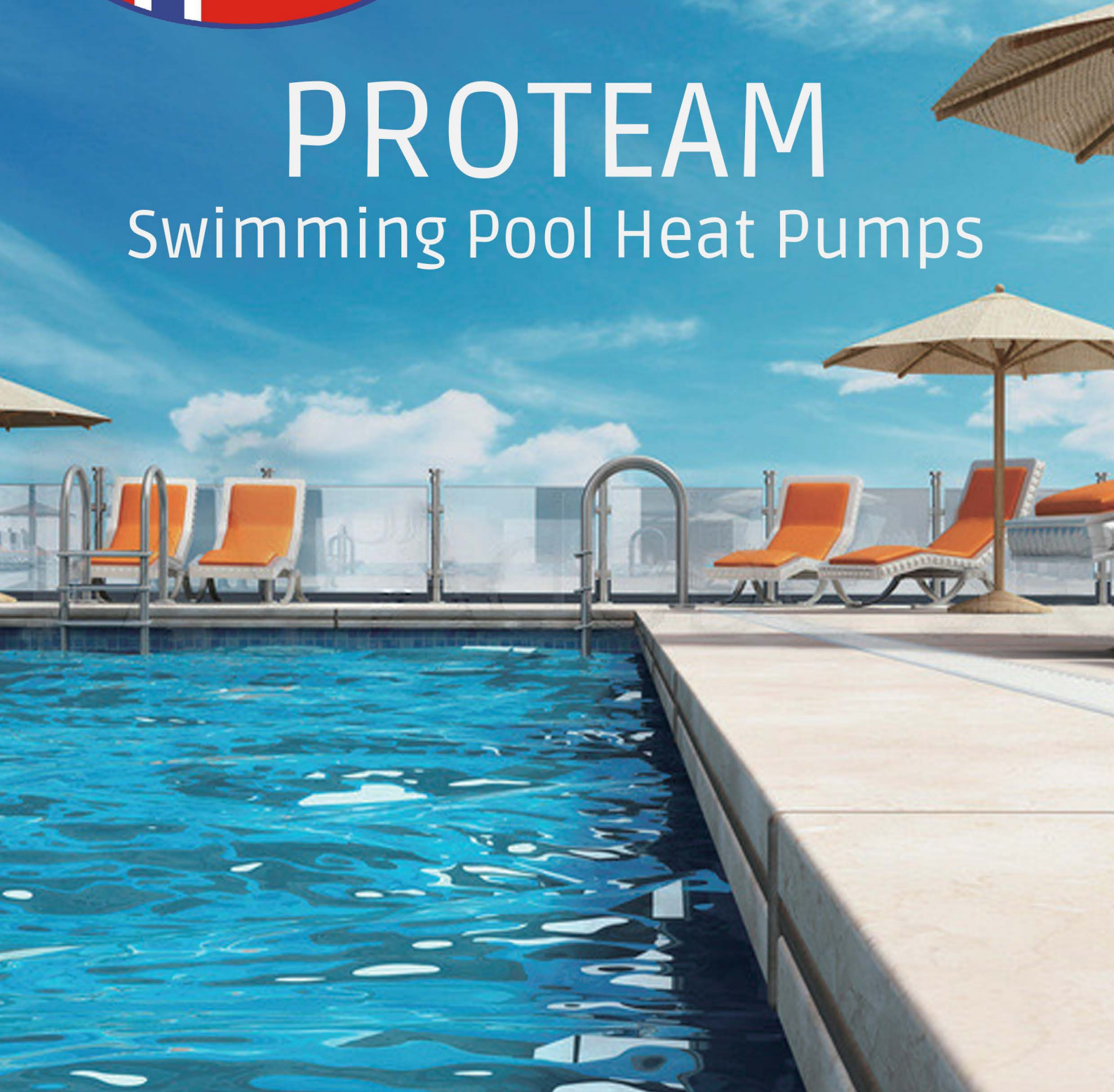




PROTEAM

Swimming Pool Heat Pumps



AES

Automated Environmental Systems

UK Authorised Distributor

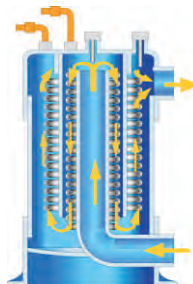


PC & P MODEL HEAT PUMP - THE POPULAR MODELS



Features:

