

HCV Energy Savers

Heating/Cooling/Ventilation Units



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Celmec International

Leading the way in Air Control, Heating & Cooling

At Celmec International, it is our belief that working closely with our clients aids the mutual success of both organisations and for this reason we have adopted the following mission:

"To lead the commercial and industrial building industry by setting new standards with innovative products through leadership, first class customer service and engineering excellence."

It is with confidence that we at Celmec International offer our HCV Units as part of our unique *Coolheat* product range. Our HCV Units are tried and proven for well over two decades.

We trust that this concise brochure will assist all users in the area of HCV selection, application, design and installation techniques.



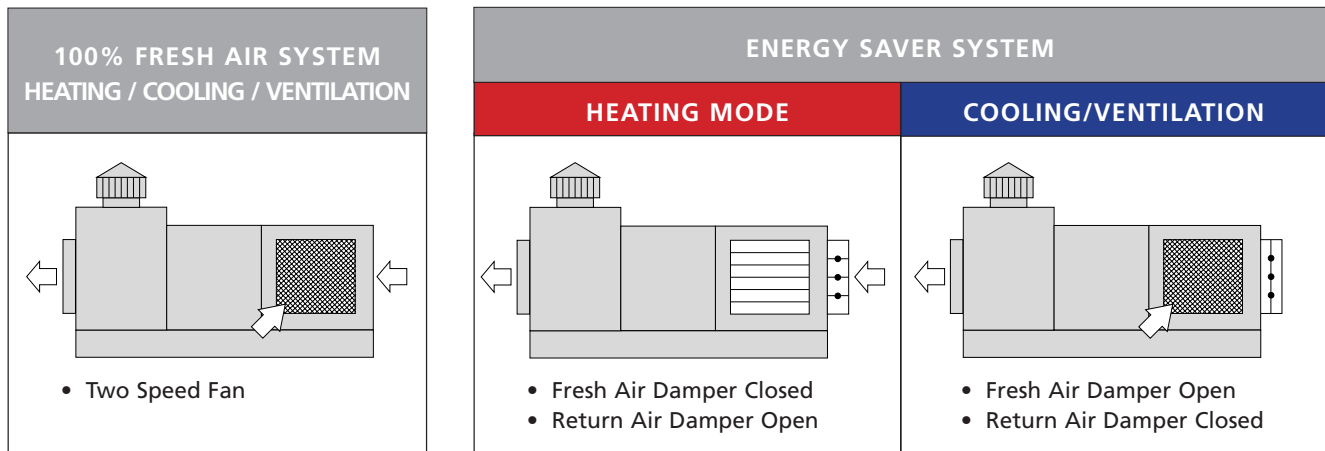
HCV - Heating / Cooling / Ventilation

100% Fresh Air Model

LP & HP Series

Return Air Energy Saver Model

LPS & HPS Series



The most energy efficient means of Heating, Cooling and Ventilating public areas, factories and warehouses as well as being affordable and environmentally responsible.

Practical Solution

- Heat the space, not cold outside air.
- Maintain constant Terminal Air Velocity during heating.
- Economical Gas Fired heating 17kW - 92 kW.
- Low cost Evaporative Cooling 1,000 l/s - 13,000 l/s.
- Natural or LP Gas.

Features

- Well proven product of high quality construction.
- Stainless Steel Heat Exchangers built to last.
- High efficiency CELDEC filter cooling medium.
- On-Off or modulation burner control.
- Heat/Cool/Ventilation switch station.
- AGA approved.

HCV Models

- LP, HP - Low Pressure, High Pressure 100% Fresh Air Models
- LPS, HPS - Low Pressure, High Pressure Return Air Models

