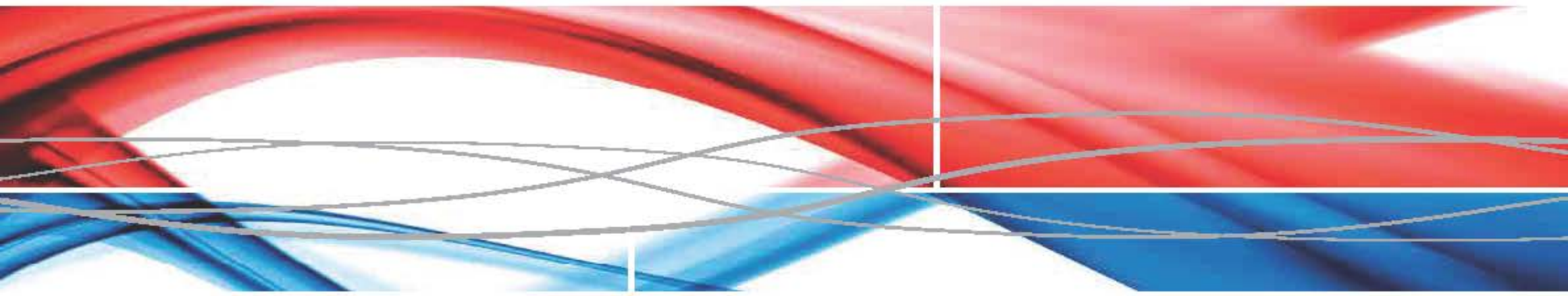
GHP E

GAS HEAT PUMP

MADE IN JAPAN



HEAT. COOL.

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HP TECHNOLOGY HEREAFTER

High efficiency energy production, eco-friendly technology and use of air as renewable energy. AISIN achieved bringing all these needs together in one product.
Gas Heat Pumps (GHP) combine reliable and well established technologies with the introduction of innovation and new breakthrough solutions for any building's HVAC system (condos, homes, industries, sport centres, hospitals).
GHP units can produce heat, cool and hot water by using clean primary energy sources "on site". Air above all, which is the most available free renewable energy on the planet. As a result of that, efficiency increases and CO_2 emissions fall out.
The GHP can be considered an integrated energy production system, rather than a simple air conditioner. In fact, reduction of building's energy need is one of the key points to achieve European targets set by the latest international agreements.
The compressors are driven by the combustion engine and thus, GHP units can operate within a wide range of outdoor temperatures without capacity loss, whereas electric heat pumps show significant lack of performance.
The latest generation of GHP has been upgraded with specifically re-designed TOYOTA engines that have very long maintenance intervals. As a result of that, reliability is enhanced while running costs are reduced, which allows the user to redirect and optimise the invested resources.
Ecology, performances and energy saving are balanced in AISIN's evolution circle, which leads to a new reference in manufacturing units with low impact on the environment.
Established in 1978, Tecnocasa Climatizzazione is an important player in the energy saving technologies scenario. Since 2001, the company is AISIN (member of TOYOTA Group)'s European sole distributor for microcogenerators MCHP and gas heat pumps GHP.
The strong partnership ended up in engineering and production of the patented Air-Water System unit and in the development a wide line up of accessories, such as the domestic hot water kit, the air handling unit parts and the thermo managers.
Tecnocasa Climatizzazione is UNI EN ISO 9001:2008 certified and it is responsible for CE certification (GAD, PED), and for compliance of AISIN's products to European Directives (LV, EMC, MD, ErP).

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GHP E SERIES: THE MOST EFFICIENT SYSTEM

10 GOOD REASONS

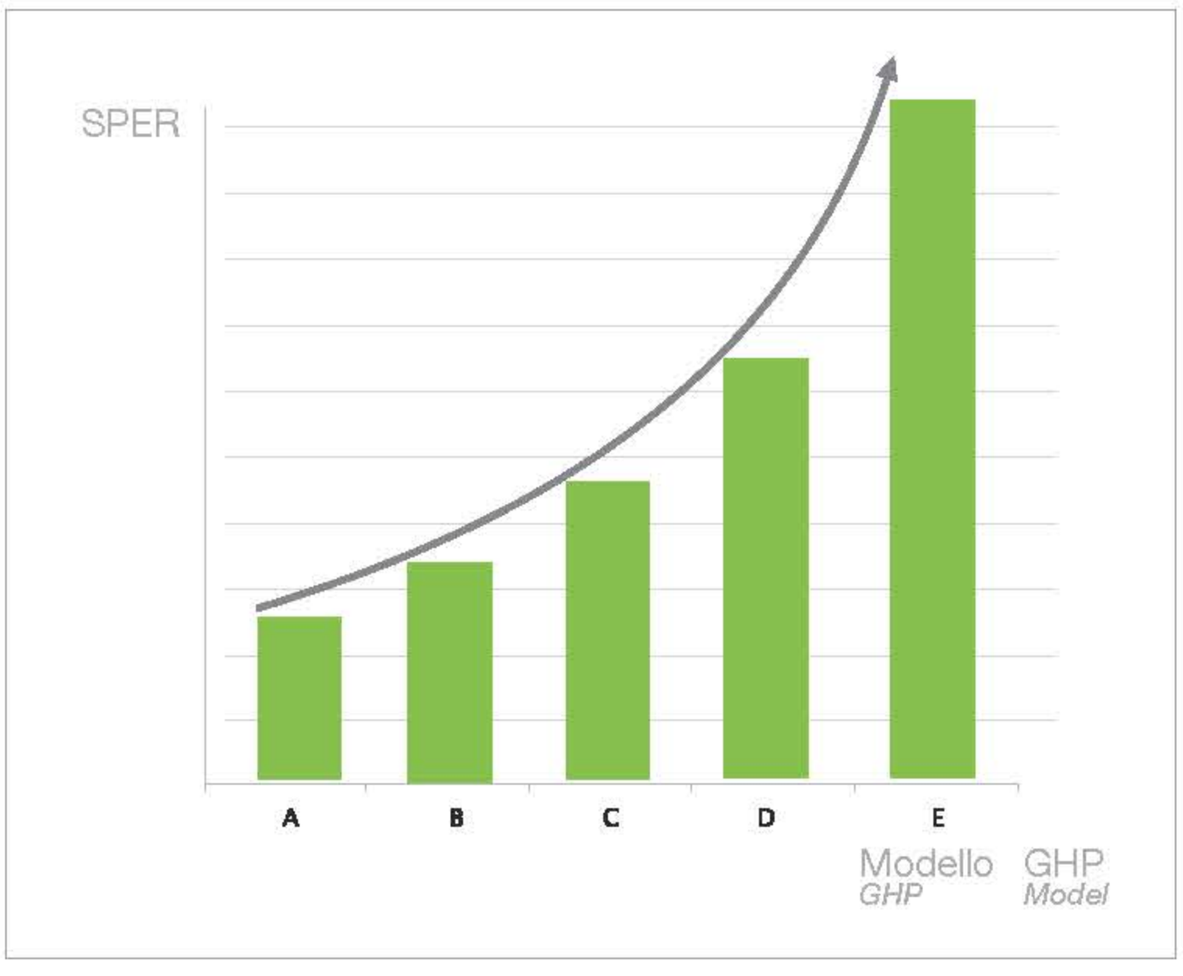
1. HIGH SEASONAL PERFORMANCE: SPF
2. TOTAL ENERGY RECOVERY
3. USE OF AIR AS RENEWABLE ENERGY
4. CARBON FOOTPRINT FALL-OFF
5. BUILDING ENERGY EFFICIENCY MERIT
6. RUNNING COSTS CUTBACK
7. “COMBINATION MULTI” VRF MODEL OR TWIN AWS
8. MODULATING CAPACITY IN COMBINATION WITH AWS
9. NO NEED OF PEAK INTEGRATION SYSTEM
10. TOYOTA RELIABILITY

