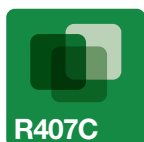


# HVS, Hydro Variable System Air cooled chiller / heat pump

YDC\_522H (-C) / YDC\_972H (-C) / YOC\_762H (-C) / YOC\_1522H (-C)

A complete range from 15 kW up to 72 kW



Remote Central Controller



## Features

- Variable capacity compressor (10% to 100%)
- Constant water temperature
- Energy savings up to 35%
- BMS communication
- Easy selection software
- Low ambient operation standard
- Plate heat exchanger, no buffer tank needed
- Flexible in use
- No glycol required (split version)
- Integrated hydro kit (compact version)
- Water filter standard

## Options / Accessories

- Condenser protection grilles
- High static pressure fans
- Anticorrosion epoxy coils
- Sound attenuation
- Softstarter kit
- DX unit (split version)
- Antifreeze heater for heat exchanger
- Interface card for LON Bus
- 3 way valve for external heating system
- Anti vibration mounting
- Outdoor temperature sensor
- Valve kits
- Relay box for several FCU applications
- Fan coil load identification

# HVS, Hydro Variable System

## Split & Compact version



### Technical features Compact version

Models			YDCC 522H-C	YDCC 972H-C	YDCC1732 H-C	YDCC 2502 H-C
			YDCH 522H-C	YDCH 972H-C	YDCH 1732 H-C	YDCH 2502 H-C
Performance	Cooling capacity c/o units (1)	kW	15.0	28.0	50.0	72.0
	Heating capacity h/p units (1)	kW	16.5	30.5	53.5	76.5
	Total Input Power	kW	5	9	9.7 + 6.1	9.7 + 12.3
	Capacity steps	%	10 - 100	6 - 100	4 - 100	3 - 100
	Sound pressure level at 1 m	dB(A)	58	59	62	63
Compressor	Type		Digital Scroll	Digital Scroll & Scroll	Digital Scroll & 2 x Scroll	Digital Scroll & 3 x Scroll
	Quantity		1	2	3	4
Air side heat exchanger	Fans quantity		1	2	2 x 2	2 + 3
	Working Ambient temp. cooling/heating mode (4)		-20°C~45°C / -10°C~20°C			
Water side heat exchanger	Type		Plate Heat Exchanger			
	Pump type		Circulators (3 speeds)			
	Water flow nominal	l/h	2 150	4 100	7 200	10 350
	Available pressure nominal (2)	kPa	81	67	67	64
	Water connections	inch	1 1/2"	2"	2" + 2"	2 1/2" + 2 1/2"
	Water connections type		Threated male			
Dimensions & Weight	Height	mm	1 350	1 350	2 x 1 350	1 350 + 1 350
	Width	mm	780	780	2 x 780	2 x 780
	Length	mm	1 330	1 500	1 500 + 1 330	1 500 + 1 980
	Weight cooling only	kg	310	400	435 + 285	400 + 700
Electrical supply	Voltage / Phases / Frequency	V/ph/hz	400 / 3 / 50+N			
Combinations			YDCC 522H-C	YDCC 972H-C	YDCC 972H-C + YOCC 762H-C	YDCC 972H-C + YOCC 1522H-C
			YDCH 522H-C	YDCH 972H-C	YDCH 972H-C + YOCH 762H-C	YDCH 972H-C + YOCH 1522H-C

### Technical features Split version

Models			YDCC 522H	YDCC 972H	YDCC1732 H	YDCC 2502 H
			YDCH 522H	YDCH 972H	YDCH 1732 H	YDCH 2502 H
Performance	Cooling capacity c/o units (1)	kW	15.0	28.0	50.0	72.0
	Heating capacity h/p units (1)	kW	16.5	30.5	53.5	76.5
	Total Input Power	kW	5	9	9.7 + 6.1	9.7 + 12.3
	Capacity steps	%	10 - 100	6 - 100	4 - 100	3 - 100
	Sound pressure level at 1 m	dB(A)	58	59	62	63
Compressor	Type		Digital Scroll	Digital Scroll & Scroll	Digital Scroll & 2 x Scroll	Digital Scroll & 3 x Scroll
	Quantity		1	2	3	5
Air side heat exchanger	Fans quantity		1	2	2 x 2	2 + 3
	Working Ambient temp. cool/heat mode (4)		-20°C~45°C / -10°C~20°C			
Refrigerant side	Refrigerant connections	mm	12 / 22	16 / 28	2 x 16 / 28	16 / 28 + 22 / 42
	Max refrigerant piping length	m	20			
	Max height difference	m	5			
Water side (Transformer Box)	Pump type		Circulators (3 speeds)			
	Available pressure nominal (2)	kPa	81	67	67	64
	Water connections (Threated male)	inch	1 1/2"	2"	2" + 2"	2 1/2" + 2 x 2"
Dimensions & Weight	H / W / L	mm	1350 x 780 x 1330	1350 x 780 x 1500	1350 x 780 x 2850	1350 x 780 x 3500
	Weight cooling only	kg	250	325	325 + 280	325 + 550
Electrical supply	Voltage / Phases / Frequency	V/ph/hz	400 / 3 / 50+N			
Combinations			YDCC 522 H	YDCC 972 H	YDCC 972 H + YOCC 762 H	YDCC 972 H + YOCC 1522 H
			YDCH 522 H	YDCH 972 H	YDCH 972 H + YOCH 762 H	YDCH 972 H + YOCH 1522 H

