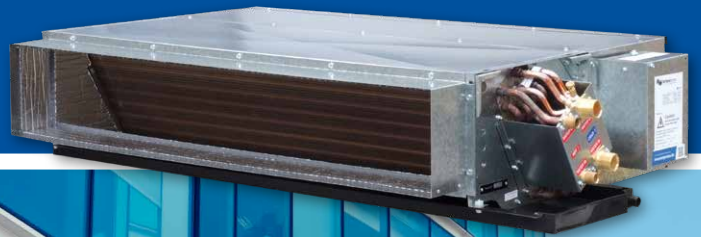


EC Motor Fan Coil Units

IMDL-Y Series

100 – 700 l/s





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. The original RCMC units were superseded in the mid 1980's with a new breed of RCMC which were then superseded in the late 1990's with the IMDL range.

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 IMDL "Y" version with high efficiency 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 by dip switch selection in multi-speed or variable voltage signal.

By utilising the EC motor technology it is no longer necessary to have the 'S', 'M' and 'H' models, one model size suits all with the required speed range selected by dip switches



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.

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 fan coil units, varying air volume results in greater efficiency.

Controls

The new EC motor version IMDL 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 be able 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.**

If electric heat fitted, minimum voltage is 4V. Check this doesn't effect your minimum sound criteria.

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 Systems (BMS) and it is most 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.

Specification

Model	IMDL 40Y	IMDL 60Y	IMDL 90Y	IMDL 130Y
Nominal Air Flow High Speed @ 60 Pa external static (l/s) *	200	325	400	700
Fan type	forward curved centrifugal double inlet double width			
No. of fan scrolls	1	2	2	3
Motor type	Electronically Commutated (EC) DC direct drive			
Power Source **	1 Phase 230 VoltAC 50 Hz			
No. of motors	1	1	1	2
Motor Rating (W)	182	243	243	182 + 243
Full Load Amps (A)	1.4	1.8	1.8	1.4 + 1.8 (3.2)
Electric Heating (kW) ***	1.5	2.0	3.0	4.0
Max. Current with Electric Heat (A)	6.5	8.7	13.0	17.4
Heat Exchanger type	aluminium corrugated plate fins to expanded rifled copper tube			
Cooling/Heating Medium	chilled water or hot water			
Coil Rows Options	3 rows cooling + 1 row heating or 4 rows cooling or 4 rows cooling + electric heat			
Finish	zinc galvanised steel			
Test Pressure	2100 kPa			
Connection Sizes Cooling Coil (mm)	20 BSP Male (3/4")		25 BSP Male (1")	
Connection Sizes Heating Coil (mm)	15 BSP Male (1/2")			
Air Filter Type	washable G2 / EU2 (supplied Standard)			
No. of Air Filters	1	1	1	2
Air Filter Size (mm)	545 x 234 x 13	795 x 234 x 13	1045 x 243 x 13	725 x 243 x 13
Static to allow for Air Filter (Clean) at Nominal Air Flow (Pa)	21	24	29	30
Static to allow for wet surface coil (Pa)	16	18	13	14
Weight (3/1 row, incl. water) (kg)	25	34	46	67
Nett Weight (excl. water) (kg)	24	32	42	62
Shipping Weight approx. (kg)	25	34	45	65

Notes: -

* With no filters fitted and with a dry coil surface

** Voltage fluctuation limits 200 - 252 V

*** Option Only - Solid state relay control for variable capacity.

Summary of Choices

Size	40 / 60 / 90 / 130
Cooling and Heating Coil Configurations	3 Rows Cooling + 1 Row Heating
	4 Rows Cooling
	4 Rows Cooling + Electric Heating
Fan Run On Timer	EC motor driver has in built run on timer for all models 40sec. approx. and selectable to 120sec. when fitting electric heating.
Multi S/A Spigot	Optional Extra
Handing	Right (Standard) / Left

IMDL 40Y

Cooling Capacity kW

Entering Air Temperature 23.0°C db 17.0°C wb

Nominal Air Flow 200 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
3	0.12	7.6	3.3	2.3	3.0	2.3	2.8	2.2	2.5	2.1	2.3	2.0
	0.19	17.6	3.9	2.6	3.6	2.5	3.3	2.4	3.0	2.2	2.7	2.1
	0.26	30.0	4.3	2.8	3.9	2.6	3.6	2.5	3.3	2.4	2.9	2.2
4	0.15	6.6	4.2	2.7	3.9	2.6	3.6	2.5	3.3	2.4	3.0	2.2
	0.25	16.3	4.9	3.0	4.6	2.9	4.2	2.7	3.9	2.6	3.5	2.4
	0.35	30.0	5.3	3.2	4.9	3.0	4.6	2.9	4.2	2.7	3.7	2.5

Entering Air Temperature 23.0°C db 17.0°C wb

Air Flow 170 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
3	0.12	7.6	3.1	2.1	2.9	2.0	2.6	1.9	2.4	1.9	2.1	1.8
	0.19	17.6	3.6	2.3	3.3	2.2	3.0	2.1	2.8	2.0	2.5	1.9
	0.26	30.0	3.9	2.5	3.6	2.3	3.3	2.2	3.0	2.1	2.7	2.0
4	0.15	6.6	3.9	2.5	3.6	2.3	3.3	2.2	3.0	2.1	2.7	2.0
	0.25	16.3	4.4	2.7	4.1	2.6	3.8	2.4	3.5	2.3	3.1	2.2
	0.35	30.0	4.7	2.8	4.4	2.7	4.1	2.5	3.7	2.4	3.3	2.3

Entering Air Temperature 23.0°C db 17.0°C wb

Air Flow 150 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
3	0.12	7.6	2.9	1.9	2.7	1.9	2.5	1.8	2.2	1.7	2.0	1.6
	0.19	17.6	3.3	2.1	3.1	2.0	2.8	1.9	2.5	1.8	2.3	1.7
	0.26	30.0	3.5	2.2	3.3	2.1	3.0	2.0	2.7	1.9	2.5	1.8
4	0.15	6.6	3.6	2.2	3.3	2.1	3.1	2.0	2.8	1.9	2.5	1.8
	0.25	16.3	4.0	2.4	3.7	2.3	3.4	2.2	3.1	2.0	2.8	1.9
	0.35	30.0	4.2	2.5	3.9	2.4	3.6	2.2	3.3	2.1	3.0	2.0

Heating Capacity

Entering Air Temperature 21.0°C db

Electric Heating Option 1.5 kW

Nominal Air Flow 200 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	0.04	6.4	1.3	1.6	2.0	2.3	2.6	3.0	3.3	3.7	4.0	
	0.07	17.4	1.5	1.9	2.3	2.7	3.1	3.5	3.8	4.2	4.6	
	0.10	33.0	1.6	2.0	2.4	2.9	3.3	3.7	4.1	4.5	5.0	

