JÄSPI®

JÄSPI Solid Fuel Boiler

www.kaukora.fi

JÄSPI Solid Fuel Boilers

Firewood used in solid fuel heating is a cost-efficient, renewable, and environmentally friendly energy source. The length of firewood can vary from 0.3 to 0.5 m with a boiler model. The age of firewood must be more than a year i.e. moisture content must be less than 25% (note that a freshly felled tree has a moisture content of approx. 50%). Using too wet firewood requires more cleaning while decreasing efficiency and increasing fuel consumption. Apart from moisture, a heating value should be also taken into account when using firewood. Birch has the highest heating value of all. Other tree species (pine, fir, alder, and aspen) are also employed in this type of heating.

The line of Jäspi solid fuel boilers has been improved for over 30 years with the benefit from state-of-the-art manufacturing technologies.

You will definitely find the right solution for both new buildings and those under reconstruction out of the wide range (capacity 25 kW to 45 kW, firewood length 0.3 m to 0.5 m).

The line of Jäspi solid fuel boilers has been expanded from conventional top-combustion boilers to firewood-saving and environmentally friendly rotary combustion boilers (including a pyrolysis boiler). Jäspi wood/coal-fired boilers can be always connected to heat storage tanks for recharging. The storage tank size should be selected based on the installation site and boiler capacity. Reliable and advanced, the Jäspi solid fuel boiler connected to one of our heat storage tanks (Jäspi GTV, Ovali or T-EPK) is a proven system that works in an energy-efficient manner while producing heat and plenty of domestic hot water simultaneously.

Jäspi 40 YPV (20-40 kW) / Jäspi 40 Stoker (20-40 kW)

Jäspi 40 YPV is a conventional top-combustion solid fuel boiler with an improved combustion technique that guarantees efficiency, cleanliness, and environmental friendliness. The improvement decreases the need to clean the boiler. Proprietary turbulator plates inside the boiler furnace make combustion even more efficient.

Large front-opened filling, cleaning, and service holes of the Jäspi 40 YPV facilitate operation and service of the boiler. All convection surfaces are easily cleanable and there is typically an ash box to remove ash. A spacious furnace has enough room for 0.5 m long firewood (coal is also suitable for combustion).

Jäspi 40 YPV is equipped with a cooling coil to prevent overheating. The coil should be connected to an anti-boil valve on the site. Jäspi 40 YPV can be always connected to a heat storage tank for recharging.

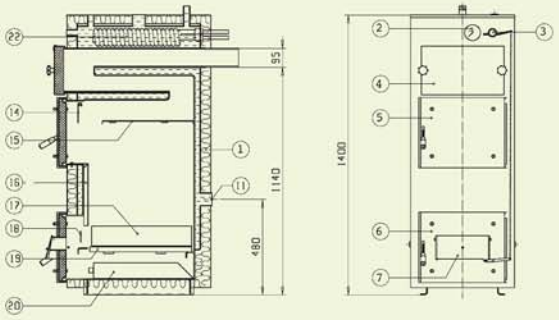
The chip-fired Jäspi 40 Stoker is higher and therefore has enough water space to install a hot water coil. Stoker openings are arranged on both the sides of the boiler. The Jäspi 40 Stoker S is typically supplied with a 6 kW tubular electric heater. The boiler can be easily changed over from chips to firewood/coal/gas/diesel with an optional changeover kit.

Jäspi 40 YPV Jäspi 40 Stoker

Jäspi 40 YPV

Parts:

1. 50 mm mineral wool insulation
2. Mano-/thermometer
3. R3/4" draft regulator
4. Convection duct cleaning hole
5. Filling hole
6. Service hole
7. Air damper
8. R3/4" thermostat connection
9. R1/2" drains
10. R2" outlet to storage
11. R2" return from storage
12. R1" boil connection
13. 210 x 95 flue connection
14. Flue gas turbulator
15. Furnace turbulator
16. Combustion air guide
17. Grate bar side plates (2)
18. Coal grate
19. Grate bar
20. Ash box
21. Cooling coil (Ø18)
22. R1/2" anti-boil valve sensor connection
23. Anti-boil valve (option)