1. Oversized coated energy collector (air coils) - higher COP
2. Titanium class A1 double-coil heat exchanger
3. Active auto-charged defrosting system - higher COP
4. Digital display
5. Waterproof display and control panel
6. Backwash feature for sand filter
7. Strong plastic casing - no corrosion
8. Bottom heater to prevent ice formation
9. Galvanized bottom plate for horizontal type
10. Horizontal air flow
11. Easy connection to water system
12. Rotary/Scroll compressor
13. Flow switch protection
14. High / low-pressure switch protection



Code			PC6	PC8	PC10	PC13	PC15	PC17	PC20	PC20P3	PC25P3	PC30P3	PC35P3	
Measuring conditions A24°C W26°C	Heating Capacity	KW	4.8	6.2	8.2	9.4	11.6	12.9	17.2	17.0	22.5	26.7	33.1	
	COP	KW/KW	5.0	5.4	5.1	5.3	5.4	5.1	4.9	5.5	5.4	5.3	5.5	
Measuring conditions A15°C W26°C	Heating Capacity	KW	3.6	4.5	6.2	7.1	8.7	9.7	12.9	12.7	16.9	20.0	24.8	
	COP	KW/KW	3.8	4.1	3.8	4.0	4.1	3.8	3.7	4.1	4.1	4.0	4.1	
Input Power		KW	1.0	1.1	1.6	1.8	2.1	2.5	3.5	3.1	4.2	5.0	6.0	
Running Current		A	4.5	5.0	7.3	8.2	9.5	11.4	15.9	5.2	7.1	8.4	10.1	
Power Supply	V/PH/HZ		220-240V/1PH/50HZ						380-400V/3PH/50HZ					
Controller			LED/LCD											
Heat exchanger			Titanium Coil											
Quantity of Compressor			1	1	1	1	1	1	1	1	1	1	1	
Compressor			Rotary						Scroll					
Quantity of Fan			1	1	1	1	1	1	1	1	1	2	2	
Input Power of Fan	W		60	60	80	100	100	110	110	110	220	440	550	
Fan Speed	RPM		910	910	890	890	890	850	850	850	850	850	850	
Noise (The highest value)	dB(A)		50	50	53	54	54	56	56	56	56	57	57	
Water Connection	inch		1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	
Water Flow Rate (min)	m3/h		1.3	1.6	2.2	2.7	3.6	4.0	4.9	4.9	6.0	7.5	13	
Water Pressure Drop	kpa		10	10	10	12	12	14	14	14	16	16	30	
Net Dimension	L	mm	778	778	938	1015	1015	1080	1080	1080	1078	1078	1078	
	W	mm	293	293	360	370	370	416	416	416	416	416	416	
	H	mm	511	511	581	621	621	708	708	708	958	1258	1258	
Packing Dimension	L	mm	880	880	1060	1140	1150	1160	1160	1160	1160	1160	1160	
	W	mm	340	340	390	410	410	460	460	460	490	490	490	
	H	mm	550	550	620	660	660	840	840	840	1100	1390	1390	
Weight	Net Weight	kg	33	35	48	55	60	68	92	90	99	117	119	
	Gross Weight	kg	38	39	56	62	67	80	105	103	114	134	135	

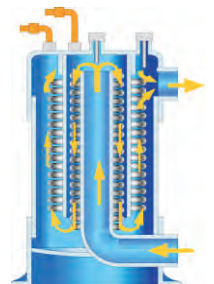
Function: Heating & cooling with reversible defrosting (operating range: -5°C to 40°C)

PC & P MODEL HEAT PUMP - THE POPULAR MODELS



Features:

1. Oversized coated energy collector (air coils) - higher COP
2. Titanium class A1 double-coil heat exchanger
3. Active auto-charged defrosting system - higher COP
4. Digital display
5. Waterproof display and control panel
6. Backwash feature for sand filter
7. Strong Galvanized casing - no corrosion
8. Bottom heater to prevent ice formation
9. Vertical air flow
10. Easy connection to water system
11. Scroll compressor
12. Flow switch protection
13. High / low-pressure switch protection



