



Högfors  
**GST**  
Energy used wisely.

# UNIS SUBSTATIONS

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The Unis substation is of extremely high technical quality. Furthermore, it is energy-efficient and easy to use, has a clear exterior, and is installable in a class of its own.

**All Unis-substations are available on MagiCAD.**

## Before choosing district heating substation, the following should be observed:

### Choose the devices together with the designer:

- The floor heating suppliers use different pipe sizes that affect the choice of the device.
- The ventilation system, too, can affect the choice of the device.
- The normal rated temperature of the substation is 90 °C. If the temperature is lower, the dimensioning must be checked again.

The choice of the right heating systems for your house requires the point of view of an expert.

## Unis equipment

### Standard fittings in the Unis substation:

- Electronic controls for heating and domestic hot water
- Plug-connected electric control centre, which includes a control switch and operating switches for pumps
- Circulation water pump for heating and domestic hot water systems (three pumps in the 3-circuited-circuit model)
- Brazed plate exchangers (plate material EN 1.4401)
- Secondary network temperatures can be read on the control centre display
- Manometers
- Filling valve for heating systems and filling valve for domestic hot water, as well as shut-off and relief valves

### The capacity curves of the pumps

The tables below show the lifting height of the pumps for maximum flow rate conditions. The tables also show the effect of a change in flow rate to the lifting height.

### Pay attention to the following:

- Environmental friendliness and energy-efficiency (for example pumps of energy class A)
- Installability
- Ease of use
- Pipe system durability (HST pipe system)
- Living comfort (no sound problems)
- Serviceability

- Expansion tank
- Heating pump stopper thermostat in floor-heating models (F, RF) (3-circuited models have two heating pump stoppers)

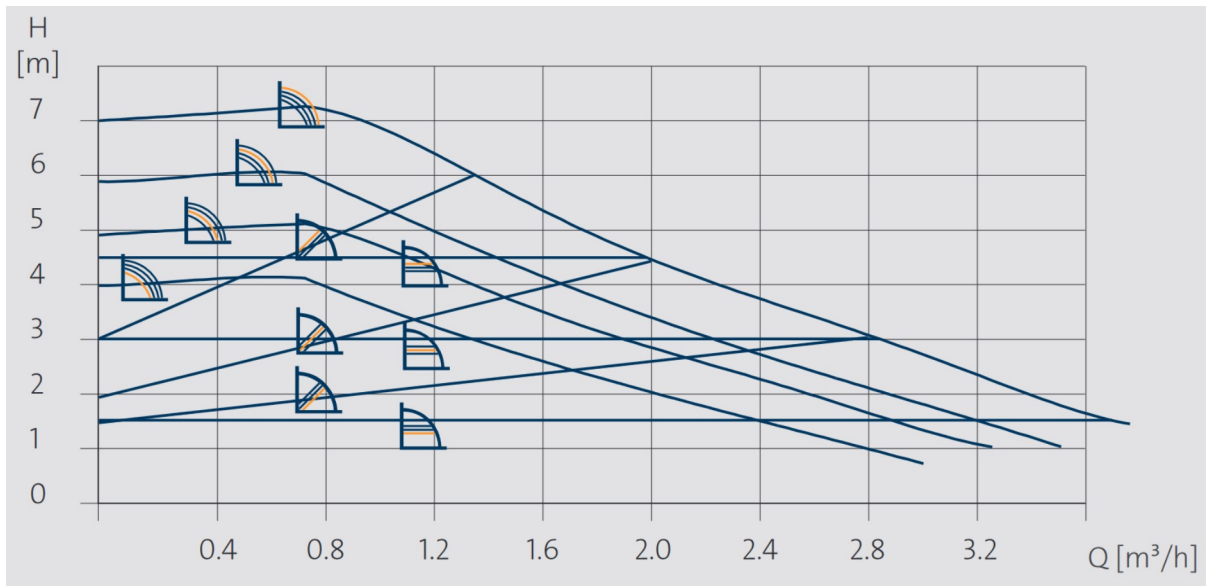
### Unis options:

- Primary side equipment (includes thermometers and manometers as well as shut-off valves)
- Differential pressure controller, if pressure difference adjustment must be used in the site (great pressure difference)

