



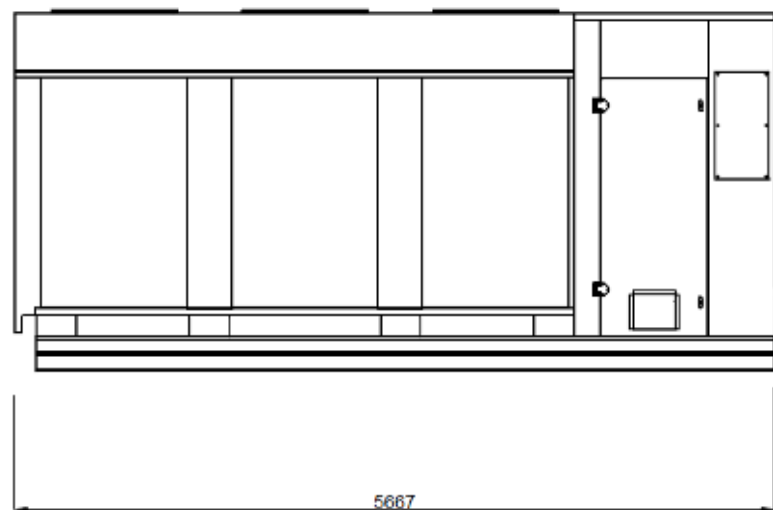
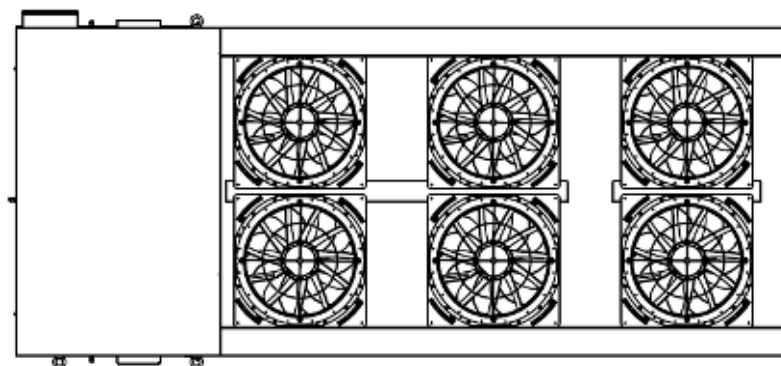
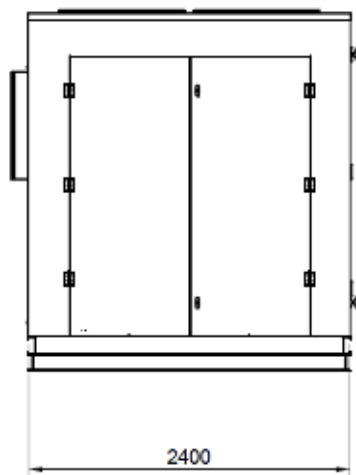
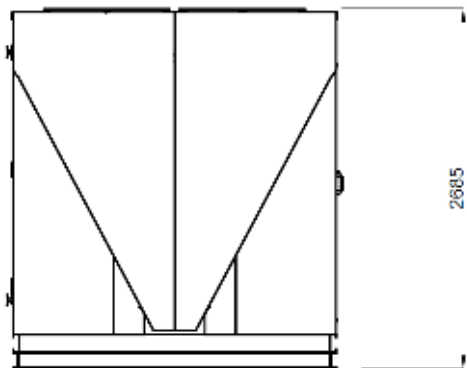
**CLADE**

**OAK 250kW HEAT PUMP //**

May 2022 //



## DIMENSIONAL INFORMATION //





## TECHNICAL INFORMATION //

Clade Oak ASHP		Oak -250Kw ASHP	
Nominal conditions: Water side		flow 45c to 85c Return temperature <35°C	
Nominal conditions: CO <sub>2</sub> side		Ambient air temperature +3°C (85% RH) and -9°C evaporation	
Compressor Manufacturer		Dorin	
Compressor Heating Qty	Pcs.	2	
Compressor Paralell Qty	Pcs.	1	
Compressor Power @ Design total	kW	93.6	
Evaporator fans Power at design	kW	8.4	
Total	kW	104	
Heat Pump Design Run Amps DRA	A	187	
Ancillary Controls Amps	A	4	
Total Amps	A	191	
Variable speed drive (VSD)	Pcs.	2	
Refrigerant charge (CO <sub>2</sub> )	kg	250	
Electrical supply	-	3~ 400V 50 HZ	
Housing Weight (empty)	kg	2,203	
Housing Weight (operational)	kg	2,328	
Load Cell A Weight (empty)	kg	1,298	
Load Cell A Weight (operational)	kg	1,423	
Load Cell B Weight (empty)	kg	N/A	
Load Cell B Weight (operational)	kg	N/A	
Sound Power	dB(A)	62	
Connections waterside flow	DN	54mm Copper	
Connections waterside Return	DN	54mm Copper	
Connections waterside Pressure Rating	PN	10	
Waterside Burst Disk	PN	10	
Communication protocol	-	MODBUS/BACNET	
IP-Class	-	IP54	
Evaporators Type	-	V Block	
No. evaporators	Pcs.	6	
Fin Material	-	AL/MG	
Defrost Type	-	Cool Gas CO <sub>2</sub>	
Defrost medium	-	CO <sub>2</sub>	
Defrost design/condition	-	> +6c ambient Off Cycle / < +6c ambient Cool Gas	
Fan regulation	-	0-10v	
Colour	-	RAL6035 Forest Green	