Code			P8	P10	P15	P21	P25P3	P30P3	P40UP3	P45UP3	P55UP3	P90UP3	P135UP3
Measuring conditions A24°C W26°C	Heating Capacity	KW	8.7	9.8	14.2	23.2	25.3	31.4	40.5	45.4	64.6	84.1	134.7
	COP	KW/KW	5.6	5.7	5.8	6.2	5.2	5.4	5.2	5.6	5.8	5.7	5.8
Measuring conditions A15°C W26°C	Heating Capacity	KW	6.7	7.6	10.9	17.9	19.5	24.2	31.2	35.0	49.8	64.8	103.7
	COP	KW/KW	4.3	4.4	4.5	4.8	4.0	4.2	4.0	4.3	4.5	4.4	4.5
Input Power		KW	1.6	1.7	2.4	3.7	4.9	5.8	7.8	8.1	11.1	14.8	23.2
Running Current		A	7.3	7.7	10.9	16.8	8.3	9.8	13.2	13.7	18.8	25.0	39.2
Power Supply	V/PH/HZ	220-240V/1PH/50HZ						380-400V/3PH/50HZ					
Controller		LED/LCD											
Heat exchanger		Titanium Coil											
Number of Compressors			1	1	1	1	1	1	1	2	2	3	4
Compressor			Rotary				Scroll						
Number of Fans			1	1	1	1	2	2	1	2	2	3	3
Input Power of Fan	W		80	100	110	220	440	550	220	320	320	480	750
Fan Speed	RPM		890	890	850	850	850	850	830	830	830	830	870
Noise (The highest value)	dB(A)		53	54	56	56	57	57	59	60	60	62	65
Water Connection	inch		1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	2	2	2-1/2	3
Water Flow Rate (min)	m3/h		2.2	2.7	4.0	6.0	7.5	13	15	17	20	35	50
Water Pressure Drop	kpa		10	12	14	16	16	30	16	15	15	16	18
Net Dimension	L	mm	938	1015	1080	1078	1078	1078	660	1448	1448	2150	2000
	W	mm	360	370	416	416	416	416	660	730	730	760	900
	H	mm	581	621	708	958	1258	1258	960	1060	1060	1330	1820
Packing Dimension	L	mm	1060	1140	1150	1150	1150	1150	700	1630	1630	2275	2150
	W	mm	380	400	450	475	475	475	740	810	810	900	1020
	H	mm	630	676	838	1088	1388	1388	1110	1180	1180	1500	2080
Weight	Net Weight	kg	48	55	68	99	117	120	234	254	265	397	660
	Gross Weight	kg	56	62	80	114	134	136	270	283	290	443	712

Function: Heating & cooling with reversible defrosting (operating range: -5°C to 40°C)



PROTEAM PC Swimming Pool Heat Pump



- All season model (maximum pool size dependent on length of season required)
- Oversized evaporator with increased number of coated fins
- Titanium Class A1 double-coil heat exchanger
- Light grey ABS cabinet, strong and corrosion resistant
- Heating (T1) and Cooling (T3) function
- Active auto-charged defrosting system
- Digital LCD/LED waterproof display
- Backwash feature for sand filter
- Galvanised bottom plate with heater
- Flow switch and pressure switch protection
- Thick rubber feet to isolate against vibrations
- Horizontal air flow
- Rotary (up to PC17) and scroll (PC20 and above) compressor
- Full two year parts and labour warranty

MODEL:	PROTEAM PC6	PROTEAM PC8	PROTEAM PC10	PROTEAM PC13	PROTEAM PC15	PROTEAM PC17
Maximum Heating Capacity (kW):	5.8	7.6	9.6	12.1	14.2	17.1
Heating Capacity A24/W26(kW):	4.8	6.2	8.2	9.4	11.6	12.9
Heating Capacity A15/W26(kW):	3.6	4.5	6.2	7.1	8.7	9.7
Input Power (kW):	1.0	1.1	1.6	1.8	2.1	2.5
COP A24/W26:	5.0	5.4	5.1	5.3	5.4	5.1
Max. Volume (m ³):						
Current (Amps Running): Voltage:	4.5	5.0	7.3	8.2	9.5	11.4
Compressor:	230v	230v	230v	230v	230v	230v
Noise Level (Max) dB(A):	Rotary	Rotary	Rotary	Rotary	Rotary	Rotary
Air Flow (m ³ /h):	50	50	53	54	54	56
Refrigerant:	2,000	2,200	2,600	3,000	3,200	4,600
Fan Direction:	R410a	R410a	R410a	R410a	R410a	R410a Horizontal
Water Connections:	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	1½ Inch
Nominal Flow (m ³ /h):	1½ Inch	1½ Inch	1½ Inch	1½ Inch	1½ Inch	4.0
Max. Pressure Loss (kPa):	1.3	1.6	2.2	2.7	3.6	14
Dimensions L x W x H (mm):	10	10	10	12	12	1080 x 416 x 708
Weight (Kg):	778 x 293 x 511	778 x 293 x 511	938 x 360 x 581	1015 x 370 x 621	1015 x 370 x 621	68
	33	35	48	55	60	

