

# DualAir<sup>®</sup>

## Heating and Cooling Units



- Economic alternative to traditional heating and cooling systems with gas-fired, warm air heating and "comfort cooling" from one compact unit
- Design flexibility with free blowing or ducted installation
- Modulating burner automatically adjusts to use the right amount of heat, thereby reducing energy costs
- Ability to customise with room sealed or open flue installation
- Provides energy savings from dedicated electronic control available with optimum start
- Provides ventilation for improved indoor air quality and reduces energy costs with "free cooling" option connected to outside air
- Matches existing cooling system with choice of DX (R407C refrigerant) or chilled water cooling coils
- All models meet ECA efficiency requirements

## Technical Data

Model		75	90	100	115
<b>Heater Section</b>					
Maximum Heat	(kW)	95	111	119	134
Input-Gross	(Btu/h) x (1000)	324	379	406	457
Maximum Heat	(kW)	78	91	98	111
Output	(Btu/h) x (1000)	266	311	334	379
Maximum Gas Rate	(m <sup>3</sup> /h)	9	10.5	11.3	12.8
Natural (G20)	(ft <sup>3</sup> /h)	319	371	398	451
Maximum Gas Rate	(m <sup>3</sup> /h)	9.5	11.1	11.9	13.4
Natural (G25)					
Maximum Gas Rate	(m <sup>3</sup> /h)	3.5	4.1	4.4	5.0
LPG Propane (G31)	(kg/h)*	6.5	7.6	8.1	9.2
Maximum Gas Rate	(m <sup>3</sup> /h)	2.7	3.1	3.3	3.8
LPG Butane (G30)	(kg/h)	6.5	7.6	8.1	9.2
Minimum Heat Input	(kW)	66.5	77.7	83.3	93.8
(Low Fire)	(Btu/h) x (1000)	227	265	284	320
Minimum Heat Output	(kW)	54.6	63.7	68.6	77.7
(Low Fire)	(Btu/h) x (1000)	186	217	234	265
Inlet Pressure		20	20	20	20
Natural Gas (G20)	(mbar)		(Minimum 17 - Maximum 25)		
Inlet Pressure		25	25	25	25
Natural Gas (G25)	(mbar)		(Minimum 20 - Maximum 30)		
Inlet Pressure		37*	37*	37*	37*
LPG Propane Gas (G31)	(mbar)	(* Alternative where permitted 50) (Minimum 25 - Maximum 57.5)			
Inlet Pressure		28	28	28	28
LPG Butane Gas (G30)	(mbar)		(Minimum 20 - Maximum 35)		
Gas Connection	(ISO 7-R)	¾	¾	¾	¾
<b>Fan Section</b>					
Designed Air Flow (Clean Filters)	(m <sup>3</sup> /sec)	2.9	2.9	3.7	3.7
Minimum Accepted Air Flow	(m <sup>3</sup> /sec)	1.7	1.7	2.6	2.6
Maximum Accepted Air Flow	(m <sup>3</sup> /sec)	3.7	3.7	5.3	5.3
Motor-Fan Pulley Option	(mm)	100x200/95x180	100x200/95x180	112x180/118x180	112x180/118x180
<b>Electrical Data</b>					
Electrical Supply		400 V, 50 Hz, 3 Ø & neutral			
Total Electrical Load	(kW)	3.3	3.3	5.4	5.4
Motor Size	(kW)	2.2	2.2	4.0	4.0
Full Load Current	(A)	4.5	4.5	7.5	7.5
Start Current	(A)	23	23	24	24

