hydro variable system

HVS

DIGITAL

YDCC / YDCH
YOCC / YOCH
COMPACT
ICOM

INSTALLATION, COMMISSIONING AND OPERATING MANUAL

YORK®

hydro variable system HVS DIGITAL

YDCC / YDCH
YOCC / YOCH
COMPACT units

ICOM

CONTENT

YDC_522H

YOC_762H

YDC_972H

YOC_1522

AVAILABLE MODELS AND CAPACITIES

Model	YDCC 522H	YDCC 972H	YOCC 762H *)	YOCC 1522H *)
Cooling cap. kW	15,0	28,0	22,0	44,0

Model	YDCH 522H	YDCH 972H	YOCH 762H *)	YOCH 1522H *)
Cooling cap. kW	15,0	28,0	22,0	44,0
Heating cap. kW	16,5	30,5	23,0	46,0

Cooling capacities given for 7°C leaving water temperature and 35°C ambient temperature.

Heating capacities given for 40°C leaving water temperature and 6°C WB ambient temperature.

***)** YOC_ units (ON/OFF controlled) to be used for the 50 kW or 72 kW system in combination with YDCC / YDCH 972H units only.

SUPPLIER INFORMATION

The HVS COMPACT units are manufactured following the highest design and construction standards to ensure high performance and reliability for all air conditioning installations. The system is designed to produce chilled water at a constant leaving water temperature and it is not suitable for applications other than those described in this manual.
If the unit is not used correctly or is used for a different purpose without the prior agreement of YORK, operation of the system may be unsafe and outside of its scope.
This manual contains all the information required for correct installation and commissioning of the unit and must be read before attempting to operate or service the unit. Installation, commissioning and maintenance must be performed by trained and qualified staff from YORK or an authorized service center. YORK is not liable for injury or damage resulting from incorrect installation, commissioning or maintenance and / or failure to follow the procedures and instructions of this manual.

YORK®

WARRANTY

The unit is supplied finished and tested. The unit warranty will be cancelled if any modification is carried out without prior agreement from YORK.
For the warranty to be valid the following conditions must be satisfied:

- Initial unit start up must be carried out by trained and qualified staff from YORK or an authorized center.
- Maintenance must be carried out by trained and qualified staff.
- Only genuine YORK spare parts must be used.
- All the scheduled maintenance operations must be performed at the specified times.

IF ANY OF THOSE CONDITIONS ARE NOT SATISFIED THE WARRANTY WILL NOT BE VALID.

SAFETY

The installation of the unit must be carried out according to the Machinery Safety Device Directive (98/37/EC), to the Low Voltage Directive (73/23/EEC), to the Electromagnetic Interference Directive (89/31/EEC) and according to the normal technical regulations of the country in question.
Do not operate the unit before having observed all the information above.

WARNING
The unit must be earthed and no installation or maintenance work should be done on the electrical equipment without first of all switching off and isolating the main power supply and any control supply.

WARNING
The units contain pressurized nitrogen (when delivered) or refrigerant (when installed and filled for operation).
Release of gas can be dangerous and cause injuries.

WARNING
Fan grids must be fitted at all times and not removed for maintenance before switching off the unit at the main switch.

WARNING
It is the responsibility of the user to check that the unit is suitable for the conditions of use and that installation and regular maintenance is carried out by skilled staff and in accordance to this manual.

WARNING
The unit must be fitted on supports designed as recommended in this manual. The wrong support can result in injury.

CAUTION
The system cannot withstand loads or stress from equipment installed beside it, from piping or from building structures. Those loads can cause failure, collapse and injury. Warranty will not apply in such cases.

CAUTION
Do not burn or throw away the packing material improperly. YORK sends its units in recyclable packing materials and respects the environment.

EMERGENCY STOPS AND SHUTDOWNS

The black isolator switch on the electrical panel will shut down the unit when switched to off. The unit should be restarted in accordance with this manual.

ABOUT THIS MANUAL

The instructions contained in this manual must be followed. Damage caused by misuse of the unit will not be covered by the warranty.
The contents of this manual and any other document supplied with the unit are the property of YORK.

They must not be reproduced, in whole or in part, without the written authorization of YORK.

YORK reserves the right to change the specifications without prior notice.

TIPS BEFORE BEGINNING INSTALLATION

Take a few moments to review the following before beginning installation of the HVS system.

Familiarize yourself with all system components and review all documentation. Pay special attention to “Cautions” and “Warnings” since these may prevent unnecessary problems.

Be sure to install all wiring according to local, state, and national codes.

Pay close attention to communication wiring since the most common mistakes are made in this area. Make notes on your wiring diagrams as to which color wire you will be using on each terminal.

When in doubt - ask! Contact your local YORK distributor if you have any questions.

Lifting the unit:

Please use the crane eyelets supplied with the unit!

MODELS

YDCC/YDCH 522
YOCC/YOCH 762

YDCC/YDCH 972
YOCC/YOCH 1522

PHYSICAL DATA

Characteristics	YDCC 522H YDCH 522H [1])	YDCC 972H YDCH 972H [1])	YDCC 972H + YOCC 762H YDCH 972H + YOCH 762H [1])	YDCC 972H + YOCC 1522H YDCH 972H + YOCH 1522H [1])
Cooling Capacity	15,0 kW	28,0 kW	50,0 kW	72,0 kW
Heating Capacity [1])	16,5 kW	30,5 kW	53,5 kW	76,5 kW
Capacity range	10 - 100%	6 - 100%	4 - 100%	3 - 100%
Water flow - nominal	2150 l/h	4100 l/h	7200 l/h	10350 l/h
Maximum external pressure loss [2])	81 kPa	67 kPa	67 kPa	64 kPa
Power supply (Volts/Phases)	400/3+N	400/3+N	400/3+N	400/3+N
Unit power input	5070 W	9050 W	9700 + 6100 W	9700 + 6100 + 6100 W
Unit running current, nom.	11,3 A	18,5 A	19,6 + 12,0 A	19,6 + 14,0 A
Unit running current, max.	17,0 A	30,0 A	32,0 + 21,0 A	32,0 + 42,0 A
Unit starting current	69 A	85 A	87 / 84 A	87 / 95 A
Number of refrigerant circuits	1	1	2	2
Number of compressors	1	2	3	4
Compressor type	Digital Scroll	Digital Scroll & Scroll	Digital Scroll & 2x Scroll	Digital Scroll & 3x Scroll
Oil charge in litres	1,8 l	1,8 & 1,87 l	1,8 + 1,87 + 2,7 l	1,8 + 1,87 + 2,7 + 2,7 l
Oil type	ICI EMKARATE RL 32CF	ICI EMKARATE RL 32CF	YDC_: ICI EMKARATE RL 32CF YOC_: EAL Arctic 32ST	YDC_: ICI EMKARATE RL 32CF YOC_: EAL Arctic 32ST
Number of fans	1	2	2 x 2	2 + 3
Fan diameter in mm	500 mm	500 mm	500 / 450 mm	500 mm
Fan power input	1x 290 W	2x 290 W	2x 290 + 2x 200 W	2x 290 + 3x 290 W
Fan running current	1x 1,35 A	2x 1,35 A	2x 1,35+ 2x 0,9 A	2x 1,35 + 3x 1,35 A
Total air flow	6200 m³/h	11800 m³/h	11800 + 8800 m³/h	11800 + 17600 m³/h
Refrigerant type	R 407C	R 407C	R 407C	R 407C
Refrigerant charge	12,0 kg	14,0 kg	14,0 + 12,0 kg	14,0 + 24,0 kg
Sound pressure level at 1 m (free field)	64 dB(A)	66 dB(A)	67 bB(A)	68 bB(A)
Dimensions				
Length	1330 mm	1500 mm	1500 + 1330 mm	1500 + 1980 mm
Width	780 mm	780 mm	780 mm	780 mm
Height	1350 mm	1350 mm	1350 mm	1350 mm
Weight net	300 kg	360 kg	380 + 285 kg	380 + 455 kg
Water pipe connections Type	threaded male			
Dimensions	1 1/2"	2"	2" + 2"	2 1/2" + 2 1/2"

- Cooling capacities given for 7 °C leaving water temperature and 35°C ambient temperature
- Heating capacities given for 40°C leaving water temperature and 6°C WB ambient temperature
- Weights given of empty unit

[1]) Only for heat pump units

[2]) at nominal water flow

OPERATING LIMITS

Air entering temperatures:	Cooling mode:	- 20 °C to + 45 °C
	Heating mode:	- 10 °C to + 20 °C
Leaving water temperatures:	Cooling mode:	+ 6 °C to + 20 °C (-5°C if filled with brine)
	Heating mode:	+ 30 °C to + 45 °C (automatic switch off at 65°C)

CAPACITY TABLES - YDCC/YDCH cooling capacities

YDCC/YDCH 522

100 % system load

Ambient temperature °C DB	Transformer box - Leaving water temperature								
	5°C			7°C			10°C		
	Total capacity W	Power consumption *) kW	Power consumption *) A	Total capacity W	Power consumption *) kW	Power consumption *) A	Total capacity W	Power consumption *) kW	Power consumption *) A
10	14000	4,2	8,5	18300	4,3	9,0	20400	4,4	9,3
12	14000	4,2	8,5	18300	4,3	9,0	20400	4,4	9,3
14	14000	4,2	8,5	18300	4,3	9,0	20400	4,4	9,3
16	14000	4,2	8,5	18300	4,3	9,0	20400	4,4	9,3
18	14000	4,2	8,5	18300	4,3	9,0	20400	4,4	9,3
20	14000	4,2	8,5	18300	4,3	9,0	20400	4,4	9,3
22	14000	4,2	8,5	18300	4,3	9,0	20400	4,4	9,3
24	14000	4,2	8,5	18300	4,3	9,0	20400	4,4	9,3
26	14000	4,2	8,5	18300	4,3	9,0	20200	4,4	9,2
28	13800	4,3	8,7	17200	4,4	9,1	19700	4,6	9,5
30	13550	4,5	8,9	16300	4,5	9,2	19100	4,7	9,8
32	13300	4,6	9,1	15600	4,6	9,3	18500	4,8	10,2
35	13000	4,8	9,3	15000	**4,8**	**9,5**	17800	5,1	10,5
37	12600	5,0	9,5	14500	5,0	9,7	17400	5,3	11,0
39	12300	5,1	9,6	14000	5,1	9,9	17000	5,4	11,5
41	12000	5,2	9,8	13500	5,3	10,0	16600	5,6	11,5

*) Power consumption without water pump

YDCC/YDCH 972

Ambient temperature °C DB	Transformer box - Leaving water temperature								
	5°C			7°C			10°C		
	Total capacity W	Power consumption *) kW	Power consumption *) A	Total capacity W	Power consumption *) kW	Power consumption *) A	Total capacity W	Power consumption *) kW	Power consumption *) A
10	26500	7,3	14,4	32300	7,5	14,9	37400	7,7	15,7
12	26500	7,3	14,4	32300	7,5	14,9	37400	7,7	15,7
14	26500	7,3	14,4	32300	7,5	14,9	37400	7,7	15,7
16	26500	7,3	14,4	32300	7,5	14,9	37400	7,7	15,7
18	26500	7,3	14,4	32300	7,5	14,9	37400	7,7	15,7
20	26500	7,3	14,4	32300	7,5	14,9	37400	7,7	15,7
22	26500	7,3	14,4	32300	7,5	14,9	37400	7,7	15,7
24	26500	7,3	14,4	32300	7,5	14,9	37400	7,7	15,7
26	26500	7,3	14,4	32300	7,5	14,9	36300	7,9	16,1
28	26000	7,6	14,8	31200	7,8	15,3	35200	8,2	16,4
30	25550	8,0	15,2	30200	8,1	15,7	34200	8,4	16,7
32	25100	8,3	15,6	29200	8,3	16,0	33200	8,6	17,0
35	24500	8,6	16,1	28000	**8,7**	**16,5**	32000	8,9	17,4
37	23800	8,9	16,4	27400	9,1	16,7	31000	9,4	17,8
39	23100	9,3	16,6	26800	9,6	16,9	30100	9,9	18,2
41	22500	9,7	16,8	25500	10,1	17,1	29200	10,3	18,6

*) Power consumption without water pump

CAPACITY TABLES - YDCC/YDCH cooling capacities

YDCC/YDCH 522

75 % system load

Ambient temperature °C DB	Transformer box - Leaving water temperature								
	5°C			7°C			10°C		
	Total capacity W	Power consumption *) kW	Power consumption *) A	Total capacity W	Power consumption *) kW	Power consumption *) A	Total capacity W	Power consumption *) kW	Power consumption *) A
10	10350	3,0	10,3	12900	3,1	10,3	15150	3,2	10,2
12	10350	3,0	10,3	12900	3,1	10,3	15150	3,2	10,2
14	10350	3,0	10,3	12900	3,1	10,3	15150	3,2	10,2
16	10350	3,0	10,3	12900	3,1	10,3	15150	3,2	10,2
18	10350	3,0	10,3	12900	3,1	10,3	15150	3,2	10,2
20	10350	3,0	10,3	12900	3,1	10,3	15150	3,2	10,2
22	10350	3,0	10,3	12900	3,1	10,3	15150	3,2	10,2
24	10350	3,0	10,3	12900	3,1	10,3	15150	3,2	10,2
26	10350	3,0	10,3	12900	3,1	10,3	15150	3,2	10,2
28	10350	3,0	10,3	12900	3,1	10,3	14775	3,4	10,4
30	10163	3,3	10,4	12225	3,3	10,5	14325	3,4	10,5
32	9975	3,4	10,5	11700	3,4	10,5	13875	3,5	10,6
35	9750	3,5	10,7	11250	3,5	10,8	13350	3,7	10,9
37	9450	3,7	10,9	10875	3,7	11,0	13050	3,9	11,1
39	9225	3,7	11,0	10500	3,7	11,1	12750	4,0	11,3
41	9000	3,8	11,2	10125	3,9	11,3	12450	4,1	11,6

*) Power consumption without water pump

YDCC/YDCH 972

Ambient temperature °C DB	Transformer box - Leaving water temperature								
	5°C			7°C			10°C		
	Total capacity W	Power consumption *) kW	Power consumption *) A	Total capacity W	Power consumption *) kW	Power consumption *) A	Total capacity W	Power consumption *) kW	Power consumption *) A
10	19500	5,4	13,7	24225	5,5	12,7	27225	5,7	13,5
12	19500	5,4	13,7	24225	5,5	12,7	27225	5,7	13,5
14	19500	5,4	13,7	24225	5,5	12,7	27225	5,7	13,5
16	19500	5,4	13,7	24225	5,5	12,7	27225	5,7	13,5
18	19500	5,4	13,7	24225	5,5	12,7	27225	5,7	13,5
20	19500	5,4	13,7	24225	5,5	12,7	27225	5,7	13,5
22	19500	5,4	13,7	24225	5,5	13,0	27225	5,7	13,5
24	19500	5,4	13,7	24225	5,5	13,2	27225	5,7	13,5
26	19500	5,4	13,7	24225	5,5	13,5	27225	5,7	13,5
28	19500	5,4	13,7	23400	5,7	13,8	26400	6,0	13,8
30	19163	5,9	13,9	22650	5,9	14,0	25650	6,2	14,1
32	18825	6,1	14,2	21900	6,1	14,3	24900	6,3	14,3
35	18375	6,3	14,5	21000	6,4	14,6	24000	6,5	14,8
37	17850	6,5	14,7	20550	6,7	14,9	23250	6,9	15,1
39	17325	6,8	15,0	20100	7,0	15,2	22575	7,3	15,4
41	16875	7,1	15,4	19125	7,4	15,7	21900	7,6	16,1

*) Power consumption without water pump

CAPACITY TABLES - YDCC/YDCH cooling capacities

YDCC/YDCH 522

50 % system load

Ambient temperature °C DB	Transformer box - Leaving water temperature								
	5°C			7°C			10°C		
	Total capacity W	Power consumption *) kW	Power consumption *) A	Total capacity W	Power consumption *) kW	Power consumption *) A	Total capacity W	Power consumption *) kW	Power consumption *) A
10	6775	2,0	9,8	8150	2,1	9,9	9850	2,4	9,8
12	6775	2,0	9,8	8150	2,1	9,9	9850	2,4	9,8
14	6775	2,0	9,8	8150	2,1	9,9	9850	2,4	9,8
16	6775	2,0	9,8	8150	2,1	9,9	9850	2,4	9,8
18	6775	2,0	9,8	8150	2,1	9,9	9850	2,4	9,8
20	6775	2,0	9,8	8150	2,1	9,9	9850	2,4	9,8
22	6775	2,0	9,8	8150	2,1	9,9	9850	2,4	9,8
24	6775	2,0	9,8	8150	2,1	9,9	9850	2,4	9,8
26	6775	2,0	9,8	8150	2,1	9,9	9850	2,3	9,8
28	6775	2,1	9,8	8150	2,1	9,9	9850	2,3	9,8
30	6775	2,2	9,8	8150	2,2	9,9	9550	2,3	9,9
32	6650	2,2	10,0	7800	2,2	10,0	9250	2,5	10,1
35	6500	2,3	10,2	7500	2,3	10,3	8900	2,7	10,4
37	6300	2,4	10,4	7250	2,4	10,4	8700	2,8	10,5
39	6150	2,5	10,4	7000	2,5	10,5	8500	2,8	10,7
41	6000	2,5	10,6	6750	2,6	10,7	8300	2,9	11,0

