

Uponor sports floor technical manual

UNDERFLOOR HEATING AND

Table of contents

Uponor heating systems in sports facilities	3

Spo	rts hall heating systems	8
	Introduction	9
	Advantages	11
	Standards	11
	Design considerations	12
	Uponor Sport	13
	Description	13
	Design data	14
	Uponor Siccus Sport	19
	Description	19
	Design data	20
Tur	f heating systems	24
	Introduction	25
	Standards	26
	Design considerations	27
	Uponor turf heating systems	28
	Description	28
	Heat simulation	29
	Hydraulic aspects	31
	Controls	33
Арр	oendix	34

Item lists

Building site documentation

Uponor sports floor systems





Surface-elastic sports floors with Uponor Sport

Surface-elastic sprung floors are elastic floors with rigid elements. They are made of several layers of timber planks and/or sprung elements and show large-area deformation. The heating registers of Uponor Sport, which normally consist of Uponor Comfort pipe PLUS 25x2.3, are installed in pipe clips (Uponor patent) and installed directly under the false floor in a heating chamber.

In contrast to other sprung floor heating systems where the pipelines are mounted on the insulating layer, the Uponor solution allows for the use of low-cost thermal insulation (e.g. mineral fibre) so that the overall costs for floor constructions can be greatly reduced.

Experience gathered from many projects shows that the best results are achieved by integrating the supply lines into the floor structure and connecting the heating circuits according to the Tichelmann principle. For the corrosion resistant supply pipes, we recommend using the Uponor Comfort pipe PLUS or Uponor MLCP RED and MLCP (white).

Surface-elastic sports floors with Uponor Siccus Sport

Uponor Siccus Sport has become a popular solution for surface-elastic sports floors designed as sandwich floor constructions. These floors consist of a 15 mm thick elastic layer made of a high-density, permanently elastic composite foam ($\lambda = 0.040$ W/mK).

They must be compliant with DIN 18032, part 2, and are very sturdy as the two load distribution layers are installed in an overlapping pattern. These layers are often made from birch plywood ($\lambda_u = 0.150 \text{ W/mK}$). Floors of this type are normally covered with linoleum or PVC ($\lambda_u = 0.170 \text{ W/mK}$).

The heating surface is separated from the sports floor by a level hardboard layer ($\lambda_u = 0.170 \text{ W/mK}$). Some construction companies prefer installing two layers of 2 x 2.6 mm sheet steel panels with glued joints instead of the hardboard layer. It is even possible to replace the hardboard structure with dry screed panels, taking into account the maximum permissible temperature load of the dry screed. As a rule, the maximum supply temperature should be limited by a temperature limiter.

Point-elastic sports floors with Uponor underfloor heating systems

Point-elastic sports floors are sprung floors designed in such a way that the deflection area is close to the impact point.

The Uponor Comfort pipes PLUS are secured on the Uponor fixture elements by means of special pipe clips, and then placed on the cover foil installed above the insulating layer.

Apart from the elastic floor layers and the larger pipe sizes, underfloor heating systems for point elastic sports floors are very similar to those of conventional underfloor heating systems on floating screeds.





Turf heating systems with Uponor Neva, Uponor Meltaway and Uponor Arena

Turf heating systems need water at a temperature of only +35 °C which means a wide variety of heat sources can be used, including district heating, return water, waste heat from various processes, heat pumps and ground energy etc.

The heat from any suitable source can be transferred through a heat exchanger to the Uponor outdoor areas lawn system. A pump in the system circuit circulates the warm water. The temperature sensor just below the ground surface maintains the surface temperature at the required level. A sensor in the supply line regulates the temperature in the heating loops.

References and case studies



















2012



Sports hall heating systems

Uponor underfloor heating: superior systems for sports facilities

UNDERFLOOR SOLUTIONS FOR THERMAL COMFORT, SAFETY AND DURABILITY

Sports hall floor area = heated surface

Underfloor heating systems in sports halls are becoming increasingly popular. An important reason for this is that the heating system is concealed under the floor and covers the entire sports hall floor area. It thus provides uniform heating of large spaces, increases thermal comfort and provides a safe environment for athletes.

Underfloor heating ensures that there are no radiators or other heating installations intruding into the available space. This eliminates obstructions that reduce the usable area or that pose health and safety hazards.

Optimised energy efficiency

Due to rising energy prices and climate change, the heating and cooling of a building is a major cost factor. Uponor sports hall heating is an energy-efficient, lowtemperature system that is ideal in combination with renewable heat sources.

A floor heating system designed to operate at a supply temperature of 40 °C, as opposed to air heating which operates at a supply temperature of 80 °C, will yield significant annual savings in energy bills. Moreover, low-temperature heating is the key to integrating renewable energy sources. This means that renewable energy, available from the ground, water, sun and air, can be integrated and utilised with ease.

Low operating costs

Conventional, visible heating surfaces incorporating pipe work, ducting and fans must be regularly cleaned, replaced, painted and maintained. This is not the case for the Uponor underfloor heating systems, as all system components are installed under the floor. In this way, operating costs are drastically reduced, leading to a rapid return on investment.

Fast installation

The Uponor system is composed of a small number of standardised components and technically-advanced fastening devices. This ensures that Uponor sports hall underfloor heating systems can be quickly installed at a relatively low cost and without delaying the overall construction process.

Guaranteed durability

All components of the Uponor sports hall underfloor heating system have been tried and tested for durability and found to be extremely sturdy. In addition, Uponor provides sports hall operators with a ten-year warranty certificate issued at the request of the installer. This covers all system components.

Suitable for all indoor sports facilities

The floor is of central importance to all sports hall activities. Uponor offers a variety of underfloor heating systems that satisfy the requirements of a wide range of sports as well as all types of sports facilities.

Single-source solution

The design and installation of ground slabs incorporating a floor heating and cooling system will not compromise the original slab design. A full understanding of the issues surrounding joints, drilling zones etc. enables us to offer a competitive and innovative single-source solution that avoids the traditional conflicts of responsibility.

System benefits

- No noise silent system
- Constant and even temperature level
- Low air speeds with no dust circulation
- Efficient and safe training environment

Uponor sports hall heating systems

ADDRESSING THE COMPLEXITIES OF MULTI-USE FACILITIES

Sports halls are highly functional spaces where different sports place different demands on the facility. These demands must be examined in detail when designing underfloor heating.

The elastic properties of each floor type are an important factor in determining sports hall floor design. For users of the sports hall they ensure optimal comfort levels and reduce the likelihood of injuries.

Therefore, sports hall floors are primarily classified based on shock absorption, deformation, deformation control, ball rebound, slip properties and rolling load behaviour.

A general distinction is made between surface-elastic and rigid floors which have large deformation control areas, and point-elastic floors that have deformation control only in a narrow zone around deformed areas. There are also a number of mixed type constructions with a surface-elastic substructure and a point-elastic surface. These types are commonly known as mixed-elastic or combined-elastic floors. In contrast to mixed-elastic floors, the deformation control area of combined-elastic floors is closer to the point of impact.

If a specific construction differs from any of the types shown here, please contact Uponor for assistance in the planning of the heating system.

General classification of sports hall floors

- Surface-elastic
- Combined-elastic
- Mixed-elastic
- Point-elastic

Advantages

- High user comfort thanks to an optimised room temperature in sports area
- Evenly distributed horizontal and vertical temperature
- No draughts
- Balls cannot get caught in or behind heating installations, for example under the roof
- Energy-efficient low-temperature heating system for sports halls with appropriate thermal insulation
- Certified system by an independent and accredited DIN Company (DIN CERTCO): certification of materials, requirements of radiant systems, quality management

- Fast installation without the need for scaffolding or overhead work
- Enhanced hygiene as floor area is easy to clean
- Maintenance-free piping system fully integrated in floor construction
- Certified PE-Xa pipe by an independent and accredited DIN company (CERTCO): certification of materials, requirements of radiant systems, quality management
- Radiant systems are especially suited to low temperature heating sources such as condensing boiler or heat pump

Standards

The following standards apply to the construction of underfloor heating systems:

Standard	Description
EN 15377	Heating systems in buildings: water-based surface heating and cooling systems
DIN V 18032 – 2	Sports halls: halls for gymnastics and games Sports floors: requirements, checks
EN 12641 - 4	Floor heating
EN 12831	Heating systems in buildings: method for calculation of design; heat load
Technical guide German association for sports floors	www.ggs-sportboden.de www.fachverband-shb.de

Design considerations

1. The CAD plan must be provided by the HVAC designer (architect) to Uponor.

In countries compliant with the CE marking, the size of a sports hall is approximately $27 \text{ m} \times 45 \text{ m}$. For official games a sports hall must measure at least $22 \text{ m} \times 44 \text{ m}$.

Field sizes for some types of sports are as follows:

- Basketball: 28 m x 15 m
- Handball: 40 m x 20 m
- Badminton: 13.4 m x 6.1 m
- Volleyball: 18 m x 9 m (plus a minimum 3 m zone around this)

As both schools and sports clubs may use the same sports hall, it is common to divide the hall into 3 sections using heavy curtain (flexible wall). Each section then measures $15 \text{ m} \times 27 \text{ m}$.

- 2. Calculation of heating load must be provided by the HVAC designer (architect) to Uponor.
- 3. Room temperature must be defined. Depending on the usage, the temperature is usually between 16 °C-20 °C.
- 4. Floor construction height and floor construction layers must be defined.

Important parameters for this:

- Available construction height
- Insulation requirements including:
- Local requirements
- Height of ground water

5. Sports floor construction & heating system



Sports hall size with CE marking



Definition of floor construction height

Type of construction	Heating system
Surface-elastic construction (sprung floor)	Uponor Sport with Uponor Comfort pipe PLUS 25x2.5, Uponor Sport Q&E Tichelmann manifold
Surface-elastic layer (sandwich)	Uponor Siccus Sport with Uponor Comfort pipe PLUS 14x2 or MLCP (white) 14x2, Uponor Vario PLUS manifold or Uponor Sport Q&E Tichelmann manifold
Point-elastic floor construction (screed/ wet floor)	Underfloor heating system for screed, Uponor Vario PLUS manifold or Uponor Sport Q&E Tichelmann manifold

Uponor Sport system design

Below is a design example of a typical CE compliant sprung floor construction. Uponor has devised a special system to suspend the PE-Xa pipes 25 mm between the wooden blocks. This construction does not correspond to DIN EN 1264 floor types. Therefore, the capacity output must be measured and approved by an independent institute. Alternatively, the capacity can be calculated using the HEAT 2 software tool.



