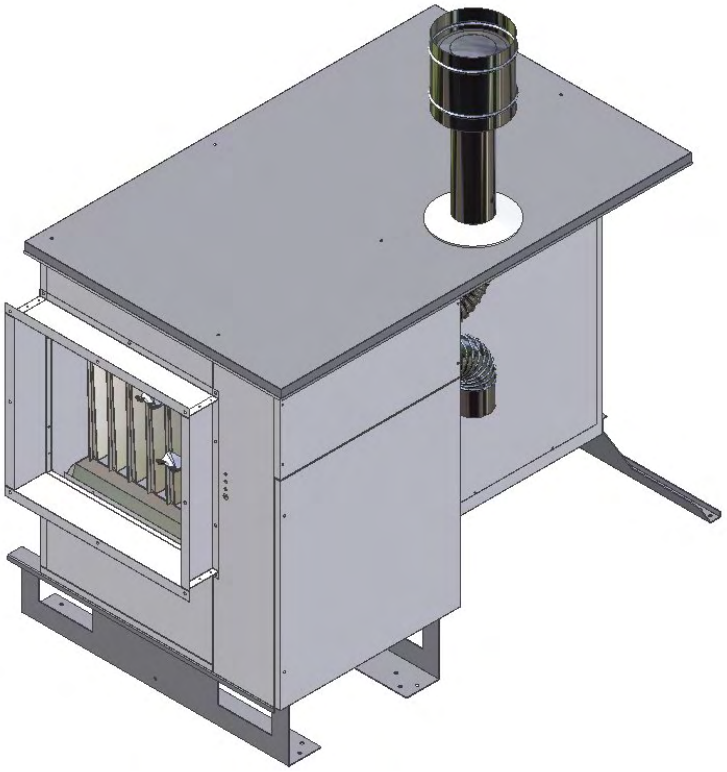
Gas fired unit heaters for external installation

TECHNICAL INFORMATION,ASSEMBLY INSTRUCTIONS,USE AND MAINTENANCE

EUHC EUHC-UF EUHC2 EUHC2-UF



BENSON

BENSON HEATING
LUDLOW ROAD
KNIGHTON
POWYS
LD7 1LP
Benson Heating is a divison of
Benson Climate Systems Ltd

SEPTEMBER 2003

This manual should be used in conjunction with the RSUHC instruction manual provided

COMPLIANCE NOTICES

The Benson EUHC range of warm air heaters detailed herewith are manufactured for Benson Heating within the parameters of ISO 9002.

The Benson EUHC range has been independently tested and assessed, and has been found to meet the Essential Requirement of the following European Directives:

Gas appliance Directive (90/396/EEC)
Machinery Directive (89/392/EEC) 91368/EEC 93/44/EEC 93/65/EEC
Low Voltage Directive (73/23/EEC
Electromagnetic Compatibility Directive (98/336/EEC and 91/31/EEC)
Product Liability Directive (65/374/EEC)

The manufacturer has taken reasonable and practical steps to ensure that Benson EUHC range of Heaters are safe and without risk when properly used. These heaters should therefore only be used in the manner and purpose for which they were intended, and in accordance with the recommendations detailed herewith.
The heaters have been designed, manufactured, assembled, inspected, and tested, with safety and quality in mind, there are certain basic precautions which the installer and user should be aware of, and they are strongly advised to read the appropriate sections of the information pack accompanying the heater, prior to installation or use.

Benson Heating supports all new products being supplied to their customers with a comprehensive information pack; this clearly defines mandatory instructions for the safe installation, use, and maintenance, of the appliance(s).

Where proprietary items are incorporated into Benson Heating products, detailed information and instructions are also provided as part of the information pack.

It is the responsibility of the installer, owner, user, or hirer, of such products supplied by Benson Heating, to ensure that they are familiar with the appropriate information/manuals, supplied by the manufacturer, and that they are suitably aware of the purpose of the manuals and the safety instructions. In addition, operators must be suitably trained in the use of the appliance so as to ensure its continued safe and efficient use.

Benson Heating has a commitment to continuous improvement, and therefore reserves the right to amend or change the specification of the EUHC Heater range subject to agreement from The Notified Body.