MODEL:	PROTEAM PC20	PROTEAM PC25P3	PROTEAM PC30P3	PROTEAM PC35P3
Maximum Heating Capacity (kW):	20.2	27.3	31.5	42.2
Heating Capacity A24/W26(kW):	17.2	22.5	26.7	33.1
Heating Capacity A15/W26(kW):	12.9	16.9	20.0	24.8
Input Power (kW):	3.5	4.2	5.0	6.0
COP A24/W26:	4.9	5.4	5.3	5.5
Max. Volume (m ³):				
Current (Amps Running): Voltage:	15.9	7.1	8.4	10.1
Compressor:	230v	415v	415v	415v
Noise Level (Max) dB(A):	Scroll	Scroll	Scroll	Scroll
Air Flow (m ³ /h):	56	56	57	57
Refrigerant:	5,200	7,300	10,000	11,000
Fan Direction:	R410a Horizontal	R410a Horizontal	R410a Horizontal	R410a Horizontal
Water Connections:	1½ Inch	1½ Inch	1½ Inch	1½ Inch
Nominal Flow (m ³ /h):	4.9	6.0	7.5	13
Max. Pressure Loss (kPa):	14	16	16	30
Dimensions L x W x H (mm):	1080 x 416 x 708	1078 x 416 x 958	1078 x 416 x 1258	1078 x 416 x 1258
Weight (Kg):	92	99	117	119

PROTEAM P21 Swimming Pool Heat Pump



- All season model (maximum pool size dependent on length of season required)
- Oversized evaporator with increased number of coated fins
- Titanium Class A1 double-coil heat exchanger
- Light grey ABS cabinet, strong and corrosion resistant
- Heating (T1) and Cooling (T3) function
- Active auto-charged defrosting system
- Digital LCD/LED waterproof display
- Backwash feature for sand filter
- Galvanised bottom plate with heater
- Flow switch and pressure switch protection
- Thick rubber feet to isolate against vibrations
- Horizontal air flow
- Scroll compressor
- Full two year parts and labour warranty



MODEL:	PROTEAM P21
Maximum Heating Capacity (kW):	28.0
Heating Capacity A24/W26(kW):	23.2
Heating Capacity A15/W26(kW):	17.9
Input Power (kW):	3.7
COP A24/W26:	6.2
Max. Volume (m ³):	Dependent on the length of season required
Current (Amps Running): Voltage:	16.8
Compressor:	230v
Noise Level (Max) dB(A):	Scroll
Air Flow (m ³ /h):	56
Refrigerant:	6,700
Fan Direction:	R410a
Water Connections:	Horizontal
Nominal Flow (m ³ /h):	1½ Inch
Max. Pressure Loss (kPa):	6.0
Dimensions L x W x H (mm):	16
Weight (Kg):	1078 x 416 x 958
	99



Proteam Inverter Swimming Pool Heat Pump

Proteam Inverter Pool Heat pumps are different from standard inverter units.

Standard inverter heat pumps function according to stepped frequencies: this means that they have several fixed pre-set frequencies, compressor and fan speeds, which give several rated capacities in output.

Proteam Inverter Heat Pump are designed according to the most advanced stepless variable inverter technology, combining a full DC inverter compressor with a brushless DC fan motor.

The principle logic behind this technology is that, when running, the compressor frequency changes Hz by Hz and the fan motor speed also varies with each cycle.

This enables Proteam Inverter Heat Pumps to intelligently adjust according to the pool temperature demand, and to continuously perform with the highest efficiency in the most cost-effective way.

