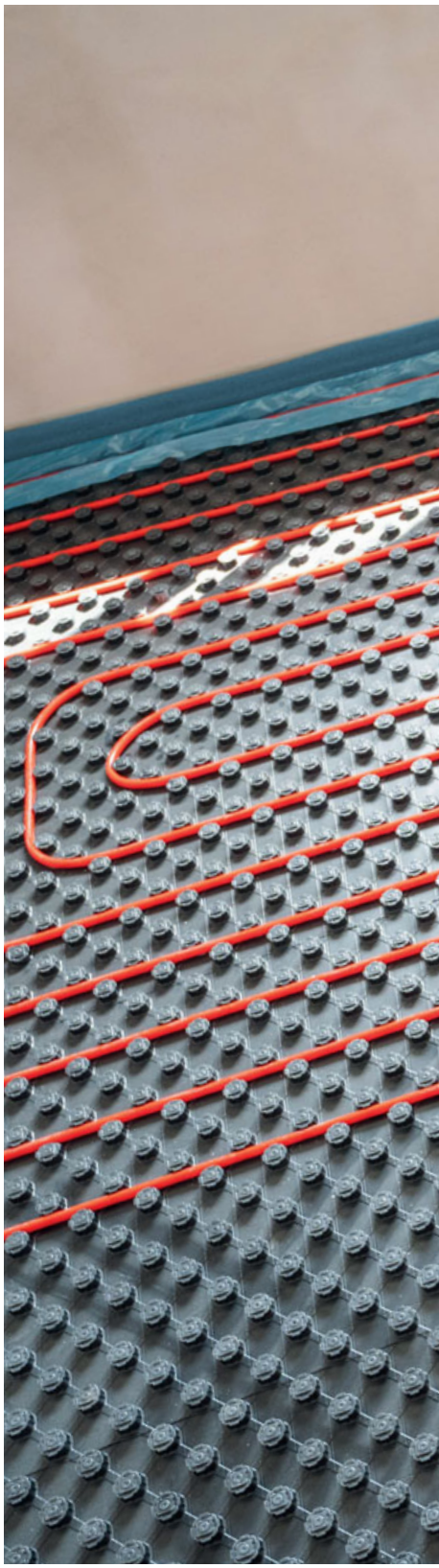
Underfloor heating and cooling system

www.fvplast.com

Underfloor heating system



FV – Plast, a Czech manufacturer with more than thirty years of tradition and experience, presents a simple and reliable system for underfloor heating.

This is a professional solution with lasting value, suitable for new buildings, renovations or special atypical installations. It is suitable for all types of buildings, such as family houses, apartments and commercial spaces.

FV – Plast is the only manufacturer of PE-RT/AL/PE-RT and PE-RT multilayer pipes in the Czech Republic.

Everything from one manufacturer

The high-quality workmanship of all system components, pipes, system insulation panels and accessories allows for easy installation of a complete surface heating system that is compatible with various heat sources (gas boiler, heat pump). It can be used for a variety of surfaces and floor coverings.

Advantages of underfloor heating

The main advantage of the system is the even distribution of heat in the room, even in large spaces. It is easily regulated.

Another great advantage of underfloor heating is lower operating costs in comparison with radiator heating. It will save at least 10% of heating costs. Our bodies sense radiant heat better, especially from the feet. This means that the actual air temperature may be lower than in the case of radiators. The required water temperature in underfloor heating circuits is normally up to 40 °C. The acquisition costs are the same as other hot water systems. Moreover, it is almost maintenance-free. Its minimum lifespan is 50 years.

50 50-year lifespan, 10-year warranty

saves heating costs

for a variety of surfaces and floor coverings

maintenance-free solution

Underfloor heating in three steps

1 Purchase of materials

The website **www.fv-plast.cz** provides an **underfloor heating configurator** that allows you to easily plan the installation of underfloor heating for your project. Based on the room parameters you enter, it automatically calculates the required amount of material.

You can also choose all the accessories needed for the underfloor heating system.

Once the configuration is complete, the website will direct you to **a dealer map** where you can find the nearest point of sale for these components. This process will make your preparation easier and ensure you don't forget anything.

underfloor heating configurator

underfloor heating dealer map

2 Installing underfloor heating

Installing FV THERM underfloor heating is easy and effective, especially with the help of detailed instructions.

Our website includes **an installation video** that will guide you step-by-step through the entire installation process. **Data sheets** are also available that provide detailed information about individual components and installation procedures. If you need further assistance, you can contact our **technical support team**, who will be happy to advise you.