Entering Air Temperature 21.0°C db

Air Flow 170 l/s

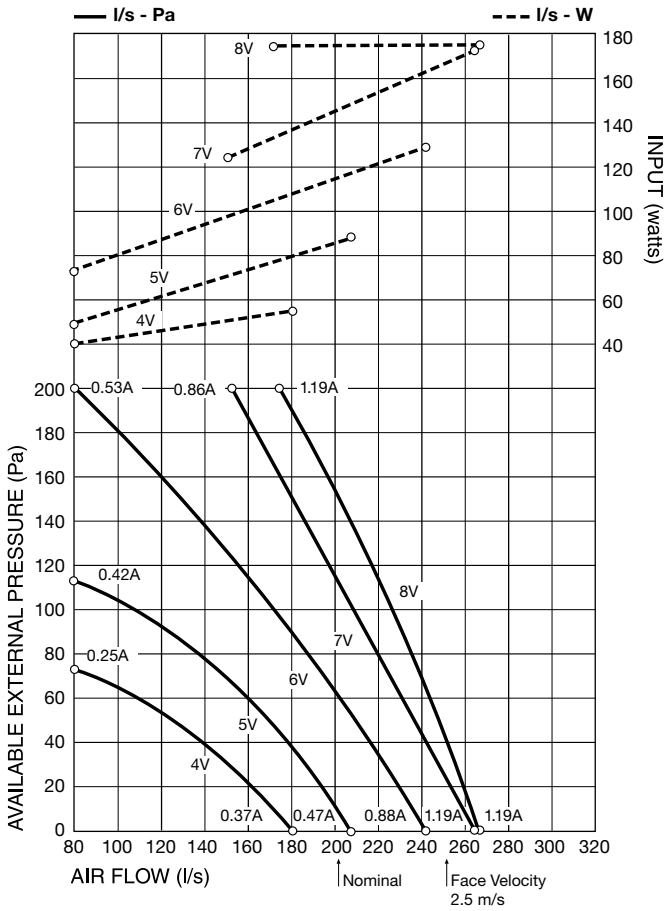
Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C									
			40	45	50	55	60	65	70	75	80	
1	0.04	6.4	1.2	1.5	1.8	2.1	2.5	2.8	3.1	3.4	3.7	
	0.07	17.4	1.4	1.7	2.1	2.5	2.8	3.2	3.6	3.9	4.3	
	0.10	33.0	1.5	1.9	2.3	2.6	3.0	3.4	3.8	4.2	4.6	

Entering Air Temperature 21.0°C db

Air Flow 150 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	0.04	6.4	1.2	1.5	1.8	2.1	2.4	2.6	2.9	3.2	3.5	
	0.07	17.4	1.3	1.6	2.0	2.3	2.7	3.0	3.4	3.7	4.0	
	0.10	33.0	1.4	1.7	2.1	2.5	2.8	3.2	3.6	3.9	4.3	

IMDL 40Y Air Handling



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

Air flows given are for IMDL-Y units without filter installed.

Refer page 18 for filter pressure drop.

Units with Electric Heat: Minimum fan speed 4V

Test Conditions: BS 848 PT2 1985

Installation Type A (free inlet and outlet)

Direct method of measurement (reverberant room)

Measured in decibels re 1 picowatt

Sound Levels

Return Air Inlet + Case Breakout

Vdc	Sound Power SWL dB(A)	Octave Band Frequency Hz					
		125	250	500	1K	2K	4K
Sound Power Levels (SWL) dB							
10	66	62	67	64	59	57	55
7	66	63	67	63	59	57	55
6*	63	62	65	61	57	54	52
5	60	58	61	57	55	50	48
4	56	55	59	54	51	46	43
3	50	49	52	49	45	40	35
2.2	44	48	47	43	38	32	26

Supply Air Outlet

Vdc	Sound Power SWL dB(A)	Octave Band Frequency Hz					
		125	250	500	1K	2K	4K
Sound Power Levels (SWL) dB							
10	68	67	66	64	62	63	57
7	68	66	65	64	62	63	56
6*	65	64	63	61	60	60	54
5	62	61	59	57	57	56	49
4	58	57	56	54	53	52	45
3	52	53	51	48	48	46	37
2.2	46	50	48	43	41	39	30

*Nominal

IMDL 60Y

Cooling Capacity kW

Entering Air Temperature 23.0°C db 17.0°C wb

Nominal Air Flow 330 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
3	0.11	8.2	4.4	3.4	4.0	3.3	3.7	3.2	3.3	3.1	3.0	2.9
	0.17	18.1	5.4	3.8	5.0	3.7	4.6	3.5	4.1	3.3	3.7	3.2
	0.23	30.6	6.0	4.1	5.6	3.9	5.1	3.7	4.6	3.5	4.1	3.4
4	0.15	8.5	5.9	4.0	5.4	3.9	5.0	3.7	4.6	3.5	4.1	3.4
	0.22	17.1	7.0	4.5	6.4	4.2	5.9	4.0	5.4	3.8	4.9	3.6
	0.30	29.4	7.7	4.8	7.1	4.5	6.6	4.3	6.0	4.1	5.4	3.8

Entering Air Temperature 23.0°C db 17.0°C wb

Air Flow 300 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
3	0.11	8.2	4.2	3.2	3.9	3.1	3.6	3.0	3.2	2.9	2.9	2.8
	0.17	18.1	5.2	3.6	4.8	3.4	4.4	3.3	4.0	3.1	3.5	3.0
	0.23	30.6	5.7	3.8	5.3	3.7	4.9	3.5	4.4	3.3	3.9	3.1
4	0.15	8.5	5.6	3.8	5.2	3.6	4.8	3.5	4.4	3.3	4.0	3.1
	0.22	17.1	6.6	4.2	6.1	4.0	5.6	3.8	5.1	3.6	4.6	3.4
	0.30	29.4	7.2	4.4	6.7	4.2	6.2	4.0	5.7	3.8	5.1	3.6

Entering Air Temperature 23.0°C db 17.0°C wb

Air Flow 250 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
3	0.11	8.2	4.0	2.9	3.7	2.8	3.4	2.7	3.1	2.6	2.8	2.5
	0.17	18.1	4.8	3.3	4.5	3.1	4.0	3.0	3.7	2.8	3.3	2.7
	0.23	30.6	5.3	3.5	4.9	3.3	4.5	3.1	4.1	3.0	3.6	2.8
4	0.15	8.5	5.3	3.4	4.9	3.3	4.5	3.1	4.1	3.0	3.7	2.8
	0.22	17.1	6.0	3.8	5.6	3.6	5.2	3.4	4.7	3.2	4.3	3.0
	0.30	29.4	6.5	4.0	6.1	3.8	5.6	3.6	5.1	3.4	4.6	3.2

Heating Capacity

Entering Air Temperature 21.0°C db

Electric Heating Option 2.0 kW

Nominal Air Flow 330 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	0.04	8.1	1.8	2.3	2.8	3.2	3.7	4.2	4.7	5.2	5.7	
	0.06	16.8	2.1	2.6	3.2	3.7	4.3	4.8	5.3	5.9	6.4	
	0.08	28.1	2.2	2.8	3.4	4.0	4.6	5.2	5.7	6.3	6.9	