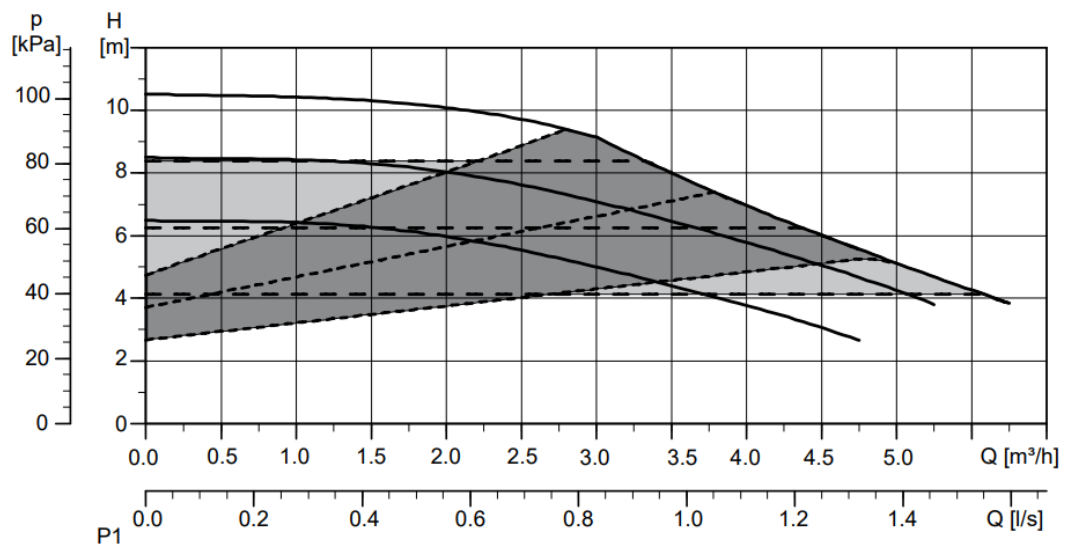
### Heating circuit pumps in use:

- Unis 100-2RF, UPM3 L Auto 15-70-130
- Unis 100-3RF, UPM3 L Auto 15-70-130
- Unis 150-2RF, UPM3 L Auto 15-70-130
- Unis 150-3RF, UPM3 L Auto 15-70-130
- Unis 200-2RF, UPM10L 25-105

