

NUAIRE DRIMASTER DRI-XX

Whole House Ventilation System

Installation and Maintenance

NUAIRE

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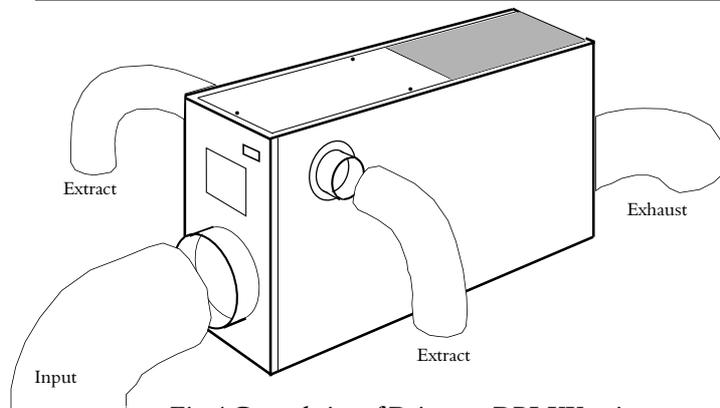


Fig. 1 General view of Drimaster DRI-XX unit

Introduction

The DRIMASTER DRI-XX is designed to eliminate condensation build up and to recover the heat that is normally wasted during the air extraction process.

The unit, which is normally mounted within the loft space, incorporates a heat exchanger and two forward curved centrifugal fans, one supplying air and the other extracting air from the house. Both airflows pass through the heat exchanger which recovers 70% of the heat extracted from the 'warm' rooms.

The supply fan draws air from the loft through a highly efficient filter and delivers this air through a 200mm diameter duct to the hall / stairwell area via a ceiling mounted diffuser.

The supply fan operation is as follows:-

A switch can be found on the front of the unit which alters the speed of the supply fan. For average size dwelling i.e 3 or less bedroom, switch to A. For larger houses select L.

DUTY:

Average size dwelling,
below 15.5 deg.C = 30 L/s
15.5 deg.C to 27 deg.C = 40 L/s
above 27 deg.C = OFF

NOISE:

17dBA
21dBA

Large size dwelling,
below 15.5 deg.C = 40 L/s 21dBA
15.5 deg.C to 27 deg.C = 52 L/s 25dBA
above 27 deg.C = OFF

The extract fan takes air from the 'warm' rooms of the house eg. kitchen and bathroom etc either when there is heat to be recovered or when operated by a remote switch.

The extract fan operates as follows:-

SINGLE SPEED UNIT (HX, HXMF).

Extracts air at high speed when temperature at the grille(s) exceeds 20 deg.C or when overridden by optional remote switch(s) if fitted.

TWO SPEED UNIT (HX2S, HX2SMF).

Extracts air at low speed when temperature at the grille(s) exceeds 20 deg.C but extracts at high speed when overridden by optional remote switch(s).

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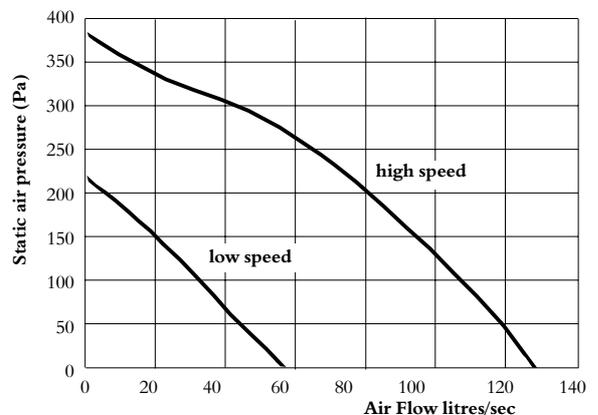


Fig 2a Actual extract performance of unit without ducting, grilles etc. (Single or two speed models).

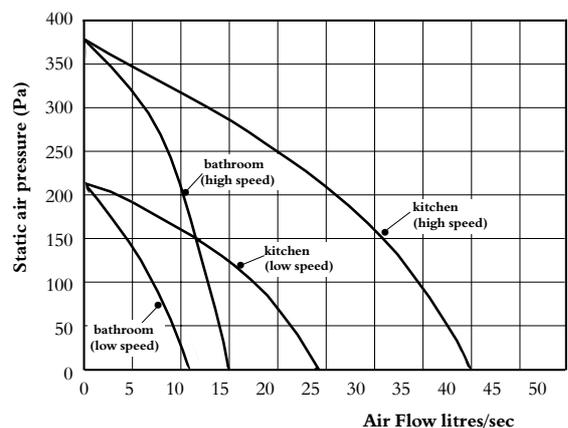


Fig 2b Typical performance of unit average 2 story dwelling

Checklist of package contents:

The package is supplied with ancillaries suitable for extract from two 'warm' rooms. For additional rooms see optional extras.