Entering Air Temperature 21.0°C db

Air Flow 300 l/s

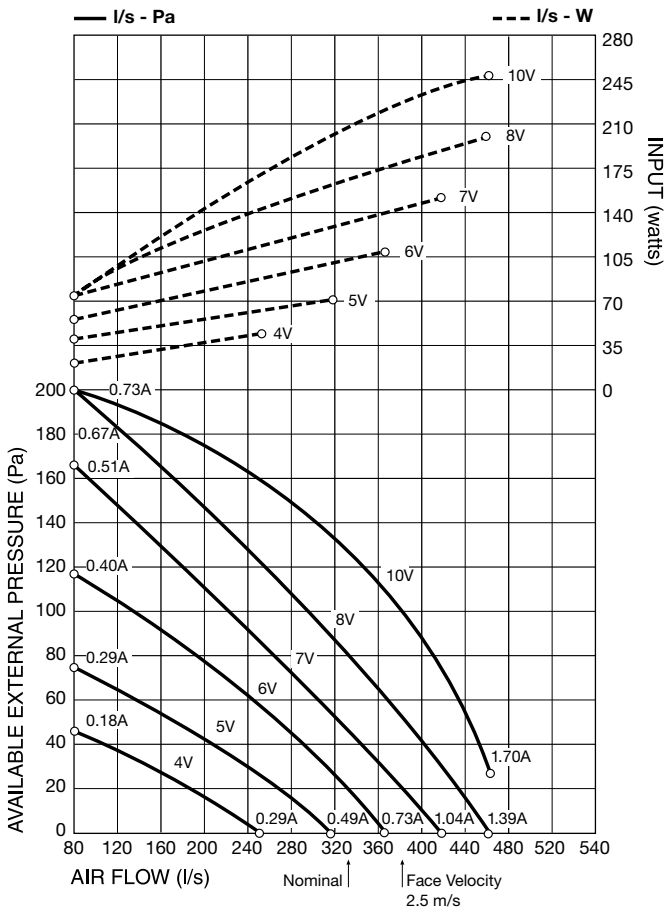
Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C									
			40	45	50	55	60	65	70	75	80	
1	0.04	8.1	1.7	2.2	2.7	3.1	3.6	4.1	4.5	5.0	5.4	
	0.06	16.8	2.0	2.5	3.0	3.6	4.1	4.6	5.1	5.7	6.2	
	0.08	28.1	2.2	2.7	3.3	3.9	4.4	5.0	5.6	6.1	6.7	

Entering Air Temperature 21.0°C db

Air Flow 250 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	0.04	8.1	1.6	2.1	2.5	2.9	3.4	3.8	4.2	4.7	5.1	
	0.06	16.8	1.9	2.4	2.8	3.3	3.8	4.3	4.8	5.3	5.8	
	0.08	28.1	2.0	2.5	3.1	3.6	4.1	4.6	5.1	5.7	6.2	

IMDL 60Y Air Handling



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

Air flows given are for IMDL-Y units without filter installed.

Refer page 18 for filter pressure drop.

Units with Electric Heat: Minimum fan speed 4V

Test Conditions: BS 848 PT2 1985

Installation Type A (free inlet and outlet)

Direct method of measurement (reverberant room)

Measured in decibels re 1 picowatt

Sound Levels

Return Air Inlet + Case Breakout

Vdc	Sound Power SWL dB(A)	Octave Band Frequency Hz					
		125	250	500	1K	2K	4K
10	65	67	68	63	59	56	52
8	63	64	66	61	58	54	49
7*	61	62	63	59	55	51	47
6	58	60	61	56	52	48	43
5	54	56	56	53	48	44	38
4	50	52	53	50	43	39	31
3	46	49	50	45	39	35	27
2.2	44	51	48	42	37	31	24

Supply Air Outlet

Vdc	Sound Power SWL dB(A)	Octave Band Frequency Hz					
		125	250	500	1K	2K	4K
10	67	67	64	64	62	59	54
8	64	65	62	61	60	57	51
7*	62	63	60	59	57	54	48
6	58	60	57	56	54	51	45
5	56	57	54	54	51	47	40
4	51	53	50	50	45	43	33
3	45	48	49	43	38	35	25
2.2	44	53	46	41	36	33	25

*Nominal

IMDL 90Y

Cooling Capacity kW

Entering Air Temperature 23.0°C db 17.0°C wb

Nominal Air Flow 400 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
3	0.25	9.9	7.0	5.2	6.5	4.9	6.0	4.7	5.4	4.5	4.9	4.3
	0.35	18.1	7.9	5.5	7.2	5.2	6.6	5.0	6.0	4.7	5.4	4.5
	0.45	28.5	8.4	5.7	7.8	5.5	7.2	5.2	6.6	5.0	5.9	4.7
4	0.30	8.2	8.3	5.9	7.7	5.6	7.0	5.4	6.4	5.1	5.8	4.9
	0.45	16.7	9.4	6.4	8.6	6.1	8.0	5.8	7.2	5.4	6.5	5.1
	0.60	28.5	9.9	6.7	9.2	6.3	8.5	6.0	7.7	5.7	5.9	5.3

Entering Air Temperature 23.0°C db 17.0°C wb

Air Flow 350 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
3	0.25	9.9	6.6	4.7	6.1	4.5	5.6	4.3	5.1	4.1	4.6	3.9
	0.35	18.1	7.4	5.1	6.8	4.8	6.3	4.6	5.6	4.3	5.1	4.1
	0.45	28.5	7.9	5.3	7.3	5.0	6.7	4.8	6.0	4.5	5.4	4.2
4	0.30	8.2	7.8	5.4	7.2	5.2	6.7	5.0	6.0	4.7	5.4	4.4
	0.45	16.7	8.6	5.8	8.0	5.5	7.3	5.2	6.7	5.0	6.0	4.7
	0.60	28.5	9.2	6.1	8.5	5.8	7.8	5.4	7.1	5.1	6.4	4.8

Entering Air Temperature 23.0°C db 17.0°C wb

Air Flow 290 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
3	0.25	9.9	6.0	4.2	5.6	4.0	5.1	3.8	4.7	3.6	4.2	3.4
	0.35	18.1	6.6	4.5	6.1	4.2	5.6	4.0	5.1	3.8	4.6	3.6
	0.45	28.5	7.0	4.6	6.5	4.4	5.9	4.2	5.4	3.9	4.9	3.7
4	0.30	8.2	7.1	4.8	6.5	4.6	6.0	4.3	5.5	4.1	4.9	3.8
	0.45	16.7	7.7	5.1	7.1	4.8	6.5	4.6	5.9	4.3	5.4	4.1
	0.60	28.5	8.1	5.3	7.5	5.0	6.9	4.7	6.3	4.4	5.6	4.2

