NEW Gas Heat Pump M Series - the perfect solution when you are short of power

SANYO has been developing GHP VRF systems since 1980, during which time we have been committed to delivering ground-breaking technology. As a result, the commercial range of GHP VRF systems is leading the industry in the development of efficient and flexible systems, making them the natural choice for commercial projects, especially for those projects where power restrictions apply. As you would expect, all of our gas driven VRF systems have the highest reliability rates in the industry and a leading customer service program.

The new M Series of gas driven VRF systems offers increase efficiency and performance across the range. Now more powerful than ever before, it can connect to up to 48 indoor units.

Improvements include increased part load performance, reduced gas consumption with a Miller-cycle engine and reduced electrical consumption from using DC fan motors.

- Up to 71kW of cooling from a maximum running capacity of 5 AMPs
- Single phase power supply across the range
- The option of natural gas or LPG as its main power source
- Free hot water! A water heat exchanger to connect to domestic hot water systems 13-25 HP (2-pipe only)
- Option of DX chilled water heat exchanger for fancoils or AHU's applications
- Option to connect to third party AHU

Power supply problems?

If you are short of electrical power, gas heat pump could be the perfect solution:

- Runs on gas and just needs single phase supply
- Enables the building's electrical power supply to be used for other critical electrical demands
- Reduces capital cost to upgrade power substations to run heating and cooling systems
- Reduces power loadings within a building especially during peak periods
- Electricity supply freed up for other uses such as IT servers, commercial refrigeration, manufacturing, lighting etc

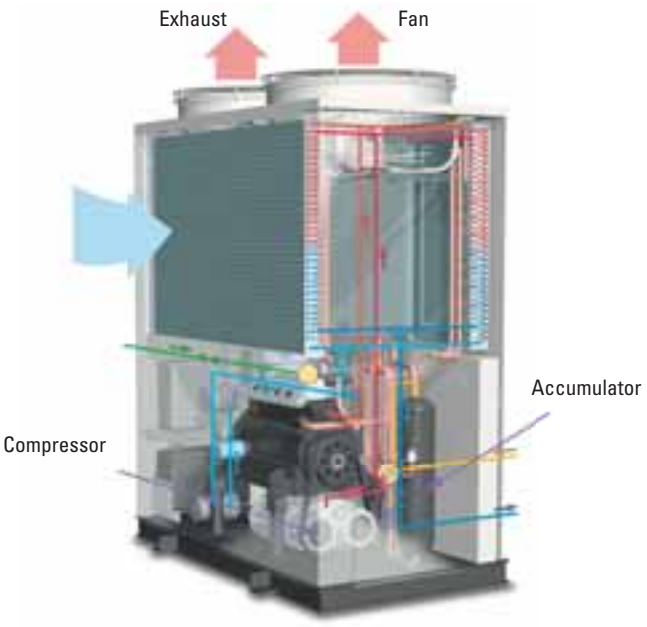
Benefits

High-efficiency operation

13-25 HP models are equipped with a high-performance air exchanger and a newly developed refrigerant heat exchanger for high-efficiency operation, making them one of the most energy-efficient solutions on the market.

Lowest nitrogen oxide emissions

The GHP VRF systems have the lowest nitrogen oxide emissions, 66% below the standard EU requirement. In a pioneering development, the SANYO GHP features a brand new lean-burn combustion system that utilises air fuel ratio feedback control to reduce NOx emissions to an all time low.

