

Gas Driven Refrigeration

Powered by Natural Gas

Reduced CO2 Emission

Heat Recovery

GDR Series

YANMAR



Cool Engineering. Smart Energy



ColdLogic

Three Decades of Refrigeration.

Benefits of Gas Driven Refrigeration

YANMAR

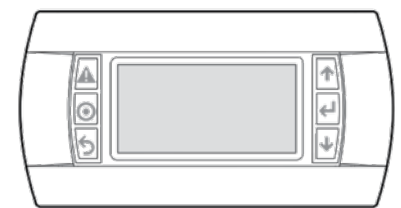
- * Uses 90% less electrical energy compared with electrical refrigeration
- * Capital cost saving when an electrical infrastructure upgrade is required
- * Lower operating costs providing lifecycle cost saving
- * Up to 30kW of Engine hot water recovery
- * Capacity control (8~100%) providing part load efficiency
- * Cascade connection for multiple unit connection, providing back up and redundancy
- * Inbuilt controller with connection option to BMS

System arrangement

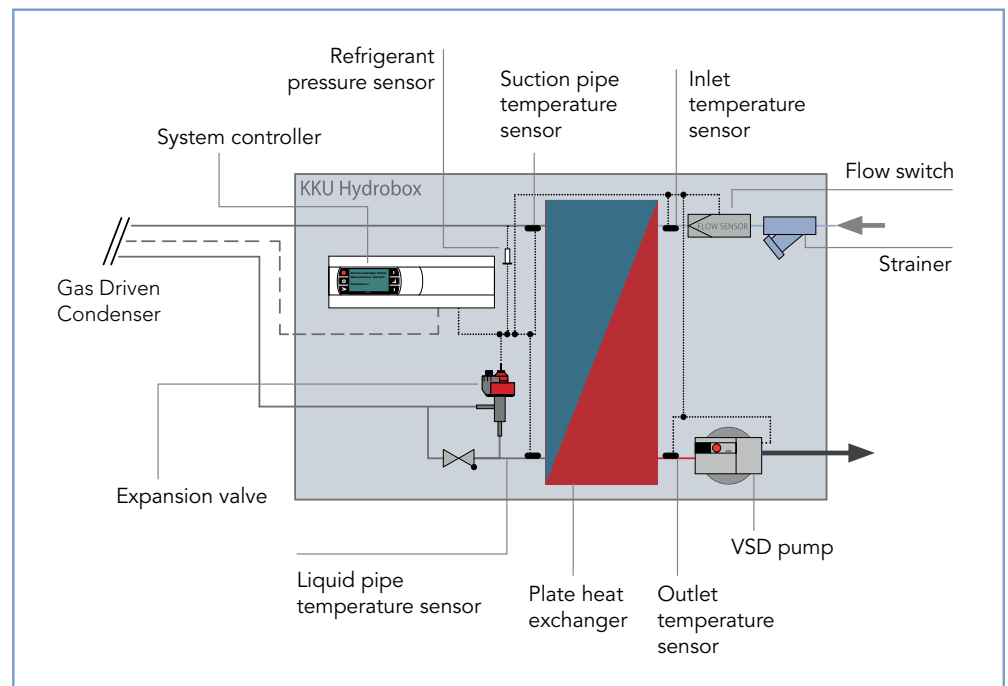
Gas Driven Condenser



Controller



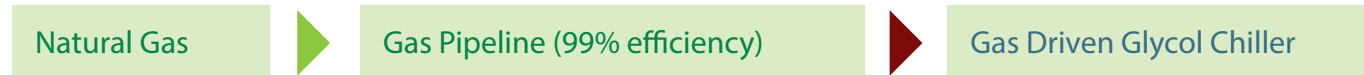
Hydro Box



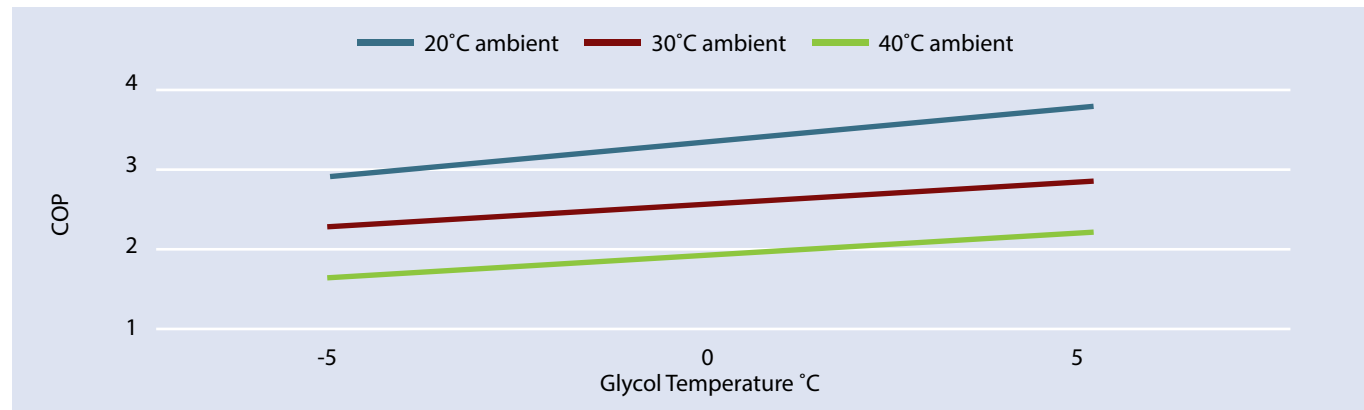
Electric Glycol Chiller



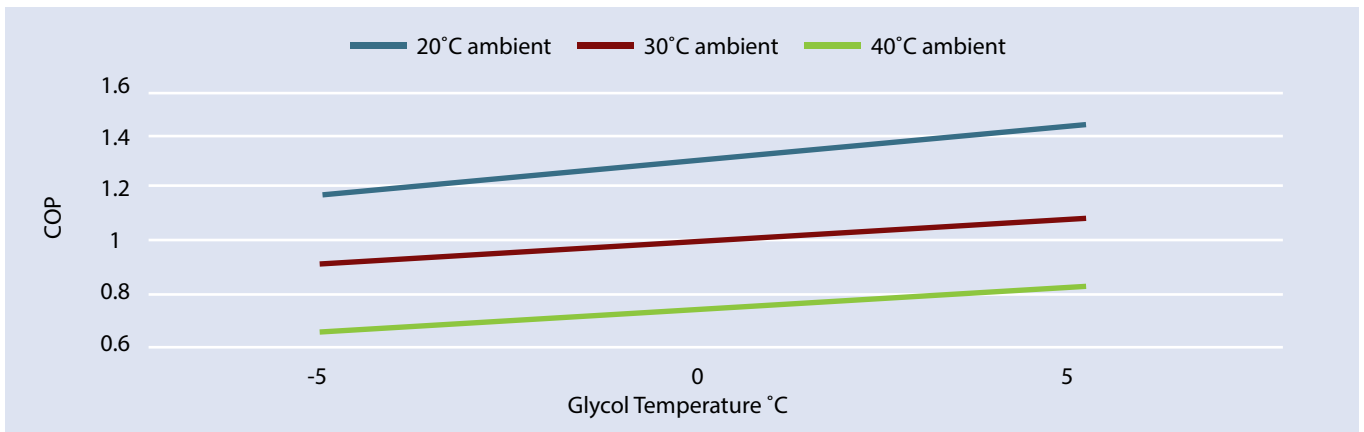
Gas Driven Glycol Chiller



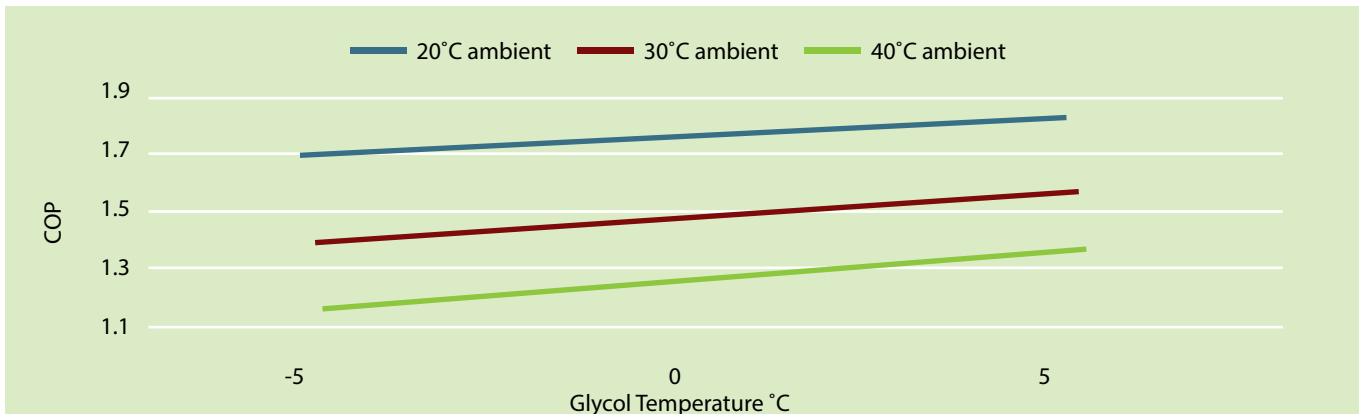