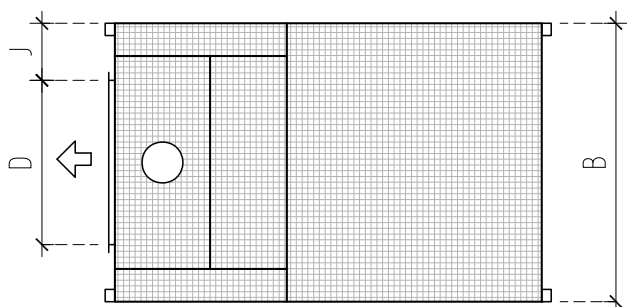
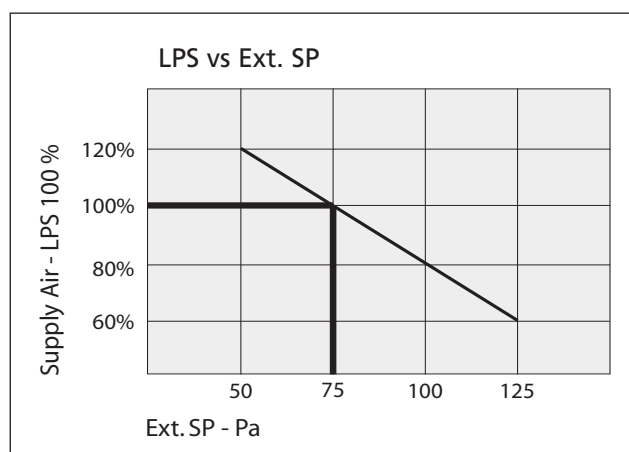
HCV - LP series

Low Pressure 75 Pa / 1300 l/s - 7500 l/s

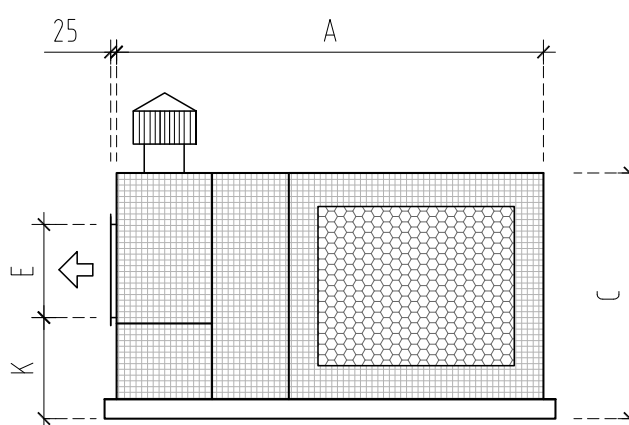
100% Fresh Air

Features

- Gas Fired heating 17KW- 92KW (AGA approved).
- Natural or LP Gas.
- Low coast Evaporative Cooling 1000 l/s - 7500 l/s.
- High efficiency CELDEC Filter Cooling Medium.
- Well proven product of high quality standard.
- Stainless steel Heat Exchangers built to last.
- Aluminised steel / marine grade aluminium construction.
- Heavy channel base with fork life facility and corner lift points.
- On-Off or modulating Burner Controls.
- Heat / cool / ventilation - High / Low switch station.



PLAN VIEW



SIDE VIEW

CAPACITY AND DIMENSIONAL DATA

MODEL LP	75/10.3	100/10.3	150/20.6	175/20.6	200/20.6	225/20.6	250/30.9	300/30.9	400/30.9	400/50.13
SUPPLY AIR l/s Ext. SP. 75 Pa	1300	1300	3000	3000	4000	4000	5500	5500	5500	7500
HEATING Output - KW Input - MJ.HR	17 79	23 105	34 158	40 184	46 211	51 237	57 263	69 316	92 422	92 422
FAN MOTOR - KW 50 Hz/Phase Rated Amps	0.75 1 4.7	0.75 1 4.7	2.4 3 5.8	2.4 3 5.8	2.4 3 5.8	2.4 3 5.8	4.5 3 10.8	4.5 3 10.8	4.5 3 10.8	6.0 3 14.5
WEIGHT - kg Nett Operating	260 285	260 285	490 560	490 560	510 580	510 580	665 740	665 740	700 775	975 1050
GAS CON - mm	20	20	20	20	20	20	25	25	25	25

MODEL LP	75/10.3	100/10.3	150/20.6	175/20.6	200/20.6	225/20.6	250/30.9	300/30.9	400/30.9	400/50.13
A	2170	2170	2390	2390	2390	2390	2540	2540	2540	3050
B	1150	1150	1370	1370	1370	1370	1520	1520	1520	2030
C	1080	1080	1460	1460	1460	1460	1740	1740	1740	2000
D	320	320	525	525	665	665	875	875	1155	1155
E	455	455	455	455	455	455	455	455	455	455
J	415	415	425	425	355	355	325	325	185	440
K	395	395	780	780	780	780	1055	1055	1055	1315

