CI/SfB
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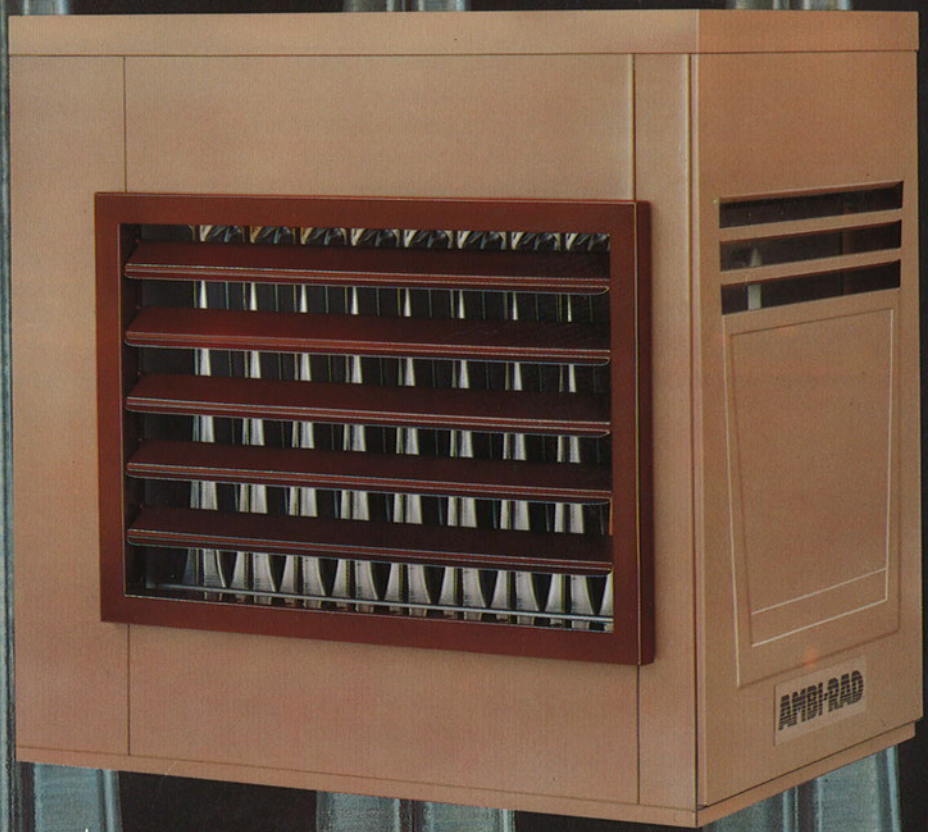
AMBI-RAD®