This will ensure that the installation of underfloor heating will proceed smoothly so that you can be sure of professional results.

installation video

3 Starting the underfloor heating

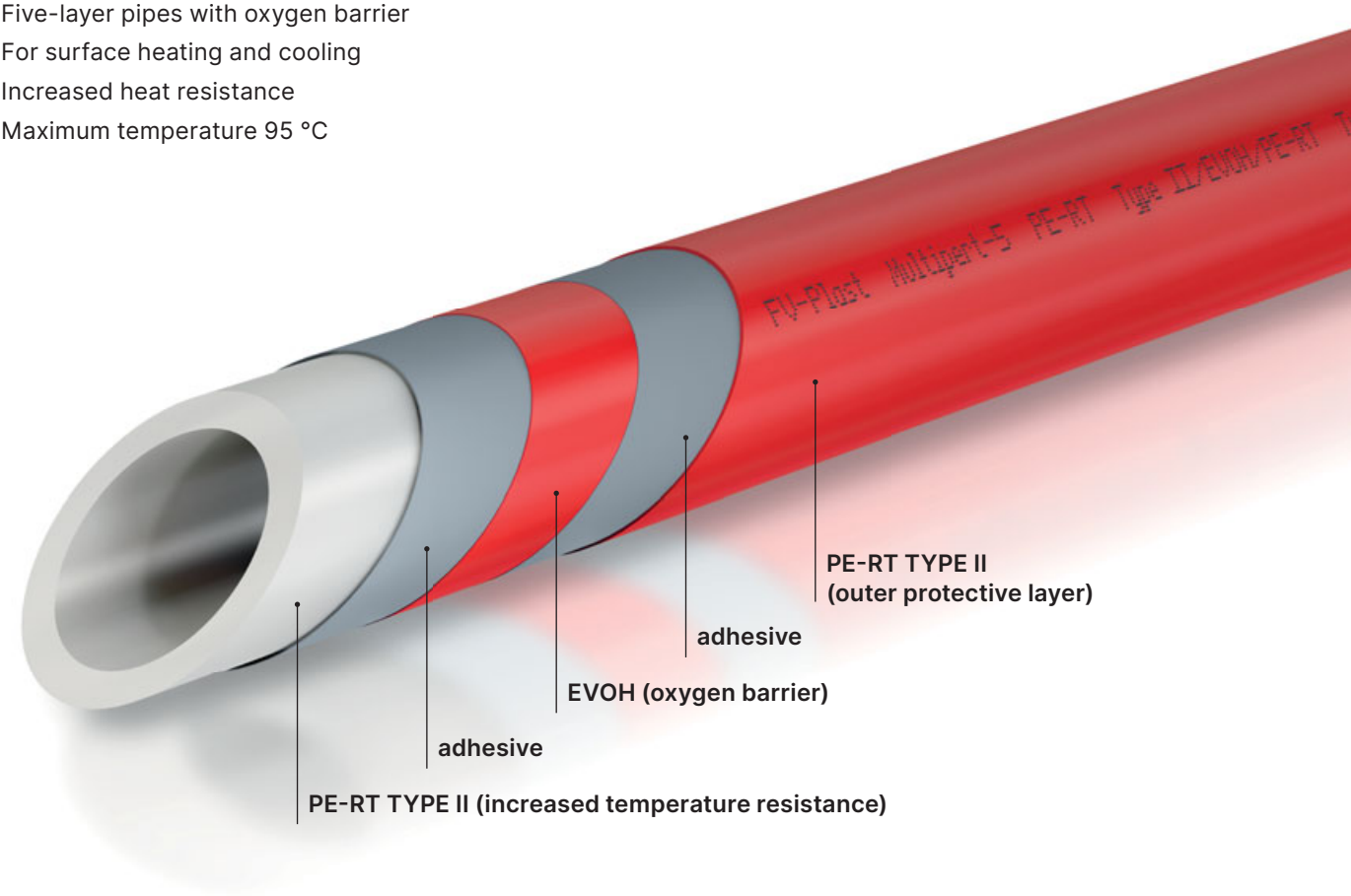
After installing underfloor heating, **a pressure and heating test** must be performed by a certified professional. Forms for recording these tests can be found at the end of our catalogue, then these protocols can be added to the final approval procedure.

If the tests are successful and the system operates without problems, you can rely on **maintenance-free operation** of the FV THERM underfloor heating system, which is covered by **a 10-year warranty** (with the exception of electronic components).

In the event of mechanical damage, the system can be repaired, which guarantees its **long service life** and reliability.

MULTIPERT-5

- Five-layer pipes with oxygen barrier
- For surface heating and cooling
- Increased heat resistance
- Maximum temperature 95 °C



