NATIONAL HEAT PUMPS PVT. LTD.

ENERGYSAVER HEAT PUMPS

CERTIFIED ISO 9001:2008 COMPANY

Mobile : 9892900405 / 9699869909
Email : info@nationalheatpumps.com, sales@nationalheatpumps.com
Website : www.nationalheatpumps.com

An Advanced Technological Revolution

Advantages of Heat Pump:

- Payback period of just 6 months to 24 months depending on usage.
- Does not require any government clearance.
- No discharge/ emission/ green house effect, environment friendly, eligible for carbon credits.
- Low maintenance highly effective even in cold weather conditions.
- Generates free chilled air/water which can be used as air conditioning.
- Can handle any kind of fluid.
- Can cater to capacities even up to 1 million liters per day.
- Temperature range from 30°C to 85°C.
- Low cost alternative to solar and backup.
- Allowed 80% depreciation under Income Tax Act.

Repair and AMC support offered across India

NATIONAL HYDROPNEUMATIC SYSTEM

A central water boosting system that ensures water at goods pressure at all points.

By installing this system one can do away with construction of overhead tanks.

NATIONAL WATER SOFTENER PLANTS

A System that removes the heavy minerals from water and makes it soft enough for human consumption.

NATIONAL WATER TREATMENT PLANTS

A System that removes contaminants like suspended solids, bacteria, algae etc. from water and makes it pure enough for drinking.

NATIONAL SWIMMING POOL EQUIPTMENTS

We design, install and commission all swimming pool equipments and provide clear water for enjoying a great swim. It can also be heated up with NATIONAL Heat Pumps.

NATIONAL R. O. SYSTEMS

The Reverse Osmosis System is used at places where water is non-potable. The R. O. membrane helps in giving crystal clear water free of mineral and salts and of potable quality.

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Options available:

A) **Heat Pump:**

- Air to water Heat Pump • Water to water Heat Pump
- Domestic Heat Pump

Power Supply-3 Phase 50 H_2 /440v

Ambient Air Temperature- 0°C upwards

Final Water Temperature- Swimming Pool 28°C/30°C/32°C
Others 55°C/60°C/65°C/85°C

B) **Heat Exchanger – Material of construction-**

1) Stainless Steel / Titanium /SS Copper / Copper / Molybdenum Alloy Capable of handling any kind of water / fluid.

C) **Heat Exchanger Type:**

- Shell and tube
- Plate heat exchanger
- Gaskated exchanger
- Coil Type

D) **Refrigerant Type:**

R134/R407C/R410A/R22

E) **Compressor Type:**

- Reciprocating
- Rotary
- Scroll
- Semihermatic
- Open Type

Savings on use of Heat Pump
Camparitive chart of various fuels used in heating

DESCRIPTION	UOM	HEAT PUMP	SOLAR*		DIESEL BOILER	ELECTRICAL HEATERS	LPG
			50%	100%			
			ELECTRICAL BACKUP	ELECTRICAL BACKUP			
WATER REQUD. Ltr PER DAY		10000	5000	10000	10000	10000	10000
ENERGY / FUEL CONSUMPTION		120 KW	174 KW	349 KW	37.5 Ltrs	349 KW	38 KG
PRESENT RATE per unit / Ltr /Kg	Rs.	11.5	11.5	11.5	61	11.5	90**
Power / Ltr / Kg CONSUMPTION	PER DAY	1,380	2,006	4,012	2,288	4,012	3,420
	PER MONTH	41,400	60,174	120,349	68,625	120,349	102,600
	PER ANNUM	**496,800**	**481,395**	**481,395**	**823,500**	**1,444,186**	**1,231,200**
				962,791			
SAVINGS BY USING HEAT PUMP	PER ANNUM			**465,991**	**326,700**	**947,386**	**734,400**
CAPITAL COST OF HEAT PUMP		**398,312**					
PAYBACK PERIOD	YEARS			**0.9**	**1.2**	**0.4**	**0.5**

ASSUMPTION: AMBIENT TEMPERATURE 25°C, WATER HEATED UPTO 55°C, △T30°C, SAVING AND WORKING CONSIDERED FOR 1 SHIFT BASIS/DAY, IF THERE ARE 2 OR 3 SHIFTS PAY BACK PERIOD WILL REDUCE SUBSTANTIALLY.

*** In case of solar, 50% backup cost considered for 9 months of non solar period and 100% backup considered for 3 months of monsoon.**
**** - LPG 19.4 Kg cylinder @ 1750**
Free chilled air / water generated by heat pump at same energy cost and 80% depreciation available not considered for pay back period

Technical Specification of Heat Pump

Heat Pump Capacity	5 TR	7.5 TR	10 TR	12.5 TR	15 TR	20 TR	25 TR
Power Required to run the unit KW/hr	6	9	12	15	17	24	30
Heating output required KW	19	27	37	47	53	75	94
COP	3.17	3.00	3.08	3.13	3.12	3.12	3.13

Principles of Heat Pump

The Heat Pump is a heat recovery system. In this system, there is a working fluid that has a very low boiling point. Therefore, the fluid picks up heat from the atmosphere or water rendering the air or water chilled. The hot fluid then goes to a compressor and due to compression higher temperature is achieved. This high temperature fluid then passes through a heat exchanger where on the other side water passes and picks up the heat. Thus water is heated.

Hence, at one energy cost you get both chilled air or chilled water and hot water.