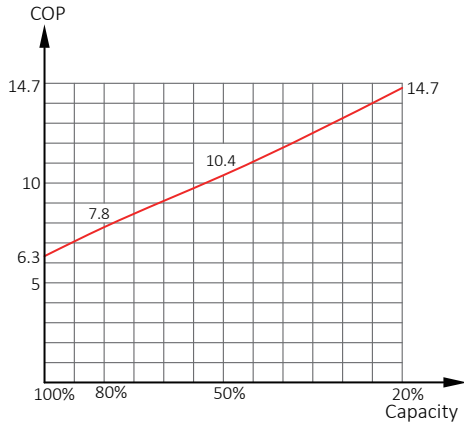


SPECIFICATIONS

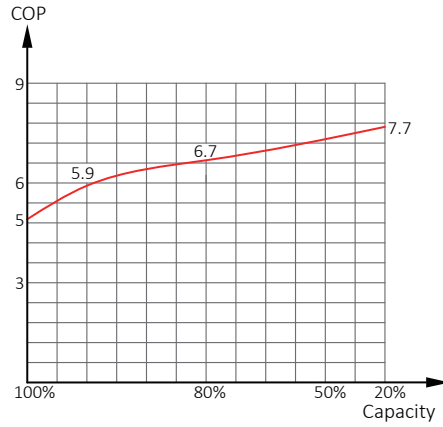
Host model	Model	PC-NVI-90	PC-NVI-110	PC-NVI-140	PC-NVI-170	PC-NVI-210	PC-NVI-230	PC-NVI-270	PC-NVI-320	
	Advised Pool Volume(m3) with insulating cover	20~40	25~50	30~60	35~70	40~80	60~100	70~120	80~150	
Performance										
Heating* Air26 C/Water26 C Humidity 80%	Capacity(kW)	1.9~9.2	2.7~10.9	3.4~14.3	4.3~17.4	4.8~21.2	5.7~23.2	6.6~27.1	7.7~31.7	
	Power put(kW)	0.13~1.28	0.18~1.74	0.23~2.32	0.29~2.85	0.33~3.38	0.4~3.8	0.46~4.42	0.54~5.21	
	COP	6.24~14.71	6.27~14.8	6.15~14.62	6.0~14.5	6.36~14.55	6.1~14.5	6.1~14.54	6.11~14.6	
	100% Capacity(kW) Boost	9.20	10.90	14.30	17.40	21.20	23.20	27.10	31.7	
	COP Boost	6.24	6.27	6.15	6.00	6.36	6.10	6.10	6.11	
	20~80% Capacity(kW) Smart	7.45	8.94	11.44	14.01	17.17	18.79	21.95	25.68	
	COP Smart	7.80	7.84	7.69	7.50	3.00	7.63	7.63	7.64	
	20~50% capacity(kW) Silent	4.60	5.45	7.15	8.70	10.60	11.60	13.55	15.85	
COP Silent	10.40	10.45	10.25	10.00	10.60	10.17	10.17	10.18		
Heating** Air15 C/Water26 C Humidity 70%	Capacity(kW)	1.6~5.95	2.18~8.13	2.86~10.65	3.49~13	3.76~15.7	4.64~17.34	5.43~20.28	6.34~23.68	
	Power put(kW)	0.21~1.2	0.28~1.59	0.38~2.17	0.47~2.64	0.48~2.75	0.61~3.6	0.73~4.1	0.87~4.8	
	COP	5~7.7	4.9~7.8	4.9~7.6	4.85~7.44	5.1~7.52	4.8~7.5	4.95~7.51	4.9~7.6	
	100% Capacity(kW) Boost	5.95	8.13	10.65	13.00	15.70	17.34	20.28	23.68	
	COP Boost	5.00	4.90	4.90	4.85	5.10	4.80	4.95	4.9	
	20~80% Capacity(kW) Smart	4.76	6.50	8.52	10.40	12.56	13.87	16.22	18.94	
	COP Smart	5.88	5.76	5.76	5.71	6.00	5.65	5.82	5.76	
	20~50% capacity(kW) Silent	2.98	4.07	5.33	6.60	7.85	8.67	10.14	11.84	
COP Silent	6.67	6.53	6.53	6.47	6.80	6.40	6.60	6.53		
Cooling* Air35 C/Water28 C Humidity 80%	Capacity(kW)	1.8~4.6	2.4~6.0	3.2~7.87	3.9~9.6	4.3~11.5	5.3~12.8	6.2~15	7.2~17.5	
	Power put(kW)	0.28~1.2	0.33~1.39	0.43~1.78	0.51~2.3	0.57~2.62	0.73~3.1	0.82~3.48	0.97~4.17	
	EER	4.47~7.46	4.32~7.34	4.41~7.42	4.24~7.4	4.38~7.48	4.17~7.25	4.29~7.54	4.21~7.44	
	100% Capacity(kW) Boost	4.60	6.00	7.87	9.60	11.5	12.80	15.00	17.50	
	EER Boost	4.47	4.32	4.41	4.24	4.38	4.17	4.29	4.21	
	20~80% Capacity(kW) Smart	3.68	4.80	6.30	7.68	9.20	10.24	12.00	14.00	
	EER Smart	5.59	5.40	5.51	5.30	5.48	5.21	5.36	5.26	
	20~50% capacity(kW) Silent	2.30	3.00	3.94	4.80	5.75	6.40	7.50	8.75	
EER in Silent Mode	6.88	6.65	6.78	6.52	4.74	6.42	6.60	6.48		
Power Supply	V / Ph / Hz	230~/ 50/1								
Operating Air Temperature	°C	-15~46								
Max.Current	A	7.24	8.4	9.6	13.77	14.3	18.36	21.35	25.2	
Components & Installation										
Refrigerant		R410A								
Compressor Type/Quantity		Inverter Rotary/1								
Heat Exchanger		Twisted Coil,Titanium								
Recommended Water Flow (m³/h)		3~5	4~6	5~7	6~8	7~9	8~11	9~12	12~15	
Min. Pressure/Max. Pressure (Mpa)		1.5/4.15								
Fan Direction/Quantity		Horizontal/1								
Fan Speed (RPM)		400~800				500~900			400~800	
Water Inlet/Outlet Connection		50mm female								
Casing Type		ABS								
Shipping										
Unit Dimensions	LxWxH(mm)	986*356*668			1076*426*720			1176*451*822		
Shipping Dimensions	LxWxH(mm)	1080*435*800			1161*490*855			1261*515*957		
Load Qty(40HQ/20GP)	units	220/90			144/72			123/38		
Data subject to modification without notice for technical upgrade										



