EC Motor Fan Coil Units

IMD-Y Series

450 – 2350 l/s

temperzone

QUALITY AIR CONDITIONING

Company Profile

Temperzone Limited is a leading manufacturer and distributor of quality air conditioning and ventilation products throughout the Western Pacific Rim. Corporate Head Office is located in New Zealand with factories in Auckland and Sydney. A network of offices, warehouses and distributors provide local support and representation in Australasia, South East Asia and China.

temperzone's aim is to provide the most competitively priced, reliable and efficient air conditioning equipment available to the international market. A privately owned company, temperzone Holdings Ltd, is the parent company of temperzone ltd (est.1956) in Auckland and temperzone Australia pty ltd in Sydney.

The wide range of temperzone products are manufactured in Auckland for markets in Australasia and Asia. This range includes air distribution items and fans for New Zealand. The Sydney headquarters acts as both a distribution centre and manufacturer of customised and larger standard air conditioning units specifically for Australia. temperzone's Asia Regional Head Office is located in Singapore. The combined group operations employ over 500 staff.

Temperzone's Fan Coil History

Temperzone have been manufacturing chilled water fan coil units for more than 45 years.

Prior to the development of temperzone's EC motor fancoils, units had all been manufactured with fixed single speed or multi-speed PSC motors. Any changes in the cooling or heating performance had been solely on the basis of varying the water flow by way of a 2-way or 3-way water regulating/ modulating valve. With the indoor fan running on a constant speed this left considerable room for improvement in designing higher efficiency models.

It is time now to take a step forward with the new IMD "Y" version with EC (Electronically Commutated) motors. EC motors allow for the air flow to be controlled over a wider range either by the multiple speeds that are available or by the use of a 0 – 10V dc variable signal.

Speeds as high as 1500 rpm and as low as 500 rpm are available ether by dip switch selection if multi-speed is preferred or by the variable voltage signal (a signal isolator is required between the controller output and the unit input if the variable control is desired).

Key Features

- Energy Efficient EC Motor
- Significant Energy Savings
- Pressure Independent Fan Operation
- On-site Adjustable Fan Air Volume Controller
- Remote Fan Air Volume Adjustment Capability from BMS.

IMD-Y Fan Coil Units

GENERAL

Fan coil units are an integral part of an overall air conditioning system where the energy transfer medium (i.e. chilled or hot water) is circulated by a central plant facility.

temperzone offers an extensive range of ducted fan coil units. A variety of options and accessories are available to meet most air conditioning requirements.

Low operating cost, energy efficient fan motors are used in all units. Easy installation and maintenance add to the cost effectiveness of temperzone IMD Series fan coil units.

All temperzone IMD fan coil units are right handed, i.e. when facing the discharge side of the unit, the water and electrical connections are on the right hand side.

TYPICAL APPLICATIONS

Office Buildings

IMD units are ideally suited to office building applications where false ceiling space is available and medium static pressure and ductwork is a consideration.

Airport Terminal Buildings

temperzone fan coil units are gaining worldwide popularity in airport terminals. These complexes generally consist of a number of areas with very diverse occupancy and capacity requirements.

Hospitals

The majority of hospital rooms must have a separate and independent air conditioning system. This is to avoid bacterial cross contamination. temperzone fan coil units have been used successfully in these applications.

STANDARD FEATURES

Drain Tray

The drain tray on models IMD 95–280 are made of plastic for complete corrosion protection; IMD 420 and 550 are powder coated galvanised steel.
Drain trays are removable for ease of cleaning and have a built-in slope to ensure condensate water drains freely without ponding.

Motors

High efficiency electronically commutated (EC) motors are fitted as standard on all units. Motors can be operated on three speeds (site changable) or 0-100% capacity using a 0-10V dc signal supplied by a BMS or sophisticated controller. The motors are resiliently mounted, self aligning and oiled for life.

Fans

Quiet low line, centrifugal type, double width, statically and dynamically balanced, multi-bladed impellers are used. The position and shape of the fan blades and housing has been developed after extensive testing to achieve minimum noise levels while maintaining a smooth pressure vs air flow curve.

Coils

Coils are manufactured in rifled copper tubing. All coils are thoroughly tested to 2100 kPa. Coil rows are staggered for maximum heat exchange. Three different coil configurations are available – refer table below.

The coil fins are manufactured as a continuous plate, die formed from epoxy coated aluminium with a smooth corrugated surface, specially designed to overcome and prevent lint build up. The coil fins are mechanically bonded to the copper tubing which results in a rigid assembly and provides a permanent metallic contact between fins and tube for maximum heat transfer.

Casing

The casing is manufactured from high quality galvanised steel and internally insulated.

Insulation

Closed cell foam insulation has been used in the cabinet to ensure no particles are introduced into the air stream. The insulation is foil faced and meets the fire test standards AS 1530.3 (1989) and BS 476 parts 6 and 7.

Mounting

The IMD unit can be mounted rigid, or using the optional spring mounting brackets which minimise transfer of vibration.

ELECTRICAL BOX

Wiring from the motors terminate in a terminal block in a sheetmetal enclosed electrical box. The box is supplied on the same side as the water connections, but can be changed on site to the opposite side.

ELECTRIC HEAT

Electric Heat is available with some coil configurations (refer table right). Elements are factory mounted within the unit. A fan run-on timer (for heat dissipation) is included. These units are supplied complete with safety cutouts required to meet AS/NZS 3350.2.40 1997.

ACCESSORIES

1. Filter Box
   integrated with return air spigot – filter is 13 mm thick, washable and rated EU2.
   (Not for use in Australia)
2. Spring Mounting Kit.
3. Supply and return air plenums (IMD 95–280).
4. Control switches (IMD 95–280) – on/off and 3 speed rotary switches mounted in a standard or architrave type flush plate.

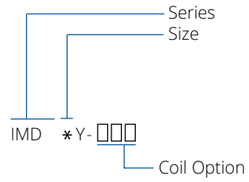
WIRING

The electrical supply required (including voltage fluctuation limits) is:
1 phase 200–252 V a.c. 50 Hz with neutral and earth. Each IMD unit is fully wired ready to accept the main power supply.

Note: When installed with electric heat the IMD 135–420 units require a three phase power supply of 342–436 V a.c. 50 Hz.

ORDER DETAIL

Coil Options:
1 - One row coil for heating
4 - Four row coil for cooling
4/1 - Four row cooling / one row heating
4E - Four row cooling coil + electric heat
E - Electric heat
Note: Please specify on your order the size, fan motor type and coil option using the above codes.



Examples:

IMD 135Y-4/1
IMD 210Y-4E

TECHNOLOGY

VAV

For the last 40 years virtually all fan coil units have operated with a constant fan speed and therefore constant air volume (CAV). Temperature changes in these units were achieved by the water valve, i.e. varying the water volume. With this design, energy was wasted due to fans constantly running at full speed, regardless of the requirement of the thermal zone served.

With temperzone's new range of VAV fancoil units, varying air volume results in greater efficiency.

Controls

The new EC motor version IMD units allow for several methods of control allowing great flexibility to meet the demands of modern buildings expectations. The fan speed could be adjusted for instance as the first step of capacity control before adjusting water flow.