GHP E SERIES

EVALUATING EFFICIENTCY

So far, Coefficient Of Performance (COP) and Energy Efficiency Ratio (EER) have been used to compare heat pumps performances in heating and cooling mode respectively. In particular, gas driven heat pumps performance was calculated by using the Gas Utilisation Efficiency (GUE). However, since they consider a single measuring point (rated capacity, steady indoor temperature, outdoor temperature and humidity) these parameters are scarcely reliable. The Seasonal Performance Factor (SPF) was introduced to take into account realistic operating conditions (partial loads, on-off and defrost cycles, temperatures variations) during the whole season.
Each country proposed a different calculation method for seasonal performances. Nevertheless, the use of average climate-model based, statistic algorithms, which take into account a wide range of temperatures with a different impact on the final value, allows a more realistic reproduction of the heat pump operation.

HIGHER SPF ACROSS THE WHOLE CAPACITY RANGE



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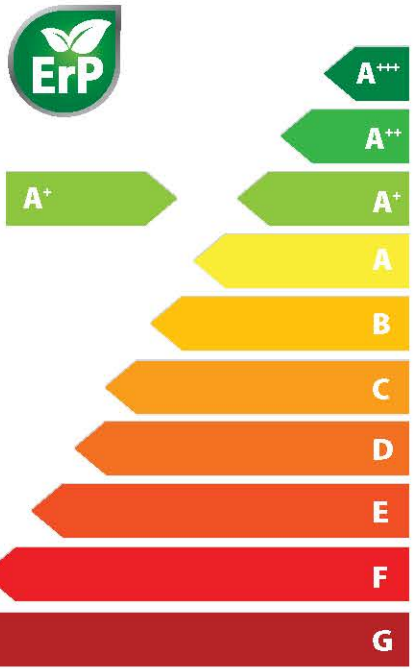
Europe introduced harmonised definitions for Seasonal Primary Energy Ratio (SPER), Seasonal COP (SCOP) and Seasonal EER (SEER). Standards for test procedures and calculation methods have also been issued.
Since comparison between primary energy related (SPER) and electrical consumption (SCOP and SEER) figures is needed, conversion ratio were included in the above mentioned standards.
ErP directive, which sets the requirements for the eco-friendly design of energy consuming products, lists products on a seasonal performance basis. The achieved energy class is mentioned on a dedicated label. Moreover the directive sets the minimum requirements each appliance has to fulfil to be retailed.

A comparison between heat pumps, based only on declared GUE, COP and EER, may not be enough to understand real performances of each one. In fact, units with the same GUE, COP and EER may significantly differ in terms of SPER, SCOP and SEER. Moreover, not necessarily units with better GUE, COP and EER show higher performances across the season.



APPLIES TO AIR-WATER LINE-UP

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GHP SERIE E:
THE MOST EFFICIENT SYSTEM

HIGH SEASONAL PERFORMACE: SPF

The GHP is fitted with new variable-capacity "scroll-type" compressors which are a prerogative of AISIN's technology. They allow lower engine revolution rate in comparison with previous models at the same refrigerant gas flow rate. This results in higher efficiency across the whole range of capacities.

SAME CAPACITY AT LOWER ENGINE RPM

GHP 2014 GHP 2007 GHP 2000

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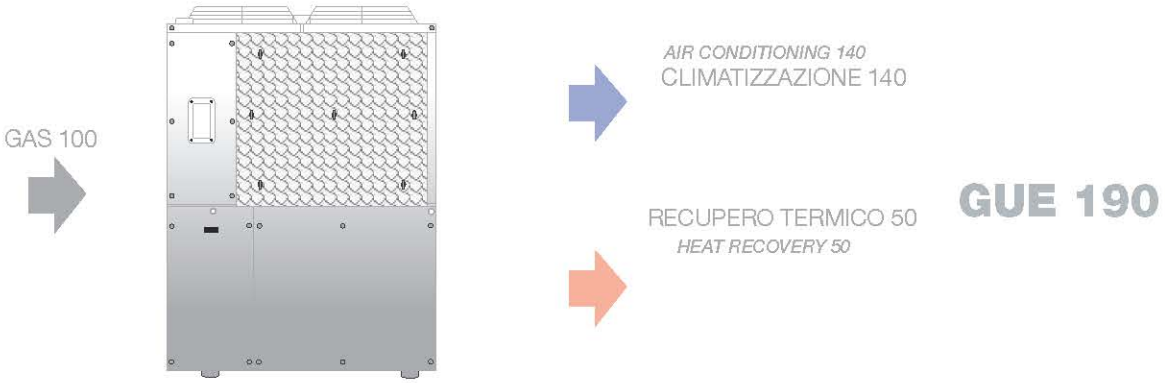
TOTAL ENERGY RECOVERY

2

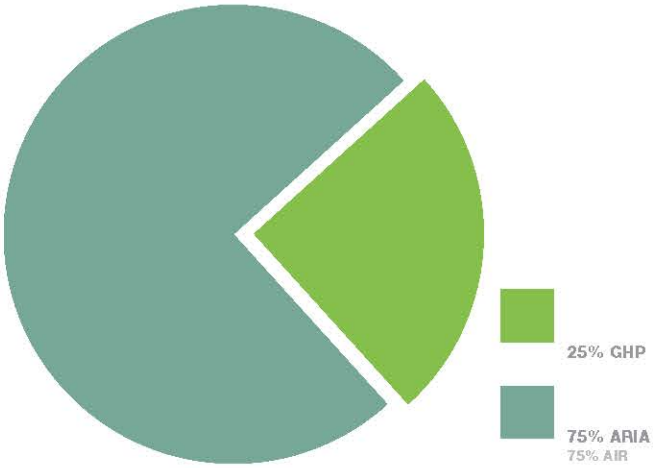
The GHP residual energy of the exhaust gas and engine heat can be recovered to enhance several services, such as building heating, domestic hot water or re-heat coils in air handling units. Running costs can be further reduced by doing so.



USE OF AIR AS RENEWABLE ENERGY

3

International agreements targets are calculated on the development of renewable energy, higher efficiency and lower pollutant emissions. GHP units are top rated in the course of setting new standards. Each one operates by using up to 75% of air, which is a renewable energy, both in cooling and heating mode. Furthermore, performances are enhanced by recovering exhaust gas and engine heat, which can be considered energy free of charge.