- . PVC or linoleum
- floor cover
- 2. Chipboard
- 3. PE foil
- Flase floor
 Uponor Spo
- 5. Uponor Sport double clip
- 6. Uponor Comfort
- PLUS pipe 7. Double sprung
- beams
- 8. Elastic pads
- 9. Base block
- 10. Air space
- 11. Thermal insulation
- 12. Damp-proofing course
- 13. Concrete

Sprung floor sections

Sprung floor suppliers deliver different systems with varying distances between the wooden blocks. Depending on the distance between blocks, the number of pipes and heat output would vary. To avoid this, and depending on the dimensions, some channels will only have 2 pipes instead of 3.



Manufacturer	Dimension between axes [mm]	Channel width [mm]
Hamberger	444	384
Норре	495	420
sbs	500	400
Topsport	500	405
Weitzer	500	425
System-Technik	508	438
Polysport	508	448

Hydraulic loop design and the twin return system

The twin return, also called Tichelmann, system involves installing the pipes from the heating or cooling source (e.g. boiler or chiller) to and from the heat consumer (e.g. pipe loops) so that they form a ring system. This means that the sum of supply and return line length at each consumer is approximately the same – a consumer with short supply pipes has a long return pipe and vice versa. An important precondition for this is that all consumers have approximately the same mass flow and pipe length, and thus the same pressure loss even if no control valves are used.



Loop design planning



Uponor Sport with Uponor Sport Q&E Tichelmann manifold

Capacity

Depending on heat loss and room temperature, the differential temperature between supply and return can be determined by means of the diagram and table below. If necessary, downward heat loss must be added.



Based on this, mass flow can be calculated thus: [m=Q/(dt * c)]



Heat simulation



Design diagram for Uponor Sport with plywood load distribution layer (s $_{\rm u}$ = 13 mm with $\lambda_{\rm u}$ = 1.5 W/mK)

Capacity of Uponor Sport

- Plywood 13 mm, L = 0.15 W/mK
- 3 PE-Xa pipes in grid of 500 mm
- R_{λB} 0.02 m²K/W

т_i 18 °С

Heat flow q [W/m²]	Average floor surface temperature $\theta_{\tau,m}$ [°C]	Supply/return temperature [°C]	Delta T [K]	Heating medium differential temperature Δθ _H [°C]
70	24.3	63/55	8	41
65	23.9	60/56	8	38
60	23.5	58/50	8	36
55	23.1	55/47	8	33
50	22.6	51/43	8	29

т_i 20°С

Heat flow q [W/m²]	Average floor surface temperature $\theta_{\tau,m}$ [°C]	Supply/return temperature [°C]	Delta T [K]	Heating medium differential temperature Δθ _H [°C]
70	24.3	66/58	8	41
65	23.9	63/55	8	38
60	23.5	61/53	8	36
55	23.1	58/50	8	33
50	22.6	54/46	8	29

Pressure drop diagram



Pressure difference R

Subsection	l [m]	m [kg/h]	Dimension [mm]	v [m/s]	R [Pa/m]	I*R [kPa]	Σζ	Z [kPa]	Δp _{τs} [kPa]

Example scheme

Additional design considerations

- The name of the sports floor supplier and the system type must be provided by the HVAC designer (architect) to Uponor. This is the source of important information on the distance between the base blocks which form the grid of the wooden static foundation. With this information the CAD design can be implemented and the necessary material calculated (please see table on page 17).
- Holes for posts in the sub floor are for different sports equipment. The number of Uponor sprung floor double clips depends on the number of post holes. This is also information which must be provided to Uponor by the architect.



Uponor Siccus Sport system design

Uponor Siccus has become a popular solution for surface-elastic sports floors designed as sandwich floor constructions. These floors consist of a 15 mm thick elastic layer made of a high-density, permanently elastic composite foam ($\lambda = 0.040$ W/mK). They must conform to DIN 18032, part 2, and are very sturdy, as the two

load distribution layers are installed in an overlapping pattern. The layers are frequently made of birch plywood ($\lambda = 0.150 \text{ W/mK}$). Floors of this type are normally covered with linoleum or PVC ($\lambda = 0.170 \text{ W/mK}$).



- Linoleum/PVC
- . Birch plywood
- 3. Birch plywood
- Elastic layer
- Hardboard or sheet steel
- 5. Foil
- Uponor Siccus
- Additional thermal insulation e.g. PUR
- Level substrate

Capacity

Design diagram for Uponor Siccus Sport with Uponor Comfort pipe PLUS 14x2, division 150 mm, 18 mm birch-layered plywood, 15 mm special elastic layer (composite foam), 3.2 mm fibreboard



Design diagram for Uponor Siccus Sport with MLCP (white) 14x2, division 150 mm, 18 mm birch-layered plywood, 15 mm special elastic layer (composite foam), 3.2 mm fibreboard







Design diagram for Uponor Siccus Sport with MLCP (white) 14x2, division 150 mm, 18 mm birch-layered plywood, 15 mm special elastic layer (composite foam), 0.6 mm steel sheet



Pressure drop diagrams

2000

Pressure losses in the Uponor Comfort pipes PLUS can be determined using this diagram.

Pressure losses in the Uponor MLC

pipes RED and MLC pipes (white) can be

determined using this diagram.



Pressure difference R

Turf heating systems

Uponor turf heating systems

SNOW AND ICE MELTING FOR MORE SAFETY AND RELIABILITY

Longer season

With Uponor turf heating systems, the active use of football pitches, ice hockey rinks, bandy rinks, curling sheets, ski tunnels and other sports arenas can be significantly increased by extending the playing season. This involves keeping an artificial turf pitch green the whole year round, or a bandy rink frozen for the entire winter period - the Uponor system is suitable for both heating and cooling.

Low maintenance

One of the most unpredictable factors that cause extra costs is snowfall. It happens every winter but no one can predict exactly when and how much snow there will be.

The manual removal of snow creates constant problems. Even if there is enough removal machinery, snow can cause long delays. This problem can be eliminated with the Uponor system for outdoor areas which ensures that snow does not stick to the ground. Due to the warm surface created by Uponor turf heating, snow cover can no longer hamper playing schedules.

The benefits are clear: a decrease in maintenance costs for manual snow removal, and heating that keeps the playing surface free of snow and ice, ensuring manageable and predictable conditions.

System benefits

- Keeping the soil of a grass field frost free
- Preventing players' injuries
- No more cancellation of football games due to bad weather
- Decrease in maintenance costs

Uponor turf heating systems

ENABLING TOP LEVEL SPORT ALL YEAR ROUND

Uponor turf heating systems are a radiant heating installations that keep the soil of a grass or artificial grass field frost free. Frost free soil provides an ideal playing surface for sports such as football even in adverse weather conditions.

When training or matches are cancelled due to bad weather this can lead to high costs. A turf heating system ensures that sports can be played at any time of the year. It does not ensure a snow-free field – snow still needs to be removed – but protects the turf from frost and thus guarantees that games can take place as scheduled.

Furthermore, frost-free turf is an important safety factor as it significantly reduces the risk of injuries to the players.

Standards

The following standards apply to the construction of turf heating systems:

Standard	Description
DIN 18035	3/4 Drainage & construction of sports turf areas
Fifa UEFA stadium guideline	UEFA guide to quality stadiums, commissioning, design or (re)construction of a stadium



Zenit Sankt Petersburg Stadium, Russia

Design considerations

We recommend that the HVAC designer (architect) provides Uponor with the CAD plan as well as cross-sectional information on material, pipe positioning and outside design temperature.



Uponor turf heating systems design

Uponor turf heating systems need water at a temperature of only +35 °C which means a wide variety of heat sources can be used, including district heating, return water, waste heat from various processes, heat pumps and ground energy etc. The heat from any suit-able source can be transferred through a heat exchanger to the Uponor heating system. A pump in the Uponor heating system circuit circulates the warm water. The temperature sensor just below the ground surface maintains the surface temperature at the required level. A sensor in the supply line regulates the temperature in the heating loops.

Natural lawn



- Sports lawn
 Top soil
- 3. Volcanic gravel
- . Course gravel
- . Subsoil
- 6. Drainage system

Artificial lawn



- . Artificial lawn
- 2. Rubber granulate
- and quartz sand 3. Elastic layer
- 4. Absorber in quartz
- sand
- 5. Elastic layer
- 6. Subsoil
- 7. Drainage system

Thermal conductivity of gravel/sand



Heat conductivity of soils with differing consistence depending on moisture and density according to SALOMONE/ KOVACS/14/

Heat simulation

On the basis of the above information a capacity simulation can be done with HEAT. This shows whether the ground will be frost free and indicates required capacity.

Construction: Uponor Comfort pipe PLUS 25x2.3, pipe space 300 mm, T_{air} -10°C, T_{ground} 6 °C



Material	Lamda [W/mk]	Thickness [mm]
Grass	1.1	30
Sand (wet)	2.0	250
Gravel	0.5	100

Material characteristics

	Туре	Bounds	Function	q [W/m²]	Temp [°C]	R [m²K/W]
1	Q = const	Default		0.00000		
2	T = const	1			6.00000	1.250000
3	T = const	3			10.00000	0.050000

Boundary conditions

Results

The following diagram shows the results achieved by a Uponor turf heating system.



Hydraulic aspects

1. Manifold connection



Example of loop design for manifold connection



Detail view of loop design close to the manifolds

2. Twin return (Tichelmann) connection

The Tichelmann system is normally installed along the length of the field. Each loop has a length of around 150 m (2 x 75 m). There are approx. 180 loops, depending on the size of the field. All turf areas need to be heated (also areas outside the field). The largest dimension of Tichelmann pipe is 160 mm or 180 mm - dimensions decrease in size in steps of: 160 > 125 > 110 > 90 > 75 mm.



Example of loop design for Tichelmann connections



Detail view of loop design with Tichelmann connection

Pressure loss calculation

To avoid pipe damage due to freezing, it is common to fill the pipes with water and glycol. The exact dosage depends on the outside temperature. The changed characteristics of the water must be taken into consideration for the hydraulic calculation.

	Loops						Loops Tichelmann				Pipe f	riction	Resi	istor	∆p Sub- section
	L Hc	A Hc	Q Hc	M Hc	dp Hc	v	М	L	v	dim	R	LxR	ζ total	Z	D-
	m	m²	W	kg	Pa	m/s	kg	m	m/s	mm	Pa/m	Pa	Pa	Pa	Ра
1															
2															
3															

Example of pressure loss table for Tichelmann

Controls

Supply water temperature should be a maximum of 40 $^{\circ}\text{C}$ to protect the grass against dry up.

The delta T for the design is usually 15 K.

In running mode the delta T varies between 10 and 15 K. In starting mode the delta T will rise to 35 K for a few days. It is a good idea to measure the temperature close to the pipes and at a depth of 5 cm of the grass roots.