*) Power consumption without water pump

YDCC/YDCH 972

Ambient temperature °C DB	Transformer box - Leaving water temperature								
	5°C			7°C			10°C		
	Total capacity W	Power consumption *) kW	Power consumption *) A	Total capacity W	Power consumption *) kW	Power consumption *) A	Total capacity W	Power consumption *) kW	Power consumption *) A
10	13000	3,7	13,0	15600	3,7	13,1	17600	3,8	13,1
12	13000	3,7	13,0	15600	3,7	13,1	17600	3,8	13,1
14	13000	3,7	13,0	15600	3,7	13,1	17600	3,8	13,1
16	13000	3,7	13,0	15600	3,7	13,1	17600	3,8	13,1
18	13000	3,7	13,0	15600	3,7	13,1	17600	3,8	13,1
20	13000	3,7	13,0	15600	3,7	13,1	17600	3,8	13,1
22	13000	3,7	13,0	15600	3,7	13,1	17600	3,8	13,1
24	13000	3,7	13,0	15600	3,7	13,1	17600	3,8	13,1
26	13000	3,7	13,0	15600	3,7	13,1	17600	3,8	13,1
28	13000	3,7	13,0	15600	3,7	13,1	17600	3,8	13,1
30	12775	3,9	13,1	15100	3,9	13,2	17100	4,0	13,3
32	12550	4,0	13,4	14600	4,0	13,5	16600	4,1	13,6
35	12250	4,1	13,8	14000	4,2	13,9	16000	4,2	14,0
37	11900	4,3	14,0	13700	4,4	14,1	15500	4,5	14,3
39	11550	4,5	14,2	13400	4,6	14,4	15050	4,7	14,6
41	11250	4,7	14,6	12750	4,9	14,9	14600	4,9	15,2

*) Power consumption without water pump

CAPACITY TABLES - YDCH heating capacities

YDCH 522

100 % system load

Ambient temperature °C		Transformer Box - Leaving water temperature								
		35°C			40°C			45°C		
		Total capacity	Power consumption *)		Total capacity	Power consumption *)		Total capacity	Power consumption *)	
DB	WB	W	kW	A	W	kW	A	W	kW	A
-10,6	-11,0	7600	3,9	8,5	7400	4,2	8,9			
-8,4	-9,0	8500	3,9	8,6	8200	4,2	9,0			
-6,6	-7,0	9400	4,0	8,6	9100	4,2	9,1			
-4,5	-5,0	10300	4,1	8,7	10000	4,3	9,3	9700	4,7	10,5
-1,3	-3,0	11700	4,2	8,7	11300	4,5	9,5	10900	4,8	10,7
0	-0,7	13000	4,2	8,8	12600	4,6	9,8	12200	5,0	10,9
2,0	1,0	14300	4,3	9,0	13900	4,7	10,1	13500	5,2	11,2
5,0	4,1	15600	4,5	9,1	15200	4,8	10,3	14700	5,3	11,4
7,0	**6,0**	16900	4,7	9,3	16500	**4,9**	**10,5**	15900	5,4	11,7
10,0	8,8	19100	4,9	9,4	18400	5,2	10,8	17800	5,5	11,8
13,0	11,8	21200	5,1	9,5	20400	5,3	11,1	19800	5,7	11,9
15,0	13,7	23400	5,1	9,6	22200	5,5	11,4	21700	5,8	12,0
17,0	15,2	25300	5,2	9,8	24000	5,6	11,7	23600	6,0	12,2
20,0	18,2	25300	5,2	9,8	24000	5,7	11,7	23600	6,2	12,2

*) Power consumption without water pump

... Out of scope

YDCH 972

Ambient temperature °C		Transformer Box - Leaving water temperature								
		35°C			40°C			45°C		
		Total capacity	Power consumption *)		Total capacity	Power consumption *)		Total capacity	Power consumption *)	
DB	WB	W	kW	A	W	kW	A	W	kW	A
-10,6	-11,0	14000	6,8	14,4	13600	7,3	14,7			
-8,4	-9,0	15700	6,8	14,6	15100	7,3	14,9			
-6,6	-7,0	17300	7,0	14,6	16800	7,3	15,1			
-4,5	-5,0	19000	7,1	14,7	18500	7,5	15,4	17900	8,2	17,7
-1,3	-3,0	21600	7,3	14,7	20900	7,8	15,7	20100	8,4	18,1
0	-0,7	24000	7,3	14,9	23300	8,0	16,2	22500	8,8	18,4
2,0	1,0	26400	7,5	15,2	25700	8,2	16,7	24900	9,1	18,9
5,0	4,1	28800	7,8	15,4	28100	8,4	17,1	27100	9,3	19,2
7,0	**6,0**	31200	8,2	15,8	30500	**8,8**	**17,4**	29400	9,7	20,5
10,0	8,8	35300	8,7	16,0	34000	9,2	18,2	32900	9,8	20,4
13,0	11,8	39200	9,1	16,2	37700	9,5	18,9	36600	10,2	20,3
15,0	13,7	43200	9,2	16,5	41000	9,9	19,6	40100	10,4	20,0
17,0	15,2	45900	9,3	17,0	44400	10,2	20,3	43600	10,5	20,2
20,0	18,2	45900	9,0	16,9	44400	9,8	20,1	43600	10,4	19,7

*) Power consumption without water pump

... Out of scope

CAPACITY TABLES - YDCH heating capacities

YDCH 522

75 % system load

Ambient temperature °C		Transformer Box - Leaving water temperature								
		35°C			40°C			45°C		
		Total capacity	Power consumption *)		Total capacity	Power consumption *)		Total capacity	Power consumption *)	
DB	WB	W	kW	A	W	kW	A	W	kW	A
-10,6	-11,0	5700	2,8	8,5	5550	3,0	8,9			
-8,4	-9,0	6375	2,8	8,6	6150	3,0	9,0			
-6,6	-7,0	7050	2,9	8,6	6825	3,0	9,1			
-4,5	-5,0	7725	2,9	8,7	7500	3,1	9,3	7275	3,4	10,5
-1,3	-3,0	8775	3,0	8,7	8475	3,2	9,5	8175	3,4	10,7
0	-0,7	9750	3,0	8,8	9450	3,3	9,8	9150	3,6	10,9
2,0	1,0	10725	3,1	9,0	10425	3,4	10,1	10125	3,7	11,2
5,0	4,1	11700	3,2	9,1	11400	3,4	10,3	11025	3,8	11,4
7,0	**6,0**	12675	3,4	9,3	12375	3,5	10,5	11925	3,9	11,7
10,0	8,8	14325	3,5	9,4	13800	3,7	10,8	13350	3,9	11,8
13,0	11,8	15900	3,6	9,5	15300	3,8	11,1	14850	4,1	11,9
15,0	13,7	17550	3,6	9,6	16650	3,9	11,4	16275	4,1	12,0
17,0	15,2	18975	3,7	9,8	18000	4,0	11,7	17700	4,3	12,2
20,0	18,2	18975	3,7	9,8	18000	4,1	11,7	17700	4,4	12,2

*) Power consumption without water pump

... Out of scope

YDCH 972

Ambient temperature °C		Transformer Box - Leaving water temperature								
		35°C			40°C			45°C		
		Total capacity	Power consumption *)		Total capacity	Power consumption *)		Total capacity	Power consumption *)	
DB	WB	W	kW	A	W	kW	A	W	kW	A
-10,6	-11,0	10500	4,8	14,4	10200	5,2	14,7			
-8,4	-9,0	11775	4,8	14,6	11325	5,2	14,9			
-6,6	-7,0	12975	5,0	14,6	12600	5,2	15,1			
-4,5	-5,0	14250	5,1	14,7	13875	5,4	15,4	13425	5,9	17,7
-1,3	-3,0	16200	5,2	14,7	15675	5,6	15,7	15075	6,0	18,1
0	-0,7	18000	5,2	14,9	17475	5,7	16,2	16875	6,3	18,4
2,0	1,0	19800	5,3	15,2	19275	5,9	16,7	18675	6,5	18,9
5,0	4,1	21600	5,6	15,4	21075	6,0	17,1	20325	6,6	19,2
7,0	**6,0**	23400	5,8	15,8	22875	6,3	17,4	22050	6,9	20,5
10,0	8,8	26475	6,2	16,0	25500	6,6	18,2	24675	7,0	20,4
13,0	11,8	29400	6,5	16,2	28275	6,8	18,9	27450	7,3	20,3
15,0	13,7	32400	6,6	16,5	30750	7,1	19,6	30075	7,4	20,0
17,0	15,2	34425	6,7	17,0	33300	7,3	20,3	32700	7,5	20,2
20,0	18,2	34425	6,4	16,9	33300	7,0	20,1	32700	7,4	19,7

*) Power consumption without water pump

... Out of scope

CAPACITY TABLES - YDCH heating capacities

YDCH 522

50 % system load

Ambient temperature °C		Transformer Box - Leaving water temperature								
		35°C			40°C			45°C		
		Total capacity	Power consumption *)		Total capacity	Power consumption *)		Total capacity	Power consumption *)	
DB	WB	W	kW	A	W	kW	A	W	kW	A
-10,6	-11,0	3800	1,8	8,5	3700	2,0	8,9			
-8,4	-9,0	4250	1,8	8,6	4100	2,0	9,0			
-6,6	-7,0	4700	1,9	8,6	4550	2,0	9,1			
-4,5	-5,0	5150	1,9	8,7	5000	2,0	9,3	4850	2,2	10,5
-1,3	-3,0	5850	2,0	8,7	5650	2,1	9,5	5450	2,3	10,7
0	-0,7	6500	2,0	8,8	6300	2,2	9,8	6100	2,4	10,9
2,0	1,0	7150	2,0	9,0	6950	2,2	10,1	6750	2,5	11,2
5,0	4,1	7800	2,1	9,1	7600	2,3	10,3	7350	2,5	11,4
7,0	**6,0**	8450	2,2	9,3	8250	2,3	10,5	7950	2,5	11,7
10,0	8,8	9550	2,3	9,4	9200	2,5	10,8	8900	2,6	11,8
13,0	11,8	10600	2,4	9,5	10200	2,5	11,1	9900	2,7	11,9
15,0	13,7	11700	2,4	9,6	11100	2,6	11,4	10850	2,7	12,0
17,0	15,2	12650	2,5	9,8	12000	2,6	11,7	11800	2,8	12,2
20,0	18,2	12650	2,5	9,8	12000	2,7	11,7	11800	2,9	12,2

*) Power consumption without water pump

... Out of scope

YDCH 972

Ambient temperature °C		Transformer Box - Leaving water temperature								
		35°C			40°C			45°C		
		Total capacity	Power consumption *)		Total capacity	Power consumption *)		Total capacity	Power consumption *)	
DB	WB	W	kW	A	W	kW	A	W	kW	A
-10,6	-11,0	7000	3,2	14,4	6800	3,5	14,7			
-8,4	-9,0	7850	3,2	14,6	7550	3,5	14,9			
-6,6	-7,0	8650	3,3	14,6	8400	3,5	15,1			
-4,5	-5,0	9500	3,4	14,7	9250	3,5	15,4	8950	3,9	17,7
-1,3	-3,0	10800	3,4	14,7	10450	3,7	15,7	10050	4,0	18,1
0	-0,7	12000	3,4	14,9	11650	3,8	16,2	11250	4,1	18,4
2,0	1,0	13200	3,5	15,2	12850	3,9	16,7	12450	4,3	18,9
5,0	4,1	14400	3,7	15,4	14050	3,9	17,1	13550	4,4	19,2
7,0	**6,0**	15600	3,9	15,8	15250	4,2	17,4	14700	4,6	20,5
10,0	8,8	17650	4,1	16,0	17000	4,3	18,2	16450	4,6	20,4
13,0	11,8	19600	4,3	16,2	18850	4,5	18,9	18300	4,8	20,3
15,0	13,7	21600	4,3	16,5	20500	4,7	19,6	20050	4,9	20,0
17,0	15,2	22950	4,4	17,0	22200	4,8	20,3	21800	4,9	20,2
20,0	18,2	22950	4,2	16,9	22200	4,6	20,1	21800	4,9	19,7

*) Power consumption without water pump

... Out of scope

CAPACITY TABLES - YOCC/YOCH cooling-/heating capacities

YOCC/YOCH 762

YOCC/YOCH cooling capacities

	Transformer box - Leaving water temperature								
	5°C			7°C			10°C		
Ambient temperature °C DB	Total capacity W	Power consumption kW	Power consumption A	Total capacity W	Power consumption kW	Power consumption A	Total capacity W	Power consumption kW	Power consumption A
10	22500	5,2	10,8	24500	5,3	11,0	26400	5,4	11,0
12	22500	5,2	10,8	24500	5,3	11,0	26400	5,4	11,0
14	22500	5,2	10,8	24500	5,3	11,0	26400	5,4	11,0
16	22500	5,2	10,8	24500	5,3	11,0	26400	5,4	11,0
18	22500	5,2	10,8	24500	5,3	11,0	26400	5,4	11,0
20	22500	5,2	10,8	24500	5,3	11,0	26400	5,4	11,0
22	22500	5,2	10,8	24500	5,3	11,0	25900	5,6	11,3
24	22200	5,3	10,9	24000	5,4	10,9	25500	5,7	11,5
26	21900	5,5	11,1	23600	5,6	11,1	25100	5,9	11,7
28	21500	5,6	11,2	23200	5,7	11,3	24700	6,0	11,9
30	21200	5,8	11,5	22800	5,9	11,6	24300	6,1	12,1
32	20800	5,9	11,7	22400	6,0	11,8	23900	6,2	12,3
35	20500	6,0	11,8	**22000**	**6,1**	**12,0**	23500	6,3	12,5
37	19900	6,2	12,1	21400	6,2	12,1	22900	6,5	12,6
39	19200	6,4	12,3	20800	6,4	12,3	22300	6,7	12,7
41	18800	6,6	12,6	20300	6,6	12,4	21700	6,8	12,8

... Out of scope

YOCH 762

YOCH heating capacities

		Transformer box - Leaving water temperature								
		5°C			7°C			10°C		
Ambient temperature °C		Total capacity W	Power consumption kW	Power consumption A	Total capacity W	Power consumption kW	Power consumption A	Total capacity W	Power consumption kW	Power consumption A
DB	WB									
-10,6	-11,0	12700	5,4	11,5	12500	5,9	12,5			
-8,4	-9,0	13600	5,5	11,6	13400	6,0	12,5			
-6,6	-7,0	14500	5,6	11,8	14300	6,1	12,5			
-4,5	-5,0	15400	5,7	11,9	15300	6,1	12,6	15100	6,6	13,5
-1,3	-3,0	17000	5,7	11,9	16800	6,1	12,6	16200	6,6	13,5
0	-0,7	18600	5,8	12,0	18300	6,2	12,6	17600	6,7	13,5
2,0	1,0	20200	5,8	12,0	19800	6,2	12,7	19000	6,7	13,5
5,0	4,1	21900	5,9	12,1	21500	6,3	12,7	20600	6,8	13,6
7,0	**6,0**	23500	5,9	12,1	**23000**	**6,3**	**12,7**	22000	6,9	13,6
10,0	8,8	24800	5,9	12,1	24200	6,3	12,8	23200	6,9	13,6
13,0	11,8	26200	5,9	12,1	25500	6,4	12,8	24500	7,0	13,7
15,0	13,7	27500	6,0	12,2	26800	6,5	12,8	25800	7,1	13,8
17,0	15,2	28800	6,0	12,2	28000	6,5	12,9	27000	7,1	13,9
20,0	18,2	29200	6,1	12,3	28500	6,6	12,9	27500	7,2	13,9

... Out of scope

CAPACITY TABLES - YOCC/YOCH cooling-/heating capacities

YOCC/YOCH 1522

YOCC/YOCH cooling capacities

Ambient temperature °C		Transformer Box - Leaving water temperature								
		5°C			7°C			10°C		
		Total capacity	Power consumption *)		Total capacity	Power consumption *)		Total capacity	Power consumption *)	
DB	WB	W	kW	A	W	kW	A	W	kW	A
10		45000	10,2	21,6	49000	10,6	22,0	52800	10,8	22,0
12		45000	10,2	21,6	49000	10,6	22,0	52800	10,8	22,0
14		45000	10,2	21,6	49000	10,6	22,0	52800	10,8	22,0
16		45000	10,2	21,6	49000	10,6	22,0	52800	10,8	22,0
18		45000	10,2	21,6	49000	10,6	22,0	52800	10,8	22,0
20		45000	10,2	21,6	49000	10,6	22,0	52800	10,8	22,0
22		45000	10,2	21,6	49000	10,6	22,0	51800	11,2	22,6
24		44400	10,6	21,8	48000	10,8	22,1	51000	11,4	23,0
26		43800	11,0	22,2	47200	11,2	22,2	50200	11,8	23,4
28		43000	11,2	22,4	47400	11,4	22,6	49400	12,0	23,8
30		42400	11,6	23,0	45600	11,8	23,2	48600	12,2	24,2
32		41600	11,8	23,4	44800	12,0	23,6	47800	12,4	24,6
35		41000	12,0	23,6	**44000**	**12,2**	**24,0**	47000	12,6	25,0
37		39800	12,4	24,2	42800	12,4	24,2	45800	13,0	25,2
39		38400	12,8	24,6	41600	12,8	24,6	44600	13,4	25,4
41		37600	13,2	25,2	40600	13,2	24,8	43400	13,6	25,6