3/4 USABLE ENERGY DRAWN FROM AIR

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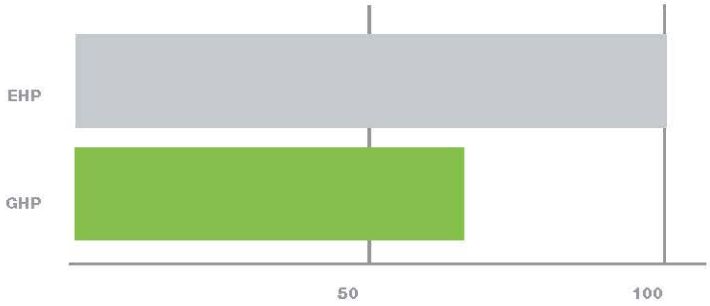
CARBON FOOTPRINT FALL-OFF

4

Each GHP can save up to 40% CO_2 emissions in comparison with a standard heat production unit with the same capacity. In one year the carbon footprint reduction reaches 17 ton of CO_2, so far, all the GHP units installed in Europe achieve an overall 68.000 ton carbon footprint fall-off.

IMPATTO AMBIENTALE
CARBON FOOTPRINT



CO_2 EMISSIONS -40%

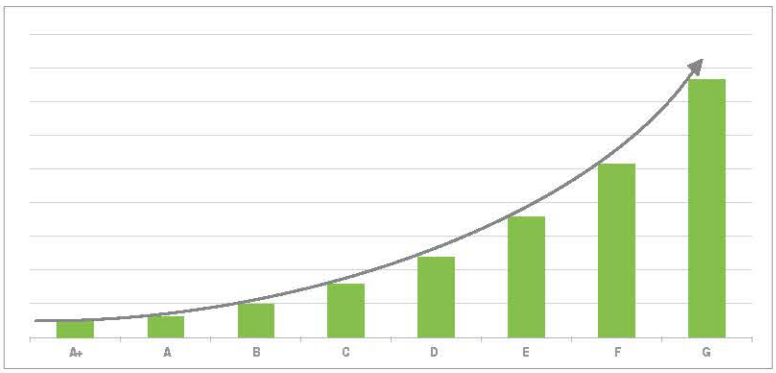
BUILDING ENERGY EFFICIENCY MERIT

5

Evolution in building design is based on primary energy saving and efficiency merit. In most of the applications, it is possible to improve the building energy class by installing the GHP in spite of a standard heat generator. The asset earns marketability while the need of primary energy and the running costs reduce significantly.

SAME BUILDING: HIGHER PERFORMANCE, LOWER COST

ANNUAL RUNNING COST TREND



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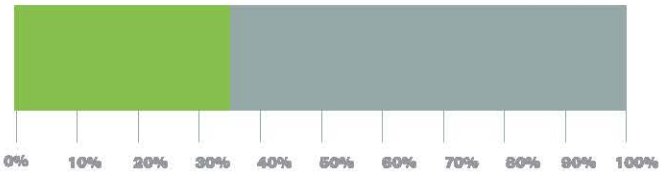
RUNNING COSTS CUTBACK

6

Running costs cutback has always been one of the GHP advantages. The air is used as renewable energy, while the engine and exhaust gas heat are recovered. Low consumption and single phase supply make contractors save construction costs for transformers and monthly costs for high voltage and amperage supplies. The gas driven engine allows to reduce the need of electricity in 90% in comparison with an EHP.

ENERGY SAVING

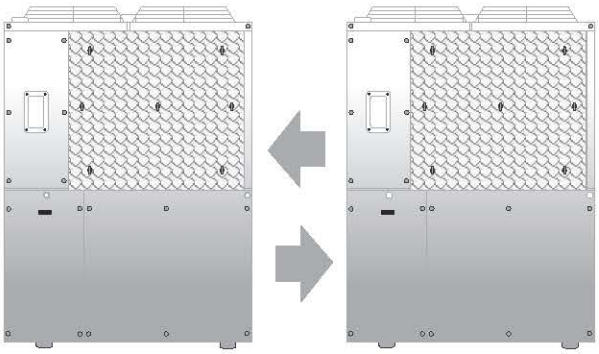


POWER CONSUMPTION -90%

7

"COMBINATION MULTI" VRF MODEL AND TWIN AWS

The GHP line-up opens to a wider range of capacities. The "Combination Multi" model gives the possibility of matching two outdoor units on a single refrigerant circuit up to 50 HP (142 kWfrig). It is not compulsory that the units have the same capacity. This configuration takes also advantage of the backup option: in case one unit fails to operate, the other one keeps providing capacity to the indoor system. Moreover, the installation costs can be cut off by avoiding the need of two separate refrigerant lines.

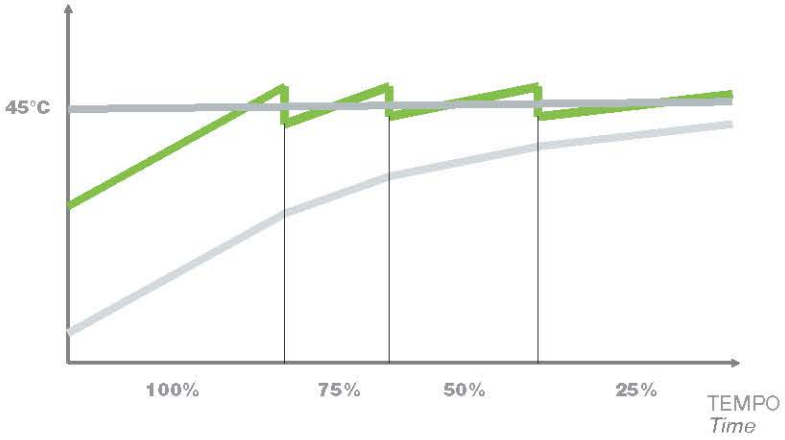


UP TO 50 HP

MODULATING CAPACITY IN COMBINATION WITH AWS

8

The GHP E series introduces one of the most significant difference in combination with water distribution systems: the on/off operation mode was overtaken by variable capacity operation mode. The modulating air to water system AWS allows partial load performances to increase. Moreover, the supply water temperature is no longer affected by the on-off cycles of the outdoor unit. The overall water content of the installation drops down and in some case, buffer tank is no longer needed.



