
PSW GROUP
MKN
mknLTD.CO.UK
WARM WAVE HEATING.CO.UK
under floor heating
wärmer®
I II III Auto P
I+II : BL1
I+III: BL2
I+A : BL3
II+III : HD1
II+A : HD2
II+P : HD3
GPA 25-6 III

Contents

01

Manifold and Mixing group 02

- Accessories for Manifolds
- End Unit Choice
- Actuator
- Manifold Cabinet
- Control Pack
- Circulation Pump

02

Heating Control and Accessories 22

- Circulating Pump Group
- Iron Manifold
- Water Hydraulic Separator
- Plastic Magnetic Filter
- Motorized Zone Valve
- Group Vessel Kit
- Heatguard
- Thermostat

03

Pipe and accessories 44

- Guide-bar System For Pipes
- Clip System
- Tools

04

Electrical Underfloor Heating 57

- Sticky Mat System
- Loose Wire System

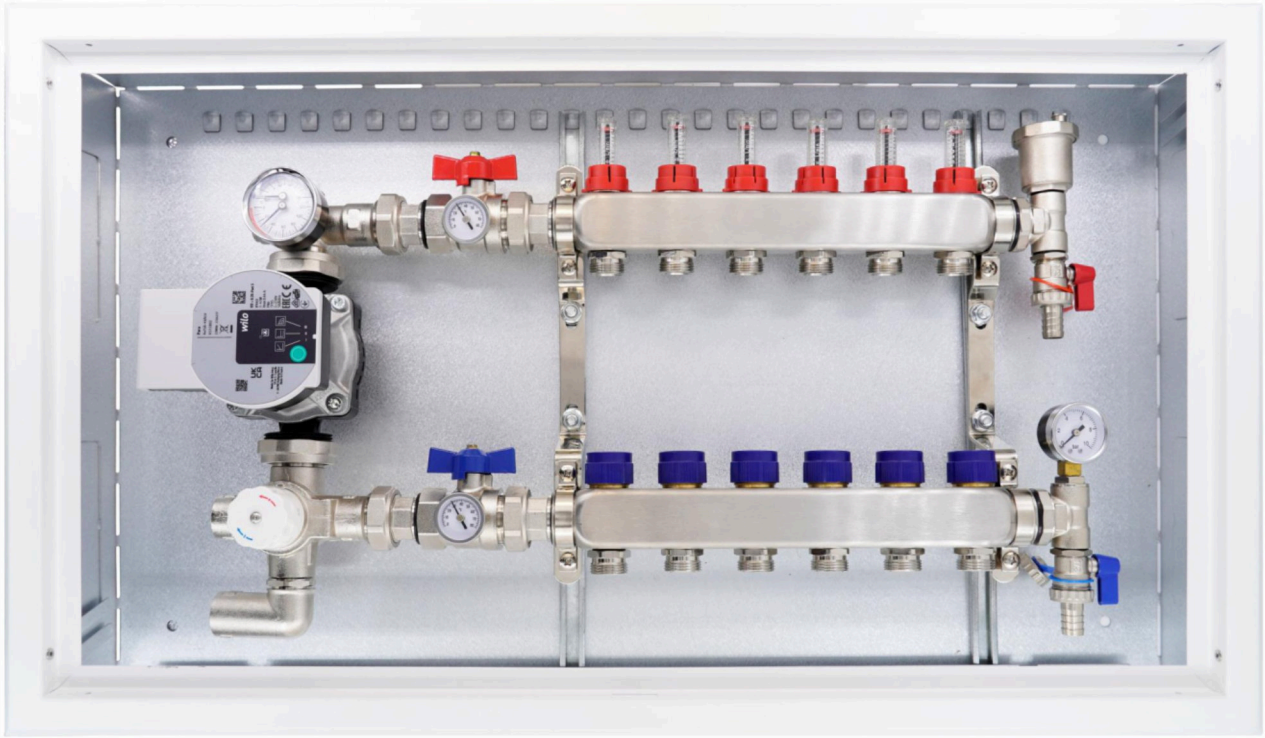
PSW GROUP MKN mknLTD.CO.UK

wärmer®

WARM WAVE HEATING.CO.UK under floor heating

Manifold and Mixing group

>



ZL-1125
Brass Flowmeter Manifold



Description

The manifold is designed specifically for heating systems and suitable for radiator heating and radiant floor heating systems.

The flow manifold is equipped with flow rate regulating valves, can accurately adjust the flow rate of each outlet; flow meter regulating valve is designed with a protective cap, tight the protective cover after the flow adjustment is completed, can prevent misoperation.

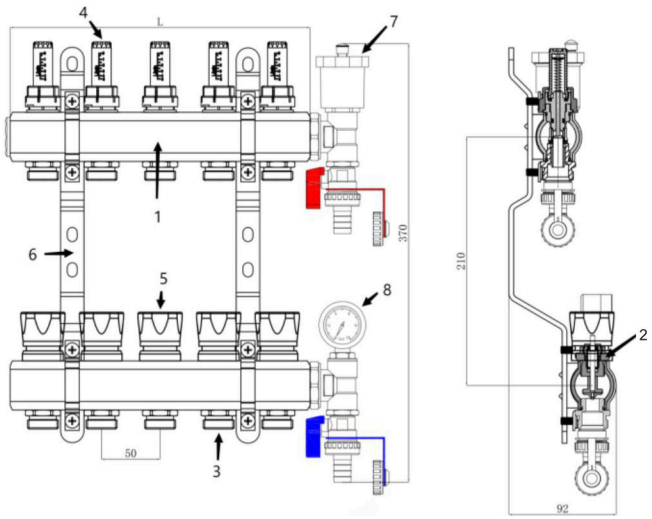
The return manifold is equipped with manual shut-off valves, in order to cut off the flow to the individual circuits. They can also be fitted with a thermo-electric actuator to realize automatic temperature control, The stroke of electro-thermal actuator should⩾3mm

Technical Specifications

Materials	
Body	Brass
Hydraulic Seals	EPDM
Handle	ABS
Springs	Stainless Steel
Brackets	Steel
Adaptors	Brass

Performance	
Medium	Water、glycol solutions Max. percentage of glycol is 30%
Working temperature range	5-95℃
Maximum working pressure	10bar
Main connections	G1”F (ISO 228-1)
Outlets	G3/4”M (ISO 228-1)
Centre distance	50mm

Dimension and Characteristic Components

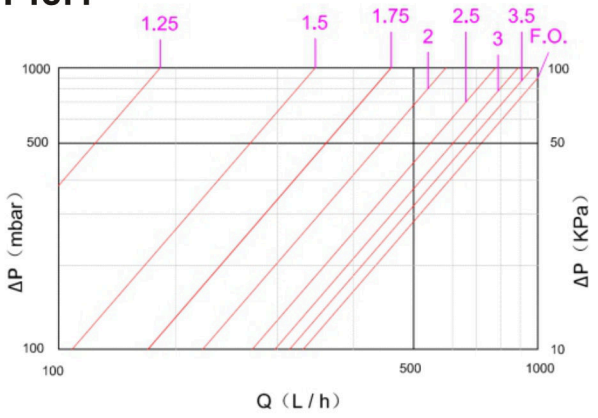


No.	Characteristic components
1	Manifold Body
2	Spring valve core
3	Nipple
4	Flowmeter
5	Handle
6	Brackets
7	End unit
8	End unit

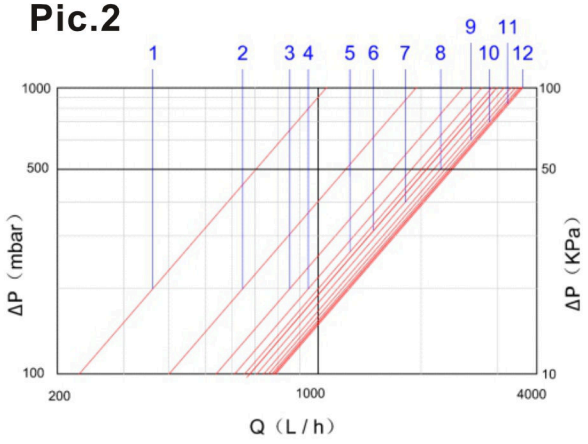
No. of outlets	2	3	4	5	6	7	8	9	10	11	12
L/mm	106	156	206	256	306	356	406	456	506	556	606

Hydraulic Characteristics

Pic.1



Pic.2



Pic.1

Opening turns	1.25	1.5	1.75	2	2.5	3	3.5	F.O.
Kv	0.12	0.33	0.47	0.57	0.77	0.88	0.95	1.02

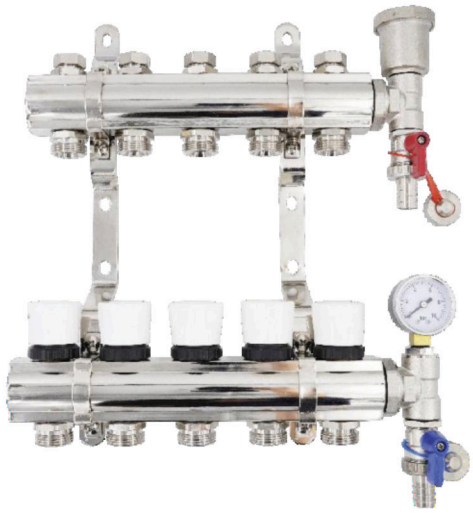
Pic.2

No. of outlets	1	2	3	4	5	6	7	8	9	10	11	12
Kv	1.02	1.65	2.23	2.55	2.81	2.97	3.13	3.26	3.34	3.38	3.42	3.50

ZL-1121
Brass Distribution Manifold

Description

The manifold is designed specifically for heating systems, and suitable for radiator heating and radiant floor heating systems. The distribution manifold is equipped with spring spool regulating valves , the return manifold is equipped with manual shut-off valves, in order to cut off the flow to the individual circuits.

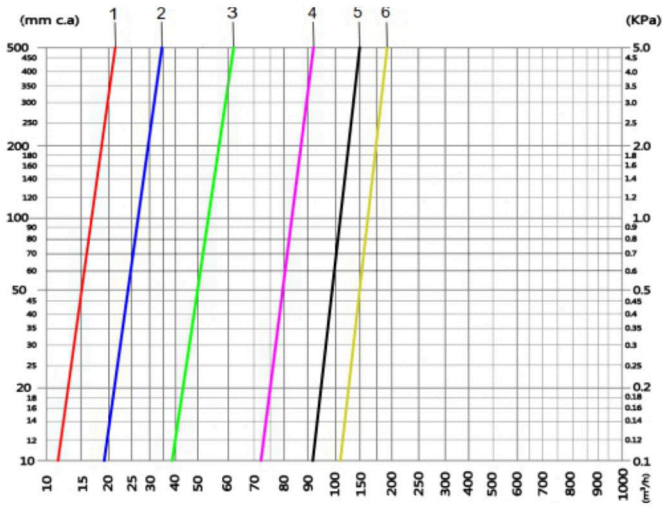


Technical Specifications

Materials	
Body	Brass
Hydraulic Seals	EPDM
Handle	ABS
Springs	Stainless Steel
Brackets	Steel
Adaptors	Brass

Performance	
Medium	Water、glycol solutions Max.percentage of glycol is 30%
Working temperature range	5-95℃
Maximum working pressure	10bar
Main connections	G1”F (ISO 228-1)
Outlets	G3/4”M (ISO 228-1)
Centre distance	50mm

Hydraulic Characteristics



Opening Turns	1	2	3	4	5	6
Kv	0.17	0.27	0.54	0.83	1. 15	1.35

ZL-1175
Stainless Steel Manifold

Description

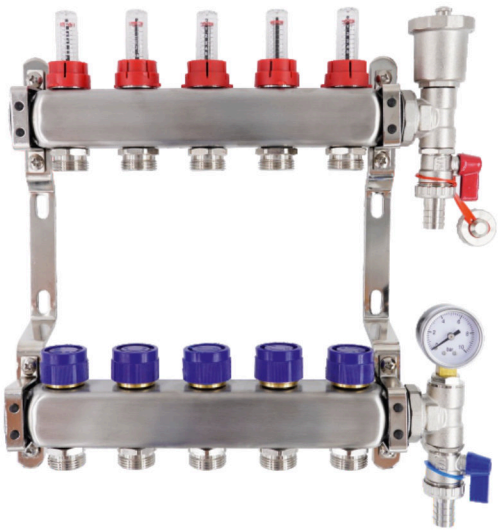
The manifold is designed specifically for heating systems, and suitable for radiator heating and radiant floor heating systems. The flow manifold is equipped with flow rate regulating valves, can accurately adjust the flow rate of each outlet; flow meter regulating valve is designed with protective cover, tight the protective cover after the flow adjustment is completed, can prevent misoperation.

The return manifold is equipped with shut-off valves, in order to cut off the flow to the individual circuits. They can also be fitted with a thermo-electric actuator to realize automatic temperature control, The stroke of electro-thermal actuator should be more than 3mm.

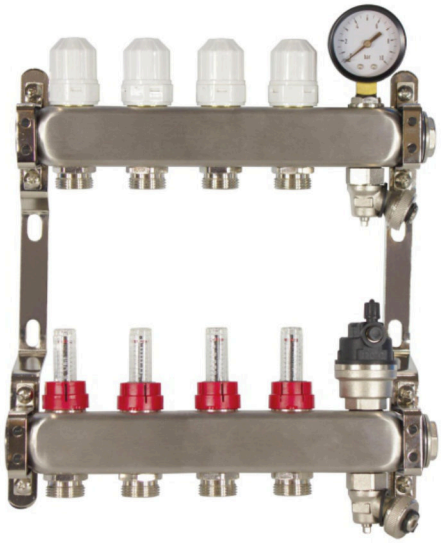
Technical Specifications

Materials	
Body	Stainless Steel
Seals	EPDM
Handle	ABS
Springs	Stainless Steel
Brackets	Steel
Adaptors	Brass

Performance	
Medium	Water、glycol solutions Max. percentage of glycol is 30%
Working temperature range	5-100℃
Maximum working pressure	10bar
Flow meter scale	0~5L/min
Main connections	G1”F (ISO 228-1)
Outlets	G3/4”M (ISO 228-1)
Centre distance	50mm



ZL-1175K

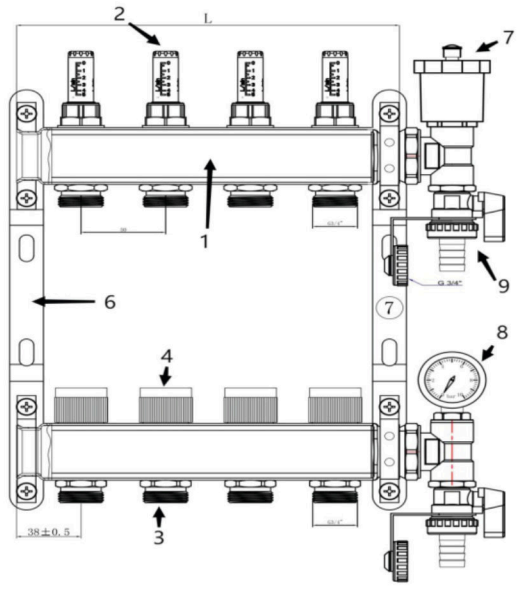


ZL-1175H

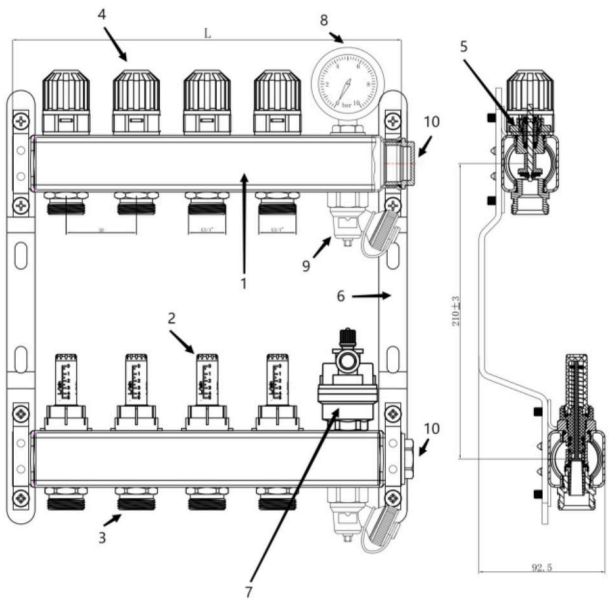
ZL-1175
Stainless Steel Manifold

Characteristic Components

ZL-1175K



ZL-1175H



No.	Components
1	Manifold Body
2	Flowmeter
3	Nipple
4	Handle
5	Spring valve core

No.	Components
6	Brackets
7	Automatic Air Vent
8	Pressure gauge
9	Drain Valve
10	Plug

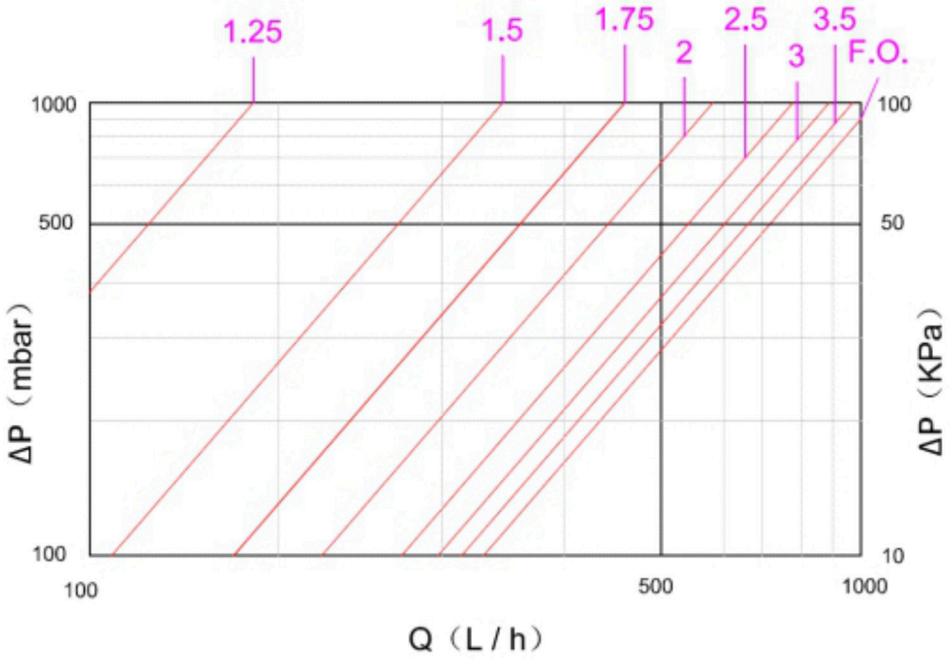
ZL-1175K

No. of outlets	2	3	4	5	6	7	8	9	10	11	12
L/mm	126	176	226	276	326	376	426	476	526	576	626

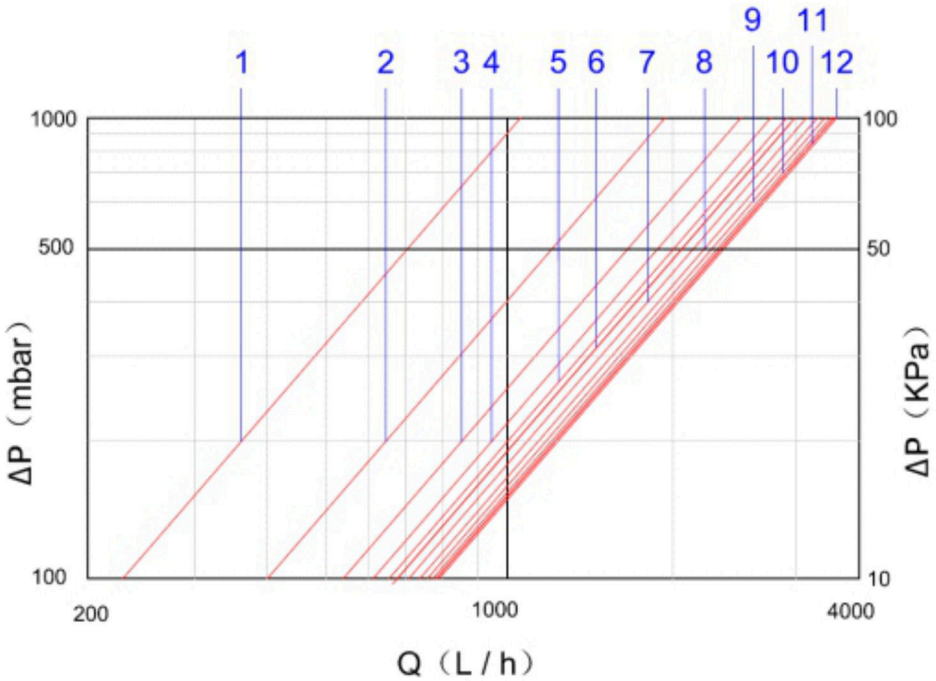
ZL-1175H

No. of outlets	2	3	4	5	6	7	8	9	10	11	12
L/mm	176	226	276	326	376	426	476	526	576	626	676

Hydraulic Characteristics

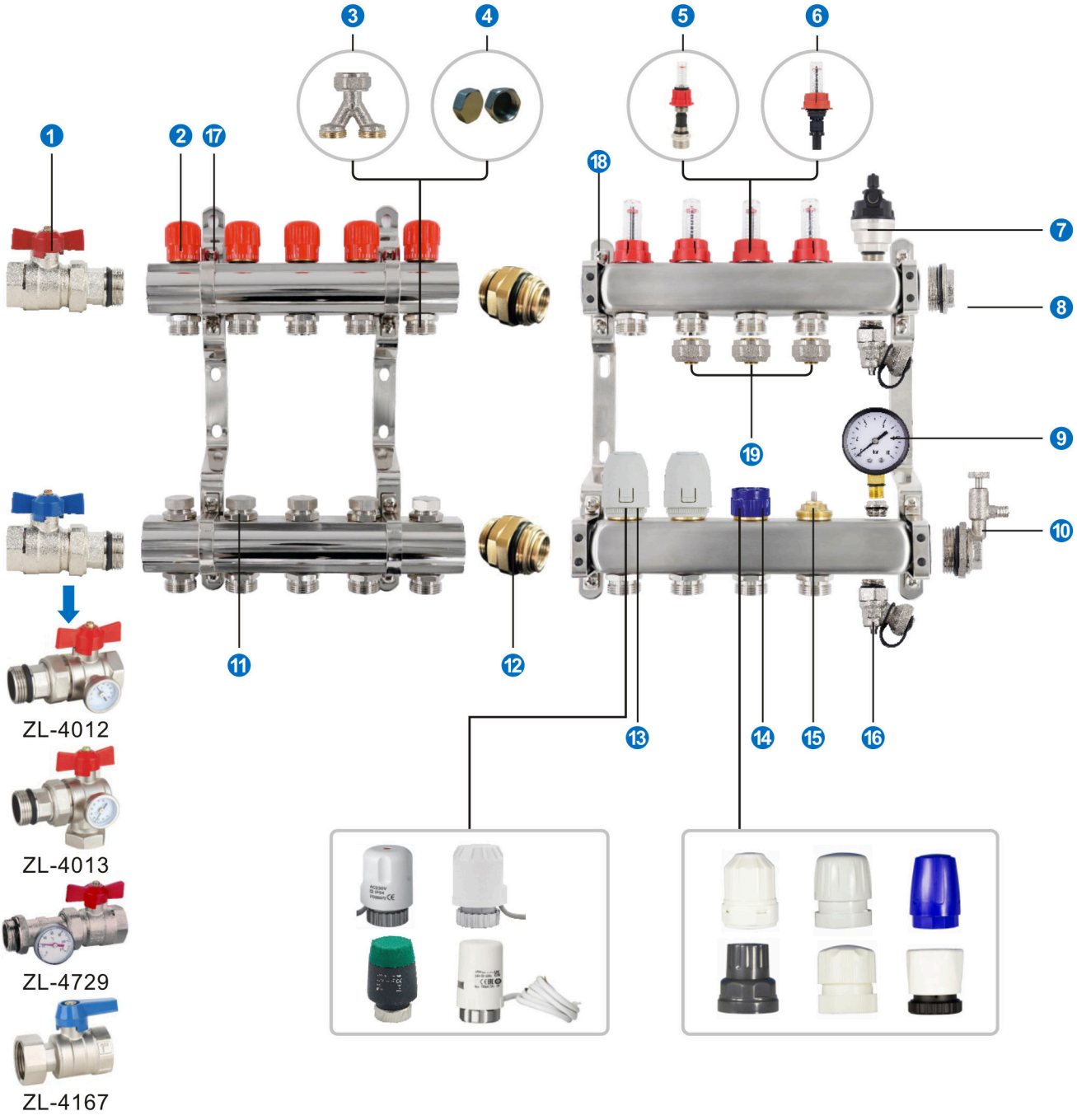


Turns	1.25	1.5	1.75	2	2.5	3	3.5	F.O.
Kv	0.12	0.33	0.47	0.57	0.77	0.88	0.95	1.02



No. of outlets	1	2	3	4	5	6	7	8	9	10	11	12
Kv	1.02	1.65	2.23	2.55	2.81	2.97	3.13	3.26	3.34	3.38	3.42	3.50

Accessories
for manifolds



ZL-4012

ZL-4013

ZL-4729

ZL-4167

1. Brass ball valve (ZL-4130 1 inch)
2. Manual valve inner core
3. Y-splitter
4. Plug(3/4 inch)
5. Flowmeter(ZL-1213)
6. Plastic flowmeter(ZL-1216)
7. Auto air vent
8. Plug
9. Pressure gauge
10. Air vent plug(ZL-7325B)
11. Lockshield valve inner core(ZL-1121)
12. Male manifold connector (ZL-9214)
13. Electric thermal actuator
14. Handle
15. Thermostatic valve inner core
16. Drain valve
17. A3 Bracket for brass manifold
18. A3 Bracket for stainless steel manifold
19. Eurocone

- (The specific size depends on the size of the connected pipe)

End unit

ZL-7114 ZL-7114B/C ZL-7311 ZL-7311 ZL-7313 ZL-7319

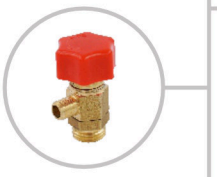


Auto Air Vent

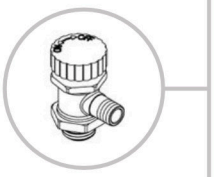


ZL-7317

Manual Air Vent



ZL-7322



ZL-7323



ZL-9902





B207

Pressure gauge



B204



B230

Drain valve



ZL-2861



ZL-4245



ZL-4247

ZL-2033
2 wire Electric Actuator



The ZL-2033 Valve Actuator is designed to open and close a heating circuit on the Polypipe underfloor heating smart plus manifold based on whether the circuit is calling for heat.

The valve actuator helps improve the energy-efficiency of the system by allowing individual room temperature control.

The Actuator mechanism uses a PTC resistor-heated wax element and compression spring. The wax element is heated by applying the operating voltage which in turn, moves the integrated ram. The force generated by the movement is transferred to the valve motor which opens and closes the valve.

In case of the normally closed version, the valve is opened/closed by the ram at a steady rate when the device receives its operating voltage. When the devices operating voltage is cut, the device will enter a 'hold' period. Once the hold period has finished, the valve will then close evenly by the compression the spring.

Benefits

- Modern Design
- Stroke 3.0mm
- Normally Closed (NC)
- Power Consumption 2Watt
- Complete Compatibility to valve- adapter-system
- Simple snap-on installation
- 360° Installation Position
- Patented 100% Protection Against Leaky Valves
- First-open Function (NC type only)
- Adaptation Check on Valve
- Alignment Aid on the Valve
- Compact Design
- All Around Function Indicator
- Minimal Operational Noise & Maintenance Free
- High Functional Safety
- Surge Protection
- Certified by LL-C

Technical Specification	
Operating voltage	24V/230 V AC | +/-15% | 50/60 Hz
Maximum inrush current	< 200 mA during 100 ms max
Operating power	2W 1)
Stroke (actuator travel)	3.0mm
Actuating force	100 N +10%
Fluid temperature	0 to +100°C 2)
Storage temperature	-25°C to +60°C
Ambient temperature	0°C to +60°C
Degree of protection	II
Type of protection	IP 54 3)
CE conformity according to	EN 60335
Housing material/housing colour	PC| White
Connecting cable/colour	2 x 0.5mm2 PVC | Light grey
Cable length	1 Meter
Weight with connecting cable (1 meter)	32.5g
Surge protection according to EN60335-1	2.5 kV

2 wire Electric Actuator



ZL-2035

Installation



Technical Data		
Supply voltage	24V	230V
Power consumption	2-3w	
Frequency	50/60hz	
Spindle travel time	3-5min	
Stroke	3mm	
Ambient temperature	-25℃+65℃	
Enclosure	Ip54	
Cable length	800mm	



ZL-2040

Technical Data		
Supply voltage	24V	230V
Power consumption	3W	2W
Frequency	50/60hz	
Spindle travel time	3-6min	
Stroke	3. 5mm	
Ambient temperature	0℃-60℃	
Enclosure	Ip54	
Cable length	1000mm	



ZL-2042

When not in use



Technical Data		
Supply voltage	12v/24v/110v	220v
Power consumption	3-4w	2-3w
Frequency	50hz	
Spindle travel time	3-5min	
Stroke	3. 5mm	
Ambient temperature	-5℃-60℃	
Enclosure	Ip54	
Cable length	800-1000mm	

ZL-2039
4 wire Electric Actuator

Mounting

1) Remove handle or cap from the body valve.
2) Position the actuator and tighten manually the ring nut of the actuator onto the body valve.
DO NOT use pipe wrenches, spanners or similar.
3) Connect electrical wiring.

Important maintenance notes

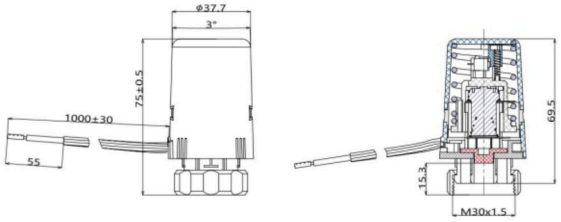
The connecting cable must never be replaced. Opening the actuator will cause irreparable damage to the device. Faulty actuators must be replaced as complete units.

Warning

The actuator must not be installed below the body valve.

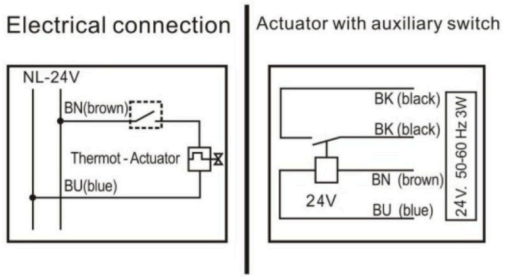


Overall dimensions (mm)

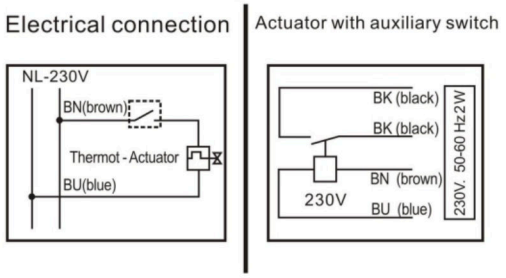


Electrical wire connections

24V



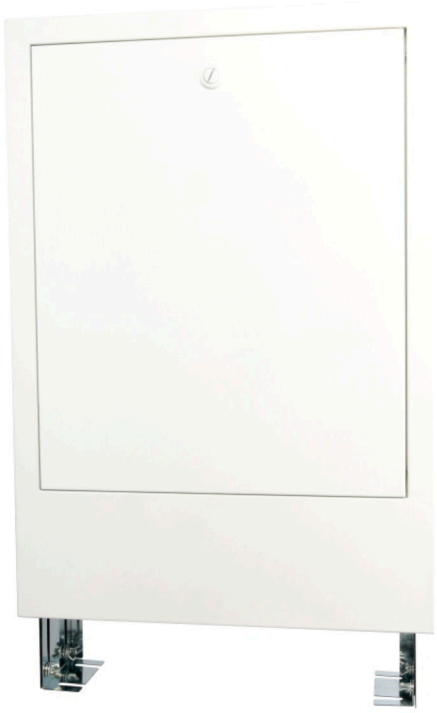
230V



Technical Features	
Action	ON/OFF
Power supply	24 / 230 VAC/DC (+10% / -15%)
Frequency	50/60Hz
Power consumption (normal operation)	3W/2W
Peak starting current	0.20 A x 0.5 sec (230V) 0.25 A x 60 sec (24V)
Initial opening (NC) time (power ON) 230V	75 s
Final opening(NC) time (power ON)	6 min
Initial opening (NC) time (power ON)24V	3 min
Final opening (NC) time (power ON)	6 min
Actuator stroke	max 4.0 mm
Valve stroke	3 mm
Protection class	IP54 to EN60529
Electrical Protection class	II
Safety (contamination level)	2
Cable length *	1 m 4-pole x 0.5 mm2
Operation temperature limit	0 to 50°C
Storage temperature limit	-25 to 60°C
Fluid temperature limit	Max 110 °C
Nominal closing force (power OFF) (Closed type)	100 N (±10%)
Auxiliary microswitch (4-pole model)	max 700 mA - 250 V ~ (a.c)
Cover	Pa66 +30 F.V. self extinguished
Valve connection	Threaded ring nut M30x1.5

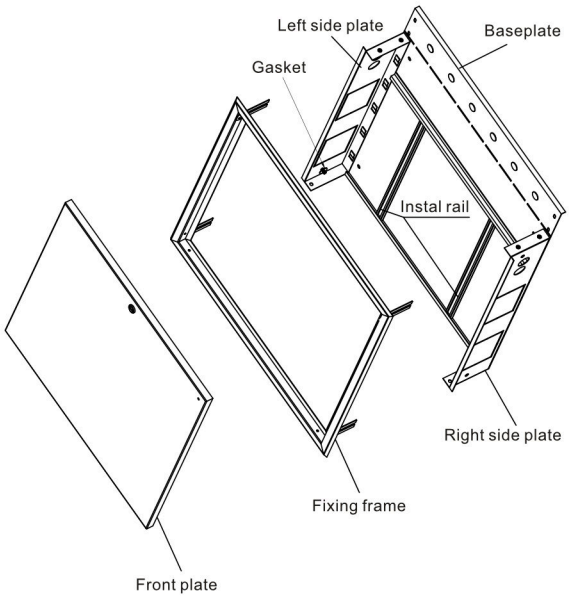
Manifold cabinet

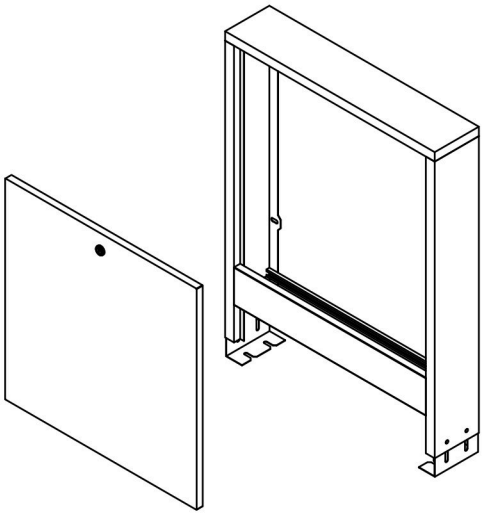




Tips：Made by measure

Product Structure





mknLTD.CO.UK Unit 3 Tatton Court WA1 4RR United Kingdom Sales: +44 1925 390 641 Support: +44 1925 398 557 info@mknltd.co.uk ; mknLTD.CO.UK

Under Floor Heating Pumps


wärmer®
I II III Auto P
I+II : BL1
I+III: BL2
I+A : BL3
II+III : HD1
II+A : HD2
II+P : HD3
GPA 25-6 III

ZL-2536
UFH Pump Control Pack

Description

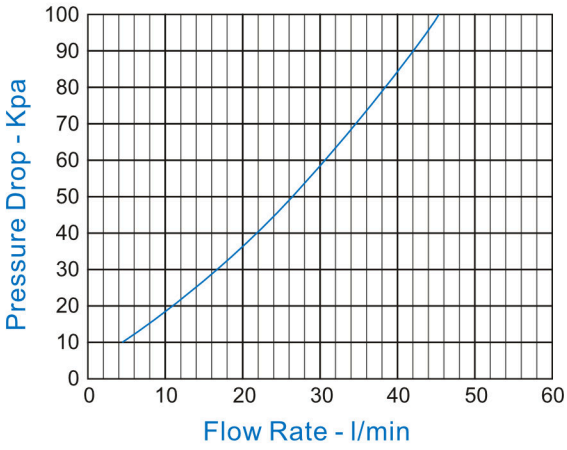


Designed to work with manifolds of all types, on 210mm centers. The thermostatic blending valve is a bolt on unit providing a quick and simple system to install.
The thermostatic blending valve is the core of the control system. It is used with flow and return manifolds to control the flow temperature of water to the underfloor heating pipework . It mixes the hot water in the boiler and supplies the water back to the surface pipe at the correct temperature.The mixing valve operates at a lower temperature than the radiator system, between 35°Cand 60°C depending on the construction of the floor.The water supply temperature can be adjusted according to the structure of the floor.

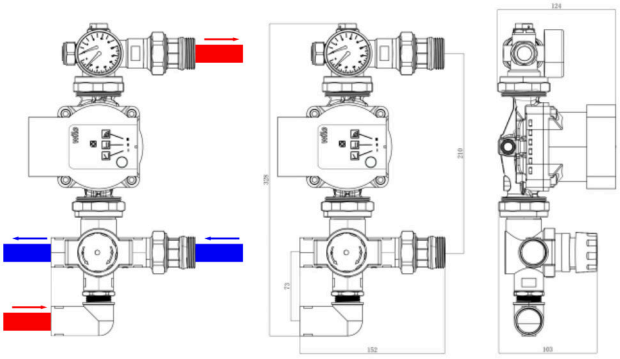
ZL-2536C designed for Heat pump and low Temperature systems that do not requires a thermostatic control valve.

Key Design Information	
Medium	water or glycol solution
Maximum glycol percentage	30%
Maximum working pressure	6bar
Maximum working temperature	90°C
Adjustable control temperature range	35 to 40°C
Finish	Chrome plated
Thread connections	BS EN ISO 228-1
Kv value	2.8m³/h (Dp = 1 bar; Tmix = 45°C)

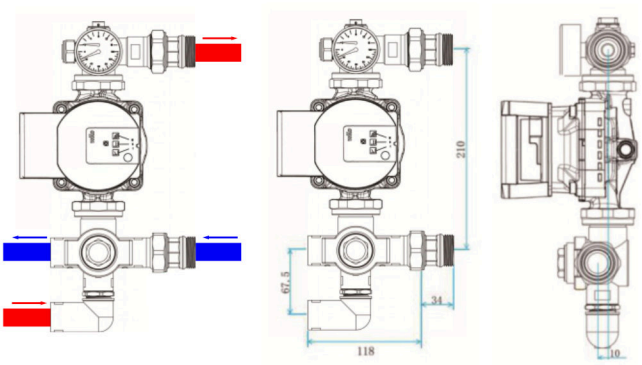
Pressure Drop Graph



ZL-2536



ZL-2536C(No Mixing option)



Stock Code	Product Name	Size
ZL-2536/ZL-2536C	UFH Heat Pump System Control Pack	¾” inlets – 1” outlets

ZL-2548
UFH Pump Control Pack

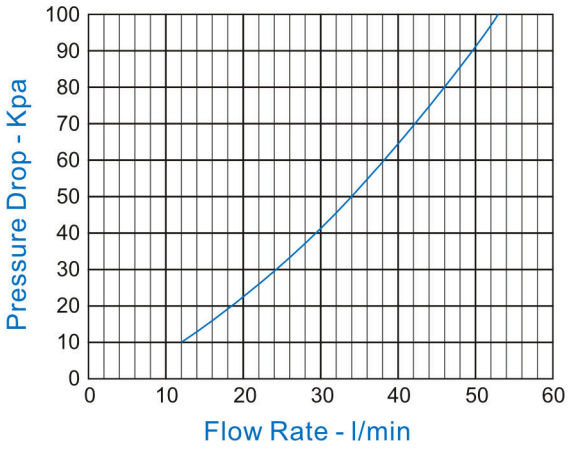
Product Features

The ZL-2548 is a control group for manifold in underfloor heating applications. The mixing valve on the ZL-2548 is adjustable between 20° - 60°C which complies with the requirement of BS 1264-4 2009 for initial warm up temperatures of between 20° - 25°C and a locking pin to set maximum blend temperature. The ZL-2548 has an additional probe pocket for an optional over temperature device to be installed. A throttle to increase the Kv of the mixing valve for larger systems. A built in non-return valve above the circulation pump to prevent back filling during the system fill and also reduces water loss if the circulation pump needs to be removed for maintenance.



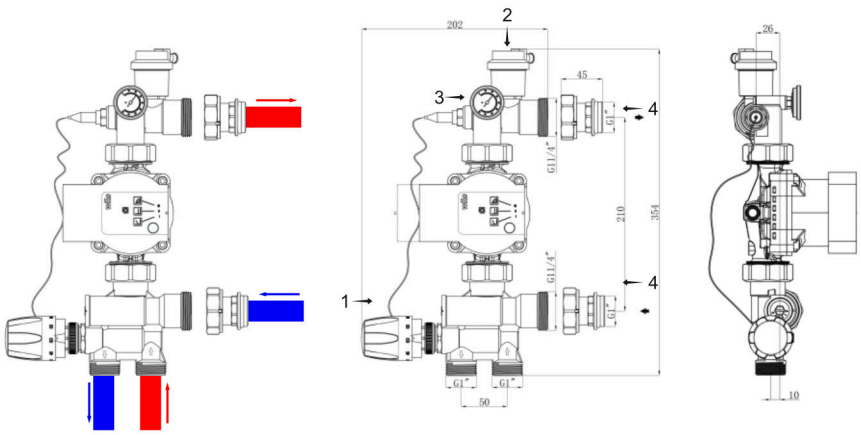
Key Design Information	
Medium	water or glycol solution
Maximum glycol percentage	30%
Maximum working pressure	10 bar
Maximum working temperature	90°C
Adjustable control temperature range	20 to 60°C
Finish	Chrome plated
Thread connections	BS EN ISO 228-1
Kv value	3.2m³/h (Dp = 1 bar; Tmix = 45°C)

Pressure Drop Graph



Characteristic components

Components
1.Thermostatic Actuator
Code:ZL-2014V
M30 x 1.5
2.Auto Air Vent
Code:ZL-7311
1/2”
3.Thermometer
Code:B101
0-120℃
4.Connector
Code:ZL-2549-1-07
11/4” F x 1” M Union Connector



ZL-2545/2546
UFH Pump Control Pack



Description

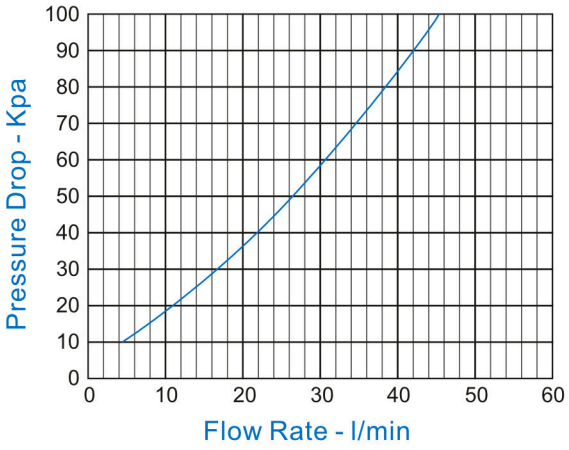
1. This control group has been designed for control of flow and water temperature in an under floor heating system. It is pre-assembled and tested to ensure the users can operate it immediately once fitted, and it can show the corresponding temperature clearly.

