Guide to Heat Pump Noise

Heat Pumps are designed for slow heat up times and maintenance heating. The limitation of power supply in nearly all residential homes means that a Heat Pump's maximum size for most homes is about 6 hp. A unit of this size will typically generate around 25 kW of pool heating at maximum efficiency. For most swimming pools, this means the Heat Pump will operate for 2 or 3 days continuously for the initial heat up period and then between 12 and 24 hours each day to maintain the swimming pool temperature.

Heat Pumps are very similar to air conditioners. An evaporator fan and compressor operate during their "on" time and as the "on" time can be 12 to 24 hours per day, care must be taken to locate the Heat Pump so that the noise produced during its operation does not interfere with sensitive areas - not only in your own home but in your neighbour's home.

Each State in Australia has municipal, state and EPA laws which govern the installation and operation of outdoor appliances in residential areas. In general, noise from an appliance such as a Heat Pump must not unreasonably interfere with the health, welfare, convenience, comfort and amenity of any person having regard to the nature and duration of the noise emission and the time of day at which the noise is emitted.

Criteria for noise emissions generally take into account back ground noise at the time of day, but the most stringent criteria applies at night – and take into account, the Heat Pump will most likely need to operate at night during cooler months of the year to maintain the pool temperature.

This guide provides an estimate only and should not be taken as definite advice on the location and installation of your Heat Pump. Should any doubt exist, seek advice from an Acoustical Consultant which can be found in the Yellow Pages.

The DX 120 Heat Pump has a sound power level of 64 dB(A) at 1 metre distance. The following factors should be taken into account when working out where to locate the Heat Pump.

Determining Distance to Neighbour's Boundary

64 db(A)	–	Barrier Factor	+	Reflection Factor	=	Distance Factor
		Box 1		Box 2		Box 3

Barrier: A fence or barrier can reduce the level of the Heat Pump's noise heard in neighbouring premises. To do this, the barrier or fence needs to be continuous will few or no gaps and go down to ground level. It must also prevent the Heat Pump from being seen from noise sensitive locations on neighbouring premises. Noise sensitive locations include bedroom and living room windows (including second storey dwellings) and outdoor entertaining/relaxing areas.

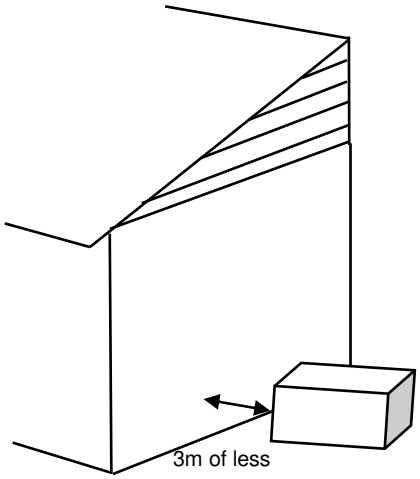
Factor for Box 1 (Barrier Factor)
Carefully read through the fence/barrier descriptions below. Select a value that corresponds to the fence/barrier description applicable to your situation. Put this value in Box 2 above.

	Description	Value for Box 1
1	The fence/barrier does not prevent the Heat Pump from being seen from noise sensitive locations on neighbouring properties	0
2	The fence/barrier blocks line of sight but is made of material having large gaps, such as a picket fence, or brick wall with openings or fancy inserts.	0
3	The fence/barrier blocks line of sight of the Heat Pump from noise sensitive location eg: Typical paling fence with small gaps due to warping.	5
4	The fence/barrier blocks line of sight of the Heat Pump from noise sensitive location e.g. "Colorbond" fencing, concrete block/masonary/brick, Fibre cement sheeting	10

Reflection Factor

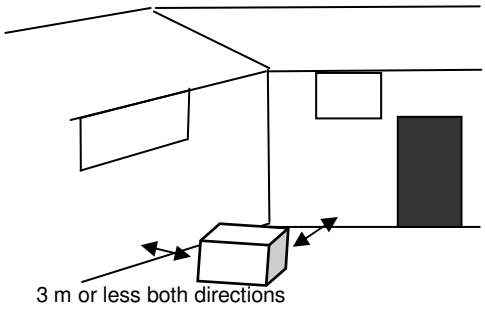
Noise can reflect from walls, roofs, sheds etc. This can have the effect of making the noise seem louder that what it is. Put the corresponding value in Box 2 (reflective surface factor).