Contained within the text of the manual, the words '**Caution**' and '**Warning**' are used to highlight certain points.

Caution is used when failure to follow or implement the instruction(s) can lead to premature failure or damage to the heater or its component parts.

Warning is used when failure to heed or implement the instruction(s) can lead to not only component damage, but also to a hazardous situation being created where there is a risk of personal injury.

Notified Body PIN Reference is

	SINGLE STAGE				TWO STAGE			
	STANDARD		UP RATED FAN		STANDARD		UP RATED FAN	
Type	Model	Code	Model	Code	Model	Code	Model	Code
1	EUHC80		EUHC80/UF		EUHC80-2		EUHC80-2UF	
2	EUHC105		EUHC105/UF		EUHC105-2		EUHC105-2UF	
3	EUHC140		EUHC140/UF		EUHC140-2		EUHC140-2UF	
4	EUHC200		EUHC200/UF		EUHC200-2		EUHC200-2UF	
5	EUHC260		EUHC260/UF		EUHC260-2		EUHC260-2UF	
6	EUHC325		EUHC325/UF		EUHC325-2		EUHC325-2UF	

VERSION SINGLE STAGE

The heater has a single stage gas valve, and a standard centrifugal fan. An optional uprated fan version is available for installations that require higher static pressures .

VERSION TWO STAGE

The heater has a two stage Hi /Lo gas valve, and a standard centrifugal fan. An optional uprated fan version is available for installations that require higher static pressures .

GUARANTEE

The heater is supplied with a 2 year warranty on all parts.
In addition to this there is also a 10 year time related warranty on the combustion chamber.
The warranty commences from the date of despatch from the manufacturer, and is subject to the terms detailed within the manufacturer 'conditions of business'.

The warranty may be invalidated if:
a) The warranty registration/commissioning card has not been completed and returned to the manufacturer
b) The installation is not in accordance with the general requirements of this manual
c) The flue arrangement and air supply for the heater are not in accordance with the manufacturers recommendations, codes of practice, or similar standards
d) Air flow through the heater is not in accordance with the manufacturers technical specifications
e) Internal wiring on the heater has been tampered with or unauthorised service/repairs undertaken
f) The main electrical supply input to the heater has been interrupted during the heating mode
g) The heater has been subject to and affected by the ingress of water in any form
h) The heater is not operated at the rating(s) laid down in the manufacturers technical specifications
i) The heater has not been operated or used within the normal scope of its intended application
j) The manufacturer's recommended minimum service requirements have not been complied with

All warranty claims must contain the following information to enable processing to take place;
(1) Heater model
(2) Heater serial number
(3) Order reference/date of order, together with full installation details (name and address)
(4) Details or symptoms of fault
(5) Installers name and address.

Faulty parts must be returned to the manufacturer Spares Department, the address of which is provided on the rear cover of this manual. Any such parts will undergo inspection to verify the claim. Replacement parts supplied prior to this may be charged, and a credit supplied upon subsequent validation of the warranty claim.

Consumable items are specifically not included within the scope of the warranty.
Notification is required immediately a fault is suspected. The manufacturer will not accept responsibility for any additional damage that has been caused, expense incurred, or consequential loss resulting from any failure of the heater(s).
Ensure that the heater is able to operate within the parameters shown on the data plate and the technical data within the manual.
Incorrect gas settings may lead to condensation within the combustion if to low, and overheating if to high both will cause damage to the heat exchanger.

Any reference made to Laws, Standards, Directives, Codes of Practice or other recommendations governing the application and installation of heating appliances and which may be referred to in Brochures, Specifications, Quotations, and Installation, Operation and Maintenance manuals is done so for information and guidance purposes only and should only be considered valid at the time of the publication. Manufacturer cannot be held responsible from any matters arising from the revision to or introduction of new Laws, Standards, Directives, Codes of Practice or other recommendations.

