mibec

HIPERII

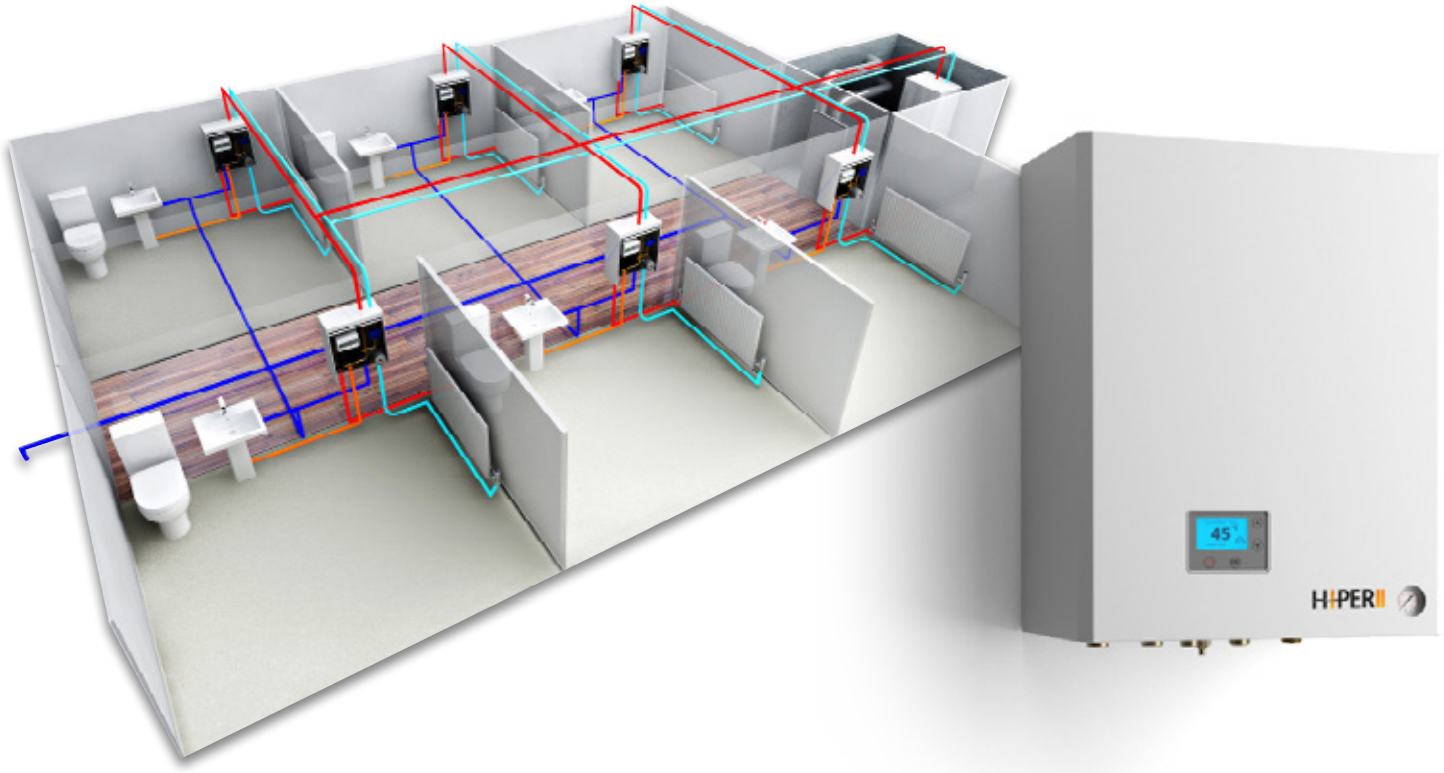
Heat Interface Unit

Heat interface units

Communal heat networks

A central boiler house will generate heat which is distributed through a network of pipes to each home or apartment in the building.

Each home or apartment has its own HIU (Heat Interface Unit), which converts heat from the network as heating and hot water for the home.



Lowest possible return temperature in the heat network.

These have been measured and calculated in the BESA test regime. This is the VWART (Volume Weighted Average Return Temperature) calculation and is a good guide to the HIU characteristics. VWART calculations are provided for DHW, Space Heating and Standby operational modes. Then an overall average figure is stated for each tested HIU.

Heating takes up most of the operational mode, either by radiators or by underfloor heating, and returns the highest temperatures to the network and plant. It is very important therefore that the circuit is balanced and uses the most effective means of control, and no circuits left 'open'. Underfloor heating by nature of its lower operating temperatures is particularly suited to HIUs.

Hiper HIU by nature of being electronically controlled has an 'optimised heating' feature. Temperature on both flow and return are monitored by the controller, and as the room temperature gets close to the comfort level of the room, the controller then reduces the temperature to the space heating circuit, preventing overshoot of room temperature and maintaining lowest return temperatures to the network and plant.

So the important trade off against the space heating VWART is the DHW and standby modes.

Standby, or 'keep warm' is temperature controlled and controls and limits the return temperature to 40°C (a programmable function).

BESA BUILDING ENGINEERING SERVICES ASSOCIATION

High temperature test results	°C
DHW VWART	15
Standby VWART	38
Space Heating VWART	41
Overall result	28