ITEM

Drimaster unit DRI-XX.
200mm ducting.
Ceiling outlet diffuser.
Kitchen extract grille incl. plenum box filter and integral temp. sensor.
Bathroom extract grille incl. plenum box filter and integral temp. sensor.
Soffit outlet grille with 100mm dia spigot and 22mm condensate connection stub.
1 off 150mm dia spigot.
5 off 100mm dia. spigots.
Anti vibration mountings.
Hanging brackets.

Materials and Tools required for installation.

This is a basic list of requirements for guidance only.

MATERIALS:

A large tube of silicone sealant.
2 metres 2"x1" wooden batten (if unit is to be joist mounted).
Length of wire / chain (if unit is to be suspended from roof).
Wall and ceiling fixings.
Duct tape.
22mm dia PVC pipe (for condensate drain).

TOOLS:

100mm dia. hole saw.
22mm dia. hole saw.
Drill with various bits.
Suitable screwdrivers.

Optional Extras

For different installations, various optional extras will be required. When planning your installation these will become apparent and should be ordered as required.

Item

Part No.

100mm dia. insulated flexible ducting (5m).	A800 100
150mm dia. insulated flexible ducting (5m).	A800 150
150mm to 100mm dia. reducer.	PVC 121
100mm dia. solid PVC ducting. (3m).	PVC1300-4WH
Bathroom extract grille. (grille only).	100 IG
150mm dia. outlet grille.	PVC 104
100mm dia outlet grille	PVC 604
Circular Fire Damper (100 dia)	570035
Circular Fire Damper (150 dia)	570039

Please contact our sales office for any additional requirements
Telephone: 01222 885911

INSTALLATION

Designing your system.

The kit package is supplied with grilles suitable for extract from a kitchen and one bathroom. If additional areas are to be ventilated, suitable grilles should be ordered.

Before commencing work make a note of where the grilles are to be mounted and the best possible route for the ducting avoiding as many bends as possible.

Assuming the unit is to be installed above the stairwell / hall-way area, measure the distances from the grilles to the unit and order sufficient ducting. NOTE: We strongly recommend the use of insulated ducting to avoid condensation on the inside of the ductwork.

Decide on the position of the extract outlet i.e. soffit, wall roof etc. If the soffit grille supplied is to be used then a 150mm to 100mm reducer will be required. If any other position is chosen then an appropriate grille will be required.

Installing the Unit

The unit may be mounted in any convenient position within the loft space. However, it is important that the input diffuser is positioned centrally in the ceiling of the upper landing area / hallway and preferably over the stairwell itself.

Ceiling joist mounting

Cut two 2"x1" timber battens to span the joists. Drill a 10mm dia. hole in the centre of each batten and bolt to the underside of the unit using the bolts and washers supplied. Rest the assembly on the joists and mark the centre lines of the joists across the battens. Drill 12mm clearance holes at these points through the battens. The battens can now be fixed to the joists using the 3" woodscrews, special washers and resilient mountings as shown in the diagram on page 3 (Note the 3" woodscrews must pass through the holes in the support battens and not touch the sides). These screws should be tightened until the distance from the special washers to the top of the joists is no more than 50mm (Note overtightening these screws will destroy the effect of the resilient mounting). Slide the 200mm dia flexible ducting onto the unit outlet and diffuser frame spigots sealing the joints with the plastic tie wraps provided.

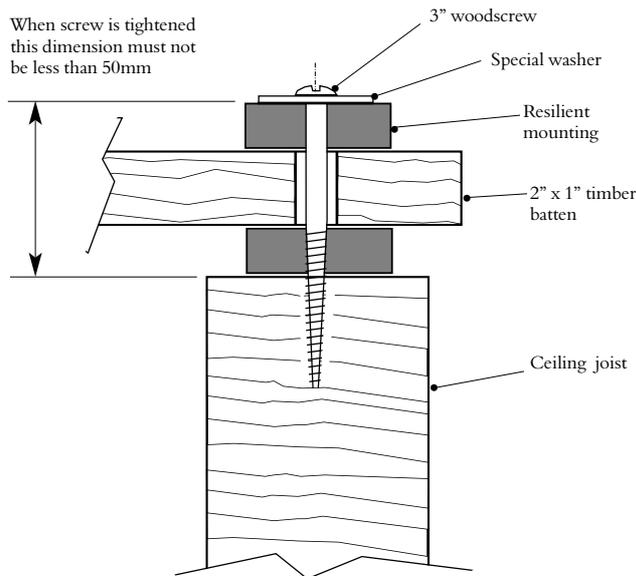


Fig. 3 Fitting anti vibration mountings (unit installed onto joists).