Item lists



Sports hall heating systems

Uponor Sport

80





Material: Polyamid

Uponor Sport pipe clip, plastic

For exact leading of pipes inside the channels of sport floor

Description	unit 2	unit	
Uponor Sport pipe clip, plastic 25mm c/c100mm 0,29m PA	150	25	pcs

Uponor Sport double clip, steel

For exact leading of pipes in the bending zone of chanels of sport floor Material: galvanised steel

	YX XX X XX
Item no.	'a 'a 'ı I II c/c mm mm mm 0.75 100

Description	unit 2	unit	
Uponor Sport double clip, steel	25	1	ncc
25mm c/c100mm 0,975m Steel	23	1	pes



Uponor Comfort Pipe PLUS

PE-Xa pipe with an oxygen diffusion layer of EVOH (ethylene vinyl alcohol), with an extra outer protection layer in white colour with two blue stripes. Complying with EN ISO 15875 "Plastic piping systems for hot and cold water installation - Cross-linked polyethylene" and fulfils the requirement for oxygen diffusion resistance as per DIN 4726. These under floor heating and cooling pipes are suitable for Uponor Q&E and Compression fittings.

Application class 4+5/ 6 bar Max design temperature: 90°C Malfunction temperature: 100°C Design pressure 6 bar at 90°C Fire class: E according DIN EN 13501-1

ltem no.	m	im m	n b	ar	m	Description	unit 2	unit	
1063907	NEW 2	52	3 6	5	640	Uponor Comfort Pipe PLUS 25x2,3 640m	1280	640	m
1062887	NEW 2	52	3 6	5	60	Uponor Comfort Pipe PLUS 25x2,3 60m	360	60	m
1062889	NEW 2	52	3 6	5	300	Uponor Comfort Pipe PLUS 25x2,3 300m	600	300	m
1062888	NEW 2	52	3 6	5	220	Uponor Comfort Pipe PLUS 25x2,3 220m	440	220	m


Uponor Fix bend support plastic

Made of impact resistant plastic as bend support $90\,^{\rm o}$ bends in the manifold area.



	d r	
Item no.	mm mm	Description
1001230	25 120	Uponor Multi bend support plastic

Uponor Multi bend support galv steel

Made of galvanized steel as bend support for the pipe at the manifold.

	d	r	R			
Item no.	mm	mm	mm	Description	unit	
1009006	25	134	130.00	Uponor Multi bend support galv steel 22-25	20	pcs

Uponor conduit

Corrugated, fire classification E conforming to DIN EN 13501.1. Supplied in coils.



unit 50

pcs

Item no	d mm	d1 mm	L m	Weight ka	colour -	Description	unit 2	unit	
1012869	35/29	25	50	0.103	black	Uponor conduit 35/29 black 50m	1800	50	m

Uponor Q&E coupling PPSU

Note: Uponor Q&E rings must be ordered separately!



Uponor Q&E adapter male thread PL

Made of brass. Male thread acc.to DIN EN 10226-1 for sealing in. Note: Uponor Q&E Ring must be ordered separately!



Item no.	d AG mm "	p bar	Description	unit 2	unit		
1023007	25 R 3/4	6+10	Uponor Q&E adapter male thread PL 25-R3/4"MT	70	5	pcs	
1023008	25 R1	6+10	Uponor Q&E adapter male thread	40	5	pcs	



Uponor	Q&E	ring	with	stop	edge	natural	
--------	-----	------	------	------	------	---------	--

Made of PE-X. Uponor Q&E rings natural intended for Uponor Q&E fittings.

	d p colour				
ltem no.	mm bar -	Description	unit 2	unit	
1042840	25 6+10 natural	Uponor Q&E ring with stop edge	300	20 p	ocs



IC

Uponor Q&E adapter female thread PL

Made of brass. Female thread acc. to DIN EN 10226-1. Note: Uponor Q&E Ring must be ordered separately!

a	16	p				
mm		bar	Description	unit 2	unit	
25	Rp 3/4	6+10	Uponor Q&E adapter female thread PL 25-Rp3/4"FT	40	5	pcs
25	Rp 1	6+10	Uponor Q&E adapter female thread <u>PL 25-Rp1"FT</u>	35	5	pcs



Item no.

1023012

1023013

ltere er	d colour	Description
	25	Description
1042841	25 natural	natural oval 25



Fittings.

Uponor Sport Q&E tichelmann manifold

Uponor Q&E connection technology consisting of:

- 1 manifold (distributor & collector)

Uponor Q&E ring natural, eval

Description	unit 2	unit		
Uponor Q&E ring with stop edge	300	20	pcs	

as manifold for the use in sportsfloor UFH systems according to the Tichelmann principle. For connection of Uponor PE-Xa pipes 25x2.3mm with

Made of PE-Xa. Uponor PE-Xa rings natural intended for Uponor Q&E

Material: Uponor eval PE-Xa pipes + Uponor PPSU fittings.

- 4 Q&E rings 25 - 2 Q&E rings 40

1	set
unit	
	unit 1

Uponor Sport Q&E tichelmann manifold

as manifold for the use in sportsfloor UFH systems according to the Tichelmann principle. For connection of Uponor PE-Xa pipes 25x2.3mm with Uponor Q&E connection technology consisting of:

- 1 manifold (distributor & collector)
- 6 Q&E rings 25
- 2 Q&E rings 40

Material: Uponor eval PE-Xa pipes + Uponor PPSU fittings



	d I	c/c			
Item no.	mm mm	mm	Description	unit	
1046748	40 208	34 150	Uponor Sport Q&E tichelmann manifold 3X dim 25	1	set

Uponor Sport Q&E tichelmann endsegment

as manifold for the use in sportsfloor UFH systems according to the Tichelmann principle. For connection of Uponor PE-Xa pipes 25x2.3mm with Uponor Q&E connection technology consisting of:

- 1 manifold (distributor & collector)

- 6 Q&E rings 25

Material: Uponor eval PE-Xa pipes + Uponor PPSU fittings





 d
 l
 c/c

 mm
 mm
 mm

 1046749
 40
 2036
 150

Uponor evalPEX pipe, natural PN6, S

PE-Xa pipe with an oxygen diffusion layer of EVOH (ethylene vinyl alcohol) Complying with EN ISO 15875 "Plastic piping systems for hot and cold water installation - Cross-linked polyethylene" and fulfils the requirement for oxygen diffusion resistance as per DIN 4726. Application class 4 - Underfloor heating and low temperature radiators. Application class 5 - High temperature radiatiors. Max design temperature: 90°C Malfunction temperature 100°C Design pressure 6 Bar Fire class: E according DIN EN 13501-1

Description	unit	
Uponor Sport Q&E tichelmann endsegment 3X dim 25	1 set	



1008939	40	3.7	6	6	Uponor evalPEX pipe, natural PN6, S 40x3,7 6m	150	6	m
ltem no.	mm	mm	bar	m	Description	unit 2	unit	
	d	S	р	L				



Uponor Q&E coupling PPSU

Note: Uponor Q&E rings must be ordered separately!

Item no.	d p mm bar	Description	unit 2	unit	
1008673	40 6+10	Uponor Q&E coupling PPSU 40-40	10	1	pcs
		Uponor Q&E elbow PF Note: Uponor Q&E rings must	PSU be ordered separ	ately!	
Item no.	d p mm bar	Description	unit 2	unit	
1008683	40 6	Uponor Q&E elbow PPSU 40-40	10	1	pcs
F		Uponor Q&E adapter of Made of brass. Male thread ac Q&E Ring must be ordered sep	male thread c.to ISO 228-1 fo parately! Suitable	PL W r sealin for Wip	g in. Note: Uponor ex base ports
ltem no.	d AG p mm " bar	Description	unit 2	unit	
1008732	40 G11/4 6	Uponor Q&E adapter male thread PL W 40-G1 1/4"MT	16	2	pcs
Î		Uponor Q&E adapter Made of brass. Female thread Ring must be ordered separate	female threa acc. to DIN EN 10 ly!	d PL	Note: Uponor Q&E
ltem no.	d IG p mm " bar	Description	unit 2	unit	
1047867	40 Rp 1 1/4 6	Upono Q&E adapter female thread	20	1	pcs
		Uponor Q&E ring with Made of PE-X. Uponor Q&E rin fittings.	i stop edge n ngs natural intend	latura ded for	l Uponor Q&E
Item no.	d p colour mm bar -	Description	unit 2	unit	
1045464	40 6+10 natural	Union Q&E ring with stop edge natural 40	80	5	pcs

Uponor Siccus Sport





ltem no.		d mm	s mm	L m	V I/m
1062885	NEW	14	2	960	0.079
1062884	NEW	14	2	240	0.079
1062883	NEW	14	2	120	0.079





Uponor Comfort Pipe PLUS

PE-Xa pipe with an oxygen diffusion layer of EVOH (ethylene vinyl alcohol), with an extra outer protection layer in white colour with two blue stripes. Complying with EN ISO 15875 "Plastic piping systems for hot and cold water installation - Cross-linked polyethylene" and fulfils the requirement for oxygen diffusion resistance as per DIN 4726. These under floor heating and cooling pipes are suitable for Uponor Q&E and Compression fittings.

Application class 4+5/ 6 bar Max design temperature: 90°C Malfunction temperature: 100°C Design pressure 6/10 bar at 90°C/70°C Fire class: E according DIN EN 13501-1

Description	unit 2	unit	
Uponor Comfort Pipe PLUS 14x2,0 960m	1920	960	m
Uponor Comfort Pipe PLUS 14x2,0 240m	1680	240	m
Uponor Comfort Pipe PLUS 14x2.0 120m	1320	120	m

Uponor MLC pipe white

Diffusion-tight multi-layer composite pipe (PE-RT - adhesive - longitudinally welded aluminium - adhesive - PE-RT) for distribution conduits, rising mains and connection lines for plumbing, radiator connection and fancoil connection. Fire classification E according to DIN EN 13501-1. Pipe end caps as hygienic seal according EN 806.

Resistance of temperature:

Tap water: The maximum permanent operating temperature exists between 0°C and 70°C at a maximum permanent operating pressure of 10 bars. The short-term malfunction temperature is 95°C of a maximum of 100 hours in the operating lifetime.

Heating: The maximum permanent operating temperature is 80°C at a maximum permanent operating pressure of 10 bars. The short-term malfunction temperature is 95°C of a maximum of 150 hours in the operating time per year.

AIR: max. temperature is 60°C; max. operating pressure of 12 bar

Description	unit 2	unit	
Uponor MLC pipe white 14x2,0 200m	2600	200	m
Uponor MLC pipe white 14x2,0 100m	2000	100	m

Uponor MLC pipe white CSTB S

Diffusion-tight multi-layer composite pipe (PE-RT - adhesive - longitudinally welded aluminium - adhesive - PE-RT) for distribution conduits, rising mains and connection lines for plumbing, radiator connection and fancoil connection. Fire classification E according to DIN EN 13501-1. Pipe end caps as hygienic seal according EN 806.