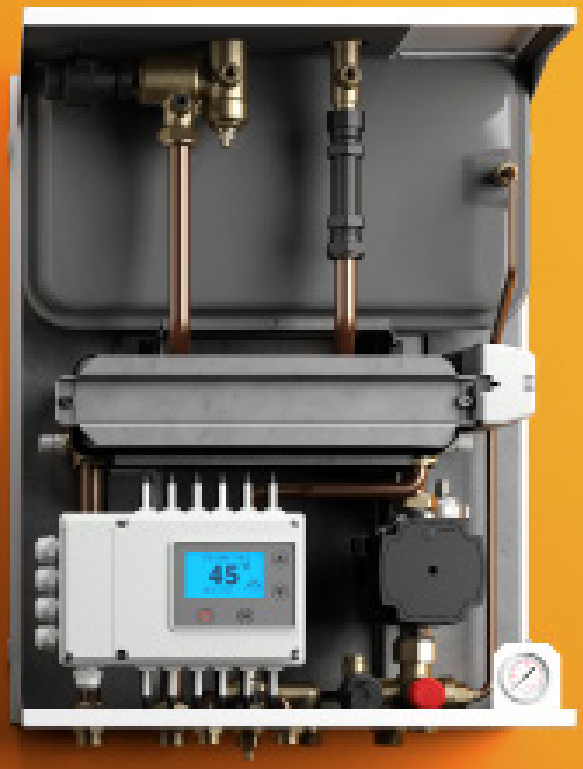
BESA BUILDING ENGINEERING SERVICES ASSOCIATION

Low temperature test results	°C
DHW VWART	16
Standby VWART	38
Space Heating VWART	35
Overall result	29

BIM Level 2 Ready and Revit Models are available via BIMstore
www.bimstore.co/manufacturers/intatec

HIPER II

HEAT INTERFACE UNIT

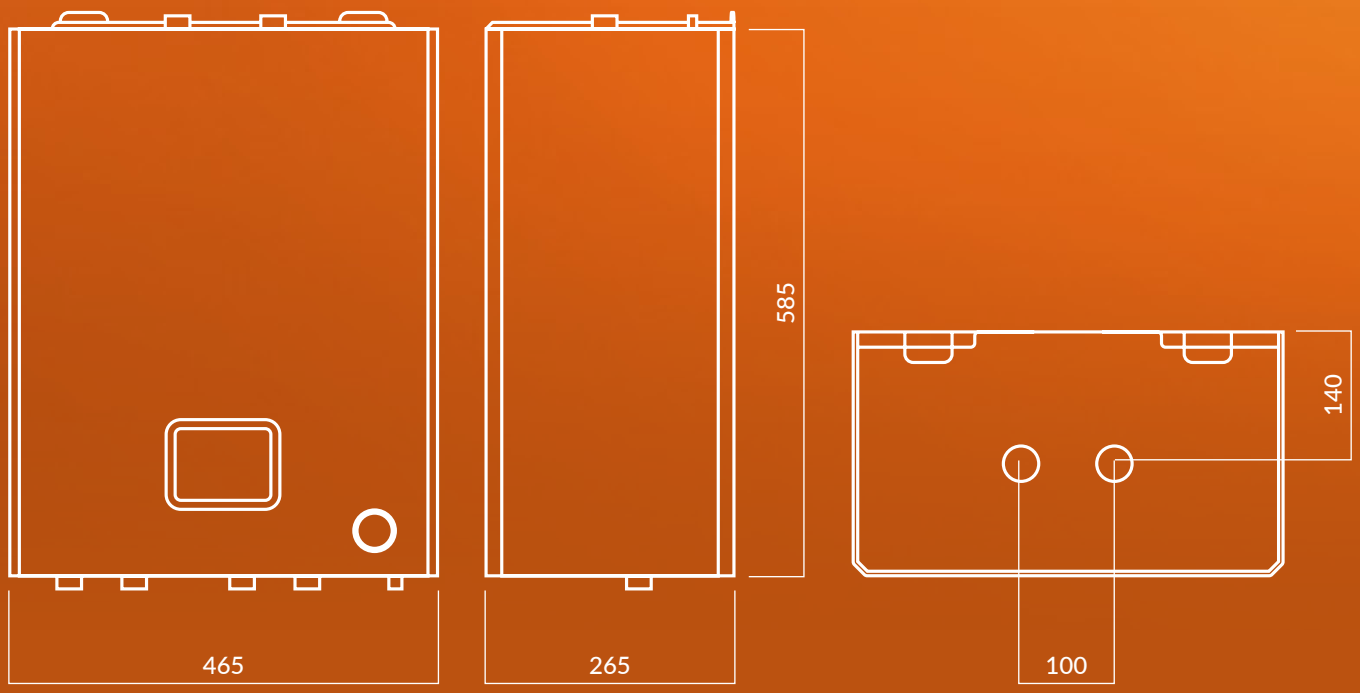


Clearances:

Above the HIU, allow 200mm. Below the HIU, allow 300mm. To each side, allow 100mm In front, allow 50mm

- HIPER II is for wall mounting only, as shown.
- System connections all ¾" male.
- Ensure safety relief valve discharge pipework conforms to current Building Regulations (safety valve connection ½"F)
- The filling group is WRAS approved. Remove the link after filling and store inside casing

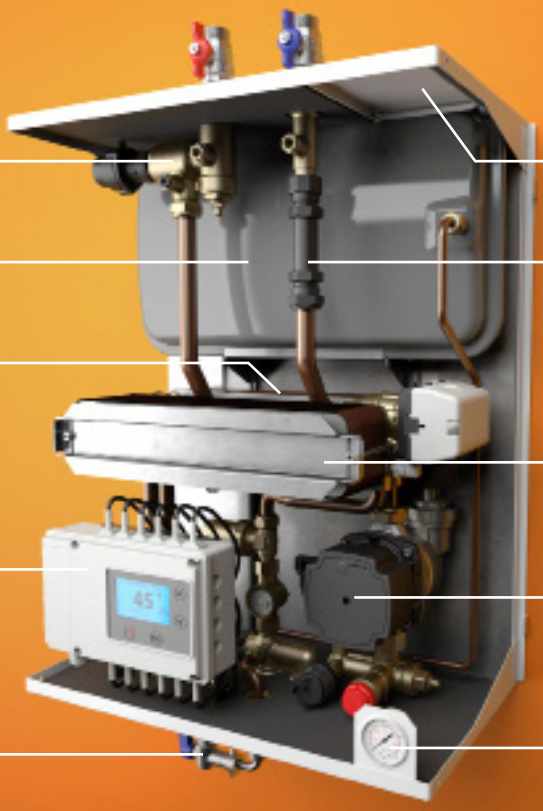
Dimensions



Features

- Radiator Heating or underfloor (UFH)
- Optimised heating function
- Pump protection against pump sticking
- Pay as you go (prepayment) switching
- Integral shut off for pay as you go (payg) - no external valve required
- Auto fault diagnostics
- Modbus communications to report system conditions or fault conditions to a central monitor or BMS
- Automatic closing of the control valve when power lost for anti-scald and stop unnecessary heat returns
- Lift up panel to view heat meter calculator
- 16 bar pressure rated primary (DH) side