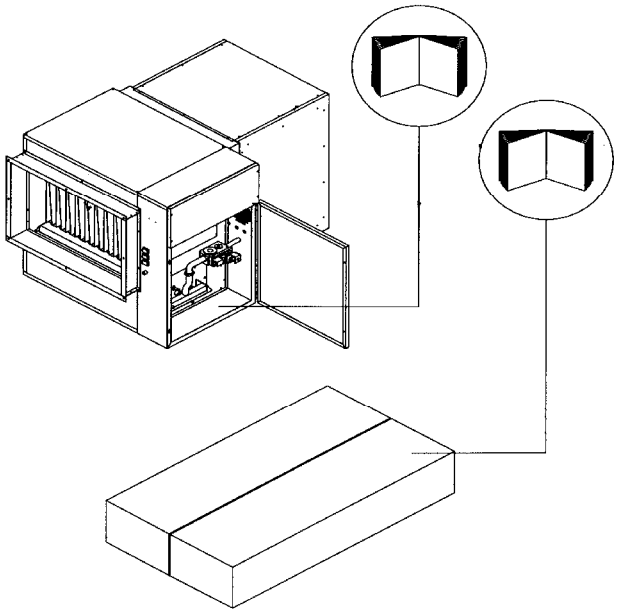
RECIEPT OF PRODUCT

Delivery & pre installation checks

The heater is supplied wrapped in heavy duty protective polythene, mounted on a pallet.
On receipt of the heater, the following checks should be carried out;

a) The model is as per order
b) That it is undamaged
c) That it is suitable for the gas supply and pressure
d) That it is suitable for the electrical supply

If any of these points are not satisfied then contact should be made with the Sales Office at manufacturer. In the case of claims for damage, this must be reported in writing within 24 hours of delivery, in order to comply with insurance criteria



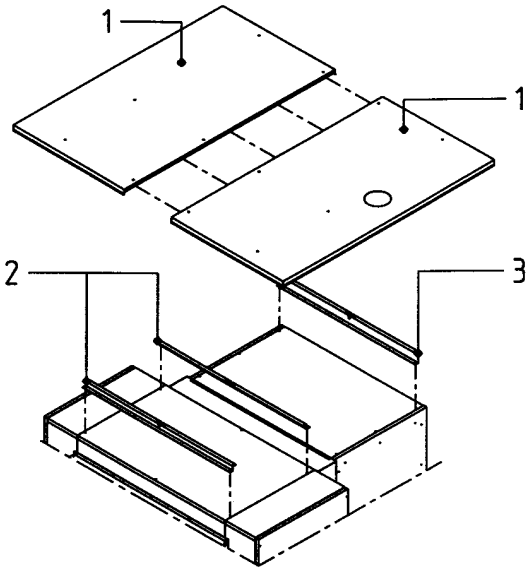
External installation kit
Comprises:

- Top Cover and 3 fixing rails;
- Bend 90° ∅ 150 for combustion air;
- Flue kit (Comprising 1 bend 90° ∅ 100 + 1 terminal 1 flue flashing 1 blanking screw for combustion sample point);
- New data plate
- Assembly instructions to remain with product.

EXTERNAL INSTALLATION

2. Installation of top cover.

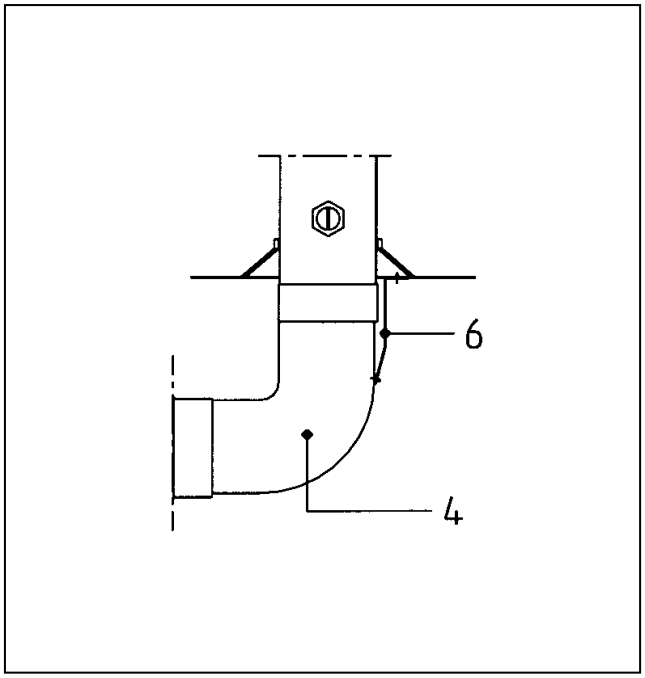
Heaters types 1-2-3 are supplied with a single sheet top cover (1) Heaters types 4-5-6 are supplied with the cover comprising of two parts which should be assembled prior to installation on to the heater
Place the two pieces side by side and secure with self tapping screws, seal the join with silicone sealant
To install the top cover remove the four self tapping screws in the top panel and use them to fix the angle brackets (2) (small) to the heater, remove the self tapping screws at the rear of the fan housing and use them to the rear bracket (3) (large) to the rear of the heater .
Place the top cover (1) in position and secure with the self tapping screws provided