HCV - HP series

High Pressure 200 Pa / 3000 l/s - 13000 l/s

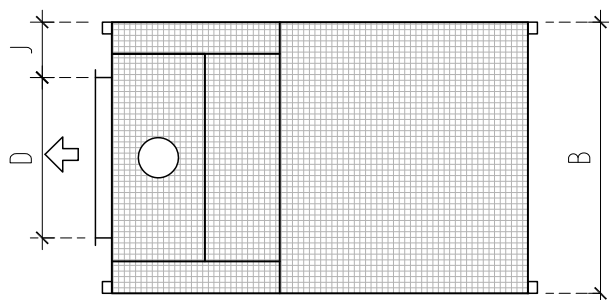
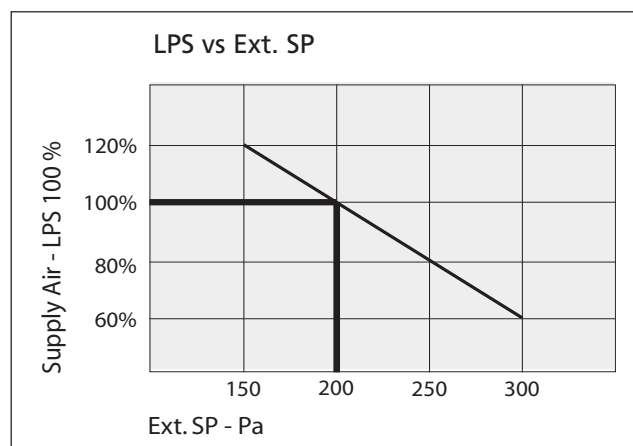
100% Fresh Air

Special Features

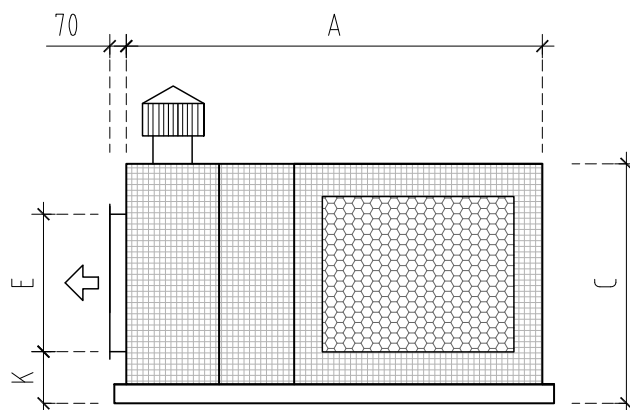
- Furnace Air BYPASS (High Fan Performance)
- Motorised, low air control BYPASS DAMPER - (optional)

Features

- Gas Fired heating 17KW- 92KW (AGA approved).
- Natural or LP Gas.
- Low coast Evaporative Cooling 1000 l/s - 13000 l/s.
- High efficiency CELDEC Filter Cooling Medium.
- Well proven product of high quality standard.
- Stainless steel Heat Exchangers built to last.
- Aluminised steel / marine grade aluminium construction.
- Heavy channel base with fork life facility and corner lift points.
- On-Off or modulating Burner Controls.
- Heat / cool / ventilation - High / Low switch station.



PLAN VIEW



SIDE VIEW

CAPACITY AND DIMENSIONAL DATA

MODEL HP	150/20.6	175/20.6	200/20.6	225/20.6	250/30.9	300/30.9	400/30.9	400/50.13	400/50s.15
SUPPLY AIR l/s Ext. SP. 200 Pa	3000	3000	4000	4000	5500	5500	5500	7500	13000
HEATING Output - KW Input - MJ.HR	34 158	40 184	46 211	51 237	57 263	69 316	92 422	92 422	92 422
FAN MOTOR - KW 50 Hz/Phase Rated Amps	2.4 3 5.8	2.4 3 5.8	2.4 3 5.8	2.4 3 5.8	4.5 3 10.8	4.5 3 10.8	4.5 3 10.8	6.0 3 14.5	10.0 3 24.5
WEIGHT - kg Nett Operating	490 560	490 560	510 580	510 280	665 740	665 740	700 775	975 1050	1010 1085
GAS CON - mm	20	20	20	20	20	20	25	25	25