Design



- Three Flushing and Bypass options
- Temperature controlled Keep Warm function
- Test Ports
- UFH slab drying cycle
- Frost protection function
- PWM pump speed control
- Pressure Differential and Flow Control by fast acting PICV with Stepper Actuator
- Integral Shock Arrestor for cold water supply
- 3 Strainers, one for each circuit
- Filling group for Heating Circuit

Commissioning and functional features

- Start up menu for commissioning
- Set time and date
- Programable control for heating flow
- Program the return temperature limit on Keep Warm function
- Manual pump override (for test)
- Room thermostat normally open or closed option
- Additional switch for adding a second pump to load a cylinder or use as an alarm
- Optional programme to add a temperature controlled hot water storage cylinder
- Anti-legionella cycle for when adding hot water storage
- Select which plate heat exchanger to use for the keep warm function to limit scale formation

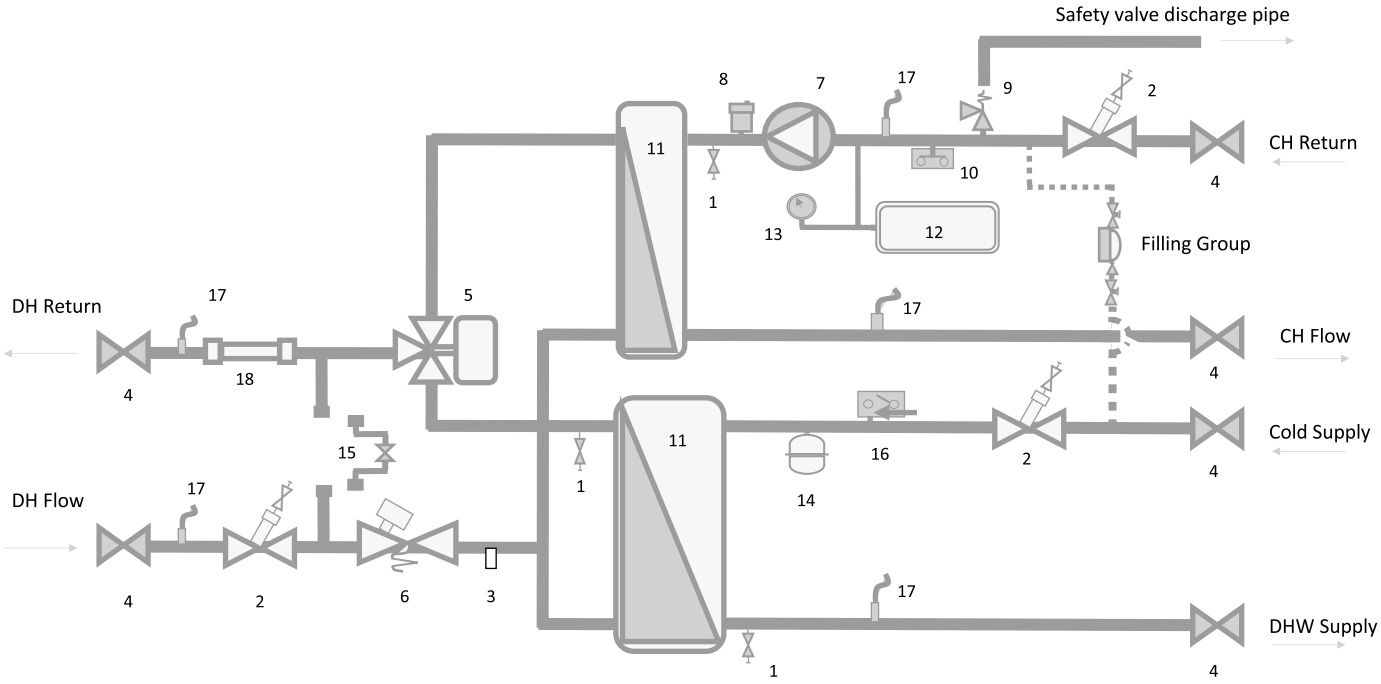
HIPER II

HEAT INTERFACE UNIT

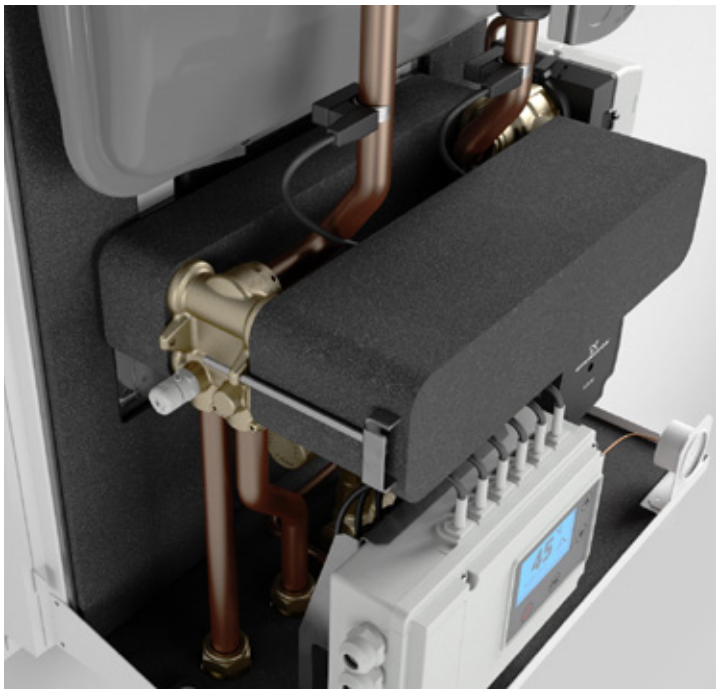
Technical specification

Primary side - maximum pressure	16 Bar
Primary side - maximum temperature	90°C
Primary side - max pressure differential	4 Bar
Primary side - max flow rate	0.369 l/s
Heating side - maximum pressure	3 bar
Heating side - maximum temperature	85°C
Heating side - safety valve setting	3 Bar
Radiator heating temperature adjustment	40-85°C
UFH temperature adjustment	20-40°C
Heating pump - nominal head	70 kPa
Domestic hot water maximum pressure	10 Bar
Minimum cold water supply pressure	1.5 Bar
Hot water temperature factory setting	55°C
Power supply	1 ph /50 Hz/ 230v
Maximum power consumption @ max speed	53W
Weight	25.4 Kg

For BESA test results please visit www.thebesa.com/ukhiu