ENVIROAIR

Gas Fired Unit Heaters



LLOYD'S REGISTER QUALITY COMPANY ISO9002

NATIONAL ACCREDITATION OF CERTIFICATION BODIES

CE

ENVIROAIR Gas Fired Unit Heaters

CE

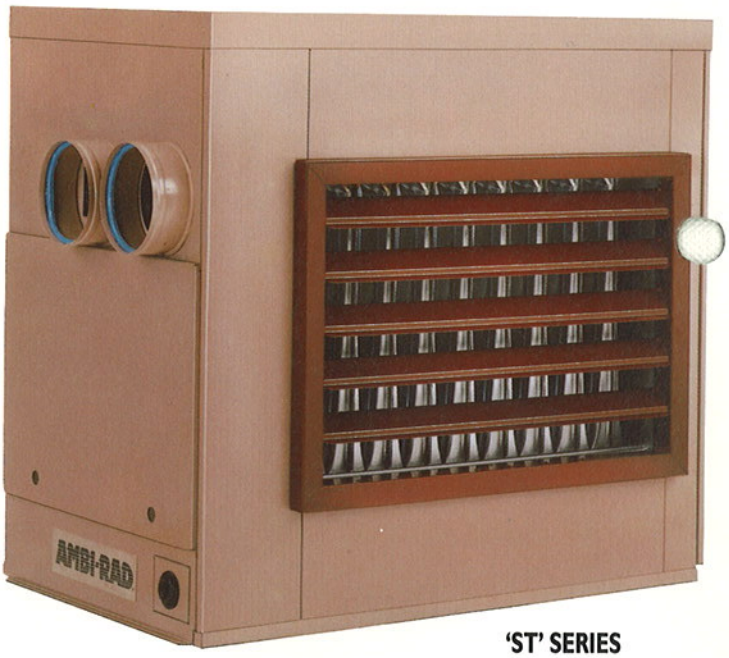
'T' SERIES

Ambi-Rad EnviroAir gas-fired, warm air heaters are compact, fully automatic units for industrial and commercial applications. They are simple to install and provide efficient, practical and economic heating, without occupying valuable floor space.

Designed and manufactured to the highest degree of technical excellence, the heaters have an established record of long life, low maintenance and reliability. The 'Thermocore' Heat Exchanger at the heart of each unit has been proven in over a million installations throughout the world.

The new generation of CE approved units incorporates design features to further extend heat exchanger life and enhance the thermal efficiency to 80%.

The 'T' Series heaters are complete with an integral down draught diverter and conventional open flue connection.



'ST' SERIES

The 'ST' Series heaters are room-sealed, fan-assisted, balanced flue units incorporating a separated combustion system. Separated combustion technology provides mechanically induced outside air for combustion, allowing the use of unit heaters in extremely dirty or mildly corrosive environments where standard heaters would not be practical.

The CE approved heaters are the latest version of the separated combustion principle, with easier servicing, simplified wiring and improved combustion air metering. The result is a highly efficient range of heaters with low NOx emissions, which meet the latest European Standards.

Industrial

Showroom

Warehousing and Storage

AMBI-RAD

COMPREHENSIVE RANGE
The units are available in eleven output capacities from 17kW to 93kW.

CHOICE OF FUELS
Standard units are suitable for operation on natural gas; units for propane are available as an option.

VERSATILE INSTALLATIONS
Heaters are designed for either suspended or base-mounted installation. Units may be either freeblowing or fully-ducted. A range of outlet nozzles is available to give greater flexibility of air distribution. For ease of servicing, the burners are mounted in a slide out drawer, accessed from the left-hand side of the heater (viewed from the front). Opposite hand units with right-hand side access are available as an option.

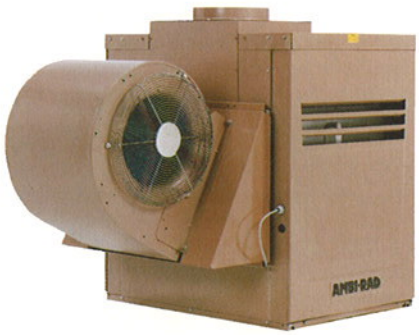
OPTIONAL BURNER CONTROLS
High-Low, two-stage burner regulation provides closer temperature control. Since the heater runs for longer periods on low setting, the air circulation is improved and stratification is significantly reduced. The High-Low control system is particularly beneficial on ducted systems.
Modulating burner regulation provides proportional control between high- and low-fire, for even closer temperature control. The modulating control system is ideal for make-up air applications.

ECONOMY
The Thermocore Heat Exchanger provides optimum efficiency and economy.
Room-sealed ST units provide additional fuel economy, with electronic spark ignition and integral-powered flue being fitted as standard. The sealed power flue system eliminates the loss of heated room air associated with conventional flue systems, thus providing significant energy savings. The design also utilises waste heat from flue gasses to preheat incoming combustion air, maximising combustion efficiency.
An optional destratification system may be added to heaters mounted at high level to recirculate stratified warm air back down to working level, even when the burners are switched off. A temperature sensor monitors the high level air temperature and operates the heater fan independently of the burner.

MODEL OPTIONS
All units incorporate a high efficiency Thermocore Heat Exchanger, plus alternative air handling systems.

Axial Fan
TA and STA units are fitted with high quality axial fans to provide excellent air distribution at low noise levels, for freeblowing applications.

Centrifugal Fan
TB and STB units are fitted with belt drive centrifugal blowers for higher mounting applications, or for ducted installations with static pressures up to 500Pa.