Resistance of temperature:

Tap water: The maximum permanent operating temperature exists between $0^{\circ}C$ and $70^{\circ}C$ at a maximum permanent operating pressure of 10 bars. The short-term malfunction temperature is 95°C of a maximum of 100 hours in the operating lifetime.

Heating: The maximum permanent operating temperature is 80°C at a maximum permanent operating pressure of 10 bars. The short-term malfunction temperature is 95°C of a maximum of 150 hours in the operating time per year.

AIR: max. temperature is 60°C; max. operating pressure of 12 bar

ltem no.	d mm	s mm	L m	Weight kg	di mm	Description	unit 2	unit	
1013446	40	4.0	5	0.507	32	Uponor MLC pipe white S 40x4,0 5m	1020	20	m

Item no.	d mm	s mm	L m	di mm
1013366	14	2.0	200	10
1013555	14	2.0	100	10



Uponor Q&E coupling, rings DR

For connection of Uponor PE-Xa pipes, made of brass.





ltem no.	d mm	Description	unit 2	unit	
1058659	14	Uponor Q&E coupling, rings DR 14-14	100	10	pcs

Uponor Q&E ring natural, eval

Made of PE-Xa. Uponor PE-Xa rings natural intended for Uponor Q&E Fittings.

	d	colour				
Item no.	mm	-	Description	unit 2	unit	
1058428	14	natural	Uponor Q&E ring natural, eval 14	1200	20	pcs

Uponor Q&E adapter Press



	d	d1				
Item no.	mm	mm	Description	unit 2	unit	
1063929	40	14	Uponor Q&E adapter Press 40-Q&E14	6	2	pcs

Uponor Q&E tee adapter Press

for connection of MLC pipe 40x4 and Uponor PEXa pipe 14x2. Consits of: 1 TEE / brass, including pre assambled press sleeve, proofed safety, leak function, colored pressing indicator 2 PEX rings



	d	d1	d2				
Item no.	mm	mm	mm	Description	unit 2	unit	
1063928	40	14	40	Uponor Q&E tee adapter Press 40-Q&E14-Press40	6	2	pcs

Uponor Vario compression adapter

Compression adapter for connection of Uponor PE-Xa pipes to manifolds. Female thread 3/4" eurocone acc. to DIN EN ISO 228-1. Material: Brass





Item no.	d mm	IG "	s mm	SW mm	Description	unit 2	unit	
1005168	14	G 3/4	2.0	30	Uponor Vario compression adapter 14x2,0-G3/4"Euro	250	10	pcs

Uponor Fit coupling UFHC

For connection of PE-Xa pipes with clamp ring thread, with body, sleeve, clamp rings and swivel nut Material: brass





	d	s	I	SW	SW1				
Item no.	mm	mm	mm	mm	mm	Description	unit 2	unit	
1005736	14	2.0	44	25	24	Uponor Fit compression coupling 14-14 14x2.0	100	10	pcs

		0			
Itom no	d	s	 mm	Z	

Item no.	mm	mm	mm	mm
1005488	14	2.0	60	4



ltem no.	d	IG	l	z
	mm	"	mm	mm
1058089	14	3/4	22.5	0.8





	d	1	z	
Item no.	mm	mm	mm	
1015154	14	55	12	



1046401	40	91	13.5
tem no.	mm	mm	mm
	d	I	Z





d AG " I Z Item no. mm mm mm 1046901 40 R 11/4 77 40



Uponor Rapex coupling

For the connection of PE-Xa pipes with press fitting, consisting of:

- 1 coupling - 2 press sleeves

Material: brass, press sleeves made in stainless steel

Description	unit 2	unit	
Uponor Rapex coupling 14-14	100	10	pcs

Uponor compression adapter MLC

Compression adapter made of brass, union nut and inner sleeve plated. For connection of Uponor MLC pipes to manifolds (eg. Uponor manifold H). Female thread 3/4" eurocone according to DIN EN ISO 228-1. Test safety and no bevelling.

Description	unit 2	unit	
Uponor compression adapter	25	1	ncc
MLC 14-3/4"FT Euro	25		pes

Uponor Press coupling

Made of tin-plated brass, with fixed press sleeve, stop ring, pressed identification, colour code and test safety. Press without bevel.

Description	unit 2	unit	
Uponor Press coupling 14-14	80	10	pcs

Uponor Press composite coupling PPSU

Made of PPSU with fixed press sleeve made of stainless steel, stop ring and test safety.

Description	unit	
Uponor Press composite coupling	5	pcs

Uponor Press adapter male thread

Made of tin-plated brass, with fixed press sleeve, stop ring, colour code and test safety. Male thread acc.to DIN EN 10226-1 for sealing in.

Description	unit	
Uponor Press adapter male thread	E	DCC
40-R1 1/4"MT	J	pes

Uponor Press adapter female thread

Made of tin-plated brass, with fixed press sleeve, stop ring, colour code and test safety. Cylindrical female thread acc. to DIN EN 10226-1.

Description	unit		
Uponor Press adapter female thread	5	pcs	

Uponor Press composite elbow PPSU

Made of PPSU with fixed press sleeve made of stainless steel, stop ring and test safety.





	d	1	Z	
tem no.	mm	mm	mm	Description
1046386	40	67.6	28.7	Uponor Press composite elbow

Uponor Siccus 14 tool case, complete

- Complete installation set for the realization of dry systems, including: 1 cutter, 1 set of refills cutter,
- 1 wrench SW 30 open,
- 1 Allen wrench 12/13,
- 1 clip 41-key,
- 1 set of tools,
- 1 ruler,
- 1 adjustable pliers,
- 1 slotted hex nut, hex nut with 1 hole,
- 1 pencil, construction,
- 1 230 V electric drill (code 1006290),
- 1 cutting tip diameter 14 mm.
- Supplied in metal case.



unit 5

Item no.	Description	unit	
1006326	Uponor Siccus 14 tool case, complete	1	pcs

Uponor Siccus 14 PS cutter, groove

For cutting of individual pipe curves and guides. 230 V connection.



1006290	230	Uponor Siccus 14 PS cutter, groove 14mm 230V	1	pcs
Item no.	OV V	Description	unit	

Uponor Q&E expansion head M12/M18

Q&E expander head for M12 and M18 tools.

	unit			
cutter, groove	1	pcs		
			12	



	d	S	р	stroke			
Item no.	mm	mm	bar	mm	Description	unit	
1057184	14/15	2.0/2.5	6+10	14	Uponor Q&E expansion head	1	pcs

Turf heating systems

Uponor Neva

Uponor Comfort Pipe PLUS

PE-Xa pipe with an oxygen diffusion layer of EVOH (ethylene vinyl alcohol), with an extra outer protection layer in white colour with two blue stripes. Complying with EN ISO 15875 "Plastic piping systems for hot and cold water installation - Cross-linked polyethylene" and fulfils the requirement for oxygen diffusion resistance as per DIN 4726. These under floor heating and cooling pipes are suitable for Uponor Q&E and Compression fittings.

Application class: 4+5/ 6 bar Max design temperature: 90 °C Malfunction temperature: 100 °C Design pressure 6 bar at 90 °C Fire class: E according DIN EN 13501-1

d s



Item no.	mm	mm	bar	m	Description	unit 2	unit	
1062888	NEW 25	2.3	6	220	Uponor Comfort Pipe PLUS 25x2,3 220m	440	220	m
1062889	NEW 25	2.3	6	300	Uponor Comfort Pipe PLUS 25x2,3 300m	600	300	m
1063907	NEW 25	2.3	6	640	Uponor Comfort Pipe PLUS 25x2,3 640m	1280	640	m

Uponor pipe and conduit cutting tool PEX

рL

For Uponor pipes, outside diameter up to 25 mm.



ltem no.	d mm	Description	unit
1001369	- 25	Uponor pipe cutting tool PEX 14-25	1 pcs

Uponor Fix bend support plastic

Made of impact resistant plastic as bend support $90\,^{\rm o}$ bends in the manifold area.

	d r		
Item no.	mm mm	Description	unit
1001230	25 120	Uponor Multi bend support plastic 25	50 pcs

Uponor Multi uncoiler telescop

Suitable for laying of all Uponor UFHC pipes up to 25 mm.

Four arms uncoiler with telescopic adjustment for save standing, laterally flexible slide protection, jump over protection, break and with adjustable pipe guide ring.

Load-bearing capacity: Max. 100 kg by full extension, max. 170 kg not extended.

Made of galvanised steel Weight: ca. 15 kg, partly assembled



Item no.	Description	unit	
1058662	Uponor Multi uncoiler telescop	1	pcs



Uponor Multi uncoiler mobil

Suitable for laying of all Uponor UFHC pipes up to 25 mm.

Four arms uncoiler for adapting to the trolley with pneumatic tires, laterally flexible slide protection, jump over protection, break and with adjustable pipe guide ring.

Load-bearing capacity: Max. 100 kg by full extension, max. 170 kg not extended

Made of galvanised steel Weight: Ca. 21.5 kg, partly assembled

Description	unit	
Uponor Multi uncoiler mobil	1	pcs

Uponor Multi uncoiler with wheels

For decoiling Uponor PEX pipes of up to 1,000 m rings. Requires only a small space and is easy to move.

item no.	Description	unit				
1034531	Uponor Multi uncoiler with wheels 20-1000m	1 pcs				
V	Uponor Multi uncoiler for large coils					
\bigwedge	For all Uponor one-way drums. 2 piece Type: Steel, primed	s are necessary.				
ltem no.	Description	unit				
1000143	Uponor Multi uncoiler for large coils	1 pcs				
	Uponor Magna expansion protective pipe					
	Slotted, corrugated conduit made of pl	astic, black.				
line as	Description					



Item no. 1058663

Uponor Multi cable ties

For fastening pipes on reinforcement steel meshed. Made of polyamide.

l b

Description	unit 2	unit	

9

13000

100

100

pcs

pcs

pcs

ち

Item no. mm mm Description 1005287 200 5 Uponor Multi cable ties PA 200mm	1005372	280 7	Uponor Multi cable ties PA 280mm
Item no. mm mm Description	1005287	200 5	Uponor Multi cable ties PA 200mm
	Item no.	mm mm	Description

Uponor Classic tying wire

For fastening Uponor pipes on reinforcement steel meshes. Made of steel. 250 pcs per bag.

tem no.	l mm	b mm	Description
1009222	150	1.25	Uponor Classic tying wire 150x1.25mm 250pcs

Uponor Multi tying tool



^{unit} 250

ltem no.	Description	unit
1034533	Uponor Multi tying tool	1 pcs

Uponor Multi clamp track U-profile

For fixation of PE-Xa pipes.





	d	1	b	h	c/c			
Item no.	mm	mm	mm	mm	mm	Description	unit	
1005290	25	3000	50	34	50	Uponor Magna clamp track U-profile 25mm c/c50mm 3m	30	m

Uponor Magna clamp track nail

For fastening the Uponor clamp track 25.





	b	h				
Item no.	mm	mm	Description	unit 2	unit	
1005291	36	50	Uponor Magna clamp track nail 25mm 50mm	5000	500	pcs

Uponor Magna clip, steel mesh

For fastening Uponor pipes on reinforcement steel meshes.





	d	d1	b	h	hl				
Item no.	mm	mm	mm	mm	mm	Description	unit 2	unit	
1005289	25	3-8	38	57	27	Uponor Magna clip, steel mesh 25mm 3-8mm	4000	250	pcs



ltem no.	mm	m	m	
1005049	0.2	60	1.25	



L	_	b			
ltem no. n	n	mm	Description	unit	
1000012 e	66	50	Uponor Multi tape roll 66m 50mm	1	pcs

Description

Uponor Multi UFHC roller manual

Uponor Multi foil

insulation.