1		Drain valve / air venting	7		CH Circulating pump	13		Pressure gauge
2		Strainer with drain valve	8		Automatic air vent	14		Shock arrestor
3		Pocket for heat meter sensor	9		Safety pressure relief valve	15		Flushing bypass accessory
4		Isolation valves Red - flow, Blue - return	10		Low pressure switch	16		Flow meter switch
5		Diverter valve	11		Plate heat exchanger (PHE)	17		Temperature sensor
6		Pressure independent control valve (PICV)	12		Expansion vessel	18		Heat meter position DN15 110mm pipe



Circulating Pump.

A Grundfos pump is supplied with a standard pre-set curve: highest constant hydraulic head value (7m) and is connected to the controller with PWM, and is factory set to 70% speed. This can be programmed in the controller installer menu at parameter 24.

Parameter 24 setting options are from 1 to 99 (1 = PWM 1% to 99 = Max speed).

The controller reads the speed of the pump, and generates an error code if it doesn't rotate when in heating mode or when the pump is switched on manually in parameter 25 (test mode).

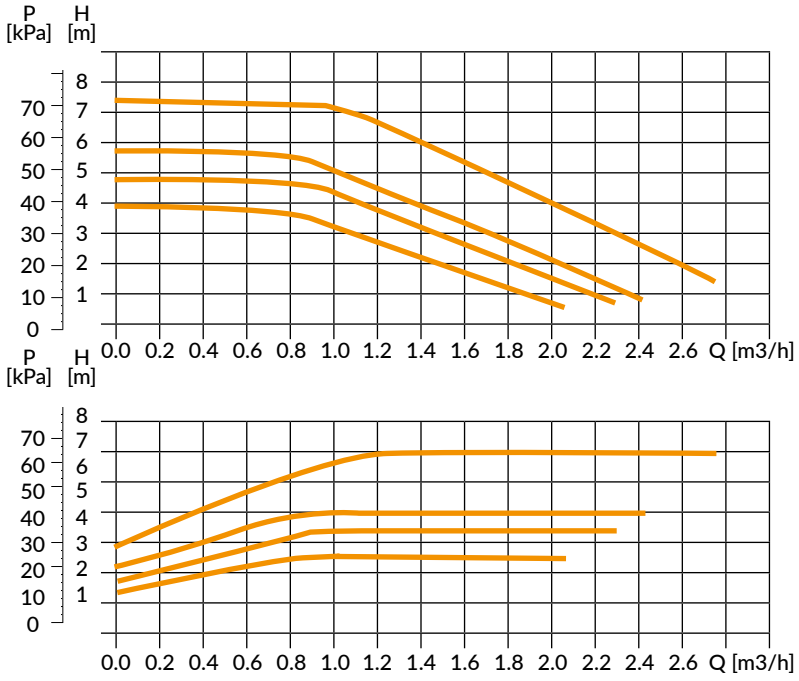
The PWM signal can be used to control the speed of the pump as an input however there are two possible outputs that can be read.

The power consumption of the circulator which is generally aligned to the pump speed.

An estimation of the flow through the circulator.

The UPM3 retains the history of use (stop starts, error messages) however this is only readable by Grundfos currently. In the very near future we have Lin Bus variant that will allow external interrogation of this history.

There is no issue with regards to the potential of pumping against closed valves occasionally. If a UPM3 Auto is used and run in CP mode it will automatically detect this and slow down until the valve opens and flow is required.