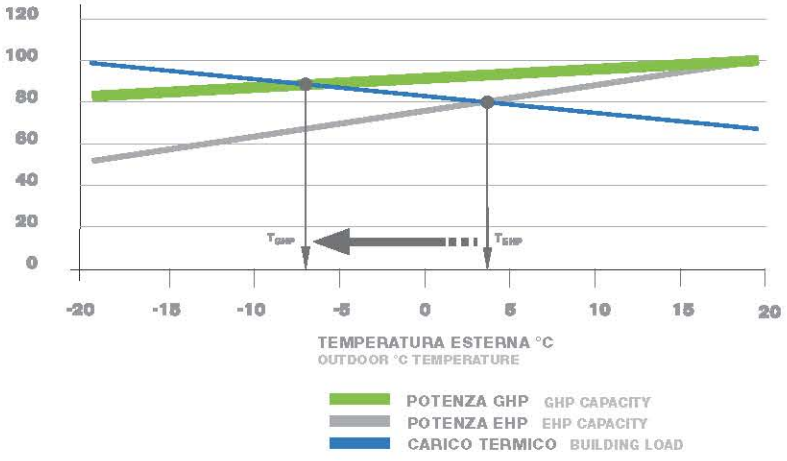
ENHANCED INDOOR COMFORT

NO NEED OF PEAK INTEGRATION SYSTEM

9

Each GHP is not affected by losing capacity with low outdoor temperatures, as electric heat pumps do. The recovered heat (engine and exhaust gas) is transferred to the refrigerant through a dedicated plate heat exchanger. The capacity delivered by the outdoor unit does not drop, which means no oversize of the heat pump, and the defrost cycles are reduced in number and duration. The "dual temperature" (which is the break even point between the generator capacity and building load) reduces and thus it is possible to avoid the installation of peak integration boilers.

SAME CAPACITY AT LOW TEMPERATURE



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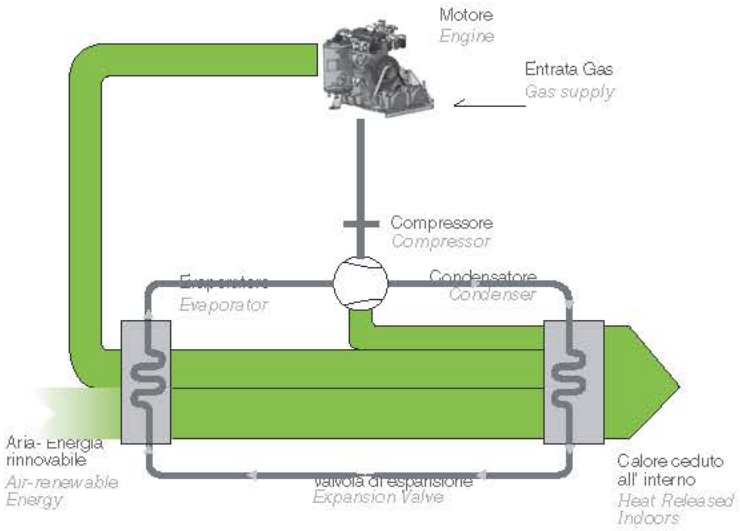
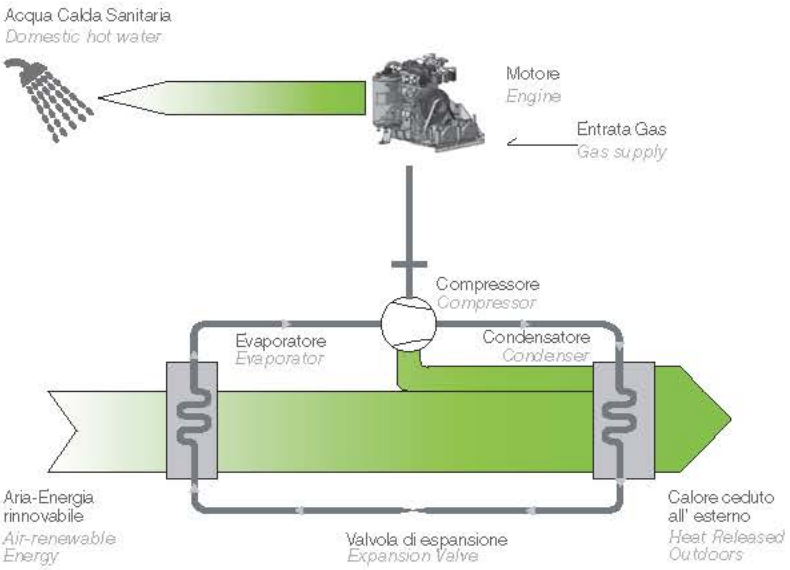
TOYOTA RELIABILITY

Since their development, GHP are powered by specifically designed TOYOTA engines. Sound level is reduced by using polymeric dampers between rotating parts and unit frame. It is peculiar of the engine to have low power density (max 25 HP with 2.000 cc capacity) and limited speed range (within 600 and 3.000 rpm). This results in more than 40.000 running hours of expected engine life. Scheduled maintenance foresees engine oil refill, air and oil filter, compressor belts and spark plugs replacement. It has to be carried out each 10.000 running hours (or 5 years). Engine oil replacement is needed only after 30.000 running hours.



ENGINE TESTED LIFETIME OVER 40.000 HOURS



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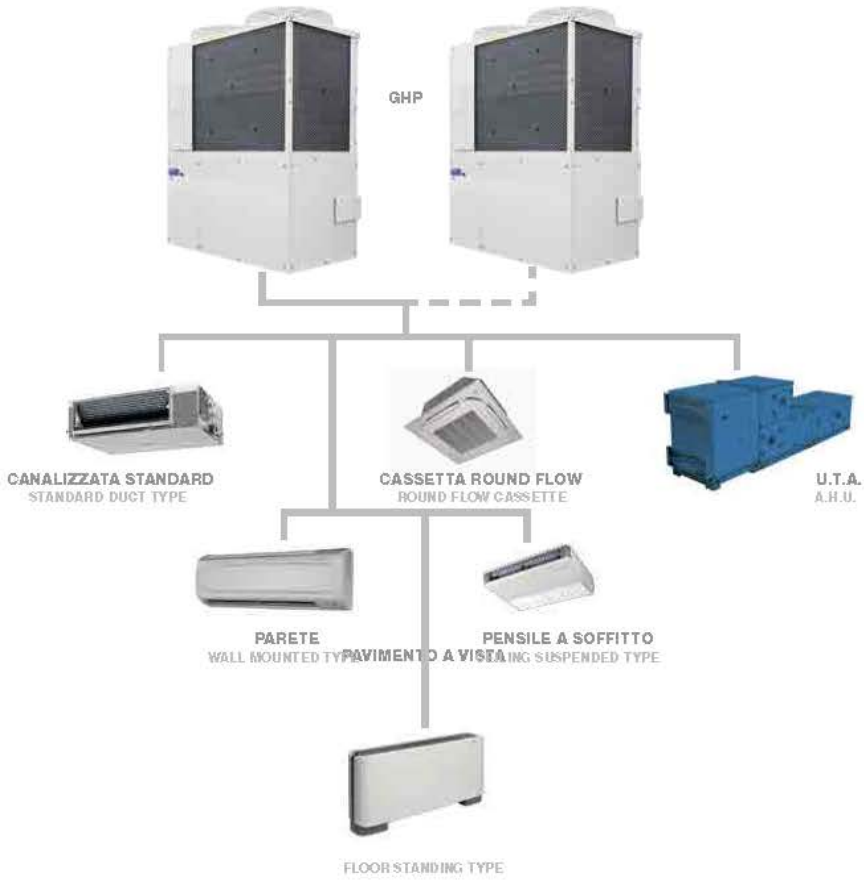
INDOOR UNITS

DIRECT EXPANSION LAYOUT

A vast line-up of direct expansion indoor unit and single or central remote controllers are connectable with the GHP. This type of layout makes the installation very versatile. In fact, it is possible to connect up to 63 indoor units in a single refrigerant circuit to one GHP or to a "combination multi" system, whereas the overall connected capacity can reach 200% of the rated. Each room can be controlled independently or interfaced to communication protocols such as web manager, LonWorks and BACnet. In case large rooms where fresh air management is needed or in case the building is divided in big open spaces, it is possible to connect direct expansion air handling units that are equipped with the specific A.H.U. kit.