Nominal cooling capacity based on: leaving water temperature: +7°C - Ambient air temperature: 35°C DB  
 Nominal heating capacity based on: leaving water temperature: +40°C - Ambient air temperature: 7°C DB / 6°C WB

(1) Only for heat pump units  
 (2) At nominal water flow

### Technical features Transformer boxes

Models			YTBC / YTBH			
			522	972	1732	2502
Cooling capacities	Total capacity	kW	15.0	28.0	50.0	72.0
	Water flow	l/h	2150	4100	7200	10350
Heating capacities (YTBH only)	Capacity	kW	16.5	30.5	53.5	76.5
	Water flow	l/h	2150	4100	7200	10350
Sound pressure level at 3 m free field		dB(A)	35	35	40	40
Electrical characteristics	Power supply	V/Ph/Hz	220 - 240 / 1 / 50		400 / 3 / 50	
	Power input - nominal	W	270	350	1100	1100
	Running current - nominal	A	1.8	2.0	3.1	3.1
Dimensions	Height	mm	1000	1000	1200	1200
	Width	mm	800	800	1000	1000
	Depth	mm	300	300	300	300
Net weight		kg	80	95	150	170
Refrigerant piping connections		Diameter (nominal)	12 / 22	16 / 28	2 x 16 / 28	3 x 16 / 28

Nominal cooling capacity based on: Leaving water temperature: +6° C  
 Nominal heating capacity based on: Leaving water temperature: +40° C  
 Horizontal Transformer Boxes available upon request, for more information contact to Johnson Controls.

\*) at nominal water flow



# HVS, Hydro Variable System

## Split & Compact version



### Compatibility table / Codes

System	15 kW	28 kW	50 kW	72 kW
Cooling only models	YDCC 522 H (-C)	YDCC 972 H (-C)	YDCC 1732 H (-C)	YDCC 2502 H (-C)
Heat pump models	YDCH 522 H (-C)	YDCH 972 H (-C)	YDCH 1732 H (-C)	YDCH 2502 H (-C)
<b>Transformer boxes (only for split version)</b>				
Cooling only models	YTBC 522 H-V	YTBC 97 2H-V	YTBC 1732 H-V	YTBC 2502 H-V
Heat pump models	YTBH 522 H-V	YTBH 972 H-V	YTBH 1732 H-V	YTBH 2502 H-V

Options (factory fitted) Quantity depends on combination selected. See above table in "Combinations".

Models		YDCC 522 H (-C)	YDCC 972 H (-C)	YOCC 762 H (-C)	YOCC 1522 H (-C)
		YDCH 522 H (-C)	YDCH 972 H (-C)	YOCH 762 H (-C)	YOCH 1522 H (-C)
DX Cooling only units (only split model)	DX-KIT-CO	DX-KIT-CO-S	DX-KIT-CO-L		
DX Heat pump units (only split model)	DX-KIT-HP	DX-KIT-HP-S	DX-KIT-HP-L		
Condenser grid	CG	CGS-1	CGL-1	CGS-1	Contact YORK
High static pressure fans	HPF	HPF-522	HPF-972	HPF-762	HPF-1522
Anticorrosion Epoxy coils	ACF-1	•	•	•	•
Sound attenuation	CSI	CSI-522	CSI-972	CSI-762	CSI-1522
Softstarter kit	SSK	SSK-522	SSK-972	SSK-762	SSK-1522
Water filter	WF-1	Standard (in the transformer box for split model, in the unit for compact model)			
Antifreeze heater for heat exchanger and internal piping	AFH-1	•	•	•	•
Fan coil load identification *	LI-1	•	•	With YDC_ unit	With YDC_ unit

\* The compressor is inactive when all fan coils are switched off. Operation starts again when at least one fan coil is switched on.  
ATTENTION! Not applicable for fan coil units with a coil sensor !

#### Accessories (supplied loose)

Remote central controller (mandatory) *		•		With YDC_ unit	With YDC_ unit
Interface card for LON Bus	LP-NET-102-000	•		With YDC_ unit	With YDC_ unit
3 way valve for external heating system	EH 32			15 - 28 kW	
	EH 40			50 - 72 kW	
Anti vibration mounting	AVM-1	•	•	•	•
Outdoor temperature sensor	OTS-1	•	•	With YDC_ unit	With YDC_ unit

\* It is mandatory to have one central controller for HVS unit \*\* For automatic mode change heat pump only

Accessories for Fan coil units (supplied loose) compatible with HVS only - Valve kits not available any more (haven't been ordered frequently!)