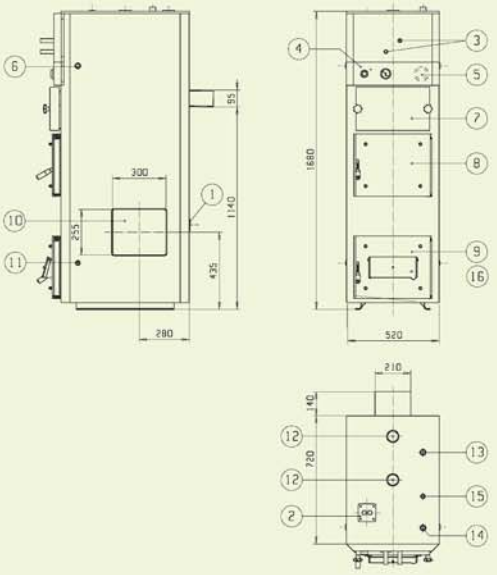
Standard supply:
Mano-/thermometer, draft control, cleaning kit, grate bar, flue extension

With its small water space, a high-temperature top-combustion solid fuel boiler should be always connected to an energy storage tank for recharging. Suitable tubular electric heaters should be installed inside the energy storage tank. Boiler and storage tank connection diagrams are also available from the manufacturer. Also, a Termovar charging package is ideally suitable for connection since it keeps the boiler hot and fire surfaces clean throughout the combustion process.

Jäspi 40 Stoker

Parts:

1. R2" return from storage
2. 4-way mixing valve
3. Ø 22 hot water coil connections
4. Sensor and control panel
5. 6 kW tubular electric heater (for S models)
6. R3/4" thermostat connection
7. Cleaning hole
8. Filling hole
9. Service hole
10. 255 x 300 stocker opening
11. R1/2" drains
12. R2" outlet to storage / expansion connection
13. R1" boil connection
14. R3/4" thermostat connection
15. R1/2" anti-boil valve sensor connection
16. Air damper



The coil stoker boiler should be also equipped with an anti-boil valve.

Flue recommendation: metal Ø 180 mm (approx. 250 cm^2), brick 180 x 180 (approx. 300 cm^2)
Minimum flue height: 5 m

JÄSPI model	Capacity kW	Water volume l	Dimensions mm H x W x D	Furnace dimensions mm H x W x D	Weight kg	Design pressure bar	Design temperature °C	Min. draft Pa	LVI No.
40 YPV	20-40	80	1500 x 520 x 720	900 x 350 x 530	270	1.5	100	5	5058030
40 Stoker	20-40	155	1680 x 520 x 720	900 x 350 x 530	330	1.5	100	5	5058045

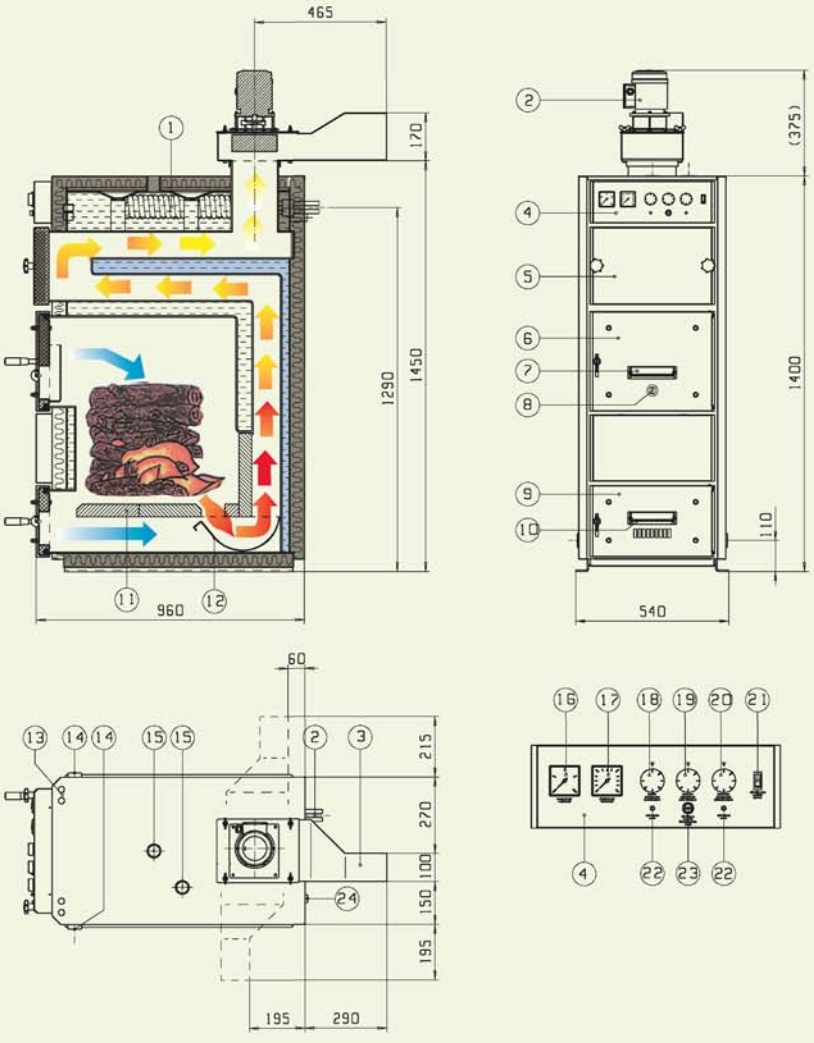
Jäspi Ecopuu 45 (45 kW)