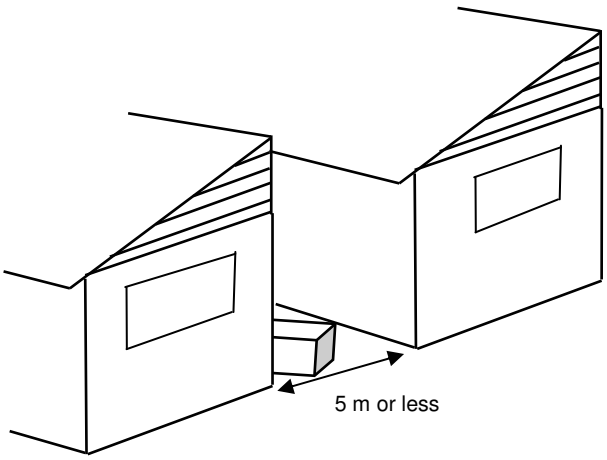
Factor for Box 2



One Reflective Surface
Value for Box 2 = 3

2 reflective surfaces
Value for Box 2 = 6





Distance Factor

An example may look like this:

A Timber Paling fence that goes right to the ground with some small gaps due to age, is worth a barrier factor of 5.

One reflective surface adjacent to the Heat Pump is worth a factor or 3.

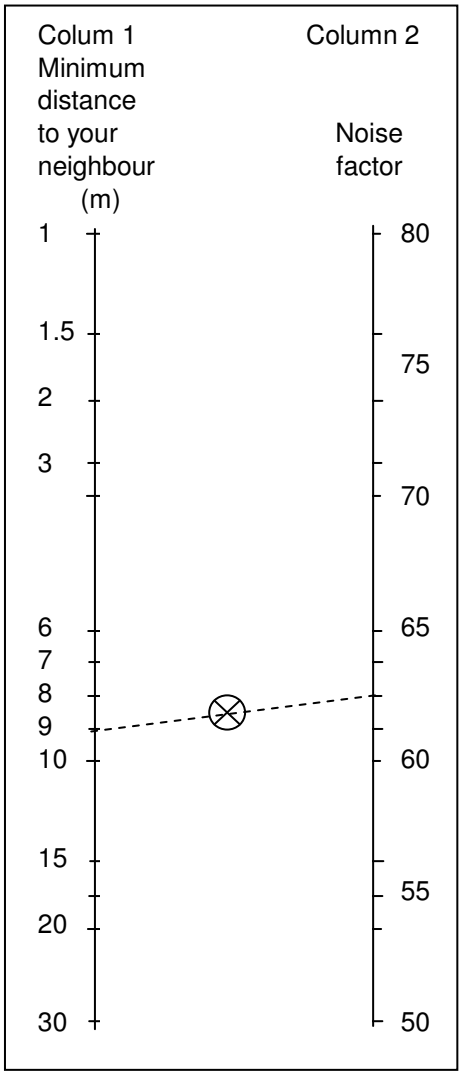
The DX 120 Heat Pump has a sound power level of 64 db(A).

Therefore your equation will now look like this:

		Box 1		Box 2		Box 3
64 {db(A)} Heat Pump Sound Pressure Level	–	5 Barrier Factor	+	3 Reflective Surface Factor	=	62 Distance Factor

The distance factor is 64 which should be written in Box 3.

The final step is to mark 62 on Column 2 below and draw a straight line through the middle ⊗ to reach Column 1. Column 1 is the minimum distance the Heat Pump should be installed from a noise sensitive area in your neighbour's residence.



With one reflective surface and a timber paling fence with small gaps, the Heat Pump needs to be installed at least 10 metres from a noise sensitive area in your neighbour's property.

This calculation is intended as a guide only and no warranty is made or implied by Hurlcon as to its accuracy. Please consult an Acoustical Consultant or phone your Hurlcon branch office if in any doubt.

Further Guidelines for installation of Heat Pumps

- DX Heat Pumps must be installed outdoors – never install inside a plant room, garage etc.
- Allow a minimum of 500mm clearance from the sides and rear of the heat pump and a minimum of 600mm service access from the front of the Heat Pump.
- Ensure an electrical isolation switch is located nearby the Heat Pump.
- On Three Phase models, ensure the phase rotation of the compressor is checked before commissioning of the unit.
- Ensure the water pressure switch operation is checked at least 6 times prior to handing over the Heat Pump.
- Refer to Installation and Operating Instructions for full installation, commissioning and operating procedures.