YOCH 1522

YOCH heating capacities

Ambient temperature °C		Transformer Box - Leaving water temperature								
		35°C			40°C			45°C		
		Total capacity	Power consumption *)		Total capacity	Power consumption *)		Total capacity	Power consumption *)	
DB	WB	W	kW	A	W	kW	A	W	kW	A
-10,6	-11,0	25400	10,8	23	25000	11,8	25			
-8,4	-9,0	27200	11,0	23,2	26800	12,0	25			
-6,6	-7,0	29000	11,2	23,6	28600	12,2	25			
-4,5	-5,0	30800	11,4	23,8	30600	12,3	25,2	31200	4,7	10,5
-1,3	-3,0	34000	11,5	23,9	33600	12,3	25,3	32400	4,8	10,7
0	-0,7	37200	11,6	24	36600	12,4	25,3	35200	5,0	10,9
2,0	1,0	40200	11,7	24,1	39600	12,5	25,4	38000	5,2	11,2
5,0	4,1	43800	11,8	24,2	43000	,12,6	25,5	41200	5,3	11,4
7,0	**6,0**	47000	11,9	24,3	46000	**12,7**	**25,5**	44000	5,4	11,7
10,0	8,8	49600	11,9	24,4	48400	12,7	25,6	46400	5,5	11,8
13,0	11,8	52400	11,9	24,5	51000	12,8	25,7	49000	5,7	11,9
15,0	13,7	55000	12,0	24,5	53600	13,0	25,7	51600	5,8	12,0
17,0	15,2	57600	12,1	24,6	56000	13,1	25,8	54000	6,0	12,2
20,0	18,2	58400	12,2	24,7	57000	13,2	25,9	55000	6,2	12,2

... Out of scope

YORK®

Available external pressure drops								
Model	YTB_522H		YTB_972H		YTB_1732H		YTB_2502H	
	water flow **l/h**	available ext. stat. pressure **kPa**	water flow **l/h**	available ext. stat. pressure **kPa**	water flow **l/h**	available ext. stat. pressure **kPa**	water flow **l/h**	available ext. stat. pressure **kPa**
	1650	90	2800	89	4700	121	6500	122
	1800	88	3000	85	4900	118	6800	117
	1900	86	3200	81	5100	116	7100	113
	2000	84	3400	79	5300	113	7500	110
	2200	81	3600	75	5500	108	8000	102
	2400	79	3800	73	5800	104	8500	93
	2600	73	4000	69	6000	100	9000	85
	2800	69	4200	65	6500	84	9500	78
	3000	63	4400	61	7000	75	10000	70
	3200	58	4600	57	7500	63	10500	67
	3400	54	4800	53	8000	47	11000	54
	3600	44	5000	49	8500	36	11500	42
	3800	36	5200	45			12000	30

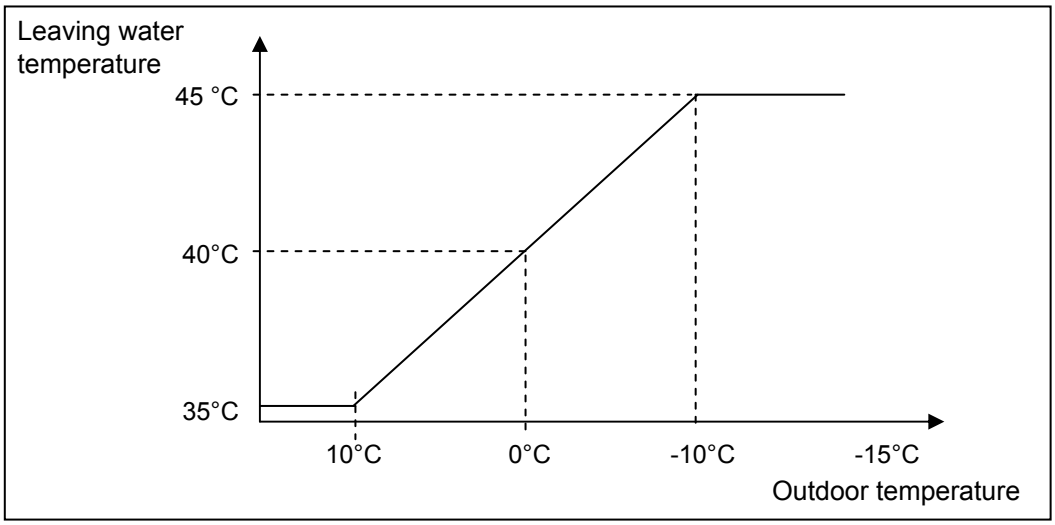
... Out of scope

HEATING GRAPHS (Heat pump)

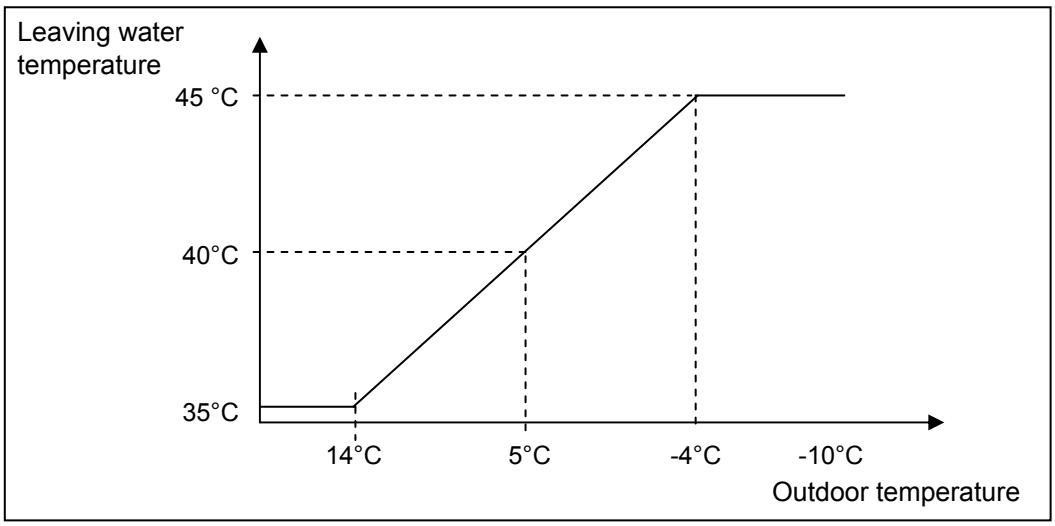
Heating graph 0: Standard configuration

A constant leaving water temperature has to be selected on the central controller. The outdoor temperature has no impact on the leaving water temperature.

Heating graph 1: (**Attention!** This configuration requires an outdoor temperature sensor -OTS-1)



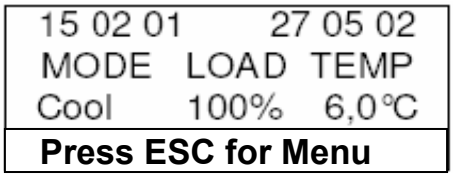
Heating graph 2: (**Attention!** This configuration requires an outdoor temperature sensor -OTS-1)



CONTROL USER GUIDE AND ALARMS

LCD/Keypad Operations

Main Screen

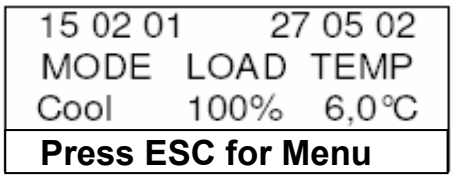


The HVS Standard controller is your direct link into the status and setpoints values.
With the HVS Standard controller the user can view any temperature or output condition and change any setpoint to fine tune the operations of the total system.
All keypad operations are simple and straightforward, utilizing noncryptic plain English messages.
The remainder of this section will lead the user through the system menus and keypad operation.

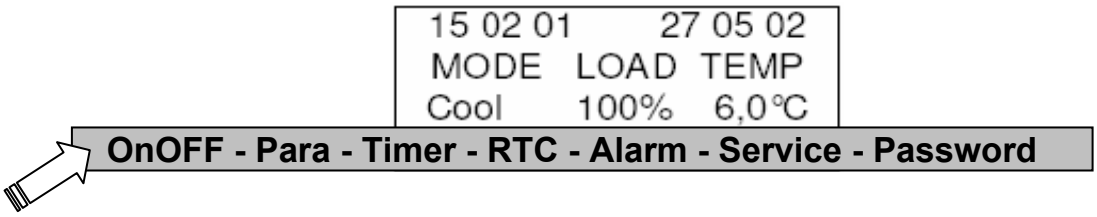
Main Screen

Navigation Buttons:

The navigation keys  and  have specific functions which are are related to the status of the page currently displayed.



Status Screens



ACTIVE mode:

When pressing  the cursor will appear in the Menu bar and you have entered the ACTIVE mode.

The  and  buttons allow scrolling within the Menu bar containing the Status screens.

EDIT mode:

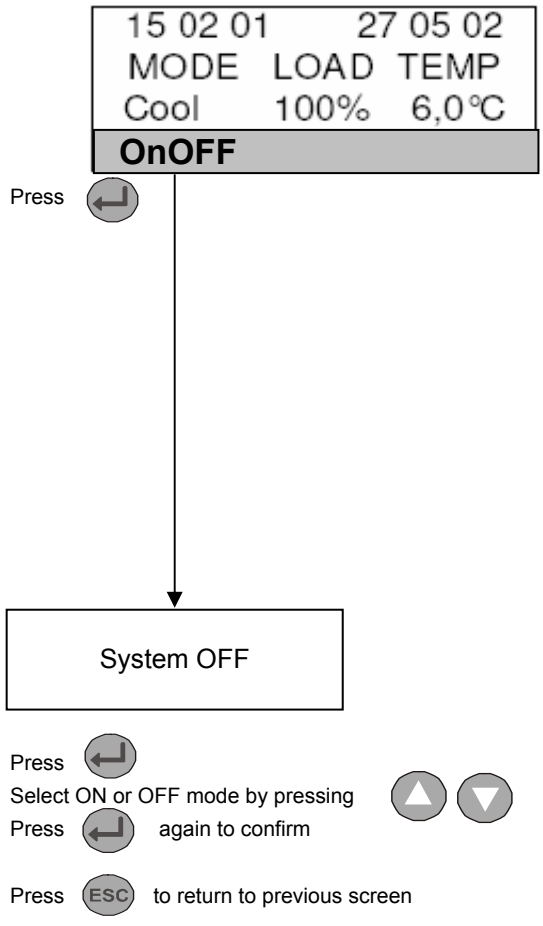
Press ↵ to enter the desired STATUS module, containing the parameter values. You are now in EDIT mode.

Press ▲ ▼ ◀ ▶ buttons to move the cursor within the parameter lines.

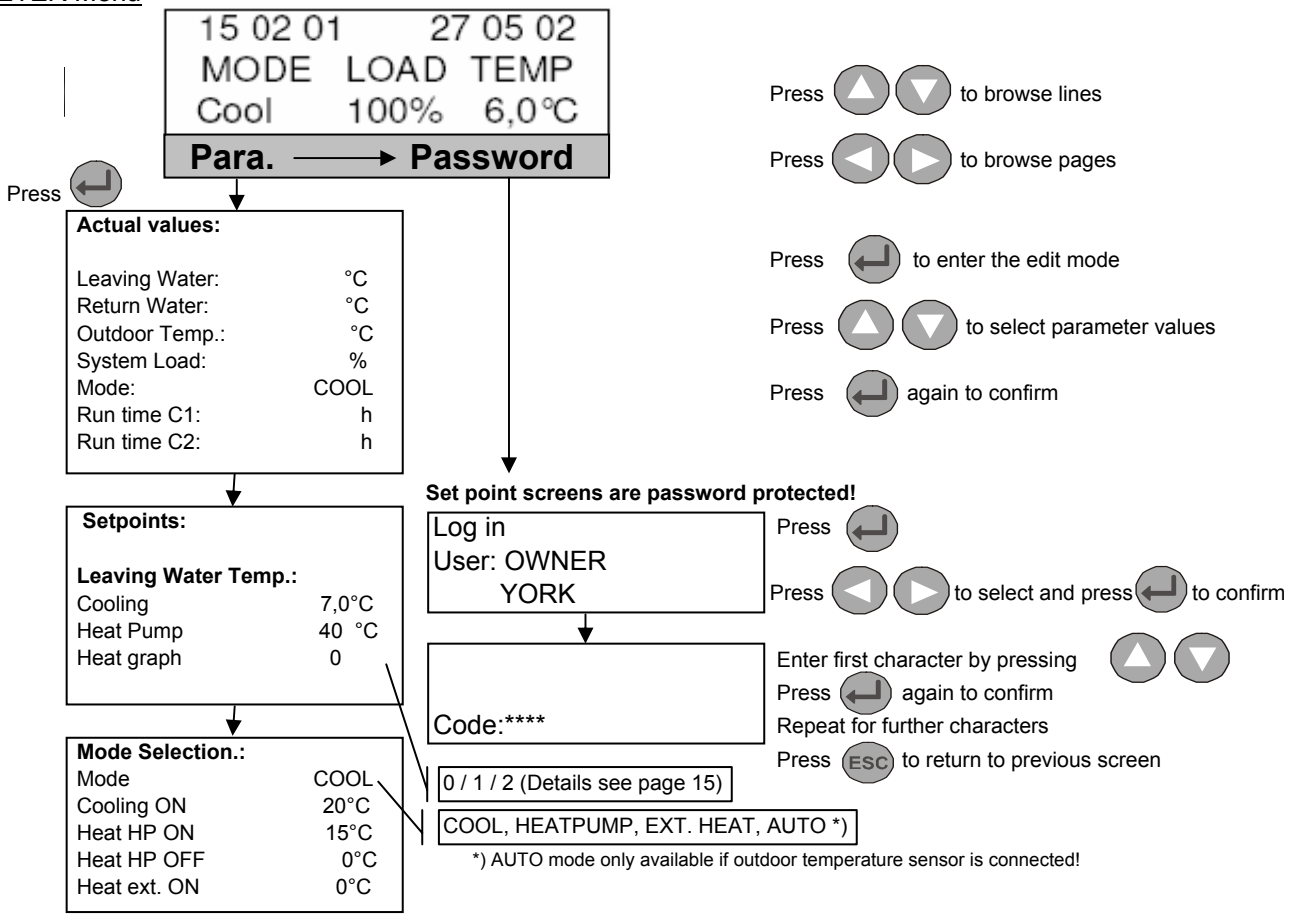
ESC Return to Main screen

Please consider that some STATUS modules require password access.

