

GH Hydro Kits

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Technical Information



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The LCP program covers air condensed water chillers and heat pumps of up to 600 kW.

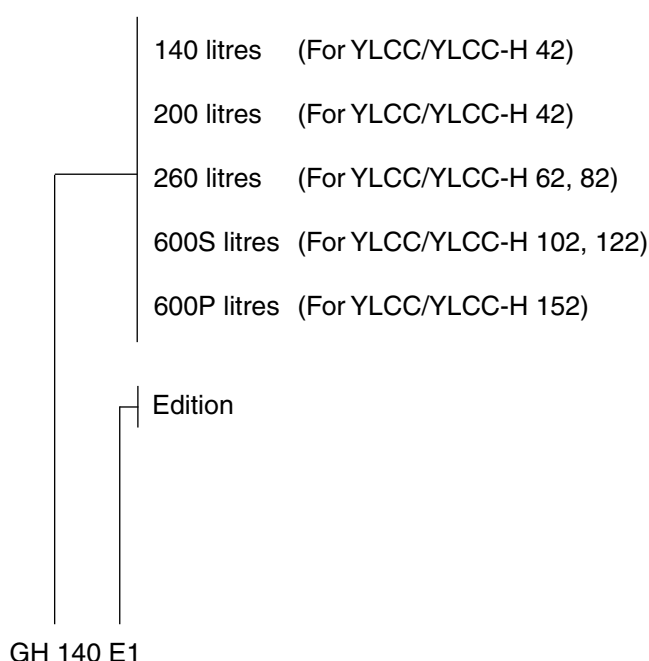
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General Description

GH Hydro Kits

The GH Hydro Kits are packaged assemblies that include all basic elements needed for a correct operation of the water circuit of water chillers YLCC, and heat pumps YLCC-H. These elements are: a DI buffer tank, a water pump, an expansion vessel, two service valves for the circuit, a drain valve, an automatic filling valve, an air purger, a safety valve, a pressure gauge indicating circuit pressure and an electric circuit board that includes the pump starter, an overload switch and the connecting strips for connection to the power supply and the YLCC, YLCC-H units linked to the hydro kit. These kits are protected by a casing of sheet panels, and can be installed outdoors.

Nomenclature



Technical Specifications

Casing

Made up of removable screwed-in panels that allow access to the internal components of the hydro kit. These panels are made of aluminium-coated steel sheeting painted electrostatically with 60-micron epoxy-polyester powdered enamel, which ensures efficient protection of the entire surface.

Buffer tank

Made of carbon steel with anticorrosion external protection. Heat insulated with a 40 mm. coating of injected rigid polyurethane foam (CFC free). Coated externally with two plastic covers and a flexible jacket. Allows an operating pressure of 6 bar.

Pump

The pumps of the GH Hydro Kits are designed for air conditioning or industrial processing equipment that use water or water and glycol. In the GH-140 to 600S units, these are of the horizontal type, with a multicellular turbine, are made of AISI 304 stainless steel and have a three-phase 400-3-50 power supply. On the GH-600P models, the circulating pump

is of the centrifugal type, with a vertical shaft and monocellular turbine, and a three-phase 400-3-50 power supply.

Hydraulic circuit

The GH-140 units are fully made of welded copper tubing and accessories.

On models GH-200, 260, 600S and 600P, all accessories and pipes are PP-R, electro welded together.

The joining threaded valves and accessories are made of bronze or brass.

The hydraulic circuit pipes are heat insulated with closed cell elastomer foam strip and parts.

Pump service valves

On model GH-140 these are of the sphere type, stamped in brass alloy and include a 90°C conditioning plate.

On models 200, 260, 600S and 600P, these are of the sphere type, made of polypropylene on the impulse and suction sides, and both are equipped with a 90°C conditioning plate..

Both allow manual locking of the water circuit; and with the impulse side valve it is possible to control flow. These valves allow servicing or replacement of the pump without having to drain the hydraulic circuit. On unit 140, the suction side valve is equipped with a stainless steel filter. This means that this valve should be used always as an all-or-nothing function, and never as a flow switch. On all other units, the water filter is supplied inside the electric circuit box and should be fitted to the connecting pipes of the unit.

Expansion vessel

The purpose of this element is to absorb water expansion in the closed circuit and avoid air entering same. Made of steel sheeting and equipped with an elastic membrane that separate the water chamber from the gas chamber. It should be pressurized with nitrogen, in accordance with the characteristics of the installation. Make sure that the filling pressure of the vessel is in compliance with installation needs. If necessary, modify. The GH vessel is dimensioned for standard application. If necessary, add another expansion vessel.

Air purger

Located at the top cover of the buffer tank. This purger expels the air accumulated in this area of the circuit. Automatic operation by means of a valve and float mechanism.

Air purgers can be installed at the higher points of the installation.

Drain valve

On model GH-140, these are made of stamped brass, and on models GH-200, 260, 600S and 600P they are made of PP-R polypropylene and have a float mechanism that is activated by a 0 to 90° lever. Allow manual drainage of the hydraulic circuit.

Automatic filling valve

This valve is designed to provide automatic water filling of the closed cooling and heating circuits by direct connection to the mains. Within the hydraulic circuit, maintains the original pressure rating of the valve, which is 150 kPa (1.5 bar), but can be set to between 100 and 300 kPa (1 and 3 bar) by using the adjusting screw. This valve is made of pressed brass.

Safety valve and pressure gauge

On model GH-140 this assembly is set to open at 300 kPa (3 bar), includes a pressure gauge with a scale from 0 to 400 kPa (0 to 4 bar), and on models GH-200, 260, 600S and 600P this assembly is set to open at 600 kPa (6 bar) and includes a pressure gauge with a scale of 0 to 600 kPa (0 to 6 bar). Made of brass and has two threaded connections: one for pressure intake and another for draining water rejected due to excessive pressure.

Control panel

The casing and access cover are made of aluminium-coated steel sheeting. Besides the pump starter contactor and an overload protector, this panel contains the 400-3-50 power supply connecting strip, plus the grounding cable needed to activate the cooling unit pump. The GH Hydro Kit control panel is located behind the front panel, and internal components are accessible by using tools.