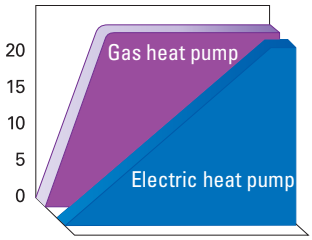


UK Conditions: Cooling Indoor 23°C DB 50% RH Outdoor 30°C Heating Indoor 20°C Outdoor 0°C
Rating Conditions: Cooling Indoor 27°C DB 19°C WB Outdoor 35°C DB 24°C WB Heating Indoor 20°C DB Outdoor 7°C DB 6°C WB

Powerful Cooling and Heating

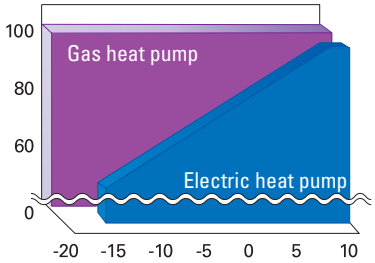
R410A

Comparison of the start times for heating operation
Room temperature (°C)



Time axis (in case of the same load)

Comparison of heating capacity
Heating capacity (%)



Outside air temperature (°C)

Excellent economy

The SANYO GHP provides quick and powerful cooling/ heating and increases delivery of heat into the space by the efficient recovery of heat from the engine cooling water, which is injected into the refrigerant circuit.

In addition, the use of engine waste heat ensures that our gas heat pump air conditioner requires no defrost cycle, therefore providing continuous 100% heating performance in severe weather conditions with an outside air temperature as low as -20°C. During cooling mode the rejected heat from the engine is available for use with in a DHW system and can supply up to 22 kW of hot water at 65 °C.

High performance

With its advanced heat exchanger design, this new GHP system offers improved efficiency and reduced running costs, which, coupled with improved engine management systems, have greatly improved the system COP rating.

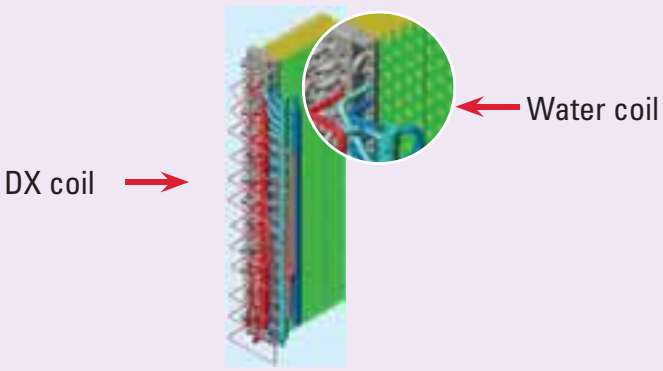
Water chiller option

Our GHP system is also available with a water chiller option, which can be combined with individual outdoor units or as part of a DX chilled water mix of indoor units. The system can be operated via a BMS system or a SANYO supplied control panel, with chilled water set points from -15°C up to 15°C and heating set points from 25°C to 55°C.

New electrical power generator model

The biggest breakthrough in recent GHP technology is the launch of the ECO G Power, which provides 4.0kW of power. That's enough electricity to power 8 computers or 40 indoor units.

GHP Outdoor Heat Exchanger



- Integrated DX and hot water coil
- No defrost required
- Faster reaction to demand for heating

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ECO G 3 Way Heat Recovery VRF System

R410A

Still the only 3 way GHP system in Europe, the new M Series ECO G 3 Way offers even more performance and outstanding features when you need simultaneous heating and cooling. Now with capacities available from 16HP to 25HP, SANYO offers the greatest choice and flexibility to solve any power problem or site requirement.

- Simultaneous heating and cooling for total control
- Reduced gas consumption by Miller-cycle engine
- Reduced electrical power consumption by using DC motors
- New use of aluminium engine block reduces weight by 110kg
- Part load efficiencies increased
- Connectability increased to up to 32 indoor units
- Now available in 16, 20 and 25HP
- 200m maximum allowable piping length
- Diversity ratio 50-130%, 50-200% single models only
- Extended pipe runs (total 780m)
- Quiet mode offers a further 2dB(A) reduction
- 10,000 run hours between engine service intervals (equivalent to one maintenance every 3.2 years*)
- Full heating capacity down to -20°C
- No defrost cycle

* Assuming 3120 running hrs per year - 12 hrs x 5 days x 52 weeks

ECO G 3 Way is ideal for the following types of application:

- Office buildings with a diverse range of room temperatures due to differing load profiles e.g. amounts of sunshine.
- Buildings with computer rooms requiring year round cooling.