Enclosed Fan
TE and STE units are fitted with a fan enclosure cabinet and belt drive centrifugal blowers. The fan enclosure allows the use of return air ducts, fresh air or recirculation air dampers, filters, attenuators and fresh air intakes.

SEPARATED COMBUSTION
ST Series units utilise external combustion air, preventing dirt, lint, dust or other contaminants from entering the burners or combustion process.
The metered airflow ensures stable and efficient combustion unaffected by negative building pressure or wind effects.

SAFETY
Each heater is fitted with a multifunctional gas safety control. A limit switch shuts down the heater in the event of insufficient airflow or any other cause of overheating. For additional safety, an energy cut-off device monitors safe operation of the unit to provide a dual, high limit cut-off.

CONTROLS
An integral fan control delays the fan operation to avoid blowing cold air and, for maximum economy, continues to run the fan after the burner switches off, until the heat in the heat exchanger has been dissipated into the building.
For fully automatic operation, the units may be used with timeclocks, thermostats, frost stats or Ambi-Rad control panels. These incorporate time and temperature control, heat vent switch, allowing the fans to be used for summer air circulation, and a reset facility for automatic spark ignition units.

ENVIROAIR Gas Fired Unit Heaters

SPECIFICATION

Cabinets
All components exposed to products of combustion are manufactured from aluminised steel. Exterior panels have a baked-paint finish.

Heat Exchanger
The Thermocore all-welded, venturi tube assembly is manufactured from special grade aluminised steel.
For applications where inlet air temperatures will be below 5°C, or the temperature rise across the unit is below 22°C, optional stainless steel (E3 - Grade 409) heat exchangers are recommended.
Special grade stainless steel heat exchangers are available on request.

Burners
Corrosion resistant, aluminised steel burners with flared ports and stainless steel ribbons are mounted in a slide-out burner tray. A stainless steel, carry-over lighting system ensures quiet and reliable ignition. Burner tray withdraws from left-side of unit (when facing air discharge); opposite hand units are available as an option.

Gas & Safety Controls
A multi-function gas control valve provides a filter, pressure regulator and dual shut-off valves for fully automatic operation. Fan control, with anticipator resistor, delays fan start and allows fan overrun after burner switches off. A limit thermostat will close down the heater in the event of overheating. Dual safety is provided by an energy cut-off device which acts as a second higher limit.
T series units are provided as standard with a thermoelectric safety control system complete with thermocouple pilot monitoring. ST Series units are complete with fully automatic electronic spark ignition and remote reset facility. Fully automatic electronic ignition may be fitted to T Series heaters as an option.

Axial Fan Models
Heaters are fitted with an axial flow fan and single phase 220-240Volt motor. Models 250, 300, 350 and 400 have a twin-fan and motor assembly.
Units are supplied complete with louvre frame and horizontal louvres. Vertical louvres may be added as an option. Downturn 30° or 60° nozzles are recommended for units at higher mounting heights. (Vertical louvres may only be added to 30° nozzles.)