Typical electric glycol chiller efficiency without pump energy



Typical electric glycol chiller efficiency with power station efficiency applied



Typical gas driven glycol chiller efficiency with engine hot water recovery



SPECIFICATION

YANMAR HYDROBOX - FLUID CHILLER			GDR450	GDR560	GDR710	GDR850	GDR850H
Rated Capacity	Amb 35°C LT -5°C RT 0°C	kW	25.8	35.8	42.4	51.2	51.2
Hot Water Recovery	LT 70°C RT 60°C (10k Δt)	kW	Optional WRG Kit				~ 30.0
HYDROBOX (Indoor Use)			HB-S450VPJ3	HB-S560VPJ3	HB-S710VPJ3	HB-S850VPJ3	HB-S850VPJ3
Dimension	HxWxL	mm	1100 (+30) x 1020 x 675				
Weight		kg	190		210		
Rated Flow Rate		L/s	1.95	2.50	3.20	3.60	
Pressure	Internal	kPa	60				
Pressure Loss	External	kPa	50	40	30	20	
Internal Pump	Wilo-Stratos	VSD	40/1-12		50/1-12		
Power Input		kW	0.7	0.7	0.9		
Power Source		V / Ph / Hz	230 / 1 / 50				
Fuse Protection	Circuit Breaker	A	16A				
Control Range	Carel Controller	-	8~100	9~100	11~100	16~100	
Leaving Fluid Temp Set		°C	-5°C to +18°C				
Hydrobox Environment	Temperature Range	°C	+5°C to +35°C				
	Max. Humidity	%	90				