Roof rafter mounting (suspended).

The unit may, if required, be suspended from the roof rafters. Around upper part of the unit are three rubber plugs. Remove these plugs and replace with the steel eyelets and self locking bolts supplied.

The cable, or wire to be used should be either 3mm dia multi strand or alternatively chain and must be capable of easily supporting the weight of the unit i.e. 29kg. When the unit is in the suspended position check that it is horizontal and square. This ensures water will not collect on the integral drip tray and will drain away correctly through the outlet.

Installing the extract grille (kitchen).

This grille should be mounted in the ceiling above the heat source to take advantage of the maximum heat recovery but ensure you have at least 1.5 metres space above a cooker / hob. If not, move the grille to the side a little to avoid excessive heat distorting the grille surround.

Note however that the mounting position should be chosen so as to avoid, where possible, bends in the ducting as acute bends will seriously affect the extract efficiency of the unit.

Establish the positions of the joist runs and, using the plenum box as a size guide cut a hole in the ceiling just big enough to accommodate the box. Do not cut a hole larger than the grille flange can conceal when fitted.

Decide where the ducting will meet the box and fit the spigot accordingly using silicone sealant to make an airtight seal.

Working from above, feed the ducting and the cable (3 core) for the grille thermostat down to the plenum box position. Connect the ducting and the cable to the box (refer to the wiring diagram).

Remove the grille and filters and lower the plenum box into the aperture until it sits on its metal support brackets then, from underneath, screw the grille to the box and refit the filters. (See fig 10 on page 7) Finally, from above, seal around the plenum box with silicone or duct tape.

Installing the extract grille (bathroom).

This grill should be mounted as far away from the room door as possible. Cut a 100mm dia. hole in the ceiling to accept the grille spigot. Remove the filter and offer the grille frame up to the ceiling and mark the fixing hole positions. Drill through four fixing clearance holes. (See fig 9 page 7).

Working from above, feed the ducting and the cable (3 core) for the grille thermostat down to the plenum box position.

Connect the ducting and the cable to the box (refer to the wiring diagram).

With the grille and filters removed, lower the plenum box into the aperture until it sits on the ceiling then, from below, screw the grille to the plenum box and refit the filters.

Finally, from above, seal around the plenum box with silicone or duct tape.

Connecting the ducting to the DRI-XX unit

IMPORTANT NOTES:

In order to obtain the optimum airflow through the grilles the following points should be noted.

1. All ductwork should be installed in a manner that complies with Building Regulations and does not reduce the fire resistance of the building.
2. Flexible ducting runs should be installed so as to avoid sharp bends.
3. Flexible ducting should be pulled taught where possible.
4. Always use minimum duct lengths.
5. The unit has three extract spigot positions, choose two which best reduce the length and number of duct bends.

Balancing the extract from the two grilles

The kitchen will require a greater rate of extract than the bathroom therefore it will be necessary to correctly balance the two airflow rates. This is achieved simply by restricting the airflow from the bathroom.

In the kit you will find two white plastic perforated plates, one with more holes than the other. Usually only one of the plates will be required depending on the installation. The plate(s) are to be located 'sandwiched' between the unit wall and the spigot which is ducted to the bathroom. (See drawing). The plates are sealed using a bead of silicone.

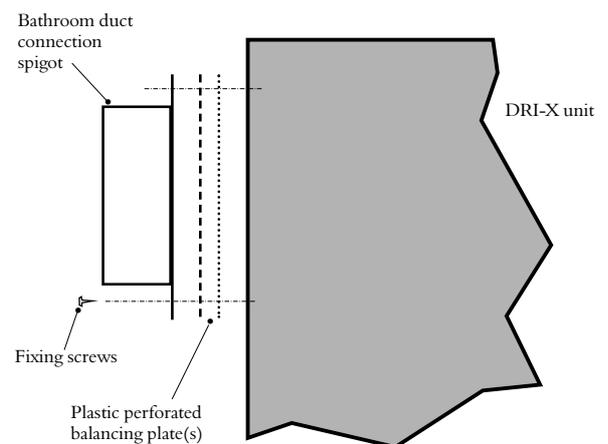


Fig. 4 Fitting the balancing plates

The choice of plate will depend on the positions of the kitchen and bathroom relative to the unit.