ON/OFF Menu



PARAMETER Menu



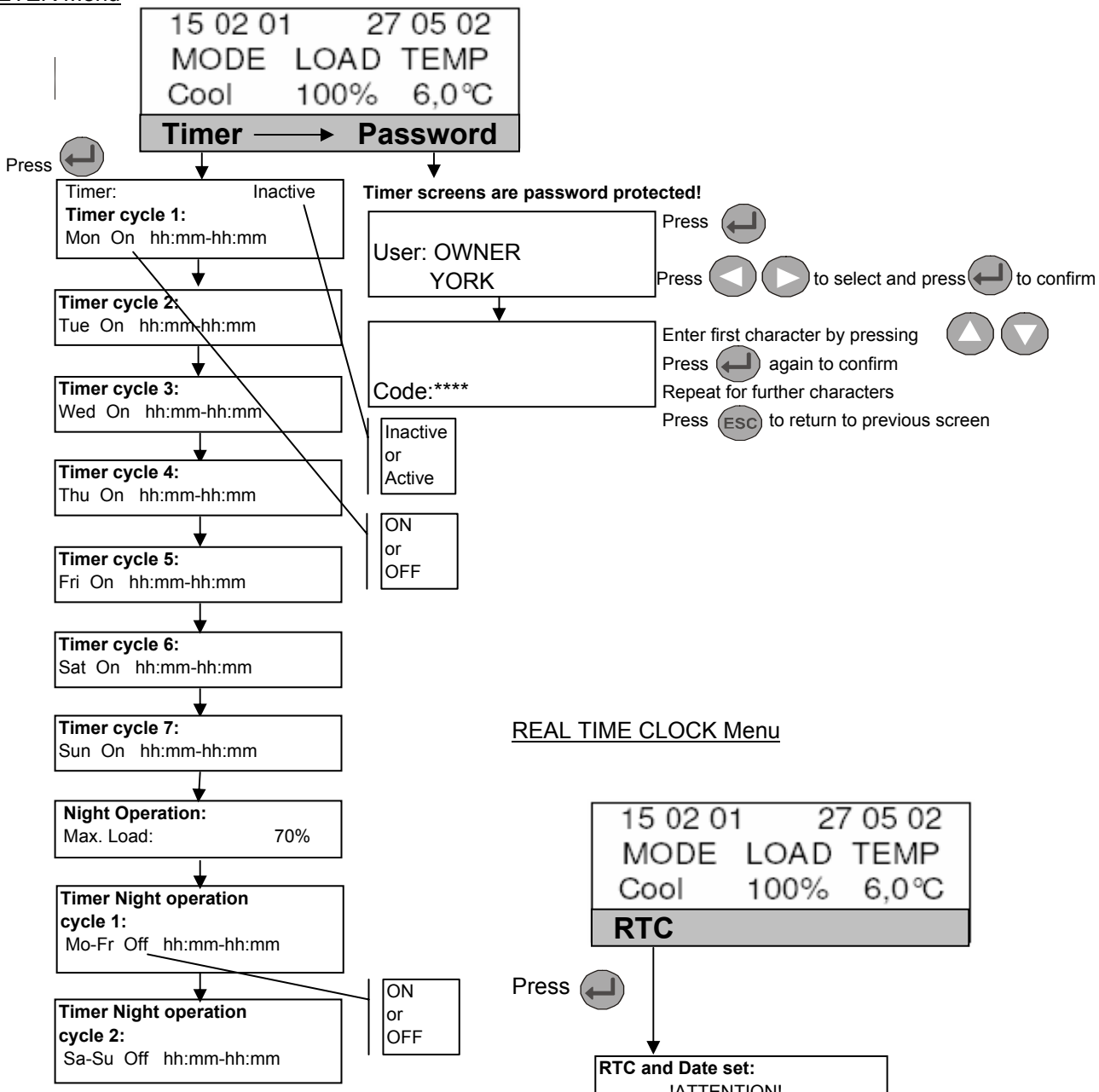
Change password:

To change the password, please press and simultaneously for 10 sec.

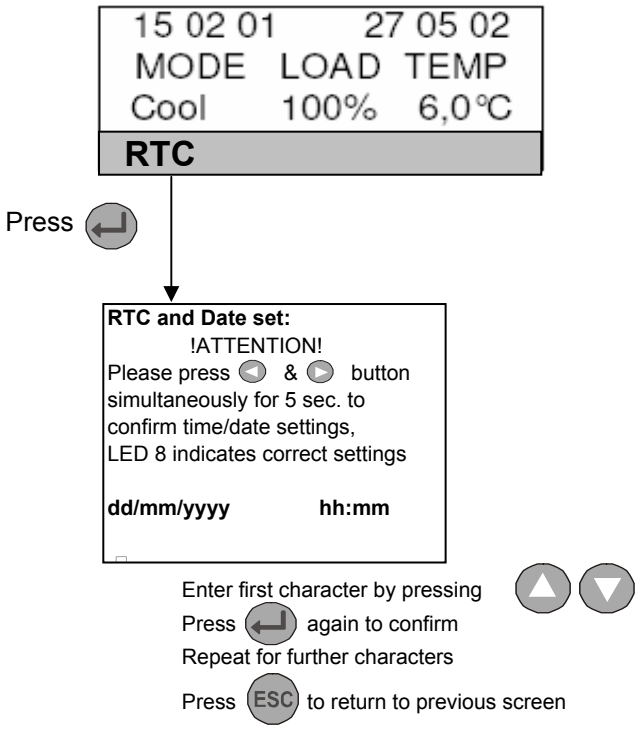
The standard password is: **1111**

CONTROL USER GUIDE AND ALARMS

PARAMETER Menu

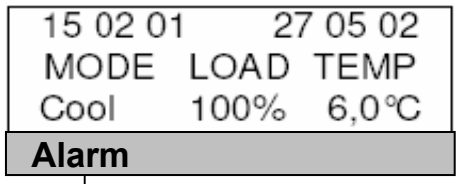


REAL TIME CLOCK Menu



CONTROL USER GUIDE AND ALARMS

ALARM Menu



Event Summary:

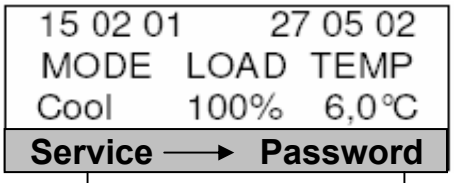
Digital Scroll comp.
Tandem comp.
High pressure
Low pressure
Discharge temp.
Water pump
Flow switch
Freeze Protec.
ON/OFF unit 1
ON/OFF unit 2
Fan-Coil circ.
Leaving water sensor
Battery warning

Press ▲ ▼ to browse within the lines

If the same alarm appears more often than 3 times within 12 hours a manual reset is required.

Reset procedure:
Press ▲ and ▼ buttons simultaneously.

SERVICE Menu



Access for trained York staff only!

Service Parameters 1:

PI-controller:	
P-band	1,5K
I-time: :	60 s
Sensor Offset:	
Leaving water	± K
Return water	± K
Outdoor temp.	± K
Freezing Prot.:	2,5°C
Remote ON/OFF:	OR
Operating limits	
Cooling leaving water:	
High limit:	+ 20°C
Low limit:	+ 6°C

→ ±5 K

→ OR or AND to Standard controller

→ absolute min. -5°C

User: OWNER
YORK

Press ↵

Press ◀ ▶ to select YORK and press ↵ to confirm

Code:****

Enter first character by pressing ▲ ▼
Press ↵ again to confirm
Repeat for further characters
Press ESC to return to previous screen

YORK®

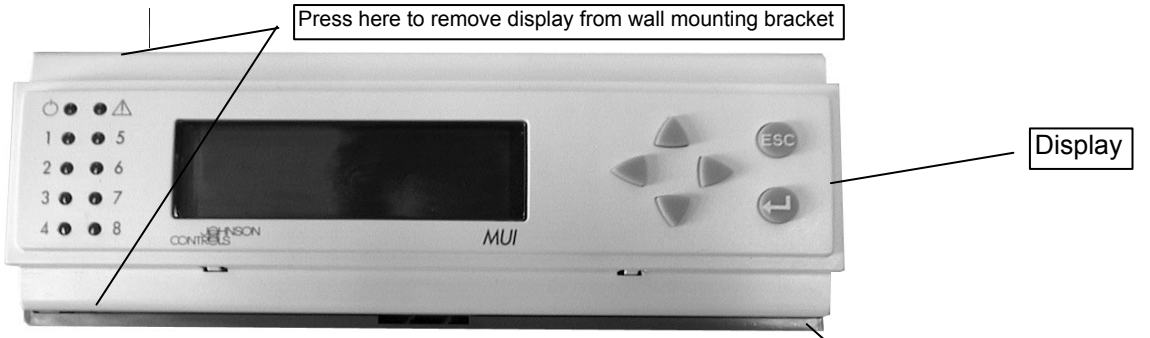
Service Parameters 2:

Compr. OFF delay:	300 sec
dt restart compr.:	6 K
Min. stop time compr.:	3 min
Strart cycle (25%):	0 min
Delay Tandem comp.:	10 min
Delay ON/OFF unit1:	10 min
Delay ON/OFF unit1:	10 min
Change mode after:	120 min

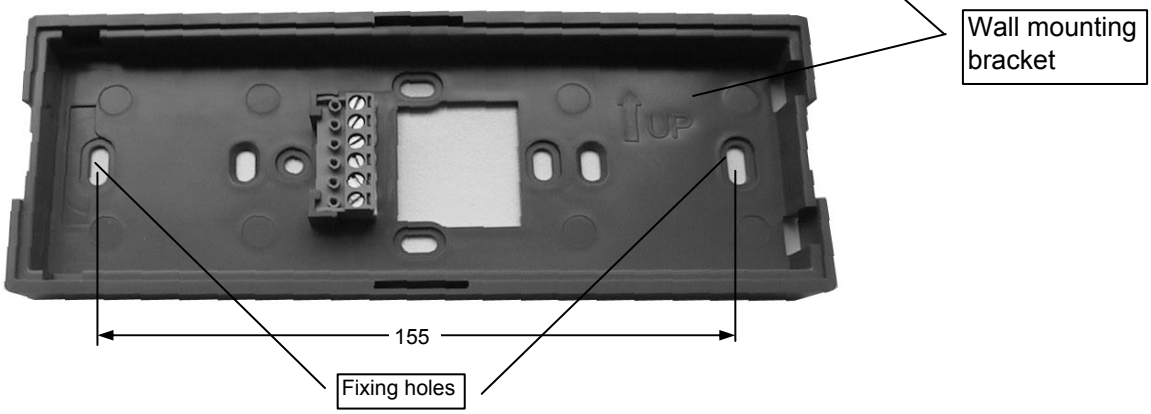
CONTROL USER GUIDE AND ALARMS

Mounting

1. Remove the display from the wall mounting bracket by applying slight pressure to the knobs on each side.

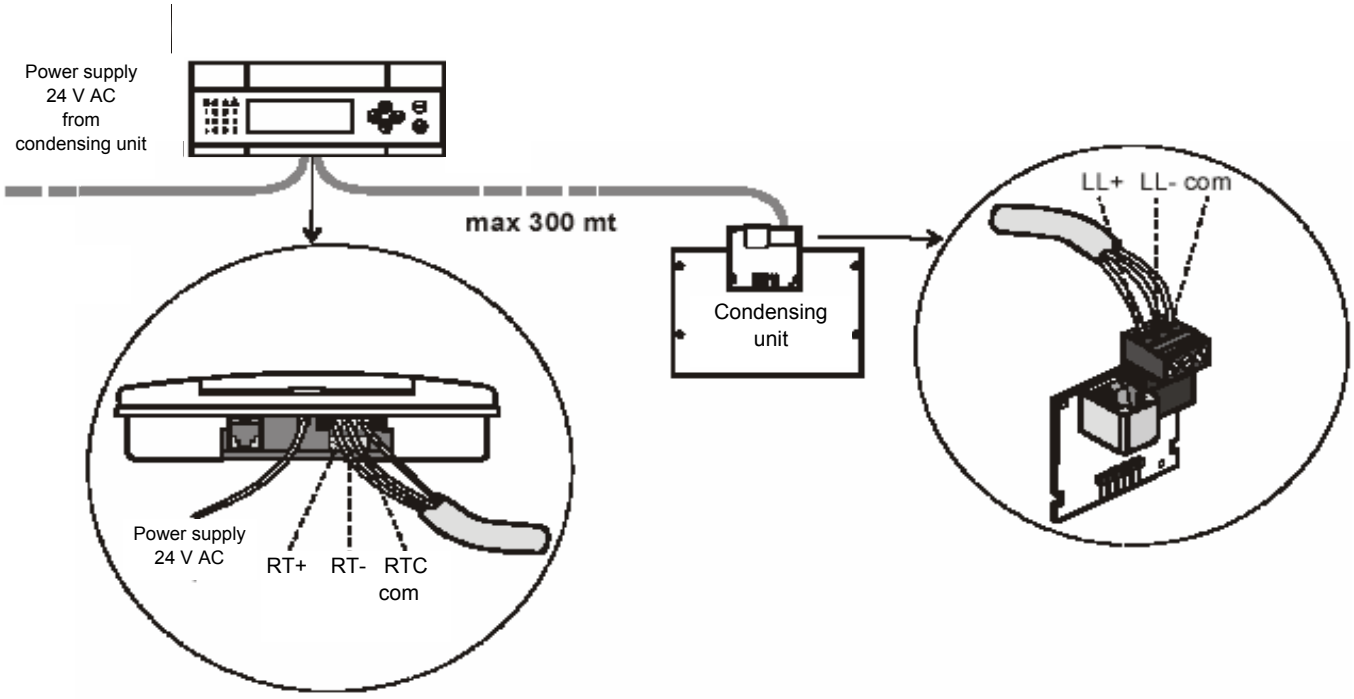


2. Drill appropriate holes for the wall mounting bracket, shown in the picture below.



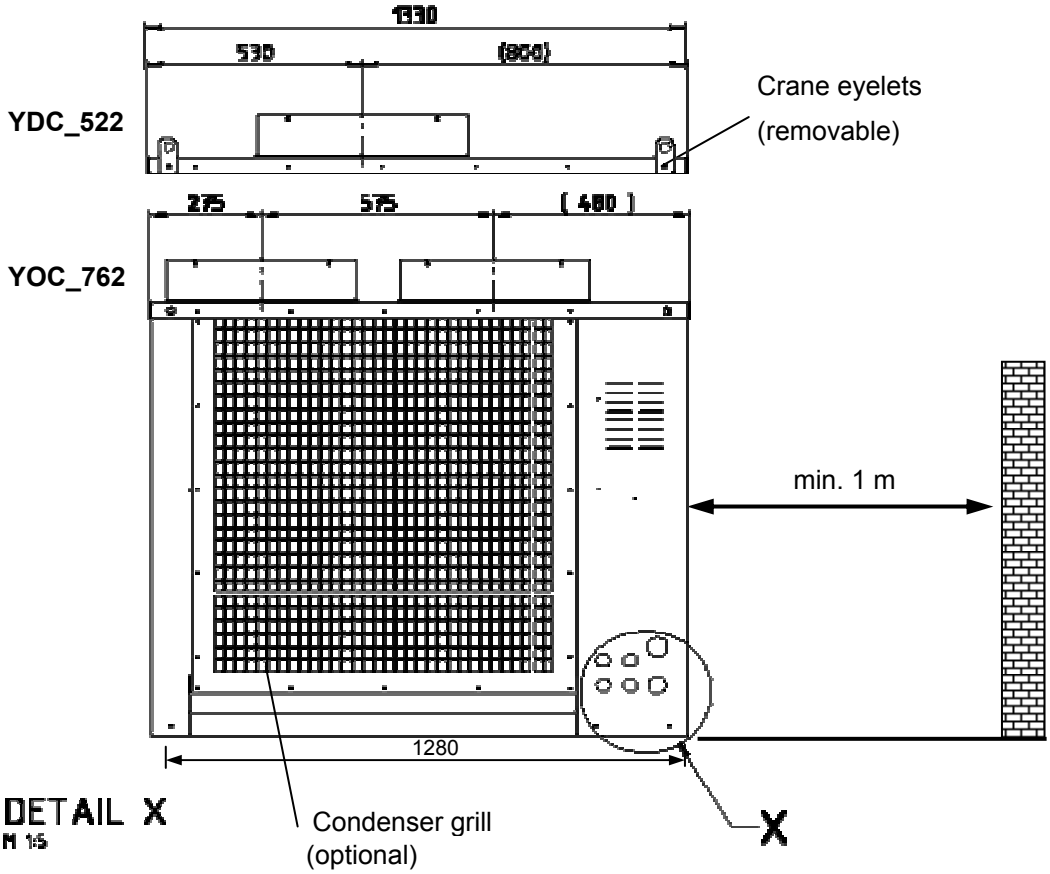
3. Attach the wall mounting bracket to the wall (using appropriate screws).
4. Connect the serial cable and power supply to the display. Refer to “Electrical Connections” on the next page.
5. Place the Standard controller on the bracket.
6. Secure the display to the bracket by applying a slight pressure to the front of the display against the bracket.