Piping Connections	Fluid Connection	inch	2				
	Refrigerant	mm	34 / 19				
Noise		dB (A)	33	35	33	35	
GAS POWERED CONDENSER (Outdoor Use)			ENCP450JR	ENCP560JR	ENCP710JR	ENCP850JR	ENCP850JHR
Dimension	HxWxD	mm	2170 x 1690 x 800		2170 x 2100 x 800		
Weight		kg	800	890	1080		1110
Electrical	Power Source	V / Ph / Hz	230 / 1 / 50				
	Input	kW	0.87	0.99	1.45	1.66	
	Current	A	4.16	4.73	6.93	7.93	
	Circuit Breaker	A	20		25		
Gas Engine	Gas Type		Natural Gas / LPG				
	Rated Gas Input	kW / MJ	31.9 / 115	42.1 / 152	53.7 / 193	64 / 230	
	Gas Pressure	kPa	1.0 ~ 2.5 kPa for NG 2.0 ~ 3.5 kPa for LPG				
	External Gas Train	Type B	GT-GAC002K				
Noise	Sound Pressure	dB (A)	57	58	61	62	
Refrigerant Piping	Refrigerant R410A	kg	11.8	11.8	11.8	11.8	11.8
	Additional Refrigerant	kg	4.0kg + 11g/m	4.0kg + 17g/m	9.5kg + 25g/m		
	Piping Diameter	mm	28-Dec	28 / 15	34 / 19		
	Max. Piping Length	m	55				
	Max Height Difference	m	25				
	Operation Range	Outdoor	°C	0°C to +46°C			
Air Guard & HWR WRG Kit		°C	-10°C to +46°C				
Gas Engine	YANMAR		10,000 Hr Engine Maintenance Intervals				