Three Speed Selection

The fans can be controlled just like their predecessors using three speed selection, high, medium and low. This option is selectable by dip switch and then by using further dip switch settings to select from the available speed ranges that are most suitable for the application.

Potentiometer

The fans could also be controlled by the fitting of a potentiometer to preset the required speed. This will be particularly useful during onsite commissioning to adjust to obtain the desired air flow.

Indoor Fan Speed

The fan can be switched ON by selecting High, Medium or Low fan speed on the terminal block, or via BMS.

The fan speed can be controlled in two ways: 'Stepped' or 'Continuously Variable'.

Dip switches 1 to 5 and 7 on the Analogue Level Controller (ALC) determine the minimum and maximum fan speeds. The same 'Minimum rpm' and 'Maximum rpm' settings apply to both the 'Stepped' and 'Continuously Variable' control methods.

There are two fan speed ranges available using dip switch 7:

- Low, which is the default for low profile IMDL units &
- High, which is the default for in higher air flow IMD units.

The default settings for max. fan speed and fan speed range are highlighted on the Wiring Schematic.

1. *Stepped (3 Speed)*

   If using a 3-speed selection switch, the medium speed will always be half way between the maximum (High) and minimum (Low) speeds – as selected using the DIP switches 1 to 5.

2. *Continuously Variable (0-10V Control)*

   If using a variable 0–10V dc signal (from a BMS or sophisticated controller) the fans will not operate until a signal above 1.6V is received and will then start at the minimum voltage/speed set using DIP switches 1 to 5.

   A voltage below 1.6V DC applied across the '0V' and the '0-10V' input terminals will activate fan run on and after this the fan will stop.

   A control voltage of 2V will cause the fan to run at the 'Min. rpm' speed. A 10V DC signal will run the fan at the 'Max. rpm' speed. Control voltages between these two limits (2V –10V) can be used to achieve any desired speed between 'Min.' and 'Max.' rpm in a linear relationship so 6V gives you 'Med.' (halfway between 'Min.' and 'Max').

Note: Only one control method must be connected at any one time; either Stepped 3 Speed control or Continuously Variable 0-10V dc, **not both.**

The fan will run on at Low speed when there is no input signal for either 40 or 120 seconds, dependant on the DIP switch 6 setting, before stopping. **If electric heat is fitted, ensure that DIP switch 6 is set for 120 seconds.**

BMS

Many modern buildings these days have Building Management Sytems (BMS) and it is desirable to control the fan speed variably to meet the building's load demands. The unit can accept a 0-10Vdc signal from the BMS or other sophisticated controller. This option is again selectable by dip switch and likewise so is the allowable speed range.

The BMS can be programmed to achieve various beneficial functions such as; maintaining high air flow when on heating first thing in the morning to avoid stratification within the space, reducing the air flow down to say 50 to 60% as a capacity control method prior to adjustment of the water flow.

EC Motors

Brushless EC motors within the fan coil units provide a cooler running motor emitting less heat into the supply air. This is achieved as energy savings reduce the fan power to almost a quarter of a comparable PSC motor.

The life expectancy of an EC motor can be up to twice as long as a comparable PSC motor due to functions such as the soft start which eliminate stress to the mounting bracket or hardware. This improved life expectancy further benefits the building owner by a reduction in maintenance costs.

There is a "Fault" output on the EC Motor controller that can be used to drive external Fault relay (201-000-105) which provides "Dry Contact" terminals that can be used to signal a motor or controller overload fault.

Specification

Model	IMD 95Y	IMD 135Y	IMD 170Y	IMD 210Y	IMD 280Y	IMD 420Y	IMD 550Y
Nominal Air Flow (l/s) *	450	600	750	900	1250	1800	2350
Fan type	forward curved centrifugal double inlet double width						
No. of fan scrolls	1	1	1	2	2	2	2
Motor type	Electronically Commutated (EC) DC direct drive						
Power Source **	1 Phase 230 VoltAC 50 Hz						
No. of motors	1	1	1	1	1	2	2
Motor Rating (W)	600	900	1250	1250	1250	1250 (x2)	1250 (x2)
Full Load Amps (A) ****	3.3	4.9	6.8	6.8	6.8	9 x 2 (18)	9 x 2 (18)
Optional Electric Heating (kW) **	4	6	6	9	9	12	18
Heat Exchanger type	epoxy aluminium corrugated plate fins to expanded rifled copper tube						
Cooling/Heating Medium	chilled water or hot water						
Coil Rows Options	(4 rows cooling) or (4 rows cooling + 1 row heating) or (4 rows cooling + electric heat)						
Finish	zinc galvanised steel						
Test Pressure	2100 kPa						
Connection Sizes Cooling Coil (mm)	25 BSP Male (1")				32 BSP Male (1 1/4")		
Connection Sizes Heating Coil (mm)	15 BSP Male (1/2")				25 BSP Male (1")	32 BSP Male (1 1/4")	
Air Filter Type ***	washable G2 / EU2						
No. of Air Filters	1	1	1	1	2	2	2
Air Filter Size (mm)	593 x 275 x 13	767 x 275 x 13	914 x 275 x 13	1064 x 275 x 13	593 x 345 x 13	685 x 415 x 13	712 x 542 x 13
Static to allow for Air Filter (Clean) at Nominal Air Flow (Pa) ***	55	60	60	63	63	68	63
Static to allow for wet surface coil (Pa)	28	30	32	34	36	32	32
Weight (4/1 row unit, incl water) (kg)	49	50	64	66	94	158	183
Nett Weight (4/1 row unit, excl water) (kg)	45	45	59	60	86	145	166
Shipping Weight approx. (kg)	48	48	62	63	96	170	196

Notes:

* With no filters fitted and with a dry coil surface and 100Pa external resistance
** Voltage fluctuation limits 200 - 252 V. IMD 135–550 electric heat models require a 3 phase power supply, 342–436 V a.c 50 Hz.
*** Standard filters not to be used in Australian market (see note on page 15)
****Excluding Electric Heat

Summary of Choices

Size	95 / 135 / 175 / 210 / 280 / 420 / 550
Cooling and Heating Coil Configurations	4 Rows Cooling
	4 Rows Cooling + 1 Row Heating
	4 Rows Cooling + Electric Heat
Fan Run On Timer	EC motor driver has in built run on timer for all models 50s approx
Handing	Right (Standard) / Left

IMD 95Y

Cooling Capacity kW

Entering Air Temperature 23.0°C db 17.0°C wb — **Nominal Air Flow 450 l/s**

Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C									
			5		6		7		8		9	
			Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible
4	0.30	7.0	7.8	5.9	7.2	5.6	6.7	5.4	6.1	5.2	5.4	4.9
	0.50	17.6	9.3	6.5	8.5	6.2	7.9	5.9	7.1	5.6	6.5	5.3
	0.70	32.4	10.2	6.9	9.3	6.5	8.6	6.2	7.8	5.9	7.0	5.6

Heating Capacity

Entering Air Temperature 21.0°C db — **Electric Heating Option 4 kW** — **Nominal Air Flow 450 l/s**

Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C								
			40	45	50	55	60	65	70	75	80
1	0.08	5.1	2.9	3.7	4.4	5.2	6.0	6.7	7.5	8.3	9.0
	0.14	14.9	3.4	4.3	5.2	6.1	7.0	7.9	8.8	9.7	10.6
	0.20	28.6	3.7	4.7	5.7	6.6	7.6	8.6	9.6	10.5	11.5