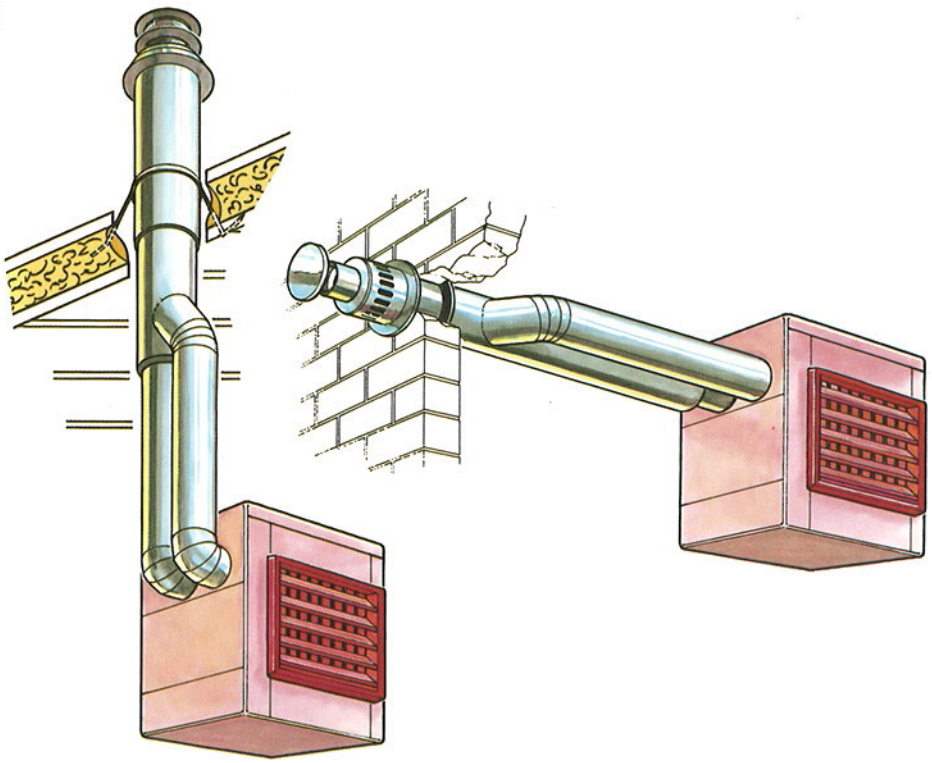
Centrifugal Fan Models
Heaters are fitted with double inlet, centrifugal blowers, complete with belt drive and heavy duty motor.
Standard models have a duct outlet flange and are complete with motor and adjustable pulley, suitable for standard airflow, at up to 125Pa resistance. Alternative airflows and static pressures require different motors and/or pulleys. The maximum airflow for each model is shown in the data table. Static pressures of up to 500Pa are available on all models, however, maximum airflow may not always be possible at maximum static resistance.
Freeblowing heaters are designed for higher airflows and require the addition of either a louvre frame complete with horizontal louvres or a 90° discharge head. Vertical louvres and/or angled discharge nozzles (30° or 60°) may be used in conjunction with the louvre frame. A two-way or four-way discharge plenum added to the 90° head permits selection of the optimum distribution pattern.

Flue
Conventionally flued T Series heaters are supplied complete with integral down draught diverter. A flue collar located on top of the heater accepts single wall flue; an adaptor will be required for other types of flue.
A power flue venter is available as an optional extra. Power-vented flues may be used for difficult flue routes, horizontal flues, or to overcome negative building pressure (up to 35Pa).
For T Series units, an optional blocked-vent switch is available to monitor flue operation and close down the heater in the event of a flue blockage. Fitting a blocked-vent switch is particularly recommended for ducted units sited within plant rooms or confined spaces.
Room-sealed ST heaters are fitted with integral power flue venters and a differential air pressure switch. The pressure switch monitors flow and shuts down the heater in the event of flue or combustion air blockage.
To comply with CE approvals, room-sealed ST appliances must be used with the specified concentric terminal, which provides both flue discharge outlet and combustion air inlet. No other terminations are approved; a choice of roof or wall terminal may be ordered, as an optional item.
Connections to the heater flue outlet and combustion air inlet require sealed single wall pipe. The maximum distance between the heater and terminal is shown in the data table; this distance is reduced by approx 3 metres for each elbow fitted in the system.

Installation
Units may be suspended or base-mounted on a non-combustible surface. Installation should be carried out by a competent, CORGI registered installer, in accordance with the installation instructions provided and current codes of practice. Incorrect installation will invalidate the warranty.
Whilst the units are suitable for most industrial and commercial applications, they must not be installed in atmospheres containing highly flammable vapours, combustible dust, halogenated hydrocarbons or chlorinated vapours. For such applications, special units using separated combustion and/or special grade stainless steel heat exchangers, or remotely-sited units will be required.
A gas isolation valve must be fitted adjacent to each unit. The gas supply must be turned off during maintenance periods – care should be taken to ensure that the units are level and isolated from any vibrations.
ALWAYS ENSURE ADEQUATE COMBUSTION AIR IS PROVIDED IN COMPLIANCE WITH BS 5440 AND/OR BS 6230 DEPENDENT ON HEAT OUTPUT OF THE INSTALLATION.