2. As supplied it is designed to connect to the left hand side of a manifold with 210mm between the centers of the flow and return arms. It can also be used with any other manifold built on this dimension. The control group can also be altered to fit to the right hand side of a manifold simply by removing the bracket clips and turning the control group elbows through 180 degrees using the union fittings at the top and bottom of the pump. The pump motor may need to be rotated through 180 degrees to minimise the space occupied by the control group.

3. There are two other control groups to cater for applications with different control needs or higher flow rates for larger residential applications

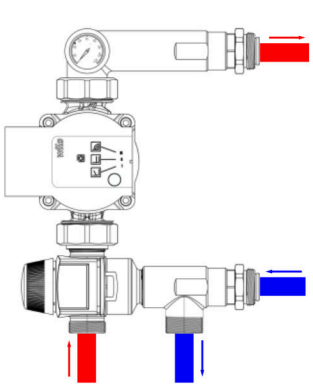
Key Design Information	
Medium	water or glycol solution
Maximum glycol percentage	30%
Maximum working pressure	10 bar
Maximum working temperature	90°C
Adjustable control temperature range	20 - 45°C ZL-2545 35 - 60°C ZL-2546
Finish	Chrome plated
Thread connections	BS EN ISO 228-1
Kv value	2.5 m^3/h (Dp = 1 bar; Tmix = 45°C)

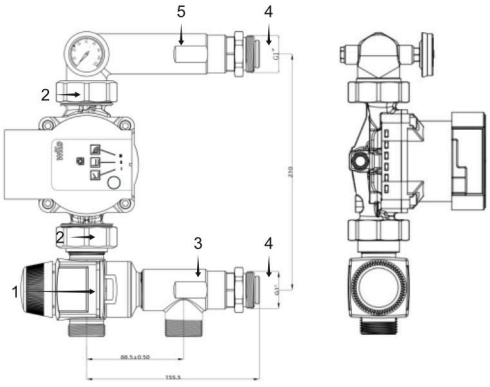
Pressure Drop Graph



Characteristic components

No.	Components
1	Thermostatic Mixing Valve
2	Joint
3	three-way assembly
4	Mixing Valvejoint
5	Mixing Valve elbow
6	Temperature Gauge





ZL-2568
UFH Pump Control Pack

Introduction



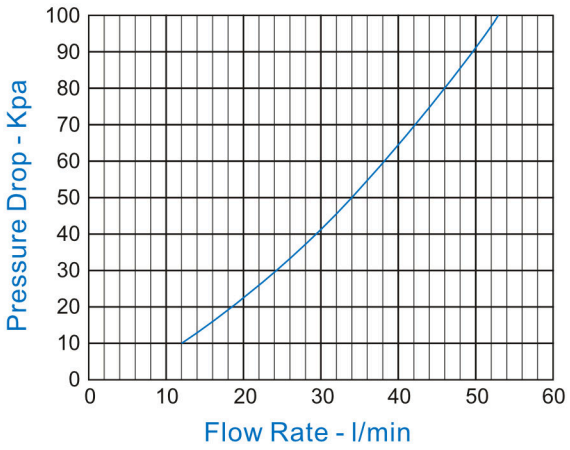
These installation and operating instructions are intended for the UFH mixing valve control pack and must be read and understood prior to proceeding with installation and commissioning.

The UFH control pack is designed to supply temperature controlled hot water to the underfloor heating system.

The control pack is pre-fabricated so it can be easily attached to a manifold (supplied separately) that has 210mm centres.

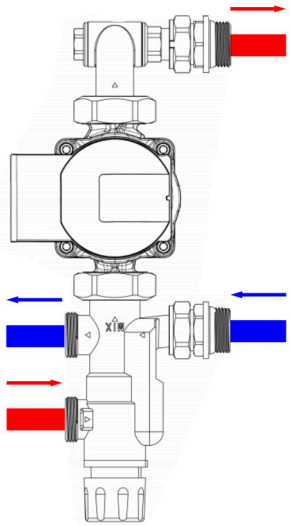
Key Design Information	
Medium	water or glycol solution
Maximum glycol percentage	30%
Maximum working pressure	10 bar
Maximum working temperature	90°C
Adjustable control temperature range	35 to 60°C
Finish	Chrome plated
Thread connections	BS EN ISO 228-1
Kv value	3.2 m 3/h (Dp = 1 bar; Tmix = 45°C)

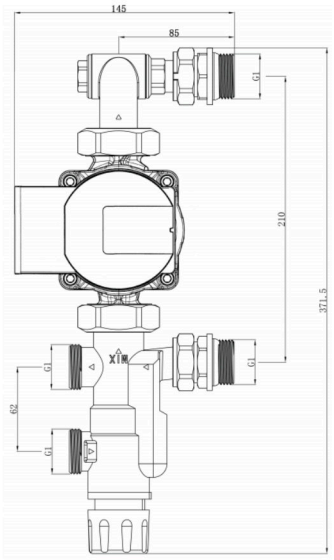
Pressure Drop Graph

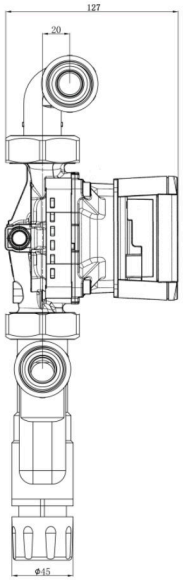


Dimensions

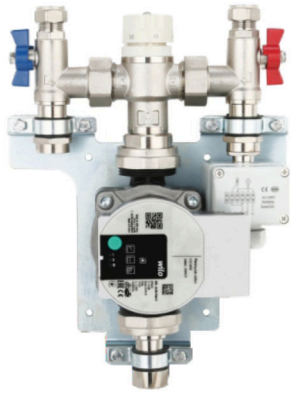
Please Note: All dimensions are measured in millimetres (mm)







ZL-2532
Single room control pack

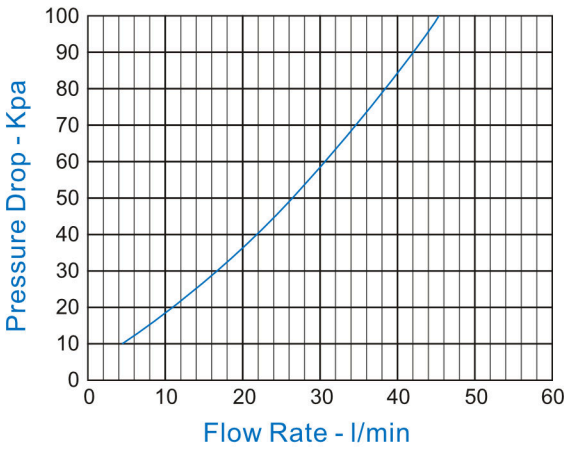


Description

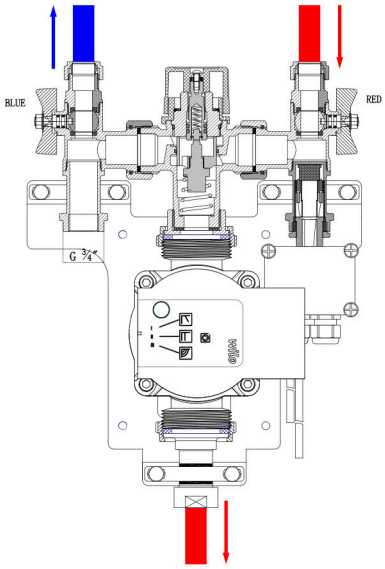
UFH control pack for providing temperature controlled mixed water in single room applications to an underfloor heating system with a heat output up to 3Kw. The pump is pre-wired in conjunction with a flow temperature thermostat and mains connection cable and has provision to connect a room stat. The unit has integral ball valves for connecting/isolating the primary heating system, an adjustable thermostatic blending valve and an 'A' rated 6 meter circulating pump all secured to a fixing bracket with anti-vibration mountings for silent operation. G1/2" tappings are provided for use with any adaptors to connect the unit to the under floor heating loop or manifolds.

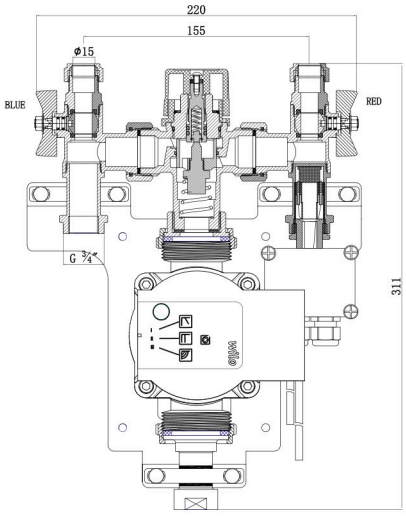
Key Design Information	
Medium	water or glycol solution
Maximum glycol percentage	30%
Maximum working pressure	10 bar
Maximum working temperature	90°C
Adjustable control temperature range	35 to 60°C
Finish	Chrome plated
Thread connections	BS EN ISO 228-1
Kv value	2.8 m 3/h (Dp = 1 bar; Tmix = 45°C)

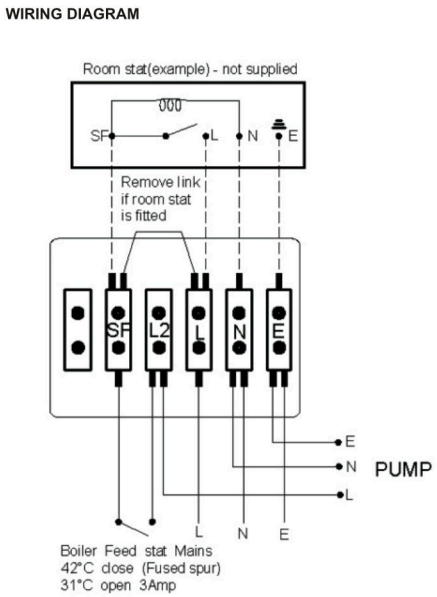
Pressure Drop Graph



Dimension



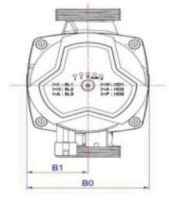


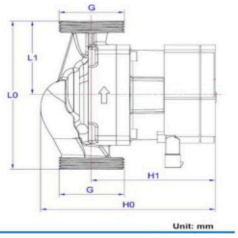


ZL-3002
Circulation pump









Electrical Box Orientation



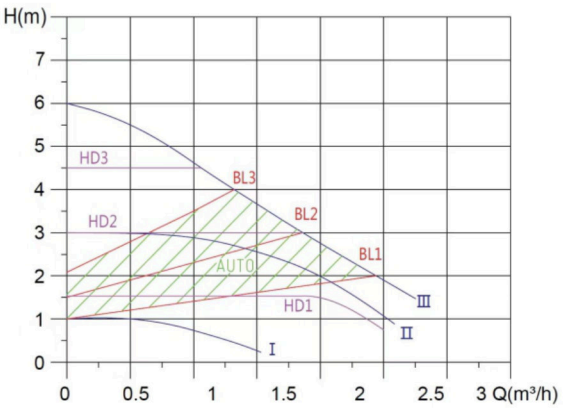
Field of application: Underfloor Heating

Dimensions

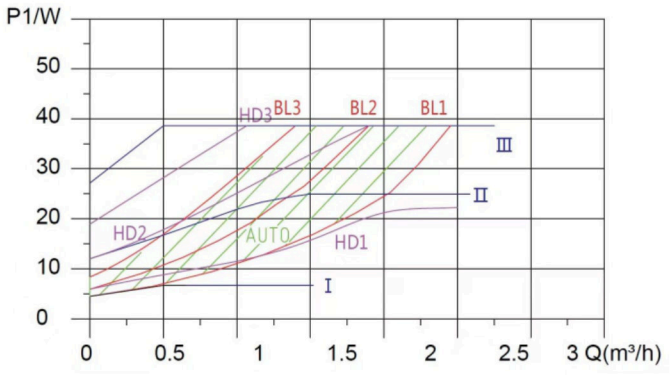
Designation	Dimensions							Weight
	ThreadG	LO	L1	HO	H1	B0	B1	
ZL-3002-25/6-130/SCU	G1 1/2"	130	65	127	90	90	45	2.3kg
ZL-3002-25/6-180/SCU	G1 1/2"	180	90	127	90	90	45	2.5kg

Pump	High Efficiency pump for heating application
-	Inline cast iron pump housing
3002	Code of the pump
25	Threaded connection DN25(G1 1/2")
6	6= delivery head in [m] at Q = 0 m 3/h
130	Pump housing length 130mm(180mm also available)
scu	The pump is controlled by Push button technologySCU = AP-v, AP-c (specific underfloor system setting), constant speed I, II, III
6	Control box orientation 6 o'clock (3, 9 o'clock: also available)

Hydraulic operational area



Approved fluids (other fluids on request)



Heating water (in accordance with VDI 2035)
Water-glycol mixtures (max. 1:1; above 20% admixture,the pumping data must be checked)

ZL-3002
Circulation pump

Power	
Energy Efficiency Index (EEI)	< 0.20
Max. delivery head	6 m,7.5m
Max. volume flow	3,0 m3/h

Permitted field of application	
Temperature range for applications in HVAC systems at max. ambient temperature.Limit values for continuous operation at maximum rated power	Of 58°C = 0 to100°C Of 62°C = 0 to 90°C Of 66°C = 0 to 80°C Of 71°C = 0 to 70°C
Maximum static pressure	Pn10

Electrical connection	
Mains connection	230V, 50Hz/60Hz single phase AC
Low voltage directive	2014/35/EU
Electromagnetic compatibility	2014/35/EUEN55014-1:2006+A1+A2EN55014-1:2017EN 55014-2:2015EN61000-3-2:2014EN61000-3-3:2013
Protection class	IP44
Insulation class	H
RoHS / REACH	Compliant but not submitted

Minimum suction head at suction port to avoid cavitation at water pumping temperature

Minimum suction head at 50/90°C 0.5/5 m

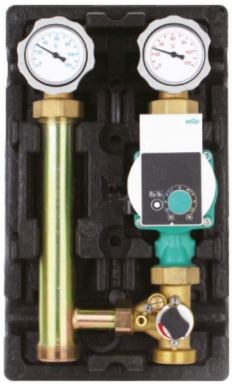
Motor data				
Para	Speed	Power consumption 1-230 V	Current at1-230V	Motor protection
25/6-***	n	P1	I	-
	rpm	W	A	-
		5-39	0.05-0.35	Integrated

Materials				
Para	Pump housing	Impeller	Pump shaft	Bearing
25/6-***	Cast iron with cataphoresis treatment	PPE with GF30%	Ceramics	Graphite

Heating Control and Accessories >



ZL-2542H



ZL-2541H



ZL-2541K



ZL-2541J

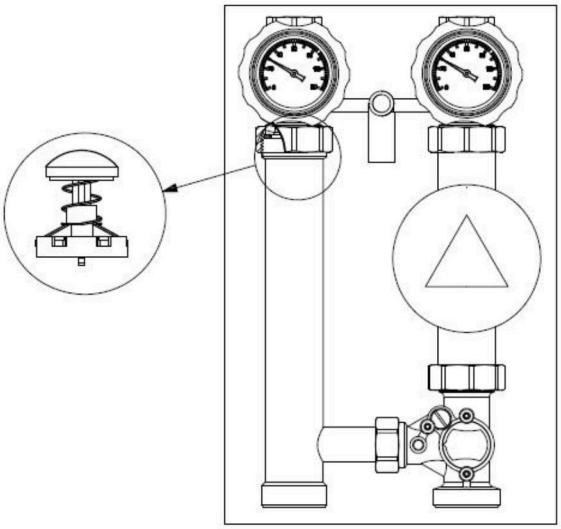
Description

Complete product series
High interchangeability, all pump modules have the same external dimensions and similar appearance
Includes installation components
The three way mixing valves of all mixing pump group are integrated with stepless by-pass valves

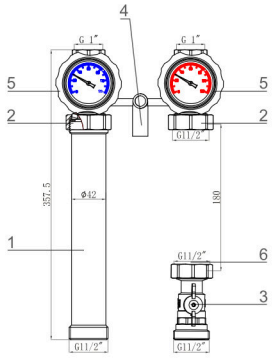
Performance

T threaded connection：system side G1”M, boiler side G1 1/2”F
Outputs centre distance：125mm
Max. working temperature：100℃
Working pressure：6bar
Reserved length of water pump installation：180mm
Thermometer range: 0~120℃
Thread standard: ISO228-1
Kvs value：9.7m³/h(Direct pump group)，6.5m³/h(Mixing pump group)

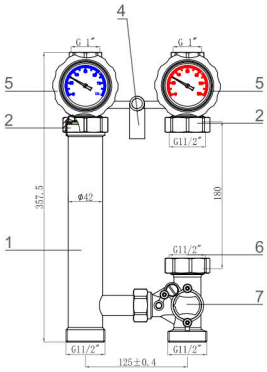
Check valve integrated on return output



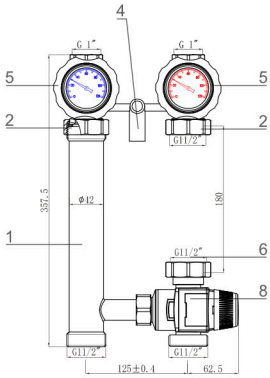
All pump groups include a check valve inside the brass spacer top, on the return output.
The check valve can be disassembled by removing the Seeger ring used to fit it to the spacer.



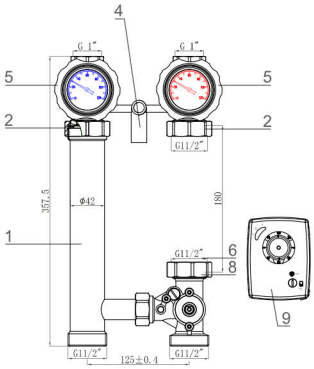
ZL-2542H



ZL-2541H



ZL-2541K



ZL-2541J

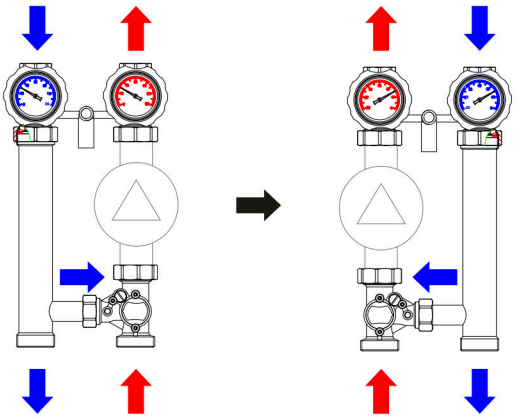
Code	Description	Mixing valve	Actuator	Iron pipe components
ZL2542H	Direct pump group	-	-	Color-plated zinc
ZL2541H	Manual thermostatic circulating pump group	Sector Mixing valve	-	Color-plated zinc
ZL2541K	Manual thermostatic circulating pump group	Thermostatic mixing valve	-	Color-plated zinc
ZL2541J	Automatic thermostatic circulating pump group	Sector Mixing valve	Electric actuator	Color-plated zinc

Characteristic components

No.	Components	Material
1	Iron pipe components	A3
2	Ball valve	Brass
3	Ball valve	Brass
4	Bracket	PA66
5	Temperature gauge	-

No.	Components	Material
6	Insulation shell	PP
7	Temperature control valve	Brass
8	Thermostatic mixing valve	Brass
9	Electric actuator	-

Delivery/return outputs reversibility



The pump group is pre-assembled for the upper supply type on the right side of the water supply (also equivalent to the lower supply type on the left side of the water supply).

According to the requirements of the installation site, the delivery and return outputs can be exchanged.

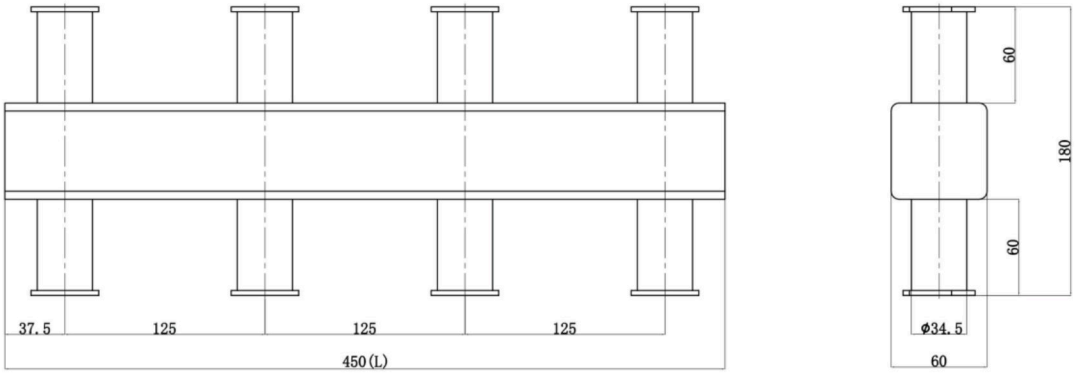
ZL-1186
Iron manifold

Description

ZL-1186 is a compact heating loop diversity water collector. The square diversity water pipe is superimposed and arranged up and down. The main body is made of carbon steel, the outer surface is painted, and there is a high-density EPP insulation shell.



Dimesion



Technical specification	HKV25-2	HKV25-3	HKV25-4
Width A(include insulating layer)	500mm	750mm	1000mm
Thickness(include insulating layer)	135mm	135mm	135mm
Height(nozzle to nozzle)	178mm	178mm	178mm
Connect the heating loop	three loops (upper two/lower one)	five loops (upper three/lower two)	seven loops (upper four/lower three)
Nozzle spacing	125mm	125mm	125mm
Upper nozzle	1-1/2'' female thread loose joint		
lower nozzle	half thread 1-1/2'' male thread with 2-6 covers		
Rated heat transport power	max.70kw flux 3m∧3/h ΔT=20k		
Max work temperature	110℃		
Max work pressure	6bar		

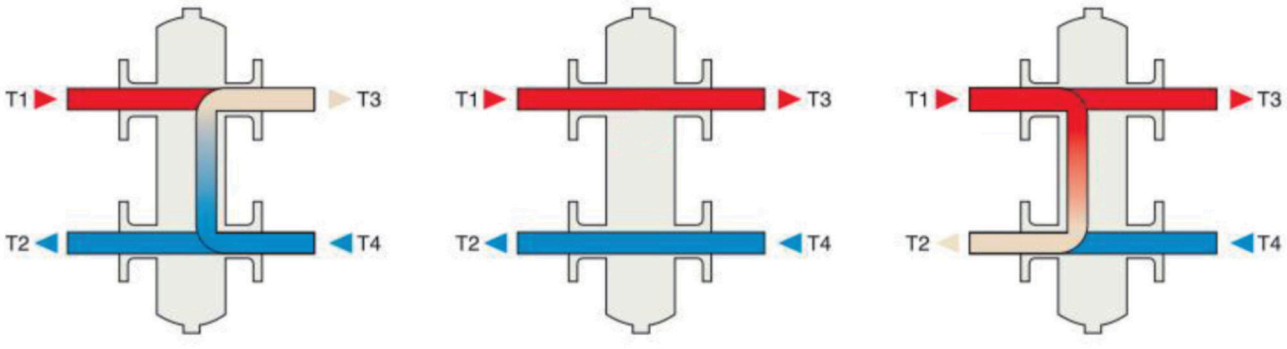
Description

Solve the problem of local low temperature caused by the large system: effectively improve the problem of low temperature caused by the unreasonable selection of local pipelines, solve the problem of multi-layer supply of wall hanging furnace, and solve the problem of inconsistent flow and temperature of floor heating and radiator mixed installation.



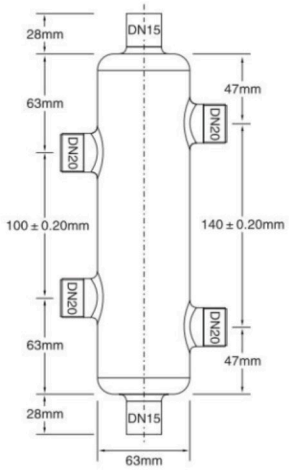
Its biggest characteristic is to ensure that a constant flow system and a variable flow system exist and operate together, effectively protecting the safety of the independent heating equipment system, and improving the efficiency of heating equipment operation.

Installation

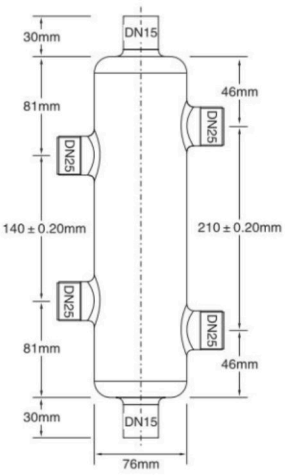


ZL-1188
water hydraulic separator

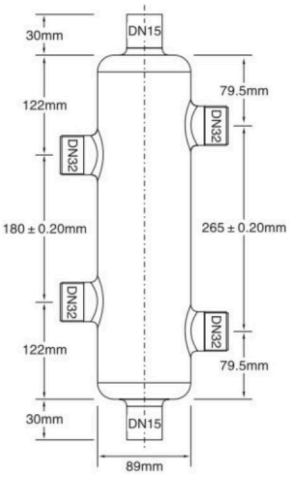
Dimension



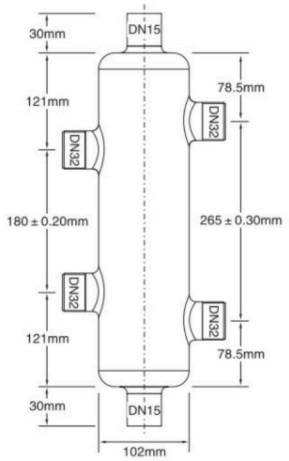
DN20



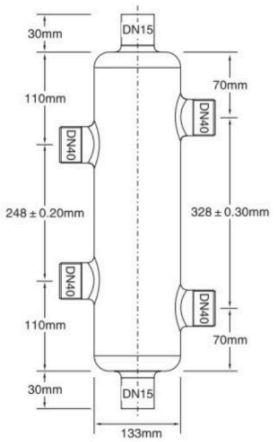
DN25



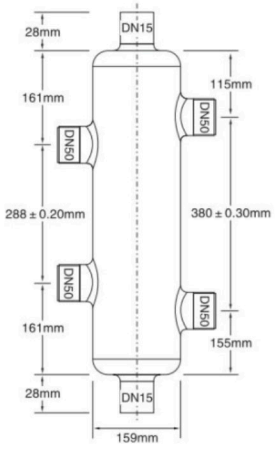
DN32-1



DN32-2



DN40



DN50

Size	Thread connection	Flow	Volume (mL)	Reference area	Diameter	Length
DN20	3/4''	2700L/H	747	50-150	φ63	282
DN25	1''	4800L/H	1405	100-300	φ76	362
DN32-1	1 1/4''	7200L/H	2673	300-400	φ89	484
DN32-2	1 1/4''	9000L/H	3511	400-500	φ102	484
DN40	1 1/2''	21600L/H	6804	600-1200	φ133	528
DN50	2''			1200-1500	φ159	670
DN25	Two Input/Four output	6600L/H	1899	200-600	φ76	570

ZL-2566
Plastic Magnetic Filter

Description

Plastic magnetic filter is compact and easy to install to combat the problems caused by magnetic system sludge and non-ferrous debris.

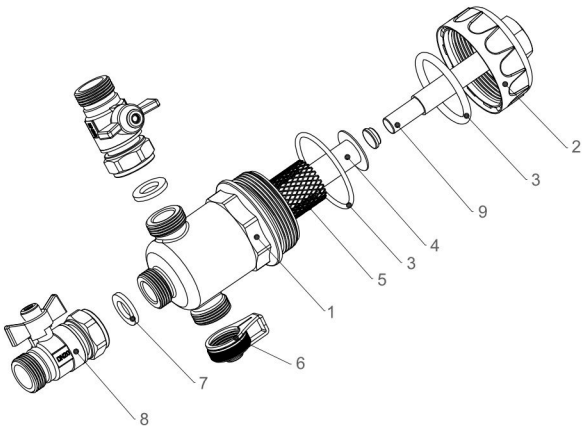


Applicable medium: Water、glycol solutions max. percentage of glycol is 30%
Maximum working temperature: 90℃
Maximumworking pressure: 4bar
Connections: G3/4”(ISO228-1)、Φ22mm x Φ22mm x G3/4”

Product features

1.Dual decontamination - removal of magnetite and non-ferrous metal fragments
2.Wear-resistant 16 mesh stainless steel filter - helps to break down and retain all non-ferrous metal fragments before entering the boiler
3.High Strength 5000GS magnet- Absorbs and retains all magnetic debris circulating in system to prevent damage to system components
4.Large bore drain plug-Enables simple and fast drainage for easy maintenance
5.Small size, small body and multiple installation options-Make it easy to install in boiler and space limited areas
6.Brass ball valves and connections - high quality brass fittings

Characteristic components



No.	Components	Material
1	Valve body	PA66
2	Valve bonnet	PA66
3	Seals	EPDM
4	Protective casing	PB
5	Filter net	Stainless steel
6	Plug cap	Brass
7	Gasket	EPDM
8	Ball valve	Brass
9	Magnet component	NdFeb

Description

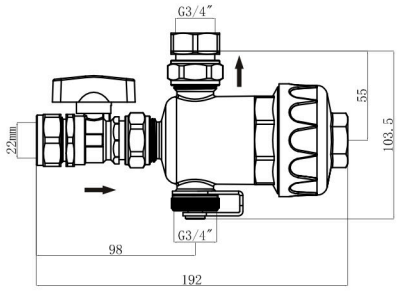


Figure 1

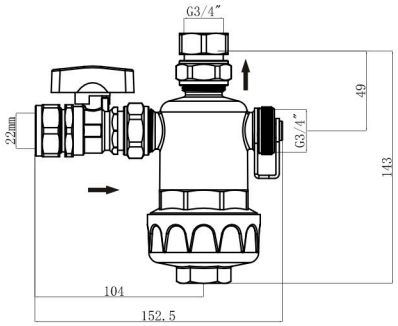


Figure 2

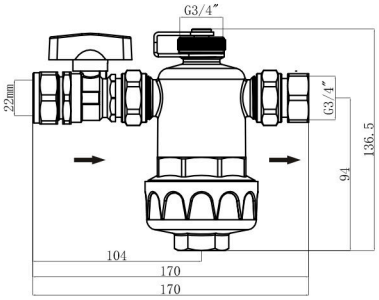


Figure 3

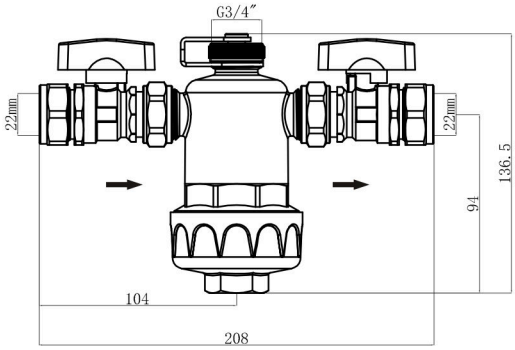


Figure 4

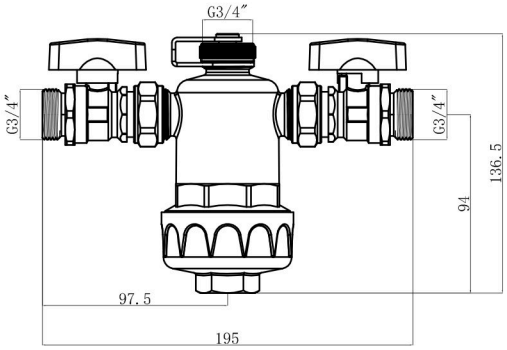
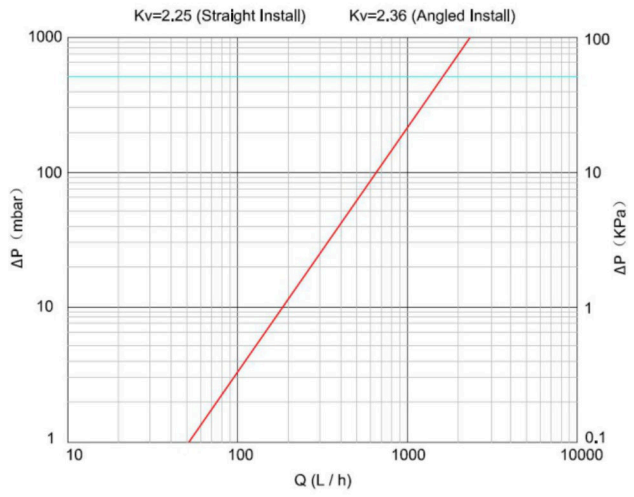
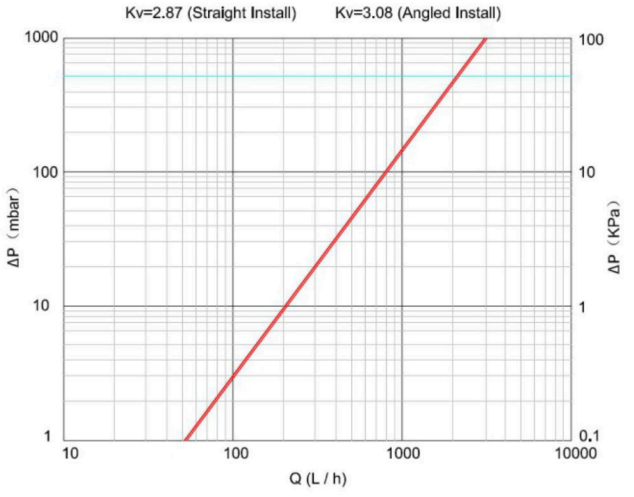


Figure 5

Hydraulic Characteristics





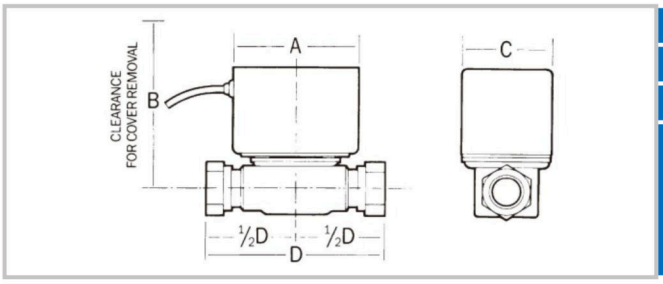
Size：Φ22mm

Application

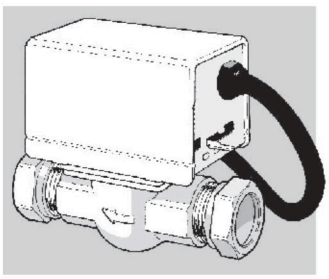
The motorized zone valve ZL-2129/2130 has been designed to control the flow of water in iron and copper pipe systems.Although specifically designed for small bore central heating systems, the valve can be used in commercial and industrial applications.

Specifications	
Power Supply	230 Volts AC 50Hz
Switch Rating	2.2A
Switch Type	SPST (22mm)
Power Consumption	6W
Timings (Nominal)	On: 12 seconds under power Off: 6 seconds under spring r eturn
Ambient Temperature	50℃ max
Flow Temperature	5℃ to 88℃ max (Special models available for chilled water applications)
Static Pressure	8.6 bar max
Flow Direction	As per arrow on valve bod

Dimensions (mm)

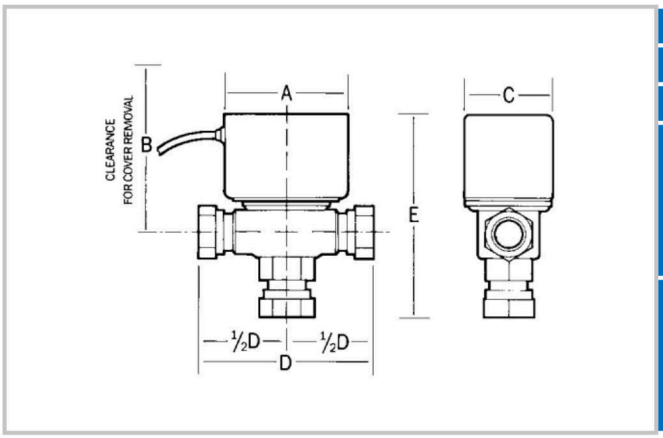


A		87
B		98
C		60
D	1/2"	94
	22mm	112
	1"	92
	28mm	127

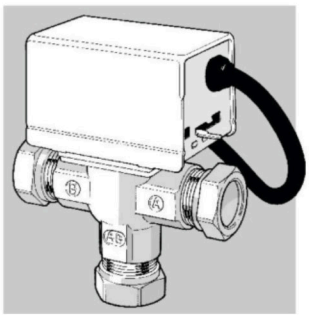


ZL-2129

Dimensions (mm)



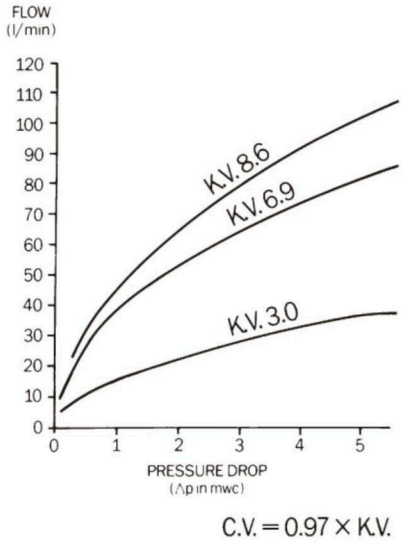
A		87
B		98
C		60
D	3/4"	
	22mm	112
	1"	94
	28mm	117
E	3/4"	124
	22mm	133
	1"	124
	28mm	137



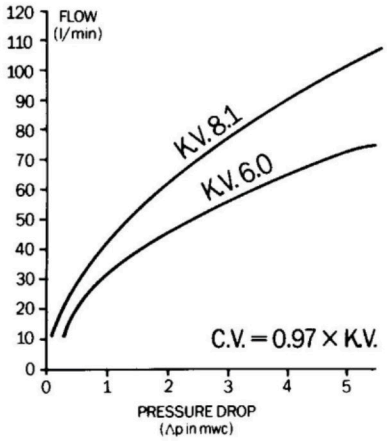
ZL-2130

ZL-2129/2130
2/3 Ways Motorised Zone Valve

Flow Characteristics



ZL-2129



ZL-2130

Installation

ZL-2129/2130 incorporates a manual lever, the lever should normally be in 'AUTO' position, but can be moved to 'MAN OPEN' position for system drain down and filling purposes only.Before fitting the valve, read through the plumbing and wiring instructions.

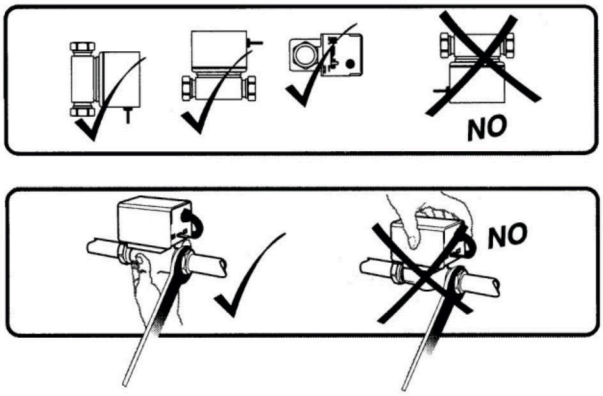
Plumbing

The valve may be plumbed in at any angle but must not be mounted so that the valve head is below the horizontal level of the pipework.In the unlikely event of a leak a safety hazard could result.

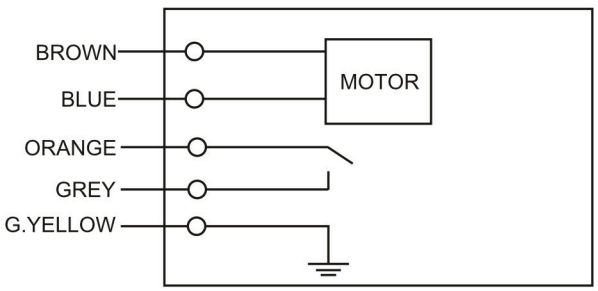
Do not grip the valve head while making and tightening up plumbing connections.

Attach a spanner (32mm or11/4"AF) onto the valve body at each port, whilst tightening up the nuts.Tighten compression nuts enough to make a watertight seal.

TAKE CARE NOT TO OVERTIGHTEN.



Wiring



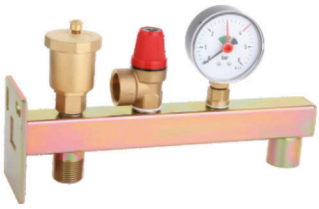
Group Vessel Kit



ZL-4020



ZL-4021



ZL-4022

Description

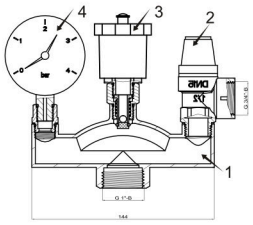
The safety valve is used in the HVAC system to prevent high pressure in the system.
The safety units are designed for closed heating system with automatic air valve, safety valve and pressure gauge.
The safety units have an additional threaded output to connect the expansion tank.
The safety units provide the following functions: protection against high pressure in the system, air and gas exhaust, pressure indication.