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YOSHI® AWS AIR WATER SYSTEM

WATER DISTRIBUTION LAYOUT

In case the installation foresees water distribution inside the building the GHP can be connected to AWS and TWIN AWS units. The Air Water System is designed, patented and produced by Tecnocasa Climatizzazione. It is an interface that allows the energy transfer between refrigerant gas and water and thus the connection of water fan coils, under floor heating, air handling units, heat recovery units and low temperature radiators.
The TWIN AWS can be connected with two GHP units to reach an overall capacity up to 50 HP. Installation costs are reduced as well as the installation space.
This type of layout is suggested in case of refurbishment of old installations or anytime separate energy metering is needed. AWS and TWIN AWS are fully compliant with any kind of BMS system. Communication can be managed through digital and analogue inputs – outputs or else through ModBus protocol.

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YOSHI® W-KIT

HOT WATER FREE OF CHARGE

The W- kit consists of plate heat exchanger, frame-integrated bracket, thermostatic valve and circulation pump operation control. The GHP performance is enhanced in every working condition. The engine and exhaust gas heat is fully recovered and transferred to the user. The resulting energy quota is free of charge and can improve the SPER.
The total energy recovery, which is peculiar to gas driven engines, can be used for building heating, domestic hot water or re-heat coils in air handling units. GHP units are the best choice in HVAC systems.

GHP

PAVIMENTO RADIANTE
UNDERFLOOR HEATING

U.T.A.
A.H.U.

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ACCESSORIES

THERMO-MANAGER

Thermo-Manager service is developed by Tecnocasa Climatizzazione to fulfil the end user's needs in terms of managing the whole HVAC system. At first, a requirements list is drawn up, then the manager is designed and extra components are supplied, including custom produced cabinets. Commissioning and set up are held on site by a product engineer, which adjusts managing parameters to optimise the operation of GHP, AWS units and all distribution components (pumps, mixing valves, peak integration devices). Thermo-Manager's customised software allows consumption and emission reduction while ensuring the best indoor comfort.

CONTROLLER PLUS

In case of multiple-units installations or anytime the units are installed someplace not easily accessible, the operation of the AWS and TWIN AWS units can be managed from a remote location. Moreover, it might be requested to stop the primary circuit pump when the set point is reached to improve the energy saving merit. The above mentioned needs can be fulfilled by this optional kit, which consists of additional controller and active temperature sensor to be placed on the return line of the primary circuit or in the buffer tank when installed.

VIRTUAL REM

This device allows to monitor and record all the GHP operation parameters from a remote location. In case of maintenance contracts with Authorised Service Centres, on-line troubleshooting is available. Possible small inconvenience can be solved in real time. End users can take advantage of remote monitoring and make sure the GHP is always working at the best performance.

A.H.U. KIT

Air handling is becoming a more important issue in HVAC installations. This kit consists of expansion valves, temperature probes, control box and coils design specifications. A custom made air handling unit can be connected to the GHP even in combination with other indoor units. Tecnocasa Climatizzazione can also provide package rooftop unit.

HEAT,COOL, ELECTRICITY: LESS GAS, MORE ENERGY

OUTDOOR UNITS

Model				AXGP224E1 8 HP	AXGP280E1 10 HP	AXGP355E1 13 HP
Performances	Rated cooling capacity*	100%	kW	22,4	28,0	35,5
		50%		11,2	14,0	17,8
	W-kit cooling capacity*	100%	kW	8	10	13,5
		50%		3,9	4	5
	Rated heating capacity**	100%	kW	25,0	31,5	40,0
		50%		12,4	15,5	20,2
	W-kit cooling capacity*	100%	kW	4	5,1	6,8
		50%		2,5	2,6	2,9
	Maximum heating capacity***		kW	26,5	33,5	42,5
Fuel gas	Type			- Natural Gas G20 M - Natural Gas G25 GPL - LPG		
	Rated cooling consumption*	100%	kW	15,0	19,2	26,4
		50%		7,4	8,0	9,9
	Rated heating consumption**	100%	kW	15,9	20,3	27,0
		50%		8,3	9,6	11,7
	Maximum heating consumption***		kW	21,7	27,5	36,6
Electricity	Power supply		V	AC 230 monofase - single phase		
	Starting current		A	20		
	Rated consumption / Current	Cooling	kW[A]	0,34 / [1,4]	0,44 / [1,9]	0,57 / [2,4]
		Heating		0,42 / [1,8]	0,58 / [2,5]	0,74 / [3,2]
Engine	Type - Displacement			Vertical type - 952 cm³		
	Revolution range	Cooling	rpm	800 ~ 1.250	800 ~ 1.550	800 ~ 2.000
		Heating		800 ~ 2.450	800 ~ 2.900	800 ~ 2.900
Compressor	Type x number of units			- Variable capacity scroll x 1 - Poli V belt transmission		
Refrigerant	Type - Factory charge			R410A - 11.0 kg		
Fans	Type x number of units			Variable speed propeller type x 2		
	Rated total flow rate		m³/h	10.020	11.640	12.780
	Static pressure: standard - [boost]		Pa	5 - [30]		
Noise level	Sound pressure: standard - [silent mode]		dB(A)	54 - [52]	56 - [52]	59 - [57]
Piping	Refrigerant	G	mm	Ø 19,1	Ø 22,2	Ø 25,4
		Liquido - Liquid line		Ø 9,5	Ø 9,5	Ø 12,7
	Fuel gas		inch	R 3/4"		
	Exhaust gas		mm	Ø 80		
	Exhaust drain: standard - [cold district]		mm	Ø 15 - [Ø 30]		
Piping permissible lenght: actual / equivalent - [AWS]			m	165/190 - [60/70]		
Max distance after the first branch			m	60		
Max height difference between indoor units			m	15		
Max height difference between indoors and outdoor units - [AWS]			m	+ 50 / -40 – [+25/-20]		
External dimensions	Height		mm	2.077		
	Width		mm	1.400		
	Depth		mm	880		
Weight: standard - [cold district]			kg	565 – [570]		
Connectable indoor units	Number: standard - [cold district]			20 – [13]	25 – [16]	32 –(20)
	Capacity: standard - [cold district]		%	50 – 200 / [50 – 130]		
Maintenance	Scheduled maintenance interval		h	10.000		
	Engine oil replacement		h	30.000		