Use the following information as a guide when balancing the system.

1. **Kitchen nearest to unit:** single plate with small holes.

Balancing the extract from the two grilles
(continued)

- 2. Bathroom nearest to unit:single plate large holes.
- 3. Bathroom and kitchen
similar distances from unit:single plate large holes.
- 4. Three story building etc.
kitchen ground floor,
bathroom top floor:use both plates.
- 5. Three story building etc.
bathroom ground floor,
kitchen top floor:use NO plates.

Installing the input diffuser

Cut a circular hole in the ceiling between two convenient joists using the the diffuser frame as a template. Position the frame and secure it with the screws provided. Fit the diffuser plate to the frame using the screws and plastic finishing caps supplied.

Installing the Soffit outlet (if desired).

Supplied with the kit of ancillaries is a soffit outlet grille. The grille also incorporates a condensation 22mm dia copper stub pipe connector. The grille is only to be used for mounting in a soffit position or similar location. You will see that the unit outlet spigot diameter is 150 mm and the soffit grille spigot is 100mm dia. This is to allow you to use

a smaller (100mm dia.) duct in the confined area of the soffit. If you choose to use this method of outlet you will need to employ a 150mm dia. to 100mm dia. reducer piece. (available from NuAire or most duct suppliers). The reducer should be fitted near to the outlet soffit grille end of the 150mm ducting. (See drawing).

If the installation is not suitable for a soffit outlet grille, then an alternative wall or roof outlet should be purchased.

Condensation outlet drain

When extracting from a kitchen or bathroom, condensation may form on the inside of the unit. This condensate will collect on the internal drip tray.

A 22mm dia outlet is located on the corner of the unit casing. Standard plastic overflow piping (by others) should be connected to this outlet. (A short length of clear PVC pipe is supplied to assist installation).

The soffit grille supplied incorporates a 22mm dia stub connector for the pipe drain connection.

If the soffit grille supplied is not used the condensate drain pipe should be terminated to the outside of the dwelling at any convenient position.

Note, however, that in order to ensure correct drain function the pipe should always fall away from the unit.

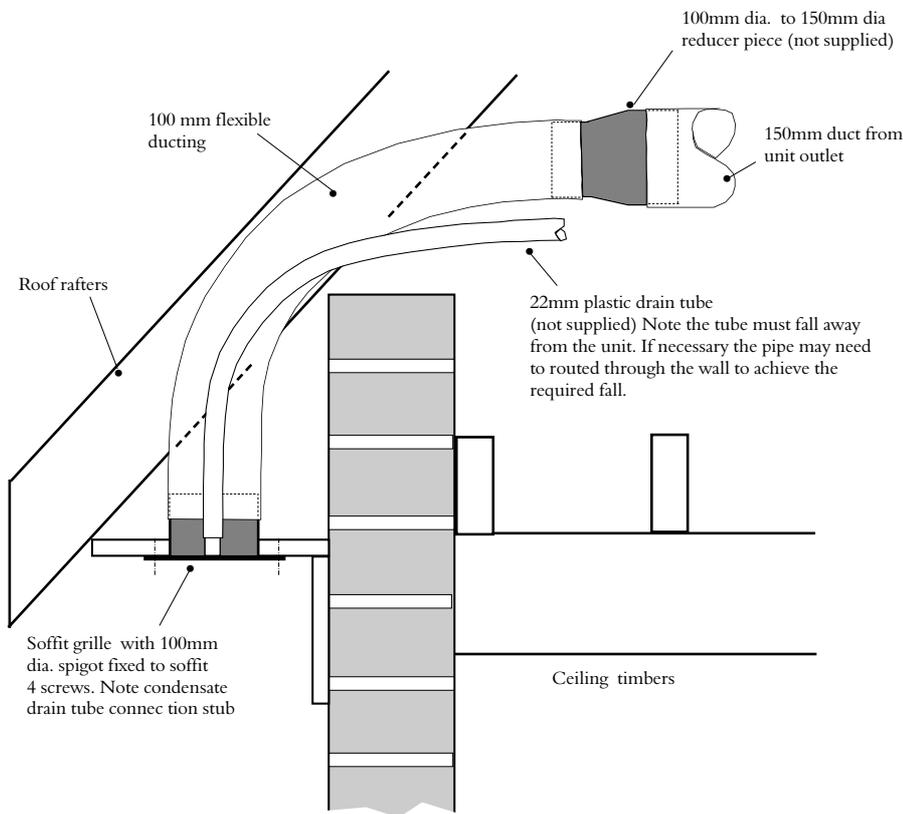
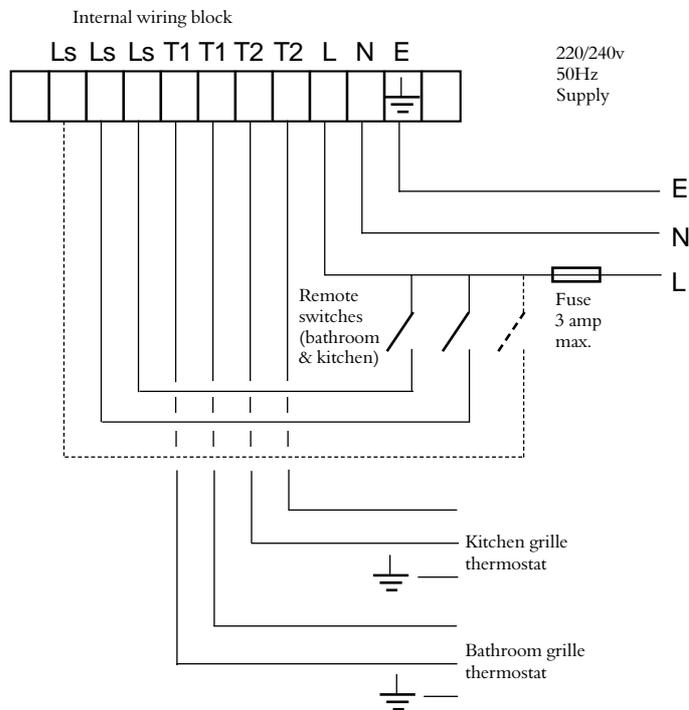