Physical data GH Hydro Kits

Model		GH 140	GH 200	GH 260	GH 600S	GH 600P
Related YLCC unit		42	42	62-82	102-122	152
Buffer tank	Capacity l	131	201	258	605	605
	Max. pressure kPa (bar)	600 (6)				
Expansion vessel	Capacity l	8	12	18	35	35
	Power supply	400.3.50				
Pump	Motor rating kW	0.84	1.05	1.46	1.9	3
	rpm	2 900				
	Consumption Amp	1.6	1.9	2.8	4.5	6.6
Relief valve rating bar	kPa (bar)	300 (3)	600 (6)	600 (6)	600 (6)	600 (6)
Automatic filling valve rating	kPa (bar)	150 (1.5)				
Dimensions	Height mm	1 328	1 184	1 440	1 980	1 980
	Width mm	726	883	928	1 383	1 383
	Depth mm	726	883	883	1 038	1 038
Weight	kg	118	129	164	340	380

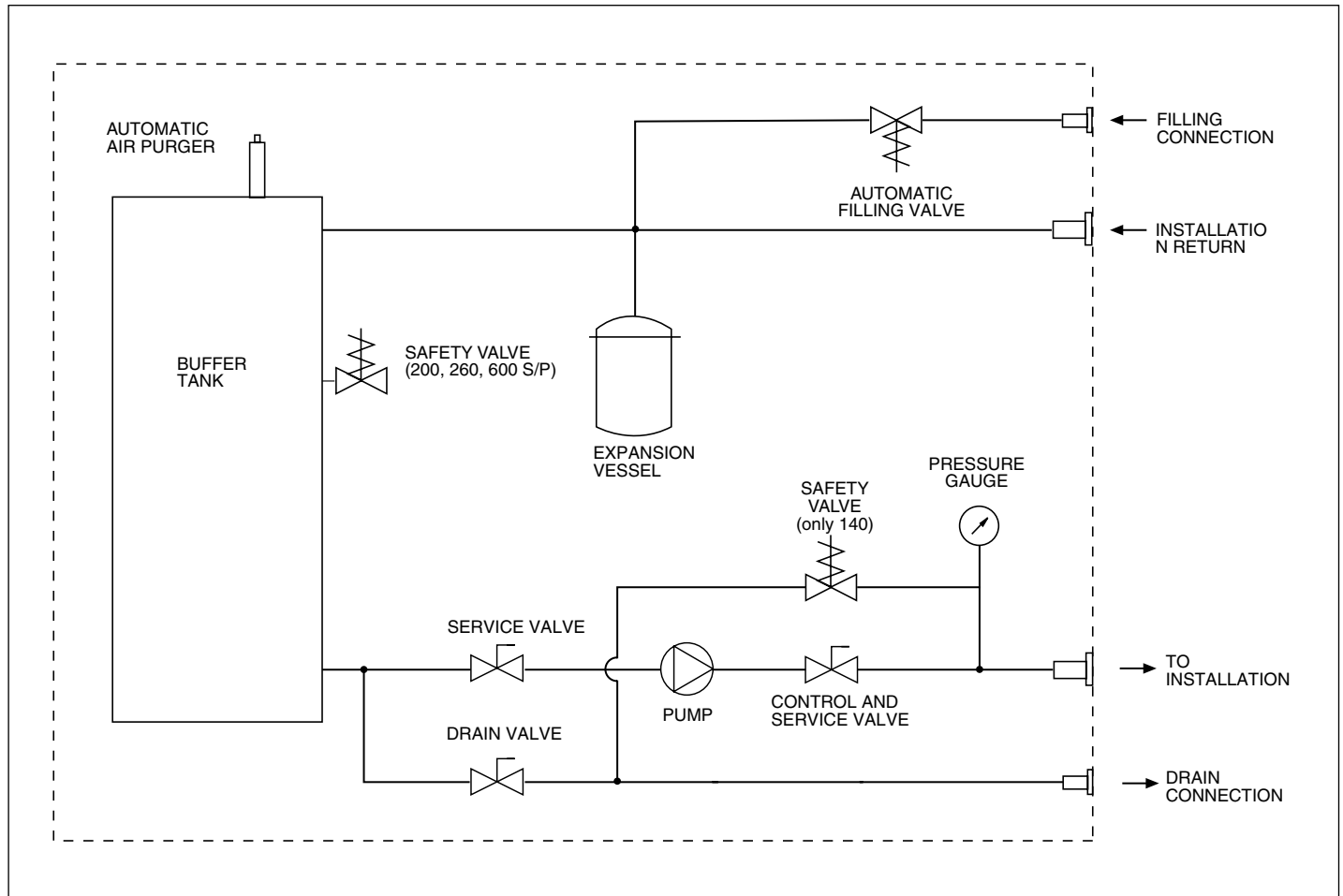
Installation Instructions

GH Hydro Kits

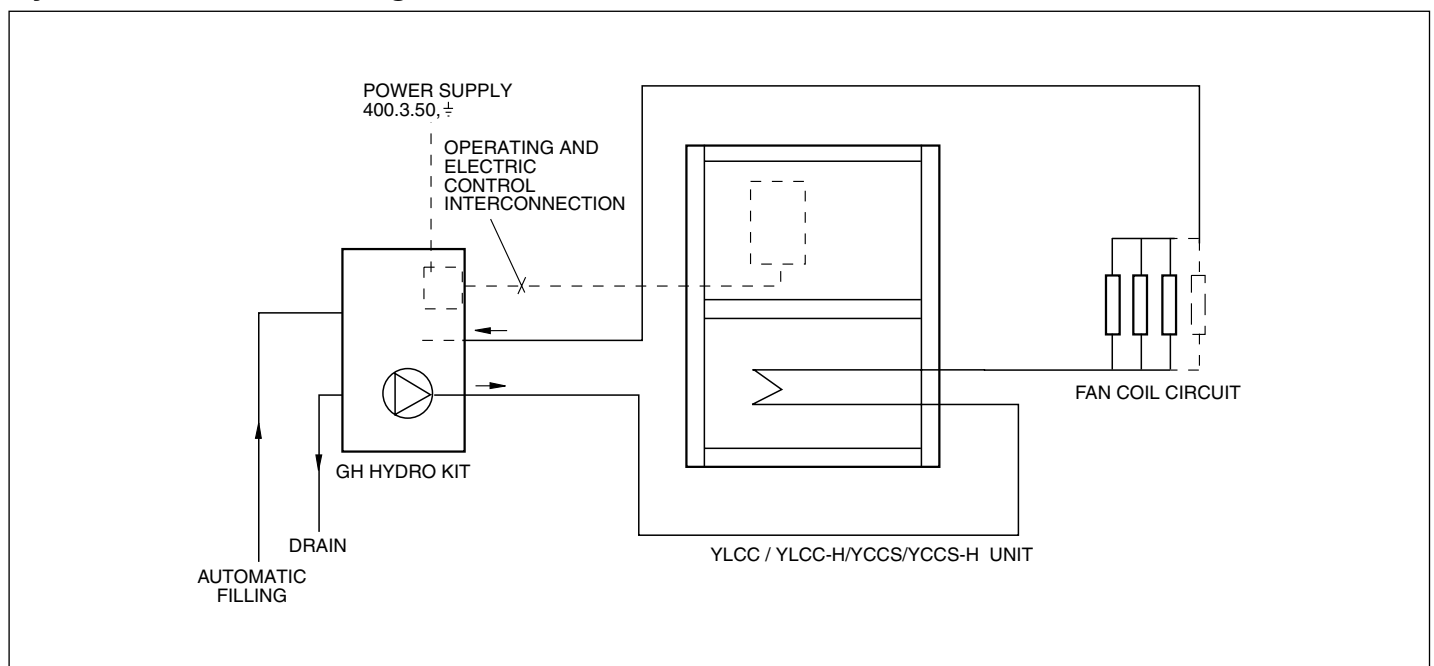
These kits can be installed outdoors. In any case, the inter-connecting tubing should be adequately insulated so as to