Electrical
Units must be wired in accordance with the wiring diagrams provided and the current edition of electrical standards. The main electrical supply to the units should not be isolated except for maintenance. Controls must be wired to the appropriate terminals and must not interrupt the mains supply to the heater.

ST SERIES – CONCENTRIC TERMINAL ARRANGEMENTS



GENERAL DATA

		75	100	125	150	175	200	225	250	300	350	400
Nominal Output	(kW)	17	23	29	35	41	47	52	59	70	82	93
	(Btu/h)	60,000	80,000	100,000	120,000	140,000	160,000	180,000	200,000	238,000	280,000	320,000
Gas Rate*	(m^3/h)	2.05	2.73	3.41	4.10	4.78	5.46	6.15	6.83	8.20	8.57	10.95
	(ft^3/h)	73	97	121	146	170	194	219	243	291	340	388
Gas Connection	(BSP in)	½	½	½	½	½	½	½	½	¾	¾	¾
Nom Flue Diam – 'T'	(mm)	125	150	175	200	200	200	200	200	250	250	250
Nom Flue Diam – 'ST'	(mm)	N/A	130	130	130	130	150	150	150	150	150	150
Comb Air Inlet – 'ST'	(mm)	N/A	130	130	130	130	150	150	150	150	150	150
Maximum Flue Length – 'ST'	(m)	N/A	10	10	12	12	12	12	12	11	11	11
Flue Fan Motor	(kW)	N/A	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

AXIAL FAN FREEBLOWING MODELS – TA & STA

		75	100	125	150	175	200	225	250	300	350	400
Airflow	(m^3/h)	2,040	2.040	2,460	3,300	3,300	4,260	4,260	5,700	5,700	7,560	7,560
Motor Rating	(kW)	0.34	0.34	0.34	0.34	0.34	0.47	0.47	0.58	0.58	0.82	0.82
Mounting Height	(m)	2.25	2.5	2.5–3.0	2.5–3.0	2.5–3.0	3.0–3.25	3.0–3.25	3.0–3.5	3.0–3.5	3.0–4.0	3.0–4.0
Throw	(m)	14	14	18	20	20	25	25	30	30	35	35

CENTRIFUGAL FAN MODELS – TB, TE, STB & STE

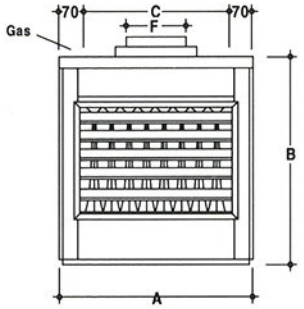
		75	100	125	150	175	200	225	250	300	350	400
Airflow Freeblowing	(m3/h)	1,908	2,556	3,384	3,960	4,068	5,040	5,616	6,408	7,668	8,496	8,856
	(m^3/s)	0.53	0.71	0.94	1.1	1.13	1.4	1.56	1.78	2.13	2.36	2.46
Mounting Height	(m)	2.5–3.0	3.0	3.0	3.0–3.5	3.0–3.5	3.0–4.0	3.0–4.0	3.0–4.0	3.0–4.5	3.0–4.5	3.0–5.0
Throw	(m)	15	15	19	21	22	25	28	30	32	35	36
Mounting Height with 90°	(m)	3.0–4.0	3.0–5.0	3.0–6.0	3.0–6.0	3.0–6.0	3.5–7.0	3.5–7.0	3.5–7.0	4.0–4.8	4.0–10.0	4.0–10.0
Airflow (Standard Ducted)	(m^3/s)	0.42	0.47	0.60	0.71	0.83	0.94	1.06	1.18	1.42	1.65	1.89
Standard Motor	(kW)	0.375	0.375	0.375	0.375	0.375	0.56	0.75	0.75	1.12	1.12	1.12
Motor Size Required**:												
Standard Airflow @ 50Pa	(kW)	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.75	0.75	0.75
@ 100Pa	(kW)	0.375	0.375	0.375	0.375	0.375	0.375	0.56	0.56	0.75	0.75	1.12
@ 150Pa	(kW)	0.375	0.375	0.375	0.375	0.375	0.56	0.56	0.75	0.75	1.12	1.12
@ 200Pa	(kW)	0.375	0.375	0.375	0.375	0.56	0.56	0.75	0.75	1.12	1.12	1.12
@ 250Pa	(kW)	0.375	0375	0.375	0.56	0.56	0.56	0.75	1.12	1.12	1.12	1.5
@ 350Pa	(kW)	0.375	0.56	0.56	0.56	0.75	0.75	1.12	1.12	1.5	1.5	2.25
@ 500Pa	(kW)	0.56	0.75	0.75	0.75	1.12	1.12	1.12	1.5	2.25	2.25	2.25
Max Airflow (Ducted)***	(m^3/s)	0.85	1.18	1.41	1.74	1.98	2.33	2.43	2.73	2.97	3.2	3.35