The Jäspi Ecopuu 45 has been developed based on the best-in-class combustion technology. It features low emissions, clean combustion, and firewood saving, while minimizing heating efforts. The boiler capacity is 45 kW, the length of firewood 0.5 m. The boiler is equipped with a cooling coil to be connected to an anti-boil valve on the site. The boiler should be always connected to an energy storage tank for recharging (1500 l to 3000 l recommended).

The wood-fired Jäspi Ecopuu 45 is equipped with an induced draft fan and a regulating thermostat to ensure that the combustion process is controlled properly. A ceramic grate bar and an afterburner guarantee a really high combustion temperature. High-temperature combustion is a clean combustion process that produces little tar and very low noxious emissions. Moreover, the process provides efficient accumulation of energy released by wood combustion. Once firewood is completely burnt down, the induced draft fan will be stopped automatically so that you will not have to go to the boiler room after the last filling of the furnace. The boiler pump thermostat will control a charging unit mounted between the boiler and the heat storage tank and ensure that water entering the boiler from the storage tank is hot enough.

Jäspi Ecopuu 45 is one of the best boilers in terms of European environmental compliance. EN 303-5 testing demonstrated an efficiency of 86%. It is however important to keep in mind the quality and moisture content of firewood. The moisture content should be less than 25% to achieve a better efficiency. Operation and maintenance can be done at the front and on top. Sensors and controls are located at a convenient height.

Parts:
1. Cooling coil (Ø18 mm connections)
2. Induced draft fan
3. 100 x 170 mm flue connection
4. Sensor and control panel
5. Convection duct cleaning hole
6. Filling hole
7. Air damper (primary air)
8. Flame monitor glass
9. Ash removal hole
10. Air damper (secondary air)
11. Ceramic bars
12. Firing throat
13. Electric leads
14. R1 1/4" return from storage / drain
15. R1 1/4" outlet to storage / expansion connection
16. Manometer
17. Thermometer
18. Pump thermostat
19. Blower thermostat
20. Flue gas thermostat
21. Main switch
22. Indicator lamp
23. Temperature limiter
24. R1/2" sensor connection



JÄSPI model	Capacity kW	Water volume l	Dimensions mm H x W x D	Furnace dimensions mm H x W x D	Weight kg	Design pressure bar	Design temperature °C	Min. draft Pa	LVI No.
Ecopuu 45	45	95	1700 x 540 x 960	660 x 350 x 560	330	1.5	100	5	5058105

Flue recommendation: metal, min. Ø 140 mm, brick min. 180 x 180 (approx. 300 cm² = whole brick).
Minimum flue height: 5 m

Jäspi Econature (40 kW)