Special models: Cold district (F): outdoor temp lower than – 10°C / AWS (A): outdoor unit connectable with AWS / W-kit (K): built-in W-kit

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OUTDOOR UNITS

Model				AWGP450E1 16 HP	AWGP560E1 20 HP	AWGP710E1 25 HP
Performances	Rated cooling capacity*	• 100% • 50%	kW	45,0 22,5	56,0 28,0	71,0 35,5
	W-kit cooling capacity*	• 100% • 50%	kW	16,5 6,2	20 8	25 9,8
	Rated heating capacity**	• 100% • 50%	kW	50,0 24,7	63,0 30,9	80,0 40,0
	W-kit heating capacity	• 100% • 50%	kW	7,9 3,7	10,5 4,5	13,4 5,5
	Maximum heating capacity***		kW	53,0	67,0	84,0
Fuel gas	Type			- Natural Gas G20 - Natural Gas G25 GPL - LPG		
	Rated cooling consumption*	• 100% • 50%	kW	31,0 12,4	40,7 16,0	55,1 19,6
	Rated heating consumption**	• 100% • 50%	kW	31,7 13,5	42,0 17,0	53,6 22,1
	Maximum heating consumption***		kW	41,4	54,0	68,9
Electricity	Power supply			AC 230 monofase - single phase		
	Starting current			20		
	Rated consumption / Current	Cooling Heating	kW/[A]	1,06 / [4,6] 1,02 / [4,4]	1,10 / [4,8] 1,02 / [4,4]	1,37 / [5,9] 1,18 / [5,1]
Engine	Type - Displacement			Vertical type, 1.998 cm³		
	Revolution range	• Cooling • Heating	rpm	600 ~ 1.800 600 ~ 2.500	600 ~ 1.950 600 ~ 2.800	600 ~ 2.275 600 ~ 3.000
Compressor	Type x number of units			Variable capacity scroll x 2 - Poli V belt trasmission		
Refrigerant	Type - Factory charge			R410A - 11,5 kg		
Fans	Type x number of units			Variable speed propeller type x 2		
	Rated total flow rate		m³/h	20.760		23.280
	Static pressure: standard - [boost]		Pa	5 - [30]		
Noise level	Sound pressure: standard - [silent mode]		dB(A)	56 - [54]	59 - [57]	62 - [60]
Piping	Refrigerant	• Gas - Gas line • Liquido - Liquid line	mm	Ø 28,6 Ø 15,9	Ø 28,6 Ø 15,9	Ø 31,8 Ø 15,9
	Fuel gas		inch	R 3/4		
	Exhaust gas		mm	Ø 100		
	Exhaust drain: standard - [cold district]		mm	Ø 15 - [Ø 30]		
Piping permissible lenght: actual / equivalent - [AWS]			m	165/190 - [60/70]		
Max distance after the first branch			m	60		
Max distance between combination multi units: horizontal/vertical			m	10 / 4		
Max height difference between indoor units			m	15		
Max height difference between indoors and outdoor units - [AWS]			m	+ 50 / -40 – [+25/-20]		
External dimensions	Height		mm	2.077		
	Width		mm	1.660		
	Depth		mm	880		
Weight: standard - [cold district]			kg	735 – [740]		755 – [760]
Connectable indoor units	Number: standard - [cold district]			40 – [26]	50 – [33]	63 –[41]
	Capacity: standard - [cold district]		%	50 – 200 / [50 – 130]		
Maintenance	Scheduled maintenance interval		h	10.000		
	Engine oil replacement		h	30.000		

*Outdoor temp. 35°C (DB) – indoor temp. 27°C (DB) / **Outdoor temp. 7°C (DB) – indoor temp. 20°C (DB) / ***Outdoor temp. 2°C (DB) – indoor temp. 20°C (DB)

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INDOOR UNITS

1-Way cassette

		AXKP28	AXKP36	AXKP45	AXKP71
Cooling capacity	kW	2,8	3,6	4,5	7,1
	BTU	9.600	12.400	15.500	24.400
Heating capacity	kW	3,2	4,0	5,0	8,0
	BTU	11.000	13.700	17.200	27.500
Power consumption	W	69		92	120
Piping dimensions	liq. mm	6,4			9,5
	gas mm	12,7			15,9
Dimensions H/W/D without decoration panel	mm	215x1.110x710			215x1.310x710
Dimensions H/W/D with decoration panel	mm	285x1.240x800			285x1.440x800
Weight	kg	31			34
Air flow rate min/max	mc/h	540/660		600/780	900/1.080

2-Way cassette

		AXCP22	AXCP28	AXCP36	AXCP45	AXCP56	AXCP71	AXCP90	AXCP140
Cooling capacity	kW	2,2	2,8	3,6	4,5	5,6	7,1	9,0	14,0
	BTU	7.500	9.600	12.400	15.500	19.200	24.400	30.900	48.200
Heating capacity	kW	2,5	3,2	4,0	5,0	6,3	8,0	10,0	16,0
	BTU	8.600	11.000	13.700	17.200	21.600	27.500	34.400	55.000
Power consumption	W	31	39		41	59	63	90	149
Piping dimensions	liq. mm	6,4					9,5		
	gas mm	12,7					15,9		
Dimensions H/W/D without decoration panel	mm	305x775x620				305x990x620		305x1.445x620	
Dimensions H/W/D with decoration panel	mm	360x1.070x700				360x1.285x700		360x1.740x700	
Weight	kg	19				22	25	33	38
Air flow rate min/rat/max	mc/h	450/540/630	480/570/690	480/570/690	510/630/720	630/780/900	690/840/960	1.110/1.350/1.560	1.350/1.650/1.920

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INDOOR UNITS

4-Way cassette type (600x600)

		AXJP22	AXJP28	AXJP36	AXJP45	AXJP56
Cooling capacity	kW	2,2	2,8	3,6	4,5	5,6
	BTU	7.500	9.600	12.400	15.500	19.200
Heating capacity	kW	2,5	3,2	4,0	5,0	6,3
	BTU	8.600	11.000	13.700	17.200	21.600
Power consumption	W	43		45	59	92
Piping dimensions	liq.mm	6,4				
	gas mm	12,7				
Dimensions H/W/D without decoration panel	mm	260x575x575				
Dimensions H/W/D with decoration panel	mm	315x700x700				
Weight	kg	15.5		16.5		18.5
Air flow rate min/rat/max	mc/h	390/420/522	390/480/540	420/510/600	480/570/690	600/750/870