* Minimum Inlet Pressure (Nat Gas) 17.5mbar / Maximum Inlet Pressure (Nat Gas) 30mbar

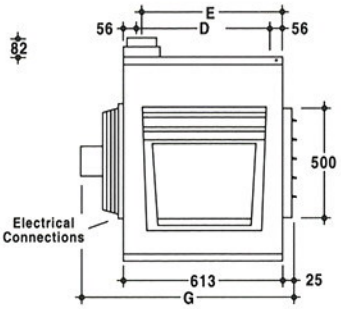
** Motor size for standard airflow; for increased airflow, larger motors may be required

*** Maximum airflow may not always be available at maximum pressure.
Throw depends on height of building, mounting height of heater, room temperature and louvre settings.

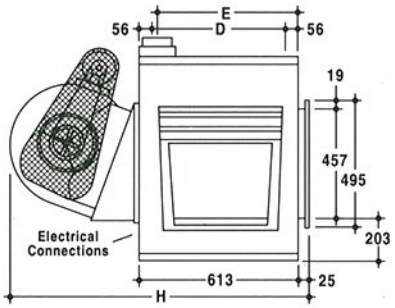
DIMENSIONAL DATA



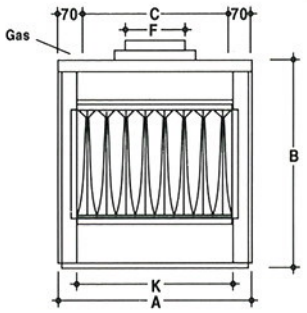
FRONT TA



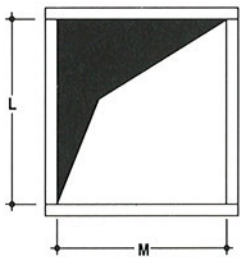
SIDE TA



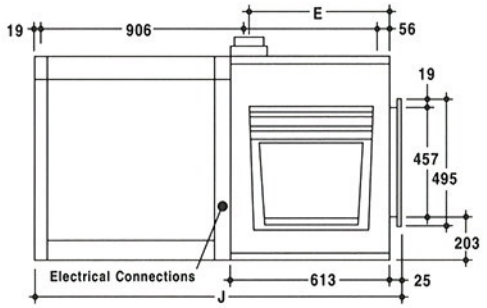
SIDE TB



FRONT TA/TE



REAR TE



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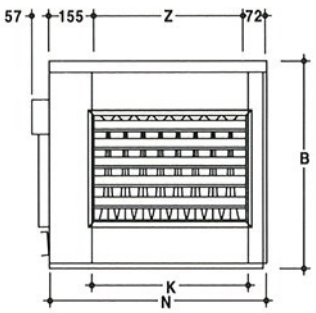