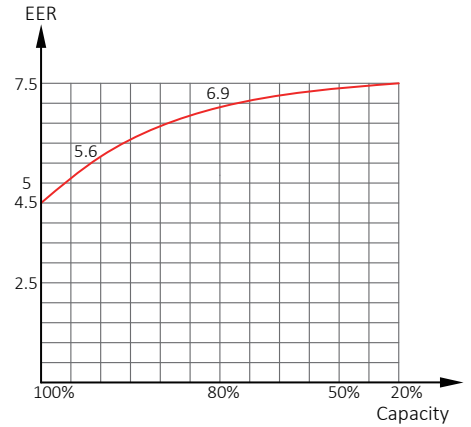
Maintain High COP in Different Ambient Conditions



Air 26°C/Water 26°C Humidity 80%



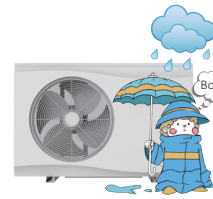
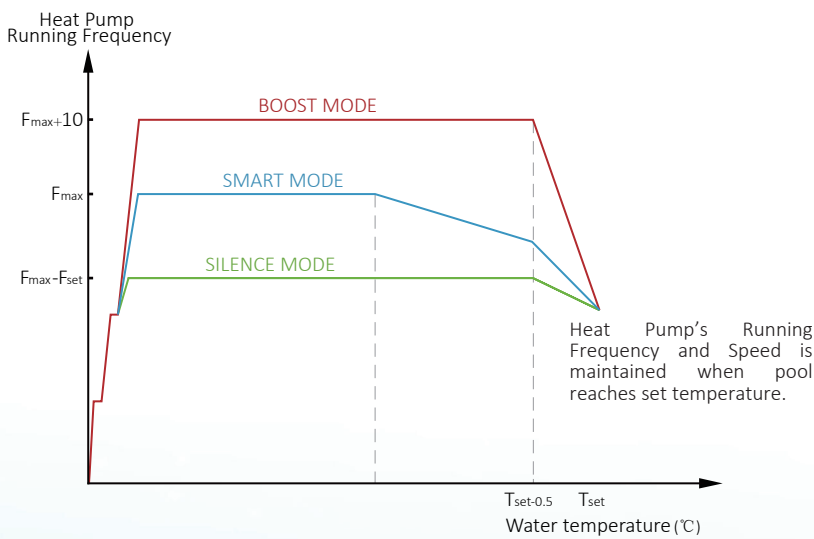
Air 15°C/Water 26°C Humidity 70%