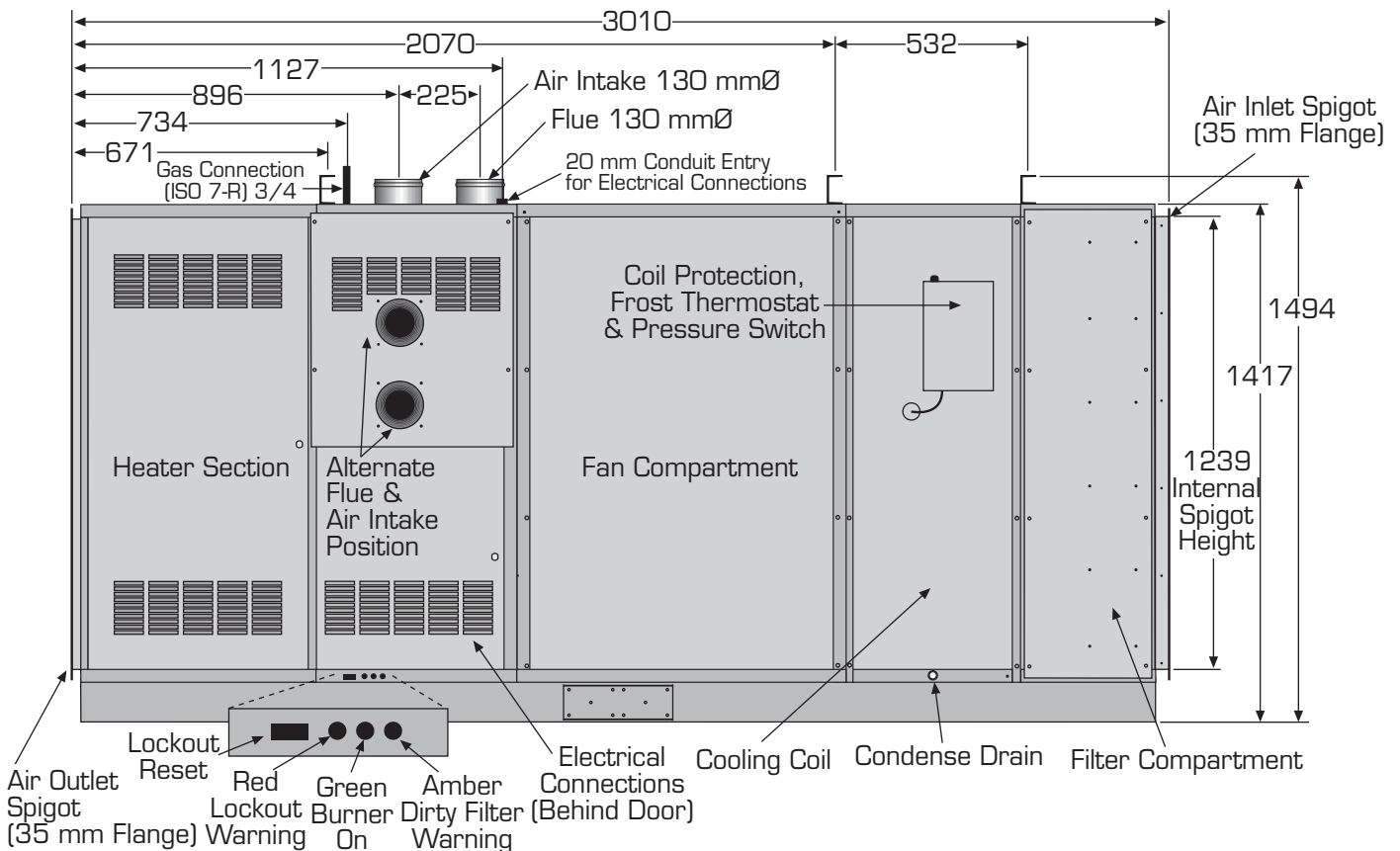
\*For litres per hour, multiply: (kg/h) x 1.97

Gas rates corrected to standard conditions 1013.25 mbar 15° C.

Model		75	90	100	115
<b>Cooling Coil - DX</b>					
Maximum Cooling Load (kW)	(kW)	57.7	57.7	71.5	71.5
Inlet Connection	(in)	7/8 copper			
Outlet Connection	(in)	1- 3/8 copper	1- 3/8 copper	1-5/8 copper	1-5/8 copper
Refrigerant		R407C			
Design Temp. ON	°C Dry Bulb	27		25	
	°C Wet Bulb	19.4		18.1	
Design Temp. OFF	°C Dry Bulb	14.7		13	
	°C Wet Bulb	13.7		12.3	
<b>Filter Section</b>					
Filters Fitted	(mm)	Qty 6 -Farr 30/30 grade G4 100 x 635 x 406			
Initial Pressure Loss	(mbar)	0.4			
Maximum Recommended Pressure Loss	(mbar)	1.5			
<b>Physical Data</b>					
Weight	(kg)	612	621	638	647
Noise Rating from Cabinet at 1 m	dB (A)	65		72	
	dB (A)	68		68	
Noise Rating from Air Inlet at 1 m	dB (A)	68		77	
	dB (A)	73		75	
Noise Rating from Air Outlet at 1 m	dB (A)	75		81	
	dB (A)	76		77	