Additional parts

By taking its power supply from the nearest indoor unit, the SANYO solenoid valve (change-over box) does not require any additional fused spur and at only 150mm high can be easily installed within a 200mm void space.

LPG option

The option of using LPG as a power supply increases flexibility and avoids the problems of potential site restrictions in the future. The purer fuel is also excellent for further reductions in CO_2 emissions - a fact recognised by the government.

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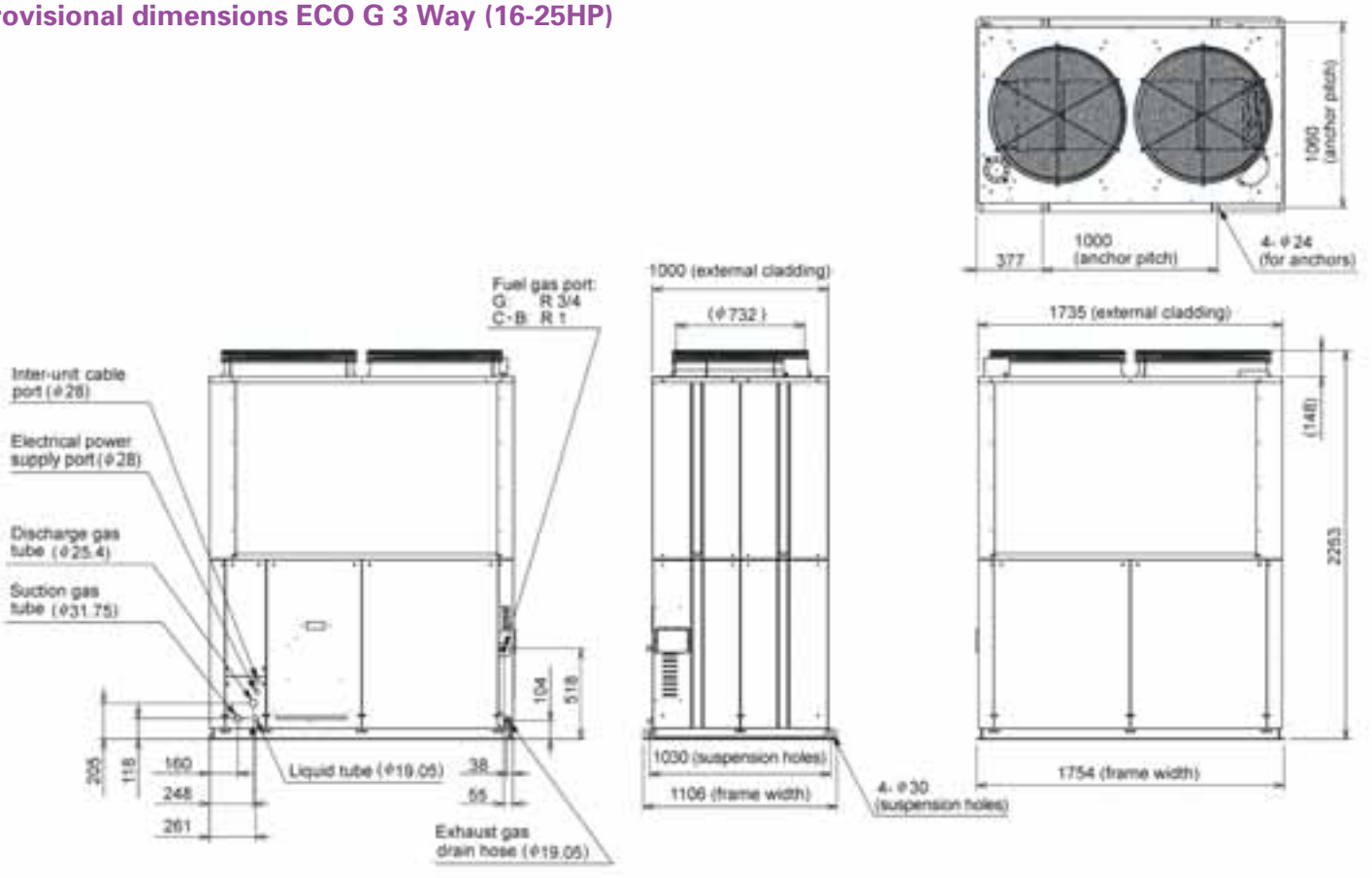
ECO G 3 Way Outdoor Unit Specifications