Fig. 5 Typical Soffit grille installation.

Wiring Diagrams

Fig. 6a Wiring for single / two speed unit operation.



NOTE: Ensure that remote switches or P.I.R. are used on two speed units otherwise you will not be able to increase the airflow to high. On single speed units the grille thermostats automatically switch the airflow to high. Therefore remote switches are an option.

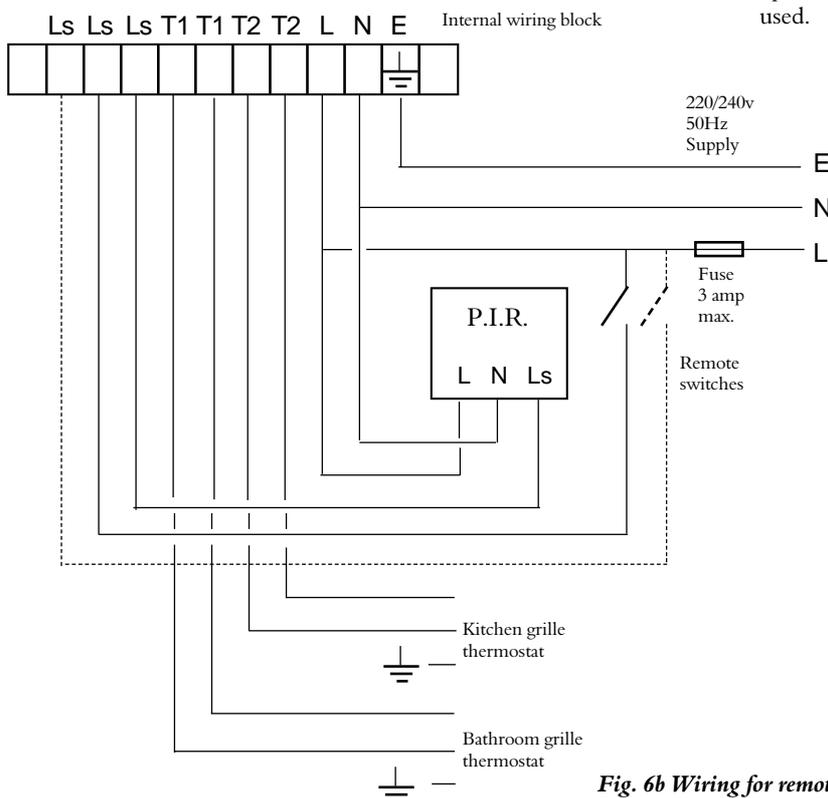


Fig. 6b Wiring for remote P.I.R. operation.

Electrical Information

All electrical connections to the unit are located on a terminal block inside the unit located under the top access cover.