Valve kit diameter 3/8"	VK10-1		•
Valve kit diameter 1/2"	VK15-1		•
Valve kit diameter 3/4"	VK20-1		•
Valve kit diameter 1"	VK25-1		•
Valve kit diameter 1 1/2"	VK40-1		•

\* Valve kit is assembled and composed of an on/off thermal actuator, 3-way valve, shut off and balancing valve

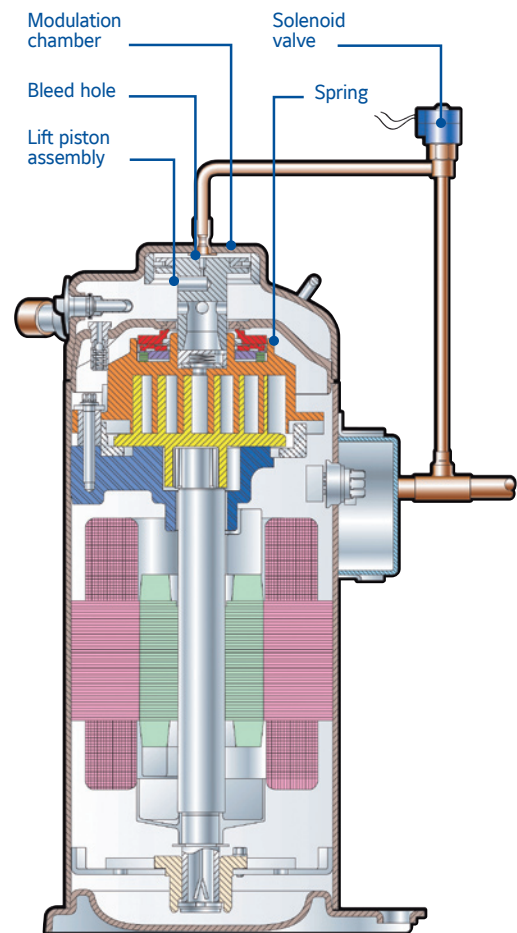
Relay box for up to 4 FCU	RB4-1		•
Relay box for up to 8 FCU	RB8-1		•

### Recommended combinations

Cooling capacity	YDC_522	YDC_972	YOC_762	YOC_1522	Transformer Box
15	1				1 x YTB 522
28		1			1 x YTB 972
50		1	1		1 x YTB 1732
72		1	2		1 x YTB 2502
72		1		1	1 x YTB 2502
87	1	1	2		1 x YTB 522 + 1 x YTB 2502
87	1	1		1	1 x YTB 522 + 1 x YTB 2502
100		2	2		2 x YTB 1732
122		2	3		1 x YTB 1732 + 1 x YTB 2502
122		2	1	1	1 x YTB 1732 + 1 x YTB 2502
144		2	4		2 x YTB 2502
144		2		2	2 x YTB 2502
159	1	2	4		1 x YTB 522 + 2 x YTB 2502
159	1	2		2	1 x YTB 522 + 2 x YTB 2502
172		3	4		1 x YTB 972 + 2 x YTB 2502
172		3		2	1 x YTB 972 + 2 x YTB 2502
194		3	5		1 x YTB 1732 + 2 x YTB 2502
194		3	1	2	1 x YTB 1732 + 2 x YTB 2502
216		3	6		3 x YTB 2502
216		3		3	3 x YTB 2502

## Digital Scroll Compressor

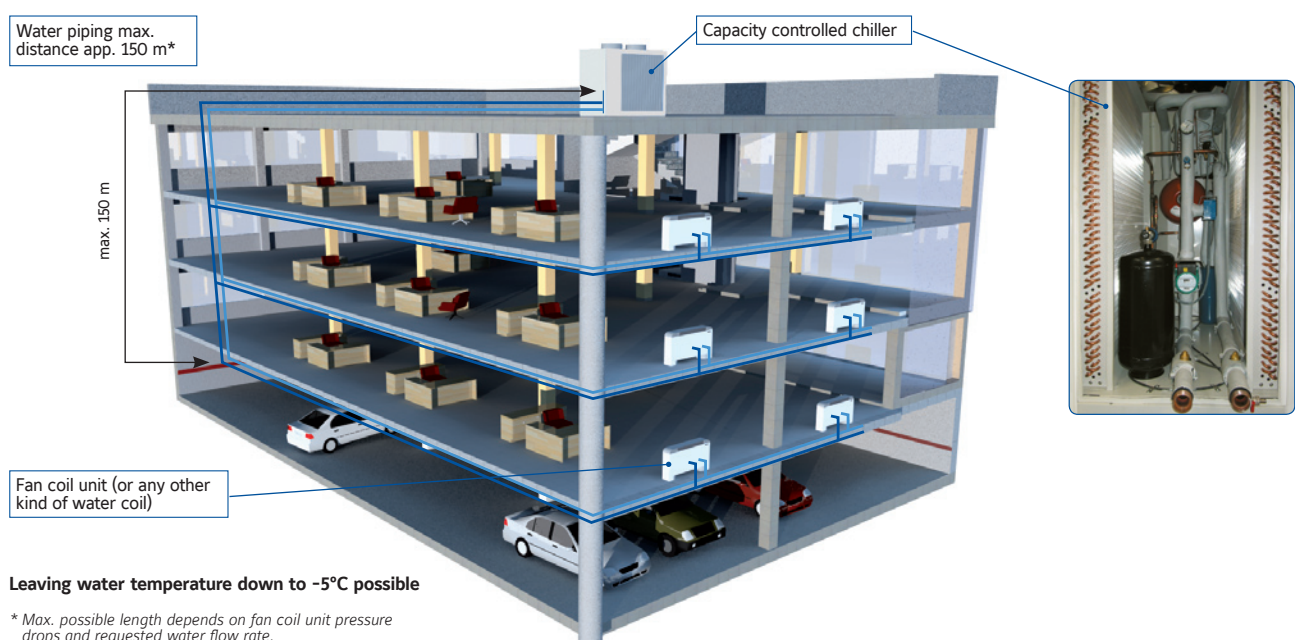
The Digital Scroll Compressor uses a simple and effective method to modulate the capacity of an AC, giving unparalleled performance in the modulation field. To modulate the capacity the Digital Scroll operates in two stages, the "loaded state" in which the compressor works as a normal Scroll compressor at full capacity and mass flow, and the "unloaded state", where there is not capacity and mass flow. During the "unloaded state" there is a separation between the scrolls. Once the scrolls separate, any gas passing through is no longer compressed. Changing the cycle time ("Loaded state" time and "Unloaded state" time) determines the capacity modulation of the compressor.