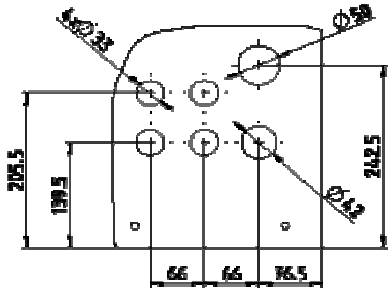
Dimensions

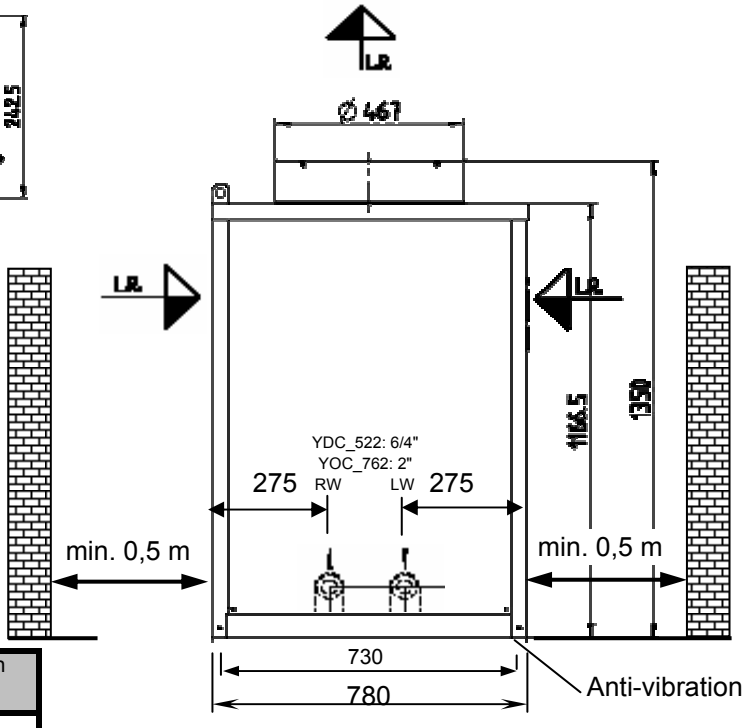

Power supply
24 V AC
from
condensing unit
max 300 mt
Condensing
unit
LL+ LL- com
Power supply
24 V AC
RT+
RT-
RTC
com

DIMENSIONS AND WATER CONNECTIONS

YDCC/YDCH 522
YOCC/YOCH 762





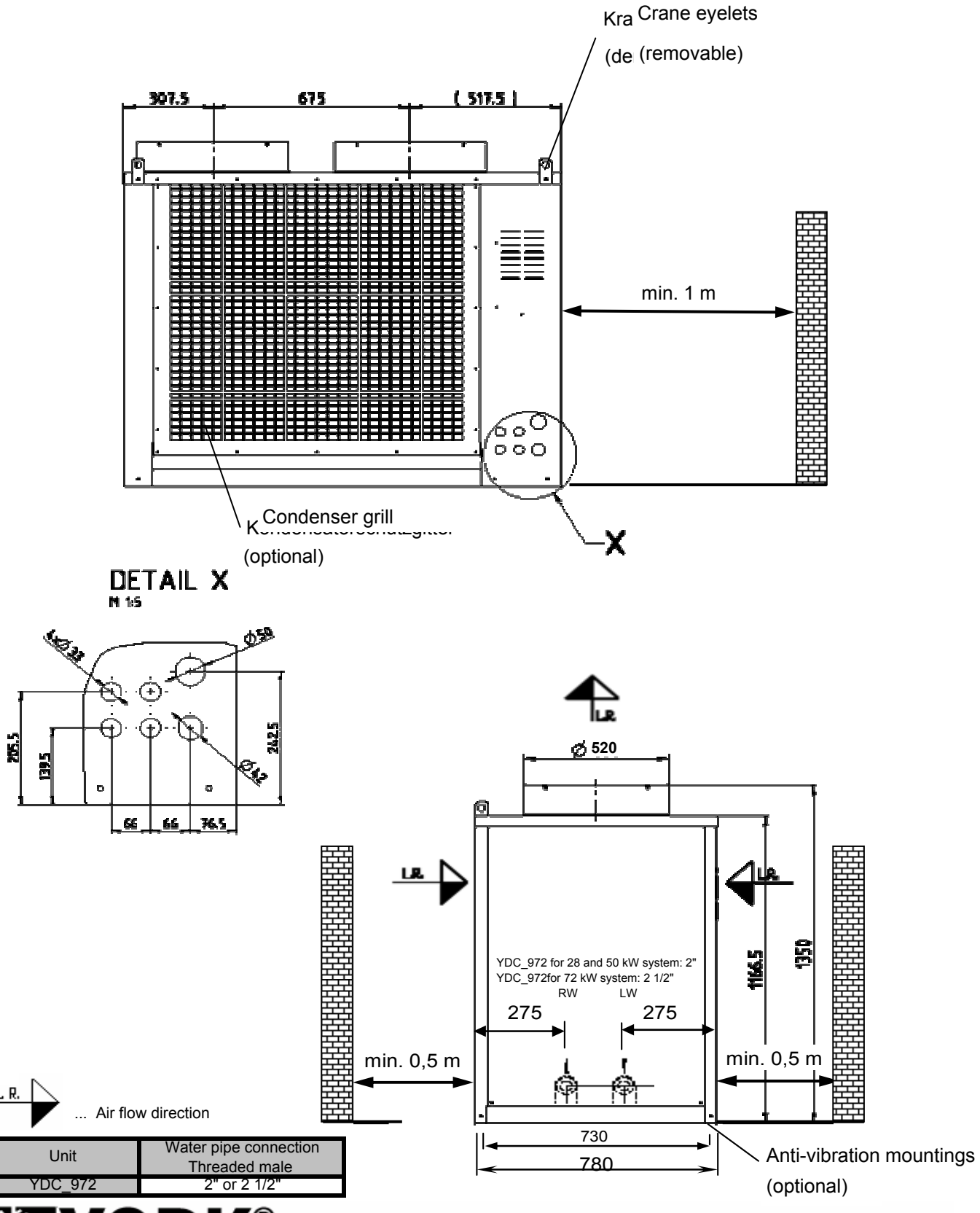


L.R. ... Air flow direction

Unit	Water pipe connection Threaded male
YDC_522	6/4"
YOC_762	2"

YORK®

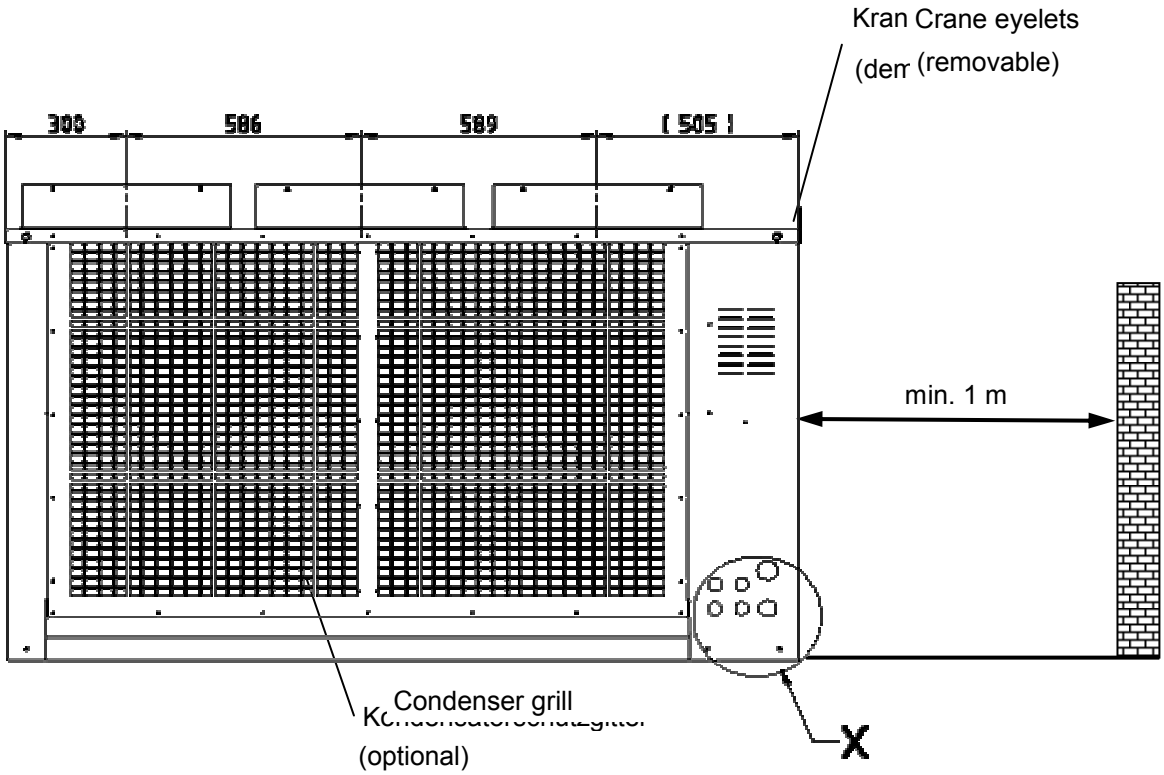
YDCC/YDCH 972

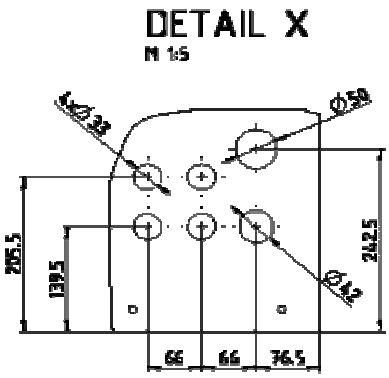


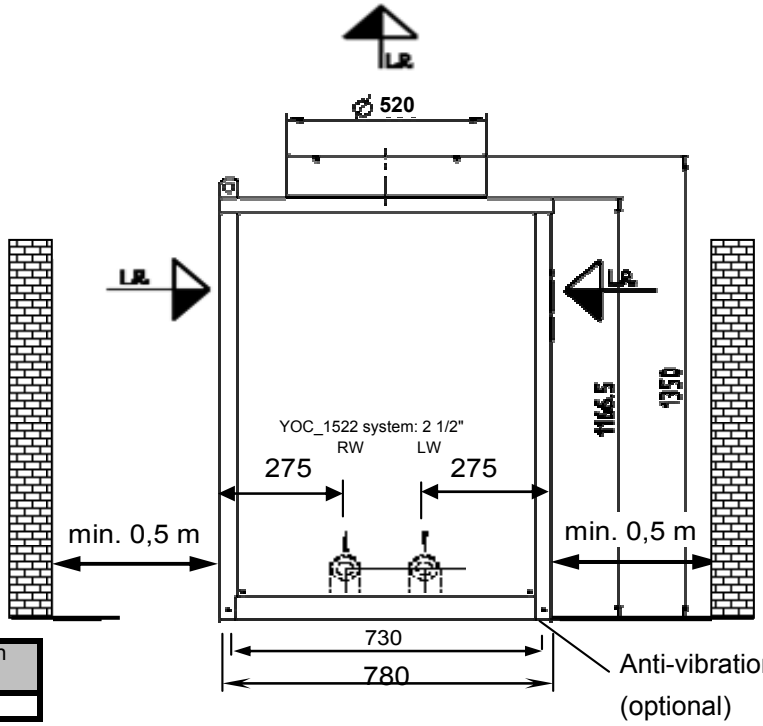
Unit	Water pipe connection Threaded male
YDC_972	2" or 2 1/2"

DIMENSIONS AND WATER CONNECTIONS

YOCC/YOCH 1522





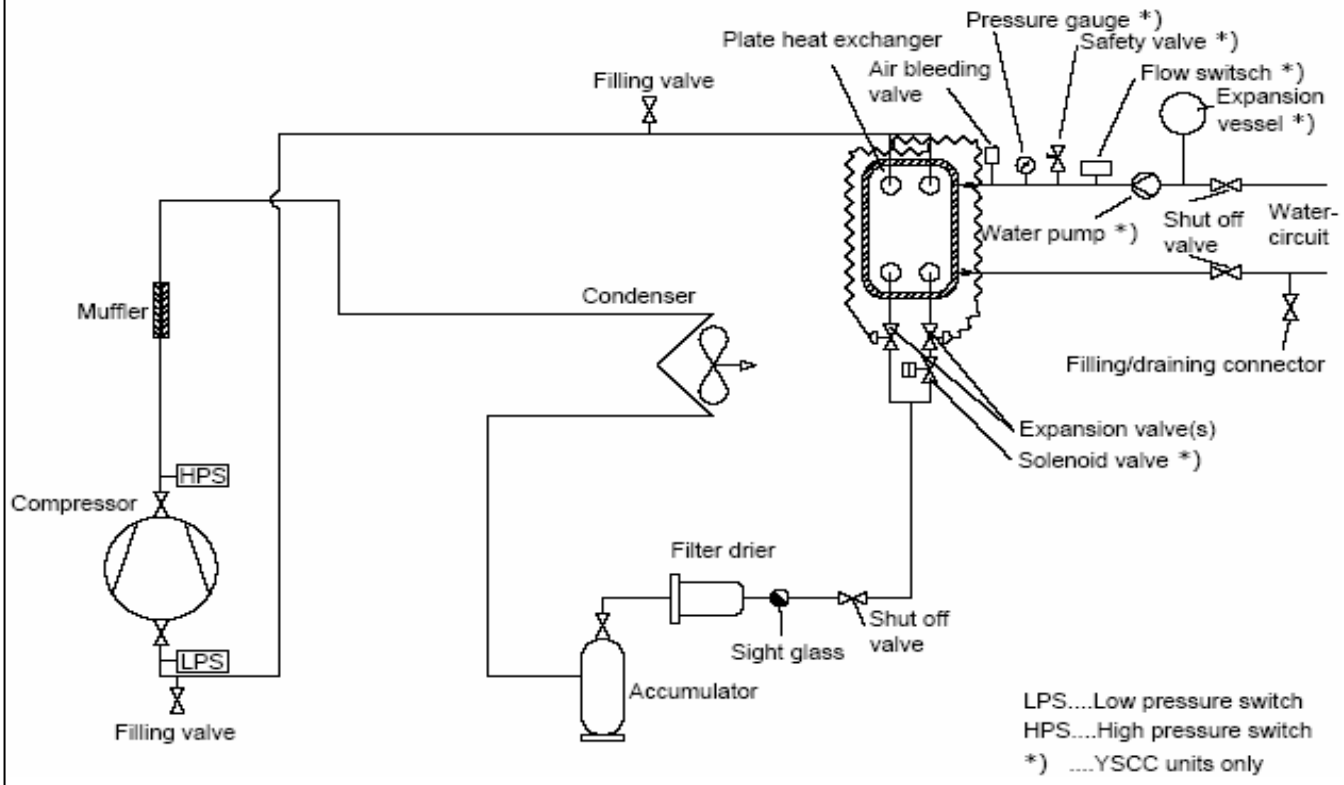


L.R. ... Air flow direction

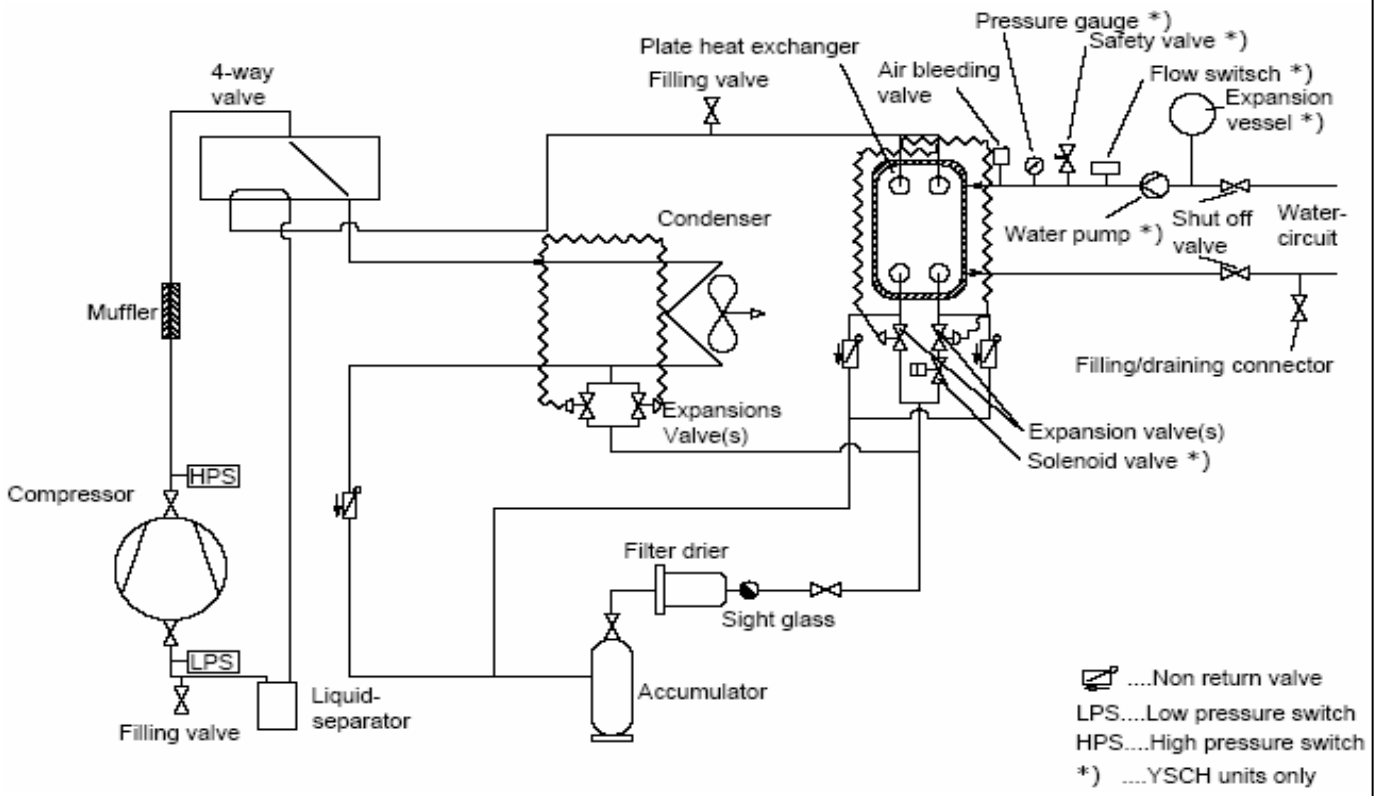
Unit	Water pipe connection Threaded male
YOC_1522	2 1/2"

YORK®

YDCC (cooling only)
YOCC (cooling only)



YDCH (heat pump)
YOCH (heat pump)



ELECTRICAL SUPPLY & CONNECTIONS

WARNING ⚠

Check that the power supply is off when working on the unit electrical system. The unit must be earthed.

