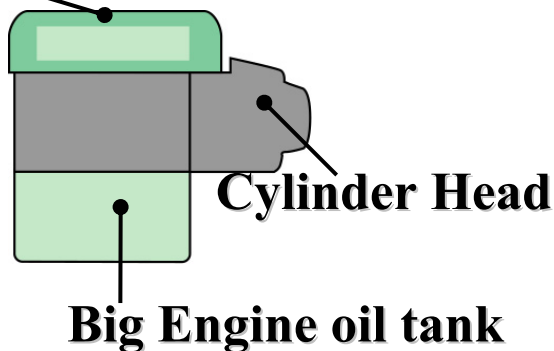
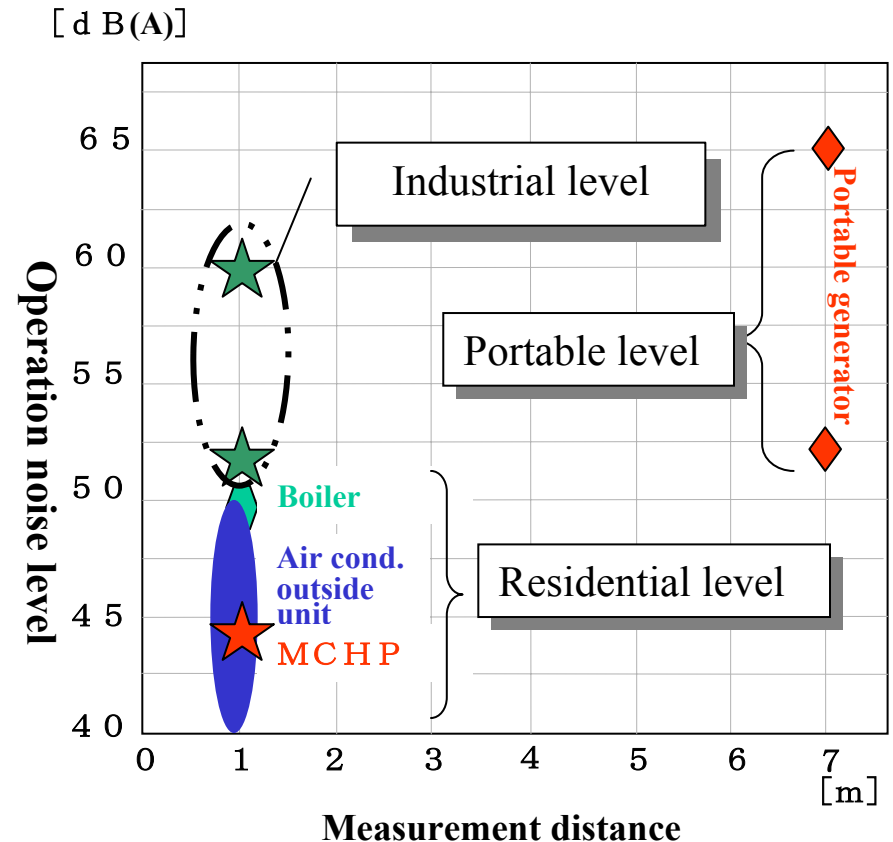
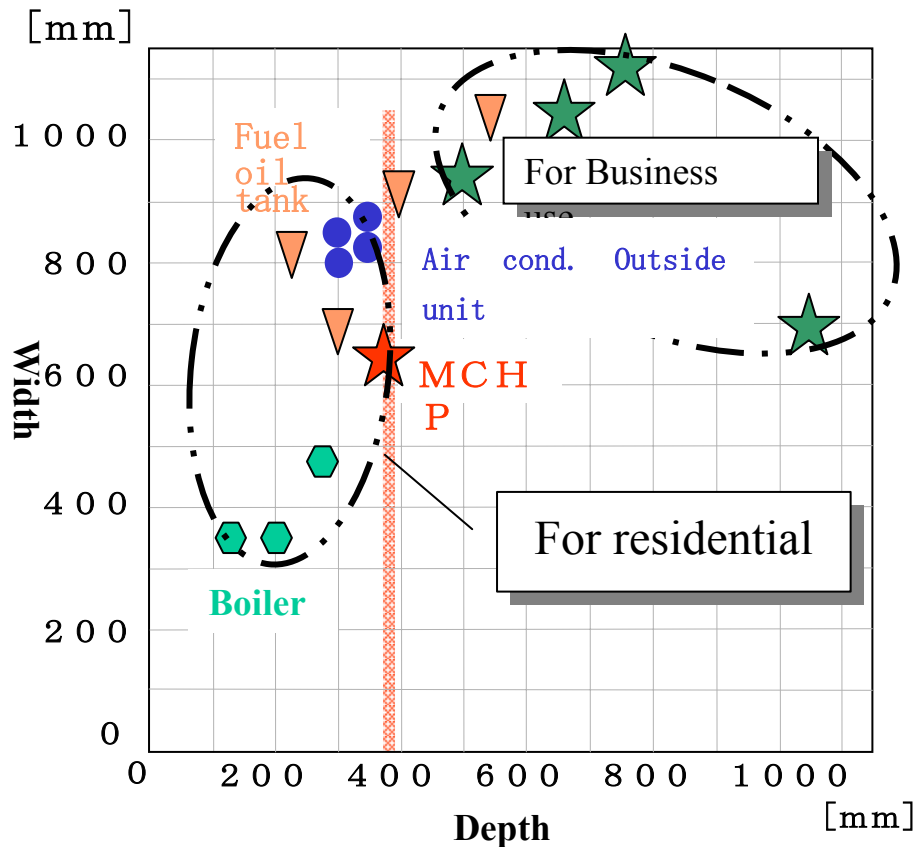