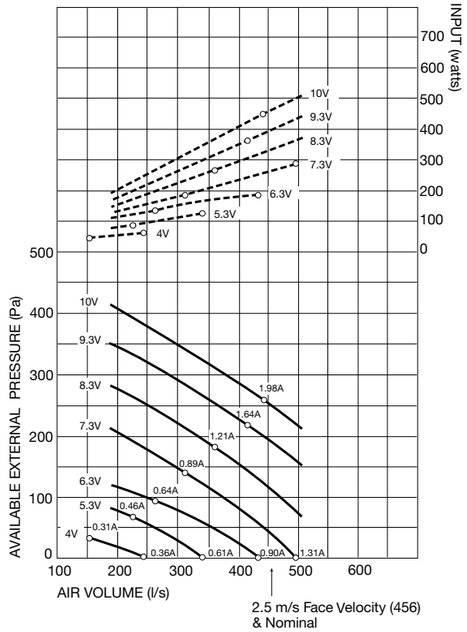
Sound Levels

Test Conditions
BS 848 PT2 1985. Intallation Type A (free inlet and outlet)
Direct method of measurement (reverberant room)
Measured in decibels re 1 picowatt, at maximum airflow

Supply Air Outlet

Fan Speed Volts	Sound Power SWL dB(A)	Octave Band Frequency Hz					
		125	250	500	1K	2K	4K
		Sound Power Levels (SWL) dB					
7.3	63	62	60	60	59	55	53
8.3	68	65	66	64	64	60	59
10	73	72	72	68	68	66	64

Air Handling

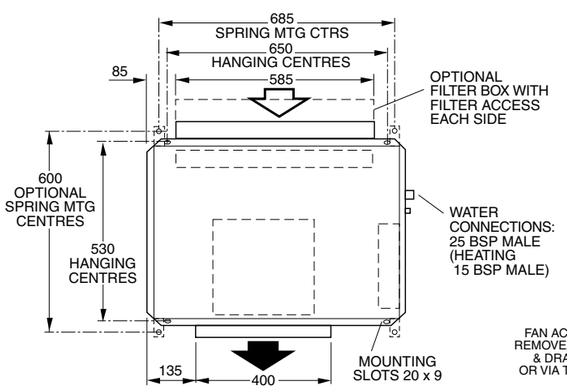


Note: Airflows are for dry coil. Reduce airflow by 10% in high moisture removal conditions.

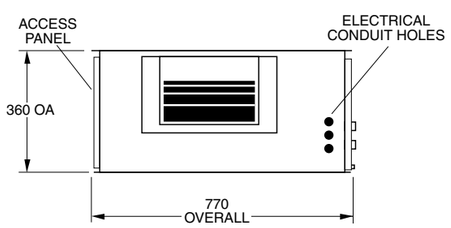
Airflows given are for IMD-Y units without filter installed.

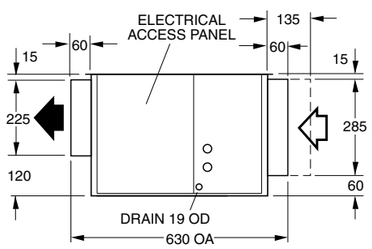
Refer back page for filter pressure drop.

Dimensions



FAN ACCESS VIA
REMOVEABLE BASE
& DRAIN TRAY,
OR VIA TOP PANEL





temperzone

IMD 135Y

Cooling Capacity kW

Entering Air Temperature 23.0°C db 17.0°C wb — **Nominal Air Flow 600 l/s**

Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C									
			5		6		7		8		9	
			Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible
4	0.30	8.5	9.2	7.6	8.9	7.2	8.2	6.9	7.5	6.7	6.8	6.4
	0.45	17.2	11.3	8.2	10.5	7.8	9.6	7.5	8.8	7.2	7.8	6.8
	0.60	28.9	12.5	8.7	11.5	8.3	10.6	7.9	9.6	7.5	8.7	7.1

Heating Capacity

Entering Air Temperature 21.0°C db — **Electric Heating Option 6 kW** — **Nominal Air Flow 600 l/s**

Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C								
			40	45	50	55	60	65	70	75	80
1	0.09	8.2	3.7	4.7	5.6	6.6	7.6	8.6	9.5	10.5	11.5
	0.14	17.7	4.3	5.4	6.5	7.7	8.8	9.9	11.0	12.2	13.3
	0.18	27.6	4.6	5.8	7.0	8.2	9.4	10.6	11.8	13.0	14.2

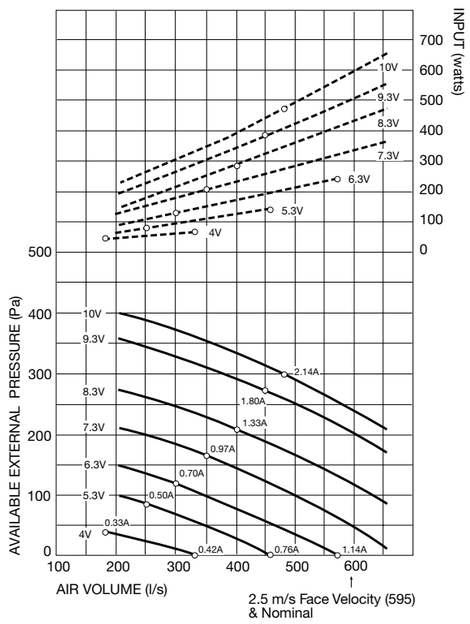
Sound Levels

Test Conditions
BS 848 PT2 1985. Intallation Type A (free inlet and outlet)
Direct method of measurement (reverberant room)
Measured in decibels re 1 picowatt, at maximum airflow

Supply Air Outlet

Fan Speed Volts	Sound Power SWL dB(A)	Octave Band Frequency Hz					
		125	250	500	1K	2K	4K
		Sound Power Levels (SWL) dB					
8.3	62	63	61	58	56	54	52
9.3	67	66	66	63	61	59	58
10	73	72	72	68	68	65	64

Air Handling

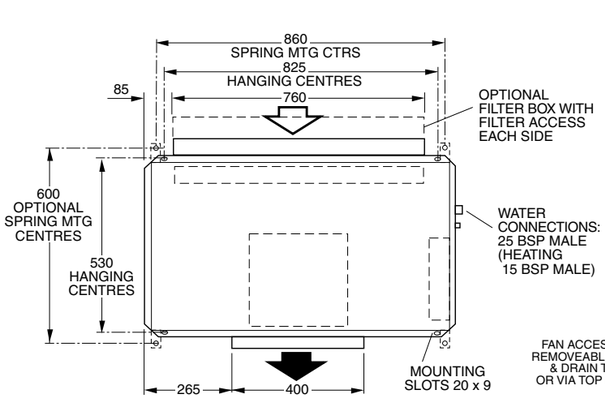


Note: Airflows are for dry coil. Reduce airflow by 10% in high moisture removal conditions.

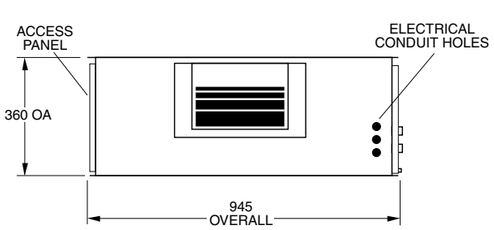
Airflows given are for IMD-Y units without filter installed.