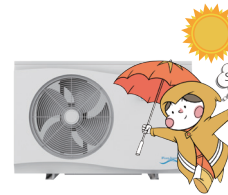
Air 35°C/Water 28°C Humidity 80%

*Example for maintain 26°C pool temperature of a 45m with PC-NVI-140 unit

Three modes running logics and application



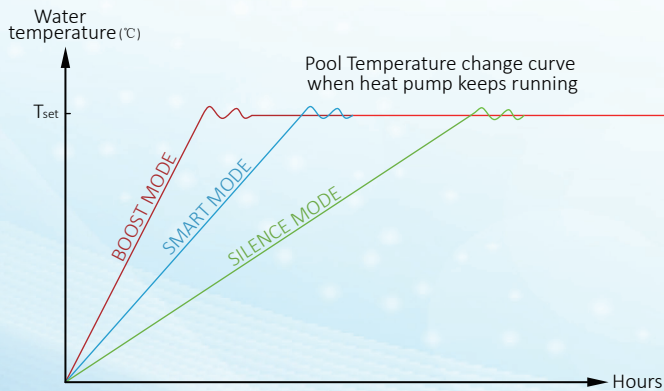
Boost
Fast heating
20%~100%capacity
Late Spring or Early Autumn
in cooler climate



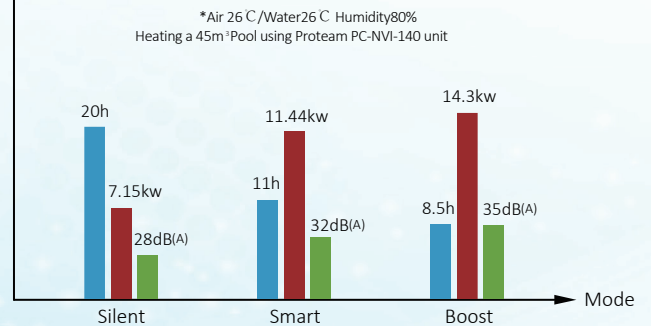
Smart
As standard
20%~80%capacity
Spring to Autumn in warm
climate



Silent
Use at night
20%~50%capacity
Mid of Summer in hot climate



Hour/Capacity/Noise Level



Proteam Inverter Pool Heat Pumps are extremely quite during operation, particularly when running to maintain pool temperature at constant levels. Below is a Sound Pressure Example for condition Air 26°C / Water 26°C Humidity 80%

Model		PC-NVI-90	PC-NVI-110	PC-NVI-140	PC-NVI-170	PC-NVI-210	PC-NVI-230	PC-NVI-270	PC-NVI-320
Advised Pool Volume	m³	20~40	25~50	30~60	35~70	40~80	60~100	70~120	80~150
Boost running mode	at 1 m dB(A)	48.1	48.6	52.5	53.1	54.5	54.9	57.1	59.7
	at 4 m dB(A)	37.9	38.2	40.5	40.9	41.1	41.8	44.7	46.9
	at 10 m dB(A)	28.2	28.6	31.8	32.2	33.4	33.7	36.5	38.2
Smart running mode	at 1 m dB(A)	44.3	44.8	48.7	49.3	50.7	51.1	53.3	55.9
	at 4 m dB(A)	35.3	35.6	37.9	38.3	38.5	39.2	42.1	44.3
	at 10 m dB(A)	26	26.4	29.6	30	31.2	31.5	34.3	36
Silent running mode	at 1 m dB(A)	38.3	38.5	41.5	42.3	44.2	44.7	45.6	47.2
	at 4 m dB(A)	30.4	30.6	32.8	33.2	35.3	35.6	36.4	37.9
	at 10 m dB(A)	20.6	20.8	23	23.6	24.3	24.6	26.6	27.3
Status of Maintaining Pool Temperature	at 1 m dB(A)	28.1	28.8	31.1	31.5	32.2	32.8	35.5	38.1
	at 4 m dB(A)	19.7	20.4	23.7	23.9	24.4	24.8	26.7	28.1
	at 10 m dB(A)	12.2	12.5	15.4	15.8	16.5	16.9	18.6	20.3