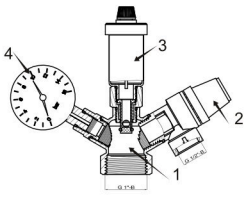
Performance

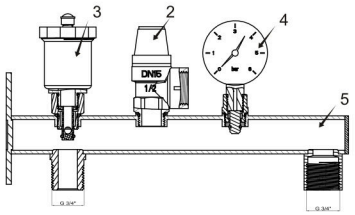
Applicable medium: cold water, hot water
Maximum pressure for air valve: 10bar
Maximum pressure for safety valve: 3bar
Maximum working temperature: 100℃

Materials	
Valve Body	Brass
Expansion tank support	A3
Spring	Steel
Handwheel	Plastic
Seals	EPDM

Characteristic Components







No.	Components	Descriptions
1	Valve body	Body surface natural color and sandblasted
2	Valve bonnet	Protect against high pressure in the system
3	Seals	With non-return component,automatic exhaust the air and gas from the system
4	Protective casing	Indicate the system pressurein real time
5	Filter net	Surface sandblasted and color-plated zinc plated

ZL-2570
Heatguard

Decription:

A 28mm thermostatic blending valve for blending the flow and return to achieve a stable system temperature in underfloor heating systems up to 300m²

Working Parameters and Specifications

Factory temperature setting: 45°C

Temperature setting range: Ambient to 60°C

Maximum flow supply temperature: 85°C

Maximum return supply temperature: 5-75°C

Temperature stability: +/- 3°C

Maximum working pressure, static: 16 Bar

Maximum working pressure, dynamic: 6 Bar

Minimum working pressure, dynamic: 0.2 Bar



Materials

Body: Brass

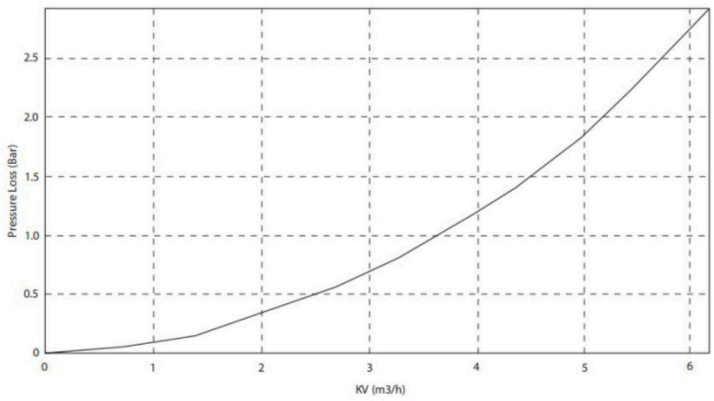
Internal brass components: Brass

Seals: EPDM

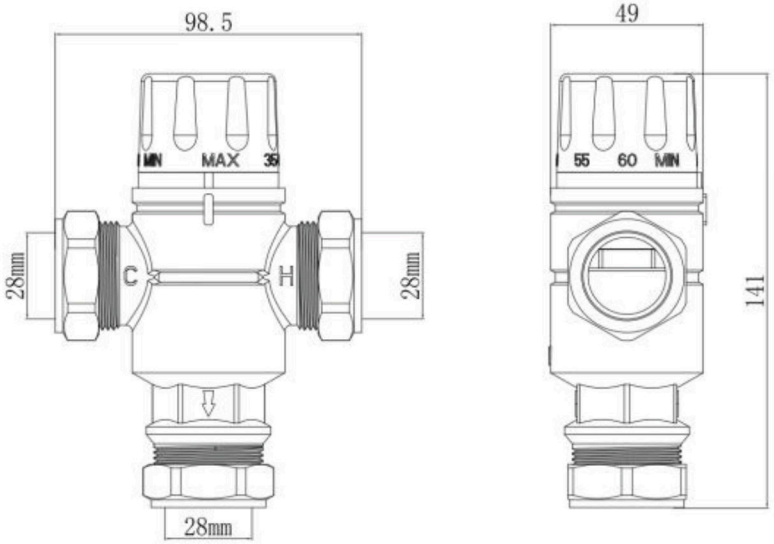
Spring: Stainless steel

Piston: Brass

Flow Characteristics

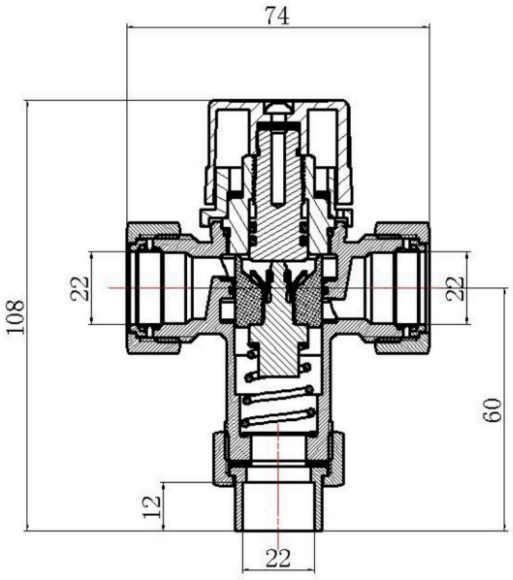


Dimensions



DIMENSION:





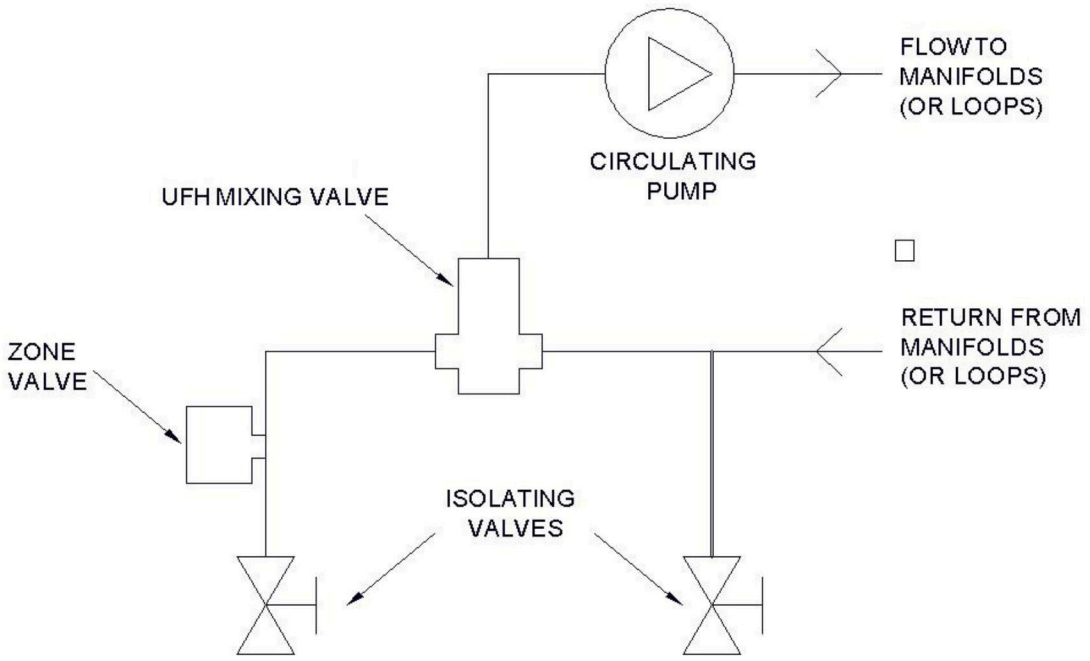
DATA:

Max working pressure:10bar

Temperature range:35°C-65°C

Connection size:22mm

SCHEMATIC DIAGRAM:



Thermostats and Controls

ZL-2064
Touch Screen Thermostat

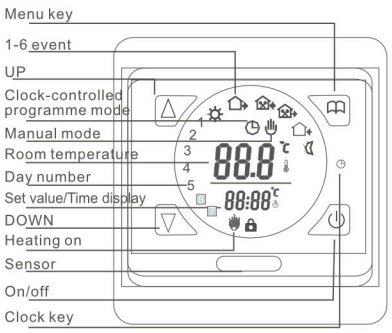
Specification

Voltage:220V/230V
Power comsuption:2W Setting range:5~90℃ (can adjust to 35-90℃)
Limitation setting:5~60℃
(Factory setting:35℃)
Switch differential:10℃ adjustable
(Factory setting:1℃)
Ambient temperature:-5~50℃
Protective houseing:IP20
Housing material: anti-flammable PC

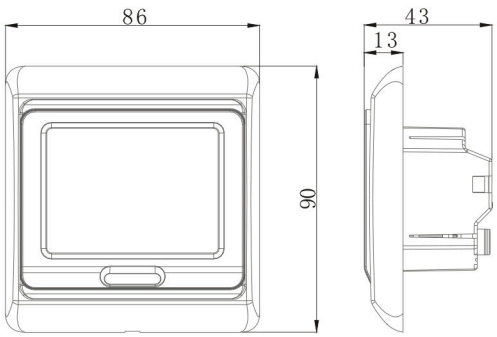


ZL-2064-01

Display symbols



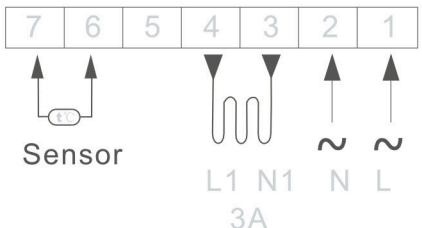
Dimension:mm



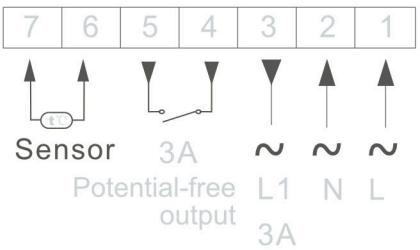
Selection Table

Model	Current	Application
713	3A	Built-in&floor sensor,floor limit sensor weekly programme
723	3A	Built-in&floor sensor,floor limit sensor weekly programme,a potential-free output
716	16A	Built-in&floor sensor,floor limit sensor weekly programme

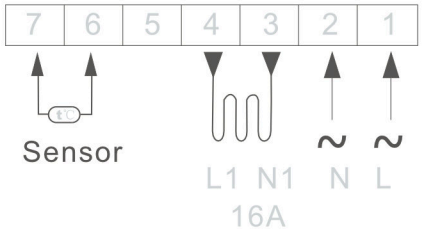
713



723



716



ZL-2074
WFTH-Public Area Thermostat

WFHT-PUBLIC Public area Thermostat

- External pilot wire for night reduction, equipped with a switch to select comfort, reduction or clock mode.
- Possibility to regulate either the floor or room temperature, or combined (in this case, the floor sensor is used as temperature limiter)
- Relay output, to be connected directly to actuators (see connecting drawing on the installation sheet) or to our Modular connecting system. (In this case please refer to the connecting box datasheet)

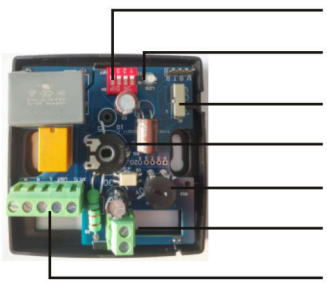
TECHNICAL CHARACTERISTICS	
Measured temperature precision	0.1°C
Operating temperature	0°C - 50°C
Setting temperature range	5°C – 30°C
Floor limiting temperature range	10°C – 40°C
Regulation characteristics	Proportional band 10min for 2°C or Static differential 0.5°C
Electrical Protection	Class II - IP30
Power Supply	230 VAC +/- 10%
Output	Relay output 230VAC,200W max
External Floor sensor	NTC (10K Ohms) 3m

MODES DESCRIPTION

- Electronic thermostat with night reduction mode for water floor heating systems controlled by actuators.

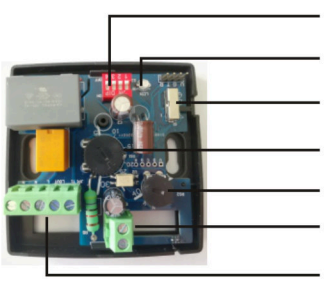


ZL-2074





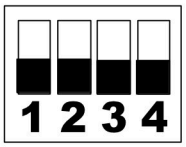
ZL2074C



LED INDICATOR

Red: Heating indication
Green: reduction mode by clock (pilot wire)
Orange: Heating during reduction mode by clock (pilot wire)

CONFIGURATION SWITCH



ON
OFF

Red blinking

- 0.5 second cycle => Internal & external sensor failures
- 1 second cycle => Internal sensor failure
- 2 seconds cycle => External sensor failure

Actuator type 1	
ON	NO actuator
OFF	NC Actuator
Regulation mode 2	
ON	Proportional
OFF	Static differential
Sensor mode 3&4	
3 – OFF 4 – OFF	Regulation on internal room
3 – OFF 4 – ON	Regulation on external probe
3 – ON 4 – OFF	Regulation on internal room sensor with lower limit floor on ext. probe
3 – ON 4 – ON	Regulation on internal room sensor with upper limit floor on ext. probe

ZL-2057-01



Floor probes for thermostat

ZL-2061
Thermostat for Underfloor heating

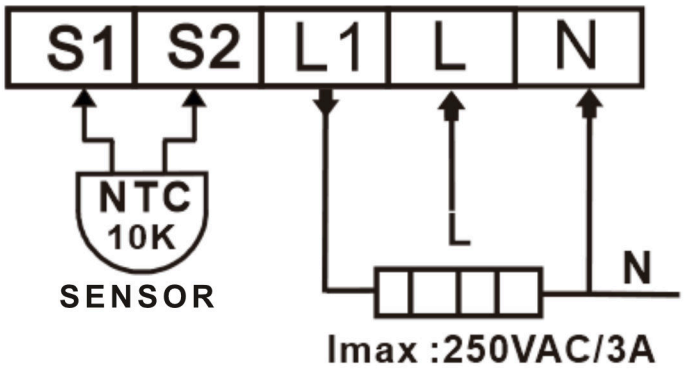
ZL-2061-01 thermostat is a programmable thermostat designed for water floor heating system. Can be adjusted through the proportion of output, to prevent heat inertia, to prevent the room temperature from being too high.



ZL-2061-01

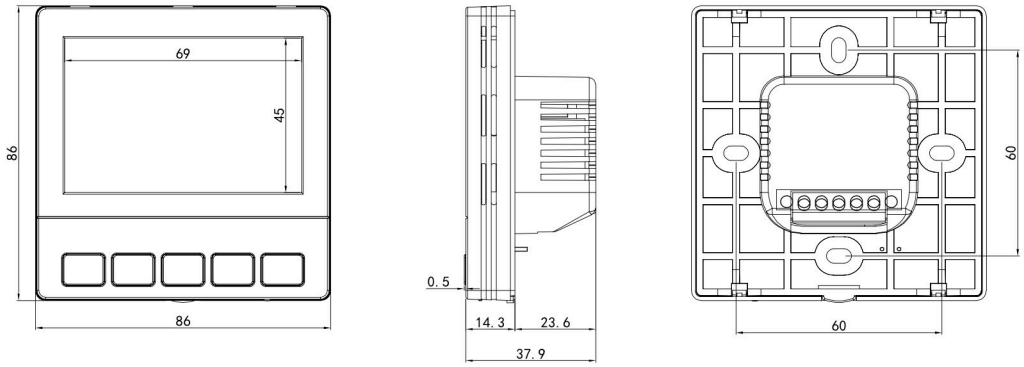
SPECIFICATION	
Power source	100-240VAC 50/60Hz
Maximum load electric current	250VAC 3 (2) A
Room temperature setting range	5℃ to 50℃
Floor temperature control range	5℃ to 70℃
Accuracy	±0.5℃
Dimensions	86mm X 86mm X13mm
Color	White

WIRING DIAGRAM



Power:100-240VAC 50/60Hz
Imax: 3A

SIZE





Description

For Central Heating and Underfloor Heating Systems

The ZL-2072 features advanced controls for an entry-level thermostat. Able to use either floor, air or combination sensors to control the temperature, the thermostat is fully programmable for each individual day of the week.

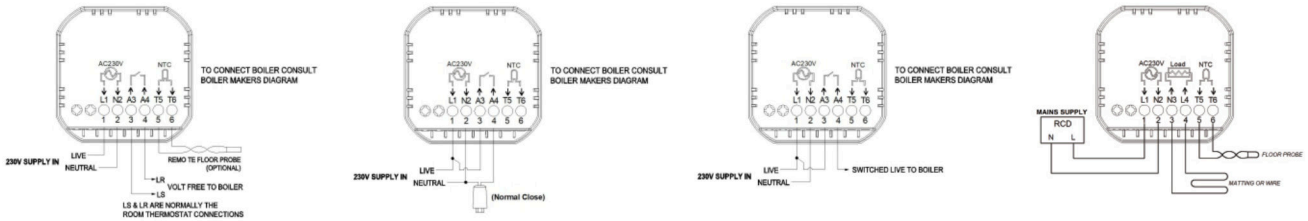
Available in stylish and contemporary white design with touch sensitive keys, the display has a modern white back light and offers both a holiday mode and manual override, plus up to four set points each day.

Dimension



Specification	
Power	240Vac 50/60Hz
Range of temperature display	1~70°C
Display accuracy	0.5°C
Insulating condition	Normal environment
Probe sensor	NTC(10k)1%
Running program	Set per 1 week as a cycle
Contact capacity	3A/(WW);16A/(WE)
Output	Switch relay
Limit temperature range	1~70°C
Installation	recessed type (in the wall)
Range of temperature adjustment	5~35°C

Wiring diagram



mknLTD.CO.UK Unit 3 Tatton Court WA1 4RR United Kingdom Sales: +44 1925 390 641 Support: +44 1925 398 557 info@mknltd.co.uk ; mknLTD.CO.UK

ZL-3347
Wiring Center

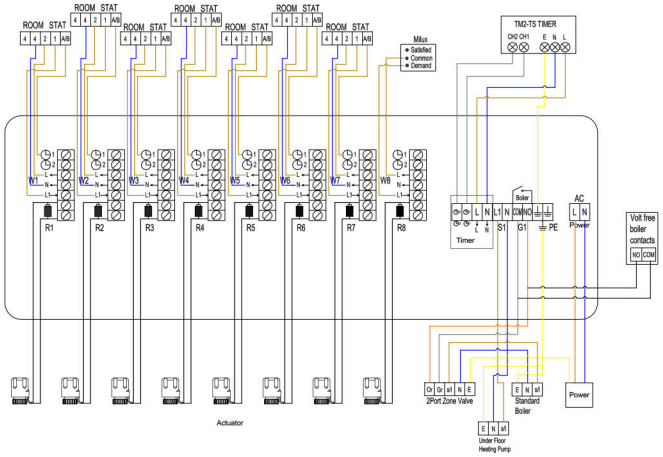
The waterline heating system ZL-3347-01 has been developed to provide a temperature , control system for room heating / cooling, integrating the switching of primary heating sources
with the control of water temperature and mixing devices. This ensures the best possible comfort conditions and also reduces energy consumption.

SPECIFICATION	
Power source	100 - 240VAC 50/60Hz
Imax total	10A
Operation temperature	20℃ ~ 60℃
Storage temperature	-20℃ ~ 70℃
Dimensions	280mm X 110mm X40mm
Colour	White

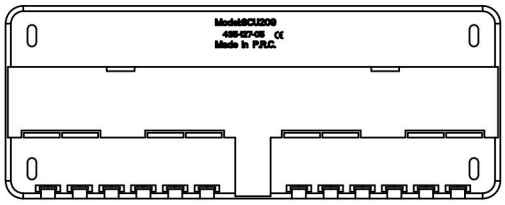
SYSTEM INTRODUCTION

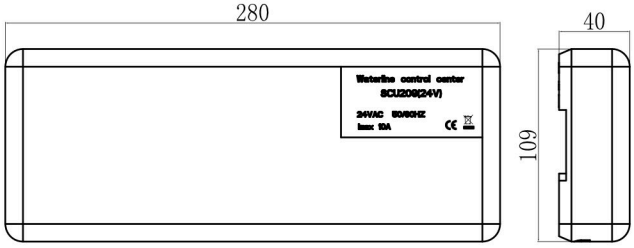


ZL-3347-01



SIZE





ZL-3347
Wiring Center

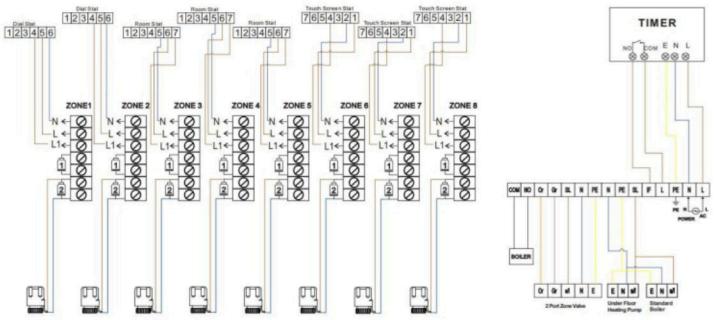
The ZL-3347-03 is used to provide a temperature control system for room heating, integrating the switching of primary heating sources with the control of water temperature and mixing devices. This ensures the best possible comfort conditions and also reduces energy consumption.

SPECIFICATION	
Power source	100 - 240VAC 50/60Hz
Imax total	10A
Operation temperature	-20℃ ~ 60℃
Storage temperature	-20℃ ~ 70℃
Dimensions	280mmX110mmX40mm
Colour	Grey

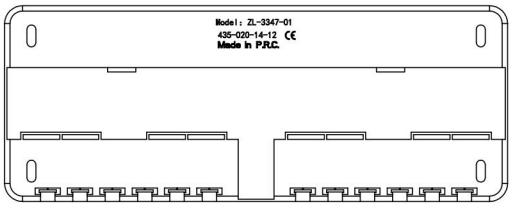
SYSTEM INTRODUCTION

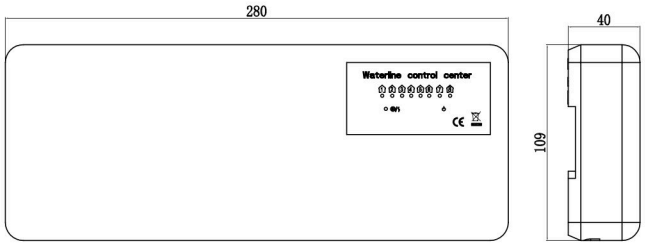


ZL-3347-03



SIZE



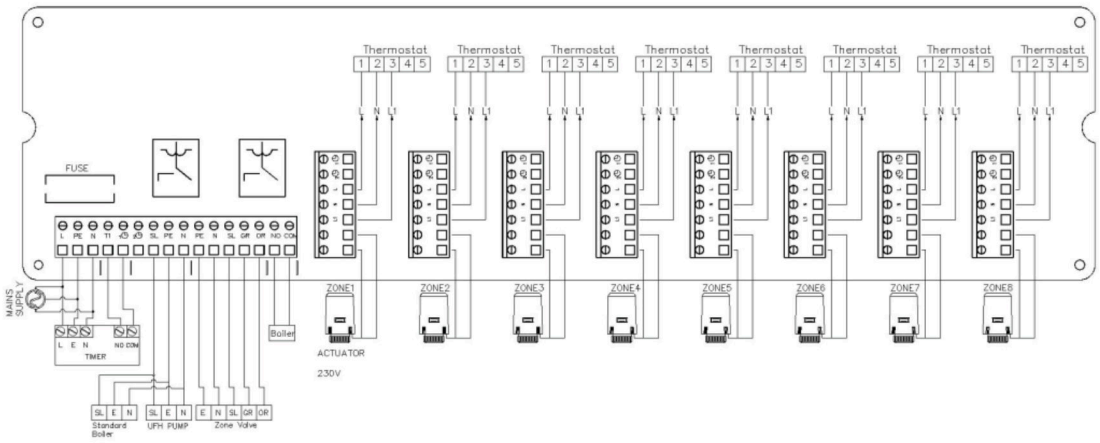


ZL-3348
Wiring Center

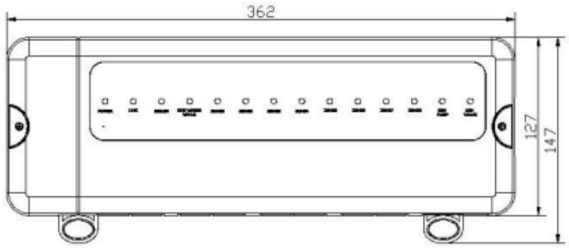
The ZL-3348 is used to provide a temperature control system for room heating,integrating the switching of primary heating sources with the control of water temperature and mixing devices.This ensures the best possible comfort conditions and also reduces energy consumption.

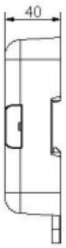
SPECIFICATION	
Power source	100 - 240VAC 50/60Hz
Imax total	10A
Operation temperature	-20℃ ~ 60℃
Storage temperature	-20℃ ~ 70℃
Dimensions	362mmX127mmX40mm
Colour	White

SYSTEM INTRODUCTION



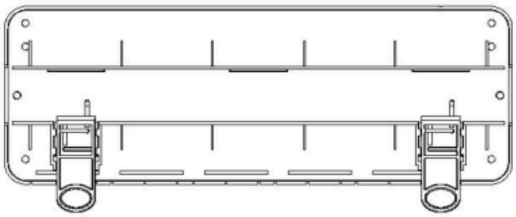
SIZE

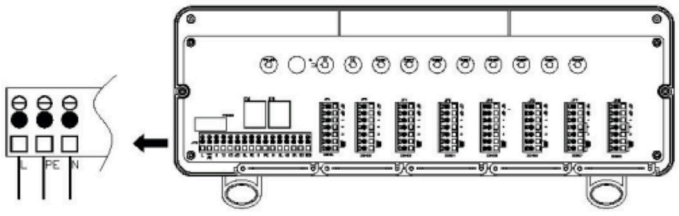






ZL-3348

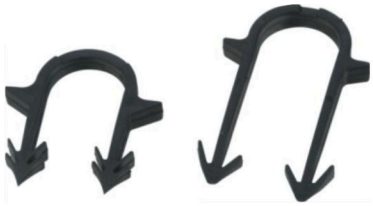




Pipe and accessories >









Alpert pipe

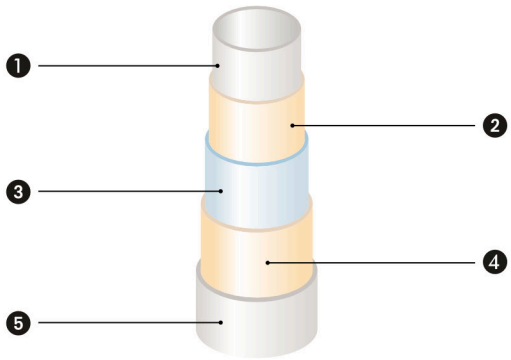
Alpert: multilayer PE-RT/AL/PE-RT pipe for underfloor heating, heating systems and sanitary systems.
The Alpert pipe belongs to the new generation of multilayer pipes for thermosanitary systems.
It is made of composite material, make homogeneous and integral by means of a technologically advanced process with which a PE-RT pipe is made (polyethylene not cross-linked with high resistance to high temperatures), reinforced by an aluminium core, welded and externally coated by another PE-RT layer.
The Alpert pipe combines the excellent characteristics of the PE-RT with the properties of the thin metal layer, which determines new benefits:

- shape stability combined with excellent flexibility
- contained linear expansion, similar to a metal pipe
- oxygen barrier 100% safe
- good thermal conductivity
- possibility to use fittings to be stapled

Alpert is the ideal pipe to easily lay the underfloor heating circuits. Its ability to maintain its shape allows for a considerable reduction of the anchors on the panels, particularly appreciable with the Plan Floor panel.

Construction

1. Inner pipe in PE-RT.
2. Connection layer that joins the inner pipe with the aluminium pipe.
3. Aluminium pipe seam welded (thickness 0.21 mm for the size Ø 12x1.6,thickness 0.25 mm for the size Ø 15x2.0 , thickness 0.25 mm for the size Ø 16x2.0).
4. Connection layer that joins the external pipe with the aluminium pipe.
5. External pipe in PE-RT.



Dimension Data				
Alpert pipe external Ø	mm	12	15	16
Alpert pipe internal Ø	mm	8.8	11	12
Overall thickness	mm	1.6	2.0	2.0
Aluminum sheet thickness	mm	0.21	0.25	0.25
Weight	Kg/m	0.065	0.096	0.100
Water content	ℓ/m	0.05	0.1	0.11
Packs nude pipe (roll)	m	80/160/240	50/100	50/80/100/150/200/300/500

Technical data

Classes of application (UNI EN ISO 21003 - see table previous page “Classification of the conditions of use”): 2/10 bar, 5/10 bar
Maximum operating conditions for 50 years:
- Design temperature TD = 70 °C
- Design pressure PD = 10 bar

Max temperature for short periods: 95 °C
Coefficient of linear expansion: 0,026 mm/m °C
Thermal conductivity: 0,45 W/m K
Minimum radius of bending: 5 x D pipe
Surface roughness of the internal tube: 1-1.4 µm
Fire reaction class: EL (EN 13501-1)

Marking example of Alpert pipe 16*2.0

001M MULTILAYER PIPE Butt-welded TYPE I 16X2.0mm
T=95°C P=10bar ISO 21003 CLASS 2/10bar, 5/10bar
hh:mm:ss dd/mm/yy

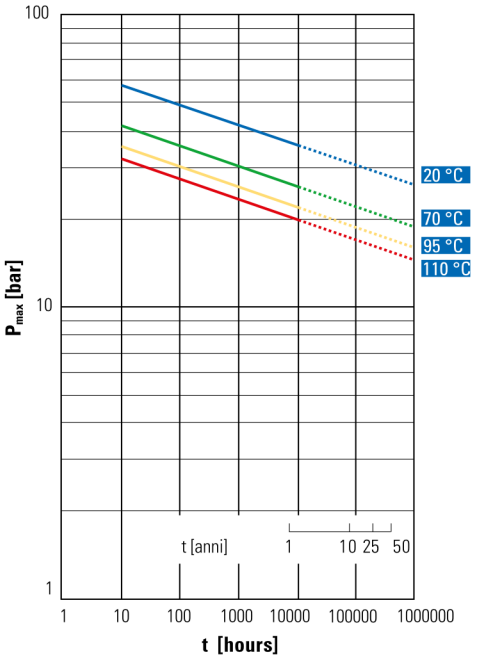
Key	
001M	Progressive roll length
MULTILAYER PIPE	Trade name pipe
Butt-welded	Welding manner
TYPE I	Layer material indication
16X2.0mm	Size
WRAS	The pipes have been certified by WRAS
T=95°C	Maximum temperature for short periods
P=10bar	Maximum pressure
ISO	Technical regulation
CLASS	Application classes combined with operating pressure
hh:mm:ssdd/mm/yy	Time, date

Regression curves of Alpert pipe

Example of reading

The maximum allowable pressure (Pmax) for a duration of 50 years at a certain temperature is identified by intersecting the line (vertical) relating to 50 years with the line (coloured) relating to the temperature.

Note the operating pressure provided for (Pes), the safety coefficient will be equal to ks=Pmax/Pes.



mknLTD.CO.UK Unit 3 Tatton Court WA1 4RR United Kingdom Sales: +44 1925 390 641 Support: +44 1925 398 557 info@mknltd.co.uk ; mknLTD.CO.UK

Product Description

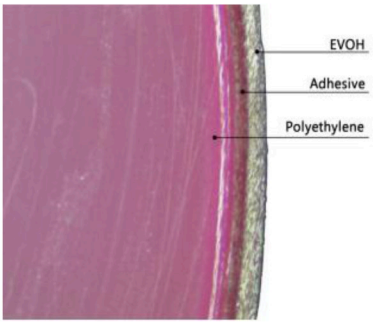
PE-RT barrier pipe is produced from the material LG SP980 under an ISO 9001 quality system.
PE-RT is extremely flexible with excellent long-term stress resistant properties combined with long-term strength at elevated temperatures.

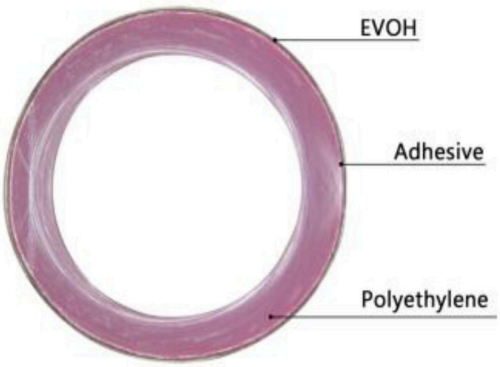
Pipe Description

Pipe description	Outer diameter	Wall thickness
10mm x 1.3mm PE-RT barrier pipe	10.0-10.3	1.3-1.5
12mm x 1.6mm PE-RT barrier pipe	12.0-12.3	1.6-1.8
16mm x 2.0mm PE-RT barrier pipe	16.0-16.3	2.0 -2.3
20mm x 2.0mm PE-RT barrier pipe	20.0-20.3	2.0-2.3

Field of application

PE-RT is suitable for underfloor heating systems, hot and cold water sanitary and distribution systems and various heating systems for domestic, commercial & industrial applications.





PE-RT Pipe Layering – technical information

1. Polyethylene inner pipe layer (PE-RT).
2. An adhesive layer bonding the inner pipe layer to the oxygen barrier.
3. Ethylene vinyl alcohol copolymer (EVOH) oxygen barrier layer.

EVOH oxygen barrier layer

PE-RT barrier pipe incorporates an EVOH oxygen diffusion barrier layer on the outside of the pipe.The EVOH layer which complies with DIN 4726 renders the pipe virtually impervious to gases.

Certification

Pipes are produced and tested according under an ISO 9001 quality management system to four standards, namely DIN 16833, DIN 4726, ISO22391 and ISO 10508.

Key Performance data

Maximum operating temperature: 80°C.
Maximum operating pressure: as per table below.

Coefficient of linear expansion: 0.18 mm/m K.
Minimum bending radii: 20 X pipe outer diameter.
Thermal conductivity: 0.45 W/m C.

Product Guarantee

ISO 10508 plastic piping system for hot and cold water installations – guidance for classification / design

- Class 1 – hot sanitary water (60°C) – 49 years
- Class 2 – hot sanitary water (70°C) – 49 years
- Class 4 – radiant floor and radiators low temperature (60°C) - 49 years
- Class 5 – radiators high temperature (80°C) – 25 years

Packaging / Storage – Uv Exposure

PE-RT piping should be protected from direct exposure to UV as it is prone to deterioration if subjected to UV / sunlight.

Application Classes

Maximum Operating Pressure (MOP) – 10*1.3 barrier PE-RT

Application Class	Design Stress Mpa	MOP (Bar)
1 (60°C) Hot sanitary water	3.29	9.83
2 (70°C) Hot sanitary water	2.68	8.00
4 (60°C) Radiant floor	3.25	9.71
5 (80°C) Radiator high temperature	2.38	7.11
Cold water (20°C)	6.68	19.96

Maximum Operating Pressure (MOP) – 12*1.6 barrier PE-RT

Application Class	Design Stress Mpa	MOP (Bar)
1 (60°C) Hot sanitary water	3.29	10.12
2 (70°C) Hot sanitary water	2.68	8.24
4 (60°C) Radiant floor	3.25	10.00
5 (80°C) Radiator high temperature	2.38	7.32
Cold water (20°C)	6.68	20.55

Maximum Operating Pressure (MOP) – 16 x 2.0 barrier PE-RT

Application Class	Design Stress Mpa	MOP (Bar)
1 (60°C) Hot sanitary water	3.29	9.40
2 (70°C) Hot sanitary water	2.68	7.65
4 (60°C) Radiant floor	3.25	9.28
5 (80°C) Radiator high temperature	2.38	6.80
Cold water (20°C)	6.68	19.08

Maximum Operating Pressure (MOP) – 20*2.0 barrier PE-RT

Application Class	Design Stress Mpa	MOP (Bar)
1 (60°C) Hot sanitary water	3.29	7.31
2 (70°C) Hot sanitary water	2.68	5.95
4 (60°C) Radiant floor	3.25	7.22
5 (80°C) Radiator high temperature	2.38	5.28
Cold water (20°C)	6.68	14.84

PEX-B pipes made of high-density cross-linked polyethylene are fit for hot and cold pressurized water in domestic and/or heating and cooling systems.



Water distribution through PEX pipes offers great benefits compared to traditional systems where iron or copper pipes are used. To name a few: easy and quick laying, reduced manpower, no welding or embedded mechanic joints that may leak on under long-time running, highly resistant material not affected by limestone and electrochemical phenomena.
Least but not last, their thermal conductivity is 100 times lower than iron and 700 times lower than copper, and the noise level during distribution is extremely reduced thanks to the enhanced soundproofing properties of cross-linked polyethylene. PEX pipes are the go-to solution for low-pressure water systems as their limited roughness allows only limited losses of pressure while guaranteeing the minimum flow rates to user devices.

TECHNICAL DATA

- Class of application(EN ISO 15875):1,2,4,5
- Density at 23°C: >0.948 g/cm3
- Cross-link degree >65%
- Linear dilation coefficient: 0.026 mm/m K
- Thermal conductivity: 0.35W/(m K)
- Linear dispersion in air of the sleeved pipe (25 mm sleeve) : 0.23W/(m K)
- Linear dispersion in air of the sleeved pipe (30 mm sleeve) : 0.21W/(m K)

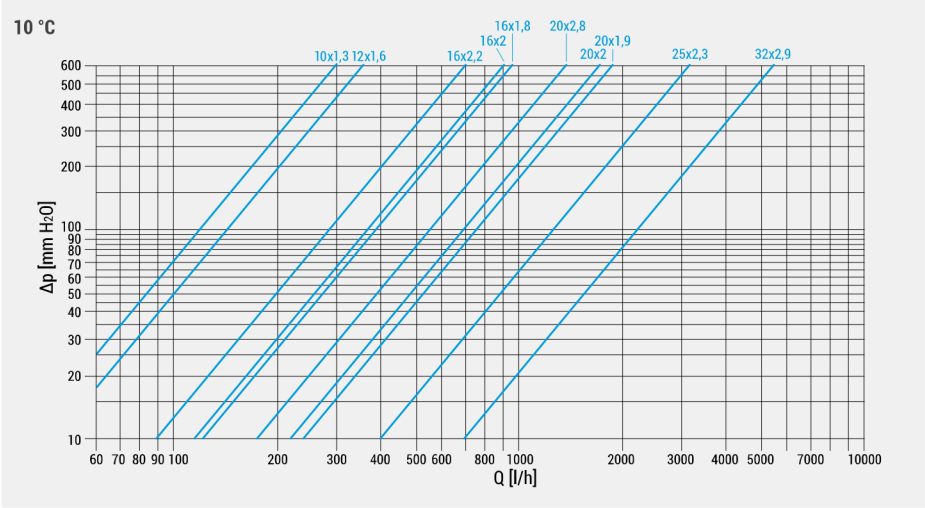
PEX-B pipes are made by cross-linking polyethylene through the silane chemical process(PEX-b); they are tested according to the EN ISO 15875 standard. The cross-linking process confers mechanic, chemical and thermal characteristics that make them fit for use with enhanced quality and reliability.

THERMAL EXPANSIONS

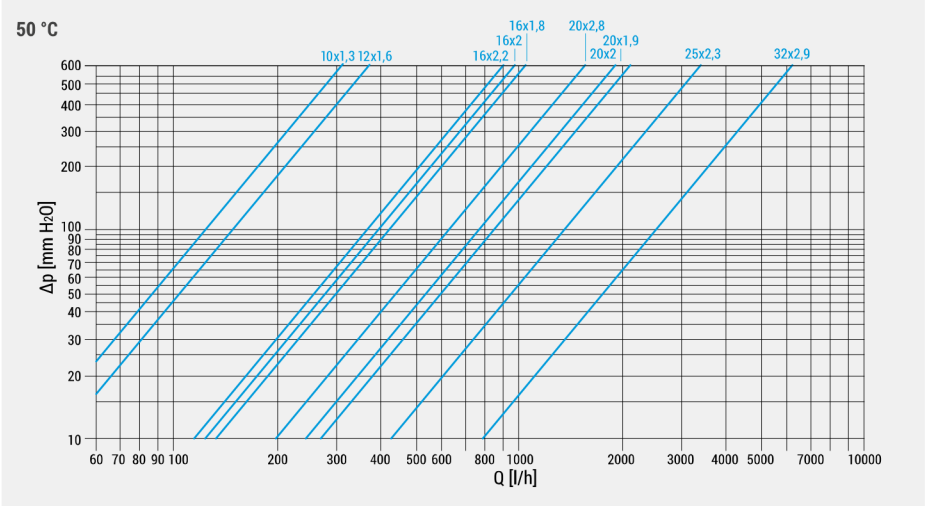
When planning and installing the PEX-B pipes, thermal expansion must be taken into account.
The chart below helps to make proper evaluations.Thermal expansion can be determined through the formula below:
$\Delta L = a \times L \times \Delta t$ where:
ΔL = expansion expressed in mm; a = linear thermal expansion coefficient corresponding to 0.026 mm/m K
L = pipe length expressed in m; Δt = temperature variation expressed in Kelvin [K] or Celsius [Δ] degrees

PIPE LENGTH[m]	TEMPERATURE DIFFERENCE [K]							
	10	20	30	40	50	60	70	80
1	0.26	0.52	0.78	1.04	1.30	1.56	1.82	2.08
2	0.52	1.04	1.56	2.08	2.60	3.12	3.64	4.16
3	0.78	1.56	2.34	3.12	3.90	4.68	5.46	6.24
4	1.04	2.08	3.12	4.16	5.20	6.24	7.28	8.32
5	1.30	2.60	3.90	5.20	6.50	7.80	9.10	10.40
6	1.56	3.12	4.68	6.24	7.80	9.36	10.92	12.48
7	1.82	3.64	5.46	7.28	9.10	10.92	12.74	14.56
8	2.08	4.16	6.24	8.32	10.40	12.48	14.56	16.64
9	2.34	4.68	7.02	9.36	11.70	14.04	16.38	18.72
10	2.60	5.20	7.80	10.40	13.00	15.60	18.20	20.80
	LINEAR EXPANSION [mm]							

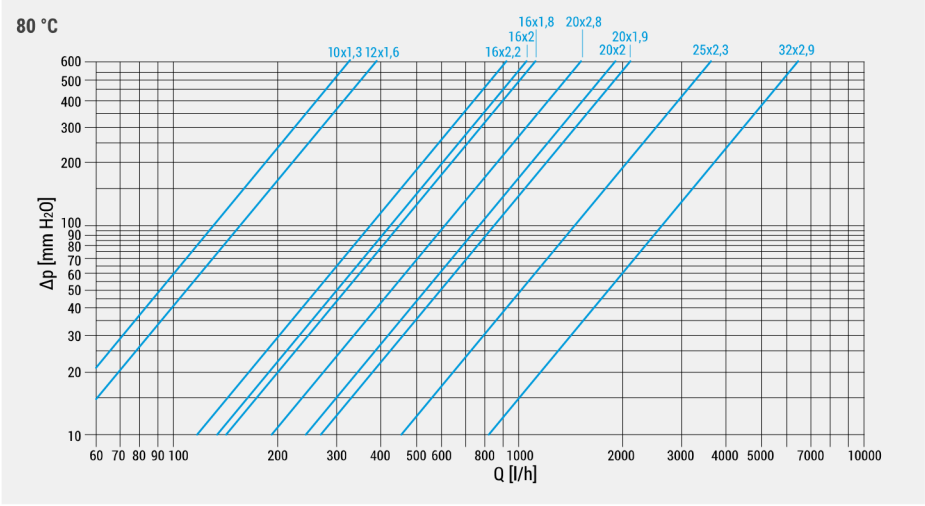
TEMPERATURE=10°C



TEMPERATURE=50°C

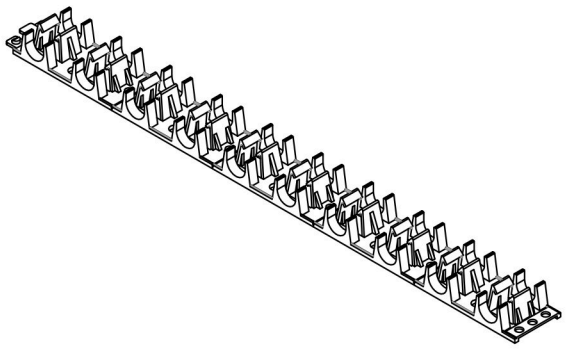


TEMPERATURE=80°C

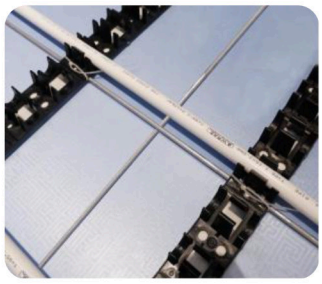


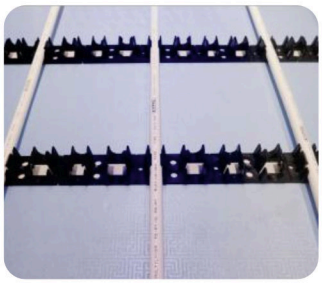
Guide-bar system for pipes

The guide-bar system for pipes is the most versatile solution for the installation of radiant floor systems for large surfaces.
The designer is free to size the floor structure (insulating layer, screed reinforcement mesh), in function of the overloads and the operating conditions of the system.