Description

Uponor Multi foil

PE 0,2mm 60x1,25m

Roll length 66 m.

Uponor Multi tape roll

For installation on Uponor insulation or on standardised insulating material approved as clamp protection. Prevents screed penetrating the underlying

unit 2

3375

unit

75

unit

1

pcs

m²



Uponor Multi UFHC roller manual For sticking down of insulation sections and edges, takes a roll of tape.

000142													
·													

Item no.

Item no. 1020182

10001/17



Uponor Magna edging strip, self-adh

200 mm high edging strip, made of polyethylene, self-adhesive strip on outer face provides tight seal between edging strip and insulation. Length of roll: 25 m

Description	unit	
Uponor Magna edging strip, self-adh 50m 200x10mm	25	m

150 1

Uponor Magna manifold kit

For mounting the manifold, made of:

- 2 St. brackets short
- 2 St. brackets long
- 2 St. filling valve brass
- 2 St. thermometer 0-60°C
- 1 St. manometer - 2 St. endcap
- 2 St. flat sealing screw connection piece with swivel nut
- 1 St. mounting material:
- 8 x screws 6 x 60 mm
- 8 x plastic anchor 8 x 40 mm
- 2 x flat sealing 44 x 32 x 2

Item no.	Description	unit	
1045815	Uponor Magna manifold kit <u>K1</u>	1	pcs

UPONOR SPORTS FLOOR TECHNICAL MANUAL

Uponor Magna manifold segment w. valve

As supply/return for Industrial heating, made of: - Supply-segment, with control valves for preadjustment, heating loop connection for PE-Xa Pipe 25x2,3 with compression adapter. - Return-segment with thermostat upper section incl. cap for locking, Uponor actuator can be mounted directly on the return manifold , heating loop connection for PE-Xa Pipe 25x2,3 with compression adapter

Spacing of outlet: 100 mm Material: fibreglass reinforced Polyamid Max. operating temperatur: 60 °C Max. operating pressure 6 bar

Induvidual combination up to 20 loops max.

Number of needed brackets

loops	2-5	6-9	10-14	15-19	20
bracket	2	3	4	5	6

Item no. 1045813

Uponor Magna ball valve , set

For use with the Uponor Magna manifold connection: - G 11/2 FT - G 11/2 MT Material: Brass



Description	unit	
Uponor Magna manifold segment w. valve	1	ncc
dim 25		pes



Item no.	Description	unit	
1030135	Uponor Magna ball valve , set 2x G 1 1/2	1	pcs

Uponor Magna manifold bracket kit

For mounting the manifold, made of:

- 2 St. brackets short
- 2 St. brackets long
- 1 St. mounting material: 8x screws 6x60mm
- 8x plastic anchor
- 8x40mm



Item no.	Description	unit	
1045816	Uponor Magna manifold bracket kit	1	pcs

Uponor Magna manifold flowmeter

For adjusting the water quantity of the individual heating loops in a range of 4-20 l/min. Water quantity is indicated in the inspection window. With shut-off function. Made of fibre-glass reinforced polyamid.

Material: Fibreglass reinforced Polyamid

Item no.	Description		
1030134	Uponor Magna manifold flowmeter	1	pcs

			Uponor Vario PLUS valve tool			
			For mounting and de-mounting the valves of the	Vario	Plus manifold.	
Item no			Description	unit		
1009216			Uponor Vario PLUS valve tool	1	ncs	
1005210					pes	
			Uponor Vario loop label cards			
Uponor Item no. 1009121			Description Uponor Vario loop label cards	unit 10	pcs	
			Uponor Multi press pump			
			For pressure test of the heating installation.			
Item no.			Description Uponor Multi press pump	unit		
1006244				I	pcs	
			Uponor Q&E expansion tool with he Battery powered expander tool for 6 bar pipes up for 10 bar pipes up to 32 mm. Auto-rotating with M18 expander heads. < 10 seconds full expansion onto a joint. < 2.2 kg with head and battery. Steel gear and integrated metal frame. LED work light, fuel gauge, tool free head change Incl. 2 Li-ion 1.5 Ah batteries, charger 220-240V/ (Mo).	ads to din <u>5</u>	M18 nension 40 mm and DHz and grease	
	р	stroke				
Item no.	ba	ir mm	Description	unit		
1057169	6	25	M18 H20/H25/H32 6bar H	1	set	

Uponor Q&E expansion head M18 H

Q&E head for S5 fittings, for M18 tools. Expander head packed screw pack.



	d	s	р	stroke				
Item no.	mm	mm	bar	mm	I	Description	unit	
1057180	25	2.3	6	25		Jponor Q&E expansion head M18 H 25x2,3	1	pcs

Uponor Q&E graphite paste, manual tools

Colloidal graphite paste. For Uponor Q&E Tools and for WIPEX bolts.



	Weight				
Item no.	kg	Description	unit 2	unit	
1005017	0.1	Uponor SPI Q&E graphite paste 100g	70	1	pcs

Uponor Q&E coupling PPSU

Note: Uponor Q&E rings must be ordered separately!

Item no.	d p mm bar	Description	unit 2	unit	
1008671	25 6+10	Uponor Q&E coupling PPSU 25-25	50	5	pcs

Uponor Q&E ring natural, eval

Made of PE-Xa. Uponor PE-Xa rings natural intended for Uponor Q&E Fittings.

	d	colour				
Item no.	mm	-	Description	unit 2	unit	
1042841	25	natural	Uponor Q&E ring with stop edge	300	20	pcs



Uponor Radio 24V climate controller C-46

Weather compensator for supply water control in heating mode. Could be connected to C-56 room control system via bus connection. Cooling mode possible when adding an antenna and humidity sensor (seperatly sold).

Consisting of:

- Climate Controller C-46
- Wired Outdoor sensor
- Wired Supply sensor

Options:

- Antenna module for connection to wireless thermostats
- Wired indoor sensor
- Wired return sensor

General functions:

- Installation wizard gives easy and fast installation & set-up
- Quick menu system gives easy access to basic settings
- Integration with C-56 system via bus gives C-46 access to zone data from C-56.
- System information, H/C-state, ECO-mode etc are also shared on the bus
- Automatic summer/wintertime change
- ECO/Comfort timer in C-46 if no I-76 is connected
- Clock backup 8 hours
- Alarm at disturbance
- Pump management with internal fuse
- Supports 24V Thermal Actuator
- or 0-10 V controlled rotating mixer motor,
- or variable speed pump
- General purpose input for heating+cooling switch
- or snow detection
- General purpose output for heating+cooling command
- or dehumidification command
- or error signalling
- Input indoor sensor
- Input outdoor sensor
- Input Supply Sensor
- Input Return Sensor

Accessories

Outdoor sensor (5 m cable), Supply sensor (4 m cable), mounting material

	1	b	h			
Item no.	mm	mm	mm	Description	unit	
1047844	174	106	80	Uponor Radio 24V climate controller	1	set



The wireless RH sensor H-56 gives feedback on the humidity indoors thus avoiding condensation when in cooling mode. Thanks to the wireless connection the sensor placement is completly flexible.

Consisting of:

- H-56 humidity sensor
- Batteries 2 x AAA
- Mounting material

Functions:

- Gives feedback on humidity indoors
- Could be connected to C-46 by antenna or via C-56
- Room by room humidity control in combination with C-56

Conformity: CE Colour: RAL 9010

1047846	72 72	2 21	Uponor Radio 24V humidity sensor	1	pcs
Item no.	mm mm	n mm	Description	unit	

Uponor Radio 24V supply/return sensor f. C-46

- For connection directly to C-46
- Sensor with 4m wire

Note: Return sensor only needed for average temperature control.



unit 1

pcs

	L			
Item no.	m	Description		
1047847	4	Uponor Radio 24V supply/return sensor f. C-46		

Uponor Radio 24V outdoor/indoor sensor C-46

Can be used as outdoor or indoor sensor for C-46 climate controller and C-56 DEM.

Consisting of:

- Sensor with housing
- Cable bushing and clamp
- Mounting material

Functions:

- For wiring connection directly to C-46 (additional connection wire needed)

- Radio connection wired to thermostat T-54

- If connected to C-56 DEM outdoor temperature will be displayed at the Interface I-76 $\,$

Conformity: CE Protection Class: 65 Temperature range: -40 to 80 °C

	1	b	h			
Item no.	mm	mm	mm	Description	unit	
1047848	85	50	35	Uponor Radio 24V outdoor/indoor sensor C-46	1	pcs

Uponor Viva 3-port zone valve

Seat valve, PN16. Bronze internal threaded set valves, stroke 5.5 mm for low-pressure hot water and chilled water systems with permissible fluids as:

- Water: 2 °C ... 120 °C
- Domestic non-drinking water
- Water glycol (with up to a maximum of 50 % as anti-freeze)

Design features:

- Energy saving with tight shut off trough soft sealing
- 3-port valves can be used in mixing or diverting application
- Equal-percentage flow characteristics
- Maintenance free low friction spindle sealing
- Threaded valve neck for fitting actuator
- Screwed knob for manual operation

Item no.	escription	unit
1045799	oonor Viva 3-port zone valve (DN 40	1 pcs



|--|



Item no. 1045801

Uponor Actuator 230V 3way zone valves

For the control of 3 ways miter-seated valves. 230V

Design features:

- 3-position or 0/2...10 V dc. modulating control signal
- 2...5.5 mm auto stroke adapting to fit onto other brand valves
- The stroke is adapted automatically to the valve
- Direct assembly with union nut to the neck of te valve (no tools requierd)
- Manual operation by usinga standard 5 mm hexagonal key
- The actuator is short-circuit-proof and protected against polarity reversal
- Plug-in cable for supply voltage and control signal
- Control through C-46 Climate controller

Description	unit	
VALVE ACTUATOR (0-10 VDC)	1	pcs

Uponor Fluvia T pumpgroup TPG-30-TH

Pumpgroup with thermostat for constant supply water temperature control, 3-way-mixer with manual balancing.