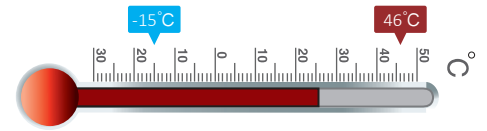
FEATURES



Twin-Rotary Inverter Compressor



DC Brushless Inverter Motor with infinitely variable speed

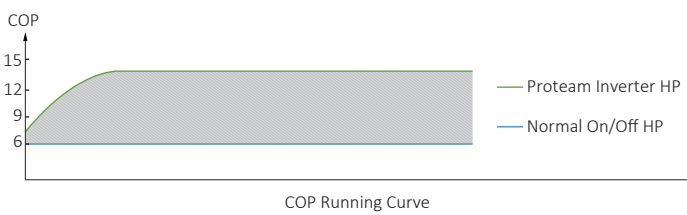


Working ambient range: -15°C-46°C

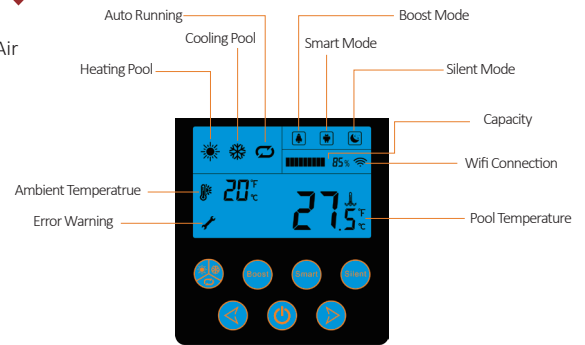
ADVANTAGES

① Higher COP than ON/OFF HP

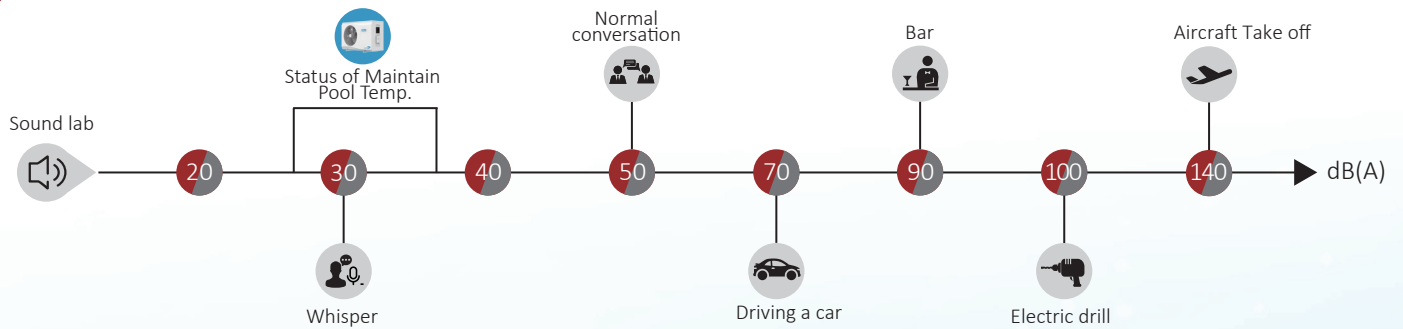
Example for maintain 26°C pool temperature of a 45m³ pool by Proteam PC-NVI-140 at Air 26°C / Water 26°C Humidity 80%



② Intelligent Controller

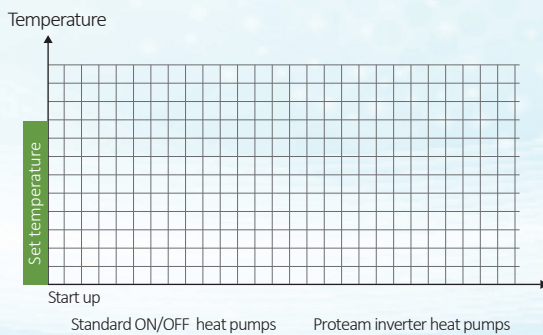


③ Super Silent



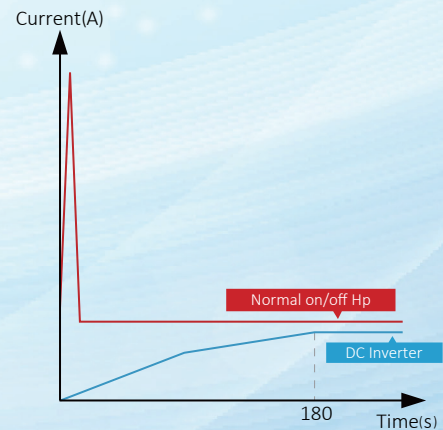
*Example to maintain 26°C pool temperature on a 45m³ pool by PC-NVI-140
Proteam Inverter heat pumps extremely silent thanks to its high-quality fans and 100%-insulated compressors.

④ Maintains pool temperature more stable



When your pool reaches its set temperature, the unit will not stop: it will continue to run at a lower frequency and speed to maintain the current pool temperature.

⑤ Soft Starter





CONTACT

Automated Environmental Systems Ltd
1 Wimbledon Avenue,
Brandon,
Suffolk
IP27 0NZ

01842 819130

sales@automatedenvironmentalsystems.co.uk

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