ZL-CR01





Description of the system

The bars with joints can be attached on top of a flat insulating layer (Plan Floor panel - fig. A, B, Roll Floor panel), using the Tacker clips, or connecting them to sheets of the electro welded mesh of the screed reinforcement (fig. C, D), placed on flat insulating sheets waterproofed thanks to the polyethylene cover.
The bars are joined thanks to special grooves (fig. E).

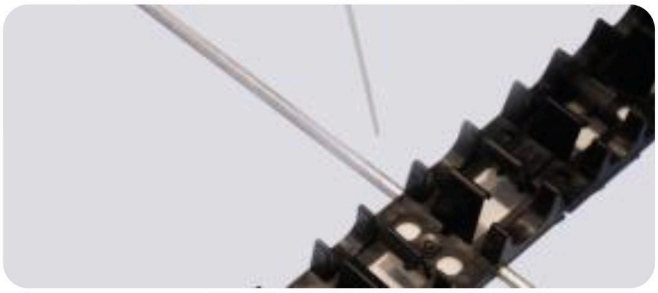


Fig. C

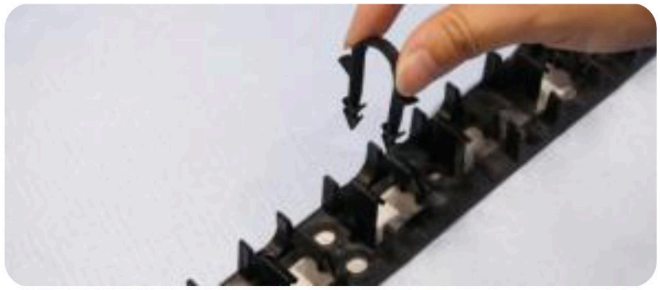


Fig. A

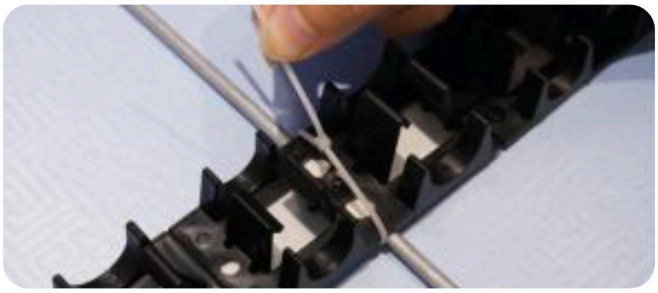


Fig. D

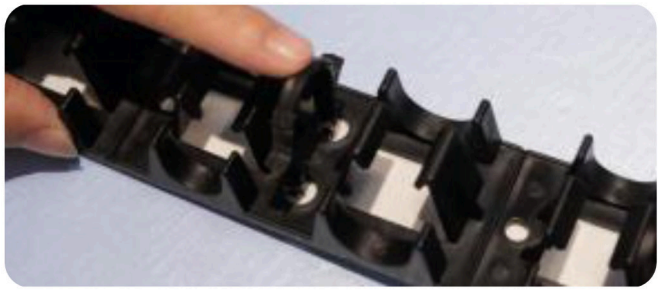


Fig. B

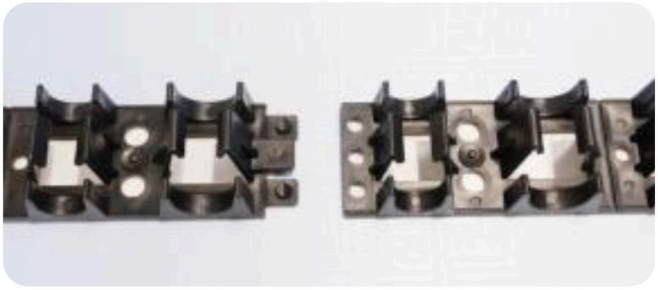


Fig. E

Models

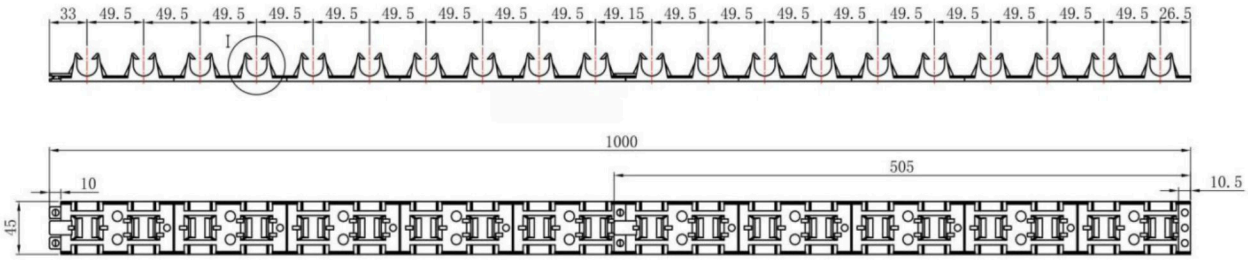
- For Ø14-20 pipes, minimum spacing 10 cm, with adhesive base.
- For Ø16 pipes, minimum spacing 5 cm,with adhesive base.

Areas of application

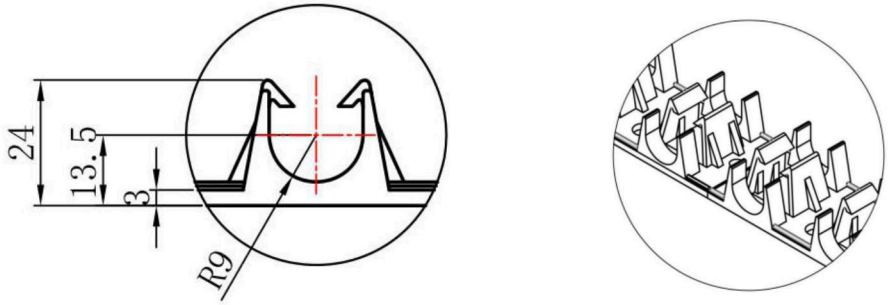
Civil buildings, industrial buildings, heating of external areas, floating floors for gyms.

Dimensions (mm) of guide bar for Ø16 pipes

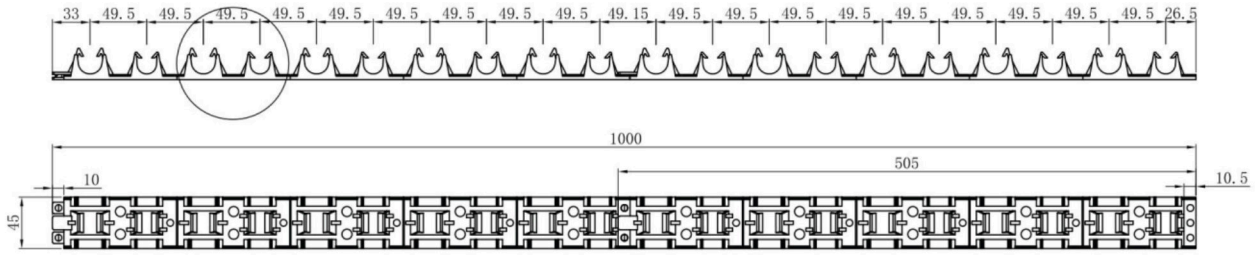
Complete view



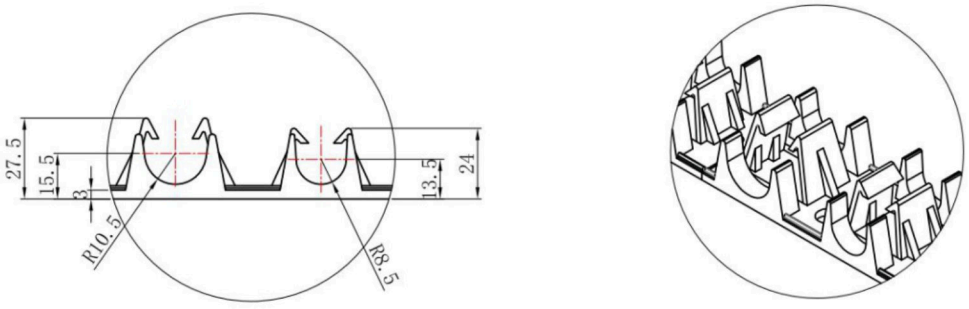
Detail



Dimensions (mm) of guide bar for Ø16-20 pipes



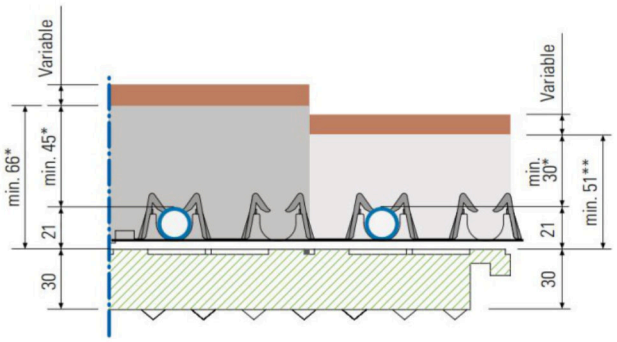
Detail



Guide-bar system for pipes

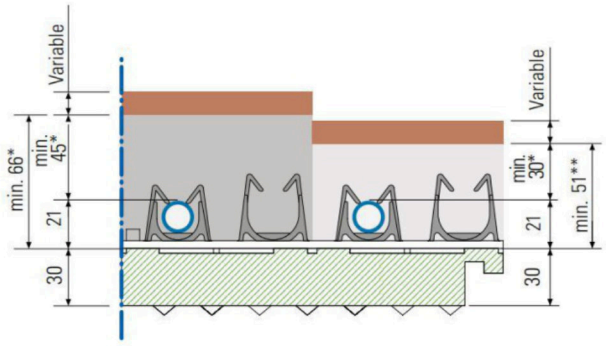
Overall dimensions (mm) of guide bar for Ø16 pipes

Flowmeter

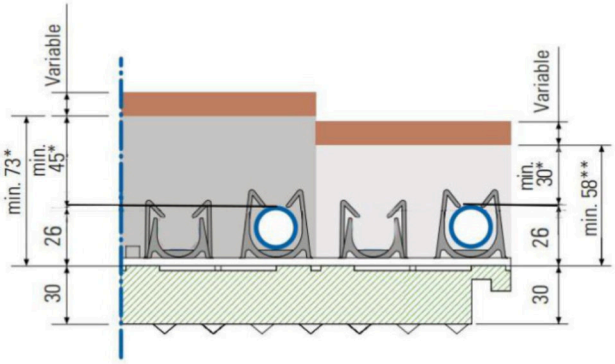


Overall dimensions (mm) of guide bar for Ø16-20 pipes

Guide-bar system for Ø 16pipes



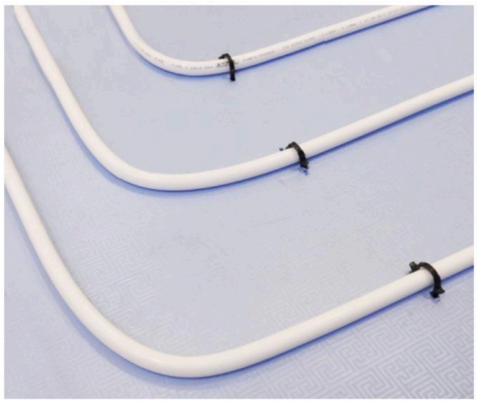
Guide-bar system for Ø 20pipes



- Traditional cement screed
- Self-levelling screed or reinforced screed

Note Floor screeds are not provided by us.

Pipe attaching clip system for Tacker



The buildings with irregularly shaped rooms, where the castellated panels with surface bosses limit the correct laying of the piping, enhance the pipe fixing system with clips and Tacker.

By using Plan Floor or Roll Floor panels, it is possible to create circuits of any type (serpentine, spiral) and shape with ease and speed.

Another advantage of the Tacker clip system is due to the reduced overall dimensions of the system: the pipe is well anchored to the surface of the panel and the mass of the screed per surface area is greater than the panels with bosses; this allows for the use of special self-levelling floor screeds with reduced thickness.

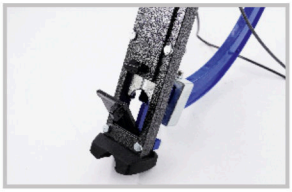
Clip System

Description of the system

After laying the Plan Floor or Roll Floor insulating panel, proceed to lay the pipes which are attached with the special clips using, the special Tacker tool from a standing position.
The clips, provided in rows of 25 clips each, must be loaded in the tool, then the panels can be secured by pressing the handle down.

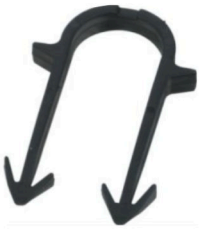


ZL-1232-21





ZL-1.E.200



ZL-1.E.201

Hot melt connection
Without sticky tape



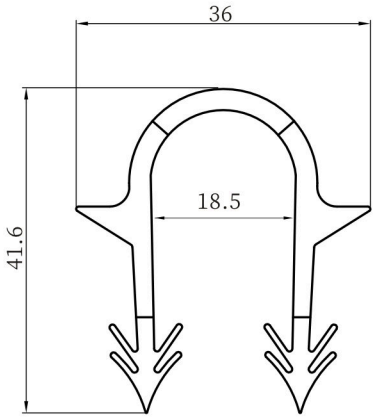
Models

The clips are suitable for pipes with diameter of 16mm.
40mm
60mm

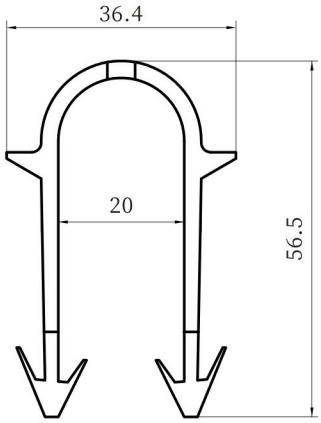
Fields of application

Civil buildings (residential use, offices, shops, places of worship), industrial buildings, buildings for schooling and sport, ideal in all cases of irregularly shaped rooms.

Dimensions (mm)



40mm

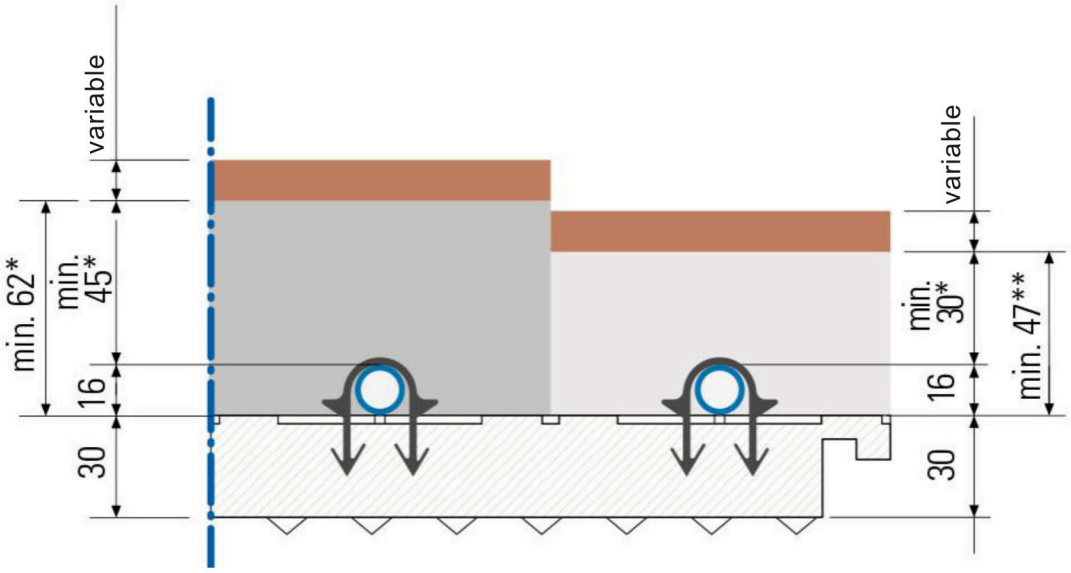


60mm

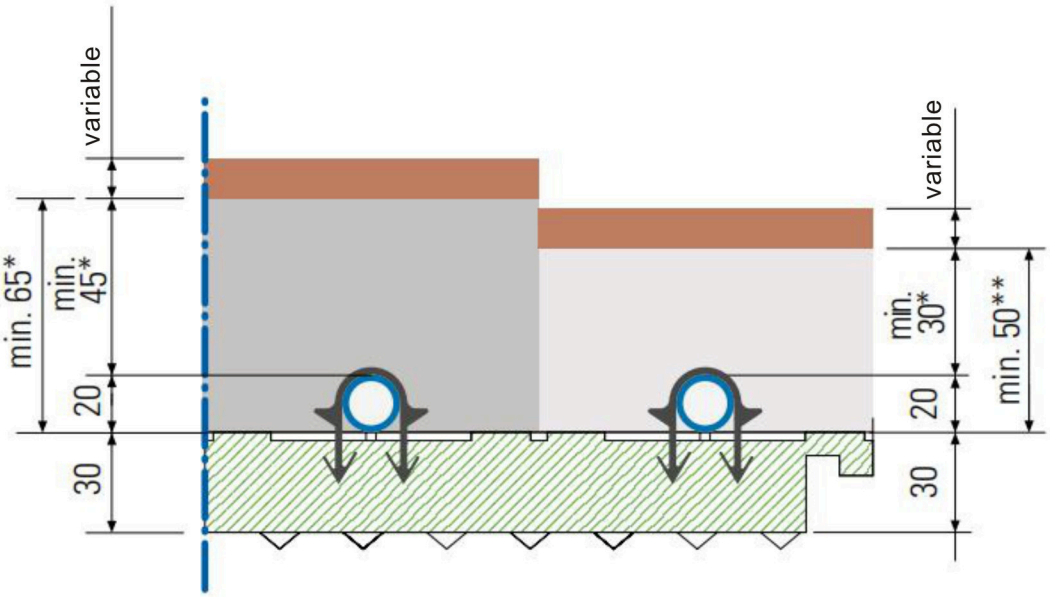
mknLTD.CO.UK Unit 3 Tatton Court WA1 4RR United Kingdom Sales: +44 1925 390 641 Support: +44 1925 398 557 info@mknltd.co.uk ; mknLTD.CO.UK

Minimum dimensions (mm)

- Tacker clip system for Ø 16 pipes



- Tacker clip system for Ø 20 pipes



- Traditional cement screed
- Self-levelling screed

  Note Floor screeds are not provided by us.

Pipe Accessories and Tools

Aluminium plate	
ZL-AP1	Single aluminium plate 1000x140x0.45 fit 16mm
ZL-AP2	Double aluminium plate 1000x390x0.45mm fit 16mm
ZL-AP3	Triple aluminium plate1000x390x0.45mm fit 16mm



Foldable Uncoiler



ZL-1235C

Uncoiler



ZL-1235B

Chamfering device for pipe



ZL-1233-16

Pressure Test Pump



ZL-RP-50

PVC/PPR PIPE Cutter



ZL-1232-26

Pipe cutter



PA01

Plastic elbow



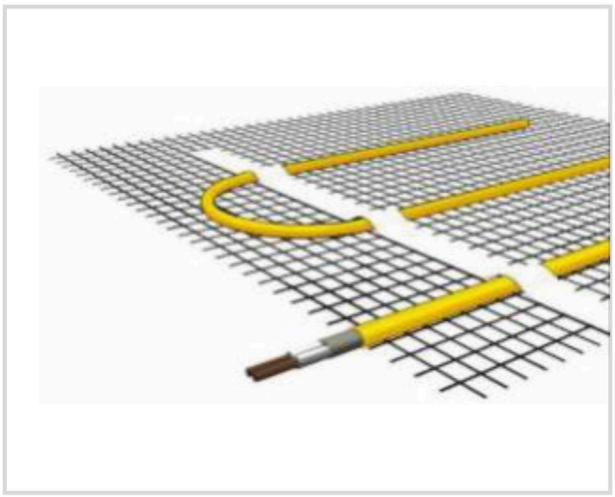
ZL-PE01

Plastic star reamer



ZL-1233

Electrical Underfloor Heating >





Sticky Mat System

OVERVIEW

The Sticky Mat System is designed for use within the adhesive layer under tiles or within a levelling compound under other floor finishes. The fixed spacing and self-adhesive mat makes installation of regularly shaped rooms quick and easy whilst ensuring precision is maintained. The pressure sensitive adhesive securely binds the mats to the floor, keeping them flat and ensuring the application of tile adhesive is snag free whilst allowing the mats to be easily repositioned as needed.

The strong 4mm dual core heating cable, is double insulated with an advanced fluoropolymer insulation and PVC jacket making it exceptionally tough and easy to tile over.

For floors using a vinyl, carpet, timber or other UFH compatible floor finishes including tiles the system can be covered with a levelling compound to provide a flat and level floor surface. Sticky Mats are available in both 100W/m² and 150W/m² variants making them ideal for use as the primary heat source within modern homes and most older properties.

FLOOR CONSTRUCTION

1 Floor finish

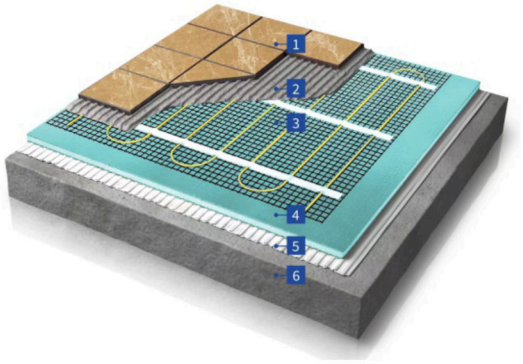
2 Tile adhesive orl evelling compound

3 Sticky Mat

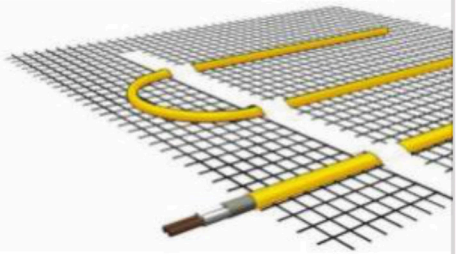
4 Coated Insulation Board

5 Flexible Tile Adhesive

6 Subfloor



TECHNICAL DATA-Sticky Mat	
OPERATING VOLTAGE	220 - 240v: 50Hz
IP RATING	IPX7
WIDTH	500mm
MAT THICKNESS	4mm
CABLE THICKNESS	4mm
OUTPUT RATING	100W/m²150W/m²
INNER INSULATION	FEP
OUTER INSULATION	PVC
MIN. INSTALLATION TEMP	5°C
CONNECTION	3m LONG “COLDTAIL” CONNECTION



Mats100W/m²					
PRODUCT CODE	AREATOBE HEATED (m²)	Power(W)	LOAD(A)	RESISTANCE(Ω)	RESISTANCE BANDS(Ω)
ZL-100MAT100	1	100	0.43	529.00	502.55~555.45
ZL-100MAT150	1.5	150	065	352 67	335 03~370 30
ZL-100MAT200	2	200	0.87	264.50	251.28~277.73
ZL-100MAT250	2.5	250	1.09	211.60	201.02~222.18
ZL-100MAT300	3	300	1.3	176.33	167.52~185.15
ZL-100MAT400	4	400	1.74	132.25	125.64~138.86
ZL-100MAT500	5	500	2.17	105.80	100.51~111.09
ZL-100MAT600	6	600	2.61	88.17	83.76~92.58
ZL-100MAT700	7	700	304	75 57	71 79~79 35
ZL-100MAT800	8	800	3.48	66.13	62.82~69.43
ZL-100MAT900	9	900	3.91	58.78	55.84~61.72
ZL-100MAT1000	10	1000	4.35	52.90	50.26~55.55
ZL-100MAT1200	12	1200	5.22	44.08	41.88~46.29

NOTE: To cover larger areas, several kits should be used together.

Mats150W/m²					
PRODUCT CODE	AREATOBE HEATED (m²)	Power(W)	LOAD(A)	RESISTANCE(Ω)	RESISTANCE BANDS(Ω)
ZL-150MAT150	1	150	0.65	352.67	335.03~370.30
ZL-150MAT225	1.5	225	0.98	235.11	223.36~246.87
ZL-150MAT300	2	300	1.30	176.33	167.52~185.15
ZL-150MAT375	2.5	375	1.63	141.07	134.01~148.12
ZL-150MAT450	3	450	1.96	117.56	111.68~123.43
ZL-150MAT600	4	600	2.61	88.17	83.76~92.58
ZL-150MAT750	5	750	3.26	70.53	67.01~74.06
ZL-150MAT900	6	900	3.91	58.78	55.84~61.72
ZL-150MAT1050	7	1050	4.57	50.38	47.86~52.90
ZL-150MAT1200	8	1200	5.22	44.08	41.88~46.29
ZL-150MAT1350	9	1350	5.87	39.19	37.23~41.14
ZL-150MAT1500	10	1500	6.52	35.27	33.50~37.03
ZL-150MAT1800	12	1800	7.83	29.39	27.92~30.86

NOTE: To cover larger areas, several kits should be used together.

Loose Wire System

OVERVIEW

The Loose Wire System is designed for use within the adhesive layer under tiles or within a levelling compound under other floor finishes. The variable spacing of the cable available during design and installation allows the system power to be tailored to the properties requirements.

The Loose Wire System is ideal for installation within small or irregularly shaped areas. In a bathroom the cable can be easily installed around the fixtures and within rooms with curved features it can easily follow the contours. The variable spacing of the cable also allows the heat output to be matched to requirements. For regularly shaped rooms the Sticky Mat system offers a quick and precise installation alternative to the Loose Wire System. Alternatively, for floor finishes other than tiles the Foil Heater System offers utilises a completely dry construction that does not require a levelling compound.

FLOOR CONSTRUCTION

1 Floor finish

2 Tile adhesive or levelling compound

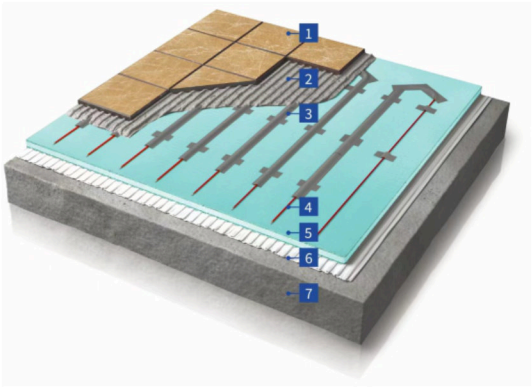
3 Tape

4 Loose Wire

5 Coated Insulation Board

6 Flexible Tile Adhesive

7 Subfloor



TECHNICAL DATA-Loose Wire	
OPERATING VOLTAGE	220 - 240v: 50Hz
IP RATING	IPX7
CABLE THICKNESS	4mm 5mm
OUTPUT RATING	10W/m 20W/m
INNER INSULATION	FEP
OUTER INSULATION	PVC
MIN.INSTALLATION TEMP	5°C
MAX.OPERATING TEMP	80°C
CONNECTION	3m LONG “COLDTAIL” CONNECTION



LOOSEWIRE SYSTEM (DWS)						
PRODUCT CODE	COLOUR	HEATER LENGTH	POWER (W)	LOAD(A)	RESISTANCE (Ω)	RESISTANCE BANDS (Ω)
ZL-10CABLE005	BLUE	5	50	0.22	1058.00	1005.10~1110.90
ZL-10CABLE010	BLUE	10	100	0.43	529.00	502.55~555.45
ZL-10CABLE020	BLUE	20	200	0.87	264.50	251.28~277.73
ZL-10CABLE030	BLUE	30	300	1.30	176.33	167.52~185.15
ZL-10CABLE040	BLUE	40	400	1.74	132.25	125.64~138.86
ZL-10CABLE050	BLUE	50	500	2.17	105.80	100.51~111.09
ZL-10CABLE060	BLUE	60	600	2.61	88.17	83.76~92.58
ZL-10CABLE080	BLUE	80	800	3.48	66.13	62.82~69.43
ZL-10CABLE100	BLUE	100	1000	4.35	52.90	50.26~55.55
ZL-10CABLE120	BLUE	120	1200	5.22	44.08	41.88~46.29
ZL-10CABLE140	BLUE	140	1400	6.09	37.79	35.90~39.68
ZL-10CABLE160	BLUE	160	1600	6.96	33.06	31.41~34.72
ZL-20CABLE010	RED	10	200	0.87	264.50	251.28~277.73
ZL-20CABLE020	RED	20	425	1.85	124.47	118.25~130.69
ZL-20CABLE030	RED	30	650	2.83	81.38	77.32~85.45
ZL-20CABLE040	RED	40	830	3.61	63.73	60.55~66.92
ZL-20CABLE050	RED	50	970	4.22	54.54	51.81~57.26
ZL-20CABLE060	RED	60	1270	5.52	41.65	39.57~43.74
ZL-20CABLE070	RED	70	1410	6.13	37.52	35.64~39.39
ZL-20CABLE080	RED	80	1620	7.04	32.65	31.02~34.29
ZL-20CABLE090	RED	90	1890	8.22	27.99	26.59~29.39
ZL-20CABLE100	RED	100	1980	8.61	26.72	25.38~28.05
ZL-20CABLE125	RED	125	2530	11.00	20.91	19.86~21.95

WRAS

WATER REGULATIONS APPROVAL SCHEME

WRAS PRODUCT APPROVAL CERTIFICATE

Approval Number

240704737

Field of application	Products complying with the Water Supply (Water Fittings) Regulations 1999 (England & Wales), the Water Supply (Water Fittings) (Scotland) Byelaws 2014 and the Water Supply (Water Fittings) Regulations (Northern Ireland) 2009.
Approval holder	PSW TRADE SUPPLIERS LTD
WRAS directory section	1106
Product type	Multi-Layered Pipe Systems: incorporating an Aluminium layer
Model	'ZL' RANGE OF U PROFILE PRESS FITTINGS (NICKEL PLATED BRASS BODIES) FOR USE WITH 'ZL' RANGE OF PERT/AL/PERT MULTI-LAYERED PIPES. (FOR SIZES COVERED PLEASE CONSULT THE WRAS ONLINE DIRECTORY AND/OR ACCOMPANYING WRAS APPROVAL LETTER) (FOR MODELS AND SIZES COVERED BY THE SCOPE OF THIS APPROVAL PLEASE CONSULT THE WRAS ONLINE DIRECTORY AND/OR ACCOMPANYING WRAS APPROVAL LETTER)
Basis of compliance	Regulator Specifications (TCS) / BS Standard
Valid from	July 2024
Date of expiry	July 2029
Authorised by	Ian Hughes, WRAS Approvals Manager

The certificate by itself is not evidence of a valid WRAS Approval. Confirmation of the current status of an approval must be obtained from the WRAS Approvals Directory

WRAS APPROVED PRODUCT

Certificate issued: 22nd October 2024

The Water Regulations Approval Scheme Ltd. Registered in England No, 1303284 Registered office: 6D Lowick Close, Hazel Grove, Stockport, SK7 5ED

NARODOWY INSTYTUT ZDROWIA PUBLICZNEGO PZH – Państwowy Instytut Badawczy
National Institute of Public Health NIH – National Research Institute

PRODUKT Z ATESTEM

ATEST HIGIENICZNY B.BK.60110.0681.2025

ORYGINAŁ

HYGIENIC CERTIFICATE
NATIONAL INSTITUTE OF PUBLIC HEALTH NIH – NATIONAL RESEARCH INSTITUTE

Wyrób / product: **Krany kulowe: ogrodowe, z uchwytem motylkowym, z uchwytem dźwignia, z przyłączem do węża i zaworem antyskażeniowym**

Zawierający / containing: mosiądz CW617N, PTFE, EPDM, ABS i inne materiały zgodnie z deklaracją przedłożoną do oceny

Przeznaczony do / destined: montażu w instalacjach służących do przesyłania wody przeznaczonej do spożycia przez ludzi i ciepłej wody użytkowej

Wymieniony wyżej produkt odpowiada wymaganiom higienicznym przy spełnieniu następujących warunków / the above-named product is acceptable according to hygienic criteria with the following conditions:
Atest higieniczny nie dotyczy parametrów technicznych i walorów użytkowych wyrobu / Hygienic certificate does not apply to technical parameters and utility value of the product.

Wytwórca / producer:
PSW TRADE SUPPLIERS LIMITED
Cheshire WA1 4BD, Wielka Brytania
2 Cliftonville Road, Warrington

Niniejszy dokument wydano na wniosek / this certificate issued for:
PSW TRADE SUPPLIERS LIMITED
Cheshire WA1 4BD, Wielka Brytania
2 Cliftonville Road, Warrington

Atest może być zmieniony lub unieważniony po przedstawieniu stosownych dowodów przez którąkolwiek stronę. Niniejszy atest traci ważność po 2028.08.04 lub w przypadku zmian w recepturze albo w technologii wytwarzania wyrobu.

The certificate may be corrected or cancelled after appropriate motivation. The certificate loses its validity after2028.08.04 or in the case of changes in composition or in technology of production.

Data wydania atestu higienicznego: 4 sierpnia 2025
The date of issue of the certificate: 4th August 2025

p.o. Kierownika Zakładu Bezpieczeństwa Zdrowotnego Środowiska
z up. M. Szczotko
dr n. med. Maciej Szczotko

Kontakt w sprawie niniejszego atestu higienicznego / To contact regarding this hygienic certificate
Zakład Bezpieczeństwa Zdrowotnego Środowiska NIZP PZH - PIB / Department of Environmental Health and Safety NIPH NIH - NRI
00-791 Warszawa, ul.Chocimska 24 / 00-791 Warsaw, Chocimska 24, Poland
e-mail: sekretariat-bk@pzh.gov.pl tel. +48 22 54-21-354, +48 22 54-21-349

EUIPO
EUROPEAN UNION INTELLECTUAL PROPERTY OFFICE

OPERATIONS DEPARTMENT

WRCD1

Statement of grant of protection under Rule 18bis(1) of the Common Regulations of the Hague Agreement

Alicante, 31/03/2022

International design registration number:	**DM/219323**
Number of designs:	**2**
Name of the holder:	**PSW TRADE SUPPLIERS LIMITED**
Date of statement:	**31/03/2022**
Date of effect as a grant of protection:	**29/11/2021**

The Office hereby confirms that protection is granted in respect of the European Union to all the designs of the abovementioned international registration.

Eamonn KELLY

Avenida de Europa, 4 • E - 03008 • Alicante, Spain
Tel. +34 965139100 • www.euipo.europa.eu

International Certification Registrar

ICR

S/N: 014603

Verification of Conformity

No.: **ICR/VC/HFG250509**

Name and address of Applicant	PSW TRADE SUPPLIERS LIMITED 2 Cliftonville Road Warrington Cheshire WA14BD, United Kingdom
Name and address of manufacturer:	PSW TRADE SUPPLIERS LIMITED 2 Cliftonville Road Warrington Cheshire WA14BD, United Kingdom
Product name:	CIRCULATION PUMP
Product types:	E134, E189
Product trademark:	Warmer

This document confirms that the product sample meets the requirements of the following standards:

- Related with Electrical Equipment (Safety) Regulations 2016:
  BS EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019+A15:2021+A16:2023
  BS EN IEC 60335-2-41:2021+A11:2021

The assessment process has been carried out in accordance with individual rules and conditions agreed with the applicant. Evaluation has been carried out in accordance with:

Test report:	DLS-250424006R-1
Tests conducted by:	Shenzhen DL Testing Technology Co., Ltd.
Issue date:	22.05.2025
Expiration date:	21.05.2030

Remarks
This Verification of conformity refers to the above mentioned product and its conformity in regards of above mentioned standard(s) was proven on test sample.
This Verification of conformity was issued on voluntary basis and does not imply meeting all essential requirements, assessment of the series-production or any other restricted UK Conformity Assessment Bodies conformity assessment procedure appropriate for the product.

UK CA marking remarks:
- mark is not sanctioned by the following verification of conformity
- mark given here as reference, can be only use by the manufacturer after applying all essential requirements from relevant directives and/or regulations

document status can be checked: https://cert.icrpolska.com/

ICR Polska Co. Ltd.
www.icrpolska.com
icrpolska@icrqa.com

CEO, ICR Co., Ltd.
Warsaw, 22.05.2025

Edition: 1.2.0.D of 01.04.2024

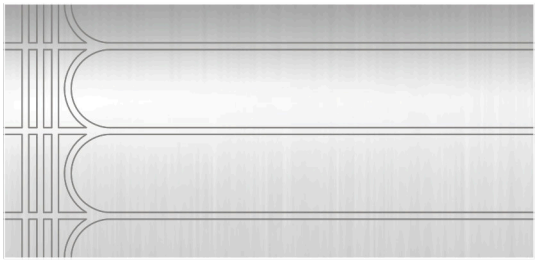
Underfloor Heating Systems

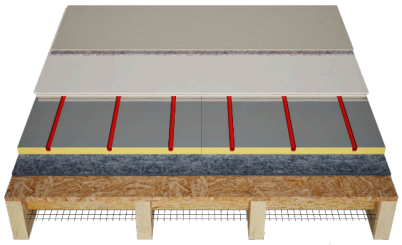
We offer a wide range of underfloor heating (UFH) solutions tailored to different types of projects and installation requirements:

Screed Systems – Ideal for new builds, where pipes are embedded in a screed layer for excellent heat distribution.

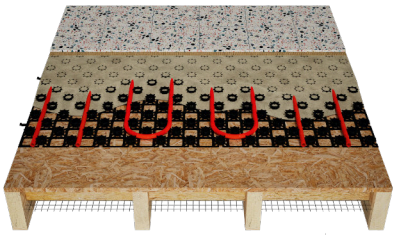


Overlay Systems – Perfect for retrofit projects, installed directly over existing floors with minimal height build-up.

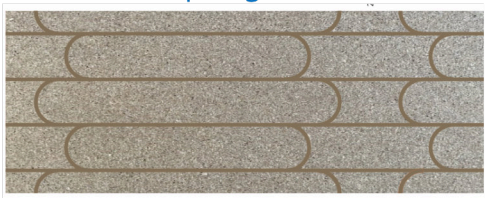




Panel Systems (Castellated or Profix Panels) – Simple installation with secure pipe placement using castellated or profix panels.



Chipboard Systems with Grooves – Designed for timber floors, with pre-grooved boards to accommodate heating pipes.



Pipe Compatibility – Systems available for both 12 mm and 16 mm pipes, depending on project requirements.

With our wide selection, we can provide the right UFH system for any property type or installation scenario.

Get an Underfloor Heating Quote from the Specialists

Our experienced team has spent years designing tailored underfloor heating systems.

We've delivered thousands of unique kits across the UK

It all begins with your personalised underfloor heating quote.

Expert Guidance – Comprehensive support at every stage of your project.

Trusted by Customers and Installers across the UK

Premium Products – We supply only high-quality underfloor heating solutions from leading industry brands.

Request your personalised quote today and take the first step towards a warmer home.

Manifold Position

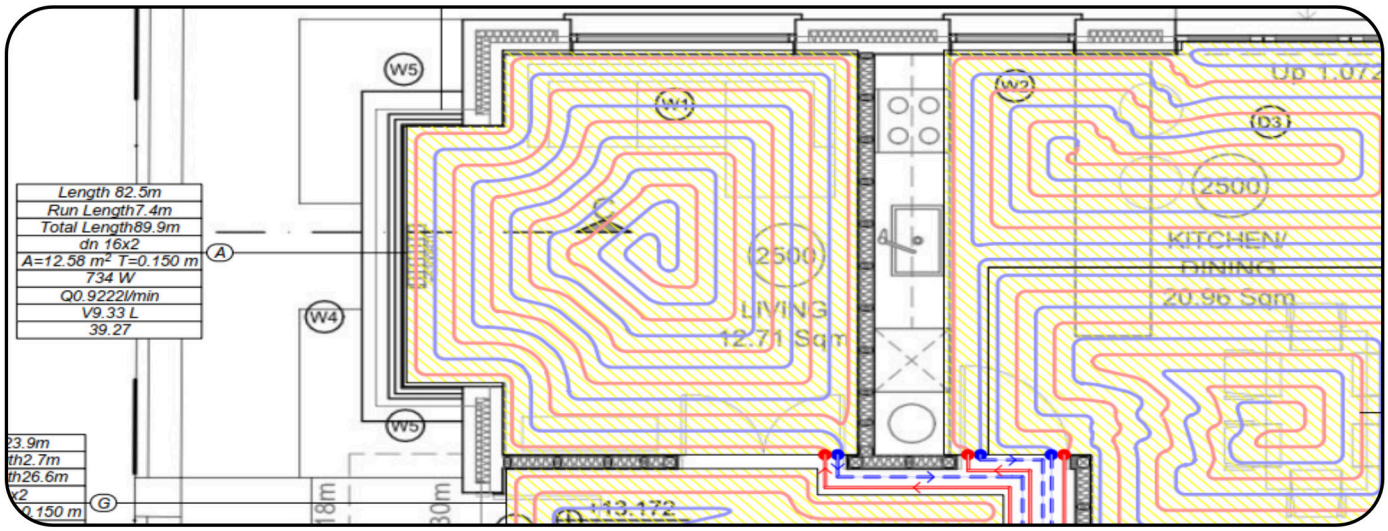
The manifold should be installed in a central location within the heated area to ensure efficient distribution to each zone.
It's important to confirm that copper pipework can easily reach the chosen position.