As can be seen in the diagram the incoming supply should be taken through a fused spur (3 amp max.)

DATA

Input fan:

On the unit case there is a switch provided to select one of two possible speeds. The speed should be selected to suit the size of the dwelling i.e. set to **A** for an average size or **L** for larger size dwellings of 4 bedrooms and over.

Supply: 230v 50Hz

Electrical consumption (watts)

	AVERAGE	LARGE
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Below 15.5 deg.C	32	41
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15.5 deg.C - 27 deg.C	41	48
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Extract fan:

Electrical consumption (watts)

Low speed	65
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Normal / Boost speeds	130
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Remote Switches (if used)

It is recommended that the remote switches (if used), should be of the neon indicator type. This is due to the fact that it may be difficult to tell which switch is operating the fan, especially if two pull-cord types are used.

WARNING
THIS EQUIPMENT MUST
BE EARTHED

Connection to the main
earth at the unit is required
and also at the plenum
grille boxes

Wiring should be carried
out in compliance with the
I.E.E. and local authority
regulations by a qualified
electrician.

Dimensions

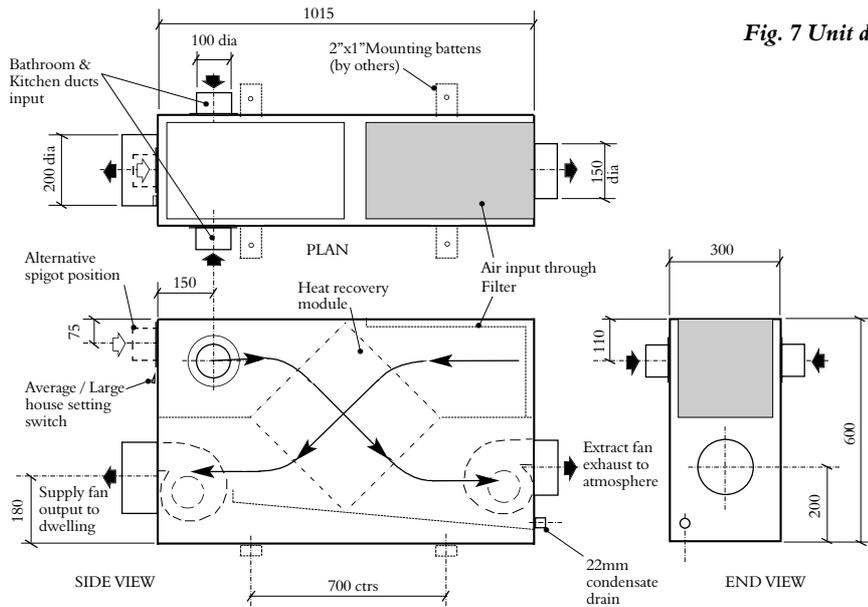


Fig. 7 Unit dimensions

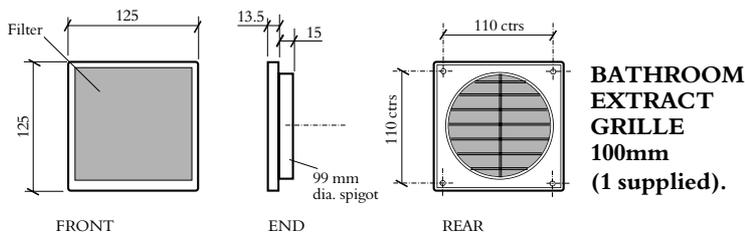
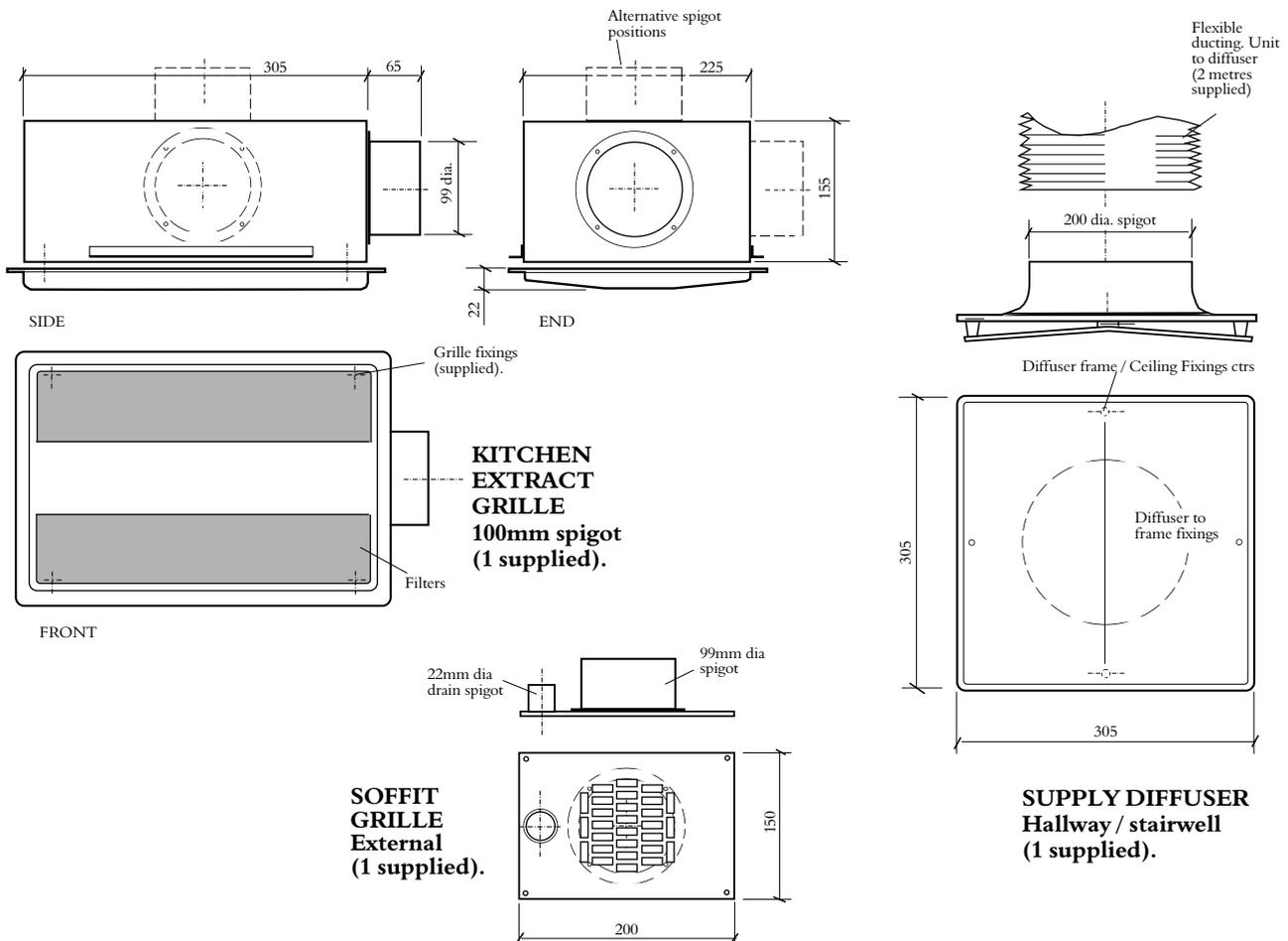


Fig. 8 Ancillaries dimensions.

Note: Ducting from Bathroom / Kitchen to unit is NOT supplied with the kit. A full range of suitable ducting and accessories is available from NuAire. Details on request