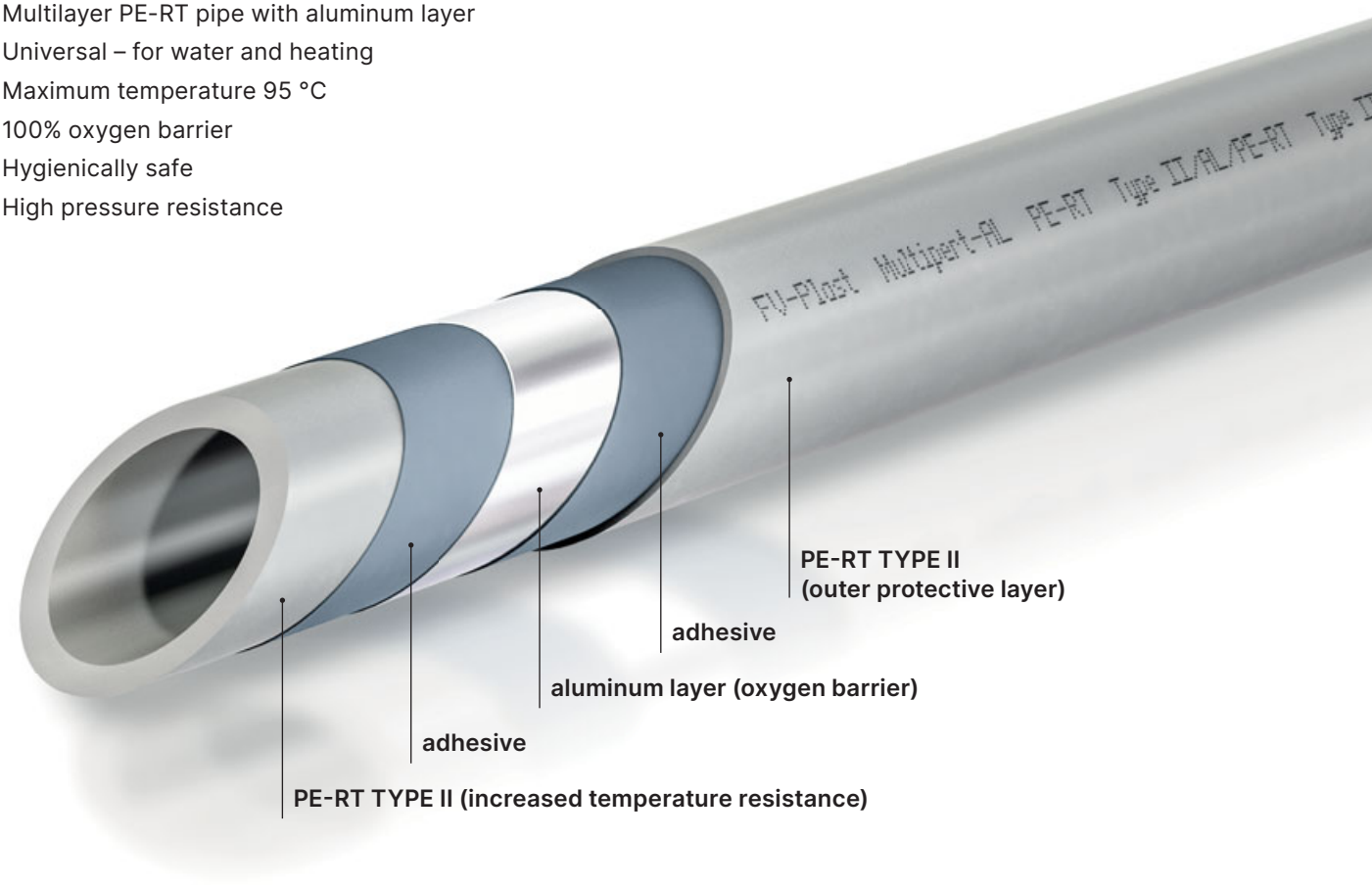
FV MULTIPERT-5

High-quality system pipes made of PE-RT type II for floor, wall or ceiling heating or cooling, connections to radiators and fan coils. 5-layer construction from EVOH for long-term durability and perfect sealing of the oxygen barrier. Tmax 95 °C.

Dimension	Packaging (m)	Code
8 × 1.0	600	AA120008600
10 × 1.3	500	AA120010500
12 × 1.5	300	AA120012300
14 × 1.8	500	AA120014500
16 × 2.0	200	AA120016200
16 × 2.0	500	AA120016500
17 × 2.0	200	AA120017200
17 × 2.0	500	AA120017500
18 × 2.0	200	AA120018200
18 × 2.0	500	AA120018500
20 × 2.0	200	AA120020200
20 × 2.0	500	AA120020500

MULTIPERT-AL

- Multilayer PE-RT pipe with aluminum layer
- Universal – for water and heating
- Maximum temperature 95 °C
- 100% oxygen barrier
- Hygienically safe
- High pressure resistance