Pipe Spacing

Passive house – 300 mm

Good insulation or gas boiler – 150–200 mm

Poor insulation or heat pump – 100–150 mm

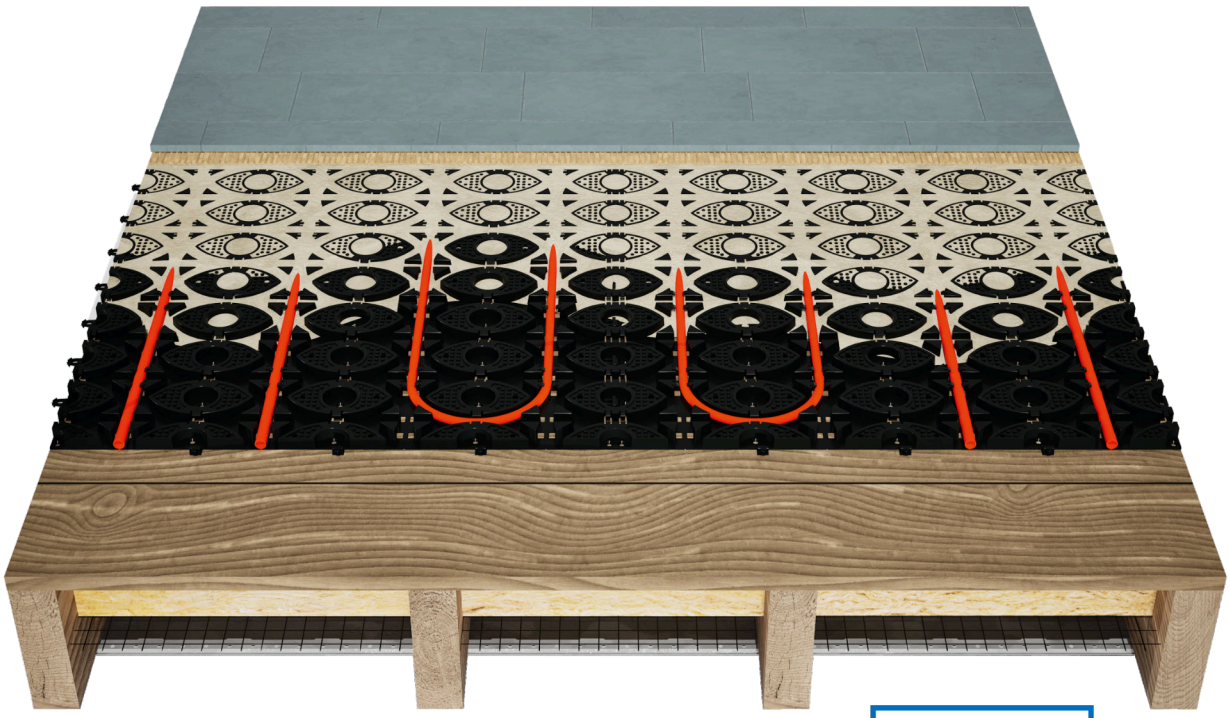


Under Floor Heating Pipe Retention Panel

Made from 100% recycled plastic

Profix[d]

Low profile underfloor heating pipe retention panel



PATENTED

- Ultra low profile - Only 15mm deep
- Accepts 10 and 12mm diameter pipes
- Suitable for all types of concrete & timber floors
- Self adhesive backing
- High-impact plastic, easily cut to size
- Suitable for systems using thin self-levelling screed or under a dry-fit HiDECK board
- Rapid heating response

Designed & Manufactured in the UK

Profix

PATENTED

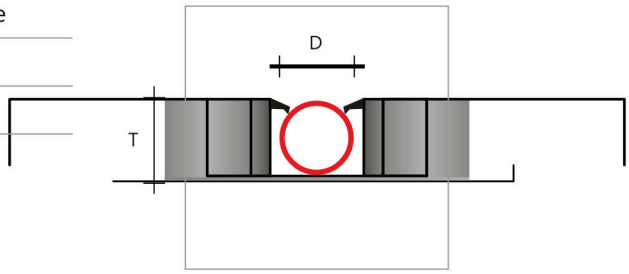
Low profile, underfloor heating pipe retention panel

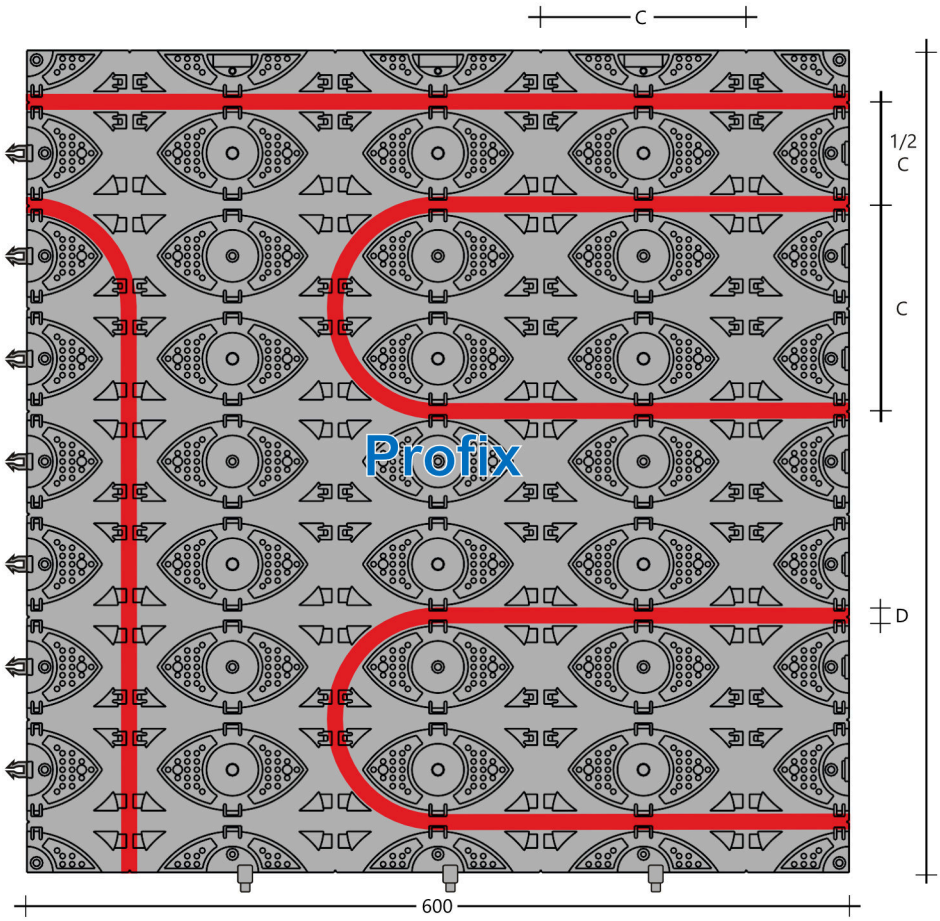
Technical specifications

Thickness - T	15mm
Panel size	600 x 600mm
Channel (to suit UFH pipe diameter) - D	10, 12mm
Pipe centre options - C	150, 300mm
Composition	100% recycled polypropelyne
Associated highway strip	EPIC Highway Clip Rail
Associated polyethylene edge strip	EPIC Pro Edge

Order quantity

Panels per pack	10 (3.6m²)
Packs per pallet	48
Min order qty	1 pack





Associated accessories

EPIC Edge 75/AB
Perimeter edge rolls



(P. 53)

EPIC Highway Clip Rail



(P. 53)

Colour of panel for illustration purposes only

Profix Heat Output

Low profile, underfloor heating pipe retention panel + self-levelling screed



Floor covering	Mean water flow temperature									
	30℃		35℃		40℃		45℃		50℃	
	Output W/m²	Surface temp °C	Output W/m²	Surface temp °C	Output W/m²	Surface temp °C	Output W/m²	Surface temp °C	Output W/m²	Surface temp °C
Ceramic tiles	56.6	25.2	84.9	27.8	113.2	30.4	141.5	33.1	169.9	35.7
Luxury vinyl tiles (LVT)	40.2	23.7	60.3	25.6	80.4	27.5	100.5	29.3	120.6	31.1
Engineered wood (15mm)	37.0	23.4	54.0	25.1	75.0	26.4	91.3	28.2	109.8	30.1
Carpet and underlay (1.5 TOG)	30.0	22.8	45.0	24.1	60.0	25.5	75	29.9	90.0	28.3

Notes

The heat outputs quoted were determined using computer modelled finite element analysis. Each system type was simulated using a floor surface heat transfer coefficient of 10.8W/m²K, with the surrounding air volume at 30°C in order to achieve steady state conditions. The thermal properties of each material were considered, including, but not limited to the thermal conductivity, specific heat capacity and density. The diameter of the underfloor heating pipework used was 12mm, with a wall thickness of 1.0mm, fixed at 150mm centres. The flow rate of the water within the pipework was maintained at 1.0m/s, combining both laminar and turbulent flow conditions. The internal temperature was regulated at five different temperatures, namely 30°C, 35°C, 40°C, 45°C and 50°C, throughout each test until steady state conditions were achieved through convergence of each individual parameter. The performance of a warm water underfloor heating system can be influenced by many factors and differences in actual heat output achieved on site may be observed when compared with the values stated. Therefore the heat output data shown is indicative and should be used for comparative purposes between systems and floor covering only.

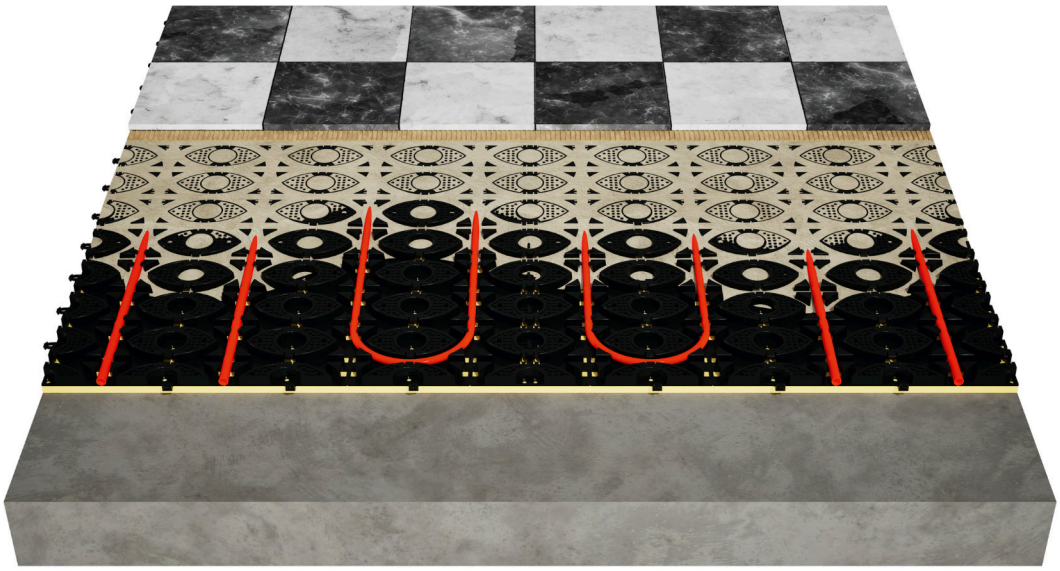
Screed thickness

The thickness of levelling screed is dependent on the floor finish to be applied.

- Ceramic/ porcelain floor tiles: 12mm (min) - up to the top of the Profix panel.
- Luxury vinyl tiles: 15mm (min) - 3-5mm above the Profix panel.
- Engineered wood: 15mm (min) - 3-5mm above the Profix panel.
- Carpet and underlay: 15mm (min) - 3-5mm above the Profix panel.

Profix[d] Therm X

Low profile underfloor heating pipe retention panel with integral thermal insulation barrier



PATENTED

- **Ultra low profile, as thin as 18mm deep**
- **Three pre-bonded insulation barrier thickness' available (3, 6, 10mm)**
- **Accepts 10 and 12mm diameter pipes**
- **Suitable for all types of concrete & timber floors**
- **High-impact plastic, easily cut to size**
- **Suitable for systems using thin self-levelling screed or under a dry-fit HiDECK board**
- **Rapid heating response**

Made from 100% recycled plastic

Designed & Manufactured in the UK

Profix Heat Output

Low profile, underfloor heating pipe retention panel + self-levelling screed



Floor covering	Mean water flow temperature									
	30℃		35℃		40℃		45℃		50℃	
	Output W/m²	Surface temp °C	Output W/m²	Surface temp °C	Output W/m²	Surface temp °C	Output W/m²	Surface temp °C	Output W/m²	Surface temp °C
Ceramic tiles	56.6	25.2	84.9	27.8	113.2	30.4	141.5	33.1	169.9	35.7
Luxury vinyl tiles (LVT)	40.2	23.7	60.3	25.6	80.4	27.5	100.5	29.3	120.6	31.1
Engineered wood (15mm)	37.0	23.4	54.0	25.1	75.0	26.4	91.3	28.2	109.8	30.1
Carpet and underlay (1.5 TOG)	30.0	22.8	45.0	24.1	60.0	25.5	75	29.9	90.0	28.3

Notes

The heat outputs quoted were determined using computer modelled finite element analysis. Each system type was simulated using a floor surface heat transfer coefficient of 10.8W/m²K, with the surrounding air volume at 30°C in order to achieve steady state conditions. The thermal properties of each material were considered, including, but not limited to the thermal conductivity, specific heat capacity and density. The diameter of the underfloor heating pipework used was 12mm, with a wall thickness of 1.0mm, fixed at 150mm centres. The flow rate of the water within the pipework was maintained at 1.0m/s, combining both laminar and turbulent flow conditions. The internal temperature was regulated at five different temperatures, namely 30°C, 35°C, 40°C, 45°C and 50°C, throughout each test until steady state conditions were achieved through convergence of each individual parameter. The performance of a warm water underfloor heating system can be influenced by many factors and differences in actual heat output achieved on site may be observed when compared with the values stated. Therefore the heat output data shown is indicative and should be used for comparative purposes between systems and floor covering only.

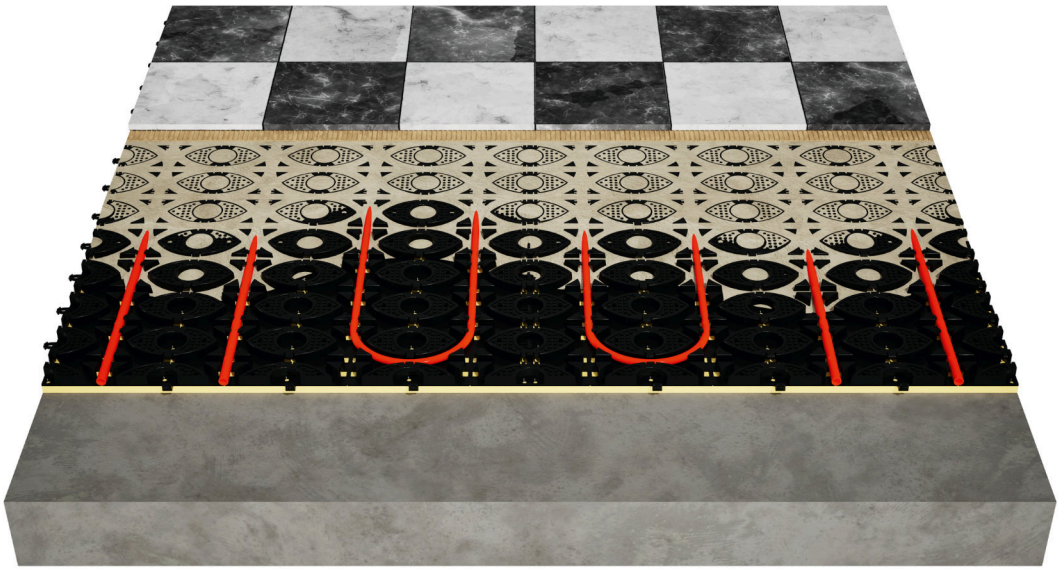
Screed thickness

The thickness of levelling screed is dependent on the floor finish to be applied.

- Ceramic/ porcelain floor tiles: 12mm (min) - up to the top of the Profix panel.
- Luxury vinyl tiles: 15mm (min) - 3-5mm above the Profix panel.
- Engineered wood: 15mm (min) - 3-5mm above the Profix panel.
- Carpet and underlay: 15mm (min) - 3-5mm above the Profix panel.

Profix[d] Therm X

Low profile underfloor heating pipe retention panel with integral thermal insulation barrier



PATENTED

- **Ultra low profile, as thin as 18mm deep**
- **Three pre-bonded insulation barrier thickness' available (3, 6, 10mm)**
- **Accepts 10 and 12mm diameter pipes**
- **Suitable for all types of concrete & timber floors**
- **High-impact plastic, easily cut to size**
- **Suitable for systems using thin self-levelling screed or under a dry-fit HiDECK board**
- **Rapid heating response**

Made from 100% recycled plastic

Designed & Manufactured in the UK

Profix Therm X

PATENTED

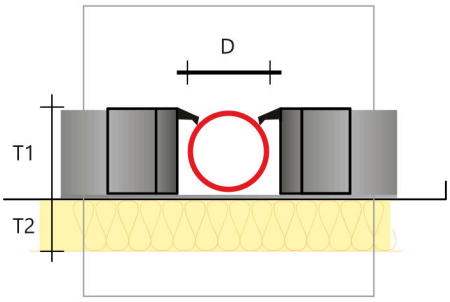
Low profile, underfloor heating pipe retention panel with integral thermal barrier

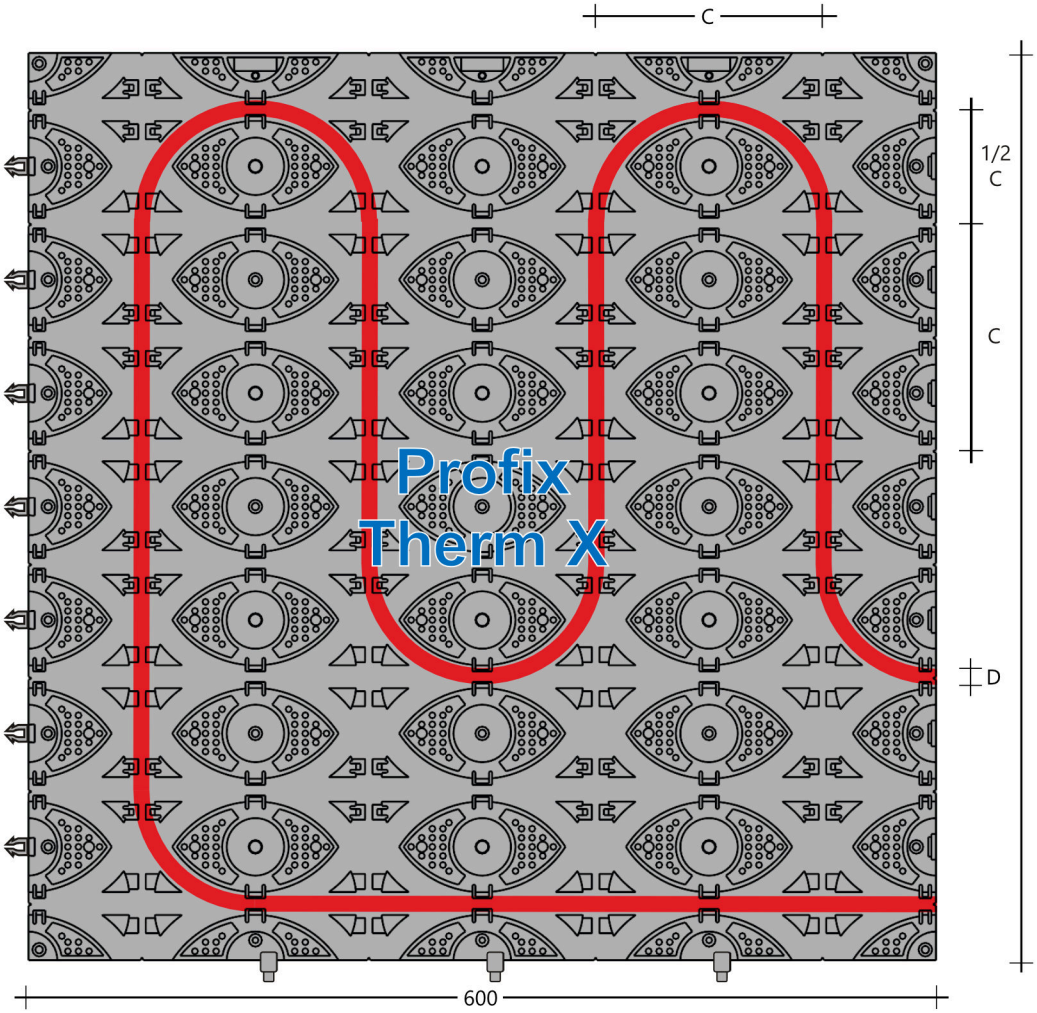
Technical specifications

Thickness	15mm (T1) + 3, 6 or 10mm XPS (T2)
Panel size	600 x 600mm
Channel (to suit UFH pipe diameter) - D	10, 12mm
Pipe centre options - C	150, 300mm
Composition	100% recycled polypropelyne
Thermal insulation	300kPa XPS (extruded polystyrene)
Thermal resistance of XPS T2 (m²K/W)	3 = 0.091, 6 = 0.182, 10 = 0.303
Associated polyethylene edge strip	EPIC Pro Edge

Order quantity

Coverage per panel	0.36m²
Min order qty	1 panel





Colour of panel for illustration purposes only

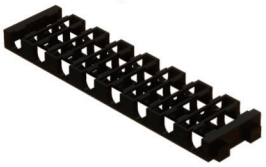
Associated accessories

EPIC Edge 75/AB
Perimeter edge rolls



(P. 53)

EPIC Highway clip rail

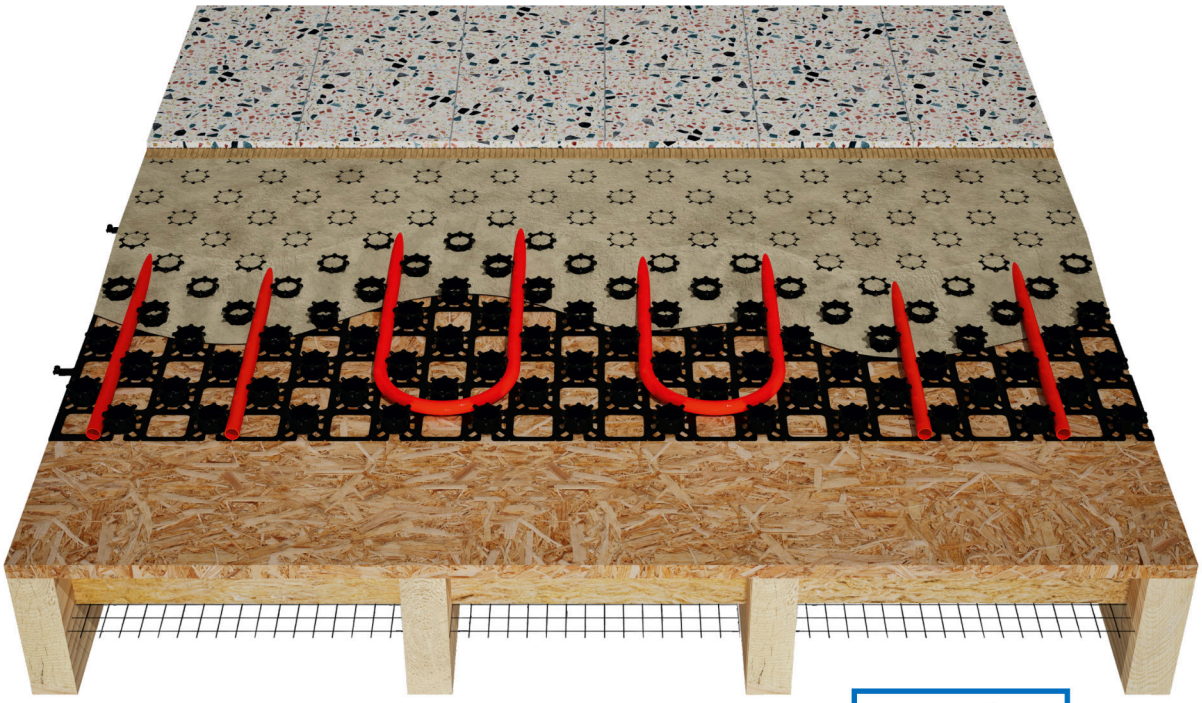


(P. 53)

Made from 100% recycled plastic

Profix[d] Plus

Low profile underfloor heating pipe retention panel



PATENTED

- Low profile - Only 20mm deep
- Accepts 14 - 17mm diameter pipes
- Suitable for all types of concrete & timber floors
- Self adhesive backing
- High-impact plastic, easily cut to size
- Suitable for systems using thin self-levelling screed or under a dry-fit HiDECK board
- Rapid heating response

Designed & Manufactured in the UK

mknLTD.CO.UK Unit 3 Tatton Court WA1 4RR United Kingdom Sales: +44 1925 390 641 Support: +44 1925 398 557 info@mknltd.co.uk ; mknLTD.CO.UK

Profix[d] Plus

PATENTED

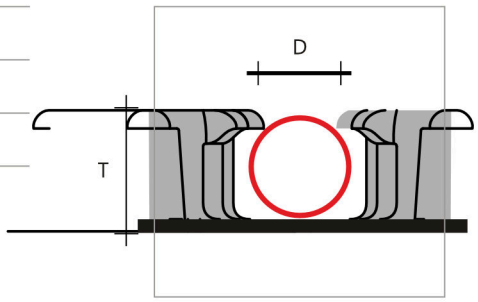
Low profile, underfloor heating pipe retention panel

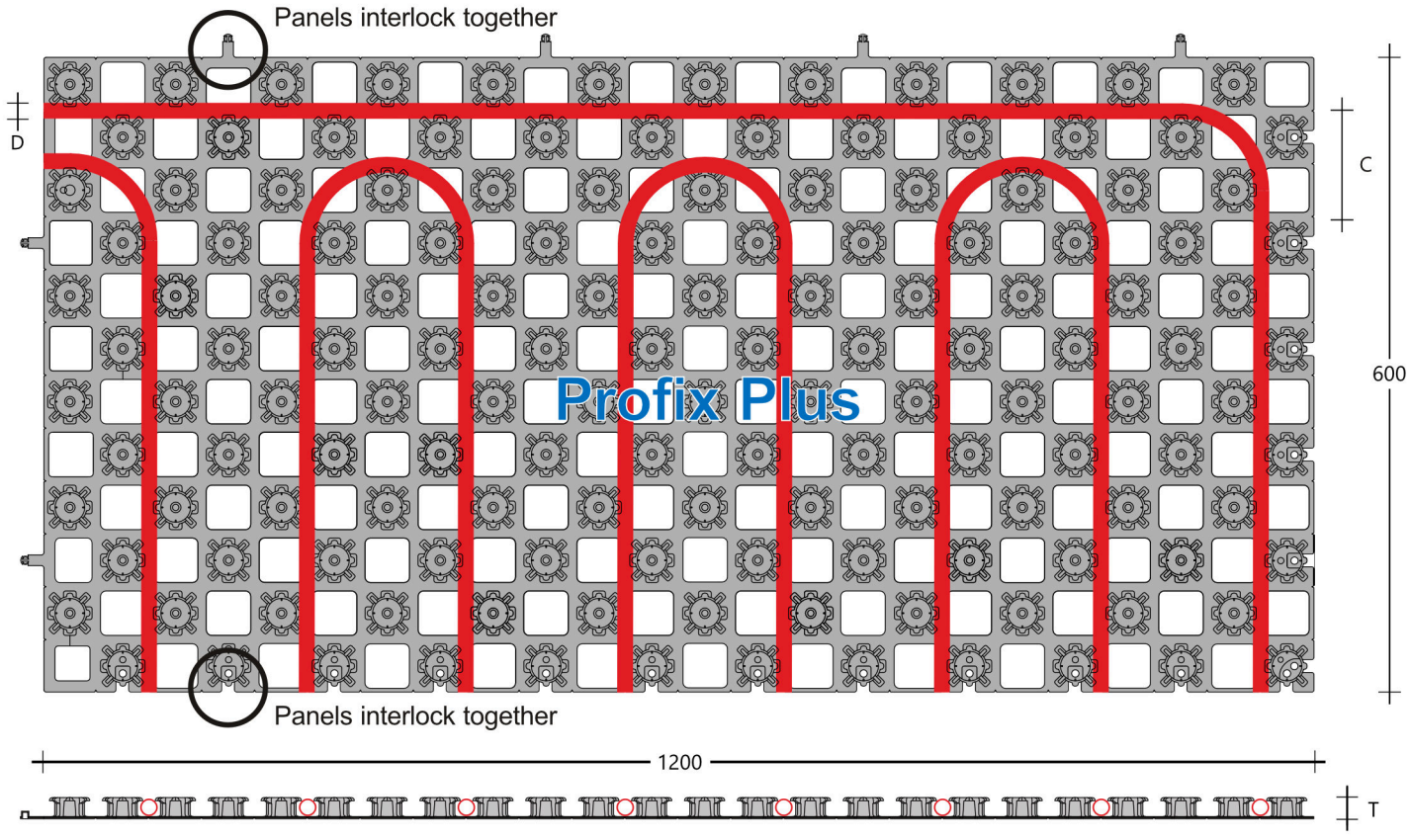
Technical specifications

Thickness - T	20mm
Panel size	600 x 1200mm
Clamp width (to suit UFH pipe diameter) - D	14, 15, 16, 17mm
Pipe centre options - C	150, 200, 300mm
Composition	100% recycled polypropelyne
Associated polyethylene edge strip	EPIC Pro Edge

Order quantity

Coverage per panel	0.72m²
Min order qty	1 panel

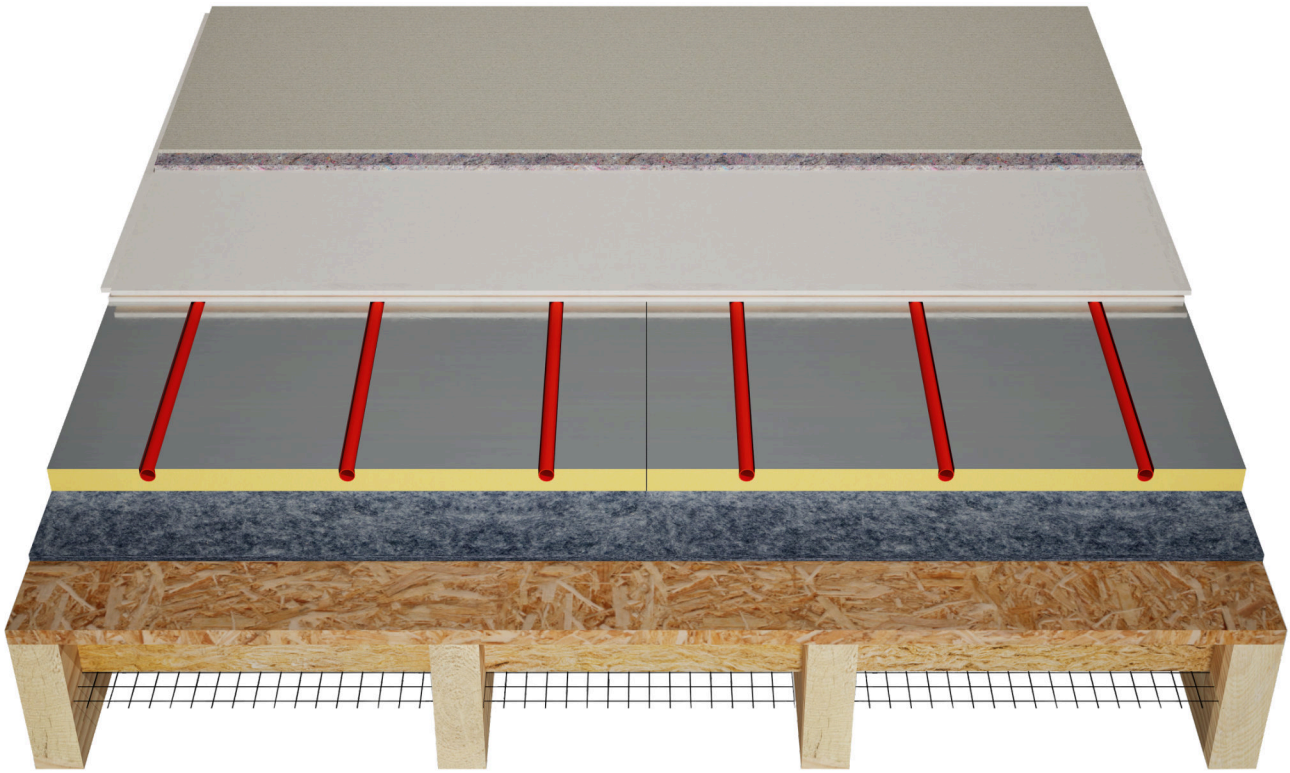




Colour of panel for illustration purposes only

Profoil[d] XPS

Foil faced high compressive strength XPS underfloor heating board



- **Offered in three grades of high compressive strength XPS (300, 400 & 500kPa)**
- **Faced with 100 micron aluminum foil for effective heat diffusion**
- **Wide range of thickness' available**
- **Two route patterns offered**
- **Suitable for all types of concrete & timber floors**
- **Quick and easy to install**
- **Excellent thermal performance**

Designed & Manufactured in the UK

mknLTD.CO.UK Unit 3 Tatton Court WA1 4RR United Kingdom Sales: +44 **1925 390 641** Support: +44 **1925 398 557** info@mknltd.co.uk ; mknLTD.CO.UK

Profoil[d] Lined XPS300

Foil faced and channels lined, high compressive strength XPS underfloor heating board

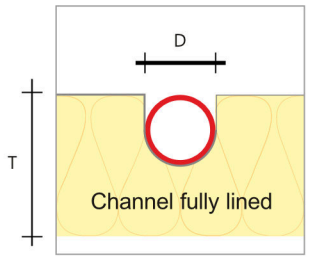
Technical specifications

Thickness' available - T	20, 25, 30mm[(1)]
Board size	600 x 1250mm
Route size (to suit UFH pipe diameter) - D	10, 12, 14, 15, 16mm
Pipe centre options	150, 200, 300mm
Thickness of aluminium foil facing	100µm (with channels fully lined)
Route patterns	Radius, Bulb, Highway[(2)]
Strength at 10% compression (EN 826)	300kPa
Thermal conductivity (EN 12667)	0.033W/mK
Associated polyethylene edge strip	EPIC Pro Edge

(1) Other thickness' manufactured to order, subject to minimum quantity.
(2) Other patterns manufactured to order, subject to minimum quantity.

Order quantity

Boards per pack	N/A
Min order qty	1 board



Profoil[d] Lined XPS400

Foil faced and channels lined, ultra high compressive strength extruded polystyrene underfloor heating board

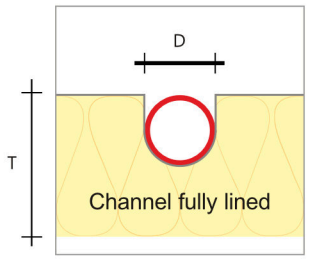
Technical specifications

Thickness' available - T	18, 20, 25*mm[(1)]
Board sizes	600 x 1200, 600 x 1250*mm
Route size (to suit UFH pipe diameter) - D	10, 12, 14, 15[(2)], 16[(2)]mm
Pipe centre options	150, 200, 300mm
Thickness of aluminium foil facing	100µm (with channels fully lined)
Route patterns	Radius, Bulb, Highway[(3)]
Strength at 10% compression (EN 826)	400kPa
Thermal conductivity (EN 12667)	0.035W/mK
Associated polyethylene edge strip	EPIC Pro Edge

(1) Other thickness' manufactured to order, subject to minimum quantity.
(2) Not available in 18mm thick boards.
(3) Other patterns manufactured to order, subject to minimum quantity

Order quantity

Boards per pack	N/A
Min order qty	1 board



Profoil[d] Lined XPS500

Foil faced and channels lined ultra high compressive strength XPS underfloor heating board

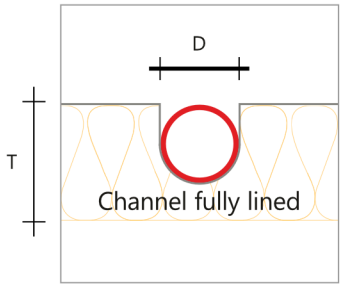
Technical specifications

Thickness' available - T	15mm[(1)]
Board size	600 x 1200
Route size (to suit UFH pipe diameter) - D	10mm
Pipe centre options - C	150, 200, 300mm
Thickness of aluminium foil facing	100µm (with channels fully lined)
Route patterns	Radius, Bulb, Highway[(2)]
Strength at 10% compression (EN 826)	500kPa
Thermal conductivity (EN 12667)	0.035W/mK
Associated polyethylene edge strip	EPIC Pro Edge

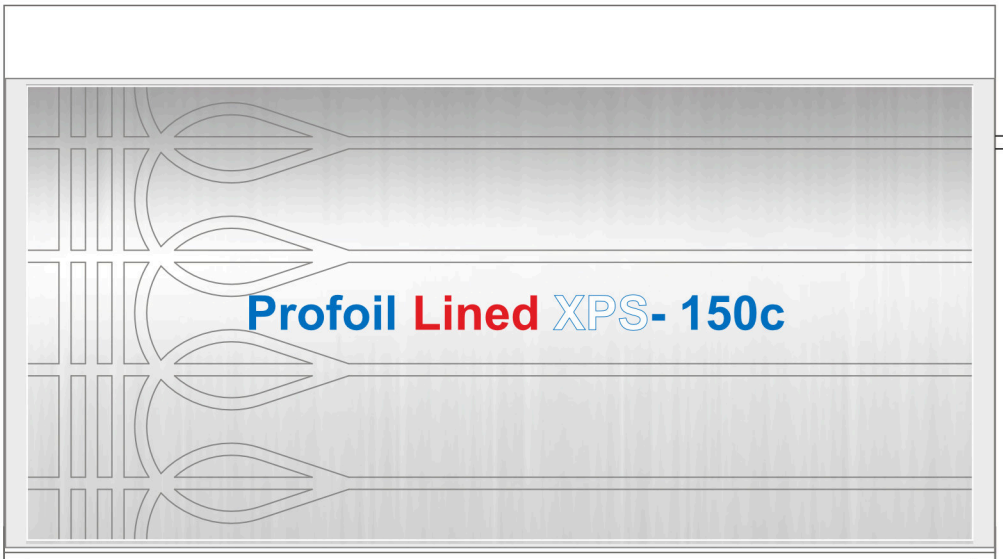
(1) Other thickness' manufactured to order, subject to minimum quantity.
(2) Other patterns manufactured to order, subject to minimum quantity.