avoid dripping of condensed water and freezing due to low ambient temperatures. The electric and hydraulic connections of the GH Hydro Kit to the cold or hot water source and to the fan-coil circuit should be carried out in accordance with the following diagrams:

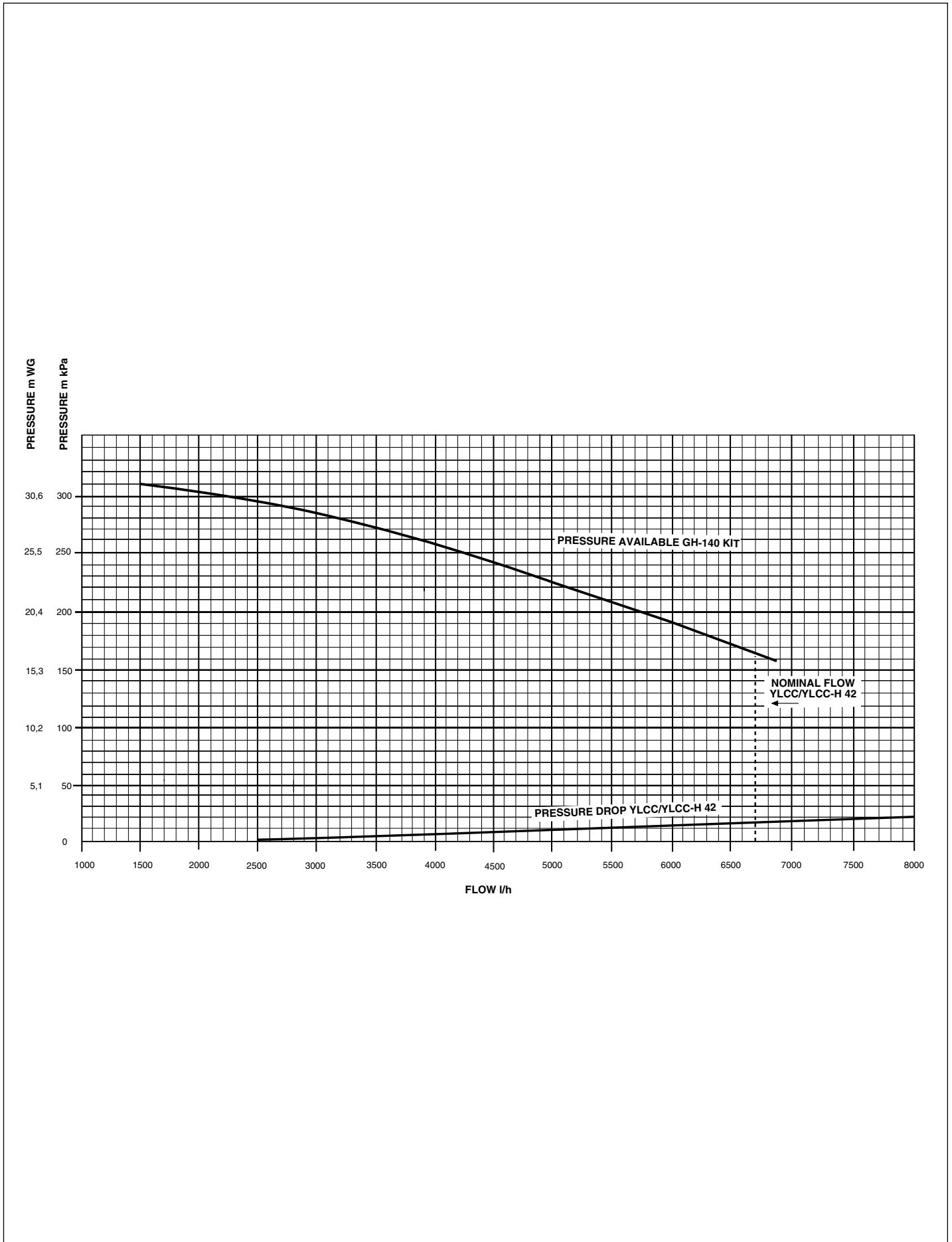
Hydraulic circuit diagram, GH Hydro Kits