PERFORMANCE TABLES

GDR450 (ENCP450JR | HB450VPJ3)

Ambient Temperature	Glycol Leaving Temperature (°C)								
	-5			0			5		
DB (°C)	Capacity (KW)	Input (kW)	EER	Capacity (KW)	Input (kW)	EER	Capacity (KW)	Input (kW)	EER
20	28.0	29.17	0.96	34.0	30.09	1.13	40.0	31.01	1.29
27	28.0	29.17	0.96	34.0	30.09	1.13	40.0	31.01	1.29
32	26.0	30.59	0.85	32.0	31.68	1.01	38.0	32.48	1.17
35	25.8	31.85	0.81	31.8	32.78	0.97	37.8	33.75	1.12
38	25.6	32.80	0.78	31.6	33.62	0.94	37.6	34.81	1.08
43	21.8	30.70	0.71	27.8	31.59	0.88	33.8	32.50	1.04

GDR 560 (ENCP560JR | HB560VPJ3)

Ambient Temperature	Glycol Leaving Temperature (°C)								
	-5			0			5		
DB (°C)	Capacity (KW)	Input (kW)	EER	Capacity (KW)	Input (kW)	EER	Capacity (KW)	Input (kW)	EER
20	38.1	38.10	1.00	45.4	39.48	1.15	52.7	40.85	1.29
27	38.1	38.88	0.98	45.4	40.18	1.13	52.7	41.83	1.26
32	37.0	41.11	0.90	44.3	42.19	1.05	51.6	43.73	1.18
35	35.8	42.12	0.85	43.1	43.54	0.99	50.4	45.00	1.12
38	34.6	43.25	0.80	41.9	44.57	0.94	49.2	46.42	1.06
43	29.7	41.25	0.72	37.0	42.05	0.88	44.3	43.86	1.01

GDR 710 (ENCP710JR | HB710VPJ3)

Ambient Temperature	Glycol Leaving Temperature (°C)								
	-5			0			5		
DB (°C)	Capacity (KW)	Input (kW)	EER	Capacity (KW)	Input (kW)	EER	Capacity (KW)	Input (kW)	EER
20	46.1	48.02	0.96	54.3	49.82	1.09	62.6	52.61	1.19
27	46.1	48.02	0.96	54.3	49.82	1.09	62.6	52.61	1.19
32	44.0	51.76	0.85	52.2	53.81	0.97	60.5	56.02	1.08
35	42.4	53.67	0.79	50.6	55.60	0.91	58.9	58.32	1.01
38	40.7	55.00	0.74	48.9	56.86	0.86	57.2	59.58	0.96
43	34.7	51.79	0.67	42.9	53.62	0.80	51.2	56.26	0.91