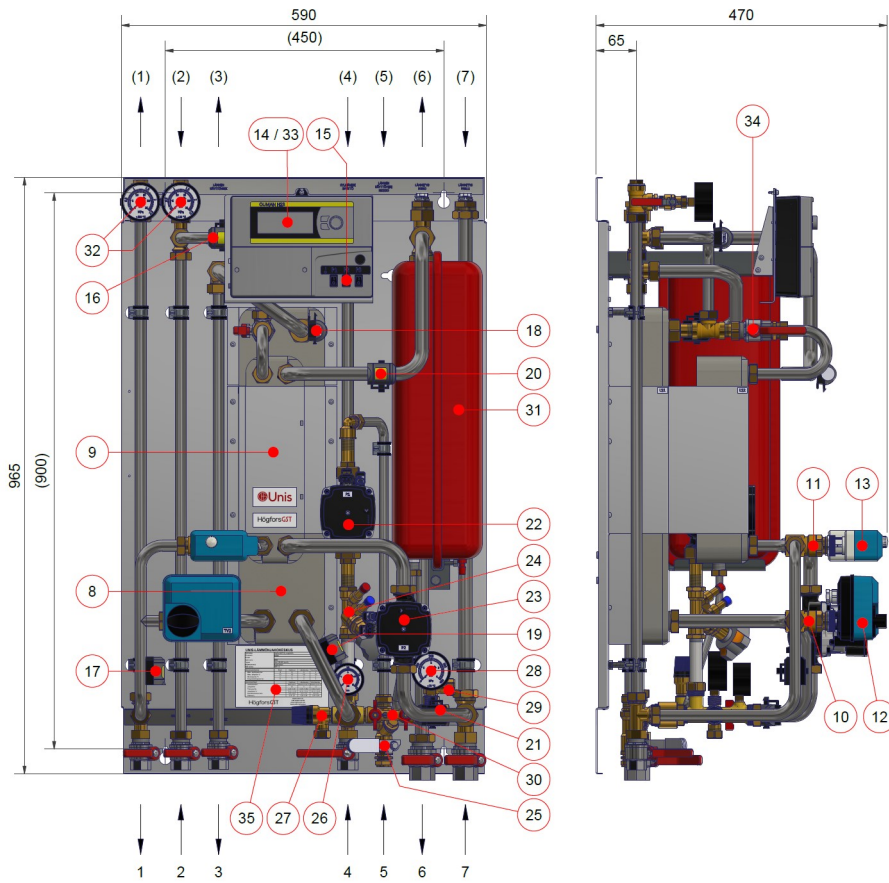
### UPM3 L Auto 15-70-130



### UPM10L 25-105



UNIS 100-2RF / UNIS 150-2RF / UNIS 200-2RF

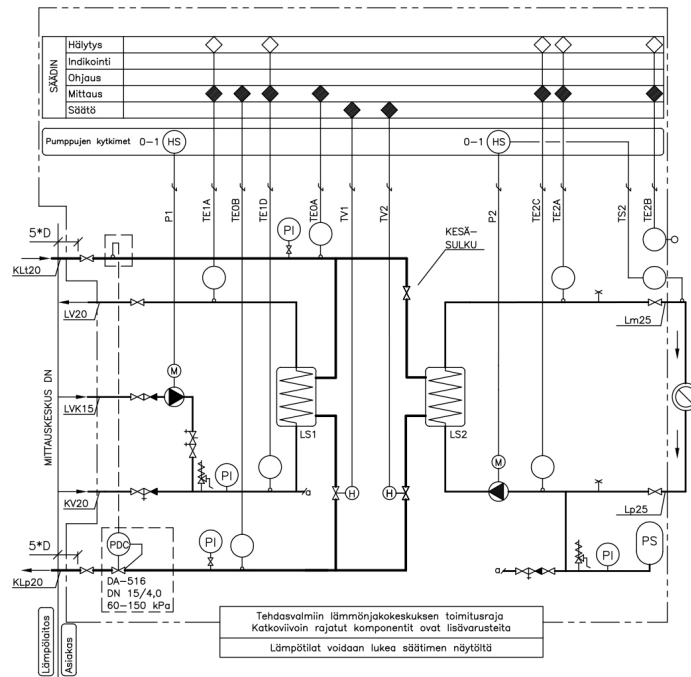


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|---|---|
| <ul style="list-style-type: none"> <li>1. Return, DH</li> <li>2. Inlet, DH</li> <li>3. Supply, DHW</li> <li>4. Inlet, cold water</li> <li>5. Inlet, DHW circulation</li> <li>6. Supply, SH</li> <li>7. Return, SH</li> <li>8. Heat exchanger LS1 (DHW)</li> <li>9. Heat exchanger LS2 (SH)</li> <li>10. Control valve TV1 (DHW)</li> <li>11. Control valve TV2 (SH)</li> <li>12. Actuator TV1 (DHW)</li> <li>13. Actuator TV2 (SH)</li> <li>14. Control unit for DHW and SH</li> <li>15. Pump switches, I/O</li> <li>16. Temperature sensor TE0A, DH inlet</li> <li>17. Temperature sensor TE0B, DH return</li> <li>18. Temperature sensor TE1A, DHW</li> <li>19. Temperature sensor TE1D, DHW pred.</li> </ul> | <ul style="list-style-type: none"> <li>20. Temperature sensor TE2A, SH outlet</li> <li>21. Temperature sensor TE2C, SH inlet</li> <li>22. Circulation pump P1 (DHW)</li> <li>23. Circulation pump P2 (SH)</li> <li>24. DHW circulation balancing valve</li> <li>25. DHW circulation pump valve</li> <li>26. DHW pressure meter</li> <li>27. DHW safety valve</li> <li>28. SH pressure meter</li> <li>29. SH safety valve</li> <li>30. SH circuit filling valve</li> <li>31. SH circuit expansion vessel</li> <li>32. DH pressure meter, inlet/ outlet</li> <li>33. DH temperature, inlet / outlet (indicated on the screen)</li> <li>34. SH summer shut-off valve</li> <li>35. Product information</li> </ul> |
|---|---|