High Efficiency

Setting	Max Head Nom
Curve 1	4m
Curve 2	5m
Curve 3	6m
Curve 4	7.5m

Setting	Max P1 Nom
Curve 1	25W
Curve 2	33W
Curve 3	39W
Curve 4	60W

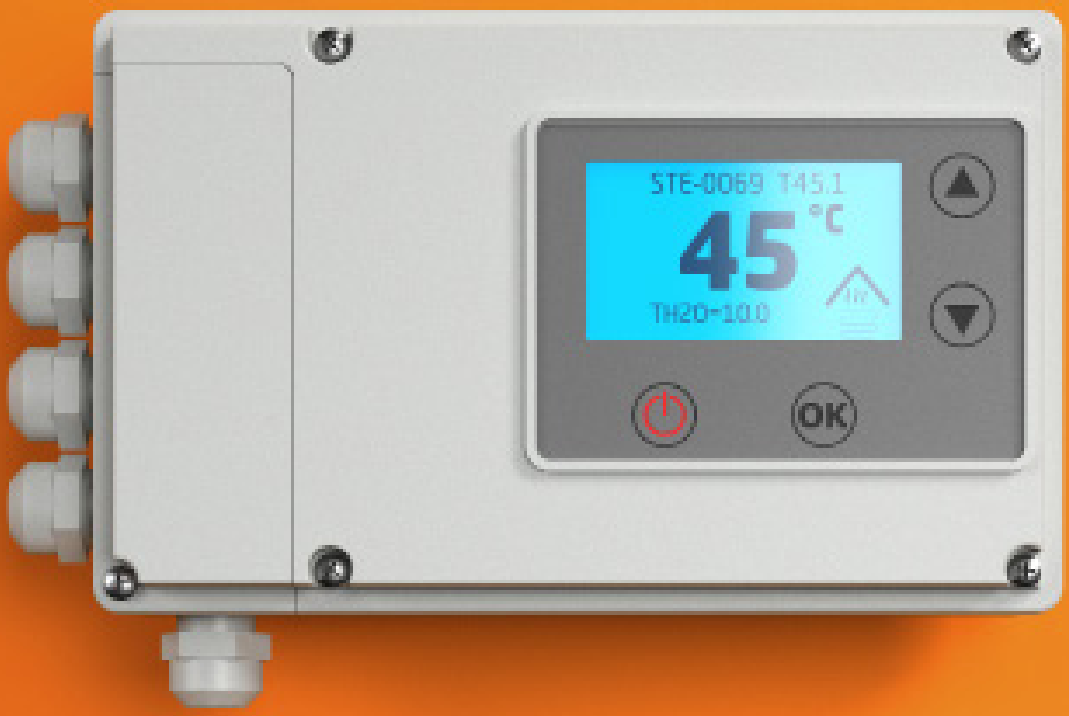
HIPER II
HEAT INTERFACE UNIT

Performance

		ΔT 35°C (10/45°C)				ΔT 40°C (10/50°C)			
Primary circuit flow rate	Primary circuit supply temp.	Primary circuit return temp.	Primary circuit pressure drop	Heat exchanger max. capacity	Flowrate DHW	Primary circuit return temp.	Primary circuit pressure drop	Heat exchanger max. capacity	Flowrate DHW
m3/h	°C	°C	kPa	KW	l/min	°C	kPa	KW	l/min
0.4	55	16.3	85.6	16	6.4	20.5	85.6	15	5.8
0.6	55	18.4	80.7	23	9.2	23.3	80.7	20	7.9
0.8	55	20.0	75	29	11.5	25.3	75	26	7.11
1	55	20.2	67	36	14.3	25.5	67	32	9
1.3	55	23.0	58	49	18.3	26.2	58	39	14.0
0.4	60	14.2	85.4	19	7.4	16.3	85.4	18	6.2
0.6	60	17.4	80.6	26	10.6	19.7	80.6	25	8.8
0.8	60	17.7	74.5	34	13.5	21.1	74.5	31	11.1
1	60	19.0	66.9	42	17.0	22.8	66.9	40	14.0
1.3	60	22.6	57.8	59	21.2	25.0	57.8	53	17.6
0.4	65	13.4	85.4	20	8.0	15.62	85.4	19	6.8
0.6	65	15.2	80.5	30	12.2	18.15	80.5	28	10.1
0.8	65	16.8	74.4	39	15.9	19.25	74.4	38	13.3
1	65	17.4	66.9	48	19.2	20.24	66.9	47	15.9
1.3	65	18.5	57.7	61	23.4	22.88	57.7	57	19.6
0.4	70	14.0	85.4	23	9.6	15.3	85.4	22	8.0
0.6	70	15.2	80.4	34	14.2	16.7	80.4	33	12.1
0.8	70	16.1	73.8	44	18.4	17.6	73.8	43	15.7
1	70	17.4	66.7	55	22.0	18.3	66.7	53	18.7
1.3	70	19.1	57.5	66	26.1	19.5	57.5	65	22.7
0.4	75	11.7	85.2	25	9.8	12.8	85.2	25	8.6
0.6	75	13.9	80	37	14.9	15.3	80	36	12.8
0.8	75	14.7	73.4	49	19.6	16.3	73.4	48	16.8
1	75	15.8	66.4	59	24.0	17.3	66.4	58	20.4
1.3	75	17.2	57.4	74	30.1	18.8	57.4	70	25.1
0.4	80	12.8	85	26	10.6	12.8	85	26	9.1
0.6	80	13.6	79.9	39	16.1	14.5	79.9	39	13.8
0.8	80	14.5	73	51	20.6	16.3	73	50	17.8
1	80	15.5	66.2	64	25.7	17.2	66.2	63	22.4
1.3	80	16.9	57.4	83	31.9	18.4	57.4	81	28.5
0.4	85	11.6	84.8	31	12.4	12.2	84.8	31	10.8
0.6	85	12.5	79.6	47	18.7	13.5	79.6	45	15.8
0.8	85	13.8	72.9	59	23.5	14.4	72.9	58	20.1
1	85	15.6	57	71	27.5	16.3	57	69	24.0