## System Diagram Compact version

The HVS-system is available as a COMPACT version. This version is particularly designed for process cooling applications for very low brine-temperatures (down to  $-5^{\circ}\text{C}$ ) but is also applicable for standard AC applications. The HVS-COMPACT series contains all hydronic components which normally are located in the transformer box.

The hydronic components are installed between the two coils (see picture) therefore the COMPACT version provides the same dimensions as the condensing unit of the SPLIT version does. Water connections on the rear side of the unit (see picture).



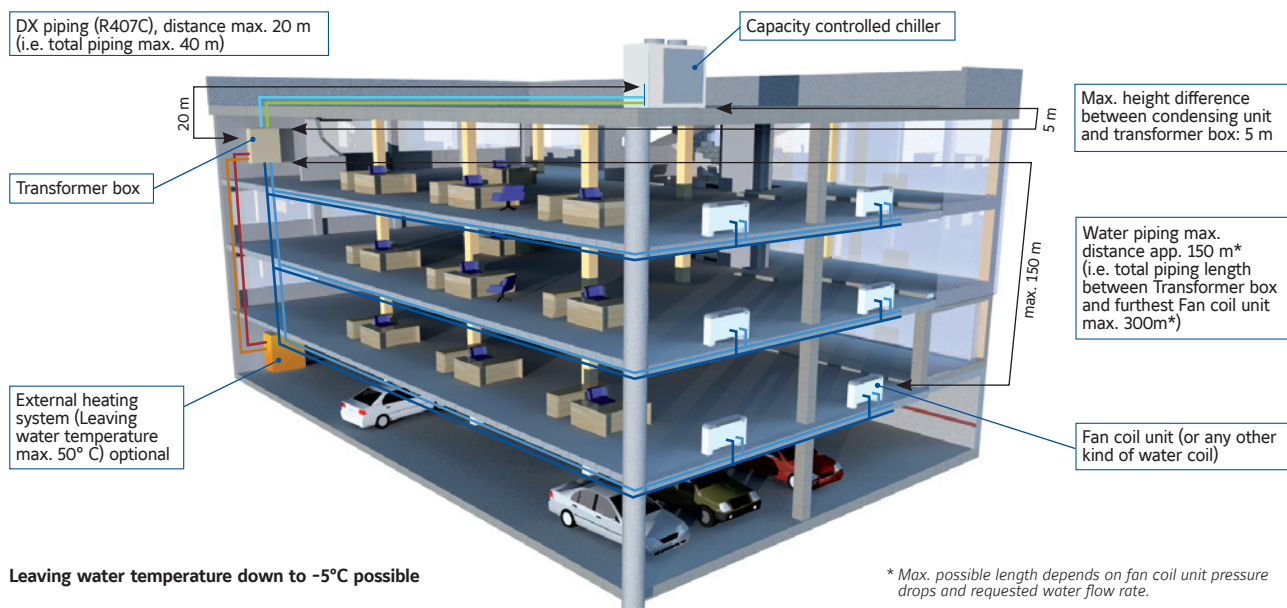


## System Diagram Split version

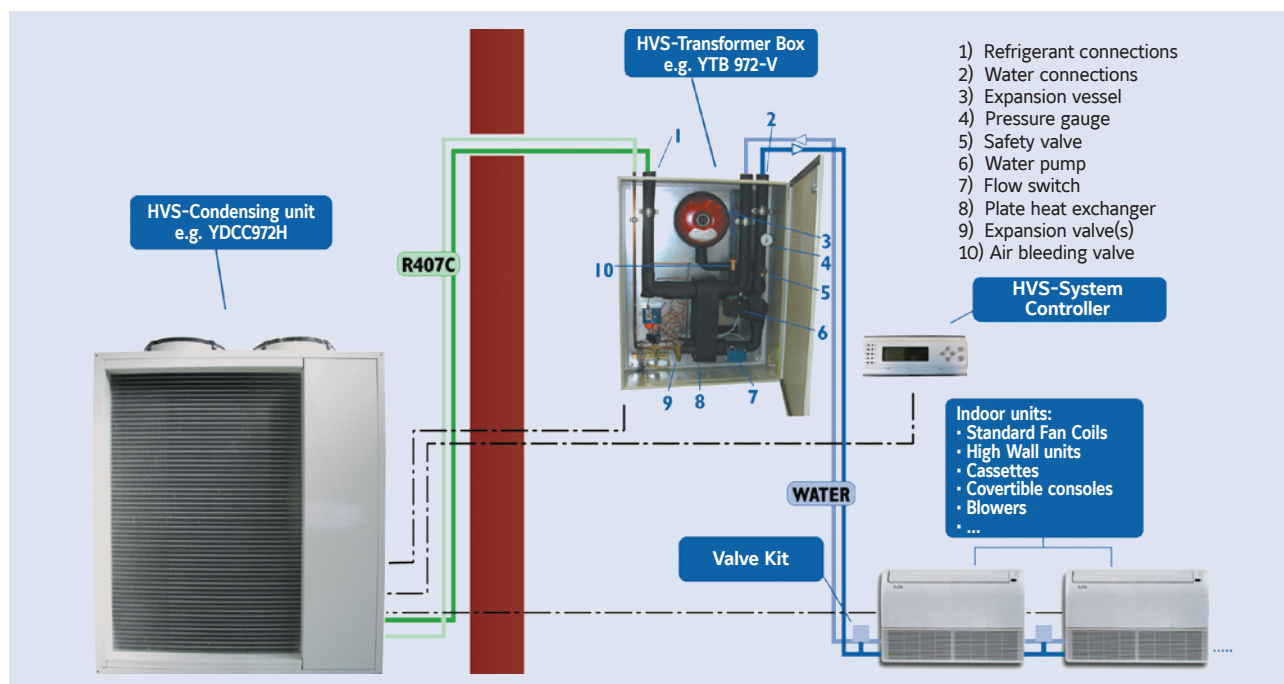
HVS Digital is the latest generation of YORK's Air Conditioners for cooling and heating. These units use the Digital Scroll compressor technology that allows to adequate the capacity to the cooling or heating load. Thanks to this innovative technology our products reach many advantages for our customers.