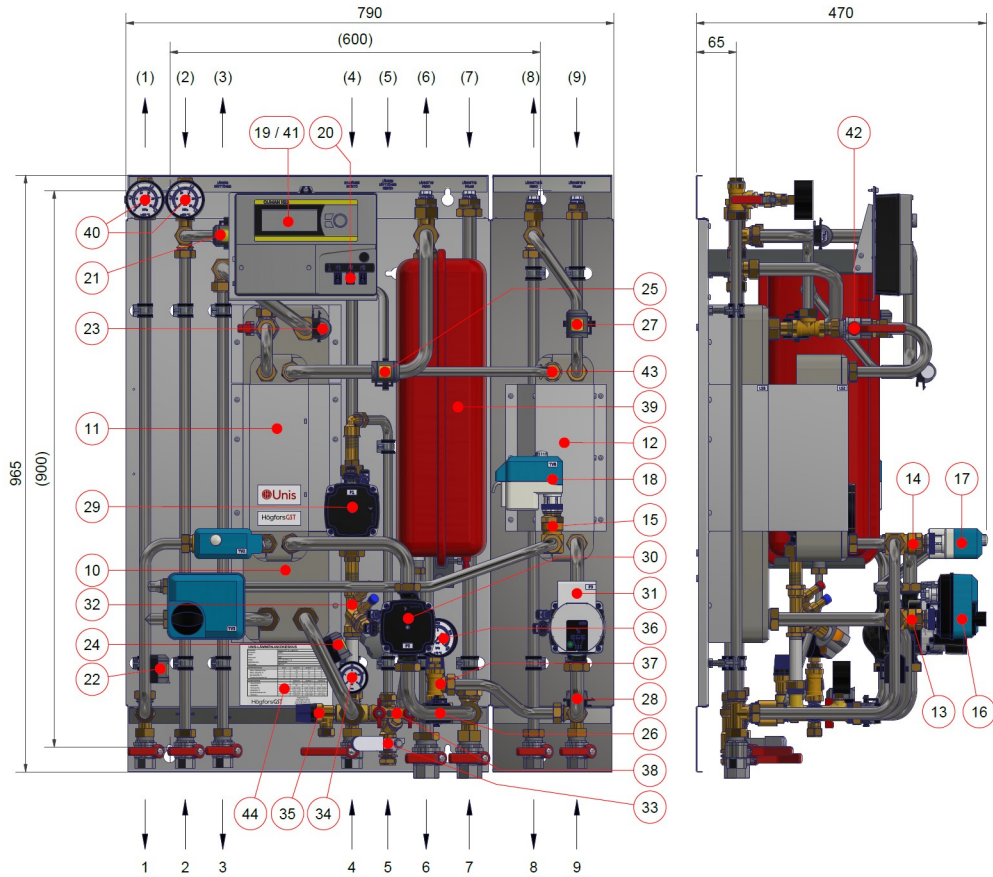
Optional connection direction presented in brackets ( )