		ΔT 45°C (10/55°C)				ΔT 50°C (10/60°C)			
Primary circuit flow rate	Primary circuit supply temp.	Primary circuit return temp.	Primary circuit pressure drop	Heat exchanger max. capacity	Flowrate DHW	Primary circuit return temp.	Primary circuit pressure drop	Heat exchanger max. capacity	Flowrate DHW
m3/h	°C	°C	kPa	KW	l/min	°C	kPa	KW	l/min
0.4	55	/	/	/	/	/	/	/	/
0.6	55	/	/	/	/	/	/	/	/
0.8	55	/	/	/	/	/	/	/	/
1	55	/	/	/	/	/	/	/	/
1.3	55	/	/	/	/	/	/	/	/
0.4	60	21.1	85.4	16	4.9	/	/	/	/
0.6	60	24.6	80.6	22	7.0	/	/	/	/
0.8	60	26.4	74.5	28	8.9	/	/	/	/
1	60	28.2	66.9	35	11.1	/	/	/	/
1.3	60	31.0	57.8	47	13.8	/	/	/	/
0.4	65	18.5	85.4	19	5.8	23.4	85.4	18	5.1
0.6	65	20.5	80.5	27	8.3	26.6	80.5	24	6.8
0.8	65	22.7	74.4	35	11.2	29.6	74.4	30	8.6
1	65	24.4	66.9	42	13.2	31.2	66.9	37	10.4
1.3	65	28.9	57.7	50	15.8	35.8	57.7	43	12.9
0.4	70	16.9	85.4	22	6.9	19.47	85.4	21	5.9
0.6	70	18.7	80.4	32	10.3	21.78	80.4	30	8.3
0.8	70	20.4	73.8	41	13.2	23.76	73.8	38	10.7
1	70	21.0	66.7	50	15.9	25.85	66.7	46	12.8
1.3	70	22.4	57.5	63	18.8	28.49	57.5	58	15.8
0.4	75	15.4	85.2	24	7.6	17.9	85.2	23	6.5
0.6	75	17.1	80	35	11.0	20.4	80	33	9.4
0.8	75	18.2	73.4	46	14.5	22.6	73.4	43	12.2
1	75	19.7	66.4	56	17.4	24.3	66.4	53	14.9
1.3	75	22.2	57.4	67	20.9	27.8	57.4	66	19.8
0.4	80	14.0	85	26	8.0	14.6	85	25	7.0
0.6	80	16.0	79.9	38	12.0	18.3	79.9	37	10.4
0.8	80	17.9	73	49	15.5	21.3	73	48	13.6
1	80	19.5	66.2	61	19.5	23.4	66.2	59	16.8
1.3	80	21.9	57.4	77	24.8	26.5	57.4	73	21.9
0.4	85	13.2	84.8	30	9.5	14.3	84.8	29	8.2
0.6	85	14.6	79.6	44	13.7	16.4	79.6	43	12.0
0.8	85	15.5	72.9	57	17.6	17.2	72.9	56	15.6
1	85	16.5	57	67	21.2	18.9	57	66	19.4

PID electronic HIU controller



Electronic control features

- Priority hot water
- DHW and HTG temperature control
- Automatic fault diagnostics
- Radiator or UFH
- Optimised heating
- Prepayment programming
- Keep warm feature
- 3 temperature sensors
- Low pressure safety
- Start up menu
- Integrated installer wiring panel
- 6 temperature sensors
- Time and date
- PWM pump control
- Control valve shut down loss of power
- Control of additional hot water store
- Control of 2nd pump
- Anti-legionella
- Slab drying for UFH set up
- Communications Modbus or WIFI
- Control parameters can be reset in hidden Installer level programming

Installer wiring access

Communications options to export information

Specification	YES / NO
Remotely turn HIU on/off	YES
Modbus communication RS485	YES - 9600 K limit
Prepayment mode on current status (HIU on or shutdown)	YES
Primary flow and return temperatures	YES
Fault diagnostics when triggered and send alarm and fault code	YES
Secondary flow and return temperatures	YES
HIU current status, standby or off (hibernation), hot water demand on or off, central heating demand on or off	YES

Modbus is a communication protocol developed by Modicon systems, for transmitting information over serial lines between electronic devices. The Modbus master is the device which requests information and Modbus slaves supply information.

It has become very common and is used widely by many manufacturers throughout various industries. Modbus is used typically to transmit signals from instrumentation and control devices back to a main controller or data gathering system.

Information can be transmitted from each Hiper II HIU

- Primary flow temperature into the HIU
- Primary return temperature leaving the HIU
- Heating flow temperature
- Heating return temperature
- HIU status (standby, heating or producing hot water)
- Prepayment on or off
- Fault codes occurring on the HIU
- Remotely switch the HIU on or off

The Modbus connection module is an accessory and can be fitted at the factory.

Metering Pre-payment 'out of credit shutdown'

For installations where the landlord of the properties has fitted a metering system that enables a scheme where the tenant pays for heat by prepayment, the HIU has the capability to shut down the supply of heat when payment agreements have not been met. The HIU Controller has an auxiliary connection terminal that facilitates this option.

To connect to a prepayment billing system simply go into the installer setting and turn 'ON' Prepayment function, and connect the billing system cable to the connection in the controller.

The controller shuts down the PICV completely and also cancels out keep warm function to prevent 'credit minus' on billing.

The HIU needs no other valves to shut down when the billing is out of credit, saving cost on purchase of a motorised valve capable of closing against pressure differentials in the system and installation time.

The billing system working in conjunction with the heat meter selected by the consultant or energy provider, is usually volt free, but if is 230 volt signal then an accessory relay box is available. Consult the billing provider for this information.

Heat Loss and Insulation

In the BESA test without insulation on any part of the HIU, the average heat load measured on the primary side was 42W. Insulation of the casing, backplate and PHE is now standard on our production HIU and substantially lower heat load figures will be announced subject to independent testing. Why is the figure so low without insulation? Because using hydro blocks and the Hiper design reduces pipework to a bare minimum.

Insulation Properties -

FT7 724 FR NP Low Density Open Cell Polyether Polyurethane Flexible low density open cell polyether polyurethane foam containing a flame retardant additive to reduce ease of ignition.

Black Dual-Melt 25- 30 micron Polyurethane film on one surface.