- Energy saving up to 35% compared with conventional chillers.
- High comfort because of the unit is capable to adjust the water outlet temperature in a  $\pm 0,5^{\circ}\text{C}$ , thereby it is possible for the users enjoy always a comfortable ambient temperature.

- Absence of Electromagnetic Interference, compared with a variable speed compressor, making the system easy and less sensitive.
  - High reliability, as there is not necessary to use complicates electronic devices to get the right capacity.
  - Not necessary to use buffer tank, thanks to the modulation control
  - Not necessary to use glycol, as it is possible to use an intermediate transformer box as a remote evaporator.
- And many other advantages that you can discover by yourself using HVS units.



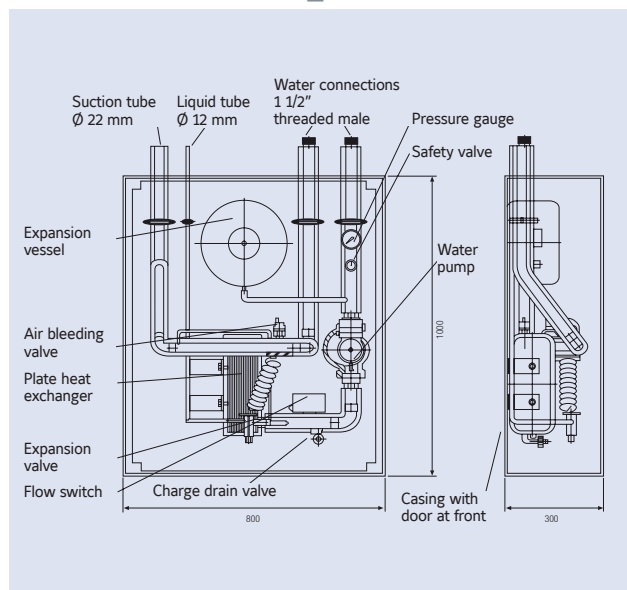
## Split system overview



## Dimensions and space requirements



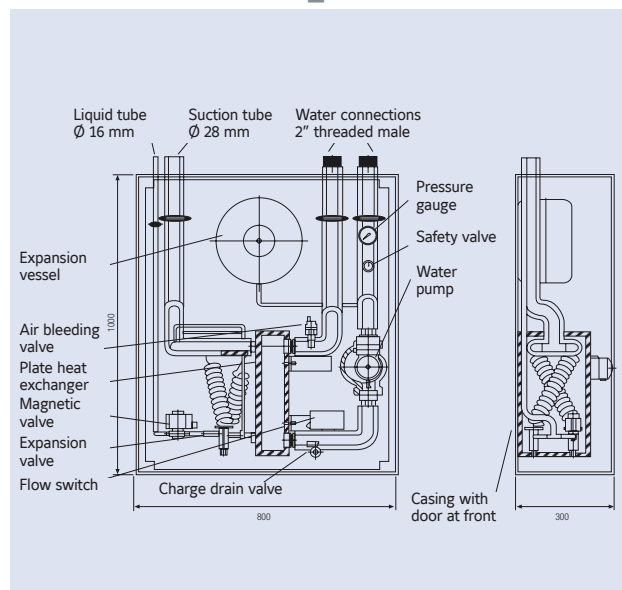
### Transformer box YTB\_522-V



All dimensions in mm. Drawings not a scale.