DH = district heating, DHW = domestic hot water, SH = space heating

# Circuit diagram UNIS 100-2RF / UNIS 150-2RF / UNIS 200-2RF



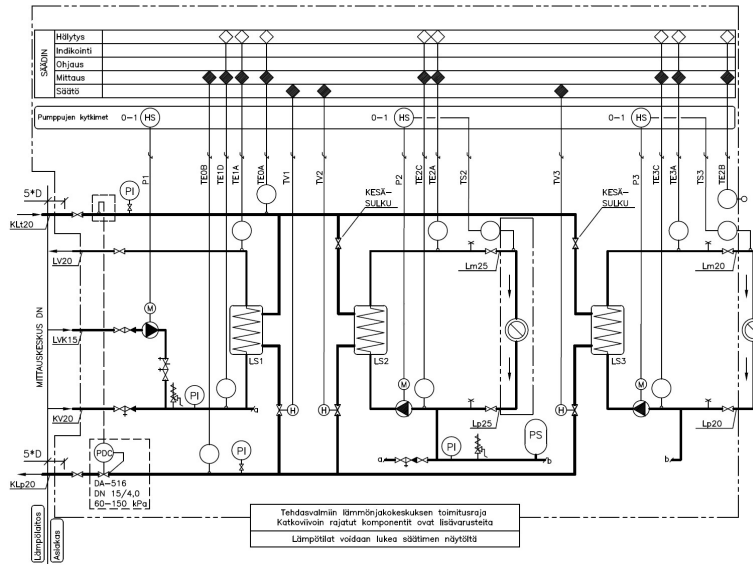
# Unis 100-3RF / 150-3RF



- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>1. Return, DH (District heating)</li> <li>2. Inlet, DH</li> <li>3. Supply, DHW</li> <li>4. Inlet, cold water</li> <li>5. Inlet, DHW circulation</li> <li>6. Supply, SH 1 (Space heating 1)</li> <li>7. Return, SH 1</li> <li>8. Supply, SH 2 (Space heating 2)</li> <li>9. Return, SH 2</li> <li>10. Heat exchanger LS1 (DHW)</li> <li>11. Heat exchanger LS2 (SH 1)</li> <li>12. Heat exchanger LS3 (SH 2)</li> <li>13. Control valve TV1 (DHW)</li> <li>14. Control valve TV2 (SH 1)</li> <li>15. Control valve TV3 (SH 2)</li> <li>16. Actuator TV1 (DHW)</li> <li>17. Actuator TV2 (SH 1)</li> <li>18. Actuator TV3 (SH 2)</li> <li>19. Control unit for DHW and SH</li> <li>20. Pump switches, I/O</li> <li>21. Temperature sensor TE0A, DH inlet</li> <li>22. Temperature sensor TE0B, DH return</li> <li>23. Temperature sensor TE1A, DHW</li> </ul> | <ul style="list-style-type: none"> <li>24. Temperature sensor TE1D, DHW pred.</li> <li>25. Temperature sensor TE2A, SH 1 supply</li> <li>26. Temperature sensor TE2C, SH 1 return</li> <li>27. Temperature sensor TE3A, SH 2 supply</li> <li>28. Temperature sensor TE3C, SH 2 return</li> <li>29. Circulation pump P1 (DHW)</li> <li>30. Circulation pump P2 (SH 1)</li> <li>31. Circulation pump P3 (SH 2)</li> <li>32. DHW balancing valve</li> <li>33. DHW circulation pump valve</li> <li>34. DHW pressure meter</li> <li>35. DHW safety valve</li> <li>36. SH 1 &amp; 2 pressure meter</li> <li>37. SH 1 &amp; 2 safety valve</li> <li>38. SH 1 &amp; 2 filling valve</li> <li>39. SH 1 &amp; 2 expansion vessel</li> <li>40. DH pressure meter, inlet / return</li> <li>41. DH temperature, inlet / return (indicated on the screen)</li> <li>42. SH 1 summer shut-off valve LS2</li> <li>43. SH2 summer shut-off valve LS3</li> <li>44. Product information</li> </ul> |
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Optional connection direction presented in brackets ( )

# Circuit diagram Unis 100-3RF / 150-3RF



## Technical product data

### New buildings

Model	LVI code GTIN code	Primary [°C] Secondary [°C]	DHW [kW] 70-20°C 10-58°C	Radiator [kW] 90-33°C 30-45°C	Ventilation heating [kW] 90-33°C 30-60°C	Under-floor [kW] 90-33°C 30-35°C	Max. flow rate* [dm³/s] (floor)	Package outside[mm] L x W x H	Weight [kg]
100-2RF	5316034 6415853160339	-	60	15	13	11	0,53	985x600x590	43
100-3RF	5316041 6415853160414	-	60	15 / 8	13 / 7	11 / 6	0,53 / 0,29	985x800x590	55
150-2RF	5316043 6415853160438	-	90	32	30	15	0,72	985x600x590	45
150-3RF	5316032 6429810897251	-	90	32 / 16	30 / 15	15 / 8	0,72 / 0,39	985x800x590	58
200-2RF	5316046 6415853160469	-	120	45	45	27	1,30	985x600x590	59