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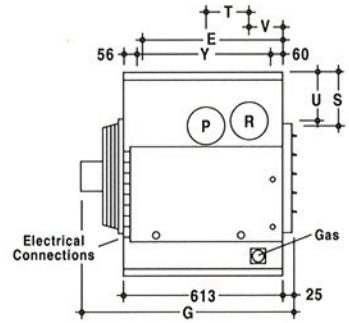
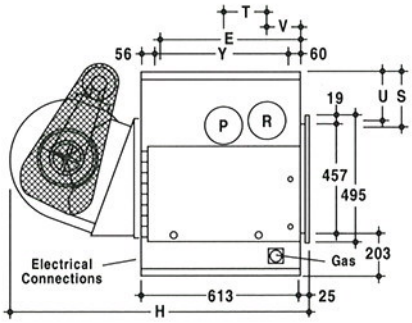
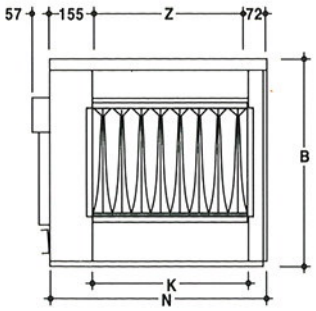


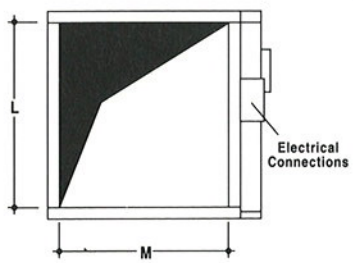
SIDE STA



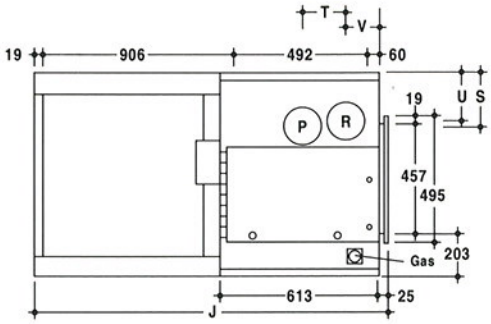
SIDE STB



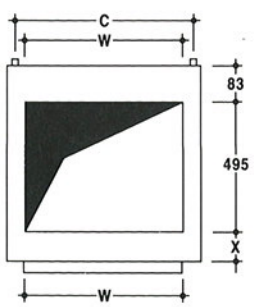
FRONT STB/STE



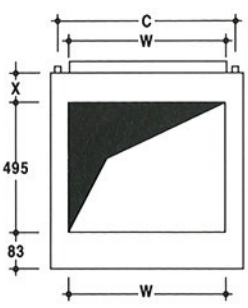
SIDE STE



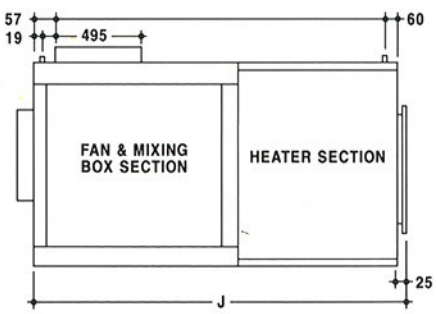
SIDE STE



REAR VIEW TE/STE WITH DAMPERS REAR & BOTTOM



REAR VIEW TE/STE WITH REAR & TOP DAMPERS NON STANDARD



SIDE VIEW TE/STE WITH DAMPERS REAR & BOTTOM STANDARD

AMBI-RAD

DIMENSIONS (mm)