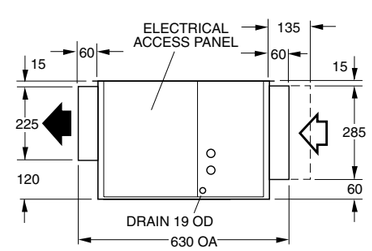
Refer back page for filter pressure drop.

Dimensions



FAN ACCESS VIA
REMOVEABLE BASE
& DRAIN TRAY,
OR VIA TOP PANEL





temperzone

IMD 170Y

Cooling Capacity kW

Entering Air Temperature 23.0°C db 17.0°C wb — **Nominal Air Flow 750 l/s**

Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C									
			5		6		7		8		9	
			Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible
4	0.30	9.3	11.2	9.0	10.3	8.7	9.5	8.4	8.8	8.0	7.8	7.7
	0.45	19.1	13.3	9.9	12.3	9.5	11.3	9.1	10.4	8.7	9.3	8.3
	0.60	33.4	14.8	10.5	13.8	10.1	12.6	9.6	11.5	9.2	10.3	8.7

Heating Capacity

Entering Air Temperature 21.0°C db — **Electric Heating Option 6 kW** — **Nominal Air Flow 750 l/s**

Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C								
			40	45	50	55	60	65	70	75	80
1	0.09	9.3	4.2	5.4	6.5	7.6	8.7	9.8	10.9	12.1	13.2
	0.14	22.2	5.1	6.4	7.7	9.0	10.3	11.6	13.0	14.3	15.6
	0.18	31.4	5.4	6.9	8.3	9.7	11.2	12.6	14.0	15.5	16.9

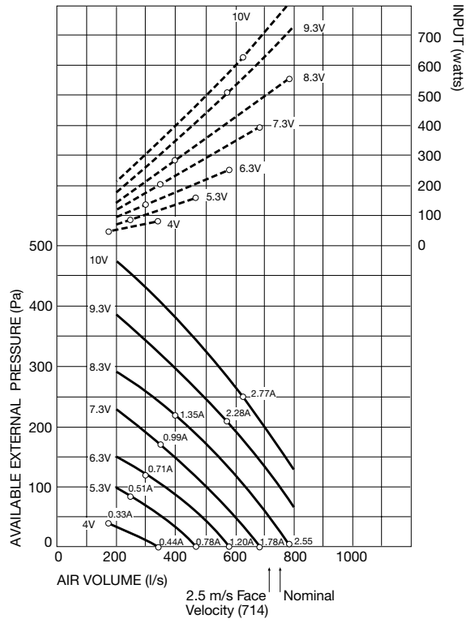
Sound Levels

Test Conditions
BS 848 PT2 1985. Intallation Type A (free inlet and outlet)
Direct method of measurement (reverberant room)
Measured in decibels re 1 picowatt, at maximum airflow

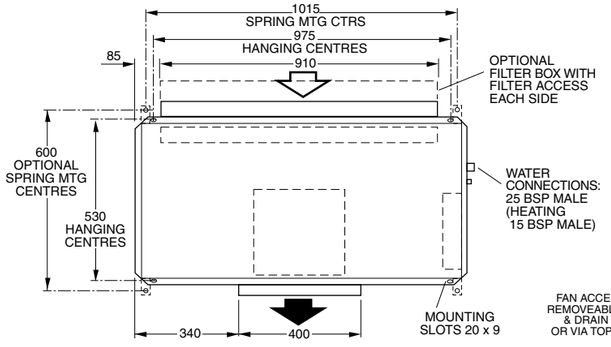
Supply Air Outlet

Fan Speed Volts	Sound Power SWL dB(A)	Octave Band Frequency Hz					
		125	250	500	1K	2K	4K
		Sound Power Levels (SWL) dB					
8.3	68	62	64	66	62	59	58
9.3	75	68	71	71	71	67	66
10	77	70	74	73	74	69	68

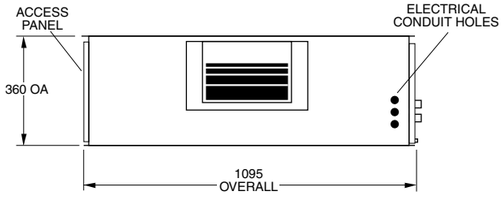
Air Handling

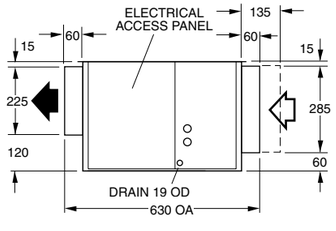


Dimensions



FAN ACCESS VIA REMOVEABLE BASE & DRAIN TRAY, OR VIA TOP PANEL





Note: Airflows are for dry coil. Reduce airflow by 10% in high moisture removal conditions.

Airflows given are for IMD-Y units without filter installed.

Refer back page for filter pressure drop.

IMD 210Y

Cooling Capacity kW

Entering Air Temperature 23.0°C db 17.0°C wb — **Nominal Air Flow 900 l/s**

Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C									
			5		6		7		8		9	
			Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible
4	0.40	9.5	13.9	11.0	12.8	10.6	11.8	10.1	10.7	9.7	9.8	9.3
	0.60	19.6	16.4	12.0	15.2	11.5	13.9	11.0	12.7	10.5	11.4	10.0
	0.80	33.5	18.2	12.8	16.8	12.2	15.4	11.6	14.0	11.0	12.5	10.4

Heating Capacity

Entering Air Temperature 21.0°C db — **Electric Heating Option 9 kW** — **Nominal Air Flow 900 l/s**

Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C								
			40	45	50	55	60	65	70	75	80
1	0.08	8.4	4.4	5.6	6.8	7.9	9.1	10.3	11.4	12.6	13.8
	0.12	17.3	5.3	6.8	8.2	9.6	11.1	12.4	13.8	15.2	16.6
	0.16	28.8	6.0	7.5	9.1	10.7	12.2	13.8	15.4	16.9	18.5

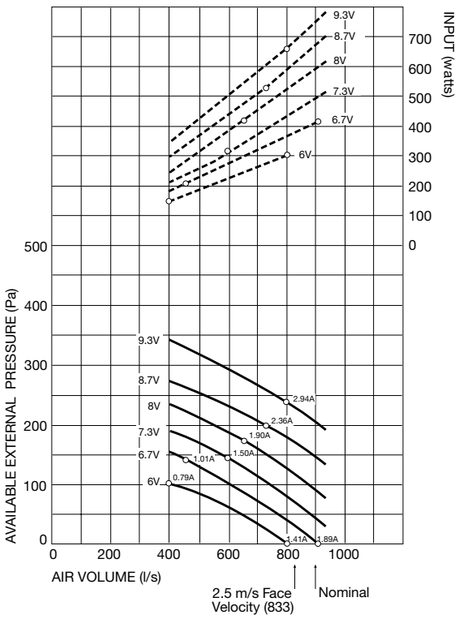
Sound Levels

Test Conditions
BS 848 PT2 1985. Intallation Type A (free inlet and outlet)
Direct method of measurement (reverberant room)
Measured in decibels re 1 picowatt, at maximum airflow