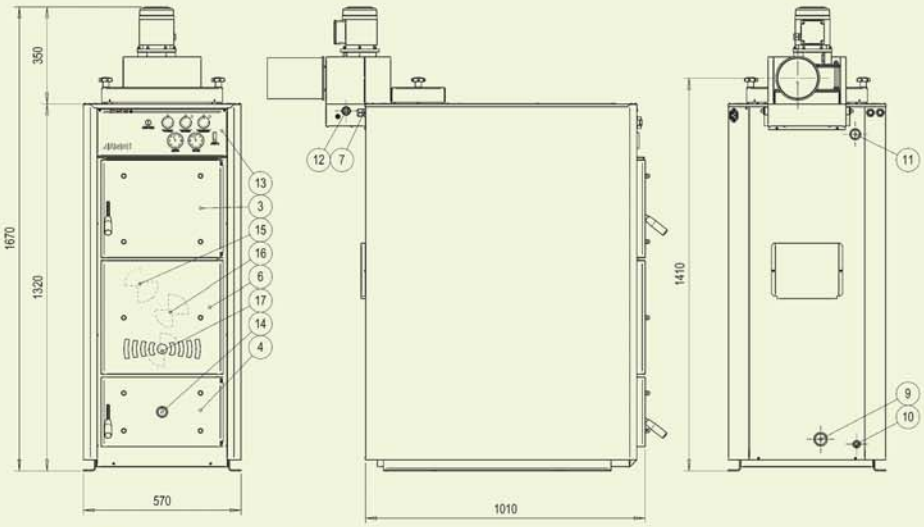
Jäspi Econature is a new generation solid fuel pyrolysis boiler with a considerably higher efficiency than that of conventional wood-fired boilers. The boiler capacity is 40 kW, the length of firewood 0.5 m. The Jäspi Econature should be always connected to a heat storage tank for recharging (1500 l to 3000 l recommended).

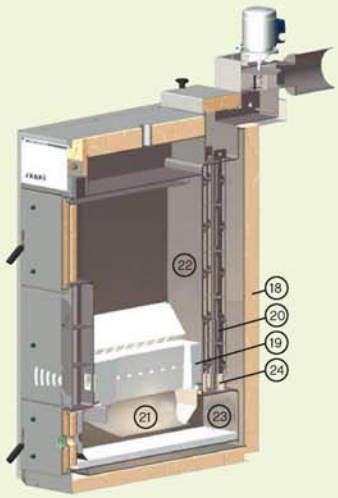
The Jäspi Econature's ceramic grate bar and afterburner guarantee a really high combustion temperature. High-temperature combustion is a clean combustion process that produces little tar and very low noxious emissions. Moreover, the process provides efficient accumulation of energy released by wood combustion. The combustion process is controlled through the ceramic bars while an induced draft fan provides balanced and optimized draft throughout the process. Pyrolysis of firewood begins at a temperature above 100ºC and as soon as the temperature exceeds 280ºC the resulting reaction causes heat release. Secondary combustion (the reaction between pyrolytic gases and oxygen) begins at a temperature over 600°C. The high efficiency and combustion temperature reduce firewood consumption as well as heating and cleaning efforts. Clean combustion and the obtained environmental certificate also make it possible to use the boiler in densely populated areas. Once firewood is completely burnt down, the induced draft fan will be stopped automatically so that you will not have to go to the boiler room after the last filling of the furnace. The boiler pump thermostat will control a charging unit mounted between the boiler and the heat storage tank and ensure that water entering the boiler from the storage tank is hot enough. The Jäspi Econature has been tested as per EN 303-5 and found to meet all the requirements of the standard. The boiler does not require a thermal anti-boil valve to be connected.

The EN 303-5 testing demonstrated an average efficiency of 91% in a five-hour combustion cycle. It is however important to keep in mind the quality and moisture content of firewood. The moisture content should be less than 25% to achieve a better efficiency. Operation and maintenance can be done at the front and on top. Sensors and controls are located at a convenient height.

Parts:

1. Induced draft fan
2. Rotary flue connection (90°C in both directions)
3. Filling hole
4. Service hole
5. Convection duct cleaning hole
6. Air chamber hatch
7. Electric leads
8. R32 F outlet to storage
9. R32 F return from storage
10. Drain R15 F
11. R25 F expansion connection
12. R15 F flue gas thermometer / analyzer connection
13. Sensor and control panel
14. Flame monitor glass
15. Upper primary air adjusting plate
16. Lower primary air adjusting plate
17. Secondary air adjusting plate
18. 75 mm mineral wool insulation
19. Ceramic grate bar
20. Turbulators
21. Firing throat
22. Storage furnace
23. Combustion furnace
24. Convection ducting





JÄSPI model	Capacity kW	Water volume l	Dimensions mm H x W x D	Furnace dimensions mm H x W x D	Weight kg	Design pressure bar	Design temperature °C	Min. draft Pa	LVI No.
Econature	40	120	1670 x 570 x 1160	600 x 350 x 550	450	1.5	100	5	5058050

Flue recommendation: metal, min. Ø 140 mm, brick min. 180 x 180 (approx. 300 cm^2 = whole brick).
Minimum flue height: 5 m

We reserve the right to modify the design and dimensions.