Fig. 7 comparison of layout

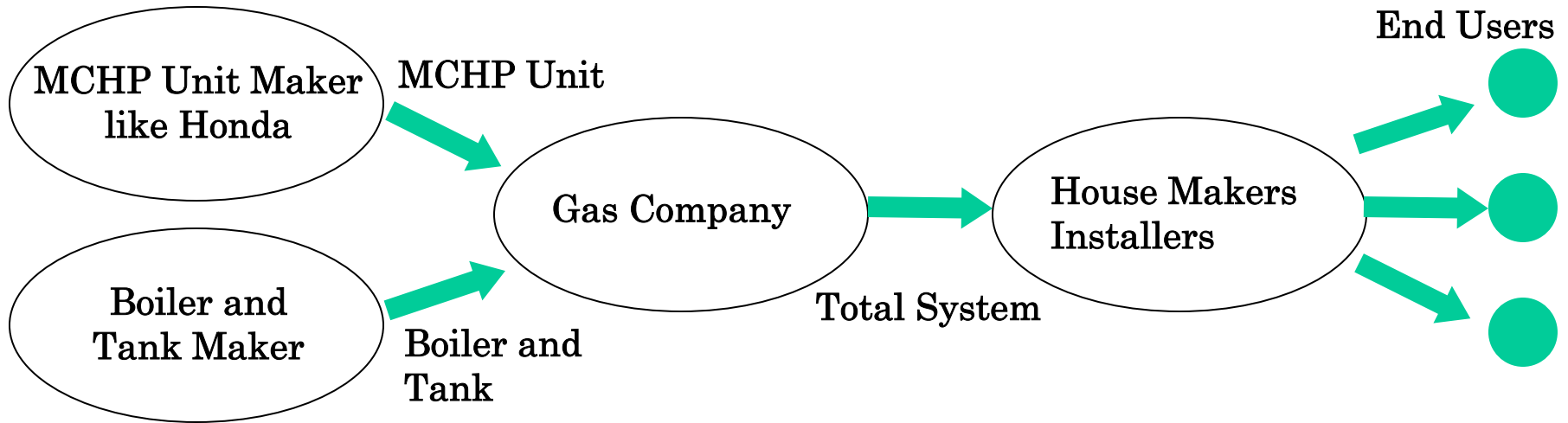
# Honda MCHP1.0 Achievement Technique

- Installation in a typical house ( compact package )
- Reduction of operation noise

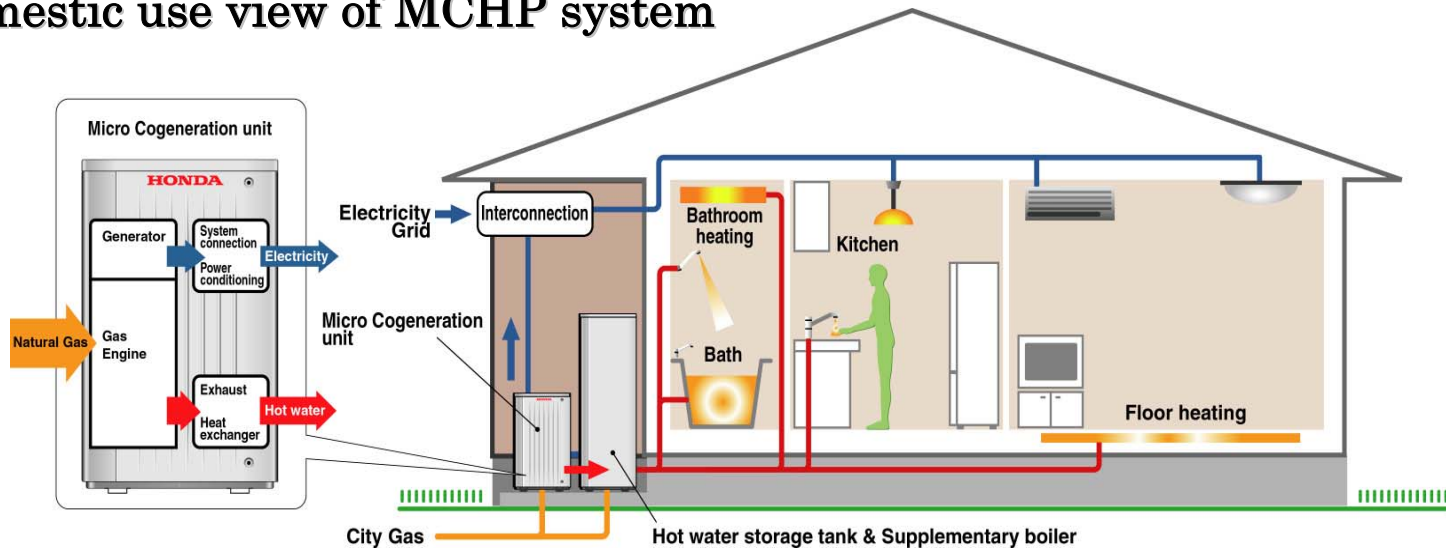


# Current Business Model in Japan

In Japan Gas Company has Distribution Channel and Service Division



General domestic use view of MCHP system



## Current Market Situation

- Beta Testing in Japan
  - 20 sites test completed
  - 80 sites test ongoing – complete fall 2003
- Production/ Sales Started March 2003
  - Aproximate Retail cost \*\$6400
  - \* Final price set by Gas Company depending on each installation
- 1000 unit 1<sup>st</sup> year sales goal  
( initial sales ahead of plan)
- Conducting feasibility study for USA market

# Current Market Situation

**The End**

**Thank You**