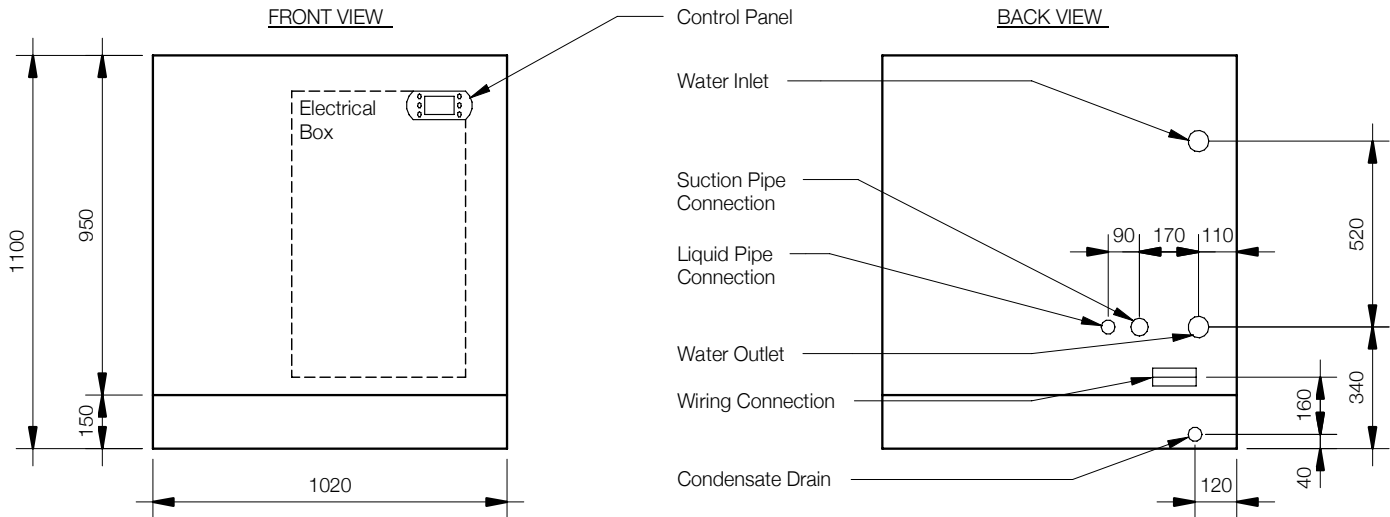
GDR 850 (ENCP850JR | HB850VPJ3)

Ambient Temperature	Glycol Leaving Temperature (°C)								
	-5			0			5		
DB (°C)	Capacity (KW)	Input (kW)	EER	Capacity (KW)	Input (kW)	EER	Capacity (KW)	Input (kW)	EER
20	56.7	55.59	1.02	66.6	59.46	1.12	76.4	63.14	1.21
27	55.9	58.23	0.96	65.8	61.50	1.07	75.6	65.17	1.16
32	53.0	61.63	0.86	62.9	65.52	0.96	72.7	69.24	1.05
35	51.2	64.00	0.80	61.1	67.89	0.90	70.9	71.62	0.99
38	49.4	65.87	0.75	59.3	69.76	0.85	69.1	73.51	0.94
43	42.3	61.30	0.69	52.2	65.25	0.80	62.0	68.89	0.90

GDR 850H (ENCP850JHR | HB850VPJ3)