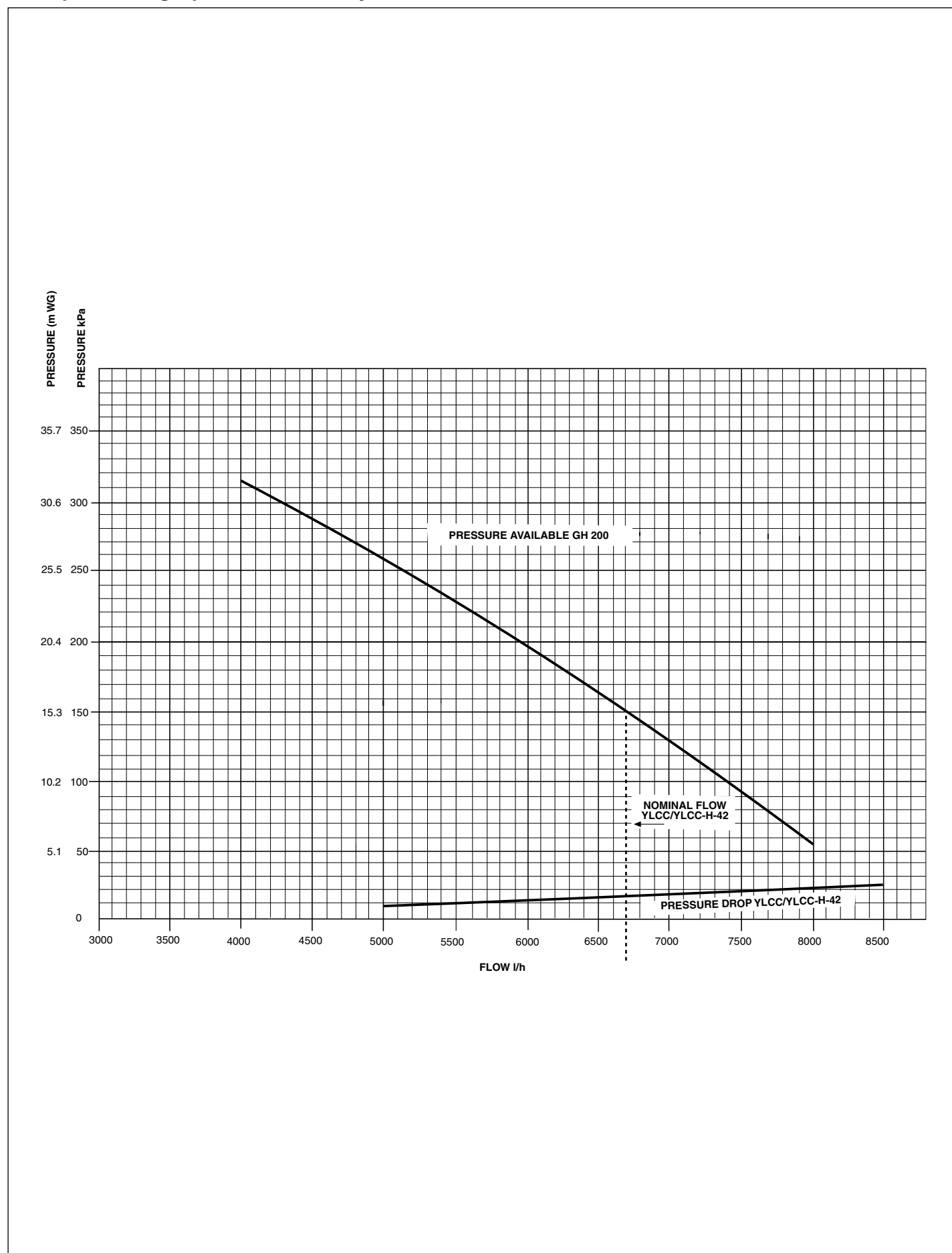
Hydraulic connection diagram



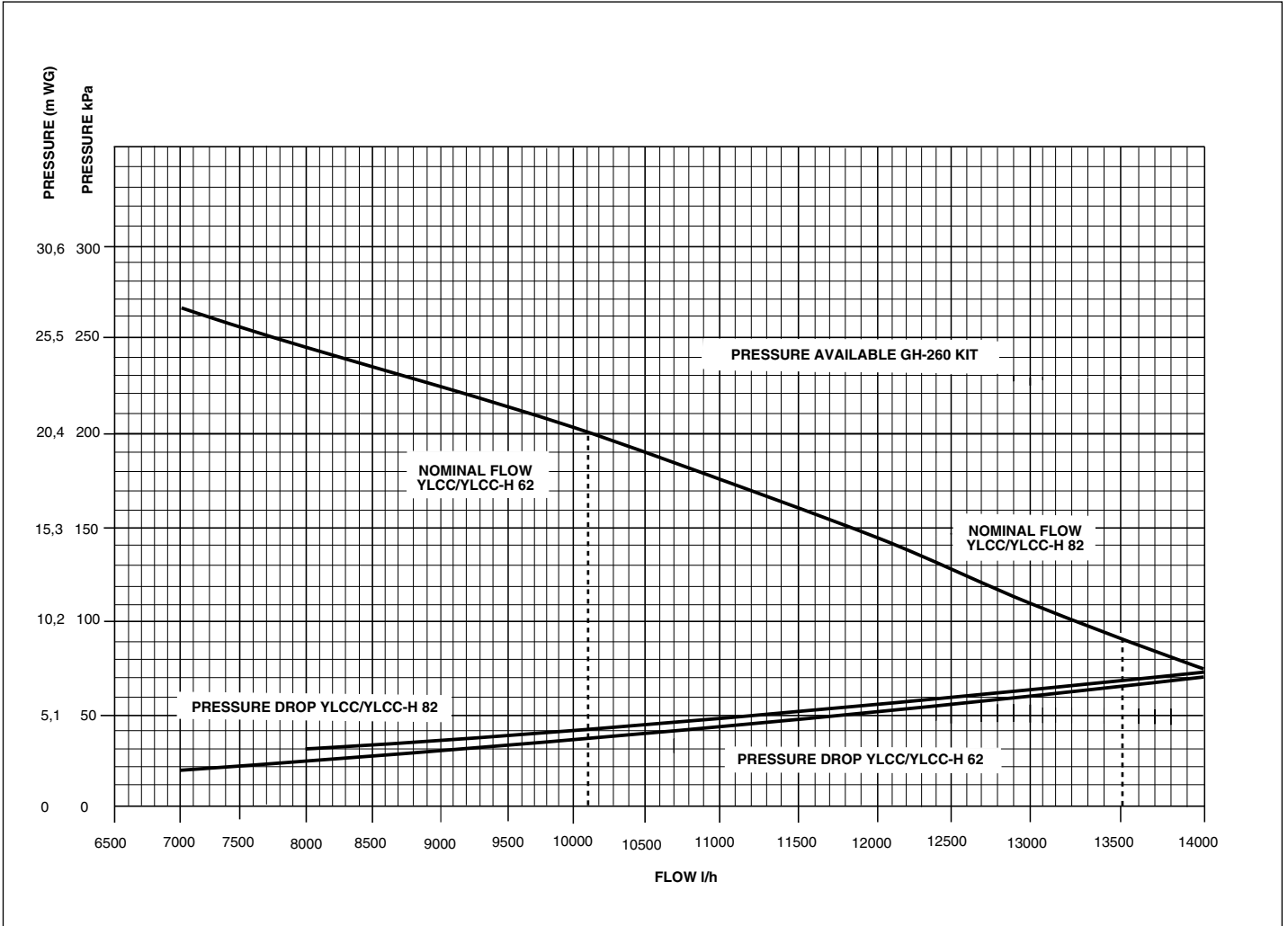
Flow/pressure graphs of GH-140 Hydro Kits