Jäspi Ecopuu 25 (25 kW)

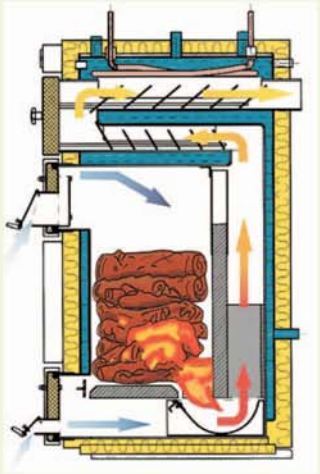
Jäspi Ecopuu 25 is a solid fuel boiler equipped with a ceramic bar furnace and operating on a rotary combustion principle. The boiler frequency is 25 kW, which is enough to heat small private houses. The Jäspi Ecopuu 25 features low emissions, clean combustion, and firewood saving, while minimizing heating efforts. Front-opened filling, cleaning, and service holes facilitate operation and maintenance of the boiler. The length of firewood is 35 cm. The boiler is equipped with a cooling coil to be connected to an anti-boil valve on the site. The Jäspi Ecopuu 25 should be always connected to an energy storage tank for recharging (500 l to 1200 l recommended).

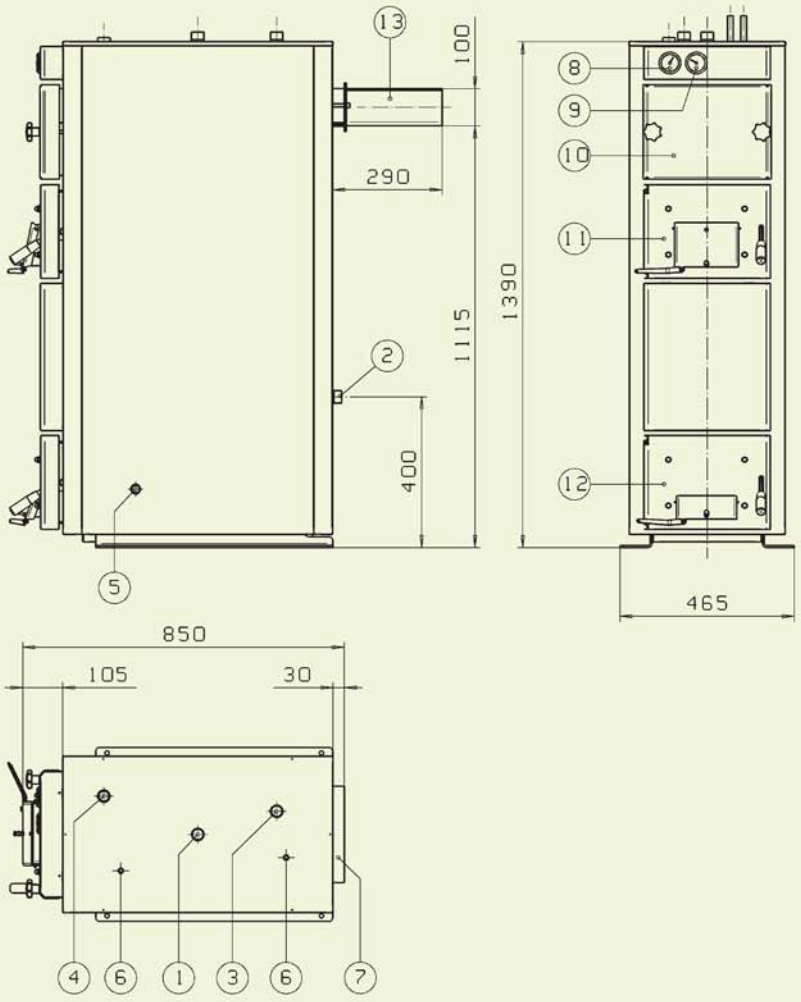
The Jäspi Ecopuu 25 controllable and adjustable combustion process is achieved in the ceramic furnace without even using a fan. It is among the best-in-class boilers in terms of European environmental compliance.

EN 303-5 testing demonstrated an efficiency of 84%. It is however important to keep in mind the quality and moisture content of firewood. The moisture content should be less than 25% to achieve a better efficiency. Operation and maintenance can be done at the front and on top. Sensors and controls are located at a convenient height. You should take care to ensure necessary draft to guarantee optimal boiler operation.