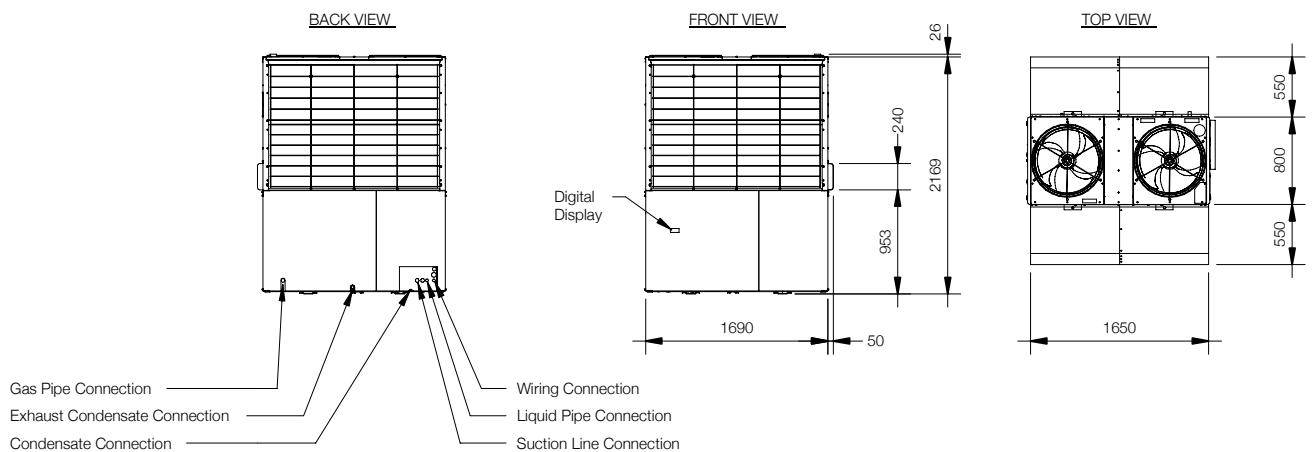
Ambient Temperature	Glycol Leaving Temperature (°C)								
	-5			0			5		
DB (°C)	Capacity (KW)	Input (kW)	EER	Capacity (KW)	Input (kW)	EER	Capacity (KW)	Input (kW)	EER
20	56.7 + 30	55.59	1.56	66.6 + 30	59.46	1.62	76.4 + 30	63.14	1.69
27	55.9 + 30	58.23	1.48	65.8 + 30	61.50	1.56	75.6 + 30	65.17	1.62
32	53.0 + 30	61.63	1.35	62.9 + 30	65.52	1.42	72.7 + 30	69.24	1.48
35	51.2 + 30	64.00	1.27	61.1 + 30	67.89	1.34	70.9 + 30	71.62	1.41
38	49.4 + 30	65.87	1.21	59.3 + 30	69.76	1.28	69.1 + 30	73.51	1.35
43	42.3 + 30	61.30	1.18	52.2 + 30	65.25	1.26	62.0 + 30	68.89	1.34

Hydro Box Dimensions

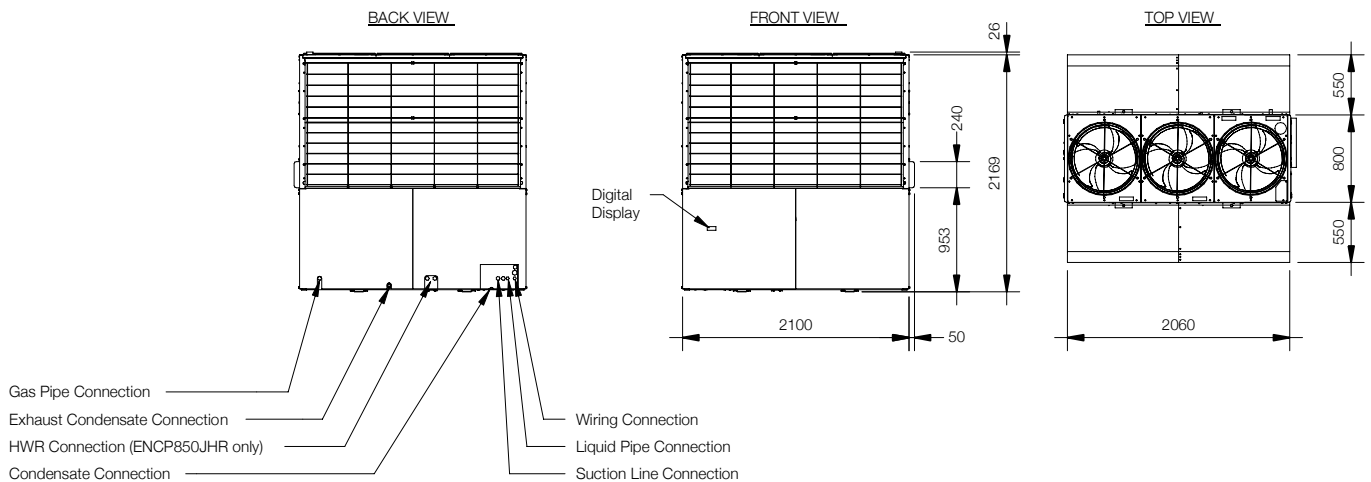


Gas Driven Condenser Dimensions

ENCP450JR / ENCP560JR



ENCP710JR / ENCP850JR / ENCP850JHR



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