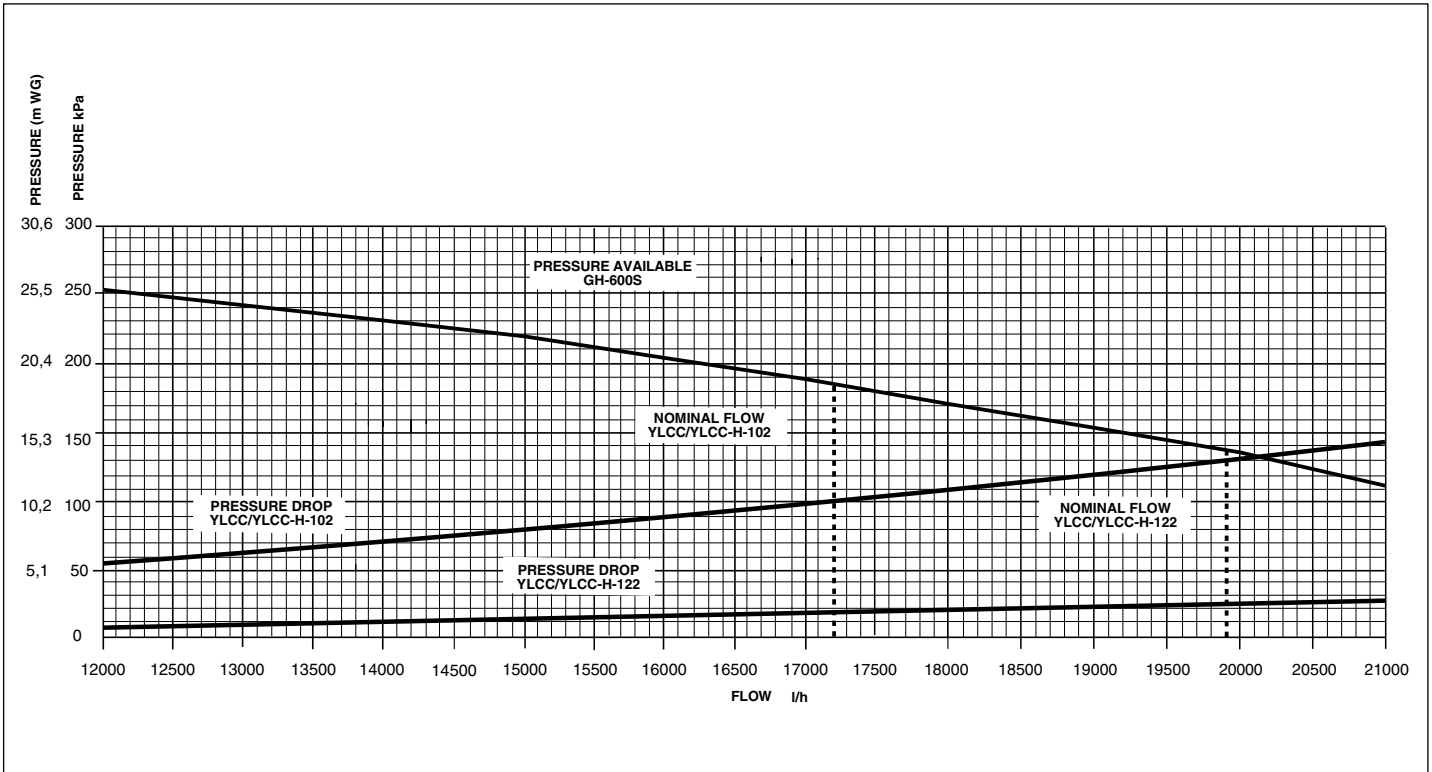
Flow/pressure graphs of GH-200 Hydro Kits



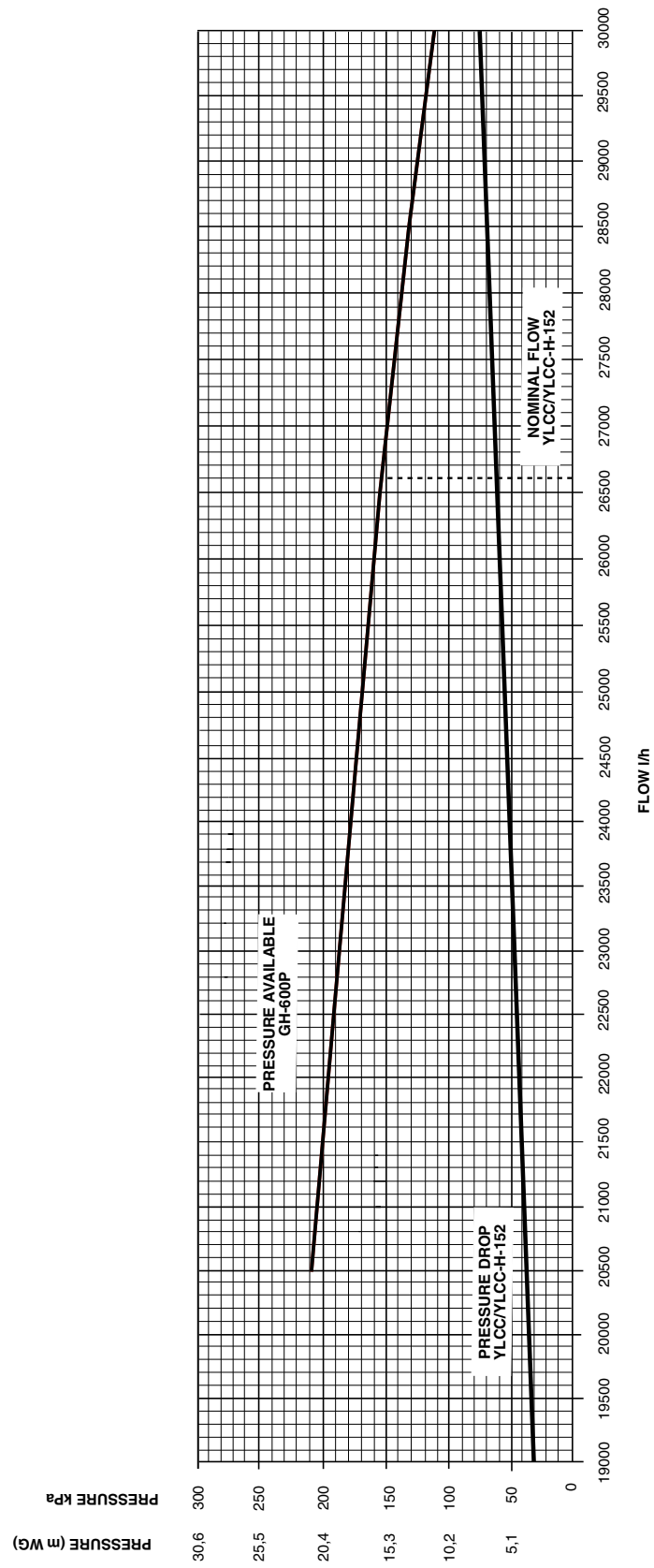
Flow/pressure graphs of GH-260 Hydro Kits (with YLCC/YLCC-H)