Thermostat with capillary sensor 5-55 °C, Pump Wilo Para 1-8 0.1-8.3 m³/h, H: 8-2 m EEI <0.27

Supply thermostat valve kvs 4.8 m³/h Mixing valve kvs 8 m³/h Checkvalve in bypass

Secondary connections G1 1/2A

Max. 90° primary, max. 60° secondary, max. 10 bar

Description	unit		
Uponor Fluvia T pumpgroup TPG-30-TH	1	pcs	

Uponor Fluvia E pumpgroup PPG-30-A

With supply temperature control C-46, prewired and prepared for wallmounting, consisting of :

- Uponor C-46 control, weather-compensated and with interface to Uponor zone temperature control C-56

- Outdoor temperature sensor (for installation on buildingsite) - Water temperature sensor for supply temperature
- Motordrive
- 3-way-mixing valve, kvs 8 - Pump Wilo Para 1-8
- 0.1-8.3 m³/h, H: 8-2 m EEI <0.27
- Fixing material
- Fixing brackets
- Piping
- Connection primary Rp1 (FT), ballvalves
- Connection secondary G1 1/2 A, (MT), brass union connections

Upgrade to heating/cooling possible with humidity sensor RH-56 No. 1047846 and Antenna 1000513.

Max. 90° primary, max. 60° secondary, max. 10 bar

ltem no.	Description	unit
1059840	Uponor Fluvia E pumpgroup PPG-30-A	1 pcs





Uponor Fluvia pumpgroup exenter fitting

For connection of Uponor pumpgroups TPG-30-TH, PPG-30 to Uponor manifolds.



unit

Item no.	Description
1059841	Uponor Fluvia pumpgroup exenter fitting G11/2xG1

Uponor Magna uncoiler

onor Fluvia pumpgroup exenter fitting 1/2xG1	1 set	
escription	unit	

	I	h			
Item no.	mm	mm	Description	unit	
1006256	740	1300	Uponor Magna uncoiler 25 340m	1	pcs

Uponor Meltaway

Uponor Meltaway PEX Pipe

Uponor snow and ice melting pipes manufactured from cross-linked polyethylene, complying with e.g. EN ISO 15875 "Plastics piping systems for hot and cold water installations - Cross-linked polyethylene". Application for underfloor heating up to 50 °C water temperature. Design pressure 4 bar.



	d s	L	
Item no.	mm mm	ı m	
1022341	25 2.3	3 920	
1033625	25 2.3	3 1020	
1033626	25 2.3	3	
1033627	32 3.0) 508	

Description	unit	
Uponor Meltaway PEX Pipe 25x2 3 920m	920	m
Uponor Meltaway PEX Pipe 25x2,3 1020m	1020	m
Uponor Meltaway PEX Pipe, custom made 25x2,3	1	m
		m

Uponor Meltaway single manifold

Uponor snow and ice melting single manifold made of high density polyethylene (HDPE) pipe and equipped with compact-welded couplings.

	d	c/c	
Item no.	mm	mm	
1033637	75	600	
1033638	110	600	
1033639	160	600	
1033640	75	150	
1033641	75	200	
1033642	110	200	
1033645	110	150	
1033647	160	150	
1033631	75	500	
1033632	110	500	
1033633	160	500	

Uponor Meltaway double manifold

Uponor snow and ice melting double manifold made of high density polyethylene (HDPE) pipe and equipped with compact-welded couplings oriented in two directions with an angle of 120° between them.



Uponor Meltaway single manifold 1 pcs 75 1x10 c/c600 6m 1 pcs Uponor Meltaway single manifold 1 pcs Uponor Meltaway sin	Description	unit	
Uponor Meltaway single manifold 1 pcs 110 1x10 c/c600 6m 1 pcs Uponor Meltaway single manifold 1 pcs Uponor Meltaway single manifold 1 pcs 25 1x40 c/c500 6m 1 pcs Uponor Meltaway single manifold 1 pcs 25 1x40 c/c150 6m 1 pcs Uponor Meltaway single manifold 1 pcs 10 1x10 c/c200 6m 1 pcs Uponor Meltaway single manifold 1 pcs 110 1x30 c/c200 6m 1 pcs Uponor Meltaway single manifold 1 pcs 110 1x30 c/c150 6m 1 pcs Uponor Meltaway single manifold 1 pcs 10 1x40 c/c150 6m 1 pcs Uponor Meltaway single manifold 1 pcs 10 1x12 c/c500 6m 1 pcs Uponor Meltaway single manifold 1 pcs 10 1x12 c/c500 6m 1 pcs	Uponor Meltaway single manifold 75 1x10 c/c600 6m	1	pcs
Uponor Meltaway single manifold 1 pcs 160 1x10 c/c600 6m 1 pcs Uponor Meltaway single manifold 1 pcs 75 1x40 c/c150 6m 1 pcs Uponor Meltaway single manifold 1 pcs 75 1x30 c/c200 6m 1 pcs Uponor Meltaway single manifold 1 pcs 110 1x30 c/c200 6m 1 pcs Uponor Meltaway single manifold 1 pcs 110 1x40 c/c150 6m 1 pcs Uponor Meltaway single manifold 1 pcs 100 1x40 c/c150 6m 1 pcs Uponor Meltaway single manifold 1 pcs 100 1x40 c/c150 6m 1 pcs Uponor Meltaway single manifold 1 pcs 100 1x12 c/c500 6m 1 pcs Uponor Meltaway single manifold 1 pcs 100 1x12 c/c500 6m 1 pcs Uponor Meltaway single manifold 1 pcs	Uponor Meltaway single manifold 110 1x10 c/c600 6m	1	pcs
Uponor Meltaway single manifold 1 pcs 75 1x40 c/c150 6m 1 pcs Uponor Meltaway single manifold 1 pcs Uponor Meltaway single manifold 1 pcs 110 1x30 c/c200 6m 1 pcs Uponor Meltaway single manifold 1 pcs 110 1x40 c/c150 6m 1 pcs Uponor Meltaway single manifold 1 pcs 160 1x40 c/c150 6m 1 pcs Uponor Meltaway single manifold 1 pcs 160 1x40 c/c150 6m 1 pcs Uponor Meltaway single manifold 1 pcs 100 1x12 c/c500 6m 1 pcs Uponor Meltaway single manifold 1 pcs 110 1x12 c/c500 6m 1 pcs Uponor Meltaway single manifold 1 pcs	Uponor Meltaway single manifold 160 1x10 c/c600 6m	1	pcs
Uponor Meltaway single manifold 1 pcs 75 1x30 c/c200 6m 1 pcs Uponor Meltaway single manifold 1 pcs	Uponor Meltaway single manifold 75 1x40 c/c150 6m	1	pcs
Uponor Meltaway single manifold 1 pcs 110 1x30 c/c200 6m 1 pcs Uponor Meltaway single manifold 1 pcs	Uponor Meltaway single manifold 75 1x30 c/c200 6m	1	pcs
Upponr Meltaway single manifold 1 pcs 110 1x40 c/c150 6m 1 pcs 160 1x40 c/c150 6m 1 pcs Upponr Meltaway single manifold 1 pcs 175mm 1x12 c/c500 6m 1 pcs Upponr Meltaway single manifold 1 pcs 110 1x12 c/c500 6m 1 pcs Upponr Meltaway single manifold 1 pcs Upponr Meltaway single manifold 1 pcs 10 1x12 c/c500 6m 1 pcs	Uponor Meltaway single manifold 110 1x30 c/c200 6m	1	pcs
Uponor Meltaway single manifold 1 pcs 160 1x40 c/c150 Gm 1 pcs Uponor Meltaway single manifold 1 pcs 75mm 1x12 c/c500 Gm 1 pcs Uponor Meltaway single manifold 1 pcs 110 1x12 c/c500 Gm 1 pcs Uponor Meltaway single manifold 1 pcs	Uponor Meltaway single manifold 110 1x40 c/c150 6m	1	pcs
Uponor Meltaway single manifold 1 pcs 75mm 1x12 c/c500 6m 1 pcs Uponor Meltaway single manifold 1 pcs 110 1x12 c/c500 6m 1 pcs Uponor Meltaway single manifold 1 pcs 100 1x12 c/c500 6m 1 pcs	Uponor Meltaway single manifold 160 1x40 c/c150 6m	1	pcs
Upponr Meltaway single manifold 1 pcs 110 1x12 c/c500 6m 1 pcs Upponr Meltaway single manifold 1 pcs	Uponor Meltaway single manifold 75mm 1x12 c/c500 6m	1	pcs
Uponor Meltaway single manifold 1 pcs	Uponor Meltaway single manifold 110 1x12 c/c500 6m	1	pcs
	Uponor Meltaway single manifold 160 1x12 c/c500 6m	1	pcs



	d c/c
Item no.	mm mm
1033634	75 500
1033635	110 500
1033636	160 500
1033644	75 150
1033646	110 150

Description	unit	
Uponor Meltaway double manifold 75 2x12 c/c500 6m	1	pcs
Uponor Meltaway double manifold 110 2x12 c/c500 6m	1	pcs
Uponor Meltaway double manifold 160 2x12 c/c500 6m	1	pcs
Uponor Meltaway double manifold 75 2x40 c/c150 6m	1	pcs
Uponor Meltaway double manifold 110 2x40 c/c150 6m	1	pcs



tem no	d s	Description	unit
1033672	25 2.3	Uponor Meltaway coupling 25x2,3 145mm	1 pcs
1033678	25 2.3	Uponor Meltaway coupling	1 pcs



6.8 6

110 6.6 6

160 9.5 6

d s L

mm mm m

75

Uponor Meltaway coupling

Uponor straight couplings for snow and ice melting PE-X pipes 25x2.3 Made of HDPE.

Description	unit	
Uponor Meltaway coupling 25x2,3 145mm	1	pcs
Uponor Meltaway coupling 25x2,3 290mm	1	pcs

Uponor Meltaway feeder tubes

Uponor snow and ice melting supply pipes made of HDPE.

Description	unit	
Uponor Meltaway feeder tubes 75x6,8 6m	1 m	
Uponor Meltaway feeder tubes 110x6,8 6m	1 m	
Uponor Meltaway feeder tubes 160x9,5 6m	1 m	



Item no.

1033628

1033629

1033630

Uponor Meltaway endcap

Uponor snow and ice melting end cap made of HDPE.

Item no.	mm	
1033660	110	
1033661	160	

Uponor Meltaway endcap 110	1	pcs
Uponor Meltaway endcap 160	1	pcs



bh mmmm

36 50



ltem no.	d mm	l mm	b mm	h mm	c/c mm	
1005290	25	3000	50	34	50	



Item no. 1005291



Uponor Multi clamp track U-profile

For fixation of PE-Xa pipes.