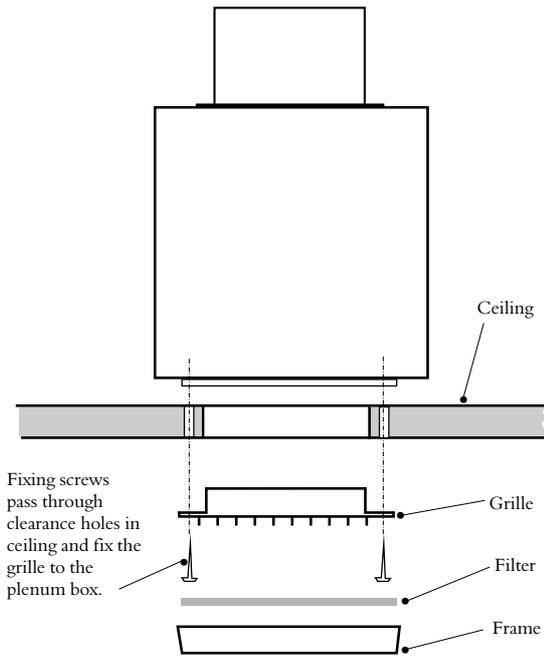


Fig. 9 Installing the bathroom plenum box / grille assembly

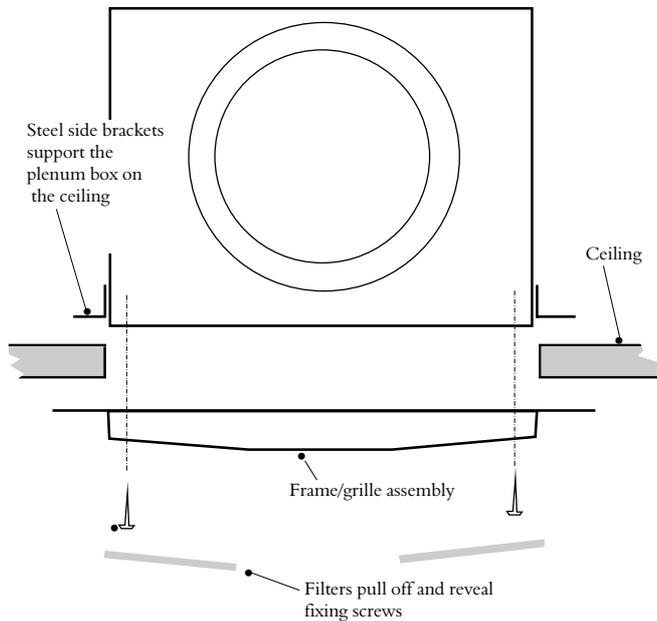


Fig. 10 Installing the kitchen plenum box / grille assembly

General Maintenance

The motors used in your Dri-XX unit have sealed for life bearings and do not require lubrication. Maintenance of the equipment is confined to cleaning of the filters etc to ensure efficient operation.

The grille mounted filters should be cleaned as and when necessary.

To clean the grille mounted foam filters.

Pull on one corner of the foam filter and remove from the grille frame. Wash in a weak solution of washing up liquid detergent, shake out excess water and allow to dry naturally. Replace the filter.

To clean the grille mounted metal filters.

Remove the grille and take out the filter. Wash in a weak solution of washing up liquid detergent. Replace the filter and grille when dry.

To clean the unit mounted filter.

DO NOT WASH THIS FILTER!

The unit mounted filter should be cleaned approximately every two years. This is best done with a domestic vacuum cleaner, or by vigorous shaking to remove the dust etc. Alternatively, replace with a new filter.

To clean the unit heat exchanger block.

The central heat exchanger block should be checked once a year for dirt or grease build up. If the block appears contaminated, remove the access cover and the main filter. Using two large screwdrivers, lever the block up and out from one side. Take care not to damage the white plastic fins, see fig.11.

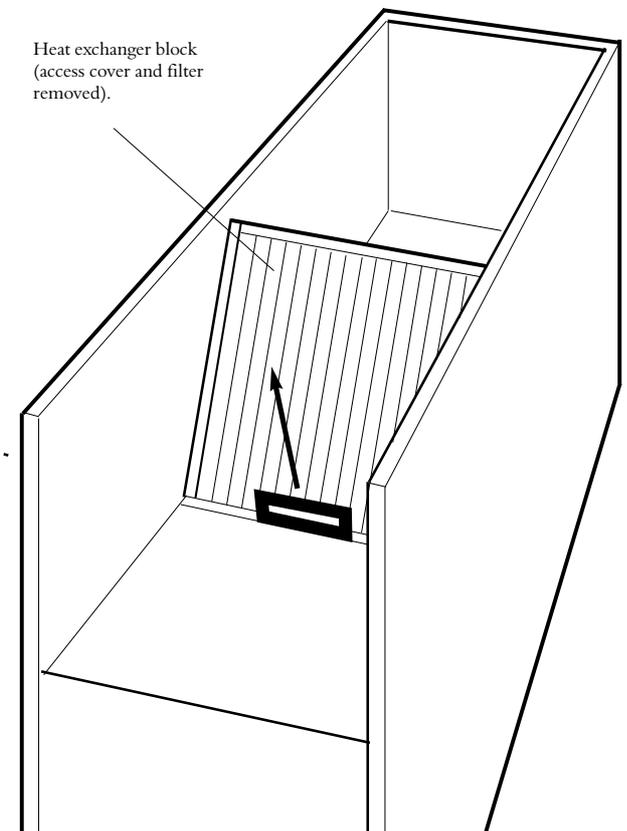


Fig. 11 Removing the heat exchanger block.

Service

As a manufacturer NuAire provides you with factory trained Service Engineers.

Our Engineers are supported by a comprehensive range of spare parts 'off the shelf'.

Our Service Department will be happy to give you more information.

Please telephone: 02920 858585

Technical or commercial considerations may, from time to time, make it necessary to alter the design, performance and dimensions of equipment and the right is reserved to make such changes without prior notice.

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