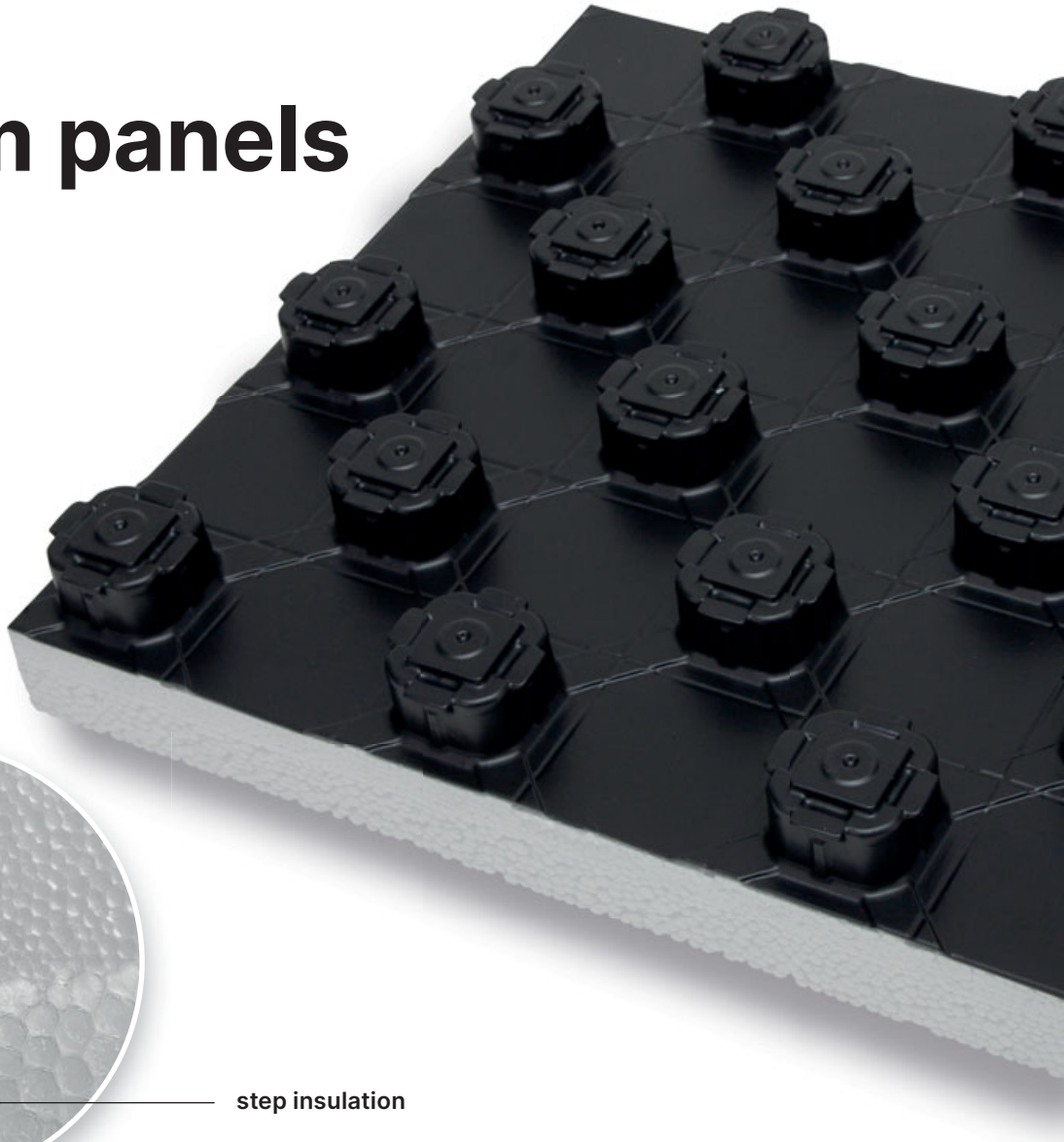


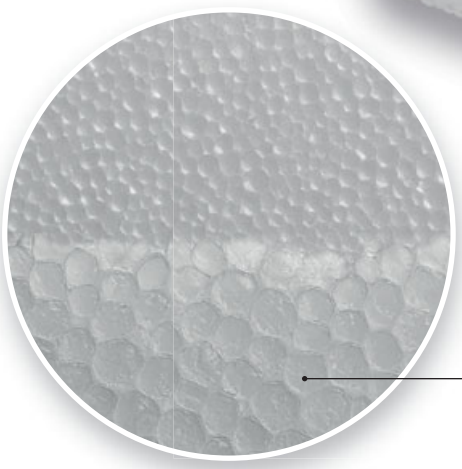
FV MULTIPERT-AL

Top-quality system pipes made of PE-RT/AL/PE-RT for cold and hot water distribution and heating in the most demanding conditions. They have bending memory and high-grade toughness. Five-layer construction with a longitudinally welded aluminum layer. Tmax 95 °C.

Dimension	Packaging (m)	Code
16 × 2.0	200	AA130016200
16 × 2.0	400	AA130016400
20 × 2.0	200	AA130020200

System panels





step insulation

FV NOP ISO PLUS system panel with 30 mm insulation

Combined thermal and impact insulation made of 30 mm EPS with a layer of durable deep-drawn PS foil shaped into castellated studs. Suitable for laying system heating pipes with diameters of 14, 16, 17, 18 mm. It has a flange for easy connection to another panel. The underfloor heating system panel enables quick and simple installation with minimal cutting.

Dimension (mm)	Packaging (pcs)	Code
1400 × 800 × 52	8	AA902001030

FV NOP ISO system panel with 11 mm insulation

Combined thermal insulation made of 11 mm EPS with a layer of durable deep-drawn PS foil shaped into castellated studs. Suitable for laying system heating pipes with diameters of 14, 16, 17, 18 mm. It has a flange for easy connection to another panel. The underfloor heating system panel enables quick and simple installation with minimal cutting.