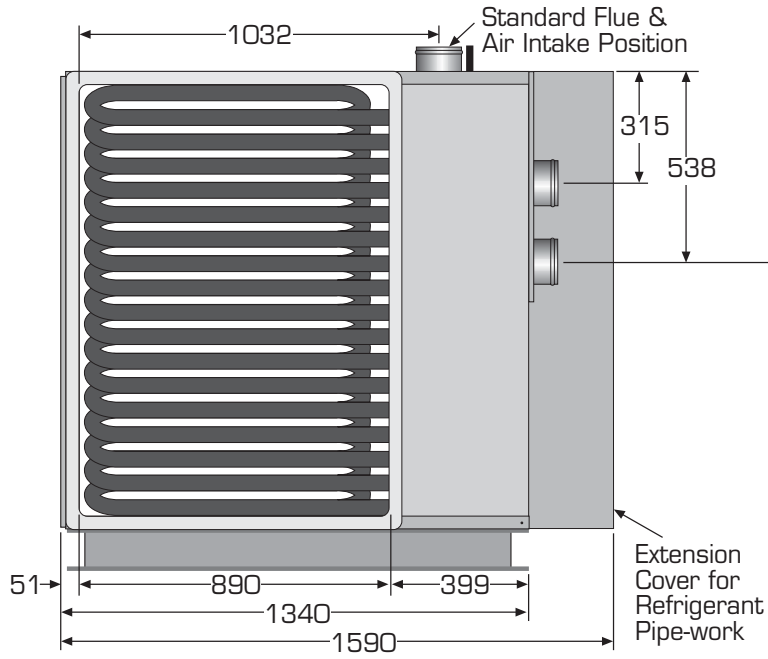
### Dimension Data - Version 1 Side View

All dimensions shown in mm.

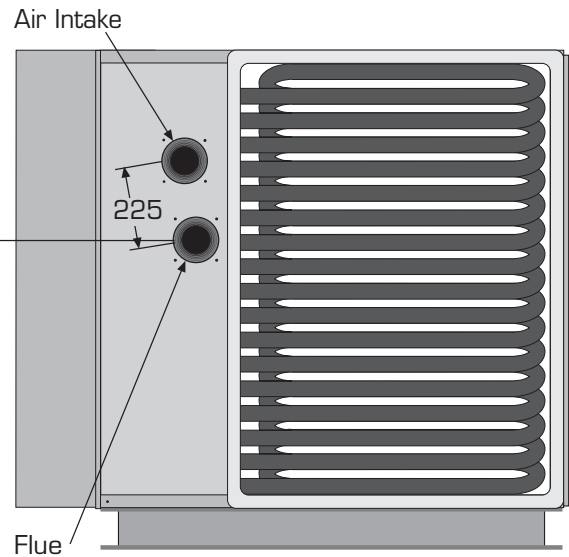


**Front View - (Standard Models)**

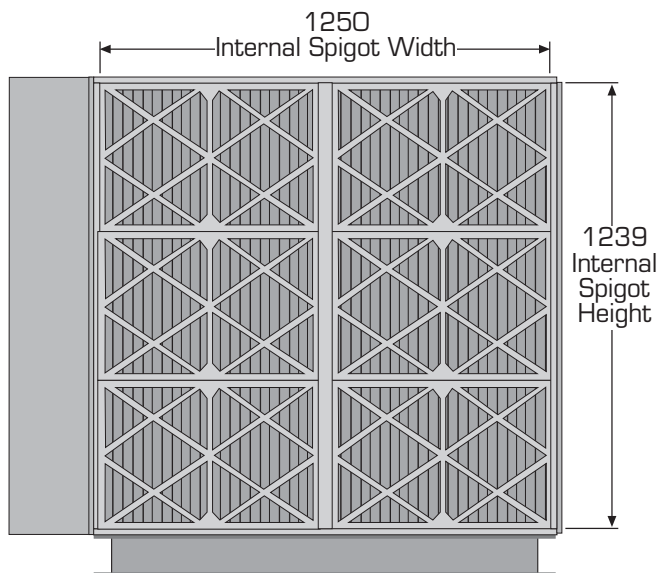
All dimensions shown in mm.