Heating Capacity

Entering Air Temperature 21.0°C db

Electric Heating Option 3.0 kW

Nominal Air Flow 400 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	0.10	10.3	3.3	4.2	5.0	5.9	6.8	7.7	8.6	9.4	10.3	
	0.14	18.8	3.6	4.5	5.5	6.5	7.4	8.4	9.3	10.3	11.2	
	0.18	29.4	3.8	4.7	5.7	6.7	7.6	8.6	9.6	10.6	11.6	

Entering Air Temperature 21.0°C db

Air Flow 350 l/s

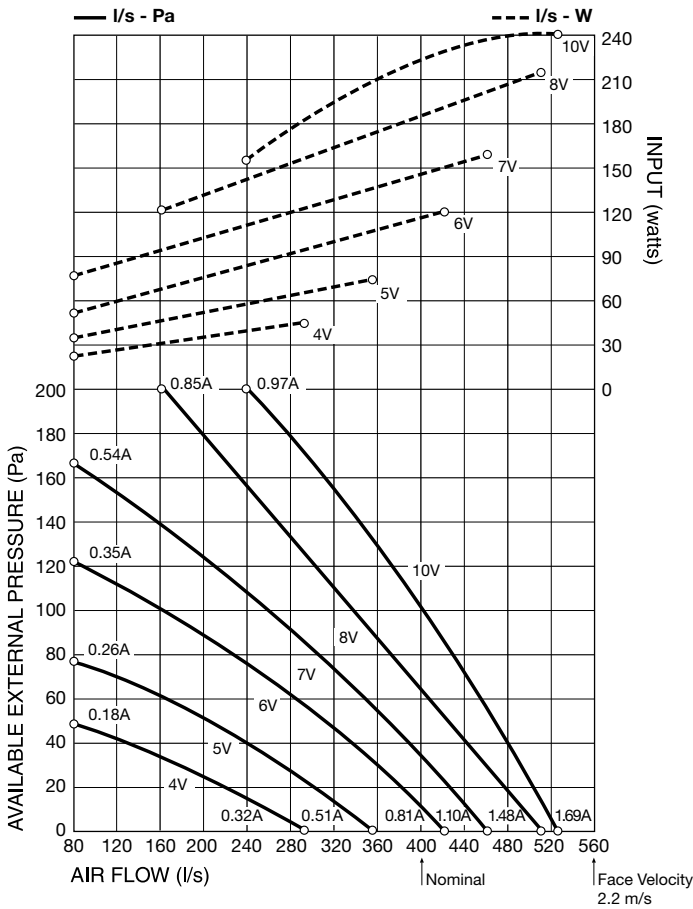
Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C									
			40	45	50	55	60	65	70	75	80	
1	0.10	10.3	3.1	4.0	4.8	5.6	6.4	7.3	8.1	8.9	9.7	
	0.14	18.8	3.4	4.3	5.1	6.0	6.9	7.8	8.7	9.6	10.4	
	0.18	29.4	3.6	4.5	5.4	6.4	7.3	8.2	9.2	10.1	11.0	

Entering Air Temperature 21.0°C db

Air Flow 290 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	0.10	10.3	2.8	3.6	4.4	5.1	5.9	6.6	7.4	8.1	8.9	
	0.14	18.8	3.1	3.9	4.7	5.5	6.3	7.1	7.9	8.7	9.5	
	0.18	29.4	3.2	4.1	4.9	5.7	6.6	7.4	8.2	9.1	10.0	

IMDL 90Y Air Handling



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

Air flows given are for IMDL-Y units without filter installed.

Refer page 18 for filter pressure drop.

Units with Electric Heat: Minimum fan speed 4V

Test Conditions: BS 848 PT2 1985

Installation Type A (free inlet and outlet)

Direct method of measurement (reverberant room)

Measured in decibels re 1 picowatt

Sound Levels

Return Air Inlet + Case Breakout

Vdc	Sound Power SWL dB(A)	Octave Band Frequency Hz					
		125	250	500	1K	2K	4K
10*	65	67	68	63	59	56	52
8	63	64	66	61	58	54	49
7	61	62	63	59	55	51	47
6	58	60	61	56	52	48	43
5	54	56	56	53	48	44	38
4	50	52	53	50	43	39	31
3	46	49	50	45	39	35	27
2.2	44	51	48	42	37	31	24

Supply Air Outlet

Vdc	Sound Power SWL dB(A)	Octave Band Frequency Hz					
		125	250	500	1K	2K	4K
10*	67	67	64	64	62	59	54
8	64	65	62	61	60	57	51
7	62	63	60	59	57	54	48
6	58	60	57	56	54	51	45
5	56	57	54	54	51	47	40
4	51	53	50	50	45	43	33
3	45	48	49	43	38	35	25
2.2	44	53	46	41	36	33	25

*Nominal

IMDL 130Y

Cooling Capacity kW

Entering Air Temperature 23.0°C db 17.0°C wb

Nominal Air Flow 650 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
3	0.20	8.5	8.5	7.1	7.9	6.9	7.2	6.6	6.7	6.4	6.1	6.1
	0.30	17.6	10.3	7.8	9.5	7.5	8.8	7.2	8.0	6.9	7.2	6.6
	0.40	29.5	11.6	8.4	10.7	8.0	9.9	7.7	9.0	7.3	8.1	6.9
4	0.30	10.5	11.4	8.7	10.6	8.3	9.7	8.0	8.9	7.6	8.0	7.3
	0.40	17.6	12.9	9.3	12.0	8.9	10.9	8.5	9.9	8.1	8.9	7.7
	0.50	26.3	13.9	9.8	12.8	9.3	11.8	8.9	10.7	8.5	9.7	8.0

Entering Air Temperature 23.0°C db 17.0°C wb

Air Flow 525 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
3	0.20	8.5	8.0	6.3	7.4	6.0	6.8	5.8	6.2	5.6	5.6	5.3
	0.30	17.6	9.5	6.9	8.7	6.6	8.0	6.3	7.3	6.0	6.6	5.7
	0.40	29.5	10.5	7.3	9.7	7.0	8.9	6.7	8.1	6.3	7.4	6.0
4	0.30	10.5	10.5	7.6	9.7	7.3	8.9	7.0	8.2	6.7	7.4	6.3
	0.40	17.6	11.6	8.1	10.8	7.7	10.0	7.4	9.0	7.0	8.1	6.6
	0.50	26.3	12.4	8.5	11.5	8.1	10.5	7.6	9.6	7.2	8.6	6.8

Entering Air Temperature 23.0°C db 17.0°C wb

Air Flow 425 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
3	0.20	8.5	7.4	5.6	6.9	5.3	6.3	5.1	5.8	4.8	5.2	4.6
	0.30	17.6	8.6	6.1	8.0	5.8	7.3	5.5	6.6	5.2	6.0	5.0
	0.40	29.5	9.4	6.4	8.7	6.1	8.0	5.8	7.3	5.5	6.5	5.2
4	0.30	10.5	9.5	6.7	8.8	6.4	8.1	6.1	7.4	5.7	6.7	5.4
	0.40	17.6	10.4	7.0	9.6	6.7	8.9	6.4	8.0	6.0	7.3	5.7
	0.50	26.3	10.9	7.3	10.1	6.9	9.3	6.6	8.5	6.2	7.7	5.9