Dimension (mm)	Packaging (pcs)	Code
1400 × 800 × 33	14	AA902002011

FV NOP SOLO system panel

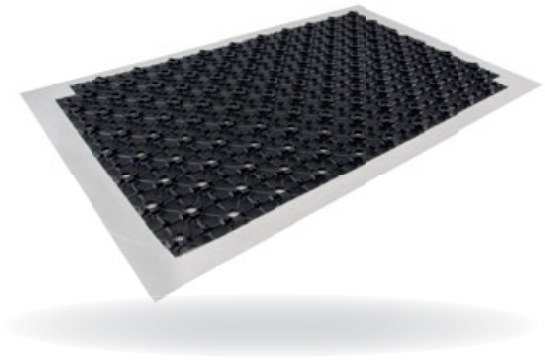
Universal system panel made of durable deep-drawn PS foil shaped into castellated studs. Suitable for laying system heating pipes with diameters of 14, 16, 17, 18 mm. It has a flange for easy connection to another panel. The underfloor heating system panel enables quick and simple installation with minimal cutting.

Dimension (mm)	Packaging (pcs)	Code
1400 × 800 × 22	14	AA902003000

FV RENO system panel for renovation

Special panel made of deep-drawn PS foil with a stud height of 16 mm designed for floor renovations involving the installation of underfloor heating laid on the original floors. The panel is designed for system pipes with diameters of 10 and 12 mm.

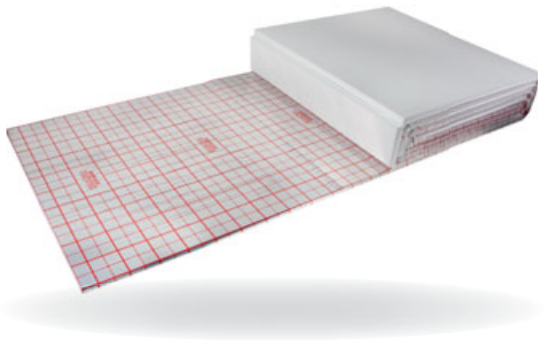
Dimension (mm)	Packaging (pcs)	Code
1050 × 650 × 16	16	AA904001000



FV EPS floor heating insulation

Thermal and impact insulation according to DIN EN 13163 (WLS 045) with anchored laminated PP fabric with a printed 5 cm grid for easy attachment of original tacker clips and with a foil overlap of 18 mm on the longer side of the roll.

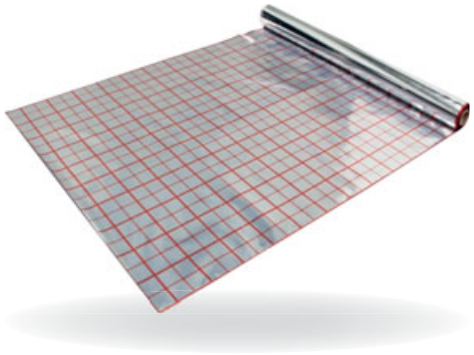
Dimension (mm)	Packaging (m²)	Code
1 m × 10 m × 30	10	AA900010030



FV system foil with grid

System reflective foil with 5 × 5 cm grid for underfloor heating. For easy attachment of pipes using clips. The foil protects the EPS floor panels against the penetration of moisture and the screed itself during the creation of the floor. It is tear-resistant and works as a vapour barrier for underfloor heating and also as a separation foil.

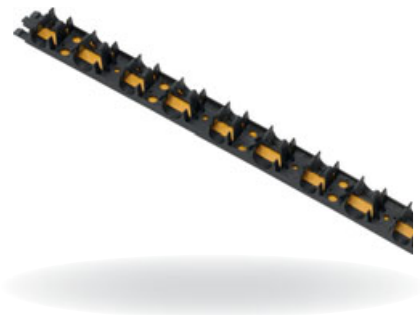
Dimension	Packaging (pcs)	Code
1.02 m × 50 m × 0.105 mm	50	AA900001000



FV mounting rail universal

Plastic mounting strip for easy installation of system pipes with height fixation, with adhesive tape for quick attachment to the substrate. Minimum pipe spacing 50 mm, length 1000 mm. Universal for pipes with diameters of 16–20 mm.

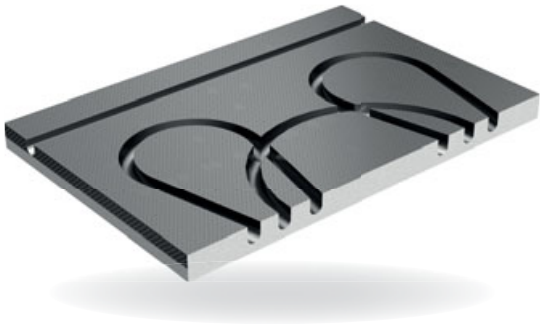
Dimension (mm)	Packaging (pcs)	Code
16–20 × 1000	100	AA905003000



FV DKS end system panel with 30 mm insulation for dry construction

Special end system panel with groove for dry floor construction. 30 mm EPS panel with a layer of laminated AL foil and grooves for laying system heating pipes with a diameter of 16 mm. The underfloor heating system panel enables quick and simple installation with minimal cutting. Connection with DR or DK panels.