MODEL LP	150/20.6	175/20.6	200/20.6	225/20.6	250/30.9	300/30.9	400/30.9	400/50.13	400/50s.15
A	2550	2550	2550	2550	2690	2690	2690	3200	3450
B	1370	1370	1370	1370	1520	1520	1520	2030	2030
C	1460	1460	1460	1460	1740	1740	1740	2000	2000
D	525	525	665	665	875	875	1155	1155	1155
E	1000	1000	1050	1050	1100	1100	1000	1150	1500
J	425	425	355	355	325	325	185	440	440
K	235	235	185	185	410	410	510	620	270

Energy Saver Range / Return Air

Benefits

The system employs a gas heater, stainless steel heat exchanger, evaporative cooling media, a centrifugal fan and a Return Air / Fresh Air Economy Cycle facility. (The Return Air / Fresh Air Economy Cycle does not apply to 100% Fresh Air Units).

The Heat Exchanger prevents poisonous gases of combustion from entering the space, as in the case of direct fired equipment. Therefore, the air in the space remains unpolluted and most of the air can be re-circulated. This means that there is no need to heat large volumes of cold outside air at a penalty cost.

The evaporative cooling media is constructed of corrugated, highly absorbent material with an average wetted surface contact area equal to a 50m swimming pool. This media has the highest efficiency, the lowest pressure drop and promotes a compact design.

The centrifugal fan is quiet and develops ample pressure for ducting purposes. In the case of HPS units, a balanced air quantity is by-passed around the heat exchanger to maximise air delivery at a minimal pressure drop through the heat exchanger. This ensures lower power usage and higher external static pressure development.

Air Distribution

Standard practice is to reduce the airflow during the heating cycle to minimise the substantial outside air load. This greatly reduces the efficiency of heating large areas due to insufficient air throw, resulting in stratification and a high loss of heat into the roof space. With the combination of the Heat Exchanger and the economy cycle Change Over Dampers, there is no need to heat large volumes of cold outside air. Consequently the airflow can be maintained at a high level during heating, ensuring sufficient air throw to reach the floor level, where the heat is required.

Design Advantages

The most significant design features are the Economy Cycle, Fresh Air / Return Air change over facility, the stainless steel Heat Exchanger and the Heat Exchanger by-pass, which all reduce energy costs in both gas and power usage.

Due to reduced energy requirements the equipment is smaller in capacity and size. Consequently there is very little cost penalty, if any, by comparison to standard unrefined equipment cost. Significant savings start with use, experiencing energy savings of up to 50%.

Other significant advantages are environmental, such as cleaner air in the space, moisture can be added during heating and lower flue emissions.

HCV - LPS series

Low Pressure 75 Pa / 1300 l/s - 7500 l/s

Energy Saver

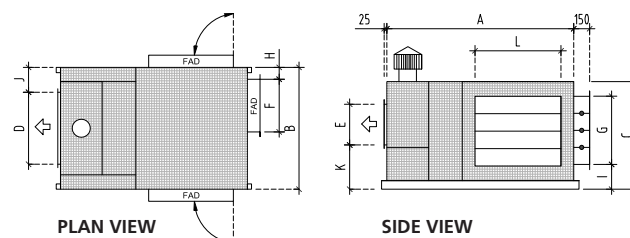
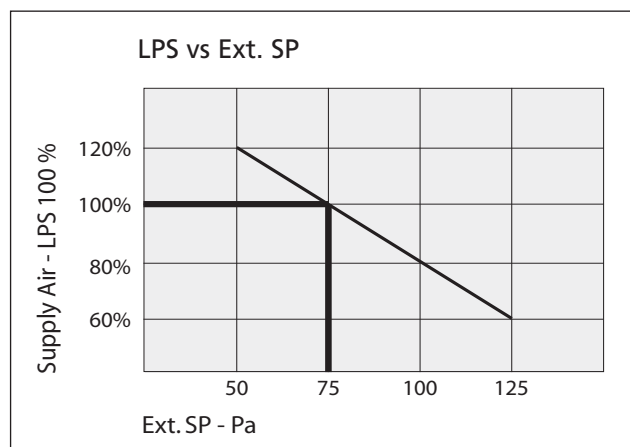
Energy Savings of up to 50%

Energy Saving Features

- Fresh air / return air heat mode CHANGEOVER DAMPERS.
- Energy savings of up to 50%.
- Heat the space, not cold outside air.
- Maintain constant Terminal Air Velocity during heating.
- Reduce loss of heat into the roof space.