Unit	Water pipe connection	Refrigerant tubing diameter	Weight kg
YTB-522-V	1 1/2" threaded male	12 / 22	80

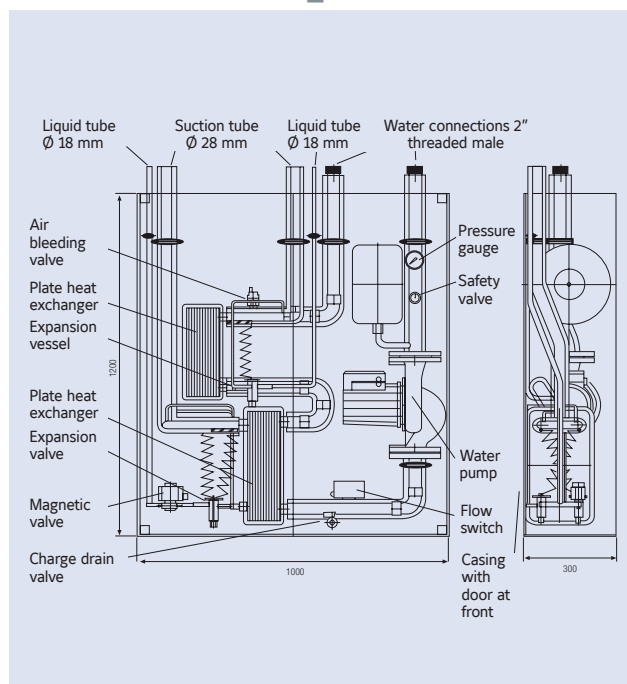
### Transformer box YTB\_972-V



All dimensions in mm. Drawings not a scale.

Unit	Water pipe connection	Refrigerant tubing diameter	Weight kg
YTB-972-V	2" threaded male	16 / 28	95

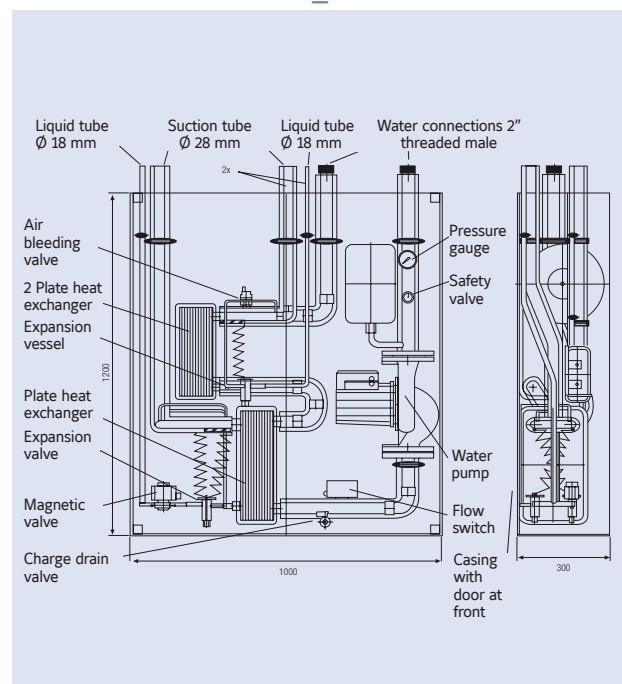
### Transformer box YTB\_1732-V



All dimensions in mm. Drawings not a scale.

Unit	Water pipe connection	Refrigerant tubing diameter	Weight kg
YTB-1732-V	2" threaded male	2 x 16 / 28	150

### Transformer box YTB\_2502-V



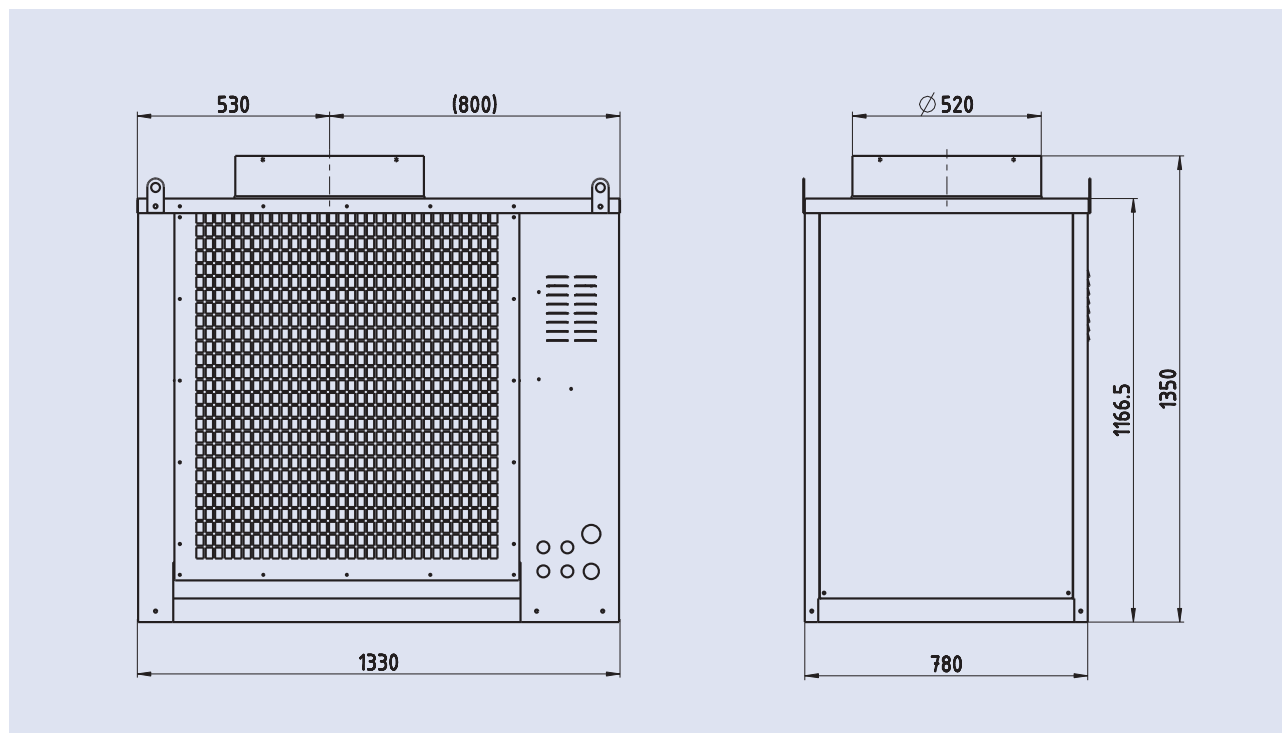
All dimensions in mm. Drawings not a scale.