Parts:

1. R1" outlet to storage
2. R1" return from storage
3. R1" expansion connection
4. R3/4" draft regulator connection
5. R1/2" drain (on both sides)
6. Cooling coil (Ø15 connections)
7. 255 x 100 flue connection
8. Thermometer
9. Manometer
10. Convection duct cleaning hole
11. Filling hole
12. Ash removal hole
13. 245 x 100 flue extension



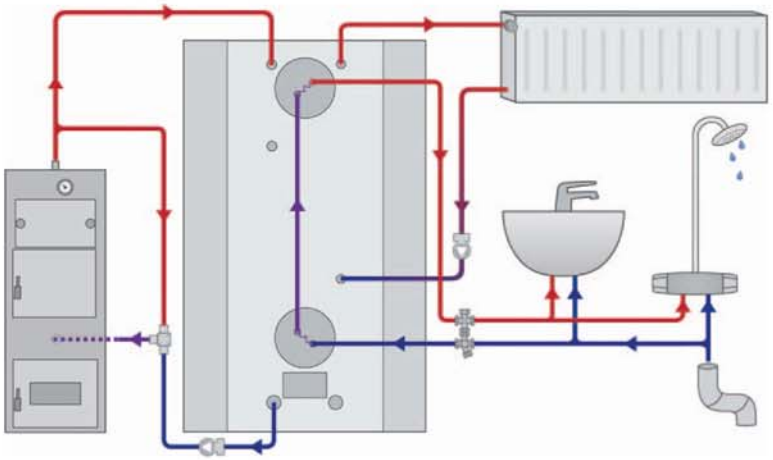


JÄSPI model	Capacity kW	Water volume l	Dimensions mm H x W x D	Furnace dimensions mm H x W x D	Weight kg	Design pressure bar	Design temperature °C	Min. draft Pa	LVI No.
Ecopuu 25	25	65	1390 x 465 x 775	700 x 245 x 380	290	1.5	100	14	5058102

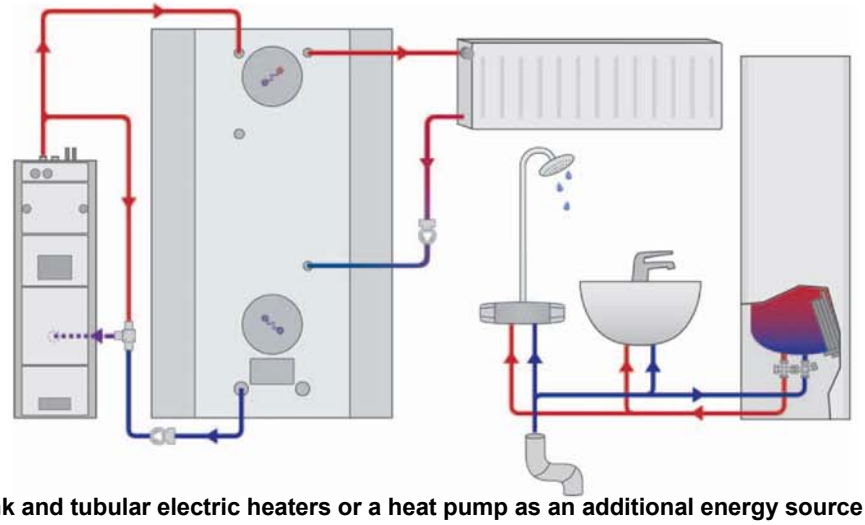
Flue recommendation: metal, min. Ø 150 mm, brick min. 180 x 180 (approx. 300 cm^2 = whole brick).
Minimum flue height: 5 m

We reserve the right to modify the design and dimensions.