Thermal conductivity 0.033W/mk

· Density BS EN 845:1995: 24±3 Kgs/m^3

360° BARKING

LONDON

AWARD-WINNING 1 & 2 BEDROOM APARTMENTS

WWW.360BARKINGIG11.CO.UK

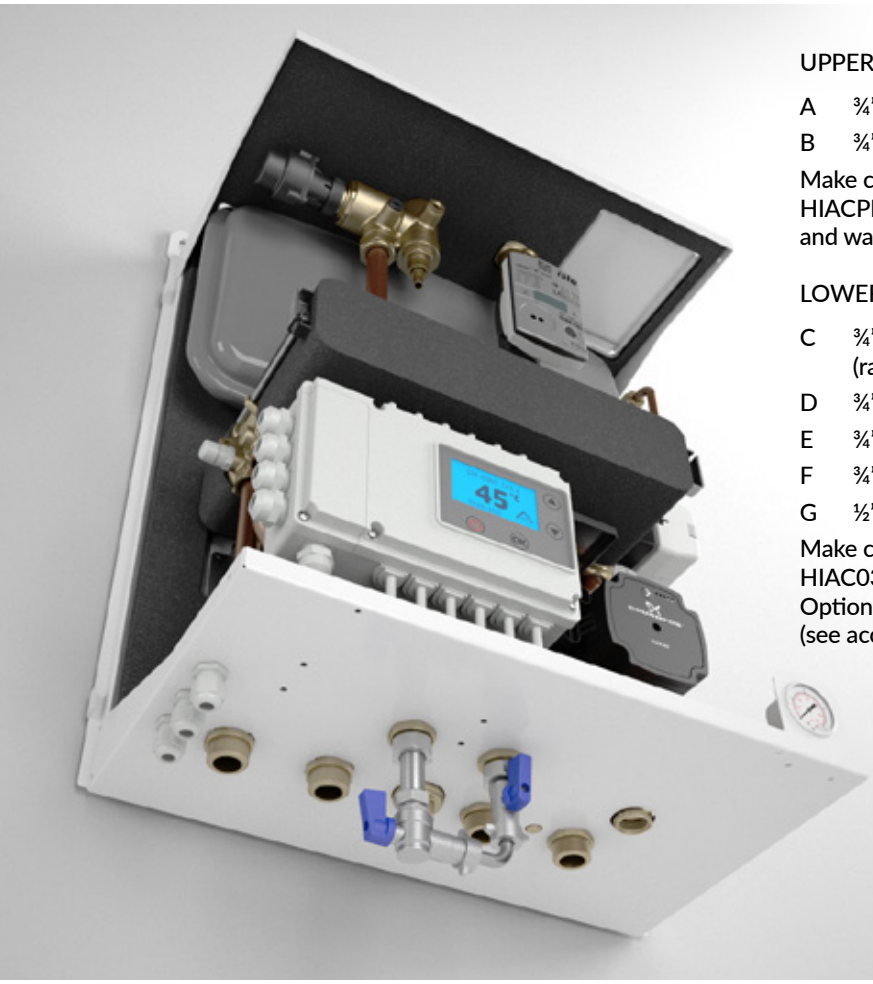
We supplied 291

HIPER Xi

HEAT INTERFACE UNITS

HIPER II
HEAT INTERFACE UNIT

Plumbing connections



UPPER

A ¾" Heat network flow

B ¾" Heat network return

Make connections with HIACPFFKIT Isolation valves x 2 and wall bracket (Supplied)

LOWER

C ¾" Heating flow (radiators or UFH)

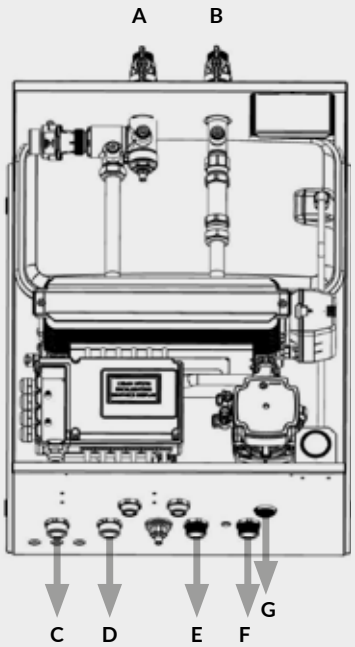
D ¾" DHW supply

E ¾" Cold water supply

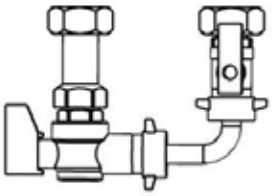
F ¾" Heating return

G ½" Safety valve discharge

Make connections with HIAC03BVPACK.
Optional - use HIAC02BVPAC (see accessories)



Filling group



For filling of the heating circuit for the radiators or UFH, the filling valves and connecting pipes are integral to the HIU. On completion of filling the heating circuit the temporary connection pipe between cold water supply and HIU and should be removed, and left inside the HIU for later use.

WRAS APPROVED PRODUCT

1804045

Keep warm and instant heat

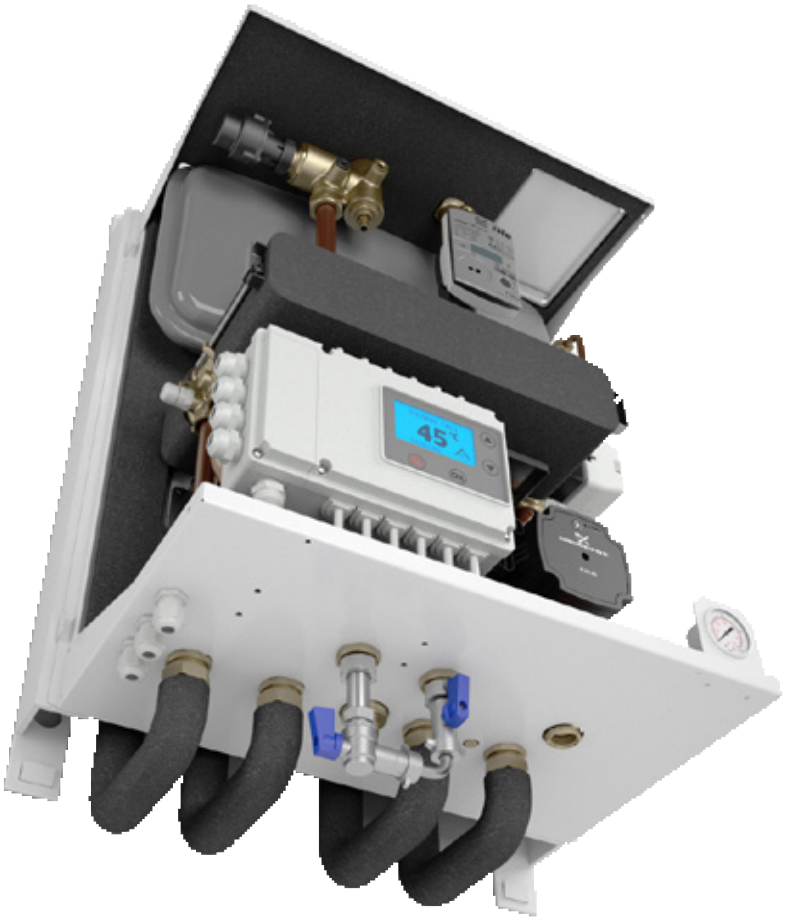
Delivering DHW at the taps without long waiting times is down to the response time of the HIU and the plumbing design of the pipework in the home. The response time set in the BESA test regime for HIUs sets the standard as the DHW temperature leaving the HIU must reach 45°C in 15 seconds or less. When the Hiper HIU enters its Keep Warm mode after a preset time, which the installer sets on commissioning. In some circumstances end users will not want or need this function, but the choice is there.