		75	100	125	150/175	200/225	250	300	400
A	WIDTH – (T Unit)	488	488	558	698	838	1048	1048	1328
B	HEIGHT	819	819	819	819	895	895	895	895
C	SUSPENSION POINTS – (T Unit)	348	348	418	558	698	908	908	1187
D	SUSPENSION POINTS – (T Unit)	501	501	501	501	501	501	501	501
E	FRONT TO CENTRE FLUE – (T Unit)	489	489	489	489	438	438	438	438
F	FLUE DIAMETER – (T Unit)	125	150	175	200	200	200	250	250
G	LENGTH AXIAL FAN MODELS	865	865	908	927	929	921	921	929
H	LENGTH CENTRIFUGAL FAN MODELS	1133	1133	1133	1226	1226	1133	1133	1226
J	LENGTH ENCLOSED FAN MODELS	1500	1500	1500	1500	1500	1500	1500	1500
K	DUCT OUTLET WIDTH	317	317	387	527	667	876	876	1156
L	REAR AIR INLET HEIGHT	706	706	706	706	783	783	783	783
M	REAR AIR INLET WIDTH	381	381	451	591	730	940	940	1219
N	WIDTH – (ST Unit)	NA	571	641	780	920	1130	1130	1409
P	FAN FLUE OUTLET DIAMETER	NA	130	130	130	150	150	150	150
R	COMBUSTION AIR INLET DIAMETER	NA	130	130	130	150	150	150	150
S	TOP TO CENTRE FLUE	NA	194	194	194	255	255	255	255
T	CENTRE FLUE TO CENTRE AIR INLET	NA	165	165	165	188	188	188	188
U	TOP TO CENTRE COMBUSTION AIR INLET	NA	181	181	181	234	234	234	234
V	FRONT TO CENTRE COMBUSTION AIR INLET	NA	151	151	151	119	119	119	119
W	AIR INLET (MIXING BOX)	441	441	441	581	721	930	930	1210
X		241	241	241	241	317	317	317	317
Y	SUSPENSION POINTS – (ST Units)	NA	492	492	492	492	492	492	492
Z	SUSPENSION POINTS – (ST Units)	NA	343	413	553	692	902	902	1181
	GAS CONNECTION SIZE (Not Line Size) (BSP in)	1/2	1/2	1/2	1/2	1/2	1/2	3/4	3/4
	APPROX WEIGHT: TA (Kg)	80	80	86	93	118	146	146	191
	STA	90	90	96	104	143	175	175	220
	TB	98	98	118	136	147	177	177	223
	STB	100	100	128	147	158	188	188	234
	TE	108	108	132	152	162	208	208	243
	STE	118	118	142	163	173	219	219	254
	90° HEAD	16	16	19	22	25	30	30	40

CLEARANCES FOR SAFETY & MAINTENANCE (mm)

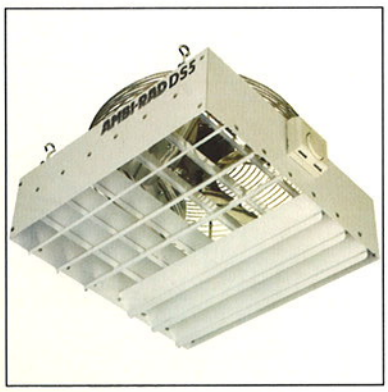
TOP	BOTTOM		SIDE		REAR		FRONT OF DRAUGHTHOOD	
	TO COMBUSTIBLES	TO NON-COMBUSTIBLES	CONTROL SIDE	NON CONTROL SIDE	AXIAL FAN	CENTRIFUGAL BLOWER	T SERIES FREEBLOWING	T SERIES DUCTED
152	152	0	A + 152	152	500	150	2500	450

COMPLETE SERVICE

Ambi-Rad, a BS EN ISO 9002 1994 registered Company, offers a supply-based service, which includes system design and on-site support. Commissioning and after-sales service is provided by Ambi-Rad's in-house Service Department.
Extended heat exchanger guarantees, long-term maintenance contracts and a comprehensive spares back-up combine to give an unrivalled service and guarantee package.

DOWNTURN NOZZLES

Optional 30° or 60° downturn nozzles increase the angle of air discharge and are recommended for units installed at upper mounting heights.
For heaters at increased mounting heights, 90° downturn heads are available. A two-way or four-way discharge plenum may be added to give the air distribution pattern required.



DESTRATIFICATION FANS

Destratification fans return warm air from the roof space back down to the working zone. They may also be successfully applied in modern, well-insulated buildings where low heat inputs require additional air recirculation to ensure even temperature distribution.

CONTROL PANELS

Ambi-stat remote control panels provide:

- Time Control
- Day and Night Temperature Control
- A Summer 'Fan Only' Feature; and
- Optional Remote Reset Facility

Ambi-tec II panels feature fully-electronic control and a remote tamperproof sensor for greater accuracy and energy saving. The sensor may be sited up to 100 metres from the panel.

AMBI-RAD®

Energy Efficient Heating Systems

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