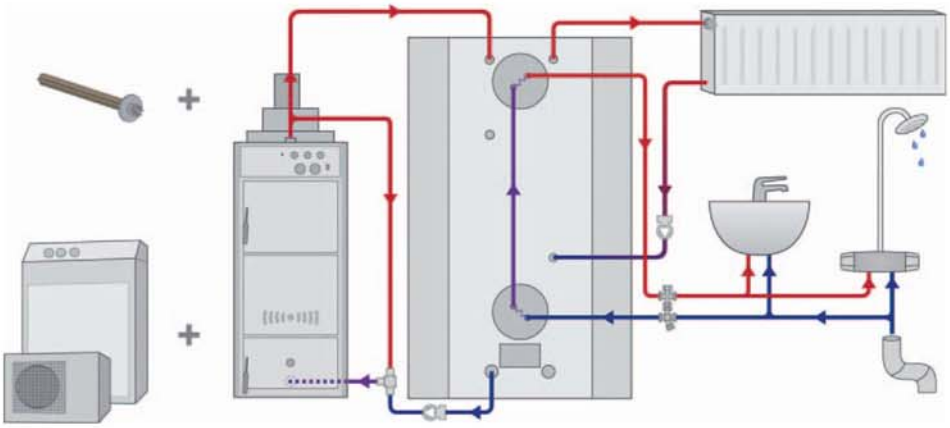
Jäspi 40 YPV with a heat storage tank



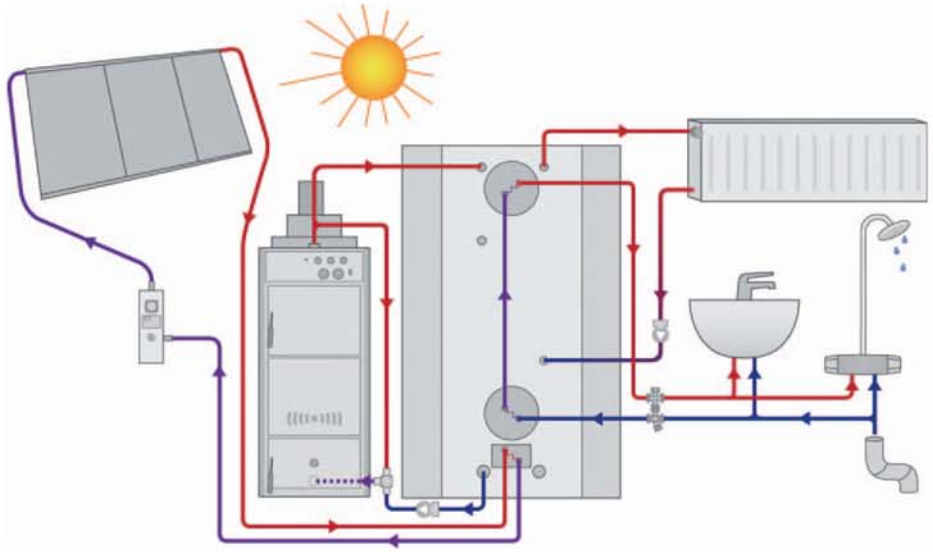
Jäspi Ecopuu 25 with a heat storage tank and a separate water heater



Jäspi Econature with a heat storage tank and tubular electric heaters or a heat pump as an additional energy source



Jäspi Econature with a heat storage tank and a solar panel system



Solar system connection examples. Do not use as a detailed installation drawing.

Consult your distributor for heat storage options.

Jäspi GTV heat storage tanks:
Heat storage tanks are available in 270, 500, and 700 l sizes and are designed for both new buildings and those under reconstruction. In tight space, it is possible to connect multiple GTV heat storage tanks in parallel. Heat storage tanks can be ordered with or without hot water coils (typically 35 l/min, 80 l/min, 100 l/min). The GTV 700 includes a solar coil as an option. Design pressures available: 1.5 or 4 bar. Heat storage tanks are provided with polyurethane insulation and stylish steel lagging.

Jäspi Ovali heat storage tanks:
Heat storage tanks are available in 1000, 1200, 1500, 1800, and 2400 l sizes and are perfectly suitable for both new buildings and those under reconstruction due to their volume and dimensions. The depth of heat storage tanks is 780 mm so that they can fit through narrow openings when transported to the site. These storage tanks are typically supplied with two domestic hot water coils and with a solar coil as an option. Multilateral connections allow various energy sources to be employed. The design pressure is 1.5 bar. Heat storage tanks are provided with polyurethane insulation and stylish steel lagging. They can be also supplied without insulation or lagging upon request.

Jäspi GTV-K and T-EPK heat storage tanks (new line):
Heat storage tanks are available in 500, 700, 1500, 2000, and 3000 l sizes and are designed for both new buildings and those under reconstruction. They are typically supplied with a copper or stainless steel hot water coil. There are also options for a hot water preheat coil and a solar coil. Multilateral connections allow various energy sources to be employed. The design pressure is up to 4 bar. Heat storage tanks are provided with polyurethane insulation and stylish lagging.

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LÄMPÖTEKNIIKKA

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ISO 14001
ISO 9001
EN 729-2

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