Flow/pressure graphs of GH-600S Hydro Kits



Flow/pressure graphs of GH-600P Hydro Kits



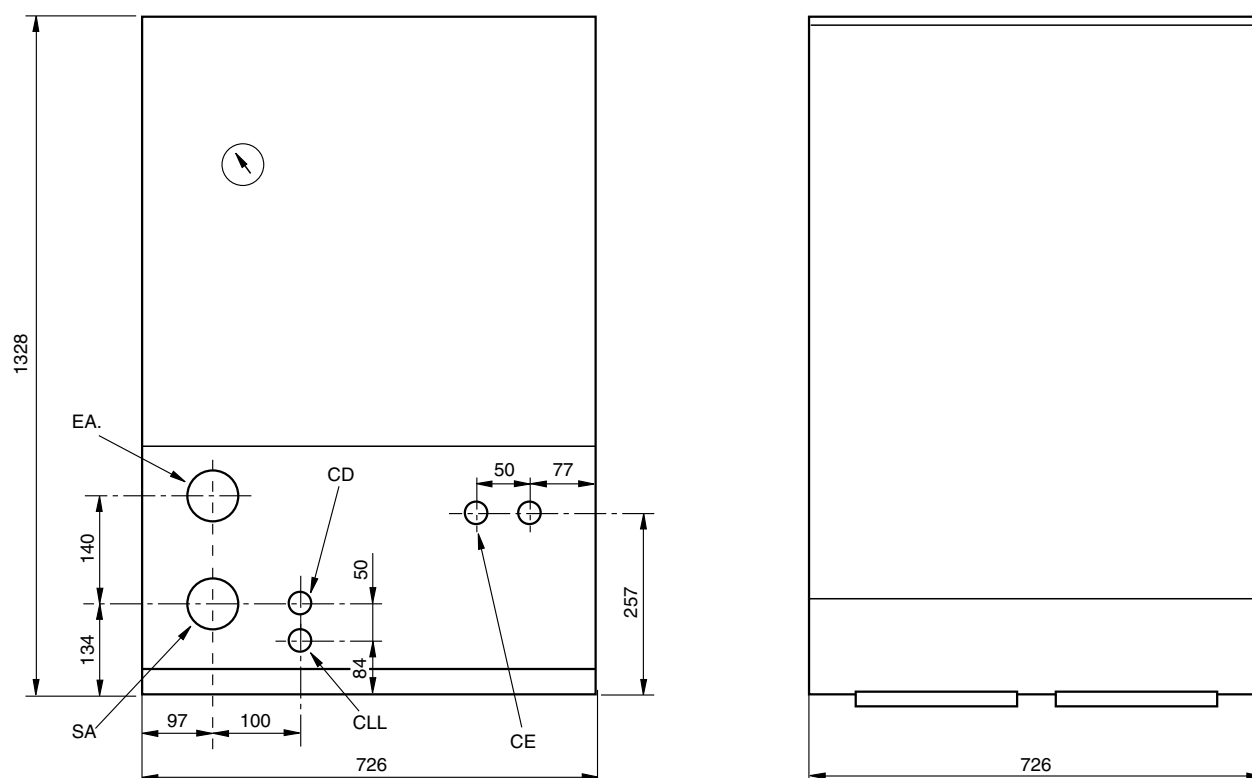
Installation, Operating and Maintenance Instructions, GH Hydro Kits

Before starting the installation up, check or carry out the following operations on the GH Hydro Kits, in the following order:

- 1) Fill the installation with water by means of the automatic filling valve and check correct rated pressure. Adjust said valve in accordance with the pressure required by the installation. If you wish to do away with the permanent operation of said automatic filling valve, install a manual throttle valve, in series, to isolate it from the mains.
- 2) While filling the installation and the GH Hydro Kit with water, check correct operation the air purger located at the top of the buffer tank.
- 3) Make sure the filling pressure of the expansion vessel is in compliance with the pressure required by the installation. Add or decrease pressure if necessary.
- 4) Check the relief valve operation by increasing circuit pressure until it opens and discharges excess water into the drain circuit. Reset the pressure to the design set point.
- 5) Once the wiring is carried out, start up the GH Hydro Kit. Under no circumstances should the pump be started without water in the hydraulic circuit. Should the pump not start, or the overload protector is activated, check pump electric wiring and the connection of the kit to the cooling or heat pump unit.
- 6) Check the rotational direction of the pump. Should it be rotating inversely, there will be an unusually low pressure differential between the permanent pressure gauges that should be installed between the water outlet and intake of the kit (see available pressure charts of the GH Hydro Kits). If necessary, interchange two phases on the power supply connecting strip so as to invert the rotational direction.
- 7) 15 minutes after commissioning the installation, turn the pump off, close the valves that allow removing the hexagonal cover that gives access to the filter, and clean same carefully. Repeat this operation as many times as necessary until no dirt appears on the filter. The filter is supplied along with the hydro kit.
- 8) Once water without any particles is circulating, the installation is ready for use. Under these conditions, take note of the differential pressure between the water intake and outlet pressure gauges. Any considerable decrease in same means the filter must be cleaned again.
- 9) Check all these operations regularly. Above all at seasonal start-ups and shortly after yearly changeovers of the heat pump unit from heat to cool, or vice versa.