# HEAT PUMP PERFORMANCE //

OAK 250kW //

Noise Performance Characteristics					
Model name	Nameplate output (kW)	Output Temp (°C)	Noise Data db(A)		
			Sound Power	Sound Pressure @ 1m	Sound Pressure @ 10m
Oak 250Kw	250	65	87	61	50
		70	87	61	50
		75	88	62	51
		80	88	62	51

Clade Heat Pump Performance Characteristics																													
Model name	Nameplate output (kW)	Output Temp (°C)	Return Temp (°C)	SCOP	SPF	-10°C External			-5°C External			0°C External			5°C External			10°C External			15°C External			20°C External			25°C External		
						QH (kW)	PI (kW)	COPH (-)	QH (kW)	PI (kW)	COPH (-)	QH (kW)	PI (kW)	COPH (-)	QH (kW)	PI (kW)	COPH (-)	QH (kW)	PI (kW)	COPH (-)	QH (kW)	PI (kW)	COPH (-)	QH (kW)	PI (kW)	COPH (-)	QH (kW)	PI (kW)	COPH (-)
Oak 250kW	250	55	35	2.8	2.9	200	97	2.06	250	109	2.29	275	107	2.57	300	105	2.86	300	96	3.13	300	88	3.39	300	83	3.63	300	76	3.95
		60	35	2.8	2.9	200	97	2.06	250	109	2.29	275	107	2.57	300	105	2.86	300	96	3.13	300	88	3.39	300	83	3.63	300	76	3.95
		65	35	2.8	2.9	200	97	2.06	250	109	2.29	275	107	2.57	300	105	2.86	300	96	3.13	300	88	3.39	300	83	3.63	300	76	3.95
		70	35	2.8	2.9	200	100	2.01	250	114	2.2	275	110	2.5	300	107	2.8	300	98	3.05	300	91	3.3	300	85	3.55	300	77	3.9
		75	35	2.8	2.9	200	100	2	250	114	2.2	275	110	2.5	300	107	2.8	300	98	3.05	300	91	3.3	300	85	3.55	300	77	3.9
		80	35	2.8	2.9	200	100	2	250	114	2.2	275	110	2.5	300	107	2.8	300	98	3.05	300	91	3.3	300	85	3.55	300	77	3.9

Clade Heat Pump Performance Characteristics																													
Model name	Nameplate output (kW)	Output Temp (°C)	Return Temp (°C)	SCOP	SPF	-10°C External			-5°C External			0°C External			5°C External			10°C External			15°C External			20°C External			25°C External		
						QH (kW)	PI (kW)	COPH (-)	QH (kW)	PI (kW)	COPH (-)	QH (kW)	PI (kW)	COPH (-)	QH (kW)	PI (kW)	COPH (-)	QH (kW)	PI (kW)	COPH (-)	QH (kW)	PI (kW)	COPH (-)	QH (kW)	PI (kW)	COPH (-)	QH (kW)	PI (kW)	COPH (-)
Oak 250kW	250	55	30	3	3.1	200	90	2.22	250	101	2.48	275	99	2.78	300	97	3.09	300	88	3.39	300	82	3.66	300	76	3.93	300	70	4.27
		60	30	3	3.1	200	90	2.22	250	101	2.48	275	99	2.78	300	97	3.09	300	88	3.39	300	82	3.66	300	76	3.93	300	70	4.27
		65	30	3	3.1	200	90	2.22	250	101	2.48	275	99	2.78	300	97	3.09	300	88	3.39	300	82	3.66	300	76	3.93	300	70	4.27
		70	30	3	3.1	200	93	2.15	250	104	2.4	275	102	2.7	300	100	3	300	91	3.3	300	83	3.6	300	78	3.85	300	71	4.2
		75	30	3	3.1	200	93	2.15	250	104	2.4	275	102	2.7	300	100	3	300	91	3.3	300	83	3.6	300	78	3.85	300	71	4.2
		80	30	3	3.1	200	93	2.15	250	104	2.4	275	102	2.7	300	100	3	300	91	3.3	300	83	3.6	300	78	3.85	300	71	4.2



## BUILDING CONNECTIONS //

### POWER

3 phase.