Order quantity

Boards per pack	N/A
Min order qty	1 board

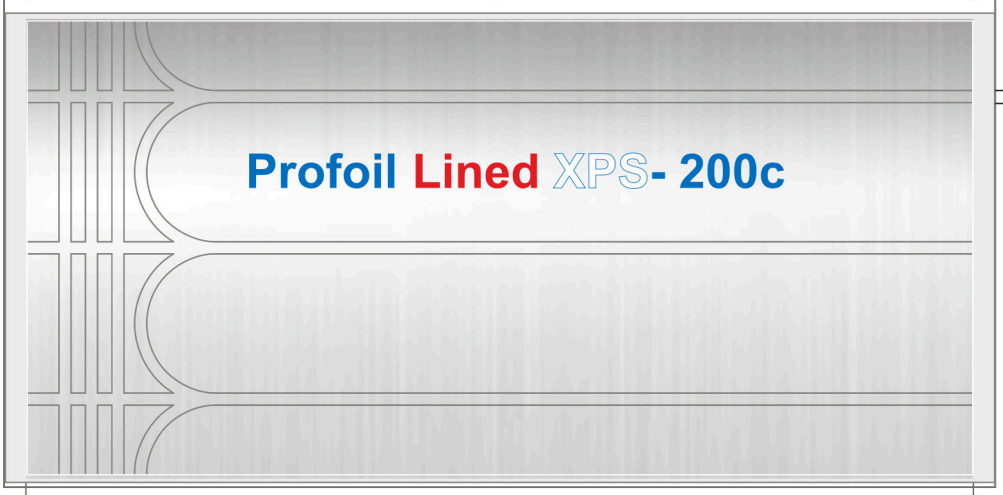


Profoil[d] Lined XPS Channel Patterns



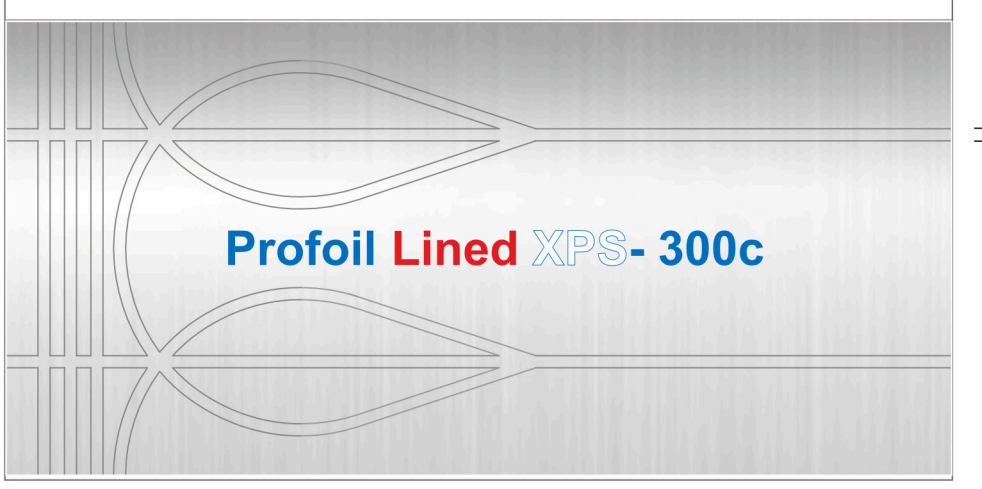
Bulb

150c also available in Radius pattern



Radius

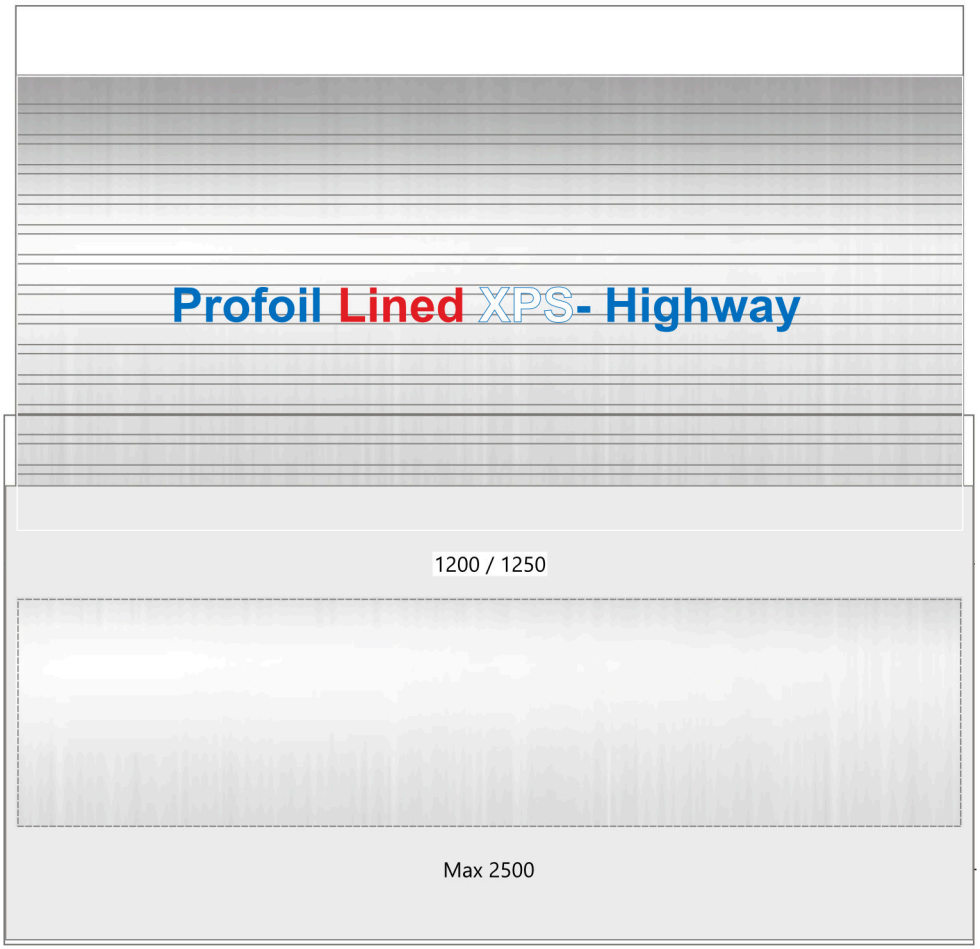
200c also available in Bulb pattern



Bulb

300c also available in Radius pattern

Profoil[d] Lined XPS Channel Patterns



Highway

Flow and return panel, used in association with Radius & Bulb boards

Specials

Made to customers' specific specification

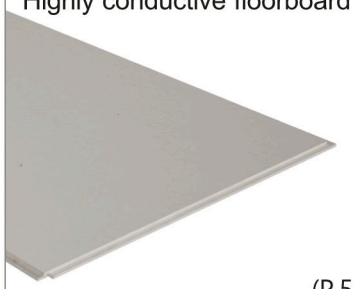
Associated accessories

EPIC Edge 75/AB
Self-adhesive perimeter edge roll



(P. 53)

HiDECK Overlay 18
Highly conductive floorboard



(P.54)

EPIC PRO Adhesive
HiDECK joint adhesive



(P.54)

Profoil[d] Sliced XPS300

Foil faced high compressive strength extruded polystyrene underfloor heating board

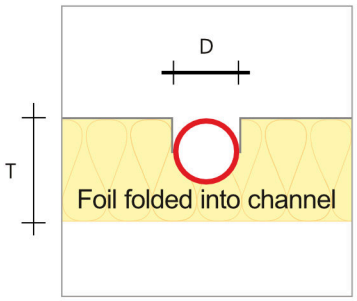
Technical specifications

Thickness' available - T	20, 25, 30mm[(1)]
Board size	600 x 1250
Route size (to suit UFH pipe diameter) - D	10, 12, 14, 15, 16mm
Pipe centre options	150, 200, 300mm
Thickness of aluminium foil facing	100, 200[(2)]µm (with foil pre-sliced)
Route patterns	Radius, Bulb, Highway[(3)]
Strength at 10% compression (EN 826)	300kPa
Thermal conductivity (EN 12667)	0.033W/mK
Associated polyethylene edge strip	EPIC Pro Edge

(1) Other thickness' manufactured to order, subject to minimum quantity. (2) Manufactured to order, subject to minimum quantity.
(3) Other patterns manufactured to order, subject to minimum quantity.

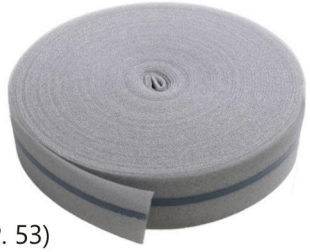
Order quantity

Boards per pack	N/A
Min order qty	1 board



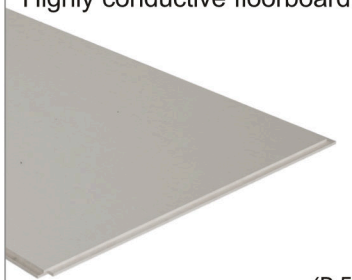
Associated accessories

EPIC Edge 75/AB
Self-adhesive perimeter edge roll



(P. 53)

HiDECK Overlay 18
Highly conductive floorboard



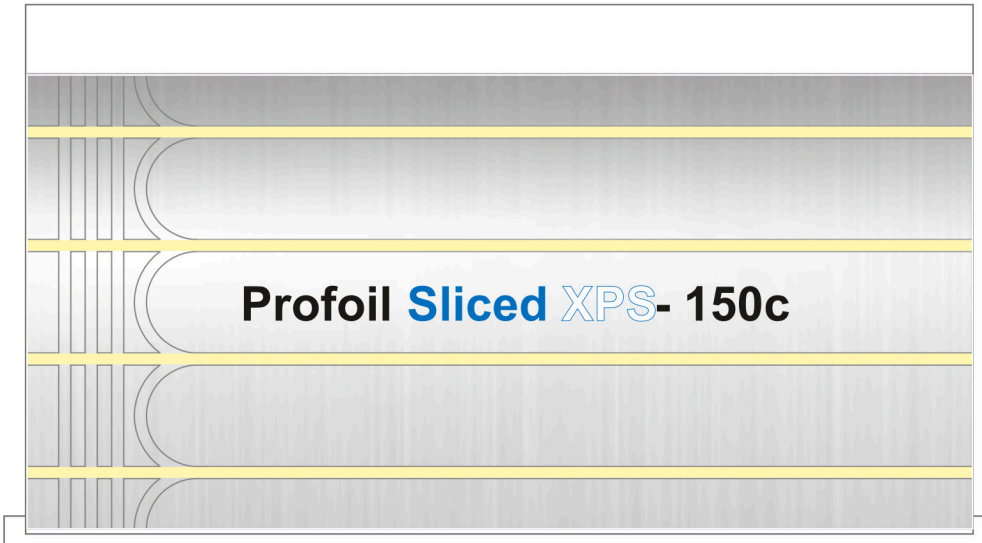
(P.54)

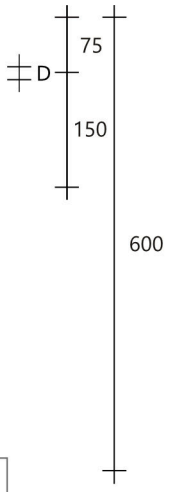
EPIC PRO Adhesive
HiDECK joint adhesive



(P.54)

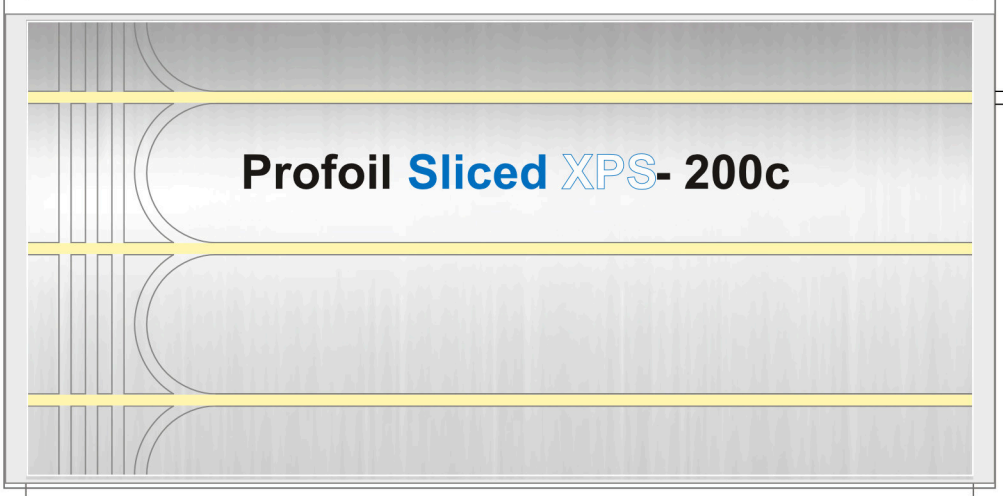
Profoil[d] Sliced XPS Channel Patterns

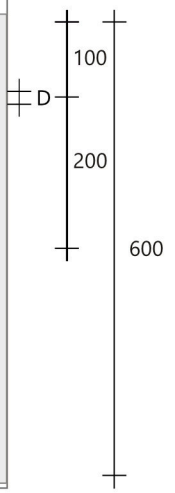




Radius

150c also available in Bulb pattern

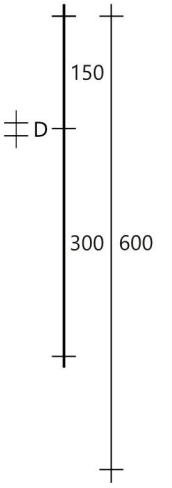




Radius

200c also available in Bulb pattern

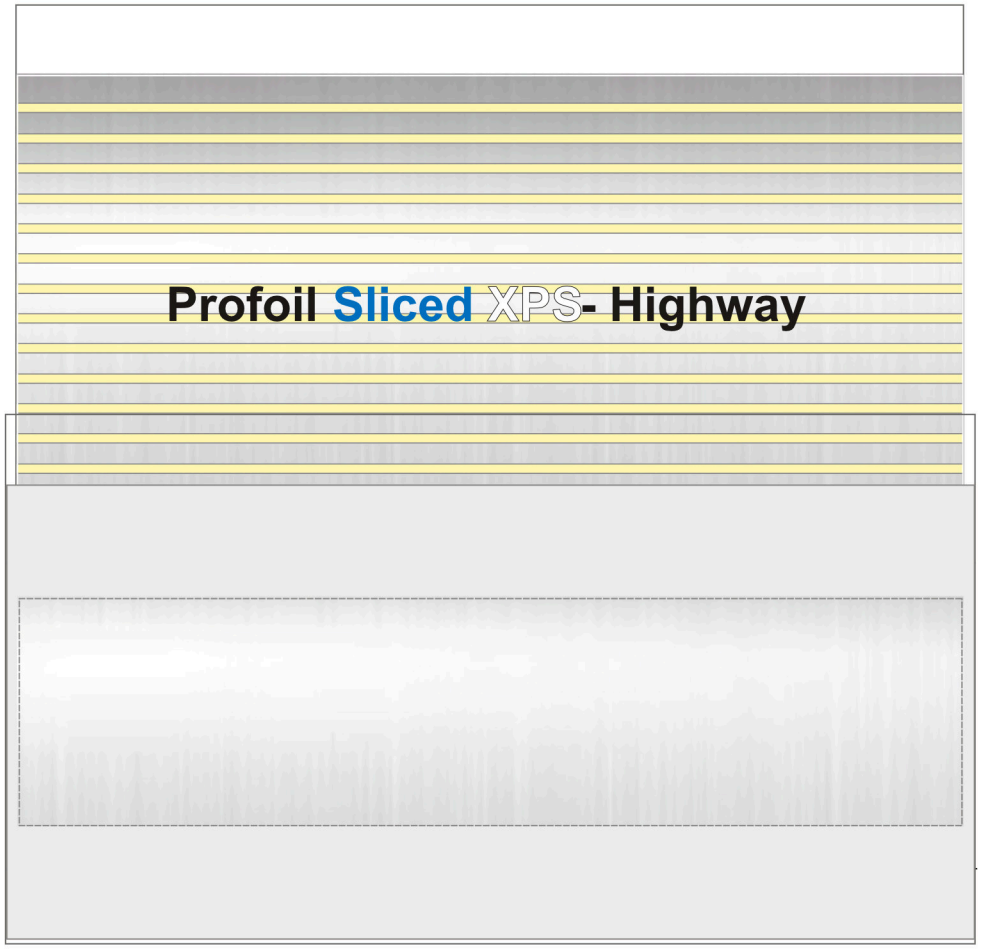


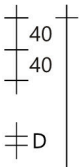


Bulb

300c also available in Radius pattern

Profoil[d] Sliced XPS Channel Patterns

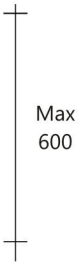






Highway

Flow and return panel, used in association with Radius & Bulb boards



Specials

Made to customers' specific specification

Progroove[d] XPS

Foil faced high compressive strength XPS underfloor heating board



- **Offered in three high compressive strength grades: 300, 400 & 500kPa**
- **Works in conjunction with EPIC Proplates to deliver outstanding heat diffusion**
- **Wide range of thickness' available**
- **Two channel patterns offered**
- **Suitable for all types of concrete & timber floors**
- **Quick and easy to install**
- **Excellent thermal performance**

Designed & Manufactured in the UK

mknLTD.CO.UK Unit 3 Tatton Court WA1 4RR United Kingdom Sales: +44 **1925 390 641** Support: +44 **1925 398 557** info@mknltd.co.uk ; mknLTD.CO.UK

Progrooved XPS 300

High compressive strength grooved extruded polystyrene underfloor heating board

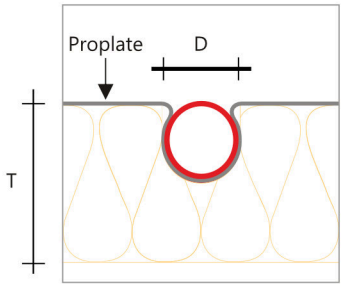
Technical specifications

Thickness' available - T	20, 25, 30mm(1)
Board sizes	600 x 1250, 600 x 2500mm
Route size (to suit UFH pipe diameter) - D	10, 12, 14, 15, 16mm
Pipe centre options - C	150, 200, 300mm
Route patterns	Radius, Bulb, Highway(2)
Strength at 10% compression (EN 826)	300kPa
Thermal conductivity (EN 12667)	0.033 W/mK
Associated aluminium heat diffuser	EPIC Proplate - Single
Associated polyethylene edge strip	EPIC Pro Edge

(1) Other thickness' manufactured to order, subject to minimum quantity.
(2) Other patterns manufactured to order, subject to minimum quantity.

Order quantity

Boards per pack	N/A
Min order qty	1 board



Note. EPIC Proplate sold seperately

Progrooved XPS 400

Ultra high compressive strength grooved extruded polystyrene underfloor heating board

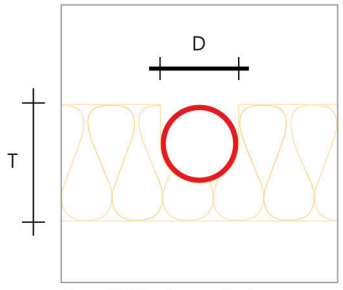
Technical specifications

Thickness' available - T	18, 20, 25*mm(1)
Board sizes	600 x 1200, 600 x 1250*mm
Route size (to suit UFH pipe diameter) - D	10, 12, 14, 15(2), 16(2)mm
Pipe centre options - C	150, 200, 300mm
Route patterns	Radius, Bulb, Highway(3)
Strength at 10% compression (EN 826)	400kPa
Thermal conductivity (EN 12667)	0.035 W/mK
Associated aluminium heat diffuser	Proplate - Single
Associated polyethylene edge strip	Epic Pro Edge

(1) Other thickness' manufactured to order, subject to minimum quantity. (2) Not available in 18mm thick boards.
(3) Other patterns manufactured to order, subject to minimum quantity.

Order quantity

Boards per pack	N/A
Min order qty	1 board



Note. EPIC Proplate required

Progroove[d] XPS 500

Ultra high compressive strength grooved extruded polystyrene underfloor heating board

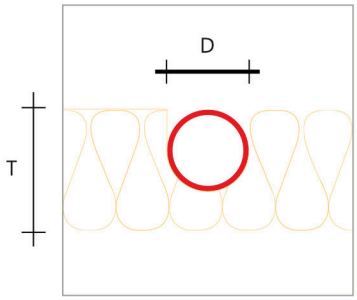
Technical specifications

Thickness' available - T	15mm[(1)]
Board sizes	600 x 1200
Route size (to suit UFH pipe diameter) - D	10mm
Pipe centre options - C	150, 200, 300mm
Route patterns	Radius, Bulb, Highway[(2)]
Strength at 10% compression (EN 826)	500kPa
Thermal conductivity (EN 12667)	0.035 W/mK
Associated aluminium heat diffuser	EPIC Proplate - Single
Associated polyethylene edge strip	EPIC Pro Edge

(1) Other thickness' (40 - 100mm) manufactured to order, subject to minimum quantity.
(2) Other patterns manufactured to order, subject to minimum quantity.

Order quantity

Boards per pack	N/A
Min order qty	1 board



Note. EPIC Proplate required

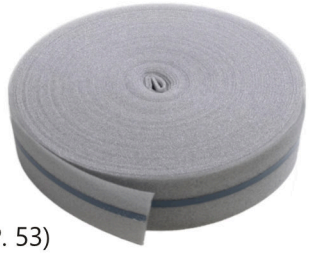
Associated accessories

EPIC Proplate Single
Aluminium heat diffuser



(P. 52)

EPIC Edge 75/AB
Self-adhesive perimeter edge roll



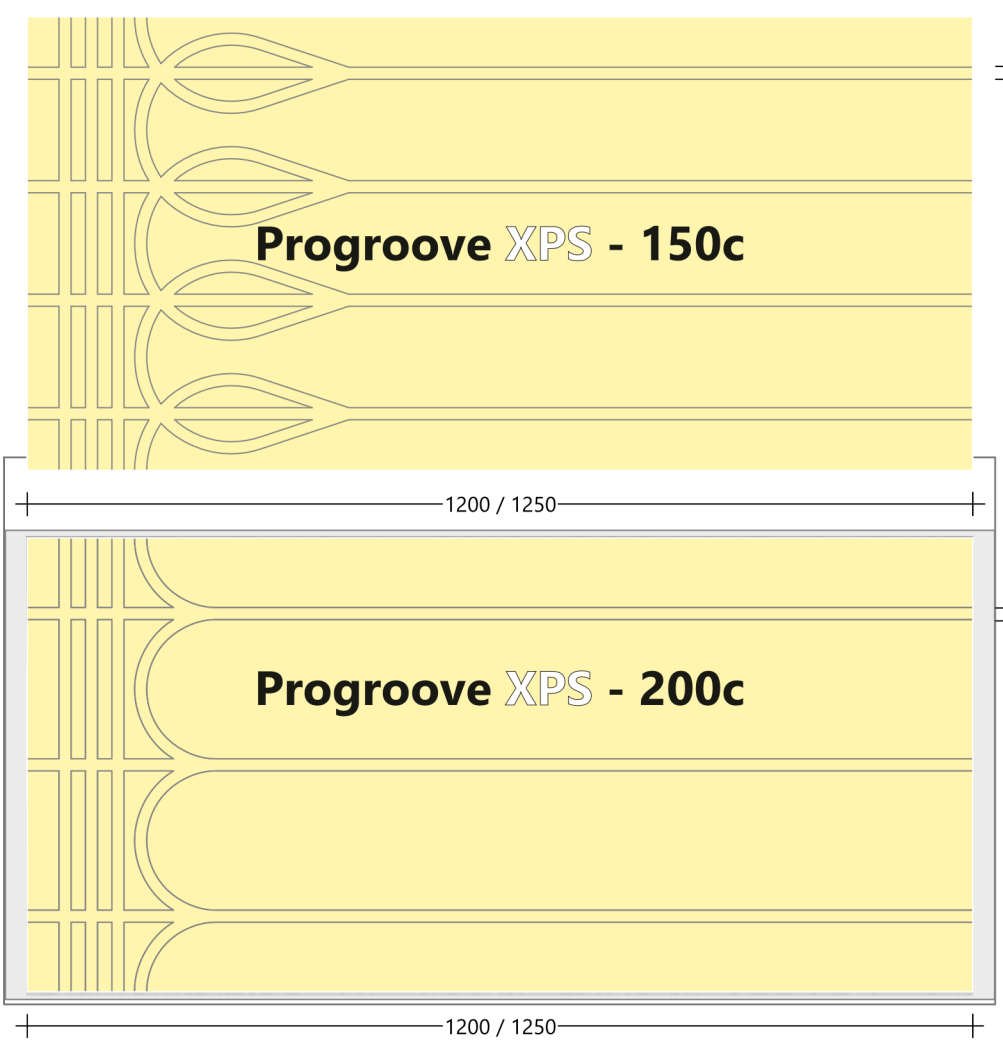
(P. 53)

HiDECK Overlay 18
Highly conductive floorboard



(P.54)

Progroove[d] XPS Channel Patterns



D
75
150
600

Bulb

150c also available in Radius pattern

D
100
200
600

Radius

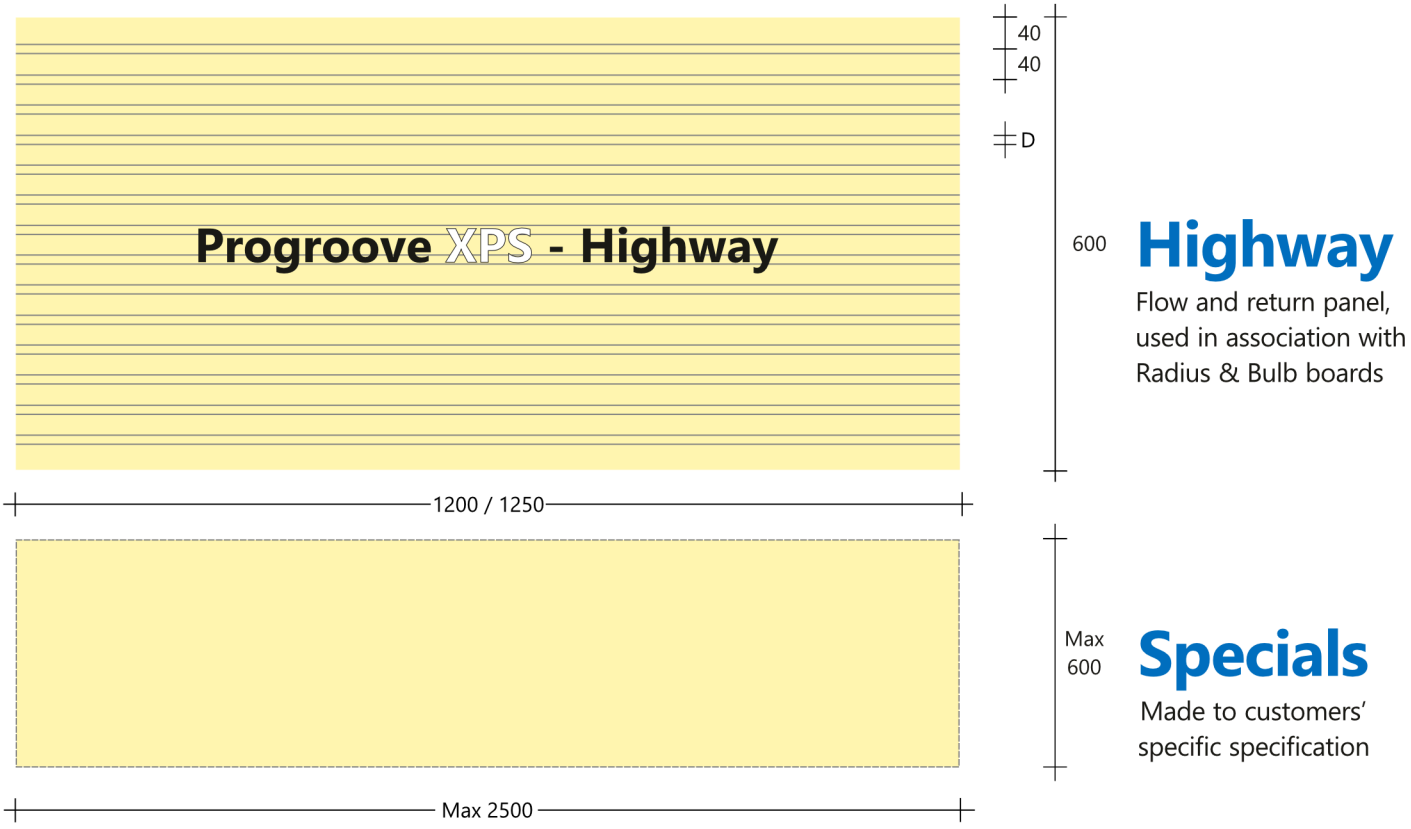
200c also available in Bulb pattern

D
150
300
600

Bulb

300c also available in Radius pattern

Progroove[d] XPS Channel Patterns



Highway

Flow and return panel, used in association with Radius & Bulb boards

Specials

Made to customers' specific specification

mknLTD.CO.UK Unit 3 Tatton Court WA1 4RR United Kingdom Sales: +44 **1925 390 641** Support: +44 **1925 398 557** info@mknltd.co.uk ; mknLTD.CO.UK

Profoil^{d} EPS

Foil faced expanded polystyrene underfloor heating board



- **Offered in two grades of expanded polystyrene (100 & 200kPa)**
- **Faced with 100 micron aluminum foil for effective heat diffusion**
- **Wide range of thickness' available**
- **Two channel patterns offered**
- **Suitable for all types of concrete & timber floors**
- **Quick and easy to install**
- **Excellent thermal performance**

Designed & Manufactured in the UK

Profoil[d] Lined EPS 100

Foil faced and channels lined expanded polystyrene underfloor heating board

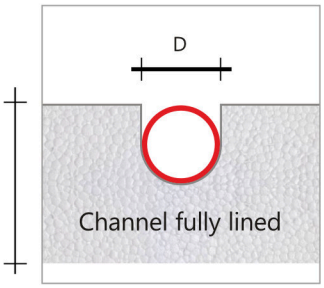
Technical specifications

Thickness' available - T	20, 25 ,30, 40, 50, 60, 75mm[(1)]
Board sizes	600 x 1200mm & 1200 x 1200mm
Channel size (to suit UFH pipe diameter) - D	10, 12, 14[(2)], 15[(2)], 16[(2)]mm
Pipe centre options	150, 200, 300mm
Thickness of aluminium foil facing	100µm (with channels fully lined)
Route patterns	Radius, Bulb, Highway
Strength at 10% compression (EN 826)	100kPa[(4)]
Thermal conductivity (EN 13163)	0.036 W/mK
Associated polyethylene edge strip	EPIC Pro Edge

(1) Other thickness' manufactured to order, subject to minimum quantity. (2) Not available in 20mm thick boards.
(3) Other patterns manufactured to order, subject to minimum quantity. (4) 150 & 400kPa manufactured to order, subject to quantity.

Order quantity

Boards per pack	N/A
Min order qty	1 board



Profoil[d] Lined EPS 200

Foil faced and channels lined expanded polystyrene underfloor heating board

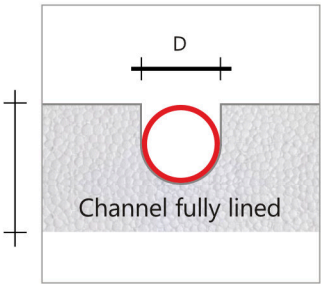
Technical specifications

Thickness' available - T	18, 25, 28, 30,mm[(1)]
Board sizes	600 x 1200mm & 1200 x 1200mm
Channel size (to suit UFH pipe diameter) - D	10, 12, 14[(2)], 15[(2)], 16[(2)]mm
Pipe centre options	150, 200, 300mm
Thickness of aluminium foil facing	100µm (with channels fully lined)
Route patterns	Radius, Bulb, Highway[(3)]
Strength at 10% compression (EN 826)	200kPa
Thermal conductivity (EN 13163)	0.034 W/mK
Associated polyethylene edge strip	Epic Pro Edge

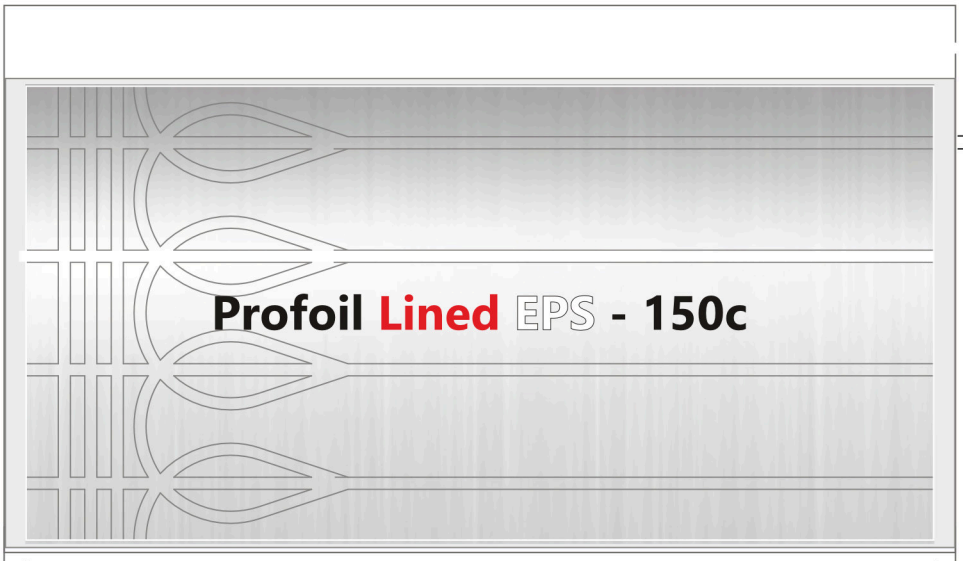
(1) Other thickness' manufactured to order, subject to minimum quantity. (2) Not available in 18mm thick boards.
(3) Other patterns manufactured to order, subject to minimum quantity.