INSTALLATION OF FLUE AND COMBUSTION PIPES

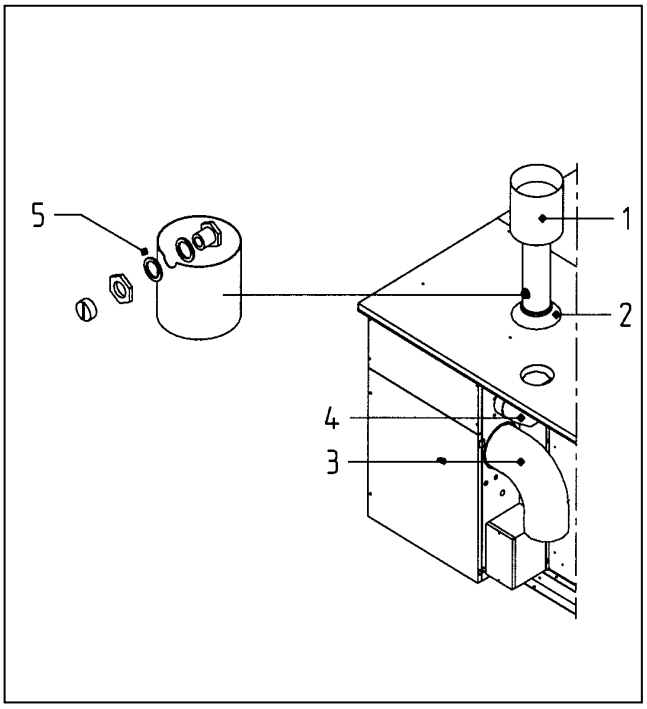
1. Fitting flue terminal

Fit the 100 mm by 90^0 degree bend (4) to the flue spigot on the heater
Secure the fixing bracket (6) to the top with self tapping screws
Fit the flexible seal (2) to the top cover
Before fitting the wind weather cowl to the heater it is advisable to fit the combustion sample point (5) in the pipe as shown in the diagram below
Fit the wind weather cowl through the seal onto the flue bend (4)
And secure in place to bracket (6) with a self tapping screw



2 Fitting combustion air pipe

Fit the 90^0 combustion air bend 3 to the heater with the air intake pointing downwards in order to help prevent any water ingress into the combustion air intake