R410A

HP				16	20	25
Model name				SGP-EZ150M2G2	SGP-EZ190M2G2	SGP-EZ240M2G2
Capacity	Cooling		kW	45.0	56.0	71.0
	Heating	STD	kW	50.0	63.0	80.0
Electricity	Cooling		kW	1.35	1.35	1.35
	Heating		kW	1.01	1.01	1.54
Gas consumption	Cooling		kW	31.6	38.3	60.9
C O P	Cooling		kW	1.37	1.41	1.14
	Heating		kW	1.35	1.43	1.34
	AVE			1.36	1.42	1.24
Size	Height		mm	2,248		
	Width		mm	1,800		
	Depth		mm	1,000 (+60)		
Weight			kg	845	845	875
Starter amperes			A	30		
Pipe	Gas			ø28.58		
	Discharge			ø22.22	ø25.4	
	Liquid			ø19.05		
	Fuel gas			R3/4 (bolt thread)		
	Exhaust drain		mm	ø 25 rubber hose		
Operation sound			dB(A)	57	58	62
Indoor/outdoor capacity ratio				50-200% *1		
Number of indoor connections				24	28	32

*1 Indoor unit can be connected to up to 16kW model (model size 60).
Specifications subject to change without notice.

Provisional dimensions ECO G 3 Way (16-25HP)



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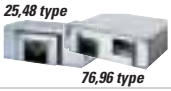
VRF Indoor Unit Range for ECOi and GHP