Order quantity

Boards per pack	N/A
Min order qty	1 board



Profoil[d] Lined EPS Channel Patterns



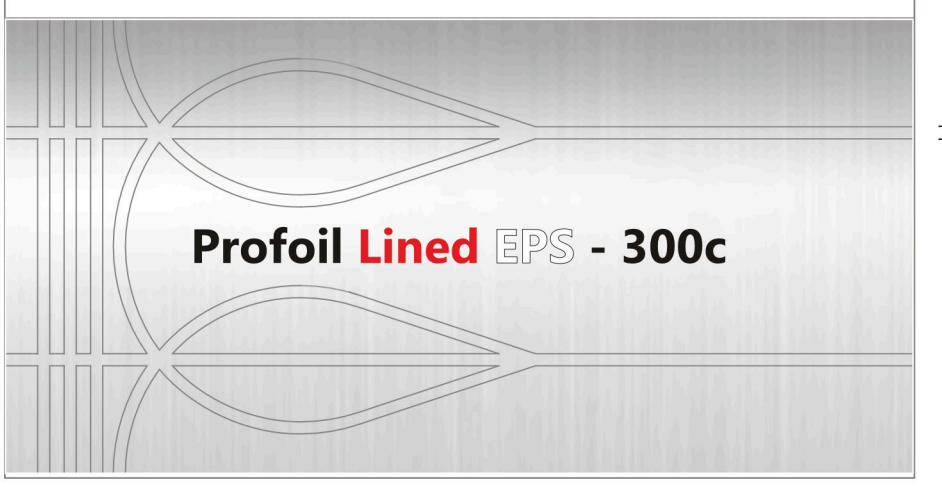
Bulb

150c also available in Radius pattern



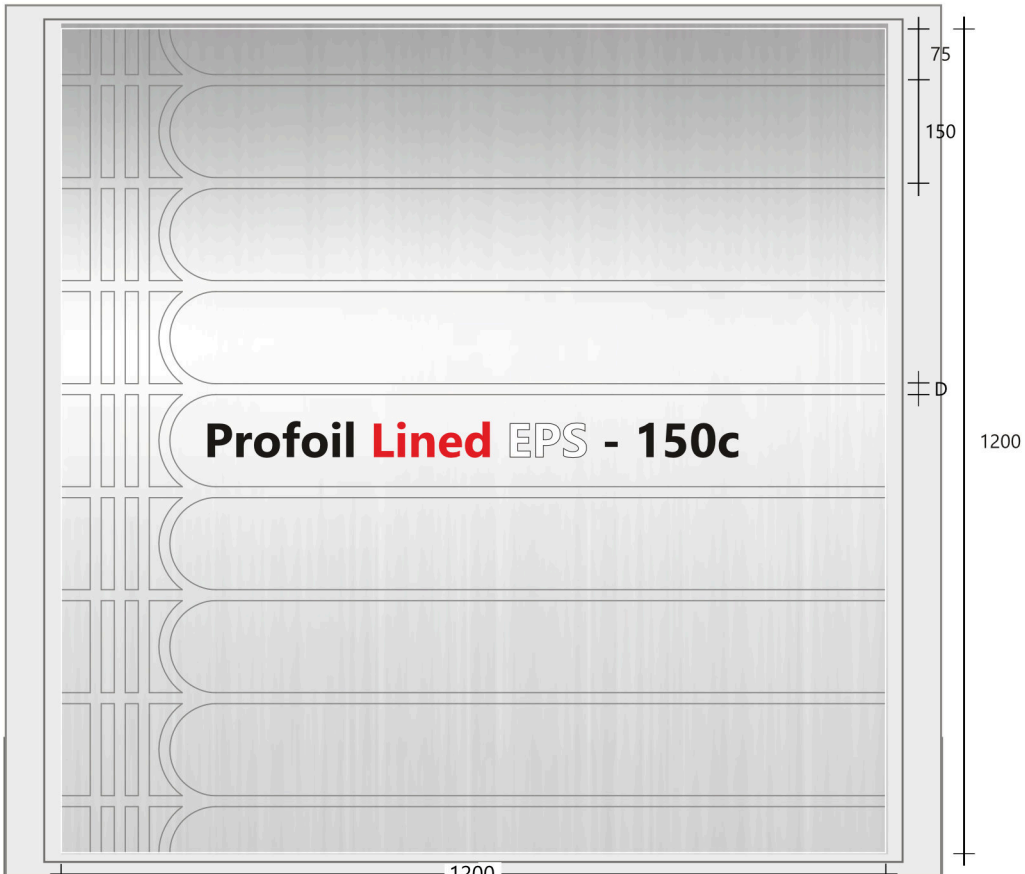
Radius

200c also available in Bulb pattern



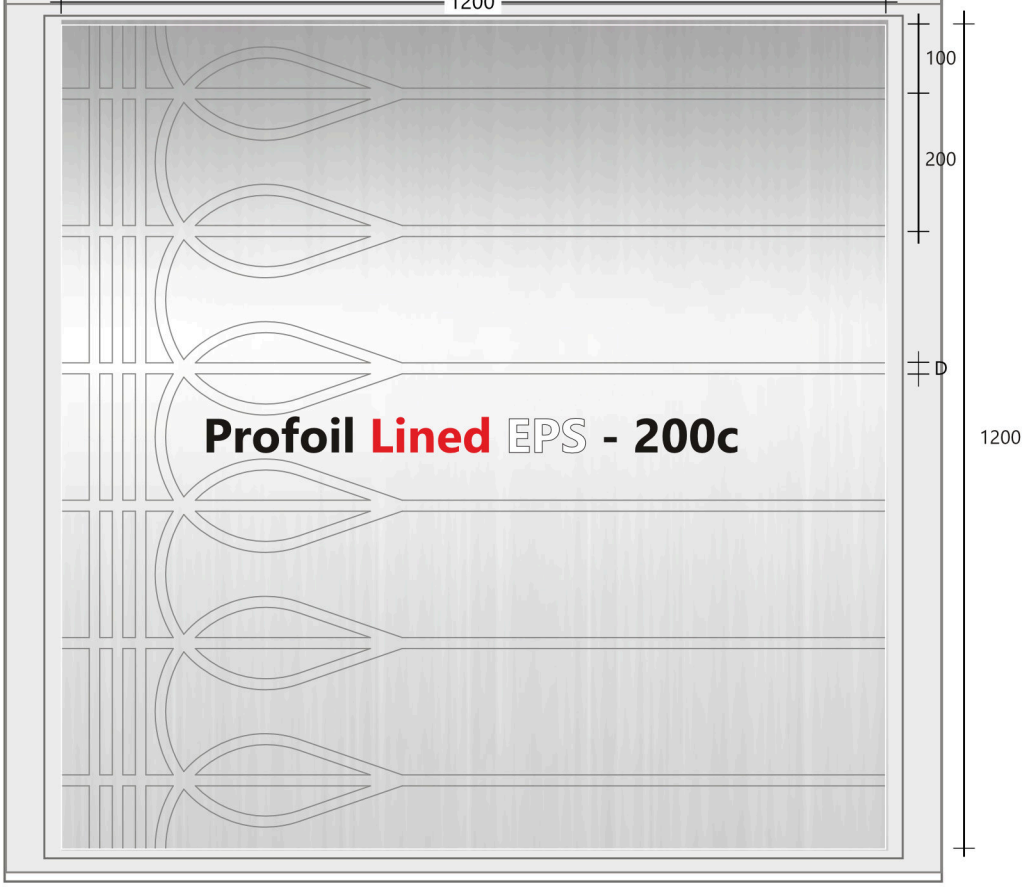
Bulb

300c also available in Radius pattern



Radius

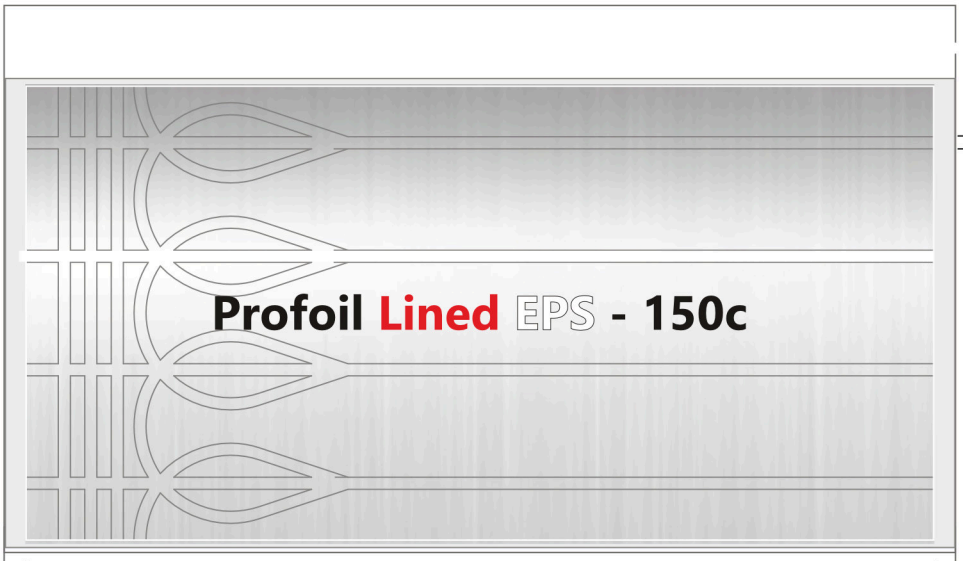
150c also available in Bulb pattern



Bulb

200c also available in Radius pattern

Profoil[d] Lined EPS Channel Patterns



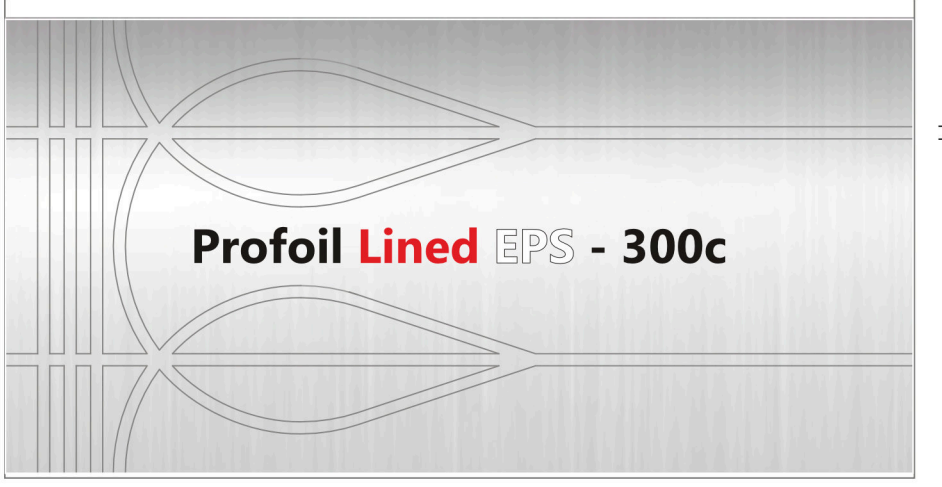
Bulb

150c also available in Radius pattern



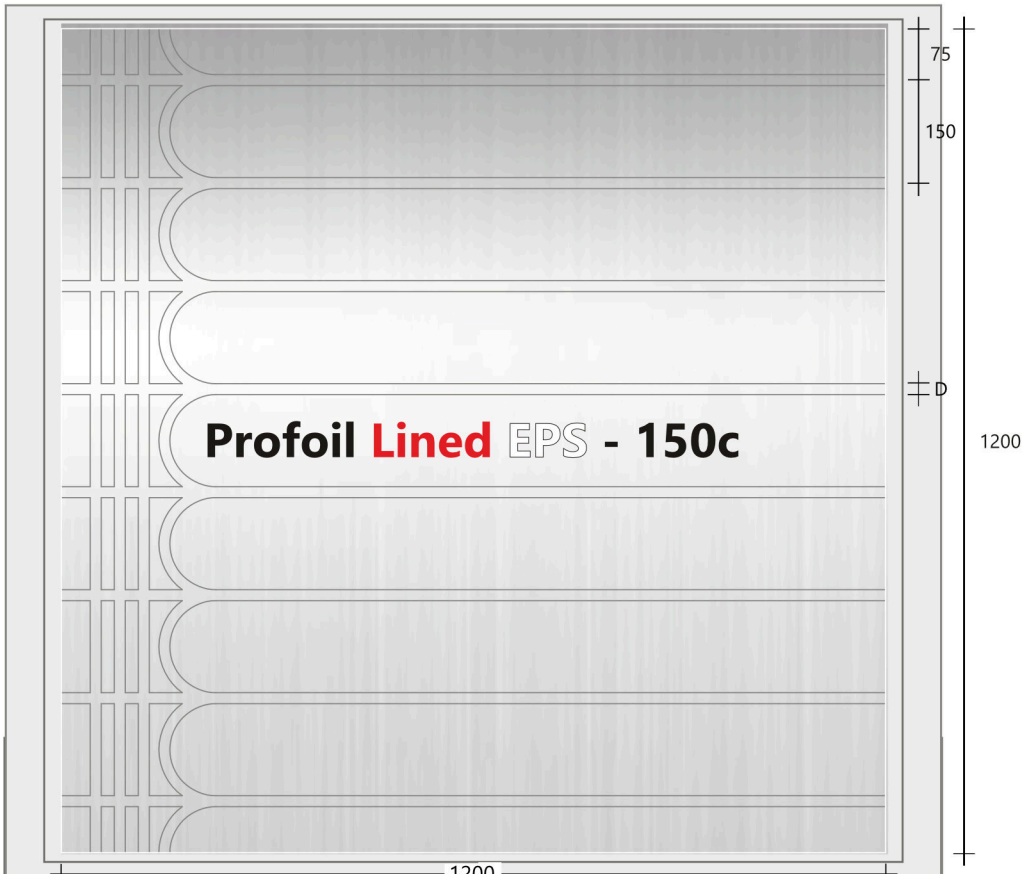
Radius

200c also available in Bulb pattern



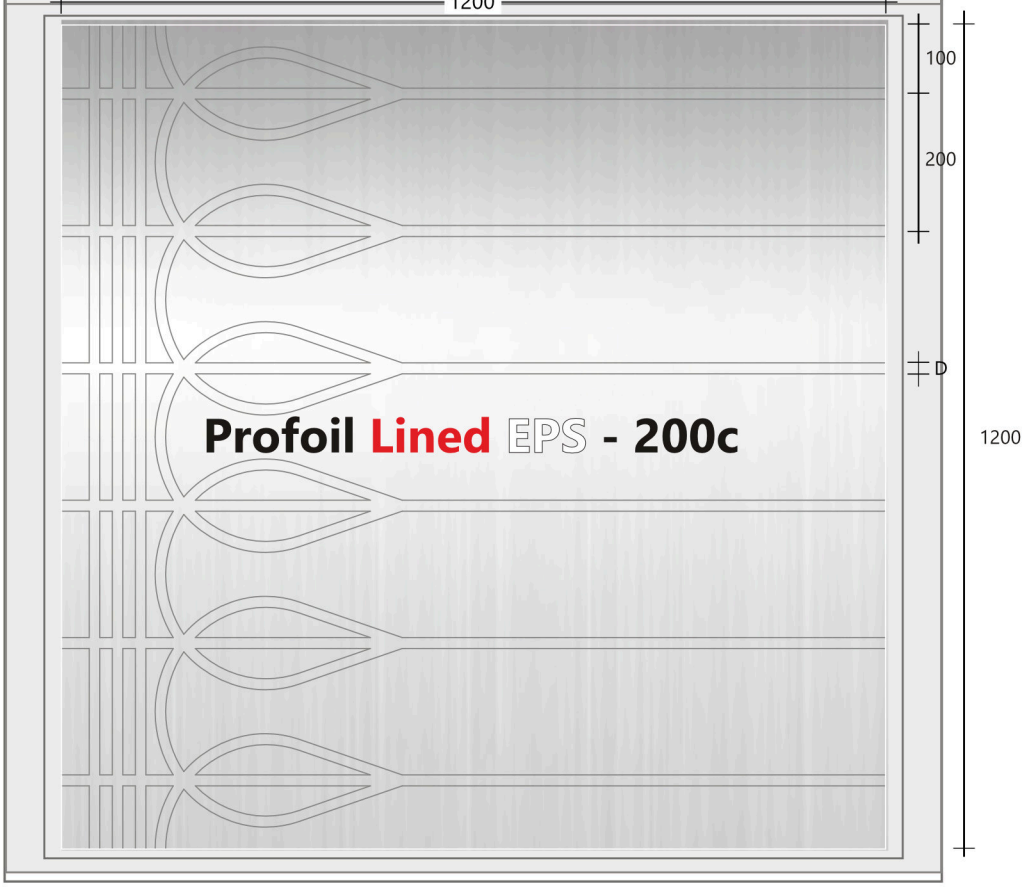
Bulb

300c also available in Radius pattern



Radius

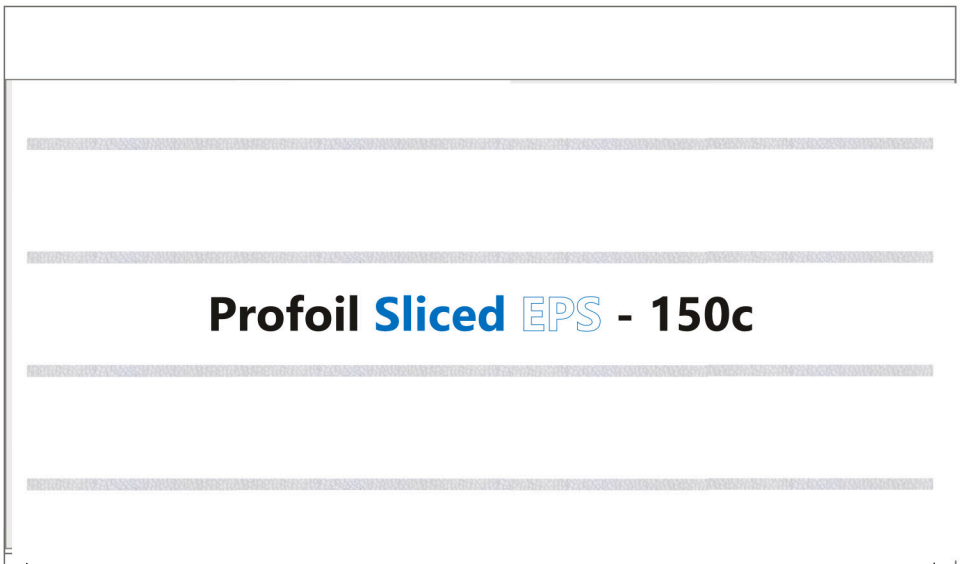
150c also available in Bulb pattern



Bulb

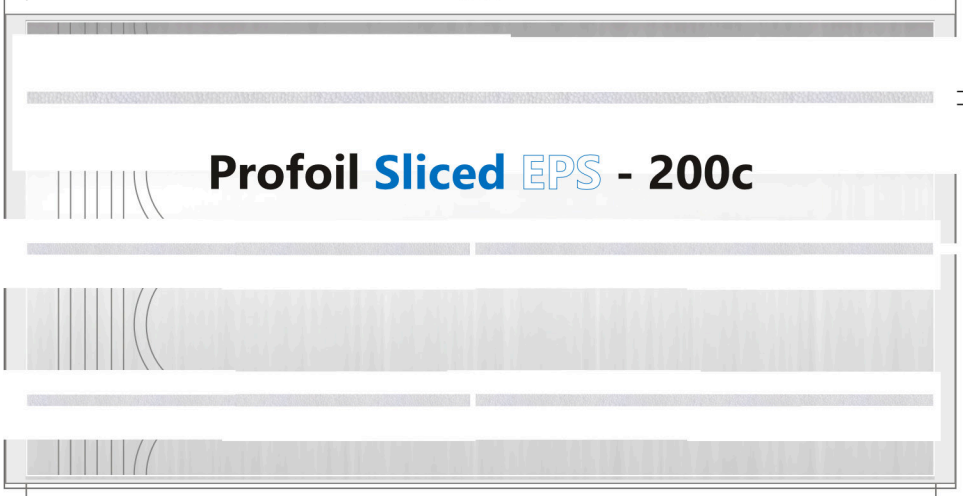
200c also available in Radius pattern

Profoil Sliced EPS Channel Patterns



Bulb

150c also available in Radius pattern



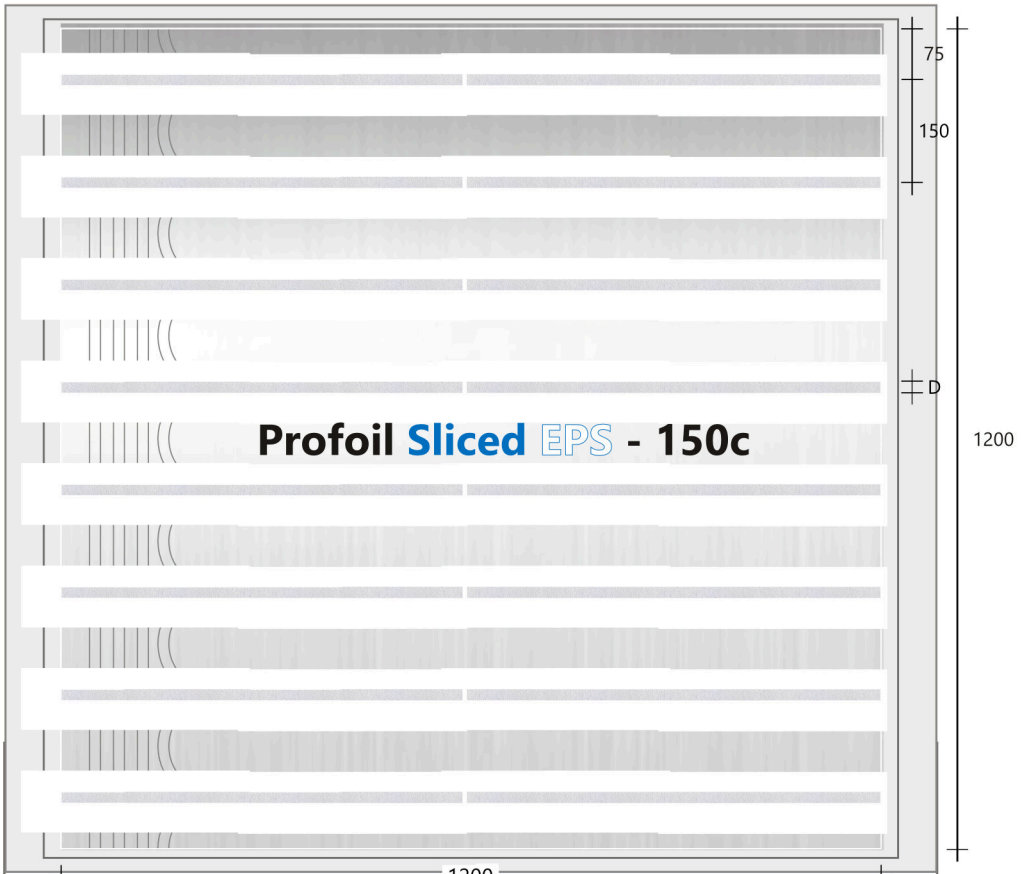
Radius

200c also available in Bulb pattern



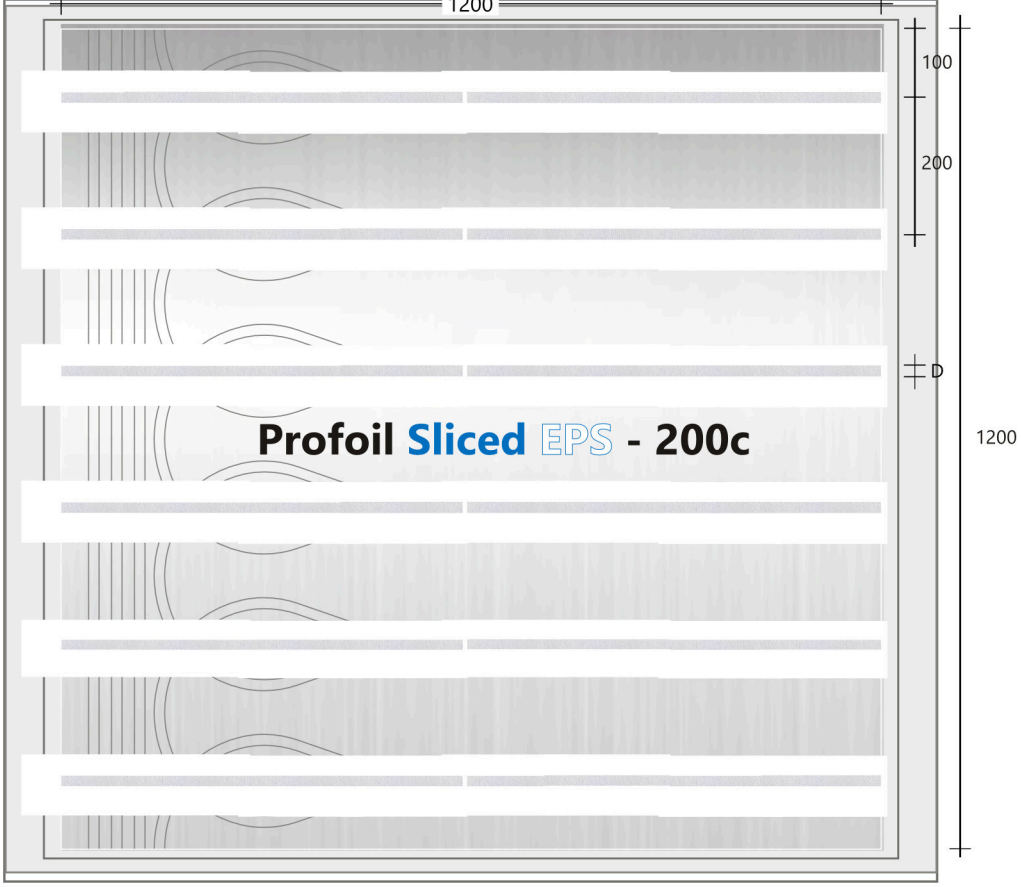
Bulb

300c also available in Radius pattern



Radius

150c also available in Bulb pattern



Bulb

200c also available in Radius pattern

mknLTD.CO.UK Unit 3 Tatton Court WA1 4RR United Kingdom Sales: +44 1925 390 641 Support: +44 1925 398 557 info@mknltd.co.uk ; mknLTD.CO.UK



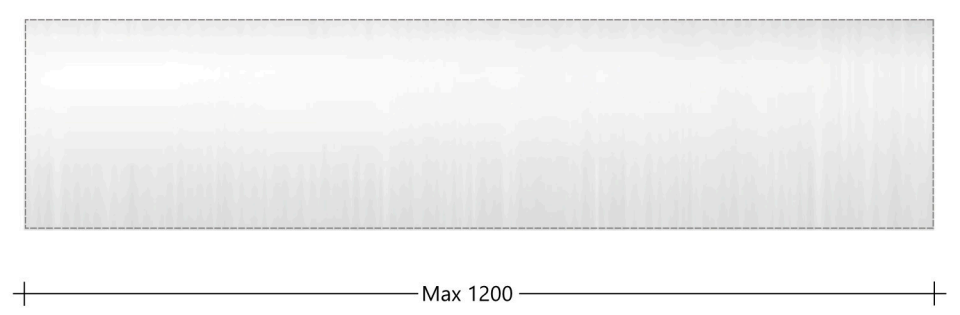
Radius

300c also available in Bulb pattern



Highway

Flow and return panel, used in association with Radius & Bulb boards



Specials

Made to customers' specific specification

Profoil[d] Joist Lined EPS 100

Between joist / battens expanded polystyrene underfloor heating board

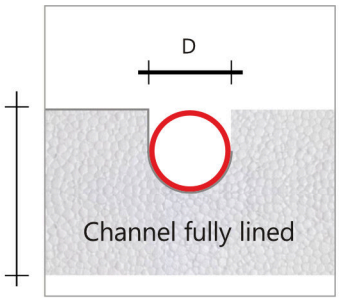
Technical specifications

Thickness' available - T	30 - 150mm[(1)]
Board sizes	350 x 1200
Route size (to suit UFH pipe diameter) - D	10, 12, 14, 15, 16mm
Pipe centre options	150, 200mm
Thickness of aluminium foil facing	100µm (with channels fully lined)
Route patterns	Radius, Bulb
Strength at 10% compression (EN 826)	100kPa
Thermal conductivity (EN 13163)	0.036W/mK
Associated polyethylene edge strip	EPIC Pro Edge

(1) Manufactured to order, subject to minimum quantity.

Order quantity

Boards per pack	N/A
Min order qty	Please call



Profoil[d] Joist Lined EPS 200

Between joist / battens expanded polystyrene underfloor heating board

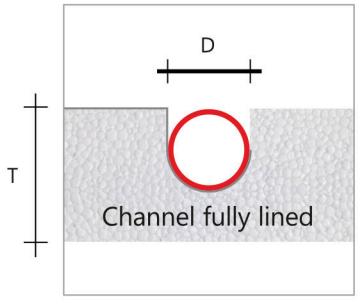
Technical specifications

Thickness' available - T	30 - 150mm[(1)]
Board sizes	350 x 1200
Channel size (to suit UFH pipe diameter) - D	10, 12, 14, 15, 16mm
Pipe centre options	150, 200mm
Thickness of aluminium foil facing	100µm (with channels fully lined)
Route patterns	Radius, Bulb
Strength at 10% compression (EN 826)	200kPa
Thermal conductivity (EN 13163)	0.034 W/mK
Associated polyethylene edge strip	Epic Pro Edge

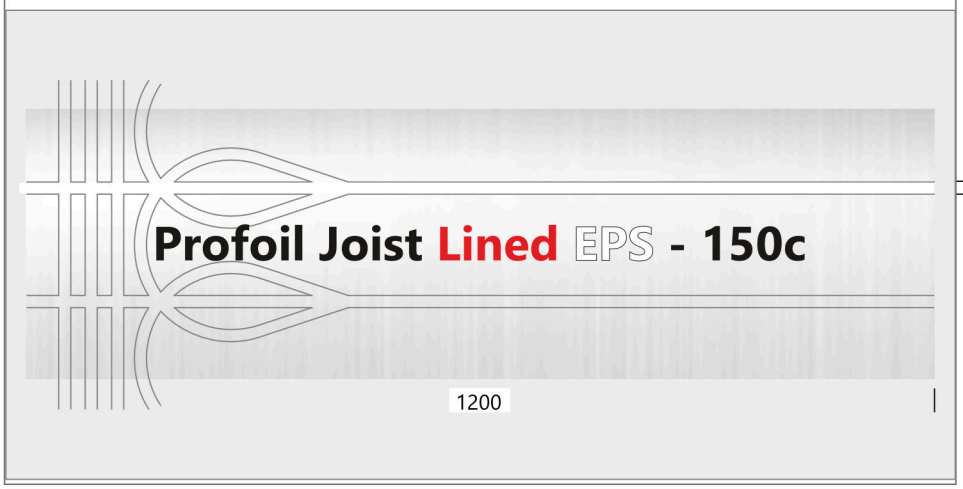
(1) Manufactured to order, subject to minimum quantity.

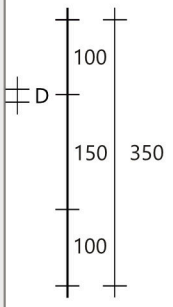
Order quantity

Boards per pack	N/A
Min order qty	Please call



Profoil Joist Lined EPS Channel Patterns

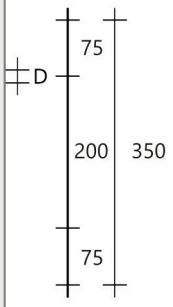




Bulb

150c also available in Radius pattern





Radius

200c also available in Bulb pattern

Progroove[d] EPS

Grooved expanded polystyrene underfloor heating board



- **Offered in two grades of expanded polystyrene (100 & 200kPa)**
- **Works in conjunction with EPIC Proplates to deliver outstanding heat diffusion**
- **Wide range of thickness'available**
- **Two route patterns offered**
- **Suitable for all types of concrete & timber floors**
- **Quick and easy to install**
- **Excellent thermal performance**

Designed & Manufactured in the UK

mknLTD.CO.UK Unit 3 Tatton Court WA1 4RR United Kingdom Sales: +44 1925 390 641 Support: +44 1925 398 557 info@mknltd.co.uk ; mknLTD.CO.UK

Progroove^{d} EPS 100

Grooved expanded polystyrene underfloor heating board

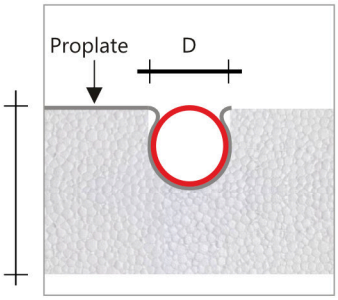
Technical specifications

Thickness' available - T	20, 25 ,30mm[1]
Board sizes	600 x 1200mm & 1200 x 1200mm
Channel size (to suit UFH pipe diameter) - D	10, 12, 14, 15, 16mm
Pipe centre options	150, 200, 300mm
Route patterns	Radius, Bulb, Highway,[2]
Strength at 10% compression (EN 826)	100kPa[3]
Thermal conductivity (EN 13163)	0.036 W/mK
Associated heat diffuser	EPIC Proplate - Single
Associated polyethylene edge strip	EPIC Pro Edge

(1) Other thickness' manufactured to order, subject to minimum quantity. (2) Other patterns manufactured to order, subject to minimum quantity.
(3) 150 & 400kPa manufactured to order, subject to quantity.

Order quantity

Boards per pack	N/A
Min order qty	1 board



Note. EPIC Proplate sold seperately

Progroove^{d} EPS 200

Grooved high compressive strength expanded polystyrene underfloor heating board

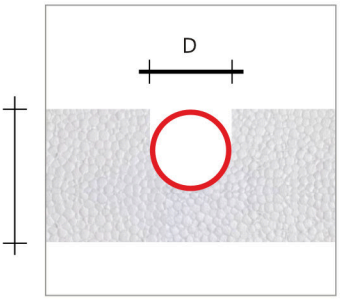
Technical specifications

Thickness' available - T	18, 25, 28, 30,mm[1]
Board sizes	600 x 1200mm & 1200 x 1200mm
Channel size (to suit UFH pipe diameter) - D	10, 12, 14[2], 15[2], 16[2]mm
Pipe centre options	150, 200, 300mm
Route patterns	Radius, Bulb, Highway, Special[3]
Strength at 10% compression (EN 826)	200kPa
Thermal conductivity (EN 13163)	0.034 W/mK
Associated heat diffuser required	Epic Proplate - Single
Associated polyethylene edge strip	Epic Pro Edge

(1) Other thickness' manufactured to order, subject to minimum quantity. (2) Not available in 18mm thick boards.
(3) Other patterns manufactured to order, subject to minimum quantity.

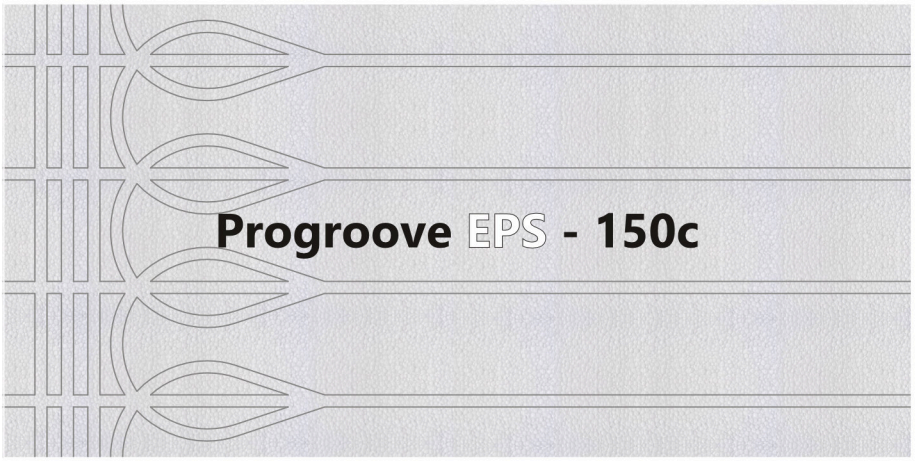
Order quantity

Boards per pack	N/A
Min order qty	1 board



Note. EPIC Proplate required

Progroove[d] EPS Channel Patterns



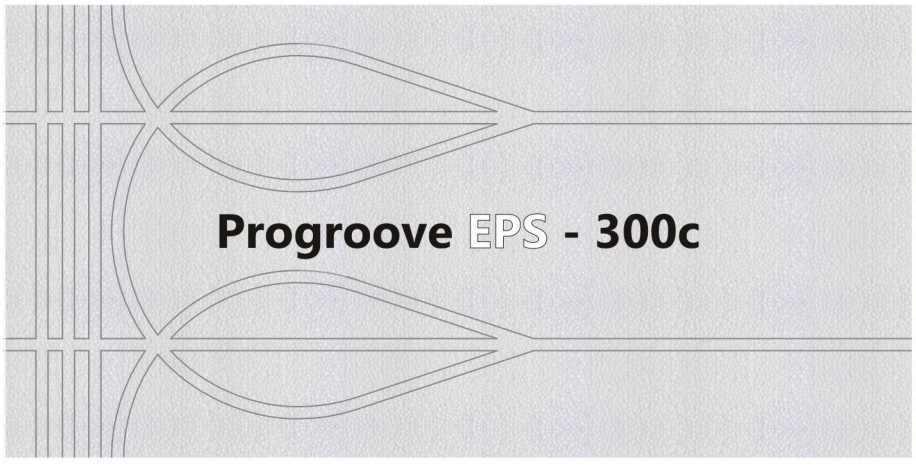
Bulb

150c also available in Radius pattern



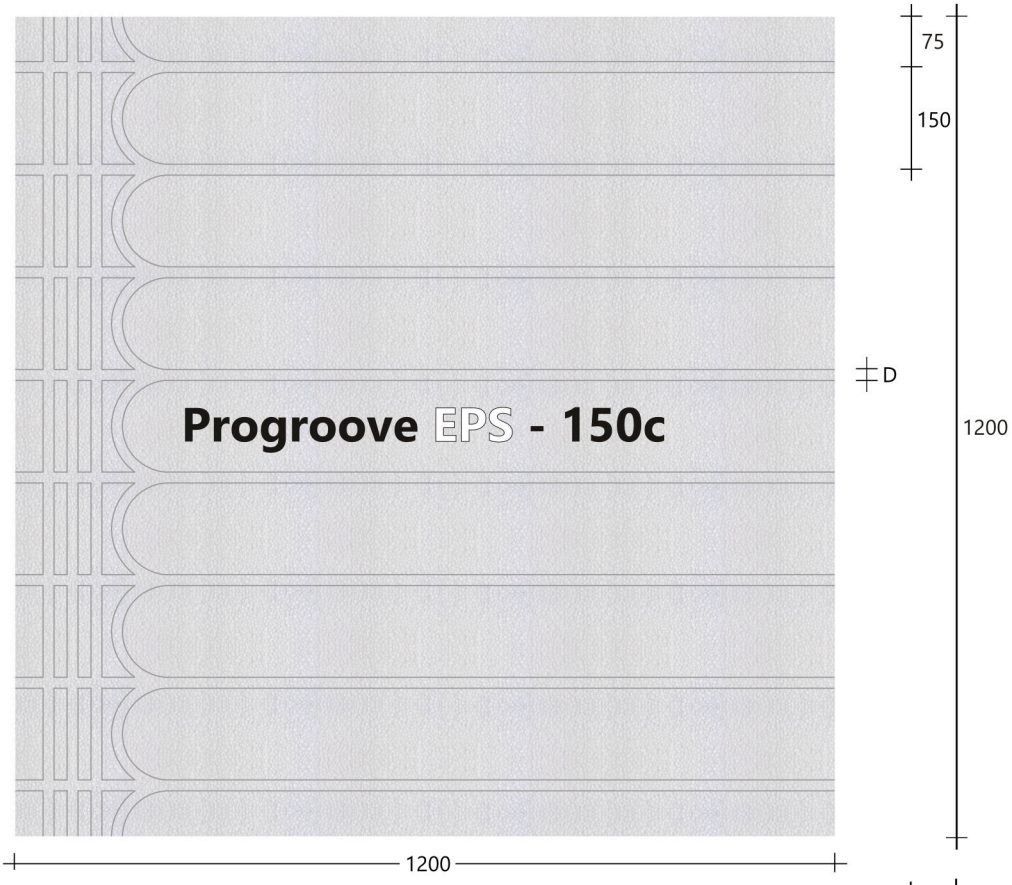
Radius

200c also available in Bulb pattern



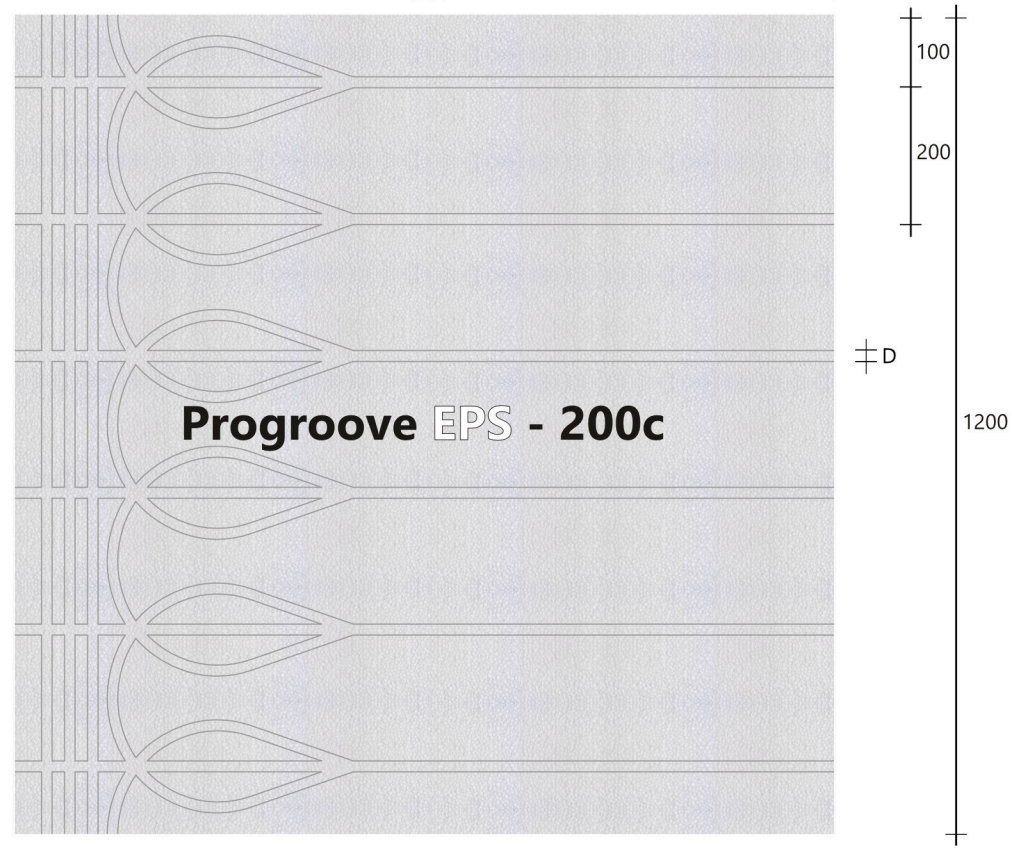
Bulb

300c also available in Radius pattern



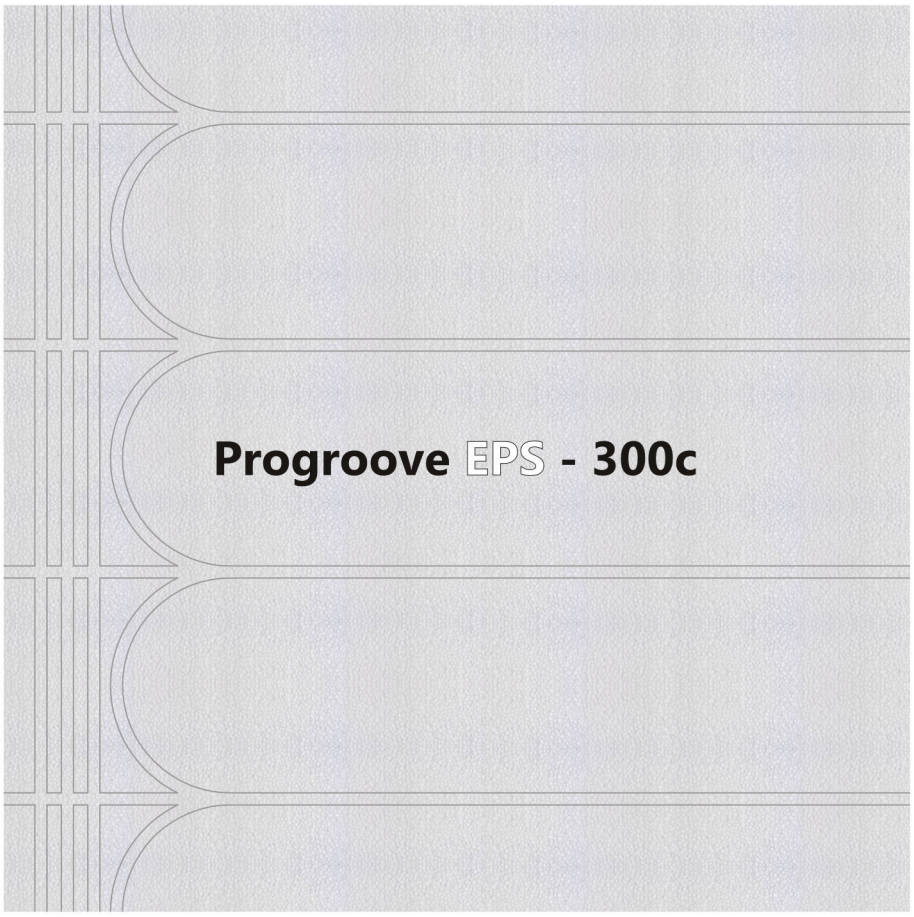
Radius

150c also available in Bulb pattern



Bulb

200c also available in Radius pattern



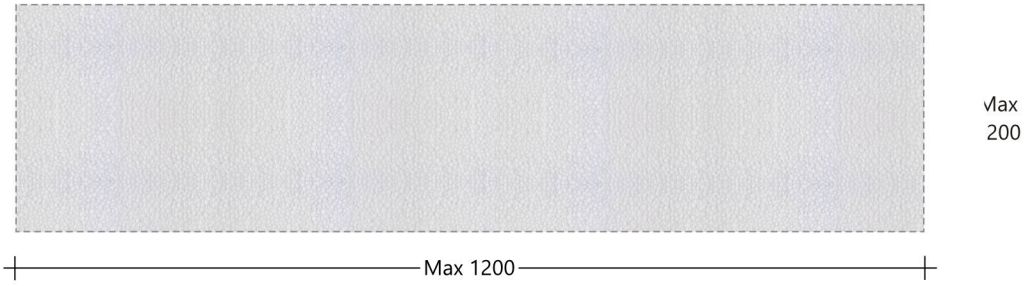
Radius

300c also available in Bulb pattern



Highway

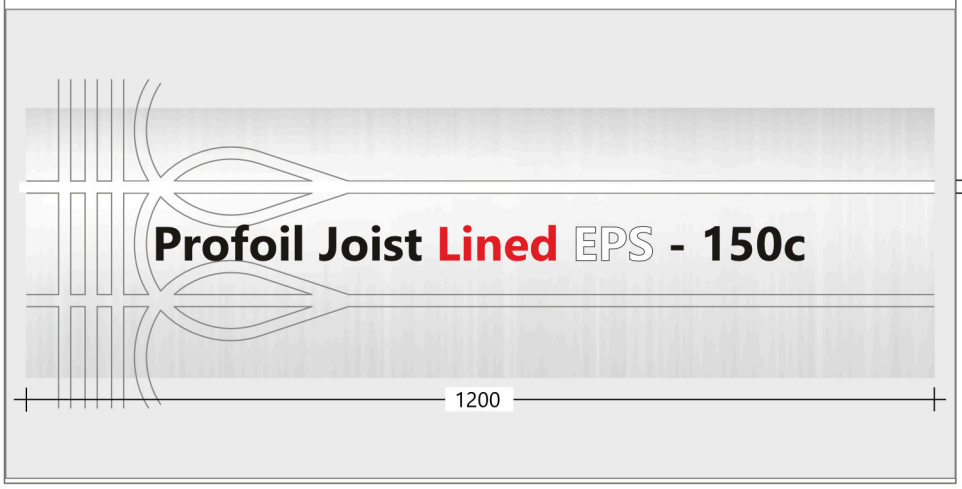
Flow and return panel, used in association with Radius & Bulb boards

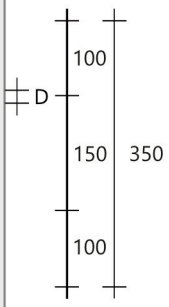


Specials

Made to customers' specific specification

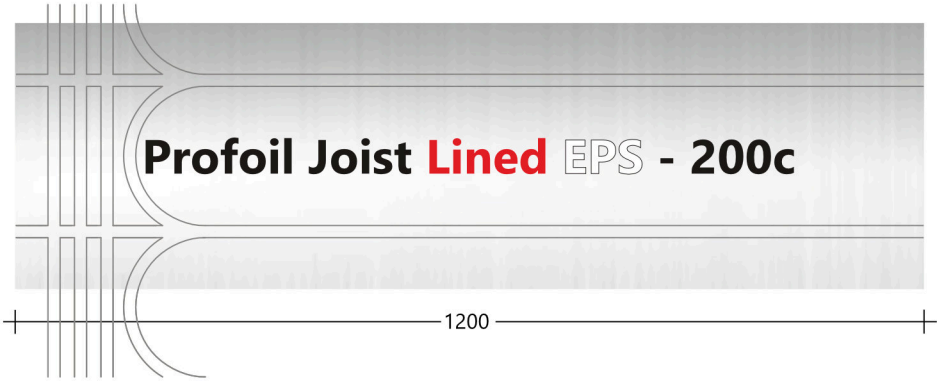
Profoil[d] Joist Lined EPS Channel Patterns

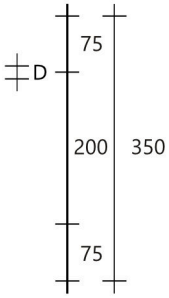




Bulb

150c also available in Radius pattern





Radius

200c also available in Bulb pattern

Progroove[d] Joist EPS 100

Grooved between joist / battens expanded polystyrene underfloor heating board

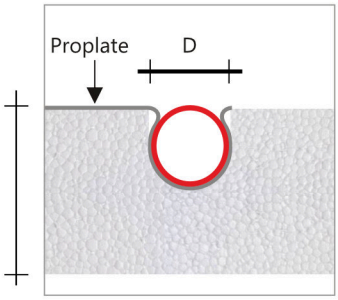
Technical specifications

Thickness' available - T	30 - 150mm[(1)]
Board sizes	350 x 1200
Route size (to suit UFH pipe diameter) - D	10, 12, 14, 15, 16mm
Pipe centre options	150, 200mm
Route patterns	Radius, Bulb
Strength at 10% compression (EN 826)	100kPa
Thermal conductivity (EN 13163)	0.036 W/mK
Associated heat diffuser required	EPIC Proplate - Double or Triple
Associated polyethylene edge strip	EPIC Pro Edge

(1) Manufactured to order, subject to minimum quantity.

Order quantity

Boards per pack	N/A
Min order qty	Please call



Note. EPIC Proplate sold seperately

Progroove[d] Joist EPS 200

Grooved between joist / battens high strength expanded polystyrene underfloor heating board

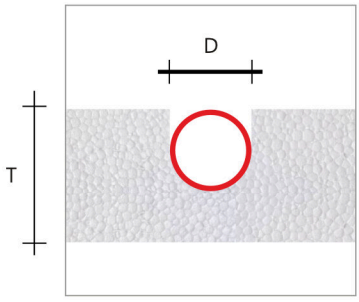
Technical specifications

Thickness' available - T	30 - 150mm[(1)]
Board sizes	350 x 1200
Route size (to suit UFH pipe diameter) - D	10, 12, 14, 15, 16mm
Pipe centre options	150, 200mm
Route patterns	Radius, Bulb
Strength at 10% compression (EN 826)	200kPa
Thermal conductivity (EN 13136)	0.034 W/mK
Associated heat diffuser required	Epic Proplate - Double or Triple
Associated polyethylene edge strip	Epic Pro Edge

(1) Manufactured to order, subject to minimum quantity.