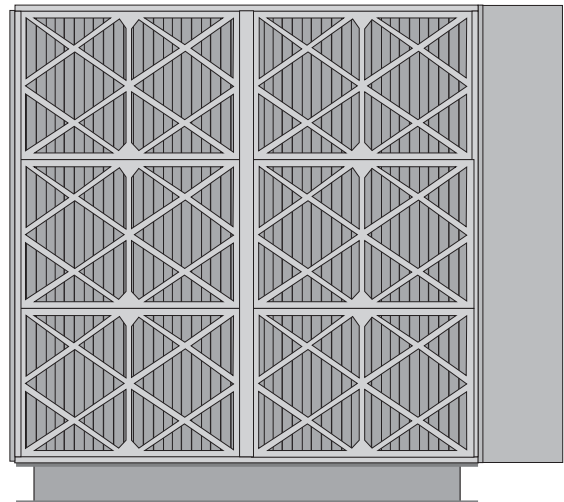
**Front View - (Left Version)**



**Rear View - (Standard Models)**



**Rear View - (Left Version)**



## Orientation

DAT units are provided standard with the air flow from left to right when viewed from the access side. In this orientation, the flue and air intake for combustion air are supplied at the top of the appliance. DAT units may also be supplied or converted to side outlet on the control side or supplied as a "left unit" with the air flow from right to left, when viewed from the control side. As such, the flue and air intake for combustion air will be at the front of the unit adjacent to the outlet duct spigot.

## Controls

### Gas Fired Heater Section

DAT units use the CTU automatic ignition high efficiency warm air heater as the heart of the equipment. Four heat outputs are available and may be supplied to operate on natural gas or LPG. Modulating burners operated from a 0-10 Vdc signal are provided as standard.

## Cooling Section

DAT units are available fitted with DX cooling coils, which require connection to suitable condensing units. Condensing units and all associated pipework, are not supplied by Roberts-Gordon. DX coils are split into two equal sections and are supplied with the two refrigerant circuits sealed, ready for on-site connection. DX coils are designed for operation at an ambient temperature of 28°C using R407C refrigerant evaporating at 6° C. Note: A condense drain is provided with the coil, which must be connected to a suitable trap using copper or plastic tube.

## Filter Section

DAT units are fitted with a filter to protect the cooling coil from airborne particles and a warning light to indicate filter replacement.

## Operation & Control

DAT unit modules can be controlled via a wide range of energy controls.

As an option, a dedicated DAT electronic control is available from Roberts-Gordon to operate the heating, cooling and modulating burner.

The control relays built into the unit are capable of 'free cooling' which operates change-over dampers on the air supply to provide an extra, first stage of cooling using fresh air from outside and no condenser. Advice on suitable controls can be sought from Roberts-Gordon.

## Versions

DAT units are available in two versions:

Version 1 - fitted with heater and DX refrigerant cooling coil

Version 2 - fitted with heater only (no cooling coil)



Authorised User No. 00184

DUALAIR<sup>®</sup> Heating and Cooling Units are high efficiency heating and cooling units and are listed on the Enhanced Capital Allowance Scheme 'Energy Technology Product List'. The ETL symbol is a UK registered certification mark of the carbon trust.

## Important Notice

**The equipment described in this Data Sheet is suitable for most commercial and industrial heating applications. However, in certain environments, particularly where there is a chlorinated atmosphere (e.g. near degreasing plant or other solvent processes), or a particularly dusty atmosphere, specialist advice should be sought at the design stage. Please consult Roberts-Gordon.**