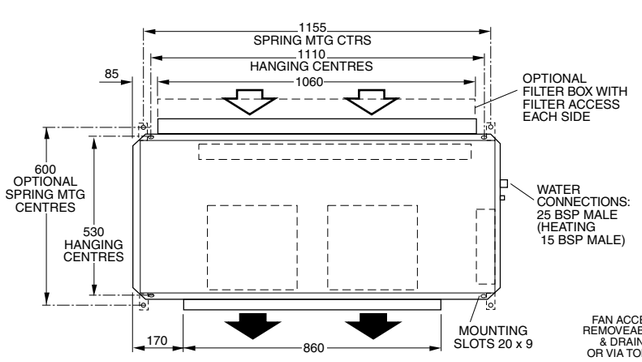
Supply Air Outlet

Fan Speed Volts	Sound Power SWL dB(A)	Octave Band Frequency Hz					
		125	250	500	1K	2K	4K
		Sound Power Levels (SWL) dB					
7.3	63	60	60	62	58	55	51
8.7	71	67	68	67	67	63	61
9.3	75	70	71	70	72	67	65

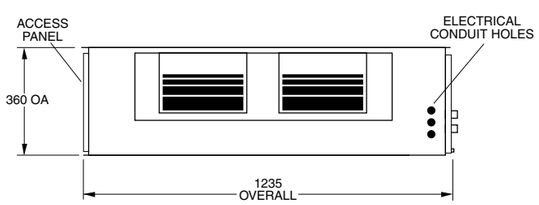
Air Handling

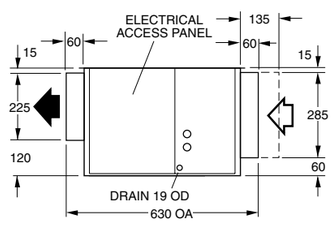


Dimensions



FAN ACCESS VIA REMOVEABLE BASE & DRAIN TRAY, OR VIA TOP PANEL





Note: Airflows are for dry coil. Reduce airflow by 10% in high moisture removal conditions.

Airflows given are for IMD-Y units without filter installed.

Refer back page for filter pressure drop.

IMD 280Y

Cooling Capacity kW

Entering Air Temperature 23.0°C db 17.0°C wb — **Nominal Air Flow 1250 l/s**

Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C									
			5		6		7		8		9	
			Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible
4	0.60	7.0	19.2	15.2	17.7	14.6	16.4	14.0	14.8	13.4	13.4	12.9
	1.00	17.8	23.4	16.9	21.8	16.2	19.9	15.5	18.1	14.7	16.4	14.1
	1.40	33.1	26.2	18.2	24.2	17.3	22.1	16.4	20.0	15.5	18.1	14.7

Heating Capacity

Entering Air Temperature 21.0°C db — **Electric Heating Option 9 kW** — **Nominal Air Flow 1250 l/s**

Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C									
			40	45	50	55	60	65	70	75	80	
1	0.20	2.8	7.4	9.4	11.3	13.2	15.2	17.1	19.1	21.0	23.0	
	0.50	14.5	9.5	12.0	14.4	17.0	19.5	21.9	24.4	26.9	29.4	
	0.80	33.2	10.5	13.3	16.0	18.8	21.6	24.3	27.1	29.8	32.6	

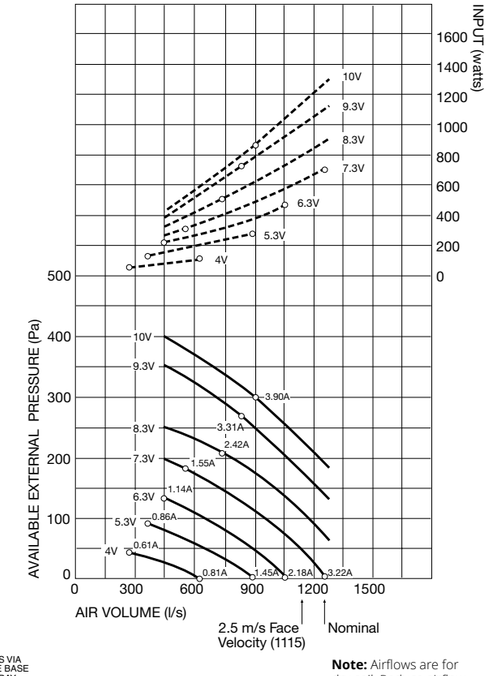
Sound Levels

Test Conditions
BS 848 PT2 1985. Intallation Type A (free inlet and outlet)
Direct method of measurement (reverberant room)
Measured in decibels re 1 picowatt, at maximum airflow

Supply Air Outlet

Fan Speed Volts	Sound Power SWL dB(A)	Octave Band Frequency Hz					
		125	250	500	1K	2K	4K
		Sound Power Levels (SWL) dB					
7.3	65	61	63	63	60	56	53
8.3	70	66	68	67	66	62	59
9.3	77	71	74	72	73	69	66

Air Handling

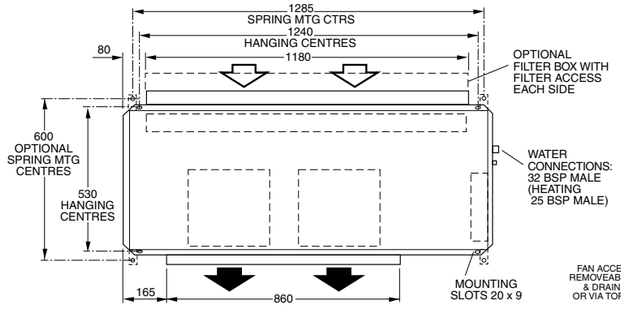


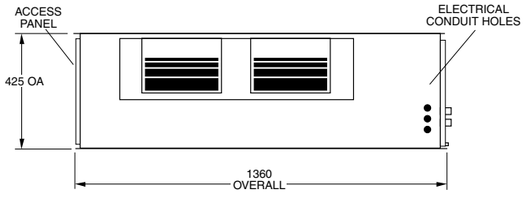
Note: Airflows are for dry coil. Reduce airflow by 10% in high moisture removal conditions.

Airflows given are for IMD-Y units without filter installed.

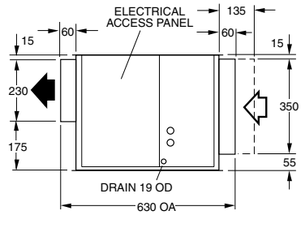
Refer back page for filter pressure drop.