Standard Features

- Gas Fired heating 17KW- 92KW (AGA approved).
- Natural or LP Gas.
- Low coast Evaporative Cooling 1000 l/s - 7500 l/s.
- High efficiency CELDEK Filter Cooling Medium.
- Well proven product of high quality standard.
- Stainless steel Heat Exchangers built to last.
- Aluminised steel / marine grade aluminium construction.
- Heavy channel base with fork lift facility and corner lift points.
- On-Off or modulating Burner Controls.
- Heat / cool / ventilation - High / Low switch station.
- Hinged outside air dampers (optional lift off type for limited access).



CAPACITY AND DIMENSIONAL DATA

MODEL LPS	75/10.3	100/10.3	150/20.6	175/20.6	200/20.6	225/20.6	250/30.9	300/30.9	400/30.9	400/50.13
SUPPLY AIR l/s @ Ext. SP. 75 Pa	1300	1300	3000	3000	4000	4000	5500	5500	5500	7500
HEATING Output - KW Input - MJ.HR	17 79	23 105	34 158	40 184	46 211	51 237	57 263	69 316	92 422	92 422
FAN MOTOR - KW 50 Hz/Phase Rated Amps	0.75 1 4.7	0.75 1 4.7	2.4 3 5.8	2.4 3 5.8	2.4 3 5.8	2.4 3 5.8	4.5 3 10.8	4.5 3 10.8	4.5 3 10.8	6.0 3 14.5
WEIGHT - kg Nett Operating	260 285	260 285	490 560	490 560	510 580	510 580	665 740	665 740	700 775	975 1050
GAS CON - mm	20	20	20	20	20	20	25	25	25	25

MODEL LP	75/10.3	100/10.3	150/20.6	175/20.6	200/20.6	225/20.6	250/30.9	300/30.9	400/30.9	400/50.13
A	2170	2170	2390	2390	2390	2390	2540	2540	2540	3050
B	1150	1150	1370	1370	1370	1370	1520	1520	1520	2030
C	1080	1080	1460	1460	1460	1460	1740	1740	1740	2000
D	320	320	525	525	665	665	875	875	1155	1155
E	455	455	455	455	455	455	455	455	455	455
F	420	420	530	530	530	530	600	600	600	850
G	735	735	1100	1100	1100	1100	1380	1380	1380	1600
H	135	135	135	135	135	135	135	135	135	135
I	285	285	300	300	300	300	300	300	300	340
J	415	415	425	425	355	355	325	325	185	440
K	395	395	780	780	780	780	1055	1055	1055	1315
L	1020	1020	1240	1240	1240	1240	1390	1390	1390	1900

HCV - HPS series

High Pressure 200 Pa / 3000 l/s - 13000 l/s

Energy Saver

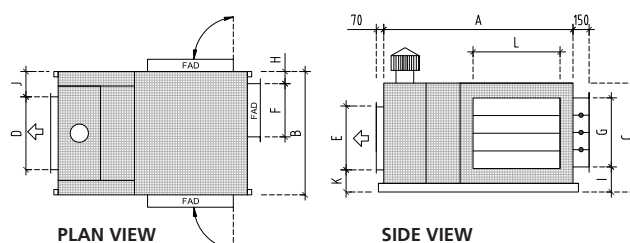
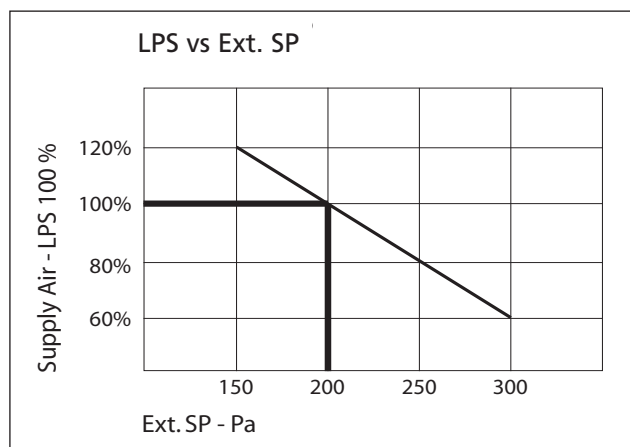
Energy Savings of up to 50%

Energy Saving Features

- Fresh air / return air heat mode CHANGEOVER DAMPERS.
- Furnace air BYPASS (High Fan Performance).
- Motorised, low air control BYPASS DAMPER - (optional).
- Energy savings of up to 50%.
- Heat the space, not cold outside air.
- Maintain constant terminal air velocity during heating.
- Reduce loss of heat into the roof space.

