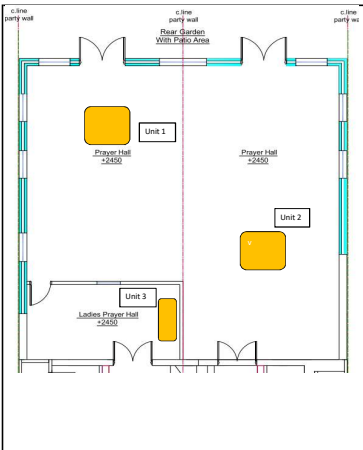


Pray Hall Area

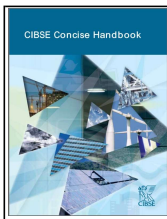


Cooling Loads Calculated using:

CIBSE Design Guides



CIBSE GUIDES for London Peak Summer loads

AREA = 12m x 12m = 144m²

CIBSE Outside Design Criteria

(i) External : July 31 - London

peak design wb temp =

28 deg C

peak design db temp =

20 deg C



Pray Hall Total Loads (KW)

Item	qty	w/m ² / person	units (w)	Notes	TOTAL (KW)
People	225	70w/person	95w/person	Friday 2hrs - Peak Duration / 4 Weeks Year	16
lighting	144m ²	12 / m ²	1750		1.75
semi pwr	144m ²	25 / m ²	3600		3.6
solar roof	144m ²	-	325 w		0.325
solar walls	99m ²	-	175 w		0.175
solar windows	7m ²	-	125 w		0.125
solar doors	10m ²	-	175 w		0.175

Load - CALCULATION EQUATION

TOTAL

22.15

$$U \times A \times \Delta T$$

TOTAL COOLING

22.5 KW

where: ΔT temperature difference out - inside 7 deg C
 U U Value - roof 0.3 / walls 0.25 / windows 2.5
 A area of surface

Table 2.6 Summertime dry bulb temperatures and coincident wet bulb temperatures equal to or exceeded for given percentages of hours in the year (approx. 1982–2002; see Table 2.1)

Location	Hourly temperature (°C) equal to or exceeded for stated percentage of hours in the year			
	0.4%		1%	
	Dry bulb	Wet bulb	Dry bulb	Wet bulb
Belfast	22.6	18.0	20.8	17.1
Birmingham	26.1	19.2	24.1	18.2
Cardiff	24.6	19.0	22.6	18.0
Edinburgh	22.2	17.8	20.6	16.8
Glasgow	23.6	18.2	21.3	17.1
London	28.0	20.0	26.0	19.1
Manchester	25.5	18.8	23.4	17.9
Plymouth	23.5	18.7	21.8	17.9

Cooling and heating loads

Table 16: Cooling loads for different types of building (W/m² net internal area, unless otherwise stated)

Description	Rule of thumb	Comments	Ref
	Cooling load (W/m ²)		
Offices	180	Please refer to the glossary for a definition of gross internal area	41, 12
Bars	150		
Data centres	150	This figure is based on the net area of the data hall	
Hotels	150	Depending on occupancy, a peak gross room cooling load between 15 kW and 2.0 kW will normally be adequate for the UK	
Offices	87	The report design requires careful design of the production of the documents but an average total cooling load of 87 W/m ² GIA	
Restaurants	200		
Retail establishments	140		
Residential buildings	70		

Comments:
 *Solar gains vary with facade orientation and should be in the range of 50 – 45 W/m² of the 4.5 m deep perimeter zones.
 Please refer to Table 17 for guidance about internal heat gains in offices.

Table 17: Internal heat gains in offices (W/m² net internal area, unless otherwise stated)

Description	Rule of thumb	Comments	Ref
	Internal heat gain (W/m ²)	Please refer to the glossary for a definition of net internal area	
Small power	25	This figure is based on 1 workspace per 10 m ² or more, small power consumption rarely exceeds 15 W/m ² . This should be reflected in the assessment of overall building demand	45
Lighting	12	This figure includes task lighting and an allowance for occupant's fit-out installations	
Metabolic	12	This figure is based on 1 person per 10 m ² and a mixture of males and females	45, 42

PLANT Selection



USER AND INSTALLATION MANUAL



Double iQool-C2MS12K12K 2 x 12,000 BTU Cassettes
 Triple iQool-C3MS9K9K9K 3 x 9,000 BTU Cassettes