TECHNICAL DATA

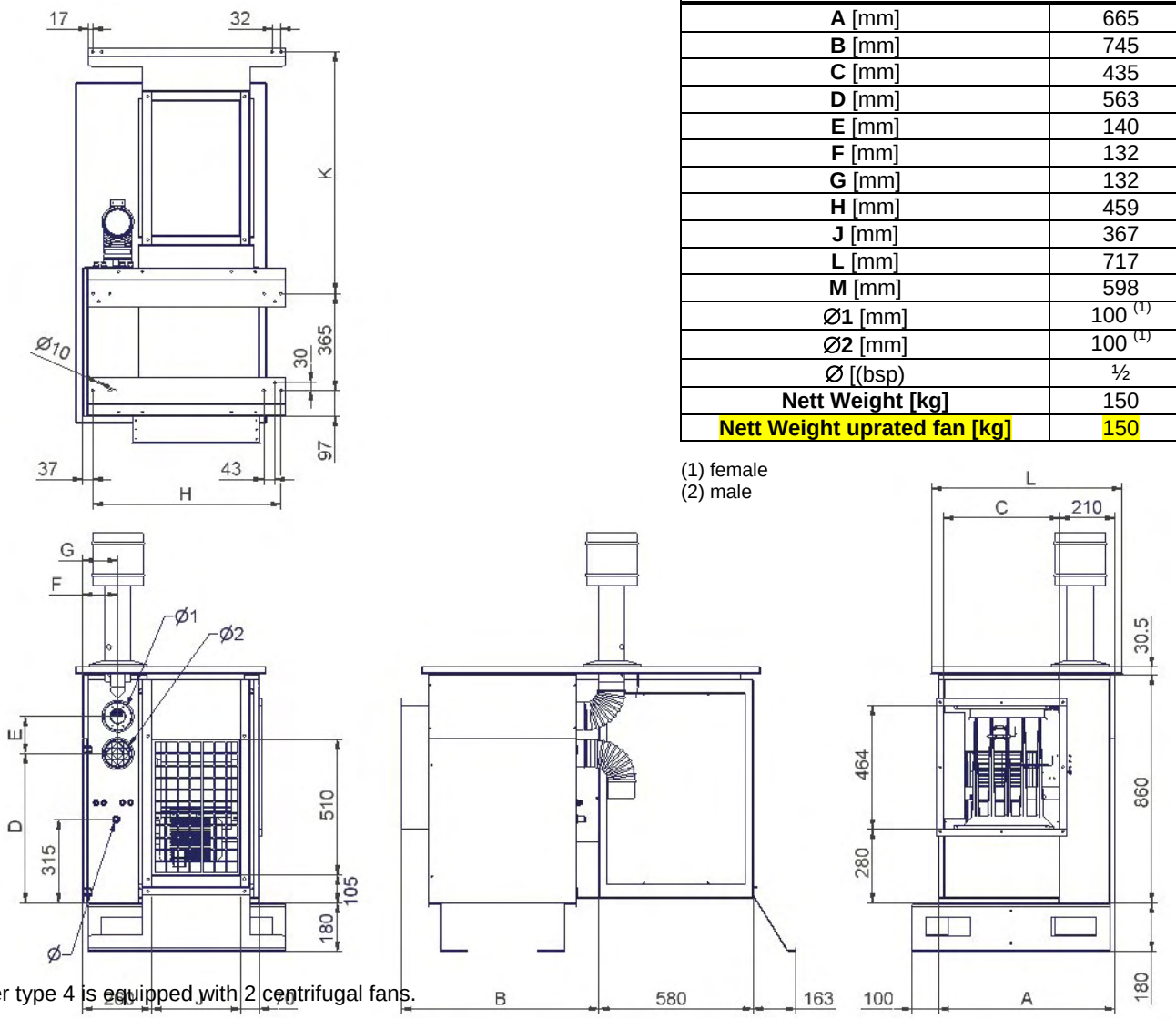
DESCRIPTION	TYPE						UNIT
	1	2	3	4	5	6	
HEAT OUTPUT	23,0	30,5	41,7	58,6	76,6	94,3	KW
	78.500	104.000	142.000	200.000	261.500	322.000	Btu
HEAT INPUT	25.4	33.8	46.3	65.0	85.0	104.7	KW
(Nett)	86.000	115.000	158.000	224.000	290.000	357.000	Btu
EFFICIENCY	90,1	90,2	90,1	90,1	90,1	90,1	%
AIR FLOW +15°C	1.820	2.920	4.130	5.900	7.900	8.750	Nm^3/h
MAX AIR OFF (ΔT)	37	31	30	30	29	32	°K
HEAT INPUT MIN **(two stage)**	15,8	21,0	28,8	40,5	52,9	65,2	KW
MIN AIR OFF (ΔT) **(two stage)**	25	21	20	20	20	22	°K
STATIC PRESSURE **(standard)**	200						Pa
STATIC PRESSURE **(uprated)**	500	450	440	470	440	500	Pa
THERMOSTAT CALIBRATION							
- TR (auto reset)	70						°C
- LM (manual reset)	100						°C
- SND (auto reset)	70						°C
FAN OPERATION							
- Fan on	30						sec
- Fan off	3						min'
Air pressure switch setting	0,85	0,90	0,85	1,95	0,40	0,70	mBar
Maximum flue resistancel	70	70	70	70	160	115	Pa
CENTRIFUGAL FAN							
- Type	AT 10-8	AT 12-9	AT12-12	AT 12-9	AT12-12	AT12-12	
- Number	1	1	1	2	2	2	N°
ELECTRICAL SUPPLY	230V	230V	230V	400V 3N	400V 3N	400V 3N	50Hz ~
RATED INPUT **standard motor)**	0,5	0,5	0,5	0,750	1,100	1,500	KW
RATED INPUT **(up rated motor)**	0,5	0,75	1,1	1,5	2,2	3,0	KW
RUNNING CURRENT MAX**(standard motor)**	3,7	3,7	4,0	2,0	2,8	3,6	A