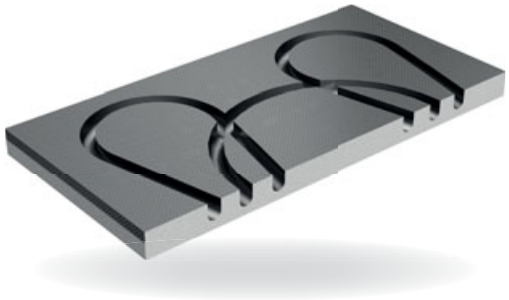
Dimension (mm)	Packaging (pcs)	Code
480 × 320 × 30	34	AA903000320



FV DK end system panel with 30 mm insulation for dry construction

Special end system panel for dry floor construction. 30 mm EPS panel with a layer of laminated AL foil and grooves for laying system heating pipes with a diameter of 16 mm. The underfloor heating system panel enables quick and simple installation with minimal cutting. Connection with DR or DKS panels.

Dimension (mm)	Packaging (pcs)	Code
480 × 240 × 30	34	AA903000240



FV DR system panel with 30 mm insulation for dry construction

Special system panel for dry floor construction. 30 mm EPS panel with a layer of laminated AL foil and grooves for laying system heating pipes with a diameter of 16 mm. The underfloor heating system panel enables quick and simple installation with minimal cutting. Connection with DK or DKS panels.

Dimension (mm)	Packaging (pcs)	Code
960 × 480 × 30	17	AA903000960

Distributors

and accessories

- 1" stainless steel INOX distributor for underfloor heating with eurocone
- Applicable pipe diameters: d10 × 1.3 mm – d20 × 2.0 mm
- Applicable liquids: water or glycol solutions up to a maximum concentration of 50%
- Operating temperature: 5–55 °C
- Maximum temperature: 60 °C
- Operating pressure: 0–6 bar
- Maximum pressure: 10 bar
- Distance between outlets/valves: 50 mm
- Range of adjustable holders: 210–273 mm
- Cabinet depth: >76 mm

FV distributor with INOX Eurocone

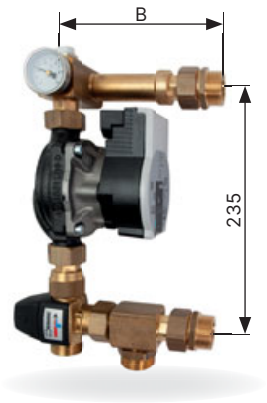
Stainless steel distributor with 1" AG connection to the power supply. The heating pipe of the circuits is connected to the distributor using a Eurocone M 3/4" for diameters d10 to d20 mm. Adjustable flow meters with a range of 0–5 l/min. The return line is fitted with shut-off valves with the possibility of connecting a M30 × 1.5 mm thermostatic actuator. Adjustable brackets with spacing from 200 to 250 mm. The total installation depth of the distributor is 76 mm.

Dimension (mm)	Number of circuits	Width B (mm)	Code
192	2	192	AA906001002
242	3	242	AA906001003
292	4	292	AA906001004
342	5	342	AA906001005
392	6	392	AA906001006
442	7	442	AA906001007
492	8	492	AA906001008
542	9	542	AA906001009
592	10	592	AA906001010
642	11	642	AA906001011
692	12	692	AA906001012
742	13	742	AA906001013
792	14	792	AA906001014
842	15	842	AA906001015

FV mixing set

Mixing set for underfloor heating with a heating area of up to 180 m². The set includes a thermoregulation valve, a thermostatic head with a temperature range of 20–65 °C, a Wilo Para RS 15/6 circulation pump, a check valve, a control valve, an electric pump control unit, and a thermometer. Connection 1".

Width B (mm)	Code
194	AA906100180



FV ball valve 1" with internal and external thread

Ball valve with 1" connection and color-coded butterfly handle. Application range from −10 °C to +95 °C.

Dimension	Code
1"	AA926002001

FV distributor plug internal 3/4"

Closing an unused circuit on the floor heating distributor. Possibility of creating a reserve for future expansion of the heated space. Application range min. 0–120 °C.

Dimension	Code
3/4"	AA925020034

Distribution cabinets

FV manifold cabinet, above-plaster

Made of sheet steel, white powder coating. Rear wall with mounting bracket for attaching the distributor and electrical accessories. Cabinet depth 145 mm, lockable/removable door.