Unit	Water pipe connection	Refrigerant tubing diameter	Weight kg
YTB-2502-V	2 1/2" threaded male	3 x 16 / 28	170

## Dimensions and hydraulic connections

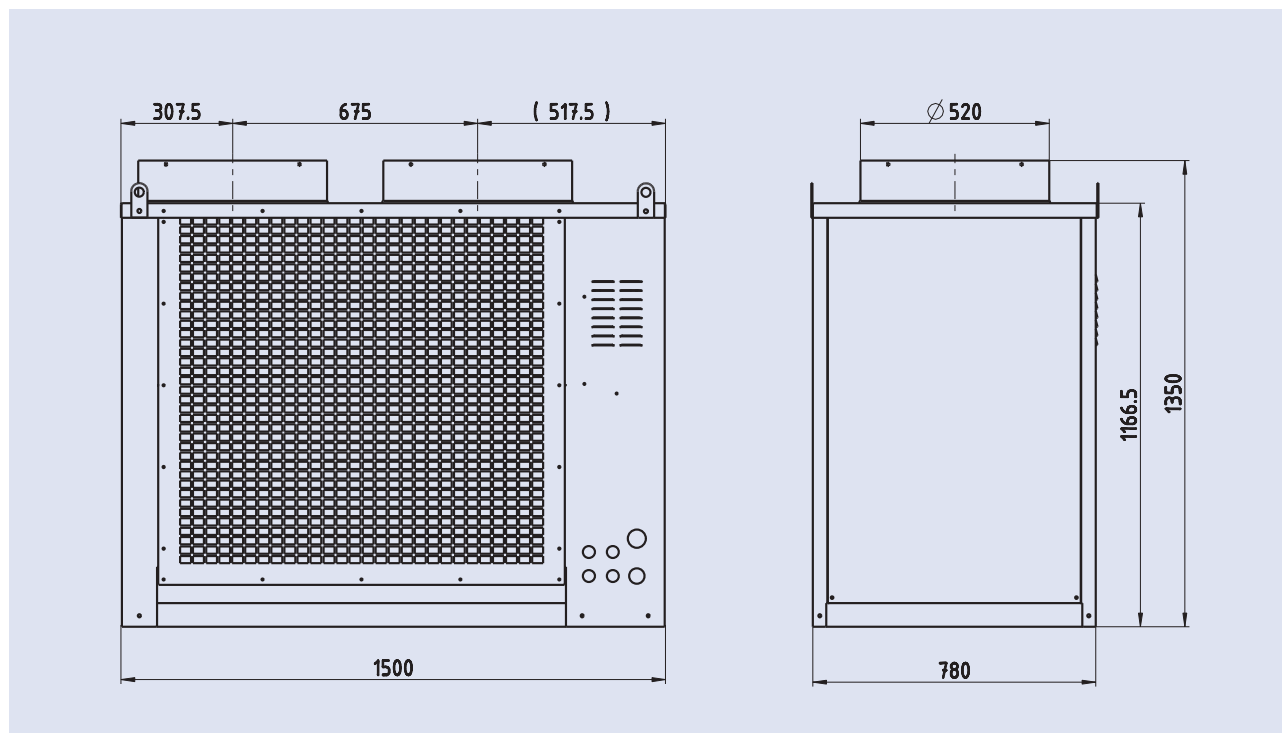


### Model YDCC / YDCH 522 (-C)



All dimensions in mm. Drawings not a scale.