Connection box mounted in position shown.

Isolation at control panel only.

Installer to provide local isolator external to heat pump.

### HEATING

Supplied with primary pump with 14m spare head.

Flow and return located in position shown.

PN 10 Flanged steel connections with butterfly valve.

### CONDENSATE

Condensate from the evaporator will drain centrally from the base of the unit.

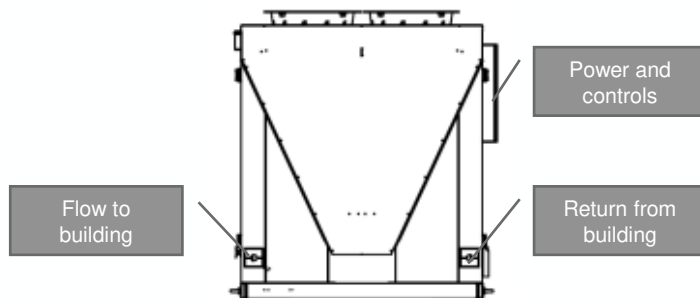
It is recommended that a gully be installed below the heat pump and lead to a soak away.

### CONTROLS

The heat pump has self contained controls that manage its operation and the primary pump.

#### Alarms

- Hardwired shut down signal for fire alarm
- CO<sub>2</sub> detection
- Other fault
- High return water temperature.



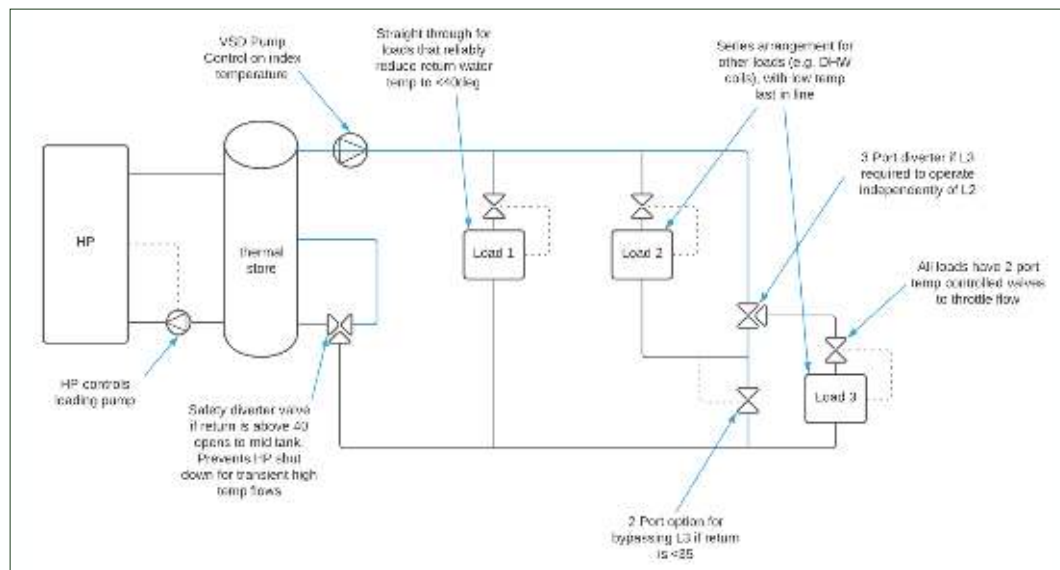
## SYSTEM DESIGN

Here are our recommendations for good system design, however each building and application is different and so the system should be designed to meet the specific needs of the building.

The designer should aim to minimise the return water temperature to the heat pump in order to generate the highest COP possible.

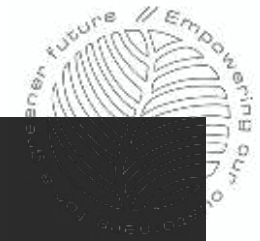
Clade offers engineering support if required.

- Series arrangement of heat load by temperature with the lowest last
- Proper sizing of terminal units for high DT
- High quality two port control on terminal units to prevent high temperature bypass
- VSD pumping controlled on temperature at the index point
- Zero bypass on the system
- Proper commissioning of systems
- Data and analytics for continuous improvement
- Primary control on the return water temperature
- Thermal store to even out temperature variations





# LEEDS MANUFACTURING CENTRE //



- UK based
- 35 years of engineering experience
- Leeds manufacturing division
- Committed to sustainable business and sustainable products
- Investing in people, diversity & inclusion
- Non leveraged, owner operated

**ACCREDITATIONS**

ISO 9001:2015  
 ISO 14001:2015  
 OHSAS ISO 18001:2007

**CERTIFICATIONS**

Altius Assured Vendor Award  
 Altius ODM Vendor Award  
 CHAS  
 Sales Contractor



THANK YOU //

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