Dimension (mm)	Number of circuits	Code
450	2/3 circuits	AA907000046
585	4/6 circuits (2/3 with pump)	AA907000058
725	7/8 circuits (4/5 with pump)	AA907000072
810	9/10 circuits (5/6 with pump)	AA907000081
980	11/12 circuits (7/9 with pump)	AA907000098
1115	13/15 circuits (10/12 with pump)	AA907000111

FV manifold cabinet, under-plaster

Made of sheet steel, white powder coating. Rear wall with mounting bracket for attaching the distributor and electrical accessories. Cabinet depth 145 mm, lockable/removable door.

Dimension (mm)	Number of circuits	Code
470	2/4 circuits	AA908000047
600	5/6 circuits (2/3 with pump)	AA908000060
750	7/9 circuits (4/6 with pump)	AA908000075
830	10/11 circuits (7 with pump)	AA908000084
1000	12/13 circuits (8/10 with pump)	AA908000100
1095	14/15 circuits (11/13 with pump)	AA908000101

Accessories

FV compression fitting to distributor (Eurocone 3/4")

MS compression fitting for connecting MULTIPERT-5 system pipes d16–20 mm to distributors. Consists of a 3/4" IG MS union nut, a clamping ring and an O-ring.

Dimension	Packaging (pcs)	Code
16 × 2.0	10	AA920016000
17 × 2.0	10	AA920017000
18 × 2.0	10	AA920018000
20 × 2.0	10	AA920020000

FV PRESS adapter with external thread

Transition from MULTI distribution to brass detachable joints.

Dimension	Small/large package (pcs)	Code
16 × 2.0–1/2"	10/390	AA302016012
20 × 2.0–1/2"	10/200	AA302020012
20 × 2.0–3/4"	10/200	AA302020034

FV THM press coupling

Press coupling for connecting floor heating pipes.

Dimension	Small/large package (pcs)	Code
16 × 2.0	10/50	AA921116000
17 × 2.0	10/50	AA921117000
18 × 2.0	10/50	AA921118000
20 × 2.0	10/50	AA921120000

FV edge zone

Edge insulation strip 150 mm. It consists of 8 mm thick foam PE foil, 150 mm high, with a 280 mm PE foil glued on. It is equipped with self-adhesive tape on the back for easier attachment to the wall. Suitable for cement and self-levelling screeds.

Dimension (mm)	Packaging (m)	Code
150	50	AA910150050

FV staple clamp

High-quality staple clamp for fastening pipes with a diameter of 15–20 mm. The PP clamp is equipped with effective hooks which, together with the system plate, ensure easy and reliable fastening of system pipes with a diameter of 15–20 mm. The clamps are welded together in trays of 50 pieces and packed in a carton of 300 pieces.

Dimension	Small/large package (pcs)	Code
40	1/300	AA909000040
50	1/250	AA909000050

FV PE conductor

PE protective pipe for protecting system pipes when passing through expansion joints and outlets at the distributor.

Dimension	Packaging (m)	Code
25 mm × 50 m	50	AA911025050

FV plastic fixation arch

Fixed 90° fixing bend for protecting and fixing system pipes when passing through the ceiling and leading to the underfloor heating manifold. Universal for sizes 14–18 mm and 20–22 mm.

Dimension	Small/large package (pcs)	Code
14–18	1/400	AA913014018
20–22	1/400	AA913020022

FV joint profile

The joint profile is made of foamed polyethylene with a closed cell structure. It is used for perfect spatial separation of expansion fields and creates permanently elastic joints in concrete and anhydrite floors. The self-adhesive fixing layer on the underside of the inverted T profile allows for easy and quick installation. The width of the created expansion joint is 8 mm, the height is 100 mm. The length of one piece is 2 m.

Dimension (mm)	Small/large package (pcs)	Code
100 × 2000	2/220	AA912100200

REGULATIONS

FV thermal actuator for distributors FV NC – 230 V

It ensures control of the valves of the individual branches of the distributor. Connection: union nut M30 × 1.5. Variant: NC (closed with no current). Coverage IP65. Power: 2.5W / 230V.

Small/large package (pcs)	Code
1/50	AA916000000

FV room thermostat

Electronic 230V temperature controller for individual rooms in combination with thermal actuators. Accessory: adapter for installation on plaster. Working range: 5–30 °C. Possibility of controlling up to 15 thermal actuators.

Packaging (pcs)	Code
1	AA917000000

FV electronic switchboard

Electronic switchboard for DIN rail for connecting max. 24 thermal actuators and 6 room thermostats. LED signaling, silent switching.

Packaging (pcs)	Code
1	AA918000000

Tools

FV tacker – stapler

The tacker 15–20 is a special fastening tool for fixing the system pipe to the EPS panels of the system roll. Height-adjustable for attaching system pipes using original tacker fastening clamps.

Dimension	Code
15–20	AA922000000

FV tacker – plastic stapler

The tacker 15–20 is a special fastening tool for fixing the system pipe to the EPS panels of the system roll. Height-adjustable for attaching system pipes using original tacker fastening clamps.