### Model YDCC / YDCH 972 (-C)

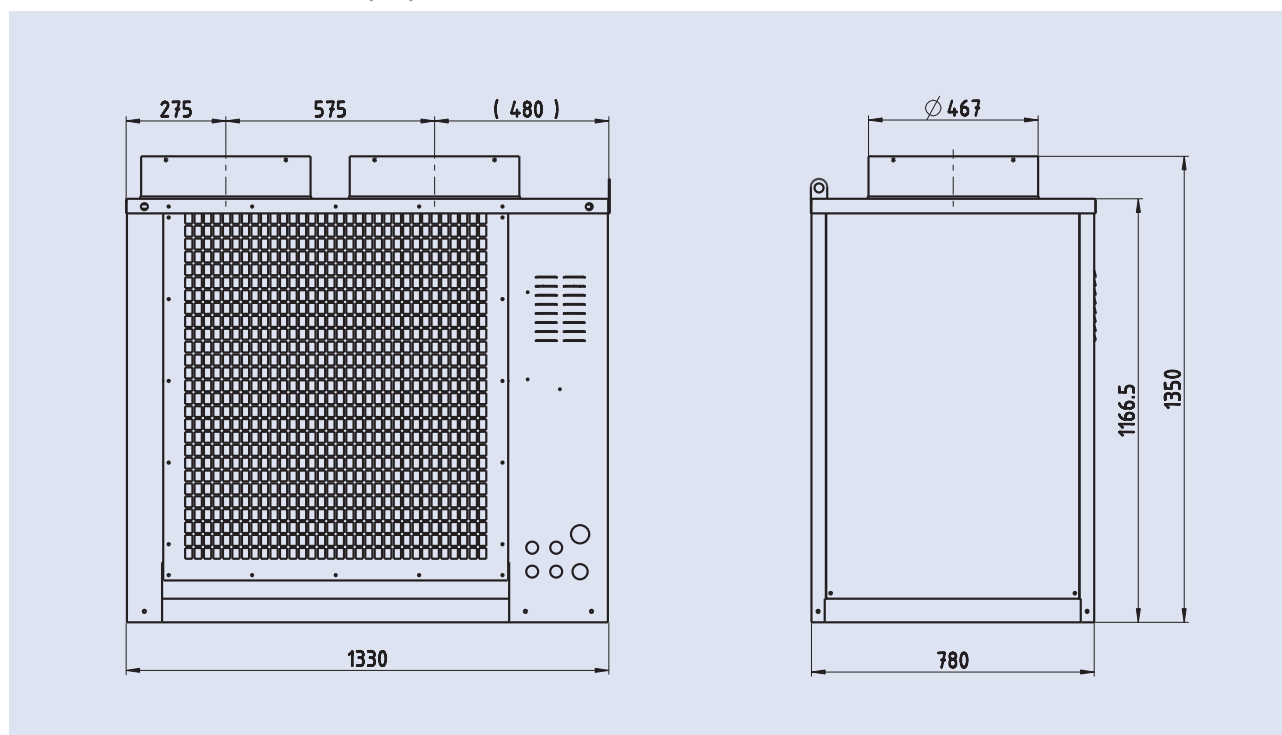


All dimensions in mm. Drawings not a scale.

## Dimensions and hydraulic connections

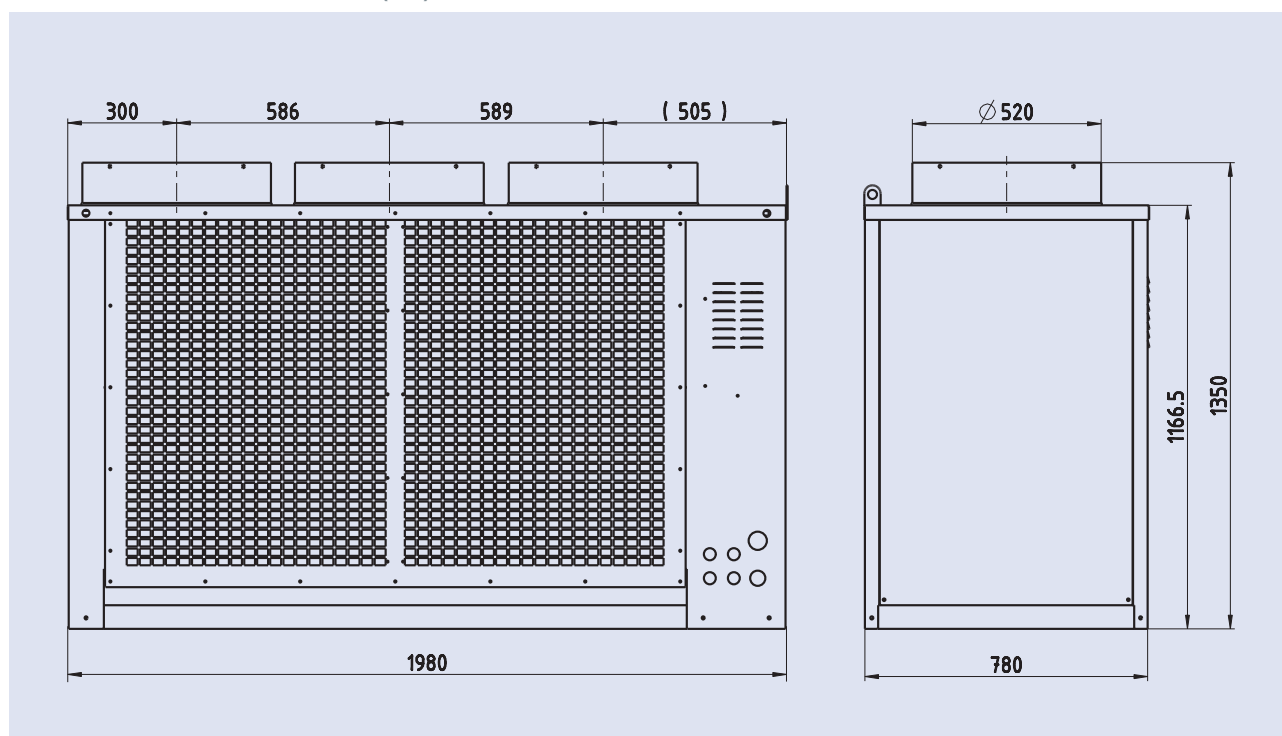


### Model YOCC / YOCH 762 (-C)



All dimensions in mm. Drawings not a scale.

### Model YOCC / YOCH 1522 (-C)



All dimensions in mm. Drawings not a scale.