CAUTION ⚠

It is the installers responsibility to check that the external wiring complies with local safety regulations.
YORK International is not responsible for injury or damage from failure to observe these precautions.

Electrical supplies

The units complies with the regulation EN 60 201-1

The following connections are required:

• 3 phases + neutral + earth

The electrical distribution must be able to supply all the unit power (check the electrical characteristics)
The disconnect switches and circuit breaker must be designed for the unit starting current (check the electrical characteristics)
Supply and isolating devices must be designed with fully independent lines.
Magnetic and magnetic differential breaker are mandatory to prevent damage.

Electrical connections

Terminal connection must be made according to the connection diagram supplied with the unit.

CAUTION ⚠

Before connecting the main supply check that the main voltage is within the range shown in the electrical data.

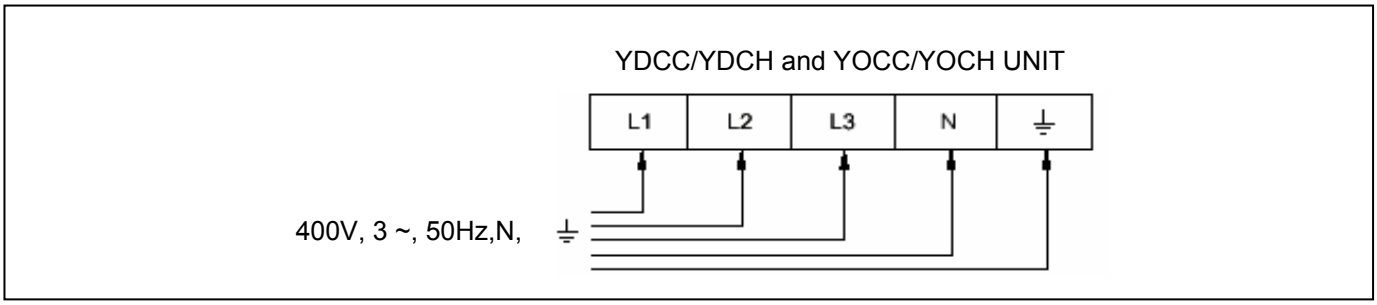
CAUTION ⚠

Supplying the unit with unbalanced lines will automatically void the warranty.

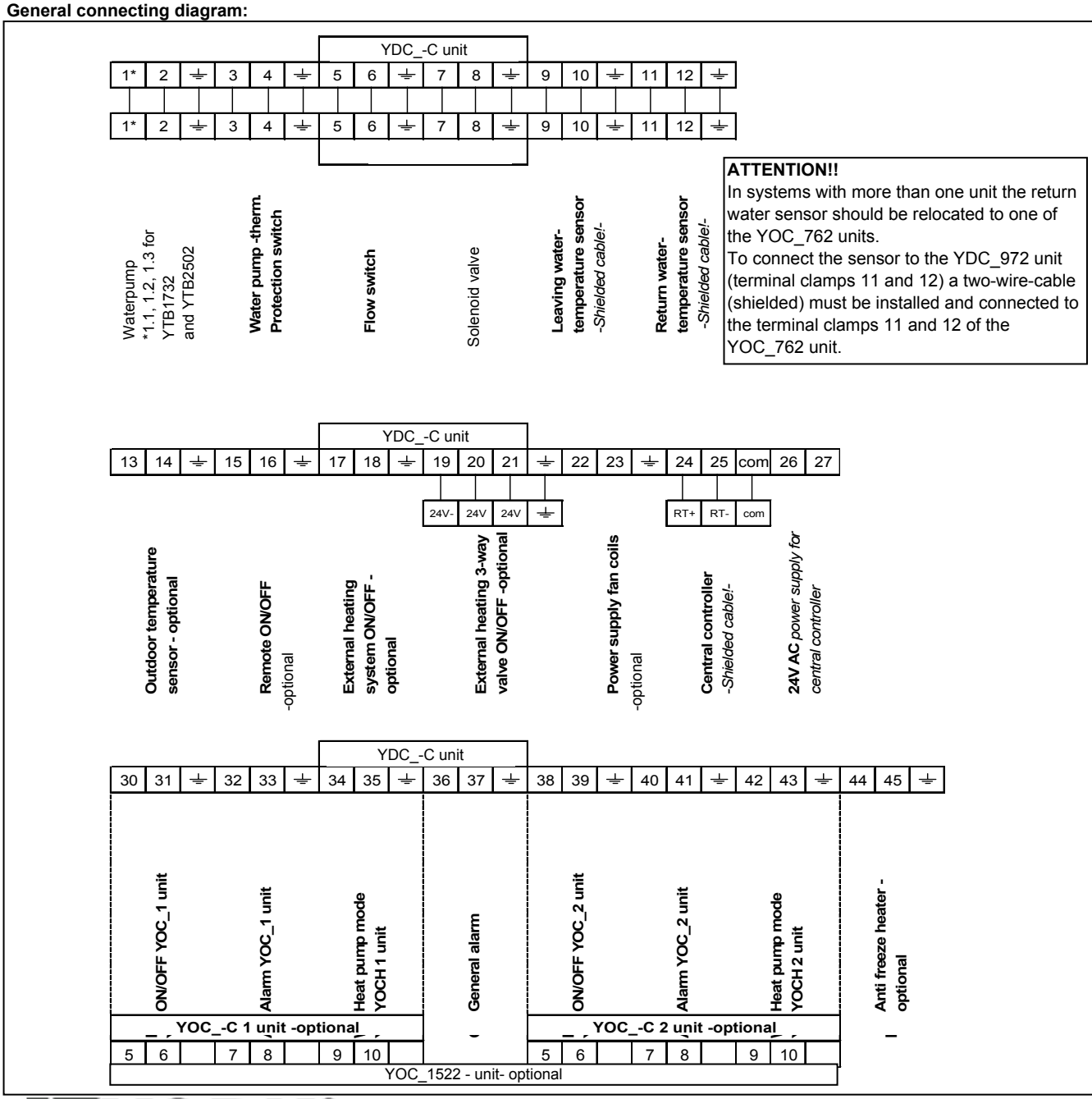
ATTENTION!!
Please make sure that the compressor-rotation is in the clockwise direction!!

ELECTRICAL SUPPLY & CONNECTIONS

Power supply connecting diagram:

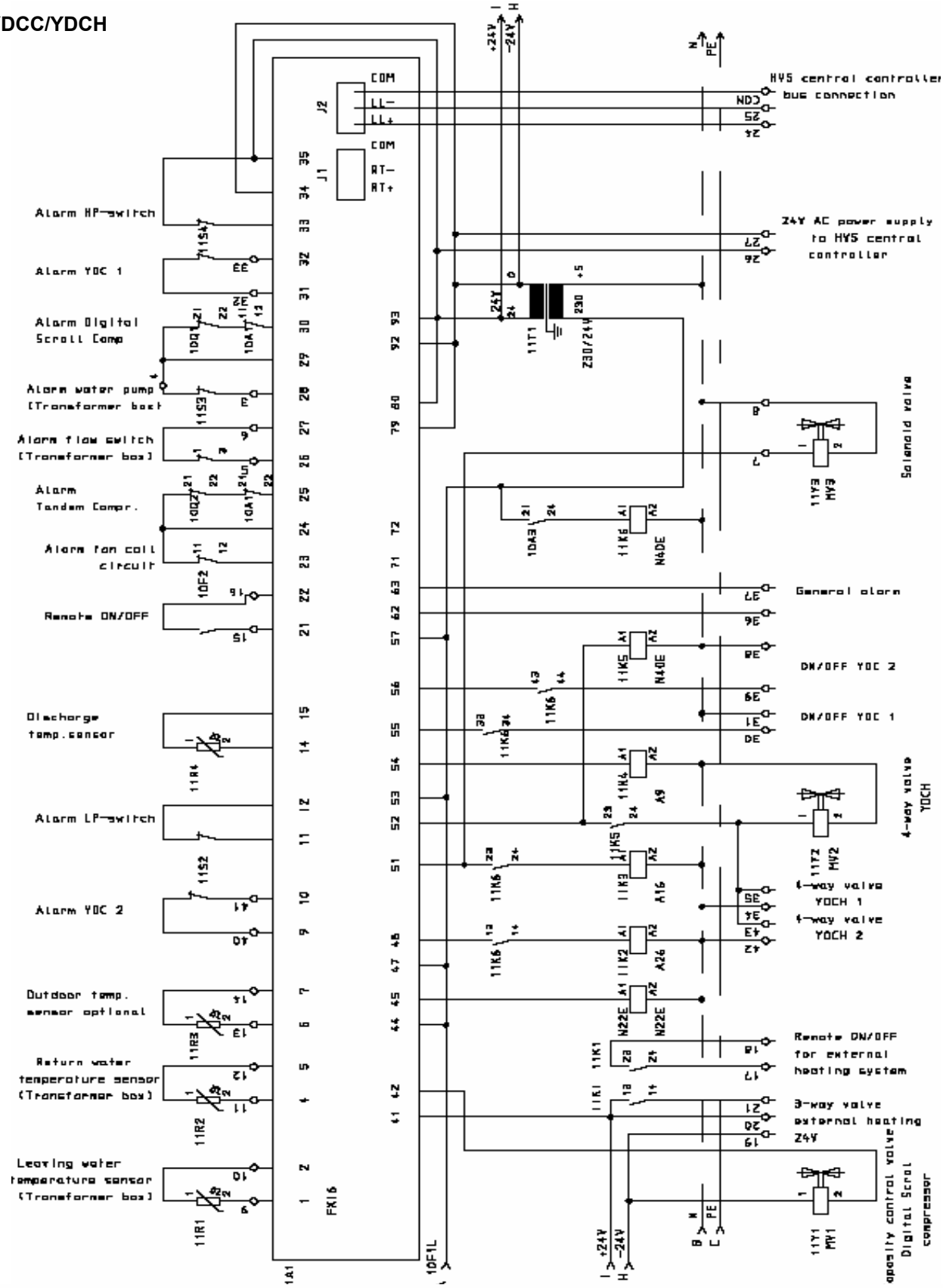


General connecting diagram:



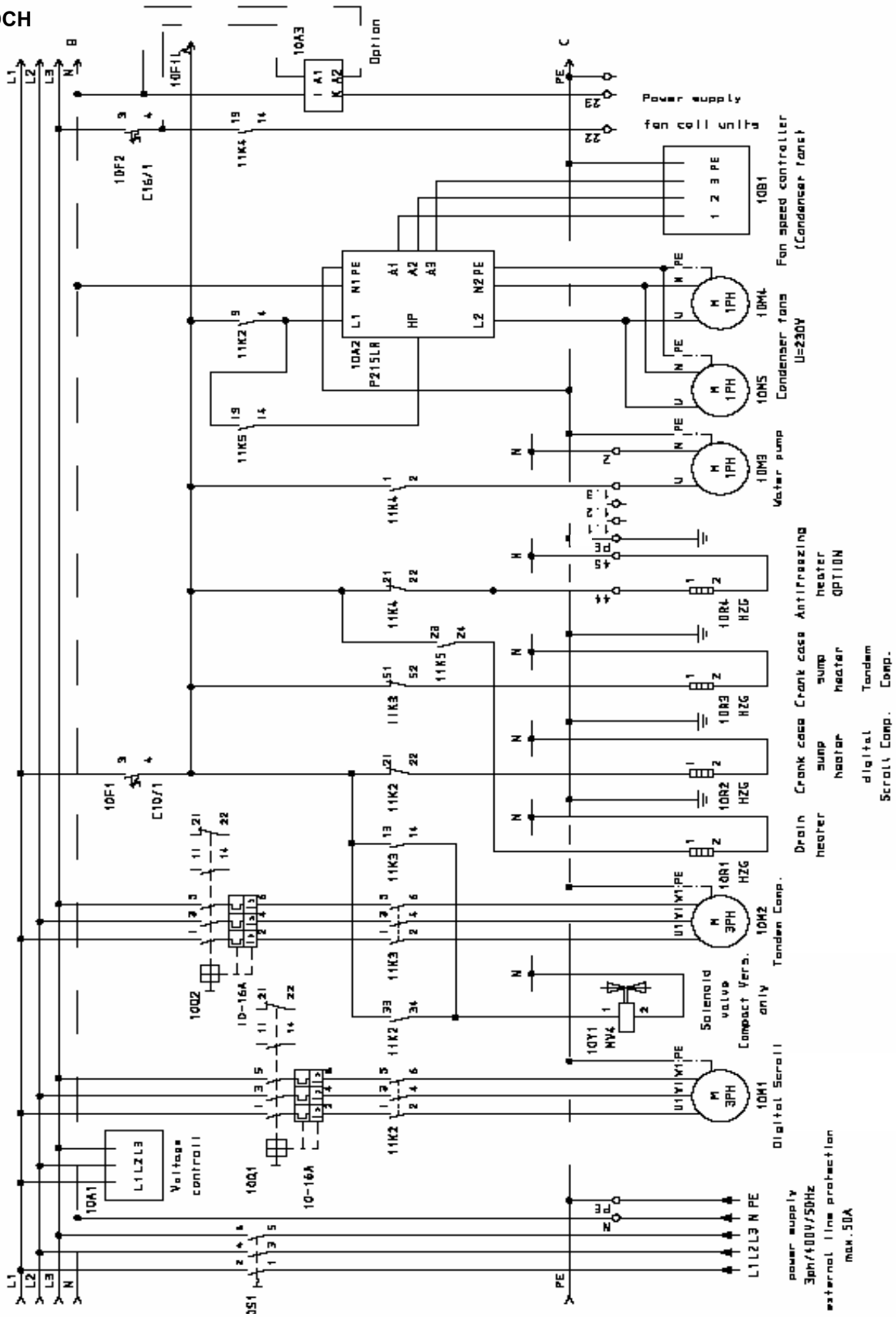
WIRING DIAGRAMS

YDCC/YDCH



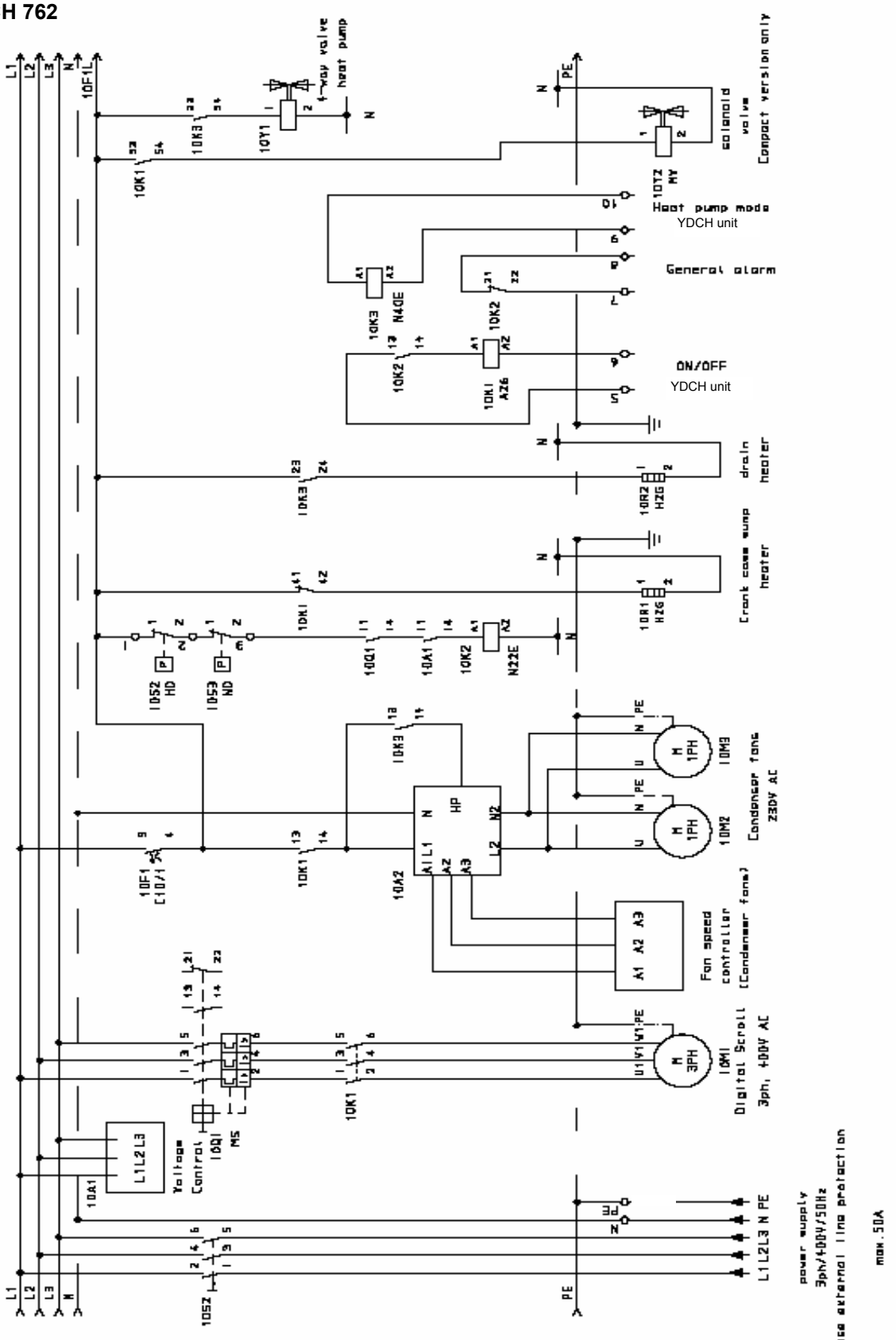
WIRING DIAGRAMS

YDCC/YDCH



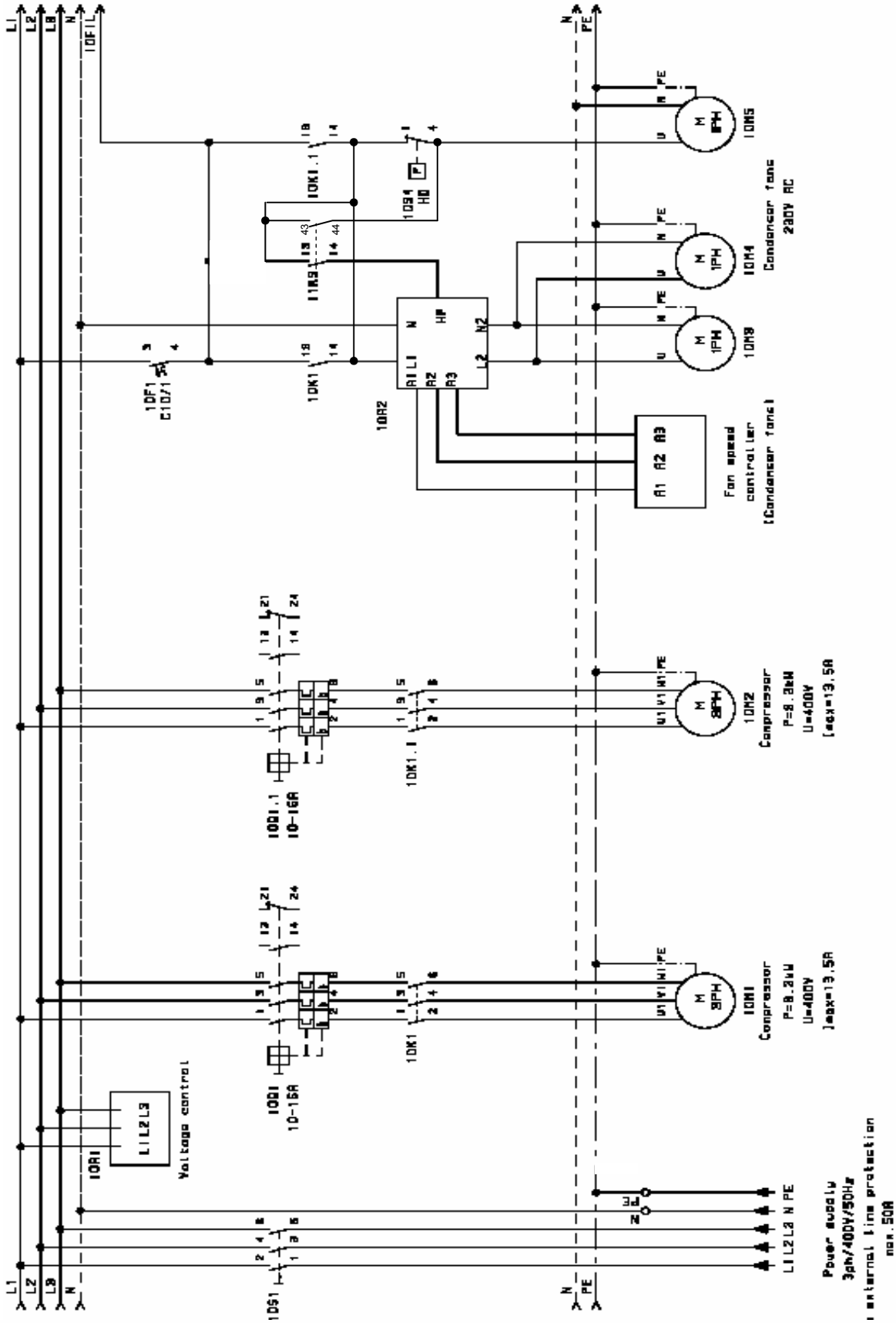
WIRING DIAGRAMS

YOCC/YOCH 762



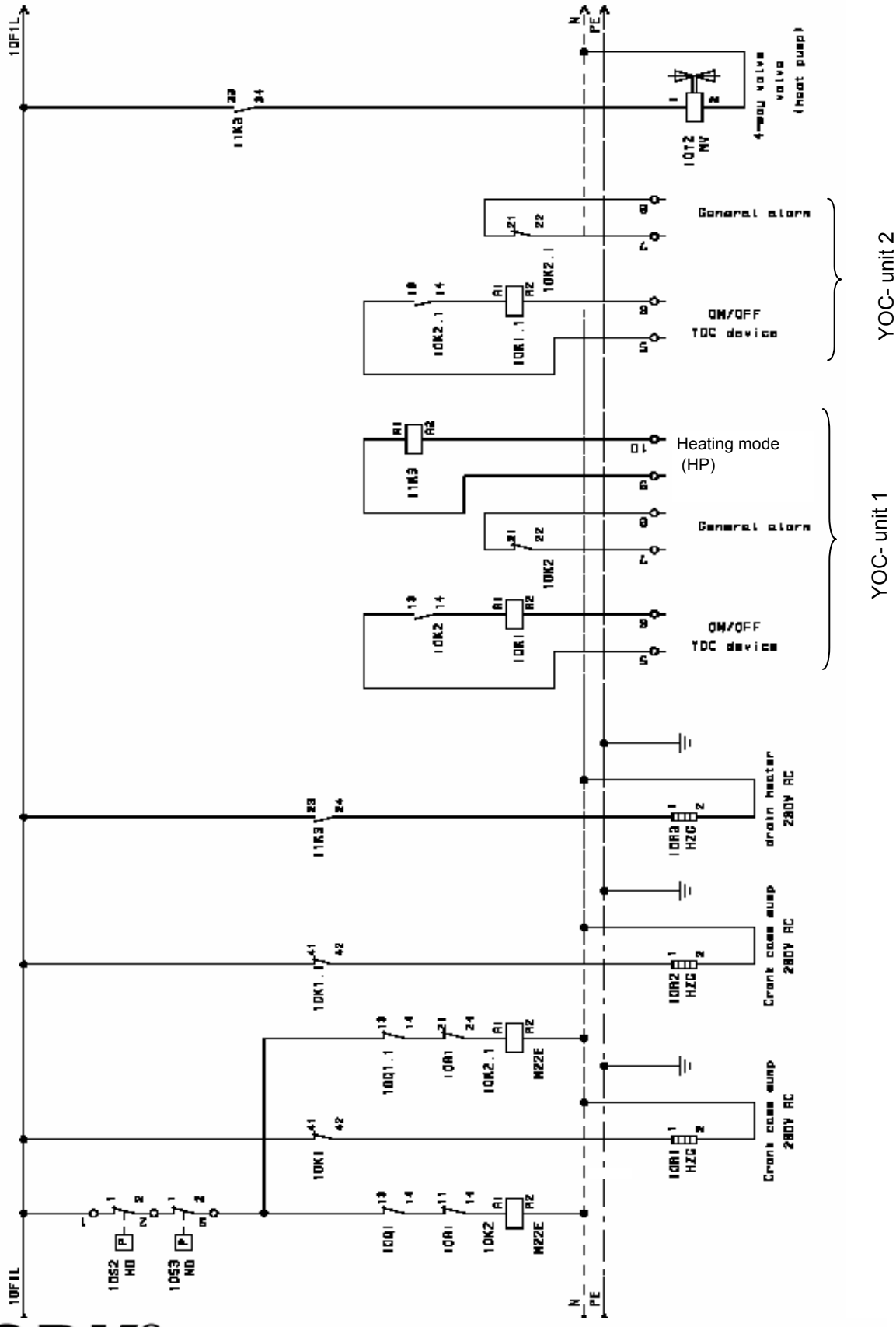
WIRING DIAGRAMS

YOCC/YOCH 1522



WIRING DIAGRAMS

YOCC/YOCH 1522



TRANSPORTATION, HANDLING & STORAGE

The units are filled with refrigerant R407C.
The unit is already filled with the correct quantity of oil.

Inspection
The unit should be inspected on receipt for possible damage during the transport. The units are sold ex-works; YORK is not responsible for damages occurring during transportation. Any damage should be noted on the carrier freight bill for further claim to the carrier. If the damage is more than superficial please contact your local YORK organisation for support. YORK does not accept claims for transport damage even when the factory has organized the transport.

Handling
The system is designed to be lifted using cables as indicated in the picture below. The unit must be handled with care. Before moving the unit check that the installation site is ready for receiving the unit and suitable to withstand the weight of the unit.

CAUTION ⚠
Never move the unit using fork lift or rollers.

CAUTION ⚠
Take special care of the fins of the coils and the panels when lifting and moving the unit. The side of the unit must be protected using cardboard or other suitable material.

Storage
For safe storage please check the following:
- Ambient temperature should not be higher than 42°C
- The fins of the condenser must been covered to protect them against corrosion and damage
- Store the unit where there is no activity in order to reduce the risk of damage
- Do not clean the unit with steam
- Store the unit in a safe place with responsible staff

We recommend regular inspection of the unit during storage.

INSTALLATION

WARNING ⚠
Before installation check that the building structure or the frame receiving the system can withstand the overall weight of the unit and piping (see "Physical Data").

If the unit is to be installed on the ground, a concrete slab must be provided to ensure even weight distribution.
For correct installation please check the following:
- The unit should not be installed downwind of boiler stacks or extractor vents of large kitchens, for instance. In such cases the grease and other contaminants accumulated on the condenser fins will reduce the condenser efficiency and can lead to a shut down by the high-pressure safety switch.
- The unit should not be installed in an area with heavy snow fall.
- The unit should not be installed where flooding is possible.
- The unit should not be installed in air wells, courtyards or other restricted area where the noise could reverberate and where the hot air from the condenser could go back to the condenser.
- The clearances for servicing indicated in the section “dimensions and refrigerant pipe connection” must be guaranteed.

Anchorage
It is not necessary to anchor the unit to the building except in areas with risk of earthquake or when the unit is located on a frame at high level above the ground.

EXTERNAL WATER SYSTEM

WARNING

Before filling the system check that it is free of sand, stones, rust or other foreign material which could damage the system. If necessary clean the piping.

WARNING

The water used to fill the installation must be clean and have the correct ph-value. If necessary treat the water to reach the correct ph-value.

The system includes all the components necessary for a hydraulic network.

Must be fitted to the system :

· **Air bleeding valve at the highest point of the network**

Recommended to be fitted to the system :

· **A water filter at the inlet of the HVS unit** (if not ordered with the system (WF-1))

WARNING

The external hydraulic system must ensure a constant flow rate to the unit.

IMPORTANT

Insulate the pipes by using diffusion proof material to avoid condensation and thermal losses.

Filling the water circuit

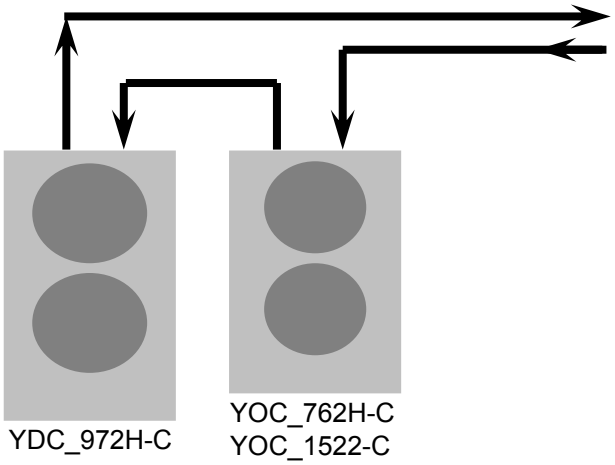
Connect a hose to the filling/drain connector installed in the unit and fill the system.

• Recommended water excess pressure in the system: 2 bar plus 0,1 bar per m pipe above the pressure gauge (in no event higher than 6 bar)

Vent the water circuit completely (switch on the water pump to assist the process).

INTERCONNECTING DIAGRAM (50 AND 72 KW SYSTEMS)

50 kW system:
72 kW system:



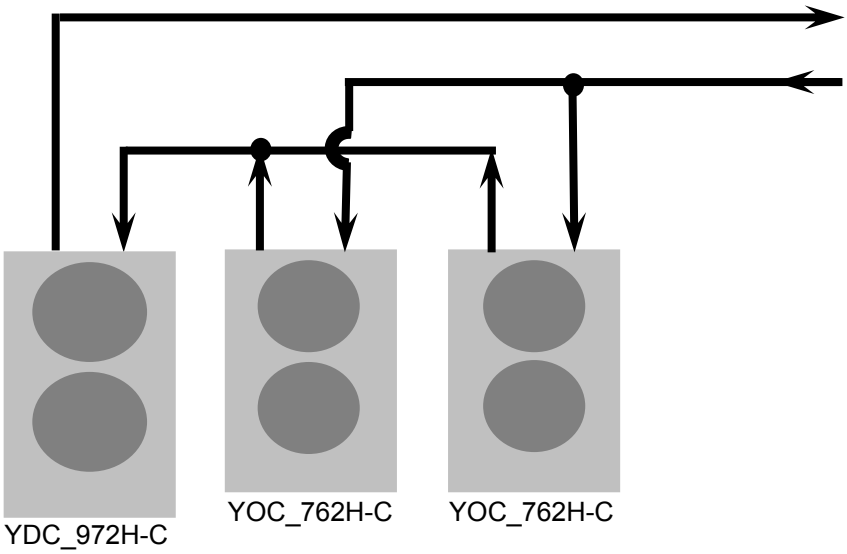
ATTENTION!

All hydraulic components (water pump, expansion vessel, safety valve, flow switch,...) are installed in the YDC_972 unit. The YOC_802 unit is only equipped with a plate heat exhanger.

Please ensure that the units are connected in the right order as described above!

If the units are connected incorrectly it may result in damaging the system!

72 kW system:



ATTENTION!

All hydraulic components (water pump, expansion vessel, safety valve, flow switch,...) are installed in the YDC_972 unit. The YOC_762 units are only equipped with a plate heat exhanger.

Please ensure that the units are connected in the right order as described above!

If the units are connected incorrectly it may result in damaging the system!

COMMISSIONING

CAUTION ⚠

A trained member of staff from YORK or authorized YORK service center must start the unit.
If not the warranty will be void.

Note

The work performed by YORK service staff is limited to commissioning the unit and does not include other work like electrical connection, water connection etc. The installer must perform all other preparatory works, including oil pre-heating for at least 12 hours.

Preliminary checks:

The following operations must be performed before starting the unit and should be completed before commissioning by YORK International staff or authorized staff:

- With master isolating switch off, check the supply cable cross section, the ground connection and the electrical terminal clamps are tight.
- Check that the supply voltage is in line with the voltage shown on the name plate of the unit.
  Connect the free contacts with the fan coils or with other devices when provided and check on the connection diagram.
- Check that the external components (additional YOC_-units - optional and other equipment) have been correctly installed as advised by YORK and that the water pipe connections are correct.
- Check that the refrigerant circuit is filled with the correct quantity and that this can pass with no leaks or air bubbles.
- Check that the oil heaters have been energized for at least 12 hours.

Starting the system

The starting sequence is as follows:

- Turn on the main switch (12 hours before)
- Check that the auxiliary control is energized and the system is not released (neither through the display nor through remote On/Off)
- Check that the external equipment is in running order and that the associated control equipment is correctly calibrated
- Set the desired temperature on the control panel (see section **"Control user guide and alarms"**)
- Start the unit (see section **"Control user guide and alarms"**)
- After around 15 minutes of operation check that there are no bubbles visible in the sight glass

CAUTION ⚠

- If air bubbles are visible, the unit has lost part of its refrigerant charge or the filled quantity was incorrect.
  The leaks must be detected and repaired.
  Repeat the starting operation after repairing the leak and refilling the charge
- Check that the oil level is correct

Performance checks

Check the following:

- Evaporating pressure/temperature
- Overheating temperature
- Condensing pressure/temperature
- Compressor current at start up and stable operating conditions
- Fan current at start up and stable operating conditions
- Check the evaporating and condensing temperature at low and high pressure sides connecting gauges on the schrader valves on the refrigerant circuit

High-pressure side:	the condensing temperature must be 8°C to 12°C above the inlet air temperature
Low-pressure side:	the evaporating temperature must be 4°C to 6°C below the chilled water outlet temperature

Customer Training

Train the end user with the machine operating instructions.