Wide choice of models depending on the indoor requirements

Page	Model size		7	9	12	16	18	22	25
	Capacity kW	Cooling	2.2	2.8	3.6	4.5	5.6	6.4	7.3
		Heating	2.5	3.2	4.2	5.0	6.3	7.0	8.0
	Capacity BTU/h	Cooling	7,500	9,600	12,000	15,000	19,000	22,000	25,000
		Heating	8,500	11,000	14,000	17,000	21,000	24,000	27,000
80	X Type Semi-Concealed Cassette		SPW-X075XH Panel PNR-XD484GHAB	SPW-X095XH Panel PNR-XD484GHAB	SPW-X125XH Panel PNR-XD484GHAB	SPW-X165XH Panel PNR-XD484GHAB	SPW-X185XH Panel PNR-XD484GHAB		SPW-X255XH Panel PNR-XD484GHAB
81	***NEW*** XM Type Semi-Concealed		SPW-XM075XH Panel PNR-XM185	SPW-XM095XH Panel PNR-XM185	SPW-XM125XH Panel PNR-XM185	SPW-XM165XH Panel PNR-XM185	SPW-XM185XH Panel PNR-XM185		
82	ADR Type Semi-Concealed Cassette 1-Way Air Discharge		SPW-ADR74GXH56B Panel PNR-AD124GHB	SPW-ADR94GXH56B Panel PNR-AD124GHB	SPW-ADR124GXH56B Panel PNR-AD124GHB				
83	SR Type Semi-Concealed Cassette 2-Way Air Discharge		SPW-SR74GXH56B Panel PNR-S124GHB	SR94GXH56B Panel PNR-S124GHB	SR124GXH56B Panel PNR-S124GHB	SR164GXH56B, Panel PNR-S124GHB	SR184GXH56B Panel PNR-S124GHB		SPW-SR254GXH56B Panel PNR-S253GHANB
84	LDR Type Semi-Concealed Slim Cassette			SPW-LDR94GXH56B Panel PNR-LD254GHAB	SPW-LDR124GXH56B Panel PNR-LD254GHAB	SPW-LDR164GXH56B Panel PNR-LD254GHAB	SPW-LDR184GXH56B Panel PNR-LD254GHAB		SPW-LDR254GXH56B Panel PNR-LD254GHAB
85	DR Type Concealed Duct 								SPW-DR254GXH56B
86	***NEW*** US Type Concealed Duct		SPW-US075XH	SPW-US095XH	SPW-US125XH	SPW-US165XH	SPW-US185XH		
87	FUR Type Floor/Ceiling Slim Concealed Duct		SPW-FUR74EXH56B	SPW-FUR94EXH56B	SPW-FUR124EXH56B	SPW-FUR164EXH56B	SPW-FUR184EXH56B	SPW-FUR224EXH56B	
88	U Type Concealed Duct		SPW-U075XH	SPW-U095XH	SPW-U125XH	SPW-U165XH	SPW-U185XH		SPW-U255XH
89	FTR Type Floor/Ceiling Mounted Units		SPW-FTR74EXH56B	SPW-FTR94EXH56B	SPW-FTR124EXH56B	SPW-FTR164EXH56B	SPW-FTR184EXH56B	SPW-FTR224EXH56B	
90	T Type Ceiling-Mounted Unit				SPW-T125XH	SPW-T165XH	SPW-T185XH		SPW-T225XH
91	***NEW*** K Type Wall Mounted Unit		SPW-K075XH	SPW-K095XH	SPW-K125XH				
92	KR Type Wall Mounted Unit					SPW-KR164GXH56B	SPW-KR184GXH56B		SPW-KR254GXH56B
93	FR Type Floor Standing Unit		SPW-FR74GXH56B	SPW-FR94GXH56B	SPW-FR124GXH56B	SPW-FR164GXH56B	SPW-FR184GXH56B		SPW-FR254GXH56B
94	FMR Type Concealed Floor Standing Unit		SPW-FMR74GXH56B	SPW-FMR94GXH56B	SPW-FMR124GXH56B	SPW-FMR164GXH56B	SPW-FMR184GXH56B		SPW-FMR254GXH56B
95	GU Type Total Heat Exchanger			SPW-GU055XH		SPW-GU075XH	SPW-GU105XH		

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Wider operation | Self-diagnosing function | Automatic fan operation | Mild dry
Comfortable auto-flap control | Automatic restart function for power failure | Air Sweep | Built-in drain pump

	36	48	60	76	96	Wireless remote control		
	10.6	14.0	16.0	22.4	28.0	Type with built-in reception part	Type with separately installed reception part	Functions
	11.4	16.0	18.0	25.0	31.5			
	36,000	47,800	54,600	76,400	95,500			
	39,000	54,600	61,500	85,300	107,500			
	SPW-X365XH Panel PNR-XD484GHAB	SPW-X485XH Panel PNR-XD484GHAB	SPW-X605XH Panel PNR-XD484GHAB			●		WIDE, self-diagnosing, AUTO, DRY, AUTO, power failure restart, air sweep, DP
						●	●	WIDE, self-diagnosing, AUTO, DRY, AUTO, power failure restart, air sweep, DP
						●	●	WIDE, self-diagnosing, AUTO, DRY, AUTO, power failure restart, air sweep, DP
						●	●	WIDE, self-diagnosing, AUTO, DRY, AUTO, power failure restart, air sweep, DP
						●	●	WIDE, self-diagnosing, AUTO, DRY, AUTO, power failure restart, air sweep, DP
	SPW-DR364GXH56B	SPW-DR484GXH56B		SPW-DR764GXH56B	SPW-DR964GXH56B		●	WIDE, self-diagnosing, AUTO, DRY, power failure restart
							●	WIDE, self-diagnosing, AUTO, DRY, power failure restart, DP
							●	WIDE, self-diagnosing, AUTO, DRY, power failure restart
	SPW-U365XH	SPW-U485XH	SPW-U605XH				●	WIDE, self-diagnosing, AUTO, DRY, power failure restart, DP
						●	●	WIDE, self-diagnosing, AUTO, DRY, AUTO, power failure restart
	SPW-T365XH	SPW-T485XH				●	●	WIDE, self-diagnosing, AUTO, DRY, AUTO, power failure restart, air sweep
						●	●	WIDE, self-diagnosing, AUTO, DRY, AUTO, power failure restart, air sweep
						●	●	WIDE, self-diagnosing, AUTO, DRY, AUTO, power failure restart, air sweep
							●	WIDE, self-diagnosing, AUTO, DRY, power failure restart
							●	WIDE, self-diagnosing, AUTO, DRY, power failure restart
							●	WIDE, self-diagnosing, AUTO, DRY, power failure restart