Dimensions, GH Hydro Kits

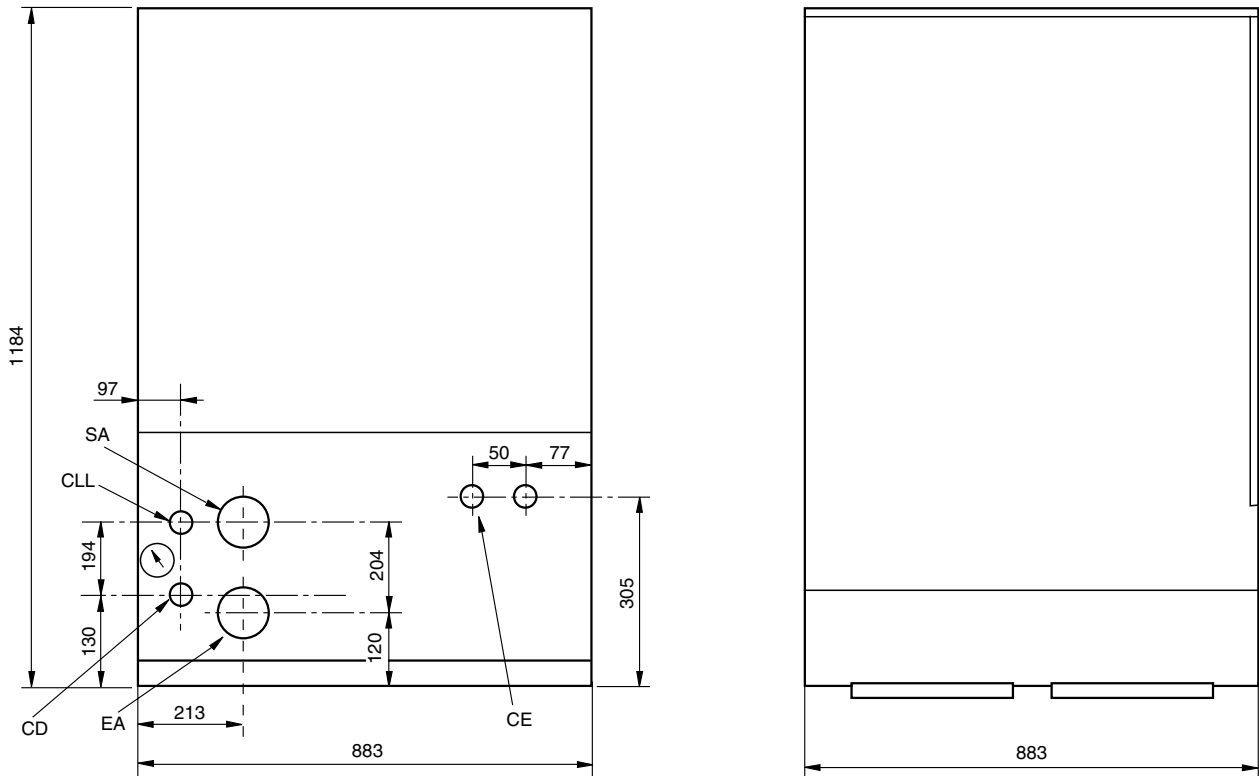
GH 140



- EA: Water intake, 1 1/2"G
- SA: Water outlet, 1 1/2"G
- CLL: Filling connection, 1/2"G
- CD: Drain connection, 1/2"G
- CE: Wiring connections (2), Diam. 19.7

Dimensions, GH Hydro Kits

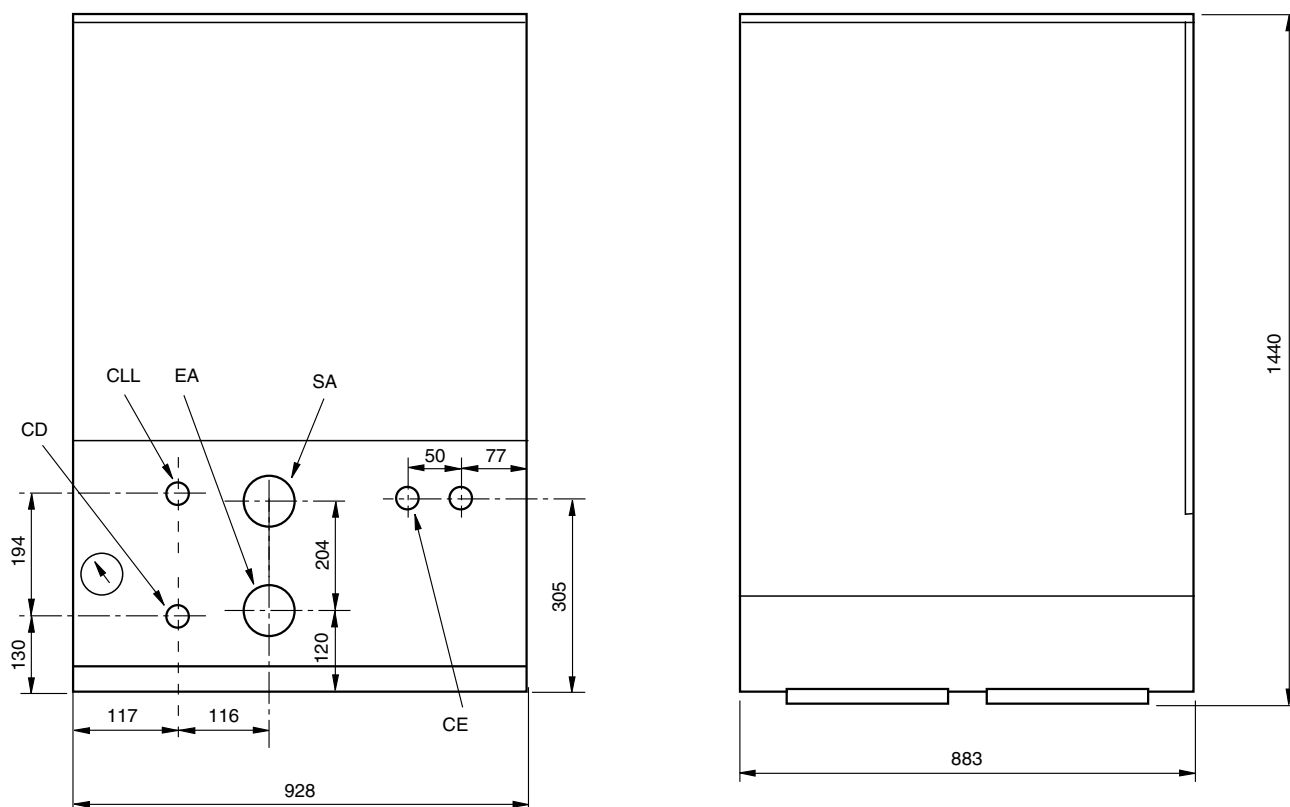
GH 200



- EA: Water intake, 2 G
- SA: Water outlet, 2 G
- CLL: Filling connection, 1/2" G
- CD: Drain connection, 1/2" G
- CE: Wiring connections, (2) Diam. 19.7