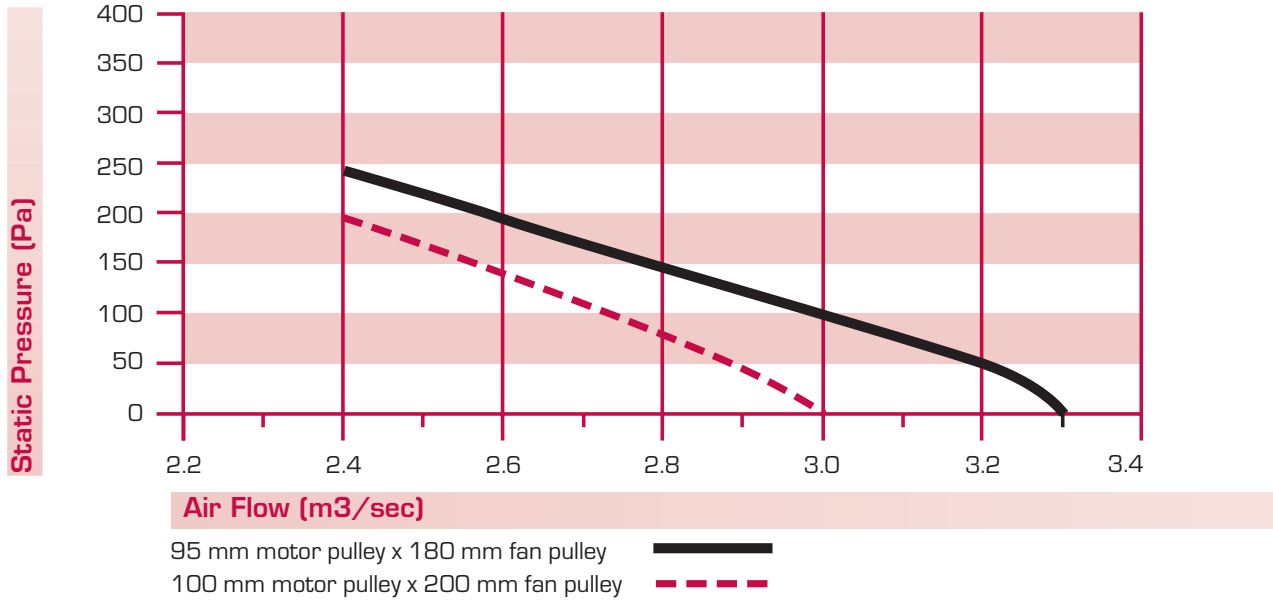
**Roberts-Gordon reserves the right to alter product specification details without notice.**

**Installation Code and Annual Inspections:** All installations of ROBERTS GORDON<sup>®</sup> products must be performed by a contractor qualified in the installation and service of gas-fired heating equipment and conform to all requirements of all applicable governmental authorities pertaining to the installation and operation of the equipment.

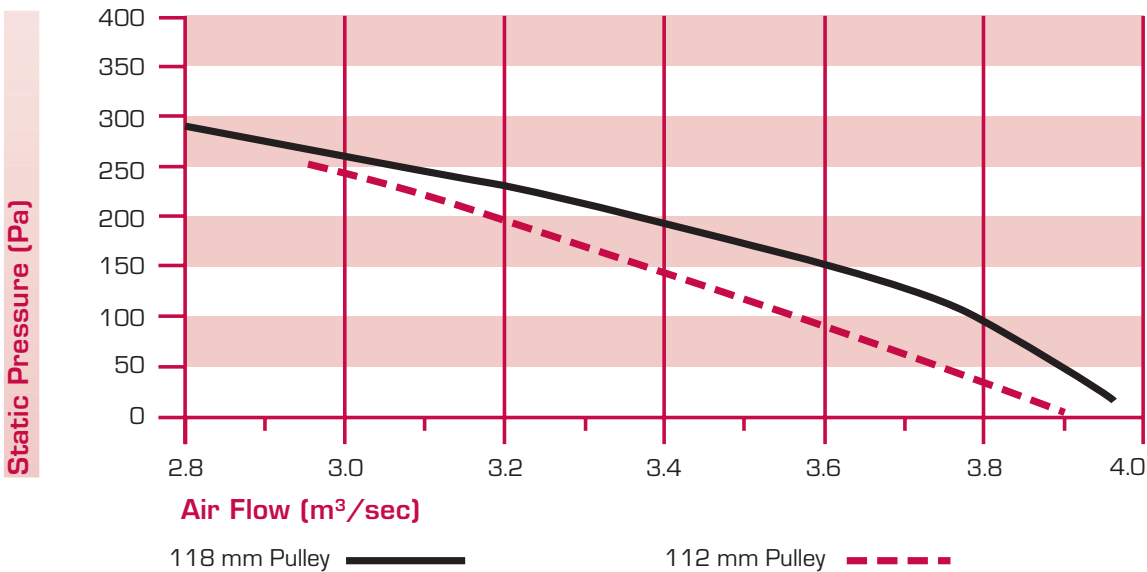
For optimum performance and safety, Roberts-Gordon recommends that a qualified contractor annually inspect your ROBERTS GORDON<sup>®</sup> products and perform service where necessary, using only ROBERTS GORDON<sup>®</sup> replacement parts.

**Further Information:** Applications, engineering and detailed guidance on systems design, installation and product performance is available through ROBERTS GORDON<sup>®</sup> representatives. Please contact us for any further information you may require, including the DUALAIR<sup>®</sup> Installation, Operation and Service Manual.

**Performance Data**  
**Graph of Air Flows v Static Pressure**  
**DUALAIR® 75 and 90 (2.2 kW Motor)**



**DUALAIR® 100 and 115 (4 kW Motor)**



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