4-Way way round flow cassette

		AXFP22	AXFP28	AXFP36	AXFP45	AXFP56	AXFP71	AXFP90	AXFP112	AXFP140
Cooling capacity	kW	2,2	2,8	3,6	4,5	5,6	7,1	9,0	11,2	14,0
	BTU	7.500	9.600	12.400	15.500	19.200	24.400	30.900	38.500	48.200
Heating capacity	kW	2,5	3,2	4,0	5,0	6,3	8,0	10,0	12,5	16,0
	BTU	8.600	11.000	13.700	17.200	21.600	27.500	34.400	43.000	55.000
Power consumption	W	38				53	61	92	115	186
Piping dimensions	liq. mm	6,4					9,5			
	gas mm	12,7					15,9			
Dimentions H/W/D without decoration panel	mm	204x840x840						246x840x840		288x840x840
Dimentions H/W/D with decoration panel	mm	264x950x950						306x950x950		348x950x950
Weight	kg	19			20	21		24		26
Air flow rate min/rat/max	mc/h	528/636/750			570/696/816	630/768/900	630/810/990	744/1.050/1.368	744/1.170/1.590	1.194/1.590/1.980

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INDOOR UNITS

Parete *Wall mounted*

		AXAP22	AXAP28	AXAP36	AXAP45	AXAP56	AXAP71
Cooling capacity	kW	2,2	2,8	3,6	4,5	5,6	7,1
	BTU	7.500	9.600	12.400	15.500	19.200	24.400
Heating capacity	kW	2,5	3,2	4,0	5,0	6,3	8,0
	BTU	8.600	11.000	13.700	17.200	21.600	27.500
Power consumption	W	29	34	35	20	39	60
Piping dimensions	liq. mm	6,4					9,5
	gas mm	12,7					15,9
Dimentions H/W/D	mm	290x795x238			290x1.050x238		
Weight	kg	11			14		
Air flow rate min/max	mc/h	270/450	300/480	330/510	540/720	720/900	840/1.140

Standard duct type

		AXSP22	AXSP28	AXSP36	AXSP45	AXSP56	AXSP71	AXSP90	AXSP112	AXSP140
Cooling capacity	kW	2,2	2,8	3,6	4,5	5,6	7,1	9,0	11,2	14,0
	BTU	7.500	9.600	12.400	15.500	19.200	24.400	30.900	38.500	48.200
Heating capacity	kW	2,5	3,2	4,0	5,0	6,3	8,0	10,0	12,5	16,0
	BTU	8.600	11.000	13.700	17.200	21.600	27.500	34.400	43.000	55.000
Power consumption	W	41		45	92	95		121	157	214
Piping dimensions	liq.mm	6,4					9,5			
	gas mm	12,7					15,9			
Dimensions H/W/D	mm	245x550x800			245x700x800		245x1.000x800		245x1.400x800	
Weight	kg.	24			29		36		46	
Air flow rate min/max	mc/h	540/390		570/420	960/660		960/1.260	1.170/1.380	2.160/1.890	2.040/2.340

High static pressure duct type

		AXMP56	AXMP71	AXMP90	AXMP112	AXMP140	AXMP224	AXMP280
Cooling capacity	kW	5,6	7,1	9,0	11,2	14,0	22,4	28,0
	BTU	19.200	24.400	30.900	38.500	48.200	77.100	96.000
Heating capacity	kW	6,3	8,0	10,0	12,5	16,0	25,0	31,5
	BTU	21.600	27.500	34.400	43.000	55.000	86.000	110.000
Power consumption	W	110	120	171	176	241	1.294	1.465
Piping dimensions	liq. mm	6,4	9,5					
	gas mm	12,7	15,9				19,1	22,2
Dimensions H/W/D	mm	300x1.000x700			300x1.400x700		470x1.380x1.100	
Weight	kg	35			45	46	137	
Air flow rate min/td/max	mc/h	900/990/1.080	960/1.068/1.170	1.200/1.350/1.500	1.380/1.650/1.920	1.680/2.010/2.340	3.000/-/3.480	3.720/-/4.320
Rtd/max. static pressure	Pa	100/200					132/221	191/270

Slim concealed ceiling unit

		AXDP22	AXDP28	AXDP36	AXDP45	AXDP56	AXDP71
Cooling capacity	kW	2,2	2,8	3,6	4,5	5,6	7,1
	BTU	7.500	9.600	12.400	15.500	19.200	24.400
Heating capacity	kW	2,5	3,2	4,0	5,0	6,3	8,0
	BTU	8.600	11.000	13.700	17.200	21.600	27.600
Powerconsumption	W	71			78	99	110
Piping dimensions	liq. mm	6,4					9,5
	gas mm	12,7					15,9
Dimentions H/W/D	mm	200x750x620			200x950x620		200x1.150x620
Weight	kg	22			26		29
Air flow rate min/rtd/max	mc/h	384/432/480			510/570/630	600/660/750	780/870/990

Small concealed ceiling unit

		AXDP22M	AXDP28M
cooling capacity	kW	2,2	2,8
	BTU	7.500	9.600
Heating capacity	kW	2,5	3,2
	BTU	8.600	11.000
Power consumption	W	50	
Piping dimensions	liq. mm	6,4	
	gas mm	12,7	
Dimentions H/W/D	mm	230x502x652	
Weiht	kg	17	
Air flow rate min/max	mc/h	312/402	384/444

Floor standing

		AXLP22	AXLP28	AXLP36	AXLP45	AXLP56	AXLP71
cooling capacity	kW	2,2	2,8	3,6	4,5	5,6	7,1
	BTU	7.500	9.600	12.400	15.500	19.200	24.400
Heating capacity	kW	2,5	3,2	4,0	5,0	6,3	8,0
	BTU	8.600	11.000	13.700	17.200	21.600	27.500
Power consumption	W	49		90		110	
Piping dimensions	liq. mm	6,4					9,5
	gas mm	12,7					15,9
Dimentions H/W/D	mm	600x1.000x232		600x1.140x232		600x1.420x232	
Weight	kg	27		32		38	
Air flow rate min/max	mc/h	360/420		360/480	510/660	660/840	720/960

INDOOR UNITS

Ceiling suspended

		AXHP36	AXHP71	AXHP112
Ccooling capacity	kW	3,6	7,1	11,2
	BTU	12.400	24.400	38.500
Heating capacity	kW	4,0	8,0	12,5
	BTU	13.700	27.500	43.000
Power consumption	W	107	111	237
Piping dimensions	liq. mm	6,4	9,5	
	gas mm	12,7	15,9	
Dimentions H/W/D	mm	235x960x690	235x1.270x690	235x1.590x690
Weight	kg	24	33	39
Air flow rate min/max	mc/h	600/720/840	840/1.020/1.200	1.140/1.440/1.770

Heat recovery VAM/VKM

		VAM150	VAM250	VAM350	VAM500	VAM650	VAM800	VAM1000	VAM1500	VAM2000
Portata ar *Max air flow rate*	mc/h	150	250	350	500	650	800	1.000	1.500	2.000
External static pressure	Pa	69	64	98		93	137	157	137	
Power consumption	W	117	138	132	178	196	373	375	828	852
Enthalpy. exch. eff.	cool %	58		51	58		60	61		
	heat %	64		65	62	63	65	66		
Temp. exch. eff.	%	74	72	75	74			75		
Dimensions H/W/D	mm	285x776x525		301x828x816		364x1.004x868			726x1.512x868	726x1.512x1.156
Weight	kg	24		33		52	55	64	131	152
Duct diameter	mm	Ø 100	Ø 150		Ø 200		Ø 250		Ø 350	