Heating Capacity

Entering Air Temperature 21.0°C db

Electric Heating Option 4.0 kW

Nominal Air Flow 650 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	9.0	4.1	5.2	6.3	7.3	8.4	9.5	10.6	11.7	12.7	
	0.12	18.4	4.8	6.1	7.4	8.7	9.9	11.2	12.5	13.8	15.0	
	0.16	30.8	5.3	6.7	8.1	9.5	10.9	13.3	13.7	15.1	16.5	

Entering Air Temperature 21.0°C db

Air Flow 525 l/s

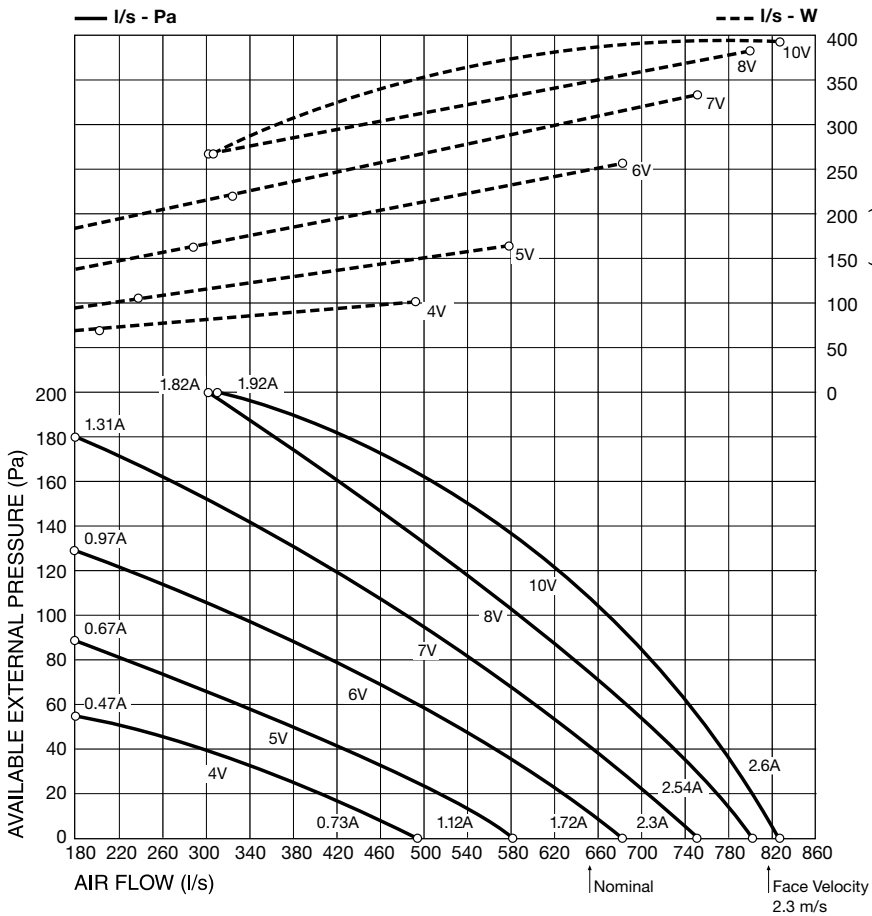
Coil Rows	Water Flow l/s	Water Pressure Drop kPa	Entering Water Temperature °C									
			40	45	50	55	60	65	70	75	80	
1	0.08	9.0	3.8	4.9	5.8	6.9	7.9	8.9	9.9	10.9	11.9	
	0.12	18.4	4.4	5.6	6.8	7.9	9.1	10.2	11.4	12.6	13.7	
	0.16	30.8	4.8	6.1	7.3	8.6	9.9	11.2	12.4	13.7	15.0	

Entering Air Temperature 21.0°C db

Air Flow 425 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	9.0	3.5	4.5	5.4	6.3	7.3	8.2	9.1	10.1	11.0	
	0.12	18.4	4.0	5.1	6.2	7.2	8.3	9.4	10.4	11.5	12.5	
	0.16	30.8	4.3	5.4	6.6	7.7	8.8	10.0	11.1	12.2	13.4	

IMDL 130Y Air Handling



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

Air flows given are for IMDL-Y units without filter installed.

Refer page 18 for filter pressure drop.

Units with Electric Heat: Minimum fan speed 4V

Test Conditions: BS 848 PT2 1985
Installation Type A (free inlet and outlet)
Direct method of measurement (reverberant room)
Measured in decibels re 1 picowatt

Sound Levels

Return Air Inlet + Case Breakout

Vdc	Sound Power SWL dB(A)	Octave Band Frequency Hz					
		125	250	500	1K	2K	4K
10	68	67	70	66	62	60	57
8*	67	66	69	65	60	59	56
7	67	66	69	64	60	58	56
6	64	63	66	61	57	55	53
5	61	60	63	58	55	52	50
4	57	57	60	55	51	48	45
3	52	52	54	50	46	42	38
2.2	46	50	50	44	38	34	29

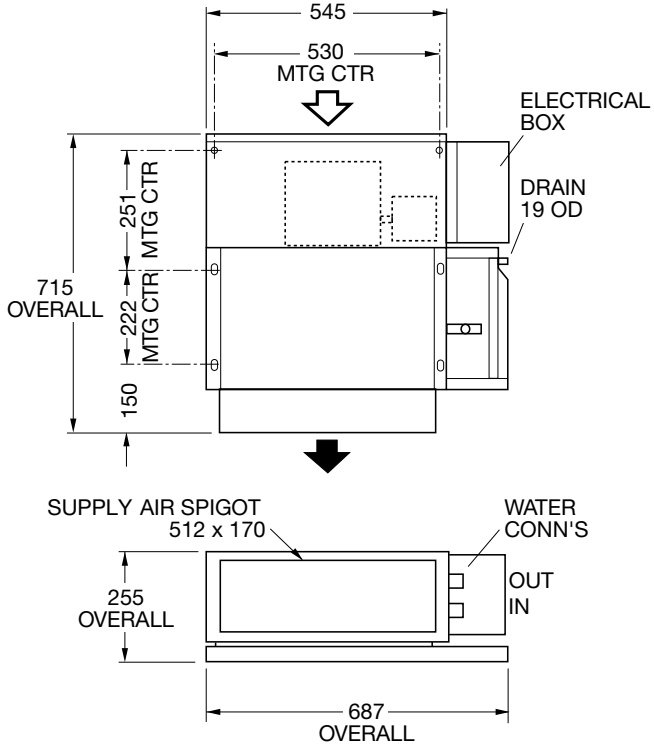
Supply Air Outlet

Vdc	Sound Power SWL dB(A)	Octave Band Frequency Hz					
		125	250	500	1K	2K	4K
10	71	69	68	66	66	65	58
8*	70	68	66	66	65	64	58
7	69	67	66	65	64	64	57
6	67	64	63	62	62	61	54
5	64	61	60	59	59	58	50
4	60	58	57	55	55	54	46
3	54	58	53	50	49	48	38
2.2	48	52	50	45	43	40	30