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Room Control Systems Overview

A wide variety of control options to meet the requirements of different customers.

Operation system	Individual control systems			Timer operation
Requirements	Normal operation	Operation from each seat	Simple operation	Daily and weekly program
External appearance				
Type, model name	Timer wired remote controller **RCS-TM80BG**	Wireless remote controller **RCS-SS80BG.WL RCS-XM18BG.WL RCS-SH80BG.WL RCS-TH80BG.WL RCS-BH80AG.WL RCS-TRP80BG.WL RCS-SH1BG**	Simplified remote controller **RCS-KR1AGB**	Schedule timer **SHA-TM64AGB**
Number of indoor units which can be controlled	1 group, 8 units	1 group, 8 units	1 group, 8 units	64 groups, max. 64 units
Use limitations	Up to 2 controllers can be connected per group.	Up to 2 controllers can be connected per group.	Up to 2 controllers can be connected per group.	Power supply from the system controller. When there is no system controller, connection is possible to the T10 terminal of an indoor unit.
Connectable indoor unit	4/5 series indoor unit	4/5 series indoor unit	4/5 series indoor unit	4/5 series indoor unit
Function				
ON/OFF	●	●	●	-
Mode setting	●	●	●	-
Fan speed setting	●	●	●	-
Temperature setting	●*1	●*1	●*1	-
Air flow direction	●	●	●	-
Permit/Prohibit switching	-	-	-	-*
Weekly program	●	-	-	●
Page	98	98	99	99

For further information see pages 98-102

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Centralised Control Systems Overview

R410A

Centralised control systems				
	Operation with various function from central station	Only ON/OFF operation from central station	Simplified charge ratio for each tenant	
			Touch screen panel	Personal computer (field supply)
External appearance			Web application	
Type, model name	System controller **SHA-KC64AGB**	ON/OFF controller **SHA-KC16KAGB**	Intelligent controller **SHA-KT256EG**	Communication adaptor **SHA-KA128AGB**
Number of indoor units which can be controlled	64 groups, max. 64 units	16 groups, max. 64 units	64 units x 4 networks, max. 256 units	2 systems, max. 128 units
Use limitations	Up to 10 units can be connected to one system. Main unit/sub unit (1 main unit + 1 sub unit) connection is possible. Use without remote controller is possible.	Up to 8 units (4 main units + 4 sub units) can be connected to one system. Use without remote controller is impossible.	A communication adaptor (SHA-KA128AGB) must be installed for three or more networks.	Maximum 500 indoor units (128 per communication adaptor)
Connectable indoor unit	4/5 series indoor unit	4/5 series indoor unit	4/5 series indoor unit	4/5 series indoor unit
Function				
ON/OFF	●	●	●	●
Mode setting	●	-	●	●
Fan speed setting	●	-	●	●
Temperature setting	●	-	●	●
Air flow direction	●*1	-	●*1	●*1
Permit/Prohibit switching	●	●	●	●
Weekly program		-	●	●
Page	100	102	101	101

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