### Existing buildings

Model	LVI code GTIN code	Primary [°C] Secondary [°C]	DHW [kW] 70-20°C 10-58°C	Radiator [kW] 90-43°C 40-70°C	Radiator [kW] 90-63°C 60-80°C	Under-floor [kW] 90-33°C 30-39°C	Under-floor [kW] 90-33°C 30-37°C	Under-floor [kW] 90-33°C 30-35°C	Max. flow rate* [dm³/s] (floor)	Package outside [mm] L x W x H	Weight [kg]
100-2RF	5316034 6415853160339	-	60	14	12	20	15	11	0,53	985x600x590	43
100-3RF	5316041 6415853160414	-	60	14 / 7	12 / 6	20 / 10	15 / 8	11 / 6	0,53 / 0,29	985x800x590	55
150-2RF	5316043 6415853160438	-	90	19	16	27	21	15	0,72	985x600x590	45
150-3RF	5316032 6429810897251	-	90	19 / 10	16 / 8	27 / 14	21 / 11	15 / 8	0,72 / 0,39	985x800x590	58
200-2RF	5316046 6415853160469	-	120	45	32	50	38	27	1,34	985x600x590	59

\*Flow rates in table are recommended maximum flow rates for under-floor heating

Unis options, elective. Packed separately in delivery	LVI code GTIN code	Elective	Content
Differential pressure controller	5316070 6415853160704	1 pc / substation	Contains 1 differential pressure controller with DA-516 kvs-4 connector

## Unis product information

Unis100 -2RF

100 Capacity category (100 = lowest capacity) one family houses.

Unis 200 -2RF T1

(T1) Space for possible model extension, not always visible.

RF Model is for specified capacities in both radiator space heating and floor heating systems.

F Model is for specified capacities in under-floor heating systems.

R Model is for specified capacities in radiator space heating systems.

2 Indicates number of control circuits. DHW and SH = 2.

200 Capacity category, from large one family houses to the terraced houses.

## Designed for space heating with radiators or floor heating and production of domestic hot water

The Unis product family is the number one choice for connecting detached houses to the district heating system. Unis is a Finnish substation product family, which prides itself on its extensive and sound knowledge of district heating systems, efficient engineering and installation, as well as Finnish design. The Unis substations are introduced to the market by well-known professionals of district heating.

Unis substations are compact and lightweight and they have a carefully designed appearance. Particular attention has been paid during the design and implementation stages to the clarity, installation properties and usability of the substation. The original Unis is heat distribution centre for one-family houses that contains, as standard equipment, a frequency changing pump with Class A energy labelling and an HST pipe system. This results in a reliable, high-quality product that can rapidly be deployed. The Unis product family offers the right choices for new buildings and renovation projects fitted with a radiator, under-floor or air heating system.

The 2-circuited Unis models feature two heating circuits, which produce domestic hot water and the hot water needed in the heating system. The 3-circuited substations include an additional heating circuit, allowing for example independent floor heating for wet spaces at all times regardless of the need for radiator heating. Unis substations are designed for use in one-family detached houses and small terraced houses. (See Product Specifications at the end of the brochure.)

### Long warranty, short delivery time

Your Unis substation has always competitive warranty. Exact terms of warranty are market based, fulfilling however all area requirements and standards. For example in Finland Unis substation's heat exchangers have a five-year warranty, pipework and other components in substation have two-year warranty in district heating use. All terms are stated in HögforsGST warranty conditions. On the other hand a short delivery time is an important part of our operations minimising project time and ensuring smooth installations and start-ups.

### The easiest and fastest to assemble in the market

The installation only requires the pipe connections to the district heating and to the heating and service water networks. After the external sensor and socket-outlet installation, no other installations are required.

### Installation is made even easier, as:

- The substation can be assembled either from top or bottom
- All pipe connections are G3/4" and G1"



**All Unis-substations are available on MagiCAD.**

## HögforsGST – Energy used wisely

HögforsGST Oy specialises in the manufacture, sales and marketing of high-quality heating systems. The company's strong expertise on heating systems reaches beyond Finland. Our competence is based on our in-depth experience in production, line manufacturing, high-volume customisation and project production as well as familiarity with the HVAC acquisition channels and logistics both in Finland and abroad.

Our business has always been based on determining sufficient operating requirements on the market, customer-orientation and reliability. Equally important is our uncompromising approach with the high quality of our products and services.

We reserve the right to make changes.