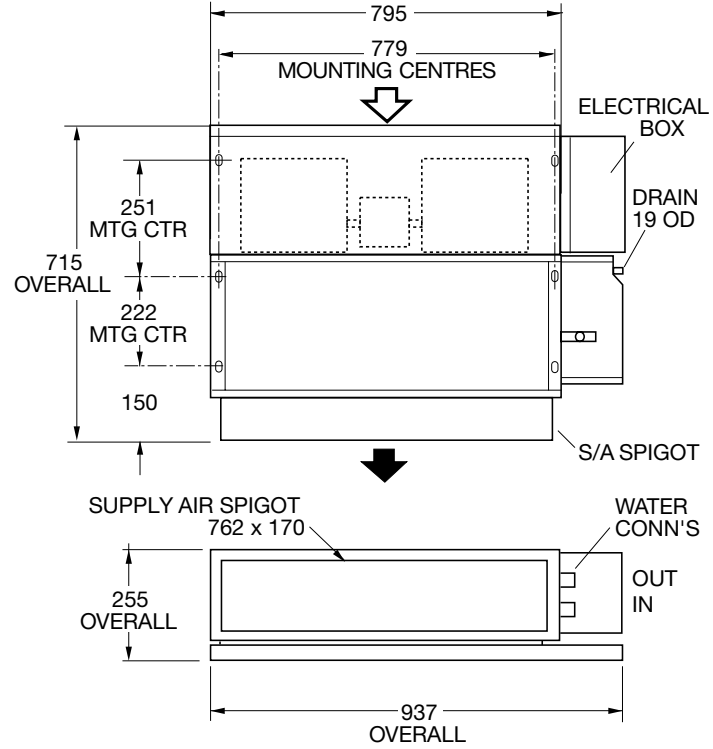
*Nominal

DIMENSIONS (mm) - Right hand models shown (not to scale)

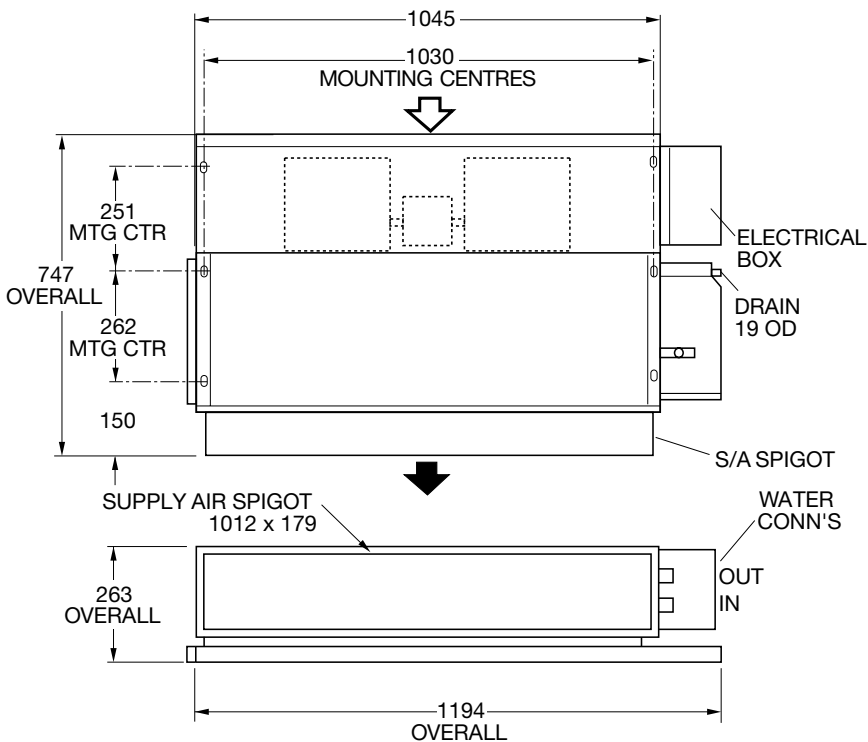
IMDL 40Y



IMDL 60Y

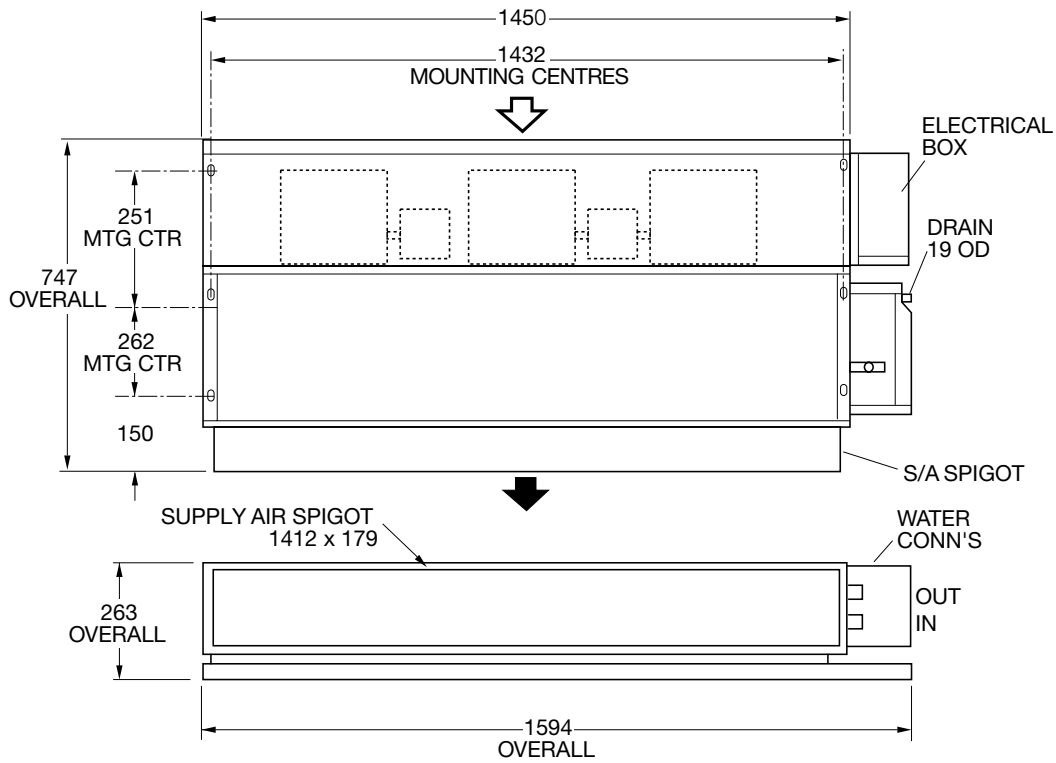


IMDL 90Y

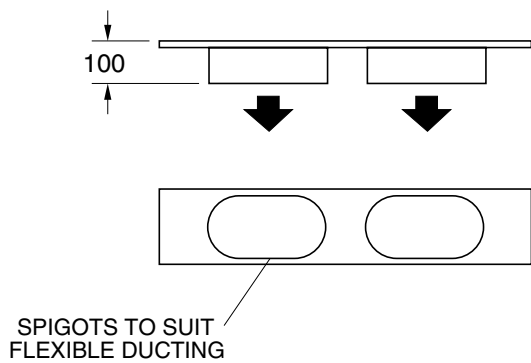


Water Connections		
IMDL	Cooling	Heating
40Y	20 BSP Male (3/4")	13 BSP Male (1/2")
60Y	20 BSP Male (3/4")	13 BSP Male (1/2")
90Y	25 BSP Male (1")	13 BSP Male (1/2")
130Y	25 BSP Male (1")	13 BSP Male (1/2")