		VKM50	VKM80	VKM100
Fresh air cond. load cool	kW	4,71	7,46	9,12
Fresh air cond. load heat	kW	5,58	8,79	10,69
Max air flow rate	mc/h	500	750	950
External static pressure	Pa	210		150
Power consumption	W	270	330	410
Ref. piping dimensions	liq. mm	6,4		
	gas mm	12,7		
Enthalpy. exch. eff.	cool %	64	66	62
	heat %	67	71	65
Temp. exch. efficiency	%	76	78	74
Dimentions H/W/D	mm	387x1.764x832	387x1.764x1.214	
Weight	kg	94	110	112
Duct diameter	mm	Ø 200	Ø 250	

Central remote controllers

I -Touch Manager

Timer	*Yearly* /
Connectable groups	fino a 2560 (con ITMP PLUS *with ITMP PLUS)*
Ethernet TCPIP	Sì / *Yes*

I -Touch Controller

Timer	Annuale *Yearly*
Connectable groups	64
Interne controllabili	128

Standard central controller

Connectable outdoor units	10
Connectable groups	64
Checkable indoor units	128

Central on/off controller

Operation mode indication	On Off Al.
Connectable groups	16
Checkable indoor units	128

Timer settimanale
Weekly timer

Weekly programs	8
Connectable groups	64
Backup battery	48 h

Comandi singoli
Single remote controllers

Standard wired controller

Timer	*Weekly*
Checkable indoor units	16

Wall built-in simplified controller

Timer	*No*
Checkable indoor units	16

Wall built-in hotel controller

Timer	*No*
Checkable indoor units	16

Wireless controller

Timer	*Weekly*
Checkable indoor units	16

AWS YOSHI

Model				AWS 8HP-E1(J) P224	AWS 10HP-E1(J) P280	AWS 13HP-E1(J) P355	AWS 16HP-E1(J) P450	AWS 20HP-E1(J) P560	AWS 25HP-E1(J) P710
Cooling mode	Rated capacity*	100%	kW	21,0	26,5	33,5	41,5	52,0	63,0
		min		10,0	10,0	10,0	17,0	17,0	17,0
	GHP rated consumption*	100%	kW	15,3	20,0	27,7	32,0	41,5	55,1
		min		6,6	6,6	6,8	12,0	12,0	12,0
Min water temperature out			°C	7					
Heating mode	Rated capacity**	100%	kW	23,5	30,0	37,5	47,5	60,0	75,0
		min		12,0	12,0	12,0	19,8	19,8	19,8
	GHP rated consumption**	100%	kW	15,5	20,2	27,0	30,2	42,0	53,6
		min		7,3	7,3	7,3	12,0	12,0	12,0
Max water temperature out			°C	47					
Water flow rate			m³/h	4,5	4,5	6,0	7,5	9,5	12,0
Capacity modulation rate			%	40 - 100	30 - 100	25 - 100	40 - 100	30 - 100	25 - 100
Built in pump unit	Power supply***		V/Ph/Hz	230/1/50					
	Rated consumption		W	840			1.100		
	Starting current		A	10					
	Available static pressure		mca	8,0	8,0	6,0	10,0	8,0	6,0
Unit without pump (J)	Power supply***		V/Ph/Hz	230/1/50					
	Rated consumption		W	190			220		
	Starting current		A	1,5					
	Heat exchanger pressure drop		mca	3,3	3,3	4,6	2,2	3,3	4,6
Attacchi idraulici Water ports			Inch	2					
Primary circuit piping diameter			Inch	2					
Refrigerant gas ports gas – liquid			mm	28,6 - 12,7			28,6 - 18,0		
GHP-AWS piping diameter gas – liquid			mm	19,1 - 9,5	22,2 - 9,5	25,4 - 12,7	28,6 - 15,88	28,6 - 15,88	35,0 - 15,88
Size and Weight	Height		mm	915					
	Width		mm	710					
	Depth		mm	1.020					
	Weight standard – without pump		kg	164/153			204/177		
	Connectable GHP units			1					

** Cooling capacity is calculated according to the following test conditions: water temp. 7° C; outdoor temp. 35°C (DB)*
***Heating capacity is calculated according to the following test conditions: water temp. 35°C; outdoor temp. 7°C (DB) / 6° C (WB)*
****In case of 60 Hz power supply only unit without pump*

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AWS TWIN YOSHI

Model				AWS 40HP-E1J			AWS 50HP-E1J		
				16+16HP	16+20HP	20+20HP	16+25HP	20+25HP	25+25HP
Cooling mode	Rated capacity*	100%	kW	83,0	93,5	104,0	104,5	115,0	126,0
		min		17,0	17,0	17,0	17,0	17,0	17,0
	GHP rated consumption*	100%	kW	64,0	73,5	83,0	87,1	96,6	110,2
		min		12,0	12,0	12,0	12,0	12,0	12,0
Min water temperature out			°C	7					
Heating mode	Rated capacity**	100%	kW	95,0	107,5	120,0	122,5	135,0	150,0
		min		19,8	19,8	19,8	19,8	19,8	19,8
	GHP rated consumption**	100%	kW	60,4	72,2	84,0	84,0	95,6	107,2
		min		12,0	12,0	12,0	12,0	12,0	12,0
Water temperature out - in			°C	47					
Water flow rate			m³/h	19,0	19,0	19,0	24,0	24,0	24,0
Capacity modulation rate			%	21 - 100	19 - 100	17 - 100	17 - 100	15 - 100	13 - 100
Unit without pump (J)	Power supply		V/Ph/Hz	230 / 1 / 50					
	Rated consumption		W	250					
	Starting current		A	1,5					
	Heat exchanger pressure drop		mca	3,3	3,3	3,3	4,6	4,6	4,6
Attacchi idraulici Water ports			Inch	2,5					
Primary circuit piping diameter			Inch	2,5					
Refrigerant gas ports gas – liquid			mm	2 x 28,6 - 18,0					
GHP-AWS piping diameter gas – liquid			mm	2 x 28,6 - 15,88			28,6 - 15,88 + 35,0 - 15,88		2 x 35,0 - 15,88
Size and Weight	Height		mm	915					
	Width		mm	710					
	Depth		mm	1.020					
	Weight		kg	230					
	Connectable GHP units			2					

*Outdoor temp. 35°C (DB) – water temp.7°C
**Outdoor temp. 7°C (DB) – water temp. 35°C (DB)

W-KIT YOSHI©

Modello Model		WKIT - 8HP	WKIT - 10HP	WKIT - 13HP	WKIT - 16HP	WKIT - 20HP	WKIT - 25HP
Raffreddamento nominale Cooling capacity	Kw	8	10	13,5	16,5	20	25
Temp. IN/OUT IN/OUT temp.	°C	55/60	55/60	55/60	55/60	55/60	55/60
Flow rate	m³/h	1,7	2,0	2,3	2,8	3,5	4,3
Water ports	mm	22	22	22	28	28	28

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