SMART WIFI CONTROLLED CEILING MOUNTED MULTI CASSETTE AIR CONDITIONER

TECHNICAL SPECIFICATION

Model	iQool-C3MS9K9K9K		iQool-C2MS12K12K	
	1Ph/220-240V/50Hz		1Ph/220-240V/50Hz	
Rated voltage and frequency (Ph-V-Hz)	15A		15A	
Fuse Required	Cooling		Cooling	
Mode	Single		Single	
Rated capacity (W)	8000		6000	
Power input (W)	816		608	
Double / Triple	2000		1700	
Current input (A)	3.83		2.78	
Double / Triple	11.3		8.5	
SEER (SCOP/W)	6.10**		6.10**	
SEER (SCOP/W)	6.10**		6.10**	
Normal heat (kW)	8.05		6.15	
Balance point temperature heating (°C)	7		7	
Min. outdoor operating temperature (°C)	-7		-15	
Thermalistal of mode (W)	101		129	
Standby mode (W)	6		4	
Off mode (W)	0		0	
Annual consumption (kWh)	470		352	
Number of indoor units supplied	2		2	
Max. number of indoor units	3		3	
Copper Pipe Type length	5m		5m	
Liquid side (Gas side pressure)	6.35 (1/4" x 3/8) (3/8)		6.35 (1/4" x 3/8) (3/8)	
Max. refrigerant pipe length for each unit	15m		15m	
Max. elevation	10m		10m	
Interconnecting Cable	4x0.75mm ²		4x0.75mm ²	
Fuse Rating	5A on indoor PCB		5A on indoor PCB	
Maximum Return (L/h)	0.15 L/h per one unit		0.15 L/h per one unit	
Air Flow (m ³ /h)	500		650	
Dimensions (L*W*H) (mm)	574x412x250		574x412x250	
Packaging (L*W*H) (mm)	725x725x330		725x725x330	
Net / Gross weight (kg)	2024		2024	
Noise - Sound pressure level (dBA)	38-45		38-45	
Noise - Sound power level (dBA)	40-52		40-52	

3 Way Ceiling Cassette system 27000 BTU 8kW A++/A+ SmartApp Wifi with three 9000 BTU indoor units to a single outdoor unit - 5 years warranty - iQool-C3MS9K9K9K

Product Information

What stands out

- Smart WiFi controlled ceiling mounted multi cassette air conditioner
- Triple system, operate three indoor units with one outdoor unit
- Suitable for large office spaces up to 72 sqm
- Cooling, Heating and Dehumidifying
- A++/A+ Energy efficiency rating to help you save money

The TCL group have become one of the largest electrical appliance groups globally. TCL's innovative technologies are used every day by customers across the globe. In 2017, they became the third largest brand in North America. TCL is a majority shareholder in Solar Module Phones and Thomson Groups

Our TCL air conditioners are manufactured in the TCL De'Longhi home appliance factory, which is a joint venture between the Italian De'Longhi Group and the TCL Group. The TCL De'Longhi air conditioning factory is an advanced research and development facility with strict production and quality control

Your purchase comes with three indoor units and one outdoor unit. The three indoor units which are known as a triple system connect to the single outdoor unit. The new TCL Smart WiFi controlled cassette type inverter air conditioner has high energy efficiency A++ for cooling mode and A+ for heating mode. The TCL Cassette Air Conditioning Units is one of the most advanced on the market.

Standard size

- Net dimensions per indoor (W x L x D): 57.4 x 57.4 x 25.1 cm
- Net dimensions outdoor (W x L x D): 94 x 34 x 91 cm
- Weight (kg), per indoor: 20
- Weight (kg), Outdoor: 68
- Piping Size (mm), Liquid D: 9 mm (3/8)
- Piping Size (mm), Gas D: 9 mm (3/8)
- Maximum Piping Length (M): 15
- Maximum Piping Height (M): 10
- Applicable Area: 72 sqm

Performance

- Cooling Capacity: 27000 Btu
- Cooling Capacity: 8.2 kW
- Heating Capacity: 27000 Btu
- Heating Capacity: 9.0 kW
- Energy Rating: A++/A+
- Air Flow Volume m³/h: 500
- SEER (Averages): 6.10
- SCOP: A++/A+

Features

- Smart WiFi control
- Self-diagnostic function
- WiFi, Cooling, Heating & Dehumidifying
- Energy Saving Inverter Technology
- Heat Pump for efficient heating
- Ultra Quiet Operation
- Remote control for each indoor unit
- 24 Hour Timer
- Sleep Mode
- Health mode
- Auto restart function
- 5 years warranty