MAINTENANCE

WARNING ⚠
Never release refrigerant into the atmosphere when emptying the refrigerant circuit. Suitable equipment must be used. Refrigerant cannot be re-used, it must be returned to the refrigerant manufacturer.

WARNING ⚠
Never discharge used compressor oil directly into the environment or with other oils (engine oil, for instance), this oil contains refrigerant and must be returned to the oil manufacturer.

The safety section of this manual must be read carefully before undertaking any maintenance operation on the unit.

It is the responsibility of the owner to provide regular maintenance. Maintenance contracts can be arranged by the YORK Service Centers.
If damage or failure occurs due to incorrect maintenance during the warranty period, the warranty will not apply.

This maintenance section concerns only the standard units and does not cover any modification.

Maintenance cycles
Maintenance checks should be carried out in accordance with the maintenance schedule (detailed below) by skilled staff. Any faults or problems found during the checks must be corrected.

General Requirement The system has been designed to work continuously and must be regularly serviced and operated in the limits given in this manual.

Maintenance schedule

Operation	Weekly	Monthly	Start of season	End of season
Check suction and discharge pressure and temperature		X		
Check compressor oil level		X		
Check for air bubbles in the sight glass		X		
Check condenser cleanliness		X		
Check oil heater efficiency (heat pump units)			X	X
Check remote control (malfunctions, parameters,...)	X			
Check low and high pressure switch			X	
Check evaporator leaving water temperature	X			
Check evaporator pressure drop			X	
Vent the water circuit		X		
Check water pressure in the system		X		
Check water filter (if installed)			X	
Check evaporator insulation			X	
Check terminal screws tightness			X	
Clean outside of the unit with soapy water			X	

Refrigerant charge
The refrigerant must be charged in liquid condition to ensure a correct refrigerant charge. A valve is provided for charging the refrigerant at the compressor low pressure side, as well as on the liquid line of the system.
An insufficient charge will lead to low performance and maybe to a low pressure alarm which locks the unit.
An excessive charge will raise the condensing pressure increasing electrical consumption and may lead to a high pressure alarm which locks the unit as well.

Compressor
The compressor is supplied with the correct quantity of oil required for operation. Under normal conditions of operating the oil life expectancy is the same as the unit life expectancy. As long as no repairs are done it is not necessary to add oil. Compressor replacement must be carried out by YORK service or an authorized YORK service center.

MAINTENANCE

Condenser/Evaporator coil

To maintain the efficiency and the life expectancy of the unit the coil must be clean. A dirty coil (dirt coming from leaves, insects, dust etc…) can lead to a high-pressure alarm which will lock the unit.
Accidental impact on the coil or damage can lead to a refrigerant leak. A YORK service center or an authorized service center must carry out the coil replacement.

Caution ⚠

Take care of the aluminum fins during cleaning. The condenser coil should be cleaned using compressed air directed parallel to the fin and in the opposite direction to the normal air circulation. A vacuum cleaner can be used from the outside. The coil can also be cleaned with soapy water using a spray nozzle.

Filter drier

The units are provided with a filter drier. A dirty filter drier can be detected either by bubbles in the sight glass or a temperature difference between the inlet and the outlet side of the filter.

Thermostatic expansion valve

The heat pump units are provided with a thermostatic expansion valve with an external equalizer.
For checking the temperature rise:
Read the evaporating temperature (Tsa) using gauge connected on the suction side.
Read the effective suction temperature (Tse) using a contact thermometer on the evaporator outlet fitting.
Temperature rise is given by: S = Tse-Tsa

The superheating can be adjusted on the thermostatic expansion valve if necessary.
The superheating should be between 5 and 7 K.
If the thermostatic valve does not react to temperature rise calibration either the refrigerant charge is incorrect or the valve is malfunctioning and must be replaced. Valve replacement must be performed by an authorized YORK service center.

TROUBLE SHOOTING

Fault	Probable cause	Remedy
Unit operates continuously without cooling	Low refrigerant charge	Check leaks, repair and top up the charge
	Filter drier clogged	Replaced the filter drier
The suction line is freezing	Wrong setting of superheating	Set the superheating temperature
	Wrong dimension of copper tubing	Replace the piping
	Low refrigerant charge	Check leaks, repair and top up the charge
Excessive noise in outdoor unit	Vibrating pipes	Secure the pipes
	Noisy compressor	Check valve positions (if opened)
		Bearing seized, call YORK service center
		Check that compressor nuts are tight
Low oil level in compressor	Gas or oil leaks	Check leaks, repair and top up the charge
	Mechanical demage of the compressor	Call YORK service center
	Faulty crankcase oil heater	Check electrical circuit and crankcase heater, replace any defective parts
Compressor is not working	Power circuit open	Check power circuit and fuses
	High or low pressure switch activation	Identify the cause of the alarm
	Control circuit blown up	Check control circuit and fuse
	Loose terminal clamp	Check terminal clamp tightness
	Voltage too low	Contact the electricity company
	Compressor winding is short circuited	Call YORK service center
	Compressor seizure	Call YORK service center

TROUBLE SHOOTING

Fault	Probable cause	Remedy
Low pressure switch activation	Leakage in the refrigerant circuit	Check leaks, repair and top up the charge
	Refrigerant charge too low	Top up the charge
	Low pressure switch failure	Replace low pressure switch
High pressure switch activation	Condenser fan not operative	Check fan electrical supply, fuses and motor. If necessary replace the fan motor
	Dirty condenser coil	Clean up the condenser coil
	High pressure switch failure	Replace high pressure switch
	Non condensable media (air,...) in the circuit	Purge and clean the circuit Vacuum the circuit down to 50 Pa and charge the unit according to "physical data" table
Condenser fans do not rotate	Electrical circuit problems	Check circuit and connections
	Internal cut-out activated	Replace fan motor
Reduced cooling capacity	Compressor failure	Call YORK service center
	Dirty condenser coil	Clean the condenser coil
	Dirty (external) heat exhanger	Purge and clean the water circuit
	Low refrigerant charge	Check leaks, repair and top up the charge
Excessive noise in hydraulic part	Vibrating pipes	Secure the pipes
	Noisy water pump	Air in the water circuit - Vent system Bearing seized, call YORK service center
Water temperature control incorrect	Wrong set point	Check set points on the remote controller
	Incorrect temperature difference accross the plate evaporator	Check water flow
	Electronic control malfunction	Call YORK sevice center
Poor water circulation	Air in the circuit	Vent air using the air bleeding valves
	Dirt or deposit in the evaporator	Purge and clean the water circuit
	Dirty water filter (if installed)	Clean the filter
Unit does not work, flow alarm activated	Water circuit fault	Check power circuit and fuses
	Air in the circuit	Vent air using the air bleeding valves
	Flow switch inoperative	Check flow switch
	Water pump malfunction	Check water pump
External heating system does not work	Heating device malfunction	Check external heating system
	Wrong mode setting	Check mode setting on the remote controller
	HVS-Electronic control malfunction	Call YORK sevice center
	3-way valve malfunction	Check valve position
Fan coil circuit inoperative	Power circuit open	Check power circuit and fuses
	Fan coil short circuit	Check fan coils and fan coil fuse in HVS condensing unit

SAFETY SWITCHES SETTINGS

YDCC/YOCC (cooling only units)

Low-pressure switch setting: 0,5 bar
High-pressure switch setting: 29 bar

YDCH/YOCH (heat pump units)

Low-pressure switch setting: 0,5 bar
High-pressure switch setting: 29 bar

DISMANTLING AND DISPOSAL

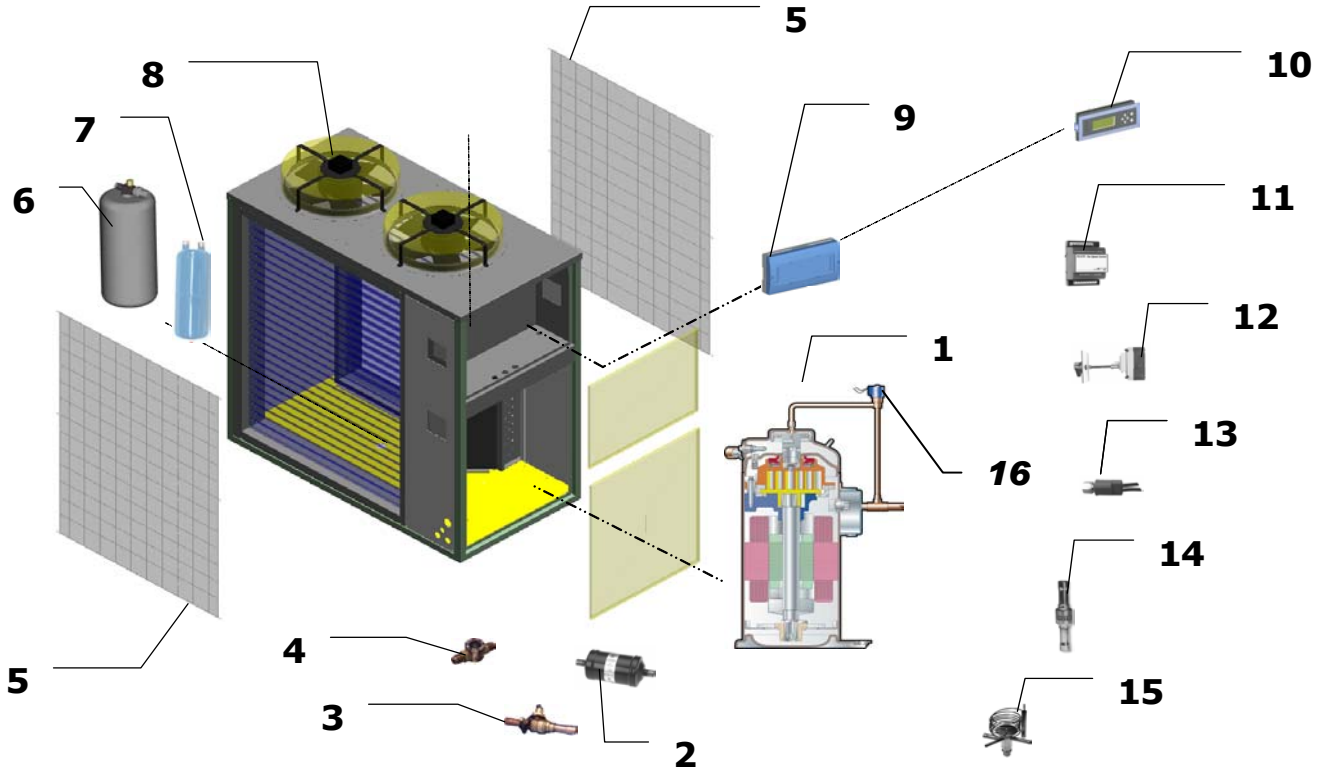
WARNING ⚠
Never release refrigerant into the atmosphere when emptying the refrigerant circuit. Suitable equipment must be used. Refrigerant cannot be re-used.
It must be returned to the refrigerant supplier.

WARNING ⚠
Never discard used compressor oil directly into the environment or with other oils (engine oil, for instance), this oil contains refrigerant and must be returned to the oil supplier.

Isolate the electrical supply, main power secure in position off, then disconnect all the electrical supply, power and control. Remove the refrigerant using a refrigerant reclaim recovery unit. The refrigerant must be returned to the refrigerant supplier for recycling. Drain the refrigerant oil into a suitable container and return it to the oil supplier for recycling.

After draining the unit can be removed following the instructions about the handling.

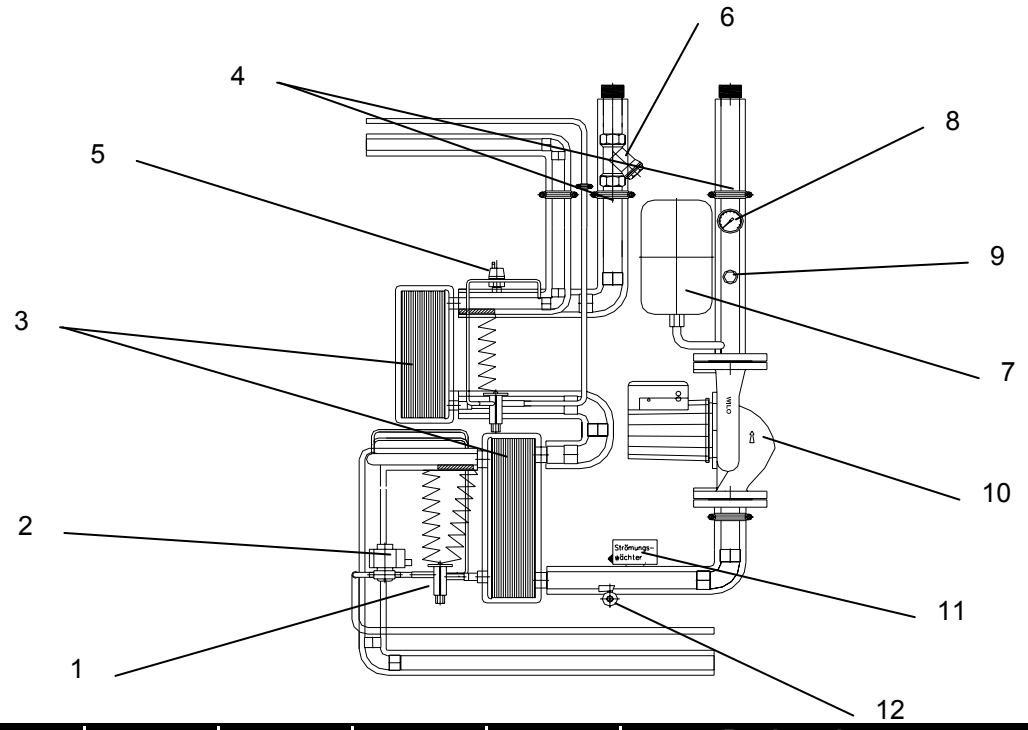
SPARE PART LIST



Position	YDC_522	YDC_972	YOC_762	Designation	Part No
1	X	X		Digital Scroll compressor ZRD72	7000011
		X		Tandem Scroll compressor ZR61	7000021
			X	Scroll compressor H70R	7000031
2	X			Filter drier ø12	4001661
		X	X	Filter drier ø16	4001671
3	X			Shut off valve ø12	4001961
		X	X	Shut off valve ø16	4001971
4	X			Sight glas ø12	4001471
		X	X	Sight glas ø16	4001751
5	2X		2X	Condenser protection grill	7000301
		2X		Condenser protection grill	7000311
6	X	X	X	Accumulator (Cooling only units)	3809141
HP 6	X	X	X	Accumulator (Heat pump units)	3809111
HP 7	X	X	X	Liquid separator	4001431
8	2X		2X	Condenser fan	7000401
		2X		Condenser fan	7000411
9	X	X		PC board	4070001
10	X	X		Central system controller	7004601
11	X	X	X	Fan speed controller for condenser fans	7700081
12	X	X	X	Main switch	GZ00001
	X	X	X	Handle for main switch	GZ00002
13	X	X	X	High pressure switch	4002041
	X	X	X	Low pressure switch	4002121
HP14	X	2X	X	Non return valve	4400321
HP15	X	2X	X	Expansion valve DX6N13	4009801
HP	X			4-way valve	4010051
HP		X	X	4-way valve	4010061
	X	X	X	Motor protection switch	DL00011
	X	X	X	Rotary field control	LA00004
16	X	X		Solenoid valve for Digital Scroll compr.	70000111

HP ... Installed only in Heat pump units

SPARE PART LIST



Position	15 kW	28 kW	50 kW	72 kW	Designation	Part No
1	X	2X	2X	2X	Expansion valve TX 6-N13	4011011
			X	2X	Expansion valve TX 6-N13	4009801
	HP X				Expansion valve TX 6-N13	4009801
		HP 2X			Expansion valve TX 6-N13	4009801
			HP 3X	HP 4X	Expansion valve TX 6-N13	4009801
2		X	X	X	Solenoid valve 200RB 4 T 4	4000161
			X	2X	Solenoid valve 200RB 6 T 5	4003151
3	X				Plate heat-exchanger	4001351
		X			Plate heat-exchanger	4000841
			X	2X	Plate heat-exchanger	4001361
			X	X	Plate heat-exchanger	4000871
	HP X				Plate heat-exchanger	4002591
		HP X			Plate heat-exchanger	4000871
			HP X	HP 2X	Plate heat-exchanger	4002681
			HP X	HP X	Plate heat-exchanger	4002711
4	2X	2X	2X	2X	Temperature sensor A99	7700102
5	X	X	2X	3X	Air bleeding valve	4007541
6	X				Water filter 1"	7700011
		X			Water filter 6/4"	7700021
			X	X	Water filter 2"	7700031
7	X	X	X	X	Expansion vessel (8l)	4007522
8	X	X	X	X	Pressure gauge	4007552
9	X	X	X	X	Savety valve 6bar	4007532
10	X	X			Water pump	4007461
			X	X	Water pump	4090001
11	X	X	X	X	Flow switch	7700091
12	X	X	2X	3X	Fill- & drain valve	4007611
	HP X	HP 2X	HP 3X	HP 4X	Non return valve	3849221