IMDL 130Y

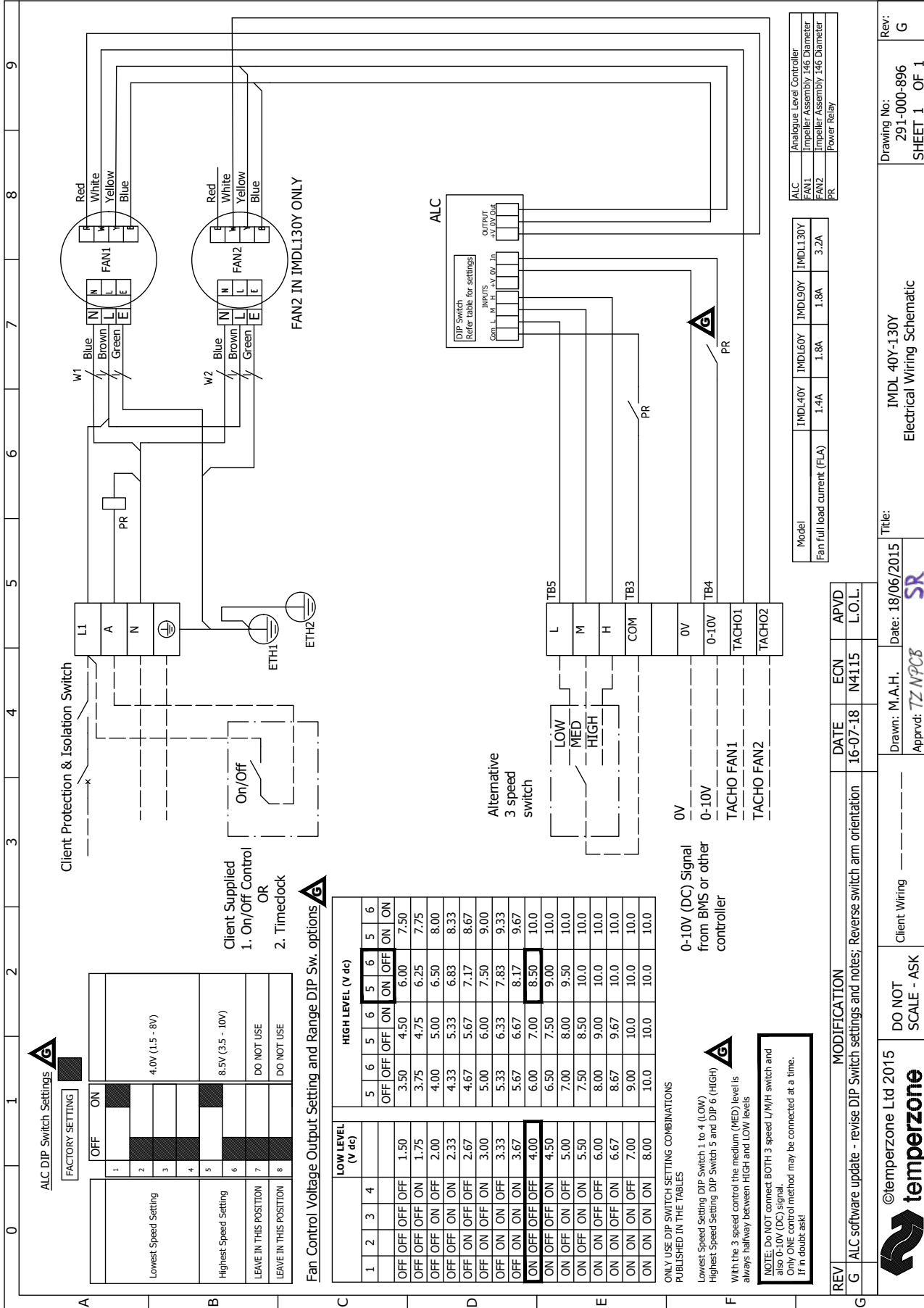


OPTIONAL SUPPLY AIR SPIGOTS

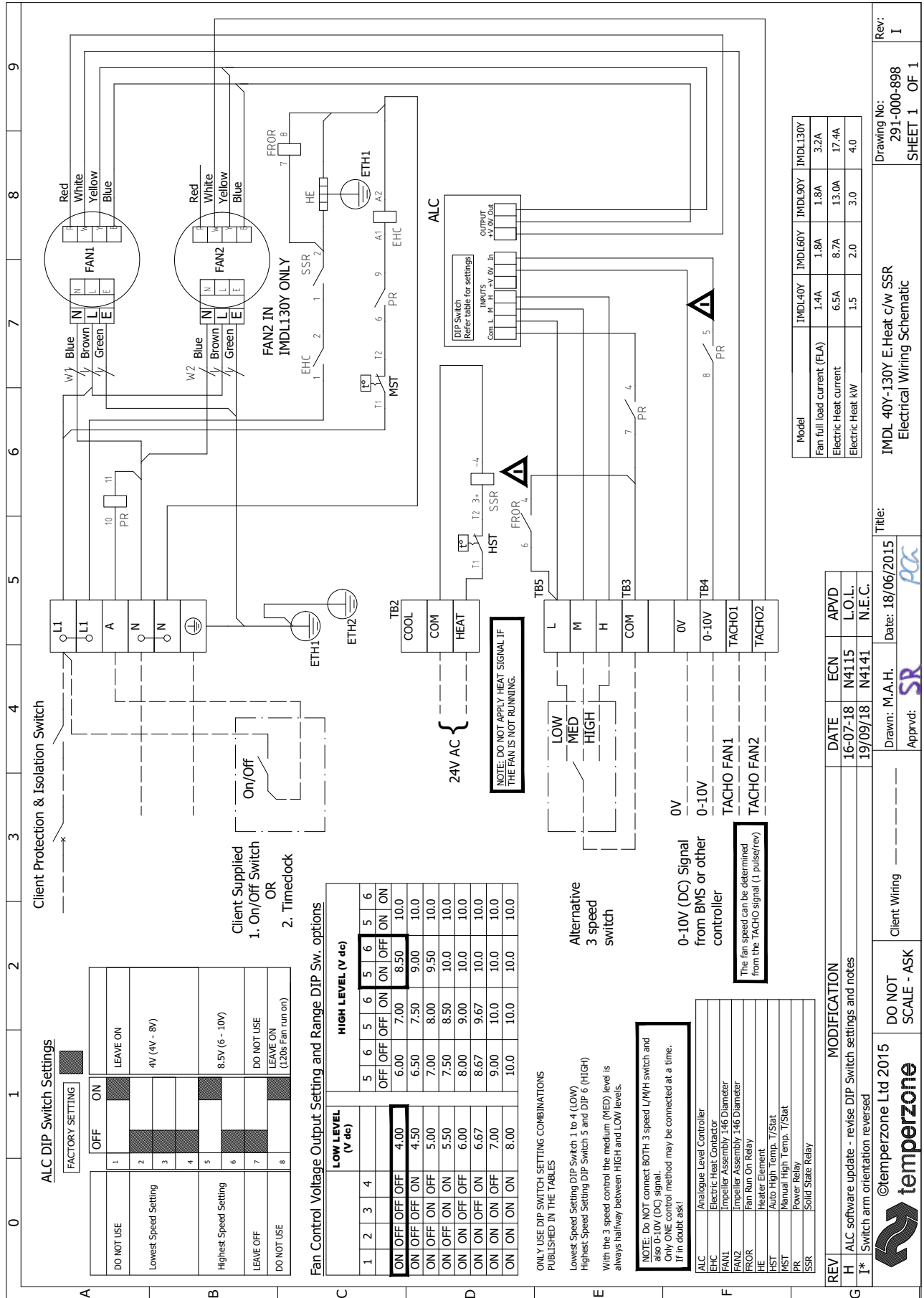


Model	Spigots
IMDL 40Y	200 dia (x2)
IMDL 60Y	250 dia (x2)
IMDL 90Y	250 dia (x3)
IMDL 130Y	250 dia (x4)

WIRING DIAGRAM: IMDL 40Y-130Y



WIRING DIAGRAM: IMDL 40Y-130Y (c/w Electric Heat)



ALC DIP Switch Settings

FACTORY SETTING	OFF	ON
DO NOT USE		LEAVE ON
Lowest-Speed Setting		4V (4V - 8V)
Highest-Speed Setting		8.5V (6 - 10V)
LEAVE OFF		DO NOT USE
DO NOT USE		LEAVE ON (120s Fan run on)

Client Supplied
1. On/Off Switch
OR
2. Timeclock

Fan Control Voltage Output Setting and Range DIP Sw. options

	LOW LEVEL (V dc)						HIGH LEVEL (V dc)					
	1	2	3	4	5	6	5	6	5	6	5	6
ON/OFF	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	ON	ON	ON
ON/OFF	OFF	OFF	OFF	4.00	7.00	8.50	6.00	7.00	8.50	10.0	10.0	10.0
ON/OFF	OFF	OFF	OFF	4.50	6.50	7.50	6.50	7.50	9.00	10.0	10.0	10.0
ON/OFF	OFF	OFF	OFF	5.00	7.00	8.00	7.00	8.00	9.50	10.0	10.0	10.0
ON/OFF	OFF	OFF	OFF	5.50	7.50	8.50	7.50	8.50	10.0	10.0	10.0	10.0
ON/OFF	OFF	OFF	OFF	6.00	8.00	9.00	8.00	9.00	10.0	10.0	10.0	10.0
ON/OFF	OFF	OFF	OFF	6.67	8.67	9.67	8.67	9.67	10.0	10.0	10.0	10.0
ON/OFF	OFF	OFF	OFF	7.00	9.00	10.0	9.00	10.0	10.0	10.0	10.0	10.0
ON/OFF	OFF	OFF	OFF	8.00	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

ONLY USE DIP SWITCH SETTING COMBINATIONS PUBLISHED IN THE TABLES

Lowest Speed Setting DIP Switch 1 to 4 (LOW)
Highest Speed Setting DIP Switch 5 and DIP 6 (HIGH)
With the 3 speed control the medium (MED) level is always halfway between HIGH and LOW levels.

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	Analog Level Controller
EHC	Electric Heat Controller
FAN1	Impeller Assembly, 146 Diameter
FAN2	Impeller Assembly, 146 Diameter
FROR	Fan Run On Relay
HE	Heater Element
HST	Manual High Temp. T/Stat
MST	Manual High Temp. T/Stat
PR	Power Relay