Description

Description	unit
Uponor Magna clamp track U-profile	30 m
25mm c/c50mm 3m	

Uponor Magna clamp track nail

For fastening the Uponor clamp track 25.

Description	unit 2	unit	
Uponor Magna clamp track nail 25mm 50mm	5000	500	pcs



Uponor Multi cable ties

For fastening pipes on reinforcement steel meshed. Made of polyamide.

l b

 I	

9

ltem no.	mm mm	Description	unit 2	unit	
1005287 200 5	200 5	Uponor Multi cable ties	13000 100 p		DCC
	200 J	PA 200mm	13000 100	100	pcs
1005372	280 7	Uponor Multi cable ties		100	ncc
1005572	200 7	PA 280mm		100	pes

Uponor Classic tying wire

For fastening Uponor pipes on reinforcement steel meshes. Made of steel. 250 pcs per bag.

	1	b		
ltem no.	mm	mm	Description	unit
1009222	150	1.25	Uponor Classic tying wire 150x1,25mm 250pcs	250

Uponor Fix bend support plastic

Made of impact resistant plastic as bend support $90\,^{\rm o}$ bends in the manifold area.



pcs

 \square

	d r			
Item no.	mm mm	Description	unit	
1001230	25 120	Uponor Multi bend support plastic 25	50	pcs

Uponor Multi bend support galv steel

Made of galvanised steel as bend support for the pipe at the manifold.



	d r	R	
Item no.	mm mm	mm	Description
1009006	25 134	130.00	Uponor Multi bend support gal

Uponor conduit

Manufactured from high density polyethylene (HDPE). Used for pipe-inpipe (PIP) installations to reduce the risk for water damages, and to allow for flexible media pipe to be replaced.





	d	d1	L	Weight	colour					
Item no.	mm	mm	m	kg	-	Description	unit 2	unit		
1012869	35/29	25	50	0.103	black	Uponor conduit	1800	50	m	





Uponor Fit compression adapter male

Compression adapter for connection of Uponor PE-Xa pipes with $3/4^{\prime\prime}$ female thread. Material: Brass

Item no.	d mm	AG ″	IG ″	l mm	SW mm	z mm
1005295	25	R 3/4		50	37/27	15
1005296	25		Rp 1	40	37/38	8
1005297	25		Rp 3/4	35	37/31	8
1005298	25	R 1		53	37/34	20

Description unit Uponor Fit compression adapter male 10 pcs 25x2,3-R3/4*MT 10 pcs Uponor Fit compression adapter female 10 pcs 25x2,3-R9/1*FT 10 pcs Uponor Fit compression adapter female 10 pcs 25x2,3-R9/4*FT 10 pcs Uponor Fit compression adapter male 10 pcs 25x2,3-R9/4*FT 10 pcs



Uponor Meltaway bevelling tool

For de-studding the Uponor snow and ice melting pipe.

	d			
Item no.	mm	Description	unit	
1033689	25	Uponor Meltaway bevelling tool dim 25	1	pcs

Uponor Arena

Uponor Arena ice track pipe



Item no.	Description	unit
1046816	Uponor Arena ice track pipe 25x2.3 700m PN16 PE100	700 pcs
1046817	Uponor Arena ice track pipe 25x2,3 675m PN16 PE100	675 pcs
1046818	Uponor Arena ice track pipe 25x2,3 650m PN16 PE100	650 pcs
1046819	Uponor Arena ice track pipe 25x2,3 630m PN16 PE100	630 pcs
1046820	Uponor Arena ice track pipe 25x2,3 600m PN16 PE100	600 pcs

Uponor Arena ice track pipe



Item no.	Description	unit	
1048154	Uponor Arena ice track pipe 25x2,3 725m PN16 PE100	725	pcs
1048155			pcs
1055269	Uponor Arena ice track pipe 25x2,3 920m PN16 PE100		pcs

Uponor Arena ice track distrib. pipe



Item no.	Description
1046829	Uponor Aren
	12x25-110m
10/6930	Uponor Aren
1040030	15x25-110m
10/6831	Uponor Aren
100001	20x25-110m
10/6932	Uponor Aren
1040032	<u>15x25-160m</u>
10/6933	Uponor Aren
1040033	20x25-160m
10/692/	Uponor Aren
1040034	30x25-160m
10/6925	Uponor Aren
1040033	30x25-200m

Description Uponor Arena ice track distrib. pipe 12x25-110mm PN16 PE100 Uponor Arena ice track distrib. pipe 15x25-110mm PN16 PE100 Uponor Arena ice track distrib. pipe 20x25-10mm PN16 PE100 Uponor Arena ice track distrib. pipe 20x25-100mm PN16 PE100 Uponor Arena ice track distrib. pipe 20x25-100mm PN16 PE100 Uponor Arena ice track distrib. pipe 20x25-100mm PN16 PE100 Uponor Arena ice track distrib. pipe 20x25-100mm PN16 PE100 Uponor Arena ice track distrib. pipe 20x25-100mm PN16 PE100 Uponor Arena ice track distrib. pipe 30x25-160mm PN16 PE100 Uponor Arena ice track distrib. pipe 30x25-200mm PN16 PE100



Uponor Arena ice track support

Item no.

1046836

Description
Uponor Arena ice track support 25mm PN10 PE



Uponor Arena pressure bend, sect weld

Item no.	Description	
1046842	Uponor Arena pressure bend, sect weld 90° 110mm PN10 PE100	pcs
1046844	Uponor Arena pressure bend, sect weld 90° 160mm PN10 PE100	pcs
1046846	Uponor Arena pressure bend, sect weld 90° 200mm PN10 PE100	pcs
1046843	Uponor Arena pressure bend, sect weld 45° 110mm PN10 PE100	pcs
1046845	Uponor Arena pressure bend, sect weld 45° 160mm PN10 PE100	pcs
1046847	Uponor Arena pressure bend, sect weld 45° 200mm PN10 PE100	pcs

Uponor Arena pressure bord ring



Item no.		
1046848	Uponor Arena pressure bord ring 110mm PN10 PE100	pcs
1046849	Uponor Arena pressure bord ring 160mm PN10 PE100	pcs
1046850	Uponor Arena pressure bord ring 200mm PN10 PE100	pcs
1046851	Uponor Arena pressure bord ring 250mm PN10 PE100	pcs
1046857	Uponor Arena pressure reducer 160-110mm PN10 PE100	pcs
1046858	Uponor Arena pressure reducer 200-160mm PN10 PE100	pcs
1046859	Uponor Arena pressure reducer 250-200mm PN10 PE100	pcs

Uponor Arena pressure branch

Item no.	Description	
1046860	Uponor Arena pressure branch 110x90 PN10 PE100	pcs
1046861	Uponor Arena pressure branch 160/110x90mm PN10 PE100	pcs
1046862	Uponor Arena pressure branch 160x90 PN10 PE100	pcs
1046863	Uponor Arena pressure branch 200/110x90mm PN10 PE100	pcs
1046864	Uponor Arena pressure branch 200/160x90mm PN10 PE100	pcs
1046865	Uponor Arena pressure branch 200x90 PN10 PE100	pcs
1046867	Uponor Arena heating end cap 110mm PN10	pcs
1046868	Uponor Arena heating end cap 160mm PN10	pcs

UPONOR SPORTS FLOOR TECHNICAL MANUAL

Building site documentation

Technical documentation

Uponor Sport

Building project:	Date:
Project-no.:	Signed by:
Size [m ²]:	Expected delivery:

Technical information (steady state)

Sports floor supplier/type		
Thermal resistance floor covering	R _{λ,B}	(m² K/W)
Floor covering		

Input		1	2	3	4	
Nominal indoor room temperature	$\Theta_{_{i}}$					°C
Nominal heat flow density	Q _N					W
[Q _N -Q _{Ber}]	Q _H					W
Heated floor area	A _F					m ²
Demand heat flow density $[Q_{\mu}/A_{F}]$						W/m²

Design data				
Supply temperature	Θ_{v}			°C
Return temperature	$\Theta_{_{\mathrm{R}}}$			°C
Delta T $[\Theta_v - \Theta_R]$	σ			К
Mean water temperature	$\Theta_{_{\mathrm{H,m}}}$			°C
Design heat flow density	q _{des}			W/m²
Heat flow downwards [RD=2.0 m²K/W]	q _u			W/m²
Limit heat flow density acc. EN 1264	q _G			W/m²
Heated area per twin return				m²
Heat output per twin return				W
Not achieved heat output				W/m²

Pump design input			
Mass flow per twin return			kg/h
Pressure lost per twin return			kPa

Info:

Pressure loss only applies to the twin return system. Pressure lost for supply and return pipe, mixer, valve, etc. must be calculated separately.

Bill of quantity

Uponor Sport

Building project:	Date:
Project-no.:	Signed by:
Size [m ²]:	Expected delivery:

No.	Description	ID	Amount	Unit
Sprung	floor area			
1	UPONOR COMFORT PIPE PLUS 25X2,3 60M	1062887		Μ
2	UPONOR COMFORT PIPE PLUS 25X2,3 220M	1062888		М
3	UPONOR COMFORT PIPE PLUS 25X2,3 300M	1062889		М
4	UPONOR COMFORT PIPE PLUS 25X2,3 640M	1063907		М
5	UPONOR SPORT PIPE CLIP, PLASTIC 25MM C/C100MM 0,29M PA	1005286		Pce
6	UPONOR SPORT DOUBLE CLIP, STEEL 25MM C/ C100MM 0,975M STEEL	1005284		Pce
7	UPONOR Q&E COUPLING PPSU 25-25	1008671		Pce
8	UPONOR Q&E RING WITH STOP EDGE NATURAL, EVAL 25	1042841		Pce
9	UPONOR SPORT Q&E TICHELMANN MANIFOLD 3X DIM 25	1046748		Set
10	UPONOR SPORT Q&E TICHELMANN MANIFOLD 2X DIM 25	1046747		Set
11	UPONOR SPORT Q&E TICHELMANN ENDSEGMENT 3X DIM 25	1046749		Set
12	UPONOR EVALPEX PIPE, NATURAL PN6, S 40X3,7 6M	1008939		М
13	UPONOR Q&E COUPLING PPSU 40-40	1008673		Pce
14	UPONOR Q&E ELBOW PPSU 40-40	1008683		Pce
15	UPONOR Q&E RING WITH STOP EDGE NATURAL 40	1045464		Pce
16	UPONOR Q&E ADAPTER FEMALE THREAD PL 40-RP1 1/4"FT	1047867		Pce
Pump g	roup and control			
17	UPONOR FLUVIA E PUMPGROUP CPG-15-A	1048782		Pce
18	UPONOR FLUVIA E PUMPGROUP CPG-15-B	1048783		Pce
19	UPONOR FLUVIA E PUMPGROUP MPG-10-A	1048780		Pce
20	UPONOR FLUVIA E PUMPGROUP MPG-10-B	1048781		Pce
21	UPONOR RADIO 24V CLIMATE CONTROLLER C-46	1047844		Pce
22	UPONOR RADIO 24V OUTDOOR/INDOOR SENSOR C-46	1047848		Pce
On a lo	an basis or to buy			
23	UPONOR MULTI UNCOILER RENTAL 25 340M	1007034		Pce
24	UPONOR SPORT TOOL CASE RENTAL	1058333		Pce