Dimensions





FAN ACCESS VIA REMOVEABLE BASE & DRAIN TRAY, OR VIA TOP PANEL



temperzone

IMD 420Y

Cooling Capacity kW

Entering Air Temperature 23.0°C db 17.0°C wb — **Nominal Air Flow 1800 l/s**

Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C									
			5		6		7		8		9	
			Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible
4	1.50	8.5	33.4	24.4	30.9	23.3	28.3	22.3	25.7	21.2	23.2	20.2
	2.50	20.7	38.8	26.7	35.9	25.5	33.0	24.2	30.1	23.0	27.2	21.8
	3.00	29.8	40.6	27.5	37.4	26.1	34.5	24.8	31.2	23.4	28.3	22.2

Heating Capacity

Entering Air Temperature 21.0°C db — **Electric Heating Option 12 kW** — **Nominal Air Flow 1800 l/s**

Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C									
			40	45	50	55	60	65	70	75	80	
1	0.30	3.9	11.2	14.1	17.0	20.0	23.0	25.9	28.8	31.8	34.7	
	0.60	13.2	13.6	17.2	20.8	24.3	27.9	31.4	35.0	38.5	42.1	
	0.90	27.4	15.0	18.9	22.8	26.8	30.7	34.6	38.5	42.5	46.4	

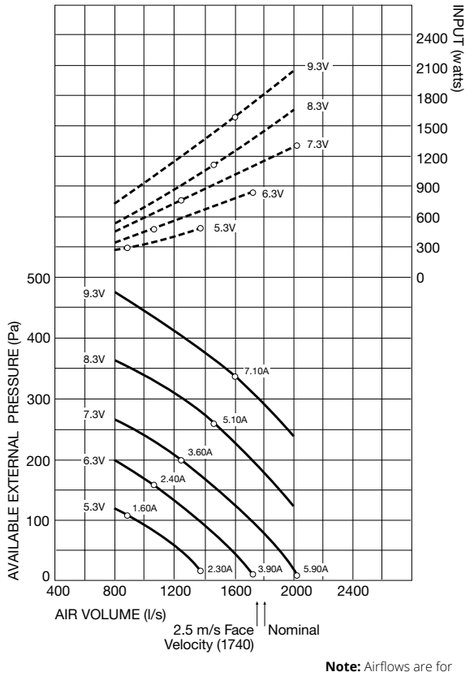
Sound Levels

Test Conditions
BS 848 PT2 1985. Intallation Type A (free inlet and outlet)
Direct method of measurement (reverberant room)
Measured in decibels re 1 picowatt, at maximum airflow

Supply Air Outlet

Fan Speed Volts	Sound Power SWL dB(A)	Octave Band Frequency Hz					
		125	250	500	1K	2K	4K
		Sound Power Levels (SWL) dB					
7.3	66	65	63	63	62	59	55
8.3	71	70	68	68	66	64	61
9.3	78	76	75	75	73	71	69

Air Handling

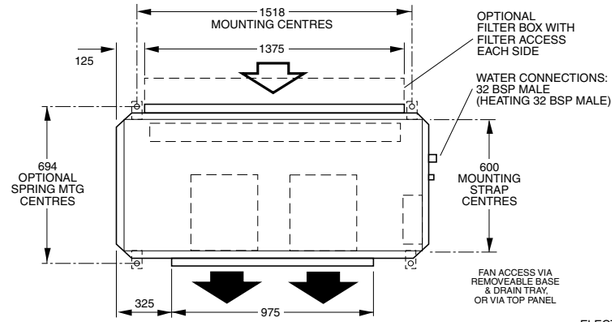


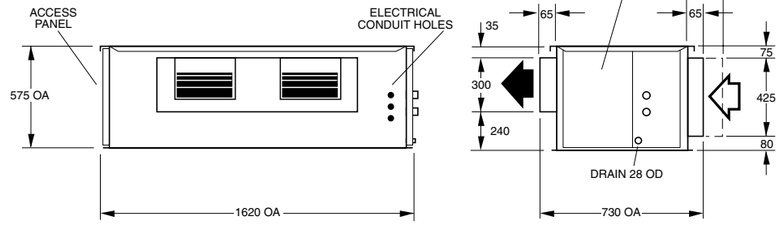
Note: Airflows are for dry coil. Reduce airflow by 10% in high moisture removal conditions.

Airflows given are for IMD-Y units without filter installed.

Refer back page for filter pressure drop.

Dimensions





FAN ACCESS VIA REMOVEABLE BASE & DRAIN TRAY, OR VIA TOP PANEL

IMD 550Y

Cooling Capacity kW

Entering Air Temperature 23.0°C db 17.0°C wb — **Nominal Air Flow 2350 l/s**

Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C									
			5		6		7		8		9	
			Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible
4	2.00	9.5	43.9	31.9	40.5	30.5	37.2	29.1	33.8	27.7	30.5	26.4
	3.00	20.6	49.9	34.5	46.1	32.9	42.3	31.2	38.5	29.6	34.6	28.0
	4.00	33.4	53.2	36.0	49.5	34.3	45.2	32.5	41.4	30.8	37.0	29.0

Heating Capacity

Entering Air Temperature 21.0°C db — **Electric Heating Option 18 kW** — **Nominal Air Flow 2350 l/s**

Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C								
			40	45	50	55	60	65	70	75	80
1	0.40	4.5	14.7	18.6	22.5	26.3	30.1	34.0	37.9	41.7	45.6
	0.80	15.4	17.9	22.5	27.2	31.9	36.6	41.3	46.0	50.7	55.4
	1.20	31.5	19.6	24.8	30.0	35.2	40.2	45.4	50.6	55.8	60.9

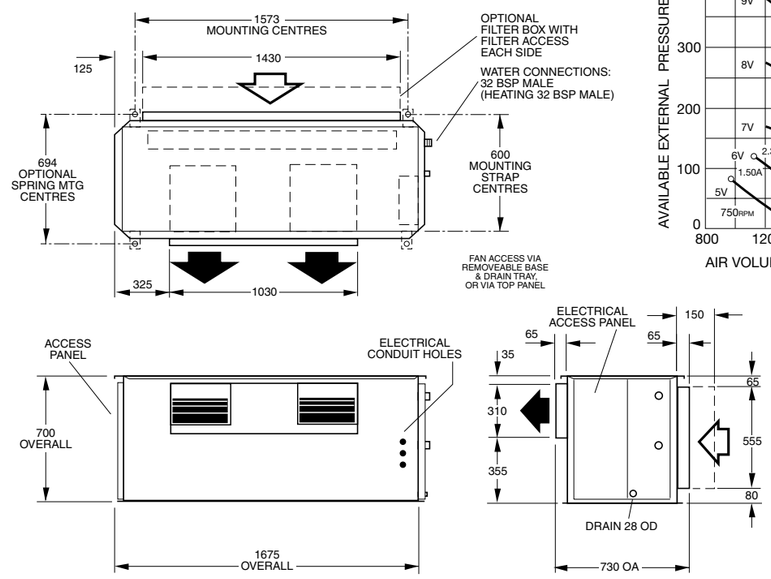
Sound Levels

Test Conditions
BS 848 PT2 1985. Intallation Type A (free inlet and outlet)
Direct method of measurement (reverberant room)
Measured in decibels re 1 picowatt, at maximum airflow

Supply Air Outlet

Fan Speed Volts	Sound Power SWL dB(A)	Octave Band Frequency Hz					
		125	250	500	1K	2K	4K
		Sound Power Levels (SWL) dB					
10	85	80	78	79	79	80	75
9	81	78	76	77	76	74	72
8	78	75	73	74	73	71	69
7	74	72	69	71	69	67	65
6	70	68	65	67	66	63	61
5	66	63	60	63	61	58	55