RUNNING CURRENT MAX **(up rated motor)**	4,0	4,7	7,5	3,6	5,0	6,5	A
ELECTRICAL PROTECTION	40						IP
GAS CATEGORY	$II_{2H3B/P}$						
INSTALLATION TYPES	$B_{22} – C_{12} – C_{32}$						
OPERATIONAL LIMITS							
- Temperature	-15 / +40						°C
- Relative humidity (non condensing)	70						%
WEIGHT**(standard)**	150	168	196	245	316	351	Kg
WEIGHT**(up rated)**	150	170	199	249	323	358	Kg
NATURAL GAS G20							
- Number of injectors	1	1	1	2	2	4	N°
- Diameter of injectors	410	480	555	500	540	450	mm/100
- Inlet pressure	20						mBar
- Head pressure max	13,0	13,0	13,0	10,0	13,0	10,5	mBar
- Head pressure **(two stage)**	7,0	6,5	6,5	7,0	6,5	5,0	mBar
- Consumption max (1)	2,55	3,39	4,65	6,52	8,53	10,51	Nm^3/h
- Consumption min (1) **(two stage)**	1,79	2,38	3,25	4,57	5,97	7,36	Nm^3/h
PROPANE GAS G31							
- Maximum gas head pressure	35,0	35,5	35,5	34,5	35,5	34,5	mBar
- Minimum gas head pressure **(two stage)**	18,0	18,5	18,0	18,0	18,0	18,5	mBar
- Consumptiono max (2)	0,98	1,30	1,78	2,50	3,27	4,03	Nm^3/h
	1,97	2,63	3,60	5,05	6,60	8,13	Kg/h
	3,88	5,16	7,07	9,92	12,97	15,98	Litri/h
- Consumption min (2) **(two stage)**	0,68	0,91	1,25	1,75	2,29	2,82	Nm^3/h
	1,38	1,84	2,52	3,53	4,62	5,69	Kg/h
	2,72	3,62	4,94	6,04	9,08	11,19	Litri/h
MASS PRODUCTS OF COMBUSTION MAX	0,0139	0,0185	0,0253	0,0356	0,0465	0,0573	kg/s