Dimensions, GH Hydro Kits

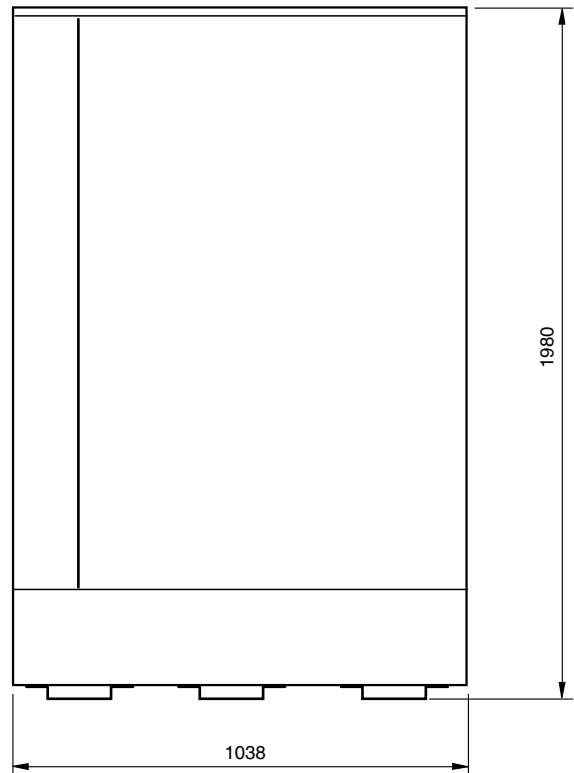
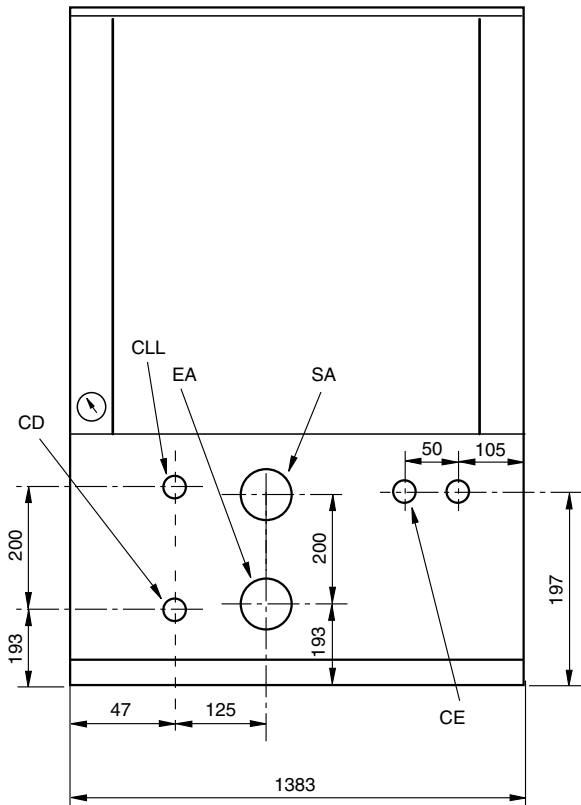
GH 260



- EA: Water intake, 2 1/2" G
- SA: Water outlet, 2 1/2" G
- CLL: Filling connection, 1/2" G
- CD: Drain connection, 1/2" G
- CE: Wiring connections (2), Diam. 19.7

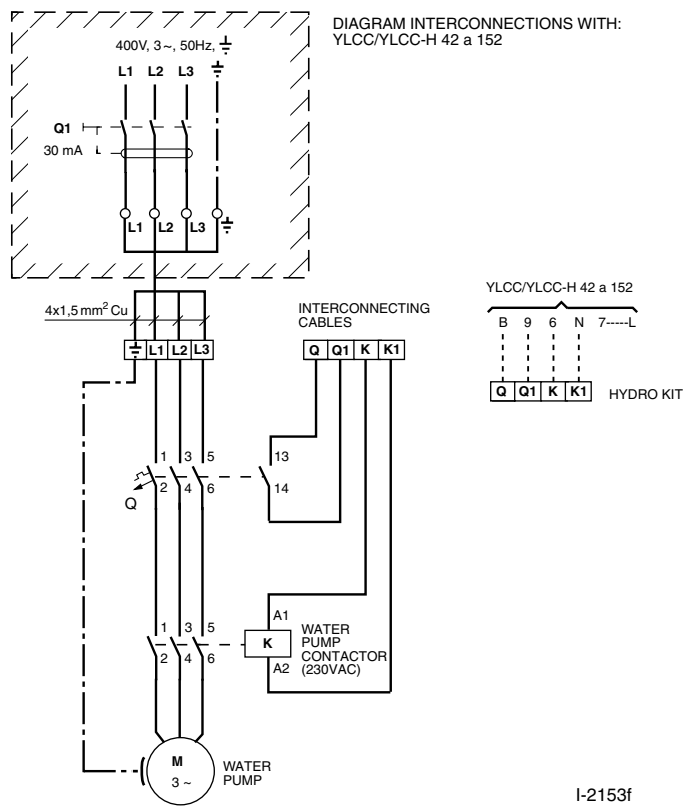
Dimensions, GH Hydro Kits

GH 600S
GH 600P



- EA: Water intake, 3" G
- SA: Water outlet, 3" G
- CLL: Filling connection, 1/2" G
- CD: Drain connection, 1/2" G
- CE: Wiring connections (2), Diam. 19.7

Wiring Diagram, GH Hydro Kits



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