Dimension	Code
15–20	AA922000001

FV unwinder horizontal

Assembly tools for laying system pipes, significantly speeding up and facilitating assembly. The unwinder is designed for pipes 8–20 mm, max. load 52 kg and max. reel length 600 m.

Dimension	Code
14–20	AA923001000

MULTI Calibrator

Robust metal calibrator of multilayer MULTI pipes for plastic press fittings of the PRESS system for the most commonly used diameters 16, 20, 25, 32 mm.

Dimension	Code
16–20–25–32	AA429000000

Scissors

High-quality, proven tools made of light alloys with sufficient performance and ease of use for professional cutting of PP-R, PP-RCT and PE-RT pipes of all supplied dimensions.

Dimension	Small/large package (pcs)	Code
M1 d32	1/25	AA424032000
MS d40	1/15	AA424040000
M4 d63	1/2	AA424063000

Heating test report

Project

Project name . . . . . .

Structure . . . . . .

Investor. . . . . .

Implementing company . . . . . .

Type of screed. . . . . .

Screed thickness. . . . . .

Screed additives . . . . . .

Procedure (according to ČSN EN 1264-4)

Screed laid	date . . . . .
Start of heating (with constant supply water temperature of 25 °C)	date . . . . .
Start of heating (with maximum supply water temperature of . . . . . °C)	date . . . . .
End of initial heating (at least 7 days from start)	date . . . . .
Was the initial heating interrupted?	no ☐ yes ☐
If yes	from–to . . . . .
Has the heated area been cleared of all building material?	no ☐ yes ☐
Were all spaces ventilated without drafts?	no ☐ yes ☐
The device was delivered at an outdoor temperature of . . . . . °C	date . . . . .
Was the device out of service?	no ☐ yes ☐
The screed was heated to a temperature of . . . . . °C upon delivery	no ☐ yes ☐

Confirmation (This protocol has been read, agreed to, and signed.)

. . . . .	. . . . .	. . . . .
Investor (stamp and signature)	Architect (stamp and signature)	Implementing company (stamp and signature)

According to ČSN EN 1264-4, anhydrite and cement screeds must be heated before laying floor coverings.

For cement screeds, heating can be started no earlier than 21 days, for anhydrite screeds, according to the manufacturer's instructions, no earlier than 7 days after the completion of the screed application. The initial heating is carried out at a supply water temperature of 25 °C, which must be maintained for at least 3 days. The highest design temperature is then set and maintained for at least another 4 days.

Shortening the above drying times or changing the heating procedure described below (temperature, number and duration of heating steps) requires written approval from the screed manufacturer or the contractor prior to the heating phase.

Pressure test report

Project

Project name . . . . . .

Structure . . . . . .

Investor. . . . . .

Implementing company . . . . . .

Surface heating type . . . . . .

Maximum operating pressure . . . . . .

Maximum operating temperature . . . . . .

Procedure (according to ČSN EN 1264-4)

Close the distributor ball valve ☐

Fill the heating circuits gradually ☐

Bleed the device ☐

Create test pressure . . . . . bar time . . . . . .

After 2 hours, re-establish the test pressure . . . . . bar time . . . . . .

Pressure test duration 24 hours. from . . . . . .

Pressure test passed positively. There is no water leakage at any point in the pipe and the test pressure has not dropped by more than 0.1 bar per hour. There were no permanent deformations of the shape at any point in the pipeline. ☐ date . . . . . .

! **When applying the screed, the pipe must be loaded with operating pressure. This allows any possible pipe leaks to be identified.**

Confirmation (This protocol has been read, agreed to, and signed.)

. . . . .	. . . . .	. . . . .
Investor (stamp and signature)	Architect (stamp and signature)	Implementing company (stamp and signature)

According to ČSN EN 1264-4, surface heating must be carried out according to the construction project and tested for tightness.

Before laying the screed, the tightness of the heating circuits of the surface heating is verified by a pressure test. The leak test can be performed with water or air. The test pressure must be not less than 4 bar or not more than 6 bar for conventional systems.

When pressure testing with air or inert gas, it is necessary to ensure that only the heating circuits are tested. Other system components must be tested with pressurized water. The air pressure during the pressure test must be at least 1 bar and during the leak test 3 bar.

If there is a risk of freezing, appropriate measures such as antifreeze or temperature control of the building will be taken. Before normal operation of the system commences, any used antifreeze must be drained and disposed of in accordance with national health and safety regulations and the system must be flushed three times with clean water to remove any antifreeze residue. This procedure is important to ensure the proper functioning and security of the system. Following these requirements and procedures when pressure testing and subsequently flushing the system helps prevent damage to the system and ensures its long-term reliability.

alca GROUP

alca

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Our team of specialists is always on hand to help with design, installation and quote project prices.

The warranty stated for each product covers only the functional technical characteristics of the product. It does not cover wear and tear caused by normal use of the product or defects caused by failure to comply with the general principles of handling the product or failure to follow the instructions for the product. Complete warranty conditions at www.fv-plast.cz/zaruka.

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Dimensions and design are subject to change.