Dimensions



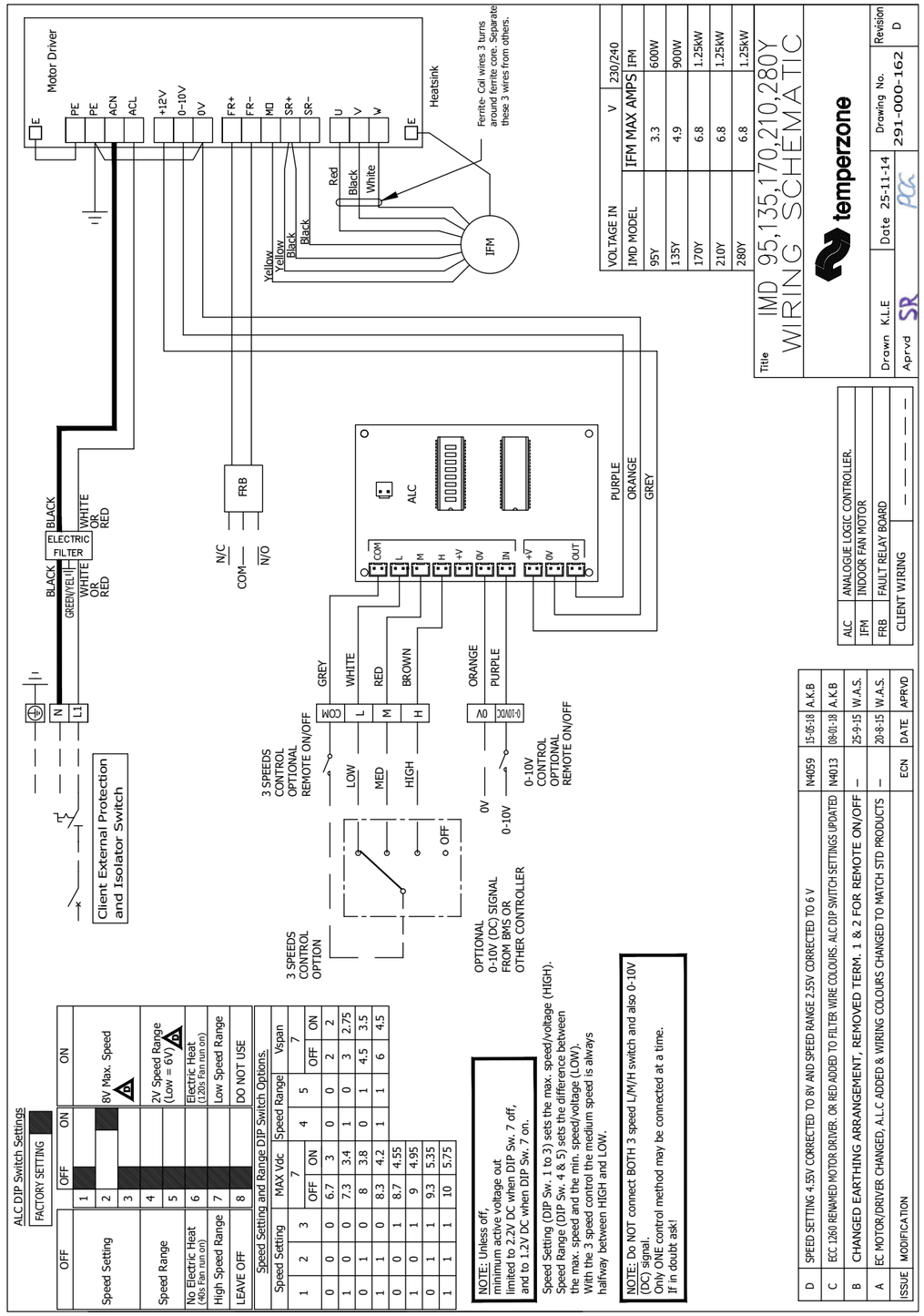
Air Handling

Note: Airflows are for dry coil. Reduce airflow by 10% in high moisture removal conditions.

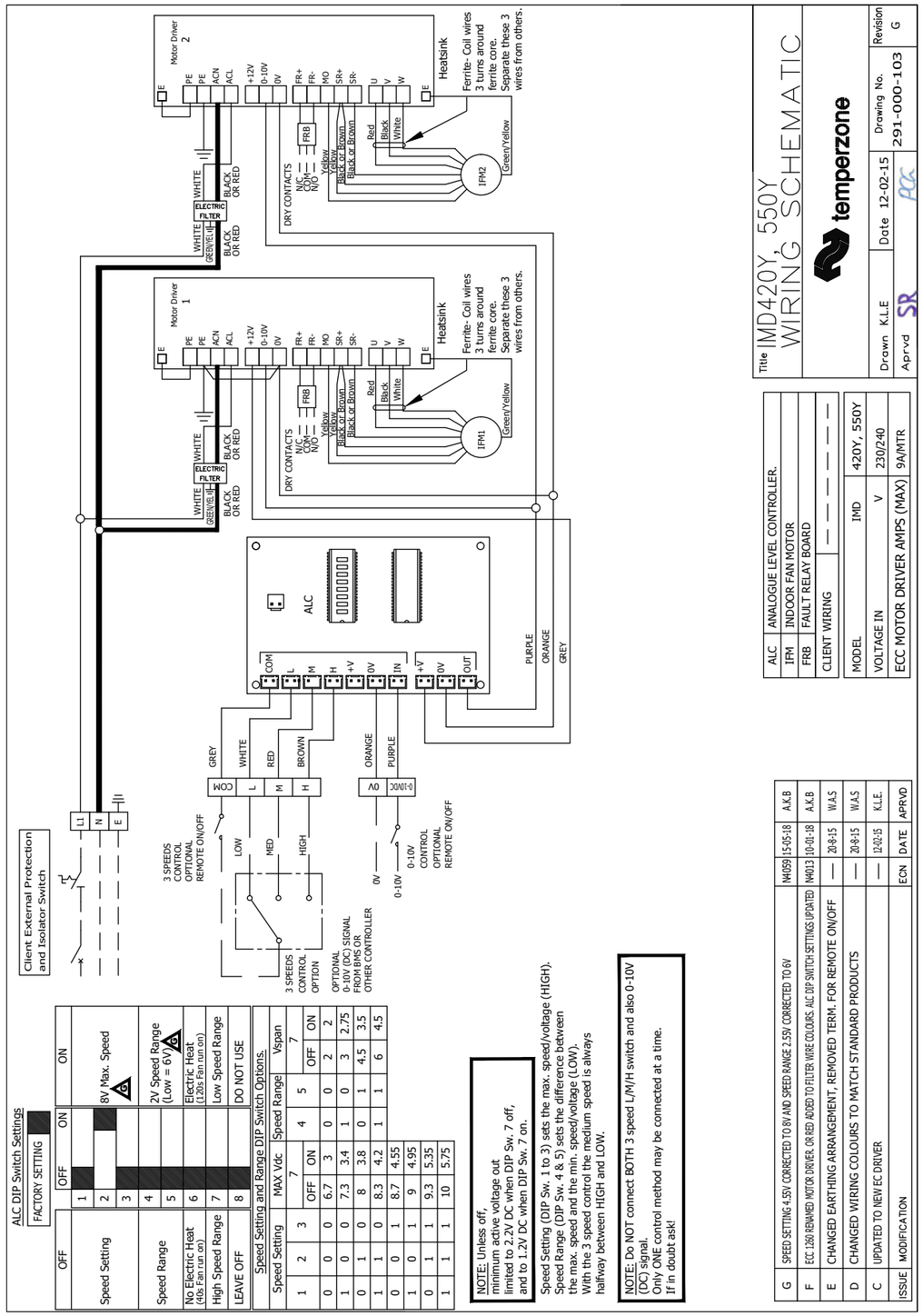
Airflows given are for IMD-Y units without filter installed.