Technical documentation

Uponor Siccus Sport

Building project:	Date:
Project-no.:	Signed by:
Size [m ²]:	Expected delivery:

Technical information (steady state)

Sports floor supplier/type							
Thermal resistance floor covering	R _{λ,B}					(m² K/W)	
Floor covering							
Input		1	2	3	4		
Nominal indoor room temperature	$\Theta_{_{i}}$					°C	
Nominal heat flow density	0					W	

Nominal fleat flow density	Q _N			vv
$[Q_N - Q_{Ber}]$	Q _H			W
Heated floor area	A _F			m ²
Demand heat flow density $[Q_u/A_c]$				W/m²

Design data				
Supply temperature	Θ_{v}			°C
Return temperature	$\Theta_{_{\rm R}}$			°C
Delta T $[\Theta_v - \Theta_R]$	σ			К
Mean water temperature	$\Theta_{\mathrm{H,m}}$			°C
Design heat flow density	q_{des}			W/m²
Heat flow downwards [RD=2.0 m²K/W]	q _u			W/m²
Limit heat flow density acc. EN 1264	q _G			W/m²
Heated area per twin return				m²
Heat output per twin return				W
Not achieved heat output				W/m²

Pump design input			
Mass flow per twin return			kg/h
Pressure lost per twin return			kPa

Info:

Pressure loss only applies to the twin return system. Pressure lost for supply and return pipe, mixer, valve, etc. must be calculated separately.

Bill of quantity

Uponor Siccus Sport

Building project:	Date:
Project-no.:	Signed by:
Size [m ²]:	Expected delivery:

No.	Description	ID	Amount	Unit
Siccus a	irea			
1	UPONOR COMFORT PIPE PLUS 14X2,0 120M	1062883		М
2	UPONOR COMFORT PIPE PLUS 14X2,0 240M	1062884		М
3	UPONOR COMFORT PIPE PLUS 14X2,0 960M	1062885		М
4	UPONOR MLC PIPE WHITE14X2,0 200M	1013366		М
5	UPONOR MLC PIPE WHITE14X2,0 100M	1013555		М
6	UPONOR SICCUS 14 PANEL EPS 150KPA 14MM 1197X1050X25MM	1005485		m ²
7	UPONOR SICCUS 14 HEAT EMISSION PLATE 14MM 1180X120X0,45MM	1005486		Pce
8	UPONOR MULTI EDGING STRIP WITH FOIL PE 50M 150X8MM	1000079		m
9	UPONOR MULTI FOIL PE 0,2MM 60X1,25M	1005049		m ²
10	UPONOR RAPEX COUPLING 14-14	1005488		Pce
11	UPONOR MLCP RED PRESS COUPLING 14-14	1048272		Pce
Vario P	lus manifold			
12	UPONOR VARIO PLUS MANIFOLD W. VALVE LS 1X	1042420		Pce
13	UPONOR VARIO PLUS MANIFOLD W. VALVE LS 3X 3/4 EURO	1030580		Pce
14	UPONOR VARIO PLUS MANIFOLD W. VALVE LS 4X 3/4 EURO	1030581		Pce
15	UPONOR VARIO PLUS MANIFOLD W. VALVE LS 6X 3/4 EURO	1030582		Pce
16	UPONOR VARIO PLUS MANIFOLD FLOWMETER FM 1X	1042471		Pce
17	UPONOR VARIO PLUS MANIFOLD FLOWMETER FM 3X 3/4 EURO	1030583		Pce
18	UPONOR VARIO PLUS MANIFOLD FLOWMETER FM 4X 3/4 EURO	1030584		Pce
19	UPONOR VARIO PLUS MANIFOLD FLOWMETER FM 6X 3/4 EURO	1030585		Pce
20	UPONOR VARIO PLUS MANIFOLD KIT K1	1009209		Pce
Vario S	manifold			
21	UPONOR VARIO S MANIFOLD W. VALVE ST LS 2X	1013062		Pce
22	UPONOR VARIO S MANIFOLD W. VALVE ST LS 3X	1013063		Pce
23	UPONOR VARIO S MANIFOLD W. VALVE ST LS 4X	1013064		Pce
24	UPONOR VARIO S MANIFOLD W. VALVE ST LS 5X	1013065		Pce
25	UPONOR VARIO S MANIFOLD W. VALVE ST LS 6X	1013066		Pce
26	UPONOR VARIO S MANIFOLD W. VALVE ST LS 7X	1013067		Pce
27	UPONOR VARIO S MANIFOLD W. VALVE ST LS 8X	1013068		Pce

No.	Description	ID	Amount	Unit
Vario S	manifold			
29	UPONOR VARIO S MANIFOLD W. VALVE ST LS 9X	1013069		Pce
30	UPONOR VARIO S MANIFOLD W. VALVE ST LS 10X	1013070		Pce
31	UPONOR VARIO S MANIFOLD W. VALVE ST LS 11X	1013071		Pce
32	UPONOR VARIO S MANIFOLD W. VALVE ST LS 12X	1013072		Pce
Manifo	d accessory			
33	UPONOR VARIO COMPRESSION ADAPTER 14X2,0- G3/4"EURO	1005168		Pce
34	UPONOR VARIO COMPRESSION ADAPTER MLCP RED 14X1,6-3/4"EURO	1000117		Pce
35	UPONOR VARIO BALANCING VALVE G1 - RP1	1005100		Set
36	UPONOR VARIO PLUS ELBOW CONNECTION 122/42	1032702		Set
37	UPONOR VARIO LOOP LABELS 47X10MM	1005063		Pce
38	UPONOR MULTI BEND SUPPORT PLASTIC 14-17	1000118		Pce
Manifo	ld cabinet			
39	UPONOR VARIO CABINET IN-WALL UP 550X75-160MM	1045474		Pce
40	UPONOR VARIO CABINET IN-WALL UP 750X75-160MM	1045475		Pce
41	UPONOR VARIO CABINET IN-WALL UP 950X75-160MM	1045476		Pce
42	UPONOR VARIO CABINET IN-WALL UP 1300X75- 160MM	1045477		Pce
43	UPONOR VARIO CABINET ON-WALL AP 600X156MM	1045478		Pce
44	UPONOR VARIO CABINET ON-WALL AP 800X156MM	1045479		Pce
45	UPONOR VARIO CABINET ON-WALL AP 1000X156MM	1045480		Pce
45	UPONOR VARIO CABINET ON-WALL AP 1350X156MM	1045481		Pce
46	UPONOR VARIO CABINET REAR BOARD AP 580MM	1045482		Pce
47	UPONOR VARIO CABINET REAR BOARD AP 780MM	1045483		Pce
48	UPONOR VARIO CABINET REAR BOARD AP 980MM	1045484		Pce
49	UPONOR VARIO CABINET REAR BOARD AP 1330MM	1045485		Pce
50	UPONOR SPI VARIO CABINET CYLINDER LOCK AP/UP	1030101		Pce
Actuato)r			
51	UPONOR ACTUATOR 24V MANIFOLD VARIO PLUS DDC 100KOHM MT 30X1,5	1005544		Pce
52	UPONOR VARIO PLUS ACTUATOR PRO NC MT 30X1,5 24V	1000138		Pce
53	UPONOR VARIO PLUS ACTUATOR PRO NC MT 30X1,5 230V	1005605		Pce
54	UPONOR VARIO S ACTUATOR ST NC FT M30X1,5 24V	1013008		Pce
55	UPONOR VARIO S ACTUATOR ST NC FT M30X1,5 230V	1013006		Pce
Control				
56	UPONOR FLUVIA E PUMPGROUP CPG-15-A	1048782		Pce
57	UPONOR FLUVIA E PUMPGROUP CPG-15-B	1048783		Pce
58	UPONOR FLUVIA E PUMPGROUP MPG-10-A	1048780		Pce
59	UPONOR FLUVIA E PUMPGROUP MPG-10-B	1048781		Pce
60	UPONOR RADIO 24V CLIMATE CONTROLLER C-46	1047844		Pce
61	UPONOR RADIO 24V OUTDOOR/INDOOR SENSOR C-46	1047848		Pce

No.	Description	ID	Amount	Unit
Tools				
62	UPONOR MULTI UNCOILER TELESCOP	1058662		Pce
63	UPONOR PRESS BATTERY TOOL WITHOUT JAWS UP 75	1006827		Pce
64	UPONOR PRESS JAW UPP1 40	1015768		Pce
65	UPONOR RAPEX JAW 20X2,3	1006334		Pce
66	UPONOR RAPEX JAW 14X2	1006330		Pce
67	UPONOR PIPE CUTTING TOOL 12-40	1001370		Pce

Bill of quantity

Uponor outdoor areas lawn

Building project:	Date:
Project-no.:	Signed by:
Size [m ²]:	Expected delivery:

No.	Description	ID	Amount	Unit
1	PIPE 25			М
2	CLAMP TRACK 25			М
3	TWIN RETURN SYSTEM			М

Uponor is an international market leader, striving to provide better plumbing, indoor climate and infrastructure solutions across Europe, North America and in selected international markets.

In close partnership with building industry professionals we are continuously seeking out innovative ways to ensure our systems offer the most efficient, reliable and high-performing solutions available to residential and commercial structures around the globe.

All our solutions are designed to enrich people's way of life: fast and easy to install, conserving water and energy, providing comfort and health, and giving peace of mind.



Comfort

Cosiness, ease and comfort – words easily said. We deliver proof. With solutions that not only make your work easier, but also bring more quality of life to your customers. Every day. At home or at work. And often, you can't even see them.



Health

How does drinking water stay 100 percent clean and fresh? Which heating system cares for people with allergies and avoids draughts and moist walls? Questions like these – and the right answers – are what count for us. Because only the best technology keeps us healthy.



Efficiency

When everything runs smoothly, fast and reliably for you, we call it efficiency. And that is precisely our aim – from planning and installation to long-term use – to always meet your precise requirements. With time and cost benefits that will delight you!



Sustainability

For us, sustainability means doing things for which we can still answer for tomorrow. We focus on environmentally friendly materials and innovative technologies, to save energy and reduce CO₂ emissions.



Safety

Safety is a basic human need. If nothing happens, everything's perfect. Thanks to our many years of experience, you can trust in the quality and reliability of the systems we install. So that you can take care of what matters to you – safely.



Uponor reserves the right to make changes, without prior notification, to the specification of incorporated components in line with its policy of continuous improvement and development.