Standard Features

- Economical Gas Fired heating 17KW- 92KW (AGA approved).
- Natural or LP Gas.
- Low coast Evaporative Cooling 1000 l/s - 13000 l/s.
- High efficiency CELDEK Filter Cooling Medium.
- Well proven product of high quality standard.
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- Aluminised steel / marine grade aluminium construction.
- Heavy channel base with fork lift facility and corner lift points.
- On-Off or modulating Burner Controls.
- Heat / cool / ventilation - High / Low switch station.
- Hinged outside air dampers (optional lift off type for limited access).



CAPACITY AND DIMENSIONAL DATA

MODEL HPS	150/20.6	175/20.6	200/20.6	225/20.6	250/30.9	300/30.9	400/30.9	400/50.13	400/50s.15
SUPPLY AIR l/s @ Ext. SP. 200 Pa	3000	3000	4000	4000	5500	5500	5500	7500	13000
HEATING Output - KW Input - MJ.HR	34 158	40 184	46 211	51 237	57 263	69 316	92 422	92 422	92 422
FAN MOTOR - KW 50 Hz/Phase Rated Amps	2.4 3 5.8	2.4 3 5.8	2.4 3 5.8	2.4 3 5.8	4.5 3 10.8	4.5 3 10.8	4.5 3 10.8	6.0 3 14.5	10.0 3 24.5
WEIGHT - kg Nett Operating	490 560	490 560	510 580	510 280	665 740	665 740	700 775	975 1050	1010 1085
GAS CON - mm	20	20	20	20	20	20	25	25	25

MODEL HPS	150/20.6	175/20.6	200/20.6	225/20.6	250/30.9	300/30.9	400/30.9	400/50.13	400/50s.15
A	2550	2550	2550	2550	2690	2690	2690	3200	3450
B	1370	1370	1370	1370	1520	1520	1520	2030	2030
C	1460	1460	1460	1460	1740	1740	1740	2000	2000
D	525	525	665	665	875	875	1155	1155	1155
E	1000	1000	1050	1050	1100	1100	1000	1150	1500
F	530	530	530	530	600	600	600	850	850
G	1100	1100	1100	1100	1380	1380	1380	1600	1600
H	135	135	135	135	135	135	135	135	135
I	300	300	300	300	300	300	300	340	340
J	425	425	355	355	325	325	185	440	440
K	235	235	185	185	410	410	510	620	270
L	1240	1240	1240	1240	1390	1390	1390	1900	1900

HCV - Sound Power Levels

HCV Models LP, LPS, HP, HPS		Octave Band Centre Frequency (Hz)							
		125	250	500	1k	2k	4k	8k	dBA
75/10.3	Radiated	74	72	67	66	68	64	58	73
	In Duct	72	69	66	66	69	65	59	73
100/10.3	Radiated	74	72	67	66	68	64	58	73
	In Duct	72	69	66	66	69	65	59	73
150/20.6	Radiated	80	78	74	74	75	71	61	80
	In Duct	72	69	66	66	69	65	54	73
175/20.6	Radiated	80	78	74	74	75	71	61	80
	In Duct	72	69	66	66	69	65	54	73
200/20.6	Radiated	80	78	74	74	75	71	61	80
	In Duct	72	71	71	71	71	65	54	76
225/20.6	Radiated	80	78	74	74	75	71	61	80
	In Duct	72	71	71	71	71	65	54	76
250/30.9	Radiated	82	79	77	78	80	76	66	84
	In Duct	76	74	72	71	74	70	62	78
300/30.9	Radiated	82	79	77	78	80	76	66	84
	In Duct	76	74	72	71	74	70	62	78
400/30.9	Radiated	82	79	77	78	80	76	66	84
	In Duct	76	74	72	71	74	70	62	78
400/50.13	Radiated	90	87	86	85	83	79	73	89
	In Duct	87	86	85	85	83	79	71	89
400/50s.15	Radiated	95	92	91	89	87	84	78	94
	In Duct	90	87	87	85	83	80	73	89

NOTE: For each model, two sets of measurements were made:

1. The noise radiated externally from the unit
2. The noise generated in the duct.
3. Above based on standard air quantities and 75Pa Ext. SP.



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