Refer back page for filter pressure drop.

WIRING DIAGRAM: IMD 95Y – 280Y



WIRING DIAGRAM: IMD 420Y & 550Y



Title: IMD420Y, 550Y WIRING SCHEMATIC

temperzone

Drawn	K.L.E	Date	12-02-15	Drawing No.	291-000-103	Revision	G
Aprvd	SR						

ALC DIP Switch Settings

FACTORY SETTING

Speed Setting	1	2	3	4	5	6	7	8
	OFF	OFF	ON				ON	
Speed Range							8V Max. Speed	
Speed Range							2V Speed Range (Low = 6V)	
No Electric Heat (40s Fan run on)							Electric Heat (120s Fan run on)	
High Speed Range							Low Speed Range	
LEAVE OFF							DO NOT USE	

Speed Setting and Range DIP Switch Options.

Speed Setting			MAX Vdc	Speed Range		Vspan		
1	2	3	7	4	5	7		
			OFF ON			OFF	ON	
0	0	0	6.7 3	0	0	2	2	
1	0	0	7.3 3.4	1	0	3	2.75	
0	1	0	8 3.8	0	1	4.5	3.5	
1	1	0	8.3 4.2	1	1	6	4.5	
0	0	1	8.7 4.55					
1	0	1	9 4.95					
0	1	1	9.3 5.35					
1	1	1	10 5.75					

NOTE: Unless off, minimum active voltage out limited to 2.2V DC when DIP Sw. 7 off, and to 1.2V DC when DIP Sw. 7 on.

Speed Setting (DIP Sw. 1 to 3) sets the max. speed/voltage (HIGH). Speed Range (DIP Sw. 4 & 5) sets the difference between the max. speed and the min. speed/voltage (LOW). With the 3 speed control the medium speed is always halfway between HIGH and LOW.

NOTE: Do NOT connect BOTH 3 speed L/M/H switch and also 0-10V (DC) signal. Only ONE control method may be connected at a time. If in doubt ask!

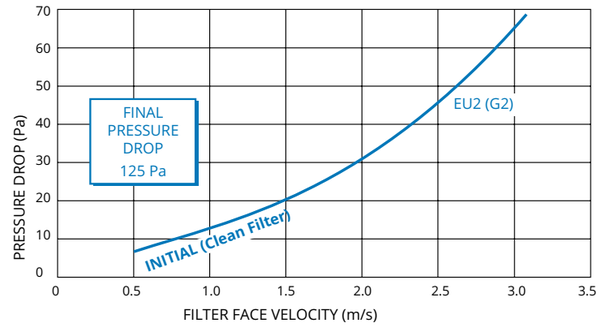
ALC	ANALOGUE LEVEL CONTROLLER.
1FM	INDOOR FAN MOTOR
FRB	FAULT RELAY BOARD
CLIENT WIRING	— — — — — —

MODEL	IMD	420Y, 550Y
VOLTAGE IN	V	230/240
ECC MOTOR DRIVER AMPS (MAX)		9A/MTR

ISSUE	MODIFICATION	ECN	DATE	APRVD
G	SPEED SETTING 4.55V CORRECTED TO 6V AND SPEED RANGE 2.55V CORRECTED TO 6V	N4059	15-05-18	A.K.B
F	ECC 1260 REMAMED MOTOR DRIVER, OR RED ADDED TO FILTER WIRE COLOURS. ALC DIP SWITCH SETTINGS UPDATED	N4013	10-01-18	A.K.B
E	CHANGED EARTHING ARRANGEMENT, REMOVED TERM. FOR REMOTE ON/OFF	—	20-8-15	W.A.S
D	CHANGED WIRING COLOURS TO MATCH STANDARD PRODUCTS	—	20-8-15	W.A.S
C	UPDATED TO NEW EC DRIVER	—	12-02-15	K.L.E.

Filter Pressure Drop

G2 / EU2 rated filter media (standard)



Note:
G2 / EU2 filters do not meet Australian standards so are not to be used in the Australian market. G4 / EU4 filters, that meet the Australian standard, are best located behind return air grilles or in the ducting to reduce the velocity and therefore resistance losses.

Filter Area :

IMD 95Y	0.163 m²	2.8 m/s
IMD 135Y	0.211 m²	2.9 m/s
IMD 170Y	0.259 m²	2.9 m/s
IMD 210Y	0.293 m²	3.1 m/s
IMD 280Y	0.408 m²	3.1 m/s
IMD 420Y	0.569 m²	3.2 m/s
IMD 550Y	0.771 m²	3.1 m/s

Suggested Specification

Furnish and install temperzone fan coil units as indicated on the schedule.

Base Unit The base unit shall be fabricated of galvanised steel and insulated with closed cell foam. The unit shall be complete with water coil, one or more centrifugal fans, condensate drain tray, enclosed electrical box, supply air duct spigot and return air duct spigot. Units shall have mounting holes on the top side for ease of installation. Spring mounts (optional) shall be available for mounting the unit.

Motor Motors shall be electronically commutated (EC) type with the option of stepped speed control or 0-100% variable capacity using a 0-10V dc signal supplied by BMS or sophisticated controller.*

Coils Coils shall be comprised of die formed plate type aluminium fins mechanically bonded to high efficiency seamless inner rifled copper tubing. Water connections shall be BSP male threaded. Cooling coils shall have a manual air vent.

Drain Tray Drain tray shall have an adjustment for inducing a positive drainage with the unit level. The tray shall project under the entire length and width of the coil including headers and return bends.

Filters Filters shall be removable, 13 mm thick, washable, rated EU2, and mounted in a plastic frame.

Insultation The base unit shall be insulated with closed cell foam to ensure no particles are introduced into the air stream. Insulation shall be foil faced and meet fire test standards AS 1530.3 (1989) and BS 476 parts 6 & 7.

Electric Heat Electric elements shall be fin-tube constructed of stainless steel and include both a manual and auto reset high temperature cutout switches as well as two contactors (as required by AS/NZS 3350.2.40 1997). Additional safety protection shall be provided by an air pressure switch and circuit breaker control. A fan run-on timer shall be provided for heat dissipation.

* The fan/motor may also be set to a single predetermined speed using a potentiometer.

Note: The manufacturer reserves the right to change specifications at any time without notice or obligation.

temperzone

REGISTERED AS/NZS **ISO 9001:** 2008 SUPPLIER

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manufactured and distributed by:
temperzone limited
Head Office, Auckland : 38 Tidal Rd, Mangere, N.Z.
Private Bag 93303, Otahuhu, NEW ZEALAND.
Email sales@temperzone.co.nz Website: www.temperzone.co.nz

temperzone australia pty ltd
Head Office, Sydney : 14 Carnegie Pl.
PO Box 6448, Delivery Centre, Blacktown, NSW 2148,
AUSTRALIA.
Email sales@temperzone.com.au Website: www.temperzone.com.au

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