SSR	Solid State Relay

REV	MODIFICATION
H	ALC software update - revise DIP Switch settings and notes
J*	Switch arm orientation reversed

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DO NOT SCALE - ASK

Client Wiring

Drawn: M.A.H. Date: 18/06/2015
 Apprvd:

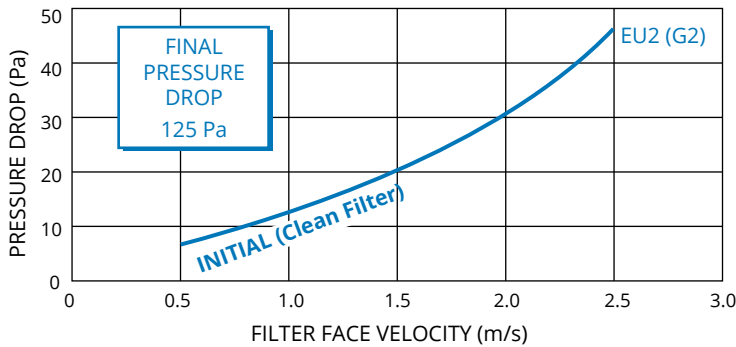
Title: IMDL 40Y-130Y E:Heat c/w SSR
 Electrical Wiring Schematic

Drawing No: 291-000-898
 SHEET 1 OF 1
 Rev: I

Model	IMDL40Y	IMDL60Y	IMDL90Y	IMDL130Y
Fan full load current (FLA)	1.4A	1.8A	1.8A	3.2A
Electric Heat current	6.5A	8.7A	13.0A	17.4A
Electric Heat kW	1.5	2.0	3.0	4.0

Filter Pressure Drop

EU2 rated filter media (standard)



Filter Area :

IMDL 40Y	0.13 m ²
IMDL 60Y	0.19 m ²
IMDL 90Y	0.25 m ²
IMDL 130Y	0.35 m ²

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 on the discharge side of the fan.
- 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 male threaded. Cooling coils shall have a manual air vent.
- Drain Tray** The plastic 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. The entire drain tray shall be removable to enable a thorough clean.
- Filters** Filters shall be removable, 13 mm thick, washable, rated EU2, and mounted in a plastic frame. Filters may be slid out sideways when a return air duct is used.
- Insulation** 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.
- Noise Control** Standard capacity units shall have a Sound Power Level (SWL) less than 55 dB(A). Return air plenums shall be insulated with open cell foam for noise attenuation.
- 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 required to meet AS/NZS 3350.2.40 1997) and have variable capacity control via Solid State Relay (SSR).

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

Notes

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



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