(1) References:
Atmospheric pressure 1013 mBar
Gas temperature 15°C

(2) Atmospheric pressure 1013

DIMENSION AND WEIGHT

Heater Type 1-2-3-4

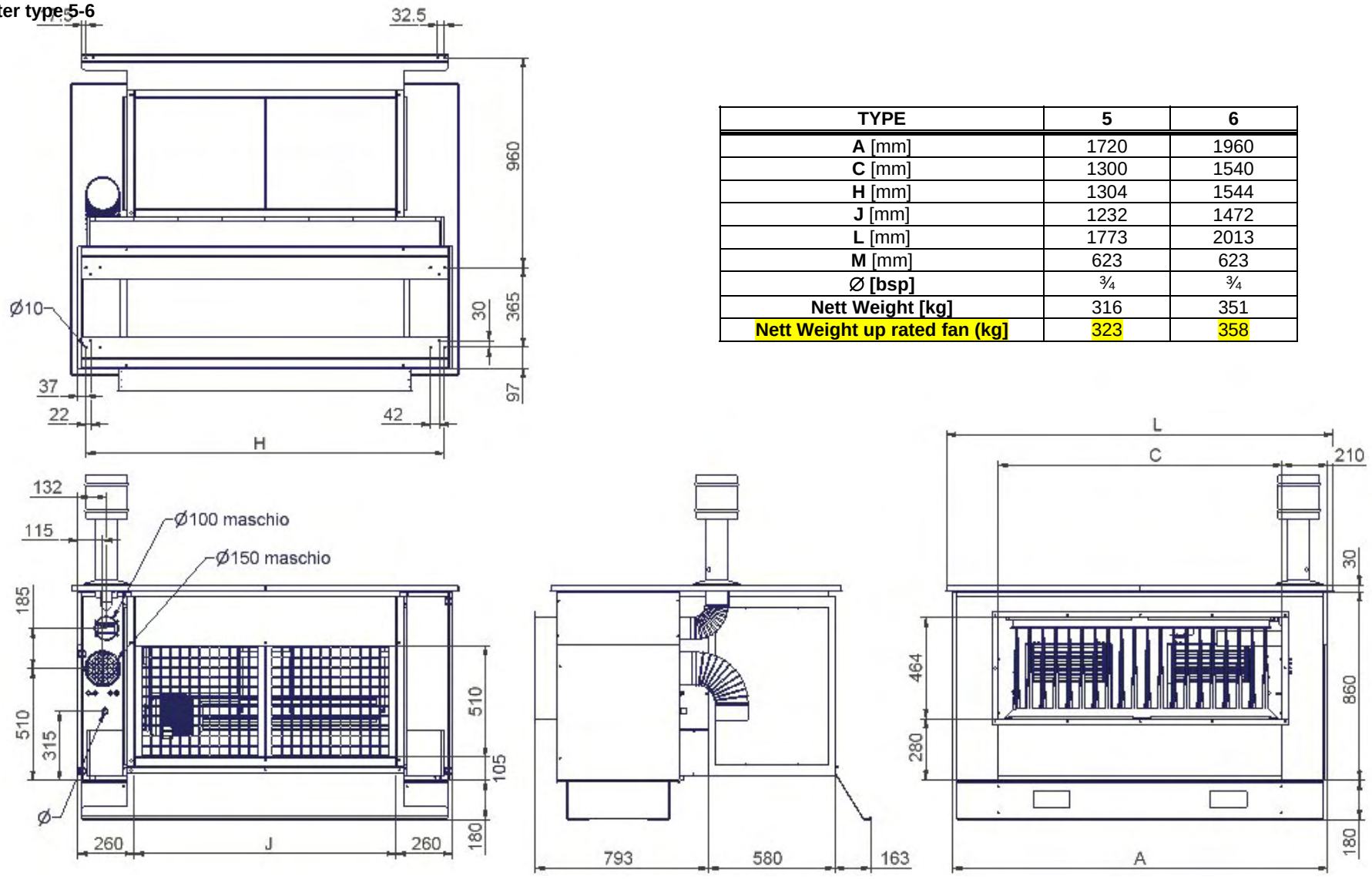


Type	1	2	3	4
A [mm]	665	745	925	1170
B [mm]	745	745	745	793
C [mm]	435	515	695	940
D [mm]	563	563	555	510
E [mm]	140	140	140	185
F [mm]	132	132	132	115
G [mm]	132	132	132	132
H [mm]	459	539	719	944
J [mm]	367	447	627	872
L [mm]	717	797	977	1244
M [mm]	598	598	598	623
Ø1 [mm]	100 (1)	100 (1)	100 (1)	100 (2)
Ø2 [mm]	100 (1)	100 (1)	100 (1)	150 (2)
Ø [(bsp)	½	½	½	¾
Nett Weight [kg]	150	168	196	245
Nett Weight uprated fan [kg]	150	170	199	249

(1) female
(2) male

Note: heater type 4 is equipped with 2 centrifugal fans.

Heater type 5-6



TYPE	5	6
A [mm]	1720	1960
C [mm]	1300	1540
H [mm]	1304	1544
J [mm]	1232	1472
L [mm]	1773	2013
M [mm]	623	623
Ø [bsp]	¾	¾
Nett Weight [kg]	316	351
Nett Weight up rated fan (kg)	323	358

The inlet air openings for both rear and underneath are the same dimension .

BENSON HEATING LUDLOW ROAD KNIGHTON POWYS LD7 ILP
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