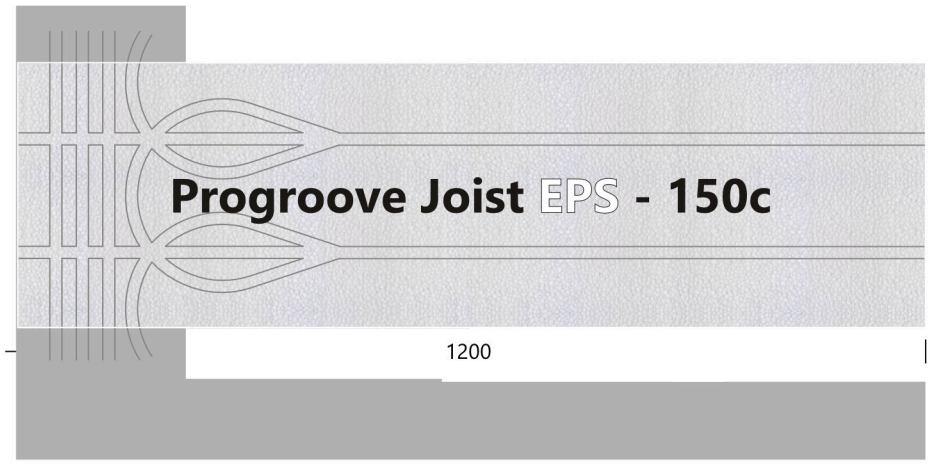
Order quantity

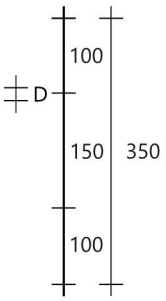
Boards per pack	N/A
Min order qty	Please call



Note. EPIC Proplate required

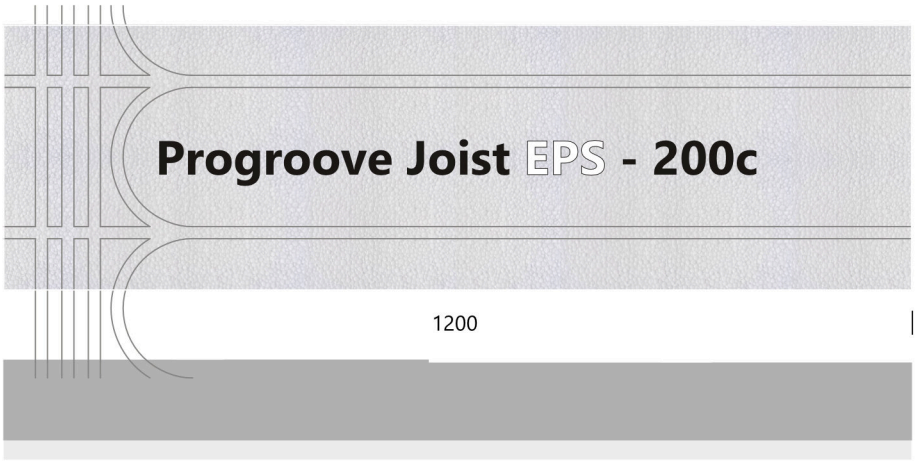
Progroove[d] Joist EPS Channel Patterns

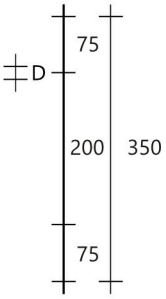




Bulb

150c also available in Radius pattern



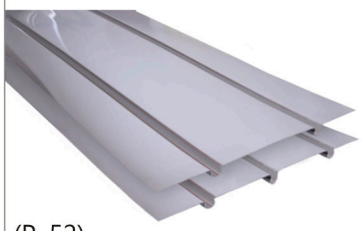


Radius

200c also available in Bulb pattern

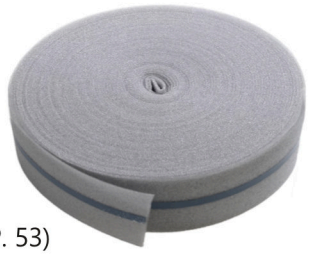
Associated accessories

EPIC Proplate Double 150 & 200c
Aluminium heat diffusers



(P. 52)

EPIC Edge 75/AB
Self-adhesive perimeter edge roll



(P. 53)

Protiled

Reinforced cementitious fibre faced high compressive strength extruded polystyrene underfloor heating board

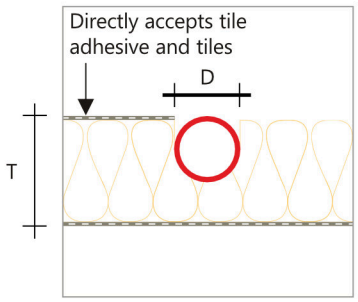
Technical specifications

Thickness' available - T	20mm(1)
Board sizes	600 x 1200mm & 600 x 600mm*
Route size (to suit UFH pipe diameter) - D	10, 12, 14, 15, 16mm
Pipe centre option	150, 200, 300mm
Route patterns	Radius, Bulb, Highway & 90 Degree*
Strength at 10% compression (EN 826)	300kPa
Thermal conductivity (EN 12667)	0.033W/mK
Associated adhesive to bond board to floor	EPIC HB24
Associated polyethylene edge strip	EPIC Pro Edge

(1) Other thickness' manufactured to order, subject to minimum quantity.

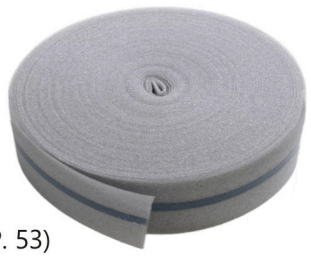
Order quantity

Boards per pack	N/A
Min order qty	1 board



Associated accessories

EPIC Edge 75/AB
Self-adhesive perimeter edge roll



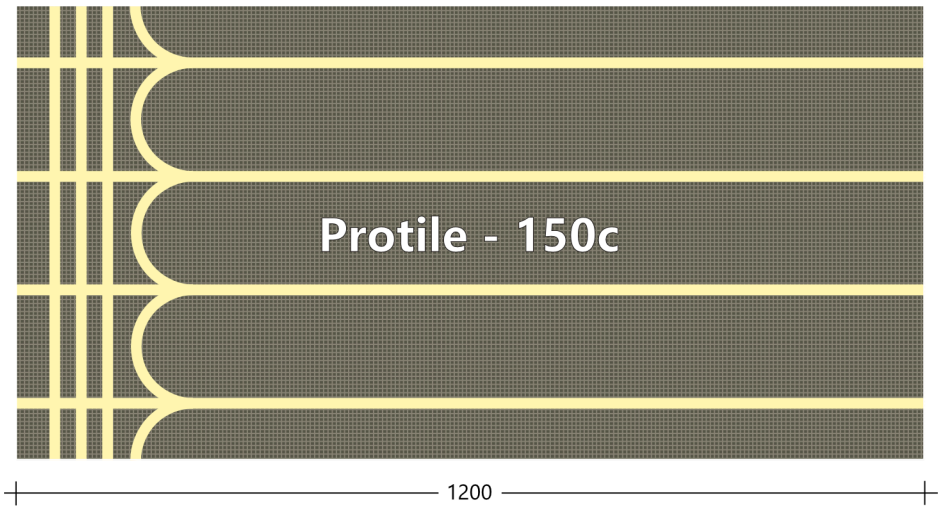
(P. 53)

EPIC HB24
High bond floor adhesive



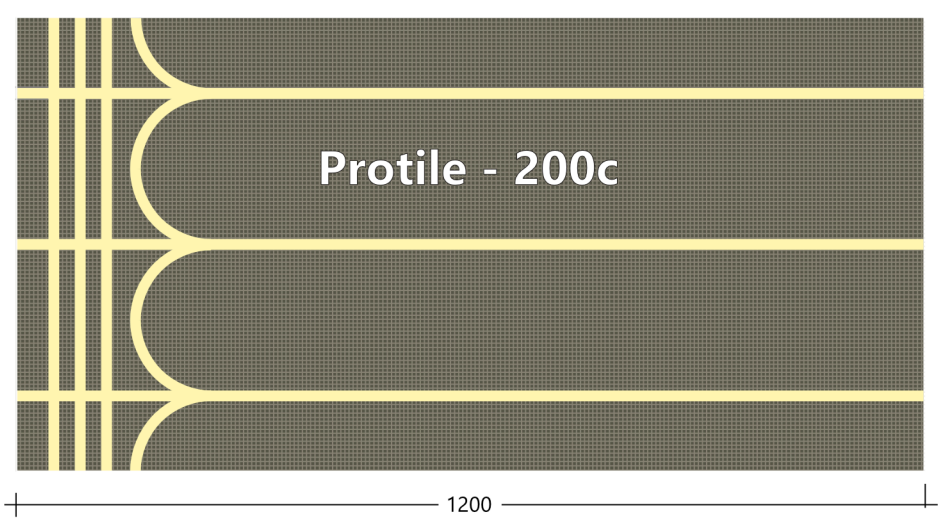
(P. 54)

Protile[d] Channel Patterns



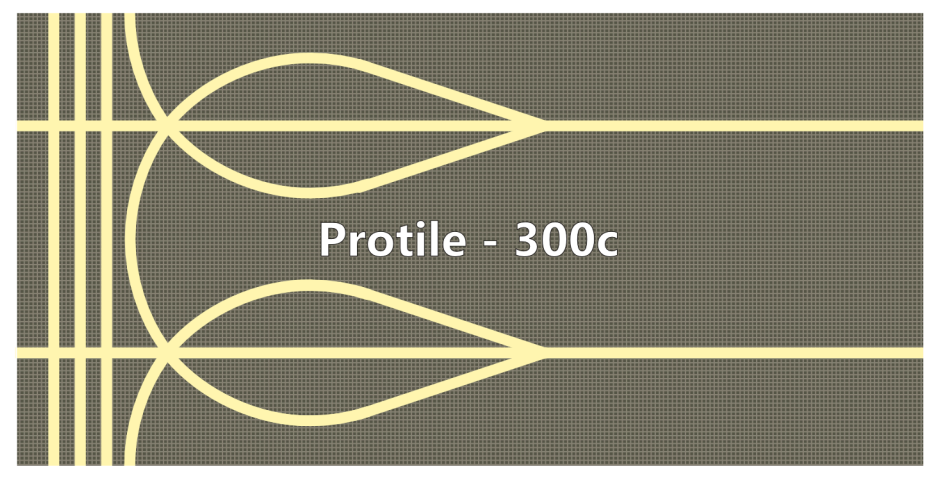
Radius

150c also available in Bulb pattern



Radius

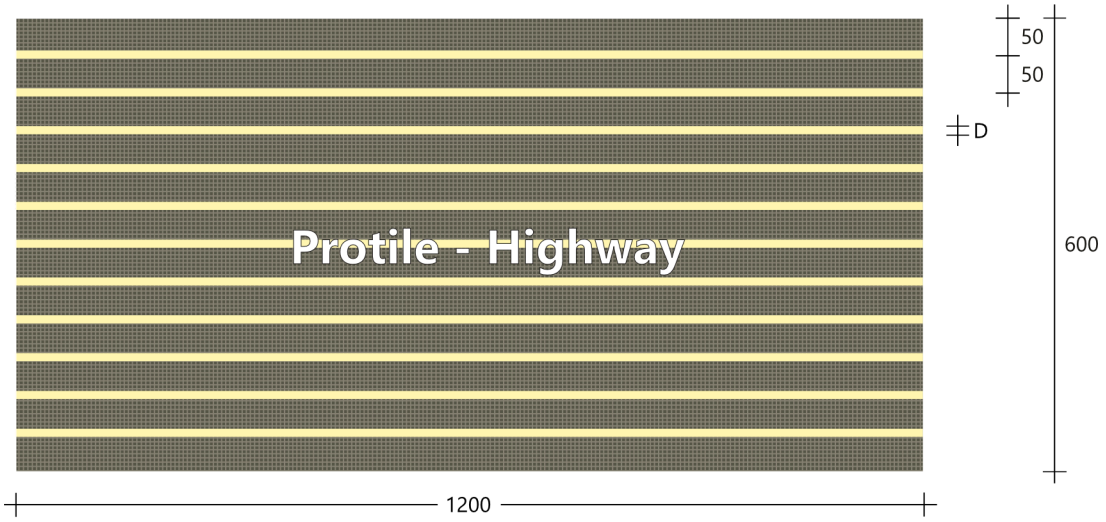
200c also available in Bulb pattern



Bulb

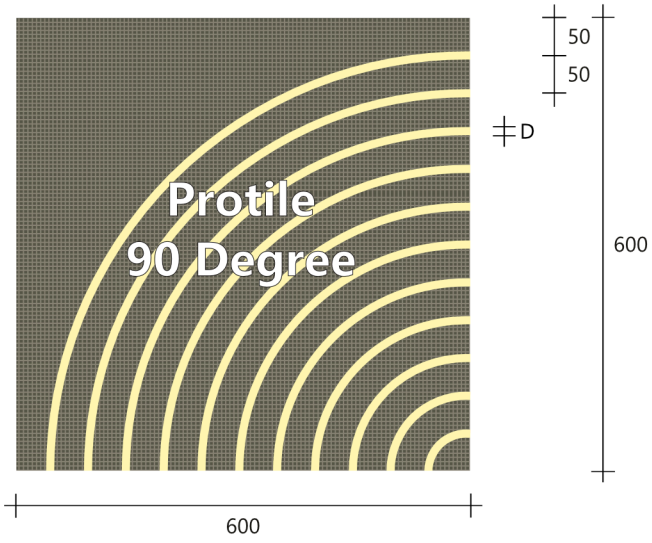
300c also available in Radius pattern

Protile[d] Channel Patterns



Highway

Flow and return panel, used in association with Radius & Bulb boards



90 Degree

Flow and return panel, used in association with Radius, Bulb and Highway boards

Prochip

Structural underfloor heating floorboard

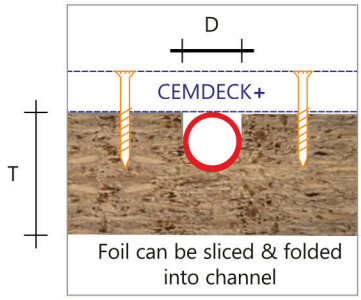
Technical specifications

Thickness' available - T	22mm
Board sizes	600 x 2400mm
Route size (to suit UFH pipe diameter) - D	10, 12mm (+0.4)
Pipe centre options	150, 200mm
Route patterns	Radius, Straights(1)
Associated conductive topping board	CEMBECKd+
Associated polyethylene edge strip	EPIC Pro Edge

(1) Other patterns manufactured to order, subject to minimum quantity.

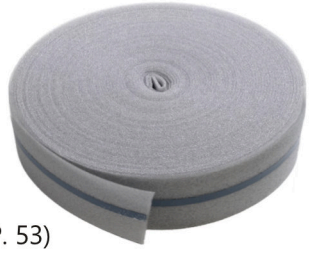
Order quantity

Coverage per panel	1.44m²
Pallet qty	60 boards
Min order qty	1 board



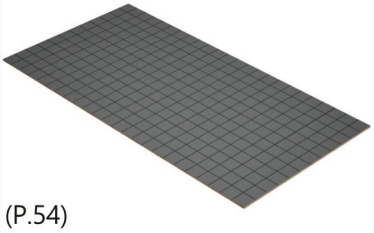
Associated accessories

EPIC Edge 75/AB
Self-adhesive perimeter edge roll



(P. 53)

CEMDECK+
Highly conductive overlay board

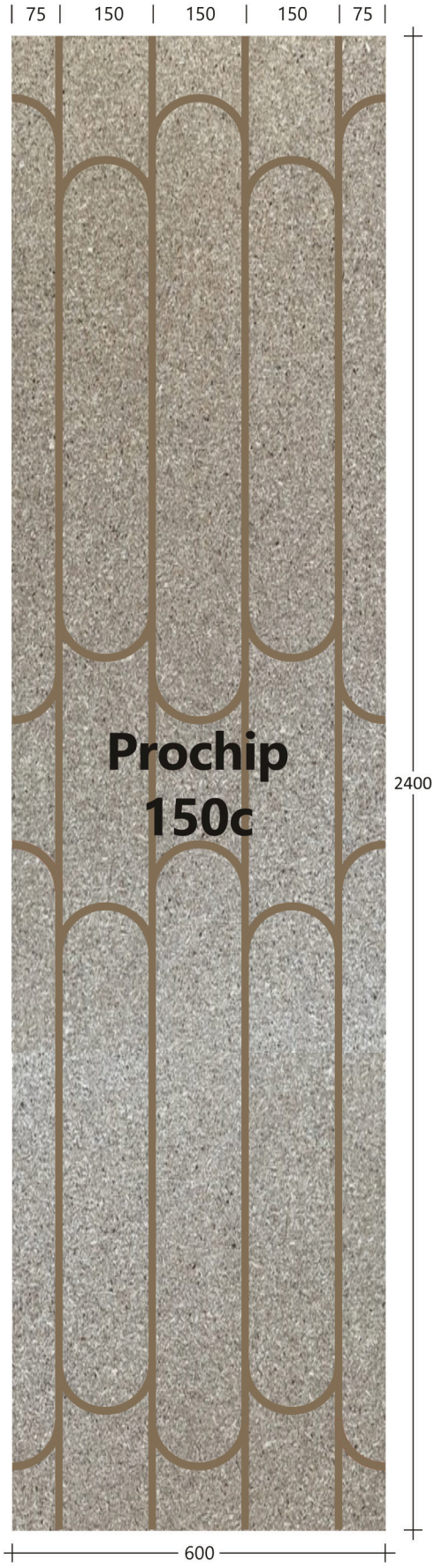


(P.54)

EPIC PVA
Prochip T&G joint adhesive

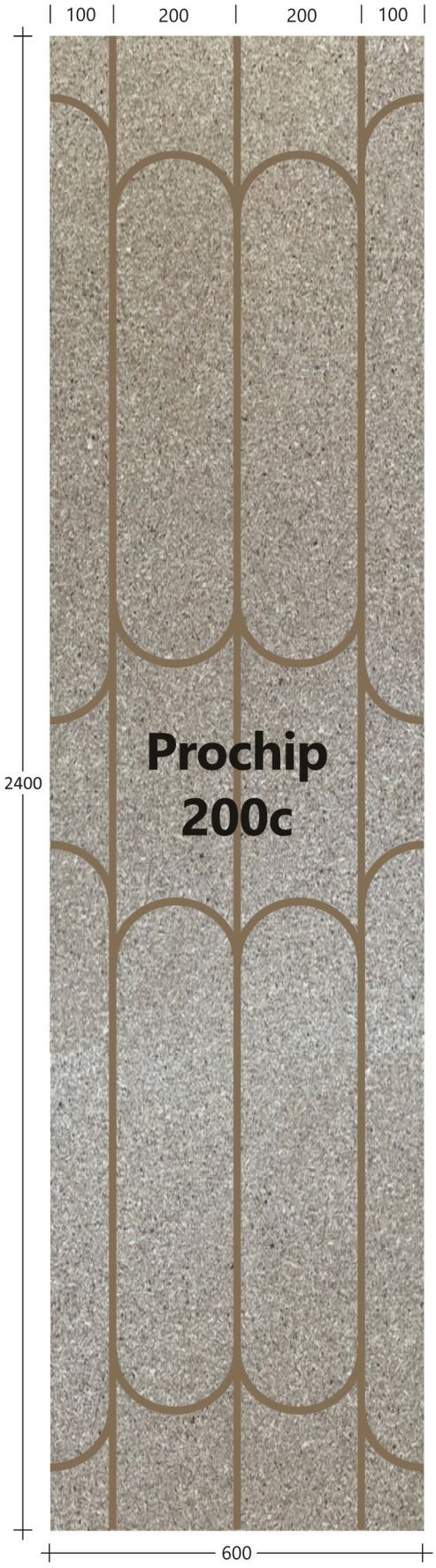


(P. 54)



Radius

(Other patterns manufactured subject to quantity)



Straights


75
150
150
150
75
Prochip
150c
2400
600


100
200
200
100
Prochip
200c
2400
600

Prochip FF

Foil Faced Structural underfloor heating floorboard

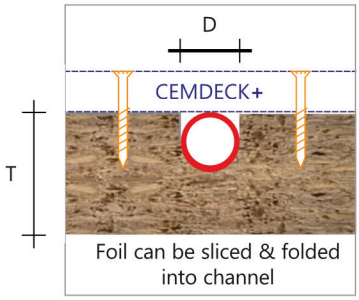
Technical specifications

Thickness' available - T	22mm
Board sizes	600 x 2400mm
Route size (to suit UFH pipe diameter) - D	10, 12mm (+0.4)
Pipe centre options	150, 200mm
Thickness of aluminium foil facing	50µm, 100µm(with foil ready to slice)
Route patterns	Radius, Straights(1)
Associated conductive overlay board	CEMDECKd+
Associated polyethylene edge strip	EPIC Pro Edge

(1) Other patterns manufactured to order, subject to minimum quantity.

Order quantity

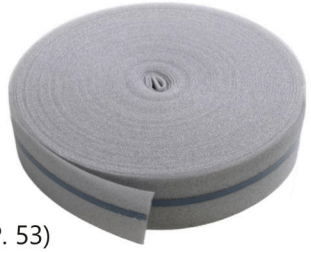
Coverage per panel	1.44m²
Pallet qty	60 boards
Min order qty	1 board



Foil can be sliced & folded into channel

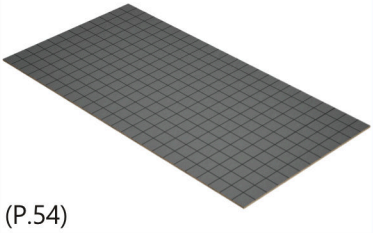
Associated accessories

EPIC Edge 75/AB
Self-adhesive perimeter edge roll



(P. 53)

CEMDECK+
Highly conductive overlay board

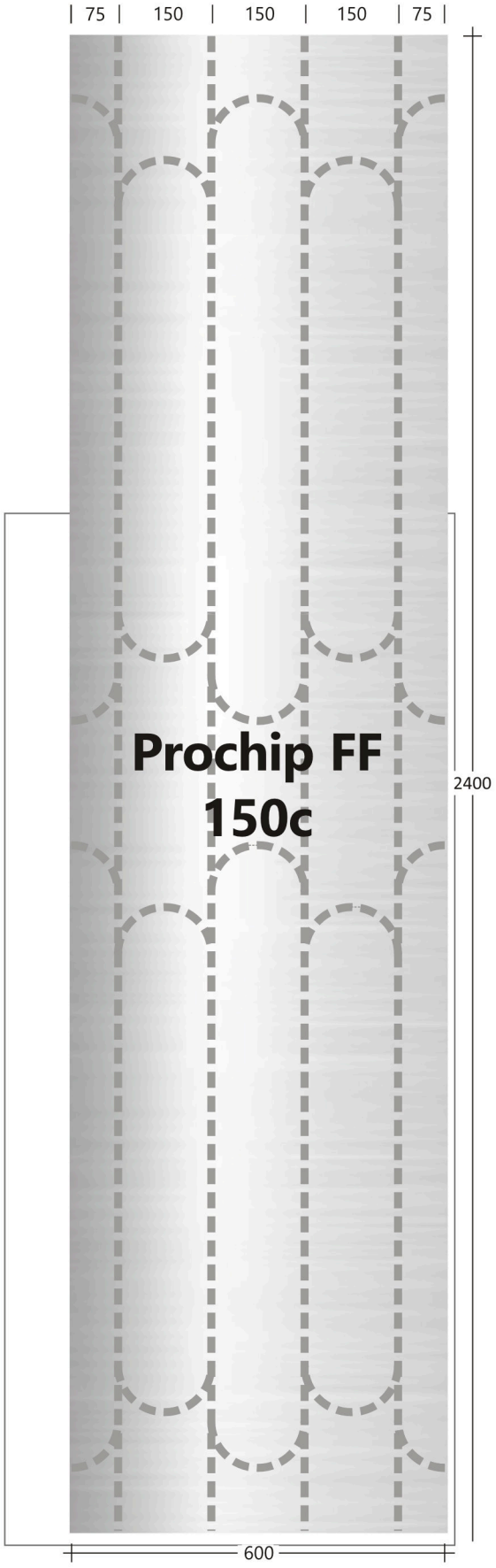


(P.54)

EPIC PVA
Prochip T&G joint adhesive



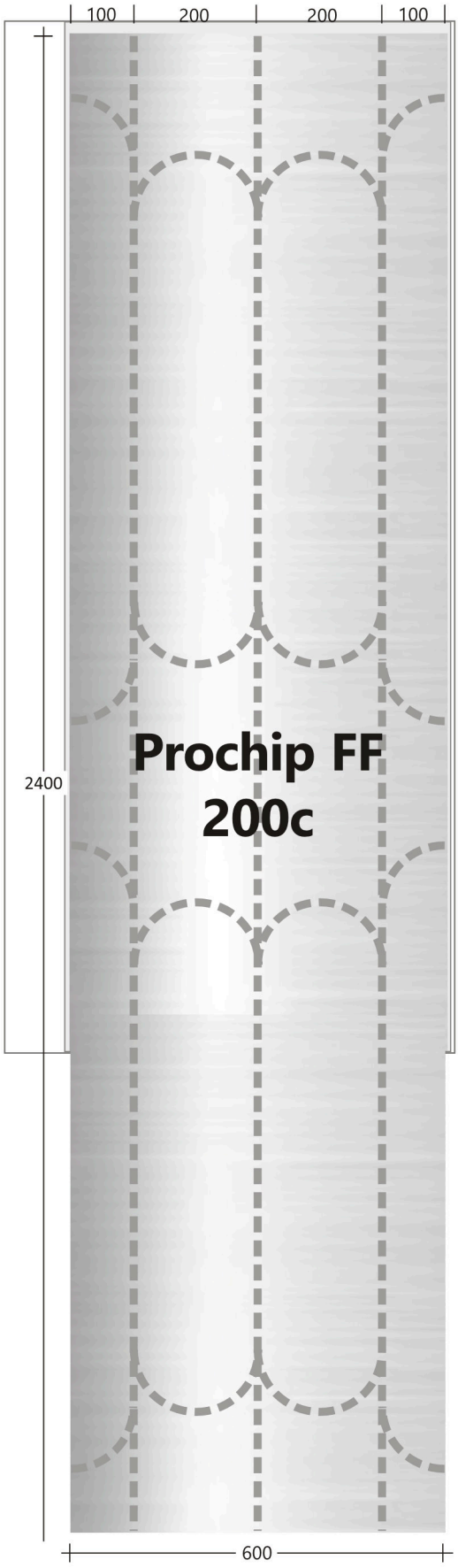
(P. 54)



Prochip FF 150c

Radius

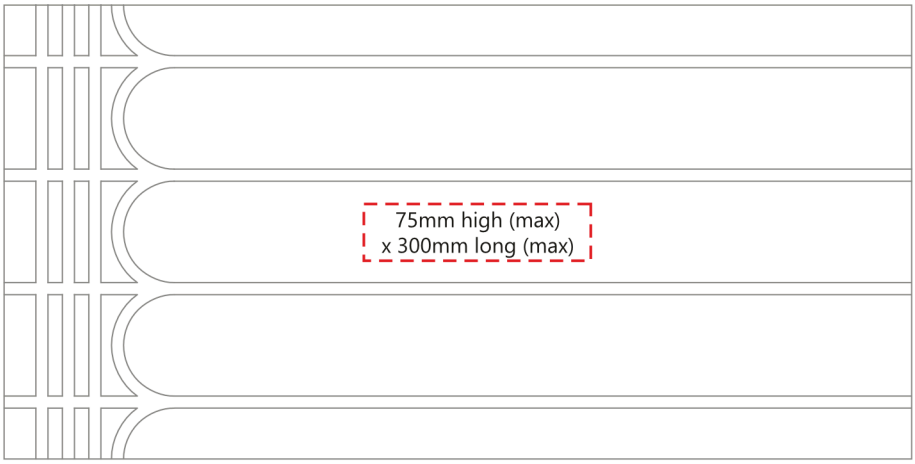
(Other patterns manufactured subject to quantity)

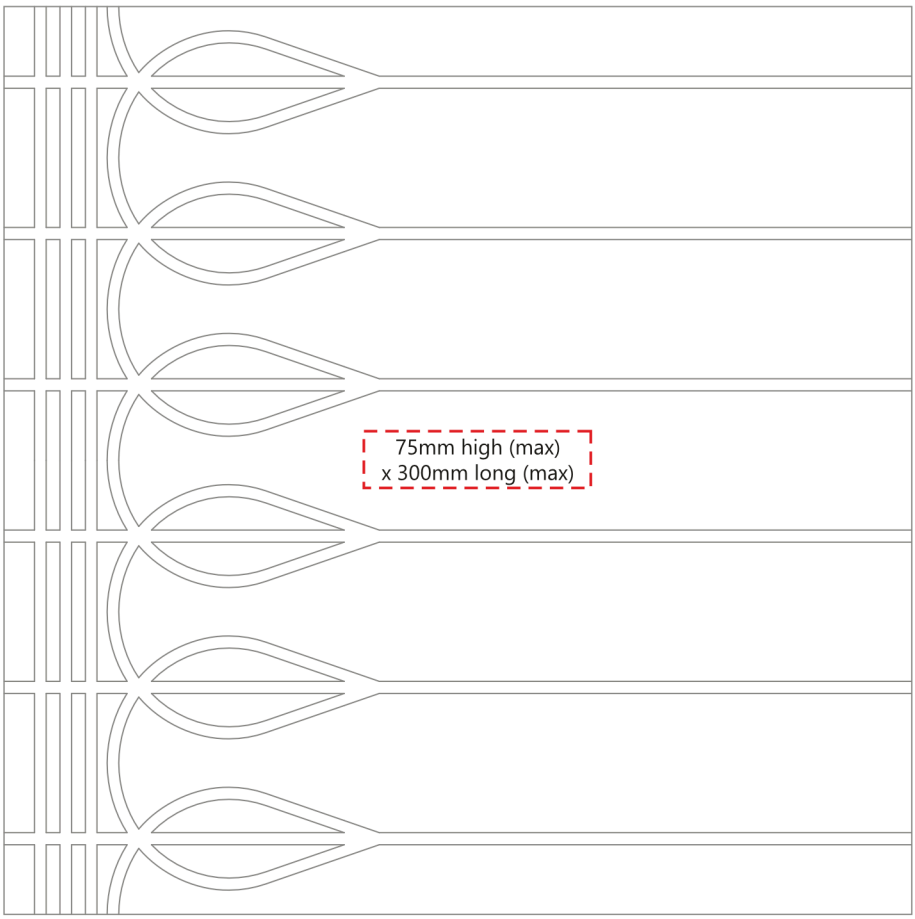


Prochip FF 200c

Own branded UFH boards

Epic offers the option of customers having their company / brand name printed on the routed XPS & EPS insulation boards in one of three colours. Contact the sales office for full specification and minimum order quantities requirements.





Print colour options

Red
Black
Blue

Minimum order quantity

Please contact the sales office

mknLTD.CO.UK Unit 3 Tatton Court WA1 4RR United Kingdom Sales: +44 1925 390 641 Support: +44 1925 398 557 info@mknltd.co.uk ; mknLTD.CO.UK

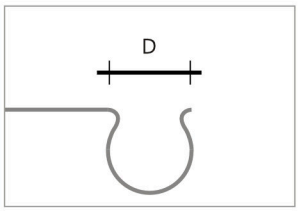
Proplate

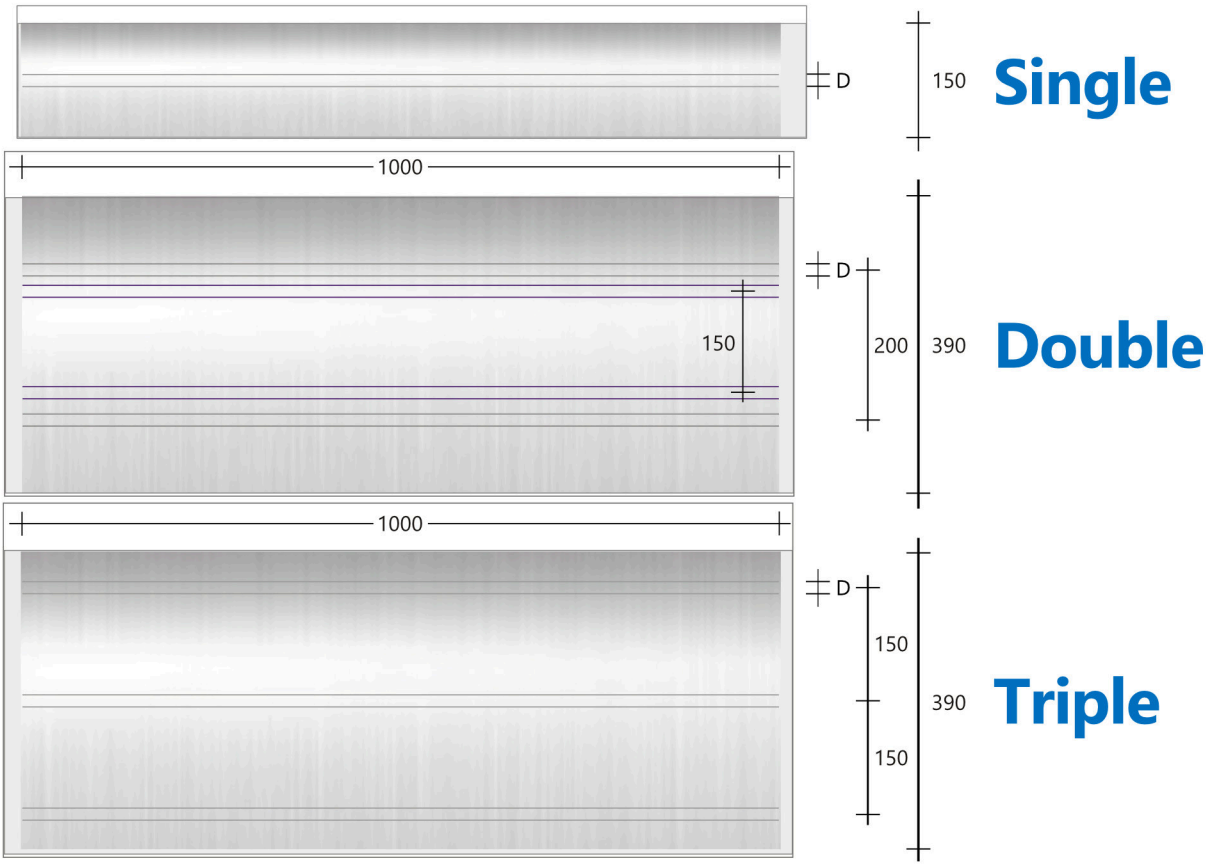
Aluminium heat diffusion plates

Technical specifications	
Aluminum thickness	0.5mm
Plate length	1000mm
Single channel impression plate width	150mm(1)
Double channel impressions plate width	390mm(1) (150 & 200mm centres)
Triple channel impressions plate width	390mm(1) (150mm centres)
Channel impression size - D	10, 12, 14, 15, 16
Associated insulation boards	Progroove / Progroove joist XPS, EPS
Associated polyethylene edge strip	Epic Pro Edge

(1) Other widths and centres manufactured to order, subject to quantity.

Order quantity	Plates per box
Single	120
Double	50
Triple	40
Min order qty	1 box

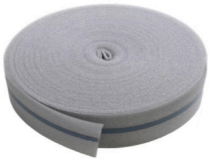




Edge

Polyethylene perimeter edge foam rolls

Technical specifications

	EPIC Edge 75/AB	EPIC Edge 100	EPIC Edge 150	EPIC Edge 200
				
Thickness	5mm	5mm	5mm	5mm
Roll height	75mm	100mm	150mm	200mm
Roll length	50m	50m	50m	50m
Self adhesive backing	Yes	-	-	-
Quantity per pack	16	12	8	6
Minimum order qty	1 roll	1 roll	1 roll	1 roll

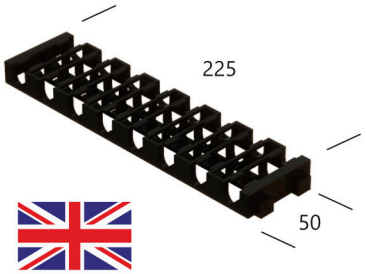
(1) Other thickness', heights and roll lengths manufactured to order, subject to minimum quantity.

Highway Clip Rail

Polypropylene clip rail for Profix

Technical specifications

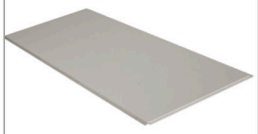
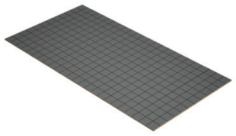
Composition	100% recycled, high impact polypropylene
Application	Pipe retainer to elevate the pipe, allowing the screed to flow underneath and cover the pipe completely
Qty of pipe retention clips	8 per rail
Pipe size suitability	10, 12mm
Rails per box	10
Minimum order qty	1 Box



Designed & Manufactured in the UK

Highly Conductive Overlay Boards

Technical specifications

	HiDECK^{d} 18 Overlay	CEMDECK^{d}+
		
Composition	High density gypsum reinforced with cellulose	Cementitious faced Class 2 plywood with install grid
Application	T&G overlay board for **Profix**, **Profoil** & **Progroove**	Overlay board for **Prochip**
Dimensions	18 x 600 x 1200mm	5.6 x 600 x 1200mm
Thermal resistance	0.045m²K/W	0.043m²K/W
Weight	15.55kg per board	5.20kg per board
Boards per pallet	66	N/A
Minimum order qty	1 Board	1 Board

Adhesives

Technical specifications

	EPIC Pro Adhesive (MCPU)	**EPIC PVA Adhesive**	**EPIC HB24 Adhesive**
			
Application	Bonding **HiDECK Overlay** T & G Edges	Bonding **Prochip** T & G Edges	Bonding insulation boards to subfloor
Bottle size	1kg	1kg	15kg
Typical coverage	33m²	33m²	46m²
Curing time	24 hours	24 hours	1 hour high grab 24 hours full bond
Minimum order	1 bottle	1 bottle	1 tub

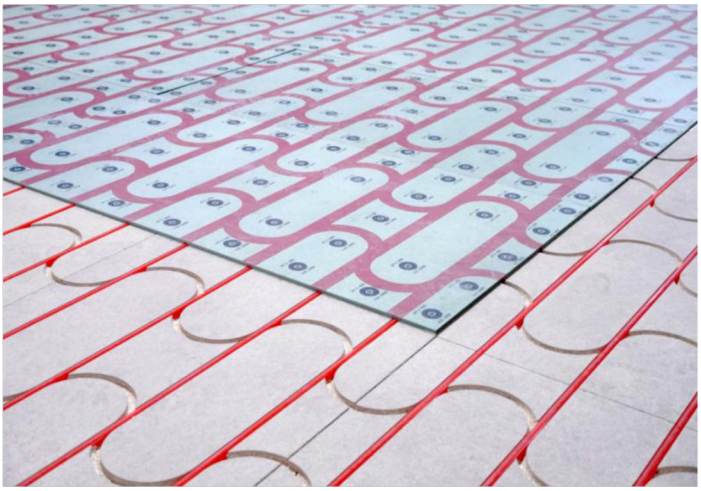
mknLTD.CO.UK Unit 3 Tatton Court WA1 4RR United Kingdom Sales: +44 **1925 390 641** Support: +44 **1925 398 557** info@mknltd.co.uk ; mknLTD.CO.UK

E310 E311 KBD-12 Data sheet

22mm structural chipboard and 6mm coverboard

Description

KBD-12 is a structural underfloor heating system designed for suspended timber floors. With a total build-up of 28mm, it replaces the existing floor deck without increasing floor height. Suitable for both new-build and renovation projects, the system is installed directly onto joists up to 600mm centres and combines a routed P6 chipboard base with a foil-coated fibre board cover layer.



Benefits

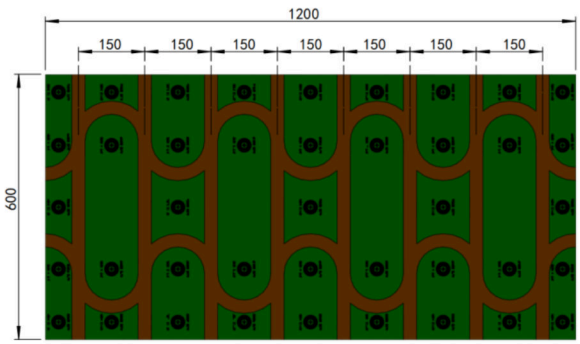
- Dual-direction pre-routed channels allow boards to be laid side-by-side or rotated 90°, enabling flexible installation across varying joist directions.
- Continuous pipework design – no joints under the floor.
- Foil-coated surface improves heat transfer and adds moisture resistance.
- Moisture-resistant fibre board cover printed with fixing guides to minimise risk of pipe damage.
- Slim profile: only +6mm compared to typical timber flooring thickness.
- Dry-fit installation, no screed or drying time required.
- Standard panel size: 1200X600mm, with tongue-and-groove joints for easy fitting.

Technical data

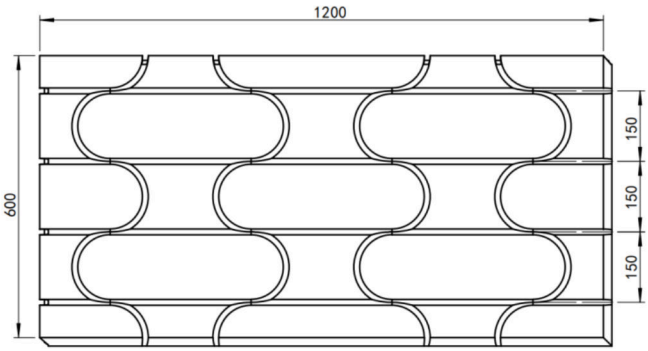
Performance	KBD-12-01	KBD-12-02
Dimension (mm)	1200X600X6/mm	1200X600X22/mm
Density	850kg/m³	666kg/m³
Surface Soundness	≧1.40Mpa	≧0. 8Mpa
Swelling Rate	≦18%	≦14%
Eco-friendly grade	E0	E1
Pipe centre (mm)	150	150
Route sizes available(to suit pipe diameter)	12mm	

Dimension

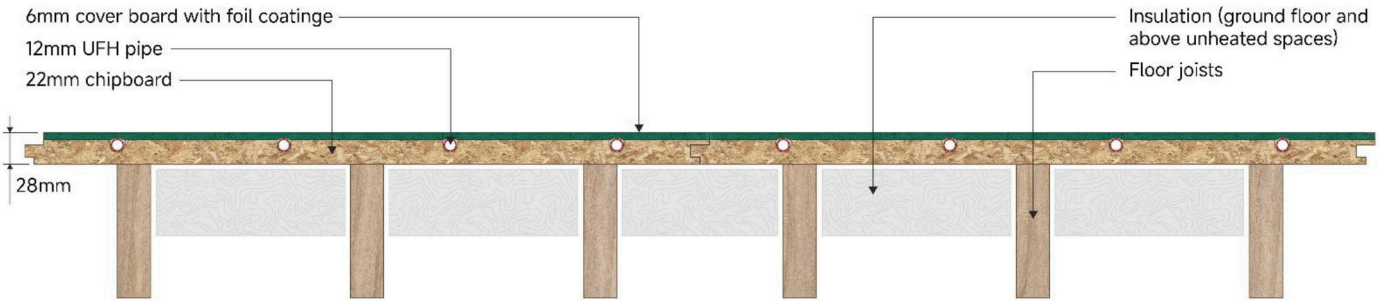
E310



E311



Installation Notes



Suspended timber floors at ground level, or floors above unheated voids, must be insulated to reduce downward heat loss. This can be achieved with either rigid PIR insulation or mineral wool.

FLOOR COVERINGS

Vinyl / LVT: can be laid directly on the fibre board cover layer (manufacturer's guidance may require additional preparation).

Ceramic or natural stone tiles: treat as a timber subfloor – use primers, decoupling membranes, or tile backer boards as appropriate.

Carpets:

Boiler systems – maximum combined tog value of **2.5** (carpet + underlay)

Heat pump systems – maximum combined tog value of **1.5**

Engineered timber and laminates: can be installed directly on the cover board; follow manufacturer's acclimatisation guidance before installation.

Optional floor temperature sensors are available to limit surface temperatures in line with floor covering requirements.

wärmer

Sales: +44 **1925 390 641**

Support: +44 **1925 398 557**

mknLTD.CO.UK

info@mknltd.co.uk ;

PSW GROUP MKN

mknLTD.CO.UK

mknLTD.CO.UK

Unit 3 Tatton Court

Warrington

WA1 4RR

United Kingdom

WARM WAVE HEATING.CO.UK

under floor heating

mknLTD.CO.UK Unit 3 Tatton Court WA1 4RR United Kingdom

mknLTD.CO.UK info@mknltd.co.uk ; Support: +44 1925 398 557 Sales: +44 1925 390 641 mknLTD.CO.UK



mknLTD.CO.UK Unit 3 Tatton Court WA1 4RR United Kingdom Sales: +44 1925 390 641 Support: +44 1925 398 557 info@mknltd.co.uk ; mknLTD.CO.UK