When the Hiper HIU then enters Keep Warm mode, after it's elected time to activate, it maintains heat in the PHE by temperature control of the plate and limiting the temperature of the primary return. It is important in any HIU, manual bypasses are not used and the HIU should have a means of controlling the return temperature through any 'Keep Warm' functions to prevent excessive temperatures back to the Boiler Plant Room.

HIPER II
HEAT INTERFACE UNIT

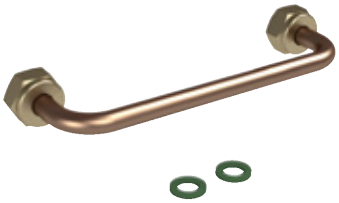
Part codes for HIU

Hiper II Heat Interface Units	Code
Hiper II Twin Plate HIU SZ 80kW DHW, 3 - 30 HTG	HIPER2TPSZ80
Hiper II Twin Plate HIU SZ 80kW DHW, 3 - 30 HTG + Fitted Zenner Heat Meter	HIPER2TP1580ZE

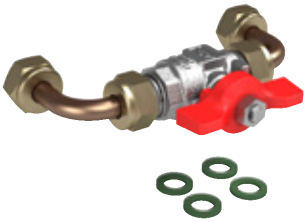


Accessories

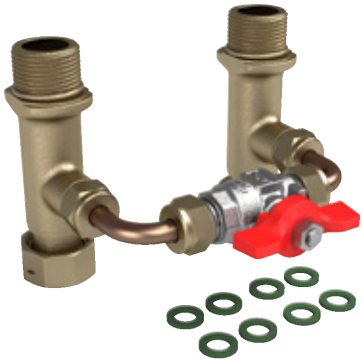
Accessories for Hiper II twin plate HIU range	Code
Flushing by pass kit A (temporary pipe)	HI2AKITA
Flushing by pass kit B (fixed connection to HIU with valve)	HI2AKITB
Flushing by pass kit C (external valve and tees)	HI2AKITC
First fix JIG	HI2ACJIG
Primary only first fix kit, use with Hiper first fix JIG and supplied with the HIU	HIACPFFKIT
Pair stand off wall brackets	HIAC01SOBPACK
All connections at top (set of 4 insulated preformed pipes)	HI2ACCON
All connections at top (set of 2 pairs MxM Isolation Valves WRAS approved)	HI2ACISO
Lower connections pipe kit (set of 4 preformed pipes to bring connections 'back to wall')	HIAC02BVPACK
Pack of 4 secondary isolation valves WRAS approved	HIAC03BVPACK
Prepayment relay (for billing systems using a 230v signal)	HIAC04230KIT
Security - anti tamper fixing screws + driver	HIAC05SSPACK
Insulation jacket for HIU isolation valve	ARM022129
ZE102C5 Zenner ultrasonic heat meter with Mbus	ZE102C5



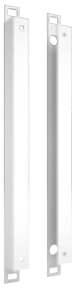
Flushing Bypass KIT A



Flushing Bypass KIT B



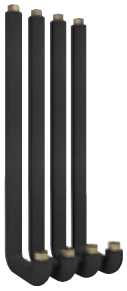
Flushing Bypass KIT C



Stand off brackets

Pack of 4 Secondary Isolation valves WRAS approved

First fix JIG



Lower connections pipe kit

Other products from Inta

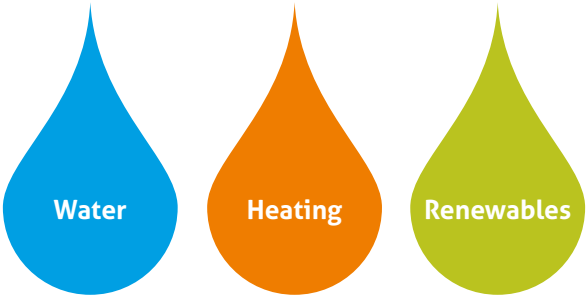
The IntaKlean Compact's small installation footprint has been designed so it can be fitted directly underneath the boiler, saving space whilst still giving the same level of system protection.

The unique design means that it can be fitted in almost limitless orientations to suit any installation.

Pre-settable Radiator Valves

For too long the HIU has been carrying the blame for high Secondary Return temperatures that are actually the result of poor/no Commissioning or Balancing of the Tertiary System. Making the use of Pre-settable Radiator Valves mandatory would go a long way to resolving this and would enable Radiators to be Balanced by the Installer the same way they would be obliged to Balance UFH.

Each pre-settable thermostatic valve comes with six, pre-set Kv values and are tamper proof once they have been commissioned. To compliment our commercial TRV offering, these valves can be coupled with our EN215, A efficiency rated inta i-therm TRV valve head.



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